ENVIRONMENTAL IMPACT ASSESSMENT REPORT AND ENVIROMENTAL MANAGEMENT PLAN

FOR

DRAFT EIA/EMP REPORT FOR PROPOSED ROHIDA LIMESTONE MINE WITH PRODUCTION CAPACITY OF LIMESTONE 2.85MTPA, MINERAL REJECT 0.24 MTPA, SOIL 0.04 MTPA & OB 5.78MTPA, TOTAL EXCAVATION 8.91MTPA ALONG WITH 1000 TPH OF CRUSHER IN MINE LEASE AREA OF 800.9935 HA LOCATED AT VILLAGES ROHIDA, BHARJA, TAROONGI, DOLIPHALI, VATERA, PIPLA, KHARADOLI, TEHSIL PINDWARA, DISTRICT SIROHI, RAJASTHAN

TOR obtained from MoEF&CC, vide File No: IA-J-11015/81/2024-IA-II(NCM) dated 05.05.2025

PROJECT PROPONENT

M/s KAMLESH METACAST PRIVATE LIMITED

PREPARED BY:

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(formerly known as Ecomen Laboratories Pvt. Ltd)

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1(a) - (3) Mining of Minerals, Category 'A'- Green Field Project
Baseline Data Generation carried out during March – May 2025
by NABL Approved Lab: Ecomen Mining Private Limited
(Certificate No.: TC 12751)

ECOMEN MINING PRIVATE LIMITED
(Formerly Known as Ecomen Laboratories Pvt. Ltd.)

Kamlesh Metacast Pvt. Ltd.

UNDERTAKING

We hereby certify that the contents (Information & Data) given in the EIA-EMP with respect to Proposed Rohida Limestone mine with production capacity of Limestone 2.85MTPA, mineral reject 0.24 MTPA, soil 0.04 MTPA & OB 5.78MTPA, total excavation 8.91MTPA along with 1000 TPH of crusher in mine lease area of 800.9935 Ha located at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan, by M/s. Kamlesh Metacast Priate Limited (KMPL) are correct to the best of my knowledge.

The prescribed ToR have been complied with and presented in EIA/EMP Report

For Kamlesh Metacast Pvt. Ltd.

Director

Ananya Agarwal
Director
Kamlesh Metacast P Ltd

Date: 11.08.2025

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Date: 08.08.2025

UNDERTAKING

We hereby certify that the contents (Information & Data) given in the EIA-EMP with respect to Proposed Rohida Limestone mine with production capacity of Limestone 2.85MTPA, mineral reject 0.24 MTPA, soil 0.04 MTPA & OB 5.78MTPA, total excavation 8.91MTPA along with 1000 TPH of crusher in mine lease area of 800.9935 Ha located at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan, are correct & based on the information provided by Project Proponent.

for Ecomen Mining Private Limited

(Dr. Binay Prakash Pandey)
Chairman & CEO

DISCLOSURE OF CONSULTANT

Part A: Declaration by ACO and Experts contributing to the EIA Report

Declaration by Experts contributing to contributing to Draft EIA-EMP with respect to Proposed Rohida Limestone mine with production capacity of Limestone 2.85MTPA, mineral reject 0.24 MTPA, soil 0.04 MTPA & OB 5.78MTPA, total excavation 8.91MTPA along with 1000 TPH of crusher in mine lease area of 800.9935 Ha located at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan, by M/s. Kamlesh Metacast Private Limited(KMPL), are correct & based on the information provided by Project Proponent.

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

EIA Coordinator : Dr Binay Prakash Pande

Signature :

Date : 08.08.2025

EIA coordinator : Anil Kumar Jain

Signature :

Date : 08.08.2025

Period of involvement : February 2025 – Till date

Contact information : Ecomen Mining Private Limited
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Functional area experts:

S. No.	Functional areas	Name of the expert/s	Involvement (Period and task**)	Signature and date
1	AP*	Dr S K Singh	February 2025 – Till date Identification of Locations, interpretation of data wrt to standard, statistical analysis compilation etc.	Shailendra Kr. Singh
		Ms. Shanit Jose (FAA)		
2	WP*	Mr Rajneesh	February 2025 – Till date Identification of Locations, interpretation of data wrt to standard, Compilation of report	
		Dr Jaishree (TM)		Jaishree
3	SHW*	Dr S K Singh	February 2025 – Till date Identification of waste generation management & mitigation measures etc.	Shailendra Kr. Singh
4	SE	Dr Binay Prakash Pandey	February 2025 – Till date Group discussion, designing of questionnaire, data analysis and interpretation	
		Ms. Christeena Varghese (FAA)		
5	EB*	Dr S K Singh	February 2025 – Till date Conducted ecological survey, assessment of impacts, prepared report and compilation etc.	Shailendra Kr. Singh
		Dr Ashish Mishra		
		Dr Jaishree (TM)		Jaishree
6	HG*	Dr Binay Prakash Pandey	February 2025 – Till date Hydrogeology of the study area including status, water level of ground water of the area &	

		Mr. Krishna prasad (FAA)	possibility of recharge rain water harvesting etc.	
S. No.	**Functional areas**	**Name of the expert/s**	**Involvement (Period and task**)**	**Signature and date**
7	GEO*	Dr Binay Prakash Pandey	February 2025 – Till date Geological features & formations, topography & Lithology of the 10 km radius area and lease area	
		Mr Aman Dixit		
8	SC*	Dr S K Singh	February 2025 – Till date Identification of Locations, interpretation of data report quality, Compilation of report	
		Dr Ashish Mishra		
9	AQ*	Mr. Rajneesh	February 2025 – Till date Prediction of GLC by using AERMOD model etc.	
		Ms. Shanit Jose (FAA)		
10	NV	Dr Binay Prakash Pandey	February 2025 – Till date Identification of locations, Data Interpretation (Leq), Compilations of report including impact assessment, vibration & impact etc.	
		Mr. Krishna prasad (FAA)		
11	LU*	Dr Umendra Sharma IFS (Retd)	February 2025 – Till date Developing the Land use/ land cover of the study area by using remote sensing data.	
		Mr. Anshuman Singh		
12	RH*	Dr Binay Prakash Pandey	February 2025 – Till date Identification of Hazards, Hazardous substance. Preparation of on- site emergency plan etc.	

*One TM against each FAE may be shown, **Please attach additional sheet if required

Date and Sign of EIA Coordinator:

Name: Anil Kumar Jain

Signature:

Date and Sign of Head of ACO / authorised person:
Name: Dr. Binay Prakash Pandey

Signature:

Designation: Chairman & CEO

Date: 08.08.2025

Name of the EIA consultant organization: Ecomen Mining Pvt. Ltd.
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NABET Certificate No. & Issue Date: NABET/EIA/22-25/SA 0219, dated 22.03.2025

Part B: Declaration by the Head of the Accredited Consultant organization/ Authorized Person

I, Dr. Binay Prakash Pandey, hereby, confirm that the above-mentioned experts prepared the Draft EIA-EMP report with respect to Proposed Rohida Limestone mine with production capacity of Limestone 2.85MTPA, mineral reject 0.24 MTPA, soil 0.04 MTPA & OB 5.78MTPA, total excavation 8.91MTPA along with 1000 TPH of crusher in mine lease area of 800.9935 Ha located at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan, by M/s. Kamlesh Metacast Private Limited(KMPL)

(Dr Binay Prakash Pandey)
Chairman & CEO, Ecomen Mining Pvt. Ltd.
Date: - 08.08.2025

TABLE OF CONTENT

TABLE OF CONTENT **1**

CHAPTER -1 ..... **1**

1.1 PURPOSE OF THE REPORT 1

1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT 1

1.2.1 IDENTIFICATION OF THE PROJECT 1

1.2.1 INTRODUCTION OF THE PROJECT PROPONENT 2

1.2.2 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION OF THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY, REGION 2

1.2.3 BRIEF DESCRIPTION AND NATURE, SIZE AND LOCATION OF PROJECT 2

1.2.4 IMPORTANCE OF THE PROJECT TO THE COUNTRY AND REGION 3

1.3 SOPE OF THE STUDY 3

CHAPTER -2 ..... **5**

PROJECT DESCRIPTION **5**

2.1 TYPE OF THE PROJECT 5

2.2 NEED OF THE PROJECT 5

2.3 LOCATION OF THE PROJECT 5

2.3.1 MAP SHOWING GEOLOGY AND GEOMORPHOLOGY OF THE MINE SITE WITH CORNER CORDINATES 8

2.3.2 PROJECT SITE LAYOUT 8

2.3.3 SALIENT FEATURES OF THE LEASE AREA 9

2.4 SIZE OR MAGNITUDE OF OPERATION 10

2.4.1 ASSOCIATED ACTIVITIES/FACILITIES PROVIDED 10

2.5 STATUS OF STATUTORY CLEARANCES, PERMISSIONS, NO OBJECTION CERTIFICATES, CONSENTS 11

2.6 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION 12

2.6.1 SCHEDULE FOR APPROVAL 13

2.6.2 IMPLEMENTATION 13

2.7 TECHNOLOGY AND PROCESS DESCRIPTION 13

2.7.1 BASIC REQUIREMENTS FOR THE PROJECT 13

2.7.2 GEOLOGY OF THE AREA 18

2.7.3 DeTAILS OF MINING 23

2.7.4 PROCESS DESCRIPTION 24

2.8 YEAR WISE PRODUCTION & EXCAVATION DETAILS FOR FIRST FIVE YEARS 32
2.9 TOPSOILGENERATION & MANAGEMENT 32
2.10 SOLID WASTE MANAGEMENT 32
2.11 CONCEPTUAL PLAN 33
2.12 DESCRIPTION OF MITIGATION MEASURES 34
2.13 ASSESSMENT OF NEW AND TESTED TECHNOLOGY FOR THE RISK OF TECHNOLOGICAL FAILURE 38
CHAPTER -3 39
3.1 INTRODUCTION 39
3.2 STUDY AREA AT A GLANCE 39
3.3 BASELINE DATA COLLECTION 45
3.3.1 ENVIRONMENTAL COMPONENTS 45
3.4 ESTABLISHMENT OF BASELINE FOR VALUED ENVIRONMENTAL COMPONENTS 46
3.4.1 CRITERIA FOR SAMPLING STATIONS 51
3.5 LAND USE / LAND COVER STUDY 56
3.5.1 OBJECTIVE 56
3.5.2 DATA USED 56
3.5.3 METHODOLOGY 58
3.6 SEISMICITY OF THE AREA 63
3.7 FLOOD HAZARD ZONATION OF THE AREA 66
3.8 TOPOGRAPHY & DRAINAGE PATTERN 67
3.9 CLIMATE & RAINFALL 68
3.10 METEOROLOGY 69
3.11 MICRO-METEOROLOGY AT SITE 69
3.11.1 AMBIENT AIR ENVIRONMENT 73
3.11.2 INTERPRETATON OF AAQM RESULTS 75
3.12 NOISE ENVIRONMENT 76
3.12.1 INTERPRETATON OF NOISE RESULTS 78
3.13 WATER ENVIRONMENT 79
3.13.1 SURFACE WATER QUALITY 79
3.13.2 GROUND WATER QUALITY 81
3.13.3 LANGELIER'S SATURATION INDEX 86
3.14 SOIL ENVIRONMENT 89

3.15 BIOLOGICAL ENVIRONMENT 95
3.15.1 BACKGROUND 95
3.15.2 BIO-CLIMATIC FEATURES OF THE STUDY AREA..... 96
3.15.3 Methodology 96
3.15.4 Activities undertaken during the study 97
3.15.5 Survey Limitation 97
3.15.6 Flora 98
3.15.7 Fauna and Avifauna 100
3.15.8 Quantitative Floristic diversity of Proposed Mine Lease area..... 103
3.15.9 Qualitative Floral Diversity in Mine Lease 104
3.15.10 Faunal Diversity in Mine Lease 105
3.15.11 Quantitative Floristic diversity of Buffer Zone..... 106
3.15.12 Qualitative characteristics of Floristic diversity observed in Buffer area..... 111
3.15.13 Faunal Diversity in Buffer Zone 117
3.15.14 Aquatic Fauna: 121
3.15.15 Microorganism study of Sirohi District 122
3.15.16 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..... 122
3.16 SOCIO-ECONOMIC ENVIRONMENT 123
3.16.1 INTRODUCTION 123
3.16.2 Objectives 124
3.16.3 Methodology Adopted for the Study 124
3.16.4 EXISTING SOCIO-ECONOMIC SCENARIO 127
3.16.5 DEMOGRAPHIC FEATURES OF STUDY AREA:..... 127
3.16.6 DEMOGRAPHIC FEATURES OF STUDY AREA: RURAL AREA 128
3.16.7 OCCUPATIONAL STRUCTURE 130
3.16.8 INFRASTRUCTURE FACILITIES..... 132
3.16.9 EDUCATIONAL FACILITIES..... 133
3.16.10 TRANSPORTATION 136
3.16.11 SANITATION AND WATER SUPPLY FACILITIES..... 137
3.16.12 ELECTRICITY STATUS 138
3.16.13 AGRICULTURAL SITUATION 138
3.16.14 HEALTH CARE SYSTEM 140
3.16.15 PUBLIC DISTRIBUTION SYSTEM (PDS)..... 141

3.16.16 STUDY AREA INFRASTRUCTURE: SUMMARY 142
3.16.17 PEOPLE PERCEPTION ABOUT THE PROJECT 142
3.16.18 BASIC NEEDS OF THE PEOPLE 143
3.16.19 CONCLUSION 144
CHAPTER -4 145
4.1 INTRODUCTION 145
4.2 METHODOLOGY OF IMPACT ASSESSMENT 145
4.3 BASIS OF IMPACT ASSESSMENT 146
4.4 INTERACTION MATRIX 148
4.5 ENVIRONMENTAL IMPACT ASSESSMENT & MITIGATION MEASURES 151
4.5.1 IMPACT ON AIR QUALITY & SAFEGUARD/MITIGATION MEASURES . 151
4.5.2 AIR POLLUTION DUE TO PROPOSED LIMESTONE MINING PROJECT .. 152
4.5.3 AMBIENT AIR QUALITY IMPACT PREDICTION MODELING 152
4.5.4 AIR QUALITY DISPERSION MODEL 155
4.5.5 METEOROLOGICAL DATA/MODEL INPUT PARAMETERS FOR AERMOD 155
4.5.6 AMBIENT AIR QUALITY MODELLING 156
..... 160
4.5.7 MITIGATION MEASURES 162
4.5.8 Significance of Impact 163
4.5.9 Significance 163
1.1.1 163
4.5.10 IMPACT OF NOISE / VIBRATIONS MITIGATION MEASURES 163
4.5.11 Significance of Impact 165
4.5.12 Significance 165
1.1.1 165
4.5.13 IMPACT OF VIBRATION DUE TO BLASTING 165
4.5.14 Significance of Impact 177
4.5.15 Significance 177
1.1.1 177
4.5.16 IMPACT ON WATER ENVIRONMENT & MITIGATION MEASURES 177
4.5.17 IMPACT ON GROUND WATER & MITIGATION MEASURES 183
4.5.18 WATER CONSERVATION MEASURES 184
4.5.19 IMPACT ON SOIL / LAND USE & MITIGATION MEASURES 189

4.5.20 IMPACTS ON LAND USE PATTERN 191
4.5.21 IMPACT SIGNIFICANCE 194
4.5.22 *Significance of Impact* 195
4.5.23 Significance 195
1.1.1 195
4.6 SOCIO – ECONOMIC ENVIRONMENT 195
4.6.1 POSITIVE IMPACTS 195
4.6.2 ADVERSE SOCIAL IMPACTS 197
4.7 IMPACT ON HUMAN SETTLEMENT AND RESETTLEMENT & REHABILITATION ACTION PLAN 198
4.7.1 HUMAN SETTLEMENT 198
4.7.2 RESETTLEMENT & REHABILITATION ACTION PLAN 201
4.7.3 IMPACT EVALUATION 203
4.7.4 Significance of Impact 204
Significance 204
1.1.1 204
4.7.5 IMPACT ON LOCAL TRANSPORT INFRASTRUCTURE 204
4.7.6 Significance of Impact 209
4.7.7 Significance 209
4.7.8 IMPACT ON BIOLOGICAL ENVIRONMENT 209
4.7.9 GENERAL GUIDELINES FOR GREENBELT DEVELOPMENT 211
Significance of Impact 217
4.7.10 Significance 217
1.1.1 217
4.7.11 MEASURES ADOPTED BY COMPANY FOR PREVENTION OF ILLEGAL MINING & PILFERAGE OF MINERAL 218
4.7.12 PROCEDURE FOR RE-CONCILIATION OF THE MATERIAL EXCAVATED WITH MATERIAL DISPATCHED, MATERIAL STORED WITHIN THE MINE BLOCK AREA, WASTE/IB/REJECT DUMPED IN THE MINE BLOCK AREA, TOP SOIL DUMPED AND UTILIZED 218
4.8 TARGET FOR ACTIVITIES AWARENESS CAMPAIGN FOR ENVIRONMENTAL ISSUES 219
4.9 OCCUPATIONAL HEALTH AND SAFETY 221
4.9.1 OCCUPATIONAL HEALTH HAZARD AT MINE SITE 221
4.9.2 IMPLEMENTATION OF OCCUPATIONAL HEALTH AND SAFETY MEASURES 222

4.9.3 PRE-PLACEMENT AND PERIODICAL MEDICAL EXAMINATION SCHEDULE 223
4.10 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF ENVIRONMENTAL COMPONENTS 228
4.11 CONCLUSION 228
CHAPTER-5 229
5.1 GENERAL 229
5.2 ANALYSIS OF SITE 229
5.3 ANALYSIS OF TECHNOLOGY 229
5.4 CONCLUSION 229
CHAPTER-6 231
6.1 INTRODUCTION 231
6.2 FORMATION OF ENVIRONMENTAL MANAGEMENT CELL (EMC) 231
6.2.1 RESPONSIBILITIES OF EMC 231
6.3 ENVIRONMENTAL PARAMETERS TO BE MONITORED 232
6.4 TECHNICAL ASPECTS 232
6.4.1 METHODOLOGIES 232
6.4.2 ENVIRONMENTAL MONITORING SCHEDULE 233
6.5 DaTA ANALYSIS 234
6.6 DETAILED BUDGET 235
CHAPTER -7 236
7.1 INTRODUCTION 236
7.2 PUBLIC HEARING 236
7.3 HYDRO-GEOLOGICAL STUDY & RAINWATER HARVESTING PLAN 236
7.3.1 SCOPE OF WORK 236
7.3.2 METHODOLOGY 237
7.4 RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN 238
7.4.1 DEFINITION 238
7.4.2 SCOPE 238
7.4.3 OBJECTIVE 238
7.4.4 IDENTIFICATION OF HAZARDS 241
7.4.5 OBJECTIVE OF DISASTER MANAGEMENT PLAN 248
7.4.6 EMERGENCY ORGANIZATION 248
7.4.7 ONSITE EMERGENCIES 249

7.4.8 MEASURES TO BE TAKEN FOR CONTROLLING ANY UNFORSEEN DISASTER AND RISK 251
7.4.9 KEY PERSONNEL AND THEIR RESPONSIBILITY 252
7.5 RISK ASSESSMENT 252
7.5.1 QUICK EVACUATION, AMELIORATIVE MEASURES FOR EMERGENCY PLAN 253
7.5.2 THE CAPABILITY OF LESSEE TO MEET SUCH EVENTUALLY 254
7.5.3 ACTION IN EMERGENCY 255
7.5.4 SITE RESTORATION 255
7.5.5 POST DISASTER ANALYSIS AND EVALUATION 256
7.6 OFF-SITE EMERGENCY PLANNING 256
7.6.1 INTRODUCTION 256
7.6.2 ASPECTS INCLUDED IN AN OFF-SITE EMERGENCY PLAN 256
7.6.3 CARE AND MAINTENANCE DURING TEMPORARY DISCONTINUANCE 259
7.7 RESETTLEMENT & REHABILITATION 259
CHAPTER -8 261
8.1 INTRODUCTION 261
8.2 PROJECT BENEFITS 261
8.2.1 ENVIRONMENTAL BENEFITS 261
8.2.2 EMPLOYMENT BENEFITS 262
8.2.3 SOCIAL BENEFITS 262
8.2.4 ECONOMIC BENEFITS 262
8.3 CORPORATE ENVIRONEMNT RESPONSIBILITY (CER) 263
8.4 CONCULSION 263
CHAPTER -9 264
9.1 ENVIRONMETAL COST BENEFIT ANALYSIS 264
CHAPTER -10 266
10.1 INTRODUCTION 266
10.2 PURPOSE OF EMP 266
10.3 ELEMENTS OF EMP 267
10.4 CORPORATE ENVIRONMENT POLICY (CEP) 267
10.5 FORMATION OF ENVIRONMENTAL MANAGEMENT CELL (EMC) 268
10.5.1 RESPONSIBILITIES OF EMC 268
10.6 CORPORATE ENVIRONMENTAL AUDITING 269

10.7 CORRECTIVE AND PREVENTIVE ACTION PLAN FOR NON-COMPLIANCE/NON-CONFORMANCES 270
10.8 DETAILED BUDGET FOR EMP 270
CHAPTER -11 272
11.1 INTRODUCTION 272
11.1.1 MINING LEASE STATUS 272
11.1.2 STATUS OF APPROVAL OF MINING PLAN 272
11.2 NEED FOR THE PROJECT 272
11.3 PROJECT DETAILS 273
Details 273
Size of the Project 273
Project Location 273
11.4 MINING DETAILS 275
11.5 METHOD OF MINING 276
11.6 YEAR WISE PRODUCTION & EXCAVATION 276
11.7 DESCRIPTION OF THE ENVIRONMENT 276
11.7.1 Ambient Air Quality 277
11.8 NOISE LEVELS 277
11.9 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES 279
11.10 POST PROJECT ENVIRONMENTAL MONITORING PROGRAMME 281
11.11 ADDITIONAL STUDIES 281
11.11.1 HYDRO-GEOLOGICAL STUDY 281
11.11.2 BIOLOGICAL ENVIRONMENT 282
11.11.3 REHABILITATION & RESETTLEMENT ACTION PLAN 282
11.11.4 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN 283
11.12 ENVIRONMENT MANAGEMENT PLAN 283
11.13 POST MINING LAND USE DETAILS/RECLAMATION PLAN 284
11.14 PROJECT BENEFITS 284
11.15 CONCLUSION 285
CHAPTER -12 286

LIST OF TABLES

TABLE 1. 1 BRIEF DESCRIPTION OF THE PROJECT 2
TABLE 2. 1 COORDINATES OF THE AREA OF ALL MAJOR CORNER POINTS……..……5
TABLE 2. 2 VILLAGE WISE LAND DETAILS 9
TABLE 2. 3 SIZE AND MAGNITUDE OF THE PROJECT 10
TABLE 2. 4 STATUS OF STATUTORY CLEARANCES, PERMISSIONS, NO OBJECTION CERTIFICATES (NOCS) AND CONSENTS 11
TABLE 2. 5 PROPOSED SCHEDULE FOR APPROVAL 13
TABLE 2. 6 PROPOSED WATER DEMAND 13
TABLE 2. 7 PROVISIONAL NUMBER OF PROPOSED STAFF AND WORKERS 15
TABLE 2. 8 TOTAL FUEL REQUIREMENT 16
TABLE 2. 9 DIESEL CONSUMPTION 16
TABLE 2. 10 DIESEL CONSUMPTION PROPOSED FOR 25% REDUCTION 16
TABLE 2. 11 MACHINERY AND EQUIPMENT 17
TABLE 2. 12 LITHO- STRATIGRAPHIC CLASSIFICATION OF DELHI SUPERGROUP (AFTER GUPTA ET AL.,1992) 18
TABLE 2. 13 RESERVES AS PER UNFC CLASSIFICATION 23
TABLE 2. 14 RESERVE DETAILS 24
TABLE 2. 15 POINT LOAD INDEX AND ESTIMATED COMPRESSIVE STRENGTH OF EACH TESTS 26
TABLE 2. 16 APPLICABILITY OF VARIOUS EXCAVATION TECHNIQUES BASED ON THE COMPRESSIVE STRENGTH OF ROCKS 26
TABLE 2. 17 MAXIMUM PROJECTION DISTANCE CALCULATIONS...**Error! Bookmark not defined.**
TABLE 2. 18 PRESSURE AT VARIOUS DISTANCES FOR “CONFINED” AND “UNCONFINED” CONDITIONS .....**Error! Bookmark not defined.**
TABLE 2. 19 PROPOSED TIME SCHEDULE FOR CRUSHER AND OLBC INSTALLATION 30
TABLE 2. 20 PROCESS FLOW CRUSHER 31
TABLE 2. 21 YEAR WISE PRODUCTION FOR THE FIVE YEARS PERIOD 32
TABLE 2. 22 THE PROPOSED YEAR-WISE WASTE MATERIAL HANDLING AND BACKFILLING PLAN 33
TABLE 2. 23 LAND USE UP BREAKUP TO CONCEPTUAL STAGE 33

TABLE 2. 24 WASTE GENERATION (LIQUID) 35
TABLE 2. 25 CHARACTERISTICS OF TREATED WASTE WATER 37
TABLE 3. 1 ENVIRONMENTAL SETTINGS OF THE STUDY AREA 39
TABLE 3. 2 BASELINE DATA COLLECTIO DURING SUMMER SEASON (MARCH TO MAY, 2023) AND SUMMER SESON (MARCH TO MAY 2025) 46
TABLE 3. 3 LIST OF MONITORING STATIONS SUMMER SEASON (MARCH TO MAY 2023) 51
TABLE 3. 4 LIST OF MONITORING STATIONS SUMMER SEASON (MARCH TO MAY 2025) 53
TABLE 3. 5 DATA USED FOR THE LAND USE/LAND COVER MAPPING 56
TABLE 3. 6 LAND USE / LAND COVER DETAILS OF STUDY AREA 63
TABLE 3. 7 SEISMIC ZONES IN INDIA 63
TABLE 3. 8 CLASSIFICATION OF DISTRICTS OF SIROHI AS PER SEISMIC ZONES 63
TABLE 3. 9 RAINFALL DATA IN MM FOR LAST 10 YEARS AS PER IMD 68
TABLE 3. 10 MICRO-METEOROLOGY AT SITE 69
TABLE 3. 11 MICRO-METEOROLOGY AT SITE 70
TABLE 3. 12 SUMMARY OF THE WIND PATTERN 70
TABLE 3. 13 SAMPLING FREQUENCY 73
TABLE 3. 14 TECHNIQUES & INSTRUMENTS USED FOR MONITORING OF AIR QUALITY 73
TABLE 3. 15 STATISTICAL SUMMARY OF CONCENTRATION LEVELS OF CRITERIA POLLUTANTS SUMMER SEASON (MARCH TO MAY 2023) 74
TABLE 3. 16 AMBEINT AIR QUALITY MONITORING RESULTS SUMMER SEASON (MARCH TO MAY 2025) 75
TABLE 3. 17 NOISE (SOUND) MEASURING INSTRUMENT 76
TABLE 3. 18 AMBIENT NOISE LEVEL MONITORING RESULTS 77
TABLE 3. 19 AMBIENT NOISE LEVEL MONITORING RESULTS 77
TABLE 3. 20 CPCB NOISE STANDARDS 78
TABLE 3. 21 SURFACE WATER ANALYSIS RESULTS (MARCH TO MAY 2023) 79
TABLE 3. 22 SURFACE WATER ANALYSIS RESULTS 80
TABLE 3. 23 GROUND WATER ANALYSIS STUDY PERIOD: SUMMER SEASON (MARCH TO MAY, 2023) 82
TABLE 3. 24 GROUND WATER ANALYSIS STUDY PERIOD: SUMMER SEASON (MARCH TO MAY, 2025) 84
TABLE 3. 25 VALUES OF SATURATION INDEX WITH THEIR DESCRIPTION AND GENERAL DESCRIPTION 88
TABLE 3. 26 CALCULATION OF LANGELIER SATURATION INDEX FOR VARIOUS WATER BODIES OR TYPES 88
TABLE 3. 27 SOIL QUALITY ANALYSIS RESULTS 91

TABLE 3. 28 SOIL QUALITY ANALYSIS RESULTS 92
TABLE 3. 29 STANDARD SOIL CLASSIFICATION....94
TABLE 3. 30 AGRO-CLIMATIC/AGRO-ECOLOGICAL CLASSIFICATION OF STUDY AREA IN SIROHI DISTRICT 96
TABLE 3. 31 SAMPLING LOCATIONS FOR ECOLOGICAL STUDIES 100
TABLE 3. 32 PHYTOSOCIOLOGICAL STUDY DETAILS OF STUDY AREA....104
TABLE 3. 33 PLANT CHECKLIST OF CORE ZONE AREA (PROPOSED MINE LEASE) 104
TABLE 3. 34 FAUNA DIVERSITY IN PROPOSED MINE LEASE....105
TABLE 3. 35 PHYTOSOCIOLOGICAL STUDY DETAILS OF PROTECTED FOREST HIRAWALA....107
TABLE 3. 36 PHYTOSOCIOLOGICAL STUDY DETAILS OF RESERVED FOREST PIPELA 108
TABLE 3. 37 PHYTOSOCIOLOGICAL STUDY DETAILS OF MOUNT ABU WILDLIFE SANCTUARY 109
TABLE 3. 38 PHYTOSOCIOLOGICAL STUDY DETAILS OF RESERVED FOREST WADA 110
TABLE 3. 39 PHYTOSOCIOLOGICAL STUDY DETAILS OF NEAR DELDER VILLAGE FOREST AREA.111
TABLE 3. 40 FLORISTIC DIVERSITY OBSERVED IN BUFFER ZONE OF PROJECT AREA (BASED ON PRIMARY & SECONDARY DATE)....111
TABLE 3. 41 FAUNA DIVERSITY IN BUFFER ZONE (BASED ON PRIMARY & SECONDARY DATA SOURCE)....117
TABLE 3. 42 SCHEDULE I SPECIES FOUND IN THE 10 KM BUFFER AREA 121
TABLE 3. 43 FISH AND SHELL-FISH PRODUCTION OF STUDY AREA 121
TABLE 3. 44 CHECKLIST OF ZOOPLANKTON....122
TABLE 3. 45 DEMOGRAPHIC PROFILE OF POPULATION IN THE STUDY AREA (2011 CENSUS) 129
TABLE 3. 46 THE OCCUPATIONAL STRUCTURE OF POPULATION IN THE STUDY 131
TABLE 3. 47 NEAREST HABITATION FROM MINE LEASE AREA 132
TABLE 3. 48: DISTRICT EDUCATIONAL INFORMATION 134
TABLE 3. 49 INFRASTRUCTURE & SCHOOL FACILITIES IN SIROHI DISTRICT (DATA SOURCE: UNIFIED DISTRICT INFORMATION SYSTEM FOR EDUCATION (UDISE+) 2020-21)....134
TABLE 3. 50 AVAILABILITY OF EDUCATIONAL INSTITUTION WITHIN STUDY AREA....134
TABLE 3. 51 DETAILS OF SURVEYED SCHOOLS OF STUDY AREA 135
TABLE 3. 52 CROPPING INTENSITY AT SIROHI DISTRICTS 139
TABLE 3. 53 STATUS OF AGRICULTURE IN THE SIROHI DISTRICT IN STUDY AREA 139
TABLE 3. 54 THE IRRIGATION BASED CLASSIFICATION OF THE CROP LAND....139
TABLE 3. 55 SOURCE OF IRRIGATION FOR AGRICULTURE IN SIROHI DISTRICTS 140
TABLE 3. 56 DISTRICT HEALTH CARE SYSTEM DETAILS....140
TABLE 3. 57 HEALTH FACILITIES IN THE VILLAGES WITHIN 10 KM. RADIUS 140
TABLE 3. 58 PEOPLES' PERCEPTION ON THE PROJECT....143
TABLE 4. 1 IMPACT CHARACTERISTICS 146
TABLE 4. 2 SIGNIFICANCE OF IMPACT 147

TABLE 4. 3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF ENVIRONMENTAL COMPONENTS 148
TABLE 4. 4 INTERACTION MATRIX 149
TABLE 4. 5 IMPACTED RESOURCES / RECEPTORS 151
TABLE 4. 6 TOTAL HANDLING FOR IMPACT ASSESSMENT 152
TABLE 4. 7 DETAILS OF PROPOSED STACK EMISSIONS 155
TABLE 4. 8 AMBIENT AIR QUALITY STANDARDS 156
TABLE 4. 9 PREDICTED INCREMENTAL CONCENTRATION OF PM10 IN SUMMER SEASON IN MARCH TO MAY 2025 157
TABLE 4. 10 PREDICTED INCREMENTAL CONCENTRATION OF PM2.5 IN SUMMER SEASON IN MARCH TO MAY 2025 157
TABLE 4. 11 PREDICTED INCREMENTAL CONCENTRATION OF NOX IN SUMMER SEASON IN MARCH TO MAY 2025 158
TABLE 4. 12 PREDICTED INCREMENTAL CONCENTRATION OF CO IN SUMMER SEASON IN MARCH TO MAY 2025 158
TABLE 4. 13 IMPACT EVALUATION FOR AMBIENT AIR QUALITY 163
TABLE 4. 14 IMPACT EVALUATION FOR NOISE 165
TABLE 4. 15 PERMISSIBLE PEAK PARTICLE VELOCITY (MM/S) 166
TABLE 4. 16 IMPACT EVALUATION TO DETERMINE THE BLAST INDUCED GROUND VIBRATIONS 177
TABLE 4. 17 DIMENSIONS FOR RETAINING WALL, GARLAND DRAINS & BUND FORMATIONS 182
TABLE 4. 18 ANNUAL RUN OFF CALCULATION 186
TABLE 4. 19 TOTAL MINE SEEPAGE INCLUDING MIN PIT RAINFALL 187
TABLE 4. 20 IMPACT EVALUATION FOR WATER ENVIRONMENT 189
TABLE 4. 21 STAGE WISE LAND USE AND RECLAMATION PLAN (IN HA) 190
TABLE 4. 22 IMPACT EVALUATION TO DETERMINE THE SIGNIFICANCE 194
TABLE 4. 23 IMPACT EVALUATION TO DETERMINE THE SIGNIFICANCE (SOCIO ECONOMIC ENVIRONMENT) 203
TABLE 4. 24 TRAFFIC VOLUME COUNT SURVEY NH-927A 204
TABLE 4. 25 TRAFFIC VOLUME COUNT: NH -927A 205
TABLE 4. 26 IMPACT EVALUATION FOR TRANSPORTATION INFRASTRUCTURE 209
TABLE 4. 27 YEAR WISE GREENBELT/PLANTATION DEVELOPMENT PLAN 213

TABLE 4. 28 COMPENSATORY AFFORESTATION 214
TABLE 4. 29 SPECIES CONTAINING ECOLOGICAL VALUE 216
TABLE 4. 30 IMPACT EVALUATION FOR BIOLOGICAL RESOURCES 217
TABLE 4. 31 TARGET FOR ACTIVITIES AWARENESS CAMPAIGN FOR ENVIRONMENTAL ISSUES . 219
TABLE 4. 32 OCCUPATIONAL HEALTH & SAFETY BUDGET 228
TABLE 6. 1 ENVIRONMENTAL MONITORING PROGRAMME 233
TABLE 7. 1 HAZARD IDENTIFICATION & MITIGATION MEASURES AS SUGGESTED 242
TABLE 7. 2 RESPONSIBILITIES OF OFFICERS 249
TABLE 10. 1 EMP COST BREAKUP 270
TABLE 10. 2 BREAK-UP OF PROPOSED COST FOR ENVIRONMENT PROTECTION MEASURES 270

LIST OF FIGURES

FIGURE 2. 1 MAP SHOWING GENERAL LOCATION OF THE LEASE AREA.....7
FIGURE 2. 2 MAP FOR GEOLOGY AND GEOMORPHOLOGY OF THE MINE SITE WITH CORNER COORDINATES.....8
FIGURE 2. 3 PHOTOGRAPHS SHOWING MINING LEASE AREA.....10
FIGURE 2. 4 WATER BALANCE FLOW CHART.....14
FIGURE 2. 5 REGIONAL GEOLOGICAL MAP AND STRATIGRAPHIC SUCCESSION OF DELHI SUPERGROUP.....20
FIGURE 2. 6 FLOW CHART FOR MINING PROCESS.....24
FIGURE 2. 7 GOOGLE IMAGE OF LOCATION OF PROPOSED CEMENT PLANT AND ROUTE OF TRANSPORTATION FROM CRUSHER TO PLANT THROUGH OLBC.....30
FIGURE 2. 8 CRUSHER FLOW SHEET.....31
FIGURE 2. 9 MATERIAL BALANCE CHART.....32
FIGURE 2. 10 MOVING BED BIO REACTOR (MBBR) FLOW DIAGRAM.....37
FIGURE 3. 1 MAP SHOWING ENVIRONMENTAL SETTINGS OF THE 10 KM RADIUS OF THE STUDY AREA 44
FIGURE 3. 2 MAP SHOWING MONITORING LOCATION SUMMER SEASON (MARCH TO MAY 2023) .. 52
FIGURE 3. 3 : MAP SHOWING AIR MONITORING LOCATION SUMMER SEASON (MARCH TO MAY 2025) 54
FIGURE 3. 4 MAP SHOWING NOISE AND SOIL SAMPLING LOCATION SUMMER SEASON (MARCH TO MAY 2025) 54
FIGURE 3. 5 MAP SHOWING GROUND AND SURFACE WATER SAMPLING LOCATION SUMMER SEASON (MARCH TO MAY 2025) 55
FIGURE 3. 6 SATELLITE IMAGE OF CORE ZONE 57
FIGURE 3. 7 METHODOLOGY FLOWCHART FOR LULC CLASSIFICATION AND MAPPING..... 58
FIGURE 3. 8 LAND USE / LAND COVER MAP OF THE MINING LEASE AREA..... 60
FIGURE 3. 9 LAND USE / LAND COVER MAP OF THE STUDY AREA 62
FIGURE 3. 10 GSHAP HAZARD MAP OF RAJASTHAN 64
FIGURE 3. 11 SEISMIC ZONE MAP 65
FIGURE 3. 12 FLOOD HAZARD ZONATION MAP OF THE AREA 66
FIGURE 3. 13 DIGITAL ELEVATION MODEL WITH IN 10 KM RADIUS..... 67
FIGURE 3. 14 WIND ROSE DIAGRAM 71
FIGURE 3. 15 WIND ROSE DIAGRAM MARCH TO MAY 2025 72

FIGURE 3. 16 ANNUAL WIND ROSE DIAGRAM (2025) 72
FIGURE 3. 17 FOREST DETAILS OF STUDY AREA 95
FIGURE 3. 18 SAMPLING LOCATIONS FOR ECOLOGICAL STUDIES 101
FIGURE 3. 19 PHOTOGRAPHS SHOWING MINING LEASE AREA 103
FIGURE 3. 20 DISTANCE OF MOUNT ABU WILDLIFE SANCTUARY FROM MINE LEASE 123
FIGURE 3. 21 SOCIOECONOMIC QUESTIONER SURVEY WITH VILLAGERS IN10 KM STUDY AREA 126
FIGURE 3. 22 VILLAGE FOUND IN 0-3 KM, 3-7 KM AND 7-10 KM IN 10 KM STUDY AREA 128
FIGURE 3. 23 DRINKING WATER AMENITIES OF STUDY AREA 138
FIGURE 4. 1 INCREMENTAL CONCENTRATION OF PM10 WITHOUT EMP 159
FIGURE 4. 2 INCREMENTAL CONCENTRATION OF PM10 WITH EMP IN MARCH TO MAY 2025 159
FIGURE 4. 3 INCREMENTAL OF PM2.5 CONCENTRATION WITHOUT EMP IN MARCH TO MAY 2025 .160
FIGURE 4. 4 INCREMENTAL CONCENTRATION OF PM2.5 WITH EMP IN MARCH TO MAY 2025 160
FIGURE 4. 5 INCREMENTAL CONCENTRATION OF CO IN MARCH TO MAY 2025.....161
FIGURE 4. 6 INCREMENTAL CONCENTRATION OF NOX IN MARCH TO MAY 2025.....161
FIGURE 4. 7 RAIN WATER HARVESTING STRUCTURES DESIGN.....185
FIGURE 4. 8 GOOGLE IMAGE SHOWING VILLAGE ROADS CONNECTIVITY IN BLOCK AREA ..... **Error! Bookmark not defined.**
FIGURE 4. 9 PHOTOGRAPH SHOWING ELECTRIC LINE 194
FIGURE 12. 1 NABET CERTIFICATE OF CONSULTANCY.....289

LIST OF ANNEXURES

ANNEXURE I	LETTER OF INTENT DATED 13.03.2023
ANNEXURE II	MINING PLAN APPROVAL LETTER DATED 27.11.2024
ANNEXURE III	CADASTRAL MAP
ANNEXURE IV	NO FOREST LAND DATED 02.02.2025
ANNEXURE V	SURFACE PLAN
ANNEXURE VIA	AUTHENTICATED LIST OF FLORA AND FAUNA DATED 4.06.2025
ANNEXURE VIB	LOCATION MAP FORWARDED TO CHIEF CONSERVATOR OF FOREST, JODHPUR DATED 28.07.2025
ANNEXURE VII	ARAVALI CCERTIFICATE DATED 26.03.2025
ANNEXURE VIII	CERTIFICATE FOR NON-INVOLVEMENT OF CPA DATED 10.07.2025.
ANNEXURE IX	BASELINE MONITORING RESULTS MARCH TO MAY 2023
ANNEXURE IX A	BASELINE MONITORING RESULTS MARCH TO MAY 2025
ANNEXURE X	BASELINE PHOTOGRAPHS
ANNEXURE XI	WRD LETTER REGARDING SAFEGUARD OF WATER RESOURCES DATED 3.1.2025 AND APPROVED FROM THE RO OFFICE SPCB SIROHI DATED 10.7.2025.
ANNEXURE XII	WILDLIFE CONSERVATION PLAN FORWARDED TO CHIEF CONSERVATOR OF FOREST, JODHPUR DATED 28.07.2025.
ANNEXURE XII A	WILDLIFE CONSERVATION PLAN
ANNEXURE XIII	ICFRE, JODHPUR ESTABLISHING A NURSERY FOR NATIVE SPECIES DEVELOPMENT OVER AN AREA OF 5 HECTARES DATED 16.07.2025.
ANNEXURE XIV	DGMS LETTER FOR EMBANKMENT DATED 21.07.2025
ANNEXURE XIVA	EMBANKMENT DRAWING AND COVERING LETTER
ANNEXURE XV	CGWA NOC (9.5 KLD) DATED 10.06.2025
ANNEXURE XVI	BRIEF NOTE ON R& R ACTION PLAN
ANNEXURE XVII	LAND CONVERTED LETTER FOR CHARAGARH DATED 28.04.2025
ANNEXURE XVIII	PERMISSION FOR TREE CUTTING THE BABOOL TREE WITHIN THE ML AREA FROM REVENUE DEPARTMENT SIROHI, DATED 17.07.2025
ANNEXURE XIX	COMPREHENSIVE HYDROGEOLOGY REPORT

ABBREVIATIONS

AAQ	:	Ambient Air Quality
AAQM	:	Ambient Air Quality Monitoring
AAQS	:	Ambient Air Quality Standards
AMSL	:	Above Mean Sea Level
ANFO	:	Ammonium Nitrate Fuel Oil
Bgl	:	Below Ground Level
BIS	:	Bureau of Indian Standards
CHC	:	Community Health Centre
CPCB	:	Central Pollution Control Board
CSR	:	Corporate Social Responsibility
CEP	:	Corporate Environment Policy
CGWA	:	Central Ground Water Authority
CWC	:	Central Water Commission
CWW	:	Chief Wild Life Warden
DCF	:	District of Forest
DGMS	:	Directorate General of Mines Safety
DMG	:	Department Of Mines and Geology
DTH	:	Down The Hole
DMF	:	District Mineral Fund
EMS	:	Environment Management System
ECO	:	Emergency Coordinating Officer
EAC	:	Expert Appraisal Committee
EC	:	Environment Clearance
EIA	:	Environmental Impact Assessment
EMC	:	Environment Management Cell
EMP	:	Environment Management Plan
ESE	:	East of South East
ENE	:	East of North East
EPA	:	Environmental Protection Act
EPO	:	Emergency planning officer
FMCG	:	Fast Moving Consumer Goods
FPS	:	Fine Particulate Sampler
FCC	:	False Color Composite
FWC	:	Family Welfare Centre
Govt.	:	Government
GCP	:	Ground Control Points
GLC	:	Ground Level Concentration
GOI	:	Government Of India
GPS	:	Global Positioning System
GSHAP	:	Global Seismic Hazard Assessment Program
GSI	:	Geological Survey of India
Ha	:	Hectare
HEMM	:	Heavy Earth Moving Machinery
HFL	:	Highest Flood Level
HP	:	Horse Power
HOD	:	Head Of Department

IB	:	Inter Burden
IBM	:	Indian Bureau of Mines
IMD	:	India Meteorological Department
IS	:	Indian Standards
ISO	:	International Organization of Standardization
KW	:	Kilo Watt
KLD	:	Kilo Litre Per Day
LU/LC	:	Land Use / Land Cover
MCWS	:	Maternity & Child Welfare Centre
MHC	:	Mobile Health Clinic
MMI	:	Modified Mercalli Intensity
ML	:	Local Magnitude
MT	:	Million Tonne
MoEFCC	:	Ministry Of Environment, Forest and Climate Change
MMR	:	Metalliferous Mines Regulation
MPPCB	:	Madhya Pradesh Pollution Control Board
mRL	:	Meter Reduced Level
MSL	:	Mean Sea Level
Mw	:	Moment Magnitude
MW	:	Mega Watt
N	:	North
NH	:	National Highway
NNW	:	North Of North East
NW	:	North West
NAAQS	:	National Ambient Air Quality Standards
NABET	:	National Accreditation Board for Education & Training
NATMO	:	National Atlas & Thematic Mapping Organization
NABL	:	National Accreditation Board for Testing and Calibration Laboratories
NOC	:	No Objection Certificate
NH	:	National Highway
NGO	:	Non-Governmental Organization
NONEL		Non-Electric
NRSA	:	National Remote Sensing Agency
NRSC	:	National Remote Sensing Centre
OB	:	Over Burden
OHS	:	Occupational Health and Safety
OSHA	:	Occupational Safety and Health Administration
PCCF	:	Principal Chief Conservator of Forest
PFR	:	Pre-Feasibility Report
pH	:	Potential of Hydrogen
PHCs	:	Public Health Centers
PHSC	:	Primary Health Centre
PM	:	Particulate Matter
PPE	:	Personal Protective Equipment
PESO	:	Petroleum and Explosives Safety Organization
PPV	:	Peak Particle Velocity
QCI	:	Quality Council of India

RSPM	:	Respirable Suspended Particulate Matter
ROM	:	Run of Mine
RDS	:	Respirable Dust Sampler
SSE	:	South Of South East
SW	:	South West
SC	:	Scheduled Caste
SHE	:	Safety, Health & Environment
SOI	:	Survey of India
SPCB	:	State Pollution Control Board
SPM	:	Suspended Particulate Matter
ST	:	Scheduled Tribe
TDS	:	Total Dissolved Solids
ToR	:	Terms of Reference
TPA	:	Tonnes Per Annum
TPD	:	Tonnes Per Day
TW	:	Tube Well
UNFC	:	United Nations Framework Classification
UTCL	:	UltraTech Cement Limited
VT	:	Vocational Training
RF	:	Reserve Forest
PF	:	Protected Forest
$\mu g/m^3$	:	Micro gram per meter cube
µm	:	Micro Meter
dia.	:	diameter
CuM	:	Cubic meter
dB	:	Decibel
gm/sec	:	Gram per second
gm/cc	:	Gram per cubic meter
hr/day	:	Hour per day
kg	:	Kilogram
Kg/hr	:	Kilogram per hour
Kg/ha	:	Kilogram per hectare
km	:	Kilometer
m	:	Meter
mg/l	:	Milligram per Litre
mm	:	Millimeter
Sq.km	:	Square Kilometer
t/hr	:	Tones per hour

EXECUTIVE SUMMARY

1.1 INTRODUCTION

Kamlesh Metacast Private Limited has proposed Limestone Mining Project with proposed production capacity of 8.91 MTPA (Total Excavation) (Limestone – 2.85 MTPA, Mineral Reject-0.24 MTPA, OB- 5.78 MTPA & Soil – 0.04 MTPA) along with Installation of 1000 TPH Crusher with Wobbler and Screening 200 TPH over an area of 800.9935 Ha. Located in Village (s)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla and Kharadoli, Tehsil –Pindwara, District – Sirohi, Rajasthan.

This report has been prepared in reference to the ToR Letter issued by MoEF&CC, New Delhi Vide letter no. F. No. IA-J-11015/81/2024-IA-II (NCM), dated 05.05.2025 to carry out the EIA study. Terms of Reference was granted during 43rd meeting of Expert Appraisal Committee (Non-Coal Mining) held during April 22-23rd, 2025.

As per EIA Notification dated 14th September, 2006 as amended from time to time, the project falls under Category "A", (>250 ha), Projects per the Schedule of EIA Notification, 2006 & its subsequent amendments thereof; Project or Activity 1 (a) – 3 for "Mining of Mineral".

1.2 MINING LEASE STATUS

- The LOI for an area of 800.9935 ha has been granted by Mines and Petroleum Department, Government of Rajasthan. LoI has been issued vide order no. P 3 (6) Khan/Group-2/2022 dated 13.03.2023 which is valid till 12.03.2025. Now LOI is extended for one year vide P.3 (6) Khan/Group-2/2022, date-25.07.2023 and valid till 12.03.2026.
- Lease will be executed after obtaining Environment Clearance.
- According to the MMDR, Act 2015 mining lease will be valid for 50 years from the date of lease execution. Lease will likely to execute in 2026 and on the basis of lease execution it will be valid for 2076.

1.3 STATUS OF APPROVAL OF MINING PLAN

The Mining Plan along with Progressive Mine Closure Plan has been approved vide letter no. E12030-MCDR-MPC0LST/28/2024-AJM-IBM_RO_AJM, dated-27.11.2024.

1.4 NEED FOR THE PROJECT

- The main purpose of the report is to establish the baseline environmental attributes in terms of scoping and predict/ identify the impacts for preparing environment management plan.
- India is the second largest producer of cement in the world. India's cement industry is a vital part of its economy, providing employment to more than a million people, directly or

indirectly. The importance of the project to the nation, in a developing nation like India, cement is essential for infrastructure development. Thus, keeping in mind this requirement, mining of limestone is essential for the nation's growth.

- The project will help the local economy directly as well as indirectly as the project will also contribute to the State as well as to National exchequer by way of various taxes and duties. With the proposed additional development in and around the area, there will be increase in supporting facilities/infrastructure eventually leading to the further development of the area. It will also bridge the gap between demand and supply of cement to the consumers. The project will boost the overall growth of the region and in the State; the local economy will flourish due to increased income expenditure in the local market. Therefore, project is having great importance to the state and national economy.

1.5 PROJECT DETAILS

Table - 1.1
Project Details

S. No.	Particular	Details
A.	**Nature of the Project**	Opencast Mechanized Limestone Mine
B.	**Size of the Project**	
1.	Mine Block Area	800.9935 ha (Govt. Waste Land- 227.9500 ha (29%) & Grazing /Charagah Land- 21.0900 ha (3%) & Private Agriculture Land- 551.9535 ha (68.0%).)
2.	Proposal	➢ Limestone Production Capacity: 2.85 Million TPA ➢ OB/waste – 5.78 Million TPA ➢ Top Soil - 0.04 Million TPA ➢ Mineral Reject-0.24 Million TPA ➢ Total Excavation – 8.91 Million TPA ➢ Crusher - (1000 TPH) with Wobbler (200 TPH)
C.	**Project Location**	
1.	Villages	Rohida Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli
2.	Tehsil	Pindwara
3.	District	Sirohi
4.	State	Rajasthan
5.	Latitude & Longitude	Latitude: 24° 32' 47.3874"N to 24° 38' 33.7254"N Longitude: 72° 51' 57.958"E to 72° 57' 57.515"E
6.	Toposheet No.	45D/14, 15 & 45 H/2
D.	**Environmental Setting Details *(with approx. aerial distance & direction from the mine boundary)***	

1.	Nearest Village	

Particulars	Distance (Km) (From Lease Boundary)	Direction
Nearest Habitation		
Wasa	0.53	SE
Rohida	0.48	E
Wara	0.41	W
Bhujela	1.23	NNW
Bharja	Some part of village within the lease area	--
Taroongi	Some part of village within the lease area	--
Bhimana	0.24	NW
Vatera	50 m	E
Pipela	0.31	WNW
Hirawala	0.37	NNE
Densely populated		
Rohida	0.48	E
Wasa	0.53	SE
Vatera	50 m	E
Bhimana	0.24	NW
Bharja	Some part of Bharja village within the lease area	--
Swarupganj	2.98	WNW

2.	Nearest Town/City	

Particulars	Name	Distance, Direction (From Lease Boundary)
Nearest Town	Abu Road	9.82 km, SW
Nearest City	Sirohi	27.53 km, NNW
Nearest District Headquarter	Sirohi	27.80 km, NNW
Source: - Distances measured are taken from SOI, Toposheet are indicative pertinent to the project.		

3.	Nearest Highway	

S. No.	Particulars	Distance (km) (From Lease Boundary)	Direction
Routes Facility			
1.	NH-27	1.70	NW
2.	NH-927A	Passing through the lease area	--
3.	MDR-49	2.64	W
4.	MDR-60	6.98	W
5.	SH-11	9.55	SW

4.	Nearest Railway Station	

Particular	Name	Distance & Direction (From the lease boundary)
Railway Station	Kivrali Railway Station	2.56 km in WSW
	Bhimana Railway Station	2.70 km, NW
	NewSwarup Ganj Railway Station	2.97 km, NW
	Morthala Railway Station	7.97 km, SW

5.	Nearest Airport	Maharana Pratap Airport Udaipur ~ 90.76 km, E
6.	National Park, Wild Life Sanctuary, Biosphere Reserves, Wildlife corridors, Tiger/Elephant	Mount Abu Wild Life Sanctuary situated at a distance of 5.47 km in NW direction (Notified on 11.11.2020). ESZ is declared for Mount Abu Wild Life Sanctuary.

	Reserves, Protected Forests etc. within 10 km radius of the project site	
6.	Reserved / Protected Forest within 10km radius study area	

S. No.	Particulars	Distance (km) (From Lease Boundary)	Direction
Forests			
1.	Reserved Forest N/V Wara	0.055	S
2.	Protected Forest N/V Hirawala	0.56	NE
3.	Reserved Forest N/V Wara	0.96	SW
4.	Kivrali Ka Zor Reserved Forest	1.10	W
5.	Reserved Forest N/V Pipela	1.10	NW
6.	Reserved Forest N/V Pipela	2.08	NW
7.	Reserved Forest N/V Swarupganj	2.10	NW
8.	Mount Abu Wild Life Sanctuary	5.47	NW
9.	Nitaura Jor Reserved Forest	8.00	NW

7.	Water body within 10 km radius of study area	

S. No.	Particulars	Distance (Km) (From Lease Boundary)	Direction
Water Bodies			
1.	Hukli Nadi	8.89	NNE
2.	Silva Nala	5.54	E
3.	Kosiya Bhagra Nala	7.72	E
4.	Akhleti Nala	5.85	E
5.	Mandwara Distributary	3.36	E
6.	Khara Distributary	1.27	ESE
7.	Chitriya Nala	4.99	SE
8.	Sukli Nadi	Passing through the lease area	--
9.	Batriya Nadi	3.55	S
10.	Left Canal	1.52	E
11.	Banas River	2.37	WNW
12.	Gabir Nala	2.90	NW
13.	Right Canal	5.29	NW
14.	Grangri Bala	4.47	NNW
15.	Sangwara Minor	5.25	NW
16.	Sangbariya Balo	5.51	NW
17.	Sukli Nadi	5.24	NW

8.	Seismic Zone	Zone – III as per IS – 1893 (Part-1) -2002
D.	**Cost Details**	
1.	Total Project Cost	Rs. 203.526 Crore
2.	Cost for Environment Protection Measures	Capital Cost: Rs. 19 Crore Recurring Cost: Rs. 1.43 Crore/Annum

Source: *Site Visit & Pre- Feasibility Report*

1.6 MINING DETAILS

Table - 1.2
Mining Details

S. No.	Particular	Details
1.	Mining Method	Fully Mechanized Opencast Mining Method
2.	Production Capacity	Limestone: 2.85 Million TPA
3.	Total Geological Reserves	27,67,13,725.85 MT (276.71 Million TPA)
4.	Total Mineable reserves	5,67,92,655.3 MT (56.79 Million TPA)
5.	Life of Mine	20 years
6.	Bench Height	10 m
7.	Bench Width	15-20 m
8.	Elevation Range	Highest –360 MSL; Lowest – 295 MSL,
9.	Water Table	Water level Pre monsoon-235 MSL (60 m bgl) Water Level:- Post monsoon 240 MSL (55 m bgl).
10.	Ultimate pit limit	UPL- 300-200 MSL
11.	Number of Working days	300
12.	Number of Working Shifts	2 Shifts
Source: *Derived from Approved Mining Plan along with Progressive Mine Closure Plan*		

1.7 METHOD OF MINING

The mining operations will be carried out by fully mechanized opencast method, deploying Heavy Earth Moving Machinery (HEMM i.e. hydraulic excavators, rear dump trucks, hydraulic drills, bull dozers etc.) in conjunction with controlled blasting techniques NONEL (Non- Electrical Initiation system) for blasting. Loading will be done by Hydraulic Excavators. Limestone to be transported by dumpers to proposed crusher (1000TPH) located in the lease area. The crushed Limestone will be transported to the Proposed Cement Plant via covered conveyor belt.

1.8 YEAR WISE PRODUCTION & EXCAVATION

Table – 1.3 (A)
Excavation Details During the Plan Period (In Million Tonnes)

Year	Soil in million Tonne	OB in million Tonne	Mineral Reject in million Tonne	Mineral in million Tonne	Total Excavation in million Tonne
1st Year	Nil	Nil	Nil	Nil	Nil
2nd Year	0.0001	0.0036	0.0015	0.0183	0.0239
3rd Year	**0.04**	**5.7840**	**0.2478**	**2.8497**	**8.923**
4th Year	0.0051	3.7171	0.2477	2.8496	6.8283
5th Year	0.0010	2.3403	0.2478	2.8499	5.4409

Source: *Pre-feasibility Report of Approved Mining Plan along with Progressive Mine Closure Plan*

1.9 DESCRIPTION OF THE ENVIRONMENT

Baseline data for the environmental studies has been collected during Summer Season (March to May 2023) and revalidate the baseline has been done in Summer Season (March to May 2025) to carry out the Environment Impact Assessment study for the proposed Project.

Ambient Air Quality

PM_{10}: The maximum value for PM_{10} observed in 8 locations at Village: Delder 68.9 µg/m^3 and minimum value for PM_{10} observed at Village: Taroongi (within the Lease Area), Near-Village (Rohida) 44.5µg/m^3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which PM_{10} maximum value (66.8µg/m^3) in Bhimana Village and minimum value near village 29.0 µg/m^3. The 24 hours applicable limit for industrial, Residential Rural and Other Areas is -100 µg/m^3.

$PM_{2.5}$: The maximum value for $PM_{2.5}$ observed at Village: Delder, Bhimana 40.4 µg /m^3 and minimum value for $PM_{2.5}$ observed at Village: Urwariya, Hirawala (within the Lease Area) 26.8 µg/m^3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which $PM_{2.5}$ maximum value (43.5 µg/m^3) in Bhimana Village and minimum value near village Wada 18.5 µg/m^3.The 24 hours applicable limit for industrial, Residential Rural and Other Areas is- 60µg/m^3.

SO_2: The maximum value for SO_2 observed at Village: Delder 8.3 µg/m^3 and minimum value for SO_2 observed at Village: Rohida (Vasa), Near-Village (Rohida), Wada, Bhimana, Urwariya, Hirawala (within the Lease Area) 6.0 µg/m^3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which SO_2 maximum value (16.4 µg/m^3) in Deldar Village and minimum value near village Bharja 7.0 µg/m^3.The 24 hours applicable limit for industrial, Residential Rural and Other Areas is 80µg/m^3.

NO_2: The maximum value for NO_2 observed at Village: Delder 15.2µg/m^3 and minimum value for NO_2 observed at Village: Taroongi (within the Lease Area), Rohida (Vasa) 6.2 µg/m^3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which NO_2 maximum value (25.0 µg/m^3) in Deldar Village and minimum value near village Bharja 10.7 µg/m^3.The 24 hours applicable limit for industrial, Residential Rural and Other Areas is- 80µg/m^3.

CO: The maximum value for CO observed at villages: Taroongi (within the Lease Area), Rohida (Vasa), Near-Village (Rohida), Delder, Bhimana, and Hirawala (within the Lease Area) 802 µg/m^3 and minimum value for CO observed at Village: Near-Village (Rohida), Wada, Urwariya, Hirawala (within the Lease Area) 458 µg/m^3. Whereas, in the revalidate the baseline data has been done in 11 locations in which CO maximum value (940 µg/m^3) in Taroongi Village and minimum value near village Wada 240 µg/m^3.The 8 hours applicable limit for Industrial, Residential Rural and other areas is- 2000 µg/m^3.

Noise Levels

A) Day time Noise Levels Leq(day)

The daytime (Leqday) noise level is observed in project area to be 51.7 dB(A) which are within the prescribed limit of 75 dB(A) and in residential areas to be in the range of 49.5- 53.9 dB(A) which are within the prescribed limit of 55 dB(A). Whereas, in the revalidate the baseline data has been done in 11 locations in which noise level maximum value observed 54.1 dB(A) in Urwariya Village and minimum value near Bharja village 36.5 dB(A) .

B) Night time Noise Levels Leq(night)

The nighttime (Leqnight) noise levels are observed in project area to be in the range of 42.8 dB(A) which are within the prescribed limit of 70 dB(A) and in residential areas to be in the range of 41.3 – 43.7 dB(A) which are not within the prescribed limit of 45 dB(A). Whereas, in the revalidaite the baseline data has been done in 11 locations in which noise level maximum value observed 44.9 dB(A) in Hirawala Village and minimum value near Rohida (Vasa) village 33.9 dB(A) .

From the above study and discussions, it can be concluded that noise levels in the study area are well within the prescribed limits as prescribed by the CPCB.

Surface Water Quality

The results obtained for the collected samples during March to May 2023 indicate that the surface water quality was found to be well within the prescribed standard limit (Class C). The analysis results indicate that the pH of the surface water is in the range of 7.16 – 8.05. The TDS was found to be in the range of 432 - 524 Mg/l. Revliadte the sample was collected March to May 2025. The analysis results indicate that the pH of the surface water is in the range of 7.36 –7.68. The TDS was found to be in the range of 283.88- 427.34 Mg/l.

Other parameters like Total Hardness as CaCO3 is in range of 152-160mg/L, Total Alkalinity is 192-240mg/L, Dissolve Oxygen is 2.4-2.6mg/L, E-Coli is absent. Other parameters Calcium as Ca, Magnesium as Mg, Chloride as Cl, Sulphate as SO4 and Fluoride were found in the permissible range. Revalidate the data for Total Hardness as CaCO3 is in range of 108-1604mg/L, Total Alkalinity is 96-140mg/L, Dissolve Oxygen is 5.40-6.20 mg/L. Other parameters Calcium as Ca, Magnesium as Mg, Chloride as Cl, Sulphate as SO4 and Fluoride were found in the permissible range. E coli is absent in the surface water samples.

Surface water quality was also analyzed for Iron, Aluminum, Boron, Phenolic Compounds, Anionic detergents, Zinc, Copper, Manganese, Lead, Selenium, Arsenic, Nickel, Mercury, Hexa Chromium etc. and were found below the detection limit.

Ground Water Quality

The analysis results indicate that pH of groundwater were found to be in range of 6.9 to 7.6. The TDS were found to be in the range of 798 - 3489 mg /l. Other parameters like Total Hardness as CaCO3 (264 to 1300 mg/l), Total Alkalinity (256 to 496 mg / l), Calcium as Ca (81.60 – 457.60 mg/l), Magnesium as Mg (14.58 – 114.70 mg/l), Chloride as Cl 167.95 – 1533.52 mg/l), Sulphate as SO4 (23.89 – 345.98 mg /l) and Fluoride as F- (0.77 – 1.27 mg /l).

The samples was collected during Monsoon Season (March to May 2025). The analysis results indicate that pH of the groundwater were found to be in range of 7.05 to 7.57. The TDS were found to be in the range of 733 - 2860 mg /l. Other parameters like Total Hardness as CaCO3 (256 to 804 mg/l), Total Alkalinity (236 to 732 mg / l), Calcium as Ca (64.0–227.20 mg/l), Magnesium as Mg (21.38 –63.18 mg/l), Chloride as Cl (60-588 mg/l) and Fluoride as F- (0.34 – 1.23 mg /l).

Soil Quality

The pH of the soil samples varied from 7.29 to 8.07. The texture of the soil samples majorly consists of Silty and Silty loam. The soil samples majorly exhibit dark brownish and reddish-brown color at all the soil sampling locations.

The indicator such as organic matter varies from 0.89% to 1.45% and Organic carbon varies from 0.51% to 0.83%. The Water holding capacity varied from 43.77% to 49.20%. Nitrogen ranges from 350.39 to 420.19 kg/ha, Phosphorous ranges from 25.83 to 83.84 kg/ha, Potassium 220.37 to 915.87 kg/ha, Magnesium 242.82 to 539.26 mg/kg, Calcium 2514.88 to 4591.07 mg/kg and Sodium 89.64 to 239.50 mg/kg. The SAR value was observed under the limits at all the sampling locations with 0.45 to 0.89.

1.10 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Air Environment

The key air emissions from the mining activities (drilling, blasting, loading, unloading and transportation) are Particulate Matter, Oxides of Nitrogen (NO2) and Sulphur dioxide (SO2).

Proper mitigation measures like controlled blasting, water sprinkling before drilling, blasting & during transport activities, use of rock breaker to avoid secondary blasting, development of greenbelt/plantation etc. will be carried out to control the fugitive emission. Better maintenance of equipment & HEMMs, PUC checking of mining equipment’s & vehicles will help to reduce emissions. Proper protection measures i.e. use of Bag filters, Regular water spraying on Crusher hopper to arrest dust from becoming air-borne, construction of wind breaking walls especially at charging hopper & crushing place, development of green belt/plantation all around in the vicinity of the crusher to tarp fugitive dust will be carried out.

Water Environment

Seasonal water bodies viz. Sukli Nadi falls in mining lease area and Hukli Nadi , Silva Nala , Kosiya Bhagra Nala , Akhleti Nala , Mandwara Distributary, Khara Distributary, Chitriya Nala, Batriya Nadi, Left Canal, Banas River, Gabir Nala, Right Canal, Grangri Bala, Sangwara Minor, Sangbariya Balo, exist in the study area which receive water in the Monsoon Period and will not be adversely impacted as majority of these are distantly located.

Ground Water

The general elevation is ranges from 296 m AMSL to 361m AMSL. During Pre Monsoon period average water level of the Pindwara block is 13-meter bgl and Post Monsoon water levels is 10-meter bgl. Ground water will be intersected from the 3rd year onwards and permission for water intersection will be obtained from Central Ground Water Authority before such intersection. The mine seepage from working faces will be collected in sumps over lower benches and water will be pumped for its usage in mine and surplus water will be supplied to nearby Villagers. The mineral limestone and associated rocks do not contain any toxic substances so that there will not be any adverse impact on ground water quality.

Domestic wastewater generated (8.0 KLD) from mines office will be modular STP (10 KLD) and treated water will be used in greenbelt/plantation. Wastewater from workshop (8 KLD) will be treated in ETP (10 KLD) and treated water will be used in dust suppression after oil & grease trap. KMPL will make efforts to eliminate usage of Ground water after development of Mine Pit. Company will also use nontoxic chemical to reduce the water evaporation on haul roads. Dry fog system is proposed at the crusher unloading hopper to conserve the water. During monsoon or post monsoon time, excess water needs to be discharged, it will pass through sedimentation pond/check dams/filters for proper sedimentation prior to join natural streams or nallahs. Regular monitoring of ground water quality will be carried out.

Noise & Vibration

Major noise generating sources of the mining activity are drilling, blasting and HEMM deployed for loading & transportation of limestone.

Various measures will be undertaken to control noise & vibration. Drilling will be carried out with the help of sharp drill bits. Controlled blasting techniques through proper blast design and explosive selection will be used to reduce the noise & vibrations to a greater extent. Hydraulic rock breaker will be used in place of secondary blasting. DGMS guideline will be followed strictly to reduce the impact of blasting on nearby habitation. HEMMs equipped with acoustic cabins are/will be provided for the operators. Proper maintenance, oiling and greasing of HEMMs will be carried out. PPEs like earplugs/earmuffs will be provided to mine workers. Development of green belt/plantation along the mining boundary help in reducing noise level.

Crushing is also generating the noise pollution. Proper mitigation measures i.e. insulators & closed acoustic systems will be provided to control the noise pollution. Plantation will be developed around the crusher which also help to control the noise pollution.

Solid Waste Management

During the plan period 11.8452 Million Tonnes OB & 0.7450 Million Tonnes mineral reject will be generated. At conceptual stage, about 65.97 Million Tonnes of OB and 4.94 Million Tonnes mineral reject will be generated which will be used for backfilling purpose.

Land Environment

As per approved mining plan, the total excavated area will be 121.96 ha out of which 72.66 ha area will be back filled & 49.30 ha will be used for rain water storage. Area under utility & services will be 30.40 ha. About 592.99 ha area will be undisturbed. Greenbelt and plantation will be developed over an area of 55.64 ha.

1.11 POST PROJECT ENVIRONMENTAL MONITORING PROGRAMME

Table - 1.4
Post Project Monitoring Programme

S. No.	Description	Frequency of Monitoring
1.	Micro-Meteorological Data	Hourly
2.	Ambient Air Quality	Online CAAQMS & Manual as per CPCB Guideline
3.	Water Quality & Level	Quarterly
4.	Noise Level Monitoring	Quarterly
5.	Vibration Monitoring	On every blast
6.	Medical Checkup of employees	3 to 5 year interval
7.	Digital Mapping/ Drone survey of block area	Once in 3 years/ as per IBM guidelines

1.12 ADDITIONAL STUDIES

Additional Studies i.e. Hydro-Geological Study, Biological Study, Resettlement & Rehabilitation Plan and Risk Assessment & Disaster Management Plan are covered in EIA/EMP Report as per the Terms of References issued vide F. No. IA-J-11015/81/2024-IA-II(NCM), dated 05.05.2025.

1.12.1 HYDRO-GEOLOGICAL STUDY

Total water requirement will be 150 KLD. The NOC is obtained to withdrawal 9.5 KLD water required for drinking and domestics initially for two years, where no mining activity is proposed. Total water requirement is 150 KLD for which CGWA NOC will be obtained prior starting

working of 3 three years. The ground water consumption will gradually reduce as the mine progress and mine pits are developed to harvest the rainwater.

Detailed hydrogeological study has been carried out as per the guidelines issued by the CGWA from time to time has been prepared and given in this EIA/EMP Report.

As per the study due to presence of a multi-layered aquifer system and low permeability, the drawdown cones in the individual hydro-geological units will be small and stacked, hence impact on ground water resources is negligible.

Further, the extracted limestone is clean and no toxic chemicals will be used, water quality risks are expected to be low. A 50 m no-mining buffer zone from the river and nalas will be maintained, and protective structures such as embankments, rubble retaining wall (3×2×2 m), garland drains, and siltation tanks will be implemented to prevent silt and waste ingress.

The water quality of the mine lease area is good for all purposes. There will be no leachates or any other source of contamination resulting in deterioration of ground water quality from the mining activities. Hence, there is no expected quality impact due to withdrawal of ground water

1.12.2 BIOLOGICAL ENVIRONMENT

A primary field survey was carried out within 10 km radius impact zone in and around the project area to study the floral and faunal diversity of the study area.

As per study conducted in the study area and as per information collected from Forest Range Office, Pindwara, and Divisional Forest Officer, Sirohi, it is found that Mount Abu Wildlife Sanctuary is situated 5.47 km from Mine lease area, Whereas there are no National Parks, Biosphere Reserves, Wildlife Corridors, Ramsar site, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km radius of the Mine Lease.

Authenticated List of Flora and Fauna has been approved DCF, Sirohi vide letter dated 4.06.2025. As per the approved list of flora and fauna there are total 15 schedule-I species found in the study area i.e. i.e. *Panthera pardus* (Leopard), *Rusa unicolor* (Sambar deer), *Felis chaus* (Jungle Cat), *Paradoxurus hermaphroditus* (Common Palm Civet), *Canis lupus* (Indian Wolf), *Hyaena hyaena* (Striped Hyaena), *Canis aureus* (Jackal), *Vulpes bengalensis* (Indian Fox), *Hystrix indica* (Indian Porcupine), *Melursus ursinus* (Sloth Bear), *Naja naja* (Indian Cobra), *Ptyas mucosus* (Common Rat Snake), *Varanus bengalensis* (Bengal Monitor Lizard) *Pavo cristatus* (Indian Peafowl), *Tachyspiza badia* (Shikra) were recorded in the study area; which are categorized as Schedule- I fauna according to Indian Wildlife Protection Act (IWPA), 2022 conservation status.

For the conservation of these species Wildlife Conservation Plan has been prepared. Budget earmarked for the conservation of the same is Rs. 475 Lakh. Wildlife Conservation Plan for further approval has been submitted to DCF, Sirohi on 16.7.2025 which has been forwarded to Chief conservator of forest, Jodhpur vide letter dated 28.7.2025.

1.12.3 REHABILITATION & RESETTLEMENT ACTION PLAN

The Resettlement & Rehabilitation Plan has been aimed to address the rights and privileges of local people, ensures good share of jobs in the projects and facilitate comprehensive socio-economic development of the area.

The area of proposed mine is 800.9935 ha which falls in 7 Villages in 1 Tehsils namely, Villages: Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli in Tehsil Pindwara, District Sirohi, Rajasthan. As per the revenue record total mine area is 800.9935 Ha, out of which 227.9500 ha is Govt. Waste Land (29%) & 21.0900 ha (3%) Grazing /Charagah Land- & 551.9535 ha (68.0%) is Private Agriculture Land.

Two village habitation namely Bharja and Taroongi falls in the lease area. There are some individual habitants (Kaccha & Pakka) built on the private agriculture land falling within proposed Mining Pit. These habitants will be removed once the surface rights of the land will be acquired/ possessed with mutual understanding/ negotiation. Mining Operations will be carried out only after getting the land.

Further “Blasting will be conducted in accordance with the guidelines stated by the DGMS and by complying the regulations in this regard. However, when the Mines working will reach near the habitant’s those couldn’t be removed, permission will be obtained from DGMS for conducting controlled blasting, within the distance below 300 mtrs as permitted by DGMS else other Mining Method like rock breaking by hydraulic hammer etc, that is not involved the blasting operation will be adopted for extraction of the Mineral within the danger zone of blasting”.

KMPL has following options for acquisition of land for its proposed mining project:

Option 1: Acquire land falling in the mine block through provisions of LARR Act, 2013

Option 2: Land acquisition through mutual agreement with the land holders falling in the mine block area at negotiated rates and terms and conditions.

KMPL proposes to procure land on mutual agreement with the land holders at mutually agreeable rates.

It is proposed that required land shall not be acquired in one go. Land purchase shall be done in phases as per the requirement for mining purpose. This is proposed in order to ensure minimal disturbance of the land & associated people. No forceful land acquisition will be undertaken.

1.12.4 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

A Hazard Identification and Risk analysis is a systematic way to identify and analyze hazards to determine their scope, impact and the vulnerability of the built environment to such hazards and its

purpose is to ensure that there is a formal process for hazard identification, risk assessment and control to effectively manage hazards that may occur within the workplaces. Excessive dust, noise and vibration are the chief health hazards for the miners besides physical hazards.

The objective of disaster management plan for the proposed limestone captive mine is to be in a state of perpetual readiness through training and development to immediately control and arrest any emergency situation so as to avert a full-fledged disaster and the consequence of human and property damage and in the event of a disaster still occurring, to manage the same so that the risk of the damage to life and property is minimized.

1.13 ENVIRONMENT MANAGEMENT PLAN

KMPL have a full-fledged Environmental Management Cell (EMC) for environmental monitoring, implementation of mitigative measures and control. A group of qualified and efficient engineers with technicians will be deputed for maintenance, up keeping and monitoring the pollution control equipment, to keep them in working mode at the best of their efficiencies. The EMC shall oversee and implement the various functions to ensure that environmental status of the area remains will within the statutory standard of MoEF&CC and SPCB. The Capital Cost for EMP is Rs. 19 Crore and Recurring Cost for EMP is Rs. 1.43 Crore per annum.

1.14 POST MINING LAND USE DETAILS/RECLAMATION PLAN

Table – 1.5
Post-Mining Land Use of Core Zone

S. No.	Land Use Category	Present Land Use (Ha.)	At the End of 5th Year (Ha.)	Conceptual Stage(Ha.)
1	Soil Stack	0.0000	0.00	0.0000
2	Waste Dump	0.0000	22.61	0.0000
	Mineral Storage	0.0000	0.21	0.0000
3	Total Excavated	6.5300	32.04	121.96
	(A) Excavation (Water Reservoir)	0.0000	00.0000	49.30 (Water Reservoir)
	(B) Excavation (Backfilled)	0.0000	00.0000	72.66 (Re-grassing)
4	Area under utility services	4.85	11.11	30.40
5	Afforestation/Plantation (Unworked Area	0.0000	4.80 (Plantation)	55.64 (Plantation)
Total Disturbed Area		11.83	70.77	208
6	Undisturbed Area	789.16	730.2235	592.99
Total		800.9935	800.9935	800.9935

Source: *Approved Mining Plan along with Progressive Mine Closure Plan*

1.15 PROJECT BENEFITS

The project activity will help in meeting the growing demand of cement & hence help in the economic growth of the country. The mine will be contributing around Rs. 25.53 crore/year to the State & Central Govt. exchequers by way of mining revenue (Royalty, Premium, DMF, NMET, GST, SGST) with the execution of the project.

With the proposed development in and around the area, there will be supporting facilities/infrastructure eventually leading to the development of the area. The core benefit of the proposed project is the availability of limestone for cement manufacturing. The beneficial aspects of the project on the socio-economic environment of the area are in the fields of employment, service, trade, commerce, public utility, literacy, social awareness, health care facilities, recreation etc. The locals of the area will be benefited for the employment directly and indirectly. Direct employment, envisaged from the mine, is about 80 persons. PAFs & locals will be preferred in employment as per their eligibility. Further, there would be a lot of indirect employment opportunities arising due to the execution of this project like transportation, workshops establishment, petty contracts; commercial establishments (shops), truck owners, drivers etc. This will upgrade the economic status of the region and people living therein.

Based on the Public Hearing issues various community developmental activities in the form of medical facilities, education and creation of self-help groups will be proposed for the betterment of the locals. The project will help in the overall growth of the region.

1.16 CONCLUSION

The EIA/EMP study was prepared with compliance of ToR issued by MoEF&CC. Baseline data of land, air, water, noise, biological and socio-economic environment was duly assessed by conducting field investigation as well as by having an access to the available secondary information. The prediction of impacts was identified & evaluated and EMP is suggested to mitigate the environmental concerns arising from the proposed project.

With the proposed development in & around the area, there will be supporting facilities/infrastructure eventually leading to the development of the area. Employment (direct & indirect) will be generated with the execution of the proposed mine & its interlinked Cement Plant. Economy of the area will get boost and overall development of the region in terms of education, health, training, transport, automobile, industry is anticipated. Thus, the project will contribute to the Social, Environmental and Economic benefit of the local people and region.

File No: IA-J-11015/81/2024-IA-II(NCM)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
****

Dated **05/05/2025**

To,

SHRI ANANYA AGARWAL
M/s KAMLESH METACAST PRIVATE LIMITED
5A/5D, CORPORATE TOWER A-2, JLN MARG, JAIPUR, JAIPUR, RAJASTHAN, 302017
aya.agarwal@gmail.com

Subject: **Rohida Limestone Mine with production capacity of Limestone 2.85MTPA, Mineral Reject 0.24 MTPA, Soil 0.04 MTPA & OB 5.78MTPA, Total excavation 8.91MTPA along with 1000 TPH of Crusher in mine lease area of 800.9935ha by M/s Kamlesh Meta Cast Private Limited, located at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan - For Terms of Reference reg.**

Sir/Madam,

This is in reference to your application for Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding in respect of project Proposed Rohida Limestone Mine of Kamlesh Meta Cast Private Limited with production capacity of 8.91 Million TPA Total Excavation (Limestone (Mineral) – 2.85 Million TPA, Mineral Reject- 0.24, Soil – 0.04 Million TPA & OB – 5.78 Million TPA) with proposed 1000 TPH of crusher over an area of 800.9935 ha located in Village(S)-Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan. submitted to Ministry vide proposal number IA/RJ/MIN/509472/2024 dated 06/12/2024.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24A0000RJ5633273N
(ii) File No.	IA-J-11015/81/2024-IA-II(NCM)
(iii) Clearance Type	TOR
(iv) Category	A
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Sector	Non-Coal Mining
(vii) Name of Project	Proposed Rohida Limestone Mine of Kamlesh Meta Cast Private Limited with production capacity of 8.91 Million TPA Total Excavation (Limestone (Mineral) – 2.85 Million TPA, Mineral Reject- 0.24, Soil – 0.04 Million TPA & OB – 5.78

	Million TPA) with proposed 1000 TPH of crusher over an area of 800.9935 ha located in Village(S)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan.
(viii) Name of Company/Organization	KAMLESH METACAST PRIVATE LIMITED
(ix) Location of Project (District, State)	SIROHI, RAJASTHAN
(x) Issuing Authority	MoEF&CC
(xii) Applicability of General Conditions	no
(xiii) Applicability of Specific Conditions	no

3. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the Ministry for an appraisal by the Expert Appraisal Committee (EAC) in the Ministry under the provision of EIA notification 2006 and its subsequent amendments.

4. The above-mentioned proposal has been considered by Expert Appraisal Committee of EAC in the 43rd EAC meeting held on 22- 23 April 2025. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.

5. The EAC, in its meeting held on 22- 23 April 2025, based on information & clarifications provided by the project proponent and after detailed deliberations recommended the proposal for grant of Terms of Reference under the provision of EIA Notification, 2006 and as amended thereof subject to stipulation of specific and general conditions as detailed in Annexure (1). The details of the project as per approved minutes is given at Annexure (2).

6. The MoEF&CC has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the 43rd Expert Appraisal Committee meeting held on 22-23 April 2025 hereby decided to grant Terms of Reference for Rohida Limestone Mine of M/s Kamlesh Meta Cast Private Limited with production capacity of 8.91 Million TPA Total Excavation (Limestone (Mineral) – 2.85 Million TPA, Mineral Reject- 0.24, Soil – 0.04 Million TPA & OB – 5.78 Million TPA) with proposed 1000 TPH of crusher over an area of 800.9935 ha located in Village(S) - Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan under the provisions of EIA Notification, 2006 and as amended subject to the following specific conditions, in addition to the standard ToR conditions applicable to Non-Coal mining projects given at Annexure(1).

7. The Ministry reserves the right to stipulate additional conditions, if found necessary.

8. The Terms of Reference to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

9. Issuance of Terms of Reference (ToR) shall not be construed as a commitment or guarantee by the Ministry for grant of Environmental Clearance (EC) to the project. The proposal will be considered for EC only after detailed appraisal as per applicable rules, regulations, compliance of commitments done by Project proponent and in compliance of orders/judgements of Hon'ble Courts/Tribunal.

10. This issues with the approval of the Competent Authority.

Copy To

1. **The Secretary,** Ministry of Mines, Government of India, Shastri Bhawan, New Delhi-110 001.
2. **The Secretary,** Department of Mines & Geology, Government of Rajasthan, Secretariat, Jaipur.
3. **The Secretary,** Department of Environment, Government of Rajasthan, Secretariat, Jaipur.
4. **The Secretary,** Department of Forests, Government of Rajasthan, Secretariat, Jaipur.
5. **The Chief Wildlife Warden,** State Forest Department**,** Government of Rajasthan, Jaipur.
6. **The Deputy Director General of Forests (C),** Ministry of Environment, Forest and Climate Change, Regional Office,

Gandhi Nagar A wing- 407 & 409, Aranya Bhawan, Near CH-3 Circle,Sector-10A, Gandhi Nagar-382010
7. **The Chairman,** Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
8. **The Member Secretary,** Central Ground Water Authority, 18/11, Jam Nagar House, Man Singh Road, New Delhi-110011.
9. **The Chairman,** Rajasthan State Pollution Control Board, 4, Jhalana Institutional Area Jhalana Doongri, Jaipur-302004, Rajasthan.
10. **The Controller General,** Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
11. **Director General,** Directorate General of Mines Safety, Hirapur, Dhanbad-826001.
12. **The District Collector,** Sirohi District, Government of Rajasthan.
13. **Guard File.**
14. **PARIVESH Portal.**

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Specific Conditions

S. No	Terms of Reference
1.1	PP needs to submit the location of the proposed cement plan, route of transportation and timeline for completion of OLBC.
1.2	PP needs to comply with the Hon'ble NGT's order dated 21.07.2020 in the OA No. 304/2019 and the recommendation of the CPCB report regarding distance criteria.
1.3	PP shall comply with all the Judgement/ Orders of Hon'ble NGT in the OA No. 304/2019 in the matter of M.Haridasan & Ors. Applicant (s) versus State of Kerala & Ors. Reg.
1.4	PP shall comply with all the Orders/ Judgement of Hon'ble Supreme Court, Hon'ble Court, Hon'ble NGT or any court of Law in the matter of Aravalli Hills/ Range.
1.5	PP needs to engage any national institute of repute to explore the comprehensive strength of the limestone ore and feasibility of deploying surface miners.
1.6	PP needs to submit the complete design and timeline for completion of the embankment near Pit no. 12 and 13. Consultation with DGMS should be done with respect to safety aspects of embankment.
1.7	PP shall plan so that that the UPL of the proposed pit nos 12 & 13 shall always remain above the HFL of Sukli River to ensure zero ingression of river water. Consultation with DGMS should be done in this regard.
1.8	PP needs to submit the data regarding the loss of water flow in Sukli River due to change in catchment area owing to the proposed mining activity. PP also needs to provide an action plan to compensate for the water loss to the farmers that are dependent on the water of Sukli River for irrigation.
1.9	PP needs to submit the water quality data for the upstream and downstream of the river. PP shall ensure that there are no adverse effects on Sukli River due to the proposed mining activity. Scientific study should be conducted to know the possible adverse impacts on Sukli River from Mining operations, blasting etc.

S. No	Terms of Reference
1.10	The natural water bodies and or streams which are flowing in and around the mine lease area should not be disturbed. PP shall consult state Water Resource department and SPCB regarding safeguards for River/Nallah and submit an action plan for protection of the same.
1.11	Households, Primary Health Care Centres (PHC) & Schools lying near to the proposed pit area shall be planned to shifted within 2 years. No mining activity shall be permitted within 500 m of schools and habitations. Accordingly, the Project Proponent needs to submit an action plan to expedite the shifting of habitation present within the ML area and also to safeguard them from adverse effect of mining operations.
1.12	PP to engage a reputable national institute for conducting both blasting and vibration studies and to carry out a scientific assessment of air overpressure and fly rock distances following blasting.
1.13	Appropriate Higher capacity machinery to be planned to be used within the ML area in order to reduce the pollution. Accordingly, PP needs to submit an action plan.
1.14	PP needs to reduce diesel consumption by proposing to deploy electric driven vehicles in the project.
1.15	PP should ensure that all the documents including the approved Mining plan and EIA/EMP should be in consonance with each other.
1.16	The Project Proponent should submit an action plan to construct a water reservoirs within the mine lease area so that reliance on outside water is lessened/ eliminated.
1.17	The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter Langelier Saturation Index which will denote the impact of calcium carbonates on water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.
1.18	PP should engage national reputed institute for scientific diversion studies. PP should consult State Water Resource Department for conservation, safeguards regarding the Nadis natural waterbodies, streams, rivers, etc. in and near the project area. If required, NoC from Water Resource Department should be taken for the above water bodies, streams.
1.19	PP needs to plan for the construction of ponds, water storage or collection structures, and other rainwater harvesting systems to address the water levels and requirements of the area effectively.
1.20	The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.
1.21	The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.
1.22	The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.
1.23	The Project Proponent needs to prepare plan to develop the treatment facility for waste water within

S. No	Terms of Reference
	the ML area. STP should also be planned.
1.24	The Project Proponent can explore for establishment of nursery on 5 hectares, in collaboration with a reputable forest institute, to cultivate local species such as Khejri, Rohida, Senegalia senegal (commonly known as Khair, Kumttha, Babul) etc.
1.25	The Project Proponent needs to furnish details of waste material handling plan and year wise back filling plan.
1.26	The Project Proponent needs to submit the detailed scientific study on flora and fauna and also to highlight on the endangered species. The Project Proponent needs to verify the list as per the latest Wildlife Protection Amendment Act, 2022. Accordingly, PP shall prepare a wildlife Conservation Plan as per Wildlife Amendment Act 2022 and shall submit a proof of submission of the plan to State Forest Department.
1.27	The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, and predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.
1.28	The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration.
1.29	The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.
1.30	The Project Proponent needs to undertake the enumeration of the species within the mine lease area before cutting. The Project Proponent also needs to submit the compensatory afforestation plan for the number of trees to be cut in the mine lease area and to explore the possibility of tree transplantation.
1.31	The Project Proponent needs to prepare the installation plan for permanent fixed water sprinkling system along the Haul roads.
1.32	The Project Proponent needs to plan for developing the Renewable energy facility within the ML area and incorporation of electric vehicle in order to reduce the dependency upon the diesel.
1.33	The Project Proponent needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of tar road/cart tracks, electric line etc., PP should also submit the details of number of saplings (at least 2500/ha) to be planted, type of saplings proposed and the area to be covered under greenbelt/plantation along with the timeline and budget. The greenbelt/plantation plan shall be prepared in such a way that the ecology of the area shall be restored.
1.34	The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.
1.35	PP needs to conduct the drone survey of the ML area and submit the same at the time of EC

S. No	Terms of Reference
	application.
1.36	PP needs to submit an action plan for installation of ETP with Oil & Grease trap within the ML Area.
1.37	PP needs to undertake the carrying capacity of the proposed road that is to be utilized for transportation of minerals till the installation of OLBC.
1.38	PP needs to submit an action plan as per Ministry's OM dated 24.07.2024.
1.39	The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF)/Project Displaced Families (PDF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc. PP need to submit the plan for Socio economic development of the neighborhood habitats based on the need based survey along with the time bound action plan. PP also needs to submit the possession certificate and timeline for acquiring the land. Further, PP needs to submit the map demarcating the purchased land and non-purchased land if any at the time of appraisal of EC.
1.40	The Project Proponent needs to submit employment based skill development plan for the local people, and thrust should be to provide employment to local people after imparting training.
1.41	PP needs to submit an action plan regarding safeguarding or diversion of river, Natural streams in and around the lease area, in consultation with State Water Resources Department.
1.42	PP needs to look after the alternate Charagah land area. PP should submit a detailed action plan to provide an alternate charagah land.
1.43	PP needs to come out with the plan for the crusher installation.
1.44	PP needs to project year wise backfilling plan.
1.45	A slope stability study should be conducted through national institute of repute and incorporated into the EIA report. PP may also explore whether study of seismic impact on the ecology and environment of the area is required through the above institute.
1.46	The PP shall ensure compliance of MoEFCC O.M. dated 14.01.2025 regarding streamlining the implementation of GSR 702 and GSR 703 dated 12.11.2024.
1.47	PP needs to comply the OM dated 24.07.2024 of MoEFCC, wherein it is stated that the plantation of saplings shall be carried out in the earmarked 33% greenbelt area as part of the tree plantation campaign "EK Ped Ma ke Naam" (एकपेड़माँकेनाम) and the details of the same shall be uploaded in the Meri Life portal (https://merilife.nic.in).

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	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
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given
1.3	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
1.4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the areashould 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)
1.5	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
1.6	Details about the land proposed for mining activities should be givenwith 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
1.7	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
1.8	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
1.9	The study rea 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
1.10	Land use of the study rea 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
1.11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land

S. No	Terms of Reference
	area, distance from mine lease, its land use, R&R issues, if any, should be given
1.12	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
1.13	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
1.14	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
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given
1.16	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
1.17	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 Wildlifeand copy furnished
1.18	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
1.19	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 Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered
1.20	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)

S. No	Terms of Reference
1.21	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
1.22	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
1.23	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
1.24	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
1.25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided
1.26	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
1.27	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
1.28	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
1.29	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

S. No	Terms of Reference
1.30	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
1.31	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
1.32	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
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report
1.34	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
1.35	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
1.36	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
1.37	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
1.38	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
1.39	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
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given

S. No	Terms of Reference
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report
1.43	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
1.44	Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) 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. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF 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. g) 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. h) 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. i) 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

<u>Additional Terms of Reference</u>

1. The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP report, as per the notification S.O 751 (E) dated 17.02.2020. The instant TOR is valid up to four years from the date of issuance of TOR.

2. The Project Proponent should submit the EIA/EMP report as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006 after incorporating the details of public hearing conducted and covering the above-mentioned issues, to take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

Annexure-2

Details of the project.

The instant proposal is for Reconsideration of Terms of Reference Rohida Limestone Mine with production capacity of Limestone 2.85MTPA, Mineral Reject 0.24 MTPA, Soil 0.04 MTPA & OB 5.78MTPA, Total excavation 8.91MTPA along with 1000 TPH of Crusher in mine lease area of 800.9935ha by M/s Kamlesh Meta Cast Private Limited, located at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan.

2. The details of Project submitted by the Project Proponent are given as under:

i. Project details:

Name of the Proposal	The instant proposal is for Reconsideration of Terms of Reference Rohida Limestone Mine with production capacity of Limestone 2.85MTPA, Mineral Reject 0.24 MTPA, Soil 0.04 MTPA & OB 5.78MTPA, Total excavation 8.91MTPA along with 1000 TPH of Crusher in mine lease area of 800.9935ha by M/s Kamlesh Meta Cast Private Limited, located at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan	
Location	Village (s)	Rohida (Rohera as per toposheet), Bharja, Taroongi (Tarangi as per toposheet), Doliphali, Vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli
	Tehsil	Pindwara
	District	Sirohi
	State	Rajasthan
	Latitudes	24° 32’ 47.3874”N to 24° 38’ 33.7254”N
	Longitudes	72° 51’ 57.958”E to 72° 57’ 57.515”E
	SoI Topo sheet No.	45D/14, 15 & 45 H/2
Company’s Name	Kamlesh Metacast Private Limited	
Accredited Consultant and certificate no.	Enkay Enviro Services Private Limited NABET/EIA/23-26/RA 0326 validity till 14.12.2026	
KML file	Uploaded	
Seismic zone	Seismic Zone III, as per the seismic zoning map of India given in BIS code IS: 1893 (Part1)-2002.	

ii. Category details:

Category of the project	A
Schedule No.	1(a) Mining of minerals
Mining lease Area (MLA) (in ha.)	800.9935
General Conditions (if any)	None

iii. Details of Mine Lease in chronological manner:

Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Prospecting License: Prospecting License (PL) for limestone over an area of 1859.0275 ha near Village Rohida (Rohera as per toposheet) in Tehsil Pindwara, District Sirohi, Rajasthan granted vide Government Order no. Nikhabhu/ Sirohi/ CC.2/ P1 (2) 7/11/ 5255 dated 24-12-2014. PL executed on 12-03-2015. Letter of Intent (LoI): The LOI for an area of 800.9935 ha has been granted by Mines and Petroleum Department, Government of Rajasthan. LoI has been issued vide order no. P 3 (6) Khan/Group-2/2022 dated 13.03.2023. As per the condition of LoI, Mining plan has to be approved within 6 months and Environmental Clearance has to be obtained within 2 years. Upon request of KMPL and approval from GOR, approval timeline has been extended upto 12.03.2026 for EC and 12.09.2025 for mining plan vide order no. P.3 (6) Khan/Grp-2/2022 dated 25.07.2023 and P.3 (6) Khan/Grp-2/2022 dated 23.08.2024.
Date of the grant	13.03.2023
Name of the Mineral & (Major/Minor)	Limestone (Major)
Period of Grant	Upto 12.09.2025 for mining plan and 12.03.2026 for EC
Granted by	Mines and Petroleum Department, Government of Rajasthan
Mine lease area in Ha	800.9935

iv. Land Use/Land Cover of the Mine Lease Area:

Private land	551.9535 ha
Government land	227.9500 ha
Forest Land	Nil

Grazing /Charagah Land	21.0900 ha
Total Mining lease area (MLA)	800.9935 ha.
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

v. Mining plan details:

Mining Plan including Progressive Mine Closure Plan (approved by Indian Bureau of Mines/DMG)	Letter No.	Letter no. E12030-MCDR-MPC0LST/28/2024-AJM-IBM_RO_AJM
	Date	27.11.2024
	Mineral & (Major/Minor)	Limestone (Major)
	Mine Lease Area, Ha	800.9935
	Validity	50 years validity from the date of lease registration and execution.
Mining Parameters	Quantitative Description	
Method of Mining	Open cast mechanized mining	
Drilling/Blasting	Wet drilling with sharp drill bits (Hydraulic, Hole Dia 150mm, hole depth 11 mtr hole) Controlled blasting by optimal charging of blast holes and use of delay detonator (NONEL) using ANFO as explosive. Use of hydraulic rock breaker to avoid secondary blasting.	
Geological Reserves	27,67,13,725.85 MT (276.71 Million Tonnes)	
Mineable Reserves	5,67,92,655.30 MT (56.79 Million Tonnes)	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Limestone (Mineral) – 2.85 Million TPA, Mineral Reject- 0.24, Soil – 0.04 Million TPA & OB – 5.78 Million TPA	
Life of mine	20 years	
Mine Bench Height & Bench Width	10 m & 15-20m	
No. of Mine Benches	12	
Existing Depth, m bgl	0	
Ultimate Depth of Mining, m bgl	76	
Ground Water Table, m bgl	60m bgl in Pre-monsoon and 55m bgl in Post monsoon	
Details of ground water intersection	Mining will be carried out upto 250 MSL during the mining period. After 15 years for which CGWA NOC will be obtained for dewatering.	
Individual bench slope	80º	
Overall pit slope	≤45º	

Details of existing/ proposed Crusher	Proposed: Crusher (1000 TPH) with wobbler and screening (200 TPH)
Mineral Beneficiation	Nil
RoM output size	1000 mm
Transportation details including capacity of dumper/tipper, mode of transport and distance	The Mineral will be transported to crusher located within applied ML area by Dumper/Trucks capacity 55 tonne
Generation of Topsoil/OB & its Management during plan period & conceptual period	Plan Period: Top soil: 0.056 Million Tonne OB: 11.8452 Million Tonne Conceptual Period: Top Soil: 0.16 Million Tonne OB: 65.97 Million Tonne Top soil will be used for simultaneously for greenbelt/plantation development Ob will be used for backfilling of pit no-2 and rest will be stacked at earmarked dump site.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Plan Period: Mineral Reject: 0.7450 Million Tonne Conceptual Period: Mineral Reject: 4.94 Million Tonne Mineral reject will be stacked at earmarked dump site.

vi. Water requirement

Total water requirement	Fresh water: 150 KLD 10 KLD will be required for drinking and sanitation, 20 KLD Greenbelt development, 10 KLD mine workshop and 110 KLD for dust suppression
	Treated Water: 8 KLD HEMM washing water will be passed through Oil and grease separator. Treated water will be used for dust suppression at crusher.
Source	Ground water
Permission for withdrawal/ intersection along with details of grant and its validity	Permission will be taken as per Rules & Regulation

vii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance &Directions
Village	Taroongi (Tarangi as per Toposheet) & Bharja	Some village parts falls within the lease area
Town	Abu Road	9.82 Km. SW
Highway	NH-927A	Passing through the lease area
	NH-27	1.70 Km. NW
Interstate Boundary	None	None
Railway Station/Railway line	Kivrali Railway Station	2.56 km in WSW
Water bodies	Hukli Nadi	8.89 km in NNE
	Silva Nala	5.54 km in E
	Kosiya Bhagra Nala	7.72 km in E
	Akhleti Nala	5.85 km in E
	Mandwara Distributary	3.36 km in E
	Khara Distributary	1.27 km in ESE
	Chitriya Nala	4.99 km in SE
	Sukli Nadi	Passing through the lease area
	Batriya Nadi	3.55 km in S
	Left Canal	1.52 km in E
	Banas River	2.37 km in WNW
	Gabir Nala	2.90 km in NW
	Right Canal	5.29 km in NW
	Grangri Bala	4.47 km in NNW
	Sangwara Minor	5.25 km in NW
	Sangbariya Balo	5.51 km in NW
	Sukli Nadi	5.24 km in NW
Forest	Nitaura Jor Reserved Forest	8.0 km in NW
	Reserved Forest N/V Swarupganj	2.97in NW
	Reserved Forest N/V Pipela	2.08 in NW
	Protected Forest N/V Hirawala	0.56 in NE
	Reserved Forest N/V Wara	0.064 in S
	Reserved Forest N/V Wara	0.96 in SW
	Kivrali Ka Zor Reserved Forest	1.10 in W
	Mount Abu Wild Life Sanctuary	5.47 in NW
	Reserved Forest N/V Pipela	1.10 in NW

viii. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	PP has submitted non forest land certificate vide letter dated 02.02.2025 from the Office of Regional Forest Officer Pindwara, Sirohi
National Park	No	The NOC has been obtained from the DCF Sirohi vide letter no. F ( ) Survey /DCF/2025/454, date 20.01.2025.
Wildlife Sanctuary	Mount Abu Wildlife Sanctuary (5.5 Km. NW)	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	
Schedule-I species (No.s and name of schedule-I species with authenticated letter)		PP has stated that the information will be submitted in EIA-EMP report.
Wildlife Conservation Plan		PP has stated that the information will be submitted in EIA/EMP Report.

ix. Green belt/ Plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	128.30 ha, 1,39,100 saplings
Budget for green plant & plantation till the end of life of mine.	792.82 lakhs
Budget for nursery	15 lakhs
Details of existing plantation and its survival rate	None
No. of tree cuts in the mine lease area and compensatory afforestation	250 and 1:10 as compensatory afforestation=2500
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	30.70

x. Baseline detail:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)

Period of baseline data collection	01/03/2023 to 31/05/2023
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Pre-monsoon
Ambient Air Quality (no. of locations) and results	8
Noise level (no. of locations) and results	8
Water Quality (no. of locations) and results	8
Soil Quality (no. of locations) and results	8

xi. Rehabilitation & Resettlement (R&R): This Proposal is for ToR

R & R details	R&R study will be covered during EIA study.

xii. Court case details:

Court Case, No and its present status	PP has stated that no litigation is pending.
Undertaking by Project Proponent w.r.t court case	PP has submitted an undertaking for no court cases vide letter dated 29.11.2024.

xiii. Affidavit/Undertaking details: This Proposal is for ToR

Affidavit as per Ministry's OM dated 30.05.2018	PP has submitted an affidavit on 29.11.2024 as per the Ministry's OM dated 30.05.2018

xiv. PP has submitted the following point-wise reply to the ADS raised during 38th EAC Meeting held on 27th December 2024 and also further raised the additional details were sought on 09.01.2025 respectively. PP has submitted the reply on 06.02.2025 as given below:

S. No	ADS Point	Reply by Project Proponent
1.	The Project proponent needs to obtain necessary permission/NOC from State Water Resource Department to undertake mining activity on the banks of Sukli River passing through ML area.	The NOC is obtained from the Department of Water Resource, Sirohi vide letter no. 2024-25/5071 dated 03.01.2025. The NOC is granted for mining (nearest pit no. 12 & 13) at a distance of 50 Mts from River Bank subjected to construction of retaining wall {rubble wall 3x2x2(m)} along the pit boundary towards the river to protect from any waste/siltation blocking the natural drainage channel. As per the NOC the mining area (pit no. 12 & 13) are not the part of River.

2.	PP needs to obtain the HFL data from State Water Resource Department for past 30 years and submit the same for examination by EAC. PP should provide an undertaking that no Mining will be conducted within the HFL (Highest Flood Level) of the Sukli River.	The Department of Water Resources Swaroopganj, has issued a letter dated 13.01.2025 stating that the UPL of pit no. 12 & 13 which are proposed at minimum distance of 50 Mts. from the River HFL and is not be affected by HFL in past 30 years. River HFL level is given as below: 1. Pit no 12: river HFL is recorded as 318 MSL, while the pit UPL is 320 MSL. 2. Pit no 13: river HFL 318.5 MSL and Pit UPL 330 MSL.
3.	Households, Schools and primary health care centers lying near to the proposed pit area shall be shifted within 2 years. No mining activity shall be permitted within 500 m of school and habitation. Accordingly, the Project Proponent needs to submit an action plan to expedite the shifting of habitation/school/health centre present within the ML area and also to safeguard them from adverse effect of mining operations	In this regard the letter received from the Office of DGMS, vide letter no. AJM/Directorate-1/2025/169 dated-20.01.2025 where danger zone is considered as 300 Mts. as per the Rule 164 (1-A) (b) of MMR 1961 and no blasting will be conducted within 300 mts. danger zone from any permanent surface structure without obtaining the DGMS permission. The letter also clarifies that, in case of school and habitation exist within danger zone of 300 mts., a prior scientific study is required to be submitted and approved from DGMS with maximum charge per delay and other blasting parameters. As per the letter, Permission under Regulation 164(1-B) (a) of MMDR 1961, controlled deep hole blasting is granted up to 100 mts. distance from any school and habitation. However, in our case, during the 1st year working there is no mining activity undertaken and only haul road will be developed from pit no. 1 to crusher. (2.20 Km)

		During the 2nd year, mining will be initiated in pit no. 1 which will be located at distance of 470m away from the village Tarangi (Taroongi). Based on the 2nd year mining a scientific study will be carried out from the reputed credible institute for working within 300 Mts. and prior DGMS approval will be obtained for safe mining maintaining minimum distance from the sensitive locations. Woking within the 300 Mts. blasting with NONEL technology (shock tube delay detonator), maximum charge per delay and other blasting parameters will be followed as per the approval. If there is any R&R the same will be mentioned in EIA/EMP Report
4.	PP needs to revise the distance of its UPL from the proposed pits as per MMR (Metalliferous Mining Regulations) /DGMS guidelines to ensure safety of Habitation/School and Primary Health Care Centers.	As per DGMS letter dated 20.01.2025 the danger zone is considered unto 300 mts. and accordingly no deep hole blasting will be conducted within Danger Zone from any permanent surface structure without obtaining the DGMS permission. As per the letter mining up to 50 Mts. distance from any sensitive location prior approval will be taken. Based on the 2nd year mining a scientific study will be carried out from the reputed institute for working within 300 Mts. and prior DGMS approval will be obtained for safe mining maintaining minimum distance from the sensitive locations to ensure safety of Habitation/School and Primary Health Care Centres.

5.	No river water shall be used in mining operations. PP shall submit an action plan to source water from nearby STPs as stated during the meeting instead of sourcing it from groundwater.	Total fresh water requirement will be 150 KLD out of which 10 KLD will be required for drinking and domestic and 140 KLD will be required for mining activities. Pursuant to the application made for willingness of treated w/w from STP at Santpur by RUID, a denial letter date-21.01.2025 has been received. Thus, we depending upon the ground water. For this application will be made to abstract ground water to the tune of 150 KLD on NOCAP of CGWA. The block is categorized as Semi-Critical and the permission of the same will be obtained. It is also mentioned that later as the pits develop, the ground water abstraction will be restricted only for drinking purpose only.
6.	PP needs to submit the proposed transportation route for transportation of mined out limestone till the cement plant is constructed.	We are in discussion with the Government of Rajasthan for finalization of location of the proposed cement plant. Land acquisition for cement plant will start after getting the final approval from Government. After getting the EC for mining project, the total mining production in 1st two years will be 8383 tonne only which will be stacked near the crusher. From 3rd year onwards full mining production of 2.85 million TPA will be achieved which will be transported to the proposed cement plant site initially by road and later feasibility for installation of OLBC will be explored after the plant site finalization.

7.	PP needs to submit the embankment design approved by State Government /Local Administration.	The design of proposed embankment/parapet wall along the pit no. 12 & 13 has been approved by the Water Resources Department Sirohi.
8.	PP needs to submit a NoC from DFO regarding mining operations near ESZ and wildlife sanctuary.	The nearest distance from the ML boundary and Mount Abu Wildlife sanctuary is 5.5 km & the lease area is outside of the Mount Abu ESZ. The NOC has been obtained from the DCF Sirohi vide letter no. F ( ) Survey /DCF/2025/454, DATE-20.01.2025.
9.	PP needs to generate electricity by installing solar Power Plant and submit action plan to reduce diesel consumption by 30 %.	A 10 KW solar panel will be installed at the roof of mine office to meet the power requirement for office and common areas. Power consumed by the crusher will be sourced from Grid where the green power consumption will be ensured under the PPA mode to align with India's Net Zero Commitment. The fuel conservation measures will be: Use of fuel-efficient equipment's Use of low sulphur content diesel or green fuel as available. The action plan for reduction of 30% diesel will be elaborated in the final EIA/EMP.

xv. PP has submitted the following point-wise reply to the ADS was raised during 41st EAC Meeting held on 27th February 2025 and also further raised the additional details were sought on 27.02.2025 respectively. PP has submitted the reply vide letter dated 15.04.2025 as mentioned below:

S. No	ADS Point	Reply by Project Proponent
1	In light of the Hon'ble Supreme Court's order dated 09.05.2024, Project proponent should consult state DMG regarding location of mine lease inside/outside Aravalli Hills and range.	Acting on the query raised under this point, we have sought a letter from Office of DMG, wherein it is stated that The Hon'ble Court Order dated 09.05.2024 mentions that all Statutory approvals from Various Authorities can be obtained and

		the order does not cease any approvals for the same. The proposed project doesn't fall in the Aravalli Hills and also does not contempt the order dated 08.04.2005 of Hon'ble Supreme Court. The letter is issued in this regard from the Office of DMG Udaipur: vide letter no. 766 dated 26.03.2025.
2.	PP should obtain a letter/certificate from DCF Sirohi about forest land involved in the project, if any.	There is no forest land involved in proposed project has been endorsed in the letter issued from the office of regional forest office, Pindwara vide letter no. F()/ Surve/ 2024-2025/105 dated 02.02.2025.
3.	PP needs to obtain the HFL data from State Water Resource Department for past 30 years and submit the same for examination by EAC.	A letter pursuant to the EAC MOM posted, was requested from The Department of Water Resources, Sirohi. The letter no 58 dated 04/04/2025 states that "*The Sukli River is not a perennial river and there are no gauge plates and measuring device affixed to measure the flow/flood level. So, they don't have record Flow/ Flood Level data for the Sukli River. The HFL level was calculated based on the maximum rainfall recorded in the catchment area over the past 30 years and with inputs from local senior person*" Based on this they have already provided the HFL level 318 m in the letter no 588 issued from, the office of Assistant Engineer water resource sub division, Sarupganj dated 13.01.2025.
4.	PP needs to provide the official name of the Sukri/ Sukli river as per Government record.	The above referred letter at point no. 3 clarifies the name as "Sukli River"
5.	PP needs to come out with an action plan to commission OLBC along with route survey plan.	Action Plan to commission OLBC: We have signed a MOU with Govt of Rajasthan in the Investors Summit for allotment of land for setting up a cement plant. We have already requested the District Collector, Sirohi for allotment of land (copy submitted) and recently we have received

		the reply from Office of District Collector, ADM Sirohi, vide letter no 1519-20 dated 10.04.2025. The proposal is under process (copy submitted) We also submitted the google earth photo for proposed land and OLBC route plan from Crusher to cement plant for Length – 5.76 km and Width – 1.2 meter.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Air pollution control and management(dry fog system at crusher, crusher enclosures, bag dust collector at crusher, water sprinkler on haul roads)	0.87	0.10
Water and wastewater control and management (Garland drains, de-silting pits, septic tank & soak pits, oil and grease separation pits for HEEMS workshop, roof top rainwater harvesting and water meter)	0.50	0.05
Health and safety management (use of PPE's and primary health care & fencing)	0.10	0.010
Environmental monitoring (CAAQMS, Peizometer)	0.60	0.06
Plantation & Green Belt	7.93	0.25
Total	10.0	0.47

xvii. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	Total Cost of EMP will be given after PH. Capital Cost of EMP- 10 Cr.
Project Cost	203.526
Employment (No.s)	80

3. Observation and Recommendation of the Committee:

The EAC deliberated the instant proposal for Reconsideration of Terms of Reference for Rohida Limestone Mine for mining of limestone with production capacity of 2.85MTPA, Mineral Reject 0.24 MTPA, Soil 0.04 MTPA & OB 5.78MTPA, total excavation 8.91MTPA along with the installation of 1000 TPH Crusher by M/s Kamlesh Meta Cast Private Limited in mine lease area of 800.9935ha located in village(S)

Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan.

The Project Proponent and the consultant presented the KML file and explained the key site features of the Mine lease and the study area. PP stated that Mount Abu Wildlife Sanctuary is located at a distance of 5.47 km in NW direction from the ML area and its ESZ is located at a distance of 4.47 km. PP mentioned that some part of village Tarangi and Bharja is lying within the ML area and village Watera is located at a distance of 50 m in the eastern direction. PP also added that Bharja to Wada Tar road passes through the ML area, NH-927A (Swaroopganj- Ratlam) road is also passing through ML area and NH-27 is located at a distance of 2.56 km in WSW direction. PP also stated that Sukli River is passing through ML and it merges with Banas River. EAC also noted the presence of habitations, schools and primary health centre within the ML area and asked PP about the proposed safeguards. PP stated that they will shift the habitation where necessary and will adhere to safety norms before starting the mining activity. EAC noted the proposed safety distance submitted by PP are not as per DGMS guidelines. It accordingly, advised PP to revise the safety distances as per the rules/guidelines of DGMS.

Thereafter, the Project Proponent presented the reply to the ADS raised vide minutes of the 41st EAC meeting held during 21.02.2025.

With regard to the involvement of any forest land within mine lease area, PP presented a letter dated 02.02.2025 issued by the Office of Regional Forest Officer Pindwara, Sirohi wherein it was mentioned that forest land is not present within the mine lease area.

Regarding HFL data for past 30 years and official name of the river, PP submitted a letter dated 04.04.2025 from the Office of Executive Engineer, Water Resource Department Sirohi, wherein it was stated that the name of the said river as per the record is 'SUKLI' and there are no gauge plates and measuring device affixed to measure the Flow/ Flood Level. Accordingly, no data is recorded.It has been further mentioned in the letter that the HFL level was calculated based on the maximum rainfall recorded in the catchment area over the past 30 years and with inputs from local senior person and same has been communicated earlier by the Assistant Engineer, Water Resource Sub Division, Swarupganj Office letter no 588 dated 13/01/2025.

EAC noted the submission of PP and reiterated that in absence of data, the benchmark of 318m HFL as provided vide letter dated 13.01.2025 and 04.04.2025 may be taken in account while proposing the mining activity at proposed pit no. 12 & 13. PP informed the committee that Department of Water Resources Swaroopganj, has issued a letter dated 13.01.2025 stating that the UPL of pit no. 12 & 13 are

proposed at minimum distance of 50 Mts. from the River HFL and is not be affected by HFL in past 30 years. PP also added that the at pit no. 12, river HFL is recorded s 318 MSL whereas pit UPL will be 320 MSL, similarly, river HFl near pit 13 is 318.5 MSL and pit UPL is 330 MSL. PP also submitted a drawing (not in scale) showing Sukli riverbed and its HFL signed by Assistant Engineer.

EAC noted the submission of PP and highlighted that CPCB had earlier issued a distance criteria for permitting stone quarrying in reference to Hon'ble NGT order dated 28.02.2020 in the OA NO. 304/2019 which was later mandated by Hon'ble NGT vide order dated 21.07.2020.

EAC suggested PP to come out with alternate techniques for mining/excavation at proposed pit no. 12 & 13 areas close to River. EAC also suggested to explore the options of surface miners based upon the compressive strength and hardness of the ore.

Regarding action plan for installation of OLBC, PP submitted that they have identified a land for proposed cement plant and already have requested the State Government for its allotment vide letter dated 10.04.2025. PP also submitted the proposed route for OLBC installation. EAC noted the submission of PP and advised to submit the detailed OLBC installation plan at the time of EC application.

With regard to the Hon'ble Supreme Court's order dated 09.05.2024 and location of proposed ML area, PP submitted a letter dated 26.03.2025 from Office of Director-DMG, Udaipur stating that the aforesaid order mentions that all statutory approvals from various authorities can be obtained and the order does not cease any approval for the same. It is also mentioned that the ML area doesn't fall in the Aravalli Hills. EAC noted the submission of PP and asked to submit an undertaking in the form of an affidavit to comply with the directions of Hon'ble courts. Accordingly, PP vide email dated 24.04.2025 submitted an affidavit dated 22.04.2025 wherein PP has stated that they will abide by the final outcome of the Hon'ble Supreme Court in the matter of ongoing WP number 4677/1985 in relation to Aravalli Hills. PP has also submitted that they will abide by the outcome of the Hon'ble NGT order in the matter of ongoing OA No. 304/2019 with respect to revising the distance criteria by CPCB from lease to various sensitive areas. In light of the Hon'ble Supreme Court's order dated 09.05.2024, Project proponent should regularly consult state DMG regarding location of mine lease inside/outside Aravalli Hills/range.

Based on aforesaid discussions and presentation made by the Project Proponent and the Consultant, the Expert Appraisal Committee (EAC), in its 43rd EAC meeting held on 22-23 April, 2025, under the provisions of the EIA Notification, 2006 and its subsequent amendments, **recommended** the proposal for the grant of Terms of Reference (ToR) for Rohida Limestone Mine of Kamlesh Meta Cast Private Limited

with production capacity of 8.91 Million TPA Total Excavation (Limestone (Mineral) – 2.85 Million TPA, Mineral Reject- 0.24, Soil – 0.04 Million TPA & OB – 5.78 Million TPA) with proposed 1000 TPH of crusher over an area of 800.9935 ha located in Village(S) - Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan. The recommendation is for undertaking a detailed EIA/EMP study and is subject to the certain specific conditions, in addition to the standard ToR conditions applicable to Non-Coal mining projects.

ToR Compliance

Point wise compliance of ToR Points issued by MoEFCC, New Delhi Vide Letter No. IA-J-11015/81/2024-IA-II(NCM) dated 5th May, 2025 for proposed Limestone Mining Project with proposed production capacity of 8.91 MTPA (Total Excavation) (Limestone – 2.85 MTPA, Mineral Reject-0.24 MTPA, OB- 5.78 MTPA & Soil – 0.04 MTPA) along with Installation of 1000 TPH Crusher with Wobbler and Screening 200 TPH over an area of 800.9935 Ha. Located in Village (s)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla and Kharadoli, Tehsil –Pindwara, District – Sirohi, Rajasthan.

ToR Point No.	ToR Point	Compliance	Reference in EIA/EMP Report
A.	**Specific Terms of Reference for (Mining of Minerals)**		
1	**Ground Water**		
1.1	PP needs to submit the location of the proposed cement plant, route of transportation and timeline for completion of OLBC.	The cement plant will be located in the western direction of the ML Area. The length of the OLBC with the capacity of 1200 TPH from mine crusher to proposed plant will be 2.57 km and will be completed along with operation of cement plant. Till completion of cement plant, the limestone will be transported by covered trucks/dumpers through NH 971A. The Level of Service (LOS) value of NH-927A with existing traffic is “B” i.e., very good. During the operation of the proposed limestone mine, 173 vehicles (two-way trucks 2*173=345 nos per day) will be added in the existing traffic of NH-927 A and the LOS value will be same i.e., Very Good. Thus, it can be concluded that the present road network is good enough to bear the increased traffic load till OLBC installed.	Chapter 2 Para 2.7.4 Page no 29

1.2	PP needs to comply with the Hon'ble NGT's order dated 21.07.2020 in the OA No. 304/2019 and the recommendation of the CPCB report regarding distance criteria.	The NGT, in its interim order, considered the Central Pollution Control Board's (CPCB) report, recommending a minimum distance of 100 meters when blasting is not involved and 200 meters when blasting is involved. On October 25, 2021, the Supreme Court granted liberty to the parties to re-engage with the NGT, essentially sending the matter back for further deliberation. Accordingly, NGT did issue orders on 9th Dec, 2021 directing a joint committee to conduct an expert study on the safe distance for stone quarries from habitations and the impact of blasting using NONEL Detonator Technology in stone quarries. CPCB submitted joint committee report on 2.3.2023 before Hon'ble NGT. In the report, Blast induced vibration, air over pressure, fly rock & study on the blast influence zone was carried out by the CSIR-Central Institute of Mining and Fuel Research (CSIR-CIMFR) in all selected quarries at a distance of 50 m to 500m. As per the study report, using NONEL technology, the PPV, AOP, Fly rock, noise and air emission are with in norms. Now, the State of Kerala has also to file its response in the matter placing on record some subsequent developments with regard to latest technology of operation of quarries etc. We will follow the final directions of the NGT orders regarding the distance criteria on habitation using controlled blasting technology to maintain the PPV, AOP, Fly rock, noise and air emission norms prescribed by the respective Govt. Department. A scientific study has been carried out by the IIT, Jodhpur to determine the controlled blasting parameters to maintain safe distance from habitation as 100 meter. However, deep hole blasting with NONEL technology will be restricted at a distance approved by the DGMS for both deep hole-controlled blasting and use of rock breaker till allowed distance.	Chapter 4 Para 4.7.1 Page no. 198
1.3	PP shall comply with all the Judgement/ Orders of Hon'ble NGT in the OA No. 304/2019 in the matter of M.Haridasan & Ors. Applicant (s) versus State of Kerala & Ors. Reg.	KMPL will comply with the final judgment/orders of the Hon'ble NGT in the OA No. 304/2019 as applicable for limestone mining (Major mining) using controlled blasting technology (NONEL detonator) to maintain safe distance from habitation.	-

1.4	PP shall comply with all the Orders/ Judgement of Hon'ble Supreme Court, Hon'ble Court, Hon'ble NGT or any court of Law in the matter of Aravalli Hills/ Range.	Certificate for non-involvement of Aravalli Range has been obtained from the office of Mining Engineer, Department of Mines and Geology vide dated 26.03.2025. However, we will follow the order of the Hon'ble court in the matter of Aravalli Hills/Range in future in applicable.	***Chapter 2 Annexure VII***
1.5	PP needs to engage any national institute of repute to explore the comprehensive strength of the limestone ore and feasibility of deploying surface miners.	The study has been carried out by the IIT, Jodhpur. The Uniaxial Compressive Strength (UCS) is measured as 76.3 MPa. As per the study, surface miner's best performance zone is 40 to 60MPa. The Rajasthan's limestone is generally too strong, too abrasive and too voluminous for surface miners, rippers or chemical splitters to compete with a well-engineered drilling & blasting programme. Controlled drilling and blasting achieve the following performance parameters in such limestone deposit: • Lower cost due to scalable energy and minimal mechanical wear. • Consistent <400 mm fragmentation suited to modern cement crushers. • Ability to mine 8–12 m benches, sustaining 5–8 MTPA outputs. • Flexibility to adjust charge, delay and stemming to cope with variable UCS and heritage vibration limits. Accordingly, IIT Jodhpur study suggested the wet drilling and controlled blasting using NONEL detonators as the technically superior method for limestone mine operations.	*Chapter 2 Para 2.7.4 Page no 26*
1.6	PP needs to submit the complete design and timeline for completion of the embankment near Pit no. 12 and 13. Consultation with DGMS should be done with respect to safety aspects of embankment.	The embankment is proposed from the HFL of the Sukli River is 50m on UPL of Pit no 12 & 13 which will be constructed prior start of mining in these pits. The construction work will take 3 months and cost will be Rs 2.25Cr. Total length of the proposed embankment wall at Pit no.12 is 600 meters and at Pit no. 13 is 1000 meters. The entire wall will be RCC and will follow in accordance with **IS code IS 456-2000& SP 34.** For the safeguard of the embankment, DGMS Udaipur has advised vide letter dated 21.7.2025, to ensure proper engineering parameters of the embankment and will be inspected only after giving notice of mine opening. Copy of the same is enclosed as **Annexure XIV**. We will consult with DGMS after giving the notice of opening for getting the advise. The embankment design for the embankment is done by HiDPI, Jaipur which is enclosed as **Annexure XIV a**.	*Chapter 4 Para 4.5.16.10 Page no 181* ***Annexure XIV & XIV a***

1.7	PP shall plan so that that the UPL of the proposed pit nos 12 & 13 shall always remain above the HFL of Sukli River to ensure zero ingression of river water. Consultation with DGMS should be done in this regard.	A sufficient vertical and horizontal distance is considered from the UPL to HFL of river Sukli to avoid ingression of river water into pits. Pt wise details is given as below: **Pit no 12:** The Sukli River bed level is 315 MSL and the HFL is 318 MSL. The UPL of pit no. 12 will be at 320 MSL maintaining a buffer zone of 50m horizontal and 2m vertical from the HFL. In addition, a RCC embankment is proposed from 320 MSL to 320.9 MSL to avoid ingression of river water into pit. **Pit no 13:** The Sukli River bed level is 315 MSL and the HFL is 318.5 MSL. The UPL of pit no. 13 will be at 330 MSL maintaining a buffer zone of 50m horizontal and 11.5m vertical from the HFL. In addition, a RCC embankment is proposed from 330 MSL to 330.9 MSL to avoid ingression of river water into pit. **DGMS Consultation:** DGMS Udaipur has advised vide letter dated 21.7.2025 to give first notice of opening one month prior to the commencement of mining operation for considering on record. However, it is advised to consider the proper engineering parameters for embankment proposed against the river. Copy of the same is enclosed as Annexure XIV. Accordingly, the embankment design is done by HiDPI, Jaipur following which **IS code IS 456-2000& SP 34** is enclosed as **Annexure XIV a**. After giving the notice of opening of mine, we will consult with DGMS for seeking the guidance for embankment design and other measures to avoid the ingression of river water into pit.	*Chapter 4 Para 4.5.16.1 Page no. 182* ***Annexure XIV & XIV a***

<table>
<tr>
<td>1.8</td>
<td>PP needs to submit the data regarding the loss of water flow in Sukli River due to change in the catchment area owing to the proposed mining activity. PP also needs to provide an action plan to compensate for the water loss to the farmers that are dependent on the water of Sukli River for irrigation</td>
<td>The water loss in River Sukli due to rainwater collection in mining pits is given as below:
<table>
<tr><th>Year</th><th>Pit Area (Sq m)</th><th>Annual Rainfall (m)</th><th>Annual Rainfall Contribution to mine Pit</th></tr>
<tr><td>1</td><td>-</td><td>0.792</td><td>-</td></tr>
<tr><td>2</td><td>3,360</td><td>0.792</td><td>1,198</td></tr>
<tr><td>3</td><td>193,832</td><td>0.792</td><td>69,082</td></tr>
<tr><td>4</td><td>261,832</td><td>0.792</td><td>93,317</td></tr>
<tr><td>5</td><td>235,997</td><td>0.792</td><td>84,109</td></tr>
<tr><td>6th to Conceptual stage</td><td>491,645</td><td>0.792</td><td>175,222</td></tr>
</table>
Considering the 300 days of annual running mine and 140 KLD water requirement, the annual requirement is calculated as 42000 m3. Hence, after the 3rd year the mine will not withdraw any ground water except 10 KLD required for drinking and domestic purposes. The water collected in mine pit will be used for mining purposes. The additional water will be made available to cement plant and farmers for irrigation.
To compensate for the 42000 m3 water per annum used in the mining area, we will promote the modern sustainable micro irrigation system in the nearby agriculture field for saving of water used in agriculture. On an average irrigation water required for Wheat Crop is approx. 3500 m3/ha over a 4-month period to get the yield of 6 tonnes/ha. Sprinkler practices can reduce water consumption by the 50%. Hence, to compensate the 42000m3 water consumption, KMPL will promote the use of sprinkler system in the agriculture in adjacent 24ha. Considering the capital investment of water sprinkler irrigation system Rs. 40000/ha, a budget of Rs. 9.6 lakhs are proposed to promote the sustainable water efficient agriculture in adjacent farming land.
In addition, abstraction charges will be paid to the SGWB/CGWA for withdrawal of rain water and seepage water collected in pit which is used by the department for implementation of site-specific suitable demand/ supply side interventions. The excess water after use in mining purpose and in cement plant, will be made available to farmers</td>
<td>Chapter 4 Para 4.5.18 Page no. 184</td>
</tr>
</table>

1.9	PP needs to submit the water quality data for the upstream and downstream of the river. PP shall ensure that there are no adverse effects on Sukli River due to the proposed mining activity. Scientific study should be conducted to know the possible adverse impacts on Sukli River from Mining operations, blasting etc.	The Sukli River is not Seasonal, hence water quality parameters are not tested. However, during the rainy season, one sample was collected in July 2025 near entry point at proposed pit no.12 and exit point of River through ML area. Surface water quality is given as below, and the quality belongs to IS 2296 class-C. The likely impact of mining near Sukli River is siltation of River. The mitigation measures proposed are a safety zone of 50 m on either side of Sukli River, construction of embankment, and garland drain with siltation tank at pit no. 12 and 13 will provide safeguard the River from siltation. For avoiding the impacts of blasting on Sukli River, a scientific study has been carried out by IIT, Jodhpur for use of controlled blasting technology to avoid the fly rocks and siltation of river.	*Chapter 3 Table 3.22 Page no. 80* *Chapter 4 Para 4.5.16.1 Page no. 182*

Sl. No.	TESTS	Unit	Sukli River Upstream	Sukli River Down stream	IS 2296 Class-C
1.	pH	-	7.36	7.42	6.0-9.0
2.	Biological Oxygen Demand as BOD (mg/l) 5 days at 20 0C	mg/l	1.20	2.50	3.0
3.	Total Dissolved Solids as TDS	mg/l	390.52	427.34	1500
4.	Total Hardness as CaCO3	mg/l	148.00	164.00	-
5.	Chloride as Cl	mg/l	28.00	32.00	600
6.	Sulphate as SO4	mg/l	17.60	21.20	400
7.	Nitrate Nitrogen as NO3	mg/l	5.11	6.32	50
8.	Fluoride as F	mg/l	0.52	0.54	1.5
9.	Iron as Fe	mg/l	0.12	0.17	0.50
10.	Copper as Cu	mg/l	<0.05	<0.05	1.5
11.	Total coliform	MPN/100 ml	110.00	147	5000

1.10	The natural water bodies and or streams which are flowing in and around the mine lease area should not be disturbed. PP shall consult state Water Resource department and SPCB regarding safeguards for River/Nallah and submit an action plan for protection of the same.	Natural water bodies and nala flowing in and around the ML area will not be disturbed due to the mining operation. The WRD, Sirohi has issued the safeguard measures for River/nalla vide letter No. S.No./Tak/2024-25/5071 dated 3.1.2025. RO SPCB Sirohi also issued safeguard measures for River/nalla vide letter No. RSPCB/Abu Road/Sirohi/SM-558/1364 dated 10.7.2025. Copy of the both letters is enclosed as **Annexure XI.** Following safeguard measures for the River/Nalla will be implemented as suggested by the WRD and SPCB: 1. There are total 15 No.s pits in the above mining project, out of which two pits (Pit no. 12 & 13) are located at a distance of 50 mts from the River Sukli which flows through the lease area. A safety zone of 50 m on either side of Sukli River will be maintained by construction of an embankment on Pit boundary towards the Riverbank and garland drain with siltation tank to prevent siltation of River with a cost of Rs 2.25 which will be completed before start of working at pit no 12 and 13. 2. Existing 2 Nos. RCC Bridge having width of 8.8 mtr. constructed on River Sukli are adequate for transportation of mineral. 3. During the mining operation, the rain nalla will not be disturbed. Drainpipes will be provided below the haul road to avoid disturbance of natural flow (21 Nos Nala and Pipe length 22 mtr each) wherever the Haul Road crosses Nala. 4. The Garland drain and desilting pits will be constructed along the topsoil, OB dump, mineral storage and working pit site to avoid siltation of natural nala and River Sukli. Safety wall all along the working pit will be provided to avoid the entering of surface runoff in mine pit during rainy season. 5. Control blasting, wet drilling and water spray on haul road and crusher will be practiced to maintain the ambient air quality.	*Chapter 4 Para 4.5.16.1* *Page no 183* ***Annexure XI***

1.11	Households, Primary Health Care Centers (PHC) & Schools lying near to the proposed pit area shall be planned to shift within 2 years. No mining activity shall be permitted within 500 m of schools and habitations. Accordingly, the Project Proponent needs to submit an action plan to expedite the shifting of habitation present within the ML area and also to safeguard them from adverse effect of mining operations.	A scientific study has been carried out by the IIT, Jodhpur to determine the controlled blasting parameters to maintain safe distance from habitation. Based on the controlled blasting parameters suggested by the IIT Jodhpur, the prior approval from DGMS will be obtained for maintaining a safe distance from the habitations by using both controlled blasting with NONEL detonators and rock breakers. Any house or property falls within the mining working area and suggested minimum distance by the DGMS will be maintained by rehabilitation with mutual agreement of property owners prior start of work. We will strictly adhere to MMR (Metalliferous Mines Regulation) 1961 / DGMS guidelines for undertaking controlled blasting activity so that safety is ensured and ground vibration, overpressure and fly rock are well within the prescribed norms. We will monitor each blast by Seismograph and maintain blast wise record.	*Chapter 4 Para 4.7.1 Page no. 199*

1.12	PP to engage a reputable national institute for conducting both blasting and vibration studies and to carry out a scientific assessment of air overpressure and fly rock distances following blasting.	A scientific study has been carried by the IIT, Jodhpur to determine the controlled blasting parameters to maintain safe distance from habitation. The comprehensive scientific assessment demonstrates that mining operations can be conducted safely in proximity to residential areas through implementation of properly designed and controlled blasting techniques. Study is carried out for different distances at 50m, 100m, 200m, 300, 400 and 500m with different controlled parameters of charge kg/delay, stemming length, no. of holes per raw and hope depth etc. The predicted values suggest the safe distance as 100m as per the following results. The calculated PPV values of 4.12 mm/s at 100 meters is well below the DGMS safe limit of 5 mm/s for domestic structures. The estimated over pressure with confinement is 0.02 kPA (132.9 dB) at 50m, and 0.05 (128 dB) at 100m. So, it is estimated that if proper confinement is maintained, the air overpressure will be below the structural and human damage threshold value of 134 dB at 100m. The flyrock analysis indicate that without any mitigation measures, the blasted rock may disperse up to 35 meters from blast point. If a Factor of Safety (foS) of 1.5 is considered, a minimum safe distance stands approximately at 53 meters. The prescribed limits of the peak particle velocity (mm/s) as prescribed by the Directorate of General of Mines Safety (DGMS) on ground vibrations for different structures depending on the frequency of blast waves (technical Circular no. 7, 1997) will be maintained using controlled blasting with NONEL technology and the prior approval will be obtained from DGMS Office. We will strictly adhere to MMR (Metalliferous Mines Regulation) 1961 / DGMS guidelines for undertaking controlled blasting activity so that safety is ensured and ground vibration, overpressure and fly rock are well within the prescribed norms. We will monitor each blast by Seismograph and maintain blast wise record.	*Chapter 4 Para 4.7.1 Page no. 199-201*
1.13	Appropriate Higher capacity machinery to be planned to be used within the ML area in order to reduce pollution. Accordingly, PP needs to submit an action plan.	In view of the rated 2.85 million Tonnes limestone production, higher capacity mining equipment viz. hydraulic excavators have been considered as 5 m3 bucket capacity. The capacity of dumpers has been considered as 55 ton (11 Nos) in place of earlier proposed 35 (15 Nos) tonne off-highway dump trucks have been proposed for material handling from mine as per approved mining plan. For optimized fuel consumption various measures like regular maintenance, use of fuel additives and premium fuels, use of aerodynamic devices etc. are proposed to be adopted to lower the fuel consumption.	Chapter 2 Para 2.7.1.5 Page no 17

1.14	PP needs to reduce diesel consumption by proposing to deploy electric driven vehicles in the project.	Considering the existing best available mining machinery, the diesel consumption is calculated as 0.495 ltr/tonnes limestone production. The diesel-based dumpers will gradually replace with EV to reduce 25% diesel consumption as 0.377 ltr/tonnes limestone production in first five years and details is given as below:	Chapter 2 Para 2.7.1.4 Page no 16-17

Diesel consumption as per the best available practices

S. No.	Name of Equipment	No of Equipment	Run Hour	Specific diesel consumption Lt/hr	Total diesel Consumption Lt/day
1	Excavator	5	12	40	2400
2	Dumper	15	14	3	630
3	Drill Machine	1	12	50	600
4	Rock Braker	1	12	50	600
5	Loader/Dozer	3	12	13	468
	Total				4698
	Limestone production tonnes/day				9500
	Specific diesel consumption limestone production Ltr/tonnes				0.495

Diesel consumption proposed for 25% reduction

S. No.	Name of Equipment	No of Equipment	Run Hour	Specific diesel consumption Lt/hr	Total diesel Consumption Lt/day
1	Excavator	5	11	38	2090
2	Dumper	15	11	2	330
3	Drill Machine	1	11	38	418
4	Rock Braker	1	11	38	418
5	Loader/Dozer	3	11	10	330
	Total				3586
	Limestone production tonnes/day				9500
	Specific diesel consumption limestone production Ltr/tonnes				0.377

Presently, few cement companies have deployed electric trucks for clinker transportation only. As advancements in electric mining equipment continue, it's plausible that EVs will be integrated into quarry operations including limestone transport, in the near future. KMPL is committed to environment protection and will explore the possibility of deploying EVs in limestone transport within the quarry clinker/cement transportation. Techno-economical viability will be explored to deploy in mining.

Following measures will be adopted for fuel-efficient mining operations:

1. Blending of high quality biodiesel to reduce GHG Emissions.
2. Purchase of most fuel efficient equipment.
3. Implementation of smart fleet management system with various external sensors (GPS, Payload on wheels, RFID tag, engine temperature, tyre pressure etc) for fleet tracking and its health condition monitoring in real time.
4. Embracing a cognitive approach for fuel optimization (Internet of things-IoT and cloud base system for monitoring of fuel consumption which helps the most fuel efficient mine operation).
5. Exploring of EV based HEMM in phased manner based on site suitability.

1.15	PP should ensure that all the documents including the approved Mining plan and EIA/EMP should be in consonance with each other.	Complied	

1.16	The Project Proponent should submit an action plan to construct a water reservoirs within the mine lease area so that reliance on outside water is lessened/ eliminated.	In the end of 3rd year working, the sufficient rainwater will be available for mining operation. The daily water requirement for mining operation will 140 KLD which will be met from mine pit after 3rd year working completion. The collected water will be stored in mining pits to avoid use of outside water. For domestic water consumption of 10 KML, ground water will be used with CGWA permission.	*Chapter 4 Para 4.5.18 Page no. 185*
1.17	The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter Langelier Saturation Index which will denote the impact of calcium carbonates on water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.	Total 11 nos of ground water samples and 4 surface water samples were collected. A study on Langelier Saturation Index has been carried out for surface water & ground water in the study area. As per the study the water is Slightly scale forming and corrosive in ground water samples and slightly corrosive but non-scale forming in surface water. The index is related to the deposition of a calcium carbonate film or scale; this covering an insulate pipes, boilers and other components of a system from contact with water. Information obtained from the Langelier Index can be useful in estimating water treatment requirements for low pressure boilers, cooling towers, water treatment plants as well as serving as a general indicator of the corrosivity of water. Detailed report is enclosed with this EIA/EMP Report.	*Chapter 3 Para 3.13.3 Page no. 86*

S. No.	Details of Water sample	Sampling Period/Date	pH (measured)	pHs (Calculated)	LSI = pH – pHs	Interpretation
Ground Water						
1.	Tarangi (within the Lease Area)	March to May 2025	7.15	7.1	0.049	Slightly scale forming and corrosive.
2.	Crusher Location		7.06	7.3	-0.24	Slightly corrosive but non-scale forming.
3.	Near-Village (Bharja)		7.57	7.5	0.08	Slightly scale forming and corrosive.
4.	Near-Village (Vatera)		7.55	7.3	0.22	Slightly scale forming and corrosive.
5.	Rohira(Vasa)		7.21	6.7	0.55	Scale forming but non corrosive.
6.	Near-Village (Rohira)		7.24	6.8	0.44	Slightly scale forming and corrosive.
7.	Delder		7.20	7.0	0.23	Slightly scale forming and corrosive.
8.	Wada		7.49	7.4	0.048	Slightly scale forming and corrosive.
9.	Bhimana		7.49	7.4	0.073	Slightly scale forming and corrosive.
10.	Urwariya		7.45	7.0	0.46	Slightly scale forming and corrosive.
11.	Hirawala (within the Lease Area)		7.05	7.4	-0.32	Slightly corrosive but non-scale forming.
Surface Water						
1.	Sukli River	May to June 2025	7.36	7.9	-0.55	Slightly corrosive but non-scale forming.
2.	Sukli River		7.42	7.9	-0.44	Slightly corrosive but non-scale forming.
3.	Amthala (Banas River)		7.61	8.2	-0.59	Serious corrosion.
4.	Dhanari (Banas River)		7.68	8.1	-0.37	Slightly corrosive but non-scale forming.

1.18	PP should engage national reputed institute for scientific diversion studies. PP should consult State Water Resource Department for conservation, safeguards regarding the Nadis natural water bodies, streams, rivers, etc. in and near the project area. If required, NoC from Water Resource Department should be taken for the above water bodies, streams.	There is no proposal of diversion of any natural nala/ river and water resources. The WRD, Sirohi has issued the safeguard measures for River/nalla vide letter No. S.No./Tak/2024-25/5071 dated 3.1.2025. RO SPCB Sirohi also issued safegurard measures for River/nalla vide letter No. RSPCB/Abu Road/Sirohi/SM-558/1364 dated 10.7.2025. Copy of both letters is enclosed as **Annexure XI.** The following safeguard measures for the River/Nalla by WRD and SPCB: 1. There are total 15 No.s pits in the above mining project, out of which two pits (Pit no. 12 & 13) are located at a distance of 50 mts from the River Sukli which flows through the lease area. A safety zone of 50 m on either side of Sukli River will be maintained by construction of an embankment on Pit boundary towards the Riverbank and garland drain with siltation tank within the safety zone of River during plan period will be constructed to prevent siltation of River. Cost, Rs 2.25. 2. Existing Bridge of RCC, 2 Nos. having width of 8.8 mtr. constructed on River Sukli are adequate for transportation of mineral. 3. During the mining operation, the rain nalla will not be disturbed. Drainpipes will be installed below the haul road to avoid disturbance of natural flow (21 Nos Nala and Pipe length 22 mtr) wherever the Haul Road crosses Nala. 4. The Garland drain and desilting pits will be constructed along the topsoil and OB dump site to avoid siltation of natural nala and River Sukli. 5. Control blasting, wet drilling and water spray on haul road and crusher will be practices maintaining the ambient air quality.	*Chapter 4 Para 4.5.16.1* *Page no 183* ***Annexure XI***
1.19	PP needs to plan for the construction of ponds, water storage or collection structures, and other rainwater harvesting systems to address the water levels and requirements of the area effectively.	The average water level of the Pindwara block is 10 meter bgl in post monsoon and 13bgl meter in pre-monsoon. There are rainwater storage ponds in the nearby village of Bharja, Vatera and Tarangi. KMPL will rejuvenate the existing ponds by increasing the depth of ponds for an increase of rainwater collection. Rooftop rainwater harvesting structures will be constructed at the Govt school of all three villages.	*Chapter 4 Para 4.5.18 Page no. 184*

1.20	The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP	Detailed hydrogeological study has been carried out as per the guidelines issued by the CGWA from time to time has been prepared and given in this EIA/EMP Report. As per the study due to presence of a multi-layered aquifer system and low permeability, the drawdown cones in the individual hydro-geological units will be small and stacked, hence impact on ground water resources is negligible. Further, the extracted limestone is clean and no toxic chemicals will be used, water quality risks are expected to be low. A 50 m no-mining buffer zone from the river and nalas will be maintained, and protective structures such as embankments, rubble retaining wall (3×2×2 m), garland drains, and siltation tanks will be implemented to prevent silt and waste ingress. The water quality of the mine lease area is good for all purposes. There will be no leachates or any other source of contamination resulting in deterioration of ground water quality from the mining activities. Hence, there is no expected quality impact due to withdrawal of ground water	***Annexure XIX***
1.21	The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP	Detailed hydrogeological study has been carried out as per the guidelines issued by the CGWA from time to time has been prepared and given in this EIA/EMP Report. The mine will intersect the ground water table in 3rd year at 10mbgl during monsoon season. CGWA NOC will be obtained prior start of 3rd year working.	*Chapter 7 Para 7.3 Page no. 226* ***Annexure XIX***
1.22	The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology upgradation, etc. The efforts shall be delineated in the EIA/EMP.	The total water requirement for the proposed project will be 150 KLD which is very minimal water requirement. Company has a proposal for a zero liquid discharge. No wastewater will be discharged outside the mining lease area. Domestic wastewater generated (8.0 KLD) from mines office will be treated in modular STP (10 KLD) and treated water will be used in greenbelt/plantation. Wastewater from workshop (8 KLD) will be treated in ETP (10 KLD) and treated water will be used in dust suppression after oil & grease trap. KMPL will make efforts to eliminate usage of Ground water after development of Mine Pit. Company will also use nontoxic chemicals to reduce the water evaporation on haul roads. Dry fog system is proposed at the crusher unloading hopper and permanent water sprinkler on haul road to conserve the water used for dust suppression.	*Chapter 2 Para 2.12 Page no 35*

1.23	The Project Proponent needs to prepare plan to develop the treatment facility for wastewater within the ML area. STP should also be planned	Domestic wastewater generated from mine office will be treated in modular STP (10 KLD) and treated water will be used for greenbelt plantation. Wastewater generated from workshop will be treated in ETP (10 KLD) and treated water will be used in dust suppression after oil & grease trap.	*Chapter 2 Para 2.12 Page no 35*
1.24	The Project Proponent can explore for establishment of nursery on 5 hectares, in collaboration with a reputable forest institute, to cultivate local species such as Khejri, Rohida, Senegalia senegal (commonly known as Khair, Kumttha, Babul) etc	KMPL will develop a nursery in 5 ha for native species development in collaboration with the Arid Forest Research Institute (ICFRE-AFRI) Jodhpur, Rajasthan or Rajasthan Forest Department, Silviculture Wing Banki, Udaipur. These institutes conduct research on forestry needs in the arid and semi-arid regions of Rajasthan and surrounding areas. This institute will also suggest increasing vegetative cover and biodiversity conservation. A correspondence letter dated 16.7.2025 received from ICFRE, Jodhpur regarding establishing a nursery for native species development over an area of 5 hectares is enclosed as **Annexure XIII.** The nursery will be developed in phase mannered near mine office in an area of 0.70 ha in first year and backfilled area of Pit no 2 (4.30 ha 5th year).	*Chapter 4 Para 4.7.9 Page no. 215* ***Annexure XIII***
1.25	The Project Proponent needs to furnish details of waste material handling plan and year wise back filling plan.	During the plan period 11.8452 Million Tonnes OB & 0.7450 Million Tonnes mineral reject will be generated. At conceptual stage, about 65.97 Million Tonnes of OB and 4.94 Million tonnes mineral reject will be generated which will be used for backfilling purposes. The proposed year-wise waste material handling and backfilling plan is given below:	*Chapter 2 Para 2.10 Page no. 32*

Year Wise Waste Handling (mio t) & backfilling Plan

Year	Top Soil	Ob (Calc Silicates+phyllite)	Mineral Reject	Total Waste Handling	Backfilled Area (ha)	Backfilled Area Location
1.	-	-	-	-	-	-
2.	0.001	0.004	0.002	0.006	-	-
3.	0.040	5.78	0.24	6.02	-	-
4.	0.015	3.717	0.24	3.957	-	-
5.	0.003	2.34	0.24	2.58	4.37	Pit-2
6.	0.04	4	0.24	4.24	-	-
7.	0.04	4	0.24	4.24	-	-
8.	0.04	1.47	0.24	1.71	15.02	Pit-1
9.	0.04	2.54	0.24	2.78	2.69	Pit 5 & 6
10.	0.04	2.55	0.24	2.79	-	-
11.	0.04	2.72	0.24	2.96	-	-
12.	0.04	2.73	0.24	2.97	-	-
13.	0.04	2.73	0.24	2.97	-	-
14.	0.04	2.73	0.24	2.97	-	-
15.	0.04	2.73	0.24	2.97	19.27	Pit-7
16.	0.04	3.5	0.24	3.74	-	-
17.	0.04	5.51	0.24	5.75	15.38	Pit-8
18.	0.04	5.21	0.24	5.45	-	-
19.	0.04	2.94	0.24	3.18	-	-
20.	0.04	2.97	0.24	3.21	11.14	Pit-13
21.	0.04	2.97	0.24	3.21	2.85	Pit-14
22.	0.04	2.83	0.38	3.21	1.94	Old Pit
Total	**0.739**	**65.971**	**4.942**	**70.913**	**72.66**	**-**

1.26	The Project Proponent needs to submit the detailed scientific study on flora and fauna and also to highlight on the endangered species. The Project Proponent needs to verify the list as per the latest Wildlife Protection Amendment Act, 2022. Accordingly, PP shall prepare a wildlife Conservation Plan as per Wildlife Amendment Act 2022 and shall submit a proof of submission of the plan to State Forest Department.	As per the scientific study of the area, and authenticated List of Flora and Fauna approved by DCF, Sirohi vide letter dated 4.06.2025, there are 15 Nos of schedule-1 species. Copy of the same is enclosed as **Annexure VI b.** Then name of the 15 Nos of Schedule- I according to Indian Wildlife Protection Act, 1972 as amended on 20th Dec. 2022 found in the study area during field survey are *Panthera pardus* (Leopard), *Rusa unicolor* (Sambar deer), *Felis chaus* (Jungle Cat), *Paradoxurus hermaphroditus (*Common Palm Civet), *Canis lupus* (Indian Wolf), *Hyaena hyaena* (Striped Hyaena), *Canis aureus* (Jackal), *Vulpes bengalensis* (Indian Fox), *Hystrix indica* (Indian Porcupine), *Melursus ursinus* (Sloth Bear), *Naja naja* (Indian Cobra), *Ptyas mucosus* (Common Rat Snake), *Varanus bengalensis* (Bengal Monitor Lizard) *Pavo cristatus* (Indian Peafowl) and *Tachyspiza badia* (Shikra). For the conservation of these species, Wildlife Conservation Plan has been prepared as per the CWLW Jaipur Rajasthan Guidelines issued on 24/05/2019. Budget earmarked for the conservation of the same is Rs. 475 Lakh. Wildlife Conservation Plan for further approval has been submitted to DCF, Sirohi on 16.7.2025 which has been forwarded to Chief conservator of forest, Jodhpur vide letter dated 28.7.2025. Copy is enclosed as **Annexure XII and** WLCP is enclosed as **Annexure XII a.**	***Annexure VIb*** ***Annexure XII and XII a***

1.27	The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, and predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.	Baseline study has been done in summer season March to May 2023 and March to May 2025. Environmental Baseline Monitoring for Air and Noise Environment has been conducted considering the factors such ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Details of the same are given in the chapter 3 of this EIA/ EMP Report. The CAAQMS will be installed nearest to the crusher and mine office for the measurement of PM10, PM2.5, SO2, NOX and CO. Installation will be completed within 14 months and will be operative from 2nd year. Time bound action plan for installation of Continuous Ambient Air Quality Monitoring Station has been given in Chapter - 6 of this EIA/ EMP Report. The baseline reports have been enclosed as **Annexure IX and IX a.**	*Chapter 3 Para 3.4.1 Page no. 53* ***Annexure IX and IX a*** *Chapter 6 Para 6.4.2 Page no. 233*
1.28	The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration	EMP has been prepared considering pollution to be generated for normative (limestone production 9500 TPD) and peak production (limestone production 11400 TPD considering rain and exigency) for assessing air and noise pollution. Capital Cost for EMP is Rs.19 Crores and Recurring Cost for EMP is Rs. 1.43 Crores/ annum. Same information is given in this EIA/EMP Report	*Chapter 4 Para4.5.3 Page no. 152* *Chapter 6 Para 6.6 Page no. 235*
1.29	The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities	Public hearing is yet to be conducted and same will be carried out as per provisions of EIA Notification, 2006. Time bound action plan on concerns of the Public along with budget as per MoEF&CC, OM dated 30.09.2020 & 20.10.2020 will be submitted in Final EIA/EMP Report after conduction of Public Hearing.	*Chapter 7 Para 7.2 Page no 236*

1.30	The Project Proponent needs to undertake the enumeration of the species within the mine lease area before cutting. The Project Proponent also needs to submit the compensatory afforestation plan for the number of trees to be cut in the mine lease area and to explore the possibility of tree transplantation.	Total 22317 trees and 35050 nos. shrubs were found in the ML area and out of which 13390 trees and 33244 nos shrubs will be cut during mining operation. *The details of trees proposed to cut are given as below:* • *Acacia leucophloea* (8311) • *Acacia nilotica* (4156) • *Acacia catechu* (923) • *Total tree: 13390* *Details of shrubs to cut is given as below:* • *Prosopis juliflora : 33,244* As per the site survey carried out by the revenue department, the site has only babool trees/Acacia Family and no other tree species considered important are present and accordingly tree cutting permission has been forwarded SDM Pindwara to the DM Sirohi on 17.07.2025. Copy of the letter is enclosed as **Annexure XVIII**. However, KMPL will contribute to grow plantation as per the forest department guidance to plant 5 times of trees as 66950 Nos of same species in the nearby forest/jungle area and other village area within 5 years.	Annexure XVIII.
1.31	The Project Proponent needs to prepare the installation plan for permanent fixed water sprinkling system along the Haul roads	Installation of the Permanent water sprinklers will be started from the year 2026-2027 and same will be achieved in year 2029-30. Total length of Permanent water sprinklers is 3.72 km and 745 water sprinkler will be installed along with budget of 38 lakhs of capital cost and 4 lakhs recurring cost.	*Chapter 4 Para 4.5.7 Page no. 162*
1.32	The Project Proponent needs to plan for developing the Renewable energy facility within the ML area and incorporation of electric vehicle in order to reduce the dependency upon the diesel.	The rooftop area of mine office will have 200kw solar plant to meet the office power requirement. Crusher Power will be sourced from the Udawariya Grid Station at a distance of approx. 5 km towards SW. The total power requirement will be 3142100 units per annum/0.7 MWh. Green power will be sourced from grid to gradually reduce the fossil power and within 5 years and entire power will be green power. As advancements in electric mining equipment continue, it's possible that EVs will be integrated into quarry operations including limestone transport, in the near future. KMPL is committed to environment protection and will explore the possibility of deploying EVs in limestone transport within the quarry. Techno-economical viability will be explored to deploy in mining.	*Chapter 2 Para 2.7.1.2 Page no. 15*

1.33	The Project Proponent needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of tar road/cart tracks, electric line etc., PP should also submit the details of number of saplings (at least 2500/ha) to be planted, type of saplings proposed and the area to be covered under greenbelt /plantation along with the timeline and budget. The greenbelt / plantation plan shall be prepared in such a way that the ecology of the area shall be restored.	Greenbelt will be developed along the 7.5m mine periphery, plantation on backfilled area, on bench plantation, safety barrier along village road, on OB dump, on unworked area and on other area Plant will be carried out during Progressive Mine Closure Plan. At conceptual stage, approximately 139100 nos of saplings will be planted on 128.30 ha area @ 2500 sapling per ha. Survival rate will be maintained at >90%. The following tree species will be planted at the site:	*Chapter 4 Para 4.5.6.3 Page no. 215*

S. No.	Species (Common Name)	Ecological Characters
1.	*Azadirachta indica* (Neem)	DC, NC, AG, DR, FR
2.	*Ficus benghalensis* (Peepal)	DC, NC, DR
3.	*Bauhinia variegate* (Kachnar)	DC, NC, DR
4.	*Syzygium cumini* (Jamun)	DC, NC, DR
5.	*Tamarindus indica* (Imli)	DC, NC, DR
6.	*Cassia fistula* (Amaltas)	DC, NC, DR
7.	*Delonix regia* (Gulmohar)	DC, NC, DR
8.	*Mangifera indica* (Mango)	DC, NC, DR
9.	*Madhuca indica* (Mahua)	DC, NC, DR

Year	7.5 M Safety Barrier/Undisturbed Area		Backfilled Area		Virgin Area		Total		Rs. In Lakhs
	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants	
I	0.1	250	-	-			0.1	250	1.25
II	0.20	500	-	-			0.20	500	2.5
III	1.05	2625	-	-	0.45	1125	1.5	3750	18.75
IV	0.1	250	-	-	1.4	3500	1.5	3750	18.75
V	1.5	3750	-	-	-	-	1.5	3750	18.75
Total _ Plan Period							**4.8**	**12000**	60.00
VIth Yr. Onwards till the conceptual stage	27.75	69375	72.66	Re-Grassing	23.09	57725	45.64	1,27,100	**635.50**
							72.66	Re-Grassing	**97.32**
Total	**30.70**	**76,500**	**72.66**	**Re-Grassing**	**24.94**	**62350**	**128.30**	**1,39,100**	**792.82**

1.34	The Project Proponent shall prepare the scheme for mandatory recycle /reuse of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report	Domestic wastewater generated (8.0 KLD) from mines office will be treated in modular STP (10 KLD) and treated water will be used in greenbelt/plantation. Wastewater generated from workshop (8 KLD) will be treated in ETP (10 KLD) and treated water will used in dust suppression after oil & grease trap. The project area falls under Semi Critical category as per the guideline of CGWA. This NOC is obtained to withdrawal 9.5 KLD water required for drinking and domestics initially for two years, where no mining activity is proposed. Total water requirement is 150 KLD for which CGWA NOC will be obtained prior starting working of 3 three years. The ground water consumption will gradually reduce as the mine progress and mine pits are developed to harvest the rainwater. Copy of the NOC is enclosed as Annexure XV.	***Annexure XV***
1.35	PP needs to conduct the drone survey of the ML area and submit the same at the time of EC application	Real time aerial footage and video of the mine block area and buffer area through drone video will be presented during the appraisal of EC.	-
1.36	PP needs to submit an action plan for installation of ETP with Oil & Grease trap within the ML Area	10 KLD of ETP will be installed in the mine area. 8 KLD of Wastewater generated from washing and cleaning of HEMM in the workshop will have some oil and grease which will be removed in oil and grease separation tank and the clean water will be used for dust suppression. The workshop will be operative with the mine operation.	*Chapter 2 Para 2.12 Page no. 35*

1.37	PP needs to undertake the carrying capacity of the proposed road that is to be utilized for transportation of minerals till the installation of OLBC	After getting the EC for mining project, the total mining production in 1st two years working will be 8383 tonne only which will be stacked near the crusher. From 3rd year working onwards full mining production of 2.85 million TPA will be achieved which will be transported to the proposed cement plant site initially by road through NH-927 A (total travel length 2km) and by OLBC with completion of cement plant installation work. At Normative stage, total trips of 55 tones capacity of tipper required for transport of 9500 Tons limestone (in a day) will be 173. The number of trips per hour will be 24 (to & from) @ 14 effective working hrs. in 2 shifts i.e., 7 hrs. effective in one shift. At Peak stage, total trips of 55 tones capacity of tipper required for transport of 11400 Tons limestone (in a day) will be 207. The nos. of trips per hour will be 30 (to & fro) @14 effective working hrs. in2 shifts i.e., 7 hrs. effective in one shift. Traffic study has been done on NH-927A. The Level of Service (LOS) value of NH-927A with existing traffic is “B” i.e., Very good. During the operation of this proposed limestone mine, vehicles of the mine will be added in the existing traffic of NH-927 A the LOS value will be same i.e., Very Good. Thus, it can be concluded that the present road network is good enough to bear the increased traffic load. However, internal and nearby roads will be maintained as and when needed to facilitate transportation.	*Chapter 4* *Para 4.7.5 Page no. 204*
1.38	PP needs to submit an action plan as per Ministry’s OM dated 24.07.2024	As per the OM dated 24.07.2024 of MoEFCC, plantation will be carried out in the earmarked 33% greenbelt area as part of the tree plantation campaign " EK Ped Ma ke Naam". All employees and contractors will be bound to participate in the campaign and plant the trees and the details of the same will be uploaded in the MeriLife portal (https://merilife.nic.in).	*Chapter 4* *Para 4.7.9 Page no. 215*

1.39	The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF)/Project Displaced Families (PDF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc. PP need to submit the plan for Socio economic development of the habitats based on the need based survey along with the time bound action plan. PP also needs to submit the possession certificate and timeline for acquiring the land. Further, PP needs to submit the map demarcating the purchased land and non-purchased land if any at the time of appraisal of EC.	The area of proposed mine is 800.9935 ha which falls in 7 Villages in one Tehsils namely, Villages: Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli in Tehsil Pindwara, District Sirohi, Rajasthan. As per the revenue record total mine area is 800.9935 Ha, out of which 227.9500 ha is Govt. Waste Land (29%) & 21.0900 ha (3%) Grazing /Charagah Land- & 551.9535 ha (68.0%) is Private Agriculture Land. Till date, no land has been acquired. Land will be purchased through mutual agreement with the land holders falling into the mining lease area at negotiated rates and terms and conditions. National & State R&R Policy will be followed in compliance with LAAR Act 2013 and LARR act Rajasthan 2014 to calculate the land cost. The land will be purchased as the mine progress with mutual agreement with landowner. A brief note of R&R Action plan has been prepared and enclosed as Annexure XVI. Detailed R& R action plan will be given in final EIA/EMP report. The timeline for land acquisition will be given in Final EIA/ EMP Report.	***Annexure XVI***
1.40	The Project Proponent needs to submit employment-based skill development plan for the local people, and thrust should be to provide employment to local people after imparting training	Total manpower for the proposed mine will be 80. Preference will be given to the locals as per their eligibility. The local community will be benefited from the training programmes that will be instituted by KMPL to enable the community labour force to work for their livelihood/Self-growth. KMPL will organize vocational training, entrepreneur development programmes for the PAFs including women. KMPL will encourage entrepreneurship amongst PAFs or their qualified family members by awarding services, contracts for activities such as canteens, vehicle hiring, maintenance of gardens, office services and cleanliness, courier services, and material supplies. Once the mine is in operation, then employment-based skill development plan will be prepared and training will be organized.	*Chapter 4 Para 4.9.3 Page no. 228*

S.No	Particulars	Target Participants	No of Beneficiaries	Timeline	Total Budget (Rs in Lakhs)
1	Awareness program on women empowerment with providing sewing machines	Project affected persons/ Local women's	598	Upto 5 years from the commencement of mining operations	30.0
2	Skill development programme in Agriculture / Horticulture	Project affected persons / locals	1000	Upto 5 years from the commencement of mining operations	10.0
3	Group Vocational Training Centre	Mine workers from local District	80	At the start of First year of Mining Plan period	3.0

1.41	PP needs to submit an action plan regarding safeguarding or diversion of river, Natural streams in and around the lease area, in consultation with State Water Resources Department.	There is no proposal for diversion of any water resource of the area. NOC letter received from WRD vide letter No. S.No./Tak/2024-25/5071 dated 3.1.2025 regarding safeguard of water resources of the ML area are approved from the RO Office SPCB Sirohi vide letter No. RSPCB/Abu Road/Sirohi/SM-558/1364 dated 10.7.2025. The following are the approved safeguard for the water resources: (Letter to SPCB in ref to WRD letter 3.1.2025) 1. There is a total of 15 No.s pits in the above mining project, out of which two pits (Pit no. 12 & 13) are located at a distance of 50 mts from the River Sukli which flows through the lease area. A safety zone of 50 m on either side of Sukli River will be maintained by construction of an embankment on Pit boundary towards the Riverbank and garland drain with siltation tank within the safety zone of River during plan period will be constructed to prevent siltation of River. Cost, Rs 2.25. 2. Existing Bridge of RCC, 2 Nos. constructed on River Sukli are adequate for transportation of mineral also having width of 8.8 mtr. 3. During the mining operation, the rain nalla will not be disturbed. Drainpipes will be installed below the haul road to avoid natural flow of Nala (21 Nos Nala and Pipe length 22 mtr) wherever the Haul Road crosses Nala. 4. The Garland drain and desilting pits will be constructed along the topsoil and OB dump site to avoid siltation of natural nala and River Sukli. 5. Control blasting, wet drilling and water spray on haul road and crusher will be practices maintaining the ambient air quality.	***Annexure XI***
1.42	PP needs to look after the alternate Charagah land area. PP should submit a detailed action plan to provide an alternate charagah land.	Charagah Land 21.09 ha falls in the mining lease area and conversion land for Charagah land into industrial land letter has been submitted to District Collector, Sirohi vide letter dated 28.4.2025. Copy of the same is enclosed as **Annexure XVII.**	**Annexure XVII.**

1.43	PP needs to come out with the plan for the crusher installation.	**KMPL** will install a crusher of about 1,000 TPH capacity within applied ML. The total capital cost towards procurement, installation and commissioning including civil works is estimated to be **Rs. 12.0 Crore.** The crusher with screening system is also envisaged to be operational during this period of operation. During mining operations, part of the overburden and inter-burden shall also get mixed with RoM limestone and is proposed to be eliminated by screening in the crusher plant. During crushing, +70 mm size material shall go directly into crusher and after crushing, -70 mm size crushed limestone will go stockpile for stacking and use in cement plant. The -70 mm size material, which does not required crushing, shall go to integrated screening system, where after screening +8 mm size material shall go to main conveyor belt supplying crushed limestone to stockpile in cement plant and -8 mm size material mainly comprising of clay shall be rejected.	*Chapter 2 Para 2.7.4 Page no 24*

S. No.	Parameter	Unit	Details
1.	Material		Limestone
2.	Limestone Production (Mineral)	Million Tonne	2.85
3.	Mine workings days	Nos.	300
4.	ROM to the Crusher Plant	MT/Day	10325
5.	Limestone Production	MT/Day	9499
6.	Crusher Screen Reject	MT/Day	826
7.	Input feed to the Crushing Plant (ROM)	TPH	860
8.	Limestone Mineral Production	TPH	792
9.	Screen Rejects (8% in average)	TPH	69
10.	Net Capacity of Crushing Plant	TPH	1000
11.	Working Hours Per Day	Hours	12
12.	Number of Shifts Per Day	Nos.	2

The time schedule for crusher installation is as below:

Time Schedule for Installation of Crusher and OLBC							
S. No.	Activities	Months					
		1 to 12	12 to 16	16 to 18	18 to 28	28 to 34	34 to 36
1.	Land Acquisition & Clearances						
2.	Engineering						
3.	Tendering & Ordering						
4.	Civil Construction						
5.	Equipment Erection						
6.	Trail Run & Commissioning						

1.44	PP needs to project year wise backfilling plan	During the plan period 11.8452 Million Tonnes OB & 0.7450 Million Tonnes mineral reject will be generated. At conceptual stage, about 65.97 Million Tonnes of OB and 4.94 Million tonnes mineral reject will be generated which will be used for backfilling purpose.	*Chapter 2 Para 2.10 Page no.32*

Year Wise Waste Handling (mio t) & backfilling Plan

Year	Top Soil	Ob (Calc Silicates+phyllite)	Mineral Reject	Total Waste Handling	Backfilled Area (ha)	Backfilled Area Location
1.	-	-	-	-	-	-
2.	0.001	0.004	0.002	0.006	-	-
3.	0.040	5.78	0.24	6.02	-	-
4.	0.015	3.717	0.24	3.957	-	-
5.	0.003	2.34	0.24	2.58	4.37	Pit-2
6.	0.04	4	0.24	4.24	-	-
7.	0.04	4	0.24	4.24	-	-
8.	0.04	1.47	0.24	1.71	15.02	Pit-1
9.	0.04	2.54	0.24	2.78	2.69	Pit 5 & 6
10.	0.04	2.55	0.24	2.79	-	-
11.	0.04	2.72	0.24	2.96	-	-
12.	0.04	2.73	0.24	2.97	-	-
13.	0.04	2.73	0.24	2.97	-	-
14.	0.04	2.73	0.24	2.97	-	-
15.	0.04	2.73	0.24	2.97	19.27	Pit-7
16.	0.04	3.5	0.24	3.74	-	-
17.	0.04	5.51	0.24	5.75	15.38	Pit-8
18.	0.04	5.21	0.24	5.45	-	-
19.	0.04	2.94	0.24	3.18	-	-
20.	0.04	2.97	0.24	3.21	11.14	Pit-13
21.	0.04	2.97	0.24	3.21	2.85	Pit-14
22.	0.04	2.83	0.38	3.21	1.94	Old Pit
Total	**0.739**	**65.971**	**4.942**	**70.913**	**72.66**	**-**

1.45	A slope stability study should be conducted through national institute of repute and incorporated into the EIA report. PP may also explore whether study of seismic impact on the ecology and environment of the area is required through the above institute.	As per the IIT, Jodhpur study that the geological structure consists of moderately weathered limestone with an average Rock Mass Rating (RMR) of 55, indicating fair to good rock quality conditions. Pit design include bench face angle as 80° from horizontal. The study recommended that the face angle of benches should be reduced from 80° from horizontal to the dip of the phyllite-limestone lithological contact (approximately 60°-70°) in 9-9' pit cross-section, the face angle of benches between RL 250-270, in 3-3' pit slope section, the face angle of benches between RL 250-270, in 21-21' pit slope section, the face angle of benches (a) between RL 290-300, in 20-20' pit slope section, the face angle of benches between RL 310-320. As a general guideline, it is recommended that special precautions need to take for all the benches to ensure nowhere lithological contacts are exposed on the bench face and slope face due to over steepening of bench face. In benches where distinct lithological contacts are exposed, the bench face angle should be reduced to match the dip of the contact, and preferably the faces are excavated along the contact. On those pit-sections, where lithological contacts are close the bench faces, reduced charge(kg)/delay is to be used.	*Chapter 4 Para 4.5.6.3 Page no. 217*

1.46	The PP shall ensure compliance of MoEFCC O.M. dated 14.01.2025 regarding streamlining the implementation of GSR 702 and GSR 703 dated 12.11.2024.	KMPL Will follow the procedure as per the O.M. dated 14.01.2025 for obtaining CTE as per the instruction of SPCB. Standard Operating Procedure dated 14th November 2024, TOR will be forwarded to SPCB for site inspection and share comments on Parivesh Portal. SPCB will share details on the details of the project site, the feasibility of the project and the environmental safeguards prescribed for the project concerned. SPCB will raise demand for fee and payment receipt to upload on Parivesh portal with SPCB comments.	-
1.47	PP needs to comply the OM dated 24.07.2024 of MoEFCC, wherein it is stated that the plantation of saplings shall be carried out in the earmarked 33% greenbelt area as part of the tree plantation campaign "EK Ped Ma ke Naam" (एकपेड़माँके नाम) and the details of the same shall be uploaded in the Meri Life portal (https://merilife.nic.in).	As per the OM dated 24.07.2024 of MoEFCC, plantation will be carried out in the earmarked 33% greenbelt area as part of the tree plantation campaign " EK Ped Ma ke Naam". All employees and contractors will be bound to participate in the campaign and plant the trees and the details of the same will be uploaded in the MeriLife portal (https://merilife.nic.in). Greenbelt will be developed along the 7.5m mine periphery, plantation on backfilled area, on bench plantation, safety barrier along village road, on OB dump, on unworked area and on other area Plant will be carried out during Progressive Mine Closure Plan. At conceptual stage, approximately 139100 nos of saplings will be planted on 128.30 ha area @ 2500 sapling per ha. Survival rate will be maintained at >90%.	*Chapter 4* *Para 4.7.9 Page no. 215*

Year	7.5 M Safety Barrier/Undisturbed Area		Backfilled Area		Virgin Area		Total		Rs. In Lakhs
	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants	
I	0.1	250	-	-			0.1	250	1.25
II	0.20	500	-	-			0.20	500	2.5
III	1.05	2625	-	-	0.45	1125	1.5	3750	18.75
IV	0.1	250	-	-	1.4	3500	1.5	3750	18.75
V	1.5	3750	-	-	-	-	1.5	3750	18.75
Total _ Plan Period							**4.8**	**12000**	60.00
VIth Yr. Onwards till the conceptual stage	27.75	69375	72.66	Re-Grassing	23.09	57725	45.64	1,27,100	**635.50**
							72.66	Re-Grassing	**97.32**
Total	**30.70**	**76,500**	**72.66**	**Re-Grassing**	**24.94**	**62350**	**128.30**	**1,39,100**	**792.82**

A.	**STANDARD TERMS OF REFERENCE**		
1	**PROJECT DETAILS**		
1.1	Year-wise production details	This is proposed mining project and mine will be operated	

	since 1993-1994 should be given, clearly stating the highest production achieved in any one year prior to 1993-1994. 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. The production details need to submit since inception of mine duly authenticated by Department of Mines & Geology, State Government.	after obtaining all the statutory clearances from the competent Authority; hence, past production details are not applicable.	- -
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given	The LOI for an area of 800.9935 ha has been granted by Mines and Petroleum Department, Government of Rajasthan. LoI has been issued vide order no. P 3 (6) Khan/Group-2/2022 dated 13.03.2023 which is valid till 12.03.2025. Now LOI is extended for one year vide P.3 (6) Khan/Group-2/2022, date-25.07.2023 and valid till 12.09.2025. Copy of Letter of Intent along with Khasra Map & Khasra details is enclosed with this EIA/EMP Report.	*Chapter 1, Para 1.2, Pg No. 1* ***Annexure I***
1.3	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.	All documents including Approved Mining Plan and EIA are compatible with one another in terms of mine area, production levels, waste generation & its management and mining technology etc. and all documents are in the name of M/s. Kamlesh Metacast Private Limited.	
1.4	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).	The mine site is located at Villages - Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla and Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan. Map showing Mining Lease Area with Geographical corner coordinates, Geomorphology and Geology of the area, superimposed on SOI Toposheet has been prepared and incorporated in this EIA/EMP Report. Land use/Land cover has been assessed satellite data. Land area is covered under Agricultural land (52.783%), Fallow land (11.398%), Land with shurbs (30.565%), settlements (2.150%) and water bodies (3.105%). Buffer Zone: Land area is covered under Agricultural land (30.3%), Fallow land (28.3%), built up (8.9%), forests (30.1%) and water bodies (2.3%).	*Chapter 2 Para 2.3.1, Page no 8* *Chapter 3, Para 3.5 Page no. 63*

		Ecological Features: Mount Abu Wildlife Sanctuary is situated 5.47 km and ESZ boundary at 4.7 km from Mine lease area. There are no National Parks, Biosphere Reserves, Wildlife Corridors, Ramsar site, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km radius of the Mine Lease. Land use plan of the mine lease area has been prepared to encompass preoperational, operational and post operational phases and submitted. Distance from mine to ESZ/Wildlife sanctuary has been issued by the DFO Mount Abu wildlife Sanctuary vide letter No. F/Survey/DFO/2025/454 dated 20/01/2025 which is enclosed as Annexure VIc. Authenticated map showing distance is encloses as annexure VIb.	
1.5	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 & river and soil characteristics.	**Existing Minerals:** Limestone **Mining History of the Area:** There is no any other mining query within core zone. However, the study area and surroundings fall in the limestone belt and having the mine leases & Cement Plants. Map showing Geomorphology of land form of the area, existing minerals and mining history of the area, same details given in this EIA/EMP Report. **Soil Characteristics:** The soil in the block area is silty loam in nature and brown in colour. Soil characteristics of the study area have been analyzed and given in this EIA/EMP Report. **Nallah/Stream:** Sukli River is passing through the mining lease area. This is the perennial river. Nallah, canal and ponds are falls in lease area which will not be disturbed at any stage of mining and Mining will be carried out at 50m away from these features.	*Chapter 2, Para 2.3.1 Page no 8*
1.6	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	There is no such land policy for change of land use from agriculture to Non agriculture purpose. LOI is granted for mining purpose.	-
1.7	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	Yes, the company has well laid down Corporate Environment Policy (CEP) adopted by the Board of Directors of Kamlesh Metacast Private Limited. The hierarchical system or administrative order of the company to deal with the environmental issues has been given in Environmental Policy of the company.	

	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		
1.8	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	Being an opencast mine, occurrence of Subsidence is not envisaged. Nonelectric detonators (NONEL) will be used for initiation to ensure maximum safety. As per practical observation, after primary blasting some part of Limestone will be easily amenable to break by rock breaker. Hydraulic rock breaker will be used for breaking oversized boulders in place of secondary blasting. As per the IIT, Jodhpur study that the geological structure consists of moderately weathered limestone with an average Rock Mass Rating (RMR) of 55, indicating fair to good rock quality conditions. Based on the observation made in static and dynamic analysis of the representatives slopes, it is concluded that while most of the pit slopes are stable under static conditions, but many of them may fail during blasting. This issue is particularly acute in slopes, where lithological contacts (such as phyllite-siliceous limestone) are very close to the planned bench faces. As a general guideline, it is recommended that special precautions need to take for all the benches to ensure nowhere lithological contacts are exposed on the bench face and slope face due to over steepening of bench face. In benches where distinct lithological contacts are exposed, the bench face angle should be reduced to match the dip of the contact, and preferably the faces are excavated along the contact. On those pit-sections, where lithological contacts are close the bench faces, reduced charge(kg)/delay is to be used. It is strongly recommended that, following one year of operational activity, a comprehensive structural characterization program be undertaken.	*Chapter 2* *Para 2.7.4 Page no 25* *Chapter 4 Para 4.5.6.3 Page no. 217*
1.9	The study area will comprise	Based on 56.79 Million tonnes of Cement Grade Mineable	*Chapter 2*

	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	Reserves, life of mine is calculated as 20 years. During the plan period 11.8452 Million Tonnes OB & 0.7450 Million Tonnes mineral reject will be generated. At conceptual stage, about 65.97 Million Tonnes of OB and 4.94 Million tonnes mineral reject will be generated which will be used for backfilling purpose.	*Para 2.10 Page no.32*
1.10	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 area, distance from mine lease, its land use, R&R issues, if any, should be given	Land use/Land cover has been assessed satellite data. Land area is covered under Agricultural land (52.783%), Fallow land (11.398%), Land with shrubs (30.565%), settlements (2.150%) and water bodies (3.105%). Buffer Zone: Land area is covered under Agricultural land (30.3%), Fallow land (28.3%), built up (8.9%), forests (30.1%) and water bodies (2.3%). **Ecological Features:** Mount Abu Wildlife Sanctuary is situated 5.47 km and ESZ boundary at 4.7 km from Mine lease area. There are no National Parks, Biosphere Reserves, Wildlife Corridors, Ramsar site, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km radius of the Mine Lease. Land use plan of the mine lease area has been prepared to encompass preoperational, operational and post operational phases and submitted. Distance from mine to ESZ/Wildlife sanctuary has been issued by the DFO Mount Abu wildlife Sanctuary vide letter No. F/Survey/DFO/2025/454 dated 20/01/2025 which is enclosed as Annexure VI c. Authenticated map showing distance is encloses as annexure VIb.	*Chapter 3, Para 3.5 Page no. 63* *Annexure VIb and VIc.*

S. No.	Land Use Category	Present Land Use (Ha.)	At the End of 5th Year (Ha.)	Conceptual Stage(Ha.)
1	Soil Stack	0.0000	0.00	0.0000
2	Waste Dump	0.0000	22.61	0.0000
3	Mineral Storage	0.0000	0.21	0.0000
4	Total Excavated	6.5300	32.04	121.96
	(A) Excavation (Water Reservoir)	0.0000	00.0000	49.30 (Water Reservoir)
	(B) Excavation (Backfilled)	0.0000	00.0000	72.66 (Re-grassing)
5	Area under utility services	4.85	11.11	30.40
6	Afforestation/Plantation (Unworked Area	0.0000	4.80 (Plantation)	55.64 (Plantation)
	Total Disturbed Area	11.83	70.77	208
7	Undisturbed Area	789.16	730.2235	592.99
	Total	**800.9935**	**800.9935**	**800.9935**

1.11	Details of the land for any	As per the approved mining plan, no overburden	-

	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	dumping outside the mine area and therefore, such issues are not applicable.	
1.12	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.	There is no forest land falls in the lease area. NOC for no forest land in ML area has been received from Regional Forest Officer, Pindwara, Sirohi vide letter dated 02.02.2025. Copy of the NOC is enclosed as Annexure IV.	*Annexure IV*
1.13	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	**NA**	
1.14	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	**NA**	
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	There are 7 Reserved Forest and 1 protected forest and one wildlife sanctuary found in the study area.	*Chapter 3 Para 3.2 Page no. 40*

S. No.	Particulars	Distance (km) (From Lease Boundary)	Direction
Forests			
1.	Reserved Forest N/V Wara	0.055	S

			2.	Protected Forest N/V Hirawala	0.56	NE
			3.	Reserved Forest N/V Wara	0.96	SW
			4.	Kivrali Ka Zor Reserved Forest	1.10	W
			5.	Reserved Forest N/V Pipela	1.10	NW
			6.	Reserved Forest N/V Pipela	2.08	NW
			7.	Reserved Forest N/V Swarupganj	2.10	NW
			8.	Mount Abu Wild Life Sanctuary	5.47	NW
			9.	Nitaura Jor Reserved Forest	8.00	NW
1.16	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	Authenticated List of Flora and Fauna has been approved DCF, Sirohi vide letter dated 4.06.2025. Copy of the same is enclosed as **Annexure VI a.** Total 15 species i.e. *Panthera pardus* (Leopard), *Rusa unicolor* (Sambar deer), *Felis chaus* (Jungle Cat), *Paradoxurus hermaphroditus (*Common Palm Civet), *Canis lupus* (Indian Wolf), *Hyaena hyaena* (Striped Hyaena), *Canis aureus* (Jackal), *Vulpes bengalensis* (Indian Fox), *Hystrix indica* (Indian Porcupine), *Melursus ursinus* (Sloth Bear), *Naja naja* (Indian Cobra), *Ptyas mucosus* (Common Rat Snake), *Varanus bengalensis* (Bengal Monitor Lizard) *Pavo cristatus* (Indian Peafowl) and *Tachyspiza badia* (Shikra) were found in Schedule- I according to Indian Wildlife Protection Act, 1972 as amended on 20th Dec. 2022 in the study area during field survey. For the conservation of these species Wildlife Conservation Plan has been prepared. Budget earmarked for the conservation of the same is Rs. 475 Lakh. Wildlife Conservation Plan for further approval has been submitted to DCF, Sirohi vide letter dated 16.7.2025. Submission copy of the same is enclosed as **Annexure XII.** Various measures will be undertaken and environment management plan will be implemented to curb pollution of air, noise, water & land environment. Air quality & noise level will be maintained well within the standards prescribed by the MoEF&CC and CPCB. Greenbelt development and plantation will help in creating habitats for local faunal species and to create better environment for various fauna. Activities for creating and developing awareness for nature and wildlife in the nearby villages will also be undertaken. Wild Life Conservation Plan is enclosed with this EIA/EMP Report.	*Annexure VIa* *Annexure XII*
1.17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as	Mount Abu Wildlife Sanctuary is situated 5.47 km and ESZ boundary at 4.7 km from Mine lease area. There are no National Parks, Biosphere Reserves, Wildlife Corridors, Ramsar site, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km radius of the Mine Lease. Land use	*Chapter 3 3.15.16 Page no. 122*

	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 Wild life and copy furnished	plan of the mine lease area has been prepared to encompass preoperational, operational and post operational phases and submitted. Distance from mine to ESZ/Wildlife sanctuary has been issued by the DFO Mount Abu wildlife Sanctuary vide letter No. F/Survey/DFO/2025/454 dated 20/01/2025 which is enclosed as Annexure VIc. Location map has been submitted and to DCF, Sirohi on 16.7.2025 which has been forwarded to Chief conservator of forest, Jodhpur vide letter dated 28.7.2025. Copy of the same is enclosed as **Annexure VIb**	*Annexure VI b& Vic.*
1.18	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 along with 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	Authenticated List of Flora and Fauna has been approved DCF, Sirohi vide letter dated 4.06.2025. Copy of the same is enclosed as **Annexure VI a.** Total 15 species i.e. *Panthera pardus* (Leopard), *Rusa unicolor* (Sambar deer), *Felis chaus* (Jungle Cat), *Paradoxurus hermaphroditus (*Common Palm Civet), *Canis lupus* (Indian Wolf), *Hyaena hyaena* (Striped Hyaena), *Canis aureus* (Jackal), *Vulpes bengalensis* (Indian Fox), *Hystrix indica* (Indian Porcupine), *Melursus ursinus* (Sloth Bear), *Naja naja* (Indian Cobra), *Ptyas mucosus* (Common Rat Snake), *Varanus bengalensis* (Bengal Monitor Lizard) *Pavo cristatus* (Indian Peafowl) and *Tachyspiza badia* (Shikra) were found in Schedule- I according to Indian Wildlife Protection Act, 1972 as amended on 20th Dec. 2022 in the study area during field survey. For the conservation of these species Wildlife Conservation Plan has been prepared. Budget earmarked for the conservation of the same is Rs. 475 Lakh. Wildlife Conservation Plan for further approval has been submitted to DCF, Sirohi on 16.7.2025 which has been forwarded to Chief conservator of forest, Jodhpur vide letter dated 28.7.2025. Copy is enclosed as **Annexure XII** and WLCP is enclosed as **Annexure XII a.** Various measures will be undertaken and environment management plan will be implemented to curb pollution of air, noise, water & land environment. Air quality & noise level will be maintained well within the standards prescribed by the MoEF&CC and CPCB. Greenbelt development and plantation will help in creating habitats for local faunal species and to create better environment for various fauna. Activities for creating and developing awareness for nature and wildlife in the nearby villages will also be undertaken. Wild Life Conservation Plan is enclosed with this EIA/EMP Report.	**Annexure VI a.** **Annexure XII & XIIa**

1.19	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 Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered	Certificate for non-involvement of CPA has been obtained from Rajasthan State Pollution Control Board Sirohi, vide dated 10.07.2025. Copy of certificate is enclosed as **Annexure VIII**	**Annexure VIII**
1.20	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)	The proposed mine lease is at Sirohi district, Rajasthan, which is not the coastal zone.	-
1.21	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 8—5.based sample survey, family-wise, should be undertaken to assess their requirements, and action programmers prepared and submitted accordingly, integrating the sectoral programmers 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	As per Revenue Record total mine area is 800.9935 ha out of which Govt. Waste Land- 227.9500 ha (29%) & Grazing /Charagah Land-21.0900 ha (3%) & Private Agriculture Land- 551.9535 ha (68.0%). As per the revenue record total mine area is 800.9935 Ha, out of which 227.9500 ha is Govt. Waste Land (29%) & 21.0900 ha (3%) Grazing /Charagah Land- & 551.9535 ha (68.0%) is Private Agriculture Land. Till date, no land has been acquired. Land will be purchased through mutual agreement with the land holders falling in the mining lease area at negotiated rates and terms and conditions. National & State R&R Policy will be followed and accordingly cost has been calculated in compliance with LAAR Act 2013 and LARR act Rajasthan 2014. A brief note of R&R Action plan has been prepared and enclosed as Annexure XVI. Detailed R& R action plan will be given in final EIA/EMP report. The timeline for land acquisition will be given in Final EIA/ EMP Report and attached as Annexure XVI.	Annexure XVI

	shifting of village(s) including their R&R and socio-economic		
1.22	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 predominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Photographs of baseline monitoring locations for Air Quality & Noise Level and sampling locations of Ground Water, Surface Water & Soil has been taken and same is enclosed with this EIA/EMP Report. Detailed AAQM data of sampling locations are enclosed with this EIA/EMP Report. Site-specific meteorological data has been recorded. Location of the monitoring stations were selected keeping in view the pre-dominant downwind direction and location of the sensitive receptors and also that they represent whole of the study area. One location has been selected in downwind direction at 500m from the mine boundary. Mineralogical composition of PM10 is given & enclosed with this EIA/EMP Report.	*Annexure X* *Annexure IX & IX a*
1.23	Air quality modelling 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 modelling 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 rose showing pre-dominant wind direction may also be indicated	AERMOD view 10.2.1 - Model based on steady state Gaussian Plume Dispersion was used for the prediction of incremental value due to proposed mine. Impact prediction has been carried out for total excavation 8.91 Million TPA. At Normative Stage, total limestone handling will be 9500 TPD whereas at peak stage it will be 11400 TPD considering exigencies and rainy season. Initially, limestone will be transported to proposed Cement Plant of KMPL by 55 T capacity of dumper via road from the proposed mine site for the first 2 years or till the start of operation of the proposed Cement Plant. Later on, limestone will be transported from mine face to the crusher (1000 TPH) to be located within mine-via 55 T capacity of dumper. Further, crushed limestone will be transported to its proposed Cement Plant via covered conveyor belt. Isopleths showing incremental concentration of PM from	*Chapter 4 Para 4.5.3 Page no. 152*

	on the map.	area source and clearly indicating the air quality contours on a location map indicating the location of the site, location of sensitive receptors and wind roses showing pre-dominant wind direction have been prepared. Detail of same along with details of the model used and input parameters used for modelling is incorporated with this EIA/EMP Report.	
1.24	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	The total water requirements for the proposed project will be 150 KLD. Presently, Project area is categorized as semi critical block (non-notified category) zone. Water demand will be sourced from nearby water sources or ground water after obtaining necessary permission from the competent authorities. Detailed water requirement is give as below:	*Chapter 2 Para 2.7.1.1 Page no 13*

S. No.	Particulars	Proposed (KLD)	Source
1.	Domestic	10	Groundwater
2.	Dust Suppression	110	Mine pit water
3.	Plantation	20	
4.	Workshop	10	
Total		**150**	

1.25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided	The total water requirements for the proposed project will be 150 KLD. Presently, Project area is categorized as semi critical block (non-notified category) zone. Water demand will be sourced from nearby water sources or ground water after obtaining necessary permission from the competent authorities. The NOC is obtained to withdrawal 9.5 KLD water required for drinking and domestics initially for two years, where no mining activity is proposed. Total water requirement is 150 KLD for which CGWA NOC will be obtained prior starting working of 3 three years. The ground water consumption will gradually reduce as the mine progress and mine pits are developed to harvest the rainwater. Copy of the NOC is enclosed as **Annexure XV.**	*Chapter 2 Para 2.7.1.1 Page no 13* ***Annexure XV***
1.26	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	At the conceptual Stage 49.30 ha area of total excavated area will be converted into water reservoir which will enhance the water level of the area. Water conservation measures along with rain water harvesting details given in EIA /EMP repot.	*Annexure XIX*
1.27	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	Impact of Mining on Surface Water: There are no perennial surface water bodies within the 10 km radius study area. Only some seasonal nada/ nadi are present in the study area which are at a distance of more than 3 km from the Mine lease area hence no impact on surface water body is envisaged.	*Chapter 4 Para 4.15.16.1 Page no. 178*

		Safeguard Measures: No erosional wash off will be directly allowed to go to the natural system as it will be arrested by constructing Bunds, checks dams, garland drains and retaining walls. Surface water quality will be monitored regularly.	
1.28	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	The general elevation is ranges from 296 m AMSL to 361m AMSL. During Pre Monsoon, average Water levels in the range of 13 m.bgl and during Post Monsoon water levels is 10 m.bgl. Ground water will be intersected from the 3rd year onwards and permission for water intersection will be obtained from Central Ground Water Authority before such intersection. Detailed Hydro-geological study has been carried out and same is enclosed with this EIA/EMP Report.	*Annexure XIX*
1.29	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	Sukli River, Canal & Seasonal Nallah flowing within the mine block and 2 ponds are present within the block. Sukli River, Nallah and canal will not be disturbed at any stage of mining & appropriate measures will be adopted. ➢ A safety zone of 50 m on either side of Sukli River nalas canal and 50 m radius of pond is considered as constraint and No mining is proposed to be carried out in their safety zone. ➢ Even the working will be carried out beyond 50 m safety zone of Sukli river during the plan period as well as during conceptual period however for protection of the river banks the necessary protective measures like construction of embankment at the bank of river or any other suggested suitable protective measures in consultation with the concerned competent authorities will be taken. ➢ It is also proposed to construct a retaining wall and garland drain with siltation tank within the safety zone of river during plan period to prevent siltation of river Garland drains are proposed around pit and dumps during the plan period. ➢ The garland drain is proposed to be connected to existing seasonal stream. ➢ Embankment will be constructed before start of mining activity at pit No 12 and 13 which will be started in year 2026.	*Chapter 4 Para 4.5.16.1 Page no. 179*

		➢ Total length of the proposed embankment wall at Pit no.12 is 600 meters and at Pit no. 13 is 1000 meters. The timeline for the construction of embankment will be 3 months and cost will be Rs 2.25Cr. Advice has been received from DGMS Udaipur regarding safeguard of embankment of pit no. 12 & 13 vide letter dated 21.7.2025. Copy of the same is enclosed as **Annexure XIV.** Embankment design is enclosed as **Annexure XIV a**	**Annexure XIV & XIVa**
1.30	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	The general elevation is ranges from 296 m AMSL to 361m AMSL. During Pre Monsoon water levels in the range of 13m.bgl and during Post Monsoon water levels is10 m.bgl. Ground water will be intersected from the 3rd year onwards and permission for water intersection will be obtained from Central Ground Water Authority before such intersection.	*Annexure XIX*
1.31	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	Greenbelt will be developed along the 7.5m mine periphery, plantation on backfilled area, on bench plantation, safety barrier along village road, on OB dump, on unworked area and on other area Plant will be carried out during Progressive Mine Closure Plan. At conceptual stage, approximately 139100 nos of saplings will be planted on 128.30 ha area @ 2500 sapling per ha. Survival rate will be maintained at >90%.	*Chapter 4* *Para 4.7.9 Page no. 215*

Year	7.5 M Safety Barrier/Undisturbed Area		Backfilled Area		Virgin Area		Total		Rs. In Lakhs
	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants	
I	0.1	250	-	-			0.1	250	1.25
II	0.20	500	-	-			0.20	500	2.5
III	1.05	2625	-	-	0.45	1125	1.5	3750	18.75

	IV	0.1	250	-	-	1.4	3500	1.5	3750	18.75
	V	1.5	3750	-	-	-	-	1.5	3750	18.75
	Total _ Plan Period							**4.8**	**12000**	60.00
	VIth Yr. Onwards till the conceptual stage	27.75	69375	72.66	Re-Grassing	23.09	57725	45.64	1,27,100	**635.50**
								72.66	Re-Grassing	**97.32**
	Total	**30.70**	**76,500**	**72.66**	**Re-Grassing**	**24.94**	**62350**	**128.30**	**1,39,100**	**792.82**

1.32	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	After getting the EC for mining project, the total mining production in 1st two years will be 8383 tonne only which will be stacked near the crusher. From 3rd year onwards full mining production of 2.85 million TPA will be achieved which will be transported to the proposed cement plant site initially by road through NH-927 A (total travel length 2km) and within 3 years, installation of OLBC will be completed which will be started with plant operation. At Normative stage, total trips of 55 tones capacity of tipper required for transport of 9500 Tons limestone (in a day) will be 173. The number of trips per hour will be 24 (to & from) @ 14 effective working hrs. in 2 shifts i.e., 7 hrs. effective in one shift. At Peak stage, total trips of 55 tones capacity of tipper required for transport of 11400 Tons limestone (in a day) will be 207. The nos. of trips per hour will be 30 (to & fro) @14 effective working hrs. in2 shifts i.e., 7 hrs. effective in one shift. Traffic study has been done on NH-927A. The Level of Service (LOS) value of NH-927A with existing traffic is "B" i.e., Very good. During the operation of this proposed limestone mine, vehicles of the mine will be added in the existing traffic of NH-927 A the LOS value will be same i.e., Very Good. Thus, it can be concluded that the present road network is good enough to bear the increased traffic load. However, internal and nearby roads will be maintained as and when needed to facilitate transportation. The rated production of 2.85 million tonnes limestone is envisaged from 3rd year of mining operations and onwards. Thus the crusher and OLBC shall be installed with operation of cement plant.	*Chapter 4* *Para 4.7.5 Page no. 204*
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report	Onsite facilities like Mine Office, Machinery Workshop, First Aid Station and Rest Shelters have been proposed and same information is given in this EIA/ EMP Report.	*Chapter 2 Para 2.4.1 Page no. 10*
1.34	Conceptual post mining land use and Reclamation and Restoration of mined out areas	At the conceptual stage, the total excavated area will be 121.96 ha out of which 72.66 ha area will be back filled & 49.30 ha will be used for rain water storage. Area under	*Chapter 2 Para 2.10 Page no.*

	(with plans and with adequate number of sections) should be given in the EIA report	utility & services will be 30.40 ha. About 592.99 ha area will be undisturbed. Greenbelt and plantation will be developed over an area of 55.64 ha. . Conceptual Plan & sections have been enclosed as Annexure-Va.	*32*
1.35	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	Occupational health will be identified; Preventive health measures will be taken, and is incorporated in this Final EIA/EMP Report. Under, the guidelines of DGMS Pre-placement medical examination and Medical exam for fitness before employment as per standards in Form P-1 of Mines Rules 1955. Proper health records will be maintained. Same information is given in this EIA/EMP Report.	*Chapter 4 Para 4.9 Page no. 221*
1.36	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	Public health implications of the project and related activities for the population in the impact zone have been evaluated and common prevailing diseases in the area were identified. Anticipated impacts have been assessed and corresponding mitigative measures have been suggested and detailed in the EIA/EMP report. Mining will be carried out as per the provisions outlined in mining plan approved by IBM as well as by abiding to the guidelines of DGMS. An implementation of recommended Environmental Management Plan /mitigation measures during the operation of the mine shall control the impacts significantly and will be confined within the mine boundary. Various measures such as Sharp drill bits & wet drilling, Controlled blasting, Water spray on haulage roads, Bag filter at crusher will be adopted to control pollution. Regular Ambient air quality monitoring, noise monitoring & water quality analysis will be carried out. Greenbelt will be developed along the 7.5 m width of mine periphery. Efforts will be made to improve the hygiene, sanitation, education and infrastructure of the nearby villagers. Medical health center will be established within the proposed Plant premises; facilities and it will be common for mine also. First aid centre will be established in the mine block and medical camps will be organized regularly in surrounding area.	*Chapter 4 Para 4.9 Page no. 221*
1.37	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	Proposed project will result in growth of the surrounding areas by increased direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure. Beside this, Royalty, DMF & NMET etc. will be additional benefits & will be utilized by local administration for the development of socioeconomic infrastructure and well being of the local population.	*Chapter 8 Para 8.2.4 page no. 262*

	time frames for implementation.	The mine shall be contributing around Rs. 25.53 Crore every year to the State and Central Govt. exchequer by way of mining revenue (Royalty, DMF, NMET etc) after the mine will be operated at peak capacity.	
1.38	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.	Total mining area is 800.9935 ha; out of which 227.9500 ha is Govt. Waste Land (29%) & 21.0900 ha (3%) Grazing /Charagah Land- & 551.9535 ha (68.0%) is Private Agriculture Land. Detailed Environmental Management Plan to mitigate the environmental impacts along with occupational health impacts due to the proposed project and its management plan is incorporated in this EIA/EMP Report. Proper mitigative measures for protection of agricultural land will be taken during mining practices.	***Chapter 4***
1.39	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.	Public hearing is yet to be conducted and same will be carried out as per provisions of EIA Notification, 2006. The company will propose a detailed time bound action plan along with budgetary allocation after conduction of Public Hearing considering issues raised during public hearing on the basis of MoEF&CC, OM dated 30.09.2020 & 20.10.2020 and will be submitted during Final EIA/EMP.	*Chapter 7 Para 7.2 Page no. 236*
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given	There is no litigation pending against the project. Copy of Undertaking for no litigation is enclosed with this EIA/EMP Report.	-
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out	➢ Capital Cost of the Project: Rs. 209.526 Crore ➢ Capital Cost for EMP: Rs. 19 Crore ➢ Recurring Cost for EMP: Rs. 1.43 Crore	*Chapter 10 Para 10.8 Page no. 270*
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report	Disaster Management and Risk Assessment Plan has been prepared, incorporated & enclosed with this EIA/EMP report.	*Chapter 7 Para 7.4 Page no. 238*
1.43	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	The benefits of the Project clearly indicating environmental, social, economic, employment potential, etc. is incorporated in this EIA/EMP Report. **Environmental:** ➢ At the conceptual stage, the total excavated area will be 121.96 ha out of which 72.66 ha area will be reclaimed and rehabilitated by re-grassing & 49.30 ha area will be developed as water reservoir. ➢ At conceptual stage, 65.97 Million Tonnes of waste generated till the end of mine life will be used for backfilling purpose and it will be rehabilitated with plantation. ➢ Plantation will be done over an area of 128.30 ha (72.66 ha area on backfilled + 24.94 ha on virgin area	*Chapter 8 Para 8.2 Para 261*

		+ 30.70 ha on safety barrier and undisturbed area). Density of plantation would be 2500 trees / ha with a survival rate of more than 90%. **Social**: Proposed project will result in growth of the surrounding areas by increased direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure. **Employment:** The total man power requirement for the proposed project will be 80 persons. Unskilled /semi-skilled manpower will be sourced from the local area and skilled manpower will be sourced from outside. Preference is will be given to the locals as per their eligibility. **Economic:** The mining activity will generate revenue in the form of contribution of additional revenue to state exchequer as notified by Indian Bureau of Mines time to time, beside this, Royalty and other taxes would be additional benefit, particularly in the form of contribution to the District Mineral Foundation (DMF). DMF will be utilized by local administration for the development of socio- economic infrastructure and wellbeing of the local population.	
1.44	Besides the above, the below mentioned general points are also to be followed: - A. All documents to be properly referenced with index and continuous page numbering. B. Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. C. 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	Complied with Complied with Analysis results of water, air, soil, noise etc. for the project have been analyzed from SCS Enviro Services Pvt. Ltd., Jaipur. Revalidate the baseline data generation was carried ut by NABL approved laboratory Ecomen Mining Private Limited (formerly knoen as Ecomen Labortories Private limited. MoEF&CC/NABL accredited laboratory and same has been incorporated in this EIA/EMP Report. Original analysis/testing report has been submitted along with EIA/EMP Report.	

	Project. D. Where the documents provided are in a language other than English, an English translation should be provided.	Complied with	
	E. The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Questionnaire for environmental appraisal of mining projects will be submitted with Final EIA/EMP report.	
	F. While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF 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.	Instructions issued by MoEF&CC vide O.M. No. J11013/41/2006-IA.II (I) dated 4 th August, 2009, have been followed.	
	G. 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.	Noted and complied with Not applicable as this is proposed limestone mining project.	
	H. 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. I. The EIA report should also include a. surface plan of the area indicating contours of main topographic features, drainage and mining area, b. geological maps and sections and c. (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area		

CHAPTER -1

INTRODUCTION

1.1 PURPOSE OF THE REPORT

Kamlesh Metacast Private Limited has proposed Limestone Mining Project with proposed production capacity of 8.91 MTPA (Total Excavation) (Limestone – 2.85 MTPA, Mineral Reject-0.24 MTPA, OB-5.78 MTPA & Soil – 0.04 MTPA) along with Installation of 1000 TPH Crusher with Wobbler and Screening 200 TPH over an area of 800.9935 Ha. Located in Village (s)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla and Kharadoli, Tehsil –Pindwara, District – Sirohi, Rajasthan**.**

This report has been prepared in reference to the ToR Letter issued by MoEF&CC, New Delhi Vide letter no. F. No. IA-J-11015/81/2024-IA-II (NCM), dated 05.05.2025 to carry out the EIA study. Terms of Reference was granted during 43rd meeting of Expert Appraisal Committee (Non-Coal Mining) held during April 22-23rd, 2025.

The main purpose of this report is to provide a coherent statement after analyzing all significant impact of the proposed mining project and measures that should be taken to eliminate and mitigate them. It contains essential information for:

- The proponent to implement the proposal in an environmentally and socially responsible way;
- The Appraisal authority to make an informed decision on the proposal, including the terms and conditions that must be attached to an approval or authorization; and
- The public to understand the proposal and its likely impacts on people and the environment.

1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.2.1 IDENTIFICATION OF THE PROJECT

A. Proposed Project

M/s Kamlesh Metacast Private Limited (KMPL) has proposed Limestone Mining Project with proposed production capacity of 8.91 MTPA (Total Excavation) (Limestone – 2.85 MTPA, Mineral Reject-0.24 MTPA, OB- 5.78 MTPA & Soil – 0.04 MTPA) along with Installation of 1000 TPH Crusher with Wobbler and Screening 200 TPH over an area of 800.9935 Ha. Located in Village (s)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla and Kharadoli, Tehsil –Pindwara, District – Sirohi, Rajasthan.

B. Screening Category

As per EIA Notification dated 14th September, 2006, as amended from time to time; the project falls under Category “A” S. No. ‘1’ (Mining of Minerals), Project or Activity ‘1(a) - (3).

C. Mining Lease Status

Prospecting License:

Prospecting License (PL) for limestone over an area of 1859.0275 ha near Village Rohida (Rohera as per toposheet) in Tehsil Pindwara, District Sirohi, Rajasthan granted vide Government Order no. Nikhabhu/ Sirohi/ CC.2/ P1 (2) 7/11/ 5255 dated 24-12-2014. PL executed on 12-03-2015.

Letter of Intent (LoI)

The LOI for an area of 800.9935 ha has been granted by Mines and Petroleum Department, Government of Rajasthan. LoI has been issued vide order no. P 3 (6) Khan/Group-2/2022 dated 13.03.2023 which is valid till 12.03.2025. Now LOI is extended for one year vide P.3 (6) Khan/Group-2/2022, date-25.07.2023 and valid till 12.03.2026. Copy of the same is enclosed as **Annexure I**.

D. Status Of Approval Of Mining Plan

The Mining Plan along with Progressive Mine Closure Plan has been approved vide letter no. E12030-MCDR-MPC0LST/28/2024-AJM-IBM_RO_AJM, dated-27.11.2024. Copy of the same is enclosed as **Annexure II.**

1.2.1 INTRODUCTION OF THE PROJECT PROPONENT

M/s Kamlesh Metacast Private Limited (KMPL) is a Jaipur based company having group exposure in real estate business across Rajasthan. KMPL desires to expand its business horizon and proposes to establish a cement plant in Rajasthan.

1.2.2 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION OF THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY, REGION

1.2.3 BRIEF DESCRIPTION AND NATURE, SIZE AND LOCATION OF PROJECT

The proposed project is a limestone mine having an area of 800.9935 hectares falling in Village (s) – Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla and Kharadoli, Tehsil –Pindwara, District – Sirohi, Rajasthan for the capacity of 8.91 Million TPA (Limestone – 2.85 Million TPA, OB – 5.78 Million TPA, Soil – 0.04 Million TPA & Mineral Reject-0.24 Million TPA) along with 1000 TPH of Crusher.

TABLE 1. 1 BRIEF DESCRIPTION OF THE PROJECT

S. NO.	PARTICULARS	DETAILS
A.	**Nature of the Project**	Proposed Limestone Mining Project
B.	**Size of the Project**	
1.	Mining Lease Area	800.9935 ha (Govt. Waste Land- 227.9500 ha (29%) & Grazing /Charagah Land-21.0900 ha (3%) & Private Agriculture Land- 551.9535 ha (68.0%).)
2.	Proposal	➢ Limestone Production Capacity: 2.85 Million TPA ➢ OB/waste – 5.78 Million TPA ➢ Top Soil - 0.04 Million TPA

		➢ Mineral Reject-0.24 Million TPA ➢ Total Excavation – 8.91 Million TPA ➢ Crusher - (1000 TPH) with 200 TPH Wobbler
C.	**Location Details**	
1.	Villages	Rohida,Bharja,Taroongi,Doliphali,Vatera, Pipla, Kharadoli
2.	Tehsil and	Pindwara
3.	District	Sirohi
4.	State	Rajasthan
5.	Latitude & Longitude	Latitude: 24° 32’ 47.3874”N to 24° 38’ 33.7254”N Longitude: 72° 51’ 57.958”E to 72° 57’ 57.515”E
6.	Toposheet No.	45D/14, 15 & 45 H/2
7.	Seismic Zone	Seismic Zone III, as per the seismic zoning map of India given in BIS code IS: 1893 (Part1)-2002.

1.2.4 IMPORTANCE OF THE PROJECT TO THE COUNTRY AND REGION

The principal use of limestone in the Cement Industry; it comprises 95% of core raw material for cement production. The Cement Industry in India is among the core Industries that is vital for economic growth & development. India has huge source of limestone distributed over different parts of the country. India is the second largest producer of cement in the world. India's cement industry is a vital part of its economy, providing employment to more than a million people, directly or indirectly.

Cement is a cyclical commodity with a high correlation with GDP. The housing sector is the biggest demand driver of cement, accounting for about 67% of the total consumption. The other major consumers of cement include infrastructure (13%), commercial construction (11%) and industrial construction (9%). India’s cement production is increased at a CAGR of 5.65% between FY16-22, driven by demands in roads, urban infrastructure and commercial real estate. The consumption of cement in India is expected grow to at a CAGR of 5.68% from FY16 to FY22. The domestic cement consumption is expected to increase as India has a lot of potential for development in the infrastructure and construction sector and the cement sector is expected to largely benefit from it. Some of the recent major government initiatives such as development of 98 smart cities are expected to provide a major boost to the sector.

Limestone is the main component for cement manufacturing. About 2.85 million TPA Limestone will be mined out from the existing lease area.

The mining and associated activities in the mineral bearing areas will contribute to the gains in the G.D.P.

1.3 SOPE OF THE STUDY

Scope of this study covers all the points given in the Terms of Reference (ToR) issued by the MoEF&CC, New Delhi vide letter no. IA-J-11015/81/2024-IA-II(NCM) dated 05th May., 2025.

The data generated from various studies for EIA/EMP are presented and discussed in following chapters of this report prepared as per Appendix-III of the EIA Notification, 2006.

Chapters	Description
Chapter-1	Introduction
Chapter-2	Project Description
Chapter-3	Description of the Environment
Chapter-4	Anticipated Environmental Impacts and Mitigation Measures
Chapter-5	Analysis of Alternatives (Technology & Site)
Chapter-6	Environmental Monitoring Plan
Chapter-7	Additional Studies
Chapter-8	Project Benefits
Chapter-9	Environment Cost Benefit Analysis
Chapter-10	Environment Management Plan
Chapter-11	Summary & Conclusion
Chapter-12	Disclosure of Consultants Engaged

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CHAPTER -2

PROJECT DESCRIPTION

2.1 TYPE OF THE PROJECT

Kamlesh Metacast Private Limited has proposed Limestone Mining Project with proposed production capacity of 8.91 MTPA (Total Excavation) (Limestone – 2.85 MTPA, Mineral Reject-0.24 MTPA, OB-5.78 MTPA & Soil – 0.04 MTPA) along with Installation of 1000 TPH Crusher with Wobbler and Screening 200 TPH over an area of 800.9935 Ha. Located in Village (s)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla and Kharadoli, Tehsil –Pindwara, District – Sirohi, Rajasthan**.**

As per EIA Notification, dated September 14, 2006 and as amended from time to time; the proposed mining project falls under Category "A", Project or Activity (1a) - (3).

2.2 NEED OF THE PROJECT

The main purpose of the report is to establish the baseline environmental attributes in terms of scoping and predict/ identify the impacts for preparing environment management plan.

India is the second largest producer of cement in the world. India's cement industry is a vital part of its economy, providing employment to more than a million people, directly or indirectly. The importance of the project to the nation, in a developing nation like India, cement is essential for infrastructure development. Thus, keeping in mind this requirement, mining of limestone is essential for the nation's growth.

2.3 LOCATION OF THE PROJECT

The mine is situated at Village (s)- Rohida (Rohera as per toposheet), Bharja, Taroongi (Taroongi as per toposheet), Doliphali, Vatera (Vatera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli,,Tehsil – Pindwara, District – Sirohi, Rajasthan. The lease area and study area falls within Survey of India Toposheet No. 45D/14. The Geographical Position of the Mining Lease Boundary Pillars is given in Table 2.1.

TABLE 2. 1 COORDINATES OF THE AREA OF ALL MAJOR CORNER POINTS

Sr No.	BP	Latitude (N)	Longitude (E)	Sr No.	BP	Latitude (N)	Longitude (E)
1	P01	24°32' 47.3874"	72° 52' 1.4946"	**25**	P25	24° 37' 34.4592"	72° 56' 52.7266"
2	P02	24° 33' 10.0033"	72° 51' 57.958"	**26**	P26	24° 37' 54.8408"	72° 57' 19.2734"
3	P03	24° 33' 40.9312"	72° 52' 42.5753"	**27**	P27	24° 38' 28.6578"	72° 57' 37.9906"
4	P04	24° 33' 24.5925"	72° 52' 49.403"	**28**	P28	24° 38' 33.7254"	72° 57' 57.515"
5	P05	24° 33' 29.6451"	72° 53' 13.6228"	**29**	P29	24° 37' 52.6177"	72° 57' 30.2607"
6	P06	24° 34' 12.5174"	72° 53' 44.2118"	**30**	P30	24° 37' 38.9086"	72° 57' 30.6968"
7	P07	24° 34' 18.1537"	72° 53' 50.8512"	**31**	P31	24° 37' 21.3514"	72° 57' 6.273"
8	P08	24° 33' 56.7964"	72° 54' 8.1052"	**32**	P32	24° 36' 20.3991"	72° 56' 38.9701"

9	P09	24° 33’ 54.2172”	72° 54’ 10.829”	**33**	P33	24° 36’ 16.4976”	72° 56’ 52.811”
10	P10	24° 34’ 27.4065”	72° 54’ 39.4178”	**34**	P34	24° 35’ 55.6198”	72° 56’ 37.9177”
11	P11	24° 34’ 53.0636”	72° 55’ 36.9231”	**35**	P35	24° 35’ 57.1639”	72° 56’ 34.3734”
12	P12	24° 35’ 47.9569”	72° 56’ 12.4879”	**36**	P36	24° 35’ 45.0536”	72° 56’ 28.1379”
13	P13	24° 36’ 28.5304”	72° 56’ 18.0411”	**37**	P37	24° 35’ 44.3607”	72° 56’ 29.7487”
14	P14	24° 36’ 23.7657”	72° 56’ 30.8454”	**38**	P38	24° 35’ 41.2437”	72° 56’ 27.5959”
15	P15	24° 37’ 28.7121”	72° 57’ 2.6675”	**39**	P39	24° 35’ 40.3654”	72° 56’ 25.1577”
16	P16	24° 37’ 38.1886”	72° 57’ 23.1352”	**40**	P40	24° 35’ 34.1688”	72° 56’ 21.065”
17	P17	24° 37’ 46.0211”	72° 57’ 15.968”	**41**	P41	24° 35’ 31.7575”	72° 56’ 20.749”
18	P18	24° 37’ 31.2601”	72° 56’ 56.5821”	**42**	P42	24° 35’ 26.4082”	72° 56’ 16.9624”
19	P19	24° 37’ 8.2604”	72° 56’ 45.2975”	**43**	P43	24° 34’ 13.4671”	72° 55’ 15.9886”
20	P20	24° 37’ 10.3369”	72° 56’ 40.2864”	**44**	P44	24° 34’ 0.6192”	72° 54’ 47.0235”
21	P21	24° 36’ 28.5216”	72° 56’ 19.7833”	**45**	P45	24° 34’ 13.3261”	72° 54’ 42.3015”
22	P22	24° 36’ 43.1881”	72° 56’ 21.3686”	**46**	P46	24° 34’ 13.1571”	72° 54’ 37.1514”
23	P23	24° 37’ 16.7418”	72° 56’ 38.084”	**47**	P47	24° 33’ 58.935”	72° 54’ 42.7533”
24	P24	24° 37’ 14.7283”	72° 56’ 42.9521”	-	-	-	-

The map showing general location of the proposed mine is given in ***Figure 2.1*** .

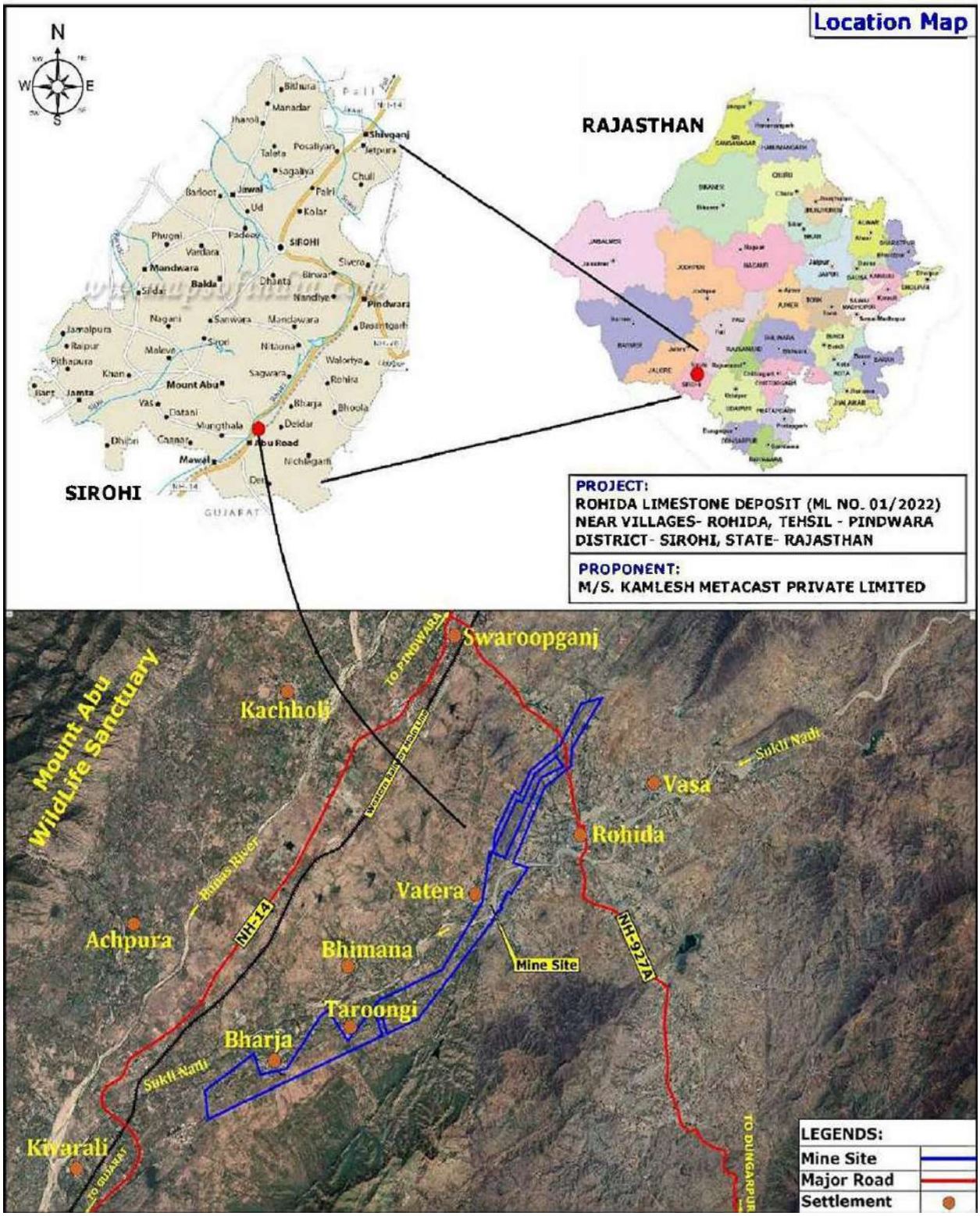

FIGURE 2. 1 MAP SHOWING GENERAL LOCATION OF THE LEASE AREA

2.3.1 MAP SHOWING GEOLOGY AND GEOMORPHOLOGY OF THE MINE SITE WITH CORNER CORDINATES

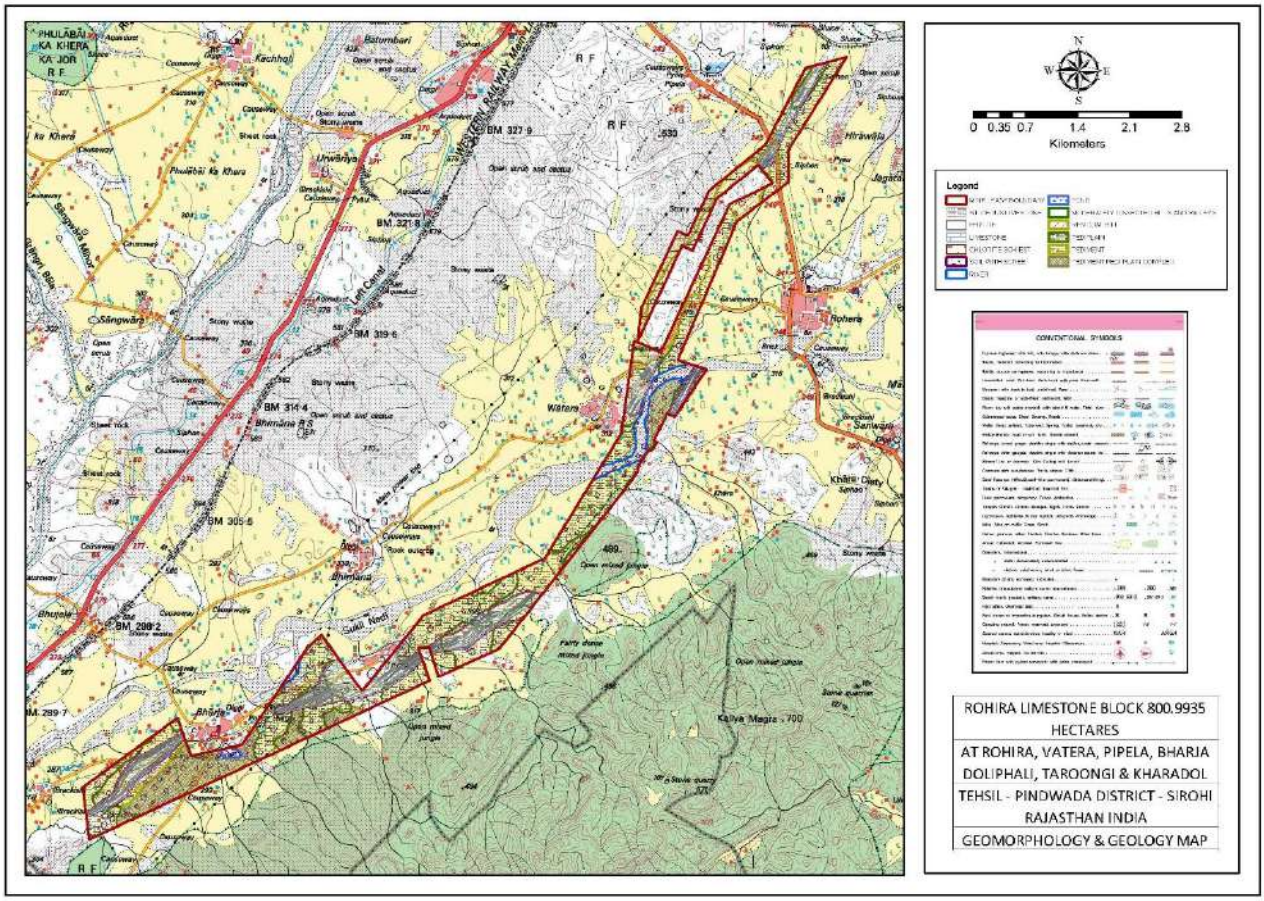

FIGURE 2. 2 MAP FOR GEOLOGY AND GEOMORPHOLOGY OF THE MINE SITE WITH CORNER COORDINATES

2.3.2 PROJECT SITE LAYOUT

Land Details

The area of proposed mine is 800.9935 ha which falls in 7 Villages in 1 Tehsils namely, Villages: Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli in Tehsil Pindwara, District Sirohi, Rajasthan.

As per the revenue record total mine area is 800.9935 Ha, out of which 227.9500 ha is Govt. Waste Land (29%) & 21.0900 ha (3%) Grazing /Charagah Land- & 551.9535 ha (68.0%) is Private Agriculture Land. Copy of the Cadastral Map is enclosed as **Annexure III.**

Charagah Land 21.09 ha falls in the mining lease area and conversion land for Charagah land into industrial land letter has been submitted to District collector, Sirohi vide letter dated 28.4.2025. Copy of the same is enclosed **as Annexure XVII.**

No forest land is involved in the Mining Lease Area. NOC for no forest land in ML area has been received from State Forest Department vide letter dated 02.02.2025. Copy of the same is enclosed as **Annexure IV.**

TABLE 2. 2 VILLAGE WISE LAND DETAILS

S. No.	Tehsil	Village	Area in Hect.	Type of Land and Area (ha)		
				Pvt. Agriculture Land (Ha.)	Govt. Waste Land (Ha.)	Govt. Grazing Land
1	Pindwara	Rohida	183.9139	124.9038	59.0101	-
2		Vatera	131.2198	93.6264	32.3331	5.2603
3		Bharja	265.2998	213.1340	52.1658	-
4		Taroongi	165.7261	82.1257	69.2610	14.3394
5		Doliphali	29.2057	27.6502	1.5555	-
6		Pipela	9.5158	7.9041	1.6117	-
7		Kharadoli	16.1124	2.6093	12.0128	1.4903
				551.9535	227.9500	21.09
Total			**800.9935**			

2.3.3 SALIENT FEATURES OF THE LEASE AREA

A. **Habitation:** Village Taroongi and Bharja some part of the villages falls in the lease area.

B. **Roads:** Bharja to Wada tar road and NH-927A (Swaroopganj-Ratlam) road are passing through applied ML area. Same will not proposed to be disturbed at any stage of mining. 50m statutory safety barrier will be left and plantation will be carried out.

C. **HT Lines:** HT Line passing through the applied ML area. Same will not be disturbed at any stage of mining. Mining will be away at ~50 m distance from the electric lines.

D. **Water Bodies:** Sukli River and Some Nallah & Canals are passing through the mining lease area. River, Nallah and canal will not be disturbed at any stage of mining and Mining will be carried out at 50m away from the River, Nallah and canal.

All above said mine site features given in Surface Plan & Copy of Surface Plan is enclosed as **Annexure V.**

FIGURE 2. 3 PHOTOGRAPHS SHOWING MINING LEASE AREA

2.4 SIZE OR MAGNITUDE OF OPERATION

The size and magnitude of the project is as given below: -

TABLE 2. 3 SIZE AND MAGNITUDE OF THE PROJECT

S. No.	Particulars	Details
1.	Lease Area (Ha.)	800.9935
2.	Geological Reserve	27,67,13,725.85 MT (276.71 Million TPA)
3.	Mineable Reserve	5,67,92,655.3 MT (56.79 Million TPA)
4.	Production	8.91 Million TPA (Total Excavation) (Limestone – 2.85 Million TPA, Soil – 0.04 Million TPA, Mineral Reject- 0.24 Million TPA & OB – 5.78 Million TPA)
5.	Life of Mine	20 years
6.	Period of the Lease (LOI)	12.03.2026
5.	Total Man Power (Nos.)	80

2.4.1 ASSOCIATED ACTIVITIES/FACILITIES PROVIDED

The mine under reference shall be a captive source of supply of the main raw material, limestone to the plant for manufacture of clinker/cement and thus, shall be an integral part of the cement project. The main

site services and facilities will be present within the lease area. However, the mine is in close proximity of the proposed interlinked Cement Plant and thus few facilities will also be present within the cement plant boundary.

Mine Office: An office will be provided during first five years but at later stage, when the mine reaches it full capacity production, a full-fledged Office with all required facilities will be established.

Infrastructural facilities will be established like canteen, Horticulturist office, Guesthouse, Environment Management Cell, Post Office, Telephone, Police outpost, Primary Health Center etc. The mine office with first aid rooms, rest shelters, toilets, tool/store room, Potable water for consumption, Power supply, Workshop store etc. are proposed & established after the plan period.

Workshop: A Well-equipped workshop will be established which will cater to the maintenance requirements for the HEMM. In addition, a fully equipped mobile Service Van will be provided for the proposed mine.

Store: A store for catering to the needs of mining equipment and allied mining activities will be established.

Oil Room: Storage of various types of oils and lubricants, a well-maintained room is proposed to be established.

First Aid room: First aid room of adequate size equipped with statutory equipment will be established within lease area. The first aid training will be imparted to all the mine officials and staff to attend to any eventuality anytime. First aid station will be provided near the mine working as specified by DGMS.

Medical Check Up: The regular medical check-up & other benefits to the miners pertaining to their health will be provided as per Mines Rules 1955.

Ablution Block: Urinals & lavatories rest shelter will be provided at the mine office.

2.5 STATUS OF STATUTORY CLEARANCES, PERMISSIONS, NO OBJECTION CERTIFICATES, CONSENTS

The mining project will be implemented after getting all the Statutory Clearances, Permissions, No Objection Certificates, Consents etc which is required/necessary for this project under various Acts, Rules and Regulations is as given in table below:

TABLE 2. 4 STATUS OF STATUTORY CLEARANCES, PERMISSIONS, NO OBJECTION CERTIFICATES (NOCS) AND CONSENTS

S. No.	Particulars	Date &Status
A. **Statutory Clearances**		
1.	Letter of Intent (LOI) for grant of mining lease	The LOI for an area of 800.9935 ha has been granted by Mines and Petroleum Department, Government of Rajasthan. LoI has been issued vide order no. P 3 (6) Khan/Group-

		2/2022 dated 13.03.2023 which is valid till 12.03.2025. Now LOI is extended for one year vide P.3 (6) Khan/Group-2/2022, date-25.07.2023 and valid till 12.03.2026. Copy of the same is enclosed as **Annexure I.**
2.	Mining Plan along with Progressive Mine Closure Plan	The Mining Plan along with Progressive Mine Closure Plan has been approved vide letter no. E12030-MCDR-MPC0LST/28/2024-AJM-IBM_RO_AJM, dated-27.11.2024. Copy of the same is enclosed as **Annexure II.**
3.	Mining Lease Status	Will be executed after obtaining Environmental Clearance
4.	Environment Clearance from MoEF&CC, New Delhi	ToR Letter Received vide file no IA-J-11015/81/2024-IA-II(NCM), dated 05.05.2025 and remaining process is under progress
B. **Permissions**		
1.	Certificate from the Department of Mines and Geology, Udaipur, Rajasthan for the project not falling under Aravalli range.	Certificate for non-involvement of Aravalli Range has been obtained from the office of Mining Engineer, Department of Mines and Geology vide dated 26.03.2025. Copy of the certificate is enclosed as **Annexure VII.**
2.	Certificate from Rajasthan Stat Pollution Control Board for the project not falling in Critically Polluted Area (CPA).	Certificate for non-involvement of CPA has been obtained from Rajasthan State Pollution Control Board Sirohi, vide dated 10.07.2025. Copy of certificate is enclosed as **Annexure VIII**
C. **No Objection Certificates**		
1.	No Forest Land within Mining lease area	NOC for no forest land in ML area has been received from Regional Forest Officer, Pindwara, Sirohi vide letter dated 02.02.2025. Copy of the NOC is enclosed as **Annexure IV.**
2.	Authentication of flora & fauna separately for core zone and buffer zone	Authenticated List of Flora and Fauna has been approved DCF, Sirohi vide letter dated 4.06.2025. Copy of the same is enclosed as **Annexure VI a.**
3.	Authentication of Location Map showing distance of mining lease from the protected area falling within 10 KM of the mining	Application for authentication of Location map has been submitted to DCF, Sirohi for further approval vide letter dated 15.7.2025 which has been forwarded to Chief conservator of forest, Jodhpur vide letter dated 28.7.2025. Copy of the forwarded map for 10km is enclosed as **Annexure VI b.**
4.	Embankment Design for Pit No 12 & 13 Approval from DGMS	Advice received from DGMS Udaipur regarding safe guard of embankment of pit no. 12 & 13vide letter dated 21.7.2025. Copy of the same is enclosed as **Annexure XIV.**
D. Consents		
1	Grant of Consent to Establish (CTE)	After 30 days from grant of EC (Duration as per RSPCB)
2	Grant of Consent to Operate (CTO)	After 30 days from grant of CTE (Duration as per RSPCB)

2.6 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION

The mining project will be implemented after getting all the statutory clearances and consents from the respective authorities. Proposed schedule for approval for the mining project is given as below:

2.6.1 SCHEDULE FOR APPROVAL

TABLE 2. 5 PROPOSED SCHEDULE FOR APPROVAL

S. No.	Activity Description	Aug. 2025	Sep. 2025	Oct. 2025	Nov. 2025	Dec 2025	Jan. 2026
1.	Submission of PH Document to RSPCB						
2.	Conduction of Public Hearing						
3.	Submission of Final EIA/EMP Report to MoEF&CC						
4.	Consideration for EC by EAC (Non-Coal Mining)						
5.	Recommendation of EAC to MoEF&CC						
6.	Grant of EC by MoEF&CC						

After obtaining EC from MoEF&CC, CTE and CTO under section 21 of the Air (Prevention and Control Act) 1981 and section 25/26 Water (Prevention and Control of Pollution Act) 1974 will be obtained from Rajasthan State Pollution Control Board (RSPCB).

2.6.2 IMPLEMENTATION

Implementation of the proposed mining project will be done in accordance with the existing acts and rules applicable on mining operations as well as in accordance with any act/rule/guidelines issued by central or state government time to time. Implementation of the mining project will be done as per Approved Mining Plan and Progressive Mine Closure Plan approved by Indian Bureau of Mines, Ajmer.

2.7 TECHNOLOGY AND PROCESS DESCRIPTION

2.7.1 BASIC REQUIREMENTS FOR THE PROJECT

The project requirements such as water, power, man-power, fuel, machinery with source of supply are described in the sections below.

2.7.1.1 WATER REQUIREMENT

The total water requirements for the proposed project will be 150 KLD. Presently, Project area is categorized as semi critical block (non-notified category) zone. Water demand will be sourced from ground water after obtaining necessary permission from the competent authorities. After development of pit, collected rainwater and seepage water will be used for mining operation to reduce the dependency on ground water. The proposed water demand is given below: -

TABLE 2. 6 PROPOSED WATER DEMAND

S. No.	Particulars	Propose (KLD)	Source
1.	Domestic	10	Groundwater
2.	Dust Suppression	110	

3.	Plantation	20	
4.	Workshop	10	
Total		**150**	

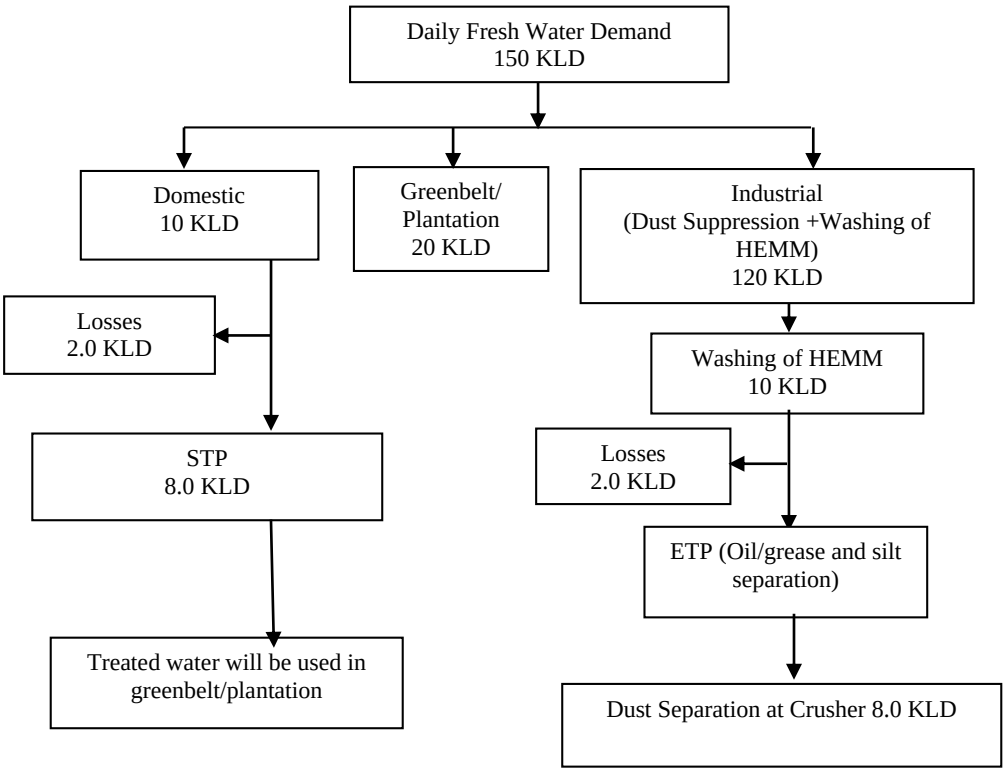

FIGURE 2. 4 WATER BALANCE FLOW CHART

Initially, for 2 years there is development activity, hence drinking and domestic water will be required fro which NOC has been obtained for withdrawal of 9.5 KLD water. Total water requirement is 150 KLD for which CGWA NOC will be obtained prior starting working of 3 three years for dewatering of water from mine pit. The ground water consumption will be gradually reduced as the mine progress and mine pits are developed to harvest the rainwater. Copy of the NOC is enclosed as **Annexure XV.**

The available water during plan period from the mine pit collected from seepage and rain water collection is given as below:

Year	Total Yearly Seepage (cubic M)	Actual Annual Rainfall Contribution to mine Pit after deducting Evaporation Losses @55.5% (Cub m)	Total (Cub.m/Year)	Total (Cubm/Day)
1	0	0	0	0
2	0	1,198	1,198	3
3	1,64,698	69,082	2,33,780	640
4	2,23,204	93,317	3,16,521	867
5	3,40,216	84,109	4,24,325	1,163

2.7.1.2 POWER REQUIREMENT

Power will be sourced from the Udawariya Grid Station at a distance of approx. 5 km towards SW. The total power requirement is 3142100 units per annum/0.7 MWh will be required for crusher plant and office lighting for which green power will be received from grid or by installation of 3.5 MWh solar plant at the site. Initially fossil power will be received from grid and switching to 100% green power will be achieved in next five years after implementation.

2.7.1.3 MANPOWER REQUIREMENT

The proposed project will generate direct employment for around 80 people. Preference will be given to suitable local people for employment. Apart from the direct employment, there will be many indirect employment opportunities after commencing of the proposed project along with the cement plant proposed in the nearby villages. Following staff is proposed to be employed for the proposed mine: -

TABLE 2. 7 PROVISIONAL NUMBER OF PROPOSED STAFF AND WORKERS

S. No.	Particular	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in General Shift	Total No. of Persons per day
Managerial					
1	1st Class	0	0	1	1
2	2nd Class Manager	1	1	1	3
3	Geologist	0	0	1	1
4	Mechanical Engineer	0	0	1	1
5	Surveyor	0	0	1	1
6	Other	0	0	1	1
Supervision					
7	Foreman	1	1	0	2
8	Blaster	0	0	1	1
9	other	0	0	2	2
Skilled workers/ Operators					
10	Drill Operator	2	2	0	4
11	Operator	5	5	0	10
12	Dumper Operator	15	15	0	30
13	Dozer/Grader Operator	0	0	1	1
14	Operator	0	0	4	4
15	Technician	1	1	2	4
16	Other	1	1	2	4
Semi-skilled					
17	-	1	1	2	4
Unskilled					
18	-	1	1	4	6
Total		**28**	**28**	**24**	**80**

Source: *Approved Mining Plan along with Progressive Mine Closure Plan*

2.7.1.4 FUEL REQUIREMENT

Total fuel requirement is 4698 Ltr/day i.e. HSD, and it will be sourced from Authorized suppliers.

TABLE 2. 8 TOTAL FUEL REQUIREMENT

S. No.	Year	Specific Diesel Consumption (L/ton)
1.	First Year	0.49
2.	Second Year	0.47
3.	Third Year	0.42
4.	Fourth Year	0.40
5.	Fifth Year onwards	0.37

In compliance of Specific ToR point 1.14 to reduce the diesel consumption.

TABLE 2. 9 DIESEL CONSUMPTION

Diesel consumption as per the best available practices					
S. No.	**Name of Equipment**	**No of Equipment**	**Run Hour**	**Specific diesel consumption Lt/hr**	**Total diesel Consumption Lt/day**
1	Excavator	5	12	40	2400
2	Dumper	15	14	3	630
3	Drill Machine	1	12	50	600
4	Rock Braker	1	12	50	600
5	Loader/Dozer	3	12	13	468
	Total				**4698**
	Limestone production tonnes/day				**9500**
	Specific diesel consumption limestone production tonnes/Ltr				**0.495**

TABLE 2. 10 DIESEL CONSUMPTION PROPOSED FOR 25% REDUCTION

Diesel consumption proposed for 25% reduction					
S. No.	**Name of Equipment**	**No of Equipment**	**Run Hour**	**Specific diesel consumption Lt/hr**	**Total diesel Consumption Lt/day**
1	Excavator	5	11	38	2090
2	Dumper	15	11	2	330
3	Drill Machine	1	11	38	418
4	Rock Braker	1	11	38	418
5	Loader/Dozer	3	11	10	330
	Total				**3586**
	Limestone production tonnes/day				**9500**
	Specific diesel consumption limestone production tonnes/Ltr				**0.377**

Presently, no cement company in India is utilizing electric vehicles (EVs) for transportation of limestone within quarry operations. Few cement companies have deployed electric trucks for clinker transportation only. As advancements in electric mining equipment continue, it's plausible that EVs will be integrated into quarry operations including limestone transport, in the near future. KMPL is committed to environment protection and will explore the possibility of deploying EVs in limestone

transport within the quarry clinker/cement transportation. Techno-economical viability will be explored to deploy in mining.

The diesel consumption is estimated as 0.5 Ltr/tonne of limestone production. Following measures will be adopted for fuel efficient mining operations:

1. Blending of high quality biodiesel to reduce GHG Emissions.
2. Purchase of most fuel efficient equipment.
3. Implementation of smart fleet management system with various external sensors (GPS, Payload on wheels, RFID tag, engine temperature, tyre pressure etc) for fleet tracking and its health condition monitoring in real time.
4. Embracing a cognitive approach for fuel optimization (Internet of things-IoT and cloud base system for monitoring of fuel consumption which helps the most fuel efficient mine operation).
5. Exploring of EV based HEMM in phased manner based on site suitability.

2.7.1.5 EXTENT OF MECHANIZATION

The machinery & equipments which will be required for mining operation are as follows:

TABLE 2. 11 MACHINERY AND EQUIPMENT

S. No.	Equipment	Requirement (Nos.)
1.	Drill Machine (115 mm dia)	3
2.	Hydraulic Excavator (5 m^3 bucket)	6
3.	Dump Truck (55 ton capacity)	18
4.	Dumper (55-ton capacity)	11
5.	Bulldozer (305 HP)	1
6.	Rock breaker mounted on 30 ton class hydraulic excavator	1
7.	Wheel Loader (for miscellaneous works) – 4 m^3 bucket	2
8.	Grader (135 hp)	1
9.	Explosive Van (5 tonne)	1
10.	BMD Truck	1
11.	Water Sprinkler (10 KL)	1
12.	Fuel Bowser (5 KL)	1

In compliance of Specific ToR point no. 1.13 to explore the higher capacity mining equipment, it is submitted that the rated 2.85 million tonne limestone production, higher capacity mining equipment viz. hydraulic excavator has been considered as 5 m3 bucket capacity. The capacity of dumpers has been considered as 55 ton (11 Nos) in place of earlier proposed 35 (15 Nos) tonne off-highway dump trucks have been proposed for material handling from mine as per approved mining plan. For optimized fuel

consumption various measures like regular maintenance, use of fuel additives and premium fuels, use of aerodynamic devices etc. are proposed to be adopted to lower the fuel consumption.

2.7.2 GEOLOGY OF THE AREA

REGIONAL GEOLOGY

The geology of the region was first studied by Heron (1935) and subsequently revisited and modified by various researcher/ academician from Geological Survey of India, Academic Institute and other exploratory agencies. Prominent among them are Singh (1988), Gupta (1997), Sinha & Roy (1998) Roy & Jakhar (2002).

On the regional basis, the rock formations of the region belong to Delhi Supergroup of Mesoproterozoic Era, overlying Aravalli Supergroup. During this period, rifting of Bundelkh and- Aravali craton in the east and Marwar craton in the west created oceanic isolated basins which facilitated sedimentation of Delhi Supergroup sediments. The sedimentary rocks suggest fluvial and shallow marine to deep marine depositional environment. The rocks of Delhi Supergroup mainly constitute metabasaltic, calc schist, mica schist, marble and amphibolite. Sinha & Roy divided Delhi Supergroup into two division namely North Delhi Fold Belt (NDFB) and South Delhi Fold Belt (SDFB). The area under reference falls under SDFB. The general stratigraphic succession of Delhi Super group suggested by Gupta 1992 is given below.

TABLE 2. 12 LITHO- STRATIGRAPHIC CLASSIFICATION OF DELHI SUPERGROUP (AFTER GUPTA ET AL.,1992)

Litho- stratigraphic classification of Delhi Supergroup (after Gupta et al.,1992)				
South -western Rajasthan and North-eastern Gujarat			**Ajmer Sector**	**North-eastern Rajasthan**
INTRUSIVES (Post Delhi) DELHI SUPERGORUP 2000-740 M.v.	MALANI IGNEOUS SUITE Plutonic and volcanic			
	ERINPURA GRANITE			
	GODHRA GRANITE GNEISS			
	PUNAGARH GROUP (sojat.Bambolai,Khambal and Sowania Formations)	SINDRETH GROUP (Angor and Goyali Formations)		
	SIROHI GROUP (Jiyappura,Reodhar, Ambeshwar and Khiwandi Formtions)			
	SENDRA AMBAJI GRANITE AND GNEISS			
	PHULAD OPHIOLITE SUITE		KISHANGARH GROUP	DADIKAR ,BAIRATH AND SIKAR GRANITES
	KUMBHALGARH GROUP (Todgarh ,Beawar,Kotra ,Ras,Barr,Sendra ,Kalakot and Basantgarh Formations)		AJABGARH GROUP (Ajmer Formation)	AJABGARH GROUP (Kushalgarh, Sariska ,Thanagazi, Bharkol and Arauli Formations)
	GOGUNDA GROUP (Richer, Antalia and Kelwara Formations)		ALWAR GROUP (Srinagar and Naulakha formations)	ALWAR GROUP (Rajgarh,Pratapgarh,Nithar,Badalgarh and Bayana Formations)
				RALALO GROUP (Dogeta and Tehla Formations)

ARAVALLI SUPAR GROUP

The rocks of the Delhi Super group extend in a NE-SW trending rectilinear belt from Delhi in the north to Himmat nagar in the south for almost 850 km length. Later, eastward subduction of the western Marwar craton and eastern Aravalli- Bundelkhand craton uplifted the Delhi Super group sediments. This episode of the tectonic evolution was marked by multi episode folding and granite/ pegmatite intrusion through the Delhi Super group, resulting into its deformation. The sedimentary and volcanic rocks of the Delhi Super group are found to have recrystallized first under regional metamorphism which was later subjected to thermal metamorphism.

Delhi Super Group

The thick pile of metamorphosed terrigenous & chemogenic sediment with related concordant & discordant intrusive & extrusive phases resting over rocks of Aravalli metasediments in south east part of Rajasthan (Sirohi district) have been included into the Delhi Super Group. The general trend of these rocks is NE-SW. It has occupied more than 70 km strike length with 30-40 kms exposed width.

The Delhi Super Group comprises dominantly quartzite, biotite schist, calc schist, calc gneisses, phyllite and marble with subordinate conglomerate & chert. The associated intrusive & extrusive rocks are metavolcanics, granites, ultra-basics, basic flows, epidiorite, hornblende schist, amphibolites, pyroxene granulites & gabbros. The rocks have undergone polyphase deformation and regional metamorphism from green schist facies to amphibolite facies.

The mixed calcareous & argillaceous faces of shelf interior has been designated as Kumbhalgarh Group and clastic marine sediments deposited in deeper part of trough have been included in Sirohi Group.

Kumbhalgarh Group

The metamorphosed calcareous sediments with subordinate argillaceous & arenaceous sediments resting over rocks of Aravalli Super Group have been included into Kumbhalgarh Group. The rocks of this group are exposed for more than 70 km strike length from Amli in the north to Kui in the south.

Lithologically this group comprises calc gneisses, calc schist, pure & impure calcitic marble, muscovite biotite schist, calc biotite schist, feldspathic gneisses, quartzites, amphibolites and migmatites.

In district Sirohi, Kumbhalgarh Group is represented by Basantgarh formation. It comprises calcitic marble, calc schist & calc gneisses with minor amount of biotite schists & quartzites.

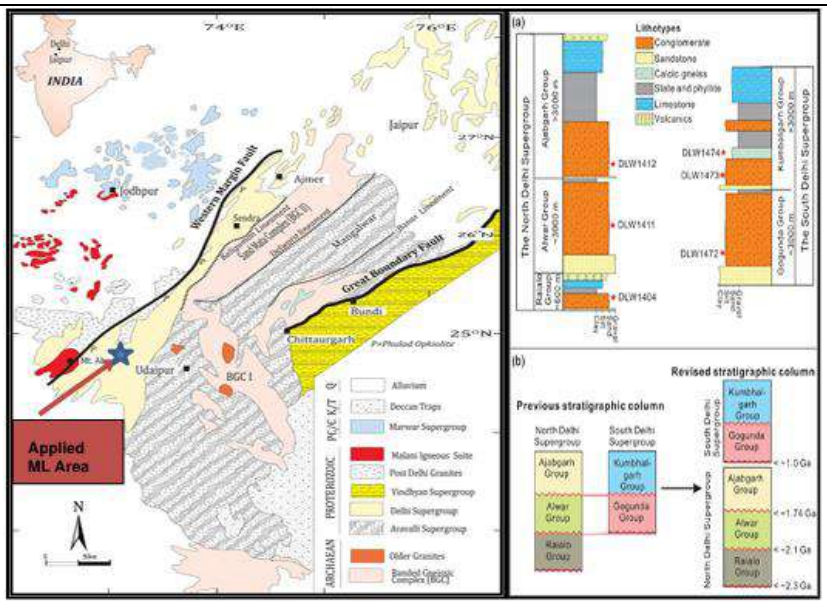

FIGURE 2. 5 REGIONAL GEOLOGICAL MAP AND STRATIGRAPHIC SUCCESSION OF DELHI SUPERGROUP

Sirohi Group

The flysch-like thick deposits of fine argillaceous sediments viz; phyllites, mica schist and biotite schist along with intercalations of arenaceous and calcareous sediments (quartzite and marble) deposited during or terminal orogenic phase of the Sirohi Group.

The rocks occur in the form of a broad belt occupying the plains of Marwar lying to the west of Aravalli range. The continuity of the belt is either lost under a thick soil/ sand cover in the area or interrupted by the intrusive Erinpura Granite. The metasediments of the Sirohi Group have been subdivided, in order of antiquity, into the Jiyapura, Reodar, Ambeshwar and Khiwandi Formations.

Phulad Ophiolite suite

It is ultramafic suite mainly comprising epidiorite, hornblende schist, amphibolite, pyroxene granulites, gabbros & ultramafics. These rocks have undergone metamorphism up to amphibolite facies. Rocks of this suite forming a lineament intermittently exposed in Sirohi district.

Intrusive and extrusive – (Erinpura & Malani intrusive rocks)

In Sirohi district two major granite activities have been noticed, one Erinpura granite suite (830+/-30 M.Y.) & Malani igneous suite (745+/-10 M.Y.).

The Erinpura granite is porphyritic to non-porphyritic, light pink to grey in colour, gerromagnesian rich in nature. Broadly it is biotite granite.

The Erinpura granite suite has occupied the Mt. Abu hill, Naya Sanwara, Nadia & west of Sirohi. It ranges from granite to gneissic variety. In the southern part of the district it is known as Ambaji granite.

Part of the Mt. Abu has been considered to be associated with Malani igneous suite and equated with Jalore granite.

STRUCTURE

The granite occupied areas are the highland areas. The highest point "Guru Shikhar" in Mt. Abu hills is formed due to batholithic intrusion. The meta sediments of Kumbhalgarh Group & Sirohi Group shows both micro and macro folds. The general trend of rocks & folded limbs is NE-SW with easterly dip due to overturned nature of the folds. The folds are generally northerly plunging.

LOCAL GEOLOGY

The mineral lease (ML) area is characterized by prominent exposures of calcareous formations, predominantly limestone, which are well developed across the terrain. These limestone units occupy the upper portions of the hillocks and extend downward, displaying sharp lithological contacts with calc-silicate rocks, chlorite schist, and phyllite along both the hanging wall and footwall margins.

Based on observable physical attributes—such as color, bed thickness, degree of crystallinity, and the presence of intercalations—the limestone can be broadly classified into two distinct types: (i) thinly bedded limestone, and (ii) thickly bedded limestone. Both types are typically grey to dark grey in color, fine- to medium-grained, and exhibit a hard, massive, and compact texture. The thickness of the limestone formation, as delineated through subsurface borehole investigations, ranges from 0.50 m to 29.00 m. The unit is predominantly exposed over low-elevation hills and mounds within the ML area.

Topsoil in the region primarily covers the low-lying areas but also occurs as scattered patches over limestone outcrops. This soil is generally brownish-black in color, silty to sandy in texture, friable when dry, and sticky upon wetting.

The limestone sequence frequently contains intercalated phyllite bands, varying from thin to thick, and in places is intruded by calc-silicate veins and quartz. Based on the degree and nature of these intercalations, certain portions of the limestone are classified as siliceous limestone, which, although part of the broader limestone horizon, contain significant calc-silicate and quartz vein intrusions. The thickness of siliceous limestone encountered in boreholes varies between 0.87 m and 15.00 m.

Phyllite occurs as discontinuous beds within the limestone sequence and also forms a substantial portion of the northeastern segment of the ML area. Borehole data indicate phyllite thickness ranges from 0.95 m to 22.00 m. Additionally, calc-silicate and chlorite schist units dominate the low-lying zones, especially along the structural boundaries (hanging wall and footwall), and are devoid of limestone mineralization.

The rock formations within the applied ML area exhibit a general structural trend oriented along the northeast-southwest (NE-SW) direction, with moderate to steep dips ranging between 52° and 84° towards

the southeast (SE), as interpreted from surface geological mapping, borehole core analyses, and subsequent lithological correlation.

The limestone mineralization in the area displays pinch-and-swell characteristics along the strike direction, and in some zones, it occurs in isolated, detached pockets. The limestone horizon is structurally confined between thin to thick phyllitic bands, indicating a complex and heterogeneous geological architecture influenced by multiple phases of deformation and lithological intercalation.

Site Characteristics and Geological Setting

The bulk density of Limestone/ Siliceous Limestone ore is 2.68 t/m3 and Phyllite/ Amphibolite interburden/overburden is 2.86 t/m3. The physical characteristics of various rock types occurring in the area are similar and thus, the bench slope for each litho-unit is considered same. The vertical limit is governed by the availability of limestone up to drilled depth of boreholes and maximum up to 200 m RL or workable width of the lowermost bench. The mining is proposed to be carried out by formation of benches of maximum 10 m height and minimum bench width of 15 to 20 m is proposed to be maintained during mine operations. The individual bench slope of 80 degree has been considered as the limestone is hard and compact rock. Since, the production benches will be pushed finally up to the ultimate pit limit (UPL), the benches finally left un-mined will have a final configuration of maximum 10 m height and 10 m effective width and the ultimate overall pit slope shall be ≤45 degree. The ambient noise levels recorded in the core and buffer zone of applied ML area during baseline study were found to be in range of 49.5 to 53.9 dB(A) during daytime and in the range of 41.3 to 43.7 dB(A) during night time

Pit design parameters as proposed in the pre-feasibility report:

Type of working	Opencast Mechanized
Bench height	10 m max. in limestone
Bench Width	min. 15 to 20 m (working benches) 10 m (Ultimate stage)
Bench face Angle	80° from horizontal
Overall Pit Slope	≤45° (at Conceptual Stage)

The study area encompasses a limestone quarry operation with assumed geological conditions representative of typical metalliferous mining environments. The site is characterized by sedimentary rock formations with density ranging from 2.6-2.8 g/cm³, typical of limestone deposits.

The various litho-units encountered in PL area during exploration, in order of their superimposition from top to bottom, are given below:

Recent Formation : *Alluvium and Soil cover*

Post Delhi Intrusive : *Pegmatites, amphibolite and quartz vein*

Post Delhi Intrusive

(Kumbhalgarh Group) : *Grey to dark greyish coloured, fine to medium grained, thinly to thickly bedded limestone with frequent phyllitic intercalations*

: *Phyllites*

2.7.3 DETAILS OF MINING

2.7.3.1 EXPLORATION CARRIED OUT IN THE AREA

Based on drilling grid spacing, area of 147.83 ha, 2.17 ha and 11.80 ha has been considered under G2, G3, G4 level of exploration, respectively. The limestone resources have been estimated by implying cross sectional area method. A total of 17 nos. of cross sections have been prepared at N45W-S45E direction at an interval of about 200 m to 400 m in Block A and Block B. In Block C, 4 nos. cross sections prepared at N35W-S35E direction at an interval of 200 m and in Block–D, 6 nos. of cross sections have been prepared at N30W-S30E direction at an interval of about approx.127 m to 400 m. The bore holes were drilled at about 200 m x 400 m grid within block area.

2.7.3.2 ESTIMATION OF RESERVES

As per Mining Plan, total mineable reserves are 56.79 million tonnes. Details of Geological reserves as per UNFC classification are given in following table.

TABLE 2. 13 RESERVES AS PER UNFC CLASSIFICATION

A. MINERAL RESERVE

Classification	Code	Quantity	Grade
Proved Mineral Reserve (A)	111	0.00	-
Probable Mineral Reserve (A)	121	0.00	-
Probable Mineral Reserve (A)	122	56792655.30	Cao-41.85% MgO-1.90% SiO2-13.85%

B. REMAINING RESOURCES

Classification	Code	Quantity	Grade
Feasibility Mineral Resources (B)	211	0.0	-
Prefeasibility Mineral Resource (B)	221	0.0	-
Prefeasibility Mineral Resource (B)	222	122588020.67	Cao-42.24%, Mgo-1.95% Sio2-13.41%
Measured Mineral Resources (B)	331	0.00	-
Indicated Mineral Resources (B)	332	5382445.30	Cao-42.22%, MgO-1.70% SiO2-13.95%
Inferred Mineral Resources (B)	333	68837241.99	CaO-42.22%, MgO-1.70%, SiO2-13.95%
Reconnaissance Mineral Resources (B)	334	28495807.88	CaO-43.70%, MgO-1.95%, SiO2-11.27%
Total Mineral Resources (A+B)		**276713725.84**	

Source: Approved Mining Plan with Progressive Mine Closure Plan.

2.7.3.3 MINEABLE RESERVES AND ANTICIPATED LIFE OF MINE

Mining lease area of 800.9935 ha has total geological resources/reserves of 276.713 Million Tonnes, in which total mineable reserves are 56.79 Million Tonnes. Estimated life of mine will be about 20 years (including first 5 years of mining).

TABLE 2. 14 RESERVE DETAILS

S. No.	Particulars	Details
1.	Total Mineable Reserves (In-situ)	56.79 million tones
2.	Mineral to be mined in five years.	8.567 million tones
3.	Remaining reserves at the end of plan period	48.223 million tones
4.	Proposed rate of production per year	2.85 million tones
5.	Life of mine at the end of Mining Plan period	15 Years
6.	Life of the mine	5 + 15 = 20 Years

Source: Approved Mining Plan with Progressive Mine Closure Plan

2.7.4 PROCESS DESCRIPTION

The proposed mining operations will be carried out by conventional open cast fully mechanized method of mining which includes drilling, blasting, loading, transportation. The process flow diagram given below depicts the mining process: -

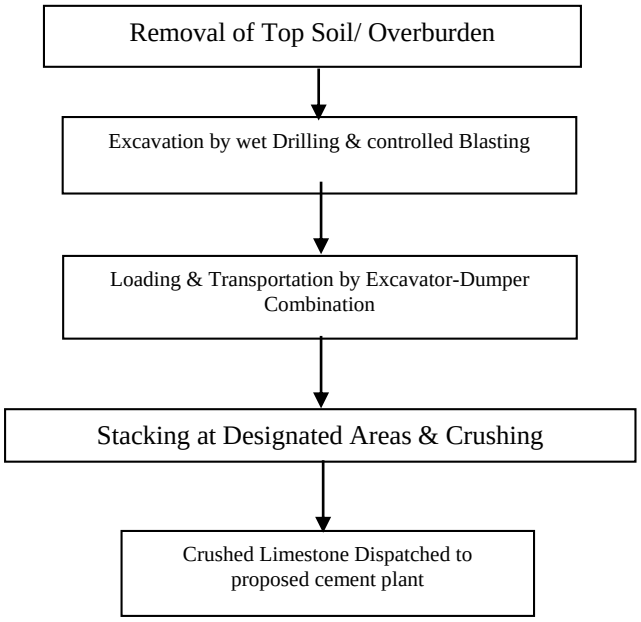

FIGURE 2. 6 FLOW CHART FOR MINING PROCESS

The salient features of mining method are:-

- A thin layer of soil will be first scraped by dozer, loaded by excavator and transported by dumpers to the soil dump yard.
- This weathered/impure limestone layer will be removed as OB bench by drilling and blasting. The weathered/impure limestone removed will be stacked separately for future use, if any or backfilling purpose.
- The mining will be carried out by forming benches of max. 10m height and min. 15-20m bench width, keeping the bench slope of 80°.
- Safety barrier of 150m from village settlement boundary or as per the DGMS approved distance, 50m from pond, paved road and temples, HT line and 50 m from either side of nalla is proposed.
- The minimum distance from ML boundary to Reserved Forest is 55 meter in South direction.
- The rain-water and seepage water collected in the pit will be stored in the lower benches and will be used for spraying on the haul-roads and plantation.
- Hydraulic rock breaker will be used for breaking oversized boulders in place of secondary blasting.
- Hydraulic excavator of 5.0 cum capacity will be used in combination with 55 tonnes dumpers for loading and transportation of limestone.
- Limestone to be transported by dumpers to proposed crusher (1000TPH) located in the lease area.
- Crushed Limestone will be sent to proposed cement Plant initially by road NH-927 A and then by OLBC within 3 years.
- KMPL will adopt the latest mining technology suitable for the area with respect to techno-commercial viability.

Drilling

Hydraulic drills will be used. Diameter of the blast hole drill will be 150 mm.

Blasting

Non electric detonators (NONEL) will be used for initiation to ensure maximum safety. As per practical observation, after primary blasting some part of Limestone will be easily amenable to break by rock breaker. Hydraulic rock breaker will be used for breaking oversized boulders in place of secondary blasting.

Broad Blasting Parameters

Spacing:	6.0m
Burden:	4.0 m
Depth of hole:	11.0 m
Powder factor:	6.24 t/Kg
Dia. of Hole:	150 mm

As per the compliance of Specific ToR point No. 1.5, IIT Jodhpur has been engaged to explore the comprehensive strength of the limestone ore and feasibility of deploying surface miners. IIT, Jodhpur study outcome is given as below:

- Point Load Index (PLI) tests were conducted to estimate the Uniaxial Compressive Strength (UCS) of the collected samples. The testing procedure adhered to the guidelines prescribed in the ISRM Suggested Methods (ISRM, 2007).
- The Uniaxial Compressive Strength (UCS) is measured as 76.3 MPa. The point load index of different sample is as below:

TABLE 2. 15 POINT LOAD INDEX AND ESTIMATED COMPRESSIVE STRENGTH OF EACH TESTS

S. No.	Sample	Is (MPa)	Kplt	Is(50)(MPa)	UCS (MPa)	Average UCS (MPa)
1	Metabasics 1	2.588647793	0.97375	2.520695065	60.5	67.1
2	Metabasics 2	3.158094575	0.973285	3.073725174	73.8	
3	Lime 1	3.344947707	1.00368	3.357256236	80.6	76.3
4	Lime 2	3.084218915	0.917153	2.828699857	67.9	
5	Lime 3	2.811064121	0.904566	2.542793816	61.0	
6	Lime 4	4.523586613	0.882847	3.993633978	95.8	

- **Geological and Technical Justification for Preferring Drilling & Blasting in Rajasthan Limestone Mines**

  A thick, competent limestone succession underlies much of Rajasthan's Aravalli and Vindhyan basins. Multiple case studies show that conventional drilling & blasting (D&B) consistently out-performs all other surface-extraction options—surface miners, ripper-dozers, hydraulic breakers and chemical splitting—when the deposit is strong, laterally extensive and demanded at high tonnages, as in the state's cement corridor.

- ***Comparison Table: Mining Methods vs. UCS:*** A comparison between Surface Miners, Dozer Ripping, and Drill & Blast based on rock strength (UCS) and operating conditions are shown in below table.

TABLE 2. 16 APPLICABILITY OF VARIOUS EXCAVATION TECHNIQUES BASED ON THE COMPRESSIVE STRENGTH OF ROCKS

UCS Range (MPa)	Dozer Ripping	Surface Miner	Drill & Blast
<20 MPa	Very effective	Not economical (too soft)	Overkill – unnecessary
20–40 MPa	Good	Highly efficient	Usually not required
40–60 MPa	Moderate efficiency	Best performance zone	Used in less accessible areas
60–80 MPa	Poor (low productivity)	Still effective (higher tool wear)	Competitive in hard zones

- **The conclusion of the study is given as below:**

Rajasthan's limestone is generally too strong, too abrasive and too voluminous for surface miners, rippers or chemical splitters to compete with a well-engineered drilling & blasting programme. Controlled D&B achieves the following mining performance parameters:

- Lower cost due to scalable energy and minimal mechanical wear.
- Consistent <400 mm fragmentation suited to modern cement crushers.
- Ability to mine 8–12 m benches, sustaining 5–8 MTPA outputs.
- Flexibility to adjust charge, delay and stemming to cope with variable UCS and heritage vibration limits.

Accordingly, drilling & blasting remains the technically superior method for forthcoming limestone operations in Rajasthan.

Controlled Blasting Study by IIT Jodhpur

As per the Specific ToR point No 1.12, IIT Jodhpur is engaged for conducting both blasting and vibration studies and scientific assessment of air overpressure and fly rock distances. The outcome of the study is given as below:

Methodology of Controlled blasting

a. Basic Blast Design Parameters

Blast design in mining operations requires meticulous optimization of geometric and explosive parameters to achieve efficient rock fragmentation while ensuring safety and cost-effectiveness.

b. Ground vibration standards in India

The prescribed limits of the peak particle velocity (mm/s) as prescribed by the Directorate of General of Mines Safety (DGMS) on ground vibrations for different structures depending on the frequency of blast waves (technical Circular no. 7, 1997) are given in the Table:

Ground vibration standard

Type of structure	Dominant excitation frequency, Hz		
	< 8 hz	8-25 Hz	>25 Hz
(A) Buildings/structures not belonging to the owner			
1. Domestic houses/structures (Kuccha, brick & cement)	5	10	15
2. Industrial buildings	10	20	25
3. Objects of historical importance and sensitive structures	2	5	10
(B) Buildings belonging to owner with limited span of life			
1. Domestic houses/structures	10	15	25
2. industrial buildings	15	25	50

c. Air Overpressure Assessment Methodology

An air blast is an airborne shock wave that results from the detonation of explosives. The severity of an air blast is dependant on explosive charge, distance, and especially the explosives confinement.

The below Table gives the typical air overpressure limits for surface mine blasting (Oriard 2022).

Type of effect	Air Overpressure dB(L)
General window breakage	171
Occasional window breakage	151
Long-term history of application as a safe project specification	140
Bureau of Mines recommendation following a study of large-scale surface mine blasting	134

Following are the blast design parameters are suggested by the IIT Jodhpur for meeting the safety norms by the DGMS.

Suggested blast design parameters for controlled blasting

Blast Design Parameters	Distance from the infrastructure with 10 mm/s max permissible vibration limit					
	50m	100m	200m	300m	400m	500m
Hole diamater, d (mm)	100	100	100	100	100	100
Bench height (m)	10	10	10	10	10	10
Charge (Kg)/delay	10 to 15	30 to 35	40 to 45	60 to 65	60 to 65	60 to 65
Blast hole depth, m	1.5 to 2	4 to 4.5	5 to 5.5	5 to 5.5	5 to 5.5	5 to 5.5
Stemming length, m	8.5	5.5 to 6	4.5 to 5	4.5 to 5	4.5 to 5	4.5 to 5
Burden, m	2.2	2.2	2.2	2.2	2.2	2.2
Spacing,m	2.5	2.5	2.5	2.5	2.5	2.5
Subdrilling, m	0.7	0.7	0.7	0.7	0.7	0.7
Bench width, m	15	15	15	15	15	15
Number of rows	5 to 7	5 to 7	5 to 7	5 to 7	5 to 7	5 to 7

Number of holes per row	7 to 10	8 to 11	8 to 11	8 to 11	8 to 11	8 to 11
Hole to Hole delay (ms)	17.0	17.0	17.0	17.0	17.0	17.0
Row to row delay (ms)	35.0	35.0	35.0	35.0	35.0	35.0
Explosive types	ANFO	ANFO	ANFO	ANFO	ANFO	ANFO
Maximum Fly rock range (Factor of safety 1.5)	Approx. 53 m					
Vibration (PPV), mm/s	6	4.12	1.73	1.3	0.87	0.64
Air Overpressure (kPa)	0.09	0.05	0.03	0.02	0.01	0.01
Noise level (dB)	132.9	128.6	122.2	112.3	116.3	113.9

Conculsion: Based on the controlled blasting parameters suggested by the IIT, Jodhpur the prior approval from DGMS will be obtained for maintaining a safe distance from the habitations without rehabilitation beyond 50m by using both controlled blasting with NONEL detonators and rock breaker. However, any house or property falls within 50m from blasting zone/ pit area will be rehabilitated with mutual agreement of property owners prior start of work.

Storage of Explosive

Proposed Explosive Magazine will be used for storage of explosives. The excavated mineral (ROM) will be transported to crusher located within ML area by Dumper/Trucks having capacity of 55 tonne for re-sizing of stone. Primary crusher having capacity of 1000 TPH with wobbler and screening (200 TPH) will be used.

S.No.	Type of Equipment	Capacity (TPH)	Feed Size (mm)
1.	Crusher	1000	1000
2.	Screen	200	-75
3.	OLBC	1200	-75

In Compliance of Specific ToR point no 1.1 and 1.43 the cement plant will be located in the western direction of the ML Area. The length of the OLBC from mine crusher to proposed plant will be 2.57 km and will be completed along with operation of cement plant which will take 3 years. The proposed time schedule for installation of OLBC is given in table No. 2.19.

The screenshot of the KML file is enclosed showing the location of proposed cement plant and route of transportation from crusher to plant through OLBC is enclosed. The proposed time schedule for crusher and OLBC installation is given below:

TABLE 2. 17 PROPOSED TIME SCHEDULE FOR CRUSHER AND OLBC INSTALLATION

Time Schedule for Installation of Crusher and OLBC							
S. No.	**Activities**	**Months**					
		1 to 12	**12 to 16**	**16 to 18**	**18 to 28**	**28 to 34**	**34 to 36**
1.	Land Acquisition & Clearances						
2.	Engineering						
3.	Tendering & Ordering						
4.	Civil Construction						
5.	Equipment Erection						
6.	Trail Run & Commissioning						

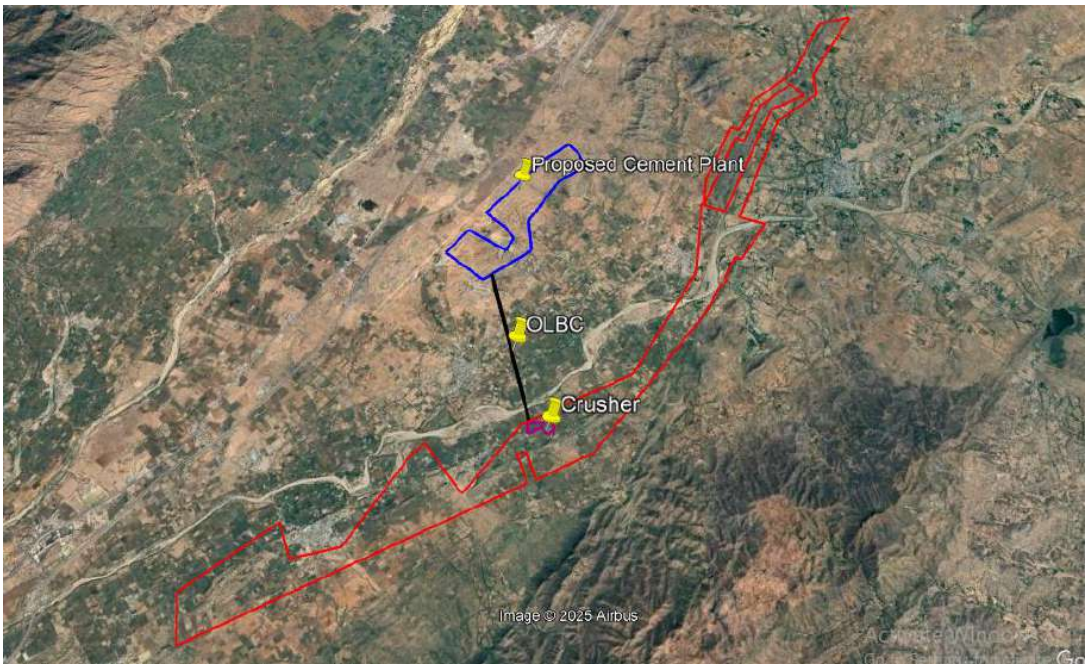

FIGURE 2. 7 GOOGLE IMAGE OF LOCATION OF PROPOSED CEMENT PLANT AND ROUTE OF TRANSPORTATION FROM CRUSHER TO PLANT THROUGH OLBC

TABLE 2. 18 PROCESS FLOW CRUSHER

S. No.	Parameter	Unit	Details
1.	Material		Limestone
2.	Limestone Production (Mineral)	Million Tonne	2.85
3.	Mine workings days	Nos.	300
4.	ROM to the Crusher Plant	MT/Day	10325
5.	Limestone Production	MT/Day	9499
6.	Crusher Screen Reject	MT/Day	826
7.	Input feed to the Crushing Plant (ROM)	TPH	860
8.	Limestone Mineral Production	TPH	792
9.	Screen Rejects (8% in average)	TPH	69
10.	Net Capacity of Crushing Plant	TPH	1000
11.	Working Hours Per Day	Hours	12
12.	Number of Shifts Per Day	Nos.	2

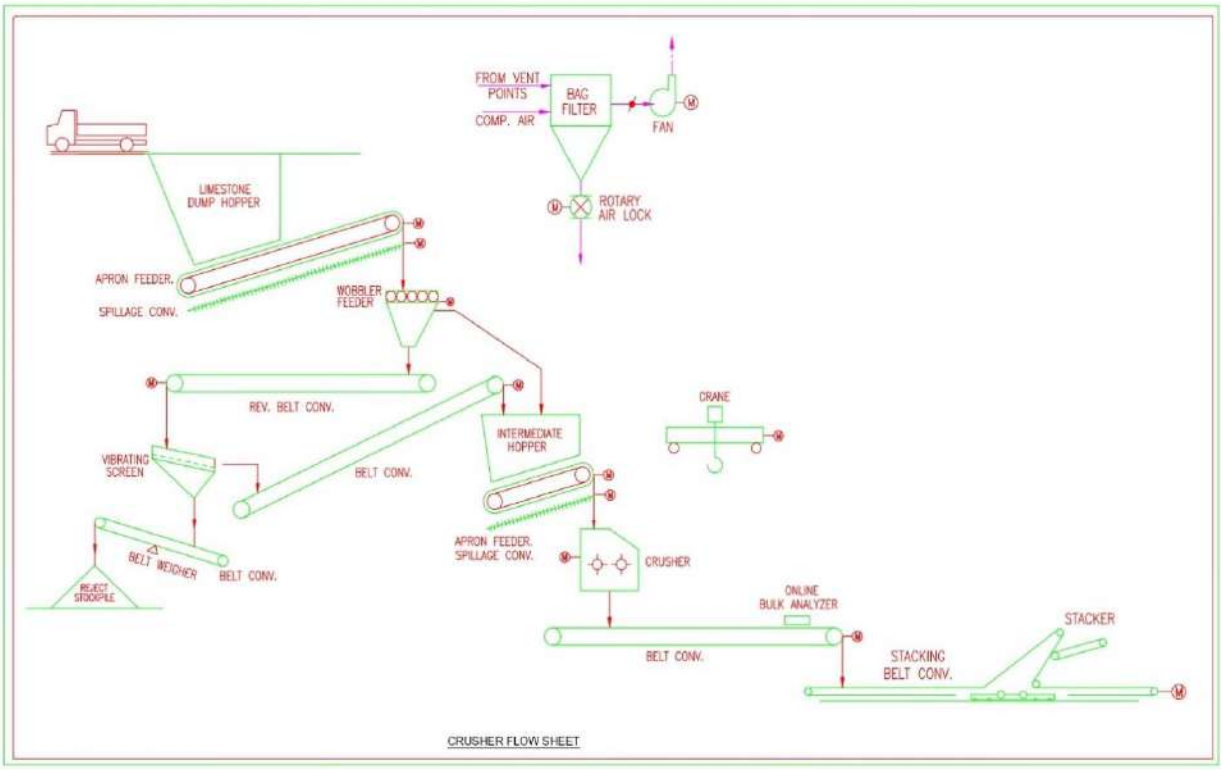

FIGURE 2. 8 CRUSHER FLOW SHEET

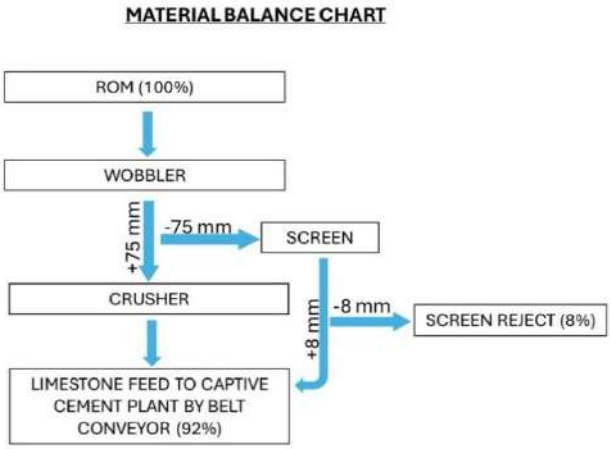

FIGURE 2. 9 MATERIAL BALANCE CHART

2.8 YEAR WISE PRODUCTION & EXCAVATION DETAILS FOR FIRST FIVE YEARS

Year-wise production for first five years has been given in Table 2.14.

TABLE 2. 19 YEAR WISE PRODUCTION FOR THE FIVE YEARS PERIOD

Year	Soil in million Tonne	OB in million Tonne	Mineral Reject in million Tonne	Mineral in million Tonne	Total Excavation in million Tonne
1st Year	Nil	Nil	Nil	Nil	Nil
2nd Year	0.0001	0.0036	0.0015	0.0183	0.0239
3rd Year	**0.04**	**5.7840**	**0.2478**	**2.8497**	**8.923**
4th Year	0.0051	3.7171	0.2477	2.8496	6.8283
5th Year	0.0010	2.3403	0.2478	2.8499	5.4409

Source: Approved Mining Plan along with Progressive Mine Closure Plan

2.9 TOPSOILGENERATION & MANAGEMENT

During plan period, about 0.056 Million Tonnes and during conceptual period, 0.739 million tonnes of top soil will be generated which will be used in Greenbelt development/ plantation.

2.10 SOLID WASTE MANAGEMENT

During the plan period 11.8452 Million Tonnes OB & 0.7450 Million Tonnes mineral reject will be generated. At conceptual stage, about 65.97 Million Tonnes of OB and 4.94 Million tonnes mineral reject will be generated which will be used for backfilling purpose.

TABLE 2. 20 THE PROPOSED YEAR-WISE WASTE MATERIAL HANDLING AND BACKFILLING PLAN

Year Wise Waste Handling (million tonnes) & backfilling Plan						
Year	**Top Soil**	**OB (Calc Silicates+phyllite)**	**Mineral Reject**	**Total Waste Handling**	**Backfilled Area (ha)**	**Backfilled Area Location**
1.	-	-	-	-	-	-
2.	0.001	0.004	0.002	0.006	-	-
3.	0.04	5.78	0.24	6.02	-	-
4.	0.015	3.717	0.24	3.957	-	-
5.	0.003	2.34	0.24	2.58	4.37	Pit-2
6.	0.04	4	0.24	4.24	-	-
7.	0.04	4	0.24	4.24	-	-
8.	0.04	1.47	0.24	1.71	15.02	Pit-1
9.	0.04	2.54	0.24	2.78	2.69	Pit 5 & 6
10.	0.04	2.55	0.24	2.79	-	-
11.	0.04	2.72	0.24	2.96	-	-
12.	0.04	2.73	0.24	2.97	-	-
13.	0.04	2.73	0.24	2.97	-	-
14.	0.04	2.73	0.24	2.97	-	-
15.	0.04	2.73	0.24	2.97	19.27	Pit-7
16.	0.04	3.5	0.24	3.74	-	-
17.	0.04	5.51	0.24	5.75	15.38	Pit-8
18.	0.04	5.21	0.24	5.45	-	-
19.	0.04	2.94	0.24	3.18	-	-
20.	0.04	2.97	0.24	3.21	11.14	Pit-13
21.	0.04	2.97	0.24	3.21	2.85	Pit-14
22.	0.04	2.83	0.38	3.21	1.94	Old Pit
Total	**0.739**	**65.971**	**4.942**	**70.913**	**72.66**	**-**

2.11 CONCEPTUAL PLAN

At the conceptual stage, the total excavated area will be 121.96 ha out of which 72.66 ha area will be back filled & 49.30 ha will be used for rain water storage. Area under utility & services will be 30.40 ha. About 592.99 ha area will be undisturbed. Greenbelt and plantation will be developed over an area of 55.64 ha. Conceptual Plan & sections have been enclosed as **Annexure-Va.** Post Mine Land Use and Reclamation Area (ha) of the mining lease is given in table below:

TABLE 2. 21 LAND USE UP BREAKUP TO CONCEPTUAL STAGE

S. No.	Land Use Category	Present Land Use (Ha.)	At the End of 5th Year (Ha.)	Conceptual Stage(Ha.)
1	Soil Stack	0.0000	0.00	0.0000
2	Waste Dump	0.0000	22.61	0.0000
	Mineral Storage	0.0000	0.21	0.0000
3	Total Excavated	6.5300	32.04	121.96
	(A) Excavation (Water Reservoir)	0.0000	00.0000	49.30 (Water Reservoir)
	(B) Excavation (Backfilled)	0.0000	00.0000	72.66

				(Re-grassing)
4	Area under utility services	4.85	11.11	30.40
5	Afforestation/Plantation (Unworked Area	0.0000	4.80 (Plantation)	55.64 (Plantation)
Total Disturbed Area		11.83	70.77	208
6	Undisturbed Area	789.16	730.2235	592.99
Total		**800.9935**	**800.9935**	**800.9935**

Source: Approved Mining Plan along with Progressive Mine Closure Plan

2.12 DESCRIPTION OF MITIGATION MEASURES

The mitigation measures given in this section are for management of the emissions (particulate or gaseous), waste water & surface run-off and Noise pollution generated from the mining operations to meet the environmental standards and environmental operating conditions.

A. AIR QULAITY MANAGEMENT

- Wet drilling to suppress the dust emission from drill machines.
- Periodic water sprinkling on blasted heaps, haul roads etc.
- Use of sharp drill bits for drilling.
- Optimal charging of blast holes and use of delay detonator.
- Use of quality explosives having proper oxygen balance.
- Avoid blasting during high windy periods and temperature inversion period.
- Periodic grading of haul roads to clear loose material.
- Suspend excavation during period of very strong winds.
- Avoid overloading of dumpers to prevent spillage.
- Development of green belt.
- Proper scheduled maintenance of vehicles to limit gaseous emissions.
- Operator cabins in HEMM equipment to be enclosed.
- Periodic air quality monitoring n)
- Installation of online ambient air quality monitoring system and its display at suitable location.

B. WATER MANAGEMENT

- Waste water generated from washing and cleaning of HEMM in the workshop will have some oil and grease which will be treated in ETP and treated water will be used for dust suppression.
- Domestic sewage water generated from the office toilets and canteen will be treated in modular STP and treated water will be used in greenbelt/plantation.
- Roof top rainwater harvesting system at mine office and workshop.
- Mining is proposed to be carried out above the water table and shall not intersect the ground water table during the plan period.

- A safety zone of 50 m on either side of Sukli River nalla canal and 50 m radius of pond is considered as constraint and No mining is proposed to be carried out in their safety zone.
- Protection of the river banks the necessary protective measures like construction of embankment at the bank of river and construct a retaining wall and garland drain with siltation tank within the safety zone of river during plan period to prevent siltation of river Garland drains are proposed around pit and dumps.

KMPL will make efforts to eliminate usage of Ground water after development of Mine Pit. Company will also use nontoxic chemical to reduce the water evaporation on haul roads. Dry fog system is proposed at the crusher unloading hopper to conserve the water.

The garland drain is proposed to be connected to existing seasonal stream. During rains water may accumulate in the lowermost bench for some time and will help in groundwater recharge of the area. It is also proposed to establish roof top rainwater harvesting system at proposed mine office workshop and crusher area during the plan period.

TABLE 2. 22 WASTE GENERATION (LIQUID)

Activity	Quantity of waste	Proposed	Treatment / Disposal
Domestic Wastewater	Wastewater Generation (KLD)	8.0	10 KLD modular STP will be installed near mine office and treated water will be used in greenbelt/plantation
Wastewater	Waste Water Generation(KLD)	8.0	Wastewater from workshop will be treated in 10 KLD of ETP and treated water will be used in dust suppression after oil & grease trap.

Sewage Treatment Plant (STP)

The STP will be based on MBBR technology. The treatment capacity of STP will be 10 KLD. The primary treatment process is as follows:

Screening

The sewage received at the inlet of screen chamber is passed through the Bar screen to remove suspended solids & floating matter such as Organic, Inorganic & Fibrous material. Screenings will be removed manually on periodic basis.

Oil and Grease Removal

The sewage coming out by gravity from Manual Bar Screen Chamber is directed to the oil & grease removal Chamber. Here floating Oil & Grease will be removed by Oil & Grease Trap system which operates on density differential. The sewage free from large, suspended solids and Oil and Grease will be directed by gravity into the equalization Tank/buffer tank.

Equalization Tank

Raw sewage will be collected in Equalization tank /Buffer tank in Sewage Treatment Plant. To avoid overflow of Equalization tank during peak hours, suitable hydraulic retention time will be provided. The tank will be provided with air grid system to keep the sewage in suspension. This also results in partial oxidation of sewage that keeps it fresh. Also, we have provided odor control dosing system to avoid any foul smell due to sewage. Sewage from Equalization Tank will then be pumped with submersible pumps at a designed hourly flow to biological reactor.

BIOLOGICAL PROCESS

The sewage from equalization tank is treated in moving bed biofilm reactor / other equivalent system tank is treated in an Aerobic Suspension with Attached Growth Process. In MBBR tank the biological treatment is used for removal of impurities present in it. These reactors hold specially designed carrier media suspended and kept in constant motion. A mesh is provided at the outfall end of the reactor to keep media from clogging the effluent spout or passing out of the reactor.

SECONDARY CLARIFICATION:

The biological treated sewage from MBBR tank will be taken to the Tube Settler for secondary clarification. Sufficient detention time and maximum area available due to the tubes provided will lead to better settling of sludge.

TERTIARY TREATMENT

Disinfection

Disinfection of the treated sewage will be carried out by dosing Sodium Hypo Chlorite in the Chlorine contact tank. Chlorine dosing will also contribute to reduce the microbial count and refractory COD which is escaped out from the biological treatment i.e., not destroyed by biological process.

Filtration

Chlorinated water will then be fed to the Pressure Sand Filter (PSF) for removal of the suspended solids present in the biologically treated sewage water. Treated water obtain from PSF will be sent to Activated Carbon Filter (ACF). In activated carbon filter, the residual organics present in water will be reduced. The ACF also will be contributes to remove the refractory COD which will escape out from the treatment. Treated water from filters shall be sent to Treated water storage tank and then it will be pumped to respective use.

Sludge Disposal

Sludge from tube settler shall be periodically removed and taken to Sludge Pit and from there it will be sent for dewatering.

Characteristics of Treated Effluent

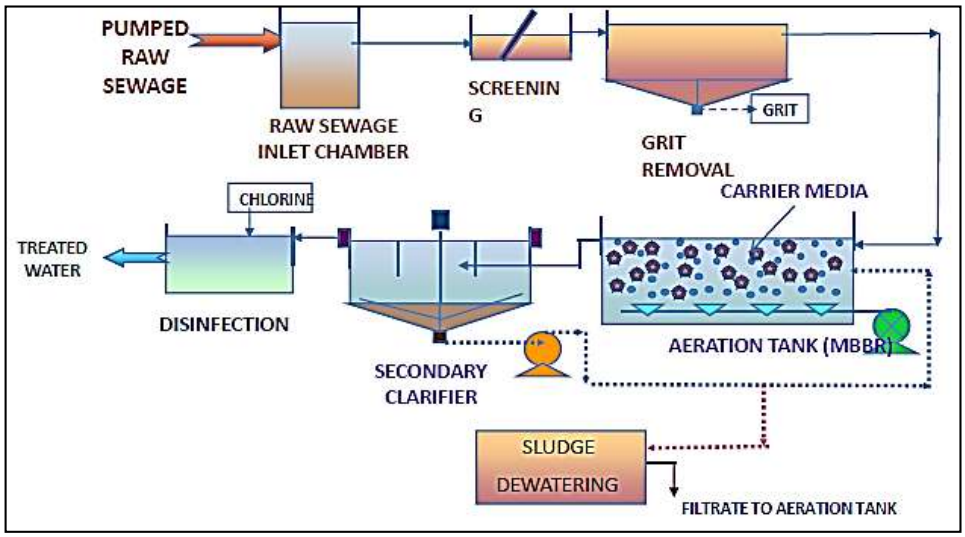

FIGURE 2. 10 MOVING BED BIO REACTOR (MBBR) FLOW DIAGRAM

The characteristics of treated waste water are given below: -

TABLE 2. 23 CHARACTERISTICS OF TREATED WASTE WATER

Characteristics	Standards as per MOEF&CC Notification dt 13.10.2017	STP Design for Treated Water quality
pH	6.5-9.5	7.5 to 8.5
Suspended Solids (Mg/l)	<100	<50
Bio-Chemical Oxygen Demand (BOD)(mg/l)	<30	<20
Fecal Coliform (FC) (MPN per 100 ml)	< 1000	<100

EPT For mine workshop

The EPT will be consist of 3 chambers with total volume of 24m3, each chamber size of 2L*2H*2W mtr with 1st chamber having mechanical oil and grease skimmers to remove oil, grease, and other floating debris from wastewater generated from workshop. In 1st and 2 nd chanber silt generated from washing will be settle down whchi will be removed mechanically. The cleara water will be stored in 3rd chamber which will be used for dust suppression in crusher.

C. NOISE POLLUTION CONTROL

The following mitigation measures are proposed to minimize the noise levels in the area:

- Proper maintenance, oiling and greasing of mining equipment at regular intervals is proposed to reduce generation of noise.
- Adequate silencers are proposed to be provided in all the diesel engines.

- Green Belt is proposed to be developed in the 7.5 m barrier zone and non-mineralized areas of proposed mining lease area during plan and conceptual period as plantation minimizes propagation of noise.
- Earmuff/ear plugs are proposed to be provided to all employees.
- Periodic monitoring of noise levels.

2.13 ASSESSMENT OF NEW AND TESTED TECHNOLOGY FOR THE RISK OF TECHNOLOGICAL FAILURE

From the nature and extent of the deposit, the reserves and the quality have been proved with adequate degree of reliability. Therefore, opencast mechanized method is the most feasible method for mining in the proposed mining lease area. Since the mining machineries are rapidly upgrading, project proponent would act fast to adopt more advance equipment and automation for safer, environment friendly mining technology.

****

CHAPTER -3

DESCRIPTION OF ENVIRONMENT

3.1 INTRODUCTION

The knowledge of present environment of the core and buffer zone of the proposed mining area is important to assess the impact of various project activities on environment. The knowledge of present-day environment is also helpful in planning of mitigation measures. To assess the baseline environmental quality of the area, field assessment has been conducted considering following components of the environment, viz. land, meteorology, air, noise, water, soil, biological and socio-economic.

The relevant information and data (both primary and secondary) were collected in core as well as buffer zone (10 km distance from the mine boundary) during Summer Season (March to May, 2023) and revalidate the baseline in Summer Season (March to May 2025) in accordance with the guidelines of MoEF&CC for undertaking EIA Studies and for preparation of EIA/EMP report. The section indicates the accuracy, reliability, and sources of the pollution.

3.2 STUDY AREA AT A GLANCE

Study Area: The study area is an area of 10 km radius (aerial distance) from the proposed mine site. The area of mine site (within mine boundary) is considered as core zone and rest of the study area around core zone is known as buffer zone. Mine site is located in at Villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla and Kharadoli, Tehsil –Pindwara, District – Sirohi, Rajasthan.

Core Area: 800.9935 ha

Buffer Area: 93745 ha

The major environmental settings of the study area w.r.t.the mining lease are as given in the table below:

TABLE 3. 1 ENVIRONMENTAL SETTINGS OF THE STUDY AREA

S. No.	Particular	Details		
1	Nearby Habitation	**Particulars**	**Distance (Km)**	**Direction**
			(From Lease Boundary)	
		Nearest Habitation		
		Wasa	0.53	SE
		Rohida	0.48	E
		Wara	0.41	W
		Bhujela	1.23	NNW
		Bharja	Some part of village within the lease area	--
		Taroongi	Some part of village within the lease area	--
		Bhimana	0.24	NW
		Vatera	50 m	E
		Pipela	0.31	WNW
		Hirawala	0.37	NNE
		Densely populated		
		Rohida	0.48	E

Wasa	0.53	SE
Vatera	50 m	E
Bhimana	0.24	NW
Bharja	Some part of Bharja village within the lease area	--
Swarupganj	2.98	WNW

2. Nearest Town/City

Particulars	**Name**	**Distance, Direction (From Lease Boundary)**
Nearest Town	Abu Road	9.82 km, SW
Nearest City	Sirohi	27.53 km, NNW
Nearest District Headquarter	Sirohi	27.80 km, NNW
Source: - Distances measured are taken from SOI, Toposheet are indicative pertinent to the project.		

3. Nearest National / State Highway

S. No.	Particulars	Distance (km) (From Lease Boundary)	Direction
Routes Facility			
1.	NH-27	1.70	NW
2.	NH-927A	Passing through the lease area	--
3.	MDR-49	2.64	W
4.	MDR-60	6.98	W
5.	SH-11	9.55	SW

4. Railway Station

Particular	Name	Distance & Direction (From the lease boundary)
Railway Station	Kivrali Railway Station	2.56 km in WSW
	Bhimana Railway Station	2.70 km, NW
	NewSwarup Ganj Railway Station	2.97 km, NW
	Morthala Railway Station	7.97 km, SW

5. Nearest Airport

Maharana Pratap Airport Udaipur ~ 90.76 km, E

6. National Parks, Wildlife Sanctuaries, Biosphere Reserves within 10 km radius study area

Mount Abu Wild Life Sanctuary situated at a distance of 5.47 km in NW direction (Notified on 11.11.2020). ESZ is declared for Mount Abu Wild Life Sanctuary. ESZ distance is 4.7km.

7. Reserve Forests (RF) / Protected Forests (PF) etc. within 10 km radius study area.

S. No.	**Particulars**	**Distance (km) (From Lease Boundary)**	**Direction**
Forests			
1.	Reserved Forest N/V Wara	0.055	S
2.	Protected Forest N/V Hirawala	0.56	NE
3.	Reserved Forest N/V Wara	0.96	SW
4.	Kivrali Ka Zor Reserved Forest	1.10	W
5.	Reserved Forest N/V Pipela	1.10	NW
6.	Reserved Forest N/V Pipela	2.08	NW
7.	Reserved Forest N/V Swarupganj	2.10	NW
8.	Mount Abu Wild Life Sanctuary	5.47	NW
9.	Nitaura Jor Reserved Forest	8.00	NW

8. River/Water Body within 10 km radius study area

S. No.	**Particulars**	**Distance (Km) (From Lease Boundary)**	**Direction**
Water Bodies			
1.	Hukli Nadi	8.89	NNE

		2.	Silva Nala	5.54	E
		3.	Kosiya Bhagra Nala	7.72	E
		4.	Akhleti Nala	5.85	E
		5.	Mandwara Distributary	3.36	E
		6.	Khara Distributary	1.27	ESE
		7.	Chitriya Nala	4.99	SE
		8.	Sukli Nadi	Passing through the lease area	--
		9.	Batriya Nadi	3.55	S
		10.	Left Canal	1.52	E
		11.	Banas River	2.37	WNW
		12.	Gabir Nala	2.90	NW
		13.	Right Canal	5.29	NW
		14.	Grangri Bala	4.47	NNW
		15.	Sangwara Minor	5.25	NW
		16.	Sangbariya Balo	5.51	NW
		17.	Sukli Nadi	5.24	NW
9.	Nearest Education and Medical Facilities.	**Name**		**Near Village**	**Distance and Direction (From Lease Boundary)**
		Medical Facility			
		Govt Hospital		Rohida	1.01 Km, ESE
		G D Naturopathy		Rohida	1.48 Km, SE
		Aayurvedic Hospital		Vatera	0.32 Km, W
		Government hospital		Bhimana	1.25 Km, NW
		PHC		Bharja	0.13 Km, N
		Government Ayurvedic Hospital		Kivarali	3.58 Km, WSW
		Madhav Yoga and Naturopathy Medical College And Hospital		Kivarali	1.97 Km, WNW
		Satyam Hospital		Swaroopganj	3.65 Km, NW
		Community Health Center		NH-14, Sirohi Road	3.80 Km, NW
		Government Hospital		Swaroopganj	3.83 Km, NW
		Patel Hospital		Swaroopganj	3.74 Km, NW
		Palanpur hospital and trauma center		Swaroopganj	3.88 Km, NW
		Government hospital		Sanwada	2.68 Km, ESE
		Primary Health Centre		Deladar	3.08 Km, S
		Government Hospital		Bhoola	4.47 Km, SE
		Temples From Lease Boundary			
		Arbuda Mata		Within the lease area	--
		Picholeshwar Mahadev		Rohida	11.50 Meter, E
		Pipalsa Mataji Temple		Within the lease area	
		Mahadev Ji Temple - Vatera Rohida Rd, Rohida		Within the lease area	--
		Mahadevji Mandir – Vatera		Within the lease area	--
		Ambaji Temple - Bharja		Within the lease area	--
		Majisa Mandir - Bharja		Within the lease area	--
		Piplej Mataji Temple – Bharja		Within the lease area	--

		Jay Ambe Temple – Bharja	Within the lease area	--
		Gangeshwar Mahadev Temple Bharja	Within the lease area	--
		Nilkanth Mahadev Mandir	Hirawala	0.43 Km, ESE
		Darbar shree ujjain veer mamaji maharaj temple	Rohida	0.46 Km, ESE
		Ashapura Mataji Temple Hirawala	Rohida	0.58 Km, ESE
		Shri Boto Wala Veer Bavasi	Rohida	0.29 Km, SE
		Eid Gah	Rohida	1.09 Km, SE
		Baba Ramdevji Mandir	Rohida	1.02 Km, SE
		Mahaveer ji Temple - Jain temple	Rohida	1.12 Km, ESE
		Chhota Runeecha Temple	Rohida	0.37 Km, ESE
		Dwarkadhish Mandir	Rohida	0.88 Km, ESE
		Siora Bavasi, Rajpurohit - Hindu temple	Sanwara	0.06 Km, ESE
		Vateri Mata Mandir	Khara Vatera Road, Vatera	0.20 Km, SE
		Baba Ramdev Temple	Tankiya	0.77 Km, SE
		Kagrishi Mahadev Temple	Bharja	0.64 Km, SE
		Gogaji Temple	Bharja	0.72 Km, SSE
		Kuldevi Shri Ashapura Mata Mandir, Thikana Wada	Wada	0.64 Km, W
		Hanuman Temple	Wada	0.51 Km, W
		Ashapura Temple	Wada	0.16 Km, NW
		Mahadev Temple, Diowara	Wada	0.18 Km, NW
		Pataleshvar Mahadev Temple	--	0.12 Km, NW
		Shri Jagannath Mahadev Temple	Bharja	0.10 Km, N
		Hanuman Temple	Bharja	0.12 Km, N
		Gogaji Temple	Bharja	0.16 Km, N
		Maa Jawala Temple	Bharja	0.28 Km, N
		Ganpati Bappa temple	Bharja	0.57 Km, NW
		Khetlaji Temple	Taroongi	0.28 Km, NW
		Bajrang Bali Temple	Taroongi	0.17 Km, NW
		Neelkanth Mhadev Temple	Taroongi	0.13 Km, NW
		Sati Mata Mandir	Vatera	0.05 Km, WNW
		Baba Ramdev Temple	Vatera	0.05 Km, W
		Thamb Bavasi - Hindu temple	Vatera	0.26 Km, W
		Shri Nagneshwari Mata Temple	Vatera	0.10 Km, W
		Nama mata temple	Vatera	0.07 Km, W
		Schools		
		Government Secondary School	Tarungi	11.73 Meter, E
		Saraswati Shikshan Sansthan	Bharja	0.04 Km, NW
		Adarsh vidhya mandir	Within the lease area	--
		Shah Panechand Government Higher Secondary School	Rohida	0.64 Km, SE
		Om Gurukul School	Rohida	0.83 Km, SE
		Govt Girls Senior Secondary School	Rohida	1.09 Km, ESE
		Government Higher Primary School	Rohida	1.10 Km, ESE
		Saraswati Secondary School	Rohida	1.34 Km, ESE
		Govt PS school kharafali	Vatera Sanwada Rd	1.18 Km SE

			Sanwara	
		Government senior secondary school	Vatera	0.27 Km, NW
		Government senior secondary school	Vatera	0.31 Km NW
		Govt. Sen. Sec. School	Bharja	14.85 Meter, N
		Government Girls School	Bharja	0.11 Km, N
		Others		
		Jay Nagneshwari Petrol Pump, Rohida - Swaroopganj Rd	Within the lease area	--
		Canara Bank, Vatera - Bhimana Road	Within the lease area	--
		Manpur Air Strip	Abu Road	9.91 Km, SW
10.	Seismic Zone	Zone – III as per IS – 1893 (Part-1) -2002		

Source: SOI Toposheet & Google Earth Pro

The map showing environmental settings within 10 km from the proposed mine site is given on the next page.

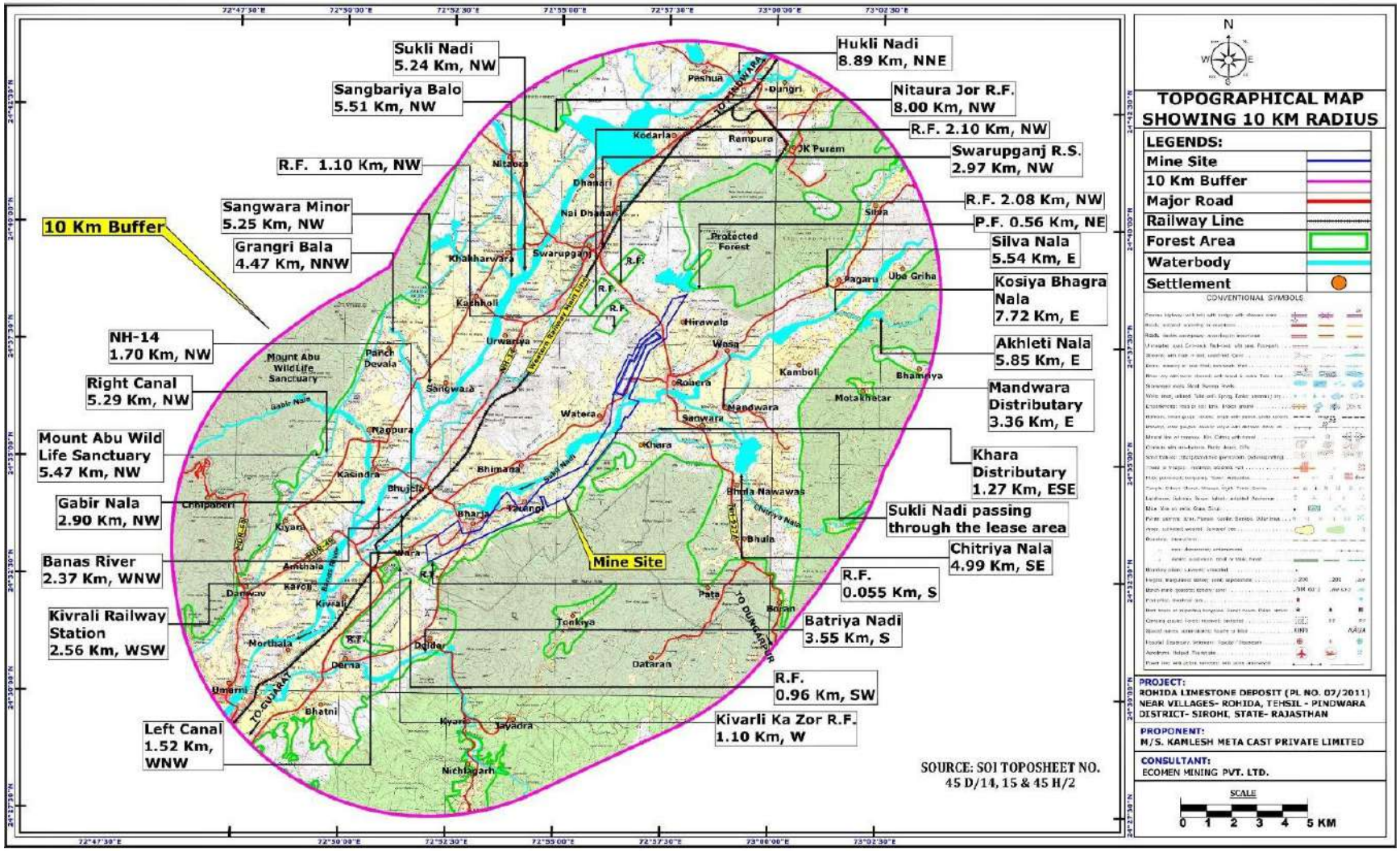

FIGURE 3. 1 MAP SHOWING ENVIRONMENTAL SETTINGS OF THE 10 KM RADIUS OF THE STUDY AREA

3.3 BASELINE DATA COLLECTION

The relevant information and data (both Primary and Secondary) were collected in core as well as buffer zone (10 km distance from the mine boundary) during Summer Season (March to May, 2023) and Summer Season (March to May, 2025) in accordance with the guidelines for preparation of EIA studies in order to assess the impact of the proposed mining project within the 10 Km study area on existing physical, biological and social environment.

3.3.1 ENVIRONMENTAL COMPONENTS

Information on the following components/parameters were collected to understand the existing scenario of the core and buffer area:

1. Land Use & Land Cover
2. Meteorology
3. Air Environment
4. Noise Environment
5. Water Environment
6. Soil Environment
7. Biological Environment
8. Socio-economic Environment

3.4 ESTABLISHMENT OF BASELINE FOR VALUED ENVIRONMENTAL COMPONENTS

Baseline data was collected for the proposed mine for monitoring using various environmental components / parameters in the core as well as buffer zone during the study period i.e., during Summer Season (March to May, 2023). Sampling, preservation, transportation/storage, and analysis of samples was carried out by a NABL accredited & MoEF&CC approved Baseline data generation was carried out by NABL approved laboratory SCS Enviro Services Pvt. Ltd., Jaipur. Revalidate of baseline data was collected for the proposed mine for monitoring using various environmental components / parameters in the core as well as buffer zone during the study period i.e., revalidate baseline during summer season(March to May 2025) details of which are given in below table. Baseline data generation was carried out by NABL approved laboratory Ecomen Mining Private Limited (formery known as Ecomen Labortories Private limited.

TABLE 3. 2 BASELINE DATA COLLECTIO DURING SUMMER SEASON (MARCH TO MAY, 2023) AND SUMMER SESON (MARCH TO MAY 2025)

Sr. No	Attributes	Sampling in March to May 2023	Sampling in March to May 2025	Measurement Method		Procedure	Selection Criteria	Remarks
1	Air Environment	Network		Frequency	Method			
(i)	Meteorological Wind Speed Wind Direction Max. Temperature Min. Temperature Relative Humidity Rain fall Solar radiation Cloud cover	1 location at project site	1 location at project site	One hourly continuous for one season	Automatic Weather stations with sensor and microprocessor Max/ Min Thermometer Hygrometer Anemometer Rain gauge As per IMD specifications	IS 8829 Site specific primary data is essential Secondary data from IMD.	Site specific primary data	Secondary data IMD for data verification and selection of sampling locations.
ii	Ambient air quality							
	Pollutants PM (10)	8 locations, one at project site and 7 in buffer area (in the project impact area/study area)	11 locations, 2 at project site and 9 in buffer area (in the project impact area/study area)	24 hourly twice a week	As per CPCB Guidelines Gravimetric	IS: 5182 (Part 23): 2006 (As per CPCB guidlines)	Minimum 2 locations in up wind; 2 sites in downwind (based on impact receptor); sensitive receptors;	Interpretation based on CPCB NAAQ standards 2009

	PM (2.5)			24 hourly twice a week	As per CPCB Guidelines Gravimetric	CARB SOP MLD 055 PM 2.5 gravimetric analysis – revision 9, July 2008 Page 1 of 32 (As per CPCB guidelines)	transportation route receptors; Land use pattern	
	SO2			8 hourly continuous and averaged for 24 hours twice a week	Improved West & Gaeke	IS: 5182 (Part-2)-2001, RA 2006 (As per CPCB guidelines)		
	NOX			8 hourly continuous and averaged for 24 hours Twice a week	Modified Jacob Hochheiser	IS: 5182 (Part-6)-2006 (As per CPCB guidelines)		
	CO			8 hourly continuous and averaged for 24 hours twice a week	NDIR Method	IS: 5182 (Part 10)-1999 RA-2003 (As per CPCB guidelines)		
2	Noise							
	Hourly equivalent noise levels dB(A)	8 locations, one at project site and 7 in buffer area (in the project impact area/study area)	11 locations, 2 at project site and 9 in buffer area (in the project impact area/study area)	24 hourly Once in season	Noise level meter	IS:9876 2001 (As per CPCB)	Minimum 2 locations in up wind; 2 sites in downwind (based on impact receptor) ;) based on impact receptor; sensitive receptors; transportation route receptors; land use pattern	CPCB /OSHA
	Day Time Noise Levels (Leqday) dB(A)	--		Once in season		CPCB/ OSHA		

	Night time Noise Levels (Leqnight) dB(A)	-		Once in season		CPCB		
3	Water Environment							
	Parameters for water quality Surface water pH, Turbidity, Total Hardness (as CaCO3), Total Alkalinity (as CaCO3), Chlorides (as Cl), Sulphate (as SO4), Nitrate (as NO3), Fluoride (as F), BOD3Days at 27ºC, COD, Phenolic Compounds (as C6H5OH), Lead (as Pb), Iron (as Fe), Arsenic (as As), Cadmium (as Cd), Total Chromium (as Cr), Mercury (as Hg), Copper (as Cu), Zinc (as Zn), Selenium (as Se), Oil & grease, Colour, Dissolved solids , Residual free chlorine, Boron (as B), Calcium (as Ca), Magnesium (as Mg), DO	None		Once in season	Samples for water quality has been collected and analyzed as per Standards methods for examination of water and waste water analysis published by American Public Health association.	As per the CPCB guidelines Test method is given in respective component in, Section-3 of EIA report	Based on water utilization Upstream and downstream based on outlet (if any)	* More sample could not be selected because surface water bodies were dried. streams/ Rivers are seasonal in nature
	Ground water Color, pH, Turbidity, Dissolved solids, Aluminium as Al, Ammonia(,as total ammonia-N), Anionic Detergents as MBAS, Barium as Ba, Boron as B, Calcium as Ca, Chloramines as Cl2 Chloride as Cl, Copper as Cu, Fluoride as F,	Set of grab samples during study period at the above mentioned 8 locations for ground water.	11 locations, 2 at project site and 9 in buffer area (in the project impact					

	Free Residual Chlorine, Iron as Fe, Magnesium as Mg,, Manganese as Mn, Nitrate as NO3, Phenolic Compounds as C6H5OH, Selenium as Se, Sulphate as SO4, Total Alkalinity as CaCO3, Total Hardness as CaCO3,Zinc as Zn,Cd,Pb,Hg,,As,Ni, Cr		area/study area)					
4	Land Environment							
	Soil Particle size distribution; Texture; pH; Electrical conductivity; Bulk density; Organic carbon, Sodium (Na); Potassium (K), Moisture content, Total Nitrogen, Available phosphorous, organic matter; Total Soluble Chloride; Total Soluble sulphate; Water holding capacity; Porosity	One location at project site and 7 locations in buffer area	11 locations, 2 at project site and 9 in buffer area (in the project impact area/study area)	Once in season	Collected and analysed as per soil analysis reference book, M.I.Jackson and soil analysis reference book by C.A. Black		Based on Utilization pattern Land use pattern Downwind based on impact receptor due to deposition of dust	Hand Book of Agriculture, Indian Council of Agricultural Research
	Land use/Landcover Location code Total project area Topography Drainage (natural) Cultivated, forest, plantations, water bodies, roads and settlements	Study area		At least 20 known vectors for geo referencing and verification	Global positioning system Topo sheets Satellite Imageries* (1:50,000) Satellite Imageries*	Digitization of primary data (Toposheet) Superimposing of latest satellite Imageries (cloud free data) Georeferencing Classification using ERDAS /GIS software	-	-
5	Biological Environment Terrestrial							

	Inventarization of floral and faunal species in core and buffer zone Density in core zone Importance value index (IVI) of trees, Biodiversity index Identification of rare threatened and endangered species Fauna	Project area and 5 locations in buffer area		Five-Seven days in a season	Quadrate sampling/ Enumeration/ Survey methods. Transect method/ Visual Encounter Survey Point Count/ Opportunistic Survey Tracks and signs, and visual encounter survey	Land use/ Land cover classification Sensitive area in the vicinity Land utilization Downwind based on impact zone	Preliminary assessment point quarter plot less method for terrestrial vegetation survey
	Avi fauna Rare and endangered species Sanctuaries / National park / Biosphere reserve Migratory routes						Secondary data to collect from Government offices/forest department, NGOs, published literature
6	Socio-economic						
	Demographic structure Infrastructure resource base Economic resource base Health status: Morbidity pattern Working pattern Cropping pattern	Study area	Study area	in two phases of the project	Primary data collection through questionnaire proportionate Random sampling method Transect walk	Land utilization pattern Population pattern Gender pattern Working pattern	Secondary data from census records, statistical hard books, topo sheets, health records and relevant official records available with Govt. agencies

3.4.1 CRITERIA FOR SAMPLING STATIONS

The criteria for selection of sampling stations were based on the impact zone-4-5 km from the mine site. The baseline data has been collected as per CPCB guidelines during the period of 1stMarch 2023 to 31stMay 2023 and 1stMarch 2023 to 31stMay 2025.

The following criteria were adopted while selecting the monitoring locations: -

One location on the upwind depending upon the wind profile/ pattern.

Two locations on the downwind side depending upon wind pattern (predominant directions).

One location covering the sensitive areas within the vicinity.

One location covering the transportation convergences route.

One location covering the major habitation.

One location on the downwind direction where the max GLC's are falling.

The monitoring station selected is as described under: -

TABLE 3. 3 LIST OF MONITORING STATIONS SUMMER SEASON (MARCH TO MAY 2023)

Sampling code	Sampling Location	Lat. (Northing)	Long. (Easting)	Distance (km)	Direction	Components
L1	Taroongi (within the Lease Area)	24033′57.3″N	72054′24.8″E	00	-	Air, Water, Noise, Soil
L2	Rohida(Vasa)	24036′59.1″N	72058′03.3″E	1.19	E	Air, Water, Noise, Soil
L3	Near-Village (Rohida)	24036′35.9″N	72057′31.5″E	0.85	E	Air, Water, Noise, Soil
L4	Delder	24031′11.7″N	72052′00.8″E	3.09	S	Air, Water, Noise, Soil
L5	Wada	24033′04.3″N	72051′37.7″E	0.52	WSW	Air, Water, Noise, Soil
L6	Bhimana	24035′01.6″N	72054′04.3″E	0.79	W	Air, Water, Noise, Soil
L7	Urwariya	24037′42.6″N	72053′44.7″E	3.0	WNW	Air, Water, Noise, Soil
L8	Hirawala (within the Lease Area)	24037′58.9″N	72057′55.8″E	00	-	Air, Water, Noise, Soil
Surface water						
SW1	Amthala (Banas River)	24033′08.5″N	72050′05.4″E	3.95	W	Surface Water
SW2	Dhanari (Banas River)	24041′10.4″N	72055′16.7″E	5.46	NNW	Surface Water

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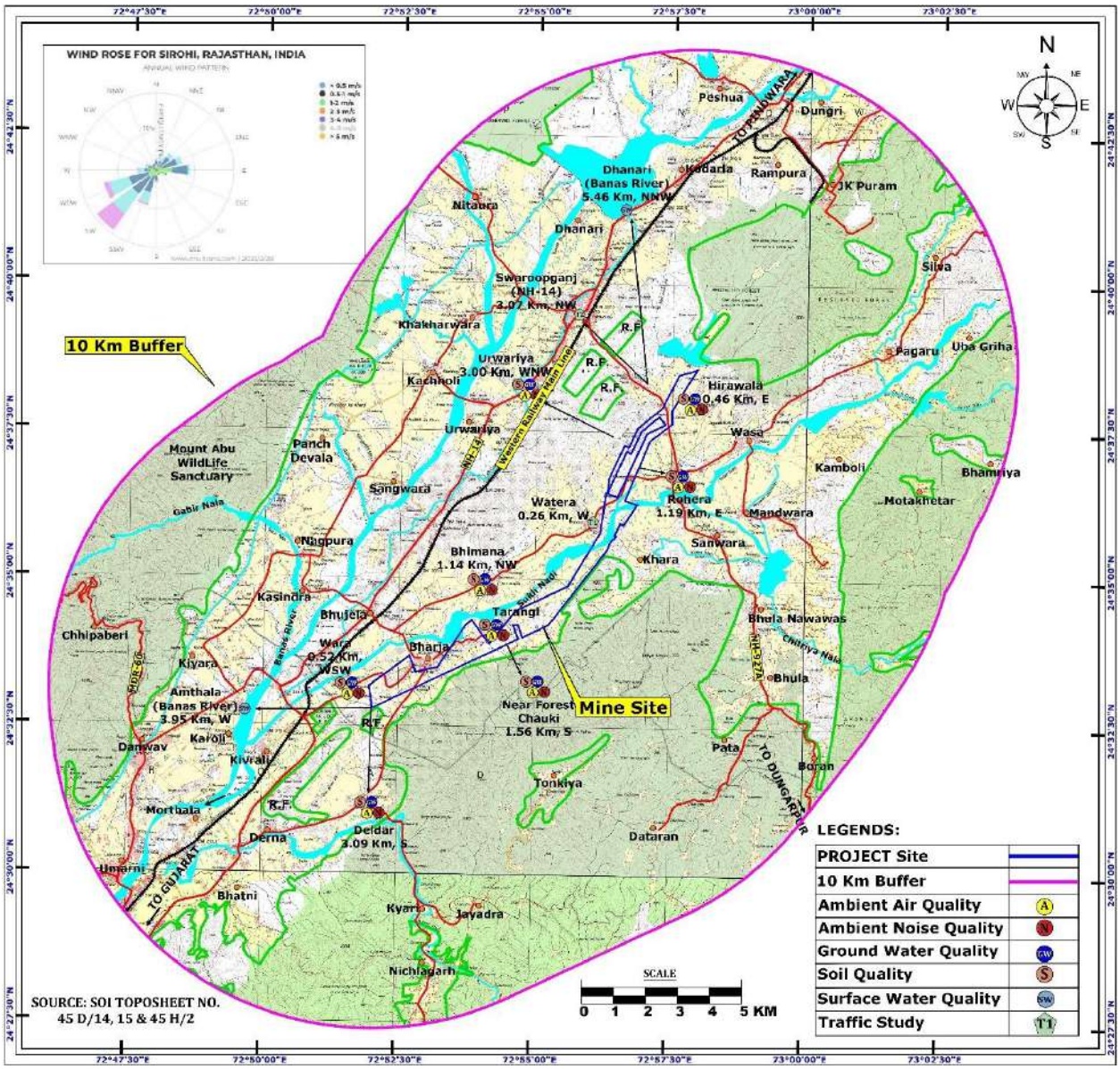


FIGURE 3. 2 MAP SHOWING MONITORING LOCATION SUMMER SEASON (MARCH TO MAY 2023)

Baseline data generation was carried out by NABL approved laboratory SCS Enviro Services Pvt. Ltd., Jaipur. Revalidate the baseline data generation was carried ut by NABL approved laboratory Ecomen Mining Private Limited (formery knoen as Ecomen Labortories Private limited. Environmental Monitoring Report is enclosed as **Annexure –IX** and **IX A**. Baseline photographs is enclsoed as **Annexure X**.

TABLE 3. 4 LIST OF MONITORING STATIONS SUMMER SEASON (MARCH TO MAY 2025)

Sampling code	Sampling Location	Lat. (Northing)	Long. (Easting)	Distance (km)	Direction	Components
L1	Taroongi (within the Lease Area)	24033′57.3″N	72054′24.8″E	00	-	Air, Water, Noise, Soil
L 2	Crusher Location	24°34'26.80" N	72°54'40.61" E	00	-	Air, Water, Noise, Soil
L 3	Near-Village (Bharja)	24°33'27.26" N	72°52'58.59" E	0.02	SW	Air, Water, Noise, Soil
L 4	Near-Village (Vatera)	24°35'51.70" N	72°56'10.89" E	0.04	E	Air, Water, Noise, Soil
L5	Rohida(Vasa)	24036′59.1″N	72058′03.3″E	1.19	E	Air, Water, Noise, Soil
L6	Near-Village (Rohida)	24036′35.9″N	72057′31.5″E	0.85	E	Air, Water, Noise, Soil
L 7	Delder	24031′11.7″N	72052′00.8″E	3.09	S	Air, Water, Noise, Soil
L8	Wada	24033′04.3″N	72051′37.7″E	0.52	WSW	Air, Water, Noise, Soil
L9	Bhimana	24035′01.6″N	72054′04.3″E	0.79	W	Air, Water, Noise, Soil
L10	Urwariya	24037′42.6″N	72053′44.7″E	3.0	WNW	Air, Water, Noise, Soil
L11	Hirawala (within the Lease Area)	24037′58.9″N	72057′55.8″E	00	-	Air, Water, Noise, Soil
Surface water						
SW1	Sukli River	24°36'16.24" N	72°56'46.46" E	Entry point	In lease area	Surface Water
SW2	Sukli River	24°35'30.33" N	72°56'2.67"E	Exit point	In lease area	Surface Water
SW1	Amthala (Banas River)	24033′08.5″N	72050′05.4″E	3.95	W	Surface Water
SW2	Dhanari (Banas River)	24041′10.4″N	72055′16.7″E	5.46	NNW	Surface Water

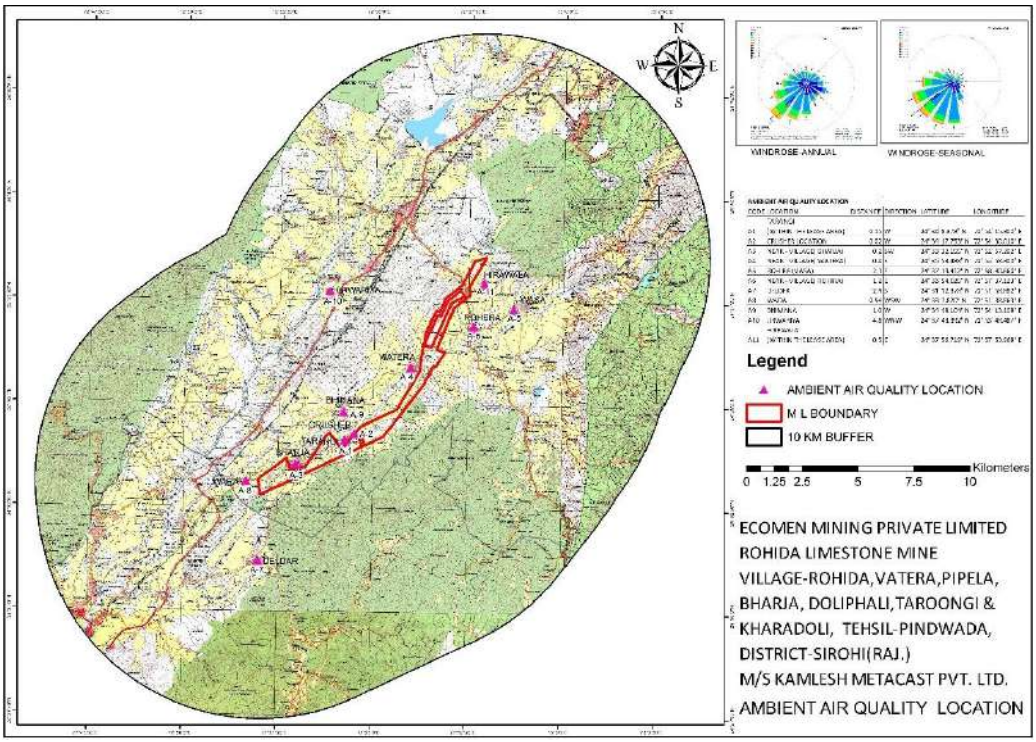


FIGURE 3. 3 : MAP SHOWING AIR MONITORING LOCATION SUMMER SEASON (MARCH TO MAY 2025)

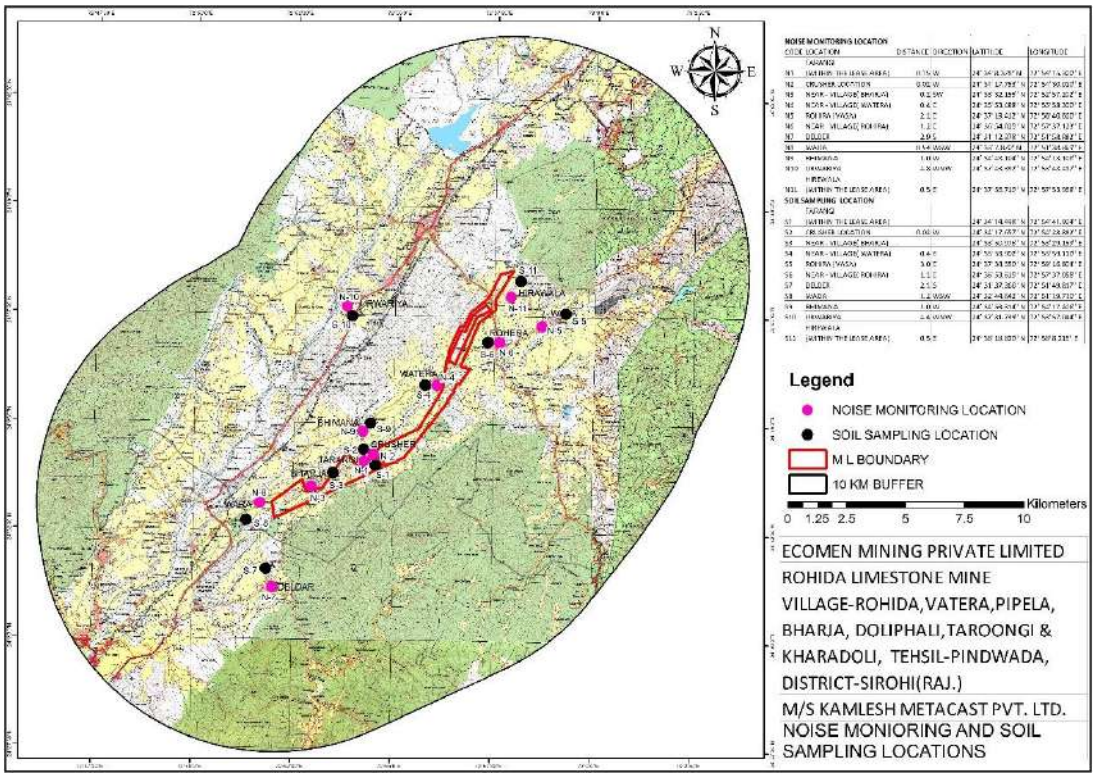


FIGURE 3. 4 MAP SHOWING NOISE AND SOIL SAMPLING LOCATION SUMMER SEASON (MARCH TO MAY 2025)

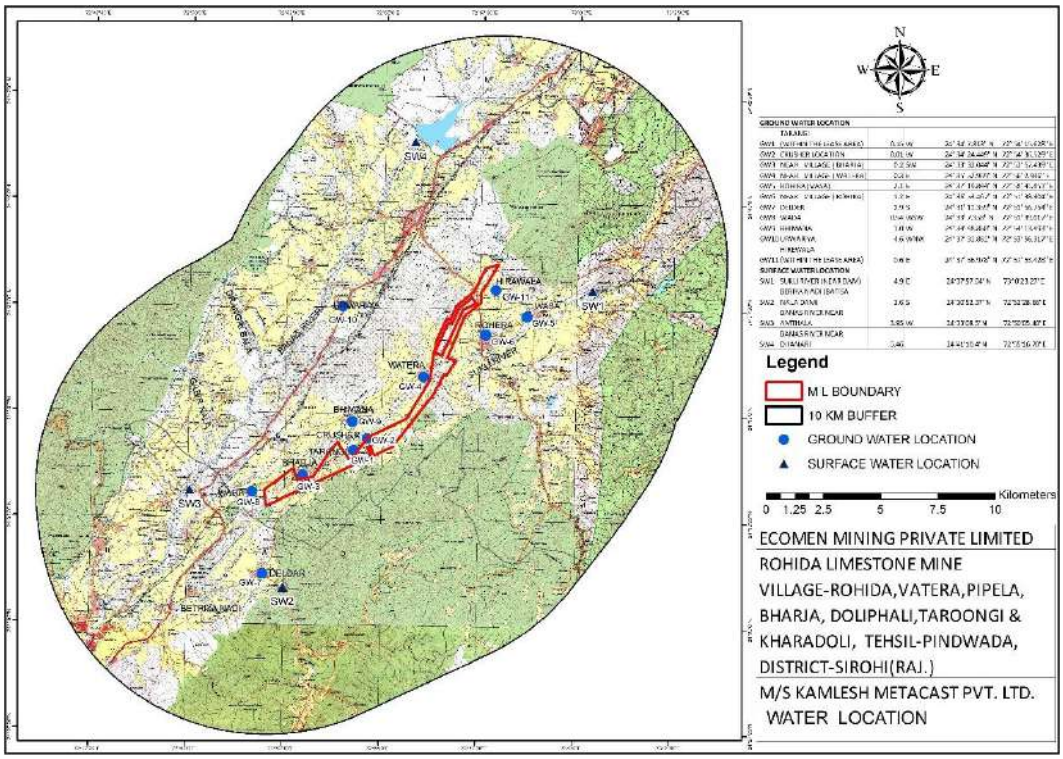


FIGURE 3. 5 MAP SHOWING GROUND AND SURFACE WATER SAMPLING LOCATION SUMMER SEASON (MARCH TO MAY 2025)

3.4.1.1 INSTRUMENTS USED FOR ENVIRONMENTAL BASELINE DATA COLLECTION

The following instruments were used at the site for environmental baseline data collection work.

1. Respirable Dust Sampler with attachment for gaseous Pollutants, Envirotech APM 460
2. Fine Particulate Sampler (FPS), APM 550
3. Sound Level Meter, Model Envirotech SLM - 100
4. Digital D.O. Meter Model, 831 E (CPCB Kit)
5. Weather Monitoring Station, Model Enviro WM 271
6. Global Positioning System (GPS).

The collected samples of air, water, noise and soil as given in above section were collected from the representative sampling points. The primary data covering the details such as type of vegetation/ various agricultural crops, no. of forest, type of habitation, their occupation type, existing infrastructure and communication/ medical facilities were also collected by the site visit team through interaction with a large number of local inhabitants from the study area and also with different Government Departments for preparation of additional studies.

This provided an excellent opportunity to the members of the field team for obtaining clear scenario of the existing environment of the study area.

Based on the primary and secondary data obtained from the 10 km radius buffer area and the core area, the Analysis, Interpretation and Conclusion of the baseline conditions within the core zone and buffer zone is given in below sections.

3.5 LAND USE / LAND COVER STUDY

3.5.1 OBJECTIVE

The objectives of the LULC study are as follow:

- Preparation of land use & land cover map using extent of the project and study area.
- Identification and marking of important basic features according to primary & secondary data.
- Evaluation of the impact on existing land use of the mining operations.
- Suggestive measures for conservation and sustainable use of land.

3.5.2 DATA USED

Current vintage data of Indian Remote Sensing Satellite IRS-RESOURCESAT-2A (Liss 4) digital FCC (False Color Composite) has been used for preparation of Land use/ Land cover thematic map of study area.

Satellite image has been procured from National Remote Sensing Centre, Hyderabad. Survey of India toposheet as a reference map on 1:50,000 scale has been used for preparation of base layer data like road, rail network and villages for geo-referencing of satellite image.

TABLE 3. 5 DATA USED FOR THE LAND USE/LAND COVER MAPPING

S. No.	Particular	Details
1.	Satellite Image	IRS-RESOURCESAT-2A (Liss 4)
2.	Vintage Date	24.05.2023
3.	Satellite Data Source	NRSC, Hyderabad
4.	Software Used	Earth Resources Data Analysis System (ERDAS) Imagine 9.2

Satellite Image (FCC) for the Mining Lease area and 10 km radius study area is given in Figure - 3.2 and 3.3 respectively.

SATELLITE IMAGE OF CORE ZONE

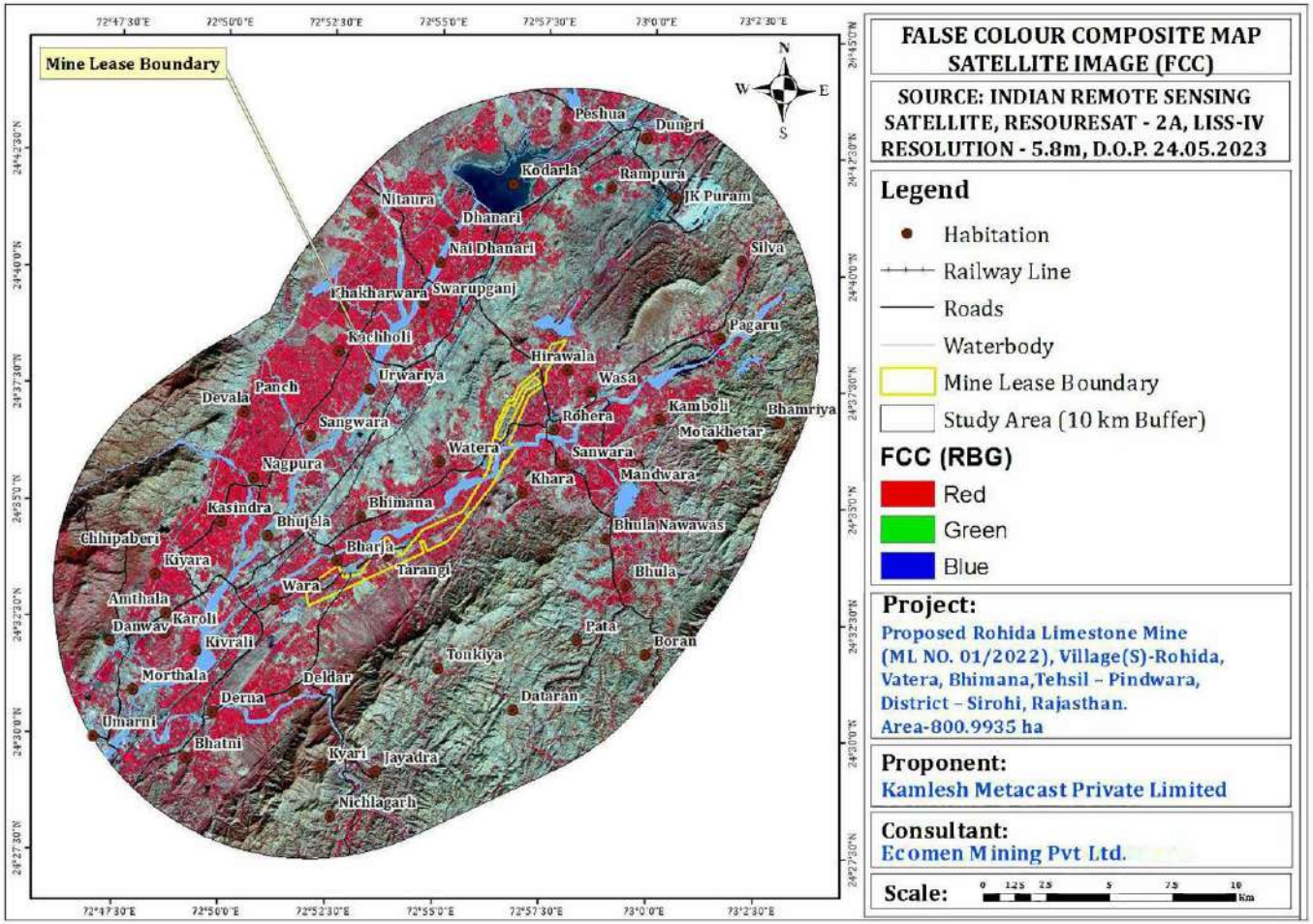


FIGURE 3. 6 SATELLITE IMAGE OF CORE ZONE

3.5.3 METHODOLOGY

The land use / land cover map is prepared by adopting the interpretation techniques of the Satellite image in combination with collateral data such as Survey of India topographical maps. Image classification is done by using visual interpretation techniques and digital classification using any of the image processing software. The various activities for preparation of LULC include preprocessing, rectification, image enhancements and classifying the satellite data for assessing the change in land use land cover due to proposed developmental activities.

The imagery is interpreted and ground checked for corrections. The final map is prepared after ground thruthing. The different land use/land cover categories in the study area have been carried out based on the NRSC land use / land cover classification system.

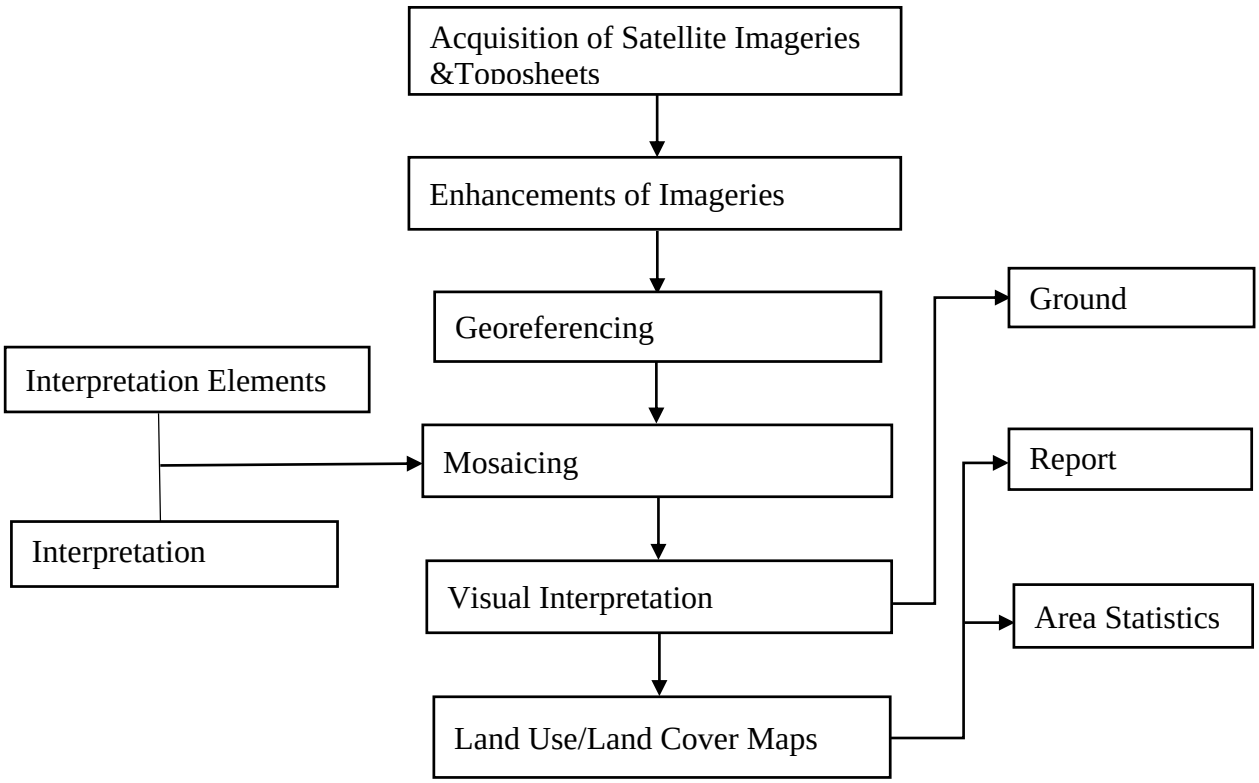


FIGURE 3. 7 METHODOLOGY FLOWCHART FOR LULC CLASSIFICATION AND MAPPING

- Preliminary / primary data collection of the study area
- Satellite data procurement from NRSC, Hyderabad
- Primary Field Survey
- Secondary data collection from authorized bodies
- Survey of India Toposheet (SOI)
- Cadastral / Khasra map

- GPS Coordinates of Mine Boundary
- Mining Maps approved by IBM, Ajmer
- ➢ Processing of satellite data using ERDAS Imagine 9.2 and to prepare the Land use and Land cover maps (e.g. Forest, agriculture, settlements, wasteland, water bodies etc.) by digital image processing (DIP) technique.
- Geo-Referencing of the Survey of India Toposheet
- Geo-Referencing of satellite Imagery with the help of Geo-Referenced Toposheets
- Geo-Referenced Khasara Maps
- Enhancement of the Satellite Imagery
- Base Map layer creation (Roads, Railway, Village Names and others Secondary data etc.)
- Data analysis and Classification using Digital interpretation techniques.
- Ground truth studies or field Verification.
- Error fixing / Reclassification
- Final Map Generation

LAND USE/LAND COVER DETAILS OF THE CORE ZONE

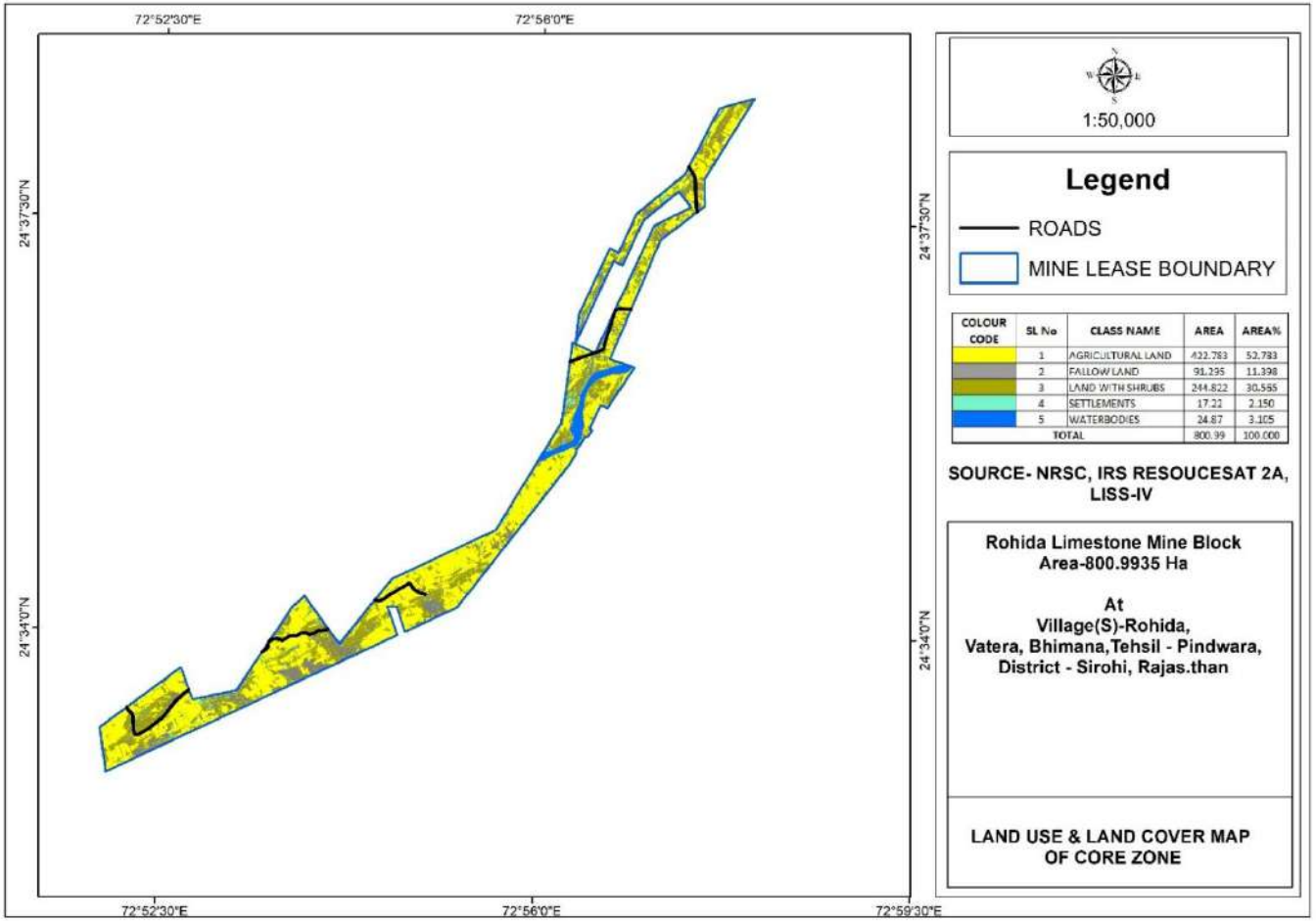


FIGURE 3. 8 LAND USE / LAND COVER MAP OF THE MINING LEASE AREA

3.5.3.1 INTERPRETATION OF THE LULC DATA

The study of the data from the table 3.3 indicates that:

- Major part of the block area consists of Agriculture land (52.783%).
- Fallow land (11.398%), Land with shurbs (30.565%), settlements (2.150%) and water bodies (3.105%).
- There is no National Park, Wildlife Sanctuary, Biosphere Reserve, and Protected & Reserved Forest etc. within the core area.
- Limestone outcrops are present in some parts of the mine area.
- Since this is a Greenfield proposal, it will eventually result in increased built-up area in terms of rainwater harvesting structures, office/workplace, haul roads, workshop etc.

LAND USE / LAND COVER DETAILS OF STUDY AREA

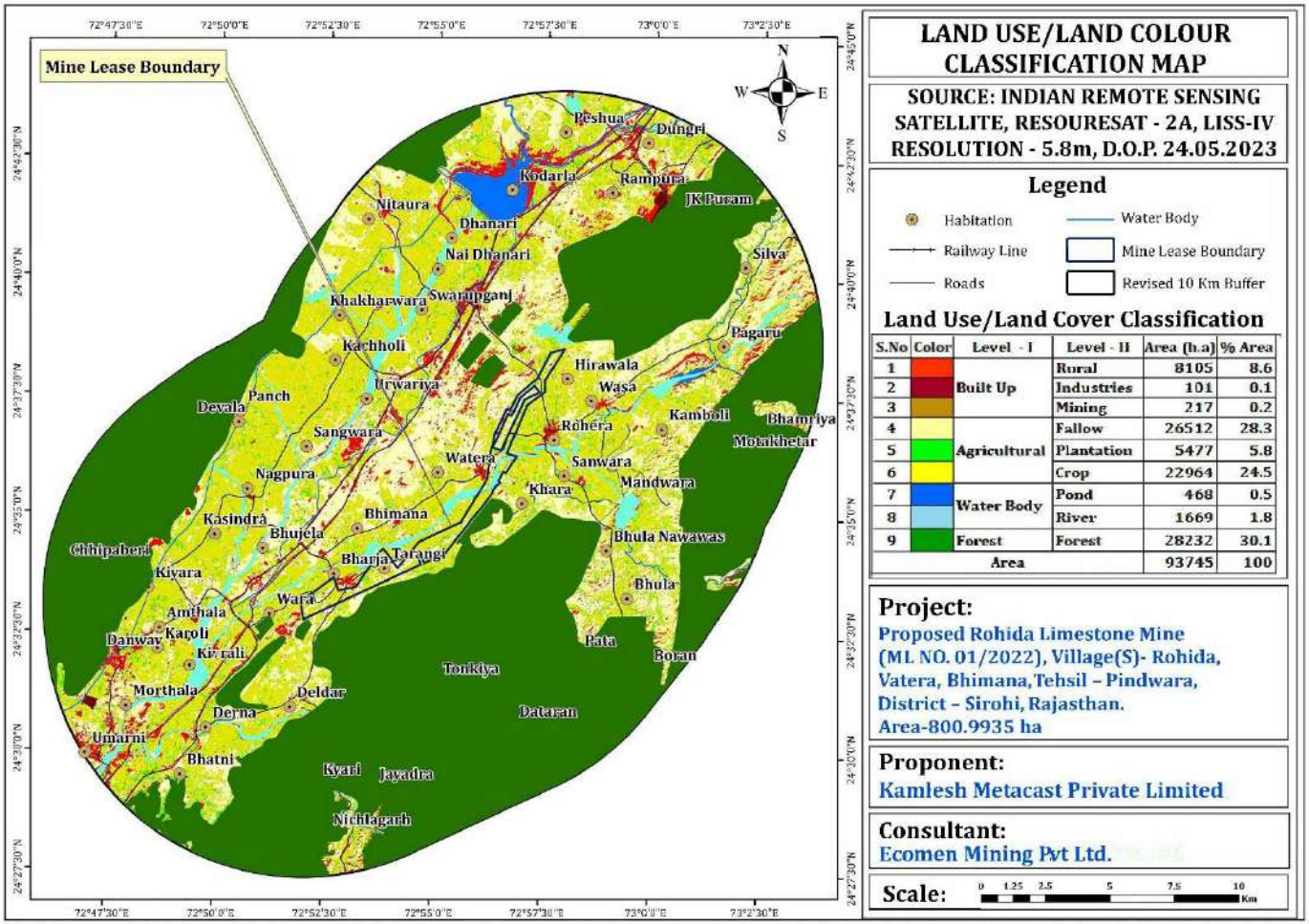


FIGURE 3. 9 LAND USE / LAND COVER MAP OF THE STUDY AREA

The land use and land cover details of the Study area are given in below table.

TABLE 3. 6 LAND USE / LAND COVER DETAILS OF STUDY AREA

S. No	Level - I	Level - II	Area (h.a)	% Area
1	Built Up	Rural	8105	8.6
2		Industries	101	0.1
3		Mining	217	0.2
4	Agricultural	Fallow	26512	28.3
5		Plantation	5477	5.8
6		Crop	22964	24.5
7	Water Body	Pond	468	0.5
8		River	1669	1.8
9	Forest	Forest	28232	30.1
Total			93745	100

Source: LU/LC Map for Buffer Zone

3.6 SEISMICITY OF THE AREA

Bureau of Indian Standards [IS - 1893 (Part-1): 2002], has grouped the country into four seismic zones viz. Zone - II, III, IV and V. Of these, Zone - V is the most seismically active region, while Zone - II is the least. The Modified Mercalli Intensity (MMI) scale, which measures the impact of the earthquakes on the surface of the earth, broadly associated with various zones is as follows:

TABLE 3. 7 SEISMIC ZONES IN INDIA

S. No.	Seismic Zone	Risk	Intensity on MMI Scale
1.	Zone - II	Low Risk Zone	VI & below
2.	Zone - III	Moderate Risk Zone	VII
3.	Zone - IV	High Risk Zone	VIII
4.	Zone - V	Very High-Risk Zone	IX & above

Source: IMD & NIDM

According to GSHAP data, the state of Rajasthan falls in a region of moderate to high seismic hazard. Historically, parts of this state have experienced seismic activity in the M 5.0 range. {Source: (https://www.rajras.in/seismic-zones-faults-earthquake-hazard-rajasthan/)}. Classification of districts of Rajasthan as per seismic zones [IS - 1893 (Part-1): 2002] is given in below Table :

TABLE 3. 8 CLASSIFICATION OF DISTRICTS OF SIROHI AS PER SEISMIC ZONES

S. No.	Seismic Zone	Risk	Districts
1.	Zone - II	Low Risk Zone	Ganganagar, Hanumangarh, Churu, Jodhpur, Pali, Rajasamand, Chittorgarh, Jhalawar, Baran, Kota, Bundi, sawaiMadhopur, Karauli, Dholpur, Banswara, areas of Bikaner, Udaipur, Parts of Jhunjhunu, Sikar, Jaipur
2.	Zone - III	Moderate Risk Zone	Parts of Udaipur, Dungarpur, Sirohi, Barmer, Jaisalmer, Bikaner, Parts of Jhunjhunu, Parts of Sikar, Jaipur, Dausa, Bharatpur
3.	Zone-IV	High Risk Zone	Parts of Barmer (Chotan Block), Jalore (Sanchore Block), Alwar (Tijara Block), Bharatpur (Block nagar, Pahari)

Source: {Vulnerability Atlas of India - (https://vai.bmtpc.org/eq-Raj..HTML)}

In 2004, Seismic Hazard Map of India was updated by the Bureau of Indian Standards (BIS) in which much of the Rajasthan state falls under Zones II and III

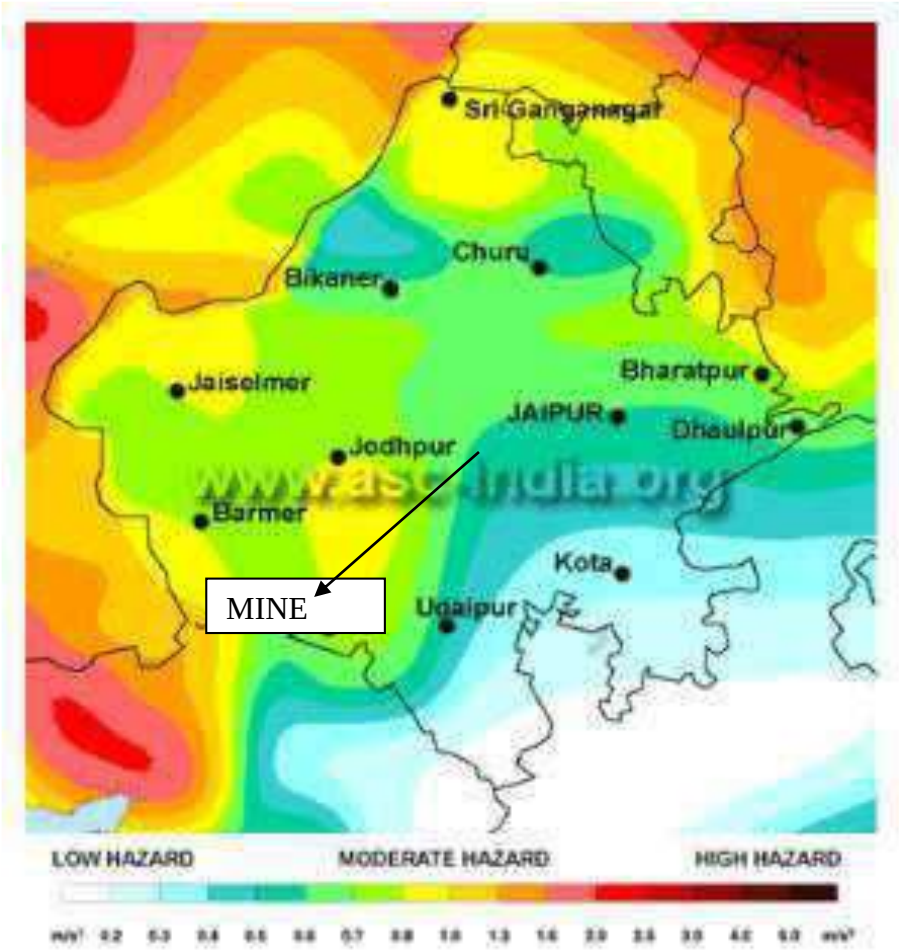


FIGURE 3. 10 GSHAP HAZARD MAP OF RAJASTHAN

The state of Rajasthan has not had a major earthquake in recent years, small to moderate earthquake have been observed in the state. Several faults have been identified in this region out of which many show evidences of movement during the Holocene epoch. Several active faults crisscross the Aravali range and lie parallel to each other. The most prominent of them is the north-south trending Sardar Shahar Fault and the Great Boundary Fault which runs along the Chambal River and then continues in the same direction into Uttar Pradesh.

The seismic hazard map of India was updated in 2000 by the Bureau of Indian Standards (BIS). Apart from the merging of Zones I and II, there are no major changes in the new hazard map with respect to the state of Rajasthan, as compared with the previous 1984 BIS map. Western parts of the districts of Barmer and Sirohi as well as northern sections of Alwar district lie in Zone IV, where the maximum intensity could reach VIII (MSK). The remaining areas of Barmer and Sirohi districts, as well as the districts of Bikaner, Jaisalmer and Sirohi lie in Zone III. The north-eastern

districts of Jhunjhunu, Sikar, Bharatpur and the rest of Alwar also lie in Zone III. The maximum intensity expected in these areas would be around MSK VII. The rest of the state, including the capital, Jaipur, lies in Zone II.

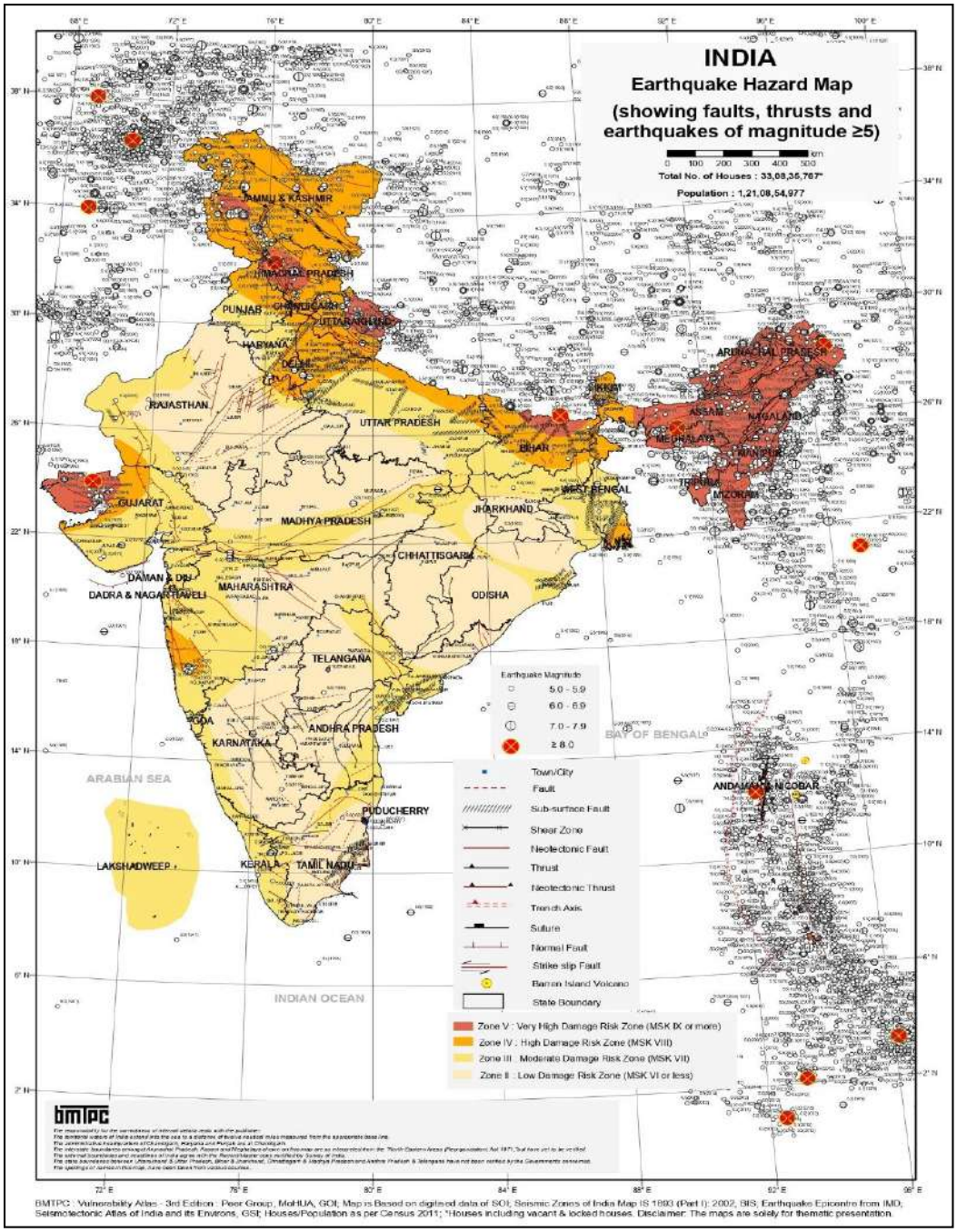


FIGURE 3. 11 SEISMIC ZONE MAP

3.7 FLOOD HAZARD ZONATION OF THE AREA

As per the "Vulnerability Atlas-2nd Edition; Peer Group, Ministry of Housing (MoH) and UPA (Urban Povery Alleviation); based on digitized data of SOI, GOI; Flood Atlas, Task Force Report, C.W.C., GOI" the mine site does not fall under "area liable to flood". Flood Hazard Zonation Map showing the mine site is given in Figure - 3.8

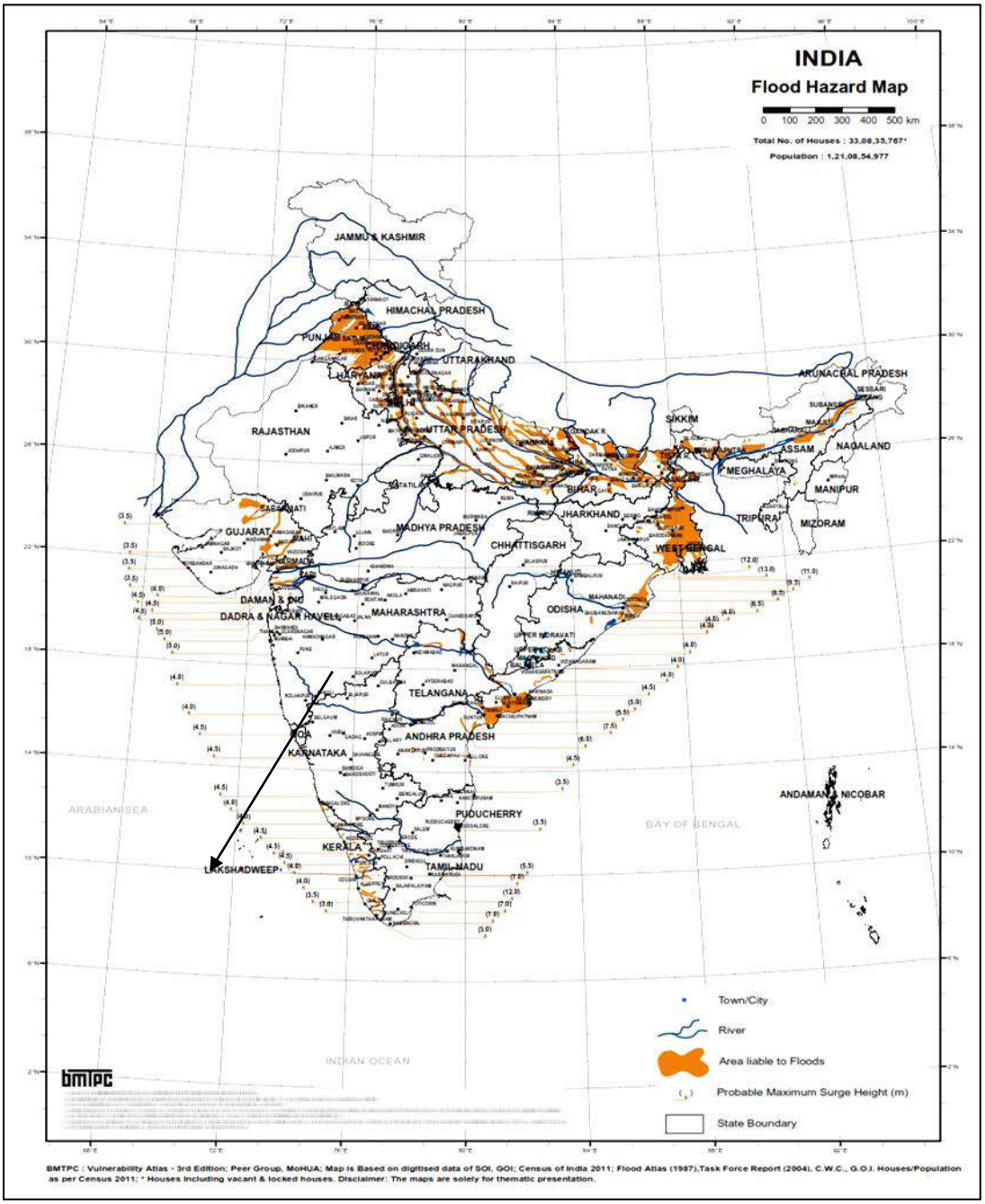


FIGURE 3. 12 FLOOD HAZARD ZONATION MAP OF THE AREA

3.8 TOPOGRAPHY & DRAINAGE PATTERN

Topography

The study area shows a gently undulating topography and general elevation between highest elevation points is 900 m above mean sea level in west direction and lowest elevation 200 m above mean sea level in east direction.

The core area is having undulating terrain. The maximum contour level is 368 MSL near northern boundary and minimum level is 308 m towards the southern boundary.

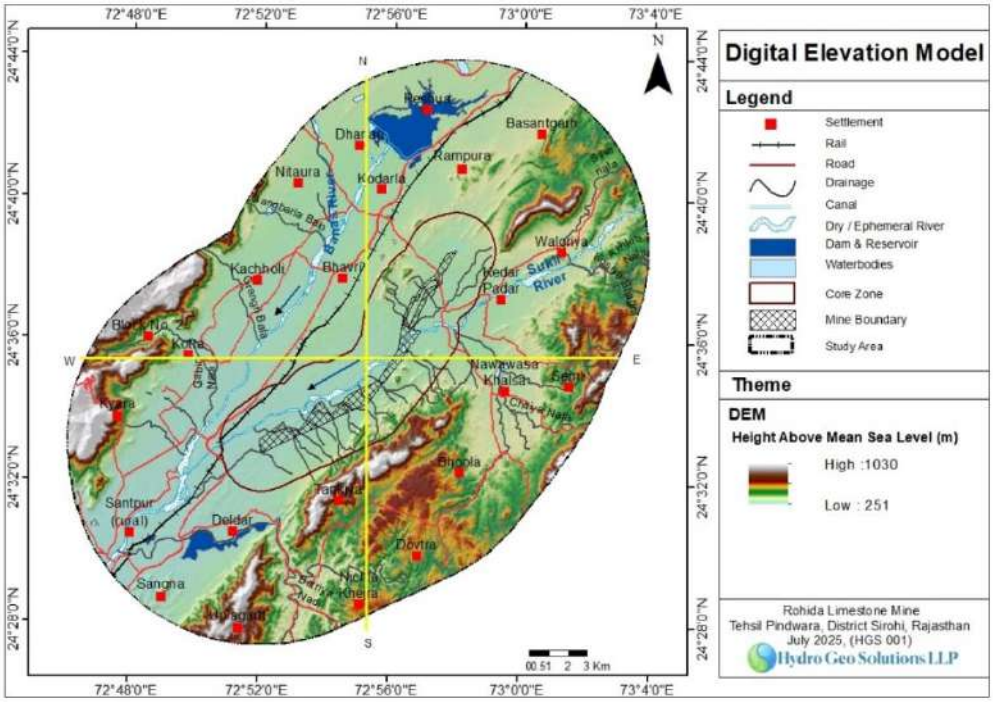


FIGURE 3. 13 DIGITAL ELEVATION MODEL WITH IN 10 KM RADIUS

DRAINAGE PATTERN

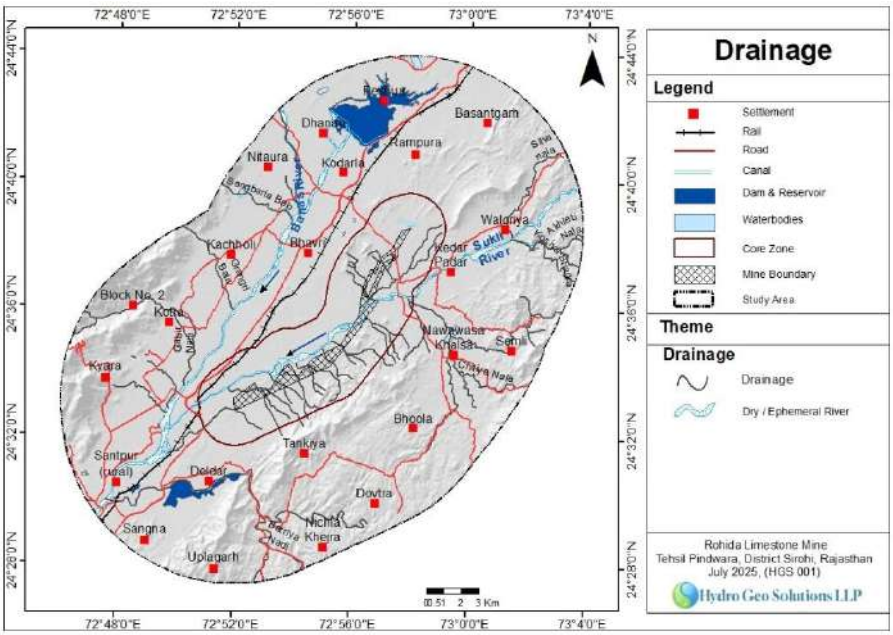
The drainage system of the Study area is well developed West Banas. Banas River is most important river of the district flowing seasonally from west to east. Other rivers which flow in the district are Khari, Sukli, Bandi, Kapalganga and Krishnavati flowing south to north and merging to banas river. Artificial Lake named Nakki Lake in Mt. Abu is picturesque and has become place of pride located SW part of buffer area. Sirohi district falls in parts of Luni (41.2 %), West Banas (35.5 %), Sukri (18.7%), other nallah (3.2%) and Sabarmati (1.3%) basins.

DRAINAGE OF THE 10 KM RADIUS STUDY AREA:

There are 8 Nadi and nala passing through the study area. The Banas River is the main river in the 10 km study area. Sukli Nadi, Batriya Nadi, and Hukli Nadi flow in the study area. Gabir Nala, Chitriya Nala, Akhleti Nala, and Silva Nala are minor streams. The study area form a dendretic pattern of 1st to 5th order of stream line. The Banas River is the main river, which flows from the north-east to the south-west direction from the lease area.

DRAINAGE OF THE MINE SITE:

Sukli Nadi is flow in the mining lease area. In the mining lease, 5th order stream is crossing from the central part of the mine lease area which flow from north east direction to south west direction.



3.9 CLIMATE & RAINFALL

Climate

Sirohi district is located on the eastern edge of semi-arid part of Rajasthan and therefore, the climate varies between dry and partially sub-humid. Sirohi is known for dry climate with hot season. The cold season starts from November to February. January is the coldest month of the year.

Temperature and Rainfall

Average maximum temperature in this district is around 47 °C during summer months of March to June and minimum average temperature is 23 °C in winters. The temperature during winter season drops significantly to the range of 3 - 5 °C.

The district experienced droughts of Pindwara (2000) and Reodar (1987). The monsoon season brings fairly good rains as indicated by the average annual rainfall of 764 mm in the district. The average annual precipitation of the study area is around 764 mm (average of last 17 years rainfall data). The annual rainfall gradually decreases from southern part to northern part. The district experiences either mild or normal drought once in two years. Severe type of drought has been recorded very rarely.

Rainfall: The annual Rainfall data of the area for last 15 years is as mentioned given below:

TABLE 3. 9 RAINFALL DATA IN MM FOR LAST 10 YEARS AS PER IMD

S. No.	Year	Actual(mm)	Normal (mm)
	2015	1095.3	869
	2016	876.5	869
	2017	1815.5	869

	2018	409	869
	2019	953.9	873
	2020	1023.6	839
	2021	563.2	839
	2022	1074.7	873
	2023	1267.9	873
	2024	928.9	873
Average		1001	865
Source: India Meteorological Department (IMD)			

3.10 METEOROLOGY

Meteorology plays a vital role in determining the transport and diffusion pattern of air pollutants released into the atmosphere. The principal variables include horizontal convective transport (average wind speed and direction), vertical convective transport (atmospheric stability) and topography of the area.

Since meteorological factors show wide fluctuations with time, meaningful interpretation can be drawn only from long-term reliable data. Such source of data is India Meteorological Department (IMD), which maintains a network of meteorological stations at several important locations.

An auto weather monitoring stations was installed at Mine Site during the study period (March-April-May-2023) to record various meteorological parameters on hourly basis to understand the wind pattern, temperature variation and relative humidity variation.

3.11 MICRO-METEOROLOGY AT SITE

Meteorological station was set-up at site to record surface meteorological parameters during Summer Season (March to May, 2023).

The predominant wind direction during this study period is observed to be blowing between SW, WSW, W, WNW, and NW directions. The average wind speed during this period is 5.8 m/s. Calm wind during this period 0.27 %.

TABLE 3. 10 MICRO-METEOROLOGY AT SITE

Study Period: Summer Season (March to May, 2023)

Month	Temperature (0C)		Relative Humidity (%)		Rainfall in mm		Wind Speed m/ph	
	Max	Min	Max	Min	Max	Min	Max	Min
March-2023	41.3	16.4	82.4	17.7	3.6	0	26.1	<1.0
April -2023	42.9	13.5	96.3	14.2	2.8	0	24.4	<1.0
May -2023	38.9	12.3	83.0	13.9	2.0	0	23.0	<1.0

Source: Meteorological Station at Site

TABLE 3. 11 MICRO-METEOROLOGY AT SITE

Study Period: Summer Season (March to May, 2025)

Period	Mean Temperature (oC)			Relative Humidity (%)			Mean Wind Speed m/s			Rainfall (mm)
	Max	Min	Avg	Max	Min.	Avg	Max	Min.	Avg	Total Average
March	36.93	13.2	26.12	76	13	35.81	5.43	0.13	2.07	0
April	40.8	18.7	31.63	72	13	34.98	6.35	0.24	2.48	0.00103
May	40.7	20.6	30.8	96	23	62	5.6	0.2	2.3	0.07

WIND ROSE DIAGRAM

Wind rose is the diagrammatic representation of wind speed in a specified direction with its arms representing sixteen directions. Each arm gives a clear frequency distribution of wind speed in a particular direction for a given period of time. The wind rose diagram for the study period was developed & presented in below figure.

TABLE 3. 12 SUMMARY OF THE WIND PATTERN

S. No.	Wind Direction	0.5-2.1 Speed m/s	>= 2.1 Speed m/s	Total
1	N	46	216	262
2	NNE	34	199	233
3	NE	1	191	192
4	ENE	11	108	119
5	E	3	83	86
6	ESE	8	127	135
7	SE	8	140	148
8	SSE	8	156	164
9	S	0	125	125
10	SSW	0	0	0
11	SW	25	130	155
12	WSW	18	161	179
13	W	11	91	102
14	WNW	2	48	50
15	NW	24	124	148
16	NNW	21	74	95
Sub-Total				2193
Calms				6
Missing/Incomplete				9
Total				2208

WINDROSE PLOT FOR LOCATION- M/s: ROHIDA LIMESTONE MINE
Village: Rohida, Tehsil: Pindwara, District: Sirohi (RAJ)

Data Period:
Start Date: 01.03.2023, 00:00 Hrs.
End Date: 31.05.2023, 23:59 Hrs.

Total Count: 2208 Hrs.

Calm Winds: 0.27 %

Average Wind Speed: 5.8 m/s

Company Name:
SCS Enviro Services Pvt. Ltd.

Project Name-
M/s: ROHIDA LIMESTONE MINE
Village: Rohida, Tehsil: Pindwara, District: Sirohi.

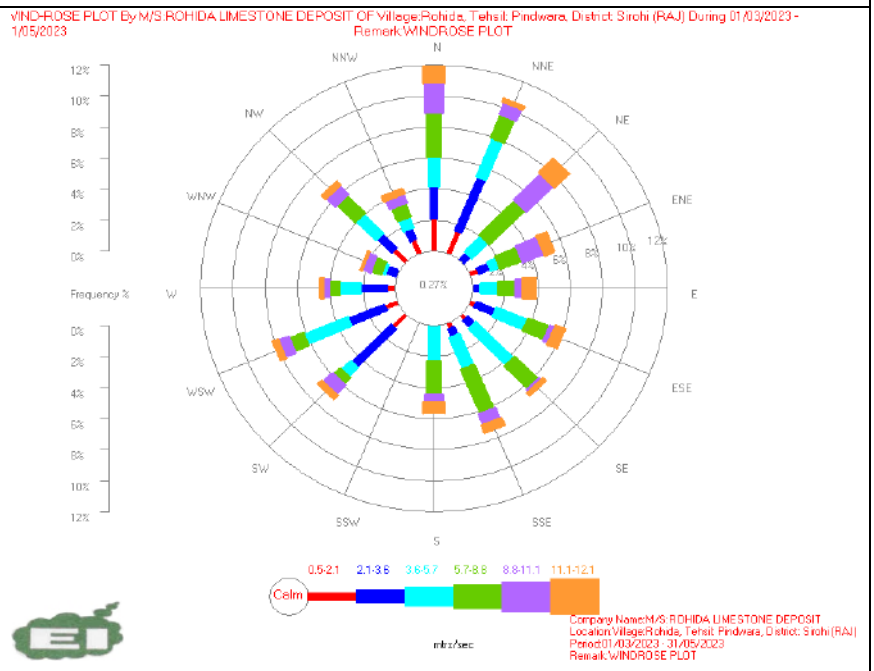


FIGURE 3. 14 WIND ROSE DIAGRAM

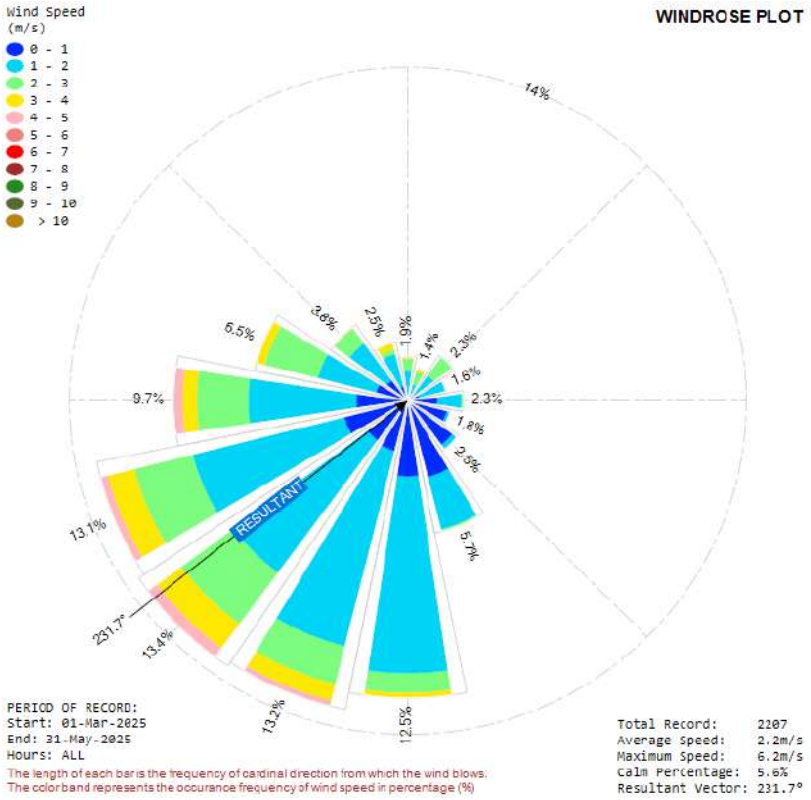


FIGURE 3. 15 WIND ROSE DIAGRAM MARCH TO MAY 2025

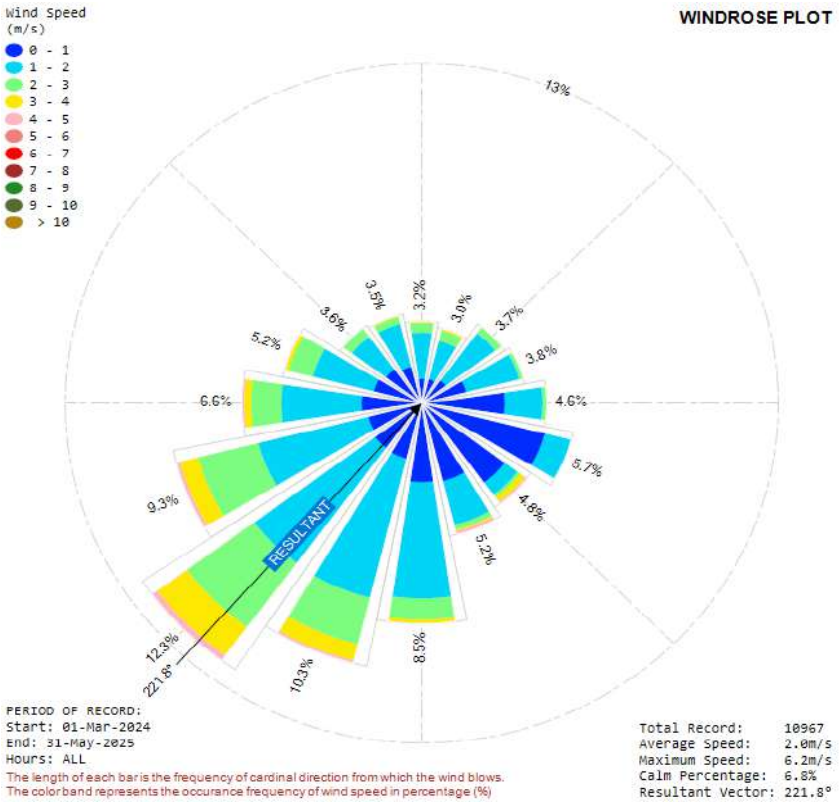


FIGURE 3. 16 ANNUAL WIND ROSE DIAGRAM (2025)

3.11.1 AMBIENT AIR ENVIRONMENT

Ambient air quality monitoring has been carried out within the 10 km study area to determine the baseline concentration of various air pollutants in the ambient air. The ambient air quality depends upon the emission sources, micro meteorological conditions and the background concentration of specific pollutants. Samples were collected from the 10 km study area to observe the ambient air quality conditions throughout the region. It helps in providing a data base for evaluation of the anticipated impacts in the 10 km radius study area by the activities of the proposed limestone mining Project. It will also be useful in ascertaining the quality of air environment in conformity to standards of the ambient air quality during operation phase of the project.

Monitoring Parameters

Air quality monitoring has been carried out at 8 locations for 24 hours (twice a week) for three months (26 observations for one location). Parameters monitored are:

- Sulphur Dioxide (SO2)
- Nitrogen Dioxide (NO2)
- Particulate Matter (PM10 and PM2.5)
- Carbon Monoxide (CO), Lead, Ozone, Ammonia, BaP, Arsenic, Nickel, PAHs & Benzene were monitored once in the study period.

TABLE 3. 13 SAMPLING FREQUENCY

Parameters	Sampling Frequency
PM10	24 hourly sample twice a week
PM2.5	24 hourly sample twice a week
Sulphur Dioxide (SO2)	8 hourly for 24 hrs sample twice a week
Oxides of Nitrogen (NOx)	8 hourly for 24 hrs sample twice a week
Carbon Monoxide	8 hourly for 24 hrs sample twice a week

TABLE 3. 14 TECHNIQUES & INSTRUMENTS USED FOR MONITORING OF AIR QUALITY

Parameter	Technique	Technical Protocol	Minimum Detectable Limit (µg)
PM10	APM 550 - Dust Sampler (Gravimetric Method)	IS-5182 (part-23)	10 µg/m3
PM2.5	FPS 9000 - Dust Sampler (Gravimetric Method)	IS-5182 (part-24)	2 µg/m3
Sulphur dioxide	APM 433 - Gaseous Sampler (Chemical Absorption)	IS-5182 (part-2)	6 µg/m3
Oxides of Nitrogen	APM 433 - Gaseous Sampler (Chemical Absorption)	IS-5182 (part-6)	10 µg/m3
Carbon Monoxide	Carbon Monoxide Detector Tubes	IS-5182 (part-10)	5.7 µg/m3

TABLE 3. 15 STATISTICAL SUMMARY OF CONCENTRATION LEVELS OF CRITERIA POLLUTANTS SUMMER SEASON (MARCH TO MAY 2023)

(Unit: -µg/m3)

Criteria Pollutant	Locations	Arithmetic Mean	Minimum	Maximum	Standard Deviation	98th Percentile	CPCB Standards
PM10	Taroongi within lease area	52.1	44.5	63.4	4.8	61.5	100
	Rohida (Vasa)	52.3	45.8	63.3	4.5	60.9	
	Rohida Village	51.3	44.5	62.3	4.0	59.4	
	Delder	58.2	50.5	68.9	4.8	67.1	
	Wada	51.4	46.2	56.4	3.0	56.4	
	Bhimana	54.4	48.7	65.8	4.5	64.3	
	Urwariya	50.8	46.8	55.7	2.7	55.5	
	Hirawala	51.7	46.9	58.1	3.0	57.2	
PM2.5	Taroongi within lease area	31.5	26.9	38.1	2.8	37.5	60
	Rohida (Vasa)	32.8	28.0	37.8	2.4	37.0	
	Rohida Village	31.3	27.3	37.5	2.5	36.2	
	Delder	36.0	30.6	40.4	2.8	40.3	
	Wada	31.1	28.0	34.3	1.7	34.2	
	Bhimana	33.1	29.7	40.4	2.8	39.0	
	Urwariya	31.0	26.8	38.4	2.8	36.5	
	Hirawala	30.7	26.8	34.7	2.1	34.6	
SO2	Taroongi within lease area	6.5	6.1	7.1	0.3	7.0	80
	Rohida (Vasa)	6.5	6.0	7.3	0.3	7.1	
	Rohida Village	6.6	6.0	7.5	0.4	7.4	
	Delder	7.5	6.6	8.3	0.5	8.3	
	Wada	6.6	6.0	7.2	0.3	7.2	
	Bhimana	7.0	6.0	7.8	0.4	7.7	
	Urwariya	6.4	6.0	7.0	0.3	7.0	
	Hirawala	6.6	6.0	7.5	0.4	7.4	
NOX	Taroongi within lease area	8.6	6.2	12.0	1.5	11.2	80
	Rohida (Vasa)	7.9	6.2	12.0	1.3	10.9	
	Rohida Village	9.6	7.6	12.0	1.1	11.8	
	Delder	13.7	11.5	15.2	1.0	15.1	
	Wada	8.9	7.4	10.8	0.9	10.6	
	Bhimana	11.1	7.6	13.0	1.4	12.8	
	Urwariya	8.5	7.3	9.8	0.7	9.8	
	Hirawala	9.3	7.1	11.3	1.2	11.3	
CO	Taroongi within lease area	679	573	802	97	802	2000
	Rohida (Vasa)	643	573	802	65	745	
	Rohida Village	599	458	802	123	802	
	Delder	723	573	802	84	802	
	Wada	604	458	687	89	687	
	Bhimana	701	573	802	93	802	
	Urwariya	564	458	687	85	687	
	Hirawala	643	458	802	122	802	

TABLE 3. 16 AMBEINT AIR QUALITY MONITORING RESULTS SUMMER SEASON (MARCH TO MAY 2025)

ST. CODE	PARAMETER										
	LOCATION	PM10(µG/M3)		PM2.5(µG/M3)		SO2(µG/M3)		NO2(µG/M3)		CO (MG/M3)	
		MAX	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.
A1	TAROONGI	63.8	47.3	35.3	25.9	13.6	8.9	22.7	14.6	0.94	0.45
A2	CRUSHER	61.5	40.0	32.9	23.9	12.7	9.0	23.7	15.8	0.62	0.39
A3	BHARJA	55.3	40.1	29.8	20.1	11.0	7.0	19.2	10.7	0.59	0.37
A4	VATERA	52.4	39.6	31.4	23.6	12.4	8.2	21.5	14.0	0.65	0.27
A5	ROHIDA (VASA)	58.3	42.0	40.2	31.2	14.1	8.0	19.4	12.5	0.54	0.31
A6	ROHIDA	53.2	39.0	33.1	23.9	13.6	8.4	16.8	13.8	0.69	0.40
A7	DELDER	56.9	35.8	29.9	23.6	16.4	10.0	25.0	15.2	0.58	0.27
A8	WADA	49.5	31.4	26.2	18.5	12.8	7.9	17.3	12.5	0.51	0.24
A9	BHIMANA	66.8	43.6	43.5	27.8	11.5	7.8	18.3	11.4	0.91	0.39
A10	URWARIYA	51.4	29.0	38.4	21.0	13.2	7.8	17.1	12.5	0.65	0.35
A11	HIRAWALA	62.1	41.5	38.5	22.4	12.2	7.3	16.9	11.8	0.71	0.36
STANDARD		100.00		60.00		80.00		80.00		2.00	

3.11.2 INTERPRETATON OF AAQM RESULTS

The analysis results for the study period are presented in above monitoring tables. Various statistical parameters like 98th percentile, average, maximum and minimum values have been computed from the observed raw data for all the AAQ monitoring stations. These are compared with the standards prescribed by Central Pollution Control Board (CPCB) for rural and residential zone.

The observation based on the perusal of the results is summarized below:-

PM10: The maximum value for PM10 observed in 8 locations at Village: Delder 68.9 µg/m3 and minimum value for PM10 observed at Village: Taroongi (within the Lease Area), Near-Village (Rohida) 44.5µg/m3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which PM10 maximum value (66.8µg/m3) in Bhimana Village and minimum value near village 29.0 µg/m3. The 24 hours applicable limit for industrial, Residential Rural and Other Areas is -100 µg/m3.

PM2.5: The maximum value for PM2.5 observed at Village: Delder, Bhimana 40.4 µg /m3 and minimum value for PM2.5 observed at Village: Urwariya, Hirawala (within the Lease Area) 26.8 µg/m3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which PM2.5 maximum value (43.5 µg/m3) in Bhimana Village and minimum value near village Wada 18.5 µg/m3.The 24 hours applicable limit for industrial, Residential Rural and Other Areas is- 60µg/m3.

SO2: The maximum value for SO2 observed at Village: Delder 8.3 µg/m3 and minimum value for SO2 observed at Village: Rohida (Vasa), Near-Village (Rohida), Wada, Bhimana, Urwariya, Hirawala (within the Lease Area) 6.0 µg/m3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which SO2 maximum value (16.4 µg/m3) in Deldar Village and minimum value near village Bharja 7.0 µg/m3.The 24 hours applicable limit for industrial, Residential Rural and Other Areas is 80µg/m3.

NO2: The maximum value for NO2 observed at Village: Delder 15.2µg/m3 and minimum value for NO2 observed at Village: Taroongi (within the Lease Area), Rohida (Vasa) 6.2 µg/m3. Whereas, in the

revalidaite the baseline data has been done in 11 locations in which NO2 maximum value (25.0 µg/m3) in Deldar Village and minimum value near village Bharja 10.7 µg/m3.The 24 hours applicable limit for industrial, Residential Rural and Other Areas is- 80µg/m3.

CO: The maximum value for CO observed at villages: Taroongi (within the Lease Area), Rohida (Vasa), Near-Village (Rohida), Delder, Bhimana, and Hirawala (within the Lease Area) 802 µg/m3 and minimum value for CO observed at Village: Near-Village (Rohida), Wada, Urwariya, Hirawala (within the Lease Area) 458 µg/m3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which CO maximum value (940 µg/m3) in Taroongi Village and minimum value near village Wada 240 µg/m3.The 8 hours applicable limit for Industrial, Residential Rural and other areas is- 2000 µg/m3.

Conclusion

The results of the monitored data indicate that the ambient air quality of the region in general is in conformity with respect to norms of National Ambient Air Quality standards of CPCB, at all locations monitored. But it is expected, from the proposed project, that the increased transportation during the construction & operation phase as well as will increase the pollutant concentration in the nearby villages; however, proper mitigation measure will be adopted to reduce the additional air pollution load.

3.12 NOISE ENVIRONMENT

Noise often defined as unwanted sound, interferes with speech communication, causes annoyance, distracts from work, and disturbs sleep, thus deteriorating quality of human environment.

Source of Noise

There are several sources of noise in the 10 km radius of study area, which contribute to the local noise level of the area. Ambient noise sources in the vicinity of the mine site include the noise from traffic on road, human activities in villages and agricultural fields.

Ambient Noise Level

In order to know the baseline noise levels, in and around the proposed mine, noise levels were measured at site and villages in the study area.

Monitoring Schedule

The ambient noise level monitoring was done during day time and night time once in the study period.

TABLE 3. 17 NOISE (SOUND) MEASURING INSTRUMENT

Instrument	Make	Model No.	Instrument Identification	Detection Limit
Integrated Sound Level Measurement Instrument Standard Accessories	HTC	SL-1352	SAL/NOISE/INT/05	Lo 35-80 dB Hi 80-130 dB

Ambient Noise Level Monitoring

For Ambient noise levels monitoring, hourly dataset is collected for all the monitoring stations and Leq. of the same is calculated. Ambient noise levels monitoring results monitored at different locations (as mentioned in Table -3.10) during the study period, and results are given in below table

TABLE 3. 18 AMBIENT NOISE LEVEL MONITORING RESULTS

Study Period: Summer Season (March to May, 2023)

Ambient Noise Level Data								
Time	N-1	N-2	N-3	N-4	N-5	N-6	N-7	N-8
Day time	RESULTS dB (A)							
6.00	48.3	49.2	49.1	49.2	48.5	49.9	47.9	49.7
7.00	48.7	50.1	49.8	50.4	48.1	50.4	48.6	50.6
8.00	49.8	49.8	50.3	53.6	49.3	50.6	49.7	51.6
9.00	50.5	50.4	51.4	53.8	49.4	51.8	50.9	52.4
10.00	52.2	50.6	52.6	53.7	50.1	52.7	51.4	52.9
11.00	53.1	50.5	53.4	54.6	49.9	54.1	51.6	52.5
12 Noon	53.1	51.2	53.1	55.2	51.1	53.8	52.1	52.9
13.00	54.1	52.1	53.5	55.8	50.2	54.2	52.3	52.6
14.00	53.1	50.2	53.9	55.9	50.3	54.1	52.1	51.9
15.00	53.2	50.4	54.3	56.1	50.1	54.7	51.9	51.8
16.00	52.4	50.6	54.2	54.2	49.9	54.2	51.6	51.2
17.00	52.1	51.2	53.2	53.7	49.1	53.1	51.1	51.1
18.00	51.6	49.8	52.5	55.5	49.5	53.2	50.8	50.8
19.00	50.4	49.4	52.1	52.6	48.8	52.6	50.4	49.9
20.00	49.8	49.3	51.6	51.3	48.2	52.8	49.9	49.4
21.00	48.7	48.9	50.4	48.1	47.9	50.4	48.6	49.1
Night time	RESULTS dB (A)							
22.00	45.2	45.6	45.5	46.2	43.2	44.4	45.4	44.1
23.00	44.3	44.2	44.1	45.1	42.8	43.6	44.1	43.3
24.00	42.1	43.1	44.5	44.5	42.3	42.1	43.3	42.6
1.00	44.2	42.3	43.2	43.3	41.1	41.9	42.1	41.8
2.00	42.4	41.1	41.8	42.9	40.3	41.6	41.2	41.4
3.00	41.1	40.3	41.6	42.1	40.1	41.2	40.3	40.6
4.00	39.9	39.4	40.8	41.9	39.5	40.5	39.5	39.5
5.00	39.4	38.8	40.5	40.8	39.2	39.4	38.4	38.4
Leq Day	51.7	50.3	52.5	53.9	49.5	52.9	50.9	51.4
Leq Night	42.8	42.4	43.1	43.7	41.3	42.1	42.4	41.8
Leq day & night	50.2	48.9	51.0	52.3	48.0	51.3	49.4	49.9

Source: Ambient Noise Level Monitoring

TABLE 3. 19 AMBIENT NOISE LEVEL MONITORING RESULTS

Study Period: Summer Season (March to May, 2025)

Location		**Area Type**	**Day (0600-2200 hours)**				**Night (2200-0600 hours)**			
			Norm	**Max.**	**Min.**	**Mean***	**Norm**	**Max.**	**Min.**	**Mean***
N1	Taroongi	Residential	55	52.9	41.5	50.1	45	44.7	34.5	40.0
N2	Crusher`	Residential	55	51.5	38.5	49.4	45	43.8	36.1	41.2
N3	Bharja	Residential	55	46.8	36.5	43.3	45	41.8	36.4	40.1

Location		Area Type	Day (0600-2200 hours)				Night (2200-0600 hours)			
			Norm	Max.	Min.	Mean*	Norm	Max.	Min.	Mean*
N4	Vatera	Residential	55	51.9	40.1	46.8	45	42.5	36.7	39.8
N5	Rohida (Vasa)	Residential	55	53.4	42.3	48.8	45	41.7	33.9	38.9
N6	Rohida	Residential	55	50.9	37.6	47.2	45	42.8	36.7	40.9
N7	Delder	Residential	55	49.8	39.7	45.5	45	40.7	37.2	39.1
N8	Wada	Residential	55	46.9	37.4	43.3	45	43.3	39.3	40.8
N9	Bhimana	Residential	55	52.4	41.8	47.0	45	41.1	36.1	39.2
N10	Urwariya	Residential	55	54.1	43.8	49.3	45	40.9	35.8	38.6
N11	Hirawala	Residential	55	48.7	39.2	44.1	45	44.9	37.4	41.6
All values in dB(A); * Logarithmic Averages										

CPCB Noise Standards are given in Table

TABLE 3. 20 CPCB NOISE STANDARDS

Area Code	Category of Area	Limits [In Leq. dB (A)]	
		Day Time (6.00 AM–10.00 PM)	Night Time (10.00 PM–6.00 AM)
(A)	Industrial Area	75	70
(B)	Commercial Area	65	55
(C)	Residential Area	55	45
(D)	Silence Zone	50	40
1. Day Time is from 6.00 AM to 10.00 PM. 2. Nighttime is reckoned between 10.00 PM to 6.00 AM. 3. Silence zone is defined as an area up to 100m around premises of Hospitals, Educational Institutions and Courts. Use of vehicle horn, loudspeaker and bursting of crackers is banned in these zones. Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply.			
Source: Central Pollution Control Board Norms			

3.12.1 INTERPRETATON OF NOISE RESULTS

A) Day time Noise Levels Leq(day)

The daytime (Leqday) noise level is observed in project area to be 51.7 dB(A) which are within the prescribed limit of 75 dB(A) and in residential areas to be in the range of 49.5- 53.9 dB(A) which are within the prescribed limit of 55 dB(A). Whereas, in the revalidaite the baseline data has been done in 11 locations in which noise level maximum value observed 54.1 dB(A) in Urwariya Village and minimum value near Bharja village 36.5 dB(A) .

B) Night time Noise Levels Leq(night)

The nighttime (Leqnight) noise levels are observed in project area to be in the range of 42.8 dB(A) which are within the prescribed limit of 70 dB(A) and in residential areas to be in the range of 41.3 – 43.7 dB(A) which are not within the prescribed limit of 45 dB(A). Whereas, in the revalidaite

the baseline data has been done in 11 locations in which noise level maximum value observed 44.9 dB(A) in Hirawala Village and minimum value near Rohida (Vasa) village 33.9 dB(A).

From the above study and discussions, it can be concluded that noise levels in the study area are well within the standards as prescribed by the CPCB.

3.13 WATER ENVIRONMENT

Type of sampling

Grab sampling has been done as single sample collected at a specific spot and at a site over a short period of time, grab samples are taken at a single selected location, depth and time.

Sampling method

Sample were collected manually from various type of sampling location by method described below-

- Surface Water Resources - River
- Ground Water Resources (Tube Well, Open Well, Bore Well etc.)

3.13.1 SURFACE WATER QUALITY

Total of eight (8 Nos.) ground water and Two (2 Nos.) surface water samples were collected in summer season March to May 2023 and 11 nos of ground water and 4 nos surface water in March to May 2025 as grab samples and analysed for various parameters as per the procedures specified in "Standard.

Methods for the Examination of Water and Wastewater" published by the American Public Health Association (APHA). Different physico-chemical parameters of ground water during the study period were compared with standards at each monitoring station and shown in below table

TABLE 3. 21 SURFACE WATER ANALYSIS RESULTS (MARCH TO MAY 2023)

S. No.	Parameters	Unit	Test Method	SW-1	SW-2
1	pH	-	APHA (23rd Edition) 4500 H	8.05	7.16
2	Turbidity	NTU	APHA (23rd Edition) 2130	0.36	0.44
3	Total Hardness as CaCO3	mg/L	APHA (23rd Edition) 2340 C	160	152
4	Total Alkalinity as CaCO3	mg/L	APHA (23rd Edition) 2320	240	192
5	Chlorides as Cl	mg/L	APHA (23rd Edition) 4500 Cl- B	87.97	63.98
6	Sulphate as SO4	mg/L	APHA (23rd Edition) 4500 E	41.58	47.47
7	Nitrate as NO3	mg/L	APHA (23rd Edition) 4500 NO3-B	6.70	5.03
8	Fluoride as F	mg/L	APHA (23rd Edition) 4500 F D	1.0	0.97
9	BOD3Days at 27ºC	mg/L	IS 3025 (Part 44)	6	4
10	COD	mg/L	APHA (23rd Edition) 5220 B	23	15
11	Phenolic Compounds as C6H5OH	mg/L	APHA (23rd Edition) 5530C	< 0.001	< 0.001
12	Lead as Pb	mg/L	APHA (23rd Edition) 3111B	< 0.01	< 0.01
13	Iron as Fe	mg/L	APHA (23rd Edition) 3111B	0.03	< 0.01
14	Arsenic as As	mg/L	APHA (23rd Edition) 3114B	< 0.005	< 0.005

15	Cadmium as Cd	mg/L	APHA (23rd Edition) 3111B	< 0.003	< 0.003
16	Total Chromium as Cr	mg/L	APHA (23rd Edition) 3111B	< 0.01	< 0.01
17	Mercury as Hg	mg/L	APHA (23rd Edition) 3112B	< 0.001	< 0.001
18	Copper as Cu	mg/L	APHA (23rd Edition) 3111B	< 0.01	< 0.01
19	Zinc as Zn	mg/L	APHA (23rd Edition) 3111B	< 0.01	< 0.01
20	Selenium as Se	mg/L	APHA (23rd Edition) 3114B&C	< 0.01	< 0.01
21	Oil & grease	mg/L	APHA (23rd Edition) 5520 B	< 5.0	< 5.0
22	Colour	Hazen	APHA (23rd Edition) 2120B	< 1.0	< 1.0
23	Total Dissolved Solids	mg/L	APHA (23rd Edition) 2540 C	524	432
24	Residual Free Chlorine	mg/L	APHA (23rd Edition) 4500 Cl B	< 0.2	< 0.2
25	Boron as B	mg/L	APHA (23rd Edition) 4500B-B	< 0.10	< 0.10
26	Calcium as Ca	mg/L	APHA (23rd Edition) 3500 Ca B	35.20	44.80
27	Magnesium as Mg	mg/L	APHA (23rd Edition) 3500 Mg B	17.50	9.72
28	Dissolved Oxygen	mg/L	APHA (23rd Edition) 4500 DO C	2.4	2.6
29	Total Coliform	CFU/100ml	IS 15185	> 1500	> 1500
30	E. Coli	CFU/100ml	IS 15185	Absent	Absent

TABLE 3. 22 SURFACE WATER ANALYSIS RESULTS

Sl. No.	TESTS	Unit	PROTOCOL	Sukli River Upstream	Sukli River Down stream	Amthala (Banas River)	Dhanari (Banas River)	IS 2296 Class-C
1	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	7.36	7.42	7.61	7.68	6.0-9.0
2	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	20.00	40.00	15.00	20.00	300
3	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	600.80	657.45	436.74	539.23	-
4	Dissolved Oxygen as DO	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	5.70	5.40	6.20	5.60	4.0
5	Biological Oxygen Demand as BOD (mg/l) 5 days at 20 0C	mg/l	APHA, 24th Ed. : 2023, 5210A+ B	1.20	2.50	1.40	2.00	3.0
6	Chemical Oxygen Demand as COD	mg/l	APHA, 24th Ed. : 2023, 5220,A+ C	10.00	16.00	8.00	12.00	-
7	Total Suspended Solids as TSS	mg/l	APHA, 24th Ed. : 2023, 2540-D	13.20	19.40	14.90	13.60	-
8	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	390.52	427.34	283.88	350.50	1500
9	Oil & Grease as O & G	mg/l	APHA, 23rd Ed. 2017, 5520 A+D	<2.5	<2.5	<2.5	<2.5	-
10	Alkalinity as CaCO3	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	132.00	140.00	96.00	124.00	-
11	Total Hardness as CaCO3	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	148.00	164.00	108.00	132.00	-
12	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	38.40	41.60	25.60	28.80	-
13	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 143500 Mg A+B	12.64	14.58	10.69	14.58	-
14	Sodium as Na,	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	17.20	19.50	13.60	18.20	-
15	Potassium as K,	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1.30	1.50	1.23	1.34	-
16	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	28.00	32.00	18.00	20.00	600
17	Sulphate as SO4	mg/l	APHA, 24th Ed. : 2023, 4500-SO42- E	17.60	21.20	14.30	16.50	400
18	Nitrate Nitrogen as NO3	mg/l	APHA, 24th Ed. : 2023, 4500-NO32- E	5.11	6.32	5.69	6.10	50
19	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.52	0.54	0.42	0.37	1.5
20	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.12	0.17	0.25	0.18	0.50
21	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	<0.05	<0.05	<0.05	<0.05	1.5
22	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05	0.09	0.06	0.06	15
23	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	<0.05	<0.05	<0.05	<0.05	0.2
24	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	<0.05	<0.05	<0.05	<0.05	-
25	Phosphate as PO4	mg/l	APHA, 24th Ed. : 2023, 4500-P,A+B+D	<0.1	<0.1	<0.1	<0.1	-
26	Phenolic Compound as C6H5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	<0.005	<0.005	<0.005	<0.005	0.005
27	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	<0.02	<0.02	<0.02	<0.02	1.0

28	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	<0.5	<0.5	<0.5	<0.5	-
29	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	<0.001	<0.001	<0.001	<0.001	0.01
30	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	<0.001	<0.001	<0.001	<0.001	-
31	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	<0.01	<0.01	<0.01	<0.01	0.1
32	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	<0.1	<0.1	<0.1	<0.1	-
33	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	<0.05	<0.05	<0.05	<0.05	-
34	Total coliform	MPN/100 ml	IS15185:2016;RA:2021	110.00	147	90.00	110.00	5000

Observation:-

The results obtained for the collected samples during March to May 2023 indicate that the surface water quality was found to be well within the prescribed standard limit (Class C). The analysis results indicate that the pH of the surface water is in the range of 7.16 – 8.05. The TDS was found to be in the range of 432 - 524 Mg/l. Revalidate the sample was collected March to May 2025. The analysis results indicate that the pH of the surface water is in the range of 7.36 –7.68. The TDS was found to be in the range of 283.88-427.34 Mg/l.

Other parameters like Total Hardness as CaCO3 is in range of 152-160mg/L, Total Alkalinity is 192-240mg/L, Dissolve Oxygen is 2.4-2.6mg/L, E-Coli is absent. Other parameters Calcium as Ca, Magnesium as Mg, Chloride as Cl, Sulphate as SO4 and Fluoride were found in the permissible range. Revalidate the data for Total Hardness as CaCO3 is in range of 108-1604mg/L, Total Alkalinity is 96-140mg/L, Dissolve Oxygen is 5.40-6.20 mg/L. Other parameters Calcium as Ca, Magnesium as Mg, Chloride as Cl, Sulphate as SO4 and Fluoride were found in the permissible range. E coli is absent in the surface water samples.

Surface water quality was also analyzed for Iron, Aluminum, Boron, Phenolic Compounds, Anionic detergents, Zinc, Copper, Manganese, Lead, Selenium, Arsenic, Nickel, Mercury, Hexa Chromium etc. and were found below the detection limit.

As complaicne of Specific ToR point 1.9 River is not Seasonal, hence water quality parameters are not tested. However, during the rainy season, one sample was collected on near entry point pit no.12 and exit point of River through ML area.

3.13.2 GROUND WATER QUALITY

Ground water as well as potable water samples were collected from the available water resources around the mine site i.e. hand Pump and Bore wells. The samples were collected and tested from different sites. The quality of ground water was studied by collecting 8 water samples and 11 water samples. The water samples were collected from hand pumps/ borewell.

TABLE 3. 23 GROUND WATER ANALYSIS STUDY PERIOD: SUMMER SEASON (MARCH TO MAY, 2023)

S. No	Parameter	Units	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Acceptable Limit	Permissible Limit
1	Color	Hazen	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	5	15
2	pH	-	6.90	7.28	7.19	7.26	7.60	7.22	6.92	6.98	6.5-8.5	No Relaxation
3	Turbidity	NTU	0.14	0.18	0.16	0.15	0.14	0.15	0.16	0.17	1	5
4	Total Dissolved Solids	Mg/L	1,417	3,489	2,018	1623	798	869	3,102	1,067	500	2000
5	Electrical Conductivity	µS/cm	2,310	5,500	3,070	2,530	1,316	1,398	5,090	1,652	-	-
6	Aluminum as Al	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.03	0.2
7	Ammonia (as total ammonia-N)	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.5	No Relaxation
8	Anionic Detergents as MBAS	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	1.0
9	Barium as Ba	mg /L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.7	No Relaxation
10	Boron as B	mg /L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5	1.0
11	Calcium as Ca	mg /L	126.40	457.60	174.40	118.40	81.60	86.40	265.60	107.20	75	200
12	Chloramines	mg /L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	4.0	No Relaxation
13	Chloride as Cl	mg /L	385.88	1533.52	685.79	579.82	199.94	167.95	1,187.63	181.94	250	1000
14	Copper as Cu	mg /L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.05	1.5
15	Fluoride as F	mg /L	1.05	0.99	1.27	1.07	0.88	0.77	0.94	0.84	1.0	1.5
16	Free Residual Chlorine	mg /L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	1.0
17	Iron as Fe	mg /L	0.06	0.16	0.10	0.08	0.04	0.04	0.15	0.06	0.3	No Relaxation
18	Magnesium as Mg	mg /L	53.46	37.91	69.98	104.00	14.58	57.35	114.70	34.99	30	100
19	Manganese as Mn	mg /L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.1	0.3
20	Nitrate as NO3	mg /L	6.33	152.06	109.44	16.69	47.10	15.24	111.89	76.90	45	No Relaxation
21	Phenolic Compounds as C6H5OH	mg /L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.002
22	Selenium as Se	mg /L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	No Relaxation
23	Sulphate as SO4	mg /L	104.00	257.85	128.63	91.82	53.20	23.89	345.98	66.91	200	400

24	Total Alkalinity as CaCO3	mg /L	496	360	472	452	256	440	476	440	200	600
25	Total Hardness as CaCO3	mg /L	536	1300	724	724	264	452	1,136	412	200	600
26	Zinc as Zn	mg /L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	5	15
27	Cadmium as Cd	mg /L	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.003	No Relaxation
28	Lead as Pb	mg /L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.1	No Relaxation
29	Mercury as Hg	mg /L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	No Relaxation
30	Total Arsenic as As	mg /L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.05
31	Total Chromium as Cr	mg /L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.05	No Relaxation
32	Sulphide as S	mg /L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	No Relaxation
33	Nickel as Ni	mg /L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	No Relaxation

Source: Ground Water Analysis Report

BDL - Below Detectable Limit; DL - Detection Level;

Note: Ground water quality was also analyzed for Aluminum (DL 0.03), Boron (DL 0.20), Cyanide (DL 0.02), Phenolic Compounds (DL 0.001), Anionic Detergents as MBAS (DL 0.02), Chromium as Cr (DL 0.002), Hexa Chromium as Cr+6 (DL 0.03), Zinc (DL 0.0005), Copper (DL 0.02), Manganese (DL 0.01), Cadmium (DL 0.002), Lead (DL 0.008), Phosphate as PO4 (DL 0.02), Arsenic (DL 0.002), Mercury (DL 0.001), Nickel (DL 0.005), Total Suspended Solid (DL 1.0) Total Coliforms & E-coli etc. and were found below detection limit.

TABLE 3. 24 GROUND WATER ANALYSIS STUDY PERIOD: SUMMER SEASON (MARCH TO MAY, 2025)

Sl. No	TESTS	Unit	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	GW9	GW10	GW11	Desirable	Permissible
1.	Colour	Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5	15
2.	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	1.02	1.02	<1.0	1.08	1.15	1.01	<1.0	<1.05	<1.05	1.06	<1.0	1	5
5.	Electrical Conductivity	Us/cm	1987.6	1789.13	1202	1341	3836.0	2972.0	3130.0	1430.0	1569	4688.0	1446	-	-
6.	pH	-	7.15	7.06	7.57	7.55	7.21	7.24	7.20	7.49	7.49	7.45	7.05	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	1212.0	1091	733	818	2340.0	1813.0	1909.0	873.0	957	2860.0	882	500	2000
8.	Alkalinity as CaCO3	mg/l	416.0	316.0	236.0	280.0	732.0	616.0	528.0	260.0	284.0	420.0	272.0	200	600
9.	Total Hardness as CaCO3	mg/l	432.0	384.0	256.0	328.0	804.0	660.0	608.0	276.0	300.0	756.0	292.0	200	600
10.	Calcium as Ca	mg/l	110.4	88.0	64.00	84.80	227.20	172.80	139.20	72.00	72.00	203.20	81.60	75	200
11.	Magnesium as Mg	mg/l	37.91	39.85	23.33	28.19	57.35	55.40	63.18	23.33	29.16	60.26	21.38	30	100
12.	Sodium as Na	mg/l	79.60	62.30	48.50	34.10	168.30	98.70	164.20	73.60	73.60	324.20	66.90	-	-
13.	Potassium as K	mg/l	4.35	6.20	3.26	2.60	19.20	7.32	3.50	2.65	2.65	19.50	6.12	-	-
14.	Chloride as Cl	mg/l	108.00	120.00	60.00	68.00	224.00	168.00	234.00	102.00	116.00	588.00	90.00	250	1000
15.	Sulphate as SO4	mg/l	46.30	61.30	43.20	32.60	137.60	69.53	106.50	32.60	32.60	195.40	42.60	200	400
16.	Nitrate Nitrogen as NO3	mg/l	6.69	14.50	13.20	13.20	17.40	10.20	17.40	12.70	12.70	26.40	13.20	45	No Relax
17.	Fluoride as F	mg/l	1.23	0.76	0.71	0.46	0.53	0.51	0.63	0.72	0.72	0.42	0.34	1	1.5
18.	Iron as Fe	mg/l	0.11	0.26	0.12	0.12	0.19	0.23	0.20	0.19	0.19	0.18	0.16	1.0	No Relax
19.	Copper as Cu	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	0.03	0.06	0.06	0.08	0.10	0.05	0.06	0.11	0.11	0.07	0.05	5	15
22.	Arsenic as As	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	No Relax
24.	Phenolic Compound as C6H5OH	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.005

25.	Free Residual Chlorine as FRC	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	1
26.	Boron as B	mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.2
32.	Total coliform	Per100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
33.	E.coli	Per100m	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

3.13.2.1 RESULT AND CONCLUSION

The analysis results indicate that pH of the groundwater were found to be in range of 6.9 to 7.6. The TDS were found to be in the range of 798 - 3489 mg /l. Other parameters like Total Hardness as CaCO3 (264 to 1300 mg/l), Total Alkalinity (256 to 496 mg / l), Calcium as Ca (81.60 – 457.60 mg/l), Magnesium as Mg (14.58 – 114.70 mg/l), Chloride as Cl 167.95 – 1533.52 mg/l), Sulphate as SO4 (23.89 – 345.98 mg /l) and Fluoride as F- (0.77 – 1.27 mg /l). The samples was collected during Monsoon Season (March to May 2025). The analysis results indicate that pH of the groundwater were found to be in range of 7.05 to 7.57. The TDS were found to be in the range of 733 - 2860 mg /l. Other parameters like Total Hardness as CaCO3 (256 to 804 mg/l), Total Alkalinity (236 to 732 mg / l), Calcium as Ca (64.0–227.20 mg/l), Magnesium as Mg (21.38 –63.18 mg/l), Chloride as Cl (60-588 mg/l) and Fluoride as F- (0.34 – 1.23 mg /l).

Total Hardness, Alkalinity as CaCO3, TDS were found in higher range.

Other parameters excluding above were found within the prescribed limits in absence of alternate source. The water is portable for domestic purpose.

Conclusion

From the above study and discussions, it can be concluded that ground water quality in the study area is within the permissible limits as per the drinking water standards (IS: 10500-2012). Therefore, the ground water available within the study area is fit for consumption. Initially, the water requirement will br fulfilled from the Surafce water and later on from the developed mine sump; hence, no impacts in future are envisaged due to the proposed project and the baseline ground water Quality will be maintained.

3.13.3 LANGELIER'S SATURATION INDEX

The Langelier Index is defined as the difference between actual pH (measured) and calculated pHs. The magnitude and sign of the LI value show water's tendency to form or dissolve scale, and thus to inhibit or encourage corrosion.

CALCULATION OF LANGELIER SATURATION INDEX

The Langelier Index is defined as the difference between actual pH (measured) and calculated pHs. The magnitude and sign of the LI value show water's tendency to form or dissolve scale, and thus to inhibit or encourage corrosion.

For calculating LSI, it is necessary to know the

- Alkalinity (mg/l as CaCO3)
- Calcium hardness (mg/lCa2+ as CaCO3)
- The total dissolved solids (mg/l TDS)
- The actual pH
- The temperature of the water(°C)

Langelier Index (LSI) = pH – pHs

Where:

pH is the measured water pH

pHs is the pH at saturation in calcite or calcium carbonate and is defined as:

pHs = (9.3 + A + B) – (C + D)

Where:

A = (Log10 [TDS] – 1) / 10

B = -13.12 x Log10 (T + 273) + 34.55, Temperature, T in °C: 29°C

C = Log10 [Ca+2 as CaCO3] – 0.4

D = Log10 [alkalinity as CaCO3]

LSI Indication: -

- LSI<0, pHS>pHactual, water is not scale forming (aggressive), Water is undersaturated concerning calcium carbonate. Undersaturated water has a tendency to remove existing calcium carbonate protective coatings in pipelines and equipment.
- LSI=0, pHS = pHactual, water is balanced, Water is considered to be neutral. Neither scale-forming nor scale-removing.
- LSI>0, pHS<pHactual, water is scale forming (nonaggressive), Water is supersaturated with respect to calcium carbonate (CaCO3) and scale forming may occur.
- LSI Indication

  -2.0<-0.5 Serious corrosion

  -0.5<0 Slightly corrosion but non-scale forming

  LSI = 0,0 Balanced but pitting corrosion possible

  0.0<0.5 Slightly scale forming and corrosive 0.5<2

  Scale forming but noncorrosive

It is important to remember that the LI value is not a quantitative measure of calcium carbonate saturation or corrosion. Because the protective scale formation is dependent on pH, bicarbonate ion, calcium carbonate, dissolved solids, and temperature; each may affect the water's corrosive tendencies independently. Soft, low-alkalinity waters with either low or excessively high pH are corrosive, even though this may not be predicted by the LI. This is because insufficient amounts of calcium carbonate and alkalinity are available to form a protective scale. Waters with high pH values and sufficient hardness and alkalinity may also be corrosive, even if the LI predicts the opposite. This is the result of calcium and magnesium complexes that cannot actively participate in the scale- forming process. Analytical procedures do not distinguish between these complexes and available calcium and magnesium; therefore, the LI value is not accurate in such situations. Corrosive tendencies may also be exhibited by water containing high

concentrations of sulfate, chloride, and other ions which interfere with uniform carbonate film formation. As a result of these and other problems, the LI is useful only for determining the corrosivity of waters containing more than 40 mg/L of alkalinity, sufficient calcium ion concentration, and ranging between pH 6.5 and 9.5.

TABLE 3. 25 VALUES OF SATURATION INDEX WITH THEIR DESCRIPTION AND GENERAL DESCRIPTION

Saturation Index	Description	General Recommendation
-5	Severe Corrosion	Treatment Recommended
-3	Moderate Corrosion	Treatment Recommended
-2	Moderate Corrosion	Treatment May Be Needed
-1	Mild Corrosion	Treatment May Be Needed
-0.5	None- Mild Corrosion	Probably No Treatment
0	Near Balanced	No Treatment
0.5	Some Faint Coating	Probably No Treatment
1	Mild Scale Coating	Treatment May Be Needed
2	Mild to Moderate Coatings	Treatment May Be Needed
3	Moderate Scale Forming	Treatment Recommended
4	Severe Scale Forming	Treatment Recommended

TABLE 3. 26 CALCULATION OF LANGELIER SATURATION INDEX FOR VARIOUS WATER BODIES OR TYPES

S. No.	Details of Water sample	Sampling Period/Date	pH (measured)	pHs (Calculated)	LSI = pH – pHs	Interpretation
1	Taroongi (within the Lease Area)	March to May 2025	7.15	7.1	0.049	Slightly scale forming and corrosive.
2	Crusher Location		7.06	7.3	-0.24	Slightly corrosive but non-scale forming.
3	Near-Village (Bharja)		7.57	7.5	0.08	Slightly scale forming and corrosive.
4	Near-Village (Vatera)		7.55	7.3	0.22	Slightly scale forming and corrosive.
5	Rohida(Vasa)		7.21	6.7	0.55	Scale forming but non corrosive.
6	Near-Village (Rohida)		7.24	6.8	0.44	Slightly scale forming and corrosive.
7	Delder		7.20	7.0	0.23	Slightly scale forming and corrosive.

8	Wada		7.49	7.4	0.048	Slightly scale forming and corrosive.
9	Bhimana		7.49	7.4	0.073	Slightly scale forming and corrosive.
10	Urwariya		7.45	7.0	0.46	Slightly scale forming and corrosive.
11	Hirawala (within the Lease Area)		7.05	7.4	-0.32	Slightly corrosive but non-scale forming.
13	Sukli River	May to June 2025	7.36	7.9	-0.55	Slightly corrosive but non-scale forming.
14	Sukli River		7.42	7.9	-0.44	Slightly corrosive but non-scale forming.
15	Amthala (Banas River)		7.61	8.2	-0.59	Serious corrosion.
16	Dhanari (Banas River)		7.68	8.1	-0.37	Slightly corrosive but non-scale forming.

Total 11 nos of ground water samples and 4 nos of surface water samples was collected. Langelier Saturation Index study has been carried out for surface water & ground water in the study area. As per the study the water is Slightly scale forming and corrosive in ground water samples and Slightly corrosive but non-scale forming in surface water. The index is related to the deposition of a calcium carbonate film or scale; this covering an insulate pipes, boilers and other components of a system from contact with water. Information obtained from the Langelier Index can be useful in estimating water treatment requirements for low pressure boilers, cooling towers, water treatment plants as well as serving as a general indicator of the corrosivity of water.

3.14 SOIL ENVIRONMENT

It is essential to determine the potential of soil in the area and identify the current impacts, which may arise due to the mining. Accordingly, a study of assessment of the baseline soil quality has been carried out.

Data Generation: For studying soil profile of the region, sampling locations were selected to assess the existing soil conditions in and around the project area representing various land use conditions. The physical and chemical concentrations were determined. The samples were collected by ramming an auger into the soil up to a depth of 30 cm.

The present study of the soil profile establishes the baseline characteristics and this will help in future in identifying the incremental concentrations if any, due to the operation of project.

The sampling locations have been identified with the following objectives:

- To determine the baseline soil characteristics of the study area;
- To determine the impact of project on soil characteristics; and
- To determine the impact on soil more importantly with agriculture production point of view.

Soil sampling locations: Eight (8 Nos.) locations and revalidiate baseline 11 nos location within 10 km radius in & around project site were selected for soil sampling and analysis. At each location, soil samples were collected from the depth 30 cm below the surface and are homogenized. The homogenized samples were analyzed for physical and chemical characteristics.

The samples have been analyzed as per the established scientific methods for physico-chemical parameters.

TABLE 3. 27 SOIL QUALITY ANALYSIS RESULTS

Study Period: Summer Season (March to May, 2023)

No.	Parameters		Unit	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8
1	Colour		-	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
2	Texture		-	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay
3	Particle size Distributions	Sand	%	38	35	39	38	36	38	35	38
		Silt	%	30	31	25	28	30	30	31	29
		Clay	%	32	34	36	34	34	32	34	33
4	pH (1:5 Solution)		-	7.85	8.10	8.23	7.71	7.96	8.25	7.90	7.80
5	Electrical Conductivity		µS/cm.	210	243	289	250	203	277	228	183
6	Bulk Density		gm/cm3	1.45	1.40	1.53	1.43	1.39	1.46	1.52	1.41
7	Porosity		% v/v	29	25	26	27	31	28	26	24
8	Organic Carbon		%	< 0.50	0.56	0.61	0.56	< 0.50	0.73	0.62	< 0.50
9	Sodium (Na)		mg/100 gm	30.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
10	Potassium (K)		mg/100 gm	20.0	20.0	20.0	30.0	20.0	20.0	20.0	20.0
			Kg/ha	1450	1400	1530	2145	1390	1460	1520	1410
11	Moisture Content		%	7.8	7.1	6.5	7.9	6.8	7.9	8.2	6.4
12	Total Nitrogen		mg/100 gm	50.0	30.0	20.0	30.0	20.0	30.0	20.0	20.0
			Kg/ha	3625	2100	1530	2145	1390	2190	1520	1410
13	Available Phosphorous		kg/hectare	55.4	69.2	45.4	80.3	39.2	55.8	70.7	35.4
14	Organic Matter		%	0.83	0.97	1.05	0.96	0.74	1.25	1.07	0.65
15	Total Soluble Chloride		mg/kg	180	210	340	270	330	240	290	480
16	Total Soluble Sulphate		%	0.03	0.04	0.03	0.04	0.03	0.05	0.03	0.02
17	Water Holding Capacity		%	37	40	38	38	38	45	46	48

Source: Soil Quality Analysis Report

TABLE 3. 28 SOIL QUALITY ANALYSIS RESULTS

Study Period: Summer Season (March to May, 2025)

Sl. No.	Parameters	Unit	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	SW11
1.	pH (Ratio 1:5)	-	7.88	7.64	7.34	7.59	8.06	8.11	7.64	7.89	8.31	7.82	7.60
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	229.00	196.00	231.00	246.00	216.00	238.00	244.00	196.00	269.00	219.00	174.00
3.	Moisture	%	7.27	8.25	8.20	7.30	8.20	7.32	7.06	5.36	7.11	7.35	5.64
4.	Bulk Density	gm/cc	1.34	1.37	1.33	1.26	1.32	1.37	1.29	1.31	1.26	1.34	1.41
5.	Av. Potassium (K2O)	Kg/ha	0.019	0.026	0.012	0.024	0.021	0.021	0.036	0.021	0.026	0.026	0.021
6.	Av. Phosphorous (P2O5)	Kg/ha	52.50	29.50	34.60	26.50	64.50	39.50	86.50	34.20	52.40	75.40	34.50
7.	Available Nitrogen (N)	%	0.048	0.046	0.035	0.040	0.032	0.018	0.033	0.026	0.035	0.028	0.016
8.	Av. Calcium (Ca)	Kg/ha	0.520	0.440	0.400	0.051	0.400	0.520	0.480	0.500	0.510	0.540	0.550
9.	Av. Magnesium (Mg)	Kg/ha	132.00	104.00	96.00	80.00	116.00	84.00	108.00	104.00	80.00	112.00	124.00
10.	Organic Carbon	%	0.612	0.634	0.691	0.533	0.662	0.792	0.648	0.562	0.806	0.742	0.554
11.	Organic Matter	%	0.850	0.880	0.960	0.740	0.920	1.100	0.900	0.780	1.120	1.030	0.770
12.	Zinc (Zn)	mg/kg	2.340	1.340	2.500	2.130	1.200	0.890	0.990	1.020	0.880	0.840	1.010
13.	Iron (Fe2O3)	mg/kg	1.590	2.340	3.160	2.100	1.650	2.010	1.630	1.550	2.340	1.670	2.340
14.	Boron (B)	mg/kg	0.560	0.850	0.340	0.620	0.560	0.630	0.770	0.630	0.890	0.560	0.670
15.	Sulphate (SO4)	mg/kg	0.023	0.015	0.011	0.029	0.036	0.035	0.042	0.018	0.035	0.032	0.024
16.	Sodium (Na)	mg/kg	244.60	163.00	154.00	134.00	165.40	149.00	202.00	169.00	167.00	174.00	168.00
17.	Total Porosity	%	17.79	20.35	21.30	25.88	19.51	18.93	28.33	16.56	24.55	17.79	16.07
18.	Water Holding Capacity	%	13.52	15.47	16.19	19.67	14.83	14.39	21.53	12.59	18.66	13.52	12.21
19.	Sodium Absorption ratio (SAR)	%	4.53	3.40	3.34	3.19	3.27	3.46	4.13	3.52	3.97	3.50	3.21

20.	Cation Exchange capacity (CEC)	meq/100gm	21.04	18.32	17.12	17.96	17.02	20.97	19.07	20.17	19.62	20.80	21.54
21.													
A)	Textural Class	-	Silt Loam	Silt Loam	Silt Loam	Silt Loam	Silt Loam	Silt Loam	Silt Loam	Silt Loam	Silt Loam	Silt Loam	Silt Loam
B)	Sand	%	27.00	29.00	30.00	27.00	28.00	26.00	29.00	28.00	27.00	26.00	25.00
C)	Silt	%	46.00	48.00	49.00	50.00	51.00	48.00	47.00	46.00	49.00	48.00	47.00
D)	Clay	%	27.00	23.00	21.00	23.00	21.00	26.00	24.00	26.00	24.00	26.00	28.00

The physico-chemical soil Quality was compared and analyzed using the standard soil classification given by IARI.

TABLE 3. 29 STANDARD SOIL CLASSIFICATION

S. No.	Parameter	Classification
1.	pH	<4.5 extremely acidic 4.51 – 5.0 very strong acidic 5.01 – 5.5 strongly acidic 5.51 - 6.0 moderately acidic 6.1 – 6.5 slightly acidic Neutral 7.31-7.8 slightly alkaline 7.81-8.5 moderately alkaline 8.51 – 9.0 strongly alkaline >9.0 Very strongly alkaline
2.	Salinity Electrical Conductivity (mho/cm)	Up to 1.0 average 1-2 harmful to germination 2-3 harmful to crops
3.	Nitrogen (kg/ha)	Up to 50 very less 51-100 less 110-150 good 151-300 better >300 sufficient
4.	Phosphorus (kg/ha)	Up to 15 very less 15 – 30 less 31-50 medium 51-65 on average sufficient 66-80 sufficient >80 more than sufficient
5.	Potassium (kg/ha)	0-120 very less 120-180 less 180-240 medium 241-300 average 301-360 better >360 more than sufficient

Source: Indian Agricultural Research Institute Handbook

Observation

- The soil of the study area is of Silt loam depicts a fertile soil type having Brown Colour.
- pH of the soil samples of the study area is alkaline. They vary from 7.71 (Delder) to 8.25 (Bhimana) in March to May 2023 and 7.34 in Bharja Village to 8.31(Bhimana) in March to May 2025. These results show that all the soil samples are alkaline in nature.
- Organic Carbon: Organic Carbon values in the soil samples varies from lower <0.50 (Taroongi (within the Lease Area), Wada, Hirawala (within the Lease Area)) to higher 0.73 % (Bhimana) in March to May 2023 and 0.53 % (Vatera) to 0.80% (Bhimana) in March to May 2025. Perusal of the results reveals that the organic carbon is in low to medium range representing low to good soil fertility in the

study area.

3.15 BIOLOGICAL ENVIRONMENT

3.15.1 BACKGROUND

Study of the biological environment is one of the most important aspect of EIA. The extent of Natural forests and tree cover in Rajasthan is not adequate and a total of 2,7775.6 sq.km forests/tree cover area is recorded in the State from total Geographical area (3,42,239 sq.km) which is about 8.1% of the total state's geographical area (FSI 2023). District Sirohi having 17.50% forest from total Geographical area which as good compare to other district forest area of Rajasthan (FSI 2023). As per our LULC study of 10 km Buffer area there was 28232 Ha (30.1%) land found as forest area and in Mine lease area there are No Forest Land occurred in lease area however total 115.43 Ha green vegetation land and 21.0900 Ha Grazing /Charagah Land.

Sirohi forest division have 4 ranges i.e. (i) Sirohi, (ii) Sirodi (iii) Aburoad & (iv) Pindwara (Figure 1). District have total 68 forest blocks which are situated in South and South East direction. District Forest headquarter situated at Sirohi district. Sirohi district soil is 74.10% Sandy loam soils & 24.65% Clay loam soil. Reserved Forest Wada, Protected Forest Hirawala, Kivrali Ka Zor Reserved Forest, Reserved Forest Pipela, Reserved Forest Swarupganj, Nitaura Jor Reserved Forest & Mount Abu Wild Life Sanctuary are the forest found in 10 km buffer area.

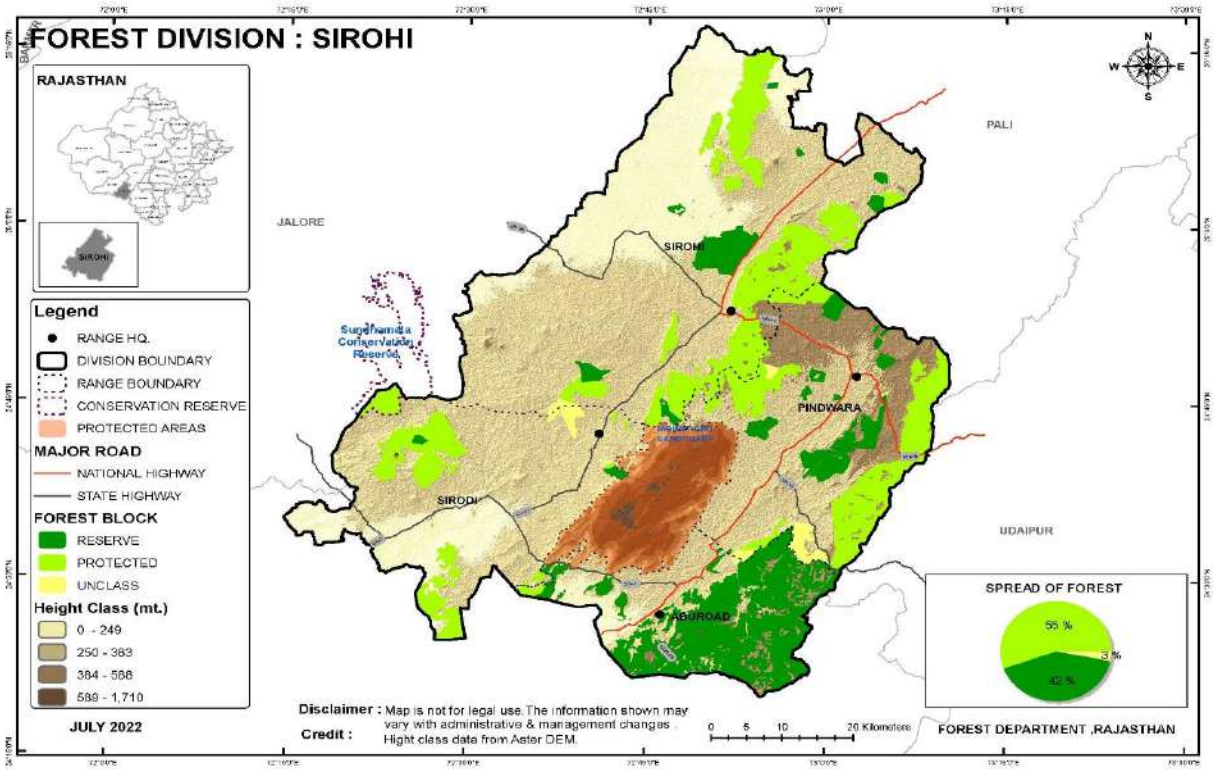


FIGURE 3. 17 FOREST DETAILS OF STUDY AREA

(Reference:https://forest.rajasthan.gov.in/content/dam/raj/forest/ForestDepartment/PDFs/rajasthandigitalmap/DIVISION%20SIROHI%20MAP%20WEBSITE%202022.pdf)

3.15.2 BIO-CLIMATIC FEATURES OF THE STUDY AREA

The National Agricultural Research Project (NARP) delineated agro climatic zones based on soil type, temperature, rainfall (agrometeorological characteristics) and geologic constraints. Rajasthan is divided into 5 agro-climatic zones. District Sirohi falls under the Two Agro-climatic Zones, Transitional plain of Luni basin & Sub - humid southern Plain. The area falls under climatic region " Semi-Arid Climatic Region " as per Köppen classification system. The district is classified into Agro-climatic / Ecological Zone by different agencies as given in Table 3.1.

TABLE 3. 30 AGRO-CLIMATIC/AGRO-ECOLOGICAL CLASSIFICATION OF STUDY AREA IN SIROHI DISTRICT

Agro Ecological Sub Region (ICAR)	Western Plain, Kachchh And Part Of Kathiawar Peninsula, Hot Arid Eco-Region (2.3)
Agro-Climatic Zone (Planning Commission)	Western Dry Region (Xiv), Central Plateau and Hills Region (VIII)
Agro Climatic Zone : National Agricultural Research Project (NARP)	Transitional Plain of Luni Basin Zone (RJ-4)
Climatic Region (Koppen's)	Semi-Arid Climatic Region
Bio-geographic Zone (Wildlife Institute of India)	4. Semi-Arid
Bio-geographic Province (Wildlife Institute of India)	4B. Semi-Arid - Gujarat Rajputana

Maize, Castor, Wheat, Ragi, Gram & Rapeseed mustard are the major crops cultivated in Sirohi District. The other major fruits and vegetables cultivated in this district are Lime, Mango, Aonla, Papaya, Okra, Tomato, Cabbage, Cauliflower, Brinjal, Pea, Potato, Garlic. Cattle, Buffaloes, Goat, Sheep, Horse, Cow, Pig & Camel are Livestock of the study area. Due to lack of major irrigation system, Canals, Tanks & other wells are used in irrigation purpose. The remaining part of the cultivated area depends on the monsoon.

3.15.3 METHODOLOGY

Scope

1. To assess the flora and fauna present in the Core (Proposed Mining Area) and Buffer zone (10 km radius from Proposed Mining Area).
2. To document flora and fauna species occurring in the core zone and buffer area
3. Phytosociological study of forests found in 10 Km Buffer area
4. Check the occurrence of species protected by specific legislation (Rare, endangered, critically endangered, endemic and vulnerable).
5. To identify designated location and features of ecological significance.

3.15.4 ACTIVITIES UNDERTAKEN DURING THE STUDY

The present study is based on field studies conducted during summer season (April 2025). The biotic environment is studied/investigated with respect to the following biotic components in the study area and at the project site

Flora survey

- Tree, shrub, herb species etc. identification
- Diversity of species
- Analysis of Rare-Endangered-Threatened flora

Fauna survey

- Documentation of Avian, Reptilian, Mammal and other faunal diversity
- Observations by direct and indirect evidences (Direct evidence- Sighting and hearing, Indirect evidence- Pug marks, nests and other signs)
- Analysis of Scheduled species

Habitat/microhabitat diversity in the project zone and surrounding areas.

3.15.5 SURVEY LIMITATION

This study records the evidence of flora and fauna present during the site visit and field survey. It does not record any floral or faunal species that may appear during other times of the year, and as such, were not evident at the time of visit. The report represents ecological status of the area during the particular period of the study.

Approach of the study

To assess the ecological issues and document flora and fauna associated with the project, following tasks were undertaken:

1. Preliminary site visit
2. Desk Study
3. Core zone (Proposed Mine Lease) and Buffer Zone Survey

Desk Study

The purpose of desk study is to identify habitats and species of local conservation value which may not have been present or apparent during the survey visit e.g. spring/monsoon periods. Desk study is also helpful in understanding the historical biodiversity and ecological status of the site. The desk study is carried out by literature survey and study of "Working plan of Sirohi Forest Division (Sirohi Forest Circle) 2012-2013 to 2021-2022 by Harlal Singh & SK Jain" in respect of ecology and biodiversity of the region. The information has been collected specific to the region and quoted in the report accordingly.

Habitat Survey

This survey involves collection of flora and fauna under various strategies which differed as per habit and habitat of concerned group of species.

3.15.6 FLORA

Project area has been explored during the field visit and documented as checklist of floral diversity of core and buffer zone. Plants have systematically identified and listed in field area however, photograph of unidentified vegetation from all kinds of habitats and vegetation's have been taken and followed standard herbarium techniques for identification (Jain & Rao 1977). The correct nomenclature has been provided after consulting large number of recent literature and different websites like GRIN, IPNI, ILDIS, The Plant List, Wikipedia, Tropicos, etc. RET Category of flora and fauna has been confirmed by Red Data Book IUCN checklist and Wildlife Protection Act, 1972 status. The structure and composition of vegetation / forest cover was studied by using Phytosociological methods. In each quadrat, Plants with more than 30 cm CBH at breast height (1.37 m) have been considered as tree species and all individuals with circumference ≥ 30 cm CBH at breast height (1.37 m) have been counted and measured for basal area (BA) calculation.

Field surveys were undertaken to analyze and estimate diversity, density, dominance and frequency of different members of plant population. Observations were made in the forest area as well as in non-forest areas by laying plots and adopting quadrat method. The quadrat method includes preparation of square sample plots or units for quantitative analysis of vegetation. The sample plot method given by Clements (1898), EIA Hand Book (ch.7, pp.44) was followed.

Co-existence and competition both are affected directly by number of individuals in the community. Therefore, it is essential to know the quantitative structure of the community. To characterize the community as a whole, certain derived parameters are used i.e. Density, Frequency Basal cover and IVI.

The Simpson Diversity Index (Simpson 1949) and Shannon diversity index (Shannon & Wiener 1963) gives a clear picture of community structure in quantitative terms. To summarize the above, following parameters were used during Floristic diversity and Phytosociological assessment:

1. Density, Frequency, Basal Cover, IVI
2. Diversity Index

a) Simpsons Index (D)
b) Shannon diversity index

To evaluate the floral composition of the area the following method were used:

The size of the quadrat was selected by species area curve method. By this way, successively higher quadrat sizes are taken till the number of species encountered becomes constant. For present survey 10 m x 10 m plots were selected for the study. Therefore, plot quadrat of 10 x 10 m were laid at selected sample site in

buffer zone. In each quadrat, all individuals with circumference ≥ 30 cm CBH at breast height (1.37 m) has been counted and measured for basal area (BA) calculation.

Frequency:

Frequency is the percentage of total quadrats containing at least one rooted individual of a given species.

$$\text{Frequency \%} = \frac{\text{Number of sampling unit in which a species occurred}}{\text{Total number of units studied}} \text{ x } 100$$

Density

Density is determined by the number of plants rooted within each quadrat. It is presented as individuals per ha in study.

$$\text{Density} = \frac{\text{Total number of individual}}{\text{Total number of quadrats studied}} \text{ x } 100$$

Shannon–Wiener Index (H') (Shannon & Wiener 1963) and Simpson's Index (C) (Simpson 1949) has been derived from the field data to observe the species composition and vegetation structure.

Dominance

Basal cover is taken as dominance citeria of a particular species in plant communities. Basal cover is determined as follows:

Dominance (Basal area) = π r2 (r = diameter /2)

Importance Value Index

The importance value, or the importance percentage, gives an overall estimate of the influence of importance of a plant species in the community. Count by given formula

IVI= relative frequency + Relative density + Relative dominance

Simpson's Diversity Index (Concentration of Dominance)

It considers, the number of species, the number of individuals of each species, and total number of individuals of all species

Simpson's Index (C) is calculated as follows:

$$C = \frac{\Sigma\, n_i (n_i-1)}{N (N-1)}$$

Where, C is the Simpson diversity index, ni is the number of individuals belonging to a species i, and i=1 to K. K is the total number of species N is the total number of individuals of all species.

Shannon-Wiener Index (Species Diversity)

This index represents the average degree of uncertainty in predicting to which particular species an individual chosen at random from a sample will belong to. This measure considers,

- The total number of individuals of all species.
- The number of individuals of every species.
- The proportion of individuals of each species in the total number of individuals of all species.

Shannon-Wiener Index (Shannon & Wiener 1963) is represented as follows:

$$H' = - \Sigma pi \log pi$$

Here, pi is the proportion of the total number of individuals that occur in the species i, i.e.(ni/N). ni is the number of individuals of a species i, and i = 1 to K. K is the total number of species. N is the total number of individuals of all species in the sample. The value of Shannon-Wiener Index varies from 0 to log K.

3.15.7 FAUNA AND AVIFAUNA

The assessment of wild fauna was made based on random sightings. For terrestrial and aquatic faunal study, we have identified birds, reptile, amphibians, fishes and animals by field guide. The secondary evidences were also recorded through calls, dung boles, scats, and spoors, rub signs, signs of debarking, drag mark etc. for identification of fauna. Bird field guides (eg. Grimmette et al. 2003) has been used for bird identification. For birds, actual counts at each sampling site were made, by walk through in a chosen one kilometer stretch of the site and the number of birds were directly counted and listed. Species list was prepared along with taxonomic position of each species.

3.15.7.1 SAMPLING STATIONS

In proposed project green area has been studied, whereas five forests out of six have been selected for phytosociological study. Therefore, sampling locations were strategically selected to collect the maximum data on vegetation pattern, faunal diversity and habitat diversity. The details of sampling locations are given in below table and the sampling locations are shown in below figure.

TABLE 3. 31 SAMPLING LOCATIONS FOR ECOLOGICAL STUDIES

Sr. No.	Location	Distance	Direction
E1	Core Zone (Mine Lease) of Green Area	-	-
E2	Protected Forest Hirawala in Buffer area	0.56	NE
E3	Reserved Forest Pipela in Buffer area	1.10	NW
E4	Mount Abu Wild Life Sanctuary in Buffer area.	5.47	NW
E5	Wada Reserve Forest	0.75	NE
E6	Forest Near Delder Village	3.86	NW

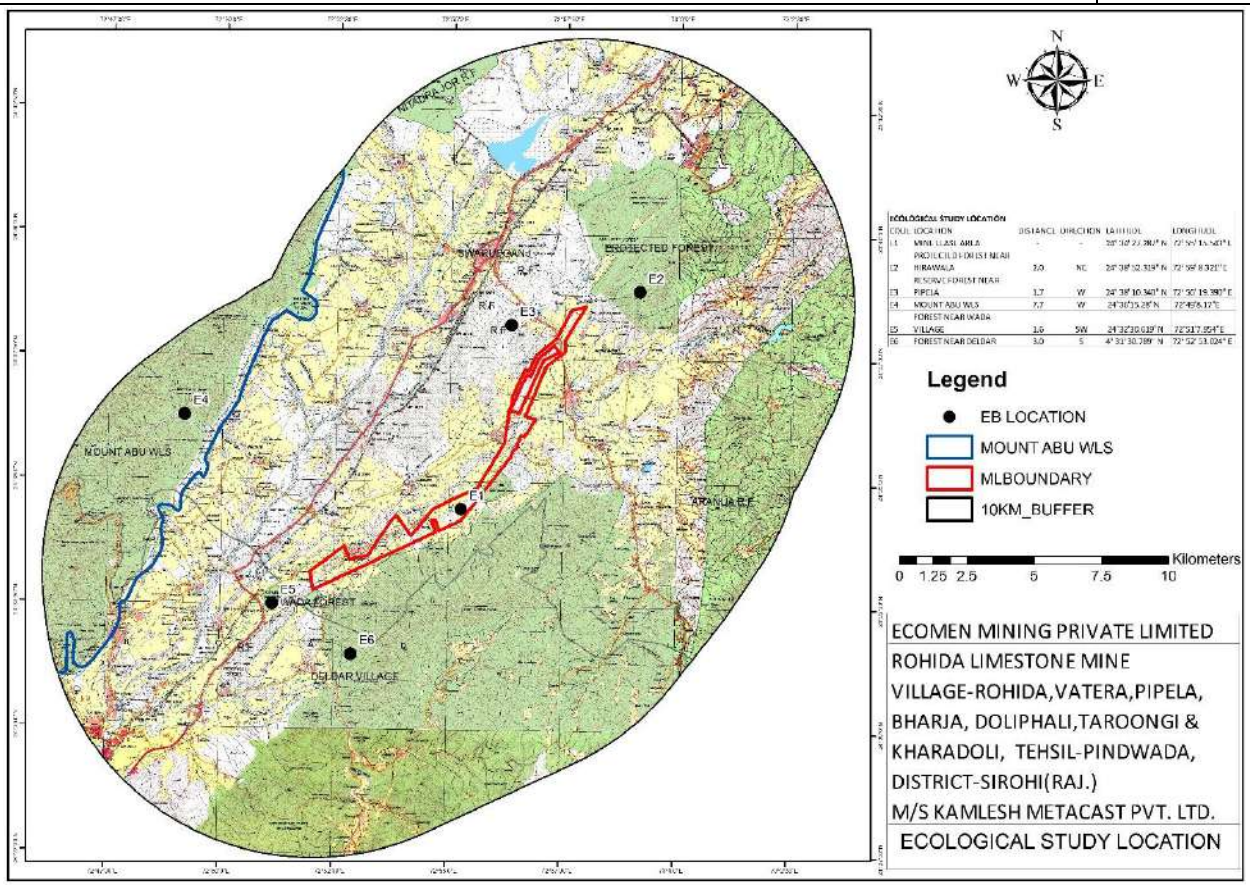


FIGURE 3. 18 SAMPLING LOCATIONS FOR ECOLOGICAL STUDIES

3.15.7.2 OBSERVATIONS

Observations are made for all possible habitats and flora-fauna species in and around the 10 Km radius of Mine Lease. All possible landscape features within core & buffer zone have been covered. The observations recorded are site, time and season specific. However, the actual observation data was supported by data obtained from secondary sources i.e. reports, research papers, literature survey etc.

The Project being a green field Mining project, the impact of the project can be multi fold and therefore the ecological richness and sensitivity of the locations have been examined critically.

3.15.7.3 HABITAT AND FOREST TYPE DIVERSITY

The division consists of 4 Ranges, viz; Sirohi forest division have 4 ranges i.e. (i) Sirohi, (ii) Sirodi (iii) Aburoad & (iv) Pindwara. Type of forest in an area is determined by several factors like climate, soil type, topography; elevation etc. forests are classified according to their nature and composition, the type of climate in which they thrive, and its relationship with the surrounding environment. A mixture of trees like

Acacia catechu, Acacia leucophloea, Acacia nilotica, Ailanthus excelsa, Anogeissus pendula, Azadirachta indica, Boswellia serrata, Butea monosperma, Dalbergia sissoo, and Terminalia arjuna occupies the area. Forests of study area are open, consisting of short trees, generally belonging to thorny leguminous species. The characteristic species include Prosopis sp, Acacia leucophloea, Acacia nilotica, Ziziphus spp., and Salvadora oleoides, have been widely planted in this region. Taleti blocks of Mount Abu Wildlife Sanctuary have higher biodiversity of the study area. Study area forests are highly degraded due to severe biotic pressure and occur in the form of scrub forests in most of the areas. Project study area does not involve any forests. But the nearby areas have two types of forests and subtypes

with their codes stated below, as per the revised classification of Indian Forests (Champion & Seth).

1. Northern Tropical dry deciduous forest (5)

a. Dry Teak bearing Forest (5A/C1)

b. Dry Sal bearing Forest (5A/C1)

c. Babool forest (5/E5)

d. Hardwickia forest (5/E4)

e. Boswellia forest (5/E2)

f. Acacia nilotica (Babool) forest (5/E3)

g. Butea forest (5/E5)

h. Anogeissus pendula forest (5/E1)

2. Tropical Thorn Scrub Forest

a. Ziziphus thorn scrub (6A/DS1)

b. Euohorbia scrub (6/E1)

c. Salvadora scrub (6/E4)

d. Dry grassland (5/DS4)

3.15.7.4 RESULTS

A: Core Zone

Core zone is existing Green area of Proposed Mine Lease Area.

Mine Lease (Core zone)

The core zone (Mine Lease) is studied for the following:

i. Flora checklist & Phytosociological study in proposed Mine Lease

ii. Fauna and Avifauna present in proposed Mine Lease

Proposed Mine Lease area (Core zone)

Project is Green field project where the Core Zone is Proposed Mine Lease.

FIGURE 3. 19 PHOTOGRAPHS SHOWING MINING LEASE AREA

3.15.8 QUANTITATIVE FLORISTIC DIVERSITY OF PROPOSED MINE LEASE AREA

As per the phytosociological study, Prosopis Juliflora, Acacia Leucophloea, Acacia Nilotica & Butea Monosperma are the dominant species of mine lease area having higher IVI Values. Total tree density was 444 tree ha-1 and total basal cover was 161.5 m2/ha. simpson index value was 0.37 and shannon diversity index was 1.31. photographs of phytosociological study are given in below plate. Phytosociological Study Details Are Given In below Table.

Phytosociological study in Mining Lease area

PLATE 3.1: PHOTOGRAPHS OF PHYTOSOCIOLOGICAL STUDY

TABLE 3. 32 PHYTOSOCIOLOGICAL STUDY DETAILS OF STUDY AREA

SN	Species	Freq-uency	Den-sity (h-1)	Basal area (m2/h)	IVI	Simpson Index	Shannon Index
1	Acacia catechu	8	8	6.9	9.6	0.37	1.31
2	Acacia leucophloea	60	72	23.1	57.3		
3	Acacia nilotica	32	36	13.9	31.0		
4	Anogeissus latifolia	8	8	0.9	5.9		
5	Butea monosperma	24	28	12.3	24.6		
6	Dalbergia sissoo	4	4	0.3	2.9		
7	Prosopis juliflora	88	288	104.3	168.7		
	Total	224	444	161.5	300		

Prosopis juliflora, Acacia leucophloea, Acacia nilotica & Acacia catechu are the species which will be cut during mining activity. As per the PFR report total excavation area will be 121.96 Ha from which 6.53 ha is already excavated. Therefore, total 115.43 Ha area will be disturbed after mining. As per phytosociological study species density of Prosopis juliflora (288 ha-1), Acacia leucophloea (72 ha-1), Acacia nilotica (36 ha-1) & Acacia catechu (8 ha-1). Therefore, total 46634 no. of trees to be cut from which Prosopis juliflora (33,244), Acacia leucophloea (8311), Acacia nilotica (4155) & Acacia catechu (923).

3.15.9 QUALITATIVE FLORAL DIVERSITY IN MINE LEASE

Total 11 tree species, 8 shrubs, 7 Herbs & Grasses species were found in core zone. Mine Lease area and listed below in below table.

TABLE 3. 33 PLANT CHECKLIST OF CORE ZONE AREA (PROPOSED MINE LEASE)

S.No.	Scientific Name	Local Name	Family
Trees			
1	Acacia catechu	Khair	Mimosaceae

2	Acacia leucophloea	Ronj	Mimosaceae
3	Acacia nilotica	Desi Babool	Mimosaceae
4	Anogeissus latifolia	Dhavda	Combretaceae
5	Anogeissus pendula	Dhonk	Combretaceae
6	Bridelia retusa	Kalia-Dhav	Combretaceae
7	Buchanania lanzan	Chironji	Anacardiacea
8	Butea monosperma	Dhak	Fabaceae
9	Cassia fistula	Amaltash	Caesalpiniaceae
10	Dalbergia sissoo	Shisham	Fabaceae
11	Prosopis Juliflora	Vilayti Babool	Mimosaceae
Shrubs			
1	Balanites aegyptiaca	Hingot	Simaroubaceae
2	Calligonumpolygonides	Phog	Polygonaceae
3	Calotropis gigantea	Safed Aak	Asclepiadaceae
4	Calotropis procera	Aak	Asclepiadaceae
5	Diclipteraabuensis	-	Acanthaceae
6	Dichrostachys cineraria	Aminda	Mimosaceae
7	Euphorbia nivulia	Thor	Euphorbiaceae
8	Helicteresisora	Marodphali	Sterculiaceae
Herbs			
1	Argemone Mexicana	Satyanashi	Papaveraceae
2	Cassia tora	Panwad	Caesalpiniaceae
3	Datura matel	Dhatura	Solanaceae
4	Tribulus terrestris	Gokharu	Zygophyllaceae
5	Convolvulus blatteri	-	Convolvulaceae
6	Ceropegia odorata	-	Apocynaceae
7	Begonia trichocarpa	-	Begoniaceae

3.15.10 FAUNAL DIVERSITY IN MINE LEASE

The Core Zone Mine Lease Area is a Fellow land, agriculture & grazing land. Avifauna are present due to scattered plants however Mammals, Reptiles & Amphibians are very low. The Faunal diversity is limited in Mine lease area compare to buffer area. Based on primary source, the Fauna diversity observed in core zone is given in below table.

TABLE 3. 34 FAUNA DIVERSITY IN PROPOSED MINE LEASE

S.No.	Common Name	Scientific Name	Family	Status as per (IWPA 2022), Schedule
Avifauna				
1	Rock Pigeon	Columba livia	Columbidae	-
2	House crow	Corvus splendens	Corvidae	-
3	Black drongo	Dicrurusmacrocercus	Dicruridae	II
4	Indian robin	Saxicolo idedfulicata	urdinae	II
5	Common myna	Acridotheres tristis	Sturnidae	II
6	Red-vented	Pycnonotus cafer	Pycnonotidae	II
7	Large grey babbler	Turdoidesmalcolmi	Timaliinae	II

8	Jungle babbler	Turdoides striatus	Timaliinae	II
9	Purple sunbird	Nectarinia asiatica	Nectariniidae	II
10	House sparrow	Passer domesticus	Passerinae	II
11	Red-wattled lapwing	Vanellus cinereus	Charadriidae	II
12	Baya weaver	Ploceus philippinus	Ploceidae	II
Animals				
1	Five stripped palm squirrel	Funambuluspennantii	Sciuridae	-
2	Common House rat	Rattus rattus	Muridae	-
Reptiles				
1	Common House Gecko	Hemidactylus frenatus	Gekkonidae	-
2	Oriental Garden Lizard	Calotes versicolor	Agamidae	-
3	Bengal Monitor Lizard	Varanus benglensis	Varanidae	I

(Primary Source)

3.15.11 QUANTITATIVE FLORISTIC DIVERSITY OF BUFFER ZONE

The study area for Buffer zone is 10km radius of Mine Lease boundary. Buffer zone is mostly covered with undulated hilly terrain altitude. 10 Km Buffer area is combination of plain & sand mounds, Human settlement, Commercial setup, Agriculture and Barren land and forest area. Vegetation Covered with trees most of which are scattered thorny trees. In buffer zone area following forest have been studied for Phytosociological study by 10 x 10 m2 quadrat. Three Forests of are found in the study area, which have been selected for study i.e. (i) Protected Forest Hirawala (ii) Reserved Forest Pipela & (iii) Mount Abu Wild Life Sanctuary.

As per study and information available with Range Forest Office, Pindwara Forest Division, Mount Abu Wild Life Sanctuary is found in 10 km buffer area No National Parks, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves (existing as well as proposed) found within 10 km of the Project area.

The quantitative characteristics of various three studied areas are given below RF within buffer zone. Frequency, density, dominance and IVI along with stand diversity indices are given for tree vegetation in belowTable.

A.Protected Forest Hirawala

As per the phytosociological study, Prosopis juliflora, Anogeissus latifolia, Acacia nilotica, Acacia leucophloea & Butea monosperma are the dominant species of Protected Forest Hirawala area having higher IVI values. Total tree density was 780 tree ha-1 and total basal cover was 228.96 m2/ha. Simpson index value was 0.37 and Shannon diversity index was 1.34. Photographs of phytosociological study are given in below Plate. Phytosociological study details are given in below table.

Phytosociological study in Protected Forest Hirawala

PLATE 3.2: PHOTOGRAPHS OF PHYTOSOCIOLOGICAL STUDY OF PROTECTED FOREST HIRAWALA

TABLE 3. 35 PHYTOSOCIOLOGICAL STUDY DETAILS OF PROTECTED FOREST HIRAWALA

SN	Species	Frequ-ency	Densit-y (h-1)	Basal area (m2/h)	IVI	Sim-pson Index	Shan-non Index
1	Acacia catechu	20	30	17.15	19.668	0.37	1.34
2	Acacia leucophloea	30	50	17.76	26.666		
3	Acacia nilotica	30	40	24.66	28.398		
4	Anogeissus latifolia	30	50	22.16	28.589		
5	Butea monosperma	30	30	11.55	21.392		
6	Prosopis juliflora	100	580	135.68	175.29		
	Total	240	780	228.96	300		

B. Reserved Forest Pipela

As per the phytosociological study, Prosopis juliflora, Acacia leucophloea & Butea monosperma are the dominant species of Reserved Forest Pipela area having higher IVI values. Total tree density was 1080 tree ha-1 and total basal cover was 293.27 m2/ha. Simpson index value was 0.36 and Shannon diversity index was 1.28. Photographs of phytosociological study are given in Plate 3.3. Phytosociological study details are given in Table 3.7.

Phytosociological study in Reserved Forest Pipela

PLATE 3.3: PHOTOGRAPHS OF PHYTOSOCIOLOGICAL STUDY OF RESERVED FOREST PIPELA

TABLE 3. 36 PHYTOSOCIOLOGICAL STUDY DETAILS OF RESERVED FOREST PIPELA

SN	Species	Freq-uency	Density (h-1)	Basal area (m2/h)	IVI	Sim-pson Index	Shan-non Index
1	Acacia catechu	30	30	17.15	19.34	0.36	1.28
2	Acacia leucophloea	50	80	47.76	41.55		
3	Acacia nilotica	40	60	44.66	35.07		
4	Prosopis juliflora	100	830	162.16	167.86		
5	Butea monosperma	60	80	21.55	36.18		
	Total	280	1080	293.27	300		

C. MOUNT ABU WILD LIFE SANCTUARY

As per the phytosociological study, Anogeissus latifolia, Anogeissus pendula, Butea monosperma, Pongamia pinnata, Grewia asiatica & Aegle marmelosare the dominant species of C.Mount Abu Wild Life Sanctuary area having higher IVI values. Total tree density was 990 tree ha-1 and total basal cover was 479.95 m2/ha. Simpson index value was 0.045 and Shannon diversity index was 3.16. Photographs of phytosociological study are given in below Plate. Phytosociological study details are given in below table.

Phytosociological study in Mount Abu Wildlife Sanctuary

PLATE 3.4: PHOTOGRAPHS OF PHYTOSOCIOLOGICAL STUDY MOUNT ABU WILDLIFE SANCTUARY

TABLE 3. 37 PHYTOSOCIOLOGICAL STUDY DETAILS OF MOUNT ABU WILDLIFE SANCTUARY

SN	Species	Freq -uency	Density (h-1)	Basal area (m2/h)	IVI	Sim-pson Index	Shan -non Index
1	Acacia catechu	20	20	7.15	6.07	0.045	3.16
2	Acacia leucophloea	20	20	7.76	6.20		
3	Acacia nilotica	20	30	9.66	7.61		
4	Adina cordifolia	30	40	9.76	9.92		
5	Aegle marmelos	50	60	10.55	14.67		
6	Ailanthus excels	30	30	11.68	9.31		
7	Albizia procera	30	30	19.41	10.93		
8	Anogeissus latifolia	50	100	51.50	27.25		
9	Anogeissus pendula	50	90	40.70	23.99		
10	Bauhinia purpurea	10	20	25.25	8.57		
11	Bombax ceiba	30	40	26.56	13.43		
12	Bridelia retusa	10	20	4.66	4.27		
13	Buchanania lanzan	10	10	5.59	3.46		
14	Butea monosperma	60	80	21.55	20.27		
15	Cassia fistula	30	30	11.68	9.31		
16	Dalbergia sissoo	20	20	9.41	6.55		
17	Emblica officinalis	30	50	10.50	11.09		
18	Erythrina arborescens	10	10	9.70	4.32		
19	Eucalyptus species	30	30	17.15	10.45		
20	Ficus bengalensis	20	20	17.56	8.25		
21	Grewia asiatica	60	60	24.66	18.90		
22	Holoptelea integrifolia	30	40	22.16	12.51		
23	Mallotus philippensis	30	30	11.55	9.29		
24	Mitragyna parvifolia	20	20	21.68	9.11		
25	Pongamia pinnata	50	50	39.41	19.68		
26	Tamarindus indica	10	10	11.50	4.69		
27	Tectona grandis	20	30	20.70	9.91		
	Total	780	990	479.45	300.00		

Source: Primary Survey

D.RESERVED FOREST WADA

As per the phytosociological study, Prosopis juliflora is dominant species whereas Acacia leucophloea & Acacia nilotica are codominant species of Reserved Forest Wada. Total tree density was 610 tree ha-1 and total basal cover was 76.13 m2/ha. Simpson index value was 0.26 and Shannon diversity index was 1.51 Photographs of phytosociological study are given in below Plate. Phytosociological study details are given in below Table.

Phytosociological study in Reserved Forest Wada

PLATE 3.5: PHOTOGRAPHS OF PHYTOSOCIOLOGICAL STUDY OF RESERVED FOREST WADA

TABLE 3. 38 PHYTOSOCIOLOGICAL STUDY DETAILS OF RESERVED FOREST WADA

SN	Species	Freq-uency	Den-sity (h-1)	Basal area (m2/h)	IVI	Sim-pson Index	Shan-non Index
1	Acacia catechu	30	30	3.1	16.0	0.26	1.51
2	Acacia leucophloea	70	200	27.8	85.5		
3	Acacia nilotica	50	90	12.7	43.0		
4	Anogeissus latifolia	20	20	1.2	9.5		
5	Butea monosperma	40	60	10.7	33.2		
6	Prosopis juliflora	220	210	20.7	112.8		
	Total	430	610	76.13	300.0		

E.FOREST NEAR DELDER VILLAGE

As per the phytosociological study, Acacia leucophloea, Butea monosperma & Anogeissus latifolia are the dominant species of Forest near Delder Village area having higher IVI values. Total tree density was 530 tree ha-1 and total basal cover was 110.29 m2/ha. Simpson index value was 0.36 and Shannon diversity index was 1.28. Photographs of phytosociological study are given in Plate 3.6. Phytosociological study details are given in Table 3.10.

Phytosociological study in near Delder Village Forest area

PLATE 3.6: PHOTOGRAPHS OF PHYTOSOCIOLOGICAL STUDY OF NEAR DELDER VILLAGE FOREST AREA

TABLE 3. 39 PHYTOSOCIOLOGICAL STUDY DETAILS OF NEAR DELDER VILLAGE FOREST AREA

SN	Species	Freq-uency	Density (h-1)	Basal area (m2/h)	IVI	Sim-pson Index	Shan -non Index
1	Acacia catechu	30	30	7.15	19.49	0.13	2.16
2	Acacia leucophloea	70	120	27.76	64.73		
3	Acacia nilotica	40	60	12.66	32.53		
4	Adina cordifolia	30	40	5.76	20.15		
5	Ailanthus excels	20	20	1.08	9.73		
6	Anogeissus latifolia	50	80	11.50	37.78		
7	Bauhinia purpurea	20	20	3.25	11.65		
8	Butea monosperma	60	70	21.55	47.30		
9	Prosopis juliflora	50	60	11.68	34.17		
10	Emblica officinalis	30	30	10.50	22.46		
	Total	400	530	110.29	300		

3.15.12 QUALITATIVE CHARACTERISTICS OF FLORISTIC DIVERSITY OBSERVED IN BUFFER AREA

Plantation of Prosopis juliflora distributed surrounding the villages etc. The study area vegetation dominated by thorny species. About 52 trees, 21 shrubs and 13 herbs, and 7 grasses, species were recorded (Table 3.11). Study area vegetation photographs are given in Plate 3.5.

TABLE 3. 40 FLORISTIC DIVERSITY OBSERVED IN BUFFER ZONE OF PROJECT AREA (BASED ON PRIMARY & SECONDARY DATE)

S.No.	Scientific Name	Local Name	Family
Trees			
1.	Acacia catechu	Khair	Mimosaceae
2.	Acacia leucophloea	Ronj	Mimosaceae
3.	Acacia nilotica	Desi Babool	Mimosaceae
4.	Aegle marmelos	Beal	Rutaceae
5.	Ailanthus excels	Ardu	Simarubaceae
6.	Albizia lebbeck	Kala siris	Misosaceae
7.	Albizia procera	Safed siris	Mimosaceae
8.	Anogeissus latifolia	Dhavda	Combretaceae
9.	Anogeissus pendula	Dhonk	Combretaceae
10.	Anogeissus sericea	-	Combretaceae
11.	Adina cordifolia	Haldu	Rubiaceae
12.	Azadirachta indica	Neem	Meliaceae

13.	Bauhinia purpurea	Kanchnar	Caesalpiniaceae
14.	Bombax ceiba	Semal	Bombacaceae
15.	Bridelia retusa	Kalia-Dhav	Combretaceae
16.	Buchananialanzan	Chironji	Anacardiaceae
17.	Butea monosperma	Dhak	
18.	Cassia fistula	Amaltash	Caesalpiniaceae
19.	Dalbergia sissoo	Shisham	Fabaceae
20.	Diospyros cordifolia	-	Ebenaceae
21.	Emblica officinalis	Amla	Phyllanthaceae
22.	Eucalyptus species	Safeda	Myrtaceae
23.	Erythrina arborescens	Phaludra	Papilionaceae
24.	Erythrina sp.	Phaludra	Papilionaceae
25.	Ficus bengalensis	Bad	Moraceae
26.	Ficus religiosa	Pipal	Moraceae
27.	Grewia asiatica	Phalsa	Malvaceae
28.	Holoptelea integrifolia	Papadi	Ulmaceae
29.	Mangifera indica	Mango	Anacardiaceae
30.	Mallotus philippensis	Rohini	Euphorbiaceae
31.	Mimusopselengi	Molshree	Sapotaceae
32.	Mitragynaparvifolia	Kadam	Rubiaceae
33.	Morus alba	Sehtoot	Moraceae
34.	Moringa concanensis	Sehjan	Moringaceae
35.	Morinda tinctoria	Indian Mulberry	Rubiaceae
36.	Pithecellobium dulce	Jungle jalebi	Mimosaceae
37.	Pheonix sylvestris	Khajur	Arecaceae
38.	Polyalthia longifolia.	Ashok	Anonaceae
39.	Pongamia pinnata	Karanj	Fabaceae
40.	Salvadora oleoides	Khara jal	Salvadoraceae
41.	Sapindus emarginatus	Notched leaf soapnut	Sapindaceae
42.	Salvadora persica	Mitha Jal	Salvadoraceae
43.	Schleichera oleosa	Kusum	Sapindeceae
44.	Sterculia urens	Karaiya	Sterculiaceae
45.	Syzygiumcumini	Jamun	Myrtaceae
46.	Tamarindus indica	Imali	Caesalpiniaceae
47.	Tectona grandis	Teak	Lamiaceae
48.	Terminalia arjuna	Arjuna	Combretaceae
49.	Terminalia bellerica	Bahera	Combretaceae
50.	Terminalia tomentosa	Asan	Combretaceae
51.	Ziziphus xylopyrus	Ber	Rhamnaceae
52.	Ziziphus mauritiana	Ber	Rhamnaceae
Shrubs			
1.	Balanites aegyptiaca	Hingot	Simaroubaceae
2.	Calligonumpolygonides	Phog	Polygonaceae
3.	Calotropis gigantean	Safed Aak	Asclepiadaceae
4.	Calotropis procera	Aak	Asclepiadaceae
5.	Capparis decidua	Kair/Kareel	Capparaceae
6.	Carissa carrandus	Karunda	Apocynaceae
7.	Crotalaria filipes	Creeping hemp	Fabaceae
8.	Diclipteraabuensis		Acanthaceae
9.	Dichrostachys cineraria	Aminda	Mimosaceae
10.	Euphorbia nivulia	Thor	Euphorbiaceae

11.	Helicteresisora	Marodphali	Sterculiaceae
12.	Ipomoea fistulosa	Besharm	Convolvulaceae
13.	Leptadeniapyrotechnica	Khimp	Asclepiadaceae
14.	Nerium oleander	Kaner-Red	Apocynaceae
15.	Nyctanthes arbortristis	Harsringar	Oleaceae
16.	Opuntia dillenii	Nagphani	Cactaceae
17.	Prosopis juliflora	Vilayatibabool	Mimosaceae
18.	Rosa involucrate	-	Rosaceae
19.	Strobilanthes callosus	-	Acanthaceae
20.	Ziziphus mauritiana	Bor	Rhamnaceae
21.	Ziziphus numularia	Jhadiber	Rhamnaceae
Herbs			
1.	Aerva javanica	Bui	Amaranthaceae
2.	Aloe vera	Guarbhata	Liliaceae
3.	Argemone Mexicana	Satyanashi	Papaveraceae
4.	Cassia tora	Panwad	Caesalpiniaceae
5.	Datura matel	Dhatura	Solanaceae
6.	Dodonea viscose	Reliya	Sapindaceae
7.	Echinopsechinatus	Unthkanteli	Asteraceae
8.	Tribulus terrestris	Gokharu	Zygophyllaceae
9.	Convolvulus blatteri	-	Convolvulaceae
10.	Ceropegia odorata	-	Apocynaceae
11.	Begonia trichocarpa	-	Begoniaceae
12.	Crotalaria filipes	-	Fabaceae
13.	Indigofera constricta	-	Fabaceae
Grassess			
1.	Apluda mutica	Polad	Poaceae
2.	Desmostachyabipinnata	Daab	Poaceae
3.	Cenchrus biflorus	Bharbhurat	Poaceae
4.	Cenchrus setigerus Vahl	Dhaman	Poaceae
5.	Cynodondactylon	Doob	Poaceae
6.	Ischaemum kingie	-	Poaceae
7.	Saccharum munja	Munj.	Poaceae
8.	Dactylocteniumaegypticum	Makda	Poaceae
9.	Saccharum spontaneum	Kaans	Poaceae

(Source: Primary data of Field study & Secondary sources)

Ficus bengalensis

Dalbergia sissoo

Ficus religiosa	Prosopis juliflora
Albizia lebbeck	Azadirachta indica
Pithecellobium dulce	Aegle marmelos

Acacia nilotica

Anogeissus pendula

Acacia catechu

Bauhinia purpurea

Butea monosperma

Syzygium cumini

Bombax ceiba

Schleichera oleosa

Mitragyna parvifolia

Anogeissus latifolia

Tectona grandis

Mallotus philippensis

Pheonix sylvestris

Indigofera constricta	Calotropis procera

PLATE 3.7 STUDY AREA VEGETATION PHOTOGRAPHS

The major Rabi corps of Sirohi district are Wheat, Gram, and Mustard. The main Kharif crops are the cotton, soybean, Pigeon pea, Sorghum, Greengram and Blackgram

Gossypium hirsutum (Cotton), Cajanas cajan (Arhar) & Glycine max (Soyabean) are the major Agricultural Crops of the study area.

Allium cepa (Pyaj), Allium sativum (Lahsun), Brassica oleracea (Gobhi), Capsicum annum (Mirchi), Raphanus sativus (Muli), Solanum lycopersicum (Tamater), Solanum tuberosum (Aalu) are the major Vegetable Crops of the study area.

Ziziphus mauritiana (Ber), Mangifera indica (Aam), Tamarindus indicus (Imali), Musa acuminate (Kela), Psidium guajava m & Annona reticulate (Ramphal) are the major fruit trees of the study area.

3.15.13 FAUNAL DIVERSITY IN BUFFER ZONE

Mount Abu Wild Life Sanctuary and many RF Forest are found in WCP area therefore rich biodiversity of Avifauna, Mammals and reptiles have been found in the area. Based on Secondary data & limited primary survey, the fauna and avi-fauna present in the WCP area or study area is given in below table.

TABLE 3. 41 FAUNA DIVERSITY IN BUFFER ZONE (BASED ON PRIMARY & SECONDARY DATA SOURCE)

S.No.	Common Name	Scientific Name	Family	Status as per (IWPA 2022), Schedule
AVIFAUNA				
1	Ashy Prinia	Prinia socialis	Cisticolidae	II
2	Plain Prinia	Prinia inornata	Cisticolidae	II
3	Brown Rock Chat	Oenanthe fusca	Muscicapidae	II
4	Common Tailorbird	Orthotomus sutorius	Cisticolidae	II
5	Red-vented Bulbul	Pycnonotus cafer	Pycnonotidae	II

6	Red-whiskered Bulbul	Pycnonotus jocosus	Pycnonotidae	II
7	Rufous Treepie	Dendrocitta vagabunda	Corvidae	II
8	Red-wattled lapwing	Vanellus cinereus	Charadriidae	II
9	Baya weaver	Ploceus philippinus	Ploceidae	II
10	Grey francolin	Francolinus pondicerianus	Phasianidae	II
11	Common hoopoe	Upupa epops	Upupidae	II
12	Indian Roller	Coracias benghalensis	Coraciidae	II
13	White-throated kingfisher	Halcyon smyrnensis	Alcedinidae	II
14	Asian Green bee-eater	Merops orientalis	Meropidae	II
15	Lesser coucal	Centropus bengalensis	Cuculidae	II
16	Rose-ringed parakeet	Psittacula krameri	Psittacidae	II
17	Plum-headed Parakeet	Psittacula cyanocephala	Psittaculidae	II
18	House swift	Apus affinis	Apodidae	II
19	Rock Pigeon	Columba livia	Columbidae	-
20	Laughing dove	Streptopelia senegalensis	Columbidae	II
21	Eurasian Collared dove	Streptopelia decaocto	Columbidae	II
22	Red Collared dove	Streptopelia tranquebarica	Columbidae	II
23	Long-tailed shrike	Lanius schach	Laniidae	II
24	Southern grey shrike	Lanius meridionalis	Laniidae	II
25	House crow	Corvus splendens	Corvidae	-
26	Large-billed Crow	Corvus macrorhynchos	Corvidae	II
27	Black drongo	Dicrurus macrocercus	Dicruridae	II
28	Ashy Drongo	Dicrurus leucophaeus	Dicruridae	II
29	Indian robin	Saxicoloided fulicata	Turdinae	II
30	Brahminy starling	Sturnus pagodarum	Sturnidae	II
31	Asian Pied starling	Sturnus contra	Sturnidae	II
32	Common myna	Acridotheres tristis	Sturnidae	II
33	Bank myna	Acridotheres ginginianus	Sturnidae	II
34	Wire-tailed swallow	Hirundo smithii	Hirundinidae	II
35	White-eared bulbul	Pycnonotus leucotis	Pycnonotidae	II

36	Oriental Honey Buzzard	Pernis ptilorhynchus	Accipitridae	II
37	Large grey babbler	Turdoides malcolmi	Timaliinae	II
38	Jungle babbler	Turdoides striatus	Timaliinae	II
39	Purple sunbird	Nectarinia asiatica	Nectariniidae	II
40	House sparrow	Passer domesticus	Passerinae	II
41	Indian Peafowl	Pavo cristatus	Phasianidae	I
42	Indian Paradise- Flycatcher	Terpsiphone paradisi	Monarchidae	II
43	Common Kingfisher	Alcedo atthis	Alcedinidae	II
44	White-throated Kingfisher	Halcyon smyrnensis	Alcedinidae	II
45	Spotted Owlet	Athene brama	Strigidae	II
46	Indian Pond Heron	Ardeola grayii	Ardeidae	II
47	Indian Grey Hornbill	Ocyceros birostris	Bucerotidae	II
48	Rosy Starling	Pastor roseus	Sturnidae	II
49	Black Redstart	Phoenicurus ochruros	Muscicapidae	II
50	Indian White-eye	Zosterops palpebrosus	Zosteropidae	II
51	White-breasted Water hen	Amaurornis phoenicurus	Rallidae	II
52	Shikra	Tachyspiza badia	Accipitridae	I
MAMMALS				
1	Five stripped palm squirrel	Funambulus pennantii	Sciuridae	-
2	Common House rat	Rattus rattus	Muridae	-
3	Nilgai	Boselaphus tragocamelus	Bovidae	II
4	Leopard	Panthera pardus	Felidae	I
5	Sambar deer	Rusa unicolor	Cervidae	I
6	Jungle Cat	Felis chaus	Felidae	I
7	Common Palm Civet	Paradoxurus hermaphroditus	Viverridae	I
8	Indian Wolf	Canis lupus	Canidae	I
9	Striped Hyaena	Hyaena hyaena	Hyaenidae	I
10	Jackal	Canis aureus	Canidae	I
11	Indian Fox	Vulpes bengalensis	Canidae	I
12	Wild Boar	Sus scrofa	Suidae	II

13	Indian Hare	Lepus nigricollis	Leporidae	II
14	Indian Porcupine	Hystrix indica	Hystricidae	I
15	Indian Hedgehog	Hemiechinus micropus	Erinaceidae	II
16	Sloth Bear	Melursus ursinus	Ursidae	I
17	Hanuman langur	Semnopithecus entellus	Cercopithecidae	II
18	House shrew	Suncus murinus	Soricidae	-
AMPHIBIANS				
1	Indian Bull frog	Hoplobatrachus tigerinus	Ranidae	II
REPTILES				
1	Common House Gecko	Hemidactylus frenatus	Gekkonidae	-
2	Oriental Garden Lizard	Calotes versicolor	Agamidae	-
3	Indian Cobra	Naja naja	Elapidae	I
4	Common Rat Snake	Ptyas mucosus	Colubridae	I
5	Common Indian Krait	Bungarus caeruleus	Elapidae	II
6	Green Keelback	Macropisthodon plumbicolor	Colubridae	II
7	Bengal Monitor Lizard	Varanus bengalensis	Varanidae	I
8	Brooks gecko	Hemidactylus brookii	Gekkonidae	-
9	Rock gecko	Hemidactylus maculatus	Gekkonidae	-
10	Forsten's Cat snake	Boiga forsteni	Colubridae	II
11	Common skink	Eutropis carinata	Scinidae	-

No schedule I species were directly sighted or any other evidence has been found for their presence in project core area during our primary survey. However, in secondary data gathered from working plan of Forest Division plan the 15 schedule I species i.e. Panthera pardus (Leopard), Rusa unicolor (Sambar deer), Felis chaus (Jungle Cat), Paradoxurus hermaphroditus (Common Palm Civet), Canis lupus (Indian Wolf), Hyaena hyaena (Striped Hyaena), Canis aureus (Jackal), Vulpes bengalensis (Indian Fox), Hystrix indica (Indian Porcupine), Melursus ursinus (Sloth Bear), Naja naja (Indian Cobra), Ptyas mucosus (Common Rat Snake), Varanus bengalensis (Bengal Monitor Lizard) Pavo cristatus (Indian Peafowl), Tachyspiza badia (Shikra) were recorded in the study area; which are categorized as Schedule- I fauna according to Indian Wildlife Protection Act (IWPA), 2022 conservation status. Schedule- I fauna list is given in below table.

Authenticated List of Flora and Fauna has been approved DCF, Sirohi vide letter dated 4.06.2025. Copy of the same is enclosed as **Annexure VI a**.

For the conservation of these species Wildlife Conservation Plan has been prepared. Budget earmarked for the conservation of the same is Rs. 475 Lakh. Wildlife Conservation Plan for further approval has been submitted to DCF, Sirohi on 16.7.2025 which has been forwarded to Chief conservator of forest, Jodhpur vide letter dated 28.7.2025. Copy is enclosed as **Annexure XII** and WLCP is enclosed as **AnnexureXII a**.

TABLE 3. 42 SCHEDULE I SPECIES FOUND IN THE 10 KM BUFFER AREA

S.No.	Common Name	Scientific Name	Family	Status as per (IWPA 2022), Schedule
MAMMALS				
1	Leopard	Panthera pardus	Felidae	I
2	Sambar deer	Rusa unicolor	Cervidae	I
3	Jungle Cat	Felis chaus	Felidae	I
4	Common Palm Civet	Paradoxurus hermaphroditus	Viverridae	I
5	Indian Wolf	Canis lupus	Canidae	I
6	Striped Hyaena	Hyaena hyaena	Hyaenidae	I
7	Jackal	Canis aureus	Canidae	I
8	Indian Fox	Vulpes bengalensis	Canidae	I
9	Indian Porcupine	Hystrix indica	Hystricidae	I
10	Sloth Bear	Melursus ursinus	Ursidae	I
REPTILES				
1	Indian Cobra	Naja naja	Elapidae	I
2	Common Rat Snake	Ptyas mucosus	Colubridae	I
3	Bengal Monitor Lizard	Varanus bengalensis	Varanidae	I
AVIFAUNA				
1	Indian Peafowl	Pavo cristatus	Phasianidae	I
2	Shikra	Tachyspiza badia	Accipitridae	I

3.15.14 AQUATIC FAUNA:

Reservoirs of District Sirohi, Rajasthan are major source of commercial fishing. Checklist of fish and there importance are given in Table 3.14 (Source: Banyal & Kumar, 2013 : J. Env. Bio. Sci., Vol. 27 (2):283-285)

TABLE 3. 43 FISH AND SHELL-FISH PRODUCTION OF STUDY AREA

SN	Name of Fish Species	Importance of fish in reservoir
1	Salmophasia bacaila	Important for commercial fisheries
2	Puntius ticto ticto	Important for commercial fisheries
3	Labeo boggut	Minor carp and is little important for commercial fisheries
4	Rasbora daniconius	Minor carp and is little important for commercial fisheries
5	Cyprinus carpio	Exotic fish and Important for commercial fisheries
6	Catla catla	Important for commercial fisheries
7	Labeo rohida	Important for commercial fisheries
8	Sperata seenghala	Important for commercial fisheries
9	Mastacembelus armatus	Little important for commercial fisheries

10	Channa punctatus	Little important for commercial fisheries
11	Gambusia affinis	This is invasive fish and Important for mosquito control

3.15.15 MICROORGANISM STUDY OF SIROHI DISTRICT

On the basis of secondary data analysis following Checklist of microorganism Zooplankton are given in below table (Source: Chauhan 2022; Diversity and Seasonal Variations of Zooplankton in Dudhiya Talab of Sirohi, India. IJSREM, 6-10)

TABLE 3. 44 CHECKLIST OF ZOOPLANKTON

A-PROTOZOA	D-CLADOCERA
Amoeba radiosa	Alonella sp.
Centropyxis hemisphaerica	Bosmina coregoni
Centrophysix ecomis	Daphnia longiremis
Diffugia spp.	Daphnia pulex
Trinema spp.	Ceridaphnia reticulata
Actinolophus spp.	Chydorus ovalis
B-ROTIFERA	Holopedium gibberum
Filina longiseta	Simocephalus spp.
Keratella spp.	Bosmina longirostris
Keratella valga	Macrothrix spp.
Keratella canadensis	Alona spp.
Kertella tropica	Pluroxus trigonelius
Brachionus plicatilis	Alona spp.
Brachionus falcatus	Scapholeberis kingi
Monostyla closterocerca	E. COPEPODA
Monostyla quadridentata	Diaptomus spp.
Mytilina sp.	Mesocyclops spp.
Platyias sp.	Halicyclops spp.
Notholca sp.	Eucyclops spp.
C-OSTRACODA	
Cyprinotus spp.	
Stenocypris spp.	
Cypris spp.	
Cyclocypria spp.	
Entocythere spp.	

3.15.16 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

As per study conducted in the study area and as per information collected from Forest Range Office, Pindwara, and Divisional Forest Officer, Sirohi, it is found that Mount Abu Wildlife Sanctuary is situated

5.47 km from Mine lease area, Whereas there are no National Parks, Biosphere Reserves, Wildlife Corridors, Ramsar site, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km radius of the Mine Lease (Figure 3.4). Rare, endangered or threatened species were not observed during the study in the study core area. 15 Schedule I fauna species in Buffer area. The diversity survey indicated that the diversity of trees, shrubs and herbs were high in buffer zone compare to both core zones due to natural vegetation occurred in study area.

Location map has been submitted and to DCF, Sirohi on 16.7.2025 which has been forwarded to Chief conservator of forest, Jodhpur vide letter dated 28.7.2025. Copy of the same is enclosed as **Annexure VIc**.

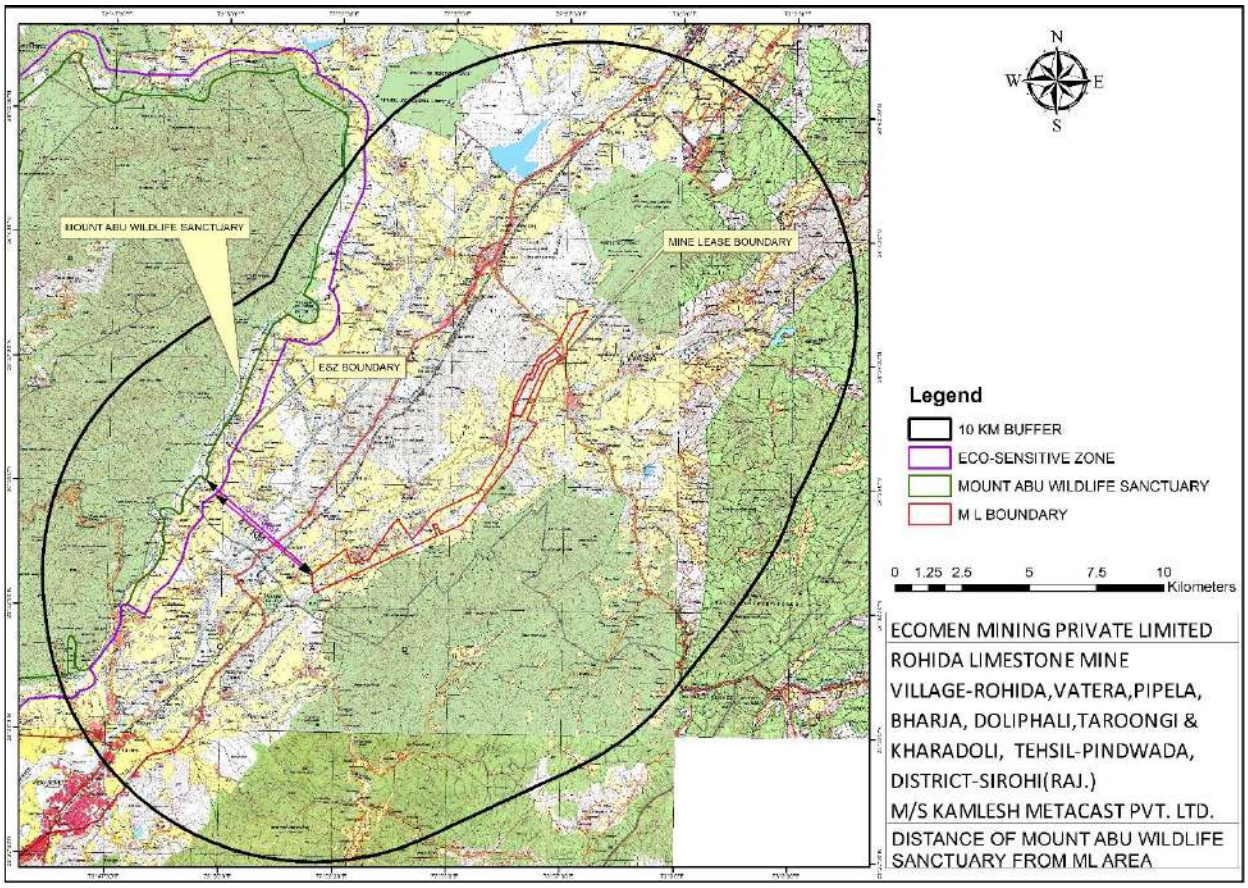


FIGURE 3. 20 DISTANCE OF MOUNT ABU WILDLIFE SANCTUARY FROM MINE LEASE

3.16 SOCIO-ECONOMIC ENVIRONMENT

3.16.1 INTRODUCTION

Mining project has a ripple effect on the surrounding social and economic condition of the surrounding villages. This impact can range from subtle to significant, influenced by a variety of factors including the project's scale and the dynamics of the local environment. The arrival of outsiders during project phases can even reshape the cultural identity of the community. Additionally, the project's financial flow can

disrupt existing socio-economic activities and introduce new ones, often deeply intertwined with the community's established practices and traditions.

The proposed Mining project is poised to influence the socio-economic landscape of its vicinity, with impacts varying in magnitude. The extent of these effects hinges on a multitude of social and environmental factors and the degree of disruption to the existing equilibrium. Additionally, the influx of external personnel during different project phases may reshape the cultural identity of the local community. Our comprehensive assessment, conducted through sociological surveys within a 10-kilometer radius of the mining project site, aims to delineate these impacts accurately. Project fall in 10 Km radius area of Sirohi District, Rajasthan state.

3.16.2 OBJECTIVES

Given the anticipated impact of the proposed project on the social and economic conditions of the region, including aspects such as direct and indirect employment, skill diversification, infrastructure development, and business growth. The current study is oriented towards achieving the following objectives:

i) To assess the impact of the Proposed Mining project on pattern of demand;
ii) To examine the impact of the Proposed Mining on consumption pattern;
iii) To examine the employment and income effects of the project;
iv) Assessment of the educational status of the people and to explore the impact of the project on education special reference to Core Zone School
v) To examine the impact of the Proposed Mining project on community development activities;
vi) To analyse peoples' perception regarding impact of the Proposed Mining project;

3.16.3 METHODOLOGY ADOPTED FOR THE STUDY

The methodology adopted for the study is based on the following process:

3.16.3.1 REVIEW OF SECONDARY DATA

Baseline data on socio-economic were gathered from various government agencies and census sources, including the latest District Statistical Handbook, 2011 Census data, and subsequent updates based on the 2011 census. This data encompasses demographic details such as household count, population, social demographics, literacy rates, and occupational distribution within the project's vicinity (within a 10 km radius of the project site). Additionally, secondary data augmented the primary dataset collected through a focused field survey.

3.16.3.2 FIELD SURVEY

Socio-economic survey was carried out covering the villages/towns of the study area to record awareness, opinion, apprehensions, quality of life and expectations of the local people about the proposed proposed

mining project. The opinion of local people about the proposed project were obtained through Socio-economic questioner survey of the villages / towns in the study area.

A brief about the sampling design adopted for the field survey is described below. The survey has been conducted through specially designed questionnaire covering the main aspect of the present study. In addition to the field data, secondary data / information collected, compiled and published by different Governmental agencies / departments were also collected and utilized appropriately.

3.16.3.3 SAMPLING DESIGN

For selection of respondents from the study area, Two Stage Random Sampling has been adopted. In the first stage, villages are selected and in the second stage, households / respondents are selected. From each selected village, the respondents are selected randomly to account intra-village variability among the respondents for the character under study. As the variability of the characters in each study strata does not vary widely among the households, a smaller sample size is expected to represent the population. Samples of about 50 respondents from 10 villages i.e.

Taroongi, Dolifali, Hirawala, Rohida, Vasa, Delder, Wada, Bhimana, Udwariya & Vatera were drawn from the study area. Photographs taken during Socioeconomic Survey have been given in below Figure.

Questioner survey in Vatera village

Questioner survey in Taroongi village

Questioner survey in Hirawal village

Questioner survey in Bhimana village

Questioner survey in Rohida village

Questioner survey in Shopkeeper in study area

Questioner survey in Udvariya village

Questioner survey in Wada village

Questioner survey in Delder village

Questioner survey in Bharja village

FIGURE 3. 21 SOCIOECONOMIC QUESTIONER SURVEY WITH VILLAGERS IN10 KM STUDY AREA

Composition of the Questionnaire

Households / respondents were interviewed with the structured questionnaire specifically designed for this study keeping in view the objectives of the study. The questionnaire consists of following major sections:

a. Demographic profile of the households
b. Educational status
c. Health status
d. Information on agricultural situation.
e. Employment (sources of employment)

f. Income (income from various sources)

g. Information on family budget

h. Consumption and saving

i. Availability of Basic amenities such as drinking water, electricity etc.

j. Respondents' perception about the project

3.16.4 EXISTING SOCIO-ECONOMIC SCENARIO

The information on socio-economic aspects of the study area as defined in this Chapter has been compiled from secondary sources, which have been taken by many authentic sources. The sociological aspects of this study include human settlements, demography, social, such as Scheduled castes, Scheduled Tribes and literacy levels besides infrastructure facility available in the study area. The economic aspects include occupational structure of workers. The salient features of the demographic and socio-economic details are presented in the following sections.

3.16.5 DEMOGRAPHIC FEATURES OF STUDY AREA:

As per the 2011 census, district of 2,02,260 households with the total population 1036346 including 534231 are male and 502115 are females. The initial provisional data released by census India 2011, shows that density of Sirohi district for 2011 is 202 people per sq. km. The population of the district is 10.36 lakhs as per 2011 Census with 21.76% of growth rate including 21.98% were males and 21.53 females. Geographical area of the District is 5136 Sq. KM. which 25 rank in State Geographical area. The Sex Ratio is 940 Females per 1000 Males.

As per 2011 census Hindi is a principal language of district (91.41%). Literacy rate of Sirohi in 2011 were 55.25 % in which 69.98% males and 39.73 female are literate. It is one of the twelve districts in Rajasthan currently receiving funds from the Backward Regions Grant Fund Programme (BRGF) which shows the dominancy of ST population. The district has a work force of 3.13 lakhs constituting main worker and 1.06lakhs marginal workers.

The villages falling within the study area (10km radius) along with their demographic profile based on 2011 census data are listed in below table (details given in **Annexure XI**). Village found in 0-3 km, 3-7 km and 7-10 km are given in below figure.

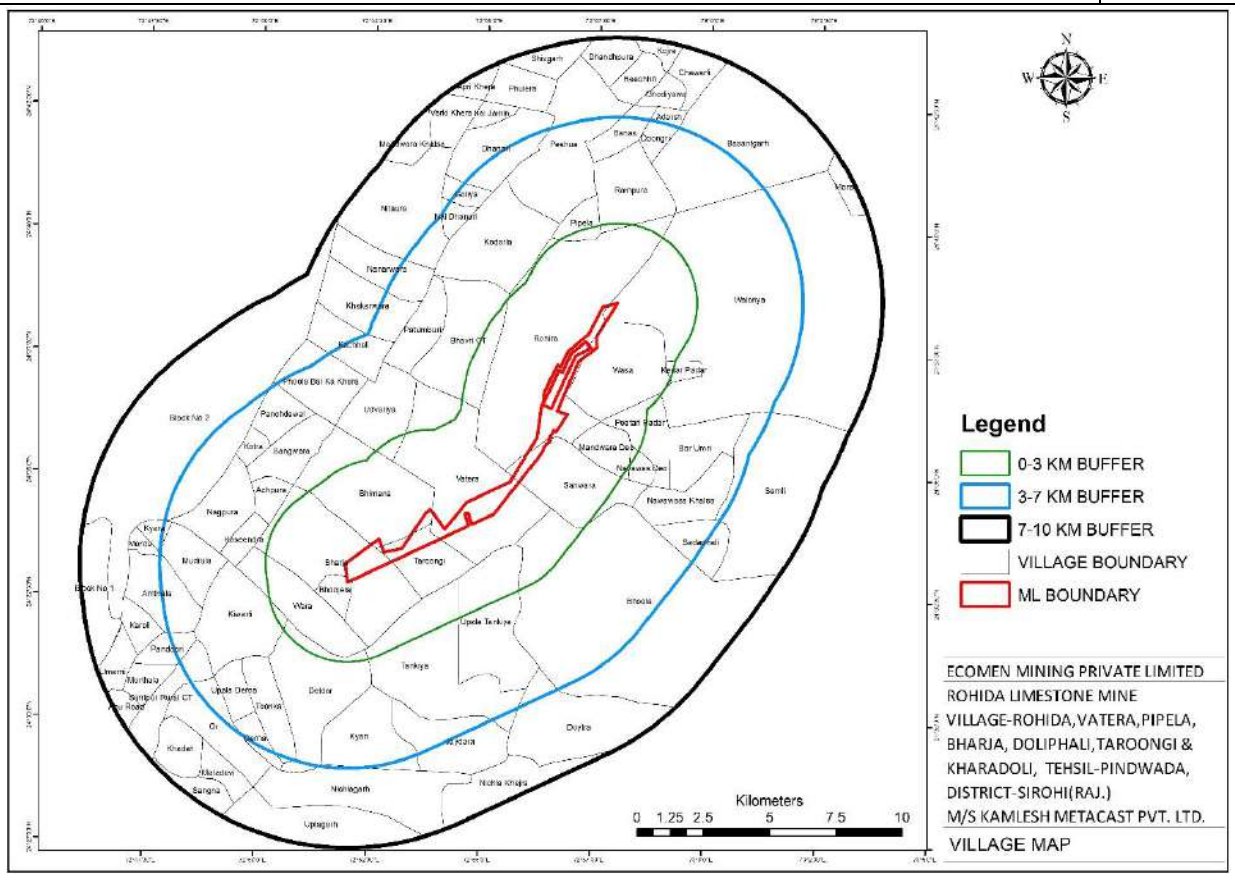


FIGURE 3. 22 VILLAGE FOUND IN 0-3 KM, 3-7 KM AND 7-10 KM IN 10 KM STUDY AREA

Primary survey was conducted during March to May 2025 and primary data was collected based on specific designed questionnaire and focused group discussion. Villages covered in rural area.

3.16.6 DEMOGRAPHIC FEATURES OF STUDY AREA: RURAL AREA

a. Population

The total population in Villages of Study area population of 197433 of which males are 101731 while 95702 are females as per report released by Census India 2011. The district population density is 202 people per sq.km in 2011. The population density within 0-3 km is 261 people per sq.km and 3-7 km & 7-10 Km a total of 318 & 331 people per sq.km have been found.

The ratio of Schedule Caste (SC) and Schedule Tribe (ST) to the total population is 9.2 % and 48.2 % Schedule tribe in the study area. The total number of households in the area of 0-3 km is 6767, 3-5 km is 14900 and 7-10 km is 16331 with total of 37998.

b. Village and Household Size

The total households in 84 Villages of Study area are 37998. The average household per village is 452. The average household size is 5.2.

c. Sex Ratio

The sex ratio in the Sirohi district is 940 females per 1000 males whereas in the study area is 941 females per 1000 males. The percentage of male and female population to the total population is 51.5 % and 48.5 %, respectively.

d. Literacy

Average literacy rate of Sirohi in 2011 were 55.25 % while same in study area is overall literacy 41.3 %. The percentage of male and female literacy to the total population 53.0 % and 28.9 % respectively.

TABLE 3. 45 DEMOGRAPHIC PROFILE OF POPULATION IN THE STUDY AREA (2011 CENSUS)

S N.	Population Data	Radial Distance from Mine Lease Centre in km			
		0-3 km	3-7 km	7-10 km	Total (0-10 km)
1.	No of Villages	11	36	37	84
2.	Area sq km	133.1	249.83	252.13	635.06
3.	Number of House Hold	6767	14900	16331	37998
4.	Total Population	34702	79348	83383	197433
5.	Average Family Size	5.1	5.3	5.1	5.2
6.	Average no. of house hold per village	615.2	413.9	441.4	452.4
7.	Average population per village	3154.7	2204.1	2253.6	2350.4
8.	Female per 1000 Males	937.8	947.6	935.4	940.7
9.	% of male population to total population	51.6	51.3	51.7	51.5
10.	% of female population to total population	48.4	48.7	48.3	48.5
11.	Total Males	17908	40741	43082	101731
12.	Total Females	16794	38607	40301	95702
13.	Population Density (Nos/sq. km)	261	318	331	311
14.	% of SC population to the total population	12.7	9.3	7.7	9.2
15.	Schedule Cast Total Population	4408	7359	6392	18159
16.	Schedule Cast Male Population	2276	3800	3361	9437

17.	Schedule Cast female Population	2132	3559	3031	8722
18.	% of ST population to the total population	29.4	53.5	51.1	48.2
19.	Schedule Tribe Total	10204	42450	42594	95248
20.	Schedule Tribe Males	5139	21471	21404	48014
21.	Schedule Tribe Females	5065	20979	21190	47234
22.	Total Literates	15895	29966	35750	81611
23.	Literates Males	10445	20132	23378	53955
24.	Literate Females	5450	9834	12372	27656
25.	Literacy Percent (%)	45.8	37.8	42.9	41.3
26.	Literacy Percent (%) Males	58.3	49.4	54.3	53.0
27.	Literacy Percent (%) Females	32.5	25.5	30.7	28.9
28.	Total Illiterates	18807	49382	47633	115822
29.	Male Illiterates	7463	20609	19704	47776
30.	Female Illiterates	11344	28773	27929	68046
31.	% of main worker to the total population	29.1	25.9	28.2	27.4
32.	Total Main Worker	10109	20530	23506	54145
33.	% of marginal worker to the total population	13.1	15.1	12.9	13.8
34.	Total Marginal Worker	4533	11976	10726	27235
35.	% of non-worker to the total population	57.8	59.0	58.9	58.8
36	Total Non-worker	20060	46842	49151	116053

3.16.7 OCCUPATIONAL STRUCTURE

The occupational structure of residents in the study area is analyzed with reference to main workers, marginal workers and non-workers. The marginal workers are those workers engaged in some work for a period of less than six months during the reference year prior to the census survey. It is very evident from the overview of the district that fisheries are one of the most important sector which plays major role in the economy and provides employment to very large population. The major concern which can be seen and

which would have some immediate implications are of improving the storage quality and increasing the number of processing units. The non-workers include those engaged in unpaid household duties, students, retired persons, dependents, beggars, vagrants etc.; institutional inmates or all other non-workers who do not fall under the above categories. As per the Report of NSO, MoSPI, GOI 2020-2021, the Gross value added by Economic Activity (2020-21) shows that Services 43%, Industry 23%, Agriculture 14%, Manufacturing 9%, Construction 8% and Banking and insurance 3% contribution.

TABLE 3. 46 THE OCCUPATIONAL STRUCTURE OF POPULATION IN THE STUDY

SN	Population Data	Radial Distance from Mine Lease Centre in km			
		0-3 km	3-7 km	7-10 km	Total (0-10 km)
1	Total Population	34702	79348	83383	197433
2	Total Worker (Main + Marginal) Population	14642	32506	34232	81380
3	% Total Workers (Main + Marginal) to Total Population	42.19	40.97	41.05	41.22
4	Total worker male (main + marginal) population	8980	19940	21580	50500
5	Total worker female (main + marginal) population	5662	12566	12652	30880
6	Total Working Male Population % to Total Male Population	25.9	25.1	25.9	25.6
7	Total Working Female Population % to Total Female Population	16.3	15.8	15.2	15.6
8	Main Workers Total	10109	20530	23506	54145
9	Main Workers Male	7663	16504	18437	42604
10	Main Workers female	2446	4026	5069	11541
11	Total Main Workers (%) to Total Population	29.13	25.87	28.19	27.42
12	Total Male Main Workers (%) to Total Male Population	22.08	20.80	22.11	21.58
13	Total Main Workers Female (%) Total Female Population.	7.05	5.07	6.08	5.85
14	Total Cultivators	2784	6489	5574	14847
15	Total Cultivators Male	2029	5753	4506	12288
16	Total Cultivators female	755	736	1068	2559
17	Main Agricultural Labour	2244	5225	5403	12872
18	Main Agriculture Labour Male	1102	2734	2867	6703
19	Main Agriculture Labour Female	1142	2491	2536	6169
20	Main Household Industry Labour Total	359	591	218	1168
21	Main Household Industry laboure Male	291	474	169	934
22	Main House Hold Industry Labour Female	68	117	49	234
23	Main Other Workers Total	4722	8225	12311	25258
24	Main Other Workers Male	4241	7543	10895	22679
25	Main Other Workers Female	481	682	1416	2579
26	Marginal Worker Total	4533	11976	10726	27235
27	Marginal Worker Male	1317	3436	3143	7896
28	Marginal Worker Female	3216	8540	7583	19339
29	Total Marginal Workers % to Population	13.1	15.1	12.9	13.8
30	Male Marginal Workers % to Male Population	7.4	8.4	7.3	7.8

31	Female Marginal Workers % to Total Female Population	19.1	22.1	18.8	20.2
32	Non-Working Population Total	20060	46842	49151	116053
33	Non-Working Population Male	8928	20801	21502	51231
34	Non-Working Population Female	11132	26041	27649	64822
35	Total Non-workers % to Total Population	57.81	59.03	58.95	58.78
36	Male Non-workers % to Total Male Population	49.85	51.06	49.91	50.36
37	Female Non-workers % to Total Female Population	66.29	63.92	68.61	67.73

3.16.8 INFRASTRUCTURE FACILITIES

Sirohi District is a district of Rajasthan state & town of Sirohi is the district headquarters. Abu Road is the largest city in Sirohi District in terms of area and population. As of 2011 it is the third least populous district of Rajasthan. There are five Sub Divisions in the Sirohi district: Abu Road, Sirohi, Mount Abu, Sheoganj, Pindwara and Reodar, while five tehsils are Abu Road, Sirohi, Sheoganj, Pindwara, and Reodar. Proposed Project fall in Pindwara tehsils. It is one of the twelve districts in Rajasthan currently receiving funds from the Backward Regions Grant Fund Programme (BRGF) which shows the dominance of ST population in study area.

The infrastructure and amenities available in the area denotes the economic wellbeing of the region. The area as a whole possesses moderate level of infrastructural facilities. A review of infrastructure facilities available in Sirohi District have been done based on the information available at the websites of Directorate of Economics and Statistics, Department of Medical and Family Welfare, National Health Mission, Medical Health and Family Welfare Department, Government of Rajasthan and validated by field socioeconomic survey. All the villages of study area have proper water supply; village roads are CC roads. All are electrified, and having mostly Pakka houses. All Villages have Anganbadi and Govt. Schools.

Nearest habitation from Mine Lease area are given in below table

TABLE 3. 47 NEAREST HABITATION FROM MINE LEASE AREA

Particulars	**Distance (km)**	**Direction**
	(From Lease Boundary)	
Nearest Habitation		
Taroongi	Within the lease area	--
Hirawala	Within the lease area	--
Jagatarawala	Within the lease area	--
Bharja (Some part of Bharja village within the lease area	--	--
Vatera	50 m	E
Bhimana	0.24	NW
Pipla	0.31	WNW
Ward	0.41	W
Rohida	0.48	E
Vasa	0.53	SE
Bhujela	1.23	NNW

Densely populated		
Bharja (Some part of Bharja village within the lease area	--	--
Vatera	50 m	E
Bhimana	0.24	NW
Rohida	0.48	E
Vasa	0.53	SE
Swarupganj	2.98	WNW

Study area is dominated by Hindus Community, Therefore, lot of temples along with Jain community Temples are situated in the study area. Most famous temples of study area are given below figure.

Sargadevi & Siddheswar Mahadev temple	Jambeshwar Mahadev Mandir

Temples of study area

Apart from collecting data from secondary sources, a review of infrastructure facilities available in the area has also been given on the basis of field survey of the study area. In this exercise the villages which fall within 10 km radius around the site have been considered. Infrastructure facilities available in the area are presented below.

3.16.9 EDUCATIONAL FACILITIES

Education is a very important determinant of socio economic development of any area. Universal primary education is one of the essential development strategies of a developing country like India, which focus mainly over raising the Net Enrolment Ratio (NER) in primary education. The district is home to numerous schools affiliated with various educational boards, including the Central Board of Secondary Education (CBSE), Secondary School Certificate (SSC), and the Indian Certificate of Secondary Education (ICSE).

Most of the villages in the study area, Anganwadis and schools up to primary level in district. Schools up to Middle Level are found in some villages / panchayats. Hence there is a need to develop the educational facilities by establishing more number of secondary and higher secondary level schools in the area. According to the Unified District Information System for Education (UDISE+), there are 1410 schools functioning in the Sirohi district. Primary schools, that is from 1st standard to 5th standard are 637 whereas upper-primary schools accounts for 437.

District Educational information are given below Table.

TABLE 3. 48: DISTRICT EDUCATIONAL INFORMATION

School	Enrolment	Teachers
Total Number of Schools: 1410 Govt School: 521 Private School: 396 Primary School: 637 Upper Primary School: 437	Total enrolment (with pre-primary) Girls: 114899 Total enrolment (with pre-primary) Boys: 142246 Total enrolment (with pre-primary) Total: 257145 Total enrolment (without pre-primary) Girls: 111065 Total enrolment (without pre-primary) Boys: 137077 Total enrolment (without pre-primary) Total: 248142	Total Techer: 9371 Male Techer: 6291 Female Techer: 3080

(Data Source: Unified District Information System for Education (UDISE+) 2020-21)

Infrastructure & School Facilities in Sirohi District are given in Figure 2.4.

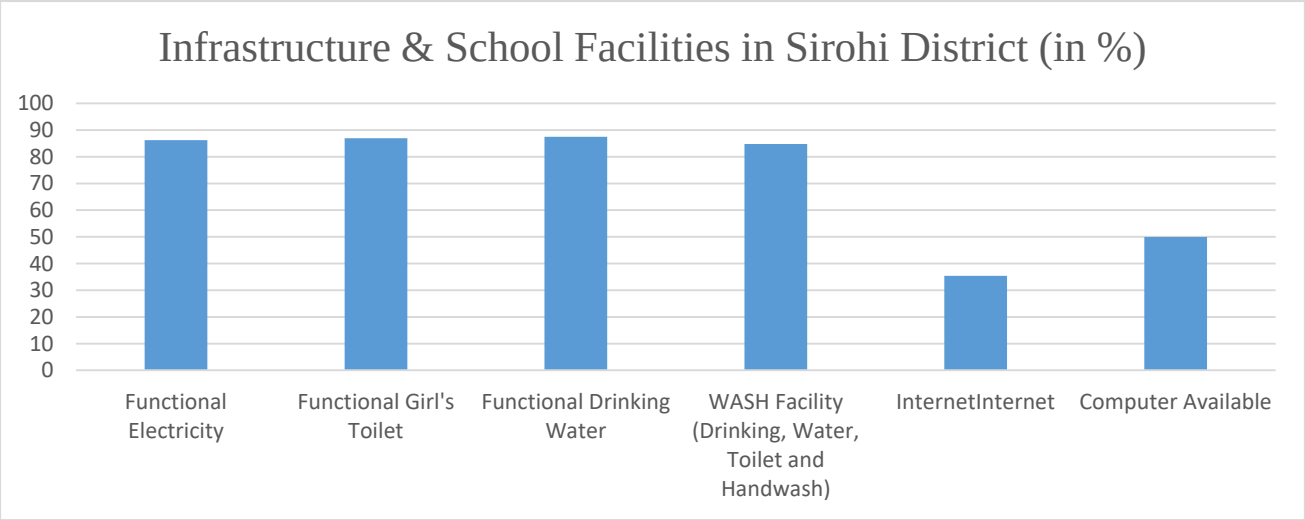


TABLE 3. 49 INFRASTRUCTURE & SCHOOL FACILITIES IN SIROHI DISTRICT (DATA SOURCE: UNIFIED DISTRICT INFORMATION SYSTEM FOR EDUCATION (UDISE+) 2020-21)

Details of Schools of study area and its distance from proposed mine lease area are given in below table

TABLE 3. 50 AVAILABILITY OF EDUCATIONAL INSTITUTION WITHIN STUDY AREA

Schools		
Adarsh vidhya mandir	Within the lease area	--
Saraswati Shikshan Sansthan	Bharja	0.04 Km, NW
Government Girls School	Bharja	0.11 Km, N
Government senior secondary school	Vatera	0.27 Km, NW
Government senior secondary school	Vatera	0.31 Km NW

Shah Panechand Government Higher Secondary School	Rohida	0.64 Km, SE
Om Gurukul School	Rohida	0.83 Km, SE
Govt Girls Senior Secondary School	Rohida	1.09 Km, ESE
Government Higher Primary School	Rohida	1.10 Km, ESE
Govt PS school kharafali	Vatera Sanwada Rd Sanwara	1.18 Km SE
Saraswati Secondary School	Rohida	1.34 Km, ESE

Selected nearby schools from mine lease area have been visited during base line study period. Details of study survey given in below table

TABLE 3. 51 DETAILS OF SURVEYED SCHOOLS OF STUDY AREA

	Taroongi 1-12th Total Student:200 Total Teacher :15 Well Developed school of the study area but water scarcity & Lankness of Sport facilities have been found. Separate Toilets for Boys and Girls are available.
	Bharja 1-12th Total Student:350 Total Teacher :18 Well Developed school of the study area. Meet out Infrastructure & School Facilities as per district results showing in Table…...
	Bhimana 1-12th Total Student:370 Total Teacher :19 Total Student:350 Total Teacher :18 Well Developed school of the study area. Meet out infrastructure & School Facilities as per district results showing in Table. Toilets are very old so required new toilets

	Dolifali 1-5th Total Student:120 Total Teacher :5 Furniture for students are required, Good Drinking water facility required, No Computer & internet facility available
	Udwariya 1-8th Total Student:350 Total Teacher :8 No of rooms are not sufficient for Students. Furniture for students are required. Separate Toilets for Boys and Girls are available.
	Vatera 1-12th Total Student:247 Total Teacher :15 Well Developed school of the study area. Meet out Infrastructure & School Facilities as per district results. Furniture for students are required & Audio visual room is required for creative activity)

3.16.10 TRANSPORTATION

Sirohi district have well-developed transportation system but 10 Study area villages are not having well-developed transportation. No direct transport available for Railway station & Bus Station frequently. People of study area used private vehicle and their own vehicle to reach Abu road Bus station or any other railway station. NH-27 Udaipur to Palanpur, Gujrat is the main transport road which connect to Study area (~1.7 km in West direction) to other places. NH-927A (Swaroopganj-Ratlam) road is passing through applied ML area. Nearest Railway Station is Kivrali Railway Station which is 2.56 km in WSW direction from mine lease. Maharana Pratap Airport Udaipur is nearest Airport from Mine Lease area which is ~ 90.76 km away in E direction. Nearest City/Town is Abu Road. Urban transportation in Sirohi town, Swroopganj and Abu road supported by city buses, auto-rickshaws, and app-based ride services by private taxi, which provide convenient options for local travel. In Sirohi, Mount Abu is primarily a scenic place which is tourist

destination. Adequate provision of transport is a prerequisite for economic development in general and rural development in particular. It acts as a catalyst both for production and distribution system of the economy. The economic development requires a well-developed transport network. Roadways are the principal mode of transport in the district. Though passenger service is made available to all the Community Development Block Headquarters (HQs) and Tehsil HQs. Despite all these measures some of the rural roads in the district are not all weather roads.

In the study area adequate roads and bus services are available near the NH & SH which are well connected with roads connected to the villages.

3.16.11 SANITATION AND WATER SUPPLY FACILITIES

The information based on the sampled survey, reveals that the problem of open defecation doesn't exist in the study area. In rural areas, the government has established hand pumps, Piped Water Supply (PWS) and Mini Piped Water Supply (MPWS) schemes, and Comprehensive Piped Water Supply (CPWS) schemes to serve villages habitations. Despite these resources, some villages faces a supply gap however they having piped water connections. To address this, the Jal Kal Mission has initiated projects of water supply aimed at providing continuous 24x7 treated water. In study area villages like Udvariya and Bhimana has some drinking water issues, whereas Govt. has already work on Drinking water and continuous working to improve by Jal Shakti Mission.

Bhimana villagers use drinking from outside the village	Udvariya village person collect drinking water from Village Govt. School

Water supply tanks of Study area	Jal Mission initiative in Study area during study period

FIGURE 3. 23 DRINKING WATER AMENITIES OF STUDY AREA

3.16.12 ELECTRICITY STATUS

Sirohi district has a well-established electricity infrastructure managed by the Rajasthan Power Distribution Company Limited, which oversees power distribution in the District. The district enjoys a consistent power supply in urban areas, with periodic challenges in rural and remote regions due to infrastructure limitations or increased demand. Increased electricity demand in urban areas has occasionally led to unscheduled power outages. All the villages of study area are electrified, and villagers informs they are facilitated by 18-20 hr per day supply. Infrastructure in some rural parts requires further enhancement to ensure consistent power delivery. Overall, Sirohi district's electricity status is progressive, with reliable supply in urban areas and significant strides being made in rural electrification and renewable energy integration.

3.16.13 AGRICULTURAL SITUATION

Agriculture plays a vital role in the economy of Sirohi district, with approximately 90% of farmers being small and marginal. The district's diverse agro-climatic conditions support the cultivation of various crops, including Maize, Castor, Wheat, Ragi, Gram & Rapeseed mustard are the major crops cultivated in Sirohi District. The other major fruits and vegetables cultivated in this district are Lime, Mango, Aonla, Papaya, Okra, Tomato, Cabbage, Cauliflower, Brinjal, Pea, Potato, Garlic. The district has a net irrigated area of 162.788 thousand hectares and a gross irrigated area of 63.136 thousand hectares, with rainfed areas covering 225.3824 thousand hectares. Irrigation sources include canals, tanks, open wells, bore wells, and lift irrigation systems. Cropping intensity in the Sirohi district are given in below table

TABLE 3. 52 CROPPING INTENSITY AT SIROHI DISTRICTS

SN.	Agriculture Land-use		
		Area (in 000'ha)	Cropping Intensity (%)
1	Net sown area	162.788	138 %
2	Area sown more than once	63.136	
3	Gross Cropped Area (GCA)	225.3824	
Source: Agricultural contingency plan for district, Sirohi			

Generally, majority of crops are produced during the Kharif and Rabi season in Sirohi district are Maize, Castor, Wheat, Gram, Rapseed mustered Cabbage, Cauliflower, Okra and Tomato are other vegetables which are largely produced in district. Despite the rich agricultural diversity, farmers face challenges such as dependence on monsoons, soil erosion in hilly areas, and limited market access. The Rajasthan government supports farmers with schemes like PM-Kisan, subsidies for seeds and fertilizers, and water conservation projects. The main Rabi and Kharif crops grown in the study area along with productivity per ha in Sirohi District is given in below Table

TABLE 3. 53 STATUS OF AGRICULTURE IN THE SIROHI DISTRICT IN STUDY AREA

Major Crops Grown	**Productivity (kg/ha)**	
	Sirohi	
	Kharif	**Rabi**
Castor	1988	-
Maize	1902	-
Wheat	-	2700
Mustard	-	1250
Chickpea	-	1000
Source: Contingency plan of Sirohi District		

Irrigation Facilities

The irrigation based classification of the crop land in the sirohi districts are given in below Table. The irrigated area is given in two heads, as gross irrigated area and net irrigated area. Source of Irrigation for Agriculture in District given in below table.

TABLE 3. 54 THE IRRIGATION BASED CLASSIFICATION OF THE CROP LAND

Area in ‘000 ha.			
Sirohi			
Net Irrigated	Gross cultivated area	Gross Irrigated	Rain-fed
96.576	-	103.001	-

TABLE 3. 55 SOURCE OF IRRIGATION FOR AGRICULTURE IN SIROHI DISTRICTS

Sources of Irrigation	Sirohi (Area ha)
Canal	8.948
Tank	40.52
Other wells	107.59
Bore wells	1.791
Other source	77
Source : Agriculture Contingency Plan Sirohi	

3.16.14 HEALTH CARE SYSTEM

Sirohi District in Rajasthan has a well-structured healthcare system comprising Primary Health Centres (PHCs), Community Health Centres (CHCs), and other medical facilities to serve its population. PHCs are the cornerstone of rural healthcare, providing essential medical services. According to the Health Management Information System (HMIS) annual report 2019-20, there are five type of health facilities coming under every state health department –Sub Centres (SCs), Primary Health Centres (PHCs), Community Health Centres (CHCs), Sub-District Hospitals (SDHs) and District Hospitals (DHs), apart from Medical Colleges at top. In the case of district profile, number of medical colleges per district is very limited or rare. District Health Care System details given in below table.

TABLE 3. 56 DISTRICT HEALTH CARE SYSTEM DETAILS

SN	Facilities	Total No
1	Medical College	Govt Medical College Sirohi is a new Government college in Rajasthan. It was established in **2022**.
2	District Hospital/Sub-District Hospital	1
3	Community Health Centre	9
4	Primary Health Centre	30
5	Sub Centre	221

The study area is well equipped with hospitals, PHC, CHC within the 10 km of the project area. The health facility in village within 10 km is given in the below table.

TABLE 3. 57 HEALTH FACILITIES IN THE VILLAGES WITHIN 10 KM. RADIUS

Name	Near Village	Distance and Direction (From Lease Boundary)
Medical Facility		
PHC	Bharja	0.13 Km, N
Aayurvedic Hospital	Vatera	0.32 Km, W
Govt Hospital	Rohida	1.01 Km, ESE
Government hospital	Bhimana	1.25 Km, NW

G D Naturopathy	Rohida	1.48 Km, SE
Madhav Yoga and Naturopathy Medical College And Hospital	Kivarali	1.97 Km, WNW
Government hospital	Sanwada	2.68 Km, ESE
Primary Health Centre	Deladar	3.08 Km, S
Government Ayurvedic Hospital	Kivarali	3.58 Km, WSW
Satyam Hospital	Swaroopganj	3.65 Km, NW
Patel Hospital	Swaroopganj	3.74 Km, NW
Community Health Center	NH-14, Sirohi Road	3.80 Km, NW
Government Hospital	Swaroopganj	3.83 Km, NW
Palanpur hospital and trauma center	Swaroopganj	3.88 Km, NW
Government Hospital	Bhoola	m, SE

3.16.15 PUBLIC DISTRIBUTION SYSTEM (PDS)

Public distribution system is a government-sponsored chain of shops entrusted with the work of distributing basic food and non-food commodities to the needy sections of the society at very cheap prices. PDS shops are available in all villages of the study area. The following items are distributed every month through the PDS shops. Public of study are benefited by Ujjwala Govt. Scheme but the use tree biomass as fuel in food cocking.

- Wheat
- Rice
- Kerosene oil

Survey of PDS scheme (distribution center) of Udvariya village	Biomass use for food cooking	Biomass collection

According to the MGNREGA Employment Generation report 2021-22, there are 42887 Scheduled Caste households, and 64303 Scheduled Tribes households were issued jobcards. Details of MGNREGA scheme of Sirohi district given below

INDUSTRIALIZATION

SCs	Sts	Other	Total
42887	64303	92375	199565

RIICO Industrial area	IOCL Industry

3.16.16 STUDY AREA INFRASTRUCTURE: SUMMARY

The total study area (10 km) falls in Human settlement, commercial area (RIICO Industrial area). The major portion of study area is Agriculture land and Forest area. The infrastructure and amenities available in the district denotes the economic wellbeing of the region. The area as a whole possesses moderate level of infrastructural facilities.

3.16.17 PEOPLE PERCEPTION ABOUT THE PROJECT

The results of the opinion poll are analyzed and furnished in given below table. The major advantages and disadvantages shown by the people are given in below table. It is observed that highest 74% of them have identified creation of employment opportunity as the main advantage. Majority of them welcomed the project since it would create employment opportunities for the local people. They retorted that by implementing such employment-oriented projects the economic condition of the common people could be improved. The overall perception of the people in the study area on the proposed project was 'Very Good'. They said that they will welcome the project whole heartedly if employment opportunities in the proposed project are guaranteed for the local people.

About 52% of the respondents are expecting improvement in business. About 60% of the respondents are of the view that the living standard of those employed will improve. About 70% of the respondents are of the view that the infrastructure facilities in the area will improve. Around 56% of the respondents feel water scarcity in the area. However, Government Jal Mission Scheme is underway therefore drinking water problem may be solved very soon. The major disadvantage is that about 20% of the respondents are showing concern to health due to environmental pollution. Perception is based on primary data collection based on questionnaire from eight villages.

TABLE 3. 58 PEOPLES' PERCEPTION ON THE PROJECT

Perception	No. of Respondents	Distribution (%)
ADVANTAGES		
Employment opportunity	37	74
Business development	26	52
Improvement in Living Standards	30	60
Improvement in infrastructure	35	70
DIS-ADVANTAGES		
Water scarcity	28	56
Damage to health	10	20
Total Respondents	50	

Perceptions on Major Advantage:

- Present project may generate more employment, directly and indirectly, and major portion of it may be provided to the local people.
- Development of business opportunity in the area.
- Improvement in living standard.

Perceptions on Major Disadvantage:

- Water scarcity in the study area is expected due to drawl of ground water by the project.
- Health damage due to pollution arising from the project.

3.16.18 BASIC NEEDS OF THE PEOPLE

People feel that the project has positive impact on their lives. The project will provide them employment and hope for better future. The Project Proponent to some extent will address the issues of poverty, unemployment, and drinking water under its CSR policies in the nearby areas for meeting the social infrastructure demand.

It appears that the expectations and needs of the villagers are quite moderate. The people in the study require basic minimum amenities wherever they are not available and improving these facilities wherever these are inadequate

Basic issues which needs to be addressed are related to the following:

- Education & communication
- Health care and enhancement of drinking water source.
- Alternative livelihood and environmental protection
- Infrastructure development including drainage
- Financial inclusion through enhanced banking facilities
- Enhancement of sports and cultural activities

3.16.19 CONCLUSION

The socio economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It was also found that a part of population was suffering from lack of earning source to run their day to day life. Their expectation is to earn some income for their sustainability on a long-term basis.

The infrastructure and amenities available in the area denotes the economic wellbeing of the region. The study area as a whole possesses an average level of infrastructural facilities. This area lacks higher level of amenities like higher education, health, drinking water and communication network. In terms of education and health facilities, the area is less than moderate. The area needs more medical facilities as it has not even one maternity and child care center. Though the area is well connected with road transport and communication facilities. The overall socio-economic status of the target population is average in terms of literacy, work participation rate etc.

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CHAPTER -4
ANTICIPATED ENVIORNMENTAL IMPACTS AND MITIGATION MEASURES

4.1 INTRODUCTION

The environmental parameters likely to be affected by mining are related to many factors, viz. physical, social, economic, agriculture and aesthetic. Opencast mining involves drilling, blasting, excavation, loading, crushing, transportation, unloading etc. Excavated limestone will be loaded by hydraulic excavators into the dumpers/tippers for onward dispatch to the crusher (for limestone) and waste dump (for waste and soil).

The operations may impact environment of the area in various ways such as excavation of mineral, change of landscape, flora and fauna of the area, surface drainage and change in air, water and soil quality & noise level mostly localized to the mine area while for purpose of development and economic upliftment of people, there is need for establishment of mining industries, because the area is rich in mineral resources, but these should be environment friendly. Therefore, it is essential to assess the impact of mining on different environmental and socio-economic parameters before starting the mining operations so that abatement measures could be planned in advance for minimizing the impacts, wherever feasible.

The likely impacts on different environmental parameters due to the mine site location, possible accidents, mine design, development, operations & final closure of this mining project are discussed below:

4.2 METHODOLOGY OF IMPACT ASSESSMENT

The impact assessment has been undertaken following a systematic process that identifies, predicts and evaluates the impacts the project could have on aspects of the physical, biological, social/ socio-economic and cultural environment and identifies measures that the project will take to avoid, minimize/reduce, mitigate, offset or compensate for adverse impacts; and to enhance positive impacts, where practicable. The stages of the impact assessment process comprise of the following:

- Impact identification: To identify the potential impact of the project on the various environmental parameters.
- Impact prediction: To determine what could potentially happen to resources/receptors as a consequence of the project and its associated activities.
- Impact evaluation: To evaluate the significance of the predicted impacts by considering their magnitude and likelihood of occurrence, and the sensitivity, value and/or importance of the affected resources/ receptors.
- Impact mitigation: To identify appropriate and justified measures to mitigate negative impacts and enhance positive impacts.

4.3 BASIS OF IMPACT ASSESSMENT

The impact of the proposed project has been assessed on the basis of their characteristics i.e., nature, type, extent, duration, intensity & frequency and its significance.

Characteristics of Impacts

The impact is described in terms of its characteristics such as nature, type etc. Impact characteristics are given in Table - 4.1.

TABLE 4. 1 IMPACT CHARACTERISTICS

Characteristic	Classification	Description
Nature	Positive impact	When impact is considered to represent improvement to baseline or introduce a new positive factor/change.
	Negative impact	When impact is considered to represent adverse change from the baseline or introduce a new undesirable factor/change.
	Neutral	When there is no impact to represent any change from the baseline and not introducing any new factor/change.
Type	Direct impact	Resulting from a direct interaction between a project activity and the receiving environment / receptors.
	Indirect impact	Resulting from other activities that happened as a consequence of the project.
	Cumulative impact	Impacts that act together with other impacts (including those from concurrent or planned future third-party activities) to affect the same resources and/or receptors as the Project.
Extent	Project Area	When impact due to the project related activities is restricted within the premises of project area i.e. core zone.
	Local	When impact due to the project related activities is restricted within the immediate surroundings i.e. upto 3 km radius.
	Zonal	When impact due to the project related activities is restricted within the study area i.e. up to 10 km radius.
	Regional	When an impact due to the project activity extends within as well as beyond 10 km radius.
Duration	Short - term	When the impact is usually temporary or last for a short time or will have an effect soon rather than in the distant future.
	Long- term	When impact would occur during the development of the project and either takes a long time or lasts a long time or cause a permanent change in the affected receptor/resource.
Intensity	Low	When resulting in slight changes of prevailing baseline conditions and quality of existing physical environment is good. Ecological environments as well as human receptors are not likely to be affected due to the proposed project activity.
	Medium	When resulting in changes of prevailing baseline conditions which are within the benchmark norms and quality of existing physical environment shows some signs of stress. Ecological environment as well as human receptors could be sensitive to change in quality of prevailing baseline condition, but human receptors retain an ability to adapt to change.

Characteristic	Classification	Description
	High	When resulting in changes of prevailing baseline conditions which are exceeding the benchmark norms and quality of existing physical environment is already under stress. Ecological environment as well as human receptors would be impacted to the larger extent and the ability of human receptors to adapt to changes would be undermined.
Frequency	Remote (R)	When resulting in remote or one-off chance of an event due to an activity on a receptor/ resource.
	Occasional (O)	When an impact due to an activity is occurring intermittently from time to time on a receptor/resource.
	Periodic (P)	When an impact due to an activity is resulting on periodic basis for a week or a month on a resource/receptor.
	Continuous (C)	When an impact due to an activity is continuously resulting on a resource/receptor.

Significance of Impacts

Impacts are described in terms of 'significance'. Significance is a function of the magnitude & sensitivity / importance of the impact. Classification of impact significance is given in Table - 4.2.

TABLE 4. 2 SIGNIFICANCE OF IMPACT

Significance	Description
Insignificant	Negligible impact or where a resource or receptor (including people) will not be affected in any way by a particular activity, or the predicted effect is deemed to be 'negligible' or 'imperceptible' or is indistinguishable from natural background variations.
Minor	Where an effect will be experienced, but the impact is well within accepted standards/guidelines with or without mitigation.
Moderate	Where an effect will be experienced and the impact is within accepted standards/guidelines with mitigation.
Major	Impact where an accepted limit or standard may be exceeded or the impact occur to the highly valued/sensitive resource/receptors.

Irreversible and Irretrievable commitments of environmental components

Determining the irreversible and irretrievable commitments of the resources is one of the major stages of impact evaluation, which gives an understanding about the potential impacts that are likely to affect future generations of the area and facilitates for adoption of proper mitigation measure regarding the same.

TABLE 4. 3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF ENVIRONMENTAL COMPONENTS

Commitment of Resources	Description
Irreversible	Irreversible commitment of resources refers to the impact or loss of the resources that cannot be recovered or reversed. Irreversible is a term that describes the loss of future options. It applies primarily to the impacts of use of nonrenewable resources or to those factors that are renewable only over long periods of time.
Irretrievable	Irretrievable is a term that applies to the loss of production, harvest, or use of natural resources. Irretrievable commitment of resources may be considered as the loss of resources as a result of change (both reversible & irreversible) due to any project activity that cannot be regained or recovered.

4.4 INTERACTION MATRIX

The interaction matrix enables a methodical identification of the potential interactions each project activity may have on the range of resources/receptors within the Area of Influence for the Project.

The interaction matrix for the project activities and likely impacted resources/receptors is presented in Table-4.4 which covers potential interactions, regardless of probability of occurrence. The matrix consists of a list of resources/ receptors that could be affected against a list of project activities.

Entries in the matrix cells are tick marked to indicate whether:

- An interaction is not reasonably expected (blank);
- The interaction is reasonably possible and may lead to potential impact (tick marked).

TABLE 4. 4 INTERACTION MATRIX

S. No.	Project Activity / Likely Impacted Resources / Receptors	*Land Acquisition*				Mine development & Process					*Reclamation and Greenbelt/plantation*			*Miscellaneous*		
		Acquiring land	Displacement of households	Displacement of occupation	Rehabilitation & Resettlement of PAFs	Site Clearing within the project area and leveling of site (removal of vegetation, structures etc.), Storage of soil	Mining Operation (excavation with Drilling, blasting)	Loading and unloading of mined out material	Crushing of limestone	Transportation of limestone initially 2 year via road after 3rd year via Covered Conveyor Belt	Dump formation (terracing, construction of garland drains & retaining walls)	Reclamation of mined out pits by backfilling and development of water bodies	Greenbelt Development and maintaining greenbelt of 7.5 m statutory barrier & along roads, canal, nala, belt route etc. Plantation on backfilled area, upper benches,	Workshop for HEMM maintenance in mine	Meeting points of workers/ employees i.e. Rest shelter, canteen	Handling of high explosive in magazine & AN storage shed and fuel
A.	**Physical**															
1.	Air					√	√	√	√	√	√	√	√			
2.	Noise & Vibration					√	√	√	√	√			√	√	√	
3.	Land Use					√	√				√	√	√			
4.	Topography					√	√	√			√	√				
5.	Geology						√					√				
6.	Drainage Pattern					√	√					√				
7.	Surface Water											√				
8.	Ground Water						√					√	√			
9.	Soil					√	√	√				√	√			
B.	**Biological**															

1.	Flora					√	√				√	√	√			
2.	Fauna					√	√					√	√			
3.	NP/WLS/BR/reserves/Forests etc.															
C.	**Social / Socio-Economic**															
1.	Demography	√		√	√											
2.	Physical Displacement															
3.	Land Use (w.r.t. Population influx)						√					√				
4.	Habitation											√				
5.	Economy & Livelihood	√		√	√	√	√					√				
6.	Social & Cultural Structure				√										√	
7.	Infrastructure & Public Services											√				
8.	Public Health						√						√			
9.	Agriculture	√		√	√	√	√									
10.	Transport Infrastructure						√			√		√				
D.	**Occupational Health**															
1.	Injury					√	√	√	√	√		√		√		√
2.	Health						√	√		√						√
3.	Non - routine risk						√									√
	Legends		Show no interactions is reasonably expected								√	Show interactions reasonably possible with one of the outcomes may lead to potential impact				

According to the interactions identified between project activities and resource/receptors as described in the above table, it is evident that the following aspects are likely to have impact due to the mining project (table - 4.5) and therefore, to be considered for Impact Assessment:

TABLE 4. 5 IMPACTED RESOURCES / RECEPTORS

No.	Likely Impacted Resources / Receptors	
A.	**Physical**	Air Quality
		Noise Level, ground vibrations
		Water environment (Surface & Ground water)
		Soil Environment
		Land Use
		Geology &Topography
B.	**Biological environment**	Flora
		Fauna
C.	**Socio economic environment**	Habitation & Demography
		Physical Displacement
		Land use (w.r.t. population influx)
		Economy & Livelihood
		Social & Cultural Structure
		Infrastructure & Public Services
		Public Health
		Agriculture
		Transport Infrastructure
D.	**Occupation Health & Safety**	Injury
		Health
		Non-Routine Risk

Source: *Interaction Matrix*

The impacts of mining on various environmental parameters were assessed and are given below:

4.5 ENVIRONMENTAL IMPACT ASSESSMENT & MITIGATION MEASURES

The proposed mining activities may impact the environment in various ways such as degradation of land, dust generation, deterioration of water and soil quality, affecting the biological and socio-economic environment of the area. The impacts of mining on various environmental parameters were assessed and are given below:

4.5.1 IMPACT ON AIR QUALITY & SAFEGUARD/MITIGATION MEASURES

The proposed mining project include various mining operations involving development of benches, approach roads, excavation, loading, unloading, crushing and transportation of mineral. These operations

generally result in generation of dust and thereby pose health hazards. However, adequate control measures will be provided at every stage of operation such as water sprinkling on haul roads to reduce fugitive dust emissions.

4.5.2 AIR POLLUTION DUE TO PROPOSED LIMESTONE MINING PROJECT

(i) **Gaseous Pollution**

Gaseous pollutants (SO2 and NO2) are anticipated from blasting operation and movement of machineries like excavator, loaders, dumpers, tippers & other vehicles; while generation of pollutants during blasting is instantaneous and momentary.

(ii) **Particulate Matter**

The generation of dust is anticipated from various mining activities like drilling, blasting, excavation, crushing, loading, transportation, unloading and other mining related activities.

4.5.3 AMBIENT AIR QUALITY IMPACT PREDICTION MODELING

Impact Prediction is an important part of Environmental Impact Assessment Study. There are various techniques available to predict the impacts. Mathematical modelling is an established and accepted technique for the same. The ambient air quality impact prediction modelling has been carried out for proposed Total Excavation of 8.91 Million TPA as given below:

TABLE 4. 6 TOTAL HANDLING FOR IMPACT ASSESSMENT

S. No.	Particular	Capacity illion TPA)	native Capacity (TPD) (300 Days)	ak Stage (TPD) idering 20% Max.)
1.	Limestone	2.85	9500	11400
2.	Top Soil	0.04	133	160
3.	Overburden	5.78	19267	23120
4.	Mineral Reject	0.24	800	960
Total Excavation		8.91	**29700**	**35640**

At Normative stage, the limestone production per day 9500 tonnes & others (Top soil, Mineral Reject & Overburden) will be 20200 tonnes; thus, total handling will be 29700 tonnes/day. Excavated limestone will be transported from mine to crusher 55T capacity of Dumper. Total trips of 55 tonnes capacity of dumper required for transport of 9500 tonnes limestone (in a day) will be 173. The number of trips per hour will be 12 (2 shifts @ 7 working hrs). Total trips of 55 tonnes capacity of dumper required for transport of 20200 tonnes Top Soil, Mineral Reject & Overburden (in a day) will be 367. The number of trips per hour will be 26 (2 shifts @ 7 working hrs).

***At Peak Stage**

In case of heavy rainfall/shut down/break down/major maintenance in crusher with belt conveyor and due to short fall may create in limestone stock in plant side; therefore, to cover up this short fall, considered 20% maximum production as compared to daily production & meanwhile in that period development work removal of soil, over burden etc. considered at 20% maximum as compared to daily capacity & same will be dispatched to the Cement Plant. However, the annual production will remain same i.e., Limestone 2.85 Million TPA, Top Soil 0.04 Million TPA, Overburden 5.78 Million TPA & Mineral Reject is 0.24 Million TPA.

After considering the 20% maximum (Days 250) the limestone production per day will be 11400 tonnes & Others (Top Soil, Over Burden & Mineral Reject) will be 24240 tonnes/day; thus, total handling will be 35640 tonnes/day. Excavated limestone will be transported from mine to crusher 55T capacity of dumper. Total trips of 55 tonnes capacity of dumper required for transport of 11400 tonnes limestone (in a day) will be 207. The number of trips per hour will be 15 (2 shifts @ 7 working hrs). Total trips of 55 tonnes capacity of dumper required for transport of 24240 tonnes Top Soil, Mineral Reject & Overburden (in a day) will be 440. The number of trips per hour will be 31 (2 shifts @ 7 working hrs).

This report gives the peak incremental concentration of Particulate Matter up to a distance of 10 km, due to the proposed mining & allied activity. The concentrations have been predicted in all directions covering study period. Spatial distributions of all the pollutants are also presented in the form of Isopleths.

4.5.3.1 ACTIVITIES INVOLVED IN THE PROJECT

Opencast mining involves clearing of vegetation, dozing of soil; drilling, blasting, excavation, loading of soil & overburden into dumpers and its temporary stacking & transportation to dump yards. Initially, limestone will be transported to proposed Cement Plant by 35T capacity of tippers via road from the proposed mine site.

4.5.3.2 EMISSION RATE AS PER MATERIAL HANDLED

The emissions in the present case have been computed using empirical factor given in “Indian Mining and Engineering Journal”. Emission rate and pollution load due to each activity has been calculated and given below:

Fugitive emissions have been predicted by using standard equations is taken from the equation suggested by USEPA for mining & allied activities. The modelling is done for the entire production.

SI.No	Activity	Equation
1	Excavation of Waste and Limestone	26.3 g/t total Particulate matter for every material handling
2	Drilling & blasting	0.59kg/hole
3	Waste and Ore	8910000 TPA

Excavation of Waste and Limestone

SI.No	Activity	Equation
1	**Waste and Ore**	8910000 TPA

Core Zone: - Dust emission to excavation, extraction, loading, unloading, haulage, crushing
Dust emission: Pa * 23.6/Wd/Wh*1000

SI.No	Activity	Equation
1.	Production in TPA	8910000
2.	Material excavated/tph (300 days * 6 hrs/day)	2475
3.	Dust emission Kg/Hr during excavation	32.5 kg/hr 9.01 g/s
4.	Controlled emission	6.49 Kg/hr 3.61 g/s

Haulage Emissions (Unpaved) – Transport of OB/Waste to Dump

Particulars	**PM_{10}**	**$PM_{2.5}$**
Quantity, TPA	8910000	
Operational hours per day	10-12	
Capacity of each truck (mineral)	55 T	
Total number of trips per hour	2	
Max. Lead length per trip, km	4.60	
USEPA Emission Equation, kg/VKT	$E=K(S/12)^a(W/3)^b$	
Emission, kg/VKT	4.08	0.41
Uncontrolled Emission rate, g/sec	0.156	0.016
Controlled Emission rate, g/sec	0.047	0.005
Paved roads		
USEPA Emission Equation, kg/VKT	$E=k\ (SL/2)^{0.65}(W/3\ )^{1.5}$	
Emission, kg/VKT	17.9	4.29
Uncontrolled Emission rate, g/sec	0.69	0.16
Controlled Emission rate, g/sec	0.21	0.048

Gaseous Emissions (Transportation)

Line emissions (tail end)	**Emission Factor***	**Emission rate**
NOx	3.5 g/km-hr	2.0×10^{-4} g/s/m
CO	1.5 g/km-hr	8.6×10^{-5} g/s/m
Source: - CPCB Vehicular Emissions Standards' 2006 Norms		

Drilling and Blasting:

Maximum no of holes– 16 holes/round

Total particulate matter= 9.44 kg/round

Blast hole drilling=0.096 Ib/blast

TABLE 4. 7 DETAILS OF PROPOSED STACK EMISSIONS

S. No.	Parameters	Units	Lime Stone Crusher (1000TPH) Stack-I	D. G. Set (250 kVA) Stack-II
1	Stack Height	m	15	8
2	Top diameter of flue	m	1.0	0.15
3	Flue gas velocity	m/sec	10	12
4	Exit Flue gas temperature	^{o}K	313	453
5	Flue gas flow rate	m^3/sec	7.854	0.212
6	Emission rate at stack exit			
A	PM_{10} emission rate	g/s	0.18	0.007
B	$PM_{2.5}$ emission rate	g/s	0.11	0.006
C	NOx	g/s	--	0.042
D	CO	g/s	--	0.021

4.5.4 AIR QUALITY DISPERSION MODEL

Prediction of incremental Ground Level Concentrations (GLC's) due to the proposed Limestone Mine has been made by AERMOD view 10.2.1 Model AERMOD and 24.0.0.98. It is US-EPA approved model for prediction of the air quality. For this study, uniform polar receptors have been assumed. Modelling has been done considering area source, line source and point source for mine.

4.5.5 METEOROLOGICAL DATA/MODEL INPUT PARAMETERS FOR AERMOD

a) **Meteorological Data**

Meteorological inputs are Temperature, Relative Humidity, Wind Speed and Wind Direction etc. which was recorded at site during Summer Season (March to May, 2023) and Revalidate the baseline during Summer season (March to May 2025).

b) **Stack Emission**

Stack emission details of Crusher of mine.

4.5.5.1 AMBIENT AIR QUALITY STANDARDS

Ambient air quality standards promulgated by National Ambient Air Quality Standards for different areas are as follows

TABLE 4. 8 AMBIENT AIR QUALITY STANDARDS

Area	Time Weighted Average	Concentration (µg/m^3)			
		PM_{10}	$PM_{2.5}$	SO_2	NO_2
Industrial Area, Residential Rural and Other Areas	Annual Average *	60	40	50	40
	24 hours **	100	60	80	80
Ecologically Sensitive Area (Notified by Central Govt.)	Annual Average *	60	40	20	30
	24 hours **	100	60	80	80

Source: *NAAQS, 2009*

4.5.6 AMBIENT AIR QUALITY MODELLING

Air pollution modeling is a numerical tool used to describe the causal relationships between emissions, meteorology, atmospheric concentrations, deposition and other factors. Air pollution measurements give important quantitative information about ambient concentrations and deposition, but they can only describe air quality at specific locations & time, without giving clear guidance on the identification of the causes of the air quality problem. Air pollution modeling, instead, can give a more complete deterministic description of the air quality problem, including an analysis of factors and causes (emission sources, meteorological processes, and physical and chemical changes) and some guidance on the implementation of mitigation measures.

4.5.6.1 POLLUTION EMISSION INVENTORY

Development of pollutant emission inventory is essential part of any dispersion modeling and emission rate is one of the important input parameters. It is necessary to understand the source of emission of air pollution from each mining activity.

In Limestone mining, most of the major activities contribute to the emission of particulate matter, right from exploration to exploitation including mineral processing. The location of these activities is Drilling, Limestone/Overburden Loading, Haul Road, Limestone/Overburden Unloading, Crusher, Stock Yard, Exposed Pit Surface, Exposed Waste Dump, Waste Loading and Unloading etc. Numerous researchers have derived various formulation based on the experimental data and generalized the emission calculation for various open cast mining activities irrespective of type of mining ***(CIMFR, 1998; Chakraborty et al. 2002).***

PRESENATAION OF RESULTS

In the present case, model simulations have been carried out for proposed mining to obtain an optimum description of variations in concentration over the site in 10 km radius covering 16 directions.

TABLE 4. 9 PREDICTED INCREMENTAL CONCENTRATION OF PM10 IN SUMMER SEASON IN MARCH TO MAY 2025

Code	Location	Resultant	Predicted Incremental Concentration	Total Expected
A1	Taroongi	63.8	1.41	65.21
A2	Crusher	61.5	1.77	63.27
A3	Bharja	55.3	1.23	56.53
A4	Vatera	52.4	3.13	55.53
A5	Rohida (Vasa)	58.3	1.23	59.53
A6	Rohida	53.2	1.43	54.63
A7	Delder	56.9	0.14	57.04
A8	Wada	49.5	0.64	50.14
A9	Bhimana	66.8	1.20	68
A10	Urwariya	51.4	0.63	52.03
A11	Hirawala	62.1	1.07	63.17

TABLE 4. 10 PREDICTED INCREMENTAL CONCENTRATION OF PM2.5 IN SUMMER SEASON IN MARCH TO MAY 2025

Code	Location	Resultant	Predicted Incremental Concentration	Total Expected
A1	Taroongi	35.3	0.50	35.8
A2	Crusher	32.9	0.61	33.51
A3	Bharja	29.8	0.42	30.22
A4	Vatera	31.4	0.55	31.95
A5	Rohida (Vasa)	40.2	0.14	40.34
A6	Rohida	33.1	0.17	33.27
A7	Delder	29.9	0.21	30.11
A8	Wada	26.2	0.20	26.4
A9	Bhimana	43.5	0.48	43.98
A10	Urwariya	38.4	0.17	38.57
A11	Hirawala	38.5	0.23	38.73

TABLE 4. 11 PREDICTED INCREMENTAL CONCENTRATION OF NOX IN SUMMER SEASON IN MARCH TO MAY 2025

Code	Location	Resultant	Predicted Incremental Concentration	Total Expected
A1	Taroongi	22.7	0.10	22.8
A2	Crusher	23.7	0.07	23.77
A3	Bharja	19.2	0.09	19.29
A4	Vatera	21.5	1.42	22.92
A5	Rohida (Vasa)	19.4	0.35	19.75
A6	Rohida	16.8	0.55	17.35
A7	Delder	25.0	0.01	25.01
A8	Wada	17.3	0.04	17.34
A9	Bhimana	18.3	0.13	18.43
A10	Urwariya	17.1	0.14	17.24
A11	Hirawala	16.9	0.17	17.07

TABLE 4. 12 PREDICTED INCREMENTAL CONCENTRATION OF CO IN SUMMER SEASON IN MARCH TO MAY 2025

Code	Location	Resultant	Predicted Incremental Concentration	Total Expected
A1	Taroongi	0.94	0.06	1.00
A2	Crusher	0.62	0.05	0.67
A3	Bharja	0.59	0.05	0.64
A4	Vatera	0.65	0.45	1.1
A5	Rohida (Vasa)	0.54	0.10	0.64
A6	Rohida	0.69	0.18	0.87
A7	Delder	0.58	0.01	0.59
A8	Wada	0.51	0.02	0.53
A9	Bhimana	0.91	0.06	0.97
A10	Urwariya	0.65	0.04	0.69
A11	Hirawala	0.71	0.08	0.79

The incremental concentrations have been estimated based on mathematical emission data-based modelling. For each time scale, i.e. for 24 hrs, the model computes the maximum GLC observed during the period over all the measurement points. Existing values has been covered in the Background Ambient Air Quality Monitoring. The Ground level incremental concentrations are estimated for the monitoring period. For each time scale, i.e. for 24 hr the model computes the highest concentrations observed during the period over all the measurement points.

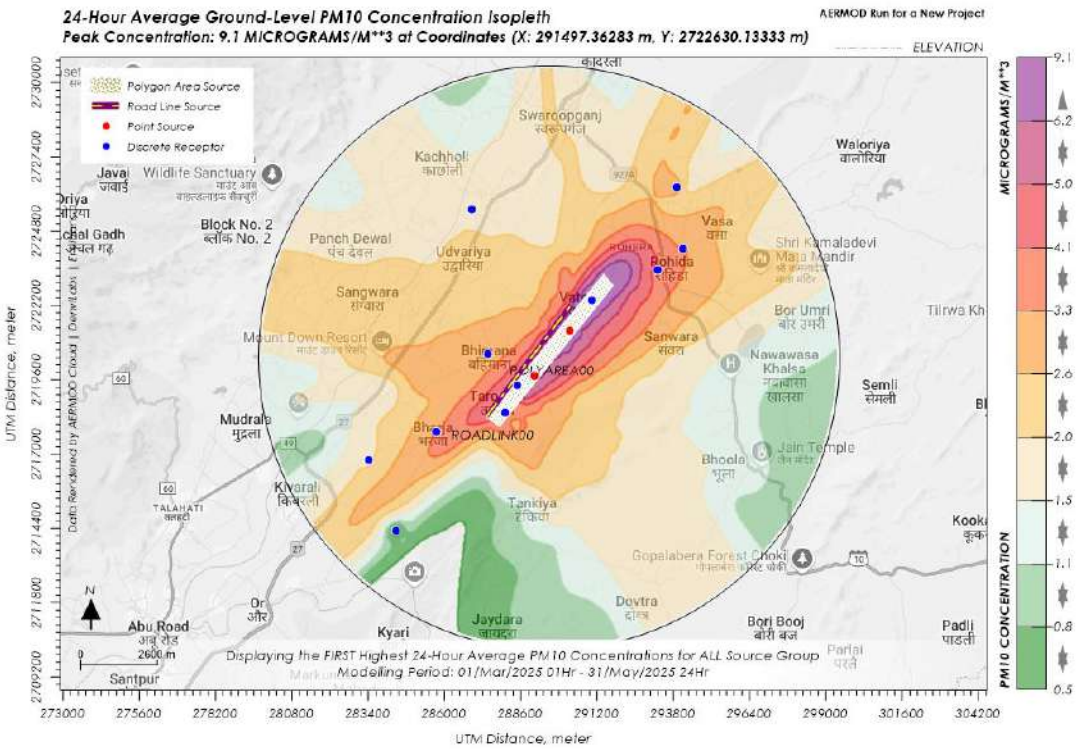


FIGURE 4. 1 INCREMENTAL CONCENTRATION OF PM10 WITHOUT EMP

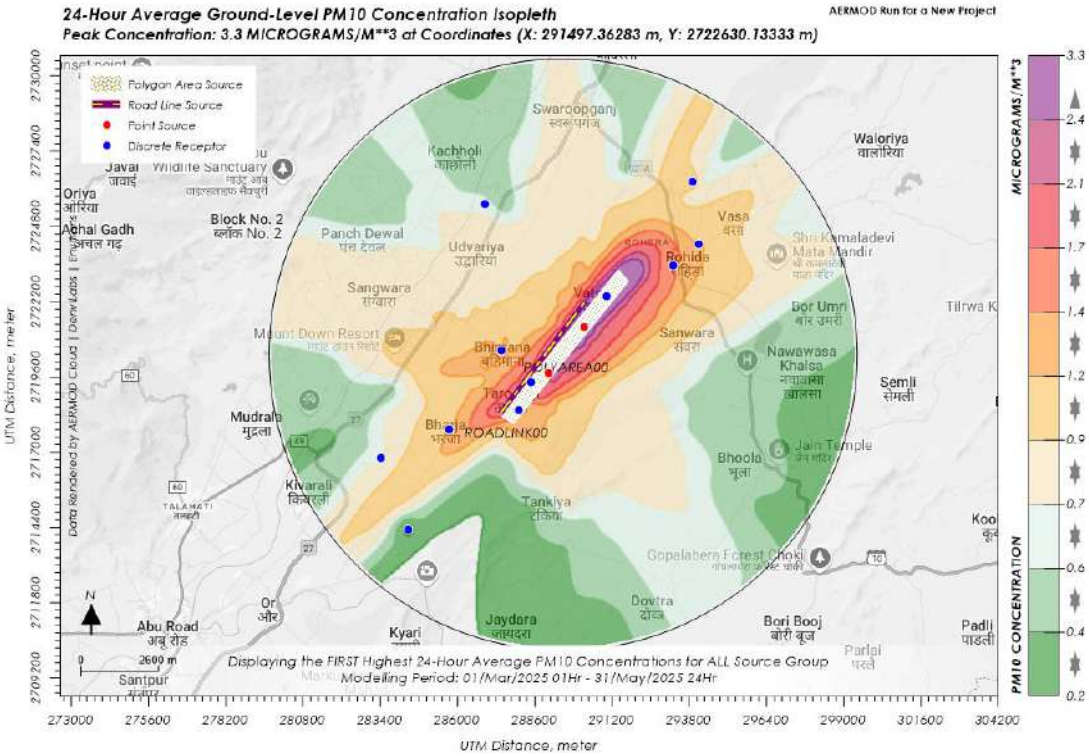


FIGURE 4. 2 INCREMENTAL CONCENTRATION OF PM10 WITH EMP

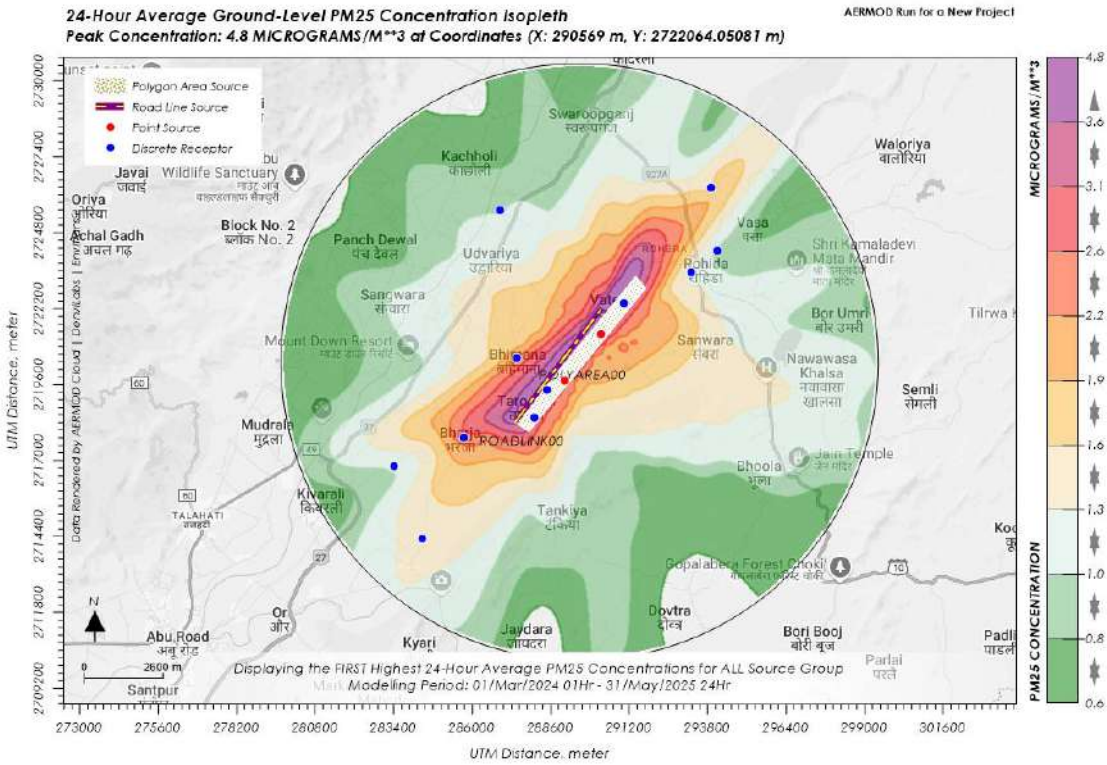


FIGURE 4. 3 INCREMENTAL OF PM2.5 CONCENTRATION WITHOUT EMP

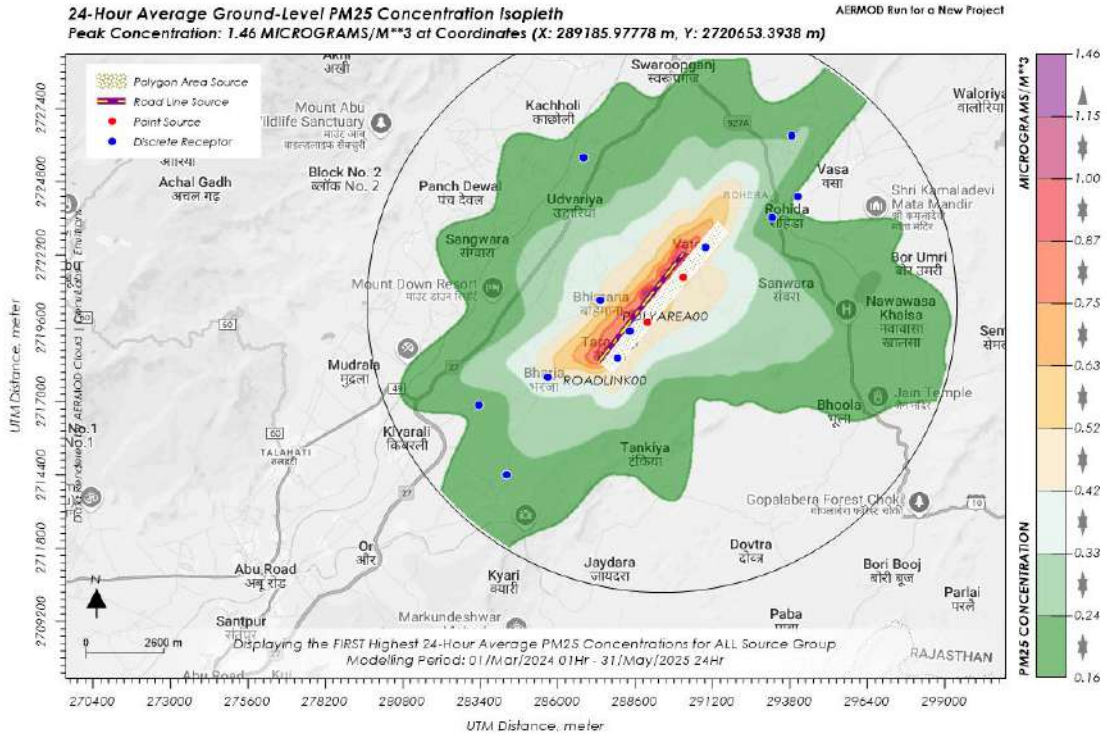


FIGURE 4. 4 INCREMENTAL CONCENTRATION OF PM2.5 WITH EMP

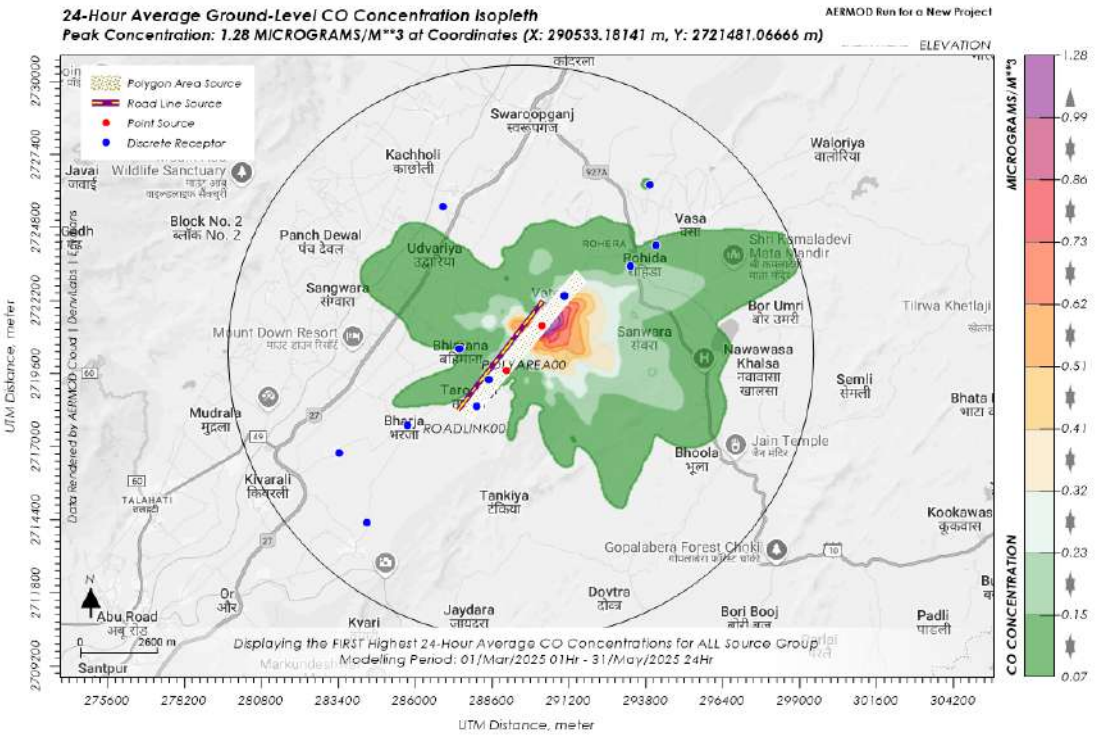


FIGURE 4. 5 INCREMENTAL CONCENTRATION OF CO

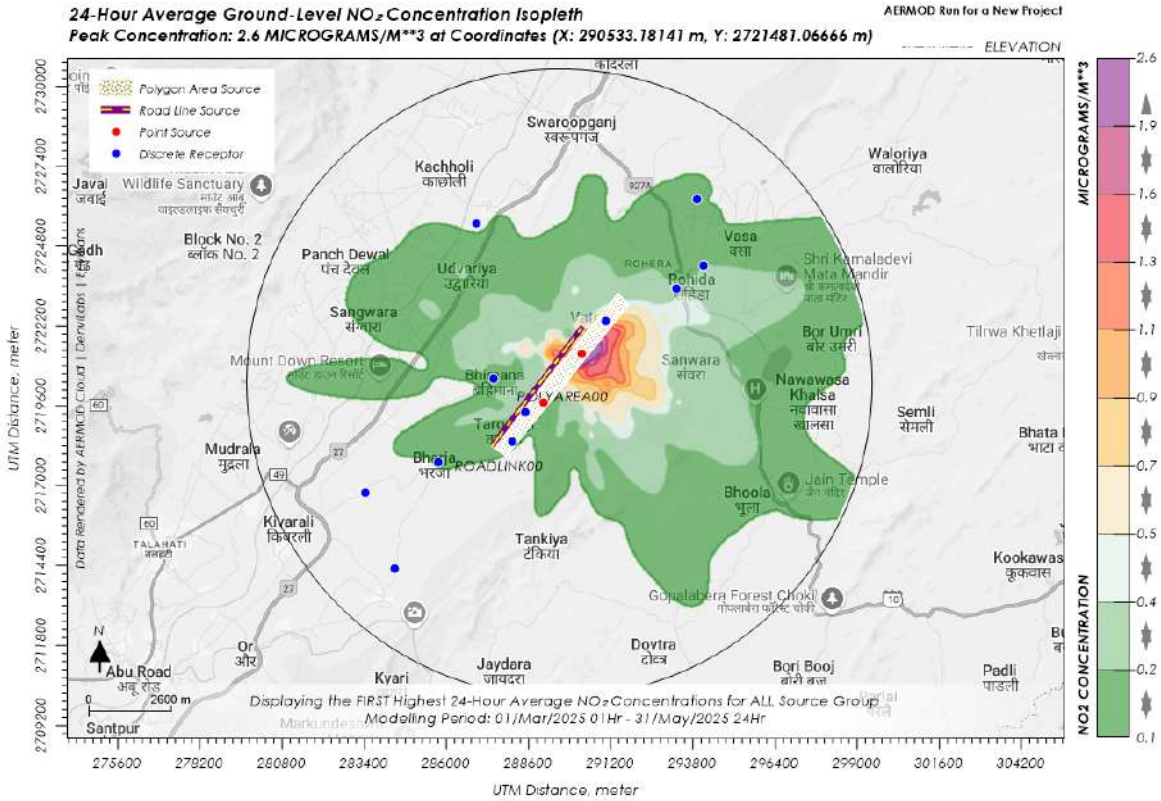


FIGURE 4. 6 INCREMENTAL CONCENTRATION OF NOX

4.5.7 MITIGATION MEASURES

Following mitigation measures will be adopted to mitigate air pollution generated due to the mining activities:

- Drilling machines are proposed to be equipped with wet drilling arrangements and cyclone dust collectors.
- Controlled blasting is proposed to be adopted and optimum use of explosive energy will help in reducing the air pollution. Secondary blasting will be avoided.
- Rock breakers are proposed to be used for breaking oversized boulders in order to reduce the dust generation.
- Blasting will be done by using Explosives and 100% NONEL Shock Tubes.
- Ensuring proper stemming after charging of explosives. Proper stemming material (Stone chips and drill cuttings) will help in minimizing dust throw thereby lowering the spread of dust particles in ambient air pollution.
- Water spray on blasted muck pile before dozing/loading to control dust generation.
- Water sprinkling on blasted heaps, stacks, haul roads, access roads, operating benches and faces.
- Proper maintenance of the HEMMs & transportation vehicles will be done.
- Overloading of material during transportation will be avoided.
- Personal Protective Equipment like dust masks will be provided to the mine employees.
- Crusher will be equipped with bag filters to ensure adequate control of air borne dust.
- Water sprinkling system will be provided at crusher and transfer points and to arrest dust from becoming air-borne.
- Regular water spraying on the haul roads will be done.
- Development of green belt during plan period and further plantation is proposed along the safety zone of various constraints, reclaimed area as per approved mining plan
- Regular Ambient Air Quality Monitoring will be carried out as per CPCB guideline.

In compliance of Specific ToR Point No. 1.31, Permanent water sprinklers will be installed within the mine. Total 745 permanent water sprinkler will be installed in first five year along with budget of 38 lakhs of capital cost and 4 lakhs recurring cost.

S. No.	Year	Length of Haul Road (m)	No. of Water Sprinkler
1	2026-27	2270	454
2	2027-28	970	194
3	2028-29	19	4
4	2029-30	468	93

4.5.3.2 IMPACT EVALUATION

Ambient Air Quality monitoring results are given in Chapter 3 of this EIA/EMP Report. From the results of modelling, it is evident that baseline AAQ results when added in the predicted incremental value, the resultant GLC concentrations were found well within the prescribed norms. Impact evaluation is given in Table below.

TABLE 4. 13 IMPACT EVALUATION FOR AMBIENT AIR QUALITY

Impact Evaluation Element	Change of Air Quality due to the Proposed Limestone Mining Project			
Potential Effect/ Concern	Impact on health of humans and nearby biological/ecological receptors due to line and point sources of air emissions including fugitive dust emissions during limestone mining activities from the proposed Project.			
Characteristics of Impacts				
Nature	Positive		***Negative***	Neutral
			√	
Type	***Direct***	Indirect	Cumulative	
	√			
Extent	*Project Area*	*Local*	**Zonal**	Regional
		√		
Duration	Short – term		Long- term	
			√	
Intensity	Low		***Medium***	High
			√	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	**Continuous (C)**
				√
4.5.8 SIGNIFICANCE OF IMPACT				
4.5.9 SIGNIFICANCE	Insignificant	Minor	**Moderate**	Major
			√	

4.5.10 IMPACT OF NOISE / VIBRATIONS MITIGATION MEASURES

4.5.10.1 IMPACT OF NOISE ON WORKING ENVIRONMENT

With the mining operations for mine development, excavation, crushing and transportation of limestone, it is imperative that noise levels would increase.

However, the expected noise levels are not likely to have any adverse effect from the occupational health point of view.

1. Noise Generated due to Drilling, Excavation & Transportation

Various mining activities i.e. drilling, excavation, transportation and crushing will increase the noise level in surrounding environment. Noise level near drilling operation: 90-92 dB(A), near Excavator: 83-85dB(A),

near Dumper/Tipper: 80-85dB(A), Crushers: 90-95dB(A) will be maintained as per CPCB Noise standards 2000.

2. Noise Generated Due to Blasting

Noise generated from blasting is for a short duration and instantaneous. Noise of blast is site specific and depends on type, quantity of explosives, dimensions of drill holes, degree of compaction of explosive in the blast holes. Noise generated from blasting is around 100 dBA level or more for a short period in milli second periods. The noise levels tend to decrease significantly with distance. The impact of noise will be restricted to mining activity area only, as plantation/ green belt will be developed around the mine which restricts the propagation of noise.

3. Noise Impact Analysis on Community

Ambient noise levels were measured at 8 locations around the mine site. Noise levels varied from 50.3 to 53.9 Leq dB (A) during day time and from 48 to 52.3 Leq dB(A) during night time in study area.

The predicted noise levels indicate that there will be no significant increment to the ambient noise levels.

Overall, it can be stated that the impact on the present noise levels due to mining operations will mainly be restricted to the active mine area and it will attenuate fast at mine boundary in majority of directions.

MITIGATION MEASURES TO REDUCE NOISE LEVEL

- Drilling will be carried out with sharp drill bits to achieve optimum drilling performance and to reduce noise generation at source will be adopted.
- Closed cabin will be provided for drill operator and HEMM Operators.
- PPEs i.e. earplug in drilling & in high noise area shall be used.
- Secondary blasting is proposed to be totally avoided and Hydraulic rock breaker is proposed to be used for breaking oversize boulders.
- Controlled blasting with proper spacing, burden, stemming and optimum charge per delay is adopted to minimize noise and vibrations.
- Blasting will be carried out during day time only.
- Blasting will be carried out by use of non-electric initiation system and the impact of noise generated due to blasting will be momentary.
- Explosives charge per hole and per delay will be maintained as per DGMS guidelines.
- Vibrations and noise generated by blasting will be monitored regularly.
- Adequate silencers in HEMMs will be provided to reduce generation of noise.
- Proper and regular maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise.
- All HEMMs will be equipped with acoustic a/c closed cabins for operators.
- The workers employed at HEMMs will be provided with protective equipment, earmuffs and earplugs

as protective measures from the high noise level generated at the mine site and wherever required.

- Greenbelt is proposed to be developed in the 7.5 m barrier zone of proposed block area during plan as plantation minimizes propagation of noise.
- Regular monitoring of noise will be carried out.

4.5.10.3 IMPACT EVALUATION OF NOISE

Ambient Noise Level monitoring results are given in Chapter 3 of this Draft EIA/EMP Report. From this it is evident that results are well within the prescribed norms. Impact evaluation is given in table below.

TABLE 4. 14 IMPACT EVALUATION FOR NOISE

Impact Evaluation Element	Change in Noise Level due to the Proposed Limestone Mining Project			
Potential Effect/ Concern	Impact on health of humans and biological factors/receptors due to noise generated due to mining activities during day and night time and also on occupational health of the workers exposed to noise.			
Characteristics of Impacts				
Nature	Positive		***Negative***	Neutral
			√	
Type	***Direct***	Indirect	Cumulative	
	√			
Extent	***Project Area***	*Local*	Zonal	Regional
	√			
Duration	Short – term		Long- term	
	√			
Intensity	Low		***Medium***	High
			√	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	**Continuous (C)**
			√	
4.5.11 SIGNIFICANCE OF IMPACT				
4.5.12 SIGNIFICANCE	Insignificant	Minor	**Moderate**	Major
			√	

4.5.13 IMPACT OF VIBRATION DUE TO BLASTING

Ground vibration, fly rock, noise, dust and fumes shall have the deleterious effects of blasting operation on environment. The explosive energy sets up a seismic wave in the ground, which can cause significant damage to structures and disturbance to human occupants.

When an explosive charge is fired inside the blast hole, it is converted into hot gases, which exert intense pressure on the blast hole walls. High intensity shock waves propagate radically in all directions and cause the rock particles to oscillate. This oscillation is felt as ground vibration. Blasting, in addition to easing the hard strata, generates ground vibrations and instantaneous noise. Ground vibration from mine blasting is

expressed by amplitude, frequency and duration of blast. The variables, which influence ground vibrations, are controllable and non-controllable. The non-controllable variables include general surface terrain, type and depth of overburden. Similarly, the controllable variables include type of explosives, charge per delay, delay interval, direction of blast progression, burden, spacing, specific charge and coupling ratio.

Controlled Blasting Study by IIT Jodhpur

1. Methodology of Controlled blasting

a. Basic Blast Design Parameters

Blast design in mining operations requires meticulous optimization of geometric and explosive parameters to achieve efficient rock fragmentation while ensuring safety and cost-effectiveness.

b. Ground vibration standards in India

The prescribed limits of the peak particle velocity (mm/s) as prescribed by the Directorate of General of Mines Safety (DGMS) on ground vibrations for different structures depending on the frequency of blast waves (technical Circular no. 7, 1997) are given in the Table:

TABLE 4. 15 PERMISSIBLE PEAK PARTICLE VELOCITY (MM/S)

No.	Type of Structure	hinant Excitation Frequency (Hz)		
		< 8 Hz	- 25 Hz	25 Hz
A)	**Buildings/structures not belonging to the owner**			
1.	Domestic houses/structures (Kuchcha, brick and cement)	5	10	15
2.	Industrial Buildings (RCC and framed structures)	10	20	25
3.	Objects of historical importance and sensitive structure	2	5	10
B)	**Buildings belonging to the owner with limited life span**			
1.	Domestic houses/structures (Kuchcha brick and cement)	10	15	25
2.	Industrial buildings (RCC and framed structures)	15	25	50

Source: DGMS Circular No. 7 dated 29.8.1997

c. Air Overpressure Assessment Methodology

An air blast is an airborne shock wave that results from the detonation of explosives. The severity of an air blast is dependant on explosive charge, distance, and especially the explosives confinement.

The below Table gives the typical air overpressure limits for surface mine blasting (Oriard 2022).

Type of effect	Air Overpressure dB(L)
General window breakage	171
Occasional window breakage	151
Long-term history of application as a safe project specification	140
Bureau of Mines recommendation following a study of large-scale surface mine blasting	134

d. Ground vibration prediction

As this is a green field and no prior blasting data is available, therefore for this assessment, site constants of K = 210.17 and b = 1.39 were used as reference value from nearby mines. Based on these parameters the expected peak particle velocity (PPV) for various charge (kg) per delay at distances are shown in Table.

Estimated PPV (mm/s) for various Charge (kg) per delay at various distances.

Potential Charge (Kg)/delay	Distance from the blast site (m)									
	50	100	150	200	250	300	350	400	450	500
	Peak particle velocity (PPV) in mm/s									
10	4.53	1.73	0.98	0.66	0.48	0.38	0.30	0.25	0.21	0.18
15	6.00	2.29	1.30	0.87	0.64	0.50	0.40	0.33	0.28	0.24
20	7.33	2.80	1.59	1.07	0.78	0.61	0.49	0.41	0.35	0.30
25	8.56	3.27	1.86	1.25	0.91	0.71	0.57	0.48	0.40	0.35
20	7.33	2.80	1.59	1.07	0.78	0.61	0.49	0.41	0.35	0.30
30	9.72	3.71	2.11	1.41	1.04	0.81	0.65	0.54	0.46	0.40
35	10.82	4.13	2.35	1.57	1.15	0.90	0.72	0.60	0.51	0.44
40	11.87	4.53	2.58	1.73	1.27	0.98	0.79	0.66	0.56	0.48
45	12.88	4.92	2.80	1.88	1.38	1.07	0.86	0.72	0.61	0.52
50	13.86	5.29	3.01	2.02	1.48	1.15	0.93	0.77	0.65	0.56
55	14.81	5.65	3.22	2.16	1.58	1.23	0.99	0.82	0.70	0.60
60	15.73	6.00	3.42	2.29	1.68	1.30	1.05	0.87	0.74	0.64
65	16.63	6.35	3.61	2.42	1.78	1.38	1.11	0.92	0.78	0.68
70	17.51	6.68	3.80	2.55	1.87	1.45	1.17	0.97	0.83	0.71
75	18.37	7.01	3.99	2.67	1.96	1.52	1.23	1.02	0.87	0.75
80	19.22	7.33	4.17	2.80	2.05	1.59	1.29	1.07	0.91	0.78
85	20.04	7.65	4.35	2.92	2.14	1.66	1.34	1.11	0.95	0.82
90	20.85	7.96	4.53	3.04	2.23	1.73	1.39	1.16	0.98	0.85
95	21.65	8.26	4.70	3.15	2.31	1.79	1.45	1.20	1.02	0.88
100	22.44	8.56	4.87	3.27	2.40	1.86	1.50	1.25	1.06	0.91

105	23.21	8.86	5.04	3.38	2.48	1.92	1.55	1.29	1.09	0.95
110	23.98	9.15	5.21	3.49	2.56	1.99	1.60	1.33	1.13	0.98
115	24.73	9.44	5.37	3.60	2.64	2.05	1.65	1.37	1.17	1.01
120	25.47	9.72	5.53	3.71	2.72	2.11	1.70	1.41	1.20	1.04
125	26.20	10.00	5.69	3.81	2.80	2.17	1.75	1.46	1.24	1.07
130	26.93	10.27	5.85	3.92	2.87	2.23	1.80	1.50	1.27	1.10
135	27.64	10.55	6.00	4.02	2.95	2.29	1.85	1.54	1.30	1.13
140	28.35	10.82	6.16	4.13	3.03	2.35	1.90	1.57	1.34	1.15
145	29.05	11.08	6.31	4.23	3.10	2.41	1.94	1.61	1.37	1.18
150	29.74	11.35	6.46	4.33	3.18	2.46	1.99	1.65	1.40	1.21

Considering the estimated PPVs in above Table and other mine parameters as described before, the following optimized and conservative blast design parameters, as tabulated below:

Suggested blast design parameters for controlled blasting

Blast Design Parameters	Distance from the infrastructure with 10 mm/s max permissible vibration limit					
	50m	100m	200m	300m	400m	500m
Hole diamater, d (mm)	100	100	100	100	100	100
Bench height (m)	10	10	10	10	10	10
Charge (Kg)/delay	10 to 15	30 to 35	40 to 45	60 to 65	60 to 65	60 to 65
Blast hole depth, m	1.5 to 2	4 to 4.5	5 to 5.5	5 to 5.5	5 to 5.5	5 to 5.5
Stemming length, m	8.5	5.5 to 6	4.5 to 5	4.5 to 5	4.5 to 5	4.5 to 5
Burden, m	2.2	2.2	2.2	2.2	2.2	2.2
Spacing,m	2.5	2.5	2.5	2.5	2.5	2.5
Subdrilling, m	0.7	0.7	0.7	0.7	0.7	0.7
Bench width, m	15	15	15	15	15	15
Number of rows	5 to 7	5 to 7	5 to 7	5 to 7	5 to 7	5 to 7
Number of holes per row	7 to 10	8 to 11	8 to 11	8 to 11	8 to 11	8 to 11
Hole to Hole delay (ms)	17.0	17.0	17.0	17.0	17.0	17.0
Row to row delay (ms)	35.0	35.0	35.0	35.0	35.0	35.0
Explosive types	ANFO	ANFO	ANFO	ANFO	ANFO	ANFO
Maximum Fly rock range (Factor of safety 1.5)	Approx. 53 m					
Vibration (PPV), mm/s	6	4.12	1.73	1.3	0.87	0.64
Air Overpressure (kPa)	0.09	0.05	0.03	0.02	0.01	0.01
Noise level (dB)	132.9	128.6	122.2	112.3	116.3	113.9

Blast-Induced Air Pressure Analysis

The potential air overpressure estimated at various distances for the chosen charge for both the "unconfined" and confined" conditions are tabulated in below Table. As seen from the table, unconfinement can lead to severe overpressure that can lead to damages, such as widow break and rattle even at more than

500 m distance. However, the over pressure is significantly reduced if proper and adequate confinement is provided. Here two conditions are simulated -- confined (K = 3.3) and unconfined (250).

Pressure at various distances for "confined" and "unconfined" conditions

Maximum instantaneous charge (kg), Q	State of confinement, K	Distance from charge (m)	Pressure (kPa)	Sound Pressure Level (SPL) (dB)
35	185	100	3.01	163.6
45	185	200	1.45	157.2
65	185	300	1.03	154.2
65	185	400	0.73	151.2
65	185	500	0.56	148.9
15	3.3	50	0.09	132.9
35	3.3	100	0.05	128.6
45	3.3	200	0.03	122.2
65	3.3	300	0.02	119.3
65	3.3	400	0.01	116.3
65	3.3	500	0.01	113.9

Atmospheric and Topographical Considerations: Meteorological factors including wind speed, atmospheric pressure, and temperature gradients are known to impact influence the air pressure and can be estimated by using correction factors ranging from 0.8 to 1.2 depending on atmospheric conditions. Additionally, the topography can further influence the air pressure, where valleys potentially experiencing amplification factors of 1.5 to 2.0 compared to open terrain.

Flyrock Distance Analysis

The parameters relevant to the calculation of maximum flyrock distance and the average estimated flyrock distance in tabulated in below Table.

Maximum Projection Distance Calculations

McKenzie Model			
Parameters	**Values**	**SDoB**	**Max range (m)**
Stemming, m	4 to 4.5	2.39 to 2.655	28 to 35
Explosive density, g/cc	0.85		
Explosive diameter, mm	100		
Length of 10 Explosive diameter, m	1		

Overall Impact Assessment

The overall impact assessment evaluates response of infrastructures to combined blast effects including ground vibrations, air overpressure, and potential flyrock impacts. The analysis considers typical rural residential construction with unreinforced masonry walls and concrete or tile roofing systems. For ground

vibrations, the assessment applies frequency-dependent damage criteria. The calculated PPV values of 4.12 mm/s at 100 meters and 1.73 mm/s at 200 meters fall well below the threshold for cosmetic damage (12.7 mm/s) and below the DGMS safe limit of 5 mm/s for domestic structures. The predominant frequency range of 15-25 Hz corresponds to the higher permissible limit of 10 mm/s, providing additional safety margin.

Air overpressure effects on structures are evaluated using the criteria stated in the methodology. The estimated over pressure with confinement is 0.02 kPA (132.9 dB) at 50m, and 0.05 (128 dB) at 100m. So it is estimated, that if proper confinement is maintained, the air overpressure will be below the structural and human damage threshold at 100m and beyond. The flyrock analysis indicate that without any mitigation measures, the blasted rock may disperse up to 35 meters from blast point. If a Factor of Safety (foS) of 1.5 is considered, a minimum safe distance stands approximately at 53 meters.

2. Recommendations and Mitigation Measures

- The comprehensive impact assessment, which takes into account ground vibration, air overpressure, and flyrock, reveals that all relevant parameters are either at or marginally below the prescribed limits. Consequently, any infrastructure located within a 100-meter radius may be at risk. We strongly advise the relocation of such infrastructure to a safer distance.
- The average flyrock distance is calculated to be between 28-35 m. Considering a Factor of Safety of 1.5, it is suggested that at least 52.5 m distance is maintained during blasting.
- It is recommended to muffle the entire blasting area using blasting mats/wiremesh with sufficient sandbags. It is recommended that “Blast guards” are positioned beyond estimated flyrock zone.
- Blasting time should be fixed in consultation with and regularly communicated to the concerned stakeholders of the nearby village.
- It is strongly recommended that the permission for “Controlled blasting” is obtained and controlled blasting study is carried out in detail once the blasting starts, where ground vibration data is measured using seismographs and collected field data is compared against the prescribed regulations. Based on the field collected data during and following the controlled blasting, the proposed blasting design in the report should be reviewed in order to update, modify, and/or redesign.
- Ground vibration in terms of Peak particle velocity (PPV) of each and every blast shall be measured by seismograph and record of the same will be maintained at the site.

- Stemming requirements must be rigorously enforced, with minimum stemming length equal to 25 times the hole diameter for holes within 200 meters of structures. Angular crushed stone stemming provides superior confinement compared to drill cuttings, reducing both air overpressure and flyrock potential. Stemming inspection using calibrated measuring rods is required before each blast.
- Sequential blasting with inter-hole delays of 25-42 milliseconds reduces peak instantaneous charges while maintaining fragmentation efficiency. The delay sequence should progress away from habitation areas, further reducing cumulative vibration effects. Electric detonators with reliable timing accuracy (±1 millisecond) are mandatory to prevent sympathetic detonation that could create larger effective charges.
- Increase the confinement of explosive charge with longer stemming height and avoid shallow depth. Based on field experience choose delay time to ensure that the face velocity is less than the velocity of sound in air (320 m/s). void conducting blasting operation when the wind direction is critical or during cloudy weather.
- Air overpressure monitoring utilizes precision pressure transducers with frequency response extending to at least 2 Hz to capture low-frequency pressure waves. Monitoring stations should be positioned both upwind and downwind of blast locations to account for atmospheric effects. Meteorological monitoring including wind speed, direction, and atmospheric pressure is required to apply appropriate correction factors to overpressure predictions. Further, as the excavation continues, the potential amplification factors of 1.5 to 2.0 must be taken into account while estimating the air overpressure.
- The blasting operation will generate particulate matter (PM10 and PM2.5) and to a very limited extent SOX, NOX and CO due to blasting (using explosives). Therefore, the following are recommended a) Wet drilling to suppress the dust emission from drill machines. b) Periodic water sprinkling on blasted heaps, haul roads etc. c) Use of sharp drill bits for drilling. d) Optimal charging of blast holes and use of delay detonator. e) Use of quality explosives having proper oxygen balance. f) Avoid blasting during high windy periods and temperature inversion period
- Emergency response protocols must address potential blast-related incidents including structural damage, flyrock incidents, or environmental concerns. A dedicated blast response team should be available during all blasting operations, equipped with communication

systems, medical supplies, and damage assessment capabilities. Response procedures should be coordinated with local authorities and emergency services.

- Community engagement programs should establish regular communication channels with affected residents, providing advance notification of blasting schedules and opportunity for concerns to be addressed. Compensation mechanisms should be established for any verified blast-related damage, with independent structural assessments available upon request. Quarterly community meetings provide forums for ongoing dialogue and continuous improvement of blasting practices.
- Pre-blast and post-blast structural surveys of all buildings within 300 meters of blasting operations document baseline conditions and verify continued structural integrity. Professional structural engineers should conduct initial surveys and periodic reassessments, with photographic documentation of all identified pre-existing conditions. This proactive approach demonstrates due diligence and facilitates rapid resolution of any damage claims

3. Conclusion

~~a.~~ The comprehensive scientific assessment demonstrates that mining operations can be conducted safely in proximity to residential areas through implementation of properly designed and controlled blasting techniques.

b. The calculated PPV values of 4.12 mm/s at 100 meters is well below the DGMS safe limit of 5 mm/s for domestic structures. The predominant frequency range of 15-25 Hz corresponds to the higher permissible limit of 10 mm/s, providing additional safety margin.

c. The estimated over pressure with confinement is 0.02 kPA (132.9 dB) at 50m, and 0.05 (128 dB) at 100m. So it is estimated, that if proper confinement is maintained, the air overpressure will be below the structural and human damage threshold value of 134 dB at 100m and beyond. The flyrock analysis indicate that without any mitigation measures, the blasted rock may disperse up to 35 meters from blast point. If a Factor of Safety (foS) of 1.5 is considered, a minimum safe distance stands approximately at 53 meters.

d. Strict adherence to the recommended safe distances, combined with implementation of controlled blasting techniques and comprehensive monitoring protocols, ensures protection

of nearby habitation while enabling efficient mineral extraction. The integration of pre-splitting, sequential blasting, and enhanced stemming practices may provide multiple layers of safety protection that exceed minimum regulatory requirements.

e. Ongoing environmental monitoring and community engagement programs establish the foundation for sustainable mining operations that balance economic objectives with community safety and environmental protection.

f. The study is conducted to assess the impact of blast-induced ground vibration on the structures in proximity i.e.Canal, Sukli River, Nala and Other Structures not belonging to Project Proponent.

g. Peak particle velocity has inversely proportional relation with distance. As the distance increases the PPV value is likely to reduce. A ground vibration study due to blasting will be done and based on recommendations of study protection measures will be taken to control vibrations.

h. This is a Proposed Limestone Mining Project. Following mitigation measures will be adopted to combat the ground vibrations due to blasting:

- Drilling parameters like over burden, depth, diameter and spacing will be properly designed to ensure proper blast.
- Drilling, Charging & Blasting will be carried out under the personal supervision of an assistant Mines Manager possessing. First Class Certificate with specially trained blasters and works in accordance with the guidelines and direction of the Mine Manager.
- Effective stemming of the explosives will be done in the drill holes.
- Deep Hole Charging with Maximum Decking would be used for the less explosive use.
- Explosive Charge/ Delay will be designed in such a manner that results of PPV will be within the permissible limit as given by DGMS Guidelines.
- It is proposed to strictly follow Regulation of MMR 1961.
- Scientific Blast Design parameters would be used.
- Monitoring of Blasting Vibration components with “Minimate Instrument”.
- NONEL and bottom hole initiation system with optimal charge per delay will be used to reduce the noise level, vibrations and fly rocks.
- A proper record of every blast showing the size, depth pattern of Shot Holes, amount of Charge/delay, sequence of Blasting and observations of fly rocks and ground vibrations

including acoustics will be maintained in a bound page book. All entries in this book will be duly signed by an assistant Manager possessing First Class Certificate, In-charge of the blasting operations and will be countersigned by the Mines Manager.

- Mines Manager will personally work out on the pattern of holes drilled in line with the prevailing strata condition.
- No blasting will be done in crushed, broken sliced or fractured ground.
- A free face will always be maintained and blasted material cleared off before commencement of next round of blasting operations.
- Initiation of charge will be done in a manner that detonation waves progress away from the structures.
- Only Milli Second Non-Electric Type detonators with shock tube will be used in the holes and surface trunk lines.
- No secondary Blasting shall be done within 100 mtr of the above structure.
- Blasting pattern will be as suggested by the scientific agency.
- Every blast will be monitored to ascertain the impact of blasting on nearby habitation and dwelling units.
- Blasting time will be fixed and displayed. Proper warning signals will be used. People will be cautioned 30 minutes before the blasting so that they can go into the blasting shelter or far away from the blasting zone/danger zone.
- Supervision of drilling & blasting operations to ensure blast design geometry as per planning.

Slope Stability Analysis

As per compliance of Specific ToR point no 1.45, a slope stability study is conducted by IIT Jodhpur.

The most advanced and rigorous slope stability assessments under dynamic conditions employ ***stress–deformation-based analysis*** (Chuhan et al. 1997) is used. This methodology integrates numerical techniques—such as the distinct element method (DEM)—with sophisticated constitutive models to accurately simulate the mechanical behaviour of the rock mass under dynamic loading. Through such fully coupled dynamic numerical simulations, slope stability is evaluated by analysing the slope's stress response and deformation patterns induced by transient ground motions. The indicative threshold of displacement for failure under dynamic load are shown in Table

Indicative displacement thresholds for failure under blast loads

Failure Criterion	Indicative Threshold (Rock)
Crest or critical point displacement	**> 5–10 cm** → often considered serious
Toe displacement (blast/dynamic)	**> 2–5 cm** → may indicate onset of failure
Permanent joint/discontinuity slip	**> 1–2 cm** → potential block movement
Overall rock mass movement	**> 10 cm** → very likely unstable

Slope behaviour under dynamic/blast loading is given as below:

Pit cross-section	Observation	Interpretation
9-9'	The maximum horizontal and vertical displacement is approximately 10 cm at the crest of benches between RL 250-270.	The bottom two benches are potentially unstable due to blast.
3-3'	The maximum horizontal displacement is approximately 6 cm in benches between RL 230-250. The maximum vertical displacement is approximately 16 cm at the crest on benches between RL 250-270m.	The bench between RL 250-260m is highly unstable under the blast load.
21-21'	The maximum horizontal and vertical displacements on benches between RL 290-310 is approximately 6-7 cm at the crests. With around 4 cm displacement along the phyllite-siliceous limestone contact.	The displacement is at critical and the rock slope might undergo sliding failure along the phyllite-siliceous limestone contact.
20-20'	The maximum horizontal displacement is approximately 3 cm an maximum vertical displacement is 8 cm at the crest of bench between 310-320 m.	The displacement is at critical and the rock slope might undergo sliding failure along the phyllite-siliceous limestone contact.

Conclusions and Recommendation

Based on the observation made in static and dynamic analysis of the representatives slopes, it is concluded that while most of the pit slopes are stable under static conditions, but many of them may fail during blasting. This issue is particularly acute in slopes, where lithological contacts (such as phyllite-siliceous limestone) are very close to the planned bench faces. Therefore, the following recommendations are made:

a. In 9-9' pit cross-section, the face angle of benches between RL 250-270, should be reduced from 80° from horizontal to the dip of the phyllite-limestone lithological contact (approximately 60°-70°). this will ensure that no bench-level hanging block is created during the bench creation.
b. In 3-3' pit slope section, the face angle of benches between RL 250-270, should be reduced from 80° from horizontal to the dip of the phyllite-limestone lithological contact (approximately 60°-70°). this will ensure that no bench-level hanging block is created during the bench creation.
c. In 21-21' pit slope section, the face angle of benches (a) between RL 290-300, should be reduced from 80° from horizontal to the dip of the limestone-siliceous limestone lithological contact (approximately 60°-70°); (b) between RL 300-320, should be reduced from 80° from horizontal to the dip of the

phyllite -siliceous limestone lithological contact (approximately 60°-70°). These will ensure that no bench-level hanging block is created during the bench creation.

d. In 20-20' pit slope section, the face angle of benches between RL 310-320, should be reduced from 80° from horizontal to the dip of the phyllite-limestone lithological contact (approximately 60°-70°), and cut along the lithological boundary. This will ensure that no bench-level hanging block is created during the bench creation.

As a general guideline, it is recommended that special precautions need to take for all the benches to ensure nowhere lithological contacts are exposed on the bench face and slope face due to over steepening of bench face. In benches where distinct lithological contacts are exposed, the bench face angle should be reduced to match the dip of the contact, and preferably the faces are excavated along the contact. On those pit-sections, where lithological contacts are close the bench faces, reduced charge(kg)/delay is to be used.

Further, it is strongly recommended that the permission for "Controlled blasting" is obtained and controlled blasting study is carried out in detail once the blasting starts, where ground vibration data is measured using seismographs and collected field data is compared against the prescribed regulations. Based on the field collected data during and following the controlled blasting, the proposed blasting design as well as the slope stability analysis and results as reported here is reviewed in order to update, modify, and/or redesign.

As the area under consideration is a greenfield site, only lithological and regional-scale geological maps are currently available. No detailed surface mapping of structural discontinuities—such as fractures, faults, joints, or shear zones—has been conducted.

Consequently, it is not feasible at this stage to evaluate the potential influence of these structural features on slope stability or the possible hydraulic connectivity between the Sukhli River and Pits 12 and 13. It is strongly recommended that, following one year of operational activity, a comprehensive structural characterization program be undertaken. This should include both detailed surface geological mapping and subsurface investigations employing advanced geophysical techniques, such as Ground Penetrating Radar (GPR), to delineate the geometry and distribution of discontinuities.

Under the applied blast loading conditions, the overall slope structures were assessed to be stable. However, localized instabilities were identified at specific bench levels where steep bench faces intersect closely with lithological boundaries, resulting in the formation of overhanging (hanging cliff) features. To mitigate these localized stability concerns, it is strongly recommended that, as excavation advances, a thorough geological mapping is redone, additional material be identified and selectively removed from the affected benches to

reduce slope angles and reorient bench faces to align, where feasible, with the natural lithological boundaries. This targeted re-profiling strategy will effectively eliminate overhang-related instabilities and enhance overall slope safety.

4.5.13.1 IMPACT SIGNIFICANCE OF GROUND VIBRATIONS

TABLE 4. 16 IMPACT EVALUATION TO DETERMINE THE BLAST INDUCED GROUND VIBRATIONS

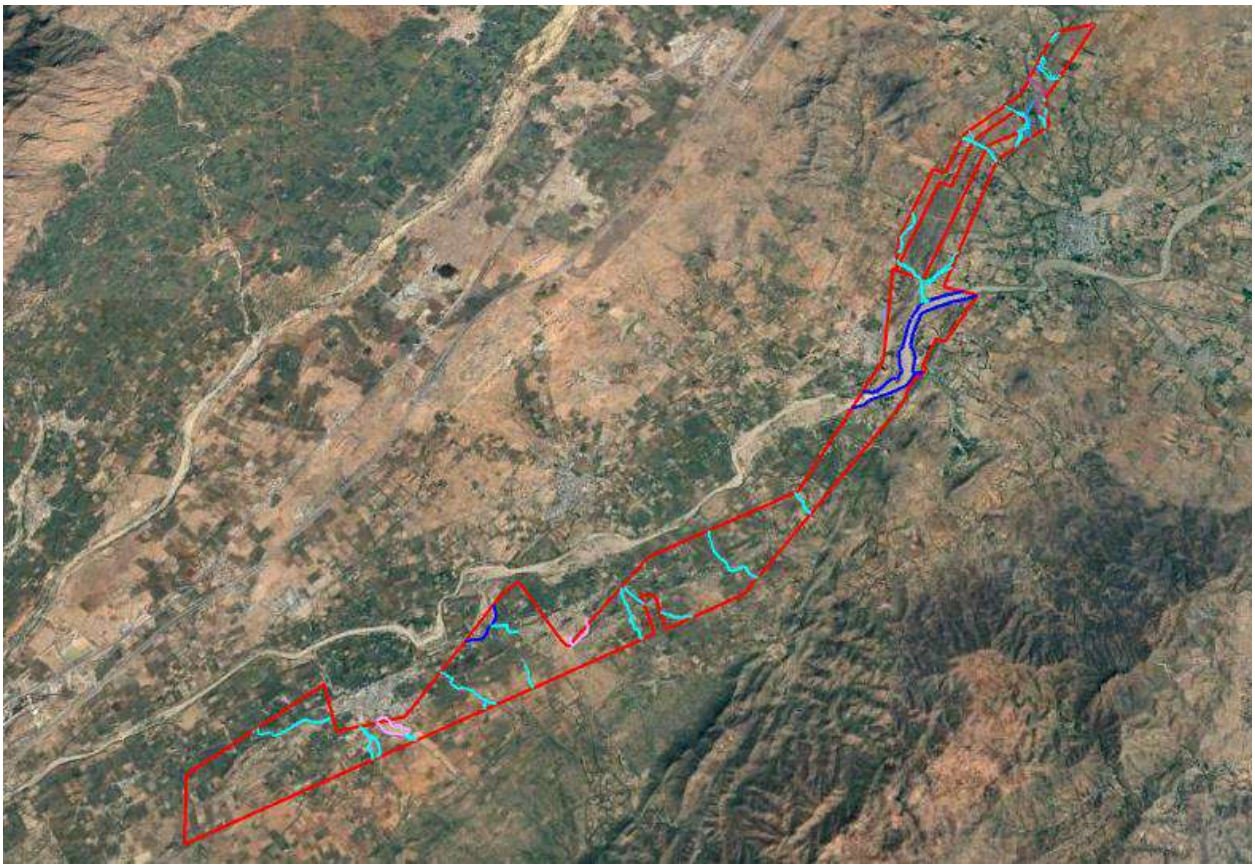
Impact Evaluation Element	Blast induced Ground Vibrations due to the proposed limestone mining project			
Potential Effect/ Concern	Impact on buildings and other structures and on the workers involved in the blasting process			
Characteristics of Impacts				
Nature	Positive		***Negative***	Neutral
			√	
Type	***Direct***	Indirect	Cumulative	
	√			
Extent	***Project Area***	***Local***	Zonal	Regional
		√		
Duration	Short – term		Long- term	
	√			
Intensity	Low		***Medium***	High
			√	
Frequency	Remote (R)	Occasional (O)	**Periodic (P)**	Continuous (C)
		√		
4.5.14 SIGNIFICANCE OF IMPACT				
4.5.15 SIGNIFICANCE	Insignificant	**Minor**	Moderate	Major
		√		

4.5.16 IMPACT ON WATER ENVIRONMENT & MITIGATION MEASURES

4.5.16.1 IMPACT ON SURFACE WATER & MITIGATION MEASURES

Water bodies viz. Hukli Nadi, Silva Nala, Kosiya Bhagra Nala, Akhleti Nala, Mandwara Distributary, Khara Distributary, Chitriya Nala, Batriya Nadi, Left Canal, Banas River, Gabir Nala, Right Canal, Grangri Bala, Sangwara Minor, Sangbariya Balo and Sukli Nadi flowing in the study area.

Sukli River, Canal & Seasonal Nallah flowing within the mine block and 2 ponds are present within the block.



	Mine Boundary		Ponds
	Sukli River		Nalla
	Canal		

Google Image showing existing Sukli River, anal, River and Ponds

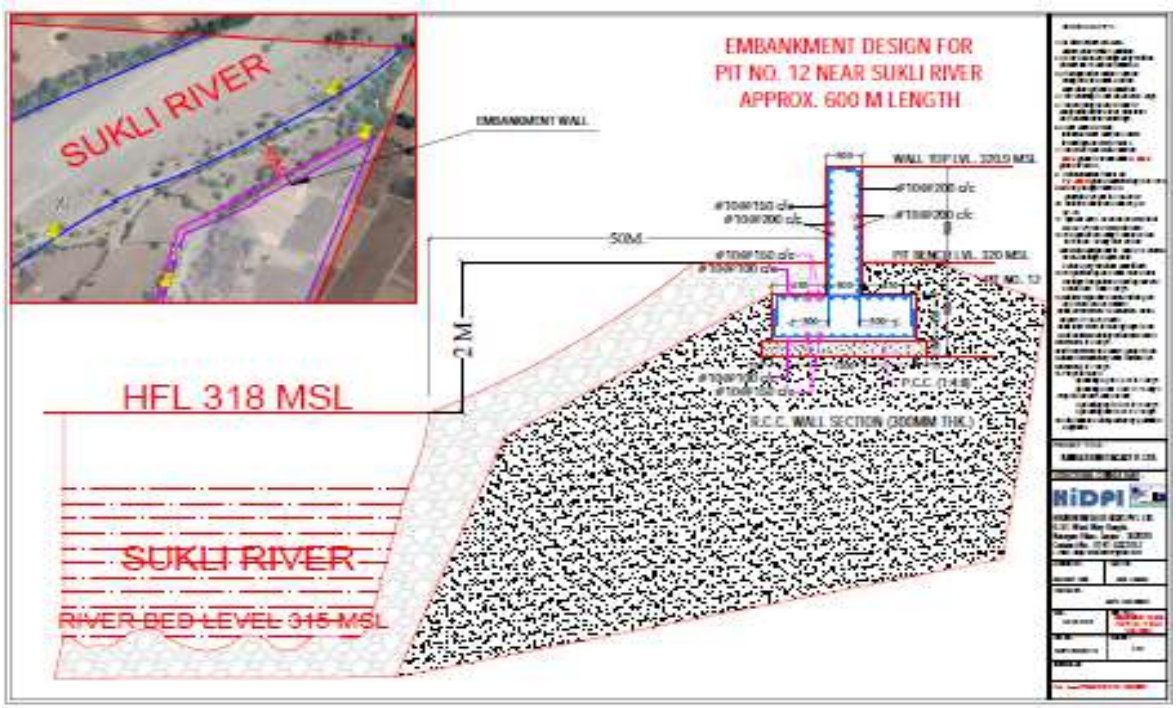
Luderi Nalla	Pilona Nalla
Sukli River	

- Sukli River, flowing from northeast to southwest, passes through applied ML area. This river is seasonal in nature and remains dry almost throughout the year and becomes active only during the period of exceptionally heavy rain.
- Total Length of the River is 2225 meters, width 72 to 162 m.
- Few seasonal streams (Nallah) and ponds are falling in the lease area.

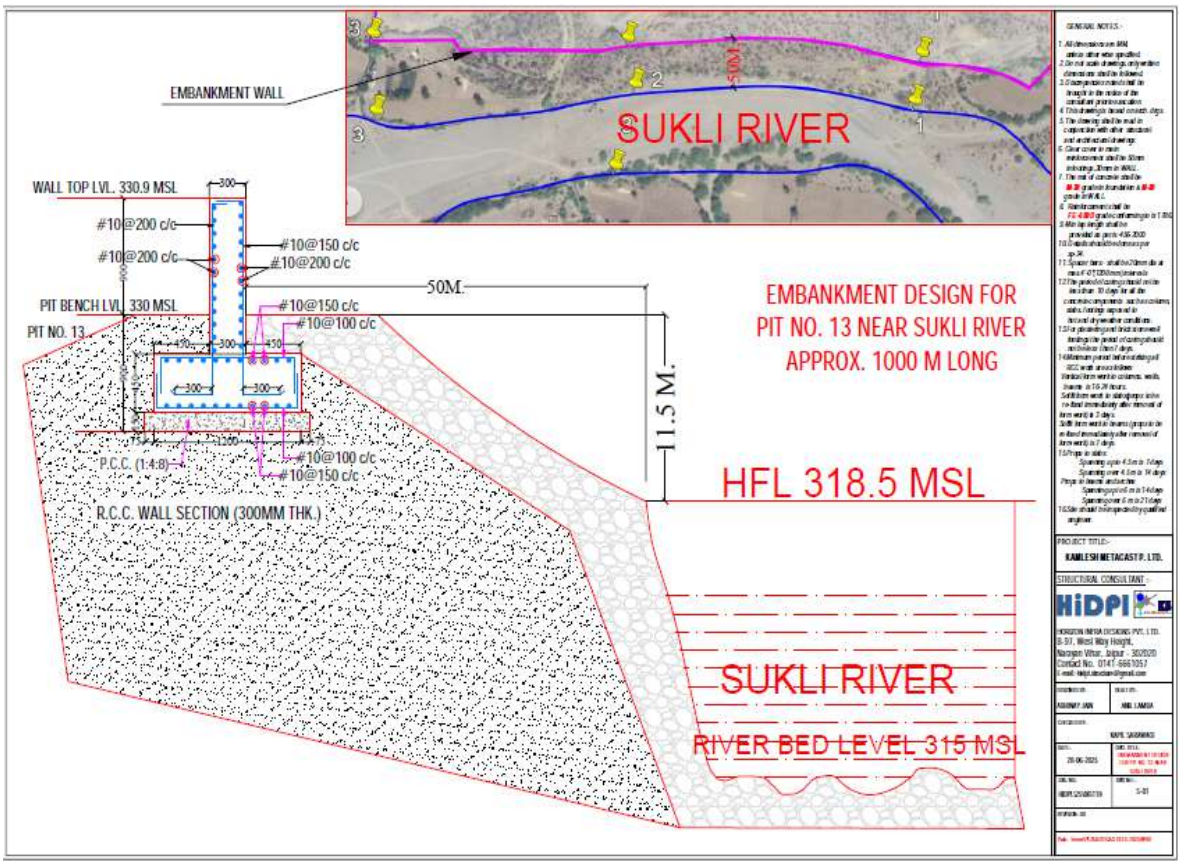
Protective Measures

- A safety zone of 50 m on either side of Sukli River nalas canal and 50 m radius of pond is considered as constraint and No mining is proposed to be carried out in their safety zone.
- Even the working will be carried out beyond 50 m safety zone of Sukli river during the plan period as well as during conceptual period however for protection of the river banks the necessary protective measures like construction of embankment at the bank of river or any other suggested suitable protective measures in consultation with the concerned competent authorities will be taken.
- It is also proposed to construct a retaining wall and garland drain with siltation tank within the safety zone of river during plan period to prevent siltation of river Garland drains are proposed around pit and dumps during the plan period.
- The garland drain is proposed to be connected to existing seasonal stream.
- During rains water may accumulate in the lowermost bench for some time and will help in groundwater recharge of the area.
- It is also proposed to establish roof top rainwater harvesting system at proposed mine office workshop and crusher area during the plan period.

- Ther is rainwater storage ponds in the nearby village of Bharja, Vatera and Taroongi. . Further de-silting of the ponds will be done to increase the depth of all three ponds for an increase of rainwater collection.
- Rooftop rainwater harvesting structures will be constructed at the Govt school of all three villages.
- The rainwater falling directly into the mine pits will be stored and used for plantation & dust suppression.
- The rocks in proposed mining blocks are sedimentary limestone and shale formations having in general low porosity and permeability and so their capacity to transmit water is limited and will not have much seepage from the Canal & Nallah side.
- Permission under Regulation 164 (I-B) of Metalliferous Mine Regulation 1961 for controlled blasting will be obtained.
- The lightly impacts of mining near Sukli River is siltation of River. The mitigation measures proposed are a safety zone of 50 m on either side of Sukli River, construction of embankment at the bank of river, construct a retaining wall and garland drain with siltation tank.
- For avoiding the impacts of blasting on Sukli River, a scientific study has been carried out by IIT, Jodhpur for use of controlled blasting technology to avoid the fly rocks and siltation of river.
- Regular monitoring of Surface Water Quality will be carried out.



Embankment Design for Pit no. 12



Embankment Design for Pit no. 13

In compliance of specific ToR point 1.6 the embankment will be constructed before start of mining activity at pit No 12 and 13. The timeline for the construction of embankment will be 3 months and cost will be Rs 2.2.5Cr.

Total length of the proposed embankment wall at Pit no.12 is 600 meters and at Pit no. 13 is 1000 meters. The entire wall will be RCC and will follow in accordance with IS code **IS 456-2000& SP 34.**

Proposed embankment dimensions given below:

Wall thickness: 300mm

Footing Depth: 450 mm

Footing width: 1200mm

Height:1800mm

For the safeguard of the embankment, DGMS Udaipur vide letter dated 21.7.2025 has advised to ensure proper engineering parameters of the embankment. Copy of the same is enclosed as **Annexure XIV.**

The embankment design for the embankment is done by HiDPI, Jaipur which is enclosed as **Annexure XIV a.**

In Compliance of Specific ToR point no. 1.7 the UPL of the proposed pit nos 12 & 13 shall always remain above the HFL of Sukli River to ensure zero ingression of river water. The details is given as below:

- **Pit no 12:**The Sukli River bed level is 315 MSL and the HFL is 318 MSL. The UPL of pit no. 12 will be at 320 MSL maintaining a buffer zone of 50m horizontal and 2m vertical from the HFL. In addition a RCC embankment is proposed from 320 MSL to 320.9 MSL to avoid ingression of river water into pit.

- **Pitt no 13:**The Sukli River bed level is 315 MSL and the HFL is 318.5 MSL. The UPL of pit no. 13 will be at 330 MSL maintaining a buffer zone of 50m horizontal and 11.5m vertical from the HFL. In addition a RCC embankment is proposed from 330 MSL to 330.9 MSL to avoid ingression of river water into pit.

DGMS Consultation: DGMS Udaipur has advised vide letter dated 21.7.2025 to take adequate protection measures against in Rush to surface water into Mine. Copy of the same is enclosed as Annexure XIV.
The embankment design for the embankment is done by HiDPI, Jaipur which is enclosed as **Annexure XIV a.**

TABLE 4. 17 DIMENSIONS FOR RETAINING WALL, GARLAND DRAINS & BUND FORMATIONS

Year	Proposed Wall Length (m)	Co-ordinates from	Co-ordinates to
Retaining Wall			
1st	Nil	Nil	Nil
2nd	900	N 24:33:36.44 & E 72:53:20.09	N 24:33:57.52 & E72:53:54.26
3rd	610	N 24:33:30.03 & E 72:53:26.45	N 24:34:28.27 & E 72:54:48.36
4th	415	N 24:33:27.36 & E 72:53:28.20	N 24:34:28.36 & E 72:54:55.07
5th	500	N 24:33:28.36 & E 72:53:32.91	N 24:34:28.40& E 72:54:55.14
Garland Drains			
1st	Nil	Nil	Nil
2nd	890	N 24:33:36.37 & E72:53:20.02	N 24:33:57.67 & E72:53:54.046
3rd	450	N 24:33:30.03 & E 72:53:26.38	N 24:34:28.74& E 72:54:42.41
4th	260	N 24:33:28.30 & E 72:53:26.38	N 24:33:30.03 & E 72:53:32.91

5th	280	N 24:33:28.30 & E 72:53:32.91	N 24:33:32.26 & E 72:53:41.84
Fencing			
1st	150	N 24:33:26.06 & E 72:53:28.69	N 24:33:28.21& E 72:53:33.48
2nd	260	N 24:33:28.21 & E 72:53:33.48	N 24:33:31.90 & E72:53:41.81
3rd	1460	N 24:33:32.10 & E 72:53:19.25	N 24:33:55.95 & E72:54:09.53
4th	125	N 24:34:26.18 & E 72:54:38.63	N 24:34:28.50 & E72:54:41.87
5th	2010	N 24:33:44.18 & E 72:54:09.53	N 24:34:26.22 & E72:54:42.35

Source: *Approved Mining Plan along with Progressive Mine Closure Plan*

In Compliance of Specific ToR Point no. 1.10, 1.18 and 1.41, NOC letter received from WRD vide letter No. S.No./Tak/2024-25/5071 dated 3.1.2025 regarding safeguard of water resources of the ML area are approved from the RO Office SPCB Sirohi vide letter No. RSPCB/Abu Road/Sirohi/SM-558/1364 dated 10.7.2025. Copy of the same is enclosed as **Annexure XI**

The following are the approved safeguard for the water resources: (Letter to SPCB in ref to WRD letter 3.1.2025)

1. There are total of 15 No.s pits in the above mining project, out of which two pits (Pit no. 12 & 13) are located at a distance of 50 mts from the River Sukli which flows through the lease area. A safety zone of 50 m on either side of Sukli River will be maintained by construction of an embankment on Pit boundary towards the Riverbank and garland drain with siltation tank within the safety zone of River during plan period will be constructed to prevent siltation of River. Cost, Rs 2.25 cr.
2. Existing 2 Nos of RCC Bridge constructed on River Sukli are adequate for transportation of mineral also having width of 8.8 mtr.
3. During the mining operation, the rain nalla will not be disturbed. Drainpipes will be installed below the haul road to avoid natural flow of Nala (21 Nos Nala and Pipe length 22 mtr) wherever the Haul Road crosses Nala.
4. The Garland drains and desilting pits will be constructed along the topsoil and OB dump site to avoid siltation of natural nala and River Sukli
5. Control blasting, wet drilling and water spray on haul road and crusher will be practices maintaining the ambient air quality.

4.5.17 IMPACT ON GROUND WATER & MITIGATION MEASURES

a) Ground water pollution by toxic substances: Ground water pollution can take place only if the mining rejects contain toxic substances, which get leached by the precipitation of water and percolate to the ground water table thus polluting it. Any nearby wells or other sources of water can be rendered unfit for drinking and even for industrial use. The mineral limestone and associated rocks do not

contain any toxic substance. Therefore, there is no significant impact of mining activities on quality of any source of water and its quality.

b) **Ground water Withdrawal:** Total water requirement of the proposed mining project will be 150 KLD. NOC has been obtained to withdraw 9.5 KLD water required for drinking and domestics initially for two years, where no mining activity is proposed. Total water requirement is 150 KLD for which CGWA NOC will be obtained prior starting working of 3 three years. The ground water consumption will gradually reduce as the mine progress and mine pits are developed to harvest the rainwater. Copy of the NOC is enclosed as **Annexure XV.**

c) No wastewater will be discharged outside lease boundary. Therefore, no adverse impact on water quality is envisaged due to the proposed mining project.

4.5.17.1 PLAN FOR REDUCTION OF GROUND WATER

Total water requirement is 150 KLD which will be sourced from ground water. Total Mine seepage including Mine Pit Rainfall calculations are given as below which indicate that after 3rd year rainy season, mine pit will have sufficient water to run the mine. However, for drinking and domestic requirement, 10 KLD will be sourced from ground water resources.

Year	Total Yearly seepage (cubic M)	Actual Annual Rainfall Contribution to mine Pit after deducting Evaporation Losses @55.5% (Cub m)	Total (Cub.m/Year)	Total (Cubm/Day)
1	0	0	0	0
2	0	1,198	1,198	3
3	1,64,698	69,082	2,33,780	640
4	2,23,204	93,317	3,16,521	867
5	3,40,216	84,109	4,24,325	1,163
Total	**7,28,118**	**2,47,706**	**9,75,824**	

4.5.18 WATER CONSERVATION MEASURES

- 8 KLD domestic wastewater will be generated which will be treated in 10 KLD of modular STP and treated water will be used in greenbelt/plantation.
- 8 KLD wastewater will be generated from workshop which will be treated in ETP (10 KLD) for removal of oil/grease contents by skimmer and washing silt by settling tank and clear water will be used for dust suppression.
- Automatic lubrication system will be provided in the workshop to check spillage of lubricants.
- Permanent water sprinklers will be installed along the haul roads.
- Water sprinkling on blasted heaps, stacks, crusher hopper, access roads, operating benches and faces.

- Use of wetting agents is recommended to reduce water consumption.
- Rooftop Rainwater harvesting will be implemented.
- At conceptual stage, 49.30 ha area will be converted into water reservoir which will serve as recharge pit. Water Reservoir will be used as pisciculture, mining purpose etc.
- Construction of fencing and bund along the periphery of the reservoir at conceptual stage.
- Safety sign boards will be placed on the bunds.
- Regular monitoring of Ground water level & its quality will be carried out.

In compliance of Specific ToR point no. 1.16, water reservoir will be constructed within the mine lease area so as to reliance on outside water is eliminated. At the end of 3rd year working, the rainwater collection in mine pit No.2 and 3 will be 69082 m3. The considering the 300 days of annual running mine and 140 KLD water requirement for mine working, the annual requirement is calculated as 42000 m3. Hence, after the 3rd year the mine will not withdraw any ground water except 10 KLD required for drinking and domestic purposes.

A detailed Rainwater Harvesting Plan along with Hydrogeology Report is enclosed with this EIA/EMP Report as **Annexure XIX**. Rooftop rainwater harvesting system will be implemented for mine office. Design concept is given as below:

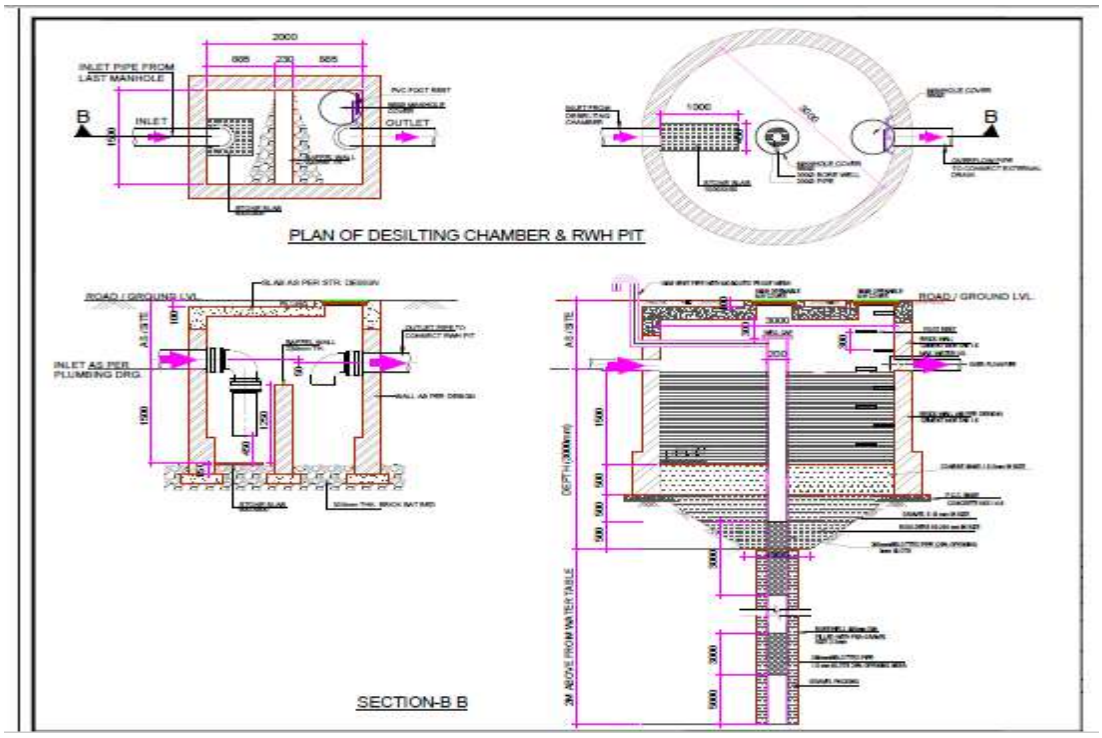


FIGURE 4. 7 RAIN WATER HARVESTING STRUCTURES DESIGN

The rainwater canalized through garland drainage all around the OB dumps, top soil dump, mineral stack and working pits will be connected to de-silting pits for ground water recharge. In addition, rooftop rainwater harvesting will be practiced collecting rainwater and use in mining operation. The calculation is given as below:

Estimation of Quantum of runoff available through Rain water harvesting

Sl. No.	Land use type	Area (m^2)	Co-efficient of runoff	Rainfall Per annum (m)	Quantity of runoff (m^3) /annum
1	Roof area (building)	1876	0.85	0.792	1,263
	Total	**1876**			**1,263**

Peak Runoff Computation

Sl. No.	Land use type	Area (m^2)	Co-efficient of runoff	60 minutes Intensity of Rainfall (m)	Runoff for 60 minutes Peak Intensity (m^3)
1	Roof area (building)	1,876	0.85	0.035	223
	Total	**1,876**			**223**

In addition, the wain water collected in mine pits will also recharge the surrounding ground water. The regional water level and the mine pit depth is given as below:

Plan period mine working depth and water level:

Year	Pit No.	Bench Level, mRL	Working Depth meter	Water level, (SWGB observation well Pindwara block average value)		Area ha
				Pre-Monsoon	Post-Monsoon	
Year 1	No working Haul Road preparation					
Year 2	Pit 1	320-310	10	10	13	0.34
Year 3	Pit 1	320-280	40	10	13	15.02
	Pit 2	307-280	27	10	13	4.36
Year 4	Pit 1	290-270	50	10	13	15.02
	Pit 2	280-250	57	10	13	4.36
	Pit 3	335-310	25	10	13	6.80
Year 5	Pit 1	270-250	70	10	13	15.02
	Pit 2	Backfilled	0	10	13	4.37
	Pit 3	320-310	25	10	13	8.58

Pit-wise working depth

Pit No.	Pit area at Conceptual stage, ha	Surface RL	Bottom RL	Water Level mRL		R & R Plan	Year of Backfilling
				Pre-Monsoon	Post-Monsoon		
1	15.02	320 - 305	200	10	13	Backfilling + Regressing	8th Year
2	4.36	307 - 305	250	10	13	Backfilling + Regressing	5th year
3	8.58	335 - 310	250	10	13	Water Reservoir	
4	1.81	310 - 308	270	10	13	Water Reservoir	
5	1.45	315	290	10	13	Backfilling + Regressing	9th Year
6	1.24	320 - 310	290	10	13	Backfilling + Regressing	9th Year
7	19.27	335 - 310	220	10	13	Backfilling + Regressing	15th year
8	15.38	340 - 315	250	10	13	Backfilling + Regressing	17th year

9	5.59	305-295	240	10	13	Water Reservoir	
10	0.79	305-300	280	10	13	Water Reservoir	
11	13.76	325 - 300	200	10	13	Water Reservoir	
12	6.49	340-325	280	10	13	Water Reservoir	
13	11.14	350-315	280	10	13	Backfilling + Regressing	20th year
14	2.85	350-330	280	10	13	Backfilling + Regressing	21st year
15	12.28	360 -335	300	10	13	Water Reservoir	
Total	120.01	360 - 295	300-200	10	13	Water Reservoir-49.30 ha Backfilling+Regrassing-72.66	
Old Pits	1.95						
Total	121.96						

TABLE 4. 18 ANNUAL RUN OFF CALCULATION

Year	Pit Perimeter (m)	Pit Area (Sq m)	Annual Rainfall (m)	Annual Rainfall Contribution to mine Pit (Cub m)	Annual Rainfall Contribution to mine Pit after deducting Evaporation Losses @55.5%(Cub m)
1	0	-	0.792	-	-
2	262	3,360	0.792	2,661	1,198
3	2,516	193,832	0.792	153,515	69,082
4	3,686	261,832	0.792	207,371	93,317
5	2,968	235,997	0.792	186,910	84,109
6th to Conceptual stage	8,146	491,645	0.792	389,383	175,222

TABLE 4. 19 TOTAL MINE SEEPAGE

Year	Non-Monsoon seepage from all benches (cubic M)	Monsoon seepage from all benches (cubic M)	Total Yearly seepage (cubic M)
1st year (2025-26)	0	0	0
2nd year (2026-27)	0	0	0
3rd year (2027-28)	1,06,032	58,666	1,64,698
4th year (2028-29)	1,45,303	77,901	2,23,204
5th year (2029-30)	2,23,845	1,16,371	3,40,216
Total	**4,75,180**	**252,938**	**7,28,118**

Table : Total Mine seepage including Mine Pit Rainfall

Year	Total Yearly seepage (cubic M)	Actual Annual Rainfall Contribution to mine Pit after deducting Evaporation Losses @55.5% (Cub m)	Total (Cub.m/Year)	Total (Cubm/Day)
1	0	0	0	0
2	0	1,198	1,198	3
3	1,64,698	69,082	2,33,780	640
4	2,23,204	93,317	3,16,521	867
5	3,40,216	84,109	4,24,325	1,163
Total	**7,28,118**	**2,47,706**	**9,75,824**	

Topographically, the general elevation is ranges from 296 m AMSL to 361m AMSL. The average water

level of the Pindwara block is 10 mbgl in post Monsson and 13 mbgl in pre-Monsson. Accordingly, mine will intersect the ground water level from the 3rd year onwards and prior permission for water intersection will be obtained from Central Ground Water Authority before such intersection. A detailed comprehensive Hydrogeological Report in this regard is enclosed as an **Annexure XIX.**

The rainwater loss to the nearby farmers due to mining is given in below table:

Year	Pit Area (Sq m)	Annual Rainfall (m)	Annual Rainfall Contribution to mine Pit (Cub. m)	Actual Annual Rainfall Contribution to mine Pit after deducting Evaporation Losses @55.5% (Cub. m)
1	-	0.792	-	-
2	3,360	0.792	2,661	1,198
3	1,93,832	0.792	1,53,515	69,082
4	2,61,832	0.792	2,07,371	93,317
5	2,35,997	0.792	1,86,910	84,109
20	4,91,645	0.792	3,89,383	1,75,222

The considering the 300 days of annual running mine and 140 KLD water requirement, the annual requirement is calculated as 42000 m^3. Hence, after the 3rd year the mine will not withdraw any ground water except 10 KLD required for drinking and domestic purposes. The water collected in mine pit will be used for mining purpose. The additional water will be made available to cement plant and farmers for irrigation.

To compensate the 42000 m3 water per annum used in the mining area we will promote the modern sustainable micro irrigation system in the nearby agriculture field to conserve the water used in agriculture. On an average irrigation water required for Wheat Crop is approx. 3500 m3/ha over a 4-month period to get the yield of 6 tonnes/ha. Sprinkler practices can reduce water consumption by the 50%. Hence, to compensate the 42000m3 water consumption, KMPL will promote the use of sprinkler system in the agriculture in adjacent 24ha. Considering the capital investment of water sprinkler irrigation system Rs. 40000/ha, a budget of Rs. 9.6 lakhs are proposed to promote the sustainable water efficient agriculture in adjacent farming land.

In addition, abstraction charges will be paid to the SGWB/CGWA for withdrawal of rain water and seepage water collected in pit which is used by the department for implementation of site-specific suitable demand/ supply side interventions. The excess water after use in mining purpose and in cement plant, will be made available to farmers.

4.5.4.1 IMPACT EVALUATION

Impact evaluation is given in table below.

TABLE 4. 20 IMPACT EVALUATION FOR WATER ENVIRONMENT

Impact Evaluation Element	Change in the water environment (quantity as well as quality of Surface and Ground water) due to proposed limestone mining project		
Potential Effect/ Concern	Increase in water availability in the area due to development of water reservoir		
Characteristics of Impacts			
Nature	***Positive***	Negative	Neutral
	√		

Thus, it can be concluded there will not be any adverse impact on the groundwater quality due to mining. The mineral formation does not contain any harmful element, which could percolate into the ground and pollute the groundwater.

4.5.19 IMPACT ON SOIL / LAND USE & MITIGATION MEASURES

4.5.19.1 IMPACT ON SOIL ENVIRONMENT & MITIGATION MEASURES

Soil over the block is brown in colour and sandy clay. Soil will be used for greenbelt/plantation & part will be stacked separately for future use in green belt/plantation.

At conceptual stage 0.739 Million Tonnes of top soil will be generated & same will be used for greenbelt/plantation.

Impact

Mining process will impact the soil in following ways:

Clearing of vegetation/trees and drilling/blasting will alter the flow of nitrogen from a stable soil-plant-microbial ecosystem and will cause depletion of soil carbon pool. It will cause loss of litter layer which is an integral storage exchange site for nutrients which will cause the infertility of soil.

Other than above, no major impact on soil is envisaged as mining process neither involves any wet mineral beneficiation process or any chemical mineral beneficiation process.

Management

- Soil generated from mining operations will be simultaneously used for green belt development/plantation/ regrassing. Therefore, no soil dumps are proposed in block area.
- Fugitive dust of mining area will mainly be confined within mine area and will not impact soil of buffer zone.
- Water sprinkling will be done along the haul roads to control the fugitive emission.

- Garland drains will be made all around the mine and dumps to prevent water flow towards mine for prevention of land slide/side fall and siltation etc.
- Greenbelt/Plantation will be developed covering an area of 128.30 Ha.
- The increased green cover will substantially help to prevent the soil erosion and will also help in replenishing the carbon pool, flow of nitrogen and exchange of nutrients etc.

4.5.19.2 LAND USE DETAILS

Revenue Record: As per Revenue Record total mine area is 800.9935 ha out of which Govt. Waste Land-227.9500 ha (29%) & Grazing /Charagah Land-21.0900 ha (3%) & Private Agriculture Land- 551.9535 ha (68.0%).

The mine area falls in 7 Villages: Rohida (Rohera as per toposheet), Bharja, Taroongi (Taroongi as per toposheet), Doliphali, Vatera (Vatera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan.

Satellite Image: According to Satellite Image of NRSC, dated 24.05.2023, major part of the block area consists of Agriculture land (52.783%). Fallow land (11.398%), Land with shrubs (30.565%), settlements (2.150%) and water bodies (3.105%). There is no National Park, Wild Life Sanctuary, Biosphere Reserve, Protected & Reserved Forest etc. within the core area.

Approved Mining Plan: Land use pattern of the mine block area during pre-operational, operational and post-operational phases is given in table below:

TABLE 4. 21 STAGE WISE LAND USE AND RECLAMATION PLAN (IN HA)

S. No.	Land Use Category	Present Land Use (Ha.)	At the End of 5th Year (Ha.)	Conceptual Stage (Ha.)
1	Soil Stack	0.0000	0.00	0.0000
2	Waste Dump	0.0000	22.61	0.0000
3	Mineral Storage	0.0000	0.21	0.0000
4	Total Excavated	6.5300	32.04	121.96
	(A) Excavation (Water Reservoir) (B) Excavation (Backfilled)	0.0000	00.0000	49.30 (Water Reservoir)
		0.0000	00.0000	72.66 (Re-grassing)
5	Area under utility services	4.85	11.11	30.40
6	Afforestation/Plantation (Unworked Area	0.0000	4.80 (Plantation)	55.64 (Plantation)
Total Disturbed Area		11.83	70.77	208
7	Undisturbed Area	789.16	730.2235	592.99
Total		**800.9935**	**800.9935**	**800.9935**

Source: *Derived from Approved Mining Plan with Progressive Mine Closure Plan*

4.5.19.3 RECLAMATION PLAN FOR LAND

As per Approved Mining Plan, total excavated area will be 121.96 ha, out of which 72.66 ha will be backfilled & rehabilitated by plantation/regrassing and 49.30 ha will be converted into water reservoir.

- The embankments of the water body in upper two benches shall be planted with local varieties of trees with good canopy, intricate branches and fruits offer good resting area for water birds and habitat for terrestrial species. These trees would be planted in such a manner that it is sheltered from disturbances and from land predators.
- At conceptual stage, greenbelt/ plantation will be carried out on 128.30 ha (Greenbelt along block boundary: 30.70 ha, On Virgin Area: 24.94 ha Plantation on backfilled Area: 72.66 ha.).
- The plantation will be done @2500 tress per ha with the survival rate of >90%. Native species and fruit bearing trees will be planted in compliance of CPCB guideline.
- Area under other utility services i.e., Infrastructure, Roads, etc. will be 30.40 ha. Total 592.99 ha area will remain undisturbed.

Approved Conceptual Plan is enclosed as ***Annexure Va.***

4.5.20 IMPACTS ON LAND USE PATTERN

A. Land & its Protection Measures

Total mine area is 800.9935 ha falls in 7 Villages: Rohida (Rohera as per toposheet), Bharja, Taroongi (Taroongi as per toposheet), Doliphali, Vatera (Vatera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan.

Out of total block area 227.950 ha is Govt. Land, 551.9535 ha is Private Land & 21.0900 ha is Grazing /Charagah Land

Impact

- The land use of the core area will alter from agricultural land to mining area including pits, temporary dumps, crusher, greenbelt, plantation, water reservoir etc.

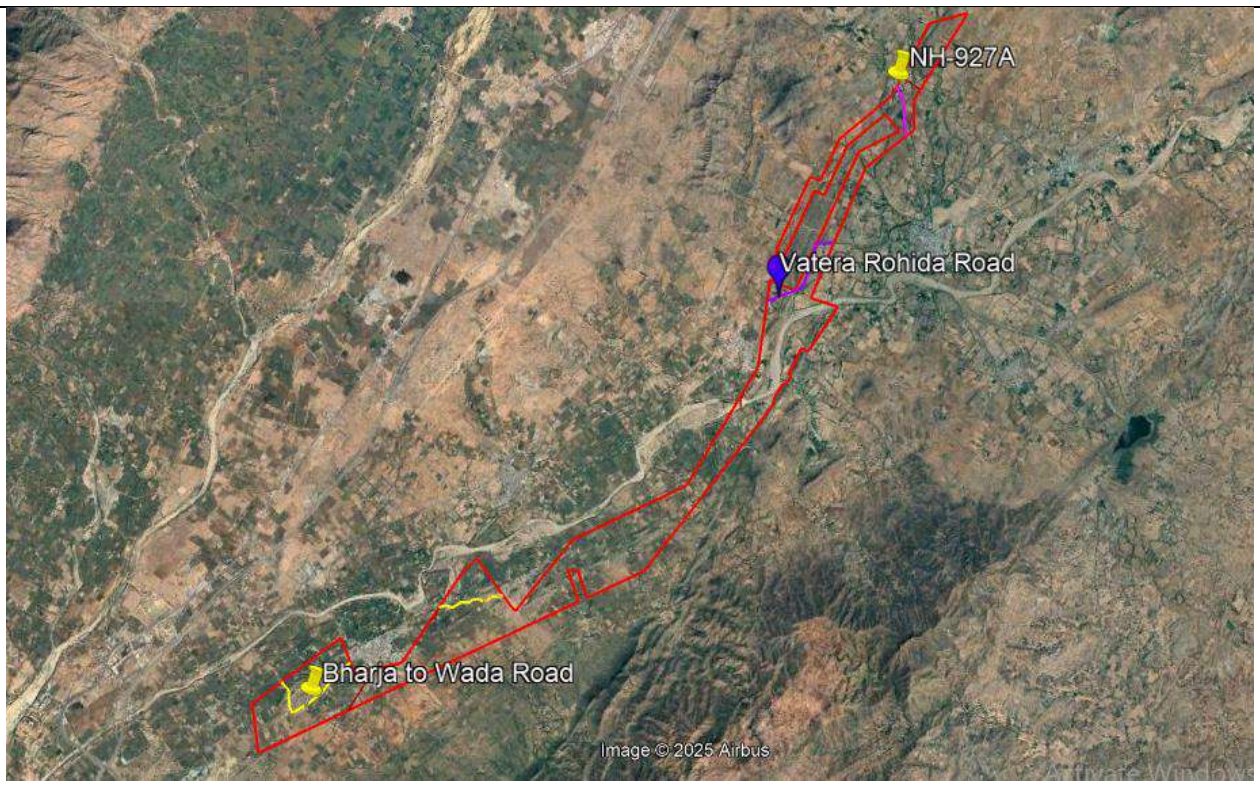
Measures

- Vegetation of forest may be impacted by local villagers by cutting of trees for burning chulas, for which company will identify the village and villagers and will provide fresh gas connection to those families, so that dependency on forest for wood can be reduced. Awareness programme will also be conducted by company in its CSR programme.

- In addition, Company will also undertake greenbelt/plantation development program covering an area of 128.30 Ha within the mine area in phased manner up to conceptual stage. It is estimated about 139100 nos of saplings with density of 2500 per ha will be planted and Rs. 792.82 lakhs have been earmarked till the end of life of mine. Survival rate will be maintained at >90%.
- Training to farmers to grow the Cash crops to enhance agricultural growth. Seed distribution and training on vegetable production.
- Awareness for new methodologies of agricultural practices viz. mixed farming, crop rotation and agricultural cropping pattern suitable for the study area also will be carried out under to increase the agricultural productivity of the study area.
- Online Ambient Air Quality Monitoring Stations will be installed.
- Monitoring Results will be displayed at Mines Main Gate.
- Mining activity will be confined to the mineralized zone and proper pollution control measures will be adopted to restrict the pollution load within the active zone in order to prevent the impacts on nearby areas. Adequate measures will be taken to control the pollutants within active block area.

B. Impact on Village Road & its Protection Measures

- All Village Roads passing through the non-mineralized zone of the block.
- Same will not to be disturbed at any stage of mining and 50m safety barrier has been left.
- Avenue Plantation will be developed along the road side.
- Fencing along the excavated area for safety purpose along the road will be done.
- Safety sign board will be displayed.
- Greenbelt will be developed along the 7.5 m mine periphery.
- A detailed scientific study by IIT Jodhpur shall be carried out for controlled blasting. Based on study recommendations the Company will take prior permission from DGMS for controlled blasting towards the road.



Google Image showing Village Roads Connectivity in Block Area

FIGURE 4. 8 GOOGLE IMAGE SHOWING VILLAGE ROADS CONNECTIVITY IN BLOCK AREA

C. Others & its Protection Measures

- High Tension lines are passing through the block area.
- Temples and public utilities are present within Bharja and Taroongi Villages occurring within the limestone block area.

Measures

- High tension lines will not be disturbed at any stage of mining. Mining will be away at ~50 m distance from the HT lines.
- Controlled blasting will be adopted and optimum use of explosive energy will be made by optimizing explosive charge per hole and per delay.
- Blasting will be done in day time.
- Vibration monitoring of every blast will be carried out & records will be maintained.
- Ambient Noise Monitoring will be carried out.

- Ambient Air Quality Monitoring will be carried out.

Electric Lines (11000 KVA)

FIGURE 4. 8 PHOTOGRAPH SHOWING ELECTRIC LINE

4.5.21 IMPACT SIGNIFICANCE

TABLE 4. 22 IMPACT EVALUATION TO DETERMINE THE SIGNIFICANCE

(Land use – During Operation Phase)

Impact Evaluation Element	Change in the land use due to mine development & operation			
Potential Effect/ Concern	Change in the land use of part of core zone from agricultural and waste land to mining activities due to limestone mine development & operational activities			
Characteristics of Impacts				
Nature	**Positive***		Negative	Neutral
	√			
Type	***Direct***	Indirect	Cumulative	
	√			
Extent	***Project Area***	***Local***	Zonal	Regional
		√		
Duration	Short – term		Long- term	
			√	
Intensity	Low		***Medium***	High
			√	
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
				√

4.5.22 *SIGNIFICANCE OF IMPACT*				
4.5.23 SIGNIFICANCE	Insignificant	Minor	**Moderate**	Major
			√	

**Change in land use due to the mining activity at the conceptual stage will be positive as the land use of the mine area will be converted from agricultural and waste land to water reservoir, plantation area, public use area (at conceptual stage) due to limestone mine development & operation activities.*

4.6 SOCIO – ECONOMIC ENVIRONMENT

The potential impact on socio-economic environment due to this proposed mining project is given in following heads.

4.6.1 POSITIVE IMPACTS

Employment

Direct and indirect employment opportunities will be generated during mining operation and other allied activities. Employment generated by KMPL will provide a safe working environment for workers. Preference will be given to PAFs and locals as per their eligibility. Mining activities will directly give employment opportunity to about 80 persons.

Further, additional employment will be generated through transportation of raw material, development of ancillary industries, local enterprises and in cement marketing in the form of distributors and retailers. Beside this, there is a huge potential for indirect employment opportunities such as drivers, repair shops etc. which can be availed by local people. Employment benefits are further detailed in Section 8.2.2 of Chapter 8.

Community Skills Development

The local community will be benefited from the training programmes that will be instituted by KMPL to enable the community labour force to work for their livelihood/Self-growth. This training will improve their skill sets that will not only benefit KMPL but also the community at large during and after the project life.

Improved Standard of Living

Employment opportunities created by the project and skill development activities carried out under CSR, will increase income of local community and therefore improve the overall standard of living in the area. Presently, livelihood depends on agriculture & industry in the nearby area. After the execution of this mine, employment opportunities will be generated which will further helps in improving the economic status & living standard of people.

Economic Exposure and Development

Implementation of the project will make opportunities for sustainable livelihood, better infrastructure facilities and services available to the people. This will expose and introduce the local population to factors of economic development including the banking system, financial services and credit and investment schemes. The exposure will enable community members to invest their income and prevent dependency or living a life with a view of "tomorrow will take care of itself".

Impact on Civic Amenities

The impact of the proposed limestone project on the civic amenities will be positive. With improved transportation facilities, educational facilities and other recreational facilities etc. there will be improvement in civic amenities. The communication facilities will also improve in the area.

Population Growth

Preference will be given to local in employment. Hence the project does not aim to contribute significantly in the population influx & only marginal population influx is designated for the proposed project.

In Compliance of specific ToR point no 1.40

Total manpower for the proposed mine will be 80. Preference will be given to the locals as per their eligibility. The local community will be benefited from the training programmes that will be instituted by KMPL to enable the community labour force to work for their livelihood/Self-growth. KMPL will organize vocational training, entrepreneur development programmes for the PAFs including women and will provide advice for starting suitable small-scale industry. KMPL will encourage entrepreneurship amongst PAFs or their qualified family members by awarding services, contracts for activities such as canteens, vehicle hiring, maintenance of gardens, office services and cleanliness, courier services, and material supplies. Once the mine is in operation, then employment-based skill development plan will be prepared and training will be organized.

S.No	Particulars	Target Participants	No of Beneficiaries	Timeline	Total Budget (Rs in Lakhs)
1	Awareness program on women empowerment with providing sewing machines	Project affected persons/ Local women's	598	Upto 5 years from the commencement of mining operations	30.0
2	Skill development programme in Agriculture / Horticulture	Project affected persons / locals	1000	Upto 5 years from the commencement of mining operations	10.0
3	Group Vocational Training Centre	Mine workers from local District	80	At the start of First year of Mining Plan period	3.0

4.6.2 ADVERSE SOCIAL IMPACTS

Health Impacts

The project may trigger negative health impacts through increased dust, population influx which might introduces new diseases in the area and put pressure on sanitation facilities.

Noise and Vibration

The process of mining will entail drilling, blasting, excavation and transportation. These activities generate noise and vibration. The impact of noise and vibration from the epicentre of these activities could have effects on the population living around these areas. The excessive vibration could lead to damages of the structures and therefore safe mining operation including controlled blasting is necessary for such projects to minimize adverse impact.

Livelihood Change

The project will attract the more able-bodied persons i.e. comparatively skilled persons from the community which in turn will lead to reduced labour availability in other sectors of the economy including agricultural, labour intensive jobs etc.

Population Growth

This project will not have any substantial impact on the population growth. The proposed limestone project will generate employment opportunities for the people of nearby villages and rehabilitated families rendering positive impact on the area on the whole.

However, mitigation measures proposed for the project will prevent any negative impact on health of villagers, population growth and livelihood change.

4.6.2.1 MITIGATION MEASURES

Mitigation of Health Impacts

As mentioned in 4.5.1, the predicted incremental GLCs for various air pollutants will be restricted within the block area and the impacts will be negligible on the nearby villages. Nevertheless, Awareness programmes on health hazards will be conducted to create awareness amongst the employees as well as the local population.

KMPL will extend its CSR activities in the area of Health facilities by means of providing primary health services covering nearby villages through health extenders, in conjunction with government and NGOs. It is also planned to focus on infrastructure improvement of the existing PHCs and SHCs of the nearby area. The health issues will be monitored and addressed in this manner. KMPL will consider Health facilities under its CSR activities. Development of greenbelt/plantation will also act as bio-filters.

Health Care Facilities

Proper health care facilities will be provided to the employees of limestone mine along with their families. The medical facilities in form of primary medical camps will also be extended to local people in the nearby areas under socio-economic development/CSR activities.

Managing Loss of Livelihood and Income

It is proposed that entire required land within the mine shall not be acquired in one go. Land purchasing shall be done in phases as per the requirement for mining purpose. This is proposed in order to ensure minimal disturbance of the land & associated people. In the proposed mining activities, preference to the suitable land oustees & agricultural labourer would be given for employment opportunities etc., in various sectors based on their capabilities.

The Company will organize vocational training, entrepreneur development programmes for the PAFs including women members and will provide advice for starting suitable small-scale industry. KMPL will encourage entrepreneurship amongst PAFs or their qualified family members by awarding services, contracts for activities such as canteens, vehicle hiring, maintenance of gardens, office services and cleanliness, courier services, and material supplies.

To cushion the local population against impacts of mine closure, adequate advance intimation will be given to employees and contractors to allow them to source alternative opportunities. Skills development programmes will also be undertaken by KMPL to ensure sustainable livelihood for people of the nearby areas.

4.7 IMPACT ON HUMAN SETTLEMENT AND RESETTLEMENT & REHABILITATION ACTION PLAN

4.7.1 HUMAN SETTLEMENT

The area of proposed mine site is 800.9935 ha located at Villages: Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan. Bharja and Tarongi village habitation falls in the lease area.

PROTECTION PLAN FOR NEARBY HABITATION

As compliance of Specific ToR point no 1.2:

OA No. 304/2019, which was initiated before the National Green Tribunal (NGT), focused on the need for a standardized approach to distance regulations for stone mining, especially when blasting is involved.

The NGT, in its interim order, considered the Central Pollution Control Board's (CPCB) report, recommending a minimum distance of 100 meters when blasting is not involved and 200 meters when blasting is involved.

On October 25, 2021, the Supreme Court, without directly overturning the NGT's initial order, granted liberty to the parties to re-engage with the NGT, essentially sending the matter back for further deliberation. However, the NGT did issue orders on 9th Dec, 2021 directing a joint committee to conduct an expert study on the safe distance for stone quarries from habitations and the impact of blasting using NONEL Detonator Technology in stone quarries.

CPCB submitted joint committee report on 2.3.2023 before Hon'ble NGT. In the report, Blast induced vibration, air over pressure, fly rock & study on the blast influence zone was carried out by the CSIR-Central Institute of Mining and Fuel Research (CSIR-CIMFR) in all selected quarries at a distance of 50 m to 500m. As per the study report, using NONEL technology the PPV, AOP, Fly rock, noise and air emission are with in norms.

Now, the State of Kerala has also to file its response in the matter placing on record some subsequent developments with regard to latest technology of operation of quarries etc.

We will follow the final out put the NGT orders regarding the distance criteria on habitation using controlled blasting technology to maintain the PPV, AOP, Fly rock, noise and air emission norms prescribed by the respective Govt. Department.

A scientific study has been carried by the IIT, Jodhpur for determining the controlled blasting parameters to maintain safe distance from habitation which is 100m. However, deep hole blasting with NONEL technology will be restricted at a distance of DGMS approval including the mining without blasting at 50m distance.

- Mining will be carried out as per the provisions outlined in mining plan approved by Indian Bureau of Mines (IBM) as well as by abiding to the guidelines of Director General Mines Safety (DGMS) and Conditions mentioned in DGMS guidelines will be followed strictly.
- However, when the mines working will reach near the habitant's permission will be obtained from DGMS for conducting controlled blasting, within the distance below 300m as permitted by DGMS else other Mining Method like rock breaking by hydraulic hammer etc., that is not involved the blasting operation will be adopted for extraction of the Mineral within the danger zone of blasting.
- Controlled blasting will be adopted and optimum use of explosive energy will be made by optimizing explosive charge per hole and per delay.
- NONEL and bottom hole initiation system will be used to control ground vibrations, noise & fly rocks.
- Blasting will be carried out during day time only & every blast will be monitored.
- Secondary blasting for reducing the boulder size will be avoided by using rock breaker.
- The blasting shall be done in such a way that no damage is caused to residential houses.

- The Peak Particle Velocity (PPV) of each blast shall be measured and records of the same shall be maintained. The PPV shall not be more than the limit as mentioned in DGMS Circular No. 7 of 1997.
- Blasting studies will be conducted to adhere to the DGMS guidelines by any Government agency such as IIT Jodhpur well before approaching any habitations to evaluate the zone of influence and impact of blasting on the neighborhood and recommendations will be followed.
- The recommendations of IIT Jodhpur followed by approvals from DGMS regarding charge per hole & delay/blasting sequences will be implemented.
- Controlled blasting will be carried out to reduce air blast and peak particle velocity in order to control effect of vibration in the nearby area.
- The drilling, charging, stemming and blasting operations will be carried out under direct personal supervision of Manager/Asst. Manager. He will maintain records of blasting parameters for every blast. Only blasting foreman who is fully trained in controlled blasting will be deputed for blasting operations.
- Main haulage road in the mine shall be provided with permanent water sprinklers and other roads shall be regularly wetted with water tankers fitted with sprinklers. Crusher and material transfer points shall invariably be provided with Bag filters or dry fogging system.
- All measures will be adopted to control fugitive dust emission during mining operation and to ensure no impact on nearby habitats.
- 50m wide 3 tier Greenbelt will be done towards the habitation.
- Green belt/ plantation will be carried out covering an area of 128.30 ha.
- Ambient Air Quality & Noise Level will be monitored regularly in nearby villages.

Mitigative measures for the nearby habitation in compliance of Ministry's O.M. No. Z 11013/57/2014- IA. II (M) dated 29.10.2014:

- Best Mining Practices shall be adopted for the given mining conditions.
- Adequate number of check dams, retaining walls /structures. Garland drains and settling ponds will be provided in the mining area to arrest the wash-off with rain water in catchment area.
- The natural water bodies and /or streams which are flowing in and around the village will not be disturbed.
- Biological clock of the villagers will not be disturbed by orienting the flood lights/ masks away from the village and keeping the noise levels within the prescribed limits for day and night hours so that it does not affect the health in villages located close to mining operations. Regular health surveillance will be undertaken.

- Provision of monitoring of each blast will be made so that the impact of blasting on nearby habitation and dwelling units could be ascertained.
- No mining operations will be carried out within 50 m of public works such as public roads and buildings or inhabited sites.
- Main haulage road in the mine will be provided with permanent water sprinklers and other roads will be regularly wetted with water tankers fitted with sprinklers. Crusher and material transfer points will invariably be provided with Bag filters and or dry fogging system. Belt conveyors will be fully covered to avoid air borne dust.
- We will strictly adhere to MMR (Metalliferous Mines Regulation) 1961 / DGMS guidelines for undertaking controlled blasting activity so that safety is ensured and ground vibration, overpressure and fly rock are well within the prescribed norms. We will monitor each blast by Seismograph and maintain blast wise record.
- Alteration or re-routing of foot paths, pagadandis, cart roads and village infrastructure /public utilities or roads will be avoided to the extent possible and in case such acquisition is inevitable, alternative arrangements shall be made first and then only the area acquired.
- Socio economic development of the neighbourhood habitats has been planned based on the need-based survey and will be executed as per the recommendation of the plan.
- R&R plan/ Compensation details for the Project Affected Families (PAFs) has been prepared keeping in view relevant State/ National Rehabilitation & Resettlement policy. In respect of SC/ST and other weaker sections of the society in the study area, a need-based sample survey, family-wise has also been undertaken to assess their requirement and action programme prepared and documented in the R&R report.

4.7.2 RESETTLEMENT & REHABILITATION ACTION PLAN

The Resettlement & Rehabilitation Plan has been aimed to address the rights and privileges of local people, ensures good share of jobs in the projects and facilitate comprehensive socio-economic development of the area.

The area of proposed mine is 800.9935 ha which falls in 7 Villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli.

Till date, no land has been acquired. Land will be purchased through mutual agreement with the land holders falling in the mining lease area at negotiated rates and terms and conditions.

National & State R&R Policy will be followed and accordingly cost has been calculated in compliance with LAAR Act 2013 and LARR act Rajasthan 2014. Following are the cost calculated as per the land acquisition act

Further "Blasting will be conducted in accordance with the guidelines stated by the DGMS and by complying the regulations in this regard. However, when the Mines working will reach near the habitant's those couldn't be removed, permission will be obtained from DGMS for conducting controlled blasting, within the distance below 300 mtrs as permitted by DGMS else other Mining Method like rock breaking by hydraulic hammer etc., that is not involved the blasting operation will be adopted for extraction of the Mineral within the danger zone of blasting".

KMPL has following options for acquisition of land for its proposed mining project:

Option 1: Acquire land falling in the mine block through provisions of LARR Act, 2013

Option 2: Land acquisition through mutual agreement with the land holders falling in the mine block area at negotiated rates and terms and conditions.

KMPL proposes to procure land on mutual agreement with the land holders at mutually agreeable rates.

It is proposed that required land shall not be acquired in one go. Land purchase shall be done in phases as per the requirement for mining purpose. This is proposed in order to ensure minimal disturbance of the land & associated people. No forceful land acquisition will be undertaken. Brief Note for R &R Action Plan is enclosed with this EIA/EMP Report as ***Annexure XVI.***

4.7.2.1 PUBLIC HEALTH IMPLICATION

The most common diseases in the region are viral fever, common cold and cough, stomach disorder etc. which are prevalent amongst the villagers. None of these can be related to the project and allied activities of the project. However, proper preventive/control measures will be taken by the company to reduce the impact of mining activities on public health and to improve the public health of the area so that adequate treatment can be given.

The following are some of the significant points for consideration under public health:

- Habitation of Village Bharja, and Taroongi falls in the block area.
- Fugitive emission generated from mining operation restricted nearby the block boundary by using proper dust suppression measures.
- Fugitive emissions generated due to area source will be controlled by various measures viz wet drilling, controlled blasting, preventive maintenance of HEMMs, Bag filters and automatic water spray system at crusher, regular water sprinkling on blasted muck pile & loading/unloading points etc.

- Use of PPEs for workers working in high dust zone and development of green belt and plantation will be adopted.
- Regular Ambient air quality monitoring, noise monitoring & water quality analysis will be carried out.
- Medical health center will be established within the proposed Plant premises; facilities and it will be common for mine also.
- First aid centre will be established in the mine block and medical camps will be organized regularly in surrounding area.
- Employees when inducted will be medically examined. Further, they will also be medically examined at periodical interval.
- Efforts will be made to improve the hygiene, sanitation, education and infrastructure of the nearby villagers under CSR activities.
- Proper Sanitation facilities will be provided to the mine workers organizing camps such as Family planning camp, free medical checkup camp, eye camp, Pulse polio camp etc.
- Peak particle velocity monitoring will be done in mine site and for nearest habitations.
- Regular Ambient air quality monitoring, noise monitoring & water quality analysis will be carried out.
- Organizing vaccination programs such as Hepatitis-B vaccination, Typhoid vaccination, MMR vaccination.
- Construction of toilets in Schools, Public Place etc.

4.7.3 IMPACT EVALUATION

Impact significance is given in table below:

TABLE 4. 23 IMPACT EVALUATION TO DETERMINE THE SIGNIFICANCE (SOCIO ECONOMIC ENVIRONMENT)

Impact Evaluation Element	Impact on socio economics due to the proposed limestone mining project			
Potential Effect/ Concern	Loss of land, rehabilitation & resettlement of PAFs, Improvements in socio Economic conditions of the settlement falling within Village Ramsthan, Ghunchihai and Jamodi			
Characteristics of Impacts				
Nature	Positive		***Negative***	Neutral
	√			
Type	***Direct***	Indirect	Cumulative	
	√	√		
Extent	***Project Area***	*Local*	Zonal	Regional
		√	√	√
Duration	Short – term		Long- term	
			√	
Intensity	Low		***Medium***	High
			√	

Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
				√
4.7.4 SIGNIFICANCE OF IMPACT				
SIGNIFICANCE	Insignificant	Minor	**Moderate**	Major
				√

4.7.5 IMPACT ON LOCAL TRANSPORT INFRASTRUCTURE

Initially, limestone will be transported to the proposed Cement Plant by 55 T capacity of tippers via road .Later on, limestone will be transported from mine face to the crusher (1000 TPH) via 55 T capacity of dumper to be located within mine block. Further, crushed limestone will be transported to its proposed Cement Plant via covered conveyor belt.

As per specific condition 1.37 “PP needs to undertake the carrying capacity of the proposed road that is to be utilized for transportation of minerals till the installation of OLBC”

As per Standard ToR Point 1.32 “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”.

Complying to the ToR Points issued by MoEFCC, New Delhi the Transportation Study was conducted as per IRC Guidelines in May, 2025 on NH-927 A. The details of the Study are given as below:

Existing Traffic Survey:

Traffic survey has been conducted on the NH -972 A. Measurements of Traffic density was made continuously for 24 hours by visual observation and counting of vehicles for the four categories, viz., Motor cycle/ scooter, Passenger car/ van/ Auto rickshaw, Bus/trucks. The traffic survey monitoring was done in the month of May, 2025 to project the future traffic growth and the load on the NH –927A.

The details of the traffic volume count have been provided in Table given below:

TABLE 4. 24 TRAFFIC VOLUME COUNT SURVEY NH-927A

		TYPE OF VEHICLES				
TIME (RANGE)		**Motor Cycle and Scooter**	**Auto Ricksaw**	**Passenger car**	**Trucks or buses**	**Grand Total**
16:00	17:00	80	2	65	88	265
17:00	18:00	90	4	70	80	269
18:00	19:00	85	5	82	72	276
19:00	20:00	45	4	77	77	231
20:00	21:00	37	6	68	89	231

21:00	22:00	26	2	55	92	188
22:00	23:00	17	3	60	80	170
23:00	0:00	12	1	15	85	124
0:00	1:00	2	0	10	67	91
1:00	2:00	3	0	8	50	63
2:00	3:00	0	0	6	65	74
3:00	4:00	3	0	5	78	91
4:00	5:00	2	0	2	68	75
5:00	6:00	6	1	25	72	108
6:00	7:00	7	1	30	66	114
7:00	8:00	39	2	35	49	144
8:00	9:00	44	3	40	56	168
9:00	10:00	50	2	45	49	175
10:00	11:00	78	0	50	60	213
11:00	12:00	63	3	52	72	217
12:00	13:00	78	1	55	80	235
13:00	14:00	68	1	42	55	189
14:00	15:00	77	2	45	40	191
15:00	16:00	58	5	40	37	159
Grand Total		**970**	**48**	**982**	**1627**	**4061**

TABLE 4. 25 TRAFFIC VOLUME COUNT: NH -927A

S. No.	Type of Vehicle	No. of vehicles/ day
1.	Motor Cycle/ Scooter	970
2.	Auto-rickshaw	48
3.	Passenger Car	982
4.	Bus/Trucks	1627
Total		**4061**

No. of Vehicles with respect to PCU

S. No.	Vehicle Type	Number of Vehicles / days	Passenger Car Unit (PCU) Factor	Total Number of Vehicle (PCU) / day
1.	Motor Cycle/ Scooter	970	0.75	728
2.	Auto-rickshaw	48	1.00	58
3.	Passenger Car	982	1.2	982
4.	Bus/Trucks	1627	3.7	6020
Total		**4061**		**8655**
Avg. PCU / hour				**361**

Source: IRC- 64 1990

Existing Traffic Scenario and LOS (Level of Service)

Road	**V (Volume in PCU/hr.)**	**C (Capacity in PCU/hr.)**	**Existing V/C Ratio**	**LOS**
NH-927A	361	1200	0.30	B

Capacity as per IRC: 64-1990

V/C	*LOS (Level of Service)*	*Performance*
0.0 - 0.2	*A*	*Excellent*
0.2 - 0.4	*B*	*Very Good*
0.4 - 0.6	*C*	*Good / Average / Fair*
0.6 - 0.8	*D*	*Poor*
0.8 - 1.0	*E*	*Very Poor*
>1	*F*	*Highly Unstable (Free Flow= 0)*

Additional Traffic due to Proposed Mining Project

Transportation of raw material, fuel and finished product will be done by road; details of which are given in table below:

Estimated Outward Traffic due to the Raw Material Transportation

S. No.	Material	Total Required Quantity			Source	(%) by Road	Type of Vehicle & Capacity	Number of vehicles / Day	Number of Trips/ Day
		MTPA	TPA	TPD*					
1.	Limestone	2.85	2850000	9500	Proposed Rohida Limestone Mine	100	Dumper/ tippers (55 Tonnes)	173	345

*Considering 300 Working days

Total No. of increased Dumpers per Day =173

PCU/day = 173 x 3.7 =640.1

Increase in PCU/hr. = 640/14 =46

*For calculation of PCU per hour 14 hours per day as per shifts of KMPL has been considered.

Modified Traffic Scenario and LOS (Level of Service)

S. No.	**Road**	**Increased PCU / hr.**	**V (Volume in PCU/hr.)**	**C (Capacity in PCU/hr.)**	**V/C Ratio**	**LOS**
1.	NH-927A	46	361 + 46 = 407	1200	0.33	B

Traffic Projection & Impact due to Increased traffic movement:

Due to this Proposed Mining project, there will be addition of dumpers/ tippers in the existing traffic. Transportation of limestone from working face to crusher hopper will be carried out by dumpers of capacity ~55 Tonnes via internal haul roads and from the haul roads crushed limestone will be transported to proposed cement plant of KMPL via NH-927A using dumpers/ tippers of 55 Tonnes capacity.

The Level of Service (LOS) value of NH-927A with existing traffic is "B" i.e., very good. During the operation of this proposed limestone mine, vehicles of the mine will be added in the existing traffic of NH-927 A the LOS value will be same i.e., Very Good. Thus, it can be concluded that the present road network is good enough to bear the increased traffic load. However, internal and nearby roads will be maintained as and when needed to facilitate transportation.

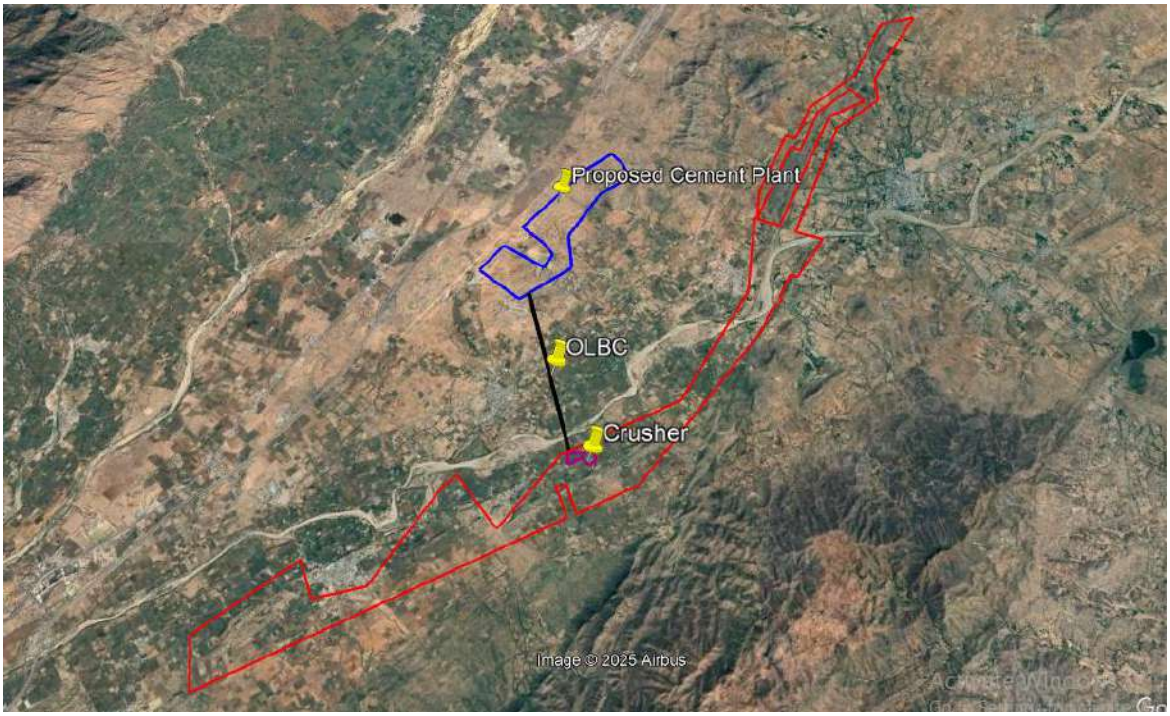
The rated production of 2.85 million tonnes limestone is envisaged from 3rd year of mining operations and onwards. Thus the crusher and OLBC shall be installed within three years of mine opening or till start of cement plant trail runs. The crushed limestone shall be transported to plant by OLBC. The main haul road connecting working pits to crusher will be constructed within one year after mine opening as per the proposal of approved mining plan. The total width of haul road is proposed to be about 20 m for two lane road with a median and drain. The proposed haul road shall be constructed with four basic layers i.e. sub-grade, sub-base, base course and surface course. The maximum gross vehicle weight of the off-highway dump truck plying on haul road would be 98 to 100 tons.

In Compliance of Specific ToR point no 1.1 the cement plant will be located in the western direction of the ML Area. The length of the OLBC from mine crusher to proposed plant will be 2.5 km and will be completed along with operation of cement plant.

The screenshot of the KML file is enclosed showing the location of proposed cement plant and route of transportation from crusher to plant through OLBC is enclosed. The proposed time schedule for crusher and OLBC installation is given below:

Time Schedule for Installation of Crusher and OLBC

S. No.	Activities	Months					
		1 to 12	12 to 16	16 to 18	18 to 28	28 to 34	34 to 36
1.	Land Acquisition & Clearances	■					
2.	Engineering		■				
3.	Tendering & Ordering			■			
4.	Civil Construction				■		
5.	Equipment Erection					■	
6.	Trail Run & Commissioning						■



Google Image of location of Proposed Cement plant and route of transportation from crusher to plant through OLBC

Hence, there will not be any significant impact on transport infrastructure from the proposed mine. However, measures will be adopted and same are given below:

4.5.6.1 MEASURES FOR TRANSPORTATION

Necessary mitigation measures will be adopted. The same are given as under:

- All trucks/ dumpers carrying limestone will be covered with Tarpaulin.
- At crossing of village road, security guards shall be provided for regulating movement of vehicles as well as for safety of persons.
- Road will be maintained in consultation with the local administrative authority.
- Vehicles with PUC Certificate will be used.
- Overloading will be avoided.
- Speed breakers will be provided.
- Speed governors will be installed in HEMMs.
- Peak hours will be avoided.
- Un- necessary blowing of horn will be avoided.

- Additional plantation along the both sides of the village roads will be carried out in consultation with the Gram Panchayat and Forest Dept.

4.5.6.2 IMPACT EVALUATION

TABLE 4. 26 IMPACT EVALUATION FOR TRANSPORTATION INFRASTRUCTURE

Impact Evaluation Element	Impact on traffic outside the mine infrastructure due to the proposed mining project			
Potential Effect/ Concern	Air/Noise levels and disturbance to the community along transport routes			
Characteristics of Impacts				
Nature	Positive		***Negative***	Neutral
				√
Type	***Direct***	Indirect	Cumulative	
			√	
Extent	*Project Area*	*Local*	**Zonal**	Regional
	√	√		√
Duration	**Short – term**		Long- term	
	√			
Intensity	Low		***Medium***	High
	√			
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
				√
4.7.6 SIGNIFICANCE OF IMPACT				
4.7.7 SIGNIFICANCE	Insignificant	Minor	**Moderate**	Major

4.7.8 IMPACT ON BIOLOGICAL ENVIRONMENT

Biology is the scientific study of life. It is a natural science with a broad scope but has several unifying themes that tie it together as a single, coherent field. Habitat loss, degradation and fragmentation are important causes of known species-population extinctions. The main cause of degradation and depletion of forests and wildlife are the human activity (anthropogenic pressure). Population explosion, over exploitation of forest resources, urbanization, unscientific management, encroachment of forest land, illicit felling, lack of regeneration of forests and outdated laws are major factors responsible for the degradation and depletion of forests.

4.7.8.1 IMPACT ON FLORA & FAUNA

Beside this, in remaining land there are herbs, shrubs and trees are present. Mining will involve removal of vegetation prior to soil dozing and excavation of mineral. Existing tress will be retained as much as possible. Greenbelt/plantation area will be developed in 7.5 m safety barrier all around the mine and other statutory barriers and backfilled area. This will have positive impact and will help to improve the floral cover of the area. The greenbelt and plantation development will eventually attract micro fauna, birds etc. in the area which will also have positive impact.

Assistance/Guidance will be taken from local forest department in selection of species of plants so that green coverage could improve very fast. The varieties would include those plants, which are suitable to the area.

Detailed Biological Study has been conducted for the study area and detailed inventory has been prepared.

Total 15 species i.e. *Panthera pardus* (Leopard), *Rusa unicolor* (Sambar deer), *Felis chaus* (Jungle Cat), *Paradoxurus hermaphroditus (*Common Palm Civet), *Canis lupus* (Indian Wolf), *Hyaena hyaena* (Striped Hyaena), *Canis aureus* (Jackal), *Vulpes bengalensis* (Indian Fox), *Hystrix indica* (Indian Porcupine), *Melursus ursinus* (Sloth Bear), *Naja naja* (Indian Cobra), *Ptyas mucosus* (Common Rat Snake), *Varanus bengalensis* (Bengal Monitor Lizard) *Pavo cristatus* (Indian Peafowl) and *Tachyspiza badia* (Shikra) were found in Schedule- I according to Indian Wildlife Protection Act, 1972 as amended on 20th Dec. 2022 in the study area during field survey.

For the conservation of these species Wildlife Conservation Plan has been prepared. Budget earmarked for the conservation of the same is Rs. 475 Lakh. Wildlife Conservation Plan has been approved by DCF, Sirohi and forwarded to Chief conservator of forest Jodhpur on 28.7.2025. copy of the forwarding letter is enclosed as **Annexure XII** and Wildlife Conservation Plan is enclosed as **Annexure XII a.**

MEASURES FOR MINIMIZING IMPACT ON FLORA & FAUNA

The following measures will be adopted to minimize the impact of mining on faunal environment of the area.

- Wildlife conservation plan will be prepared to minimize the impact of mining on surrounding bio-diversity and to develop favourable environment for local flora & fauna.
- Mining will be done as per the DGMS Rules and Approved Mining Plan.
- Greenbelt development and plantation helps in creating habitats for local faunal species and to create better environment for various fauna.
- Fencing will be provided around the active mining block.
- Creating and developing awareness for nature and wildlife in the nearby villages.
- Greenbelt development/plantation will be done in Safety barrier, Safety zone, on upper most 2 benches of excavated area. Increasing plant diversity, especially with native plants, enhances the potential for attracting a greater number of different wildlife species, Habitat components that provide food, cover, water and space are important for self-sustaining ecosystem development.

4.7.8.3 MEASURES FOR IMPROVING BIOLOGICAL ENVIRONMENT

Greenbelt development plan will be designed for preventing the soil erosion, improving the greenery and aesthetic beauty of the area. Plantation will be done in consultation of DFO. While selection of species,

care will be taken so as the developed greenbelt/plantation will remain useful for habitations. Greenbelt development and plantation is necessary:

1. Ground covers reduce runoff velocity and filter out suspended soil particles during storms.
2. Shrub and tree roots provide a restraining web that increases soil cohesion and stabilizes soil.
3. Provide stabilization to slopes of the waste dumps.
4. Landscaping and providing shelter.
5. Improvement in aesthetic environment of site.
6. Air purification by generation of oxygen.
7. Allowing PM to settle on the leaves and to attenuate noise generated by movement of vehicles and other machinery.
8. Live plant foliage reduce the impact of rainfall and increase the absorptive capacity of the soil.

4.7.9 GENERAL GUIDELINES FOR GREENBELT DEVELOPMENT

Vegetation covers in and around the mine workings generally helps in:

- Control of dust.
- Reducing noise.
- Stabilizing erodible slopes to minimize pollution.
- Ground Water Recharge.
- Enhancement of aesthetic value.

I. Native plant species are being/will be planted in consultation with DFO.

II. Trees growing up to 5 m or more in height with large canopy cover & leaf area will be planted around the installation.

III. Plantation of trees will be done along in safety barriers and mine.

IV. Since tree trunks are normally devoid of foliage (up to 3m), it is appropriate to have shrubbery in form of such trees to give coverage to trunk portion of these trees.

V. Fast growing trees with thick perennial foliage will be grown, as it takes many years for trees to grow to their full height.

VI. In order to facilitate the proper growth of vegetation, limited measures involving preparation of seedbed with suitable amount of fertilizers and treatment with mulches will be taken. The topsoil will be used for green belt development / plantation.

The following characteristics will be taken into consideration while selecting plant species for green belt development and tree plantation.

I. Local, indigenous and drought resistant species.

II. Fast growing and tall trees.

III. Perennial and evergreen.

IV. Thick canopy cover.

V. Stratified layers of Plantation to prevent lateral pollution dispersion.

VI. The trees are will be selected so as to maintain regional ecological balance and conform to soil and hydrological conditions.

VII. Plantation will be done as per guidelines.

The causalities of each year will be replaced every year with new saplings and such number of saplings will not be counted in the number of saplings proposed to plant in that year.

For re-vegetation, the plants and saplings suitable for the existing soil and site conditions will be considered. It is recommended to plant fast growing local species, which can adapt to the local climate.

TABLE 4. 27 YEAR WISE GREENBELT/PLANTATION DEVELOPMENT PLAN

Year	7.5 M Safety Barrier/Undisturbed Area		Backfilled Area		Virgin Area		Total		Rs. In Lakhs
	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants	
I	0.1	250	-	-			0.1	250	1.25
II	0.20	500	-	-			0.20	500	2.5
III	1.05	2625	-	-	0.45	1125	1.5	3750	18.75
IV	0.1	250	-	-	1.4	3500	1.5	3750	18.75
V	1.5	3750	-	-	-	-	1.5	3750	18.75
Total _ Plan Period							**4.8**	**12000**	**60.00**
VIth Yr. Onwards till the conceptual stage	**27.75**	**69375**	**72.66**	**Re-Grassing**	**23.09**	**57725**	**45.64**	**1,27,100**	**635.50**
							72.66	**Re-Grassing**	**97.32**
Total	**30.70**	**76,500**	**72.66**	**Re-Grassing**	**24.94**	**62350**	**128.30**	**1,39,100**	**792.82**

TABLE 4. 28 COMPENSATORY AFFORESTATION

Vegetation List of ML Area (Approx)	**Total No of trees/Shrubs inside the ML area (Approx.) (800.9935 Ha)**	**Vegetation List of Excavation area**	**Total No of trees/Shrubs inside the total excavation area (Approx.) (115.43 Ha)**	**Total No of trees/Shrubs proposed to be cut (Approx.)**	**Compensatory Afforestation to be carried out (5 times of the total no of trees to be cut)**	**Place of Compensatory afforestation**
Trees *Acacia catechu (1120)* *Acacia leucophloea (9320)* *Acacia nilotica (6567)* *Anogeissus latifolia (1045)* *Anogeissus pendula (107)* *Bridelia retusa (55)* *Buchanania lanzan (15)* *Butea monosperma (3265)* *Cassia fistula (105)* *Dalbergia sissoo (720)*	*22,317*	*Trees:* *Acacia leucophloea* (8311) *Acacia nilotica* (4156) *Acacia catechu* (923) Anogeissus latifolia (923) Butea monosperma (3232) Dalbergia sissoo (461)	*18007*	*Acacia leucophloea* (8311) *Acacia nilotica* (4156) *Acacia catechu* (923) *Total tree: 13390*	*66950*	Approach Road, Surrounding the village area, Nearby School area, in Forest land consultation with forest department
Shrub: *Prosopis juliflora (35,000)*	*35,050*	*Shrub:* *Prosopis juliflora (33,244)*	*33,244*	*Prosopis juliflora : 33,244*	*Spread of 166220 No seeds in mine area*	
Total	**57,367**	**51,251**	**51,251**	**46,634**	**233170**	

According to this Plan, greenbelt will be developed along the 7.5m mine periphery, plantation on backfilled area, on bench plantation, safety barrier along village road, on OB dump, on unworked area and on other area Plant will be carried out during Progressive Mine Closure Plan.

At conceptual stage, approximately 139100 nos of saplings will be planted on 128.30 ha area @ 2500 sapling per ha. Survival rate will be maintained at >90%.

Horticulturist will be engaged for plantation purpose. They will help in doing following work:

- Planning for plantation and greenbelt development in mining area.
- Seek assistance from local forest dept regarding selection of species for plantation.
- Ensure regular watering of saplings as per schedule to ensure maximum survival rate.
- Ensure optimum survival of saplings.
- Development of lawns and gardens around office and other areas.
- Ensure regular maintenance of saplings planted in pits/backfilled area.

Rs. 792.82 lakhs have been earmarked for greenbelt/plantation till the end of life of mine @ Rs 570/sapling. The budget includes the cost of Saplings, Watering facilities, Labour Charge, Organic manure, Bio-fertilizers, Maintenance, fencing etc., which may vary in due course of time.

In compliance of specific ToR point 1.24 KMPL will develop a nursery in 5 ha for native species development in collaboration with well-regarded forest research institute the Arid Forest Research Institute (ICFRE-AFRI) Jodhpur, Rajasthan or Rajasthan Forest Department, Silviculture Wing Banki, Udaipur. These institute conducts research on forestry needs in the arid and semi-arid regions of Rajasthan and surrounding areas. This institute will also suggest increasing vegetative cover and biodiversity conservation. Pit no 2 (4.30 ha 5th year) and near mine office (0.70 ha) initially 1s yr.

A collaborating letter obtained with ICFRE, Jodhpur establishing a nursery for native species development over an area of 5 hectares vide letter dated 16.7.2025. Cop of the same is enclosed as **Annexure XIII.**

Permission for tree cutting the babool tree within the ML area from Revenue department Sirohi, dated 17.07.2025. Copy of the same is enclosed as **Annexure XVIII**.

In compliance of Specific ToR Point 1.47 33% greenbelt area as part of the tree plantation campaign "EK Ped Ma ke Naam" (एकपेड़माँके नाम) and the details of the same shall be uploaded in the Meri Life portal (https://merilife.nic.in).

4.5.6.3 SPECIES SELECTION FOR PLANTATION/GREENBELT DEVELOPMENT

The saplings suitable for the existing soil and site conditions will be considered. Preference will be given for fast growing local plant species, which can adapt to the local climate.

The effectiveness of a GB essentially depends on the selection of the tree species an ideal tree for planting in the GB should have following characters:

- Fast growth rate for quick development of canopy
- Strong branches for durable canopy
- Large leaf size for greater retention of pollutants
- Dense foliage for better trapping of pollutants
- Long life span for extended life of the green belt

Indigenous & fruit bearing species will be planted by KMPL in consultation with local forest department. Mango (*Mangifera indica*), Guava *(Psidium guajava)*, Anar *(Punica granatum*), Jamun *(Syzygium cumini*), Imli *(Tamarindus indica*), Chiku *(Manilkara zapota*), Sitafal (*squamosa)*, Lemon *(Citrus lemon*), Bargad (*Ficus benghalensis*), Peepal (Ficus religiosa), Neem (*Azadirachta indica*), Senjana (*Moringa oleifera*), Gulmohar *(Delonix regia)*, Shisham (*Dalbergia sisso*), Kaner (*Cascabela thevetia*), Bel (*Aegle marmelos*), Sal (*Shorea robusta*), Amaltas (*Cassia fistula*), Palash (*Butea monosperma*), Ashok *(Polyalthia longifolia)* etc. The ecological characters of few species proposed to be planted are given below:

TABLE 4. 29 SPECIES CONTAINING ECOLOGICAL VALUE

S. No.	Species (Common Name)	Ecological Characters
1.	*Azadirachta indica* (Neem)	DC, NC, AG, DR, FR
2.	*Ficus benghalensis* (Peepal)	DC, NC, DR
3.	*Bauhinia variegate* (Kachnar)	DC, NC, DR
4.	*Syzygium cumini* (Jamun)	DC, NC, DR
5.	*Tamarindus indica* (Imli)	DC, NC, DR
6.	*Cassia fistula* (Amaltas)	DC, NC, DR
7.	*Delonix regia* (Gulmohar)	DC, NC, DR
8.	*Mangifera indica* (Mango)	DC, NC, DR
9.	*Madhuca indica* (Mahua)	DC, NC, DR

Ecological Characters such as

DC- Dust Control; NC - Noise Control; AG – Absorptions of Gases; DR - Drought resistance; SR – Salinity resistance; FR - Fire Resistance

(Source: *Phyto-remediation of particulate matter from ambient environment through dust capturing plant species. 2007).*

The above suggested list covers species with thick canopy cover, perennial green nature, native origin and a large leaf area index. The proposed species will help in forming an effective barrier between the mine area and the surroundings.

These species should be planted in and around the mine site to help absorb fugitive emissions and reduce the noise levels. All the open spaces, where tree plantation may not be possible should be covered with shrubs and grass to prevent erosion of topsoil.

IMPACT EVALUATION

TABLE 4. 30 IMPACT EVALUATION FOR BIOLOGICAL RESOURCES

Impact Evaluation Element	Change in the biological resources of the area due to mine development & operation and generation of emissions			
Potential Effect/ Concern	Loss of habitat, Impact on health of biological receptors due to area and line sources of air emissions including fugitive dust emissions during limestone mine development & operation activities			
Characteristics of Impacts				
Nature	Positive		***Negative***	Neutral
			√	
Type	***Direct***	Indirect	Cumulative	
	√			
Extent	*Project Area*	*Local*	Zonal	Regional
	√			
Duration	Short – term		**Long- term**	
			√	
Intensity	**Low**		*Medium*	High
	√			
Frequency	Remote (R)	Occasional (O)	Periodic (P)	Continuous (C)
				√
SIGNIFICANCE OF IMPACT				
4.7.10 SIGNIFICANCE	**Insignificant**	Minor	Moderate	Major
	√			

In compliance of specific ToR point 1.45 stated that as per the IIT, Jodhpur study that the geological structure consists of moderately weathered limestone with an average Rock Mass Rating (RMR) of 55, indicating fair to good rock quality conditions.

Based on the observation made in static and dynamic analysis of the representatives slopes, it is concluded that while most of the pit slopes are stable under static conditions, but many of them may fail during blasting. This issue is particularly acute in slopes, where lithological contacts (such as phyllite-siliceous limestone) are very close to the planned bench faces.

As a general guideline, it is recommended that special precautions need to take for all the benches to ensure nowhere lithological contacts are exposed on the bench face and slope face due to over steepening of bench face. In benches where distinct lithological contacts are exposed, the bench face angle should be reduced to match the dip of the contact, and preferably the faces are excavated along the contact. On those pit-sections, where lithological contacts are close the bench faces, reduced charge(kg)/delay is to be used.

It is strongly recommended that, following one year of operational activity, a comprehensive structural characterization program be undertaken.

4.7.11 MEASURES ADOPTED BY COMPANY FOR PREVENTION OF ILLEGAL MINING & PILFERAGE OF MINERAL

Some mitigation measures will be adopted for prevention of illegal mining and pilferage of mineral which are as follows:

i) Mining will be done as per approved mining plan and after getting all the statutory clearances.

ii) Block boundary will be fenced by barbed fence/stone bunds.

iii) Educating the local habitants and providing them employment as far as possible so that they do not/will not involve in such illegal activities.

iv) Creating information network in the vicinity.

v) Displaying of sign boards mentioning "Dangerous and Prohibited Place" in local language with pictorials.

vi) Static security manning including deployment of armed guards during the night hours.

vii) Patrolling with company security guard.

viii) Sealing of likely illegal mining spots, if any.

ix) Stringent actions are to be taken against transport vehicles caught in the act of theft or pilferage.

x) Training of existing security personnel, refresher training and basic training to new recruits in security discipline will be arranged for strengthening the security set up.

xi) Horizontal movement of executives with aptitude for security work and inducting qualified security personnel at junior, middle and senior levels.

xii) Entry/exit points will be maintained by establishing proper check posts and barrier where all vehicles are physically checked.

xiii) Surprise checks/raids are conducted by flying squads of company/security department.

xiv) Regular monitoring of land use as per MoEF&CC guidelines.

4.7.12 PROCEDURE FOR RE-CONCILIATION OF THE MATERIAL EXCAVATED WITH MATERIAL DISPATCHED, MATERIAL STORED WITHIN THE MINE BLOCK AREA, WASTE/IB/REJECT DUMPED IN THE MINE BLOCK AREA, TOP SOIL DUMPED AND UTILIZED

i) Mineral transportation will be done through dumper from crusher to the existing Plant through road and later closed covered conveyor belt, advance royalty and material dispatch online pass will be generated on the same day.

ii) Daily report: Shift wise and material wise.

iii) All the limestone dispatch will be passed through weighbridge.

iv) Automated weighbridge connected with government server for real-time.

v) Periodic calibration of weighbridge and certification from government department.

vi) Quantity of limestone produced/ dispatched and stored is will be reconciled by monthly pit survey and volume will be checked through software.

vii) The survey and volume of OB and quantity of limestone produced/ dispatched and stored will be recorded in soft and hard format.

viii) Use of software for booking of material raised from mines with various report options i.e. production, consumption and closing stock. Booking will be based on production reports generated through daily reports.

ix) Monthly physical verification with a committee consisting of Mines, accounts and production to all dumps and stocks using precise gadgets i.e. total station, DGPS survey etc.

x) A computerized software generated report.

xi) For limestone, back calculation with the clinker production with the conversion factor.

xii) Issuance of proper documentation to trucks and weighbridges.

xiii) Pit survey can also be done with total station/DGPS to confirm the volume excavated from pit and total raising booked in software.

xiv) Reconciliation report to be reviewed by a senior most at Corporate level (at least one Director of the Company as chairperson) on annual basis.

Initial updating of plans and sections as per MCDR 2017 and periodical surface mapping and mineral balancing with the estimated reserves and recovery factors.

4.8 TARGET FOR ACTIVITIES AWARENESS CAMPAIGN FOR ENVIRONMENTAL ISSUES

TABLE 4. 31 TARGET FOR ACTIVITIES AWARENESS CAMPAIGN FOR ENVIRONMENTAL ISSUES

TARGET FOR AWARENESS CAMPAIGN FOR ENVIRONMENTAL ISSUES		**% Employees & stakeholders to be covered**		
(A) Environment & Pollution Control		**Year-1**	**Year-2**	**Year-3**
S. No.	**Awareness topic**	**40**	**30**	**30**
1.	General awareness about Air Pollution, Water Pollution, Noise pollution, land pollution etc. and their impact of environment	40	30	30
2.	General awareness about environment & its importance for human being and other creatures	40	30	30
3.	Environmental laws and regulations	40	30	30
4.	Conservation of Natural Resources			
5.	Water conservation & Water harvesting	40	30	30

6.	Plantation and its importance	40	30	30
7.	GHG emission its impacts on the environment & life on earth	40	30	30
8.	Land degradation and how to prevent it	40	30	30
9.	Efficient waste management & its utilization	40	30	30

Table - 4.31 (B)
Practical training to be imparted to Environmental Engineers

S. No.	Training Topics	Target (Period)
1.	Air Pollution Control & monitoring equipments	Within two years of start of mining operations/ Production
2.	Water sampling	
3.	Noise level measurement	
4.	Greenbelt development	
5.	Waste management	
6.	Legal & other requirements applicable for coal mine	
7.	Compliance evaluation and monitoring	
8.	Statutory compliance and reporting	

Table - 4.27 (C)
Practical training to be imparted to Mining Engineers & Geologists

S. No.	Training Topics	Target (Period)
1.	Knowledge of environment, Forest and mining laws	Within two years of start of mining operations/ Production
2.	Safe & environment friendly mining operations	
3.	Mine planning & Sustainable Mining practices	
4.	Maintenance planning for mining equipments	
5.	Mineral & Energy conservation	
6.	Efficient utilization of natural resources	
7.	Identification and management of Environmental impacts of mining activities	
8.	Waste dump management	
9.	Soil management	
10.	Greenbelt Development - selection of species, area to be developed, ensuring maximum survival rate etc.	
11.	Impact of various types of pollutants on human health and effective management of pollution	
12.	Occupational Health Surveillance	
13.	Logistics / lead distance optimization	
14.	Chemistry of various minerals present in mines	
15.	Star ratings of mines	
16.	Skill development for Effective communication with stakeholders	
17.	Increasing productivity without affective environment, health and safety	

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4.9 OCCUPATIONAL HEALTH AND SAFETY

Occupational health and safety (OHS) is multidisciplinary field concerned with the safety, health and welfare of people at work. The goal of occupational safety and health programs includes fostering a safe and healthy work environment. OHS may also protect co-workers, family members, employers, customers, and many others who might be affected by the workplace environment.

Occupational Health & Safety is based on the following three aspects: -

- Hazard identification
- Risk assessment
- Determination of applicable controls

A Hazard Identification and Risk (HIRA) analysis is a systematic way to identify and analyze hazards to determine their scope, impact and the vulnerability of the built environment to such hazards and its purpose is to ensure that there is a formal process for hazard identification, risk assessment and control to effectively manage hazards that may occur within the workplaces.

4.9.1 OCCUPATIONAL HEALTH HAZARD AT MINE SITE

Excessive dust, noise and vibration are the chief health hazards for the miners besides physical hazards as detailed below:

A. Exposure to Dust

Exposure to fine particulates is associated with work in most of the dust-generating stages notably from mineral handling and transportation. Workers with long term exposure to fine particulate dust are at risk of pneumoconiosis, emphysema, bronchitis, and fibrosis.

B. Noise and Vibration Exposure

HEMM operation, transportation and crushing have been/will be the main sources of noise and vibrations. Control of noise emissions includes the use of silencers, noise barriers, and personal hearing protection (ear plugs/muffs).

C. Physical Hazards

Injuries during project operation are typically related to slips and fall; contact with falling / moving objects; and lifting/over-exertion. Other injuries may occur due to contact with, or capture in, moving machinery (e.g. dump trucks, belt conveyors, front loaders) etc. Other hazard includes effect of mechanization on fatigue of machinery operators.

4.9.2 IMPLEMENTATION OF OCCUPATIONAL HEALTH AND SAFETY MEASURES

Occupational Health and Safety measures result in improving the conditions under which workers are employed. It improves not only their physical efficiency but also provides protection to their life. KMPL will adopt the following safety measures:

- Continuous monitoring for compliance of SOPs.
- Pit Safety Committee is formed and recommendations given by committee are implemented.
- Awareness for safety and occupational health is implemented like posters, safety films, etc.
- Drug and alcohol awareness program and counseling.
- Stress management and counseling.
- Safety clauses in contract order.
- Depute dedicated safety team.
- Medical exam for fitness before employment as per standards in Form P-1 of Mines Rules 1955.
- Periodical medical examination as per Mines Rule 1955 and standards laid down in Form P.
- The persons working in dusty environment are examined every year as per the DGMS circular No. 01 of 21.01.2010.
- All employees undergo medical examination as per the recommendation of 10th National conferences of safety in mines.
- Besides that, to avoid any adverse effect on the health of workers due to various pollutants, sufficient measures relating to safety and health will also be practiced.
- Provision of rest shelters for mine workers with amenities like drinking water etc.
- Training of employees for use of safety appliances and first aid in vocational training center.
- Removal of unsafe conditions and prevention of unsafe acts.
- Detailed analysis of each and every incident.
- Periodic inspection by internal and external safety experts.
- Celebrations of various safety events for awareness.
- An effective and clearly audible means of giving warning, in case of fire, to every person are provided at the site. A free passage–way giving access to each means of escape in case of fire is maintained for the use of all workers.
- Regular maintenance and testing of all equipment as per manufacturers guidelines.
- Close surveillance of the factors in working environment and work practices which may affect environment and worker’s health.
- Working of mine will be done as per approved mining plan and environmental plans.
- All safety measures will be taken which includes the use of safety appliances such as:

- ✓ Mask for protection from dust (DGMS approved design, dust free disposable facial mask as per IS: 9473)
- ✓ Ear Muffs
- ✓ Safety Helmets
- ✓ Reflective jackets
- ✓ Safety Belts
- ✓ Leather Hand Gloves
- ✓ Safety Shoes
- ✓ Knee Guard
- ✓ Safety Goggles etc.

- Availability of Medical facilities and First Aid Room equipped with first aid boxers.
- Conduction of internal audits and evaluation of legal compliance.

In order to ensure adequate implementation of the OHS measures suggested, KMPL will adhere to the pre & periodical medical examination program. Details of the same are given as under.

4.9.3 PRE-PLACEMENT AND PERIODICAL MEDICAL EXAMINATION SCHEDULE

Ideally, the pre-employment medical examination (also referred to as a pre-placement examination) strives to place and maintain employees in an occupational environment adapted to their physiological and psychological capacities. The goal of the pre-employment examination is to determine whether an individual is fit to perform his or her job without risk to himself or others. This is also conceptualized within the practice of occupational medicine – it is assumed that the examiner is required to have detailed knowledge of both working and health conditions.

Pre-Medical Examination

- Periodical Medical check-up of workers of all sections will be carried out.
- All necessary first aid and medical facilities will be provided to the workers.
- Mine will be well equipped with a First Aid Center & First Aid Boxes at appropriate locations.
- As per the Mines Act, the management undertakes all the necessary precautions.
- Normal sanitary and cleaning facilities will be provided.

Parameters Monitored/to be Monitored

New employees when appointed are thoroughly medically examined under initial medical examination and thereafter during continuation of employment; the periodic medical examination will be done suggested by DGMS. The medical examination includes the following parameters -

- Height, weight, body mass index (BMI)

- Cardiovascular examination (heart check, blood pressure, pulse)
- Full musculoskeletal examination including comprehensive range of movement
- Urine examination for diabetes or kidney / bladder disorders
- Vision assessment including color blindness
- Medical fitness to work in mines
- Medical examination of drivers
- Drug and alcohol testing instant or Laboratory
- Spirometry (Lung Function Test)
- Audiometry (Hearing Test)
- Urine testing
- Vision tests, color vision
- ECG
- CXR (Chest Radiograph)
- Complete Blood Count
- Strength and mobility screening
- Vaccinations and travel medicine
- Regular Awareness campaign amongst stuff/ working about AIDS/ Dengue/Malaria

The medical records of the employees will be maintained. Under initial vocational training, the workers will be given training related to all safety and health aspects pertaining to their vocation and thereafter, special training courses/ awareness programmes for Malaria eradication, STDs and health effects on exposure to mineral dust will be organized regularly for employed persons as well as for nearby villagers. Refresher training will also be arranged as per statutes.

Table – 4.28
Schedule of Occupational Health & Survey

S. No.	Activity relating to Occupational Health Survey as per ILO / DGMS guidelines	Frequency (as applicable)	Implementing Agency
1.	➢ Framing of Mine specific Health & safety Policy as per Mines Act and Rules. ➢ Awareness regarding policy with strict enforcement. ➢ Inclusion of Policy's details in Tender documents ➢ Periodic Review of Policy	Awareness – Once in 3 months Review – Once in a year	Top Management, Mine's Manager and Procurement Cell
2.	➢ Adoption of ILO/ ISO 45001 based Health & Safety management system and proper formulation and implementation of the same in totality. ➢ Allocation of necessary resources for implementation of the control measures identified by the risk assessment process.	Risk assessment – quarterly Review of risks and resource allocation - once in a year	Initial gap analysis and implementation by an external expert agency and subsequent routine system maintenance by In-house team
3.	Necessary training of all employees of Mines shall be organized with the help of experts for optimal adoption of health & safety management system.	Once in a year	External expert agencies and in-house team
4.	Suitable clauses shall be included in tender document stating how the risk arising to men and material from the mining operations to be done by the contractors.	-	Mine's Manager & Procurement Cell
5.	It will be ensured that contractors are familiar with the relevant parts of the statutes, health and safety management system and are provided with such information prior to commencing work.	Regular activity	Mine's Manager & Procurement Cell
6.	All persons deployed in mine must undergo vocational training	Once in 3 years	Internal/ External faculties
7.	Biometric system of check-in & check-out system of attendance associated with suitable software shall be introduced in the mine for time management.	-	Mine's manager & HR Dept.
8.	The persons working in dusty environment will be examined for Pneumoconiosis/ Silicosis as per the DGMS circular No. 01 of 21.01.2010.	every year	Qualified Medical Officer trained in Occupational Health

9.	Implementation of project specific comprehensive Hearing Conservation Program covering the aspects of monitoring, testing, evaluation and protection of noise.	-	External /Internal medical experts
10.	Medical Examination of employees/ workmen - All regular employees working in the mine will undergo medical examination as per the recommendation of 10th National conference of safety in mines.		
a)	Pre-employment medical examination with a view to place and maintain employees in an occupational environment adapted to their physiological and psychological capacities so to perform his or her job without risk to himself or others.	Prior to joining	Qualified Medical Officer trained in Occupational Health
b)	Medical examination of employees engaged in driving/ HEMM operation jobs shall be tested for eye refraction test	at least once in a year	
c)	Employees exposed to ionizing radiation shall be tested for blood count.	at least once in a year	
d)	Routine stool test for persons engaged in handling of food and stemming preparation with sputum for AFB (Acid Fast Bacilli)	Once in six months	
e)	➢ New employees when taken are thoroughly medically examined under initial medical examination and thereafter during continuation of employment. ➢ The periodic medical examination will be done as per guidelines of DGMS ➢ The medical records of the employees will be maintained. ➢ Under initial vocational training, the workers will be given training related to all safety and health aspects pertaining to their vocation.	Periodical Medical examination: ➢ Age of workers < 45 years: After every 5 years ➢ Age of workers > 45 years: After every 3 years	Qualified Medical Officers trained in Occupational Health
11.	Necessary facilities for monitoring the environmental parameters in respect of dust (Particulate Matter) and Gaseous emissions shall be provided at mines and regular monitoring shall be carried out at specified intervals	Twice in a week at 3 locations	Environment Manager / 3rd party approved agencies
12.	Noise mapping of various workplaces in the mine premises based on the various machines being used in concerned mines along with personal noise dosimetry of individual workmen exposed to noise level above 85 dB(A). {Regulation 182 of MMR, 1961 under the Mines Act, 1952.}	Noise dosimetry – once in six months	Through National Institute of Miners' Health (NIMH)
13.	Monitoring and measurement of workplace noise levels	Once in a day	In-house

14.	Vibration studies of various mining machineries before their introduction in mining operation as per ISO 2631:1997 (Part 1) Standards. (DGMS circular no. Cir. Tech. 18/1975 Vibration limits 7.1 and 7.2)	Once in a year	Through National Institute of Miners' Health (NIMH)
15.	Portability test of drinking water supplied to the mine employees irrespective of its source.	Quarterly as per IS:10500 – 2012	NABL accredited lab
16.	Monitoring and measurement of workplace dust conc. by means of real time dust monitors (Regulation 124 of MMR 1961)	➢ Static monitoring – once in six months (if the conc. exceeds 50% or 75% of the allowable limits, the frequency will be once in 3 months and once in a month respectively ➢ Measurements shall also be carried on immediately upon the commissioning of any plant, equipment or machinery or upon the introduction or alteration of any new work practice that is likely to bring about any substantial change in the level of airborne respirable dust.	Once in a year by NIMH and routine monitoring by in-house trained person or through 3rd party accredited agency
17.	Operator's Seat in the Vehicle/HEMMs TO be ergonomically designed for driver's comfort and ergonomical assessment of all latest machines before their introduction into mining operation as per ISO standards.	Once in a year for existing fleet	Through National Institute of Miners' Health (NIMH)

Frequency of Medical Examination

a. Pre-Placement Medical examination: Prior to joining
b. Periodical Medical examination:
   - Age of workers < 45 years: After every 5 years
   - Age of workers > 45 years: After every 3 years

Budget for implementation of Occupational Health & safety measures & medical examination has been given in the table below:

TABLE 4. 32 OCCUPATIONAL HEALTH & SAFETY BUDGET

(Rs. In Lakh)

S. No.	Particular	Activities	Capital Cost	Annual Recurring Cost
1	Occupational Health Surveillance	Dispensary with medical staff will be set up in plant premises and will be common for both Plant & Mine	25	1.6
2	Personal Protective equipment's	Helmets, Safety Shoes, Gloves, Ear Plugs/ Muffs, Jackets, Goggles etc.	-	1.6
Total			25	3.2

4.10 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF ENVIRONMENTAL COMPONENTS

Irreversible commitment of environmental components for the proposed limestone mining project will include Land use, topography, geology, soil, human settlement, agriculture. There will be no irretrievable commitment of environmental components for the said project.

However, it is proposed that at conceptual stage, out of total mined out area/pits (121.96 ha), about 72.66 ha i.e., 59.57% area will be backfilled and rehabilitated by plantation/re-grassing/agriculture and remaining about 49.30 ha area i.e. 40.42% area will be converted into water reservoir.

4.11 CONCLUSION

As discussed above, it is safe to say that the project will not likely to cause any significant impact on the environment of the surrounding area, as adequate preventive measures will be adopted to contain various pollutants generated due to the mining project within permissible limits. Backfilling and continuous development of Green belt/Plantation in mined out and around the mining boundary will minimize the environment pollution and improve the aesthetic beauty. The development of water ponds and afforestation will remain useful for local community. The project will also increase direct and indirect employment opportunities and revenue to the Government. Proposed socio-economic measures will be helpful to improve the quality of life of local residents.

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CHAPTER-5

ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

5.1 GENERAL

Analysis of alternative site helps in selection of best possible site for the project. On one hand it helps select a site in close proximity to the existing infrastructure and on other hand it also helps to minimize the impact of project on environment.

5.2 ANALYSIS OF SITE

- The Rohida Limestone Deposit over an area of 800.9935 ha falling in Village (s) –Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan. LOI for an area of 800.9935 ha has been granted by Mines and Petroleum Department, Government of Rajasthan for a period of 2 Years. LoI has been issued vide order no. P 3 (6) Khan/Group-2/2022 dated 13.03.2023 which is valid till 12.03.2025. Now LOI has been extended vide P.3 (6) Khan/Group-2/2022, dated-25.07.2023 for one year valid till 12.03.2026.
- The mining projects are site specific as such alternative sites were not considered. The proposed project will be implemented within the granted mining lease. Thus, no alternative site has been studied.
- Lease will be executed after obtaining Environment Clearance. According to the MMDR, Act 2015 mining lease will be valid for 50 years from the date of lease execution lease. Lease will likely to execute in 2026 and on the basis of lease execution it will be valid for 2076.

5.3 ANALYSIS OF TECHNOLOGY

The limestone in the core zone is hard and compact rock. The proposed mining method for extraction of mineral and ROM is Opencast Fully Mechanized with benches of 10 m height and 15 m to 20 m width for Ore. Overall pit slope will be 80°. The Blast holes of 150 mm diameter are proposed to be drilled by using drill machine and blasting with cartridge/ ANFO with Booster charge. KMPL will adopt NONEL (Non - Electrical Initiation system) for blasting. Hydraulic rock breaker will be used for breaking oversized boulders in place of secondary blasting. Dumpers of 55 Tonnes capacity bucket capacity will be used for transportation of mineral from mine face to the crusher (1000 TPH capacity) with wobbler. Later on, limestone will be transported from mine face to the crusher (1000 TPH) to be located within proposed mine via 55 T capacity of dumper. Further, crushed limestone will be transported to its proposed Cement Plant via covered conveyor belt.

5.4 CONCLUSION

As the mining is site specific and the area in which mining will be carried out has been adequately proved

for presence of mineral. The site is also having good infrastructural facilities for access and development. The mineral mined at this mine will be of captive use for manufacturing of cement at the existing & proposed Cement Plant. Mining will be done as per Approved Mining Plan along with Progressive Mine Closure Plan by Indian Bureau of Mines (IBM), Ajmer vide their letter no. E12030-MCDR-MPC0LST/28/2024-AJM-IBM_RO_AJM, dated-27.11.2024.

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CHAPTER-6

ENVIROMENT MONITOING PROGRAMME

6.1 INTRODUCTION

Post Project Monitoring is an essential part to check the impact of project related activity. Hence monitoring of various environmental parameters will be carried out on a regular basis to ascertain the following:

- Status of Pollution within the mine site and in its vicinity.
- To generate data for predictive or corrective purpose in respect of pollution.
- To examine the efficiency of pollution control system adopted at the site.
- To assess environmental impacts.

Monitoring will be carried out at the site as per the norms prescribed by CPCB.

Environmental Monitoring Programme will be conducted for various environmental components as per conditions stipulated in Environmental Clearance Letter issued by MoEF&CC & Consent to Operate issued by RSPCB.

Six monthly compliance reports will be submitted every year to MoEF&CC, New Delhi. Quarterly compliance Report for conditions stipulated in Consent to Operate will be submitted to RSPCB on regular basis.

6.2 FORMATION OF ENVIRONMENTAL MANAGEMENT CELL (EMC)

In order to maintain the environmental quality within the standards, regular monitoring of various environmental components is necessary. M/s. Kamlesh Metacast Pvt Ltd (KMPL) will have a full-fledged Environmental Management Cell (EMC) for environmental monitoring and control. The EMC team will take care of pollution monitoring aspects and implementation of pollution control measures.

A group of qualified and efficient engineers with technicians will be deputed for maintenance, up keeping and monitoring the pollution control equipment, to keep them in working mode at the best of their efficiencies. The Organizational structure of EMC is given in Chapter - 10 of this Final EIA/ EMP Report.

6.2.1 RESPONSIBILITIES OF EMC

The responsibilities of the EMC include the following:

- Obtaining Consents and authorizations from the respective SPCBs.
- Regular environmental monitoring.
- Analysis of environment data, reports preparation and submission of reports to statutory authorities, corporate office etc.
- Compliance with guidelines and statutory requirements.
- Coordination with statutory bodies, functional groups of the unit, Corporate Project/

Environment & Engineering department etc.

- Interaction with engineering & operation team for implementation of any modification programmes intended to improve the availability / efficiency of pollution control devices / systems.
- Regular environmental review and performance appraisal (Internal) and organizing Environmental Audits by independent agencies/ 3rd parties
- Coordination with the vendors dealing in waste supplies and disposal
- Ensuring that the waste handling and disposal is carried out as per prescribed conditions
- Installation of pollution control systems and other recommended measures to reduce or minimize all kinds of environmental pollution shall be done by the project management team after consultation with the site Environment Cell.
- The operation and maintenance of the pollution control systems shall be supervised by the Environment Cell in association with Plant Maintenance team.
- The Corporate Environment Cell shall regularly coordinate all activities related to pollution control and environmental management with the respective units.

6.3 ENVIRONMENTAL PARAMETERS TO BE MONITORED

Considering the nature and size of the Project, the following Key Environmental Parameters have been identified for regular monitoring in the Project Study Area of 10 km under the Environment Monitoring Programme:

1. Ambient Air Quality & Meteorology
2. Surface Water Quality
3. Groundwater Quality
4. Ambient Noise Level
5. Soil Quality

6.4 TECHNICAL ASPECTS

6.4.1 METHODOLOGIES

Environmental monitoring is required to know the Quality of Ambient Air, Water and Noise Levels during the operation phase of the proposed project and take required corrective measures, in case of any non-compliance with the norms stipulated by regulatory authorities. The methodologies adopted for environmental monitoring will be in accordance with the CPCB, SPCB, and Indian Bureau of Mines & DGMS requirement.

Planned monitoring programme shall be carried out to evaluate the effectiveness of various/ specific aspects of technological / mitigation measures. Monitoring shall be conducted by the environmental management cell by engaging a lab recognized by MoEF&CC.

The continuous Environmental Monitoring station will be fixed within the Mine Block once the full-fledged mining activities are commenced.

6.4.2 ENVIRONMENTAL MONITORING SCHEDULE

Environmental Monitoring Schedule has prepared covering various phases of project advancement, such as constructional and regular operational phase.

TABLE 6. 1 ENVIRONMENTAL MONITORING PROGRAMME

S. No.	Potential Impact	Parameters for Monitoring	Frequency of Monitoring	Measurement Method	Location
1.	Meteorological	Wind Speed; Wind Direction; Max. Temperature; Min. Temperature; Dry bulb temperature; Wet Bulb temperature; Relative Humidity; Rainfall; Cloud cover.	24 hourly continuous	Automatic Weather Monitoring station.	Mine Site
2.	Air Emission	PM_{10}, $PM_{2.5}$, SO_2, NO_X and CO etc. as per CPCB/ MoEF&CC Guidelines	24 hourly twice a week	As per CPCB Guidelines Gravimetric	Four locations along the boundary (Minimum 1 location in upwind side, more sites in downwards side/ impact zone).
3.	Noise	Spot Noise level recording Leq (day), Leq (night), Leq (dn)	Once in a season (24 hours monitoring on hourly basis)	IS: 4954-1968 as adopted by CPCB.	One location inside and four outside
4.	Water Quality	pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Nitrate, Fluoride, Sodium, Potassium, Salinity, Total Nitrogen, Total Phosphorous, Total coli forms, faecal coli forms etc.	Once in a season	Samples for water quality will be collected and analyzed as per: IS: 2488 (Part 15) methods for sampling and testing of Industrial effluents. Standards methods for examination of water and waste water analysis published by American Public Health association.	One location inside and four outside.

S. No.	Potential Impact	Parameters for Monitoring	Frequency of Monitoring	Measurement Method	Location
5.	Health	Occupational Health	Initial Medical Examination (IME) and Periodic Medical Examination – Once in a five year as per Mines Rules, 1955.	--	All employees
6	Maintenance of machinery	Drilling machine Rock Breaker Dumper /Truck Tipper Crusher OLBC	Regular basis	-	Mine Site

COMPLIANCE OF SPECIFIC TOR POINTS

As per specific point no. 1.27 states that "The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, and predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline".

In compliance to this specific point, Time bound action plan for installation of Continuous Ambient Air Quality Monitoring Station has been as below:

S. NO.	ACTIVITY	TIME DURATION (MONTHS)*
1.	Finalisation of CAAQMS site	03
2.	Supply of components	06
3.	Installation of Station	04
4.	Calibration and Testing	01
Total Duration		**14**

The above CAAQMS will be installed nearest to the crusher and mine office for the measurement of PM10, PM2.5, SO2, NOX and CO.

6.5 DATA ANALYSIS

Monitoring data analysis will be done as per CPCB guidelines by laboratory approved under EPA 1986 & will be submitted to concerned authority (specified in Environment Clearance Letter issued by MoEF&CC & Consent issued by RSPCB on regular basis.

6.6 DETAILED BUDGET

The budget proposed for the proposed limestone mining project is given as below:

- Capital Cost of the Project: Rs. 203.526 Crores /-
- Capital Cost for EMP: Rs. 19 Crore /-
- Recurring Cost for EMP: Rs. 1.43 crores per annum /-

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CHAPTER -7
ADDITIONAL STUDIES

7.1 INTRODUCTION

As per EIA Notification dated 14th September, 2006, as amended time to time, Ministry of Environment, Forest & Climate Change (MoEF&CC), New Delhi has issued Terms of Reference (ToRs) for the preparation of the Environmental Impact Assessment (EIA) Report and Environmental Management Plan (EMP) vide letter no IA-J-11015/81/2024-IA-II(NCM), dated 05.05.2025.

The following Additional Studies were carried out in reference to the Terms of References:

1. Public Consultation
2. Hydro-geological Study & Rain Water Harvesting Plan
3. Risk Assessment & Disaster Management Plan
4. Resettlement & Rehabilitation

7.2 PUBLIC HEARING

The Public hearing is yet to be conducted and same will be carried out as per provisions of EIA Notification, 2006.

Time bound action plan on concerns of the Public along with budget as per MoEF&CC, OM dated 30.09.2020 & 20.10.2020 will be submitted in Final EIA/EMP Report after conduction of Public Hearing. Public Hearing for the proposed Rohida Limestone Mine is yet to be conducted. The Details of the Public hearing proceedings will be incorporated in the Final EIA/EMP Report after the conduction of Public Hearing.

7.3 HYDRO-GEOLOGICAL STUDY & RAINWATER HARVESTING PLAN

7.3.1 SCOPE OF WORK

1. To analyze physiographic conditions of the study area with the help of field observations, GPS readings, Survey of lndia (SOI) toposheets and Satellite images.
2. To observe hydrogeological conditions and study of aquifer system of the area i.e. in Core and 10 km Buffer Zone.
3. To work out quantitative as well as qualitative variations in groundwater with respect to aerial extent and to find out water balance.
4. To observe surface water features and their impact on groundwater balance.
5. To ascertain the impact of proposed limestone mine on groundwater conditions of the surrounding area.
6. To work out scope of Rainwater harvesting within the limestone mine and design suitable recharge system to the extent possible within the lease area.

7. To suggest ways and means of creating artificial recharge to negate adverse impact on groundwater regime and their impact on groundwater regime of the area.

7.3.2 METHODOLOGY

Following methodology has been adopted for hydro-geological investigation in the area:

1. Physiographic studies of the proposed limestone mine area and its surroundings with the help of latest Google images, site visit, GPS survey etc. which helps in determining physiographic gradient.
2. Secondary data collection i.e., climate and rainfall, soil and topography, geology, drainage etc. for interpretation.
3. Detailed hydro-geological survey in core and buffer zone including geology, types of aquifers and their hydraulic parameters governing the groundwater regime of the area, depth to water level, groundwater quality, water abstraction structures and their discharge, surface water bodies, drainage pattern, major irrigation sources and their potential etc.
4. Pumping test to determine aquifer parameters in order to evaluate subsurface water availability of the area so that required quantity of groundwater can be extracted from the area in long term.
5. Groundwater resources evaluation based on the norms recommended by Groundwater Estimation Committee (GEC), 2015.
6. Evaluation of present groundwater scenario as well as future course of action for protecting the natural environment.
7. Scope of Rainwater Harvesting from runoff generated in open area of limestone mine depending upon average annual rainfall and its intensity, recharge capacity of the aquifers & the design considerations.

Total water requirement will be 150 KLD. The NOC is obtained to withdrawal 9.5 KLD water required for drinking and domestics initially for two years, where no mining activity is proposed. Total water requirement is 150 KLD for which CGWA NOC will be obtained prior starting working of 3 three years. The ground water consumption will gradually reduce as the mine progress and mine pits are developed to harvest the rainwater. Copy of the NOC is enclosed as **Annexure XV.**

The general elevation is ranges from 296 m AMSL to 361m AMSL. During Pre Monsoon Water levels in area is 13 meter and in post monsoon is 10 meters. Ground water will be intersected from the 3rd year onwards and permission for water intersection will be obtained from Central Ground Water Authority before such intersection.

Detailed Hydro-geological study & Rain Water Harvesting Plan has been carried out for the proposed limestone mine. Brief of the same is given in chapter 4 and detailed report is enclosed as **Annexure XIX.**

7.4 RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

7.4.1 DEFINITION

A major emergency in a work is one which has the potential to cause serious injury or loss of life. It may cause extensive damage to property and serious disruption both inside and outside the work. It would normally require the assistance of emergency services to handle it effectively.

Emergency may be caused by a number of different factors; it will normally manifest itself in two basic forms viz fire, explosion or toxic release.

7.4.2 SCOPE

An important element of mitigation is emergency planning i.e. recognizing that accidents are possible, assessing the consequences of such accidents and deciding on the emergency procedures, both on site and off site that needs to be implemented in the event of an emergency. Emergency planning is just one aspect of safety and cannot be considered in isolation.

7.4.3 OBJECTIVE

The objective of onsite disaster management plan for the proposed captive mine is to be in a state of perpetual readiness through training and development to immediately control and arrest any emergency situation so as to avert a full fledged disaster and the consequence of human and property damage and in the event of a disaster still occurring, to manage the same so that the risk of the damage to life and property is minimized. KMPL has made a document elaborating the procedure for Emergency Preparedness & Responses. The overall objectives of the emergency plan are:

- To localize the emergency and, if possible eliminate it; and
- To minimize the effect of the accident on people and property.
- Elimination of hazards by local/supervisory personnel and minimizing effects include rendering first aid, evacuation, hospitalization, rehabilitation.
- To seek help from outside sources, if required.
- Notice/information to authorities.

It is a hard rock area and as such no serious disaster is foreseen. However, accidents cannot be ruled out in the mine. High risk accidents are not anticipated in the area because the mining is not hazardous. Mining operations will be carried out by taking all the safety measures, but there is always some element of danger or risk in it. Due to deployment of heavy machineries and largescale workings, there may be few chances of accident likely to occur for this, Safety Engineer's regular inspection will be undertaken. Following risks are anticipated:

- Failure of benches

- Fall of machinery/ person from benches
- Failure of transport machinery
- Heavy rainfall resulting in inundation of mine
- Accidents due to blasting/explosives
- Accidents due to fire
- From Electric line through the area

Standard operating procedures will be made and enforced in case of emergency. To overcome this for provisions of Reg. 119 of M.M.R 1961 reg. 127 will be applied -

a) For Electric line, a safety barrier of 45 m on either side of electric line will be left in the lease area.

b) If there is danger of falling of live wire during working, then no machinery will be allowed to remain or pass through safety barrier.

c) MPPCB will be informed of the mishap if occurred or anticipated of fall of electric tower or live wire.

1. **Inundation**

a) For risk of inundation during the heavy rains there is a chance of flood for few days and due to surface water in the open pit, provisions of M.M.R. 1961 reg. 127 apply.

b) The working in bench form is made on a sloping ground and bottom most bench will be provided with a sump to collect water which is directly pumped out to surface.

c) Floor control room will be established in case of danger of inundation. HFL will be marked in the area on a pillar. If water level reaches 0.5 m below HFL mark then all men and machinery will be withdrawn from the pit and work should be stopped until water recedes to a safe level.

d) In rainy season when there is danger of inrush of water in the pit, mining work will be carried out on upper-level benches only.

2. **In case of short circuit of electric line and fire caused due to this mishap, sand bucket and fire extinguishers is provided and maintained**.

The salient features are elaborated as below:

- Emergency Response Organization
- Communication System
- Action on the site
- Facilities available at site
- Medical treatment for injured personnel

Elimination requires well planned process/technology and its effective implementation, so that such situation should either not arise or if it comes, a pre warning is received for timely action in built or by preparedness for zeroing the effects.

Minimizing the effects may include prompt action, rescue, and first aid, and evacuation, fire fighting and also passing on information promptly to people living nearby.

Methodology of Risk Assessment:

- Collection of information & identification of hazard
- Classify their severity and probability of occurrence
- Identification of exposed risks
- Assess the risk and risk rating based on

1. Probability
2. Exposure
3. Consequence

✓ Prioritization of the risks
✓ Implementation of control measures
✓ Monitoring risk assessment
✓ Evaluation and correction

Risk assessment is mainly based on the environmental impact of various parameters.

- **Land Contamination**

During mine operation Top Soil & OB waste will be generated which may contaminate the land. Top soil will be used for greenbelt/plantation. OB waste generated will be used for backfilling purpose and screen reject will be generated and same will be used for spreading on haul roads and ramps.

- **Aquatic Toxicity**

The risk assessment in aquatic toxicity system is based on the total metal concentration in various chemical form or oxidation state. Limestone and the associated rocks do not contain appreciable concentration of toxic elements.

- **Acid Mine Drainage**

The mining of limestone does not involve any processing operation by using chemicals. Hence there is no risk at the ML area site with regard to control of acid mine drainage.

- **Tailing Dam**

Will not arise, as the crushing does not involve usage of water.

- **Human Health**

During Environment Impact Assessment study, it is found that the toxicity is nil. Hence there is no risk involved to human health due to the proposed mining operation.

Factors of risks involved due to human induced activities in connection with mining operations are 1) Removal of Inter-burden and rejects 2) Drilling 3) Blasting 4) Excavation of ore and 5) Transportation of ore.

Other factors due to natural activities **are 1) Fire 2) Water inundation 3) Electricity and 4) Natural calamities.**

7.4.4 IDENTIFICATION OF HAZARDS

Major hazards due to the proposed limestone mining project have been identified & mitigation measures are suggested. Details are given in the table as under:

TABLE 7. 1 HAZARD IDENTIFICATION & MITIGATION MEASURES AS SUGGESTED

S. No.	Mining Activity	Occupational Hazard	Potential ill health/ Injury	Preventive Measures	Control measures
1	**Exploration**	Dust generation	Silicosis, respiratory problems & eye infections	-	• Wet drilling • Providing Dust mask & goggles
		Smoke	Lung infection	-	• Providing Dust Mask.
		Flying of Drill Chips	Eye injury	-	• Providing Safety goggles
		Run over person due to Uncontrolled Movement of Excavator	Fatality	-	• Safety shoes • Company has developed and implemented HEMM safety standards. • No person will be allowed to go in influence zone of HEMM while in operation.
		Toppling of Machine	Fatality	-	• Levelling of surface before movement of machine. • Helmet & shoes
		Bursting of hose		-	• Regular pipe checking, • helmet and shoes.
		Operational hazard (manual rod changing)	Muscular pain, Ergonomics	-	• Surface shouldn't be wet to avoid slip. • Helmet
2	**Dozing**	Vibration	Numbness, Raynaud disease	-	• Ergonomics cabin and operator seat • cabins mounted on rubber pads
		Noise	Irritation	-	Providing Ear Plug
		Dust generation	Silicosis, respiratory problems & eye infections	-	• Control of dust at the point of generation Use of dust Mask.
		Fall of bauxite during operation	Injury to person	-	• Provide Safety Helmets Proper training to handle face dressing.
		Slip from wooden stair	Injury to body part of persons	-	• Use of good quality stair • Provide Safety Helmets
		Falling from wooden stair	Injury to body part of persons	-	• Use of good quality stair Provide Safety Helmets
		Breakage of wooden stair	Injury to body part of persons	-	• Use of good quality stair Provide Safety Helmets
3	**Drilling**	Dust generation	Breathing uneasiness, Lung & eye infection, Silicosis	• Safety of employees during blasting operation	• Wet drilling / Bag filter • Providing Dust masks & goggles

				and maintenance of mining equipment should be taken care as per Mine Regulations, 1961 and Circulars of DGMS.	
		Noise	Hearing loss, irritation, headache, Loss of appetite	• Noise level Survey	• Acoustic cabins for operators. • Proper maintenance & operation of machine
		Bursting of hose pipes due to high pressure of compressed air Drill rod may be broken due to improper maintenance of the rod	Fatality	-	• Daily checking of hose pipes • Replacement of worn hose of worn out accessories in the compressor and drill equipment • As per manufacturers recommendation rod to be replaced and bits will be changed
		Vibration	Numbness, Raynaud disease	-	• Ergonomically designed cabin • Proper maintenance of machine • operation only on level ground
		Operation Hazard (manual rod changing)	Muscular pain, Ergonomics	-	• Training to operators and use of proper tools. • Providing helmets, safety goggles and safety shoes.
4	**Collapse of benches**	Operation Hazard	Injury to person, fatality		• width of benches will maintain 9 m. • No loose stone or debris shall be allowed to remain within a distance of 3 m from the edge or side of the excavation
5	**Fall of workers from high benches**	Operation Hazard	Injury to person, fatality		• The quarry faces will be suitable benched as per Regulation 106 of MMR 1961. • The top of every opencast working shall be kept security fenced. • Every entrance from a roadway in the mine temporarily discontinued will be provided with a fence, barrier or gate to prevent any unauthorized entry
6	**ANFO Mixing**	Skin Contact	Contact disease	• Compliance with code of practice specified by DGMS for ANFO Mixing and its uses.	• Providing Gloves • Fire-Extinguisher
		Pre-mature explosion	Fatality		
		Fire	Injury to person		

7	**Storage, handling & transport of explosives**	Premature Explosion and Fire	Fatality	Handling of explosive materials is to be taken care of as per the Metalliferous Mines Regulations, 1961 and Circulars of DGMS	• Fire extinguisher • Conducting mock drills at regular interval • PPE's like gloves, shoes etc
		Skin Contact	Burn injury, contact disease		• Providing Hand gloves
		Toppling of explosive van	Fatality		• Proper maintenance and regular monitoring of machines
8	**Blasting**	Fly rock	Disabling injury, loss of body parts & fatality	• Safety of employees during blasting operation and maintenance of mining equipment should be taken care as per Metalliferous Mines Regulations, 1961 and Circulars of DGMS. • Control of dust at generation point through water spraying	• Blasting carried only after evacuating area from blast site • Proper Blast design • Muffle Blasting • Remove loose boulder from bench • Use of delay detonators relay, • Providing Safety Helmets • Burden and spacing will be kept optimum, drilling will be done on trail basis.
		Ground Vibration	Damage to property, injury	-	• Proper Blast design • Use of delay detonators relay
		Noise	Noise Induced Hearing Loss, irritation, headache, loss of appetite	• Noise level Survey	• covering of detonating fuse with sand, • use good stemming material use of delay detonators relay Proper Blast design • Providing ear plug
		Improper charging of explosive Release of toxic gases	Lung infection, discomfort	• Use of good quality of explosive.	• Explosive charge per delay will be minimized • mixing of ammonium nitrate & fuel oil in proper ratio • Providing dust mask
		Premature Blast	Disabling injury/ loss of body parts & fatality	-	• Restrict use of mobile phone & radio etc near the blasting site.
		Misfire	Disabling injury/ loss of body parts & fatality		• Training to deal with misfire according to regulation 167
9	**Operation of Excavator in Mines**	Noise	Noise Induced Hearing Loss, irritation, headache, stress	-	• Proper maintenance & operation of machine. • Providing ear plug, ear muffs
		Fire in HEMM	Burn injury, fatality	-	• automatic detection & suppression system • Provision of Fire Extinguisher

					• daily checking of electrical system
		Heat	Discomfort, stress	• Proper Ventilation	• Thermal barriers • Provision of cool drinking water • Rest shelters • Showers
		Dust generation	Silicosis, respiratory problems & eye infections	• Operation and Maintenance of Tippers.	• Dust suppression on haul roads through water sprinkling • Providing dust mask
		Cabin Vibrations	Numbness, Raynaud disease	• Standard protocol for evaluation of vibration level in HEMMs	• Ergonomically designed seats and operation and controls • Proper maintenance & operation of machine.
		Slipping from stairs	Body injury	-	• Good House Keeping
		Toppling of excavator	Fatality	-	• Operation only on firm ground
		Run over person due to Movement of Excavator	Fatality	-	• Audio-Visual Alarm & following proper Signal codes
		Operating system failure	Disabling injury/loss of body parts & fatality	• Training & awareness Programmes	• Regular Maintenance
10	**Diesel storage**	Fire	body injury	-	• Fire extinguisher
		Leakage of oils	Wastage, skin infection		Maintenance & monitoring of machines
		Fire	Burn injury	ource of fire near diesel generator should be avoided	se of Fire Extinguisher
		Electric Shock	Fatality		Use of hand Gloves
		Slipping due to oil slippage	Injury	Good housekeeping.	Use of Safety Shoes
11	**Unloading of diesel**	Falling of drums	Injury	-	• Diesel tanker with bowser is provided for filling disel to HEMM
12	**Air Filling on Tyres, Opening Fitting of tyres**	Bursting of Tyres	Injury to eyes	-	• checking of pressure gauge properly. • Use of safety goggles
		Slipping of tools	Injury to person		• Careful usage of tools. Use of Safety shoes & helmets
13	**Excavation of Ore**	Hauling and loading equipment are in such proximity while excavation	Injury to person		• Operator shall not operate the machine when person & vehicles are in such proximity

		Swinging of bucket over the body of tipper	Injury to person		• Shall not swing the bucket over the cab and operator leaves the machine after ensuring the bucket is on ground
		Driving of un authorized person	Accident	'raining	• Shall not allow any unauthorized person to operate the machine by effective supervision
14	**Loading of limestone**	Falling of limestone, buckets	Injury to person	-	• Provide Safety shoes & safety helmets.
		Slipping & breaking of tools	Injury to person	-	
15	**Transportation with Dumpers**	Material spillage	Injury to person	-	• Suitable loading profile ensuring proper condition of dumper
		Collision	Fatality	-	• Follow traffic rules • Competent Driver
		Jerks & Vibration	Numbness, Raynaud disease	• Ergonomically designed Cabin	• Proper cushion of Operator Seat • Mounting of Cabins on Rubber Pads
		Dust generation	Silicosis, respiratory problems & eye infections	• Construction and Maintenance of pakka haul roads	• Spraying of Water on haul roads
		Brake fails	Fatality / injury	-	• Daily checking of brake system • follow maintenance schedule as manufacturer manual
		Run Over on persons	Fatality / injury	-	• Follow traffic rules
		Steering fail	Fatality / injury	-	• Daily checking of steering system • Follow maintenance schedule as manufacturer manual
		Bursting of front tyre	Fatality / injury	• Use of Good conditions tyres	• Daily checking of tyre condition & Pressure.
		Reversing Dumpers	Fatality / injury	-	• Authorized driver • Audio visual alarm • Spotter when reversing • Rear view Camera
16	**Movement and Operation of**	Dust generation	Silicosis, respiratory problems & eye infections	-	• Spraying of Water on haul roads • Provide dust masks
		Brake fails	Fatality	• Compliance with operating instructions	• Daily checking of brake system,

	vehicle other than dumpers				• Provision of break fail alarm system and alternate break.
		Toppling of Vehicle	Fatality	-	• Competent Driver, • operation only on firm ground
		Run Over on persons	Fatality	-	• Follow traffic rules
		Steering fail	Fatality	• Follow maintenance schedule as manufacture manual	• Daily checking of steering system
		Collision	Fatality	-	• Follow traffic rules, • Competent Driver • Providing Steel belt
		Bursting of front tyre	Fatality	• Use of Good conditions tyres only	• daily checking of tyre condition & Pressure
		Reversing vehicle	Fatality	-	• Audio visual alarm, • authorized driver • Spotter when reversing.
17	**Disaster due to surf ace fire** **Fire due to electricity and oil**	a) Due to the short circuit of cables & other electrical parts b) Due to the leakage of inflammable liquid like diesel, oil etc,	Burn injury, fatality	ficient numbers of fire extinguishers will be installed at selected locations on surface like fuel stations, workshop / garage and stores etc.	• No inflammable material shall be placed stored except in a fire proof receptacle. • No person shall place or permit to throw any naked light or lamp on or near any combustible material. • As per Regulation 121 of MMR 1961 adequate supply of sand or incombustible dust or sufficient portable fire extinguishers shall be provided at every entrance to the mine or at every place where inflammable material is stored. • Commutator & electrical parts shall be cleaned frequently with the help of dry air blower • All fastening parts and places will be tightening.
18	**Natural calamities**	Unexpected happenings	Injury to people		• The mine management is capable to deal with the situation

7.4.5 OBJECTIVE OF DISASTER MANAGEMENT PLAN

The disaster management plan is aimed to ensure safety of human life property and production of environment. Following are the objective of the disaster management plan.

- First aid in case of injury.
- Rescue operation and provision of adequate medical facilities to the injured.
- Safety of the human life in the buffer zone if needed.
- Protecting and minimizing damage to property and the environment.
- Initially restrict and ultimately bring the incident under control.
- Identify any dead.
- Inform to the administration, DGMS and statutory persons as per Rules.

7.4.6 EMERGENCY ORGANIZATION

An emergency organization is set up which is led by the First-class Mines Manager. He organizes a team of responsible and statutory personnels under him for controlling the incidence.

(a) Emergency Communication

Whoever notices an accident, disaster or emergency situation etc. would inform immediately to the Mines Manager. When any accident resulting in serious bodily injury to any person or in loss of life occurs in a mine, the Mines Manger shall inspect the site of accident as soon as possible and have an enquiry into the cause of and circumstances attending the accident. The result of such enquiry with plan of the site of the accident showing details have been/will be recorded in a bound pages book kept for the purpose. The Manager performs such other duties as have been prescribed in that behalf under the Mines Act 1952 and MMR.

(b) Emergency Facilities

Stretchers and general first aid materials for dealing with fire burns etc. will be maintained in the medical center as well as in the emergency control room. A medical practitioner will be appointed for the mine's workers. Beside this medical personal, medical facilities in the area will be created & updated. An ambulance with driver will be ensured and maintained to transport injured or affected persons. At the end of an emergency, the Mines Manager orders an all clear signal.

(c) Disaster Management

- All safety precautions and provisions of Mines Act-52, MMR 1961 and Mines Rules-55 will be strictly followed in all mining operations.

- Avoidance of danger as per Regulation 117 and general precautions and safety as per Regulation 118 and 181 of MMR 1961 will be observed.
- Mining operations will be done under supervision of qualified and statutory personnel as per MMR 1961 and MCDR 2017.
- Mine working will be done as per approved Mining Plan following provisions of MCDR 2017 and Regulation 106, 110, 111 & 115 of MMR 1961.
- General and surface precautions against fire i.e. precautions and provision of firefighting equipment will be taken as per Regulation 119 of MMR 1961.
- Entry of unauthorized persons will be prohibited.
- Provisions of all the safety applications and protective wears such as safety boot, helmets, goggles, hand gloves, ear muffs, etc. as per Regulation 182 will be made available to the employees and regularly checked for their use.
- Cleaning of mine faces will be regularly done.
- Handling of explosive, charging and blasting will be carried out by competent persons only as per MMR.
- Provision of magazine at a safe place with fencing and necessary security arrangement.
- Adequate safety equipment provided at explosive magazine.
- Regular maintenance and testing of all mining equipments as per manufacturer's guidelines.
- Increasing the awareness of safety and disaster through proper training of mining staff.
- The haul roads will be kept sufficiently wide to ensure free and safe movement with proper alignment and gradient.
- Medical appliances / specified First Aid box as per Section 21 of Mines Act 1952 will be maintained in the mine office. The Mine Manager and other qualified persons renders first aid to injure if needed.

7.4.7 ONSITE EMERGENCIES

The responsible officers for co-ordination in case of emergency will be employed. The following officers will be responsible for co-ordination in case of emergency. They are called as a "Key Personnel". Their organization positions are indicated as below:

Their organisation positions are indicated as below:

TABLE 7. 2 RESPONSIBILITIES OF OFFICERS

S. No.	Designation	Responsibility
1.	Mine manager	Site Controller
2.	Shift In-charge/Section in Charge	Accident Controller/Communication Officer

3.	Employee who gives the first information about the incident/accident	Primary Controller
4.	P & A Department (HOD)	Liaison Officer

Source: *M/s. Kamlesh Metacast Private Limited.*

7.4.7.1 STRUCTURE OF THE DISASTER MANAGEMENT PLAN

1) <u>Out Line of Disaster Management Plan</u>

The purpose of disaster management plan is to restore the normalcy for early resumption of mining operation due to an unexpected, sudden occurrence resulting to an abnormality in the course of mining activity leading to a serious danger to workers or any machinery or the environment.

2) <u>System of Communication</u>

An internal communication system will be provided for the department head and to their line of command with telephone facility. Telephone nos. and addresses of adjoining mines, rescue station, police station, fire service station, local hospital, electricity supply agency and standing consultative committee members are provided.

3) <u>Consultative Committee</u>

A standing consultative committee will be formed under the Mines Manager. The members consists of safety officer / medical officer / Asst. manager/ public relation officer/ Foreman/ and environmental engineer.

4) <u>Facilities & Accommodation</u>

Accommodation and facilities for medical centre, rescue room and for various working groups will be provided.

5) <u>First Aid & Medical Facilities</u>

The mine management will be having first aid centre for use in emergency situation. All casualties would be registered and will be given first aid. The centre will have facilities for first aid & minor treatment, resuscitation, ambulance and transport. It will have proper telephone / wireless set for quick communication with hospitals where the complicated cases are to be sent.

6) <u>Stores and Equipment</u>

A detailed list of equipment available, its type & capacity and items reserved for emergency will be made available.

7) <u>Transport Services</u>

A well-defined transport control system is provided to deal with the situation.

8) <u>Functions of Public Relations Group</u>

To make a cordial relation with government officials and other social service organization and working groups. To liaise with representatives of the mine to ameliorate, the situation of panic, tension, sentiments, grievances and misgivings created by any disaster. To ameliorate the injured, survivors and family members of the affected persons are provided all the material with required arrangements including, moral support and establishing contact with relatives of victims. This will be made immediately.

9) **Security**: Manning of security posts

10) **Catering & Refreshment**: Arrangement will be made for the victims, rescue teams and others.

7.4.8 MEASURES TO BE TAKEN FOR CONTROLLING ANY UNFORSEEN DISASTER AND RISK

(I) Ultimate slope of the quarry shall be kept at $\leq 45^0$.

(II) One explosive magazine will be established for storage of explosives. Handling of explosives and blasting operations will be done by qualified blasters and blaster helpers under the supervision of an Assistant Manager.

(III) To control fly rock fragments during blasting which creates problems to nearby men and machinery, precautionary measures shall be adopted which are as below:

- ✓ Proper blast design resulting in lower ground vibrations and fly rocks.
- ✓ Controlled blasting technique with SME/SMS.
- ✓ Drill holes will be located in weaker planes.
- ✓ No loose materials will be kept on the bench floors during blasting.
- ✓ Optimum stemming length and stemming material will be chosen.
- ✓ Safe ratio (stemming length to burden of hole) shall be kept at more than 0.6.
- ✓ Proper compaction of the stemming material will be undertaken before blasting.

(IV) Safety precautions shall be practiced in the area and boards displaying blasting time will be kept at the places where required.

(V) Blasting time will be fixed and intimated to all concerned.

(VI) At the time of blasting, security guards will be deployed in order to block the vehicle movement on the public road.

(VII) In order the indicate the blasting operation, red flags will be kept wherever required. A siren will be blown at the beginning and end of the blasting operation.

(VIII) Small scale fire may occur, which will be extinguished by fire extinguisher. Sufficient quantity of sand and water shall be kept in the magazine premises.

(IX) Area under reference has no proposal of beneficiation/washing plant. Therefore, tailing dan is not necessarily required and the question of failure of tailing dam does not arise.

7.4.9 KEY PERSONNEL AND THEIR RESPONSIBILITY

The appointment of all the key personnel i.e., Site Controller, Accident Controller/Communication Officer, Primary Controller and Liaison Officer are taken up and intimated to DGMS and other concerned authorities as per statute. The responsibilities of onsite Disaster Management Plan key personnel are elaborated as follows:

(i) Site Controller

The Site Controller has an overall responsibility for controlling the incident/ accident and directing the personnel.

- To prepare a foolproof plan for control of accidents like landslides, subsidence, flood, fire and other natural calamities
- To inform statutory bodies of the State and Central Government.
- To inform Communication Officer about the emergency, Control Centre and assembly point.
- To provide all assistance and call for Fire Squad, Security Officer and other services required for removing/ control of danger.
- To ensure that all necessary personnel assemble at assembly point.
- Make arrangements for medical treatment to the personnel injured.

(ii) Accident Controller

- Mock rehearsal of management plan prepared for accident.
- To withdraw men/ machines from the affected area with priority for safety of personnel, minimize damage to the machines, environment and loss of material.
- To act as an accident controller to all the later arrived.
- To make a report based on the facts and figures and submit to the Site Controller.
- To communicate with the Site in-charge and make arrangements for transportation of the injured personnel.

(iii) Primary Controller

- To inform the Accident Controller/ shift In-charge from the nearest means of communication about the location and the nature of accident.
- To assist in clearing any obstruction in relief of accident. To carry out all instructions of Accident Controller.
- To provide first aid treatment and communicate with the Shift in charge.

7.5 RISK ASSESSMENT

Risk assessment with respect to high accidents like landslides, flood, inundation, fire seismic activities, etc. is as under:

Landslides- The topography of Lease area and its adjoining area almost plain. The deposit is compact, hard & massive with gentle dipping. Mining activities will be carried out with proper designing of pit slope for slope stability. The ultimate slope will be maintained below <45º for slope stability hence insignificant chance of landslide due to the failure of mining benches.

Flood- As per the "Vulnerability Atlas – 2nd Edition; Peer Group, MoH & UPA; based on digitized data of SOI, GOI, Flood Atlas, Task Force Report, C.W.C., GOI" the mining lease area does not fall under "area liable to flood".

Inundation-Not applicable as mining will be carried out by opencast method.

Fire-It is a likely/common hazard associated with working of diesel powered HEMM in mines. The sources of fire in mines could be source of ignition such as high temperature, electrical short circuiting, welding and cutting operations in vicinity of flammable materials like diesel, hydraulic oil, transmission oil, lubricant & grease. Poor quality of maintenance of spares like hoses, electrical parts etc and poor housekeeping. For prevention of fire, measures will be taken are as under-

- Mining machines will be maintained leakage free to obviate occurrence of fire.
- Due care is will be taken in maintenance of electric wiring to avoid short-circuiting.
- Exhaust pipes of HEMM to be covered with insulation, non-inflammable material.
- Good housekeeping practices will be adopted in oil room and working area.
- Auto and portable fire extinguishers will be provided on all equipment.

Seismic activities: Many parts of the Indian subcontinent have historically high Seismicity. Seven catastrophic earthquakes of magnitude greater than 8 (Richter scale) have occurred in the Western, Northern and Eastern parts of India and adjacent countries in the past 100 years of history. By contrast, peninsular India is relatively less seismic, having suffered only infrequent earthquakes of moderate strength.

The lease area is a part of peninsular India and local geology of the area shows that the area consists of sandstone, shale and limestone. Stratigraphic point of view the area is quite old and it technically stable for any seismic activity to take place. The seismic zoning map shows the contours joining locations of equal expected peak accelerations in rock expressed in percentage.

7.5.1 QUICK EVACUATION, AMELIORATIVE MEASURES FOR EMERGENCY PLAN

Objective

To deal with accidents efficiently and quickly.

Line of Action

Any person, who notices any explosion or accident, should immediately take steps to give warning by suitable means and at the same time take necessary action for withdrawal of men from the site. He will also inform the Mines Owner and other officials without any delay.

Duties of Mine Official: The Mine officials receiving the warning will forthwith inform to team member and take actions for quick evacuation, ameliorative measures at site. Inform to senior management and statutory bodies.

Duties of Head of Department (Safety): Worked in close coordination with the other team members for defensive, systematic & structured process.

Duties of Head of Department (Security): Responsible to depute the security guard at site, barricaded the area, control to entry of unauthorized person at site/nuisance event etc. and for providing transport vehicle at site.

Duties of Head of Department (Employees Relation): Coordination with local authority for statutory obligation or any assistance will be required by local authorities.

Duties of Head of Department (Electrical): Responsible for cutting off power supply and make lighting arrangement for working in night or any assistance regarding electricity.

Duties of Chief Medical Officer, (Hospital): Responsible for making arrangement for medical aid for person.

Duties of Fire Supervisor: On receiving warning, the team will reach the site of fire and depending on its nature, class and extent will take steps to extinguish it and rescue persons if involved in fire.

7.5.2 THE CAPABILITY OF LESSEE TO MEET SUCH EVENTUALLY

The details of capability of lessee to meet such eventuality are as under

Communication facility available:

Communication facilities like telephone mobile phones, email etc. will be available to communicate with the people at working sites.

Alarm System:

For raising alarm, hooters have been located at suitable locations.

Fire Brigade:

Well-equipped common fire brigade & sufficient nos of fire extinguishers with trained firefighting personnel will be provided at the proposed interlinked cement plant as well as at mine site. Besides this, mining personnel are also trained to tackle emergency situations like immediate evacuation of man and machine, operating fire-fighting equipment, giving first aid etc.

Security: Company has got its own security personnel capable of acting in emergency situation.

Hospital Facility: Company has proposed a fully equipped medical and Health Centre. It will have adequate and qualified staff to handle the emergency situation.

First Aid Facility: First aid training will be imparted to mining personnel at regular interval. First aid Stations has been established at appropriate locations.

Emergency Control System: In emergency persons to be contacted, location for assembly, telephone numbers for contact, roles and responsibility of persons etc. have been specified. Emergency telephone numbers are displayed at mine site.

7.5.3 ACTION IN EMERGENCY

If any emergency like fire arises in the mine; one immediately informs Security Supervisor and inform the key personnel and act as detailed above followed by blowing the Alarm. The emergency alarm has wailing sound for two minutes on hearing telephone or alarm; the key personnel will act as per responsibilities. The procedure for all emergency situations as mentioned above would be same.

7.5.4 SITE RESTORATION

The incident controller will check the areas thoroughly for possible hazards such as toxic fumes or live wires after emergency and will inform site controller accordingly.

The key personnel meet to evaluate their individuals and overall performance in responding to situation after the emergency is over. The review determines:

- Effectiveness of emergency response plan.
- Mine crew performance.
- Need for updating or revision the emergency response plan.
- Suitable arrangement for restarting the work.
- Evaluation and control of efficient arising out of mitigating measures like foam discharge & overflow of oil in water.
- Rehabilitate evacuated area.
- Adopt measures to prevent similar recurrence.

7.5.4.1 PRECAUTIONS

To avoid all these disasters at working place and to minimize their effects following precautions will be taken and arrangement will be made at the working place.

(i) Periodical maintenance of mine machineries.

(ii) The persons will be trained properly to handle the situation.

(iii) Detailed warning system, implementation procedure, emergency control center will be maintained at the mine with names of trained persons.

(iv) Details and availability of heavy machinery, fire-fighting equipment will be made available at the site.

(v) Proper arrangements will be made for treatment of injured person, if any.

(vi) All the safety equipment will be made available in the mine.

7.5.5 POST DISASTER ANALYSIS AND EVALUATION

When the emergency is over, the team carry out a detailed analysis of cause of accident/occurrence, evaluate the influence of various factors and find out the procedures to minimize them in future. At the same time adequacy of disaster management plan has been evaluated and shortcomings have been rectified to improve the plan.

7.6 OFF-SITE EMERGENCY PLANNING

7.6.1 INTRODUCTION

The off-site emergency plan is an integral part of any hazard control system. It is based on those accidents identified by the works management, which could affect people and the environment outside the works. Thus, the off-site plan follows logically from the analysis that took place to provide the basis for the on-site plan and the two plans should, therefore, complement each other. The key feature of a good off-site emergency plan is flexibility in its application to emergencies other than those specifically included in the formation of the plan. The roles of the various parties that may be involved in the implementation of an off-site plan are described below. The responsibility for the off-site plan is likely to rest either with the works management or with the local authority.

Either way, the plan must identify an emergency coordinating officer who would take overall command of the off-site activities. As with the on-site plan, an emergency control center is required within which the emergency coordinating officer can operate. An early decision is required in many cases on the advice to be given to people living “within range” of the accident – in particular whether they should evacuate or told to go indoors. Consideration of evacuation may include the following factors:

a. In the case of a major fire but without explosion risk (e.g. an oil storage tank), only houses close to the fire are likely to need evacuation, although a severe smoke hazard may require this to be reviewed periodically.

b. But if the fire escalates it might be necessary to evacuate people nearby, but only if there is time; if insufficient time exists, people would be advised to stay indoors and shield themselves from the fire while measures are taken by those outside to douse fire.

7.6.2 ASPECTS INCLUDED IN AN OFF-SITE EMERGENCY PLAN

Some of the aspects that are included in off-site emergency plan are as follows:

a) Organization

Details of command structure, warning systems, implementation procedures, emergency control centers, name and appointments of incident controller, site main controller, their deputies and other key personnel.

b) Communications

Identification of personnel involved, communication center, call signs, network, list of telephone numbers.

c) Special Emergency Equipment

Details of availability and location of heavy lifting gear, bulldozers, specified fire-fighting equipment, fireboats.

d) Voluntary Organizations

Details of organizers, telephone numbers, resources, etc.

e) Meteorological information

Arrangements for obtaining details of weather conditions prevailing at the time and weather forecasts will be made.

f) Humanitarian Arrangements

Transport, evacuation centers, emergency feeding, treatment of injured, first aid, ambulances, temporary mortuaries.

g) Public Information

Arrangements for: -

(i) Dealing with the media-press office

(ii) Informing relatives, etc.

h) Assessment

Arrangements for: -

(i) Collecting information on the causes of the emergency

(ii) Reviewing the efficiency and effectiveness of all aspects of the emergency plan.

7.6.2.1 ROLES OF MANAGEMENTS IN CASE OF MAJOR HAZARD

Where the local authority has the organization to formulate the plan, the role of management in off-site emergency planning is to establish liaison with those preparing the plans and to provide information appropriate to such plans. This includes a description of possible on-site accidents with potential for off-site harm, together with their consequences and an indication of the relative likelihood of the accidents.

Advice is provided by works managements to all the outside organizations which may become involved in handling the emergency off-site and they have to get familiarized with some of the technical aspects of the works activities, e.g. emergency services, medical departments, etc.

7.6.2.2 ROLE OF THE EMERGENCY COORDINATING OFFICER

The various emergency services are coordinated by an Emergency Coordinating Officer (ECO) who is likely to be a senior police officer but, depending on the circumstances, could be a senior fire officer. The ECO liaise closely with the site main controller. Again, depending on local arrangements, for very severe incidents with major or prolonged off-site consequences, the external control may pass to a senior local authority administrator or even an administrator appointed by the Central or State Government.

7.6.2.3 ROLE OF THE LOCAL AUTHORITY

In some places the duty to prepare the off-site plan lies with the local authorities. They have appointed an emergency planning officer (EPO) to carry out all this duty as part of the EPO's roles in preparing for a whole range of different emergencies within the local authority area. The EPO is need to obtain the information to provide the basis for the plan.

Rehearsals for off-site plans are important for the same reasons as on-site plans and will need to be organized by the EPO.

7.6.2.4 ROLE OF THE POLICE

The police normally assume the overall control of an emergency, with a senior officer designated as emergency coordinating officer. Formal duties of the police during an emergency include protecting life and property and controlling traffic movements. The functions include controlling bystanders, evacuating the public, identifying the dead and dealing with casualties and informing relatives of dead or injured.

7.6.2.5 ROLE OF THE FIRE AUTHORITIES

The control of a fire is normally the responsibility of the senior fire brigade officer who would take over the handling of the fire from the site incident controller on arrival at the site. The senior fire brigade officer also have a similar responsibility for other events. Fire authorities having major hazard works in their area is familiarize themselves with the location on site of all stores of flammable materials, water and foam supply points and fire-fighting equipment.

7.6.2.6 ROLE OF THE HEALTH AUTHORITIES

Health authorities, including doctors, surgeons, hospitals, ambulances and so on, have a vital part to play following a major accident and they form an integral part of any emergency plan.

For major fires, injuries are the result of the effects of thermal radiation to a varying degree and the knowledge and experience to handle this in all, but extreme, cases may be generally available in most hospitals.

7.6.2.7 ROLES OF THE GOVERNMENT SAFETY AUTHORITY

The Inspectors of Director General of Mines Safety may want to satisfy themselves that the organization responsible for including the off-site plan has made adequate arrangements for handling emergencies of all types including major emergencies.

In the event of an accident, local arrangements regarding the role of the factory inspector is apply. In the aftermath, factory inspectors may wish to ensure that the affected areas are rehabilitated safely.

7.6.3 CARE AND MAINTENANCE DURING TEMPORARY DISCONTINUANCE

When the mine will be temporarily discontinued due to any unforeseen circumstances, the following care and maintenance will be carried out.

- Notice of temporary discontinuance of work in mine is given to the Controller General, Controller of Mines and the Regional Controller of Mines, IBM, DGMS & DMG, State Govt. officials under Rule 24 of MCDR 1988 and Reg. 6 of MMR 1961 respectively.
- All mining machineries to be shifted to a safe place.
- Entrance to the mines or part of the mines to be discontinued is fenced off as per DGMS Circular and security Guards are posted for the safety and to restrict any unauthorized entry to the area.
- Competent persons inspect the area regularly.
- Air, water and other environmental monitoring to be carried out.
- Greenbelt/Plantation is taken care of on a regular basis.
- All Rules and Regulations will be followed in case of any temporary discontinuance of mine.

7.7 RESETTLEMENT & REHABILITATION

The Resettlement & Rehabilitation Plan has been aimed to address the rights and privileges of local people, ensures good share of jobs in the projects and facilitate comprehensive socio-economic development of the area.

The area of proposed mine is 800.9935 ha ha which falls in 7 Villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan.. Total mine area is 800.9935 ha out of which (Govt. Waste Land- 227.9500 ha (29%) & Grazing /Charagah Land-21.0900 ha (3%) & Private Agriculture Land- 551.9535 ha (68.0%).

There are some individual habitants (Kaccha & Pakka) built on the private agriculture land falling within proposed Mining Pit. These habitants will be removed once the surface rights of the land will be acquired/ possessed with mutual understanding/ negotiation. Mining Operations will be carried out only after getting the land. Further “Blasting will be conducted in accordance with the guidelines stated by the DGMS and by complying the regulations in this regard. However, when the Mines working will reach near the habitant’s those couldn’t be removed, permission will be obtained from DGMS for conducting controlled

blasting, within the distance below 300 mtrs as permitted by DGMS else other Mining Method like rock breaking by hydraulic hammer etc., that is not involved the blasting operation will be adopted for extraction of the Mineral within the danger zone of blasting".

KMPL has following options for acquisition of land for its proposed mining project:

Option 1: Acquire land falling in the mine block through provisions of LARR Act, 2013

Option 2: Land acquisition through mutual agreement with the land holders falling in the mine block area at negotiated rates and terms and conditions.

KMPL proposes to procure land on mutual agreement with the land holders at mutually agreeable rates.

It is proposed that required land shall not be acquired in one go. Land purchase shall be done in phases as per the requirement for mining purpose. This is proposed in order to ensure minimal disturbance of the land & associated people. No forceful land acquisition will be undertaken.

Brief Note on R&R Action Plan has been prepared and same is enclosed as ***Annexure XVI.***

CHAPTER -8
PROJECT BENEFITS

8.1 INTRODUCTION

Kamlesh Metacast Private Limited has proposed Limestone Mining Project with proposed production capacity of 8.91 MTPA (Total Excavation) (Limestone – 2.85 MTPA, Mineral Reject-0.24 MTPA, OB-5.78 MTPA & Soil – 0.04 MTPA) along with Installation of 1000 TPH Crusher with Wobbler and Screening 200 TPH over an area of 800.9935 Ha. Located in Village (s)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla and Kharadoli, Tehsil –Pindwara, District – Sirohi, Rajasthan**.**

KMPL believes in holistic socioeconomic development of the local community is the need of the hour. It truly believes that a company's prosperity is linked with that of its neighbouring communities.

8.2 PROJECT BENEFITS

Project benefits are attributed in various ways as under:

1) Environment
2) Social
3) Employment
4) Economic

The company is conscious of its obligations to society at large and will contribute in overall socio-economic development of the area in the coming years by increasing its efforts for overall development of the study area.

As per ToR Point benefits of the project clearly indicate environmental, social, economic, employment potential etc., are summarized below:

8.2.1 ENVIRONMENTAL BENEFITS

- At the conceptual stage, the total excavated area will be 121.96 ha out of which 72.66 ha area will be reclaimed and rehabilitated by re-grassing & 49.30 ha area will be developed as water reservoir.
- At conceptual stage, 65.97 Million Tonnes of waste generated till the end of mine life will be used for backfilling purpose and it will be rehabilitated with plantation.
- Plantation will be done over an area of 128.30 ha (72.66 ha area on backfilled + 24.94 ha on virgin area + 30.70 ha on safety barrier and undisturbed area). Density of plantation would be 2500 trees / ha with a survival rate of more than 90%.

8.2.2 EMPLOYMENT BENEFITS

The total man power requirement for the proposed project will be 80 persons. Unskilled /semi- skilled manpower will be sourced from the local area and skilled manpower will be sourced from outside. Preference is will be given to the locals as per their eligibility.

In addition to this, the project is will lead to numerous indirect employment opportunities as well.

8.2.3 SOCIAL BENEFITS

Proposed project will result in growth of the surrounding areas by increased direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure.

The mining activity will generate revenue in the form of contribution of additional revenue to state exchequer as notified by Indian Bureau of Mines time to time, beside this, Royalty and other taxes would be additional benefit, particularly in the form of contribution to the District Mineral Foundation (DMF). DMF will be utilized by local administration for the development of socio- economic infrastructure and wellbeing of the local population.

The various activities proposed through CSR and Enterprise Social Commitment would help in upgradation of basic infrastructure, amenities.

M/s. Kamlesh Metacast Private Limited will carry out various beneficial activities under CSR in the following focus areas:

- Water Resource Management
- Health
- Livelihoods
- Education
- Women Empowerment
- Skill Development & Entrepreneurship

8.2.4 ECONOMIC BENEFITS

The proposed project will contribute additional revenue to the State and Central Govt. in the form of royalty, cess and other taxes etc.

TABLE 8. 1 ECONOMIC BENEFITS OF THE PROJECT

S. No.	DESCRIPTION	Revenue generation Crores/ Annum
1.	Royalty@ Rs 80/- Per Ton (Present/ prevailing Rate)	22.80
2.	District Mineral Foundation (@10% of Royalty)	2.28
3.	National Mineral Exploration Trust (@2% of Royalty)	0.45
Revenue generation per year (@ 2.85 million TPA)		**25.53**

8.3 CORPORATE ENVIRONEMNT RESPONSIBILITY (CER)

This Proposed project will result in growth of the surrounding areas by increased direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure.

As per the OM F.No. 22-65/2017-IA.III dated 30.09.2020, it is directed that commitments made by the project proponent to address the concerns rose during the public consultation and prescribe specific condition(s) in physical terns while recommending the proposal, for grant of prior environment clearance instead of allocation of funds under Corporate Environment Responsibility (CER).

8.4 CONCULSION

The proposed project will generate a fair amount of direct and indirect employment in the study area. The local economy will receive a boost due to employees spending and services generated by the company.

The overall effect will improve the buying power of employees and thus a higher standard of living viz. better education, improved health and sanitation facilities, housing etc. This is envisaged as a major positive benefit, which will ultimately lead to the sustainable development of the region.

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CHAPTER -9

ENVIRONMENTAL COST BENEFIT ANALYSIS

9.1 ENVIRONMETAL COST BENEFIT ANALYSIS

As per EIA Notification dated 14th September, 2006, the Chapter on the 'Environmental Cost Benefit Analysis' is applicable only if the same is recommended at the Scoping stage.

As per the ToR points issued by, MoEF&CC, New Delhi *vide* letter no. IA-J-11015/81/2024-IA-II(NCM) dated 05th May., 2025 in favor of M/s. Kamlesh Metacast PrivateLimited; for the proposed mining project activity, the 'Environmental Cost Benefit Analysis' is not required.

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CHAPTER -10

ENVIRONMENTAL MANAGEMENT PLAN

10.1 INTRODUCTION

The Environmental Management Plan (EMP) is required to minimize adverse environmental impacts by implementing suggested mitigation measures with timelines and responsibilities during the project life cycle.

An Environmental Management System (EMS) is a dynamic, continuous process initiated by management and involving communication between the client, its workers and the local communities directly affected by the project. Drawing on the elements of the established business management process of "Plan, Implement, Check and Act (Management Review)" the system entails the thorough assessment of potential environmental, social impacts and risks from the projects. EMS provides order and consistency for mitigating and managing these on an ongoing basis.

Good practices of EMP will be ensured to keep all the environmental parameters of the project w.r.t. air, water quality, soil, biological diversity of the area socio economic improvement, biological diversity of the area within statutory limits and sustainable manner.

10.2 PURPOSE OF EMP

- To control emission and waste minimization and proper disposal of waste so as to meet statutory requirement.
- To support & implement best technology to achieve environmental standards.
- Judicious use of natural resources and water.
- To ensure good working condition for safety, welfare and good health of the work force.
- Ensure effective operation of all control measures.
- Vigilance towards probable disasters and accidents.
- Monitoring of cumulative and long-term impacts.
- To reduce accident hazards.
- Allocation of funds for environment management supplies.
- To promote greenbelt development & Plantation Programme.
- Continuous development and search for innovative technologies for better environment.

10.3 ELEMENTS OF EMP

EMP includes four major elements: -

1. **Planning**: This includes identification of environmental impacts, legal requirement, commitments and policies, setting environmental objectives and environment, health, safety and social compliance requirements.
2. **Implementation**: This comprises of resources available for the project, accountability of employees , contractors and documentation of measures to be taken.
3. **Checking (Measurement & Evaluation):** This includes regular inspection, audits, monitoring corrective actions and record keeping; and
4. **Management Review**: Actions are taken to continually improve the environment, health, safety, and social performance of the organization.

The following Policy & programs have been developed to ensure proper implementation of EMP for the proposed Expansion in the mining project:

- Formulating Corporate Environment Policy (CEP)
- Formation of Environment Management Cell (EMC)
- Greenbelt Development/plantation programme
- Occupational Health and Safety
- Budgeting of Environmental mitigation measures

10.4 CORPORATE ENVIRONMENT POLICY (CEP)

The importance of environmental management has been recognized M/s. Kamlesh Metacast Private Limited (KMPL) very early and company has taken necessary steps to identify environmental aspects and mitigate those aspects which generate pollution at the site, respond to impacts of its own population and also in the peripheral areas. It has adopted a two-pronged strategy to abate pollution as given below:

- Provision of state of the air pollution control equipment at the design stage itself through clean technology initiatives.
- By developing a strong monitoring and inspection setup for statutory compliances.

Company has well laid Corporate Environmental Policy adopted by Board of Directors indicating clear framework to become Environmentally Sustainable organization. The hierarchical system or administrative order of the company to deal with the environmental issues and for ensuring compliance with the conditions stipulated in various clearances like EC, CTE, CTO and FC Conditions etc. have been given in the Environmental Policy of the company.

10.5 FORMATION OF ENVIRONMENTAL MANAGEMENT CELL (EMC)

In order to maintain the environmental quality, regular inspections, audits & monitoring of various environmental components is necessary. M/s KMPL will be established a full-fledged Environmental Management Cell (EMC) for environmental monitoring and control. The EMC team will be responsible for pollution monitoring aspects and implementation of control measures as discussed in Chapter 2 & 4 of this EIA/EMP Report.

A group of qualified and efficient engineers with technicians will be deputed for maintenance, up keeping and monitoring the pollution control equipment, to keep them in working mode at the best of their efficiencies.

Detailed Corporate Environment Policy along with organizational structure of EMC is given below:

10.5.1 RESPONSIBILITIES OF EMC

The EMC oversees and implement the various functions to ensure that environmental status of the area remains within the statutory standard of MoEF&CC and RSPCB. The responsibilities of the EMC include the following:

- Environmental monitoring of the core and buffer zone.
- Environmental monitoring of the core and buffer zone and evaluation of results. Keeping of records to track the surrounding environment quality status.
- Procurement and commissioning of Pollution Control/Monitoring Equipment.
- Specification and regulation of maintenance schedules for pollution control equipment.
- Ensuring that prescribed standards are maintained.
- Ensuring optimum water usage.
- Implementation of the mitigation measures suggested in EIA/EMP Report.
- Ensuring greenbelt development/plantation & its maintenance.
- Compliance with guidelines and statutory requirements.
- Coordination with statutory bodies, functional groups of the unit, Corporate Project/Environment & Engineering department etc.
- Interaction with engineering & operation team for implementation of any modification programmes intended to improve the availability / efficiency of pollution control devices / systems.
- Carry out proactive environmental studies and observe all precautions necessary to avert disasters and emergencies in the mining observations as well as nearby areas.
- Regular environmental review and performance appraisal (Internal) and organizing Environmental Audits by independent agencies/ 3rd party agencies.

- Coordination with the vendors dealing in waste supplies and disposal.
- Ensuring that the waste handling and disposal is carried out as per prescribed conditions.
- Conducting regular training programmes on various environmental requirements especially sustainable development, climate change, environmental monitoring etc.
- Reporting of compliances and non–compliances (if any) to management and other stakeholders.
- Implementation of socio-welfare programmes for economic upliftment.
- Implementation of the Environmental Management Plan and assessment of effectiveness of the same.
- To provide periodic health check-up of workers.

The EMC also co-ordinates with other departments like Occupational Health, Safety Management, Project Engineering, Horticulture, Water Supply Department etc. and also do the liaison work with external agencies like State & Central Pollution Control Boards as well as other related departments. EMC send six monthly progress reports in the prescribed format, as per the prevailing practice to concerned agencies. Any new regulations considered by State/Central Pollution Control Board for the Industry shall be taken care of by EMC of the plant. Also, half yearly compliance reports are sent to MoEF&CC as per the guidelines.

10.6 CORPORATE ENVIRONMENTAL AUDITING

Independent Audit/ evaluation of working of the Policy is being done by the Internal Auditor at least once a year and report the same to the Chief Financial Officer and Whole Time Director, being designated by the Board of Directors as responsible Director for the preparation and implementation of the Corporate Environmental Policy. It is imperative for the Head of business /occupier to ensure avoidance of adverse penal action arising out of Environment and other statutory regulation. Therefore, third party Corporate Environment Compliance Audit (CECA) is conduct to assess and quantify the environmental performance/compliance of the project with following scope:

- To check any major or minor non-compliances/non-conformities occurring in respect of the statutory clearances
- To check with the compliance status of the conditions stipulated in the Environment Clearance letter/Consent to Operate/other statutory permissions
- Evaluation of performance of Occupational Health and Safety (OHS) Policy Implementation
- Verify selected parameters and methods for internal KMPL policies and established environmental performance levels

- Conduct root cause analysis of non-compliances/deviation and propose appropriate mitigation measures prioritizing the findings as high, medium or low based on potential risk to the organization.

10.7 CORRECTIVE AND PREVENTIVE ACTION PLAN FOR NON-COMPLIANCE/NON-CONFORMANCES

The company has a well laid down process for identification & prevention of non- Conformances. In the eventuality of any non-compliance/ Non-conformances, it is addressed on priority through mid – course corrective action plan along with appropriate recording & reporting to Stake holders in line with the Company Policy duly adopted by the board.

10.8 DETAILED BUDGET FOR EMP

The budget proposed for implementation of the pollution control & impact mitigation measures as suggested for this proposed limestone Mining Project is given as under:

TABLE 10. 1 EMP COST BREAKUP

S. No.	Particular	Total Cost (Rs. In Crore)
1.	Project Cost	203.526
Cost for EMP		
2.	Cost for Environment Protection Measures	19
	Recurring Cost for EMP	1.43

The detailed Break-up of Proposed Cost for Environment Protection is given below in the following tables:

TABLE 10. 2 BREAK-UP OF PROPOSED COST FOR ENVIRONMENT PROTECTION MEASURES

SN	Activity	Capital Cost, Rs Lakh	Recurring Cost, Lakh
1	Air Pollution control Measures		
a	Dust Suppression on haul road by water tankers	25	10
	No. of water tankers – 1 (10 m3 capacity)		
	No. of trips/day – 10 (@₹400/- per trip)		
	No. of working days – 250		
b	Road maintenance by Motor Grader	200	6
	Working hours – 300 (@₹2000/-)		
	No. of working days – 200 (8 month)		
c	Wheel washing system	5	3
	Recurring - Maintenance cost – ₹10,000/-per month		
	No. of working days – 300		

d	Permanent water sprinkler-745 nos	38	4
	Sprinkler installation – ₹1000/- per meter		
	Length of pipeline – 3727m		
	Pump cost (2HP) – ₹50000/-		
e	Bag dust collector at crusher 1 no with 30m stack height	30	3
f	Dry Fog system at crusher unloading hopper	5	0.5
g	Metal sheet along the crusher unloading	5	0.5
	Total cost for Air pollution control measures	308	21
2	Water Pollution Control Measures		
a	Desilting pits 4	12	1.2
b	Garland drain-1888m	9	1
c	Retaining wall-2425m	11	1
d	Fencing-4005m	20	1.5
e	Modular STP (10 KLD)	15	1.5
f	ETP (10 KLD)	15	1.5
g	Embankment	225	2.3
	Total cost for water pollution control measures	307	10
3	Rainwater harvesting (roof top)	10	1
4	Fire Protection system	2	0.2
5	Continuous Air Quality monitoring CAAQM-1 No	50	5
6	Greenbelt/Plantation		
a	Greenbelt along Boundary 7.5 Meter safety Zone 30.70ha and 76500 trees	344.25	39.5
b	Backfilled area/regressing 72.66 ha	87.58	9.74
b	Virgin area 24.94ha and 62350 trees	280.5	31.25
Total cost for greenbelt/plantation		712.33	80.49
7	Health check-up Total Staff - 80 @ ₹2000/person	25	1.6
8	Personal Protective Equipment (PPEs) Safety Shoes + Helmets + Gloves etc	-	1.6
9	Environmental awareness & training	-	0.5
10	Environment Monitoring Program Cost	-	20
11	Wildlife Conservation Plan	475	
12	Peizometer and water meter	10.67	1.61
	Total	**1900**	**143**

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CHAPTER -11
SUMMARY & CONCLUSION

11.1 INTRODUCTION

Kamlesh Metacast Private Limited has proposed Limestone Mining Project with proposed production capacity of 8.91 MTPA (Total Excavation) (Limestone – 2.85 MTPA, Mineral Reject-0.24 MTPA, OB-5.78 MTPA & Soil – 0.04 MTPA) along with Installation of 1000 TPH Crusher with Wobbler and Screening 200 TPH over an area of 800.9935 Ha. Located in Village (s)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla and Kharadoli, Tehsil –Pindwara, District – Sirohi, Rajasthan.

This report has been prepared in reference to the ToR Letter issued by MoEF&CC, New Delhi Vide letter no. F. No. IA-J-11015/81/2024-IA-II (NCM), dated 05.05.2025 to carry out the EIA study. Terms of Reference was granted during 43rd meeting of Expert Appraisal Committee (Non-Coal Mining) held during April 22-23rd, 2025.

As per EIA Notification dated 14th September, 2006 as amended from time to time, the project falls under Category "A", (>250 ha), Projects per the Schedule of EIA Notification, 2006 & its subsequent amendments thereof; Project or Activity 1 (a) – 3 for "Mining of Mineral".

11.1.1 MINING LEASE STATUS

- The LOI for an area of 800.9935 ha has been granted by Mines and Petroleum Department, Government of Rajasthan. LoI has been issued vide order no. P 3 (6) Khan/Group-2/2022 dated 13.03.2023 which is valid till 12.03.2025. Now LOI is extended for one year vide P.3 (6) Khan/Group-2/2022, date-25.07.2023 and valid till 12.03.2026. Copy of the same is enclosed as **Annexure I.**
- Lease will be executed after obtaining Environment Clearance.
- According to the MMDR, Act 2015 mining lease will be valid for 50 years from the date of lease execution. Lease will likely to execute in 2026 and on the basis of lease execution it will be valid for 2076. Copy of LOI along with Khasra Map & Khasra Details are enclosed **Annexure III.**

11.1.2 STATUS OF APPROVAL OF MINING PLAN

The Mining Plan along with Progressive Mine Closure Plan has been approved vide letter no. E12030-MCDR-MPC0LST/28/2024-AJM-IBM_RO_AJM, dated-27.11.2024. Copy of the same is enclosed as **Annexure II.**

11.2 NEED FOR THE PROJECT

- The main purpose of the report is to establish the baseline environmental attributes in terms of scoping and predict/ identify the impacts for preparing environment management plan.

- India is the second largest producer of cement in the world. India's cement industry is a vital part of its economy, providing employment to more than a million people, directly or indirectly. The importance of the project to the nation, in a developing nation like India, cement is essential for infrastructure development. Thus, keeping in mind this requirement, mining of limestone is essential for the nation's growth.
- The project will help the local economy directly as well as indirectly as the project will also contribute to the State as well as to National exchequer by way of various taxes and duties. With the proposed additional development in and around the area, there will be increase in supporting facilities/infrastructure eventually leading to the further development of the area. It will also bridge the gap between demand and supply of cement to the consumers. The project will boost the overall growth of the region and in the State; the local economy will flourish due to increased income expenditure in the local market. Therefore, project is having great importance to the state and national economy.

11.3 PROJECT DETAILS

TABLE 11. 1 PROJECT DETAILS

S. No.	Particular	Details
A.	**Nature of the Project**	Opencast Mechanized Limestone Mine
B.	**Size of the Project**	
1.	Mine Block Area	800.9935 ha (Govt. Waste Land- 227.9500 ha (29%) & Grazing /Charagah Land-21.0900 ha (3%) & Private Agriculture Land- 551.9535 ha (68.0%).)
2.	Proposal	➢ Limestone Production Capacity: 2.85 Million TPA ➢ OB/waste – 5.78 Million TPA ➢ Top Soil - 0.04 Million TPA ➢ Mineral Reject-0.24 Million TPA ➢ Total Excavation – 8.91 Million TPA ➢ Crusher - (1000 TPH) with Wobbler (200TPH)
C.	**Project Location**	
1.	Villages	Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli
2.	Tehsil	Pindwara
3.	District	Sirohi
4.	State	Rajasthan
5.	Latitude & Longitude	Latitude: 24° 32' 47.3874"N to 24° 38' 33.7254"N Longitude: 72° 51' 57.958"E to 72° 57' 57.515"E
6.	Toposheet No.	45D/14, 15 & 45 H/2
D.	**Environmental Setting Details *(with approx. aerial distance & direction from the mine boundary)***	

1. Nearest Village

Particulars	Distance (Km) (From Lease Boundary)	Direction
Nearest Habitation		
Wasa	0.53	SE
Rohida	0.48	E
Wara	0.41	W
Bhujela	1.23	NNW
Bharja	Some part of village within the lease area	--
Taroongi	Some part of village within the lease area	--
Bhimana	0.24	NW
Vatera	50 m	E
Pipela	0.31	WNW
Hirawala	0.37	NNE
Densely populated		
Rohida	0.48	E
Wasa	0.53	SE
Vatera	50 m	E
Bhimana	0.24	NW
Bharja	Some part of Bharja village within the lease area	--
Swarupganj	2.98	WNW

2. Nearest Town/City

Particulars	Name	Distance, Direction (From Lease Boundary)
Nearest Town	Abu Road	9.82 km, SW
Nearest City	Sirohi	27.53 km, NNW
Nearest District Headquarter	Sirohi	27.80 km, NNW
Source: - Distances measured are taken from SOI, Toposheet are indicative pertinent to the project.		

3. Nearest Highway

S. No.	Particulars	Distance (km) (From Lease Boundary)	Direction
Routes Facility			
1.	NH-27	1.70	NW
2.	NH-927A	Passing through the lease area	--
3.	MDR-49	2.64	W
4.	MDR-60	6.98	W
5.	SH-11	9.55	SW

4. Nearest Railway Station

Particular	Name	Distance & Direction (From the lease boundary)
Railway Station	Kivrali Railway Station	2.56 km in WSW
	Bhimana Railway Station	2.70 km, NW
	NewSwarup Ganj Railway Station	2.97 km, NW
	Morthala Railway Station	7.97 km, SW

5. Nearest Airport: Maharana Pratap Airport Udaipur ~ 90.76 km, E

6. National Park, Wild Life Sanctuary, Biosphere Reserves, Wildlife corridors, Tiger/Elephant Reserves, Protected: Mount Abu Wild Life Sanctuary situated at a distance of 5.47 km in NW direction (Notified on 11.11.2020). ESZ is declared for Mount Abu Wild Life Sanctuary.

	Forests etc. within 10 km radius of the project site	
6.	Reserved / Protected Forest within 10km radius study area	

S. No.	Particulars	Distance (km) (From Lease Boundary)	Direction
Forests			
1.	Reserved Forest N/V Wara	0.055	S
2.	Protected Forest N/V Hirawala	0.56	NE
3.	Reserved Forest N/V Wara	0.96	SW
4.	Kivrali Ka Zor Reserved Forest	1.10	W
5.	Reserved Forest N/V Pipela	1.10	NW
6.	Reserved Forest N/V Pipela	2.08	NW
7.	Reserved Forest N/V Swarupganj	2.10	NW
8.	Mount Abu Wild Life Sanctuary	5.47	NW
9.	Nitaura Jor Reserved Forest	8.00	NW

7.	Water body within 10 km radius of study area	

S. No.	Particulars	Distance (Km) (From Lease Boundary)	Direction
Water Bodies			
1.	Hukli Nadi	8.89	NNE
2.	Silva Nala	5.54	E
3.	Kosiya Bhagra Nala	7.72	E
4.	Akhleti Nala	5.85	E
5.	Mandwara Distributary	3.36	E
6.	Khara Distributary	1.27	ESE
7.	Chitriya Nala	4.99	SE
8.	Sukli Nadi	Passing through the lease area	--
9.	Batriya Nadi	3.55	S
10.	Left Canal	1.52	E
11.	Banas River	2.37	WNW
12.	Gabir Nala	2.90	NW
13.	Right Canal	5.29	NW
14.	Grangri Bala	4.47	NNW
15.	Sangwara Minor	5.25	NW
16.	Sangbariya Balo	5.51	NW
17.	Sukli Nadi	5.24	NW

8.	Seismic Zone	Zone – III as per IS – 1893 (Part-1) -2002
D.	**Cost Details**	
1.	Total Project Cost	Rs. 203.526 Crore
2.	Cost for Environment Protection Measures	Capital Cost: Rs. 19 Crore Recurring Cost: Rs. 1.43 Crore/Annum

Source: *Site Visit & Pre- Feasibility Report*

11.4 MINING DETAILS

TABLE 11. 2 MINING DETAILS

S. No.	Particular	Details
1.	Mining Method	Fully Mechanized Opencast Mining Method
2.	Production Capacity	Limestone: 2.85 Million TPA
3.	Total Geological Reserves	27,67,13,725.85 MT (276.71 Million TPA)
4.	Total Mineable reserves	5,67,92,655.3 MT (56.79 Million TPA)

5.	Life of Mine	20 years
6.	Bench Height	10 m
7.	Bench Width	15-20 m
8.	Elevation Range	Highest –360 MSL; Lowest – 295 MSL,
9.	Water Table	Water level Pre monsoon-13 m bgl (average) Water Level: - Post monsoon - 10 m bgl (average).
10.	Ultimate pit limit	UPL- 300-200 MSL
11.	Number of Working days	300
12.	Number of Working Shifts	2 Shifts
Source: *Derived from Approved Mining Plan along with Progressive Mine Closure Plan*		

11.5 METHOD OF MINING

The mining operations will be carried out by fully mechanized opencast method, deploying Heavy Earth Moving Machinery (HEMM i.e. hydraulic excavators, rear dump trucks, hydraulic drills, bull dozers etc.) in conjunction with controlled blasting techniques NONEL (Non- Electrical Initiation system) for blasting. Loading will be done by Hydraulic Excavators. Limestone to be transported by dumpers to proposed crusher (1000TPH) located in the lease area. The crushed Limestone will be transported to the Proposed Cement Plant via covered conveyor belt.

11.6 YEAR WISE PRODUCTION & EXCAVATION

TABLE 11. 3 EXCAVATION DETAILS DURING THE PLAN PERIOD (IN MILLION TONNES)

Year	Soil in million Tonne	OB in million Tonne	Mineral Reject in million Tonne	Mineral in million Tonne	Total Excavation in million Tonne
1st Year	Nil	Nil	Nil	Nil	Nil
2nd Year	0.0001	0.0036	0.0015	0.0183	0.0239
3rd Year	**0.04**	**5.7840**	**0.2478**	**2.8497**	**8.923**
4th Year	0.0051	3.7171	0.2477	2.8496	6.8283
5th Year	0.0010	2.3403	0.2478	2.8499	5.4409

Source: *Pre-feasibility Report of Approved Mining Plan along with Progressive Mine Closure Plan*

11.7 DESCRIPTION OF THE ENVIRONMENT

Baseline data for the environmental studies has been collected during Summer Season (March to May 2023) and revalidate the baseline has been done in Summer Season (March to May 2025) to carry out the Environment Impact Assessment study for the proposed Project.

11.7.1 AMBIENT AIR QUALITY

PM_{10}: The maximum value for PM_{10} observed in 8 locations at Village: Delder 68.9 µg/m^3 and minimum value for PM_{10} observed at Village: Taroongi (within the Lease Area), Near-Village (Rohida) 44.5µg/m^3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which PM_{10} maximum value (66.8µg/m^3) in Bhimana Village and minimum value near village 29.0 µg/m^3. The 24 hours applicable limit for industrial, Residential Rural and Other Areas is -100 µg/m^3.

$PM_{2.5}$: The maximum value for $PM_{2.5}$ observed at Village: Delder, Bhimana 40.4 µg /m^3 and minimum value for $PM_{2.5}$ observed at Village: Urwariya, Hirawala (within the Lease Area) 26.8 µg/m^3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which $PM_{2.5}$ maximum value (43.5 µg/m^3) in Bhimana Village and minimum value near village Wada 18.5 µg/m^3.The 24 hours applicable limit for industrial, Residential Rural and Other Areas is- 60µg/m^3.

SO_2: The maximum value for SO_2 observed at Village: Delder 8.3 µg/m^3 and minimum value for SO_2 observed at Village: Rohida (Vasa), Near-Village (Rohida), Wada, Bhimana, Urwariya, Hirawala (within the Lease Area) 6.0 µg/m^3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which SO_2 maximum value (16.4 µg/m^3) in Deldar Village and minimum value near village Bharja 7.0 µg/m^3.The 24 hours applicable limit for industrial, Residential Rural and Other Areas is 80µg/m^3.

NO_2: The maximum value for NO_2 observed at Village: Delder 15.2µg/m^3 and minimum value for NO_2 observed at Village: Taroongi (within the Lease Area), Rohida (Vasa) 6.2 µg/m^3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which NO_2 maximum value (25.0 µg/m^3) in Deldar Village and minimum value near village Bharja 10.7 µg/m^3.The 24 hours applicable limit for industrial, Residential Rural and Other Areas is- 80µg/m^3.

CO: The maximum value for CO observed at villages: Taroongi (within the Lease Area), Rohida (Vasa), Near-Village (Rohida), Delder, Bhimana, and Hirawala (within the Lease Area) 802 µg/m^3 and minimum value for CO observed at Village: Near-Village (Rohida), Wada, Urwariya, Hirawala (within the Lease Area) 458 µg/m^3. Whereas, in the revalidaite the baseline data has been done in 11 locations in which CO maximum value (940 µg/m^3) in Taroongi Village and minimum value near village Wada 240 µg/m^3.The 8 hours applicable limit for Industrial, Residential Rural and other areas is- 2000 µg/m^3.

11.8 NOISE LEVELS

A) Day time Noise Levels Leq(day)

The daytime (Leqday) noise level is observed in project area to be 51.7 dB(A) which are within the prescribed limit of 75 dB(A) and in residential areas to be in the range of 49.5- 53.9 dB(A) which are within the prescribed limit of 55 dB(A). Whereas, in the revalidate the baseline data has been done in 11 locations in which noise level maximum value observed 54.1 dB(A) in Urwariya Village and minimum value near Bharja village 36.5 dB(A) .

B) Night time Noise Levels Leq(night)

The nighttime (Leqnight) noise levels are observed in project area to be in the range of 42.8 dB(A) which are within the prescribed limit of 70 dB(A) and in residential areas to be in the range of 41.3 – 43.7 dB(A) which are not within the prescribed limit of 45 dB(A). Whereas, in the revalidaite the baseline data has been done in 11 locations in which noise level maximum value observed 44.9 dB(A) in Hirawala Village and minimum value near Rohida (Vasa) village 33.9 dB(A) .

From the above study and discussions, it can be concluded that noise levels in the study area are well within the prescribed limits as prescribed by the CPCB.

Surface Water Quality

The results obtained for the collected samples during March to May 2023 indicate that the surface water quality was found to be well within the prescribed standard limit (Class C). The analysis results indicate that the pH of the surface water is in the range of 7.16 – 8.05. The TDS was found to be in the range of 432 - 524 Mg/l. Revliadte the sample was collected March to May 2025. The analysis results indicate that the pH of the surface water is in the range of 7.36 –7.68. The TDS was found to be in the range of 283.88-427.34 Mg/l.

Other parameters like Total Hardness as CaCO3 is in range of 152-160mg/L, Total Alkalinity is 192-240mg/L, Dissolve Oxygen is 2.4-2.6mg/L, E-Coli is absent. Other parameters Calcium as Ca, Magnesium as Mg, Chloride as Cl, Sulphate as SO4 and Fluoride were found in the permissible range. Revalidate the data for Total Hardness as CaCO3 is in range of 108-1604mg/L, Total Alkalinity is 96-140mg/L, Dissolve Oxygen is 5.40-6.20 mg/L. Other parameters Calcium as Ca, Magnesium as Mg, Chloride as Cl, Sulphate as SO4 and Fluoride were found in the permissible range. E coli is absent in the surface water samples.

Surface water quality was also analyzed for Iron, Aluminum, Boron, Phenolic Compounds, Anionic detergents, Zinc, Copper, Manganese, Lead, Selenium, Arsenic, Nickel, Mercury, Hexa Chromium etc. and were found below the detection limit.

Ground Water Quality

The analysis results indicate that pH of the groundwater were found to be in range of 6.9 to 7.6. The TDS were found to be in the range of 798 - 3489 mg /l. Other parameters like Total Hardness as CaCO3 (264 to 1300 mg/l), Total Alkalinity (256 to 496 mg / l), Calcium as Ca (81.60 – 457.60 mg/l), Magnesium as Mg (14.58 – 114.70 mg/l), Chloride as Cl 167.95 – 1533.52 mg/l), Sulphate as SO4 (23.89 – 345.98 mg /l) and Fluoride as F- (0.77 – 1.27 mg /l).

The samples was collected during Monsoon Season (March to May 2025). The analysis results indicate

that pH of the groundwater were found to be in range of 7.05 to 7.57. The TDS were found to be in the range of 733 - 2860 mg /l. Other parameters like Total Hardness as CaCO3 (256 to 804 mg/l), Total Alkalinity (236 to 732 mg / l), Calcium as Ca (64.0–227.20 mg/l), Magnesium as Mg (21.38 –63.18 mg/l), Chloride as Cl (60-588 mg/l) and Fluoride as F- (0.34 – 1.23 mg /l).

Soil Quality

The pH of the soil samples varied from 7.29 to 8.07. The texture of the soil samples majorly consists of Silty and Silty loam. The soil samples majorly exhibit dark brownish and reddish-brown color at all the soil sampling locations.

The indicator such as organic matter varies from 0.89% to 1.45% and Organic carbon varies from 0.51% to 0.83%. The Water holding capacity varied from 43.77% to 49.20%. Nitrogen ranges from 350.39 to 420.19 kg/ha, Phosphorous ranges from 25.83 to 83.84 kg/ha, Potassium 220.37 to 915.87 kg/ha, Magnesium 242.82 to 539.26 mg/kg, Calcium 2514.88 to 4591.07 mg/kg and Sodium 89.64 to 239.50 mg/kg. The SAR value was observed under the limits at all the sampling locations with 0.45 to 0.89.

11.9 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Air Environment

The key air emissions from the mining activities (drilling, blasting, loading, unloading and transportation) are Particulate Matter, Oxides of Nitrogen (NO2) and Sulphur dioxide (SO2).

Proper mitigation measures like controlled blasting, water sprinkling before drilling, blasting & during transport activities, use of rock breaker to avoid secondary blasting, development of greenbelt/plantation etc. will be carried out to control the fugitive emission. Better maintenance of equipment & HEMMs, PUC checking of mining equipment's & vehicles will help to reduce emissions. Proper protection measures i.e. use of Bag filters, Regular water spraying on Crusher hopper to arrest dust from becoming air-borne, construction of wind breaking walls especially at charging hopper & crushing place, development of green belt/plantation all around in the vicinity of the crusher to tarp fugitive dust will be carried out.

Water Environment

Seasonal water bodies viz. Sukli Nadi falls in mining lease area and Hukli Nadi , Silva Nala , Kosiya Bhagra Nala , Akhleti Nala , Mandwara Distributary, Khara Distributary, Chitriya Nala, Batriya Nadi, Left Canal, Banas River, Gabir Nala, Right Canal, Grangri Bala, Sangwara Minor, Sangbariya Balo, exist in the study area which receive water in the Monsoon Period and will not be adversely impacted as majority of these are distantly located.

Ground Water

The general elevation is ranges from 296 m AMSL to 361m AMSL. During Pre Monsoon, average water level id 13mbgl and during Post Monsoon average water levels is 10 meters. Mine will intersect the ground water table in 3rd year for which prior approval will be obtained from Central Ground Water Authority before such intersection. The mine seepage from working faces will be collected in sumps over lower benches and water will be pumped for its usage in mine and proposed cement plant and surplus water will be supplied for irrigation. The mineral limestone and associated rocks do not contain any toxic substances so that there will not be any adverse impact on ground water quality.

Domestic wastewater generated (8.0 KLD) from mines office will be modular STP (10 KLD) and treated water will be used in greenbelt/plantation. Wastewater generated from vehicle washing/workshop (8 KLD) will be treated in ETP (10 KLD) and treated water will used in dust suppression after oil & grease trap. KMPL will make efforts to eliminate usage of Ground water after development of Mine Pit. Company will also use nontoxic chemical to reduce the water evaporation on haul roads. Dry fog system is proposed at the crusher unloading hopper to conserve the water. During monsoon or post monsoon time, excess water needs to be discharged, it will pass through sedimentation pond/check dams/filters for proper sedimentation prior to join natural streams or nallahs. Regular monitoring of ground water quality will be carried out.

Noise & Vibration

Major noise generating sources of the mining activity are drilling, blasting and HEMM deployed for loading & transportation of limestone.

Various measures will be undertaken to control noise & vibration. Drilling will be carried out with the help of sharp drill bits. Controlled blasting techniques through proper blast design and explosive selection will be used to reduce the noise & vibrations to a greater extent. Hydraulic rock breaker will be used in place of secondary blasting. DGMS guideline will be followed strictly to reduce the impact of blasting on nearby habitation. HEMMs equipped with acoustic cabins are/will be provided for the operators. Proper maintenance, oiling and greasing of HEMMs will be carried out. PPEs like earplugs/earmuffs will be provided to mine workers. Development of green belt/plantation along the mining boundary help in reducing noise level.

Crushing is also generating the noise pollution. Proper mitigation measures i.e. insulators & closed acoustic systems will be provided to control the noise pollution. Plantation will be developed around the crusher which also help to control the noise pollution.

Solid Waste Management

During the plan period 11.8452 Million Tonnes OB & 0.7450 Million Tonnes mineral reject will be generated. At conceptual stage, about 65.97 Million Tonnes of OB and 4.94 Million Tonnes mineral reject will be generated which will be used for backfilling purpose.

Land Environment

As per approved mining plan, the total excavated area will be 121.96 ha out of which 72.66 ha area will be back filled & 49.30 ha will be used for rain water storage. Area under utility & services will be 30.40 ha. About 592.99 ha area will be undisturbed. Greenbelt and plantation will be developed over an area of 55.64 ha.

11.10 POST PROJECT ENVIRONMENTAL MONITORING PROGRAMME

TABLE 11. 4 POST PROJECT MONITORING PROGRAMME

S. No.	Description	Frequency of Monitoring
1.	Micro-Meteorological Data	Hourly
2.	Ambient Air Quality	Online CAAQMS & Manual as per CPCB Guideline
3.	Water Quality & Level	Quarterly
4.	Noise Level Monitoring	Quarterly
5.	Vibration Monitoring	On every blast
6.	Medical Checkup of employees	3 to 5 year interval
7.	Digital Mapping/ Drone survey of block area	Once in 3 years/ as per IBM guidelines

11.11 ADDITIONAL STUDIES

Additional Studies i.e. Hydro-Geological Study, Biological Study, Resettlement & Rehabilitation Plan and Risk Assessment & Disaster Management Plan are covered in EIA/EMP Report as per the Terms of References issued vide F. No. IA-J-11015/81/2024-IA-II(NCM), dated 05.05.2025.

11.11.1 HYDRO-GEOLOGICAL STUDY

Total water requirement will be 150 KLD. The NOC is obtained to withdrawal 9.5 KLD water required for drinking and domestics initially for two years, where no mining activity is proposed. Total water requirement is 150 KLD for which CGWA NOC will be obtained prior starting working of 3 three years. Mine will intersect the ground water table in 3rd year for which prior approval of dewatering will be obtained from CGWA/CGWB. The ground water consumption will gradually reduce as the mine progress and mine pits are developed to harvest the rainwater. Copy of the NOC is enclosed as **Annexure XV.**

Detailed Hydrogeological study & Rain water Harvesting Plan is enclosed as ***Annexure XIX.***

11.11.2 BIOLOGICAL ENVIRONMENT

A primary field survey was carried out within 10 km radius impact zone in and around the project area to study the floral and faunal diversity of the study area.

As per study conducted in the study area and as per information collected from Forest Range Office, Pindwara, and Divisional Forest Officer, Sirohi, it is found that Mount Abu Wildlife Sanctuary is situated 5.47 km from Mine lease area, Whereas there are no National Parks, Biosphere Reserves, Wildlife Corridors, Ramsar site, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km radius of the Mine Lease.

Authenticated List of Flora and Fauna has been approved DCF, Sirohi vide letter dated 4.06.2025. As per the approved list of flora and fauna there are total 15 schedule-I species found in the study area i.e. i.e. *Panthera pardus* (Leopard), *Rusa unicolor* (Sambar deer), *Felis chaus* (Jungle Cat), *Paradoxurus hermaphroditus* (Common Palm Civet), *Canis lupus* (Indian Wolf), *Hyaena hyaena* (Striped Hyaena), *Canis aureus* (Jackal), *Vulpes bengalensis* (Indian Fox), *Hystrix indica* (Indian Porcupine), *Melursus ursinus* (Sloth Bear), *Naja naja* (Indian Cobra), *Ptyas mucosus* (Common Rat Snake), *Varanus bengalensis* (Bengal Monitor Lizard) *Pavo cristatus* (Indian Peafowl), *Tachyspiza badia* (Shikra) were recorded in the study area; which are categorized as Schedule- I fauna according to Indian Wildlife Protection Act (IWPA), 2022 conservation status.

For the conservation of these species Wildlife Conservation Plan has been prepared. Budget earmarked for the conservation of the same is Rs. 475 Lakh. Wildlife Conservation Plan for further approval has been submitted to DCF, Sirohi on 16.7.2025 which has been forwarded to Chief conservator of forest, Jodhpur vide letter dated 28.7.2025. Copy is enclosed as **Annexure XII and** WLCP is enclosed as **Annexure XII a.**

11.11.3 REHABILITATION & RESETTLEMENT ACTION PLAN

The Resettlement & Rehabilitation Plan has been aimed to address the rights and privileges of local people, ensures good share of jobs in the projects and facilitate comprehensive socio-economic development of the area.

The area of proposed mine is 800.9935 ha which falls in 7 Villages in 1 Tehsils namely, Villages: Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli in Tehsil Pindwara, District Sirohi, Rajasthan. As per the revenue record total mine area is 800.9935 Ha, out of which 227.9500 ha is Govt. Waste Land (29%) & 21.0900 ha (3%) Grazing /Charagah Land- & 551.9535 ha (68.0%) is Private Agriculture Land.

Two village habitation namely Bharja and Taroongi falls in the lease area. There are some individual

habitants (Kaccha & Pakka) built on the private agriculture land falling within proposed Mining Pit. These habitants will be removed once the surface rights of the land will be acquired/ possessed with mutual understanding/ negotiation. Mining Operations will be carried out only after getting the land.

Further "Blasting will be conducted in accordance with the guidelines stated by the DGMS and by complying the regulations in this regard. However, when the Mines working will reach near the habitant's those couldn't be removed, permission will be obtained from DGMS for conducting controlled blasting, within the distance below 300 mtrs as permitted by DGMS else other Mining Method like rock breaking by hydraulic hammer etc, that is not involved the blasting operation will be adopted for extraction of the Mineral within the danger zone of blasting".

KMPL has following options for acquisition of land for its proposed mining project:

Option 1: Acquire land falling in the mine block through provisions of LARR Act, 2013

Option 2: Land acquisition through mutual agreement with the land holders falling in the mine block area at negotiated rates and terms and conditions.

KMPL proposes to procure land on mutual agreement with the land holders at mutually agreeable rates.

It is proposed that required land shall not be acquired in one go. Land purchase shall be done in phases as per the requirement for mining purpose. This is proposed in order to ensure minimal disturbance of the land & associated people. No forceful land acquisition will be undertaken.

11.11.4 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

A Hazard Identification and Risk analysis is a systematic way to identify and analyze hazards to determine their scope, impact and the vulnerability of the built environment to such hazards and its purpose is to ensure that there is a formal process for hazard identification, risk assessment and control to effectively manage hazards that may occur within the workplaces. Excessive dust, noise and vibration are the chief health hazards for the miners besides physical hazards.

The objective of disaster management plan for the proposed limestone captive mine is to be in a state of perpetual readiness through training and development to immediately control and arrest any emergency situation so as to avert a full-fledged disaster and the consequence of human and property damage and in the event of a disaster still occurring, to manage the same so that the risk of the damage to life and property is minimized.

11.12 ENVIRONMENT MANAGEMENT PLAN

KMPL have a full-fledged Environmental Management Cell (EMC) for environmental monitoring, implementation of mitigative measures and control. A group of qualified and efficient engineers with technicians will be deputed for maintenance, up keeping and monitoring the pollution control equipment,

to keep them in working mode at the best of their efficiencies. The EMC shall oversee and implement the various functions to ensure that environmental status of the area remains will within the statutory standard of MoEF&CC and SPCB. The Capital Cost for EMP is Rs. 19 Crore and Recurring Cost for EMP is Rs. 1.43 Crore per annum.

11.13 POST MINING LAND USE DETAILS/RECLAMATION PLAN

TABLE 11. 5 POST-MINING LAND USE OF CORE ZONE

S. No.	Land Use Category	Present Land Use (Ha.)	At the End of 5th Year (Ha.)	Conceptual Stage(Ha.)
1	Soil Stack	0.0000	0.00	0.0000
2	Waste Dump	0.0000	22.61	0.0000
	Mineral Storage	0.0000	0.21	0.0000
3	Total Excavated	6.5300	32.04	121.96
	(A) Excavation (Water Reservoir) (B) Excavation (Backfilled)	0.0000	00.0000	49.30 (Water Reservoir)
		0.0000	00.0000	72.66 (Re-grassing)
4	Area under utility services	4.85	11.11	30.40
5	Afforestation/Plantation (Unworked Area	0.0000	4.80 (Plantation)	55.64 (Plantation)
Total Disturbed Area		11.83	70.77	208
6	Undisturbed Area	789.16	730.2235	592.99
Total		800.9935	800.9935	800.9935

Source: *Approved Mining Plan along with Progressive Mine Closure Plan*

11.14 PROJECT BENEFITS

The project activity will help in meeting the growing demand of cement & hence help in the economic growth of the country. The mine will be contributing around Rs. 25.53 crore/year to the State & Central Govt. exchequers by way of mining revenue (Royalty, Premium, DMF, NMET, GST, SGST) with the execution of the project.

With the proposed development in and around the area, there will be supporting facilities/infrastructure eventually leading to the development of the area. The core benefit of the proposed project is the availability of limestone for cement manufacturing. The beneficial aspects of the project on the socio-economic environment of the area are in the fields of employment, service, trade, commerce, public utility, literacy, social awareness, health care facilities, recreation etc. The locals of the area will be benefited for the employment directly and indirectly. Direct employment, envisaged from the mine, is about 80 persons. PAFs & locals will be preferred in employment as per their eligibility. Further, there would be a lot of indirect employment opportunities arising due to the execution of this project like transportation,

workshops establishment, petty contracts; commercial establishments (shops), truck owners, drivers etc. This will upgrade the economic status of the region and people living therein.

Based on the Public Hearing issues various community developmental activities in the form of medical facilities, education and creation of self-help groups will be proposed for the betterment of the locals. The project will help in the overall growth of the region.

11.15 CONCLUSION

The EIA/EMP study was prepared with compliance of ToR issued by MoEF&CC. Baseline data of land, air, water, noise, biological and socio-economic environment was duly assessed by conducting field investigation as well as by having an access to the available secondary information. The prediction of impacts was identified & evaluated and EMP is suggested to mitigate the environmental concerns arising from the proposed project.

With the proposed development in & around the area, there will be supporting facilities/infrastructure eventually leading to the development of the area. Employment (direct & indirect) will be generated with the execution of the proposed mine & its interlinked Cement Plant. Economy of the area will get boost and overall development of the region in terms of education, health, training, transport, automobile, industry is anticipated. Thus, the project will contribute to the Social, Environmental and Economic benefit of the local people and region.

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CHAPTER -12
DISCLOSURE OF CONSULTANTS

Ecomen Mining Pvt. Ltd, a multi-disciplinary professionally managed, environmental consultancy services organization with an environmental laboratory accredited by NABL and with over 30 years standing, operates in 18 States of India. Ecomen is specialized in Environmental Services as mentioned below: -

It has following accreditations to its credit:

1. National Accreditation Board for Education and Training, Quality Council of India (NABET- QCI).
2. National Accreditation Board for Testing and Calibration Laboratories (NABL) International Accreditation ISO17025
3. Recognized by CPCB/MOEF&CC as Environmental laboratory under the Environmental (Protection) Act-1986
4. Occupational Health and Safety Management System (OHSAS 18001:2007)
5. Uttar Pradesh Pollution Control Board (UPPCB) for Ambient Air Quality Monitoring and Testing
6. Empaneled Consultant with State Pollution Control Board (SPCB) –Odisha
7. Participates in Proficiency test conducted by CPCB & scored 100% many times.
8. CPCB had selected Eco men's laboratory to analyze the samples of identified industries jointly along with them pursuant to Hon'ble NGT order.

Our Range of Services Include

1. Preparation of Environmental Impact Assessment (EIA) & Environmental Management Plan (EMP) and subsequent Environment Clearance from MoEF&CC, SEIAA, NOC /Consent from Pollution Control Board.
2. Generation of Baseline data as per Environment (Protection) Act, 1986 i.e. Environmental Monitoring [Air, Water (Ground Water & Surface water), Noise, Soil], Testing and Studies like Flora, Fauna, Socio Economic, Land Use, Ground Water.
3. Minerals testing [in line with IBM directives that only NABL accredited lab can do Mineral's Testing]
4. Coal testing / analysis
5. Forest proposal for DE reservation & clearance; Wild Life Management Plan
6. Groundwater survey, Water balance assessment & Geo hydrological study
7. Water management, recovery, recycling and reuse of waste water, Rain Water Harvesting; commissioning of Piezometers

8. Thematic mapping using Remote Sensing, GIS & GPS. Preparing Land use/Land cover maps. Digital Image processing

9. Environmental Audit, Risk Assessment, Disaster Management plan & Compliance monitoring & report.

10. Training programme : Environment and Forest Clearance Process

To create awareness leading to skill development in the 12 Functional Areas of Environment Clearance as prescribed by NABET –QCI 11. ETP/STP operation & Maintenance.

Achievements

- More than100 EIA/EMPs approval of major client, all over India
- More than 50 Major Monitoring assessments, all over India
- 50 specialized studies
- 10 World Bank funded projects
- Case studies awarded by MOEFCC
- Setting site Labs

Awards:

Ecomen is recipient of many prestigious awards as given below:

I. ‘Silver Medal’ from Mining, Geological and Metallurgical Institute of India [MGMI] for the paper ‘Noamundi – Long Range, Programme and Mine Planning’ [1969].

II. ‘National Consultant’ of MOEF in ‘Industrial Pollution Prevention Project’; Gap Analysis of some State Pollution Control Board’s Laboratories; conducted a National Workshop [2001].

III. ‘Certificate of Excellence’ for Implementation of World Bank funded Rural Drinking Water & Environment & Sanitation project (2002).

IV. ‘LMA Creativity & Innovation Award 2014’ for very significant contribution in any walks of life in India or abroad by way of his / her innovation or creativity.

V. ‘Udyog Ratan Award’ for the outstanding performance in the field of economic & industrial development of the industry in the country and ‘Excellence Award’ for Ecomen for its class and quality services, from Institute of Economic Studies, New Delhi (2015).

VI. ‘Life Time Achievement Award 2015’ to a Mining Engineer by Mining Engineers Association of India.

VII. ‘Eminent Engineer Award (2017)’ by Institute of Engineer’s India on consideration of eminence and contribution in the discipline of Environmental Engineering.

VIII. Many more

Our Clients/ Projects experience

Our clients include major Corporates, [apart from World Bank aided projects& MOEFCC assigned case studies] Tata Steel Mines, Rungtas, NMDC, CMPDI, Heidelberg, Reliance, Ambuja Cements, J P Group, Everest Industries, L&T, NTPC, KIOCL, Reliance Power, Lanco Power, Lafarge etc.

Our Resources

Ecomen distinguishes itself by outstanding experience, vision and exposure of its key functionaries, experts, &specialists, in Industrial, Mining and Environmental disciplines as also, Socio-Economic, Public Health & Sanitation, Forestry and Management areas.

Ecomen has been accredited by NABET certificate no. NABET/EIA/25-28/RA 0403 and valid till 23/03/2028.

भारतीय गुणवत्ता परिषद्
QUALITY COUNCIL OF INDIA
QCI Creating an Ecosystem for Quality

NABET

National Accreditation Board for Education and Training

Certificate of Accreditation

Ecomen Mining Pvt. Ltd., Lucknow

Second Floor Hall, House no. B -1/8, Sector –H, Aliganj, Lucknow – 226024

*The organization is accredited as **Category-A** under the QCI-NABET **Scheme for Accreditation of EIA Consultant Organization, Version 3**: for preparing EIA/EMP reports in the following Sectors-*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast / underground mining both	1	1 (a) (i)	A
2.	River valley projects	3	1 (c)	A
3.	Thermal power plants	4	1 (d)	A
4.	Mineral beneficiation	7	2 (b)	A
5.	Metallurgical industries	8	3 (a)	A
6.	Cement plants	9	3 (b)	A
7.	Coke oven plants	11	4 (b)	A
8.	Asbestos milling and asbestos based products	12	4(c)	A
9.	Distilleries	22	5 (g)	A
10.	Sugar Industry	25	5 (j)	B
11.	Industrial estates/ parks/ complexes/ Areas, export processing zones (EPZs), Special economic zones (SEZs), Biotech parks, Leather complexes	31	7 (c)	A
12.	Highways	34	7 (f)	A
13.	Building and construction projects	38	8 (a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated May 20, 2025 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/25/3626 dated May 23, 2025. The accreditation needs to be renewed before the expiry date by Ecomen Mining Pvt. Ltd. (formerly known as Ecomen Laboratories Pvt Ltd.) following due process of assessment.

Valid upto
March 23, 2028

Issue Date
May 23, 2025

Certificate No.
NABET/EIA/25-28/RA 0403

Varinder Kanwar
Prof (Dr) Varinder S Kanwar
(CEO – NABET)

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

FIGURE 12. 1 NABET CERTIFICATE OF CONSULTANCY

राजस्थान सरकार
खान एंव पेट्रोलियम विभाग

क्रमांकः प.3(6)खान/ग्रुप–2/2022 जयपुर दिनांकः 13 MAR 2023

कमलेश मेटाकास्ट प्राईवेट लिमिटेड,
5A/5D, कॉपोरेट टॉवर A-2,
जेएलएन मार्ग,
जयपुर 302017

विषय :– **आप द्वारा खनन पट्टा वास्ते खनिज लाईमस्टोन (सीमेण्ट ग्रेड), क्षेत्रफल 800.9935 हैक्टेयर निकट ग्राम रोहिडा, वाटेरा, भीमाणा तहसील पिण्डवाडा, जिला–सिरोही में प्रस्तुत आवेदन के संबंध में।**

कमलेश मेटाकास्ट प्रा. लि. के पक्ष में निदेशालय आदेश क्रमांकः निखाभू/सिरोही/सीसी–2/प.1(2)7/11/5255 दिनांक 24.12.2014 से 1859.0275 हैक्टर का पूर्वेक्षण अनुज्ञापत्र संविदा निष्पादन की तिथि से 3 वर्ष की अवधि के लिए स्वीकृत किया गया। उक्त पूर्वेक्षण अनुज्ञापत्र की संविदा का निष्पादन दिनांक 12.03.2015 को हुआ। इस प्रकार पूर्वेक्षण अनुज्ञापत्र दिनांक 12.03.2015 से 3 वर्ष की अवधि के लिए प्रभावी हुआ।

पूर्वेक्षण अनुज्ञापत्र के प्रभावी रहने के दौरान राज्य सरकार द्वारा दिनांक 01.11.2014 से 12.01.2015 तक की अवधि में खनन पट्टा आवंटन हेतु जारी 548 मंशा पत्र एवं 53 पूर्वेक्षण अनुज्ञापत्रों की स्वीकृतियों को दिनांक 17.10.2015 से निरस्त करने का निर्णय लिया गया। उक्त निर्णय के क्रम में कम्पनी के पूर्वेक्षण अनुज्ञापत्र को शासन आदेश क्रमांकः प.3(34)खान/ग्रुप–2/2015 दिनांक 30.11.2016 से अमान्य (Null & Void) घोषित किया जाकर क्षेत्र का कब्जा दिनांक 15.12.2016 को राज्याधीन लिया गया।

कमलेश मेटाकास्ट प्रा. लि. द्वारा राज्य सरकार के आदेश दिनांक 30.11.2016 के विरूद्व रिवीजनरी ऑथोरिटी, भारत सरकार के समक्ष रिवीजन प्रार्थना पत्र प्रस्तुत किया गया। रिवीजनरी ऑथोरिटी द्वारा आदेश दिनांक 19.09.2018 से राज्य सरकार के आदेश दिनांक 30.11.2016 को निरस्त करते हुए प्रकरण रिमाण्ड किया गया। रिवीजनरी ऑथोरिटी के उक्त आदेश के क्रम में कार्यवाही नहीं होने पर कम्पनी द्वारा माननीय उच्च न्यायालय, जयपुर के समक्ष रिट याचिका संख्या 8906/2019 दायर की गई जिसका निस्तारण न्यायालय द्वारा दिनांक 17.05.2019 को करते हुए राज्य सरकार को आदेश जारी होने की तिथि से दो माह की अवधि में निर्णय लेने हेतु निर्देशित किया गया। माननीय न्यायालय के उक्त निर्णय की पालना में राज्य सरकार द्वारा आदेश दिनांक 15.10.2020 को पूर्व के पूर्वेक्षण अनुज्ञापत्र निरस्तीकरण आदेश दिनांक 30.11.2016 को यथावत रखा गया।

कमलेश मेटाकास्ट प्रा. लि. द्वारा राज्य सरकार के आदेश दिनांक 15.10.2020 के विरूद्व माननीय उच्च न्यायालय, जयपुर के समक्ष रिट याचिका संख्या 13426/2020 दायर की गई। माननीय न्यायालय द्वारा दिनांक 25.06.2021 से रिट याचिका कम्पनी के पक्ष में निस्तारित करते हुए याचिका के लम्बित रहने के दौरान एम.एम.डी.आर.एक्ट, 1957 में हुए संशोधनों को याची कम्पनी के प्रकरण में लागू नहीं माना गया।

उक्त आदेश दिनांक 25.06.2021 के विरूद्व राज्य सरकार द्वारा खण्डपीठ के समक्ष विशेष अपील संख्या 754/2021 दायर की गई जो न्यायालय द्वारा निर्णय दिनांक

03.01.2022 से खारिज कर दी गई। माननीय उच्च न्यायालय द्वारा पारित उक्त निर्णयों की पालना में राज्य सरकार द्वारा आदेश क्रमांकः प.12(3)खान/ग्रुप–2/2017 दिनांक 04.02.2022 से कम्पनी के पक्ष में स्वीकृत पूर्वेक्षण अनुज्ञापत्र को शेष अवधि के लिए बहाल (रेस्टोर) किया गया।

कमलेश मेटाकास्ट प्रा. लि. द्वारा पूर्वेक्षण अनुज्ञापत्र की अवधि समाप्ति से पूर्व खनिज (परमाणु और हाईड्रोकार्बन्स ऊर्जा खनिजों से भिन्न) रियायत नियम, 2016 के अन्तर्गत खनन पट्टा चाहने हेतु दिनांक 30.06.2022 को नियमानुसार आवेदन शुल्क रूपये 40,11,000/– जमा कराते हुए आवेदन पत्र प्रस्तुत किया गया है। उक्त आवेदन पत्र स्वयं के पूर्वेक्षण अनुज्ञापत्र के क्षेत्र पर प्रस्तुत होने से माननीय उच्च न्यायालय द्वारा पारित निर्णय दिनांक 25.06.2021 के अनुसार एम.एम.डी.आर. एक्ट, 1957 की धारा 10ए(2)(बी) के अन्तर्गत रक्षित प्रकरणों की श्रेणी में आता है।

माननीय उच्च न्यायालय द्वारा पारित निर्णय दिनांक 25.06.2021 व दिनांक 03.01.2022 की पालना में खान विभाग द्वारा प्रस्तुत ज्ञापन दिनांक 01.02.2023 पर दिनांक 02.03.2023 को आयोजित मंत्रिमण्डल की बैठक में विचार–विमर्श उपरांत कमलेश मेटाकास्ट प्रा. लि. के पक्ष में विषयांकित खनन पट्टे की स्वीकृति हेतु लेटर ऑफ इंटेंट (मंशा पत्र) जारी कर, पालना उपरांत खनन पट्टा जारी किये जाने सबंधी प्रस्ताव को स्वीकृत करते हुए मंत्रिमंण्डल आज्ञा 20/2023 दिनांक 03.03.2023 से अनुमोदन किया गया है।

अतः निदेशालय प्रस्तावानुसार माननीय उच्च न्यायालय द्वारा पारित निर्णय दिनांक 25.06.2021 व दिनांक 03.01.2022 तथा मंत्रिमंण्डल आज्ञा 20/2023 दिनांक 03.03.2023 की अनुपालना में कमलेश मेटाकास्ट प्रा. लि. के पक्ष में खनिज लाईमस्टोन (सीमेण्ट ग्रेड), क्षेत्रफल 800.9935. हैक्टर निकट ग्राम रोहिडा, वाटेरा, भीमाणा तहसील पिण्डवाडा जिला सिरोही में खनन पट्टा स्वीकृति हेतु निम्न शर्तों पर लेटर ऑफ इंटेंट (मंशा पत्र) जारी किया जाता है:–

1. लेटर ऑफ इंटेंट (मंशा पत्र) जारी होने की तिथि से छः माह की अवधि में क्षेत्र 800.9935 हैक्टर की खनन योजना भारतीय खान ब्यूरो, अजमेर से अनुमोदित करा प्रस्तुत करनी होगी।

2. लेटर ऑफ इंटेंट (मंशा पत्र) जारी होने की तिथि से 2 वर्ष की अवधि में पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार से खनन पट्टा स्वीकृति हेतु पर्यावरण क्लीयरेंस प्राप्त कर प्रस्तुत करनी होगी।

3. खनिज (परमाणु और हाईड्रोकार्बन्स ऊर्जा खनिजों से भिन्न) रियायत नियम, 2016 के नियम 7(10) के अनुसार क्षेत्र में उपलब्ध अनुमानित संसाधनों के मूल्य के 0.50 प्रतिशत के बराबर रूपये 20,50,12,765/– की कार्यपालन प्रतिभूति (Performance security) जो अनुसूची चतुर्थ में वर्णित प्रारूप में बैंक गारन्टी के रूप में खनन पट्टा का Mine Development and Production Agreement हस्ताक्षर करने से पूर्व प्रस्तुत करने बाबत अण्डरटेकिंग प्रस्तुत करनी होगी।

4. आवेदित क्षेत्र में आने वाली चारागाह भूमि क्षेत्र 21.09 हैक्टर में खनन संक्रियाऐं प्रारंभ करने से पूर्व राजस्व विभाग से अनापत्ति प्रमाण पत्र प्राप्त कर प्रस्तुत करना होगा। चारागाह भूमि में राजस्व विभाग से अनापत्ति प्रमाण प्राप्त करने के पश्चात ही खनन अनुज्ञात होगा।

5. कम्पनी द्वारा लेटर ऑफ इंटेंट (मंशा पत्र) जारी होने की तिथि से 30 दिवस की अवधि में शासन पत्र क्रमांकः प.2(1)खान/2/2010/50 दिनांक 04.11.2010 के अनुसार रूपये 9.00 करोड की बैंक गारण्टी के रूप में कीननेस मनी जो खनि अभियन्ता, सिरोही के नाम प्लेज शुदा होगी, खनि अभियन्ता, सिरोही कार्यालय मे प्रस्तुत की जावेगी।

6. कम्पनी द्वारा खनन पट्टा संविदा निष्पादन की तिथि से 3 वर्ष की अवधि में राज्य में 1.5 MTPA क्षमता के सीमेण्ट प्लाण्ट की स्थापना की जावेगी। यदि निर्धारित अवधि में सीमेण्ट प्लाण्ट की स्थापना नहीं की जाती है तो राज्य सरकार द्वारा कीननेस मनी जब्त करते हुए खनन पट्टा खण्डित कर दिया जावेगा। इस आशय का शपथ पत्र प्रस्तुत करना होगा।

7. कम्पनी द्वारा खनन पट्टा से उत्पादित खनिज का उपयोग स्वयं के द्वारा स्थापित सीमेण्ट प्लाण्ट/नियमों के प्रावधान के अनुसार ही किया जावेगा। इस आशय का शपथ पत्र प्रस्तुत करना होगा।

राजपाल की आज्ञा से,

13/3/23

(नीतू बारूपाल)
शासन उप सचिव

प्रतिलिपि निम्नांकित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित है :–

1. निदेशक, खान एवं भू विज्ञान विभाग, उदयपुर को आपके पत्रांकः निखाभू/प्रधान/ सिरोही/सीसी.I/एम.एल.1/2022/3936 दिनांक 26.07.2022 के क्रम में ।
2. अधीक्षण खनि अभियंता, जोधपुर–वृत जोधपुर ।
3. खनि अभियंता, सिरोही।
4. वरिष्ठ भू वैज्ञानिक सिरोही।
5. रक्षित पत्रावली

शासन उप सचिव

राजस्थान सरकार
खान एंव पेट्रोलियम विभाग

क्रमांकः प.3(6)खान/ग्रुप–2/2022 जयपुर दिनांकः

मैसर्स कमलेश मेटाकास्ट प्राईवेट लिमिटेड,
5A/5D, कॉपोरेट टॉवर A-2,
जेएलएन मार्ग,
जयपुर 302017

विषय :– अनुदान खनन पट्टा वास्ते खनिज–लाईमस्टोन(सीमेण्ट ग्रेड), निकट ग्राम– रोहिडा, वाटेरा, भीमाणा, तहसील–पिण्डवाडा, जिला–सिरोही में मैसर्स कमलेश मेटाकास्ट प्राईवेट लिमिटेड द्वारा आवेदित के संबंध में।

संदर्भ :– आपके द्वारा अतिरिक्त मुख्य सचिव, खान एवं पेट्रोलियम विभाग को प्रस्तुत अवधि वृद्वि प्रार्थना पत्र दिनांक 04.07.2023

महोदय,

उपरोक्त संदर्भित विषयान्तर्गत मैसर्स कमलेश मेटाकास्ट प्राईवेट लिमिटेड की और से इस विभाग को प्रस्तुत अवधि वृद्वि प्रार्थना पत्र दिनांक 04.07.2023 के क्रम में निर्देशानुसार लेख है कि अनुदान खनन पट्टा वास्ते खनिज–लाईमस्टोन (सीमेण्ट ग्रेड), निकट ग्राम– रोहिडा, वाटेरा, भीमाणा, तहसील–पिण्डवाडा, जिला–सिरोही में मैसर्स कमलेश मेटाकास्ट प्राईवेट लिमिटेड के पक्ष में शासन द्वारा दिनांक 13.03.2023 को मंशा पत्र जारी किया गया था ।

मैसर्स कमलेश मेटाकास्ट प्राईवेट लिमिटेड ने इस विभाग में प्रार्थना पत्र दिनांक 04.07.2023 प्रस्तुत कर उनके पक्ष में शासन द्वारा जारी मंशा पत्र दिनांक 13.03.2023 में अंकित शर्त संख्या 01 व 02 में एक वर्ष अवधि वृद्वि हेतु निवेदन किया गया है, उक्त अवधि वृद्वि प्रार्थना पत्र पर शासन के पत्र दिनांक 10.07.2023 द्वारा निदेशालय से प्रस्ताव चाहे गये।

मैसर्स कमलेश मेटाकास्ट प्राईवेट लिमिटेड द्वारा प्रस्तुत अवधि वृद्वि प्रार्थना पत्र दिनांक 04.07.2023 तथा निदेशालय से प्राप्त प्रस्ताव दिनांक 19.07.2023 के क्रम में **अनुदान खनन पट्टा आवेदन पत्र वास्ते खनिज–लाईमस्टोन (सीमेण्ट ग्रेड), निकट ग्राम– रोहिडा, वाटेरा, भीमाणा, तहसील–पिण्डवाडा, जिला–सिरोही में मैसर्स कमलेश मेटाकास्ट प्राईवेट लिमिटेड के पक्ष में जारी मंशा पत्र दिनांक 13.03.2023 में अंकित शर्त संख्या 01 व 02 की अनुपालना किये जाने हेतु एक वर्ष की अवधि वृद्वि की जाती है।**

यह सक्षम स्तर से अनुमोदित है।

भवदीया,

Signature Not Verified

(नीतु बारूपाल)
संयुक्त शासन सचिव

Digitally signed by Neetu Barupal
Designation : Joint Secretary To Government
Date: 2023.07.25 18:09:45 IST
Reason: Approved

RajKaj Ref No. : 4375057

<u>प्रतिलिपि निम्न को सूचनार्थ प्रेषित है :–</u>

1. विशिष्ट सहायक, माननीय मंत्री, खान एवं गोपालन विभाग।
2. निजी सचिव अतिरिक्त मुख्य सचिव, खान एवं पेट्रोलियम विभाग।
3. निदेशक, खान एवं भू विज्ञान विभाग उदयपुर।
4. रक्षित पत्रावली ।

संयुक्त शासन सचिव

Signature Not Verified

Digitally signed by Neetu Barupal
Designation : Joint Secretary To Government
Date: 2023.07.25 18:09:45 IST
Reason: Approved

Annexure II_Mining Plan Approval Letter

By e-mail

GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES
OFFICE OF THE REGIONAL CONTROLLER OF MINES, AJMER

No. File No. E12030-MCDR- MPC0LST/28/2024-AJM-IBM_RO_AJM Dt : 27/11/2024

Shri/M/s. Kamlesh Metacast Private Limited ,
5A and 5D, Corporate Tower A-2, Near Jawahar Circle JLN Marg Jaipur

Approved

Sub : Approval of Mining Plan along-with Progressive Mine Closure Plan in respect of Rohida Limestone Block over an area of 800.9935Ha. situated near village Rohida, Watera, Bhimana, Tehsil-Pindwara District-Sirohi of Rajasthan State, submitted under Rule 16(1) of MCR, 2016.

Ref:1) Your reference No. online submission of Mining Plan in respect of aforesaid block dated 18/05/2023.

2) Online refer back of document through MPAS portal dated 25/10/2024.

3) Online submission of final copy of mining plan in respect of aforesaid block dated 25/11/2024.

Sir,

In exercise of the powers conferred by clause (b) of sub-section (2) of section 5 of the Mines & Minerals (Development & Regulation) Act, 1957 and in accordance with clause (3) of Rule 16 &clause (1) of Rule 16 of the Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 read with Government of India Order No.S.O.445(E) dated 28.04.1987 and S.O. 1857(E)/1872(E) dated 18th May, 2016; I hereby **APPROVE** the above said Mining Plan alongwith Progressive Mine Closure Plan (PMCP) **for 05 years period from the date of execution of the Mining Lease.**This approval is subject to the following conditions:

1. This Mining Plan (including PMCP) is approved without prejudice to any other laws applicable to the mine / area from time to time whether made by the Central Government, State Government or any other Authority and any order or direction from any court of competent jurisdiction.
2. It is also clarified that the approval of this Mining Plan (including PMCP) does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development & Regulation)Act, 1957 as amended or the rules framed there under and any other laws including Environment (Protection) Act, 1986, and the rules framed there under.
3. It is further clarified that the approval of this Mining Plan (including PMCP) is subject to the provision of Forest (Conservation) Act, 1980, Forest Conservation Rules, 2003 and other relevant statutes, order and guidelines as may be applicable to the lease area from time to time.
4. The provisions of the Mines Act, 1952 and Rules & Regulations made there under shall be complied with.
5. The execution of Mining Plan shall be subjected to vacations of prohibitory orders /notices, if any.
6. If anything is found to be concealed as required under the Mines Act in the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
7. This department does not undertake any responsibility regarding correctness of the boundaries of the lease area shown on the ground.
8. This approval is restricted for mining operation and mining related activities within the mining lease area only. The mining lease area is as shown on the statutory plans by the Lessee/QP/Applicant and Indian Bureau of Mines has not undertaken verification of mining lease boundary on the ground.
9. The approval of this Mining Plan with PMCP is subject to condition that you shall maintain boundary pillars as indicated in Rule 12 (v)of Minerals(Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.
10. At any stage, if it is observed that the information furnished in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.
11. The inventory of mineral/ore stock above the limit prescribed in the threshold values of minerals and below the cutoff grade shall be maintained in a bound register indicating the quantity and quality of material stacked. The month wise inventory of such materials shall be updated, and the annual summary shall be submitted to Regional Controller of Mines, IBM, Ajmer before 30th June of every year.
12. The lessee shall ensure grassing/re-grassing in the reclaimed land in the lease area in accordance with the Hon'ble Supreme Court judgment dated 08.01.2020.
13. It shall be mandatory for the project proponent, abstracting ground water, to obtain No Objection Certificate from Central Water

Authority or, the concerned State/Union Territory Ground Water Authority, as the case may be.

14. The authenticated Geo referenced Cadastral lease plan with all Khasra details showing different land type and DGPS co-ordinates of boundary pillars duly verified by DMG, Rajasthan shall be submitted to this office within six (06) months from the date of this approval.
15. The applicant shall complete detailed exploration (G1 level) and prepare a detailed feasibility study report conforming to Part IV and V of the Mineral (Evidence of Mineral Contents) Rule 2015 over the entire area under the mining lease, within a period of five years from the date of commencement of such mining lease.
16. As per the LOI, this case falls under saved case of erstwhile section 10A(2)(b) of the MMDR Act, 1957 as amended on 12.01.2015 and this approval is given as per the direction of the Hon'ble High court, Jaipur order dated 16.07.2024 in the WPC 13719/ 2023.
17. Copy of MDPA Signed and Performance Security deposited to the State Government shall be submitted by the applicant to this office within one month of execution of lease deed.
18. The lessee shall comply all the orders, directives and guidelines issued by Government/Competent courts regarding Charagah Land falling within the block area.
19. This approval is given **for 05 years period from the date of execution of the Mining Lease** for the mining activities to be carried out within the mining lease area.

Yours faithfully,

(Chandresh Bohra)

Regional Controller of Mines

Regional Office, Ajmer

Indian Bureau of Mines

Copy without enclosure forwarded for information to

Shri SandeepTaneja, Qualified Person, C/o Holtec Consulting Pvt. Ltd, A Block, Sushant Lok, Gurgaon, Haryana-122001

Regional Controller of Mines

Regional Office, Ajmer

Indian Bureau of Mines

N.O.O.: Copy forwarded for kind information to:
(i) The Controller of Mines (NZ), Indian Bureau of Mines, Udaipur.
(ii) The Director, Department of Mines & Geology, Government of Rajasthan, Shastri Circle, Udaipur

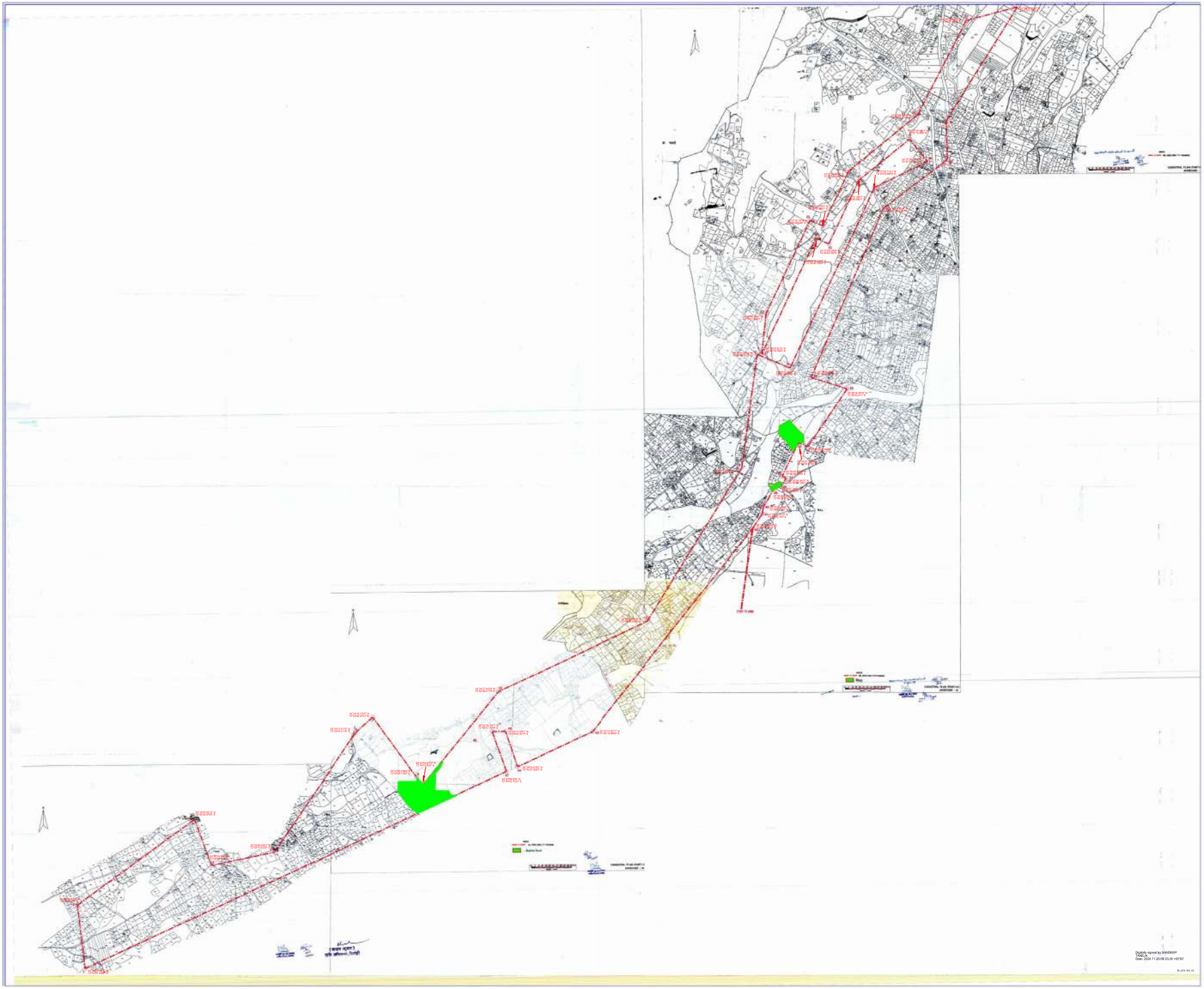
Regional Controller of Mines

Regional Office, Ajmer

Indian Bureau of Mines

Approved

Annexure III_Cadastral Map



कार्यालय उप वन संरक्षक, सिरोही, (राजस्थान) 307001

Mail ID :- dcf.sirohi.forest@rajasthan.gov.in & dfosirohi@gmail.com, Ph. & Fax No. :- 02972-222277

क्रमांक एफ 12 ( ) वसु/खनन/ख.अ./2014/10295 दिनांक : 21-11-14

निमित्

खनि अभियन्ता,

सिरोही ।

विषय :– अनुदान पूर्वेक्षण अनुज्ञा पत्र खनिज लाईम स्टोन निकट ग्राम रोहिडा तहसील पिण्डवाडा जिला सिरोही में सर्व श्री कमलेश मेटाकास्ट के पक्ष।

सन्दर्भ :– आपका पत्र कमांकः खअ/सिरोही/प्रधान/पीएल/7/2011/1702 दिनांक 1.10.2014 ।

महोदय,

उपरोक्त विषयान्तर्गत संदर्भित के कम में निवेदन है कि पूर्वेक्षण अनुज्ञा पत्र हेतु आवेदित क्षैत्र के संबंध में आवेदक द्वारा प्रस्तुत शपथ पत्र के अनुसार आवेदित क्षैत्र सीमा स्तम्भ से वन क्षैत्र की दूरी का संयुक्त सर्वे वन विभाग तथा खनिज विभाग द्वारा संयुक्त रूप से दिनांक 31.10.2014 को किया गया। जिसके अनुसार आवेदित क्षैत्र वन विभाग की सीमा से 55 मीटर की दूरी पर पायी गयी है। अतः प्रकरण में आप अग्रिम कारवाई करना फरमावें।

भवदीय

(शशि शंकर)
उप वन संरक्षक
सिरोही

298

कार्यालय क्षेत्रीय वन अधिकारी पिण्डवाडा, सिरोही

EMAIL ID : rfopindwara@gmail.com tel.ph. 02971-282288

क्रमांकःएफ()/सर्व/2024–25/ 105 दिनांकः- 02/02/2025

निमित्

Kamlesh Metacast Pvt. Ltd.
5A&5D Corporate Tower A-2,
Near Jawahar circle, JLN marg,
Jaipur-302017

विषय :– कमलेश मेटाकास्ट प्रा. लि. की प्रस्तावित रोहिडा लाईमस्टोन माईन्स, एमएल 01/2022 के मंशा पत्र(एल.ओ.आई.) खनिज लाईमस्टोन (सीमेन्ट ग्रेड) क्षेत्रफल 800.9935 हेक्टर निकट ग्राम रोहिडा, वाटेरा, भीमाणा तहसील पिण्डवाडा, जिला सिरोही, राजस्थान में वन भुमि नहीं होने के संबंध में।

संदर्भ :– आपके पत्र दिनांकः–27.01.2025 के कम में।

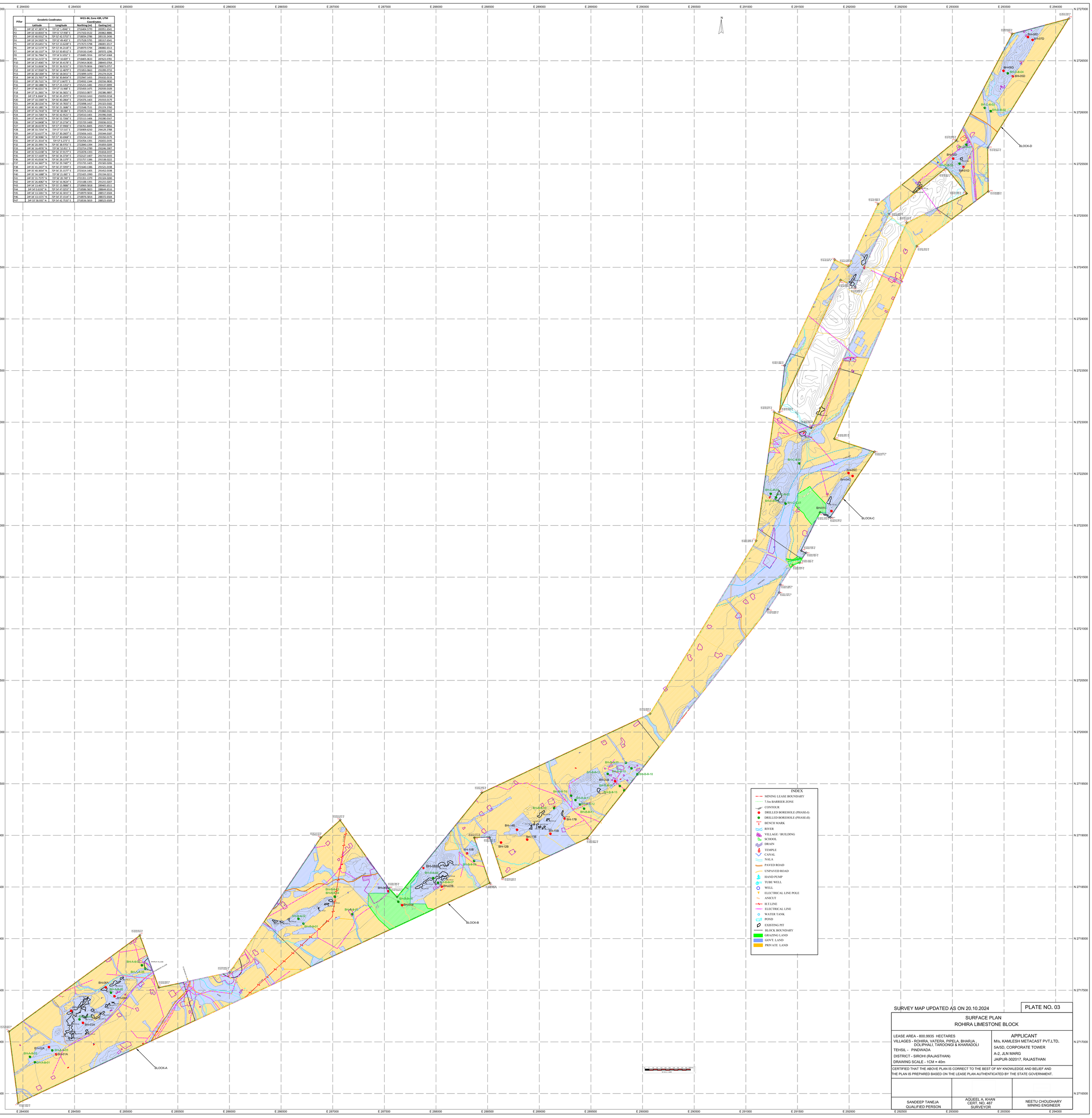
उपरोक्त विष्यान्तर्गत लेख हैं कि ग्राम भारजा, तरुंगी, वाटेरा, रोहिडा तहसील पिण्डवाडा जिला सिरोही राजस्थान में मैसर्स कमलेश मेटाकास्ट प्रा. लि. जयपुर द्वारा खनन पट्टा संख्या 1/2022 की भूमि स्थित हैं।

उक्त लीज क्षेत्र में कोई भी वन भुमि में नहीं हैं।

उक्त भूमि के संबंध में कार्यालय उप वन संरक्षक सिरोही के पत्र कमांक एफ 12( )वसु/खनन/ख.अ./2014/10295 दिनांक 21.11.2014 द्वारा वन सीमा से दुरी संबंधी आदेश जारी किया जा चुका हैं।

2/2/25
क्षेत्रीय वन अधिकारी
पिण्डवाडा (सिरोही)
क्षेत्रीय वन अधिकारी
पिण्डवाडा (सिरोही)

Pillar	Geodetic Coodinates		WGS-84, Zone 43R, UTM Coordinates	
	Latitude	Longitude	Northing (m)	Easting (m)
P1	24º 32' 47.3874" N	72º 52' 1.4946" E	2716404.5770	283951.6541
P2	24º 33' 10.0033" N	72º 51' 57.9568" E	2717102.0122	283862.8886
P3	24º 33' 40.9311" N	72º 52' 42.5753" E	2718034.2786	285133.2436
P4	24º 33' 24.5925" N	72º 52' 49.403" E	2717528.5795	285317.6541
P5	24º 33' 29.6451" N	72º 52' 13.6228" E	2717673.5798	284003.6517
P6	24º 34' 12.5174" N	72º 53' 44.2118" E	2718979.5794	286882.6513
P7	24º 34' 18.1537" N	72º 53' 50.8512" E	2719150.1540	287072.1296
P8	24º 33' 56.7964" N	72º 54' 8.1052" E	2718485.5916	287547.6368
P9	24º 33' 54.2172" N	72º 54' 10.825" E	2718405.0633	287623.0781
P10	24º 34' 27.4065" N	72º 54' 39.4178" E	2719414.0630	288443.0764
P11	24º 34' 53.0636" N	72º 55' 36.9231" E	2720179.0056	290073.0757
P12	24º 35' 47.9569" N	72º 56' 12.4839" E	2721853.0663	291099.0733
P13	24º 36' 28.5304" N	72º 56' 18.0415" E	2723099.1470	291274.0129
P14	24º 36' 23.7655" N	72º 56' 30.8454" E	2722947.1455	291632.0133
P15	24º 37' 28.7123" N	72º 57' 2.6675" E	2724932.1344	292556.9830
P16	24º 37' 38.1886" N	72º 57' 23.1352" E	2725215.1481	293137.0099
P17	24º 37' 46.0211" N	72º 57' 15.968" E	2725459.1475	292939.0109
P18	24º 37' 31.2601" N	72º 56' 56.5823" E	2725013.0877	292386.9897
P19	24º 37' 8.2604" N	72º 56' 45.2975" E	2724310.1410	292059.0158
P20	24º 37' 10.3369" N	72º 56' 40.2864" E	2724376.1403	291919.0179
P21	24º 36' 28.5216" N	72º 56' 19.7833" E	2723098.1417	291321.0182
P22	24º 36' 43.1881" N	72º 56' 21.3686" E	2723548.7531	291374.3760
P23	24º 37' 16.7418" N	72º 56' 38.084" E	2724574.1416	291860.0162
P24	24º 37' 14.7283" N	72º 56' 42.9521" E	2724510.1401	291996.0185
P25	24º 37' 34.4592" N	72º 56' 52.7266" E	2725113.1406	292280.0167
P26	24º 37' 54.8408" N	72º 57' 19.2734" E	2725729.1400	293036.0155
P27	24º 38' 28.6578" N	72º 57' 17.9906" E	2726761.8405	293577.8856
P28	24º 38' 33.7254" N	72º 57' 57.515" E	2726909.6250	294129.2788
P29	24º 37' 52.6177" N	72º 57' 30.2607" E	2725656.1421	293344.0187
P30	24º 37' 38.9086" N	72º 57' 30.6968" E	2725234.1412	293350.0179
P31	24º 37' 21.3514" N	72º 57' 4.273" E	2724704.1391	292655.0195
P32	24º 36' 20.3991" N	72º 56' 38.9701" E	2722840.1394	291899.0209
P33	24º 36' 16.4976" N	72º 56' 52.811" E	2722714.2789	292246.5907
P34	24º 35' 55.6198" N	72º 56' 37.9177" E	2722078.1393	291818.0197
P35	24º 35' 57.1639" N	72º 56' 34.3734" E	2722127.1407	291719.0193
P36	24º 35' 45.0530" N	72º 56' 28.1379" E	2721757.1386	291538.0222
P37	24º 35' 44.3607" N	72º 56' 29.7487" E	2721735.1405	291583.0206
P38	24º 35' 41.2417" N	72º 56' 27.5959" E	2721640.1386	291521.0198
P39	24º 35' 40.3054" N	72º 56' 25.1577" E	2721614.1405	291452.0198
P40	24º 35' 34.1688" N	72º 56' 21.065" E	2721425.1990	291334.0215
P41	24º 35' 31.7575" N	72º 56' 20.746" E	2721351.1379	291324.0200
P42	24º 35' 26.4082" N	72º 56' 16.9624" E	2721188.1391	291215.0207
P43	24º 34' 13.4671" N	72º 55' 15.9886" E	2718969.5818	289465.0511
P44	24º 34' 0.6192" N	72º 54' 47.0253" E	2718586.5823	288684.0516
P45	24º 34' 13.1261" N	72º 54' 42.3015" E	2718979.5834	288537.6504
P46	24º 34' 13.1571" N	72º 54' 37.1514" E	2718976.5814	288372.6504
P47	24º 33' 58.935" N	72º 54' 42.7533" E	2718536.5819	288523.6509



SURVEY MAP UPDATED AS ON 20.10.2024

PLATE NO. 03

SURFACE PLAN
ROHIRA LIMESTONE BLOCK

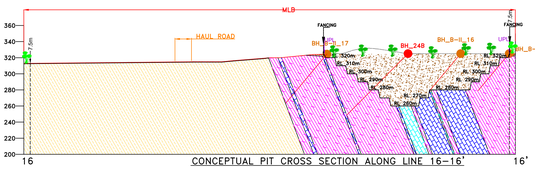
LEASE AREA - 800.9935 HECTARES
VILLAGES - ROHIRA, VATERA, PIPELA, BHARJA , DOLIPHALI, TAROONGI & KHARADOLI
TEHSIL - PINDWADA
DISTRICT - SIROHI (RAJASTHAN)
DRAWING SCALE - 1CM = 40m

APPLICANT
M/s. KAMLESH METACAST PVT.LTD.
5A/5D, CORPORATE TOWER
A-2, JLN MARG
JAIPUR-302017, RAJASTHAN

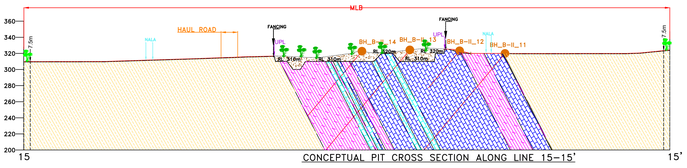
CERTIFIED THAT THE ABOVE PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THE PLAN IS PREPARED BASED ON THE LEASE PLAN AUTHENTICATED BY THE STATE GOVERNMENT.

SANDEEP TANEJA QUALIFIED PERSON	AQUEEL A. KHAN CERT. NO. 487 SURVEYOR	NEETU CHOUDHARY MINING ENGINEER

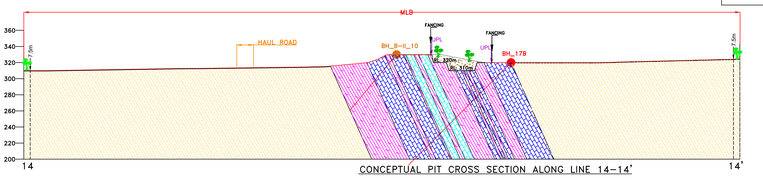
N45°W S45°E



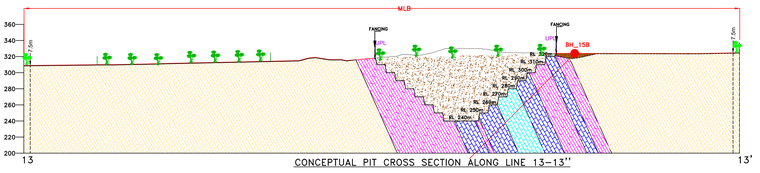
CONCEPTUAL PIT CROSS SECTION ALONG LINE 16–16'



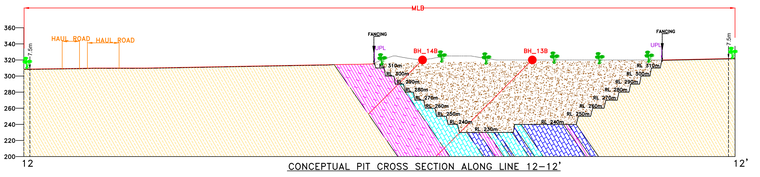
CONCEPTUAL PIT CROSS SECTION ALONG LINE 15–15'



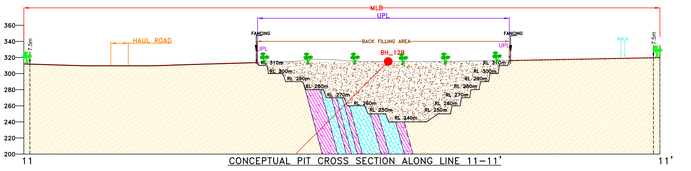
CONCEPTUAL PIT CROSS SECTION ALONG LINE 14–14'



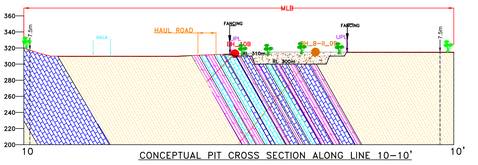
CONCEPTUAL PIT CROSS SECTION ALONG LINE 13–13''



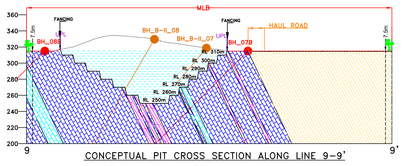
CONCEPTUAL PIT CROSS SECTION ALONG LINE 12–12'



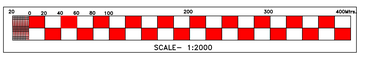
CONCEPTUAL PIT CROSS SECTION ALONG LINE 11–11'

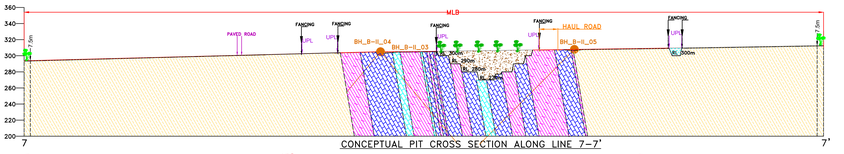


CONCEPTUAL PIT CROSS SECTION ALONG LINE 10–10'

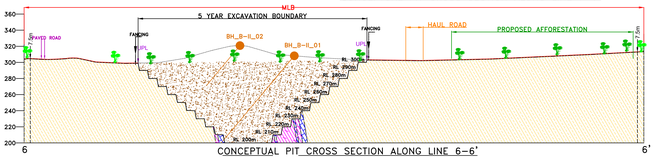


CONCEPTUAL PIT CROSS SECTION ALONG LINE 9–9'

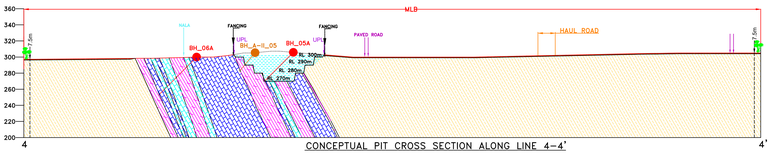




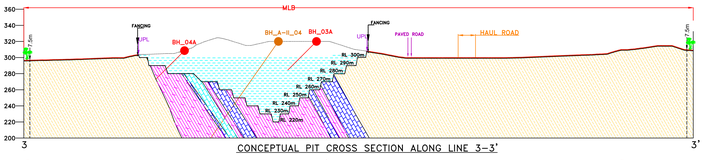
CONCEPTUAL PIT CROSS SECTION ALONG LINE 7–7'



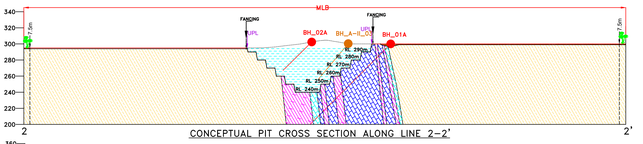
CONCEPTUAL PIT CROSS SECTION ALONG LINE 6–6'



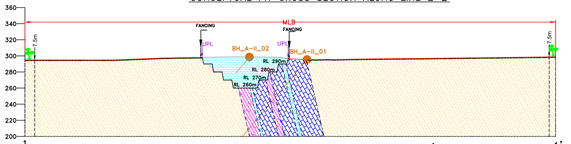
CONCEPTUAL PIT CROSS SECTION ALONG LINE 4–4'



CONCEPTUAL PIT CROSS SECTION ALONG LINE 3–3'



CONCEPTUAL PIT CROSS SECTION ALONG LINE 2–2'



CONCEPTUAL PIT CROSS SECTION ALONG LINE 1–1'

INDEX

- MLB — MINING LEASE BOUNDARY
- 7.5m — 7.5m BARRIER ZONE
- UPL — ULTIMATE PIT LIMIT
- DRILLED BOREHOLES (PHASE–I)
- DRILLED BOREHOLES (PHASE–II)
- ULTIMATE MINING BENCHES
- PROPOSED FANCING
- PROPOSED GREEN BELT AND RE–GRASSING CONCEPTUAL PERIOD
- PROPOSED AFFORESTATION AND RE–GRASSING
- PROPOSED BACKFILL AREAS
- PROPOSED WATER RESERVOIR
- SOIL WITH SCREE
- LIMESTONE (LST) (+ 40% CaO)
- SILICEOUS LIMESTONE (SLST) (≥ 34% TO 40% CaO)
- PHYLITE (PHY)
- CALC SCHIST (CALC_SCHIST)
- CALC SILICATE (CALC_SILL)

SURVEY MAP UPDATED AS ON 20.10.2024 | PLATE NO. 07b

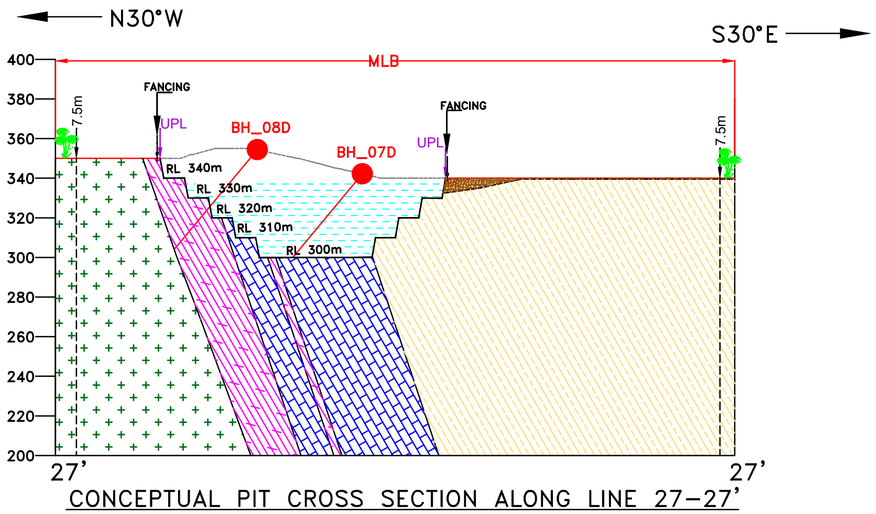
CONCEPTUAL PIT CROSS SECTION (PART–I)
ROHIRA LIMESTONE BLOCK

LEASE AREA – 800.9935 HECTARES
VILLAGES – ROHIRA, VATERA, PIPELA, BHARJA , DOLIPHALI, TAROONGI & KHARADOLI
TEHSIL – PINDWADA
DISTRICT – SIROHI (RAJASTHAN)
DRAWING SCALE – 1CM = 20m

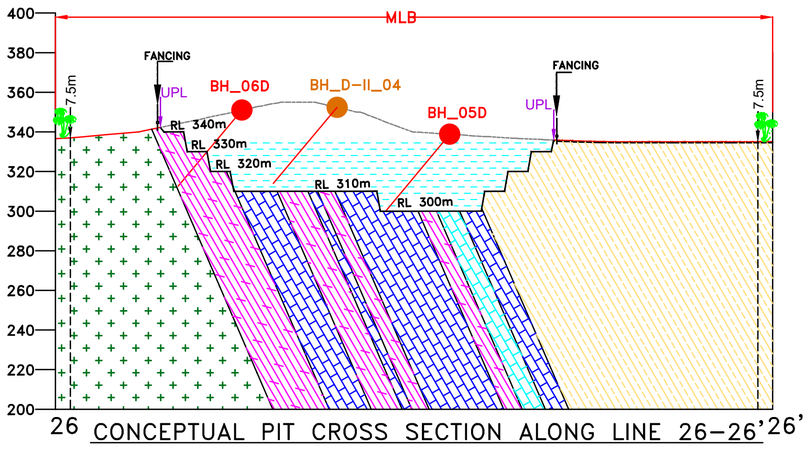
APPLICANT
M/s. KAMLESH METACAST PVT.LTD.
5A/5D, CORPORATE TOWER
A–2, JLN MARG
JAIPUR–302017, RAJASTHAN

CERTIFIED THAT THE ABOVE PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THE PLAN IS PREPARED BASED ON THE LEASE PLAN AUTHENTICATED BY THE STATE GOVERNMENT.

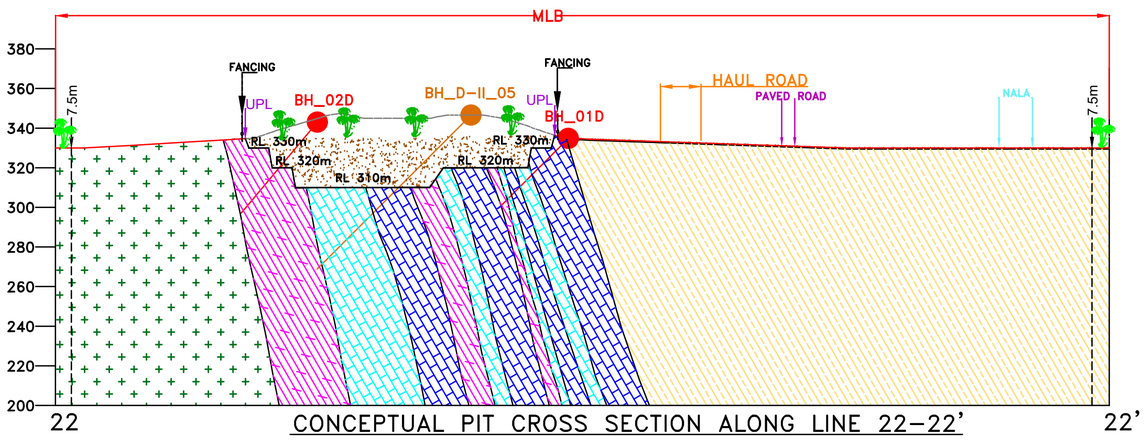
SANDEEP TANEJA QUALIFIED PERSON	AQUEEL A. KHAN CERT. NO. 487 SURVEYOR	NEETU CHOUDHARY MINING ENGINEER



CONCEPTUAL PIT CROSS SECTION ALONG LINE 27–27'



CONCEPTUAL PIT CROSS SECTION ALONG LINE 26–26'



CONCEPTUAL PIT CROSS SECTION ALONG LINE 22–22'

INDEX

- MINING LEASE BOUNDARY
- 7.5m BARRIER ZONE
- ULTIMATE PIT LIMIT
- DRILLED BOREHOLES (PHASE–I)
- DRILLED BOREHOLES (PHASE–II)
- ULTIMATE MINING BENCHES
- PROPOSED FANCING
- PROPOSED GREEN BELT AND RE–GRASSING CONCEPTUAL PERIOD
- PROPOSED AFFORESTATION AND RE–GRASSING
- PROPOSED BACKFILL AREAS
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- LIMESTONE (LST) (+ 40% CaO)
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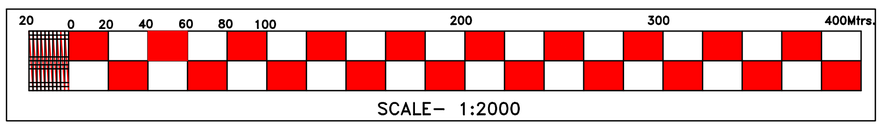
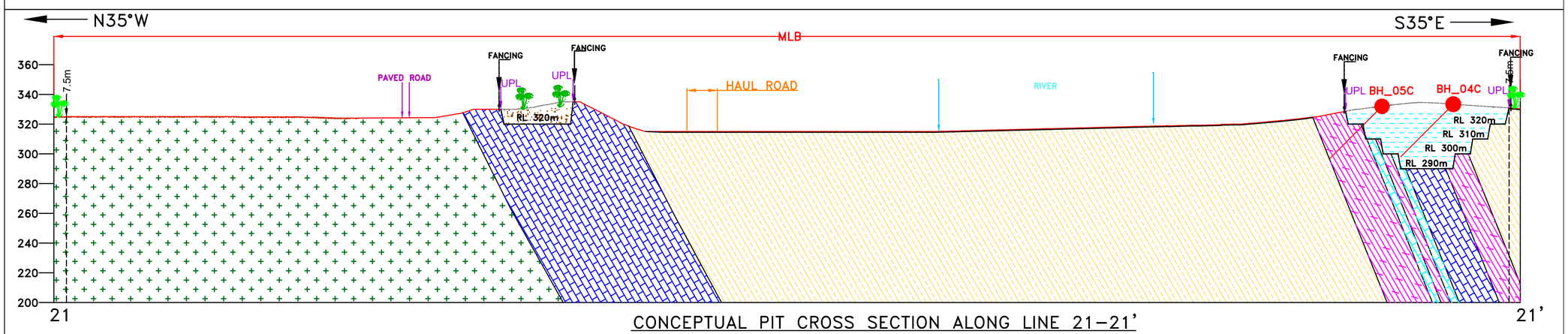
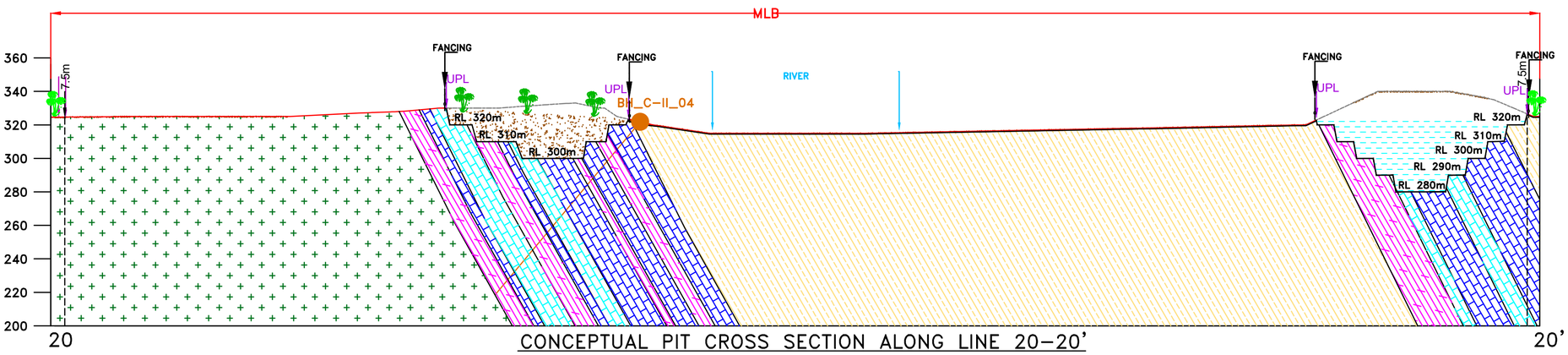
- PHYLITE (PHY)
- CALC SCHIST (CALC_SCHIST)
- CALC SILICATE (CALC_SILL)

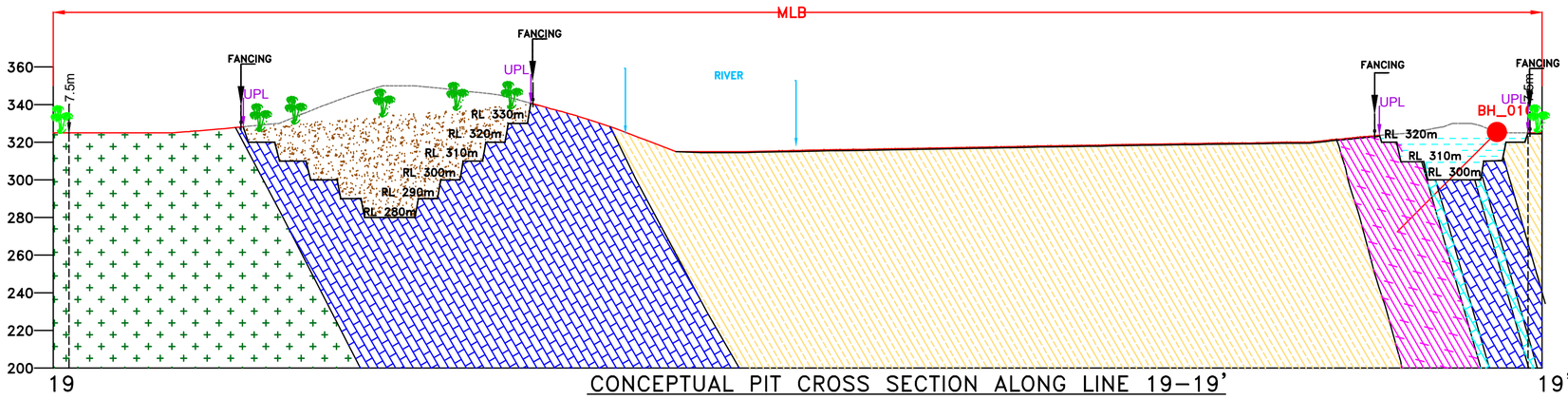




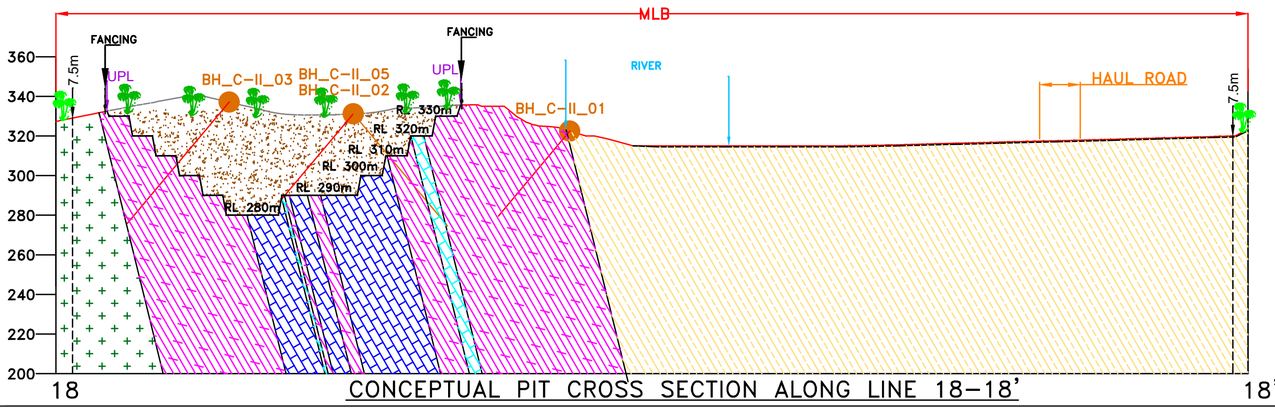
CONCEPTUAL PIT CROSS SECTION ALONG LINE 21–21'



CONCEPTUAL PIT CROSS SECTION ALONG LINE 20–20'



CONCEPTUAL PIT CROSS SECTION ALONG LINE 19–19'



CONCEPTUAL PIT CROSS SECTION ALONG LINE 18–18'

SURVEY MAP UPDATED AS ON 20.10.2024

PLATE NO. 07c

CONCEPTUAL PIT CROSS SECTION (PART–II)
ROHIRA LIMESTONE BLOCK

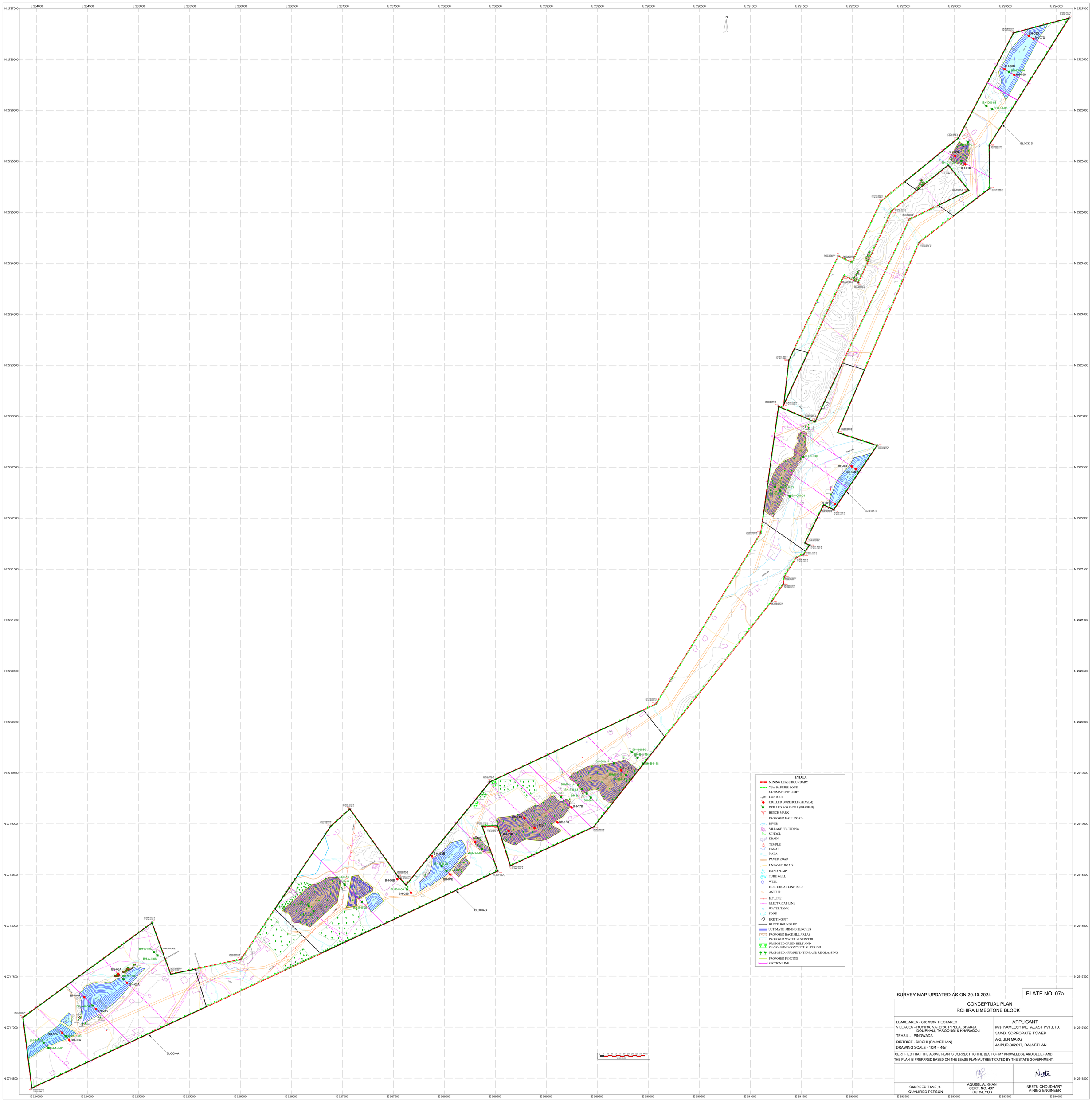
LEASE AREA – 800.9935 HECTARES
VILLAGES – ROHIRA, VATERA, PIPELA, BHARJA , DOLIPHALI, TAROONGI & KHARADOLI
TEHSIL – PINDWADA
DISTRICT – SIROHI (RAJASTHAN)
DRAWING SCALE – 1CM = 20m

APPLICANT
M/s. KAMLESH METACAST PVT.LTD.
5A/5D, CORPORATE TOWER
A–2, JLN MARG
JAIPUR–302017, RAJASTHAN

CERTIFIED THAT THE ABOVE PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THE PLAN IS PREPARED BASED ON THE LEASE PLAN AUTHENTICATED BY THE STATE GOVERNMENT.

		Neetu
SANDEEP TANEJA QUALIFIED PERSON	AQUEEL A. KHAN CERT. NO. 487 SURVEYOR	NEETU CHOUDHARY MINING ENGINEER

302


N
BLOCK-A
BLOCK-B
BLOCK-C
BLOCK-D
BH-01A
BH-02A
BH-03A
BH-04A
BH-05A
BH-06A
BH-A-II-01
BH-A-II-02
BH-A-II-03
BH-A-II-04
BH-A-II-05
BH-A-II-06
BH-A-II-07
BH-05B
BH-06B
BH-07B
BH-08B
BH-09B
BH-B-II-02
BH-B-II-03
BH-B-II-04
BH-B-II-05
BH-B-II-08
BH-B-II-09
BH-B-II-10
BH-B-II-11
BH-B-II-12
BH-B-II-13
BH-B-II-14
BH-B-II-17
BH-B-II-18
BH-B-II-19
BH-B-II-20
BH-12B
BH-13B
BH-14B
BH-15B
BH-17B
BH-01C
BH-02C
BH-03C
BH-04C
BH-C-II-01
BH-C-II-02
BH-C-II-03
BH-C-II-04
BH-01D
BH-02D
BH-03D
BH-04D
BH-05D
BH-06D
BH-07D
BH-D-II-01
BH-D-II-02
BH-D-II-03
BH-D-II-04
BHARJA VILLAGE
ROHIRA VILLAGE
VATERA VILLAGE
PIPELA VILLAGE
DOLIPHALI VILLAGE
TAROONGI VILLAGE
KHARADOLI VILLAGE
ROHIRA VILLAGE
INDEX
MINING LEASE BOUNDARY
7.5m BARRIER ZONE
ULTIMATE PIT LIMIT
CONTOUR
DRILLED BOREHOLE (PHASE-I)
DRILLED BOREHOLE (PHASE-II)
BENCH MARK
PROPOSED HAUL ROAD
RIVER
VILLAGE / BUILDING
SCHOOL
DRAIN
TEMPLE
CANAL
NALA
PAVED ROAD
UNPAVED ROAD
HAND PUMP
TUBE WELL
WELL
ELECTRICAL LINE POLE
ANICUT
H.T.LINE
ELECTRICAL LINE
WATER TANK
POND
EXISTING PIT
BLOCK BOUNDARY
ULTIMATE MINING BENCHES
PROPOSED BACKFILL AREAS
PROPOSED WATER RESERVOIR
PROPOSED GREEN BELT AND RE-GRASSING CONCEPTUAL PERIOD
PROPOSED AFFORESTATION AND RE-GRASSING
PROPOSED FENCING
SECTION LINE
SCALE 1:4000
SURVEY MAP UPDATED AS ON 20.10.2024
PLATE NO. 07a
CONCEPTUAL PLAN
ROHIRA LIMESTONE BLOCK
LEASE AREA - 800.9935 HECTARES
VILLAGES - ROHIRA, VATERA, PIPELA, BHARJA , DOLIPHALI, TAROONGI & KHARADOLI
TEHSIL - PINDWADA
DISTRICT - SIROHI (RAJASTHAN)
DRAWING SCALE - 1CM = 40m
APPLICANT
M/s. KAMLESH METACAST PVT.LTD.
5A/5D, CORPORATE TOWER
A-2, JLN MARG
JAIPUR-302017, RAJASTHAN
CERTIFIED THAT THE ABOVE PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THE PLAN IS PREPARED BASED ON THE LEASE PLAN AUTHENTICATED BY THE STATE GOVERNMENT.
SANDEEP TANEJA
QUALIFIED PERSON
AQUEEL A. KHAN
CERT. NO. 487
SURVEYOR
NEETU CHOUDHARY
MINING ENGINEER

कार्यालय उप वन संरक्षक, सिरोही (राजस्थान) 307001

E-Mail :dcf.sirohi.forest.@rajsthan.gov.in & dfosirohi@gmail.com, phone&fax no. 02972-222277

क्रमांकः एफ ( )सर्वे / उवसं / 2025 / 2151 दिनांकः 04/06/25

निमित्

Kamlesh Metacast
Private Limited

विषय :– Regarding Authenticating the list of Flora and Faunafound in core and buffer zone forproposed Rohida Limestone Mine of Kamlesh Metacast Private Limited located in village (s)- Rohida (Rohera as per toposheet), Bharja, Taroongi (Tarangi as per toposheet), Doliphali, Vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli,, Tehsil Pindwara, District - Sirohi, Rajasthan. Area 800. 9935 ha.

प्रसंग :– आपका पत्रांक दिनांक 28.05.2025 ।

उपरोक्त विषयान्तर्गत एवं प्रासंगिक पत्र के कम मे Regarding Authenticating the list of Flora and Faunafound in core and buffer zone forproposed Rohida Limestone Mine of Kamlesh Metacast Private Limited located in village (s)- Rohida (Rohera as per toposheet), Bharja, Taroongi (Tarangi as per toposheet), Doliphali, Vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli,, Tehsil Pindwara, District - Sirohi, Rajasthan. Area 800. 9935 ha. के संबंध मे मौका की जांच क्षेत्रीय वन अधिकारी, पिण्डवाडा से करवाई गई तथा क्षेत्रीय वन अधिकारी की रिपोर्ट के आधार पर आवेदित क्षेत्र की परिधि मे 10 कि.मी के दायरे के फ्लोरा और फोना की सूची प्रमाणित संलग्न प्रस्तुत है।

संलग्न :– उपरोक्तानुसार

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LIST OF FLORA AND FAUNA FOR CORE & BUFFER ZONE

A. FLORA RECORDED IN THE STUDY AREA

Table 1. List of plants found in the core zone of the project area

S.No	Scientific Name	Local Name	Family
		TREES	
1	*Acacia catechu*	Khair	Mimosaceae
2	*Acacia leucophloea*	Ronj	Mimosaceae
3	*Acacia nilotica*	Desi Babool	Mimosaceae
4	*Anogeissus latifolia*	Dhavda	Combretaceae
5	*Anogeissus pendula*	Dhonk	Combretaceae
6	*Bridelia retusa*	Kalia-Dhav	Combretaceae
7	*Buchananialanzan*	Chironji	Anacardiaceae
8	*Butea monosperma*	Dhak	Fabaceae
9	*Cassia fistula*	Amaltash	Caesalpiniaceae
10	*Dalbergia sissoo*	Shisham	Fabaceae
		SHRUBS	
1	*Balanites aegyptiaca*	Hingot	Simaroubaceae
2	*Calligonumpolygonides*	Phog	Polygonaceae
3	*Calotropis gigantea*	Safed Aak	Asclepiadaceae
4	*Calotropis procera*	Aak	Asclepiadaceae
5	*Diclipteraabuensis*	-	Acanthaceae
6	*Dichrostachys cineraria*	Aminda	Mimosaceae
7	*Euphorbia nivulia*	Thor	Euphorbiaceae
8	*Helicteresisora*	Marodphali	Sterculiaceae
		HERBS	

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1	*Argemone mexicana*	Satyanashi	Papaveraceae
2	*Cassia tora*	Panwad	Caesalpiniaceae
3	*Datura matel*	Dhatura	Solanaceae
4	*Tribulus terrestris*	Gokharu	Zygophyllaceae
5	*Convolvulus blatteri*	-	Convolvulaceae
6	*Ceropegia odorata*	-	Apocynaceae
7	*Begonia trichocarpa*	-	Begoniaceae

Table 2. LIST OF FLORA IN THE BUFFER ZONE OF THE PROJECT AREA

S.No	Scientific Name	Local Name	Family
		TREES	
1	*Acacia catechu*	Khair	Mimosaceae
2	*Acacia leucophloea*	Ronj	Mimosaceae
3	*Acacia nilotica*	Desi Babool	Mimosaceae
4	*Aegle marmelos*	Beal	Rutaceae
5	*Ailanthus excelsa*	Ardu	Simarubaceae
6	*Albizia lebbeck*	Kala siris	Mimosaceae
7	*Albizia procera*	Safed siris	Mimosaceae
8	*Anogeissus latifolia*	Dhavda	Combretaceae
9	*Anogeissus pendula*	Dhonk	Combretaceae
10	*Anogeissus sericea*	-	Combretaceae
11	*Adina cordifolia*	Haldu	Rubiaceae
12	*Azadirachta indica*	Neem	Meliaceae
13	*Bauhinia purpurea*	Kanchnar	Caesalpiniaceae
14	*Bombax ceiba*	Semal	Bombacaceae
15	*Bridelia retusa*	Kalia-Dhav	Combretaceae
16	*Buchananialanzan*	Chironji	Anacardiaceae
17	*Butea monosperma*	Dhak	Fabaceae
18	*Cassia fistula*	Amaltash	Caesalpiniaceae
19	*Dalbergia sissoo*	Shisham	Fabaceae

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क्षेत्रीय वन अधिकारी
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S.No	Scientific Name	Local Name	Family
20	*Diospyros cordifolia*	-	Ebenaceae
21	*Emblica officinalis*	Amla	Phyllanthaceae
22	*Eucalyptus species*	Safeda	Myrtaceae
23	*Erythrina suberosa*	Phaludra	Papilionaceae
24	*Erythrina arborescens*	Phaludra	Papilionaceae
25	*Ficus bengalensis*	Bad	Moraceae
26	*Ficus religiosa*	Pipal	Moraceae
27	*Grewia asiatica*	Phalsa	Malvaceae
28	*Holoptelea integrifolia*	Papadi	Ulmaceae
29	*Mangifera indica*	Mango	Anacardiaceae
30	*Mallotus philippensis*	-	Euphorbiaceae
31	*Mimusopselengi*	Molshree	Sapotaceae
32	*Mitragynaparvifolia*	Kadam	Rubiaceae
33	*Morus alba*	Sehtoot	Moraceae
34	*Moringa concanensis*	Sehjan	Moringaceae
35	*Morinda tinctoria*	Indian Mulberry	Rubiaceae
36	*Pithecellobium dulce*	Jungle jalebi	Mimosaceae
37	*Pheonix sylvestris*	Khajur	Arecaceae
38	*Polyalthia longifolia*	Ashok	Anonaceae
39	*Pongamia pinnata*	Karanj	Fabaceae
40	*Salvadora oleoides*	Khara jal	Salvadoraceae
41	*Sapindusemarginatus*	Notched leaf soapnut	Sapindaceae
42	*Salvadora persica*	Mitha Jal	Salvadoraceae
43	*Schleichera oleosa*	Kusum	Sapindeceae
44	*Sterculia urens*	Karaiya	Sterculiaceae
45	*Syzygiumcumini*	Jamun	Myrtaceae
46	*Tamarindus indica*	Imali	Caesalpiniaceae
47	*Tectona grandis*	Teak	Lamiaceae
48	*Terminalia arjuna*	Arjuna	Combretaceae
49	*Terminalia bellerica*	Bahera	Combretaceae
50	*Terminalia tomentosa*	Asan	Combretaceae
51	*Ziziphus xylopyrus*	Ber	Rhamnaceae

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सिरोही

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

S.No	Scientific Name	Local Name	Family
52	*Ziziphus mauritiana*	Ber	Rhamnaceae
	SHRUBS		
1	*Balanites aegyptiaca*	Hingot	Simaroubaceae
2	*Calligonumpolygonides*	Phog	Polygonaceae
3	*Calotropis gigantea*	Safed Aak	Asclepiadaceae
4	*Calotropis procera*	Aak	Asclepiadaceae
5	*Capparis decidua*	Kair/Kareel	Capparaceae
6	*Carissa carrandus*	Karunda	Apocynaceae
7	*Crotalaria filipes*	Creeping hemp	Fabaceae
8	*Diclipteraabuensis*	-	Acanthaceae
9	*Dichrostachys cineraria*	Aminda	Mimosaceae
10	*Euphorbia nivulia*	Thor	Euphorbiaceae
11	*Helicteresisora*	Marodphali	Sterculiaceae
12	*Ipomoea fistulosa*	Besharm	Convolvulaceae
13	*Leptadeniapyrotechnica*	Khimp	Asclepiadaceae
14	*Nerium oleander*	Kaner-Red	Apocynaceae
15	*Nyctanthesarbortristis*	Harsringar	Oleaceae
16	*Opuntia dillenii*	Nagphani	Cactaceae
17	*Prosopis juliflora*	Vilayatibabool	Mimosaceae
18	*Rosa involucrata*	-	Rosaceae
19	*Strobilanthescallosus*	-	Acanthaceae
20	*Ziziphus mauritiana*	Bor	Rhamnaceae
21	*Ziziphus numularia*	Jhadiber	Rhamnaceae
	HERBS		
1	*Aerva javanica*	Bui	Amaranthaceae
2	*Aloe vera*	Guarbhata	Liliaceae
3	*Argemone mexicana*	Satyanashi	Papaveraceae
4	*Cassia tora*	Panwad	Caesalpiniaceae
5	*Datura matel*	Dhatura	Solanaceae
6	*Dodonea viscose*	Reliya	Sapindaceae
7	*Echinopsechinatus*	Unthkanteli	Asteraceae
8	*Tribulus terrestris*	Gokharu	Zygophyllaceae

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क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

S.No	Scientific Name	Local Name	Family
9	*Convolvulus blatteri*	-	Convolvulaceae
10	*Ceropegia odorata*	-	Apocynaceae
11	*Begonia trichocarpa*	-	Begoniaceae
12	*Crotalaria filipes*	-	Fabaceae
13	*Indigofera constricta*	-	Fabaceae
GRASSESS			
1	*Apluda mutica*	Polad	Poaceae
2	*Desmostachyabipinnata*	Daab	Poaceae
3	*Cenchrus biflorus*	Bharbhurat	Poaceae
4	*Cenchrus setigerus Vahl*	Dhaman	Poaceae
5	*Cynodondactylon*	Doob	Poaceae
	Ischaemum kingii	-	Poaceae
6	*Saccharum munja*	Munj	Poaceae
7	*Dactylocteniumaegypticum*	Makda	Poaceae
8	*Saccharum spontaneum*	Kaans	Poaceae

B. FAUNA RECORDED IN THE STUDY AREA

Table 3. LIST OF FAUNA FOUND IN THE CORE ZONE (PROJECT SITE)

S.No.	Common Name	Scientific name	Family	Status As per (IWPA2022), Schedule	Remark
AVIFAUNA					
1	Rock Pigeon	*Columba livia*	Columbidae	-	
2	House crow	*Corvus splendens*	Corvidae	-	
3	Black drongo	*Dicrurusmacrocercus*	Dicruridae	II	
4	Indian robin	*Saxicoloidedfulicata*	Turdinae	II	
5	Common myna	*Acridotheres tristis*	Sturnidae	II	
6	Red-vented bulbul	*Pycnonotus cafer*	Pycnonotidae	II	
7	Large grey babbler	*Turdoidesmalcolmi*	Timaliinae	II	
8	Jungle babbler	*Turdoides striatus*	Timaliinae	II	
9	Purple sunbird	*Nectarinia asiatica*	Nectariniidae	II	
10	House sparrow	*Passer domesticus*	Passerinae	II	
11	Red-wattled lapwing	*Vanellus cinereus*	Charadriidae	II	
12	Baya weaver	*Ploceus philippinus*	Ploceidae	II	

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MAMMALS					
1	Five stripped palm squirrel	*Funambuluspennantii*	Sciuridae	-	
2	Common House rat	*Rattus rattus*	Muridae	-	
REPTILES					
1	Common House Gecko	*Hemidactylus frenatus*	Gekkonidae	-	
2	Oriental Garden Lizard	*Calotes versicolor*	Agamidae	-	
3	**Bengal Monitor Lizard**	***Varanus bengalensis***	**Varanidae**	**I**	

Table 4. LIST OF AVIFAUNA FOUND IN THE BUFFER ZONE OF THE PROJECT AREA

S.No.	Common Name	Scientific name	Family	Status As per (IWPA 2022), Schedule	Remark
		Avifauna /Birds			
1	Ashy Prinia	*Prinia socialis*	Cisticolidae	II	
2	Plain Prinia	*Prinia inornata*	Cisticolidae	II	
3	Brown Rock Chat	*Oenanthe fusca*	Muscicapidae	II	
4	Common Tailorbird	*Orthotomussutorius*	Cisticolidae	II	
5	Red-vented Bulbul	*Pycnonotus cafer*	Pycnonotidae	II	
6	Red-whiskered Bulbul	*Pycnonotus jocosus*	Pycnonotidae	II	
7	Rufous Treepie	*Dendrocittavagabunda*	Corvidae	II	
8	Red-wattled lapwing	*Vanellus cinereus*	Charadriidae	II	
9	Baya weaver	*Ploceus philippinus*	Ploceidae	II	
10	Grey francolin	*Francolinuspondicerianus*	Phasianidae	II	
11	Common hoopoe	*Upupa epops*	Upupidae	II	
12	Indian Roller	*Coracias benghalensis*	Coraciidae	II	
13	White-throated kingfisher	*Halcyon smyrnensis*	Alcedinidae	II	
14	Asian Green bee-eater	*Merops orientalis*	Meropidae	II	
15	Lesser coucal	*Centropus bengalensis*	Cuculidae	II	
16	Rose-ringed parakeet	*Psittaculakrameri*	Psittacidae	II	

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	Plum-headed Parakeet	*Psittaculacyanocephala*	Psittaculidae	II	
17	House swift	*Apus affinis*	Apodidae	II	
18	Rock Pigeon	*Columba livia*	Columbidae	-	
19	Laughing dove	*Streptopelia senegalensis*	Columbidae	II	
20	Eurasian Collared dove	*Streptopelia decaocto*	Columbidae	II	
21	Red Collared dove	*Streptopelia tranquebarica*	Columbidae	II	
22	Long-tailed shrike	*Lanius schach*	Laniidae	II	
23	Southern grey shrike	*Lanius meridionalis*	Laniidae	II	
24	House crow	*Corvus splendens*	Corvidae	-	
25	Large-billed Crow	*Corvus macrorhynchos*	Corvidae	II	
26	Black drongo	*Dicrurusmacrocercus*	Dicruridae	II	
27	Ashy Drongo	*Dicrurus leucophaeus*	Dicruridae	II	
29	Indian robin	*Saxicoloidedfulicata*	Turdinae	II	
30	Brahminy starling	*Sturnus pagodarum*	Sturnidae	II	
31	Asian Pied starling	*Sturnus contra*	Sturnidae	II	
32	Common myna	*Acridotheres tristis*	Sturnidae	II	
33	Bank myna	*Acridotheres ginginianus*	Sturnidae	II	
34	Wire-tailed swallow	*Hirundo smithii*	Hirundinidae	II	
35	White-eared bulbul	*Pycnonotus leucotis*	Pycnonotidae	II	
36	Oriental Honey Buzzard	*Pernis ptilorhynchus*	Accipitridae	II	
37	Large grey babbler	*Turdoidesmalcolmi*	Timaliinae	II	
38	Jungle babbler	*Turdoides striatus*	Timaliinae	II	
39	Purple sunbird	*Nectarinia asiatica*	Nectariniidae	II	
40	House sparrow	*Passer domesticus*	Passerinae	II	
41	**Indian Peafowl**	***Pavo cristatus***	**Phasianidae**	**I**	
42	Indian Paradise-Flycatcher	*Terpsiphone paradisi*	Monarchidae	II	
43	Common Kingfisher	*Alcedo atthis*	Alcedinidae	II	

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क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

44	White-throated Kingfisher	*Halcyon smyrnensis*	Alcedinidae	II	
45	Spotted Owlet	*Athene brama*	Strigidae	II	
46	Indian Pond Heron	*Ardeolagrayii*	Ardeidae	II	
47	Indian Grey Hornbill	*Ocycerosbirostris*	Bucerotidae	II	
48	Rosy Starling	*Pastor roseus*	Sturnidae	II	
49	Black Redstart	*Phoenicurusochruros*	Muscicapidae	II	
50	Indian White-eye	*Zosterops palpebrosus*	Zosteropidae	II	
51	White-breasted Water hen	*Amaurornisphoenicurus*	Rallidae	II	
52	**Shikra**	***Tachyspizabadia***	**Accipitridae**	**I**	

Table 5. LIST OF MAMMALS FOUND IN THE BUFFER ZONE OF THE PROJECT AREA

S. No.	Vernacular Name	Scientific Name	Family	Status As per (IWPA 2022), Schedule	Remark
1.	Five stripped palm squirrel	*Funambuluspennantii*	Sciuridae	-	
2.	Common House rat	*Rattus rattus*	Muridae	-	
3.	Nilgai	*Boselaphustragocamelus*	Bovidae	II	
4.	**Leopard**	***Panthera pardus***	**Felidae**	**I**	
5.	**Sambar deer**	***Rusa unicolor***	**Cervidae**	**I**	
6.	**Jungle Cat**	***Felis chaus***	**Felidae**	**I**	
7.	**Common Palm Civet**	***Paradoxurus hermaphroditus***	**Viverridae**	**I**	
8.	**Indian Wolf**	***Canis lupus***	**Canidae**	**I**	
9.	**Striped Hyaena**	***Hyaena hyaena***	**Hyaenidae**	**I**	
10.	**Jackal**	***Canis aureus***	**Canidae**	**I**	
11.	**Indian Fox**	***Vulpes bengalensis***	**Canidae**	**I**	
12.	Wild Boar	*Sus scrofa*	Suidae	II	
13.	Indian Hare	*Lepus nigricollis*	Leporidae	II	
14.	**Indian Porcupine**	***Hystrix indica***	**Hystricidae**	**I**	
15.	Indian Hedgehog	*Hemiechinusmicropus*	Erinaceidae	II	
16.	**Sloth Bear**	***Melursus ursinus***	**Ursidae**	**I**	
17.	Hanuman langur	*Semnopithecus*	Cercopitheci	II	

(गुड्डा सिंह IFS)
उप वन संरक्षक

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

		entellus	dae		
18.	House shrew	*Suncus murinus*	Soricidae	-	

Table 6. List of amphibians found in the buffer zone of the project area

S. No.	Vernacular Name	Scientific Name	Family	Status As per (IWPA 2022) Schedule	Remark
1	Indian Bull frog	*Hoplobatrachustigerinus*	Ranidae	II	

Table 7. List of reptiles found in the buffer zone of the project area

S.No.	Vernacular Name	Scientific Name	Family	Status As per (IWPA) 2022, Schedule	Remark
1.	Common House Gecko	*Hemidactylus frenatus*	Gekkonidae	-	
2.	Oriental Garden Lizard	*Calotes versicolor*	Agamidae	-	
3.	**Indian Cobra**	***Naja naja***	**Elapidae**	**I**	
4.	**Common Rat Snake**	***Ptyasmucosus***	**Colubridae**	**I**	
5.	Common Indian Krait	*Bungarus caeruleus*	Elapidae	II	
6.	Green Keelback	*Macropisthodonplumbicolor*	Colubridae	II	
7.	**Bengal Monitor Lizard**	***Varanus bengalensis***	**Varanidae**	**I**	
8.	Brooks gecko	*Hemidactylus brookii*	Gekkonidae	-	
9.	Rock gecko	*Hemidactylus maculatus*	Gekkonidae	-	
10.	Forsten's Cat snake	*Boiga forsteni*	Colubridae	II	
	Common skink	*Eutropiscarinata*	Scinidae	-	

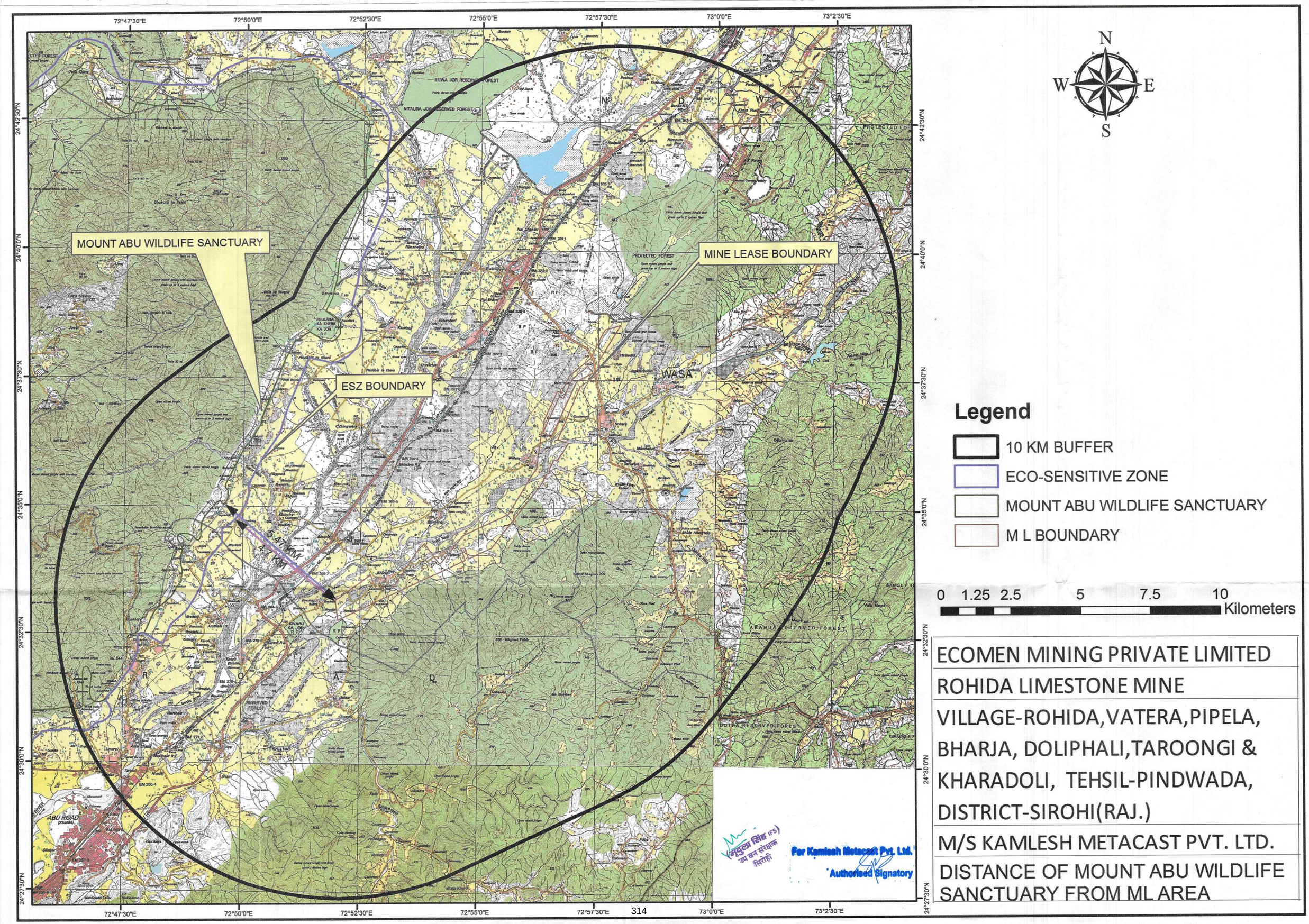
Source:

1.https://forest.rajasthan.gov.in/content/dam/raj/forest/ForestDepartment/PDFs/Department%20Wing/Wildlife/Notified-ESZ-of-Rajasthan/mount-abu.pdf

2.https://forest.rajasthan.gov.in/content/dam/raj/forest/ForestDepartment/PDFs/Department%20Wing/Forest%20Working%20Plan/Sanctioned%20Working%20Plan/text/SIROHI_FINAL.pdf

(मुकुल सिंह IFS)
उप वन संरक्षक
सिरोही

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)


MOUNT ABU WILDLIFE SANCTUARY
ESZ BOUNDARY
MINE LEASE BOUNDARY
5.47 KM
4.7 KM
WASA
ABU ROAD
N
S
E
W
Legend
10 KM BUFFER
ECO-SENSITIVE ZONE
MOUNT ABU WILDLIFE SANCTUARY
M L BOUNDARY
0 1.25 2.5 5 7.5 10
Kilometers
ECOMEN MINING PRIVATE LIMITED
ROHIDA LIMESTONE MINE
VILLAGE-ROHIDA,VATERA,PIPELA, BHARJA, DOLIPHALI,TAROONGI & KHARADOLI, TEHSIL-PINDWADA, DISTRICT-SIROHI(RAJ.)
M/S KAMLESH METACAST PVT. LTD.
DISTANCE OF MOUNT ABU WILDLIFE SANCTUARY FROM ML AREA
For Kamlesh Metacast Pvt. Ltd.
Authorised Signatory

कार्यालय उप वन संरक्षक, वन्यजीव, आबूपर्वत, सिरोही

Email-dcfwl.mtabu.forest@rajasthan.gov.in, सनसेट रोड आबूपर्वत 307501 PH. No.-02974 235211

क्रमांक : एफ( ) सर्वे /उवसं./2025/ 454 दिनांक 20/01/2025

निम्मित :–

Kamlesh Metacast Pvt.Ltd.
REGD. OFF: 5A & 5D,
Corporatc Tower A-2,
Near Jawahar Circle,
JLN Marg, Jaipur 302017

विषयः– Online Requested ID MIN- 0081777(NOCstype Mining Permission)
संदर्भः– आपका प्रार्थना पत्र दिनांक 10.01.2025।

उपरोक्त विषयान्तर्गत एवं संदर्भित पत्र के कम में लेख है कि आवेदक कमलेश मेटाकास्ट प्रा. लि. जयपुर द्वारा मौजा भारजा, तरूंगी, वाटेरा व रोहिडा तहसील पिण्डवाडा जिला सरोही के खनन पट्टा संख्या 1/2022 खनिज वास्ते Online Requested ID MIN- 0081777 (NOCs type Mining permission). के माध्यम से आवेदन FMDSS पोर्टल पर इस कार्यालय को प्राप्त हुआ। ऑनलाइन आवेदन प्रकरण अन्तर्गत मौका जांच हेतु इस कार्यालय द्वारा क्षेत्रीय वन अधिकारी,वन्यजीव,आबूतलेटी को FMDSS पोर्टल पर Requested ID अग्रेषित की गयी। जिसके कम में कार्यालय क्षेत्रीय वन अधिकारी,वन्यजीव,आबूतलेटी ने आवेदक प्रतिनिधि श्री सुधीर प्रताप सिंह की उपस्थिति में उनके द्वारा बताये गये स्थान, जिसके जी0पी0एस0 निर्देशांक नीचे अंकित है, की मौका जांच कर उनके पत्रांक 470 दिनांक 15.01.2025 द्वारा हार्ड कॉपी में एवं FMDSS पोर्टल के माध्यम से रिपोर्ट प्रेषित कर अवगत कराया है, कि आवेदित स्थल माउण्ट आबू वन्यजीव अभयारण्य की सीमा से लगभग 5.5 कि.मी की दूरी पर एवं पूर्व दिशा में स्थित है।

भारत का राजपत्र में दिनांक 11.11.2020 को जारी अधिसूचना के अनुसार माउण्ट आबू वन्यजीव अभयारण्य की सीमा के चारों और 0.1 कि0मी0 से 6.08 कि0मी0 तक विस्तारित क्षेत्र को पारिस्थितिकी संवेदी जोन के रूप में अधिसूचित किया गया है। इस कम में क्षेत्रीय वन अधिकारी,वन्यजीव, आबूतलेटी की मौका जॉच रिपोर्ट के अनुसार आवेदित स्थल माउण्ट आबू पारिस्थितिकी संवेदी जोन अधिसूचना दिनांक 11.11.2020 की सीमा से बाहर स्थित है। **अतिरिक्त आवेदित स्थल वनमंडल सिरोही अधीन क्षेत्र में होने से कार्यालय उप वन संरक्षक,सिरोही से भी वन भूमि होने अथवा न होने के संबंध में रिपोर्ट लिया जाना उचित रहेगा।**

आवेदित स्थल के अक्षांश एवं देशान्तर निम्नांनुसार हैः–

कम संख्या	अक्षांश (N)			देशान्तर (E)		
	D	M	S	D	M	S
1	24	33	10.02	72	51	57.84
2	24	33	57.39	72	52	23.33
3	24	33	57.66	72	54	7.29
4	24	35	40.32	72	65	24.64
5	24	37	44.47	72	57	25.37

माउण्ट आबू वन्यजीव अभयारण्य की सीमा के चारों ओर पारिस्थितिकी संवेदी जोन के संबंध में माननीय उच्च न्यायालय,जोधपुर में प्रकरण संख्या CW / 6965 / 2017 रूस्तम जहांगीर कामा बनाम भारत सरकार व अन्य विचाराधीन है।

(शुभम जैन)
उप वन संरक्षक,
वन्यजीव,आबूपर्वत

कमांक : एफ ( ) सर्वे / उवसं. / 2025 /

दिनांक :

प्रतिलिपि उप वन संरक्षक सिरोही को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित है।

— / —
उप वन संरक्षक,
वन्यजीव,आबूपर्वत

राजस्थान सरकार,
Government of Rajasthan
निदेशालय खान एवं भू–विज्ञान विभाग,
Directorate of Mines & Geology
खनिज भवन, उदयपुर–313001 / Khanij Bhawan, Udaipur-313001
दूरभाष / Phone: 2415091, 95 फेक्स / Fax:0294 2410526

क्रमांकः– निदे / अनिखा(मु.) / पीए / विविध पत्र / 2024 / 766 दिनांकः 26/3/25

M/s Kamlesh Metacast Pvt. Ltd.,
Regd. Add.- 5A & 5D, Corporate Tower A-2,
Near Jawahar Circle, JLN Marg, Jaipur।

विषयः– कमलेश मेटाकास्ट प्रा.लि. की प्रस्तावित रोहिड़ा लाईमस्टोन माईन्स, एमएल 01 / 2022 के मंशा पत्र (एल.ओ.आई) खनिज लाईमस्टोन (सीमेन्ट ग्रेड) क्षेत्रफल 800.9935 हैक्टेयर, निकट ग्राम–रोहिडा, वाटेरा, भीमाणा, तहसील–पिण्डवाड़ा, जिला–सिरोही, राजस्थान के क्रम में।

संदर्भः– आपका पत्र दिनांक 25.03.2025

महोदय,

उपरोक्त विषयान्तर्गत आपके प्रासंगिक पत्र के सन्दर्भ में लेख है कि आपके पक्ष में शासन पत्र दिनांक 13.03.2023 के द्वारा खनन पट्टा वास्ते खनिज लाईमस्टोन (सीमेंट ग्रेड), क्षेत्र 800.9935 हैक्टेयर, निकट ग्राम–रोहिडा, वाटेरा, भीमाणा, तहसील–पिण्डवाड़ा, जिला–सिरोही में मंशा पत्र जारी किया गया है।

मंशा पत्र की पालना में आप द्वारा पर्यावरण क्लीयरेंस हेतु आवेदन किया गया है। इस संबंध में खनि अभियन्ता, सिरोही द्वारा पत्र दिनांक 04.04.2023 (प्रति संलग्न) से जारी अरावली प्रमाण पत्र अनुसार मंशा पत्र क्षेत्र संबंधित जी.टी.शीट संख्या 45डी / 14 एवं रिकॉर्ड अनुसार अरावली हिल्स में नहीं आता है एवं माननीय सर्वोच्च न्यायालय के रिट याचिका संख्या 202 / 1995 के सन्दर्भ में पारित आदेश दिनांक 08.04.2005 के अनुसार भी अरावली हिल्स में नहीं आता है।

वर्तमान में अरावली हिल्स / रेंज के संबंध में रिट पिटिशन संख्या 4677 / 1985 में माननीय सर्वोच्च न्यायालय के आदेश दिनांक 09.05.2024 का ऑपरेटिव पैरा निम्नानुसार हैः– Until further orders, though all the States in which Aravalli Ranges and Hills are situated would be at liberty to consider and process the applications for grant of mining leases and also for renewal thereof including obtaining statuary clearances from the various authorities, no final permission shall be granted for mining in the Aravalli Hills/Ranges, as defined in the FSI Report dated 25.08.2010, without permission from this Court.

अतः माननीय सर्वोच्च न्यायालय के आदेश दिनांक 09.05.2024 की पालना में जारी मंशा पत्र के क्रम में आवश्यक सभी वांछित अनुमतियां प्राप्त की जा सकती है। आदेश के अनुसार statutory clearances from the various authorities जारी करने पर किसी भी प्रकार की कोई रोक नहीं है।

भवदीय,

(महेश माथुर)
अतिरिक्त निदेशक (खान–मुख्या.)

Regional Office
RAJASTHAN STATE POLLUTION CONTROL BOARD
House no.: 25 & 26, Singha Colony, Naya Kheda, Santpur, Abu Road, Tehsil: Abu Road,
District: Sirohi – 307026, Rajasthan.
Website: www.environment.rajasthan.gov.in E.mail: rorpcb.sirohi@gmail.com

S.No: RSPCB / Abu Road / Sirohi / SM-558 / 1365 Date: 10/07/2025

Kamlesh Metacast Pvt. Ltd.,
5A & 5D, Corporate Tower
A-2, Near Jawahar Circle,
JLN Marg, Jaipur - 302017
Rajasthan.
E-mail: aya.agarwal@gmail.com

Sub.: Regarding location of the mining lease area of the proposed Rohida Limestone mine (M.L. area: 800.9935 ha) of M/s Kamlesh Meta Cast Pvt. Ltd., locate at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil: Pindwara, Dist.: Sirohi, State: Rajasthan.

Ref.: Submission of your protection plan details vide letter dated 30.06.2025, received by this office on 09.07.2025.

Sir/Ma'am,

With reference to the above cited subject, the submission made by lessee along with topo sheet and as per available records with this office, the proposed mine is not falling in the critically polluted area.

Yours sincerely,

(B.R. Siyag)
Regional Officer

SCS SCS ENVIRO SERVICES PRIVATE LIMITED
7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230306/15	**Date of Registration: 06.03.2023**
Report No. SCS/KMPL/AAQ/20230306/15	**Date of Report: 12.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village: Rohida, Watera, Bhimana, Tehsil: Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	06.03.2023
Date of start of testing	:	08.03.2023
Date of end of testing	:	12.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 33' 57.3''$N $72^0 54' 24.8''$E
Ambient Temperature	:	29.4°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Chotu Ram S/o Shri Fubha Ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.2 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	33.5 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.7 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.1 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m³	2,000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

- The results refer only to the tested sample and applicable parameters.
- This report in full or in part, shall not be used for advertising or as evidence in any court of law.
- This report cannot be reproduced without the written permission of the director.
- The sample will be destroyed after 15 days from the date of issue of the test report.
- The liability of the laboratory is limited to the invoiced amount.
- All disputes are subjected to Jaipur jurisdiction.

Mo.: 9414080354, 9166770354, Fax: 0141-2523723, E-mail- scsenviroservices@gmail.com, dsparihar@scsenviro.in, Website: www.scsenviro.in

SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230307/01	**Date of Registration: 07.03.2023**
Report No. SCS/KMPL/AAQ/20230307/01	**Date of Report: 13.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	07.03.2023
Date of start of testing	:	10.03.2023
Date of end of testing	:	13.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 33'57.3''$N $72^0 54'24.8''$E
Ambient Temperature	:	29.9°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Chotu Ram S/o Shri Fubha Ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	53.8 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	31.3 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.3 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.7 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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- All disputes are subjected to Jaipur jurisdiction.

Mo.: 9414080354, 9166770354, Fax: 0141-2523723, E-mail- scsenviroservices@gmail.com, dsparihar@scsenviro.in, Website: www.scsenviro.in

SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5788(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230313/22	**Date of Registration: 13.03.2023**
Report No. SCS/KMPL/AAQ/20230313/22	**Date of Report: 17.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	13.03.2023
Date of start of testing	:	15.03.2023
Date of end of testing	:	17.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 33'57.3''$N $72^0 54'24.8''$E
Ambient Temperature	:	30.1°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Chotu Ram S/o Shri Fubha Ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	59.6 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	36.9 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.8 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	10.2 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230314/20	**Date of Registration: 14.03.2023**
Report No. SCS/KMPL/AAQ/20230314/20	**Date of Report: 20.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	14.03.2023
Date of start of testing	:	16.03.2023
Date of end of testing	:	20.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0$33′57.3″N $72^0$54′24.8″E
Ambient Temperature	:	32.6°C
Name of Location	:	Rohida Limestone Mining Project (M. L. No.: 01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Chotu Ram S/o Shri Fubha Ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	49.1 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	29.6 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.2 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.3 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230320/26	**Date of Registration: 20.03.2023**
Report No. SCS/KMPL/AAQ/20230320/26	**Date of Report: 25.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	20.03.2023
Date of start of testing	:	22.03.2023
Date of end of testing	:	25.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 33'57.3''$N $72^0 54'24.8''$E
Ambient Temperature	:	32.6°C
Name of Location	:	Rohida Limestone Mining Project (M. L. No.: 01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Chotu Ram S/o Shri Fubha Ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.7 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	34.5 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.6 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	10.2 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230321/26	**Date of Registration: 21.03.2023**
Report No. SCS/KMPL/AAQ/20230321/26	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	21.03.2023
Date of start of testing	:	23.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 33'57.3''$N $72^0 54'24.8''$E
Ambient Temperature	:	32.8°C
Name of Location	:	Rohida Limestone Mining Project (M. L. No.: 01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Chotu Ram S/o Shri Fubha Ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	63.4 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	38.1 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.9 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	12.0 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230327/48	**Date of Registration: 27.03.2023**
Report No. SCS/KMPL/AAQ/20230327/48	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	27.03.2023
Date of start of testing	:	29.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 33'57.3''$N $72^0 54'24.8''$E
Ambient Temperature	:	33.0°C
Name of Location	:	Rohida Limestone Mining Project (M. L. No.: 01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Chotu Ram S/o Shri Fubha Ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	55.2 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	32.9 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.4 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.8 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230328/18	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/AAQ/20230328/18	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 33'57.3''$N $72^0 54'24.8''$E
Ambient Temperature	:	34.7°C
Name of Location	:	Rohida Limestone Mining Project (M. L. No.: 01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Chotu Ram S/o Shri Fubha Ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	50.5 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	30.4 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.2 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.1 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230306/16	**Date of Registration: 06.03.2023**
Report No. SCS/KMPL/AAQ/20230306/16	**Date of Report: 12.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village: Rohida, Watera, Bhimana, Tehsil: Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	06.03.2023
Date of start of testing	:	08.03.2023
Date of end of testing	:	12.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'59.1''$N $72^0 58'03.3''$E
Ambient Temperature	:	29.7°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Hitander S/o Shri Suresh, Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	50.5 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	30.7 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.3 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.5 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5788(E) Dated 15.11.2018 Valid upto 14.11.2023
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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230307/02	**Date of Registration: 07.03.2023**
Report No. SCS/KMPL/AAQ/20230307/02	**Date of Report: 13.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	07.03.2023
Date of start of testing	:	10.03.2023
Date of end of testing	:	13.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'59.1''$N $72^0 58'03.3''$E
Ambient Temperature	:	29.6°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Hitander S/o Shri Suresh, Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	57.4 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	34.5 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.6 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.2 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230313/23	**Date of Registration: 13.03.2023**
Report No. SCS/KMPL/AAQ/20230313/23	**Date of Report: 17.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	13.03.2023
Date of start of testing	:	15.03.2023
Date of end of testing	:	17.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'59.1''$N $72^0 58'03.3''$E
Ambient Temperature	:	30.2°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Hitander S/o Shri Suresh, Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	54.4 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	32.3 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.4 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.0 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230314/21	**Date of Registration: 14.03.2023**
Report No. SCS/KMPL/AAQ/20230314/21	**Date of Report: 20.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	14.03.2023
Date of start of testing	:	16.03.2023
Date of end of testing	:	20.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'59.1''$N $72^0 58'03.3''$E
Ambient Temperature	:	31.9°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Hitander S/o Shri Suresh, Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	53.9 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	32.1 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.0 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.7 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230320/27	**Date of Registration: 20.03.2023**
Report No. SCS/KMPL/AAQ/20230320/27	**Date of Report: 25.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	20.03.2023
Date of start of testing	:	22.03.2023
Date of end of testing	:	25.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'59.1''$N $72^0 58'03.3''$E
Ambient Temperature	:	32.2°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Hitander S/o Shri Suresh, Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	63.3 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	37.8 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.3 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	12.0 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230321/27	**Date of Registration: 21.03.2023**
Report No. SCS/KMPL/AAQ/20230321/27	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	21.03.2023
Date of start of testing	:	23.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'59.1''$N $72^0 58'03.3''$E
Ambient Temperature	:	32.9°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Hitander S/o Shri Suresh, Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	58.5 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	35.3 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.6 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.7 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230327/49	**Date of Registration: 27.03.2023**
Report No. SCS/KMPL/AAQ/20230327/49	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	27.03.2023
Date of start of testing	:	29.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'59.1''$N $72^0 58'03.3''$E
Ambient Temperature	:	31.5°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Hitander S/o Shri Suresh, Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	47.3 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	28.0 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.0 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.3 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**
7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230328/22	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/AAQ/20230328/22	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'59.1''$N $72^0 58'03.3''$E
Ambient Temperature	:	34.9°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Hitander S/o Shri Suresh, Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.8 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	33.9 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.5 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.8 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230306/17	**Date of Registration: 06.03.2023**
Report No. SCS/KMPL/AAQ/20230306/17	**Date of Report: 12.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village: Rohida, Watera, Bhimana, Tehsil: Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	06.03.2023
Date of start of testing	:	08.03.2023
Date of end of testing	:	12.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'35.9''$N $72^0 57'31.5''$E
Ambient Temperature	:	29.9°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	48.3 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	28.1 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.0 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.3 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	458 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230307/03	**Date of Registration: 07.03.2023**
Report No. SCS/KMPL/AAQ/20230307/03	**Date of Report: 13.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	07.03.2023
Date of start of testing	:	10.03.2023
Date of end of testing	:	13.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'35.9''$N $72^0 57'31.5''$E
Ambient Temperature	:	30.2°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	53.5 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	32.0 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.4 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.7 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,.

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**
7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230313/24	**Date of Registration: 13.03.2023**
Report No. SCS/KMPL/AAQ/20230313/24	**Date of Report: 17.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	13.03.2023
Date of start of testing	:	15.03.2023
Date of end of testing	:	17.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36' 35.9''$N $72^0 57' 31.5''$E
Ambient Temperature	:	30.6°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.0 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	33.6 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.7 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.6 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230314/22	**Date of Registration: 14.03.2023**
Report No. SCS/KMPL/AAQ/20230314/22	**Date of Report: 20.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	14.03.2023
Date of start of testing	:	16.03.2023
Date of end of testing	:	20.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'35.9''$N $72^0 57'31.5''$E
Ambient Temperature	:	32.2°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	45.3 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	27.4 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.0 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	7.6 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	458 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230320/28	**Date of Registration: 20.03.2023**
Report No. SCS/KMPL/AAQ/20230320/28	**Date of Report: 25.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	20.03.2023
Date of start of testing	:	22.03.2023
Date of end of testing	:	25.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'35.9''$N $72^0 57'31.5''$E
Ambient Temperature	:	32.4°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	55.4 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	32.9 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.7 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.2 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

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Sample ID No.: SCS/AAQ/20230321/28	**Date of Registration: 21.03.2023**
Report No. SCS/KMPL/AAQ/20230321/28	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	21.03.2023
Date of start of testing	:	23.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'35.9''$N $72^0 57'31.5''$E
Ambient Temperature	:	33.3°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	62.3 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	37.5 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.5 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	12.0 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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Sample ID No.: SCS/AAQ/20230327/50	**Date of Registration: 27.03.2023**
Report No. SCS/KMPL/AAQ/20230327/50	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	27.03.2023
Date of start of testing	:	29.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'35.9''$N $72^0 57'31.5''$E
Ambient Temperature	:	31.8°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.4 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	34.2 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.6 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.4 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

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Sample ID No.: SCS/AAQ/20230328/26	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/AAQ/20230328/26	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 36'35.9''$N $72^0 57'31.5''$E
Ambient Temperature	:	35.4°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	51.0 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	30.5 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.2 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.3 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	458 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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Sample ID No.: SCS/AAQ/20230306/18	**Date of Registration: 06.03.2023**
Report No. SCS/KMPL/AAQ/20230306/18	**Date of Report: 12.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village: Rohida, Watera, Bhimana, Tehsil: Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	06.03.2023
Date of start of testing	:	08.03.2023
Date of end of testing	:	12.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 31'11.7''$N $72^0 52'00.8''$E
Ambient Temperature	:	30.2°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.3 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	34.0 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.2 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	12.5 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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Sample ID No.: SCS/AAQ/20230307/04	**Date of Registration: 07.03.2023**
Report No. SCS/KMPL/AAQ/20230307/04	**Date of Report: 13.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	07.03.2023
Date of start of testing	:	10.03.2023
Date of end of testing	:	13.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 31'11.7''N$ $72^0 52'00.8''E$
Ambient Temperature	:	30.5°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	64.8 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	38.5 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.7 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	15.0 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m³	2,000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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Sample ID No.: SCS/AAQ/20230313/25	**Date of Registration: 13.03.2023**
Report No. SCS/KMPL/AAQ/20230313/25	**Date of Report: 17.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	13.03.2023
Date of start of testing	:	15.03.2023
Date of end of testing	:	17.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 31'11.7''$N $72^0 52'00.8''$E
Ambient Temperature	:	30.8°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	60.3 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	35.9 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.3 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	13.9 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

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Sample ID No.: SCS/AAQ/20230314/23	**Date of Registration: 14.03.2023**
Report No. SCS/KMPL/AAQ/20230314/23	**Date of Report: 20.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	14.03.2023
Date of start of testing	:	16.03.2023
Date of end of testing	:	20.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 31'11.7''$N $72^0 52'00.8''$E
Ambient Temperature	:	32.7°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	57.3 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	34.6 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.9 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	11.5 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**
7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230320/29	**Date of Registration: 20.03.2023**
Report No. SCS/KMPL/AAQ/20230320/29	**Date of Report: 25.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	20.03.2023
Date of start of testing	:	22.03.2023
Date of end of testing	:	25.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 31'11.7''$N $72^0 52'00.8''$E
Ambient Temperature	:	32.9°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	68.9 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	40.4 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	8.3 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	14.5 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230321/29	**Date of Registration: 21.03.2023**
Report No. SCS/KMPL/AAQ/20230321/29	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	21.03.2023
Date of start of testing	:	23.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 31'11.7''$N $72^0 52'00.8''$E
Ambient Temperature	:	34.0°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	59.7 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	36.2 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.3 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	13.5 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230327/51	**Date of Registration: 27.03.2023**
Report No. SCS/KMPL/AAQ/20230327/51	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	27.03.2023
Date of start of testing	:	29.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 31'11.7''$N $72^0 52'00.8''$E
Ambient Temperature	:	32.5°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	65.2 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	39.1 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.9 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	15.2 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230328/30	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/AAQ/20230328/30	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0$31′11.7″N $72^0$52′00.8″E
Ambient Temperature	:	34.7°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	58.5 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	34.8 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.2 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	13.5 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230308/23	**Date of Registration: 08.03.2023**
Report No. SCS/KMPL/AAQ/20230308/23	**Date of Report: 15.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village: Rohida, Watera, Bhimana, Tehsil: Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	08.03.2023
Date of start of testing	:	10.03.2023
Date of end of testing	:	15.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	24°33′04.3″N 72°51′37.7″E
Ambient Temperature	:	31.3°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Gulab Singh S/o Shri Roshan, Village: Wada, Post: Bharja, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	50.1 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	29.5 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.4 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.5 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m³	2,000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230309/24	**Date of Registration: 09.03.2023**
Report No. SCS/KMPL/AAQ/20230309/24	**Date of Report: 15.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	09.03.2023
Date of start of testing	:	11.03.2023
Date of end of testing	:	15.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	24°33'04.3"N 72°51'37.7"E
Ambient Temperature	:	30.9°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Gulab Singh S/o Shri Roshan, Village: Wada, Post: Bharja, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	52.9 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	31.7 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.8 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.2 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m³	2,000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5766(E) Dated 15.11.2018 Valid upto 14.11.2023
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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230315/02	**Date of Registration: 15.03.2023**
Report No. SCS/KMPL/AAQ/20230315/02	**Date of Report: 21.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	15.03.2023
Date of start of testing	:	17.03.2023
Date of end of testing	:	21.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 33'04.3''$N $72^0 51'37.7''$E
Ambient Temperature	:	32.3°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Gulab Singh S/o Shri Roshan, Village: Wada, Post: Bharja, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	46.2 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	28.0 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.0 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	7.5 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	458 µg / m³	2,000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230316/10	**Date of Registration: 16.03.2023**
Report No. SCS/KMPL/AAQ/20230316/10	**Date of Report: 21.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	16.03.2023
Date of start of testing	:	18.03.2023
Date of end of testing	:	21.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 33'04.3''$N $72^0 51'37.7''$E
Ambient Temperature	:	33.4°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Gulab Singh S/o Shri Roshan, Village: Wada, Post: Bharja, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	49.5 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	30.3 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.4 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_x)	8.9 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	458 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230322/42	**Date of Registration: 22.03.2023**
Report No. SCS/KMPL/AAQ/20230322/42	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	22.03.2023
Date of start of testing	:	24.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	24°33'04.3"N 72°51'37.7"E
Ambient Temperature	:	33.7°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Gulab Singh S/o Shri Roshan, Village: Wada, Post: Bharja, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.4 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	34.0 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.9 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	10.4 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m³	2,000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230323/43	**Date of Registration: 23.03.2023**
Report No. SCS/KMPL/AAQ/20230323/43	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	23.03.2023
Date of start of testing	:	25.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	24°33'04.3"N 72°51'37.7"E
Ambient Temperature	:	34.5°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Gulab Singh S/o Shri Roshan, Village: Wada, Post: Bharja, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	54.6 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	32.9 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.8 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.2 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m³	2,000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

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Sample ID No.: SCS/AAQ/20230329/02	**Date of Registration: 29.03.2023**
Report No. SCS/KMPL/AAQ/20230329/02	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	29.03.2023
Date of start of testing	:	31.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	24°33'04.3"N 72°51'37.7"E
Ambient Temperature	:	33.9°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Gulab Singh S/o Shri Roshan. Village: Wada. Post: Bharja, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.4 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	34.3 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.2 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	10.8 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m³	2,000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd..

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

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Sample ID No.: SCS/AAQ/20230330/21	Date of Registration: 30.03.2023
Report No. SCS/KMPL/AAQ/20230330/21	Date of Report: 04.04.2023

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	24°33'04.3"N 72°51'37.7"E
Ambient Temperature	:	35.4°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Gulab Singh S/o Shri Roshan, Village: Wada, Post: Bharja, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	50.9 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	30.5 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.5 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.7 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m³	2.000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230308/24	**Date of Registration: 08.03.2023**
Report No. SCS/KMPL/AAQ/20230308/24	**Date of Report: 15.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village: Rohida, Watera, Bhimana, Tehsil: Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	08.03.2023
Date of start of testing	:	10.03.2023
Date of end of testing	:	15.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 35'01.6''$N $72^0 54'04.3''$E
Ambient Temperature	:	31.9°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	57.4 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	34.3 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.2 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	10.9 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**
7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5788(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230309/25	**Date of Registration: 09.03.2023**
Report No. SCS/KMPL/AAQ/20230309/25	**Date of Report: 15.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	09.03.2023
Date of start of testing	:	11.03.2023
Date of end of testing	:	15.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 35'01.6''N$ $72^0 54'04.3''E$
Ambient Temperature	:	32.6°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	60.7 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	36.0 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.6 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	11.9 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230315/03	**Date of Registration: 15.03.2023**
Report No. SCS/KMPL/AAQ/20230315/03	**Date of Report: 21.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	15.03.2023
Date of start of testing	:	17.03.2023
Date of end of testing	:	21.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 35'01.6''$N $72^0 54'04.3''$E
Ambient Temperature	:	33.0°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	51.0 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	30.7 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.3 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.9 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

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Sample ID No.: SCS/AAQ/20230316/11	**Date of Registration: 16.03.2023**
Report No. SCS/KMPL/AAQ/20230316/11	**Date of Report: 21.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	16.03.2023
Date of start of testing	:	18.03.2023
Date of end of testing	:	21.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0$35'01.6"N $72^0$54'04.3"E
Ambient Temperature	:	34.2°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.0 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	33.5 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.8 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.7 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd., .

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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ISO-14001:2015 CERTIFIED LABORATORY
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Sample ID No.: SCS/AAQ/20230322/43	**Date of Registration: 22.03.2023**
Report No. SCS/KMPL/AAQ/20230322/43	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	22.03.2023
Date of start of testing	:	24.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 35'01.6''$N $72^0 54'04.3''$E
Ambient Temperature	:	34.5°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	65.8 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	40.4 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.8 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	13.0 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230323/44	**Date of Registration: 23.03.2023**
Report No. SCS/KMPL/AAQ/20230323/44	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	23.03.2023
Date of start of testing	:	25.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 35'01.6''$N $72^0 54'04.3''$E
Ambient Temperature	:	35.3°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	59.2 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	35.7 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.9 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	11.5 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230329/03	**Date of Registration: 29.03.2023**
Report No. SCS/KMPL/AAQ/20230329/03	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	29.03.2023
Date of start of testing	:	31.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 35'01.6''$N $72^0 54'04.3''$E
Ambient Temperature	:	34.8°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	50.7 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	30.4 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.0 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	7.6 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**
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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230330/25	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/AAQ/20230330/25	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 35'01.6''$N $72^0 54'04.3''$E
Ambient Temperature	:	35.1°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.2 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	33.9 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.9 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	10.3 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**
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CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230308/25	**Date of Registration: 08.03.2023**
Report No. SCS/KMPL/AAQ/20230308/25	**Date of Report: 15.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village: Rohida, Watera, Bhimana, Tehsil: Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	08.03.2023
Date of start of testing	:	10.03.2023
Date of end of testing	:	15.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 37'42.6''$N $72^0 53'44.7''$E
Ambient Temperature	:	32.2°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of kewa Ram S/o Shri Vishnu Ram, Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	47.2 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	38.4 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.0 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	7.7 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	458 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**
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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230309/26	**Date of Registration: 09.03.2023**
Report No. SCS/KMPL/AAQ/20230309/26	**Date of Report: 15.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	09.03.2023
Date of start of testing	:	11.03.2023
Date of end of testing	:	15.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	24°37′42.6″N 72°53′44.7″E
Ambient Temperature	:	32.5°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of kewa Ram S/o Shri Vishnu Ram, Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	53.1 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	32.0 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.4 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.3 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m³	2,000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230315/04	**Date of Registration: 15.03.2023**
Report No. SCS/KMPL/AAQ/20230315/04	**Date of Report: 21.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	15.03.2023
Date of start of testing	:	17.03.2023
Date of end of testing	:	21.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0$37′42.6″N $72^0$53′44.7″E
Ambient Temperature	:	33.4°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of kewa Ram S/o Shri Vishnu Ram, Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	55.7 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	33.2 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.6 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.8 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

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Sample ID No.: SCS/AAQ/20230316/12	**Date of Registration: 16.03.2023**
Report No. SCS/KMPL/AAQ/20230316/12	**Date of Report: 21.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	16.03.2023
Date of start of testing	:	18.03.2023
Date of end of testing	:	21.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 37'42.6''$N $72^0 53'44.7''$E
Ambient Temperature	:	33.9°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of kewa Ram S/o Shri Vishnu Ram, Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	46.9 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	27.8 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.0 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.2 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	458 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230322/44	**Date of Registration: 22.03.2023**
Report No. SCS/KMPL/AAQ/20230322/44	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	22.03.2023
Date of start of testing	:	24.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0$37′42.6″N $72^0$53′44.7″E
Ambient Temperature	:	34.7°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of kewa Ram S/o Shri Vishnu Ram, Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	50.3 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	30.0 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.5 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.6 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd., .

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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Mo.: 9414080354, 9166770354, Fax: 0141-2523723, E-mail- scsenviroservices@gmail.com, dsparihar@scsenviro.in, Website: www.scsenviro.in

SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230323/45	**Date of Registration: 23.03.2023**
Report No. SCS/KMPL/AAQ/20230323/45	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	23.03.2023
Date of start of testing	:	25.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0$37'42.6"N $72^0$53'44.7"E
Ambient Temperature	:	35.6°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of kewa Ram S/o Shri Vishnu Ram, Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	54.4 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	32.6 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.9 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.4 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230329/04	**Date of Registration: 29.03.2023**
Report No. SCS/KMPL/AAQ/20230329/04	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	29.03.2023
Date of start of testing	:	31.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 37'42.6''$N $72^0 53'44.7''$E
Ambient Temperature	:	35.1°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of kewa Ram S/o Shri Vishnu Ram, Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	48.2 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	28.9 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.0 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	7.9 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	458 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**
7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230330/29	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/AAQ/20230330/29	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	24°37'42.6"N 72°53'44.7"E
Ambient Temperature	:	34.7°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of kewa Ram S/o Shri Vishnu Ram, Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	52.8 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	31.2 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.5 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.7 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m³	2,000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230308/26	**Date of Registration: 08.03.2023**
Report No. SCS/KMPL/AAQ/20230308/26	**Date of Report: 15.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village: Rohida, Watera, Bhimana, Tehsil: Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	08.03.2023
Date of start of testing	:	10.03.2023
Date of end of testing	:	15.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 37'58.9''$N $72^0 57'55.8''$E
Ambient Temperature	:	32.5°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Vira Ram S/o Shri Joda Ji, Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	53.8 µg / m³	100 µg / m³	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	32.0 µg / m³	60 µg / m³	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.8 µg / m³	80 µg / m³	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.5 µg / m³	80 µg / m³	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m³	2,000 µg / m³	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**
7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230309/27	**Date of Registration: 09.03.2023**
Report No. SCS/KMPL/AAQ/20230309/27	**Date of Report: 15.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	09.03.2023
Date of start of testing	:	11.03.2023
Date of end of testing	:	15.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 37'58.9''$N $72^0 57'55.8''$E
Ambient Temperature	:	31.9°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Vira Ram S/o Shri Joda Ji, Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.2 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	33.3 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.7 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	10.1 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230315/05	**Date of Registration: 15.03.2023**
Report No. SCS/KMPL/AAQ/20230315/05	**Date of Report: 21.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	15.03.2023
Date of start of testing	:	17.03.2023
Date of end of testing	:	21.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 37' 58.9''$N $72^0 57' 55.8''$E
Ambient Temperature	:	33.7°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Vira Ram S/o Shri Joda Ji, Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	50.4 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	30.1 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.0 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.2 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	573 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AAQ/20230316/13	**Date of Registration: 16.03.2023**
Report No. SCS/KMPL/AAQ/20230316/13	**Date of Report: 21.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	16.03.2023
Date of start of testing	:	18.03.2023
Date of end of testing	:	21.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 37'58.9''$N $72^0 57'55.8''$E
Ambient Temperature	:	34.0°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Vira Ram S/o Shri Joda Ji, Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	56.3 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	34.4 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.1 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	10.2 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
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CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230322/45	**Date of Registration: 22.03.2023**
Report No. SCS/KMPL/AAQ/20230322/45	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	22.03.2023
Date of start of testing	:	24.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0$37′58.9″N $72^0$57′55.8″E
Ambient Temperature	:	34.5°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Vira Ram S/o Shri Joda Ji, Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	58.1 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	34.7 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	7.5 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	11.3 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	802 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AAQ/20230323/46	**Date of Registration: 23.03.2023**
Report No. SCS/KMPL/AAQ/20230323/46	**Date of Report: 27.03.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	23.03.2023
Date of start of testing	:	25.03.2023
Date of end of testing	:	27.03.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0$37′58.9″N $72^0$57′55.8″E
Ambient Temperature	:	35.1°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Vira Ram S/o Shri Joda Ji, Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	48.2 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	28.5 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.5 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	7.8 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	458 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/AAQ/20230329/05	**Date of Registration: 29.03.2023**
Report No. SCS/KMPL/AAQ/20230329/05	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	29.03.2023
Date of start of testing	:	31.03.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0 37'58.9''$N $72^0 57'55.8''$E
Ambient Temperature	:	34.8°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Vira Ram S/o Shri Joda Ji, Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	54.0 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	32.5 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.8 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	9.6 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	687 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

TC-6960

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ISO-14001:2015 CERTIFIED LABORATORY
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Sample ID No.: SCS/AAQ/20230330/33	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/AAQ/20230330/33	**Date of Report: 04.04.2023**

AMBIENT AIR QUALITY MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	04.04.2023
Duration of sampling	:	24 Hrs.
Type of Industry	:	Mining Industry
GPS Coordinates of the Location	:	$24^0$37′58.9″N $72^0$57′55.8″E
Ambient Temperature	:	35.0°C
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Vira Ram S/o Shri Joda Ji, Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO

RESULTS

Parameter	Observed Value	Limit as per NAAQS	Protocol
Particulate Matter (PM_{10})	49.3 µg / m^3	100 µg / m^3	IS 5182 (Part 23)
Particulate Matter ($PM_{2.5}$)	29.6 µg / m^3	60 µg / m^3	IS 5182 (Part 24)
Sulphur Dioxide (SO_2)	6.0 µg / m^3	80 µg / m^3	IS 5182 (Part 2)
Oxide Of Nitrogen (NO_X)	8.2 µg / m^3	80 µg / m^3	IS 5182 (Part 6)
Carbon Monoxide (CO)	458 µg / m^3	2,000 µg / m^3	SCS/SOP/AAQ/013

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 576B(E) Dated 15.11.2018 Valid upto 14.11.2023
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Sample ID No.: SCS/AN/20230328/19	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/AN/20230328/19	**Date of Report: 04.04.2023**

AMBIENT NOISE MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	28.03.2023
Date of start of testing	:	28.03.2023
Date of end of testing	:	28.03.2023
Type of Industry	:	Mining Industry
Name of Location	:	Rohida Limestone Mining Project (M. L. No.: 01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Chotu Ram S/o Shri Fubha Ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	Ambient Noise

Results

Parameter	Results dB (A)	
	Day Time	Night Time
Leq	51.7	42.8

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence	50	40

1. Day time if from 6.00am to 10 pm
2. Night time if from 10.00 pm to 6 am
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AN/20230328/23	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/AN/20230328/23	**Date of Report: 04.04.2023**

AMBIENT NOISE MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	28.03.2023
Date of start of testing	:	28.03.2023
Date of end of testing	:	28.03.2023
Type of Industry	:	Mining Industry
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Hitander S/o Shri Suresh, Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	Ambient Noise

Results

Parameter	Results dB (A)	
	Day Time	Night Time
Leq	50.3	42.4

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence	50	40

1. Day time if from 6.00am to 10 pm
2. Night time if from 10.00 pm to 6 am
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority

Per pro SCS Enviro Services Pvt. Ltd.,

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

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Sample ID No.: SCS/AN/20230328/27	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/AN/20230328/27	**Date of Report: 04.04.2023**

AMBIENT NOISE MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	28.03.2023
Date of start of testing	:	28.03.2023
Date of end of testing	:	28.03.2023
Type of Industry	:	Mining Industry
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	Ambient Noise

Results

Parameter	Results dB (A)	
	Day Time	Night Time
Leq	52.5	43.1

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence	50	40

1. Day time if from 6.00am to 10 pm
2. Night time if from 10.00 pm to 6 am
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority

Per pro SCS Enviro Services Pvt. Ltd.,

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TC-6960

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ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AN/20230328/31	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/AN/20230328/31	**Date of Report: 04.04.2023**

AMBIENT NOISE MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	28.03.2023
Date of start of testing	:	28.03.2023
Date of end of testing	:	28.03.2023
Type of Industry	:	Mining Industry
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Parameter required	:	Ambient Noise

Results

Parameter	**Results dB (A)**	
	Day Time	Night Time
Leq	53.9	43.7

Category of Zones	**Leq in dB(A)**	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence	50	40

1. Day time if from 6.00am to 10 pm
2. Night time if from 10.00 pm to 6 am
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority

Per pro SCS Enviro Services Pvt. Ltd.,

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AN/20230330/22	Date of Registration: 30.03.2023
Report No. SCS/KMPL/AN/20230330/22	Date of Report: 04.04.2023

AMBIENT NOISE MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	30.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	30.03.2023
Type of Industry	:	Mining Industry
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Gulab Singh S/o Shri Roshan, Village: Wada, Post: Bharja, Tehsil: Pindwara, District: Sirohi
Parameter required	:	Ambient Noise

Results

Parameter	Results dB (A)	
	Day Time	Night Time
Leq	49.5	41.3

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence	50	40

1. Day time if from 6.00am to 10 pm
2. Night time if from 10.00 pm to 6 am
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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ISO-9001:2015 CERTIFIED LABORATORY
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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AN/20230330/26	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/AN/20230330/26	**Date of Report: 04.04.2023**

AMBIENT NOISE MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	30.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	30.03.2023
Type of Industry	:	Mining Industry
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Parameter required	:	Ambient Noise

Results

Parameter	Results dB (A)	
	Day Time	Night Time
Leq	52.9	42.1

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence	50	40

1. Day time if from 6.00am to 10 pm
2. Night time if from 10.00 pm to 6 am
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/AN/20230330/30	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/AN/20230330/30	**Date of Report: 04.04.2023**

AMBIENT NOISE MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	30.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	30.03.2023
Type of Industry	:	Mining Industry
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of kewa Ram S/o Shri Vishnu Ram, Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Parameter required	:	Ambient Noise

Results

Parameter	Results dB (A)	
	Day Time	Night Time
Leq	50.9	42.4

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence	50	40

1. Day time if from 6.00am to 10 pm
2. Night time if from 10.00 pm to 6 am
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
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Sample ID No.: SCS/AN/20230330/34	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/AN/20230330/34	**Date of Report: 04.04.2023**

AMBIENT NOISE MONITORING REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Monitoring	:	30.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	30.03.2023
Type of Industry	:	Mining Industry
Name of Location	:	Rohida Limestone Mining Project (M.L.No.:01/2022, PL No.: 07/2011) Area: 800.9935 Ha. Near house of Vira Ram S/o Shri Joda Ji, Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Parameter required	:	Ambient Noise

Results

Parameter	Results dB (A)	
	Day Time	Night Time
Leq	51.4	41.8

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence	50	40

1. Day time if from 6.00am to 10 pm
2. Night time if from 10.00 pm to 6 am
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority

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Sample ID No.: SCS/S/20230328/21	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/S/20230328/21	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
Details of Sample	:	Soil sample collected from Land of Chotu Ram S/o Shri Fubha ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameters	Unit	Results	Protocol
pH (1:5)	-	7.85	IS 2720 (Part 26)
Conductivity (1:5)	µS/cm	210	IS 14767
Organic Matter	%	0.83	IS 2720 (Part 22)
Calcium Carbonate	%	< 0.5	SCS/SOP/SOIL/15
Total soluble sulphate	%	0.03	IS 2720 (Part 27)
Total Nitrogen as N	%	0.05	IS 14684
Available Phosphorous as P	Kg/ Hectare	55.4	SCS/SOP/SOIL/12
Total Sodium as Na	%	0.03	IS 9497
Total Potassium as K	%	0.02	IS 9497
Moisture	%	7.8	IS 2720 (Part 2)

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
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CIN NO.: U74140RJ2013PTC042216

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Sample ID No.: SCS/S/20230328/25	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/S/20230328/25	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
Details of Sample	:	Soil sample collected from Land of Hitander S/o Shri Suresh ji, Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameters	Unit	Results	Protocol
pH (1:5)	-	8.10	IS 2720 (Part 26)
Conductivity (1:5)	µS/cm	243	IS 14767
Organic Matter	%	0.97	IS 2720 (Part 22)
Calcium Carbonate	%	< 0.5	SCS/SOP/SOIL/15
Total soluble sulphate	%	0.04	IS 2720 (Part 27)
Total Nitrogen as N	%	0.03	IS 14684
Available Phosphorous as P	Kg/ Hectare	69.2	SCS/SOP/SOIL/12
Total Sodium as Na	%	0.02	IS 9497
Total Potassium as K	%	0.02	IS 9497
Moisture	%	7.1	IS 2720 (Part 2)

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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Sample ID No.: SCS/S/20230328/29	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/S/20230328/29	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
Details of Sample	:	Soil sample collected from Land of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameters	Unit	Results	Protocol
pH (1:5)	-	8.23	IS 2720 (Part 26)
Conductivity (1:5)	µS/cm	289	IS 14767
Organic Matter	%	1.05	IS 2720 (Part 22)
Calcium Carbonate	%	< 0.5	SCS/SOP/SOIL/15
Total soluble sulphate	%	0.03	IS 2720 (Part 27)
Total Nitrogen as N	%	0.02	IS 14684
Available Phosphorous as P	Kg/ Hectare	45.4	SCS/SOP/SOIL/12
Total Sodium as Na	%	0.02	IS 9497
Total Potassium as K	%	0.02	IS 9497
Moisture	%	6.5	IS 2720 (Part 2)

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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Sample ID No.: SCS/S/20230328/33	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/S/20230328/33	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
Details of Sample	:	Soil sample collected from Land of Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Sample submitted by	:	SCS Representative

Parameters	Unit	Results	Protocol
pH (1:5)	-	7.71	IS 2720 (Part 26)
Conductivity (1:5)	µS/cm	250	IS 14767
Organic Matter	%	0.96	IS 2720 (Part 22)
Calcium Carbonate	%	< 0.5	SCS/SOP/SOIL/15
Total soluble sulphate	%	0.04	IS 2720 (Part 27)
Total Nitrogen as N	%	0.03	IS 14684
Available Phosphorous as P	Kg/ Hectare	80.3	SCS/SOP/SOIL/12
Total Sodium as Na	%	0.02	IS 9497
Total Potassium as K	%	0.03	IS 9497
Moisture	%	7.9	IS 2720 (Part 2)

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Sample ID No.: SCS/S/20230330/24	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/S/20230330/24	**Date of Report: 07.04.2023**

TEST REPORT

Name of Client : M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client : Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt : 30.03.2023
Date of start of testing : 01.04.2023
Date of end of testing : 07.04.2023
Details of Sample : Soil sample collected from Land of Gulab Singh S/o Shri Roshan, Village: Wada, Post: Bharja, Tehsil: Pindwara, District: Sirohi
Sample submitted by : SCS Representative

Parameters	Unit	Results	Protocol
pH (1:5)	-	7.96	IS 2720 (Part 26)
Conductivity (1:5)	µS/cm	203	IS 14767
Organic Matter	%	0.74	IS 2720 (Part 22)
Calcium Carbonate	%	< 0.5	SCS/SOP/SOIL/15
Total soluble sulphate	%	0.03	IS 2720 (Part 27)
Total Nitrogen as N	%	0.02	IS 14684
Available Phosphorous as P	Kg/ Hectare	39.2	SCS/SOP/SOIL/12
Total Sodium as Na	%	0.02	IS 9497
Total Potassium as K	%	0.02	IS 9497
Moisture	%	6.8	IS 2720 (Part 2)

Per pro SCS Enviro Services Pvt. Ltd.,

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Authorised Signatory

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Sample ID No.: SCS/S/20230330/28	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/S/20230330/28	**Date of Report: 07.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	07.04.2023
Details of Sample	:	Soil sample collected from Land of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameters	Unit	Results	Protocol
pH (1:5)	-	8.25	IS 2720 (Part 26)
Conductivity (1:5)	µS/cm	277	IS 14767
Organic Matter	%	1.25	IS 2720 (Part 22)
Calcium Carbonate	%	< 0.5	SCS/SOP/SOIL/15
Total soluble sulphate	%	0.05	IS 2720 (Part 27)
Total Nitrogen as N	%	0.03	IS 14684
Available Phosphorous as P	Kg/ Hectare	55.8	SCS/SOP/SOIL/12
Total Sodium as Na	%	0.02	IS 9497
Total Potassium as K	%	0.02	IS 9497
Moisture	%	7.9	IS 2720 (Part 2)

Per pro SCS Enviro Services Pvt. Ltd.,

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CIN NO.: U74140RJ2013PTC042216

TC-6960

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Sample ID No.: SCS/S/20230330/32	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/S/20230330/32	**Date of Report: 07.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	07.04.2023
Details of Sample	:	Soil sample collected from Land of kewa Ram S/o Shri Vishnu Ram, Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameters	Unit	Results	Protocol
pH (1:5)	-	7.90	IS 2720 (Part 26)
Conductivity (1:5)	µS/cm	228	IS 14767
Organic Matter	%	1.07	IS 2720 (Part 22)
Calcium Carbonate	%	< 0.5	SCS/SOP/SOIL/15
Total soluble sulphate	%	0.03	IS 2720 (Part 27)
Total Nitrogen as N	%	0.02	IS 14684
Available Phosphorous as P	Kg/ Hectare	70.7	SCS/SOP/SOIL/12
Total Sodium as Na	%	0.02	IS 9497
Total Potassium as K	%	0.02	IS 9497
Moisture	%	8.2	IS 2720 (Part 2)

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/S/20230330/36	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/S/20230330/36	**Date of Report: 07.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	07.04.2023
Details of Sample	:	Soil sample collected from Land of Vira Ram S/o Shri Joda Ji, Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameters	Unit	Results	Protocol
pH (1:5)	-	7.80	IS 2720 (Part 26)
Conductivity (1:5)	µS/cm	183	IS 14767
Organic Matter	%	0.65	IS 2720 (Part 22)
Calcium Carbonate	%	< 0.5	SCS/SOP/SOIL/15
Total soluble sulphate	%	0.02	IS 2720 (Part 27)
Total Nitrogen as N	%	0.02	IS 14684
Available Phosphorous as P	Kg/ Hectare	35.4	SCS/SOP/SOIL/12
Total Sodium as Na	%	0.02	IS 9497
Total Potassium as K	%	0.02	IS 9497
Moisture	%	6.4	IS 2720 (Part 2)

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230328/20	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/W/20230328/20(1/2)	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
GPS Coordinates of the Location	:	$24^0 33'57.5''$N $72^0 54'23.5''$E
Details of Sample	:	Bore well water sample collected from of Chotu Ram S/o Shri Fubha ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Table 1: Organoleptic and Physical Parameters				
Color, Hazen Units	< 1	5	15	APHA (23rd Edition) 2120B
Odour	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
Taste	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7)
pH	6.90	6.5 – 8.5	No Relaxation	APHA (23rd Edition) 4500H
Turbidity, NTU	0.14	1	5	APHA (23rd Edition) 2130
Total Dissolved Solids	1,417.00 Mg / L	500 Mg / L	2,000 Mg / L	APHA (23rd Edition) 2540C
Electrical Conductivity	2,130 µS/cm	-	-	APHA (23rd Edition) 2510B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Aluminum as Al	< 0.01 Mg / L	0.03 Mg / L	0.2 Mg / L	APHA (23rd Edition) 3111D
Ammonia (as total ammonia-N)	< 0.2 Mg / L	0.5 Mg / L	No Relaxation	IS 3025 (Part 34)
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 5540C
Barium as Ba	< 0.1 Mg / L	0.7 Mg / L	No Relaxation	APHA (23rd Edition) 3500 Ba
Boron as B	< 0.1 Mg / L	0.5 Mg / L	2.4 Mg / L	APHA (23rd Edition) 4500B B
Calcium as Ca	126.40 Mg / L	75 Mg / L	200 Mg / L	APHA (23rd Edition) 3500 Ca B
Chloramines	< 1.0 Mg / L	4.0 Mg / L	No Relaxation	IS 3025 (Part 26)
Chloride as Cl	345.89 Mg / L	250 Mg / L	1,000 Mg / L	APHA (23rd Edition) 4500 Cl^- B
Copper as Cu	< 0.01 Mg / L	0.05 Mg / L	1.5 Mg / L	APHA (23rd Edition) 3111B
Fluoride as F	1.05 Mg / L	1.0 Mg / L	1.5 Mg / L	APHA (23rd Edition) 4500 F D
Free Residual Chlorine	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 4500 B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230328/20	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/W/20230328/20(2/2)	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
GPS Coordinates of the Location	:	$24^0 33'57.5''$N $72^0 54'23.5''$E
Details of Sample	:	Bore well water sample collected from of Chotu Ram S/o Shri Fubha ji, Village: Tarangi, Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Iron as Fe	0.06 Mg / L	0.3 Mg / L	No Relaxation	APHA (23rd Edition) 3111B
Magnesium as Mg	53.46 Mg / L	30 Mg / L	100 Mg / L	APHA (23rd Edition) 3500 Mg B
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	APHA (23rd Edition) 3111B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Nitrate as NO_3	6.33 Mg / L	45 Mg / L	No relaxation	APHA (23rd Edition) 4500 B
Phenolic Compounds as C_6H_5OH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / L	APHA (23rd Edition) 5530C
Selenium as Se	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114 B&C
Sulphate as SO_4	104.00 Mg / L	200 Mg / L	400 Mg / L	APHA (23rd Edition) 4500 E
Total Alkalinity as $CaCO_3$	492.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2320
Total Hardness as $CaCO_3$	536.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2340 C
Zinc as Zn	< 0.01 Mg / L	5 Mg / L	15 Mg / L	APHA (23rd Edition) 3111B
Table 3: Parameters containing Toxic Substances				
Cadmium as Cd	< 0.003 Mg / L	0.003 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Lead as Pb	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Mercury as Hg	< 0.001 Mg / L	0.001 Mg / L	No relaxation	APHA (23rd Edition) 3112B
Total Arsenic as As	< 0.005 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114B
Total Chromium as Cr	< 0.01 Mg / L	0.05 Mg / L	No relaxation	APHA (23rd Edition) 3111B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

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ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230328/24	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/W/20230328/24(1/2)	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
GPS Coordinates of the Location	:	24⁰36′51.2″N 72⁰57′58.7″E
Details of Sample	:	Govt. Hand Pump water sample collected from of Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Table 1: Organoleptic and Physical Parameters				
Color, Hazen Units	< 1	5	15	APHA (23rd Edition) 2120B
Odour	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
Taste	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7)
pH	7.28	6.5 – 8.5	No Relaxation	APHA (23rd Edition) 4500H
Turbidity, NTU	0.18	1	5	APHA (23rd Edition) 2130
Total Dissolved Solids	3,489.00 Mg / L	500 Mg / L	2,000 Mg / L	APHA (23rd Edition) 2540C
Electrical Conductivity	5,400 µS/cm	-	-	APHA (23rd Edition) 2510B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Aluminum as Al	< 0.01 Mg / L	0.03 Mg / L	0.2 Mg / L	APHA (23rd Edition) 3111D
Ammonia (as total ammonia-N)	< 0.2 Mg / L	0.5 Mg / L	No Relaxation	IS 3025 (Part 34)
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 5540C
Barium as Ba	< 0.1 Mg / L	0.7 Mg / L	No Relaxation	APHA (23rd Edition) 3500 Ba
Boron as B	< 0.1 Mg / L	0.5 Mg / L	2.4 Mg / L	APHA (23rd Edition) 4500B B
Calcium as Ca	457.60 Mg / L	75 Mg / L	200 Mg / L	APHA (23rd Edition) 3500 Ca B
Chloramines	< 1.0 Mg / L	4.0 Mg / L	No Relaxation	IS 3025 (Part 26)
Chloride as Cl	1,533.52 Mg / L	250 Mg / L	1,000 Mg / L	APHA (23rd Edition) 4500 Cl^- B
Copper as Cu	< 0.01 Mg / L	0.05 Mg / L	1.5 Mg / L	APHA (23rd Edition) 3111B
Fluoride as F	0.99 Mg / L	1.0 Mg / L	1.5 Mg / L	APHA (23rd Edition) 4500 F D
Free Residual Chlorine	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 4500 B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

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ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230328/24	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/W/20230328/24(2/2)	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
GPS Coordinates of the Location	:	24°36′51.2″N 72°57′58.7″E
Details of Sample	:	Govt. Hand Pump water sample collected from of Village: Rohira (Vasa), Post: Rohira, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Iron as Fe	0.16 Mg / L	0.3 Mg / L	No Relaxation	APHA (23rd Edition) 3111B
Magnesium as Mg	37.91 Mg / L	30 Mg / L	100 Mg / L	APHA (23rd Edition) 3500 Mg B
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	APHA (23rd Edition) 3111B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Nitrate as NO_3	152.06 Mg / L	45 Mg / L	No relaxation	APHA (23rd Edition) 4500 B
Phenolic Compounds as C_6H_5OH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / L	APHA (23rd Edition) 5530C
Selenium as Se	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114 B&C
Sulphate as SO_4	257.85 Mg / L	200 Mg / L	400 Mg / L	APHA (23rd Edition) 4500 E
Total Alkalinity as $CaCO_3$	360.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2320
Total Hardness as $CaCO_3$	1,300.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2340 C
Zinc as Zn	< 0.01 Mg / L	5 Mg / L	15 Mg / L	APHA (23rd Edition) 3111B
Table 3: Parameters containing Toxic Substances				
Cadmium as Cd	< 0.003 Mg / L	0.003 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Lead as Pb	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Mercury as Hg	< 0.001 Mg / L	0.001 Mg / L	No relaxation	APHA (23rd Edition) 3112B
Total Arsenic as As	< 0.005 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114B
Total Chromium as Cr	< 0.01 Mg / L	0.05 Mg / L	No relaxation	APHA (23rd Edition) 3111B

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

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Sample ID No.: SCS/W/20230328/28	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/W/20230328/28(1/2)	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
GPS Coordinates of the Location	:	24⁰36′37.8″N 72⁰57′30.9″E
Details of Sample	:	Bore well water sample collected from of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Table 1: Organoleptic and Physical Parameters				
Color, Hazen Units	< 1	5	15	APHA (23rd Edition) 2120B
Odour	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
Taste	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7)
pH	7.19	6.5 – 8.5	No Relaxation	APHA (23rd Edition) 4500H
Turbidity, NTU	0.16	1	5	APHA (23rd Edition) 2130
Total Dissolved Solids	2,018.00 Mg / L	500 Mg / L	2,000 Mg / L	APHA (23rd Edition) 2540C
Electrical Conductivity	3,120 µS/cm	-	-	APHA (23rd Edition) 2510B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Aluminum as Al	< 0.01 Mg / L	0.03 Mg / L	0.2 Mg / L	APHA (23rd Edition) 3111D
Ammonia (as total ammonia-N)	< 0.2 Mg / L	0.5 Mg / L	No Relaxation	IS 3025 (Part 34)
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 5540C
Barium as Ba	< 0.1 Mg / L	0.7 Mg / L	No Relaxation	APHA (23rd Edition) 3500 Ba
Boron as B	< 0.1 Mg / L	0.5 Mg / L	2.4 Mg / L	APHA (23rd Edition) 4500B B
Calcium as Ca	174.40 Mg / L	75 Mg / L	200 Mg / L	APHA (23rd Edition) 3500 Ca B
Chloramines	< 1.0 Mg / L	4.0 Mg / L	No Relaxation	IS 3025 (Part 26)
Chloride as Cl	685.79 Mg / L	250 Mg / L	1,000 Mg / L	APHA (23rd Edition) 4500 Cl^- B
Copper as Cu	< 0.01 Mg / L	0.05 Mg / L	1.5 Mg / L	APHA (23rd Edition) 3111B
Fluoride as F	1.27 Mg / L	1.0 Mg / L	1.5 Mg / L	APHA (23rd Edition) 4500 F D
Free Residual Chlorine	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 4500 B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230328/28	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/W/20230328/28(2/2)	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
GPS Coordinates of the Location	:	$24^0 36' 37.8''$N $72^0 57' 30.9''$E
Details of Sample	:	Bore well water sample collected from of Kalu Ram S/o Shri Suja, Village & Post: Rohira, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Iron as Fe	0.10 Mg / L	0.3 Mg / L	No Relaxation	APHA (23rd Edition) 3111B
Magnesium as Mg	69.98 Mg / L	30 Mg / L	100 Mg / L	APHA (23rd Edition) 3500 Mg B
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	APHA (23rd Edition) 3111B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Nitrate as NO_3	109.44 Mg / L	45 Mg / L	No relaxation	APHA (23rd Edition) 4500 B
Phenolic Compounds as C_6H_5OH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / L	APHA (23rd Edition) 5530C
Selenium as Se	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114 B&C
Sulphate as SO_4	128.63 Mg / L	200 Mg / L	400 Mg / L	APHA (23rd Edition) 4500 E
Total Alkalinity as $CaCO_3$	472.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2320
Total Hardness as $CaCO_3$	724.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2340 C
Zinc as Zn	< 0.01 Mg / L	5 Mg / L	15 Mg / L	APHA (23rd Edition) 3111B
Table 3: Parameters containing Toxic Substances				
Cadmium as Cd	< 0.003 Mg / L	0.003 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Lead as Pb	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Mercury as Hg	< 0.001 Mg / L	0.001 Mg / L	No relaxation	APHA (23rd Edition) 3112B
Total Arsenic as As	< 0.005 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114B
Total Chromium as Cr	< 0.01 Mg / L	0.05 Mg / L	No relaxation	APHA (23rd Edition) 3111B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230328/32	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/W/20230328/32(1/2)	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
GPS Coordinates of the Location	:	$24^0 31'16.8N''$ $72^0 52'04.9E''$
Details of Sample	:	Bore well water sample collected from Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Table 1: Organoleptic and Physical Parameters				
Color, Hazen Units	< 1	5	15	APHA (23rd Edition) 2120B
Odour	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
Taste	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7)
pH	7.26	6.5 – 8.5	No Relaxation	APHA (23rd Edition) 4500H
Turbidity, NTU	0.15	1	5	APHA (23rd Edition) 2130
Total Dissolved Solids	1,623.00 Mg / L	500 Mg / L	2,000 Mg / L	APHA (23rd Edition) 2540C
Electrical Conductivity	2,460 µS/cm	-	-	APHA (23rd Edition) 2510B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Aluminum as Al	< 0.01 Mg / L	0.03 Mg / L	0.2 Mg / L	APHA (23rd Edition) 3111D
Ammonia (as total ammonia-N)	< 0.2 Mg / L	0.5 Mg / L	No Relaxation	IS 3025 (Part 34)
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 5540C
Barium as Ba	< 0.1 Mg / L	0.7 Mg / L	No Relaxation	APHA (23rd Edition) 3500 Ba
Boron as B	< 0.1 Mg / L	0.5 Mg / L	2.4 Mg / L	APHA (23rd Edition) 4500B B
Calcium as Ca	118.40 Mg / L	75 Mg / L	200 Mg / L	APHA (23rd Edition) 3500 Ca B
Chloramines	< 1.0 Mg / L	4.0 Mg / L	No Relaxation	IS 3025 (Part 26)
Chloride as Cl	577.82 Mg / L	250 Mg / L	1,000 Mg / L	APHA (23rd Edition) 4500 Cl^- B
Copper as Cu	< 0.01 Mg / L	0.05 Mg / L	1.5 Mg / L	APHA (23rd Edition) 3111B
Fluoride as F	1.07 Mg / L	1.0 Mg / L	1.5 Mg / L	APHA (23rd Edition) 4500 F D
Free Residual Chlorine	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 4500 B

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
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JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230328/32	**Date of Registration: 28.03.2023**
Report No. SCS/KMPL/W/20230328/32(2/2)	**Date of Report: 04.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	28.03.2023
Date of start of testing	:	30.03.2023
Date of end of testing	:	04.04.2023
GPS Coordinates of the Location	:	$24^0 31'16.8N''$ $72^0 52'04.9E''$
Details of Sample	:	Bore well water sample collected from Amrat Lal S/o Shri Tikaji, Village, Post & Tehsil: Delder, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Iron as Fe	0.08 Mg / L	0.3 Mg / L	No Relaxation	APHA (23rd Edition) 3111B
Magnesium as Mg	104.00 Mg / L	30 Mg / L	100 Mg / L	APHA (23rd Edition) 3500 Mg B
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	APHA (23rd Edition) 3111B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Nitrate as NO_3	16.69 Mg / L	45 Mg / L	No relaxation	APHA (23rd Edition) 4500 B
Phenolic Compounds as C_6H_5OH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / L	APHA (23rd Edition) 5530C
Selenium as Se	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114 B&C
Sulphate as SO_4	91.82 Mg / L	200 Mg / L	400 Mg / L	APHA (23rd Edition) 4500 E
Total Alkalinity as $CaCO_3$	328.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2320
Total Hardness as $CaCO_3$	724.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2340 C
Zinc as Zn	< 0.01 Mg / L	5 Mg / L	15 Mg / L	APHA (23rd Edition) 3111B
Table 3: Parameters containing Toxic Substances				
Cadmium as Cd	< 0.003 Mg / L	0.003 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Lead as Pb	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Mercury as Hg	< 0.001 Mg / L	0.001 Mg / L	No relaxation	APHA (23rd Edition) 3112B
Total Arsenic as As	< 0.005 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114B
Total Chromium as Cr	< 0.01 Mg / L	0.05 Mg / L	No relaxation	APHA (23rd Edition) 3111B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

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ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230330/23	Date of Registration: 30.03.2023
Report No. SCS/KMPL/W/20230330/23(1/2)	Date of Report: 07.04.2023

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	07.04.2023
GPS Coordinates of the Location	:	$24^0$33'08.7"N $72^0$51'40.2"E
Details of Sample	:	Govt. Bore well water sample collected from of Village: Wada, Post: Bharja, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Table 1: Organoleptic and Physical Parameters				
Color, Hazen Units	< 1	5	15	APHA (23rd Edition) 2120B
Odour	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
Taste	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7)
pH	7.60	6.5 – 8.5	No Relaxation	APHA (23rd Edition) 4500H
Turbidity, NTU	0.14	1	5	APHA (23rd Edition) 2130
Total Dissolved Solids	798.00 Mg / L	500 Mg / L	2,000 Mg / L	APHA (23rd Edition) 2540C
Electrical Conductivity	1,235 µS/cm	-	-	APHA (23rd Edition) 2510B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Aluminum as Al	< 0.01 Mg / L	0.03 Mg / L	0.2 Mg / L	APHA (23rd Edition) 3111D
Ammonia (as total ammonia-N)	< 0.2 Mg / L	0.5 Mg / L	No Relaxation	IS 3025 (Part 34)
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 5540C
Barium as Ba	< 0.1 Mg / L	0.7 Mg / L	No Relaxation	APHA (23rd Edition) 3500 Ba
Boron as B	< 0.1 Mg / L	0.5 Mg / L	2.4 Mg / L	APHA (23rd Edition) 4500B B
Calcium as Ca	81.60 Mg / L	75 Mg / L	200 Mg / L	APHA (23rd Edition) 3500 Ca B
Chloramines	< 1.0 Mg / L	4.0 Mg / L	No Relaxation	IS 3025 (Part 26)
Chloride as Cl	199.94 Mg / L	250 Mg / L	1,000 Mg / L	APHA (23rd Edition) 4500 Cl⁻ B
Copper as Cu	< 0.01 Mg / L	0.05 Mg / L	1.5 Mg / L	APHA (23rd Edition) 3111B
Fluoride as F	0.88 Mg / L	1.0 Mg / L	1.5 Mg / L	APHA (23rd Edition) 4500 F D
Free Residual Chlorine	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 4500 B

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

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ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230330/23	Date of Registration: 30.03.2023
Report No. SCS/KMPL/W/20230330/23(2/2)	Date of Report: 07.04.2023

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	07.04.2023
GPS Coordinates of the Location	:	24°33'08.7"N 72°51'40.2"E
Details of Sample	:	Govt. Bore well water sample collected from of Village: Wada, Post: Bharja, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Iron as Fe	0.04 Mg / L	0.3 Mg / L	No Relaxation	APHA (23rd Edition) 3111B
Magnesium as Mg	14.58 Mg / L	30 Mg / L	100 Mg / L	APHA (23rd Edition) 3500 Mg B
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	APHA (23rd Edition) 3111B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Nitrate as NO_3	43.10 Mg / L	45 Mg / L	No relaxation	APHA (23rd Edition) 4500 B
Phenolic Compounds as C_6H_5OH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / L	APHA (23rd Edition) 5530C
Selenium as Se	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114 B&C
Sulphate as SO_4	53.20 Mg / L	200 Mg / L	400 Mg / L	APHA (23rd Edition) 4500 E
Total Alkalinity as $CaCO_3$	260.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2320
Total Hardness as $CaCO_3$	264.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2340 C
Zinc as Zn	< 0.01 Mg / L	5 Mg / L	15 Mg / L	APHA (23rd Edition) 3111B
Table 3: Parameters containing Toxic Substances				
Cadmium as Cd	< 0.003 Mg / L	0.003 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Lead as Pb	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Mercury as Hg	< 0.001 Mg / L	0.001 Mg / L	No relaxation	APHA (23rd Edition) 3112B
Total Arsenic as As	< 0.005 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114B
Total Chromium as Cr	< 0.01 Mg / L	0.05 Mg / L	No relaxation	APHA (23rd Edition) 3111B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230330/27	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/W/20230330/27(1/2)	**Date of Report: 07.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	07.04.2023
GPS Coordinates of the Location	:	$24^0$35′02.9″N $72^0$54′00.6″E
Details of Sample	:	Bore well water sample collected from of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Table 1: Organoleptic and Physical Parameters				
Color, Hazen Units	< 1	5	15	APHA (23rd Edition) 2120B
Odour	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
Taste	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7)
pH	7.22	6.5 – 8.5	No Relaxation	APHA (23rd Edition) 4500H
Turbidity, NTU	0.15	1	5	APHA (23rd Edition) 2130
Total Dissolved Solids	869.00 Mg / L	500 Mg / L	2,000 Mg / L	APHA (23rd Edition) 2540C
Electrical Conductivity	1,350 µS/cm	-	-	APHA (23rd Edition) 2510B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Aluminum as Al	< 0.01 Mg / L	0.03 Mg / L	0.2 Mg / L	APHA (23rd Edition) 3111D
Ammonia (as total ammonia-N)	< 0.2 Mg / L	0.5 Mg / L	No Relaxation	IS 3025 (Part 34)
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 5540C
Barium as Ba	< 0.1 Mg / L	0.7 Mg / L	No Relaxation	APHA (23rd Edition) 3500 Ba
Boron as B	< 0.1 Mg / L	0.5 Mg / L	2.4 Mg / L	APHA (23rd Edition) 4500B B
Calcium as Ca	86.40 Mg / L	75 Mg / L	200 Mg / L	APHA (23rd Edition) 3500 Ca B
Chloramines	< 1.0 Mg / L	4.0 Mg / L	No Relaxation	IS 3025 (Part 26)
Chloride as Cl	167.95 Mg / L	250 Mg / L	1,000 Mg / L	APHA (23rd Edition) 4500 Cl^- B
Copper as Cu	< 0.01 Mg / L	0.05 Mg / L	1.5 Mg / L	APHA (23rd Edition) 3111B
Fluoride as F	0.77 Mg / L	1.0 Mg / L	1.5 Mg / L	APHA (23rd Edition) 4500 F D
Free Residual Chlorine	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 4500 B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

TC-6960

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ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230330/27	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/W/20230330/27(2/2)	**Date of Report: 07.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	07.04.2023
GPS Coordinates of the Location	:	$24^0 35'02.9''$N $72^0 54'00.6''$E
Details of Sample	:	Bore well water sample collected from of Dipa Ram S/o Shri Manka Ram, Village & Post: Bhimana, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Iron as Fe	0.04 Mg / L	0.3 Mg / L	No Relaxation	APHA (23rd Edition) 3111B
Magnesium as Mg	57.35 Mg / L	30 Mg / L	100 Mg / L	APHA (23rd Edition) 3500 Mg B
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	APHA (23rd Edition) 3111B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Nitrate as NO_3	15.24 Mg / L	45 Mg / L	No relaxation	APHA (23rd Edition) 4500 B
Phenolic Compounds as C_6H_5OH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / L	APHA (23rd Edition) 5530C
Selenium as Se	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114 B&C
Sulphate as SO_4	23.89 Mg / L	200 Mg / L	400 Mg / L	APHA (23rd Edition) 4500 E
Total Alkalinity as $CaCO_3$	440.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2320
Total Hardness as $CaCO_3$	452.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2340 C
Zinc as Zn	< 0.01 Mg / L	5 Mg / L	15 Mg / L	APHA (23rd Edition) 3111B
Table 3: Parameters containing Toxic Substances				
Cadmium as Cd	< 0.003 Mg / L	0.003 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Lead as Pb	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Mercury as Hg	< 0.001 Mg / L	0.001 Mg / L	No relaxation	APHA (23rd Edition) 3112B
Total Arsenic as As	< 0.005 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114B
Total Chromium as Cr	< 0.01 Mg / L	0.05 Mg / L	No relaxation	APHA (23rd Edition) 3111B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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7, KESAR VIHAR, OPPOSITE KHATU SHYAMJI TEMPLE,
RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

MoEF&CC RECOGNIZED LABORATORY vide S.O. 5768(E) Dated 15.11.2018 Valid upto 14.11.2023
ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230330/31	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/W/20230330/31(1/2)	**Date of Report: 07.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	07.04.2023
GPS Coordinates of the Location	:	$24^0 37'41.5''N$ $72^0 53'45.6''E$
Details of Sample	:	Govt. Bore well water sample collected from Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Table 1: Organoleptic and Physical Parameters				
Color, Hazen Units	< 1	5	15	APHA (23rd Edition) 2120B
Odour	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
Taste	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7)
pH	6.92	6.5 – 8.5	No Relaxation	APHA (23rd Edition) 4500H
Turbidity, NTU	0.16	1	5	APHA (23rd Edition) 2130
Total Dissolved Solids	3,102.00 Mg / L	500 Mg / L	2,000 Mg / L	APHA (23rd Edition) 2540C
Electrical Conductivity	4,800 µS/cm	-	-	APHA (23rd Edition) 2510B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Aluminum as Al	< 0.01 Mg / L	0.03 Mg / L	0.2 Mg / L	APHA (23rd Edition) 3111D
Ammonia (as total ammonia-N)	< 0.2 Mg / L	0.5 Mg / L	No Relaxation	IS 3025 (Part 34)
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 5540C
Barium as Ba	< 0.1 Mg / L	0.7 Mg / L	No Relaxation	APHA (23rd Edition) 3500 Ba
Boron as B	< 0.1 Mg / L	0.5 Mg / L	2.4 Mg / L	APHA (23rd Edition) 4500B B
Calcium as Ca	265.60 Mg / L	75 Mg / L	200 Mg / L	APHA (23rd Edition) 3500 Ca B
Chloramines	< 1.0 Mg / L	4.0 Mg / L	No Relaxation	IS 3025 (Part 26)
Chloride as Cl	1,187.63 Mg / L	250 Mg / L	1,000 Mg / L	APHA (23rd Edition) 4500 Cl^- B
Copper as Cu	< 0.01 Mg / L	0.05 Mg / L	1.5 Mg / L	APHA (23rd Edition) 3111B
Fluoride as F	0.94 Mg / L	1.0 Mg / L	1.5 Mg / L	APHA (23rd Edition) 4500 F D
Free Residual Chlorine	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 4500 B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

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SCS **SCS ENVIRO SERVICES PRIVATE LIMITED**

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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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ISO-9001:2015 CERTIFIED LABORATORY
ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230330/31	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/W/20230330/31(2/2)	**Date of Report: 07.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	07.04.2023
GPS Coordinates of the Location	:	$24^0 37'41.5''$N $72^0 53'45.6''$E
Details of Sample	:	Govt. Bore well water sample collected from Village: Urwariya, Post: Kasholi, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Iron as Fe	0.15 Mg / L	0.3 Mg / L	No Relaxation	APHA (23rd Edition) 3111B
Magnesium as Mg	114.70 Mg / L	30 Mg / L	100 Mg / L	APHA (23rd Edition) 3500 Mg B
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	APHA (23rd Edition) 3111B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Nitrate as NO_3	111.89 Mg / L	45 Mg / L	No relaxation	APHA (23rd Edition) 4500 B
Phenolic Compounds as C_6H_5OH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / L	APHA (23rd Edition) 5530C
Selenium as Se	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114 B&C
Sulphate as SO_4	345.98 Mg / L	200 Mg / L	400 Mg / L	APHA (23rd Edition) 4500 E
Total Alkalinity as $CaCO_3$	476.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2320
Total Hardness as $CaCO_3$	1,136.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2340 C
Zinc as Zn	< 0.01 Mg / L	5 Mg / L	15 Mg / L	APHA (23rd Edition) 3111B
Table 3: Parameters containing Toxic Substances				
Cadmium as Cd	< 0.003 Mg / L	0.003 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Lead as Pb	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Mercury as Hg	< 0.001 Mg / L	0.001 Mg / L	No relaxation	APHA (23rd Edition) 3112B
Total Arsenic as As	< 0.005 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114B
Total Chromium as Cr	< 0.01 Mg / L	0.05 Mg / L	No relaxation	APHA (23rd Edition) 3111B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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CIN NO.: U74140RJ2013PTC042216

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ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230330/35	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/W/20230330/35(1/2)	**Date of Report: 07.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	07.04.2023
GPS Coordinates of the Location	:	$24^0 37'58.7''$N $72^0 57'53.8''$E
Details of Sample	:	Govt. Hand Pump water sample collected from of Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Table 1: Organoleptic and Physical Parameters				
Color, Hazen Units	< 1	5	15	APHA (23rd Edition) 2120B
Odour	Agreeable	Agreeable	Agreeable	IS 3025 (Part 5)
Taste	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7)
pH	6.98	6.5 – 8.5	No Relaxation	APHA (23rd Edition) 4500H
Turbidity, NTU	0.17	1	5	APHA (23rd Edition) 2130
Total Dissolved Solids	1,067.00 Mg / L	500 Mg / L	2,000 Mg / L	APHA (23rd Edition) 2540C
Electrical Conductivity	1,650 µS/cm	-	-	APHA (23rd Edition) 2510B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Aluminum as Al	< 0.01 Mg / L	0.03 Mg / L	0.2 Mg / L	APHA (23rd Edition) 3111D
Ammonia (as total ammonia-N)	< 0.2 Mg / L	0.5 Mg / L	No Relaxation	IS 3025 (Part 34)
Anionic Detergents as MBAS	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 5540C
Barium as Ba	< 0.1 Mg / L	0.7 Mg / L	No Relaxation	APHA (23rd Edition) 3500 Ba
Boron as B	< 0.1 Mg / L	0.5 Mg / L	2.4 Mg / L	APHA (23rd Edition) 4500B B
Calcium as Ca	107.20 Mg / L	75 Mg / L	200 Mg / L	APHA (23rd Edition) 3500 Ca B
Chloramines	< 1.0 Mg / L	4.0 Mg / L	No Relaxation	IS 3025 (Part 26)
Chloride as Cl	181.94 Mg / L	250 Mg / L	1,000 Mg / L	APHA (23rd Edition) 4500 Cl^- B
Copper as Cu	< 0.01 Mg / L	0.05 Mg / L	1.5 Mg / L	APHA (23rd Edition) 3111B
Fluoride as F	0.84 Mg / L	1.0 Mg / L	1.5 Mg / L	APHA (23rd Edition) 4500 F D
Free Residual Chlorine	< 0.1 Mg / L	0.2 Mg / L	1.0 Mg / L	APHA (23rd Edition) 4500 B

Per pro SCS Enviro Services Pvt. Ltd.,

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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RAMNAGARIYA ROAD, JAGATPURA,
JAIPUR-302017, RAJASTHAN (INDIA)
CIN NO.: U74140RJ2013PTC042216

TC-6960

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ISO-14001:2015 CERTIFIED LABORATORY
ISO-45001:2018 CERTIFIED LABORATORY

Sample ID No.: SCS/W/20230330/35	**Date of Registration: 30.03.2023**
Report No. SCS/KMPL/W/20230330/35(2/2)	**Date of Report: 07.04.2023**

TEST REPORT

Name of Client	:	M/s. Kamlesh Metacast Pvt. Ltd.,
Address of Client	:	Near village- Rohida, Watera, Bhimana, Tehsil- Pindawara, Dist.: Sirohi, Rajasthan
Date of Sample Receipt	:	30.03.2023
Date of start of testing	:	01.04.2023
Date of end of testing	:	07.04.2023
GPS Coordinates of the Location	:	$24^0 37' 58.7''$N $72^0 57' 53.8''$E
Details of Sample	:	Govt. Hand Pump water sample collected from of Village: Hirawala, Post: Rohira, Tehsil: Pindwara, District: Sirohi
Sample submitted by	:	SCS Representative

Parameter	Results	IS – 10500:2012		Protocol
		Requirement (Acceptable Limit)	Permissible Limit in absence of alternate source	
Iron as Fe	0.06 Mg / L	0.3 Mg / L	No Relaxation	APHA (23rd Edition) 3111B
Magnesium as Mg	34.99 Mg / L	30 Mg / L	100 Mg / L	APHA (23rd Edition) 3500 Mg B
Manganese as Mn	< 0.01 Mg / L	0.1 Mg / L	0.3 Mg / L	APHA (23rd Edition) 3111B
Table 2: General Parameters Concerning Substances Undesirable in Excess Amounts				
Nitrate as NO_3	76.90 Mg / L	45 Mg / L	No relaxation	APHA (23rd Edition) 4500 B
Phenolic Compounds as C_6H_5OH	< 0.001 Mg / L	0.001 Mg / L	0.002 Mg / L	APHA (23rd Edition) 5530C
Selenium as Se	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114 B&C
Sulphate as SO_4	66.91 Mg / L	200 Mg / L	400 Mg / L	APHA (23rd Edition) 4500 E
Total Alkalinity as $CaCO_3$	440.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2320
Total Hardness as $CaCO_3$	412.00 Mg / L	200 Mg / L	600 Mg / L	APHA (23rd Edition) 2340 C
Zinc as Zn	< 0.01 Mg / L	5 Mg / L	15 Mg / L	APHA (23rd Edition) 3111B
Table 3: Parameters containing Toxic Substances				
Cadmium as Cd	< 0.003 Mg / L	0.003 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Lead as Pb	< 0.01 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3111B
Mercury as Hg	< 0.001 Mg / L	0.001 Mg / L	No relaxation	APHA (23rd Edition) 3112B
Total Arsenic as As	< 0.005 Mg / L	0.01 Mg / L	No relaxation	APHA (23rd Edition) 3114B
Total Chromium as Cr	< 0.01 Mg / L	0.05 Mg / L	No relaxation	APHA (23rd Edition) 3111B

Per pro SCS Enviro Services Pvt. Ltd.,

SCS ENVIRO SERVICES PVT. LTD. JAIPUR

Dr. D. S. Parihar
(Technical Manager)
Authorised Signatory

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SGS

Test Report

TC-5867

Sample No : BM23-001029.001
JOE No : BM23-001029

Issue Date : 30/03/2023
Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-1		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	48.01
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.38
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.19
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	6.46
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.63

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

SGS

Test Report

Sample No : BM23-001029.001

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	39.85

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

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Test Report

TC-5867

Sample No	: BM23-001029.002	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-2		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	48.82
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.39
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.20
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	6.51
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.64

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.002

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	39.35

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.003	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-3		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	49.74
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.78
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.71
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.24
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.22

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.003

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.36

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No : BM23-001029.004

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-4		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	49.72
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.79
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.68
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.22
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.20

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.004

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.38

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.005	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-5		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	48.51
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.37
MgO %	ASTM C1271 - 99 (Reapproved 2020)	2.04
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.88
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.58

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.005

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	39.76

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.006	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-6		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	46.19
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.64
MgO %	ASTM C1271 - 99 (Reapproved 2020)	2.23
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	8.90
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	2.10

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.006

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	37.62

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.007	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-7		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	45.81
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.60
MgO %	ASTM C1271 - 99 (Reapproved 2020)	2.18
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	8.70
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	2.05

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

SGS

Test Report

Sample No : BM23-001029.007

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	37.91

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.008	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-8		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	48.04
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.30
MgO %	ASTM C1271 - 99 (Reapproved 2020)	2.45
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	6.64
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.75

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

SGS

Test Report

Sample No : BM23-001029.008

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	38.71

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.009	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-9		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	47.91
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.31
MgO %	ASTM C1271 - 99 (Reapproved 2020)	2.46
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	6.68
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.76

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

SGS

Test Report

Sample No : BM23-001029.009

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	38.74

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.010	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-10		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	48.31
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.35
MgO %	ASTM C1271 - 99 (Reapproved 2020)	2.05
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.90
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.58

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.010

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	39.74

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.011	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-11		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals	: Limestone & Dolomite	
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	50.36
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.87
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.45
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	4.64
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.03

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

Test Report

Sample No : BM23-001029.011

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.71

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

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Test Report

TC-5867

Sample No	: BM23-001029.012	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-12		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	50.34
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.86
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.42
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	4.55
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.04

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

SGS

Test Report

Sample No : BM23-001029.012

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.83

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.013	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-13		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	48.88
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.87
MgO %	ASTM C1271 - 99 (Reapproved 2020)	2.12
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.69
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.30

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

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Test Report

Sample No : BM23-001029.013

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	39.89

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.014	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-14		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	49.27
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.87
MgO %	ASTM C1271 - 99 (Reapproved 2020)	2.16
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.79
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.33

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.014

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	39.62

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.015	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-15		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	47.72
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.26
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.47
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	7.27
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.74

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.015

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	38.94

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.016	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-16		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	48.17
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.27
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.49
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	7.49
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.82

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.016

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	38.51

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.017	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-17		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	51.12
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.01
MgO %	ASTM C1271 - 99 (Reapproved 2020)	0.71
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	4.52
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.97

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.017

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.94

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.018	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-18		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	48.79
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.90
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.30
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	6.22
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.49

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.018

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.12

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.019	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-19		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	48.78
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.10
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.89
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.85
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.39

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.019

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	39.70

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.020	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-20		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	49.20
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.08
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.40
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.67
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.43

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.020

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.15

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.021	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-21		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	49.74
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.87
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.26
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.22
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.33

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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SGS

Test Report

Sample No : BM23-001029.021

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.66

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

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Test Report

TC-5867

Sample No	: BM23-001029.022	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-22		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	50.00
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.82
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.49
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	4.85
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.12

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

SGS

Test Report

Sample No : BM23-001029.022

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.60

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No : BM23-001029.023

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-23		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	48.82
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.26
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.30
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.35
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.32

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.023

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.28

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.024	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-24		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	50.11
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.96
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.49
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.07
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.21

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.024

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.16

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.025	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-25		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	50.04
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.67
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.20
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	4.73
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.05

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.025

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.96

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

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Test Report

TC-5867

Sample No	: BM23-001029.026	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-26		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	50.18
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.95
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.00
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.46
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.36

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

SGS

Test Report

Sample No : BM23-001029.026

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.05

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.027	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-27		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	51.87
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.57
MgO %	ASTM C1271 - 99 (Reapproved 2020)	0.58
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	3.47
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.81

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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SGS

Test Report

Sample No : BM23-001029.027

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	41.59

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.028	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-28		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	49.27
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.29
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.35
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.31
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.34

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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SGS

Test Report

Sample No : BM23-001029.028

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	39.88

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.029	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-29		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	48.72
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.07
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.89
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	5.62
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.37

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.029

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	39.73

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No : BM23-001029.030

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-30		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	49.40
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.00
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.56
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	6.21
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.49

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.030

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	39.36

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

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Test Report

TC-5867

Sample No	: BM23-001029.031	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-31		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	49.97
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.85
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.50
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	4.94
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.14

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Member of the SGS Group (SGS SA)

SGS

Test Report

Sample No : BM23-001029.031

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	40.18

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.032	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-32		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	50.44
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.96
MgO %	ASTM C1271 - 99 (Reapproved 2020)	1.50
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	4.95
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	1.20

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.032

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	39.89

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

TC-5867

Sample No	: BM23-001029.033	**Issue Date**	: 30/03/2023
JOE No	: BM23-001029	**Report Control No**	: BMR0000037671

Sample not Drawn by Laboratory

Sample Described by Customer as	: LIMESTONE		
Customer Name	: KAMLESH METACAST PRIVATE LIMITED		
Customer Address	: A and 5D, Corporate Tower A-2, Near Jawahar CircleJawahar Lal Nehru Marg		
City	:	**Postal Code**	: 302017
State	: Rajasthan	**Country**	: INDIA
Sample Mark	: K-33		
Sample Qty.	: Approx 50 g		
Sample Size	: Fines		
Sample Condition	: Self Sealed		
Data Provided By Customer	: Customer Name, Address, Sample, Description, Sample Mark, Sample Quantity & Test protocols		
Group	: Ores & Minerals : Limestone & Dolomite		
Sample Received Date	: 27/03/2023	**Registration Date**	: 27/03/2023
Test Start Date	: 27/03/2023	**Test End Date**	: 30/03/2023

NABL Accredited Tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
CaO %	ASTM C1271 - 99 (Reapproved 2020)	52.19
Fe2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.55
MgO %	ASTM C1271 - 99 (Reapproved 2020)	0.58
SiO2 %	ASTM C1271 - 99 (Reapproved 2020)	3.46
Al2O3 %	ASTM C1271 - 99 (Reapproved 2020)	0.81

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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Test Report

Sample No : BM23-001029.033

JOE No : BM23-001029

Issue Date : 30/03/2023

Report Control No : BMR0000037671

Sample not Drawn by Laboratory

Non-Accredited tests

Test Name	Test Protocol	Test Results
DISCIPLINE: CHEMICAL		
Loss on Ignition as LOI(on dry basis) %	IS:1760 (Part 1) - 1991 Reaff.2022	41.22

End of Report

Per Pro SGS India Private Ltd.

P.Panda
Technical Manager - Min Lab
Authorised Signatory

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ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

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Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/AA/0026/3-5/2025**
		Issue Date of Test Report	07.06.2025
Type of Sample	Ambient Air		
Sample Registration No.	0026	**Name of Location**	Tarangi (within the Lease Area) (A-01)
Sampling Method	As per Reference Method	**Sample Collected By**	EMPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025	**Time of Sample Collection**	-
Date of Sample Received	-	**Time of Sample Received**	-
Start Date of Analysis	01.03.2025 to 31.05.2025	**End Date of Analysis**	06.06.2025
Weather Condition	Sunny	**Sampling Duration**	24 Hrs.
Environmental Condition	Temperature: 25 ± 2 °C	**Sample ID Code**	ECO/LAB/0026/3-5/2025
	Humidity: 56 %		

DATE	24 HOURLY				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
03.03.2025	58.58	33.19	10.75	22.03	0.74
08.03.2025	53.69	28.25	11.14	17.52	0.52
10.03.2025	60.18	34.07	11.96	19.22	0.76
15.03.2025	47.44	33.15	10.56	16.86	0.52
17.03.2025	48.25	27.62	12.17	20.50	0.83
22.03.2025	52.74	35.35	9.99	17.25	0.56
24.03.2025	58.40	30.11	11.96	18.65	0.86
30.03.2025	47.26	28.96	9.56	17.80	0.74
07.04.2025	49.62	25.86	10.65	22.66	0.72
12.04.2025	57.19	32.44	12.29	17.23	0.88
14.04.2025	53.68	29.71	10.19	18.34	0.69
19.04.2025	48.25	27.28	13.56	19.40	0.46
21.04.2025	53.19	28.22	11.94	14.75	0.54
26.04.2025	55.56	34.18	10.87	17.35	0.46
28.04.2025	47.86	31.02	8.86	14.57	0.48
30.04.2025	55.83	31.38	9.56	15.68	0.59
05.05.2025	58.26	29.51	11.26	16.36	0.47
10.05.2025	60.55	30.35	10.02	18.08	0.45
12.05.2025	58.00	33.17	11.18	17.93	0.76
17.05.2025	59.93	28.18	10.22	15.95	0.58
19.05.2025	63.80	30.40	11.07	19.78	0.74
24.05.2025	56.25	27.76	13.42	17.51	0.94
26.05.2025	53.63	29.28	12.95	19.42	0.86
31.05.2025	47.82	31.56	10.78	17.22	0.46
NAAQMS Standards	**100.00**	**60.00**	**80.00**	**80.00**	**2.00**

	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
NUMBER OF OBSERVATIONS	24	24	24	24	24
MEAN	**54.42**	**30.46**	**11.12**	**18.00**	**0.65**
GEOMETRIC MEAN	54.20	30.36	11.06	17.90	0.63
STD. GEO. DEVN. (24 HRS.)	4.82	2.47	1.19	1.96	0.16
MAXIMUM CONCENTRATION	63.8	35.3	13.6	22.7	0.94
MINIMUM CONCENTRATION	47.3	25.9	8.9	14.6	0.45

PERCENTILE VALUE :

	10	20	30	40	50	60	70	80	90	98
PM_{10}	47.63	48.25	51.18	53.63	54.63	56.25	58.13	58.58	60.37	62.31
$PM_{2.5}$	27.45	28.18	28.60	29.51	30.23	31.02	32.00	33.17	34.13	34.81
SO_2	9.69	10.12	10.53	10.75	10.97	11.17	11.94	12.04	12.75	13.50
NO_2	15.76	16.66	17.23	17.38	17.66	18.05	18.71	19.41	20.29	22.75
CO	0.46	0.48	0.48	0.56	0.64	0.73	0.74	0.78	0.86	0.91

Note: All units are $\mu g/m^3$ except CO is mentioned in ppm

Statement of Conformity: Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan	Test Report No.	ECO/LAB/AA/0026/3-5/2025
		Issue Date of Test Report	07.06.2025
Type of Sample	Ambient Air		
Sample Registration No.	0026	Name of Location	Crusher (A-02)
Sampling Method	As per Reference Method	Sample Collected By	EMPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025	Time of Sample Collection	-
Date of Sample Received	-	Time of Sample Received	-
Start Date of Analysis	01.03.2025 to 31.05.2025	End Date of Analysis	06.06.2025
Weather Condition	Sunny	Sampling Duration	24 Hrs.
Environmental Condition	Temperature: 25 ± 2 °C	Sample ID Code	ECO/LAB/0026/3-5/2025
	Humidity: 56 %		

DATE	24 HOURLY				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
03.03.2025	51.20	26.35	12.52	19.52	0.46
08.03.2025	59.41	28.04	10.63	17.02	0.48
10.03.2025	48.52	23.88	11.02	22.20	0.40
15.03.2025	53.20	30.14	10.96	17.52	0.55
17.03.2025	50.58	27.53	12.70	17.46	0.56
22.03.2025	53.04	24.78	11.52	23.56	0.62
24.03.2025	50.19	25.96	9.98	20.14	0.56
30.03.2025	56.22	29.78	12.58	18.56	0.48
07.04.2025	50.36	27.90	10.36	19.36	0.50
12.04.2025	61.25	25.62	11.04	21.52	0.42
14.04.2025	51.65	25.92	9.86	20.36	0.55
19.04.2025	40.00	24.14	12.70	19.52	0.39
21.04.2025	40.95	25.36	12.46	20.36	0.42
26.04.2025	49.56	26.92	8.96	21.47	0.52
28.04.2025	49.36	24.52	10.46	23.72	0.46
30.04.2025	47.86	26.14	10.86	18.56	0.41
05.05.2025	50.61	25.85	12.25	20.25	0.56
10.05.2025	51.62	29.00	12.02	18.14	0.51
12.05.2025	59.56	27.82	11.42	16.38	0.56
17.05.2025	50.94	25.34	11.00	17.02	0.49
19.05.2025	51.59	26.58	10.74	19.56	0.39
24.05.2025	61.46	32.86	11.45	21.14	0.46
26.05.2025	51.24	27.20	10.78	18.25	0.54
31.05.2025	49.56	28.14	10.74	15.78	0.46
NAAQMS Standards	100.00	60.00	80.00	80.00	2.00

	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
NUMBER OF OBSERVATIONS	24	24	24	24	24
MEAN	51.66	26.91	11.21	19.47	0.49
GEOMETRIC MEAN	51.40	26.83	11.17	19.36	0.49
STD. GEO. DEVN. (24 HRS.)	5.14	2.05	0.97	2.08	0.06
98th PERCENTILES	87.29	54.93	8.2	34.02	0.79
MAXIMUM CONCENTRATION	61.5	32.9	12.7	23.7	0.62
MINIMUM CONCENTRATION	40.0	23.9	9.0	15.8	0.39

PERCENTILE VALUE :

	10	20	30	40	50	60	70	80	90	98
PM_{10}	44.41	49.36	49.88	50.58	51.07	51.59	52.35	56.22	60.41	61.36
$PM_{2.5}$	24.33	25.34	25.74	25.96	26.47	27.20	27.86	28.14	29.96	31.61
SO_2	10.09	10.56	10.74	10.88	11.01	11.34	11.57	12.33	12.56	12.70
NO_2	17.02	17.50	18.24	18.72	19.52	20.02	20.36	21.27	22.00	24.66
CO	0.40	0.42	0.42	0.47	0.49	0.51	0.54	0.55	0.56	0.59

Note: All units are $\mu g/m^3$ except CO is mentioned in ppm

Statement of Conformity: Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/AA/0026/3-5/2025**
		Issue Date of Test Report	07.06.2025
Type of Sample	Ambient Air		
Sample Registration No.	0026	**Name of Location**	Near-Village Bharja (A-03)
Sampling Method	As per Reference Method	**Sample Collected By**	EMPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025	**Time of Sample Collection**	-
Date of Sample Received	-	**Time of Sample Received**	-
Start Date of Analysis	01.03.2025 to 31.05.2025	**End Date of Analysis**	06.06.2025
Weather Condition	Sunny	**Sampling Duration**	24 Hrs.
Environmental Condition	Temperature: 25 ± 2 °C	**Sample ID Code**	ECO/LAB/0026/3-5/2025
	Humidity: 56 %		

DATE	24 HOURLY				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
03.03.2025	44.48	26.34	7.94	15.24	0.55
08.03.2025	47.18	29.10	9.05	16.30	0.41
10.03.2025	50.62	27.10	11.00	19.20	0.53
15.03.2025	47.00	27.52	10.21	13.73	0.47
17.03.2025	45.61	23.58	8.99	15.42	0.41
22.03.2025	43.62	25.04	6.96	10.68	0.50
24.03.2025	41.17	26.34	9.32	14.06	0.47
30.03.2025	46.25	29.20	8.27	11.36	0.54
07.04.2025	43.67	25.78	11.00	17.42	0.41
12.04.2025	40.07	22.98	9.08	14.10	0.59
14.04.2025	44.17	20.10	7.53	13.48	0.50
19.04.2025	45.56	27.40	10.64	16.65	0.46
21.04.2025	49.24	29.80	8.56	14.84	0.50
26.04.2025	47.14	25.85	7.48	14.79	0.49
28.04.2025	44.03	26.01	9.84	13.95	0.41
30.04.2025	44.71	23.69	8.10	15.50	0.42
05.05.2025	55.30	28.84	9.55	12.01	0.52
10.05.2025	48.62	25.24	10.36	14.06	0.56
12.05.2025	40.89	24.36	9.48	17.29	0.37
17.05.2025	46.28	23.42	8.14	14.62	0.41
19.05.2025	42.25	25.11	7.69	14.00	0.56
24.05.2025	45.31	27.00	10.48	13.96	0.38
26.05.2025	49.36	29.36	8.65	14.58	0.40
31.05.2025	52.14	27.86	10.24	15.34	0.45
NAAQMS Standards	**100.00**	**60.00**	**80.00**	**80.00**	**2.00**

	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
NUMBER OF OBSERVATIONS	24	24	24	24	24
MEAN	**46.03**	**26.13**	**9.11**	**14.69**	**0.47**
GEOMETRIC MEAN	45.89	26.02	9.03	14.57	0.47
STD. GEO. DEVN. (24 HRS.)	3.54	2.33	1.17	1.86	0.06
98th PERCENTILES	87.29	54.93	8.2	34.02	0.79
MAXIMUM CONCENTRATION	55.3	29.8	11.0	19.2	0.59
MINIMUM CONCENTRATION	40.1	20.1	7.0	10.7	0.37

PERCENTILE VALUE

	10	20	30	40	50	60	70	80	90	98
PM_{10}	41.03	43.62	44.10	44.71	45.58	46.28	47.16	49.24	51.38	53.85
$PM_{2.5}$	23.20	23.69	25.07	25.78	26.18	27.00	27.46	28.84	29.28	29.60
SO_2	7.58	8.04	8.26	8.72	9.07	9.45	9.88	10.29	10.59	11.00
NO_2	12.45	13.86	14.00	14.07	14.60	14.83	15.35	15.82	17.10	25.49
CO	0.40	0.41	0.41	0.45	0.47	0.50	0.51	0.53	0.56	0.58

Note: All units are $\mu g/m^3$ except CO is mentioned in ppm

Statement of Conformity: Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

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TC-12751

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/AA/0026/3-5/2025**
		Issue Date of Test Report	07.06.2025
Type of Sample	Ambient Air		
Sample Registration No.	0026	**Name of Location**	Near-Village (Watera) (A-04)
Sampling Method	As per Reference Method	**Sample Collected By**	EMPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025	**Time of Sample Collection**	-
Date of Sample Received	-	**Time of Sample Received**	-
Start Date of Analysis	01.03.2025 to 31.05.2025	**End Date of Analysis**	06.06.2025
Weather Condition	Sunny	**Sampling Duration**	24 Hrs.
Environmental Condition	Temperature: 25 ± 2 °C	**Sample ID Code**	ECO/LAB/0026/3-5/2025
	Humidity: 56 %		

DATE	24 HOURLY				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
03.03.2025	43.20	27.00	9.86	17.20	0.39
08.03.2025	47.20	28.41	10.23	15.26	0.40
10.03.2025	50.30	26.85	11.42	18.25	0.38
15.03.2025	45.26	31.25	10.59	21.36	0.52
17.03.2025	42.86	26.96	11.24	18.96	0.44
22.03.2025	51.89	29.42	8.20	16.78	0.36
24.03.2025	49.28	31.40	10.23	19.77	0.39
30.03.2025	47.25	24.14	12.36	19.26	0.56
07.04.2025	43.98	24.00	10.58	17.42	0.36
12.04.2025	45.28	26.36	11.36	16.25	0.60
14.04.2025	39.76	29.86	9.56	13.96	0.36
19.04.2025	43.56	27.84	10.84	20.63	0.65
21.04.2025	41.84	25.96	10.99	19.42	0.27
26.04.2025	48.52	23.56	11.02	20.08	0.41
28.04.2025	43.95	25.25	9.88	16.89	0.33
30.04.2025	47.80	25.45	10.52	18.25	0.57
05.05.2025	52.36	29.83	10.78	19.74	0.40
10.05.2025	43.88	30.56	11.83	16.39	0.42
12.05.2025	39.58	28.25	8.89	19.03	0.42
17.05.2025	47.12	29.56	8.96	15.66	0.58
19.05.2025	49.85	30.19	11.20	18.62	0.39
24.05.2025	46.38	27.88	10.64	15.78	0.52
26.05.2025	47.28	26.96	11.02	21.52	0.53
31.05.2025	51.62	25.90	10.94	14.76	0.35
NAAQMS Standards	**100.00**	**60.00**	**80.00**	**80.00**	**2.00**

	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
NUMBER OF OBSERVATIONS	24	24	24	24	24
MEAN	**46.25**	**27.62**	**10.55**	**17.97**	**0.44**
GEOMETRIC MEAN	46.11	27.53	10.50	17.85	0.43
STD. GEO. DEVN. (24 HRS.)	3.54	2.26	0.94	2.06	0.10
98th PERCENTILES	87.29	54.93	8.2	34.02	0.79
MAXIMUM CONCENTRATION	**52.4**	**31.4**	**12.4**	**21.5**	**0.65**
MINIMUM CONCENTRATION	**39.6**	**23.6**	**8.2**	**14.0**	**0.27**

PERCENTILE VALUE :

	10	20	30	40	50	60	70	80	90	98
PM_{10}	40.80	43.20	43.92	45.26	46.75	47.25	48.16	49.85	51.76	52.14
$PM_{2.5}$	24.07	25.45	26.16	26.96	27.42	28.25	29.49	29.86	30.91	31.33
SO_2	9.14	9.87	10.23	10.58	10.71	10.92	11.02	11.22	11.40	12.11
NO_2	15.38	16.06	16.74	17.24	18.25	18.89	19.28	19.75	20.47	15.40
CO	0.36	0.36	0.36	0.39	0.41	0.42	0.52	0.54	0.58	0.62

Note: All units are $\mu g/m^3$ except CO is mentioned in ppm

Statement of Conformity: Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/AA/0026/3-5/2025**
		Issue Date of Test Report	07.06.2025
Type of Sample	Ambient Air		
Sample Registration No.	0026	**Name of Location**	Rohira(Vasa) (A-05)
Sampling Method	As per Reference Method	**Sample Collected By**	EMPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025	**Time of Sample Collection**	-
Date of Sample Received	-	**Time of Sample Received**	-
Start Date of Analysis	01.03.2025 to 31.05.2025	**End Date of Analysis**	06.06.2025
Weather Condition	Sunny	**Sampling Duration**	24 Hrs.
Environmental Condition	Temperature: 25 ± 2 °C	**Sample ID Code**	ECO/LAB/0026/3-5/2025
	Humidity: 56 %		

DATE	24 HOURLY				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
03.03.2025	53.62	29.14	10.56	13.59	0.508
08.03.2025	50.01	31.20	11.02	16.39	0.359
10.03.2025	49.56	25.62	8.00	17.00	0.436
15.03.2025	58.30	35.90	9.04	19.42	0.359
17.03.2025	55.27	36.14	9.86	15.69	0.526
22.03.2025	46.95	24.29	12.48	17.24	0.482
24.03.2025	41.96	30.88	11.98	15.48	0.385
30.03.2025	50.26	32.48	10.78	18.42	0.316
07.04.2025	47.36	30.84	9.79	18.45	0.485
12.04.2025	50.36	34.10	8.88	14.87	0.316
14.04.2025	52.18	40.20	11.34	18.24	0.536
19.04.2025	47.85	32.65	9.70	17.25	0.319
21.04.2025	50.14	35.40	14.06	16.52	0.343
26.04.2025	46.76	31.80	11.83	15.68	0.414
28.04.2025	47.26	32.78	11.62	14.68	0.533
30.04.2025	51.29	33.01	11.27	15.94	0.458
05.05.2025	48.84	36.56	9.01	16.42	0.420
10.05.2025	51.64	32.14	8.43	12.48	0.428
12.05.2025	46.67	34.27	8.06	15.42	0.308
17.05.2025	51.70	31.28	11.92	16.35	0.402
19.05.2025	48.65	31.80	10.86	15.22	0.514
24.05.2025	50.69	33.10	11.34	14.96	0.424
26.05.2025	46.21	35.24	9.50	14.78	0.414
31.05.2025	49.36	32.40	10.09	14.28	0.346
NAAQMS Standards	100.00	60.00	80.00	80.00	2.00

	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
NUMBER OF OBSERVATIONS	24	24	24	24	24
MEAN	**49.70**	**32.63**	**10.48**	**15.82**	**0.42**
GEOMETRIC MEAN	49.60	32.46	10.37	15.74	0.41
STD. GEO. DEVN. (24 HRS.)	3.25	3.28	1.48	1.60	0.07
98th PERCENTILES	87.29	54.93	8.2	34.02	0.79
MAXIMUM CONCENTRATION	58.3	40.2	14.1	19.4	0.54
MINIMUM CONCENTRATION	42.0	24.3	8.0	12.5	0.31

PERCENTILE VALUE :

	10	20	30	40	50	60	70	80	90	98
PM_{10}	46.44	46.95	47.61	48.84	49.79	50.26	50.99	51.70	54.45	56.91
$PM_{2.5}$	27.38	30.88	31.54	32.14	32.57	33.01	34.19	35.40	36.35	38.53
SO_2	8.57	9.03	9.68	9.91	10.67	10.99	11.34	11.71	11.96	13.33
NO_2	13.80	14.74	14.95	15.43	15.69	16.27	16.43	17.10	17.94	63.63
CO	0.32	0.34	0.34	0.40	0.42	0.43	0.46	0.49	0.52	0.53

Note: All units are $\mu g/m^3$ except CO is mentioned in ppm

Statement of Conformity: Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

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Technical Manager

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/AA/0026/3-5/2025**
		Issue Date of Test Report	07.06.2025
Type of Sample	Ambient Air		
Sample Registration No.	0026	**Name of Location**	Near-Village (Rohira) (A-06)
Sampling Method	As per Reference Method	**Sample Collected By**	EMPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025	**Time of Sample Collection**	-
Date of Sample Received	-	**Time of Sample Received**	-
Start Date of Analysis	01.03.2025 to 31.05.2025	**End Date of Analysis**	06.06.2025
Weather Condition	Sunny	**Sampling Duration**	24 Hrs.
Environmental Condition	Temperature: 25 ± 2 °C	**Sample ID Code**	ECO/LAB/0026/3-5/2025
	Humidity: 56 %		

DATE	24 HOURLY				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
01.03.2025	43.68	27.14	10.25	16.00	0.53
05.03.2025	50.08	33.14	8.42	15.36	0.60
12.03.2025	44.78	27.68	9.86	14.46	0.40
15.03.2025	46.96	29.47	11.42	15.80	0.43
19.03.2025	42.78	26.78	10.28	14.90	0.50
22.03.2025	52.14	32.18	10.56	16.58	0.49
26.03.2025	48.56	27.48	11.38	15.42	0.47
29.03.2025	45.28	26.18	13.60	16.10	0.59
02.04.2025	42.38	25.95	12.36	15.82	0.49
05.04.2025	48.56	26.10	10.02	16.84	0.62
09.04.2025	53.20	27.38	11.86	16.47	0.51
12.04.2025	48.75	28.14	10.08	13.78	0.44
16.04.2025	46.20	26.89	13.36	16.68	0.62
19.04.2025	52.11	30.17	9.56	15.30	0.47
23.04.2025	42.36	24.62	11.04	15.24	0.51
26.04.2025	43.78	26.95	13.60	16.81	0.45
02.05.2025	49.36	25.56	10.14	14.75	0.69
07.05.2025	47.35	26.87	9.56	16.48	0.65
09.05.2025	42.96	27.02	11.56	15.14	0.68
14.05.2025	39.00	25.08	10.78	14.08	0.57
16.05.2025	51.04	29.56	10.68	15.92	0.43
21.05.2025	42.74	23.87	9.56	14.84	0.52
23.05.2025	47.48	29.14	8.75	14.14	0.52
28.05.2025	45.36	24.16	10.25	16.40	0.41
NAAQMS Standards	100.00	60.00	80.00	80.00	2.00

	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
NUMBER OF OBSERVATIONS	24	24	24	24	24
MEAN	46.54	27.40	10.79	15.55	0.52
GEOMETRIC MEAN	46.39	27.31	10.70	15.53	0.52
STD. GEO. DEVN. (24 HRS.)	3.64	2.26	1.37	0.90	0.08
98th PERCENTILES	87.29	54.93	8.2	34.02	0.79
MAXIMUM CONCENTRATION	53.2	33.1	13.6	16.8	0.69
MINIMUM CONCENTRATION	39.0	23.9	8.4	13.8	0.40

PERCENTILE VALUE :

	10	20	30	40	50	60	70	80	90	98
PM_{10}	42.37	42.78	43.73	45.28	46.58	47.48	48.66	50.08	52.13	52.71
$PM_{2.5}$	24.39	25.56	26.14	26.87	26.99	27.38	27.91	29.47	31.18	32.70
SO_2	9.56	9.74	10.07	10.25	10.42	10.76	11.39	11.68	13.06	13.60
NO_2	14.24	14.80	15.12	15.31	15.61	15.90	16.13	16.47	16.65	29.30
CO	0.43	0.45	0.45	0.49	0.51	0.52	0.57	0.61	0.64	0.68

Note: All units are $\mu g/m^3$ except CO is mentioned in ppm

Statement of Conformity: Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/AA/0026/3-5/2025**
		Issue Date of Test Report	07.06.2025
Type of Sample	Ambient Air		
Sample Registration No.	0026	**Name of Location**	Delder (A-07)
Sampling Method	As per Reference Method	**Sample Collected By**	EMPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025	**Time of Sample Collection**	-
Date of Sample Received	-	**Time of Sample Received**	-
Start Date of Analysis	01.03.2025 to 31.05.2025	**End Date of Analysis**	06.06.2025
Weather Condition	Sunny	**Sampling Duration**	24 Hrs.
Environmental Condition	Temperature: 25 ± 2 °C	**Sample ID Code**	ECO/LAB/0026/3-5/2025
	Humidity: 56 %		

DATE	24 HOURLY				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
01.03.2025	45.63	23.58	9.99	22.14	0.54
05.03.2025	47.57	25.00	11.07	22.94	0.47
12.03.2025	48.67	25.41	12.94	21.06	0.44
15.03.2025	54.94	29.56	14.32	19.17	0.57
19.03.2025	51.96	29.86	11.91	15.33	0.35
22.03.2025	51.68	26.14	10.45	24.99	0.40
26.03.2025	43.58	23.62	15.69	22.90	0.58
29.03.2025	54.08	28.85	12.58	15.20	0.40
02.04.2025	53.62	26.50	13.35	18.85	0.32
05.04.2025	51.18	25.65	10.16	20.18	0.35
09.04.2025	52.96	27.14	11.74	17.80	0.31
12.04.2025	52.94	29.08	10.53	19.34	0.46
16.04.2025	54.00	26.13	12.60	16.18	0.39
19.04.2025	52.58	25.44	10.05	16.17	0.27
23.04.2025	48.72	23.62	16.39	22.99	0.31
26.04.2025	47.13	24.15	12.94	16.06	0.40
02.05.2025	47.75	24.33	13.49	16.34	0.45
07.05.2025	51.30	24.96	11.48	15.53	0.45
09.05.2025	49.93	23.68	13.49	18.35	0.42
14.05.2025	56.92	26.52	16.28	21.09	0.35
16.05.2025	51.96	23.73	14.84	22.15	0.38
21.05.2025	43.94	28.96	11.53	17.29	0.42
23.05.2025	51.24	29.11	13.25	19.99	0.36
28.05.2025	35.87	24.10	9.99	23.94	0.46
NAAQMS Standards	100.00	60.00	80.00	80.00	2.00

	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
NUMBER OF OBSERVATIONS	24	24	24	24	24
MEAN	**50.00**	**26.05**	**12.54**	**19.42**	**0.41**
GEOMETRIC MEAN	49.79	25.96	12.40	19.20	0.40
STD. GEO. DEVN. (24 HRS.)	4.47	2.10	1.93	2.96	0.08
98th PERCENTILES	87.29	54.93	8.2	34.02	0.79
MAXIMUM CONCENTRATION	**56.9**	**29.9**	**16.4**	**25.0**	**0.58**
MINIMUM CONCENTRATION	**35.8**	**23.6**	**10.0**	**15.2**	**0.27**

PERCENTILE VALUE :

	10	20	30	40	50	60	70	80	90	98
PM_{10}	43.76	47.13	48.21	49.93	51.27	51.96	52.76	53.62	54.51	56.01
$PM_{2.5}$	23.62	23.73	24.24	25.00	25.55	26.14	26.83	28.96	29.34	29.72
SO_2	10.08	10.50	11.44	11.78	12.59	12.94	13.36	13.82	15.44	16.34
NO_2	15.69	16.27	17.20	18.45	19.26	20.14	21.19	22.45	22.98	14.15
CO	0.31	0.35	0.35	0.39	0.40	0.41	0.44	0.46	0.52	0.58

Note: All units are $\mu g/m^3$ except CO is mentioned in ppm

Statement of Conformity: Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan	Test Report No.	ECO/LAB/AA/0026/3-5/2025
		Issue Date of Test Report	07.06.2025
Type of Sample	Ambient Air		
Sample Registration No.	0026	Name of Location	Wada (A-08)
Sampling Method	As per Reference Method	Sample Collected By	EMPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025	Time of Sample Collection	-
Date of Sample Received	-	Time of Sample Received	-
Start Date of Analysis	01.03.2025 to 31.05.2025	End Date of Analysis	06.06.2025
Weather Condition	Sunny	Sampling Duration	24 Hrs.
Environmental Condition	Temperature: 25 ± 2 °C	Sample ID Code	ECO/LAB/0026/3-5/2025
	Humidity: 56 %		

DATE	24 HOURLY				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
01.03.2025	31.42	20.36	8.52	13.74	0.43
05.03.2025	40.47	21.47	11.42	14.25	0.40
12.03.2025	41.36	19.96	7.96	12.50	0.43
15.03.2025	32.25	18.96	10.36	13.28	0.39
19.03.2025	43.24	21.72	12.52	14.17	0.41
22.03.2025	41.74	25.74	9.17	12.74	0.48
26.03.2025	43.20	24.06	10.52	13.24	0.48
29.03.2025	39.58	21.74	8.42	12.96	0.28
02.04.2025	42.68	23.47	10.56	13.86	0.42
05.04.2025	41.52	18.56	9.34	12.84	0.45
09.04.2025	38.84	20.11	10.58	13.24	0.28
12.04.2025	32.86	21.56	11.56	13.78	0.41
16.04.2025	43.24	24.10	12.83	17.38	0.39
19.04.2025	43.86	23.95	8.91	14.52	0.51
23.04.2025	43.18	22.91	10.14	13.28	0.34
26.04.2025	37.61	22.74	8.56	14.20	0.34
02.05.2025	32.19	21.30	10.19	14.08	0.44
07.05.2025	36.68	23.96	8.66	13.65	0.28
09.05.2025	35.30	22.19	7.92	12.79	0.41
14.05.2025	49.58	24.01	10.35	12.50	0.43
16.05.2025	43.25	26.25	9.08	15.88	0.24
21.05.2025	33.58	18.82	11.72	15.36	0.43
23.05.2025	36.68	21.36	8.14	14.96	0.45
28.05.2025	41.22	23.56	9.56	14.72	0.41
NAAQMS Standards	100.00	60.00	80.00	80.00	2.00

	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
NUMBER OF OBSERVATIONS	24	24	24	24	24
MEAN	39.40	22.20	9.87	13.91	0.40
GEOMETRIC MEAN	39.12	22.11	9.78	13.87	0.39
STD. GEO. DEVN. (24 HRS.)	4.59	2.05	1.39	1.14	0.07
98th PERCENTILES	87.38	54.22	8.46	34.39	0.82
MAXIMUM CONCENTRATION	49.58	26.25	12.83	17.38	0.51
MINIMUM CONCENTRATION	31.42	18.56	7.92	12.50	0.24

PERCENTILE VALUE :

	10	20	30	40	50	60	70	80	90	98
PM_{10}	32.22	33.58	36.68	38.84	40.84	41.52	42.93	43.24	43.56	46.95
$PM_{2.5}$	18.89	20.11	21.33	21.56	21.96	22.91	23.76	24.01	24.92	26.02
SO_2	8.22	8.54	8.89	9.20	9.85	10.32	10.52	10.91	11.67	12.69
NO_2	12.76	12.91	13.24	13.35	13.76	14.04	14.21	14.60	15.24	15.34
CO	0.28	0.34	0.34	0.41	0.41	0.43	0.43	0.44	0.47	0.50

Note: All units are $\mu g/m^3$ except CO is mentioned in ppm

Statement of Conformity: Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/AA/0026/3-5/2025**
		Issue Date of Test Report	07.06.2025
Type of Sample	Ambient Air		
Sample Registration No.	0026	**Name of Location**	Bhimana (A-09)
Sampling Method	As per Reference Method	**Sample Collected By**	EMPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025	**Time of Sample Collection**	-
Date of Sample Received	-	**Time of Sample Received**	-
Start Date of Analysis	01.03.2025 to 31.05.2025	**End Date of Analysis**	06.06.2025
Weather Condition	Sunny	**Sampling Duration**	24 Hrs.
Environmental Condition	Temperature: 25 ± 2 °C	**Sample ID Code**	ECO/LAB/0026/3-5/2025
	Humidity: 56 %		

DATE	24 HOURLY				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
01.03.2025	57.56	32.52	8.56	13.74	0.39
05.03.2025	49.56	33.69	10.92	14.56	0.54
12.03.2025	61.25	38.42	7.96	12.50	0.68
15.03.2025	59.56	41.25	11.47	14.62	0.72
19.03.2025	56.35	37.48	10.28	13.56	0.48
22.03.2025	48.52	31.00	8.56	11.42	0.69
26.03.2025	49.56	29.87	7.84	12.08	0.58
29.03.2025	52.88	32.42	9.16	16.35	0.91
02.04.2025	62.48	39.46	10.24	15.24	0.84
05.04.2025	66.85	41.25	8.36	12.84	0.74
09.04.2025	63.48	43.58	9.14	15.00	0.68
12.04.2025	57.89	35.78	10.18	15.20	0.52
16.04.2025	59.68	30.88	11.56	14.74	0.62
19.04.2025	47.14	29.87	8.91	13.96	0.48
23.04.2025	49.56	32.41	9.36	14.08	0.74
26.04.2025	53.26	30.74	8.48	16.94	0.65
02.05.2025	51.24	29.86	9.25	14.26	0.48
07.05.2025	48.56	31.74	7.91	13.62	0.70
09.05.2025	52.28	33.56	8.96	18.14	0.56
14.05.2025	59.26	34.18	9.56	15.62	0.58
16.05.2025	44.28	32.16	11.14	14.95	0.54
21.05.2025	43.68	27.84	10.24	18.32	0.58
23.05.2025	56.28	36.84	9.89	17.02	0.49
28.05.2025	48.68	31.70	10.34	16.56	0.52
NAAQMS Standards	**100.00**	**60.00**	**80.00**	**80.00**	**2.00**

	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
NUMBER OF OBSERVATIONS	24	24	24	24	24
MEAN	**54.16**	**34.10**	**9.51**	**14.81**	**0.61**
GEOMETRIC MEAN	53.81	33.87	9.45	14.70	0.60
STD. GEO. DEVN. (24 HRS.)	6.19	4.14	1.09	1.75	0.12
98th PERCENTILES	87.38	54.22	8.46	34.39	0.82
MAXIMUM CONCENTRATION	**66.85**	**43.58**	**11.56**	**18.32**	**0.91**
MINIMUM CONCENTRATION	**43.68**	**27.84**	**7.84**	**11.42**	**0.39**

PERCENTILE VALUE :

	10	20	30	40	50	60	70	80	90	98
PM_{10}	45.71	48.56	49.56	51.24	53.07	56.35	58.58	59.68	62.98	65.30
$PM_{2.5}$	29.87	30.74	31.35	32.16	32.47	33.69	36.31	38.42	41.25	42.51
SO_2	8.08	8.53	8.88	9.14	9.31	9.82	10.24	10.30	11.07	11.52
NO_2	12.60	13.60	13.94	14.32	14.68	14.99	15.28	16.43	17.00	76.04
CO	0.48	0.51	0.51	0.56	0.58	0.64	0.68	0.71	0.74	0.88

Note: All units are $\mu g/m^3$ except CO is mentioned in ppm

Statement of Conformity: Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/AA/0026/3-5/2025**
		Issue Date of Test Report	07.06.2025
Type of Sample	Ambient Air		
Sample Registration No.	0026	**Name of Location**	Urwariya (A-10)
Sampling Method	As per Reference Method	**Sample Collected By**	EMPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025	**Time of Sample Collection**	-
Date of Sample Received	-	**Time of Sample Received**	-
Start Date of Analysis	01.03.2025 to 31.05.2025	**End Date of Analysis**	06.06.2025
Weather Condition	Sunny	**Sampling Duration**	24 Hrs.
Environmental Condition	Temperature: 25 ± 2 °C	**Sample ID Code**	ECO/LAB/0026/3-5/2025
	Humidity: 56 %		

DATE	24 HOURLY				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
01.03.2025	33.96	24.86	8.14	13.74	0.65
05.03.2025	40.47	28.96	9.56	15.62	0.35
12.03.2025	41.36	27.56	11.48	16.36	0.42
15.03.2025	40.25	24.00	10.36	14.36	0.50
19.03.2025	43.24	26.84	11.42	13.90	0.39
22.03.2025	41.74	29.14	13.25	17.15	0.41
26.03.2025	43.20	31.00	10.52	15.62	0.42
29.03.2025	45.86	33.74	8.42	13.52	0.39
02.04.2025	42.68	28.78	10.24	14.25	0.52
05.04.2025	48.96	31.48	9.52	12.84	0.47
09.04.2025	43.52	28.64	8.36	13.24	0.42
12.04.2025	29.00	23.45	10.18	15.20	0.62
16.04.2025	43.24	32.48	11.92	17.14	0.54
19.04.2025	40.69	27.94	7.86	14.52	0.47
23.04.2025	46.85	24.19	8.42	13.28	0.42
26.04.2025	46.85	25.08	10.34	14.20	0.39
02.05.2025	32.19	21.00	9.88	16.39	0.45
07.05.2025	47.25	38.41	11.03	14.96	0.38
09.05.2025	41.28	26.14	7.92	13.62	0.47
14.05.2025	43.82	29.26	8.56	12.50	0.52
16.05.2025	43.25	27.34	12.08	17.16	0.46
21.05.2025	48.75	31.75	10.36	16.14	0.41
23.05.2025	51.42	33.48	9.96	14.96	0.50
28.05.2025	41.22	25.62	11.00	14.78	0.42
NAAQMS Standards	**100.00**	**60.00**	**80.00**	**80.00**	**2.00**

	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
NUMBER OF OBSERVATIONS	24	24	24	24	24
MEAN	**42.54**	**28.38**	**10.03**	**14.81**	**0.46**
GEOMETRIC MEAN	42.21	28.12	9.93	14.75	0.45
STD. GEO. DEVN. (24 HRS.)	5.08	3.87	1.42	1.37	0.07
98th PERCENTILES	87.38	54.22	8.46	34.39	0.82
MAXIMUM CONCENTRATION	**51.42**	**38.41**	**13.25**	**17.16**	**0.65**
MINIMUM CONCENTRATION	**29.00**	**21.00**	**7.86**	**12.50**	**0.35**

PERCENTILE VALUE :

	10	20	30	40	50	60	70	80	90	98
PM_{10}	33.08	40.47	41.25	41.74	43.22	43.25	44.84	46.85	48.86	50.29
$PM_{2.5}$	23.73	24.86	25.88	27.34	28.29	28.96	30.13	31.75	33.61	36.26
SO_2	8.21	8.42	9.42	9.90	10.21	10.36	10.57	11.19	11.79	12.71
NO_2	13.25	13.58	13.88	14.27	14.65	14.96	15.62	16.23	16.92	80.48
CO	0.39	0.40	0.40	0.42	0.44	0.47	0.47	0.51	0.53	0.64

Note: All units are $\mu g/m^3$ except CO is mentioned in ppm

Statement of Conformity: Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.

Note:

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/10

NAME & ADDRESS OF CUSTOMER:	M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan		Test Report No.	ECO/LAB/AA/0026/3-5/2025
			Issue Date of Test Report	07.06.2025
Type of Sample	Ambient Air			
Sample Registration No.	0026		Name of Location	Hirawala (within the Lease Area) (A-11)
Sampling Method	As per Reference Method		Sample Collected By	EMPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025		Time of Sample Collection	-
Date of Sample Received	-		Time of Sample Received	-
Start Date of Analysis	01.03.2025 to 31.05.2025		End Date of Analysis	06.06.2025
Weather Condition	Sunny		Sampling Duration	24 Hrs.
Environmental Condition	Temperature:	25 ± 2 °C	Sample ID Code	ECO/LAB/0026/3-5/2025
	Humidity:	56 %		

DATE	24 HOURLY				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
01.03.2025	49.52	26.25	8.52	12.96	0.56
05.03.2025	61.24	37.41	10.36	15.14	0.45
12.03.2025	56.25	32.16	9.52	12.50	0.62
15.03.2025	48.52	30.04	8.25	13.28	0.55
19.03.2025	60.25	38.54	10.14	12.94	0.48
22.03.2025	48.52	25.14	9.17	13.42	0.42
26.03.2025	52.58	31.74	8.36	13.24	0.54
29.03.2025	56.14	33.16	7.44	11.80	0.52
02.04.2025	52.14	29.84	10.21	15.26	0.47
05.04.2025	41.52	22.46	9.34	13.62	0.50
09.04.2025	46.92	27.16	8.48	14.28	0.45
12.04.2025	48.20	25.56	10.36	15.20	0.48
16.04.2025	41.78	24.10	11.24	15.06	0.68
19.04.2025	62.14	35.18	7.56	13.08	0.41
23.04.2025	43.18	26.80	8.69	13.28	0.52
26.04.2025	57.56	33.92	11.24	14.20	0.36
02.05.2025	51.25	30.06	12.25	16.92	0.47
07.05.2025	60.19	29.78	7.36	14.96	0.52
09.05.2025	53.24	28.48	9.25	13.62	0.46
14.05.2025	56.28	34.04	11.25	15.06	0.41
16.05.2025	44.52	23.68	10.36	14.78	0.55
21.05.2025	49.62	25.82	8.56	16.14	0.71
23.05.2025	53.25	29.89	10.24	14.96	0.52
28.05.2025	49.74	32.18	8.24	13.68	0.63
NAAQMS Standards	100.00	60.00	80.00	80.00	2.00

	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
NUMBER OF OBSERVATIONS	24	24	24	24	24
MEAN	51.86	29.72	9.43	14.14	0.51
GEOMETRIC MEAN	51.52	29.42	9.34	14.09	0.51
STD. GEO. DEVN. (24 HRS.)	5.93	4.26	1.31	1.20	0.08
98th PERCENTILES	87.38	54.22	8.46	34.39	0.82
MAXIMUM CONCENTRATION	62.14	38.54	12.25	16.92	0.71
MINIMUM CONCENTRATION	41.52	22.46	7.36	11.80	0.36

PERCENTILE VALUE :

	10	20	30	40	50	60	70	80	90	98
PM_{10}	42.48	46.92	48.52	49.62	51.70	53.24	56.20	57.56	60.75	61.73
$PM_{2.5}$	23.89	25.56	26.53	28.48	29.87	30.06	32.17	33.92	36.30	38.02
SO_2	7.76	8.32	8.52	8.79	9.30	10.02	10.25	10.36	11.24	11.79
NO_2	12.95	13.18	13.28	13.62	13.94	14.68	14.97	15.09	15.24	74.25
CO	0.41	0.45	0.45	0.48	0.51	0.52	0.54	0.55	0.63	0.70

Note: All units are $\mu g/m^3$ except CO is mentioned in ppm

Statement of Conformity: Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.

Note:

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2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/13

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	ECO/LAB/AN/0032/3-5/2025
		Issue Date of Test Report	**07.06.2025**
Type of Sample	Ambient Noise		
Sample Registration No.	0031	**Name of Location**	-
Sampling Method	IS:9989	**Sample Collected By**	ELPL Representative
Date of Sample Collection	01.03.2025 to 31.05.2025	**Time of Sample Collection**	-
Date of Sample Received	-	**Time of Sample Received**	-
Start Date of Analysis	01.03.2025 to 31.05.2025	**End Date of Analysis**	07.06.2025
Weather Condition	Clear	**Sampling Duration**	24 Hourly Basis
Laboratory Environmental Condition	Temperature: 25±2 °C Humidity: 52 %	**Sample ID Code**	ECO/LAB0032/3-5/2025
Instrument Name & Lab ID	Sound Level Meter	ECO/LSM/02 Calibration Due Date: (31.05.2026)	

Noise Level Monitoring (March, 2025-May, 2025)

Location		Area Type	Day (0600-2200 hours)				Night (2200-0600 hours)			
			Norm	Max.	Min.	Mean*	Norm	Max.	Min.	Mean*
N1	Tarangi	*Residential*	*55*	*52.9*	*41.5*	50.1	*45*	44.7	34.5	40.0
N2	Crusher`	*Residential*	*55*	51.5	38.5	49.4	*45*	43.8	36.1	41.2
N3	Bharja	*Residential*	*55*	46.8	36.5	43.3	*45*	41.8	36.4	40.1
N4	Watera	*Residential*	*55*	51.9	40.1	46.8	*45*	42.5	36.7	39.8
N5	Rohira (Vasa)	*Residential*	*55*	53.4	42.3	48.8	*45*	41.7	33.9	38.9
N6	Rohira	*Residential*	*55*	50.9	37.6	47.2	*45*	42.8	36.7	40.9
N7	Delder	*Residential*	*55*	49.8	39.7	45.5	*45*	40.7	37.2	39.1
N8	Wada	*Residential*	*55*	46.9	37.4	43.3	*45*	43.3	39.3	40.8
N9	Bhimana	*Residential*	*55*	52.4	41.8	47.0	*45*	41.1	36.1	39.2
N10	Urwariya	*Residential*	*55*	54.1	43.8	49.3	*45*	40.9	35.8	38.6
N11	Hirawala	*Residential*	*55*	48.7	39.2	44.1	*45*	44.9	37.4	41.6
All values in dB(A); * *Logarithmic Averages*										

Opinion/Observation: Noise Level is meeting requirements as per CPCB Guidelines.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

ecoMen

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Surface Water		
Sample Registration No.	0036	**Name of Location**	Dhanari (Banas River) (SW-2)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	IS 2296 Class-C
1.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.68	6.0-9.0
2.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5 -100	20.00	300
3.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	539.23	-
4.	Dissolved Oxygen as DO	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	1-15	5.60	4.0
5.	Biological Oxygen Demand as BOD (mg/l) 5 days at 20 °C	mg/l	APHA, 24th Ed. : 2023, 5210A+ B	1-1000	2.00	3.0
6.	Chemical Oxygen Demand as COD	mg/l	APHA, 24th Ed. : 2023, 5220,A+ C	1-1000	12.00	-
7.	Total Suspended Solids as TSS	mg/l	APHA, 24th Ed. : 2023, 2540-D	5-5000	13.60	-
8.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	350.50	1500
9.	Oil & Grease as O & G	mg/l	APHA, 23rd Ed. 2017, 5520 A+D	2.5-1000	<2.5	-
10.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5 -1500	124.00	-
11.	Bicarbonate as HCO_3	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5 -1500	151.28	-
12.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	132.00	-
13.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5 - 1000	28.80	-
14.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5 - 1000	14.58	-
15.	Sodium as Na,	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	18.20	-
16.	Potassium as K,	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	1.34	-
17.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5 -1000	20.00	600
18.	Sulphate as SO4	mg/l	APHA, 24th Ed. : 2023, 4500-SO42- E	1 – 250	16.50	400
19.	Nitrate Nitrogen as NO3	mg/l	APHA, 24th Ed. : 2023, 4500-NO32- E	5 - 100	6.10	50
20.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05 -10	0.37	1.5
21.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02 -50	0.18	0.50
22.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	1.5
23.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02 -50	0.06	15
24.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-2	<0.05	0.2
25.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-50	<0.05	-
26.	Phosphate as PO_4	mg/l	APHA, 24th Ed. : 2023, 4500-P,A+B+D	0.1 -50	<0.1	-
27.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.005 - 10	<0.005	0.005
28.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	1.0
29.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	-
30.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-5	<0.001	0.01
31.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.01-2	<0.001	-
32.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-5	<0.01	0.1
33.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1-5	<0.1	-
34.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05 -10	<0.05	-
35.	Total coliform	MPN/100 ml	IS15185:2016;RA:2021	2.0	110.00	5000

Note-

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----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

ecoMen

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Surface Water		
Sample Registration No.	0036	**Name of Location**	Amthala (Banas River) (SW-1)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	IS 2296 Class-C
1.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.36	6.0-9.0
2.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5 -100	20.00	300
3.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	600.80	-
4.	Dissolved Oxygen as DO	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	1-15	5.70	4.0
5.	Biological Oxygen Demand as BOD (mg/l) 5 days at 20 °C	mg/l	APHA, 24th Ed. : 2023, 5210A+ B	1-1000	1.20	3.0
6.	Chemical Oxygen Demand as COD	mg/l	APHA, 24th Ed. : 2023, 5220,A+ C	1-1000	10.00	-
7.	Total Suspended Solids as TSS	mg/l	APHA, 24th Ed. : 2023, 2540-D	5-5000	13.20	-
8.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	390.52	1500
9.	Oil & Grease as O & G	mg/l	APHA, 23rd Ed. 2017, 5520 A+D	2.5-1000	<2.5	-
10.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5 -1500	132.00	-
11.	Bicarbonate as HCO_3	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5 -1500	161.04	
12.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	148.00	-
13.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5 - 1000	38.40	-
14.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5 - 1000	12.64	-
15.	Sodium as Na,	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	17.20	-
16.	Potassium as K,	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	1.30	-
17.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5 -1000	28.00	600
18.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO42- E	1 – 250	17.60	400
19.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO32- E	5 - 100	5.11	50
20.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05 -10	0.52	1.5
21.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02 -50	0.12	0.50
22.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	1.5
23.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02 -50	0.05	15
24.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-2	<0.05	0.2
25.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-50	<0.05	-
26.	Phosphate as PO_4	mg/l	APHA, 24th Ed. : 2023, 4500-P,A+B+D	0.1 -50	<0.1	-
27.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.005 - 10	<0.005	0.005
28.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	1.0
29.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	-
30.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-5	<0.001	0.01
31.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.01-2	<0.001	-
32.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-5	<0.01	0.1
33.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1- 5	<0.1	-
34.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05 -10	<0.05	-
35.	Total coliform	MPN/100 ml	IS15185:2016;RA:2021	2.0	110.00	5000

Note-

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----End of Report----

Verified By
Technical Manager

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/GW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Ground Water		
Sample Registration No.	0036	**Name of Location**	Hirawala (within the Lease Area) (GW-11)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5-100	<5.0	5	15
2.	Odour	-	APHA, 24th Ed. : 2023, 2150 B	Qualitative	Agreeable	Agreeable	Agreeable
3.	Taste	-	APHA, 24th Ed. : 2023, 2160 A+B	Qualitative	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA, 24th Ed. : 2023, 2130-A+B	1-100	<1.0	1	5
5.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	1446	-	-
6.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.05	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	882	500	2000
8.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5-1500	272.0	200	600
9.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	292.0	200	600
10.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5-1000	81.60	75	200
11.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5-1000	21.38	30	100
12.	Sodium as Na	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	66.90	-	-
13.	Potassium as K	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	6.12	-	-
14.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5-1000	90.00	250	1000
15.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO_4^{2-} E	1–250	42.60	200	400
16.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO_3^{2-} E	5-100	13.20	45	No Relax
17.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05-10	0.34	1	1.5
18.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02-50	0.16	1.0	No Relax
19.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1-5	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02-50	0.05	5	15
22.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-2	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-50	<0.01	0.05	No Relax
24.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.001-10	<0.001	0.001	0.005
25.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05-10	<0.05	0.2	1
26.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.001-2	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.001-5	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-5	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	APHA, 24th Ed. : 2023, 3500, A+B	0.01-5	<0.01	0.03	0.2
32.	Total coliform	Per100ml	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent
33.	E.coli	Per100m	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent

Note-

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----End of Report----

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Technical Manager

Authorized By
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ecoMen

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/GW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Ground Water		
Sample Registration No.	0036	**Name of Location**	Urwariya(GW-10)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5-100	<5.0	5	15
2.	Odour	-	APHA, 24th Ed. : 2023, 2150 B	Qualitative	Agreeable	Agreeable	Agreeable
3.	Taste	-	APHA, 24th Ed. : 2023, 2160 A+B	Qualitative	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA, 24th Ed. : 2023, 2130-A+B	1-100	1.06	1	5
5.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	4688.0	-	-
6.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.45	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	2860.0	500	2000
8.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5-1500	420.0	200	600
9.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	756.0	200	600
10.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5 - 1000	203.20	75	200
11.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5 - 1000	60.26	30	100
12.	Sodium as Na	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	324.20	-	-
13.	Potassium as K	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	19.50	-	-
14.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5 - 1000	588.00	250	1000
15.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO_4^{2-} E	1 – 250	195.40	200	400
16.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO_3^{2-} E	5 - 100	26.40	45	No Relax
17.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05 -10	0.42	1	1.5
18.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02 -50	0.18	1.0	No Relax
19.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1-5	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02 -50	0.07	5	15
22.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-2	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-50	<0.01	0.05	No Relax
24.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.001- 10	<0.001	0.001	0.005
25.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05 -10	<0.05	0.2	1
26.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.001-2	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.001-5	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-5	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	APHA, 24th Ed. : 2023, 3500, A+B	0.01-5	<0.01	0.03	0.2
32.	Total coliform	Per100ml	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent
33.	E.coli	Per100m	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent

Note-

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3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

ecoMen

ECOMEN MINING PRIVATE LIMITED
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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/GW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Ground Water		
Sample Registration No.	0036	**Name of Location**	Bhimana (GW-9)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5-100	<5.0	5	15
2.	Odour	-	APHA, 24th Ed. : 2023, 2150 B	Qualitative	Agreeable	Agreeable	Agreeable
3.	Taste	-	APHA, 24th Ed. : 2023, 2160 A+B	Qualitative	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA, 24th Ed. : 2023, 2130-A+B	1-100	<1.05	1	5
5.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	1569	-	-
6.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.49	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	957	500	2000
8.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5-1500	284.0	200	600
9.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	300.0	200	600
10.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5 - 1000	72.00	75	200
11.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5 - 1000	29.16	30	100
12.	Sodium as Na	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	73.60	-	-
13.	Potassium as K	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	2.65	-	-
14.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5 - 1000	116.00	250	1000
15.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO_4^{2-} E	1 – 250	32.60	200	400
16.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO_3^{2-} E	5 - 100	12.70	45	No Relax
17.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05 -10	0.72	1	1.5
18.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02 -50	0.19	1.0	No Relax
19.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1- 5	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02 -50	0.11	5	15
22.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-2	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-50	<0.01	0.05	No Relax
24.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.001- 10	<0.001	0.001	0.005
25.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05 -10	<0.05	0.2	1
26.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.001-2	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.001-5	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-5	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	APHA, 24th Ed. : 2023, 3500, A+B	0.01-5	<0.01	0.03	0.2
32.	Total coliform	Per100ml	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent
33.	E.coli	Per100m	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent

Note-

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----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

ecoMen

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An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/GW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Ground Water		
Sample Registration No.	0036	**Name of Location**	Wada (GW-8)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5-100	<5.0	5	15
2.	Odour	-	APHA, 24th Ed. : 2023, 2150 B	Qualitative	Agreeable	Agreeable	Agreeable
3.	Taste	-	APHA, 24th Ed. : 2023, 2160 A+B	Qualitative	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA, 24th Ed. : 2023, 2130-A+B	1-100	<1.05	1	5
5.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	1430.0	-	-
6.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.49	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	873.0	500	2000
8.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5-1500	260.0	200	600
9.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	276.0	200	600
10.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5 - 1000	72.00	75	200
11.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5 - 1000	23.33	30	100
12.	Sodium as Na	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	73.60	-	-
13.	Potassium as K	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	2.65	-	-
14.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5 - 1000	102.00	250	1000
15.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO_4^{2-} E	1 – 250	32.60	200	400
16.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO_3^{2-} E	5 - 100	12.70	45	No Relax
17.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05 -10	0.72	1	1.5
18.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02 -50	0.19	1.0	No Relax
19.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1- 5	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02 -50	0.11	5	15
22.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-2	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-50	<0.01	0.05	No Relax
24.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.001- 10	<0.001	0.001	0.005
25.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05 -10	<0.05	0.2	1
26.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.001-2	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.001-5	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-5	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	APHA, 24th Ed. : 2023, 3500, A+B	0.01-5	<0.01	0.03	0.2
32.	Total coliform	Per100ml	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent
33.	E.coli	Per100m	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent

Note-

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----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/GW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Ground Water		
Sample Registration No.	0036	**Name of Location**	Delder (GW-7)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5-100	<5.0	5	15
2.	Odour	-	APHA, 24th Ed. : 2023, 2150 B	Qualitative	Agreeable	Agreeable	Agreeable
3.	Taste	-	APHA, 24th Ed. : 2023, 2160 A+B	Qualitative	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA, 24th Ed. : 2023, 2130-A+B	1-100	<1.0	1	5
5.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	3130.0	-	-
6.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.20	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	1909.0	500	2000
8.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5-1500	528.0	200	600
9.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	608.0	200	600
10.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5-1000	139.20	75	200
11.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5-1000	63.18	30	100
12.	Sodium as Na	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	164.20	-	-
13.	Potassium as K	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	3.50	-	-
14.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5-1000	234.00	250	1000
15.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO_4^{2-} E	1 – 250	106.50	200	400
16.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO_3^{2-} E	5-100	17.40	45	No Relax
17.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05-10	0.63	1	1.5
18.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02-50	0.20	1.0	No Relax
19.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1-5	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02-50	0.06	5	15
22.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-2	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-50	<0.01	0.05	No Relax
24.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.001-10	<0.001	0.001	0.005
25.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05-10	<0.05	0.2	1
26.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.001-2	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.001-5	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-5	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	APHA, 24th Ed. : 2023, 3500, A+B	0.01-5	<0.01	0.03	0.2
32.	Total coliform	Per100ml	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent
33.	E.coli	Per100m	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent

Note-

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3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/GW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Ground Water		
Sample Registration No.	0036	**Name of Location**	Near-Village (Rohira) (GW-6)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5-100	<5.0	5	15
2.	Odour	-	APHA, 24th Ed. : 2023, 2150 B	Qualitative	Agreeable	Agreeable	Agreeable
3.	Taste	-	APHA, 24th Ed. : 2023, 2160 A+B	Qualitative	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA, 24th Ed. : 2023, 2130-A+B	1-100	1.01	1	5
5.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	2972.0	-	-
6.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.24	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	1813.0	500	2000
8.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5-1500	616.0	200	600
9.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	660.0	200	600
10.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5 - 1000	172.80	75	200
11.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5 - 1000	55.40	30	100
12.	Sodium as Na	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	98.70	-	-
13.	Potassium as K	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	7.32	-	-
14.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5 - 1000	168.00	250	1000
15.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO_4^{2-} E	1 – 250	69.53	200	400
16.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO_3^{2-} E	5 - 100	10.20	45	No Relax
17.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05-10	0.51	1	1.5
18.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02-50	0.23	1.0	No Relax
19.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1-5	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02-50	0.05	5	15
22.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-2	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-50	<0.01	0.05	No Relax
24.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.001-10	<0.001	0.001	0.005
25.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05-10	<0.05	0.2	1
26.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.001-2	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.001-5	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-5	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	APHA, 24th Ed. : 2023, 3500, A+B	0.01-5	<0.01	0.03	0.2
32.	Total coliform	Per100ml	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent
33.	E.coli	Per100m	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent

Note-

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/GW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Ground Water		
Sample Registration No.	0036	**Name of Location**	Rohira(Vasa) (GW-5)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5-100	<5.0	5	15
2.	Odour	-	APHA, 24th Ed. : 2023, 2150 B	Qualitative	Agreeable	Agreeable	Agreeable
3.	Taste	-	APHA, 24th Ed. : 2023, 2160 A+B	Qualitative	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA, 24th Ed. : 2023, 2130-A+B	1-100	1.15	1	5
5.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	3836.0	-	-
6.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.21	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	2340.0	500	2000
8.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5-1500	732.0	200	600
9.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	804.0	200	600
10.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5 - 1000	227.20	75	200
11.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5 - 1000	57.35	30	100
12.	Sodium as Na	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	168.30	-	-
13.	Potassium as K	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	19.20	-	-
14.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5 - 1000	224.00	250	1000
15.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO_4^{2-} E	1 – 250	137.60	200	400
16.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO_3^{2-} E	5 - 100	17.40	45	No Relax
17.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05 -10	0.53	1	1.5
18.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02 -50	0.19	1.0	No Relax
19.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1-5	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02 -50	0.10	5	15
22.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-2	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-50	<0.01	0.05	No Relax
24.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.001- 10	<0.001	0.001	0.005
25.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05 -10	<0.05	0.2	1
26.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.001-2	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.001-5	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-5	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	APHA, 24th Ed. : 2023, 3500, A+B	0.01-5	<0.01	0.03	0.2
32.	Total coliform	Per100ml	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent
33.	E.coli	Per100m	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent

Note-

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/GW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Ground Water		
Sample Registration No.	0036	**Name of Location**	Near-Village (Watera) (GW-4)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5-100	<5.0	5	15
2.	Odour	-	APHA, 24th Ed. : 2023, 2150 B	Qualitative	Agreeable	Agreeable	Agreeable
3.	Taste	-	APHA, 24th Ed. : 2023, 2160 A+B	Qualitative	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA, 24th Ed. : 2023, 2130-A+B	1-100	1.08	1	5
5.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	1341	-	-
6.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.55	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	818	500	2000
8.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5-1500	280.0	200	600
9.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	328.0	200	600
10.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5 - 1000	84.80	75	200
11.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5 - 1000	28.19	30	100
12.	Sodium as Na	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	34.10	-	-
13.	Potassium as K	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	2.60	-	-
14.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5 - 1000	68.00	250	1000
15.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO_4^{2-} E	1 – 250	32.60	200	400
16.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO_3^{2-} E	5 - 100	13.20	45	No Relax
17.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05 -10	0.46	1	1.5
18.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02 -50	0.12	1.0	No Relax
19.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1- 5	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02 -50	0.08	5	15
22.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-2	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-50	<0.01	0.05	No Relax
24.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.001- 10	<0.001	0.001	0.005
25.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05 -10	<0.05	0.2	1
26.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.001-2	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.001-5	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-5	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	APHA, 24th Ed. : 2023, 3500, A+B	0.01-5	<0.01	0.03	0.2
32.	Total coliform	Per100ml	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent
33.	E.coli	Per100m	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent

Note-

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/GW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Ground Water		
Sample Registration No.	0036	**Name of Location**	Near-Village(Bharja)(GW-3)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5-100	<5.0	5	15
2.	Odour	-	APHA, 24th Ed. : 2023, 2150 B	Qualitative	Agreeable	Agreeable	Agreeable
3.	Taste	-	APHA, 24th Ed. : 2023, 2160 A+B	Qualitative	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA, 24th Ed. : 2023, 2130-A+B	1-100	<1.0	1	5
5.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	1202	-	-
6.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.57	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	733	500	2000
8.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5-1500	236.0	200	600
9.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	256.0	200	600
10.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5 - 1000	64.00	75	200
11.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5 - 1000	23.33	30	100
12.	Sodium as Na	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	48.50	-	-
13.	Potassium as K	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	3.26	-	-
14.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5 - 1000	60.00	250	1000
15.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO_4^{2-} E	1 – 250	43.20	200	400
16.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO_3^{2-} E	5 - 100	13.20	45	No Relax
17.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05 -10	0.71	1	1.5
18.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02 -50	0.12	1.0	No Relax
19.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1- 5	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02 -50	0.06	5	15
22.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-2	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-50	<0.01	0.05	No Relax
24.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.001- 10	<0.001	0.001	0.005
25.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05 -10	<0.05	0.2	1
26.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.001-2	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.001-5	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-5	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	APHA, 24th Ed. : 2023, 3500, A+B	0.01-5	<0.01	0.03	0.2
32.	Total coliform	Per100ml	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent
33.	E.coli	Per100m	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent

Note-

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/GW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Ground Water		
Sample Registration No.	0036	**Name of Location**	Crusher Location (GW-2)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5-100	<5.0	5	15
2.	Odour	-	APHA, 24th Ed. : 2023, 2150 B	Qualitative	Agreeable	Agreeable	Agreeable
3.	Taste	-	APHA, 24th Ed. : 2023, 2160 A+B	Qualitative	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA, 24th Ed. : 2023, 2130-A+B	1-100	1.02	1	5
5.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	1789.13	-	-
6.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.06	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	1091	500	2000
8.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5-1500	316.0	200	600
9.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	384.0	200	600
10.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5 - 1000	88.0	75	200
11.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5 - 1000	39.85	30	100
12.	Sodium as Na	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	62.30	-	-
13.	Potassium as K	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	6.20	-	-
14.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5 - 1000	120.00	250	1000
15.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO_4^{2-} E	1 – 250	61.30	200	400
16.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO_3^{2-} E	5 - 100	14.50	45	No Relax
17.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05 -10	0.76	1	1.5
18.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02 -50	0.26	1.0	No Relax
19.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1- 5	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02 -50	0.06	5	15
22.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-2	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-50	<0.01	0.05	No Relax
24.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.001- 10	<0.001	0.001	0.005
25.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05 -10	<0.05	0.2	1
26.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.001-2	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.001-5	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-5	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	APHA, 24th Ed. : 2023, 3500, A+B	0.01-5	<0.01	0.03	0.2
32.	Total coliform	Per100ml	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent
33.	E.coli	Per100m	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent

Note-

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----End of Report----

Verified By
Technical Manager

Authorized By
Quality Manager

ecoMen

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/09

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/GW/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Ground Water		
Sample Registration No.	0036	**Name of Location**	Tarangi (within the Lease Area) (GW-1)
Sampling Method	APHA	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Tests	Unit	Protocol	Detection Range	Result	Indian Standards as per IS 10500:2012 (Reaff:2018)	
						Desirable	Permissible
1.	Colour	Hazen	APHA, 24th Ed. : 2023, 2120 B	5 -100	<5.0	5	15
2.	Odour	-	APHA, 24th Ed. : 2023, 2150 B	Qualitative	Agreeable	Agreeable	Agreeable
3.	Taste	-	APHA, 24th Ed. : 2023, 2160 A+B	Qualitative	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA, 24th Ed. : 2023, 2130-A+B	1 -100	1.02	1	5
5.	Electrical Conductivity	Us/cm	APHA, 24th Ed. : 2023, 2510-A + B	1-2000	1987.6	-	-
6.	pH	-	APHA, 24th Ed. : 2023, 4500H+A+B	2 - 12	7.15	6.5-8.5	No Relax
7.	Total Dissolved Solids as TDS	mg/l	APHA, 24th Ed. : 2023, 2540-C	5 - 5000	1212.0	500	2000
8.	Alkalinity as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2320 A+ B	5-1500	416.0	200	600
9.	Total Hardness as $CaCO_3$	mg/l	APHA, 24th Ed. : 2023, 2340 A+C	5 - 1500	432.0	200	600
10.	Calcium as Ca	mg/l	APHA, 24th Ed. : 2023, 3500 Ca A+B	5 - 1000	110.4	75	200
11.	Magnesium as Mg	mg/l	APHA, 24th Ed. : 2023, 3500 Mg A+B	5 - 1000	37.91	30	100
12.	Sodium as Na	mg/l	APHA, 24th Ed. : 2023, 3500 Na A+B	1-100	79.60	-	-
13.	Potassium as K	mg/l	APHA, 24th Ed. : 2023, 3500 K, A+B	1-100	4.35	-	-
14.	Chloride as Cl	mg/l	APHA, 24th Ed. : 2023, 4500 Cl A+B	5 - 1000	108.00	250	1000
15.	Sulphate as SO_4	mg/l	APHA, 24th Ed. : 2023, 4500-SO_4^{2-} E	1 – 250	46.30	200	400
16.	Nitrate Nitrogen as NO_3	mg/l	APHA, 24th Ed. : 2023, 4500-NO_3^{2-} E	5 - 100	6.69	45	No Relax
17.	Fluoride as F	mg/l	APHA, 24th Ed. : 2023, 4500-C	0.05 -10	1.23	1	1.5
18.	Iron as Fe	mg/l	APHA, 24th Ed. : 2023, 3500 Fe B	0.02 -50	0.11	1.0	No Relax
19.	Copper as Cu	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.05-5	<0.05	0.05	1.5
20.	Manganese as Mn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.1- 5	<0.1	0.1	0.3
21.	Zinc as Zn	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.02 -50	0.03	5	15
22.	Arsenic as As	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-2	<0.005	0.01	No Relax
23.	Total Chromium as T. Cr.	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.01-50	<0.01	0.05	No Relax
24.	Phenolic Compound as C_6H_5OH	mg/l	APHA, 24th Ed. : 2023, 5530 A+C	0.001- 10	<0.001	0.001	0.005
25.	Free Residual Chlorine as FRC	mg/l	APHA, 24th Ed. : 2023, 4500-Cl B	0.05 -10	<0.05	0.2	1
26.	Boron as B	mg/l	APHA, 24th Ed. : 2023, 4500 A+C	0.5-10	<0.5	0.5	1.0
27.	Anionic Detergent as MBAS	mg/l	APHA, 24th Ed. : 2023, 5540 A+C	0.02-5	<0.02	0.2	1.0
28.	Mercury as Hg	mg/l	APHA, 24th Ed. : 2023, 3112 A+B	0.001-2	<0.001	0.001	No Relax
29.	Cadmium as Cd	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.001-5	<0.001	0.003	No Relax
30.	Lead as Pb	mg/l	APHA, 24th Ed. : 2023, 3111 A+B	0.005-5	<0.005	0.01	No Relax
31.	Aluminum as Al	mg/l	APHA, 24th Ed. : 2023, 3500, A+B	0.01-5	<0.01	0.03	0.2
32.	Total coliform	Per100ml	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent
33.	E.coli	Per100m	IS15185:2016;RA:2021	<1.0	Absent	Absent	Absent

Note-

1. Test results relate to the items sampled & tested.
2. Test report shall not be reproduced except in full without approval of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

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Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SS/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Soil Sample		
Sample Registration No.	0036	**Name of Location**	Tarangi (within the Lease Area) (S-1)
Sampling Method	IS-2720	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Parameters	Unit	Test Method	Results
1.	pH (Ratio 1:5)	-	IS 2720(Part-26) 1987 Reff-2021	7.88
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	IS:14767: 2000 Reff- 2021	229.00
3.	Moisture	%	IS 2720(Part-2):1973 Reff-2020	7.27
4.	Bulk Density	gm/cc	No:S-09 Issue No.2, Date 12.04.2021	1.34
5.	Total Potassium (K)	%	IS 9497:1980 Reff-2020	0.019
6.	Av. Phosphorous (P_2O_5)	Kg/ha	SOP No:S-07 Issue No.2, Date 12.04.2021	52.50
7.	Total Nitrogen (N)	%	SOP No:S-14 Issue No.2, Date 12.04.2021	0.048
8.	Calcium Carbonate (CaCO3)	%	SOP No:S-30 Issue No.2, Date 12.04.2021	0.520
9.	Av. Magnesium (Mg)	Kg/ha	SOP No:S-30 Issue No.2, Date 12.04.2021	132.00
10.	Organic Carbon	%	IS 2720(Part-22)1972 Reff-2020	0.612
11.	Organic Matter	%	IS 2720(Part-22)1972 Reff-2020	0.850
12.	Zinc (Zn)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	2.340
13.	Iron (Fe_2O_3)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	1.590
14.	Boron (B)	mg/kg	SOP No:S-25 Issue No.2, Date 12.04.2021	0.560
15.	Total soluble Total soluble Sulphate (SO4)	%	IS 2720 (27):1977 RA2020	0.023
16.	Sodium (Na)	mg/kg	IS 9497:1980 RA2020	244.60
17.	Total Porosity	%	No:S-06 Issue No.2, Date 12.04.2021	17.79
18.	Water Holding Capacity	%	No:S-06 Issue No.2, Date 12.04.2021	13.52
19.	Sodium Absorption ratio (SAR)	%	-	4.53
20.	Cation Exchange capacity (CEC)	meq/100gm	SOP No:S-05 Issue No.2, Date 12.04.2021	21.04
21.	Grain Size Distribution			
A)	Textural Class	-	SOP No:S-03 Issue No.2, Date 12.04.2021	Silt Loam
B)	Sand	%	SOP No:S-03 Issue No.2, Date 12.04.2021	27.00
C)	Silt	%	SOP No:S-03 Issue No.2, Date 12.04.2021	46.00
D)	Clay	%	SOP No:S-03 Issue No.2, Date 12.04.2021	27.00

Note :

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SS/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Soil Sample		
Sample Registration No.	0036	**Name of Location**	Crusher Location (S-2)
Sampling Method	IS-2720	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Parameters	Unit	Test Method	Results
1.	pH (Ratio 1:5)	-	IS 2720(Part-26) 1987 Reff-2021	7.64
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	IS:14767: 2000 Reff- 2021	196.00
3.	Moisture	%	IS 2720(Part-2):1973 Reff-2020	8.25
4.	Bulk Density	gm/cc	No:S-09 Issue No.2, Date 12.04.2021	1.37
5.	Total Potassium (K)	%	IS 9497:1980 Reff-2020	0.026
6.	Av. Phosphorous (P_2O_5)	Kg/ha	SOP No:S-07 Issue No.2, Date 12.04.2021	29.50
7.	Total Nitrogen (N)	%	SOP No:S-14 Issue No.2, Date 12.04.2021	0.046
8.	Calcium Carbonate (CaCO3)	%	SOP No:S-30 Issue No.2, Date 12.04.2021	0.440
9.	Av. Magnesium (Mg)	Kg/ha	SOP No:S-30 Issue No.2, Date 12.04.2021	104.00
10.	Organic Carbon	%	IS 2720(Part-22)1972 Reff-2020	0.634
11.	Organic Matter	%	IS 2720(Part-22)1972 Reff-2020	0.880
12.	Zinc (Zn)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	1.340
13.	Iron (Fe_2O_3)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	2.340
14.	Boron (B)	mg/kg	SOP No:S-25 Issue No.2, Date 12.04.2021	0.850
15.	Total soluble Sulphate (SO4)	%	IS 2720 (27):1977 RA2020	0.015
16.	Sodium (Na)	mg/kg	IS 9497:1980 RA2020	163.00
17.	Total Porosity	%	No:S-06 Issue No.2, Date 12.04.2021	20.35
18.	Water Holding Capacity	%	No:S-06 Issue No.2, Date 12.04.2021	15.47
19.	Sodium Absorption ratio (SAR)	%	-	3.40
20.	Cation Exchange capacity (CEC)	meq/100gm	SOP No:S-05 Issue No.2, Date 12.04.2021	18.32
21.	Grain Size Distribution			
A)	Textural Class	-	SOP No:S-03 Issue No.2, Date 12.04.2021	Silt Loam
B)	Sand	%	SOP No:S-03 Issue No.2, Date 12.04.2021	29.00
C)	Silt	%	SOP No:S-03 Issue No.2, Date 12.04.2021	48.00
D)	Clay	%	SOP No:S-03 Issue No.2, Date 12.04.2021	23.00

Note :

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

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Technical Manager

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SS/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Soil Sample		
Sample Registration No.	0036	**Name of Location**	Near-Village(Bharja)(S-3)
Sampling Method	IS-2720	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Parameters	Unit	Test Method	Results
1.	pH (Ratio 1:5)	-	IS 2720(Part-26) 1987 Reff-2021	7.34
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	IS:14767: 2000 Reff- 2021	231.00
3.	Moisture	%	IS 2720(Part-2):1973 Reff-2020	8.20
4.	Bulk Density	gm/cc	No:S-09 Issue No.2, Date 12.04.2021	1.33
5.	Total Potassium (K)	%	IS 9497:1980 Reff-2020	0.012
6.	Av. Phosphorous (P_2O_5)	Kg/ha	SOP No:S-07 Issue No.2, Date 12.04.2021	34.60
7.	Total Nitrogen (N)	%	SOP No:S-14 Issue No.2, Date 12.04.2021	0.035
8.	Calcium Carbonate (CaCO3)	%	SOP No:S-30 Issue No.2, Date 12.04.2021	0.400
9.	Av. Magnesium (Mg)	Kg/ha	SOP No:S-30 Issue No.2, Date 12.04.2021	96.00
10.	Organic Carbon	%	IS 2720(Part-22)1972 Reff-2020	0.691
11.	Organic Matter	%	IS 2720(Part-22)1972 Reff-2020	0.960
12.	Zinc (Zn)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	2.500
13.	Iron (Fe_2O_3)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	3.160
14.	Boron (B)	mg/kg	SOP No:S-25 Issue No.2, Date 12.04.2021	0.340
15.	Total soluble Sulphate (SO4)	%	IS 2720 (27):1977 RA2020	0.011
16.	Sodium (Na)	mg/kg	IS 9497:1980 RA2020	154.00
17.	Total Porosity	%	No:S-06 Issue No.2, Date 12.04.2021	21.30
18.	Water Holding Capacity	%	No:S-06 Issue No.2, Date 12.04.2021	16.19
19.	Sodium Absorption ratio (SAR)	%	-	3.34
20.	Cation Exchange capacity (CEC)	meq/100gm	SOP No:S-05 Issue No.2, Date 12.04.2021	17.12
21.	Grain Size Distribution			
A)	Textural Class	-	SOP No:S-03 Issue No.2, Date 12.04.2021	Silt Loam
B)	Sand	%	SOP No:S-03 Issue No.2, Date 12.04.2021	30.00
C)	Silt	%	SOP No:S-03 Issue No.2, Date 12.04.2021	49.00
D)	Clay	%	SOP No:S-03 Issue No.2, Date 12.04.2021	21.00

Note :

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

ECOMEN MINING PRIVATE LIMITED

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Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SS/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Soil Sample		
Sample Registration No.	0036	**Name of Location**	Near-Village (Watera) (S-4)
Sampling Method	IS-2720	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Parameters	Unit	Test Method	Results
1.	pH (Ratio 1:5)	-	IS 2720(Part-26) 1987 Reff-2021	7.59
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	IS:14767: 2000 Reff- 2021	246.00
3.	Moisture	%	IS 2720(Part-2):1973 Reff-2020	7.30
4.	Bulk Density	gm/cc	No:S-09 Issue No.2, Date 12.04.2021	1.26
5.	Total Potassium (K)	%	IS 9497:1980 Reff-2020	0.024
6.	Av. Phosphorous (P_2O_5)	Kg/ha	SOP No:S-07 Issue No.2, Date 12.04.2021	26.50
7.	Total Nitrogen (N)	%	SOP No:S-14 Issue No.2, Date 12.04.2021	0.040
8.	Calcium Carbonate (CaCO3)	%	SOP No:S-30 Issue No.2, Date 12.04.2021	0.051
9.	Av. Magnesium (Mg)	Kg/ha	SOP No:S-30 Issue No.2, Date 12.04.2021	80.00
10.	Organic Carbon	%	IS 2720(Part-22)1972 Reff-2020	0.533
11.	Organic Matter	%	IS 2720(Part-22)1972 Reff-2020	0.740
12.	Zinc (Zn)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	2.130
13.	Iron (Fe_2O_3)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	2.100
14.	Boron (B)	mg/kg	SOP No:S-25 Issue No.2, Date 12.04.2021	0.620
15.	Total soluble Sulphate (SO4)	%	IS 2720 (27):1977 RA2020	0.029
16.	Sodium (Na)	mg/kg	IS 9497:1980 RA2020	134.00
17.	Total Porosity	%	No:S-06 Issue No.2, Date 12.04.2021	25.88
18.	Water Holding Capacity	%	No:S-06 Issue No.2, Date 12.04.2021	19.67
19.	Sodium Absorption ratio (SAR)	%	-	3.19
20.	Cation Exchange capacity (CEC)	meq/100gm	SOP No:S-05 Issue No.2, Date 12.04.2021	17.96
21.	Grain Size Distribution			
A)	Textural Class	-	SOP No:S-03 Issue No.2, Date 12.04.2021	Silt Loam
B)	Sand	%	SOP No:S-03 Issue No.2, Date 12.04.2021	27.00
C)	Silt	%	SOP No:S-03 Issue No.2, Date 12.04.2021	50.00
D)	Clay	%	SOP No:S-03 Issue No.2, Date 12.04.2021	23.00

Note :

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SS/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Soil Sample		
Sample Registration No.	0036	**Name of Location**	Rohira(Vasa) (S-5)
Sampling Method	IS-2720	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Parameters	Unit	Test Method	Results
1.	pH (Ratio 1:5)	-	IS 2720(Part-26) 1987 Reff-2021	8.06
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	IS:14767: 2000 Reff- 2021	216.00
3.	Moisture	%	IS 2720(Part-2):1973 Reff-2020	8.20
4.	Bulk Density	gm/cc	No:S-09 Issue No.2, Date 12.04.2021	1.32
5.	Total Potassium (K)	%	IS 9497:1980 Reff-2020	0.021
6.	Av. Phosphorous (P_2O_5)	Kg/ha	SOP No:S-07 Issue No.2, Date 12.04.2021	64.50
7.	Total Nitrogen (N)	%	SOP No:S-14 Issue No.2, Date 12.04.2021	0.032
8.	Calcium Carbonate (CaCO3)	%	SOP No:S-30 Issue No.2, Date 12.04.2021	0.400
9.	Av. Magnesium (Mg)	Kg/ha	SOP No:S-30 Issue No.2, Date 12.04.2021	116.00
10.	Organic Carbon	%	IS 2720(Part-22)1972 Reff-2020	0.662
11.	Organic Matter	%	IS 2720(Part-22)1972 Reff-2020	0.920
12.	Zinc (Zn)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	1.200
13.	Iron (Fe_2O_3)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	1.650
14.	Boron (B)	mg/kg	SOP No:S-25 Issue No.2, Date 12.04.2021	0.560
15.	Total soluble Sulphate (SO4)	%	IS 2720 (27):1977 RA2020	0.036
16.	Sodium (Na)	mg/kg	IS 9497:1980 RA2020	165.40
17.	Total Porosity	%	No:S-06 Issue No.2, Date 12.04.2021	19.51
18.	Water Holding Capacity	%	No:S-06 Issue No.2, Date 12.04.2021	14.83
19.	Sodium Absorption ratio (SAR)	%	-	3.27
20.	Cation Exchange capacity (CEC)	meq/100gm	SOP No:S-05 Issue No.2, Date 12.04.2021	17.02
21.	Grain Size Distribution			
A)	Textural Class	-	SOP No:S-03 Issue No.2, Date 12.04.2021	Silt Loam
B)	Sand	%	SOP No:S-03 Issue No.2, Date 12.04.2021	28.00
C)	Silt	%	SOP No:S-03 Issue No.2, Date 12.04.2021	51.00
D)	Clay	%	SOP No:S-03 Issue No.2, Date 12.04.2021	21.00

Note :

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SS/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Soil Sample		
Sample Registration No.	0036	**Name of Location**	Near-Village (Rohira) (S-6)
Sampling Method	IS-2720	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Parameters	Unit	Test Method	Results
1.	pH (Ratio 1:5)	-	IS 2720(Part-26) 1987 Reff-2021	8.11
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	IS:14767: 2000 Reff- 2021	238.00
3.	Moisture	%	IS 2720(Part-2):1973 Reff-2020	7.32
4.	Bulk Density	gm/cc	No:S-09 Issue No.2, Date 12.04.2021	1.37
5.	Total Potassium (K)	%	IS 9497:1980 Reff-2020	0.021
6.	Av. Phosphorous (P_2O_5)	Kg/ha	SOP No:S-07 Issue No.2, Date 12.04.2021	39.50
7.	Total Nitrogen (N)	%	SOP No:S-14 Issue No.2, Date 12.04.2021	0.018
8.	Calcium Carbonate (CaCO3)	%	SOP No:S-30 Issue No.2, Date 12.04.2021	0.520
9.	Av. Magnesium (Mg)	Kg/ha	SOP No:S-30 Issue No.2, Date 12.04.2021	84.00
10.	Organic Carbon	%	IS 2720(Part-22)1972 Reff-2020	0.792
11.	Organic Matter	%	IS 2720(Part-22)1972 Reff-2020	1.100
12.	Zinc (Zn)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	0.890
13.	Iron (Fe_2O_3)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	2.010
14.	Boron (B)	mg/kg	SOP No:S-25 Issue No.2, Date 12.04.2021	0.630
15.	Total soluble Sulphate (SO4)	%	IS 2720 (27):1977 RA2020	0.035
16.	Sodium (Na)	mg/kg	IS 9497:1980 RA2020	149.00
17.	Total Porosity	%	No:S-06 Issue No.2, Date 12.04.2021	18.93
18.	Water Holding Capacity	%	No:S-06 Issue No.2, Date 12.04.2021	14.39
19.	Sodium Absorption ratio (SAR)	%	-	3.46
20.	Cation Exchange capacity (CEC)	meq/100gm	SOP No:S-05 Issue No.2, Date 12.04.2021	20.97
21.	Grain Size Distribution			
A)	Textural Class	-	SOP No:S-03 Issue No.2, Date 12.04.2021	Silt Loam
B)	Sand	%	SOP No:S-03 Issue No.2, Date 12.04.2021	26.00
C)	Silt	%	SOP No:S-03 Issue No.2, Date 12.04.2021	48.00
D)	Clay	%	SOP No:S-03 Issue No.2, Date 12.04.2021	26.00

Note :

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

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E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SS/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Soil Sample		
Sample Registration No.	0036	**Name of Location**	Delder (S-7)
Sampling Method	IS-2720	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Parameters	Unit	Test Method	Results
1.	pH (Ratio 1:5)	-	IS 2720(Part-26) 1987 Reff-2021	7.64
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	IS:14767: 2000 Reff- 2021	244.00
3.	Moisture	%	IS 2720(Part-2):1973 Reff-2020	7.06
4.	Bulk Density	gm/cc	No:S-09 Issue No.2, Date 12.04.2021	1.29
5.	Total Potassium (K)	%	IS 9497:1980 Reff-2020	0.036
6.	Av. Phosphorous (P_2O_5)	Kg/ha	SOP No:S-07 Issue No.2, Date 12.04.2021	86.50
7.	Total Nitrogen (N)	%	SOP No:S-14 Issue No.2, Date 12.04.2021	0.033
8.	Calcium Carbonate (CaCO3)	%	SOP No:S-30 Issue No.2, Date 12.04.2021	0.480
9.	Av. Magnesium (Mg)	Kg/ha	SOP No:S-30 Issue No.2, Date 12.04.2021	108.00
10.	Organic Carbon	%	IS 2720(Part-22)1972 Reff-2020	0.648
11.	Organic Matter	%	IS 2720(Part-22)1972 Reff-2020	0.900
12.	Zinc (Zn)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	0.990
13.	Iron (Fe_2O_3)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	1.630
14.	Boron (B)	mg/kg	SOP No:S-25 Issue No.2, Date 12.04.2021	0.770
15.	Total soluble Sulphate (SO4)	%	IS 2720 (27):1977 RA2020	0.042
16.	Sodium (Na)	mg/kg	IS 9497:1980 RA2020	202.00
17.	Total Porosity	%	No:S-06 Issue No.2, Date 12.04.2021	28.33
18.	Water Holding Capacity	%	No:S-06 Issue No.2, Date 12.04.2021	21.53
19.	Sodium Absorption ratio (SAR)	%	-	4.13
20.	Cation Exchange capacity (CEC)	meq/100gm	SOP No:S-05 Issue No.2, Date 12.04.2021	19.07
21.	Grain Size Distribution			
A)	Textural Class	-	SOP No:S-03 Issue No.2, Date 12.04.2021	Silt Loam
B)	Sand	%	SOP No:S-03 Issue No.2, Date 12.04.2021	29.00
C)	Silt	%	SOP No:S-03 Issue No.2, Date 12.04.2021	47.00
D)	Clay	%	SOP No:S-03 Issue No.2, Date 12.04.2021	24.00

Note :

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SS/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Soil Sample		
Sample Registration No.	0036	**Name of Location**	Wada (S-8)
Sampling Method	IS-2720	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Parameters	Unit	Test Method	Results
1.	pH (Ratio 1:5)	-	IS 2720(Part-26) 1987 Reff-2021	7.89
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	IS:14767: 2000 Reff- 2021	196.00
3.	Moisture	%	IS 2720(Part-2):1973 Reff-2020	5.36
4.	Bulk Density	gm/cc	No:S-09 Issue No.2, Date 12.04.2021	1.31
5.	Total Potassium (K)	%	IS 9497:1980 Reff-2020	0.021
6.	Av. Phosphorous (P_2O_5)	Kg/ha	SOP No:S-07 Issue No.2, Date 12.04.2021	34.20
7.	Total Nitrogen (N)	%	SOP No:S-14 Issue No.2, Date 12.04.2021	0.026
8.	Calcium Carbonate (CaCO3)	%	SOP No:S-30 Issue No.2, Date 12.04.2021	0.500
9.	Av. Magnesium (Mg)	Kg/ha	SOP No:S-30 Issue No.2, Date 12.04.2021	104.00
10.	Organic Carbon	%	IS 2720(Part-22)1972 Reff-2020	0.562
11.	Organic Matter	%	IS 2720(Part-22)1972 Reff-2020	0.780
12.	Zinc (Zn)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	1.020
13.	Iron (Fe_2O_3)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	1.550
14.	Boron (B)	mg/kg	SOP No:S-25 Issue No.2, Date 12.04.2021	0.630
15.	Total soluble Sulphate (SO4)	%	IS 2720 (27):1977 RA2020	0.018
16.	Sodium (Na)	mg/kg	IS 9497:1980 RA2020	169.00
17.	Total Porosity	%	No:S-06 Issue No.2, Date 12.04.2021	16.56
18.	Water Holding Capacity	%	No:S-06 Issue No.2, Date 12.04.2021	12.59
19.	Sodium Absorption ratio (SAR)	%	-	3.52
20.	Cation Exchange capacity (CEC)	meq/100gm	SOP No:S-05 Issue No.2, Date 12.04.2021	20.17
21.	Grain Size Distribution			
A)	Textural Class	-	SOP No:S-03 Issue No.2, Date 12.04.2021	Silt Loam
B)	Sand	%	SOP No:S-03 Issue No.2, Date 12.04.2021	28.00
C)	Silt	%	SOP No:S-03 Issue No.2, Date 12.04.2021	46.00
D)	Clay	%	SOP No:S-03 Issue No.2, Date 12.04.2021	26.00

Note :

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

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TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara, Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SS/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Soil Sample		
Sample Registration No.	0036	**Name of Location**	Bhimana (S-9)
Sampling Method	IS-2720	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Parameters	Unit	Test Method	Results
1.	pH (Ratio 1:5)	-	IS 2720(Part-26) 1987 Reff-2021	8.31
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	IS:14767: 2000 Reff- 2021	269.00
3.	Moisture	%	IS 2720(Part-2):1973 Reff-2020	7.11
4.	Bulk Density	gm/cc	No:S-09 Issue No.2, Date 12.04.2021	1.26
5.	Total Potassium (K)	%	IS 9497:1980 Reff-2020	0.026
6.	Av. Phosphorous (P_2O_5)	Kg/ha	SOP No:S-07 Issue No.2, Date 12.04.2021	52.40
7.	Total Nitrogen (N)	%	SOP No:S-14 Issue No.2, Date 12.04.2021	0.035
8.	Calcium Carbonate (CaCO3)	%	SOP No:S-30 Issue No.2, Date 12.04.2021	0.510
9.	Av. Magnesium (Mg)	Kg/ha	SOP No:S-30 Issue No.2, Date 12.04.2021	80.00
10.	Organic Carbon	%	IS 2720(Part-22)1972 Reff-2020	0.806
11.	Organic Matter	%	IS 2720(Part-22)1972 Reff-2020	1.120
12.	Zinc (Zn)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	0.880
13.	Iron (Fe_2O_3)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	2.340
14.	Boron (B)	mg/kg	SOP No:S-25 Issue No.2, Date 12.04.2021	0.890
15.	Total soluble Sulphate (SO4)	%	IS 2720 (27):1977 RA2020	0.035
16.	Sodium (Na)	mg/kg	IS 9497:1980 RA2020	167.00
17.	Total Porosity	%	No:S-06 Issue No.2, Date 12.04.2021	24.55
18.	Water Holding Capacity	%	No:S-06 Issue No.2, Date 12.04.2021	18.66
19.	Sodium Absorption ratio (SAR)	%	-	3.97
20.	Cation Exchange capacity (CEC)	meq/100gm	SOP No:S-05 Issue No.2, Date 12.04.2021	19.62
21.	Grain Size Distribution			
A)	Textural Class	-	SOP No:S-03 Issue No.2, Date 12.04.2021	Silt Loam
B)	Sand	%	SOP No:S-03 Issue No.2, Date 12.04.2021	27.00
C)	Silt	%	SOP No:S-03 Issue No.2, Date 12.04.2021	49.00
D)	Clay	%	SOP No:S-03 Issue No.2, Date 12.04.2021	24.00

Note :

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

ECOMEN MINING PRIVATE LIMITED

(Formerly known as Ecomen Laboratories Private Limited)

Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024

Phone No. : 0522 - 4079201/2746282

E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SS/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Soil Sample		
Sample Registration No.	0036	**Name of Location**	Urwariya(S-10)
Sampling Method	IS-2720	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Parameters	Unit	Test Method	Results
1.	pH (Ratio 1:5)	-	IS 2720(Part-26) 1987 Reff-2021	7.82
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	IS:14767: 2000 Reff- 2021	219.00
3.	Moisture	%	IS 2720(Part-2):1973 Reff-2020	7.35
4.	Bulk Density	gm/cc	No:S-09 Issue No.2, Date 12.04.2021	1.34
5.	Total Potassium (K)	%	IS 9497:1980 Reff-2020	0.026
6.	Av. Phosphorous (P_2O_5)	Kg/ha	SOP No:S-07 Issue No.2, Date 12.04.2021	75.40
7.	Total Nitrogen (N)	%	SOP No:S-14 Issue No.2, Date 12.04.2021	0.028
8.	Calcium Carbonate (CaCO3)	%	SOP No:S-30 Issue No.2, Date 12.04.2021	0.540
9.	Av. Magnesium (Mg)	Kg/ha	SOP No:S-30 Issue No.2, Date 12.04.2021	112.00
10.	Organic Carbon	%	IS 2720(Part-22)1972 Reff-2020	0.742
11.	Organic Matter	%	IS 2720(Part-22)1972 Reff-2020	1.030
12.	Zinc (Zn)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	0.840
13.	Iron (Fe_2O_3)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	1.670
14.	Boron (B)	mg/kg	SOP No:S-25 Issue No.2, Date 12.04.2021	0.560
15.	Total soluble Sulphate (SO4)	%	IS 2720 (27):1977 RA2020	0.032
16.	Sodium (Na)	mg/kg	IS 9497:1980 RA2020	174.00
17.	Total Porosity	%	No:S-06 Issue No.2, Date 12.04.2021	17.79
18.	Water Holding Capacity	%	No:S-06 Issue No.2, Date 12.04.2021	13.52
19.	Sodium Absorption ratio (SAR)	%	-	3.50
20.	Cation Exchange capacity (CEC)	meq/100gm	SOP No:S-05 Issue No.2, Date 12.04.2021	20.80
21.	Grain Size Distribution			
A)	Textural Class	-	SOP No:S-03 Issue No.2, Date 12.04.2021	Silt Loam
B)	Sand	%	SOP No:S-03 Issue No.2, Date 12.04.2021	26.00
C)	Silt	%	SOP No:S-03 Issue No.2, Date 12.04.2021	48.00
D)	Clay	%	SOP No:S-03 Issue No.2, Date 12.04.2021	26.00

Note :

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

ecoMen

ECOMEN MINING PRIVATE LIMITED
(Formerly known as Ecomen Laboratories Private Limited)
Second Floor Hall, House No. B-1/8, Sector-H, Aliganj, Lucknow - 226 024
Phone No. : 0522 - 4079201/2746282
E-mail: contactus@ecomen.in, Website: www.ecomen.in, CIN - U74210UP1989PTC010601, GSTIN : 09AAACE6076H1ZI

An approved Laboratory from Ministry of Environment, Forest and Climate Change & CPCB Govt. of India, New Delhi

TEST REPORT

FORMAT NO. ECO/QS/FORMAT/08

NAME & ADDRESS OF CUSTOMER:	**M/s Kamlesh Metacast Pvt. Ltd. Near village- Rohida , Watera , Bhimana, Tehsil- Pindwara , Dist Sirohi Rajasthan**	**Test Report No.**	**ECO/LAB/SS/0036/05/2025**
		Issue Date of Test Report	**14.05.2025**
Type of Sample	Soil Sample		
Sample Registration No.	0036	**Name of Location**	Hirawala (within the Lease Area) (S-11)
Sampling Method	IS-2720	**Sample Collected By**	EMPL Representative
Date of Sample Collection	05.05.2025	**Time of Sample Collection**	-
Date of Sample Received	07.05.2025	**Time of Sample Received**	12.11 PM
Start Date of Analysis	07.05.2025	**End Date of Analysis**	14.05.2025
Laboratory Environmental Condition	Temperature: 25 ± 2°C	**Sample Quantity**	As per Requirement
	Humidity: 55 %	**Sample ID Code**	ECO/LAB/0036/05/2025

Sl. No.	Parameters	Unit	Test Method	Results
1.	pH (Ratio 1:5)	-	IS 2720(Part-26) 1987 Reff-2021	7.60
2.	Electrical Conductivity (Ratio 1:5)	µ mhos/cm	IS:14767: 2000 Reff- 2021	174.00
3.	Moisture	%	IS 2720(Part-2):1973 Reff-2020	5.64
4.	Bulk Density	gm/cc	No:S-09 Issue No.2, Date 12.04.2021	1.41
5.	Total Potassium (K)	%	IS 9497:1980 Reff-2020	0.021
6.	Av. Phosphorous (P_2O_5)	Kg/ha	SOP No:S-07 Issue No.2, Date 12.04.2021	34.50
7.	Total Nitrogen (N)	%	SOP No:S-14 Issue No.2, Date 12.04.2021	0.016
8.	Calcium Carbonate (CaCO3)	%	SOP No:S-30 Issue No.2, Date 12.04.2021	0.550
9.	Av. Magnesium (Mg)	Kg/ha	SOP No:S-30 Issue No.2, Date 12.04.2021	124.00
10.	Organic Carbon	%	IS 2720(Part-22)1972 Reff-2020	0.554
11.	Organic Matter	%	IS 2720(Part-22)1972 Reff-2020	0.770
12.	Zinc (Zn)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	1.010
13.	Iron (Fe_2O_3)	mg/kg	SOP No:S-28 Issue No.2, Date 12.04.2021	2.340
14.	Boron (B)	mg/kg	SOP No:S-25 Issue No.2, Date 12.04.2021	0.670
15.	Total soluble Sulphate (SO4)	%	IS 2720 (27):1977 RA2020	0.024
16.	Sodium (Na)	mg/kg	IS 9497:1980 RA2020	168.00
17.	Total Porosity	%	No:S-06 Issue No.2, Date 12.04.2021	16.07
18.	Water Holding Capacity	%	No:S-06 Issue No.2, Date 12.04.2021	12.21
19.	Sodium Absorption ratio (SAR)	%	-	3.21
20.	Cation Exchange capacity (CEC)	meq/100gm	SOP No:S-05 Issue No.2, Date 12.04.2021	21.54
21.	Grain Size Distribution			
A)	Textural Class	-	SOP No:S-03 Issue No.2, Date 12.04.2021	Silt Loam
B)	Sand	%	SOP No:S-03 Issue No.2, Date 12.04.2021	25.00
C)	Silt	%	SOP No:S-03 Issue No.2, Date 12.04.2021	47.00
D)	Clay	%	SOP No:S-03 Issue No.2, Date 12.04.2021	28.00

Note :

1. Test result applied to the sample as received.
2. Test report will not be generated again without prior written permission of the laboratory.
3. The test samples will be disposed of after one Month from the date of issue of test report.

----End of Report----

Verified By

Technical Manager

Authorized By

Quality Manager

Baseline Monitoring Photographs

Sampling code	Sampling Location	Lat. (Northing)	Long. (Easting)	Distance (km)	Direction	Components
1.	Taroongi (within the Lease Area)	24⁰33′57.3″N	72⁰54′24.8″E	00	-	Air, Water, Noise, Soil
2.	Crusher Location	24°34'26.80"N	72°54'40.61"E	00	-	Air, Water, Noise, Soil
3.	Near-Village (Bharja)	24°33'27.26"N	72°52'58.59"E	0.02	SW	Air, Water, Noise, Soil
4.	Near-Village (Vatera)	24°35'51.70"N	72°56'10.89"E	0.04	E	Air, Water, Noise, Soil
5.	Rohira(Vasa)	24⁰36′59.1″N	72⁰58′03.3″E	1.19	E	Air, Water, Noise, Soil
6.	Near-Village (Rohira)	24⁰36′35.9″N	72⁰57′31.5″E	0.85	E	Air, Water, Noise, Soil
7.	Delder	24⁰31′11.7″N	72⁰52′00.8″E	3.09	S	Air, Water, Noise, Soil
8.	Wada	24⁰33′04.3″N	72⁰51′37.7″E	0.52	WSW	Air, Water, Noise, Soil
9.	Bhimana	24⁰35′01.6″N	72⁰54′04.3″E	0.79	W	Air, Water, Noise, Soil
10.	Urwariya	24⁰37′42.6″N	72⁰53′44.7″E	3.0	WNW	Air, Water, Noise, Soil
11.	Hirawala (within the Lease Area)	24⁰37′58.9″N	72⁰57′55.8″E	00	-	Air, Water, Noise, Soil
Surface water						
SW1	Sukli River	24°36'16.24"N	72°56'46.46"E	Entry point	In lease area	Surface Water
SW2	Sukli River	24°35'30.33"N	72°56'2.67"E	Exit point	In lease area	Surface Water
SW1	Amthala (Banas River)	24⁰33′08.5″N	72⁰50′05.4″E	3.95	W	Surface Water
SW2	Dhanari (Banas River)	24⁰41′10.4″N	72⁰55′16.7″E	5.46	NNW	Surface Water

Photographs of Air Sampling

S. No.	Location	Photographs
1.	Taroongi (within the Lease Area)	
2.	Crusher Location	
3.	Near-Village (Bharja)	

4.	Near-Village (Vatera)	
5.	Rohira(Vasa)	
6.	Near-Village (Rohida)	

7.	Delder	
8.	Wada	
9.	Bhimana	

10.	Urwariya	
11.	Hirawala (within the Lease Area)	

Photographs of Nosie Monitoring

S. No.	Location	Photographs
1.	Taroongi (within the Lease Area)	
2.	Crusher Location	
3.	Near-Village (Bharja)	

4.	Near-Village (Vatera)	
5.	Rohira(Vasa)	
6.	Near-Village (Rohida)	

7.	Delder	
8.	Wada	
9.	Bhimana	

10.	Urwariya	
11.	Hirawala (within the Lease Area)	

Photographs of Ground Water Sampling

S. No.	Location	Photographs
1.	Taroongi (within the Lease Area)	
2.	Crusher Location	
3.	Near-Village (Bharja)	

4.	Near-Village (Vatera)	
5.	Rohira(Vasa)	
6.	Near-Village (Rohida)	

7.	Delder	
8.	Wada	
9.	Bhimana	

10.	Urwariya	
11.	Hirawala (within the Lease Area)	

Photographs of Soil Sampling

S. No.	Location	Photographs
1.	Taroongi (within the Lease Area)	
2.	Crusher Location	
3.	Near-Village (Bharja)	

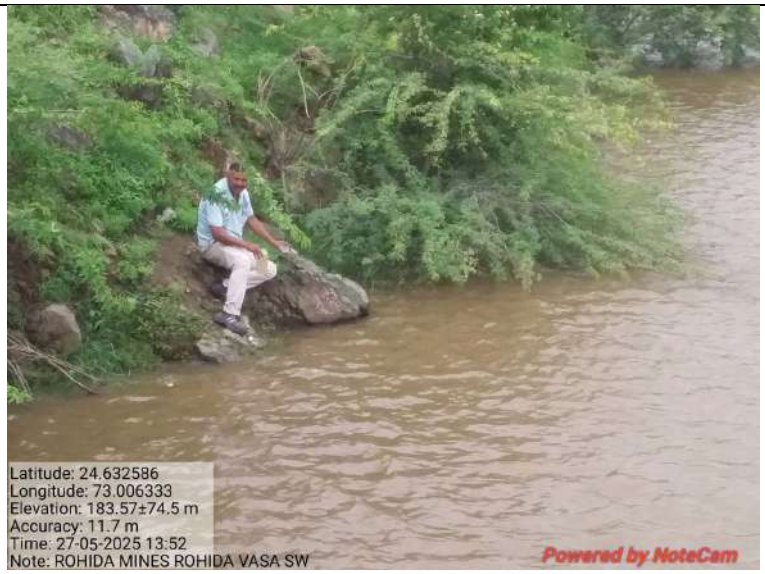
4.	Near-Village (Vatera)	
5.	Rohira(Vasa)	
6.	Near-Village (Rohida)	

7.	Delder	
8.	Wada	
9.	Bhimana	

10.	Urwariya	
11.	Hirawala (within the Lease Area)	

Photographs of Surface Water Bodies Locations

S. No.	Location	Photographs
1	Dhanari (Banas River)	
2	Amthala (Banas River)	

3.	Sukli River	
4	Sukli River	

कार्यालय अधिशाषी अभियंता, जल संसाधन खण्ड, सिरोही

क्रमांक/तक./ 2024–25/5071 दिनांक :– 03/01/2025

मैसर्स कमलेश मेटाकास्ट
प्राईवेट लि0 5ए 5डी कॉरपोरेट
टावर. ए 2 नियर जवाहर सर्कल
जे.एल.एन. मार्ग, जयपुर

Sub:- Regarding issuance of NOC Limestione Mining (Pit no. 12 & 13) at a distance of 50m and Approval of Embankment/Parapet designing along the Mining Pits for the Protection form siltation of Sukli River which flows through Lease area of the Proposed Rohida Limestone Mine (ML Area: 800.9935 ha., total excavation8.91 Million Tonnes per annum) of M/s. Kamlesh Metacast Private Limited located in Village(S)- Rohera, Bharja, Tarangi, Doliphali, Watera, Pipela, Kharadoli Tehsil- Pindwara, District- Sirohi, Rajasthan.
प्रसंगः– आपका पत्रांक दिनांक 03.01.2025

उपरोक्त विषयान्तर्गत एवं प्रासंगिक पत्र से संदर्भ में लेख है कि प्रस्ताविज रोहिडा लाईमस्टॉन (ML Area: 800.9935 ha., total excavation8.91 Million Tonnes per annum) सुकली नदी के पास स्थित हैं। उपरोक्त माईन के पिट सं. 12 व 13 के पास सुकली नदी से 50 मीटर दुर सुरक्षा दीवार/तटबंध कार्य प्रस्तावित हैं। सहायक अभियंता जल संसाधन उपखण्ड सरुपगंज प्रस्तावित कार्य की मौका रिपोर्ट के अनुसार निम्न शर्तों पर अनापत्ति प्रमाण पत्र जारी किया जाता है:–

1. प्रस्तावित खनन पट्टा क्षेत्र पिछले 25 वर्षो से किसी नदी/नाले के बहाव क्षेत्र का हिस्सा नहीं हैं।
2. मौके पर प्रस्तावित खनन पट्टा क्षेत्र के सीमांकित क्षेत्र से 500 मीटर की परिधि में कोई विभागीय संरचना निर्मित/स्थित नहीं है।
3. प्रस्तावित खनन पट्टा क्षेत्र में वर्तमान में माननीय उच्च न्यायालय द्वारा अब्दुल रहमान बनाम सरकार एवं रामगढ़ –सुओमोटो पिटीशन 11153/2011 में जलाशयों एवं जल बहाव क्षेत्र के सम्बंध में दिये गये निर्देशों की पालना सुनिश्चित करें।
4. प्रस्तावित कार्य से पानी के प्रवाह को किसी भी स्थिति में अवरोधित नहीं किया जा सकेगा अर्थात पानी के प्राकृतिक प्रवाह हेतु आवश्यक प्रवाह मार्ग खननकर्ता द्वारा स्वयं के स्तर पर निजी खर्च से निर्माण किया जाना आवश्यक होगा।
5. प्रस्तावित काय से निकलने वाला मलबा/वेस्ट मैटरियल किसी भी स्थिति में पानी के प्रवाह मार्ग एवं आसपास के जल स्त्रोतों (नदी नालों इत्यादि) में डाला जाना प्रतिबंधित रहेगा, अर्थात वेस्ट मेटेरियल/मलबे के डाले जाने वाले स्थल की जल संरचनाओं से न्यूनतम निर्धारित दूरी रखी जानी आवश्यक होगी।
6. प्रस्तावित कार्य से उत्पन्न धूल (Dust) से आस–पास के जल स्त्रोतों (नदी नालों इत्यादि) के जल के प्रदूषित होने से सम्बन्धी आवश्यक रोकथाम खननकर्त्ता द्वारा सुनिश्चित की जानी होगी।

अधिशाषी अभियन्ता
जल संसाधन खण्ड, सिरोही

कार्यालय पता :– सिंचाई कॉलोनी, अग्रवाल हॉस्टल के पास, सिरोही (राज.) 307001
E-mail ID :- eewrsirohi@gmail.com & eesirohi.wr@rajasthan.gov.in दूरभाष नं. 02972-222336

Regional Office
RAJASTHAN STATE POLLUTION CONTROL BOARD
House no.: 25 & 26, Singha Colony, Naya Kheda, Santpur, Abu Road, Tehsil: Abu Road,
District: Sirohi – 307026, Rajasthan.
Website: www.environment.rajasthan.gov.in E.mail: rorpcb.sirohi@gmail.com

S.No: RSPCB / Abu Road / Sirohi / SM-558 /1364 Date: 10/07/2025

Kamlesh Metacast Pvt. Ltd.,
5A & 5D, Corporate Tower
A-2, Near Jawahar Circle,
JLN Marg, Jaipur - 302017
Rajasthan.
E-mail: aya.agarwal@gmail.com

Sub.: Regarding protection plan for natural water bodies/streams within and around the mining lease area of the proposed Rohida Limestone mine (M.L. area: 800.9935 ha) of M/s Kamlesh Meta Cast Pvt. Ltd., locate at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil: Pindwara, Dist.: Sirohi, State: Rajasthan.

Ref.: Submission of your protection plan details vide letter dated 30.06.2025, received by this office on 09.07.2025.

Sir/Ma'am,

With reference to the above cited subject and as per submission of the action plan by the lessee, they shall provide all the necessary arrangements consisting garland drain, siltation pond around the lease area and OB dump site to prevent the siltation of river(s).

Lessee shall ensure regular water sprinkling on haul roads and proposed crusher plant to maintain the ambient air quality. The lessee shall ensure adoption of adequate safeguards so as to maintain natural flow of all the rivers, seasonal nallas and natural water bodies. The lessee shall adhere with the proposals as submitted with the said plan.

Yours sincerely,

(B.R. Siyag)
Regional Officer

कार्यालय उप वन संरक्षक, सिरोही (राजस्थान) 307001

E-mail:dcfsirohi.forest@rajasthan.gov.in & dfosirohi@gmail.com, phone & fax no.02972-222277

क्रमांकः एफ ( )सर्वे / उवसं / 2024–25 / 3061 दिनांकः 28/7/25

निमित

मुख्य वन संरक्षक,
जोधपुर।

विषयः– Authentication of distance map of Mount Abu Wildlife Sanctuary from Mine area (Distance map of National Parks, Sanctuaries. Biosphere Reserves, Migratory Corridors of Wild Animals, Eco-Sensitive Zone and Eco-Sensitive Areas in 10 km radius of proposed Mining Area Rohida Limestone Mine by M/s Kamlesh Metacast Private Limited, located at Village Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla,Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan.)

महोदय,

उपरोक्त विषयान्तर्गत निवेदन है कि मैसर्स कमलेश मेटाकास्ट द्वारा आवेदित एवं ईकोमेन माईनिंग प्राईवेट लिमिटेड, लखनउ द्वारा तैयार किये गये विषयांकित सीमेण्ट प्लान्ट विस्तार में प्रस्तुत Wildlife Conservation Plan for Schedule-I Species found in 10 km radius of study area Rohida, Bharja, Taroongi, Doliphali, Vatera, pipla, Kharadoli, Tehsil- Pindwara (ML Area- 800.9935 Ha.) में अधोहस्ताक्षरकर्ता द्वारा कन्जर्वेशन प्लान प्रतिहस्ताक्षर किया जाकर स्वीकृति की अनुशंषा की जाती है

यह प्रमाणित किया जाता है कि

1. आवेदित कार्य क्षेत्र वनभूमि नही है।
2. आवेदित कार्य क्षेत्र निकटतम वनक्षेत्र से 55 मीटर दूरी पर स्थित है।
3. आवेदित कार्य क्षेत्र के 10 किमी परिधि में वन्यजीव आबूपर्वत आता है तथा अन्य कोई राष्ट्रीय उद्यान / अभ्यारण्य / कन्जर्वेशन रिजर्व नही है।

प्रस्तावित कार्यस्थल शिड्यूल प्रथम के उक्त वन्यजीवों का प्राकृतिक प्रवास क्षेत्र है। जिस हेतु आवेदक द्वारा उक्त वन्यजीवों के संरक्षण बाबत राशि रूपये 475 लाख राशि का कन्जर्वेशन प्लान प्रस्तुत किया गया है। अतः अधोहस्ताक्षरकर्ता उक्त WCP आवेदन पत्र, लोकेशन मैप, क्षेत्र में स्थित फलोरा–फौना की सूची, वित्तीय आउटले को प्रतिहस्ताक्षर कर मैसर्स कमलेश मेटाकास्ट द्वारा आवेदित उक्त क्षेत्रों मे पाये जाने वाले वन्यजीवों के संरक्षण हेतु Wildlife Conservation Plan को अनुमोदित करने की अनुशंषा करते है।

Wildlife Conservation Plan को श्रीमान को अनुमोदन हेतु संलग्न प्रस्तुत है।

संलग्नः– WCP

भवदीया

(मृदुला सिंह IFS)
उप वन संरक्षक
सिरोही

दिनांकः

क्रमांकः एफ ( )सर्वे / उवसं / 2024–25 /

प्रतिलिपि मैसस कमलेश मेटाकास्ट, जयपुर को सूचनार्थ प्रेषित है।

उप वन संरक्षक
सिरोही

Site Specific Wildlife Conservation and Management Plan for Rohida Limestone Mine with production capacity of Limestone 2.85 MTPA, Mineral Reject 0.24 MTPA, Soil 0.04 MTPA & OB 5.78MTPA, Total excavation 8.91 MTPA along with 1000 TPH of Crusher in mine lease area of 800.9935 ha by M/s Kamlesh Metacast Private Limited, located at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan

[As per the Wildlife (Protection) Amendment Act, 2022]

Project Proponent

M/s Kamlesh Metacast Private Limited
5A/5D, Corporate Tower A-2, JLN Marg, Jaipur, Rajasthan, 302017

Prepared By

ECOMEN MINING PRIVATE LIMITED

(formerly known as Ecomen Laboratories Private Limited)

Accredited by QCI/NABET Certificate No. NABET/EIA/25-28/RA 0403, valid till, 23/05/2028

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CONTENTS

Chapter No.	Particulars	Page No.
Executive Summary		**1-7**
CHAPTER- 1: Brief Note about the Project and Its Utility		**8-61**
1.1	Identification of Project	8
1.2	Identification of Project Proponent	8
1.3	Mining Lease Status	8
1.4	Need for the Project	9
1.5	Land Use Pattern of Proposed Mine Lease	15
1.5.1	Land Use of Project 10 Km. Radius Area	16
1.6	Provisions of all Relevant Acts and Regulations Applicable	18
1.7	Villages and habitations within the WCP area	20
1.7.1	Irrigation Facilities	27
1.8	Description of Topography, Geology, Climate, Natural disasters etc.	28
1.9	Seismicity and Flood Hazard Zonation of area	31
1.10	Study of Flora & Fauna	35
1.10.1	Methodology for Ecological Survey	35
1.10.2	Literature Survey	40
1.10.3	Flora and Fauna of WCP Area	40
1.10.4	Man Animal Conflict	61
1.10.5	Other Industries in the WCP Area and Indicative WCP	61
CHAPTER-2: ENVIRONMENTAL IMPACTS OF THE PROPSED PROJECT		**64-97**
2.0	Impacts Identification and Evaluation	64
2.1	Impact of Project on the environment in general	64
2.1.1	Impacts on Land use due to Mining Activity	64
2.1.2	Vegetation Loss due to mining:	64
2.1.3	Top soil excavation and conservation	65
2.1.4	Disposal of Waste	65
2.1.5	Impact due to Possible Accidents & Proposed mitigative Measures	66
2.1.6	Impact on Air Quality	66
2.1.7	Impact of Noise Level & Vibration	68
2.1.8	Impact on Ground and Surface Water Quality	69
2.1.9	Impact on Biological Environment	69
2.1.10	Habitat and Behavior	86
2.2	General Threats and Possible Impacts on Flora and Fauna in WCP area in general	95
2.3	Vehicular traffic:	95

2.4	Noise Pollution, Water, Air and Underground Pollution, etc	95
2.5	Impact on Displacement/ Movement of Fauna-Territorial Aquatic or Aerial	96
2.6	Direct or indirect impacts on the flora and fauna of WCP area	97
2.7	Study Technique Adopted and Observations in the Field	97
CHAPTER-3: MANAGEMENT AND MITIGATION STRATEGIES		**110-107**
3.1	Objective of the Wildlife Conservation Plan	99
3.2	Strategies to Mitigate and Minimize Adverse Impacts	100
3.2.1	Development of habitat	100
3.2.2	Strategies for the Project Area	100
3.2.3	Impacts on Buffer Zone	105
CHAPTER-4: MANAGEMENT PLAN INTERVENTIONS WITHIN THE PROJECT AREA		**108-113**
4.1	Project Area	108
4.2	Management Plan interventions within the Project Area	108
4.3	Interventions inside project area	109
4.4	Measures for Improving Biological Environment & Forest	111
4.5	Greenbelt	111
CHAPTER-5: WILDLIFE MANAGEMENT STRATEGIES IN STUDY AREA		**114-124**
5.1	Wildlife Conservation Plan (WCP)	114
5.1.1	Objectives	114
5.1.2	WCP Implementation Arrangement	114
5.1.3	WCP Methodology	114
5.2	Locations of Wildlife Conservation Interventions	121
5.3	Environment Management Plan Interventions	121
5.3.1	Aims of EMP	121
5.3.2	Environmental Management Plan	121
5.4	Plan Period : Initial 10 years	122
5.5	Supporting Activities Required from State Government	124
5.5.1	Wildlife Conservation Activities and Budget Utilization	124
5.5.2	Progress Review of Wildlife Conservation Plan	124
5.5.3	Field Monitoring	124
5.6	Success Indicators	124
Chapter-6: FINANCIAL FORECAST AND OUTLAYS FOR WILDLIFE		**125**
6.1	Financial Outlay	125

6.2	WCP Interventions:	125
Chapter-7: MAPS / APPENDICS FOR WILDLIFE CONSERVATION PLAN (WCP) IMPLEMENTATION		127

TABLE

Table No.	Description	Page No.
1.1	Salient Features of the Projects	9
1.2	Environmental Settings of the Area	11
1.3	Land Use Pattern of the Mine Lease Area	15
1.4	Major Land Use/Land Cover Categories of Study Area	17
1.5	Villages in the study area	20
1.6	Socio-Economic Profile of India, Rajasthan State, Jhunjhunu District & Study Area	22
1.7	Village Wise Demographic Profile of the 10 Km Study Area	24
1.8	Cropping Intensity at Sirohi Districts	28
1.9	Status of Agriculture in the Sirohi District Study Area	27
1.10	The irrigation based classification of the crop land	27
1.11	Source of Irrigation for Agriculture in the Districts	28
1.12	Micrometeorology at Site Season-Summer season -March 2023-May 2023	30
1.13	Phytosociological study details of study area	41
1.14	Plant Species Present within the Project Site	41
1.15	Fauna and Avi-fauna within Project Site	42
1.16	Phytosociological study details of protected Forest Hirawala	44
1.17	Phytosociological study details of Reserved Forest Pipela	45
1.18	Phytosociological study details of Mount Abu Wildlife Sanctuary	45
1.19	Plants recorded from WCO or Study Area	46
1.20	List of Fauna and Avi-fauna present in WCP / Study Area	53
1.21	Species Diversity by Category	57
1.22	Ecological Impact on the Floral Species	58
1.23	Faunal Diversity in 10 Km. Radius of Project Areas	58
1.24	Schedule-I Fauna of Study Area	59
1.25	Ecological Impact on the Faunal species	59
1.26	Forest Found in Study Area	61
2.1	Top Soil Generation	65
2.2	Predicted Noise Levels	69
2.3	Impact evaluation for biological resources	71
4.1	Green Belt Development	112

4.2	Trees Proposed To Be Planted	113
5.1	Wildlife Conservation Activities in Study (WCP) Area	122
5.2	Monitoring plan for conservation of wildlife and biodiversity	123
6.1	WCP Activity Wise Budget Proposed for WCP for 10 years	125
6.2	Annual Cash flow for the zone of Influence (ZoI)	126

FIGURE & PLATES

Fig. No.	Description	Page No.
1.1	Location Map	12
1.2	Photograph Showing the Mining Block –Site Conditions	13
1.3	Toposheet Showing Mining Block Marked with 10 km. Radius Area (Buffer Zone)	14
1.4	Map Showing Environmental Settings	15
1.5	Digital Classification Map	17
1.6	Windrose Diagram for –March 2023-May 2023	30
PLATE		
1	Photographs of during Socioeconomic survey in study area	21
2	Photographs of phytosociological study	41
3	Photographs of phytosociological study of protected forest Hirawala	44
4	Photographs of phytosociological study of Reserved Forest Pipela	44
5	Photographs of phytosociological study Mount Abu Wildlife Sanctuary	45
6	Study area vegetation photographs	49

ANNEXURES

Annexure No.	Description
I	LULC Map of the WCP / Study Area.
II	Google Image of the Study / WCP Area.
III	Location of Protected Areas (PAs) Close to the Project Area
IV	Layout map of the project area (Project Site).
V	TOR Letter
VI	Distance between Wild Life Sanctuary and ML Area Map
VII	Flora & Fauna Species for Authentication

EXECUTIVE SUMMARY

The Existing Situation (Core area and Buffer Area)

Rohida Limestone Mine of Kamlesh Metacast Private Limited has proposed production capacity of 8.91 Million TPA (Total Excavation) (Limestone – 2.85 Million TPA, Soil – 0.04 Million TPA, Mineral Reject- 0.24 Million TPA & OB – 5.78 Million TPA) and installation of 1000 TPH crusher with Wobbler and Screening (200 TPH) over an area of 800.9935 ha located in Village(s)- Rohida (Rohera as per toposheet), Bharja, Taroongi (Tarangi as per toposheet), Doliphali, Vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan.

This report has been prepared in reference to the ToR letter issued by Ministry of Environment, Forest and Climate Change, Govt of India, New Delhi vide letter no. IA-J-11015/81/2024-IA-II(NCM) dated 5th May., 2025 in accordance to the EIA Notification - 2006 and amended as on date. The baseline data for the environmental studies has been collected during Summer season-2023 (March, April & May 2023).

As per direction under ToR, Preparation of Wildlife Conservation Plan for Schedule- I Species is mandatory. The objective of this plan is to address and alleviate the adverse effects caused by mining activities and various other contributing factors. This comprehensive plan encompasses the assessment of habitat conditions, ecological dynamics, and the diverse range of plant and animal species within the study area.

As per The Wild Life (Protection) Act of 1972, Wild Life (Protection) Amendment Act,2022 there are Ten (10) Schedule-I Faunal species found in the WCP area.

There are 15 schedule -I species i.e. *Panthera pardus* (Leopard), *Rusa unicolor* (Sambar deer), *Felis chaus* (Jungle Cat), *Paradoxurus hermaphroditus* (Common Palm Civet), Canis lupus (Indian Wolf), *Hyaena hyaena* (Striped Hyaena), Canis aureus (Jackal), *Vulpes bengalensis* (Indian Fox), *Hystrix indica* (Indian Porcupine), *Melursus ursinus* (Sloth Bear), Naja naja (Indian Cobra), Ptyas mucosus (Common Rat Snake), Varanus bengalensis (Bengal Monitor Lizard) Pavo cristatus (Indian Peafowl), Tachyspiza badia (Shikra) were recorded in the study area during field survey. List of flora and fauna have been authentication at DFO, Sirohi, Rajasthan.

i. Topography:

The study area shows a gently undulating topography and general elevation between highest elevation points is 900 m above mean sea level in west direction and lowest elevation 200 m above mean sea level in east direction. The core area is having undulating terrain. The maximum contour level is 368 MSL near northern boundary and minimum level is 308 m towards the southern boundary

Drainage Pattern

The drainage system of the Study area is well developed West Banas. Banas River is most important river of the district flowing seasonally from west to east. Other rivers which flow in the district are Khari, Sukli, Bandi, Kapalganga and Krishnavati flowing south to north and merging to banasriver.

ii. Climate, Rainfall and Temperature:

The climate of the Sirohi district can be classified as largely, semiarid type. It is characterized by very hot summers and very cold winters with generally poor but occasionally good rainfall during Southwest monsoon period. In May and June, the maximum temperature may sometimes go up to 48 ^{0}C. Winter temperatures drop down to 3^{0}C to 4^{0}C. The potential Evapotranspiration rates are quite high, especially during May and June. The average annual rainfall of Sirohi district is 471.95 mm. The nearest IMD station is at Sirohi.

The temperature during the period October 2023 to December, 2023 the minimum temperature was 3.1^{o}C and maximum temperature was 40 ^{0}C.

Forest Profile:

Types of forest in an area is determined by several factors like climate, soil type, topography; elevation etc. forests are classified according to their nature and composition, the type of climate in which they thrive, and its relationship with the surrounding environment.

Project area forests are highly degraded due to severe biotic pressure and occur in the form of scrub forests in most of the areas. Project study area does not involve any forests. But the nearby areas have two types of forests and subtypes with their codes stated below, as per the revised classification of Indian Forests (Champion & Seth).

1. Northern Tropical dry deciduous forest (5)

a. Dry Teak bearing Forest (5A/C1)
b. Dry Sal bearing Forest (5A/C1)
c. Babool forest (5/E5)
d. Hardwickia forest (5/E4)
e. Boswellia forest (5/E2)
f. Acacia nilotica (Babool) forest (5/E3)
g. Butea forest (5/E5)
h. Anogeissus pendula forest (5/E1)

2. Tropical Thorn Scrub Forest

a. Ziziphus thorn scrub (6A/DS1)
b. Euohorbia scrub (6/E1)
c. Salvadora scrub (6/E4)
d. Dry grassland (5/DS4)

Reserved Forest N/V Wara, Protected Forest N/V Hirawala, Reserved Forest N/V Wara, Kivrali Ka Zor Reserved Forest, Reserved Forest N/V Pipela, Reserved Forest N/V Pipela, Mount Abu Wild Life Sanctuary & Nitaura Jor Reserved Forest are found with in WCP study area.

iii. Water Sources:

The highest and lowest elevations are 361MSL and 295 MSL respectively. The general drainage of the lease area is toward the Sukhali River. The impact on the physical environment will be contained within the lease area.

- Sukhali River passes from the lease area and outside of the northern and southern part of the lease area. The river is seasonal in nature and remains dry almost throughout the year.
- However, it is proposed that at the conceptual stage, out of the total excavated area (121.96 ha), about 72.66 ha will be backfilled by generated waste or overburden material, and the remaining 49.30 ha will be converted into a water reservoir for community use. After the backfilling of the mined-out pit, this area will be covered by plantation and re-grassing.

iv. About study area:

The extent of forest cover of Rajasthan state is 16654.96 Sq. Km. forests/tree cover area is recorded in the State from total Geographical area (342239 Sq. Km.) which is about 4.87% of the total state's geographical area (FSI 2021).

The study area mainly comprises of Built Up (8.9%), Agricultural Land (58.6 %), Water Bodies (2.2%) & Forest 30.1%. There will be no change in land use of buffer zone due to proposed mining activity.

2) Change of Land Use Pattern

The total Mining lease area is **800.9935** Ha, comprising of Government waste land (227.9500 ha), Waste Grazing /Charagah Land (21.0900 ha) and Private Agriculture Land (551.9535). Total Excavated Area till the conceptual plan will be 121.96 ha out of which 49.30 ha area will be used as water reservoir and total plantation will be done on 128.30 ha area. Plantation includes 7.5 m Safety Barrier (30.70 ha), Undisturbed Area, (24.94 ha) & backfilled area (72.66 ha) which is about 61.68% of the broken-up area (208 ha). The total green area in the plan period will be 4.80 Ha with 12,000 number of trees and in the CP stage about 128.30 Ha area will be under green with 1,39,100 Plants.

3) Field Observations for Conservation of Wildlife in Core and Buffer Area (WCP area)

Total 10 tree species, 8 shrubs, 7 Herbs & Grasses species were found in core zone. The WCP or study area is combination of plain & sand mounds, Human settlement, Commercial setup, Agriculture and Barren land. About 52 trees, 21 shrubs and 13 herbs, and 7 grasses, species were recorded. Mount Abu Wild Life Sanctuary and many RF Forest are found in WCP area therefore rich biodiversity of Avifauna, Mammals and reptiles have been found in the area. Based on Secondary data & limited primary survey, the fauna and avi-fauna present in the WCP area. Among fauna, 18 species of mammals, 11 species of reptiles and 1 species of amphibians and 52 species avifauna were recorded in the study area.

Schedule- I fauna according to Indian Wildlife Protection Act (IWPA), 2022 conservation status have been identified as *Panthera pardus* (Leopard), *Rusa unicolor* (Sambar deer), *Felis chaus* (Jungle Cat), *Paradoxurus hermaphroditus* (Common Palm Civet), Canis lupus (Indian Wolf), *Hyaena hyaena* (Striped Hyaena), Canis aureus (Jackal), *Vulpes bengalensis* (Indian Fox), *Hystrix indica* (Indian Porcupine), *Melursus ursinus* (Sloth Bear), Naja naja (Indian Cobra), Ptyas mucosus (Common Rat Snake), Varanus bengalensis (Bengal Monitor Lizard) Pavo cristatus (Indian Peafowl), Tachyspiza badia (Shikra) for which conservation plan have been prepared.

4) Proposed Management Plan for Conservation of Wildlife in the Study area

a) Vision

The conservation plan will be prepared with clear vision and following objectives: **Ensuring Wildlife Safety:** The primary goal of the plan is to ensure the safety and well-being of the wildlife within the designated area. Measures will be implemented to protect and preserve their habitats from any potential threats.

Enhancing Habitat Quality: Efforts will be focused on improving the habitat conditions to provide suitable food and shelter for the wildlife. This may include habitat restoration, creation of wildlife corridors, and promoting biodiversity conservation practices.

Enhancing Water Availability: Recognizing the importance of water for wildlife, the plan will emphasize improving water availability, especially during periods of scarcity or pinch period. Measures such as constructing water sources and managing water bodies will be implemented to cater to the specific water needs of wildlife species.

Creating Awareness: The conservation plan will prioritize raising awareness among the local communities and stakeholders about the importance of wildlife protection. Education and outreach programs will be developed to foster a sense of responsibility and promote active participation in conservation efforts. By embracing this vision, the conservation plan aims to safeguard wildlife, improve their habitat conditions, enhance water availability, and foster a culture of wildlife protection and conservation among the local communities.

b) Methodology

To achieve the above goals of vision following methodology shall be adopted

a. Safety of Wildlife

The wildlife in the area can face adversity by following activities:

Noise from heavy drilling, blasting, machinery and transportation can harm the wildlife.

❖ **Mitigation Strategy**

➢ The machinery operator and drivers will be educated to maintain proper speed and to be more careful towards wildlife, especially nearby the forest area.

- Only proper and valid PUC certified vehicle is being / will be engaged for the mine activity.
- Cooperation from the Forest Department for construction of infrastructure, veterinary fund, Ambulance with Cages, rescue wards, etc. for conservation of wildlife.

❖ **Habitat Improvement**

The "habitat" provides food and shelter to the wild animals. Development of suitable habitat will include favorable conditions for other prey animals.

❖ **Mitigation Strategy**

- Project proponent in these locations will develop the tree grove through plantation for the conservation of wildlife in consultation with the Forest Department. Maintenance of plants, watering facility, casualty replacement, etc. shall be take care. The responsibility of maintaining the habitat lies with forest department.
- The Project Proponent would help the resident villagers and local populations by educating them for conservation of habitat. They will also train the drivers and laborers to arrest damage to wildlife habitat and the bird's nests.
- The Project Proponent will reclaim and restore habitats that have been impacted by Organic synthetic chemical production, through the use of land reclamation and restoration techniques.

iii. Improvement of Water availability

"Water" is the daily essential requirement of all wild animals. The scarcity of water leads to the migration of wild animals from forest area towards human population settlement which increases dangers to their life by way of human-animal conflict and attracts poaching also.

❖ **Mitigation Strategy**

A. Annual repair and maintenance of existing anicuts, talai (small reservoirs), and water ponds will be conducted in consultation with the Forest Department before the onset
of the rainy season.

B. Creation of small mud ponds will be undertaken to enhance water availability and create additional drinking water sources for wildlife.

C. Adequate measures will be taken to ensure the availability of water in ponds and other avedas (drinking water bodies for cattle) during periods of water scarcity, ensuring the well-being of both wildlife and domestic animals.

❖ **Awareness Programme**

Creating awareness among the local community is the most effective tool for wildlife safety and development. By understanding, loving, and protecting wildlife, individuals contribute to a healthier environment. Awareness campaigns, educational initiatives, and ethical practices are essential in preserving habitats, preventing illegal activities, and minimizing human-wildlife conflicts. Engaging the community through partnerships and promoting responsible behaviour fosters a collective effort

towards wildlife conservation and ensures a harmonious coexistence between humans and the natural world.

❖ **Mitigation Strategy**

***Nature Awareness Camps**:* Regular nature awareness camps will be organized in the area, at least once a year for a period of ten years. These camps aim to educate the local public about the importance of wildlife conservation and environmental preservation. This will be instilling a sense of responsibility and stewardship among the local community can foster a collective effort in safeguarding wildlife.

- *Awareness Activities:* Special awareness activities will be conducted during significant events such as Wildlife Week (1st Oct to 7th Oct), World Forestry Day (21st March), and World Environment Day (5th June) each year. These activities may include painting and photography competitions, essay and slogan writing contests, as well as activities focused on tree and bird identification.
- *Distribution of Educational Materials:* Brochures and pamphlets highlighting nature and wildlife protection will be published and distributed during the awareness camps. These materials will provide guidance on how to safeguard wildlife and promote responsible behavior towards nature.
- *Slogans and Signage:* Eye-catching slogans and signage promoting wildlife and nature conservation will be prominently displayed throughout the core zone and within buffer zone (10-kilometer radius), especially along roadsides. These visual reminders aim to encourage the public to actively participate in conservation efforts.

Review and Monitoring of Wildlife Conservation Plan

The conservation plan proposed for the Schedule- I fauna in buffer area of the mine site should be monitored continuously to assess any short comings, to remediate further and implement the plan to achieve the goal for conservation and improvement of the wildlife population and their habitat. The team will review the progress and evaluate the work and submit report periodically. The report should also suggest remedial measures for effective conservation and management of the threatened and Schedule- I faunal species.

Financial Outlay

The financial outlay of WCP (Wildlife Conservation Plan) has been fixed based on & quot; Instructions for Processing of Wildlife Conservation Plan for Projects by Addl. PCCF and Chief Wildlife Warden, Rajasthan & quot; vide Letter No. WCP/CWLW/2019/6451-6463 dated 24.05.2019.

WCP Activity Wise Budget Proposed for WCP for 10 years

S. No.	**Conservation Activity**	**% of Total Outlay of Wildlife Conservation Plan (Capital Cost: Rs. in lakhs)**
1	Habitat improvement & mitigation measures (Food Water, Shelter, Movement etc.) and measures to reduce, minimize the human- animal Conflicts, Conserve mine area river	237.5 (50% of Total)
2	Awareness and Extension (Forest staff will also be invited for various activities to ensure participation)	47.5 (10%of Total)
3	Support to Forest Department for monitoring, rescue & rehabilitation of Wildlife (Veterinary care, animal health, rescue, tools, and equipment's etc.)	47.5 (10%of Total)
4	Contribution towards conservation of Wildlife in PA's or other Conservation activity (to be deposited in RPACS)	47.5 (10%of Total)
5	Administrative Cost for processing inspections etc. (to be deposited in RPACS)	47.5 (10%of Total)
6	Miscellaneous including Eco- development	47.5 (10%of Total)
	Total	**Rs. 475 (100%)**

CHAPTER-1

1.0 Brief Note about the Project and Its Utility

1.1 Identification of Project

Rohida Limestone Mine of Kamlesh Metacast Private Limited has proposed production capacity of 8.91 Million TPA (Total Excavation) (Limestone – 2.85 Million TPA, Soil – 0.04 Million TPA, Mineral Reject- 0.24 Million TPA & OB – 5.78 Million TPA) and installation of 1000 TPH crusher with Wobbler and Screening (200 TPH) over an area of 800.9935 ha located in Village(s)- Rohida (Rohera as per toposheet), Bharja, Taroongi (Tarangi as per toposheet), Doliphali, Vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan.

This report has been prepared in reference to the ToR letter issued by Ministry of Environment, Forest and Climate Change, Govt of India, New Delhi vide letter no. IA-J-11015/81/2024-IA-II(NCM) dated 5th May 2025 in accordance to the EIA Notification - 2006 and amended as on date. The baseline data for the environmental studies has been collected during summer season-2023 (March, April & May 2023).

1.2 Identification of Project Proponent

M/s Kamlesh Metacast Private Limited office address at 5A/5D, Corporate Tower A-2, Near Jawahar Circle, JLN Marg, Jaipur, Rajasthan, 302017 is Project proponent. Shri Ananya Agarwal (Mob No 7742011000; mail id: aya.agarwal@gmail.com) is the Authorized Signatory of the project.

1.3 Mining Lease Status

Rohida Limestone Mine located at Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil–Pindwara, District – Sirohi, Rajasthan State, for which KMPL was granted a Prospecting License (PL) for limestone mineral over an area of 1859.0275 ha near Village Rohida in Tehsil Pindwara of District Sirohi, Rajasthan vide Government Order no. Nikhabhu/ Sirohi/ CC.2/ P1(2) 7/11/ 5255 dated 24-12-2014, PL was executed on 12-03-2015 & subsequently, exploration was carried out.

The Mining Plan along with Progressive Mine Closure Plan has been approved vide letter no. E12030-MCDR-MPC0LST/28/2024-AJM-IBM_RO_AJM, date-27.11.2024. Online application for ToR was submitted on 06.12.2024 as per the approved mining plan. ToR letter has been issued by Ministry of Environment, Forest and Climate Change, Govt of India, New Delhi vide letter no. IA-J-11015/81/2024-IA-II(NCM) dated 5th May., 2025. Aravalli Certificate was issued vide letter no. ME/Sirohi/MM/01/2022/155, DATE-04.04.2023 by Mining Engineer Govt. of Rajasthan, Sirohi.

As per the Approved Mining Plan, as on date 01/03/2023, the said Mining Block consists of estimated Total Mineable Reserves of about 56.79 Million Tonnes of Limestone (This includes blocked reserves as well). The Mining activities will be

carried out as per the Approved Mining Plan and the method of mining will be opencast mechanized, with the use of Heavy earth moving machinery using deep hole drilling and Blasting.

21.09 ha grazing land is part of applied ML area, and no mining activity is proposed over grazing land during the plan period. No burial/ cremation ground exists within the UPL. These may exist within nearby villages and a safety zone of 150 m from village boundary has been considered as no mining zone. Part of buffer zone of applied ML area falls in eco-sensitive zone boundary of Mount Abu Wildlife sanctuary. No Archaeological Monuments exist in core and buffer zone of applied ML area. Small temples exist in adjoining villages

1.4 Need for the Project

It is mechanized open cast Limestone mining project. The limestone produced from the Limestone Mine (Area – 800.9935 ha) by Kamlesh Metacast Private Limited at Village(s)- Rohida (Rohera as per toposheet), Bharja, Taroongi (Tarangi as per toposheet), Doliphali, Vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan state will serve as a source for Clinker and Cement manufacturing to cement plant and also for other sale purpose.

Table 1.1: Salient Features of the Projects

Particulars	Details
Nature of project	Proposed Opencast Limestone Mining Project
Size of project	
Area	800.9935 ha
Limestone Production Details	

Particulars	Details
Geological Reserve	27,67,13,725.85 MT (276.71 Million TPA)
Mineable Reserve	5,67,92,655.3 MT (56.79 Million TPA)
Production	8.91 Million TPA (Total Excavation) (Limestone – 2.85 Million TPA, Soil – 0.04 Million TPA, Mineral Reject - 0.24 Million TPA & OB – 5.78 Million TPA)
Life of Mine	20 years
Period of the Lease (LOI)	1 Years till 22.09.2025

Project Location	
Villages	Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla & Kharadoli,
Tehsil and District	Pindwara and Sirohi
State	Rajasthan
Latitude & Longitude	

Sr No.	BP	Latitude (N)	Longitude (E)	Sr No.	BP	Latitude (N)	Longitude (E)
1	P01	24°32′ 47.3874″	72° 52′ 1.4946″	25	P25	24° 37′ 34.4592″	72° 56′ 52.7266″
2	P02	24° 33′ 10.0033″	72° 51′ 57.958″	26	P26	24° 37′ 54.8408″	72° 57′ 19.2734″
3	P03	24° 33′ 40.9312″	72° 52′ 42.5753″	27	P27	24° 38′ 28.6578″	72° 57′ 37.9906″

4	P04	24° 33′ 24.5925″	72° 52′ 49.403″	28	P28	24° 38′ 33.7254″	72° 57′ 57.515″
5	P05	24° 33′ 29.6451″	72° 53′ 13.6228″	29	P29	24° 37′ 52.6177″	72° 57′ 30.2607″
6	P06	24° 34′ 12.5174″	72° 53′ 44.2118″	30	P30	24° 37′ 38.9086″	72° 57′ 30.6968″
7	P07	24° 34′ 18.1537″	72° 53′ 50.8512″	31	P31	24° 37′ 21.3514″	72° 57′ 6.273″
8	P08	24° 33′ 56.7964″	72° 54′ 8.1052″	32	P32	24° 36′ 20.3991″	72° 56′ 38.9701″
9	P09	24° 33′ 54.2172″	72° 54′ 10.829″	33	P33	24° 36′ 16.4976″	72° 56′ 52.811″
10	P10	24° 34′ 27.4065″	72° 54′ 39.4178″	34	P34	24° 35′ 55.6198″	72° 56′ 37.9177″
11	P11	24° 34′ 53.0636″	72° 55′ 36.9231″	35	P35	24° 35′ 57.1639″	72° 56′ 34.3734″
12	P12	24° 35′ 47.9569″	72° 56′ 12.4879″	36	P36	24° 35′ 45.0536″	72° 56′ 28.1379″
13	P13	24° 36′ 28.5304″	72° 56′ 18.0411″	37	P37	24° 35′ 44.3607″	72° 56′ 29.7487″
14	P14	24° 36′ 23.7657″	72° 56′ 30.8454″	38	P38	24° 35′ 41.2437″	72° 56′ 27.5959″
15	P15	24° 37′ 28.7121″	72° 57′ 2.6675″	39	P39	24° 35′ 40.3654″	72° 56′ 25.1577″
16	P16	24° 37′ 38.1886″	72° 57′ 23.1352″	40	P40	24° 35′ 34.1688″	72° 56′ 21.065″
17	P17	24° 37′ 46.0211″	72° 57′ 15.968″	41	P41	24° 35′ 31.7575″	72° 56′ 20.749″
18	P18	24° 37′ 31.2601″	72° 56′ 56.5821″	42	P42	24° 35′ 26.4082″	72° 56′ 16.9624″
19	P19	24° 37′ 8.2604″	72° 56′ 45.2975″	43	P43	24° 34′ 13.4671″	72° 55′ 15.9886″
20	P20	24° 37′ 10.3369″	72° 56′ 40.2864″	44	P44	24° 34′ 0.6192″	72° 54′ 47.0235″
21	P21	24° 36′ 28.5216″	72° 56′ 19.7833″	45	P45	24° 34′ 13.3261″	72° 54′ 42.3015″
22	P22	24° 36′ 43.1881″	72° 56′ 21.3686″	46	P46	24° 34′ 13.1571″	72° 54′ 37.1514″
23	P23	24° 37′ 16.7418″	72° 56′ 38.084″	47	P47	24° 33′ 58.935″	72° 54′ 42.7533″
24	P24	24° 37′ 14.7283″	72° 56′ 42.9521″	-	-	-	-

Toposheet No.	Topo sheet no 45D/14 of Survey of India
Cost Details	
Total Project Cost	203.526 Crores
EMP Cost	Capital Cost: 10 Cr (EMP Cost will be revised after Public Hearing Issue raised)

Source: *EIA Report*

As per direction under ToR, Preparation of Wildlife Conservation Plan for Schedule- I Species is mandatory. The objective of this plan is to address and alleviate the adverse effects caused by Mining activities and various other contributing factors. The 'Wildlife Conservation Plan' recognizes the rich biodiversity within the designated WCP area, which extends up to a 10-kilometer radius surrounding the Mine lease area, known as the buffer area. Collectively, these areas are referred to as the 'Wildlife Conservation Plan (WCP) area'. This comprehensive plan encompasses the assessment of habitat conditions, ecological dynamics, and the diverse range of plant and animal species within the study area.

Table 1.2: Environmental Settings of the Area

S. NO.	Particulars	Distance (Approx.)
1	Nearest Village	1. Tarangi-Some part of village in the lease area 2. Bharja-Some part of village in the lease area 3. Watera (~50 m in East direction)

2	Nearest Highway	NH-927A (Swaroopganj-Ratlam) road is passing through applied ML area. NH-27 (~1.7 km in West direction)
3	Nearest Railway Station	Kivrali Railway Station (~2.56 km in WSW direction)
4.	Nearest Airport	Maharana Pratap Airport Udaipur (~ 90.76 km, E direction)
5.	Nearest Town / City	Nearest town: Mount Abu
6.	Wildlife Sanctuary, National Park, Biosphere Reserves), Reserve Forests (RF) / Protected Forest (PF) within 10 km radius study area	Mount Abu Wild Life Sanctuary (~5.47 km in NW direction). (Notified on 11.11.2020)
7.	Water bodies within 10 km radius study area	Sukli River passes through applied ML area
8.	Seismic Zone	Zone - III as per IS:1893 (Part-I):2002

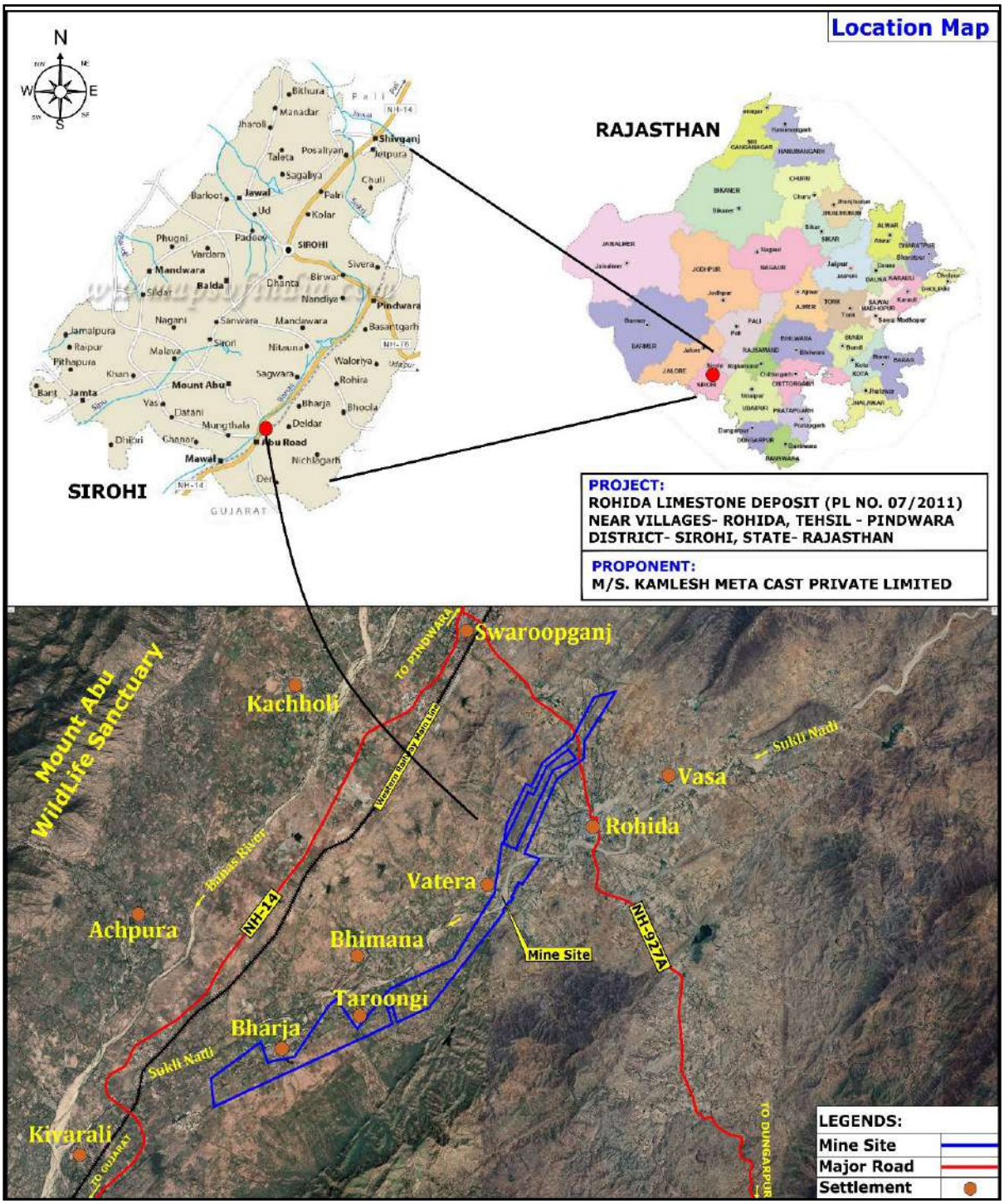

Figure 1.1: Location Map

Figure 1.2: Photographs showing Mining Lease Area

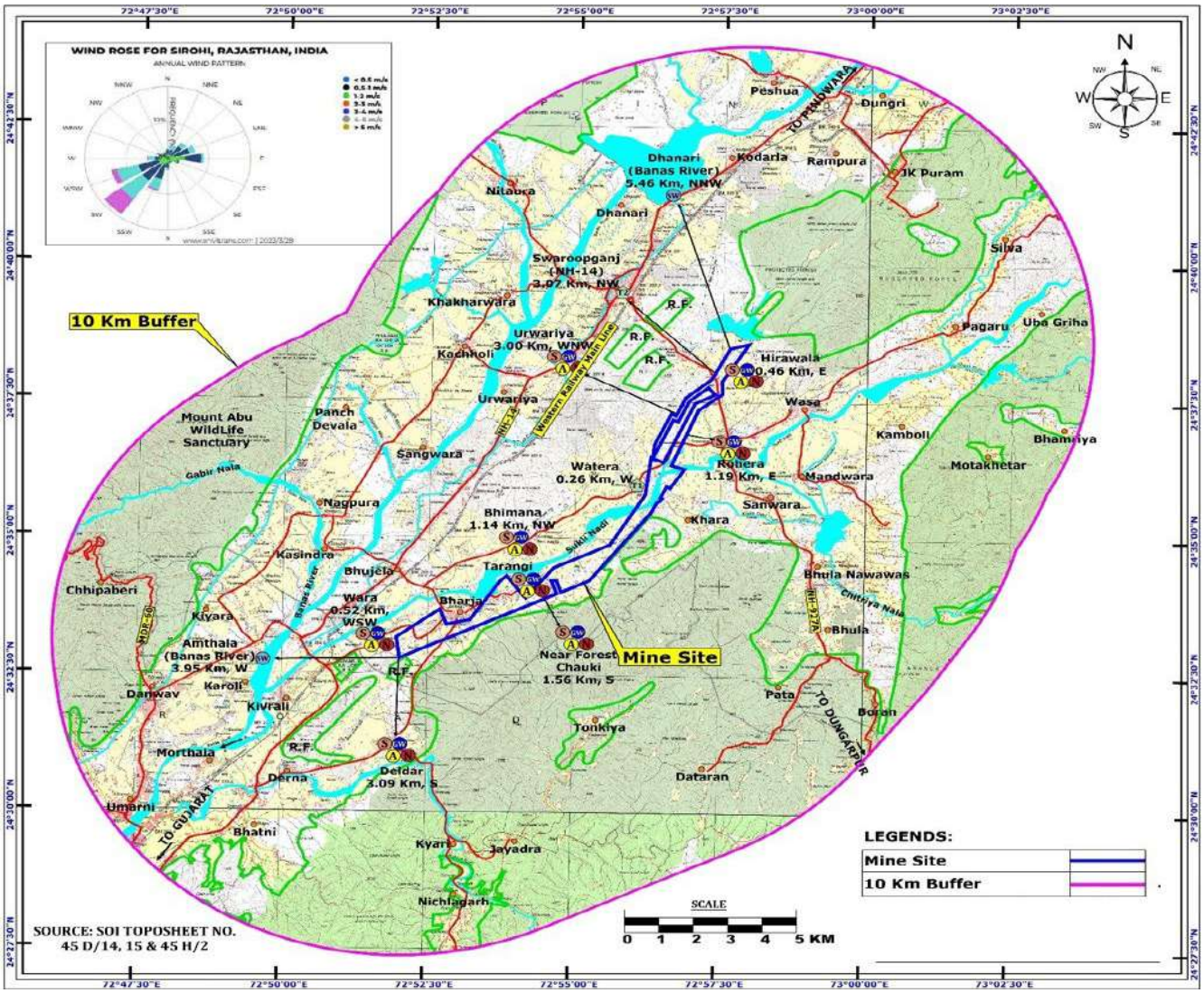

Figure 1.3: Toposheet Showing Mining Block Marked with 10 km. Radius Area (Buffer Zone)

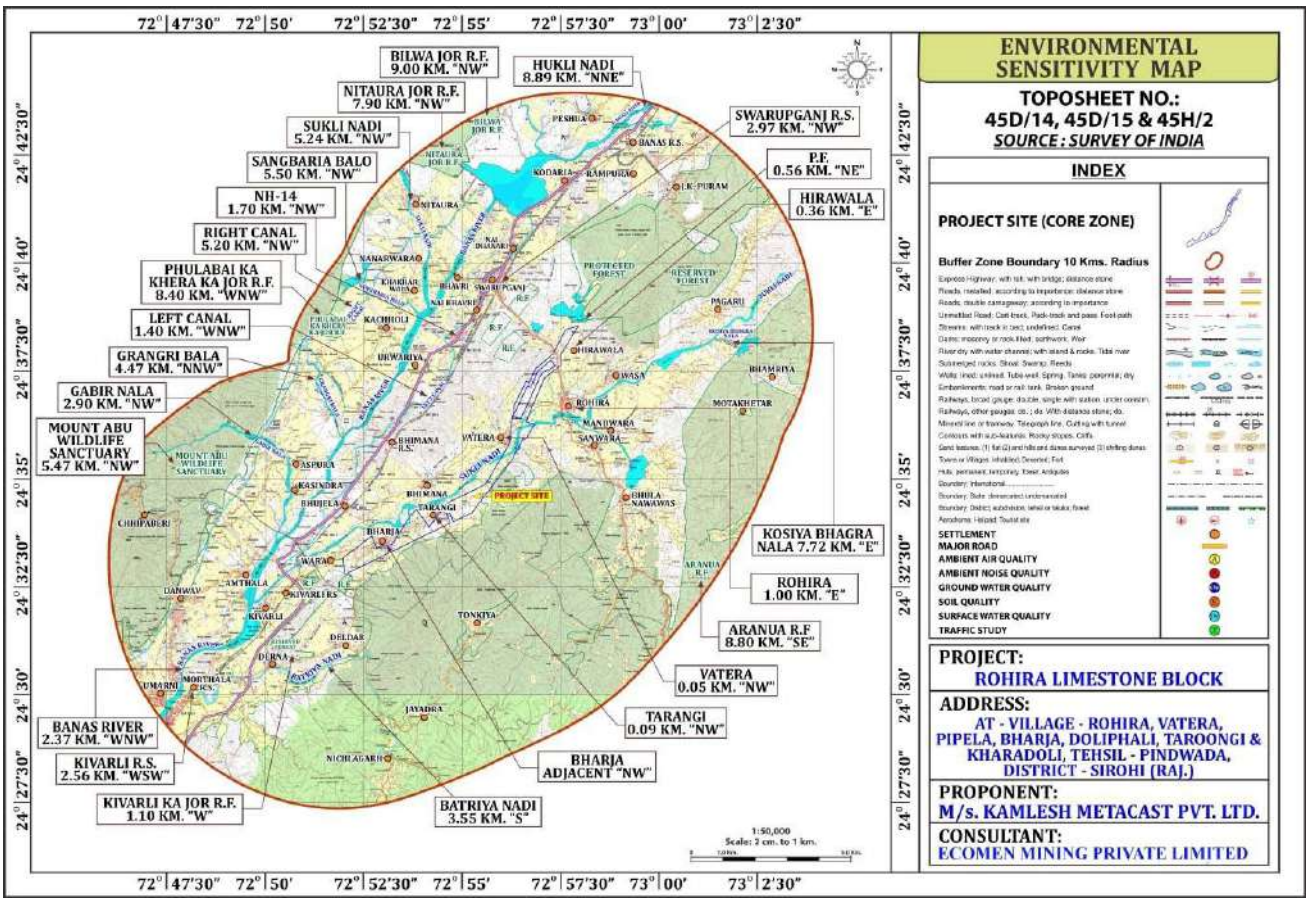

Figure 1.4 Map Showing Environmental sensitivity

1.5 Land Use Pattern of Proposed Mine Lease

The total Mining lease area is 800.9935 Ha, comprising of Government waste land (227.9500 ha), Waste Grazing /Charagah Land (21.0900 ha) and Private Agriculture Land (551.9535). As per the Land Use/Land Cover Core Zone Mining Lease is given below in Table 1.3. Project is green field Project. In existing land use pattern, area land use is waste land, Grazing & Agriculture land.

Table 1.3: Land Use Land Cover of the Mine Lease Area

S. No.	Land Use Category	Present Land Use (Ha.)	At the End of 5th Year (Ha.)	Conceptual Stage (Ha.)
1	Soil Stack	0.00	0.00	0.00
2	Waste Dump	0.00	22.61	0.00
3	Total Excavated	6.53	32.04	121.96
	(A) Excavation (Water Reservoir)	0.00	00.00	49.30 (Water Reservoir)
	(B) Excavation (Backfilled)	0.00	00.00	72.66 (Re-grassing)
4	Area under utility services	4.85	11.11	30.40
6	Afforestation/Plantation (Along the Road, Near Waste and Soil storage)	0.00	4.80 (Plantation)	55.64 (Plantation)

Total Disturbed Area		11.83	70.77	208
7	Undisturbed Area	789.16	730.2235	592.99
Total		800.9935	800.9935	800.9935
NOTE- Total Excavated Area till the conceptual plan will be 121.96 ha out of which 49.30 ha area will be used as water reservoir and total plantation will be done on 128.30 ha area. Plantation includes 7.5 m Safety Barrier (30.70 ha), Undisturbed Area, (24.94 ha) & backfilled area (72.66 ha) which is about 61.68% of the broken-up area (208 ha). The total green area in the plan period will be 4.80 Ha with 12,000 number of trees and in the CP stage about 128.30 Ha area will be under green with 1,39,100 Plants,				

1.5.1 Land Use of Project 10 Km. Radius Area

The general land use pattern of the core and buffer may be broadly classified into four major categories: Build-up or habitation, agriculture, water bodies, waste land, and other categories. The buildup or habitation category covered villages, towns, and infrastructure. Under the agriculture category, crop land, fallow land, and plantations are considered. Under the water body categories, there are reservoirs, lakes, ponds, rivers, and streams. Under the wasteland category, land with scrub and land without scrub are interpreted. Lastly, other categories covered mine areas and forests are interpreted under this category. These categories are delineated from the selected satellite image using image elements such as colour, tone, texture, size, shape, and associated elements (**Figure 1.5**).

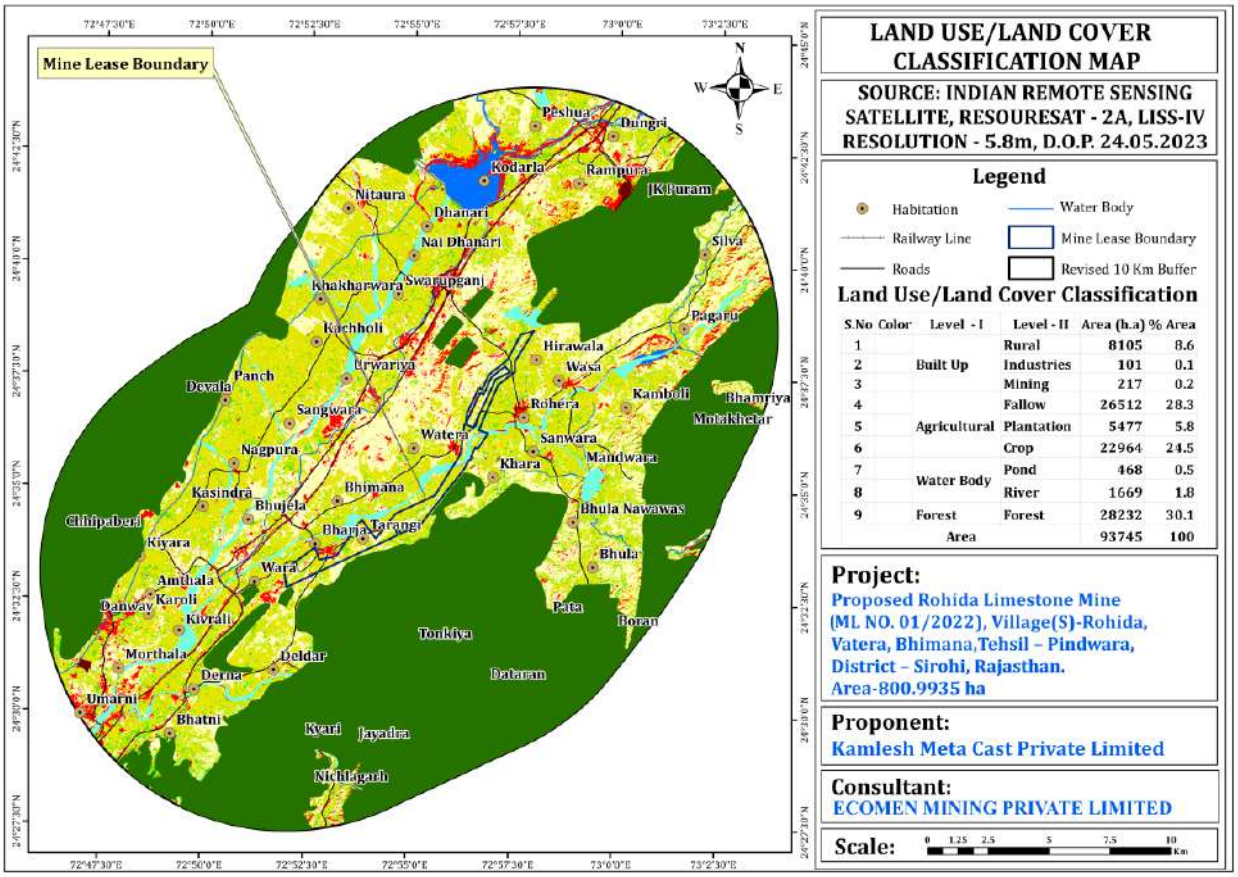

Figure 1.5: Digital Classification Map

Estimated for area and representation of each category in the study area. The total area of LULC in the study area is calculated as 385 sq. km, and the spatial distribution of various LULC categories within the buffer area is discussed below. **Table 1.4.**

Table 1.4: Major Land Use/Land Cover Categories of Study Are

S. No	Level - I	Level - II	Area (ha)	% Area
1	Built Up	Rural	8105	8.6
2		Industries	101	0.1
3		Mining	217	0.2
4	Agricultural	Fallow	26512	28.3
5		Plantation	5477	5.8
6		Crop	22964	24.5
7	Water Body	Pond	468	0.5
8		River	1669	1.8
9	Forest	Forest	28232	30.1
Total			93745	100

1.6 Provisions of all Relevant Acts and Regulations Applicable to the WCP Area

Legal Framework

India, as a matter of policy, upholds and promotes cement, mining, electricity, energy, chemical and other developmental projects on the condition that they align with the country's biological, physical, chemical, and social environment. Recognizing its status as one of the world's most bio diverse nations and as a signatory to various international conventions and treaties, India is committed to conserving its biodiversity, preserving natural habitats, and safeguarding migratory species. To this end, a robust legal framework comprising acts, laws, rules, and regulations is in place.

Any activities or impacts that pose unmanageable or adverse consequences to the country's flora, fauna, and overall biodiversity are strictly prohibited and regulated by the following acts and regulatory authorities:

Name of Act/Rules/Regulations
The Environment (Protection) Act, 1986
Environment Impact Assessment Notification S.O.(E) 1533 dated 14th September 2006 and subsequent amendments
The Environment (Protection) Third Amendment Rules, 2016
The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989
The Recycled Plastics Manufacture and Usage Rules, 1999
The Municipal Solid Wastes (Management & Handling) Rules, 2000
The Hazardous Wastes (Management, Handling and Transboundary

Movement) Rules, 2008
The E-Waste (Management & Handling) Rules, 2011
Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996
The Noise Pollution (Regulation & Control) Rules, 2000
The Public Liability Insurance Act, 1991
Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006
Van (Sankashan Evam Samvardhan) Adhiniyam, 1980
Wild Life (Protection) Act 1972 as amended time to time.
The Wild Life (Protection) Amendment Act 2022
The Air (Prevention and Control of Pollution) Act 1981, amended 1987
Rajasthan Air (Prevention and Control of Pollution) Rules, 1983
The Water (Prevention and Control of Pollution) Act, 1974
Rajasthan Water (Prevention and Control of Pollution) Rules, 1975
Rajasthan Wild Animals and Birds Protection Act, 1951
Instruction for Processing of Wildlife Conservation Plan for projects by PCCF, Rajasthan

Environment Protection Act, 1986

The Environment Protection Act of 1986 is a crucial law in India that aims to safeguard the environment. It establishes standards for pollution control, mandates environmental impact assessments for projects, and regulates hazardous substances. The act enforces penalties for violations and promotes sustainable development for a healthier environment. The Ministry of Environment, Forests and Climate Change (MoEFCC, GoI) is responsible for the implementation and enforcement of the Environment (Protection) Act, 1986 and Environment Protection Rules, 1986 framed under the Act under Sections 6 and 25 of the EP Act, 1986.

Central Pollution Control Board

The Central Pollution Control Board (CPCB) was constituted in September 1974, under Section 3 of the Water (Prevention and Control of Pollution) Act, 1974, for the purpose of implementing the provisions enshrined in the Water (Prevention and Control of Pollution) Act, 1974. The executive responsibilities for the industrial pollution prevention and control are primarily executed by the CPCB at the Central level, which is a statutory body, attached to the MoEF&CC, GOI. The CPCB works towards control of water, air, noise pollution, land degradation, hazardous substances and waste management.

Rajasthan State Pollution Control Board

The Rajasthan State Pollution Control Board (RSPCB) implements various environmental legislations in the state of Rajasthan, mainly including Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, some of the provisions under Environmental (Protection) Act, 1986 and the rules framed there under like, Bio- Medical Waste

Management Rules, 2016, Hazardous and Other Waste(Management and Transboundary Movement) Rules, 2016, Solid Waste Management Rules, 2016, etc. The RSPCB is functioning under the administrative control of the Forest and Environment Department of Government of Rajasthan.

Biological Diversity Act, 2002

The Biological Diversity Act of 2002 in India aims to conserve and sustainably use the country's biological diversity. It establishes regulations for access to biological resources, promotes community participation, and ensures the fair sharing of benefits. The act also designates Biodiversity Heritage Sites for protection.

Wildlife (Protection) Act, 1972

The Wildlife (Protection) Act of 1972 is a crucial legislation in India aimed at safeguarding wildlife and their habitats. The act was enacted to address the alarming decline in wildlife populations due to habitat destruction, poaching, and illegal trade. It prohibits hunting and trade of endangered species, establishes protected areas, and imposes penalties for offenses. The act plays a key role in conserving
India's diverse wildlife and promoting sustainable management.

The Wildlife (Protection) Amendment Act, 2022

The Government of India enacted The Wildlife (Protection) Amendment Act, 2022 for protection of Endangered Species: the act seeks to enhance punishment for illegal Wildlife trade. Better Management of Protected Areas: It provides for certain permitted activities like grazing or movement of livestock and Bonafide use of drinking and household water by local communities. Protection of Forest Lands: It is so critical because it equally inculcates in itself the protection of rights of the people who have been residing there since ages.

Instruction for Processing of Wildlife Conservation Plan for projects

The Wildlife Conservation Plan Guideline issued by the Addl. Principal Conservator of Forest and Chief Wildlife Warden Rajasthan, Jaipur vide F. No. WCP / CWLW / 2019 / 6451-6463 dated 24.05.2019.

1.7 Villages and habitations within the WCP area; demographic and occupational profile; existing cropping pattern; impact on the WCP area and especially on the forest growth; information about the cattle population and dependency on the forest for grazing, other forest dependencies' etc.

The study area for preparation of wildlife conservation plan considered as 10 km surrounding from the proposed mine site.

a. Socio- Economic Profile of Study Area

The Study area falls within 10 km radius of the Mine site. It covers as 88 villages of mine sites (**Table No.: 1.5**)

Table 1.5: Villages in the study area

S.No.	Distance from Core Zone (km)	Number of Villages	Name of Villages
1.	0 - 3 km	12	Bhimana, Taroongi, Bharja, Wara, Khara Rohira, Haliwara, Jaydara, Vatera Mandwara deo, Sanwara, Wasa
2.	3 - 5 km	15	Pipela, Kaseendra, Kiwarli, Deldar, Achpura, Nagpura, Udwariya, Rampura, Kodarla, Upala Tankiya,Tankya, Kedar Padar, Sangwara, Nawasa deo, Nawawasa Khalsa
3	5 - 10 km	61	Kotra, Mungthala, Amthala, Karoli, Pandoori, Derna, Amba, Ubera, Bhoola, Dhanari, Dhanera, Kalumbari, Bhutgaon, Goliya, Nai Dhanari, Bhavri, Patumburi, Unta Khera, Sheoganj, Phoola Bai Ka Khera, Panch Dewal, Dananav, Morthala, Or, Kyari, Jaydara, Jawai, Datani, Sadaphali, Bhoola, Nawa Vas, Rowara, Kareli, Anadra, Nanarwara, Khakarwara, Kachholi, Bhatana, Paba, Kalandri, Valdara, Sadaphali, Punawa, Peshua, Nai Jamin, Doongri, Purari Khera, Khara, Singarli Khera, Ubera, Bhamriya, Jamotara, Bori Booj, Doytra, Nichlagarh, Chhiba Gaon, Akhapura Kharal, Manpur, Umarni, Khadat, Nitaura
Total		**88**	

The socio-economic parameters, such as population, sex ratio, literacy rate, etc., are crucial in assessing the direct or indirect impact of the proposed activity on the human population in the study area. These impacts can have both positive and negative effects. Socioeconomic Question survey has been done in nearest villages and given in Plate 1. **Table 1.6** presents the overall socio-economic profile of the study area, providing important information for evaluating the potential consequences of the proposed activity.

Questioner survey in Tarungi Govt. School

Questioner survey in Dolifali Govt. School

Questioner survey in Bhimana Govt. School	Questioner survey in Veteda Govt. School
Questioner survey in Rohida village	Questioner survey in an institute of study area
Questioner survey at Anganbadi Kendra	Questioner survey at Rashan vitran Kendra
Questioner survey in Deldar Village	Questioner survey in Udvariya Govt. School

Plate 1: Photographs of during Socioeconomic survey in study area

Table 1.6: Socio-Economic Profile of India, Rajasthan State, Sirohi District & Study Area

Particular	India	Rajasthan	Sirohi	Study Area
Area (in sq. km.)	32,87,263	342,239	5136	937
No. of Households	24,94,54,252	12711146	201785	78341
Total Population	1,21,05,69,573	68548437	1036346	391706
Total Male Population	62,31,21,843	35550997	534231	206429
Total Female Population	58,74,47,730	32997440	502115	185277
Total Scheduled Tribe Population	10,42,81,034	9238534	292470	113465
Total Scheduled Caste Population	20,13,78,086	12221593	201863	24567
Literacy Rate (%)	72.99	66.1	55.25	45.10
Sex Ratio (Females per 1000 Males)	943	928	940	897

***Source**: Census of India, 2011*

Demography

Rajasthan is a state in northern India. It covers 342,239 square kilometres (132,139 sq mi) or 10.4 per cent of India's total geographical area. It is the largest Indian state by area and the seventh largest by population. It is on India's northwestern side, where it comprises most of the wide and inhospitable Thar Desert (also known as the Great Indian Desert) and shares a border with the Pakistani provinces of Punjab to the northwest and Sindh to the west, along the Sutlej-Indus River valley.

Demographic features of study area:

To assess the Mining Project impact intensity of Demographic features of study area, we have taken 3 different zone 0-3 km; 3-5 Km & 5-10 km in which total 88 villages have been found in total 10 Km area.

a) Population

The total population in Villages of 10 Km Study area as per Census India 2011 in given in **Table 1.7.** In study area 78341 No of households have been found which having total population 391706 with 206429 male & 185277 Female population.

b) Village and Household Size

The total households in Rural Villages of Study area are 78341 in 10 Km study area.

c) Sex Ratio

In study area, the sex ratio in the Hardwar district is 897 females per 1000 males.

d) Literacy

Literacy rate of study area is 61.80 %.

Village wise demographic profile of 10 km study area (0-3 km; 3-5 Km, & 5-10km) are given in **Table 1.7**

Table 1.7: Village Wise Demographic Profile of the 10 Km Study Area

S. No.	Villages	Household	Population			Literacy			Main Worker			Marginal worker			Non-worker		
			Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
0 - 3 km																	
1	Bhimana	539	2622	1344	1278	1063	744	319	765	661	104	303	56	247	1554	627	927
2	Taroongi	337	1837	958	879	662	496	166	805	443	362	99	37	62	933	478	455
3	Bharja	923	4932	2603	2329	2570	1674	896	1545	1145	400	575	132	443	2812	1326	1486
4	Wara	206	1074	545	529	529	322	207	276	258	18	188	38	150	610	249	361
5	Khara	280	1661	841	820	399	295	104	816	422	394	24	9	15	821	410	411
6	Rohira	1532	7661	3999	3662	4328	2767	1561	2358	1842	516	646	251	395	4657	1906	2751
7	Haliwara	312	1415	638	777	609	340	269	244	186	58	413	100	313	758	352	406
8	Jaydara	181	1037	511	526	245	176	69	337	221	116	65	9	56	635	281	354
9	Vatera	1174	6205	3205	3000	2492	1665	827	2091	1386	705	427	165	262	3687	1654	2033
10	Mandwara deo	504	2572	1351	1221	1325	887	438	746	678	68	224	44	180	1602	629	973
11	Sanwara	570	2925	1520	1405	1291	859	432	999	694	305	351	125	226	1575	701	874
12	Wasa	972	4845	2477	2368	2154	1405	749	996	867	129	1107	355	752	2742	1255	1487
3 -5 km																	
13	Pipela	324	1822	944	878	347	271	76	271	261	10	446	172	274	1105	511	594
14	Kaseendra	198	963	516	447	523	344	179	260	233	27	195	28	167	508	255	253
15	Kiwarli	805	3966	2123	1843	2341	1525	816	1134	960	174	305	70	235	2527	1093	1434
16	Deldar	667	3505	1805	1700	1339	910	429	984	712	272	530	153	377	1991	940	1051
17	Achpura	230	1263	647	616	661	434	227	308	263	45	152	101	51	803	283	520
18	Nagpura	607	3229	1622	1607	890	642	248	898	638	260	438	94	344	1893	890	1003
19	Udwariya	386	1944	1016	928	1218	749	469	554	457	97	87	37	50	1303	522	781
20	Rampura	707	3529	1850	1679	2065	1303	762	951	814	137	119	33	86	2459	1003	1456
21	Kodarla	265	1491	781	710	856	565	291	440	368	72	64	9	55	987	404	583
22	Upala Tankiya	151	888	433	455	186	141	45	195	179	16	209	34	175	484	220	264
23	Tankya	305	1747	937	810	491	362	129	782	481	301	74	18	56	891	438	453
24	Kedar Padar	85	527	272	255	71	49	22	82	82	0	178	51	127	267	139	128
25	Sangwara	178	862	456	406	284	211	73	253	171	82	131	56	75	478	229	249
26	Nawasa deo	677	3380	1765	1615	1315	956	359	1599	923	676	123	36	87	1658	806	852
27	Nawawasa Khalsa	280	1661	841	820	399	295	104	816	422	394	24	9	15	821	410	411
5- 10 km																	
28	Kotra	151	751	414	337	362	251	111	266	213	53	12	6	6	473	195	278
29	Mungthala	519	2768	1431	1337	1232	789	443	880	644	236	542	112	430	1346	675	671
30	Amthala	581	2811	1500	1311	1357	886	471	884	702	182	123	38	85	1804	760	1044
31	Karoli	623	2283	1248	1035	1464	900	564	811	680	131	21	5	16	1451	563	888
32	Pandoori	208	1090	555	535	394	255	139	316	245	71	130	11	119	644	299	345
33	Derna	188	962	507	455	438	291	147	337	215	122	153	51	102	472	241	231
34	Amba	113	630	327	303	140	116	24	138	127	11	34	3	31	458	197	261
35	Ubera	59	286	151	135	95	73	22	65	47	18	64	18	46	157	86	71

36	Bhoola	1184	6550	3322	3228	977	773	204	2021	1357	664	1498	374	1124	3031	1591	1440
37	Dhanari	448	2411	1272	1139	1390	912	478	554	528	26	416	83	333	1441	661	780
38	Dhanera	248	1387	716	671	444	324	120	210	150	60	536	246	290	641	320	321
39	Kalumbari	145	782	410	372	169	123	46	141	129	12	194	72	122	447	209	238
40	Bhutgaon	425	2158	1045	1113	1074	658	416	675	508	167	189	10	179	1294	527	767
41	Goliya	230	1283	656	627	587	390	197	343	282	61	185	28	157	755	346	409
42	Nai Dhanari	386	1944	1016	928	1218	749	469	554	457	97	87	37	50	1303	522	781
43	Bhavri	3008	15312	7960	7352	9085	5616	3469	3955	3599	356	1299	483	816	10058	3878	6180
44	Patumburi	68	332	180	152	156	113	43	130	65	65	31	18	13	171	97	74
45	Unta Khera	27	126	64	62	48	38	10	26	26	0	32	10	22	68	28	40
46	Sheoganj	23562	114276	58440	55836	61853	34001	17852	37039	27470	9569	10854	3188	7666	66383	27782	38601
47	Phoola Bai Ka Khera	430	2437	1252	1185	894	652	242	317	280	37	846	336	510	1274	636	638
48	Panch Dewal	543	3321	1635	1686	772	582	190	802	452	350	802	336	466	1717	847	870
49	Dananav	702	3236	1923	1313	1910	1295	615	1521	1239	282	82	63	19	1633	621	1012
50	Morthala	375	1715	906	809	825	568	257	534	425	109	119	20	99	1062	461	601
51	Or	630	3307	1628	1679	1627	1005	622	1190	753	437	308	74	234	1809	801	1008
52	Kyari	86	458	221	237	127	91	36	258	111	147	3	1	2	197	109	88
53	Jaydara	181	1037	511	526	245	176	69	337	221	116	65	9	56	635	281	354
54	Jawai	44	184	93	91	101	74	27	66	48	18	5	3	2	113	42	71
55	Datani	663	3268	1686	1582	1251	897	354	1424	839	585	138	18	120	1706	829	877
56	Sadaphali	117	655	322	333	129	101	28	140	124	16	181	38	143	334	160	174
57	Bhoola	1184	6550	3322	3228	977	773	204	2021	1357	664	1498	374	1124	3031	1591	1440
58	Nawa Vas	1	1	1	0	0	0	0	0	0	0	1	1	0	0	0	0
59	Rowara	396	1914	1017	897	778	541	237	730	514	216	105	26	79	1079	477	602
60	Kareli	150	889	471	418	320	254	66	202	187	15	177	49	128	510	235	275
61	Anadra	1393	7058	3606	3452	3078	2056	1022	2849	1797	1052	185	66	119	4024	1743	2281
62	Nanarwara	230	1228	644	584	714	460	254	340	282	58	108	41	67	780	321	459
63	Khakarwara	511	2499	1289	1210	1302	844	458	628	539	89	427	108	319	1444	642	802
64	Kachholi	654	3593	1894	1699	1905	1250	655	820	745	75	361	196	165	2412	953	1459
65	Bhatana	960	4976	2579	2397	1802	1254	548	1449	1253	196	521	63	458	3006	1263	1743
66	Paba	323	2001	1003	998	345	263	82	345	275	70	668	231	437	988	497	491
67	Kalandri	1908	10158	5319	4839	5432	3552	1880	2825	2358	467	838	210	628	6495	2751	3744
68	Valdara	291	1377	691	686	618	423	195	416	261	155	130	68	62	831	362	469
69	Sadaphali	117	655	322	333	129	101	28	140	124	16	181	38	143	334	160	174
70	Punawa	174	907	434	473	320	238	82	303	200	103	188	41	147	416	193	223
71	Peshua	586	2880	1469	1411	1409	875	534	668	614	54	512	149	363	1700	706	994
72	Nai Jamin	172	933	510	423	469	323	146	157	152	5	280	92	188	496	266	230
73	Doongri	31	148	73	75	85	55	30	31	30	1	42	3	39	75	40	35
74	Purari Khera	9	39	18	21	10	9	1	11	6	5	10	3	7	18	9	9
75	Khara	280	1661	841	820	399	295	104	816	422	394	24	9	15	821	410	411
76	Singarli Khera	100	573	309	264	210	149	61	142	137	5	4	4	0	427	168	259
77	Ubera	59	286	151	135	95	73	22	65	47	18	64	18	46	157	86	71
78	Bhamriya	157	837	396	441	97	82	15	364	203	161	140	36	104	333	157	176
79	Jamotara	353	1584	742	842	809	459	350	405	314	91	305	32	273	874	396	478
80	Bori Booj	397	2218	1117	1101	254	209	45	72	70	2	948	444	504	1198	603	595
81	Doytra	517	2927	1483	1444	280	234	46	1239	663	576	156	42	114	1532	778	754
82	Nichlagarh	555	3079	1554	1525	927	683	244	793	625	168	1078	310	768	1208	619	589

83	Chhiba Gaon	403	1806	950	856	898	579	319	637	530	107	6	3	3	1163	417	746
84	Akhapura Kharal	140	731	373	358	303	213	90	158	124	34	187	61	126	386	188	198
85	Manpur	221	1082	549	533	343	244	99	464	260	204	8	2	6	610	287	323
86	Umarni	206	1078	516	562	345	231	114	373	217	156	113	37	76	592	262	330
87	Khadat	313	1649	861	788	761	529	232	459	413	46	112	15	97	1078	433	645
88	Nitaura	928	5120	2677	2443	2518	1687	831	1380	1266	114	577	153	424	3163	1258	1905
	Total Census 2011	**63058**	**319760**	**164572**	**155188**	**138949**	**92024**	**46925**	**98741**	**7368**	**2503**	**36400**	**10838**	**25562**	**184619**	**80046**	**104573**
	Pridiction in 2024	**78341**	**391706**	**206429**	**185277**	**176667**	**116144**	**60523**	**120958**	**9243**	**2852**	**44590**	**13595**	**30995**	**226158**	**100405**	**125753**

Source: *Census of India, 2011*

b. Cropping pattern of the study area

Cropping pattern means the proportion of area under various crops at a point of time. The crop statistics published by the Governments are used to denote the cropping patterns. Cropping pattern is, however, a dynamic concept as it changes over space and time. The cropping patterns of a region are closely influenced by the geo-climatic, socio-cultural, economic, historical and political factors. The physical environment (physiographic, climate, soils and water) imposes limits on the growth and distribution of plants and animals. Depending on the terrain, slope, temperature, amount and reliability of rainfall, soils and availability of water for irrigation, the cropping patterns vary from region to region.

Agriculture is an important source from which people of the area derive their income. The climatic condition, irrigation facilities and the quality of soil, in the both district are suitable for developed agriculture. Cropping intensity in the Sirohi district are given in. **Table 1.8.**

Table 1.8: Cropping Intensity at Sirohi Districts

S.No.	Agriculture Land-use	Sirohi	
		Area (in 000'ha)	**Cropping Intensity (%)**
1	Net sown area	162.788	138
2	Area sown more than once	63.136	
3	Gross Cropped Area (GCA)	225.3824	

Generally, majority of crops are produced during the Kharif and Rabi season in Sirohi district are Maize, Castor, Wheat, Gram, Rapseed mustered Cabbage, Cauliflower, Okra and Tomato are other vegetables which are largely produced in district.

Agriculture is dependent on rain in the study area, except for some areas irrigated with Open wells, Bore well & Pump sets. The main Rabi and Kharif crops grown in the study area along with productivity per ha in Sirohi District is given in **Table 1.9.**

Table 1.9: Status of Agriculture in the Sirohi District Study Area

Major Crops Grown	Productivity (kg/ha)		
	Sirohi		
	Kharif	Rabi	Total
Castor	1988	-	1988
Maize	1902	-	1902
Wheat		2700	2700
Mustard		1250	1250
Chickpea		1000	1000
Source : Agriculture Contingency Plan Sirohi			

1.7.1 Irrigation Facilities

The irrigation based classification of the crop land in the districts is given in **Table 1.10**. The irrigated area is given in three heads, as gross irrigated area Gross cultivated area and net irrigated area. Source of Irrigation for Agriculture in District is given in **Table 1.11.**

Table 1.10: ***The irrigation based classification of the crop land***

Area in '000 ha.			
Sirohi			
Net Irrigated	Gross cultivated area	Gross Irrigated	Rain-fed
96.576	-	103.001	-

Table 1.11: Source of Irrigation for Agriculture in the Districts

Sources of Irrigation	Sirohi
	Area (ha)
Canal	8.948
Tank	40.52
Other wells	107.59
Bore wells	1.791
Other source	77
Source : Agriculture Contingency Plan Sirohi	

c. Impact on the WCP area and especially on the forest growth

The mine site (core zone and buffer zone) does not encompass any classified forest land.

d. Cattle Population and dependencies on Forest

According to the 19th Livestock Census, Sirohi district of Rajasthan has 78341 households. 201758 Cattle, 166892 Buffaloes, 251707 Sheep, 342738 Goat and 457 Pigs Per Thousand Household have been reported. Forests provide fodder, grazing land, shelter, and medicinal plants for livestock, as well as

ecosystem services such as water regulation, soil conservation, and carbon sequestration. Forests also support the livelihoods of millions of people who depend on livestock for income, food security, and social status. One study estimated that the total annual value of forest fodder in India was Rs. 1,08,000 crores, which accounted for 14.5% of the total value of forest ecosystem services3. Another study found that forest grazing contributed to 23.4% of the total milk production and 29.6% of the total meat production in India.

1.8 Description of Topography, Geology, Climate, Natural disasters, Natural drainage lines, water bodies and whether the particular landscape is the source or origin of any stream/ river.

Topography

The study area shows a gently undulating topography and general elevation between highest elevation points is 900 m above mean sea level in west direction and lowest elevation 200 m above mean sea level in east direction. The core area is having undulating terrain. The maximum contour level is 368 MSL near northern boundary and minimum level is 308 m towards the southern boundary.

Drainage Pattern

The drainage system of the Study area is well developed West Banas. Banas River is most important river of the district flowing seasonally from west to east. Other rivers which flow in the district are Khari, Sukli, Bandi, Kapalganga and Krishnavati flowing south to north and merging to banasriver. Artificial Lake named Nakki Lake in Mt. Abu is picturesque and has become place of pride located SW part of buffer area. Sirohi district falls in parts of Luni (41.2 %), West Banas (35.5 %), Sukri (18.7%), other nallah (3.2%) and Sabarmati (1.3%) basins.

Drainage of the 10 km radius Study Area:

There are 8 Nadi and nala passing through the study area. The Banas River is the main river in the 10 km study area. Sukli Nadi, Batriya Nadi, and Hukli Nadi flow in the study area. Gabir Nala, Chitriya Nala, Akhleti Nala, and Silva Nala are minor streams. The study area forms a dendritic pattern of 1st to 5th order of stream line. The Banas River is the main river, which flows from the north-east to the south-west direction from the lease area.

Drainage of the plant site:

Sukli Nadi is flow in the mining lease area. In the mining lease, 5th order stream is crossing from the central part of the mine lease area which flow from north east direction to south west direction

Climate and Rainfall

Climate

The climate of the Sirohi district can be classified as largely, semiarid type. It

is characterized by very hot summers and very cold winters with generally poor but occasionally good rainfall during Southwest monsoon period. In May and June, the maximum temperature may sometimes go up to 48 ^{0}C. Winter temperatures drop down to 3^{0}C to 4^{0}C. The potential Evapotranspiration rates are quite high, especially during May and June. The average annual rainfall of Sirohi district is 471.95 mm. The nearest IMD station is at Sirohi.

The temperature during the period October 2023 to December, 2023 the minimum temperature was 3.1^{o}C and maximum temperature was 40 ^{0}C.

Rainfall

The Annual rainfall data for the recent 10 years is depicted in Table.

Rainfall Data of Sirohi District

Year	Winter
2012	673.13
2013	743.09
2014	604.66
2015	942.41
2016	848.95
2017	1340.51
2018	353.44
2019	824.23
2020	767.42
2021	540.06
2022	879.51

Source: - Hydromet Division, Indian Meteorological Department, New Delhi
Summary of the micro-meteorology at site is given in **Table - 1.12**.

Table 1.12: Micrometeorology at Site Season-Summer season -March 2023-May 2023

Month	Temperature (^{0}C)		Relative Humidity (%)		Rainfall in mm		Wind Speed m/ph	
	Max	Min	Max	Min	Max	Min	Max	Min
March-2023	41.3	16.4	82.4	17.7	3.6	0	26.1	<1.0
April -2023	42.9	13.5	96.3	14.2	2.8	0	24.4	<1.0
May -2023	38.9	12.3	83.0	13.9	2.0	0	23.0	<1.0

Source: Meteorological Station at Site

It was observed that the dominant overall wind pattern for the study period was from North-West (NW) direction. Wind Rose Diagram showing the wind pattern during the study period is shown in **Figure - 1.6.**

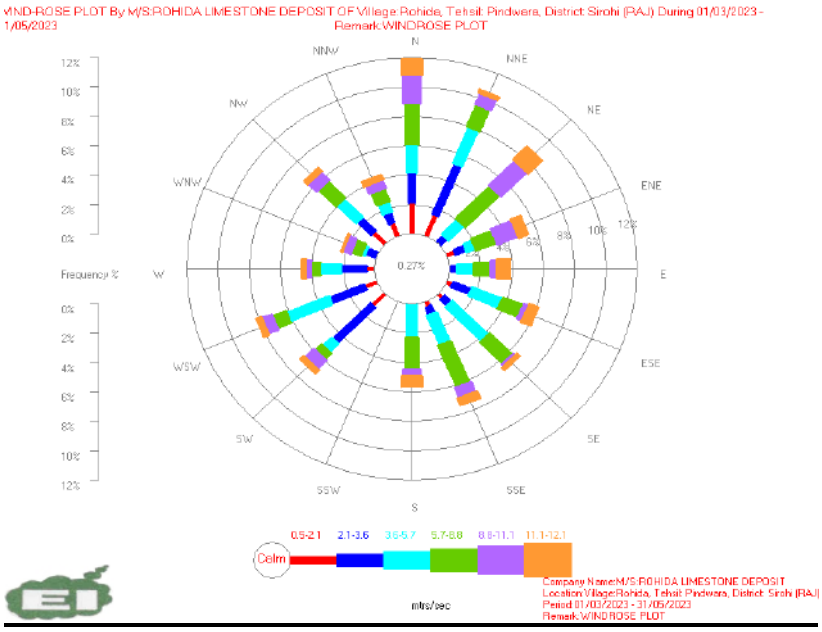

Figure *1.6*: Windrose Diagram for –March 2023-May 2023

Geology and Soil Regional Geology

Hydrogeology is concerned primarily with mode of occurrence, distribution, movement and chemistry of water occurring in the subsurface in relation to the geological environment. The occurrence and movement of water in the subsurface is broadly governed by geological frameworks i.e. nature of rock formations including their porosity (primary and secondary) and permeability. Ground water occurs under water table conditions both in unconsolidated and consolidated formations. Its occurrence is controlled by topography, physiography and structural features of the geological formations. The movement of ground water in hard rock areas is governed by size, openness, interconnection and continuity of structurally weak planes while in unconsolidated rocks, ground water movement takes place through pore spaces between grains.

Local Geology

The calcareous formation i.e. limestone is well exposed in the PL area. The limestone is exposed on top of the hills, extending down below and has sharp contact with calc silicates, chlorite schist and phyllite towards the hanging wall and foot wall side. In general, the limestone can be broadly classified in two varieties i.e. thinly bedded limestone and thickly bedded limestone based on physical characteristics, such as colour, bed thickness, degree of crystallization and intercalations etc.

The various litho-units encountered in PL area during exploration, in order of their superimposition from top to bottom, are given below:-

Recent Formation	:	*Alluvium and Soil cover*
Post Delhi Intrusive	:	*Pegmatites, amphibolite and quartz vein*

Post Delhi Intrusive

(Kumbhalgarh Group) : Grey to dark greyish coloured, fine to medium grained, thinly to thickly bedded limestone with

frequent phyllitic intercalation: *Phyllites*

1.9 Seismicity and Flood Hazard Zonation of area

State of Rajasthan is prone to various hazards both natural and manmade. The State has been shaken by many a times by earthquakes having a magnitude of 4 and above on the Richter scale as per the recorded history of earthquakes.

Districts which fall in high earthquake vulnerability include Barmer, Jalore, Alwar & Bharatpur, whereas the moderate and low vulnerable districts are Udaipur, Dungarpur, Sirohi, Barmer, Jaisalmer, Bikaner, Jhunjhunu, Parts of Sikar, Jaipur, Dausa, Ganganagar, Hanumangarh, Churu, Jodhpur, Pali, Rajasamand, Chittorgarh, Jhalawar, Baran, Kota, Bundi, Sawai Madhopur, Karauli, Dholpur, Banswara, some areas of Bikaner, Udaipur, Sikar etc.

Bureau of Indian Standards [IS-1893 (Part-1): 2002], has grouped the country into four seismic zones viz. Zone-II, III, IV and V. Of these, Zone - V is the most seismically active region, while Zone - II is the least. The Modified Mercalli Intensity (MMI) scale, which measures the impact of the earthquakes on the surface of the earth, broadly associated with various zones is as follows:]

Seismic Zones in India

Seismic Zone	Risk	Intensity on MMI Scale
Zone – II	Low Risk Zone	VI & below
Zone – III	Moderate Risk Zone	VII
Zone – IV	High Risk Zone	VIII
Zone – V	Very High-Risk Zone	IX & above

Source: *www.ndma.gov.in/images/guidelines/earthquakes.pdf*

According to GSHAP data, the state of Rajasthan falls in a region of moderate to Low Risk Zone seismic hazard. As per 2002 Bureau of Indian Standards (BIS) map, Rajasthan falls in Zones – II & III. Historically, parts of this state have experienced seismic activity in the M8 - 6.0 range.

The mine site as well as study area of this project lies in Zone - III of Seismic Zoning Map of India, Bureau of Indian Standards and thus, can be said to be located in an area of moderate risk zone by national standards.
As per the "Vulnerability Atlas - 2nd Addition; Peer Group, MoH and UPA;

based on digitized data of SOI, GOI; Flood Atlas, Task Force Report, C.W.C., GOI" the project site does not fall under "area liable to flood".

Origin of stream or river

There is no prominent drainage in the study area. It is drained by some natural 1st and 2nd order streams only. These streams are dendritic in pattern and are seasonal in nature.

There are no perennial water bodies but there are many small seasonal water bodies (i.e., Nada/ Nadi) are present in the buffer zone, however near in pits and unguarded dug wells in the WCP area should also be mentioned with possible safeguards available and proposed.

S.No.	Particulars	Details
1.	Nearest State/National Highway	1. Bharja to Wada tar road passes through applied ML area. 2. NH-927A (Swaroopganj-Ratlam) road is passing through applied ML area. 3. NH-27 (~1.7 km in West direction)
2.	Nearest Railway Station	Kivrali Railway Station (~2.56 km in WSW direction)
3.	Airport	Maharana Pratap Airport Udaipur (~ 90.76 km, E direction)
4.	Water ways	Sukli River passes through applied ML area
5.	Nearest Streams/ Rivers/ Water Bodies	

S. No.	Particulars	Distance (km) (From Lease Boundary)	Direction
Water Bodies			
1.	Hukli Nadi	8.89	NNE
2.	Silva Nala	5.54	East
3.	Kosiya Bhagra Nala	7.72	East
4.	Akhleti Nala	5.85	East
5.	Mandwara Distributary	3.36	East
6.	Khara Distributary	1.27	ESE
7.	Chitriya Nala	4.99	SE
8.	Sukli Nadi	Passing through the lease area	--

		9.	Batriya Nadi	3.55	South
		10.	Left Canal	1.52	East
		11.	Banas River	2.37	WNW
		12.	Gabir Nala	2.90	NW
		13.	Right Canal	5.29	NW
		14.	Grangri Bala	4.47	NNW
		15.	Sangwara Minor	5.25	NW
		16.	Sangbariya Balo	5.51	NW
		17.	Sukli Nadi	5.24	NW
6.	Other developmental structures adversely affecting the movement of mega fauna	Mount Abu Wild Life Sanctuary (~5.47 km in NW direction). (Notified on 11.11.2020)			
7	Reserved/Protected Forest	**S. No.**	**Particulars**	**Distance (km) (From Lease Boundary)**	**Direction**
		Forests			
		1.	Reserved Forest N/V Wara	0.064	South
		2.	Protected Forest N/V Hirawala	0.56	NE
		3.	Reserved Forest N/V Wara	0.96	SW
		4.	Kivrali Ka Zor Reserved Forest	1.10	West
		5.	Reserved Forest N/V Pipela	1.10	NW
		6.	Reserved Forest N/V Pipela	2.08	NW
		7.	Reserved Forest N/V Swarupganj	2.10	NW
		8.	Mount Abu Wild Life Sanctuary	5.47	NW
		9.	Nitaura Jor Reserved Forest	8.00	NW

Industries Falling within 10 km radius of study area

RIICO Industrial area Udvariya falls in 10 Km area. Stone crushers are also found within the 10 km study area.

Objectives of the Study

The primary objective of the current study is to conduct an observation, documentation, and evaluation of the environmental impact within a 10 km radius study area of the mine Site. The survey conducted also focuses on describing the terrestrial and aquatic flora and fauna, with particular emphasis on identifying and studying Rare, Endangered, and Threatened species in the study area.

The present study was undertaken with the following objectives:

- To Carry out Primary field survey of flora and fauna and ecologically sensitive natural habitats in the study area.
- To understand the spectrum of domesticated and wild biodiversity of the study area.
- To study the likely impacts of the proposed project on the local biodiversity, and to suggest mitigation measure, if required, for threatened biota.
- To assess the nature and distribution of vegetation (Terrestrial and Aquatic) in and around the mine area.
- To enumerate Endemic, Rare, Endangered and Threatened (RET Species), separately for core and buffer area, based on primary field surveys and clearly indicating the Schedule of fauna present as per Wildlife Protection Act, 1972 and amendment in Wildlife Protection Act, 2022. In case any Scheduled- I fauna occur in the study area, the conservation plan along with budgetary provisions for their conservation is to be prepared in consultation with the State Forest and Wildlife Department.

1.10 Study of Flora & Fauna

WCP / Study Area

a) Habitat Preservation and Habitat Conservation
- Plantation Programs
- Check soil erosion by afforestation
- Creation and conservation of water bodies of buffer area

b) Improved and enhanced field patrolling for applicable law enforcement for anti-poaching activities and illegal wildlife / their parts trade.

c) Awareness Campaign

d) Creating artificial tree hollows and placing nest boxes at high location for birds.

e) Planting key stone species & fruit species plantation for attracting Avi-fauna and butterflies.

f) Planting food, fodder and fuel wood species in the study area to reduce pressure on the existing plantation.

g) Light posts at project boundary to be facing within the project area and away from WCP area and facing downwards.

h) Implementing soil and moisture conservation measures in WCP area.

i) Vehicular traffic speed management through speed breakers and check posts
j) Implementation of conservation measures of the existing ponds in the WCP / Study area for attraction of birds.

1.10.1 Methodology for Ecological Survey

a) Objectives of the Study

The present study was undertaken with the following objectives:

- To assess the nature and distribution of vegetation in and around the project within the study area.
- To assess the diverse nature of flora, fauna and avi-fauna in the project area and study area.
- Inventorisation of flora, fauna and avifauna fauna and categorization in to endemic, rare, endangered and threatened (RET Species) separately for core and buffer area based on secondary sources with limited primary field survey.
- In case of scheduled -I fauna and avi-fauna found in the study area, and prepare a comprehensive wildlife conservation plan along with budgetary provisions for their conservation is prepared in consultation with Wildlife Wing of State Forest Department.
- To study the likely impact of the proposed expansion project on the Biological Environment and to suggest matching mitigation measure.

b) Scope of the Study

1. To identify different land-uses / habitat present within the WCP / study area and evaluation of their ecological significance with respect to the project activities.
2. To assess the flora and fauna present in the proposed mine area and WCP area or Study area (10 km radius of mine area boundary).
3. Inventorisation of flora, fauna and avi-faunaal species present in the project area and study area.
4. Evaluation of species with respect to its conservation status as protected by specific legislation (Rare, endangered, critically endangered, vulnerable and endemic).

c) Methodology of the Study

The study area taken for the study is 10 km radius with the project area boundary as center. The study was undertaken during pre-monsoon season of (March to May 2023). The different methods adopted were as follows:

i) Desk Study: Identification of Habitats/Land Uses and Study Area

During desk work of the EIA study stage, a base drawing is prepared based on Survey of India (SoI) topo-sheet/Google earth on which the wind rose

(annual/seasonal) based on long-term meteorological data from the nearest available IMD station is overlaid. Subsequently the study area (10km with project boundary as center) is marked.

The main visible features of the study area are identified on the drawing, like areas protected under international conventions; ecologically sensitive areas; forests; wetlands, archeological monuments; towns and principal human settlements; rivers, reservoirs, dams and canals; industries; major roads and railways; national and state boundaries; defense installations; area already subjected to pollution; etc.

Subsequent to the above demarcation and identification, primary data generation locations and their number are preliminarily marked on the base drawing.

The study / project area is stratified in to different types of habitats/land-uses, viz.

- Water bodies and Marshy land/Mangroves
- Forest / Natural vegetation: Reserved/Protected Forests, etc.
- Grazing land
- Agricultural land
- Human Settlements
- Waste land, etc.
- Ecologically important areas like, Bio-sphere Reserves, National Parks, Wildlife Sanctuaries, Ramsar Wetland sites, Migration Corridors of wild animals,

The above habitats, if present in the study area are marked on the base drawing.

ii) Field Survey

The survey involves collection of flora and fauna under various strategies which differed as per habit and habitat of concerned group of species as given hereunder.

The biotic environment is studied / investigated with respect to the following biotic components in the study area and at the project site. Photographing of significant plant and animal species encountered during the study.

Flora survey

Project area has been explored during the field visit and documented as checklist of floral diversity of core and buffer zone. Plants have systematically identified and listed in field area however, photograph of unidentified vegetation from all kinds of habitats and vegetation's have been taken and followed standard herbarium techniques for identification (Jain & Rao 1977). The correct nomenclature has been provided after consulting large number of recent literature and different websites like GRIN, IPNI, ILDIS, The Plant List,

Wikipedia, Tropicos, etc. RET Category of flora and fauna has been confirmed by Red Data Book IUCN checklist and Wildlife Protection Act, 1972 status. The structure and composition of vegetation / forest cover was studied by using Phytosociological methods. In each quadrat, Plants with more than 30 cm CBH at breast height (1.37 m) have been considered as tree species and all individuals with circumference ≥ 30 cm CBH at breast height (1.37 m) have been counted and measured for basal area (BA) calculation.

Field surveys were undertaken to analyze and estimate diversity, density, dominance and frequency of different members of plant population. Observations were made in the forest area as well as in non-forest areas by laying plots and adopting quadrat method. The quadrat method includes preparation of square sample plots or units for quantitative analysis of vegetation. The sample plot method given by Clements (1898), EIA Hand Book (ch.7, pp.44) was followed.

Co-existence and competition both are affected directly by number of individuals in the community. Therefore, it is essential to know the quantitative structure of the community. To characterize the community as a whole, certain derived parameters are used i.e. Density, Frequency Basal cover and IVI.

The Simpson Diversity Index (Simpson 1949) and Shannon diversity index (Shannon & Wiener 1963) gives a clear picture of community structure in quantitative terms. To summarize the above, following parameters were used during Floristic diversity and Phytosociological assessment:

1. Density, Frequency, Basal Cover, IVI
2. Diversity Index

a) Simpsons Index (D)
b) Shannon diversity index

To evaluate the floral composition of the area the following method were used:

The size of the quadrat was selected by species area curve method. By this way, successively higher quadrat sizes are taken till the number of species encountered becomes constant. For present survey 10 m x 10 m plots were selected for the study. Therefore, plot quadrat of 10 x 10 m were laid at selected sample site in buffer zone. In each quadrat, all individuals with circumference ≥ 30 cm CBH at breast height (1.37 m) has been counted and measured for basal area (BA) calculation.

Frequency:

Frequency is the percentage of total quadrats containing at least one rooted individual of a given species.

$$\text{Frequency \%} = \frac{\text{Number of sampling unit in which a species occurred}}{\text{Total number of units studied}} \text{ x } 100$$

Density

Density is determined by the number of plants rooted within each quadrat. It is presented as individuals per ha in study.

$$\text{Density} = \frac{\text{Total number of individual}}{\text{Total number of quadrats studied}} \text{ x } 100$$

Shannon–Wiener Index (H') (Shannon & Wiener 1963) and Simpson's Index (C) (Simpson 1949) has been derived from the field data to observe the species composition and vegetation structure.

Dominance

Basal cover is taken as dominance citeria of a particular species in plant communities. Basal cover is determined as follows:

Dominance (Basal area) = πr^2 (r = diameter /2)

Importance Value Index

The importance value, or the importance percentage, gives an overall estimate of the influence of importance of a plant species in the community. Count by given formula

IVI= relative frequency + Relative density + Relative dominance

Simpson's Diversity Index (Concentration of Dominance)

It considers, the number of species, the number of individuals of each species, and total number of individuals of all species

Simpson's Index (C) is calculated as follows:

$$C = \frac{\Sigma\, ni\,(ni-1)}{N\,(N-1)}$$

Where, C is the Simpson diversity index, ni is the number of individuals belonging to a species i, and i=1 to K. K is the total number of species N is the total number of individuals of all species.

Shannon-Wiener Index (Species Diversity)

This index represents the average degree of uncertainty in predicting to which particular species an individual chosen at random from a sample will belong to. This measure considers,

- The total number of individuals of all species.
- The number of individuals of every species.

• The proportion of individuals of each species in the total number of individuals of all species.

Shannon-Wiener Index (Shannon & Wiener 1963) is represented as follows:

$$H' = - \Sigma pi \log pi$$

Here, pi is the proportion of the total number of individuals that occur in the species i, i.e.(ni/N). ni is the number of individuals of a species i, and i = 1 to K. K is the total number of species. N is the total number of individuals of all species in the sample. The value of Shannon-Wiener Index varies from 0 to log K.

Fauna survey

The assessment of wild fauna was made based on random sightings. For terrestrial and aquatic faunal study, we have identified birds, reptile, amphibians, fishes and animals by field guide. The secondary evidences were also recorded through calls, dung boles, scats, and spoors, rub signs, signs of debarking, drag mark etc. for identification of fauna. Bird field guides (eg. Grimmette et al. 2003) has been used for bird identification. For birds, actual counts at each sampling site were made, by walk through in a chosen one kilometer stretch of the site and the number of birds were directly counted and listed. Species list was prepared along with taxonomic position of each species.

The identification fauna in field study is based on:

- Inventorisation of Avian, Reptilian, Mammals, Ambhibians, etc. by interaction with local villagers, forest department officials present in field, viz. Beat Officers, foresters and range officers.
- By direct observation (sighting & call hearing) and through indirect evidences (tracks, droppings, scat, nests, scratch marks on trees, calls, and other signs of their activity)
- For identification of birds, reptile, amphibians, fishes and animals respective standard field guides are used.
- For identification of Birds field guides like Grimmette et al. 2003 is used.
- Inventorisation of species list was prepared along with taxonomic position of each species.
- Evaluation of species with respect to their conservation status as rare, endangered, critically endangered, vulnerable and endemic.

d) Survey Limitation

This study records the evidence of flora and fauna present during the site visit and field survey. It does not record any floral or faunal species that may appear during other times of the year, and as such, were not evident at the time of visit. The report represents ecological status of the area during the particular period of the study.

1.10.2 Literature Survey

Different literature used in the study has been cited as foot note at the location where the same have been cited and to avoid repetition the same is not being listed here.

1.10.3 Flora and Fauna of WCP Area

(i) Phytosociological Study of Mine area

Mine Lease area

As per the phytosociological study, *Prosopis juliflora, Acacia leucophloea, Acacia nilotica & Butea monosperma* are the dominant species of Mine lease area having higher IVI values. Total tree density was 444 tree ha^{-1} and total basal cover was 161.5 m^2/ha. Photographs of phytosociological study are given in Plate 2. Phytosociological study details are given in **Table 1.13.**

Mining Lease area

Plate 2: Photographs of phytosociological study

Table 1.13: Phytosociological study details of study area

SN	Species	Frequency	Density (Ha-1)	Basal area (m2/ha)	IVI
1	*Acacia catechu*	20	20	6.86	18.86
2	*Acacia leucophloea*	48	52	23.10	52.07
3	*Acacia nilotica*	32	32	13.86	32.74
4	*Anogeissus latifolia*	8	8	0.86	5.88
5	*Anogeissus pendula*	4	4	0.62	3.11
6	*Bridelia retusa*	12	12	4.67	11.81
7	*Buchanania lanzan*	4	4	0.56	3.06
8	*Butea monosperma*	24	28	12.28	27.14
9	*Cassia fistula*	4	4	1.48	3.87
10	*Dalbergia sissoo*	4	4	0.28	2.81
11	*Prosopis juliflora*	84	268	48.28	138.67
	Total		**436**	**112.87**	**300.00**

(ii) Flora & fauna checklist study of Mine area

Total 10 tree species, 8 shrubs, 7 Herbs & Grasses species were found in core zone. Mine Lease area and listed below in **Table 1.14**.

Table 1.14: Plant Species Present within the Project Site

S.No.	Scientific Name	Local Name	Family
Trees			
1	*Acacia catechu*	Khair	Mimosaceae
2	*Acacia leucophloea*	Ronj	Mimosaceae
3	*Acacia nilotica*	Desi Babool	Mimosaceae
4	*Anogeissus latifolia*	Dhavda	Combretaceae
5	*Anogeissus pendula*	Dhonk	Combretaceae
6	*Bridelia retusa*	Kalia-Dhav	Combretaceae
7	*Buchanania lanzan*	Chironji	Anacardiacea
8	*Butea monosperma*	Dhak	Fabaceae
9	*Cassia fistula*	Amaltash	Caesalpiniaceae
10	*Dalbergia sissoo*	Shisham	Fabaceae
11	*Prosopis Juliflora*	*Vilayti Babool*	*Mimosaceae*
Shrubs			
1	*Balanites aegyptiaca*	Hingot	Simaroubaceae
2	*Calligonumpolygonides*	Phog	Polygonaceae
3	*Calotropis gigantea*	Safed Aak	Asclepiadaceae
4	*Calotropis procera*	Aak	Asclepiadaceae
5	*Diclipteraabuensis*	-	Acanthaceae
6	*Dichrostachys cineraria*	Aminda	Mimosaceae
7	*Euphorbia nivulia*	Thor	Euphorbiaceae
8	*Helicteresisora*	Marodphali	*Sterculiaceae*
Herbs			
1	*Argemone Mexicana*	Satyanashi	Papaveraceae
2	*Cassia tora*	Panwad	Caesalpiniaceae
3	*Datura matel*	Dhatura	Solanaceae
4	*Tribulus terrestris*	Gokharu	Zygophyllaceae
5	*Convolvulus blatteri*	-	Convolvulaceae
6	*Ceropegia odorata*	-	Apocynaceae
7	*Begonia trichocarpa*	-	Begoniaceae

The Core Zone Mine Lease Area is a Fellow land, agriculture & grazing land. Avifauna are present due to scattered plants however Mammals, Reptiles & Amphibians are very low. The Faunal diversity is limited in Mine lease area compare to buffer area. Based on primary source, the Fauna diversity observed in core zone is given in **Table 1.15**.

Table 1.15: Fauna and Avi-fauna within Project Site

S.No.	Common Name	Scientific Name	Family	Status as per (IWPA 2022), Schedule
Avifauna				
1	*Rock Pigeon*	*Columba livia*	Columbidae	**-**
2	*House crow*	*Corvus splendens*	Corvidae	**-**

3	*Black drongo*	*Dicrurusmacrocercus*	Dicruridae	II
4	*Indian robin*	*Saxicolo idedfulicata*	urdinae	II
5	*Common myna*	*Acridotheres tristis*	Sturnidae	II
6	*Red-vented*	*Pycnonotus cafer*	Pycnonotidae	II
7	*Large grey babbler*	*Turdoidesmalcolmi*	Timaliinae	II
8	Jungle babbler	Turdoides striatus	Timaliinae	II
9	Purple sunbird	Nectarinia asiatica	Nectariniidae	II
10	House sparrow	Passer domesticus	Passerinae	II
11	Red-wattled lapwing	Vanellus cinereus	Charadriidae	II
12	Baya weaver	Ploceus philippinus	Ploceidae	II
Animals				
1	*Five stripped palm squirrel*	*Funambuluspennantii*	*Sciuridae*	-
2	*Common House rat*	*Rattus rattus*	Muridae	-
Reptiles				
1	*Common House* Gecko	*Hemidactylus frenatus*	Gekkonidae	-
2	*Oriental Garden Lizard*	Calotes versicolor	Agamidae	-
3	*Bengal Monitor Lizard*	Varanus benglensis	Varanidae	I

(Source: Primary data of Field study)

WCP or Study Area

The WCP or study area is combination of plain & sand mounds, Human settlement, Commercial setup, Agriculture and Barren land and forest area. Vegetation Covered with trees most of which are scattered thorny trees.

(i) Phytosociological Study of Buffer area

In buffer zone area following forest have been studied for Phytosociological study by 10 x 10 m^2 quadrat.

S. No.	Forest studied 10 km radius	Distance (km)	Direction
		(From Lease Boundary)	
1.	Protected Forest Hirawala	0.56	NE
2.	Reserved Forest Pipela	1.10	NW
3.	Mount Abu Wild Life Sanctuary	5.47	NW

a. Protected Forest Hirawala

As per the phytosociological study, *Prosopis juliflora, Anogeissus latifolia, Acacia nilotica, Acacia leucophloea & Butea monosperma* are the dominant species of Mine lease area having higher IVI values. Total tree density was 780 tree ha^{-1} and total basal cover was 228.96 m^2/ha. Photographs of

phytosociological study are given in Plate 3. Phytosociological study details are given in **Table 1.16.**

Protected Forest Hirawala

Plate 3: Photographs of phytosociological study of Protected Forest Hirawala

Table 1.16: Phytosociological study details of Protected Forest Hirawala

SN	Species	Frequency	Density	Basal area (m2/ha)	IVI
1	*Acacia catechu*	20	30	17.15	19.668
2	*Acacia leucophloea*	30	50	17.76	26.666
3	*Acacia nilotica*	30	40	24.66	28.398
4	*Anogeissus latifolia*	30	50	22.16	28.589
5	*Butea monosperma*	30	30	11.55	21.392
6	*Prosopis juliflora*	100	580	135.68	175.29
	Total	**240**	**780**	**228.96**	**300**

a. Reserved Forest Pipela

As per the phytosociological study, *Prosopis juliflora, Acacia leucophloea & Butea monosperma* are the dominant species of Mine lease area having higher IVI values. Total tree density was 1080 tree ha^{-1} and total basal cover was 293.27 m^2/ha. Photographs of phytosociological study are given in Plate 4. Phytosociological study details are given in **Table 1.17.**

Reserved Forest Pipela

Plate 4: Photographs of phytosociological study of Reserved Forest Pipela

Table 1.17: Phytosociological study details of Reserved Forest Pipela

SN	Species	Frequency	Density	Basal area(m2/ha)	IVI
1	Acacia catechu	30	30	17.15	19.34
2	Acacia leucophloea	50	80	47.76	41.55
3	Acacia nilotica	40	60	44.66	35.07
4	Prosopis juliflora	100	830	162.16	167.86
5	Butea monosperma	60	80	21.55	36.18
	Total	**280**	**1080**	**293.27**	**300**

a. Mount Abu Wild Life Sanctuary

As per the phytosociological study, *Anogeissus latifolia, Anogeissus pendula, Butea monosperma, Pongamia pinnata, Grewia asiatica & Aegle marmelos*are the dominant species of Mine lease area having higher IVI values. Total tree density was 990 tree ha^{-1} and total basal cover was 479.95 m^2/ha. Photographs of phytosociological study are given in **Plate 5**. Phytosociological study details are given in **Table 1.18.**

Mount Abu Wildlife Sanctuary

Plate 5: Photographs of phytosociological study Mount Abu Wildlife Sanctuary

Table 1.18: Phytosociological study details of Mount Abu Wildlife Sanctuary

SN	Species	Frequency	Density (Ha-1)	Basal area (m2/ha)	IVI
1	*Acacia catechu*	20	20	7.15	6.07
2	*Acacia leucophloea*	20	20	7.76	6.20
3	*Acacia nilotica*	20	30	9.66	7.61
4	*Adina cordifolia*	30	40	9.76	9.92
5	*Aegle marmelos*	50	60	10.55	14.67
6	*Ailanthus excels*	30	30	11.68	9.31
7	*Albizia procera*	30	30	19.41	10.93
8	*Anogeissus latifolia*	50	100	51.50	27.25
9	*Anogeissus pendula*	50	90	40.70	23.99

10	*Bauhinia purpurea*	10	20	25.25	8.57
11	*Bombax ceiba*	30	40	26.56	13.43
12	*Bridelia retusa*	10	20	4.66	4.27
13	*Buchanania lanzan*	10	10	5.59	3.46
14	*Butea monosperma*	60	80	21.55	20.27
15	*Cassia fistula*	30	30	11.68	9.31
16	*Dalbergia sissoo*	20	20	9.41	6.55
17	*Emblica officinalis*	30	50	10.50	11.09
18	*Erythrina arborescens*	10	10	9.70	4.32
19	*Eucalyptus species*	30	30	17.15	10.45
20	*Ficus bengalensis*	20	20	17.56	8.25
21	*Grewia asiatica*	60	60	24.66	18.90
22	*Holoptelea integrifolia*	30	40	22.16	12.51
23	*Mallotus philippensis*	30	30	11.55	9.29
24	*Mitragyna parvifolia*	20	20	21.68	9.11
25	*Pongamia pinnata*	50	50	39.41	19.68
26	*Tamarindus indica*	10	10	11.50	4.69
27	*Tectona grandis*	20	30	20.70	9.91
	Total	**780**	**990**	**479.45**	**300.00**

(I) Flora & fauna checklist study of Mine area

Plantation of *Prosopis juliflora* distributed surrounding the villages etc. The WCP area list of plant species is given in **Table 1.19.** About 52 trees, 21 shrubs and 13 herbs, and 7 grasses, species were recorded (**Table 1.19).** Study area vegetation photographs are given in **Plate 6**.

Table 1.19: Plants recorded from WCO or Study Area

S.No.	Scientific Name	Local Name	Family
Trees			
1.	*Acacia catechu*	Khair	Mimosaceae
2.	*Acacia leucophloea*	Ronj	Mimosaceae
3.	*Acacia nilotica*	Desi Babool	Mimosaceae
4.	*Aegle marmelos*	Beal	Rutaceae
5.	*Ailanthus excels*	Ardu	Simarubaceae
6.	*Albizia lebbeck*	Kala siris	Misosaceae
7.	*Albizia procera*	Safed siris	Mimosaceae
8.	*Anogeissus latifolia*	Dhavda	Combretaceae
9.	*Anogeissus pendula*	Dhonk	Combretaceae
10.	*Anogeissus sericea*	-	Combretaceae
11.	*Adina cordifolia*	Haldu	Rubiaceae
12.	*Azadirachta indica*	Neem	Meliaceae
13.	*Bauhinia purpurea*	Kanchnar	Caesalpiniaceae
14.	*Bombax ceiba*	Semal	Bombacaceae

15.	*Bridelia retusa*	Kalia-Dhav	Combretaceae
16.	*Buchananialanzan*	Chironji	Anacardiaceae
17.	*Butea monosperma*	Dhak	
18.	*Cassia fistula*	Amaltash	Caesalpiniaceae
19.	*Dalbergia sissoo*	Shisham	Fabaceae
20.	*Diospyros cordifolia*	-	Ebenaceae
21.	*Emblica officinalis*	Amla	Phyllanthaceae
22.	*Eucalyptus species*	Safeda	Myrtaceae
23.	*Erythrina arborescens*	Phaludra	Papilionaceae
24.	*Erythrina sp.*	Phaludra	Papilionaceae
25.	*Ficus bengalensis*	Bad	Moraceae
26.	*Ficus religiosa*	Pipal	Moraceae
27.	*Grewia asiatica*	Phalsa	Malvaceae
28.	*Holoptelea integrifolia*	Papadi	Ulmaceae
29.	*Mangifera indica*	Mango	Anacardiaceae
30.	*Mallotus philippensis*	Rohini	Euphorbiaceae
31.	*Mimusopselengi*	Molshree	Sapotaceae
32.	*Mitragynaparvifolia*	Kadam	Rubiaceae
33.	*Morus alba*	Sehtoot	Moraceae
34.	*Moringa concanensis*	Sehjan	Moringaceae
35.	*Morinda tinctoria*	Indian Mulberry	Rubiaceae
36.	*Pithecellobium dulce*	Jungle jalebi	Mimosaceae
37.	*Pheonix sylvestris*	Khajur	Arecaceae
38.	*Polyalthia longifolia.*	Ashok	Anonaceae
39.	*Pongamia pinnata*	Karanj	Fabaceae
40.	*Salvadora oleoides*	Khara jal	Salvadoraceae
41.	*Sapindus emarginatus*	Notched leaf soapnut	Sapindaceae
42.	*Salvadora persica*	Mitha Jal	Salvadoraceae
43.	*Schleichera oleosa*	Kusum	Sapindeceae
44.	*Sterculia urens*	Karaiya	Sterculiaceae
45.	*Syzygiumcumini*	Jamun	Myrtaceae
46.	*Tamarindus indica*	Imali	Caesalpiniaceae
47.	*Tectona grandis*	Teak	Lamiaceae
48.	*Terminalia arjuna*	Arjuna	Combretaceae
49.	*Terminalia bellerica*	Bahera	Combretaceae
50.	*Terminalia tomentosa*	Asan	Combretaceae
51.	*Ziziphus xylopyrus*	Ber	Rhamnaceae

52.	*Ziziphus mauritiana*	Ber	Rhamnaceae
Shrubs			
1.	*Balanites aegyptiaca*	Hingot	Simaroubaceae
2.	*Calligonumpolygonides*	Phog	Polygonaceae
3.	*Calotropis gigantea*	Safed Aak	Asclepiadaceae
4.	Calotropis procera	Aak	Asclepiadaceae
5.	*Capparis decidua*	Kair/Kareel	Capparaceae
6.	*Carissa carrandus*	Karunda	Apocynaceae
7.	*Crotalaria filipes*	Creeping hemp	Fabaceae
8.	*Diclipteraabuensis*		Acanthaceae
9.	*Dichrostachys cineraria*	Aminda	Mimosaceae
10.	*Euphorbia nivulia*	Thor	Euphorbiaceae
11.	*Helicteresisora*	Marodphali	Sterculiaceae
12.	*Ipomoea fistulosa*	Besharm	Convolvulaceae
13.	*Leptadeniapyrotechnica*	Khimp	Asclepiadaceae
14.	*Nerium oleander*	Kaner-Red	Apocynaceae
15.	*Nyctanthes arbortristis*	Harsringar	Oleaceae
16.	*Opuntia dillenii*	Nagphani	Cactaceae
17.	*Prosopis juliflora*	Vilayatibabool	Mimosaceae
18.	*Rosa involucrata*	-	Rosaceae
19.	*Strobilanthes callosus*	-	Acanthaceae
20.	*Ziziphus mauritiana*	Bor	Rhamnaceae
21.	*Ziziphus numularia*	Jhadiber	Rhamnaceae
Herbs			
1.	*Aerva javanica*	Bui	Amaranthaceae
2.	*Aloe vera*	Guarbhata	Liliaceae
3.	*Argemone mexicana*	Satyanashi	Papaveraceae
4.	*Cassia tora*	Panwad	Caesalpiniaceae
5.	*Datura matel*	Dhatura	Solanaceae
6.	*Dodonea viscose*	Reliya	Sapindaceae
7.	*Echinopsechinatus*	Unthkanteli	Asteraceae
8.	*Tribulus terrestris*	Gokharu	Zygophyllaceae
9.	*Convolvulus blatteri*	-	Convolvulaceae
10.	*Ceropegia odorata*	-	Apocynaceae
11.	*Begonia trichocarpa*	-	Begoniaceae
12.	*Crotalaria filipes*	-	Fabaceae
13.	*Indigofera constricta*	-	Fabaceae
Grassess			

1.	Apluda mutica	Polad	Poaceae
2.	*Desmostachyabipinnata*	Daab	Poaceae
3.	*Cenchrus biflorus*	Bharbhurat	Poaceae
4.	*Cenchrus setigerus Vahl*	Dhaman	Poaceae
5.	*Cynodondactylon*	Doob	Poaceae
6.	*Ischaemum kingii*	-	Poaceae
7.	*Saccharum munja*	Munj.	Poaceae
8.	*Dactylocteniumaegypticum*	Makda	Poaceae
9.	*Saccharum spontaneum*	Kaans	Poaceae

(Source: Primary data of Field study & Secondary sources)

Plate 6. **Study area vegetation photographs**

Mount Abu Wild Life Sanctuary and many RF Forest are found in WCP area therefore rich biodiversity of Avifauna, Mammals and reptiles have been found in the area. Based on Secondary data & limited primary survey, the fauna and avi-fauna present in the WCP area or study area is given in **Table 1.20**.

Table 1.20: List of Fauna and Avi-fauna present in WCP / Study Area

S.No.	Common Name	Scientific Name	Family	Status as per (IWPA 2022), Schedule
AVIFAUNA				
1	Ashy Prinia	*Prinia socialis*	Cisticolidae	II
2	Plain Prinia	*Prinia inornata*	Cisticolidae	II
3	Brown Rock Chat	*Oenanthe fusca*	Muscicapidae	II
4	Common Tailorbird	*Orthotomus sutorius*	Cisticolidae	II
5	Red-vented Bulbul	*Pycnonotus cafer*	Pycnonotidae	II
6	Red-whiskered Bulbul	*Pycnonotus jocosus*	Pycnonotidae	II
7	Rufous Treepie	*Dendrocitta vagabunda*	Corvidae	II
8	Red-wattled lapwing	*Vanellus cinereus*	Charadriidae	II
9	Baya weaver	*Ploceus philippinus*	Ploceidae	II
10	Grey francolin	*Francolinus pondicerianus*	Phasianidae	II
11	Common hoopoe	*Upupa epops*	Upupidae	II
12	Indian Roller	*Coracias benghalensis*	Coraciidae	II
13	White-throated kingfisher	*Halcyon smyrnensis*	Alcedinidae	II
14	Asian Green bee-eater	*Merops orientalis*	Meropidae	II
15	Lesser coucal	*Centropus bengalensis*	Cuculidae	II
16	Rose-ringed parakeet	*Psittacula krameri*	Psittacidae	II
17	Plum-headed Parakeet	*Psittacula cyanocephala*	Psittaculidae	II
18	House swift	*Apus affinis*	Apodidae	II
19	Rock Pigeon	*Columba livia*	Columbidae	-
20	Laughing dove	*Streptopelia senegalensis*	Columbidae	II
21	Eurasian Collared dove	*Streptopelia decaocto*	Columbidae	II
22	Red Collared dove	*Streptopelia tranquebarica*	Columbidae	II

23	Long-tailed shrike	*Lanius schach*	Laniidae	II
24	Southern grey shrike	*Lanius meridionalis*	Laniidae	II
25	House crow	*Corvus splendens*	Corvidae	-
26	Large-billed Crow	*Corvus macrorhynchos*	Corvidae	II
27	Black drongo	*Dicrurus macrocercus*	Dicruridae	II
28	Ashy Drongo	*Dicrurus leucophaeus*	Dicruridae	II
29	Indian robin	*Saxicoloided fulicata*	Turdinae	II
30	Brahminy starling	*Sturnus pagodarum*	Sturnidae	II
31	Asian Pied starling	*Sturnus contra*	Sturnidae	II
32	Common myna	*Acridotheres tristis*	Sturnidae	II
33	Bank myna	*Acridotheres ginginianus*	Sturnidae	II
34	Wire-tailed swallow	*Hirundo smithii*	Hirundinidae	II
35	White-eared bulbul	*Pycnonotus leucotis*	Pycnonotidae	II
36	Oriental Honey Buzzard	*Pernis ptilorhynchus*	Accipitridae	II
37	Large grey babbler	*Turdoides malcolmi*	Timaliinae	II
38	Jungle babbler	*Turdoides striatus*	Timaliinae	II
39	Purple sunbird	*Nectarinia asiatica*	Nectariniidae	II
40	House sparrow	*Passer domesticus*	Passerinae	II
41	Indian Peafowl	*Pavo cristatus*	Phasianidae	I
42	Indian Paradise- Flycatcher	*Terpsiphone paradisi*	Monarchidae	II
43	Common Kingfisher	*Alcedo atthis*	Alcedinidae	II
44	White-throated Kingfisher	*Halcyon smyrnensis*	Alcedinidae	II
45	Spotted Owlet	*Athene brama*	Strigidae	II
46	Indian Pond Heron	*Ardeola grayii*	Ardeidae	II
47	Indian Grey Hornbill	*Ocyceros birostris*	Bucerotidae	II
48	Rosy Starling	*Pastor roseus*	Sturnidae	II
49	Black Redstart	*Phoenicurus ochruros*	Muscicapidae	II
50	Indian White-eye	*Zosterops palpebrosus*	Zosteropidae	II
51	White-breasted Water hen	*Amaurornis phoenicurus*	Rallidae	II
52	Shikra	*Tachyspiza badia*	Accipitridae	I

MAMMALS				
1	Five stripped palm squirrel	*Funambulus pennantii*	Sciuridae	-
2	Common House rat	*Rattus rattus*	Muridae	-
3	Nilgai	*Boselaphus tragocamelus*	Bovidae	II
4	Leopard	*Panthera pardus*	Felidae	I
5	Sambar deer	*Rusa unicolor*	Cervidae	I
6	Jungle Cat	*Felis chaus*	Felidae	I
7	Common Palm Civet	*Paradoxurus hermaphroditus*	Viverridae	I
8	Indian Wolf	*Canis lupus*	Canidae	I
9	Striped Hyaena	*Hyaena hyaena*	Hyaenidae	I
10	Jackal	*Canis aureus*	Canidae	I
11	Indian Fox	*Vulpes bengalensis*	Canidae	I
12	Wild Boar	*Sus scrofa*	Suidae	II
13	Indian Hare	*Lepus nigricollis*	Leporidae	II
14	Indian Porcupine	*Hystrix indica*	Hystricidae	I
15	Indian Hedgehog	*Hemiechinus micropus*	Erinaceidae	II
16	Sloth Bear	*Melursus ursinus*	Ursidae	I
17	Hanuman langur	*Semnopithecus entellus*	Cercopithecidae	II
18	House shrew	*Suncus murinus*	Soricidae	-
AMPHIBIANS				
1	Indian Bull frog	*Hoplobatrachus tigerinus*	Ranidae	II
REPTILES				
1	Common House Gecko	*Hemidactylus frenatus*	Gekkonidae	-
2	Oriental Garden Lizard	*Calotes versicolor*	Agamidae	-
3	Indian Cobra	*Naja naja*	Elapidae	I
4	Common Rat Snake	*Ptyas mucosus*	Colubridae	I
5	Common Indian Krait	*Bungarus caeruleus*	Elapidae	II
6	Green Keelback	*Macropisthodon plumbicolor*	Colubridae	II
7	Bengal Monitor Lizard	*Varanus bengalensis*	Varanidae	I

8	Brooks gecko	*Hemidactylus brookii*	Gekkonidae	-
9	Rock gecko	*Hemidactylus maculatus*	Gekkonidae	-
10	Forsten's Cat snake	*Boiga forsteni*	Colubridae	II
11	Common skink	*Eutropis carinata*	Scinidae	-

(Source: Primary data of Field study & Secondary sources)

Analysis of Flora

Biodiversity of a given region is significantly influenced by the physiography. Sihori district in Rajasthan has a semi-arid climate and a diverse topography, which supports various types of biodiversity habitats, such as desert and sand dunes, grasslands and scrublands, wetlands and ponds, and forests and woodlands. These habitats are home to many species of plants and animals, some of which are adapted to the harsh conditions of the desert.

Typical arid habitat floral species like *Prospois cinneria, Alianthus exelsa Prosopis juliflora*, *Salvadora oleoides, Salvadora persica, Acacia farnesiana*, *Parkinsonia aculeata, Acacia nilotica, Ziziphus nummularia*, and *Acacia senegal*, which provides top feed to the livestock are associated with these grass species such as *Sehima sulcatum*, *Cynodon dactylon*, *Dichanthium annulatum* and *Aristida* spp. in isolated conditions.

During Field Survey, No Endemic, Rare, Endangered and Threatened (RET) species of flora were found in the study area. Species Diversity Categories results are given in **Table 1.21**

Table 1.21: Species Diversity by Category

Category	Otal Species	Family with Highest Species
Trees	52	Combretaceae (7 species)
Shrubs	21	Asclepiadaceae (3 species)
Herbs & Grasses	22	Poaceae (13)
Total	**95**	**Fabaceae**

Ethnobotanical Study of the study area

During the study, some plant species have been recorded and those plants are being used by people of district Sirohi to treat their ailments such as Injuries, Cuts, Fever, Cough & Cold, Blood pressure by using fresh as well as dried plant material. Medicinal valuable plant was recorded during field assessment including *Boswellia serrata,*

Butea monosperma, Cassia fistula, Holoptelea integrifolia, Pongamia pinnata, Terminalia arjuna. Ecological Impact on the Floral Species **Table 1.22**.

Medicinal plants: Medicinal plants that are used to treat various human ailments, such as kidney stones, menstrual problems, ulcers, syphilis, eczema, cancer, tuberculosis, leprosy, etc. Some of the common medicinal plants are Calotropis procera, *Balanites aegyptiaca, Balanites aegyptiaca, Acacia leucophloea, Acacia nilotica, Azadirachta indica & Moringa concanensis* etc.

Magic plants: Study area has some plants that are believed to have magical or supernatural powers, such as warding off evil spirits, attracting love, enhancing fertility, curing impotence, etc. Some of the magic plants are *Calotropis proceraNyctanthes arbortristis, Aerva javanica, Datura metel*, etc.

Fodder plants: Study area has a large livestock population, which depends on the forest and grassland resources for fodder. Some of the important fodder plants are Schleichera *oleosa & Grewia asiatica.*

Fuel plants: Study area has a scarcity of fuelwood, which is a major source of energy for the rural households. Some of the plants that are used as fuelwood are *Acacia nilotica, Acacia leucophloea, Prosopis juliflora, etc.*

Edible plants: Study area has some plants that are consumed as food, either as vegetables, fruits, seeds, or spices. Some of the edible plants are *Syzygium cumini, Mangifera indica, Ziziphus mauritiana & Carissa carrandus* etc.

Table 1.22: Ecological Impact on the Floral Species

Aspect	Observation/Analysis
Diversity and Dominance	Poaceae family dominates and was Combretaceae species across all plant categories.
Species Count Variation	Tree category has the highest diversity (52 species), followed by Herbs & Grass (22) and Herb (27).
Family Distribution	Fabaceae & Combretaceae are dominent families.
Diversity in Common Names	Reflects cultural and regional richness in naming, showcasing linguistic and cultural diversity.
Conservation Concern	Presence of species with conservation statuses emphasizes the need for targeted conservation efforts.

Analysis of Fauna

To study the faunal diversity of the terrestrial and aquatic environment in the study area, a primary field survey was conducted within a 10 km radius impact zone surrounding the study area.

Among fauna, 18 species of mammals, 11 species of reptiles and 1 species of amphibians and 52 species avifauna were recorded in the study area. Faunal Diversity details are given in **Table 1.23**.

Table 1.23: Faunal Diversity in 10 Km. Radius of Project Areas

S.No.	Category	Number of Species
1.	Mammals	18
2.	Reptiles	11
3.	Aves	52
	Amphibians	1
Total		**82**

There are 15 schedule -I species i.e.,

Panthera pardus (Leopard), *Rusa unicolor* (Sambar deer), *Felis chaus* (Jungle Cat), *Paradoxurus hermaphroditus* (Common Palm Civet), Canis lupus (Indian Wolf), *Hyaena hyaena* (Striped Hyaena), Canis aureus (Jackal), *Vulpes bengalensis* (Indian Fox), *Hystrix indica* (Indian Porcupine), *Melursus ursinus* (Sloth Bear), Naja naja (Indian Cobra), Ptyas mucosus (Common Rat Snake), Varanus bengalensis (Bengal Monitor Lizard) Pavo cristatus (Indian Peafowl), Tachyspiza badia (Shikra) were recorded in the study area during field survey; which are categorized as Schedule- I fauna according to Indian Wildlife Protection Act (IWPA), 2022 conservation status. Schedule- I fauna list is given in **Table 1.24** & Project impact on Fauna species are given in the **Table 1.25.**

Table 1.24: Schedule- I fauna of study area

S.No.	Common Name	Scientific Name	Family	Status as per (IWPA 2022), Schedule
MAMMALS				
1	Leopard	*Panthera pardus*	Felidae	I
2	Sambar deer	*Rusa unicolor*	Cervidae	I
3	Jungle Cat	*Felis chaus*	Felidae	I
4	Common Palm Civet	*Paradoxurus hermaphroditus*	Viverridae	I
5	Indian Wolf	*Canis lupus*	Canidae	I
6	Striped Hyaena	*Hyaena hyaena*	Hyaenidae	I
7	Jackal	*Canis aureus*	Canidae	I
8	Indian Fox	*Vulpes bengalensis*	Canidae	I
9	Indian Porcupine	*Hystrix indica*	Hystricidae	I
10	Sloth Bear	*Melursus ursinus*	Ursidae	I
REPTILES				
1	Indian Cobra	*Naja naja*	Elapidae	I

2	Common Rat Snake	*Ptyas mucosus*	Colubridae	I
3	Bengal Monitor Lizard	*Varanus bengalensis*	Varanidae	I
AVIFAUNA				
1	Indian Peafowl	*Pavo cristatus*	Phasianidae	I
2	Shikra	*Tachyspiza badia*	Accipitridae	I

Table 1.25: Ecological Impact on the Faunal Species:

Threat	Description
Habitat Destruction	Large-scale clearing of land for mining operations, leading to direct habitat loss.
Fragmentation of Habitats	Mining activities causing habitat fragmentation, isolating populations and reducing connectivity.
Water Pollution	Release of harmful chemicals and heavy metals into water sources, posing a threat to aquatic species.
Noise and Disturbance	Disruption of natural behaviors of wildlife due to noise and disturbances from mining machinery.
Air and Soil Pollution	Emissions and dust from mining impacting air and soil quality, affecting plant and animal life.

2 Description of Forest and habitat condition, Wildlife scenario of the WCP area (Population estimation results, if any)

Forest and Habitat Condition

The extent of forest cover of Rajasthan state is 16654.96 Sq. Km. forests/tree cover area is recorded in the State from total Geographical area (342239 Sq. Km.) which is about 4.87% of the total state's geographical area (FSI 2021). Type of forest in an area is determined by several factors like climate, soil type, topography; elevation etc. forests are classified according to their nature and composition, the type of climate in which they thrive, and its relationship with the surrounding environment. A mixture of trees like *Acacia catechu, Acacia leucophloea, Acacia nilotica, Ailanthus excelsa, Anogeissus pendula, Azadirachta indica, Balanites aegyptiaca, Boswellia serrata, Butea monosperma, Dalbergia sissoo, Mangifera indica, Prosopis cineraria, Capparis decidua, Salvadora oleoides* and *Terminalia arjuna* occupies the area. *Acacia catechu, Dalbergia sissoo and Tephrosia purpurea* are conspicuously present in newly formed soils.

These forests are open, consisting of short trees, generally belonging to thorny leguminous species. The characteristic species include *Prosopis sp, Acacia leucophloea, Acacia nilotica, Ziziphus spp., and Salvadora oleoides,* have been widely planted in this region. These forests are highly degraded due to severe biotic pressure and occur in the form of scrub forests in most of the areas. Project study area does not involve any forests. But the nearby areas have two types of forests and subtypes with their codes stated below, as per the revised classification of Indian Forests (Champion & Seth).

1. Northern Tropical dry deciduous forest (5)

a. Dry Teak bearing Forest (5A/C1)
b. Dry Sal bearing Forest (5A/C1)
c. Babool forest (5/E5)
d. Hardwickia forest (5/E4)
e. Boswellia forest (5/E2)
f. Acacia nilotica (Babool) forest (5/E3)
g. Butea forest (5/E5)
h. Anogeissus pendula forest (5/E1)

2. Tropical Thorn Scrub Forest

a. Ziziphus thorn scrub (6A/DS1)
b. Euohorbia scrub (6/E1)
c. Salvadora scrub (6/E4)
d. Dry grassland (5/DS4)

Forest found in study area are given in **Table 1.26.**

Table 1.26: Forest found in study area

S. No.	Forest found in 10 km radius	Distance (km)	Direction
		(From Lease Boundary)	
1.	Reserved Forest N/V Wara	0.064	South
2.	Protected Forest N/V Hirawala	0.56	NE
3.	Reserved Forest N/V Wara	0.96	SW
4.	Kivrali Ka Zor Reserved Forest	1.10	West
5.	Reserved Forest N/V Pipela	1.10	NW
6.	Reserved Forest N/V Pipela	2.08	NW
7.	Reserved Forest N/V Swarupganj	2.10	NW
8.	Mount Abu Wild Life Sanctuary	5.47	NW
9.	Nitaura Jor Reserved Forest	8.00	NW

1.10.4 Man Animal Conflict

Some carnivorous species has been found the WCP area, thus man-animal conflict is envisaged the area.

1.10.5 Other Industries in the WCP Area and Indicative WCP

There are no major industries in the study area. Thus the wildlife conservation plan as envisaged by Kamlesh Metacast Private Limited will be implemented.

The Wildlife Conservation Plan envisages set of activities to be implemented within the project area and in the WCP area. The indicative plan is as follows:

Project Area

- Habitat Loss & Plantation within project area and surrounding vacant area

- Implementation of latest and efficient technological measures to control air pollution and control noise levels within stipulated limits.
- Implementation of maxing recycling of process effluents to achieve zero liquid discharge from the project.
- Water conservation measures viz. rain water harvesting.
- Recycling and re-utilisation of industrial solid wastes generated in the project.
- Proper management and disposal of all generated hazardous wastes, electronic wastes, municipal solid wastes, battery waste as per the applicable statute directed by MOEFCC.
- Monitoring and evaluation of environmental management plan as envisaged in EIA / EMP report.

1 **Movement of Wildlife in the WCP area for the last 3 completed financial years and for the current year.**

Part of buffer zone of applied ML area falls in eco-sensitive zone boundary of Mount Abu Wildlife sanctuary.

Buffer zone consists of dry area & arid habitat with extreme temperature which give support to wild mammals like Nilgai (*Boselaphus tragocamelus*), *Panthera pardus* (Leopard), *Rusa unicolor* (Sambar deer), *Felis chaus* (Jungle Cat), *Paradoxurus hermaphroditus* (Common Palm Civet), Canis lupus (Indian Wolf), *Hyaena hyaena* (Striped Hyaena), Canis aureus (Jackal), *Vulpes bengalensis* (Indian Fox), *Hystrix indica* (Indian Porcupine), and *Melursus ursinus* (Sloth Bear). The area further supports resident birds like Red vented bulbul (*Pycnonotus* cafer), Grey francolin (*Francolinus spondicerianus*), Jungle babbler (*Turdoides striatus*), Red wattled lapwing (*Vanellus indicus*), oriental magpie robin (*Copsychuss aularis*), black drongo (*Dicrurus macrocercus*), green bee-eater (*Merops orientalis*), Laughing dove (*Spilopelia senegalensis*), Peafowl (*Pavo cristatus*) etc.

Reptiles of snake species like Indian cobra (*Naja naja*), Ptyas mucosus (Common Rat Snake) lizard species like Common Garden Lizard (*Calotes versicolor*) Rock gecko (*Hemidactylus maculates*), house lizard (*Hemidactylus flaviviridis*) etc are also observed. No specific changes will be reflecting in the study area due to project implementation as proper protection measures are taken care for existing mine activities and after some more specific protection measures also will be done as per consultation with Forest Department.

2 **Indicative Plan showing location of other projects utilizing forest lands or otherwise in the WCP area of the present project. The mitigative measures proposed in the Conservation Plans of such projects (within WCP area), prepared if /any, are to be summarized and compared with the proposals in the present plan.**

The study area comprised of an area covered under 10 km radius (aerial distance) from the mine site, also known as buffer zone. No forest land is used by Kamlesh Metacast Private Limited (KMPL) and not by any other industries in the WCP area (core zone and 10km buffer zone). No Indicative Plan showing location of other projects utilizing forest lands or otherwise in

the WCP area of the present project. The mitigative measures proposed in the Conservation Plans of such projects (within WCP area), prepared if /any, are to be summarized and compared with the proposals in the present plan. Mitigative measures practically can be achieved by:

Company will comply all the mitigation measures as described in EIA/EMP.

- Scaling up the Green Belt development and plantation activities in and around the Mine site area and their maintenance.
- Project Proponent will be controlling the stack and fugitive emissions and other airborne pollutants by using appropriate technology at point source and maintain the RSPCB/ CPCB standards for stack and fugitive emission particularly on mine.
- As the mine operation will be done with latest technology, adverse impacts will be minimized.
- Water sprinkler will be used on the road inside the mine site to control fugitive emissions in the surrounding environment.
- Paved roads will be used for transportation to minimize fugitive emissions.
- Transport of materials in closed truck and storing it under tarpaulin cover.
- Transport vehicles and machinery is being/ will be properly maintained and periodically checked for pollution level to reduce noise and gaseous emission in the surrounding environment.
- Signboards in fluorescent ink is being placed along the road side to make them readable during the night hours.
- Built a clause in contract document for the contractor that would not permit the labors, workers, supervisors, contractors and other employees without safety precaution.
- Undertaking educational and awareness drive in the labour camps for environment conservation.
- The native plant species is being/ will be used for habitat improvement.
- Though, the impacts of project activities are likely to be negligible on surrounding biodiversity as the study area is characterized by open scrub and scattered semi-arid species. It is therefore, recommended that Proponent will include conservation activities for biodiversity and ecosystems in future conservation activities as per consultation with the Forest Department.
- No loss of forest area, because the core area has no forest land, However, afforestation will be done in buffer area in consultation with the Forest Department.
- Project Proponent is / will make substantial financial allocations for carrying out suggested biodiversity conservation activities in the study area as part of CSR activities.

- Special emphasis on ecological conservation will be given by extending special responsibility to senior environment authority within the management of the.
- Project Proponent will be sensitized under awareness programmes by conducting meetings in different important conservation – centric days of a year.

3 The List of experts involved in the study and their visit in the area and the methodology and sampling procedure adopted in arriving at the facts and findings.

M/s Ecomen Mining Pvt. Ltd. team visited the Mine site for ground-trothing and eco-biological surveillance, assessment of possible impacts on biological environment of the study area.

SN.	Name
Prepared by	
1	Dr. Ashish K. Mishra (Ph. D. Biodiversity & Forest Ecology)
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Checked by	
3	Mr. Umendra Sharma (Retd. IFS) Forest Conservation & Management

CHAPTER-2: ENVIRONMENTAL IMPACTS OF THE PROPSED PROJECT

2.0 Impacts Identification and Evaluation

2.1 Impact of Project on the environment in general over the WCP area in specific.

- **Degradation and Erosion:** Mining disrupts the natural soil structure, leading to degradation and increased erosion risks. This can result in loss of topsoil and affect the overall stability of the landscape.
- **Contamination:** The extraction and processing of limestone can introduce pollutants into the soil, altering its composition and potentially harming plant life and soil organisms.
- **Altered pH Levels:** Mining operations may change the pH levels of the soil, impacting its acidity or alkalinity. This alteration can affect nutrient availability and overall soil fertility.
- **Loss of Biodiversity:** Mining activities often disturb local ecosystems, leading to a loss of biodiversity in the affected areas. Plants, animals, and microorganism's dependent on the original soil conditions may be negatively affected.
- **Land Disturbance:** The physical footprint of the mine disrupts the natural landscape, leading to significant land disturbance. This can hinder natural processes and impede the regenerative capacity of the ecosystem.
- **Revegetation Challenges:** The disturbance caused by mining can make it challenging for vegetation to naturally re-establish itself. This may result in prolonged periods of bare soil, contributing to erosion risks.
- **Dust Particulates:** Mining activities generate dust, which can settle on surrounding soil. This may lead to soil pollution, affecting its composition and potentially introducing contaminants into nearby ecosystems.
- **Eutrophication Effects:** Dust deposition, especially if rich in certain elements like calcium and magnesium, can cause eutrophication in the soil, impacting plant nutrition and potentially disrupting the balance of essential elements.

2.1.1 Impacts on Land use due to Mining Activity

The topographical changes will occur due to the mining operations, dumping of waste and allied activities. These activities are restricted to the mine lease area. The application of various engineering measures as well as soil and water conservation work aids in the prevention of soil erosion. The biological reclamation of mined out areas will be taken up as per the Progressive Mine Closure Plan (PMCP) duly approved by IBM and Final Mine Closure Plan (FMCP) proposed to be approved two years prior to the end of lease period by IBM.

2.1.2 Vegetation Loss due to mining:

Mining Lease for an area of 800.9935 Ha. has been granted by Mines and Petroleum Department, Government of Rajasthan vide order no. P.3 (6) Khan/Group-2/2022 dated 13.03.2023 which is valid till 12.03.2025. Now LOI is extended for one year vide P.3 (6) Khan/Group-2/2022, date-25.07.2023 and valid till 12.09.2025. No forest land is involved in the proposed ML area. Private Agriculture Land, Govt. Waste Land & Govt. Grazing Land are involved in Mine lease area. Acacia catechu, Acacia leucophloea, Acacia nilotica, Anogeissus latifolia, Anogeissus pendula, Bridelia retusa, Buchanania lanzan, Butea monosperma, Cassia fistula & Dalbergia sissoo are found in mining lease area. No plant to be cut in mining activity. Therefore, in the mining activities doesn't need any vegetation loss and therefore, no fresh vegetation cutting is proposed during the proposed mining. The Lessee has proposed the afforestation program with local native species on the mined-out lands. The afforestation of the mined-out areas will be concurrent to the Mining.

2.1.3 Top soil excavation and conservation: -

- The topsoil is black in color and is spread over almost all the area.
- The thickness of the top soil as encountered in drill holes vary from 0.0 to 0.3 meters.
- The top soil generated will be stacked and preserved at the earmarked places and will be utilized for the afforestation.
- The details of the Top soil to be generated during the first five years of the mining plan period is given as: -

Table 2.1*:* Top Soil Generation

Sr. No	Year	Top Soil Volume (Length x Width x Height) (m^3)
1	1st Year	Nil
2	2nd Year	300
3	3rd Year	21010
4	4th Year	3700.0
5	5th Year	0.0
6	6th Year	0.0
7	7th Year	8320.0
8	8th Year	0.0
9	9th Year	1740.00

2.1.4 Disposal of Waste

The highest and lowest elevations are 361MSL and 295 MSL respectively.

The general drainage of the lease area is toward the Sukhali River. The impact on the physical environment will be contained within the lease area.

- Sukhali River passes from the lease area and outside of the northern and southern part of the lease area. The river is seasonal in nature and remains dry almost throughout the year.
- However, it is proposed that at the conceptual stage, out of the total excavated area (121.96 ha), about 72.66 ha will be backfilled by generated waste or overburden material, and the remaining 49.30 ha will be converted into a water reservoir for community use. After the backfilling of the mined-out pit, this area will be covered by plantation and re-grassing.
- The dump's height will be 5 m above ground level in the second, third, and fourth years; after that, in the fifth year of mining, the height will be increased by 40 m, temporarily raising the surface elevation. The dump will be sloped at an angle of 35° to ensure the stability of the slopes. Dumps will be temporary in nature. The same will be rehandel to backfill the mined out area.
- The inactive slopes will be vegetated with fast-growing leguminous grass or herbaceous species for protection against erosion and to prevent runoff and wash off due to rains.

The proposed waste dumping till the end of the plan period will be done within the lease as a temporary / permanent backfilling at the earmarked places as per the Approved Mining Plan. The proposed waste dumping till the end of the plan period will be done within the lease as a temporary / permanent backfilling at the earmarked places as per the Approved Mining Plan. All the waste generated will be dumped at the earmarked locations.

2.1.5 Impact due to Possible Accidents & Proposed Mitigative Measures

The possible accidents, the impacts of the same on the environment and the mitigative measures proposed are as below: -

- Damage to vehicles, mining machinery
- Spillage of diesel, oil
- Injury to employees

2.1.6 Impact on Air Quality

The proposed mining activity is opencast fully mechanized. Air pollution from proposed mine is mainly due to emissions of Particulate Matter and gases including Sulphar Dioxide (SO2), Oxides of Nitrogen (NOx) and CO. The sources of pollutants were identified. Drilling, blasting, mineral excavation etc. were identified as area source emission, loading and unloading of mineral as a point source and transportation routes were identified as line source. Appropriate mathematical equations have been used to calculate the emission rates for the various mining operations. Due

to low sulphur content in diesel and petrol, the SO2 emission due to vehicular movements was not considered.

Vehicular movements within the mine site will add marginally to NO2 and CO concentration. Monitored values of SO2, NO2 and CO in the ambient air are reported to be low in the study area. It is proposed that the Lessee ensures regular maintenance and engine tuning of vehicles used within the mine area so that the emission levels remain within the stipulated limits. As adequate dust suppression measures will be provided, the dust particles will not get transported to villages in the downwind direction of the impact area.

PM levels will be slightly increased in concentration as compared to baseline levels within the active operational areas (mine area) due to excavation and transportation; however, the buffer zone is not likely to be affected with dust problems, with proper dust suppression and mitigation measures are taken up.

Air pollution sources at the proposed opencast mine can be classified into four categories, viz., Point Source, Area Sources, Line Sources and instantaneous Point Sources as described below:

- Point Source / Single Source: These are stationary sources, which emit air pollutants into the atmosphere from a certain fixed point. In the proposed mine, the following sources or activities form the point sources, which emit particulate matter.
  - **Mining:** Top OB / Ore benches would be developed in horizontal slicing pattern; hence hydraulic shovel along with matching dumpers would be deployed.
  - Loading & unloading of waste / ore: The loading of Waste / Ore is proposed by excavators. These activities are likely to contribute air pollution in the form of dust / particulate matter during discharge of material from bucket and gaseous pollutant like SO2, NO2 and hydrocarbons due to combustion of diesel in the loading machinery. The generated waste / ore will be transported by dumpers and unloaded at the designated locations i.e. at dump site or crusher site. During unloading operation at the dump site of the waste / Ore, air pollution in the form of dust (PM) and gaseous pollutants namely SO2, NO2 and hydrocarbons due to consumption of diesel in dumper is anticipated.
- **Line Sources**: These are normally mobile sources, which emit pollutants in the area through which they pass. The following are the sources of air pollution falling under this category.
  - **Transportation:** Surface transport consists of transport of overburden and limestone ore. Overburden will be transported by dumpers to respective waste dumps. Haul roads will be provided for movement of dumpers. Transportation also includes movement of service vehicles in the mine lease area. The traffic on the haul roads is likely to contribute towards increase in dust and gaseous pollutants concentration in the mining area.

However, this is more of a localized phenomenon within the mining areas that have limited human exposure.

- **Dozing:** Dozing is envisaged during mining operations. The dozing activity is likely to contribute to air pollution in the form of PM, SO2, NO2 and hydrocarbons due to use of diesel operated machines.

Area Sources / Multiple Sources: The total mine area with all mining activities like operation of equipment / machinery, active mine pit, mineral stock yard and waste dump locations and haul roads constitute the area source, which lead to increase in air pollution in and around mine lease area.

As mentioned earlier peak incremental 24 hourly PM10 concentrations have been computed using hourly meteorological data and given in Table

Points	Locations	Base Line Value	Incremental Values	Total Projected	Base Line Value	Incremental Values	Total Projected
		PM10			PM 2.5		
A1	Tarangi within lease area	61.5	4.26	65.8	37.5	1.49	39
A2	Rohira (Vasa)	60.9	1.62	62.5	37.0	0.1	37.1
A3	Rohira Village	59.4	1.22	60.6	36.2	1.0	37.2
A4	Delder	67.1	0.56	67.7	40.3	0.22	40.5
A5	Wada	56.4	2.17	58.6	34.2	1.0	35.2
A6	Bhimana	64.3	0.78	65.1	39.0	0.6	39.6
A7	Urwariya	55.5	0.316	55.8	36.5	0.2	36.7
A8	Hirawala	57.2	4.26	61.5	34.6	0.75	35.4

2.1.7 Impact of Noise Level & Vibration

Once the mine becomes operational, there will be various sources of noise in the area as listed below:

- Operation of HEMM
- Workshop
- Vehicular movement
- Mining machinery like excavators, dump trucks, dozers, rock breakers, compressors, wheel loaders, etc.
- Plant equipment and machineries like crusher, vibratory screens, conveyors, loaders, etc.
- Mineral transportation vehicles
- DG sets

❖ Crusher

The basic data considered for the input for different sources are given below. Considering combinations of various sources at any given point of time the cumulative noise levels for the worst scenarios were computed.

S. No.	Particulars of noise sources	Noise levels at 15 feet, $d_{B(A)}$
1.	Dumpers /tippers	85
2.	Drilling	90
3.	Excavators	85
4.	Crusher	85

The predicted noise levels in the nearby villages, considering without EMP i.e., that there is no attenuation on account of barriers or green belt/ plantation and with EMP will be as follows:-

Noise level increase due to mining activities such as excavation, handling and transportation of ore and overburden and operation of processing equipment. The results presented in format in **Table 2.2**

Table 2.2: Predicted Noise Levels

Location	Existing Leq(day)	Predicted (max.)		Resultant (max.)		Standards
		Without EMP	With EMP	Without EMP	With EMP	
Tarangi (within the Lease Area)	51.7	65.6	59.6	65.7	60.2	75
Rohira (Vasa)	50.3	39.5	33.5	50.6	50.4	55
Near Village (Rohira)	52.5	34.4	28.4	52.6	52.5	55
Delder	53.9	37.3	31.3	54	53.9	55
Wada	49.5	44	38	50.6	49.8	55
Bhimana	52.9	34.9	28.9	53	52.9	55
Urwariya	50.9	25.2	19.2	50.9	50.9	55
Hirawala (within the Lease Area)	51.4	44	38	52.1	51.6	75

All values are in $d_{B(A)}$

2.1.8 Impact on Ground and Surface Water Quality

It is observed that no toxic / trace / heavy metals / elements, biological and radiological elements are present in the water samples analyzed. The surface water samples are compared with IS: 2296-1982, Class C Norms (SWS) and the ground water samples with IS: 10500-1991 Norms (DWS) and they are all found to be within the limits.

No leachable heavy / toxic metals / elements are present in the ore and the wastes to be generated. The suspended solids content in the surface water samples are also well within the limits and therefore there shall be no effect on aquatic life.

The accumulated water settles into the pit. The pit water is allowed to settle in the large sump created below the lower most bench workings and the water accumulated in this sump shall be periodically pumped to the surface.

2.1.9 Impact on Biological Environment

The existing vegetation cover within the mining lease area will be removed during the course of mining in a phased manner that too in the specific areas earmarked for various activities as per the approved Mining Plan. However, the plantation activity within and outside the lease will help to compensate the damage. There will not be any removal of vegetation outside the lease area. The impact of mining activities within Mining Lease and transport of limestone ore outside the mining lease in buffer zone particularly on noise, vibration, dust etc. may directly or indirectly affect the floral and faunal composition. The magnitude to this impact can be low to moderate.

The impacts will be minimized by opting for plantation with locally available varieties of species to make up for the lost vegetation. The impact of flora will be limited to core zone only as there will not be any removal of vegetation outside the core zone.

Mount Aabu Wildlife Sanctuary has been found within 10 km radius of the proposed Rohida Limestone Mine Block. Therefore, impact due to mining, Crusher and allied activities is envisaged from this project. There is no reported migratory path of wildlife or bird species of threatened or protected species. The transport route of the mineral also lies away from these areas. Plantation activities and creation of water reservoir at the conceptual stage will help to improve the biodiversity of the area.

(i) **Anticipated Effect on Vegetation and animal:**

- The proposed Mining Crusher project may have adverse effects on the vegetation of the desert, which is a fragile and arid ecosystem. Some of the possible effects are:

- Loss of biodiversity and endemic species due to land clearing, excavation, quarrying, and construction activities.
- Reduced photosynthesis and growth of plants due to dust deposition, air pollution, and noise disturbance.
- Altered soil properties and nutrient cycles due to dust, which is alkaline and contains heavy metals.

- These effects may threaten the survival and productivity of the plants, which are important for the livelihoods and culture of the local people

(ii) **Qualitative changes in the Wildlife habitat pattern in the WCP area**

There is no forest land involved in the core zone and buffer zone, and no movement of wildlife or any major threats have been observed in the mine area. To assess the anticipated degradation resulting from the project implementation and its qualitative impacts on the Wildlife habitat pattern in the WCP (Wildlife Conservation Plan) area, a comprehensive Environmental Impact Assessment (EIA) have been conducted. The EIA had use appropriate models and methodologies to quantify the potential anticipated impact of the project on the environment and wildlife.

(iii) Nature of threats to the flora and fauna on account of the project implementation and increased human presence.

Table: 2.3 Impact evaluation for biological resources

Impact Evaluation Element	Change in the biological resources of the area due to the proposed project operation and generation of emissions			
Potential Effect/ Concern	Loss of habitat, Impact on health of biological receptors due to area and line sources of air emissions including fugitive dust emissions during operation activities.			
Characteristics of Impacts				
Nature	Positive		***Negative***	Neutral
			√	
Type	***Direct***	Indirect	Cumulative	
	√			
Extent	Project Area	***Local***	Zonal	Regional
		√		
Duration	Short – term		***Long- term***	
			√	
Intensity	***Low***		Medium	High
	√			
Frequency	Remote (R)	Occasional (O)	Periodic (P)	**Continuous (C)**
				√
Significance of Impact				
Significance	Insignificant	***Minor***	Moderate	Major
		√		

(vi) Description of Schedule-I species found in 10 Km. radius of Project Area

S.No.	Common Name	Scientific Name	Family	Status as per (IWPA 2022), Schedule
MAMMALS				
1	Leopard	*Panthera pardus*	Felidae	I
2	Sambar deer	*Rusa unicolor*	Cervidae	I
3	Jungle Cat	*Felis chaus*	Felidae	I
4	Common Palm Civet	*Paradoxurus hermaphroditus*	Viverridae	I
5	Indian Wolf	*Canis lupus*	Canidae	I
6	Striped Hyaena	*Hyaena hyaena*	Hyaenidae	I
7	Jackal	*Canis aureus*	Canidae	I
8	Indian Fox	*Vulpes bengalensis*	Canidae	I
9	Indian Porcupine	*Hystrix indica*	Hystricidae	I
10	Sloth Bear	*Melursus ursinus*	Ursidae	I
REPTILES				
1	Indian Cobra	*Naja naja*	Elapidae	I
2	Common Rat Snake	*Ptyas mucosus*	Colubridae	I
3	Bengal Monitor Lizard	*Varanus bengalensis*	Varanidae	I
AVIFAUNA				
1	Indian Peafowl	*Pavo cristatus*	Phasianidae	I
2	Shikra	*Tachyspiza badia*	Accipitridae	I

1. Mammal

(i) Panthera pardus I (Leopard)

Kingdom	:	Animalia
Phylum	:	Chordata
Class	:	Mammalia
Order	:	Carnivora
Family	:	Felidae
Genus	:	Panthera
Species	:	P. Pardus

Legal Status	**Status**
The Wild Life (Protection) Amendment Act, 2022 Dated 20th December, 2022	**Schedule I**
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	Vulnerable
CITES	Appendix I
IUCN:	Vulnerable

Description

The Indian leopard (Panthera pardus fusca) is a leopard subspecies widely distributed on the Indian subcontinent and classified as Near Threatened by IUCN since 2008. The species Panthera pardus may soon qualify for the vulnerable status due to habitat loss and fragmentation, heavy poaching for the illegal trade of skins and body parts in Asia, and persecution due to conflict situations. They are becoming increasingly rare outside protected areas. The trend of the population is decreasing. The Indian leopard is one of the five big cats found in India, apart from Asiatic lion, Bengal tiger, snow leopard and clouded leopard.

Habitat

On the Indian subcontinent, topographical barriers to the dispersal of this subspecies are the Indus River in the west, and the Himalayas in the north. In the east, the lower course of the Brahmaputra and the Ganges Delta form natural barriers to the distribution of the Indochinese leopard. Indian leopards are distributed all over India.

Diet

The diet of Indian leopards includes axis deer, sambar deer, nilgai, wild pig, common langur, hare and peafowl. Although they are smaller than most other members of the genus Panthera, they are able to take large prey due to their massive skulls and powerful jaw muscles.

Threats and Conservation Measures

Threats

Poaching A significant immediate threat to wild leopard populations is the illegal trade in poached skins and body parts between India, Nepal and China. Illegal trade in Leopard body parts (skin, bones, and claws) continues to threaten the survival of the species in the wild. The governments of these countries have failed to implement adequate enforcement response, and wildlife crime remained a low priority in terms of political commitment and investment for years. There are well-organized gangs of professional poachers, who move from place to place and set up camp in vulnerable areas. Skins are rough-cured in the field and handed over to dealers, who send them for further treatment to Indian tanning centers. Buyers choose the skins from dealers or tanneries and smuggle them through a complex interlinking network to markets outside India, mainly in China. In May 2010, the Wildlife Protection Society of India estimated that in India at least 3,189 leopards were killed since 1994. For every tiger skin, there are at least seven leopard skins in the haul.

Conservation Measures

(i) Strict Protection Measures

The Wild Life (Protection) Act of 1972 provides us with the statutory framework for wildlife conservation, and Poaching is a deadly crime against wildlife. Few poachers are caught or punished. One solution that would fit just about any circumstance though, would be to administer stiffer laws and harsher sentences for those caught poaching. During formal interview and discussion with local it was noted that study area is not prone to poaching or any other wildlife violence related to leopard or any other species. But, precaution will be always taken while dealing with wildlife.

(ii) Habitat conservation

Threats Loss of forested areas outside parks and reserves poses a major threat to leopard because it causes population fragmentation, thereby leaving small, nonviable populations within the parks or their movements in human territories which raise conflicts. Furthermore, habitat degradation outside the parks, caused by overgrazing, overharvest of

forest products, expansion of agricultural areas, and mining of minerals also possess threats to the habitat of species.

(ii) Conservation Measures Habitat improvement

Leopard lives in a variety of dry and wet forests, and also in some grassland, where boulders and scattered shrubs and trees provide shelter. The leopard has the widest habitat tolerance of any big cat in India. Habitat of the species will be improved by planting suitable species in surrounding areas. The prey species preferred by leopard will be conserved to insure sufficient prey availability, which will also reduce the conflict with humans. The prey species preferred by leopard will be conserved to insure sufficient prey availability which will also reduce the conflicts with humans

Human - Leopard Conflicts

Expansion of agriculturally used land, encroachment of humans and their livestock into protected areas are main factors contributing to habitat loss and decrease of wild prey. Leopards approach human settlements, where they are tempted to prey on dogs, pigs, goats and other domestic livestock's, which constitutes an important part of their diet, if they live on the periphery of human habitations. Human-leopard conflict situations ensue, and have increased in recent years. In retaliation for attacks on livestock, leopards are shot, poisoned and trapped in brutal snares. Leopard-human conflict is a serious problem in India and the subcontinent and is another cause of significant mortality of Leopards. India's Forest Department is entitled to set up traps only in cases of a leopard having attacked humans.

Conservation Measures, Biological Fences

Conflicts generally arises when leopard enters in croplands and human settlements, which indirectly reflect the condition of adjacent forested areas; i.e. its ability to support leopard. Protective Fencing to Protect Livestock: Biological fences will be used to protect the livestock from the leopard attack. Nursery is to be developed for producing plantation species.

Public Awareness Programme

Involvement of local people in conservation activities will be ensured by organizing meetings and seminars from village to village on regular basis to carry the people along with implementation. Functions like van mahotsav, wildlife week, world forestry day, and world environment day will be organized in a befitting manner to which village heads and other members of gram panchayat, local leaders and members of regional NGO may be invited.

(iii) *Rusa unicolor* (Sambar Deer)

Kingdom: Animalia
Phylum : Chordata
Class : Mammalia
Order : Artiodactyla
Family : Cervidae
Genus : Rusa
Species : Rusa unicolor

Legal Status	Status
The Wild Life (Protection) Amendment Act, 2022 Dated 20th December, 2022	**Schedule I**
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	Vulnerable
CITES	Appendix I
IUCN:	Vulnerable

The sambar (*Rusa unicolor*) is a large deer native to the Indian subcontinent, South China and Southeast Asia that is listed as a vulnerable species on the IUCN Red List since 2008. Populations have declined substantially due to severe hunting, local insurgency, and industrial exploitation of habitat. Sambar is nocturnal or crepuscular. The males live alone for much of the year, and the females live in small herds of up to 16 individuals. Indeed, in some areas, the average herd consists of only three or four individuals, typically consisting of an adult female, her most recent young, and perhaps a subordinate, immature female. This is an unusual pattern for deer, which more commonly live in larger groups. They often congregate near water, and are good swimmers. Like most deer, sambar is generally quiet, although all adults can scream or make short, high-pitched sounds when alarmed. However, they more commonly communicate by scent marking and foot stamping.

Sambar feed on a wide variety of vegetation, including grasses, foliage, browse, fruit, and water plants, depending on the local habitat. They also consume a great variety of shrubs and trees. Sambar have been seen congregating in large herds in protected areas such as national parks and reserves in India, Sri Lanka, and Thailand. In Taiwan, sambar along with sika deer, have been raised on farms for their antlers, which they drop annually in April to May and are highly prized for use as knife handles and as grips for

handguns. They are the favourite prey of tigers and Asiatic lions. In India, the sambar can comprise up to nearly 45% of the biomass consumed by the Bengal tiger. Anecdotally, the tiger is said to even mimic the call of the sambar to deceive it while hunting. They also can be taken by crocodiles, mostly the sympatric mugger crocodiles and saltwater crocodiles. Leopards and dholes largely prey on only young or sickly deer, though they can attack healthy adults as well.

***(iv) Felis chaus (*Banabiradi, Katash)**

Kingdom : Animalia
Phylum : Chordata
Class : Mammalia
Order : Carnivora
Suborder : Feliformia
Family : Felidae
Subfamily: Felinae
Genus : Felis
Species : F. chaus

Legal Status	Status
The Wild Life (Protection) Amendment Act, 2022 Dated 20th December, 2022	**Schedule I**
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	LC
CITES	Appendix I

The jungle cat is a medium-sized, long-legged cat, and the largest of the extant *Felis* species. The jungle cat is found in the Middle East, the Caucasus, the Indian subcontinent, central and Southeast Asia, Sri Lanka and in southern China. The jungle cat is typically diurnal and hunts throughout the day. Its activity tends to decrease during the hot noon hours. It rests in burrows, grass thickets and scrubs.

Primarily a carnivore, the jungle cat prefers small mammals such as gerbils, hares and rodents. It also hunts birds, fishes, frogs, insects and small snakes.

Major threats

The Jungle Cat encounters conflicts with humans when it ventures into villages in search of poultry, leading to its unfortunate demise. In addition,

the species faces the challenges of habitat loss and diminishing prey availability. As human settlements expand and agricultural activities encroach upon their natural habitats, the Jungle Cat's ability to find suitable hunting grounds is compromised. Furthermore, the decline in prey populations, including small mammals and birds, further adds to the conservation concerns for the species.

Conservation Measures

Conservation measures for the Jungle Cat include protecting its habitats, restoring degraded areas, mitigating human-wildlife conflicts, strengthening anti-poaching efforts, conducting research and monitoring, fostering collaborations, and raising public awareness. These actions aim to ensure the long-term survival and well-being of the Jungle Cat.

*(v) Paradoxurus hermaphroditus (*Common Palm Civet)

Kingdom : Animalia
Phylum : Chordata
Class : Mammalia
Order : Carnivora
Family : Viverridae
Subfamily: Paradoxururinae
Genus : Paradoxurus
Species : P. hermaphroditus

Legal Status	Status
The Wild Life (Protection) Amendment Act, 2022 Dated 20th December, 2022	**Schedule I**
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	LC
CITES	Appendix III

Geographic Range

Asian palm civets (Paradoxurus hermaphroditus) are native to regions within and around Asia, ranging as far east as the Philippines and as far west as Kashmir. They are widespread but are mostly found in southern China, northern Himalayas, southern India, and islands in the Indian Ocean, South China Sea, and the Philippine Sea.

Habitat

Sian palm civets can live in a variety of habitats. They naturally live in temperate and tropical forests, but in developed areas they are also found in parks, suburban gardens, plantations, and fruit orchards. Where these civets choose to live depends mostly on the availability of food and presence of areas they can rest in, like tree hollows, rock crevices, or dense foliage. Asian palm civets are arboreal so they spend most of their time in fruit trees and fig trees, preferring the tallest trees with very dense canopies and vines for seclusion and protection.

Common palm civet is thought to lead a solitary lifestyle, except for brief periods during mating. It is both terrestrial and arboreal, showing a nocturnal activity pattern with peaks between late evening until after midnight. It is usually active between dawn and 4:00 in the morning, but less active during nights when the moon is brightest.

Scent marking behaviour and olfactory response to various excretions such as urine, feces, and secretion of the perineal gland differs in males and females. Scent marking by dragging the perineal gland and leaving the secretion on the substrate was most commonly observed in animals of both sexes. The duration of the olfactory response varied and depended both on the sex and excretion type. The palm civet can distinguish animal species, sex, familiar and unfamiliar individuals by the odor of the perineal gland secretion.

(V) Canis Lupus (Siyal)

Kingdom: Animalia
Phylum : Chordata
Class : Mammalia
Order : Carnivora
Family : Canidae
Genus : Canis
Species: C. lupus

Legal Status

Legal Status	Status
Indian Wildlife Protection Act 1972 (IWPA, 1972)	Schedule I
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	-

CITES	Appendix I
IUCN	Threatened

Description

The Indian wolf (*Canis lupus*) is a subspecies of grey wolf that ranges from Southwest Asia to the Indian Subcontinent. The Indian wolf is similar in structure to the European wolf, but is smaller, more slightly built, and has shorter fur with little to no under fur. Their habit is similar to those of other grey wolf subspecies, though the Indian wolf generally lives in smaller packs rarely exceeding 6-8 individuals, and is relatively less vocal, having rarely been known to howl. It typically preys on antelopes, rodents, and hares. It usually hunts in pairs when targeting antelopes, with one wolf acting as a decoy while the other attacks from behind and breed from mid-October to late December, and whelp in holes or ravines

The highest level of protection accorded to the wolves in India, hunting remains rampant and is a major cause of concern. Killing of adult wolves and pups by local sheepherders is common throughout the range of the wolf. Conflict with humans for livestock depredation, depletion of prey species (like blackbuck, hare) due to livestock, exaggerated public fear regarding their danger, and fragmented habitats that are too small for populations with long-term viability are threatening their survival today.

Ecology and Behaviour

It belongs to dog family (Canidae). It resembles *Canis lupes pallipes* in its outer appearance (morphological features) and its social/reproductive behaviour, but it is smaller in size, and weighs 25 kg on average, which may be the lowest of all wolves. Indian wolf is smaller, more slightly built, and has shorter fur. The fur is generally greyish red to reddish-white with grey tones. The hairs are grizzled with black, particularly on the back, which sports a dark V-shaped patch around the shoulders.

Indian wolf generally lives in smaller packs rarely exceeding 6-8 in number, and is relatively less vocal, having rarely been known to howl.
It typically preys on antelopes, rodents, and hares. It usually hunts in pairs when targeting antelopes, with one wolf acting as a decoy while the others attacking from behind.

Breeding

It tends to breed from mid-October to late December, and whelp in holes or ravines. The Indian wolf is a social animal, whose basic social unit consists of a mated pair, accompanied by the pair's adult offspring. The average

pack consists of a family of 5–11 animals (1–2 adults, 3–6 juveniles and 1–3 yearlings).

Conservation Measures for Indian wolf

Habitat Improvement: - It is important that sufficient prey or food is available in the forest and beyond the buffer area of proposed expansion project site. Through the study area supports fair number of domesticated animals and rodents which can be prey for Indian wolf, as part of conservation plan for this predator, habitat protection and improvement, especially the food, availability of water and salt licks are of priority. The Sheep, Goats, Mule deer, hare, cattle and main rodents are important prey species for Indian wolf in this region. Apart from food, there should be enough natural shelter and cover.

***(vi) Hyaena hyaena (*Striped hyena)**

Kingdom : Animalia
Phylum : Chordata
Class : Mammalia
Order : Carnivora
Suborder: Feliformia
Family : Hyaenidae
Genus : Hyaena
Species : H. Hyaena

Legal Status	Status
Indian Wildlife Protection Act 1972 (IWPA, 1972)	Schedule I
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	-
CITES	Appendix I
IUCN	Near Threten

The striped hyena (Hyaena hyaena) is a species of hyena native to North and East Africa, the Middle East, the Caucasus, Central Asia, and the Indian subcontinent. It is the only extant species in the genus Hyaena. It is listed by the IUCN as near-threatened, as the global population

Diet

The striped hyena is primarily a scavenger which feeds mainly on ungulate carcasses in different stages of decomposition, fresh

bones, cartilages, ligaments, and bone marrow. It crushes long bones into fine particles and swallows them, though sometimes entire bones are eaten whole.

Human Conflict

In ordinary circumstances, striped hyenas are extremely timid around humans, though they may show bold behaviours toward people at night. On rare occasions, striped hyenas have preyed on humans.

***(vii)* Indian Golden Jackal (*CanisAureus*)**

Kingdom: Animalia
Phylum : Chordata
Class: mammalia
Order: Carnivora
Family:Canidae
Genus: Canis
Species: C. aureus

Legal Status	**Status**
Indian Wildlife Protection Act 1972 (IWPA, 1972)	**Schedule I**
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	-
CITES	Appendix I
IUCN	LC

Description

Golden Jackal is an extremely adaptable canid found commonly in forested, scrub, savanna, semi-arid, grassland, agro-pastoral, and even in semi-urban habitats of entire Gujarat. Jackals could be distinguished by their size smaller than wolves and larger than foxes. Golden body and dark black fur on back with up raised ears, short legs, bushy tail and shorter snout, typical chorus howling and the way they walk could help us to distinguish them from wolves and foxes. They usually live in pairs and gather in a large number while feeding over a carcass, dumping sites in the outskirts of villages etc.

The jackals are chiefly scavengers but sometimes even kill fawns, rats, hare, small goat, sheep etc. The howling of jackals is heard in rural areas, in peripheries of towns and in wilderness. They breed in summer and

deliver 3-5 small puppies in roadside crevices, gullies, nallas in entire Gujarat.

Home range and foraging Behavior:
Jackal is scavenger and sometimes it hunts small prey like rodents. There was close watch on focal animal pack. It is observed that they come out from their den at around 4 o'clock.
Jackal-human conflict: Jackal is successful hunter, especially of rodents although they are scavenger. They tolerate human presence more readily than the wolf. Jackal human conflict is one of the main constraints to biodiversity conservation efforts near and outside many protected areas worldwide

***(viii) Vulpes bengalensis (*Kokisiali)**

Kingdom : Animalia
Phylum : Chordata
Class : Mammalia
Order : Carnivora
Family : Canidae
Genus : Vulpes
Species : *V. Bengalensis*

Legal Status	**Status**
The Wild Life (Protection) Amendment Act, 2022 Dated 20th December, 2022	**Schedule I**
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	-
CITES	Appendix III
IUCN:	Least Concern

The Bengal fox (*V. bengalensis*), also known as the Indian fox, is a fox endemic to the Indian subcontinent. *Vulpes bengalensis* is a relatively small fox with an elongated muzzle, long, pointed ears, and a long, bushy tail. The pelage ranges in color from buff to silver-gray with an overall grizzled effect; the dorsal pelage is mostly grayish and paler ventrally.

Bengal foxes are Omnivorous and Opportunistic Feeders, Feeding Primarily On Insects, Small Mammals, Reptiles, Small Birds, And Fruits

The Major threats to Bengal Foxes are Habitat loss, Hunting, and Disease. Habitat loss and Fragmentation have a negative impact on Bengal Fox populations. As human activities expand, Foxes lose their natural habitats

like Grasslands and Deserts to Agriculture and Urbanization. This reduces the availability of suitable

AREAS FOR THE FOXES TO LIVE AND FIND FOOD. POACHING ALSO NEGATIVELY IMPACTED TO BENGAL FOXES POPULATION. ILLEGAL HUNTING FOR FUR OR BODY PARTS LEADS TO POPULATION DECLINE.

Bengal Foxes act as ecosystem engineers, influencing vegetation structure and soil composition through their burrowing activities. These changes, in turn, affect other species and contribute to the overall biodiversity of the area. Efforts to be made to protect Bengal Foxes and preserve the biodiversity they help sustain.

***(ix) Hystrix indica (*Indian poreupine)**

Kingdom : Animalia
Phylum : Chordata
Class : Mammalia
Order : Rodentia
Family : Hystricidae
Genus : *Hystrix*
Species : *H. Indica*

Legal Status	Status
The Wild Life (Protection) Amendment Act, 2022 Dated 20th December, 2022	Schedule I
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	-
CITES	Appendix III
IUCN:	Least Concern

Description

The Indian crested porcupine (*Hystrix indica*) is a Hystricomorph rodent species native to southern Asia and the Middle East. It is listed as Least Concern on the IUCN Red List. It belongs to the Old World porcupine family, Hystricidae. The Indian crested porcupine is a large rodent, weighing 11–18 kg. The lifespan of an Indian crested porcupines in the wild is unknown, however, the oldest known Indian crested porcupine in captivity was female; and lived up to be 27.1 years old. It is covered in multiple layers of modified hair called quills, with longer, thinner quills covering a layer of shorter, thicker ones. The quills are brown or black with alternating white and black bands. Indian crested porcupines mate in February and March. Gestation lasts an

average of 240 days. A female gives birth to one brood of two to four offspring per year.

Habitat

Indian Porcupines are found throughout India along with southwest and Central Asia. Due to their flexible environmental tolerances, Indian crested porcupines occupy a broad range of habitats. They prefer rocky hillsides, but are also common in tropical and temperate shrublands, grasslands, forests, plantations, and gardens. Their range seems to be limited by seasonal densities of forage and the availability of suitable substrates for digging burrows.

Diet

Indian Porcupines have a very broad and mostly herbivorous diet. They consume a variety of natural and agricultural plant material, including roots, bulbs, fruits, grains, drupe and tubers, along with insects and small vertebrates

Threats and Conservation Measures

Threats

Indian Porcupine is threatened by habitat loss and hunting for its meat and quills. The Porcupine is eaten by large cats, wolves, hyenas. but, of course, its biggest threat is humans, specially farmers and tribal, who hunt them relentlessly. there exists a large trade of these porcupines for consumption and so-called indigenous medicinal use. A market exists for quills and claws – sellers even offer them on the notorious ebay. These are used for jewellery, fly fishing ties, decorations and religious symbols.

Conservation Measures

Due to its adaptability to a wide range of habitats and food types, the Indian crested porcupine is listed by the IUCN Red List as Least Concern as of 2008. Populations are stable and not severely fragmented, and while population status varies across its range, in many places it is common enough to be considered a pest. However, as a result of urbanization, infrastructure development, and pesticide use, suitable porcupine habitat is currently declining.

(x) Sloth Bear (*Melursus Ursinus*)

Kingdom : Animalia

Phylum : Chordata

Class : Mammalia

Order : Carnivora

Family : Ursidae

Genus : Melursus

Species : M. Ursinus

Legal Status	Status
Indian Wildlife Protection Act 1972 (IWPA, 1972)	Schedule I
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	-
CITES	Appendix I
IUCN	Vulnerable

The sloth bear (*Melursus ursinus*), also known as the Stickney bear or Labiated bear is a nocturnal insectivorous bear species found wild within the Indian Subcontinent. The sloth bear evolved from ancestral brown bears during the Pleistocene and shares features found in insect eating mammals through convergent evolution. Unlike brown and black bears, sloth bears have lankier builds, long, shaggy coats that form a mane around the face, long, sickle shaped claws, and a specially adapted lower lip and palate used for sucking insects. Sloth bears breed during spring and early summer and give birth near the beginning of winter. They feed on termites, honeybee colonies, and fruits. Sloth bears sometimes attack humans who encroach on their territories. Historically, humans have drastically reduced their habitat and diminished their population by hunting them for food and products such as their bacula and claws. These bears have been used as performing pets due to their tameable nature.

2.1.10 Habitat and Behavior:

Sloth Bears once ranged throughout all the forests of India. Unfortunately, due to habitat loss the cubs are being poached and traded for illegal use as 'Dancing' Bears.

Sloth bears are widely distributed from Himalayan foothills to the coastal plains. Being omnivorous they relish mostly on fruits, so they like the habitats of scrub-land, grass-land & fruit bearing tree (mostly Mahua).

Adult sloth bears may travel in pairs, with the males being gentle with cubs. They may fight for food. They walk in a slow, shambling motion, with their feet being set down in a noisy, flapping motion. They are capable of galloping faster than running humans. Although they appear slow and clumsy, sloth bears are excellent climbers, including cubs. They climb to feed and rest, though not to escape enemies, as they prefer to stand their

ground. Sloth bear mothers carry cubs up to 9 months old on their backs instead of sending their cubs up trees as the primary defence against attacks by predators, such as tigers, leopards, and other bears. They are capable of climbing on smooth surfaces and hanging upside down like sloths. They are good swimmers, and primarily enter water to play. To mark their territories, sloth bears will scrape trees with their forepaws, and rub against them with their flanks. Sloth bears have a great vocal range. Sounds such as barks, screams, grunts, roars, snarls, whickers, woofs, and yelps are made when angered, threatening, or when fighting. When hurt or afraid, they shriek, yowl, or whimper. Sounds such as gurgling or humming are made by bears resting or sucking their paws. Sows will emit crooning sounds to their cubs. The species is the most vociferous when mating, and make loud, melodious calls when doing so. Sloth bears do not hibernate. They make their day beds out of broken branches in trees, and rest in caves during the wet season.

Diet:

Sloth bears are expert hunters of termites, which they locate by smell. On arriving at a mound, they scrape at the structure with their claws till they reach the large combs at the bottom of the galleries, and will disperse the soil with violent puffs. The termites are then sucked up through the muzzle, producing a sucking sound which can be heard 180 m away. Their sense of smell is strong enough to detect grubs three feet below ground. Unlike other bears, they do not congregate in feeding groups. They rarely prey on other mammals. Sloth bears may supplement their diet with fruit and plant matter; in March and April, they eat the fallen petals of mowha trees and are partial to mangoes, sugar cane, the pods of the golden shower tree and the fruit of the jack tree. Sloth bears are extremely fond of honey. When feeding their cubs, sows are reported to regurgitate a mixture of half digested jack fruit, wood apples, and pieces of honeycomb. This sticky substance hardens into dark yellow, circular, bread like mass which is fed to the cubs. This "bear's bread" is considered a delicacy by some of India's natives.

Reproduction:

The breeding season for sloth bears varies according to location: in India, they mate in April, May, and June, and give birth in December and early January. Sows gestate for 210 days, and typically give birth in caves or in shelters under boulders. Litters usually consist of one or two cubs, or rarely three. Cubs are born blind, and open their eyes after four weeks. Sloth bear cubs develop quickly compared to most other bear species: they will start walking a month after birth, become independent at 24–36 months, and become sexually mature at the age of three years. Young cubs will ride on their mother's back when she walks, runs, or climbs trees

until they reach a third of her size. Individual riding positions are maintained by cubs through fighting. Intervals between litters can last two to three years.

2.1.11 Conservation Status:

IUCN estimates that less than 20,000 sloth bears survive in the wilds of the Indian subcontinent and SriLanka. The sloth bear is listed in Schedule I of the Indian Wildlife Protection Act, 1972, which provides for legal protection of sloth bears. International trade of the sloth bear is prohibited as it is listed in Appendix I of the Convention on International Trade in Endangered Species. To address the human bear conflict, people may be educated about the conservation ethics, particularly among locals. To resolve this conflict, the basic issue of deteriorating habitat, which is the reason for the conflict between people and bears, improvements through government or community based reforestation programmes, may be promoted. The population of sloth bears grows when they live in high profile reserves that protect species, such as tigers and elephants. Directly managed reserves could conserve the sloth bear and hence such reserves must be supported.

2.1.12 Threats and Conservation Activities:

There are many threats of Sloth Bear. Bengal tigers will occasionally prey on sloth bears. Indian leopards can also be a threat, as they are able to follow sloth bears up trees. Dhole packs may attack sloth bears, though they are not a usual prey item. Asian elephants apparently do not tolerate sloth bears in their vicinity. Most of the time, due to habitat loss the cubs are being poached and traded for illegal use as 'Dancing' Bears".

The government of India has banned use of sloth bears for entertainment, and a 'Sloth Bear Welfare Project' in the country has the objective of putting an end to the use of sloth bears for entertainment. However, their number in such activity is still large. Many organizations are helping in the conservation and preservation of sloth bears in safe places.

There are three major bear sanctuaries in India for conservation of sloth bears:

1. Daroji bear sanctuary, Karnataka
2. Gudekote bear sanctuary (created recently), in Karnataka
3. Jessore bear sanctuary, Gujarat.

2. Reptiles

(i) Naja naja (Indian Cobra)

Kingdom : Animalia
Phylum : Chordata
Class : Reptilia
Order : Squamata
Family : Elapidea
Genus : Naja
Species : N. Naja

Legal Status	Status
The Wild Life (Protection) Amendment Act, 2022 Dated 20th December, 2022	**Schedule I**
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	-
CITES	Appendix II
IUCN:	Least Concern

Description

The Indian cobra (Naja naja), also known commonly as the Spectacled cobra, Asian cobra, or Binocellate cobra, is a species of cobra, a venomous snake in the family Elapidae. The species is native to the Indian subcontinent, and is a member of the "big four" species that are responsible for the most snakebite cases in India. As venomous snakes that can be common in agricultural land, cobras are also subject to persecution. In India, this snake is protected by the Wildlife (Protection) Act, 1972. It is present in many protected areas. Indian cobras are oviparous and lay their eggs between the months of April and July.

Habitat

The Indian cobra is a highly adaptable species and is found in a wide variety of habitats ranging from moist evergreen forests, tropical dry deciduous forests, grassland habitat and dry scrub jungle to rice paddies. It is also found in artificial habitats and other agricultural lands. They can also be found near human habitations. They are diurnal snakes (though often seen in late evening hours) and take shelter in granaries, degraded termite mounds, earth dams, rock piles during the day.

Diet

The Indian cobra feeds on rodents, lizards and frogs. It bites quickly, and then waits while its venom damages the nervous system of the prey,

paralyzing and often killing it. Like all snakes, N.naja swallows its prey whole.

Threats and Conservation Measures

Threats

Snakes are ectothermic predators that are declining globally. Degradation of natural habitats is considered the main responsible factor for the decline, which involves geographic shifs caused by climate change, and human impact resulting in the gradual extinctions of local populations, leaving snake species vulnerable due to their poor dispersal ability. Because cobras often live near human's settlements, they are responsible for a large part of snakebite incidents and as such pose a challenge for public health systems. Therefore, Human is the major threat for cobras

Conservation Measures

Although the Indian Cobra is not an endangered species, it has recently been hunted for its distinctive hood markings in the production of handbags. It is listed under the CITES treaty because it closely resembles other species that are threatened and in need of protection.

***1. Ptyas Mucosus* (Dhamana)**

English name : Rat Snake
Scientific name : Python molurus
Kingdom : Animalia
Phylum : Chordata
Order : Squamata
Family : Colubridae
Genus : Ptyas
Species : P. mucosa

Legal Statute	Status
Indian Wildlife Protection Act 1972 (IWPA, 1972)	**Schedule I**
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	-
CITES	-
IUCN	LC

Python mucosa, commonly known as the Oriental rat snake, dhaman or Indian rat snake, is a common non-venomous species of colubrid snake found in parts of South and Southeast Asia. Dhamans are large snakes.
Adult rat snakes have no natural predators, although younger specimens are the natural prey of King cobras that overlap them in their range. Juveniles fear birds of prey, larger reptiles, and mid-sized mammals. Rat snakes and related colubrids are aggressively hunted by humans in some areas of their range for skins and meat. Harvesting and trade regulations exist in China and Indonesia, but these regulations are often ignored
Rat snakes, though harmless to humans, are fast-moving, excitable snakes. In captivity, they are territorial and may defend their turf aggressively, attempting to startle or strike at passing objects. Rat snakes are diurnal and semi-arboreal. They inhabit forest floors, wetlands, rice paddies, farmland, and suburban areas where they prey upon small reptiles, amphibians, birds, and mammals.

***Varanus bengalensis* (Large bengal lizard)**

Kingdom: Animalia
Phylum : Chordata
Class : Reptilia
Order : Squamata
Family : Varanidae
Genus : *Varanus*

Legal Statute	**Status**
Indian Wildlife Protection Act 1972 (IWPA, 1972)	Schedule I
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	-
CITES	Appendix I
IUCN	Least Concern

Monitor lizard differs greatly from other lizards in several ways, possessing a relatively high metabolic rate for reptiles, and several adaptations that benefit the hunting of live prey. Morphological details of Indian Monitor Lizard are generally large reptiles, although some can be 20 cm in length.

They have long necks, powerful tails and claws. Indian monitor lizard is carnivorous. They are oviparous, laying from seven to thirty-seven eggs, which they often cover with soil or protect in a hollow tree stump.

Habitat and Behavior:

This large semi-aquatic lizard is found across south and Southeast Asia, including India and the Andaman and Nicobar islands. The Andaman water monitor is found in not only in the Andaman Islands, but also in the southern Nicobar islands.
Call hissing when threatened and sneezing like sound. Their primary method of communication is via their movement and their posture.

Diet:

Predominantly carnivorous diet, eating eggs, smaller reptiles, birds and small mammals.

Reproduction:

Regressed Phase (September - October), Recrudescent Phase (April - June), Post ovulatory Phase (June & July).

Conservation status:

According to IUCN Red List of threatened species, most of the monitor lizards' species fall in the categories of least concern, but the population is decreasing globally. All but five species of monitor lizards are classified by the Convention on International Trade in Endangered Species of Wild Fauna and Flora under Appendix II, which is loosely defined as species that are not necessarily threatened with extinction, but may become so unless trade in such species is subject to strict regulation to avoid use incompatible with the survival of the species in the wild.
The yellow monitor, V. flavescens, is protected in all range countries except Bhutan, Nepal, India, Pakistan, and Bangladesh.
In Tamil Nadu and all other parts of South India, catching or killing of monitor lizards is banned under the Protected Species Act.

Threats and Conservation Activities:

Man has extensively exploited lizards including monitor lizards for food and his social needs. In India Monitor Lizards are eaten and they are also as source of leather. Live monitors are used in India in fertility rites, or serpent festivals. Over hunting combined with the problem of habitat loss, has resulted these species being pushed to endangered status. The greatest threat to lizard population is permanent habitat alteration or destruction, especially in complex and poorly understood regions of tropic and sub-tropics.

All monitors were reported diurnal, reaching their full activity level when the sun was up and their habitat has warmed up. The plains and the desert monitors use their claws as tools to dig out dens. All monitors feed on other animals, the smaller species pray on insects, small lizard and the nesting of small mammals. Monitors reported to have a very special preference for eggs.

These are reported to be facing threat due to human activity. These animals were still hunted for illegal export of skin through border counties like Bangladesh, Nepal, and Pakistan. They were also extensively used with the country to make musical instruments, extract oil for medicines for body ailments and meat for food. In some places, they were killed assuming them to be poisonous.

3. Avifauna

(i) Tachyspiza badia (Shikra)

Kingdom: Animalia
Phylum : Chordata
Class : Aves
Order : Accipitriformes
Family : Accipitridae
Genus : Tachyspiza
Species : T. badia

Legal Statute	**Status**
Indian Wildlife Protection Act 1972 (IWPA, 1972)	**Schedule I**
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	-
CITES	-
IUCN	LC

The shikr`a (Tachyspiza badia) is a small bird of prey in the family Accipitridae found widely distributed in Asia and Africa where it is also called the little banded goshawk. The shikra (Tachyspiza badia) is a small bird of prey in the family Accipitridae found widely distributed in Asia and Africa where it is also called the little banded goshawk. The African forms may represent a separate species but have usually been considered as subspecies of the shikra.

The shikra is a small raptor (26–30 cm long) and, like most other Tachyspiza hawks, has short rounded wings and a narrow and somewhat long tail. Adults are whitish on the underside with fine rufous

bars while the upperparts are grey. The shikra is found in a range of habitats including forests, farmland and urban areas.
The breeding season in India is in summer from March to June. The nest is a platform similar to that of crows lined with grass. Both sexes help build the nest, twigs being carried in their feet.

***(ii) Pavo cristatus* (Indian Peafowl)**

Kingdom: Animalia
Phylum : Chordata
Order : Galliformes
Family : Phasianidae
Genus : Pavo
Species : P. cristatus

Legal Status	**Status**
Indian Wildlife Protection Act 1972 (IWPA, 1972)	Schedule I
The Red Data Book on Indian Animals' Part 1, Vertebrata published by Zoological Survey of India, July 1994	Vulnerable
CITES	**Appendix II**
IUCN	Least Concern' (ver. 3.1)

The male Indian Peafowl, commonly known as the peacock, is one of the most recognizable birds in the world. These large, brightly colored birds have a distinctive crest and an unmistakable ornamental train. When displaying to a female, the peacock erects this train into a spectacular fan, displaying the ocelli to their best advantage. The more subtly colored female Peafowl is mostly brown above, with a white belly. Her ornamentation is limited to a prominent crest and green neck feathers. Though females (2.75-4.0 kg) weight nearly as much as the males (4.0-6.0 kg), they rarely exceed 1.0 meter in total body length.

2.2 General Threats and Possible Impacts on Flora and Fauna in WCP area in general

In the realm of the Wildlife Conservation Plan (WCP) area, safeguarding the delicate balance of ecosystems and preserving biodiversity faces an

array of challenges. The general threats looming over this conservation landscape encompass a range of human-induced and environmental factors. From habitat destruction and pollution to climate change and illegal activities, these threats cast shadows over the flora and fauna within the WCP area. Understanding the potential impacts of these threats is essential for formulating effective conservation strategies. The intricate web of ecosystems within the project area, teeming with diverse plant and animal life, is susceptible to disruptions that can ripple through the natural order. Through a comprehensive exploration of these challenges, it becomes evident that a nuanced approach is required to mitigate the impacts and foster a sustainable coexistence between human activities and the vibrant biodiversity of the Wildlife Conservation Project area. The following provides a detailed description of the Schedule-I species present in the study area, outlines potential threats, and highlights the conservation measures being employed to mitigate these risks.

2.3 Vehicular traffic:

Rohida Limestone Mine Block of is located in *Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli,* Tehsil Pindwara, District Sirohi Rajasthan State. As per guidelines for capacity of roads in rural areas of IRC, recommend design series volumes for 2 lane roads are 15000 PCU/day hence the traffic is within the standard limit. In EIA report Proponent has given the Vehicular traffic in details. PP will fallow all the rules and regulation regarding Vehicular traffic.

2.4 Noise Pollution, Water, Air and underground Pollution, etc., and Their Probable Impacts on Flora and Fauna.

(I) Air Environment

Impact:

The key air emissions from the mining activities (drilling, blasting, loading, haulage and transportation) are Particulate Matter, Oxides of Nitrogen (NO2) and Sulphur dioxide (SO2). Gaseous emissions generated from HEMM & transportation of vehicles. The key emissions due to crushing in the mine are Particulate Matter.

Mitigation Measures:

Proper mitigation measures will be taken like controlled blasting, water sprinkling before drilling, blasting & during transport activities and development of greenbelt/ plantation area to control fugitive emissions. Better maintenance of equipment also helps to reduce such emissions. At crushing site measures such as use of Bag filters & Screening Plant, Regular water spraying on Crusher hopper to arrest dust from becoming air-borne, development of green belt/ plantation all around in the

vicinity of the crusher to tarp fugitive dust will be carried out. Mist fog system (Atomized water sprinkler) will be installed at crusher hopper.

(vi) Water Environment

- Sukli River passes from the lease area and outside of the northern and southern part of the lease area. The river is seasonal in nature and remains dry almost throughout the year .
- Leachable heavy / toxic metals / elements in the ore can impact surface and ground water.
- Since the ore or the waste does not contain any leachable toxic elements or heavy metals, there shall be no pollution of water except the solid suspensions.

(vii) Noise & Vibration

Due to Mining Activities

Major noise generating sources of the mining activity are drilling, blasting and HEMM movement used for transportation of limestone.

All DGMS guidelines will be followed to reduce the impact of blasting on the nearest habitation. HEMMs equipped with acoustic cabins will be provided for the operators. Controlled blasting techniques through proper blast design and explosive selection will be used to reduce the vibrations to a greater extent. Hydraulic rock breaker will be used in place of secondary blasting. PPEs like earplugs/ earmuffs will be provided to mine workers. HEMMs equipped with acoustic cabins will be provided for the operators. Proper maintenance, oiling and greasing of HEMMs will be done. Development of green belt/ plantation along the mining lease boundary and mining activity help in reducing noise level.

(vi) Land Environment

Impact:

The land use of the mine area will be altered from government land/ private land to mining area including pits, temporary dumps, greenbelt, reservoir etc. but will not have any significant effect on the surface features of the surrounding areas.

2.5 Impact on Displacement/ Movement of Fauna- Territorial Aquatic or Aerial (Such as Creation of Barriers, Etc.)

The displacement or movement of fauna, both aquatic and aerial, can be affected by the proposed limestone Rohida Mine. Limestone mining can cause habitat loss, fragmentation, degradation, and pollution, which can reduce the availability and quality of food, water, shelter, and breeding site for wildlife. Moreover, the construction of barriers, such as dams, weirs, fences, or roads, can also hinder the migration, dispersal, and gene flow of fauna, especially those that are dependent on aquatic or riparian habitats. Barriers can also increase the risk of predation,

competition, and invasion by exotic species, as well as alter the hydrological and ecological processes of the ecosystems. Some examples of fauna that could be impacted by the proposed limestone block and the associated barriers are the jungle cat, the Indian gazelle, and various fish and bird species that inhabit the region. These species may face threats to their survival, reproduction, and adaptation, unless adequate conservation measures are taken to protect their habitats and movements.

Moreover, the design and operation of the mine has been carried out with a strong emphasis on minimizing environmental impact. This has included careful planning to avoid creating barriers that could disrupt the movement of terrestrial or aerial fauna. For instance, any fencing or structures associated with the mine will be designed to allow for the free movement of smaller fauna, and flight paths of local bird species will be taken into consideration.

To enhance the protection of fauna, measures will be taken to provide maximum possible food, shelter, and cover. Barbed wire fencing has been implemented in most areas of the project within the impact zone. Wild animals within this area typically avoid the project areas due to routine activities, lighting, and the movement of vehicles in and around the project. These measures collectively contribute to minimizing potential disturbances to wildlife within the project's influence.

2.6 Direct or indirect impacts on the flora and fauna of WCP area

Due to the implementation of the project the threats to wildlife can be perceived as: Impact Mitigation Measures for Flora and Fauna. Based on observations, literature review and consultations with the local people and experts direct and indirect Impacts are given below:

1. **Direct Threat**

Direct threat is due to the fear of wild animals causing use of some deterring methods to avoid entrance of wild animals in the core and buffer area. This may lead to killing of the wild animals. There may also be accidental killings due to movement of large number of vehicles, machineries and equipment's. Forest fire also poses a direct threat as a number of small and medium animals are trapped and killed in the forest fire, and sometimes the large animals are also trapped.

2. **Indirect Threat**

Indirect threat is due to shrinkage and degradation of habitat, Shortage of Food and water. The animals in search of food and water try to enter in to habitations. Most of the man animal conflict takes place due to indirect threat.

2.7 Study Technique Adopted and Observations in the Field

The impact of the proposed project and Mining activities on the biota of the area was accomplished in two approaches.

i. Collect and collate authentic secondary information and abstract and infer from the existing information on the project's rationale, scope and design concomitantly with the land use patterns and features.

ii. Make direct observation in the field (Core and Buffer areas) and interactions with the stakeholders for generating baseline data and ground-truthing. Also, predicting the likely impacts consequent upon the project activity.

Detailed Methodology described in **Chapter 1**.

CHAPTER-3: MANAGEMENT AND MITIGATION STRATEGIES

3.1 Objective of the Wildlife Conservation Plan

Proposed project is green field mining project. During mine preparation and operation phase main impact will be generated. The wildlife conservation plan intends to mitigate the impacts on wildlife, preserve biodiversity, and promote sustainable coexistence between the project and the natural environment through the following specific objectives:

(i) Habitat Protection and Preservation:

- Identification of critical habitats for flora and fauna.
- Implementation of measures to avoid or minimize disturbance to these habitats.

(ii) Biodiversity Conservation: Prioritize the conservation of plant and animal species, especially those endemic or endangered, by safeguarding their habitats and supporting their population.

(iii) Ecological Restoration: **Develop** plans for ecological restoration in areas affected by mining activities. Implement rehabilitation measures to restore habitats after mining activities are completed.

(iv) Habitat Connectivity: Establish wildlife corridors and connectivity to enable the movement and migration of species impacted. This helps maintain genetic diversity and healthy wildlife populations.

(v) Species Management: Develop specific management plans for the protection and conservation of key wildlife species impacted by limestone mining. Implement measures to support their survival and reproduction.

(vi) Environmental Impact Mitigation: Implement best practices to minimize environmental disturbances during construction and operation phases. Control noise, dust, and other pollutants to minimize impacts on wildlife.

(vii) Monitoring and Research: Conduct regular monitoring and research on wildlife populations to assess the effectiveness of conservation efforts and identify potential issues.

(viii) Community Engagement: Involve local communities and stakeholders in wildlife conservation efforts, raising awareness, providing training, and fostering community participation.

(ix) Compliance with Regulations: Ensure compliance with all relevant wildlife protection laws and regulations. Obtain necessary permits and

approvals to safeguard wildlife and their habitats.

(x) **Sustainable Mining** Practices: Promote and implement sustainable mining practices to minimize the ecological footprint and preserve biodiversity.

(xi) **Reclamation and Rehabilitation**: Develop comprehensive reclamation and rehabilitation plans to restore the mined areas, creating habitats suitable for wildlife.

(xii) **Conservation Partnerships**: Collaborate with conservation organizations and experts to develop and implement effective wildlife conservation strategies.

(xiii) **Environmental Education**: Provide environmental education and training to the project's workforce and contractors to raise awareness about wildlife conservation.

(xiv) **Continual Improvement**: Continuously review and assess the effectiveness of wildlife conservation measures, adjusting strategies as needed based on new knowledge and best practices.

By addressing these management objectives, the project aims to mitigate the impacts on wildlife, preserve biodiversity, and promote sustainable coexistence between the project and the natural environment.

3.2 Strategies to mitigate and minimize adverse impacts

3.2.1 Development of habitat:

- **Enhancing Greenbelt Cover**: The objective is to improve the greenbelt cover in the impact area to offset the biotic pressure that will be transferred from the mine area to its surroundings. This can be achieved through strategies such as Assisted Natural Regeneration and Soil & Moisture Conservation.
- **Providing Water Sources for Wildlife**: Creating water sources is essential to meet the needs of wild animals in the area. This can be accomplished through the establishment of water bodies or watering holes to ensure access to water for the wildlife population.
- **Preventing Forest Fires**: Forest fire prevention is crucial for the survival of both the forest and its wildlife. Measures should be implemented to prevent fire hazards, including the use of firefighting equipment and the implementation of fire prevention strategies to safeguard the habitat from potential wildfires.

3.2.2 Strategies for the Project area (Core Zone)

Habitat to be developed as a gradual process side by side with the Project

activities.

Soil & Moisture Conservation:

The objective of the Soil and Moisture Conservation Plan:

- **Contour Mining**: Throughout the mining process, the mine adheres to contour mining principles, following the natural contours of the landscape. By doing so, the mine aims to preserve the existing soil structure, reduce soil disruption, and prevent erosion. This approach allows for better moisture retention on the slopes, promoting vegetation growth and mitigating runoff.
- **Revegetation and Reforestation**: Upon completing mining activities in specific areas, the mine proactively undertakes aggressive revegetation and reforestation efforts. Native plant species are carefully selected and reintroduced to the rehabilitated areas. This restoration process stabilizes slopes, reduces soil erosion, and enhances the soil's moisture-holding capacity.
- **Terracing**: The mine continues to create terraces on steep slopes, providing flat areas for vegetation to flourish. Terracing efforts are consistently maintained to slow down water flow, prevent erosion, and support soil and moisture conservation.
- **Mulching**: To safeguard exposed soils, the mine continuously applies organic mulch, such as straw, leaves, or wood chips. This protective layer reduces soil compaction, prevents erosion by rain and wind, and helps retain crucial soil moisture.
- **Sedimentation Ponds**: Throughout the mining process, sedimentation ponds are in place near the mining site to capture and settle suspended sediments from runoff water. These ponds effectively prevent soil and sediment from entering nearby water bodies, safeguarding water quality and maintaining soil integrity.
- **Erosion Control Blankets**: Ongoing use of erosion control blankets or mats made of natural fibers effectively stabilizes bare slopes, mitigating erosion and supporting the establishment of new vegetation.
- **Water Management**: The mine actively implements efficient water management practices, including well-designed drainage systems, to channel water away from mined areas. This helps reduce erosion and soil degradation caused by excess water runoff.
- **Permeable Surfaces**: Roads and work areas within the mine consistently employ permeable surfaces, such as gravel or porous pavement. These surfaces facilitate rainwater infiltration into the soil, replenishing groundwater and curbing surface runoff, thereby promoting soil moisture conservation.
- **Soil Conservation Structures**: The mine maintains soil conservation structures such as check dams, contour bunds, and retention walls.

These structures continue to slow down water flow and trap sediment, ensuring erosion control and supporting soil and moisture conservation.

- **Conservation Tillage**: In instances where the mining operation occurs on agricultural land, the mine practices continuous conservation tillage. This approach minimizes soil disturbance, maintains crop residues on the surface, and sustains soil moisture and fertility.
- **Rainwater Harvesting**: The mine consistently employs rainwater harvesting systems to capture and store rainwater for future use. This practice contributes to groundwater replenishment, maintains soil moisture levels, and supports vegetation growth.
- **Environmental Monitoring**: Ongoing monitoring of soil and moisture conditions in the mining area is conducted regularly to assess the effectiveness of conservation efforts. This proactive approach helps identify areas that require additional attention and informs adaptive management practices.
- **Community Awareness**: The mine remains dedicated to raising awareness among employees, contractors, and local communities about the significance of soil and moisture conservation. Active community engagement fosters a sense of ownership and participation in conservation efforts, reinforcing the commitment to environmental stewardship.
- **Development of Grazing Resources:** As per the order dated 08.01.2020 of the Hon'ble Supreme Court in Writ Petition (Civil) No. 114/2014, with I.A. No. 30915/2019, I.A. No. 186810/2019, and I.A. No. 157635/2019, Common Cause versus Union of India & Others, the plan includes the development of grazing resources. This ensures that suitable grazing areas are established to support the livestock population while considering the legal requirements and directives provided by the Supreme Court.

3.2.2.1 Mitigation Measures of accidents caused by vehicles used in Mining Operations

- It will have ensured the mining machinery is in good working condition so that they work efficiently and meet the requirement of protection / control measures
- Clearing the spillage and cleaning the places
- Disposing materials used for cleaning the diesel, oil in the mine will be hand overed to the authorized dealers.
- Speed Control will be done by displaying the speed control boards at the either side of the roads.
- Monitoring of speed limit by Security Guards.
- Traffic regulation.
- Avoiding over-loading
- Training to employees on Safety, Following Standard Operating

Procedure (SOPs).

- Use of Personal Protective Equipment (PPE).
- Display of the sign boards for using of PPEs, No Entry Signs, Speed Limit, Caution Sign Board, etc.

3.2.2.2 Mitigation Measures for land slide

The slope of the bench will be maintained properly as per the stability of the strata as per the Approved Mining Plan

3.2.2.3 Mitigation measures for Air Quality Control:

Sl. No.	Activities in Mines	Air Pollutants	Mitigation measures undertaken
1	Drilling & Blasting	PM_{10} & $PM_{2.5}$	Controlled blasting will be implemented
2	Loading & unloading	PM_{10} & $PM_{2.5}$ SO_2 & NO_2	Continuous Water spray over the areas, proper maintenance of machinery & equipment as per manufactures specification, avoiding overloading of trucks
3	Haul Road	PM_{10} & $PM_{2.5}$, SO_2 & NO_2	Water spray on mine haul roads, speed restriction, proper Maintenance of roads & blacktopping of permanent roads, proper maintenance of machinery & equipment as per manufactures specification
4	Mining area	PM_{10} & $PM_{2.5}$, SO_2 & NO_2	Wide greenbelt surrounding ML area., greenbelt in safety zones of public road, etc. Proper maintenance of machinery & equipment. Introducing the state-of-the-art dust suppression system, Fixing permanent pipe sprinklers along the haul road in the mine lease area
5	Transportation	PM_{10} & $PM_{2.5}$, SO_2 & NO_2	No overloading of trucks, speed restriction, transport by covered vehicles, plantation along the road side, proper maintenance of machinery & equipment as per manufactures specification, PUC for transport vehicle, maintenance of surrounding transport roads
6	Waste & Topsoil Handling	PM_{10} & $PM_{2.5}$	Stabilization of waste dumps with proper wind erosion control measures, covering the dumps plantation with initial reclamation crops of grasses and mulches, afforestation with shrub and tree species

To act as a dust filter as well as a sound barrier, green barrier is developed, with proper selection of species for plantation.

3.2.2.4 Mitigation measures for Control of Fly Rock: -

- Ground vibrations does not/ will not affect the structures in the vicinity of ML area as blasting will be done in accordance with standards prescribed by DGMS for controlled blasting.
- Explosives charge per hole and per delay is being/ will be maintained as per DGMS guidelines.

- NONEL will be used to control ground vibrations, noise & fly rocks.
- Controlled Blasting will be carried out. Blasting will be done during day time only.

3.2.2.5 Management measures for control Noise Levels:

- Reduction of noise level at source will be achieved by proper maintenance of machinery and the equipment. Interruption of noise path from the source to the receiver will be achieved by the development of wide greenbelts in-between.
- Provision of acoustic cabins for operators deployed on HEMM
- Vehicular traffic within the mine is restricted by reducing the number of trips, using heavy duty articulated dumpers within the ML.
- Selection of new low-noise equipment from the manufactures failing which use of additional retrofits if available.
- Greenbelt developed acts as an acoustic barrier.

3.2.2.6 Mitigation Measures for Control of Water pollution

(i) Drainage Arrangement

Water management (including storm water) shall be carried out through a network of drains and catch pits. Salient features of the drainage management scheme are as follows:

- Sukli River passes through ML area. No disturbed will be done the river during mine period. Conserve and aware to villagers with awareness program.
- The major storm water runoff from broken up area is collected through drain and diverted to the working pit which acts as rain water harvesting pit.
- The mining operations will be commenced after obtaining all necessary clearances / permissions.
- The average annual rainfall of Sirohi district is 471.95 mm. At present, the entire rainwater falling over the lease area flows out of the Lease area, as the area is not broken up. However, after starting of mining, during rainy season, major storm water runoff from proposed broken up area will be diverted to the mine pit through proper trenches and garland drains. The pit acts as settling pond and the clean water will be let out from the mine. At specific locations, silt arresters and settling ponds will be proposed. Part of pumped out water will be utilized for dust suppression.
- As outlined in the approved Mining Plan by IBM, a comprehensive strategy is in place to manage surface runoff water effectively during the rainy season.
- The settling tank and drains will be cleaned before monsoons.

- After washing HEMM, water from the workshop will be treated in Eco Tanks, Maximum water will be recycled, rest will be used for gardening purposes.

  Tailings will not be generated. Check dams will be constructed all along the garland drains in phased manner. Settling tank shall be constructed at as per geological study.

(ii) Water Conservation

Approximately 32.04 hectares area will be mined out by the end of five years and of conceptual period about 121.96 hectares area will be mined out. By the end of conceptual period approximately 72.66 hectares land will be reclaimed and rehabilitated through afforestation, and approximately 49.30 hectares area will develop as water reservoir and 12.73 ha area will be planted on upper most benches. The water reservoir can be used for community. Plantation will be developed in 55.64 ha which includes safety buffer zones, near road, near crusher and rehandled/reclaimed dump area.

3.2.2.7 Green Belt

In order to minimize the impact of mining on environmental components outside the mine lease area, greenbelt zone of 7.5m width is established in safety zone inside the mine lease area which serve not only as pollution sink but also as a noise barrier. It is expected that with the adoption of these mitigating measures, the impact due to operation of the proposed Mine will be minimal on the terrestrial ecosystem.

Plantation will serve the following purposes:

- Prevent the spread of fugitive dust generated due to mining, material handling and allied activities at the surface
- Attenuate noise generated by the mine.
- Increases green cover and improve aesthetics.
- Provide habitat for native fauna
- Attract animals to re-colonise the area when the mine is abandoned.

3.2.3 Impacts on Buffer Zone

The study area mainly comprises of Built Up (8.9%), Agricultural Land (58.6 %), Water Bodies (2.2%) & Forest 30.1%. There will be no change in land use of buffer zone due to proposed mining activity.

Mining activity will be confined to the mineralized zone and proper pollution control measures will be adopted to restrict the pollution load within the active zone in order to prevent any negative impact on nearby areas. Adequate measures will be taken to control the pollutants within active mine area.

Impact on water bodies:

- The study area covers neither major river (nor) Minor River.
- No specific drainage pattern exists as there is no nallah river pond etc exists within the lease bo undary
- The buffer zone is devoid of perennial nallah river stream spring lake reservoir etc.
- No well-developed drainages is seen in the entire area
- Increase in suspended solids due to soil run-off during heavy precipitation due to loosen soil.
- Water quality like turbidity may be change due to direct run off.

Mitigative measures to protect water bodies

- No erosion wash off will be directly allowed to go to the Natural System as it will be arrested by Garland drains and Retaining walls.
- Regular Surface Water Quality Monitoring will be carried out.

b. Impact on nearby agricultural land:

Part of Agriculture fields exists surrounding the mining lease. To reduce the impact on nearby agriculture fields due to mining, following mitigation measures will be taken:

- Mining activity will be confined to the mineralized zone and pollution control measures will be adopted to restrict the pollution load within the active zone in order to prevent any negative impact on nearby areas.
- Mine lease periphery 7.5 m will be developed as greenbelt. It will act as bio-filter and will help to control and confine the emission within ML boundary.
- Awareness for new methodologies of agricultural practices viz. mixed farming, crop rotation and agricultural cropping pattern suitable for the study area will also be carried out under CSR to increase the agricultural productivity of the study.
- Rainwater harvesting practices will be encouraged which will lead to ground water recharge and ultimately increased productivity in the study area.
- Water sprinkling will be done regularly on approach roads & haul roads.
- Under CSR program water from the water reservoir will be made available to the farmers as and when required.

Impact on nearby habitation and roads:

Rohida, Bharja, Taroongi, Doliphali, Vatera, Kharadoli villages parts are fall within of the Mine Block.

As per the Approved Mining Plan, the proposed Mining activities will not disturb any habitations and so the school.

- Accordingly, protective measures such as development of green belt will be taken up as the mine workings move towards the western side
- The preventive measures will be undertaken to protect the villages in terms of environmental pollution and Safety purpose.

Recommendations

The following practices will be carried out to increase the productivity of the study area:

- Thick Greenbelt / Plantation will be developed along the mine periphery
- Besides green belt, stone parapet walls shall be constructed all along the ML boundary to protect the fields from Risk of accidents as well as to arrest dust, if any.
- Company will also promote modern irrigation techniques to improve crop yield and to grow optimal crop varieties in its area of impact
- Regular water sprinkling will be carried out on mining face and during loading dumpers and on haul roads to suppress dust.
- Further, dumpers will be covered with tarpaulin or will have covers having hydraulic arrangement for closing so that spillage free transportation is there.
- Additionally, the vehicles will be restricted to speed limitation.
- Machinery shall be maintained in good condition for reduced Noise levels. Scheduled maintenance of machines shall be carried out through AMC.
- Regular Ambient air quality monitoring, Dust and Noise Monitoring shall be conducted.
- Awareness for new methodologies of the agricultural practices viz. mixed farming, crop rotation and agricultural cropping pattern suitable for the lease area.
- Awareness & training programmes will be organized.
- Rainwater harvesting practices will be encouraged which will lead to ground water recharge and ultimately increased productivity in the study area.

CHAPTER 4: MANAGEMENT PLAN INTERVENTIONS WITHIN THE PROJECT AREA

4.1: Project Area

All the mining activity will be done in core zone area. Land use at the end of the Mining Lease period/at the Conceptual stage is as given below:

Land Use-Conceptual

S. No.	Land Use Category	Present Land Use (Ha.)	At the End of 5th Year (Ha.)	Conceptual Stage(Ha.)
1	Soil Stack	0.0000	0.00	0.0000
2	Waste Dump	0.0000	22.61	0.0000
	Mineral Storage	0.0000	0.21	0.0000
3	Total Excavated	6.5300	32.04	121.96
	(A) Excavation (Water Reservoir) (B) Excavation (Backfilled)	0.0000	00.0000	49.30 (Water Reservoir)
		0.0000	00.0000	72.66 (Re-grassing)
4	Area under utility services	4.85	11.11	30.40
5	Afforestation/Plantation (Unworked Area	0.0000	4.80 (Plantation)	55.64 (Plantation)
Total Disturbed Area		**11.83**	**70.77**	**208**
6	Undisturbed Area	789.16	730.2235	592.99
Total		**800.9935**	**800.9935**	**800.9935**

4.2 Management Plan interventions within the Project Area

The operational activities of the project pose a significant threat to the wildlife inhabiting the mine area. To address this concern, a comprehensive Wildlife Management Plan, known as the Site- Specific Conservation Plan, has been prepared. The primary objective of this plan is to ensure the safety and preservation of existing wild animals by providing them with a secure passage from the project area to nearby forest regions. Moreover, the plan aims to enhance the habitat quality in the surrounding areas.

The implementation of the proposed measures involves a collaborative effort between the project proponent and the government's Forest Department, with financial support provided by the user agency. By combining their resources and expertise, they can effectively execute the Wildlife Management Plan and mitigate the potential threats identified in the preceding chapter.

Regular monitoring and surveillance will be conducted to assess the effectiveness of the plan and make necessary adjustments based on wildlife population dynamics and their response to the implemented measures. Adaptive management strategies will be employed to ensure the continuous improvement and success of the Wildlife Management Plan.

4.3 Interventions inside project area (to be implemented by the project authorities):

The activities taken up in the mine area will pose maximum threat to wildlife. It is therefore, necessary to minimize such threat. The following interventions will be adopted by Project Proponent for expansion in the Mine:

- Insulators will be provided in the crusher to control the noise pollution.
- Use of closed acoustic system will be done
- Development of green belt/plantation in all around the vicinity of the crusher will be done.
- Regular water spraying will be done on haul roads to arrest dust from becoming air-borne.
- No overloading of material will be done during transportation.
- Proper maintenance (preventive as well as scheduled maintenance) of vehicles will be carried out regularly for minimization of generation of gaseous pollutants.
- The emissions levels will be monitored regularly.
- Development of green belt/plantation around mine boundary, roads and other places will be carried out.
- Personal Protective Equipment like dust masks will be provided to all employees.
- Proper maintenance (preventive as well as scheduled maintenance), oiling and greasing of HEMMs to minimize generation of noise.
- Periodical Ground water level & quality monitoring will be carried out.
- Waste water generated from drinking/domestic uses will be disposed in soak pit via septic tank.
- Retaining walls followed by garland drains will be constructed around the working mine pits to channelize rain water flowing into working mine pit
- Catch drains and siltation ponds will be constructed within mine lease to check flow of surface runoff as well as to prevent siltation of natural courses.

- Rain water falling directly into the mine pits will be stored and used for plantation.
- Greenbelt development and plantation helps in creating habitats for local faunal species and to create better environment for various fauna.
- Creating and developing awareness for nature and wildlife in the nearby villages.
- Pit Safety Committee will be formed and recommendations given by committee will be implemented.
- Awareness for safety and occupational health will be implemented like posters, safety films, etc.,
- To depute Environment Health & Safety team
- The persons working in dusty environment will be examined every year.
- Training of employees for use of safety appliances and first aid in vocational training center.

Restoration of habitat:

During the course of project, as minimum as possible the existing vegetation shall be brought into use and rest shall be protected. Besides the above the following steps are further taken:

i. A wide safety zone of plantation will be maintained around the mine area for protection of wild life and local people from hazards of project activity.
ii. Vegetation of the surrounding area will not be damaged in any case.
iii. Creation of green belt will control spreading of dust and absorb noise.

Locations (preferably with GPS coordinates) of the proposed interventions and maps overlaid in the proposed land use plan map

The mine site is located at Village(s)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan., proposed interventions will be done in core area.

Relevant provisions of Environment Management Plan for the project and WCP area.

- Control of Air Pollution
- Control of Noise Pollution
- Control The Water Pollution
- Solid Waste Management
- Mitigation of Flora & Fauna

4.4 Measures for Improving Biological Environment & Forest

Greenbelt development programme has been designed for preventing the

soil erosion, improving the greenery and aesthetic beauty of the area. Plantation will be done in consultation of DFO. While selection of species, care will be taken so as the developed greenbelt/plantation will remain useful for habitations. Plantation will serve the following purposes:

- Prevent the spread of fugitive dust generated due to mining, material handling and allied activities at the surface
- Attenuate noise generated by the mine.
- Increases green cover and improve aesthetics.
- Provide habitat for native fauna
- Attract animals to re-colonise the area when the mine is abandoned.
- Live plant foliage reduces the impact of rainfall and increase the absorptive capacity of the soil.

(i) GENERAL GUIDELINES FOR GREEN BELT DEVELOPMENT

Native plant species will be planted in consultation with DFO. Trees growing up to 5 m or more in height with large canopy cover & leaf area will be planted around the installation. CPCB Guidelines will be fallows in green belt development Vegetation covers in and around the mine workings generally helps in: Control of dust, reducing noise, stabilizing erodible slopes to minimize pollution., Ground water re-charging, Enhancement of aesthetic value.

The following characteristics have been taken into consideration while selecting plant species for green belt development and tree plantation. Local, indigenous and drought resistant species, fast growing and tall trees, Perennial and evergreen, Thick canopy cover, Stratified layers of Plantation to prevent lateral pollution dispersion, the trees will be selected so as to maintain regional ecological balance and to conform to soil and hydrological conditions, Plantation will be done as per CPCB guidelines for greenbelt development and Plantation.

4.5 Greenbelt:

In order to minimize the impact of mining on environmental components outside the mine lease area, greenbelt zone of 7.5m width is established in safety zone inside the mine lease area which serve not only as pollution sink but also as a noise barrier. It is expected that with the adoption of these mitigating measures, the impact due to operation of the proposed Mine will be minimal on the terrestrial ecosystem.

Plantation will serve the following purposes:

- Prevent the spread of fugitive dust generated due to mining, material handling and allied activities at the surface
- Attenuate noise generated by the mine.
- Increases green cover and improve aesthetics.
- Provide habitat for native fauna

- Attract animals to re-colonise the area when the mine is abandoned.

The proposed green belt development plan is given in **Table 4.1.**

Table 4.1: Green Belt Development

Year	7.5 M Safety Barrier/Undisturbed Area		Backfilled Area		Virgin Area		Total		Rs. in Lakhs
	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants @ 2500 plants per Ha	Area (Ha.)	No. of Plants	
I	0.1	250	-	-			0.1	250	0.25
II	0.20	500	-	-			0.20	500	0.50
III	1.05	2625	-	-	0.45	1125	1.5	3750	3.75
IV	0.1	250	-	-	1.4	3500	1.5	3750	3.75
V	1.5	3750	-	-	-	-	1.5	3750	3.75
Total _ Plan Period							4.8	12000	
VIth Yr. Onwards till the conceptual stage	27.75	69375	72.66	Re-Grassing	23.09	57725	45.64	1,27,100	635.5
							72.66	Re-Grassing	145.32
Total	**30.70**	**76,500**	**72.66**	**Re-Grassing**	**24.94**	**62350**	**128.30**	**1,39,100**	**792.82**

List of trees proposed to be planted along with approximate numbers are tabulated

The plants and saplings suitable for the existing soil and site conditions will be considered. Preference will be given for fast growing local plant species, which can adapt to the local climate. Trees proposed to be planted are given in Table 4.2.

Table 4.2 : Trees Proposed To Be Planted

Sl. no.	***Scientific name***	***Common name***
1	*Azadirachta indica*	Neem
2	*Pongamia pinnata*	Pongam tree / Honge
3	*Artocarpus integrifolia*	Jack fruit tree
4	*Prosopis cineraria*	Khejri tree / Kiru banni
5	*Tectona grandis*	Teak
6	*Bauhinia purpurea*	Butterfly tree
7	*Zizipus mauritiana*	Indian jujube / Yelchi

8	*Emblica officianalis*	Amla / Nelli
9	*Psidium guajava*	Guava
10	*Mangifera indica*	Mango
11	*Delonix regia*	Gulmohar
12	*Cassia fistula*	Cassia / Indian laburnum / golden shower

The magnitude and significance of the impact on the environment due to mining and technology varies from mineral to mineral and also depends on the potential of the surrounding environment to absorb the negative effect of mining in the proposed project, Out of the total mine lease area (800.9935 ha), active mining operations will be confined to an area of 127.58 ha for sustainable mining due to the presence of minerals. Total disturbed area covering excavation, safety zone plantation, infrastructure and dump will be 215.31 ha. Protecting the greenery and developing the required greenbelt plays a pivotal role in protecting the quality of all aspects of the environment.

Major steps for post plantation care are given below:

i. Mulching to minimize transpiration losses and to ensure good establishment.
ii. Regular dose of compost manure/ fertilizers as per the schedules.
iii. Spraying of organic insecticides and fungicides whenever required.
iv. Hoeing, weeding and watering at regular interval.
ii. Guarding of saplings by fencing wherever needed.
iii. Monitoring of the growth of plantation by the independent and self-sustained horticulture department

Plan period preferably for initial 10 years with suitable provisions for interim reviews and suitable modifications.

Proper mitigation measures as suggested in Environment Management Plan will be taken for mitigates the pollution level. Thick canopy greenbelt/plantations is already developed all around the periphery of project site area and 3-Tier Plantation is done in mine site. Conservation Plan period will be of 10 years' duration. Supporting activities required from State Government. After recommendation of Deputy Conservator of Forest proposal forward to Conservator of Forest, Chief Conservator of Forest and Principal Chief Conservator of Forest/ Chief Wildlife Warden of Concern State.

CHAPTER 5: WILDLIFE MANAGEMENT STRATEGIES IN STUDY AREA

5.1 Wildlife Conservation Plan (WCP)

Proposed management strategies within the buffer area of 10 km identified around the project area (core area) and include following points:

5.1.1 Objectives:

Following objectives with DFO Involvements to be adopted:

- Safety of Wildlife from Project Activities
- Wildlife habitat management
- Improvement of Forest Cover
- Soil and Moisture conservation activities
- Creation and maintenance of water body
- Salt Licks, prevention of forest fire

5.1.2 WCP Implementation Arrangement:

To achieve the above goals of WCP following methodology and implementation arrangement will be adopted:

- The WCP interventions in the project area as specified in **Chapter 2** will be undertaken by project authorities with the fund allocation for "**Environmental Mitigation Measures**" for the proposed mining project.
- The WCP interventions in the study area as mentioned under "**Section A"** entitled "**WCP Interventions By Project Authorities"** will be undertaken by project authorities with the fund allocation for "**Environmental Mitigation Measures**" for the proposed mining project.
- The WCP interventions in the study area as mentioned under "**Section B"** entitled "**WCP Interventions By State Forest Department Authorities"** will be undertaken by forest department authorities with the fund approved by State Forest Department and allocation by project authorities for "**Wildlife Conservation Plan**" for the proposed mining project.

5.1.3 WCP Methodology:

To achieve the above objectives of WCP, the methodology followed will be as follows:

A. WCP Interventions By Project Authorities:

5.1.3.1 Safety of Wildlife from Project Activities

Impacts

The wildlife in the area can be impacted by the following activities:

- Noise from heavy machinery, blasting can harm the wildlife.
- Air emissions and noise (from speeding vehicles and blowing horns) from the project activities may impact the wildlife.

- Project material transport vehicles plying during night with headlight beam-up may impact the wildlife in the study area.
- Project material transport vehicles may physically as well as from its noise (from speeding vehicles and blowing horns) and pollutant emissions, impact the wild animals during transportation.

Mitigation Measures

- All the vehicles used in project will be enforced to half paint (with black paint) their beam light half from top, so as to restrict / direct light direct only on road, instead of spreading all around.
- In coordination with concerned authorities the project proponent in study area, will ensure applying
  - Suitable size speed breaker structures as per Indian Road Congress (IRC) guidelines - before, after and in-between human habitation at suitable locations.
  - Implementation of suitable size speed breaker structures as per Indian Road Congress (IRC) guidelines - before, after and in-between community plantation / forest areas at suitable locations.
  - Display of signboard specifying 30km/hr. speed-limit and no horn zone in above areas, where speed breaker structures has been applied.
- Specific training programs for machinery operators and drivers, focussed at emphasizing:
  - Obeying speed limits, traffic signals, road signs, and maintaining proper lane discipline.
  - Cautions when encountering wildlife, particularly in proximity to forest / thick vegetated / plantation areas.
  - Cautions in driving during morning hours during winters, when reptilian fauna prefer black top surface for basking in sun for heating up their body during winters / cold nights.
  - Special training sessions for its employees and drivers for creating awareness on importance of wildlife, damage to wildlife habitats or nests, and measures of preservation and well-being of wildlife.

- Strict adherence by project authorities to use only those vehicles in project with valid and up-to-date Pollution Under Control (PUC) certificates.

B. WCP Interventions by State Forest Department Authorities:

Establishing close collaboration and coordination by project authorities with state Forest Department to implement measures / facilitate aimed to actively contribute to the conservation and protection of wildlife, such as:

- Habitat Improvement and Protection,
- Improvement of Water Availability,
- Protection of Pasture Land and Controlled Grazing,

- Prevention and control of Forest Fire,
- Prevention of Poaching and Hunting Activities,
- Awareness Programme on Wildlife Conservation,
- Control of Wildlife Intrusion of Wildlife in Habitation.

5.1.3.2 Habitat Improvement and Protection

Impacts

Anthropogenic pressure in the study area in form of :

- Vegetation loss (causing habitat loss and fragmentation of wildlife habitat),
- Pollution emissions from industries / vehicles plying in the area, Climate change & Overexploitation of natural resources may disrupt the wildlife habitat by negatively impacting food and water availability, sheltering grounds and nesting sites of wildlife and thereby threatening wildlife populations and movement of wildlife towards human habitation or even permanent leaving their native habitats.

Mitigation Measures

Efforts will be made to develop and maintain a favourable habitat that not only supports the targeted wildlife species but also to promote conditions conducive to the presence of other prey animals. This comprehensive approach aims to create a thriving ecosystem that benefits the entire wildlife community.

- The entire study area within the study area does not contain any protected area such as National Park, Wildlife Sanctuary, Tiger/ Elephant or Biosphere Reserves.
- Project proponent will undertake / employ / adopt all measures to control air pollutants emission, noise generation, waste water discharge and managing generated wastes, as per applicable statute of Government of India by by project proponent.
- Undertake tree / shrub plantation activities, along with post-plantation care / maintenance of tree groves to reforest degraded areas or create new vegetated areas (habitat) in community land by involving community.
- Training programme for resident villagers and local populations on plantation and habitat conservation measures techniques and importance / benefits of wildlife conservation.
- After successful establishment of wildlife habitat, the wildlife areas will be maintained in community and forest areas.

5.1.3.3 Improvement of Water Availability

Impacts

- Scarcity of water sources for wildlife's daily requirement may act as a driving force transient or permanent shift / migration of wildlife from their natural habitats towards other water rich areas including towards human habitations.
- This time to time movement or Migration of Wildlife in to human habitation for meeting their water needs may lead to increase in conflict with human & cattle or man-animal conflict leading to killing or poaching of wildlife.

Mitigation Measures

- Involving local communities in creating anicuts, small dams or weirs across natural drains / nallas to provide valuable habitat for wildlife by creating and maintaining water bodies, so as to create source of water for animals, especially during dry seasons, and to create suitable environments for aquatic plants and animals.
- Annual repair and maintenance of existing anicuts, Bawadi (small reservoirs), and water ponds before the onset of rainy season.
- Creation of small mud ponds in "community plantation areas / and forest areas" as applicable, to enhance water availability and create additional drinking water sources for wildlife.
- Construction of dedicated tube wells (if required) to ensure availability of water in ponds and other avedas (drinking water bodies for cattle) during periods of water scarcity, ensuring the well-being of both wildlife and domestic animals.

5.1.3.4 Protection of Pasture Land and Controlled Grazing

Impacts

- Over grazing of pastureland in the study area may lead to scarcity of fodder for herbivorous wildlife also grazing in pasture land from time to time.
- Overgrazed and depleted fodder resources in pasture land may lead to moving of domesticated animals in wildlife areas for grazing.
- Increased grazing pressure of domesticated animals on wildlife areas / habitats may pose a significant threat to the wildlife habitats of wild animals.
- The above may lead to permanent migration of wildlife from the study or WCP area.

Mitigation Measures

- Improvement and protection of pasturelands will be undertaken in coordination with local communities having administrative control on the pasture land.
- Local community / villagers will be trained / educated about the adverse effects of over grazed pasture land vis-a-vis on wildlife areas.

- The educational initiative will be aimed to raise awareness among the local community and promote responsible grazing practices which supports pasture land management, well-being of wildlife and their habitats.
- Implementing "deferred rotational grazing system" in coordination with panchyat samities for protection and management of pasture land.
- Deferred Rotational Grazing System combines the principles of rotational grazing with periods of non-grazing (deferment) to allow plants to rest and recover. This system involves rotating livestock through multiple pastures. Some pastures are deliberately left ungrazed during certain times of the year to enable seed set, plant vigour, and improved pasture health.

5.1.3.5 Prevention and Control of Forest Fire:

Impacts

- Forest fires in India is predominantly anthropogenic (90 - 95%), including activities like burning for land clearing, agriculture (including slash-and-burn farming), collection of firewood, NTFP (mahua, Bidi patta, fallen antlers horn, etc.), accidental causes (discarded bidis / cigarettes, unattended campfires and sparks from vehicles or equipments) (Sagar et.al 2024).
- Moreover, most of the forestfires in India are surface fires thus burning surface layers (litter layer and herbaceous layer) of forest / vegetated areas.
- Fire in forests / thick vegetation / plantation areas depletes causes,
  - ` Burning / depletion of fodder (grasses / fodder) layer in wildlife areas thus degrading the wildlife habitat,
  - Killing wild animals and their cubs and chinks specially in nesting and breeding season.

Mitigation Measures

Following activities will be undertaken as forest fire preventive measures.

- Fire Line Creation: Establishing and maintaining fire lines in forest / community plantation areas.
- Fuel Management: Removing excess grass and litter in and around the fire prone areas.
  - Prescribed Burning: Undertaking controlled burning of fuel loadings, viz. dried leaf and grass (litter) and garbage collected along roadside / along roadside drainage channels in fire-prone areas.
  - Public Awareness: Conducting workshop / training programes and displaying signboards / posters on fire prevention will be undertaken to increase public awareness on forest fires and their implications.

- Efforts will be undertaken by providing proper incentives, to involve local panchayats / villagers not only in informing fire occurance but also for involving them in fighting forest fire.

5.1.3.6 Prevention of Poaching and Hunting Activities

Impacts

Hunting of and harming wild animals is strictly prohibited, as per the prevailing regulations in the country. Engaging in such activities is considered a punishable offense.

Mitigation Measures

To refrain the local population from participating in any form of poaching and harming wildlife, the following steps will be undertaken:

- Organizing informative and educational camps for local community / laboure force (working in industries) in the study area in providing guidance on following aspects :
  - Awareness on importance of wildlife in maintaining environmental / ecological balance of nature and importance of wildlife to mankind.
  - Legal implications of various offenses related to trapping, driving, snaring, capturing, killing, and poisoning of wild animals.
  - Legal implications of collection or possession of any body part of a wild animal.
  - A comprehensive account of the gravity of various types of offencive against wildlife and their severe legal consequences (imprisonment for up to seven years or part thereoff along with financial penalty).
- By spreading awareness and ensuring that the local population understands the legal repercussions, it is aimed to foster a sense of responsibility and respect for the wildlife in the study area.

5.1.3.7 Awareness Programme on Wildlife Conservation

Impacts

Ignorance, non-awarenwss and non-participative approach towards wildlife conservation may prove all the efforts ineffective, put on wildlife conservation.

Mitigation Measures

Creating awareness among the local community is the most effective tool for wildlife safety and conservation. Understanding, loving, and protecting wildlife, local population can contribute to a healthier environment for theing own welbeing.

Awareness campaigns, educational initiatives, and ethical practices are essential in preserving habitats, preventing illegal activities, and minimizing human-wildlife conflicts.

Engaging community through partnerships and promoting responsible behavior fosters a collective effort towards wildlife conservation and ensures a harmonious coexistence between humans and the natural world.

To achieve the above benefits the followings will be organised in study / WCP areas (village panchayats / schools):

- Nature Awareness Camps: At least once a year for a period of ten years. These camps will be aimed to educate the local public about the importance of wildlife conservation and environmental preservation to instil a sense of responsibility and stewardship among local community to foster a collective effort in safeguarding wildlife.
- Awareness Creating Activities: Each year on the significant events like,

  - World Forestry Day (21st March),
  - Earth Day (22nd April),
  - World Envirnment Day (5th June)
  - World Nature Conservation Day (28th July),
  - Wildlife Week (1st Oct. to 7th Oct.),

  organising in village panchayats and schools, activities including :

  - Painting and photography competitions,
  - Essay and slogan writting contests,
  - Activities focussed on trees and bird identifications.
- Distribution of Educational Materials: Brochures and pamphlets highlighting nature and wildlife protection will be published and distributed during the awareness camps. These materials will provide guidance on how to safeguard wildlife and promote responsible behavior towards nature.
- Slogans and Signage: Eye-catching slogans and signage promoting wildlife and nature conservation will be prominently displayed within the project and in study area along roadsides and in schools and panchayat bhavans, to encourage public / childrens to actively participate in conservation efforts.

5.1.3.8 Control of Wildlife Intrusion in Human Habitation

Impact

Intrusion of wildlife in human habitation may lead to man-animal conflict thus negatively impacting human beings, cattles and properties in habtation areas and also the wild animal entering the human habitation.

Mitigation Measures

- Forest department will designate a dedicated phone number and an officer to receive such information from village panchayats and for undertaking subsequent activities.
- The phone number and ofiicers name will be informed to panchayats in the study area.
- Any report by villagers regarding wildlife intrusion in human habitation areas over phone to forest department will be immediately addressed by the concerned official.
- Provision of ambulances equipped with cages, and the establishment of dedicated rescue wards.

5.2 Locations of Wildlife Conservation Interventions:

The proposed mining project is located at Village(s)- Rohida (Rohera as per toposheet), Bharja, Taroongi (Tarangi as per toposheet), Doliphali, Vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan.

The geographical coordinates, geology & geomorphology of the plant and mine sites has been given in **Chapter 1**. Appropriate specific locations of implementing different wildlife conservation activities will be decided by the concerned State Forest Department official designated for the purpose.

5.3 Environment Management Plan Interventions:

The proposed Environmental Management Plan (EMP) will be undertaken by the project authorities as detailed in **Chapter 4**. The outline of the EMP is given hereunder herein in consideration of applicable Acts, Rules and Regulations / Standards related to different environmental aspects.

5.3.1 Aims of EMP

Overall Conservation of the environment. Minimise generation of air, waste water (process and sewage), noise levels, and wastes (industrial wastes, municipaal solid wastes, hazardous wastes, discarded battery wastes, e-waste and plastic wastes) and management.

- Ensure effective operation of all environmental control measures
- Judicious use of natural resources including water.
- Safety, welfare and good health of the work force. .
- Vigilance towards probable disasters and accidents.
- Environmental monitoring of cumulative and long-term impacts and review the effectiveness implemented environmental mitigation measures.

5.3.2 Environmental Management Plan:

- Implementation of mitigation measures for air pollutants generation, noise generation and waste water generation.

- Management of industrial wastes, municipal solid wastes, hazardous wastes, discarded battery wastes, e-waste and plastic wastes as per applicable statutory directions from MoEFCC / CPCB / SPCB.
- Implementing energy conservation measures.
- Undertaking greenbelt / green cover development in more than 33% land of project area & undertaking plantation programme outside project area from time to time.
- Implementing adequate occupational health & safety measures for safety, welfare and good health of the work force.
- Implementing a well-drawn disaster management plan based on HAZOP and HAZEN study and continuous vigilance towards probable disasters and accidents in different project activities.

5.4 Plan Period: Initial 10 years

This plan is proposed for a period of 10 years as given in **Table 5.1**, with suitable provisions for interim reviews and modifications. However, if necessary interim revision of this plan can be taken up depending on the actual requirement.

Table 5.1: Wildlife Conservation Activities in Study (WCP) Area

SN	Conservation Activities
1.	**Habitat Improvement and Protection** • Raising of two tree groves (Vriksh Kunj) in community land of village panchayats / villages of study area, by planting of 100 saplings of Neem, Shisham, Siris, Aldu, Churel/Papdi, Bargad, Pipal, Mango, Aonla, Ber and Shady trees in each grove. • Fencing of the tree grove areas with barbed wires fencing along periphery of the (Kunj). The expenditure for planting is proposed by the Bill of Rates (BSR) prevailing for Rajasthan State Forest Department. • This expenditure for planting 100 plants in two groves per panchayat / village of WCP or study area in 10 years. • Casualty replacement and plantation maintenance through inter-culture operations (weeding, fertilization, irrigation, and pest and disease management) for 4 years including the year of plantation as per BSR of the forest department.
2.	**Improvement of Water Availability:** • Construction of new (50m x 50m) and deepening of existing, water holes / natural ponds in the vicinity of villages and ensuring water availability by constructing dedicated tubewells (if required) in the same during lean season for ten years.
3.	**Protection of Pasture Land and Controlled Grazing** • Planting and maintaining of fodder tree / shrub species / grasses in panchayat pasture lands for 10 years of the WCP / study area. • Implementing "deferred rotational grazing system" in pasture land available in the WCP / Study area in coordination with village panchyats

	for 10 years.
4.	**Prevention & Control of Forest Fire and Poaching / Hunting Activities** • Fire Line Creation, Fuel Management and Prescribed Burning in fire prone areas for 10 years. • Providing incentives for informing fire occurrence and fighting forest fire to local community for 10 years. • Creation of public awareness by conducting training workshop and informative / educational camps (Minimum 2 camps per year for 10 years) and displaying signboards / posters on: - Importance of wildlife in maintaining environmental balance, Legal consequences wildlife offence, possession of wildlife body parts and wildlife conservation.
5.	**Awareness Programme on Wildlife Conservation** • Organising wildlife / nature conservation / awareness programme (Minimum 2 camps per year) on nature camps, organizing photography, essay, slogan / posters and quiz competitions, brochures, signage, slogans) for conservation of wildlife for 10 years in village panchayats / schools.
6.	**Control of Wildlife Intrusion in Human Habitation** • Designating a dedicated officer for receiving information on wildlife intrusion in human habitation and for quickly addressing the issue. • Provision of ambulances equipped with cages, and the establishment of dedicated rescue wards for 10 years.

Monitoring plan for conservation of wildlife and biodiversity within WCP area is given in **Table 5.2**

Table : 5.2: Monitoring plan for conservation of wildlife and biodiversity

Key Indicator	Sub Indicator	Monitoring Frequency	Responsibility
Plantation in study area	Area brought under Plantation	Six Month	Mines Manager & Horticulture officer of project
	Number of tree planted, survived and established		
Soil Conservation	Run off measurement/ Storagestructures	Six Month	Mines Manager of project
Water Conservation	Water hole, Check dam under CSR	Six Month	Mines Manager & CSR Manager Officer of project

5.5 Supporting Activities Required from State Government

After recommendation of the Wildlife Conservation Plan by Deputy Conservator of Forest the proposal will be forwarded in sequence to Conservator of Forest, Chief Conservator of Forest and Principal Chief Conservator of Forest / Chief Wildlife Warden of Concern State. Subsequent to the stage wise approval and final approval by Chief Wildlife Warden the plan will be ready for implementation. The year wise WCP fund as approved will be provided by the project authorities and the officer designated by state forest department will undertake the implementation of WCP in the study area. Whereas, the Environmental Management Plan in the project and surrounding areas will be implemented by the project authorities.

5.5.1 Wildlife Conservation Activities and Budget Utilization

Implementation of wildlife conservation activities will be undertaken by an officer, designated by State Forest Department. Progress report of the plan and activity wise budget utilisation will be reported to higher officials of State Forest Department with a copy to the project authorities for reporting the status of WCP implementation as one of the environmental compliance condition to MoEFCC and other statutory authorities.

5.5.2 Progress Review of Wildlife Conservation Plan

The designated forest department official for implementing the WCP will periodically submit progress report of WCP activities undertaken, including the targets and achievements (physical and financial), to higher officials for review and evaluation and approval (if required) of the works. The report may also suggest remedial / changes in WCP measures (if required) for effective conservation and management of the Schedule I species.

5.5.3 Field Monitoring

The effectiveness of the proposed wildlife conservation plan will be assessed by regularly monitoring of status of Schedule I species, associated wild animals and its habitat. This monitoring results will be evaluated for making any changes in the plan (if needed). The field monitoring will be preferably done during the pre-monsoon period.

5.6 Success Indicators

Following factors will be undertaken as measurable indicators of success of the plan:

- Increase in vegetation density and ground cover in buffer area.
- Increase in population and abundance of rare, threatened and Schedule-I faunal / avifaunal species as mentioned in the plan.
- Increase in population and abundance of other wildlife species in the study area.
- Overall health of the habitat and ecosystem in the study area.

CHAPTER 6: FINANCIAL FORECAST AND OUTLAYS FOR WILDLIFE

6.1 Financial Outlay

The financial outlay of WCP (Wildlife Conservation Plan) has been fixed based on & quot; Instructions for Processing of Wildlife Conservation Plan for Projects by Addl. PCCF and Chief Wildlife Warden, Rajasthan & quot; vide Letter No. WCP/CWLW/2019/6451-6463 dated 24.05.2019.

The WCP cost has been estimated based on given formula because Mount Abu wildlife sanctuary fall within WCP of followings:

It is requested to consider the same.

The total financial outlay is envisaging as:

- 0.5 lakhs per ha. = 800.9935 ha X 0.5 lakhs = Rs. 400.49675 lakhs
- Rs 5 lakhs for the 15 Schedule I species in the Study area = Rs. 75 lakhs.
- Grand Total Rs. 400.49675 lakhs + Rs. 75 lakhs = Rs 475.49675 lakhs or Rs. 4.75 crores.

6.2 WCP Interventions:

All the Wildlife Conservation Plan (WCP) measures as envisaged for WCP / study area (10 km radius around project boundary as given in Chapter-6.

Financial Provision of Works in WCP Area / Study Area:

The financial requirement of various interventions suggested in the plan is given in the following **Table 6.1.** Plan is prepared for initial 10 years period. Annual cash flow for the Zone of Influence (ZoI) of the project area is given in **Table 6.2.** All activities in the buffer zone will be implemented by the respective Divisional Forest Officer, Sirohi. Kamlesh Metacast Private Limited (KMPL) committed to earmarked funds and utilized it only for purpose specified through forest department.

Table 6.1 : WCP Activity Wise Budget Proposed for WCP for 10 years

S. No.	Conservation Activity	% of Total Outlay of Wildlife Conservation Plan (Capital Cost: Rs. in lakhs)
1	Habitat improvement & mitigation measures (Food, Water, Shelter, Movement etc.) and measures to reduce/ minimize the human- animal Conflicts, Conserve mine area river	237.5 (50% of Total)
2	Awareness and Extension (Forest staff will also be invited for various activities to ensure participation)	47.5 (10%of Total)
3	Support to Forest Department for monitoring, rescue & rehabilitation of Wildlife (Veterinary care, animal health, rescue, tools, and equipment's etc.)	47.5 (10%of Total)
4	Contribution towards conservation of Wildlife in PA's or other Conservation activity (to be deposited in RPACS)	47.5 (10%of Total)

5	Administrative Cost for processing inspections etc. (to be deposited in RPACS)	47.5 (10%of Total)
6	Miscellaneous including Eco- development	47.5 (10%of Total)
	Total	**Rs. 475 (100%)**

The conservation plan is being submitted to Chief Wildlife Warden, Government of Rajasthan, for approval with or without modifications. Kamlesh Metacast Private Limited (KMPL) is committed to contribute the funds to State Forest Department on yearly basis, once the plan is approved by Chief Wildlife Warden.

Table 6.2: Annual cash flow for the Zone of Influence (ZoI) of the project area

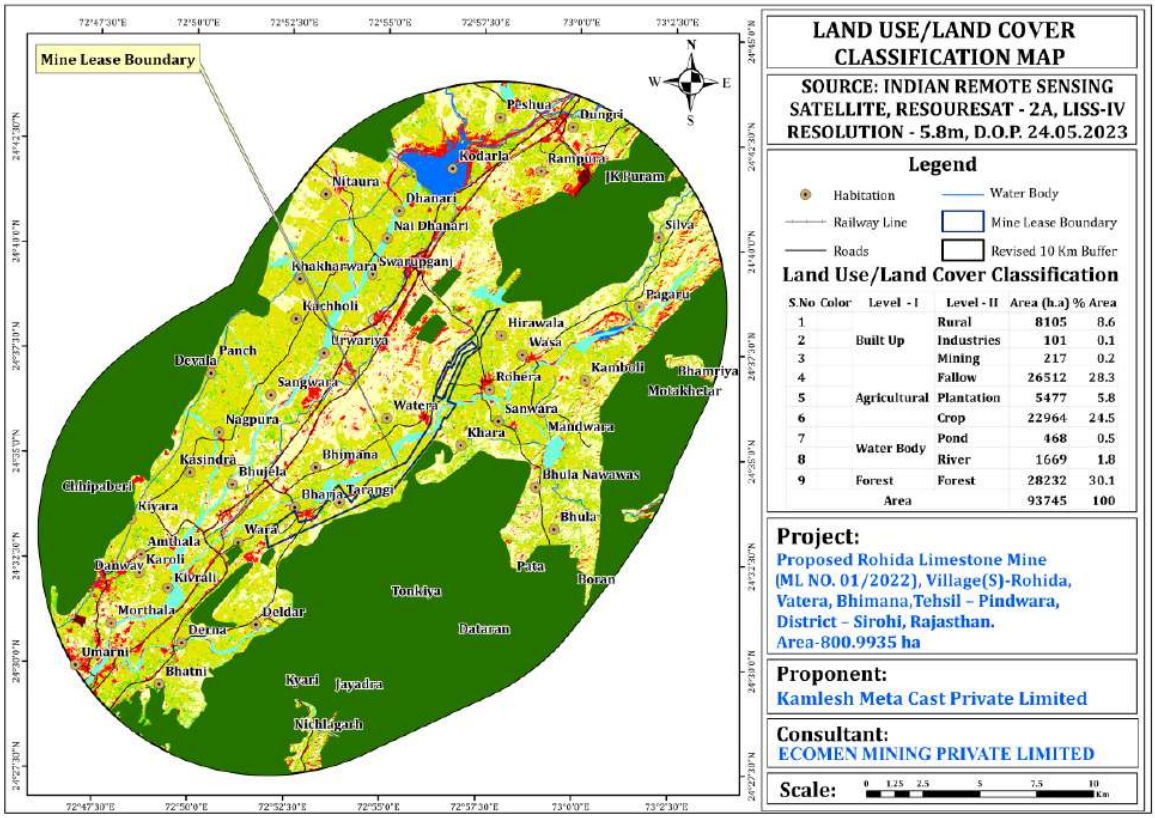
S. No.	Conservation Activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year	Capital Cost (Rs. in lakhs)
1	Habitat improvement & mitigation measures (Food, Water, Shelter, Movement etc.) and measures to reduce/ minimize the human- animal Conflicts	23.75	23.75	23.75	23.75	23.75	23.75	23.75	23.75	23.75	23.75	**237.5**
2	Awareness and Extension (Forest staff will also be invited for various activities to ensure participation)	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	**47.5**
3	Support to Forest Department for monitoring, rescue & rehabilitation of Wildlife (Veterinary care, animal health, rescue, tools, and equipments etc.)	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	**47.5**
4	Contribution towards conservation of Wildlife in PA's or other Conservation activity (to be deposited in RPACS)	9.5	9.5	9.5	9.5	9.5	-	-	-	-	-	**47.5**
5	Administrative Cost for processing inspections etc. (to be deposited in RPACS)	9.5	9.5	9.5	9.5	9.5	-	-	-	-	-	**47.5**
6	Miscellaneous including Eco-development	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75	**47.5**
	Total	**57**	**57**	**57**	**57**	**57**	**38**	**38**	**38**	**38**	**38**	**475**

CHAPTER 7: MAPS / APPENDICS FOR WILDLIFE CONSERVATION PLAN (WCP) IMPLEMENTATION

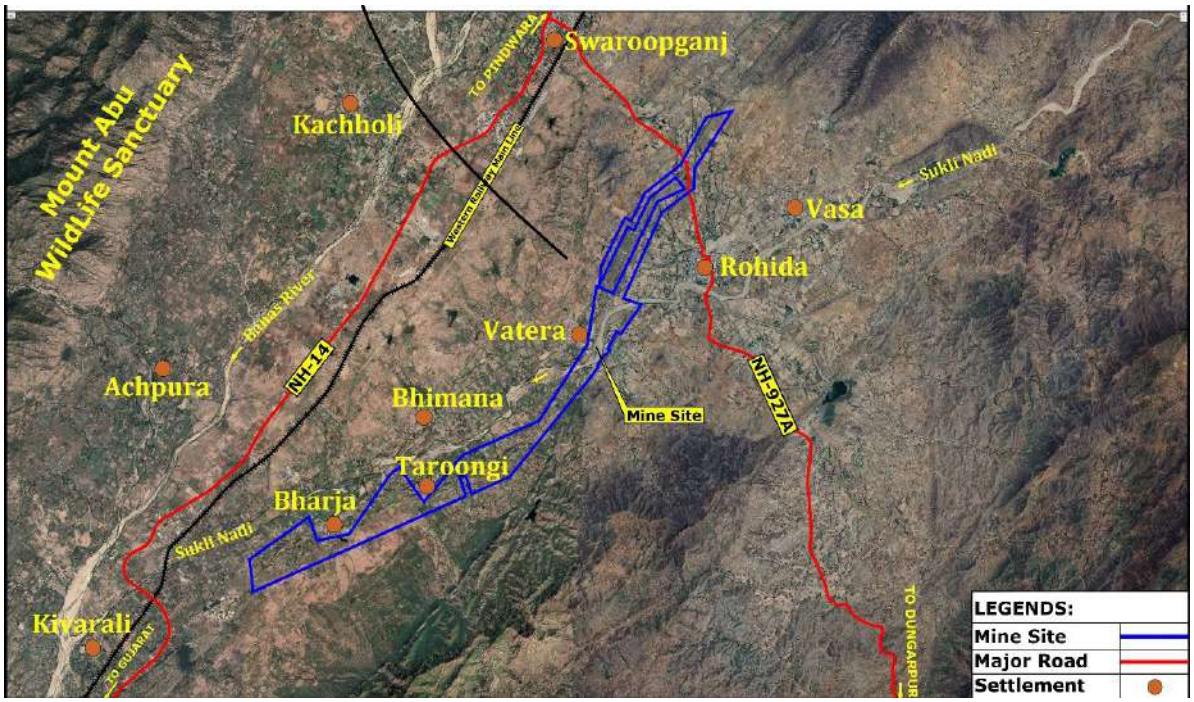
The following Maps / Drawings are appended for the WCP / Study area and project area:

1. LULC Map of the WCP / Study Area.
2. Google Image of the Study / WCP Area.
3. Location of Protected Areas (PAs) Close to the Project Area
4. Layout map of the project area (Project Site).
5. ToR obtain from Ministry of Environment, Forest and Climate Change, Govt of India, New Delhi (Annexure I)
6. DFO Authenticated distance of ESA in 10 KM radius area from Mine lease (Annexure II)
7. DFO Authenticated List of Flora Fauna of WCP area (Annexure III)

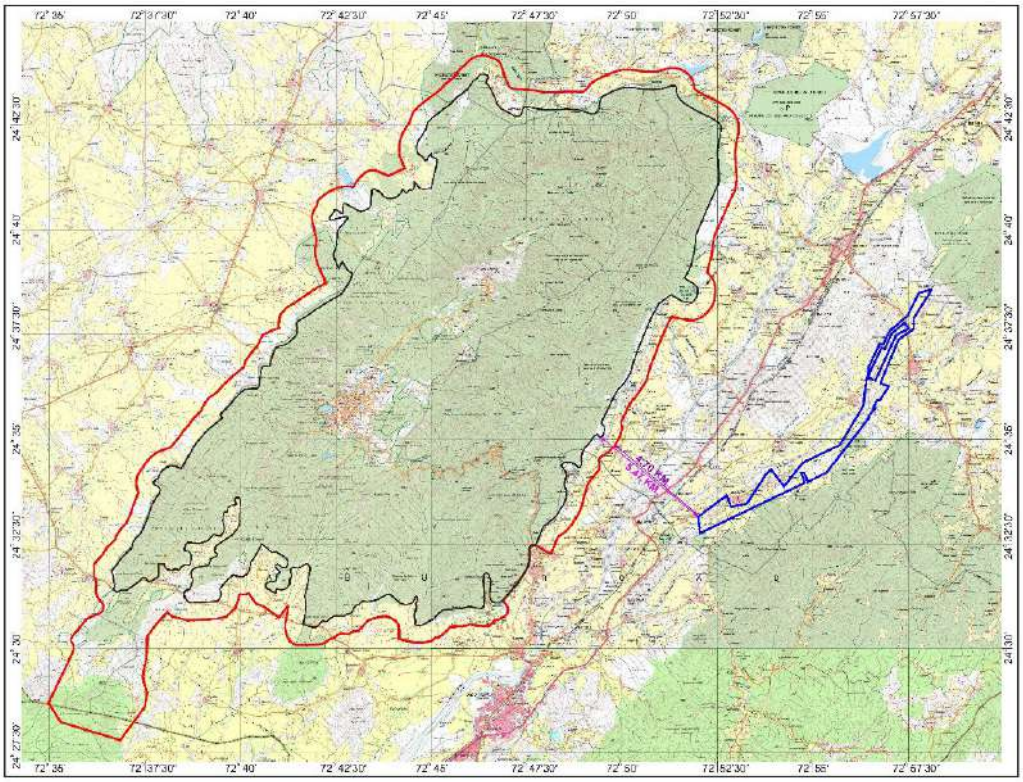
1. LULC Map of the WCP / Study Area.



2. Google Image of the Study / WCP Area.



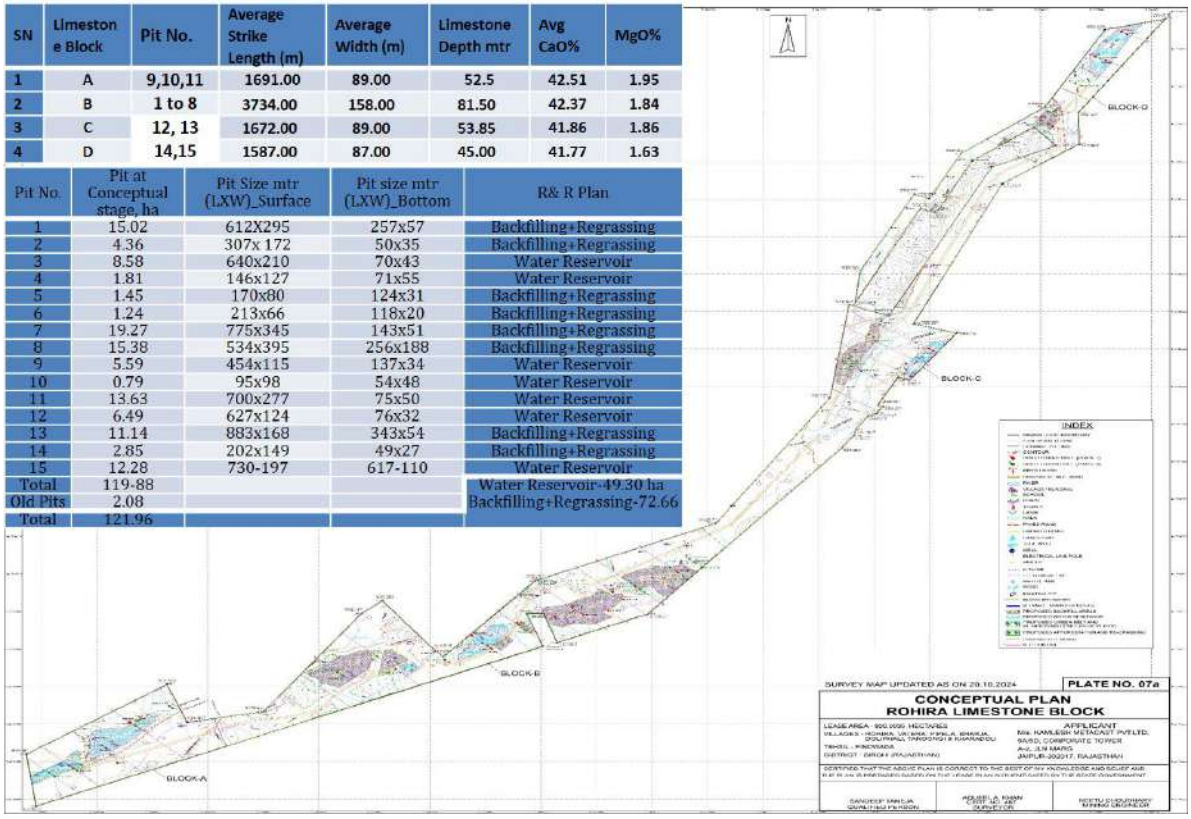
3. Location of Protected Areas (PAs) Close to the Project Area



4, Layout map of the project area (Project Site).

SN	Limestone Block	Pit No.	Average Strike Length (m)	Average Width (m)	Limestone Depth mtr	Avg CaO%	MgO%
1	A	9,10,11	1691.00	89.00	52.5	42.51	1.95
2	B	1 to 8	3734.00	158.00	81.50	42.37	1.84
3	C	12, 13	1672.00	89.00	53.85	41.86	1.86
4	D	14,15	1587.00	87.00	45.00	41.77	1.63

Pit No.	Pit at Conceptual stage, ha	Pit Size mtr (LXW)_Surface	Pit size mtr (LXW)_Bottom	R& R Plan
1	15.02	612X295	257x57	Backfilling+Regrassing
2	4.36	307x 172	50x35	Backfilling+Regrassing
3	8.58	640x210	70x43	Water Reservoir
4	1.81	146x127	71x55	Water Reservoir
5	1.45	170x80	124x31	Backfilling+Regrassing
6	1.24	213x66	118x20	Backfilling+Regrassing
7	19.27	775x345	143x51	Backfilling+Regrassing
8	15.38	534x395	256x188	Backfilling+Regrassing
9	5.59	454x115	137x34	Water Reservoir
10	0.79	95x98	54x48	Water Reservoir
11	13.63	700x277	75x50	Water Reservoir
12	6.49	627x124	76x32	Water Reservoir
13	11.14	883x168	343x54	Backfilling+Regrassing
14	2.85	202x149	49x27	Backfilling+Regrassing
15	12.28	730-197	617-110	Water Reservoir
Total	119-88			Water Reservoir-49.30 ha Backfilling+Regrassing-72.66
Old Pits	2.08			
Total	121.96			



सत्यमेव जयते

File No: IA-J-11015/81/2024-IA-II(NCM)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
****

Dated **05/05/2025**

To,

SHRI ANANYA AGARWAL
M/s KAMLESH METACAST PRIVATE LIMITED
5A/5D, CORPORATE TOWER A-2, JLN MARG, JAIPUR, JAIPUR, RAJASTHAN, 302017
aya.agarwal@gmail.com

Subject: **Rohida Limestone Mine with production capacity of Limestone 2.85MTPA, Mineral Reject 0.24 MTPA, Soil 0.04 MTPA & OB 5.78MTPA, Total excavation 8.91MTPA along with 1000 TPH of Crusher in mine lease area of 800.9935ha by M/s Kamlesh Meta Cast Private Limited, located at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan - For Terms of Reference reg.**

Sir/Madam,

This is in reference to your application for Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding in respect of project Proposed Rohida Limestone Mine of Kamlesh Meta Cast Private Limited with production capacity of 8.91 Million TPA Total Excavation (Limestone (Mineral) – 2.85 Million TPA, Mineral Reject- 0.24, Soil – 0.04 Million TPA & OB – 5.78 Million TPA) with proposed 1000 TPH of crusher over an area of 800.9935 ha located in Village(S)-Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan. submitted to Ministry vide proposal number IA/RJ/MIN/509472/2024 dated 06/12/2024.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24A0000RJ5633273N
(ii) File No.	IA-J-11015/81/2024-IA-II(NCM)
(iii) Clearance Type	TOR
(iv) Category	A
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Sector	Non-Coal Mining
(vii) Name of Project	Proposed Rohida Limestone Mine of Kamlesh Meta Cast Private Limited with production capacity of 8.91 Million TPA Total Excavation (Limestone (Mineral) – 2.85 Million TPA, Mineral Reject- 0.24, Soil – 0.04 Million TPA & OB – 5.78

	Million TPA) with proposed 1000 TPH of crusher over an area of 800.9935 ha located in Village(S)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan.
(viii) Name of Company/Organization	KAMLESH METACAST PRIVATE LIMITED
(ix) Location of Project (District, State)	SIROHI, RAJASTHAN
(x) Issuing Authority	MoEF&CC
(xii) Applicability of General Conditions	no
(xiii) Applicability of Specific Conditions	no

3. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the Ministry for an appraisal by the Expert Appraisal Committee (EAC) in the Ministry under the provision of EIA notification 2006 and its subsequent amendments.

4. The above-mentioned proposal has been considered by Expert Appraisal Committee of EAC in the 43rd EAC meeting held on 22- 23 April 2025. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.

5. The EAC, in its meeting held on 22- 23 April 2025, based on information & clarifications provided by the project proponent and after detailed deliberations recommended the proposal for grant of Terms of Reference under the provision of EIA Notification, 2006 and as amended thereof subject to stipulation of specific and general conditions as detailed in Annexure (1). The details of the project as per approved minutes is given at Annexure (2).

6. The MoEF&CC has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the 43rd Expert Appraisal Committee meeting held on 22-23 April 2025 hereby decided to grant Terms of Reference for Rohida Limestone Mine of M/s Kamlesh Meta Cast Private Limited with production capacity of 8.91 Million TPA Total Excavation (Limestone (Mineral) – 2.85 Million TPA, Mineral Reject- 0.24, Soil – 0.04 Million TPA & OB – 5.78 Million TPA) with proposed 1000 TPH of crusher over an area of 800.9935 ha located in Village(S) - Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan under the provisions of EIA Notification, 2006 and as amended subject to the following specific conditions, in addition to the standard ToR conditions applicable to Non-Coal mining projects given at Annexure(1).

7. The Ministry reserves the right to stipulate additional conditions, if found necessary.

8. The Terms of Reference to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

9. Issuance of Terms of Reference (ToR) shall not be construed as a commitment or guarantee by the Ministry for grant of Environmental Clearance (EC) to the project. The proposal will be considered for EC only after detailed appraisal as per applicable rules, regulations, compliance of commitments done by Project proponent and in compliance of orders/judgements of Hon'ble Courts/Tribunal.

10. This issues with the approval of the Competent Authority.

Copy To

1. **The Secretary,** Ministry of Mines, Government of India, Shastri Bhawan, New Delhi-110 001.
2. **The Secretary,** Department of Mines & Geology, Government of Rajasthan, Secretariat, Jaipur.
3. **The Secretary,** Department of Environment, Government of Rajasthan, Secretariat, Jaipur.
4. **The Secretary,** Department of Forests, Government of Rajasthan, Secretariat, Jaipur.
5. **The Chief Wildlife Warden,** State Forest Department**,** Government of Rajasthan, Jaipur.
6. **The Deputy Director General of Forests (C),** Ministry of Environment, Forest and Climate Change, Regional Office,

Gandhi Nagar A wing- 407 & 409, Aranya Bhawan, Near CH-3 Circle,Sector-10A, Gandhi Nagar-382010
7. **The Chairman,** Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
8. **The Member Secretary,** Central Ground Water Authority, 18/11, Jam Nagar House, Man Singh Road, New Delhi-110011.
9. **The Chairman,** Rajasthan State Pollution Control Board, 4, Jhalana Institutional Area Jhalana Doongri, Jaipur-302004, Rajasthan.
10. **The Controller General,** Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
11. **Director General,** Directorate General of Mines Safety, Hirapur, Dhanbad-826001.
12. **The District Collector,** Sirohi District, Government of Rajasthan.
13. **Guard File.**
14. **PARIVESH Portal.**

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Specific Conditions

S. No	Terms of Reference
1.1	PP needs to submit the location of the proposed cement plan, route of transportation and timeline for completion of OLBC.
1.2	PP needs to comply with the Hon'ble NGT's order dated 21.07.2020 in the OA No. 304/2019 and the recommendation of the CPCB report regarding distance criteria.
1.3	PP shall comply with all the Judgement/ Orders of Hon'ble NGT in the OA No. 304/2019 in the matter of M.Haridasan & Ors. Applicant (s) versus State of Kerala & Ors. Reg.
1.4	PP shall comply with all the Orders/ Judgement of Hon'ble Supreme Court, Hon'ble Court, Hon'ble NGT or any court of Law in the matter of Aravalli Hills/ Range.
1.5	PP needs to engage any national institute of repute to explore the comprehensive strength of the limestone ore and feasibility of deploying surface miners.
1.6	PP needs to submit the complete design and timeline for completion of the embankment near Pit no. 12 and 13. Consultation with DGMS should be done with respect to safety aspects of embankment.
1.7	PP shall plan so that that the UPL of the proposed pit nos 12 & 13 shall always remain above the HFL of Sukli River to ensure zero ingression of river water. Consultation with DGMS should be done in this regard.
1.8	PP needs to submit the data regarding the loss of water flow in Sukli River due to change in catchment area owing to the proposed mining activity. PP also needs to provide an action plan to compensate for the water loss to the farmers that are dependent on the water of Sukli River for irrigation.
1.9	PP needs to submit the water quality data for the upstream and downstream of the river. PP shall ensure that there are no adverse effects on Sukli River due to the proposed mining activity. Scientific study should be conducted to know the possible adverse impacts on Sukli River from Mining operations, blasting etc.

S. No	Terms of Reference
1.10	The natural water bodies and or streams which are flowing in and around the mine lease area should not be disturbed. PP shall consult state Water Resource department and SPCB regarding safeguards for River/Nallah and submit an action plan for protection of the same.
1.11	Households, Primary Health Care Centres (PHC) & Schools lying near to the proposed pit area shall be planned to shifted within 2 years. No mining activity shall be permitted within 500 m of schools and habitations. Accordingly, the Project Proponent needs to submit an action plan to expedite the shifting of habitation present within the ML area and also to safeguard them from adverse effect of mining operations.
1.12	PP to engage a reputable national institute for conducting both blasting and vibration studies and to carry out a scientific assessment of air overpressure and fly rock distances following blasting.
1.13	Appropriate Higher capacity machinery to be planned to be used within the ML area in order to reduce the pollution. Accordingly, PP needs to submit an action plan.
1.14	PP needs to reduce diesel consumption by proposing to deploy electric driven vehicles in the project.
1.15	PP should ensure that all the documents including the approved Mining plan and EIA/EMP should be in consonance with each other.
1.16	The Project Proponent should submit an action plan to construct a water reservoirs within the mine lease area so that reliance on outside water is lessened/ eliminated.
1.17	The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter Langelier Saturation Index which will denote the impact of calcium carbonates on water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.
1.18	PP should engage national reputed institute for scientific diversion studies. PP should consult State Water Resource Department for conservation, safeguards regarding the Nadis natural waterbodies, streams, rivers, etc. in and near the project area. If required, NoC from Water Resource Department should be taken for the above water bodies, streams.
1.19	PP needs to plan for the construction of ponds, water storage or collection structures, and other rainwater harvesting systems to address the water levels and requirements of the area effectively.
1.20	The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.
1.21	The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.
1.22	The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.
1.23	The Project Proponent needs to prepare plan to develop the treatment facility for waste water within

S. No	Terms of Reference
	the ML area. STP should also be planned.
1.24	The Project Proponent can explore for establishment of nursery on 5 hectares, in collaboration with a reputable forest institute, to cultivate local species such as Khejri, Rohida, Senegalia senegal (commonly known as Khair, Kumttha, Babul) etc.
1.25	The Project Proponent needs to furnish details of waste material handling plan and year wise back filling plan.
1.26	The Project Proponent needs to submit the detailed scientific study on flora and fauna and also to highlight on the endangered species. The Project Proponent needs to verify the list as per the latest Wildlife Protection Amendment Act, 2022. Accordingly, PP shall prepare a wildlife Conservation Plan as per Wildlife Amendment Act 2022 and shall submit a proof of submission of the plan to State Forest Department.
1.27	The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, and predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.
1.28	The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration.
1.29	The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.
1.30	The Project Proponent needs to undertake the enumeration of the species within the mine lease area before cutting. The Project Proponent also needs to submit the compensatory afforestation plan for the number of trees to be cut in the mine lease area and to explore the possibility of tree transplantation.
1.31	The Project Proponent needs to prepare the installation plan for permanent fixed water sprinkling system along the Haul roads.
1.32	The Project Proponent needs to plan for developing the Renewable energy facility within the ML area and incorporation of electric vehicle in order to reduce the dependency upon the diesel.
1.33	The Project Proponent needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of tar road/cart tracks, electric line etc., PP should also submit the details of number of saplings (at least 2500/ha) to be planted, type of saplings proposed and the area to be covered under greenbelt/plantation along with the timeline and budget. The greenbelt/plantation plan shall be prepared in such a way that the ecology of the area shall be restored.
1.34	The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.
1.35	PP needs to conduct the drone survey of the ML area and submit the same at the time of EC

S. No	Terms of Reference
	application.
1.36	PP needs to submit an action plan for installation of ETP with Oil & Grease trap within the ML Area.
1.37	PP needs to undertake the carrying capacity of the proposed road that is to be utilized for transportation of minerals till the installation of OLBC.
1.38	PP needs to submit an action plan as per Ministry's OM dated 24.07.2024.
1.39	The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF)/Project Displaced Families (PDF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc. PP need to submit the plan for Socio economic development of the neighborhood habitats based on the need based survey along with the time bound action plan. PP also needs to submit the possession certificate and timeline for acquiring the land. Further, PP needs to submit the map demarcating the purchased land and non-purchased land if any at the time of appraisal of EC.
1.40	The Project Proponent needs to submit employment based skill development plan for the local people, and thrust should be to provide employment to local people after imparting training.
1.41	PP needs to submit an action plan regarding safeguarding or diversion of river, Natural streams in and around the lease area, in consultation with State Water Resources Department.
1.42	PP needs to look after the alternate Charagah land area. PP should submit a detailed action plan to provide an alternate charagah land.
1.43	PP needs to come out with the plan for the crusher installation.
1.44	PP needs to project year wise backfilling plan.
1.45	A slope stability study should be conducted through national institute of repute and incorporated into the EIA report. PP may also explore whether study of seismic impact on the ecology and environment of the area is required through the above institute.
1.46	The PP shall ensure compliance of MoEFCC O.M. dated 14.01.2025 regarding streamlining the implementation of GSR 702 and GSR 703 dated 12.11.2024.
1.47	PP needs to comply the OM dated 24.07.2024 of MoEFCC, wherein it is stated that the plantation of saplings shall be carried out in the earmarked 33% greenbelt area as part of the tree plantation campaign "EK Ped Ma ke Naam" (एकपेड़माँकेनाम) and the details of the same shall be uploaded in the Meri Life portal (https://merilife.nic.in).

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	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
1.2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given
1.3	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
1.4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the areashould 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)
1.5	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
1.6	Details about the land proposed for mining activities should be givenwith 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
1.7	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
1.8	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
1.9	The study rea 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
1.10	Land use of the study rea 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
1.11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land

S. No	Terms of Reference
	area, distance from mine lease, its land use, R&R issues, if any, should be given
1.12	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
1.13	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
1.14	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
1.15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given
1.16	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
1.17	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 Wildlifeand copy furnished
1.18	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
1.19	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 Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered
1.20	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)

S. No	Terms of Reference
1.21	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
1.22	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
1.23	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
1.24	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
1.25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided
1.26	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
1.27	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
1.28	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
1.29	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

S. No	Terms of Reference
1.30	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
1.31	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
1.32	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
1.33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report
1.34	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
1.35	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
1.36	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
1.37	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
1.38	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
1.39	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
1.40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given

S. No	Terms of Reference
1.41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out
1.42	A Disaster management Plan shall be prepared and included in the EIA/EMP Report
1.43	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
1.44	Besides the above, the below mentioned general points are also to be followed:- a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) 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. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF 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. g) 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. h) 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. i) 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

<u>Additional Terms of Reference</u>

1. The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP report, as per the notification S.O 751 (E) dated 17.02.2020. The instant TOR is valid up to four years from the date of issuance of TOR.

2. The Project Proponent should submit the EIA/EMP report as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006 after incorporating the details of public hearing conducted and covering the above-mentioned issues, to take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

Annexure-2

Details of the project.

The instant proposal is for Reconsideration of Terms of Reference Rohida Limestone Mine with production capacity of Limestone 2.85MTPA, Mineral Reject 0.24 MTPA, Soil 0.04 MTPA & OB 5.78MTPA, Total excavation 8.91MTPA along with 1000 TPH of Crusher in mine lease area of 800.9935ha by M/s Kamlesh Meta Cast Private Limited, located at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan.

2. The details of Project submitted by the Project Proponent are given as under:

i. Project details:

Name of the Proposal	The instant proposal is for Reconsideration of Terms of Reference Rohida Limestone Mine with production capacity of Limestone 2.85MTPA, Mineral Reject 0.24 MTPA, Soil 0.04 MTPA & OB 5.78MTPA, Total excavation 8.91MTPA along with 1000 TPH of Crusher in mine lease area of 800.9935ha by M/s Kamlesh Meta Cast Private Limited, located at villages Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan	
Location	Village (s)	Rohida (Rohera as per toposheet), Bharja, Taroongi (Tarangi as per toposheet), Doliphali, Vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli
	Tehsil	Pindwara
	District	Sirohi
	State	Rajasthan
	Latitudes	24° 32’ 47.3874”N to 24° 38’ 33.7254”N
	Longitudes	72° 51’ 57.958”E to 72° 57’ 57.515”E
	SoI Topo sheet No.	45D/14, 15 & 45 H/2
Company’s Name	Kamlesh Metacast Private Limited	
Accredited Consultant and certificate no.	Enkay Enviro Services Private Limited NABET/EIA/23-26/RA 0326 validity till 14.12.2026	
KML file	Uploaded	
Seismic zone	Seismic Zone III, as per the seismic zoning map of India given in BIS code IS: 1893 (Part1)-2002.	

ii. Category details:

Category of the project	A
Schedule No.	1(a) Mining of minerals
Mining lease Area (MLA) (in ha.)	800.9935
General Conditions (if any)	None

iii. Details of Mine Lease in chronological manner:

Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Prospecting License: Prospecting License (PL) for limestone over an area of 1859.0275 ha near Village Rohida (Rohera as per toposheet) in Tehsil Pindwara, District Sirohi, Rajasthan granted vide Government Order no. Nikhabhu/ Sirohi/ CC.2/ P1 (2) 7/11/ 5255 dated 24-12-2014. PL executed on 12-03-2015. Letter of Intent (LoI): The LOI for an area of 800.9935 ha has been granted by Mines and Petroleum Department, Government of Rajasthan. LoI has been issued vide order no. P 3 (6) Khan/Group-2/2022 dated 13.03.2023. As per the condition of LoI, Mining plan has to be approved within 6 months and Environmental Clearance has to be obtained within 2 years. Upon request of KMPL and approval from GOR, approval timeline has been extended upto 12.03.2026 for EC and 12.09.2025 for mining plan vide order no. P.3 (6) Khan/Grp-2/2022 dated 25.07.2023 and P.3 (6) Khan/Grp-2/2022 dated 23.08.2024.
Date of the grant	13.03.2023
Name of the Mineral & (Major/Minor)	Limestone (Major)
Period of Grant	Upto 12.09.2025 for mining plan and 12.03.2026 for EC
Granted by	Mines and Petroleum Department, Government of Rajasthan
Mine lease area in Ha	800.9935

iv. Land Use/Land Cover of the Mine Lease Area:

Private land	551.9535 ha
Government land	227.9500 ha
Forest Land	Nil

Grazing /Charagah Land	21.0900 ha
Total Mining lease area (MLA)	800.9935 ha.
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

v. Mining plan details:

Mining Plan including Progressive Mine Closure Plan (approved by Indian Bureau of Mines/DMG)	Letter No.	Letter no. E12030-MCDR-MPC0LST/28/2024-AJM-IBM_RO_AJM
	Date	27.11.2024
	Mineral & (Major/Minor)	Limestone (Major)
	Mine Lease Area, Ha	800.9935
	Validity	50 years validity from the date of lease registration and execution.
Mining Parameters	Quantitative Description	
Method of Mining	Open cast mechanized mining	
Drilling/Blasting	Wet drilling with sharp drill bits (Hydraulic, Hole Dia 150mm, hole depth 11 mtr hole) Controlled blasting by optimal charging of blast holes and use of delay detonator (NONEL) using ANFO as explosive. Use of hydraulic rock breaker to avoid secondary blasting.	
Geological Reserves	27,67,13,725.85 MT (276.71 Million Tonnes)	
Mineable Reserves	5,67,92,655.30 MT (56.79 Million Tonnes)	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Limestone (Mineral) – 2.85 Million TPA, Mineral Reject- 0.24, Soil – 0.04 Million TPA & OB – 5.78 Million TPA	
Life of mine	20 years	
Mine Bench Height & Bench Width	10 m & 15-20m	
No. of Mine Benches	12	
Existing Depth, m bgl	0	
Ultimate Depth of Mining, m bgl	76	
Ground Water Table, m bgl	60m bgl in Pre-monsoon and 55m bgl in Post monsoon	
Details of ground water intersection	Mining will be carried out upto 250 MSL during the mining period. After 15 years for which CGWA NOC will be obtained for dewatering.	
Individual bench slope	80º	
Overall pit slope	≤45º	

Details of existing/ proposed Crusher	Proposed: Crusher (1000 TPH) with wobbler and screening (200 TPH)
Mineral Beneficiation	Nil
RoM output size	1000 mm
Transportation details including capacity of dumper/tipper, mode of transport and distance	The Mineral will be transported to crusher located within applied ML area by Dumper/Trucks capacity 55 tonne
Generation of Topsoil/OB & its Management during plan period & conceptual period	Plan Period: Top soil: 0.056 Million Tonne OB: 11.8452 Million Tonne Conceptual Period: Top Soil: 0.16 Million Tonne OB: 65.97 Million Tonne Top soil will be used for simultaneously for greenbelt/plantation development Ob will be used for backfilling of pit no-2 and rest will be stacked at earmarked dump site.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Plan Period: Mineral Reject: 0.7450 Million Tonne Conceptual Period: Mineral Reject: 4.94 Million Tonne Mineral reject will be stacked at earmarked dump site.

vi. Water requirement

Total water requirement	Fresh water: 150 KLD 10 KLD will be required for drinking and sanitation, 20 KLD Greenbelt development, 10 KLD mine workshop and 110 KLD for dust suppression
	Treated Water: 8 KLD HEMM washing water will be passed through Oil and grease separator. Treated water will be used for dust suppression at crusher.
Source	Ground water
Permission for withdrawal/ intersection along with details of grant and its validity	Permission will be taken as per Rules & Regulation

vii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance &Directions
Village	Taroongi (Tarangi as per Toposheet) & Bharja	Some village parts falls within the lease area
Town	Abu Road	9.82 Km. SW
Highway	NH-927A	Passing through the lease area
	NH-27	1.70 Km. NW
Interstate Boundary	None	None
Railway Station/Railway line	Kivrali Railway Station	2.56 km in WSW
Water bodies	Hukli Nadi	8.89 km in NNE
	Silva Nala	5.54 km in E
	Kosiya Bhagra Nala	7.72 km in E
	Akhleti Nala	5.85 km in E
	Mandwara Distributary	3.36 km in E
	Khara Distributary	1.27 km in ESE
	Chitriya Nala	4.99 km in SE
	Sukli Nadi	Passing through the lease area
	Batriya Nadi	3.55 km in S
	Left Canal	1.52 km in E
	Banas River	2.37 km in WNW
	Gabir Nala	2.90 km in NW
	Right Canal	5.29 km in NW
	Grangri Bala	4.47 km in NNW
	Sangwara Minor	5.25 km in NW
	Sangbariya Balo	5.51 km in NW
	Sukli Nadi	5.24 km in NW
Forest	Nitaura Jor Reserved Forest	8.0 km in NW
	Reserved Forest N/V Swarupganj	2.97in NW
	Reserved Forest N/V Pipela	2.08 in NW
	Protected Forest N/V Hirawala	0.56 in NE
	Reserved Forest N/V Wara	0.064 in S
	Reserved Forest N/V Wara	0.96 in SW
	Kivrali Ka Zor Reserved Forest	1.10 in W
	Mount Abu Wild Life Sanctuary	5.47 in NW
	Reserved Forest N/V Pipela	1.10 in NW

viii. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	PP has submitted non forest land certificate vide letter dated 02.02.2025 from the Office of Regional Forest Officer Pindwara, Sirohi
National Park	No	The NOC has been obtained from the DCF Sirohi vide letter no. F ( ) Survey /DCF/2025/454, date 20.01.2025.
Wildlife Sanctuary	Mount Abu Wildlife Sanctuary (5.5 Km. NW)	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	
Schedule-I species (No.s and name of schedule-I species with authenticated letter)		PP has stated that the information will be submitted in EIA-EMP report.
Wildlife Conservation Plan		PP has stated that the information will be submitted in EIA/EMP Report.

ix. Green belt/ Plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	128.30 ha, 1,39,100 saplings
Budget for green plant & plantation till the end of life of mine.	792.82 lakhs
Budget for nursery	15 lakhs
Details of existing plantation and its survival rate	None
No. of tree cuts in the mine lease area and compensatory afforestation	250 and 1:10 as compensatory afforestation=2500
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	30.70

x. Baseline detail:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)

Period of baseline data collection	01/03/2023 to 31/05/2023
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Pre-monsoon
Ambient Air Quality (no. of locations) and results	8
Noise level (no. of locations) and results	8
Water Quality (no. of locations) and results	8
Soil Quality (no. of locations) and results	8

xi. Rehabilitation & Resettlement (R&R): This Proposal is for ToR

R & R details	R&R study will be covered during EIA study.

xii. Court case details:

Court Case, No and its present status	PP has stated that no litigation is pending.
Undertaking by Project Proponent w.r.t court case	PP has submitted an undertaking for no court cases vide letter dated 29.11.2024.

xiii. Affidavit/Undertaking details: This Proposal is for ToR

Affidavit as per Ministry's OM dated 30.05.2018	PP has submitted an affidavit on 29.11.2024 as per the Ministry's OM dated 30.05.2018

xiv. PP has submitted the following point-wise reply to the ADS raised during 38th EAC Meeting held on 27th December 2024 and also further raised the additional details were sought on 09.01.2025 respectively. PP has submitted the reply on 06.02.2025 as given below:

S. No	ADS Point	Reply by Project Proponent
1.	The Project proponent needs to obtain necessary permission/NOC from State Water Resource Department to undertake mining activity on the banks of Sukli River passing through ML area.	The NOC is obtained from the Department of Water Resource, Sirohi vide letter no. 2024-25/5071 dated 03.01.2025. The NOC is granted for mining (nearest pit no. 12 & 13) at a distance of 50 Mts from River Bank subjected to construction of retaining wall {rubble wall 3x2x2(m)} along the pit boundary towards the river to protect from any waste/siltation blocking the natural drainage channel. As per the NOC the mining area (pit no. 12 & 13) are not the part of River.

2.	PP needs to obtain the HFL data from State Water Resource Department for past 30 years and submit the same for examination by EAC. PP should provide an undertaking that no Mining will be conducted within the HFL (Highest Flood Level) of the Sukli River.	The Department of Water Resources Swaroopganj, has issued a letter dated 13.01.2025 stating that the UPL of pit no. 12 & 13 which are proposed at minimum distance of 50 Mts. from the River HFL and is not be affected by HFL in past 30 years. River HFL level is given as below: 1. Pit no 12: river HFL is recorded as 318 MSL, while the pit UPL is 320 MSL. 2. Pit no 13: river HFL 318.5 MSL and Pit UPL 330 MSL.
3.	Households, Schools and primary health care centers lying near to the proposed pit area shall be shifted within 2 years. No mining activity shall be permitted within 500 m of school and habitation. Accordingly, the Project Proponent needs to submit an action plan to expedite the shifting of habitation/school/health centre present within the ML area and also to safeguard them from adverse effect of mining operations	In this regard the letter received from the Office of DGMS, vide letter no. AJM/Directorate-1/2025/169 dated-20.01.2025 where danger zone is considered as 300 Mts. as per the Rule 164 (1-A) (b) of MMR 1961 and no blasting will be conducted within 300 mts. danger zone from any permanent surface structure without obtaining the DGMS permission. The letter also clarifies that, in case of school and habitation exist within danger zone of 300 mts., a prior scientific study is required to be submitted and approved from DGMS with maximum charge per delay and other blasting parameters. As per the letter, Permission under Regulation 164(1-B) (a) of MMDR 1961, controlled deep hole blasting is granted up to 100 mts. distance from any school and habitation. However, in our case, during the 1st year working there is no mining activity undertaken and only haul road will be developed from pit no. 1 to crusher. (2.20 Km)

		During the 2nd year, mining will be initiated in pit no. 1 which will be located at distance of 470m away from the village Tarangi (Taroongi). Based on the 2nd year mining a scientific study will be carried out from the reputed credible institute for working within 300 Mts. and prior DGMS approval will be obtained for safe mining maintaining minimum distance from the sensitive locations. Woking within the 300 Mts. blasting with NONEL technology (shock tube delay detonator), maximum charge per delay and other blasting parameters will be followed as per the approval. If there is any R&R the same will be mentioned in EIA/EMP Report
4.	PP needs to revise the distance of its UPL from the proposed pits as per MMR (Metalliferous Mining Regulations) /DGMS guidelines to ensure safety of Habitation/School and Primary Health Care Centers.	As per DGMS letter dated 20.01.2025 the danger zone is considered unto 300 mts. and accordingly no deep hole blasting will be conducted within Danger Zone from any permanent surface structure without obtaining the DGMS permission. As per the letter mining up to 50 Mts. distance from any sensitive location prior approval will be taken. Based on the 2nd year mining a scientific study will be carried out from the reputed institute for working within 300 Mts. and prior DGMS approval will be obtained for safe mining maintaining minimum distance from the sensitive locations to ensure safety of Habitation/School and Primary Health Care Centres.

5.	No river water shall be used in mining operations. PP shall submit an action plan to source water from nearby STPs as stated during the meeting instead of sourcing it from groundwater.	Total fresh water requirement will be 150 KLD out of which 10 KLD will be required for drinking and domestic and 140 KLD will be required for mining activities. Pursuant to the application made for willingness of treated w/w from STP at Santpur by RUID, a denial letter date-21.01.2025 has been received. Thus, we depending upon the ground water. For this application will be made to abstract ground water to the tune of 150 KLD on NOCAP of CGWA. The block is categorized as Semi-Critical and the permission of the same will be obtained. It is also mentioned that later as the pits develop, the ground water abstraction will be restricted only for drinking purpose only.
6.	PP needs to submit the proposed transportation route for transportation of mined out limestone till the cement plant is constructed.	We are in discussion with the Government of Rajasthan for finalization of location of the proposed cement plant. Land acquisition for cement plant will start after getting the final approval from Government. After getting the EC for mining project, the total mining production in 1st two years will be 8383 tonne only which will be stacked near the crusher. From 3rd year onwards full mining production of 2.85 million TPA will be achieved which will be transported to the proposed cement plant site initially by road and later feasibility for installation of OLBC will be explored after the plant site finalization.

7.	PP needs to submit the embankment design approved by State Government /Local Administration.	The design of proposed embankment/parapet wall along the pit no. 12 & 13 has been approved by the Water Resources Department Sirohi.
8.	PP needs to submit a NoC from DFO regarding mining operations near ESZ and wildlife sanctuary.	The nearest distance from the ML boundary and Mount Abu Wildlife sanctuary is 5.5 km & the lease area is outside of the Mount Abu ESZ. The NOC has been obtained from the DCF Sirohi vide letter no. F ( ) Survey /DCF/2025/454, DATE-20.01.2025.
9.	PP needs to generate electricity by installing solar Power Plant and submit action plan to reduce diesel consumption by 30 %.	A 10 KW solar panel will be installed at the roof of mine office to meet the power requirement for office and common areas. Power consumed by the crusher will be sourced from Grid where the green power consumption will be ensured under the PPA mode to align with India's Net Zero Commitment. The fuel conservation measures will be: Use of fuel-efficient equipment's Use of low sulphur content diesel or green fuel as available. The action plan for reduction of 30% diesel will be elaborated in the final EIA/EMP.

xv. PP has submitted the following point-wise reply to the ADS was raised during 41st EAC Meeting held on 27th February 2025 and also further raised the additional details were sought on 27.02.2025 respectively. PP has submitted the reply vide letter dated 15.04.2025 as mentioned below:

S. No	ADS Point	Reply by Project Proponent
1	In light of the Hon'ble Supreme Court's order dated 09.05.2024, Project proponent should consult state DMG regarding location of mine lease inside/outside Aravalli Hills and range.	Acting on the query raised under this point, we have sought a letter from Office of DMG, wherein it is stated that The Hon'ble Court Order dated 09.05.2024 mentions that all Statutory approvals from Various Authorities can be obtained and

		the order does not cease any approvals for the same. The proposed project doesn't fall in the Aravalli Hills and also does not contempt the order dated 08.04.2005 of Hon'ble Supreme Court. The letter is issued in this regard from the Office of DMG Udaipur: vide letter no. 766 dated 26.03.2025.
2.	PP should obtain a letter/certificate from DCF Sirohi about forest land involved in the project, if any.	There is no forest land involved in proposed project has been endorsed in the letter issued from the office of regional forest office, Pindwara vide letter no. F()/ Surve/ 2024-2025/105 dated 02.02.2025.
3.	PP needs to obtain the HFL data from State Water Resource Department for past 30 years and submit the same for examination by EAC.	A letter pursuant to the EAC MOM posted, was requested from The Department of Water Resources, Sirohi. The letter no 58 dated 04/04/2025 states that "*The Sukli River is not a perennial river and there are no gauge plates and measuring device affixed to measure the flow/flood level. So, they don't have record Flow/ Flood Level data for the Sukli River. The HFL level was calculated based on the maximum rainfall recorded in the catchment area over the past 30 years and with inputs from local senior person*" Based on this they have already provided the HFL level 318 m in the letter no 588 issued from, the office of Assistant Engineer water resource sub division, Sarupganj dated 13.01.2025.
4.	PP needs to provide the official name of the Sukri/ Sukli river as per Government record.	The above referred letter at point no. 3 clarifies the name as "Sukli River"
5.	PP needs to come out with an action plan to commission OLBC along with route survey plan.	Action Plan to commission OLBC: We have signed a MOU with Govt of Rajasthan in the Investors Summit for allotment of land for setting up a cement plant. We have already requested the District Collector, Sirohi for allotment of land (copy submitted) and recently we have received

		the reply from Office of District Collector, ADM Sirohi, vide letter no 1519-20 dated 10.04.2025. The proposal is under process (copy submitted) We also submitted the google earth photo for proposed land and OLBC route plan from Crusher to cement plant for Length – 5.76 km and Width – 1.2 meter.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Air pollution control and management(dry fog system at crusher, crusher enclosures, bag dust collector at crusher, water sprinkler on haul roads)	0.87	0.10
Water and wastewater control and management (Garland drains, de-silting pits, septic tank & soak pits, oil and grease separation pits for HEEMS workshop, roof top rainwater harvesting and water meter)	0.50	0.05
Health and safety management (use of PPE's and primary health care & fencing)	0.10	0.010
Environmental monitoring (CAAQMS, Peizometer)	0.60	0.06
Plantation & Green Belt	7.93	0.25
Total	10.0	0.47

xvii. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	Total Cost of EMP will be given after PH. Capital Cost of EMP- 10 Cr.
Project Cost	203.526
Employment (No.s)	80

3. Observation and Recommendation of the Committee:

The EAC deliberated the instant proposal for Reconsideration of Terms of Reference for Rohida Limestone Mine for mining of limestone with production capacity of 2.85MTPA, Mineral Reject 0.24 MTPA, Soil 0.04 MTPA & OB 5.78MTPA, total excavation 8.91MTPA along with the installation of 1000 TPH Crusher by M/s Kamlesh Meta Cast Private Limited in mine lease area of 800.9935ha located in village(S)

Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil Pindwara, District Sirohi, Rajasthan.

The Project Proponent and the consultant presented the KML file and explained the key site features of the Mine lease and the study area. PP stated that Mount Abu Wildlife Sanctuary is located at a distance of 5.47 km in NW direction from the ML area and its ESZ is located at a distance of 4.47 km. PP mentioned that some part of village Tarangi and Bharja is lying within the ML area and village Watera is located at a distance of 50 m in the eastern direction. PP also added that Bharja to Wada Tar road passes through the ML area, NH-927A (Swaroopganj- Ratlam) road is also passing through ML area and NH-27 is located at a distance of 2.56 km in WSW direction. PP also stated that Sukli River is passing through ML and it merges with Banas River. EAC also noted the presence of habitations, schools and primary health centre within the ML area and asked PP about the proposed safeguards. PP stated that they will shift the habitation where necessary and will adhere to safety norms before starting the mining activity. EAC noted the proposed safety distance submitted by PP are not as per DGMS guidelines. It accordingly, advised PP to revise the safety distances as per the rules/guidelines of DGMS.

Thereafter, the Project Proponent presented the reply to the ADS raised vide minutes of the 41st EAC meeting held during 21.02.2025.

With regard to the involvement of any forest land within mine lease area, PP presented a letter dated 02.02.2025 issued by the Office of Regional Forest Officer Pindwara, Sirohi wherein it was mentioned that forest land is not present within the mine lease area.

Regarding HFL data for past 30 years and official name of the river, PP submitted a letter dated 04.04.2025 from the Office of Executive Engineer, Water Resource Department Sirohi, wherein it was stated that the name of the said river as per the record is 'SUKLI' and there are no gauge plates and measuring device affixed to measure the Flow/ Flood Level. Accordingly, no data is recorded.It has been further mentioned in the letter that the HFL level was calculated based on the maximum rainfall recorded in the catchment area over the past 30 years and with inputs from local senior person and same has been communicated earlier by the Assistant Engineer, Water Resource Sub Division, Swarupganj Office letter no 588 dated 13/01/2025.

EAC noted the submission of PP and reiterated that in absence of data, the benchmark of 318m HFL as provided vide letter dated 13.01.2025 and 04.04.2025 may be taken in account while proposing the mining activity at proposed pit no. 12 & 13. PP informed the committee that Department of Water Resources Swaroopganj, has issued a letter dated 13.01.2025 stating that the UPL of pit no. 12 & 13 are

proposed at minimum distance of 50 Mts. from the River HFL and is not be affected by HFL in past 30 years. PP also added that the at pit no. 12, river HFL is recorded s 318 MSL whereas pit UPL will be 320 MSL, similarly, river HFl near pit 13 is 318.5 MSL and pit UPL is 330 MSL. PP also submitted a drawing (not in scale) showing Sukli riverbed and its HFL signed by Assistant Engineer.

EAC noted the submission of PP and highlighted that CPCB had earlier issued a distance criteria for permitting stone quarrying in reference to Hon'ble NGT order dated 28.02.2020 in the OA NO. 304/2019 which was later mandated by Hon'ble NGT vide order dated 21.07.2020.

EAC suggested PP to come out with alternate techniques for mining/excavation at proposed pit no. 12 & 13 areas close to River. EAC also suggested to explore the options of surface miners based upon the compressive strength and hardness of the ore.

Regarding action plan for installation of OLBC, PP submitted that they have identified a land for proposed cement plant and already have requested the State Government for its allotment vide letter dated 10.04.2025. PP also submitted the proposed route for OLBC installation. EAC noted the submission of PP and advised to submit the detailed OLBC installation plan at the time of EC application.

With regard to the Hon'ble Supreme Court's order dated 09.05.2024 and location of proposed ML area, PP submitted a letter dated 26.03.2025 from Office of Director-DMG, Udaipur stating that the aforesaid order mentions that all statutory approvals from various authorities can be obtained and the order does not cease any approval for the same. It is also mentioned that the ML area doesn't fall in the Aravalli Hills. EAC noted the submission of PP and asked to submit an undertaking in the form of an affidavit to comply with the directions of Hon'ble courts. Accordingly, PP vide email dated 24.04.2025 submitted an affidavit dated 22.04.2025 wherein PP has stated that they will abide by the final outcome of the Hon'ble Supreme Court in the matter of ongoing WP number 4677/1985 in relation to Aravalli Hills. PP has also submitted that they will abide by the outcome of the Hon'ble NGT order in the matter of ongoing OA No. 304/2019 with respect to revising the distance criteria by CPCB from lease to various sensitive areas. In light of the Hon'ble Supreme Court's order dated 09.05.2024, Project proponent should regularly consult state DMG regarding location of mine lease inside/outside Aravalli Hills/range.

Based on aforesaid discussions and presentation made by the Project Proponent and the Consultant, the Expert Appraisal Committee (EAC), in its 43rd EAC meeting held on 22-23 April, 2025, under the provisions of the EIA Notification, 2006 and its subsequent amendments, **recommended** the proposal for the grant of Terms of Reference (ToR) for Rohida Limestone Mine of Kamlesh Meta Cast Private Limited

with production capacity of 8.91 Million TPA Total Excavation (Limestone (Mineral) – 2.85 Million TPA, Mineral Reject- 0.24, Soil – 0.04 Million TPA & OB – 5.78 Million TPA) with proposed 1000 TPH of crusher over an area of 800.9935 ha located in Village(S) - Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan. The recommendation is for undertaking a detailed EIA/EMP study and is subject to the certain specific conditions, in addition to the standard ToR conditions applicable to Non-Coal mining projects.

राजस्थान सरकार
वन विभाग

कार्यालय क्षेत्रीय वन अधिकारी पिण्डवाडा, (सिरोही)

अजारी तिराहा, पिण्डवाडा (सिरोही) - 307022 Email: fropindwara@gmail.com

क्रमांकः एफ ( )/सर्वे/2024–25/410 दिनांकः– 02/06/2025

निमित्

श्रीमान उप वन संरक्षक महोदय
सिरोही।

विषयः–Regarding Authenticating the list of Flora and fauna found in core and buffer zone for proposed Rohida Limestone Mine of Kamlesh Metacast Private Limited located in village (s) Rohida (Rohera as per toposheet). Bharja, Taroongi (Tarangi as per toposheet), Doliphali, vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli,, Tehsil Pindwara, district-Sirohi, Rajasthan. Area 800. 9935 ha.

प्रसंगः–आपके कार्यालय के पत्र क्रमांक एफ() सर्वे/उवंसं/2025/2092दिनांक 28.05.2025 के क्रम में।

महोदय,

उपरोक्त विषयान्तर्गत प्रासंगिक पत्र के क्रम में निवेदन है कि Regarding Authenticating the list of Flora and Fauna found in core and buffer zone for proposed Rohida Limestone Mine of Kamlesh Metacast Private Limited located in village (s) Rohida (Rohera as per toposheet). Bharja, Taroongi (Tarangi as per toposheet), Doliphali, vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli,, Tehsil Pindwara, district-Sirohi, Rajasthan. Area 800. 9935 ha. के क्रम में आवेदक कमलेश मेटाकास्ट प्राईवेट लिमिटेड द्वारा आवेदित क्षेत्र की परिधी के 10 कि.मी. के दायरे के फ्लोरा ओर फोना की सूची का अवलोकन किया गया जो स्थानीय स्टाफ की जानकारी और Working Plan के सन्दर्भ अनुसार उक्त जानकारी सही है, जिसकी प्रमाणित प्रति संलग्न है।

भवदीय

(प्रेम सागर)
क्षेत्रीय वन अधिकारी
पिण्डवाड़ा

क्षेत्रीय वन अधिकारी
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क्रमांकः एफ ( ) सर्वे / उवसं / 2025 / 2092 दिनांक : 28/05/25

निमित्

क्षेत्रीय वन अधिकारी
पिण्डवाडा।

विषय :– Regarding Authenticating the list of Flora and Paunafound in core and buffer zone forproposed Rohida Limestone Mine of Kamlesh Metacast Private Limited located in village (s) Rohida (Rohera as per toposheet). Bharja, Taroongi (Tarangi as per toposheet), Doliphali, Vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli,, Tehsil Pindwara, District - Sirohi, Rajasthan. Area 800. 9935 ha.

प्रसंग :– कमलेश मेटाकास्ट प्राईवेट लिमिटेड का पत्रांक दिनांक 28.05.2025

उपरोक्त विषयान्तर्गत एवं प्रासंगिक पत्र के कम मे लेख है कि Regarding Authenticating the list of Flora and Paunafound in core and buffer zone forproposed Rohida Limestone Mine of Kamlesh Metacast Private Limited located in village (s) Rohida (Rohera as per toposheet). Bharja, Taroongi (Tarangi as per toposheet), Doliphali, Vatera (Watera as per toposheet), Pipla (Pipela as per toposheet), Kharadoli,, Tehsil Pindwara, District - Sirohi, Rajasthan. Area 800. 9935 h के कम मे आवेदक कमलेश मेटाकास्ट प्राईवेट लिमिटेड द्वारा आवेदित क्षेत्र की परिधी के 10 कि.मी के दायरे के फ्लोरा ओर फोना की सूची संलग्न प्रेषित की जा रही है। उक्त फ्लोरा ओर फोना की सूची को प्रमाणित कर रिपोर्ट सूची सहित इस कार्यालय मे प्रेषित करें।

संलग्न :– उपरोक्तानुसार

(मृदुला सिंह IFS)
उप वन संरक्षक,
सिरोही

INVENTORIZATION OF FLORA AND FAUNA IN CORE AND BUFFER ZONE

FOR

Rohida Limestone Mine of Kamlesh Metacast Private Limited

Located in Village(s)-Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, (Kharadoli,, Tehsil – Pindwara, District – Sirohi, Rajasthan.

APPLICANT

KAMLESH META CAST PRIVATE LIMITED.

ENVIRONMENTAL CONSULTANT

ENKAY ENVIRO SERVICES PVT. LTD., JAIPUR

Accredited EIA Consultant Organization by NABET, QCI, New Delhi

Certificate No.: NABET/EIA/23-26/RA-0326; Validity: -Up to 14.12.2026

Corporate Office: -# 92 Heera Nagar - A, Near Shalimar Bagh, Ajmer Road, Jaipur (Raj.). - 302 021

Phone: - 0141-4920770, 4920771

Email: - info@enkayenviro.com; Website: - www.enkayenviro.com

LIST OF FLORA AND FAUNA FOR CORE & BUFFER ZONE

A. FLORA RECORDED IN THE STUDY AREA

Table 1. List of plants found in the core zone of the project area

S.No	Scientific Name	Local Name	Family
		TREES	
1	*Acacia catechu*	Khair	Mimosaceae
2	*Acacia leucophloea*	Ronj	Mimosaceae
3	*Acacia nilotica*	Desi Babool	Mimosaceae
4	*Anogeissus latifolia*	Dhavda	Combretaceae
5	*Anogeissus pendula*	Dhonk	Combretaceae
6	*Bridelia retusa*	Kalia-Dhav	Combretaceae
7	*Buchananialanzan*	Chironji	Anacardiaceae
8	*Butea monosperma*	Dhak	Fabaceae
9	*Cassia fistula*	Amaltash	Caesalpiniaceae
10	*Dalbergia sissoo*	Shisham	Fabaceae
		SHRUBS	
1	*Balanites aegyptiaca*	Hingot	Simaroubaceae
2	*Calligonumpolygonides*	Phog	Polygonaceae
3	*Calotropis gigantea*	Safed Aak	Asclepiadaceae
4	*Calotropis procera*	Aak	Asclepiadaceae
5	*Diclipteraabuensis*	-	Acanthaceae
6	*Dichrostachys cineraria*	Aminda	Mimosaceae
7	*Euphorbia nivulia*	Thor	Euphorbiaceae
8	*Helicteresisora*	Marodphali	Sterculiaceae
		HERBS	

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

1	*Argemone mexicana*	Satyanashi	Papaveraceae
2	*Cassia tora*	Panwad	Caesalpiniaceae
3	*Datura matel*	Dhatura	Solanaceae
4	*Tribulus terrestris*	Gokharu	Zygophyllaceae
5	*Convolvulus blatteri*	-	Convolvulaceae
6	*Ceropegia odorata*	-	Apocynaceae
7	*Begonia trichocarpa*	-	Begoniaceae

Table 2. LIST OF FLORA IN THE BUFFER ZONE OF THE PROJECT AREA

S.No	Scientific Name	Local Name	Family
		TREES	
1	*Acacia catechu*	Khair	Mimosaceae
2	*Acacia leucophloea*	Ronj	Mimosaceae
3	*Acacia nilotica*	Desi Babool	Mimosaceae
4	*Aegle marmelos*	Beal	Rutaceae
5	*Ailanthus excelsa*	Ardu	Simarubaceae
6	*Albizia lebbeck*	Kala siris	Mimosaceae
7	*Albizia procera*	Safed siris	Mimosaceae
8	*Anogeissus latifolia*	Dhavda	Combretaceae
9	*Anogeissus pendula*	Dhonk	Combretaceae
10	*Anogeissus sericea*	-	Combretaceae
11	*Adina cordifolia*	Haldu	Rubiaceae
12	*Azadirachta indica*	Neem	Meliaceae
13	*Bauhinia purpurea*	Kanchnar	Caesalpiniaceae
14	*Bombax ceiba*	Semal	Bombacaceae
15	*Bridelia retusa*	Kalia-Dhav	Combretaceae
16	*Buchananialanzan*	Chironji	Anacardiaceae
17	*Butea monosperma*	Dhak	Fabaceae
18	*Cassia fistula*	Amaltash	Caesalpiniaceae
19	*Dalbergia sissoo*	Shisham	Fabaceae

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

S.No	Scientific Name	Local Name	Family
20	*Diospyros cordifolia*	-	Ebenaceae
21	*Emblica officinalis*	Amla	Phyllanthaceae
22	*Eucalyptus species*	Safeda	Myrtaceae
23	*Erythrina suberosa*	Phaludra	Papilionaceae
24	*Erythrina arborescens*	Phaludra	Papilionaceae
25	*Ficus bengalensis*	Bad	Moraceae
26	*Ficus religiosa*	Pipal	Moraceae
27	*Grewia asiatica*	Phalsa	Malvaceae
28	*Holoptelea integrifolia*	Papadi	Ulmaceae
29	*Mangifera indica*	Mango	Anacardiaceae
30	*Mallotus philippensis*	-	Euphorbiaceae
31	*Mimusopselengi*	Molshree	Sapotaceae
32	*Mitragynaparvifolia*	Kadam	Rubiaceae
33	*Morus alba*	Sehtoot	Moraceae
34	*Moringa concanensis*	Sehjan	Moringaceae
35	*Morinda tinctoria*	Indian Mulberry	Rubiaceae
36	*Pithecellobium dulce*	Jungle jalebi	Mimosaceae
37	*Pheonix sylvestris*	Khajur	Arecaceae
38	*Polyalthia longifolia*	Ashok	Anonaceae
39	*Pongamia pinnata*	Karanj	Fabaceae
40	*Salvadora oleoides*	Khara jal	Salvadoraceae
41	*Sapindusemarginatus*	Notched leaf soapnut	Sapindaceae
42	*Salvadora persica*	Mitha Jal	Salvadoraceae
43	*Schleichera oleosa*	Kusum	Sapindeceae
44	*Sterculia urens*	Karaiya	Sterculiaceae
45	*Syzygiumcumini*	Jamun	Myrtaceae
46	*Tamarindus indica*	Imali	Caesalpiniaceae
47	*Tectona grandis*	Teak	Lamiaceae
48	*Terminalia arjuna*	Arjuna	Combretaceae
49	*Terminalia bellerica*	Bahera	Combretaceae
50	*Terminalia tomentosa*	Asan	Combretaceae
51	*Ziziphus xylopyrus*	Ber	Rhamnaceae

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

S.No	Scientific Name	Local Name	Family
52	*Ziziphus mauritiana*	Ber	Rhamnaceae
	SHRUBS		
1	*Balanites aegyptiaca*	Hingot	Simaroubaceae
2	*Calligonumpolygonides*	Phog	Polygonaceae
3	*Calotropis gigantea*	Safed Aak	Asclepiadaceae
4	*Calotropis procera*	Aak	Asclepiadaceae
5	*Capparis decidua*	Kair/Kareel	Capparaceae
6	*Carissa carrandus*	Karunda	Apocynaceae
7	*Crotalaria filipes*	Creeping hemp	Fabaceae
8	*Diclipteraabuensis*	-	Acanthaceae
9	*Dichrostachys cineraria*	Aminda	Mimosaceae
10	*Euphorbia nivulia*	Thor	Euphorbiaceae
11	*Helicteresisora*	Marodphali	Sterculiaceae
12	*Ipomoea fistulosa*	Besharm	Convolvulaceae
13	*Leptadeniapyrotechnica*	Khimp	Asclepiadaceae
14	*Nerium oleander*	Kaner-Red	Apocynaceae
15	*Nyctanthesarbortristis*	Harsringar	Oleaceae
16	*Opuntia dillenii*	Nagphani	Cactaceae
17	*Prosopis juliflora*	Vilayatibabool	Mimosaceae
18	*Rosa involucrata*	-	Rosaceae
19	*Strobilanthescallosus*	-	Acanthaceae
20	*Ziziphus mauritiana*	Bor	Rhamnaceae
21	*Ziziphus numularia*	Jhadiber	Rhamnaceae
	HERBS		
1	*Aerva javanica*	Bui	Amaranthaceae
2	*Aloe vera*	Guarbhata	Liliaceae
3	*Argemone mexicana*	Satyanashi	Papaveraceae
4	*Cassia tora*	Panwad	Caesalpiniaceae
5	*Datura matel*	Dhatura	Solanaceae
6	*Dodonea viscose*	Reliya	Sapindaceae
7	*Echinopsechinatus*	Unthkanteli	Asteraceae
8	*Tribulus terrestris*	Gokharu	Zygophyllaceae

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

S.No	Scientific Name	Local Name	Family
9	*Convolvulus blatteri*	-	Convolvulaceae
10	*Ceropegia odorata*	-	Apocynaceae
11	*Begonia trichocarpa*	-	Begoniaceae
12	*Crotalaria filipes*	-	Fabaceae
13	*Indigofera constricta*	-	Fabaceae
	GRASSESS		
1	*Apluda mutica*	Polad	Poaceae
2	*Desmostachyabipinnata*	Daab	Poaceae
3	*Cenchrus biflorus*	Bharbhurat	Poaceae
4	*Cenchrus setigerus Vahl*	Dhaman	Poaceae
5	*Cynodondactylon*	Doob	Poaceae
	Ischaemum kingii	-	Poaceae
6	*Saccharum munja*	Munj	Poaceae
7	*Dactylocteniumaegypticum*	Makda	Poaceae
8	*Saccharum spontaneum*	Kaans	Poaceae

B. FAUNA RECORDED IN THE STUDY AREA

Table 3. LIST OF FAUNA FOUND IN THE CORE ZONE (PROJECT SITE)

S.No.	Common Name	Scientific name	Family	Status As per (IWPA2022), Schedule	Remark
AVIFAUNA					
1	Rock Pigeon	*Columba livia*	Columbidae	-	
2	House crow	*Corvus splendens*	Corvidae	-	
3	Black drongo	*Dicrurusmacrocercus*	Dicruridae	II	
4	Indian robin	*Saxicoloidedfulicata*	Turdinae	II	
5	Common myna	*Acridotheres tristis*	Sturnidae	II	
6	Red-vented bulbul	*Pycnonotus cafer*	Pycnonotidae	II	
7	Large grey babbler	*Turdoidesmalcolmi*	Timaliinae	II	
8	Jungle babbler	*Turdoides striatus*	Timaliinae	II	
9	Purple sunbird	*Nectarinia asiatica*	Nectariniidae	II	
10	House sparrow	*Passer domesticus*	Passerinae	II	
11	Red-wattled lapwing	*Vanellus cinereus*	Charadriidae	II	
12	Baya weaver	*Ploceus philippinus*	Ploceidae	II	

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

AMMALS					
1	Five stripped palm squirrel	*Funambuluspennantii*	Sciuridae	-	
2	Common House rat	*Rattus rattus*	Muridae	-	
REPTILES					
1	Common House Gecko	*Hemidactylus frenatus*	Gekkonidae	-	
2	Oriental Garden Lizard	*Calotes versicolor*	Agamidae	-	
3	**Bengal Monitor Lizard**	***Varanus bengalensis***	**Varanidae**	**I**	

Table 4. LIST OF AVIFAUNA FOUND IN THE BUFFER ZONE OF THE PROJECT AREA

S.No.	Common Name	Scientific name	Family	Status As per (IWPA 2022), Schedule	Remark
		Avifauna /Birds			
1	Ashy Prinia	*Prinia socialis*	Cisticolidae	II	
2	Plain Prinia	*Prinia inornata*	Cisticolidae	II	
3	Brown Rock Chat	*Oenanthe fusca*	Muscicapidae	II	
4	Common Tailorbird	*Orthotomussutorius*	Cisticolidae	II	
5	Red-vented Bulbul	*Pycnonotus cafer*	Pycnonotidae	II	
6	Red-whiskered Bulbul	*Pycnonotus jocosus*	Pycnonotidae	II	
7	Rufous Treepie	*Dendrocittavagabunda*	Corvidae	II	
8	Red-wattled lapwing	*Vanellus cinereus*	Charadriidae	II	
9	Baya weaver	*Ploceus philippinus*	Ploceidae	II	
10	Grey francolin	*Francolinuspondicerianus*	Phasianidae	II	
11	Common hoopoe	*Upupa epops*	Upupidae	II	
12	Indian Roller	*Coracias benghalensis*	Coraciidae	II	
13	White-throated kingfisher	*Halcyon smyrnensis*	Alcedinidae	II	
14	Asian Green bee-eater	*Merops orientalis*	Meropidae	II	
15	Lesser coucal	*Centropus bengalensis*	Cuculidae	II	
16	Rose-ringed parakeet	*Psittaculakrameri*	Psittacidae	II	

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

	Plum-headed Parakeet	*Psittaculacyanocephala*	Psittaculidae	II	
17	House swift	*Apus affinis*	Apodidae	II	
18	Rock Pigeon	*Columba livia*	Columbidae	-	
19	Laughing dove	*Streptopelia senegalensis*	Columbidae	II	
20	Eurasian Collared dove	*Streptopelia decaocto*	Columbidae	II	
21	Red Collared dove	*Streptopelia tranquebarica*	Columbidae	II	
22	Long-tailed shrike	*Lanius schach*	Laniidae	II	
23	Southern grey shrike	*Lanius meridionalis*	Laniidae	II	
24	House crow	*Corvus splendens*	Corvidae	-	
25	Large-billed Crow	*Corvus macrorhynchos*	Corvidae	II	
26	Black drongo	*Dicrurusmacrocercus*	Dicruridae	II	
27	Ashy Drongo	*Dicrurus leucophaeus*	Dicruridae	II	
29	Indian robin	*Saxicoloidedfulicata*	Turdinae	II	
30	Brahminy starling	*Sturnus pagodarum*	Sturnidae	II	
31	Asian Pied starling	*Sturnus contra*	Sturnidae	II	
32	Common myna	*Acridotheres tristis*	Sturnidae	II	
33	Bank myna	*Acridotheres ginginianus*	Sturnidae	II	
34	Wire-tailed swallow	*Hirundo smithii*	Hirundinidae	II	
35	White-eared bulbul	*Pycnonotus leucotis*	Pycnonotidae	II	
36	Oriental Honey Buzzard	*Pernis ptilorhynchus*	Accipitridae	II	
37	Large grey babbler	*Turdoidesmalcolmi*	Timaliinae	II	
38	Jungle babbler	*Turdoides striatus*	Timaliinae	II	
39	Purple sunbird	*Nectarinia asiatica*	Nectariniidae	II	
40	House sparrow	*Passer domesticus*	Passerinae	II	
41	**Indian Peafowl**	***Pavo cristatus***	**Phasianidae**	**I**	
42	Indian Paradise-Flycatcher	*Terpsiphone paradisi*	Monarchidae	II	
43	Common Kingfisher	*Alcedo atthis*	Alcedinidae	II	

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

44	White-throated Kingfisher	*Halcyon smyrnensis*	Alcedinidae	II	
45	Spotted Owlet	*Athene brama*	Strigidae	II	
46	Indian Pond Heron	*Ardeolagrayii*	Ardeidae	II	
47	Indian Grey Hornbill	*Ocycerosbirostris*	Bucerotidae	II	
48	Rosy Starling	*Pastor roseus*	Sturnidae	II	
49	Black Redstart	*Phoenicurusochruros*	Muscicapidae	II	
50	Indian White-eye	*Zosterops palpebrosus*	Zosteropidae	II	
51	White-breasted Water hen	*Amaurornisphoenicurus*	Rallidae	II	
52	**Shikra**	***Tachyspizabadia***	**Accipitridae**	**I**	

Table 5. LIST OF MAMMALS FOUND IN THE BUFFER ZONE OF THE PROJECT AREA

S. No.	Vernacular Name	Scientific Name	Family	Status As per (IWPA 2022), Schedule	Remark
1.	Five stripped palm squirrel	*Funambuluspennantii*	Sciuridae	-	
2.	Common House rat	*Rattus rattus*	Muridae	-	
3.	Nilgai	*Boselaphustragocamelus*	Bovidae	II	
4.	**Leopard**	***Panthera pardus***	**Felidae**	**I**	
5.	**Sambar deer**	***Rusa unicolor***	**Cervidae**	**I**	
6.	**Jungle Cat**	***Felis chaus***	**Felidae**	**I**	
7.	**Common Palm Civet**	***Paradoxurus hermaphroditus***	**Viverridae**	**I**	
8.	**Indian Wolf**	***Canis lupus***	**Canidae**	**I**	
9.	**Striped Hyaena**	***Hyaena hyaena***	**Hyaenidae**	**I**	
10.	**Jackal**	***Canis aureus***	**Canidae**	**I**	
11.	**Indian Fox**	***Vulpes bengalensis***	**Canidae**	**I**	
12.	Wild Boar	*Sus scrofa*	Suidae	II	
13.	Indian Hare	*Lepus nigricollis*	Leporidae	II	
14.	**Indian Porcupine**	***Hystrix indica***	**Hystricidae**	**I**	
15.	Indian Hedgehog	*Hemiechinusmicropus*	Erinaceidae	II	
16.	**Sloth Bear**	***Melursus ursinus***	**Ursidae**	**I**	
17.	Hanuman langur	*Semnopithecus*	Cercopitheci	II	

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

		entellus	dae		
18.	House shrew	*Suncus murinus*	Soricidae	-	

Table 6. List of amphibians found in the buffer zone of the project area

S. No.	Vernacular Name	Scientific Name	Family	Status As per (IWPA 2022) Schedule	Remark
1	Indian Bull frog	*Hoplobatrachustigerinus*	Ranidae	II	

Table 7. List of reptiles found in the buffer zone of the project area

S.No.	Vernacular Name	Scientific Name	Family	Status As per (IWPA) 2022, Schedule	Remark
1.	Common House Gecko	*Hemidactylus frenatus*	Gekkonidae	-	
2.	Oriental Garden Lizard	*Calotes versicolor*	Agamidae	-	
3.	**Indian Cobra**	***Naja naja***	**Elapidae**	**I**	
4.	**Common Rat Snake**	***Ptyasmucosus***	**Colubridae**	**I**	
5.	Common Indian Krait	*Bungarus caeruleus*	Elapidae	II	
6.	Green Keelback	*Macropisthodonplumbicolor*	Colubridae	II	
7.	**Bengal Monitor Lizard**	***Varanus bengalensis***	**Varanidae**	**I**	
8.	Brooks gecko	*Hemidactylus brookii*	Gekkonidae	-	
9.	Rock gecko	*Hemidactylus maculatus*	Gekkonidae	-	
10.	Forsten's Cat snake	*Boiga forsteni*	Colubridae	II	
	Common skink	*Eutropiscarinata*	Scinidae	-	

Source:

1.https://forest.rajasthan.gov.in/content/dam/raj/forest/ForestDepartment/PDFs/Department%20Wing/Wildlife/Notified-ESZ-of-Rajasthan/mount-abu.pdf

2.https://forest.rajasthan.gov.in/content/dam/raj/forest/ForestDepartment/PDFs/Department%20Wing/Forest%20Working%20Plan/Sanctioned%20Working%20Plan/text/SECTION_FINAL.pdf

क्षेत्रीय वन अधिकारी
पिण्डवाड़ा (सिरोही)

भा.व.अ.शि.प.-शुष्क वन अनुसंधान संस्थान
भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद्
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
भारत सरकार की स्वायत्तशासी संस्था
पी. ओं. कृषि मण्डी, नई पाली रोड, जोधपुर– 342 005
ICFRE-ARID FOREST RESEARCH INSTITUTE
Indian Council of Forestry Research & Education,
An Autonomous Body of the Ministry of Environment, Forests and Climate Change, Govt. of India
P.O. Krishi Mandi, New Pali Road, Jodhpur- 342 005

दिनांक: 16-07-2025

पत्रांक: I/122237/2025/**10.3.1/SFM/AFRI/ICFRE/2025**

सेवा में,

श्री नवीन दीक्षित
अधिकृत हस्ताक्षरकर्ता
कमलेश मेटाकास्ट प्रा. लिमिटेड
जयपुर।

विषयः देशी प्रजातियों के विकास के लिए 5 हेक्टेयर भूमि पर नर्सरी स्थापित करने के लिए सहयोग बाबत

Sub: Collaboration services for establishing a nursery on 5 ha land for native species development-reg.

संदर्भः सहायक महानिदेशक (अनुसंधान एवं योजना का ईमेल दिनांक 03/07/2025

महोदय,

उपरोक्त विषय और पत्र के संदर्भ में, हमें 5 हेक्टेयर क्षेत्र में देशी प्रजातियों के विकास हेतु एक नर्सरी स्थापित करने में हमारे साथ सहयोग करने में आपकी रुचि को स्वीकार करते हुए प्रसन्नता हो रही है। यह पहल, विशेष रूप से शुष्क और अर्ध-शुष्क पारिस्थितिक तंत्रों के लिए उपयुक्त देशी वनस्पतियों के संरक्षण और प्रसार को बढ़ावा देने की हमारी प्रतिबद्धता के अनुरूप है।

चर्चा को आगे बढ़ाने और तकनीकी एवं रसद आवश्यकताओं का विस्तार से आकलन करने के लिए, हम आपसे अनुरोध करते हैं कि आप अपने प्रतिनिधि को यथाशीघ्र शुष्क वन अनुसंधान संस्थान जोधपुर का दौरा करने के लिए भेजें।

कृपया बैठक के लिए उपयुक्त तिथि और समय निर्धारित करने हेतु हमारे कार्यालय (मेल आ. डी.. कपतऋतिप/पबतिमण्वतह) से समन्वय करें। इस यात्रा के दौरान, हम परियोजना के दायरे, भूमिकाओं और जिम्मेदारियों, संसाधन नियोजन और आपसी सहयोग के संभावित क्षेत्रों पर संयुक्त रूप से विचार-विमर्श कर सकते हैं। इस सम्बन्ध में आपकी ओर से संक्षिप्त प्रस्तुतीकरण अपेक्षित होगा।

हम एक फलदायी और प्रभावशाली सहयोग की आशा करते हैं।

With reference to above subject and letter, We are pleased to acknowledge your interest in collaborating with us on establishing a nursery for native species development over an area of 5 hectares. This initiative aligns with our commitment to promote the conservation and propagation of indigenous flora, especially suited to arid and semi-arid ecosystems.

To proceed with the discussions and assess the technical and logistical requirements in detail, we kindly request you to send your representative to visit AFRI, Jodhpur at the earliest convenience.

Please coordinate with our office (mail id: dir_afri@icfre.org) to schedule a suitable date and time for the meeting. During the visit, we can jointly deliberate on the scope of the project, roles and responsibilities, resource planning, and possible areas of mutual cooperation. A brief presentation from your side would be desirable.

We look forward to a fruitful and impactful collaboration.

भवदीय,

(डॉ. तरुण कान्त)

निदेशक

भारत सरकार /Government of India
श्रम एवं रोज़गार मंत्रालय /Ministry of Labour & Employment
खान सुरक्षा महानिदेशालय /Directorate General of Mines Safety

संख्या: उ.क्षे.(उ.प.अं)/2025/971 दिनांक: 21.07.2025

प्रेषक,
खान सुरक्षा निदेशक,
उदयपुर क्षेत्र, उदयपुर

सेवा में,
निदेशक,
रोहीडा लाईमस्टोन खान,
मै. कमलेश मेटा कास्ट प्रा.लि.,
5 डी, कॉर्पोरेट टावर, ए-2,
जेएलएन मार्ग, जवाहर सर्किल के पास,
जयपुर - 302 017 (राजस्थान)।

विषय: Application for approval of Embankment design for the pit no. 12 and 13 of the proposed Rohida Limestone Mine of M/s Kamlesh Meta Cast Private Limited, located at village Rohida, Tehsil Pindwara, District Sirohi, Rajasthan - Regarding.

महोदय,

On perusal of the records, it is observed that "Notice of Opening" of the above mine was not submitted to this Directorate as required under Section 16 of the Mines Act, 1952 read with Regulation 3 of the Metalliferous Mines Regulations, 1961. Therefore, this mine is not on records of this Directorate.

As per Section 16(1) of the Mines Act, 1952 read with Regulation 3(1) of the Metalliferous Mines Regulations, 1961 – "The owner, agent or manager of a mine shall, before the commencement of any mining operation, give to the Chief Inspector, the Controller, Indian Bureau of Mines and the District Magistrate of the district in which the mine is situated, notice in Form I of the First Schedule and a copy thereof shall be submitted to the Regional Inspector. The Form shall be accompanied by a plan showing the boundaries of the mine and the shafts or openings of the mine, trijunction or revenue pillars and other prominent or permanent surface features. Any notice given under above sub-section shall be so given as to reach the persons concerned at least one month before the commencement of any mining operation.

Further, as per Regulation 127(1) of the Metalliferous Mines Regulations, 1961, "Where any mine or part thereof is so situated that there is any danger of inrush of surface water into the mine or part, adequate protection against such inrush shall be provided and maintained."

उदयपुर क्षेत्र, उदयपुर /Udaipur Region, Udaipur
झामरकोटडा मैन रोड़, सेक्टर-6, हिरणमगरी, उदयपुर 313 002 (राजस्थान)
दूरभाष: (0294) 246 5513, ई-मेल: dir.udr@dgms.gov.in

As per the recommendations of the Ninth Conference on Safety in Mines at para no. 2.3 "Embankments provided against river and jore to guard against inundation should be designed properly keeping in view the engineering parameters. The details of such construction should be properly shown in the underground plan and water danger plan."

This is for your information please.

भवदीय,

21/7/25

खान सुरक्षा निदेशक,
उदयपुर क्षेत्र, उदयपुर

उदयपुर क्षेत्र, उदयपुर /Udaipur Region, Udaipur
झामरकोटडा मैन रोड़, सेक्टर-6, हिरणमगरी, उदयपुर 313 002 (राजस्थान)
दूरभाष: (0294) 246 5513, ई-मेल: dir.udr@dgms.gov.in

HiDPI

TheDirector
Kamlesh Metacast Private Limited
5D, Corporate Tower A-2, JLN Marg
Near Jawahar Circle
Jaipur

Subject: **Embankment design for the pit no 12 and 13 at Proposed Rohida Limestone Mine of M/s Kamlesh Meta Cast Private Limited, located at villages Rohida, Tehsil Pindwara, District Sirohi, Rajasthan.**

Reference: **ToR letter issued by MoEF&CC vide letter No. IA-J-11015/81/2024-IA-II(NCM) dated 05.05.2025**

Dear Sir,

With reference to the above cited subject, we would like to inform you that our team visited the mine lease site at Pit No. 12 and 13 on **18.06.2025** to carry out measurements for the proposed embankment wall.

We confirm that samples were collected and data has been analyzed for the purpose of embankment design.

- The total length of the proposed embankment wall at **Pit No. 12 is 600 meters** and at **Pit No. 13 is 1000 meters**.
- The approximate cost of construction is **approx. Rs. 2.25 Cr**.
- The estimated time required for completion of the embankment work at both pits is **3 months**.

We propose the following embankment design in accordance with IS Code **IS 456-2000 & SP 34**, to be implemented at Pit No. 12 and 13, along the Sukli River.

A 50-meter buffer has been maintained on both sides to ensure that mining-related dust, stones, or siltation do not impact the Sukli River.

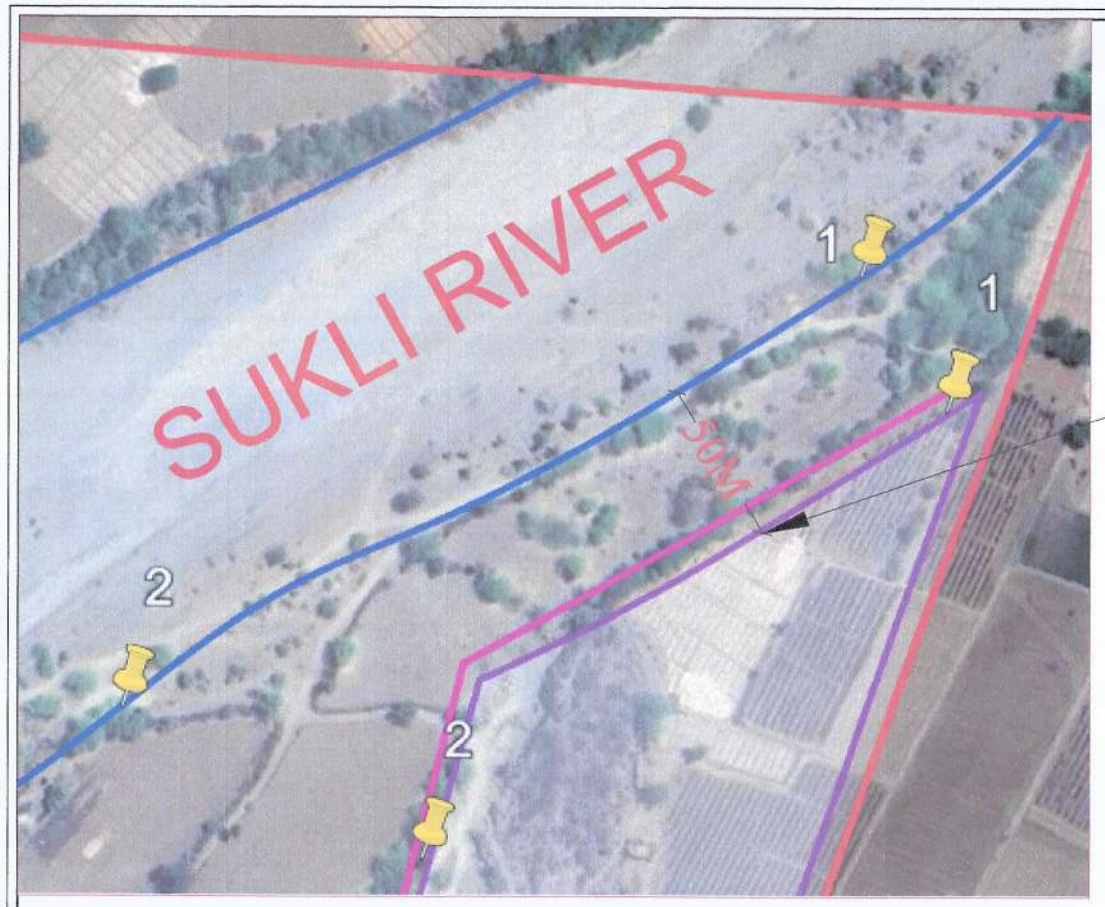
Proposed Embankment Measurements:
Wall Thickness = 300 mm; Footing Depth = 450 mm;
Footing Width = 1200 mm
Additionally, we express our interest in undertaking an **Annual Maintenance Contract (AMC)** for regular upkeep and maintenance of the embankment throughout the mining period.
Please feel free to contact us for any further clarification or documentation required.

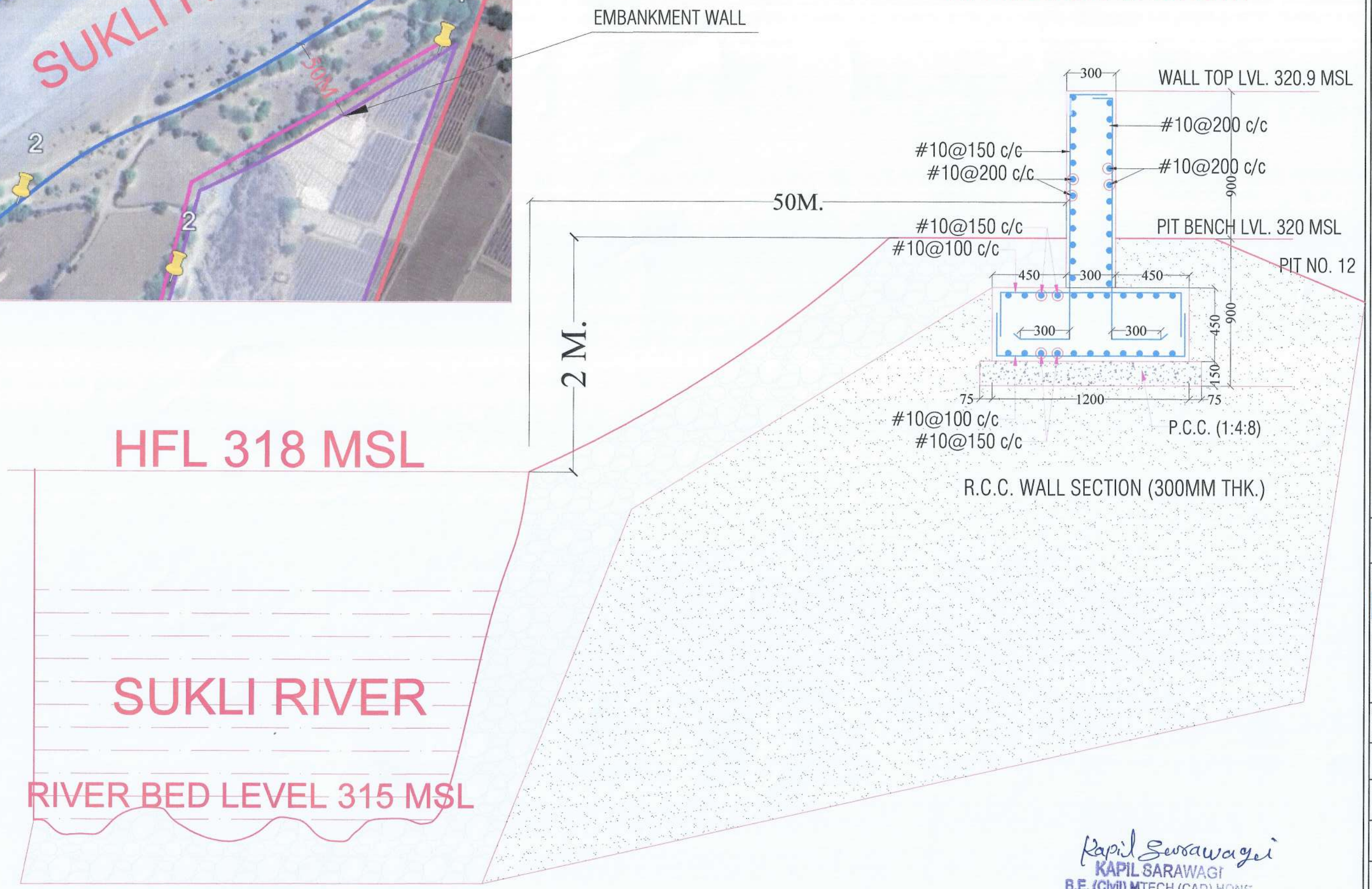
Thanking You,

Kapil Sarawagi
KAPIL SARAWAGI
B.E. (Civil) MTECH (CAD) HONS
IEI-M 141153-0

HORIZON INFRADESIGNS PVT. LTD.
Office Address : Plot No. B-97, Westway Heights, Near Narayan Vihar, Jaipur-302020
Contacts : 0141-6661057 • Email : hidpl.office@gmail.com, Website : www.hidpl.in

EMBANKMENT DESIGN FOR PIT NO. 12 NEAR SUKLI RIVER APPROX. 600 M LENGTH





R.C.C. WALL SECTION (300MM THK.)

GENERAL NOTES :-

1. All dimensions are MM, unless other wise specified.
2. Do not scale drawings,only written dimensions shall be followed.
3. Discrepancies noted shall be brought to the notice of the consultant priorto execution.
4. This drawing is based on arch. drgs.
5. The drawing shall be read in conjunction with other structural and architectural drawings
6. Clear cover to main reinforcement shall be 50mm in footings,30mm in WALL.
7. The mix of concrete shall be M-30 grade in foundation & M-30 grade in WALL.
8. Reinforcement shall be FE -550D grade conforming to is 1786
9. Min lap length shall be provided as per is-456-2000
10. Details should be done as per sp-34.
11. Spacer bars:- shall be 20mm dia at max.4'-0"(1200 mm) intervals
12. The period of curing should not be less than 10 days for all the concrete components such as column, slabs, footings exposed to hot and dry weather conditions.
13. For plastering and brick stone wall footings the period of curing should not be less than 7 days.
14. Minimum period before striking all RCC work are as follows
Vertical form work to columns, walls, beams is 16-24 hours.
Soffit form work to slabs(props to be re-fixed immediately after removal of form work) is 3 days.
Soffit form work to beams (props to be re-fixed immediately after removal of form-work) is 7 days.
15. Props to slabs:
Spanning up to 4.5 m is 7 days
Spanning over 4.5 m is 14 days
Props to beams and arches
Spanning up to 6 m is 14 days
Spanning over 6 m is 21 days
16. Site should be inspected by qualified engineer.

PROJECT TITLE:-

KAMLESH METACAST P. LTD.

STRUCTURAL CONSULTANT :-

HiDPl

HORIZON INFRA DESIGNS PVT. LTD.
B-97, West Way Height,
Narayan Vihar, Jaipur - 302020
Contact No. 0141-6661057
E-mail:-hidpl.structure@gmail.com

DESIGNED BY:-	DEALT BY:-
ABHINAY JAIN	ANIL LAMBA

CHECKED BY:- KAPIL SARAWAGI

DATE:-	DRG. TITLE:-
28-06-2025	EMBANKMENT DESIGN FOR PIT NO. 12 NEAR SUKLI RIVER
JOB. NO:- HIDPL\25\06\119	DRG NO :- S-02

REVISION:-00

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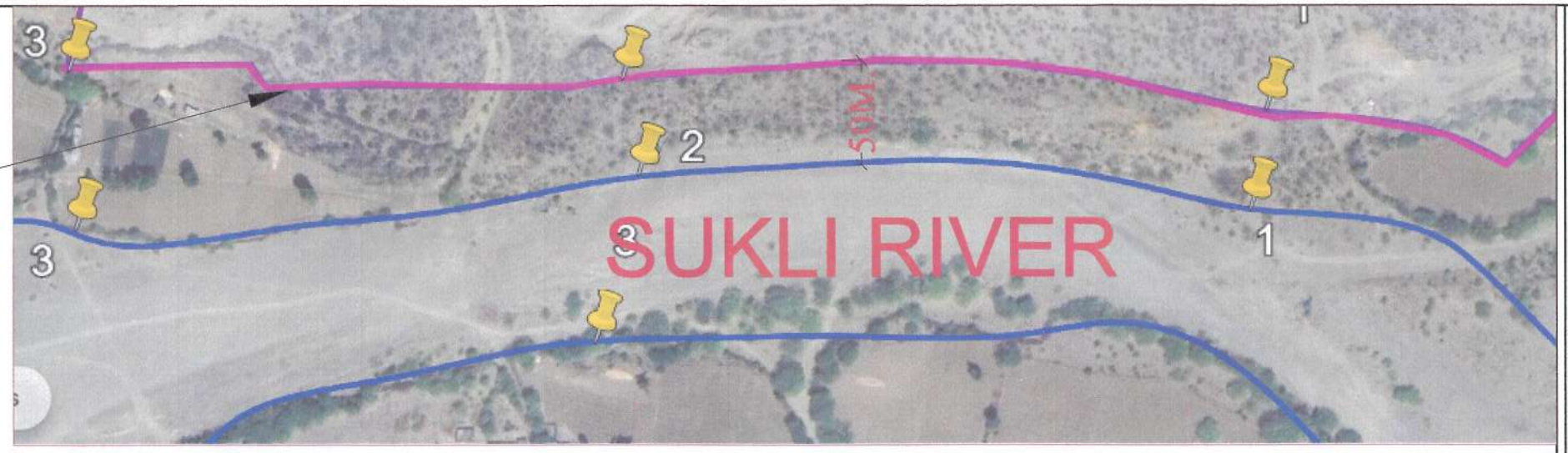
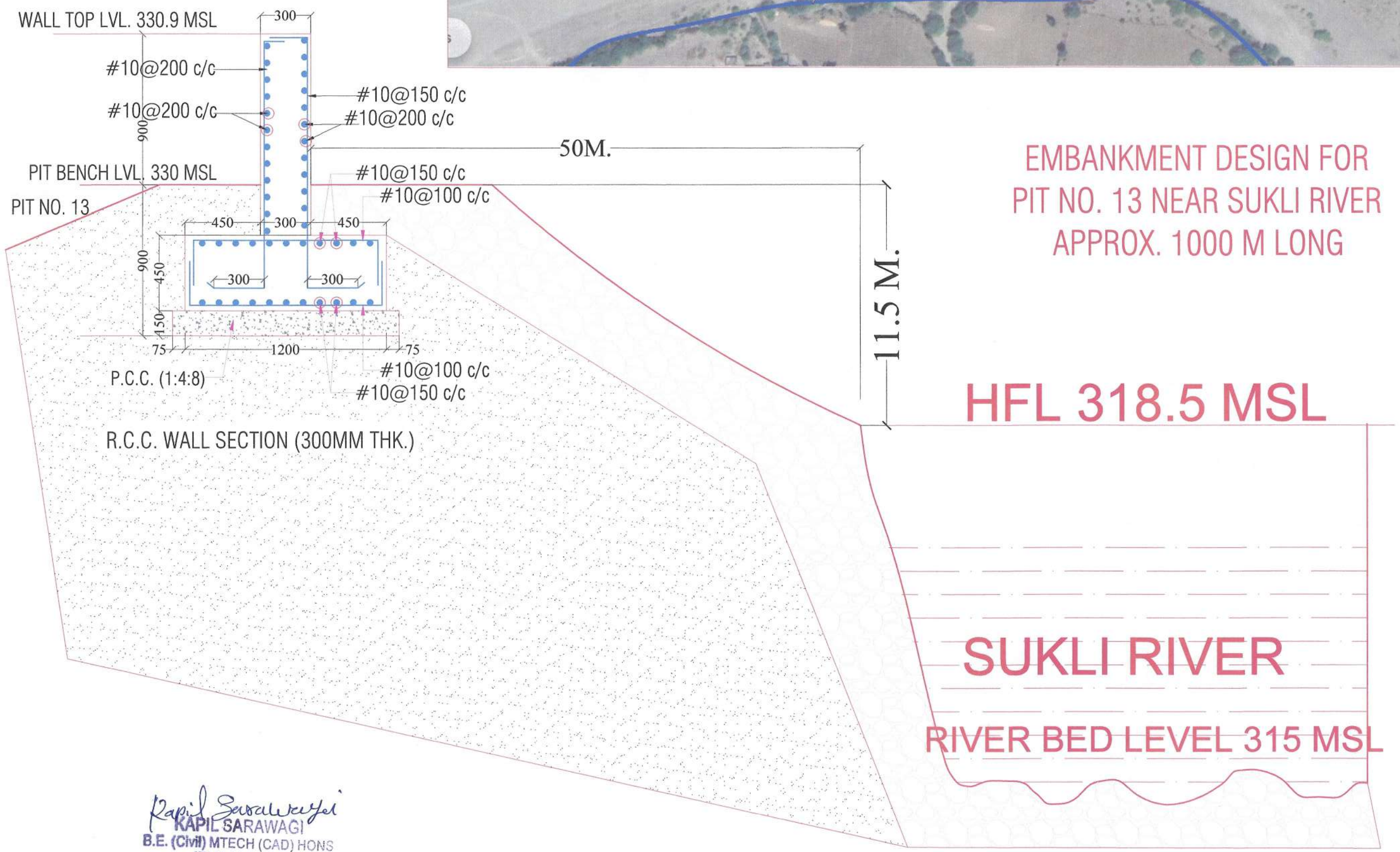
Kapil Sarawagi
KAPIL SARAWAGI
B.E. (Civil) MTECH (CAD) HONS
IEI-M 141159-9





EMBANKMENT DESIGN FOR PIT NO. 13 NEAR SUKLI RIVER APPROX. 1000 M LONG

Kapil Sarawagi
KAPIL SARAWAGI
B.E. (Civil) MTECH (CAD) HONS
IEI-M 141159-9

GENERAL NOTES :-

1. All dimensions are MM, unless other wise specified.
2. Do not scale drawings,only written dimensions shall be followed.
3. Discrepancies noted shall be brought to the notice of the consultant priorto execution.
4. This drawing is based on arch. drgs.
5. The drawing shall be read in conjunction with other structural and architectural drawings
6. Clear cover to main reinforcement shall be 50mm in footings,30mm in WALL.
7. The mix of concrete shall be M-30 grade in foundation & M-30 grade in WALL.
8. Reinforcement shall be FE -550D grade conforming to is 1786
9. Min lap length shall be provided as per is-456-2000
10. Details should be done as per sp-34.
11. Spacer bars:- shall be 20mm dia at max.4'-0"(1200 mm) intervals
12. The period of curing should not be less than 10 days for all the concrete components such as column, slabs, footings exposed to hot and dry weather conditions.
13. For plastering and brick stone wall footings the period of curing should not be less than 7 days.
14. Minimum period before striking all RCC work are as follows
Vertical form work to columns, walls, beams is 16-24 hours.
Soffit form work to slabs(props to be re-fixed immediately after removal of form work) is 3 days.
Soffit form work to beams (props to be re-fixed immediately after removal of form-work) is 7 days.
15. Props to slabs:
Spanning up to 4.5 m is 7 days
Spanning over 4.5 m is 14 days
Props to beams and arches
Spanning up to 6 m is 14 days
Spanning over 6 m is 21 days
16. Site should be inspected by qualified engineer.

PROJECT TITLE:-
KAMLESH METACAST P. LTD.

STRUCTURAL CONSULTANT :-

HiDPI

HORIZON INFRA DESIGNS PVT. LTD.
B-97, West Way Height,
Narayan Vihar, Jaipur - 302020
Contact No. 0141-6661057
E-mail:-hidpl.structure@gmail.com

DESIGNED BY:-	DEALT BY:-
ABHINAY JAIN	ANIL LAMBA
CHECKED BY:-	
KAPIL SARAWAGI	
DATE:- 28-06-2025	DRG. TITLE:- EMBANKMENT DESIGN FOR PIT NO. 13 NEAR SUKLI RIVER
JOB. NO:- HIDPL\25\06\119	DRG NO :- S-01
REVISION:-00	

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भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन विभाग,
केंद्रीय भूमि जल प्राधिकरण
GOVERNMENT OF INDIA
MINISTRY OF JAL SHAKTI
DEPARTMENT OF WATER RESOURCES,
RIVER DEVELOPMENT & GANGA REJUVENATION
CENTRAL GROUND WATER AUTHORITY

सत्यमेव जयते

भूजल निकासी हेतु छुट पत्र
EXEMPTION CERTIFICATE FOR GROUND WATER ABSTRACTION

PROJECT NAME **Kamlesh Metacast Private Limited**		
PROJECT ADDRESS **Village (S)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla And Kharadoli, Tehsil –Pindwara, District – Sirohi, Rajasthan**		PIN CODE **307022**
STATE **RAJASTHAN**	DISTRICT **SIROHI**	TOWN/BLOCK **PINDWARA**
COMMUNICATION ADDRESS **5-A & 5-D, Corporate Tower A-2, Near Jawahar Circle, J.L.N. Marg**		
ADDRESS OF CGWB REGIONAL OFFICE **6-A, Jhalana Doongri, Jaipur 302004, Rajasthan.**		
1. EXEMPTED LETTER NO. **EXM/MIN/RJ/2025/8291/N**	2. DATE OF ISSUANCE. **10/06/2025**	
3. APPLICATION NO. **MIN/RJ/2025/8291**	4. APPLICATION TYPE **Mining**	
5. PROJECT STATUS **New Project**	6. VALID FROM **10/06/2025**	
7. AREA TYPE CATEGORY **Semi Critical** (GWRE - **2024**)		
8. VALID UP TO **Till adherence to provision(s) under which this exemption has been obtained (subject to compliance to related conditions) or till any further orders issued by this authority, whichever is earlier.**		

9. GROUND WATER ABSTRACTION PERMITTED

GW Abstraction		Dewatering		Total	
m^3/day	m^3/year	m^3/day	m^3/year	m^3/day	m^3/year
9.50	3467.50	**0.00**	0.00	**9.50**	3467.50

10. Details of Ground Water Abstraction / Dewatering Structures

EXISTING **0**					PROPOSED **2**					TOTAL **2**				
DW	DCB	BW	TW	PU	DW	DCB	BW	TW	PU	DW	DCB	BW	TW	PU
0	0	0	0	0	0	0	2	0	0	0	0	2	0	0

*DW-Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; Pu Pumps;

12. EXEMPTION CATEGORY **1. Micro and small Enterprises drawing ground water less than 10 cum/day are exempted from seeking NOC**

1. This is to certify that as per information furnished by the applicant, the ground water withdrawal comes under Exemption category as per S.O. 3289(E) dated 24/09/2020 by Department Of Water Resources, River Development and Ganga Rejuvenation, guidelines to regulate and control ground water extraction in India, 2020.
2. This exemption letter is being issued under relevant provision(s) of extant guidelines.
3. The firm shall install digital water flow meter on all ground water abstraction structures and maintain the logbook.
4. This certificate is system generated and based on information provided by the applicant. CGWA has not verified the claim made by applicant. Any false information furnished/violation by the applicant, shall invite legal action against him/her as per S.O. 3289(E) dated 24/09/2020.
5. If, at any stage, it is established that this exemption letter has been obtained on the basis of false/ fake document(s), the exemption letter shall be deemed cancelled and extant penal provisions shall be applied on the firm

1. यह प्रमाणित किया जाता है कि आवेदक द्वारा दी गई जानकारी के अनुसार, भूजल निकासी एस.ओ. के अनुसार छूट श्रेणी के अंतर्गत आती है। जल संसाधन, नदी विकास और गंगा संरक्षण विभाग द्वारा 3289(ई) दिनांक 24/09/2020, भारत में भूजल निष्कर्षण को विनियमित और नियंत्रित करने के लिए दिशानिर्देश, 2020।
2. यह इग्ज़ेमप्शन (छूट) पत्र वर्तमान दिशानिर्देशों के प्रासंगिक प्रावधानों के तहत जारी किया जा रहा है।
3. फर्म सभी भूजल निष्कर्षण संरचनाओं पर डिजिटल जल प्रवाह मीटर स्थापित करेगी और लॉगबुक बनाए रखेगी।
4. यह प्रमाण पत्र सिस्टम जनरेटेड है और आवेदक द्वारा प्रदान की गई जानकारी पर आधारित है। CGWA ने आवेदक द्वारा किए गए दावे का सत्यापन नहीं किया है। आवेदक द्वारा दी गई कोई भी गलत सूचना / उत्तघन, एसओ 3289 (ई) दिनांक 24/09/2020 के अनुसार उसके खिलाफ कानूनी कार्रवाई को आमंत्रित करेगा।
5. यदि किसी भी स्तर पर यह स्थापित हो जाता है कि यह इग्ज़ेमप्शन (छूट) पत्र गलत / नकली दस्तावेज़ के आधार पर प्राप्त किया गया है, तो इग्ज़ेमप्शन (छूट) पत्र निरस्त माना जाएगा और फर्म पर मौजूदा दंडात्मक प्रावधान लागू किए जाएंगे।

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Central Ground Water Authority, Delhi

केंद्रीय भूमि जल प्राधिकरण, जल शक्ति मंत्रालय, सीएसएमआरएस परिसर, ओलोफ पाल्म मार्ग, हौज खास, नई दिल्ली-110016 / Central Ground Water Authority,Ministry of Jal Shakti, CSMRS Campus, Olof Palme Marg, Hauz Khas,New Delhi-110016
Phone: (011) 23383561

1.1 INRODUCTION:

Kamlesh Metacast Private Limited has proposed Limestone Mining Project with proposed production capacity of 8.91 MTPA (Total Excavation) (Limestone – 2.85 MTPA, Mineral Reject- 0.24 MTPA, OB- 5.78 MTPA & Soil – 0.04 MTPA) along with Installation of 1000 TPH Crusher with Wobbler and Screening 200 TPH over an area of 800.9935 Ha. Located in Village (s)- Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla and Kharadoli, Tehsil –Pindwara, District – Sirohi, Rajasthan**.**

This report has been prepared in reference to the ToR Letter issued by MoEF&CC, New Delhi Vide letter no. F. No. IA-J-11015/81/2024-IA-II (NCM), dated 05.05.2025 to carry out the EIA study. Terms of Reference was granted during 43rd meeting of Expert Appraisal Committee (Non-Coal Mining) held during April 22-23rd, 2025.

The main purpose of the EIA report is to provide a coherent statement after analyzing all significant impacts of the proposed mining project and measures that should be taken to mitigate them. It contains essential information for:

- The proponent to implement the proposal in an environmentally and socially responsible way;
- The responsible authority to make an informed decision on the proposal, including the terms and conditions that must be attached to an approval or authorization;
- The project proponent to understand the mitigation measures suggested and earmark proper resources & budget for the impacts envisaged; and
- The public to understand the proposal and its likely impacts on people and the environment.

Govt. of India has passed the "Land Acquisition, Rehabilitation and Resettlement Act, 2013" (LARR Act-2013) which came into force since 1st January, 2014 to be abided by all the states and union territory of India. This Act provides the guidelines for land acquisition as well as compensation for the affected people. The LARR Act-2013 and R & R policy of Rajasthan State is aimed to fulfill the aspiration of local populations and ensures good share of jobs in the projects.

The main objective of the new LARR Act, 2013 is to provide appropriate and adequate compensation to the project affected families against the divestment of their land, minimize displacement, and provide adequate infrastructure facilities at rehabilitation site to improve the living standard of affected zone and to facilitate the harmonious relationship between acquiring

body and inhabitants of the affected area.

1.2 SCOPE OF THE STUDY

On the basis of analysis of data, details and information collected, the study provides directional inputs with cost estimates and budgetary allocations for the resettlement and rehabilitation of the project affected families (PAFs). The study, in particular, provides the following:

(i) Details of land which would be acquired for the project;

(ii) Details of land to be acquired, number of PAFs, their land holding and land remuneration;

(iii) Assessment of the socio economic conditions of the PAFs with their demographic, educational and economic profile;

1.3 METHODOLOGY FOR BASELINE DATA AND NEED ASSESSMENT

The baseline data collection and field survey carried out in a combination of primary source and secondary source in the study area.

Primary Source:Household survey, Personal Interview, Group Discussion in community meetings etc.

Secondary Source: Revenue department, Census 2011, LARR Act, 2013, State Government policies.

The preliminary survey and secondary data collection helped to understand the physical, social, economic and cultural setup of the area before undertaking the field survey. The household survey was conducted of the PAFs using a well-structured questionnaire prepared in local language enabling subjects to reply appropriately. The questionnaires were designed to suit the subjects considering their rural background enabling to furnish correct information and data as far as possible. Additionally, public consultations and focus group discussions were held during the fieldwork to understand views of people affected, with reference to acquisition of land, its due compensation, benefits of the project, opinion about health and safety issues due to the project to ensure participation of community in project implementation, monitoring and to develop a comprehensive coordination amongst the stakeholders for successful implementation of the project.

The collected data was further analyzed and presented in tabular/diagrammatic/graphic form for better understanding. These tabulated data were interpreted and evaluated with the help of various qualitative/ quantitative techniques and ideographic approaches.

1.4 LEGAL FRAMEWORK AND POLICES

Various acts related to acquisition of land serve as a guide for purchasing of land from the land holders whose lands are falling in the ML area. These are listed below:

1. The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013 (LARR Act, 2013).
2. The Notification of Rajasthan Government 2014 (Under LARR Act 2013).
3. Consent land purchase policy of Rajasthan Government 2014
4. The land for the proposed mine is being acquired as per provisions of above mentioned Act which entitles the lease holder to purchase land from private owners on market rate.

1.5 OUTLINES OF PROPOSED RESETTLEMENT & REHABILITATION (R & R) PLAN

As the lease area cover 3 village habitations on undisturbed area. There are some individual habitants (Kaccha & Pakka) built on the private agriculture land falling within proposed Mining Pit. Approax 200 habitants falls in the mining lease area. These habitants will be removed once the surface rights of the land will be acquired/ possessed with mutual understanding/ negotiation. Mining Operations will be carried out only after getting the land."

Further, blasting will be conducted in accordance with the guidelines stated by the DGMS and by complying the regulations in this regard. However, when the Mines working will reach near the habitant's those couldn't be removed, permission will be obtained from DGMS for conducting controlled blasting, within the distance below 300 mtrs as permitted by DGMS else other Mining Method like rock breaking by hydraulic hammer etc, that is not involved the blasting operation will be adopted for extraction of the Mineral within the danger zone of blasting.

KMPL has following options for acquisition of land for its proposed mining project:

- Option 1: Acquire land falling in the mining lease area through provisions of LARR Act, 2013
- Option 2: Land acquisition through mutual agreement with the land holders falling in the mining lease area at negotiated rates and terms and conditions.

KMPL proposes to procure land on mutual agreement with the land holders at mutually agreeable rates.

It is proposed that required land to be purchased within the ML area shall not be in one go. Land purchase shall be done in phases as per the requirement for mining purpose. This is

proposed in order to ensure minimal disturbance of the land & associated people. No forceful land acquisition will be undertaken.

1.6 LAND BREAKUP OF MINE LEASE AREA

The area of proposed mine is 800.9935 ha which falls in 7 Villages in 1 Tehsils namely, Villages: Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli in Tehsil Pindwara, District Sirohi, Rajasthan.

S. No.	Tehsil	Village	Area in Hect.	Type of Land and Area (ha)		
				Pvt. Agriculture Land (Ha.)	Govt. Waste Land (Ha.)	Govt. Grazing Land
1	Pindwara	Rohida	183.9139	124.9038	59.0101	-
2		Vatera	131.2198	93.6264	32.3331	5.2603
3		Bharja	265.2998	213.1340	52.1658	-
4		Taroongi	165.7261	82.1257	69.2610	14.3394
5		Doliphali	29.2057	27.6502	1.5555	-
6		Pipela	9.5158	7.9041	1.6117	-
7		Kharadoil	16.1124	2.6093	12.0128	1.4903
				551.9535	227.9500	21.09
Total			**800.9935**			

As per the revenue record total mine area is 800.9935 Ha, out of which 227.9500 ha is Govt. Waste Land (29%) & 21.0900 ha (3%) Grazing /Charagah Land- & 551.9535 ha (68.0%) is Private Agriculture Land.

1.7 COMPENSATION ON ASSETS

Within mine lease area most of land is agriculture land, KMPL will provide appropriate compensation for all trees and standing crops on land and other property.

1.8 COST AND BUDGET

KMPL will follow the cost as per the Land Acquisition, Rehabilitation and Resettlement Act,

2013" (LARR Act-2013) and LARR act Rajasthan 2014. The actual cost will be as per the mutual agreement with landowner.

1.9 CONCLUSION

R & R plan is driven by KMPL values of Integrity, Humility, Trust & Respect and Commitment and its comprehensive CSR policy which is planned in addition to Project Affected Families (PAFs) and communities in & around the operation. KMPL will contribute substantially to the overall economy and social development of the area. KMPL will also take up various community development programs under CSR like vocational training, Income generation, Education, Medical camps & services, sanitation, infrastructure development etc. in which priority will be given to PAFs. The local economy will receive a boost due to employee spending and services generated. Grievance Redressal committee will be formed by KMPL as per LARR Act 2013. The overall effect will improve the purchasing power of affected persons and thus a higher standard of living viz. better education, improved health and sanitation facilities. This is envisaged as a major positive benefit.

Kamlesh Metacast Pvt. Ltd.

जिला कलेक्टर
सिरोही (राजस्थान)

दिनांकः 28.04.2025

विषयः–राजस्थान भू–राजस्व अधिनियम 1956 की धारा 92 के अन्तर्गत औद्योगिक प्रयोजनार्थ आरक्षित करने तथा इसमें सम्मिलित चारागाह भूमि का प्रवर्ग राजकीय सिवाय चक में परिवर्तित कर इसे कर इसके एवज में राजकीय सिवाय चक भूमि को चारागाह प्रवर्ग में धारा 92 के अन्तर्गत आरक्षित करने के संबंध में।

महोदय,

निवेदन है कि जिला सिरोही तहसील पिण्डवाडा में प्रार्थी की खनन लीज के निकट राजस्व ग्राम रोहिडा–। की 34.97 हैक्टेयर तथा ग्राम रोहिडा–।। की 35.99 हैक्टेयर कुल 70.96 हैक्टेयर राजकीय सिवाय चक भूमि एवं ग्राम भावरी की 321.35 हैक्टेयर चारागाह भूमि कुल 392.31 हैक्टेयर भूमि, संलग्न सूची के अनुसार, औद्योगिक प्रयोजनार्थ (सीमेन्ट प्लांट) हेतु उपयुक्त है। जिसको राजस्थान भू–राजस्व अधिनियम 1956 की धारा 92 के अन्तर्गत औद्योगिक प्रयोजनार्थ आरक्षित किया जाना आवश्यक है।

साथ ही इस भूमि में शामिल ग्राम भावरी की 321.35 हैक्टेयर भूमि, जिसका भूमि वर्ग चारागाह है, का राजस्थान टीनेन्सी (राजकीय) नियम 7(1) के अनुशरण में चारागाह प्रवर्ग से भू–राजस्व अधिनियम 1956 की धारा 92 के तहत सिवाय चक भूमि के रूप में परिवर्तित करने हेतु अधिसूचित किया जाना वान्छित है।

राजस्थान टीनेन्सी (राजकीय) नियम 1955 के नियम 7(2) की पालना में इस भूमि के बदले उतने ही क्षेत्रफल की राजकीय सिवायचक भूमि, जो उसी राजस्व ग्राम या उसके निकट के राजस्व ग्राम में स्थित हो, को भू–राजस्व अधिनियम 1956 की धारा 92 के तहत चारागाह हेतु आरक्षित किया जाना आवश्यक है। इस हेतु राजस्व ग्राम रोहिडा–। की 62.05 हैक्टेयर, ग्राम रोहिडा–।। की 86.18 हैक्टेयर, ग्राम वाटेरा की 93.53 हैक्टेयर तथा ग्राम भावरी की 101.32 हैक्टेयर कुल 343.08 हैक्टेयर राजकीय सिवाय चक भूमि (संलग्न सूची के अनुसार) उपलब्ध है, जिसे राजस्थान भू–राजस्व अधिनियम 1956 की धारा 92 के तहत चारागाह हेतु आरक्षित किया जाना है।

अतः श्रीमान से निवेदन है कि संलग्न सूची के अनुसार आवेदित खसरा नम्बरों को भू–राजस्व अधिनियम 1956 की धारा 92 के तहत औद्योगिक प्रयोजनार्थ (सीमेन्ट प्लांट) हेतु आरक्षित करने तथा इसमें शामिल ग्राम भावरी की 321.35 हैक्टेयर चारागाह भूमि की क्षतिपूर्ति हेतु ग्राम रोहिडा–।, रोहिडा–।।, वाटेरा व भावरी की कुल भूमि 343.08 हैक्टेयर राजकीय सिवाय चक भूमि को चारागाह प्रवर्ग में परिवर्तित करने हेतु धारा 92 के तहत अधिसूचित करने की

28/04/2025
प्रेषक लिपिक
कलक्टर कार्यालय
सिरोही

कृपा करें। चारागाह में परिवर्तित होने वाली 21.73 हैक्टेयर भूमि को प्रार्थी की खनन लीज में शामिल चारागाह भूमि (21.09 हैक्टेयर) की एवज में समायोजित करने का श्रम करें।

आवेदित व क्षतिपूर्ति हेतु प्रस्तावित भूमियों का विवरण निम्न प्रकार हैः–

आवेदन के लिए भूमि		
क्र. सं.	खसरा नम्बर ग्राम–भावरी	क्षेत्रफल (हैक्टेयर)
1	1993	54.63
2	1954/2	38.34
3	1955/3	9.08
4	1992/2	11.98
5	1998	141.86
6	1999	61.04
7	2688/1994	0.63
8	2689/1955	3.79
	कुल क्षेत्रफल	**321.35**

क्षतिपूर्ति के लिए भूमि			
क्र. सं.	खसरा नम्बर		क्षेत्रफल (हैक्टेयर)
1	ग्राम वाटेरा	1031	6.32
2		236	6.33
3		3049/233	14.97
4		3065/58	17.73
5		97/3	10.48
6		99/2	37.70
		क्षेत्रफल	**93.53**
7	ग्राम भावरी	2150/1312	65.05
8		2189/1364	9.80
9		2999/1304	26.47
		क्षेत्रफल	**101.32**
10	ग्राम रोहिडा–I	4993/4965	34.70
11		4929	22.53
12		4859	4.82
		क्षेत्रफल	62.05
13	ग्राम रोहिडा–II	22	28.90
14		2342	10.92
15		2501	10.91
16		2770/2468	35.45
		क्षेत्रफल	**86.18**
	कुल क्षेत्रफल		**343.08**

सादर

सुधीर प्रताप सिंह
अधिकृत हस्ताक्षरकर्ता

राजस्थान सरकार

कार्यालय उपखण्ड अधिकारी पिण्डवाड़ा जिला सिरोही

क्रमांक / राजस्व / 2025 / 1121 दिनांक – 17.07.2025

प्रेषित:–

श्रीमान जिला कलेक्टर महोदय
सिरोही

विषय:– **Grant permission for cutting the babool tree within the mine area** के सबंध में जांच रिपोर्ट भेजने के क्रम में।

प्रसंग:– श्रीमान के पत्रांक 3253 दिनांक 17.07.2025

महोदय,

उपरोक्त प्रासंगिक विषयान्तर्गत निवेदन है कि तहसीलदार पिण्डवाडा के रिपोर्ट अनुसार मैसर्स कमलेश मेटाकास्ट प्रा.लि. द्वारा श्रीमान को प्रेषित पत्र के सबंध में माइन्स हेतु प्रस्तावित भूमि में खडे बबूल के पेडों के प्रकरण में जांच निम्नानुसार है–

प्रस्तावित भूमि राजस्व ग्राम रोहिडा–1 , रोहिडा–2, भावरी, वाटेरा व भारजा में माईन्स हेतु प्रस्तावित खसरा भूमि में कोई कीमती पेड. नहीं है मौके पर विलायती बबूल व कंटिली झाड़िया है।

सूचना श्रीमानजी को आवश्यक कार्यवाही हेतु सादर प्रेषित है।

उपखण्ड अधिकारी
पिण्डवाडा

Signature valid
Digitally signed by Mansukh Ram Damor
Designation : Sub Divisional Officer
Date: 2025.07.17 16:22:16 IST
Reason: Approved

RajKaj Ref No.: 16622847

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

सत्यमेव जयते

भारत INDIA

INDIA NON JUDICIAL

NOTARY RAHUL BHARDWAJ JAIPUR (RAJ.) Regd. No. 14196 Comm Expired on 08 MAY-2029 GOVT. OF INDIA

राजस्थान RAJASTHAN

BX 323519

AFFIDAVIT

I, Ananya Agarwal S/o Shri,Anil Kumar Gupta, Director & Authorized Signatory of Kamlesh Meta Cast Private Limited , 5 A & 5D Corporate Tower A2, Near Jawahar Circle, JLN Marg, Jaipur-302017, Rajasthan, do solemnly affirm and undertake as under:-

1. That I am responsible for operating the "Rohida Limestone Mine of Kamlesh Meta Cast Private Limited over an area of 800.9935 ha located in Village(S)-Rohida, Bharja, Taroongi, Doliphali, Vatera, Pipla, Kharadoli, Tehsil – Pindwara, District – Sirohi, Rajasthan, henceforth onward.

2. That the project/activity pertaining to the mining lease has not been in violation of the order dated 2.8.2017 of the Hon'ble Supreme Court in the matter of Writ Petition (Civil) No. 114 of 2014, Common Cause vs UOI.

3. That no activity has been undertaken in violation of the provisions of Section 21(5) of the Mines and Minerals (Development and Regulation) Act, 1957 at Rajasthan, having M.L No.- 01/2022 and Area: - 800.9935 ha.

4. That no illegal mining activity has been or is being carried out in the mining lease in violation of the Mines and Minerals (Development and Regulation) Act, 1957, Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of

Identified by

ATTESTED

NOTARY PUBLIC JAIPUR (RAJ.) INDIA

For Kamlesh Metacast Pvt. Ltd.

Director

29 NOV 2024

संख्या 628 दिनांक 29/11/2024

मुद्रांक का मूल्य 100/-

क्रेता का नाम Kamlesh Metacast Pvt Ltd

पिता/पति का नाम

निवास स्थान SA30 Corporate Tower JLN Marg, Jaipur (Raj.)

मुद्रांक खरीदने का आशय तथा सम्बन्धित कार्य का मूल्यांकन Affidavit

राजस्थान स्टाम्प अधिनियम, 1998 की अन्तर्वृद्धि पर प्रभारित अधिभार	स्टाम्प राशि
1. आधारभूत आवसंरचना सुविधाओं हेतु (धारा 3.क) – 10%	10/-
2. गाय और उसकी नस्ल के संरक्षण और संवर्धन हेतु (धारा 3.ख)/प्राकृतिक आपदाओं एवं मानव निर्मित आपदाओं के निवारण हेतु – 20%	20/-
हस्ताक्षर स्टाम्पवैण्डर पीयूष मंगल ला.नं.-83/2022-23 कुलयोग रूपये	30/-

पीयूष मंगल
स्टाम्प विक्रेता, ला.नं.-83/2022-23
80/143 स्टेल मार्ग, मानसरोवर, जयपुर

Pollution) Act, 1981, Environment (Protection) Act, 1986 and other relevant laws and timely permissions,clearances and approvals for the mining lease as per their applicability to such permissions, clearances and approvals.

5. No expansion/ modernization activity has been undertaken in violation of the provision of EIA Notification 2006.

6. There is no litigation pending against the project and/ or land in which the said mine, that for any such litigation whatsoever, the sole responsibility will be borne by the Project Proponent.

7. I hereby give undertaking that the data and information given in the application, enclosures and other documents are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance given, if any to the Project will be revoked at our risk and cost. (b) I hereby also submit this undertaking as part of the EIA Report, owning the contents (information and data) of the EIA Report. The details and data presented are factually correct" (as per OM dated 4 August 2009), along with other information.

Identified by

For Kamlesh Metacast Pvt. Ltd.
Director

Date: -
Place: - Jaipur

Ananya Agarwal
(Authorized Signatory)

VERIFICATION

Verified at Jaipur on 29-11-2024 that the above contents of this undertaking are true and correct to the best of my knowledge and belief and nothing has been concealed thereof.

ATTESTED

For Kamlesh Metacast Pvt. Ltd.
Director

Date: -
Place: - Jaipur

NOTARY PUBLIC
JAIPUR (RAJ.) INDIA

Ananya Agarwal
(Authorized Signatory)

29 NOV 2024