FINAL ENVIRONMENTAL IMPACT ASSESSMENT
&
ENVIRONMENTAL MANAGEMENT PLAN

FOR

SAND MINING PROJECT ON MOHANA RIVER

BLOCK-47 (GAYA MOHANA-01/02/03) SAND GHAT

PROPOSAL NO.	SIA/BR/MIN/461146/2024
AREA(Ha)	44.5
PRODUCTION	801000 CUM/YEAR OR 1441800 TPA
LOCATION	KHASRA NO.- 1, 1, 2091, 1, 1084, 1370, 225; THANA NO.- 443, 454, 455, 446, 426, 424, KHATA NO.- 191, 384, 367, 207, 455, 177, BLOCK –47 , VILLAGE- BATASPUR, CHHANCHH, MORATAL, GHOGHARIYA, GURIAWAN, KENARI, TEHSIL- BODH GAYA, DISTRICT- GAYA, STATE- BIHAR

APPLICANT

M/s MAA DURGA FULE STATION,
Proponent- Akhilesh Kumar
Add. – Village- Pathra English, P.O. - Odhanpur,
P.S. - Nawada, District - Nawada, Pin code- 805123

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INDEX

Serial No.	CONTENTS	Page No.
	CHAPTER-I INTRODUCTION	
1.0	PREAMBLE	2/I
1.1	DESCRIPTION OF PROJECT PROPONENT	3/I
1.2	DESCRIPTION OF PROJECT	3/I
1.3	REGULATORY COMPLIANCES & APPLICABLE LAWS/REGULATIONS	9/I
1.4	SCOPE OF THE STUDY	10/I
	CHAPTER -II PROJECT DESCRIPTION	
2.0	GENERAL	23/II
2.1	DESCRIPTION OF THE PROJECT	23/II
2.2	NEED FOR THE PROJECT	23/II
2.3	LOCATION DETAILS	23/II
2.4	LEASE HOLD AREA	26/II
2.5	TOPOGRAPHY	28/II
2.6	GEOLOGY	29/II
2.7	RESERVES	32/II
2.8	PROPOSED METHOD OF MINING	35/II
2.9	DRILLING AND BLASTING	37/II
2.10	CONCEPTUAL MINING	37/II
2.11	UTILITIES	39/II
	CHAPTER-III DESCRIPTION OF ENVIRONMENT	
3.0	INTRODUCTION	42/III
3.1	BASELINE DATA	42/III
3.2	LAND ENVIRONMENT	42/III
3.3	AIR ENVIRONMENT	43/III
3.4	WATER ENVIRONEMNT	56/III
3.5	SOIL ENVIRONMENT	64/III
3.6	NOISE ENVIRONMENT	66/III
3.7	BIOLOGICAL ENVIRONMENT	68/III
3.8	SOCIAL IMPACT ASSESSMENT, REHABILITATION & RESETTLEMENT (R&R) ACTION PLAN	85/III
	CHAPTER-IV ANTICIPATED ENVIRONMENTAL IMPACT AND MITIGATION MEASURES	
4.0	GENERAL	96/IV
4.1	LAND ENVIRONMENT	99/IV
4.2	WATER ENVIRONMENT	100/IV
4.3	AIR ENVIRONMENT	102/IV
4.4	NOISE ENVIRONMENT	108/IV
4.5	BIOLOGICAL ENVIRONMENT	109/IV
4.6	SOCIO-ECONOMIC ENVIRONMENT	111/IV
4.7	TRAFFIC ANALYSIS	112/IV
4.8	PUBLIC HEALTH IMPLICATIONS	115/IV

4.9	STATUATORY REQUIREMENTS	115/IV
CHAPTER-V ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)		
5.0	GENERAL	118/V
CHAPTER-VI ENVIRONMENTAL MONITORING PROGRAMME		
6.0	INTRODUCTION	120/VI
6.1	ENVIRONMENTAL MONITORING AND REPORTING PROCEDURE	121/VI
6.2	MONITORING METHODOLOGIES AND PARAMETERS	122/VI
6.3	MONITORING SCHEDULE	124/VI
6.4	MONITORING SCHEDULE- IMPLEMENTATION	124/VI
6.5	BUDGET ALLOCATION FOR MONITORING	125/VI
6.6	REPORTING SCHEDULE OF THE MONITORING DATA	126/VI
CHAPTER-VII ADDITIONAL STUDIES		
7.0	PUBLIC CONSULTATION	128/VII
7.1	HAZARD IDENTIFICATION AND RISK ASSESSMENT METHOLODOGY	140/VII
7.2	POTENTIAL HAZARDS & 'ALARP' CONDITION	144/VII
7.3	RISK PRIORITISATION BASED ON HAZARDS	145/VII
7.4	OCCUPATIONAL HEALTH HAZARD	147/VII
7.5	ADDITIONAL MITIGATION MAJORS TO BRING HAZARDS UNDER "ALARP" ZONE	148/VII
7.6	DISASTER MANAGEMENT PLAN	150/VII
7.7	NATURAL RESOURCE CONSERVATION	153/VII
CHAPTER-VIII PROJECT BENEFITS		
8.0	GENERAL	155/VIII
8.1	PHYSICAL BENIFITS	155/VIII
8.2	SOCIAL BENIFITS	155/VIII
8.3	ENVIRONMENTAL BENIFITS	157/VIII
8.4	CORPORATE ENVIRONMENTAL RESPONSIBILITY	158/VIII
CHAPTER-IX ENVIRONMENTAL MANAGEMENT PLAN		
9.0	INTRODUCTION	160/IX
9.1	ENVIRONMENTAL MANAGEMENT PLAN (EMP)	161/IX
9.2	ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION	163/IX
9.3	ENVIRONMENTAL MANAGEMENT CELL (EMC)	164/IX
9.4	BUDGET ALLOCATION FOR EMP IMPLEMENTATION	165/IX
CHAPTER-X EXECUTIVE SUMMARY		
10.0	INTRODUCTION OF PROJECT &PROPONENT	168/X
10.1	LOCATION	169/X
10.2	RESERVES	172/X
10.3	MINING PROCESS	176/X
10.4	WATER DEMAND	178/X

10.5	BASE LINE DATA	179/X
10.6	BIOLOGICAL ENVIRONMENT	180/X
10.7	LAND ENVIRONMENT	183/X
10.8	AIR ENVIRONMENT	184/X
10.9	WATER ENVIRONMENT	185/X
10.10	NOISE ENVIRONMENT	187/X
10.11	TRAFFIC ANALYSIS	188/X
10.12	SOCIO-ECONOMIC ENVIRONMENT	188/X
10.13	ENVIRONMENTAL MANAGEMENT PLAN (EMP)	189/X
10.14	ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION	189/X
10.15	MONITORING SCHEDULE AND PARAMETERS	191/X
10.16	BENEFIT OF MINING	191/X
10.17	CORPORATE SOCIAL RESPONSIBILITY	193/X
10.18	CONCLUSION	194/X
CHAPTER-XI DISCLOSURE OF CONSULTANTS ENGAGED		
11.0	DISCLOSURE OF CONSULTANTS ENGAGED	196-197/XI

LIST OF TABLES

Table No.	TITLE OF TABLE	Page No.
1.1	Project Coordinate	I-3
1.2	Site & Surrounding	I-6
1.3	Project Salient Features	I-8
1.4	Standard TOR	I-10
2.1	Salient Features of Project	II-25
2.2	Project Coordinate	II-26
2.3	Area Details	II-37
2.4	Showing the Geological Succession and their Occurrences distribution	II-30
2.5	Mineable Reserve	II-34
2.6	Classification Mineral Reserves	II-35
2.7	Year wise production Schedule:	II-37
2.8	Water Demand	II-39
2.9	Employment Detail	II-39
2.10	List of Equipment's to be used	II-40
3.1	Land use cover of the project study area	III-42
3.2	Methods adopted for $PM_{2.5,}$ PM_{10}, SO_2 and NO_X (as NO_2)	III-44
3.3 (i)	Ambient air quality monitoring stations	III-45
3.3 (ii)	Ambient Air Quality Status	III-46
3.3 (iii)	Ground water sampling locations	III-56
3.3 (iv)	Physico-chemical properties of ground water	III-57
3.3 (v)	Surface water sampling locations	III-61
3.3(vi)	Physico-chemical properties of surface water	III-62
3.3 (vii)	Soil sampling locations	III-64
3.3(viii)	Physico-chemical properties of soil	III-65
3.3 (ix)	Noise quality monitoring stations	III-66
3.3 (x)	Noise level status	III-67
3.4 (i)	Mode of data collection & parameters considered during the survey	III-73
3.4 (ii)	List of Crops seasonally planted by respective farmers in the Core and BufferZone	III-73
3.4 (iii)	List of Trees, Shrubs, Herbs and Grasses observed in Buffer Zone	III-74
3.4 (iv)	List Mammals, Reptiles and Amphibians recorded from the core Zone	III-78
3.4 (v)	Butterflies observed in the Core zone	III-79
3.4 (vi)	List of Mammals/Reptiles/Amphibians/Birds recorded from the Core Zone	III-80
3.4 (vii)	Avian Fauna observed from the study area (01 KM Buffer area)	III-81
3.4 (viii)	Butterflies observed from the Buffer zone of the study area	III-83
3.4 (ix)	Fish Fauna found in different seasonal and perennial water bodies in thestudy area	III-84
3.5 (i)	Demographic Particulars of the Buffer area (10km)	III-88
4.1	Impact of PM10 due to combined impact of loading - unloading and transportation of sand by trucks	IV-106

4.2	Noise impact	IV-108
4.3 (i)	Existing No. of Day count Vehicles (inventory)	IV-112
4.3 (ii)	Existing Traffic Scenario & LOS	IV-113
4.3 (iii)	Additional per day load due to proposed mining operation (inventory)	IV-1113
4.3 (iv)	Modified Traffic Scenario & LOS	IV-114
6.1	Monitoring Schedule and Parameters	VI-124
6.2	Budget allotted for Monitoring	VI -125
7.1	Public Hearing Details	VII-128
7.2	Details of Action Plan for the issues raise during the Public Hearing	VII-138-140
7.3	The risk acceptability criteria	VII-144
7.4	Qualitative Risk Assessment	VII-144
7.5	Management of Health Hazards	VII-148
8.1	Employment detail	VIII-156
8.2	Budget for Public Health	VIII-157
8.3	Budget for Occupational Health	VIII-157
9.1	Budget allotted for Environmental Management Plan	IX-166
10.1	Project Coordinates	X-169
10.2	Detail of site & surrounding around Lease Area	X-170
10.3	Detail of Project	X-171
10.4	Summary of mineable reserves of Sand Ghat	X-174-175
10.5	Year wise Production detail	X-178
10.6	Water Demand	X-179
10.7	Baseline Environmental Status	X-179-180
10.8	Noise Impact	X-187
10.9	Budget allotted for Environmental Management Plan	X-190
10.10	Monitoring Schedule and Parameters	X-191

LIST OF FIGURES

Fig. No.	TITLE OF FIGURE	Page No.
1.1	Location of the Project	I-5
1.2	10 km buffer map of Study Area	I-6
2.1	Location of the Project	II-24
2.2	Mining Site	II-27-28
2.3	Drainage Map	II-29
3.1	Land Use Pattern	III-43
3.2	Wind Rose Diagram	III-44
3.2 (a)	Air Quality monitoring station map	III-46
3.2 (b)	Ground water sampling location	III-57
3.2 (c)	Surface water sampling area	III-62
3.2 (d)	Soil sampling stations	III-65
3.2 (e)	Noise quality monitoring stations	III-67
3.3 (a)	Location of Study area on the map of Forest Classification of India	III-70
3.3 (b)	Map showing Eco-Sensitive Zones of Bihar with Project Area	III-71
4.1	Windrose Diagram	IV-104
4.2	Isopleth of PM 10	IV- 107
4.3	Transportation Route Map of the Study Area	IV-114
6.1	Function of Environmental Management Cell	VI-122
7.1	Flood Map of Bihar	VII-151
7.2	Earthquakes Map of Bihar	VII-151

LIST OF ANNEXURES

S.NO.	ANNEXURE NO.	TITLE OF ANNEXURE
1.	**I.**	Terms of reference(TOR)
2.	**II.**	Letter of intent (LOI)
3.	**III.**	Approved Mining Plan letter
4.	**IV.**	Public hearing proceedings
5.	**V.**	Satellite Imagery of Past Three years
6.	**VI.**	2.5 Km- Satellite Imagery
7.	**VII.**	No Mining Activity Letter Issued by DMO
8.	**VIII.**	Questionnaire
9.	**IX.**	Accreditation letter of Consultant Engaged

CHAPTER – I

INTRODUCTION

CHAPTER-I

INTRODUCTION

INDEX

S. No.	CONTENTS	Page No.
1.0	PREAMBLE	2/I
1.1	DESCRIPTION OF PROJECT PROPONENT	3/I
1.2	DESCRIPTION OF PROJECT	3/I
1.3	REGULATORY COMPLIANCES & APPLICABLE LAWS/REGULATIONS	9/I
1.4	SCOPE OF THE STUDY	10/I

1.0 PREAMBLE

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for proposed projects. It aims predicting environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision makers. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects prediction & mitigation, early benefits in project planning, protection of environment, optimum utilization of resources, thus saving overall time & cost of the project.

Sand have long been used as aggregate for construction of roads and building. Today, the demand for these materials continues to rise day by day. In recent years, rapid development hasled to an increased demand for river sand as a source of construction material. It is recommended to remove the sand deposition on the regular basis otherwise the river will raise the height and may pose threats of inundation of unaffected areas. Besides this, the depositedminedis a constant source of revenue generation to the state government and ensures theconstant supply of this building material. Environmental Impact Assessment report is prepared to comply with the Terms of Reference (TOR) received from SEIAA, Bihar, under EIA Notification of the MoEF dated 14-09-2006, and its subsequent amendments and EIA Guidance Manual for Mining of Minerals of MoEF, Govt. of India, for seeking environmental clearancefor mining of Sand in the applied mining lease area measuring 44.5 Ha, The project falls under Category- "B-1" as per EIA Notification 2006 and its subsequent amendments thereof of the Ministry of Environment Forests & Climate Change, GOI. As per NGT Order Dated 13.09.2018 and MOEF & CC OM No L-11011/175/2018-IA-II (M) Dated 12-12-2018 the project comes under B1 Category as the area is more than 5 Ha.

1.1 DESCRIPTION OF PROJECT PROPONENT

The project is being proposed by M/s Maa Durga Fule Station, Proponent- Akhilesh Kumar, R/o. – Village Pathra English, P.O. - Odhanpur, P.S. - Nawada, Dist. - Nawada, Pin code- 805123.

Proposed project has been allotted to the proponent By District mining office. LOI has been granted in favour of M/s Maa Durga Fule Station, Proponent- Akhilesh Kumar, vide letter no. 5501/Khanan, Gaya dated- 29/11/2022, for a period of 5 years attached as Annexure I. The EIA-EMP report has been prepared as per the TOR granted under the EIA Notification of September 14th 2006. In order to assess the impact on environment due to proposed mining, it is necessary to ascertain the present status of environment prevailing at the project site and identification and assessment of impacts on the environment of the proposed operations.

1.2 DESCRIPTION OF PROJECT

Name of the Project – Sand Mining Project Block – 47 (Gaya Mohana 01/02/03) Sand Ghat on Mohana River Location of the Project- Khasra No. – 1, 1, 2091, 1, 1084, 1370, 225, Khata No. – 191, 384, 367, 207, 455, 177, Thana No. – 443, 454, 455, 446, 426, 424, Village – Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Bodh Gaya, District- Gaya, State – Bihar.

Village/ Tehsil	Block	District	State	Area in Ha.
Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Bodh Gaya	Block – 47 (Gaya Mohana 01/02/03)	Gaya	Bihar	44.5

Table 1.1 Project Coordinate

S. No	Sand Ghat	Area (in Ha)	Co-ordinates	
1	**Gaya Mohana -01**	**25.0**	**A**	24°42'9.18"N 85° 0'53.36"E
			B	24°42'8.58"N 85° 0'57.56"E
			C	24°41'18.68"N 85° 1'5.30"E

			D	24°41'17.12"N 85° 1'2.31"E
2	**Gaya Mohana -02**	**7.0**	**A**	24°40'32.33"N 85° 1'49.24"E
			B	24°40'36.94"N 85° 1'52.53"E
			C	24°40'23.82"N 85° 2'13.55"E
			D	24°40'23.63"N 85° 2'10.93"E
3	**Gaya Mohana -03**	**12.5**	**A**	24°39'56.83"N 85° 2'32.07"E
			B	24°39'59.71"N 85° 2'35.77"E
			C	24°39'39.03"N 85° 2'51.68"E
			D	24°39'35.63"N 85° 2'46.47"E



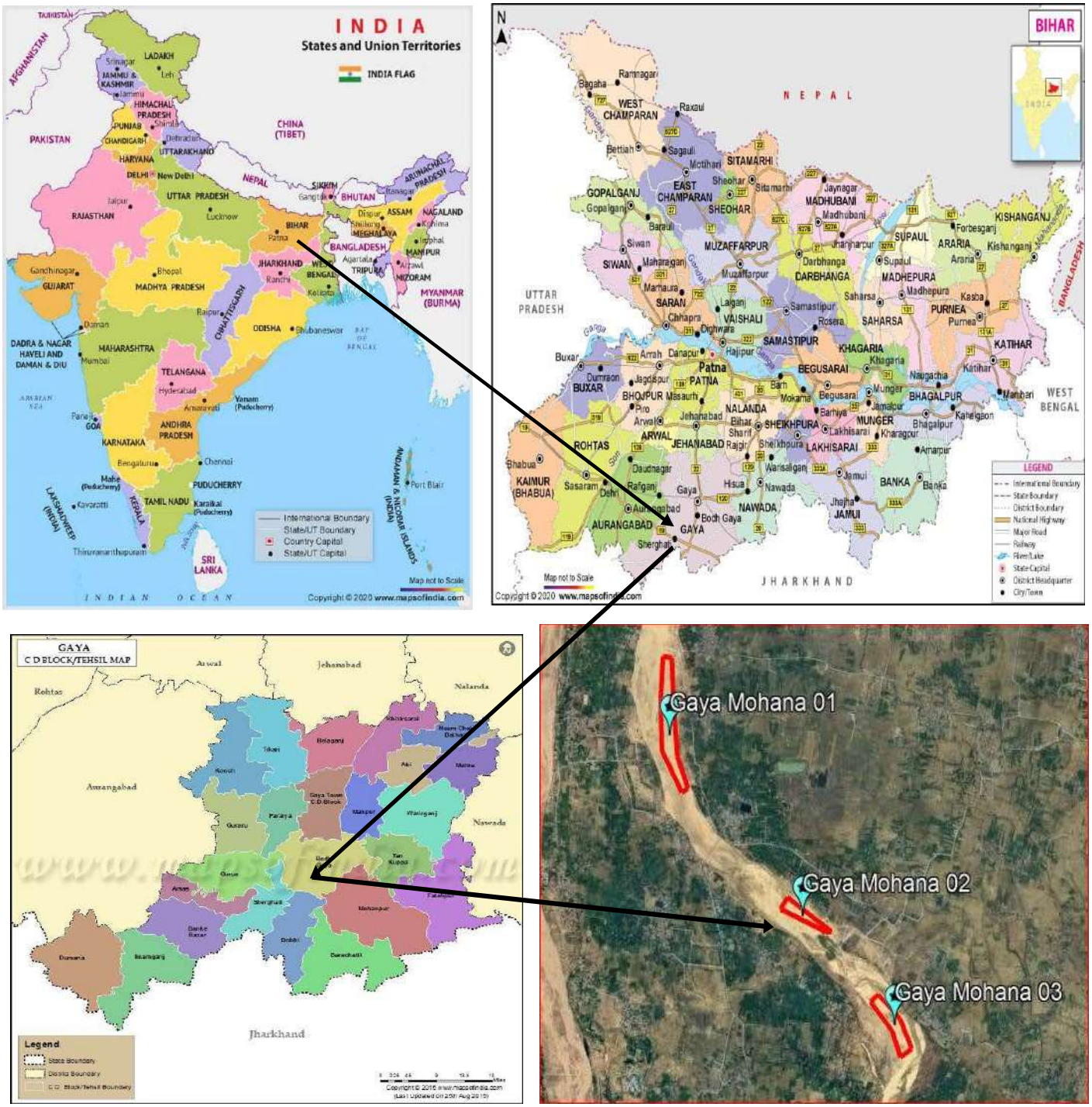


Figure 1.1 Location of the Project

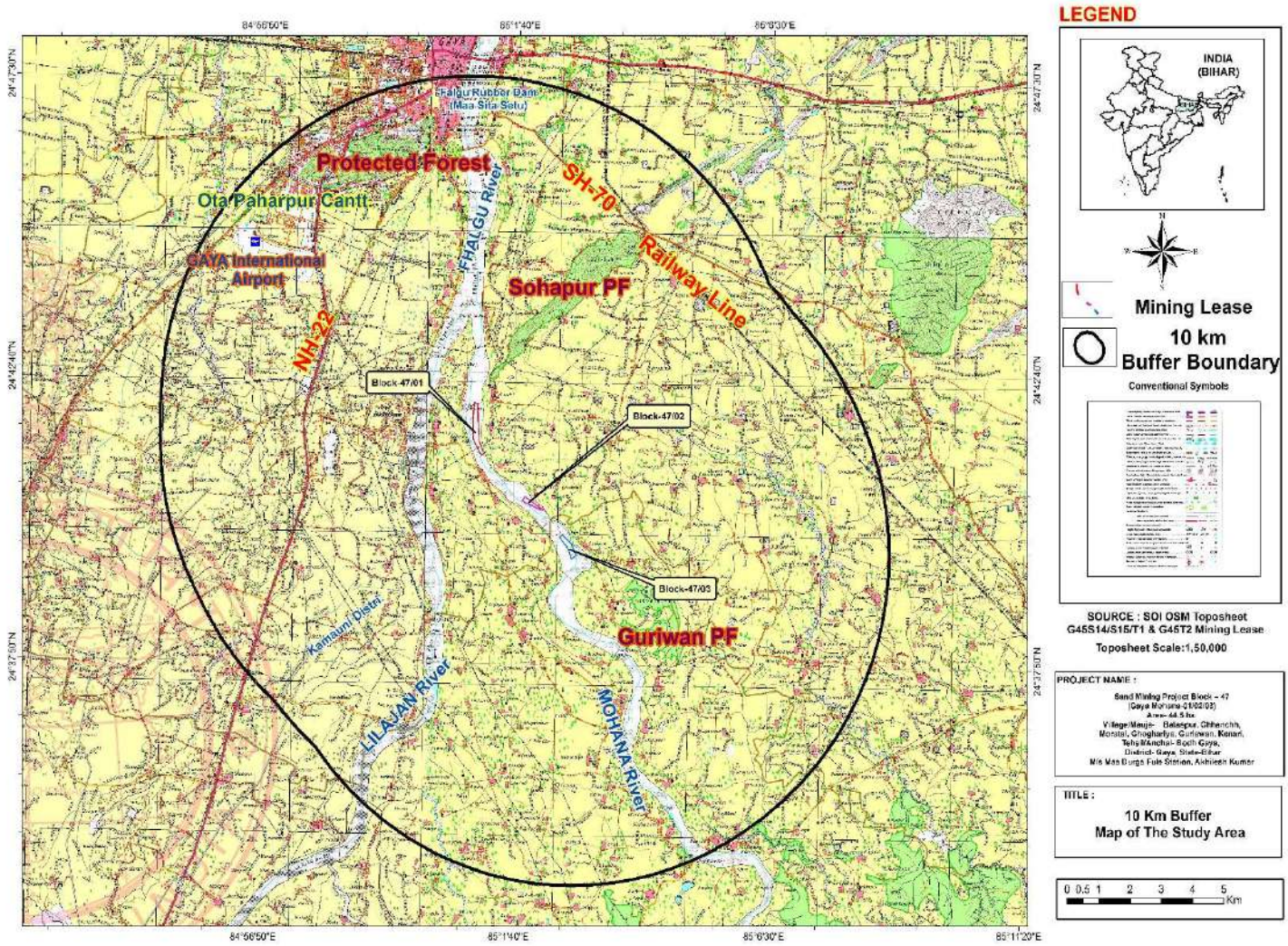


Figure1.2: 10 Km Buffer Map

Table 1.2 Site & Surrounding
Gaya Mohana -01

Nearest Settlements	Chhanchh Village is about 0.32 Km in E direction.
Nearest Road	MDR is about 2.03 Km in W Direction. NH-22 is about 5.30 Km in W Direction. SH-70 is about 7.44 km in N direction.
Nearest Airport	Gaya International Airport, Gaya, Bihar is about 6.88 Km in NW Direction.
Nearest Railway Station	Bandhua station, Bihar is about 7.50 Km in NE Direction.

Nearest National Park/wildlife sanctuary within 10 km	No National Park/Wildlife Sanctuary within the periphery of 10 Km Radius.
Water body	Project lies on Mohana River.
Nearest School/ college	Middle school, Chhanchh, Bihar is about 0.32 Km in E Direction.
Reserve/ Protected Forest	Protected Forest, is about 7.68 km in NNW direction Sohapur Protected forest is about 2.44 km in NNE direction Guriwan Protected forest is about 7.43 km in SE direction
Nearest Hospital	APHC/ Primary Health Centre/ Government Hospital, Gaya, Bihar is about 8.04 Km in N Direction.
Temple	Dharmaranya Temple, Sujata, Bihar is about 0.27 Km in WSW Direction.

Gaya Mohana -02

Nearest Settlements	Ghoghariya Village is about 0.46 Km in NE direction.
Nearest Road	NH-22 is about 6.92 Km in W Direction. SH-70 is about 8.86 km in NNE direction**.**
Nearest Airport	Gaya International Airport, Gaya, Bihar is about 10.47 Km in NW Direction.
Nearest Railway Station	Bandhua station, Bihar is about 9.16 Km in NNE Direction.
Nearest National Park/wildlife sanctuary within 10 km	No National Park/Wildlife Sanctuary within the periphery of 10 Km Radius.
Water body	Project lies on Mohana River.
Nearest School/ college	Nirjana school Bisari, Bodh Gaya, Bihar is about 0.43 Km in WSW Direction.
Reserve/ Protected Forest	Protected Forest, is about 11.19 km in NNW direction Sohapur Protected forest is about 4.44 km in N direction Guriwan Protected forest is about 4.83 km in SE direction
Nearest Hospital	APHC/ Primary Health Centre/ Government Hospital, Gaya, Bihar is about 10.81 Km in NNW Direction.
Temple	Jharkhandi Mahadev Temple, Bihar is about 0.36 Km in W Direction.

Gaya Mohana -03

Nearest Settlements	Guriyawan Village is about 0.29 Km in E direction.
Nearest Road	NH-22 is about 8.37 Km in W Direction. SH-70 is about 9.15 km in N direction**.**
Nearest Airport	Gaya International Airport, Gaya, Bihar is about 11.57 Km in NW Direction.

Nearest Railway Station	Bandhua station, Bihar is about 9.80 Km in N Direction.
Nearest National Park/wildlife sanctuary within 10 km	No National Park/Wildlife Sanctuary within the periphery of 10 Km Radius.
Water body	Project lies on Mohana River.
Nearest School/ college	Guriyawan middle school, Bodh Gaya, Bihar is about 0.24 Km in E Direction.
Reserve/ Protected Forest	Protected Forest, is about 12.64 km in NNW direction Sohapur Protected forest is about 6.72 km in N direction Guriwan Protected forest is about 3.15 km in ESE direction
Nearest Hospital	APHC/ Primary Health Centre/ Government Hospital, Gaya, Bihar is about 12.24 Km in NNW Direction.
Temple	Hanuman Temple, Gourbigha, Bihar is about 2.26 Km in WSW Direction.

Table 1.3 Project Salient Features

On-line proposal No.	SIA/BR/MIN/461146/2024
Name of Proponent	M/s Maa Durga Fule Station Proponent- Mr. Akhilesh Kumar
Full correspondence address of proponent	R/o. – Village Pathra English, P.O. - Odhanpur, P.S. - Nawada, Dist. - Nawada, Pin code- 805123
Name of Project	Proposed Sand mining Project on Mohana River Block– 47 Gaya Mohana -01/02/03
Name of River	Mohana
Name of Village & Tehsil	Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Bodh Gaya
District	Gaya
Name of Minor Mineral	Sand
Sanctioned Lease Area (in Ha.)	44.5 Ha
Category of the project	"B1"
Total Geological Reserves	1335000 Cum. or 2403000 Tones.
Total Mineable Reserves	1203675 Cum. or 2166615 Tones
Proposed Production/year	801000 Cum. or 1441800 Tones
Sanctioned Period of Mine lease	5 years
Method of Mining	Open Cast semi mechanized method / OTFM
No. of working days	250 days
Working hours/day	8hrs

No. of workers	65	
Type of Land	Government waste land	
Water Requirement	**Purpose**	**Requirement (KLD)**
	Drinking & Domestic	1.30
	Plantation	0.89
	Dust Suppression	7.20
	Total	**9.38**
Any litigation pending against theproject or land in any court	No	
Proposed Project cost	The total cost of project would be around Rs. 8,49,47,500/- (8.49475 crore Or 849.475 lakh).	
Proposed EMP budget	Recurring Cost- 6,00,000/- Capital Cost -5,45,000/- (INR)	
Corporate Social Responsibility cost:-	Rs. 16,98,950/-	
Length and breadth of Haul Road	Length: 600 m, width: 6 m	
No. of Trees to be Planted	445 plants, Every year 89 trees will be planted	

Project's Importance to the country and the region

This project operation will provide employment to the people residing in vicinity as about manpower will be required annually and approximately 65 people may be benefited directly and indirectly by the project. The project involves collection of river bed material, thus it is expected that the proposed mining project would improve the supply of construction materials like Sand making a positive impact on the infrastructural projects like construction of roads, buildings, bridges etc in the state.

The river carry sediments along with it and depositing of the sediments takes place constantly at a specific point, where they eventually results in formation of Sand. This Sand extremelyinfluences on the river flow, obstruct navigation and cause flooding. The present project willthus ensure scraping of such Sand and prevent flooding.

1.3 REGULATORY COMPLIANCES & APPLICABLE LAWS/REGULATIONS

a) There is no legal case against the project and project proponent.

b) There is no national park / Sanctuary notified under the Wildlife Protection Act in thestudy

area.

1.4 SCOPE OF THE STUDY

In line with the Terms of Reference (TOR) prescribed by SEIAA, Bihar attached as **Annexure-II**, the area comprising 10 km radius around the proposed mine lease boundary isconsidered as the study area. The detailed studies have been conducted as per prescribed TOR.

The scope of study broadly covered:

- Literature review and collection of data relevant to the study area;
- Establish the baseline environmental aspects in and around the proposed project;
- Identify various existing pollution loads due to various mining activities;
- Predict incremental levels of pollutants in the study area due to the proposed operations;
- Evaluate the predicted impacts on various environmental attributes in the study area by using scientifically developed and widely accepted environmental impact assessmentmethodologies;
- Prepare an Environment Management Plan (EMP) outlining the measures for improving the environmental quality.

Table 1.4 Standard TOR

TOR Ref.	TOR Points for the preparation of EIA	TOR Reply
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.	Not Applicable as it's a fresh lease
2.	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mineshould be given.	State Govt has given consent for mining in favor of M/s Maa Durga Fule Station Proponent- Akhilesh Kumar vide letter no. 5501/Khanan, Gaya dated-29/11/2022 (Annexure-II LOI Attached)

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.	The documents including mine plan and EIA report submitted are compatible with one another w.r.t following information Mining lease area-44.5 Ha. Lessee- M/s Maa Durga Fule Station; Proponent- Akhilesh Kumar No Waste generation Mining Method-Opencast Semi Mechanized (Annexure-III Mining Plan and All the details given in chapter-2)
4.	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/top sheet, 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).	All corner coordinates of mining lease area superimposed on high resolution imagery has been incorporated in EIA/EMP report. Refer Chapter 1 & Chapter 2
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.	The land use map showing salient features of the area is given in the report. Chapter-3
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.	The Lease area is dry part of River bed. The mining process will be done by land use policy of the State & no land diversion has been proposed.

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 e 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 stake holders at large may also be detailed in the EIA Report.	Yes, the proponent Company has a well laid down Environment Policy. The hierarchical system or administrative order of the company has been given in the Chapter 6 of report.
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.	Issue related to mine safety has been given in of chapter 2 & Chapter 7.
9.	The study area will comprise of 10 km zone around the mine lease from lease periphery and the datacontained in the EIA.	The 10 km zone from periphery of the lease has been considered as the study area. The Buffer map of the study area isattached with report in chapter-1 All the details in the EIA report are for the life of the mine period. The details of mining & production have been given in the report.
10.	Land use of the study area delineating forest area, agricultural lands, 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.	Land use pattern of 10 km from the periphery of the lease area has been prepared and incorporated with the report. The study area lies on Mohana River. There is no wildlife sanctuary or national park within the study area.
11.	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, Distance from mine lease, its land use, R&R issues,if any, should be given.	There is no overburden outside the mine lease area.

12.	A Certificate from the competent authority in the State Forest Departments 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 forest, 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 assists the Expert Appraised Committees.	No Forest Area involved within Project site.
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.	No forest land is involved in the lease area, therefore, deposition of net present value (NPV) and compensated Afforestation is not indicated
14.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of ForestRights) Act, 2006 should be indicated.	There is no forest land involved in the lease area. Hence, this act is not applicable.
15.	The vegetation in the RF/PF areas in the study area,with necessary details, should be indicated.	Protected forest is present within the 10 km radius of the lease area. However, the vegetation details of the study area are incorporated with the report. Details are given in chapter 1 & 3.
16.	A study shall be got done 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 measure required, should be worked out with cost implications and submitted.	The details Impacts & there mitigation measures are given in chapter IV of EIA/EMP Report.

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 Wildlife and copy furnished.	NO National parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, and Ramsar site Tiger/Elephant Reserves (existing as well as proposed) Within 10 km periphery of the mine lease.
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 forcore and buffer zone should be furnished based on such primary field survey clearly indicating the Schedule of the fauna present. In case of anyscheduled –I fauna found in the study area, thenecessary plan along with budgetary provisions fortheir conservation should be prepared in consultation with State forest and Wildlife Departments and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	Biological study of core zone and buffer zone of the mine lease has been carried out and detailed in Chapter-3.
19.	Proximity of Areas declared as "Critically Polluted" or the project areas likely to come under the "Aravali Range", (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining Activities could be considered.	Proposed project does not come under critically polluted area.
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 project is not a coastal project. Hence not applicable.

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 villages including their R& R and Socio-economic aspects should be discussed in the report.	R&R Plan/compensation is not applicablefor this project
22.	One Season (non-monsoon)[i.e. March-May (Summer Season); October-December (Post monsoon seasons); December –February (winter season)] primary baseline data on ambient airquality 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 complied 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.	Baseline data for one season i.e. from March 2023 to May 2023, has been collected. Detail given in Chapter-3.
23.	Air quality modeling should be carried out for preparation of impact of the project on the air quality of the area. it should also take into accountthe impact of movement of vehicles for transportation of minerals. The details of the model used and input parameters used for modeling should be provided. The air quality contours maybe shown on the 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.	Air quality modelling details are given in Chapter 4 of the FEIA report.

24.	The water requirement for the project, its availability and sources should be furnished. A detailed water balance should also be provided. Fresh water requirement for the project should be indicated.	The water requirement for the project is 9.39 KLD for drinking, Domestic, dust suppression and green belt development. This water supplied from nearby area by water tanker. Details given in Chapter-2
25.	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the project should be provided.	Water requirement will be fulfilled by private water tanker. So, no clearance isrequired.
26.	Description of water conservation measures proposed to be adopted in the project should be given.	The project do not consume any process water except for drinking, dust suppression & plantation. Hence no artificial conservation measures have been proposed. Plantation is proposed, which will increase the water holding capacity & help in recharging of ground water.
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.	Mining activity will be done on Dry Bed of River so there is no impact on surface water. Mining will be up to 1 m below ground level or above the ground water table whichever comes first. This will not intersect the ground water table. (Details given in Chapter-IV)
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.	Mining will be Restricted up to 3.0 m below ground level or above the ground water table whichever comes first. This will not intersect the ground water table.

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.	Project is on Mohana River Bed. However, no modification/diversion is proposed as mining will be carried on the dry part of the river bed leaving safety distance from stream.
30.	Information on site elevation, working depth,groundwater table etc, Should be provided both in AMSL and bgl. A schematics diagram may also beprovided for the same.	Detail given in chapter-2 The details are also mentioned in Mine plan, attached as Annexure-III
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.	Plantation/afforestation will be done as per program i.e along the road sides and near civic amenities. Post plantation, the area will be regularly monitored in every season for evaluation of success rate. List of Plant species selected for green belt is detailed in the EIA report. The plant species selected for green belt have a greater ecological value and are of good utility value to the local population. The plant species are selected by giving emphasis on local and native species and the species which are tolerant to pollution
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.	The projection has been done based on the mineral transportation. The details of traffic analysis are discussed in the report. Chapter IV
33.	Details of the onsite shelter and facilities to be Provided to the mine workers should be included inthe EIA report.	A temporary rest shelter will be provided for the workers near to the site with provisions of water, first aid facility, protective equipments, etc.

		Details are given in the EIA/EMP Report.
34.	Conceptual post mining land use and reclamationand restoration of mined out areas (with plans and With adequate number of sections) should be givenin the EIA.	Detail given in chapter-2
35.	Occupational Health impacts of the project shouldbe 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 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 impact mainly is expected due air pollution due to fugitive dust emission because of movement of vehicles. However appropriate mitigation measures for air pollution control have been given in the report, discussed in Chapter-4. Each labour will undergo pre-placement medical examination. Thereafter periodical heath checkup will be arranged as stated in the report. Budget for Occupational Health given in Chapter VIII
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.	The proposed project being a small scale semi-mechanized mining project, there will be hardly any process related health implication on the population of the nearby villages except fugitive dust emissions due to transportation. Budgetary allocation is given in Chapter-VIII.
37.	Measures of socio economic significance andinfluence 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.	Detail given in chapter-3
38.	Detailed Environment 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.	The detailed environmental management plan to mitigate the environmental impacts has been mentioned in of the EIA/EMP Report. Detail given in chapter-9

39.	Public hearing points raised and commitment of the project proponent on the same along with the time bound action plan with budgetary provisions to implement the same should be provided and alsoincorporated in the final EIA/EMP report of the Project.	Public Hearing details are incorporated in the chapter 7 of the FEIA report.
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.	No Litigation Pending.
41.	The cost of the project (capital cost & recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.	EMP Capital Cost is Rs. 5,45,000 & EMPRecurring Cost is 6,00,000/- Detail given in chapter-9
42.	A Disaster Management Plan shall be prepared andincluded in the EIA/EMP report.	Detail given in chapter-7
43.	Benefits of the project if the project is implementedshould be spelt out. The benefits of the project shall clearly indicate environmental, social, economic,employment potential, etc.	2% (i.e Rs. 16,98,950/-) of the total cost of the project has been earmarked towards the Enterprise Social Commitment which will be used for the development of village.
44.	Besides the above, the below mentioned general points are also to be followed:-	
a.	All document to be properly referenced with index and continuous page numbering	Same is being complied in the report
b.	Where data are presented in the report especially in Table, the period in which the data were collectedand the sources should be indicated.	Same is being complied in the report
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.	Attached in Annexure.
d.	Where the documents provided are in a language Other than English, an English translation should beavailable during appraisal of the project.	Same is being complied in the report
e.	The Questionnaire for environmental appraisal of mining projects as devised earlier by the ministry Shall also be filled and submitted.	Same is being complied in the report Given in the annexure

f.	While preparing the EIA report the instruction forthe proponent & instruction for the consultants issued by MoEF&CC vide O.M. No. J- 11013/41/2006-IA-II (I) dated 4th August 2009, Which are available on the website of the ministry, should be followed.	Complied With EIA report
g.	Changes, if any made in the basic scope and project parameter (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 ofthe P.H. process) will entail conducting the PH Again with the revised documentation.	No changes done in report
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 theenvironment 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.	This is new case for Mining. No certified compliance report is required.
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.	Complied With EIA report.

Additional Specific conditions

TOR Ref.	TOR Points for the preparation of EIA	TOR Reply
1.	Submit a report based on cumulative assessment of increase in air pollutants due to increase in traffic load in view of proposed mining activities on the roads located within aerial distance of 10 km using suitable air model.	Cumulative assessment of increase in air pollutants due to traffic is being conducted. Details are given in Chapter 4.
2.	If the proposed mining lease is overlapping with the previously allotted mining lease or already working or worked out mining lease, the same must be clearly shown (on the	There is overlapping of mine lease for the proposed area. Same is being attached in

	map). The details about the quantity of sand extracted from overlapped area should also be furnished duly certified from the concerned District Mining Officer.	annexure.
3.	The satellite imageries (high resolution) of last three years in succession for summer, rainy and winter seasons of each proposed mining lease must be submitted. A map on appropriate scale be submitted to show extraction paths to be used outside the mining lease boundary to approach major public roads (Rural/District road or State/National Highway).	Complied in Final EIA Report. Attached in Annexure.
4.	Alternative route be explored if extraction path is passing through dense population/ human settlements.	Not Applicable
5.	A Cumulative traffic management plan for cluster sand mining proposal must be submitted.	Details are given in Chapter 4.
6.	A map of the area falling within 2.5 km radius from boundary of each mining lease showing all man-made public utility features such as bridge/public civil structure (including water intake points), culverts etc. and highways, and a table showing distance of the above mentioned man-made features from the mining lease boundary to facilitate decision making pertaining to relevant rules / Guidelines be submitted.	Complied in Final EIA Report. Attached in Annexure.
7.	A report of the cumulative EIA/EMP study for the cluster sand mining blocks of the proposed mining site.	NA

CHAPTER – II

DESCRIPTION OF THE PROJECT

CHAPTER –II

DESCRIPTION OF THE PROJECT

INDEX

S. No.	CONTENTS	Page No.
2.0	GENERAL	23/II
2.1	DESCRIPTION OF THE PROJECT	23/II
2.2	NEED FOR THE PROJECT	23/II
2.3	LOCATION DETAILS	23/II
2.4	LEASE HOLD AREA	26/II
2.5	TOPOGRAPHY	28/II
2.6	GEOLOGY	29/II
2.7	REPLENISHMENT STUDY OF MINED AREA OF MOHANA RIVER	32/II
2.8	RESERVES ESTIMATION	35/II
2.9	PROPOSED METHOD OF MINING	37/II
2.10	DRILLING AND BLASTING	37/II
2.11	CONCEPTUAL MINING	39/II
2.12	UTILITIES	23/II

2.0 GENERAL

The Environmental Impact Assessment report has been prepared in terms of EIA notification of the MoEF & CC dated 14-9-2006, amended till date and the EIA Guideline Manual for Mining of Minerals (Feb, 2010) of MoEF & CC, Govt. of India, for seeking environmental clearance for mining in the existing area of ordinary Sand mining lease measuring 44.5 Ha. Falling under category "B1".

Name of the lessee- M/s Maa Durga Fule Station, Proponent- Akhilesh Kumar, R/o. – Village Pathra English, P.O. - Odhanpur, P.S. - Nawada, Dist. - Nawada, Pin code- 805123.

2.1 DESCRIPTION OF THE PROJECT

The proposed project is an opencast semi-mechanized mining project, where mining of Sand will be done from the bed of River Mohana.

2.2 NEED FOR THE PROJECT

The project lies on the bed of Mohana River. Due to rapid infrastructure development in India, the demand of construction material has increased. To supply this demand, mining of sand is done. This project operation will provide employment directly and indirectly to the people residing in vicinity, thus improving the Socio-economic status of the area.

2.3 LOCATION DETAILS

The Project is proposed by M/s Maa Durga Fule Station, Proponent- Akhilesh Kumar, R/o. – Village Pathra English, P.O. - Odhanpur, P.S. - Nawada, Dist. - Nawada, Having an area of 44.5 Ha.

The project is proposed for excavation of sand from the bed of river Mohana at Block – 47 (Gaya Mohana 01/02/03) Sand Ghat on Mohana River Location of the Project- Khasra No. – 1, 1, 2091, 1, 1084, 1370, 225, Khata No. – 191, 384, 367, 207, 455, 177, Thana No. – 443, 454, 455, 446, 426, 424, Village – Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Bodh Gaya, District - Gaya, State– Bihar.

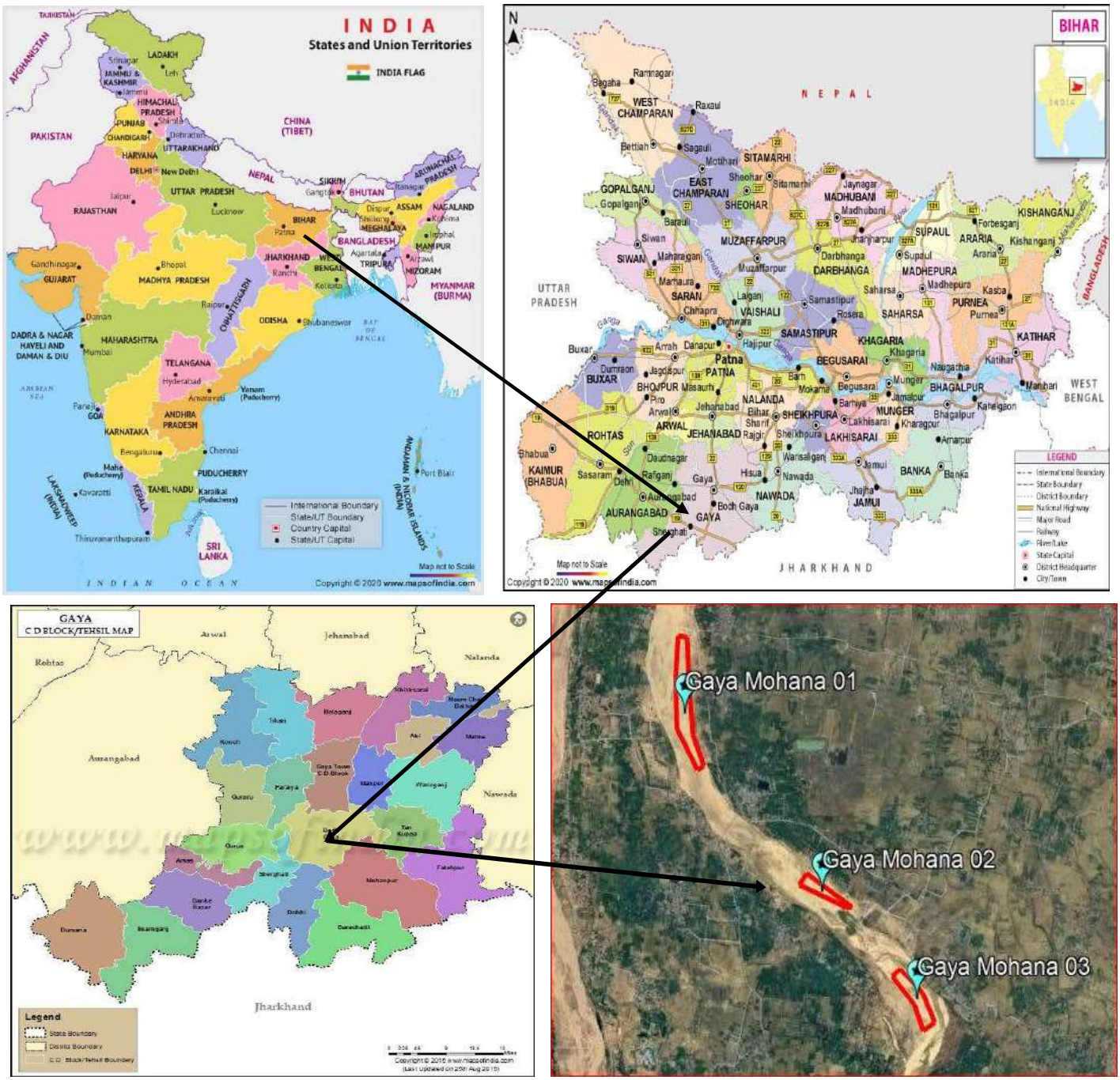


Fig 2.1 Location of the Project

Table 2.1 Salient Features of Project

On-line proposal No.	SIA/BR/MIN/461146/2024	
Name of Proponent	M/s Maa Durga Fule Station Proponent- Mr. Akhilesh Kumar	
Full correspondence address of proponent	R/o. – Village Pathra English, P.O. - Odhanpur, P.S. - Nawada, Dist. - Nawada, Pin code- 805123	
Name of Project	Proposed Sand mining Project on Mohana River Block– 47 Gaya Mohana -01/02/03	
Name of River	Mohana	
Name of Village & Tehsil	Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Bodh Gaya	
District	Gaya	
Name of Minor Mineral	Sand	
Sanctioned Lease Area (in Ha.)	44.5 Ha	
Category of the project	"B1"	
Total Geological Reserves	1335000 Cum. or 2403000 Tones.	
Total Mineable Reserves	1203675 Cum. or 2166615 Tones	
Proposed Production/year	801000 Cum. or 1441800 Tones	
Sanctioned Period of Mine lease	5 years	
Method of Mining	Open Cast semi mechanized method / OTFM	
No. of working days	250 days	
Working hours/day	8hrs	
No. of workers	65	
Type of Land	Government waste land	
Water Requirement	**Purpose**	**Requirement (KLD)**
	Drinking & Domestic	1.30
	Plantation	0.89
	Dust Suppression	7.20
	Total	**9.38**
Any litigation pending against theproject or land in any court	No	
Proposed Project cost	The total cost of project would be around Rs. 8,49,47,500/- (8.49475 crore Or 849.475 lakh).	
Proposed EMP budget	Recurring Cost- 6,00,000/-	

	Capital Cost -5,45,000/- (INR)
Corporate Social Responsibility cost:-	Rs. 16,98,950/-
Length and breadth of Haul Road	Length: 600 m, width: 6 m
No. of Trees to be Planted	445 plants, Every year 89 trees will be planted

2.4 LEASE HOLD AREA

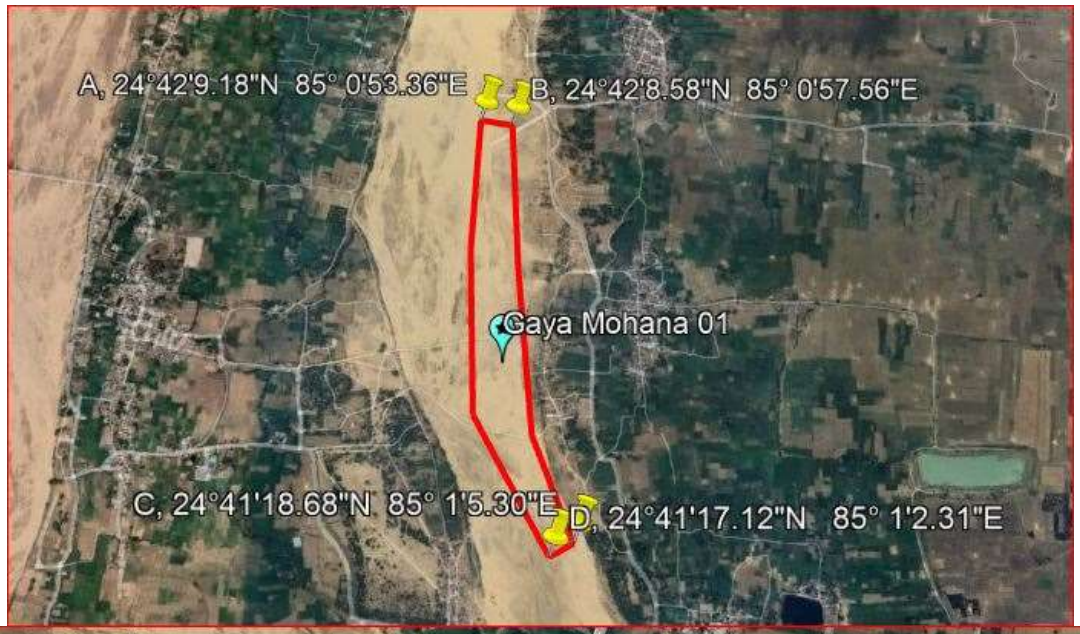
Location of the Project- Khasra No. – 1, 1, 2091, 1, 1084, 1370, 225, Khata No. – 191, 384, 367, 207, 455, 177, Thana No. – 443, 454, 455, 446, 426, 424, Village – Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Bodh Gaya, Block – 47 (Gaya Mohana 01/02/03) Sand Ghat, District- Gaya, State – Bihar.

Table 2.2 Project Coordinate

S. No	Sand Ghat	Area (in Ha)	Co-ordinates	
1	**Gaya Mohana -01**	**25.0**	**A**	24°42'9.18"N 85° 0'53.36"E
			B	24°42'8.58"N 85° 0'57.56"E
			C	24°41'18.68"N 85° 1'5.30"E
			D	24°41'17.12"N 85° 1'2.31"E
2	**Gaya Mohana -02**	**7.0**	**A**	24°40'32.33"N 85° 1'49.24"E
			B	24°40'36.94"N 85° 1'52.53"E
			C	24°40'23.82"N 85° 2'13.55"E
			D	24°40'23.63"N 85° 2'10.93"E
3	**Gaya Mohana -03**	**12.5**	**A**	24°39'56.83"N 85° 2'32.07"E
			B	24°39'59.71"N 85° 2'35.77"E
			C	24°39'39.03"N 85° 2'51.68"E
			D	24°39'35.63"N 85° 2'46.47"E

Table 2.3 -Area Details

S. No.	Land use	River bed (Ha)	Forest Land (Ha)	Barren land (Ha)	Grazing Land (Ha)
1	Mining pits Quarry	-	-	-	-
2	Approach Road	-	-		-
3	Dumps	-	-	-	-
4	Office, Resht Shelter etc.	-	-	-	-
5	Balance undisturbed land	44.5	-	-	-
Total		**44.5**	**-**	**-**	**-**



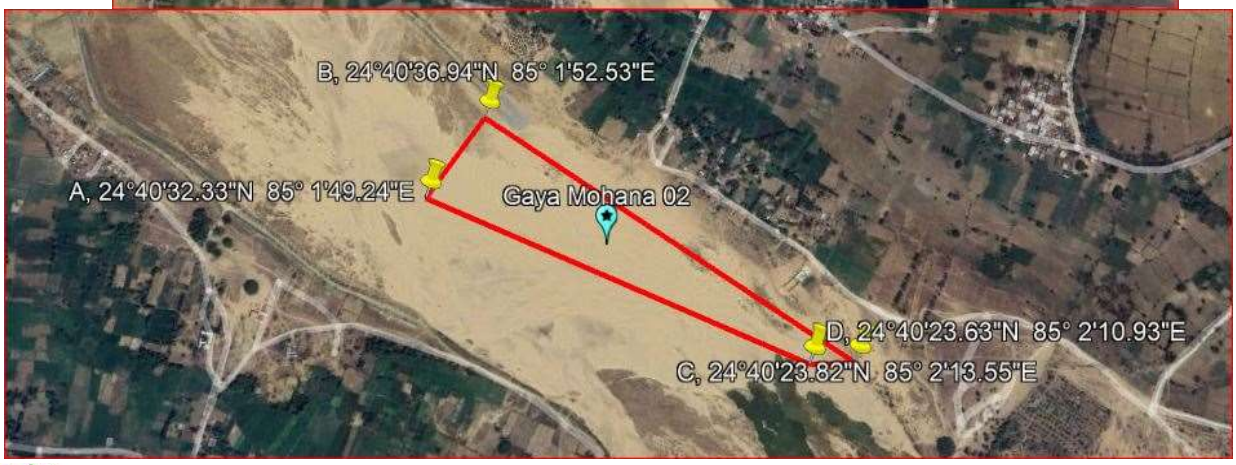




Fig 2.2 Mining Site

2.5 TOPOGRAPHY

The district of Gaya is broadly divided into two distinct physical units. The south is a region of broken undulating country merging into long ranges of hills, with a wide belt of brushwood jungle at their base. Much of this tract is high and barren and incapable of much cultivation; the soil has poor crops and the population is sparse. These high lands project into the alluvial plains to the north as spurs from the Chhotanagpur Plateau. The greater part of the district, however, consists of the flat alluvial plain. This wide alluvial plain of the north forms part of the Gangetic depression with alluvial deposits of immense depth and is broken here and there by groups and low ranges of hills or isolated peaks arising abruptly from the level country at their feet. The alluvial plain is protected from drought by a wonderful system of indigenous irrigation consisting of ahars (reservoirs) and pains (channels). It is, therefore, a region of great fertility when compared with thesouthern part of the district and is comparatively densely populated. The northern portion, which is highly cultivated and extensively irrigated.

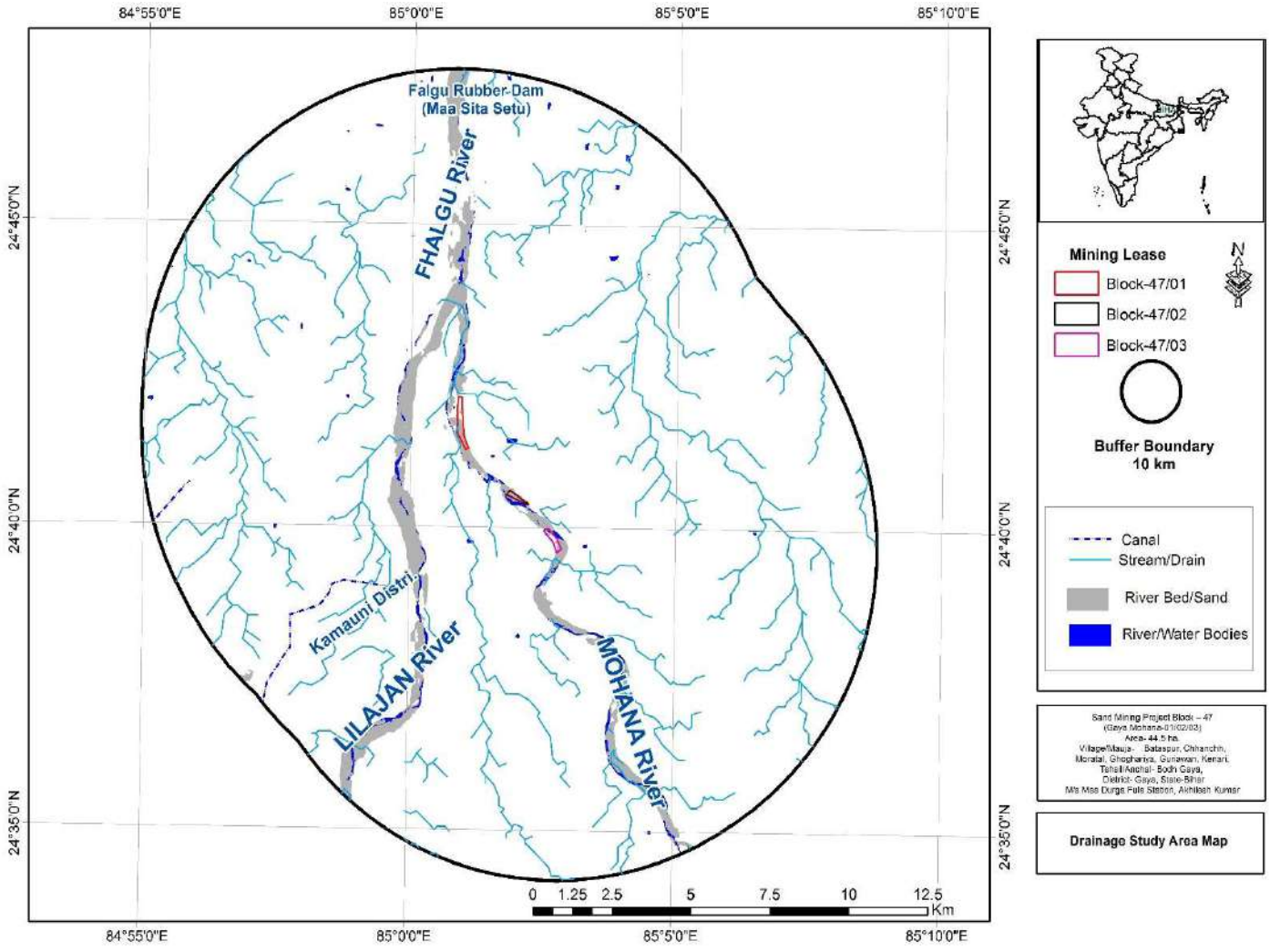


Fig 2.3 Drainage Map

2.6 GEOLOGY

General Geology

The main geological formation of the region is of Quaternary age. The area is mostly covered by unconsolidated sediments which is known as alluvial deposits followed by consolidated deposits of Satpura range. Few areas are also characterized by units of Archaean ages. The Satpura range mainly exposed in Gaya hills and Rajgir hills comprises low grade supracrustals – Schists, ferruginous phyllite, quartzites and phyllitic slate. The Archeans are the oldest rock formation inthe area. The most

predominant rock type is gneisses and granites with basic intrusives and medium to fine sand geologically the area comprising of Terrace alluvium deposited in depositional terraces of old rivers & contain cyclic sequence of fine to course grained sand. It is angular to sub angular and the angularity of the grains of this category of sand decreases with depth.

Regional Geology

Geologically, it represents nearly two third of Bihar is under cover of Ganga basin composed of alluvium and masks the nature of basement rocks.

Table 2.4 Showing the Geological Succession and their Occurrences distribution

Age	Geology	Occurrences
Quaternary	Alluvial Deposits (Sand, Clay, Silt, Fragments)	North Bihar Plain & CentralBihar Plain
Tertiary	Sand Stones & Clay Stones	North Champaran Hills
Gondwana	Coal Measures, Forming a series of Small outlier basins	Banka District
Vindhyans	Sandstones, Shales, Limestone, etc.	Parts of Bahbhua and Rohtasdist.
Satpura	Schist, Phyllite, Quartzite	Part of Aurangabad, Gaya, Nawada, Nalanda, Sheikhpura and Munger District
Proterozoic	Mica Schist, amphibolites, quartzite, granite, dolerite and pegmatite	Nawada, Jamui and Banka
Archaean	Gneisses, Granites, Schists, Phyllites, quartzite, amphibolites & intrusive all metamorphosed sedimentary and igneous rocks	Part of Aurangabad, Gaya, Nawada, Jamui, Banka and Bhagalpur

Geology of the area

The area is dominated by medium to fine sand geologically the area comprising of Terracealluvium deposited in depositional terraces of old rivers & contain cyclic sequence of fine to coursegrained sand. It is angular to subangular and the angularity of the grains of this category of sand decreases with depth.

The Litho unit shown on the geological map of the leased out area have been plotted on the basis of physical characteristics observed in the field. Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited at the fringe of the river banks. Soil/ alluvium varying in thickness from 0.20 m to 0.60 m constitute the top horizons in the are suitable for agriculture. River Falgu, Morhar & Mohana meanders through the area exposing the alluvium and soil at the banks.

The litho units encountered in the riverbed and surrounding areas belongs to the Shivalik super groups. The size of the sediments towards the source i.e. host rock is course and at the tail end of the river the grain size is reduced to smaller sizes resulted in the formation of clay beds. The following sequences have been observed in the area, i.e. Top soil/ Alluvium followed by sand deposition.

Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited at thefringe of the riverbanks.

Soil/ alluvium varying in thickness from 0.20m to 0.60m m constitute the top horizons in the area suitable for agriculture. River Ganga meanders through the area exposing the alluvium and soil at the banks. Sand is found in the river bed upto a depth of more than 3.0 m. The major part of bed remains dry as water flows in a single stream during the non-monsoon seasons. Only during rainy seasons the entire flood plain has water, when there will be no mining done.

2.7 REPLENISHMENT STUDY OF MINED AREA OF MOHANA RIVER

Replenishment Rate is the rate at which Bajri is transported into the river channel, which is under examination or subjected to sand extraction. This volume is often considered as sustainable yield of that river. Estimation of Bajri discharge through stream bed and its residence period (temporary deposition) is one of the most difficult task in sediment budgeting.

The rate of gross or absolute silt production (erosion) in the watershed and the ability of the stream system to transport the eroded material in a river and then to a reservoir has the direct relation with the quantity of sediment delivered into a reservoir. It has been observed that the average rate of sediment production decreases as the size of drainage area increase and the larger watershed the lesser is the variation between the rates. The larger watershed presents more opportunity for deposition of silt during its traverse from the point of production. The total amount of eroded material, which reaches a particular hydraulic control

point, is termed as sediment yield. The sediment control of inflow is governed by Character of run-off; Susceptibility of soils; the extent and density of vegetative cover in the area; and the hydraulic efficiency of the drainage system.

This report quantifies the annual replenishment of bed material in the Mohana River during periods of sediment transport at high flows within the mined area. It provides estimates of the amounts of sand & bajri which will be used in construction and for other uses.

2.8 RESERVE ESTIMATION

The geological reserves have been estimated as per UNFC guidelines in all the three axis.

Economic Axis (E-1): The Sand is exists within the entire stretch & having no problem selling in the market. The road is near the Ghat & sand shall loaded into tipper with the deployment of an excavator & transport to various parties. The land is State Govt. land & State Govt. has given its consent for the exploitation of Sand on their expensive land. On the feasibility study, economic viability of deposit has been established sand in economic viable, therefore economic axis has beenconsidered as E-1.

Feasibility Status (F-1): Feasibility study has been carried out & is considered to be feasibility status. A feasibility study provides a preliminary assessment with a level of confidence as compared to that of feasibility study. It has been revealed that exploitation of sand is feasible & economic viable & feasibility axis under UNFC code has been considered as F-1.

Geological Axis: The exposure of sand is seen in the entire stretch & thickness of sand varies 2.5m to 3.0m. Therefore geological axis has been considered as G-1.

Geological Reserves:

The geological reserves have been each stretches & for individual blocks. Geological reserves havebeen completed through cross sectional area method. The area of each section line is multiplied by strike influence to get the volume.

Proved Mineral Reserves (111): All quantities of sand occurring upto depth of 3 m from surface has been considered as proved reserves.

Gaya Mohana-01

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	750000
Total		**750000**

Geological Reserve = **750000 Cum. or 1350000 Tonnes.**

Gaya Mohana-02

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	210000
Total		**210000**

Geological Reserve = **210000 Cum. or 378000 Tonnes.**

Gaya Mohana-03

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	375000
Total		**375000**

Geological Reserve = **375000 Cum. or 675000 Tonnes**

Total Geological Reserve = 1335000 cum. or 2403000 tonnes.

*Bulk density is 1.8 g/cm^3

MINEABLE RESERVES

Mineable reserves have been computed up to 3m depth from surface. Benches having height 1.5m & width 6.0m drawn from the ultimate pit limit. Area of each benches have been calculated multiplied by strike influence to get the volume. The volume multiplied by bulk density (1.8 g/cm3) to get the tonnage. The minerals excavated from the river bed will be replenished gradually during the monsoon season every year. And the area pertaining to paleochannels of the river will be leveled & restored back.

Summary of mineable reserves of Sand Ghat as below:

The mineable reserves are given in Table Block- 47 (Gaya Mohana – 01, 02, 03) Sand Ghat of Mohana River.

Table 2.5 Mineable Reserve

Gaya Mohana-01

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume(cum)	Tonnes
119-117.5	1585	156	1.5	370890	667602
117.5-116	1575	146	1.5	344925	620865
Total				**715815**	**1288467**

Mineable Reserve = 715815 CUM or 1288467 Tonnes

Gaya Mohana-02

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume(cum)	Tonnes
123-121.5	671	91	1.5	91592	164865
121.5-120	661	81	1.5	80312	144561
Total				**171903**	**309425**

Mineable Reserve = 171903 CUM or 309425 Tonnes

Gaya Mohana-03

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume(cum)	Tonnes
124-122.5	768	143	1.5	164736	296525
122.5-121	758	133	1.5	151221	272198
Total				**315957**	**568723**

Mineable Reserve = 315957 CUM or 568723 Tonnes

Total Mineable Reserve = 1203675 CUM or 2166615 Tonnes

Mineable reserve has been consider 60% approx. of geological reserve after applying the Guideline of Enforcement & Monitoring Guidelines for Sand Mining 2020.

- The proposed production grant in LOI is 801000 cum per year which is within thesustainable limit of mineable reserve.
- The BD for Sand has been adopted at 1.8 g/cm3 [Noida Testing Laboratories]

Table 2.6 Classification Mineral Reserves

Sand Ghat	Area (Ha.)	Geological Reserves (m3)	Mineable Reserves (m3)	Annual Permitted Reserve As per LoI (m3)
Block-47 (Gaya Mohana-01/02/03) Sand Ghat	44.5	1335000	1203675	801000

The annual extractable RBM comes to 801000 Cum. or 1441800 Tones. It will be replenished after rainy season every year.

2.9 PROPOSED METHOD OF MINING

- Mining will be done as per the guidelines of Bihar Mineral (Concession Prevention of illegal Mining Transportation & Storage) Rules, 2019.
- This is an open-cast mining project. The operation will be semi-mechanized/OTFM with use of excavators/JCBs truck /tractors combination or Manually etc. The sand will be collected in its existing form.
- Sand Mining will be carried out only upto a depth of 3 m bgl or above ground water level (whichever is less), for river bed block.
- No drilling /blasting are required as the material is loose in nature.
- Proper benching of 1.5 m height and 6m width will be maintained for mining blocks as per guideline M.M.R-2019, under rule 115(1).
- Mining will be done only during the day time and completely stopped during the monsoon season.

Restriction of mining:

i. Sand and gravel shall not be extracted up to a distance of 1 km from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

ii. No quarrying shall be permitted within 50 (fifty) meters of any public place i.e. cremation Ghat or any religious place etc.

iii. No quarrying shall be permitted within 5 (five) meters from both banks of the river.

iv. The quarrying of sand shall be prohibited within 100 (one hundred) meters upstream and downstream from any dam/weir or any other structure erected for irrigation purpose.

v. Sand Ghats should preferably be located on the river side embankment. For low embankment less than 6 meters height, quarrying should not be done within 25 meter from toe/heel of the embankment and depth of mining should not be more than 1.00 meter. In case of higher embankments, the distance should not be less than 50 metre and depth of mining should be maximum 1.50 metre and at a distance of 75 metres of more mining depth should be maximum 2.00 metre. In order to obviate the development of flow parallel to embankment, crossbars of width eight times the depth of mining pits spaced at 50 to 60 metres center to center should be left in the mining pits.

vi. The irrigation outlet shall be maintained at the same level as that of the river bed and in no case the river bed level shall be permitted to be below the irrigation outlet level. No quarrying shall be permitted around the infiltration well/intake well up to a distance of 5 meters

vii. The extraction of sand shall be permitted only after obtaining a No Objection Certificate from the Water Resources Department in the case of rivers where from irrigation channels are out flowing.

viii. No quarrying of sand shall be permitted in any private land owned by a person other than the settlee unless the settle obtains the consent of the concerned land owner/raiyat.

ix. No quarrying of sand shall be permitted in any area which the State Government notifies as a restricted area.

x. Sand and gravel shall not be allowed to be extracted where erosion may occur, such as atthe concave bank.

xi. Mining depth should be restricted to 3 meters and distance from the bank should be ¼th orriver width and should not be less than 7.5 meters.

PROPOSED METHOD OF MINING

- Mining activity will be carried out by open cast Semi-Mechanized method.
- No OB/ waste material will be produced in river bed. The sand shall be exploited upto depth of 3.0 m only through the formation of bench height 1.5m & width 6.0m. An approach road having width 6.0m & gradient 1:12 shall be provided for the movement of loading machineries & transportation of sand.

The sand shall be exploited with the deployment of an excavator & filled into Tractors/Trucks & transported to various buyers.

- No drilling/ blasting are required as the material is loose in nature.
- Proper benching of 1.5 m height will be maintained.
- Roads will be properly made and sprayed by water for suppression of dust.
- Roads in the applied area for the movement of loaded tractors/ trucks will not have slopes more than 1 in 16.
- The mined out area shall be replenished each year during monsoon period and maintained in maximum original topography.
- Approach roads from the various blocks as already described earlier will be merging with permanent tar roads on both sides of the river for transportation of the mineral to final destinations.
- The Sand transportation shall be insured after the covering the vehicle Tarpaulin.

The annual exploitation of sand from Block-47 (Gaya Mohana– 01, 02, 03) Sand Ghat are given below:-

Table 2.7 Year Wise Production Schedule

Year	Over burden (Cum.)	ROM Sand (Cum.)	Saleable Sand (Cum.)
1ST	-	801000	801000
2ND	-	801000	801000
3RD	-	801000	801000
4TH	-	801000	801000
5TH	-	801000	801000

The annual extractable RBM comes to **801000 Cum. or 1441800 Tonnes**. It will be replenished after rainy season every year.

2.10 DRILLING AND BLASTING

No drilling and blasting shall be required to for the exploitation of river sand.

2.11 CONCEPTUAL MINING PLAN

Mine Applied Area will be worked for Block-47 (Gaya Mohana – 01, 02, 03) Sand Ghat. However, as the digging depth will be restricted to 3.0 m only. This will be further replenished during rainy season.

Sand Ghat will be worked systematically as the width is limited while length is much more. As the lease period is only 5 (Five) years, some of the area will be left un-worked at the end of lease period.

i. Final Slope Angle to Be Adopted: Height of the bench is limited to 1.5 m while width of individual bench shall be kept 6.0m. River bank side will be protected by working in dry part of the river and by leaving safety distance of the width of the river of 5 meter. Bank side natural slope will not be disturbed. This will prevent collapse of bank and erosion. However, the height of the bank with respect to river bed is varying from 3-4 meters.

ii. During plan period workings will be carried out in the Sand Ghat at a time of the Applied Area simultaneously. Scattered workings will ensure safety, remove congestion of vehicles, and will have better control and management.

iii. Ultimate Capacity of Dumps: There will be no OB removal / during the plan period. Therefore, no proposal has been envisaged for its separate dumping. No outside material will be filled up in the extracted zone.

iv. The conceptual plan & section of each mining plots are attached with mine plan.

2.11.1 Anticipated life of mine

There is as such no specific life of the mine as the area under reference is inactive part of river bed of the river and its pale channels and whatever quantity of minor minerals are extracted from the Applied Area during five year; almost equal to extracted quantity of the same are replenished every 5 years, mining will be done for the allotted time.

2.11.2 Waste Management

The area is devoid of soil cover, therefore there would be no generation of top soil or any other waste generation. All quantities of Sand to be exploited shall be saleable. Therefore, waste management is envisaged.

2.11.3 Reclamation/Rehabilitation:

Every year in monsoon Season, the extracted sand area will be replenished naturally. No other Reclamation/Rehabilitation is proposed.

2.12 UTILITIES

2.12.1 Power

There is no power requirement is proposed for the project.

2.12.2 Water Supply

In the river bed mining projects, there is as such no need of water to carry out operations, except for dust suppression& drinking. The number of working people is 65 & the total water requirement will be around 9.39 KLD. This water will be supplied from the nearby area.

Table 2.8 Water Demand

S. No.	Purpose	Manpower/Area	Water Demand KLD	Source
1.	Drinking & Domestic	Manpower (65) (65*20= 1300L/D)	1.30	Nearby Village
2.	Plantation	445 trees*2L= 890L/D	0.89	Private Tanker (Treated Water)
3.	Dust Suppression	Haul Road = 600m length *6m width=3600m^2 *2L= 7200L/D	7.20	Private Tanker (Treated Water)
Total			**9.39**	

2.12.3 Infrastructure:

The site services like a temporary rest room shelter, first aid box, and drinking water facility will be provided to workers at the mine site.

12.12.4 Manpower requirement

The manpower requirement for the proposed project is tabulated below. This manpower is the permanent resource which excludes personnel's coming along with trucks / Tractors.

Table 2.9 Employment Detail

S. No.	Category	Numbers
1.	Administration	3
2.	Supervisor	3
3.	Skilled	14

4.	Un-skilled	45
TOTAL		**65**

The maximum annual production envisaged is 1441800 TPA which will be achieved every year that implies about 5768 Tonnes per day. 250-working days in a year. That implies 65 workers will meet the required production.

2.12.5 Machinery

The proposed project being semi mechanized in nature, other than vehicles, few machineries shallbe engaged for mining activities like excavating, loading, etc. The equipment's are enlisted in the table below

Table 2.10 List of Equipment's to be used

S. No.	Name of machinery	No. of Machinery
1	JCB	3
2	Excavator	8
3	Trucks	417
4	Tractors	192
5	Water Tanker	2
6	Light vehicles	1

2.12.6 Use of Mineral

The Sand will be used for making buildings, bridges, infrastructure etc. Sand is an essential minor mineral used extensively across the country for construction.

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CHAPTER – III

DESCRIPTION OF THE ENVIRONMENT

CHAPTER-III

DESCRIPTION OF THE ENVIRONMENT

INDEX

S. No.	CONTENTS	Page No.
3.0	INTRODUCTION	42/III
3.1	BASELINE DATA	42/III
3.2	LAND ENVIRONMENT	42/III
3.3	AIR ENVIRONMENT	43/III
3.4	WATER ENVIRONEMNT	56/III
3.5	SOIL ENVIRONMENT	64/III
3.6	NOISE ENVIRONMENT	66/III
3.7	BIOLOGICAL ENVIRONMENT	68/III
3.8	SOCIAL IMPACT ASSESSMENT, REHABILITATION & RESETTLEMENT (R&R) ACTION PLAN	85/III

3.0 INTRODUCTION

Information on the existing environmental status is essential for assessing the likely environmental impacts of the project. In order to get an idea about the existing state of the environment, various environmental attributes such as meteorology, air quality, water quality, soil quality, noise level, ecology and socio-economic environment have been studied/ monitored. This section contains the description of baseline studies of the 10 km radius of the area Sand mining Project on Mohana River located at, Village/Mauja – Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, and Tehsil/Anchal- Bodh Gaya District- Gaya, State-Bihar, and Area – 44.5 Ha. & Proposed Production 801000 Cum. per annum or 1441800 TPA. The data collected has been used to understand the existing environment scenario around the proposed mining project against which the potential impacts of the project can be assessed.

3.1 BASELINE DATA

Baseline environmental data generation for air, water, noise and soil quality monitoring has been conducted at project site and other locations from March 2023 – May 2023.

3.2 LAND ENVIRONMENT

To assess the land use pattern of the study area i.e. 10 km radius of the site, a detailed study was carried out and using the Survey of India Toposheet a landuse map has been prepared as shown in the figure below. The land use pattern reveals that the 10 km environs is predominantly agricultural land.

Also the landuse cover of the study area is tabulated below wherein it shows that the project area is completely river bed which is completely an undisturbed land where presently no mining activity is being carried out.

Table 3.1 Land use cover of the project area

S. No.	Land use	River bed (Ha)	Forest Land (Ha)	Barren land (Ha)	Grazing Land (Ha)
1	Mining pits Quarry	-	-	-	-
2	Approach Road	-	-		-
3	Dumps	-	-	-	-
4	Office, Resht Shelter etc.	-	-	-	-
5	Balance undisturbed land	44.5	-	-	-

Total	**44.5**	**-**	**-**	**-**

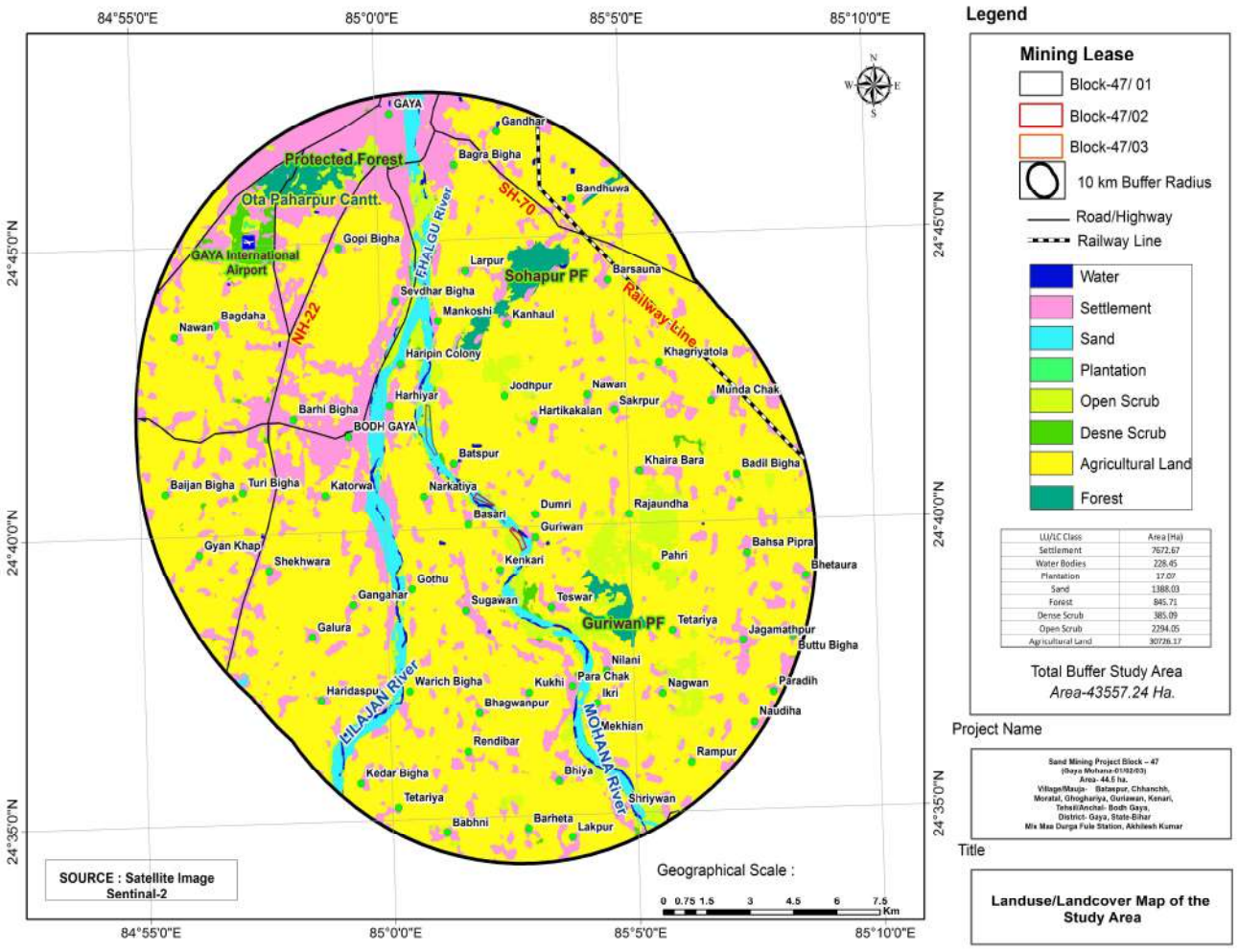


Fig 3.1 Land use Map

3.3 AIR ENVIRONMENT

The prime objective of the baseline study with respect to ambient air quality is to establish the present air quality and its conformity to National Ambient Air Quality Standards. This data has been further used during impact assessment to predict the final air quality. Ambient air quality monitoring stations were selected primarily on the basis of surface influence, demographic influence and meteorological influence. 24 hourly monitoring was carried out for SO_2, NO_2, PM_{10} & $PM_{2.5}$ twice a week at each

station. This study was done during post monsoon season for a period of 3 months (March to May 2023).

METHODS FOR MONITORING

The Central Pollution Control Board (CPCB) has published comprehensive document on emission testing regulations ("Emission Regulations Part-3, 1985"). Those procedures relevant to the particulate monitoring are summarized below:

Table 3.2 Methods adopted for $PM_{2.5}$, PM_{10}, SO_2 and NO_X (as NO_2)

Parameters	Technique	Technical Protocol	Minimum Detectable Limit
PM2.5	Gravimetric method	US EPA Method	5 ($\mu g/m^3$)
PM 10	Gravimetric method	IS 5182 (Part-XXIII)	5 ($\mu g/m^3$)
Sulphur Dioxide	West and Gaeke	IS-5182 (Part-II)	3 ($\mu g/m^3$)
Nitrogen Oxide	Jacob & Hochheiser	IS-5182 (Part-VI)	7 ($\mu g/m^3$)

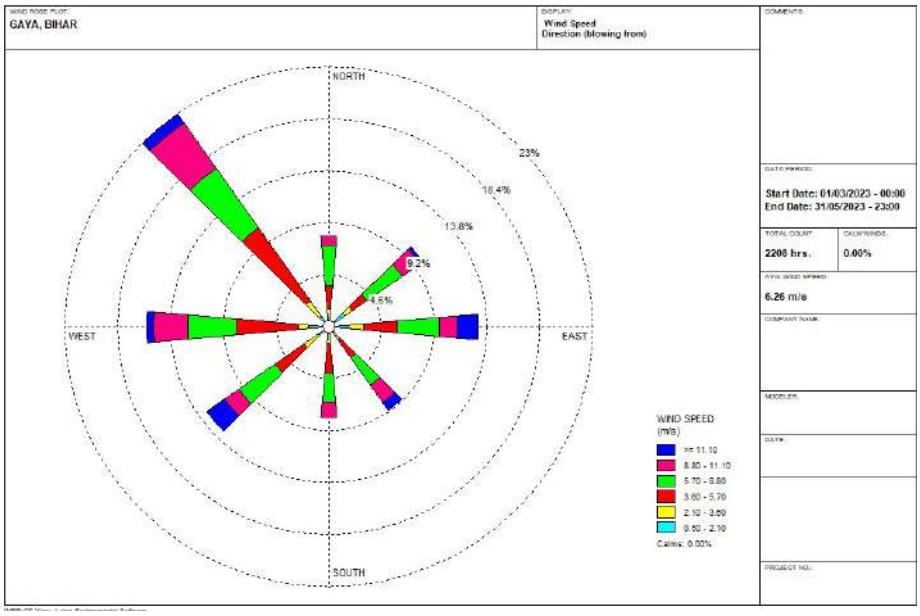


Fig 3.2 – Wind Rose Diagram

Equipment Calibration: For accurate testing of emission sources, the components of the sampling train is calibrated by outsource and supplier (Master Calibrator) standards and solutions are used,

calibrated under certified reference material. The Ambient air quality monitoring locations are marked in Map. The ambient air quality data were collected to find the existing GLC. To quantify the impact of the project on the ambient air quality, it is necessary at first to evaluate the existing ambient air quality of the area. The existing ambient air quality, in terms of Particulate Matter – 10 (PM_{10}), Particulate Matter- 2.5 ($PM_{2.5}$), Sulphur-dioxide (SO_2) and Oxides of Nitrogen (NO_2), has been measured through a planned field monitoring. Table 3.2(ii) gives location of the ambient air quality monitoring stations.

Table 3.3 (i) Ambient Air quality monitoring stations

Location Code	Location	Distance	Direction	Study Area
AAQ1	Near Project Site (Gaya Mohana -01)	E	0.48	Core Zone
AAQ2	Near Project Site (Gaya Mohana -02)	E	0.28	Core Zone
AAQ3	Near Project Site (Gaya Mohana -03)	E	0.32	Core Zone
AAQ4	Guriyawan	SE	1.64	Study Area
AAQ5	Dumri	E	1.81	Study Area
AAQ6	Harli Kalan	NE	2.74	Study Area
AAQ7	Sugawan	SW	1.67	Study Area
AAQ8	Jani Bigha	NW	2.52	Study Area
AAQ9	Khaira Bara	E	6.53	Buffer Area
AAQ10	Nagwan	SE	7.71	Buffer Area

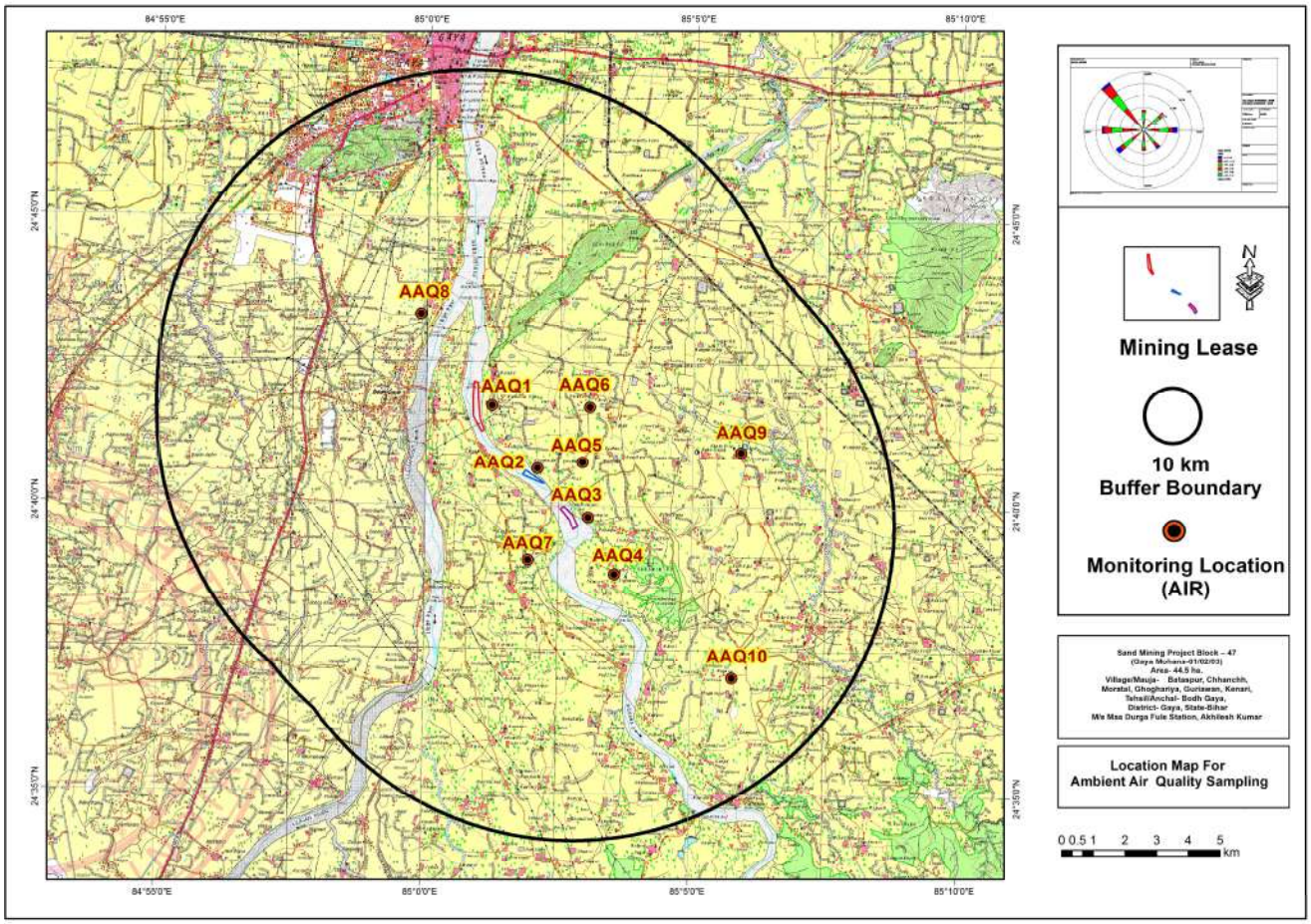


Fig 3.2 (a) Air Quality Monitoring Locations

Table 3.3 (ii): Ambient Air Quality Status

AAQ1 Near Project site (Gaya Mohana-01) within 500m (Core Zone)

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)
1	02-03-2023	80.90	48.12	6.41	12.92
2	06-03-2023	75.34	45.84	7.72	14.52
3	11-03-2023	60.76	49.65	10.33	10.82
4	15-03-2023	84.68	44.75	9.88	10.54
5	19-03-2023	82.69	45.85	7.28	11.39
6	23-03-2023	75.43	55.18	8.95	12.8
7	26-03-2023	59.68	52.95	8.65	6.98

8	29-03-2023	72.26	41.66	9.905	10.3
9	01-04-2023	62.56	45.58	7.82	3.84
10	05-04-2023	85.70	55.85	5.37	9.79
11	08-04-2023	81.34	54.85	5.89	7.46
12	12-04-2023	74.76	51.96	4.18	12.35
13	16-04-2023	80.90	49.29	7.95	7.65
14	20-04-2023	76.30	44.82	5.52	9.50
15	24-04-2023	89.60	40.97	9.92	8.51
16	27-04-2023	82.12	53.05	11.72	10.40
17	02-05-2023	81.78	53.18	9.42	8.95
18	05-05-2023	86.80	49.20	12.75	11.59
19	08-05-2023	70.35	55.83	9.32	6.87
20	12-05-2023	74.70	53.29	10.31	6.448
21	15-05-2023	62.40	47.31	9.9	4.72
22	18-05-2023	75.51	52.75	9.85	9.53
23	21-05-2023	77.90	51.49	7.7	9.4
24	25-05-2023	68.50	48.35	6.15	4.95
Minimum		**59.68**	**40.97**	**4.18**	**3.84**
Maximum		**89.6**	**55.85**	**12.75**	**14.52**
Average		**75.96**	**49.66**	**8.45**	**9.26**
98th Percentile		**88.31**	**55.84**	**12.28**	**13.78**
NAAQS, For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**

AAQ2 Near Project site (Gaya Mohana-02) within 500m (Core Zone)

S.No	Date	Particulate Matter PM10 (µg /m³)	Particulate Matter PM2.5 (µg /m³)	Sulphur Dioxide SO_2 (µg /m³)	Nitrogen Dioxide NO_2 (µg /m³)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)
1	02-03-2023	81.78	41.89	12.90	6.98
2	06-03-2023	73.60	51.98	9.90	10.34
3	11-03-2023	84.23	47.89	11.45	12.70
4	15-03-2023	72.67	42.70	7.19	9.26
5	19-03-2023	83.69	54.57	13.75	10.85
6	23-03-2023	76.20	47.85	10.32	9.72
7	26-03-2023	81.70	55.67	9.56	12.40
8	29-03-2023	78.84	46.70	12.92	14.80
9	01-04-2023	82.70	50.43	9.54	13.33
10	05-04-2023	75.50	46.49	17.12	9.36
11	08-04-2023	85.15	45.60	9.79	11.70

12	12-04-2023	80.70	44.92	12.52	9.58
13	16-04-2023	72.80	51.30	8.86	12.50
14	20-04-2023	84.16	43.24	11.92	10.70
15	24-04-2023	71.14	52.70	9.45	12.60
16	27-04-2023	85.48	53.34	11.65	9.63
17	02-05-2023	65.29	47.40	8.40	13.85
18	05-05-2023	75.85	43.34	10.72	12.60
19	08-05-2023	83.65	40.56	12.85	10.40
20	12-05-2023	65.25	48.18	10.86	13.50
21	15-05-2023	84.45	52.32	9.90	8.54
22	18-05-2023	72.30	47.58	12.60	13.79
23	21-05-2023	82.73	52.84	13.44	9.40
24	25-05-2023	71.65	45.32	9.82	12.90
Minimum		**65.25**	**40.56**	**7.19**	**6.98**
Maximum		**85.48**	**55.67**	**17.12**	**14.8**
Average		**77.98**	**48.12**	**11.14**	**11.31**
98th Percentile		**85.33**	**55.16**	**15.57**	**14.36**
NAAQS, For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**

AAQ3 Near Project site (Gaya Mohana-03) within 500m (Core Zone)

S.No	Date	Particulate Matter PM10 (µg /m³)	Particulate Matter PM2.5 (µg/m³)	Sulphur Dioxide SO_2 (µg /m³)	Nitrogen Dioxide NO_2 (µg/m³)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)
1	02-03-2023	71.67	42.57	10.45	12.98
2	06-03-2023	82.45	46.74	8.65	9.79
3	11-03-2023	60.37	52.89	9.63	14.54
4	15-03-2023	81.58	49.67	7.91	9.45
5	19-03-2023	65.83	45.94	11.75	13.70
6	23-03-2023	85.29	50.40	9.50	12.75
7	26-03-2023	60.30	48.83	8.45	8.80
8	29-03-2023	84.37	44.80	8.87	11.39
9	01-04-2023	76.66	49.54	7.34	12.60
10	05-04-2023	86.19	53.17	8.51	10.84
11	08-04-2023	62.60	41.50	10.82	12.50
12	12-04-2023	75.56	37.35	8.78	8.40
13	16-04-2023	85.28	52.90	16.54	11.64
14	20-04-2023	75.54	48.73	13.80	9.50
15	24-04-2023	72.87	32.50	8.34	12.93
16	27-04-2023	60.41	52.77	11.74	10.30

17	02-05-2023	82.67	47.43	7.42	13.41
18	05-05-2023	79.65	38.97	15.30	10.60
19	08-05-2023	85.19	46.90	9.56	11.70
20	12-05-2023	77.55	48.71	7.97	19.78
21	15-05-2023	80.80	50.50	9.59	17.40
22	18-05-2023	69.60	41.95	10.42	10.54
23	21-05-2023	75.50	43.82	7.80	11.43
24	25-05-2023	82.40	52.48	9.42	13.24
Minimum		**60.3**	**32.5**	**7.34**	**8.4**
Maximum		**86.19**	**53.17**	**16.54**	**19.78**
Average		**75.85**	**46.71**	**9.94**	**12.09**
98th Percentile		**85.78**	**53.05**	**15.97**	**18.69**
NAAQS, For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**

AAQ4 Guriyawan

S.No	Date	Particulate Matter PM10 (µg /m³)	Particulate Matter PM2.5 (µg /m³)	Sulphur Dioxide SO_2 (µg /m³)	Nitrogen Dioxide NO_2 (µg /m³)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)
1	02-03-2023	65.89	52.97	11.90	7.85
2	06-03-2023	81.56	49.49	10.69	10.68
3	11-03-2023	73.49	40.35	9.71	13.55
4	15-03-2023	82.86	50.59	10.50	8.36
5	19-03-2023	60.24	48.13	8.67	9.75
6	23-03-2023	81.27	41.57	10.39	11.85
7	26-03-2023	67.43	40.36	7.67	12.59
8	29-03-2023	84.66	55.64	9.68	9.90
9	01-04-2023	73.79	47.38	9.74	11.68
10	05-04-2023	85.94	49.72	10.63	9.50
11	08-04-2023	62.40	44.99	7.34	11.45
12	12-04-2023	78.64	50.06	12.80	8.89
13	16-04-2023	82.98	46.50	9.59	10.90
14	20-04-2023	63.30	50.75	11.87	11.57
15	24-04-2023	84.43	45.50	9.35	12.80
16	27-04-2023	76.87	40.63	10.60	9.89
17	02-05-2023	85.59	48.70	12.37	10.50
18	05-05-2023	67.90	40.75	7.89	10.47
19	08-05-2023	82.30	48.50	9.40	13.68
20	12-05-2023	79.54	49.45	7.76	8.60

21	15-05-2023	89.40	46.50	10.35	9.69
22	18-05-2023	60.95	40.70	8.70	12.47
23	21-05-2023	76.80	42.83	7.24	17.90
24	25-05-2023	88.71	45.70	8.67	10.30
Minimum		**60.24**	**40.35**	**7.24**	**7.85**
Maximum		**89.4**	**55.64**	**12.8**	**17.9**
Average		**76.54**	**46.57**	**9.73**	**11.03**
98th Percentile		**89.08**	**54.41**	**12.60**	**15.96**
NAAQS, For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**

AAQ5 Dumri

S.No	Date	Particulate Matter PM10 (µg /m³)	Particulate Matter PM2.5 (µg /m³)	Sulphur Dioxide SO_2 (µg /m³)	Nitrogen Dioxide NO_2 (µg /m³)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)
1	02-03-2023	63.56	52.78	10.92	11.79
2	06-03-2023	78.76	46.54	7.65	9.78
3	11-03-2023	62.34	49.56	10.75	14.59
4	15-03-2023	82.10	50.34	7.48	9.87
5	19-03-2023	76.56	30.65	9.84	7.49
6	23-03-2023	62.82	44.89	11.38	11.60
7	26-03-2023	68.46	52.85	9.57	8.69
8	29-03-2023	62.98	46.74	10.74	9.89
9	01-04-2023	76.40	30.27	11.45	15.60
10	05-04-2023	82.13	49.47	7.58	7.79
11	08-04-2023	75.38	52.08	6.50	11.60
12	12-04-2023	65.56	46.74	9.39	6.97
13	16-04-2023	70.79	35.57	6.68	12.78
14	20-04-2023	66.36	45.60	8.16	9.82
15	24-04-2023	73.38	52.63	6.68	12.40
16	27-04-2023	78.95	39.80	12.52	10.89
17	02-05-2023	79.23	50.22	6.67	11.47
18	05-05-2023	68.08	49.60	8.51	16.29
19	08-05-2023	83.16	42.82	6.69	11.98
20	12-05-2023	78.85	52.68	9.35	8.90
21	15-05-2023	78.70	46.60	9.58	9.25
22	18-05-2023	67.57	52.85	10.92	11.64
23	21-05-2023	76.49	49.42	9.62	10.65
24	25-05-2023	62.32	41.60	10.95	8.60

Minimum	**62.32**	**30.27**	**6.5**	**6.97**
Maximum	**83.16**	**52.85**	**12.52**	**16.29**
Average	**72.54**	**46.35**	**9.15**	**10.85**
98th Percentile	**82.69**	**52.85**	**12.03**	**15.97**
NAAQS, For 24 Hourly Monitoring	**100.0**	**60.0**	**80.0**	**80.0**

AAQ6 Harli Kalan

S.No	Date	Particulate Matter PM10 (µg /m³)	Particulate Matter PM2.5 (µg /m³)	Sulphur Dioxide SO_2 (µg /m³)	Nitrogen Dioxide NO_2 (µg /m³)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)
1	02-03-2023	82.90	43.40	10.35	11.51
2	06-03-2023	81.56	37.67	8.75	9.55
3	11-03-2023	67.60	45.70	6.75	11.50
4	15-03-2023	72.40	39.32	6.78	10.40
5	19-03-2023	65.24	46.95	8.95	12.35
6	23-03-2023	83.58	43.60	11.91	10.60
7	26-03-2023	61.32	52.82	6.56	8.34
8	29-03-2023	72.98	38.30	10.45	13.85
9	01-04-2023	76.45	45.56	13.89	10.55
10	05-04-2023	71.10	46.59	7.65	9.65
11	08-04-2023	65.95	44.90	6.48	12.35
12	12-04-2023	80.59	48.27	8.51	7.85
13	16-04-2023	80.40	45.95	7.97	10.24
14	20-04-2023	75.63	39.40	8.32	9.70
15	24-04-2023	71.80	46.45	9.55	14.42
16	27-04-2023	65.25	43.97	8.52	12.45
17	02-05-2023	80.50	48.36	7.74	10.50
18	05-05-2023	75.45	39.80	9.26	9.80
19	08-05-2023	82.60	46.84	8.92	12.47
20	12-05-2023	75.54	40.20	6.50	8.97
21	15-05-2023	80.40	42.47	8.53	9.75
22	18-05-2023	65.70	49.99	10.30	10.62
23	21-05-2023	75.53	45.80	6.77	9.40
24	25-05-2023	81.80	51.20	8.42	10.61
Minimum		**61.32**	**37.67**	**6.48**	**7.85**
Maximum		**83.58**	**52.82**	**13.89**	**14.42**
Average		**74.68**	**44.73**	**8.66**	**10.73**
98th Percentile		**83.27**	**52.07**	**12.98**	**14.16**
NAAQS, For 24		**100.0**	**60.0[**	**80.0**	**80.0**

Hourly Monitoring					

AAQ7 Sugawan

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)
1	02-03-2023	61.57	45.81	9.65	11.59
2	06-03-2023	78.80	47.58	8.70	9.79
3	11-03-2023	60.50	39.72	7.92	10.90
4	15-03-2023	73.64	50.50	9.56	8.34
5	19-03-2023	80.70	44.53	6.88	10.70
6	23-03-2023	62.49	43.60	9.40	9.90
7	26-03-2023	69.50	40.24	10.72	11.40
8	29-03-2023	75.34	45.20	5.75	7.53
9	01-04-2023	76.40	49.66	8.80	10.25
10	05-04-2023	65.16	45.44	12.35	7.50
11	08-04-2023	79.30	42.60	9.47	12.03
12	12-04-2023	65.57	48.63	10.82	6.90
13	16-04-2023	77.60	41.79	7.92	10.19
14	20-04-2023	65.36	47.62	6.52	9.85
15	24-04-2023	74.50	40.10	8.55	11.85
16	27-04-2023	83.78	39.65	11.38	9.90
17	02-05-2023	75.10	50.20	6.45	13.54
18	05-05-2023	61.49	48.78	9.70	10.55
19	08-05-2023	79.25	51.50	7.62	12.67
20	12-05-2023	75.60	38.90	9.95	6.85
21	15-05-2023	70.14	45.64	6.44	10.28
22	18-05-2023	65.80	46.80	7.45	8.65
23	21-05-2023	75.53	38.47	9.48	11.70
24	25-05-2023	82.79	52.40	8.65	6.25
Minimum		**60.5**	**38.47**	**5.75**	**6.25**
Maximum		**83.78**	**52.4**	**12.35**	**13.54**
Average		**72.33**	**45.22**	**8.76**	**9.96**
98th Percentile		**83.32**	**51.99**	**11.90**	**13.14**
NAAQS, For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**

AAQ8 Jani Bigha

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)
1	02-03-2023	61.70	46.78	9.75	13.78
2	06-03-2023	78.50	39.76	6.67	9.56
3	11-03-2023	65.75	43.70	8.80	12.94
4	15-03-2023	82.60	37.34	7.35	9.40
5	19-03-2023	74.72	42.68	9.84	7.84
6	23-03-2023	65.17	41.48	8.78	11.70
7	26-03-2023	67.80	46.78	9.55	8.79
8	29-03-2023	60.54	40.80	10.64	7.49
9	01-04-2023	76.79	40.78	11.95	11.60
10	05-04-2023	75.12	39.60	7.90	7.94
11	08-04-2023	70.87	50.43	9.56	9.43
12	12-04-2023	65.85	47.90	7.34	8.90
13	16-04-2023	74.68	46.51	5.75	11.95
14	20-04-2023	60.34	44.70	7.13	9.80
15	24-04-2023	73.88	50.49	6.45	10.80
16	27-04-2023	72.33	45.60	11.60	9.49
17	02-05-2023	70.78	50.80	6.50	12.60
18	05-05-2023	69.56	38.70	10.95	10.52
19	08-05-2023	82.82	44.50	6.63	13.31
20	12-05-2023	70.49	51.65	9.75	7.90
21	15-05-2023	78.66	54.67	6.51	9.25
22	18-05-2023	69.34	51.90	7.52	12.60
23	21-05-2023	70.80	45.81	8.40	10.28
24	25-05-2023	62.72	40.50	10.41	9.25
Minimum		**60.34**	**37.34**	**5.75**	**7.49**
Maximum		**82.82**	**54.67**	**11.95**	**13.78**
Average		**70.91**	**45.16**	**8.57**	**10.30**
98th Percentile		**82.72**	**53.40**	**11.79**	**13.56**
NAAQS, For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**

AAQ9 Khaira Bara

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)

		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)
1	02-03-2023	71.90	43.35	9.67	11.90
2	06-03-2023	82.48	40.44	10.40	8.56
3	11-03-2023	62.75	43.34	6.79	12.67
4	15-03-2023	82.69	39.55	8.40	10.10
5	19-03-2023	66.30	45.33	5.90	13.84
6	23-03-2023	81.24	50.60	11.68	11.69
7	26-03-2023	68.67	40.28	10.82	8.98
8	29-03-2023	82.98	41.81	8.36	10.76
9	01-04-2023	76.66	42.55	7.60	11.45
10	05-04-2023	80.33	46.90	8.46	10.78
11	08-04-2023	63.70	50.62	6.44	12.92
12	12-04-2023	77.75	43.90	9.91	7.90
13	16-04-2023	82.70	51.90	7.95	10.57
14	20-04-2023	78.64	44.50	8.82	9.70
15	24-04-2023	71.10	45.67	10.59	10.95
16	27-04-2023	67.62	50.94	8.82	9.78
17	02-05-2023	82.66	45.40	11.72	11.60
18	05-05-2023	71.90	48.80	9.53	10.98
19	08-05-2023	82.70	50.30	8.51	12.95
20	12-05-2023	72.86	42.25	12.52	8.70
21	15-05-2023	81.40	51.20	7.52	9.89
22	18-05-2023	68.72	49.90	8.55	13.75
23	21-05-2023	77.54	46.10	6.71	12.78
24	25-05-2023	81.76	42.56	8.94	7.35
Minimum		**62.75**	**39.55**	**5.9**	**7.35**
Maximum		**82.98**	**51.9**	**12.52**	**13.84**
Average		**75.71**	**45.76**	**8.94**	**10.86**
98th Percentile		**82.85**	**51.58**	**12.15**	**13.80**
NAAQS, For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**

AAQ10 Nagwan

S.No	Date	Particulate Matter PM10 (µg /m³)	Particulate Matter PM2.5 (µg /m³)	Sulphur Dioxide SO_2 (µg /m³)	Nitrogen Dioxide NO_2 (µg /m³)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)
1	02-03-2023	62.61	39.82	7.95	11.74
2	06-03-2023	78.64	46.34	8.53	9.50

3	11-03-2023	64.94	39.57	11.65	12.25
4	15-03-2023	70.85	45.80	7.90	9.87
5	19-03-2023	67.75	48.58	8.75	7.94
6	23-03-2023	64.2	38.35	9.81	11.62
7	26-03-2023	63.58	42.87	10.90	8.38
8	29-03-2023	61.72	44.70	7.75	7.68
9	01-04-2023	76.47	39.80	8.80	11.29
10	05-04-2023	60.85	45.40	6.90	7.42
11	08-04-2023	78.36	42.46	9.45	11.62
12	12-04-2023	65.55	48.70	9.55	8.85
13	16-04-2023	78.60	50.46	7.81	10.40
14	20-04-2023	66.30	45.80	10.91	9.85
15	24-04-2023	70.52	35.14	8.51	11.37
16	27-04-2023	72.72	44.80	9.85	9.96
17	02-05-2023	79.15	50.28	7.42	11.50
18	05-05-2023	66.53	48.20	10.85	10.82
19	08-05-2023	75.08	33.54	7.60	12.45
20	12-05-2023	72.50	39.80	10.75	6.81
21	15-05-2023	70.10	45.70	9.60	8.85
22	18-05-2023	81.45	39.24	7.95	12.50
23	21-05-2023	75.51	45.80	10.55	10.82
24	25-05-2023	62.53	52.75	8.35	8.25
Minimum		**60.85**	**33.54**	**6.9**	**6.81**
Maximum		**81.45**	**52.75**	**11.65**	**12.5**
Average		**70.27**	**43.91**	**9.09**	**10.07**
98th Percentile		**80.39**	**51.70**	**11.31**	**12.48**
NAAQS, For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**

Observations:

Ambient Air Quality Monitoring (AAQM) has been carried out at ten locations during pre-monsoon season from March to May 2023. The minimum and maximum level of $PM_{2.5}$ recorded within the study area was in the range of 30.27µg/m^3 to 55.85µg/m^3 with the 98th percentile 51.58µg/m^3 to 55.84µg/m^3 at. The minimum and maximum level of PM_{10} recorded within the study area was in the range of 59.68µg/m^3 to 89.6µg/m3 with the 98th percentile 80.39µg/m^3 to 89.08µg/m^3. The minimum and maximum concentration of SO_2 recorded within the study area was in the range of was 4.18 µg/m^3 to 17.12µg/m^3 with the 98th percentile 11.31 µg/m^3 to 15.97µg/m3. The minimum and maximum level of NO2 recorded within the study area was in the range of was 3.84µg/m^3 to 19.78µg/m^3 with the 98th percentile 12.48µg/m^3 to 18.69µg/m^3. The minimum and maximum level

of CO recorded within the study area was in the range of was 0.18µg/m^3 to 0.99µg/m^3 with the 98th percentile 0.89µg/m^3 to 0.98µg/m^3. The results thus obtained indicate that the concentrations of PM10, PM2.5, SO2 and NO2 in the Ambient Air are well within the National Ambient Air Quality (NAAQ) standards for Industrial, Residential, Rural and other areas.

Free SiO_2 (in µg/m^3):

SiO_2	AAQ-1	AAQ-2	AAQ-3	AAQ-4	AAQ-5
Maximum	0.94	0.89	0.84	0.79	0.82
Minimum	0.81	0.75	0.63	0.72	0.61

SiO_2	AAQ-6	AAQ-7	AAQ-8	AAQ-9	AAQ-10
Maximum	0.94	0.93	0.95	0.92	0.80
Minimum	0.82	0.89	0.63	0.74	0.65

Observations:

The minimum & maximum concentrations of SiO_2 were found to be 0.61µg/m^3 at AAQ-5 & 0.95µg/m^3 at AAQ-8 respectively.

3.4 WATER ENVIRONMENT

Water quality assessment is one of the essential components of EIA study. Such assessment helps in evaluating the existing health of water body and suggesting appropriate mitigation measures to minimize the potential impact from development projects. Water quality of ground water has been studied in order to assess proposed water-uses in construction, drinking, cooling and horticulture purpose. The water quality at project site and other locations within the 10 km impact zone was monitored during March to May 2023.

A) Ground water

Four water samples were collected from the study area. The locations of the monitoring are given below:-

Table 3.3 (iii) Ground water sampling locations

Location Code	Location	Distance	Direction	Study Area
GW – 1	Near Project Site (Gaya Mohana -01)	E	0.48	Core Zone
GW – 2	Near Project Site (Gaya Mohana -02)	E	0.28	Core Zone
GW – 3	Near Project Site (Gaya Mohana -03)	E	0.32	Core Zone

GW – 4	Guriyawan	SE	1.64	Study Area
GW – 5	Dumri	E	1.81	Study Area

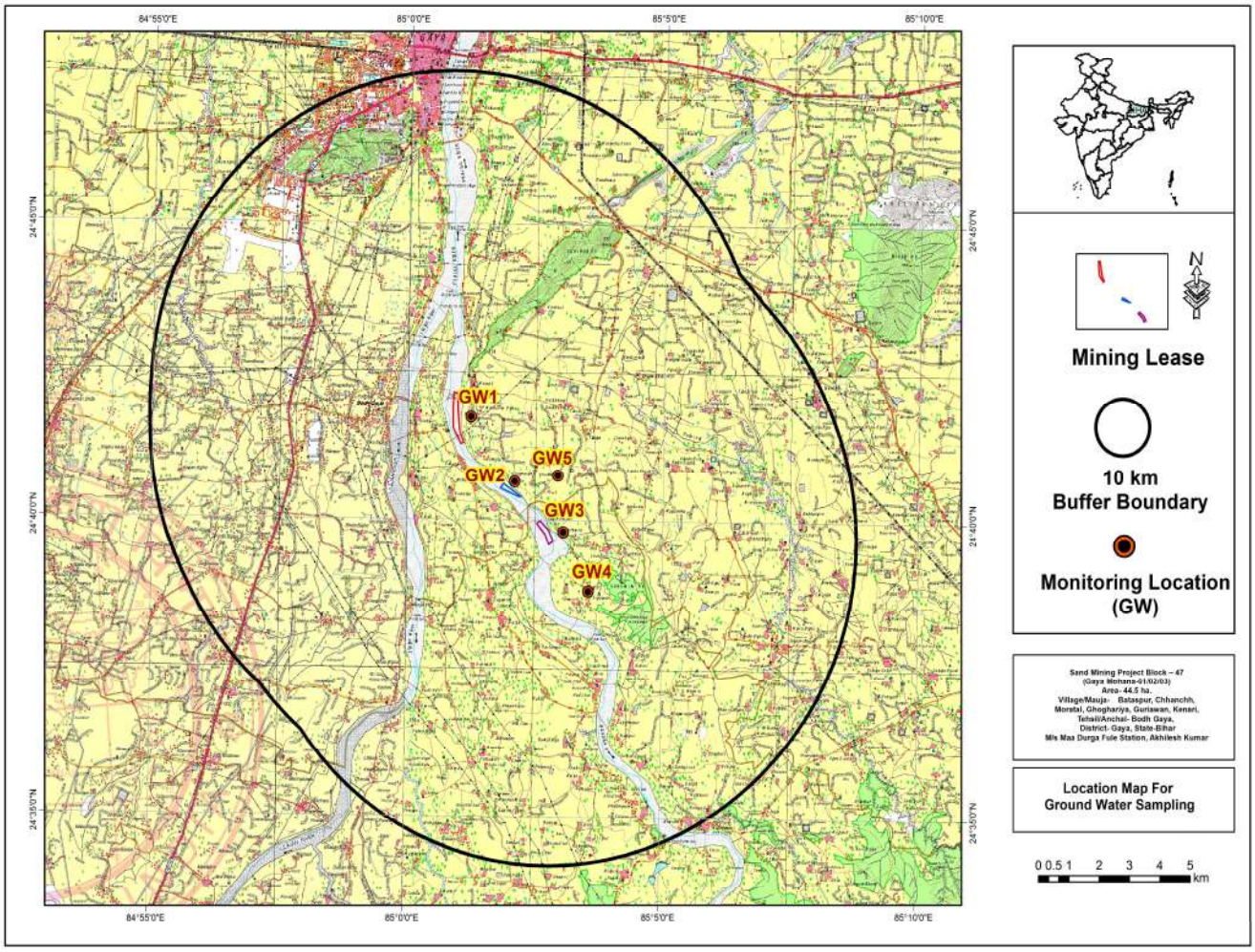


Fig 3.2 (b) Ground water Quality Monitoring Locations

Table 3.3 (IV) Physico-chemical properties of ground water Study

S.No	Parameter	Results			Units	Acceptable Limit	Permissible Limit in the Absence of Alternate Source
		Location					
		GW-1	*GW-2*	*GW-3*			
1	pH	6.45	7.34	6.64	-	6.5-8.5	-
2	Colour	<5.0	<5.0	<5.0	Hazen	5	15

3	Odour	Agreeable	Agreeable	Agreeable	-	Agreeable	Agreeable
4	Taste	Agreeable	Agreeable	Agreeable	-	Agreeable	Agreeable
5	Turbidity	<1.0	<1.0	<1.0	NTU	1	5
6	Total Hardness (as $CaCO_3$)	248	321	414	mg/l	200	600
7	Calcium(as Ca)	43.81	72.94	80.45	mg/l	75	200
8	Magnesium(as Mg)	12.47	24.16	24.65	mg/l	30	100
9	Chloride(as Cl)	192.54	211.65	184.65	mg/l	250	1000
10	Iron(as Fe)	0.95	0.34	0.54	mg/l	0.3	No Relaxation
11	Fluoride(as F)	0.48	0.74	0.58	mg/l	1	1.5
12	Free Residual chlorine	<0.1	<0.1	<0.1	mg/l	0.2	1
13	Total Dissolved Solid	972	645	849	mg/l	500	2000
14	Phenolic Compound (as C_6H_5OH)	<0.001	<0.001	<0.001	mg/l	0.001max	0.002 Max
15	Anionic Detergents (as MBAS)	<0.1	<0.1	<0.1	mg/l	0.2	1.0
16	Sulphate (as SO4)	48.45	53.25	62.38	mg/l	200	400
17	Nitrate (as NO3)	5.87	4.96	6.59	mg/l	45	No Relaxation
18	Alkalinity(as CaCO3)	248	461	286	mg/l	200	600
19	Chloramines (as Cl2)	< 1.0	< 1.0	< 1.0	mg/l	4	No Relaxation
20	Cadmium (as Cd)	<0.001	<0.001	<0.001	mg/l	0.003	No Relaxation
21	Lead (as Pb)	<0.01	<0.01	<0.01	mg/l	0.01	No Relaxation
22	Total Chromium (as Cr)	<0.01	<0.01	<0.01	mg/l	0.05	No Relaxation
23	Copper (as Cu)	<0.01	<0.01	<0.01	mg/l	0.05	1.5
24	Total Ammonia	<0.5	<0.5	<0.5	mg/l	0.5	No Relaxation
25	Nickel (as Ni)	<0.01	<0.01	<0.01	mg/l	0.02	0.2
26	Zinc (as Zn)	0.78	0.65	0.98	mg/l	5	15

27	Manganese (as Mn)	<0.1	<0.1	<0.1	mg/l	0.1	0.3
28	Boron (as B)	<0.1	<0.1	<0.1	mg/l	0.5	1
29	Selenium (Se)	<0.01	<0.01	<0.01	mg/l	0.01	No Relaxation
30	Arsenic (as As)	<0.01	<0.01	<0.01	mg/l	0.01	0.05

RESULTS
As per IS 10500:2012

S.No	Parameter	Test Method	Results			Units	Requirements
			GW-1	*GW-2*	*GW3*		
1	E.coli	IS-1622	Not Detected (<2)	Not Detected (<2)	Not Detected (<2)	E.Coli/100ml	Shall not be detectable in 100 ml sample
2	Total Coliform	IS-1622	Absent	Absent	Absent	MPN/100ml	Shall not be detectable in 100 ml sample

Note: Un- Unobjectionable

S.No	Parameter	Results Location		Units	Acceptable Limit	Permissible Limit in the Absence of Alternate Source
		GW-4	*GW-5*			
1	pH	6.65	7.89	-	6.5-8.5	-
2	Colour	<5.0	<5.0	Hazen	5	15
3	Odour	Agreeable	Agreeable	-	Agreeable	Agreeable
4	Taste	Agreeable	Agreeable	-	Agreeable	Agreeable
5	Turbidity	<1.0	<1.0	NTU	1	5
6	Total Hardness (as $CaCO_3$)	298	264	mg/l	200	600
7	Calcium(as Ca)	41.45	71.62	mg/l	75	200
8	Magnesium(as Mg)	18.27	22.65	mg/l	30	100
9	Chloride(as Cl)	190.45	198.65	mg/l	250	1000
10	Iron(as Fe)	0.98	0.48	mg/l	0.3	No Relaxation

11	Fluoride(as F)	0.69	0.76	mg/l	1	1.5
12	Free Residual chlorine	<0.1	<0.1	mg/l	0.2	1
13	Total Dissolved Solid	845	595	mg/l	500	2000
14	Phenolic Compound (as C_6H_5OH)	<0.001	<0.001	mg/l	0.001max	0.002 Max
15	Anionic Detergents (as MBAS)	<0.1	<0.1	mg/l	0.2	1.0
16	Sulphate (as SO4)	46.84	52.25	mg/l	200	400
17	Nitrate (as NO3)	4.21	5.65	mg/l	45	No Relaxation
18	Alkalinity(as CaCO3)	298	315	mg/l	200	600
19	Chloramines (as Cl2)	< 1.0	< 1.0	mg/l	4	No Relaxation
20	Cadmium (as Cd)	<0.001	<0.001	mg/l	0.003	No Relaxation
21	Lead (as Pb)	<0.01	<0.01	mg/l	0.01	No Relaxation
22	Total Chromium (as Cr)	<0.01	<0.01	mg/l	0.05	No Relaxation
23	Copper (as Cu)	<0.01	<0.01	mg/l	0.05	1.5
24	Total Ammonia	<0.5	<0.5	mg/l	0.5	No Relaxation
25	Nickel (as Ni)	<0.01	<0.01	mg/l	0.02	0.2
26	Zinc (as Zn)	0.87	0.65	mg/l	5	15
27	Manganese (as Mn)	<0.1	<0.1	mg/l	0.1	0.3
28	Boron (as B)	<0.1	<0.1	mg/l	0.5	1
29	Selenium (Se)	<0.01	<0.01	mg/l	0.01	No Relaxation
30	Arsenic (as As)	<0.01	<0.01	mg/l	0.01	0.05

Note: Un- Unobjectionable

RESULTS As per IS 10500:2012						
S.No	**Parameter**	**Test Method**	**Results**		**Units**	**Requirements**
			GW-4	***GW-5***		
1	E.coli	IS-1622	Not Detected (<2)	Not Detected (<2)	E.Coli/100ml	Shall not be detectable in 100 ml sample
2	Total Coliform	IS-1622	Absent	Absent	MPN/100ml	Shall not be detectable in 100 ml sample

Observation:

Analysis results of ground water reveal the following: -

- pH varies from 6.45 to 7.89.
- Total hardness varies from 248 mg/l to 414 mg/l.
- Total dissolved solids vary from 595 mg/l to 972 mg/l.

Results shows that the sample from GW2 had minimum amount of TDS & Total Hardness and in the contrary, samples taken from GW3 have the maximum values for most of the parameters. The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by Indian Standards IS: 10500.

Fluorides and nitrates are within the permissible limits. Most of the parameter in ground water sources are well within the permissible limits as per IS – 10500, drinking water standards.

b. Surface water

Two water samples were collected from the study area. The Physico-chemical analysis of the water samples is given in the Table 3.3 (vi). The Surface water sampling locations are marked in **Fig no. 3.2(c).**

Table 3.3 (v) Surface water sampling locations

Location Code	Sample collected from	Direction & Distance
SW – 1	Mohana River (Upstream)	5 km in SSE direction
SW – 2	Mohana River (Downstream)	5 km in N direction

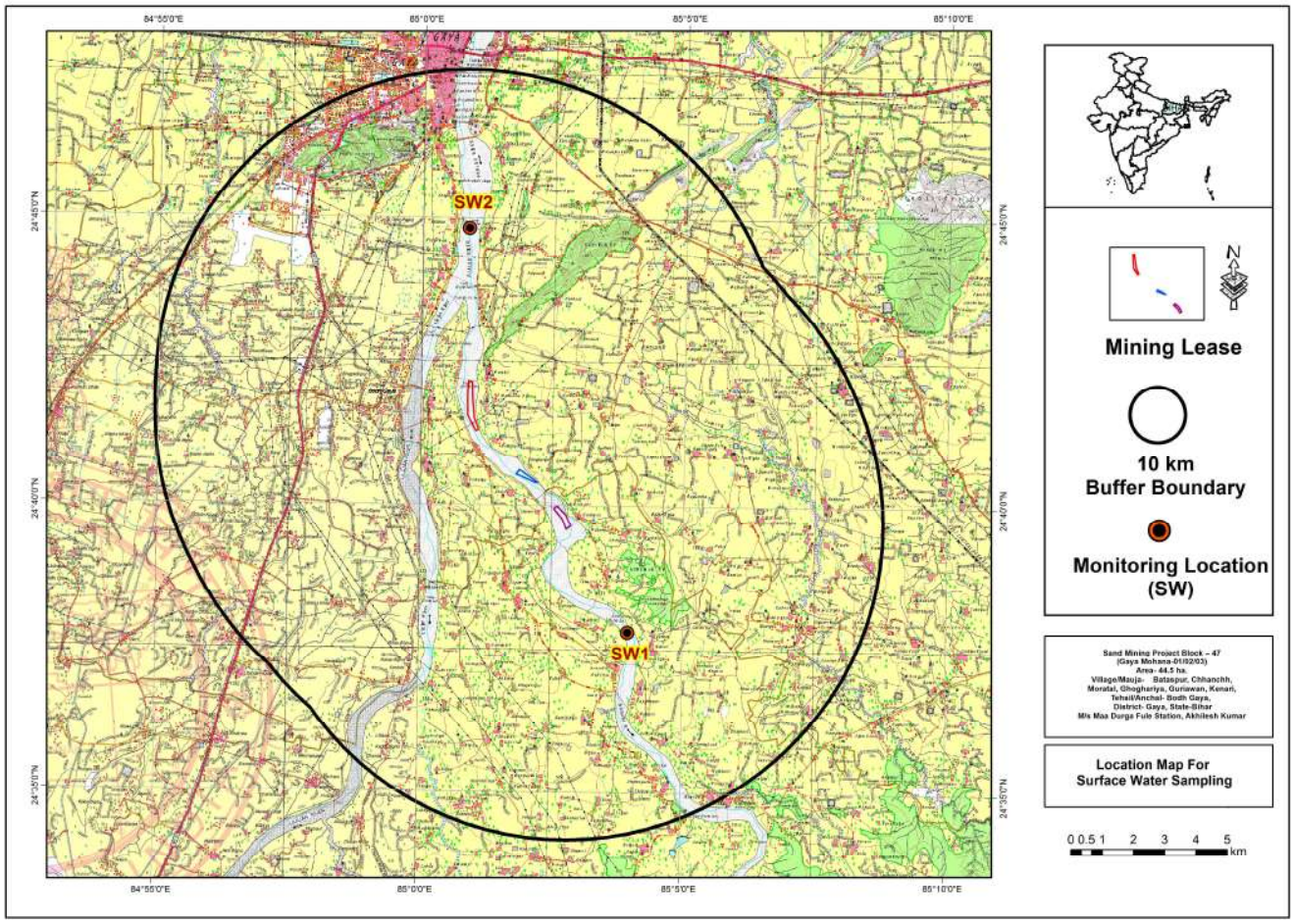


Fig. 3.2 (c) - Surface water sampling locations in the study area

Table 3.3 (vi) Physico-chemical properties of surface water

S.No	Parameter	SW-1 Mohana River (Upstream)	SW-2 Mohana River (Downstream)	Units
1	pH	7.84	7.94	-
2	Temperature	16.5	18.6	^{O}C
3	Turbidity	14.6	15.8	NTU
4	Conductivity @25°C	498	625.20	µs/cm.
5	Total Suspended Solid	36.9	28.9	mg/l
6	Total Alkalinity (as $CaCO_3$)	178	194	mg/l
7	Biological Oxygen Demand (Max.) (at 270C for 3 days)	5.85	4.95	mg/l
8	Dissolved Oxygen (as O_2) Min.	5.90	6.64	mg/l

9	Calcium(as Ca)	59.84	21.65	mg/l
10	Magnesium(as Mg)	45.51	12.48	mg/l
11	Chloride(as Cl),Max	62.85	54.85	mg/l
12	Iron(as Fe),Max	0.48	0.78	mg/l
13	Fluoride(as F),Max	0.61	1.29	mg/l
14	Total Dissolved Solid	695	389	mg/l
15	Total Hardness (as CaCO3)	186.50	136.25	mg/l
16	Sulphate (as SO4)Max	20.95	16.4	mg/l
17	Phosphate (as P)	<0.1	<0.1	mg/l
18	Sodium (as Na)	51.55	28.19	mg/l
19	Manganese (as Mn)	<0.1	<0.1	mg/l
20	Total Chromiun (as Cr)	<0.05	<0.05	mg/l
21	Zinc (as Zn)	2.65	1.98	mg/l
22	Potassium (as K)	2.15	4.65	mg/l
23	Nitrate (as NO3),Max	<0.1	<0.1	mg/l
24	Cadmium (as Cd)	<0.01	<0.01	mg/l
25	Lead (as Pb)	<0.01	<0.01	mg/l
26	Copper (as Cu)	<0.01	<0.01	mg/l
27	Chemical Oxygen Demand (asO2)	32.90	29.74	mg/l
28	Arsenic (as As)	<0.01	<0.01	mg/l

RESULTS

S.No	Parameter	Test Method	Results	Units	Tolerance Limit as per IS:2296				
					Class A	Class B	Class C	Class D	Class E
SW-1	Total Coli Form	IS:1622	51	MPN/100ml	50	500	5000	-	-
SW-2	Total Coli Form	IS:1622	92	MPN/100ml	50	500	5000	-	-

Observation:

The analysis results indicate that the pH ranges between 7.84 and 7.94.

Dissolved Oxygen (DO) was observed in the range of 5.90 mg/l against the minimum requirement of 6.64 mg/l. BOD values were observed to be in the range of 4.95 mg/l. to 5.85 mg/l.

The chlorides and Sulphates were found to be in the range of 54.85-62.85 mg/l and 16.4-20.95 mg/l respectively.

Bacteriological examination of surface water samples revealed the presence of total coliform in range of 51 MPN/100ml to 92 MPN/100ml. Based on the results it is evident that most of the parameters of the

samples comply with 'Category 'A' standards of CPCB indicating their suitability for Drinking water source after conventional treatment and disinfection.

3.5 SOIL ENVIRONMENT

Soil may be defined as a thin layer of earth's crust, medium for the growth of plants. The soil characteristics include both physical and chemical properties. The soil survey and soil sample were carried out / collected to assess the soil characteristics of the study area. Soil samples were collected from 3 locations and analyzed as per CPCB norms.

The soil sampling locations are marked in **fig. 3.2 (d)** the Physico-chemical characteristic of these soil samples is given in Table No. 3.3 (viii).

Table No. 3.3 (vii) Soil sampling locations

Location Code	Location	Distance	Direction	Study Area
SQ – 1	Near Project Site (Gaya Mohana -01)	E	0.48	Core Zone
SQ – 2	Near Project Site (Gaya Mohana -02)	E	0.28	Core Zone
SQ – 3	Near Project Site (Gaya Mohana -03)	E	0.32	Core Zone
SQ – 4	Guriyawan	SE	1.64	Study Area
SQ – 5	Dumri	E	1.81	Study Area

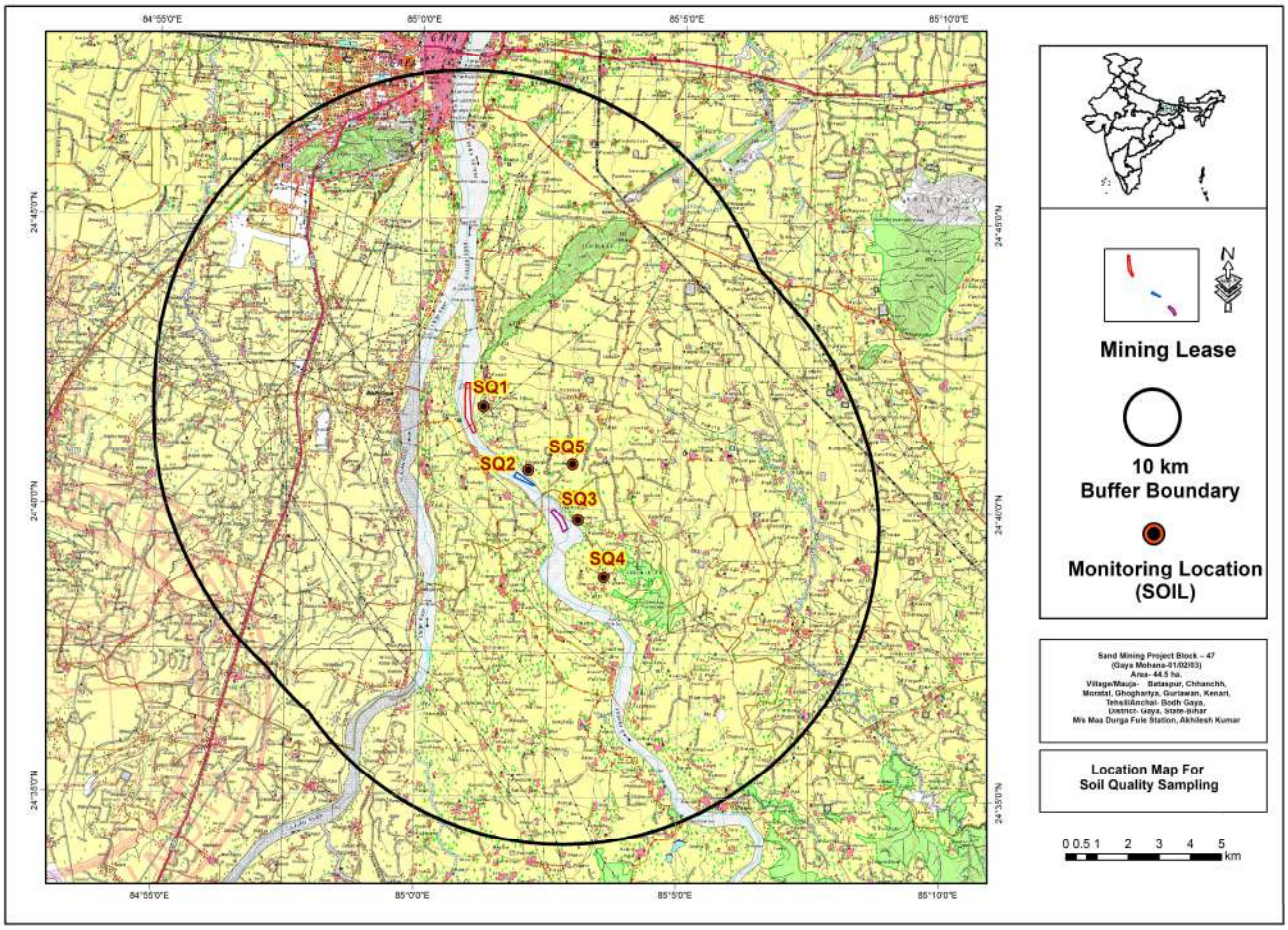


Fig.3.2 (d) Soil sampling Location

Table 3.3 (viii) Physico-chemical properties of soil

S.No	Parameter	Units	Result				
			Location				
			SQ-1	SQ-2	SQ-3	SQ-4	SQ-5
1	Texture	-	Clay Loam to Silty Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam
	Sand	%	47.45	35.59	41.46	46.56	38.89
	Clay	%	37.5	36.85	35.24	28.89	32.45
	Silt	%	12.9	31.65	22.49	20.65	21.8
2	pH(1:2.5 Suspension)	-	6.65	6.51	7.09	6.95	6.65
3	Electrical Conductivity	µmhos/cm	255.4	405.52	408.8	235.8	645.5
4	Potassium (as K)	mg/kg	154.45	160.25	185.49	170.5	148.5

5	Sodium (as Na)	mg/kg	242.49	198.59	148.15	245.2	265.4
6	Calcium (as Ca)	mg/kg	3710.52	4204.56	3308.65	3354.5	3859.5
7	Magnesium (as Mg)	mg/kg	696.80	585.37	479.84	369.9	592.1
8	Sodium Absorption Ratio	-	0.84	0.49	0.76	0.68	0.7
9	Water Holding Capacity	%	32.45	32.80	31.05	36.5	37.8
10	Total Kjehdahl Nitrogen	%	0.062	0.098	0.089	0.081	0.075
11	Phosphorous	mg/kg	62.05	53.95	58.08	65.45	62.65
12	Bulk Density	gm/cc	1.58	1.68	1.95	1.97	1.25
13	Organic Matter	%	0.89	1.51	1.85	0.75	1.65
14	Porosity	%	36.32	37.45	31.98	30.5	31.5

Observations:

Samples collected from identified locations indicate the soil is sandy type and the pH value ranging from 6.51-7.09, which shows that the soil is alkaline in nature. Potassium is found to be from 148.5 mg/kg to 185.49 mg/kg. The water holding capacity is found in between 31.05% to 37.8%.

3.6 NOISE ENVIRONNENT

The noise levels within the study area were recorded using Sound Level Meter and noise monitoring results were compared with the Ambient Noise Quality Standard notified under Environment Protection Act, 1986. The levels recorded are as stated in Table 3.3 (x).

The noise level monitoring locations are marked in Fig. no.3.3 (e)

Table 3.3 (ix) Noise quality monitoring stations

Location Code	Location	Distance	Direction	Study Area
NQ – 1	Near Project Site (Gaya Mohana-01)	E	0.48	Core Zone
NQ – 2	Near Project Site (Gaya Mohana -02)	E	0.28	Core Zone
NQ – 3	Near Project Site (Gaya Mohana -03)	E	0.32	Core Zone
NQ – 4	Guriyawan	SE	1.64	Study Area
NQ – 5	Harli Kalan	NE	2.74	Study Area
NQ – 6	Nagwan	SE	7.71	Study Area

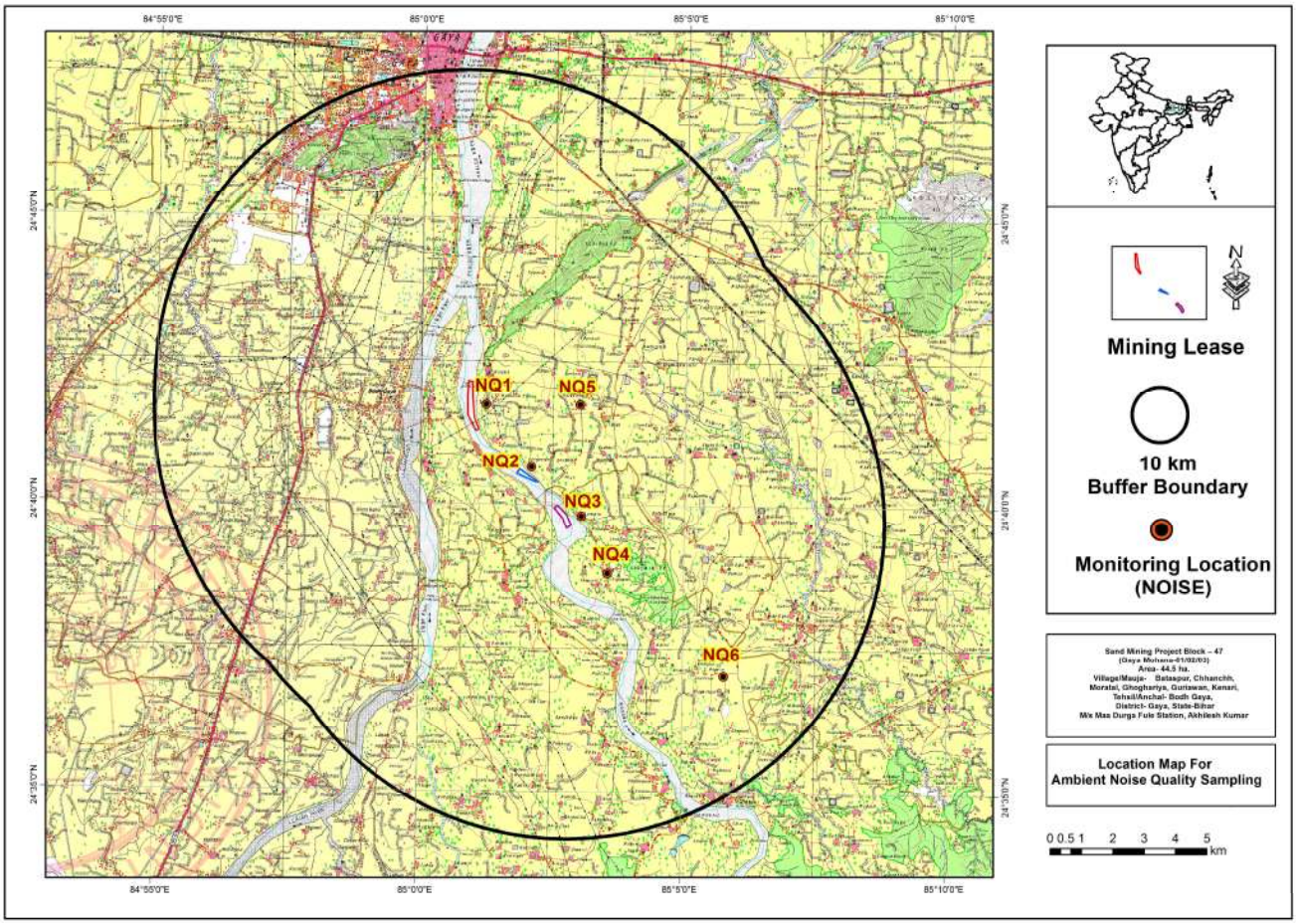


Fig.3.2 (e) - Noise quality monitoring stations

Table No. 3.3 (x) Noise level status

TEST RESULT					
S.No	**Location**	**Observed Value Leq dB(A)**			**Zone**
		Day*	**Night***	**Day/Night**	
1	NQ1- Near Project Site (Gaya Mohana-01)	51.5	42.8	47.15	Industrial
2	NQ2- Near Project Site (Gaya Mohana -02)	52.5	42.5	47.5	Industrial
3	NQ3- Near Project Site (Gaya Mohana -03)	50.9	43.7	47.3	Industrial
4	NQ4- Guriyawan	44.9	36.9	40.9	Residential
5	NQ5- Harli Kalan	52.8	35.5	44.15	Residential

6	NQ6- Nagwan	43.6	45.2	44.4	Residential
***Day Time**		Leq(6.00AM TO 10.00 PM)			
***Night Time**		Leq(10.00PM TO 6.00 AM)			
Limit as per CPCB Guidelines Leq. dB(A) (Day-Night)		Residential Zone = 55 - 45 Leq. dB(A)			
		Industrial Zone = 75 - 70 Leq. dB(A)			

Results

Noise monitoring reveals that the maximum & minimum noise levels at day time were recorded as 52.8 dB (A) & 43.6 dB (A), respectively. The maximum & minimum noise levels at night time were found to be 35.5 dB (A) & 45.2 dB (A).There are several other sources in the 10 km radius of study area, which contributes to the local noise level of the area. Traffic activities as well as activities in nearby villages and agricultural fields add to the ambient noise level of the area.

3.7 BIOLOGICAL ENVIRONMENT

3.7.1 Introduction

The ecological study reflects the potential of a regional ecosystem and its biological components. In India, the biological diversity of plants and animals varies from region to region on account of their diversity and density. Producers (plants), consumers (animals), anddecomposers (microbes) govern the whole cycle of ecology. Plant and animals both are interdependent on each other.

The biological study is essential to understand the impact of any developmental project on theexisting flora and fauna present in the study area. Hence, studies on various aspects of the ecosystem play an important role in identifying sensitive issues for undertaking appropriate action to mitigate the impact if required.

The Environment baseline data generation report in respect of flora-fauna has been prepared to assess the current ecology & biodiversity scenario of the area; and to carry out Environmental Management Plan based on the proposed project activities. The plan will identify and address the environmental and ecological conservation implications of the area. Conservation of biodiversity is essential for sustainable development.

The main objective of the ecological survey is aimed to find out the baseline status of flora and fauna (terrestrial and aquatic ecosystem) of the study area before the start of Sand Mining Project, On Mohana River At Gaya Block No.- 47 Sand Ghat.

3.7.2 Ecosystem Overview of the Area

- The area falls under Tropical Dry-Deciduous forest. Tropical Dry Deciduous Forests are a transitional type of forest between moist deciduous and thorn forests on the wetter side and thorn forests on the drier side. They thrive in harsh and highly fluctuating climates marked by low annual rainfall, 5-6 dry months per year, and nutrient-depleted soil. The biotic components (producer, consumers, and decomposers) in this ecosystem type are characterized by plants and animals with specific adaptations to survive the extended dry season. The abiotic factors (climate, temperature, soil, precipitation) such as lack of precipitation for a lengthy period of time is more important than any other component in producing a true dry forest. Seasonally dry tropical forest (SDTF), tropical dry deciduous forest, monsoon forest, caatinga, cuabal and other terms have been used to describe this forest. The annual rainfall in the tropical dry deciduous forest is 100-150 cm.
- There is a low annual rainfall with **5 to 6 dry months** within the annual cycle.
- The climate in these forests is **hot and humid**, with average temperatures ranging from 25 to 30 degrees Celsius, but no lower than 18 degrees Celsius.
- The soil of tropical dry deciduous forests is generally nutrient-poor. Alfisols and Ultisols make up the majority of the soils in this area. The soils of tropical dry deciduous forests are old and less fertile. But because there is a dry season, more nutrients can be retained. The single **most essential adaptation** among plants to extended droughts is **deciduousness**.

After the rains stop, most trees drop their leaves and essentially stop photosynthesis, as they would otherwise be unable to survive the dry season due to water loss. These forests are made up of a variety of deciduous trees that can reach a height of 20 meters. Enough light reaches the ground to allow primary producers and climbers to thrive. Teak (*Tectona grandis*), coromandel ebony (*Diospyros melanoxylon*), dhaora (*Anogeissus latifolia*), *Lagerstroemia parviflora*, *Terminalia tomentosa*, *Lannea coromandelica*, *Hardwickia binata*, and *Boswellia serrata* are the main canopy trees found here. Axle wood, rosewood, common bamboo, red sanders, laurel, satinwood and other significant species are also common among them. There are 276 bird species in the area, none of which are endemic. Tropical

dry deciduous forests are vital to rural livelihoods, especially for the poor who rely on them. Tropical dry deciduous forests and woodlands contribute to the direct provision of numerous products, including timber and non-timber forest products, in addition to their roles in maintaining resilient and multi-functional landscapes. These products are shown to help people supplement their incomes and alleviate poverty. They are especially important as a safety net during adverse situations when other economic activities are affected by the regular droughts.

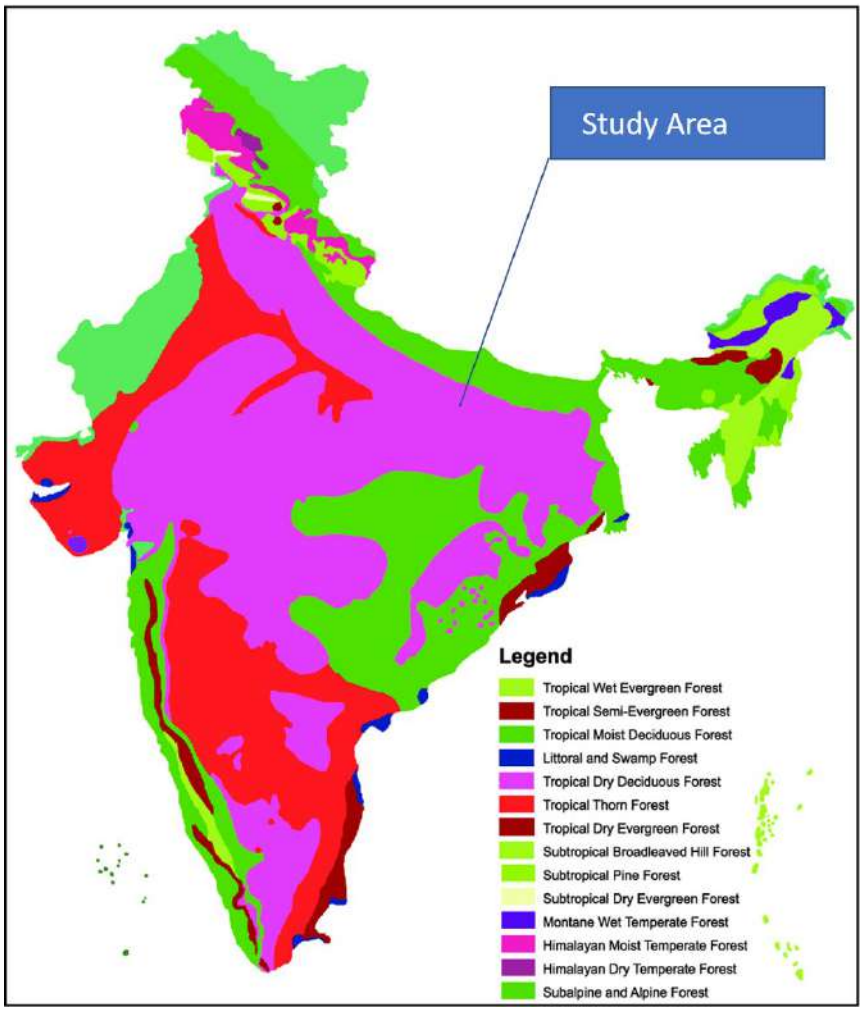


Fig 3.3 (a) Location of Study area on the map of Forest Classification of India

A wide range of these products are collected, either for personal consumption or to make a little amount of cash. Drought-prone animals rely on the forest for fodder. Tropical Dry deciduous forests

are among the world's most endangered ecosystems due to extensive anthropogenic disruptions. Vast sections of these forests have been destroyed to make way for agriculture. Overgrazing, fire, and other factors have devastated these forests. They also face biotic disturbances, which can lead to ecosystem fragmentation and conversion, resulting in changes in biomass, productivity, and soil microbial biomass, among other things.

Agriculture

A large area of study area is covered with agricultural land. Major farming systems are: Paddy, Wheat, Moong, Lentil, fallow, Rai, Sugarcane, Potato, vegetables, maize, dairy, poultry, bee keeping, fishery.

3.7.3. Description of Eco-sensitive zones in the Study Area (Wild life Sanctuary/ National Parks/Animal or Elephant Corridors/ Protected Wetlands etc.)

There are no National parks, Biosphere Reserves, Wildlife corridors, Tiger/Elephant reserves (existing as well as proposed), within 10 km from the present project**.** Also, areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value, doesn't exist in the core and buffer zone of the present project. On the other hand, the proposed is on Mohana River. Natural hydrology and protection of all forms of biota found there in all the water bodies of the area will be maintained by Project executors.

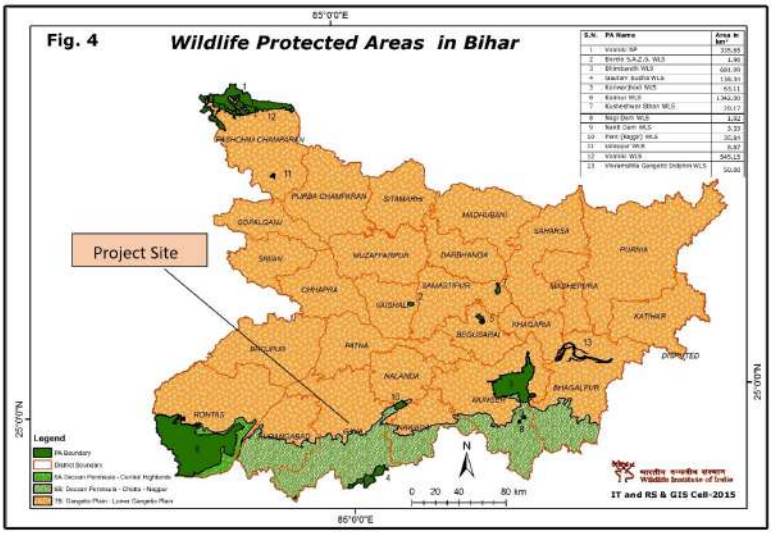


Figure 3.3 (b) Map showing Eco-Sensitive Zones of Bihar with Project Area

3.7.4 Drainage /Water Bodies of the Study Area

Project lies on the Riverbed of River Mohana. Apart from these, some seasonal (monsoon-fed) riverine streams and Nallas are also present in the study area. Few ponds are also recorded nearby the different villages mainly used for fish farming, Cattle feeding, Irrigation purpose by the villagers, etc.

Scope and Objectives of the Study

The above study aims in identifying potential impacts on flora and fauna and to suggest relevant compensatory and mitigatory measures to protect/conserve biodiversity in the likely impacted area due to the project activity. Following points to be covered under the scope of work:

- Survey of terrestrial & aquatic flora & fauna for core & buffer zone separately.
- Details of endemic species found in the study area and their IUCN status, Schedule status (as per WPA, 1972).
- Survey of the study area in terms of features like breeding &spawning grounds, habitats, flight paths, and the migratory path of the animals.
- Survey of flora covering types e.g. agriculture crop, commercial crop, plantation, natural vegetation/forest type, grass land. The endangered & endemic species of flora & fauna beside any other flora, if present are also to be identified.
- The survey has been covering a total listing of the faunal population. The survey has also covered endangered, endemic, migratory & detail of aquatic fauna.
- The assessment of potential damage to terrestrial & aquatic flora and fauna. The impact should be categorized as primary & secondary, temporary and long term, unavoidable & risk trans boundary impacts, possible irreversible change.

3.7.5 Methodology/ Data Collection

A primary field survey was carried out within a 10 km radius of the proposed project. Both terrestrial and aquatic ecosystems have been studied to understand the biological environment. Secondary data were collected from authentic sources like the Forests Department, Fisheries Department, Agriculture Department of Gaya, and available published literature.

- Survey sites: project site, few identified locations in 10 km radius

- Core zone: Project site and 500m radius from project site
- Buffer zone: 10 km radius surrounding the project area
- Study period: March, 2023

Table 3.4 (i): Mode of data collection & parameters considered during the survey

Aspect	Data	Mode of data collection	Parameters monitored
Terrestrial Ecology	Primary data Collection	Field survey, Interview with client and local people	Floral, fauna
	Secondary data collection	From authentic sources like, Published literature, Government Websites and Published Maps	Flora and Fauna diversity and study of vegetation, forest type, importance etc.
River Ecology	Secondary data collection	List of fish fauna obtained from Published literature on fish fauna of the Major River and their tributary Government Websites	Fish fauna

3.7.6 Flora of Core zone

A) Terrestrial Flora of Core zone (Natural vegetation etc.).

There is no flora found in the core zone

B) Agricultural Crops/ Commercial Crops of the Core zone and Buffer Zone

Details of the agricultural vegetation and commercial crops were collected from the site of the study area and the details are given below in the table 3.4 (ii).

Table 3.4 (ii) : List of Crops seasonally planted by respective farmers in the Core and Buffer Zone

S.No	Botanical Name	Local/Trade Name	Family Name
1	*Zey mays*	Makkha/Maize	Poaceae
2	*Triticum aestivum*	Wheat	
3	*Oryza sativa*	Paddy	
4	*Cicer arietinum*	Channa	Fabacea
5	*Coriander sativum*	Dhaniya	Apiaceae
6	*Abelmoschus esculentus*	Bhendi	Amaranthacea
7	*Mamordica charanta*	Karela	Cucurbiataceae

8	*Capsicum annum*	Mirchi	Solanaceae
9	*Lycopersicon lycopersicum*	Tomato	
10	*Solanum melongena*	Brinjal	
11	*Capsicum annuum*	Mirchi	
12	*Solanum tuberosum*	Potato	
13	*Allium cepa*	Onian	Amaryllidaceae
14	*Cajanus cajan*	Pigeon pea	Fabaceae
15	*Carica papaya*	Papaya	Caricaceae
16	*Okra*	Ladyfinger/ Bhindi	Malvaceae
17	*Lagenaria siceraria*	Bottle gourd/ Lauki	Cucurbitaceae

3.7.7 Flora of Buffer zone

A) Terrestrial Flora of Buffer zone (Natural vegetation/Commercial vegetation).

During the present survey, total of 102 species of plant species were observed from the study area. Out of 103 plant species, 53 species of tree, 25 species of shrubs/herbs, 14 species of climbers, and 10 species of Grass species were recorded from the buffer zone of the present study area. The below-mentioned vegetation details have been collected from the Core as well as Buffer zone of the present study area. All the details have been furnished based on the field survey at 09 different locations and data supported by the Department of Forest, Gaya district of Bihar. The details of vegetation of the buffer zone is given in Table 3.4 (iii) below.

Table 3.4 (iii): List of Trees, Shrubs, Herbs and Grasses observed in Buffer Zone

Sr. No.	Botanical Name	Common name	Family
1	*Acacia auriculiformis*	Australian babul	Fabaceae
2	*Acacia leucophloea*	Safed babul	Mimosaceae
3	*Acacia nilotica*	Babool	Mimosaceae
4	*Acacia nilotica*	Desi babool	Fabaceae
5	*Aegle marmelos*	Bel	Rutaceae
6.	*Ailanthus excels*	Adusa	Simaroubaceae
7	*Albizzia amara*	Siris	Mimosoideae
8	*Albizzia lebbeck*	Sirish	Mimosaceae
9	*Alstonia scholaris*	Saptaparni	Apocynaceae
10	*Anogeissus latifolia*	Dhaura,	Combretaceae
11	*Anthocephalus cadamba*	Kadamb	Rubiaceae

12	*Artocorpus heterophyllus*	Jack fruit	Moraceae
13	*Azadirachta indica*	Neem	Meliaceae
14	*Bambusa arundinacea*	Katang bamboo	Poaceae
15	*Bauhinia racemosa*	Apta	Leguminosae
16	*Bauhinia variegata L.*	Kachnar	Leguminosae
17	*Bombax ceiba*	Semal	Malvaceae
18	*Bombax malabaricum*	Semal tree	Malvaceae
19	*Borassus flabellifer*	Nariyal	Palmae
20	*Butea monosperma*	Palas	Leguminosae
21	*Cassia fistula*	Bahawa	Caesalpinaceae
22	*Cassia siamea*	Chirkundi	Mimosaceae
23	*Dalbergia latifolia*	Shisam	Leguminosae
24	*Dalbergia sissoo*	Shisam	Leguminosae
25	*Delonix regia*	Gulmohar	Fabaceae
26	*Dendrocalamus strictus*	Bamboo	Poaceae
27	*Diospyros melanoxylon*	Tendu	Ebenaceae
28	*Diospyros melanoxylon*	Timru	Ebenaceae
29	*Eucalyptus globules*	Nilgiri	Myrtaceae
30	*Ficus benghalensis*	Vad	Moraceae
31	*Ficus benghalensis*	Bargad	Moraceae
32	*Ficus religiosa*	Pipal	Moraceae
33	*Madhuca longifolia*	Mohua tree	Sapotaceae
34	*Magnifera indica*	Aam	Anacardiaceae
35	*Melia azedarach*	Bukkam Neem	Meliaceae
36	*Moringa olerifera*	Munga	Moringanaceae
37	*Musa paradisiacal*	Banana	Musaceae
38	*Nerium oleamder*	Kaner	Apocynaceae
39	*Phoenix sylvestris*	Date palm	Arecaceae
40	*Phyllanthus emblica*	Awla	Euphorbiaceae
41	*Pisidium guava*	Guava	Myrtaceae
42	*Pongamia pinnata*	Karanj	Leguminosae
43	*Prosopis juliflora*	Vilayati babool	Fabaceae
44	*Pterocarpus marsupium*	Bija	Leguminosae
45	*Punica malus*	Anar	Lythraceae
46	*Sarracca indica*	Ashok	Annonaceae
47	*Shorea robusta*	Sal	Depterocarpaceae

48	*Syzygium cumini*	Jamun	Myrtaceae
49	*Tectona grandis*	Sagwan	Verbenaceae
50	*Terminalia arjuna*	Arjun	Combretaceae
51	*Terminalia chebula*	Harhar	Combretaceae
52	*Zizyphus jujube*	Ber	Rhamnaceae
53	*Zyziphus mauritiana*	Ber	Rhamnaceae
Shrub & Herbs			
54	*Acanthospermum hispidum*	Kanti	Asteraceae
55	*Acheranthus aspera*	Aghada	Amaranthaceae
56	*Antigonum leptopus*	coral vine	Polygonaceae
57	*Argemone mexicana*	Pila dhtura	Papaveraceae
58	*Baugainvellia glabra*	Paper flower	Nyctaginaceae
59	*Calotropis procera*	Aakra	Asclepiadaceae
60	*Cassia auriculata*	Tarwar	Fabaceae
61	*Cassia tora*	Tarota /Takla	Caesalpiniaceae
62	*Chenopodium album*	manure weed	Amaranthaceae
63	*cleome viscosa*	Pivali tilval	Cleomaceae
64	*Dalura metel*	Dhotra	Solanaceae
65	*Echinops echinatus*	Unthkantali	Asteraceae
66	*Ervatamia divaricata*	Chandani	Apocynaceae
67	*Euphorbia hirta*	Mothi dudhi	Evphorbiaceae
68	*Ipomoea carnea*	Besharam	Convolvulaceae
69	*Jatropha gossipifolia*	cotton-leaf	Euphorbiaceae
70	*Lantana camara*	Ghaneri	Verbenaceae
71	*Mimosa pudica*	Chui Mui	Mimosaceae
72	*Ocimum sanctum*	Tulsi	Labiatae
73	*Parthenium hysterophorus*	Gajar grass	Asteraceae
74	*Ricinus communis*	Arand	Euphorbiaceae
75	*Ricinus communis*	castor oil plant	Euphorbiaceae
76	*Solanum surattense*	Bhuiringani	Solanaceae
77	*Tridax procumbens*	Kambarmodi	Asteraceae
78	*Xanthium strumarium*	Chota Dhatura	Asteraceae
Grasses			
79	*Apluda mutica*	Mountain grass	Poaceae
80	*Apluda mutica*	Banjura grass	Poaceae
81	*Commelina benghalensis*	Bokna	Commelinaceae

82	*Cynodon dactylon*	Doob	Poaceae
83	*Cyperus rotundus*	Motha	cyperaceae
84	*DactylSeptemberenum aegyptium*	Crow foot grass	Poaceae
85	*Digitaria ternate*	--	Graminae
86	*Kyllinga tenufolia*	--	Cyperaceae
87	*Pennisetum purpureum*	Elephant grass	Poaceae
88	*Saccharum spontaneum*	Kans	Poaceae
Climbers			
89	*Abrus precatorius*	Gunja	Fabaceae
90	*Antigonon leptopus*	Anantalata	Polygonaceae
90	*Bougainvillea glabra*	Booganbel	Nyctaginaceae
92	*Celastrus paniculata*	Kujari	Celastraceae
93	*Cissampelos pareira*	Khariya lata	Menispermaceae
94	*Clitoria ternatea*	Blue pea	Fabaceae
95	*Coccinia grandis*	Jungli Kundru	Cucurbitaceae
96	*Combretum indicum*	Madhu Malati	Combretaceae
97	*Cuscuta reflexa*	Amarbel	Convolvulaceae
98	*Cuscuta reflexa*	Amar bel	Convolvulaceae
99	*Hemidesmus indicus*	Anantamul	Apocynaceae
100	*Ipomoea cairica*	Neeli Bel	Convolvulaceae
101	*Tilospora cordifolia*	Giloy	Menispermaceae
102	*Zizyphus oenoplia*	Makor	Rhamnaceae

3.7.8 Fauna of the Study Area

Proposed alignment passing through the rural and purely in the agricultural field. At some places, it will cross from adjacent to some villages in the study area. The study area is devoid of any natural forest, so, major wildlife animals are rarely found in the area. Only some moving animals were observed. Domesticated animals mainly constitute the faunal population within the project area. The assessment of fauna was done on the bases of secondary data collected from different government offices like the forest department, wildlife department, etc. The presence of wildlife was also confirmed by the local inhabitants depending on the animal sightings and the frequency of their visits in the project area. During the present study period, a large number of local birds are noticed in the buffer zone of the study area. But, there are no bird habitats like nesting, breeding, and foraging patterns are noticed in the core zone.

3.7.9 Fauna of the Core Zone

A) Terrestrial fauna of core zone (Mammals/Reptiles/amphibians/birds/insects etc.).

The domesticated animals like Goat (*Capra aegagrus*); Buffalo (*Bubalus bubalis*); Cow (*Bos primigenius)*; Horse (*Equus caballus*); Ass (*Equus hemionus*) and Dog (*Canis lupus familaris*) were observed moving in different parts of the study area (including core andbuffer zone),especially nearby town and villages. Mammals & other faunal species found in the study area are listed in Table 3.4 (iv).

Table 3.4 (iv): List of Mammals/Reptiles/Amphibians/Birds recorded from the Core Zone

S. No.	Common Name	Scientific Name	Family	Schedulestatus (as per WPA-1972)	IUCN status
Mammals					
1.	Five striped palm squirrel	*Funambulus pennanti*	Sciuridae	IV	LC
2.	Indian Fulvous Fruit-Bat	*Rousettus leschenaultia*	Pteropodidae	V	LC
3.	Indian Field Mouse	*Mus booduga*	Muridae	V	LC
4.	Common House Rat	*Rattus rattus*	Muridae	V	LC
5.	Bandicoot Rat	*Bandicota bengalensis*	Muridae	V	LC
Reptiles & Amphibians					
6.	Garden lizard	*Calotes versicolor*	Agamidae	IV	LC
7.	Common skink	*Eutropis carinata*	Scincidae	IV	LC
IUCN Status =LC: Least Concern					

Bird Species					
1	*Acridotheres tristis*	Myna	Sturnidae	IV	LC
2	*Acridotheres tristis*	Common myna	Sturnidae	IV	LC
3	Amandava amandava	Red munia	Estrildidae	IV	LC
4	*Ardea cinerea*	Grey heron	Ardeidae	IV	LC
5	Ardeola grayii	Indian pond heron	Ardeidae	IV	LC
6	Bubulcus ibis	Cattle egret	Ardeidae	IV	LC
7	*Columba livia*	Pigeon	Columbidae	IV	LC
8	*Corvus macrorhynchos*	Jungle crow	Corvidae	IV	LC
9	*Corvus splendens*	Crow	Corvidae	V	LC
10	*Dicrurus adsimilis*	Black drango	Dicruridae	IV	LC
11	*Gallinule chloropus*	Common moorhen	Rallidae	IV	LC
12	*Milvus migrans*	Black Kite	Accipitridae	IV	LC
13	*Passer domesticus*	House sparrow	Passeridae	IV	LC
14	*Phalacrocorax niger*	Little cormorant	Phalacrocoracidae	IV	LC
15	*Pycnonotus cafer*	Red-vented bulbul	Pycnonotidae	IV	LC
16	Saxicoloides fulicatus	Indian robin	Psittaculidae	IV	LC
17	*Turdoides caudate*	Common babbler	Leiothrichidae	IV	LC
18	*Upupa epops*	Common hoopoe	Upupidae	IV	LC
19	*Vanellus indicus*	Red-wattled lapwing	Charadriidae	IV	LC
IUCN Status =LC: Least Concern**, NE:** Not Evaluated.					

Table 3.4 (v): Butterflies observed in the Core zone

S. No.	Common Name	Scientific Name	Family	IUCN Status
1.	Plain Tiger	*Danaus chrysippus*	Nymphalidae	LC
2.	Common emigrant	Catopsilia pomona	Pieridae	LC
3.	Common crow	*Euploea core*	Nymphalidae	LC
4.	Small grass yellow	Eurema brigitta	Pieridae	LC

3.7.10 Fauna of Buffer zone

To prepare a detailed report on the status of faunal biodiversity of the present study area (10 km buffer) of Gaya district of Bihar and to assess the impacts due to digging/ leveling of alignment route/ construction of bridge/ operational activity which evolves suitable mitigation measures to

protect & conserve biodiversity following components were studied: terrestrial biodiversity, wildlife survey (diversity), habitat study (feeding, breeding, roosting areas), distribution of birds, rare & endangered species of the study area.

The fauna of the study area vary upon the local topography and different types of habitats. Terrestrial Fauna of Buffer zone (Mammals/Reptiles/Amphibians/Birds/ Insects etc.)

The major part of the study area lies under agricultural fields and barren land which restricts the wildlife habitat significantly. There is neither any wildlife sensitive area nor any corridor for the movement of wildlife in the study area. A list of the animals of the study area has been prepared on the basis of the survey and also inquire from the local people. The animals, thus recorded were cross-checked with Wildlife (Protection) Act, 1972 for their schedule status. Faunal details of the study area are given in Tables below**.**

i) Mammals and Reptiles/ Amphibians

The domesticated animals like Goat (*Capra aegagrus*); Buffalo (*Bubalus bubalis*); Cow (*Bos primigenius)*; Horse (*Equus caballus*); Ass (*Equus hemionus*) and Dog (*Canis lupus familaris*) were observed moving in different parts of the study area, especially nearby town and villages. Other mammals and reptiles found in the study area are listed in table 3.4 (vi).

Table 3.4 (vi): List Mammals, Reptiles and Amphibians recorded from the Buffer Zone

S. No.	Common Name	Scientific Name	Family	Status as per WPA-1972	IUCN status
Mammals					
1	*Bandicota bengalensis*	Bandicoot Rat	Sciuridae	IV	LC
2	*Canis aurius*	Jackal	Pteropodidae	V	LC
3	*Fellis chaus*	Jungle cat	Soricidae	II	LC
4	*Funambulus palmarum*	Three-striped Squirrel	Suidae	III	LC
5	*Funambulus pennanti*	Five striped palm squirrel	Hyaenidae	IV	LC
6	*Herpestes edwardsi*	Indian Grey Mongoose	Canidae	II	LC
7	*Hyaena hyaena*	Stripped hyena	Leporidae	V	LC
8	*Lepus nigricollis*	Indian Hare	Canidae	II	LC

9	*Mus booduga*	Indian Field Mouse	Sciuridae	IV	LC
10	*Presbytis entellus*	Common langur	Cercopithecidae	II	LC
11	*Pteropus giganteus*	Indian Flying Fox	Pteropodidae	V	LC
12	*Rattus rattus*	Common House Rat	Muridae	V	LC
13	*Rousettus leschenaultia*	Indian Fulvous Fruit- Bat	Muridae	V	LC
14	*Suncus murinus*	Grey musk Shrew	Muridae	V	LC
15	*Sus scrofa*	Wild Boar	Canidae	III	LC
16	*Vulpes bengalensis*	Indian fox	Felidae	II	LC
Reptiles and Amphibians					
1	*Bufo melanostictus*	Common toad	Bufonidae	IV	LC
2	*Bungarus caeruelus*	Krait	Elapidae	IV	NE
3	*Calotes versicolor*	Garden lizard	Agamidae	IV	NE
4	*Crotolus* sp.	Pit viper	Viperadae	II	LC
5	*Enhydris enhydris*	Smooth water Snake	Homalopsidae	IV	LC
6	*Euphlyctis hexadactyla*	Common frog	Dicroglossidae	IV	LC
7	*Eutropis carinata*	Common skink	Scincidae	IV	LC
8	Hemidactylus Flaviviridis	House Gecko	Gekkonidae	--	NE
9	*Naja naja*	Cobra	Elapidae	II	LC
10	*Ophiophagus hannah*	King cobra	Elapidae	II	LC
11	*Ptyas mucosa*	Rat Snake	Colubridae	II	NE
12	*Rana temporaria*	Common frog	Ranidae	IV	LC
13	*Testudo graeca*	Common Tortoise	Testudinidae	IV	VU
14	*Varanus sp.*	Monitor lizzard	Varanidae	II	LC
IUCN Status =LC: Least Concern**, VU:** Vulnerable. **NT:** Near Threatened**, NE:** Not Evaluated**,**					

ii) Avian Fauna

Table 3.4 (vii) : Avian Fauna observed from the study area (10 KM Buffer area)

S.No	Scientific Name	Common Name	Family	Schedule Status (WPA-1972	IUCN Status
1	*Acridotheres tristis*	Myna	Sturnidae	IV	LC
2	*Acridotheres tristis*	Common myna	Sturnidae	IV	LC

3	Alcedo atthis	Small blue kingfisher	Alcedinidae	IV	LC
4	Amandava amandava	Red munia	Estrildidae	IV	LC
5	*Amaurornis phoenicurus*	White-breasted waterhen	Rallidae	IV	LC
6	*Ardea cinerea*	Grey heron	Ardeidae	IV	LC
7	*Ardea purpurea*	Purple heron	Ardeidae	IV	LC
8	Ardeola grayii	Indian pond heron	Ardeidae	IV	LC
9	Athene brama	Spotted Owlet	Strigidae	IV	LC
10	Bubulcus ibis	Cattle egret	Ardeidae	IV	LC
11	*Butorides striatus*	Striated heron	Ardeidae	IV	LC
12	*Casmerodius albus*	Great egret	Ardeidae	IV	LC
13	*Centropus sinensis*	Crow pheasant	Cuculidae	IV	LC
14	*Ceryle rudis*	Pied kingfisher	Alcedinidae	IV	LC
15	*Charadrius dubius*	Little ringed plover	Charadriidae	IV	LC
16	*Ciconia episcopus*	White-necked stork	Ciconidae	IV	NT
17	Cinnyris asiaticus	Purple Sunbird	Psittaculidae	IV	LC
18	*Columba livia*	Pigeon	Columbidae	IV	LC
19	*Corvus macrorhynchos*	Jungle crow	Corvidae	IV	LC
20	*Corvus splendens*	Crow	Corvidae	V	LC
21	*Dendrocygna icolour*	Fulvous whistling duck	Anatidae	IV	LC
22	*Dicrurus adsimilis*	Black drango	Dicruridae	IV	LC
23	Egretta alba	Larger egret	Ardeidae	IV	LC
24	*Egretta garzetta*	Little egret	Ardeidae	IV	LC
25	*Francolinus pondicerianus*	Titar	Phasianidae	IV	LC
26	*Gallinule chloropus*	Common moorhen	Rallidae	IV	LC
27	*Gallus gallus*	Jungle hen	Phasianidae	IV	LC
28	*Halcyon smymensis*	White-throated kingfisher	Alcedinidae	IV	LC
29	*Milvus migrans*	Black Kite	Accipitridae	IV	LC
30	*Nycticorax nycticorax*	Black-crowned night heron	Ardeidae	IV	LC
31	*Passer domesticus*	House sparrow	Passeridae	IV	LC
32	*Pelecanus onocrotalus*	Great white pelican	Pelecanidae	IV	LC
33	*Phalacrocorax carbo*	Great cormorant	Phalacrocoracidae	IV	LC
34	*Phalacrocorax niger*	Little cormorant	Phalacrocoracidae	IV	LC

35	*Pluvialis fulva*	Pacific golden plover	Charadriidae	IV	LC
36	*Pseudibis papillosa*	Red-naped ibis	Threskiornithidae	IV	LC
37	*Psittacula krameri*	Rose ringed Parakeet	Psittacidae	IV	LC
38	*Pycnonotus cafer*	Red-vented bulbul	Pycnonotidae	IV	LC
39	*Sarkidiornis melanotos*	Knob-billed duck	Anatidae	IV	LC
40	Saxicoloides fulicatus	Indian robin	Psittaculidae	IV	LC
41	Spilopelia senegalensis	Little brown dove	Columbidae	IV	LC
42	Sturnia pagodarum	Brahminy Starling	Sturnidae	IV	LC
43	*Sturnus contra*	Asian pied starling	Sturnidae	IV	LC
44	*Tachybaptus ruficolli*	Little grebe	Podicipitidae	IV	LC
45	*Tadorna ferruginea*	Ruddy shelduck	Anatidae	IV	LC
5	*Tringa tetanus*	Common redshank	Charadriidae	IV	LC
46	*Turdoides caudate*	Common babbler	Leiothrichidae	IV	LC
47	*Upupa epops*	Common hoopoe	Upupidae	IV	LC
48	*Vanellus indicus*	Red-wattled lapwing	Charadriidae	IV	LC
IUCN Status =LC: Least Concern**, VU:** Vulnerable.					

i. Butter Flies

Table 3.4 (viii) : Butterflies observed from the Buffer zone of the study area

S.No.	Scientific Name	Common Name	Family	IUCN Status
1	*Catopsilia pomona*	Common emigrant	Pieridae	LC
2	*Chlosyne lacinia*	Sunflower/Bordered Patch	Nymphalidae	LC
3	*Crocothemis erythraea*	Scarlet dragonfly	Libellulidae	LC
4	*Danaus chrysippus*	Plain Tiger	Nymphalidae	LC
5	*Danaus genutia*	Stripped Tiger	Nymphalidae	LC
6	*Euploea core*	Common crow	Nymphalidae	LC
7	*Eurema brigitta*	Small grass yellow	Pieridae	LC
8	*Tirumala limniace*	Blue tiger	Nymphalidae	LC

3.7.11 Aquatic Fauna of Buffer zone

The study area of the present Project development project has several lentic and lotic water bodies in which few are perennial and most of the water bodies are seasonal or monsoon fed. Mohana River is a major lotic system in the study area. Some private ponds are also present in the study area which

are mainly used for the culture of fishes. All these water bodies support fish species. Fishes found in the study area are listed in Table

Table 3.4 (ix): Fish Fauna found in different seasonal and perennial water bodies in the study area

S.No.	Scientific Name	Family Name	IUCN Status	Schedule Status in WPA (1972)
1	*Catla catla*	Cyprinidae	LC	NA
2	*Channa stiatus*	Chandadae	LC	NA
3	*Channa punctatus*	Chandadae	LC	NA
4	*Labeo bata*	Cyprinidae	LC	NA
5	*Labeo rohita*	Cyprinidae	LC	NA
6	*Macrobrachium Malcomsoni*	Palaemonidae	LC	NA
7	*Mystus bleekri*	Bagridae	LC	NA
8	*Mystus tengara*	Bagridae	LC	NA
9	*Puntius sarana*	Cyprinidae	LC	NA
10	*Puntius sophore*	Cyprinidae	LC	NA
11	*Puntius stigma*	Cyprinidae	LC	NA
12	*Puntius ticto*	Cyprinidae	LC	NA
13	*Xenentodon cancila*	Belonidae	LC	NA
14	Pangasius Buchanani	Pangasiidae	LC	NA

3.7.12 Observations of Present Study (Flora & Fauna)

Flora

Most of the parts of the present study area (Gaya district) are agricultural fields, village land. The forest of the district comprises tropical deciduous vegetation due to high temperature and humidity. No any rare, endangered and threatened floral species have been observed from the core and buffer zone of the present study.

Fauna

There are no National parks, Sanctuaries, Biosphere Reserves, Wildlife corridors, Tiger/Elephant reserves (existing as well as proposed), within 10 km buffer area of the project area. No endangered and threatened faunal species were observed from the core zone. However, care will be taken during the developmental activities if found any. On the other hand, in the buffer zone there is no Schedule-I

fauna was recorded as per the Wildlife (Protection) Act, 1972. 11 species are Scheduled in II in WPA, 1972. One species i.e. Common Tortoise listed under IUCN list of vulnerable species is also reported from buffer zone.

3.8 SOCIAL IMPACT ASSESSMENT, REHABILITATION & RESETTLEMENT (R&R) ACTION PLAN

There will be no resettlement or rehabilitation involved in the project being on meandering course of the river. However, a detailed Socio Economic Assessment has been performed, which is given below:

Introduction

In this section of the report an attempt has been made to measure Socio-economic impact of the proposed river bed mining project on river Mohana at located Village/Mauja – Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Tehsil/Anchal- Bodh Gaya, District- Gaya, State-Bihar. The various attributes that have been taken into account are population composition, employment generation, occupational shift, household income, consumption pattern, ethnic issue and law & order problem. The key objective of the study is to assess possible impact of the project on socio-economic life of the people in the neighborhood known as study area.

The objectives of the socio-economic impact assessment are as follows:

a) To collect baseline data of the study area.
b) To know the socio-economic status of the people living in the study area of the proposed mining project.
c) To assess the possible impact of the project on socio-economic aspects in the study area.
d) To measure the impact of the project on Quality of life of the people in the study area.

Approach & Methodology

a) A mixture of both quantitative and qualitative approach has been adopted in the current socio-economic study.
b) The study has been conducted based on primary and secondary data. While primary data has been collected through a sample survey of selected households in the study area, the secondary data has

been collected from the administrative records of the Government of Bihar, Census 2011, district hand books and from the Bihar Government portal**.**

c) The details regarding population composition, number of literates, workers, etc have been collected from secondary sources and analyzed. Also village/city/town wise details regarding amenities available in the study area have been collected from secondary sources like Census 2011, and analyzed.

d) Two stage sampling design has been adopted to select the sampling units. The first stage units are census villages in the rural areas and towns/cities in urban areas. The ultimate stage units are households in the selected villages and towns/cities. Probability sampling has been adopted to select the sampling units.

e) Estimation of various parameters has been made based on sample data and bottom top approach has been adopted.

f) On the basis of a preliminary reconnaissance survey, two questionnaires were developed to make it suitable to fulfill the objectives of the study. The questionnaires contained both open ended and close ended questions

g) The data collected during the above survey was analyzed to evaluate the prevailing socio-economic profile of the area.

h) Based on the above data, impacts due to mining operation on the community have been assessed and recommendations for improvement have been made.

Concept & Definition of Terms Used

a) **Study Area:** The study area, also known as impact area has been defined as the sum total of core area and buffer area with a radius of 10 Kilometers from the periphery of the project site. The study area includes all the land marks both natural and manmade, falling therein.

b) **QoL**: The Quality of Life (QoL) refers to degree to which a person enjoys the important possibilities of his/her life. The 'Possibilities' result from the opportunities and limitations, each person has in his/her life and reflect the interaction of personal and environmental factors. Enjoyment has two components: the experience of satisfaction and the possession or achievement of some characteristic.

c) **Household**: A group of persons who normally live together and take their meals from a common kitchen are called a household. Persons living in a household may be related or unrelated or a mix of both. However, if a group of related or unrelated persons live in a house but do not take their meals from the common kitchen, then they are not part of a common household. Each such person is treated as a separate household. There may be one member households, two member households or multi-member households.

d) **Sex Ratio:** Sex ratio is the ratio of females to males in a given population. It is expressed as 'number of females per 1000 males'.

e) **Literates:** All persons aged 7 years and above who can both read and write with understanding in any language are taken as literate. It is not necessary for a person to have received any formal education or passed any minimum educational standard for being treated as literate. People who are blind but can read in Braille are also treated as literates.

f) **Literacy Rate:** Literacy rate of population is defined as the percentage of literates to the total population aged 7 years and above.

g) **Labour Force:** The labour force is the number of people employed and unemployed in a geographical entity. The size of the labour force is the sum total of persons employed and unemployed. An unemployed person is defined as a person not employed but actively seeking work. Normally, the labour force of a country consists of everyone of working age (commencing from 14 to 16 years) and below retirement (around 65 years) that are participating workers, that is people actively employed or seeking employment. People not counted under labour force are students, retired persons, and stay-at home people, people in prisons, permanently disabled persons and discouraged workers.

h) **Work:** Work is defined as participation in any economically productive activity with or without compensation, wages or profit. Such participation may be physical and/or mental in nature. Work involves not only actual work but also includes effective supervision and direction of work. The work may be part time or full time or unpaid work in a farm, family enterprise or in any other economic activity.

i) **Worker:** All persons engaged in 'work' are defined as workers. Persons who are engaged in cultivation of land or milk production even solely for domestic consumption are also treated as workers.

j) **Main Workers**: Those workers who had worked for the major part of the reference period (i.e. 6 months or more in the case of a year) are termed as Main Workers.

k) **Marginal Workers:** Those workers who did not work for the major part of the reference period (i.e. less than 6 months) are termed as Marginal Workers**.**

l) **Work participation rate**: The work participation rate is the ratio between the labour force and the overall size of their cohort (national population of the same age range). In the present study the work participation rate is defined as the percentage of total workers (main and marginal) to total population.

Findings of the Study

Study Area

The field investigation has revealed that the entire study area of the proposed mining project is located Village/Mauja – Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, and Tehsil/Anchal- Bodh Gaya, District- Gaya, State-Bihar.

Table 3.5 (i) Demographic Particulars of the Buffer area (10km)

Description	Number	%
Total Population	65943	100
Males	34654	51.2
Females	31529	48.8
Sex ratio (No. of females per 1000 males)	948	
Total Literates	31986	100
Male	21548	68.5
Female	11894	31.5
Total Literacy Rate	59	
Male	72.82	
Female	35.25	
Gender gap in literacy rate	36.45	
Total Workers	24850	100
Male	11598	61.18
Female	8252	38.82
Total Main Workers	15686	100
Male	19568	77.68
Female	4059	22.32

Total Marginal Workers	731595	100
Male	2856	38.71
Female	4515	61.29
Total Agricultural Workers	17154	100
Cultivators	16267	63.54
Agricultural Labours	9326	36.46
Male workers in total agricultural workers	5498	58.25
Female workers in total agricultural workers	3915	41.75
Total Household Industrial Workers	1246	100
Male	625	51.79
Female	615	48.21
Total Other Workers	2488	100
Male	1196	79.52
Female	425	20.48

DEMOGRAPHIC COMPOSITION

Population

According to Census 2011, the total population of the study area is 64543. As there is no urban area the entire population belongs to rural area. The overall sex ratio has been worked out to 945 females per 1000 males, which is higher than the national average of 943 females per 1000 males. Furthermore, around 10.81 percent of the total population belongs to Schedule Caste community and the Schedule Tribe population in the study area is very negligible as per Census 2011.

Number of households and household size

The entire population of the study area has been grouped into 8963 households and the average household size is 7. The household size varies between 5 and 8.

Literacy and Literacy rate

The total number of literates in the study area has been worked out around 56 percent of the total population. The literacy rate of male has been worked out to 74.92 percent as against 36.14 percent for female, creating a gender gap of 38.78 percent.

Workers and work participation rate

The total number of workers in the study area is 25680, which is 40.92 percent of the total population. Among the total workers 71.4 percent are main workers and the remaining percent are marginal workers. The percentage of male in the main workers is 61.18%, while it is only 38.71percent in the case of marginal workers. On the other hand, the percentage share of female in the main workers is only 38.82percent. This indicates that male dominates the both main workers and the marginal workers.

POSSIBLE IMPACT ASSESSMENT

Impact on population composition

The impact of the proposed mining project on population composition will be marginal as only few skilled and managerial staff will be recruited from outside and the rest will be recruited locally. The impact will be significant if a large number of people from outside get employed in the proposed project.

In that case not only the population of the study area will go up but also the skewed sex ratio may make permanent social effects like rise in exploitation of women, higher crime rate, increase in sexual diseases and depression among youth.

Impact on employment generation

The proposed sand mining project is expected to provide employment opportunities to 65 persons Skilled & Semi-Skilled/ Unskilled workers. It is understood that all the persons to be deployed for various mining activities will be recruited locally and there is very little scope for migration of people from outside the study area. The employment potentiality of the project is expected to ameliorate the economic condition of the families of those persons who will get employed in the proposed mining project. However, the mining project will provide seasonal employment. Further, the project will provide indirect employment to about 65 people who will be involved in segregation of extracted mining materials, crushing of boulders, petty business and service oriented industries.

Impact on Health

Extraction of sand, boulder and *bazri* from the river bed poses serious health risks due to dust, quarrying and stone crushing. The effects will vary depending upon the nature of the dust particles, silica content in it and the size of the particles. Pneumoconiosis is an occupational lung disease often

caused to miners, due to the inhalation of dust. Silica content in the sand may also lead to Silicosis, which is again an occupational lung disease. Miners may also suffer with occupational respiratory ailments, skin allergies etc, but the same are preventable if exposure is minimized. Further, regular health check-up of the miners is required to prevent any negative impact on their health. In the present mining project, no adverse impact on health is expected if minimum precautions are taken by the miners.

Impact on income

In India poverty is widespread. According to an estimate made by World Bank during 2005, 26 percent of the total Indian population falls below the International poverty Line of US$ 1.25 a day (PPP, in nominal terms ₹ 21.6 a day in urban areas and ₹ 14.3 in rural areas). Bihar is one of the worst poverty ridden states in India, with per capita income of Rs. 26,051. The proposed mining project at Village/Mauja – Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, is expected to provide casual employment to 65 semi-skilled/ unskilled workers and skilled workers for a period of 250 days in a year. According to Department of labour, Government of Bihar each unskilled worker is eligible to get a minimum basic wage of Rs. 300 per day. In addition they will get V.D.A amounting to Rs. 65.50 per day. Thus the total amount an unskilled worker is expected to get is Rs 365.50 per day. Further, a semi-skilled worker will get a basic wage of Rs 345 and V.D.A amounting to Rs.112.69 making the total amount of Rs. 457.69 per day. Lastly, a skilled worker can expect to get a minimum wage of Rs. 475.24 and V.D.A amounting to Rs. 124.76 making the total amount of Rs. 600 per day. The impact of the proposed mining activity on household income in the study area is thus positive since it will provide employment to local people, which will result to an increase in household income of those workers who will be recruited for mining operation. However, this impact will be effective for a period of 250 days in a year.

Impact on consumption pattern

The field survey has revealed that people in the study are poverty ridden. Increased household income may slightly change the consumption pattern of few but majority of the people will continue to be burdened with poverty.

Impact on road development Movement of trucks and other vehicles to and fro the quarry is expected to increase substantially, when mining will start. The existing roads connecting the quarry

with the national and state highways are mostly narrow mud roads. There will be mud slide and traffic bottle neck if these roads are not widened and their conditions are not improved by making them paved roads. Hence, there is ample scope for road development in and around the mining areas.

Impact on law & Order

As local people will be employed to run the quarry, no law & order problem is envisaged. It is expected that the workers will attend to their duties from their residence and return to their homes after the day's work is over. There would have been law & order problem if the workers were migrants and lived in shanties closed to the mining area. However, to meet any untoward incident one police post may be set up closed to the project area.

Public Perception about the Project

Visit to project village has revealed that no villager was opposed to the proposed river bed mining project. They whole heartedly welcomed it as they were disgusted with perennial poverty. They hoped that the upcoming mining project will definitely increase their income which in turn will increase their purchasing power. They however, demanded that the beneficiaries should be selected from those who belong to BPL category and registered under SGSY scheme.

The villagers living in the distant villages located within the study area were found either not aware or partially aware of the upcoming mining project and they did not make any comment about its utility. They however demanded that labour intensive projects should be implemented in their villages, to fight poverty.

Suggestions

Provision of First Aid at mining site

Extraction of sand from the river bed poses serious health risks due to dust, quarrying. The effects vary depending on the nature of the dust particles, silica content in it and the size of the particle. To meet any emergency during extraction of the minerals from the river bed and subsequent loading in the transport vehicles, provision for First Aid should be made by the project proponent. Before the affected person is removed to a doctor or health institution for necessary medical aid, the miner should be provided with First Aid.

Tie up with the nearest PHC for medical help

To meet the medical needs of the mine workers it is suggested that tie-ups with nearest hospital or Primary Health Center (PHC) may be made. Few beds may be exclusively reserved for the mine workers in the above health institutions. This will ensure timely medical aid to the affected persons.

Supply of Mask, Gloves and Helmets

The mine workers are subject to respiratory diseases, muscular-skeletal and gastro-intestinal disorders and skin diseases. For protection from dust it may be made compulsory for all mine workers to wear masks and gloves while working in the mines. Further, wearing of helmets will be encouraged while loading and unloading minerals in the trucks in order to avoid impending danger.

Regular health checkups

The miners may be encouraged to undergo health checkups at regular intervals in order to protect themselves from various diseases. The health Department of Bihar Government must Organize Health Camps at regular intervals preferably in every quarter. Further, free medical facilities may be made available to the workers and their family members.

Special telephone number

A special telephone number may be made available to the mine workers. In case of emergency the miners can dial the above number for medical assistance. Vehicle may be provided to the patients in short duration for shifting to the health institution.

Special Group Insurance Scheme

All the mine workers may be covered under a Group Insurance Scheme of LIC or any other Insurance company, if not so far.

Distribution of Blankets and Quilts

During winter season the mine workers may be distributed blankets and quilts free of cost.

Conclusion

The implementation of the Sand Mining Project on river Mohana in district Gaya will throw opportunities to local people for both direct and indirect employment. Since the quarries will be leased out to successful allottees, sand mining operation in the state will get legalized and it will fetch income to the state exchequer. It will also reduce flooding of river banks, destruction of standing

crops, land and property to a great extent. The project will also provide impetus to industrialization of the area. Where transfer of Sand is necessary crushing units will come up. It is likely the intending entrepreneurs will venture to set up micro and small scale units in the near future making the area a mixed society, dependent on industry, trade and business. At present agriculture is the main occupation of the people as 87 percent of the population depends on it. With the implementation of the proposed mining project the occupational pattern of the people in the area will change making more people engaged in industrial and business activities rather in agriculture. Thus there will be a gradual shifting of population from agriculture to mining and industry. Further, the mining and industrial activities in the area may lead to rapid increase in population and thereby urbanization. Due to urbanization of the area, employment opportunities will further increase.

The study area is still lacking in education, health, housing, water, electricity etc. It is expected that same will improve to a great extent due to proposed mining project and associated industrial and business activities. It is therefore suggested that extraction of minerals should be taken up on regular basis during the post monsoon period. This will dredge the river bed on regular basis, regulate the course of the river and check flooding of the catchment area.

Proposed activities and expenses on Corporate Environmental Responsibility will be as per CER Mandate of the Government.

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CHAPTER – IV

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

CHAPTER-IV
ANTICIPATED ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

INDEX

S. No.	CONTENTS	Page No.
4.0	GENERAL	96/IV
4.1	LAND ENVIRONMENT	99/IV
4.2	WATER ENVIRONMENT	100/IV
4.3	AIR ENVIRONMENT	102/IV
4.4	NOISE ENVIRONMENT	108/IV
4.5	BIOLOGICAL ENVIRONMENT	109/IV
4.6	SOCIO-ECONOMIC ENVIRONMENT	111/IV
4.7	TRAFFIC ANALYSIS	112/IV
4.8	PUBLIC HEALTH IMPLICATIONS	115/IV
4.9	STATUATORY REQUIREMENTS	115/IV

4.0 GENERAL

Sand have long been used as aggregate for construction of roads and building. Today, the demand for these materials continues to rise day by day. In recent years, rapid development has led to an increased demand for river sand as a source of construction material. It is recommended to remove the sand deposition on the regular basis otherwise the river will raise the height and may pose threats of inundation of unaffected areas. Besides this, the deposited mineral is a constant source of revenue generation to the state government and ensures the constant supply of this building material.

All development projects have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

Keeping in mind, the environmental baseline scenario as detailed in Section III and the proposed mining activity described in Section II, it is attempted to assess the likely impact and its extent on various environmental parameters and likely mitigation measures to be adopted. This Chapter provides a brief overview of the potential impacts on various environmental components due to the proposed opencast mining activities. The opencast mining operations in general cause environmental degradation and if adequate control measures are not taken to prevent/mitigate the adverse environmental impacts, these operations may cause irreversible damage to the eco- system.

Any human activity in any environment produces impact, modifying it to status which is considered adverse of beneficial according to damage or improvement it brings about in physical, chemical & biological status, the impacts are assessed for their importance. On the basis of impact analysis, the mitigation action is focused in the environmental management plan for counting or minimizing adverse impacts. Effects of this mining project on each of the environmental parameters are detailed below in accordance with the parameters of environment likely to be affected- Climate, Air environment, Land environment, Ecology, Water requirement, Noise levels, Soil, Socio-economic environment, Cultural & Heritage environment. Centrally the environment impacts cab be categorized

as either primary or secondary. Primary impacts are those which can be attributed directly to the projects. On the indirectly or induced typically include the associated investments & change patterns if social & economic by the proposed actions.

IMPACT OF SAND MINING

Impacts of sand mining can be broadly classified as given below:

Physical

The large-scale extraction of streambed materials, mining below the existing stream bed and the alteration of channel-bed form and shape lead to several impacts such as erosion of channel bed and banks, increase in channel slope, and change in channel morphology. These impacts may cause: (1) the undercutting and collapse of river banks, (2) the loss of adjacent land and/or structures, (3) upstream erosion as a result of an increase in channel slope and changes in flow velocity, and (4) downstream erosion due to increased carrying capacity of the stream, downstream changes in patterns of deposition, and changes in channel bed and habitat type.

Mitigation measures

- Sand mining will be restricted up to ~3.0 m below river bed / water table whichever less.
- The mining will be done in unsaturated zone. Thus minimum loss to habitat.
- Dredging will not be allowed.

Sand Budget

Determining the sand budget for a particular stream reach requires site-specific topographic, hydrologic, and hydraulic information. This information is used to determine the amount of sand that can be removed from the area without causing undue erosion or degradation, either at the site or at a nearby location, upstream or downstream.

In-channel or near-channel sand mining changes the sediment budget, and may result in substantial changes in the channel hydraulics. These interventions can have variable effects on aquatic habitat, depending on the magnitude and frequency of the disturbance, mining methods, particle-size characteristics of the sediment, the characteristics of riparian vegetation, and the magnitude and frequency of hydrologic events following the disturbance. Temporal and spatial responses of alluvial river systems are a function of geomorphic thresholds, feedbacks, lags, upstream or downstream transmission of disturbances, and geologic/physiographic controls. Minimization of the negative

effects of sand mining requires a detailed understanding of the response of the channel to mining disturbances.

Decisions on where to mine, how much and how often require the definition of a reference state, i.e., a minimally acceptable or agreed-upon physical and biological condition of the channel. Present understanding of alluvial systems is generally not sufficient to enable the prediction of channel responses quantitatively and with confidence; therefore, reference states are difficult to determine. Still, a general knowledge of fluvial processes can provide guidelines to minimize the detrimental effects of mining. Well-documented cases and related field data are required to properly assess physical, biological, and economic tradeoffs.

Mitigation measures

Quantities will be strictly limited so that sand recruitment and accumulation rates are sufficient to avoid extended impacts on channel morphology and in stream habitat. Although conceptually simple, annual sand recruitment to a particular site is highly variable and not well understood.

- Flow and sediment transport for most rivers and streams is highly variable from year-to-year, thus an annual average rate may be meaningless.
- An "annual average deposition rate" could bear little relation to the sediment transport regimes in a river in any given year.
- The site selection was done keeping the following points; minor mineral reserves, site specific problems like flooding, submergence crop lands / fields, need of excavation, rate of sediment deposition etc.
- Sand mining will be restricted up to ~3.0 m below bed / water table whichever less.

Construction Phase- There will be no impacts as no construction phase is involved in this project.

Operation Phase-

Impact & mitigation measures on topography & Drainage:

- The mine working will remain confined to river bed only & in no case disturbing any surface area outside which may affect topography or drainage course.
- Due to mining Temporary pits will form & it is replenished in upcoming monsoon season.
- Mining will be done in a planned may i.e collection of mineral/working shall be started from the central dip to rise & then laterally 1.5-meter slice so that river course will not get affected.

- Unwanted material including mineral or spillage (in any) will not be stacked on the bank side as it will hinder the flow of water in monsoon season.
- The mining from river bed will not have any impact on natural drainage of surrounding area as the excavated Sand from river bed is filled with first heavy flow in river during monsoon season.

Impact on Climate:

a) Temperature

The temperature pattern is a regional behavior & is not likely to be affected by river bed mining activity over a small area. Some local effect may be perceived due to movement of vehicles and equipment used.

b) Rainfall

The trend of rainfall forms part of regional pattern, not dependent on the relatively small area of river bed mining activity. The mining operation, therefore is not likely to have any adverse impact on rainfall pattern.

c) Humidity

The pattern of relative humidity depends mainly on the rainfall, wind temperature & other weather phenomenon that regional in behavior. The mining operation is not likely to have any impact on the relative humidity in the surrounding.

4.1 LAND ENVIRONMENT

No adverse impact is anticipated on land use of buffer zone due to present mining operations. As all the related activities are confined to the core zone.

The area likely to be degraded due to quarrying, pitting & roads. The impact on the land form or physiography will be limited to the modification of the slope. The landscape and land use will undergo a radical change due to open cast mining. The impact during next five years is limited as benches will be formed. Besides these benches, roads will also modify the physiography. The impact on land use will also be limited.

Impact on Land use Pattern including change of River course:

- If mining is not carried out in systematic manner by leaving sufficient safety barriers from the bank than it may disturb the river flow/course.

- Stacking of uncoated material including mineral or spillage (if any) on the bank side of river will hinder the flow of water in monsoon season, raise water level upstream, which may lead to bank cutting or flouting.
- Deviation from planned mining procedures can lead to river channel shifting as well as degradation of surrounding land, causing loss of properties & degradation of land scape.

Mitigation measures:

- Mineral will be mined out only from Dry River Bed & sufficient safety barrier 10% of width will be left towards bank side, so that river flow/course will not get disturbed.
- Mining of mineral will be started towards rise at the centre & also laterally in 1m slice so that river course will not get affected. Unwanted material or spillage (if any) will not be stacked by the side of excavation voids created. This is to be done so. Because it will otherwise hinder flow of water in monsoon period.
- Mining is to be done by leaving safety barrier on both sides & maximum barrier should be do concave side of river preferably the flow channel (excavation void created) should be kept straight so as to help avoid erosion as side cuttings, Upto next depth of 3.0 m from river bed level.
- No waste water will be generated from the mining activities of minor minerals as the project. Only involves lifting of Sand from the river bed.

4.2 WATER ENVIRONMENT

Damage in the water body, depends on its assimilative capacity. To find out assimilative capacity of receiving water body, water samples were collected from different groundwater and surface water sources. The study indicates that assimilative capacity of the River water bodies still exists, but effective measures shall be taken to check water pollution. To find out the effect on ground water an extensive hydro-geological study has been conducted and from the study it can be safely concluded that there is no noticeable effect on surrounding ground water resource due to mining. The mining activity does not require water. The collection of sand is done on the river bed where excessive sedimentation has been noticed.

Mining of sand from within or near a streambed has a direct impact on the stream's physical habitat characteristics. These characteristics include geometry, bed evaluation, substrate composition and stability, in stream roughness elements, depth, velocity, turbidity, sediment transport, stream discharge

and temperature. Altering these habitat characteristics can have deleterious impacts on both in stream biota and associated riparian habitat.

The detrimental effects to biota resulting from bed material mining are caused by three main processes:

i. alteration of flow patterns resulting from modification of the river bed
ii. an excess of suspended sediment
iii. damage to riparian vegetation and in stream habitat

As the project activity is carried out in the meandering part of the river bed, none of the project activities affect the water environment or riparian habitats. In the projects, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water either from the river or tapping the ground water. In the lean months, the proposed sand mining will not expose the base flow of the river and hence, there will not be any adverse impact on surface hydrology and ground water regime due to this project. The contractor will adhere all guidelines and rules for proper and scientific method of mining during the period of extracting the ordinary sand. Thus, the project activities shall not have any adverse effect on the physical components of the environment and therefore may not have any effect on the recharge of ground waters or affect the water quality.

Impacts on hydrological Conditions:

- The study area is itself part of river course carries surface as well as ground water (under current). The flow of surface/ground water (sub surface flow is following the trend of topography.
- The area is part of dry river bed for more than nine months in a year except for the rainy season. The Sand mining is Restricted up to the depth of 3.0 m will have in significant impact on water regime.
- The general ground water table which will be about 3.0m below surface of river bed in the mining area during dry seasons will not be disturbed as ultimate working depth 3.0.

Impact on Water Quality:

- Mining causes lowering of riverbed level as well as riverbed water level resulting in lowering in ground table due to excessive extraction & drainage out of ground water from the adjacent areas, if general ground water table is higher than the river bed level. In case the general ground water level is lower than riverbed water level, than it will have positive impact on ground water table will

recharge vertically as well as laterally. In the former case may cause shortage of water for the vegetation & human settlement in the vicinity, but in later case it will help in improving situations

- River is recharging the ground water, excessive mining will reduce the thickness of the natural filter material (sediments), infiltration through which the ground water recharged, so restriction in depth becomes necessity.

Mitigation Measures:

Mining in the area will be done above the water table as well as river bed water level, therefore much impact on water regime is not anticipated.

4.3 AIR ENVIRONMENT

The proposed project includes various activities material handling and transport of sand. These operations generally result in generation of dust and thereby pose health hazards. However, it is proposed that adequate control measures will be provided at every stage of operation such as, water sprinkling at loading, unloading points and on haul roads before transportation to reduce the fugitive dust emissions.

The mining is proposed to be carried out by opencast method. The air borne particulate matter ($PM_{10\ \&\ 2.5}$) generated by transportation is the main Respirable air pollutant. The emissions of Sulphur dioxide (SO_2), Nitrogen Oxides (NO_2) contributed by vehicles plying on haul roads will be marginal. Prediction of impacts on air environment has been carried out taking into consideration proposed production and net increase in emissions.

4.3.1 Air Modeling

In general, mining operations generate substantial quantities of airborne Respirable dust, which leads release of huge amount of dust. These air borne dust particles, generally below 100 micron in size, are nuisance particulates and cause health hazards as an ill effect of mining activities. Extraction activities like material handling and transport are a potential source of air pollution Therefore, a detailed study on emission sources and quantification of pollutant concentration by means of dispersion modeling is required to access the environmental impact of a mine. On the basis of the predicted increments to air pollutant concentrations, an effective mitigation and environmental plan can be devised for sensitive areas.

Loading and Unloading - US EPA, 2008, revision of emission factor for AP-42 was used to calculate emission of particulate matter released into the atmosphere during loading and unloading separately. Emission during loading was found more than during unloading. Emission of PM_{10} during loading was calculated and found to be 4.60 x 10^{-6} g/s/m^2 based on moisture content 10-20% in mine. It is assumed that moisture content in building stone was 10% and further moisture content will be increased to 10-20% to reduce emission of PM10 during unloading and average wind speed was 6.26 m/s as observed with site data with calm conditions 0.00 % as shown in wind rose and discussion of local meteorology of the area.

Haul Road - US EPA, 2006, revision of emission factor for **AP-42** was used to calculate emission of particulate matter released into the atmosphere during transportation of sand and over burden by 8 trucks operated per hour on haul road of length 0.56 Km. Emission of PM10 due to transportation of sand on haul road was 6.05 x 10^{-6}g/s/m^2 based on assumption that silt content spread on road surface was 5%, and efficiency of PM10 emission control 90%. Truck will be fully covered with tarpaulin material and emission of PM10 during on the haul road will be insignificant.

Based on the above consideration that there was low emission of PM10 during transportation of sand and overburden, however during loading & unloading, transportation of sand over the haul road, emission of PM10 of the exposed area due to wind erosion and movement of light vehicles on the road were not considered and combined with mining activities. US EPA based Dispersion ISCST-3 model was used for prediction of impact with 1-h meteorological data of the study period for the assessment of GLC.

4.3.2 Meteorological Data

The meteorological data recorded at hourly interval during the month of March to May 2023 on wind speed, wind direction, dry & wet bulb temperature, humidity, cloud cover and rainfall was processed to extract hourly mean meteorological data as per the guidelines of CPCB/MoEF for prediction of impacts from the area source. Stability was computed by Turner's method and mixing height was obtained from publication of IMD "Atlas of Hourly Mixing Height in India, 2008.

Data recorded from authorized source/Govt. agency were used as meteorological input for Dispersion Model which was stored in the computer for further analysis and interpretation to study the local meteorology of the study area. It was observed that south east was pre-dominant wind during summer as

shown in wind rose (**Figure 4.1**) with low wind speed and 0.00 % calm condition was observed during study period at the site which was very much close and cumbersome with long term meteorological data of IMD. Impact of the pollutants was anticipated in southeast sector under influence of northeasterly & westerly winds. Ambient air quality locations were selected based on the long-term wind rose pattern of the area. Twenty ambient air quality sampling locations were finalized to study the baseline status around the proposed site and to study impact at various locations. 24-h maximum impact of PM_{10} was envisaged in southeast sector at very short distance from the site due to moderate to low wind speed.

Stable atmospheric condition E & F dominates in early morning and night hours and B, C & D in day hours were observed. Pollutants were dispersed from the proposed source under influence of local meteorology and dispersed on the ground in downwind direction close (~100 m) to the source under influence of moderate to low wind speed. High temperature and low humidity were observed at site with high temperature in day hours and low during night. There was no significant rain fall received and sky was clear of clouds in most of the days.

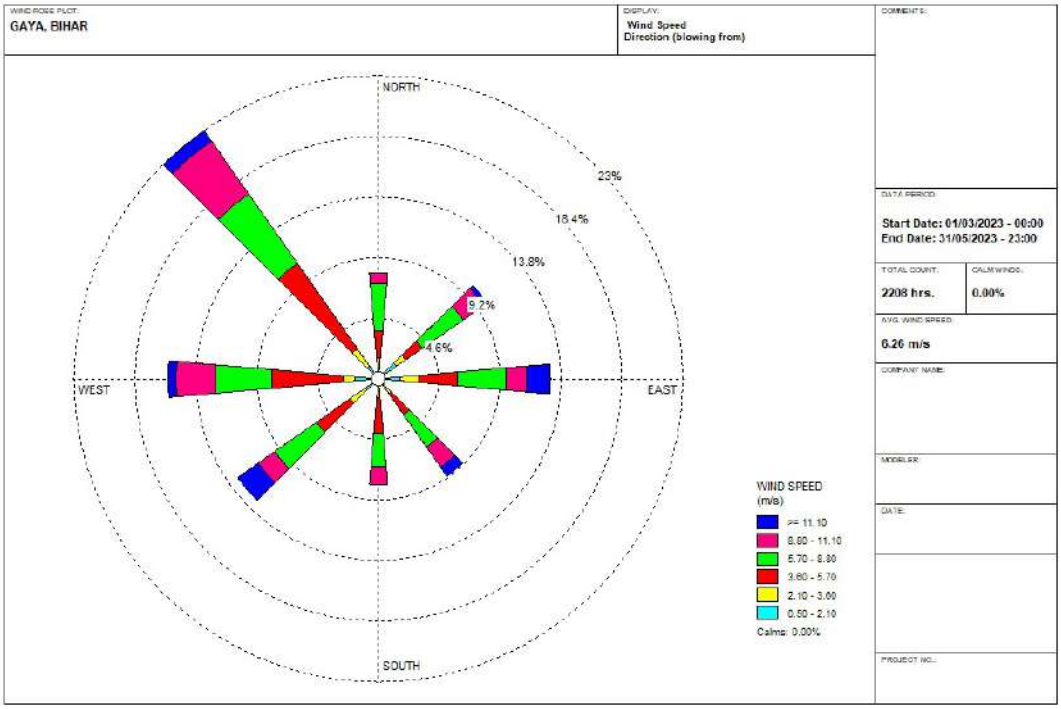


Figure 4.1: Wind Rose Diagram

4.3.3 Frame Work of Computation & Model Details

By using the above-mentioned inputs, ground level concentrations due to the mining activities have been estimated to know the incremental rise in ambient air quality and impact in the study area. The effect of air pollutants upon receptors are influenced by concentration of pollutants and their dispersion in the atmosphere. Air quality modeling is an important tool for prediction, planning and evaluation of air pollution control activities besides identifying the requirements for emission control to meet the regulatory standards and to apply mitigation measures to reduce impact caused by mining activities.

PM_{10} was the major pollutant occurred during mining activities. Impact of area source emission was considered and prediction of impact was made on various monitoring locations in the study area due to i) loading and unloading and ii) transportation of vehicles on the haul road of length 0.56 Km in the mining area. Impact was predicted in the worst case scenario due to combined impact of loading and unloading and emission due to transportation of vehicles on building stone mine on haul road of mining area and other mining activities will occur simultaneously.

Impact was predicted over the distance of 10,000 m and 2,000 m around the source in grids of 200 m & 20 m respectively in Cartesian coordinates (X, Y) to assess the impact at each receptor separately at the various locations and maximum incremental GLC value at the project site. Maximum impact of PM_{10} was observed close to the source due to low to moderate wind speeds. Incremental value of PM_{10} was superimposed on the base line data monitored at the proposed site to predict total GLC of PM_{10} due to combined impacts.

4.3.4 Model Results

The Air Quality Impact Prediction has been done by using "Industrial Source Complex Short Term version 3 (ISCST3), of USEPA". The main sources of air pollution with regard to the proposed project for the purpose of estimation of increase in PM_{10} are identified due to –

(i) Loading/unloading of Sand
(ii) Transportation of sand by trucks on the Haul roads from sand.

Combined impact of PM_{10} was considered due to mining activities occurred simultaneously on various sampling locations is given in Table 4.3.

Table 4.1 - Impact of PM_{10} due to combined impact of loading - unloading and transportation of sand by trucks

Locations	Locations Code & Distance w.r.t. site.	Background value (98 percentile) in µg/m³	Incremental GLC in µg/m³	Total Predicted GLC in µg/m³
AAQ1	Near Project Site (Gaya Mohana -01) at 0.48 km in E direction	88.31	5.9	94.21
AAQ2	Near Project Site (Gaya Mohana -02) at 0.28 km in E direction	85.33	5.3	90.63
AAQ3	Near Project Site (Gaya Mohana -03) at 0.32 km in E direction	85.78	4.8	90.58
AAQ4	Guriyawan at 1.64 km in SE direction	89.08	2.6	91.68
AAQ5	Dumri at 1.81 km in E direction	82.69	1.5	84.19
AAQ6	Harli Kalan at 2.74 km in NE direction	83.27	<0.001	83.27
AAQ7	Sugawan at 1.67 km in SW direction	83.32	<0.001	83.32
AAQ8	Jani Bigha at 2.52 km in NW direction	82.72	<0.001	82.72
AAQ9	Khaira Bara at 6.53 km in E direction	82.85	<0.001	82.85
AAQ10	Nagwan at 7.71 km in SE direction	82.39	<0.001	82.39
National Ambient Air Quality Standards (NAAQS)				**100**

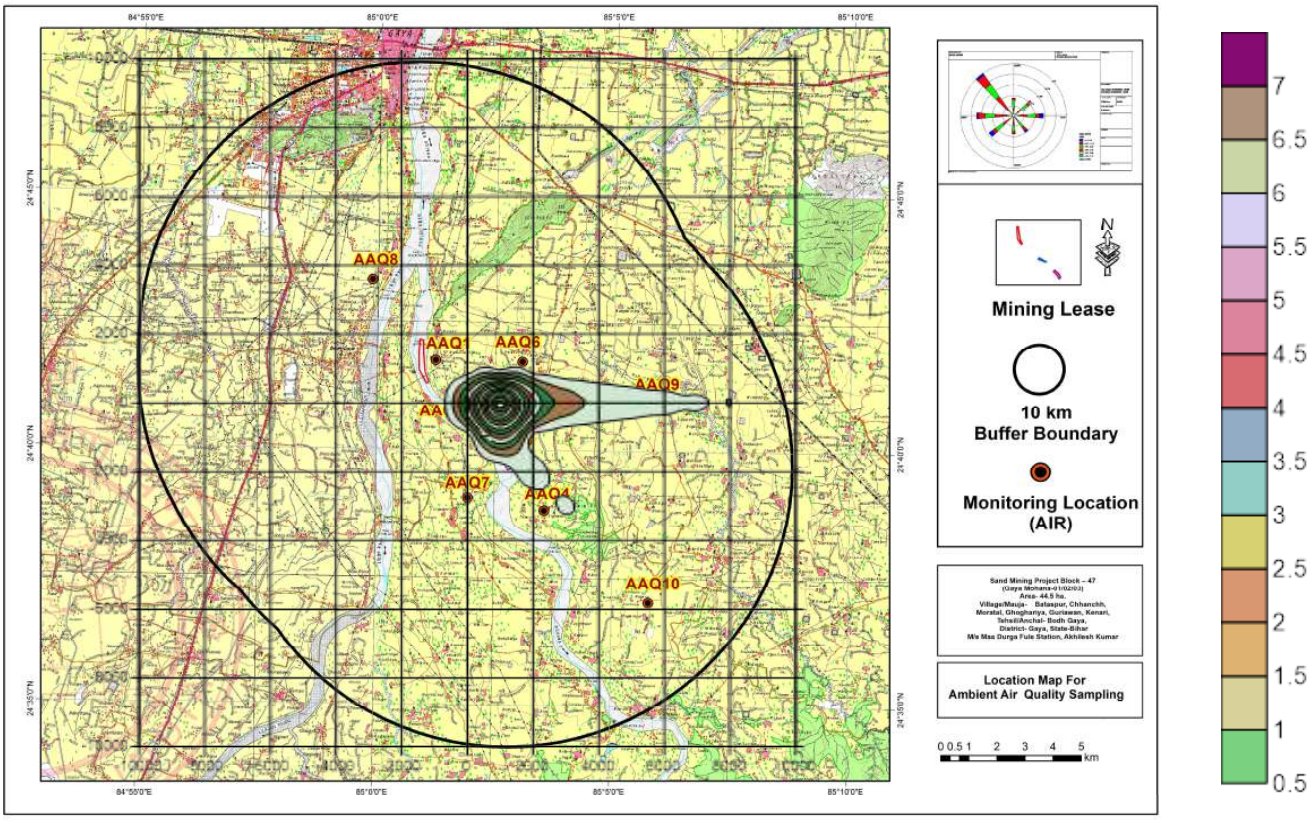


Figure 4.2 Isopleth of PM10

4.3.5 Discussion of Results and Conclusion

ISCST3 - Model was used for prediction of impact of PM_{10} during conditions i) Loading/unloading and ii) transportation of sand by trucks on Haul roads by using area source model to predict GLC of PM_{10} during these conditions. Prediction was made with emission values due to loading / unloading and transportation of sand by trucks on haul road over the length of 0.60 Km. Total max. predicted 24-h maximum GLC of PM_{10} at project site was 94.21 µg/m^3 occurred at the project site after superposition of base-line value 88.31 µg/m^3 over the incremental 5.9 µg/m^3 due to combined impact of loading and unloading and transportation over the haul road. Meteorological data under worst case scenario.

4.4 NOISE ENVIRONMENT

The sand mining projects are mainly not noisy as these are mainly manual in nature. But in this case the methodology adopted for mining is opencast semi mechanized mining method which may generate noise.

Impact on environment

At mines, noise is created by movement of machinery & transportation vehicles, etc. The noise level in the working environment are compared with the standards prescribed by Occupational Safety and Health Administration (OSHA-USA) which has been adopted and enforced by the Govt. of India through model rules framed under Factories Act, 1980 and CPCB 2000 norms. The summary of the permissible exposures in cases of continuous noise as per above rules is given below:

Table 4.2 Noise impact

Total time of exposure per day in hour	Sound pressure dB(A)	Remarks
1	2	3
8.0	90	No exposure in excess of 115 dB(A) is permissible
6.0	92	--
4.0	95	For any period of exposure falling in between any figure and lower figure as indicated in column (1), the permissible sound is to be determined by extrapolation or proportionate scale.
3.0	97	
2.0	100	
1 ½	102	
1	105	
¾	107	
½	110	
¼	115	

Noise at lower levels (sound pressure) is quite acceptable and does not have any bad effect on human beings, but when it is abnormally high- it incurs some maleficent effects.

a. Mitigation measures

The off-site receptors are not significantly affected as noise generated by mines is insignificant but for some disturbances due to vehicle movement. The following measures have been envisaged to reduce the impact from the transportation of minerals:

- Periodical monitoring of noise will be done.

- Transportation vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.
- Noise generated by these Equipment shall be intermittent & does not cause much adverse impact.
- Proper maintenance of all equipment/machines will be carried out which help in reducing noise level during operations.
- In addition, truck drivers will be instructed to make minimum use of horns in the village area and sensitive zones.

4.5 BIOLOGICAL ENVIRONMENT

Impact on Ecology of the Area

Excessive and unscientific Riverbed sand mining causes the degradation of rivers. Mining which leads to the removal of channel substrate, re-suspension of streambed sediment, clearance of vegetation, and stockpiling on the streambed, will have ecological impacts. These impacts may have an effect on the direct loss of stream reserve habitat, disturbances of species attached to streambed deposits, reduced light penetration, reduced primary production, and reduced feeding opportunities.

Riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures

As the present mining will be done in a scientific manner as mentioned before, not much significant impact in predicted, however, the following mitigation measure will be taken to further minimize it.

- Re-suspension, turbulence, stream flow, channel substrate and associated species will be disturbed and lost due to proposed mining will disturbed existing pattern but in respect to river area is very minimum / less. The activity will mainly be carried out By semi-Mechanized to minimize associate

loss, as stated earlier that the settling pit will be created to minimize the adverse impact downstream.

- No mining will be done near to important structure like bridges, dam and others.
- No mining will be carried out during the rainy season to minimize impact on aquatic life.
- As the mining site has no vegetation, thus clearance of vegetation not required.
- The mining activity will employ many heavy vehicles to transport the sand outside the mine to desired destination that cause the loss to riparian habitat. Safe site / site having less impact will be selected for transportation, all the vehicles will be employed for transportation purpose will be PUC certified. On closure/during the rainy season the eroded bank will be restored/ reclaimed to minimize negative impacts.

Flora and Fauna of Riparian Habitat

If sand mining is done in an unscientific way, i.e. beyond the replenishment capacity, riverbed mining can have adverse effects at the mine sites. The fertile streamside land will be lost gradually and the wildlife in the riparian areas may start vanishing. Degraded stream habitats will result in loss of fisheries productivity, biodiversity, and recreational potential. Thus the severely degraded channels may lower the aesthetic value too.

Anthropogenic activities that artificially lower stream bed elevation cause bed instabilities that result in a net release of sediment in the local vicinity. Unstable sediments simplify and, therefore, degrade stream habitats for many aquatic species.

The most important effects of excessive and unscientific Riverbed sand mining on aquatic habitats are bed degradation and sedimentation, which can have substantial negative effects on aquatic life. The stability of sand-bed streams depends on a delicate balance between stream flow, sediment supplied from the watershed, and channel form. Mining-induced changes in sediment supply and channel form disrupt channel and habitat development processes. Furthermore, movement of unstable substrates results in downstream sedimentation of habitats. The affected distance depends on the intensity of mining, particles sizes, stream flows, and channel morphology. Channel widening causes swallowing of the streambed, producing braided flow or subsurface intergrades flow in riffle areas, hindering movement of fishes between pools. Channel reaches become more uniformly shallow as deep pools fill

with gravel and other sediments, reducing habitat complexity, riffle-pool structure, and numbers of large predatory fishes.

All such impacts can be reduced by following scientific mining practices and mitigation measures as restricted.

Mitigation measures

Sand extraction operations will be managed to avoid or minimize damage to stream/river banks and riparian habitats

- Sand extraction in vegetated riparian areas will be avoided.
- Large woody debris in the riparian zone will be left undisturbed or replaced when moved and not be burnt.
- Sand stockpiles, overburden and/or vegetative debris will not be stored within the riparian zone.
- It is essential that overburden is evenly redistributed over exposed areas as soon as possible after the operation has been completed for faster vegetation.
- Operation and storage of heavy equipment within riparian habitat will be restricted.
- Access roads will not encroach into the riparian zones

No exotic species will be introduced by the RBM project activity & associated persons at all.

As the mining will not be done beyond the stipulated limit, so the chances of river mouth widening, bank widening will be negligible. Thus, mining in a scientific and systematic way will reduce such impending effects.

4.6 SOCIO-ECONOMIC ENVIRONMENT

Impact on Human Settlement

- The villages & their inhabitants in the buffer zone will not be disturbed from their settlement due to mining operations.
- There is no inhabitation with in the area. Therefore, neither villagers nor any part of village or any hamlet will be disturbed during entire life of mining. As the mining operations will not disturb or relocate any village or settlement, no adverse impact is anticipated on any human.

Impact on Employment

- The area is considered as industrially backward. The preparation on general do not have opportunities of easing from employment. The only employment is depend on is agriculture,

which is seasonal. In the absence of any high employment potential activities, the people are economically backward. The local people shall be employed for mining activities.

- The various indirect employment opportunities have also been generated. Several persons of neighboring villages would be benefited with contract work, employment through contractors, running on jeeps, trucks, tractors & buses on hire, different bird of shops & transport related business avenues.

Impact on Economic Status

- Some people shall be edged in trading of Sand. Therefore, due to mining of Sand, the per capita income of local people shall be improved. The local people shall be provided with either direct employments or indirect employment such as business, contract works & development work like roads etc. & other welfare amenities such as medical facilities conveyance, free education, and drinking water supply.
- The job/business opportunities shall improve the economic condition of the persons. They are in a position to utilize this money for propose of tractors, trucks, jeeps, etc., which may be put into use for business purpose. Part of the money shall also be utilized in starting of some business as per person's skill.

4.7 TRAFFIC ANALYSIS

Traffic analysis is carried out by understanding the existing carrying capacity of the roads near to the project site and the connecting main roads in the area. Then depending on the capacity of the mine, the number of trucks that will be added to the present scenario will be compared to the carrying capacity.

Traffic Analysis for Mohana River – Block 47 Sand Mining Ghat

Table 4.3 (i): Existing No. of Day count Vehicles (Inventory)

S.No.	Traffic Vehicle	No. of vehicles per day count Village Road	No. of vehicles per day count SH-70	Factor	Equivalent Passenger Car Unit Village Road	Equivalent Passenger Car Unit SH-70
1.	H.M.V	40	185	3	120	555
2.	L.M.V	72	82	1	72	82
3.	Two/ three wheelers	320	358	0.5	160	179

4.	Others	0	0	-	0	0
	Total	**432**	**525**		**352**	**816**

Table 4.3 (ii): Existing Traffic Scenario & LOS

Road	V	C	Existing V/C Ratio	LOS
Village Road	352	2000	0.176	A
SH-70	816	15000	0.0544	A

V= Volume in PCU's/hrs. & C = Capacity in PCU's/ hrs.

The existing Level of Service is "A" i.e. Excellent for Village Road & "A" i.e. Excellent for SH-70.

Note: Capacity as per IRC: 64-1990 page no 11-12 for arterial road/ Highways

V/C	LOS	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

During mine operation

Total capacity of mine : 1441800 TPA

No. of working days : 250 days

Per day capacity of mine : 5768 Tonnes

Truck capacity : 20 Tonnes

No. of trucks deployed per day : 289 Trucks

No. of Trips/day to & fro : 578

Considering both loaded & empty trucks

Increase in PCU/day will be : 1734

Table 4.3 (iii): Additional per day load due to proposed mining operation (inventory)

S.No.	Traffic Vehicle	No. of vehicles per day count Village Road	No. of vehicles per day count SH-70	Factor	Equivalent Passenger Car Unit Village Road	Equivalent Passenger Car Unit SH-70
1.	H.M.V	40+289= 329	185+289= 474	3	987	1422
2.	L.M.V	72	82	1	72	82
3.	Two/ three wheelers	320	358	0.5	160	179

4.	Others	0	0	-	0	0
	Total	**721**	**914**		**1219**	**1683**

Table 4.3 (iv): Modified Traffic Scenario & LOS

Road	V	C	Modified V/C Ratio	LOS
Village Road	1219	2000	0.6095	C
SH-70	1683	15000	0.1122	A

Results

From the above analysis it can be seen that the V/C ratio will change from 0.176 to 0.6095 for Village Road with LOS changing from "A" to "C" & V/C ratio will change from 0.0544 to 0.1122 for SH-70 with LOS remaining the same i.e. "A". Excellent respectively, so the additional load on the carrying capacity will be affected to a minimum level.



Figure-4.3 Transportation Route Map of the Study Area

4.8 PUBLIC HEALTH IMPLICATIONS

With the mitigation measures in relation to air pollution, water pollution, soil contamination and noise pollution proposed to be adopted, with green belt plantation which will be done at place which authorized by Local Authority, it is expected that there will be no impact of mining on the population in the impact zone. However, the following measures shall be adopted:

- Health check of all villagers in the immediate vicinity of the mine shall be carried out periodically.
- Surface water management shall be adopted to ensure that run-off from the mining are does not adversely affect natural water streams or other water bodies.
- All water bodies e.g. wells and surface water sources in the vicinity of the mine, shall be periodically tested for any pollution related to mining operations and remedial action taken, if warranted.
- Operators of all transport vehicles shall be instructed not to honk unnecessarily and not over speed while passing through villages or near schools

4.9 STATUATORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The Department therefore pursues approaches towards coordination and integration where possible, which has led to coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other Acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of include *inter alia*, the following:

- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- Bihar Minor Mineral Concession Rule, 2014

- The Water (Prevention and Control of Pollution) Act, 1974
- The Air (Prevention and Control of Pollution) Act, 1981
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980
- The Wildlife (Protection) Act, 1972

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CHAPTER – V

ANALYSIS OF ALTERNATIVES TECHNOLOGY AND SITE

CHAPTER-V

ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

INDEX

S. No.	CONTENTS	Page No.
5.0	**General**	118/V

5.0 GENERAL

Examination of alternatives of technology and Site are an utmost important part for assuring that the project has long term sustainability, especially large projects, which involves a lot of money, manpower & their safety and nature, value of minerals & environmental hazards. River bank mining is a very simple operation needing extraction of sand from river bank which does not need much mechanization or drilling and blasting.

Sand bed mining is a site-specific project depending upon the geological set up and mineable portion of the river. Being inside the river meandering course, no objects of economic or ecological importance are disturbed. The area allotted is with abundant mineral reserve and hence auctioned by the state. Hence, there is not much scope for site alternative.

For the mining operation, which is semi mechanized in nature, no alternative technology has been adopted. As this leads to high employment potential of local habitants. Thus it will have more acceptability and help in socio economic upliftment of the area.

Therefore, the opencast semi-mechanized extraction of sand at the selected site is adopted.

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CHAPTER – VI

ENVIRONMENT MONITORING PROGRAMME

CHAPTER-VI

ENVIRONMENTAL MONITORING PROGRAMME

INDEX

S.No	CONTENTS	Page No.
6.0	INTRODUCTION	120/VI
6.1	ENVIRONMENTAL MONITORING AND REPORTING PROCEDURE	121/VI
6.2	MONITORING METHODOLOGIES AND PARAMETERS	122/VI
6.3	MONITORING SCHEDULE	124/VI
6.4	MONITORING SCHEDULE- IMPLEMENTATION	124/VI
6.5	BUDGET ALLOCATION FOR MONITORING	125/VI
6.6	REPORTING SCHEDULE OF THE MONITORING DATA	126/VI

6.0 INTRODUCTION

The industrial development of any area needs to be intertwined with judicious utilization of non-renewable resources of the study area and within the limits of permissible assimilative capacity. The assimilative capacity of the study area is the maximum amount of pollution load that can be discharged into the environment without affecting the designated use and is governed by dilution, dispersion and removal due to physico-chemical and biological processes.

Regular monitoring of the various environmental parameters is necessary to evaluate the effectiveness of the management programme so that the necessary corrective measures can be taken in case there are some drawbacks in the proposed programme. Since environmental quality parameters at work zone and surrounding areas are important for maintaining sound operating practices of the project in conformity with environmental regulations, the post project monitoring work forms part of Environmental Monitoring Program.

Environmental Monitoring Program will be implemented once the project activity commences. Environmental monitoring program includes

(i) Environmental surveillance,
(ii) Analysis & interpretation of data,
(iii) Preparation of reports to support environmental management system and
(iv) Organizational set up responsible for the implementation of the programme.

The Environment Monitoring Programme is required to ensure sustainable development in the study area (10 km) of the project site, hence it needs to be an all-encompassing plan for which the plant authorities, Government, Regulating agencies like Pollution Control Board etc. working in the region and more importantly the affected population of the study area need to extend their co-operation and contribution.

6.1 ENVIRONMENTAL MONITORING AND REPORTING PROCEDURE

Monitoring shall confirm that commitments are being met. This may take the form of direct measurement and recording of quantitative information, such as amounts and concentrations of discharges and wastes, for measurement against corporate or statutory standards, consent limits or targets. It may also require measurement of ambient environmental quality in the vicinity of a site using ecological/biological, physical and chemical indicators. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints. The preventive approach to environment management may also require monitoring of process inputs, for example, type and method used, resource consumption, equipment and pollution control performance etc.

The key aims of environment monitoring are:

1. To ensure that results /conditions are as forecast during the planning stage, and where they are not, to pinpoint the cause and implement action to remedy the situation.
2. To verify the evaluations made during the planning process, in particular with risk and impact assessments and standard & target setting and to measure operational and process efficiency.
3. Monitoring will also be required to meet compliance with statutory and corporate requirements.
4. Finally, monitoring results provide the basis for auditing i.e. to identify unexpected changes.

The said team will be responsible for:

i. Collecting water and air samples from surrounding area and work zone monitoring for pollutants.
ii. Analyzing the water and air samples.
iii. Implementing the control and protective measures.
iv. Co-coordinating the environment related activities within the project as well as with outside agencies.
v. Collecting statistics of health of workers and population of surrounding villages.
vi. Monitoring the progress of implementation of environmental management program.

The laboratory will be suitably equipped for sampling/testing for various environmental pollutants.

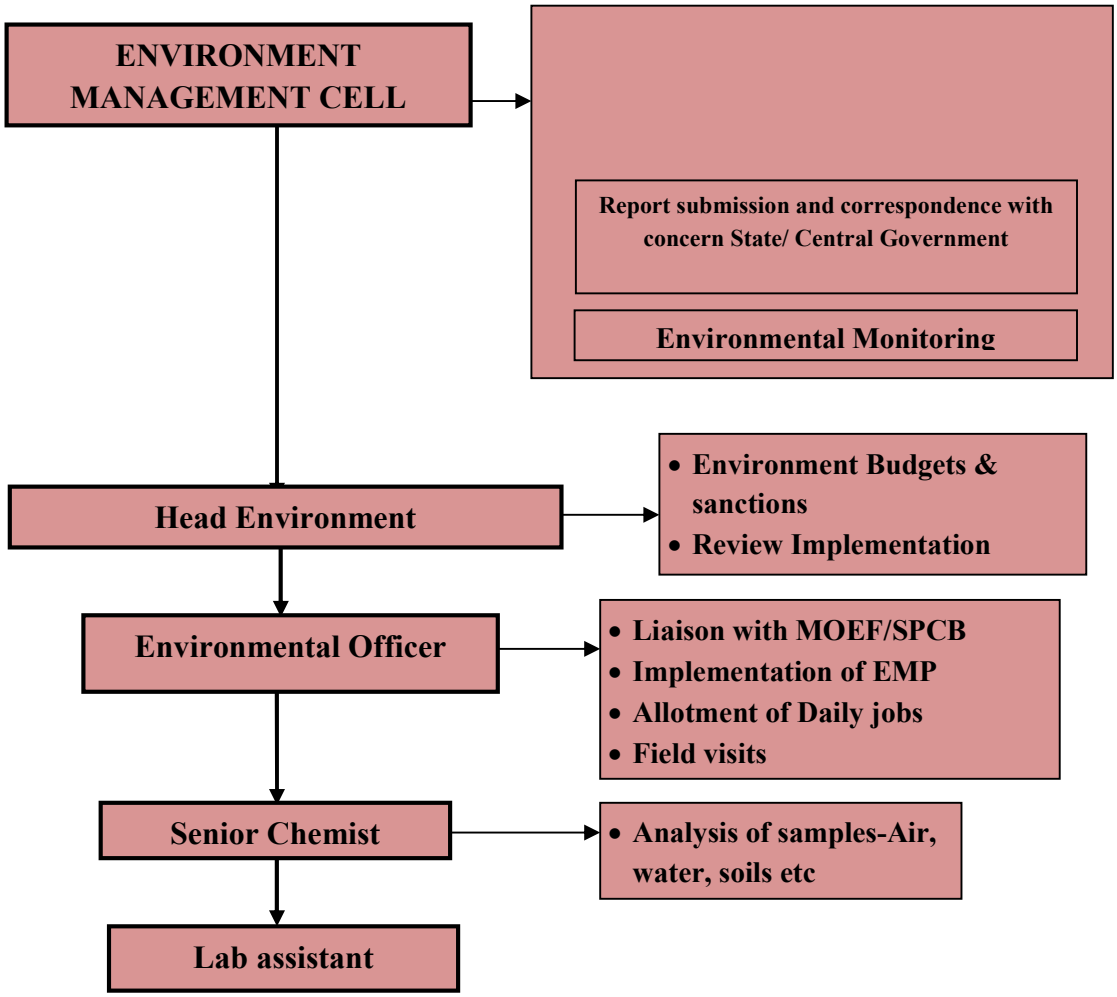


Fig. 6.1 Function of Environmental Management Cell

6.2 MONITORING METHODOLOGIES AND PARAMETERS

Air Quality Monitoring

Air Quality monitoring is essential for evaluation of the effectiveness of abatement programme and to develop appropriate control measures. Suspended Particulate Matter (PM_{10} & $PM_{2.5}$), Sulphur Dioxide (SO_2) and Nitrogen Dioxide (NO_2) will be monitored at the workplace i.e. core zone. The methodology proposed for is shown below:

Parameters	Technique	Technical Protocol
$PM_{2.5}$	Gravimetric method	**CPCB Guideline Vol. I May' 2011**
PM_{10}	Gravimetric method	**IS 5182 (Part-XXIII)**
Sulphur Dioxide	Improved West and Gaeke	**IS-5182 (Part-II)**
Nitrogen Dioxide	Modified Jacob &Hoch heiser	**IS-5182 (Part-VI)**

Water Quality monitoring

Water quality monitoring involves periodical assessment of quality of surface water and the ground water near the mining project. Surface water samples will be analyzed for all the parameters as per EPA, 1986 ground water samples will be analyzed for all the parameters as per IS-10500.

Phreatic surface levels will be monitored through out the life of the project to study the impact of mining operations on ground water regime. A network of observation wells will be located in the villages around the projects area for monitoring of phreatic surface levels. The water levels will be monitored during pre-monsoon and post-monsoon seasons four times in a year.

Noise Level Monitoring

Noise level monitoring will be done for achieving the following objectives:

a) To compare sound levels with the values specified in noise regulations
b) To determine the need and extent of noises control of various noise generating sources
c) Correlation of noise levels with community response to noise levels

Noise level monitoring will be done at the work zone to assess the occupational noise exposure levels. Noise levels will also be monitored at the noise generating sources like mineral handling arrangements, vehicle movements and also nearby villages for studying the impact due to higher noise levels for taking necessary control measures at the source.

Soil Quality Monitoring

The soil quality monitoring is carried out to assess the soil characteristic. The soil quality will be analysed as per CPCB norms.

Socio-economic Survey

Socio economic condition will be monitored to assess the demographic particulars of the area including the impacts on the social & economical condition on the residents nearby.

Plantation monitoring programme

Plantation monitoring will be done to ensure survival & growth rate of plantations.

6.3 MONITORING SCHEDULE

The schedule has been shown below for the parameters proposed for monitoring.

Table 6.1: Monitoring Schedule and Parameters

S.No.	Description of Parameters	Schedule of Monitoring
1	Air Quality	24 hourly samples twice a week in each season except monsoon
2	Water Quality (Surface & Groundwater)	Twice a year
3	Soil Quality	Once in a year in project area
4	Noise Level	Twice a year for first two years & then once a year
5	Socio-economic Condition	Once in 3 years
6	Plantation monitoring	Once in a season

6.4 MONITORING SCHEDULE IMPLEMENTATION

An implementation programme has been prepared as it serves no purpose if it is not implemented in letter and spirit. The major attributes of environment are not confined to the mining site alone. Implementation of proposed control measures and monitoring programme has an implication on the surrounding area as well as for the region. Therefore, mine management should strengthen the existing control measures as elaborated earlier in this report and monitor the efficacy of the control measures implemented within the mining area relating to the following specific areas:

a) Collection of air and water samples at strategic locations with frequency suggested and by analyzing thereof. If the parameters exceed the permissible tolerance limits, corrective regulation measure will be taken.

b) Collection of soil samples at strategic locations once every two years and analysis thereof with regard to deleterious constituents, if any.

c) Measurement of water level fluctuations in the nearby ponds dug wells and bore wells and to assess if mining has got any impact on it or not.

d) Measurement of noise levels at mine site, stationary and mobile sources, and adjacent villages will be done twice a year for first two years and thereafter once a year.

e) Post plantation, the area will be regularly monitored in every season for evaluation of success rate. For selection of plant species local people should also be involved.

An Environmental Management Cell (EMC) is envisaged which will be responsible for monitoring EMP and its implementation. EMC members should meet periodically to assess the progress and analyze the data collected during the month.

6.5 BUDGET ALLOCATION FOR MONITORING

The EMC will be responsible to carry on the monitoring. Budget allocated has also been proposed for the same:

Table 6.2 Budget allotted for the Environmental Management Plan

S. No	Description	Annually Recurring Cost (INR)
1	Pollution Monitoring i) Air pollution ii) Water pollution iii)Soil iv) Noise Pollution	1,00,000*2 (Twice in a year) = 2,00,000 (Air- 40,000/-, Water – 20,000 Soil – 20,000, Noise – 20,000)
TOTAL		**2,00,000/-**

6.6 REPORTING SCHEDULES OF THE MONITORING DATA

It is proposed that voluntary reporting of environmental performance with reference to the EMP should be undertaken. The environmental monitoring cell shall co-ordinate all monitoring programmes at site to furnish the data to the State regulatory agencies regularly in respect of the stipulated prior environmental clearance terms and conditions.

The proponent shall prominently advertise in the newspapers indicating that the project has been accorded environmental clearance and also the details of website where it is displayed.

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CHAPTER – VII
ADDITIONAL STUDIES

CHAPTER-VII

ADDITIONAL STUDIES

INDEX

S. No.	CONTENTS	Page No.
7.0	PUBLIC CONSULTATION	128/VII
7.1	HAZARD IDENTIFICATION AND RISK ASSESSMENT METHOLODOGY	140/VII
7.2	POTENTIAL HAZARDS & 'ALARP' CONDITION	144/VII
7.3	RISK PRIORITISATION BASED ON HAZARDS	145/VII
7.4	OCCUPATIONAL HEALTH HAZARD	147/VII
7.5	ADDITIONAL MITIGATION MAJORS TO BRING HAZARDS UNDER "ALARP" ZONE	148/VII
7.6	DISASTER MANAGEMENT PLAN	150/VII
7.7	NATURAL RESOURCE CONSERVATION	153/VII

7.0 PUBLIC CONSULTATION

As per EIA notification dated 14th September, 2006 (amended thereof), the committee has suggested various Terms of References (TOR) for the preparation of the Environmental Impact Assessment (EIA) Report and Environmental Management Plan (EMP), File No. SIA/BR/MIN/425052/2023 Dated 05.08.2023. The following additional studies is to be carried out as per Terms of References.

1. Public hearing
2. Risk Assessment
3. Disaster Management Plan

Public Hearing

Public hearing was successfully executed on 05.08.2023 at 11.45 PM, as per the guidelines given in EIA notification 14th September 2006 and its subsequent amendment.

Public hearing was conducted in the presence of Shri Anjani Kumar Additional District Magistrate, Gaya at Tehsil/Anchal Office Bodh Gaya, District- Gaya. It was arranged by the Regional Office of Bihar State Pollution Control Board-Patna (BSPCB). In public hearing local people had participated & put forward their issues & concerns related to the environmental impacts of the project. Proper video recording was done during the public hearing.

Table 7.1 Public Hearing Details

Particular	**Description**
Advertisement For Public Hearing • Date of Advertisement in Newspapers • Name Of Newspaper	 04/07/2023 Dainik Samachar Times of India & Hindustan Times
Date of Public Hearing	**05/08/2023 at 11.45 PM**
Venue	Tehsil Office, Bodh Gaya, District– Gaya

Public hearing proceedings are shown below:

(स्पीड पोस्ट)

बिहार राज्य प्रदूषण नियंत्रण पर्षद्

परिवेश भवन, एन.एस–बी/2, पाटलीपुत्र, औद्योगिक क्षेत्र,
पो0–सदाकत आश्रम, पटना–800010

पत्रांकः पटना, दिनांकः

प्रेषक,

एस0 चन्द्रशेखर,भा0व0से0
सदस्य–सचिव

सेवा में,

सदस्य सचिव,
राज्य पर्यावरण समाघात निर्धारण प्राधिकरण,
बेल्ट्रोन भवन, शास्त्री नगर,
पटना–800023.

विषयः **मेसर्स मॉ दुर्गा फ्यूल स्टेशन, प्रस्तावकः श्री अखिलेश कुमार, पताः गॉव पथरा इंग्लिश, पी.ओ. ओढ़नपुर, पी.एस. नवादा, जिला–नवादा (गया मोहाना नदी बालू घाटः 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावॉ, केनारी, अंचल–बोधगया, जिला–गया) में स्थित बालू घाट से बालू उत्खनन कार्य हेतु सम्पन्न लोक सुनवाई के संबंध में।**

महाशय,

उपरोक्त विषयक के प्रसंग में सूचित करना है कि पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के अधिसूचना सं0–S.O. 1533, दिनांक 14 सितम्बर, 2006 एवं यथा संशोधित के आलोक में मेसर्स मॉ दुर्गा फ्यूल स्टेशन, प्रस्तावकः श्री अखिलेश कुमार, पताः गॉव पथरा इंग्लिश, पी.ओ. ओढ़नपुर, पी. एस. नवादा, जिला–नवादा (गया मोहाना नदी बालू घाटः 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावॉ, केनारी, अंचल–बोधगया, जिला–गया) से बालू खनन हेतु प्राप्त आवेदन के आलोक में दिनांकः 05.08.2023 को सम्पन्न लोक सुनवाई का वृत, उपस्थिति पंजी एवं संबंधित सी0 डी0 की प्रति संलग्न कर अग्रेतर कार्रवाई हेतु भेजी जा रही है।

अनुलग्नकः यथोपरि।

विश्वासभाजन

ह0/–
(एस0 चन्द्रशेखर)
सदस्य–सचिव

pg. 1

ज्ञापांक :– पटना, दिनांक :–

प्रतिलिपिः– जिला पदाधिकारी, गया को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

अनुलग्नकः यथोपरि।

ह0/–
(एस0 चन्द्रशेखर)
सदस्य–सचिव

ज्ञापांक :– पटना, दिनांक :–

प्रतिलिपिः– मेसर्स मॉ दुर्गा फ्यूल स्टेशन, प्रस्तावकः श्री अखिलेश कुमार, पताः गॉव पथरा इंग्लिश, पी.ओ. ओढ़नपुर, पी.एस. नवादा, जिला–नवादा (गया मोहाना नदी बालू घाटः 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावॉ, केनारी, अंचल–बोधगया, जिला–गया) को सूचनार्थ प्रेषित।

अनुलग्नकः यथोपरि।

ह0/–
(एस0 चन्द्रशेखर)
सदस्य–सचिव

ज्ञापांक :– 266 पटना, दिनांक :– 30-01-24

प्रतिलिपिः–श्री नीरज कुमार, सहायक प्रोग्रामर, बि. रा. प्र. नि. पर्षद्, पटना को निदेश है कि दिनांकः 05.08.2023 को की गई लोक सुनवाई का वृत, उपस्थिति पंजी एवं संबंधित सी0 डी0 की प्रति पर्षद् के वेबसाईट पर डिसप्ले कराया जाय। दिनांकः 05.08.2023 को की गई लोक सुनवाई का वृत, उपस्थिति पंजी एवं संबंधित सी0 डी0 की प्रति संलग्न की जा रही है।

अनुलग्नकः यथोपरि।

29/1/24
(एस0 चन्द्रशेखर)
सदस्य–सचिव

लोक सुनवाई का वृत।

मेसर्स मॉ दुर्गा फ्यूल स्टेशन, प्रस्तावकः श्री अखिलेश कुमार, पताः गॉव पथरा इंग्लिश, पी.ओ. ओढ़नपुर, पी.एस. नवादा, जिला–नवादा द्वारा गया मोहाना नदी बालू घाटः 01, 02 एवं 03, ग्राम्–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावॉ, केनारी, अंचल–बोधगया, जिला–गया अन्तर्गत परियोजना से संबंधित पर्यावरणीय स्वीकृति के वास्ते अधिसूचना सं0–एस.ओ.1533, दिनांक 14 सितम्बर, 2006 के तहत् दिनांक 05.08.2023 को पूर्वाह्न 11:45 बजे अंचल कार्यालय, बोधगया, जिला–गया के प्रागंण में लोक सुनवाई की गयी।

यह लोक सुनवाई पर्यावरण प्रभाव मूल्यांकन अधिसूचना सं0–एस.ओ.1533, दिनांक 14 सिम्बर 2006 एवं यथा संशोधित के तहत् पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के द्वारा निर्गत TOR File. No. SIA/BR/MIN/425052/2023, dated 25.04.2023 के आलोक में श्री अंजनी कुमार, अपर समाहर्ता, गया (जिला पदाधिकारी, गया के प्रतिनिधि) की अध्यक्षता में बिहार राज्य प्रदूषण नियंत्रण पर्षद् द्वारा दिनांक 05.08.2023 को पूर्वाह्न 11:45 बजे अंचल कार्यालय, बोधगया, जिला–गया में लोक–सुनवाई आयोजित की गयी। उपस्थिति पंजी संलग्न (अनुलग्नक–1)

इस लोक–सुनवाई की सूचना बिहार राज्य प्रदूषण नियंत्रण पर्षद् द्वारा दैनिक समाचार पत्रों यथा दैनिक जागरण एवं हिन्दुस्तान के माध्यम से दिनांक 04.07.2023 को प्रकाशित की गयी थी (प्रतिलिपि संलग्न)। लोक–सुनवाई के दौरान श्री मनोरंजन कुमार सिंह, क्षेत्रीय पदाधिकारी, बिहार राज्य प्रदूषण नियंत्रण पर्षद्, गया द्वारा लोक–सुनवाई में उपस्थित जन–समुदाय एवं सभी संबंधित पदाधिकारियों का स्वागत करते हुए पर्यावरण, वन एवं जलवायु परिवर्त्तन मंत्रालय, भारत सरकार द्वारा अधिसूचित पर्यावरण प्रभाव मूल्यांकन अधिसूचना सं0–एस.ओ.1533, दिनांक 14 सिम्बर 2006 एवं यथा संशोधित के तहत् इकाई के पर्यावरणीय स्वीकृति हेतु लोक–सुनवाई की पृष्ठ–भूमि पर प्रकाश डाला गया।

क्षेत्रीय पदाधिकारी द्वारा गया मोहाना नदी बालू घाटः 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावॉ, केनारी, अंचल–बोधगया, जिला–गया के लेसी को मंच पर आकर अपना परिचय देने के लिए कहा गया। तद्नुसार लेसी या उनके प्रतिनिधि द्वारा अपना परिचय लोक सुनवाई में उपस्थित सभी महानुभावों को दिया गया।

अपर समाहर्ता महोदय द्वारा लोक हित में कार्य योजना से संबंधित सुनवाई के उदेश्य से उपस्थित लोगों को अवगत कराया गया। साथ ही स्थानीय लोगों से पर्यावरण संरक्षण एवं लोक हित के संबंध में सुझाव मॉगा गया।

लोक सुनवाई कार्यक्रम के अध्यक्ष के अनुमति से परियोजना के पर्यावरणीय सलाहकार श्री अंकुर कुमार ने इकाई की खनन कार्य परियोजना, प्रदूषण नियंत्रण व्यवस्था एवं कॉरपोरेट की सामाजिक जिम्मेदारी (Corporate Social Responsibility) आदि के संबंध में आमजनों को विस्तृत रूप से अवगत कराया। इनके द्वारा सूचित किया गया कि खनन कार्य के उपरान्त परिवहन के दौरान उत्सर्जित होने वाले धूल–कण की रोक–थाम हेतु सड़को पर नियमति रूप से जल छिड़काव किया जायेगा साथ ही वाहनों पर ओवरलोडिंग नही की जायेगी एवं वाहनों को तिरपाल से ढ़क कर ले जाया जायेगा। खनन कार्य सतह से 3 मीटर की गहराई तक या भूजल स्तर से ऊपर तक किया जायेगा। ध्वनी प्रदूषण को नियंत्रित करने हेतु ध्वनी यंत्र (हार्न) का न्यूनतम उपयोग किया जायेगा। पुराने एवं खराब वाहनों का इस्तेमाल नहीं किया जायेगा। सड़क के किनारे एवं खनन पट्टा क्षेत्र में वृक्षारोपण का कार्य किया जायेगा। परियोजना प्रस्तुततिकरण के पश्चात् उपस्थित महानुभावों द्वारा दिए गए सुझाव/मंतव्य निम्नवतः हैः–

कमांक	नाम एवं पता	प्रतिकिया/सुझाव
1.	श्री रजनीश पासवान, मोराटाल, अंचल–बोध गया, जिला–गया	इनके द्वारा बालू परिवहन से होने वाले धूलकश उत्सर्जन की समस्या के समाधान के बारे में पूछा गया। इस संबंध में परियोजना प्रस्तावक के पर्यावरणीय सलाहाकार द्वारा बतलाया गया कि बालू परिवहन के दौरान वाहनों को तिरपाल से ढक कर ले जाया जायेगा एवं रास्ते पर पानी का छिड़काव किया जायेगा एवं पर्याप्त मात्रा में वृक्षारोपण किया जायेगा।। इस प्रकार श्री रजनीश पासवान को अपना जवाब प्रस्तुत कर संतुष्ट किया।
2.	विशाल कुमार, ग्राम–छाछ, अंचल–बोध गया, जिला–गया	इनके द्वारा खनन होने के दौरान गढ्ढा होने की समस्या एवं वृक्षारोपण से संबंधित प्रश्न पूछा गया।

		पर्यावरणीय सलाहाकार के द्वारा यह बतलाया गया कि खनन का कार्य 3 मीटर की गहराई से अधिक नहीं होगी एवं सड़क के किनारे एवं खनन पट्टा क्षेत्र में वृक्षारोपण का कार्य किया जायेगा। इस प्रकार श्री विशाल कुमार को अपना जवाब प्रस्तुत कर संतुष्ट किया गया।
3.	श्री बृजेश कुमार, ग्राम–छाछ, अंचल–बोधगया, जिला–गया	इनके द्वारा घाट के नजदीक धर्मण्यवेदी मंदिर, जो पौराणिक है एवं प्रतिदिन श्रधालु इस मंदिर स्थल पर पूजा–पाठ करने आते है। अतः इस घाट पर खनन होने से मंदिर के अस्तित्व पर खतरे से संबंधित प्रश्न पूछा गया। प्रस्तावक के पर्यावरणीय सलाहाकार द्वारा बताया गया कि खनन विभाग के निर्धारित माप–दंडो के अनुरूप ही बालू खनन का कार्य किया जायेगा। इस प्रकार अपना जवाब प्रस्तुत कर संतुष्ट किया।
4.	श्री हिरालाल, पिता–रूपलाल यादव, ग्राम–मोराटाल, अंचल–बोधगया, जिला–गया	इनके द्वारा पूर्व में खनन के दौरान काफी गढ्ढा हो गया है, जिसे आजतक भरा नहीं गया है। नदी के किनारे मेरे गांव के मवेशी पानी पीने के लिए नदी में उतरते है तो डूबने की संभावना बनी रहती है। स्थानीय गांव के लोगो को नदी के उस पार जाने का नदी के बीच से ही सुगम रास्ता है। अतः इस खनन प्रस्ताव को रोका जाए। प्रस्तावक के पर्यावरणीय सलाहाकार द्वारा बताया गया कि इन्ही सब समस्याओं को देखते हुए राज्य सरकार के द्वारा नदी पर दो पुल का निर्माण किया गया है। ग्रामीणों को इन्ही पुलों के रास्ते से आना–जाना चाहिए। इस प्रकार अपना जवाब प्रस्तुत कर संतुष्ट किया।

5.	श्री. युरा प्रसाद, ग्राम–छाछ मोराटाल, अंचल–बोध गया, जिला–गया	इनके द्वारा क्रमांक 04 पर श्री हिरालाल के द्वारा पूछे गये प्रश्न को ही दोहराया गया कि पूर्व में खनन के दौरान काफी गढ्ढा हो गया है, जिसे आजतक भरा नहीं गया है। नदी के किनारे मेरे गांव के मवेशि पानी पीने के लिए नदी में उतरते है तो डूबने की संभावना बनी रहती है। खुदाई के दौरान गढ्ढा होने के कारण डूबने की सूचना दी गयी। स्थानीय गांव के लोगो को नदी के उस पार जाने का नदी के बीच से ही सुगम रास्ता है। अतः इस खनन प्रस्ताव को रोका जाए। प्रस्तावक के पर्यावरणीय सलाहाकार द्वारा बताया गया कि इन्ही सब समस्याओं को देखते हुए राज्य सरकार के द्वारा नदी पर दो पुल का निर्माण किया गया है। ग्रामीणों को इन्ही पुलों के रास्ते से आना–जाना चाहिए। इस प्रकार अपना जवाब प्रस्तूत कर संतुष्ट किया।
6.	श्री शंकर यादव, पूर्व मुखिया, मोराटाल अंचल–बोध गया, जिला–गया	इनके द्वारा बतलाया गया कि जो शिकायत पत्र सरकार के संबंधित विभागों में भेजी गयी है, जिसमें मेरा भी नाम अंकित कर दिया गया है, जो निराधार है। मैं इस बालू खनन परियोजना को चालु करने के समर्थन में हूँ। ताकि स्थानीय स्तर पर अवैध बालू खनन की समस्या से सरकार को हो रही राजस्व की हानि को रोका जा सके।
7.	श्री विकाश विश्वकर्मा, ग्राम–केनारी, अंचल–बोध गया, जिला–गया	इनके द्वारा सूझाव दिया गया कि बालू खनन का कार्य शीघ्र चालु किया जाए।
8.	विकाश कुमार, ग्राम–मोराटाल, अंचल–बोध गया, जिला–गया	इनके द्वारा बतलाया गया कि राज्य सरकार द्वारा इस घाट पर खनन का कार्य कराये जाने से कोई समस्या नहीं है। इस खनन

4

		कार्य चालु होने से स्थानीय लोगों को रोजगार मिलने की संभावना रहेगी।

१ अध्यक्ष द्वारा उपस्थित सभी आम–जनों से इस खनन परियोजना के पक्ष एवं विपक्ष में अपनी सहमति दर्ज कराने हेतु हाथ उठाकर मत देनें का अनुरोध किया गया। जिस क्रम में बालू खनन के प्रस्ताव को स्वीकृत करने के पक्ष में लगभग 80 प्रतिशत मत प्राप्त हुआ।

उपरोक्त बिंदुओं पर गंभीरतापूर्वक विचार करते हुए अध्यक्ष द्वारा निदेशित किया गया कि वाहनों से बालू ले जाने के कम में नियमित रूप से परिवहन मार्ग पर जल छिड़काव करेगें एवं बालू से लदे वाहनों को तिरपाल से ढ़क कर ही ले जायेगें। बालू की खुदाई 3 मीटर ही करेगें। उन्होने उम्मीद जताया कि इकाई ,प्रबंधन द्वारा इन उपरोक्त बिन्दुओं पर गम्भीरता से ध्यान रखा जायेगा। साथ ही वैज्ञानिक तरीके से बालू खनन का कार्य एवं विभागीय निर्देश का अनुपालन किया जायेगा।

जन–सुनवाई के अतं में उपस्थित जनता के सुझाव को संग्रहित करते हुए सर्वसम्मति से बालू घाट के खनन परियोजना को प्रारंभ करने के लिए सक्षम प्राधिकार को अनुशंसा करने का निर्णय लिया गया। तत्पश्चात् लोक सुनवाई की कार्यवाई सधन्यवाद समाप्त करने की घोषणा की गयी।

24.1.24

क्षेत्रीय पदाधिकारी
बि.रा.प्र.नि.पर्षद्, गया

अपर समाहर्त्ता
गया

उपस्थिति सूची

मेसर्स माँ दुर्गा फ्यूल स्टेशन, प्रस्तावकः श्री अखिलेश कुमार, पताः गाँव पथरा इंग्लिश, पी.ओ. ओढ़नपुर, पी.एस. नवादा, जिला–नवादा द्वारा गया मोहाना नदी बालू घाटः 01, 02, एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावों, केनारी, अंचल–बोधगया, जिला–गया में प्रस्तावित बालू खनन परियोजना हेतु पर्यावरणीय स्वीकृति दिनांकः 05.08.2023 को 11:00 बजे पूर्वाह्न में अंचल कार्यालय बोधगया, जिला–गया में आयोजित लोक सुनवाई के दौरान उपस्थित महानुभावों की सूचीः

क्र०सं0	नाम	पता	हस्ताक्षर
1.	संजीत कुमार	अपर धारदारी	5.8.23
2.	मनोरंजन कुमार सिंह	प्रखंड पदाधिकारी	
3.	Sumit kumar	Revenue Officer bodhgaya	05/08/23
4.	Amit kumar	M-I GAYA.	05/08/
5.	Kunal Ranjan	BDO Bodhgaya	05/08/23
6.	अभिजीत शर्मा 9473325705	ग्राम विशेषज्ञ, गया	
7.	निनीश भारद्वाज	ग्राम - गुरियावों, गया	Ninish
8.	अखिलेश सिंह 7004632716	राजा पुर बोधगया	
9.	[illegible] 9234865323	[illegible]	
10.	कपिल कुमार 9934/1041566	हाँ है	
11.	विशाल कुमार 612450048	व्लॉट्स	
12.	Diamond kr	कनसपुर	Diamond k
13.	नवनारायण कुमार	हाँ है	
14.	Surendra kumar	Gurugawan	
15.	[illegible]	हाँ है	
16.	मनु कुमार	मोरातल	
17.	अरविन्द कुमार	मोरातल	
18.	[illegible]	हाँ है	
19.	मनोहर कुमार पिंटू	हाँ है	
21.	[illegible]	मोरातल	
22.	[illegible]	गुरियावा	
23.	[illegible]	मोरातल - हाँ है	
24.	Mathura Prasad	moratal, Chhanchh	
25.	Mulayam kumar	Moratal	Mulayam kumar
26.	Bachhan kumar	Ghoghariya	
27.	Vikash kumar	kenari	Vikash kumar
28.	Vikash Vishwakarma	Chach	
29.	ANIRUDH [illegible]	[illegible]	ANIRUDH
30.	Pappu kumar	Chach	Pappukumar
31.	Jhuma Kaur	Chach	
32.	[illegible]	गुरियावों	
33.	[illegible]	[illegible]	
34.	[illegible]	[illegible]	
35.	Ramashkumar	गुरियावों	
36.	Rahul kumar 9934376444	moratal	Rahul kumar
37.	Vivek kumar 8051515102	गुरियावों	Vivek kumar
38.	Munna kumar	हाँ है	
39.	[illegible]	[illegible]	
40.	[illegible]	हाँ है	
41.	[illegible]	[illegible]	
42.	Ankur Sharma Managing Director	Cognizance Research India Pvt Ltd. Consultant	5-8-23
43.	Harran kumar	Cognizance Research India Pvt Ltd	
44.	[illegible]	माँ दुर्गा फ्यूल स्टेशन (Mukhtar)	
45.			

बिहार सरकार

बिहार राज्य प्रदूषण नियंत्रण पर्षद्

ई–मेल- msbspcb-bih@gov.in, वेबसाईट-http://bspcb.bihar.gov.in

लोक–सुनवाई की सूचना

1. मेसर्स माँ दुर्गा फ्यूल स्टेशन, प्रस्तावक: श्री अखिलेश कुमार, पता: गाँव पथरा इण्डिया, पी.ओ. ओड़नपुर, पी.एस. नवादा, जिला–नवादा द्वारा गया मोहाना नदी बालू घाट: 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोघारिया, गुरियावाँ, केनारी, अंचल–बोधगया, जिला–गया, एवं
2. मेसर्स टुडेज फैशन, प्रस्तावक: मोहम्मद दाऊद खान पुत्र मोहम्मद साबिर खान, पता: महावीर मार्केट, ओल्ड कोर्ट रोड, जिला–नवादा द्वारा गया बुढ़ नदी बालू घाट: 01, 02 एवं 03, ग्राम–कुसाप, मताई, नेपा और कुसापी, अंचल–टेकारी, जिला–गया।

इस परियोजना के कार्यान्वयन के पूर्व पर्यावरणीय स्वीकृति हेतु राज्य पर्यावरण समाघात निर्धारण प्राधिकरण द्वारा TOR (Terms of Reference) निर्गत की गयी है तथा लोक–सुनवाई की जानी है। परियोजना का पर्यावरण प्रभाव मूल्यांकन प्रतिवेदन तैयार किया गया है। जिसमें संभावित कुप्रभावों को निरस्त करने के उपाय प्रस्तावित है। उक्त प्रतिवेदन तथा परियोजना के कार्यपालक सार की प्रति पर्षद् मुख्यालय, पटना, जिला पदाधिकारी, गया, कार्यपालक पदाधिकारी, जिला परिषद्, गया; महाप्रबंधक, जिला उद्योग केन्द्र, गया एवं जिला खनन कार्यालय, गया के कार्यालय में प्रभावित क्षेत्र के लोगों के अवलोकनार्थ उपलब्ध है। परियोजना की विवरणी का अवलोकन पर्षद् के वेबसाईट: http://bspcb.bihar.gov.in पर भी किया जा सकता है। वैसे व्यक्ति जो इस परियोजना से प्रभावित होने वाले हों, अपना लिखित सुझाव/विचार एवं मंतव्य इस सूचना प्रकाशन के 30 (तीस) दिनों के अन्दर पर्षद् कार्यालय में भी जमा कर सकते हैं। साथ ही पर्षद् के ई–मेल: msbspcb-bih@gov.in पर अथवा डाक के माध्यम से भी लिखित सुझाव/विचार एवं मंतव्य भेजी जा सकती है।

परियोजना प्रभाव क्षेत्र के नागरिकों के लिए लोक–सुनवाई निम्नानुसार आहूत किया गया है:–

क्रमांक	दिनांक	समय	अंचल का नाम	बालू घाट का भौजा	बालू घाट का नाम	लोक–सुनवाई का स्थल
1.	05.08.2023	पूर्वाह्न 11:00 बजे	बोधगया जिला–गया	गया जिला अन्तर्गत बतासपुर छांछ, मोरातल, घोघारिया गुरियावाँ, केनारी,	गया मोहाना 01, 02 एवं 03	अंचल कार्यालय, बोधगया, जिला–गया
2.	05.08.2023	अपराह्न 02:00 बजे	टेकारी जिला–गया	गया जिला अन्तर्गत कुसाप, मताई, नेपा और कुसापी	गया बुढ़ 01, 02 एवं 03	अंचल कार्यालय, टेकारी, जिला–गया

सभी आम लोगों/संबंधित से अनुरोध है कि उपरोक्त लोक–सुनवाई के दौरान सरकार द्वारा निर्गत कोविड–19 गाईड–लाईन का पालन करते हुए परियोजना के संबंध में अपने मंतव्य/सुझाव/विचार से अवगत करायेंगे।

PR- 004700(NI NI) 2023-24

नशेड़ी प्रताड़ना मुक्ती है, क्योंकि परिवार जरूरी है

सदस्य सचिव

पटना, 4 जुलाई, 2023 दैनिक जागरण 15

बिहार सरकार

बिहार राज्य प्रदूषण नियंत्रण पर्षद्

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लोक–सुनवाई की सूचना

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के ई.आई.ए. अधिसूचना संख्या एस.ओ.: 1533, दिनांक 14.09.2006 एवं यथा संशोधित अधिसूचनाओं के आलोक में राज्य पर्यावरण समाघात निर्धारण प्राधिकरण के समक्ष निम्नलिखित बालूघाटों का गया जिला में प्रस्तावित बालू खनन परियोजना हेतु पर्यावरणीय स्वीकृति का प्रस्ताव विचाराधीन है:–

1. मेसर्स माँ दुर्गा फ्यूल स्टेशन, प्रस्तावक: श्री अखिलेश कुमार, पता: गाँव पथरा इण्डिया, पी.ओ. ओड़नपुर, पी.एस. नवादा, जिला–नवादा द्वारा गया मोहाना नदी बालू घाट: 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोघारिया, गुरियावाँ, केनारी, अंचल–बोधगया, जिला–गया; एवं
2. मेसर्स टुडेज फैशन, प्रस्तावक: मोहम्मद दाऊद खान, पुत्र: मोहम्मद साबिर खान, पता: महावीर मार्केट, ओल्ड कोर्ट रोड, जिला–नवादा द्वारा गया बुढ़ नदी बालू घाट: 01, 02 एवं 03, ग्राम–कुसाप, मताई, नेपा और कुसापी, अंचल–टेकारी, जिला–गया।

इस परियोजना के कार्यान्वयन के पूर्व पर्यावरणीय स्वीकृति हेतु राज्य पर्यावरण समाघात निर्धारण प्राधिकरण द्वारा TOR (Terms of Reference) निर्गत की गयी है तथा लोक–सुनवाई की जानी है। परियोजना का पर्यावरण प्रभाव मूल्यांकन प्रतिवेदन तैयार किया गया है। जिसमें संभावित कुप्रभावों को निरस्त करने के उपाय प्रस्तावित है। उक्त प्रतिवेदन तथा परियोजना के कार्यपालक सार की प्रति पर्षद् मुख्यालय, पटना, जिला पदाधिकारी, गया, कार्यपालक पदाधिकारी, जिला परिषद्, गया; महाप्रबंधक, जिला उद्योग केन्द्र, गया एवं जिला खनन कार्यालय, गया के कार्यालय में प्रभावित क्षेत्र के लोगों के अवलोकनार्थ उपलब्ध है। परियोजना की विवरणी का अवलोकन पर्षद् के वेबसाईट: http://bspcb.bihar.gov.in पर भी किया जा सकता है। वैसे व्यक्ति जो इस परियोजना से प्रभावित होने वाले हों, अपना लिखित सुझाव/विचार एवं मंतव्य इस सूचना प्रकाशन के 30 (तीस) दिनों के अन्दर पर्षद् कार्यालय में भी जमा कर सकते हैं। साथ ही पर्षद् के ई–मेल: msbspcb-bih@gov.in पर अथवा डाक के माध्यम से भी लिखित सुझाव/विचार एवं मंतव्य भेजी जा सकती है।

परियोजना प्रभाव क्षेत्र के नागरिकों के लिए लोक–सुनवाई निम्नानुसार आहूत किया गया है:–

क्रमांक	दिनांक	समय	अंचल का नाम	बालू घाट का भौजा	बालू घाट का नाम	लोक–सुनवाई का स्थल
1.	05.08.2023	पूर्वाह्न 11:00 बजे	बोधगया जिला–गया	गया जिला अन्तर्गत बतासपुर छांछ, मोरातल, घोघारिया, गुरियावाँ, केनारी,	गया मोहाना 01, 02 एवं 03	अंचल कार्यालय, बोधगया, जिला–गया
2.	05.08.2023	अपराह्न 02:00 बजे	टेकारी जिला–गया	गया जिला अन्तर्गत कुसाप, मताई, नेपा और कुसापी	गया बुढ़ 01, 02 एवं 03	अंचल कार्यालय, टेकारी, जिला–गया

सभी आम लोगों/संबंधित से अनुरोध है कि उपरोक्त लोक–सुनवाई के दौरान सरकार द्वारा निर्गत कोविड–19 गाईड–लाईन का पालन करते हुए परियोजना के संबंध में अपने मंतव्य/सुझाव/विचार से अवगत करायेंगे।

PR- 004700(NI NI) 2023-24

नशेड़ी प्रताड़ना मुक्ती है, क्योंकि परिवार जरूरी है

सदस्य सचिव









Table 7.2 Details of Action Plan for the issues raise during the Public Hearing

S.No	Name & Address	Issues Raised by Locals/Public	Answers given by Consultant (Response/Action Plan)
1.	Shri Rajnish Paswaan Moratal Tehsil – Bodh Gaya, District - Gaya	They were asked about the solution to the problem of dust emission caused by sand transportation.	In this regard, the environmental consultant of the project proponent informed that during sand transportation, the vehicles will be covered with tarpaulin and water will be sprinkled on the road and adequate amount of trees will be planted. In this way, Shri Rajneesh Paswan was satisfied by presenting his answer.
2.	Shri Vishal Kumar Village- Chhanchh, Bodh Gaya, District - Gaya	They were asked questions related to the problem of potholes during mining and tree plantation.	It was told by the environmental consultant that the mining work will not exceed the depth of 3 meters and tree plantation work will be done on the roadside and in the mining lease area. In this way Mr. Vishal Kumar was satisfied by submitting his reply.
3.	Shri Brajesh Kumar Village- Chhanchh, Bodh	Theybuilt Dharmany vedi temple near the ghat, which is mythological and every day devotees come to worship at this temple site. Therefore, a question was asked regarding the threat to the	The environmental consultant of the proponent told that the sand mining work will be done as per the parameters set by the mining

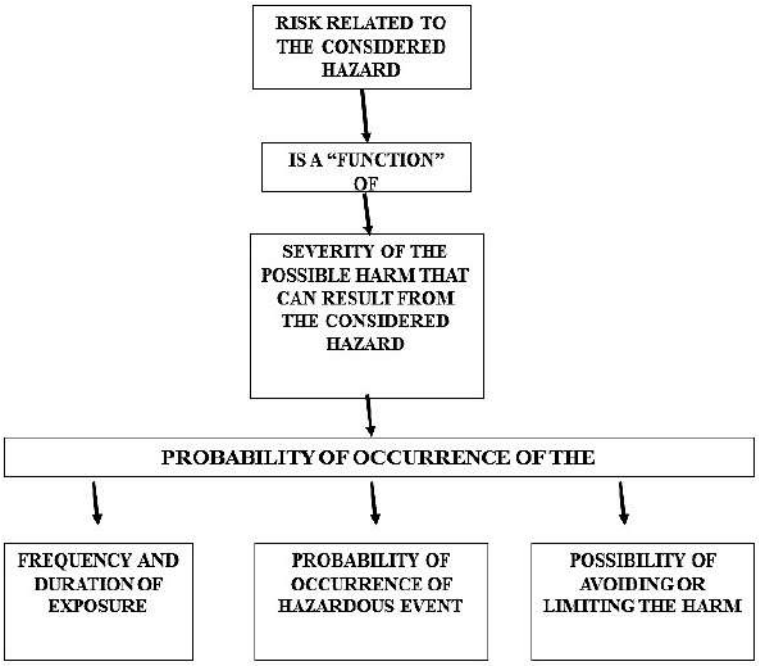
	Gaya, District - Gaya	existence of the temple due to mining on this ghat.	department. Satisfied by submitting my answer in this way.
4.	Shri Hiralal S/o Rooplal Yadav Village- Moratal BodhGaya, District- Gaya	A huge pit has been created by them during mining in the past, which has not been filled till now. When the cattle of my village go down to the river bank to drink water, there is a possibility of drowning. The easiest way for the local village people to cross the river is through the middle of the river. Therefore this mining proposal should be stopped.	The environmental consultant of the proponent told that in view of all these problems, the state government has constructed two bridges on the river. Villagers should travel through these bridges only. Satisfied by submitting my answer in this manner.
5.	Shri Mathura Prasad, Village- Chhanchh Moratal, Bodh Gaya, District- Gaya	He reiterated the question asked by Mr. Hiralal at number 04 that a huge pit had been formed during mining in the past, which has not been filled till date. When the cattle of my village go down to the river bank to drink water, there is a possibility of drowning. Drowning was reported due to the formation of a pit during excavation. The easiest way for the local village people to cross the river is through the middle of the river. Therefore this mining proposal should be stopped.	The environmental consultant of the proponent told that in view of all these problems, the state government has constructed two bridges on the river. Villagers should travel through these bridges only. Satisfied by presenting my answer in this way.
6.	Shankar Yadav, Head of Moratal Tehsil - Bodhgaya District- Gaya	It was told by them that the complaint letter which has been sent to the concerned departments of the government, in which my name has also been mentioned, is baseless. I am in support of starting this sand mining project. So that the loss of revenue to the government due to the problem of illegal sand mining at the local level can be prevented.	ok

7.	Shri Vikas Vishwakarma, Village- Kaneri, Bodhgaya, District – Gaya	It was suggested by them that the sand mining work should be started soon.	Ok
8.	Shri Vikas Kumar, Village- Moratal, Bodhgaya, District – Gaya	They told that there is no problem with the state government carrying out mining work on this ghat. With the commencement of this mining work, there will be a possibility of employment for the local people.	Ok

7.1 HAZARD IDENTIFICATION AND RISK ASSESSMENT METHODOLOGY

A) RISK

Risk analysis is the systematic study of uncertainties and risks encountered in various areas. Risk analysis is to identify the risks involved in mining operations at various phases. Potential locations and activities around the proposed site are identified and probable risks are estimated on a person, business and Govt. establishment.



Tolerable risk: Risk which is accepted in a given context based on the current values of society

Protective measure: The combination of risk reduction strategies taken to achieve at least the tolerable risk. Protective measures include risk reduction by inherent safety, protective devices, and personal protective equipment, information for use and installation and training.

Severity: Severity is used for the degree of something undesirable.

Risk Analysis: A systematic use of available information to determine how often specified events may occur and the magnitude of their likely consequences.

The different steps of risk assessment procedure are as given below:

Step I: Hazard Identification

The purpose of hazard identification is to identify and develop a list of hazards for each job in the organization that are reasonably likely to expose people to injury, illness or disease if not effectively controlled. Workers can then be informed of these hazards and controls put in place to protect workers prior to them being exposed to the actual hazard.

Step II: Risk Assessment

Risk assessment is the process used to determine the likelihood that people exposed to injury, illness or disease in the workplace arising from any situation identified during the hazard identification process prior to consideration or implementation of control measures. Risk occurs when a person is exposed to a hazard. Risk is the likelihood that exposure to a hazard will lead to injury or health issues. It is a measure of probability and potential severity of harm or loss.

Step III: Risk Control

Risk control is the process used to identify, develop, implement and continually review all practicable measures for eliminating or reducing the likelihood of an injury, illness or diseases in the workplace.

Step IV: Implementation of risk controls

All hazards that have been assessed should be dealt in order of priority in one or more of the following hierarchy of controls

The most effective methods of control are:

i. Elimination of hazards

ii. Substitute something safer

iii. Use engineering/design controls

iv. Use administrative controls such as safe work procedures

v. Protect the workers i.e. By ensuring competence through supervision and training, etc.

Each measure must have a designated person and date assigned for the implementation of controls. This ensures that all required safety measures will be completed.

Step V: Monitor and Review

Hazard identification, risk assessment and control are an on-going process. Therefore regular review of effectiveness of the hazard assessment and control measures is to be done. Make sure that you undertake a hazard and risk assessment when there is change to the workplace including when work systems, tools, machinery or equipment changes. Provide additional supervision when the new employees with reduced skill levels or knowledge are introduced to the workplace.

B) RISK ANALYSIS

The risk assessment portion of the process involves three levels of site evaluation:

a) Initial Site Evaluation,

b) Detailed Site Evaluation,

c) Priority Site Investigations and Recommendations.

The risk assessment criteria used for all levels of site evaluation take into account two basic factors:

- The existing site conditions
- The level of the travelling public's exposure to those conditions.

The Initial Site Evaluation and Detailed Site Evaluation both apply weighted criteria to the existing information and information obtained from one site visit. The Initial Site Evaluation subdivides the initial inventory listing of sites into 5 risk assessment site groups. The Detailed Site

Evaluation risk assessment is then performed on each of the three highest risk site groups in order of the group priority level of risk. The result of the Detailed Site Evaluation process is a prioritized listing of the sites within each of the three highest risk site groups.

Risk analysis is done for:

- Forecasting any unwanted situation
- Estimating damage potential of such situation
- Decision making to control such situation
- Evaluating effectiveness of control measures

C) ACCEPTABLE RISK

Risk that is acceptable to regulatory agency and also to the public is called acceptable risk. There are no formally recognized regulatory criteria for risk to personnel in the mining industry. Individual organizations have developed criteria for employee risk and the concepts originally arising from industries. Because of the uncertainties linked with probabilistic risk analysis used for quantification of the risk levels the general guiding principle is that the risk be reduced to a level considered

As Low as Reasonably Practicable (ALARP). The risk acceptability criteria are given in following Table. It can be seen that there are three tiers:

a) A tolerable region where risk has been shown to be negligible and comparable with everyday risks such as travel to work.
b) A middle level where it is shown the risk has been reduced to As Low As Reasonably Practicable level and that further risk reduction is either impracticable or the cost is grossly disproportionate to the improvement gained. This is referred as the ALARP region.
c) An intolerable region where risk cannot be justified on any grounds. The ALARP region is kept sufficiently extensive to allow for flexibility in decision making and allow for the positive management initiatives which may not be quantifiable in terms of risk reduction.

Table-7.3 the risk acceptability criteria

1	Risk un acceptance and must be reduced. The actions may include equipments and people or procedural measures. If risk cannot be reduced to ALARP level, operating philosophy must be fundamentally reviewed by the management.	**Intolerable Region**
2	Efforts must be made to reduce risk further and to as low as reasonably practicable, without expenditure that is grossly disproportionate to the benefit gained	**ALARP Region (As Low as Reasonably Practicable)**
3	Risk level is so low as to not require actions to reduce its magnitude further.	**Tolerable Region**

A logical systematic process is usually followed during a qualitative risk assessment to identify the key risk events and to assess the consequences of the events occurring and the likelihood of their occurrence.

Table 7.4: Qualitative Risk Assessment

Risk Rank X Likelihood Consequence	L1 Almost certain	L2 Likely	L3 Possible	L4 Unlikely	L5 Rare
C1 Catastrophic	1	2	4	7	11
C2 Major	3	5	8	12	16
C3 Moderate	6	9	13	17	20
C4 Minor	10	14	18	21	23
C5 Insignificant	15	19	22	24	25

RISK RATING:

High Risk: 1-6
Medium Risk: 7-15
Low Risk: 16-25

7.2 POTENTIAL HAZARDS & 'ALARP' CONDITION

Mining and allied activities are associated with several potential hazards and risk to both the employees and the public at large. A worker in a mine should be able to work under "**ALARP**"

conditions (as stated above), which are adequately safe and healthy. At the same time the environmental conditions should be such as not to be impair his working efficiency. This is possible only when there is adequate safety in mines.

7.3 RISK PRIORITISATION BASED ON HAZARDS

There are various factors, which can create unsafe working conditions/hazards in mining of minor minerals from river bed.

The key risk (hazard x probability) event rating associated with sand bed mining and to assess its consequences of such events occurring and the likelihood based on above Table are as:-

The Risk rating of such hazards is as follows:

a) Inundation / Flooding (C1 x L3=4)
b) Drowning. (C5 x L5=25)
c) Accident due to vehicular movement.(C3 x L3=13)
d) Accident during sand loading, transporting and dumping=14. (i.e., C4 x L2=14)

7.3.1 Accident during sand/mineral loading, transportation

The risk rating assigned to this activity is assigned as "14 i.e. it is likely event with minor consequences", as frequency of this operation is more but the predicted/assumed intensity (Based on experience) is less like minor cuts, abrasion, fall due to river bank collapse & falling of cattle's, if not under proper supervision to bring under ALARP ZONE.

a) There is possibility of injury in to the workers during excavation & loading of minerals.
b) There is possibility that the workers standing on the other side of loading may get injury due to over thrown sand with pebbles.
c) There is possibility of workers getting injured during opening of side covers to facilitate loading.
d) There is possibility of riverbank collapse.
e) There are chances of falling of cattle/children into pits in river bed by overlooking of fenced area near worksite or improper supervision.

7.3.2 Accident due to vehicular movement

The risk rating assigned to this activity is assigned as 13 i.e., it is possible event with moderate consequences as frequency of this operation is more but the predicted/assumed intensity (Based on experience) is less like minor cuts, bodily injury due to reckless or untrained driver. However, a strict control to be exercised to deploy trained drivers with valid driving license with a helper. A strict supervision/control to be exercised to avoid drunken driving or driving by unauthorized person to bring under ALARP ZONE.

The minerals loaded in trucks are being sent to through public roads.

a) All possibilities of road accidents are possible due to rash driving.
b) Accident may also occur during movement in the haul road, in case pathway is not compacted suitably or movement is at the embankment.
c) There are possibilities that due to overloading. Some pebbles or big boulder may injure the passerby public. In case Traffic & vehicle load bearing licensed capacity is neglected.

7.3.3 Inundation/Flooding

The risk rating assigned to this activity is assigned as 4(C1 xL3=4) i.e., it is only possible, if warnings are neglected and work started without assessment of the river bed condition specially during monsoon season ,the event will be catastrophic with major consequences as frequency of this operation is possible. However the event has to be brought under 'ALARP' Zone by strict supervision based on river water and other metrological data.

a) The possibility of inundation/flooding of the mines are very high during monsoon or during heavy rains as the mine area lies in the riverbed.
b) There is danger to the workers working in the mines.
c) There is also danger to the trucks and other machineries due to flooding.
d) Inundation or flooding is expected and beneficial for these mines as during this time only the mineral reserve gets replenished.

7.3.4 Drowning

The risk rating assigned to this activity is assigned as 25 i.e., it is insignificant due to dry season mining. There are no possibilities of drowning in the river, since mining operations are carried out only in the dry portion of the river and all mining activities will be stopped during the monsoon season.

7.4 OCCUPATIONAL HEALTH HAZARDS

Dry- pit mining by open cast method involves dust generation by excavation, loading and transportation of mineral. At site, during excavation and loading activity, dust is main pollutant which affects the health of workers whereas environmental and climatic conditions also generate the health problems. Addressing the occupational health hazard means gaining an understanding of the source (its location and magnitude or concentration), identifying an exposure pathway (e.g. a means to get it in contact with someone), and determination of likely a receptor (someone receiving the stuff that is migrating).

Occupational hazard due to mining mainly comes under the physical hazards. Possible physical hazards are as below mention:-

Physical hazards due to mining operations

Following health related hazards were identified mining operations to the workers:-

1. **Light: -** The workers may be exposed to the risk of poor illumination or excessive brightness. The effects are eye strain, headache, eye pain and lachrymation, congestion around the cornea and eye fatigue.
2. **Heat and Humidity:** - The most common physical hazard is heat. The direct effects of heat exposure are burns, heat exhaustion, heat stroke and heat cramps; the indirect effects are decreased efficiency, increased fatigue and enhanced accident rates. Heat and humidity are encountered in hot and humid condition when temperatures and air temperatures increase in summer time up to 48°C or above mining area.
3. **Eye Irritation: -** During the high windy days in summer the dust could be the problems for

eyes like itching and watering of eyes.

4. **Respiratory Problems: -** Large amounts of dust in air can be a health hazard, exacerbating respiratory disorders such as asthma and irritating the lungs and bronchial passages.
5. **Noise Induced Hearing Loss: -** Machinery is the main source of noise pollution at the mine site. Too much noise from the machines can induce loss of hearing.

Table-7.5 Management of Health Hazards

Particulars	Control Measures
Heat & Light	The mine site will have adequate drinking water supply so that workers do not get dehydration. Awareness will be created to wear lightweight and loose-fitting clothes having light colors.
Noise	Vehicles will be maintained properly. Greasing oiling will be done regularly. The personal protective equipment will be provided for each mine workers. Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment. Haul road will be leveled and maintained daily.
Respiratory	Pack cabin will be given to the excavator operator with the sun glass and mask. PPE like face mask etc. will be provided during mining activity. Periodic medical examinations will be provided for all workers. Awareness program will be organized for workers. Control of dust through water spraying.

Occupational health and Safety programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures if required.

7.5 ADDITIONAL MITIGATION MAJORS TO BRING HAZARDS UNDER "ALARP" ZONE

7.5.1 Measures to Prevent Accidents during Loading

- The truck should be brought to a lower level so that the loading operation suits to the ergonomic condition of the workers.
- The loading should be done from one side of the truck only.
- The workers should be provided with gloves and safety shoes during loading.

- Opening of the side covers (pattas) should be done carefully and with warning to prevent injury to the loaders.
- Operations during daylight only.
- No foreign material should be allowed to remain/spill in river bed and catchment area, or no pits/pockets are allowed to be filled with such material.
- Stockpiling of minerals on the river bank should be avoided.

7.5.2 Measures to prevent accidents during transportation

- All transportation within the main working will be carried out directly under the supervision and control of the management.
- The vehicles will be maintained in good repairs and checked thoroughly at regular intervals by the competent person authorized for the purpose by the Management.
- To avoid danger while reversing the vehicles especially at the embankment and tipping points, the areas for reversing of lorries will be made man free as far as possible.
- The truck will be covered and maintained to prevent any spillage and no overloading will be permitted.
- The maximum permissible speed limit will be ensured.
- The truck drivers will have proper driving license.
- A statutory provision of the fences, constant education, training etc. will go a long way in reducing the incidents of such accidents.

7.5.3 Measures to prevent Dangerous Incidents during Inundation/Flooding

Inundation of flooding is expected and beneficial for these mines as during this time only the mineral reserve gets replenished.

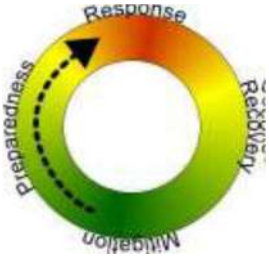
- During monsoon months and heavy rains the mining operations will be ceased.
- There would be mechanism/warning system of heavy rains and discharges from the upstream dams to make the workers alert.

7.5.4 Measure to Prevent Drowning

- The mining should be done under strict supervision and only during the dry season.
- Deep water areas must be identified.
- No go zones should be clearly marked and made aware to the mine workers.
- Signages will be erected if there is any steep slopes or existing pits, so that there is no movement in that area.

7.6 DISASTER MANAGEMENT PLAN

This should deal with action plan for high risk accidents like landslides, subsidence, flood, in underground mines, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of lessee to meet such eventualities and the assistance to be required from the local authorities should be described.



- Communication plans with easily understandable terminology and methods.
- Proper maintenance and training of emergency services, including mass human resources such as community emergency response teams.
- Development and exercise of emergency population warning methods combined with emergency shelters and evacuation plans
- Develop organizations of trained volunteers among civilian populations.

7.6.1 Natural Hazards Floods:

Flood events are a part of nature. They mostly occur in the monsoon season at times of heavy rainfall. No Mining Shall be done in Rainy Season.

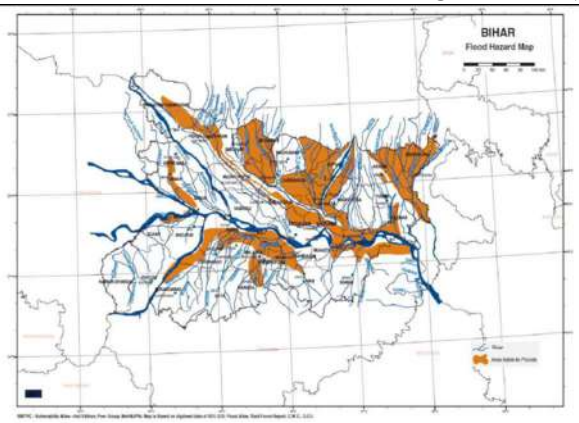


Figure 7.1 - Flood Map of Bihar

The region experiences heavy rainfall and due to water collection of the catchment area of various rivers, the proposed site may be prone to flood hazards during monsoon. As floods during rainy season are common and the district has minor flood risk, there are some chances of flood. A DMP will be in place to deal with any such occurrences.

Following Precautionary Measures will be undertaken:

- Storm water system will be checked and cleaned periodically
- Storm water network will be meticulously cleaned before the onset of monsoon

Earthquakes: An Earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rocks beneath the earth surface.

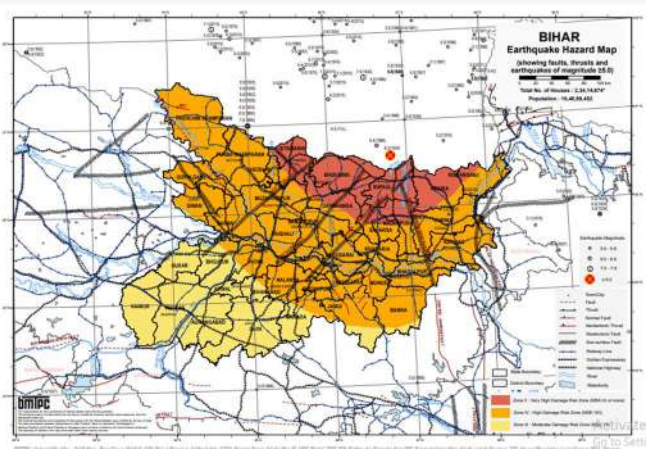
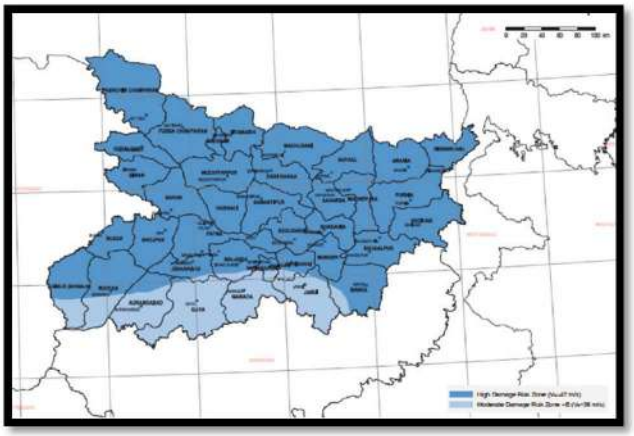


Figure 7.2- Earthquakes Map of Bihar

Based on the above figure, it is observed that proposed project lies in moderate damage risk zone. Gaya district has experienced earthquakes rarely and with less intensity. Since the district lies in Seismic Zone III – Moderate Damage Risk Zone, hence earthquakes are not major risks for the proposed project.

Cyclone: Cyclones are huge revolving storms caused by winds blowing around a central area of low atmospheric pressure. Cyclone is a storm accompanied by the high-speed wind. It brings torrential rains and creates several dangers for people living around tropical areas. These winds are strong enough to easily topple fences, sheds, trees, power poles and caravans, while hurling helpless people through the air.

It is observed that Gaya district lies under very high-speed winds zone. As detailed in the Vulnerability Atlas of India, 27 districts in Bihar are fully affected by high-speed winds of 47 m/s intensity. Districts of South Bihar except Gaya are partly affected by high-speed winds of 44 m/s. Gaya In all 86 percent of the total area of Bihar is prone to high-speed winds of 47 m/s intensity and only 14 percent of the area prone to high-speed winds of lesser intensity. The probability of the cyclonic depression is very high in the study area. Hence, the structures will be designed keeping in mind the cyclonic risks.



Precautionary Measures to be undertaken:

- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the

mines granted by DGMS.

- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955 and other laws applicable to mine will strictly be complied with.
- During heavy rainfall the mining activities will be ceased.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Periodic drills and training will be provided to the workers and supervisors to react at the time of disaster.
- Detailed warning system, implementation procedure, emergency control centre would be maintained at the mine with names of trained persons.
- Details and availability of heavy machinery, fire-fighting equipment would be available at the site.
- Proper arrangements would be made for treatment of injured person with first aid, if any.
- All the safety equipment will be made available at the mine.

7.7 NATURAL RESOURCE CONSERVATION

Mining at the concave side of the river channel should be avoided to prevent bank erosion. Similarly meandering segment of a river should be selected for mining in such a way as to avoid natural eroding banks and to promote mining on naturally building (aggrading) meander components.

CHAPTER – VIII

PROJECT BENEFITS

CHAPTER-VIII

PROJECT BENEFITS

INDEX

S. No.	CONTENTS	Page No.
8.0	GENERAL	155/VIII
8.1	PHYSICAL BENIFITS	155/VIII
8.2	SOCIAL BENIFITS	155/VIII
8.3	ENVIRONMENTAL BENIFITS	157/VIII
8.4	CORPORATE ENVIRONMENTAL RESPONSIBILITY	158/VIII

8.0 GENERAL

The operation of the project will protect against widening of river channel and flooding of adjoining areas due to non-removal of sediments which have been accumulating over years, naturally. It will bring overall improvement in the locality, neighborhood and the state by bringing industry, roads, water supply, electricity, employment, living standard and economic growth.

8.1 PHYSICAL BENEFITS

The opening of the proposed project will enhance the following physical infrastructure facilities in the adjoining areas.

a. **Road Transport:** There will be improved road communication due to the proposed project and maintenance will also be done time to time.
b. **Market:** Generating useful economic resource for construction. Excavated mineral will provide a good market opportunity.
c. **Enhancement of green cover:** As a part of reclamation plan, plantation will be carried along the place in consultation with local authority.
d. **Creation of community assets:** (infrastructure) like provision for drinking water, construction of school buildings, village roads/ linked roads, dispensary & health center, community center, market place etc, as a part of corporate social responsibility.

The impact on the civic amenities will be substantial after the commencement of mining activities. The basic requirement of the community needs will be strengthened by extending health care, educational facilities developed in the township to the community, providing drinking water to the villages, building/strengthening of existing roads in the area. The proponent will initiate the above amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities. Medical facilities will be provided in the form of first-aid facility at the mine. These medical facilities will also be available to local people in the surrounding in case of emergencies.

8.2 SOCIAL BENEFITS

- Generation of employment and improved standard of living;
- Increased revenue to the State by way of royalty, taxes and duties; and
- Superior communication and transport facilities etc.

- There will be significant change in the socio-economic scenario of the area.
- The proposed project will enhance the prospects of employment. Recruitment for the unskilled and semiskilled workers for the proposed project will be from the nearby villages.
- The development of the basic amenities viz. roads, transportation, electricity, drinking water, proper sanitation, educational institutions, medical facilities, entertainment, etc. will be developed as far as possible.
- Overall the proposed project will change living standards of the people and improve the socio-economic conditions of the area.

A) Employment Potential- The employment of local people in primary and secondary sectors of project will upgrade the prosperity of the region. These will in-turn improves the socio-economic conditions of the area. The total manpower required for the proposed mining project under various categories is 65 persons and persons will be mainly sourced from local community in and around mining project and few technical persons will be employed during operational phase from local and also from outside area. In addition to the above, contractual labour and indirect employment opportunities will also be getting benefited after installation of mining project.

Table 8.1 Employment detail

S. No.	Category	Numbers
1.	Administration	3
2.	Supervisor	3
3.	Skilled	14
4.	Un-skilled	45
TOTAL		**65**

B) Contribution to the Exchequer as the saleable minerals will be given royalty. Since the quarries will be leased out to successful allot tees, mining operation in the state will get legalized and it will fetch income to the state exchequer.

C) Increased Health related activities: Healthcare promotional activities will be undertaken. Pre-placement & and Periodic medical checkups will be done, which will lift the general health status of the residents of the area. Health camps, medical aids, family welfare programs, immunization camp sports will be arranged.

D) **Educational attainments**: Educational activities will be promoted by the lessee. Awareness program will be arranged covering basic issues related to primary level education, environment, health and hygiene etc.

E) **Strengthening of existing community** facilities through the Community Development Programme.

Table 8.2 Budget for Public Health

S.No.	Activity	Tentative Cost
1.	Awareness campaigns regarding health issues in the nearby villages.	80,000
2.	Provide free health checkups & medicines to the nearby villagers of the project site	1,20,000
3.	Assistance to set up a temporary health center during the lease tenure	80,000
	Total	**2,80,000**

Table 8.3 Budget for Occupational Health

S.No.	Activity	Tentative Cost
1.	For Routine Checkup	1,00,000
2.	Medical aid as per ESI Scheme	2,00,000
3.	Training	1,00,000
	Total	**4,00,000**

8.3 ENVIRONMENTAL BENEFITS

a. Protection of banks

b. Reducing submergence of adjoining agricultural lands due to flooding

c. Reducing aggradations of river levels

d. Protection of crops being cultivated along the bank

e. A check on illegal mining activity

8.4 CORPORATE ENVIRONMENTAL RESPONSIBILITY

2 % of capital cost of the project cost will be allotted for the Corporate Environmental Responsibility as per OM dated 1st May 2018.

CER cost will be 2% of the total project cost. This amount will be used for social welfare.CER cost is Rs. 16,98,950/-.

S. No.	Activity	Capital Cost (in Rs.)	Quantity
1	Skill development Programme along with tools (As per the Requirement of Local People)	16,00,000	For 100 People
2	Distribution of educational kits and sports kits in nearby villages among students	98,950	
TOTAL		**16,98,950/-**	

For each activity the funds to be earmarked by the proponent will be decided after discussion with the local authority/people and the beneficiaries during public hearing. It has been planned to undertake a concurrent evaluation of the activities to be taken up under the CER programme.

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CHAPTER – IX

ENVIRONMENT MANAGEMENT PLAN

CHAPTER-IX

ENVIRONMENTAL MANAGEMENT PLAN

INDEX

S. No.	CONTENTS	Page No.
9.0	INTRODUCTION	160/IX
9.1	ENVIRONMENTAL MANAGEMENT PLAN (EMP)	161/IX
9.2	ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION	163/IX
9.3	ENVIRONMENTAL MANAGEMENT CELL (EMC)	164/IX
9.4	BUDGET ALLOCATION FOR EMP IMPLEMENTATION	165/IX

9.0 INTRODUCTION

The environmental management plan consists of the set of mitigation, management, monitoring and institutional measures to be taken during the implementation and operation of the project, to eliminate adverse environmental impacts or reduce them to acceptable levels. The present environmental management plan addresses the components of environment, which are likely to be affected by the different operations in a mine area. To mitigate the adverse impact which may be caused due to the mining operations and overall scientific development of local habitat, environmental management plan (EMP) has been formulated and integrated with the mine planning. The details of the anticipated impacts and mitigate measures have been discussed in Section IV of this report, based on the results of present environmental conditions and environmental impact assessment. The EMP has therefore been made considering implementation and monitoring of environmental protection measures during and after mining operations.

The mitigation measures which reduce the impact have already been identified earlier in this report. To minimize the adverse impact, certain additional EMP is enumerated below for implementation.

The aims of EMP are:

- Overall conservation of environment.
- Minimization of waste generation and pollution.
- Judicious use of natural resources and water.
- Safety, welfare and good health of the work force and population.
- Ensure effective operation of all control measures.
- Vigilance against probable disasters and accidents.
- Monitoring of cumulative and long time impacts.
- Ensure effective operation of all control measures.

9.1 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Proper environmental management plan is proposed for (Sand) Mine project to mitigate the impact during the mining operation.

- No overburden or loose sediments will be kept in the vicinity of the working benches.
- The possibility of the project activity contributing to the pollution of watercourses of the region or to the ground water regime is so less that this does not significantly constitute an area of concern.
- Construction of well-compacted roads.
- Regular water spraying on haul roads and waste dumps by tankers.
- Personal Protective Equipment (PPE) like earmuffs/earplugs, dust masks, helmets, safety boots will be provided to all operators and employees working near mining machineries or at higher noise zone.
- Plantation will be done at place which authorized by Local Authority.
- Proper and regular maintenance of vehicles.
- Care will be taken that noise produced during vehicles movement for carrying Sand is within the permissible noise level.
- Provision of Green Belt (thick foliage) along the place which authorized by local authority.
- Strict observance of the provisions of Acts, Rules and Regulations in respect of safety both by management and the workers.
- Proper planning and designing of work in order to reduce the risk of hazards.
- Specific instructions and supervisions of working where danger due to fall of side (overhanging, undercutting of bench, fall of objects from higher benches/places is apprehended).
- Training of work persons and the officials.

- Since the haul road will be of considerable length, due importance will be given in the construction of road. The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- A code of practices for tipping in stock piles/dumping of overburden at dump yard and loading point will be implemented.
- In respect of contract work, safety code for contractors and workers will be implemented.
- They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centers. All personal protective equipment will be supplied to them.
- A code of practice for fighting fire will be implemented.
- Competent persons like fitters, mechanics will be imparted with special attention to project impact.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness amongst employees.
- Pre joining medical checkup shall be done and regular health check-up in 6 monthly intervals is planned for the employees.
- Care will be taken that no cooking, or burning of woods will be allowed in the adjoining area.
- If some causality or injury to animal occurs, it should be informed to forest department and proper treatment should be given.
- Provision of rest shelters for mine workers with amenities like drinking water etc.
- Periodical Medical Examination (PME) of all workers by a medical Officer.
- First Aid facility is provided at the mine site.
- Close surveillance of the factors in working environment and work practices which may affect environment and worker's health.
- Working of mine as per approved mining plan and environmental plans.

9.2 ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION

Environmental Management Plan serves no purpose if it is not implemented with true spirit. Some loopholes in the EMP can also be detected afterwards when it is implanted and monitored. Thus, an implementation and monitoring programme has to be prepared. The major attributes of environment are not confined to the mining site alone. Implementation of proposed control measures and monitoring programme has an implication on the surrounding area as well as for the region. Therefore, mine management should strengthen the existing control measures as elaborated earlier in this report and monitor the efficacy of the control measures implemented within the mining area relating to the following specific areas:

a) Collection of air and water samples at strategic locations with frequency suggested and by analyzing thereof. If the parameters exceed the permissible tolerance limits, corrective regulation measure will be taken.
b) Collection of soil samples at strategic locations once in every year and analysis thereof with regard to deleterious constituents, if any.
c) The effectiveness of drainage system depends upon proper cleaning of all drains provided in the surrounding of mine area. Any blockage due to siltation or loose material will be checked at least once in a month.
d) Measurement of water level fluctuations in the nearby ponds, dug wells and bore wells.
e) Regular visual examination will be carried out to look for erosion of river banks. Any abnormal condition, if observed will be taken care of.
f) Measurement of noise levels at mine site, stationary and mobile sources, and adjacent villages will be done in every quarter of the year.
g) Plantation/afforestation as should be done at place which authorized by Local Authority. Post plantation, the area will be regularly monitored in every season for evaluation of success rate. For selection of plant species local people should also be involved.

Mine management will be in regular touch with local surrounding villages to update the various developmental schemes made by them. They will also consider any immediate requirement, which could be taken care of in near future. Mine management will be in regular touch with State Pollution Control Board and Indian Bureau of Mines and send them annual progress report. Any new regulations considered by State/Central Pollution Control Board for the industry will be taken care of.

Green Belt Development Plan

Green belt is plantation of trees for reducing the pollution as they absorb both gaseous and particulate pollutant, thus removing them from atmosphere. Green plants form a surface capable of absorbing air pollutants and forming sinks for pollutants. It improves the aesthetic value of local environment. Under present project, green belt has been planned with emphasis on creating biodiversity; enhance natural surroundings and mitigating pollution.

These plantations will be done at place which authorized by Local Authority. About 445 Plants will be planted @ 89 trees/year of will be planted with various types of species. List of species is recommended for plantation. Native plants like Mango, Neem, Kadamb, Kathal, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover. It is proposed to plantation will be done at place which authorized by Local Authority.

The basic objectives of plantations are as follows:

- Soil quality should be improved
- Vegetative cover can check soil erosion
- River bank stability should be improved
- Conservation of biological diversity
- Habitation for wild life.

9.3 ENVIRONMENTAL MANAGEMENT CELL (EMC)

To implement the EMP, a structured Environment Management Cell (EMC) which includes plant manager and representative of consultants interwoven with the existing management system is there. Occupational safety and health is very closely related to productivity and good employer- employee

relationship. The factors of occupational health in the proposed Sand mine are mainly dust and land degradation. Safety of employees during operation and maintenance etc. shall be as per Mines rules and regulations. 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.

A comprehensive environmental monitoring program as laid down by State Pollution Control Board is followed. All the above observations will be complied and documented by the EMC to serve the following purposes:

- Identification of any environmental problems that are occurring in the area.
- Initiating or providing solution to those problems through designed channels and verification of the implementation status.
- Controlling activities inside the project, until the environmental problem has been corrected.
- Suitably responding to emergency situations.

9.4 BUDEGT ALLOCATION FOR EMP IMPLEMENTATION

Annual budget for EMP is very essential for successful implementation of EMP. The fund allocated will not be diverted for any other purposes and the top management will be responsible for this. The budget will take into consideration the following capital and operating expenses:

a) Capital cost for installing pollution control systems.
b) Field cost for monitoring of parameters.
c) Cost of any defined outsourcing
d) Cost of chemicals, consumables and transport for data generation
e) Any other cost as per EC condition.

It is necessary to include the environmental cost as a part of the budgetary cost component. The project authorities propose to undertake the following environmental works to achieve the

environmental quality as desired. The budget for environmental protection has been formulated and given in Table.

The total cost of project would be around Rs. 8,49,47,500/- (8.49475 Crore Or 849.475 lakhs). EMP Capital Cost is 5,45,000/- & EMP Recurring Cost is 6, 00,000/-

Table 9.1 Budget allotted for Environmental Management Plan

Sl. No	Description	Capital Cost (lakh)	Recurring Cost (lakh)
1	Pollution Control & Dust Suppression	**Nil**	**2.0**
2	Pollution Monitoring i) Air pollution ii) Water pollution iv) Noise Pollution	--	2.0
3	Plantation and salary for one gardener (part time basis).	4.45	0.5
4	Haul road Maintenance Cost	1.0	1.5
TOTAL		**5.45**	**6.0**

Note: *445 plants * 1000 Rs (for each plants including hedges and fences) =Rs 4,45,000/-

Salary of Labour for haul road maintenance 2 labor*300=600 per day

600* 250= 1, 50,000/-

* 2.5 lakh per kilometer (2, 50,000 *0.60 km haul road) = 1, 00,000/-

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CHAPTER – X

EXECUTIVE SUMMARY

CHAPTER-X

EXECUTIVE SUMMARY

S. No.	CONTENTS	Page No.
10.0	INTRODUCTION OF PROJECT &PROPONENT	168/X
10.1	LOCATION	169/X
10.2	RESERVES	172/X
10.3	MINING PROCESS	176/X
10.4	WATER DEMAND	178/X
10.5	BASE LINE DATA	179/X
10.6	BIOLOGICAL ENVIRONMENT	180/X
10.7	LAND ENVIRONMENT	183/X
10.8	AIR ENVIRONMENT	184/X
10.9	WATER ENVIRONMENT	185/X
10.10	NOISE ENVIRONMENT	187/X
10.11	TRAFFIC ANALYSIS	188/X
10.12	SOCIO-ECONOMIC ENVIRONMENT	188/X
10.13	ENVIRONMENTAL MANAGEMENT PLAN (EMP)	189/X
10.14	ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION	189/X
10.15	MONITORING SCHEDULE AND PARAMETERS	191/X
10.16	BENEFIT OF MINING	191/X
10.17	CORPORATE SOCIAL RESPONSIBILITY	193/X
10.18	CONCLUSION	194/X

10.0 INTRODUCTION OF PROJECT&PROPONENT

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for proposed projects. It aims predicting environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision makers. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects prediction & mitigation, early benefits in project planning, protection of environment, optimum utilization of resources, thus saving overall time & cost of the project.

The project is being proposed by M/s Maa Durga Fule Station, Proponent- Akhilesh Kumar, R/o. – Village Pathra English, P.O. - Odhanpur, P.S. - Nawada, Dist. - Nawada, Pin code- 805123.

Proposed project has been allotted to the proponent By District mining office. LOI has been granted in favour of M/s Maa Durga Fule Station, Proponent- Akhilesh Kumar, vide letter no. 5501/Khanan, Gaya dated- 29/11/2022, for a period of 5 years attached as Annexure I. The EIA-EMP report has been prepared as per the TOR granted under the EIA Notification of September 14th 2006. In order to assess the impact on environment due to proposed mining, it is necessary to ascertain the present status of environment prevailing at the project site and identification and assessment of impacts on the environment of the proposed operations.

As per NGT Order Dated 13-09-2018 and MOEF & CC OM No L-11011/175/2018-IA-II (M) Dated 12-12-2018 the project comes under B1 Category as the area is more than 5 Ha. Environmental Impact Assessment report is prepared to comply with the Terms of Reference (TOR) received from SEIAA, Bihar.

Identification of Project

Name of the Project – Sand Mining Project Block – 47 (Gaya Mohana 01/02/03) Sand Ghat on Mohana River Location of the Project- Khasra No. – 1, 1, 2091, 1, 1084, 1370, 225, Khata No. – 191, 384, 367, 207, 455, 177, Thana No. – 443, 454, 455, 446, 426, 424, Village – Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Bodh Gaya, District- Gaya, State – Bihar.

10.1 LOCATION

Sand Mining Project Block – 47 (Gaya Mohana 01/02/03) Sand Ghat on Mohana River

Village/ Tehsil	Block	District	State	Area in Ha.
Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Bodh Gaya	Block – 47 (Gaya Mohana 01/02/03)	Gaya	Bihar	44.5

Table 10.1 Project Coordinate

S. No	Sand Ghat	Area (in Ha)	Co-ordinates	
1	Gaya Mohana -01	25.0	A	24°42'9.18"N 85° 0'53.36"E
			B	24°42'8.58"N 85° 0'57.56"E
			C	24°41'18.68"N 85° 1'5.30"E
			D	24°41'17.12"N 85° 1'2.31"E
2	Gaya Mohana -02	7.0	A	24°40'32.33"N 85° 1'49.24"E
			B	24°40'36.94"N 85° 1'52.53"E
			C	24°40'23.82"N 85° 2'13.55"E
			D	24°40'23.63"N 85° 2'10.93"E
3	Gaya Mohana -03	12.5	A	24°39'56.83"N 85° 2'32.07"E
			B	24°39'59.71"N 85° 2'35.77"E
			C	24°39'39.03"N 85° 2'51.68"E
			D	24°39'35.63"N 85° 2'46.47"E

Table10.2- Detail of site & surrounding around Lease Area

Gaya Mohana -01

Nearest Settlements	Chhanchh Village is about 0.32 Km in E direction.
Nearest Road	MDR is about 2.03 Km in W Direction. NH-22 is about 5.30 Km in W Direction. SH-70 is about 7.44 km in N direction.
Nearest Airport	Gaya International Airport, Gaya, Bihar is about 6.88 Km in NW Direction.
Nearest Railway Station	Bandhua station, Bihar is about 7.50 Km in NE Direction.
Nearest National Park/wildlife sanctuary within 10 km	No National Park/Wildlife Sanctuary within the periphery of 10 Km Radius.
Water body	Project lies on Mohana River.
Nearest School/ college	Middle school, Chhanchh, Bihar is about 0.32 Km in E Direction.
Reserve/ Protected Forest	Protected Forest, is about 7.68 km in NNW direction Sohapur Protected forest is about 2.44 km in NNE direction Guriwan Protected forest is about 7.43 km in SE direction
Nearest Hospital	APHC/ Primary Health Centre/ Government Hospital, Gaya, Bihar is about 8.04 Km in N Direction.
Temple	Dharmaranya Temple, Sujata, Bihar is about 0.27 Km in WSW Direction.

Gaya Mohana -02

Nearest Settlements	Ghoghariya Village is about 0.46 Km in NE direction.
Nearest Road	NH-22 is about 6.92 Km in W Direction. SH-70 is about 8.86 km in NNE direction**.**
Nearest Airport	Gaya International Airport, Gaya, Bihar is about 10.47 Km in NW Direction.
Nearest Railway Station	Bandhua station, Bihar is about 9.16 Km in NNE Direction.
Nearest National Park/wildlife sanctuary within 10 km	No National Park/Wildlife Sanctuary within the periphery of 10 Km Radius.
Water body	Project lies on Mohana River.
Nearest School/ college	Nirjana school Bisari, Bodh Gaya, Bihar is about 0.43 Km in WSW Direction.
Reserve/ Protected Forest	Protected Forest, is about 11.19 km in NNW direction Sohapur Protected forest is about 4.44 km in N direction Guriwan Protected forest is about 4.83 km in SE direction

Nearest Hospital	APHC/ Primary Health Centre/ Government Hospital, Gaya, Bihar is about 10.81 Km in NNW Direction.
Temple	Jharkhandi Mahadev Temple, Bihar is about 0.36 Km in W Direction.

Gaya Mohana -03

Nearest Settlements	Guriyawan Village is about 0.29 Km in E direction.
Nearest Road	NH-22 is about 8.37 Km in W Direction. SH-70 is about 9.15 km in N direction**.**
Nearest Airport	Gaya International Airport, Gaya, Bihar is about 11.57 Km in NW Direction.
Nearest Railway Station	Bandhua station, Bihar is about 9.80 Km in N Direction.
Nearest National Park/wildlife sanctuary within 10 km	No National Park/Wildlife Sanctuary within the periphery of 10 Km Radius.
Water body	Project lies on Mohana River.
Nearest School/ college	Guriyawan middle school, Bodh Gaya, Bihar is about 0.24 Km in E Direction.
Reserve/ Protected Forest	Protected Forest, is about 12.64 km in NNW direction Sohapur Protected forest is about 6.72 km in N direction Guriwan Protected forest is about 3.15 km in ESE direction
Nearest Hospital	APHC/ Primary Health Centre/ Government Hospital, Gaya, Bihar is about 12.24 Km in NNW Direction.
Temple	Hanuman Temple, Gourbigha, Bihar is about 2.26 Km in WSW Direction.

Table 10.3-Details of Project

On-line proposal No.	SIA/BR/MIN/425052/2023
Name of Proponent	M/s Maa Durga Fule Station Proponent- Mr. Akhilesh Kumar
Full correspondence address of proponent	R/o. – Village Pathra English, P.O. - Odhanpur, P.S. - Nawada, Dist. - Nawada, Pin code- 805123
Name of Project	Proposed Sand mining Project on Mohana River Block– 47 Gaya Mohana -01/02/03
Name of River	Mohana
Name of Village & Tehsil	Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Bodh Gaya
District	Gaya

Name of Minor Mineral	Sand	
Sanctioned Lease Area (in Ha.)	44.5 Ha	
Category of the project	"B1"	
Total Geological Reserves	1335000 Cum. or 2403000 Tones.	
Total Mineable Reserves	1203675 Cum. or 2166615 Tones	
Proposed Production/year	801000 Cum. or 1441800 Tones	
Sanctioned Period of Mine lease	5 years	
Method of Mining	Open Cast semi mechanized method / OTFM	
No. of working days	250 days	
Working hours/day	8hrs	
No. of workers	65	
Type of Land	Government waste land	
Water Requirement	**Purpose**	**Requirement (KLD)**
	Drinking & Domestic	1.30
	Plantation	0.89
	Dust Suppression	7.20
	Total	**9.38**
Any litigation pending against theproject or land in any court	No	
Proposed Project cost	The total cost of project would be around Rs. 8,49,47,500/- (8.49475 crore Or 849.475 lakh).	
Proposed EMP budget	Recurring Cost- 6,00,000/- Capital Cost -5,45,000/- (INR)	
Corporate Social Responsibility cost:-	Rs. 16,98,950/-	
Length and breadth of Haul Road	Length: 600 m, width: 6 m	
No. of Trees to be Planted	445 plants, Every year 89 trees will be planted	

10.2 RESERVES

The geological reserves have been estimated as per UNFC guidelines in all the three axis.

Economic Axis (E-1): The Sand is exists within the entire stretch & having no problem selling in the market. The road is near the Ghat & sand shall loaded into tipper with the deployment of an excavator & transport to various parties. The land is State Govt. land & State Govt. has given its

consent for the exploitation of Sand on their expensive land. On the feasibility study, economic viability of deposit has been established sand in economic viable, therefore economic axis has been considered as E-1.

Feasibility Status (F-1): Feasibility study has been carried out & is considered to be feasibility status. A feasibility study provides a preliminary assessment with a level of confidence as compared to that of feasibility study. It has been revealed that exploitation of sand is feasible & economic viable & feasibility axis under UNFC code has been considered as F-1.

Geological Axis: The exposure of sand is seen in the entire stretch & thickness of sand varies 2.5m to 3.0m. Therefore geological axis has been considered as G-1.

Geological Reserves

The geological reserves have been each stretches & for individual blocks. Geological reserves have been completed through cross sectional area method. The area of each section line is multiplied by strike influence to get the volume.

i) **Proved Mineral Reserves (111):** All quantities of sand occurring up to depth of 3 m from surface has been considered as proved reserves.

Gaya Mohana-01

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	750000
Total		**750000**

Geological Reserve = 750000 Cum. or 1350000 Tonnes.

Gaya Mohana-02

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	210000
Total		**210000**

Geological Reserve = 210000 Cum. or 378000 Tonnes.

Gaya Mohana-03

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	375000
Total		**375000**

Geological Reserve = 375000 Cum. or 675000 Tonnes

Total Geological Reserve = 1335000 cum. or 2403000 tonnes.

*Bulk density is 1.80 g/cm^3

MINEABLE RESERVES:

Mineable reserves have been computed up to 3m depth from surface. Benches having height 1.5m & width 6.0m drawn from the ultimate pit limit. Area of each benches have been calculated multiplied by strike influence to get the volume. The volume multiplied by bulk density (1.8 g/cm3) to get the tonnage.

The minerals excavated from the river bed will be replenished gradually during the monsoon season every year. And the area pertaining to paleochannels of the river will be leveled & restored back.

Summary of mineable reserves of Sand Ghat as below

The mineable reserves are given in Table **Block- 47 (Gaya Mohana – 01, 02, 03) Sand Ghat of Mohana River Table-10.4 Summary of mineable reserves of Sand Ghat**

Gaya Mohana-01

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume(cum)	Tonnes
119-117.5	1585	156	1.5	370890	667602
117.5-116	1575	146	1.5	344925	620865
Total				**715815**	**1288467**

Mineable Reserve = 715815 CUM or 1288467 Tonnes

Gaya Mohana-02

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume(cum)	Tonnes
123-121.5	671	91	1.5	91592	164865
121.5-120	661	81	1.5	80312	144561
Total				**171903**	**309425**

Mineable Reserve = 171903 CUM or 309425 Tonnes

Gaya Mohana-03

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume(cum)	Tonnes
124-122.5	768	143	1.5	164736	296525
122.5-121	758	133	1.5	151221	272198
Total				**315957**	**568723**

Mineable Reserve = 315957 CUM or 568723 Tonnes

Total Mineable Reserve = 1203675 CUM or 2166615 Tonnes

- Mineable reserve has been consider 60% approx. of geological reserve after applying the guideline of Enforcement & Monitoring Guidelines for Sand Mining 2020.
- The proposed production grant in LOI is 801000 cum per year which is within the sustainable limit of mineable reserve.
- The BD for Sand has been adopted at 1.8 g/cm3 [Noida Testing Laboratories]

Classification mineral reserves:

Sand Ghat	Area (Ha)	Geological Reserves (m3)	Mineable Reserves (m3)	Annual Permitted Reserve As per LoI (m3)
Block-47 (Gaya Mohana-01/02/03) Sand Ghat	44.5	1335000	1203675	801000

The annual extractable RBM comes to 801000 Cum. or 1441800 Tonnes. It will be replenished after rainy season every year.

10.3 MINING PROCESS

- Mining will be done as per the guidelines of Bihar Mineral (Concession Prevention of illegal Mining Transportation & Storage) Rules, 2019.
- This is an open-cast mining project. The operation will be semi-mechanized/OTFM with use of excavators/JCBs truck /tractors combination or Manually etc. The sand will be collected in its existing form.
- Sand Mining will be carried out only upto a depth of 3 m bgl or above ground water level (whichever is less), for river bed block.
- No drilling /blasting are required as the material is loose in nature.
- Proper benching of 1.5 m height and 6m width will be maintained for mining blocks as per guideline M.M.R-2019, under rule 115(1).
- Mining will be done only during the day time and completely stopped during the monsoon season.

Restriction on mining:

- Sand and gravel shall not be extracted up to a distance of 1 km from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.
- No quarrying shall be permitted within 50 (fifty) metres of any public place i.e. cremation Ghat or any religious place etc.
- No quarrying shall be permitted within 5 (five) metres from both banks of the river.
- The quarrying of sand shall be prohibited within 100 (one hundred) metres upstream and downstream from any dam/weir or any other structure erected for irrigation purpose.
- Sand Ghats should preferably be located on the river side embankment. For low embankment less than 6 metres height, quarrying should not be done within 25 metre from toe/heel of the

embankment and depth of mining should not be more than 1.00 metre. In case of higher embankments, the distance should not be less than 50 metre and depth of mining should be maximum 1.50 metre and at a distance of 75 metre of more mining depth should be maximum 2.00 metre. In order to obviate the development of flow parallel to embankment, crossbars of width eight times the depth of mining pits spaced at 50 to 60 metres center to center should be left in the mining pits.

- The irrigation outlet shall be maintained at the same level as that of the river bed and in no case the river bed level shall be permitted to be below the irrigation outlet level. No quarrying shall be permitted around the infiltration well/intake well up to a distance of 5 meters.
- The extraction of sand shall be permitted only after obtaining a No Objection Certificate from the Water Resources Department in the case of rivers where from irrigation channels are out flowing.
- No quarrying of sand shall be permitted in any private land owned by a person other than the Settlee unless the settle obtains the consent of the concerned land owner/raiyat.
- No quarrying of sand shall be permitted in any area which the State Government notifies as a restricted area.
- Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.
- Mining depth should be restricted to 3 meters and distance from the bank should be ¼th or river width and should not be less than 7.5 meters.

PROPOSED METHOD OF MINING

- Mining activity will be carried out by open cast Semi-Mechanized Method.
- No OB/ waste material will be produced in river bed. The sand shall be exploited up to depth of 3.0 m only through the formation of bench height 1.5m & width 6.0m. An approach road having width 6.0m & gradient 1:12 shall be provided for the movement of loading machineries &

transportation of sand. The sand shall be exploited with the deployment of an excavator & filled into Tractors/Trucks & transported to various buyers.

- No drilling/ blasting are required as the material is loose in nature.
- Proper benching of 1.5 m height will be maintained.
- Roads will be properly made and sprayed by water for suppression of dust.
- Roads in the applied area for the movement of loaded tractors/ trucks will not have slopes more than 1 in 16.
- The mined out area shall be replenished each year during monsoon period and maintained in maximum original topography.
- Approach roads from the various blocks as already described earlier will be merging with permanent tar roads on both sides of the river for transportation of the mineral to final destinations.
- The Sand transportation shall be insured after the covering the vehicle with tarpaulin.

The annual exploitation of sand from Block-47 (Gaya Mohana– 01, 02, 03) Sand Ghat are given below:-

Table 10.5 Year Wise Production Schedule

YEAR	Over burden (Cum.)	ROM Sand (Cum.)	Saleable Sand (Cum.)
1ST	-	801000	801000
2ND	-	801000	801000
3RD	-	801000	801000
4TH	-	801000	801000
5TH	-	801000	801000

The annual extractable RBM comes to **801000 Cum. or 1441800 Tonnes**. It will be replenished after rainy season every year.

10.4 WATER DEMAND

In the river bed mining projects there is as such no need of water to carry out operations, except for dust suppression& drinking. The number of working people is 65 & the total water requirement will be around 9.39 KLD. This water will be supplied from the nearby area.

Table 10.6- Water Demand

S. No.	Purpose	Water Demand KLD
1.	Drinking & Domestic	1.30
2.	Plantation	0.89
3.	Dust Suppression	7.20
Total		**9.39**

10.5 BASE LINE DATA

This section contains the description of baseline studies of the 10km radius of the area surrounding Village- Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Tehsil/Anchal- Bodh Gaya, Block– 47 (Gaya Mohana- 01/02/03/04) Sand Ghat, District-Gaya, and State- Bihar. The data collected has been used to understand the existing environment scenario around the proposed mining project against which the potential impacts of the project can be assessed.

Environmental data has been collected in relation to proposed mining for:-

(a) Air

(b) Noise

(c) Water

(d) Soil

(e) Ecology and Biodiversity

(f) Socio-economy

Table 10.7 Baseline Environmental Status

Attribute	Baseline status
Ambient Air Quality	Ambient Air Quality Monitoring (AAQM) has been carried out at five locations during pre-monsoon season from March to May 2023. The minimum and maximum level of PM2.5 recorded within the study area was in the range of 30.27µg/m3 to 55.85µg/m3 with the 98th percentile 51.58µg/m3 to 55.84µg/m3 at. The minimum and maximum level of PM10 recorded within the study area was in the range of 59.68µg/m3 to 89.6µg/m3 with the 98th percentile 80.39µg/m3 to 89.08µg/m3. The minimum and maximum concentration of SO2 recorded within the study area was in the range of was 4.18 µg/m3 to 17.12µg/m3 with the 98th percentile 11.31 µg/m3 to 15.97µg/m3. The minimum

	and maximum level of NO2 recorded within the study area was in the range of was 3.84µg/m3 to 19.78µg/m3 with the 98th percentile 12.48µg/m3 to 18.69µg/m3. The minimum and maximum level of CO recorded within the study area was in the range of was 0.18µg/m3 to 0.99µg/m3 with the 98th percentile 0.89µg/m3 to 0.98µg/m3. The results thus obtained indicate that the concentrations of PM10, PM2.5, SO2 and NO2 in the Ambient Air are well within the National Ambient Air Quality (NAAQ) standards for Industrial, Residential, Rural and other areas.
Noise Levels	Noise monitoring was carried out at 6 locations. The results of the monitoring program indicated that both the daytime and night time levels of noise were well within the prescribed limits of NAAQS, at all the four locations monitored.
Water Quality	5 Groundwater samples and 2 surface water samples were analysed and concluded that. The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by Indian Standards IS: 10500. From the Surface water analysis it is evident that most of the parameters of the samples comply with 'Category 'C' standards of CPCB indicating their suitability for Drinking water source after conventional treatment and disinfection.
Soil Quality	5 Samples collected from identified locations indicate the soil is sandy type and the pH value ranging from 6.51-7.09, which shows that the soil is alkaline in nature. Potassium is found to be from 148.5 mg/kg to 185.49 mg/kg. The water holding capacity is found in between 31.05% to 37.8%
Ecology and Biodiversity	There are no Ecologically Sensitive Areas present in the study area, but many reserved forests regions surround the project area. No forest land is also present within the mine area.
Socio-economy	The implementation of the Sand mining project on river Mohana will throw opportunities to local people for both direct and indirect employment. The study area is still lacking in education, health, housing, water, electricity etc. It is expected that same will improve to a great extent due to proposed mining project and associated industrial and business activities.

10.6 BIOLOGICAL ENVIRONMENT

Impact on Ecology of the Area

Excessive and unscientific Riverbed sand mining causes the degradation of rivers. Mining which leads to the removal of channel substrate, re-suspension of streambed sediment, clearance of vegetation, and stockpiling on the streambed, will have ecological impacts. These impacts may have

an effect on the direct loss of stream reserve habitat, disturbances of species attached to streambed deposits, reduced light penetration, reduced primary production, and reduced feeding opportunities.

Riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures

As the present mining will be done in a scientific manner as mentioned before, not much significant impact in predicted, however, the following mitigation measure will be taken to further minimize it.

- Re-suspension, turbulence, stream flow, channel substrate and associated species will be disturbed and lost due to proposed mining will disturbed existing pattern but in respect to river area is very minimum / less. The activity will mainly be carried out by semi-Mechanized to minimize associate loss, as stated earlier that the settling pit will be created to minimize the adverse impact downstream.
- No mining will be done near to important structure like bridges, dam and others.
- No mining will be carried out during the rainy season to minimize impact on aquatic life.
- As the mining site has no vegetation, thus clearance of vegetation not required.
- The mining activity will employ many heavy vehicles to transport the sand outside the mine to desired destination that cause the loss to riparian habitat. Safe site / site having less impact will be selected for transportation, all the vehicles will be employed for transportation purpose will be PUC certified. On closure/during the rainy season the eroded bank will be restored/ reclaimed to minimize negative impacts.

Flora and Fauna of Riparian Habitat

If sand mining is done in an unscientific way, i.e. beyond the replenishment capacity, riverbed mining can have adverse effects at the mine sites. The fertile streamside land will be lost gradually and the wildlife in the riparian areas may start vanishing. Degraded stream habitats will result in loss of fisheries productivity, biodiversity, and recreational potential. Thus the severely degraded channels may lower the aesthetic value too.

Anthropogenic activities that artificially lower stream bed elevation cause bed instabilities that result in a net release of sediment in the local vicinity. Unstable sediments simplify and, therefore, degrade stream habitats for many aquatic species.

The most important effects of excessive and unscientific Riverbed sand mining on aquatic habitats are bed degradation and sedimentation, which can have substantial negative effects on aquatic life. The stability of sand-bed streams depends on a delicate balance between stream flow, sediment supplied from the watershed, and channel form. Mining-induced changes in sediment supply and channel form disrupt channel and habitat development processes. Furthermore, movement of unstable substrates results in downstream sedimentation of habitats. The affected distance depends on the intensity of mining, particles sizes, stream flows, and channel morphology. Channel widening causes swallowing of the streambed, producing braided flow or subsurface intergrades flow in riffle areas, hindering movement of fishes between pools. Channel reaches become more uniformly shallow as deep pools fill with gravel and other sediments, reducing habitat complexity, riffle-pool structure, and numbers of large predatory fishes.

All such impacts can be reduced by following scientific mining practices and mitigation measures as restricted.

Mitigation measures

Sand extraction operations will be managed to avoid or minimize damage to stream/river banks and riparian habitats

- Sand extraction in vegetated riparian areas will be avoided.

- Large woody debris in the riparian zone will be left undisturbed or replaced when moved and not be burnt.
- Sand stockpiles, overburden and/or vegetative debris will not be stored within the riparian zone.
- It is essential that overburden is evenly redistributed over exposed areas as soon as possible after the operation has been completed for faster vegetation.
- Operation and storage of heavy equipment within riparian habitat will be restricted.
- Access roads will not encroach into the riparian zones

No exotic species will be introduced by the RBM project activity & associated persons at all.

As the mining will not be done beyond the stipulated limit, so the chances of river mouth widening, bank widening will be negligible. Thus, mining in a scientific and systematic way will reduce such impending effects

10.7 LAND ENVIRONMENT

No adverse impact is anticipated on land use of buffer zone due to present mining operations. As all the related activities are confined to the core zone.

The area likely to be degraded due to quarrying, pitting & roads. The impact on the land form or physiography will be limited to the modification of the slope. The landscape and land use will undergo a radical change due to open cast mining. The impact during next five years is limited as benches will be formed. Besides these benches, roads will also modify the physiography. The impact on land use will also be limited.

Impact on Land use Pattern including change of River course:

- If mining is not carried out in systematic manner by leaving sufficient safety barriers from the bank than it may disturb the river flow/course.
- Stacking of uncoated material including mineral or spillage (if any) on the bank side of river will hinder the flow of water in monsoon season, raise water level upstream, which may lead to bank cutting or flouting.

- Deviation from planned mining procedures can lead to river channel shifting as well as degradation of surrounding land, causing loss of properties & degradation of land scape.

Mitigation measures:

- Mineral will be mined out in central portion of stream & sufficient safety barrier 10% of width will be left towards bank side, so that river flow/course will not get disturbed.
- Mining of mineral will be started towards rise at the centre & also laterally in 1m slice so that river course will not get affected. Unwanted material or spillage (if any) will not be stacked by the side of excavation voids created. This is to be done so because it will otherwise hinder flow of water in monsoon period.
- Mining is to be done by leaving safety barrier on both sides & maximum barrier should be do concave side of river preferably the flow channel (excavation void created) should be kept straight so as to help avoid erosion as side cuttings, Up to next depth of 2.0m from river bed level.

No waste water will be generated from the mining activities of minor minerals as the project. Only involves lifting of Sand from the river bed.

10.8 AIR ENVIRONMENT

Anticipated impacts and evaluation

Information on air quality was studied and various modelling techniques predicted that the mining activity will not affect the air quality in a significant manner. In mining operations, loading, transportation and unloading operations may cause deterioration in air quality due to handling dry materials. In the present case, only wet materials will be handled, thus eliminating problems of fugitive dust. Also, the collection and lifting of minerals will be done Semi- Mechanized without any blasting. Therefore the dust generated is insignificant as compared to mining process of other hard minerals like the process of drilling, blasting, mechanized loading etc.

Mitigation measures

- In control the emission regular preventive maintenance of equipment will be carried out on contractual basis.
- Proper mitigation measures like water sprinkling will be adopted to control dust emission.
- Plantation will be done at place which authorized by Local Authority.
- It is being certified that all transportation vehicles will carry a valid PUC certified. The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads. This will decrease the dust emission by 75%.
- There is no toxic element present in the mineral which may contaminate the soil.

10.9 WATER ENVIRONMENT

Damage in the water body, depends on its assimilative capacity. To find out assimilative capacity of receiving water body, water samples were collected from different groundwater and surface water sources. The study indicates that assimilative capacity of the River water bodies still exists, but effective measures shall be taken to check water pollution. To find out the effect on ground water an extensive hydro-geological study has been conducted and from the study it can be safely concluded that there is no noticeable effect on surrounding ground water resource due to mining. The mining activity does not require water. The collection of sand is done on the river bed where excessive sedimentation has been noticed.

Mining of sand from within or near a streambed has a direct impact on the stream's physical habitat characteristics. These characteristics include geometry, bed evaluation, substrate composition and stability, in stream roughness elements, depth, velocity, turbidity, sediment transport, stream discharge and temperature. Altering these habitat characteristics can have deleterious impacts on both in stream biota and associated riparian habitat.

The detrimental effects to biota resulting from bed material mining are caused by three main processes

i. alteration of flow patterns resulting from modification of the river bed
ii. an excess of suspended sediment

iii. damage to riparian vegetation and in stream habitat

As the project activity is carried out in the meandering part of the river bed, none of the project activities affect the water environment or riparian habitats. In the projects, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water either from the river or tapping the ground water. In the lean months, the proposed sand mining will not expose the base flow of the river and hence, there will not be any adverse impact on surface hydrology and ground water regime due to this project. The contractor will adhere all guidelines and rules for proper and scientific method of mining during the period of extracting the ordinary sand. Thus, the project activities shall not have any adverse effect on the physical components of the environment and therefore may not have any effect on the recharge of ground waters or affect the water quality.

Impacts on hydrological Conditions:

- The study area is itself part of river course carries surface as well as ground water (under current). The flow of surface/ground water (sub surface flow is following the trend of topography.
- The area is part of dry river bed for more than nine months in a year except for the rainy season. The Sand mining is up to the depth of 3.0m will have in significant impact on water regime.
- The general ground water table which will be about 3.0 m below surface of river bed in the mining area during dry seasons will not be disturbed as ultimate working depth will be 3.0 m.

Impact on Water Quality:

- Mining causes lowering of riverbed level as well as riverbed water level resulting in lowering in ground table due to excessive extraction & drainage out of ground water from the adjacent areas, if general ground water table is higher than the river bed level. In case the general ground water level is lower than riverbed water level, than it will have positive impact on ground water table will recharge vertically as well as laterally. In the former case may cause shortage of water for the vegetation & human settlement in the vicinity, but in later case it will help improve situations

- River is recharging the ground water, excessive mining will reduce the thickness of the natural filter material (sediments), infiltration through which the ground water recharged, so restriction in depth becomes necessity.

Mitigation Measures:

Mining in the area will be done above the water table as well as river bed water level, therefore much impact on water regime is not anticipated.

10.10 NOISE ENVIRONMENT

The sand mining projects are mainly not noisy as these are mainly manual in nature. But in this case the methodology adopted for mining is opencast semi mechanized mining method which may generate noise.

Impact on environment

At mines, noise is created by movement of machinery & transportation vehicles, etc. The noise level in the working environment are compared with the standards prescribed by Occupational Safety and Health Administration (OSHA-USA) which has been adopted and enforced by the Govt. of India through model rules framed under Factories Act, 1980 and CPCB 2000 norms. The summary of the permissible exposures in cases of continuous noise as per above rules is given below:

Table 10.8 Noise impact

Total time of exposure per day in hour	Sound pressure Db (A)	Remarks
1	2	3
8.0	90	No exposure in excess of 115 dB(A permissible
6.0	92	--
4.0	95	For any period of exposure falling in between any figure and lower figure as indicated in column (1), the permissible sound is to be determined by extrapolation or proportionate
3.0	97	
2.0	100	
1 ½	102	
1	105	

¾	107	scale.
½	110	
¼	115	

Noise at lower levels (sound pressure) is quite acceptable and does not have any bad effect on human beings, but when it is abnormally high- it incurs some maleficent effects.

Mitigation measures

The off-site receptors are not significantly affected as noise generated by mines is insignificant but for some disturbances due to vehicle movement. The following measures have been envisaged to reduce the impact from the transportation of minerals.

- Periodical monitoring of noise will be done.
- Transportation vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.
- Noise generated by these Equipment shall be intermittent & does not cause much adverse impact.
- Proper maintenance of all equipment/machines will be carried out which help in reducing noise level during operations.
- In addition, truck drivers will be instructed to make minimum use of horns in the village area and sensitive zones.

10.11 TRAFFIC ANALYSIS

For specific Gaya Mohana Block -47 it can be seen that the V/C ratio will change from 0.176 to 0.6095 for Village Road with LOS changing from “A” to “C” & V/C ratio will change from 0.0544 to 0.1122 for SH-70 with LOS remaining the same i.e. “A”. Excellent respectively, so the additional load on the carrying capacity will be affected to a minimum level.

10.12 SOCIO- ECONOMIC ENVIRONMENT

The implementation of the Sand mining project will throw opportunities to local people for both direct and indirect employment. Since the quarries will be leased out to successful allottees, sandstone mining operation in the state will get legalized and it will fetch income to the state exchequer. The project will

also provide impetus to industrialization of the area. With the implementation of the proposed mining project the occupational pattern of the people in the area will change making more people engaged in industrial and business activities rather in agriculture. Thus, there will be a gradual shifting of population from agriculture to mining and industry. Further, the mining and industrial activities in the area may lead to rapid increase in population and thereby urbanization. Due to urbanization of the area, employment opportunities will further increase.

10.13 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Proper environmental management plan are proposed for "Sand" mining project to mitigate the impact during the mining operation.

- Care will be taken that no labour camps will be allowed on river bed.
- Care will be taken that no cooking, or burning of woods will be allowed in the adjoining area.
- Prior to mining, short awareness program will be conducted for labors to make them aware to way of working.
- If some causality or injury to animal occurs, it will be informed to forest department and proper treatment will be given.
- No tree cutting, chopping, lumbering, uprooting of shrubs and herbs will be allowed.
- Corridor movement of wild mammals (If exists) will be avoided.
- Care will be taken that noise produced during vehicles movement for carrying sand are within the permissible noise level.
- No pilling of material will be in adjoining area.
- If wild animals are noticed crossing the river bed, it will not be disturbed or chased away, instead the labors will move away from their path.

10.14 ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION

Environmental Management Plan serves no purpose if it is not implemented with true spirit. Some loopholes in the EMP can also be detected afterwards when it is implanted and monitored. Thus, an implementation and monitoring programme has to be prepared.

The major attributes of environment are not confined to the mining site alone. Implementation of proposed control measures and monitoring programme has an implication on the surrounding area as well as for the region. Therefore, mine management will strengthen the existing control measures as elaborated earlier in this report and monitor the efficacy of the control measures implemented within the mining area relating to the following specific areas for eco-friendly mining:

a. Collection of air and water samples at strategic locations with frequency suggested and by analyzing thereof. If the parameters exceed the permissible tolerance limits, corrective regulation measure will be taken.
b. Collection of soil samples at strategic locations once in every year and analysis thereof with regard to deleterious constituents, if any.
c. The effectiveness of drainage system depends upon proper cleaning of all drains provided in the surrounding of mine area. Any blockage due to siltation or loose material will be checked at least once in a month.
d. Measurement of water level fluctuations in the nearby ponds, dug wells and bore wells.
e. Regular visual examination will be carried out to look for erosion of river banks. Any abnormal condition, if observed will be taken care of.
f. Measurement of noise levels at mine site, stationary and mobile sources, and adjacent villages will be done in every quarter of the year.
g. Plantation/afforestation as will done at place which authorized by Local Authority.

Table 10.9 Budget allotted for Environmental Management Plan

S. No	Description	Capital Cost (lakh)	Recurring Cost(lakh)
1	Pollution Control & Dust Suppression	**Nil**	**2.0**
2	Pollution Monitoring Air pollution Water pollution iv) Noise Pollution	**--**	**2.0**
3	Plantation and salary for one gardener (part time basis).	**4.45**	**0.5**

4	Haul road Maintenance Cost	**1.0**	**1.5**
TOTAL		**5.45**	**6.0**

10.15 MONITORING SCHEDULE AND PARAMETERS

Table 10.10 Monitoring Schedule and Parameters

S. No.	Description of Parameters	Schedule of Monitoring
1	Air Quality	24 hourly samples twice a week in each season except monsoon
2	Water Quality (Surface & Groundwater)	Twice a year
3	Soil Quality	Once in a year in project area
4	Noise Level	Twice a year for first two years & then once a year
5	Socio-economic Condition	Once in 3 years
6	Plantation monitoring	Once in a season

10.16 BENEFIT OF MINING

- **PHYSICAL BENIFITS**

Improvement in the Physical Infrastructure

The opening of the proposed project will enhance the following physical infrastructure facilities in the adjoining areas.

a. **Road Transport:** There will be improved road communication due to the proposed project and maintenance will also be done time to time.

b. **Market:** Generating useful economic resource for construction. Excavated mineral will provide a good market opportunity.

c. **Enhancement of green cover:** As a part of reclamation plan, plantation will be done at place which authorized by Local Authority.

a. **Creation of community assets** (infrastructure) like provision for drinking water, construction of school buildings, village roads/ linked roads, dispensary & health center, community center, market place etc. as a part of corporate social responsibility.

The impact on the civic amenities will be substantial after the commencement of mining activities. The basic requirement of the community needs will be strengthened by extending health care, educational facilities developed in the township to the community, providing drinking water to the villages, building/strengthening of existing roads in the area. The proponent will initiate the above amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities. Medical facilities will be provided in the form of first-aid facility at the mine. These medical facilities will also be available to local people in the surrounding in case of emergencies.

- **SOCIAL BENEFITS**

- Generation of employment and improved standard of living;
- Increased revenue to the State by way of royalty, taxes and duties; and
- Superior communication and transport facilities etc.
- There will be significant change in the socio-economic scenario of the area.
- The proposed project will enhance the prospects of employment. Recruitment for the unskilled and semiskilled workers for the proposed project will be from the nearby villages.
- The development of the basic amenities viz. roads, transportation, electricity, drinking water, proper sanitation, educational institutions, medical facilities, entertainment, etc. will be developed as far as possible.
- Overall, the proposed project will change living standards of the people and improve the socio-economic conditions of the area.

a) **Increase in Employment** Potential due to the project activity. Employment opportunities will increase both directly as well indirectly.

b) **Contribution to the Exchequer** as the saleable minerals will be given royalty. Since the quarries will be leased out to successful allot tees, mining operation in the state will get legalized and it will fetch income to the state exchequer.

c) **Increased Health related activities**: Healthcare promotional activities will be undertaken. Pre-placement& and Periodic medical check-up will be done, which will lift the general health status of the residents of the area. Health camps, medical aids, family welfare programs, immunization camp sports will be arranged.

d) **Educational attainments**: educational activities will be promoted by the lessee. Awareness program will be arranged covering basic issues related to primary level education, environment, health and hygiene etc.

e) **Strengthening of existing community** facilities through the Community Development Programme.

ENVIRONMENTAL BENEFITS

- **Enhancement Of Green Cover**

Plantation/afforestation will be done as per program 445 plants will be planted done at place which authorized by Local Authority within 5 km from lease boundary along with provision for maintenance for 5 years. Post plantation, the area will be regularly monitored in every season for evaluation of success rate. For selection of plant species local people will also be involved. The management will provide free saplings of fruit and other trees, etc. to local during rain for plantation. This will increase the consciousness in workers and near-by villagers for greenery. Fruit trees can contribute towards their financial gains.

10.17 CORPORATE ENVIRONMENTAL RESPONSIBILITY

2 % of capital cost of the project cost will be allotted for the Corporate Environmental Responsibility as per OM dated 1st May 2018.

CER cost will be 2% of the total project cost. This amount will be used for social welfare.CER cost is Rs. 16, 98,950/-.

For each activity the funds to be earmarked by the proponent will be decided after discussion with the local authority/people and the beneficiaries during public hearing. It has been planned to undertake a concurrent evaluation of the activities to be taken up under the CER programme.

10.18 CONCLUSIONS

- The mining operations will meet the compliance requirements of MoEF&CC;
- Community impacts will be beneficial, as the project will generate significant economic benefits for the region;
- Adoption of Best Available Technology and Best Management Practices with more environmentally friendly process
- With the effective implementation of the Environment Management Plan (EMP) during the mining activities, the proposed project can proceed without any significant negative impact on environment.

CHAPTER – XI

DISCLOSURE OF CONSULTANT ENGAGED

CHAPTER-11

DISCLOSURE OF CONSULTANTS ENGAGED

INDEX

S. No.	CONTENTS	Page No.
11.0	DISCLOSURE OF CONSULTANTS ENGAGED	196-197/XI

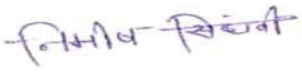
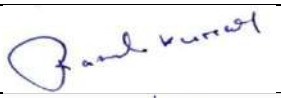
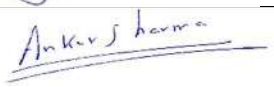
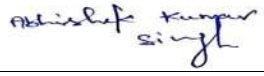
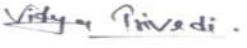
CONSULTANTS ENGAGED

The consultant engaged for the preparation of the EIA/EMP of the project is M/s Cognizance Research India Private Ltd. The information about the company with address is as follows:

Basic Information about the Consultant Engaged is as follows stated below:

Name of the Consultant	Cognizance Research India Private Ltd.
Address	Suite- B 02 H-61Sector –63, Noida - 201301, U.P
Credentials	Accredited by QCI/NABET

Personnel involved in the preparation of EIA/EMP report are stated below:

S. No.	Name	EC/FAE	Details	Signature
01	Mr. Ankur Sharma	EC	EIA Coordinator (Mining of minerals opencast).	
02	Mr. Nimish Singhvi	FAE	AP, SHW & GEOLOGY	
03	Mr. Bhavesh Jha	FAE	SE	
04	Ms. Rahul Kumar	FAE	AQ	
05	Mr. Ankur Sharma	FAE	WP	
05	Ms. Pooja	FAE	EB	
06	Mr. PM Jain	FAE	RH, NV	
07	Abhishek Kumar Singh	FAE	LU	
08	Vidhya Bhushan Trivedi	FAE	HG	
09	Vijay Sharma	FAE	SC	

Accreditation Certificate of the Consultant Engaged:



भारतीय गुणवत्ता परिषद्
QUALITY COUNCIL OF INDIA
QCI Creating an Ecosystem for Quality

NABET

National Accreditation Board for Education and Training

Certificate of Accreditation

Cognizance Research India Pvt. Ltd., Noida

B-02, H-61, H BLOCK, Sector 63, Noida, Gautam Buddha Nagar, Uttar Pradesh – 201301

*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 and underground mining	1	1 (a) (i)	A
2.	Mineral beneficiation	7	2 (b)	A
3.	Building and construction projects	38	8 (a)	B
4.	Townships and area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated January 12, 2024 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/24/3116 dated Jan 19, 2024. The accreditation needs to be renewed before the expiry date by Cognizance Research India Private Limited, Noida following due process of assessment.

Issue Date
Jan 19, 2024

Valid up to
Sept 09, 2026

Mr. Ajay Kumar Jha
Sr. Director, NABET

Certificate No.
NABET/EIA/23-26/RA 0317

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.

Consultant Contact Details:

Cognizance Research India Private Ltd.

Address – Suite- B-02, Block-H-61, Sector–63, Noida - 201301, U.P.

Mobile No. - +919910047760, +919953843815

Email id – criplindia@gmail.com

ANNEXURE I
TERMS OF REFERENCES
(TOR)

File No.SIA/1(a)/2362/2023

Goverment of India

State Level Environment Impact Assessment Authority

Bihar

***

To,

M/s AKHILESH KUMAR

M/S MAA DURGA FUEL STATION, Vill - Pathra English, PO - Odhanpur, PS - Nawada, Dist - Nawada, ,

Nawada-805123

Bihar

Tel.No.-; Email:gayablock47@gmail.com

Sub. Terms of Reference to the Sand Mining Project, Block 47 (Gaya Mohana 01/02/03) Sand Ghat, M/S MAA DURGA FUEL STATION, Vill - Pathra English, PO - Odhanpur, PS - Nawada, Dist - Nawada,

Dear Sir/Madam,

This has reference to the proposal submitted in the Ministry of Environment, Forest and Climate Change to prescribe the Terms of Reference (TOR) for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006. For this purpose, the proponent had submitted online information in the prescribed format (Form-1) along with a Pre-feasibility Report. The details of the proposal are given below:

1. Proposal No.:	SIA/BR/MIN/425052/2023
2. Name of the Proposal:	Sand Mining Project, Block 47 (Gaya Mohana 01/02/03) Sand Ghat
3. Category of the Proposal:	Non-Coal Mining
4. Project/Activity applied for:	1(a) Mining of minerals
5. Date of submission for TOR:	20 Apr 2023

Date : 25-04-2023

Mr. Sudhir Kumar

(Member Secretary)

Office : **2nd Floor, Beltron B**

Phone No : Mobile : **9955721191**

Email id : **seiaa.ms.br@gmail.com**

Note : This is auto tor granted letter.

In this regard, under the provisions of the EIA Notification 2006 as amended, the Standard TOR for the purpose of preparing environment impact assessment report and environment management plan for obtaining prior environment clearance is prescribed with public consultation as follows:

STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE

Terms of Reference (TOR) for preparation of Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) for "Mining of Minerals" as per the EIA Notification, 2006 has been devised to improve the quality of the reports and facilitate decision-making transparent and easy. TOR will help the project proponents to prepare report with relevant project specific data and easily interpretable information. TOR for mining of minerals is expected to cover all environmental related features.

Mining of minerals plays a positive role in the process of country's economic development. In addition to the contribution towards economic growth, mining can also be a major source of degradation of physical as well as social environment, unless it is properly managed. Environmental impacts can arise during all activities of the mining process. Minimizing the damage due to mining operations depends on sound environmental practices in a framework of balanced environmental legislation. The potential adverse effects of mining activities include air pollution, surface and groundwater pollution, noise and vibration, damage to local ecology, natural topography and drainage, depletion of water resources etc. All these environmental components are required to be considered while selecting a proper methodology of mining, mitigation measures to reduce pollution load, conservation of natural resources etc.

The projects of mining of minerals as stated in the schedule require prior environment clearance under the EIA notification, 2006. Category 'A' Projects are handled in the MoEF&CC and Category 'B' projects are being handled by the respective State Environment Impact Assessment Authorities (SEIAAs) notified by MoEF&CC and following the procedure prescribed under the EIA Notification, 2006. As per this Notification, as amended, the projects of mining of minor minerals with mining lease area equal to or greater than 50 hectare are to be handled at the level of the MoEF&CC for grant of EC. Such projects with mining lease area less than 50 hectare are to be handled by the respective State Environment Impact Assessment Authority (SEIAA).

1(a):STANDARD TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR NON-COAL MINING PROJECTS AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT

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.

2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.

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.

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).

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.

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.

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.

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.

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.

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.

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

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.

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.

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.

15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

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.

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.

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.

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.

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).

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.

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.

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.

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.

25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

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.

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.

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.

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.

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.

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.

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.

33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

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.

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.

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.

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.

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.

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.

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.

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.

42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

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.

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.

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ANNEXURE II
LETTER OF INTENT
(LOI)

जिला खनन् कार्यालय, गया।

पत्रांक 5501 / खनन, गया, दिनांक 29/11/22

प्रेषक,

अमरेश कुमार (बि.प्र.से.)
वरीय उप समाहर्त्ता–सह–
प्रभारी खनिज विकास पदाधिकारी, गया।

सेवा में,

M/s Maa Durga Fule Station
Prop- Akhilesh Kumar
VILL-PATHRA ENGLISH, PO-ODHANPUR, PS-NAWADA,
DISTT-NAWADA, PIN CODE-805123
Email-esmines@rediffmail.com
Mobile-9955721191

विषय :– **गया जिलान्तर्गत बालूखण्ड संख्या–47 (गया मोहाना–1/2/3) की आगामी पाँच वर्षों के लिए बन्दोबस्ती हेतु दिनांक–23.11.2022 को सम्पन्न ई–नीलामी में उच्चतम् डाकवक्ता घोषित होने के फलस्वरूप सैद्धांतिक स्वीकृत्यादेश के संबंध में।**

महाशय,

उपर्युक्त विषयक गया जिलान्तर्गत बालूखण्ड संख्या–47 (गया मोहाना–1/2/3), कुल रकवा–44.5 हेक्टेयर की आगामी पाँच वर्षों के लिए बन्दोबस्ती हेतु दिनांक–23.11.2022 को सम्पन्न ई–नीलामी में आपके द्वारा **निर्धारित सुरक्षित जमा राशि मो0- 6,00,75,000/–(छः करोड़ पचहत्तर हजार) रू0** के विरूद्ध **मो0– 7,80,97,500/–(सात करोड अस्सी लाख सन्तानवे हजार पाँच सौ) रू0** की उच्चतम डाक बोली गई, फलस्वरूप आप उच्चतम/सफल डाकवक्ता घोषित हुए हैं। निविदा दस्तावेज की कंडिका–20 (i) के आलोक में आपके द्वारा नीलामी राशि की 25 प्रतिशत राशि (जमा अग्रधन राशि समायोजनोपरान्त) प्रतिभूति राशि **मो0–45,05,625/–(पैंतालीस लाख पाँच हजार छः सौ पच्चीस) रू0** के भुगतान का साक्ष्य दिनांक–24.11.2022 को कार्यालय में प्रस्तुत किया गया है।

निविदा दस्तावेज की कंडिका 20(i)(ii)(iii)(iv)(v) के आलोक में जिलान्तर्गत बालूखण्ड संख्या–47 (गया मोहाना–1/2/3) के सैद्धांतिक स्वीकृति की शर्त्त एवं बंधेज निम्नवत् हैं :–

1. **बालूखण्ड संख्या–47 (गया मोहाना–01) से संबंधित विवरणी निम्नवत् है :–**

क्र.	नदी का नाम	रकवा (हेक्टेयर में)	Geo Coordinates		
				Latitude	Longitude
1	मोहाना (Non-Perennial)	25	A	24°42'9.18"N	85° 0'53.36"E
			B	24°42'8.58"N	85° 0'57.56"E
			C	24°41'18.68"N	85° 1'5.30"E
			D	24°41'17.12"N	85° 1'2.31"E
2	वन क्षेत्र से दूरी		लगभग 1.63 कि.मी.		
3	सुरक्षित क्षेत्र/वन अभ्यारण्य क्षेत्र/पक्षी अभ्यारण्य/वन्य जीव आश्रयण क्षेत्र से दूरी		लगभग 21.42 कि.मी.		
4	बालूघाट/बालूखण्ड से 500 मीटर के अन्दर खनन पट्टा क्षेत्र की स्थिति		लागू नहीं		
5	पुरातात्विक स्थल से दूरी		लागू नहीं		
6	खनन योग्य मात्रा		450000 घनमीटर		

बालूखण्ड संख्या–47 (गया मोहाना–02) से संबंधित विवरणी निम्नवत् है :–

क्र.	नदी का नाम	रकवा (हेक्टेयर में)	Geo Coordinates		
				Latitude	Longitude
1	मोहाना (Non-Perennial)	07	A	24°40'32.33"N	85° 1'49.24"E
			B	24°40'36.94"N	85° 1'52.53"E
			C	24°40'23.82"N	85° 2'13.55"E
			D	24°40'23.63"N	85° 2'10.93"E
2	वन क्षेत्र से दूरी		लगभग 3.98 कि.मी.		
3	सुरक्षित क्षेत्र/वन अभ्यारण्य क्षेत्र/पक्षी अभ्यारण्य/वन्य जीव आश्रयण क्षेत्र से दूरी		18.69 कि.मी.		
4	बालूघाट/बालूखण्ड से 500 मीटर के अन्दर खनन पट्टा क्षेत्र की स्थिति		लागू नहीं		
5	पुरातात्विक स्थल से दूरी		लागू नहीं		
6	खनन योग्य मात्रा		126000 घनमीटर		

बालूखण्ड संख्या–47 (गया मोहाना–03) से संबंधित विवरणी निम्नवत् है :–

क्र.	नदी का नाम	रकवा (हेक्टेयर में)	Geo Coordinates		
				Latitude	Longitude
1	मोहाना (Non-Perennial)	12.5	A	24°39'56.83"N	85° 2'32.07"E
			B	24°39'59.71"N	85° 2'35.77"E
			C	24°39'39.03"N	85° 2'51.68"E
			D	24°39'35.63"N	85° 2'46.47"E
2	वन क्षेत्र से दूरी		लगभग 2.3 कि.मी.		
3	सुरक्षित क्षेत्र/वन अभ्यारण्य क्षेत्र/पक्षी अभ्यारण्य/वन्य जीव आश्रयण क्षेत्र से दूरी		लगभग 17.17 कि.मी.		
4	बालूघाट/बालूखण्ड से 500 मीटर के अन्दर खनन पट्टा क्षेत्र की स्थिति		लागू नहीं		
5	पुरातात्विक स्थल से दूरी		लागू नहीं		
6	खनन योग्य मात्रा		225000 घनमीटर		

2. भुगतान की शर्त्तें :–

(i) नीलामी–राशि केवल प्रथम वर्ष के लिए बंदोबस्ती की राशि मानी जाएगी। दूसरे वर्ष और उसके अनुक्रमी वर्षों में बंदोबस्ती की राशि गत् वर्ष की बंदोबस्ती राशि के 120 प्रतिशत् अथवा समय–समय पर सरकार द्वारा निर्धारित निदेशों के अनुरूप होगा।

(ii) प्रतिभूति जमा के अतिरिक्त आपको निम्नलिखित समय सारणी/भुगतान अनुसूची के अनुसार बंदोबस्ती की राशि का भुगतान करना होगा :–

किस्त	भुगतान की नियत तारीख
प्रथम किस्त (50%)	(क) पट्टा संविदा निष्पादन से पहले (पहले वर्ष के लिए) (ख) प्रथम वर्ष में पट्टा संविदा निष्पादन की तिथि से एक वर्ष पूरा होने के 60 दिन पूर्व और अनुक्रमिक वर्षों में इसी प्रक्रिया का पालन करते हुए जमा किया जायेगा।
द्वितीय किस्त (25%)	पट्टा संविदा निष्पादन की तिथि से 03 महीना पूरा होने से पहले।
तृतीय किस्त (25%)	पट्टा संविदा निष्पादन की तिथि से 06 महीना पूरा होने से पहले।

3. **GST का भुगतान :–** जी0एस0टी0 के रूप में प्रचलित दर के अनुसार राशि वाणिज्य कर विभाग को भुगतान करना होगा। जिला खनन् कार्यालय, गया में जी0एस0टी0 भुगतान का प्रमाण प्रत्येक किस्त के साथ देना होगा।

4. **आयकर/अन्य करों का भुगतान :–** आयकर अधिनियम के तहत आयकर एवं उस पर नियमानुसार देय अधिभार का भुगतान आयकर विभाग के प्रचलित दर के अनुसार एक मुश्त करना होगा। यह राशि बंदोबस्ती राशि के प्रत्येक किस्त के साथ देय होगी। जिला खनन् कार्यालय, गया द्वारा यह राशि आयकर मद में जमा करा दी जायेगी।

5. **जिला खनिज फाउन्डेशन :–** Bihar Mineral District Foundatin Rules, 2018 के अनुसार बंदोबस्ती राशि की 2 प्रतिशत राशि जिला खनिज फाउण्डेशन, गया के नाम भुगतेय बैंक ड्राफ्ट के माध्यम से करना होगा।

6. **वैधानिक अनापत्ति :–** बालूघाट संचालन हेतु आवश्यक समस्त वैधानिक अनापत्ति/अनुमति यथाः– खनन योजना, पर्यावरणीय स्वीकृति, जल एवं वायू सहमति आदि आपके द्वारा सैद्धांतिक स्वीकृत्यादेश (LOI) निर्गत तिथि से तीन माह की अवधि के अन्दर प्राप्त करना सुनिश्चित करेंगे। वैधानिक अनापत्ति/अनुमति प्राप्त करने के पश्चात् ही बालू खनन प्रारंभ किये जाने हेतु कार्यदेश निर्गत किया जा सकेगा। वैधानिक अनापत्ति/अनुमति निम्नानुसार हैः–

   i. **खनन योजनाः–** खनन योजना प्रभावी नियमों में उल्लिखित प्रावधानों के अनुसार सफल डाकवक्ता/बंदोबस्तधारी द्वारा QCI/NABET से मान्यता प्राप्त Professional RQP से तैयार कर निदेशक, खान या विभाग द्वारा प्राधिकृत पदाधिकारी के समक्ष लेटर ऑफ इंटेंट निर्गत होने से 30 दिनों के अन्दर अनुमोदन के लिए प्रस्तुत करेगा। खनन योजना बनाने पर होने वाले व्यय का वहन संबंधित खनिज डाकवक्ता/बंदोबस्तधारी द्वारा किया जायेगा। साथ ही खनन योजना की जाँच हेतु समाहर्त्ता/विभाग अन्य ऐजेंसी चयनित कर सकेगा, जिसका निर्धारित फीस/खर्च भी बंदोबस्तधारी को ही वहन करना होगा। सफल डाकवक्ता/बंदोबस्तधारी खनन योजना के अनुसार खनन करना सुनिश्चित करेंगे।

   ii. **पर्यावरणीय स्वीकृतिः–** सफल डाकवक्ता/बंदोबस्तधारी खनन योजना अनुमोदन के 15 दिनों के अन्दर पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के सक्षम प्राधिकार के समक्ष पर्यावरणीय स्वीकृति (EC) के लिए प्रस्ताव समर्पित करेगा। समयबद्ध रीति से पर्यावरणीय एवं अन्य वैधानिक स्वीकृति प्राप्त करना सफल डाकवक्ता की जिम्मेवारी होगी। अपेक्षित पर्यावरणीय स्वीकृति एवं अन्य आवश्यक स्वीकृति प्राप्त करने में किसी भी प्रकार की देरी के लिए सफल डाकवक्ता स्वंय जिम्मेवार होंगे एवं इस संबंध में किसी भी प्रकार की क्षतिपूर्ति के लिए कोई भी दावा मान्य नहीं होगा।

   iii. **जल एवं वायु सहमतिः–** पर्यावरणीय स्वीकृति प्राप्त करने के पश्चात सफल डाकवक्ता अधिकतम 07 (सात) दिवस के अंदर जल (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1974 तथा वायु (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1981 के अधीन सक्षम पदाधिकारी के समक्ष सहमति/ Consent to Establish/ Consent to Operate प्राप्त करने हेतु आवेदन प्रस्तुत करेगा।

   iv. **खनन के लिए अनुमत मात्राः–** खनन योजना, पर्यावरणीय स्वीकृति तथा जल (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1974 तथा वायु (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1981 के तहत प्राप्त सहमति मे वर्णित बालू की मात्रा (इनमें से जो भी कम हो) तक ही खनन अनुमान्य होगा। यदि अनुमोदित खनन योजना, पर्यावरणीय स्वीकृति तथा जल एवं वायु सहमति में खनन योग्य मात्रा कम किये जाने पर भी वार्षिक देय बंदोबस्ती राशि किसी स्थिति में कम नहीं की जाएगी।

   v. बिना किसी वैध कारण के पर्यावरणीय स्वीकृति, Consent to Establish/ Consent to Operate /जल एवं वायु सहमति प्राप्त नहीं कर पाते है या प्राप्त करने में रूचि नहीं लेते है तो, समाहर्त्ता द्वारा अग्रधन

7. **बंदोबस्ती विलेख/पट्टा संविदा (डीड) निष्पादन करना :–**

   i. सफल डाकवक्ता द्वारा सभी वैधानिक अनापत्ति प्राप्त करने के उपरान्त 5 वर्षों की अवधि के लिए बालू खनन करने हेतु समानुदान/बन्दोबस्ती स्वीकृत किया जाएगा। सफल डाकवक्ता विहित प्रपत्र में संबंधित नियमानुसार बंदोबस्ती विलेख अथवा उसके समरूप एक प्रपत्र, कार्य

आरंभ करने के पहले, निष्पादित करेगा तथा यथा विहित अपेक्षित प्रतिभूति राशि जमा देगा। बंदोबस्तधारी के पट्टे की अवधि विलेख/संविदा निष्पादन की तिथि से पॉच वर्षों के लिए विधिमान्य होगा।

ii. बंदोबस्तधारी को निष्पादित **संविदा का निबंधन संबंधित विभाग के प्रचलित नियमों के अधीन 01 माह के अन्दर** कराना अनिवार्य होगा।

8. <u>सामान्य शर्त्तें :–</u>

(i) बंदोबस्तधारी नदी तट से बालू प्रेषण के बिन्दु पर एक साईनबोर्ड एवं सीमा स्तंभ का अधिष्ठापन करायेगा जिसपर बंदोबस्तधारी का नाम एवं पता, बंदोबस्ती की अवधि, स्थानीय मैनेजर का नाम एवं पता तथा बालू का विक्रय मूल्य प्रदर्शित किया जाएगा। यदि साईन बोर्ड निरीक्षण में नहीं पाया गया तो शास्ति अधिरोपित की जाएगी।

(ii) बंदोबस्तधारी श्रम विधियों के प्रावधानों के अनुसार आश्रय गृह, पीने का पानी, शिशु गृह (क्रेचेज) तथा फर्स्ट एड किट की व्यवस्था संबंधित बालूघाटों में लगे श्रमिकों के लिए करेगा।

(iii) बंदोबस्तधारी संबंधित क्षेत्रों का निरीक्षण करेगा तथा स्वयं/ अथवा अपने द्वारा अधिकृत प्रतिनिधियों के माध्यम से बालूघाटों का प्रचालन करेगा। किसी रूप में किये गये उपपट्टा (सबलेटिंग) के लिए बंदोबस्ती रद्द कर दी जाएगी। बालूघाटों/नदी तल तक बालू के परिवहन के प्रयोजनार्थ पहुँच–पथ (अप्रोच रोड़) का निर्माण सफल डाकवक्ता/बंदोबस्तधारी द्वारा स्वयं अपने खर्च से किया जाएगा।

(iv) बालूघाट की सुरक्षा की जिम्मेदारी सफल डाकवक्ता/बंदोस्तधारी की होगी।

(v) सफल डाकवक्ता/बंदोबस्तधारी बंदोबस्त क्षेत्र के भीतर किसी अवैध खनन के लिए जिम्मेवार होगें और पाई गई किसी शिकायत पर गंभीरता से विचार किया जाएगा तथा बंदोबस्तधारी के विरूद्ध अपराधिक मामला दायर किया जाएगा।

(vi) सफल डाकवक्ता/बंदोबस्तधारी समाहर्त्ता द्वारा बालूघाटों के संचालन के संबंध में लोकहित में जारी निर्बंधनों और शर्त्तों तथा निदेशों का पालन करेगा।

(vii) यथोक्त शर्त्तों, बंधेजों एवं निर्बधनों का पालन नहीं करने पर कारण पृच्छा निर्गत कर बंदोबस्ती रद्द करने की कार्रवाई की जा सकेगी ।

(viii) सफल डाकवक्ता/बंदोबस्तधारी को खनन राजस्व/जी0एस0टी0/आयकर/स्टाम्प शुल्क/ रजिस्ट्रेशन फीस का भुगतान नही करने की दशा में 30 दिनों के अंदर कारण स्पष्ट करने हेतु नोटिस दी जायेगी। निर्धारित अवधि के अंदर सफल डाकवक्ता/बंदोबस्तधारी द्वारा बकाया का भुगतान करने में असफल रहने की दशा में राशि वसूली की कार्रवाई के साथ–साथ बंदोबस्ती रद्द करने की भी कार्रवाई की जाएगी।

(ix) नीलामी हेतु प्रस्तावित बालूघाटों से संबंधित तकनीकी तथा अन्य बिन्दुओं यथा भूमि के अंचल, थाना, मौजा, खाता, खेसरा, रकबा तथा GPS Co-ordinate के संबंध में विवाद/त्रुटि पाए जाने पर संशोधन का अधिकार संबंधित जिला खनन कार्यालय का होगा। बालूघाटों का सीमांकन एवं नियमानुसार निर्धारित आयाम/विशिष्टियों का सीमा स्तंभ का अधिष्ठापन GPS Co-ordinate के अनुसार बालू बंदोबस्तधारी को कराना होगा तथा खनन के क्रम में संधारित कराना सफल डाकवक्ता/बंदोबस्तधारी की जवाबदेही होगी, जिसे RQP/ अंचलाधिकारी की उपस्थिति में प्रमाणित कराकर खनन कार्य कराना होगा। बालूघाटों के निर्धारित क्षेत्र का Reduced Level (RL)/Pre-Level (PL) एवं Satellite images मानसून के पूर्व एवं बाद का समर्पित करना होगा।

(x) बालघाट से लिकं रोड और बालूघाट के बीच कोई प्राकृतिक जल मार्ग सिचांई नहर पडती हो सफल डाकवक्ता/बन्दोबस्तधारी जल ससांधन विभाग की पूर्व अनुमति से अस्थायी संरचनाएँ खड़ा कर सकेगा। पूर्व अनुमति के लिए ऐसे आवदेन जल ससांधन विभाग के सबंधित मुख्य अभियतां के समक्ष दिए जाएगें।

(xi) बालूघाट में रैयती/बंदोबस्त जमीन होने पर संबंधित रैयत से सहमति प्राप्त कर बालू का खनन करना होगा। यह जिम्मेदारी पूर्णतः बंदोबस्तधारी की होगी एवं विभाग से कोई क्षतिपूर्ति का दावा मान्य नहीं होगा।

(xii) बंदोबस्तधारी द्वारा बंदोबस्ती अवधि के दौरान किसी भी कारण से खनन कार्य नहीं करने की स्थिति में किसी भी प्रकार का मुआवजा/नुकसान एवं क्षतिपूर्ति का दावा मान्य नहीं होगा।

(xiii) ई–नीलामी एवं बालूघाट की बंदोबस्ती अवधि के दौरान उत्पन्न किसी भी प्रकार का विवाद बिहार खनिज (समानुदान, अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली 2019, (यथा संशोधित) के अधीन होगा।

(xiv) सफल डाकवक्ता/बन्दोबस्तधारी को इलेक्ट्रॉनिक माध्यम से भेजी गई कोई भी सूचना/निदेश /आदेश इत्यादि IT Act के तहत स्वीकार्य साक्ष्य के रूप में माना जायेगा।

विश्वासभाजन

वरीय उप समाहर्त्ता–सह–
प्रभारी खनिज विकास पदाधिकारी, गया।

ANNEXURE III
MINE PLAN APPROVAL LETTER

बिहार सरकार
खान एवं भूतत्व विभाग।

पत्रांक– 1793 /एम0, पटना, दिनांक– 31/3/2027

प्रेषक,

सुरेश प्रसाद,
विशेष कार्य पदाधिकारी।

सेवा में,

Email

M/s Maa Durga Fule Station
Prop- Akhilesh Kumar
VILL-PATHRA ENGLISH, PO-ODHANPUR, PS-NAWADA,
DISTT-NAWADA, PIN CODE-805123
Email-esmines@rediffmail.com

विषयः– **गया जिलान्तर्गत बालूखण्ड संख्या–47 (गया मोहाना–1/2/3) के खनन योजना के अनुमोदन के संबंध में।**

महाशय,

उपर्युक्त विषय के संबंध में कहना है कि बिहार बालू खनन नीति–2019 यथा संशोधित एवं बिहार खनिज (समानुदान अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली, 2019 (यथा संशोधित 2021) के नियम–17 में वर्णित प्रावधानों के तहत् **गया जिलान्तर्गत बालूखण्ड संख्या–47 (गया मोहाना–1/2/3)** से संबंधित समर्पित खनन योजना के अनुमोदन पर प्राधिकृत समिति द्वारा समीक्षा की गई। समीक्षोपरांत निम्न शर्त्तों एवं बंधेजों के तहत् खनन योजना अनुमोदित की जाती है –

1. उक्त खनन योजना केन्द्र सरकार/राज्य सरकार द्वारा विनियमित अन्य सभी अधिनियम/नियमावली में वर्णित प्रावधानों को तथा किसी न्यायालय/अन्य न्यायिक संस्था द्वारा पारित किये गये न्यायादेश को बिना प्रभावित किये अनुमोदित किया जा सकता है।
2. उक्त खनन योजना का अनुमोदन खान एवं खनिज (विकास एवं विनियमन) अधिनियम, 1957 (यथा संशोधित), बिहार खनिज (समानुदान अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली, 2019 के नियम–17, वन संरक्षण अधिनियम, 1980, पर्यावरण सुरक्षा अधिनियम, 1986, श्रम संबंधी नियम, EMGSM 2020 तथा अन्य सभी सुसंगत अधिनियम/ नियमावली तथा उनमें वर्णित प्रावधानों के प्रतिकूल नही होगा। लीज के रकवा के अनुसार प्रति हेक्टेयर कम से कम 10 पौधा लगाना होगा तथा 50 प्रतिशत Survival सुनिश्चित करना होगा।
3. खनन योजना में निहित शर्त्तों का पालन करते हुए ही बालू खनिज का खनन् तथा प्रेषण किया जायेगा।
4. संबंधित सक्षम प्राधिकार से यथा वांछित प्रमाण–पत्र प्राप्त कर विभाग को अवगत कराना अनिवार्य होगा।
5. यदि किसी भी समय खनन योजना में वर्णित शर्त्तों के अनुपालन में अनियमितता पायी जाती है, तो खनन पदाधिकारी को नियमानुसार आवश्यक कार्रवाई करने का अधिकार होगा।
6. संबंधित बालूघाट में खनिज की उपलब्धता, पहुँच पथ का निर्माण तथा अन्य खनन् कार्यों से संबंधित सम्पूर्ण जबाबदेही बालूघाट संचालनकर्त्ता की होगी तथा इसमें किसी भी तरह का कोई दावा अथवा क्षतिपूर्ति मान्य नहीं होगा।
7. खनन योजना मे वर्णित सभी तकनीकि तथा अन्य बिन्दुओं से संबंधित ऑकड़ों की सत्यता / वैधता की जिम्मेवारी RQP/बंदोबस्तधारी की होगी तथा भविष्य में उपर्युक्त के संबंध में किसी प्रकार की भिन्नता/अनियमितता की पूरी जबावदेही RQP/बंदोबस्तधारी की होगी।

P.T.O.

8. खनन् कार्य के दौरान घाट संचालनकर्त्ता द्वारा पर्यावरण संबंधी मानकों का नियमित रूप से अनुश्रवण करने की व्यवस्था करनी होगी।खनन् कार्य के दौरान नदियों के प्राकृतिक बहाव आदि में किसी भी तरह का व्यवधान/रूकावट/बदलाव करना पूर्ण रूप से प्रतिबंधित होगा।
9. बालूघाट में Secondary Loading की व्यवस्था इस प्रकार सुनिश्चित की जाएगी ताकि गीला बालू का परिवहन नहीं हों।
10. यद्यपि खनन योजना में Semi-mechanised mining को प्राथमिकता दी गयी है तथापि Manual Mining पर कोई प्रतिबंध नहीं रखा जाएगा एवं स्थानीय व्यक्तियों को नियोजन देने के दृष्टिकोण से Manual Mining को उचित अवसर प्रदान करना होगा।
11. सफल डाकवक्ता/बंदोबस्तधारी द्वारा खान एवं खनिज (विकास एवं विनियमन) अधिनियम, 1957, बिहार खनिज (समानुदान अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली, 2019 (यथा संशोधित 2021) तथा बिहार बालू खनन नीति, 2019 के प्रावधानों का अनिवार्य रूप से पालन किया जायेगा।
12. सफल डाकवक्ता/बंदोबस्तधारी को पर्यावरण सुरक्षा हेतु सभी उपाय करने होगें तथा नियमित रूप से जल/वायु की गुणवत्ता की जाँच/अनुश्रवण की व्यवस्था सुनिश्चित करनी होगी।
13. सफल डाकवक्ता/बंदोबस्तधारी को उत्पादन/प्रेषण का आँकड़ा एवं पंजी संधारित करना अनिवार्य होगा जिसे नियमित रूप से अद्यतन किया जाएगा।
14. संचालन करने वाले घाटों की सीमांकन कराना, RL/PL प्राप्त करना एवं उसे खनन के क्रम में संधारित कराना सफल डाकवक्ता/बंदोबस्तधारी की जवाबदेही होगी, जिसे RQP/अंचलाधिकारी की उपस्थिति में प्रमाणित करवाकर खनन कार्य करना होगा।
15. बिहार खनिज (समानुदान अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली, 2019 (यथा संशोधित 2021) में वर्णित प्रतिबंधित क्षेत्रों में किसी प्रकार का खनन् कार्य वर्जित होगा।
16. बालूघाटों से बालू का निष्कासन एवं प्रेषण आबादी से सटे ग्रामीण सड़क को छोड़कर अलग मार्ग से करना होगा।
17. खनन योजना की एक–एक प्रति, जो संबंधित RQP द्वारा प्रत्येक पृष्ठ पर हस्ताक्षरित होगी, निदेशक, खान एवं भूतत्व विभाग के कार्यालय के अतिरिक्त समाहर्त्ता, गया के गोपनीय कोषांग, उपनिदेशक, मगध अंचल, गया के कार्यालय में उपलब्ध कराना सुनिश्चित किया जायेगा, ताकि किसी भी समय इसकी जाँच की जा सके।

प्राधिकृत समिति की अनुशंसा के आलोक में उपरोक्त शर्त्तों के साथ **गया जिलान्तर्गत बालूखण्ड संख्या–47 (गया मोहाना–1/2/3)** से संबंधित समर्पित खनन योजना के अन्तर्गत ही बालू उत्खनन् कार्य सुनिश्चित कराया जायेगा।

विश्वासभाजन

31.3.2023

(सुरेश प्रसाद)
विशेष कार्य पदाधिकारी

MINING PLAN

WITH

PROGRESSIVE MINE CLOSURE PLAN

Submitted under Rule (17) of Bihar Minerals (concession, prevention of illegal transportation & storage) Rules 2019

OF

BLOCK-47 (GAYA MOHANA-01/GAYA MOHANA-02/ GAYA MOHANA-03) SAND GHAT RIVER – MOHANA

in Mauja Bataspur, Chhanchh, Moratal, Ghogharnya, Gurawan, Kenan, Anchal- Bodh Gaya, Dist - Gaya, (Bihar).

APPLIED AREA- 44.5 HECTARES

PLAN PERIOD: FOR FIVE YEARS



Settlee

M/s Maa Durga Fule Station
Akhilesh Kumar
Vill - Pathra English, P.O – Odhanpur,
P.S.- Nawada, Dist - Nawada.
Pin code- 805123.
Mob.- 9955721191
Email ID. [redacted]

M/s MAA DURGA FUEL STATION
Proprietor

Prepared By:

Er. Pravat Ku Sinha (Regd. No : ROP/BIH/SR NO 20)
Consultant :
P&M Solution
C-88, SECTOR-65 NOIDA
(Accredited by QCI- NABET)
Regional Off :-
9889024004 & 7542949027, Mangal Market, Raja Bazar, Patna (Bihar) Pin - 800014.
indu.miningbihar@gmail.com

CONTENT

S.NO.	PARTICULARS	PAGE NO.
1.	INTRODUCTION	1
2.	PROJECT DESCRIPTION	2
3.	BACKGROUND OF THE PROJECT	3 - 4
4.	LOCATION, GENERAL AND ACCESSIBILITY	5 - 8
5.	GEOLOGY & EXPLORATION	9 -17
6.	MINING	18-22
7.	DRILLING AND BLASTING	23
8.	WATER DRAINAGE SYSTEM	24
9.	DISPOSAL OF WASTE MATERIAL	25
10.	USE OF MINERAL	26
11.	OTHER	27-28
12.	MINERAL BENEFICIATION	29
13.	ENVIRONMENT MANAGEMENT PLAN	30-31
14.	CONCLUSION	32
15.	PROGRESSIVE MINE CLOSURE PLAN	1-17

M/s MAA DURGA FUEL STATION

Proprietor

LIST OF ANNEXURES

ANNEXURE NO.	NAME OF ANNEXURE
1	COPY OF LETTER OF INTENT
2	COPY OF RQP CERTIFICATE

LIST OF PLATES

PLATE NO.	LIST OF PLATES
1	LOCATION MAP
2	GOOGLE & ROUTE MAP
3	KEY PLAN
4	LEASE MAP
5	SURFACE GEOLOGICAL PLAN
6	GEOLOGICAL SECTION
7	DEVELOPMENT PLAN (PRE MONSOON)
8	DEVELOPMENT PLAN (MONSOON)
9	DEVELOPMENT PLAN (POST MONSOON)
10	CONCEPTUAL PLAN
11	PROGRESSIVE MINE CLOSURE PLAN

M/s MAA DURGA FUEL STATION

Proprietor

MINING PLAN

M/s MAA DURGA FUEL STATION

Proprietor

PART A
CHAPTER–1

1. INTRODUCTION

1.1	Settlee Name & Full address Phone. No. E-mail ID	M/s Maa Durga Fule Station Akhilesh Kumar Vill.- Pathra English, P.O.- Odhanpur, P.S.- Nawada, Dist.- Nawada. Pin code- 805123. 9955721191 csmines@rediffmail.com
1.2	Letter no. / date of lease execution & lease period	District Magistrate issue LOI on letter no. 5501/khanan dated. 29.11.2022 for a period of 05 years (Annexure No. -1)
1.3	Settlee post/social status	Private
1.4	Mineral or Minerals which the Settlee intends to mine	Sand
1.5	Applied area for mining lease	Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat Lease has an applied area of 44.5 Hectare.
1.6	Name & address of RQP & Regd. No. Mobile No. E-mail ID	Er. Pravin Kr Sinha Reg. No. - RQP/BIH/SR.NO.20 Letter No. 3825 Dated 07/11/2019 **Consultant :** P & M Solution 201,Mangal Market Raja Bazar, Patna (Bihar) 9889024004 & 7542949027 indusminingbihar@gmail.com
1.7	RQP Certificate	RQP certificate copy attached as **Annexure 2**
1.8	Name of the Prospecting agency	The base data is collected from various geological reports of the Department of Mines & Geology and local authorities as well as detailed prospecting of the area is carried out by the RQP.
1.9	Status of Environmental clearance	After Mining Plan approval then Settlee shall submit application to state Environment Impact Assessment Authority (SEIAA) of Bihar for environment clearance.
2.0	Date of Survey	03.12.2022

M/s MAA DURGA FUEL STATION
Akhilesh Kr
Proprietor

CHAPTER–2

2. PROJECT DESCRIPTION

2.1 JUSTIFICATION OF PROJECT

Sand is a ubiquitous material; available everywhere and is being used from the time immemorial for wide applications in our daily life; infrastructures, building construction, highways, roads, townships, multiplexes, foundations of buildings and industrial units etc. and is an integral part of development. Over the millennia, the weathering effect, the flow of water at high velocities in rivers and the pressure of water from the high mountainous reservoirs converted and pushed the hard ground underneath into sand, etc. which travelled as sediments with the flow. Huge amount of sand get deposited along the river course wherever conditions were favorable. As a result of continuous deposit of sand, the rivers may change their course, by widening itself and expanding, can result in flooding, inundation and breaking their banks, may cause devastation of property and loss of life. The rivers thus, needed channelization and therefore, extraction of sand through mining was expedient. The haphazard mining of sand being practiced now for long, through unregulated, uncontrolled and illegal way added almost an irreversible damage to the environment, which became a cause of serious concern to everyone. Though sand is a very important mineral source for development, its mining through scientific methods has also become equally imperative.

It is for this purpose that 'mining plan' is being drawn so that all its aspects are taken care of justifiably, according to law, protecting the environment, removing all adverse impacts and creating a direct and indirect employment opportunities, improving socio-economic conditions of the local inhabitants and all-around status of life, achieving thereby a sustainable development.

Besides the above, the process of mining of minor minerals (Sand) is a constant source of revenue generation to the State Government through Royalty.

M/s MAA DE...
Proprietor

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2.2 BACKGROUND OF THE PROJECT

The Department of Mines & Geology, Bihar required under Bihar Minerals (Concession, Prevention of Illegal Mining, Transportation & Storage) Rules, 2019 & Bihar Sand Mining Policy, 2019. The general conditions of mining lease for minor minerals are mentioned here below:

- First the State Government shall identify the areas which are suitable for river bed mining based on quantity of the minor minerals available and suitable from ecological and environmental aspects as well.
- Under rule 17 (4) Approval and submission of Mining Plan - All Mineral Concession Holders or the Government/Corporation as the case may be shall submit a mining Plan duly prepared by an RQP and approved by the Director or any officer / person/academic institution/Govt. agency authorized by the Department in this regard within a period of three months from the date on which communication regarding grant of mineral concession is received or such other period as may be decided/ allowed by the department for the submission of the approved Mining Plan.
- While preparing the mining plan, proper attention has been paid to ensure that the relevant provisions under MMDR Act-1957, MMR-1961, Mines Act-1952 & Mines Rules-1955, Sustainable Sand Mining Guidelines 2016 and Enforcement & Monitoring Guidelines for sand Mining - 2020 have been followed. All safety measures, provided in the statue, will be taken into consideration. On 17.09.2019 Bihar Government took its policy decision vides notification no – 4/V.Mu-20-03 / 18-3174 /M . That all Mining Lessee / Settlee under rule 17 of the said Rules, the lessee shall submit the mining plan with Progressive Mine closure plan for approval to the competent officer . Department of Mines & Geology, Bihar
- Mining operation to be in accordance with Environmental clearance.
- For baseline, data assistance has been taken from the data, available from local authorities.

2.3 RESTRICTED AREAS FOR SAND QUARRYING

i. The quarrying of sand shall be prohibited within up to a distance of 1 kilometre (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

ii. No quarrying shall be permitted within 50 (fifty) meters of any public place i.e. cremation Ghat or any religious place etc.

iii. No quarrying shall be allowed to be extracted where erosion may occur, such as at the concave bank.

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iv. The quarrying of sand shall be prohibited within 100 (one hundred) meters upstream and downstream from any dam/weir or any other structure erected for irrigation purpose.

v. Sand Ghats should preferably be located on the river side embankment. For low embankment less than 6 meters height, quarrying should not be done within 25 meter from toe/heel of the embankment and depth of mining should not be more than 1.0 meter. In case of higher embankments, the distance should not be less than 50 meter and depth of mining should be maximum 1.50 meter and at a distance of 75 meter of more mining depth should be maximum 2.0 meter. In order to obviate the development of flow parallel to embankment, crossbars of width eight times the depth of mining pits spaced at 50 to 60 meters center to center should be left in the mining pits.

vi. The irrigation outlet shall be maintained at the same level as that of the river bed and in no case, the river bed level shall be permitted to be below the irrigation outlet level. No quarrying shall be permitted around the infiltration well/intake well up to a distance of 5 meters.

vii. No quarrying of sand shall be permitted in any private land owned by a person other than a settlee unless the settlee obtains the consent of the concerned land owner/raiyat.

viii. No quarrying of sand shall be permitted in any area which the State Government notifies as restricted area.

ix. Mining depth should be restricted to 3 meters and distance from the bank should be ¼th of river width and should not be less than 7.5 meters.

x. Demarcation of mining area with pillars and geo-referencing should be done prior to the start of mining.

xi. A buffer distance /un-mined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed/prescribed by the regulatory authority shall be maintained.

xii. River bed sand mining shall be restricted within the central 3/4th width of the river/rivulet or 7.5 meters (inward) from river banks but up to 10% of the width of the river, as the case may be and decided by regulatory authority while granting environmental clearance in consultation with irrigation department. Regulating authority while regulating the zone of river bed mining shall ensure that the objective to minimize the effects of riverbank erosion and consequential channel migration are achieved to the extent possible. In general, the area for removal of minerals shall not exceed 60% of the mine lease area, and any deviation or relaxation in this regard shall be adequately supported by the scientific report.

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CHAPTER–3

3. LOCATION, GENERAL AND ACCESSIBILITY

3.1 LOCATION

(a) Details of the area

(I)	**Lease-hold area**	44.5 Hect.		
	Location	The Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat fall in Mauja – Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Budh Gaya, Dist - Gaya, (Bihar). The location plan is enclosed (Plate No. 1)		
(ii)	**Mining Lease Map**	Khata No.- 191, 384, 367, 207, 455, 177. Khesra No. - 1, 1, 2091, 1, 1084, 1370, 225. Thana No.- 443, 454, 455, 446, 426, 424. Google Map of Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat is attached as **Annexure no. 3.**		
(iii)	**District & State**	Gaya, Bihar		
(iv)	**Mining Plot**	**Sand Ghat**	**River**	**Area (ha)**
		Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat	Mohana	44.5
		Total		44.5
(v)	**Name of Ghat**	Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat of 44.5 hectares.		
(vi)	**Ghat details**	44.5 ha (Mohana River bed)		
(vii)	**Coordinates**	The area & geographical coordinates of Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat is given **in Table No.1** **Toposheet No.** – 72D/13, 72D/14, 72H/01, 72H/02.		

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BLOCK-47 (GAYA MOHANA-01/GAYA MOHANA-02/GAYA MOHANA-03) SAND GHAT CO-ORDINATES

S. No	Sand Ghat	Area (in Ha)	Co-ordinates		Ghat/Village	River
1	Block-47 Gaya Mohana-01	25.0	A	24°42'9.18"N 85° 0'53.36"E	Mauja – Bataspur, Chhunchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal-Bodh Gaya, Dist - Gaya, (Bihar).	Mohana
			B	24°42'8.58"N 85° 0'57.56"E		
			C	24°41'18.68"N 85° 1'5.30"E		
			D	24°41'17.12"N 85° 1'2.31"E		
2	Gaya Mohana-02	7.0	A	24°40'32.33"N 85° 1'49.24"E		
			B	24°40'36.94"N 85° 1'52.53"E		
			C	24°40'23.82"N 85° 2'13.55"E		
			D	24°40'23.63"N 85° 2'10.93"E		
3	Gaya Mohana-03	12.5	A	24°39'56.83"N 85° 2'32.07"E		
			B	24°39'59.71"N 85° 2'35.77"E		
			C	24°39'39.03"N 85° 2'51.68"E		
			D	24°39'35.63"N 85° 2'46.47"E		

(b) Key plan of area:-

Key plan of Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) (Mohana river) is attached as **Plate-2.**

Total mining area is completely outside of any restricted or protected area by any state or central government.

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3.2 GENERAL

(a) Mineral being worked	Sand
(b) Period of Mining Lease	The lease period has been granted for Five years.
(c) Category of Land used	The mining area is inactive channel of riverbed
(d) Relief of Plot	Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat (117.4 ASML to 119.5 ASML), (120.4 ASML to 123.7 ASML), (122.4 ASML to 125.6 ASML).
(e) Existing pits	As the mining area is of river bed and it will be replenished every year no pits will be formed..
(f) Type of lease area:	Total area is almost hundred percent river bed flood plain land & it is free from forest land.
(g) Present land use pattern:	The existing land use is given below:

Sr. No.	Land use	River bed (Ha)	Forest Land (Ha)	Barren land (Ha)	Grazing Land (Ha)
1	Mining pits Quarry	-	-	-	-
2	Approach Road	-	-		-
3	Dumps	-	-	-	-
4	Office, Resht Shelter etc.	-	-	-	-
5	Balance undisturbed land	44.5	-	-	-
	Total	**44.5**	-	-	-

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3.3 ACCESSIBILITY

Gaya is about 100 kilometers south of Patna, and is situated on the banks of Mohana River. It is a place sanctified by both the Hindu and the Buddhist religions. It is surrounded by small rocky hills (Mangala-Gauri, Shringa-Sthan, Ram-Shila and Brahmayoni) by three sides and the river flowing on the fourth (western) side. It is located at a Longitude of 84.40 to 85.50 towards East and the latitude is 24.50 - 25.100 towards North.

Project site is falls in Mauja Bataspur, Chhanchh, Moratal, Ghogharlya, Guriawan, Kenari. Site is well connected by Gaya Mohana-01- Moratal village road which is at distance of approx. 0.41 km in NE direction. Gaya Mohana-02- Ghogharai road which is at distance of approx. 0.50 km in NE direction. Gaya Mohana-03- Guriyawan which is at distance of approx. 0.36 km in NE direction. Nearest NH/SH is Gaya Mohana-01- SH-70 at approx. 7.45 Km in NE, Gaya Mohana-02- SH-70 at approx. 8 90 Km in NE, Gaya Mohana-03- SH-70 at approx. 9.70 Km in NE Nearest railway station is Gaya Mohana -01 Bandhua Railway Station at distance of approx. 8.50 km in NE, Gaya Mohana -02 Tankuppa Railway Station at distance of approx. 9 km in East, Gaya Mohana -03 Tankuppa Railway Station at distance of approx. 8.60 km in NE. Nearest airport is International Airport Patna at distance of approx. 100 km in NW.

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CHAPTER-4

4.1 GEOLOGY & EXPLORATION

Topography and general geology and local / mine geology of the mineral deposit including drainage pattern

The district of Gaya is broadly divided into two distinct physical units. The south is a region of broken undulating country merging into long ranges of hills, with a wide belt of brushwood jungle at their base Much of this tract is high and barren and incapable of much cultivation; the soil has poor crops and the population is sparse. These high lands project into the alluvial plains to the north as spurs from the Chhotanagpur Plateau. The greater part of the district, however, consists of the flat alluvial plain. This wide alluvial plain of the north forms part of the Gangetic depression with alluvial deposits of immense depth and is broken here and there by groups and low ranges of hills or isolated peaks arising abruptly from the level country at their feet. The alluvial plain is protected from drought by a wonderful system of indigenous irrigation consisting of ahars (reservoirs) and pains (channels). It is, therefore, a region of great fertility when compared with the southern part of the district and is comparatively densely populated. The northern portion, which is highly cultivated and extensively irrigated.

General Geology

The main geological formation of the region is of Quaternary age. The area is mostly covered by unconsolidated sediments which is known as Alluvial deposits followed by consolidated deposits of Satpura range. Few areas are also characterized by units of Archaean ages. The Satpura range mainly exposed in Gaya hills and Rajgir hills comprises low grade supracrustals – Schists, ferruginous phyllite, quartzites and phyllitic slate. The Archeans are the oldest rock formation in the area. The most predominant rock type is gneisses and granites with basic intrusives and medium to fine sand geologically the area comprising of Terrace alluvium deposited in depositional terraces of old rivers & contain cyclic sequence of fine to course grained sand. It is angular to sub angular and the angularity of the grains of this category of sand decreases with depth.

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Regional Geology

Geologically, it represents nearly two third of Bihar is under cover of Ganga basin composed of alluvium and masks the nature of basement rocks.

Showing the Geological Succession and their Occurrences distribution

Age	Geology	Occurrences
Quaternary	Alluvial Deposits (Sand, Clay, Silt, Fragments)	North Bihar Plain & Central Bihar Plain
Tertiary	Sand Stones & Clay Stones	North Champaran Hills
Gondwana	Coal Measures, Forming a series of Small outlier basins	Banka District
Vindhyans	Sandstones, Shales, Limestones, etc.	Parts of Bahbhua and Rohtas dist
Satpura	Schist, Phyllite, Quartzite	Part of Aurangabad, Gaya, Nawada, Nalanda, Sheikhpura and Munger District
Pruterozoic	Mica Schist, amphibolites, quartzite, granite, dolerite and pegmatite	Nawada, Jamui and Banka
Archaean	Gneisses, Granites, Schists, Phyllites, quartzite, amphibolites & intrusive all metamorphosed sedimentary and igneous rocks	Part of Aurangabad, Gaya, Nawada, Jamui, Banka and Bhagalpur

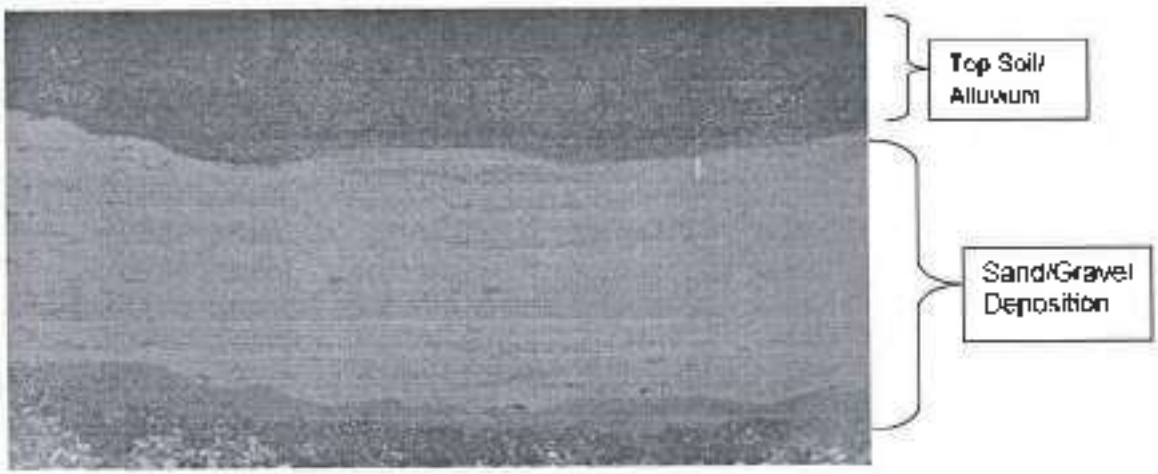
4.1.3 GEOLOGY OF THE AREA

The area is dominated by medium to fine sand geologically the area comprising of Terrace alluvium deposited in depositional terraces of old rivers & contain cyclic sequence of fine to course grained sand. It is angular to subangular and the angularity of the grains of this category of sand decreases with depth. The Litho unit shown on the geological map of the leased out area have been plotted on the basis of physical characteristics observed in the field. Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited at the fringe of the river banks. Soil/ alluvium varying in thickness from 0.20m to 0.60m in constitute the top

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horizons in the area suitable for agriculture. River Falgu, Morhar & Mohana meanders through the area exposing the alluvium and soil at the banks.

The litho units encountered in the riverbed and surrounding areas belongs to the Shivalik super groups. The size of the sediments towards the source i.e. host rock is course and at the tale end of the river the grain size is reduced to smaller sizes resulted in the formation of clay beds. The following sequences have been observed in the area, i.e. Top soil/ Alluvium followed by sand deposition (as shown in the figure below).



Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited at the fringe of the riverbanks.

Soil/ alluvium varying in thickness from 0.20m to 0.60m m constitute the top horizons in the area suitable for agriculture. River Ganga meanders through the area exposing the alluvium and soil at the banks. Sand is found in the river bed upto a depth of more than 3.0 m. The major part of bed remains dry as water flows in a single stream during the non-monsoon seasons. Only during rainy seasons the entire flood plain has water, when there will be no mining done.

4.2 ORIGIN & CONTROL OF MINERALIZATION (ANNUAL REPLENISHMENT OF MINERAL IN RIVER BED AREA/SEDIMENTATION)

Sedimentation, in the geological sciences, is a process of deposition of a solid material from a state of suspension or solution in a fluid (usually air or water). Broadly defined river sand is a product of natural weathering of rocks over a period of millions of years and these materials get collected under the impetus of gravity alone, as in talus deposits, or accumulations of rock debris at the base of cliffs. The term is commonly used as a synonym for sedimentary petrology and sedimentology.

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Sedimentation is generally considered by geologists in terms of the textures, structures, and fossil content of the deposits lay down in different geographic and geomorphic environments.

The factors which affects the "Computation of Sediment":

Geomorphology & Drainage Pattern: The following geomorphic units plays important role:

- Structural Plain
- Structural Hill
- Structural Ridge
- Denudation Ridge & Valley
- Plain & Plateau of Gangetic plain
- Highly Dissected pediment
- Un-dissected pediment

b) Distribution of Basin Area River wise

c) Drainage System/Pattern of the area, Rainfall & Climate: Year wise Rainfall data for previous 10 years .

e) As per Dandy & Bolton study "Sediment Yield" can be related to

i) Catchment Area and

ii) Mean Annual Run-off

Sand is an essential minor mineral used extensively across the country as a useful construction constituent and variety of other uses in sports, agriculture, glass making (a form of sand with high silica content) etc. It is common knowledge that minerals are non-renewable but this form of mineral naturally gets replenished from time to time in a given river system and is very much interrelated to the hydrological cycle in a river basin

Sand mining has become a widely spread activity and does not require a huge set up or technology, the number of ventures has increased extensively and it has become a footloose industry in itself but the backward-forward linkages are becoming stronger as many are getting employed as well as the construction activity / industry requires this mineral at consistent rates. Riverine environmental systems are unique in themselves and provide environmental services, natural resources to meet variety of needs of urban and rural communities.

4.2.1 REPLENISHMENT STUDY OF MINED AREA OF MOHANA RIVER:-

Replenishment Rate is the rate at which Bajri is transported into the river channel, which is under examination or subjected to sand extraction. This volume is often considered as sustainable yield of that river. Estimation of Bajri discharge through stream bed and its residence period (temporary deposition) is one of the most difficult task in sediment budgeting.

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The rate of gross or absolute silt production (erosion) in the watershed and the ability of the stream system to transport the eroded material in a river and then to a reservoir has the direct relation with the quantity of sediment delivered into a reservoir. It has been observed that the average rate of sediment production decreases as the size of drainage area increase and the larger watershed the lesser is the variation between the rates. The larger watershed presents more opportunity for deposition of silt during its traverse from the point of production. The total amount of eroded material, which reaches a particular hydraulic control point, is termed as sediment yield. The sediment control of inflow is governed by Character of run-off; Susceptibility of soils; the extent and density of vegetative cover in the area; and the hydraulic efficiency of the drainage system.

This report quantifies the annual replenishment of bed material in the Mohana River during periods of sediment transport at high flows within the mined area It provides estimates of the amounts of sand & bajri which will be used in construction and for other uses.

4.2.2. METHODOLOGY FOR REPLENISHMENT STUDY:-

The methodology used for Replenishment study is based on the measurement of volumetric survey at selected points as monitoring stations within the lease area in Pre-monsoon season & Post Monsoon season respectively. For the said project replenishment study has been done during the post-monsoon season has done by field survey (volumetric survey) method. Firstly Volumetric Survey was done in the proposed mining block. By this method spot RL/level are marked & mapped and sections are drawn for several monitoring locations within the mine area. After that, for post-monsoon season again spot RL/level are marked & mapped on the same location and sections are drawn. The RL(m) observed during Pre-monsoon season of all locations.

Table 7. volumetric survey measurement

Gaya Mohana -01

Classification		Code	Quantity of Sand
A)	Mineral Reserves		Cum
B)	Proved Mineral Reserves	111	750000
Total			**750000**

Replenished quantity of sand = 750000 cum, or 1350000 tonnes.

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Gaya Mohana -02

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	210000
Total		**210000**

Replenished quantity of sand = 210000 cum. or 378000 tonnes.

Gaya Mohana -03

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	375000
Total		**375000**

Replenished quantity of sand = 375000 cum. or 675000 tonnes.

4.3 EXPLORATION

Mining of sand is being done since long time therefore no specific method of exploration is required as the sand, deposited all along the bed and its pale channels, which is very well exposed on the surface. The minerals excavated from the river bed will be replenished gradually during the monsoon season every year. And the area pertaining to paleochannels of the river will be leveled & restored back. Adequate quantity of Sand in reserves is available for meeting consumer demand.

4.4 MINERAL RESERVES

The Mineral reserves have been estimated as per the Indian Standard Procedures. The area of the mining lease is 44.5 Hectares and the average thickness of the river bed minerals estimated as 5.0 mt.

4.4.1 PARAMETERS OF RESERVE ESTIMATION:

The geological reserves have been estimated as per UNFC guidelines in all the three axis.

Economic Axis (E-1): The Sand is exists with in the entire stretch & having no problem selling in the market. The road is near the Ghat & sand shall loaded into tipper with the deployment of an excavator & transport to various parties. The land is State Govt. land & State Govt. has given its consent for the exploitation of Sand on their expensive land. On the feasibility study, economic viability of deposit has been established sand in economic viable, therefore economic axis has been considered as E-1.

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Feasibility Status (F-1): Feasibility study has been carried out & is considered to be feasibility status. A feasibility study provides a preliminary assessment with a level of confidence as compared to that of feasibility study. It has been revealed that exploitation of sand is feasible & economic viable & feasibility axis under UNFC code has been considered as F-1:

Geological Axis: The exposure of sand is seen in the entire stretch & thickness of sand varies 2.5m to 3.0m. Therefore geological axis has been considered as G-1.

Geological Reserves

The geological reserves have been each stretches & for individual blocks. Geological reserves have been completed through cross sectional area method. The area of each section line is multiplied by strike influence to get the volume.

i) **Proved Mineral Reserves (111):** All quantities of sand occurring upto depth of 3 m from surface has been considered as proved reserves.

Gaya Mohana -01

Classification	Code	Quantity of Sand
B) Mineral Reserves		Cum
2) Proved Mineral Reserves	111	750000
Total		**750000**

Geological Reserve = 750000 cum. or 1350000 tonnes.

Gaya Mohana -02

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	210000
Total		**210000**

Geological Reserve = 210000 cum. or 378000 tonnes.

Gaya Mohana -03

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	375000
Total		**375000**

Geological Reserve = 375000 cum. or 675000 tonnes.

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Total Geological Reserve – **1335000 cum.** or **2403000 tonnes.**

*Bulk density is 1.8 g/cm^3

4.4.2 MINEABLE RESERVES:

Mineable reserves have been computed up to 3m depth from surface. Benches having height 1.5m & width 6.0m drawn from the ultimate pit limit. Area of each benches have been calculated multiplied by strike influence to get the volume. The volume multiplied by bulk density (1.8 g/cm3) to get the tonnage.

The minerals excavated from the river bed will be replenished gradually during the monsoon season every year. And the area pertaining to paleochannels of the river will be leveled & restored back.

Table-4.4:- Summary of mineable reserves of Sand Ghat as below:

BLOCK-47 (GAYA MOHANA-01/GAYA MOHANA-02/GAYA MOHANA-03) SAND GHAT OF MOHANA RIVER

The mineable reserves are given in **Table Nos.4**

BLOCK-1

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
119-117.5	1585	156	1.5	370890	667602
117.5-116	1575	146	1.5	344925	620865
Total				715815	1288467

Mineable Reserve = 715815 CUM or 1288467 Tonnes

BLOCK-2

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
123-121.5	671	91	1.5	91592	164865
121.5-120	661	81	1.5	80312	144561
Total				171903	309425

Mineable Reserve = 171903 CUM or 309425 Tonnes

BLOCK-3

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
124-122.5	768	143	1.5	164736	296525
122.5-121	758	133	1.5	151221	272198
Total				315957	568723

Mineable Reserve = 315957 CUM or 568723 Tonnes

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Total Mineable Reserve = 1203675 CUM or 2166615 Tonnes

- Mineable reserve has been consider 60% approx. of geological reserve after applying the guideline of Enforcement & Monitoring Guidelines for Sand Mining 2020.
- The proposed production grant in **LOI is 801000** cum per year which is within the sustainable limit of mineable reserve.
- The BD for Sand has been adopted at 1.8 g/cm3 [Noida Testing Laboratories]

- **CLASSIFICATION MINERAL RESERVES:**

Sand Ghat.	Area (Hect)	Geological Reserves (m3)	Mineable Reserves (m3)	Annual Permitted Reserve As per LoI (m3)
Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat	44.5	1335000	1203675	801000

The annual extractable RBM comes to 801000 CUM or 1441800 Tonnes. It will be replenished after rainy season every year.

4.5 LIFE OF MINE

There is as such no specific life of the mine as the area under reference is inactive part of river bed of the river and its pale channels and whatever quantity of minor minerals are extracted from the Applied Area during five year; almost equal to extracted quantity of the same are replenished every year and the river bed area will be leveled & restored back. However, as lease has been granted for 5 years, mining will be done for the allotted time.

Prepared by. Prasun Kr. Sinha Reg. No. - RQP/BIH/SR.NO.26 Letter No. 1825 Dated 07/11/2019

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CHAPTER – 5

5.0 MINING

- Mining will be done as per the guidelines of Bihar Mineral (Concession Prevention of illegal Mining Transportation & Storage) Rules, 2019.
- This is an open-cast mining project. The operation will be semi-mechanized/OTFM with use of excavators/JCBs truck /tractors combination or Manually etc. The sand will be collected in its existing form.
- Sand Mining will be carried out only upto a depth of 3 m bgl or above ground water level (whichever is less), for river bed block.
- No drilling /blasting are required as the material is loose in nature.
- Proper benching of 1.5 m height and 6m width will be maintained for mining blocks as per guideline M.M.R-2019, under rule 115(1).
- Mining will be done only during the day time and completely stopped during the monsoon season.

Restriction on mining:

i) Sand and gravel shall not be extracted up to a distance of 1 km from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

ii) No quarrying shall be permitted within 50 (fifty) metres of any public place i.e. cremation Ghat or any religious place etc.

iii) No quarrying shall be permitted within 5 (five) metres from both banks of the river.

iv) The quarrying of sand shall be prohibited within 100 (one hundred) metres upstream and downstream from any dam/weir or any other structure erected for irrigation purpose.

v) Sand Ghats should preferably be located on the river side embankment. For low embankment less than 6 metres height, quarrying should not be done within 25 metre from toe/heel of the embankment and depth of mining should not be more than 1.00 metre. In case of higher embankments, the distance should not be less than 50 metre and depth of mining should be maximum 1.50 metre and at a distance of 75 metre of more mining depth should be maximum 2.00 metre. In order to obviate the development of flow parallel to embankment, crossbars of width eight times the depth of mining pits spaced at 50 to 60 metres center to center should be left in the mining pits.

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M/s MAA DURGA FUEL STATION
Proprietor

vi) The irrigation outlet shall be maintained at the same level as that of the river bed and in no case the river bed level shall be permitted to be below the irrigation outlet level. No quarrying shall be permitted around the infiltration well/intake well up to a distance of 5 meters.

vii) The extraction of sand shall be permitted only after obtaining a No Objection Certificate from the Water Resources Department in the case of rivers where from irrigation channels are out flowing.

viii) No quarrying of sand shall be permitted in any private land owned by a person other than the settlee unless the settle obtains the consent of the concerned land owner/raiyat.

ix) No quarrying of sand shall be permitted in any area which the State Government notifies as a restricted area.

x) Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

xi) Mining depth should be restricted to 3 meters and distance from the bank should be ⅓th or river width and should not be less than 7.5 meters.

5.2.1 PROPOSED METHOD OF MINING:

- Mining activity will be carried out by open cast manual/Mechanically method.
- No OB/ waste material will be produced in river bed. The sand shall be exploited upto depth of 3.0 m only through the formation of bench height 1.5m & width 6.0m. An approach road having width 6.0m & gradient 1:12 shall be provided for the movement of loading machineries & transportation of sand. The sand shall be exploited with the deployment of an excavator & filled into Tractors/Trucks & transported to various buyers.
- No drilling/ blasting are required as the material is loose in nature.
- Proper benching of 1.5 m height will be maintained.
- Roads will be properly made and sprayed by water for suppression of dust.
- Roads in the applied area for the movement of loaded tractors/ trucks will not have slopes more than 1 in 16.
- The mined out area shall be replenished each year during monsoon period and maintained in maximum original topography.
- Approach roads from the various blocks as already described earlier will be merging with permanent tar roads on both sides of the river for transportation of the mineral to final destinations.
- The Sand transportation shall be insured after the covering the vehicle Tarpaulin.

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Proprietor

5.3 YEAR WISE PRODUCTION SCHEDULE:

The annual exploitation of sand from Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat are given below :-

YEAR	Over burden (cum)	ROM Sand (cum)	Saleable Sand (cum)
1ST	-	**801000**	**801000**
2ND	-	**801000**	**801000**
3RD	-	**801000**	**801000**
4TH	-	**801000**	**801000**
5TH	-	**801000**	**801000**

The annual extractable RBM comes to **801000 CUM** or **1441800 Tonnes**. It will be replenished after rainy season every year.

5.4 CONCEPTUAL MINING PLAN

Mine Applied Area will be worked for Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat. However, as the digging depth will be restricted to 1.5 m only. This will be further replenished during rainy season. Sand Ghat will be worked systematically as the width is limited while length is much more. As the lease period is only 5 (Five) years, some of the area will be left un-worked at the end of lease period.

(i) Final Slope Angle to Be Adopted: Height of the bench is limited to 1.5 m while width of individual bench shall be kept 6.0m. River bank side will be protected by working in dry part of the river and by leaving safety distance of the width of the river of 5 meter. Bank side natural slope will not be disturbed. This will prevent collapse of bank and erosion. However, the height of the bank with respect to river bed is varying from 3-4 meters.

(ii) During plan period workings will be carried out in the Sand Ghat at a time of the Applied Area simultaneously. Scattered workings will ensure safety, remove congestion of vehicles and will have better control and management.

M/s MAA DURGA FUEL STATION
Proprietor

(iii)Ultimate Capacity of Dumps: There will be no OB removal / during the plan period. Therefore no proposal has been envisaged for its separate dumping. No outside material will be filled up in the extracted zone.

The conceptual plan & section of each mining plots are attached with mine plan.

5.5 EXTENT OF MECHANIZATION:

The operation will be done by semi mechanized method / OTFM.

Following table gives the list of equipment to be used:

Table-5.2:- List of Equipment's to be used

S. No.	Name of machinery	Capacity	Fuel Consumption	No. of Machinery
1	JCB	1.00 m^3	10 Ltr/hr	3
2	Excavator	2.0 m^3	16 Ltr/hr	8
3	Trucks	12 tonnes	4 Ltr/hr	417
4	Tractors	04 Tonnes	2 Ltr/hr	192
5	Water Tanker	4000 liter	4 Ltr/hr	2
6	Light vehicles	As per requirement	4 Ltr/hr	1

5.6 QUANTITY OF HSD/ FUEL CONSUMPTION PER DAY

Table-5.3:- Quantity of HSD/Fuel to be used

S. No	Machine	Details of fuel (Diesel) requirements	Consumption of Diesel (in lits/ day.)
1.	Excavator & JCB	Number of Excavator & JCB = 8&3 Diesel consumption by 3 jcb & 8 Excavators m/c in one shift working.(i.e-10/15 litre/hr) =3*8*10= 240 liters	1261 liters

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M/s MAA DURGA FUEL STATION
Proprietor

		& 8*8*16= 1024 liters	
2	Tippers/Tractors	Number of Tractors & Trucks = 192 & 417 Diesel consumption by 417 trucks & 192 Tractors in one shift working (i.e-4ltr/hr.) & (i.e-2 ltr/hr.) = 192*2*8 = 3072 =417*4*8= 13344	16416 liters
3	Water Sprinkler	Number of Sprinkler=02 Diesel consumption by Sprinkler in one shift working.(i.e-4ltr/hr). =2*10*4=80 liters.	80 liters
3	Extra	Transport vehicle, super vision vehicle, maintenance vehicle	50 liters
			Total=17810 liters

5.7 MINERAL PRODUCTION

The mining will be confined to excavation of sand to an extent depending upon availability and market demand. Production is taken tentatively upto a maximum of **1441800 TPA** as per marked demand.

M/s MAA DURGA PRIYA
Proprietor

Prepared by: Prabin Kr. Sinha Reg. No. - ROPTBIN/SP/MC/20 Letter No. 3826 Dated 07/11/2019

CHAPTER –6

6.0 DRILLING AND BLASTING

No drilling and blasting shall be required to for the exploitation of river sand.

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CHAPTER–7

7.0 MINE DRAINAGE:

a) LIKELY DEPTH OF WATER TABLE BASED ON OBSERVATIONS FROM NEARBY WELLS AND WATER BODIES:

As per the proposed mining, the working shall be confined up to 2.0 m or above the ground water table whichever comes first. Hence no water is likely to be encountered. So there is no need of any such arrangements.

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CHAPTER-8

8.0 DISPOSAL OF WASTE MATERIAL

No waste as such will be generated at the site as all materials are saleable. If, at all silt clay will be generated along with the minerals will be used to dispose off in the low lying areas as spread, where pluntation will be done after spreading top soil on it.

Prepared by: Pravin Kr. Sinha Reg. No. - RQP/Bihar/SR.NO.26 Letter No. 1525 Dated 07/11/2019

CHAPTER-9

9.0 USE OF MINERALS

Sand has become a very important mineral for expansion of our society due to its many uses. It can be used for making concrete, filling roads, building sites, brick-making, making glass, sandpapers, reclamations, and etc.

CHAPTER – 10

10.0 OTHERS

10.1 HAULAGE AND SURFACE TRANSPORT

Mode of transportation of material is by trucks/ Tractors of size of 12 tonnes / 4 tonns capacity have been planned.

Mining area is connected with an unmetalled (approach) road upto the nearest village and thereafter it is metalled road connected to State/National highway. The mine road is adequate to permit easy maneuverability of trucks allowing cross overs and changing points. Water is sprayed two times in a day by tractor mounted water sprinklers until dust remains airborne.

10.2 SITE SERVICES:

A temprirary rest shelter will be provided for the workers near to the site for rest.

Provisions will also be made for following in the rest shelter.

- First aid box along with anti-venoms to counteract poisen produced by certain Snakes / Reptiles, if any.
- Sanitation facility i.e. septic tank or community toilet facility will be provided for the workers.
- Canteen will be made available near the sites.

10.3 WATER REQUIREMENT

Total water requirement for the project is 8.0 KLD, its breakup is as under:-

Table: 10.1- Water Requirement of the proposed project

S.No.	Purpose	Water Requirement (KLD)
1.	Dust Suppression	4.0
2.	Domestic	2.0
3.	Green Belt	2.0
Total		8.0

M/s MAA DURGA FUEL STATION
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10.4 EMPLOYMENT:

The manpower requirement for the proposed project is tabulated below. This manpower is the permanent resource which excludes personnel's coming along with trucks / Tractors.

Table 10.2:- Man power distribution of the proposed project

S. No.	Category	Numbers
1.	Administration	3
2.	Supervisor	3
3.	Skilled	14
4.	Un-skilled	45
TOTAL		**65**

The maximum annual production envisaged is **1441800 TPA** which will be achieved every year that implies about **5768** tonnes per day. 250-working days in a year. That implies 65 workers will meet the required production.

SAFETY PROVISION:

All provisions in safety rules & regulation will be maintained by providing required materials to the employees. The lessee will provide safety shoes, safety helmets to all the employees. There will be no violation of safety provisions.

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CHAPTER–11

11.0 MINERAL BENEFICIATION

Mineral Sand doesn't require processing or beneficiation. The excavated mineral will be directly loaded into the trucks.

M/s MAA DURGA FUEL Station
Proprietor

CHAPTER –12

12.0 ENVIRONMENT MANAGEMENT PLAN

12.1 SOLID WASTE MANAGEMENT

In this if top soil will be generated, will he used for purposed of applied for green belt development. Small amount of domestic waste will be generated by the workers at the site, which will be disposed off through proper municipal way. No other waste generation is expected.

12.2 PLANTATION

The area of the proposed project lies in the river bed and devoid of any forest land.

Mining activities in River Bed blocks will not cause any harm to riparian or aquatic vegetation as mining will be only in the dry river bed portions of the river leaving safety distance from the bank. Hence it proposed to plant trees along the banks (wherever possible), along the haul road sides or near the civic amenities in consultation with village authority/local bodies.

In river bed mining cases plantation will be done at the river banks. It is proposed to have plantation along the haul road sides on both sides to provide cover against dust emission and also to act as noise absorber. Plantation will also be carried out as social forestry programme in villages, school and the areas allocated by the village authority/local bodies. Every year 50 trees of will be planted with various types of species. List of species is recommended for plantation.

Native plants like Mango, Neem, Kadamb, Kathal, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover. It is proposed to plant.

12.3 ENVIRONMENT MANAGEMENT PLAN

1.	Top soil storage, preservation and utilization	Present mining area is river bed, therefore no generally no top soil is present, if found then quantities of top soil to be generated will be stacked separately, preserved and used for purposed of plantation therefore no proposal has been envisage for storage, preservation & utilization.
2.	Waste dump management	No waste will he generated during mining whatever material is collected is transported in its original shape. Hence no waste management is required. Small amount of domestic waste is expected, which will be disposed off in a proper way. No

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M/s MAA DURGA FUEL STATION
Proprietor

		waste will be thrown into the streams or left on the banks.
3.	Plantation programme	Plantation will be done along both sides of roads and civic amenities in consultation with the local authorities. social forestry programme will also be conducted in the nearby villages.
4.	Quality of air	24 hourly samples twice a week for one month in each season except monsoon will be collected at the mine site and nearby villages and analyzed.
5.	Noise	Excavators used for mining & transportation vehicles used for dispatch of minerals are source of noise pollution at mine site. Hence periodical noise monitoring will be done. Ear muffs/protective equipments will also be provided for safety of the workers.
6.	Quality and make of water including surface and ground water	Mining will not have any impact on surface and ground water, however monitoring of parameters will be done once in each season.
7.	Soil	No major impact on soil due to mining operations is expected. Soil parameters will be monitored once in two years.
8.	Topography & drainage	Mined out area will be replenished every year during monsoon period in each stretches in each block in case of river bed blocks. Hence as such no topographical impact will be seen. A buffer zone will be left on either side of banks as safety measure. There is no stream crossing through the applied area which wuuld show impact on drainage pattern
9.	Local transport infrastructure	Trucks/dumpers are main vehicles running on the road for mineral transportation. The present road network is adequate to handle the load of this project. Water sprinkling on the haul roads/link roads will be done two times in a day to keep the dust suppressed. Also proper parking and traffic management will be followed.

M/s MAA DURGA FUEL STATION
Proprietor

CHAPTER– 13

CONCLUSION:

The proposed project involves collection of sand from inactive channel of river bed of Mohana river. Safety distance will be left intact to avoid bank erosion. Mining activity will be done except monsoon season. All necessary measures will be taken care to save environment and for safety purposes. Besides this extraction of sand every year will reduce the chance of flood level by removing the deposited mineral. This is very essential in order to prevent widening of the riverbeds and to prevent flooding off and damage to the adjoining areas. The sand extracted is in high demand in the local market which is used in making bridges, road & Building Material, etc.

This project operation will provide livelihood to the poorest section of the society. It provides employment to the people residing in vicinity directly or indirectly by the project. After all the proposed project will increase developmental activities and employment opportunities.

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M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Pravin Kr. Sinha Reg. No. - RQP/BHIBR.MG.20 Letter No. 3435 Dated 07/11/2019

PROGRASIVE MINE CLOSURE PLAN

M/s MAA DURGA FUEL STATION

Proprietor

PROGRESSIVE MINE CLOSURE PLAN

1.0. INTRODUCTION:

1.1	Settlee Name & Full address Phone. No. E-mail ID	M/s Maa Durga Fule Station Akhilesh Kumar Vill.- Pathra English, P.O.- Odhanpur, P.S.- Nawada, Dist.- Nawada, Pin onde- 805123. 9955721191 esmines@rediffmail.com
1.2	Letter no. / date of lease execution & lease period	District Magistrate issue LOI on letter no. 5501/khanan dated. 29.11.2022 for a period of 05 years (Annexure No. -1)
1.3	Settlee post/social status	Private
1.4	Mineral or Minerals which the Settlee intends to mine	Sand
1.5	Applied area for mining lease	Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat Lease has an applied area of 44.5 Hectare.
1.6	Name & address of RQP & Regd. No. Mobile No. E-mail ID	Er. Pravin Kr Sinha Reg. No. - RQP/BIH/SR.NO.20 Letter No. 3825 Dated 07/11/2019 **Consultant :** P & M Solution 201,Mangal Market Raja Bazar. Patna (Bihar) 9889024004 & 7542949027 indusminingbihar@gmail.com
1.7	RQP Certificate	RQP certificate copy attached as **Annexure 2**
1.8	Name of the Prospecting agency	The base data is collected from various geological reports of the Department of Mines & Geology and local authorities as well as detailed prospecting of the area is carried out by the RQP.
1.9	Status of Environmental clearance	After Mining Plan approval then Settlee shall submit application to state Environment Impact Assessment Authority (SEIAA) of Bihar, for environment clearance.
2.0	Date of Survey	03.12.2022

M/s MAA DURGA FUEL STATION
Proprietor

a). **Location:** Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Muhana-03) Sand Ghat fall in Mauja – Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Bodh Gaya, Dist - Gaya, (Bihar). The location plan is enclosed **(Plate No. I)**

b). **Extent of Lease area:** 44.5 Hectares

c). **Type of lease area:** Total area is waste land & it is free from forest land

d). **Present land use pattern:** The existing land use is given below:

Sr. No.	Land use	River bed (Ha)	Forest Land (Ha)	Barren land (Ha)	Grazing Land (Ha)
1	Mining pits Quarry	-	-	-	-
2	Approach Road	-	-		-
3	Dumps	-	-	-	-
4	Office, Resht Shelter etc.	-	-	-	-
5	Balance undisturbed land	44.5	-	-	-
	Total	44.5	-	-	-

e). **Method of mining and mineral processing:**

- Mining will be done as per the guidelines of Bihar Mineral (Concession Prevention of illegal Mining Transportation & Storage) Rules, 2019.
- This is an open-cast mining project. The operation will be semi-mechanized/OTFM with use of excavators/JCBs truck tractors combination etc. The sand will be collected in its existing form.
- Sand Mining will be carried out only upto a depth of 3 m bgl or above ground water level (whichever is less), for river bed block.
- No drilling /blasting are required as the material is loose in nature.
- Proper benching of 1.5 m height and 6m width will be maintained for mining blocks as per guideline M.M.R-2019, under rule 115(1).
- Mining will be done only during the day time and completely stopped during the monsoon season.

M/s MAA DURGA FUEL STATION
Proprietor

1.1. Reasons for Closure:

The "closure plan is a plan by which reinstate condition can be created, so that justification to the mother earth can be done" said by **James E. Hansen**. In the case of river bed mining, the excavated sand gets replenished during every monsoon and the area pertaining to palaeo channels of the river will be levelled & restored back to its original topography. More or less, the river bed maintains its previous form, such that the main stream of river remains unchanged.

According to experience and rough estimation of the State Government whatever quantity of minor minerals is extracted from the said area during the year will be replenished every year by the River itself on account of its flow and velocity.

At present there is no foreseeable reason regarding closure of mine. The progressive mine closure plan is being submitted.

1.3. Closure plan preparation:

a). Name and address of the Lessee:

M/s Maa Durga Fule Station
Akhilesh Kumar
Vill.- Pathra English, P.O.- Odhanpur,
P.S.- Nawada, Dist.- Nawada, Pin code- 805123
Mob.- 9955721191
Email ID: esmines@rediffmail.com

b). Name, address & Registration No. of R. Q. P.

Er. Pravin Kr Sinha
Reg. No. - RQP/BIH/SR.NO.20 Letter No. 3825 Dated 07/11/2019
Consultant :
P & M Solution
201,Mangal Market
Raja Bazar, Patna (Bihar)
9889024004 & 7542949027
Email ID: indusminingbihar@gmail.com

c). Name of the executing agency:

The Proponent shall execute himself the provision of mine closure plan.

M/s MAA DURGA FUEL
Akhilesh Kr
Proprietor

2.0 Mine Description:

Topography and general geology and local / mine geology of the mineral deposit including drainage pattern

The district of Gaya is broadly divided into two distinct physical units. The south is a region of broken undulating country merging into long ranges of hills, with a wide belt of brushwood jungle at their base. Much of this tract is high and barren and incapable of much cultivation; the soil has poor crops and the population is sparse. These high lands project into the alluvial plains to the north as spurs from the Chhotanagpur Plateau. The greater part of the district, however, consists of the flat alluvial plain. This wide alluvial plain of the north forms part of the Gangetic depression with alluvial deposits of immense depth and is broken here and there by groups and low ranges of hills or isolated peaks arising abruptly from the level country at their feet. The alluvial plain is protected from drought by a wonderful system of indigenous irrigation consisting of ahars (reservoirs) and pains (channels). It is, therefore, a region of great fertility when compared with the southern part of the district and is comparatively densely populated. The northern portion, which is highly cultivated and extensively irrigated.

General Geology

The main geological formation of the region is of Quaternary age. The area is mostly covered by unconsolidated sediments which is known as Alluvial deposits followed by consolidated deposits of Satpura range. Few areas are also characterized by units of Archaean ages. The Satpura range mainly exposed in Gaya hills and Rajgir hills comprises low grade supracrustals – Schists, ferruginous phyllite, quartzites and phyllitic slate. The Archeans are the oldest rock formation in the area. The most predominant rock type is gneisses and granites with basic intrusives and medium to fine sand geologically the area comprising of Terrace alluvium deposited in depositional terraces of old rivers & contain cyclic sequence of fine to course grained sand. It is angular to sub angular and the ungularity of the grains of this category of sand decreases with depth.

Regional Geology

Geologically, it represents nearly two third of Bihar is under cover of Ganga basin composed of alluvium and masks the nature of basement rocks.

M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Prabin Kr. Sinha Reg No. - ROYMINERAL/NO.20
Letter No 3835 Dated 07/12/2019

Showing the Geological Succession and their Occurrences distribution

Age	Geology	Occurrences
Quaternary	Alluvial Deposits (Sand, Clay, Silt, Fragments)	North Bihar Plain & Central Bihar Plain
Tertiary	Sand Stones & Clay Stones	North Champaran Hills
Gondwana	Coal Measures, Forming a series of Small outlier basins	Banka District
Vindhyans	Sandstones, Shales, Limestones, etc.	Parts of Bahbhua and Rohtas dist
Satpura	Schist, Phyllite, Quartzite	Part of Aurangabad, Gaya, Nawada, Nalanda, Sheikhpura and Munger District
Proterozoic	Mica Schist, amphiholites, quartzite, granite, dolerite and pegmatite	Nawada, Jamui and Banka
Archaean	Gneisses, Granites, Schists, Phyllites, quartzite, amphiholites & intrusive all metamorphosed sedimentary and igneous rocks	Part of Aurangabad, Gaya, Nawada, Jamui, Banka and Bhagalpur

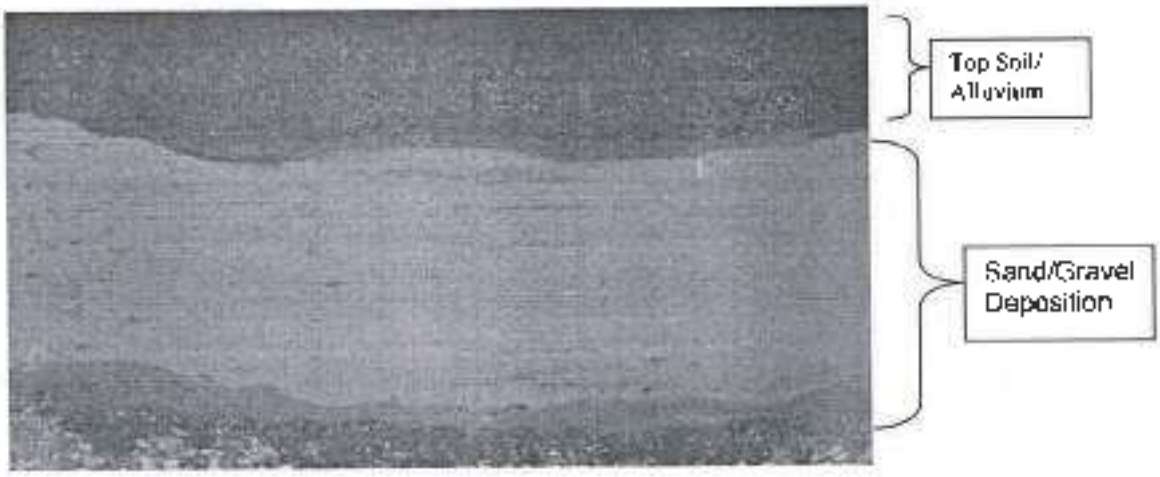
4.1.3 GEOLOGY OF THE AREA

The area is dominated by medium to fine sand geologically the area comprising of Terrace alluvium deposited in depositional terraces of old rivers & contain cyclic sequence of fine to coarse grained sand. It is angular to subangular and the angularity of the grains of this category of sand decreases with depth. The Litho unit shown on the geological map of the leased out area have been plotted on the basis of physical characteristics observed in the field. Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited at the fringe of the river banks. Soil/ alluvium varying in thickness from 0.20m to 0.60m m constitute the top horizons in the area suitable for agriculture. River Ganga/ Mother Mohana meanders through the area exposing the alluvium and soil at the banks.

M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Pravin Kr. Sinha Reg. No. - RQP/BIHSM NO-28
Letter No. 3825 Dated 07/11/2018

The litho units encountered in the riverbed and surrounding areas belongs to the Shivalik super groups. The size of the sediments towards the source i.e. hust rock is course and at the tale end of the river the grain size is reduced to smaller sizes resulted in the formation of clay beds. The following sequences have been observed in the area, i.e. Top soil/ Alluvium followed by sand deposition (as shown in the figure below).



Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited at the fringe of the riverbanks.

Soil/ alluvium varying in thickness from 0.20m to 0.60m m constitute the top hurizons in the area suitable for agriculture. River Ganga meanders through the area exposing the alluvium and soil at the banks. Sand is found in the river bed upto a depth of more than 3.0 m. The major part of bed remains dry as water flows in a single stream during the non-monsoon seasons. Only during rainy seasons the entire flood plain has water, when there will be no mining done.

DETAILS OF EXPLORATION:

a) **Already carried out in the area:**

No exploration has been carried out as sand lies all over the area & average thickness of sand is 3.0 m & area replenish every during the monsoon period. Therefore is no exploration has been carried out.

b) **Proposed to be carried out:**

Sand average thickness of 3.0 m lies all over the area & area replenish every during the monsoon period. Therefore no proposal of exploration has been given.

M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Pankaj Kr. Sinha Reg. No. : RQP/BH/458/2020
Labor No. 3835 Dated 07/10/2019

2.2 **Reserves:**

BLOCK-47 (GAYA MOHANA-01/GAYA MOHANA-02/ GAYA MOHANA-03) SAND GHAT

Geological Reserves : -

Gaya Mohana -01

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
I) Proved Mineral Reserves	111	750000
Total		**750000**

Geological Reserve = 750000 cum. or 1350000 tonnes.

Gaya Mohana -02

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
I) Proved Mineral Reserves	111	210000
Total		**210000**

Geological Reserve = 210000 cum. or 378000 tonnes.

Gaya Mohana -03

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
I) Proved Mineral Reserves	111	375000
Total		**375000**

Geological Reserve = 375000 cum. or 675000 tonnes.

Total Geological Reserve – **1335000 cum. or 2403000 tonnes.**

M/s MAA DURGA FUEL STATION
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Prepared by: Pravin Kr. Sinha Reg. No. - [illegible]
Letter No. 3825 Dated [illegible]

The mineable reserves are given in **Table Nos.4**

BLOCK-1

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
119-117.5	1585	156	1.5	370890	667602
117.5-116	1575	146	1.5	344925	620865
Total				715815	1288467

Mineable Reserve = 715815 CUM or 1288467 Tonnes

BLOCK-2

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
123-121.5	671	91	1.5	91592	164865
121.5 120	661	81	1.5	80312	144561
Total				171903	309425

Mineable Reserve = 171903 CUM or 309425 Tonnes

BLOCK-3

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
124-122.5	768	143	1.5	164736	296525
122.5-121	758	133	1.5	151221	272198
Total				315957	568723

Mineable Reserve = 315957 CUM or 568723 Tonnes

Total Mineable Reserve = 1203675 CUM or 2166615 Tonnes

- Mineable reserve has been consider 60% approx. of geological reserve after applying the guideline of Enforcement & Monitoring Guidelines for Sand Mining 2020.
- The proposed production grant **in LOI is 801000** cum per year which is within the sustainable limit of mineable reserve.
- The BD for Sand has been adopted at 1.8 g/cm3 [Noida Testing Laboratories]

M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Pravin Kr. Sinha Reg. No. - RQP/BIH/SR/NOV20
Letter No. 3425 Date 07/11/2020

• CLASSIFICATION MINERAL RESERVES:

Sand Ghat	Area (Hect)	Geological Reserves (m3)	Mineable Reserves (m3)	Annual Permitted Reserve As per LoI (m3)
Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat	44.5	1335000	1203675	801000

The annual extractable RBM comes to 801000 CUM or 1441800 Tonnes. It will be replenished after rainy season every year.

2.3 **Mining Method:**

Existing Method of mining:

It is fresh grant case of mining lease & at present no mining is being carried with the applied area.

b) **Proposed method of mining:**

- Mining activity will be carried out by open cast semi mechanized/OTFM method.
- No OB/ waste material will be produced in river bed. The sand shall be exploited upto depth of 3.0m only through the formation of bench height 1.5m & width 6.0m. An approach road having width 6.0m & gradient 1:12 shall be provided for the movement of loading machineries & transportation of sand. The sand shall be exploited with the deployment of an excavator & filled into Tractors/Trucks & transported to various buyers
- No drilling/ blasting are required as the material is loose in nature.
- Proper benching of 1.5 m height will be maintained.
- Roads will be properly made and sprayed by water for suppression of dust.
- Roads in the applied area for the movement of loaded tractors/ trucks will not have slopes more than 1 in 16.
- The mined out area shall be replenished each year during monsoon period and maintained in maximum original topography.

M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Pravin Kr. Sinha Reg. No. RQP/BIH/08.NO.20
Letter No. 8925 Dated 07/11/2019

- Approach roads from the various plots as already described earlier will be merging with permanent tar roads on both sides of the river for transportation of the mineral to final destinations.

2.4 Mineral beneficiation:

No mineral beneficiation will be under taken for next five years. The sand shall be exploited semi mechanized with shovel tractor trolley/tippers combination & transport to parties.

3.0 Review of implementation of mining plan / scheme of mining including five years progressive closure plan up to the final closure of mine:

At is fresh grant case of mining lease it is therefore premature to make any comments about review of implementation.

4.0 Closure Plan:

4.1 Mined out land:

Mining is proposed in one block. The mining shall be carried out during post monsoon season & depth of mining shall restricted 3.0 m. Mining operation shall be suspended during monsoon period. The mined out pit shall be replenished during the monsoon period by sand and silt & leveled it. After over the monsoon period the replenish material shall be exploited manually as well as by means of an excavators & this process will continue.

The area already degrades due to mining & likely to be used during next five years is given below:

Activities	Area already used (Ha)	Area likely to be used in mining (Ha)
Pits & quarries	-	44.5
Approach road	-	-
Top soil Stack	-	-
Interburden dump	-	-
Backfilled pit	-	-
Total	-	**44.5**

M/s MAA DURGA FUEL STATION
Proprietor

(A) Mining:

Sl.No.	Activities	Area (Ha)
1.	Area already broken up	-
2.	Area already backfilled /reclaimed	-
Sl. No.	**Activities**	**Area (Ha)**
1.	Additional area proposed to be broken during next five years	-
2.	Additional area proposed to be replenished with flood water	-

(B) Dump:

Sl. No.	Activities	Area (Ha)
1.	Area already covered by dump	Nil
2.	Additional area to be covered by soil stack	-
3.	Additional area to be covered by interburden dump.	Nil
4.	Dump area to be covered by protective measures	-

(C) Plantation:

Sl. No.	Activities	Area(ha)
1.	Area already covered under plantation	-
2.	Area proposed to be covered under plantation in next five years (with in area)	-
	Total	-

4.2 Water Quality Management:

No ground water bodies exist within the area & no seasonal Nalla exists with in the area. The rain water accumulates in the pit & water percolates in to ground water. Further no significant impact on water quality is anticipated as material exposed will be Sand & its shall very feebly react with water that too when water becomes acidic. Even of reaction takes place it gives arise to increased temporary hardness of water. Water is being supplied from the Tubewell.

M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Prabhat Kr. Sinha Reg. No. - EQM/BH/SR/NO.01
Letter No. 3125 Dated 07/10/2019

4.3. Air Quality Management:

The mining shall be carried out semi-mechanized/OTPM with use of excavators/JCBs truck /tractors combination or Manually etc. No adoption of drilling & blasting mining shall be carried out in shallow depth. No doubt the mining in this remote area will deteriorate the air quality. The base line values are too low due to remoteness of the area with our past experience. In this kind of terrain, the SPM, SO2 and NOX will always below 100, 10 & 10 microgram per meter cube respectively. Air quality monitoring shall be conducted once in a year as per CCOM'S circular No 3/92.

4.4. Waste management:

No waste shall be generated due to mining activities. All quantities of sand to be generated shall be sold in the local market. Therefore no proposal of waste management has been envisaged.

4.5 Top Soil Management:

No soil shall be generated during plan period & no proposal has been envisaged for its separate stacking & this management.

4.6. Tailing Dam Management:

No tailing dam is proposed in the soapstone mine.

4.7. Infrastructure:

No infrastructure facilities like aerial ropeway, conveyor belts, building & structure, water treatment plant, transport & water supply sources are present within the lease area. Therefore no utilization & their physical stability & maintenance will be required. Also no infrastructure facilities like telephone line, water pipe line, sewer line, gas pipe line, electrical cables, culvert, bridges are not existing within the lease area. So question does not arise for their restoration. The approach road passed within the lease area & lessee shall maintain it during PMCP period.

4.8. Disposal of Mining Machinery:

It will be opencast semi mechanized mine. No disposal of mining machineries shall be envisaged during plan period.

4.9. Safety and Security:

1. Each worker shall be provided with helmets & safety shoes.
2. Safety belt shall be provided to workers a working the top benches.
3. Hanging of loose materials shall be removed from mine faces.

M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Pravin Kr. Sinha Reg. No. - RQP/BIH/SEN/0.38
Letter No. 3921 Dated 07/12/2019

4. The mining area shall be properly fenced to avoid any inadvertent entry in to mining pit.
5. Working hours shall be displaced at conspicuous places.
6. Mining shall be carried out thought the formation of benches maintaining overall pit slope 60deg.

4.10 Disaster Management and risk assessment:

The mining is proposed in a gentler agricultural field. The mining will go up to the economical depth of 3m therefore, no disaster management and risk assessment shall be observed. However during monsoon period the area shall be properly fenced with barbed wire to avoid any inadvertent entry of any live stock.

5.0. Economic repercussions of closure of mine and manpower retrenchments:

All the workers being employed are contractor labours. An any industry will provide direct and indirect employment. The local residents will earn tremendous amount of money due to mining activities. It will change their life style. Due to closure of mine, it will create very negative impact on the economy of the workers for their survival. Those earning good money will get some occupation for survival of their families. The literate workers will move here and there for the search of job. In the overall view the closure of mine will give very bad impact on the society and surrounding areas.

5.1 Local residents of nearby villages will be employed in the mine. The family occupation is most by farming. Few of them occupation carpentry & masonry.

5.2 The lessee pay each year about 5,000 to 10,000 as a compensation for the sustenance of the few workers family.

5.3 About 30% of the workers employed in mine are independent but they are controlled depended by their family members.

5.4 The local residents will be employed in the mining operations, and allied activities related to mining operations.

5.5 During mining operations the land owners & society of the area shall earn lucrative amount of money from direct & indirect activities. Individual land owners shall also earn good amount of money in terms of royalty. Most of them will spend money to establish other business also. After mining, the total land shall be backfilled & agricultural activities shall be recommended. No repercussion should be observed during the closure of mine.

M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Pravin Kr. Sinha Reg. No. - BI/Retail/DSK/MK/20
Letter No. 3825 Dated 07/12/2019

6.0 Time Scheduling for abandonment:

It is proposed in the mining plan that mining will open from lower levels and subsequently advance towards higher elevations so that concurrent reclamation will be under taken to restore the topography of area. The mined area will be replenished during the monsoon period.

The year wise schedule of completion of quantities is given below:

Activities	YEAR				
	I	II	III	IV	V
Toe wall along Soil stack	-	-	-	-	-
Backfilling (Cum)	-	-	-	-	-
Plantation (No. of sampling, out side the area)	89	89	89	89	89

The tentative cost of implementation of activities during next five years is given below:

Sl. No.	Activities	Year					Total amount on Rs.
		I	II	III	IV	V	
1.	Toe wall (soil stack Rs. 40/m)	-	-	-	-	-	-
2	Retaining at the edge of backfilled wall pit (Rs. 50/m)	-	-	-	-	-	-
3.	Plantation (Rs. 1000/- sapling with in the area)	89	89	89	89	89	445000
	Total						**445000**

The tentative cost (In Rs) of implementation of activities during next five years is given below:

Tree guard @ 800 per unit	800
Per plant species cost	100
Average Water demand cost per species Per Year	100
Total	1000

M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Pravin Kr. Sinha Reg. No. - MQP/BIH/08.NOV.20
Letter No. 3825 Dated 07/11/2019

7.0 Abandonment Cost:

The tentative cost for implementation of protective and rehabilitation measures, the proposal given in the mining plan for next five years period is as under:

Activity	Year						Rate In Rs.	Amount In Rs.
	I	II	III	IV	V	Total		
i) Toe wall at the base and side of soil stack (mtr)	-	-	-	-	-	-	40/m	-
iii) Retaining wall at the edge of backfilled pit (m)	-	-	-	-	-	-	-	-
iv) Plantation (no. of sapling with in the area.)	89	89	89	89	89	445	1000/-	445000
v) Reclamation(Cum.)	-	-	-	-	-	-	40/cum	-
Total								**445000**

M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Pravin Kr. Sinha, Reg. No. - RQP/BH/10/SR/340/20
Letter No. 3815 Dated 07/11/2019

8.0 Any other information:

Community Development: The expensed increased towards the socio-economic development is given below:

Proposed Action Plan Towards socio economic development	First Year to Fifth Year	
	Expenditure proposed (in Rs.)	Expenditure in occurred (in Rs.)
General Development of the area	-	-
i) Housing	50,000	-
ii) Water Supply	25,000	-
iii) Sanitation	20,000	-
iv) Health, Safety & Medical Facilities	30,000	-
Education & Training	30,000	-
Employment to local inhabitants; Land owner compensation; Supervisor & Headers etc.	1,00,000	-
Public Transportation & Communication	20,000	-
Recreation & other sports activities	20,000	-
Expenditure for environment management	15,00,000	-
Others (Compensation to land owners)	80,000	-

M/s MAA DURGA FUEL STATION
Proprietor

Prepared by: Pravin Kr. Sinha Reg. No. - EQM/BIH/SR.NO.38
Letter No. 3805 Dated 07/08/2019

9.0 Financial Assurance:

The financial assurance has been calculated on the basis of following parameters:

SL No.	Head	Area put on use at start of plan (In Ha)	Additional requirement during plan period. (In Ha)	Total (In Ha)	Area considered as fully reclaimed & rehabilitated (In Ha)	Net area considered for calculation (In Ha)
1.	Area under mining	-	44.5	44.5	44.5	0
2.	Storage for top soil	-	-	-	-	0
3.	interburden/ dump	-	-	-	-	0
4.	Mineral storage	-	-	-	-	0
5.	Infrastructure (Workshop, administrative building etc.)	-	-	-	-	0
6.	Approach Road		-	-	-	-
7.	Railways	-	-	-	-	0
8.*	Green Belt	-	-	-	-	-
9.	Tailing pond	-	-	-	-	0
10.	Effluent Treatment Plant	-	-	-	-	0
11.	Mineral Separation Plant	-	-	-	-	0
12.	Township area	-	-	-	-	0
13.	Others to specify (retaining wall + toe walls	-	-	-	-	-
	Grand Total		44.5	44.5	44.5	-

The total mined out area shall be replenished each year during monsoon period & no broken area will be remained in the applied area. Therefore, it is not possible to calculate financial assurance at this stage.

Date:

Place: Gaya

* Plantation will be done along both sides of roads and civic amenities in consultation with the local authorities.

Prepared by: Pratik KK Sinha Reg. No. - MOP/BH/SA/10.20
Tender No 3825 Dated 07/01/2019

M/s MAA DURGA FUEL STATION
Proprietor

ANNEXURE

M/s MAA DURGA STONE CRUSHER

Proprietor

GSTIN- 10ATQPK4834M1Z4

9334673112

M/s MAA DURGA FUEL STATION

Dealer : Bharat Petroleum Corporation Ltd.

Ref. No. .....

Date.....

AUTHORISATION LETTER BY THE APPLICANT/ LESSEE

I. Akhilesh Kumar hereby authorise *Er. Pravinkumar Sinha, Reg.No.- RQP/BIH/SR.NO.20 Letter No. 3825 Dated 07/11/2019* to prepare the Mining plan Submitted under Rule (17) of Bihar Minerals (concession, prevention of illegal transportation & storage) Rules 2019 in respect of M/s Maa Durga Fule Station at over an area of 44.5 Hectare for mineral(s) for Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat in Mauja – Bataspur, Chhanchh, Moratal, Ghoghanya, Gunawan. Kenari. Anchal- Bodh Gaya, Dist - Gaya, (Bihar).

I request The Director. Department of Mines & Geology Patna. Bihar to make further correspondence regarding modification and to collect the approved copies of the aforesaid mining plan with the said recognized person on his following address:

Name of RQP : Er. Pravin Kr. Sinha
Reg. No - RQP/BIH/SR.NO.20
Letter No. 3825 Dated 07/11/2019

Address of RQP

: Consultant -
P & M Solution
201,Mangal Market
Raja Bazar. Patna (Bihar)
9689024004 & 7542949027
indusminingbihar@gmail.com

Proponent,

M/s MAA DURGA FUEL S.....

Proprietor

Akhilesh Kumar
M/s Maa Durga Fule Station

Place :

Date :

Address :- Ward- Bhadokhara, Vill.- Pathra English, P.O.- Odhanpur, P.S.- Mulasil
Dist.- Nawada (Bihar) PIN- 805123
email ID :- a16akhilesh685@gmail.com

Certificate

1. Certified that the provisions of mines Act, Submitted under Rule (17) of Bihar Minerals (concession, prevention of illegal transportation & storage) Rules 2019 made there under have been observed in Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat Mining Plan, Mauja – Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Anchal- Bodh Gaya, Dist - Gaya, (Bihar) and wherever specific permissions are required, the lessee will approach concerned authorities for granting permission.

2. The information furnished in Block-47 (Gaya Mohana-01/Gaya Mohana-02/Gaya Mohana-03) Sand Ghat is true and correct to the best of my knowledge.

(*Pravin Kumar Sinha*)

Reg. No. - ROP/BIH/SR NO.20
Letter No. 3825 Dated 07/11/2019

M/s MAA DURGA FUEL STATION
Proprietor

Place: - Patna

Date:-

(Approved RQP under Bihar Government)



20	Pravin Kumar Sinha	7542949027	B.E (Mining)	Rs. 2,000/- per Hectare (Each Block Mining Plan - Rs. 30,000/-)		201,2nd Floor,Mangal Market,Raja Bazaar, bailey Road, Patna-14
21	Md. Tauseef Warsi Greenera Mining & Envirotech Pvt. Ltd.	9534027132	M.Sc (Geology)	Rs. 5,000/- (Excluding GST)		Greenera Mining & Envirotech Pvt.Ltd.,205 Mangal Market,Raja Bazar,Bailey Road Patna-800014
22	Prabhat Kumar Srivastava	8827477206	B.E(Mining)	Rs. 8,000/-		Flat No-101, Road No.-01, Bodhi Nagar, Chiriya Tand, Postal Park , Patna-800001
23	Ashok Kumar Singh	8969959084	Mining Engineer	Rs. 8,000/-		C/o Shri Ram Prasad Singh, Mohalla - Mogal Kuan, P.O. - Sohsarai, P.S. - Sohsarai, Dist.- Nalanda, Bihar- 803118
24	Sandeep Kumar	8126253120	M.Sc. (Applied Geology)	Rs 10,000/		Anpurna Bhavan , C/O Ravi Kishan, Sunder Nagar, Lohia Path , Jagdeo Path , Patna - 800014 (Bihar)
25	United Exploration India Pvt. Ltd.	9431208782 9934304369	Required Qualification of the employees attached	Rs. 5,200/- (Inclusive all Taxes)		301,2nd Floor ,Sahid Rajendra Singh Complex,Anishabad , Patna-800002
26	Rian Enviro Pvt. Ltd.	9431289038	Required Qualification of the employees attached	Rs. 5,000/- (Inclusive all Taxes)		202,2nd Floor,Mangal Market,Raja Bazar,Sheikhpura Patna -800014
27	Aurum Enviro Pvt. Ltd.	9204207920	Required Qualification of the employees attached	Rs. 4,750/- (Inclusive all Taxes)		401,4th Floor , Mangal Market,Raja Bazar,Sheikhpura,Patna-800014
28	M/s Baghel Environment & Waste Management Pvt. Ltd.	8031042533	Qualifications of candidates are attached	As decided by the department of Mines & Geology, Govt. of Bihar		Baghel Environment & Waste Management Pvt. Ltd. ,1st Floor, 27, Guru Sahay lal Nagar, Road No. 2, Magistrate Colony, Ashiyana Nagar, Patna - 800025, Bihar
29	Sriram Lok Seva	9934643211	Qualifications of candidates are attached	Rs. 7,000/-	Note - 1. Minimum rate for a Sand Block - Rs 25,000/- 2. Maximum rate for a Sand Block Rs 50,000/- Or As decided by the Department of Mines & Geology, Govt. of Bihar	27, Guru Sahay Lal Nagar, Magistrate Colony, Ashiyana nagar, patna-800025, Bihar
30	Praneja Envirocare & Management Pvt. Ltd.	9708251824	Qualifications of candidates are attached	Rs. 10,000/- (Excluding GST @18%)	Remarks - Fee should not be less than 20,000 or more than 50,000 thousand for single block (Included GST) OR As decided by the Department of Mines & Geology, Govt. of Bihar	101, Bhagwati kunj apartment, Road No 2, Ashiyana City Colony, Rukanpura, Patna (Bihar)- 800014
31	Institute of Environment and Eco Development	7004920817	Details Of Qualification Attached	Rs. 10,000/- (Excluding GST)	Rate will be negotiable as per direction from Department of Mines & Geology, Govt. of Bihar	Admin. Office--Ground Floor, Shastri Nagar Colony, Mahatma Path, Bailey Road, P.O-B.V. College,Patna--800014
32	ENV Developmental Assistance Systems (India) Pvt. Ltd.	9234007470 9334913139	Details Of Qualification Attached	Rs. 1,750/- (Inclusive all Taxes)		Prabha Niketan, Road No.-13,Patel Nagar, Near Petrol Pump,,Patna-800029

M/s MAA DURGA FUEL STATION

Proprietor

ज्ञापांक:- 3825 /एम0, दिनांक- 07/11/19

प्रतिलिपि:- माननीय मंत्री के आप्त सचिव/प्रधान सचिव के प्रधान आप्त सचिव/निदेशक कोषांग/उप निदेशक (मु0)/सहायक निदेशक (मु0)/खनिज विकास पदाधिकारी (मु0) को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

7/11/19

सरकार के अवर सचिव

M/s MAA DURGA FUEL STATION

Proprietor

(Accreditation Certificate)

M/s MAA DURGA FUEL STATION

Proprietor

NATIONAL ACCREDITATION BOARD FOR EDUCATION & TRAINING

QUALITY COUNCIL OF INDIA

6th Floor, ITPI Building, Ring Road, I.P. Estate, New Delhi

Scheme for Accreditation of EIA Consultant Organizations

Accreditation Committee Meeting for Initial Accreditation held on

December 20, 2019

The following members were present during the meeting:

1. Prof. B B. Dhar - Chairman
2. Prof. C P. Kaushik - Member
3. Dr. P. Ahujarai - Member
4. Dr. J. P. Gupta - Member
5. Prof. Umesh Kulshrestha - Member
6. Mr. A. K. Ghose - Member

Dr. S. R. Wate, Prof. Rajesh Khanna and Prof. G. J. Chakrapani expressed their inability to attend the meeting.

Prof. B. B. Dhar chaired the meeting in absence of Dr. S. R. Wate.

Mr. A.K. Jha – Senior Director, Dr. Pawan Kumar Singh – Assistant Director and Mr. Vipin Pant– Accreditation Officer were present in the meeting.

Following case was discussed and decisions taken thereof are:

1.0 Case of Initial Accreditation

1.1 P and M Solution, Noida

P and M Solution, Noida has been assessed as per Version 3 of the Scheme. Result of Initial Accreditation (IA) assessment is given below-

1.1.1 Category of Approval:

The organization has scored more than 60% marks therefore, is accredited with Cat. A.

1.1.2 Scope of Accreditation

Sl. No.	NABET Scheme Sectors	Sector Description	Cat.	Sector Number (MoEFCC Notification dt. Sep. 14,2006 & Amendments)

M/s MAA DURGA FUEL STATION

Proprietor

1.	1	Mining of minerals including opencast / underground mining	A	1 (a) (i)
2.	3	River Valley projects	B	1 (c)
3.	8	Metal urgical industries (ferrous & non-ferrous)	B	3 (a)
4.	34	Highways,	A	7 (f)
5.	38	Building and construction projects	B	8 (a)
6.	39	Townships and Area development projects	B	8 (b)

1.1.3 EIA Coordinators (ECs)

Sl. No	Name	Sectors			Cat.	Remarks
		Applied	Recommended	Approved		
In-house						
1	Jatin Kumar Srivastava	1	Yes	Yes	B	Opencast only.
2	Pravin Kumar Sinha	1	Yes	Yes	B	None
Empanelled						
3	Tapan Majumdar	1	Yes	Yes	A	With an observation.
4	Mayank Kumar	3	Yes	Yes	B	None
		34	Yes	Yes	A	
		38	Yes	Yes	B	
		39	Yes	Yes	B	
5	Vikas Chand Tripathi	8	Yes	Yes	B	None
		38	Yes	Yes	B	With an observation.

1.1.4 Functional Area Experts (FAEs)

Sl. No	Name	Functional Areas (FA)			Cat.	Remarks
		Applied	Recommended	Approved		
In-house						
1	Jatin Kumar Srivastava	SC	Yes	Yes	B	None
		NV	Yes	Yes	B	
		WP	Yes	Yes	B	
		EB	Yes	Yes	B	
2	Pravin Kumar Sinha	GEO	Yes	Yes	B	None
3	Amit Kumar	SHW	Yes	Yes	B	SW only
		AP	Yes	Yes	B	With an observation.
		WP	Yes	Yes	B	
4	Manoj Kumar Pandey	EB	Yes	Yes	B	None
5	Hussain Ziauddin	SHW	Yes	Yes	B	HW only
		WP	Yes	Yes	B	None
6	Abhay Nath Mishra	SE	Yes	Yes	B	With an observation
Empanelled						
7	Tapan Majumdar	GEO	Yes	Yes	A	None
		MG	Yes	Yes	A	
8	Mayank Kumar	FA	Yes	Yes	B	None
9		SHW	Yes	Yes	B	SW only

M/s MAA DURGA FUEL STATION
Proprietor

Sl. No	Name	Functional Areas (FA)			Cat.	Remarks
		Applied	Recommended	Approved		
	Vikas Chand Tripathi	AP	Yes	Yes	B	None
		RH	Yes	Yes	A	
10	Neha Singh	AQ	Yes	Yes	B	None
		NV	Yes	Yes	B	
		WP	Yes	Yes	B	
		AP	Yes	Yes	B	
11	Debarati Ghosh	LU	Yes	Yes	B	With an observation.
12	Poonam Kumari Mangalam	LU	Yes	Yes	B	None

1.1.5 Functional Area Associates (FAAs)

Sl. No	Name	Functional Area (FA)		Name of Mentor/FAE	Remarks
		Applied	Approved		
1	Deepika Bisht	SC	-	-	Left the organization.
		EB	-	-	

Note: **The following will be communicated to the ACO by NABET**

- **Detailed Observations (if any)**
- **Result of balance candidates**

The meeting ended with a vote of thanks to the Chair.

Issued by

(A K Jha)
Senior Director
QCI-NABET

M/s MAA DURGA FUEL STATION
Proprietor

जिला खनन कार्यालय, गया।

पत्रांक 22 /खनन, गया, दिनांक 09/01/23

प्रेषक,

अमरेश कुमार (R.A.S.)
वरीय उप समाहर्त्ता–सह–
प्रभारी खनिज विकास पदाधिकारी, गया।

सेवा में,

AKHILESH KUMAR
VILL-PATHRA ENGLISH, PO-ODHANPUR, PS-NAWADA,
DISTT-NAWADA, PIN CODE-805123
Email-esmines@rediffmail.com
Mobile-9955721191

विषय :– गया जिलान्तर्गत बालूखण्ड संख्या–47 (गया मोहाना–1/2/3) के भूमि की विवरणी उपलब्ध कराने के संबंध में।

महाशय,

उपर्युक्त विषय के संबंध में कहना है कि गया जिलान्तर्गत बालूखण्ड संख्या–47 (गया मोहाना–1/2/3) के भूमि की विवरणी निम्नवत् है :–

SR NO	Sand Block No.	BLOCK/UNIT NAME	AREA (HA)	Distance from ARCHEOLOGICAL SITES OF GAYA DISTRICT (KM)	MAUZA Village/ Thana No.	ANCHAL	KHATA NO.	KHESHRA NO.
1	Block-47	GAYA MOHANA-01	25	1.15	Bataspur/ 443	Bodh Gaya	191	1
					Chhanchhi/ 458		384	1
					Moratal/ 455		367	3091, 1
		GAYA MOHANA-02	7	3.67	Ghogharlya/ 446	Bodh Gaya	207	1084
		GAYA MOHANA-03	12.5	5.33	Gurlawan/ 426	Mohanpur	455	1370
					Kenari/ 424		177	225

विश्वासभाजन

09/01/23
वरीय उप समाहर्त्ता–सह–
प्रभारी खनिज विकास पदाधिकारी, गया।

M/s MAA DURGA FUEL STATION
Akhilesh Kr
Proprietor

DIRECTORATE OF MINES AND GEOLOGY, GOVT. OF BIHAR

Scanned by CamScanner

जिला खनन कार्यालय, गया।

पत्रांक-5540/खनन, गया, दिनांक-24/11/22

प्रेषक,

अमरेश कुमार (बि.प्र.से.)
वरीय उप समाहर्त्ता–सह–
प्रभारी खनिज विकास पदाधिकारी, गया।

सेवा में,

M/s Maa Durga Fule Station
Prop- Akhilesh Kumar
VILL-PATHRA ENGLISH, PO-ODHANPUR, PS-NAWADA,
DISTT-NAWADA, PIN CODE-805123
Email-csmines@rediffmail.com
Mobile-9955721191

विषय :– गया जिलान्तर्गत बालूखण्ड संख्या–47 (गया मोहाना–1/2/3) की आगामी पाँच वर्षों के लिए बन्दोबस्ती हेतु दिनांक–23.11.2022 को सम्पन्न ई–नीलामी में उच्चतम डाककर्ता घोषित होने के फलस्वरूप सैद्धांतिक स्वीकृत्यादेश के संबंध में।

महाशय,

उपर्युक्त विषयक गया जिलान्तर्गत बालूखण्ड संख्या–47 (गया मोहाना–1/2/3), कुल रकबा–44.5 हेक्टेयर की आगामी पाँच वर्षों के लिए बन्दोबस्ती हेतु दिनांक 23.11.2022 को सम्पन्न ई–नीलामी में आपके द्वारा निर्धारित सुरक्षित जमा राशि रु0- 6,00,75,000/–(छः करोड़ पचहत्तर हजार) रू0 के विरुद्ध रु0– 7,80,97,500/–(सात करोड़ अस्सी लाख सन्तानवे हजार पाँच सौ) रू0 की उच्चतम डाक बोली गई, फलस्वरूप आप उच्चतम/सफल डाककर्ता घोषित हुए हैं। निविदा दस्तावेज की कंडिका–20 (i) के आलोक में आपके द्वारा नीलामी राशि की 25 प्रतिशत राशि (जमा अग्रधन राशि समायोजनोपरान्त) प्रतिभूति राशि रु0–45,05,625/–(पैंतालीस लाख पाँच हजार छः सौ पच्चीस) रू0 के भुगतान का साक्ष्य दिनांक–24.11.2022 को कार्यालय में प्रस्तुत किया गया है।

निविदा दस्तावेज की कंडिका 20(i)(ii)(iii)(iv)(v) के आलोक में जिलान्तर्गत बालूखण्ड संख्या–47 (गया मोहाना–1/2/3) के सैद्धांतिक स्वीकृति की शर्त्त एवं बंधेज निम्नवत् हैं :–

1. बालूखण्ड संख्या–47 (गया मोहाना–01) से संबंधित विवरणी निम्नवत् है :–

क्र.	नदी का नाम	रकबा (हेक्टेयर में)	Geo Coordinates		
				Latitude	Longitude
1	मोहाना (Non-Perennial)	25	A	24°42'9.18"N	85° 0'53.36"E
			B	24°42'8.58"N	85° 0'57.56"E
			C	24°41'18.68"N	85° 1'5.30"E
			D	24°41'17.12"N	85° 1'2.31"E
2	वन क्षेत्र से दूरी		लगभग 1.63 कि.मी.		
3	सुरक्षित क्षेत्र/घन अभ्यारण्य क्षेत्र/पक्षी अभ्यारण्य/वन्य जीव आश्रयण क्षेत्र से दूरी		लगभग 21.42 कि.मी.		
4	बालूघाट/बालूखण्ड से 500 मीटर के अन्दर खनन पट्टा क्षेत्र की स्थिति		लागू नहीं		
5	पुरातात्विक स्थल से दूरी		लागू नहीं		
6	खनन योग्य गात्रा		450000 घनमीटर		

M/s MAA DURGA FUEL STATION
Akhilesh Kr.
Proprietor

3. GST का भुगतान :– जीएसटी के रूप में प्रचलित दर के अनुसार राशि वाणिज्य कर विभाग को भुगतान करना होगा। जिला खनन कार्यालय, गया में जीएसटी भुगतान का प्रमाण प्रत्येक किस्त के साथ देना होगा।

4. आयकर/अन्य करों का भुगतान :– आयकर अधिनियम के तहत आगणन एवं उस पर नियमानुसार देय अधिभार का भुगतान आयकर विभाग के प्रचलित दर के अनुसार एक मुश्त करना होगा। यह राशि बंदोबस्ती राशि के प्रत्येक किस्त के साथ देय होगी। जिला खनन कार्यालय, गया द्वारा यह राशि आयकर मद में जमा करा दी जायेगी।

5. जिला खनिज फाउन्डेशन :– Bihar Mineral District Foundatin Rules, 2018 के अनुसार बंदोबस्ती राशि की 2 प्रतिशत राशि जिला खनिज फाउण्डेशन, गया के नाम भुगतेय बैंक ड्राफ्ट के माध्यम से करना होगा।

6. वैधानिक अनापत्ति :– बालूघाट संचालन हेतु आवश्यक समस्त वैधानिक अनापत्ति/अनुमति यथा:– खनन योजना, पर्यावरणीय स्वीकृति, जल एवं वायु सहमति आदि आपके द्वारा सैद्धांतिक स्वीकृत्यादेश (LOI) निर्गत तिथि से तीन माह की अवधि के अन्दर प्राप्त करना सुनिश्चित करेंगे। वैधानिक अनापत्ति/अनुमति प्राप्त करने के पश्चात् ही बालू खनन प्रारंभ किये जाने हेतु कार्यादेश निर्गत किया जा सकेगा। वैधानिक अनापत्ति/अनुमति निम्नानुसार है:–

   i. खनन योजना:– खनन योजना प्रभावी नियमों में उल्लिखित प्रावधानों के अनुसार सफल डाकवक्ता/बंदोबस्तधारी द्वारा QCI/NABET से मान्यता प्राप्त Professional RQP से तैयार कर निदेशक, खान या विभाग द्वारा प्राधिकृत पदाधिकारी के समक्ष लेटर ऑफ इंटेंट निर्गत होने से 30 दिनों के अन्दर अनुमोदन के लिए प्रस्तुत करेगा। खनन योजना बनाने पर होने वाले व्यय का वहन संबंधित खनिज डाकवक्ता/बंदोबस्तधारी द्वारा किया जायेगा। साथ ही खनन योजना की जाँच हेतु समाहर्त्ता/विभाग अन्य ऐजेंसी चयनित कर सकेगा, जिसका निर्धारित फीस/खर्च भी बंदोबस्तधारी को ही वहन करना होगा। सफल डाकवक्ता/बंदोबस्तधारी खनन योजना के अनुसार खनन करना सुनिश्चित करेंगे।

   ii. पर्यावरणीय स्वीकृति:– सफल डाकवक्ता/बंदोबस्तधारी खनन योजना अनुमोदन के 15 दिनों के अन्दर पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के सक्षम प्राधिकार को समक्ष पर्यावरणीय स्वीकृति (EC) के लिए प्रस्ताव समर्पित करेगा। समयबद्ध रीति से पर्यावरणीय एवं अन्य वैधानिक स्वीकृति प्राप्त करना सफल डाकवक्ता की जिम्मेवारी होगी। अपेक्षित पर्यावरणीय स्वीकृति एवं अन्य आवश्यक स्वीकृति प्राप्त करने में किसी भी प्रकार की देरी के लिए सफल डाकवक्ता स्वंय जिम्मेवार होंगे एवं इस संबंध में किसी भी प्रकार की क्षतिपूर्ति के लिए कोई भी दावा मान्य नहीं होगा।

   iii. जल एवं वायु सहमति:– पर्यावरणीय स्वीकृति प्राप्त करने के पश्चात सफल डाकवक्ता अधिकतम 07 (सात) दिवस के अंदर जल (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1974 तथा वायु (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1981 के अधीन सक्षम पदाधिकारी के समक्ष सहमति/ Consent to Establish/ Consent to Operate प्राप्त करने हेतु आवेदन प्रस्तुत करेगा।

   iv. खनन के लिए अनुमत मात्रा:– खनन योजना, पर्यावरणीय स्वीकृति तथा जल (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1974 तथा वायु (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1981 के तहत प्राप्त सहमति में वर्णित बालू की मात्रा (इनमें से जो भी कम हो) तक ही खनन अनुमान्य होगा। यदि अनुमोदित खनन योजना, पर्यावरणीय स्वीकृति तथा जल एवं वायु सहमति में खनन योग्य मात्रा कम किये जाने पर भी वार्षिक देय बंदोबस्ती राशि किसी स्थिति में कम नहीं की जाएगी।

   v. बिना किसी वैध कारण के पर्यावरणीय स्वीकृति, Consent to Establish/ Consent to Operate /जल एवं वायु सहमति प्राप्त नहीं कर पाते है या प्राप्त करने में रूचि नहीं लेते है तो, समाहर्त्ता द्वारा अग्रेषण

7. बंदोबस्ती विलेख/पट्टा संविदा (डीड) निष्पादन करना :–

   i. सफल डाकवक्ता द्वारा सभी वैधानिक अनापत्ति प्राप्त करने के उपरान्त 5 वर्षों की अवधि के लिए बालू खनन करने हेतु सशर्त अनुदान/बन्दोबस्ती स्वीकृत किया जाएगा। सफल डाकवक्ता निर्धारित प्रपत्र में संबंधित नियमानुसार बंदोबस्ती विलेख अथवा उसके समरूप एक प्रपत्र, कार्य

M/s MAA DURGA STONE STAT...
Proprietor

(xiii) **ई–नीलामी एवं बालूघाट की बंदोबस्ती** अवधि के दौरान उत्पन्न किसी भी प्रकार का विवाद बिहार खनिज (समानुदान, अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली 2019, (यथा संशोधित) के अधीन होगा।

(xiv) सफल डाकवक्ता/बन्दोबस्तधारी को इलेक्ट्रॉनिक माध्यम से भेजी गई कोई भी सूचना/निदेश /आदेश इत्यादि IT Act के तहत स्वीकार्य साक्ष्य के रूप में माना जायेगा।

विश्वासभाजन

वरीय उप समाहर्ता–सह–
प्रभारी खनिज विकास पदाधिकारी, गया।

M/S MAA DURGA ...

Akhilesh K

Proprietor

PLATES

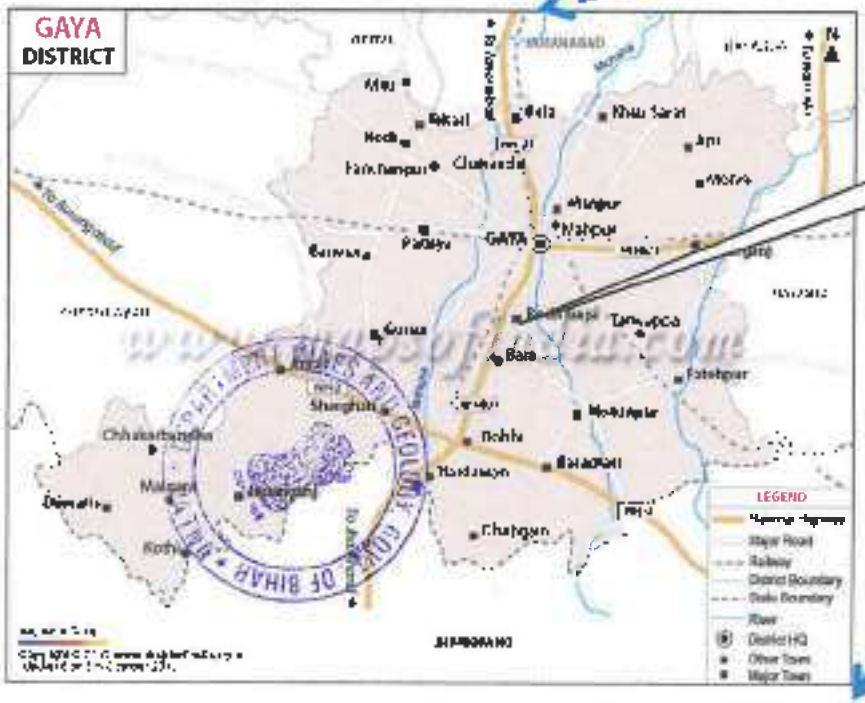
M/s MAA DURGA FUEL STATION

Proprietor

LOCATION MAP





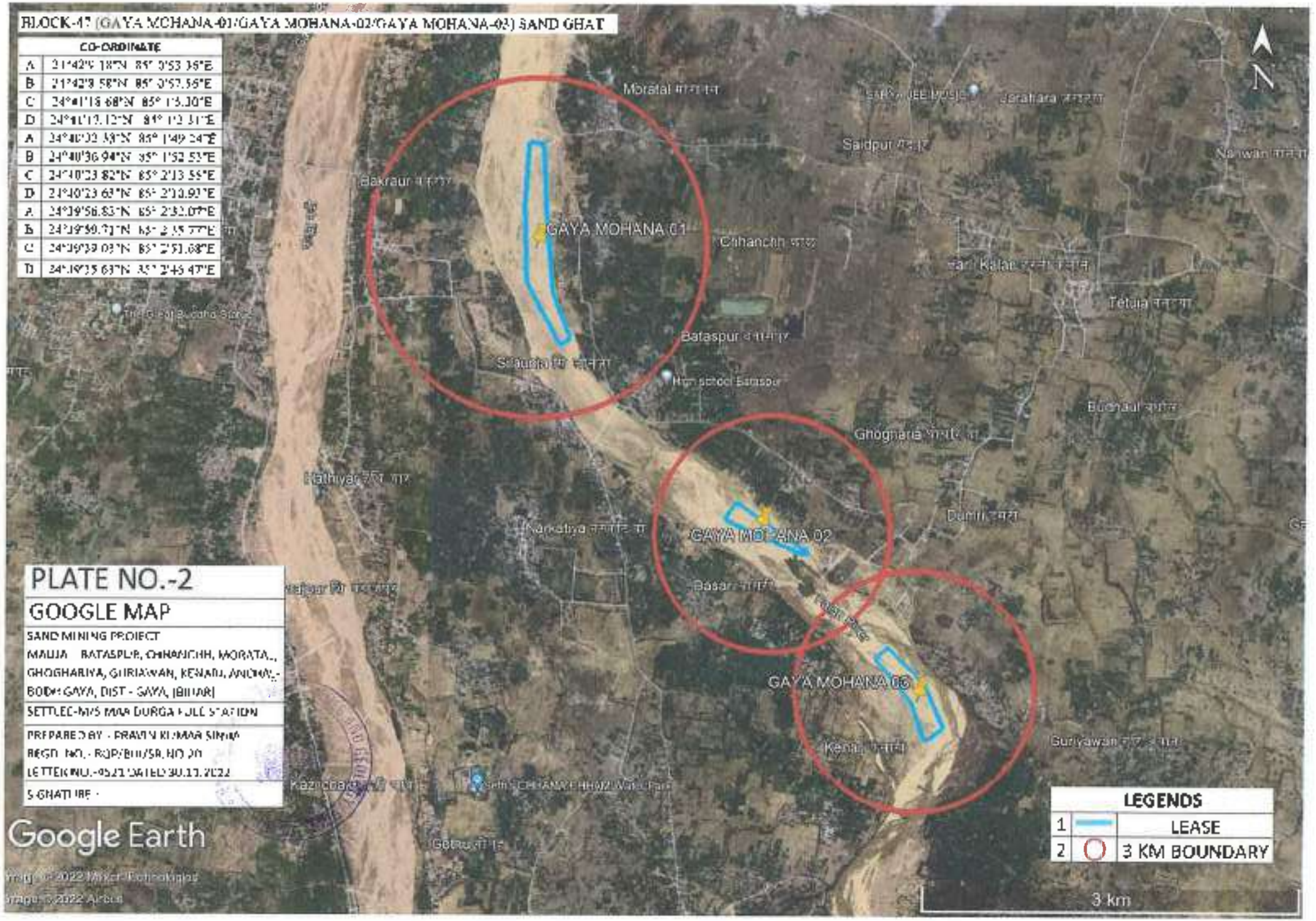


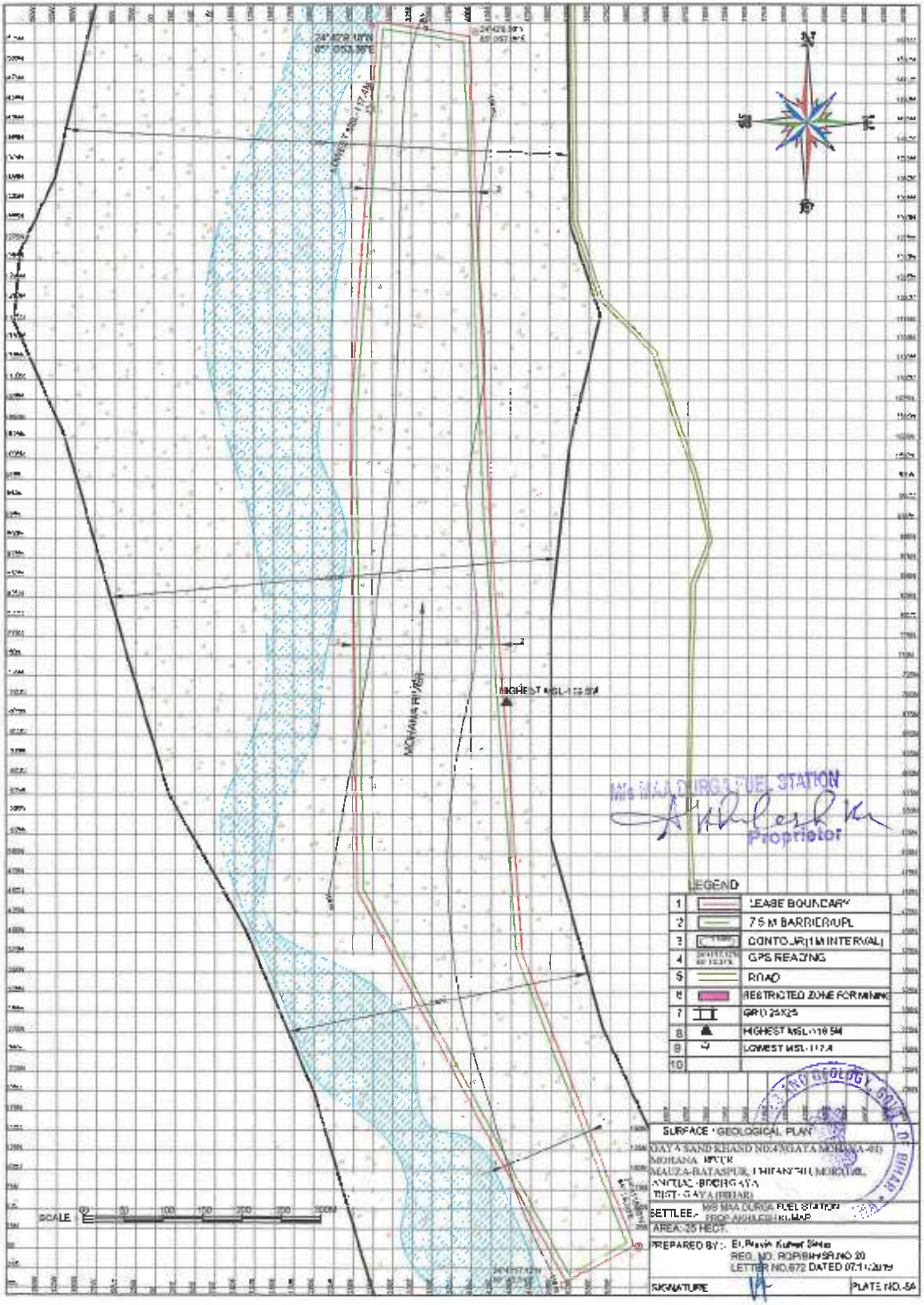
BATASPUR, CHHANCHH, MORATAL, GHOGHARIYA, GURIAWAN, KENARI

Plate No.1

LOCATION PLAN
BLOCK-47 (GAYA MOHANA-01/GAYA MOHANA-07/ GAYA MOHANA-03) MOHANA RIVER MAUJA – BATASPUR, CHHANCHH, MORATAL, GHOGHARIYA, GURIAWAN, KENARI, ANCHAL- BODH GAYA, DIST - GAYA, (BIHAR)
SETTLEE :- M/S MAA DURGA FULE STATION AKHILESH KUMAR
AREA:- 44.5 HECT.
SINGNATURE:-

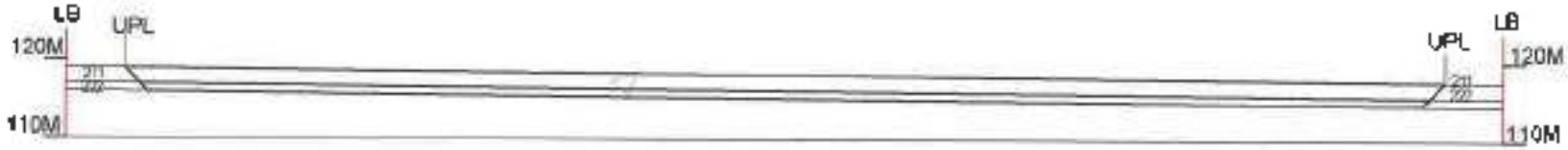
M/s MAA DURGA FUEL STATION
Proprietor


BLOCK-17 (GAYA MOHANA-01/GAYA MOHANA-02/GAYA MOHANA-03) SAND GHAT
CO-ORDINATE
A 24°42'9.18"N 85° 0'53.36"E
B 24°42'8.58"N 85° 0'57.56"E
C 24°41'16.68"N 85° 1'3.30"E
D 24°41'13.12"N 84° 1'2.31"E
A 24°40'02.38"N 85° 1'49.24"E
B 24°40'36.94"N 85° 1'52.53"E
C 24°40'23.82"N 85° 2'13.55"E
D 24°40'23.63"N 85° 2'10.93"E
A 24°39'56.83"N 85° 2'32.07"E
B 24°39'50.71"N 85° 2'35.77"E
C 24°39'39.03"N 85° 2'51.68"E
D 24°39'35.63"N 85° 2'45.47"E
Bakraur
GAYA MOHANA 01
Chhanchh
Bataspur
High school Bataspur
Ghogharia
Hathiyar
GAYA MOHANA 02
Basar
GAYA MOHANA 03
Kenar
Gobru
PLATE NO.-2
GOOGLE MAP
SAND MINING PROJECT
MAUJA - BATASPUR, CHHANCHH, MORATAL, GHOGHARIYA, GHIRIAWAN, KENARU, ANCHAL- BODH GAYA, DIST - GAYA, (BIHAR)
SETTLEE-M/S MAA DURGA FUEL STATION
PREPARED BY - PRAVIN KUMAR SINHA
REGD. NO. - RQP/BIH/58,NO 20
LETTER NO.-0521 DATED 30.12.2022
SIGNATURE -
LEGENDS
1 LEASE
2 3 KM BOUNDARY
N
3 km
Google Earth


24°47'9.18"N
85°0'53.36"E
MOHANA RIVER
HIGHEST MSL-118.5M
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 RESTRICTED ZONE FOR MINING
7 GRID 25X25
8 HIGHEST MSL-118.5M
9 LOWEST MSL-117.4
10
SCALE : 0 50 100 150 200 250 300M
SURFACE GEOLOGICAL PLAN
GAYA SAND KHAND NO.4(GAYA MOHANA-01)
MOHANA RIVER
MAUZA-RATASPUR, CHIRANTHU MORATOL
ANCHAL -BODHGAYA
DIST- GAYA (BIHAR)
SETTLEE :- M/S MA DURGA FUEL STATION
PROP.ASHUTOSH KUMAR
AREA-25 HECT.
PREPARED BY :- Er.Pravin Kumar Sinha
REG. NO. RQP/BH/99/LNO.20
LETTER NO.672 DATED 07.11.2019
SIGNATURE
PLATE NO.-5A
M/S MA DURGA FUEL STATION
Proprietor
DIRECTOR OF GEOLOGY GOVT. OF BIHAR



SECTION ALONG 3-3'



SECTION ALONG 2-2'

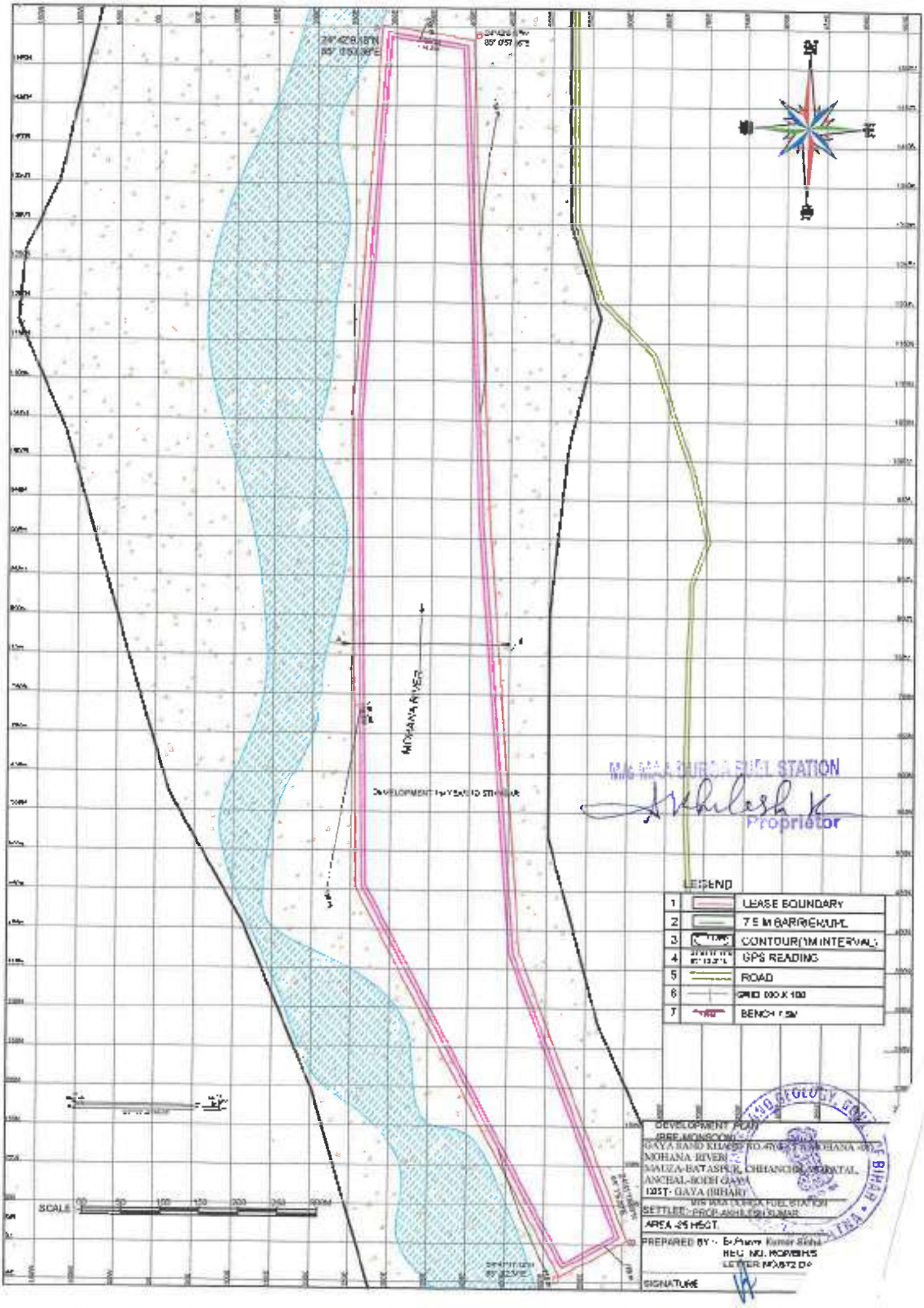


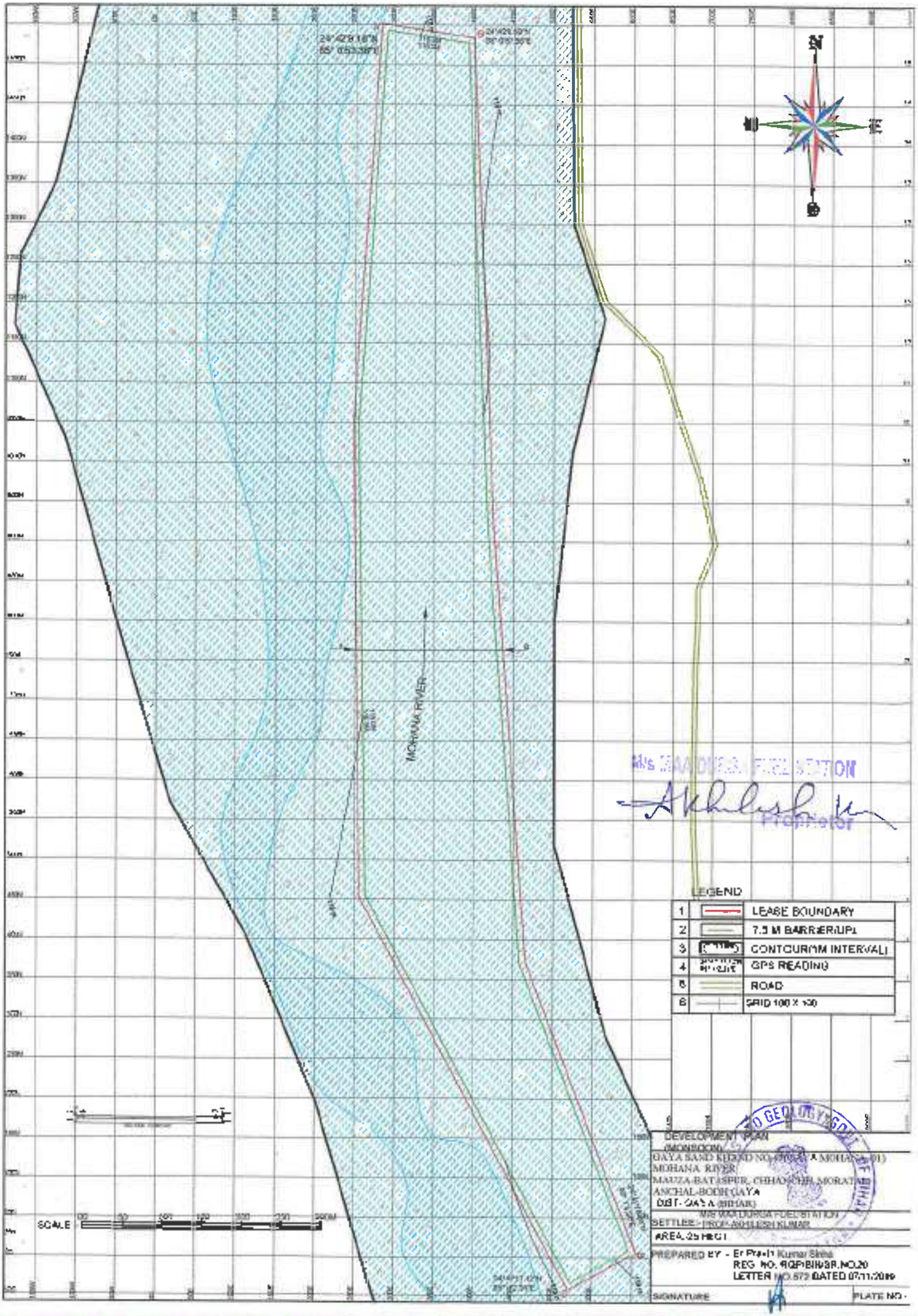
SECTION ALONG 1-1'

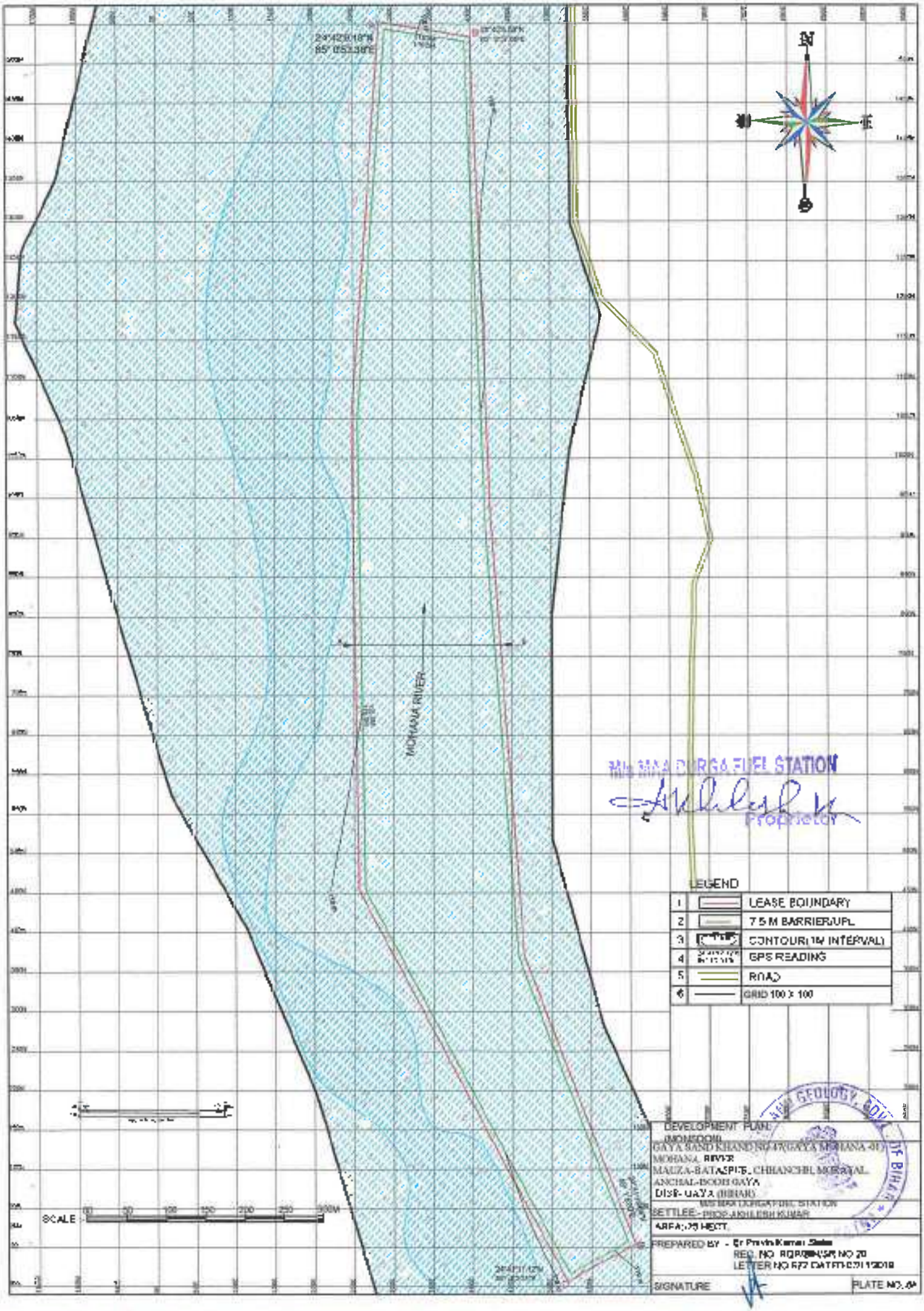
M/S MAA DURGA FUEL STATION
Proprietor

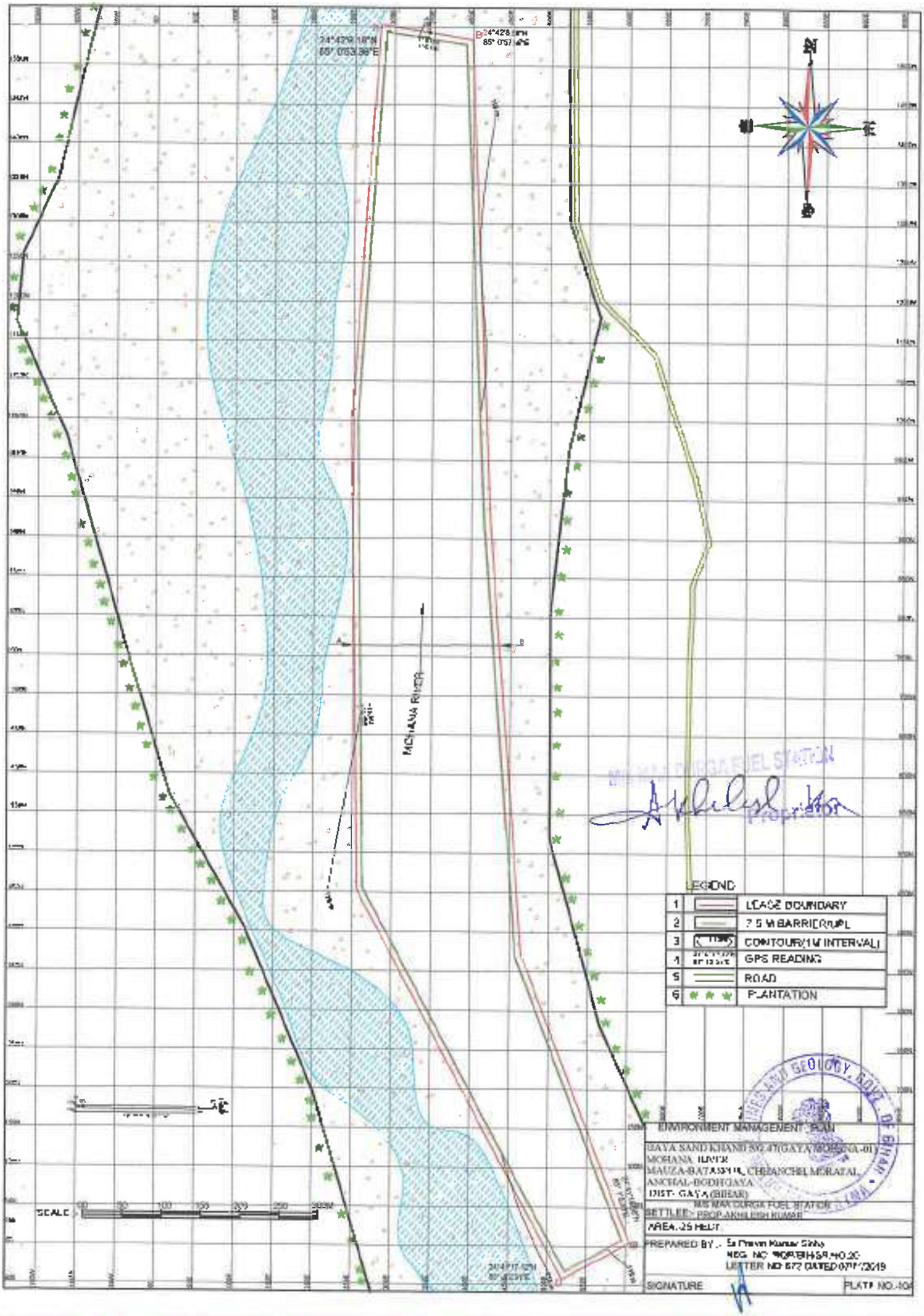
1		LEASE BOUNDARY(LB)
2		7.5 M BARRIER/UPL
3		ROAD
4	111	PROVED RESERVE(111)
5	122	PROBABLE RESERVE(122)
6	211	FEASIBILITY RESOURCE (211)
7	222	PRE FEASIBILITY RESOURCE (222)

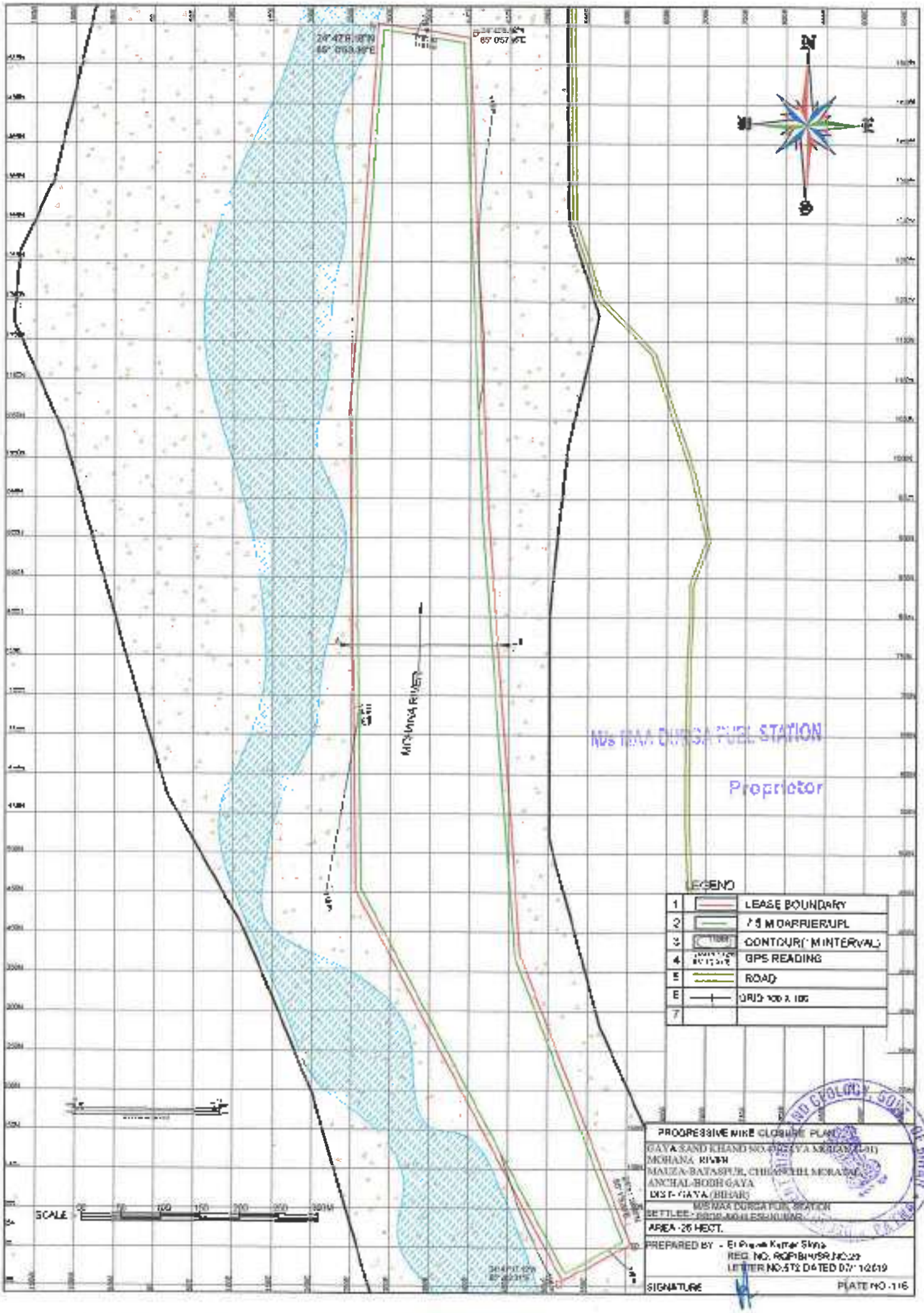
GEOLOGICAL SECTIONS	
GAYA SAND KHAND NO.47(GAYA MOHANA -01) MOHANA RIVER MAUZA-BATASPUR, CHHANCHH, MORATAL, ANCHAL-BODH GAYA DIST- GAYA (BIHAR)	
SETTLEE:- M/S MAA DURGA FUEL STATION PROP-AKHILESH KUMAR	
AREA:-25 HECT.	
PREPARED BY - Er.Pravin Kumar Sinha REG. NO RQP/BIH/SR.NO.20 LETTER NO.672 DATED 07/11/2018	
SIGNATURE	PLATE NO.-6A

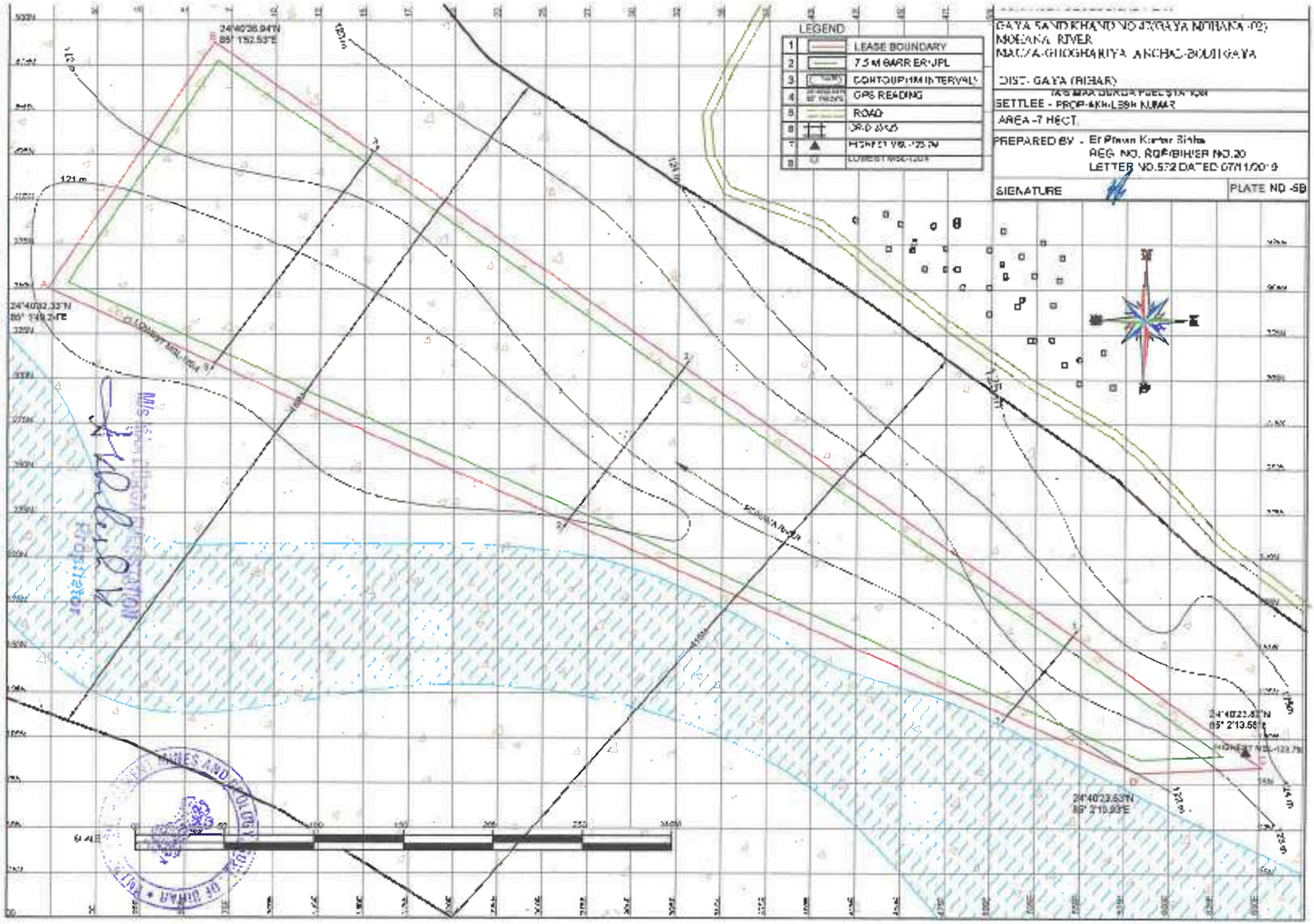

MOHANA RIVER
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/BUND
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 GRID 100 X 100
7 BENCH
SCALE
DEVELOPMENT PLAN
(PRE MONSOON)
MOHANA RIVER
AREA -25 HECT.
PREPARED BY :-
SIGNATURE


N
MOHANA RIVER
M/s MAHADEVA FUEL STATION
Proprietor
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 CONTOUR/0M INTERVAL)
4 GPS READING
5 ROAD
6 GRID 100 X 100
DEVELOPMENT PLAN
(MONSOON)
GAYA SAND KERAD NO.
MOHANA RIVER
MAUZA-BATASPUR, CHHAOCHHA MORATAR
ANCHAL-BODH GAYA
DIST.- GAYA (BIHAR)
M/S MAA DURGA FUEL STATION
SETTLEE :- PROP. AKHILESH KUMAR
AREA 25 HECT.
PREPARED BY - Er Pravin Kumar Sinha
REG. NO. RQP/BIH/98/NO.20
LETTER NO.573 DATED 07.11.2019
SIGNATURE
PLATE NO.-
SCALE


N
MOHANA RIVER
M/S MAA DURGA FUEL STATION
Proprietor
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 CONTOUR (1M INTERVAL)
4 GPS READING
5 ROAD
6 GRID 100 x 100
SCALE
DEVELOPMENT PLAN
(MOMDOM)
GAYA SAND KHAND NO 4 (GAYA MOHANA 4)
MOHANA RIVER
MAUZA-BATASPUR, CHHANCHHL MORHAL
ANCHAL-BODH GAYA
DIST- GAYA (BIHAR)
M/S MAA DURGA FUEL STATION
SETTLEE- PROP ANKLESH KUMAR
AREA 0.05 HECT.
PREPARED BY - Er Pravin Kumar Sinha
REG. NO. BQP/BH/15/R/ NO 20
LETTER NO 627 DATED 07/11/2018
SIGNATURE
PLATE NO. 6A


MOHANA RIVER
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/RUBBLE
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 PLANTATION
ENVIRONMENT MANAGEMENT PLAN
GAYA SAND KHANDI NO.47(GAYA MOHANA-01)
MOHANA RIVER
MAUZA-BATASPUR, CHHANCHEL MORATAL
ANCHAL-BODHGAYA
DIST- GAYA (BIHAR)
M/S MAA DURGA FUEL STATION
SETTLEE- PROP-AKHILESH KUMAR
AREA-.25 HECT.
PREPARED BY :- Sri Pravin Kumar Sinha
REG. NO. "ROP/BIH/58,440/20"
LETTER NO 572 DATED 07/12/2019
SIGNATURE
PLATE NO.-10A
SCALE


N
W
E
S
MOHANA RIVER
M/S DURGA FUEL STATION
Proprietor
LEGEND
1 LEASE BOUNDARY
2 M BARRIER/UPL
3 CONTOUR(M INTERVAL)
4 GPS READING
5 ROAD
6 GRID 100 X 100
7
SCALE
PROGRESSIVE MINE CLOSURE PLAN
GAYA SAND KHAND NO-I PEEYA MOHANA (LOI)
MOHANA RIVER
MAUZA-BATASPUR, CHHAGOHRI MORATAL
ANCHAL-BODH GAYA
DIST- GAYA (BIHAR)
M/S MAA DURGA FUEL STATION
SETTLEE - PROP. MOHLESH KUMAR
AREA -25 HECT.
PREPARED BY - Er Pawan Kumar Sinha
REG. NO. RQP/BIH/058/NO-23
LETTER NO-572 DATED 07/ 10/2019
SIGNATURE
PLATE NO -1/6

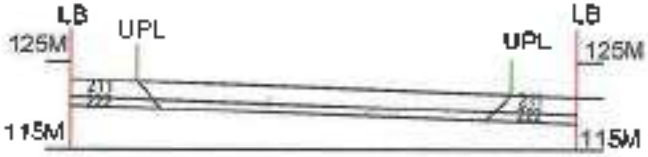

LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER PIPE
3 CONTOUR 1M INTERVALS
4 GPS READING
5 ROAD
6 DRAIN
7 HIGHEST RL-125.7M
8 LOWEST RL-120M
GAYA SAND KHAND NO.2(GAYA MORHAR-02)
MORHAR RIVER
MAUZA-GHOGHARIYA ANCHAL-BOUDHGAYA
DIST- GAYA (BIHAR)
SETTLEE - PROP-AKHILESH KUMAR
AREA -7 HECT.
PREPARED BY - Er Pravin Kumar Sinha
REG. NO. RQP/BIHER/NO.20
LETTER NO.572 DATED 07/11/2019
SIGNATURE
PLATE NO -5B
24°40'36.94"N
85° 1'52.53"E
24°40'32.33"N
85° 1'49.21"E
24°40'23.63"N
85° 2'13.99"E
121 m
MORHAR RIVER
MINES AND GEOLOGY
GOVT. OF BIHAR • PATNA



SECTION ALONG 3-3'



SECTION ALONG 2-2'

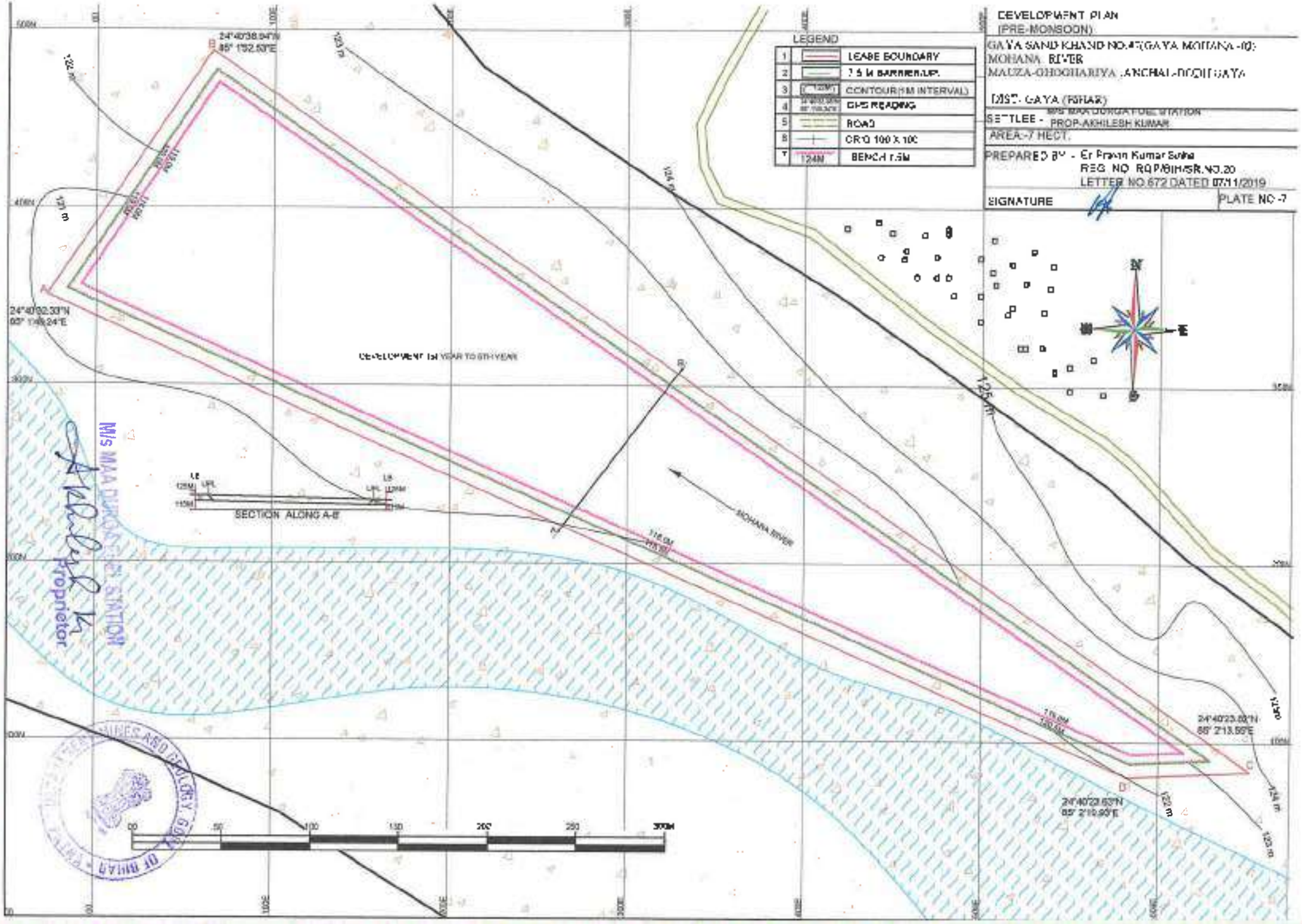


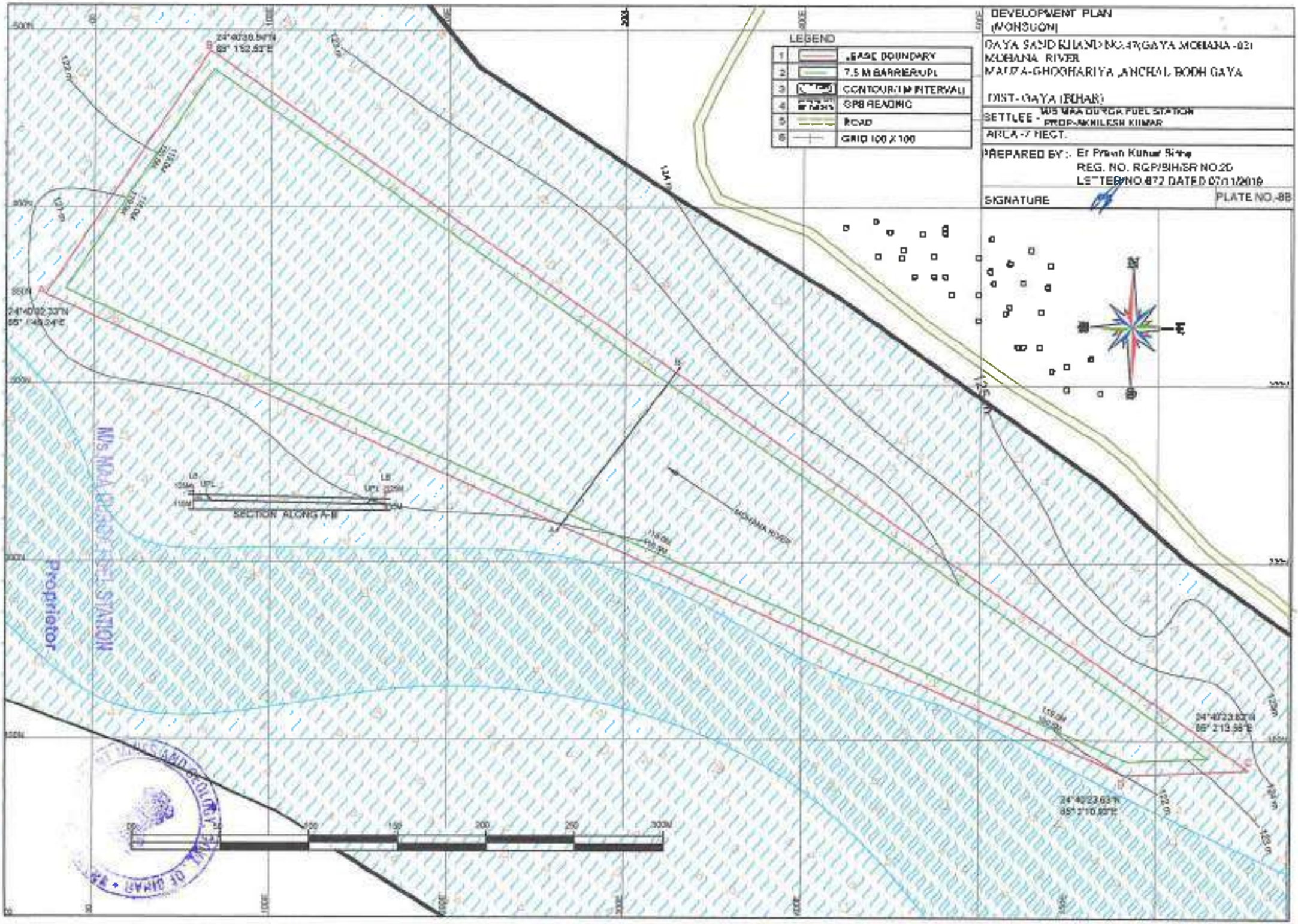
SECTION ALONG 1-1'

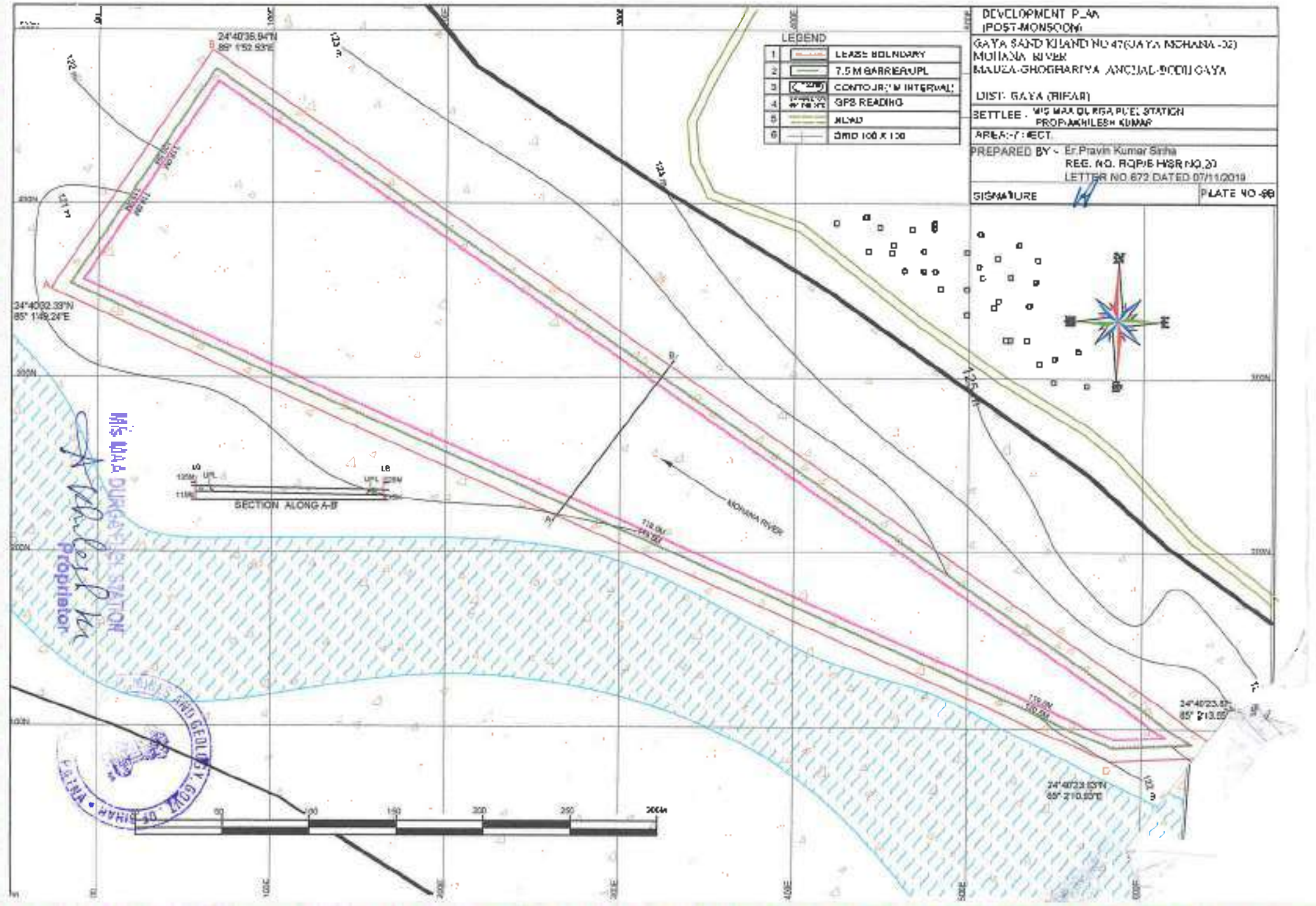
M/S MAA DURGA FUEL STATION
Proprietor

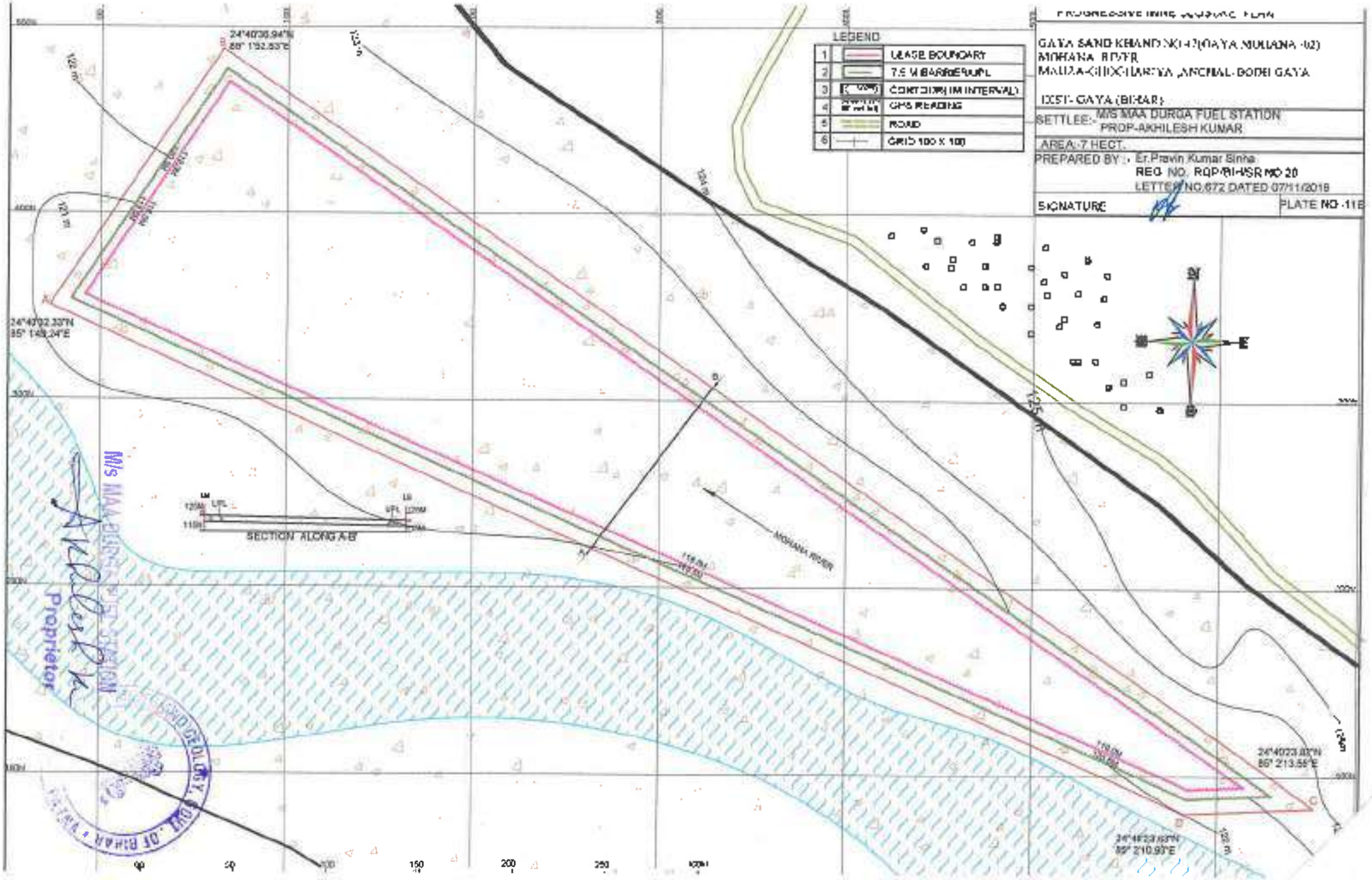
1		LEASE BOUNDARY(LB)
2		7.5 M BARRIER/UPL
3	LB	ROAD
4	111	PROVED RESERVE(111)
5	122	PROBABLE RESERVE(122)
6	211	FEASIBILITY RESOURCE (211)
7	222	PREFEASIBILITY RESOURCE (222)

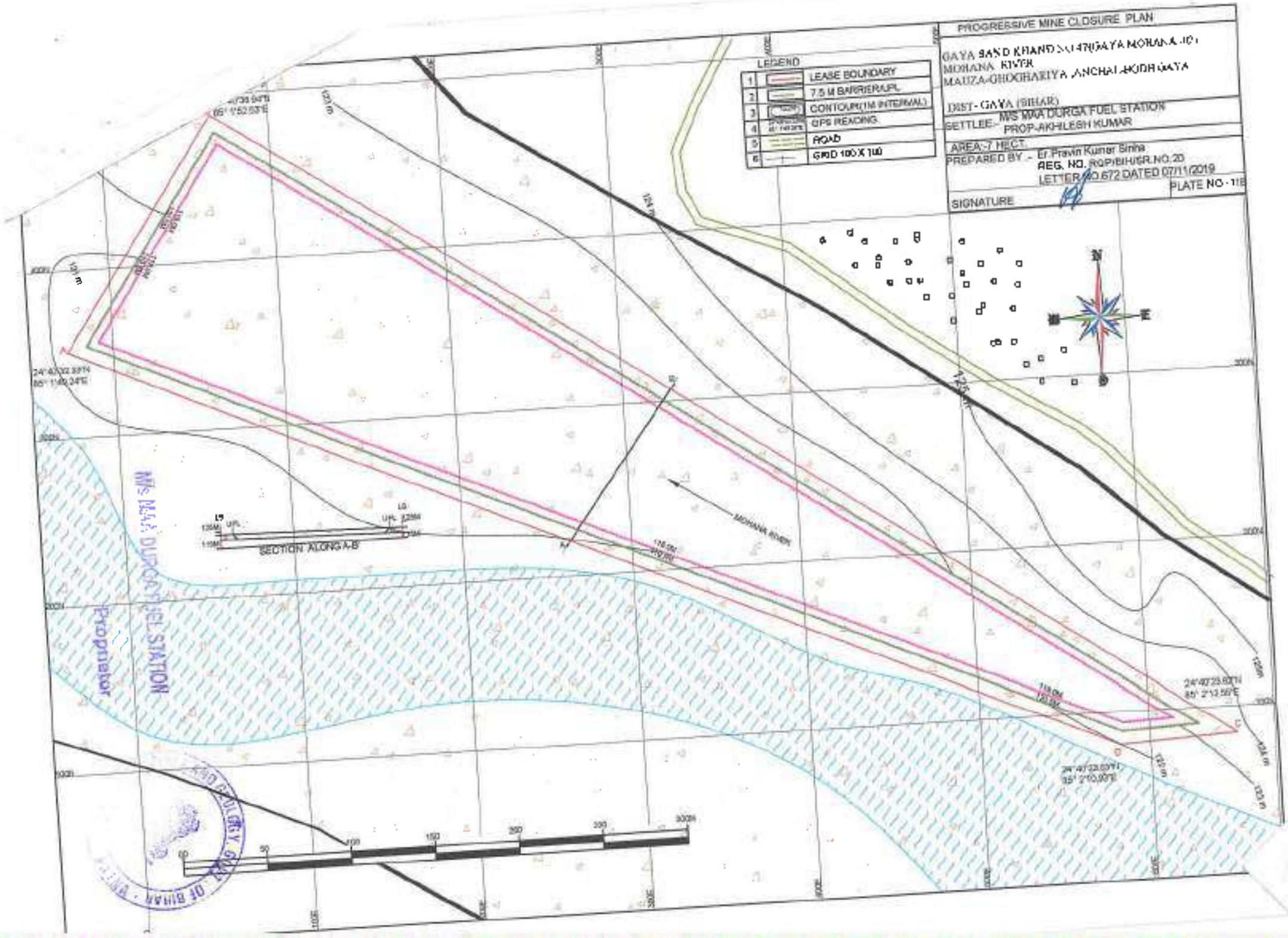
GEOLOGICAL SECTIONS	
GAYA SAND KHAND NO.47(GAYA MOHANA -02) MOHANA RIVER MAUZA-GHOGHARIYA ,ANCHAL-BODH GAYA DIST- GAYA (BIHAR)	
SETTLEE:- M/S MAA DURGA FUEL STATION PROP-AKHILESH KUMAR	
AREA:-7 HECT.	
PREPARED BY :- Er.Pravin Kumar Sinha REG. NO. ROP/BIH/SR.NO.20 LETTER NO.672 DATED 07/11/2019	
SIGNATURE	PLATE NO.-6B

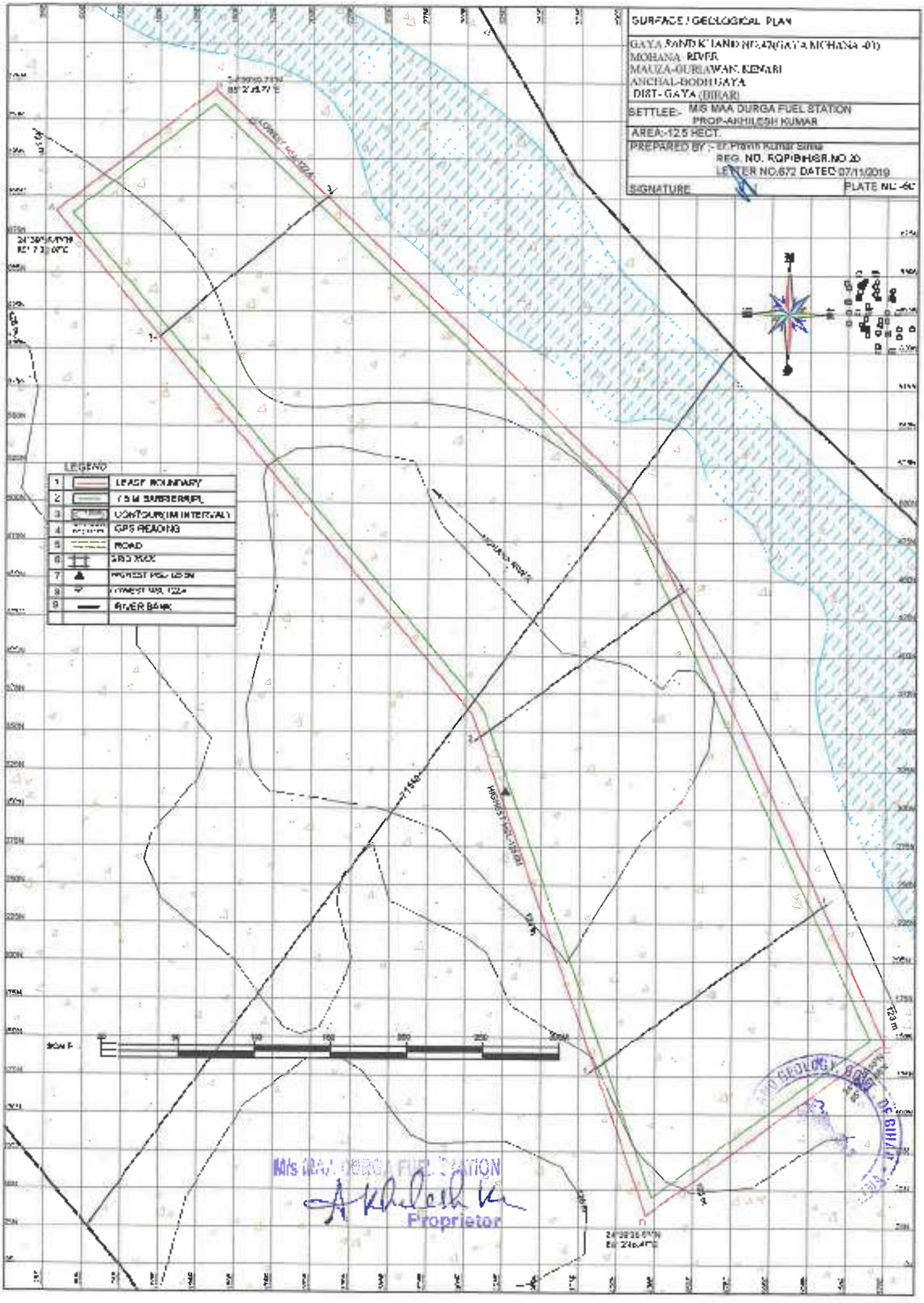

DEVELOPMENT PLAN
(PRE-MONSOON)
GAYA SAND KHAND NO.47(GAYA MOHANA -II)
MOHANA RIVER
MAUZA-GHOGHARIYA ,ANCHAL-DOGHI,GAYA
DIST- GAYA (BIHAR)
SETTLEE - PROP-AKHILESH KUMAR
AREA-7 HECT.
PREPARED BY - Er Pravin Kumar Sinha
REG NO RQP/BIH/SR/40/20
LETTER NO.672 DATED 07/11/2019
SIGNATURE
PLATE NO -7
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/EP.
3 CONTOUR(5M INTERVAL)
4 GPS READING
5 ROAD
6 CRO 100 X 100
7 BENCH (5M
24°40'38.94"N
85° 1'52.50"E
24°40'02.33"N
85° 1'49.24"E
24°40'23.83"N
85° 2'13.55"E
24°40'23.83"N
85° 2'10.93"E
DEVELOPMENT 1st YEAR TO 5TH YEAR
SECTION ALONG A-B
MOHANA RIVER
M/S MAA DURGA FUEL STATION
Proprietor
OF BIHAR - PATNA
00 50 100 150 200 250 300M

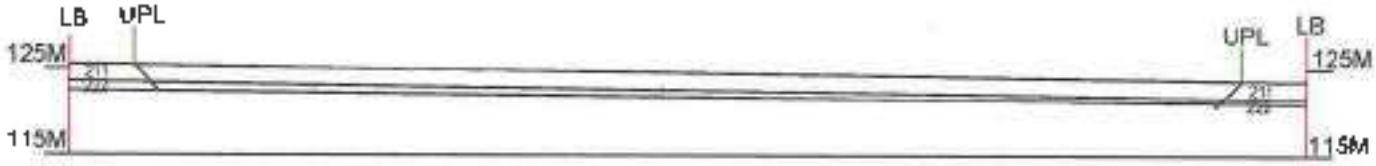

DEVELOPMENT PLAN
(MONSOON)
GAYA SAND BLOCK NO.4(GAYA MOHANA -02)
MOHANA RIVER
MAUZA-GHOSHARIYA ,ANCHAL BODH GAYA
DIST- GAYA (BIHAR)
SETTLEE - M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR
AREA -7 HECT.
PREPARED BY :- Er Pravin Kumar Singh
REG. NO. RQP/BIHGR NO.20
LETTER NO.872 DATED 07/01/2016
SIGNATURE
PLATE NO.-8B
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 GRID 100 X 100
SECTION ALONG A-B
MOHANA RIVER
M/S MAA DURGA FUEL STATION
Proprietor
24°40'38.84"N
85° 1'52.63"E
24°40'32.23"N
85° 1'48.24"E
24°40'23.83"N
85° 2'19.55"E
24°40'23.63"N
85° 2'19.80"E
N
E
S
W
0
50
100
150
200
250
300M


DEVELOPMENT PLAN
(POST-MONSOON)
GAYA SAND KHAND NO 47(GAYA MOHANA -32)
MOHANA RIVER
MAUZA-GHOGHARIYA ANCHAL-BODH GAYA
DIST- GAYA (BIHAR)
SETTLEE - M/S MAA DURGA RIVER STATION
PROP.AKHILESH KUMAR
AREA:-7 HECT.
PREPARED BY :- Er.Pravin Kumar Sinha
REG. NO. RQP/E HSR NO.20
LETTER NO.672 DATED 07/11/2019
SIGNATURE
PLATE NO-66
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 CONTOUR(1 M INTERVAL)
4 GPS READING
5 ROAD
6 DIMD 100 X 100
24°40'36.94"N
85° 1'52.93"E
24°40'32.33"N
85° 1'49.24"E
SECTION ALONG A-B
MOHANA RIVER
M/S MAA DURGA RIVER STATION
Proprietor
24°40'23.63"N
85° 2'10.55"E
200m


PROGRESSIVE MINE PLAN
GAYA SAND KHAND NO-I (GAYA MOHANA -02)
MOHANA RIVER
MAUZA-GIDHORIYA ANCHAL-BODH GAYA
DIST- GAYA (BIHAR)
SETTLEE:- M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR
AREA:-7 HECT.
PREPARED BY :- Er.Pravin Kumar Sinha
REG. NO. RQP/RI-HSR/20
LETTER NO.672 DATED 07/11/2018
SIGNATURE
PLATE NO -11B
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/BUND
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 GRID 100 X 100
24°40'36.94"N
85° 152.83"E
24°40'02.33"N
85° 149.24"E
24°40'23.83"N
85° 213.55"E
24°40'23.65"N
85° 210.93"E
SECTION ALONG A-B
MOHANA RIVER
M/s MAA DURGA FUEL STATION
Proprietor
0
50
100
150
200
250


PROGRESSIVE MINE CLOSURE PLAN
GAYA SAND KHAND SO.NO.GAYA MOHANA -10
MOHANA RIVER
MAUZA-GHOGHARIYA ANCHAL-AKORI GAYA
DIST - GAYA (BIHAR)
SETTLEE - M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR
AREA-7 HECT.
PREPARED BY - Er.Pravin Kumar Sinha
AEG, NO. RQP/BIH/ER.NO.20
LETTER NO.672 DATED 07/11/2019
PLATE NO - 11B
SIGNATURE
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 GRID 100 X 100
SECTION ALONG A-B
MOHANA RIVER
M/S MAA DURGA FUEL STATION
Proposed
24°40'23.60"N
85°2'13.56"E
24°40'23.60"N
85°2'10.00"E
24°40'22.38"N
85°1'52.53"E
24°40'22.38"N
85°1'49.24"E

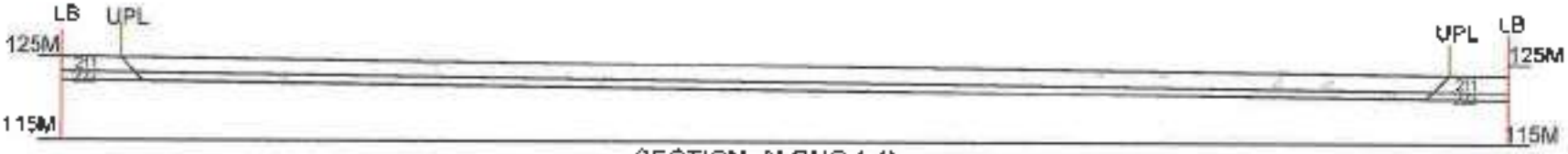

SURFACE / GEOLOGICAL PLAN
GAYA SAND K'LAND NO.47(GAYA MOHANA-01)
MOHANA RIVER
MAUZA-GURUAWAN, KENARI
ANCHAL-BODH GAYA
DIST- GAYA (BIHAR)
SETTLEE:- M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR
AREA-12.5 HECT.
PREPARED BY :- Er.Pravin Kumar Sinha
REG. NO. RQP/BH/08/NO.20
LETTER NO.672 DATED 07/11/2019
SIGNATURE
PLATE NO.-6C
LEGEND
1 LEASE BOUNDARY
2 7.5 M SAFETY BERM
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 RAILWAY
7 HIGHEST PEAK
8 HIGHEST WELL
9 RIVER BANK
MOHANA RIVER
HIGHEST WELL
123 m
M/s MAA DURGA FUEL STATION
Akhilesh Kr
Proprietor
GEOLOGY BOARD
BIHAR



SECTION ALONG 3-3'



SECTION ALONG 2-2'

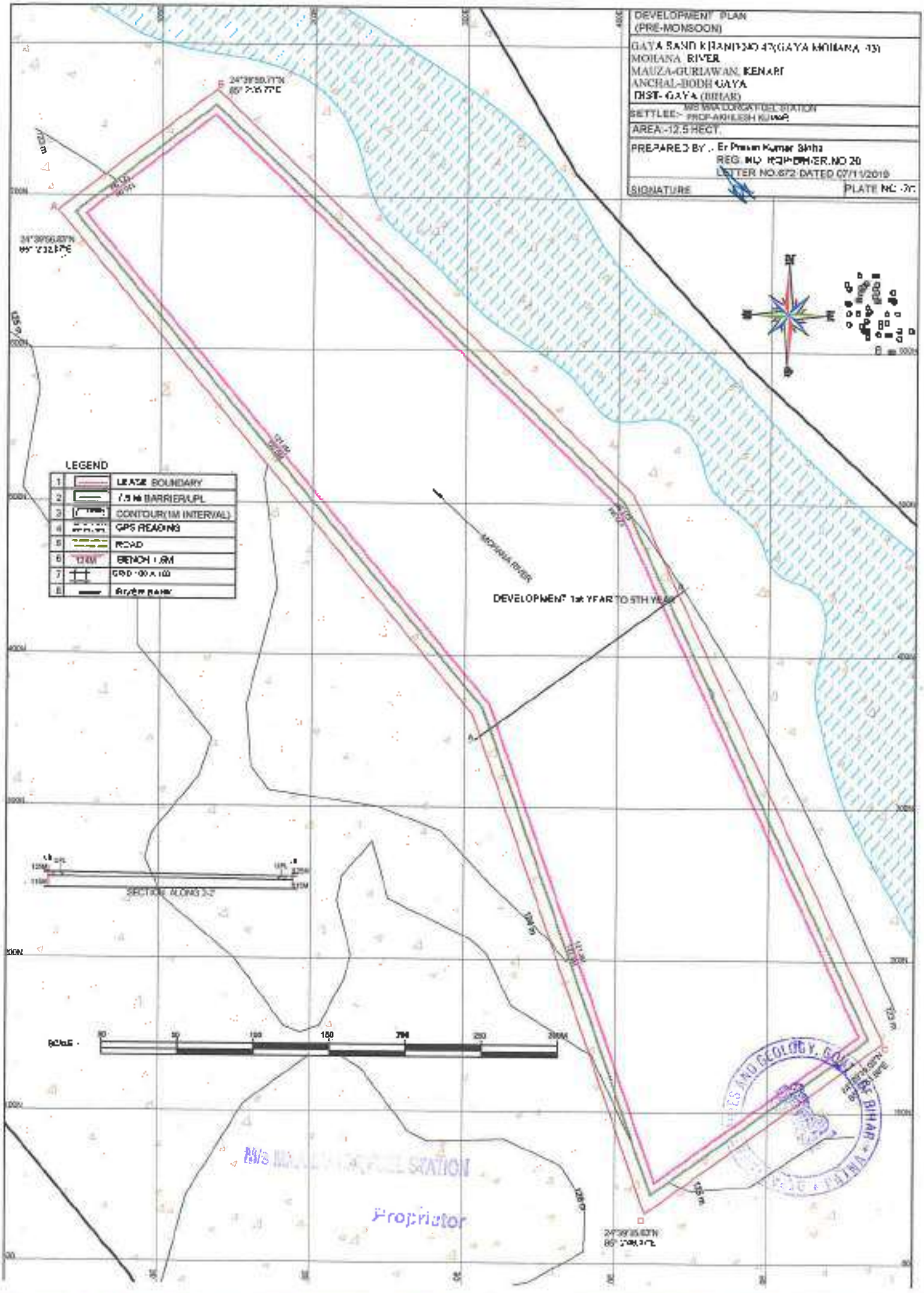


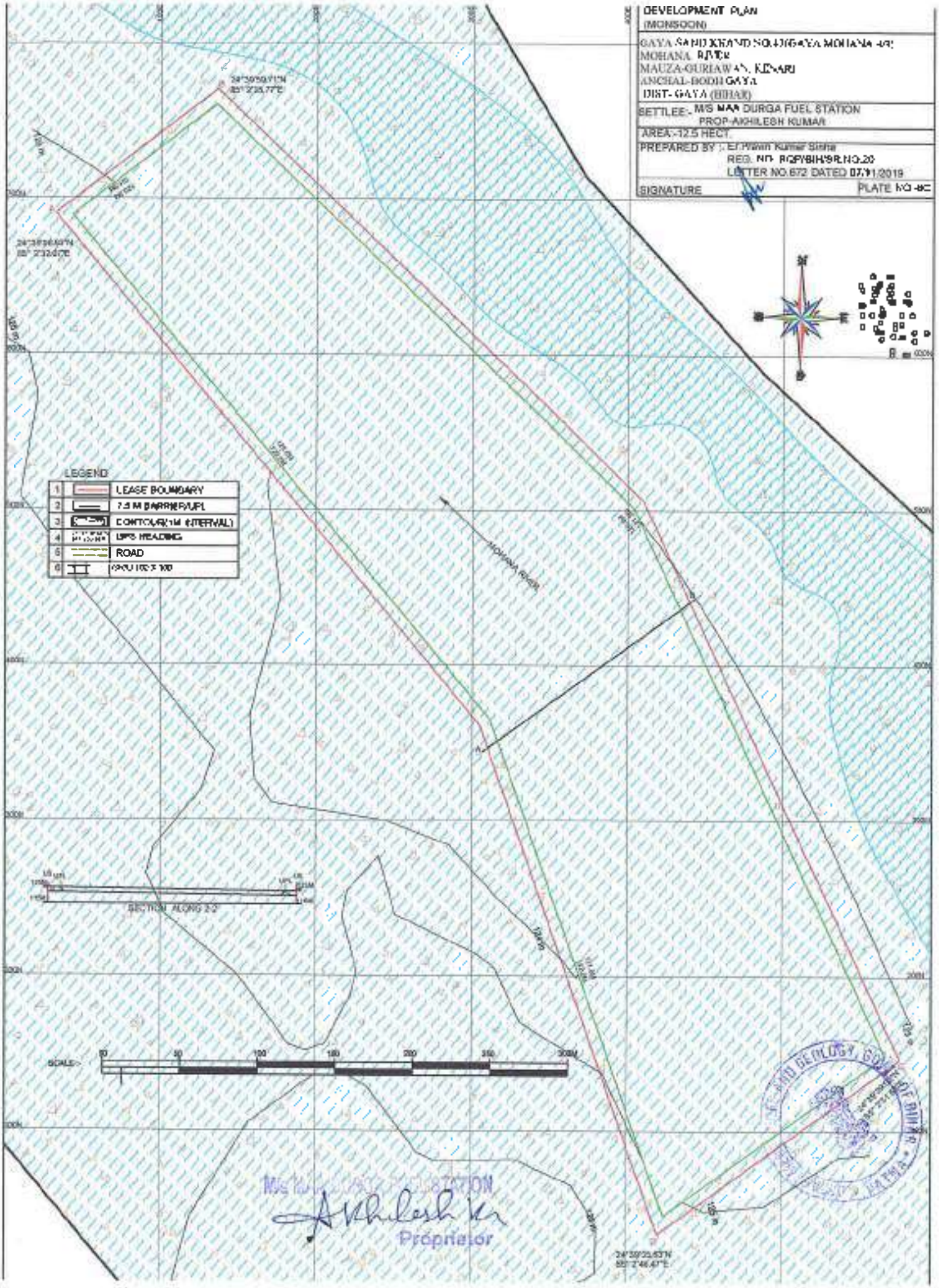
SECTION ALONG 1-1'

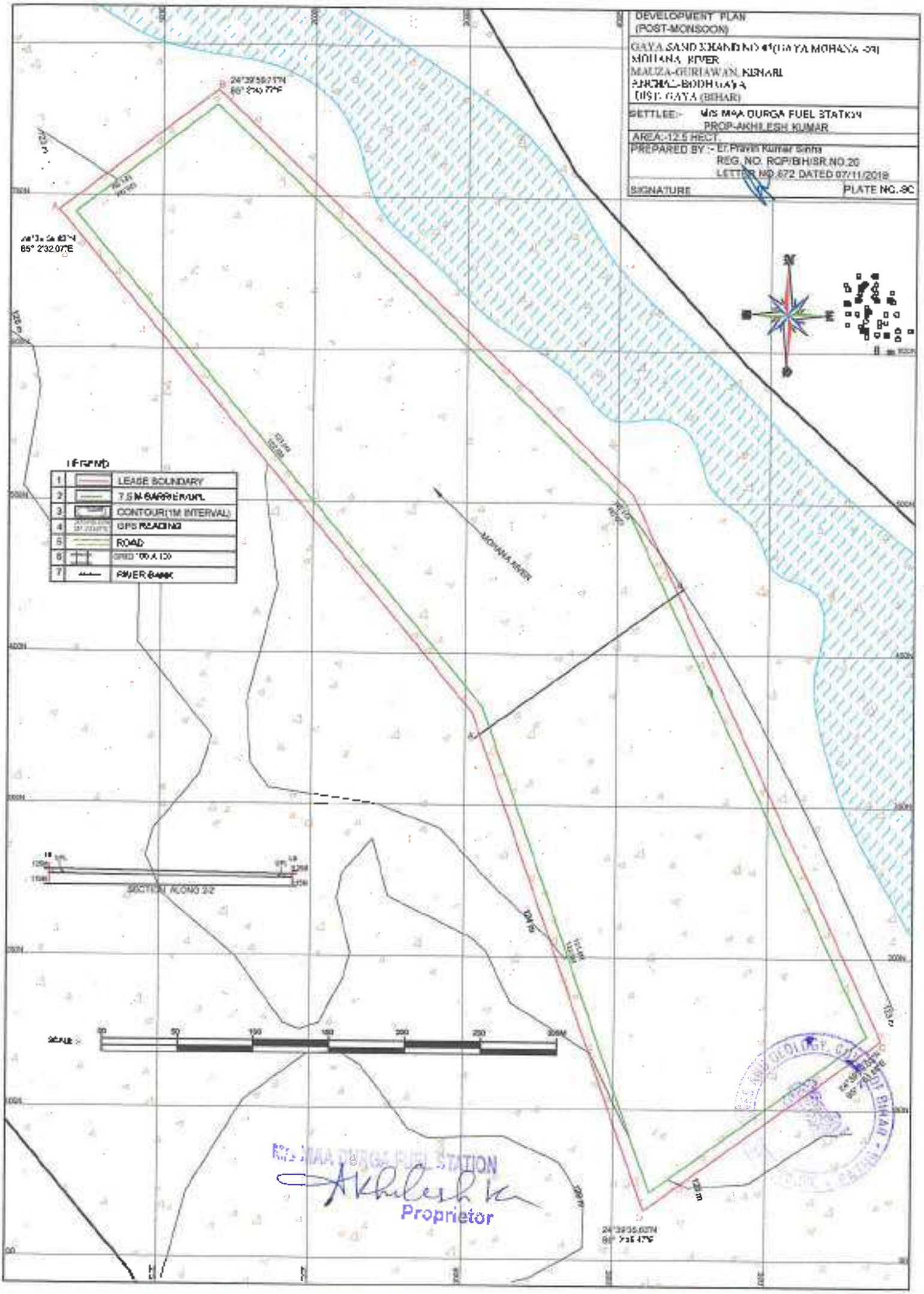
M/S MAA DURGA FUEL STATION
Proprietor

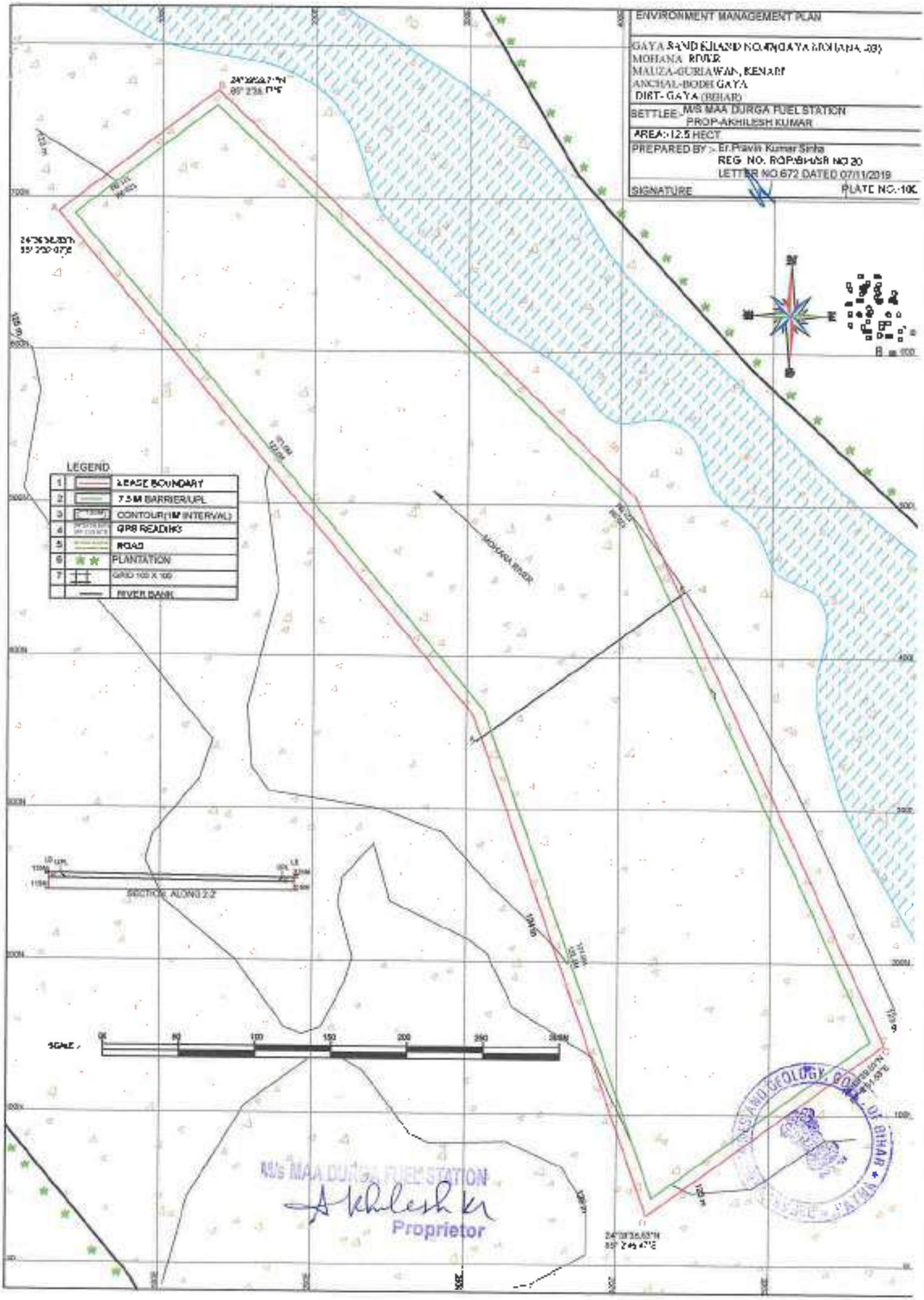
1		LEASE BOUNDARY(LB)
2		7.5 M BARRIER/UPL
3	L R L	ROAD
4	111	PROVED RESERVE(111)
5	122	PROBABLE RESERVE(122)
6	211	FEASIBILITY RESOURCE (211)
7	222	PRE FEASIBILITY RESOURCE (222)

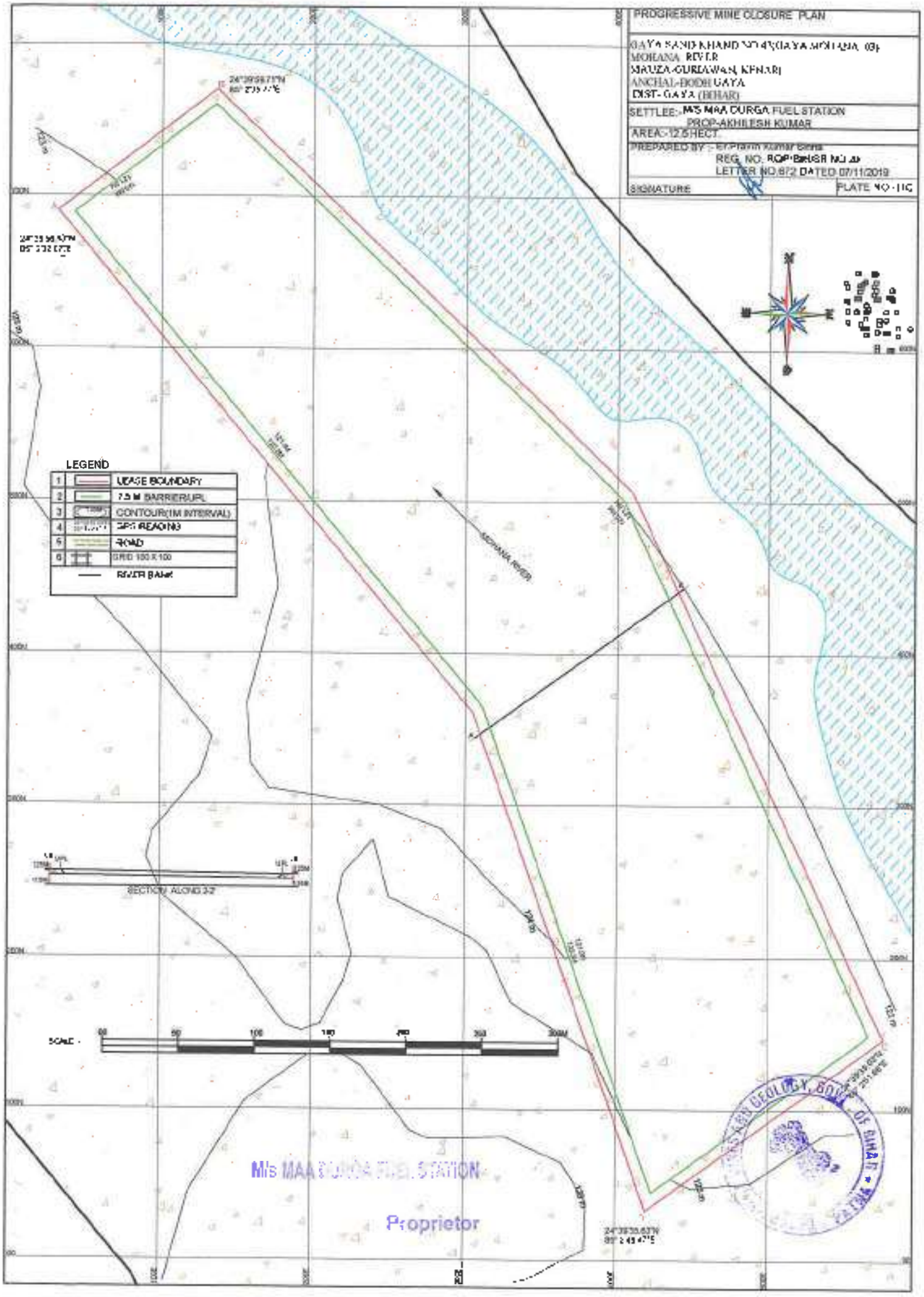
GEOLOGICAL SECTIONS
GAYA SAND KHAND NO.47(GAYA MOHANA -03) MOHANA RIVER MAUZA-GURIAWAN, KENARI ANCHAL-BODH GAYA DIST- GAYA (BIHAR)
SETTLEE:- M/S MAA DURGA FUEL STATION PROP-AKHILESH KUMAR
AREA:-12.5 HECT.
PREPARED BY :- Er.Pravin Kumar Sinha REG. NO. RQP/BIH/SR.NO.20 LETTER NO.672 DATED 07/11/2019
SIGNATURE PLATE NO.-6C


DEVELOPMENT PLAN
(PRE-MONSOON)
GAYA SAND K[RANITAN] 47(GAYA MOHANA -13)
MOHANA RIVER
MAUZA-GURUAWAN, KENARI
ANCHAL-BODH GAYA
DIST- GAYA (BIHAR)
SETTLEE:- MESSRS DURGA TRADING STATION
PROP-AKHILESH KUMAR
AREA:-12.5 HECT.
PREPARED BY :- Er Pawan Kumar Sinha
REG. NO. RQP/BHR/ER.NO 20
LETTER NO.672 DATED 07/11/2019
SIGNATURE
PLATE NO. -IV
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 BENCH MARK
7 GRID POINTS
8 RIVER BANK
MOHANA RIVER
DEVELOPMENT 1st YEAR TO 5TH YEAR
SECTION ALONG X-Y
SCALE :-
Proprietor


DEVELOPMENT PLAN
(MONSOON)
MOHANA RIVER
MAUZA-GURUAWAN, KUMARI
ANCHAL-BODH GAYA
DIST- GAYA (BIHAR)
SETTLEE:- M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR
AREA:-12.5 HECT.
PREPARED BY :- Er.Pawan Kumar Singh
REG. NO- RQP/BIH/98/NO.20
LETTER NO.672 DATED 07/01/2019
SIGNATURE
PLATE NO-4C
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 CONTOUR(1M INTERVAL)
4 UPS HEADING
5 ROAD
6 (PKD) 100 X 100
MOHANA RIVER
SECTION ALONG X-Y
SCALE:-
0 50 100 150 200 250 300M
M/S MAA DURGA FUEL STATION
Akhilesh Kr
Proprietor


DEVELOPMENT PLAN
(POST-MONSOON)
GAYA SAND BLOCK NO 01(GAYA MOHANA RIVER)
MOHANA RIVER
MAUZA-GURUAWAN, KENARI
PANCHAYAT-BODH GAYA
DIST. GAYA (BIHAR)
SETTLEE:- M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR
AREA:-12.5 HECT.
PREPARED BY :- Er.Pravin Kumar Sinha
REG. NO. ROP/BH/SR.NO.20
LETTER NO.672 DATED 07/11/2018
SIGNATURE
PLATE NO.-9C
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/KML
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 SPOT HEIGHT
7 RIVER BANK
MOHANA RIVER
SECTION ALONG X-Y
SCALE :-
M/S MAA DURGA FUEL STATION
Akhilesh K
Proprietor


ENVIRONMENT MANAGEMENT PLAN
GAYA SAND (LAND NO.4)(GAYA MOHANA-03)
MOHANA RIVER
MAUZA-GURIAWAN, KENARI
ANCHAL-BODH GAYA
DIST- GAYA (BIHAR)
SETTLEE:- M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR
AREA:- 12.5 HECT.
PREPARED BY :- Er.Pravin Kumar Sinha
REG NO. ROP/BHSR NO 20
LETTER NO 672 DATED 07/11/2019
SIGNATURE
PLATE NO.-10C
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 PLANTATION
7 GRID 100 X 100
RIVER BANK
MOHANA RIVER
SECTION ALONG 2-2'
SCALE :-
0 50 100 150 200 250 300M
M/s MAA DURGA FUEL STATION
Akhilesh Kr
Proprietor


PROGRESSIVE MINE CLOSURE PLAN
GAYA SAND KHAND NO 4(GAYA MOHANA) (B)
MOHANA RIVER
MAUZA-GURDAWAN, KENARI
ANCHAL-BODH GAYA
DIST- GAYA (BIHAR)
SETTLEE:- M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR
AREA-12.5 HECT.
PREPARED BY :- Er.Pravin Kumar Sinha
REG. NO. ROP-BH/GR/NO.33
LETTER NO.872 DATED 07/11/2019
SIGNATURE
PLATE NO - IIC
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/BPL
3 CONTOUR(1M INTERVAL)
4 SPT READING
5 ROAD
6 GRID 100 X 100
RIVER BANK
MOHANA RIVER
SECTION ALONG X-Y
SCALE :
M/s MAA DURGA FUEL STATION
Proprietor

BLOCK-47 (GAYA MOHANA-01/GAYA MOHANA-02/GAYA MOHANA-03) SAND GHAT

N

Project Kanya High School Bodhgaya
Bakraur बकरौर
Sujata सुजाता
GAYA MOHANA 01
Chhanchh छांछ
Saidpur मैदपुर
Harli Khurd हरली खुर्द
Kewal केवल
Harli Kalan हरली कलान
Tetuia तेतुइया
Bodhgaya water park
Bataspur बतासपुर
Gortorwa गोरतोरवा
HOJAWAR मोजवर
Silaunja सिलौनजा
High school Bataspur
Budhaul बुधौल
Ghogharia घोघरिया
HARIM मोचारि म
Hathiyar हथि यार
Sambodhi Retreat
Narkatiya नरकटि या
GAYA MOHANA 02
Dumri डमरी
Yadav Ch
Arya Abc Classes By.vedprakash
Nidhi Bharatgas Garamin Vitrak
GAYA MOHANA 03
Kenari केनारी
Guriyawan गुरि अवान

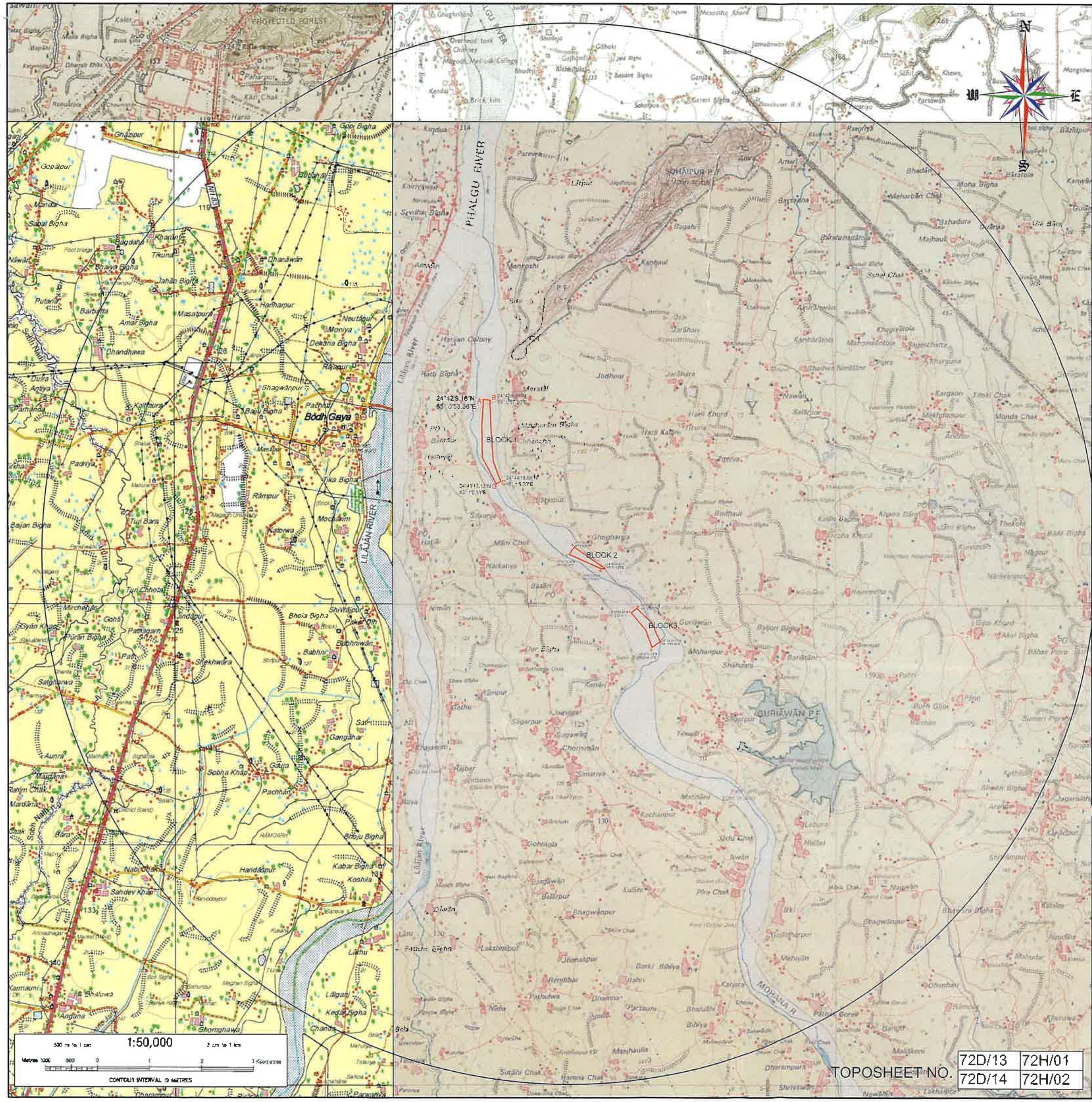
PLATE NO.-2
ROUTE MAP
SAND MINING PROJECT MAUJA – BATASPUR, CHHANCHH, MORATAL, GHOGHARIYA, GURIAWAN, KENARI, ANCHAL-BODH GAYA, DIST - GAYA, (BIHAR)
SETTLEE-M/S MAA DURGA FULE STATION AKHILESH KUMAR
PREPARED BY:- PRAVIN KUMAR SINHA REGD. NO.- RQP/BIH/SR.NO.20 LETTER NO.-4521 DATED 30.11.2022
SIGNATURE :

LEGENDS		
1		LEASE BOUNDARY
2		ROAD

2 km

Google Earth
Image © 2022 Maxar Technologies
Image © 2022 Airbus

M/s MAA DURGA FULE STATION
Akhilesh Kr.
Proprietor



TOPOSHEET NO.

72D/13	72H/01
72D/14	72H/02

CONVENTIONAL SYMBOLS

Express highway: with toll; with bridge: with distance stone
Roads, metalled: according to importance
Roads, double carriageway: according to importance
Unmetalled road. Cart-track. Pack-track with pass. Foot-path
Streams: with track in bed; undefined. Canal
Dams: masonry or rock-filled; earthwork. Weir
River: dry with water channel; with island & rocks. Tidal river
Submerged rocks. Shoal. Swamp. Reeds
Wells: lined; unlined. Tube-well. Spring. Tanks: perennial; dry
Embankments: road or rail; tank. Broken ground
Railways, broad gauge: double; single with station; under constrn
Railways, other gauges: double; single with distance stone; do
Mineral line or tramway. Kiln. Cutting with tunnel
Contours with sub-features. Rocky slopes. Cliffs
Sand features: (1)flat,(2)sand-hills (permanent). (3)dunes(shifting).
Towns or Villages: Inhabited; deserted. Fort
Huts: permanent; temporary. Tower. Antiquities
Temple. Chhatri. Church. Mosque. Idgāh. Tomb. Graves
Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage
Mine. Vine on trellis. Grass. Scrub
Palms: palmyra, other. Plantain. Conifer. Bamboo. Other trees
Areas: cultivated; wooded. Surveyed tree
Boundary international
" state: demarcated; undemarcated
" district; subdivision; tahsil or tāluk; forest
Boundary pillars: surveyed; unlocated;
Heights, triangulated: station: point; approximate. — △ 200 . 200 . 200
Bench-mark: geodetic; tertiary; canal — BM 63·3 . BM 63·3
Post office. Telegraph office. Overhead tank — t
Rest house or Inspection bungalow. Circuit house. Police station
Camping ground. Forest: reserved; protected — CG RF PF
Spaced names: administrative; locality or tribal — KIKRI NĀGA
Hospital. Dispensary. Veterinary: Hospital/ Dispensary
Aerodrome. Helipad. Tourist site
Power line: with pylons surveyed; with poles unsurveyed

KEY PLAN

GAYA SAND KHAND NO.47(GAYA MOHANA -01)
MOHANA RIVER
MAUZA-BATASPUR, CHHANCHH, MORATAL, GHOGHARIYA,GURIAWAN, KENARI,
ANCHAL-BODH GAYA, DIST- GAYA (BIHAR)

SETTLEE:- M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR

AREA:-25+7+12.5=44.5 HECT.

PREPARED BY :- Er.Pravin Kumar Sinha
REG. NO. RQP/BIH/SR.NO.20
LETTER NO.3825 DATED 07/11/2019

SIGNATURE

PLATE NO.-2

M/S MAA DURGA FUEL STATION Proprie

LEASE MAP

GAYA SAND KHAND NO.47(GAYA MOHANA -02)
MOHANA RIVER
MAUZA-GHOGHARIYA ,ANCHAL-BODH GAYA

DIST- GAYA (BIHAR)

SETTLEE:- M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR

AREA:-7 HECT.

PREPARED BY :- Er.Pravin Kumar Sinha
REG. NO. RQP/BIH/SR.NO.20
LETTER NO.672 DATED 07/11/2019

SIGNATURE

PLATE NO.-4B

LEGEND

1		LEASE BOUNDARY
2		7.5 M BARRIER/UPL
3	24°40'32.33"N 85° 1'49.24"E	GPS READING
4		ROAD
5		GRID 100 X 100
6		TEMPORARY BENCHMARK
7		

534M

ROAD TRIJUNCTION
125M

24°40'36.94"N
85° 1'52.53"E

B

A

24°40'32.33"N
85° 1'49.24"E

GHOGHARIYA

MOHANA RIVER

24°40'23.82"N
85° 2'13.55"E

C

D

24°40'23.63"N
85° 2'10.93"E

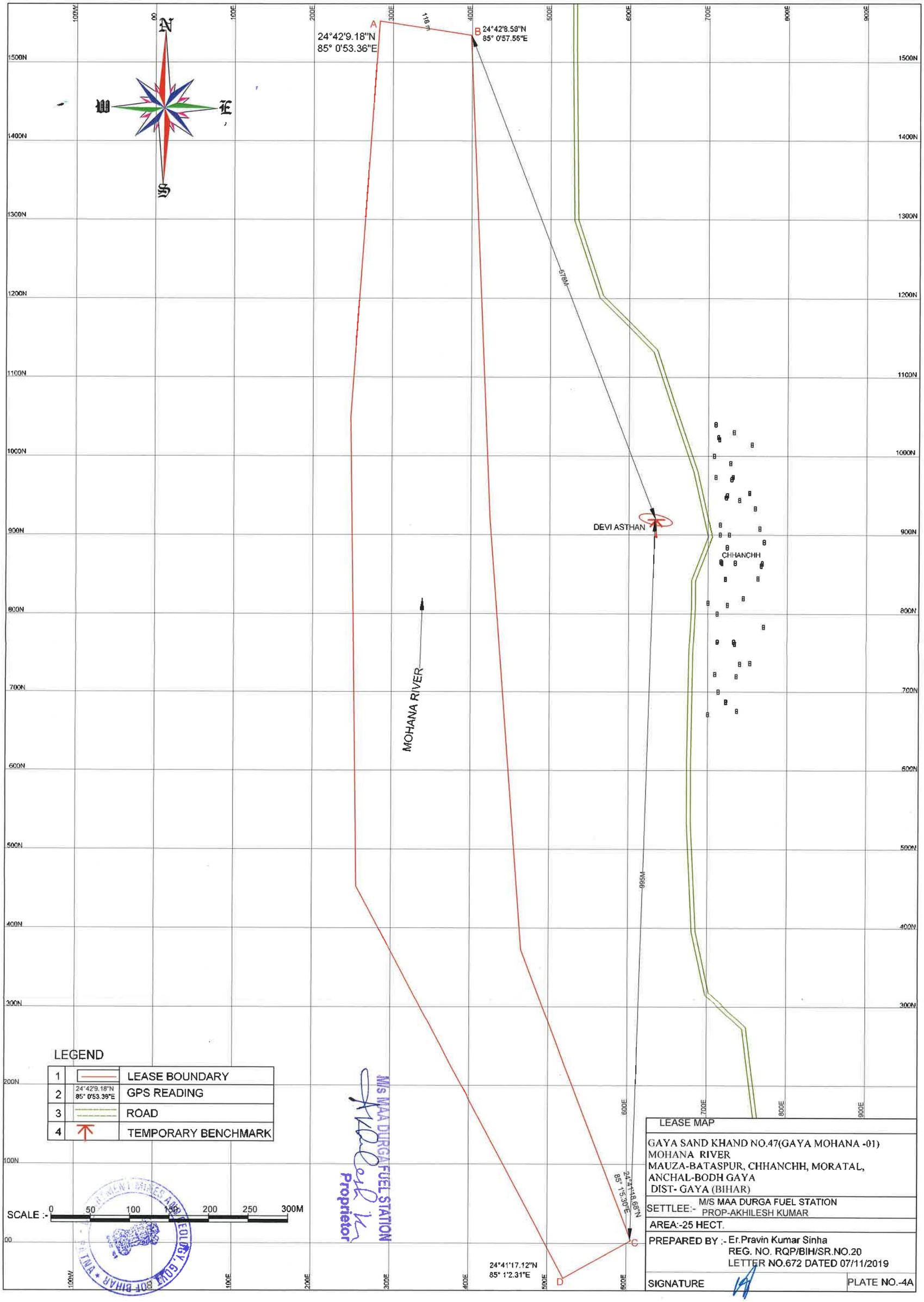
00 50 100 150 200 250 300M

500N 400N 300N 200N 100N

00 100E 200E 300E 400E 500E 600E

DEPARTMENT OF MINES AND GEOLOGY, GOVT. OF BIHAR * PATNA *

M/s MAA DURGA FUEL STATION
Akhilesh Kr
Proprietor


N
S
E
W
A
24°42'9.18"N
85° 0'53.36"E
116 m
B
24°42'8.58"N
85° 0'57.56"E
578M
995M
DEVI ASTHAN
CHHANCHH
MOHANA RIVER
C
24°41'48.68"N
85° 1'5.30"E
D
24°41'17.12"N
85° 1'2.31"E
100M
100E
200E
300E
400E
500E
600E
700E
800E
900E
1500N
1400N
1300N
1200N
1100N
1000N
900N
800N
700N
600N
500N
400N
300N
200N
100N
00
LEGEND
1 LEASE BOUNDARY
2 24°42'9.18"N 85° 0'53.36"E GPS READING
3 ROAD
4 TEMPORARY BENCHMARK
SCALE :- 0 50 100 150 200 250 300M
M/s MAA DURGA FUEL STATION
Proprietor
LEASE MAP
GAYA SAND KHAND NO.47(GAYA MOHANA -01)
MOHANA RIVER
MAUZA-BATASPUR, CHHANCHH, MORATAL,
ANCHAL-BODH GAYA
DIST- GAYA (BIHAR)
SETTLEE:- M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR
AREA:-25 HECT.
PREPARED BY :- Er.Pravin Kumar Sinha
REG. NO. RQP/BIH/SR.NO.20
LETTER NO.672 DATED 07/11/2019
SIGNATURE
PLATE NO.-4A

LEASE MAP

GAYA SAND KHAND NO.47(GAYA MOHANA -03)
MOHANA RIVER
MAUZA-GURIAWAN, KENARI
ANCHAL-BODH GAYA
DIST- GAYA (BIHAR)

SETTLEE:- M/S MAA DURGA FUEL STATION
PROP-AKHILESH KUMAR

AREA:-12.5 HECT.

PREPARED BY :- Er.Pravin Kumar Sinha
REG. NO. RQP/BIH/SR.NO.20
LETTER NO.672 DATED 07/11/2019

SIGNATURE

PLATE NO.-4C

A
24°39'56.83"N
85° 2'32.07"E

B
24°39'59.71"N
85° 2'35.77"E

C
24°39'39.03"N
85° 2'51.68"E

D
24°39'35.63"N
85° 2'46.47"E

MIDDLE SCHOOL 128M

GURIYAWAN

225M

508M

MOHANA RIVER

LEGEND

1		LEASE BOUNDARY
2		7.5 M BARRIER/UPL
3	24°39'56.83"N 85° 2'32.07"E	GPS READING
4		ROAD
5		GRID 100 X 100
6		RIVER BANK
7		TEMPORARY BENCHMARK
8		

SCALE :- 00 50 100 150 200 250 300M

100E 200E 300E 400E 500E

00 100N 200N 300N 400N 500N 600N 700N

M/S MAA DURGA FUEL STA
PATNA
Proprie

DIRECTOR MINES AND GEOLOGY GOVT. OF BIHAR

ANNEXURE IV
PUBLIC HEARING MINUTES

(स्पीड पोस्ट)

बिहार राज्य प्रदूषण नियंत्रण पर्षद्

परिवेश भवन, एन.एस–बी/2, पाटलीपुत्र, औद्योगिक क्षेत्र,
पो0–सदाकत आश्रम, पटना–800010

पत्रांकः पटना, दिनांकः

प्रेषक,

एस0 चन्द्रशेखर,भा0व0से0

सदस्य–सचिव

सेवा में,

सदस्य सचिव,

राज्य पर्यावरण समाघात निर्धारण प्राधिकरण,

बेल्ट्रोन भवन, शास्त्री नगर,

पटना–800023.

विषयः **मेसर्स मॉ दुर्गा फ्यूल स्टेशन, प्रस्तावकः श्री अखिलेश कुमार, पताः गॉव पथरा इंग्लिश, पी.ओ. ओढ़नपुर, पी.एस. नवादा, जिला–नवादा (गया मोहाना नदी बालू घाटः 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावॉ, केनारी, अंचल–बोधगया, जिला–गया) में स्थित बालू घाट से बालू उत्खनन कार्य हेतु सम्पन्न लोक सुनवाई के संबंध में।**

महाशय,

उपरोक्त विषयक के प्रसंग में सूचित करना है कि पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के अधिसूचना सं0–S.O. 1533, दिनांक 14 सितम्बर, 2006 एवं यथा संशोधित के आलोक में मेसर्स मॉ दुर्गा फ्यूल स्टेशन, प्रस्तावकः श्री अखिलेश कुमार, पताः गॉव पथरा इंग्लिश, पी.ओ. ओढ़नपुर, पी. एस. नवादा, जिला–नवादा (गया मोहाना नदी बालू घाटः 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावॉ, केनारी, अंचल–बोधगया, जिला–गया) से बालू खनन हेतु प्राप्त आवेदन के आलोक में दिनांकः 05.08.2023 को सम्पन्न लोक सुनवाई का वृत, उपस्थिति पंजी एवं संबंधित सी0 डी0 की प्रति संलग्न कर अग्रेतर कार्रवाई हेतु भेजी जा रही है।

अनुलग्नकः यथोपरि।

विश्वासभाजन

ह0/–
(एस0 चन्द्रशेखर)
सदस्य–सचिव

ज्ञापांक :– पटना, दिनांक :–

प्रतिलिपिः– जिला पदाधिकारी, गया को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

अनुलग्नकः यथोपरि।

ह0/–
(एस0 चन्द्रशेखर)
सदस्य–सचिव

ज्ञापांक :– पटना, दिनांक :–

प्रतिलिपिः– मेसर्स मॉ दुर्गा फ्यूल स्टेशन, प्रस्तावकः श्री अखिलेश कुमार, पताः गॉव पथरा इंग्लिश, पी.ओ. ओढ़नपुर, पी.एस. नवादा, जिला–नवादा (गया मोहाना नदी बालू घाटः 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावॉ, केनारी, अंचल–बोधगया, जिला–गया) को सूचनार्थ प्रेषित।

अनुलग्नकः यथोपरि।

ह0/–
(एस0 चन्द्रशेखर)
सदस्य–सचिव

ज्ञापांक :– 266 पटना, दिनांक :– 30-01-24

प्रतिलिपिः–श्री नीरज कुमार, सहायक प्रोग्रामर, बि. रा. प्र. नि. पर्षद्, पटना को निदेश है कि दिनांकः 05.08.2023 को की गई लोक सुनवाई का वृत, उपस्थिति पंजी एवं संबंधित सी0 डी0 की प्रति पर्षद् के वेबसाईट पर डिसप्ले कराया जाय। दिनांकः 05.08.2023 को की गई लोक सुनवाई का वृत, उपस्थिति पंजी एवं संबंधित सी0 डी0 की प्रति संलग्न की जा रही है।

अनुलग्नकः यथोपरि।

29/1/24
(एस0 चन्द्रशेखर)
सदस्य–सचिव

लोक सुनवाई का वृत।

मेसर्स मॉ दुर्गा फ्यूल स्टेशन, प्रस्तावकः श्री अखिलेश कुमार, पताः गॉव पथरा इंग्लिश, पी.ओ. ओढ़नपुर, पी.एस. नवादा, जिला–नवादा द्वारा गया मोहाना नदी बालू घाटः 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावॉ, केनारी, अंचल–बोधगया, जिला–गया अन्तर्गत परियोजना से संबंधित पर्यावरणीय स्वीकृति के वास्ते अधिसूचना सं0–एस.ओ.1533, दिनांक 14 सितम्बर, 2006 के तहत् दिनांक 05.08.2023 को पूर्वाह्न 11:45 बजे अंचल कार्यालय, बोधगया, जिला–गया के प्रागंण में लोक सुनवाई की गयी।

यह लोक सुनवाई पर्यावरण प्रभाव मूल्यांकन अधिसूचना सं0–एस.ओ.1533, दिनांक 14 सिम्बर 2006 एवं यथा संशोधित के तहत् पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के द्वारा निर्गत TOR File. No. SIA/BR/MIN/425052/2023, dated 25.04.2023 के आलोक में श्री अंजनी कुमार, अपर समाहर्ता, गया (जिला पदाधिकारी, गया के प्रतिनिधि) की अध्यक्षता में बिहार राज्य प्रदूषण नियंत्रण पर्षद् द्वारा दिनांक 05.08.2023 को पूर्वाह्न 11:45 बजे अंचल कार्यालय, बोधगया, जिला–गया में लोक–सुनवाई आयोजित की गयी। उपस्थिति पंजी संलग्न **(अनुलग्नक–1)**

इस लोक–सुनवाई की सूचना बिहार राज्य प्रदूषण नियंत्रण पर्षद् द्वारा दैनिक समाचार पत्रों यथा दैनिक जागरण एवं हिन्दुस्तान के माध्यम से दिनांक 04.07.2023 को प्रकाशित की गयी थी **(प्रतिलिपि संलग्न)**। लोक–सुनवाई के दौरान श्री मनोरंजन कुमार सिंह, क्षेत्रीय पदाधिकारी, बिहार राज्य प्रदूषण नियंत्रण पर्षद्, गया द्वारा लोक–सुनवाई में उपस्थित जन–समुदाय एवं सभी संबंधित पदाधिकारियों का स्वागत करते हुए पर्यावरण, वन एवं जलवायु परिवर्त्तन मंत्रालय, भारत सरकार द्वारा अधिसूचित पर्यावरण प्रभाव मूल्यांकन अधिसूचना सं0–एस.ओ.1533, दिनांक 14 सिम्बर 2006 एवं यथा संशोधित के तहत् इकाई के पर्यावरणीय स्वीकृति हेतु लोक–सुनवाई की पृष्ठ–भूमि पर प्रकाश डाला गया।

क्षेत्रीय पदाधिकारी द्वारा गया मोहाना नदी बालू घाटः 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावॉ, केनारी, अंचल–बोधगया, जिला–गया के लेसी को मंच पर आकर अपना परिचय देने के लिए कहा गया। तद्नुसार लेसी या उनके प्रतिनिधि द्वारा अपना परिचय लोक सुनवाई में उपस्थित सभी महानुभावों को दिया गया।

अपर समाहर्ता महोदय द्वारा लोक हित में कार्य योजना से संबंधित सुनवाई के उदेश्य से उपस्थित लोगों को अवगत कराया गया। साथ ही स्थानीय लोगों से पर्यावरण संरक्षण एवं लोक हित के संबंध में सुझाव मॉगा गया।

लोक सुनवाई कार्यक्रम के अध्यक्ष के अनुमति से परियोजना के पर्यावरणीय सलाहकार श्री अंकुर कुमार ने इकाई की खनन कार्य परियोजना, प्रदूषण नियंत्रण व्यवस्था एवं कॉरपोरेट की सामाजिक जिम्मेदारी (Corporate Social Responsibility) आदि के संबंध में आमजनों को विस्तृत रूप से अवगत कराया। इनके द्वारा सूचित किया गया कि खनन कार्य के उपरान्त परिवहन के दौरान उत्सर्जित होने वाले धूल–कण की रोक–थाम हेतु सड़को पर नियमति रूप से जल छिड़काव किया जायेगा साथ ही वाहनों पर ओवरलोडिंग नही की जायेगी एवं वाहनों को तिरपाल से ढ़क कर ले जाया जायेगा। खनन कार्य सतह से 3 मीटर की गहराई तक या भूजल स्तर से ऊपर तक किया जायेगा। ध्वनी प्रदूषण को नियंत्रित करने हेतु ध्वनी यंत्र (हार्न) का न्यूनतम उपयोग किया जायेगा। पुराने एवं खराब वाहनों का इस्तेमाल नहीं किया जायेगा। सड़क के किनारे एवं खनन पट्टा क्षेत्र में वृक्षारोपण का कार्य किया जायेगा। परियोजना प्रस्तुततिकरण के पश्चात् उपस्थित महानुभावों द्वारा दिए गए सुझाव/मंतव्य निम्नवतः है:–

कमांक	नाम एवं पता	प्रतिकिया/सुझाव
1.	श्री रजनीश पासवान, मोराटाल, अंचल–बोध गया, जिला–गया	इनके द्वारा बालू परिवहन से होने वाले धूलकश उत्सर्जन की सम्स्या के समाधान के बारे में पूछा गया। इस संबंध में परियोजना प्रस्तावक के पर्यावरणीय सलाहाकार द्वारा बतलाया गया कि बालू परिवहन के दौरान वाहनों को तिरपाल से ढक कर ले जाया जायेगा एवं रास्ते पर पानी का छिड़काव किया जायेगा एवं पर्याप्त मात्रा में वृक्षारोंपण किया जायेगा।। इस प्रकार श्री रजनीश पासवान को अपना जवाब प्रस्तृत कर संतुष्ट किया।
2.	विशाल कुमार, ग्राम–छाछ, अंचल–बोध गया, जिला–गया	इनके द्वारा खनन होने के दौरान गढ्ढा होने की समस्या एवं वृक्षारोपण से संबंधित प्रश्न पूछा गया।

		पर्यावरणीय सलाहाकार के द्वारा यह बतलाया गया कि खनन का कार्य 3 मीटर की गहराई से अधिक नहीं होगी एवं सड़क के किनारे एवं खनन पट्टा क्षेत्र में वृक्षारोपण का कार्य किया जायेगा। इस प्रकार श्री विशाल कुमार को अपना जवाब प्रस्तृत कर संतुष्ट किया गया।
3.	श्री बृजेश कुमार, ग्राम–छाछ, अंचल–बोधगया, जिला–गया	इनके द्वारा घाट के नजदीक धर्माण्यवेदी मंदिर, जो पौराणिक है एवं प्रतिदिन श्रधालु इस मंदिर स्थल पर पूजा–पाठ करने आते है। अतः इस घाट पर खनन होने से मंदिर के अस्तित्व पर खतरे से संबंधित प्रश्न पूछा गया। प्रस्तावक के पर्यावरणीय सलाहाकार द्वारा बताया गया कि खनन विभाग के निर्धारित माप–दंडो के अनुरूप ही बालू खनन का कार्य किया जायेगा। इस प्रकार अपना जवाब प्रस्तृत कर संतुष्ट किया।
4.	श्री हिरालाल, पिता–रूपलाल यादव, ग्राम–मोराटाल, अंचल–बोधगया, जिला–गया	इनके द्वारा पूर्व में खनन के दौरान काफी गढ्ढा हो गया है, जिसे आजतक भरा नहीं गया है। नदी के किनारे मेरे गांव के मवेशी पानी पीने के लिए नदी में उतरते है तो डूबने की संभावना बनी रहती है। स्थानीय गांव के लोगो को नदी के उस पार जाने का नदी के बीच से ही सुगम रास्ता है। अतः इस खनन प्रस्ताव को रोका जाए। प्रस्तावक के पर्यावरणीय सलाहाकार द्वारा बताया गया कि इन्ही सब समस्याओं को देखते हुए राज्य सरकार के द्वारा नदी पर दो पुल का निर्माण किया गया है। ग्रामीणों को इन्ही पुलों के रास्ते से आना–जाना चाहिए। इस प्रकार अपना जवाब प्रस्तृत कर संतुष्ट किया।

5.	श्री ठुरा प्रसाद, ग्राम–छाछ मोराटाल, अंचल–बोध गया, जिला–गया	इनके द्वारा क्रमांक 04 पर श्री हिरालाल के द्वारा पूछे गये प्रश्न को ही दोहराया गया कि पूर्व में खनन के दौरान काफी गढ्ढा हो गया है, जिसे आजतक भरा नहीं गया है। नदी के किनारे मेरे गांव के मवेशि पानी पीने के लिए नदी में उतरते है तो डूबने की संभावना बनी रहती है। खुदाई के दौरान गढ्ढा होने के कारण डूबने की सूचना दी गयी। स्थानीय गांव के लोगो को नदी के उस पार जाने का नदी के बीच से ही सुगम रास्ता है। अतः इस खनन प्रस्ताव को रोका जाए। प्रस्तावक के पर्यावरणीय सलाहाकार द्वारा बताया गया कि इन्ही सब समस्याओं को देखते हुए राज्य सरकार के द्वारा नदी पर दो पुल का निर्माण किया गया है। ग्रामीणों को इन्ही पुलों के रास्ते से आना–जाना चाहिए। इस प्रकार अपना जवाब प्रस्तूत कर संतुष्ट किया।
6.	श्री शंकर यादव, पूर्व मुखिया, मोराटाल अंचल–बोध गया, जिला–गया	इनके द्वारा बतलाया गया कि जो शिकायत पत्र सरकार के संबंधित विभागों में भेजी गयी है, जिसमें मेरा भी नाम अंकित कर दिया गया है, जो निराधार है। मैं इस बालू खनन परियोजना को चालु करने के समर्थन में हूँ। ताकि स्थानीय स्तर पर अवैध बालू खनन की समस्या से सरकार को हो रही राजस्व की हानि को रोका जा सके।
7.	श्री विकाश विश्वकर्मा, ग्राम–केनारी, अंचल–बोध गया, जिला–गया	इनके द्वारा सूझाव दिया गया कि बालू खनन का कार्य शीघ्र चालु किया जाए।
8.	विकाश कुमार, ग्राम–मोराटाल, अंचल–बोध गया, जिला–गया	इनके द्वारा बतलाया गया कि राज्य सरकार द्वारा इस घाट पर खनन का कार्य कराये जाने से कोई समस्या नहीं है। इस खनन

		कार्य चालु होने से स्थानीय लोगों को रोजगार मिलने की संभावना रहेगी।

अध्यक्ष द्वारा उपस्थित सभी आम–जनों से इस खनन परियोजना के पक्ष एवं विपक्ष में अपनी सहमति दर्ज कराने हेतु हाथ उठाकर मत देनें का अनुरोध किया गया। जिस क्रम में बालू खनन के प्रस्ताव को स्वीकृत करने के पक्ष में लगभग 80 प्रतिशत मत प्राप्त हुआ।

उपरोक्त बिंदुओं पर गंभीरतापूर्वक विचार करते हुए अध्यक्ष द्वारा निदेशित किया गया कि वाहनों से बालू ले जाने के क्रम में नियमित रूप से परिवहन मार्ग पर जल छिड़काव करेगें एवं बालू से लदे वाहनों को तिरपाल से ढ़क कर ही ले जायेगें। बालू की खुदाई 3 मीटर ही करेगें। उन्होने उम्मीद जताया कि इकाई ,प्रबंधन द्वारा इन उपरोक्त बिन्दुओं पर गम्भीरता से ध्यान रखा जायेगा। साथ ही वैज्ञानिक तरीके से बालू खनन का कार्य एवं विभागीय निर्देश का अनुपालन किया जायेगा।

जन–सुनवाई के अतं में उपस्थित जनता के सुझाव को संग्रहित करते हुए सर्वसम्मति से बालू घाट के खनन परियोजना को प्रारंभ करने के लिए सक्षम प्राधिकार को अनुशंसा करने का निर्णय लिया गया। तत्पश्चात् लोक सुनवाई की कार्यवाई सधन्यवाद समाप्त करने की घोषणा की गयी।

24.1.24

क्षेत्रीय पदाधिकारी
बि.रा.प्र.नि.पर्षद्, गया

अपर समाहर्त्ता
गया

उपस्थिति सूची

मेसर्स मां दुर्गा फ्यूल स्टेशन, प्रस्तावकः श्री अखिलेश कुमार, पताः गाँव पथरा इंग्लिश, पी.ओ. ओढ़नपुर, पी.एस. नवादा, जिला–नवादा द्वारा गया मोहाना नदी बालू घाटः 01, 02, एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावॉ, केनारी, अंचल–बोधगया, जिला–गया में प्रस्तावित बालू खनन परियोजना हेतु पर्यावरणीय स्वीकृति दिनांकः 05.08.2023 को 11:00 बजे पूर्वाह्न में अंचल कार्यालय बोधगया, जिला–गया में आयोजित लोक सुनवाई के दौरान उपस्थित महानुभावों की सूचीः

क्र0सं0	नाम	पता	हस्ताक्षर
1.	अंजनि कुमार	अपर धारहरी	5.8.23
2.	मनोज्ञन कुमार सिंह	[illegible]	[illegible]
3.	Sumit kumar	Revenue Officer Bodhgaya	05/08/23
4.	Amit kumar	M-I GAYA.	05/08/
5.	Kumud Ranjan	BDO Bodhgaya	05/08/23
6.	अभुज शर्मा 9473325705	ग्राम बिरोरिया, गया	
7.	निमीश भारद्वाज	ग्राम - गुरियावॉ, गया	Nimish
8.	अजीत सिंह 7004632716	राजा पुर बोधगया	

9.	संतोष कुमार 9234865323	~~विद्यार्थी~~ गुरीयाही	
10.	कपिल कुमार 9934/1/24566	छात्र	kapil kr
11.	विशाल कुमार 6204500428	छात्र	
12.	Diamond kr	बलवान	Diamond k
13.	रवनारायण कुमार	छात्र	
14.	Surendra kumar	Kuriyawan	Surendra
15.	दशरथ प्रसाद	छात्र	दशरथ प्रसाद
16.	मन्नु कुमार	मोराहाल	Pappu kr
17.	अरविन्द कुमार	मोराहाल	अरविन्द
18.	रंजन कुमार	छात्र	रंजन कु
19.	मनोहर कुमार पिंटू	छात्र	मनोहर कु

21.	[illegible]	[illegible]	[illegible]
22.	[illegible]	[illegible]	[illegible]
23.	[illegible]	[illegible]	[illegible]
24.	Mathura Paswan	moratal, Chhorchh	[illegible]
25.	Mulayam Kumar	Moratal	Mulayam Kumar
26.	Baibhav kumar	[illegible]	Baibhav
27.	Vikash kumar	kenari	Vikash kumar
28.	VikashVishwakarma	Chach	Vikash Kr
29.	AHiRUJH SINGH	[illegible]	AHIRUJH
30.	Pappu kumar	Chach	Pappukumar
31.	Jhuem Kaur	Chanch	[illegible]

32.	सोनू कुमार	गुरीयावां	सोनू कुमार
33.	Gautam Singh	Kanri	Gautam
34.	Avilash Anand.	गुरीयावां	Avilash
35.	Santoshkumar	गुरीयावां	SK
36.	Rahul kumar. 9934376222.	noratal.	Rahul Kumar
37.	Vivek kumar. 8051515102.	गुरीयावां	Vivek Kumar
38.	Mantu Kumar	Elect	Mantu K
39.	मुनेराह चाईक	इंजि	मुनेराह चाईक
40.	श्याम किशोर	इलेक्ट्रि	श्याम किशोर
41.	अमित कुमार सिंह	छोटेल	Amit
42.	Ankur Sharma Managing Director	Cognizance Research India Put Ltd. Consultant.	5-8-23

43.	Gaurav Kumar	Cognizance Research India Pvt Ltd	Gaurav 5/8/23
44.	अनिल कुमार	मां दुर्गा फूल स्टेशन (Manpower)	अनिल कुमार
45.			

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119693	IPRD_PR_004700/23-24		IPRD_RO_004525/23-24	170	04-Jul-2023	04-Jul-2023	Download File	Dainik jagran	Dainik Jagran Patna	

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बिहार सरकार

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ई–मेल- msbspcb-bih@gov.in, वेबसाईट-http://bspcb.bihar.gov.in

लोक–सुनवाई की सूचना

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के ई.आई.ए. अधिसूचना दिनांक 14.09.2006 एवं उसके संशोधित अधिसूचनाओं के आलोक में राज्य पर्यावरण समाघात मूल्यांकन प्राधिकरण द्वारा निम्नलिखित बालूघाटों का गया जिला में प्रस्तावित बालू खनन परियोजना हेतु पर्यावरण स्वीकृति प्रस्ताव विचाराधीन है:–

1. मेसर्स माँ दुर्गा फ्यूल स्टेशन, प्रस्तावक: श्री अखिलेश कुमार, पता: गाँव पथरा इंग्लिश, पी.ओ. ओढ़नपुर, पी.एस. नवादा, जिला–नवादा द्वारा गया मोहाना नदी बालू घाट: 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावाँ, केनारी, अंचल–बोधगया, जिला–गया; एवं
2. मेसर्स टुडेज फैशन, प्रस्तावक: मोहम्मद दाऊद खान, पुत्र: मोहम्मद साबिर खान, पता: महावीर मार्केट, ओल्ड कोर्ट रोड, जिला–नवादा द्वारा गया वृद्ध नदी बालू घाट: 01, 02 एवं 03, ग्राम–कुसाप, मताई, नेपा और कुसापी, अंचल–टेकारी, जिला–गया।

इस परियोजना के कार्यान्वयन के पूर्व पर्यावरणीय स्वीकृति हेतु राज्य पर्यावरण समाघात निर्धारण प्राधिकरण द्वारा TOR (Terms of Reference) निर्गत की गयी है तथा लोक–सुनवाई की जानी है। परियोजना का पर्यावरण प्रभाव मूल्यांकन प्रतिवेदन तैयार किया गया है। जिसमें संभावित कुप्रभावों को निरस्त करने के उपाय प्रस्तावित है। उक्त प्रतिवेदन तथा परियोजना के कार्यपालक सार की प्रति पर्षद् मुख्यालय, पटना, जिला पदाधिकारी, गया; कार्यपालक पदाधिकारी, जिला परिषद्, गया; महाप्रबंधक, जिला उद्योग केन्द्र, गया एवं जिला खनन कार्यालय, गया के कार्यालय में प्रभावित क्षेत्र के लोगों के अवलोकनार्थ उपलब्ध है। परियोजना की विवरणी का अवलोकन पर्षद् के वेबसाईट: http://bspcb.bihar.gov.in पर भी किया जा सकता है। वैसे व्यक्ति जो इस परियोजना से प्रभावित होने वाले हों, अपना लिखित सुझाव/विचार एवं मतव्य इस सूचना प्रकाशन के 30 (तीस) दिनों के अन्दर पर्षद् कार्यालय में भी जमा कर सकते हैं। साथ ही पर्षद् के ई–मेल: msbspcb-bih@gov.in पर अथवा डाक के माध्यम से भी लिखित सुझाव/विचार एवं मंतव्य भेजी जा सकती है।

परियोजना प्रभाव क्षेत्र के नागरिकों के लिए लोक–सुनवाई निम्नानुसार आहूत किया गया है:–

क्रमांक	दिनांक:	समय	अंचल का नाम	बालू घाट का मौजा	बालू घाट का नाम	लोक–सुनवाई का स्थल
1.	05.08.2023	पूर्वाह्न 11:00 बजे	बोधगया जिला–गया	गया जिला अन्तर्गत बतासपुर, छांछ, मोरातल, घोंघारिया, गुरियावाँ, केनारी,	गया मोहाना 01, 02 एवं 03	अंचल कार्यालय, बोधगया, जिला–गया
2.	05.08.2023	अपराह्न 02:00 बजे	टेकारी जिला–गया	गया जिला अन्तर्गत कुसाप, मताई, नेपा और कुसापी	गया वृद्ध 01, 02 एवं 03	अंचल कार्यालय, टेकारी, जिला–गया

सभी आम लोगों/संबंधित से अनुरोध है कि उपरोक्त लोक–सुनवाई के दौरान सरकार द्वारा निर्गत कोविड–19 गाईड–लाईन का पालन करते हुए परियोजना के संबंध में अपने मंतव्य/सुझाव/विचार से अवगत करायेंगे।

PR- 004700(NI NI) 2023-24

नोट: दी गयी सूची है, क्योंकि अविधार जरूरी है

सदस्य सचिव

बिहार सरकार

बिहार राज्य प्रदूषण नियंत्रण पर्षद्

ई–मेल- msbspcb-bih@gov.in, वेबसाईट-http://bspcb.bihar.gov.in

लोक–सुनवाई की सूचना

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के ई.आई.ए. अधिसूचना संख्या एस.ओ. 1533, दिनांक 14.09.2006 एवं यथा संशोधित अधिसूचनाओं के आलोक में राज्य पर्यावरण समाघात निर्धारण प्राधिकरण के समक्ष निम्नलिखित बालूघाटों का गया जिला में प्रस्तावित बालू खनन परियोजना हेतु पर्यावरणीय स्वीकृति का प्रस्ताव विचाराधीन है:–

1. मेसर्स मो दुर्गा माइन्स रजेशन, प्रस्तावक श्री अखिलेश कुमार, पिता: गाँव पथरा इंग्लिश, पी.ओ. ओदनपुर, पो.ऑ. नवादा जिला नवादा द्वारा गया मोहाना नदी बालू घाट: 01, 02 एवं 03, ग्राम–बतासपुर, छांछ, मोसातल, घोघारिया, गुरियावां, केनारी, अंचल–बोधगया, जिला–गया; एवं
2. मेसर्स ट्रेडेक फैशन, प्रस्तावक: मोहम्मद दाऊद खान, पुत्र: मोहम्मद साबिर खान, पता: महावीर मार्केट, ओल्ड कोर्ट रोड, जिला: नवादा द्वारा गया बुढ़ नदी बालू घाट: 01, 02 एवं 03, ग्राम–कुसाप, मताई, नेपा और कुसापी अंचल: टेकारी, जिला–गया।

इन परियोजना के कार्यान्वयन के पूर्व पर्यावरणीय स्वीकृति हेतु राज्य पर्यावरण समाघात निर्धारण प्राधिकरण द्वारा TOR (Terms of Reference) निर्गत की गयी है तथा लोक–सुनवाई की जानी है। उक्त योजना का पर्यावरण प्रभाव मूल्यांकन प्रतिवेदन तैयार किया गया है। जिसमें संभावित कुप्रभावों को नियंत्रित करने के उपाय प्रस्तावित है। उक्त प्रतिवेदन तथा परियोजना के कार्यपालक सार की प्रति पर्षद् मुख्यालय पटना, जिला पदाधिकारी, गया, कार्यपालक पदाधिकारी, जिला परिषद्, गया; महाप्रबंधक, जिला उद्योग केन्द्र तथा एवं जिला खनन कार्यालय, गया के कार्यालय में प्रभावित क्षेत्र के लोगों के अवलोकनार्थ उपलब्ध है। परियोजना की वितरणी, का अवलोकन पर्षद् के वेबसाईट: http://bspcb.bihar.gov.in पर भी किया जा सकता है। वैसे व्यक्ति जो इस परियोजना से संबंधित कोई सुझाव हो, अपना लिखित सुझाव / विचार एवं मंतव्य इस सूचना प्रकाशन के 30 (तीस) दिनों के अन्दर पर्षद् कार्यालय में भी जमा कर सकते है। साथ ही पर्षद् के ई–मेल: msbspcb-bih@gov.in पर अथवा डाक के माध्यम से भी लिखित सुझाव / विचार एवं मंतव्य भेजी जा सकती है।

उक्त प्रभाव क्षेत्र के पर्यावरण के लिए लोक–सुनवाई निम्नानुसार आहूत किया गया है:–

क्रमांक	दिनांक	समय	अंचल का नाम	बालू घाट का मौजा	बालू घाट का नाम	लोक–सुनवाई का स्थल
1.	08.08.2023	पूर्वाह्न 11.00 बजे	बोधगया जिला–गया	गया जिला अन्तर्गत बतासपुर, छांछ, मोसातल, घोघारिया, गुरियावां केनारी,	गया मोहाना 01, 02 एवं 03	अंचल कार्यालय, बोधगया, जिला–गया
2.	09.08.2023	अपराह्न 02:00 बजे	टेकारी जिला–गया	गया जिला अन्तर्गत कुसाप, मताई, नेपा और कुसापी	गया बुढ़ 01, 02 एवं 03	अंचल कार्यालय, टेकारी, जिला–गया

सभी जन सामान्य से अनुरोध है कि उपरोक्त लोक–सुनवाई के दौरान सरकार द्वारा निर्गत गाईडलाईन का अनुपालन करते हुए परियोजना के संबंध में अपने मंतव्य / सुझाव / विचार से अवगत करायेंगे।

PR- 004700(Ni Ni) 2023-24

सदस्य सचिव

नशे से बनती दूरी है, क्योंकि परिवार जरूरी है


लोक-सुनवाई




"लोक-सुनवाई"




लोक-सुनवाई

ANNEXURE V

SATELLITE IMAGERY OF LAST 3 YEARS

November 2022



November 2021

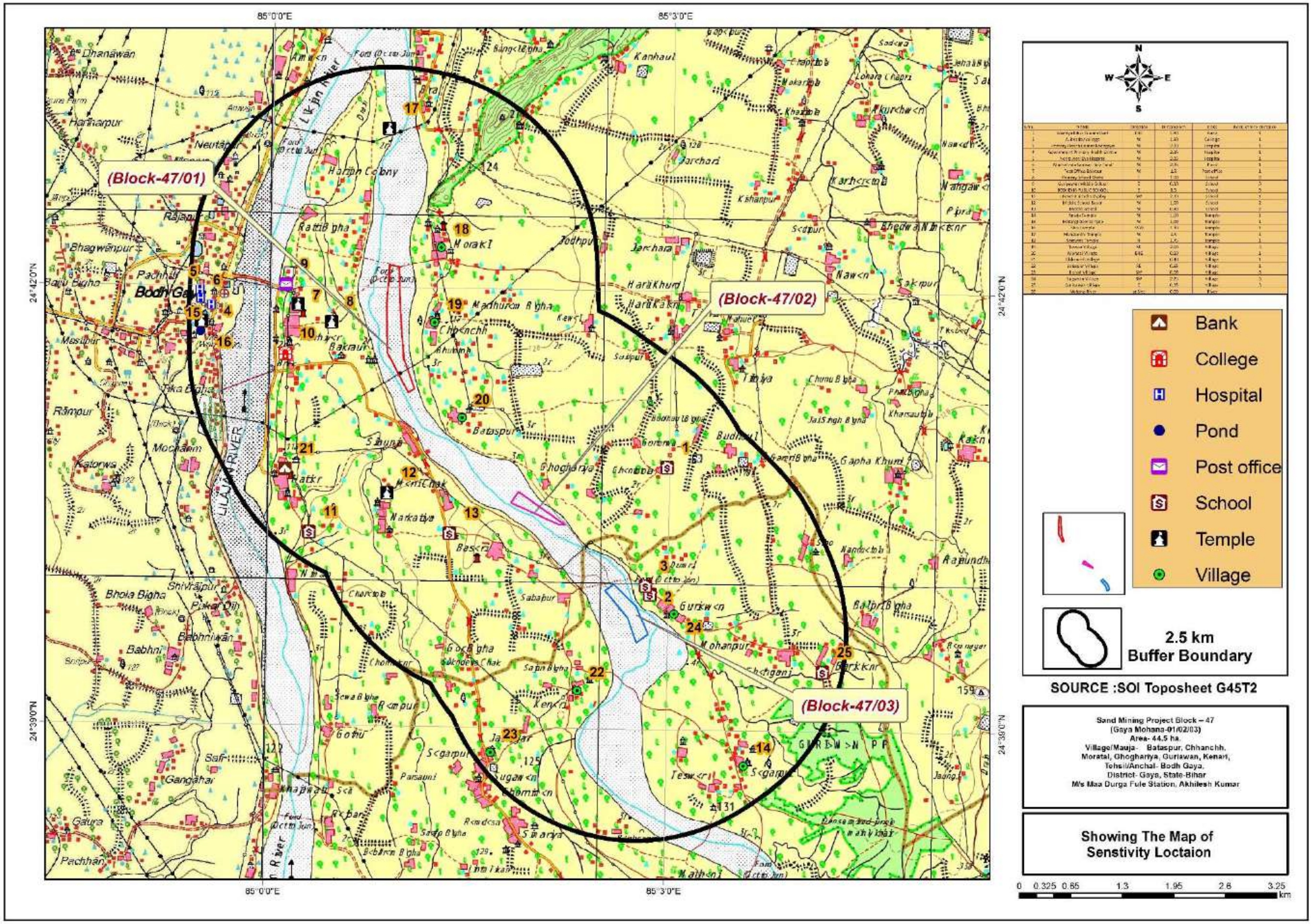


December 2020



ANNEXURE VI

2.5 KM – SATELLITE IMAGERY


(Block-47/01)
(Block-47/02)
(Block-47/03)
85°0'0"E
85°3'0"E
24°42'0"N
24°39'0"N
N
S
W
E
Bank
College
Hospital
Pond
Post office
School
Temple
Village
2.5 km
Buffer Boundary
SOURCE :SOI Toposheet G45T2
Sand Mining Project Block – 47
(Gaya Mohana-01/02/03)
Area- 44.5 ha.
Village/Mauja- Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari,
Tehsil/Anchal- Bodh Gaya,
District- Gaya, State-Bihar
M/s Maa Durga Fule Station, Akhilesh Kumar
Showing The Map of
Senstivity Loctaion
0 0.325 0.65 1.3 1.95 2.6 3.25
km

Gaya Mohana Block 47

S.No.	Location Name	Direction	Distance km	Class
1	Madhya Bihar Gramin Bank	ENE	1.80	Bank
2	A.B yadav college	W	1.30	College
3	Primary Health Center Bodhgaya	W	2.20	Hospital
4	Government Primary Health Centre	W	2.36	Hospital
5	Netra Jyoti Eye Hospital	W	2.35	Hospital
6	Muchalinda Sarovar Holy Pond	W	2.35	Pond
7	Post Office Bakrour	W	1.3.	Post office
8	Primary School Ghato	E	1.00	School
9	Guriyawan Middle School	E	0.30	School
10	BODHDHA PUBLIC SCHOOL	E	0.3.	School
11	Utkramit uchch vidyalay	SW	2.20	School
12	Middle School Basari	W	1.00	School
13	Middle school	W	0.80	School
14	Sujata Temple	W	1.00	Temple
15	Matangi Devi temple	W	1.00	Temple
16	Shiv Temple	SSW	1.30	Temple
17	Mahabodhi Temple	W	2.3.	Temple
18	Sarswati Temple	N	1.75	Temple
19	Teswar Village	SE	2.00	Village
20	Moratal Village	ENE	0.50	Village
21	Chhanchh Village	E	0.40	Village
22	Bataspur Village	SE	0.65	Village
23	Kenari Village	SW	0.96	Village
24	Sugawan Village	SW	2.25	Village
25	Guriyawan Village	E	0.35	Village
26	Mohana River	at Site	0.00	River

ANNEXURE VII

NO MINING ACTIVITY LETTER ISSUED BY DMO

जिला खनन कार्यालय, गया।

पत्रांक 2413 /खनन, गया, दिनांक 8/9/23

प्रेषक,

खनिज विकास पदाधिकारी,
गया।

सेवा में,

AKHILESH KUMAR
VILL-PATHRA ENGLISH, PO-ODHANPUR, PS-NAWADA,
DISTT-NAWADA, PIN CODE-805123
Email-esmines@rediffmail.com
Mobile-9955721191.

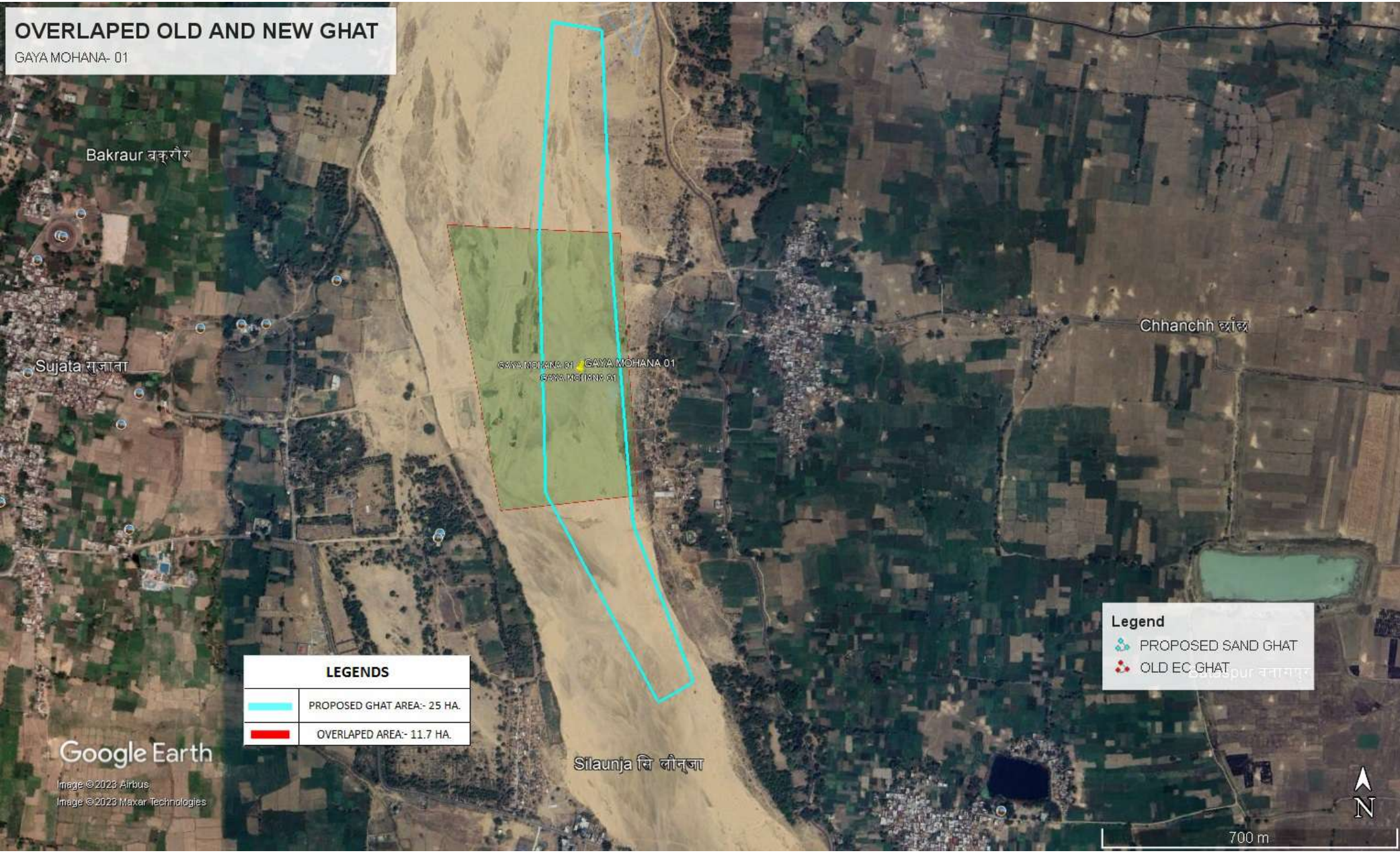
विषय :– गया जिलान्तर्गत वालूखण्ड संख्या–47 (गया मोहाना–1/2/3) रकवा–44.50 हे0 के क्षेत्र पर पूर्व से खनन/प्रेषण की विवरणी उपलब्ध कराने के संबंध में।

महाशय,

उपर्युक्त विषयक आपके पत्र के आलोक में राज्य पर्यावरण समाघात निर्धारण प्राधिकरण, विहार (SEIAA, Bihar) द्वारा निर्गत ToR के Additional Specific Condition No. 02 के आलोक में आपको सूचित किया जाता है कि विषयांकित वालूघाट/वालूखण्ड क्षेत्र के गया मोहाना 02 एवं मोहाना 03 वालूघाट से दिनांक 01.10.2022 से दिनांक 30.06.2023 तक खनन/प्रेषण की मात्रा शून्य है। गया मोहाना 01 वालूघाट के क्षेत्र में पूर्व से संचालित छांछ वालूघाट (रकवा 23.00 हे0) के 12 हेक्टेयर क्षेत्र से दिनांक 01.10.2022 से दिनांक 30.06.2023 तक लगभग 180520.04 MT वालू का खनन/प्रेषण किया गया है।

विश्वासभाजन

8/9/23
खनिज विकास पदाधिकारी,
गया।


OVERLAPED OLD AND NEW GHAT
GAYA MOHANA- 01
Bakraur बकरौर
Sujata सुजाता
Chhanchh छांछ
GAYA MOHANA 01
GAYA MOHANA 01
GAYA MOHANA 01
LEGENDS
PROPOSED GHAT AREA:- 25 HA.
OVERLAPED AREA:- 11.7 HA.
Legend
PROPOSED SAND GHAT
OLD EC GHAT
Silaunja सिलौंजा
Google Earth
Image © 2023 Airbus
Image © 2023 Maxar Technologies
N
700 m

ANNEXURE VIII
QUESTIONNAIRE

PROFORMA FOR ENVIRONMENTAL APPRAISAL OF MINING PROJECTS

(MINING SECTOR PROJECTS)

Note 1: All information to be given in the form of Annex/s should be properly numbered and form part of reply to this Performa.

Note 2: Please enter √ in appropriate box where answer is Yes / No

Note 3: No abbreviation to be used - **Not available** or **Not applicable** should be clearly mentioned.

Note 4: **Core zone** is the mining lease area.
Buffer zone in case of ML area up to 25 ha is to be considered as **5 km** all around the periphery of the core zone and for ML area above 25 ha an area **10 km** all around the periphery of the core zone.

Note 5: Adopt **Scoping process** in carrying out EIA study.

1.	**General information**	
a	Name of the project	Sand Mining Project Block – 47 (Gaya Mohana-01/02/03) Sand Ghat on Mohana River, Khata No. - 191, 384, 367, 207, 455, 177; Khasra No. - 1, 1, 2091, 1, 1084, 1370, 225; Thana No. - 443, 454, 455, 446, 426, 424. Village/Mauja- Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari, Tehsil/Anchal-Bodh Gaya, District- Gaya, State-Bihar
I	Name of the proponent	M/s Maa Durga Fule Station, Prop- Akhilesh Kumar
ii	Mailing Address	M/s Maa Durga Fule Station, Proponent- Akhilesh Kumar R/o. – Village Pathra English, P.O. - Odhanpur, P.S. - Nawada, Dist. - Nawada, Pin code- 805123
	E-mail	-
	Telephone	-
	Fax No.	-
b	Objective of the project	Mining of Sand
c	**Location of mine (Buffer Map is attached as Annexure-I)**	
	Village	Bataspur, Chhanchh, Moratal, Ghoghariya, Guriawan, Kenari,
	Tehsil/Anchal	Anchal- Bodh Gaya
	District	Gaya
	State	Bihar

<table>
<tr><td>d</td><td>Does the proposal relate to</td><td>Yes</td><td>No</td></tr>
<tr><td>i</td><td>New mine</td><td>√</td><td>-</td></tr>
<tr><td>ii</td><td>Expansion</td><td>-</td><td>√</td></tr>
<tr><td>iii</td><td>Increase in ML area</td><td>-</td><td>√</td></tr>
<tr><td>iv</td><td>Increase in annual production</td><td>-</td><td>√</td></tr>
<tr><td>v</td><td>Renewal of ML</td><td>-</td><td>√</td></tr>
<tr><td>vi</td><td>Modernization</td><td>-</td><td>√</td></tr>
<tr><td>e</td><td colspan="3">Site Information</td></tr>
<tr><td>i</td><td colspan="3">Geographical Location</td></tr>
<tr><td></td><td>Latitude/Longitude</td><td colspan="2">
Gaya Mohana -01
<table>
<tr><td>Pillar</td><td>Latitude</td><td>Longitude</td></tr>
<tr><td>A</td><td>24°42'9.18"N</td><td>85° 0'53.36"E</td></tr>
<tr><td>B</td><td>24°42'8.58"N</td><td>85° 0'57.56"E</td></tr>
<tr><td>C</td><td>24°41'18.68"N</td><td>85° 1'5.30"E</td></tr>
<tr><td>D</td><td>24°41'17.12"N</td><td>85° 1'2.31"E</td></tr>
</table>
Gaya Mohana -02
<table>
<tr><td>Pillar</td><td>Latitude</td><td>Longitude</td></tr>
<tr><td>A</td><td>24°40'32.33"N</td><td>85° 1'49.24"E</td></tr>
<tr><td>B</td><td>24°40'36.94"N</td><td>85° 1'52.53"E</td></tr>
<tr><td>C</td><td>24°40'23.82"N</td><td>85° 2'13.55"E</td></tr>
<tr><td>D</td><td>24°40'23.63"N</td><td>85° 2'10.93"E</td></tr>
</table>
Gaya Mohana -03
<table>
<tr><td>Pillar</td><td>Latitude</td><td>Longitude</td></tr>
<tr><td>A</td><td>24°39'56.83"N</td><td>85° 2'32.07"E</td></tr>
<tr><td>B</td><td>24°39'59.71"N</td><td>85° 2'35.77"E</td></tr>
<tr><td>C</td><td>24°39'39.03"N</td><td>85° 2'51.68"E</td></tr>
<tr><td>D</td><td>24°39'35.63"N</td><td>85° 2'46.47"E</td></tr>
</table>
</td></tr>
<tr><td></td><td>Survey of India Topo sheet number</td><td colspan="2">G45S14/S15/T1 & G45T2 Mining Lease</td></tr>
<tr><td></td><td>Elevation above Mean Sea Level</td><td colspan="2">-</td></tr>
<tr><td></td><td>Total mining lease area (in ha.)</td><td colspan="2">44.5 ha</td></tr>
<tr><td>ii</td><td>Dominant nature of terrain</td><td>Yes</td><td>No</td></tr>
<tr><td></td><td>Flat</td><td>√</td><td>-</td></tr>
<tr><td></td><td>Undulated</td><td>-</td><td>√</td></tr>
<tr><td></td><td>Hilly</td><td>-</td><td>√</td></tr>
<tr><td>2.</td><td colspan="3">Land usage of the mining lease area (in ha.)</td></tr>
<tr><td>a</td><td>Agricultural</td><td colspan="2">-</td></tr>
<tr><td>b</td><td>Forest (Jungle-jhari)</td><td colspan="2">-</td></tr>
<tr><td>c</td><td>Waste land (G.M.Land)</td><td colspan="2">--</td></tr>
<tr><td>d</td><td>Grazing</td><td colspan="2">--</td></tr>
<tr><td>e</td><td>Surface water bodies</td><td colspan="2">--</td></tr>
<tr><td>f</td><td>Others (River Bed)</td><td colspan="2">44.5 ha</td></tr>
<tr><td>g</td><td>Others (Road)</td><td colspan="2">--</td></tr>
<tr><td></td><td>Total</td><td colspan="2">44.5 ha</td></tr>
<tr><td>3.</td><td>Indicate the seismic zone in which ML area falls. In case of zone IV & V, details of earth quakes in last 10 years.</td><td colspan="2">Seismic Zone– III</td></tr>
<tr><td>a</td><td>Severity (Richter Scale)</td><td colspan="2"></td></tr>
<tr><td>b</td><td>Impact i.e. Damage to</td><td>Yes</td><td>No</td></tr>
<tr><td></td><td>Life</td><td>-</td><td>√</td></tr>
</table>

	Property	-	√
	Existing mine	-	√

4. Break-up of mining lease area (in ha.) as per approved conceptual plan:

Purpose	Mining Lease Area				Total	Area acquired				Area to be acquired			
	Government		Private			Government		Private		Government		Private	
	Forest	Others	Agri.	Others		Forest	Others	Agri	Others	Forest	Other	Agri.	Others
1. Area to be excavated	-	44.5	-	-	44.5	-	44.5	-	-	-	-	-	-
2. Storage for top soil	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Overburden / Dumps	-	-	-	--	--	-	-	-	--	-	-	-	-
4. Mineral storage	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Infrastructure (Workshop, Administrative Building)	-	-	-	--	--	-	-	-	--	-	-	-	-
6. Roads	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Railways	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Green Belt	-	-	-	-	-	-	-	-	-	-	-	-	-
9.Parapet wall	-	-	-	--	--	-	-	-	--	-	-	-	-
10.Garland Drain	-	-	-	--	--	-	-	-	--	-	-	-	-
11.Coal handling plant / mineral separation plant	-	-	-	--	--	-	-	-	--	-	-	-	-
12. Township area	-	-	-	-	-	-	-	-	-	-	-	-	-
13.Other (Land unused)	-	-	-	--	--	-	-	-	--	-	-	-	-
TOTAL	-	44.5	-	-	44.5	-	44.5	-	-	-	-	-	-

5	**Township (outside mining lease)**		**Not Applicable**		
a	Total area (in ha)		-		
b	No. of dwelling units		-		
c	Distance from mine site		-		
6	**Distance of water bodies (in km)**				
Distance from	River Bank *	Other Water bodies * Sea / creek / lake / nalla etc. (specify)			
Mining lease boundary	It is a river bed mining	-			
Ancillary facilities	-	-			
[* From highest flood line / high tide line]					
7	For projects falling within the Coastal Regulation Zone (CRZ)				
	Whether the mineral to be mined is of rare nature and not available outside CRZ?	**No**	**-**	**No**	-
if yes, annex a scaled location map showing low tide line (LTL), high tide line (HTL) duly demarcated by one of the authorized agencies* [*Director, Space Application Centre, Ahmedabad: Centre for Earth Sciences Studies, Thiruvananthapuram: Institute of Remote Sensing, Anna University, Chennai: Institute of Wetland Management & Ecological Designs, KolKata: Naval Hydrographers's Office, Dehradun: National Institute of Oceanography, Panjim, Goa: and National Institute of Ocean Technology, Chennai], boundary of mining lease area, distance of ML area from LTL and HTL CRZ boundary and CRZ classification of the project area as per the approved Coastal Zone Management Plan, and settlements, sand dunes, mangroves, forest land/patches, turtles breeding and nesting sites etc., if any, in the project area.					

8	**Indicate aerial distance from the periphery of core zone / area from the periphery of the buffer zone to the boundary of following (up to 10 km):**			
S. No.	Area	Name	Aerial distance from (in km.)	
			Core Zone	Buffer Zone
1.	National Park / Sanctuary	Nil	-	-
2.	Biosphere Reserve / Tiger Reserve / Elephant Reserve / any other Reserve	Nil	-	-
3.	Forest (RF / PF / unclassified)	Nil	-	-
4.	Habitat for migratory birds	Nil	-	-
5.	Corridor for animals of schedule I & II of the Wildlife (Protection) Act, 1972	Nil	-	-
6.	Archaeological sites	Nil	-	-

	* Notified * Others			
7.	Defence Installation	Nil	-	-
8.	Industries / Thermal Power Plants	Nil	-	-
9.	Other Mines	-	-	-
10.	Airport	Gaya International Airport, Gaya, Bihar	-	6.88 Km in NW
11.	Railway Lines	Bandhua station, Bihar	-	7.50 Km in NE
12.	National / State Highways	• MDR Road • NH-22 • SH -70	-	• 2.03 Km in W • 5.30 Km in W • 7.44 km in N
[* Buffer zone in case of ML area up to 25 ha. is to be considered as **5 km** all around the periphery of the core zone and for ML area above 25 ha. an area **10 km** all around the periphery of the core zone].				

9. Description of flora & fauna separately in the core and buffer zones.*

[* Consult the Wildlife (Protection) Act, 1972 as amended subsequently and list species with (1) Common name (2) Scientific name and (3) under which schedule of the Wildlife (Protection) Act the identified species fall. Get the list authenticated by an Expert in the field / credible scientific institute / University / Chief Wildlife Warden Office. **Information to be based on field survey.]**

Kindly refer annexure-II for details.

10	**Details of mineral reserves (as per approved Mining Plan)**	Quantity (in cum)	
a	Proved	13,35,000 cum	
b	Indicated	-	
c	Inferred	-	
d	Mineable reserves	12,03,675 cum	
11	**Major geological formation / disturbances in the mining lease area**	**Yes**	**No**
a	Geological maps submitted **(Annexure-III)**	√	**-**
b	Geological sections submitted **(Annexure-III)**	-	√
c	Contour map submitted **(Annexure-IV)**	-	√
d	Whether the presence, if any, noted of		
I	Faults	**-**	√
Ii	Dykes	**-**	√
Iii	Shear Zone	**-**	√
Iv	Folds	**-**	√
V	Other weak zones	**-**	√
e	Source of data (Indicate)	-	
12	**Production of mineral(s) and life of mine**		
a	Rated capacity of mine mineral wise (Tonnes		

	/ annum)	8,01,000 TPA
b	Life of mine at proposed capacity (Years)	-
c	Lease period (Years)	5 years
d	Date of expiry of lease (D /M /Y)	-
e	Indicate in case of existing mines	-
i	Date of opening of mine	After environmental clearance
ii	Production in the last 5 years 1st year 5thyear from year 2006-07 to year 2010-2011in million tonnes.	-
iii	Projected production for the next 6th to 10th year 5 years from year 2011-12 to year 2014-15.in million tonnes.	-
iv	Whether mining was suspended after opening of the mine?	**-**
v	If yes, details thereof including last production figure and reason for the same.	-
f	Whether plans & sections provided?	**Yes (Annexure-V)**
13	**Type and method of mining operations**	

TYPE		**METHOD**	
Opencast	√	Manual	**-**
Underground	-	Mechanized	**-**
Both	-	Semi-mechanized	√

14	**Details of ancillary operations for mineral processing**	
a	Existing	Not applicable
b	Additional	Not applicable
15	**Mine details**	
a	**Opencast mine**	
i	Stripping ratio (mineral in tonnes to over burden in m^3)	--
ii	Ultimate working depth (in m bgl)	3.0 m
iii	Indicate present working depth in case of existing mine (in m bgl)	-
iv	Thickness of top soil (in m.)	-
a	Minimum	--
b	Maximum	--
c	Average	--
v	Thickness of overburden (in m.)	--
a	Minimum	--
b	Maximum	--
c	Average	--
vi	Mining Plan	
a	Height and width of the bench in overburden / waste.	--
b	Height & width of the bench in ore body / coal seam.	-
c	Proposed inclination / slope of the sides of the opencast mine (separately for overburden,	-

	coal / ore and overall slope of the pit sides) both while operating the mine as well as at the time of closure of the mine.		
d	Whether transverse sections across the opencast mine at the end of fifth year and at the end of the life of the mine have been submitted?	Yes	
vii	Type of blasting, if any, to be adopted	-	
b	Underground mine-	**Not Applicable**	
i	Seam / Ore body		
	Min.Depth (m)	-	
	Max. Depth (m)	-	
	Avg. thickness (m)	-	
	Rate of dip	-	
	Direction of dip in degree	-	
ii	Mode of entry into the mine		
	Shaft	-	
	Adit	-	
	Incline	-	
iii	Details of machinery		
	On surface	-	
	At Face	-	
	For transportation	-	
	Others	-	
iv	Method of stopping		
	Open	-	
	Filled	-	
	Shrinkage	-	
	Caving	-	
	Combination of above	-	
	Others (Specify)	-	
v	Extraction method		
	Caving	-	
	Stowing	-	
	Partial extraction	-	
vi	Subsidence		
	Predicted max. subsidence (in m)	-	
	Max. value of tensile strain (in mm/m)	-	
	Max. slope change (in mm/m)	-	
	Whether identified possible subsidence area(s) superimposed on Surface Plan has been submitted?	-	
	Major impacts on surface features like natural drainage pattern, houses, buildings, water bodies, roads, forest, etc.	-	
	Salient features of subsidence management (monitoring and control).	-	
16	**Surface drainage pattern at mine site**	**Yes**	**No**

a	Whether the pre-mining surface drainage plan submitted?	-	√
b	Do you propose any modification / diversion in the existing natural drainage pattern at any stage? If yes, when. Provide location map indicating contours, dimensions of water body to bediverted, direction of flow of water and proposed route / changes, if any i.e. realignment of river / nallah / any other water body falling within core zone and its impact	-	√
17	**Embankment and / or weir construction**		
a	Do you propose, at any stage, construction of		
i	Embankment for protection against flood?	No	
ii	Weir for water storage for the mine?	No	
b	If so, provide details thereof.	-	
c	Impact of embankment on HFL and settlement around.	-	
d	**Impact of weir on downstream users of water**	-	

18	Vehicular traffic density (**outside the ML area**)			
		Type of vehicles	No. of vehicles per day (in PCU)	
a	Existing	Car, Jeep , Truck	Village road -352 SH – 70 - 816	
b	After the proposed activity	Car, Jeep , Truck	Village road -1219 SH – 70 - 1683	
c	Whether the existing road network is adequate?		Yes	
	If no, provide details of alternative proposal?		-	
19	Loading, transportation and unloading of mineral and waste rocks on surface		**Yes**	**No**
a	Manual		√	-
b	Tubs, mine cars, etc.		-	√
c	Scraper, shovels, dumpers / trucks		√	-
d	Conveyors (belt, chain, etc.)		-	√
e	Others (specify)		-	√

20	Mineral(s) transportation outside the ML area			
		Qty. (in tonne)	Percentage (%)	Length (in km)
a	Road	5768	100	-
b	Rail	-	-	-
c	Conveyors	-	-	-
d	Rope way	-	-	-
e	Water ways	-	-	-
f	Pipeline	-	-	-
g	Others (Specify)	-	-	-
	Total	**5768**	**100**	**-**

21. Baseline Meteorological and Air Quality data

(a) Micro-meteorological data

[Continuous monitoring through autographic instrument for one full season other than monsoon]

(i) Wind rose pattern for one full season (16 points of compass i.e. N, NNE, NE, ---) based on 24-hourly data. For coastal area also furnish day-time and night time data. (Attached as Annexure-VII)

- Day time
- Night time
- 24 – hours period

(ii) Site specific monitored data

Month	**Wind Speed (km/h)**			**Temperature (°C)**		
	Max	Avg	Calm%	Max	Min	Avg
March 2023	31	10	15	33.2	18.1	25.9
April 2023	30	9	10	38.8	23.5	31.3
May 2023	29	8	00	39.3	26.6	33

* 24-hour rainfall should be reported from 08:30 hrs. IST of previous day to 08:30 hrs. IST of the day.

* Rainy day is considered when 24 hrs. Rainfall is ≥ 2.5 mm.

** Visual observations of cloud cover should be recorded four times a day at regular intervals.

(iii) Indicate name and distance of the nearest IMD meteorological station from which climatological data have been obtained for reporting in the EIA report, if any.

(b) Ambient air quality data* (RPM, SPM, SO_2, and NOx)

[*Monitoring should be carried out covering one full season except monsoon – same season as in 21 (a) (i)]

[*Frequency of sampling: Sampling to be done twice a week for the entire season 24 hourly for SPM & RPM. For gaseous pollutants 24- hourly data be given irrespective of the sampling period.]

(i) Season and period for which monitoring has been carried out. Winter **Season (March- May 2023)**

(ii) No. of samples collected at each monitoring station**: 24**

Name of monitoring equipment used			$PM_{2.5}$(µg/m³)			PM_{10} (µg/m³)			SO_2 (µg/m³)			NO_x (µg/m³)			Pb**		
			Envirotech FPS – APM 5.50			RDS 460 BL			APM 411 attachment with RDS 460 BL			APM 411 attachment with RDS 460 BL			-		
Equipment sensitivity			< 0.5 µg/m3 from 0.000 mg to 0.100 mg/ m³			< 0.5 µg/m3 from 0.000 mg to 0.100 mg/ m³			< 0.5 µg/m3 from 0.000 mg to 0.100 mg/ m³			< 0.5 µg/m3 from 0.000 mg to 0.100 mg/ m³			-		
Permissible AAQ standard (CPCB)	R		60 µg/m³			100 µg/m³			80 µg/m³			80 µg/m³			-		
	I		60 µg/m³			100 µg/m³			80 µg/m³			80 µg/m³			-		
	S		60 µg/m³			100 µg/m³			80 µg/m³			80 µg/m³			-		
Monitoring Location	No. of Samples Drawn	Category* (R, I, S)	Min	Max	98% tile	Min	Max	98% tile	Min.	Max.	98% tile	Min.	Max.	98% tile	Min	Max	98 % tile
AQ1	24	I	40.94	55.85	55.84	59.68	89.6	88.31	4.18	12.75	12.28	3.84	14.52	13.78	-	-	-
AQ2	24	I	40.56	55.67	55.16	65.25	85.48	85.33	7.19	17.12	15.57	6.98	14.8	14.36	-	-	-
AQ3	24	I	32.5	53.17	53.05	60.3	86.19	85.78	7.34	16.54	15.97	8.4	19.78	18.69	-	-	-
AQ4	24	R	40.35	55.64	54.41	60.24	89.4	89.08	7.24	12.8	12.60	7.85	17.9	15.96	-	-	-
AQ5	24	R	30.27	52.85	52.85	62.32	83.16	82.69	6.5	12.52	12.03	6.97	16.29	15.97	-	-	-
AQ6	24	R	37.67	52.82	52.07	61.32	83.58	83.27	6.48	13.89	12.98	7.85	14.42	14.16	-	-	-
AQ7	24	R	38.47	52.4	51.99	60.5	83.78	83.32	5.75	12.35	11.90	6.25	13.54	13.14		-	-
AQ8	24	R	37.34	54.67	53.40	60.34	82.82	82.72	5.75	11.95	11.79	7.49	13.78	13.56	-	-	-
AQ9	24	R	39.55	51.9	51.58	62.75	82.98	82.85	5.9	12.52	12.15	7.35	13.84	13.80			
AQ10	24	R	33.54	52.75	51.70	60.85	81.45	80.39	6.9	11.65	11.31	6.81	12.5	12.48			

*R = Residential; I = Industrial; S = Sensitive
**Pb for mineral specific sites only.
Annex a location map indicating location of AAQ stations, their direction and distance with respect to project site.

(AAQ station location map is attached annexure-VIII)

22. Stack and emission details, if any* Not Applicable

S. No.	Process / unit of operation (e.g. DG Set, Boiler)	Height of stack (m)	Internal top dia. (m)	Flue gas exit velocity (m/sec)	Emission rate (kg/hr)				Heat emission rate from top of stack (K.cal/hr)	Exhaust / Flue gas			
					SPM	SO_2	NO_x	CO		Temp ^oC	Density	Specific Heat	Volumetric flow rate (m^3/hr.)

23. Details of fugitive emissions during mining operations*

Given in Chapter 4

24. Air Quality Impact Prediction (AQIP)* Not Applicable

(a) Details of model(s) used for AQIP including grid size, terrain features, and input meteorological data

(b) Maximum incremental GLC values of pollutants based on prediction exercise

(in µg/m^3)

S. No.	Pollutants	Incremental Value	Ambient Air Quality	Resultant Air Quality
1.	SPM	5.9	88.31	94.21
2**.	SO_2			
3**.	NO_X			

[* Question Number 22, 23 & 24 need not be filled-in for mines having ML area of **25 ha. or less.**]

[**Information on item no. 2 & 3 to be provided in cases with captive power generation of 500 KVA and above]

25. Water requirement (m^3/day)

Purpose	Avg. Demand	Peak Demand
A. Mine site		
1. Mine operation	-	-
2. Land reclamation	-	-
3. Dust suppression	7.20	7.20
4. Drinking & domestic	1.30	1.30
5. Green Belt	0.89	0.89
6. Beneficiation	-	-
7. Washeries	-	-
8. Fire Service	-	-
9. Others (Mining and Allied Activities))	-	-
B. <u>Township</u>		
1. Green Belt	-	-
2. Domestic	-	-
C. Other (specify)	-	-
Total	**9.39**	**9.39**

26. Source of water supply*

S. No.	Source	m^3/day
1	River (name)	-
2	Ground water	-
3	Mine water (sump / pit)	
4	Other surface water bodies (water will be tapped from plant supply)	**9.39** KLD from nearby village

[*Annex a copy of sanction letter / permission from the concerned authority (Central Ground Water Authority in case of ground water abstraction is from notified area / State Ground Water Board in case of non-notified area / State Irrigation Department for surface water pumping) for drawing water.

27	**Lean season flow in case of pumping from river / nalla (cumecs)**	**Not applicable**
28	Ground water potential of the study area	-
28.1	**Ground water availability**	
a	Range of water table (m bgl)	-
i	Pre-monsoon (April/May)	

	Core Zone	5
	Buffer zone	10
ii	Post-monsoon (November)	
	Core Zone	3
	Buffer zone	8
b	Total annual replenishable recharge (million m^3/ year)	
i	By ground water table fluctuation method	-
ii	By rainfall infiltration factor method	-
c	Annual draft excluding estimated draft through mine discharge (million m^3/ year)	-
d	Estimated draft through mine discharge (million m^3/ year)	-
e	Net annual ground water availability (million m^3/ year)	-
f	Stage of ground water development (%)	-

28.2. Water demand - Competing users of the water source

S. No.	Usage	Present Consumption (m^3/day)		Additional proposed as per local plan (m^3/day)		Total (m^3/day)	
		Surface	Ground	Surface	Ground	Surface	Ground
1	Domestic	-	-	-	1.30	-	1.30
2	Irrigation	-	-	-	-	-	-
3	Industry	-	-	-	-	-	-
4	Mining	-	-	-	-	-	-
5	Others (Dust suppression + Green belt)	-	-	8.09	8.09	7.96	-
Total		--	--	8.09	1.30	8.09	1.30

29. Water quality*

(a) Annex physico -chemical analysis of water at intake point **

(Attached as Annexure-IX).

(b) In case of existing mine, annex report on quality of water discharge i.e. complete physico - chemical analysis**

[*For non-discharging mines at least four ground water samples to be taken preferably from downstream direction of the mine in pre-monsoon and post-monsoon periods and analysed. For discharging mines six samples are to be analysed]

**All parameters as per BIS 10500. Indicate name of Methodology, Equipment used for analysis, and Detection Level (DL) for each parameter.

*** Wherever any analytical parameter is below detection level, "BDL" (Below Detection Level) should be written instead of 'NIL'.

30.	**Impact on ground water regime / stream / lake / springs due to mine dewatering ***	Not required
a	Radius of influence (in m) [To be estimated based on analysis of pumping test data and application of empirical formula]	-
b	Whether saline water ingress will take place?(applicable to coastal areas)	-
c	Impact on stream / lake / springs	-

[* Provide a comprehensive hydro-geological assessment report if the average mine dewatering is more than 100 m^3/day and or going below water table in non-monsoon period. The report should be based on preferably latest one year pre-monsoon and post-monsoon baseline data covering information on ground water situation, aquifer characteristics, water level conditions (April – May and November), estimate of ground water resources, predicted impact of the project on ground water regime and detailed remedial / conservation measures such as artificial recharge of ground water etc. The report should be based on actual field inventory out of existing wells, at least 30 observation wells in the buffer zone with supplementary information from secondary sources (mention name). For estimation** of ground water resource (refer question no. 28 above) be designated study area of the buffer zone may be sub-divided into command and non-command areas, watershed-wise (in case of hard rock / consolidated formations) / block-wise / mandal-wise in case of alluvial / unconsolidated formations)**]**

**For estimating ground water resources in the area follow the Ground Water Estimation Committee recommendations of 1997]

31.	**Waste Water Management**	Not Applicable
a	Daily average discharge (m^3/day) from different sources	-
i	Mine water discharge during	-
	Lean period	-
	Monsoon period	-
ii	Workshop	-
iii	Domestic (mine site)	-
iv	Beneficiation / Washeries	-
v	Coal Handling Plant	-
vi	Tailings pond	-
vii	Others (Specify)	-
	Total	-
b	Waste water treatment plant; flow sheet for treatment process attached.	-
C	Quantity of water recycled / reused / to be recycled in	-
i	Percentage	-
ii	m3 /day	-

d	Point of final discharge	-	
	Final Point	-	
1	Surface	-	
i	Agricultural land	-	
ii	Waste land	-	
iii	Forest land	-	
iv	Green belt	-	
2	River / nallah	-	
3	Lake	-	
4	Sea	-	
5	Others (specify)	-	
	Total	-	
e	Users of discharge water	**Yes**	**No**
i	Human		
ii	Livestock		
iii	Irrigation		
iv	Industry		
v	Others (specify)		
F	Details of the river / nalla, if final effluent is / will be discharged (cumecs)		
i	Average flow rate		
ii	Lean season flow rate		
iii	Aquatic life		
iv	Analysis of river water 100 meters upstream and 100 meters downstream of discharge point submitted.		
G	Township		
a	Waste water generation from township (m3/day)		
b	Are you planning to provide sewage treatment plant?		
C	Usage of treated water		

32. **Attach water balance statement in the form of a flow diagram indicating source (s), consumption (Section-wise) and output.**

Purpose	**Demand (KLD)**
Drinking/Domestic	1.30
Dust Suppression	7.20
Green Belt	0.89
Total	**9.39**

33	**Ambient noise level leq dB(A)**	Details given in Chapter III
34	**Solid Waste-**	**Not Applicable**
a	Top soil and Solid waste quantity and quality	

Name (Lump/fines/slurry /Sludge/others)	Composition	Quantity (cum)	Method of disposal
Mining activity*			
a. Top Soil		--	
b. Over burden		--	--
c. Others (20%		--	

intercalated waste)			
Effluent Treatment Plant (sludge)		-	-
Total		--	--

[* Annex layout plan indicating the dump sites.]

b (i)	Does waste (s) contain any hazardous/toxic substance/radioactive materials or heavy metals?	No
(ii)	If yes, whether details and precautionary measures provided?	NA
c	Recovery and recycling possibilities.	NA
d	Possible user(s) of the solid waste.	Used in the mine itself
e (i)	Is the solid waste suitable for backfilling?	Yes
(ii)	If yes, when do you propose to start backfilling?	Simultaneous backfilling

Solid waste (s)	Already accumulated (A)	To be generated (B)	% of A & B to be backfilled	
			A	B
Over burden		--		
Others (20% intercalated waste)		--		-

	<u>Land reclamation Plan</u>	**Not Applicable**
f	In case waste is to be dumped on the ground, indicate	
i	Associated environmental problems	
ii	Number & type of waste dumps	
	No. of external dumps	
	Max. projected height of dumps (in m)	
	No. of terraces and height of each stage	
	Overall slope of the dump (degree)	
	Proposed reclamation measures	
iii	Section of the waste dump in relation to the adjacent ground profile attached	
35	**Fuel / Energy requirements*** [*To be furnished for mines having ML are more than 25 ha. or captive power genera of 500KVA and above]	**Not Applicable**
a	Total power requirement	(in MW)

S. No.		Mine Site	Township	Others (specify)	Total
1	Present				
2	Proposed / additional				

Total					
b	Source of power			(in MW)	
S. No.		SEB/Grid*	Captive power plant	DG Sets	
1	Present				
2	Proposed / additional				
Total					

[* Annex a copy of the sanction letter from the concerned authority]

c	Details of fuels					
S.No.	Fuel	Daily Consumption (TPD)		Calorific value (Kcals/kg)	% Ash	% Sulphur
		Existing	Proposed			
1	HSD					
2	LSHS					
3	Other (specify)					

36	**Storage of inflammable / explosive materia**			**Not Applicable**
S. No.	Name	Number of Storages	Consumption (in TPD)	Maximum Quantity at any point of time
1	Fuels			
2	Explosives			

37	**Human Settlement**		
	Core Zone	Buffer Zone	
Population*	-	Details given in Chapter III	
No. of villages	-		
Number of households village-wise	-		

[* As per 2001 census record or actual survey]

38.	**Rehabilitation & Resettlement (R&R) Plan** [*Provide a comprehensive rehabilitation plan, if more than 1000 people are likely to be displaced, other-wise a summary plan]	**Not Applicable**
a	Villages falling within the study area	

	Villages	
	Number	Name
Core zone		
500 m from the blasting site (s)		
Buffer zone		
Township site		

b	Details of village(s) in the core zone			
S. No.	Village name	Population*		Average Annual Income
		Tribal	Others	
1				

[*As per 2001 census / actual survey]

c	Population to be displaced and / or Land	

	Oustees					
Name of village(s) falling within		Number of oustees				
		Land (only)	Homestead (only)	Land and Homestead (both)		
Mining Lease 1.						
Township Site 1.						
d	Whether R&R package has been finalized? If yes, salient features of R&R plan for oustees.			**Not Applicable**		
i	Site details where the people are proposed to be resettled & facilities existing / to be created.					
ii	Funds earmarked for compensation package					
iii	Agency /Authority responsible for their resettlement.					
iv	Time of commencement of resettlement of Project Affected People (PAP).					
v	Period by which resettlement of PAP will be over.					
39	**Lease -wise plantation details**					
a	Lease area (in ha.)			Existing	Proposed	
	i. Area broken up			--	-	
	ii. To be broken up			-	-	
	iii. Area not to be broken-up			-	-	
b	Township area (in ha.)			-		
c	Area afforested and proposed (in ha.)			-		
		Peripheral	Dumps	Roads	Township	Others
i	Existing					
ii	Proposed					
d	No. and type of trees planted and proposed					
i	Existing			--		
	When plantation was started?			Month / Year		
No. of plant species planted				Number saplings (per ha.)		
--				-		
Survival rate %				Avg. height		
ii	Proposed					
	No. of plant species to be planted			**Number of saplings (per ha.)**		
	-			**445**		
40	**Environmental health and safety**					
a	What major health and safety hazards are anticipated?			Refer Chapter VII		
	What provisions have been made/proposed to be made to conform to health and safety requirements?			As per Mines Act/ Rules		
	In case of an existing mine					

i	Comprehensive report on health status of the workers as under the Mines Act annexed	As per Mines Act/ Rules
ii	Mineralogical composition of RPM (dust)	
	• Free silica	Not applicable
	• Chromium* (Total as well as Hexavalent)	Not applicable
	• Lead** [* Only for Chromite mines] [**Only for Base Metal mines]	Not applicable
	Information on radiation protection measures, if applicable	Not applicable

41. Environmental Management Plan

Salient features of environmental protection measures

S. No.	Environmental issues*	Already practiced, if applicable	Proposed
1	Air pollution	-	Regular water sprinkling, Wet drilling, plantation
2	Water pollution	-	Retaining wall around dump, Garland drain, settling tank
3.	Water conservation	-	General awareness,
4.	Noise pollution	-	Preventive maintenance of machines, use of earplugs.
5.	Solid waste / Tailings	-	Not applicable
6.	Land degradation	-	Reclamation and rehabilitation by afforestation and conversion into water reservoir.
7.	Erosion & Sediment	-	Not applicable
8.	Top soil	-	Used for topping of backfilled area.
9.	Ground vibration	-	Controlled Blasting
10.	Wildlife conservation	-	Not applicable
11.	Forest protection	-	Not applicable
12.	Others (specify)	-	Social training and general awareness

[* As applicable]

42	**Compliance with environmental safeguards** (For existing units)	**Yes**	**No**
	Status of the compliance of conditions of Environmental clearance issued by MoEF, if any, enclosed.	-	√
	Status of the compliance of 'Consent to Operate' issued by SPCB, if any, enclosed.	-	√
	Latest 'environmental statement' enclosed.	-	√

43	**Scoping of EIA**	**Attached as Annexure-X**
	Whether environmental impact assessment of the project has been carried out by following scoping process?	Yes
	If yes, a copy of scoping of EIA annexed.	Details are given in Chapter I
44	**Mine closure**	
a	Have you planned mine closure?	No
b	Submitted a conceptual mine closure plan.	No
c	If yes, indicate estimated amount for implementing the same (in Rs. lakhs)	No
45	**Capital cost of the project (in Rs. Lakh) (Based on latest estimate)**	**Rs 5.45 Lakh**

46. Cost of environmental protection measures (in Rs. Lakh)

Sl. No	Description	Capital Cost (lakh)	Recurring Cost (lakh)
1	Pollution Control & Dust Suppression	**Nil**	**2.0**
2	Pollution Monitoring i) Air pollution ii) Water pollution iii) Soil Pollution iv) Noise Pollution	--	2.0
3	Plantation and salary for one gardener (parttime basis).	4.45	0.5
4	Haul road Maintenance Cost	1.0	1.5
TOTAL		**5.45**	**6.0**

47	**Amount earmarked for socio-economic welfare, measures for the nearby villages other than R&R plans.**	**Rs. 16,98,950/-**
48	**Public Hearing**	
a	Date of Advertisement in Newspapers	04/07/2023
b	Name Of Newspaper	• Dainik Samachar • Hindustan Times
c	Date of Public Hearing Venue	05/08/2023 at 11:45 A.M. Tehsil Office, Bodh Gaya, District–Gaya
d	Public Hearing Panel chaired by members present	Shri Anjani Kumar Additional District Magistrate, Gaya District-Gaya
e	No. of people attended the public hearing meeting	Around 44
f	Summary/details of public hearing in tabular form	Given in Chapter 7 of EIA report

49	**Whether the following approvals* (wherever applicable) have been obtained?**	**YES**	**NO**
a	Site clearance from MoEF	-	√
b	Consent for Establishment' from the State Pollution Control Board	-	√
c	NOC from Atomic Mineral Division	-	√
d	Mining plan approval from IBM / Ministry of Coal	√	-
e	In case of existing mines, mining scheme approval from IBM	-	√
f	Forestry clearance under FCA, 1980	-	√
g	NOC from Chief Controller of Explosives	-	√
h	Commitment regarding availability / pumping of water from the concerned Authorities	-	√
i	In case of ML area falling in notified areas of the Central Ground Water Authority, NOC from them.	-	√
[* Annex copies of approvals and number them]			
50	**Was / is there any court case relating to the project or related activities? If so, provide**	No	

Verification: the data and information given in the Performa are true to the best of my knowledge and belief.

Date:

Place:

(Authorized Signatory)
M/s Maa Durga Fule Station
Proponent- Mr. Akhilesh Kumar
R/o. – Village Pathra English, P.O. - Odhanpur, P.S. - Nawada,
Dist. - Nawada, Pin code- 805123

ANNEXURE IX

ACCREDIATION LETTER OF CONSULTANT

भारतीय गुणवत्ता परिषद्
QUALITY COUNCIL OF INDIA
QCI Creating an Ecosystem for Quality

NABET

National Accreditation Board for Education and Training

Certificate of Accreditation

Cognizance Research India Pvt. Ltd., Noida

B-02, H-61, H BLOCK, Sector 63, Noida, Gautam Buddha Nagar, Uttar Pradesh – 201301

*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 and underground mining	1	1 (a) (i)	A
2.	Mineral beneficiation	7	2 (b)	A
3.	Building and construction projects	38	8 (a)	B
4.	Townships and area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated January 12, 2024 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/24/3116 dated Jan 19, 2024. The accreditation needs to be renewed before the expiry date by Cognizance Research India Private Limited, Noida following due process of assessment.

Issue Date
Jan 19, 2024

Valid up to
Sept 09, 2026

Mr. Ajay Kumar Jha
Sr. Director, NABET

Certificate No.
NABET/EIA/23-26/RA 0317

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.