



राज्य स्तरीय पर्यावरण समाघात निर्धारण प्राधिकरण, झारखण्ड

State Level Environment Impact Assessment Authority, Jharkhand

पौधशाला परिसर, धुर्वा, बस स्टैण्ड, के समीप, पो0+थाना-धुर्वा, राँची झारखण्ड 834004

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सत्यमेव जयते

पत्रांक:- 10

दिनांक:- 02.04.2023

प्रेषक:

सदस्य सचिव,
राज्य स्तरीय पर्यावरण समाघात निर्धारण
प्राधिकरण (SEIAA), झारखण्ड।

सेवा में,

उपायुक्त,
जिला : पूर्वी सिंहभूम।

विषय : पूर्वी सिंहभूम जिला का बालू खनिज से संबंधित DSR के अनुमोदन के संबंध में।

प्रसंग : आपका कार्यालय का पत्रांक-181/खनन, दि0-23.02.2023।

महाशय,

उपर्युक्त विषयक आपके कार्यालय के प्रासंगिक पत्र दिनांक 23.02.2023 द्वारा पूर्वी सिंहभूम जिला का बालू खनिज से संबंधित DSR की एक प्रति अनुमोदन हेतु दिनांक 02.03.2023 को SEIAA कार्यालय में समर्पित किया गया।

तदनुसार SEAC, झारखण्ड की 102वीं बैठक दिनांक 21.03.2023 से दिनांक 25.03.2023 में Sri Sanjay Kumar Sharma, DMO, East Singhbhum and Shri Karun Kumar Chandan, Assistant Director, Geology, East Singhbhum की उपस्थिति में M/s Atmos Sustainable Solution Pvt. Ltd., Noida, U.P. consultant द्वारा दिनांक 21.03.2023 में SEAC के समक्ष Presentation दिया गया जिसमें DSR के Salient Features निम्नवत् बताये गये :-

1. The final DSR submitted is duly signed by all members of the Sub Divisional Committee and the Consultant. All the pages of the DSR are signed by the authorized officer of the Sub Divisional Committee.
2. The final DSR consists of the complete potential area and is demarcated as Potential Resource Area (PRA) / Sand Leases / Ghats as per Enforcement and Monitoring Guidelines for Sand Mining (EMGSM), 2020.
3. The replenishment study of pre & post monsoon period is included in final DSR.
4. The final DSR has been placed in the public domain for 01 (One) month from the 26.12.2022. As per the Sub Divisional Committee no comments / observations were obtained.
5. Demand and supply of the river bed material has been provided. The future demand for next 05 years is included in the final DSR.
6. The PRA / Sand Leases / Ghats have not been proposed on the confluence / meanders / concavities / active channels of the river.

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7. Khata & Khasra numbers of the lease area certified by the concerned Circle Officer (CO) are incorporated in the final DSR.
8. The distance of PRA / Sand Leases / Ghats from the Forest / Wildlife Protected area / Birds Sanctuary/ Wildlife Sanctuary / National Park / Eco Sensitive Zone has been verified and certified by the concerned DFOs of the respective Territorial and Wildlife division.
9. A report detailing the presence of aquatic animal in the river in proximity of the proposed PRA / Sand Leases / Ghats is included in the final DSR.
10. The proposed PRA / Sand Leases / Ghats meet the siting criteria of State Pollution Control Board / SEIAA.
11. High resolution color satellite images of the proposed potential sand mining areas are included in final DSR.
12. Bulk density and specific gravity of sand sample data has been provided by NABL accredited laboratory.
13. Cluster and contiguous cluster formation as per EMGSM guidelines, 2020 has been included in the Annexures.
14. Mining is restricted to 3/4th of the river width and 60% of the mineable reserve.
15. Transportation routes for movement of sand are provided in the final DSR.
16. All the annexures as per EMGSM guidelines, 2020 are included in the final DSR.
17. An undertaking with reference to Point no. 9.3 of the EMGSM guidelines, 2020 regarding monitoring of mining near inter-district or inter-state boundary has been provided.
18. The representative of the Sub Divisional Committee along with the Consultants have affirmed that all the guidelines of EMGSM guidelines, 2020 / Hon'ble Apex Court in Civil Appeal no. 3661-3662/2020, Pawan Kumar vs State of Bihar & ors, Hon'ble NGT in O.A. no. 54/2022/EZ, Bhumi Adhigrahan Visthapan Avam Punarvas Kisan Samiti vs State of Jharkhand & ors have been followed in preparation of the final DSR.

SEAC द्वारा उपरोक्त तथ्यों के आलोक में सर्वसम्मति से आपके द्वारा समर्पित DSR को अनुमोदन हेतु SEIAA को अपनी अनुशंसा भेजी गयी।

SEAC की DSR East Singhbhum को अनुमोदन हेतु भेजी गयी अनुशंसा के आलोक में SEIAA, झारखण्ड की 103वीं बैठक दिनांक 01.04.2023 एवं दिनांक 02.04.2023 में विचार किया गया।

विचारोपरांत SEAC द्वारा की गयी अनुशंसा के आलोक में SEIAA द्वारा सर्वसम्मति से पूर्वी सिंहभूम जिला का बालू खनिज से संबंधित DSR का अनुमोदन किया गया।

पूर्वी सिंहभूम जिला का बालू खनिज से संबंधित अनुमोदित DSR की एक मूल प्रति अत्र-सह-संलग्न कर आपको अग्रेतर कार्रवाई हेतु भेजी जा रही है।

अनु० यथोक्त।

विश्वासभाजन,

सदस्य सचिव,

राज्य स्तरीय पर्यावरण समाघात निर्धारण
प्राधिकरण (SEIAA), झारखण्ड।



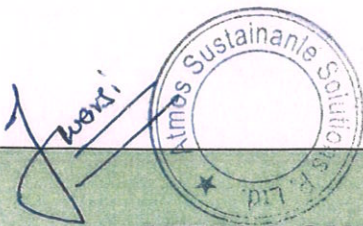
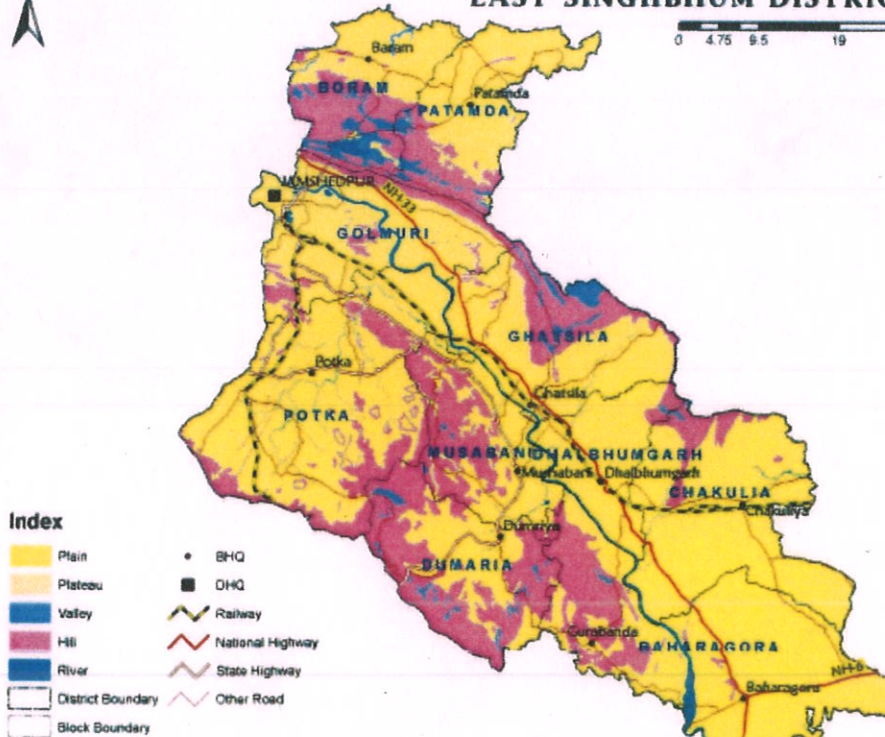
DISTRICT SURVEY REPORT OF RIVER BED SAND MINING WITH POTENTIAL AREA FOR EAST SINGHBHUM DISTRICT, JHARKHAND

As per Notification No. S.O.141 (E) New Delhi Dated 15th of January 2016, S.O.3611 (E) New Delhi Dated 25th of July 2018, Sustainable Sand Mining Guidelines, 2016 and Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) January 2020, Issued by Ministry of Environment, Forest and Climate Change (MoEF & CC)



TOPOGRAPHICAL MAP
EAST SINGHBHUM DISTRICT, JHARKHAND

0 4.75 9.5 19 28.5 38 Km



PREPARED BY

ATMOS SUSTAINABLE SOLUTION PVT. LTD.

A-73, 3rd Floor, Sector-65, Noida, Uttar Pradesh-201301

QCI NABET Accreditation No.-NABET/EIA/2023/IA0063

CERTIFICATE

The District Survey Report (DSR), East Singhbhum for sand mineral has been prepared in accordance with guideline issued by the Ministry of Environment, Forest & Climate Change (MoEF&CC), Government of India vide the notification S.O. 141(E) Dated 15th January, 2016 and the amended notification S.O. 3611(E) Dated 25th July, 2018.

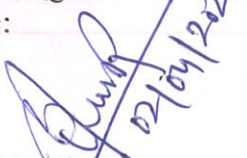
This DSR for sand mineral which is a compendium of available mineral resources, geographical set up, environmental and ecological condition of the district and is based on survey made on the seriate sources of the different tehsils of the District and data various departments like Geology & Mining, Forests, Irrigation, Agriculture, Horticulture, Health Departments; published reports & websites. The DSR report of sand will be web hosted for one month in East Singhbhum District to invite any comments from the public.

It will no doubt, form the basis for application for environmental clearance, preparation of reports and appraisal of projects. The SEIAA and SEAC will scrutinize the applications and recommended for environmental clearance of mining of minor minerals(sand) on the basis of this District Survey Report. As per guideline the Report will be updated once in every five years.




Reviewed By:


Deputy Commissioner
East Singhbhum
Date:


Member

State Level Environment Impact
Assessment Authority, Jharkhand

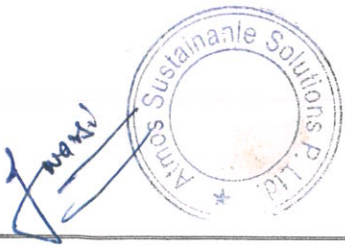
Approved By:


Member Secretary
State Level Environment Impact
Assessment Authority, Ranchi,
Jharkhand


Chairman
State Level Environment Impact
Assessment Authority, Jharkhand

**SUB-DIVISIONAL COMMITTEE COMPRISING
UNDER THE GUIDELINE OF MOEF & CC, NEW DELHI, 25TH JULY 2018**

Minor Irrigation Department East Singhbhum	<i>Panna</i>
State Pollution Control Board or Regional officer	<i>Jhgg</i>
Assistant Director, Geology East Singhbhum	<i>schandan</i>
District Mining Officer East Singhbhum	<i>Jad</i> District mining officer, East Singhbhum.
Divisional Forest Officer East Singhbhum	<i>Mantra</i>
Sub-Divisional Magistrate East Singhbhum	<i>[Signature]</i>
Deputy Commissioner East Singhbhum	<i>[Signature]</i>

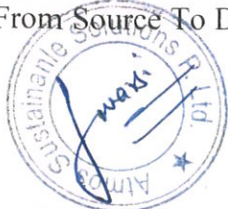


PREFACE

The purpose and structure of District Survey Report has been discretely discussed under Para 7(iii) (a) and Annexure (x) of the notification issued by Ministry of Environment, Forest and Climate Change, Government of India on 15th January 2016 to which the Central Government makes the amendments by Notification dated 25 July 2018. The District Survey Report (DSR) is to be prepared in every district for each minor mineral. It will guide systematic and scientific utilization of natural resources, so that present and future generation may be benefitted at large. The purpose of District Survey Report (DSR) is identification of areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited.

Atmos Sustainable Solutions Pvt. Ltd. In its endeavour to prepare the District Survey Report (DSR) comprising of secondary data published and endorsed by various departments and websites about geology of the area, mineral wealth details, details of lease and mining activity in the district and revenue of mineral along with the primary data collected from ground survey. This report also contains details of climatic conditions, topography and terrain, land form, forest, rivers, soil, agriculture, road, transportation, irrigation etc. The DSR would also help to calculate the Annual Rate of Replenishment Wherever Applicable and Allow Time for Replenishment.

Further, In Pursuance to The Order of Hon'ble Supreme Court Dated The 27th February, 2012 In I.A. No.12- 13 Of 2011 In Special Leave Petition (C) No.19628-19629 Of 2009, In The Matter Of Deepak Kumar Etc. Vs. State Of Haryana And Others Etc., Prior Environmental Clearance Has Now Become Mandatory For Mining Of Minor Minerals Irrespective Of The Area Of Mining Lease; And Also In View Of The Hon'ble National Green Tribunal, Order Dated The 13th January, 2015 In The Matter Regarding Sand Mining Has Directed For Making A Policy On Environmental Clearance For Mining Leases In Cluster For Minor Minerals, The Ministry Of Environment, Forest And Climate Change In Consultation With State Governments Has Prepared Guidelines On Sustainable Sand Mining Detailing The Provisions On Environmental Clearance For Cluster, Creation Of District Environment Impact Assessment Authority And Proper Monitoring Of Minor Mineral Mining Using Information Technology And Information Technology Enabled Services To Track The Mined Out Material From Source To Destination.



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OBJECTIVES

The Main objective of the preparation of District Survey Report (as per the Sustainable Sand Mining Guideline) is to ensure the following: -

1. Identification of areas of aggradations or deposition where mining can be allowed
2. Identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining in that area.
3. Identification of mineral wealth in the district.



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3	Copy of Wild Life DFO
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5	No Mining Zone Map of Sand Ghat
6	Route Map of Sand Ghat
7	Copy of Zoological Survey of India (ZSI) Letter
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12	Individual toposheet map of Survey of India
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15	Replenishment study of Pre-Monsson and Post Monsson study report
16	Test Report of sand from NABL Accredited agency
17	Copy of Work Order
18	Minutes of SEAC Ranchi
19	Copy of certificate of Accreditation (NABET)

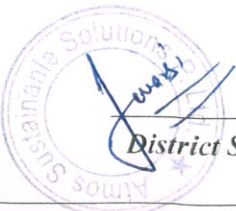


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**DISTRICT SURVEY REPORT OF EAST SINGHBHUM DISTRICT
FOR
SAND MINING OR RIVER BED MINING**

Prepared Under:

- Appendix –X of MoEF&CC, GoI Notification S.O. 141(E) dated 15.1.2016
- Sustainable Sand Mining GuidelineS
- MoEFCC, GoI Notification S.O. 3611(E) dated 25.07.2018
- Sand Mining Framework -2018
- Enforcement & Monitoring Guidelines for Sand Mining by MoEF&CC-2020
- Jharkhand Minor Mineral Concession (Amendment) Rules 2020. The notification stated about the prevention of Illegal mining, transportation and storage of sand and guidelines for mining activity, safety barriers, mining depth and lease.



DISTRICT SURVEY REPORT FOR RIVER BED SAND MINING

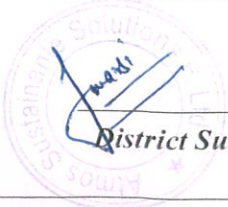
As per the Gazette Notification dated 15th January, 2016 of Ministry of Environment, Forest and Climate Change a joint survey has been carried out by the District Environment Impact Assessment Authority (DEIAA) with the assistance of Irrigation Department, Drainage Department, Forest Department, Mining Department and Revenue Department in the district for preparation of the District Survey Report.

The Ministry of Environment Forest & Climate Change formulated the Sustainable Sand Management Guidelines 2016 which focuses on the Management of Sand Mining in the Country. But in the recent past, it has been observed that apart from management and systematic mining practices there is an urgent need to have a guideline for effective enforcement of regulatory provision and their monitoring.

Section 23 C of MMDR, Act 1957 empowered the State Government to make rules for preventing illegal mining, transportation and storage of minerals. But in the recent past, it has been observed that there was large number of illegal mining cases in the Country and in some cases, many of the officers lost their lives while executing their duties for curbing illegal mining incidence. The illegal and uncontrolled illegal mining leads to loss of revenue to the State and degradation of the environment.

India is developing at a faster pace and much technological advancement has already been taken place in the surveillance and remote monitoring in the field of mining. Thus, it is prudent to utilize the technological advancement for the effective monitoring of the mining activities particularly sand mining in the country.

Use of latest remote surveillance and IT services helps in effective monitoring of the sand mining activity in-country and also assist the government in controlling the illegal mining activity in the country. Thus, there is a need for an effective policy for monitoring of sand mining in the Country which can be enforced on the ground. These guidelines focus on the effective monitoring of the sand mining since from the identification of sand mineral sources to its dispatch and end-use by consumers and the general public. Further, the effective monitoring and enforcement require efforts from not only Government agencies but also by consumers and the general public.



It is the responsibility of every citizen of India to protect the environment and effective monitoring can only be possible when all the stakeholders' viz. Central Government, State Government, Leaseholders/Mine Owners, Distributors, Dealers, Transporters and Consumers (bulk & retail) will contribute towards sustainable mining, and comply with all the statutory provisions. It is felt necessary to identify the minimum requirements across all geographical regions to have a uniform protocol for monitoring and enforcement of regulatory provision prescribed for sustainable sand and gravel mining.

This document will serve as a guideline for collection of critical information for enforcement of the regulatory provision(s) and also highlights the essential infrastructural requirements necessary for effective monitoring for Sustainable Sand Mining.

The document is prepared in consideration of various orders/directions issued by Hon'ble NGT in matters pertaining to illegal sand mining and also based on the reports submitted by expert committees and investigation teams.

Further, this document is supplemental to the existing "Sustainable Sand Mining Management Guideline-2016" (SSMG-2016), and these two guidelines viz. "Enforcement & Monitoring Guidelines for Sand Mining" (EMGSM-2020) and SSMG-2016 shall be read and implemented in sync with each other. In case, any ambiguity or variation between the provisions of both these document arises, the provision made in "Enforcement & Monitoring Guidelines for Sand Mining-2020" shall prevail.



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CHAPTER -01 INTRODUCTION

1.1 Location and Geographical Area:

East Singhbhum district has a leading position in respect of mining and other industrial activities in Jharkhand. Jamshedpur, a leading industrial city of India, is the district headquarters. The district is situated at the southeast corner. It has been formed after isolating nine block from old Singhbhum on 16th January 1990. Legendry it is said that in the past large number of lions were found in this area. Subsequently this geographical area has been named as Singhbhum "Land of Lions". Before Independence the same area of this district was a part of old Manbhum District and Old Dhalbhum Estate. After independence it has been merged with the Greater Singhbhum.

Occupying an area of 3533 sq. km and located in the Chotanagpur Plateau in Jharkhand, the district encompasses 86° 04' and 86° 54' East Longitudes and 22°12'and 23 °01' North latitudes. It falls under Survey of India Topo Sheet No. 73 J/01-03, J/05-12, and J/14-16.

The district is bounded on the east by Midnapore district, on the north by Purulia district, both of West Bengal, on the west by West Singhbhum district of Jharkhand state, and on the south by Mayurbhanj district of Odisha.

1.2 Administrative Setup:

The district headquarter is at Jamshedpur. From the administrative point of view this district has been divided into 2 Sub-Division

- Dhalbhum
- Ghatshila

The district comprises of 11 blocks, 231 Gram Panchayat and 1785 villages. It has 11 developed blocks namely;

1. Patamda
2. Jamshedpur
3. Potka
4. Ghatshila
5. Musabani
6. Chakulia
7. Dalhumgarh
8. Baharagora
9. Dumaria
10. Boram

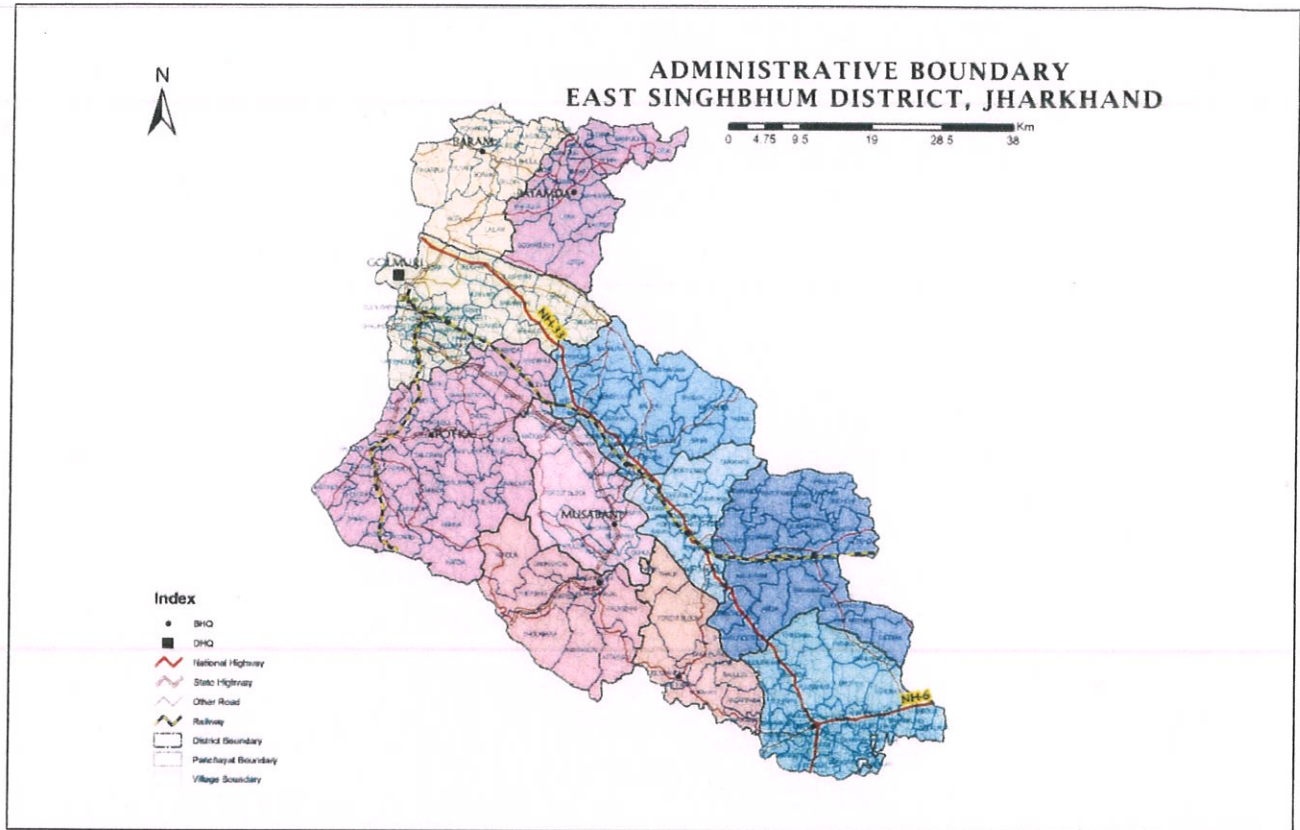


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11. Golmuri

Fig. 1.1 Administrative Map of the district



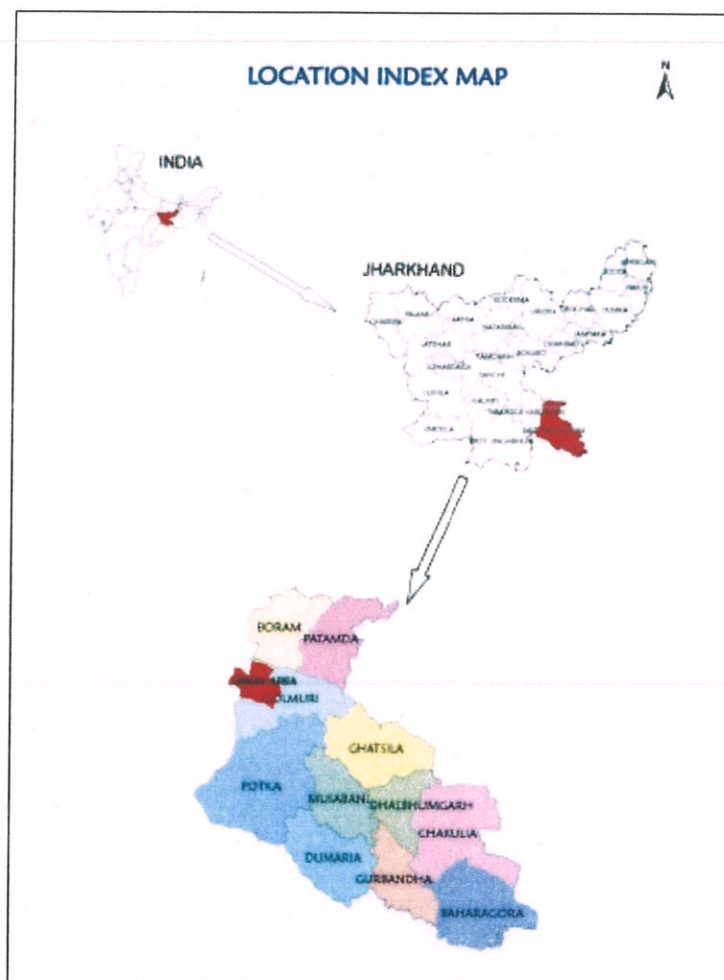
Source: *Jharkhand Space Application Centre*

Demographics:

Purbi Singhbhum District, with population of about 22.9 lakh is the 4th most populous district. Total geographical area of district is 3562 km² and it is the 11th biggest district. Population density of the district is 644 persons per km². The district is home to about 22.9 lakh people, among them about 11.8 lakh (51%) are male and about 11.2 lakh (49%) are female. 67% of the whole population are from general caste, 5% are from schedule caste and 29% are schedule tribes.

As per census of 2011, the total population of the district was 2293919 persons. The total urban population is 1274591 persons whereas the total rural population is 1019328 persons. Population of the district has increased by 15.7% in last 10 years. In 2001 census total population here were about 19.8 lakh. As of 2011 census there are 949 females per 1000 male in the district. Sex ratio in general caste is 923, in schedule caste is 984 and in schedule tribe is 1006.



Fig. 1.2 Location Index Map**Topography and Climate:**

About 53% of the total area of the district is covered by residual mountains and hills consisting granite, gneiss, schist and basalt rocks. Generally, the height of the district is 213 m to 945 m above sea level. The district has large variation in slope and has remarkably unique geological history. From Beharagora in the South East up to East of Jamshedpur a major thrust zone is present which further enters in to Saraikela Kharsawan district. The shear zone separates a northern terrain of highly metamorphosed rocks and southern terrain of relatively less metamorphosed rocks.

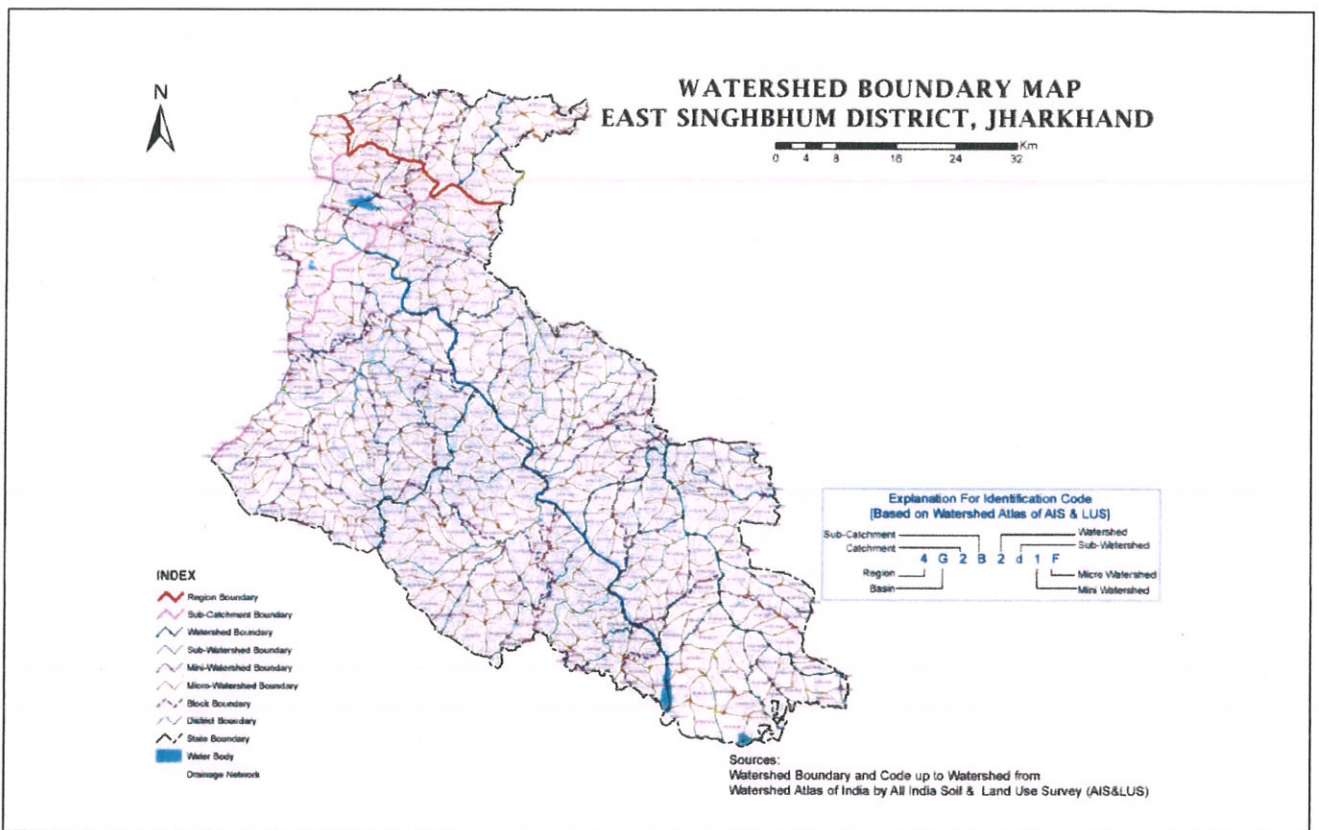
Red gravelly soil is found in Chakulia block and parts of Bahragor blocks. Red sandy soil is observed in Mosabani, Parts of Jamshedpur and Dumaria blocks. Red loamy soil is found in parts of Bahragora, Dhalbhumgarh and Jamshedpur Sadar blocks. Red and Yellow soil is found in Patamda and Potka blocks. Lateritic soil is found in small patch of Bahragora block. The climate of this region may be considered as extreme, being intensely hot in summer and moderately cold in winter. The climate of the area is also characterized by a hot dry summer and well-distributed rains in the monsoon season. Annual rainfall is 1200 mm to 1400 mm.

This area comes under the path of south-west monsoon so sometimes it receives heavy rain during July to September. During the summer season's maximum temperature goes up 40°C - 45°C whereas in winter it has recorded a minimum of 8° C.

Drainage:

The Subernarekha River flows from west to south-east direction. All the tributaries of this area meet with the river. Drainage pattern is dendritic in nature. Drainage of Patamda blocks do not meet in Subranrekha River. Kharkai River meets the river at Sonari near Jamshedpur. Major tributaries which meet the River from west to east are Sapnaranadi, Garranadi, Dudhnadi, Chakdahanadi.

Fig. 1.3 Watershed Boundary Map of the District



Source: Jharkhand Space Application Centre

1.3 Connectivity:

East Singhbhum is well connected to the rest of the state in India by rail and road connections.

The district is bounded on the east by Midnapore district, on the north by Purulia district, both of West Bengal, on the west by West Singhbhum district of Jharkhand state

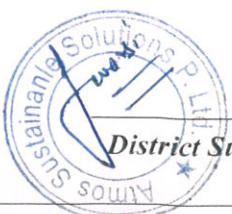
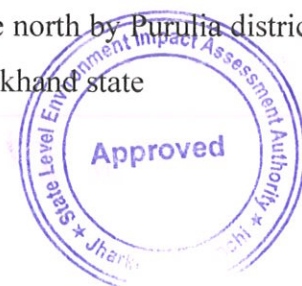
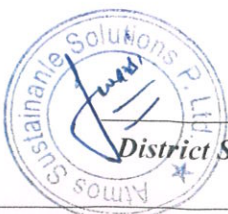




Fig. 1.4 Road map of East Singhbhum District

Source: www.mapsofindia.com



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1.5 Railway map of East Singhbhum District

Source: www.mapofindia.com



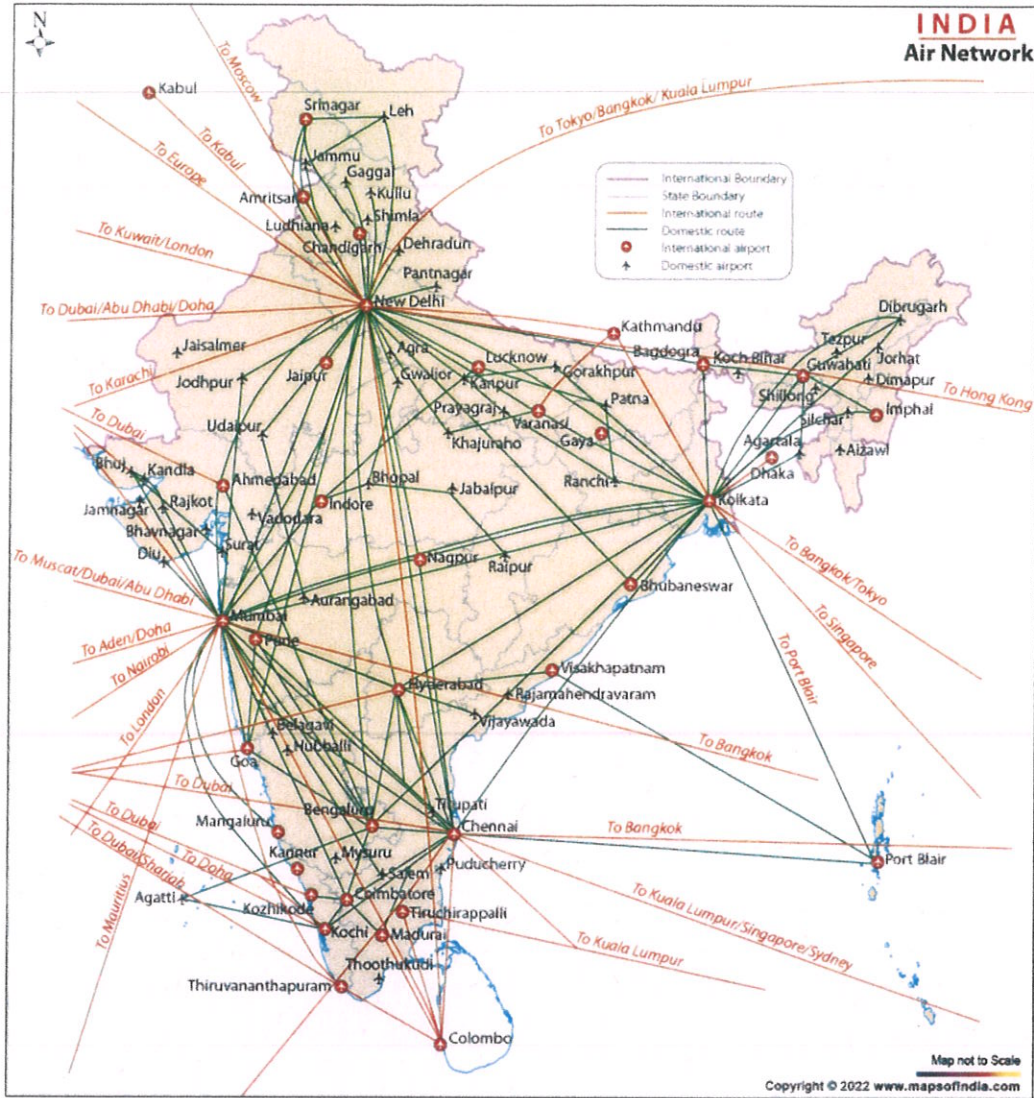


Fig. 1.6 Air Network of India

Source: www.mapsofindia.com



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CHAPTER- 02

OVERVIEW OF MINING ACTIVITY IN THE DISTRICT

General Information:

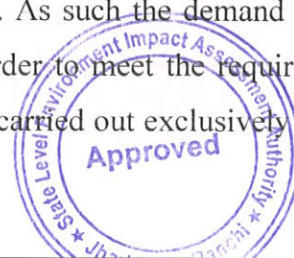
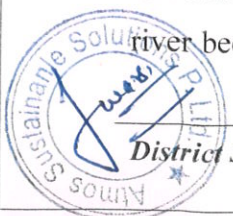
Purbi Singhbhum district is situated at the southeast corner of Jharkhand. It has been formed after isolating nine block from old Singhbhum on 16th January 1990. From the industrial growth and mining quarrying point of view this district has leading position in Jharkhand. Before independence the entire area of Purbi Singhbhum district was part of old Manbhum district and old Dhalbhum estate. After independence it has been merged with greater Singhbhum. The total geographical area of district is about 3533 Sq. kms, which is about 2.03% of the whole state. About 53% of the total area of district is covered by residual mountains and hills consisting of granite, gneiss, schist. It is a part of Chhotanagpur plateau. The Dalma range extends from west to east covered by dense forest on the northern side. The Subernarekha river flows from west to south-east direction. The district is rich in minerals and these are found abundantly.

Approach to Sand Mining:

River sand mining is a common practice as habitation concentrates along the rivers and the mining locations are preferred near the markets or along the transportation route, for reducing the transportation cost. River sand mining can damage private and public properties as well as aquatic habitats. Excessive removal of sand may significantly distort the natural equilibrium of a stream channel.

Mainly three types of minor minerals constituents such as sand, stone and Bajri are required for any type of construction apart from other material like cement and steel.

In earlier times, the houses/buildings were constructed in form of small dwellings with walls made up of mud plaster, stone and interlocking provided with wooden frames and there were negligible commercial as well as developmental activities resulting in less demand of building material. However with the passage of time, new vistas of developmental activities were started. The quantity of minor minerals consumption in a particular area is a thermometer to assess the development of the area. Thus with the pace of development activities, the consumption of minor minerals also increased. As such the demand of minor minerals in the district has started an increasing trend. In order to meet the requirement of raw material for construction, the extraction of sand is being carried out exclusively from the river beds.



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Main Objectives of Sustainable Sand Mining:

- To ensure that sand and gravel mining is done in environmentally sustainable and socially responsible manner.
- To ensure availability of adequate quantity of aggregate in sustainable manner.
- To improve the effectiveness of monitoring of mining and transportation of mined out material.
- Ensure conservation of the river equilibrium and its natural environment by protection and restoration of the ecological system.
- Avoid aggradations at the downstream reach especially those with hydraulic structures such as jetties, water intakes etc.
- Ensure that the rivers are protected from bank and bed erosion beyond its stable profile.
- No obstruction to the river flow, water transport and restoring the riparian rights and in stream habitats.
- Avoid pollution of river water leading to water quality deterioration.
- To prevent depletion of ground water reserves due to excessive draining out of ground water.
- To prevent ground water pollution by prohibiting sand mining on fissures where it works as filter prior to ground water recharge.
- To maintain the river equilibrium with the application of sediment transport principles in determining the locations, period and quantity to be extracted.
- Streamlining and simplifying the process for grant of environmental clearance (EC) for sustainable mining.



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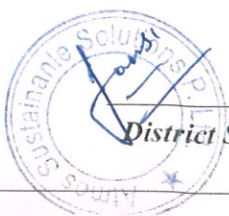
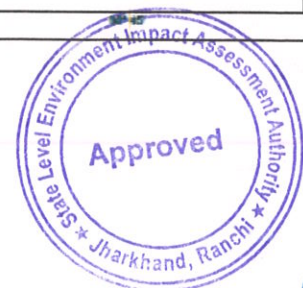
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Fig. 2.1 Drainage Map of East Singhbhum

Source: www.cgwb.com

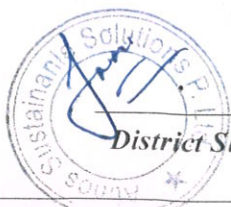


CHAPTER- 03 GENERAL PROFILE OF THE DISTRICT

East Singhbhum district is situated at the southeast corner of Jharkhand. It has been formed after isolating nine blocks from old Singhbhum on 16th January 1990. From the industrial growth and mining quarrying point of view this district has leading position in Jharkhand. Legendily it is said that in the past large number of lions were found in this area. Subsequently this geographical area has been named as Singhbhum "Land of Lions". Before independence the same area of this district was a part of old Manbhum District and Old Dhalbhum Estate. After independence it has been merged with the Greater Singhbhum. Before independence the entire area of East Singhbhum district was part of old Manbhum district and old Dhalbhum estate. After independence it has been merged with greater Singhbhum. The district encompasses $86^{\circ} 04'$ and $86^{\circ} 54'$ East Longitudes and $22^{\circ}12'$ and $23^{\circ} 01'$ North latitudes. It falls under survey of India toposheet No. 73 J/01-03, J/05-12, J/14-16. The total geographical area of district is about 3533 Sq. kms, which is about 2.03% of the whole state. About 53% of the total area of district is covered by residual mountains and hills consisting of granite, gneiss, schist. It is a part of Chhotanagpur plateau. The Dalma range extends from west to east covered by dense forest on the northern side. The Subernarekha river flows from west to south-east direction. The district is rich in minerals and these are found abundantly. From the administrative point of view this district has been divided into two Sub-Division Dhalbhum and Ghatshila. The district consists of eleven blocks namely Golmuri-cum-Jugsalai (Jamshedpur), Potka, Patamda and Boram in Dhalbhum Sub-Division and Ghatshila, Musabani, Dumaria, Baharagora, Dhalbhumgarh, Chakulia and Gurabandha in Ghatshila Sub-Division. There are 231 Panchayat and about 1810 revenue villages out of which 1669 Revenue Villages are inhabited and rest 141 Revenue villages are uninhabited. The Head Quarter of this district is Jamshedpur.

The Climate of the district is temperate. Annual rainfall is 1200 mm to 1400 mm. This area comes under the path of south-west monsoon so sometimes it receives heavy rain during July to September, During the summer season maximum temperature goes up to 40-45 degree centigrade whereas in winter it has recorded a minimum 8 degree centigrade. The district is rich in minerals and is found abundantly. Iron Ore, Copper, Uranium, Gold Kynite are the main minerals.

A location map of East Singhbhum District is furnished as Figure No. 34



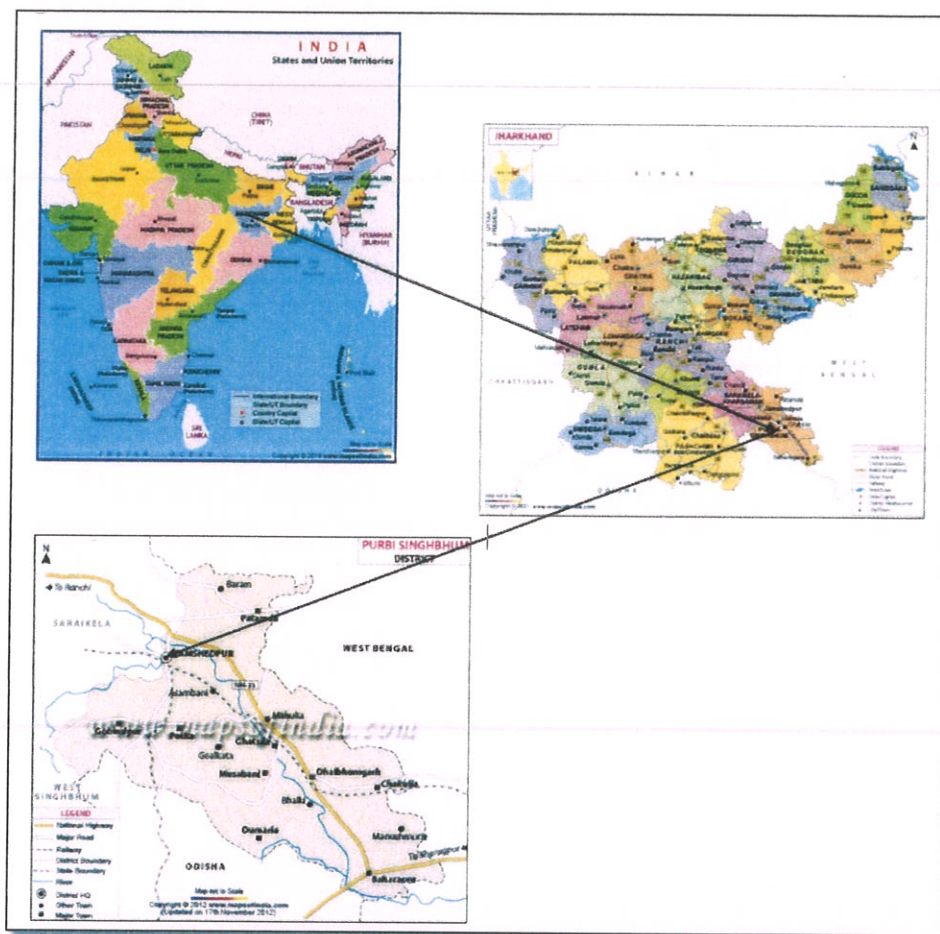


Fig. 3.1 Location map of East Singhbhum district, Jharkhand



Fig. 3.2 Block map of East Singhbhum District, Jharkhand



a) Climate Condition

The climate of this region may be considered as extreme, being intensely hot in summer and moderately cold in winter. The climate of the area is also characterized by a hot dry summer and well-distributed rains in the monsoon season. The cold season commences from December and lasts till the end of February. The hot season follows thereafter and continues till about the third week of June. The southwest monsoon season is from the middle/end of June to the end of September. The Climate of the district is temperate. Annual rainfall is 1200 mm to 1400 mm. This area comes under the path of south-west monsoon so sometimes it receives heavy rain during July to September. During the summer seasons maximum temperature goes up 40^oC - 45^oC whereas in winter it has recorded a minimum of 8^oC.

Details of rainfall data of five years (from 2016 to 2020) is furnished in Table No3.1.

Table No. 3.1: Details of rainfall data of five years (from 2016 to 2020)

YEAR	JAN		FEB		MAR		APR		MAY		JUN		JUL	
	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP
2016	24.6	67	6.8	-63	4.9	-76	2.7	-92	108.0	71	179.2	-21	354.9	21
2017	0.0	-100	0.0	-100	15.1	-27	17.8	-44	393.2	521	131.4	-42	682.3	132
2018	0.0	-100	1.8	-90	2.9	-86	171.1	436	88.9	40	173.5	-23	419.8	43
2019	0.0	-100	63.7	268	48.9	162	106.9	217	130.7	66	134.3	-45	297.4	-1
2020	36.4	214	9.6	-44	82.1	339	101.4	201	135.5	72	265.5	9	294.5	-2

JUL		AUG		SEPT		OCT		NOV		DEC	
R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP
354.9	21	845.0	170	502.1	122	28.9	-58	0.0	-100	0.0	-100
682.3	132	467.4	49	277.8	23	151.5	121	10.1	-19	0.1	-98
419.8	43	395.7	27	214.6	-5	62.7	-8	5.5	-56	65.0	1149
297.4	-1	299.9	-5	417.1	85	246.2	237	0.0	-100	13.8	138
294.5	-2	480.7	52	136.5	-39	81.6	12	13.6	31	0.0	-100

SOIL:

Red gravelly soil is found in Chakulia block and parts of Bahragora blocks. Red sandy soil is observed in Mosabani, Parts of Jamshedpur and Dumaria blocks. Red loamy soil is found in parts of Bahragora, Dhalbhumgarh and Jamshedpur sadar blocks. Red and Yellow soil is found in Patamda and Potka blocks. Lateritic soil is found in small

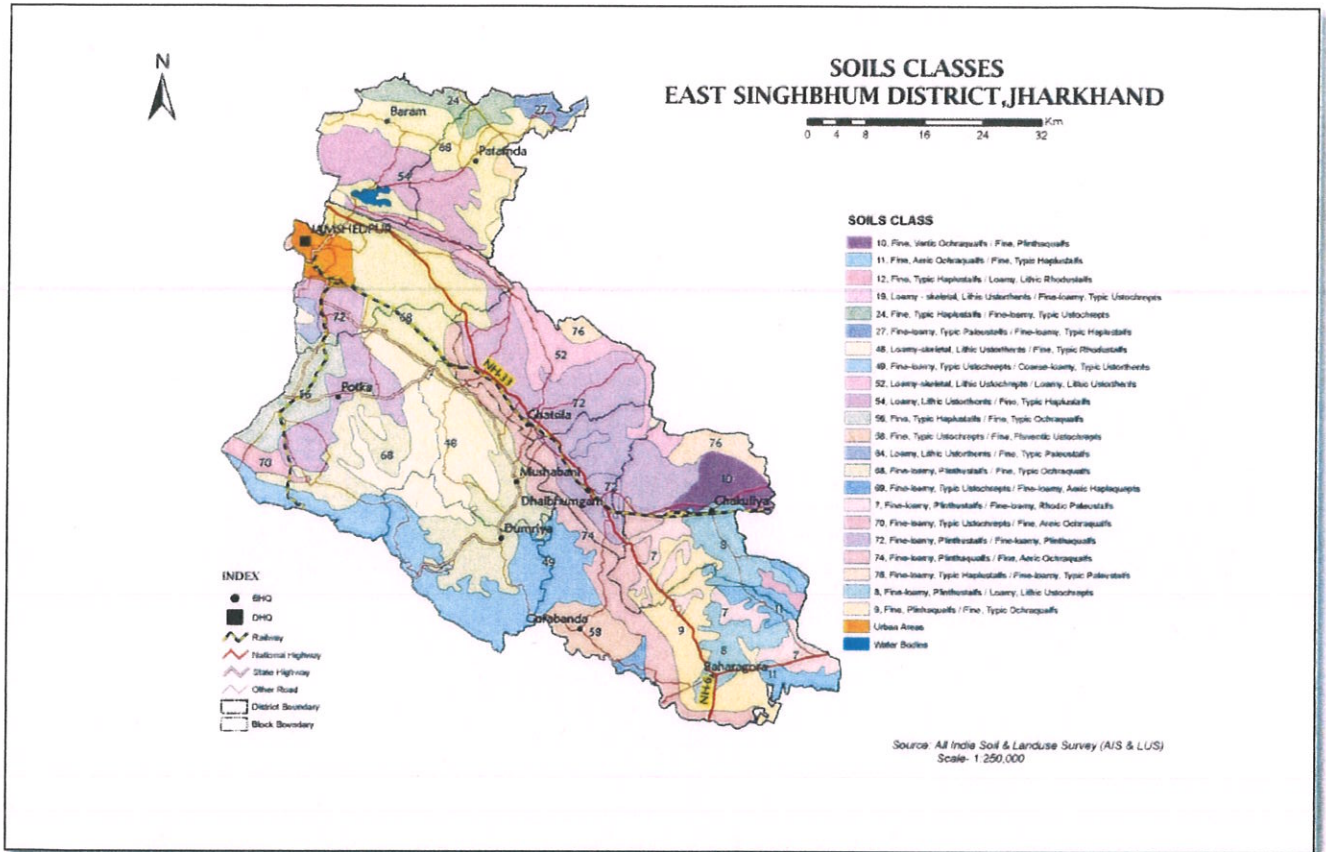


patch of Bahragora block.

Five types of soils are found in the district

1. Red gravelly,
2. Red sandy,
3. Red loamy,
4. Red and Yellow
5. Lateritic soil.

Fig. No. 3.3 Soil classes of East Singhbhum District



DEMOGRAPHY

As per census of 2011, the total population of the district was 2293919 persons. The total urban population is 1274591 persons whereas the total rural population is 1019328 persons.

Table No. 3.2 Demographic Population of the District (Census 2011)

Subject	Information
No. of Sub Divisions	02
No. of Blocks	11
No. of Panchayats	231
No. of Revenue Village	1669
No. of unhabitated village	141
Total No. of village	1810



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Total Area	3533 sq. km.
Total Forest Area	33 %
Longitudinal Extent	86 Degree 04 min – 86 Degree 54 min East
Latitudinal Extent	22 Degree 12 min – 23 Degree 01 min North
Total Population	2291032
Total Male Population	1175696
Total Female Population	1115336
Total Literacy Rate	76.13
Male Literacy Rate	84.51
Female Literacy Rate	67.33
Total Population (0-6 Year)	286322
Child Sex Ratio (0 – 6 years)	922
Child propostion to total population	12.50
Percentage Decadal Growth (2001-2011)	15.53
Sex Ratio	949
Density (persons per sq. km.)	648

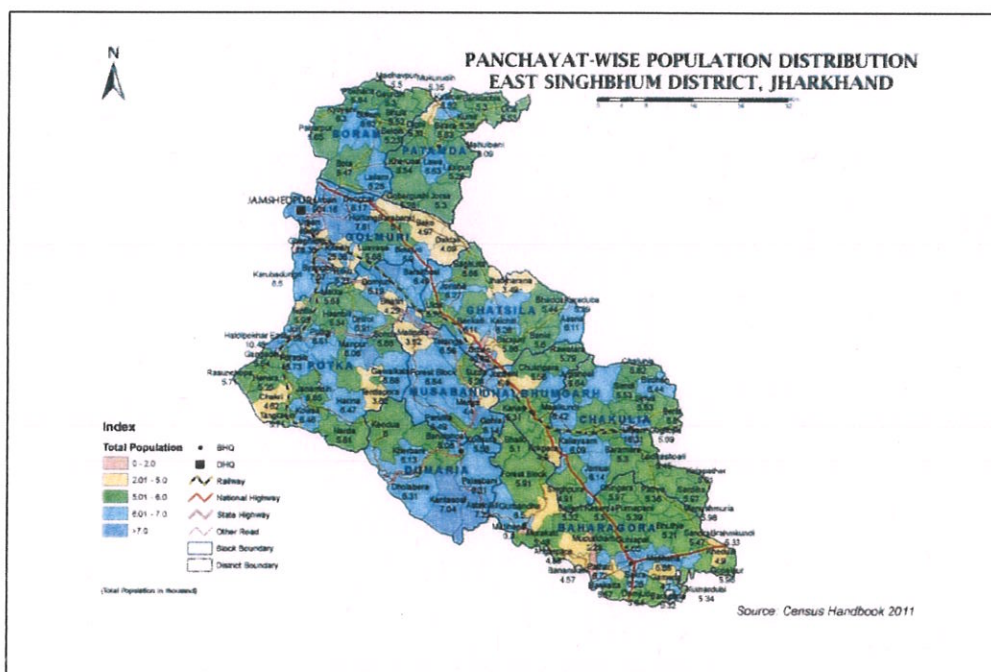


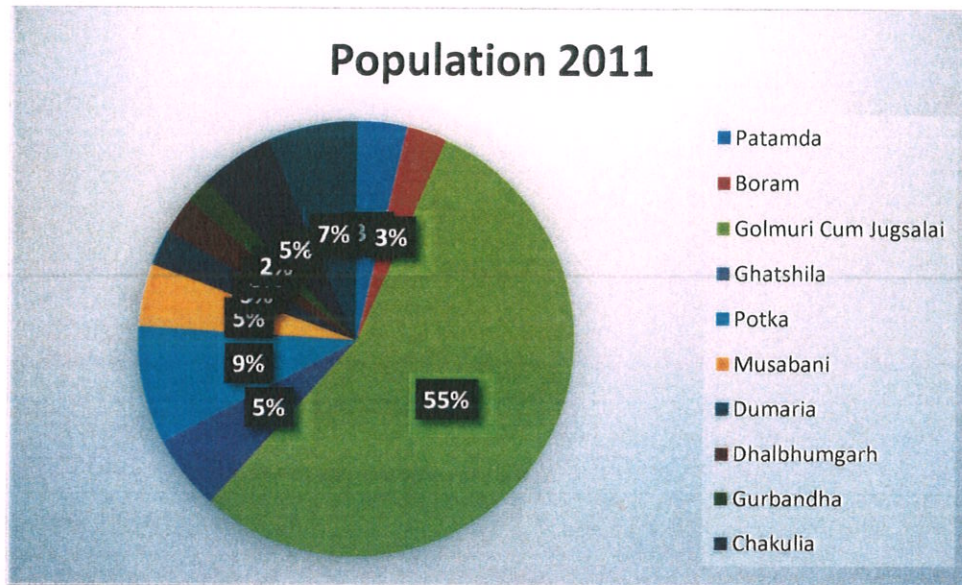
Fig. 3.4 Block wise population of the district

Blocks	Population 2011	Male	Female	Households
Patamda	82,876	41,751	41,125	17,042
Boram	69,013	35,142	33,871	14,030
Golmuri Cum Jugsalai	1,260,201	654,447	605,754	254,985
Ghatshila	129,905	65,918	63,987	28,246
Potka	199,612	99,918	99,694	41,387



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Musabani	107,084	54,256	52,828	22,480
Dumaria	62,128	31,043	31,085	12,457
Dhalbhumgarh	61,932	31,309	30,623	13,390
Gurbandha	43,001	21,703	21,298	9,176
Chakulia	125,116	63,312	61,804	28,544
Baharagora	153,051	78,103	74,948	35,194



Pie Chart showing Block-wise population distribution of East Singhbhum District

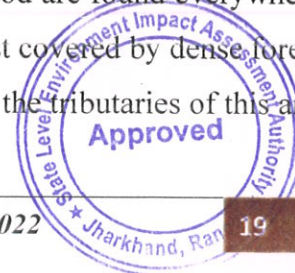
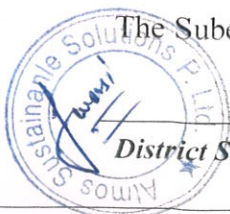
CROPPING PATTERN

The cropping pattern is generally influenced by varied soil type and different climatic conditions. The principal crop of the area are Paddy, maize, Pulses and Oilseeds. The horticulture crops are Cauliflower, cabbage, tomato, Brinjal, L. finger, cucumber etc.

TOPOGRAPHY & TERRAIN

The total geographical area of the district is 3533 Sq.Km. Which form about 2.03 % of the whole state. About 53% of the total area of the district is covered by residual mountains and hills consisting granite, gneiss, schist and basalt rocks. It is a part of Chhotanagpur plateau of igneous, sedimentary and metamorphosed rocks of Dharwarian period are found everywhere.

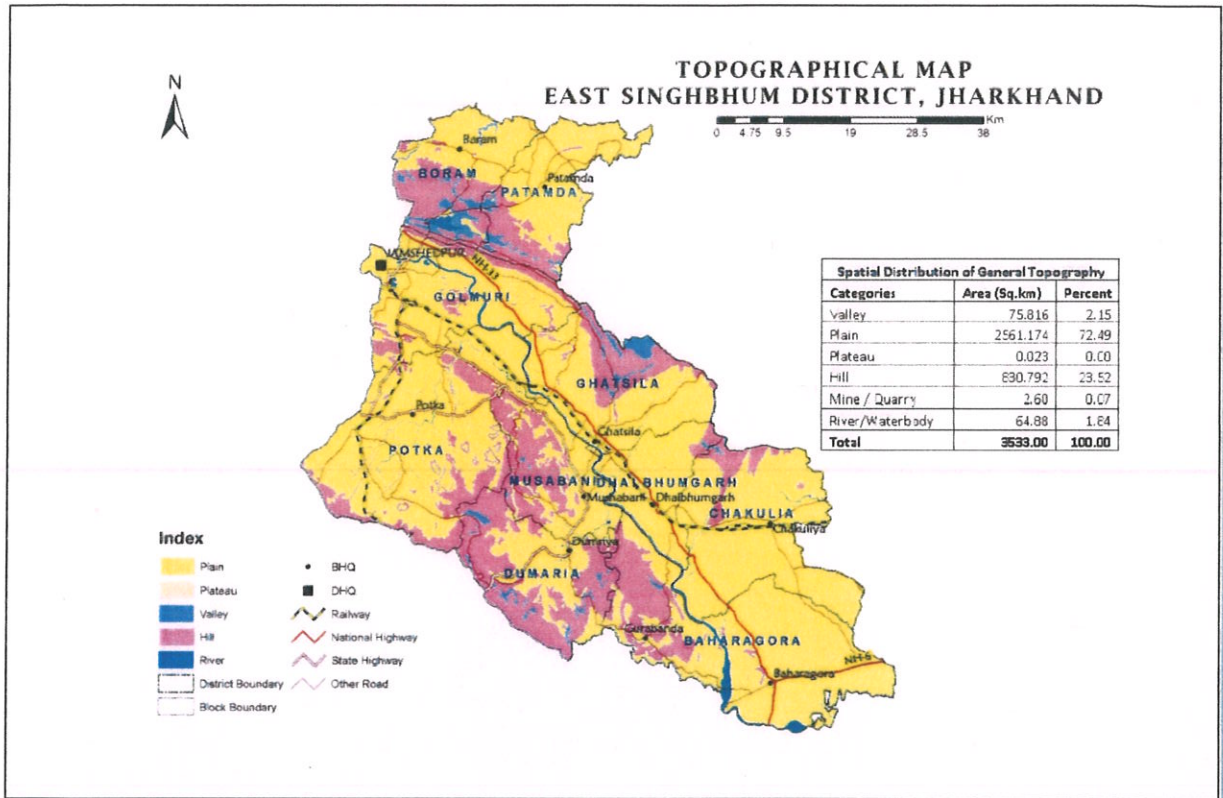
The Dalma range is as main hill has been extended from west to East covered by dense forest. The Subernarekha river flows from west to south-east direction. All the tributaries of this area



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meet with the Subernarekha river. Generally, the height of this area is 700 ft. to 3100 ft. above sea level. The district is rich in minerals and is found abundantly. Iron Ore, Copper, Uranium, Gold Kynite are the main minerals

Fig. 3.5 Topographical map of the District

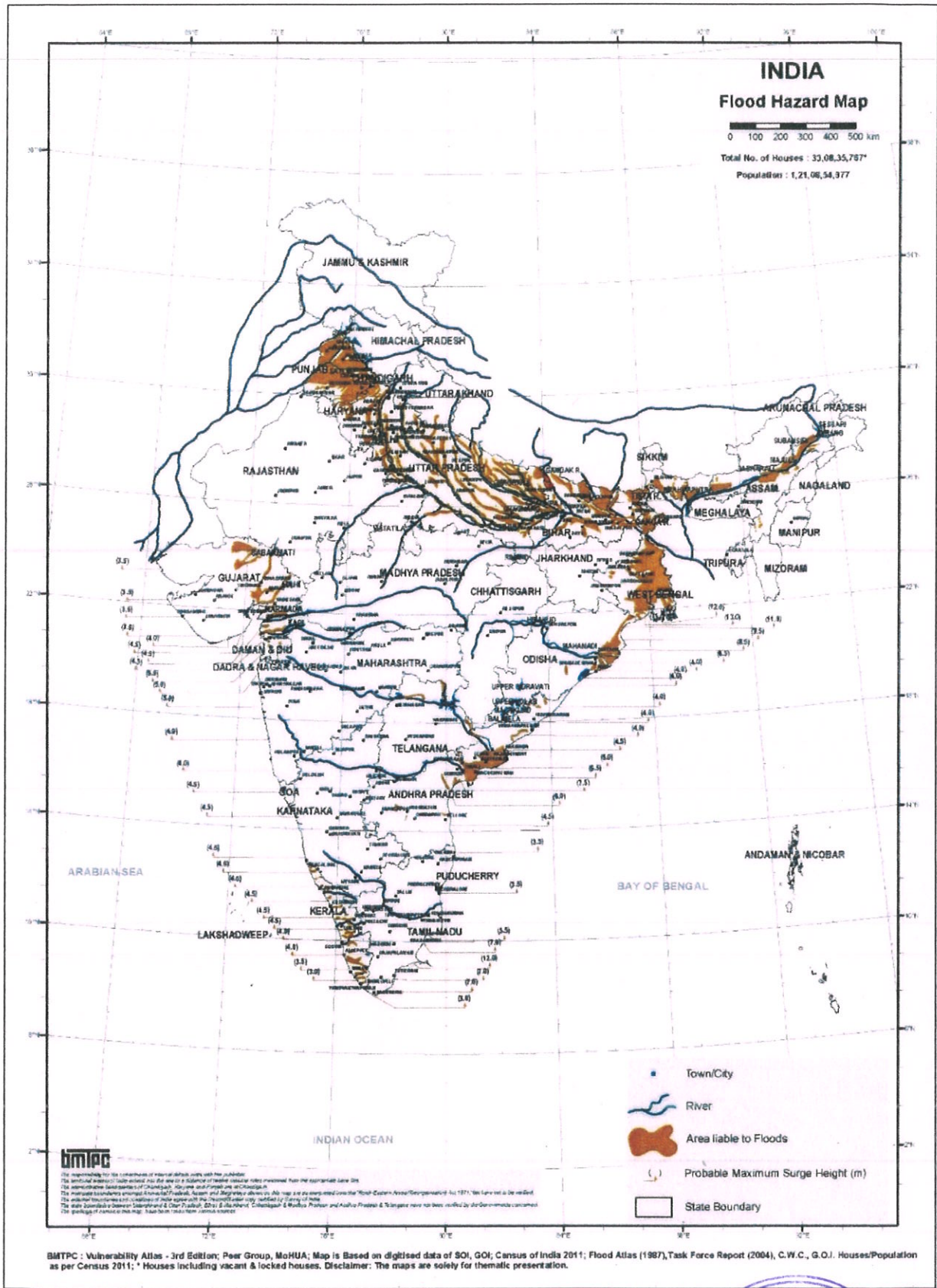


FLOODS IN DISTRICT:

The state of Jharkhand is predominantly a hilly state where the problem of flooding was rare till sometime back. However, the erosion of embankments spread of population and general disturbance in ecology and inability of identifying the catchment areas, the incidence of Flash floods have become frequent. The floods have occurred in the following 11 districts of the state, Dumka, Godda, Deogarh, Sahebganj, Pakur, Dhanbad, East and West Singhbhum, Saraikela-Karsawan, Gumla and Hazaribagh during the years 2000-2004.



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Source: BMPTC

Fig. 3.6 Flood hazard map



SEISMICITY:

The state of Jharkhand falls in a region of low to high seismic hazard. As per the 2002 Bureau of Indian Standards (BIS) map, this state also falls in Zones II, III & IV. Historically, parts of this state have experienced seismic activity in the M5.0 range.

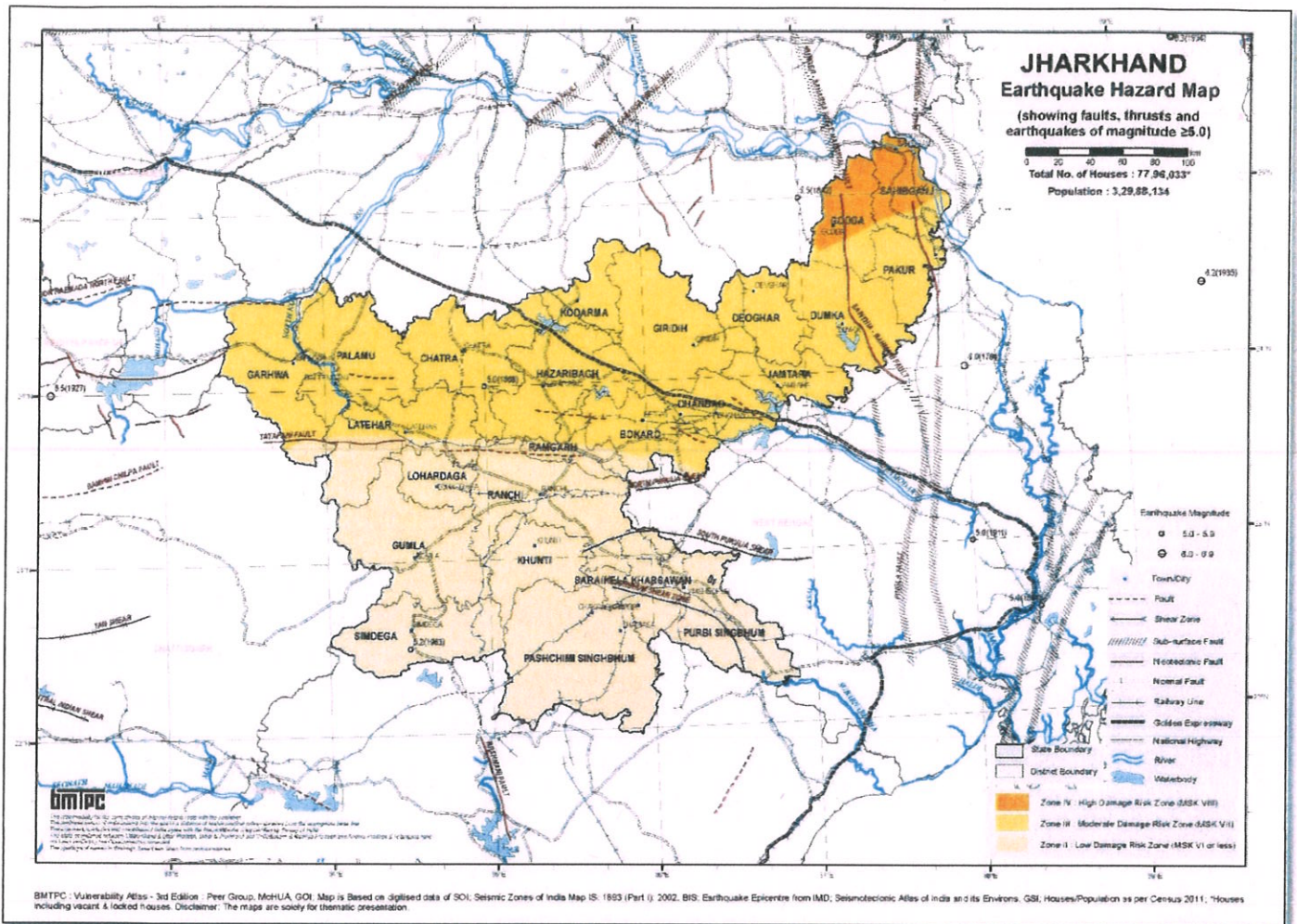
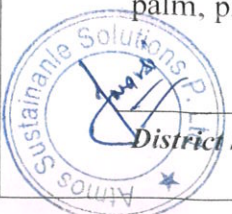


Fig.3.7 State Earthquake Map

FLORA:

These forests are found scattered throughout the district but the bulk lies in south-western parts where it runs unbroken in long stretches covering a number of steep rocky hills and intervening valleys. This type of topography becomes a determining factor in the distribution, nature and type of vegetation which varies from a dry thorny type on very dry, exposed, badly eroded rocky hills to semi-evergreen type in sheltered damp valleys. But apart from these two extreme types, the ruling vegetation is moist tropical deciduous forest which tends to become dry deciduous on ridges and exposed spurs on open southern aspects.

The Gymnosperm, Gnetum scandens is found in this district in the valleys. The stemless palm, phoenix acaulis, though seen elsewhere also on the Chotanagpur and Palamau plateaux



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is abundant. Especially in the area south of Tatanagar *Cassytha filliformis*, the green thread like parasite, several species of *loranthus* and several epiphytic orchids are seen here. The white barked gouty stemmed trees of *Sterculia urens* and *Boswellia serrata* are very conspicuous against the background of the black rocks.

FAUNA:

Elephants are frequently met with in the forests of this district and their number seems to be on the increase. Wild elephants are common in the jungles on the Dalma range in the north of the district. Heavy damage is caused mainly in rains to cultivation, young bamboo clumps and regeneration areas. In drier periods of the year they confine themselves to damp valleys. Bisions are present but in more interior areas except in the rains when they are seen roaming about in open areas. Sasangda plateau of Karampada block may be mentioned in this respect where all kinds of animals may be seen roaming about especially by the end of rains. Tigers and panthers are present but make very rare appearance. At times they do attack village cattle and in stray cases human beings. Bears are present in large number and attack at times human being and do heavy damage to crops and fruits. Pigs are present in fairly large number and cause damage to cultivation. Wild dog sare seen frequently

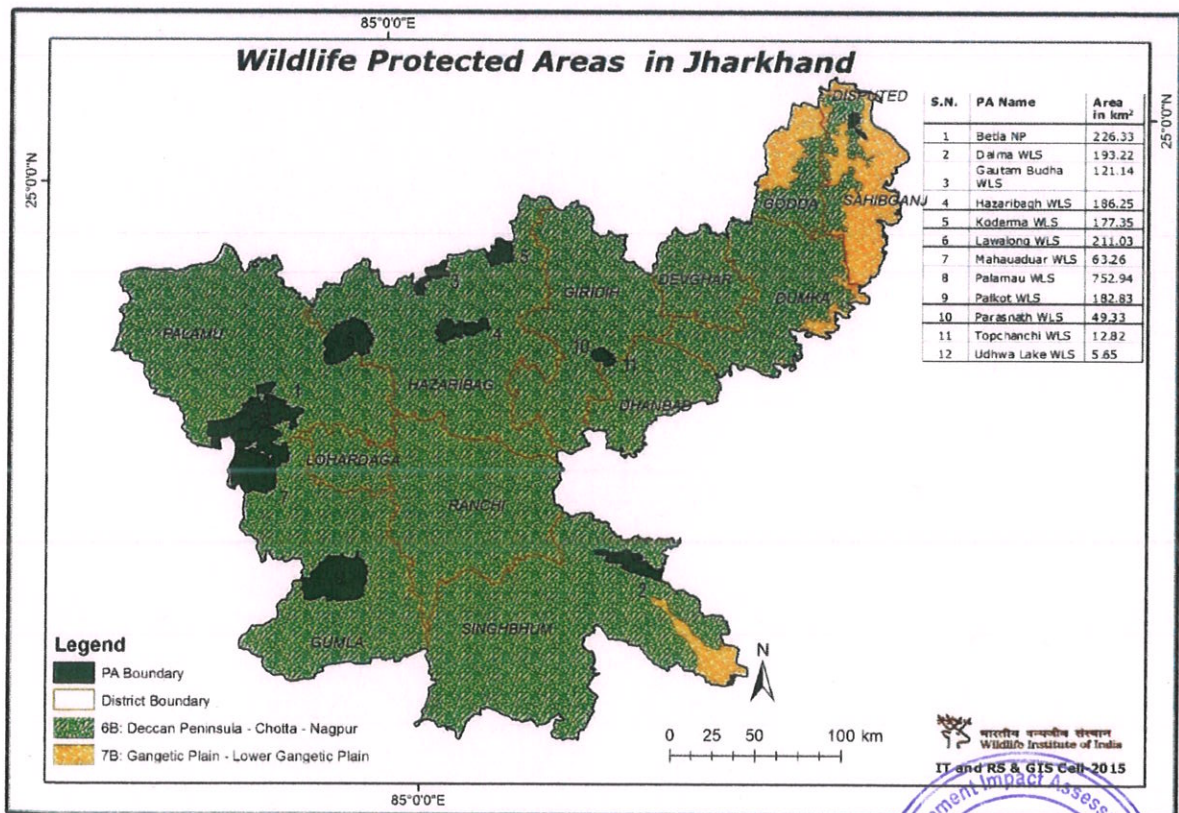


Fig. 3.8 Wildlife Protected area in Jharkhand District



CHAPTER- 04 GEOLOGY OF THE DISTRICT

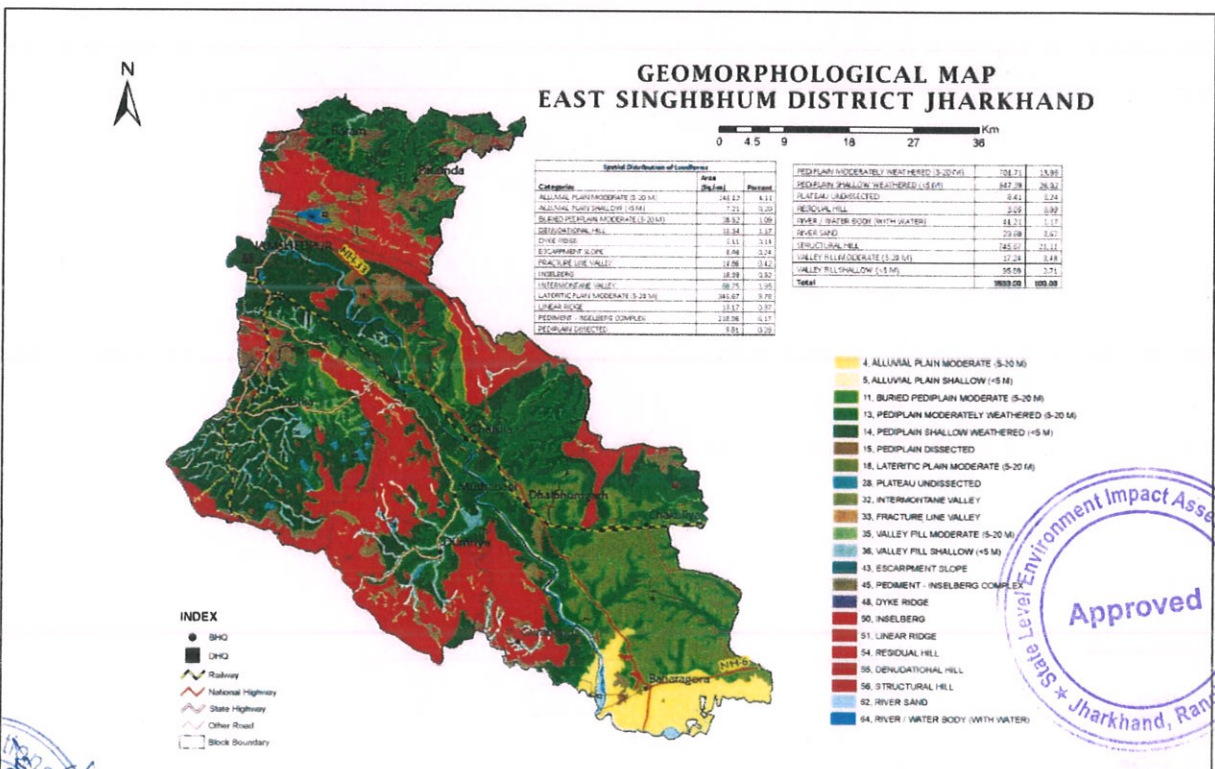
East Singhbhum district has remarkably unique geological history. From Beharagora in the South East up to East of Jamshedpur a major thrust zone is present which further enters in to Saraikela Kharsawan district. The shear zone separates a northern terrain of highly metamorphosed rocks and southern terrain of relatively less metamorphosed rocks. Sarkar and Saha (1977) have shown that this shear zone separates two Precambrian provinces of the Indian shield: an older province in the south which stabilized after the Iron ore orogenic cycle closing about 2900 million years ago and younger province in the north that underwent the Singhbhum orogenic cycle closing at about 850 million years ago.

The study area is situated in the south of this thrust zone and a general stratigraphic sequence of this area is given below-

Age Group	Lithology
Tertiaries	Gravel bed, older alluvium
Dalma Volcanics Lower proterozoic	Epidiorite, Hornblende Schist, Volcanics tuffs, Quartzite, Carbon phyllite
Singhbhum group	Mica schist , phyllite, Quartzite Singhbhum granite

(Source: CGWB)

Fig. 4.1 Geomorphological Map of the District



The rock succession of the tract in the south of the shear zone consists of a lower Archaean basement of older metamorphic group invaded by the Biotite tonalite gneiss. The iron ore group was deposited over lower Archaean basement. These rocks were folded about NNE to NNW trending fold axes and low grade metamorphism culminating in the emplacement of the Singhbhum Granite(iron ore orogeny) After a long period of erosion , rocks of Singhbhum and Gangpur group were laid down along the northern edge of the stabilized iron ore Craton. The proposed plant area is situated within the batholithic mass of Singhbhum granite. The batholiths consist of several domed up intrusive (Saha.1975) varying in composition from biotite granodiorite to adamalite and leuco granite. The main mass of Singhbhum granite shows a distinct N-S or NNE-SSW foliation in parallelism with the foliation of the host rocks of the iron ore group. The district is underlain by a variety of rock type ranging in age from Archean to Tertiary. Major part of the area is occupied by granites, granite-gneiss, phyllites, schists, quartzites, metabasics and basic lavas.

Mineral Wealth: -

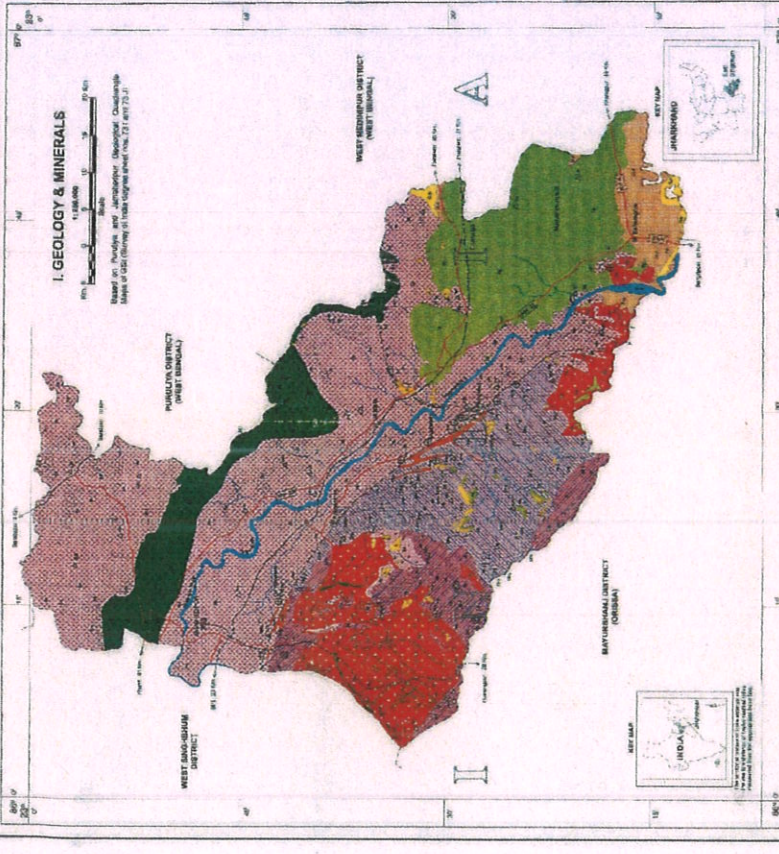
Major Minerals: Various minerals have been reported to occur in the district mostly in Singhbhum copper, Gold, Aluminium, Ag, Kaynite, Emerald, Shear Zone.

Minor Minerals: Pyroxinite, Soapstone, Quartz, Feldspar, Quartzite, Granites, minerals found in the district.

Building material (Stone Aggregate) in almost every location interspersed with dykes mostly in Potka Area have their presence in the district.



जिला सम्पदा मानचित्र DISTRICT RESOURCE MAP EAST SINGHBHUM, JHARKHAND



L I T E R A T U R E	
GEOLGICAL UNIT	AGE
Pre-Kolli	Archean
Kolli	Proterozoic
Central Gneiss	Proterozoic
Central Schist	Proterozoic
Central Quartzite	Proterozoic
Central Granite	Proterozoic
Central Gneiss	Proterozoic
Central Schist	Proterozoic
Central Quartzite	Proterozoic
Central Granite	Proterozoic
Central Gneiss	Proterozoic
Central Schist	Proterozoic
Central Quartzite	Proterozoic
Central Granite	Proterozoic

L I T E R A T U R E	
MINERALS	Characteristic
Iron Ore	Black, dark gray to black, metallic luster, magnetic.
Coal	Black, lustrous, fibrous, conchoidal fracture.
Gold	Yellowish, metallic luster, malleable, ductile.
Copper	Reddish-brown, metallic luster, brittle.
Lead	Lead-gray, metallic luster, brittle.
Zinc	Blue-gray, metallic luster, brittle.
Nickel	Silvery-white, metallic luster, brittle.

I. GEOLOGY & MINERALS

Report on Geology and Mineral Resources of East Singhbhum District, Jharkhand.

II. GEOGRAPHICAL CHARACTERISTICS

Topography: The district is mostly hilly and mountainous, with an average elevation of about 200 meters above sea level. The highest peak is about 1500 meters.

Climate: The climate is semi-arid, with a hot and dry season from October to March, and a rainy season from April to September.

Soil: The soil is mostly red soil, which is rich in iron and aluminum. It is generally low in fertility.

Vegetation: The vegetation is mostly dry deciduous forest, which is rich in medicinal plants.

III. NATURAL HAZARDS

The district is prone to various natural hazards, including drought, flood, and landslides. The most common hazard is drought, which occurs every year during the dry season.

Floods are also common, especially during the rainy season. Landslides occur in the hilly areas, especially during heavy rains.

Fig. 4.2 Resource Map of the District



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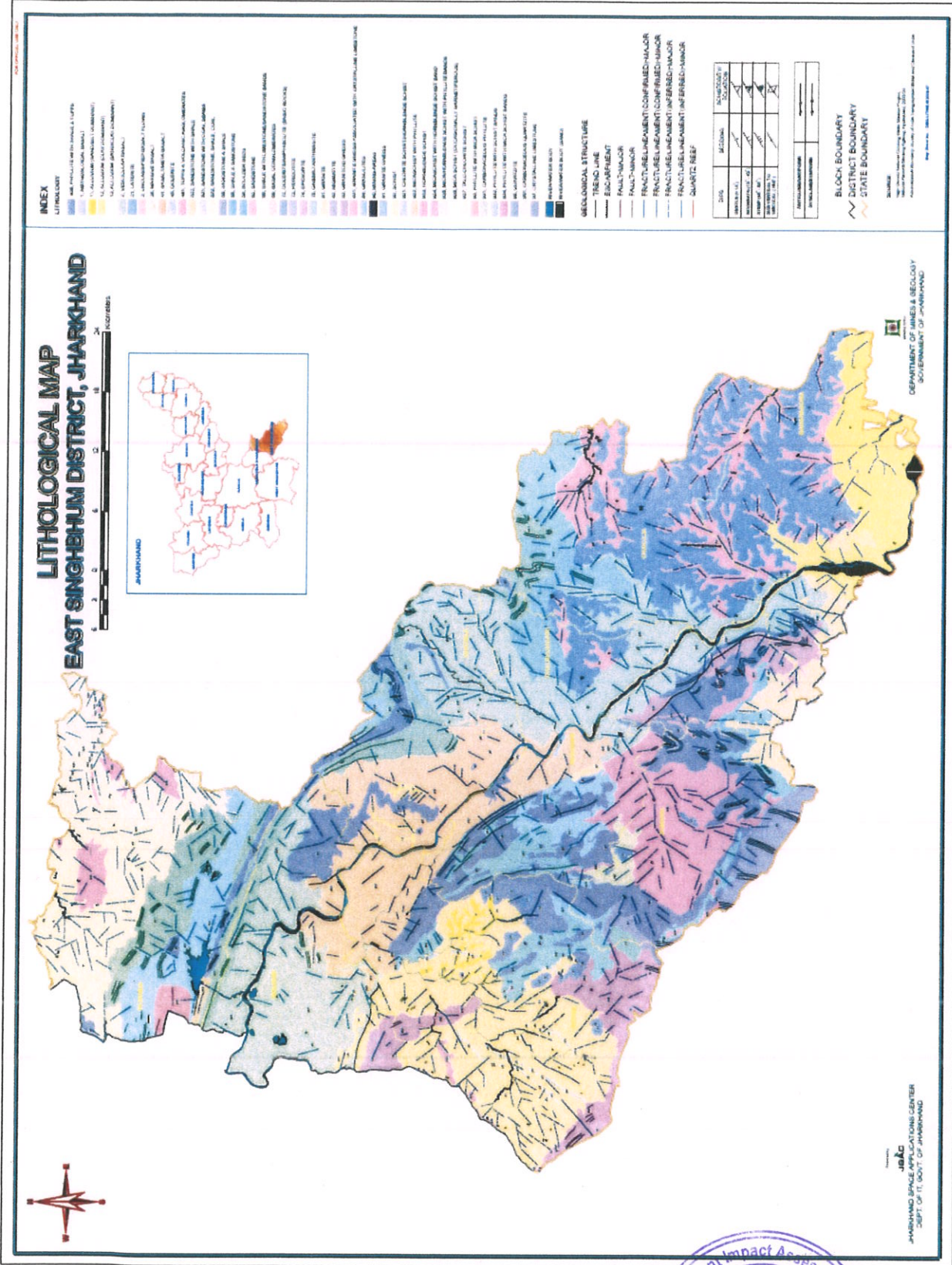


Figure 4.3 Lithological Map of the District



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CHAPTER- 05 DRAINAGE OR IRRIGATION PATTERN

About 53% of the total area of the district is covered by residual mountains and hills consisting granite, gneiss, schist and basalt rocks. Generally the height of the district is 213m. to 945 m above sea level. East Singhbhum district has large variation in slope. Five slope ranges are observed. It varies from 150-300 m/km.,80-150 m/km.,20-80 m/km,10-20m/km. and less than 10m/km. Dalma hill extends from North-west to south-east about 70 km. in length and 5km. in width. It has slope 150-300 m/km. Hilly area of Dumaria block also come under this category. Next slope range is between 80- 150 m/km. This slope range is in Patamda, Jamshedpur sadar and Ghatsila blocks.20-80 m/km. slope is found in small patches of Mosabani and Chakulia blocks. Potka block, Dhalbhumgarh block,major portion of Chakulia block and Bahragora blocks are categorized between slope 10-20m/km. Easternmost portion of Chakulia and bahragora block has slope less than 10m/km.

The Subarnarekha river flows from west to south-east direction. All the tributaries of this area meet with the Subarnarekha river. Drainage pattern is dendritic in nature. Drainage of Patamda blocks do not meet in Subarnarekha River. Kharkai River meets Subarnarekha river at Sonari near Jamshedpur. Major tributaries which meet Subarnarekha river from west to east are Sapnara nadi, Garra nadi, Dudh nadi, Chakdaha nadi. The drainage map of the district is shown in Fig No. 5.1.

Table No. 5.1: Details of major rivers of District

Name of the River	Length with in district (km)	Width (Km)	Colour of Sand	Type
Subarnarekha River	115		Sandy	Perennial





Source: CGWB

Figure No. 5.1: Drainage map of district



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CHAPTER- 06

LAND UTILIZATION PATTERN IN THE DISTRICT: FOREST, AGRICULTURE, HORTICULTURAL, MINING ETC.

The history of land use in the study area is supposed to be very old. Land of this region must have been utilised as per the conditions of different historical periods. In the present context, the land use of this region is influenced by the development of irrigation facilities, other agricultural infrastructures, transport networks and urbanisation.

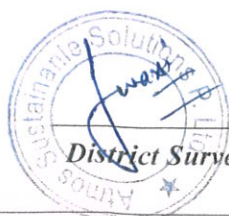
The land use statistics of East Singhbhum district, in accordance with the nine-fold classification system maintained in the Revenue records is indicated in table 6.1

Table No. 6.1: Land Use details of Districts

Sl. No.	Land Use	Reported area (Ha)	Area (in %)
1	Forest	1,24,846.22	22.43
2	Non-Agricultural land	57,007.50	10.24
3	Barren and uncultivable Land	1,41,615.60	25.44
4	Permanent pastures and grazing land	2,645.18	0.48
5	Miscellaneous tree crops and groves	5,641.46	1.01
6	Culturable waste	44,878.15	8.06
7	Fallows other than current fallows	41,796.24	7.51
8	Current fallows	45,823.22	8.23
9	Net sown area	87, 538.03	15.72

FOREST DETAIL OF THE AREA:

According to ISFR-2021 the State has a geographical area of 79,716 sq.km which constitutes 2.42% of the country's area. The total recorded forest area (RFA) of the state 23,721 sq.km which is nearly 29.76% of the geographical area of the state. Of the total recorded forest area, Reserved Forest constitute 18.58%, Protected Forests 81.28% and Unclassed Forests 0.14 % (ISFR-2019).



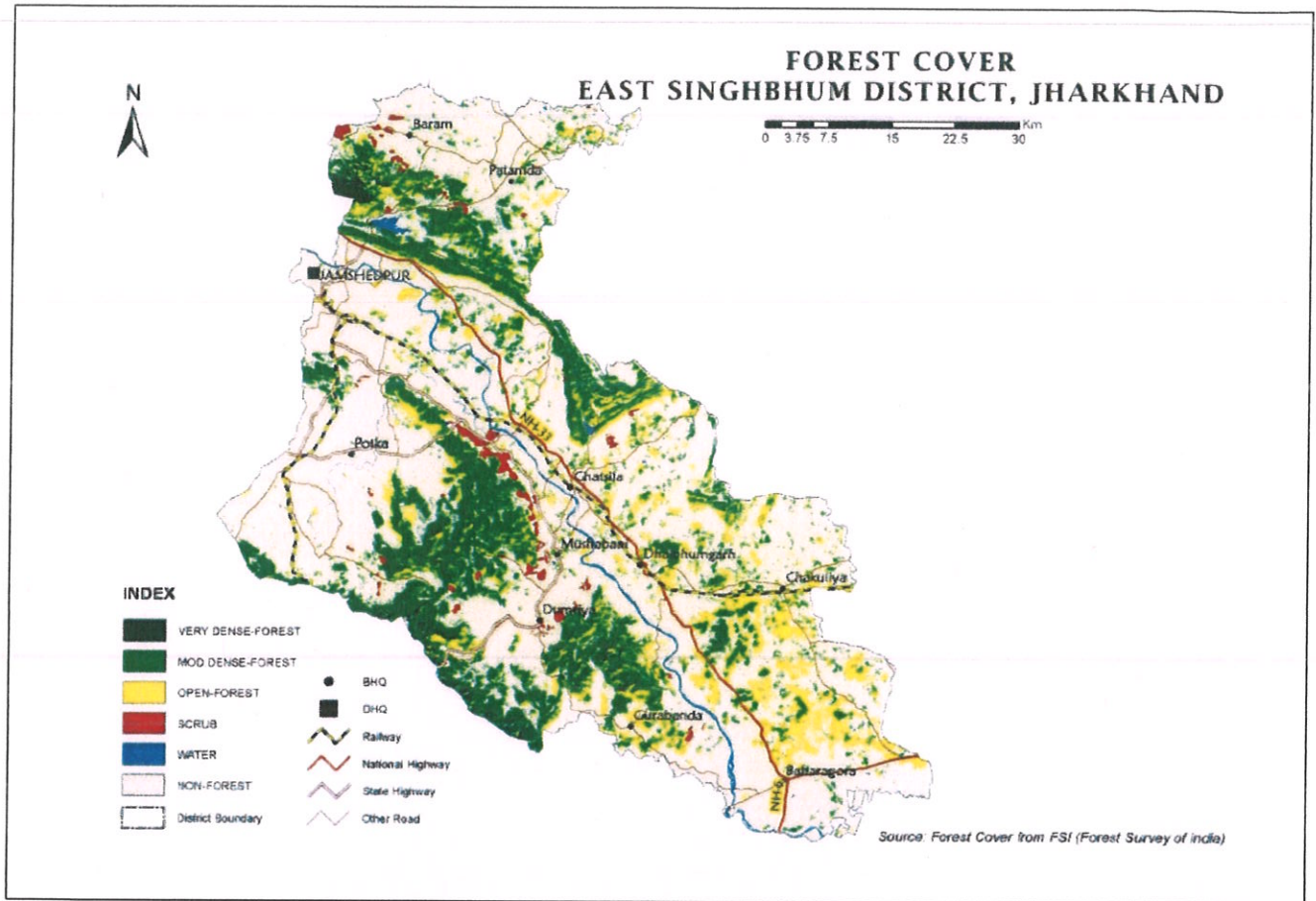


Fig. 6.1 Forest Cover of the District

AGRICULTURE & IRRIGATION

Paddy is the main crop of the district. Other major crops are Maize, Pulses, wheat, potato, onion, other vegetables, flowers, etc. The cropping is mainly dependent upon rain fed irrigation. Other sources of irrigation in the district are tube wells, canals and other wells.

S.N.	Item	Information
1	Major Farming system/enterprise	Rice-Fallow, Rice – Vegetable-Fishery Rice-Vegetable-Animal husbandry Rice-Animal husbandry
2	Agro-climatic Zone	VII
3	Agro ecological situation	Upland rainfed (Tanr I, II & III) Mid Land Rainfed (Don III) Mid Land Irrigated (Don II) Low Land Rainfed (Don I)
4	Soil type	Alfisols-71.4% Entisols-13.4% Inceptisols-12.8%



Signature

Source: Krishi Vigyan kendra, east singhbhum

Crop	Area (ha)	Production (q)	Productivity (q/ha)
Paddy	1,97,854	47,62,310	24.07
Wheat	9,000	94,500	10.50
Maize	8,411	95,270	11.33
Urad	2,869	25,150	8.77
Moong	1,080	8,000	7.41
Arhar	6,796	55,560	8.18
Gram	6,369	46,740	7.34
Lentil	2,272	15,020	6.61

Source: DAO, East Singhbhum (Data is of year 2016-17)

HORTICULTURE

In last two decades horticulture has emerged one of the best agricultural enterprises in state. It has two components i.e. Fruits and Vegetables.

Crop	Area (ha)	Production (q)	Productivity (q/ha)
Tomato	1,386	2,77,200	20.00
Pea	1,255	8,070	6.43
Potato	208	18,090	8.70
Onion	851	1,70,200	20.00
Brinjal	1,289	2,57,800	20.00
Cauliflower	762	12192	16.00
Cabbage	634	10114	16.00
Chilli	839	1,00,680	12.00
Bhindi/okra	2,406	3,36,840	14.00
Mango	162	19,440	12.00
Guava	184	22,080	12.00
Lemon	462	46,200	10.00
Banana	134	26,080	20.00
Kaju	5,606	4,300	1.30

Source: District Horticulture Office, East Singhbhum (Data is of year 2016-17)

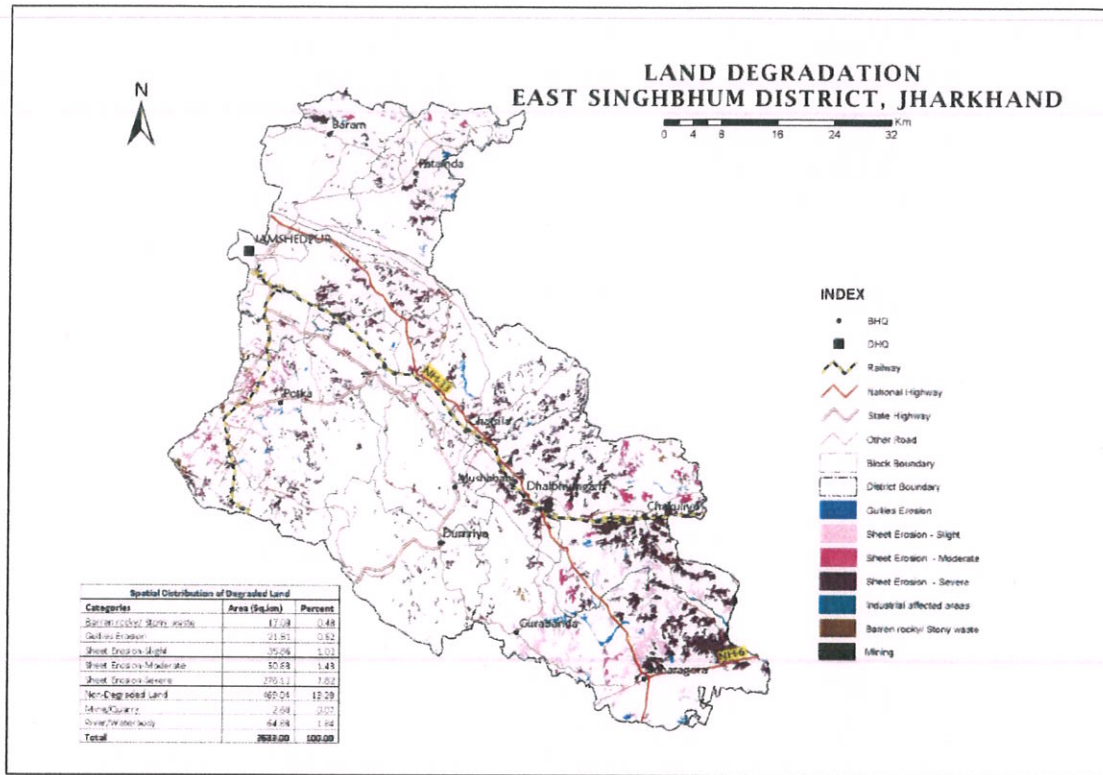
MINING

The mineral resources of East Singhbhum have played a great role in industrialization, social and economic development of the district. East Singhbhum is rich in minerals such as:

Major Minerals	Iron Ore, Manganese Ore, Copper, Uranium, Gold Emerald, Kyanite, Pyroxenite, Quartzite, Coal
Minor minerals	Sand, Stone, Quartz, Quartzite, Pyroxenite Clay



fcladan



Source: Jharkhand Space Application Centre

Fig. 6.2 Land Degradation Map of the District



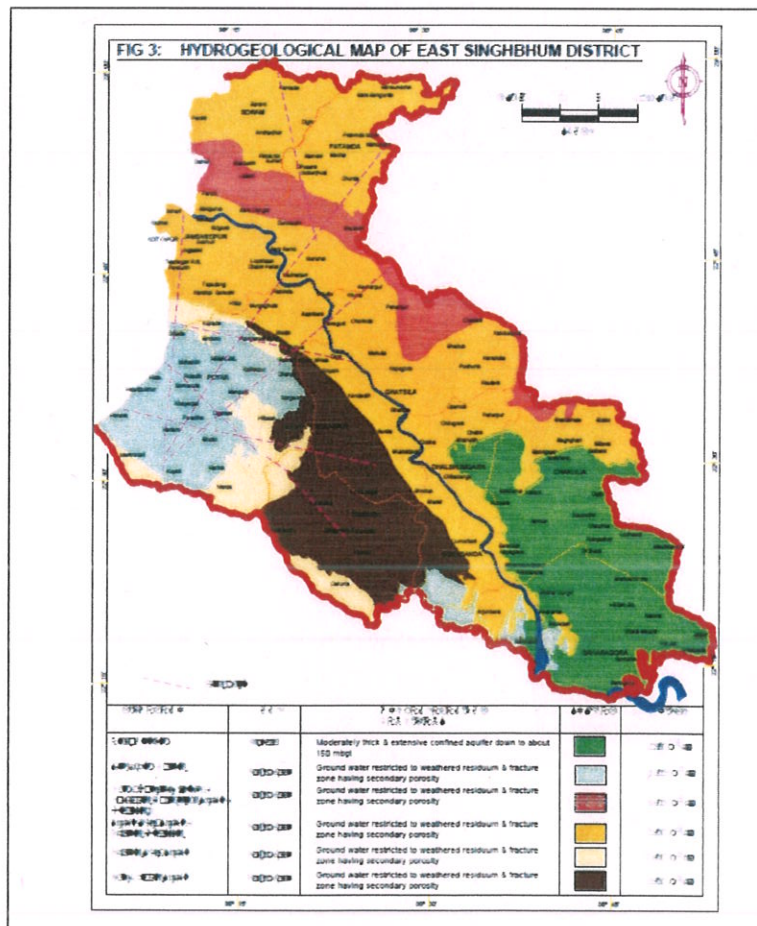
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CHAPTER- 07

SURFACE WATER AND GROUND WATER SCENARIO OF THE DISTRICT

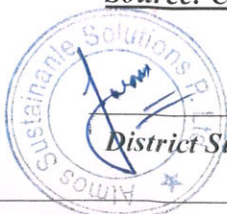
The ground water occurrence and movement is basically controlled by the prevailing morphology and intensity of structural discontinuities. The intensity of joints, fractures, foliation planes are more along anticlinal or synclinal flexures. Therefore, structure is another controlling factor for occurrence and movement of ground water over the area.

The rainfall is the main source groundwater recharge in the area. The inconsistency between fracture zone is complicated in nature. The ground water therefore moves slow and find its way through the fractures and open joints. the area is underlain by unconsolidated to semi-consolidated sediments of Tertiary age which are made up of coarse sand, gravel, fine to medium sand and clay. In hard rock ares, ground water occurs within the weathered zone (10-25 m thickness) and in the underlying fractures/joints. The ground water occurs both under unconfined condition and semi confined to confined condition. The unconfined condition exists in the weathered mantle portion of the rocks. Depth of weathered mantle varies from 15-34 m in general.



Source: CGWB. Hydrogeological map of District

Fig. 7.1 Hydrogeological Map of the District



Ground Water Development of District:

The overall ground water development of the district is only 20.74%. Thus, there is sufficient scope for shallow as wells deep bore wells. State Govt. Agency has been constructed a large number of bore wells to minimize the drinking water problem in the district. Central Ground Water Board has been drilled 22 exploratory bore wells and 02 observation bore wells in the district. The depth of bore wells ranges between 27.64 – 300.88 mbgl. The yield of bore wells ranges from 2.7 to 78 m³/hr.

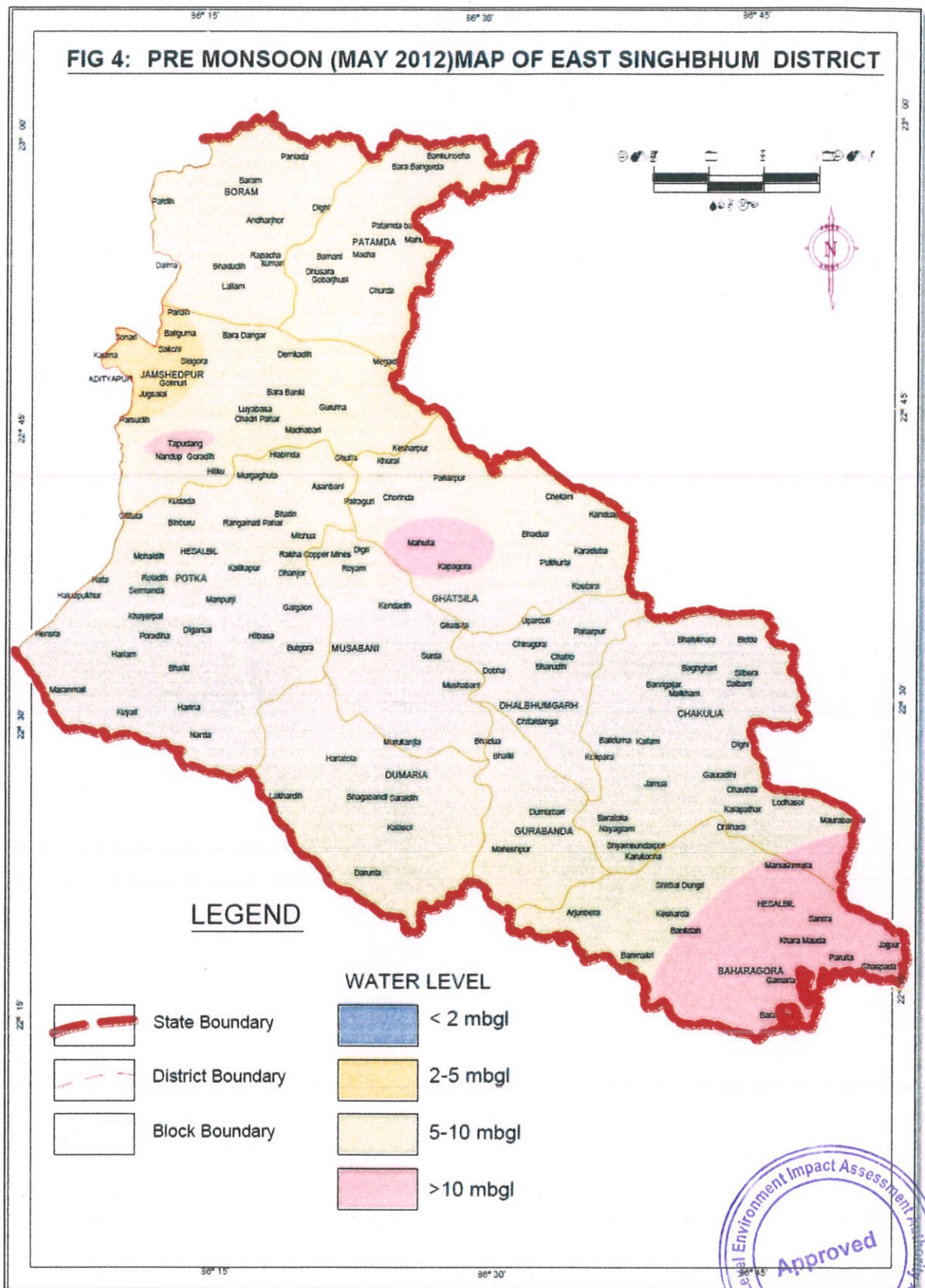
Depth to Water Level: -

There are 16 National Hydrograph Stations (NHS) have been established by Central Ground Water Board for the study of behavior of the water level and their fluctuation.

Pre monsoon depth to water level: - On the basis of the depth to water level of the year 2012 - 13 (table – 2), the pre monsoon depth to water level was monitored between 3.96 to 14.85 mbgl. Majority of the wells (41.67%) fall in the water level range of 6 - 9 mbgl. Pre monsoon depth to water level map (May 2012) is shown in fig.-7.2.

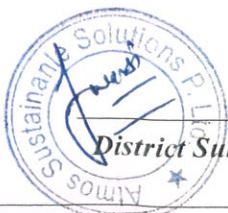
Post monsoon depth to water level: - On the basis of the depth to water level of the year 2012 – 13, the post monsoon depth to water level ranges between 1.10 to 13.85 mbgl. About 50% of the wells fall in the water level ranges between 3 – 6 mbgl. Post monsoon depth to water level map (May 2012) is shown in fig. 7.3

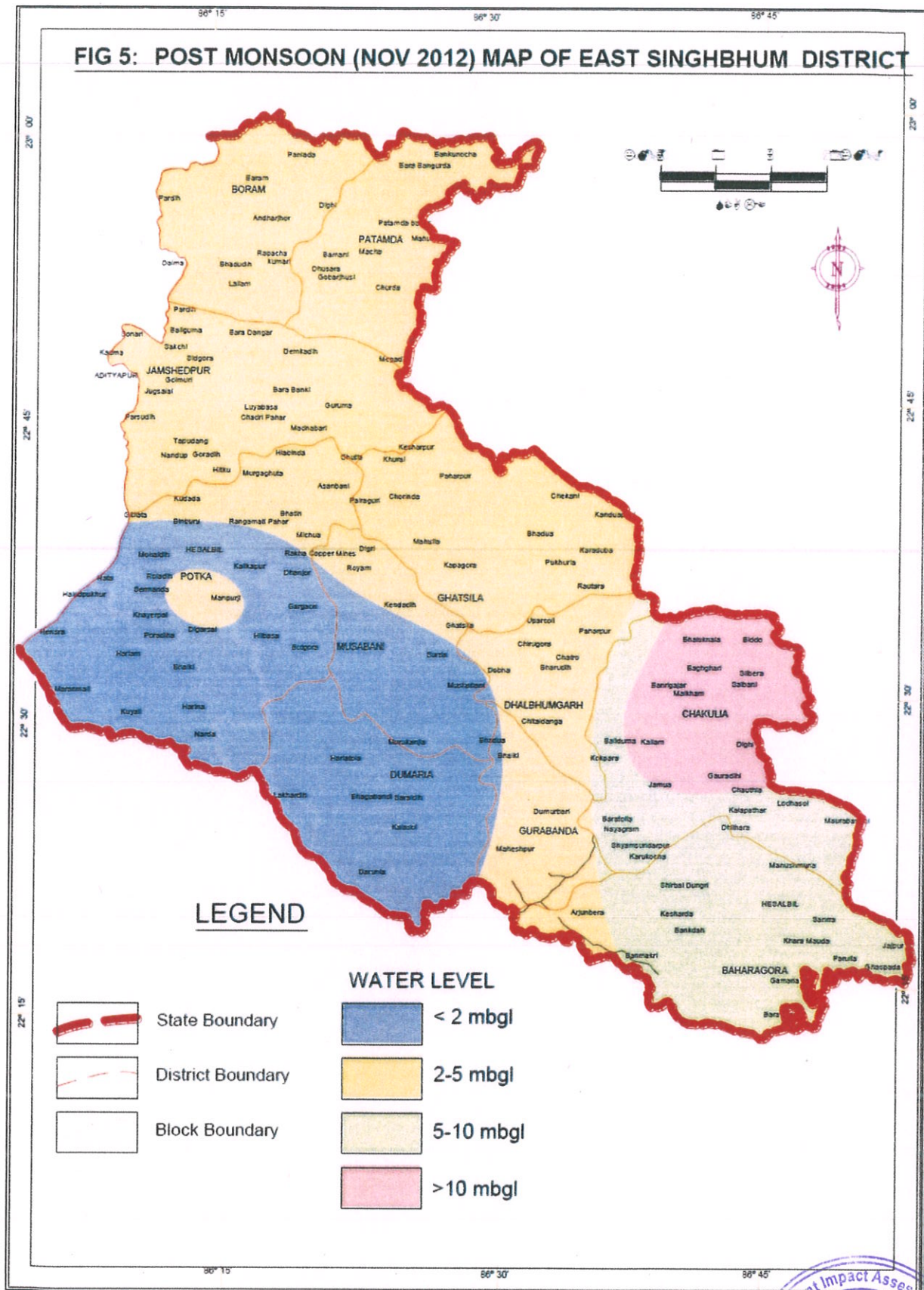




Source: Central Ground Water Board

Fig. 7.2 Pre monsoon depth to water level map





Source: Central Ground Water Board

Fig. 7.3 Post monsoon depth to water level map



CHAPTER- 08

RAINFALL OF THE DISTRICT AND CLIMATE CONDITION

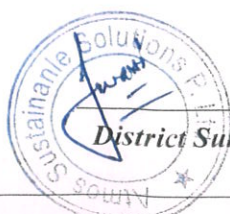
The climate of this region may be considered as extreme, being intensely hot in summer and moderately cold in winter. The climate of the area is also characterized by a hot dry summer and well-distributed rains in the monsoon season. The cold season commences from December and lasts till the end of February. The hot season follows thereafter and continues till about the third week of June. The southwest monsoon season is from the middle/end of June to the end of September. The Climate of the district is temperate. Annual rainfall is 1200 mm to 1400 mm. This area comes under the path of south-west monsoon so sometimes it receives heavy rain during July to September. During the summer seasons maximum temperature goes up 40^oC - 45^oC whereas in winter it has recorded a minimum of 8^oC.

Details of rainfall data of five years (from 2016 to 2020) is furnished in Table below.

Table No. 8.1 Details of rainfall data of five years (from 2016 to 2020)

YEAR	JAN		FEB		MAR		APR		MAY		JUN		JUL	
	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP
2016	24.6	67	6.8	-63	4.9	-76	2.7	-92	108.0	71	179.2	-21	354.9	21
2017	0.0	-100	0.0	-100	15.1	-27	17.8	-44	393.2	521	131.4	-42	682.3	132
2018	0.0	-100	1.8	-90	2.9	-86	171.1	436	88.9	40	173.5	-23	419.8	43
2019	0.0	-100	63.7	268	48.9	162	106.9	217	130.7	66	134.3	-45	297.4	-1
2020	36.4	214	9.6	-44	82.1	339	101.4	201	135.5	72	265.5	9	294.5	-2

JUL		AUG		SEPT		OCT		NOV		DEC	
R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP	R/F	%DEP
354.9	21	845.0	170	502.1	122	28.9	-58	0.0	-100	0.0	-100
682.3	132	467.4	49	277.8	23	151.5	121	10.1	-19	0.1	-98
419.8	43	395.7	27	214.6	-5	62.7	-8	5.5	-56	65.0	1149
297.4	-1	299.9	-5	417.1	85	246.2	237	0.0	-100	13.8	138
294.5	-2	480.7	52	136.5	-39	81.6	12	13.6	31	0.0	-100



CHAPTER-09

THE LIST OF MINING LEASE IN THE DISTRICT WITH LOCATION, AREA AND PERIOD OF VALIDITY

Details of the mining leases in the District as per the following format: -

S. No.	Name of The Mineral	Name of the Lessee	Address & Contact No. of Lessee	Mining lease Order No. & date	Area of Mining lease (ha)	Period of Mining lease (Initial)	Period of Mining lease (1st/2nd...renewal)
						From	To
1	Sand	2	3	4	5	7	8
	NA	NA	NA	NA	NA	NA	NA
						From	To
						9	10
						NA	NA

Date of Commencement of Mining Operation	Status (Working/Non-Working/Temp. Working for dispatch etc.)	Captive/Non-Captive	Obtained Clearance (Yes/No), If Yes Letter No with date of grant of EC.	Environmental	Location of the Mining lease (Latitude & Longitude)	Method of Mining (Opencast/Underground)
11	12	13	14	15	16	
NA	NA	NA	NA	NA	NA	NA

Total Mineral Reserve available in the District:

S. No.	Name of The Mineral	Name of the Lessee	Address & Contact No. of Lessee	Letter of Intent Grant Order No. & date	Area of Mining lease to be allotted	Validity of Lol	Use (Captive/Non-Captive)	Location of the Mining lease (Latitude & Longitude)
NA	NA	3	4	5	6	7	8	9
NA	NA	NA	NA	NA	NA	NA	NA	NA

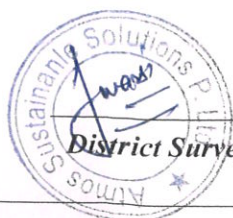
At Present time no sand ghats are operated in this District, as whole leases were expired.



CHAPTER- 10
DETAILS OF ROYALTY OR REVENUE RECEIVED IN LAST THREE YERAS

S.NO	YEARS	ROYALTY/REVENUE (IN LAKHS RS.)
01	2021-2022	00.0
02	2020-2021	00.0
03	2019-2020	00.0
TOTALS		00.0

** From Last three years revenue not generated from sand mining.*



CHAPTER- 11
DETAILS OF PRODUCTION OF SAND OR BAJRI OR MINOR
MINERALS IN LAST FIVE YEARS

S.NO	YEARS	PRODUCTION OF SAND IN CFT
01	2021-2022	0.00
02	2020-2021	1,15,2120
03	2019-2020	2,46,6680
04	2018-2019	1,614,890
05	2017-2018	5,297,450
TOTALS		1,05,31,140

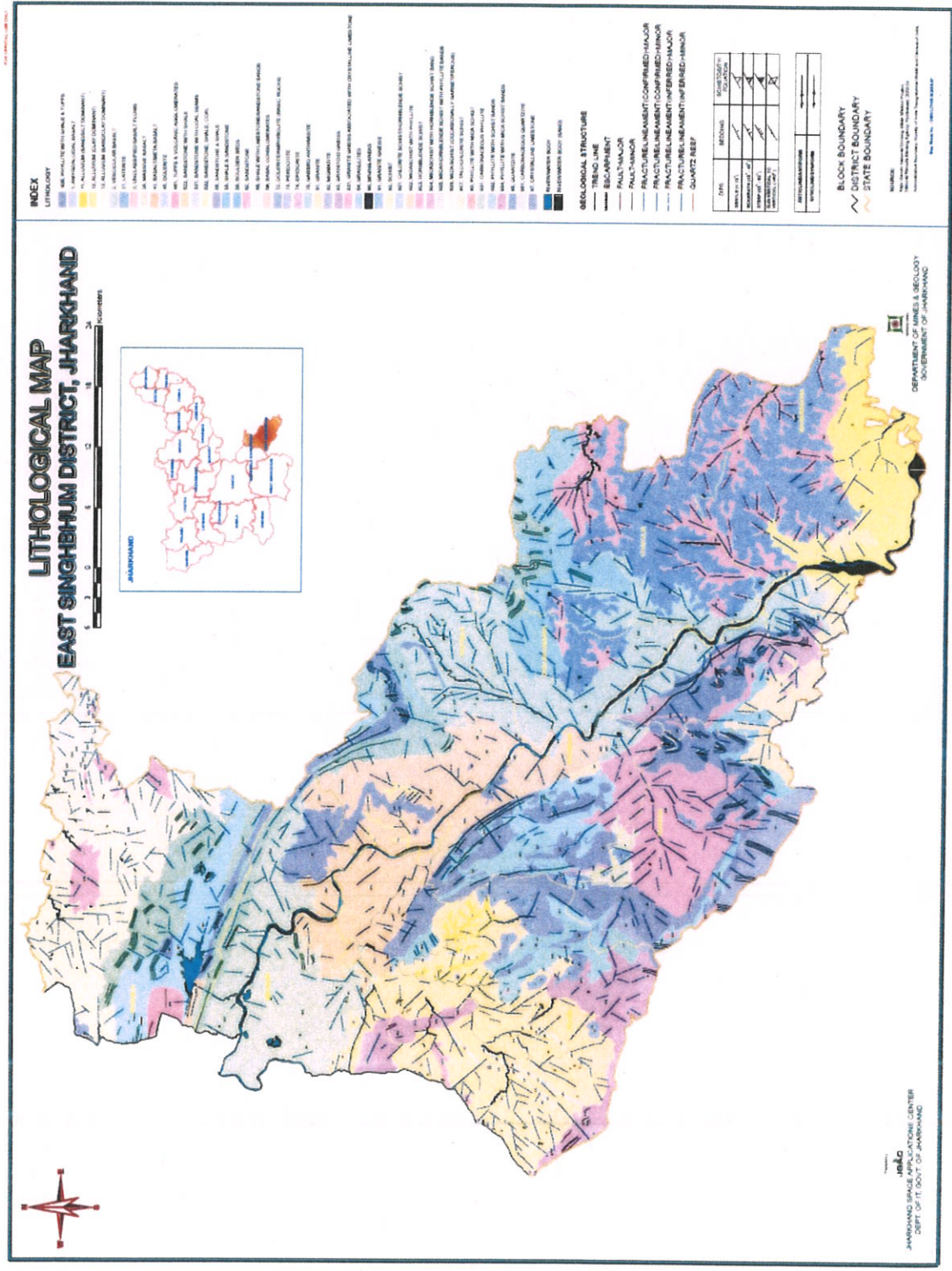
* Source- Data received from DMO office East Singhbhum.

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CHAPTER- 12 MINERAL MAP OF THE DISTRICT



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CHAPTER-13

LIST OF LETTERS OF INTENT HOLDERS (LOI) IN THE DISTRICT WITH ITS VALIDITY

S. No.	Name of The Mineral	Name of the Lessee	Address & Contact No. of LOI Holder	Letter of Intent Grant Order No. & Date	Area of Mining Lease to be allotted (ha)	Validity of LOI	Use (Captive/ Non-Captive)	Location of the Mining Lease (Latitude & Longitude)
	Sand	2	3	4	5	6		N E
1	NA	NA	NA	NA	NA	NA		9 10
2								NA NA

• Letter of intent not issued at this time and also last years.

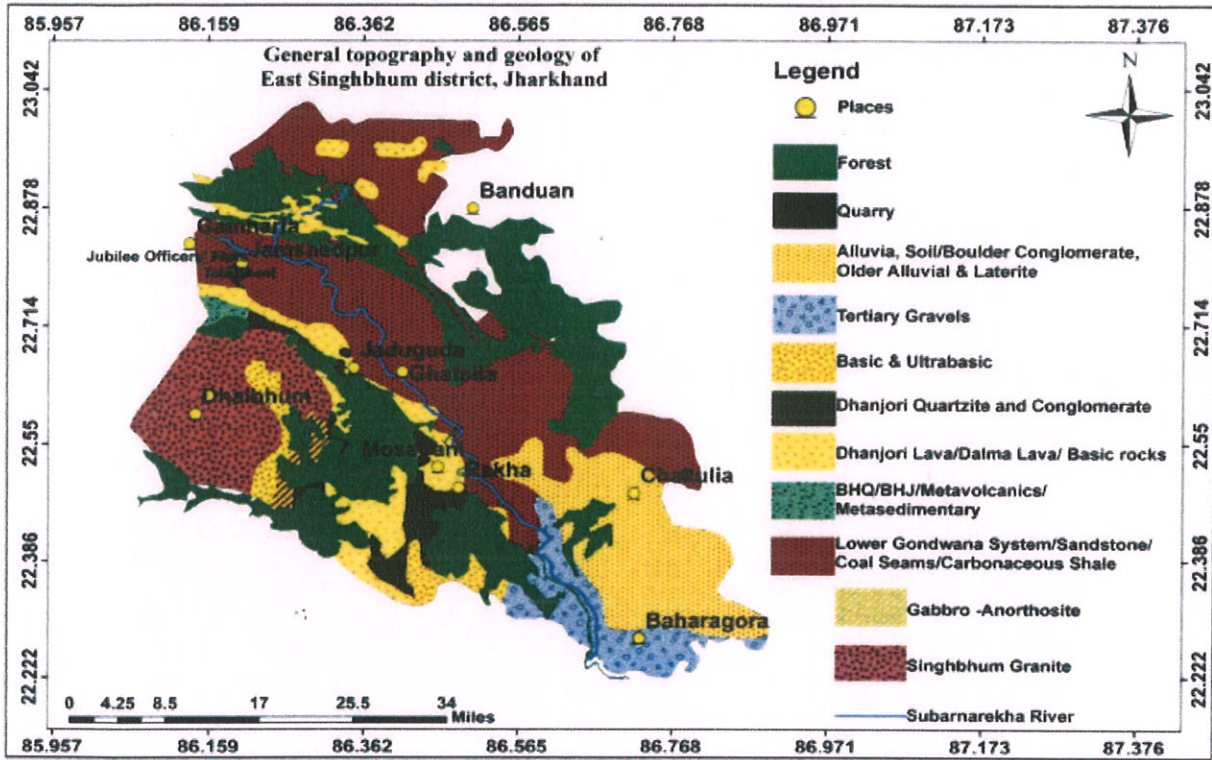


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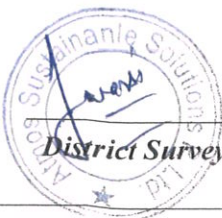
CHAPTER- 14 TOTAL MINERAL RESERVE AVAILABLE IN THE DISTRICT

Minerals Deposit in East Singhbhum District, Jharkhand in different formation.



Source: researchgate.net

Fig. 14.1 Minerals Map of the East Singhbhum



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CHAPTER- 15 QUALITY/GRADE OF MINERAL AVAILABLE IN THE DISTRICT

The district is very rich in mineral resources. Collection of sand, Soil and Brick Earth are the minor mineral sources. These materials are primarily utilized for construction purpose. As per the present practice, mining is done by manual method with tools and tackles. Mechanised & Semi mechanised practice is also popular in some places. Mineral resources of East Singhbhum have played a great role in industrialization, social and economic development of the district. East Singhbhum is rich in minerals such as:

Major Minerals: Iron Ore, Manganese Ore, Copper, Uranium, Gold, Emerald, Kyanite, Pyroxenite, Coal etc.

Minor minerals: Sand, Stone, Quartz, Quartzite, Pyroxenite Clay etc.



CHAPTER- 16 USE OF MINERALS

Gitti/ building stone: Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction. Mostly used in roads, concrete and building products.

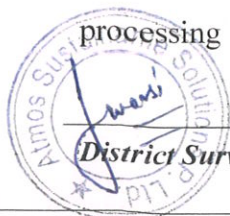
Murum: Murum is mostly used for construction purposes. Generally, it is deep brown or red in color. Moorum is used in plinth filling, road pavements, backfilling in trenches, footing pits etc. It is a suitable type of soil in the construction field, since it does not contain any organic matters and can be compacted easily forming hard surfaces.

Ordinary Clay: Clay is used for making pottery, both utilitarian and decorative, and construction products, such as bricks, wall and floor tiles. Different types of **clay**, when used with different minerals and firing conditions, are used to produce earthenware, stoneware, and porcelain.

Ordinary sand: Sand is not for manufacturing concrete, but it is the ideal material for asphalt mix. It is commonly used to fix and level roads, and lay bedding for a variety of uses. This is in contrast with our three other main construction sand products, which are mainly used for building applications.

Quartz and Quartzite: The strong quartz hardness makes it more difficult than most other natural substances. It is therefore an excellent abrasive material. Used for sand blasting, scouring cleaners, grinding media, and grit for sanding and sawing, quartz sands and finely ground silica sand. In the manufacture of rubber, paint, and putty, quartz sand is used as filler. Carefully screened and cleaned quartz grains are used as filter media and granules for roofing. In the railroad and mining industries, quartz sands are used for traction. Quartzite is a decorative stone and may be used to cover walls, as roofing tiles, as flooring, and stairsteps. Its use for countertops in kitchens is expanding rapidly. It is harder and more resistant to stains than granite. Crushed quartzite is sometimes used in road construction

Shale: It has many commercial uses. It is a source material in the ceramics industry to make brick, tile, and pottery. Shale used to make pottery and building materials requires little processing besides crushing and mixing with water. Shale is crushed and heated with



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Schudra

limestone to make cement for the construction industry.

Dolomite: Dolomite as a mineral has very few uses. However, dolostone has an enormous number of uses because it occurs in deposits that are large enough to mine.

The most common use for dolostone is in the construction industry. It is crushed and sized for use as a road base material, an aggregate in concrete and asphalt, railroad ballast, rip-rap, or fill. It is also calcined in the production of cement and cut into blocks of specific size known as "dimension stone."

Dolomite's reaction with acid also makes it useful. It is used for acid neutralization in the chemical industry, in stream restoration projects, and as a soil conditioner.

Dolomite is used as a source of magnesia (MgO), a feed additive for livestock, a sintering agent and flux in metal processing, and as an ingredient in the production of glass, bricks, and ceramics.

Dolomite serves as the host rock for many lead, zinc, and copper deposits. These deposits form when hot, acidic hydrothermal solutions move upward from depth through a fracture system that encounters a dolomitic rock unit. These solutions react with the dolomite, which causes a drop in pH that triggers the precipitation of metals from solution.

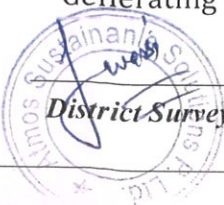
Dolomite also serves as an oil and gas reservoir rock. During the conversion of calcite to dolomite, a volume reduction occurs. This can produce pore spaces in the rock that can be filled with oil or natural gas that migrate in as they are released from other rock units. This makes the dolomite a reservoir rock and a target of oil and gas drilling.

Laterite: Major and sub-base materials for the construction of most highways and walls of residential houses in tropical and sub-tropical countries of the world. Laterite is a building material which can be used in construction from flooring to roof construction. The rising construction cost and drive towards locally available material have fuelled a demand for this product in recent years. In laterite areas where a high level of culture once prevailed, ruins often disclose laterite used as a building stone. Open cisterns, sewers, headwalls, culverts, flagstones, quays, moles, and breakwaters of laterite have functioned successfully for hundreds of years and laterite is also used in ceramic industries.

Uses of Coal:

Coal is seemingly the cheapest and most essential source of energy. Here is a list of all the major uses of coal.

Generating Electricity



Production of Steel
Industries
Gasification and Liquefaction
Domestic Use

Use of China Clay:

China clay used in all Kind of ceramic product production and other products for its properties. Following are the primary uses of the china clay,

1. Used In Sanitaryware industry
2. Used in the tiles Production industry
3. Used in Refractory production
4. Used in the Paper industry as a filler
5. Used in Rubber industry as a raw material
6. Used in textiles industries
7. Used in the Dinnerware production process as a raw material
8. Used in pottery works, Etc

Use of Fire Clay:

Fire clay is a range of refractory clays used in the manufacture of ceramics, especially for fire brick.

Use of River Sand:

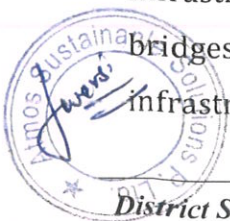
It falls under the fine quality of construction sands which are found near river banks and streams. This sand is white-gray and is one of the fine-graded sands used in the construction of buildings. They are mainly used in concrete and masonry work. They can also be used for RCC, plastering, and many other brick or block works. This sand consists of a smoother texture and a better shape of grains. The river or natural sand demands very less water. River sand since naturally obtained is cheaper.

Use of Iron Ore:

Iron Iron ore is a crucial raw material for the production of steel, which is used in various industries for various purposes. Some of the main uses of iron ore include:

Steel Production: Iron ore is the main ingredient in the production of steel, which is used in construction, transportation, machinery, and various other industries.

Infrastructure Development: Steel is a key component in the construction of buildings, bridges, roads, and other infrastructure, making iron ore a crucial resource for infrastructure development.



fkhada

Automotive Industry: Steel is a key component in the production of cars and other vehicles, making iron ore an important raw material for the automotive industry.

Energy Production: Iron ore is used in the production of iron and steel, which is used in power plants and other energy-generating facilities to produce energy.

Machinery and Equipment: Steel is used in the production of a wide range of machinery and equipment, including agricultural equipment, mining equipment, and construction equipment, making iron ore an important resource for these industries.

Household Goods: Steel is used in the production of various household goods, including appliances, cookware, and furniture, making iron ore a crucial resource for these industries.



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CHAPTER- 17 DEMAND AND SUPPLY OF THE MINERAL IN THE LAST FIVE YEARS

River sand is used as raw material in construction of building and infrastructure project, the demand of sand is increasing day by day. The requirement for the mineral is always high in the nearby cities and towns. Therefore there is always a good demand of the mineral in the domestic market. Its demand in industrial area of East Singhbhum and nearby areas is increasing very fast. During last five in Financial Year(F.Y)-2017-2018- **5,297450cft**, F.Y-2018-2019-**1614890cft**, F.Y-2019-2020-**2,466,680cft**, F.Y-2020-2021-**1152120cft**, after that last one years F.Y- 2021-2022- 0.00, There is no production of sand due to non-settlement of sand ghats.

To fulfill the demand in the district, the sand ghats proposed for production of sand.



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CHAPTER-18

MINING LEASES MARKED ON THE MAP OF THE DISTRICT

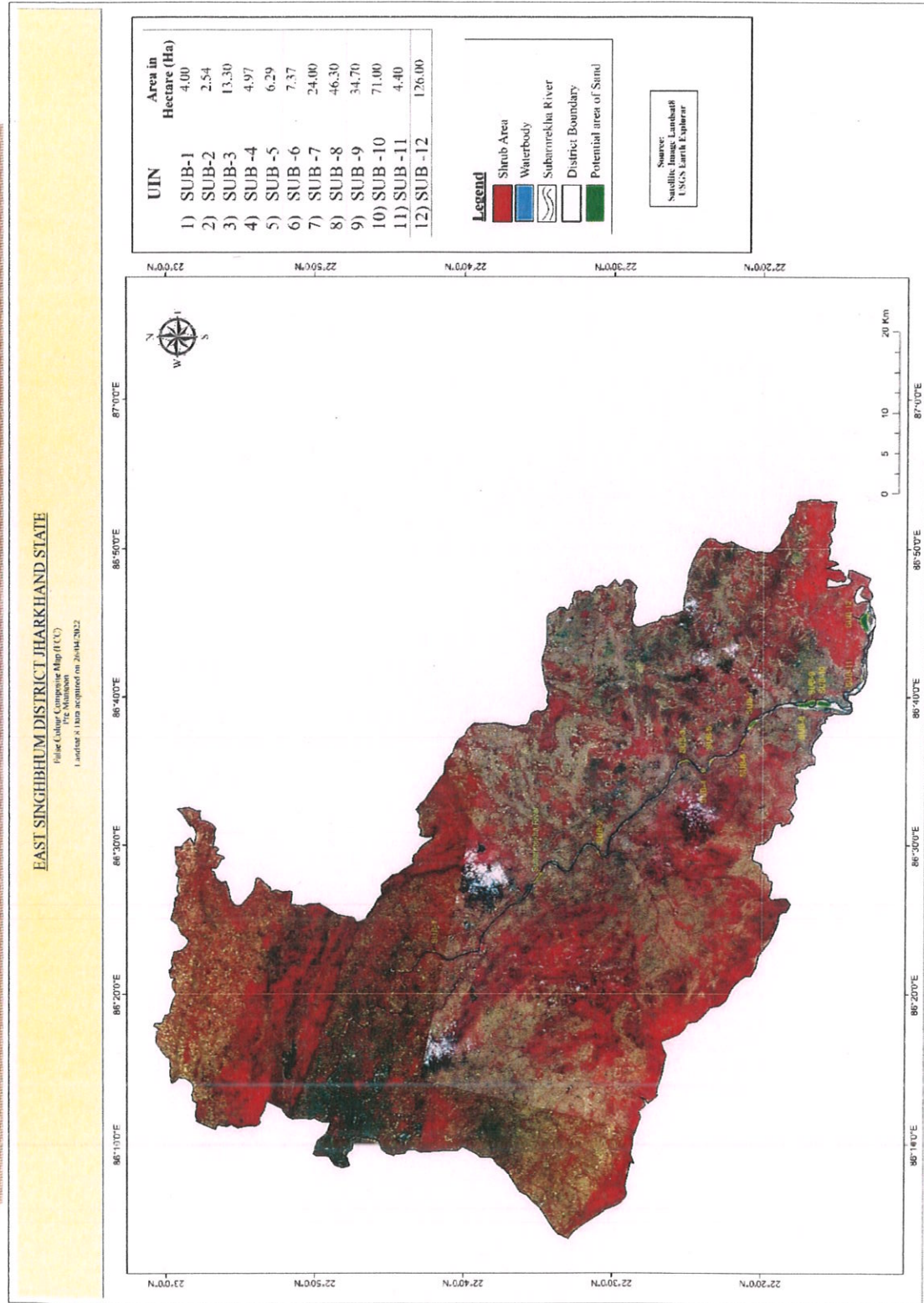


Figure 18.1 East Singhbhum False color composite map



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CHAPTER- 19

RECOMMENDATION OF ENFORCEMENT & MONITORING GUIDELINES FOR SAND MINING BY MOEF &CC-2020

INTRODUCTION

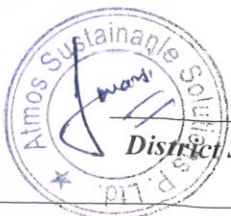
India is developing at a faster pace and much technological advancement has already been taken place in the surveillance and remote monitoring in the field of mining. Thus, it is prudent to utilize the technological advancement for the effective monitoring of the mining activities particularly sand mining in the country.

Following a series of orders by the National Green Tribunal in 2018, the Ministry of Environment, Forests and Climate Change has for the first time released guidelines to monitor and check illegal sand mining in the country. The Enforcement and Monitoring (EM) Guidelines for Sand Mining 2020 released by the Ministry include directions to states to carry out river audits, put detailed survey reports of all mining areas online and in the public domain, conduct replenishment studies of river beds, constantly monitor mining with drones, aerial surveys, ground surveys and set up dedicated task forces at district levels. The guidelines also push for online sales and purchase of sand and other riverbed materials to make the process transparent. They propose night surveillance of mining activity through night-vision drones.

While the MoEF&CC has already put in place the Sustainable Sand Management Guidelines 2016, which focus on the management of sand mining in India, that there is an urgent need to have guidelines for effective enforcement of regulatory provisions and their monitoring.

BACKGROUND

The Mines and Minerals (Development and Regulation) Act, 1957 has empowered state governments to make rules to prevent illegal mining, transportation and storage of minerals. “But in the recent past, it has been observed that there were a large number of illegal mining cases in the country and in some cases, many of the officers lost their lives while executing their duties to curb illegal mining. Illegal and uncontrolled illegal mining leads to loss of revenue to the State and degradation of the environment. The enforcement guidelines focus on the “effective monitoring of sand mining from the identification of sand mineral sources to its dispatch and end-use by consumers and the general public and looks at a uniform protocol for the whole country”.



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The need for replenishment study for river bed sand is also required in order to “nullify the adverse impacts arising due to excessive sand extraction”. No riverbed mining will be allowed during the monsoon. In cases where rivers become district boundaries or state boundaries, the districts or states sharing the boundary shall constitute the combined task force for monitoring of mined materials, mining activity and participate in the preparation of District Survey Reports (DSR) by providing appropriate inputs.

The guidelines say the detailed survey needs to be carried out for quantification of minerals and the demand and supply of the riverbed material through market survey, including the future demand for the next five years.

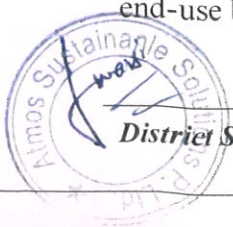
The guidelines also push for the sale and purchase of sand and river bed material (RBM) online to make the process more transparent. “In order to curb illegal mining, it is very necessary that the general public is aware of the legal source of sand and RBM suppliers. It is suggested that the state government should develop an online portal for sale and purchase of sand and RBM. The state government will also decide the model of sale and the price of RBM. “It is suggested that the controlled price model is more effective in controlling illegal sand mining,” the guidelines state.

This document will serve as a guideline for collection of critical information for enforcement of the regulatory provision(s) and also highlights the essential infrastructural requirements necessary for effective monitoring for Sustainable Sand Mining. The document is prepared in consideration of various orders/directions issued by Hon’ble NGT in matters pertaining to illegal sand mining and also based on the reports submitted by expert committees and investigation teams.

Further, this document is supplemental to the existing “Sustainable Sand Mining Management Guideline-2016” (SSMG-2016), and these two guidelines viz. “Enforcement & Monitoring Guidelines for Sand Mining” (EMGSM-2020) and SSMG-2016 shall be read and implemented in sync with each other. In case, any ambiguity or variation between the provisions of both these document arises, the provision made in “Enforcement & Monitoring Guidelines for Sand Mining-2020 “shall prevail.

OBJECTIVES OF GUIDELINE:

- Identification and Quantification of Mineral Resource and its optimal utilization.
- To regulate the Sand & Gravel Mining in the Country since its identification to its final end-use by the consumers and the general public.



- Use of IT-enabled services & latest technologies for surveillance of the sand mining at each step.
- Reduction in demand & supply gaps.
- Setting up the procedure for replenishment study of Sand.
- Post Environmental Clearance Monitoring.
- Procedure for Environmental Audit.
- To control the instance of illegal mining.

SLIENT FEATURE OF THE GUIDELINE:

District Survey Report: The guidelines provide the procedure to be followed for identifying areas where mining can be allowed or prohibited. It provides guidelines for preparing a district survey report, which includes: Preparing a report before granting a mining lease, and Defining mining and no mining zones based on certain environmental and social factors.

Preventing Illegal Mining: The guidelines suggest that sites can be monitored remotely by using unmanned artificial vehicles or drones. Drones can also be used for quantity estimation and land use monitoring. Further, the guidelines propose night surveillance of mining activity through night-vision drones. The environmental damages incurred due to illegal mining will be assessed by a committee constituted by the District Administration.

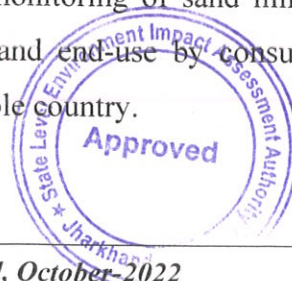
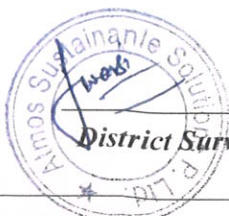
Environmental Clearance: Environmental Clearance for mining is given by regulatory authorities after considering the potential environmental impact. However, it has been observed that often the Letter of Intent (LoI) is granted for a location which is not feasible for environment-friendly mining. The guidelines provide that LoIs should be granted for those locations which have the least possibility of an impact on the environment and nearby habitation.

The guidelines also push for online sales and purchase of sand and other riverbed materials to make the process transparent.

There are some important key points of EM guidelines for sand mining 2020:

a) Source to Destination Monitoring:

The new set of guidelines focuses on the effective monitoring of sand mining from the identification of sand mineral sources to its dispatch and end-use by consumers and the general public and look at a uniform protocol for the whole country.



- Constantly monitor mining with drones and night surveillance of mining activity through night-vision drones.

b) Audits:

- States to carry out river audits put detailed survey reports of all mining areas in the public domain.

c) Enforcement:

- It gives directions to states to set up dedicated task forces at district levels.
- In cases where rivers become district boundaries or state boundaries, the districts or states sharing the boundary shall constitute the combined task force for monitoring of mined materials, mining activity and participate in the preparation of District Survey Reports (DSR) by providing appropriate inputs.

d) Sustainability:

- Conduct replenishment study for river bed sand in order to nullify the adverse impacts arising due to excessive sand extraction.
- No riverbed mining will be allowed during the monsoon.

Requirement for Monitoring & Enforcement

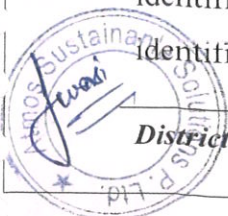
Sustainable Sand Mining Management Guidelines (SSMMG) 2016 and past experience suggest that the sources of sand in India are through:

- River (riverbed and flood plain),
- Lakes and reservoirs,
- Agricultural fields,
- Coastal / marine sand,
- Palaeo-channels and
- Manufactured Sand (M-Sand).



PREPARATION OF DISTRICT SURVEY REPORT:

“Sustainable Sand Mining Guidelines, 2016” issued by MoEF&CC requires preparation of District Survey Report (DSR), which is an important initial step before grant of mining lease/LoI. The guidelines emphasize detailed procedure to be followed for the purpose of identification of areas of aggradation/ deposition where mining can be allowed and identification of areas of erosion and proximity to infrastructural structures and installation



where mining should be prohibited. Calculation of annual rate of replenishment, allowing time for replenishment after mining, identification of ways of scientific and systematic mining; identifying measures for protection of environment and ecology and determining measures for protection of bank erosion, benchmark (BM) with respect to mean Sea Level (MSL) should be made essential in mining channel reaches (MCR) below which no mining shall be allowed.

Therefore, preparation of District Survey Report is a very important step and sustainable sand mining in any part of the country will depends on the quality of District Survey Report.

Considering the importance of district survey report, the Ministry of Environment Forest and climate change, after consultation with experts dealing with mining-related matters, formulated the following guidelines for the preparation of comprehensive District Survey Report for sand mining.

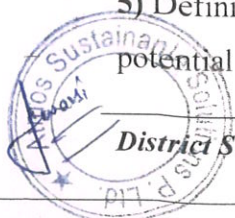
1) District Survey Report for sand mining shall be prepared before the auction/e-auction/grant of the mining lease/Letter of Intent (LoI) by Mining department or department dealing the mining activity in respective states.

2) The first step is to develop the inventory of the River Bed Material and Other sand sources in the District. In order to make the inventory of River Bed Material, a detailed survey of the district needs to be carried out, to identify the source of River Bed Material and alternative source of sand (M-Sand). The source will include rivers, de-siltation of reservoir/dams, Patta lands/Khatedari Land, M-sand etc.

3) District Survey Report is to be prepared in such a way that it not only identifies the mineral-bearing area but also define the mining and no mining zones considering various environmental and social factors.

4) Identification of the source of Sand & M-Sand. The sources may be from Rivers, Lakes, Ponds, Dams, De-silting locations, Patta land/Khtedari lands. The details in case of Rivers such as [name, length of river, type (Perennial or Non-Perennial), Villages, Tehsil, District], in case of Lakes, Ponds, Dams, De-silting locations [Name, owned/maintained by (State Govt./PSU), area, Villages, Tehsil, District] in case of Patta land/Khtedari lands [Owner Name, Sy No, Area, Agricultural/Non-Agricultural, Villages, Tehsil, District], in case of M-Sand Plant [Owner Name, Sy No, Area, Quantity/Annum, Villages, Tehsil, District], needs to be recorded as per format given in Annexure-I.

5) Defining the sources of Sand/M-Sand in the district is the next step for identification of the potential area of deposition/aggradation wherein mining lease could be granted. Detailed



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survey needs to be carried out for quantification of minerals. The purpose of mining in the river bed is for channelization of rivers so as to avoid the possibility of flooding and to maintain the flow of the rivers. For this, the entire river stretch needs to be surveyed and original ground level (OGL) to be recorded and area of aggradation/deposition needs to be ascertained by comparing the level difference between the outside riverbed OGL and water level. Once the area of aggradation/deposition is identified, then the quantity of River Bed Material available needs to be calculated. The next step is channelization of the river bed and for this central $\frac{3}{4}$ th part of the river; width needs to be identified on a map. Out of the $\frac{3}{4}$ th part area, where there is a deposition/aggradation of the material needs to be identified. The remaining $\frac{1}{4}$ th area needs to be kept as no mining zone for the protection of banks. The specific gravity of the material also needs to be ascertained by analyzing the sample from a NABL accredited lab. Thus, the quantity of material available in metric ton needs to be calculated for mining and no mining zone.

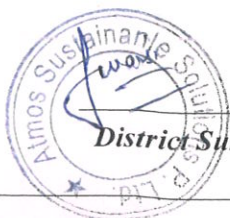
6) The permanent boundary pillars need to be erected after identification of an area of aggradation and deposition outside the bank of the river at a safe location for future surveying. The distance between boundary pillars on each side of the bank shall not be more than 100 meters.

7) Identifying the mining and no mining zone shall follow with defining the area of sensitivity by ascertaining the distance of the mining area from the protected area, forest, bridges, important structures, habitation etc. and based on the sensitivity the area needs to be defined in sensitive and non-sensitive area.

8) Demand and supply of the Riverbed Material through market survey needs to be carried out. In addition to this future demand for the next 5 years also needs to be considered.

9) It is suggested that as far as possible the sensitive areas should be avoided for mining, unless local safety condition arises. Such deviation shall be temporary & shall not be a permanent feature.

10) The final area selected for the mining should be then divided into mining lease as per the requirement of State Government. It is suggested the mining lease area should be so selected as to cover the entire deposition area. Dividing a large area of deposition/aggradation into smaller mining leases should be avoided as it leads to loss of mineral and indirectly promote illegal mining.



11) Cluster situation shall be examined. A cluster is formed when one mining lease of homogenous mineral is within 500 meters of the other mining lease. In order to reduce the cluster formation mining lease size should be defined in such a way that distance between any two clusters preferably should not be less than 2.5 Km. Mining lease should be defined in such a way that the total area of the mining leases in a cluster should not be more than 10 Ha.

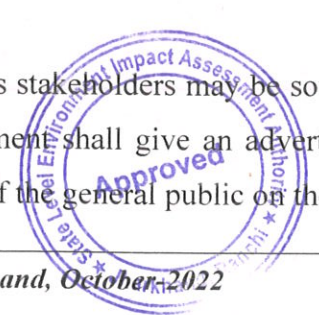
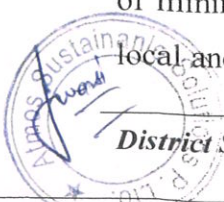
12) The number of a contiguous cluster needs to be ascertained. Contiguous cluster is formed when one cluster is at a distance of 2.5 Km from the other cluster.

13) The mining outside the riverbed on Patta land/Khatedari land be granted when there is possibility of replenishment of material. In case, there is no replenishment then mining lease shall only be granted when there is no riverbed mining possibility within 5 KM of the Patta land/Khatedari land. For government projects, mining could be allowed on Patta land/Khatedari land but the mining should only be done by the Government agency and material should not be used for sale in the open market. Cluster situation as mentioned in para k above is also applicable for the mining in Patta land/Khatedari land.

14) The State Government should define the transportation route from the mining lease considering the maximum production from the mines as at this stage the size of mining leases, their location, the quantity of mineral that can be mined safely etc. is available with the State Government. It is suggested that the transportation route should be selected in such a way that the movement of trucks/tippers/tractors from the villages having habitation should be avoided. The transportation route so selected should be verified by the State Government for its carrying capacity.

15) Potential site for mining having its impact on the forest, protected area, habitation, bridges etc, shall be avoided. For this, a sub-divisional committee may be formed which after the site visit shall decide its suitability for mining. The list of mining lease after the recommendation of the Committee needs to be defined in the following format given in as Annexure-II. The Sub-Divisional Committee after the site visit shall make a recommendation on the site for its suitability of mining and also records the reason for selecting the mining lease in the Patta land. The details regarding cluster and contiguous cluster needs to be provided as in Annexure-III. The details of the transportation need to be provided as in Annexure IV.

16) Public consultation-The Comments of the various stakeholders may be sought on the list of mining lease to be auctioned. The State Government shall give an advertisement in the local and national newspaper for seeking comments of the general public on the list of mining



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lease included in the DSR. The DSR should be placed in the public domain for at least one month from the date of publication of the advertisement for obtaining comments of the general public. The comments so received shall be placed before the sub-divisional committee for active consideration. The final list of sand mining areas [leases to be granted on riverbed & Patta land/Khatedari land, de-siltation location (ponds/lakes/dams), M-Sand Plants (alternate source of sand)] after the public hearing needs to be defined in the final DSR in the format as per Annexure-V. The details regarding cluster and contiguous cluster needs to be provided in Annexure-VI. The details of the transportation need to be provided in Annexure-VII.

No of Annexures	Details
Annexure –I	Details of Sand/ M-Sand Sources
Annexure –II	List of Potential Mining Leases (Existing & Proposed)
Annexure –III	Cluster & Contiguous Cluster details
Annexure –IV	Transportation Routes for individual leases and leases in Cluster
Annexure –V	Final List of Potential Mining Leases (Existing & Proposed)
Annexure –VI	Final List of Cluster & Contiguous Cluster
Annexure –VII	Final Transportation Routes for individual leases and leases in Cluster



Compliance to Enforcement and Monitoring Guidelines for Sand Mining- 2020 Compliance to Enforcement

ANNEXURE-I**a) Rivers:**

River Name/M-Sand Plant	Total Stretch of River (in KM)	Type of River (Perennial or Non-Perennial)
SUBARNAREKHA RIVER	115km	Perennial River

b) De-Siltation Location: (Lakes/Ponds/Dams etc.)

Name of Reservoir/Dams	Maintain/Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size(Ha)
Nil	Nil	Nil	Nil	Nil	Nil	Nil

c) Patta Lands/Khatedari Land:

Owner	Sy. No	Area (Ha)	District	Tehsil	Village	Agricultural Land (Yes/No)
Nil	Nil	Nil	Nil	Nil	Nil	Nil

d) M-Sand Plants:

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Plant Name	Owner	District	Tehsil	Village	Geo- location	Quantity Tonnes/Annun
Nil	Nil	Nil	Nil	Nil	Nil	Nil

Note: For inclusion of M-Sand Plant/Patta Land in DSR the plant/landowners need to submit the request to the Mining Department with complete details. Inclusion in DSR does not give them the right to operate the M-Sand Plant/Sand Mining lease.



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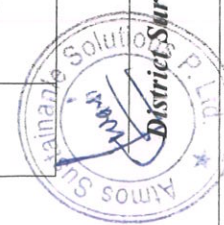
LIST OF POTENTIAL MINING LEASE (EXISTING AND PROPOSED)

UIN	River Details	Sand Ghat Details	Area in (Ha)	Geo-Coordinate	Distance from Forest Area in 250M (Y/N)	Mining leases within 500 Meters (if yes cluster area)	Total excavation in Tonnes /Annum considering digging depth max As 3meters	Mineral to be mined (Sand/ Bajri/RBM etc.)	Existing/Proposed
SUB-1	Subarnarekha Category-II	1. Gram-Kuliyana, Thana-Ghatshila Thana No.- 1247, Plot No.-01(P), District-East Singhbhum. 2. Gram-Sundarkanali Thana No.-1256, Thana- Ghatshila Plot No.-01(P), District-East Singhbhum Toposheet No.-73J/6	4.0	1) 22°41'56.78"N 86°22'49.85"E 2) 22°41'57.34"N 86°22'46.12"E 3) 22°42'16.56"N 86°22'52.68"E 4) 22°42'7.66"N 86°22'47.73"E	60	NO	52200	Sand	Proposed
SUB-2	Subarnarekha Category-II	Gram-Sonagara Thana- Ghatshila Thana No.- 165 District-East Singhbhum Plot No.-1599P, Toposheet No.- 73J/6	2.54	1) 22°31'0.95"N 86°29'27.96"E 2) 22°30'58.86"N 86°29'28.93"E 3) 22°30'52.50"N 86°29'17.32"E 4) 22°30'53.99"N 86°29'16.21"E	140	NO	33147	Sand	Proposed
SUB-3	Subarnarekha Category-II	Gram-Reruya Thana- Ghatshila Thana No.-474 Plot No.-1P, 929P District-East Singhbhum Toposheet No.-73J/1	13.3	1) 22°25'33.17"N 86°35'30.23"E 2) 22°25'34.39"N 86°35'34.58"E 3) 22°24'58.69"N 86°35'42.60"E 4) 22°24'59.63"N 86°35'38.57"E	20	NO	173565	Sand	Proposed
SUB-4	Subarnarekha Category-II	Gram- Chandanpur Thana- Ghatshila Thana No.- 484	4.97	1) 22°24'2.75"N 86°34'53.96"E 2) 22°24'3.28"N 86°34'58.76"E 3) 22°23'50.16"N 86°35'0.60"E	25	NO	64859	Sand	Proposed



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SUB-5	Subarnarekha Category-II	Plot No.-1126 District-East Singhbhum Toposheet No.-73J/11	6.29	4) 22°23'49.69"N 86°34'56.93"E 1) 22°23'33.77"N 86°35'36.89"E 2) 22°23'30.06"N 86°35'34.05"E 3) 22°23'20.76"N 86°35'46.11"E 4) 22°23'24.71"N 86°35'48.80"E	130	NO	98879	Sand	Proposed
SUB-6	Subarnarekha Category-II	1.Gram- Balijuri, Thana- Ghatshila, Thana no.-1034, Plot No.-570(P), District- East Singhbhum 2.Gram-Taraspur Thana- Ghatshila Thana No.- 1041 Plot No.-298P District-East Singhbhum Toposheet No.-73J/11	7.37	1) 22°21'25.61"N 86°36'47.27"E 2) 22°21'28.51"N 86°36'48.95"E 3) 22°21'16.62"N 86°37'10.22"E 4) 22°21'14.42"N 86°37'8.71"E	81.6	NO	115414.2	Sand	Proposed
SUB-7	Subarnarekha Category-II	Gram- Balijuri-II Thana- Ghatshila Thana No.- 1034 District-East Singhbhum Plot No.-1652P, 1407P Toposheet No.-73J/11	24.0	1) 22°20'50.66"N 86°37'55.06"E 2) 22°20'57.18"N 86°38'0.91"E 3) 22°20'32.67"N 86°38'25.31"E 4) 22°20'28.45"N 86°38'21.35"E	90	NO	314400	Sand	Proposed
SUB-8	Subarnarekha Category-II	Gram-Koreyamohanpal & Subarnarekha Thana- Ghatshila Thana No.- 998 Plot No.- 27P District-East Singhbhum Toposheet No.-73J/11	46.3	1) 22°17'35.37"N 86°39'19.51"E 2) 22°17'33.34"N 86°39'34.13"E 3) 22°17'3.31"N 86°39'38.19"E 4) 22°16'58.68"N 86°39'22.19"E	2100	YES	604215	Sand	Proposed
SUB-9	Subarnarekha Category-II	Gram-Koreyamohanpal Thana- Ghatshila Thana No.- 1002 Plot No.- 72(P) & 27(P) District-East Singhbhum Toposheet No.-73J/11	34.7	1) 22°16'57.89"N 86°39'42.00"E 2) 22°16'51.48"N 86°39'26.45"E 3) 22°16'31.76"N 86°39'31.99"E 4) 22°16'29.89"N 86°39'47.36"E	1800	YES	909140	Sand	Proposed <u>Near Odisha Boarder</u>



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SUB-10	Submarekha Category-II	1) Gram- Koreyamohanpal Thana- Ghatshila Thana No.- 1002 Plot No.-72P District-East Singhbhum 2) Gram- Subarnarekhanadipal Thana- Ghatshila Thana No.- 999 Plot No.-39P District-East Singhbhum 3) Gram- Subarnarekhanadipal Thana- Ghatshila Thana No.- 998 Plot No.-28(P) District-East Singhbhum Toposheet No.-73J/11	71.0	1) 22°16'21.63"N 86°39'28.44"E 2) 22°16'19.73"N 86°39'47.17"E 3) 22°15'28.19"N 86°39'35.26"E 4) 22°15'30.25"N 86°39'23.79"E	4800	YES	2223720	Sand	Proposed <u>Near Odisha Boarder</u>
SUB-11	Submarekha Category-II	Gram-Bankata Thana- Ghatshila Thana No.- 962 Plot No.- 3162P, 3161P District-East Singhbhum Toposheet No.-73J/12	4.40	1) 22°13'25.40"N 86°41'9.45"E 2) 22°13'25.01"N 86°41'24.30"E 3) 22°13'21.68"N 86°41'23.81"E 4) 22°13'21.83"N 86°41'9.62"E	8900	NO	172920	Sand	Proposed <u>Near Odisha Boarder</u>
SUB-12	Submarekha Category-II	1) Gram-Damjuri Thana- Ghatshila Thana NO.-760 Plot No.-1351(P) District-East Singhbhum 2) Gram-Nekradiha Thana- Ghatshila Thana NO.-759 Plot No.-323(P) District-East Singhbhum 3) Gram-Nagursai Thana- Ghatshila Thana NO.-745 Plot No.-871(P) District-East Singhbhum 4) Gram-Dipapal Thana- Ghatshila	126	1) 22°13'4.92"N 86°44'25.33"E 2) 22°13'18.77"N 86°44'49.43"E 3) 22°13'32.41"N 86°45'14.03"E 4) 22°13'2.18"N 86°45'44.77"E 5) 22°12'58.19"N 86°44'29.61"E	7900	NO	4951800	Sand	Proposed <u>*Near Odisha and Bengal Boarder</u>



	Thana NO.-744 Plot No.-1(P) & 185(P) District-East Singhbhum Toposheet No.-73J/12								
	Total	344.87						9714259	

*Not any comments received from public side.

PATTA LANDS/KHATEDARI LAND: (EXISTING & PROPOSED)

Owner	Sy.No /UIN	Area (In Ha)	District	Anchal	Village	Total Reserve (MT)	Total Mineral to be Mined (MT) 60%	Existing /Proposed
JSMDC	SUB-1	4.0	East singhbhum	Ghatshila	Kuliyana & Sundarkanali	52200	31320	Proposed
JSMDC	SUB-2	2.54	East singhbhum	Musabani	Sonagara	33147	19888.2	Proposed
JSMDC	SUB-3	13.3	East singhbhum	Gurabanda	Reruya	173565	104139	Proposed
JSMDC	SUB-4	4.97	East singhbhum	Chakulia	Chandanpur	64858.5	38915.1	Proposed
JSMDC	SUB-5	6.29	East singhbhum	Gurabanda	Bhakar	98879	59327.28	Proposed
JSMDC	SUB-6	7.37	East singhbhum	Gurabanda	Balijuri & Taraspur	115414.2	69248.52	Proposed
JSMDC	SUB-7	24.0	East singhbhum	Gurabanda	Balijuri -ii	314400	188640	Proposed



District Survey Report of Sand, East Singhbhum, Jharkhand, October-2022

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JSMDC	SUE-8	46.3	East singhbhum	Gurabanda	Koreyamohanpal & Subarnarekha	604215	362529	Proposed
JSMDC	SUB-9	34.7	East singhbhum	Gurabanda	Koreyamohanpal	909140	545484	Proposed
JSMDC	SUB-10	71.0	East singhbhum	Gurabanda	Koreyamohanpal & Subarnarekha nadipal & Subarnarekha nadipal	2223720	1334232	Proposed
JSMDC	SUB-11	4.40	East singhbhum	Bahragora	Bankata	172920	103752	Proposed
JSMDC	SUB-12	126	East singhbhum	Bahragora	Damjuri, Nekradiha & Nagursai & Dipaal	4951800	2971080	Proposed
Total Area		344.87				9714259	552855	



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1) DE-SILTATION LOCATION:(LAKES/PONDS/DAMS ETC.) (EXISTING & PROPOSED)

Name of Reservoir/Dams	Maintain /Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size(Ha)	Quantity/MT/Y ear	Existing /Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

2) M-SAND PLANTS :(EXISTING & PROPOSED)

Plant Name	Owner	District	Tehsil	Village	Geo-location	QuantityTonnes/Annum	Existing/Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL



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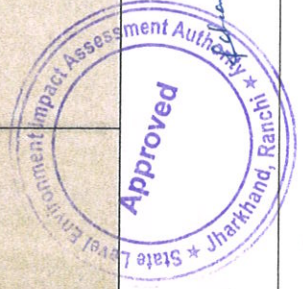
CLUSTER & CONTIGUOUS CLUSTER DETAILS

1) CLUSTERS:

River Name	Cluster No.	Lease No/ UIN	Location (Riverbed /Patta Land)	Village	Area (inHa)	Total Excavation (Ton)	Total Mineral Excavation (Ton) 60%
Subarnarekha	1	SUB-8	Plot No. 27(P)	Koreyamohanpal & Subarnarekha	46.3	604215	362529
Subarnarekha		SUB-9	Plot No. 72(P)& 27(P)	Koreyamohanpal	34.7	909140	545484
Subarnarekha		SUB-10	Plot No. 72(P) ,39(P) & 28(P)	Koreyamohanpal , Subarnarekhanadipal & Subarnarekhanadipal	71.0	2223720	1334232
					152	3737075	2242245

2) CONTIGUOUS CLUSTERS:

River Name	Contiguous Cluster No.	Cluster No	Number of leases in the cluster	Location (Riverbed /Patta Land)	Distance between clusters	Village	Area of Cluster (Ha)	Total Mineral Excavation(Ton)



Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
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ANNEXURE-IV

TRANSPORTATION ROUTES FOR INDIVIDUAL LEASES AND LEASES IN CLUSTER

Lease No	Transportation Route No	Number of tractors /day of lease	Number of tractor /day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommend ation for road(Black Topped/ unpaved)	The road will be Construc ted by Govt/ Lease Owner	Route Map & Location
SUB-1	01	8	8	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached
SUB-2	02	5	5	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached
SUB-3	03	26	26	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached
SUB-4	04	10	10	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached
SUB-5		15	15	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached
SUB-6	05	17	17	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached



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SUB-7		47	47	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached
SUB-8	06	91	91	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached
SUB-9	07	136	136	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached
SUB-10	08	334	334	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached
SUB-11	09	26	26	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached
SUB-12	10	743	743	Detail Attached Below	Unpaved	Sprinkling will be done on unpaved road	Lease owner	Attached

Transportation Routes of sand Ghat from Village to MDR/SH/NH

UIN NO.	Distance	Village Name/Road Name
SUB-1	VILLAGE ROAD -2.45 KM	KULIYANA- GALUDIH- BIRIGORA
	NH-18	SHALBANI TO PUTRU ROAD
SUB-2	VILLAGE ROAD - 4.91KM	SONAGARA- MUSABANI
	MDR	HATA/JAMSHEDPUR TO MUSABANI ROAD
SUB-3	VILLAGE ROAD -9.12KM	RERYA –NEKRASHOLI-BIHILA- KHARBANDA
	NH -18	JHARIYA TO KOKPARA ROAD



SUB-4	VILLAGE ROAD - 5.76KM NH-18	CHANDANPUR – BARTOLYA -PITAJURI JHARIYA TO PITAJURI ROAD
SUB-5	VILLAGE ROAD -8.75 KM NH-18	BHAKAR –SINGPURA –SHYAMSUNDARPUR –CHHOTA GENRYAS JHARIYA TO PITAJURI RD
SUB-6	VILLAGE ROAD -8.76 KM MDR	CHHOTA HATIDAHAR – PANRRA PATHAR -HANSDA BAKHUL -BAHUTIYA MURAKATI TO GURABAND RD
SUB-7	VILLAGE ROAD -9.54 KM MDR	MAROTALI –NAIKANSHOL –NEKRADUNGRI -PAHARPUR MURAKATI TO GURABAND ROAD
SUB-8	VILLAGE ROAD -1.55 KM MDR	KOREYAMOHANPAL & SUBRNAREKHA -SWARGAEHHINRA KAIMA MUSABANI TO URUBERA RD
SUB-9	VILLAGE ROAD -2.24 KM MDR	MADHUJABERA –GOHAL DANGRA – BHALIYA TIKRI MAHULISHAL TO BANKATI ROAD
SUB-10	VILLAGE ROAD -1 KM MDR	TAL PATHAR PARA TAL PATHAR PARA TO MUSABANI ROAD
SUB-11	VILLAGE ROAD -4.27 KM AH -46	BURNIPAL BRIDGE –MURUNIYA- MANDHUBANPUR –RAGHUNATHPUR – BANABURA MUMBAI TO KOLKATA HIGHWAY
SUB-12	VILLAGE ROAD -4.34 KM AH -46	NEKRADIHA- BANGARA-HARIHARPUR –MALBANDI –GAMARIYA MUMBAI TO KOLKATA HIGHWAY



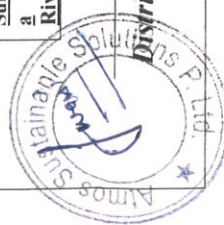
FINAL LIST OF SAND GHAT (EXISTING & PROPOSED)

River Name	Lease Details	Name of Sand Ghat	Khata No. & Plot No.	Geo-Coordinates	Mining Leases within 500m (if yes Cluster area)	Area in Ha.	Dimenson of Sand Ghat (L x W x D) m	Sp. Gravity of Sand	Total Excavation in Cum	Total Excavation in Ton	Total Mining Area of 60% in Ton
Subarnarekh a River	Mauza Kuliyaana & Sundarkanali	Kuliyaana & Sundarkanali Ghat	Plot No. 01(P) & 01(P)	1)22 41'56.78"N 86 22'49.85"E 2)22 41'57.34"N 86 22'46.12"E 3)22 42'6.56"N 86 22'52.68"E	No	4.0	316.07 x 112.56 x 0.5	2.61	20000	52200	31320



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Subarnarekha River	Anchal District-East Singhbhum	Sonagara Ghat	Plot No. 1599(P)	<p>4) 22 42' 7.66" N 86 22' 47.73" E</p> <p>1) 22 31' 0.95" N 86 29' 27.96" E</p> <p>2) 22 30' 58.86" N 86 29' 28.93" E</p> <p>3) 22 30' 52.50" N 86 29' 17.32" E</p> <p>4) 22 30' 53.99" N 86 29' 16.21" E</p>	No	2.54	389.95 x 65.14 x 0.5	2.61	12700	33147	19888
Subarnarekha River	Mauza Reruya Anchal District-East Singhbhum	Reruya Ghat	Plot No. 1(P), 929(P)	<p>1) 22 25' 33.17" N 86 35' 30.23" E</p> <p>2) 22 25' 34.39" N 86 35' 34.58" E</p> <p>3) 22 24' 58.69" N 86 35' 42.60" E</p> <p>4) 22 24' 59.63" N 86 35' 38.57" E</p>	No	13.3	1147.8 x 115.87 x 0.5	2.61	66500	173565	104139
Subarnarekha River	Mauza Chandampur Anchal District-East Singhbhum	Chandampur Ghat	Plot No. 1126	<p>1) 22 24' 2.75" N 86 34' 53.96" E</p> <p>2) 22 24' 3.28" N 86 34' 58.76" E</p> <p>3) 22 23' 50.16" N 86 35' 0.60" E</p> <p>4) 22 23' 49.69" N 86 34' 56.93" E</p>	No	4.97	368.65 x 134.82 x 0.5	2.61	24850	64858.5	38915
Subarnarekha River	Mauza Bhakar Anchal District-East Singhbhum	Bhakar Ghat	Plot No. 126(P)	<p>1) 22 23' 33.77" N 86 35' 36.89" E</p> <p>2) 22 23' 30.06" N 86 35' 34.05" E</p> <p>3) 22 23' 20.76" N 86 35' 46.11" E</p> <p>4) 22 23' 24.71" N 86 35' 48.80" E</p>	No	6.29	443.97 x 141.68 x 0.6	2.62	37740	98879	59327
Subarnarekha River	Mauza Balijuri & Taraspur Anchal District-East Singhbhum	Balijuri & Taraspur Ghat	Plot No. 570(P) & 298(P)	<p>1) 22 21' 25.61" N 86 36' 47.27" E</p> <p>2) 22 21' 28.51" N 86 36' 48.95" E</p> <p>3) 22 21' 16.62" N 86 37' 10.22" E</p> <p>4) 22 21' 14.42" N 86 37' 8.71" E</p>	No	7.37	743.99 x 99.06 x 0.6	2.61	44220	115414.2	69249
Subarnarekha River	Mauza Balijuri-ii Anchal District-East Singhbhum	Balijuri-ii Ghat	Plot No. 1652(P), 1407(P)	<p>1) 22 20' 50.66" N 86 37' 55.06" E</p> <p>2) 22 20' 57.18" N 86 38' 0.91" E</p> <p>3) 22 20' 32.67" N 86 38' 25.31" E</p> <p>4) 22 20' 28.45" N 86 38' 21.35" E</p>	No	24.0	1195.76 x 200.71 x 0.5	2.62	120000	314400	188640
Subarnarekha River	Mauza Koreyamohanpal & Subarnarekha Anchal District-East Singhbhum	Koreyamohanpal & Subarnarekha Ghat	Plot No. 27(P)	<p>1) 22 17' 35.37" N 86 39' 19.51" E</p> <p>2) 22 17' 33.34" N 86 39' 34.13" E</p> <p>3) 22 17' 3.31" N 86 39' 38.19" E</p> <p>4) 22 16' 58.68" N 86 39' 22.19" E</p>	Yes	46.3	1066.91 x 433.96 x 0.5	2.61	231500	604215	362529
Subarnarekha River	Mauza Koreyamohanpal Anchal District-East Singhbhum	Koreyamohanpal Ghat	Plot No. 72(P) & 27(P)	<p>1) 22 16' 57.89" N 86 39' 42.00" E</p> <p>2) 22 16' 51.48" N 86 39' 26.45" E</p> <p>3) 22 16' 31.76" N 86 39' 31.99" E</p> <p>4) 22 16' 29.89" N 86 39' 47.36" E</p>	Yes	34.7	786.16 x 441.39 x 1.0	2.62	347000	909140	545484
Subarnarekha River	Mauza Koreyamohanpal, Subarnarekhanadipal	Koreyamohanpal, Subarnarekhanad	Plot No. 72(P), 39(P) &	<p>1) 22 16' 21.63" N 86 39' 28.44" E</p> <p>2) 22 16' 19.73" N 86 39' 47.17" E</p> <p>3) 22 15' 28.19" N 86 39' 35.26" E</p>	Yes	71.0	1735.62 x 409.08 x 1.2	2.61	852000	2223720	133423 2



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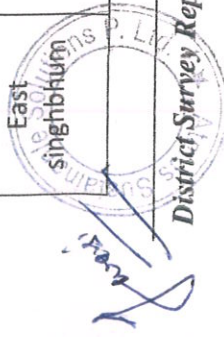
Subarnarekha a River	& Subarnarekhanadipal Anchal District-East singhbhum	ipal & Subarnarekhanad ipal Ghat	28(P)	4)22 15'30.25"N 86 39'23.79"E	No	4.40	$\frac{415.23 \times 105.97}{\times 1.5}$	2.62	66000	172920	103752
Subarnarekha a River	Mauza Bankata Anchal District-East singhbhum	Bankata Ghat	Plot No. 3162(P), 3161(P)	1)22 13'25.40"N 86 41'9.45"E	No	4.40	$\frac{415.23 \times 105.97}{\times 1.5}$	2.62	66000	172920	103752
				2)22 13'25.01"N 86 41'24.30"E							
				3)22 13'21.68"N 86 41'23.81"E							
				4)22 13'21.83"N 86 41'9.62"E							
Subarnarekha a River	Mauza Damjuri, Nekradiha, Nagursat & Dipapal Anchal District-East singhbhum	Damjuri, Nekradiha, Nagursat & Dipapal Ghat	Plot No. 1351(P), 323(P), 871(P) & 1(P),185 (P)	1)22 13'4.92"N 86 44'25.33"E	No	126	$\frac{1969.73 \times 639.68}{\times 1.5}$	2.62	1890000	4951800	297108 0
				2)22 13'18.77"N 86 44'49.43"E							
				3)22 13'32.41"N 86 45'14.03"E							
				4)22 13'2.18"N 86 45'44.77"E							
				5)22 12'58.19"N 86 44'29.61"E							



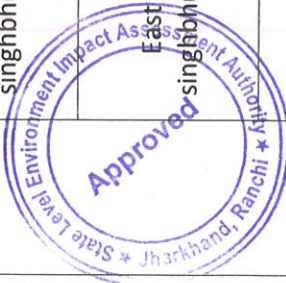
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**DETAILS OF EAST SINGHBHUM DISTRICT FROM CIRCLE, DIVISIONAL FOREST OFFICE & WILD LIFE
NOC FROM DIFFERENT COMPETENT AUTHORITY**

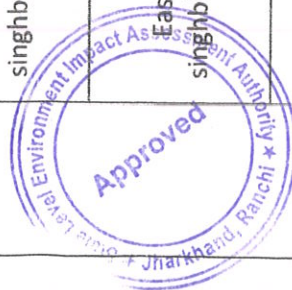
District	Anchal/Circle	Village/Mauza	Khata & Plot No	Register II With Letter No. (Yes or No)	Whether Distance of Project location from reserved Forest/Protected Forest if 250m?	Distance From Wild Life within 10km
East singhbhum	Ghatshila	Kuiliyana	PlotNo.-01(P)	No Letter.No.- 94 Date-22-02-2023	No 60 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Ghatshila	Sundarkanali	PlotNo.-01(P)	No Letter.No.- 94 Date-22-02-2023	No 60 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Musabani	Sonagara	Khata No.-340 PlotNo.-1599(P)	किस पुरानी परती आवाइ है Letter.No.-567 Date-21-12-2022	No 140 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Gurabanda	Reruya	Khata No.- 250 PlotNo.-1(P),929(P)	No Letter.No.-82/3f Date-20-02-2023	No 20 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Chakulia	Chandanpur	Plot No.-1126	No Letter.No.-1382 Date-17-12-2022	No 25 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023



East singhbhum	Gurabanda	Bhakar	Plot No.-126(P)	No Letter.No.-86/अं Date-20-02-2023	No 130 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Gurabanda	Balijuri	Khata No.-113 Plot No.-570(P)	No Letter.No.-87/अं Date-20-02-2023	No 81.6 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Gurabanda	Taraspur	Khata No.-113 Plot No.-298(P)	No Letter.No.-87/अं Date-20-02-2023	No 81.6 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Gurabanda	Balijuri -II	Khata No.- 333, PlotNo.1652(P), 1407(P)	No Letter.No.-85/अं Date-20-02-2023	No 90 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Gurabanda	Koreyamohanpal & Subarnarekha	Khata No.-01 Plot No.-27(P)	Individual letter of C.O has not issued but letter no 83(1/310) mention plot no. 27	Yes 2100 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Gurabanda	Koreyamohanpal	Khata No.- 01 Plot No.-72(P)& 27(P)	No Letter.No.-83/अं Date-20-02-2023	Yes 3800 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East	Gurabanda	Koreyamohanpal	Plot No.- 72(P)	No Letter.No.-88/अं	Yes 4800 Mtr.	Wildlife Letter Attached In



singhbhum				Date-20-02-2023	Letter No.-124 Date- 17.01.2023	Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Gurabanda	Subarnarekhanadipal	Plot No.- 39(P)	No Letter.No.-88/अ Date-20-02-2023	Yes 4800 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Gurabanda	Subarnarekhanadipal	Plot No.-28(P)	No Letter.No.-88/अ Date-20-02-2023	Yes 4800 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Baharagora	Bankata	PlotNo.- 3162(P),3161(P)	No Letter.No.-855 & 06 Date-15-12-2022 & 05- 01-2023	Yes 8900 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Baharagora	Domjuri	Plot No.-1351(P)	No Letter.No.-05 Date-5-01-2023	Yes 7900 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Baharagora	Nekradiha	Plot No.-323(P)	No Letter.No.-08 Date-5-1-2023	Yes 7900 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
East singhbhum	Baharagora	Nagursai	Plot No.-871(P)	No Letter.No.-09 Date-5-1-2023	Yes 7900 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023



East Singhbhum	Baharagora	Dipapal	Khata No.-50 Plot No.-1(P), 185(P)	No Letter.No.-07 Date-5-1-2023 Letter No-98 Date- 22.02.2023	Yes 7900 Mtr. Letter No.-124 Date- 17.01.2023	Wildlife Letter Attached In Annexures Letter No.-117 Date- 16.01.2023
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LIST OF SAND GHAT UNDER CATEGORY-I

SL.NO	LOCATION	RIVER	AREA IN ACRES	GEO-COORDINATES
1	JOJOSAI 1	GARRA	0.6043	22 37'08.40" 86 14'54.28"
2	JOJOSAI 2	GARRA	1.3767	22 36'38.59" 86 14'27.96"
3	BADA SIGDI	GARRA	2.5959	22 37'49.04" 86 15'04.10"
4	DABANKI	GARRA	1.2583	22 37'50.52" 86 15'08.64"

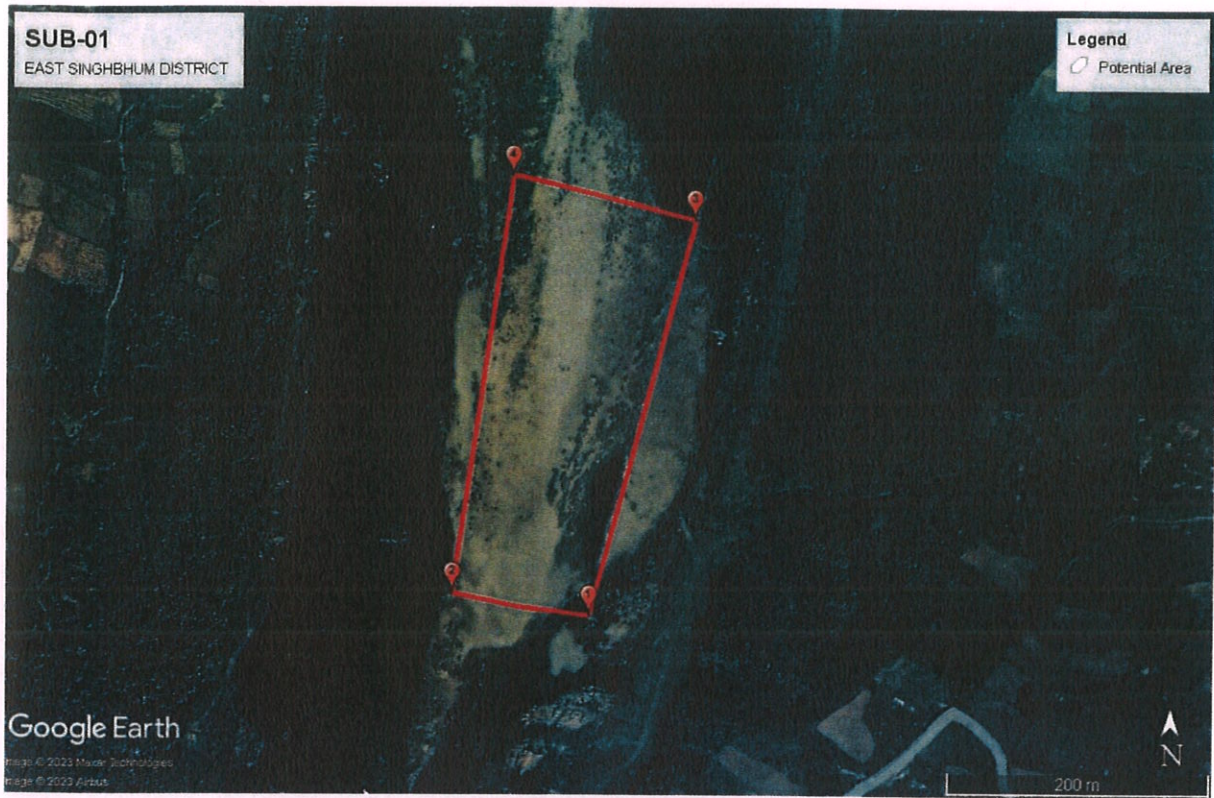


Appendix

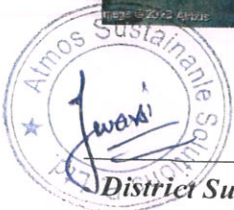


GOOGLE MAP OF PROPOSED POTENTIAL AREA OF SAND GHAT

SUB-01



SUB-02

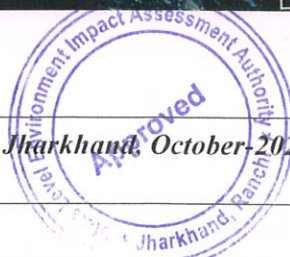
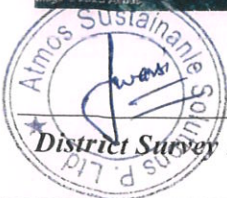


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SUB-03

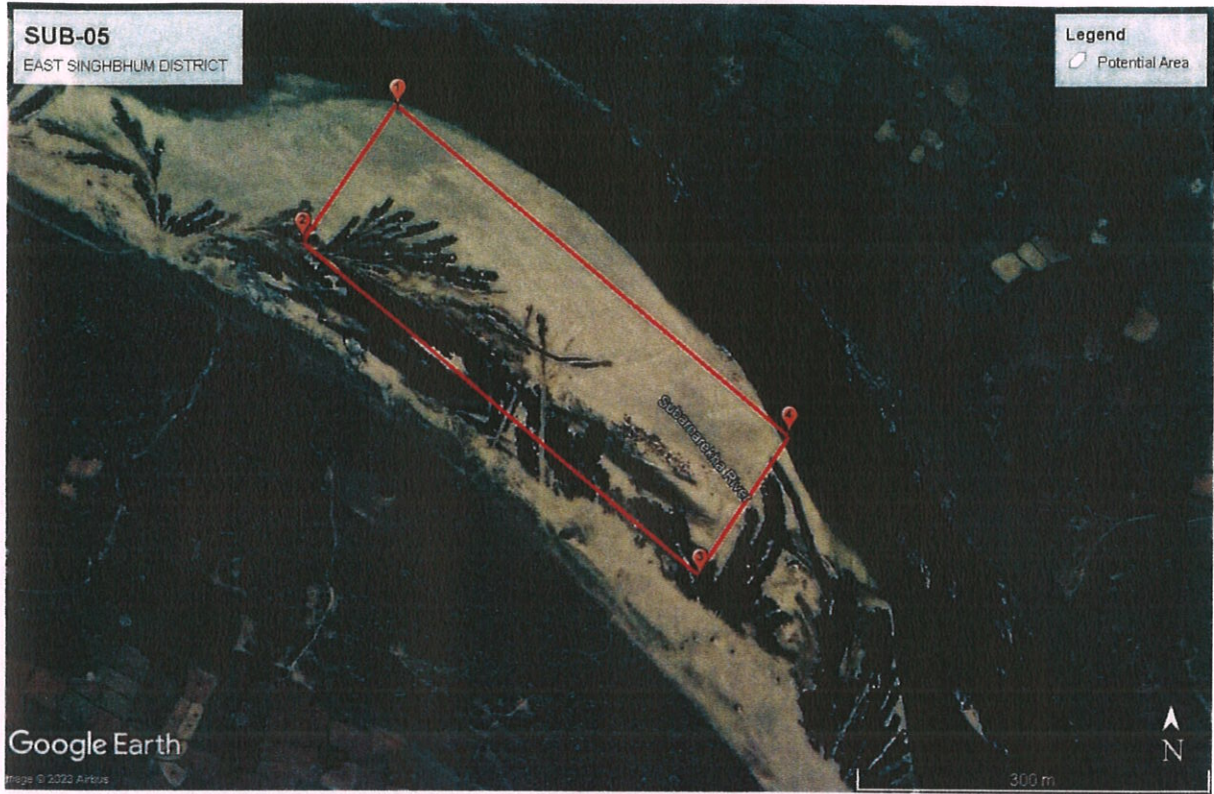


SUB-04



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SUB-05



SUB-06

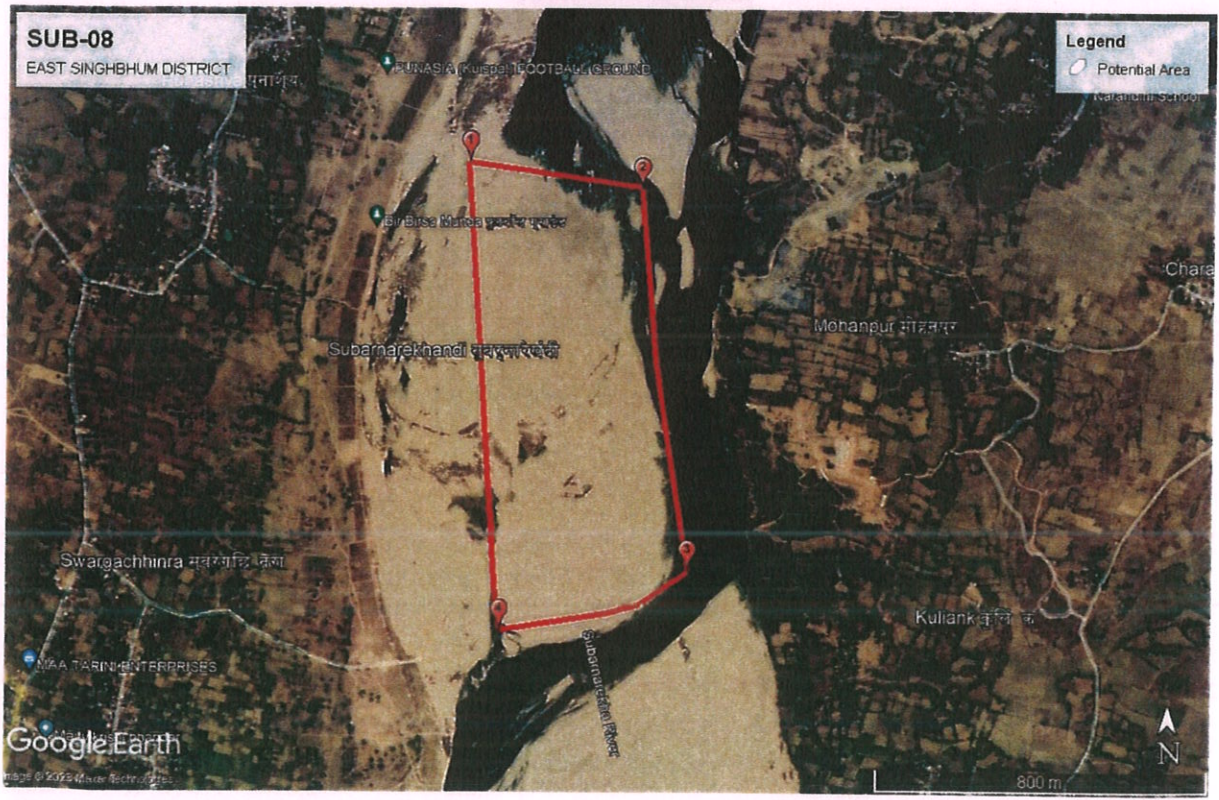


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SUB- 07

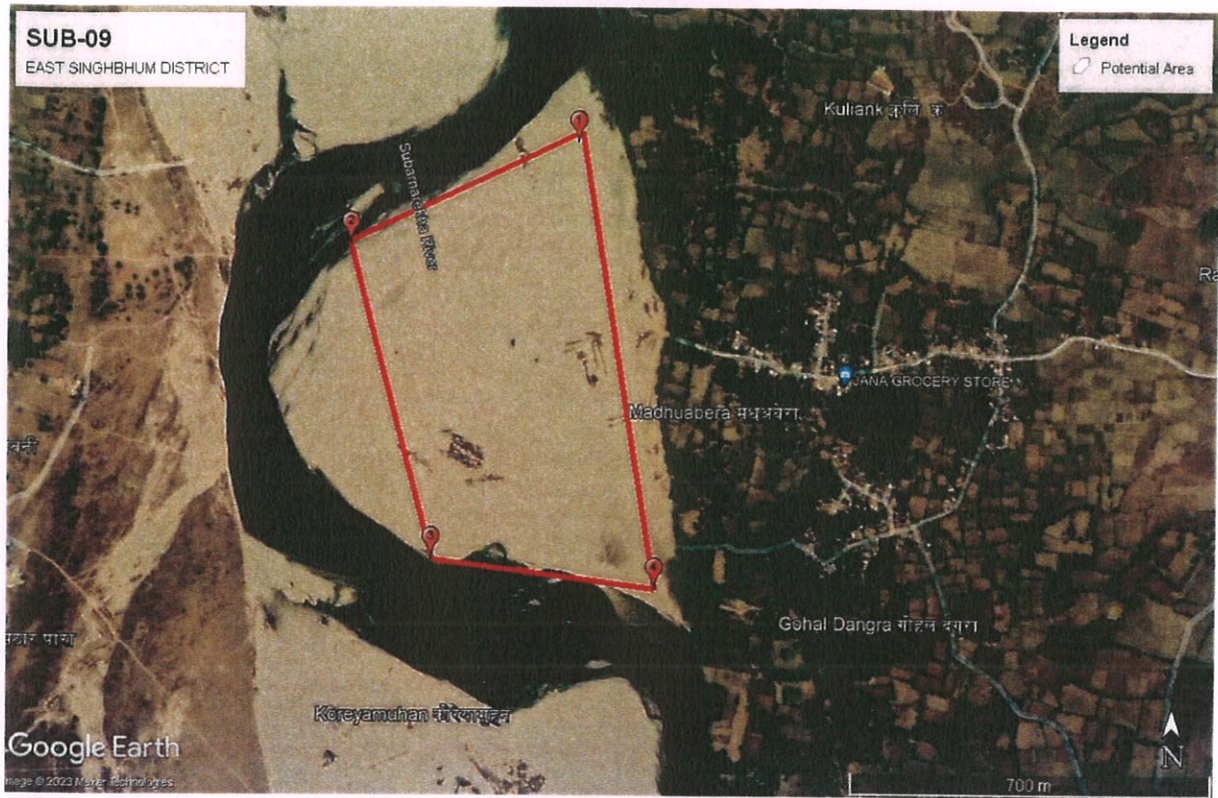


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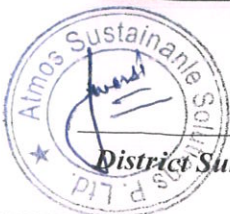
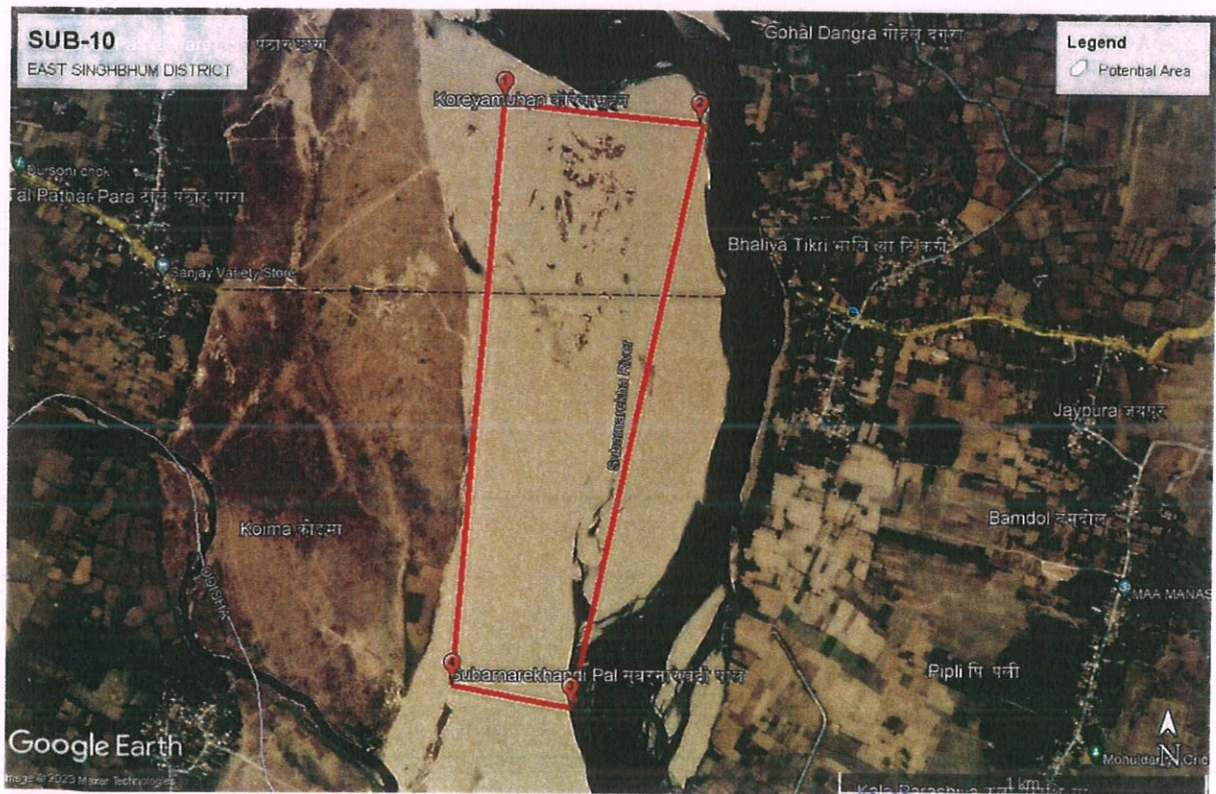


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SUB- 9

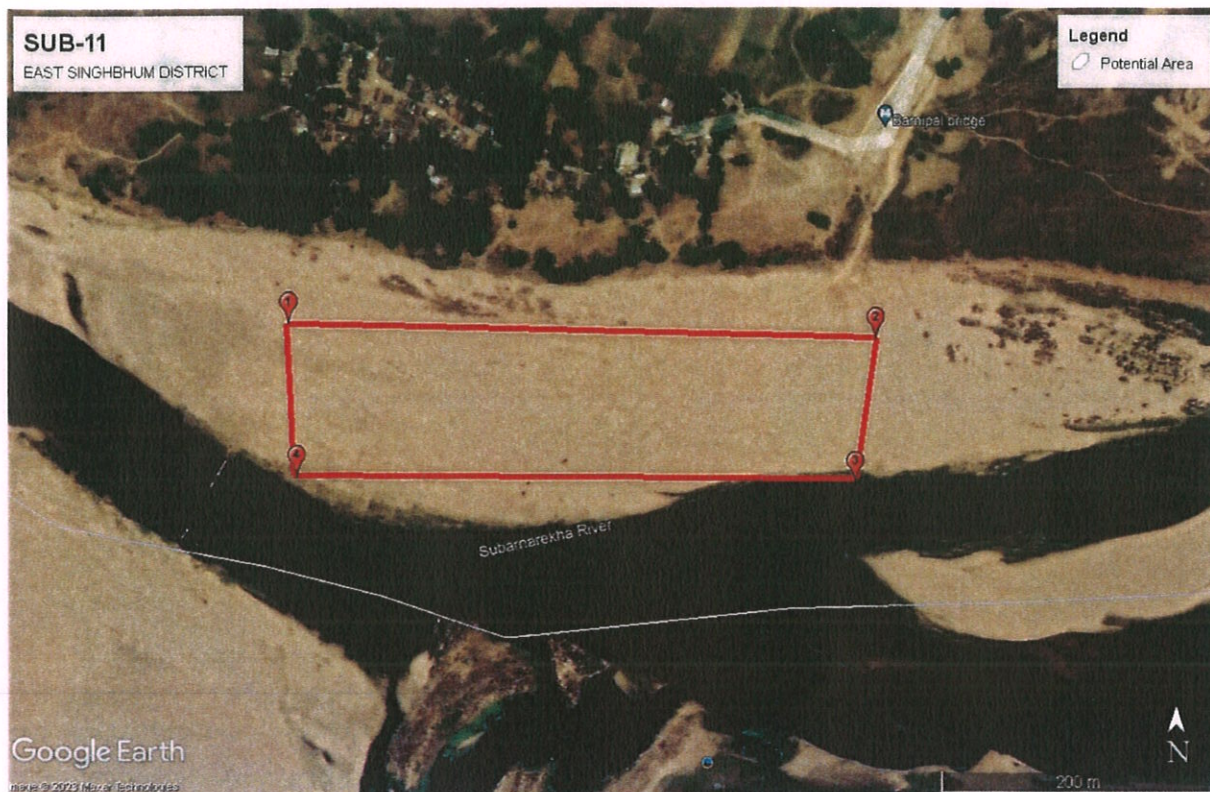


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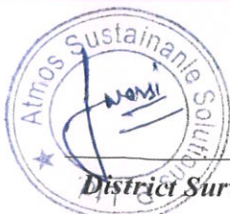
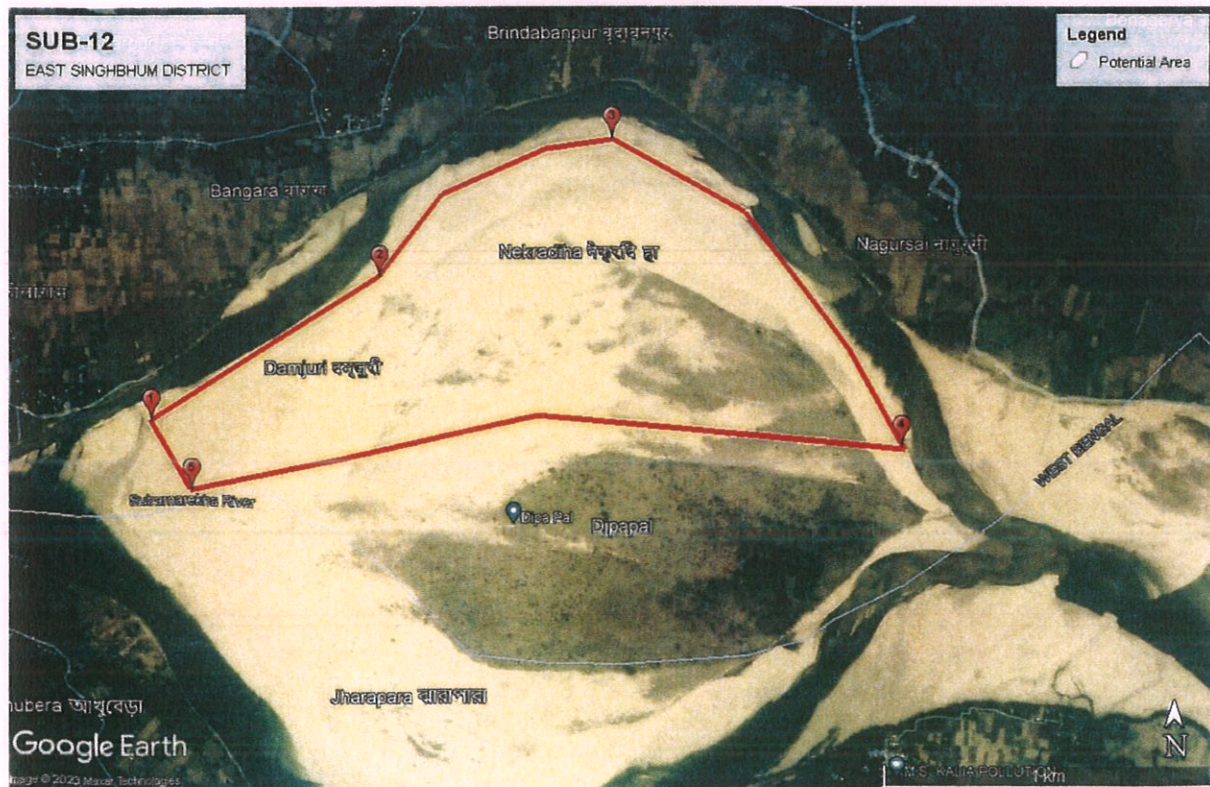


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SUB - 11



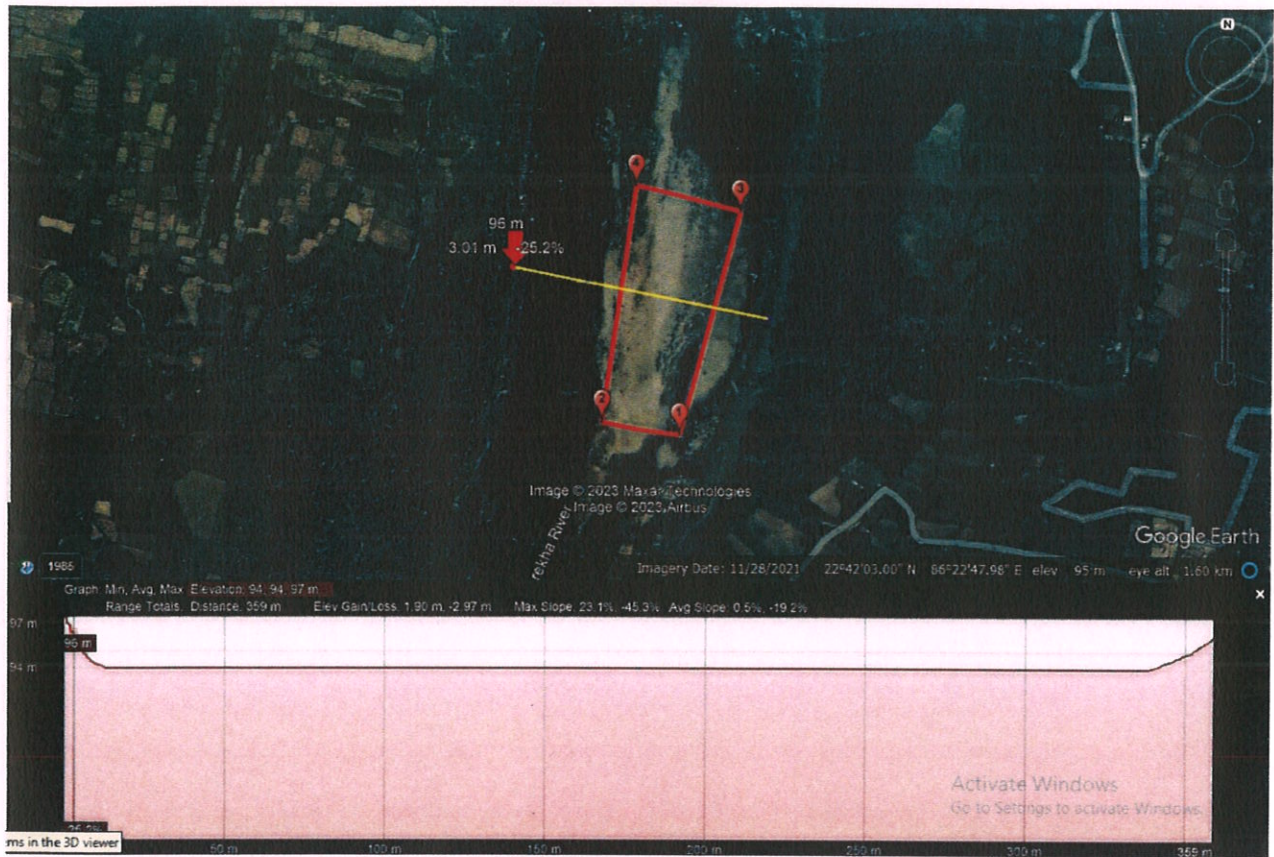
SUB- 12



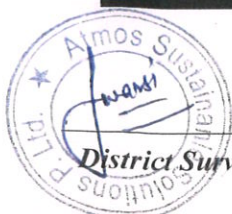
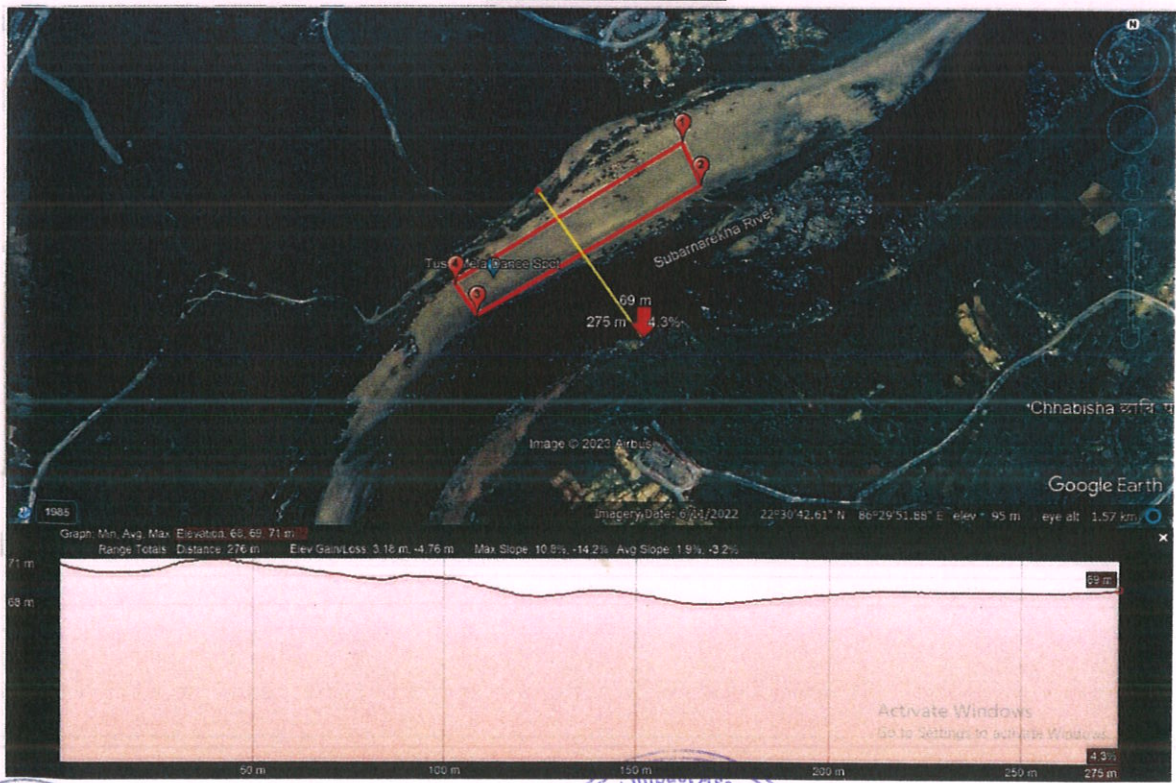
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CROSS SECTION OF SUBARNAREKHA RIVER OF EACH POTENTIAL AREA

SUB- 01



SUB- 02

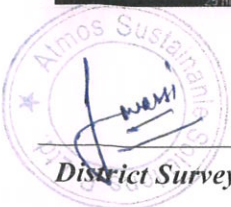
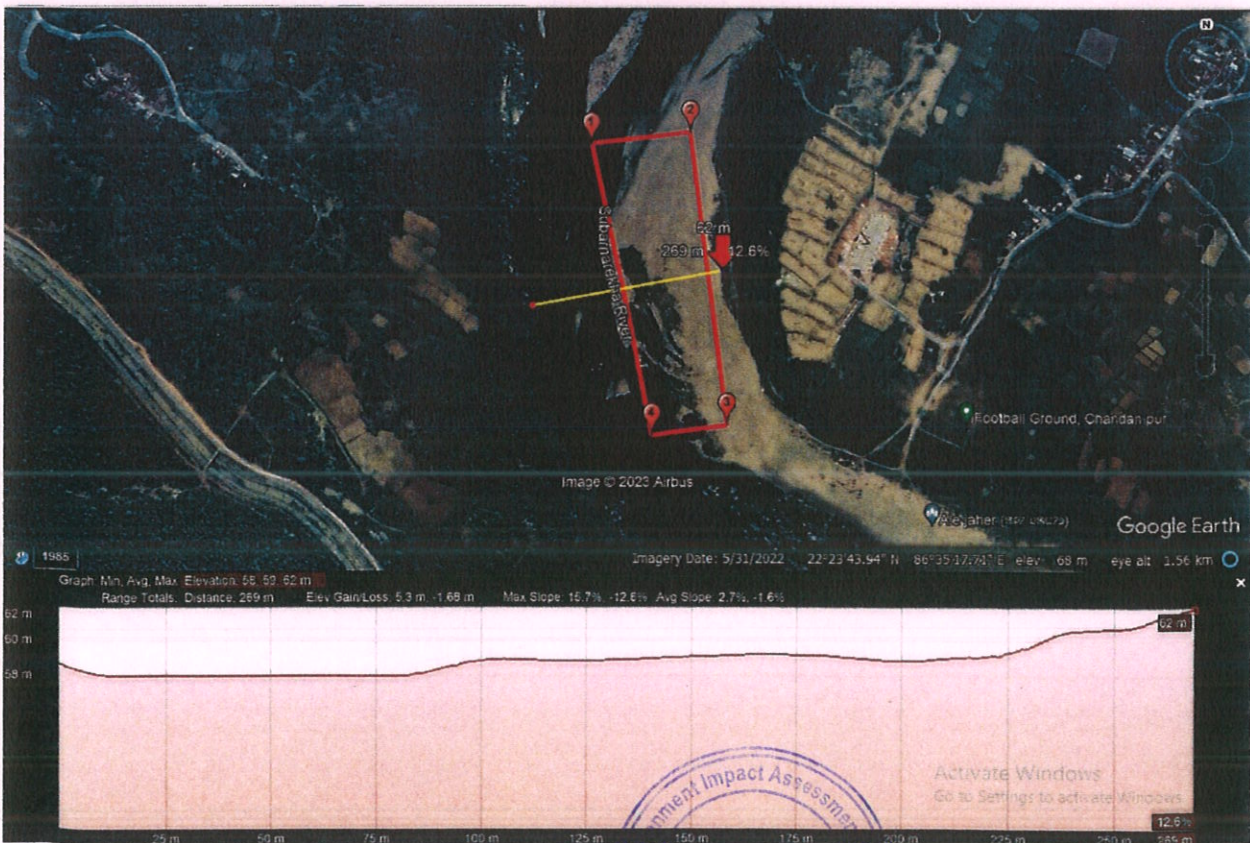


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SUB- 03

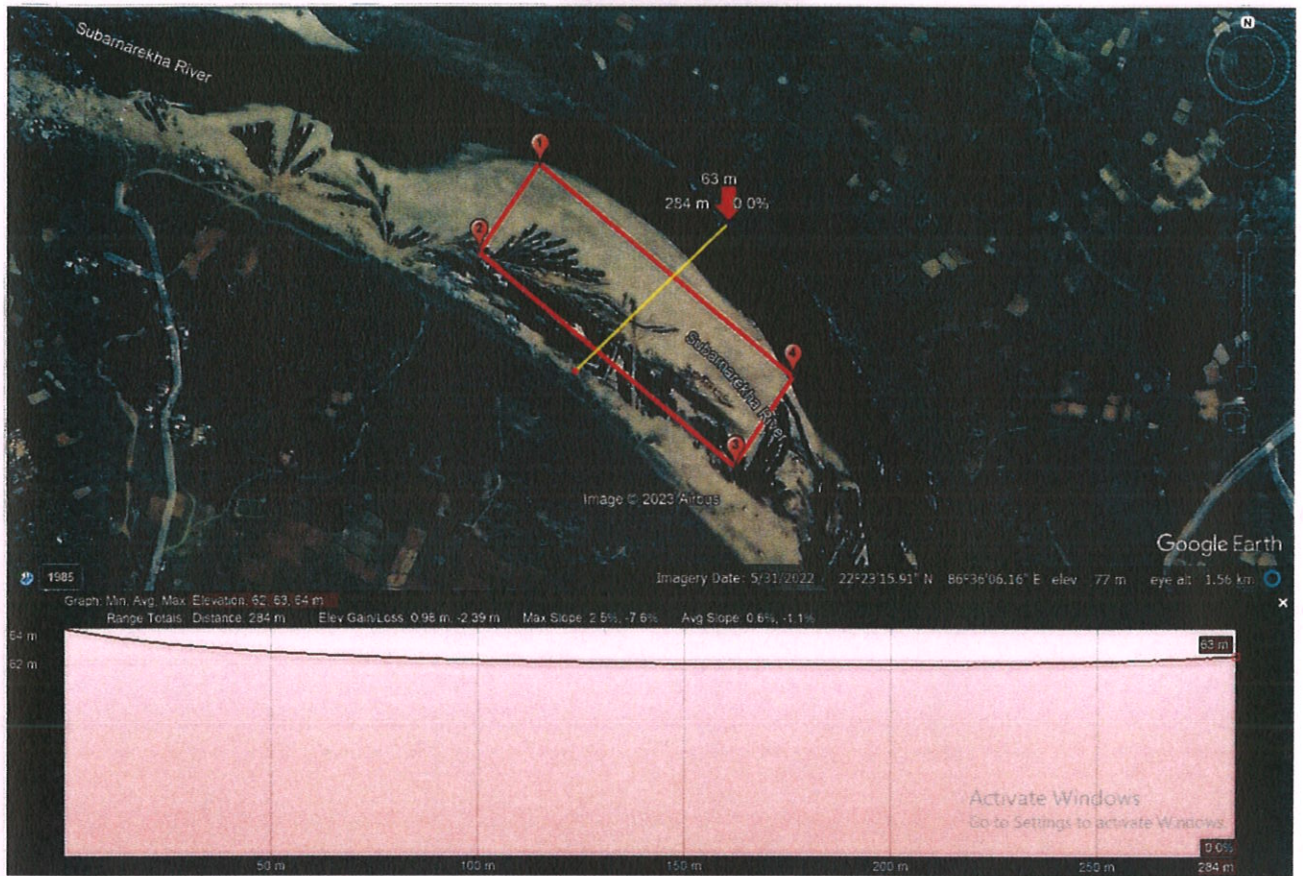


SUB- 04

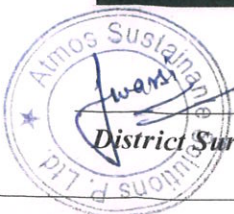


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SUB- 05



SUB- 06

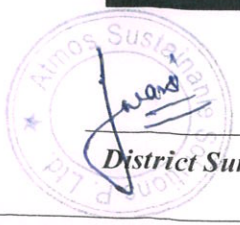


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SUB-07



SUB-08

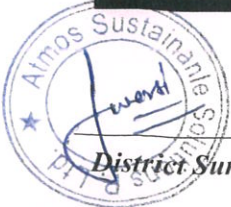
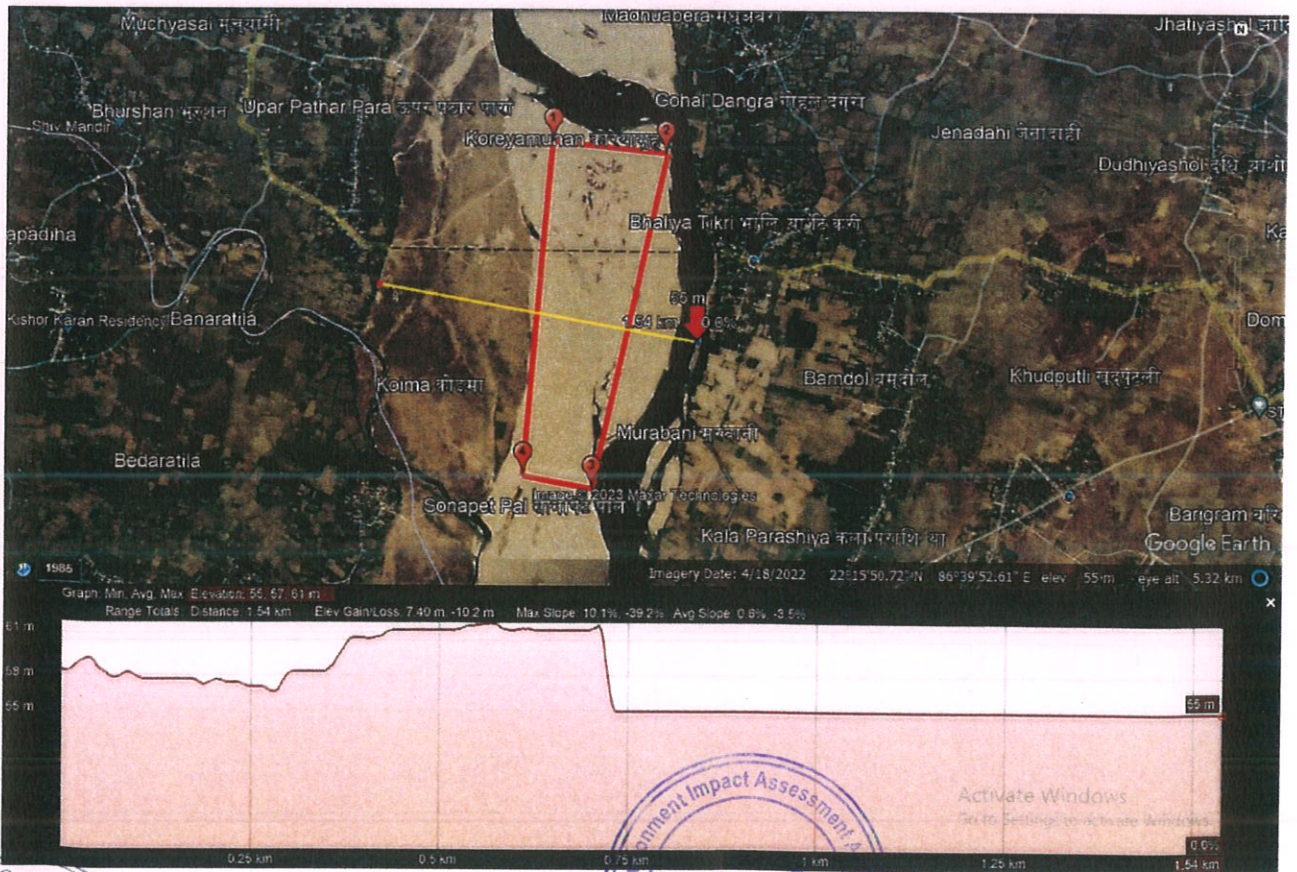


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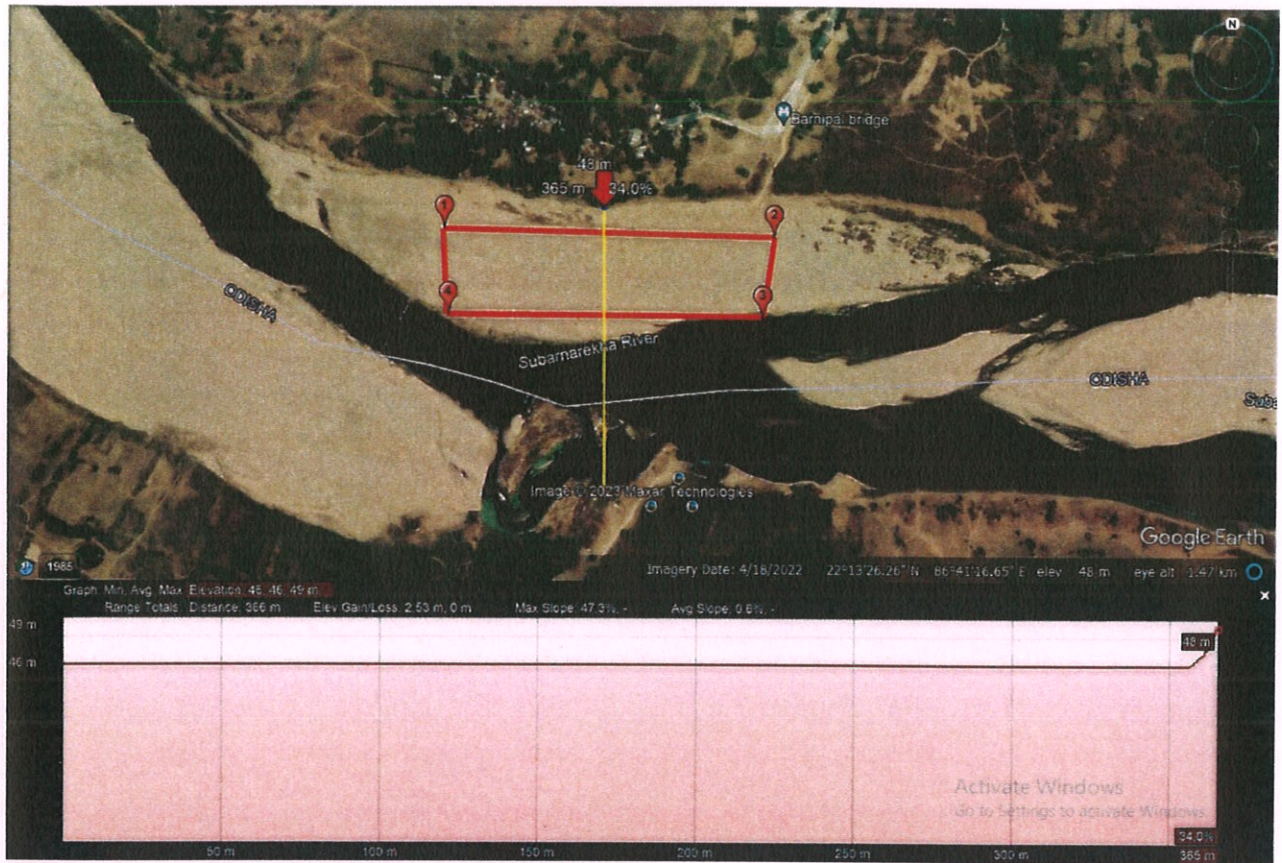


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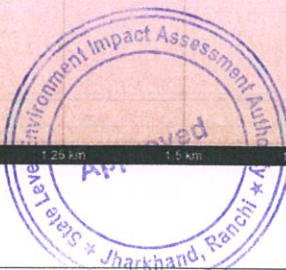
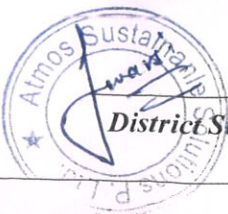
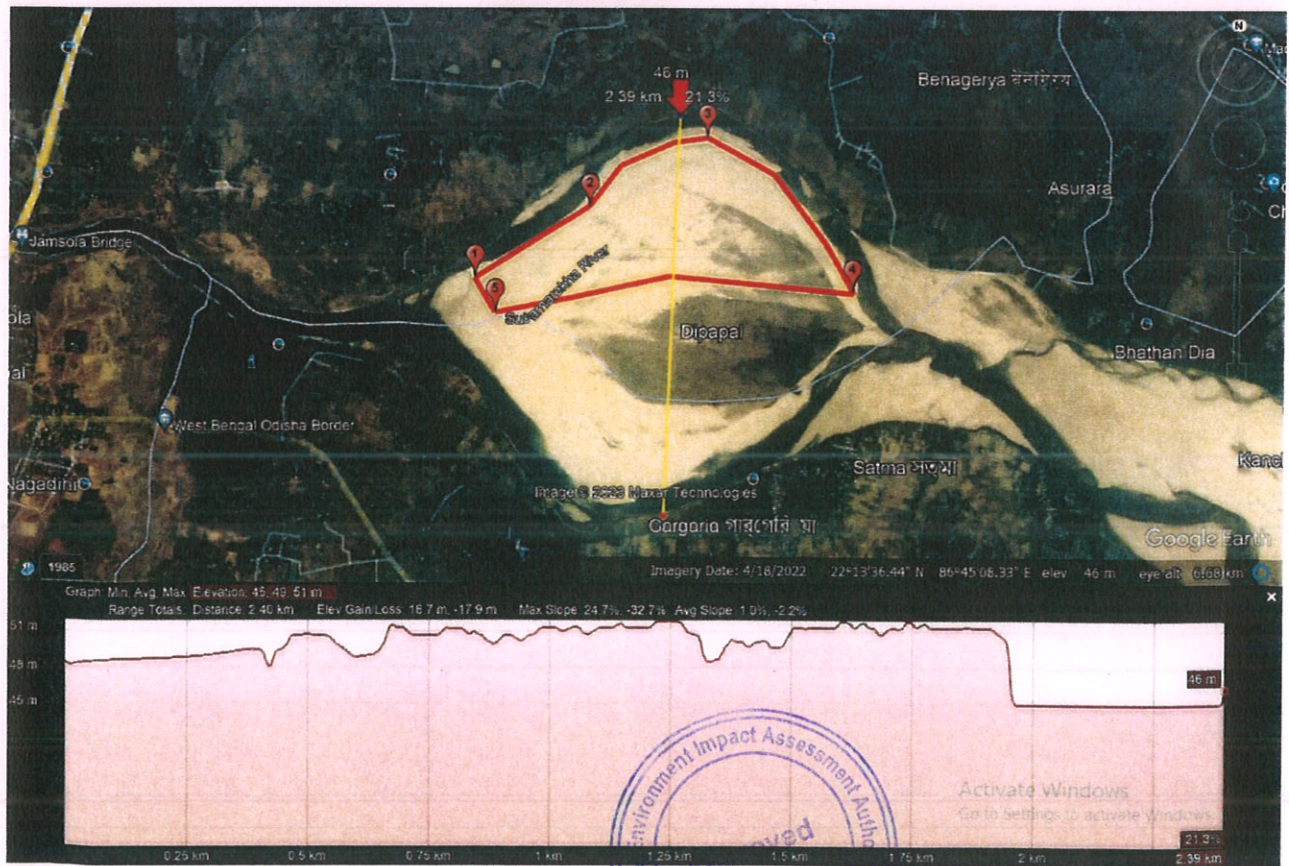


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SUB- 11



SUB- 12



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CHAPTER- 20

PROCESS OF DEPOSITION OF SEDIMENTS IN THE RIVERS OF THE DISTRICT

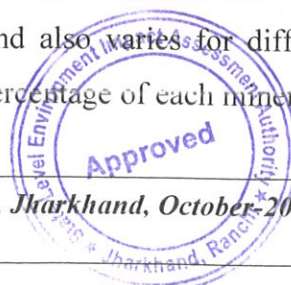
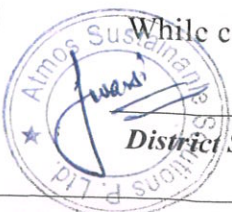
Sediment refers to the conglomerate of materials, organic and inorganic, that can be carried away by water, wind or ice. While the term is often used to indicate soil-based, mineral matter (e.g. clay, silt and sand), decomposing organic substances and inorganic biogenic material are also considered sediment. Most mineral sediment comes from erosion and weathering, while organic sediment is typically detritus and decomposing material such as algae. Sediment particles come in different sizes and can be inorganic or organic in origin. These particulates are typically small, with clay defined as particles less than 0.00195 mm in diameter, and coarse sand reaching up only to 1.5 mm in diameter. However, during a flood or other high flow event, even large rocks can be classified as sediment as they are carried downstream. Sediment is a naturally occurring element in many bodies of water, though it can be influenced by anthropogenic factors.

In an aquatic environment, sediment can either be suspended (floating in the water column) or bedded (settled on the bottom of a body of water). In other words, waterflow tries to scour its surface whenever it flows in the channel. Silt or gravels even larger boulders are detached from its bed or banks. The moving water sweeps these detached particles in downstream along its flow. Silting and scouring is not very uncommon and must be avoided by proper designs. It reduces supply level of water. The channel section gets reduced by silt and reduces discharging capacity. Sediments seriously threaten various projects due to silt carried out by rivers up to point of interceptions. Sediment is also threatening denudation of forests. Sediment is a major obstruction on the flow line. It shortens longevity of channel. It causes soil erosion. Therefore data base must beneeded for policy making and planning.

The mineral potential is calculated based on field investigation and geology of the catchment area of the river/ streams. As per the policy of the State and location, depth of minable mineral is defined. The area for removal of mineral in a river or stream can be decided depending on geomorphology and other factors, it can be 50% to 60% of the area of a particular river/stream, e.g. in river mineral constituents like sand up to a depth of three meter are considered as resource mineral. Other constituents like clay and silt are excluded as waste while calculating the mineral potential of particular river/ stream.

The specific gravity of each mineral constituent is different. The percent of mineral constituent like boulder, river Bajri, and sand also varies for different river and streams.

While calculating the minrcal potential, the percentage of each mineral constituent is taken as



25-30% for sand and 5- 10% for silt and clay.

The quantum of deposition varies from stream to stream depending upon factors like catchment lithology, discharge, river profile and geomorphology of the river course. There are certain geo- morphological features developed in the river beds such as channel bar, point bar etc where annual deposition is more even two to three meters.

PROCESS OF DEPOSITION:

Sediment is a naturally occurring material that is broken down by processes of weathering and erosion, and is subsequently transported by the action of wind, water and/or by the force of gravity acting on the particles. Sediments are most often transported by water. Sediment is transported based on the strength of the flow that carries it and its own size, volume, density, and shape. Stronger flows will increase the lift and drag on the particle, causing it to rise, while larger or denser particles will be more likely to fall through the flow.

Deposition is the processes where material being transported by a river is deposited. Deposition occurs when a river loses energy. This can be when a river enters a shallow area (this could be when it floods and comes into contact with the flood plain) or towards its mouth where it meets another body of water.

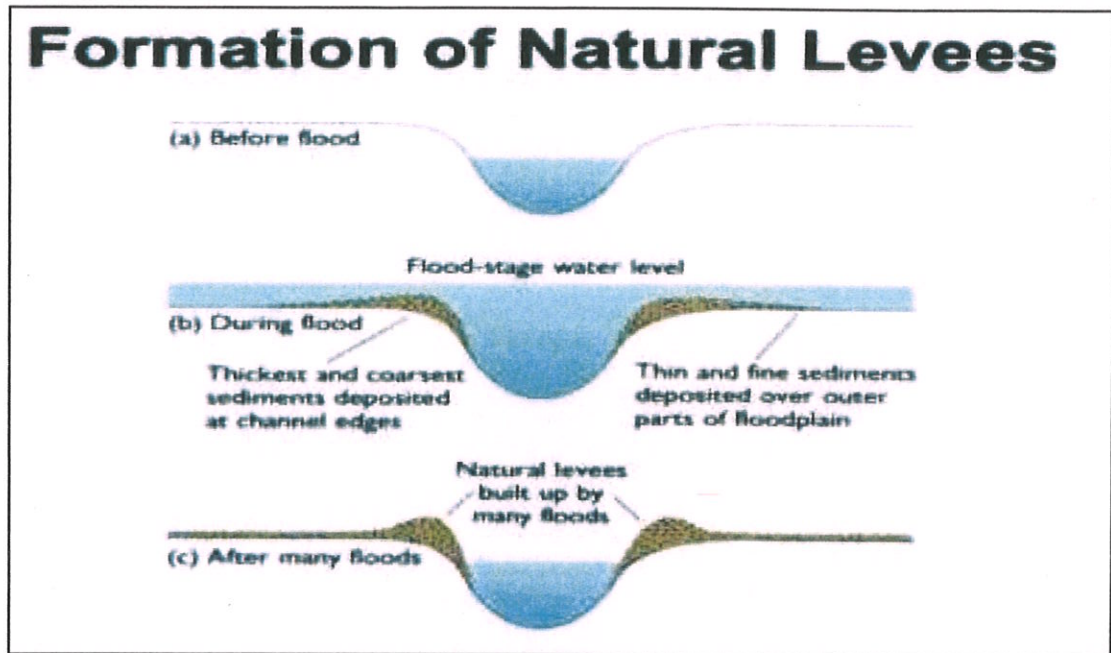
Deposition is the geological process in which sediments, soil and rocks are added to a landform or land mass. Wind, ice, and water, as well as sediment flowing via gravity, transport previously eroded sediment, which, at the loss of enough kinetic energy in the fluid, is deposited, building up layers of sediment.

Rivers flood on a regular basis. The area over which they flood is known as the floodplain and this often coincides with regions where meanders form. Meanders support the formation of flood plainsthrough lateral erosion.



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When river floods the velocity of water slows. As the result of this the river's capacity to transport material is reduced and deposition occurs. This deposition leaves a layer of sediment across the whole floodplain. After a series of floods, layers of sediment form along the floodplain.

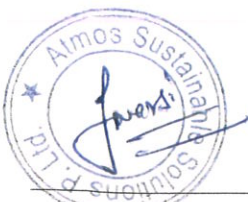


Formation of Natural Levees Due to Floods

MODES OF SEDIMENT TRANSPORT:

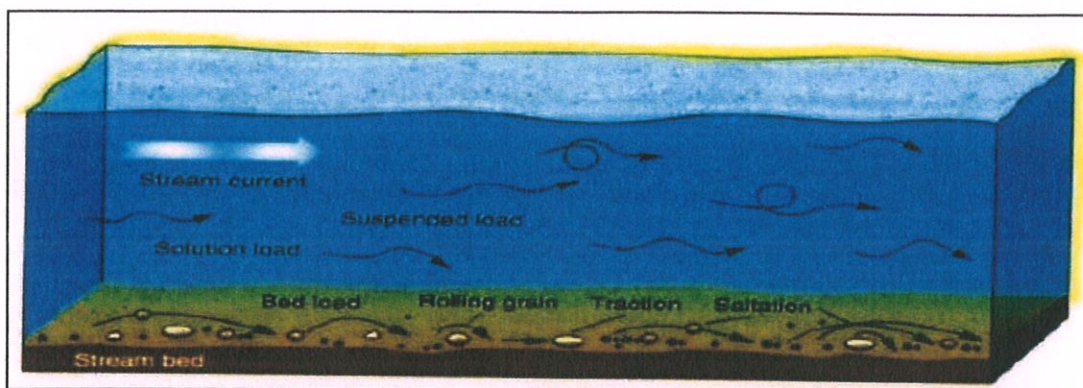
The sediment load of a river is transported in various ways although these distinctions are to some extent arbitrary and not always very practical in the sense that not all of the components can be separated in practice:

- ✓ Dissolved load
- ✓ Suspended load
- ✓ Intermittent suspension (saltation) load
- ✓ Wash load



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✓ Bed load



Methods of Sediments Transport in Stream

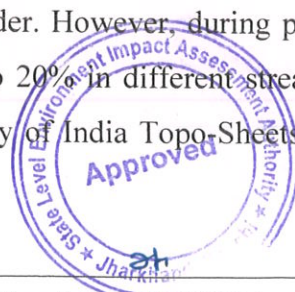
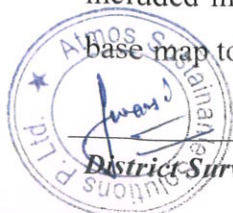
The sand deposits being an integral part of the dynamic river system to which it belongs. Therefore, as a part of natural cycle, the monsoon flow of every river carries with it replenishment of silt and washed out soil and clay from upstream areas in the catchment. This silt shall be removed during the sieving of sand before it is loaded into truck/tipper/trailer to carry to the consumers.

Sand mining is critical to infrastructure development around the globe. 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. The rivers are the most important source of Sand. It acts as source of transportation and deposition of sand etc.

ANNUAL REPLENISHMENT OF MINERAL IN RIVER BED AREA/ SEDIMENTATION:

The deposition in a river bed is more pronounced during rainy season although the quantum of deposition varies from stream to stream depending upon numbers of factors such as catchment, lithology, discharge, river profile and geomorphology of the river course where annual deposition is one meters, but it is noticed that during flood season whole of the pit so excavated is completely filled up and as such the excavated area is replenished with new harvest of minerals.

In order to calculate the mineral deposits in the stream beds, the mineral constituents have been categorized as clay, silt, sand, Bajri and boulder. However, during present calculation, the waste material i.e. silt which varies from 10 to 20% in different streams has also been included in the total production. Further, the Survey of India Topo Sheets has been used as base map to know the extent of river course.



There are some portions in the river beds such as channel bars, point bars and central islands where the annual deposition is raising the level of river bed thus causing shifting of the rivers towards banks resulting in to cutting of banks and at such locations, removal of this material upto the bed level is essential to control the river flow in its central part to check the bank cutting. While calculating the mineral potentials, the mineral deposits lying in the sub-tributaries of that particular stream/river has not been taken into consideration. Since these mineral deposits are adding annually.

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 affect the “Computation of Sediment”:

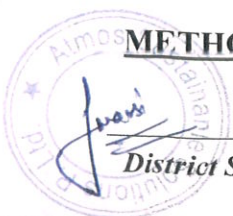
- Geomorphology & Drainage Pattern: The following geomorphic units plays importantrole:
 - Structural Plain
 - Structural Hill
 - Structural Ridge
 - Denudation Ridge & Valley
 - Plain & Plateau
 - Highly Dissected pediment
 - Undissected pediment
- Distribution of Basin Area River wise
- Drainage System/Pattern of the area, Rainfall & Climate: Year wise Rainfall data

REPLENISHMENT STUDY:

The need for replenishment study for river bed sand is required in order to nullify the adverse impacts arising due to excess sand extraction. Mining within or near riverbed has a direct impact on the stream's physical characteristics, such as channel geometry, bed elevation, substratum composition and stability, in-stream roughness of the bed, flow velocity, discharge capacity, sediment transport capacity, turbidity, temperature etc. Alteration or modification of the above attributes may cause an impact on the ecological equilibrium of the riverside regime, disturbance in channel configuration and flow-paths. This may also cause an adverse impact on in stream biota and riparian habitats.

The effects of sediment replenishment are investigated for cross section bed deposition, flow velocity, grain size distribution, water quality and organisms.

METHODOLOGY ADOPTED FOR REPLENISHMENT STUDY:



The methodology adopted for the study is an integrated approach involving:

- 1) **Field data collection** followed by cross section survey over the sections of fixed intervals along the river showing river bed material (RBM) with present elevations.
- 2) **Remote sensing** was used for identification of watershed area relevant to the mine lease along the river at different coordinates.
- 3) **Estimation of catchment yield and bed load transport:** The catchment yield has been computed using the Strange's runoff method for the runoff coefficient. The Iso-pluvial maps of IMD have been used for estimation of catchment yield and peak flood discharge for the study area by various methods like Dickens, Jarvis, and Rational formula at 25, 50 and 100 years return period

ESTIMATION OF CATCHMENT YIELD:

The replenishment estimation is based on a theoretical empirical formula with the estimation of bed load transport comprising of analytical models to calculate the replenishment estimation. The iso-pluvial maps of IMD can be used for estimation of rainfall. Catchment yield is computed using different standard empirical formulas relevant to the geographical and channel attributes.

Climate:

There is no IMD meteorological station near the study area, the nearest stations being at Ranchi, which are about 100 km from center of the study area. However, the climatic conditions are not much different than recorded at Ranchi.

STRANGE'S RUN-OFF:

Strange's Monsoon runoff curves for runoff coefficient). Peak flood discharge for the study area can be calculated by using Dickens, Jarvis and Rational formula at 25, 50 and 100 years return period. The estimation of bed load transport using Ackers and White Equation is made. For estimation of surface run off coefficient, we considered a particular value of peak rainfall. In absence of non-availability, peak storm water has been estimated as under:

The dependability has been calculated on the basis of last 18 years rainfall, where water availability has been considered for arriving at 50% dependability.

Table: 20.1 Rainfall Data (Arranged in Descending Order, Mentioning Serial

Number

/Order Number m) of each Year's Rainfall



Sr. No. i.e Order Number (m)	Rainfall in Descending Order (in mm)
1	2146.5
2	2057
3	1848
4	1797
5	1759
6	1613.2
7	1601.5
8	1594
9	1425.4
10	1403.5
11	1342.5
12	1341.3
13	1334.3
14	1328.3
15	1328
16	1321.5
17	1303.7
18	1212.4

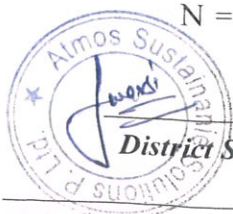
Table: 20.2 Calculation of Order Number (m)

	Rainfall Dependability Percentage
	P=50%
m=	$N \times P/100$
	N= 18, P = 50
m=	9

Here,

m = Order number

N = the available rainfall data of the past N years is first of all arranged in the



descending order of magnitude

p = Dependability percentage

The rainfall value tabulated above in Table, the Order No. 9 has the values of 1425.4 mm. So, P50% = 142.54 cm

Average value of Strange's Run off percentage is calculated from Strange's monsoon rainfall-runoff curves considering the catchment area as good and the Runoff % for the area is:

Runoff % at 50% dependability of rainfall = 56%

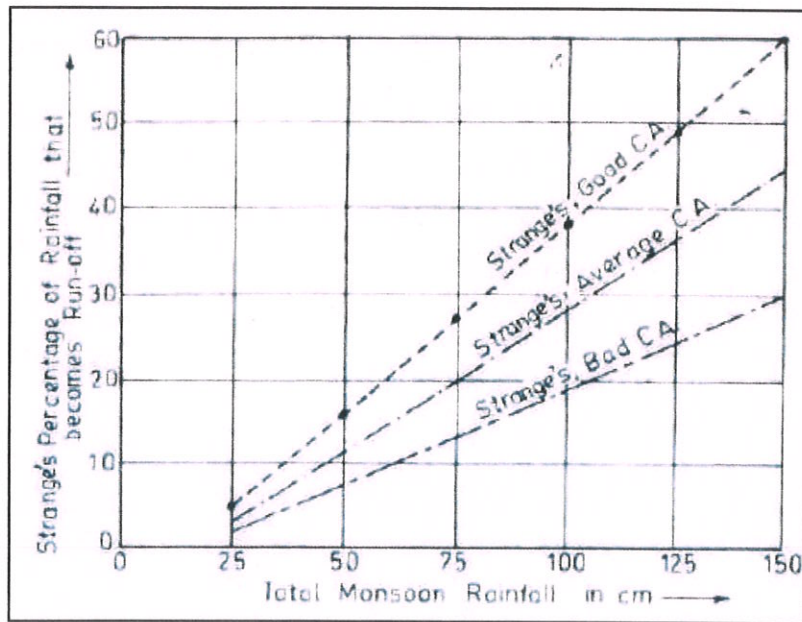
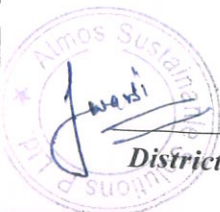


Fig. 20.1: Strange's Monsoon Rainfall-runoff Curves



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DANDY - BOLTON EQUATION

Dandy Bolton formula is often used to calculate the sedimentation yield. It provide a quick, rough approximation of mean sediment yields on a regional basis for preliminary watershed planning. Computed sediment yields normally would be low for highly erosive areas and high for well stabilized drainage basins with high plant density because the equations are derived from average values. The equations express the general relationships between sediment yield, runoff, and drainage area. Many variables influence sediment yield from a drainage basin. They include climate, drainage area, soils, geology, topography, vegetation and land use. The effect of any of these variables may vary greatly from one geographic location to another, and the relative importance of controlling factors often varies within a given land resource area.

Runoff data are translated to inches per year per unit area and sediment deposition data to tons per year per square mile of net drainage area. Net drainage area is defined as the sediment-contributing area and normally excluded areas above upstream reservoirs or other structures that were effective sediment traps.

Combined Effect of Drainage area and Run off on Sediment Yield

Dandy- Bolton determined the combined influence of runoff and drainage area on sediment yield to compute the sediment yield. They developed two equations i.e. for run off less than 2 inch and for run off more than 2 inch, which are given below:-

For run off less than 2 inches

$$(Q < 2 \text{ in}) S = 1280 * (Q)^{0.46} * [1.43 - 0.26 \text{ Log}(A)]^F$$

for run off more than 2 inches

$$(Q > 2 \text{ in}): S = 1958 * (e^{-0.055 * Q}) * [1.43 - 0.26 \text{ Log}(A)]$$

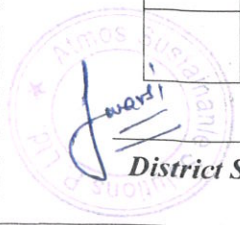
Where: S = Sediment yield (M. tons/sq. km/yr.)

Q = Mean Annual runoff (mm)

A = Net drainage area in sq. km



S.no	Factors		Probable Replenishment
Bansloi River			
i.	Catchment Area (sq. mile)	13.98 sq. km	38.97 Metric tons / sq. km /year 544.86 M. ton/year
ii.	Mean Annual Runoff	1425.4 mm	
Sediment yield formula (Q > 2 in): S= 1958(e ^{-0.055*Q})*[1.43-0.26 Log (A)]:			



here: Q = Mean Annual runoff (mm)= 1425.4
 A = Catchment Area= 13.98 sq. km
 Sediment yield S= (Metric tons / sq. km /year)

**Source:- Calculation of sediment yield by the Dandy-Bolton formula
ponce.sdsu.edu/onlinedendybolton.php*

Table 20.3: Sediment Yield of the River

River	Mean Annual Run-off (mm)	Catchment Area (Sq. km)	Sediment Yield (Metric tons /year)
Subarnarekha river	1425.4	13.98	544.86

Volume Estimation of Replenished Material for Respective Sandghats:

Physical Survey of Study Areas: Field Survey has been done by going through following stages given below which includes data acquisition related to elevation profiles for particular sandghats with the help of DGPS Survey, Garmi eTrex 10 GPS and meter stick for the collection of data related to elevation and measurement of depth for specific locations, respectively. The surface plan with sections has been made with the help of E-Survey CAD, GIS, Global Mapper and AutoCAD softwares. The cross-section surveys have been done across the river at the places on 10x10 m grid ground levels are given in **Annexure**.

Following stages are given below on temporal basis for field survey:

- 1) Primary Data Collection:** Although, field data collection is an integral part of DSR. The pre-monsoon data has been received from District Mining Office, East Singhbhum and same has been validated from satellite imaginary map.

RIVER NAME: SUBARNAREKHA RIVER		
UIN SAND BAR CODE	AREA IN SQM	AVG. INITIAL LEVEL IN AMSL
ES_SUB_PRE_01	4,56,020	95.56
ES_SUB_PRE_02	2,36,578	91.29
ES_SUB_PRE_03	2,32,566	71.98
ES_SUB_PRE_04	1,26,174	71.28
ES_SUB_PRE_05	67,720	70.75
ES_SUB_PRE_06	1,09,905	67.97
ES_SUB_PRE_07	1,10,679	65.33
ES_SUB_PRE_08	96,514	63.84
ES_SUB_PRE_09	4,15,787	63.29
ES_SUB_PRE_10	2,11,995	62.48
ES_SUB_PRE_11	2,53,375	60.46
ES_SUB_PRE_12	28,223	62.23

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ES_SUB_PRE_13	1,74,278	58.41
ES_SUB_PRE_14	8,36,488	57.83
ES_SUB_PRE_15	8,77,647	55.92
ES_SUB_PRE_16	44,98,058	55.04
ES_SUB_PRE_17	13,89,080	48.43
ES_SUB_PRE_18	38,55,822	47.08

2) The second survey is at the time of closing of mines for monsoon season, this survey provides the quantity of the material excavated before the offset of monsoon (**As per MOEFF & CC 2020**). Second survey had been done in November-2022 to January-2023 with the help of DGPS and used in different software such as E-Survey, Auto Cad, Remote Sensing.

RIVER NAME: SUBARNAREKHA RIVER		
UIN SAND BAR CODE	AREA IN SQM	AVG. INITIAL LEVEL IN AMSL
ES_SUB_POS_01	4,56,022	95.61
ES_SUB_POS_02	2,36,580	91.38
ES_SUB_POS_03	2,32,568	72.27
ES_SUB_POS_04	1,26,176	71.42
ES_SUB_POS_05	67,721	70.89
ES_SUB_POS_06	1,09,907	68.24
ES_SUB_POS_07	1,10,681	65.59
ES_SUB_POS_08	96,516	64.16
ES_SUB_POS_09	4,15,789	63.55
ES_SUB_POS_10	2,11,997	62.73
ES_SUB_POS_11	2,53,376	60.76
ES_SUB_POS_12	28,225	62.73
ES_SUB_POS_13	1,74,279	58.89
ES_SUB_POS_14	8,36,490	58.36
ES_SUB_POS_15	8,77,649	56.48
ES_SUB_POS_16	44,98,059	55.71
ES_SUB_POS_17	13,89,081	49.17
ES_SUB_POS_18	38,55,823	47.99

3) The third survey needs to be carried out after the monsoon period to know the quantum of material deposited/replenished in the mining lease.

Third survey have not completed so the third survey of sand ghat will be done April-2023

4) The fourth survey at the end of March to know the quantity of material excavated during the financial year.

Fourth survey have not completed so the fourth survey of sand ghat will be done March-2024

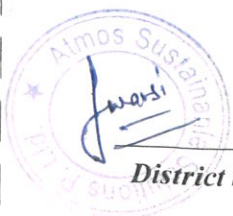
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Comparison between Avg. Residual Level and Avg. Increased Level**Table 20.4: Comparison between Initial Level and After Erosion Increased Level**

Sand Bar Code	AMSL Observed (Pre monsoon)	AMSL Observed (Post monsoon)
SUBARNAREKHA RIVER		
ES_SUB_PRE_01	95.56	95.61
ES_SUB_PRE_02	91.29	91.38
ES_SUB_PRE_03	71.98	72.27
ES_SUB_PRE_04	71.28	71.42
ES_SUB_PRE_05	70.75	70.89
ES_SUB_PRE_06	67.97	68.24
ES_SUB_PRE_07	65.33	65.59
ES_SUB_PRE_08	63.84	64.16
ES_SUB_PRE_09	63.29	63.55
ES_SUB_PRE_10	62.48	62.73
ES_SUB_PRE_11	60.46	60.76
ES_SUB_PRE_12	62.23	62.73
ES_SUB_PRE_13	58.41	58.89
ES_SUB_PRE_14	57.83	58.36
ES_SUB_PRE_15	55.92	56.48
ES_SUB_PRE_16	55.04	55.71
ES_SUB_PRE_17	48.43	49.17
ES_SUB_PRE_18	47.08	47.99



Estimated Executable Quantity as per Replenishment Study
The executable quantity of River Bed Material (RBM) has been estimated on the basis of data collected from various field surveys which includes premonsoon and post-monsoon period.

Annual Deposition of Executable River Bed Material (RBM)

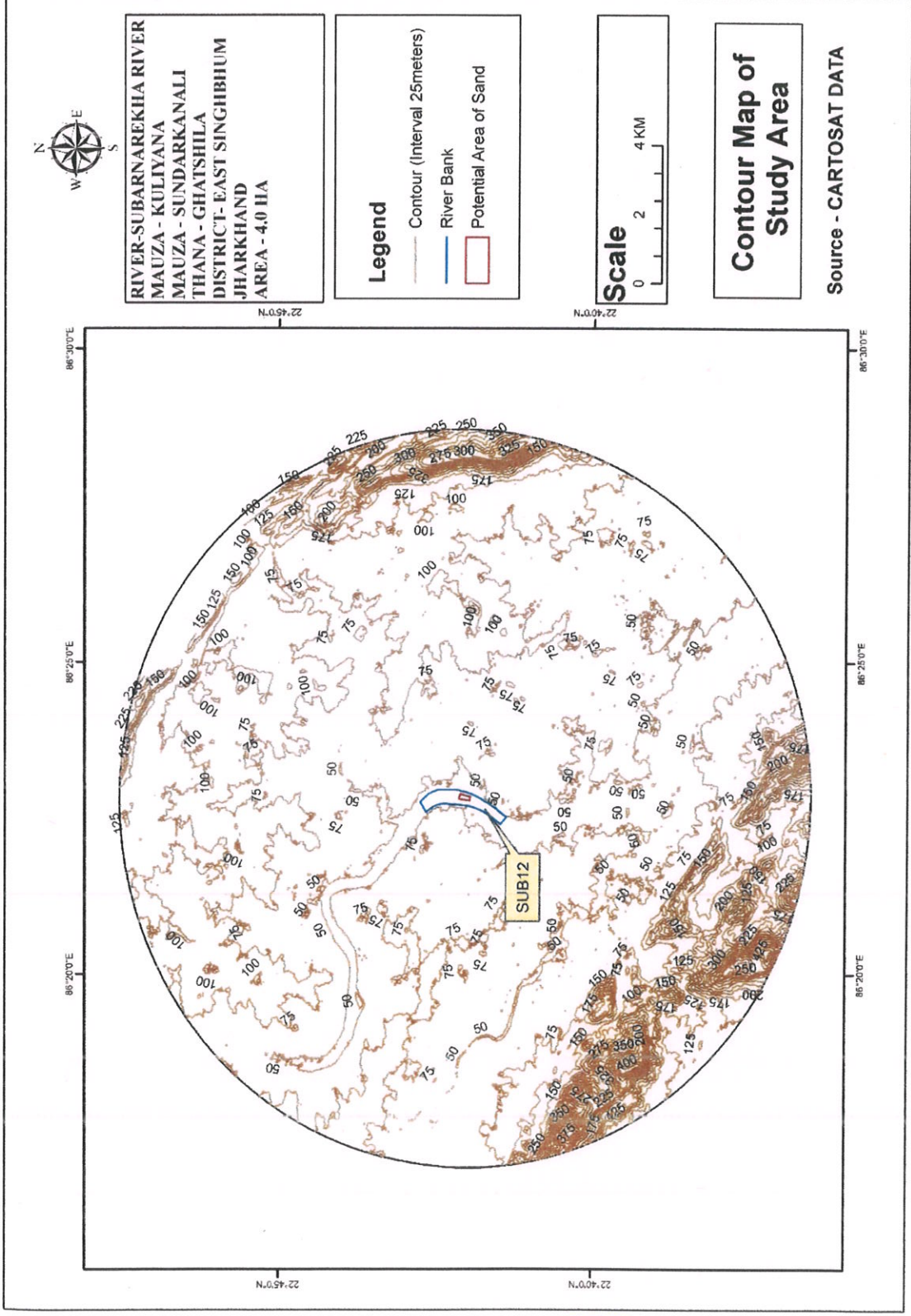
SUBARNAREKHA RIVER OF EAST SINGHBHUM DISTRICT												
PRE MONSOON(APRIL-2022)						POST MONSOON(NOV-DEC-2022)						
S.NO	UIN SAND BAR	AMSL	AREA IN SQM	VOLUME IN CUM	UIN SAND BAR	AMSL	AREA IN SQM	AREA IN HA.	THICKNESS OF SAND IN MTR	VOLUME IN CUM	RATE OF REPLENISHMENT IN %	
1	ES_SUB_PRE_01	95.56	4,56,020	20521	ES_SUB_POS_01	95.61	4,56,022	45.60	0.05	22801	11.11	
2	ES_SUB_PRE_02	91.29	2,36,578	17460	ES_SUB_POS_02	91.38	2,36,580	23.70	0.09	21292	21.95	
3	ES_SUB_PRE_03	71.98	2,32,566	53281	ES_SUB_POS_03	72.27	2,32,568	23.30	0.29	67445	26.58	
4	ES_SUB_PRE_04	71.28	1,26,174	13425	ES_SUB_POS_04	71.42	1,26,176	12.60	0.14	17665	31.58	
5	ES_SUB_PRE_05	70.75	67,720	6542	ES_SUB_POS_05	70.89	67,721	6.77	0.14	9481	44.93	
6	ES_SUB_PRE_06	67.97	1,09,905	21069	ES_SUB_POS_06	68.24	1,09,907	11.00	0.27	29675	40.85	
7	ES_SUB_PRE_07	65.33	1,10,679	21007	ES_SUB_POS_07	65.59	1,10,681	11.00	0.26	28777	36.99	
8	ES_SUB_PRE_08	63.84	96,514	21311	ES_SUB_POS_08	64.16	96,516	9.65	0.32	30885	44.93	
9	ES_SUB_PRE_09	63.29	4,15,787	71349	ES_SUB_POS_09	63.55	4,15,789	41.60	0.26	108105	51.52	
10	ES_SUB_PRE_10	62.48	2,11,995	33920	ES_SUB_POS_10	62.73	2,11,997	21.20	0.25	52999	56.25	
11	ES_SUB_PRE_11	60.46	2,53,375	47888	ES_SUB_POS_11	60.76	2,53,376	25.30	0.3	76013	58.73	
12	ES_SUB_PRE_12	62.23	28,223	8750	ES_SUB_POS_12	62.73	28,225	2.82	0.5	14113	61.29	
13	ES_SUB_PRE_13	58.41	1,74,278	50192	ES_SUB_POS_13	58.89	1,74,279	17.40	0.48	83654	66.67	
14	ES_SUB_PRE_14	57.83	8,36,488	248270	ES_SUB_POS_14	58.36	8,36,490	83.60	0.53	443340	78.57	
15	ES_SUB_PRE_15	55.92	8,77,647	285060	ES_SUB_POS_15	56.48	8,77,649	87.80	0.56	491483	72.41	
16	ES_SUB_PRE_16	55.04	44,98,058	1717809	ES_SUB_POS_16	55.71	44,98,059	450.00	0.67	3013700	75.44	
17	ES_SUB_PRE_17	48.43	13,89,080	575635	ES_SUB_POS_17	49.17	13,89,081	139.00	0.74	1027920	78.57	
18	ES_SUB_PRE_18	47.08	38,55,822	1859663	ES_SUB_POS_18	47.99	38,55,823	386.00	0.91	3508799	88.68	
				5073152			1,39,76,939	1398.34		9048146		



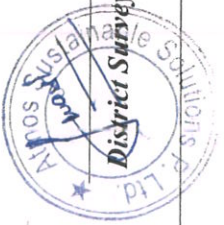
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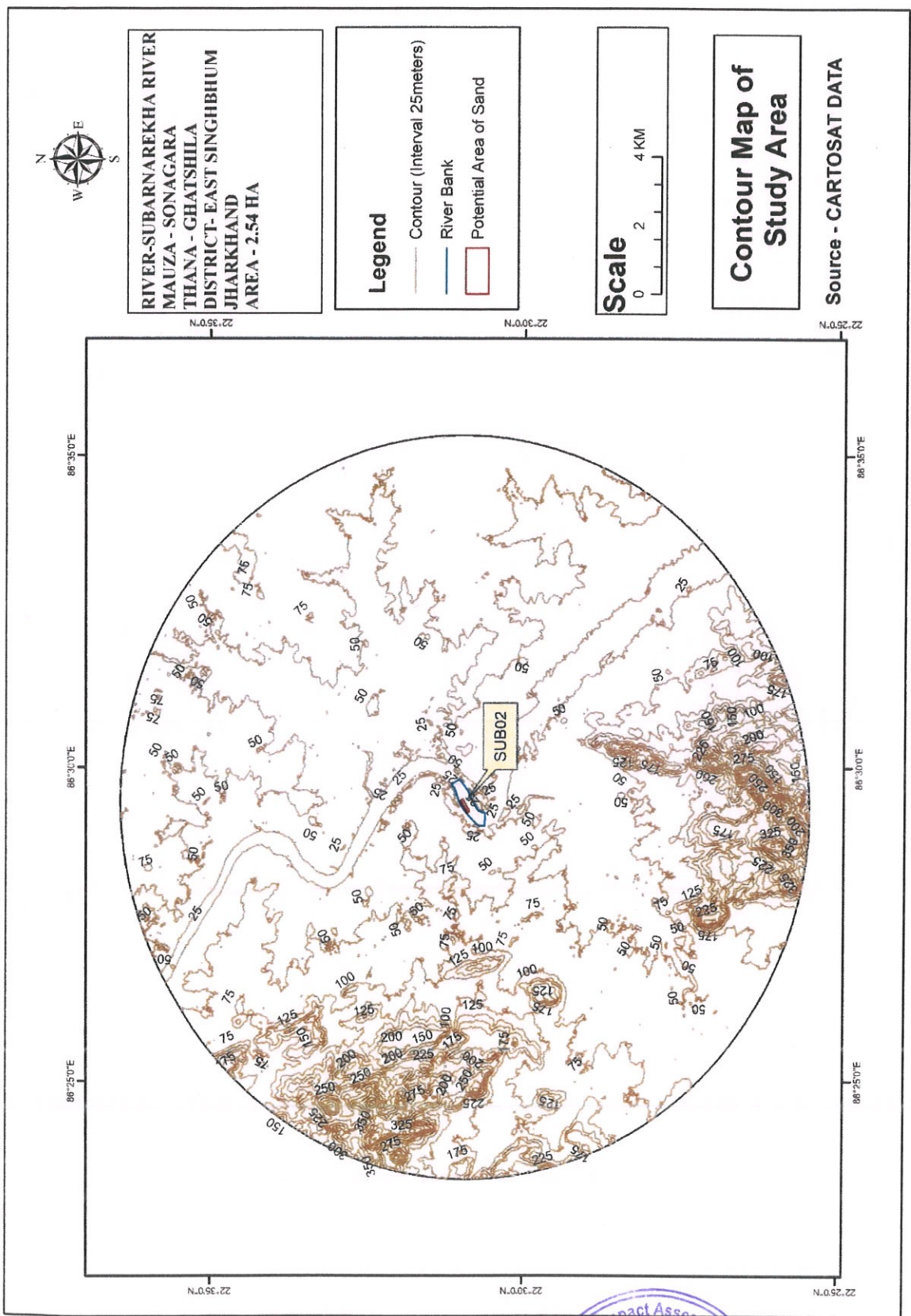
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CONTOUR MAP OF PROPOSED POTENTIAL AREA OF SAND DEPOSIT



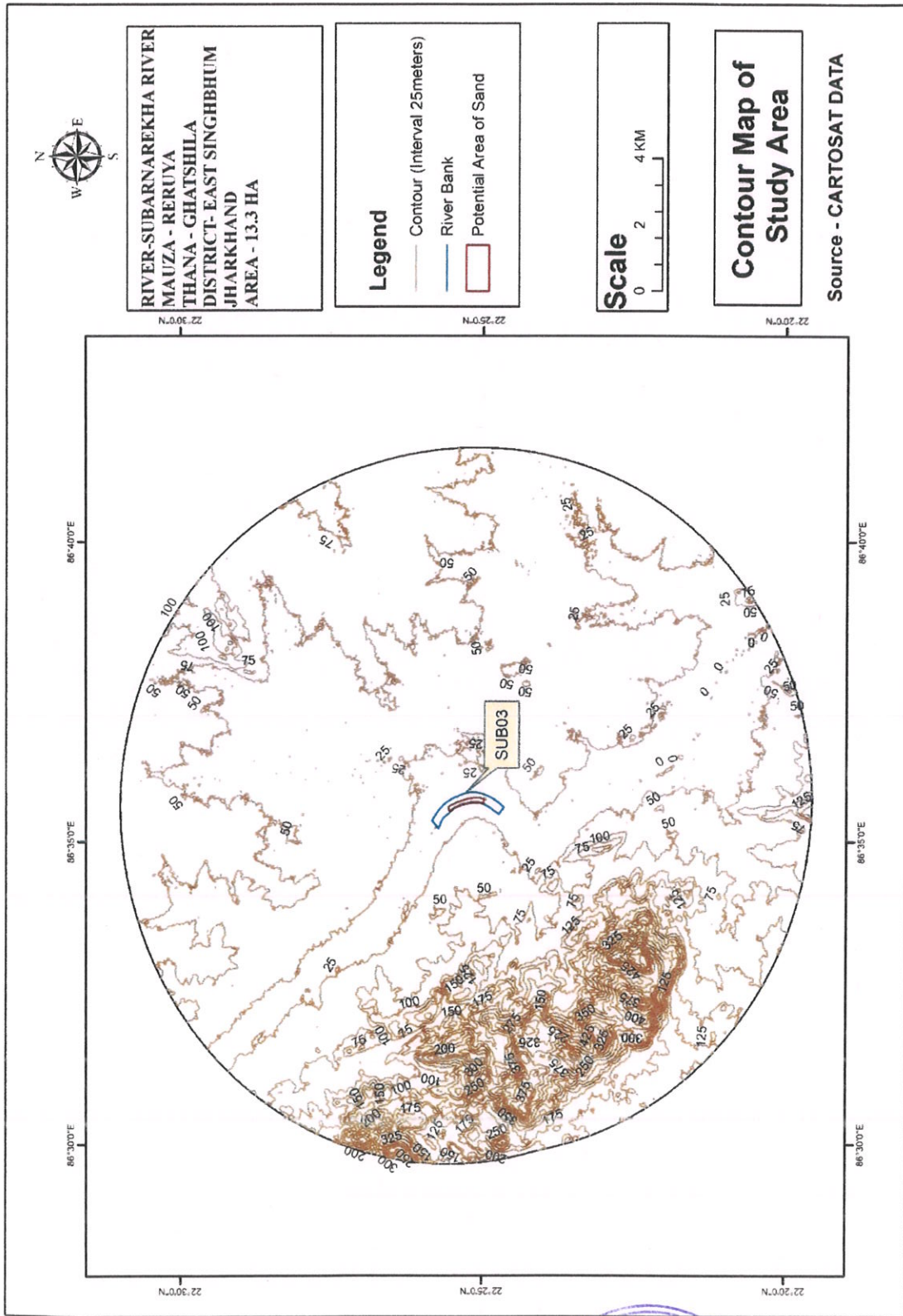
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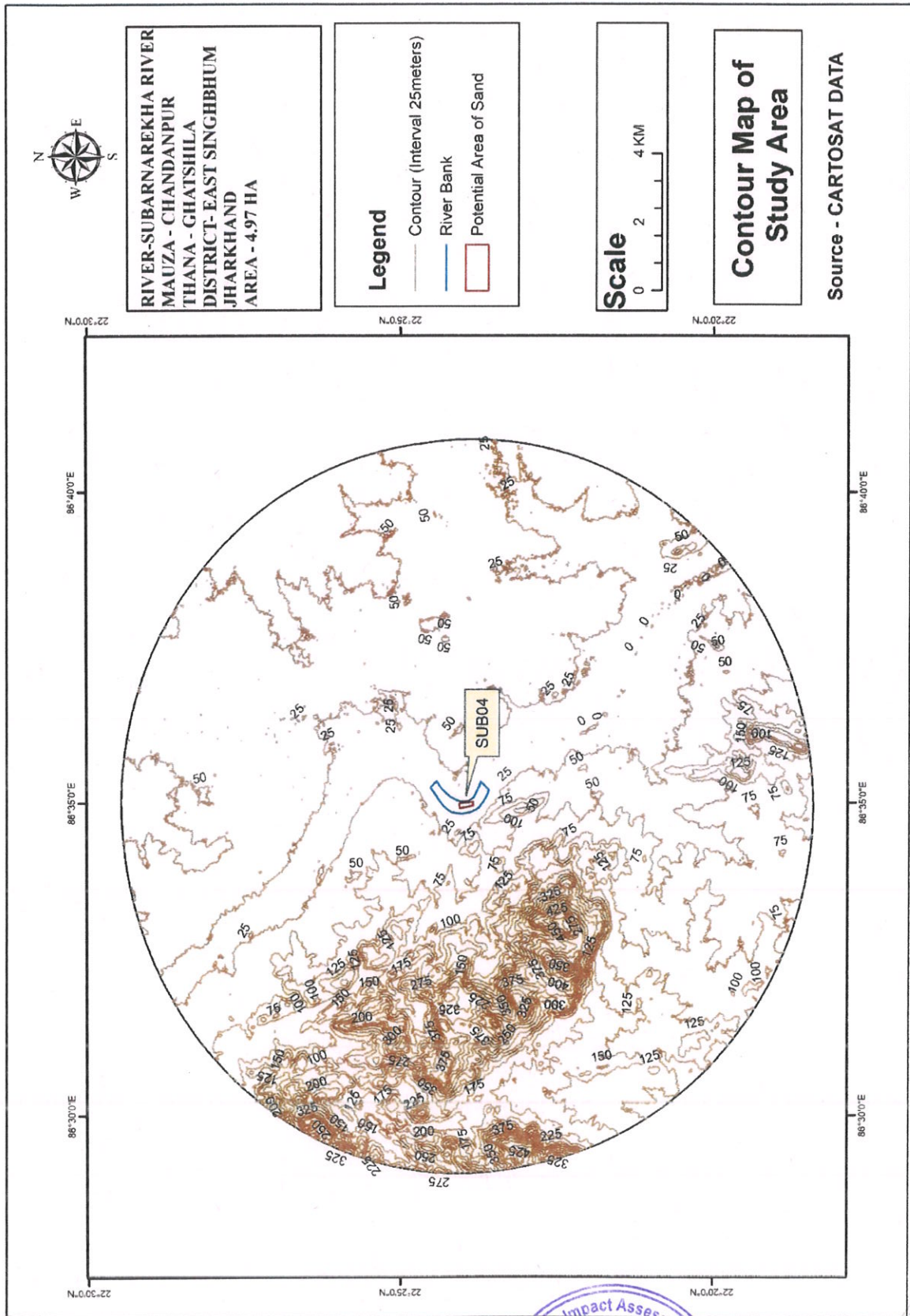
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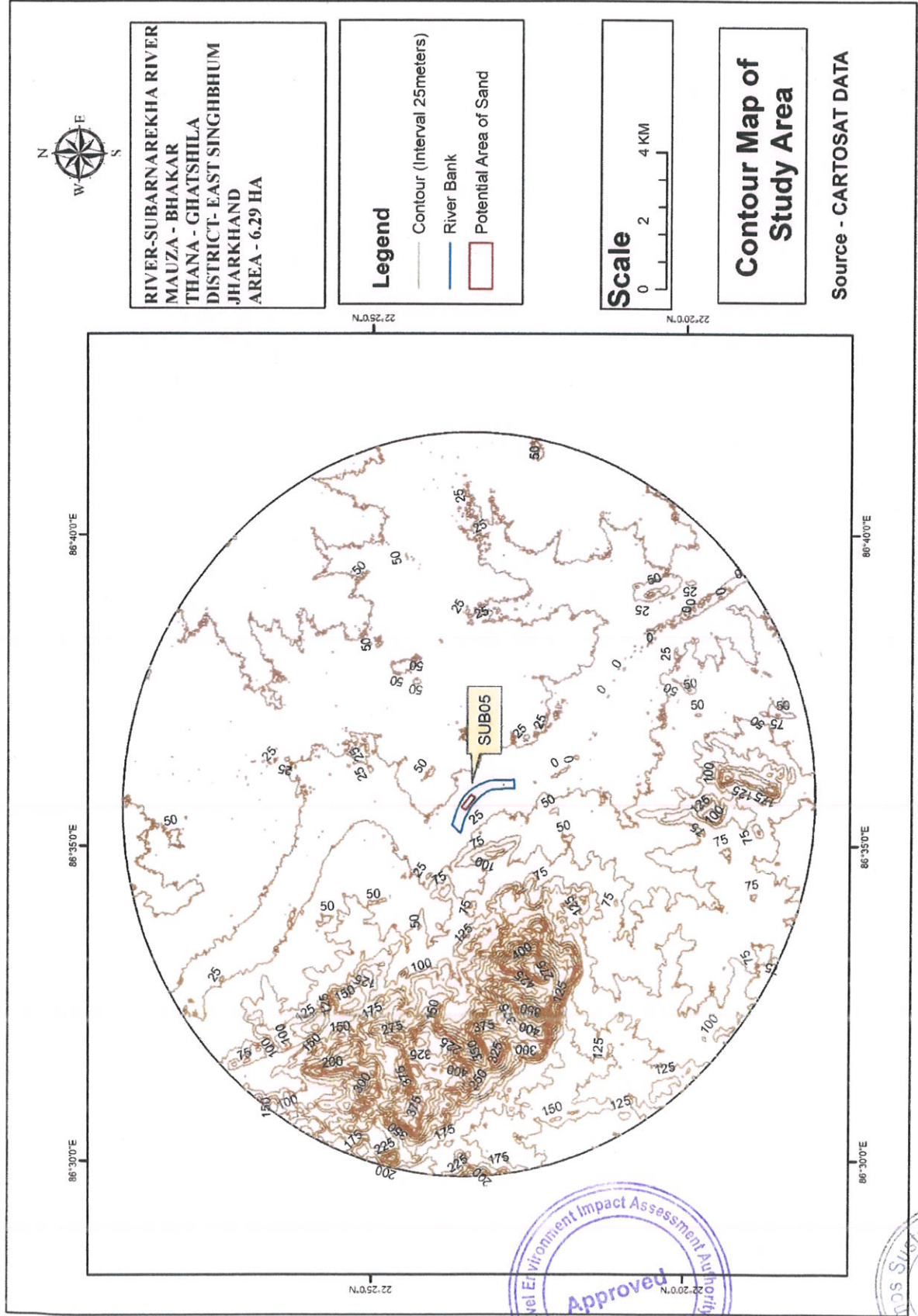
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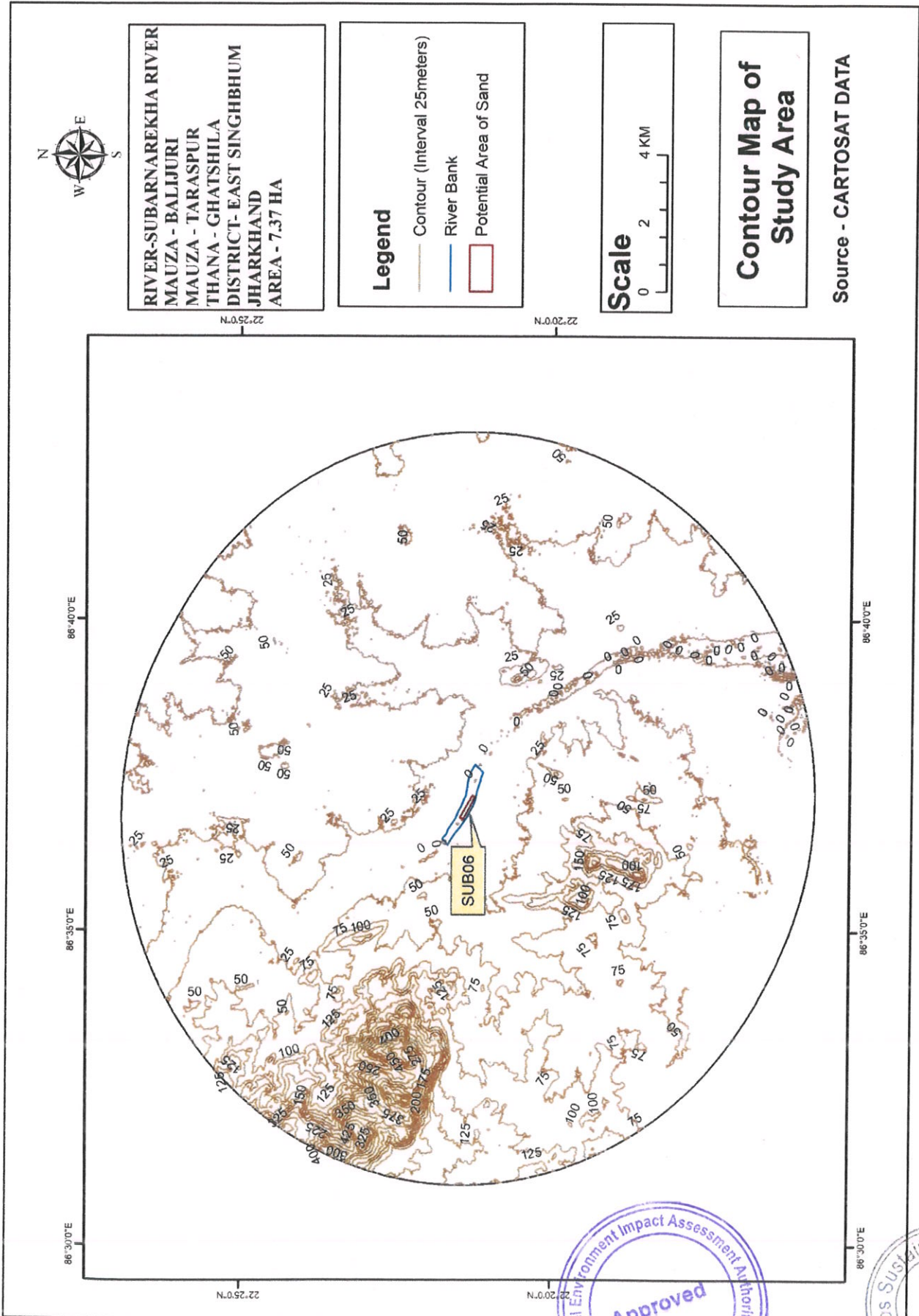
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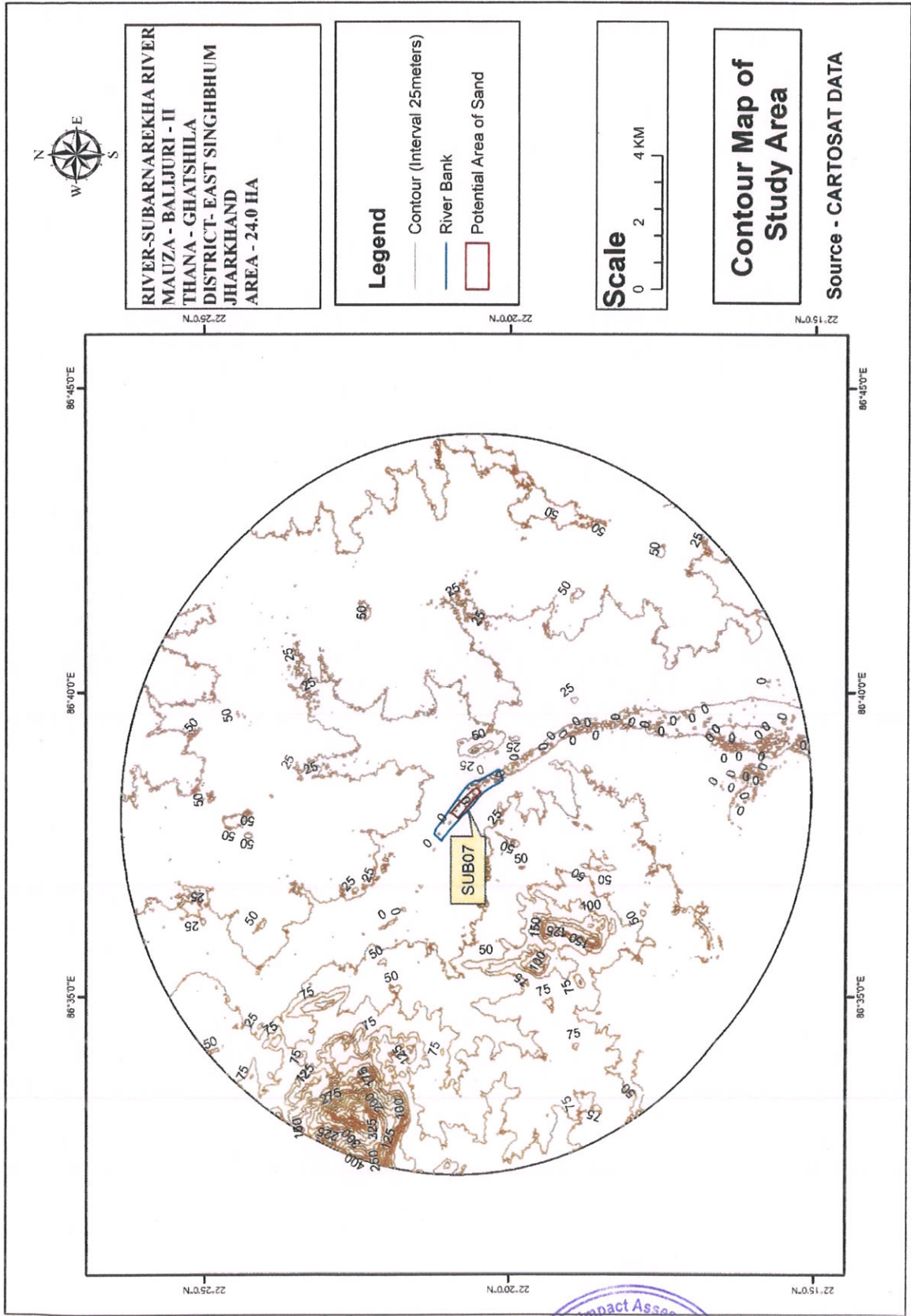
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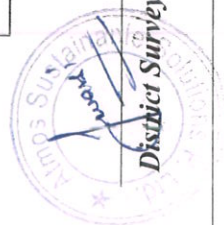
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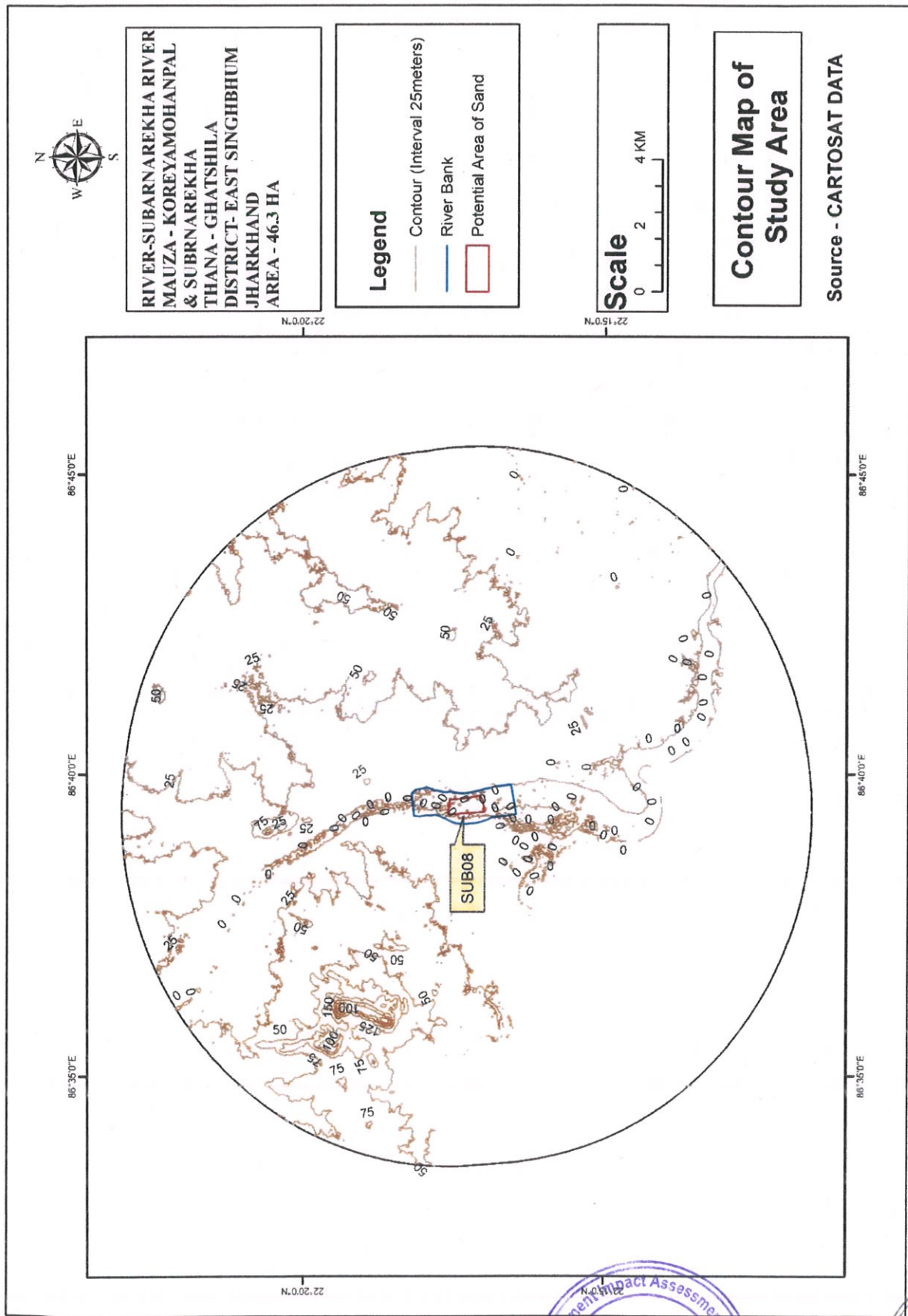




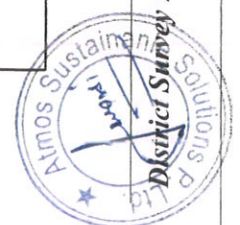
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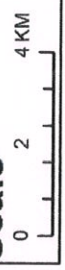


RIVER-SUBBAREKHA RIVER
MAUZA - KOREYAMOHPAL
THANA - GHATSHILA
DISTRICT- EAST SINGHBHUM
JHARKHAND
AREA - 34.7 HA

Legend

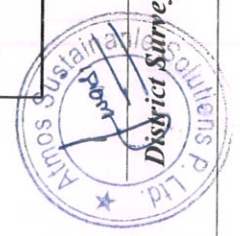
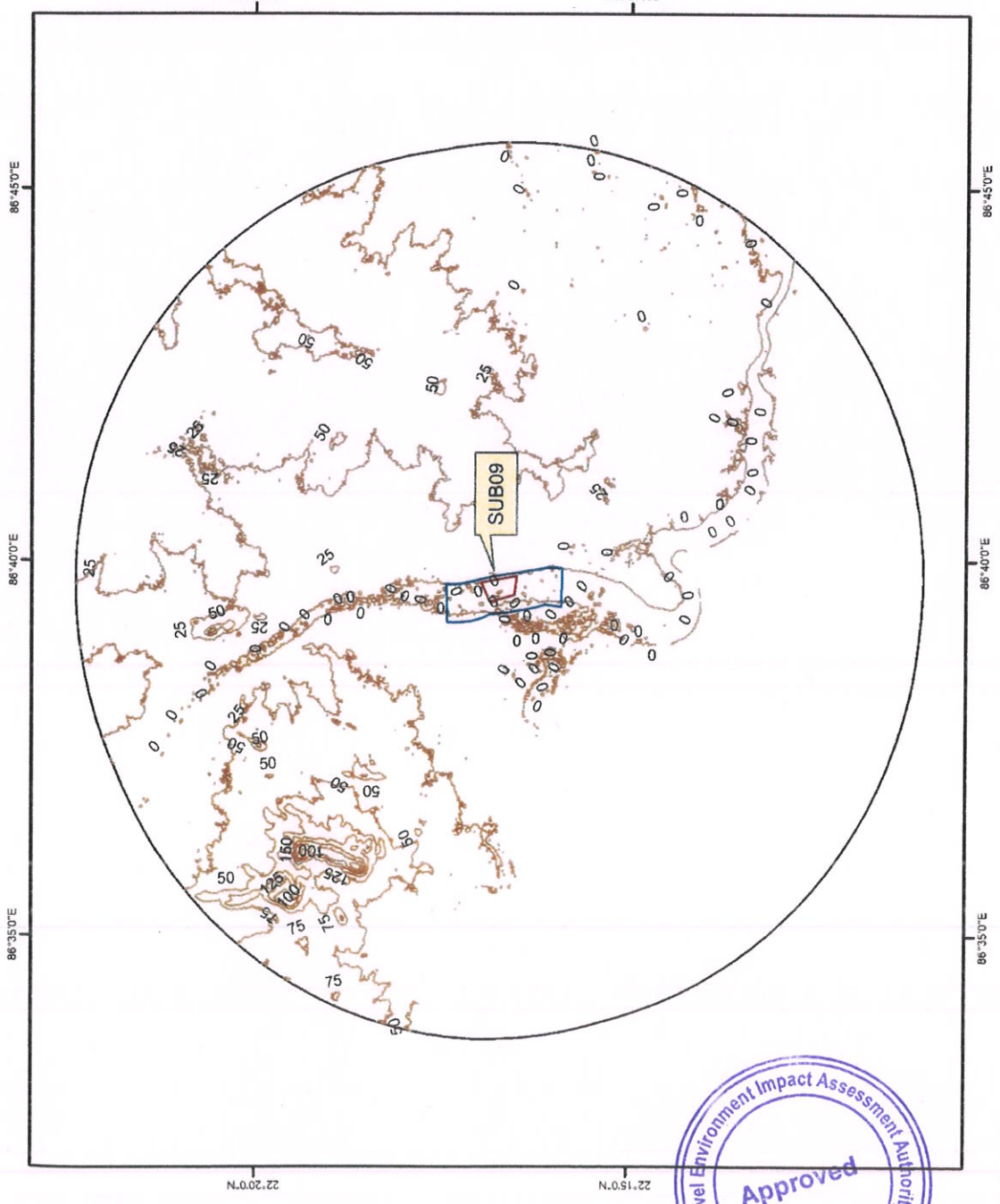
- Contour (Interval 25meters)
- River Bank
- Potential Area of Sand

Scale



Contour Map of Study Area

Source - CARTOSAT DATA



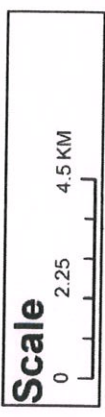
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RIVER-SUBARNAREKHA RIVER
 MAUZA - KOREYAMOHPAL
 MAUZA - SUBARNAREKHANADIPAL
 MAUZA - SUBARNAREKHANADIPAL
 THANA - GHATSHILA
 DISTRICT-EAST SINGHBHUM
 JHARKHAND
 AREA - 71.0 HA

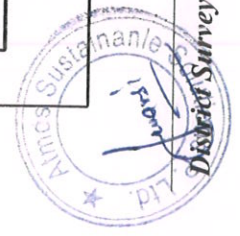
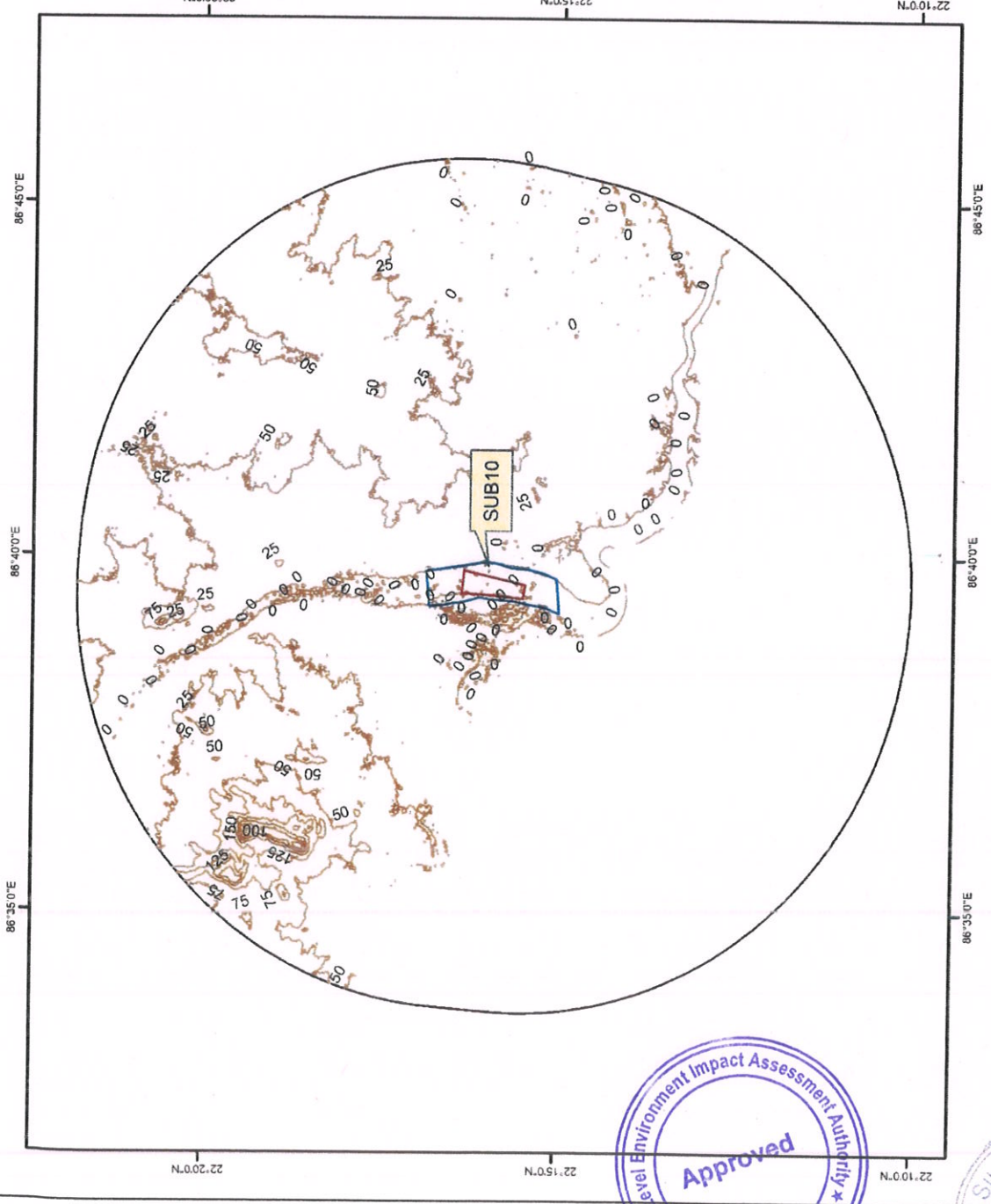
Legend

- Contour (Interval 25meters)
- River Bank
- Potential Area of Sand



Contour Map of Study Area

Source - CARTOSAT DATA



4th

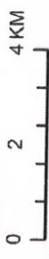


RIVER-SUBARNAREKHA RIVER
MAUZA - BARKATA
THANA - GHATSHILA
DISTRICT- EAST SINGHBHUM
JHARKHAND
AREA - 4.40 HA

Legend

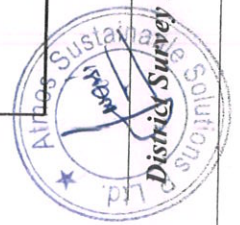
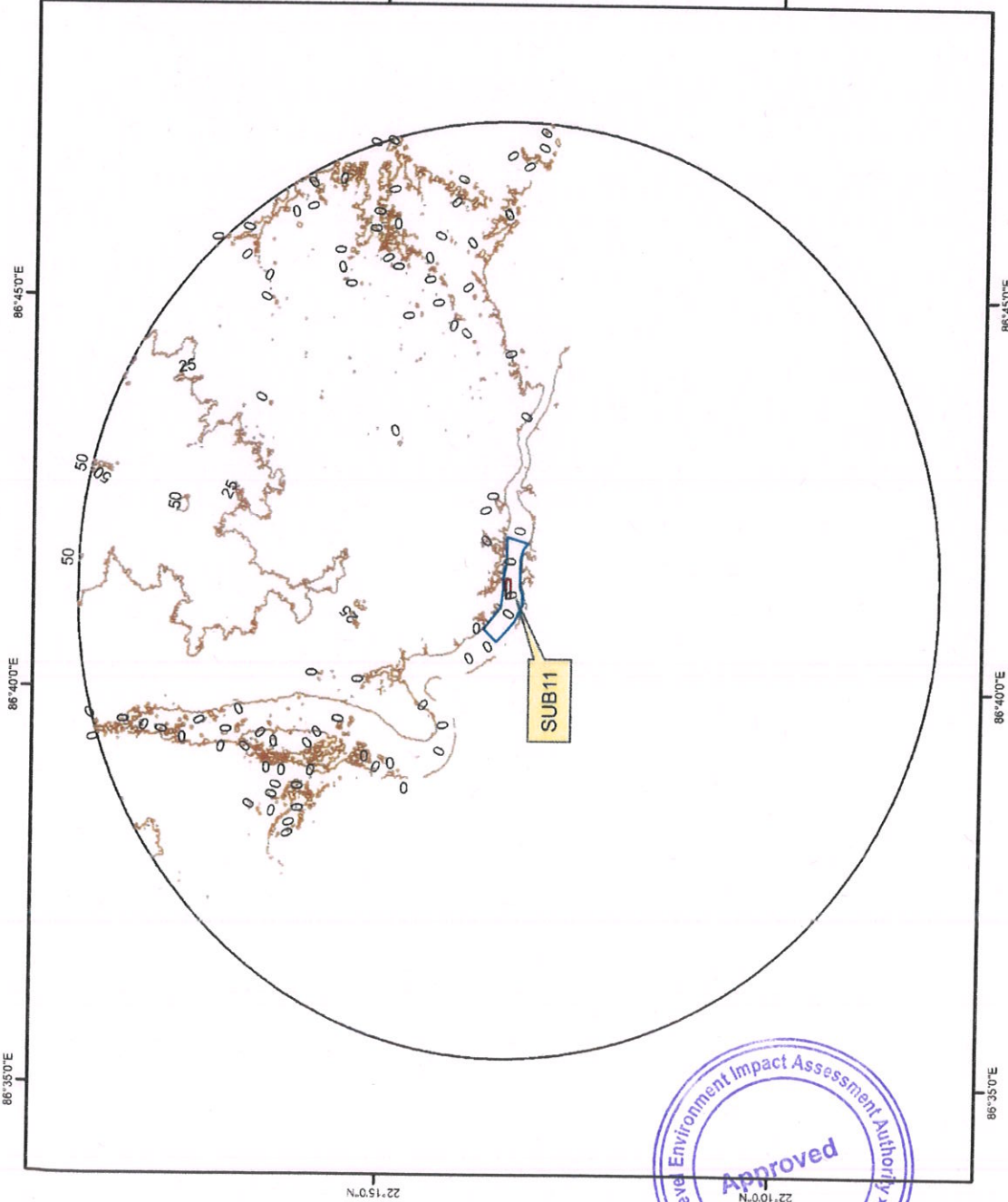
- Contour (Interval 25meters)
- River Bank
- Potential Area of Sand

Scale

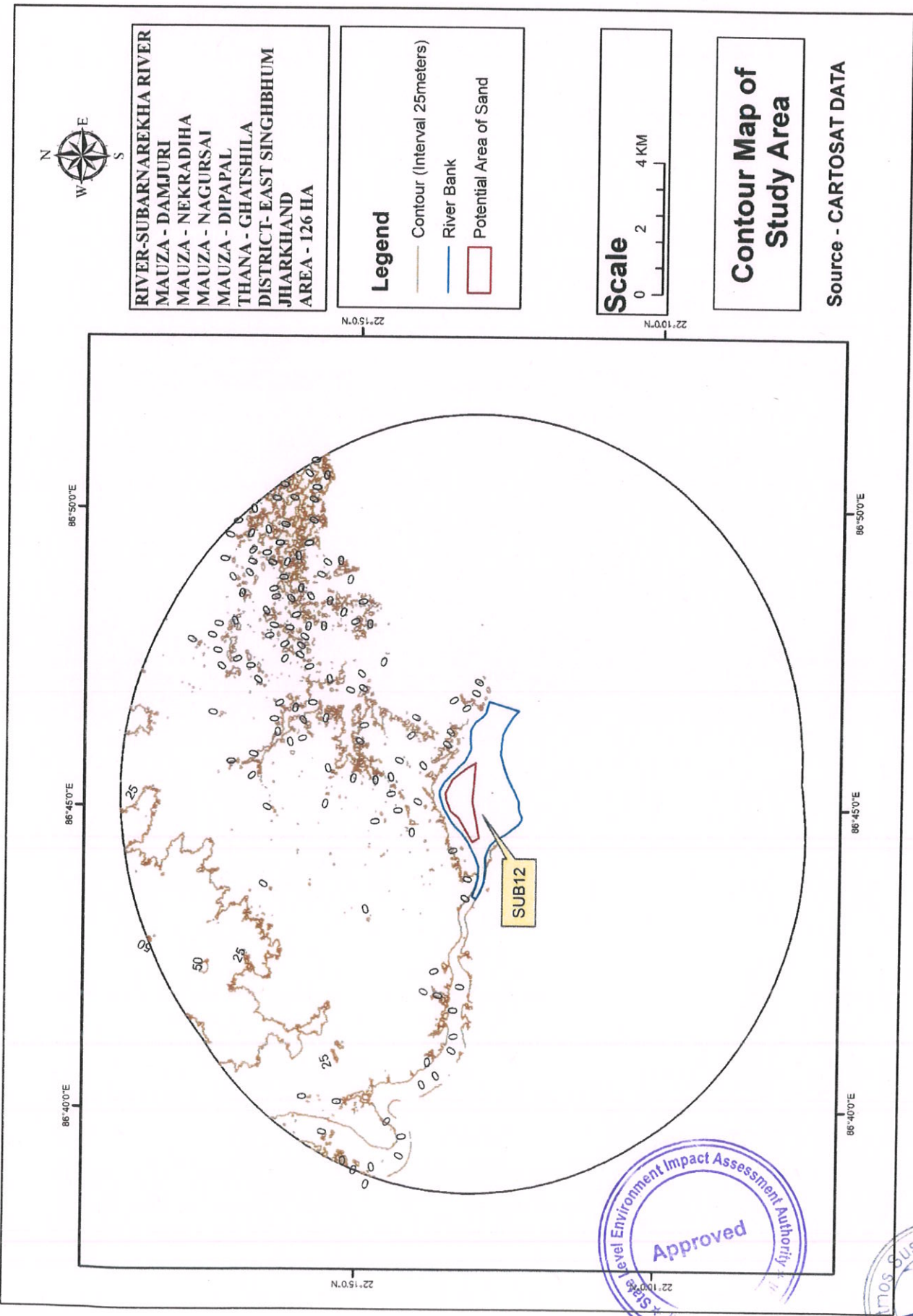


Contour Map of Study Area

Source - CARTOSAT DATA



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1. Drainage system with description of main rivers

S. No.	Name of the River	Area drained (Sq. Km)	% Area drained in the District
1	Subarnarekha River	29,196 Sq.km	395

2. Salient Features of Important Rivers and Streams:

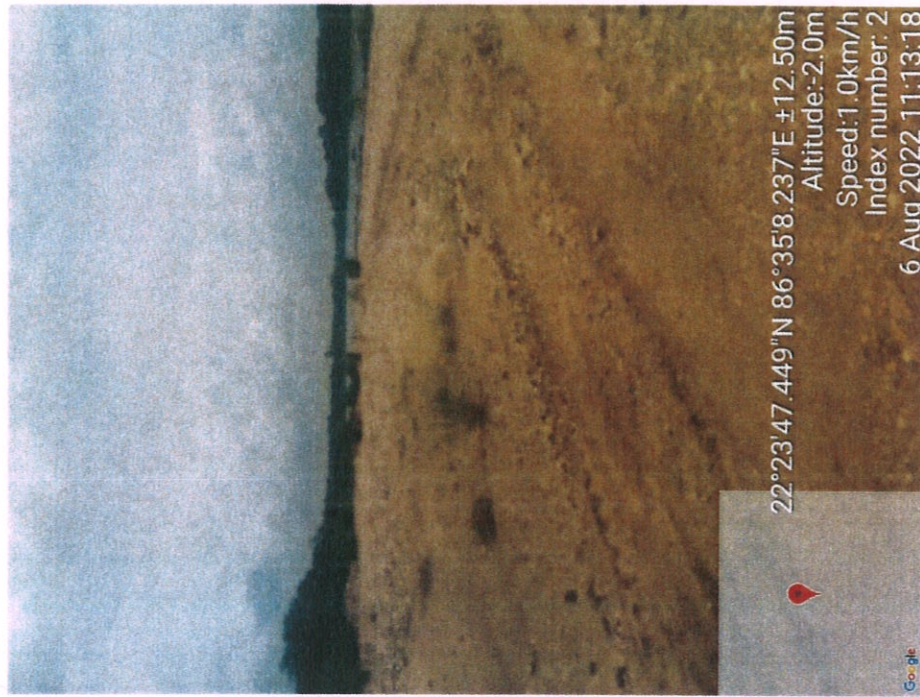
S. No.	Name of the River or Stream	Total Length in the District (in Km)	Place of origin	Altitude at Origin
1	Subarnarekha River	115	Ranchi	600 m

Portion of the River or Stream Recommended for Mineral Concession	Length of area recommended for mineral concession (in kilometer)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)
Subarnarekha River (Between Sunderkani & Nagursai village)	53 km (approx.)	160m (approx.)	1,39,76,939 sq.m.	5828555 T



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FIG. 20.5 SITE PHOTOGRAPH OF SAND GHAT



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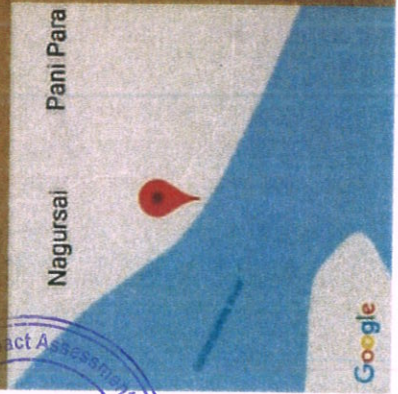
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Unnamed Road
East Singhbhum
Jharkhand
Altitude:-28.0m
Speed:2.0km/h
Index number: 22
6 Aug 2022 14:26:38



Handwritten initials or mark.



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East Singhbhum
Jharkhand
Altitude:-9.0m
Speed:0.0km/h
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6 Aug 2022 14:24:23



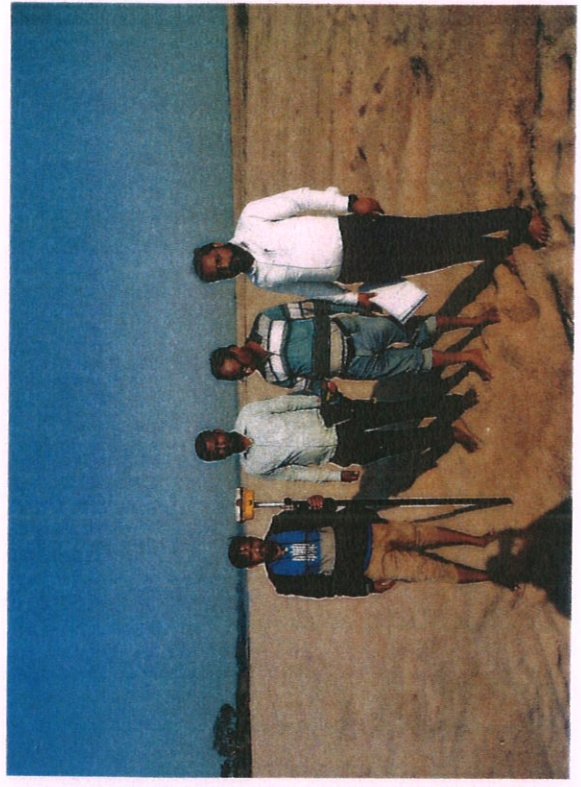
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22°21'19.519"N 86°37'25.922"E ±8.50m
 Singhpura
 East Singhbhum
 Jharkhand
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 Speed:1.8km/h
 Index number: 10
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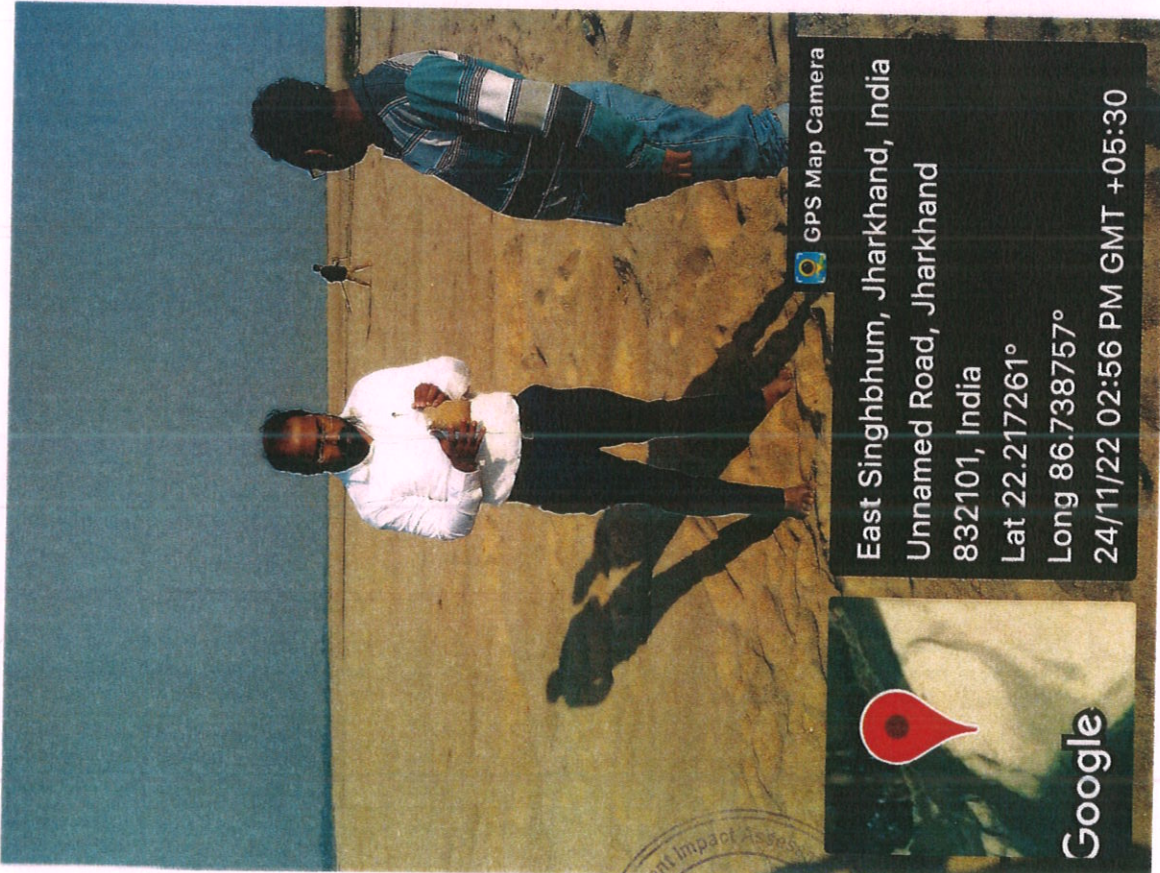
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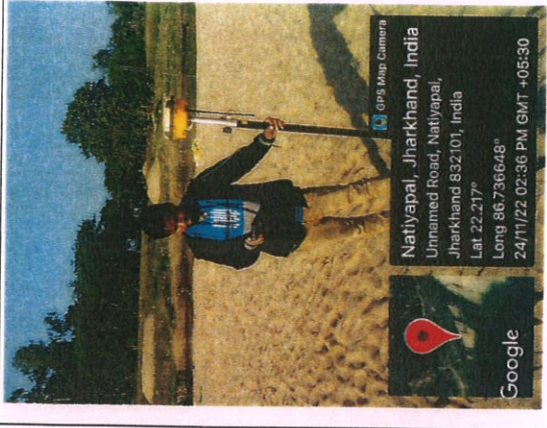
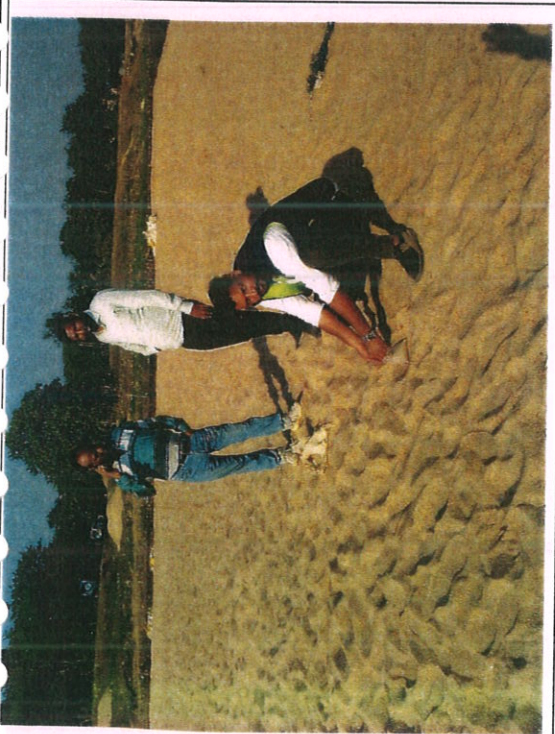
Approved
 State Level Enviro
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 Ranchi ★ Rajkumar
 ent Audit

AMTOS Sustana
 from
 District Survey
 of Singhbhum

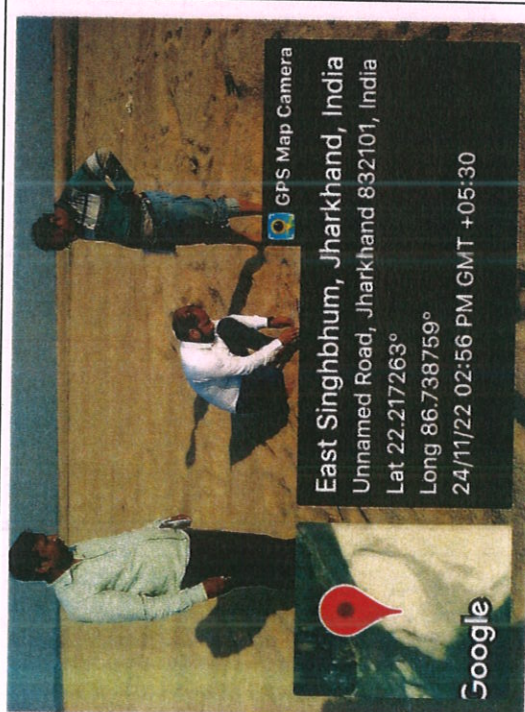
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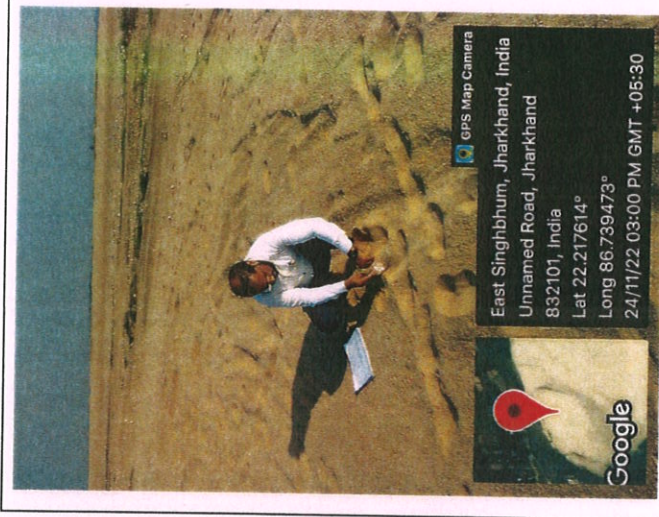
GPS Map Camera
Natiyapal, Jharkhand, India
Unnamed Road, Natiyapal,
Jharkhand 832101, India
Lat 22.217°
Long 86.736648°
24/11/22 02:36 PM GMT +05:30



GPS Map Camera
East Singhbhum, Jharkhand, India
Unnamed Road, Jharkhand 832101, India
Lat 22.217263°
Long 86.738759°
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GPS Map Camera
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832101, India
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Long 86.739473°
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CHAPTER- 21 DETAILS OF ECO-SENSITIVE AREA, IF ANY, IN THE DISTRICT

Elephants are frequently met with in the forests of this district and their number seems to be on the increase. Wild elephants are common in the jungles on the Dalma range in the north of the district. Heavy damage is caused mainly in rains to cultivation, young bamboo clumps and regeneration areas. In drier periods of the year they confine themselves to damp valleys. Bisons are present but in more interior areas except in the rains when they are seen roaming about in open areas. Sasangda plateau of Karampada block may be mentioned in this respect where all kinds of animals may be seen roaming about especially by the end of rains.

Tigers and panthers are present but make very rare appearance. At times they do attack village cattle and in stray cases human beings. Bears are present in large number and attack at times human being and do heavy damage to crops and fruits. Pigs are present in fairly large number and cause damage to cultivation. Wild dogs are seen frequently.

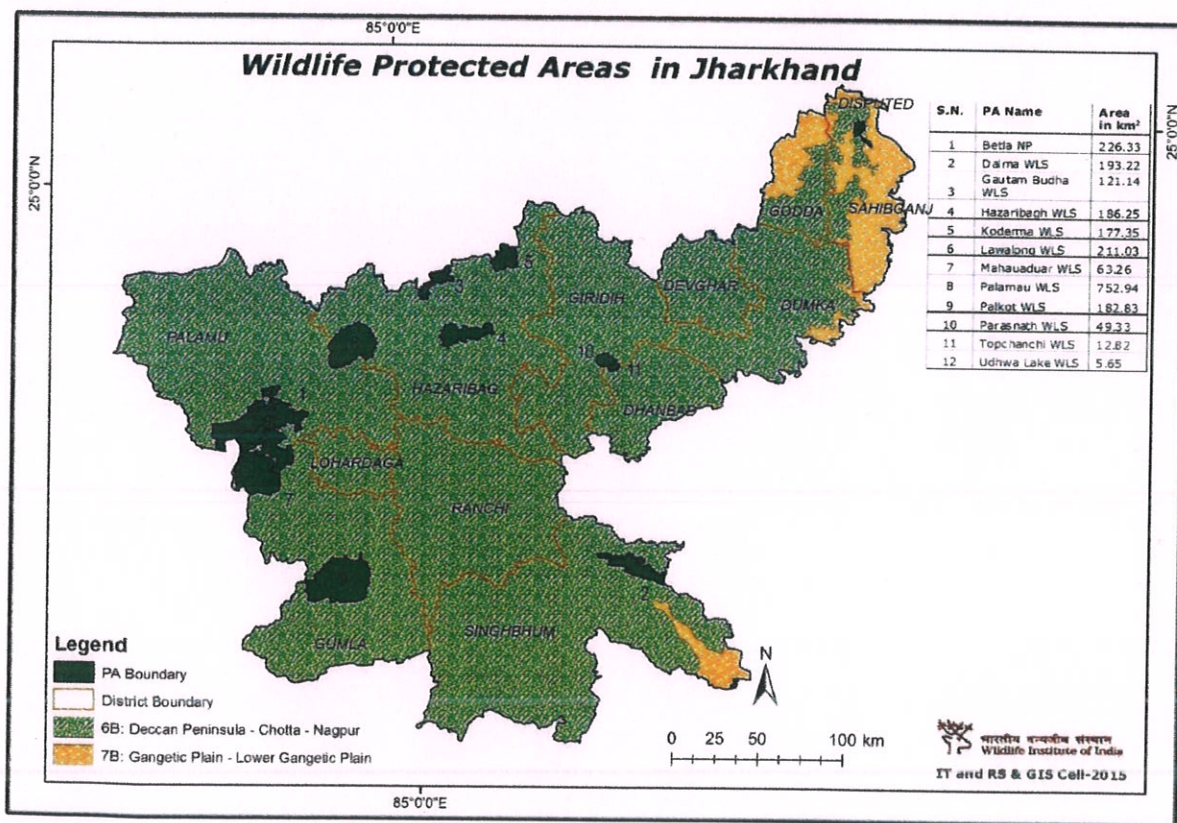
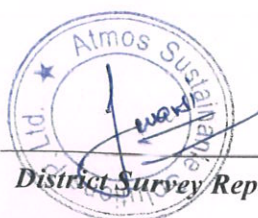


Fig. 21.1 Wildlife Protected area in Jharkhand



CHAPTER- 22

IMPACT ON THE ENVIROMENT

(Air, Water, Noise, Soil, Flora & Fauna etc.) Due to mining activity

Impact on Environment due to mining activities varies based on the quantum of production rate proposed. The different activities involved before & during mining are narrated below, which helps to assess the impact on environment.

Population growth, economic development and environmental degradation are interlinked with each-other. The high growth in population speeds-up economic activities. Meanwhile, it also deteriorates environment as for the high level of economic development, plenty of natural resources are exploited. Similarly, mining activities have considerable impacts on environment.

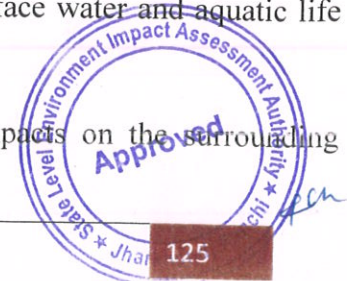
Change in flow pattern of river due to river bed mining is one of the significant impacts arising out of sand mining & there may be increase in flow velocity of river. Mining may also cause change in surface water quality and ground water quality.

Air pollution, due to dust from the mines, is a common environmental problem in mines and quarries especially open cast operations. Mining activities are normally associated with different types of pollution. Air pollution is regarded as the most notable one, where particulate matter (dust) are generated and found in the surrounding areas of such activities. Particles with aerodynamic diameters of less than 50µm (termed Total Suspended Particulate matter, or TSP) can become suspended in the atmosphere, and those with aerodynamic diameters of less than 10µm termed PM10 (inhalable particles) can be transported over long distances, and enter the human respiratory system.

Noise pollution is associated with many types of equipment used in mining operations & during transportation. Loud sound disturbed the vegetable nearby the area. It also affects stability of infrastructures, buildings, and homes of people living near to these working sites. In this regard, noise pollution may include noise from vehicle engines, loading and unloading of sand into tippers and other sources.

Sand mining operations impact the environment in several ways, and water pollution is a major concern in such operations. For instance quarry dust can change the chemistry of water resources by dissolving in them, it can also settle in water bodies and cause pollution. Furthermore, these operations disrupt the existing movement of surface water and aquatic life near or downstream from a quarry site.

The pollution potential of the proposed project, it is possible impacts on the surrounding



environment during pre-operational and operational phases and the necessary management actions proposed for control and abatement of pollution are furnished here under.

Impact on some component of the environment is as below:

Air environment:

Although mining does not cause any direct change in air environment, transportation etc. In sand mining operations, the source of air pollution may cause deterioration of air quality due to the fugitive dust emission during excavation, loading-unloading operations and transportation. Loading and unloading of mineral would be associated with the fugitive emission in the active area whereas fugitive emission during transportation would affect the areas/villages situated adjacent to road side. Another source of air pollution would be emission from the trucks/tractor/other vehicles to be used for transportation of soil.

Water environment:

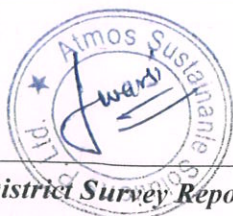
As far as impact on surface water is concerned, during mining and transportation, there are chances of contamination of surface water resources (pond, well etc.) with dust or by other means. As sand mining is on bed of river, there may adverse impact on flow pattern, surface hydrology and ground water regime. The labourers working in sand mining come from neighboring districts and colonies in the surrounding areas with inadequate facilities for waste disposal.

Noise environment:

As far as noise pollution is concerned, blasting is considered the major source of noise Pollution but in sand mining there is no provision of blasting. The Machinery used in mining of sand mineral creates sound and vibrates. As well as vehicles used for transport, loading-unloading of mineral etc. put impact on noise environment. Noise level in the working environment should be compared with the standards prescribed by Central Pollution.

Flora and Fauna:

The sand mining may lead to Short-term disturbance in habitats of wildlife populations from noise (impacts usually local and short-term) & to the local aquatic habitats. From the last few years the mining rate has increased several times. It results in the loss of biodiversity of both flora and fauna and physiographic features of the concerned region.



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CHAPTER- 23

REMEDIAL MEASURES TO MITIGATE THE IMPACT OF THE MINING ON THE ENVIRONMENT

AIR ENVIRONMENT:

MITIGATION MEASURES

a) For Fugitive Dust Emission:

- All trucks should be covered by tarpaulin sheet to prevent dust emission.
- Water spraying should be there in haul road, crusher and mining area.
- Dust extractor should be used to reduce dust generation.
- Plantation will be carried out on approach roads.

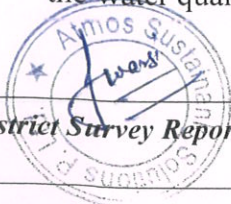
b) For Vehicular Emission

- Overloading of trucks and trolleys should be prevented.
- Vehicular emission can pose serious health hazard. During the earth mining extraction, tractor/truck should be used for transportation. Tractor/truck comprises of diesel engine produce particles are dangerously fine of PM10 & PM2.5. It is well known fact that combustion of diesel generates small particulate matter, nitrogen oxides and sulphur dioxide.
- Ultra low sulphur diesel should be used in vehicle. CPCB prescribed emission Standards for the vehicle would be followed.
- Monitoring of dust fall at land located nearby the mining area.
- Deploying PUC certified vehicles to reduce their noise emission.

1.1 WATER ENVIRONMENT: -

MITIGATION MEASURES

- No diversion will be done. There will not be any adverse impact on flow pattern, surface hydrology and ground water regime.
- Safeguards will be adopted against health risks on account of breeding of vectors in the water bodies created due to excavation.
- Laborers should not be allowed to through trashes in water bodies.
- Utmost care should be taken to minimize or control oil spills or leakage from vehicles used for soil transportation.
- Water Quality Monitoring for the, ground water should be carried out seasonally to ensure that the water quality is not affected by the project activities.



- Safety barrier zone will be left from both sides of river, which will minimize the chances of bank failure
- The contractor should adhere all guidelines and rules for proper and scientific method of mining during the period of extracting of minerals that the project activities should not have any adverse effect on the physical components of the environment including recharge of ground waters or water quality.

1.2 LAND ENVIRONMENT:

MITIGATION MEASURES

- Foreign materials like polythene bag, jute bag and useless articles should not be allowed to remain/spill on the land, or no pits/pockets should be allowed to be filled with such material.
- Mining should not exceed beyond the agreed extraction depth.
- Quantities will be strictly limited so that sand accumulation rates are sufficient to avoid extended impacts on channel morphology.
- Loss of habitat is minimized because the river bed mining will be carried only in dry bed which will not disturb the riverine ecosystem

1.3 NOISE ENVIRONMENT:

MITIGATION MEASURES

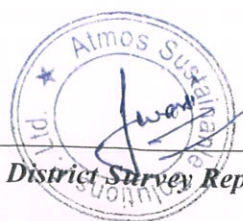
- Well maintained vehicles should be used in order to reduce the noise during movement of vehicles.
- Regular and proper maintenance of transportation vehicles (trucks, tractor etc.) should be ensured.
- Proper and timely maintenance of machineries.
- The noise levels from all these sources are periodical and restricted to particular operation.

1.4 FLORA AND FAUNA:

MITIGATION MEASURES

- Sediment and erosion control by planting native trees and shrubs to stabilize degraded farming land.
- Regular monitoring of plants and animals on site.
- Establishing and maintaining habitat corridors.

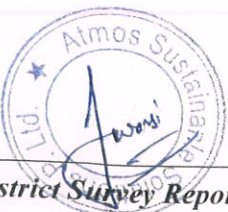
Stabilize all slopes, re-vegetating with native species to reduce/avoid erosion.



CHAPTER- 24 RECLAMATION OF MINED OUR AREA

(Best practice already implemented in the district, requirements as per rules and regulation, proposed reclamation plan).

- In river bed sand mining the volume of sand extracted in each year will be re-deposited in subsequent years during rainy season.
- This DSR is prepared for sand mining. For river bed mining the mineral will be extract from RBM. It is a drift deposit of sand every year sand replenished by flood and rainy session. This is natural phenomena reclaim exhaust area.



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CHAPTER- 25

RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

Risk analysis is the systematic study of risks encountered during various stages of mining operation. Risk analysis seek to identify the risks involved in mining operations, to understand how and when they arise, and estimate the impact (financial or otherwise) of adverse outcomes. The sand mining operation in the district is mainly done manually.

IDENTIFICATION OF RISK DUE TO RIVER SAND MINING:

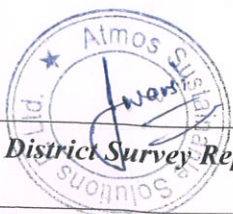
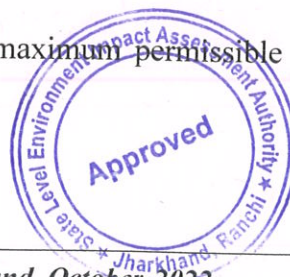
There is no land degradation due to mining activities as mining is done only on river bed dry surface. There will be no OB or waste generation as the sand is exposed in the river bed and is completely sealable. There will be neither any stacking of soil nor creation of OB dumps. The mining activity will be carried out up to a maximum depth of 3m below the surface level. So, there is no chance of slope failure, bench failure in the mines. However, there are some identified risk in the mining activity which are as below:

1. Accident during sand loading and transportation
2. Inundation/ Flooding
3. Quick Sand Condition

Mitigation measures

Measures to prevent accidents during loading and transportation:

- During the loading truck would be brought to a lower level so that the loading operation suits to the ergonomic condition of the workers.
- The workers will be provided with gloves and safety shoes during loading.
- Opening of the side covers of the truck should be done carefully and with warning to prevent injury to the loaders.
- Mining Operations will be takes place during daylight only.
- The truck will be covered with tarpaulin and maintained to prevent any spillage.
- To avoid danger while reversing the trackless vehicles especially at the embankment and tipping points, all areas for reversing of Lorries should be made man free as far as possible.
- All transportation within the main working will be carried out directly under the supervision and control of the management.
- Overloading should not be permitted and the maximum permissible speed limit should be ensured.



- There will be regular maintenance of the trucks and the drivers will have valid driving license.

MEASURES TO PREVENT INCIDENTS DURING INUNDATION/ FLOODING:

- To minimize the risk of flooding/ inundation following measures will be undertaken
- Mining will be completely closed during the monsoon months.
- Proper weather information particularly on rain should be kept during the operational period of mines so that precautionary measures will be undertaken.

Measures for mitigation to quick sand condition:

- Quick sand zone and deep water zone will be clearly demarcated and all the mines workers will made aware of the location.
- Mining will be done strictly as per the approved mining plan.

DISASTER MANAGEMENT PLAN:

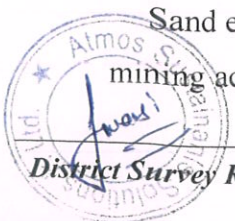
As the depth of mining will be maximum of 3m below the surface level considering local condition, the risk related to mining activity is much less. The mining operation will be carried out under the supervision experienced and qualified Mines Manager having Certificate of Competency to manage the mines 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. During heavy rainfall and during the monsoon season the mining activities will be closed. Proper coordination with Irrigation Department should be maintained so that at the time of releasing water, if any, from the dam suitable warning/information is given in advance. Special attention and requisite precautions shall be taken while working in areas of geological weakness like existence of slip, fault etc. The mining site will be supplied with first-aid facilities and the entire mines worker will have access to that.

UTILIZATION OF SAND:

Sand is a multi-purpose topographical material. It is known as one of the three fundamental ingredients in concrete. The composition of sand is diverse. Mostly sand is made of silica which is a common element.

From beds to flood plains to coastlines- we can find the sand at almost everywhere. The robustness of sand has played a significant role in everyday life. We use sand practically every other day.

Sand extraction from river beds and brick earth mining for making raw bricks are the main mining activities in the district. With a spurt in construction of real estate sectors and various



govt. sponsored projects, the demand for both sand and bricks has increased manifold. The extraction of sand is carried out either manually or through semi- mechanized system. The depth of mining for both river bed sand and brick earth are restricted due to statutory provision in the regulations pertaining to conservation and development of minor minerals.

River sand mining is a common practice as habitation concentrates along the rivers and the mining locations are preferred near the markets or along the transportation route, for reducing the transportation cost.

In the real world, there are a lot of situations where we can find uses of sand.

Followings are the common sand uses.

While bunting metal, we can mix sand with clay binder for frameworks used in the foundries.

Sand can be used for cleaning up oil leak or any spill by dredging sand on that spill. The material will form clumps by soaking up, and we can quickly clean the mess.

Sand can be used as a road base which is a protective layer underneath all roads Industrial sand is used to make glass, as foundry sand and as abrasive sand.

One creative usage of sand is serving as a candle holder. We can try putting some sand before pouring tea light or any candle in a glass. It holds the candle still and refrain the candle from rolling by giving it an excellent decoration. Adds texture and aesthetic appeal to space.

Sand is mostly pure to handle, promptly available and economically wise.

We use sand in aquariums, fabricating artificial fringing reefs, and in human-made beaches

Sandy soils are ideal for growing crops, fruits and vegetables like watermelon, peaches, peanuts, etc.

Sand can light a path by filling mason jars with sand and tea light which is another inexpensive way to make a walkway glow.

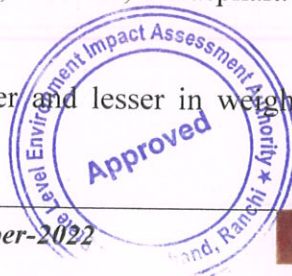
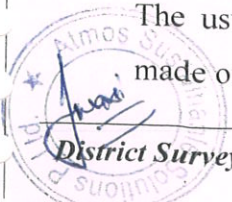
Sand helps to improve resistance (and thus traffic safety) in icy or snowy conditions.

We need sand in the beaches where tides, storms or any form of preconceived changes to the shoreline crumble the first sand.

Sand containing silica is used for making glass in the automobile and food industry- even household products for the kitchen.

Sand is a strong strand which is used for plaster, mortar, concrete, and asphalt.

The usual bricks formulated of clay only is way weaker and lesser in weight than blocks made of clay mixed with sand.



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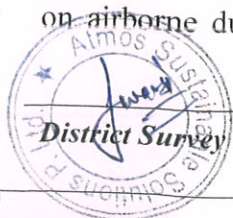
CHAPTER- 26

DETAILS OF THE OCCUPATIONAL HEALTH ISSUES IN THE DISTRICT

(Last five-years data of number of patients of silicosis & Tuberculosis is also needs to be submitted).

Occupational Health Hazard and Remedial Measures:

Occupational injuries cause major health problems that all developed, developing, and underdeveloped nations worldwide are facing. The majority of the workforce is deprived of occupational health services. The estimated economic loss due to work-related injuries and diseases is equivalent to 4% of the world's gross national product. The impact is much higher in developing countries. According to Leigh et al, 100 million occupational injuries occur throughout the world each year. Mine workers are subjected to a number of subtly harmful risks to health and safety, such as a high concentration of mechanical equipment in a confined space. As a result, mine workers are often exposed to a high risk of work-related musculoskeletal injuries, according to the US Bureau of Labor Statistics. A large number of laborers in India work in the stone crushing and mining industries. Mining is a tedious physical work, and involves exposure to colloidal silica and particulate matter. Workers are more prone to dental injuries due to a limited working area. Due to the tedious working schedule, workers develop the habit of alcohol consumption and tobacco use, which leads to deterioration of their oral health. Most of the mine workers are malnourished, have ill health, and suffer from physical impairments due to accidents at mining areas. According to the Mines and Geology Department, the Government of Rajasthan, the average life expectancy of a mine worker is 49 years. This is 10 years less than the life expectancy of workers who work outside the mines. In the workplace, workers are exposed to biological, chemical, and physical agents, which can result in adverse effects ranging from simple discomfort and irritation to debilitating occupational diseases such as lung fibrosis, neuropathy, deafness, organ damage, lung diseases (such as silicosis, tuberculosis, silicotuberculosis, and asthma), and cancers of various sites. The persons employed in the mines are exposed to a number of hazards at work which adversely affect their health. Some of the important ones are dust, noise, heat, humidity, vibration etc. In recent times, there has been increasing awareness among mining industry and the workers about occupational diseases such as Coal Worker's Pneumoconiosis, Silicosis, Manganese Poisoning, Hearing Impairment etc. caused by exposure to health hazards at work. Almost all occupational diseases are known to cause permanent disablement and there is no effective treatment. However, most of the occupational diseases can be District Survey Report of East Singhbhum District for Minor Mineral prevented by adopting proper occupational health measures and engineering control on airborne dust at workplace. Following diseases have been notified as the diseases connected

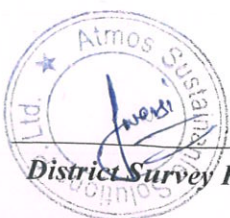


with mining operations for the purpose of sub-section (1) of Section 25 of the Mines Act, 1952: S.R.O. 1306 dated the 21st July, 1952 1. Silicosis 2. Pneumoconiosis S.R. O. 2521 dated the 26th June, 1986 Cancer of lung or the stomach or the pleura and peritoneum (i.e. mesothelioma) 25 S.O. 399(E) dated 21st February, 2011 1. Noise Induced Hearing Loss 2. Contact Dermatitis caused by direct contact with chemical. 3. Pathological manifestations due to radium or radioactive substances

System of Detection of Occupational Diseases in Mines In order to detect occupational diseases the industry is required to conduct medical examinations and health surveillance of workers as per the provisions of Mines Act. The present efforts of mines management are concentrated on detection of silicosis, Pneumoconiosis and other notified diseases. Very little attention is paid to other occupational diseases. The essential features of health surveillance programme required to be carried out in mines are: (a) Initial Medical Examination of persons to be employed in mines. (b) Periodic Medical Examination once every five years. General physical examination, chest radiographs, lung function tests and audiometry. (c) Classification of chest radiographs of workers as per ILO Classification. (d) Medical examination within one year of superannuation. (e) Evaluation of all cases of suspected pneumoconiosis by Pneumoconiosis Medical Board. (f) Maintenance of medical records till the person is in service and 10 years thereafter. The cases of silicosis detected during health surveillance programme are referred to Pneumoconiosis Medical Board of the mining companies for evaluation and certification. If certified, the case is notified to the enforcement authority and evaluated for disability and payment of compensation. Many cases of silicosis and other pneumoconiosis go undetected and a large number of cases of silicosis are misdiagnosed due to lack of training of medical professionals. District Survey Report of East Singhbhum District for Minor Mineral (Stone) 70 as per data published by National Health Systems Resource Centre the known causes of deaths in East Singhbhum District.

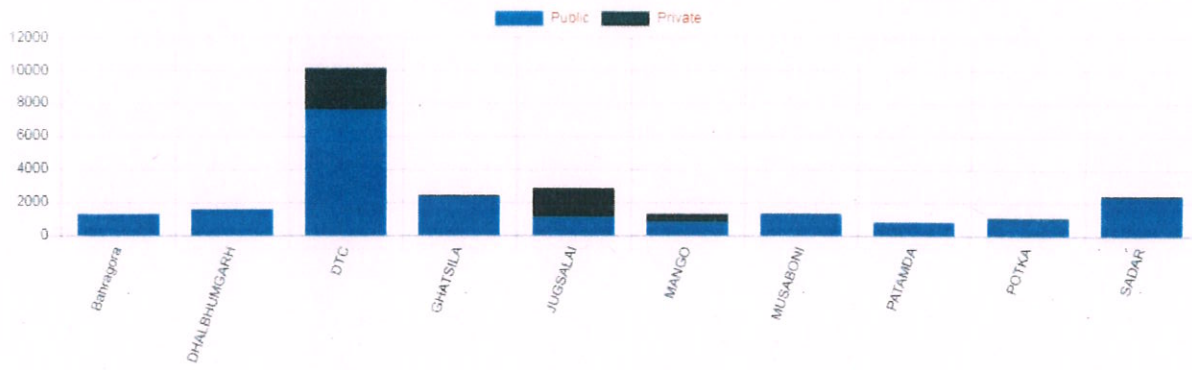
- *Data was obtained from the NIKSHAY portal of State TB Cell, Jharkhand. The secondary data of the Nikshay portal under NTEP was analysed to enumerate all the variables in the web-based portal. Data from the state of Jharkhand from January 1 to December 31, 2019 was obtained.*

A total of 57,504 TB patients were notified. Most of patients were in the 15-44 years age group with males being 69%, most belonged to Drug sensitive category(98%) and Pulmonary TB(86%) being most common. Among extra pulmonary the most common site was Abdominal TB (34%). Treatment success rate was 83%.



feh

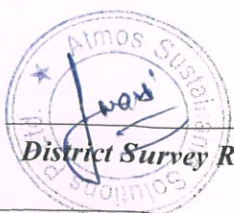
Tuberculosis Unit Wise Total Notified for state : Jharkhand, district : Purbi Singhbhum From : 01/01/2017 To : 16/08/2022 Public Notified: [19964] Private Notified: [5171] Total Notified: [25135]



Tuberculosis Unit	Total Public Notified	Total Private Notified
Bahragora	1275	8
DHALBHUMGARH	1550	19
DTC	7592	2547
GHATSILA	2313	99
JUGSALAI	1078	1759
MANGO	785	500
MUSABONI	1273	52
PATAMDA	783	21
POTKA	987	85
SADAR	2328	81
Total	19964	5171

In Jharkhand Jharkhand's East Singhbhum district is one of the places ravaged by silicosis. Particularly affected are Terenga, Purnapani and Kendadih villages, where 20 people have died in the past four years. The villagers blame their woes on a silica dust-producing plant, KK Minerals and KK Sale.

Source: nikshay.in



fch

CHAPTER- 27

PLANTATION AND GREEN BELT DEVELOPMENT IN RESPECT OF LEASES ALREADY GRANTED IN THE DISTRICT

The basic approach to green belt / plant growth in the lease area is to provide an esthetic look, reduce fugitive pollution, and monitor noise effect, etc.

Green Belt will be developed based on the following principles:

- Protect natural or semi-natural environments;
- Improve air quality within urban areas;
- Protect the unique character of rural communities that might otherwise be absorbed by expanding suburbs.
- Plants that grow fast should be preferred
- Preference for high canopy covers plants with local varieties
- Perennial and evergreen plants should be preferred
- Plants having a high Air Pollution Tolerance Index (APTI) should be preferred.

The green belt has many benefits for people:

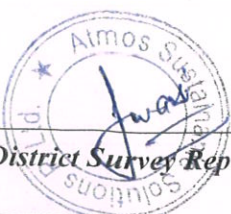
- Walking, camping, and biking areas close to the cities and towns.
- Contiguous habitat network for wild plants, animals and wildlife.
- Cleaner air and water.
- Better land use of areas within the bordering cities.

Greenbelt Development & Plantation Programme:

Plantation should be developed at 2 M x 2 M spacing, the rate of survival should be aimed at 80% by regular watering & fencing to keep plants safe from animal grazing. Local species will be planted in consultation with local horticulturist. Diseased plants should be replaced by planting new saplings.

Recommendation for Green Belt Development

It is strongly recommended to create greenbelt around the project site or in case lease failed the authority should take proper action to stop mining operation or revoke mining permission with necessary action.



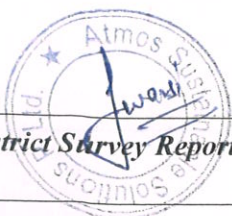
CHAPTER- 28 CONCLUSION

*The District Survey Report of sand will be granted for producing sand material for making road and building. This is a part of Govt. of India's policy to develop maximum infrastructure facility in India. This making of road will generate direct and indirect employment to the local people.

The lease owner will undertake mining activity as per the mining plan and Environment Clearance with proper taking care of environmental aspects i.e. without disturbing the ambient condition.

*The determined values of various methods as adopted for replenishment study gives a comparable value and in all cases the values are found to be much more as compared to the capping limit (60%) as suggested in the Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) January 2020, Issued by Ministry of Environment, Forest and Climate Change (MoEF & CC) 2020.

*It is suggested to have a periodical review under the guidance of SEIAA & SEAC Committee along with field data acquisition during pre and post monsoon periods to record the seasonal variance of the sedimentation rate on annual basis and update this DSR in case of any abnormal findings.



ANNEXURE-01

CIRCLE OFFICER



अंचल अधिकारी का कार्यालय, घाटशिला।

पत्रांक :- 94

प्रेषक,

अंचल अधिकारी,
घाटशिला।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

घाटशिला, दिनांक 22/02/2023।

विषय :-

पूर्वी सिंहभूम जिलान्तर्गत घाटशिला अंचल के मौजा-कुलियाना एवं सुन्दरकनाली के प्लॉट नं०-01(P) थाना नं०-1247 एवं 1256 के रकबा 4.00 हेक्टेयर क्षेत्र पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र के संबंध में।

प्रसंग :-

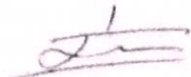
भवदीय पत्रांक-171/खनन, दिनांक 22.02.2023।

महाशय,

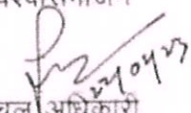
उपर्युक्त विषयक प्रसंगाधीन पत्र के आलोक में राजस्व उप-निरीक्षक एवं अंचल निरीक्षक, घाटशिला के जाँच प्रतिवेदनानुसार मौजा- कुलियाना, थाना नं०-1247, खाता नं०-130, प्लॉट नं०-01 रकबा-19.76 ए० किस्म-नदी एवं मौजा- सुन्दरकनाली, थाना नं०-1256, खाता नं०-24, प्लॉट नं०-01 रकबा-0.50 ए० किस्म-नदी भूमि अनावार बिहार सरकार (झारखण्ड) खाते की भूमि हाल सर्वे खतियान में दर्ज है। विषयान्तर्गत क्षेत्र के बावत निम्नकिंत बिन्दुओं पर अद्यतन प्रतिवेदन निम्न प्रकार हैं :-

क्रमांक	निर्धारित बिन्दु	हाँ/नहीं
1.	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर-II में जंगल-झाड़ी के रूप में दर्ज है?	नहीं
2.	क्या 500 मीटर की दूरी के अन्दर कोई मानव बसाहट (Habitation) स्थित है?	नहीं
3.	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय (Dam/Reservoir) स्थित है?	नहीं
4.	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है?	हाँ
5.	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Education Institute) स्थित है?	नहीं
6.	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7.	क्या 10 कि. मी. की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है?	नहीं
8.	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है?	नहीं
9.	आवेदित क्षेत्र में अथवा इसके 50 मीटर के इर्द-गिर्द कोई सार्वजनिक स्थान है या नहीं?	नहीं
10.	आवेदित क्षेत्र में अथवा इसके 50 मीटर के इर्द-गिर्द कोई शमशान घाट है या नहीं?	नहीं

भवदीय को सादर सूचनार्थ समर्पित।



R11


विश्वासभाजन

 अंचल अधिकारी,
 घाटशिला।

अंचल अधिकारी का कार्यालय, मुसाबनी, पूर्वी सिंहभूम।

comshn@gmail.com/comusabani-es-jhr@nic.in

प्रेषक,

अंचल अधिकारी
मुसाबनी।

पत्रांक:- 567

सेवा में,

जिला खनन पदाधिकारी
पूर्वी सिंहभूम, जमशेदपुर।

मुसाबनी, दिनांक:- 21/12/2022

विषय:-

पूर्वी सिंहभूम जिला अन्तर्गत मुसाबनी के ग्राम सोनागाडा के प्लॉट नं०-1599/अंश के रकवा 2.54 हेक्टेयर क्षेत्र पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र के संबंध में।

प्रसंग:-

भवदीय पत्रांक-991/खनन, दिनांक-07.12.2022।

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के आलोक में संबंधित राजस्व उपनिरीक्षक/अंचल निरीक्षक से जाँच कराई गई है। उनके द्वारा जाँच कर प्रतिवेदित किया गया है जो निम्न प्रकार है:-

1. आवेदित भूमि सर्वे खतियान वर्ष 1964 के अनुसार खाता- 340, प्लॉट- 1599 किस्म पुरानी परती काविल आवाद है।
2. 500 मी० की दूरी के अन्दर मानव बसाहट नहीं है।
3. 500 मी० की दूरी के अन्दर कोई जलीय निकाय/डैम/नदी स्थित नहीं है।
4. 500 मी० की दूरी के अन्दर नदी स्थित नहीं है।
5. 500 मी० की दूरी के अन्दर शैक्षणिक संस्थान नहीं है।
6. 500 मी० की दूरी के अन्दर चिकित्सालय स्थित नहीं है।
7. 10 कि०मी० की परिधि में कोई अन्तर राज्यीय सीमा नहीं है।
8. 500 मी० की दूरी के अन्दर राष्ट्रीय धरोहर/पुरातत्वीय महल स्थल स्थित नहीं है।
9. आवेदित क्षेत्र में अथवा इसके 50 मी० इर्द-गिर्द कोई सार्वजनिक स्थल नहीं है।
10. आवेदित क्षेत्र में अथवा इसके 50 मी० इर्द-गिर्द कोई श्मशान घाट नहीं है।

बालू घाट निलामी हेतु अंचल कार्यालय मुसाबनी को कोई आपत्ति नहीं है।

राजस्व उपनिरीक्षक
20.12.22

अंचल अधिकारी
मुसाबनी

प्र० अंचल निरीक्षक
मुसाबनी

विश्वासभाजन
20/12/22
अंचल अधिकारी
मुसाबनी।



567
20/12/22

अंचल अधिकारी का कार्यालय, गुड़ाबान्दा।

पत्रांक- 82/375

प्रेषक,

अंचल अधिकारी,
गुड़ाबान्दा।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

विषय:-

गुड़ाबान्दा, दिनांक-20/02/2023
पूर्वी सिंहभूम जिला अंतर्गत गुड़ाबान्दा अंचल के ग्राम- रेरुवा के प्लॉट नं०-1(P) एवं 929(P) थाना नं०-474 के रकवा- 13.3 हेक्टेयर पर बालू घाट के निलामी हेतु अनापति प्रमाण पत्र भेजने के संबंध में।

प्रसंग:-

भवदीय पत्रांक:- 43 /खनन दिनांक-10/01/23

महाशय,

उपर्युक्त विषयक प्रासांगिक पत्र के आलोक में संबंधित राजस्व उप निरीक्षक एवं प्रभारी अंचल निरीक्षक से जांच कराया गया। जांच में पाया गया कि मौजा- रेरुवा, थाना सं० 474, खाता सं० 250 प्लॉट सं० 1(P) रकवा 50.40 एकड़ किस्म स्वर्णरेखा नदी जो अनावार बिहार सरकार के खाते में इन्द्राज है एवं 929(P) सर्व खतियान फटा होने के कारण सत्यापित नहीं पाया। परन्तु नक्सा के अनुसार उक्त प्लॉट नदी है।

जांच प्रतिवेदन बिंदुवार निम्नवत है :-

सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर-II में जंगल-झाड़ी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है ?	नहीं
3	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय (Dam/Reservoir) स्थित है ?	हाँ
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है ?	हाँ
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है ?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है ?	नहीं
7	क्या 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है ?	नहीं
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्ववीय (Monuments/ Archaeological) महत्व के स्थल स्थित है ?	नहीं
9	आवेदित क्षेत्र में अथवा इसके 50 मीटर के ईर्द-गिर्द कोई सार्वजनिक स्थान है या नहीं ?	नहीं
10	आवेदित क्षेत्र में अथवा इसके 500 मीटर ईर्द-गिर्द कोई शमसान घाट है या नहीं ?	नहीं

अतः अग्रोत्तर कार्रवाई हेतु प्रेषित।

विश्वासभाजन

20/02/2023
अंचल अधिकारी
गुड़ाबान्दा।



अंचल अधिकारी का कार्यालय, चाकुलिया।

पत्रांक - ५३९२ / दिनांक - १७-१२-२२

प्रेषक,

अंचल अधिकारी,
चाकुलिया।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

विषय :-

पूर्वी सिंहभूम जिला अंतर्गत चाकुलिया अंचल के ग्राम- चन्दनपुर के प्लॉट नं०- ११२६ (अंश) के रकबा ४.९७ हेक्टर क्षेत्र पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र के संबंध में।

प्रसंग :-

भवदीय पत्रांक- ९९९/खनन दिनांक- ०७.१२.२०२२

महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र के आलोक में अंचल निरीक्षक के माध्यम से संबंधित राजस्व उपनिरीक्षक तथा अंचल अमीन के द्वारा संयुक्त रूप से जांच कर विन्दुवार प्रतिवेदन प्रस्तुत किया गया है, जो निम्नप्रकार है :-

क्र०	निर्धारित बिन्दु	हाँ/नहीं
१	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर २ में जंगल झाड़ी के रूप में दर्ज है।	नहीं
२	क्या ५०० मीटर की दूरी के अन्दर कोई मानव बसाहट स्थित है।	हाँ
३	क्या ५०० मीटर की दूरी अन्दर कोई जलीय निकाय स्थित है।	हाँ
४	क्या ५०० मीटर की दूरी के अन्दर कोई नदी स्थित है	हाँ
५	क्या ५०० मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान स्थित है	नहीं
६	क्या १० कि० मी० दूरी के अन्दर कोई चिकित्सालय स्थित है ?	नहीं
७	क्या १० कि० मी० की परिधि में कोई अन्तर्राष्ट्रीय सीमा है ?	नहीं
८	क्या ५०० मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय महत्त्व के स्थल स्थित है ?	नहीं
९	आवेदित क्षेत्र में अथवा इसके ४० मीटर के ईट-गिर्द कोई सार्वजनिक स्थान है या नहीं ?	नहीं
१०	आवेदित क्षेत्र में अथवा इसके ५०० मीटर ईट-गिर्द कोई श्मशान घाट है या नहीं	नहीं

अतः भवदीय को सादर सूचनाय समर्पित।

विश्वासभाजन

१७/१२/२२
अंचल निरीक्षक,
चाकुलिया।



अंचल अधिकारी का कार्यालय, गुड़ाबान्दा ।

पत्रांक- 86/अं

प्रेषक,

अंचल अधिकारी,
गुड़ाबान्दा ।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर ।

गुड़ाबान्दा, दिनांक- 20.02.23

विषय:-

पूर्वी सिंहभूम जिला अंतर्गत गुड़ाबान्दा अंचल के ग्राम- भाकर के प्लॉट नं०- 126(P) थाना नं०-483 के रकबा - 6.29 हेक्टेयर पर बालू घाट के निलामी हेतु अनापति प्रमाण पत्र भेजने के संबंध में।

प्रसंग:-

भवदीय पत्रांक:- 44 /खनन दिनांक-10.01.2023

महाशय,

उपर्युक्त विषयक प्रासांगिक पत्र के आलोक में संबंधित राजस्व उप निरीक्षक एवं प्रभारी अंचल निरीक्षक ने प्रतिवेदित किया है कि मौजा- भाकर, थाना सं० 483, प्लॉट सं० 126(P) खतियान फटा होने के कारण सत्यापित नहीं हो पाया। परन्तु नक्सा के अनुसार उक्त प्लॉट नदी है।

जाँच प्रतिवेदन बिंदुवार निम्नवत है :-

सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर-11 में जंगल-झाड़ी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है ?	नहीं
3	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय (Dam/Reservoir) स्थित है ?	हाँ
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है ?	हाँ
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है ?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है ?	नहीं
7	क्या 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है ?	नहीं
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्ववीय (Monuments/ Archaeological) महत्व के स्थल स्थित है ?	नहीं
9	आवेदित क्षेत्र में अथवा इसके 50 मीटर के ईर्द-गिर्द कोई सार्वजनिक स्थान है या नहीं ?	नहीं
10	आवेदित क्षेत्र में अथवा इसके 500 मीटर ईर्द-गिर्द कोई शमसान घाट है या नहीं ?	नहीं

अतः अग्रेतर कार्रवाई हेतु प्रेषित।



विश्वासभाजन
20/02/2023
अंचल अधिकारी
गुड़ाबान्दा ।

अंचल अधिकारी का कार्यालय, गुड़ाबान्दा।

पत्रांक- ४७/३०

प्रेषक,

अंचल अधिकारी,
गुड़ाबान्दा।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

विषय:-

गुड़ाबान्दा, दिनांक- 20.02.23
पूर्वी सिंहभूम जिला अंतर्गत गुड़ाबान्दा अंचल के ग्राम- बालिजुड़ी एवं तरासपुर, थाना सं० 1034 एवं 1041 (क्रमशः) प्लॉट नं०- 570 तथा 298 रकवा - 7.37 हेक्टेयर पर बालू घाट के निलामी हेतु अनापति प्रमाण पत्र भेजने के संबंध में।

प्रसंग:-

भवदीय पत्रांक:- 47 /खनन दिनांक-10.01.2023

महाशय,

उपर्युक्त विषयक प्रासांगिक पत्र के आलोक में संबंधित राजस्व उप निरीक्षक एवं प्रभारी अंचल निरीक्षक ने प्रतिवेदित किया है कि प्लॉट सं० 570 तथा 298 मौजा बालिजुड़ी थाना सं० 1034, में नदी खतियान के अनुसार नहीं है। उक्त प्लॉट 570 तथा 298 मौजा तारसपुर थाना सं 1041 अनावाद बिहार सरकार के खाता सं० 113, रकवा 3.00 एकड़ एवं 15.80 एकड़ (क्रमशः) किस्म नदी इन्द्राज है।

जाँच प्रतिवेदन बिंदुवार निम्नवत है :-

सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान चथा रजिस्टर-II में जंगल-झाड़ी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है ?	हाँ
3	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय (Dam/Reservoir) स्थित है ?	हाँ
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है ?	हाँ
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है ?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है ?	नहीं
7	क्या 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है ?	नहीं
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है ?	नहीं
9	आवेदित क्षेत्र में अथवा इसके 50 मीटर के ईर्द -गिर्द कोई सार्वजनिक स्थान है या नहीं ?	नहीं
10	आवेदित क्षेत्र में अथवा इसके 500 मीटर ईर्द -गिर्द कोई शमसान घाट है या नहीं ?	नहीं

अतः अग्रेतर कार्रवाई हेतु प्रेषित।

विश्वासभाजन

20/02/23
अंचल अधिकारी
गुड़ाबान्दा।



अंचल अधिकारी का कार्यालय, गुड़ाबान्दा।

पत्रांक- 85/310

प्रेषक,

अंचल अधिकारी,
गुड़ाबान्दा।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

विषय:-

गुड़ाबान्दा, दिनांक- 20.02.23
पूर्वी सिंहभूम जिला अंतर्गत गुड़ाबान्दा अंचल के ग्राम- बालिजुड़ी थाना सं0 1034, प्लॉट नं०- 1407/1652, रकवा - 24.0 हेक्टेयर पर बालू घाट के निलामी हेतु अनापति प्रमाण पत्र भेजने के संबंध में।

प्रसंग:-

भवदीय पत्रांक:- 51 /खनन दिनांक-10.01.2023

महाशय,

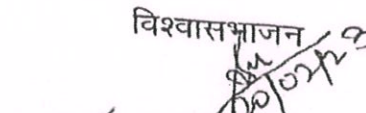
उपर्युक्त विषयक प्रासांगिक पत्र के आलोक में संबंधित राजस्व उप निरीक्षक एवं प्रभारी अंचल निरीक्षक से जांच कराया गया। जांच में पाया गया कि बालिजुड़ी थाना सं0 1034, खाता सं0 333 प्लॉट नं०- 1407/1652, रकवा 144.10 एकड़ किस्म नदी जो अनावार बिहार सरकार के खाते में इन्द्राज है।

जांच प्रतिवेदन बिंदुवार निम्नवत है :-

सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर-II में जंगल-झाडी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है ?	हाँ
3	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय (Dam/Reservoir) स्थित है ?	हाँ
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है ?	हाँ
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है ?	हाँ
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है ?	नहीं
7	क्या 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है ?	नहीं
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/ Archaeological) महत्व के स्थल स्थित है ?	नहीं
9	आवेदित क्षेत्र में अथवा इसके 50 मीटर के ईर्द -गिर्द कोई सार्वजनिक स्थान है या नहीं ?	नहीं
10	आवेदित क्षेत्र में अथवा इसके 500 मीटर ईर्द -गिर्द कोई शमसान घाट है या नहीं ?	नहीं

अतः अग्रोत्तर कार्रवाई हेतु प्रेषित।

विश्वासभाजन


अंचल अधिकारी
गुड़ाबान्दा।



अंचल अधिकारी का कार्यालय, गुड़ाबान्दा।

पत्रांक- 83/310

प्रेषक,

अंचल अधिकारी,
गुड़ाबान्दा।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

गुड़ाबान्दा, दिनांक-20/02/23

विषय:-

पूर्वी सिंहभूम जिला अंतर्गत गुड़ाबान्दा अंचल के ग्राम- कोरियामोहनपाल के प्लॉट नं०-72 P एवं 27 P थाना नं०-1002 के रकवा-34.7 हेक्टेयर पर बालू घाट के निलामी हेतु अनापति प्रमाण पत्र भेजने के संबंध में।

प्रसंग:-

भवदीय पत्रांक:- 50 /खनन दिनांक-10/01/23

महाशय,

उपर्युक्त विषयक प्रासांगिक पत्र के आलोक में संबंधित राजस्व उप निरीक्षक एवं प्रभारी अंचल निरीक्षक से जांच कराया गया। जांच में पाया गया कि मौजा- कोरियामोहनपाल, थाना सं० 1002, खाता सं० 01 प्लॉट सं० 72 एवं 27 रकवा 567.30 एकड़ एवं 0.44 एकड़ क्रमशः किस्म भूमि नदी एवं गोड़ा दो (क्रमश) जो अनावार बिहार सरकार के खाते में इन्द्राज है।

जांच प्रतिवेदन बिंदुवार निम्नवत है :-

सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर-11 में जंगल-झाडी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है ?	नहीं
3	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय (Dam/Reservoir) स्थित है ?	हाँ
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है ?	हाँ
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है ?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है ?	नहीं
7	क्या 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है ?	हाँ
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/ Archaeological) महत्व के स्थल स्थित है ?	नहीं
9	आवेदित क्षेत्र में अथवा इसके 50 मीटर के ईर्द -गिर्द कोई सार्वजनिक स्थान है या नहीं ?	नहीं
10	आवेदित क्षेत्र में अथवा इसके 500 मीटर ईर्द -गिर्द कोई शमसान घाट है या नहीं ?	नहीं

अतः अग्रतर कार्रवाई हेतु प्रेषित।

विश्वासभाजन

अंचल अधिकारी
गुड़ाबान्दा।
20/2/23



अंचल अधिकारी का कार्यालय, गुड़ावान्दा ।

प्रेषक,

पत्रांक- ४४/३१०

सेवा में,

अंचल अधिकारी,
गुड़ावान्दा ।

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर ।

विषय:-

गुड़ावान्दा, दिनांक- 20.02.23
पूर्वी सिंहभूम जिला अंतर्गत गुड़ावान्दा अंचल के ग्राम- कोरियामोहनपाल, सुवर्नरेखानदीपाल एवं स्वर्णरेखा नदी थाना सं० 1002, 999 एवं 998 (क्रमशः) के प्लॉट नं०- 72, 39 एवं 28 के रकबा - 71.0 हेक्टेयर पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र भेजने के संबंध में।

प्रसंग:-

भवदीय पत्रांक:- 48 /खनन दिनांक-10.01.2023

महाशय,

उपर्युक्त विषयक प्रासांगिक पत्र के आलोक में संबंधित राजस्व उप निरीक्षक एवं प्रभारी अंचल निरीक्षक से जांच कराया गया। जांच में पाया गया कि कोरियामोहनपाल, सुवर्नरेखानदीपाल एवं स्वर्णरेखा नदी थाना सं० 1002, 999 एवं 998 (क्रमशः) के खाता सं० 1,1 एवं 1 (क्रमशः) प्लॉट नं०- 72, 39 एवं 28 (क्रमशः) रकबा 567.30 एकड़, 98.30 एकड़ एवं 107.50 एकड़ (क्रमशः) किस्म नदी जो अनावाद विहार सरकार के खाते में इन्द्राज है।

जांच प्रतिवेदन विंदुवार निम्नवत है :-

सं०	निर्धारित विन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटि सर्व खतियान यथा रजिस्टर-II में जंगल-झाड़ी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अंदर कोई मानव वसाहट (Habitation) स्थित है ?	नहीं
3	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय (Dam/Reservoir) स्थित है ?	हाँ
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है ?	हाँ
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है ?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है ?	नहीं
7	क्या 10 कि० मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है ?	हाँ
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/ Archaeological) महत्व के स्थल स्थित है ?	नहीं
9	आवेदित क्षेत्र में अथवा इसके 50 मीटर के ईर्द-गिर्द कोई सार्वजनिक स्थान है या नहीं ?	नहीं
10	आवेदित क्षेत्र में अथवा इसके 500 मीटर ईर्द-गिर्द कोई शमसान घाट है या नहीं ?	नहीं

अतः अग्रतर कार्रवाई हेतु प्रेषित।

विश्वासभाजन

अंचल अधिकारी
गुड़ावान्दा ।



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अंचल अधिकारी का कार्यालय, बहरागोड़ा।

प्रेषक,

पत्रांक:- 855

अंचल अधिकारी,
बहरागोड़ा।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

बहरागोड़ा, दिनांक:- 15/12/22

विषय:-

पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के ग्राम-बनकाटा 1 के प्लॉट नं० 3162(अंश), 3161(अंश) के रकबा-4.40 हेक्टेयर क्षेत्र पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र के संबंध में।

प्रसंग:-

भवदीय पत्रांक-996/खनन, दिनांक-07.12.2022।

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के संदर्भ में सूचित करना है कि पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के मौजा-बनकाटा-1, थाना नं०-962 के प्लॉट नं० 3162(अंश), 3161(अंश) के रकबा-4.40 हेक्टेयर क्षेत्र पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र संबंधित रा०उ०नि० तथा प्रभारी अंचल निरीक्षक के विन्दुवार जाँच प्रतिवेदनानुसार निम्नलिखित है :-

क्र०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर-II में जंगल-झाड़ी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अन्दर कोई मानव बसाहट (Habitation) स्थित है?	हाँ, बर्गिफल ग्राम स्थित है
3	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय (Dam/Reservoir) स्थित है?	नहीं
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है?	हाँ
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है?	हाँ, उडिसा राज्य का सीमा स्थित है
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है?	नहीं
9	आवेदित क्षेत्र में अथवा इसके 50 मीटर के ईर्द-गिर्द कोई सार्वजनिक स्थान है या नहीं?	नहीं
10	आवेदित क्षेत्र में अथवा इसके 500 मीटर ईर्द-गिर्द कोई शमसान घाट है या नहीं?	नहीं

विश्वासभाजन,

अंचल अधिकारी,
बहरागोड़ा।



अंचल अधिकारी का कार्यालय, बहरागोड़ा।

प्रेषक,

पत्रांक:- 06

अंचल अधिकारी,
बहरागोड़ा।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

बहरागोड़ा, दिनांक:- 5/01/23

विषय:- पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के ग्राम-बनकाटा के प्लॉट नं0 3162(P), 3161(P) के रकबा-4.40 हेक्टेयर क्षेत्र पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र के संबंध में।

प्रसंग:- भवदीय पत्रांक-20/खनन, दिनांक-03.01.2023।

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के संदर्भ में सूचित करना है कि पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के मौजा-बनकाटा, थाना नं0-962 के प्लॉट नं0 3162(P), 3161(P) के रकबा-4.40 हेक्टेयर क्षेत्र पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र संबंधित रा0उ0नि0 तथा प्रभारी अंचल निरीक्षक के विन्दुवार जाँच प्रतिवेदानुसार निम्नलिखित है :-

क्र0	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान तथा रजिस्टर-II में जंगल-झाड़ी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अन्दर कोई मानव बसाहट (Habitation) स्थित है?	हाँ बगियाल ग्राम स्थित है
3	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय (Dam/Reservoir) स्थित है?	नहीं
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है?	हाँ (सिंगरखा नदी)
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7	क्या 10 कि0मी0 की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है?	हाँ, उडिसा राज्य का सीमा स्थित है
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है?	नहीं
9	आवेदित क्षेत्र में अथवा इसके 50 मीटर के इर्द-गिर्द कोई सार्वजनिक स्थान है या नहीं?	नहीं
10	आवेदित क्षेत्र में अथवा इसके 500 मीटर इर्द-गिर्द कोई शमसान घाट है या नहीं?	नहीं



विश्वासभाजन,

अंचल अधिकारी,
बहरागोड़ा।

अंचल अधिकारी का कार्यालय, बहरागोड़ा।

प्रेषक,

पत्रांक:- 15

अंचल अधिकारी,
बहरागोड़ा।

सेवा में

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

बहरागोड़ा, दिनांक:- 5/01/23

विषय:-

पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के ग्राम-डोमजुड़ी, थाना नं०-760 के प्लॉट नं० 1351(P), पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र के संबंध में।

प्रसंग:-

भवदीय पत्रांक-21/खनन, दिनांक-03.01.2023।

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के संदर्भ में सूचित करना है कि पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के मौजा-डोमजुड़ी, थाना नं०-760 के प्लॉट नं० 1351(P), पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र संबंधित रा०उ०नि० तथा प्रभारी अंचल निरीक्षक के विन्दुवार जाँच प्रतिवेदनानुसार निम्नलिखित है :-

क्र०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर-II में जंगल-झाड़ी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अन्दर कोई मानव बसाहट (Habitation) स्थित है?	हाँ, डोमजुड़ी ग्राम स्थित है
3	क्या 500 मीटर की दूरी के अन्दर कोई जलोप निकाय (Dam Reservoir) स्थित है?	नहीं
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है?	हाँ (सिखा नदी)
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अन्ताराज्यीय (Interstate) सीमा है?	हाँ, बंगाल एवं उड़ीसा राज्य का सीमा स्थित है
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है?	नहीं
9	आवेदित क्षेत्र में अथवा इसके 50 मीटर के ईर्द-गिर्द कोई सार्वजनिक स्थान है या नहीं?	नहीं
10	आवेदित क्षेत्र में अथवा इसके 500 मीटर ईर्द-गिर्द कोई शमसान घाट है या नहीं?	हाँ

विश्वासभाजन,

5/1/23
अंचल अधिकारी,
बहरागोड़ा



अंचल अधिकारी का कार्यालय, बहरागोड़ा।

प्रेषक-

पत्रांक- ८६

अंचल अधिकारी,
बहरागोड़ा।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

बहरागोड़ा, दिनांक- १/५/२३

विषय:-

पूर्वी सिंहभूम जिला अन्तर्गत बहरागोड़ा अंचल के ग्राम-नेकडाडीह, थाना नं०-759, खाता सं०-69, प्लॉट नं० 323, रकबा-119.93 ए० भूमि पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र के संबंध में।

प्रसंग:-

भवदीय पत्रांक-21/खनन, दिनांक-03.01.2023।

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के संदर्भ में सूचित करना है कि पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के मौजा-नेकडाडीह, थाना नं०-759, खाता सं०-69, प्लॉट नं० 323, रकबा-119.93 एकड़ भूमि पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र संबंधित राज०/३०/न० एवं प्रभारी अंचल निरीक्षक के विन्दुवार जाँच प्रतिवेदनानुसार निम्नलिखित है :-

क्र०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवंटित भूमि की कोटि सर्वे खतियान तथा रजिस्टर-II में जंगल-झाड़ी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अन्दर कोई मानव बसाइट (Habitation) स्थित है?	नहीं
3	क्या 500 मीटर की दूरी के अन्दर कोई जलयोज निकाय (Dam/Reservoir) स्थित है?	नहीं
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है?	हाँ (स्वपरिखा नदी)
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है?	हाँ बंगाल एवं छत्तिसा राज्य का सीमा स्थित है
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है?	नहीं
9	आवंटित क्षेत्र में अथवा इसके 50 मीटर के ईर्द-गिर्द कोई सार्वजनिक स्थान है या नहीं?	नहीं
10	आवंटित क्षेत्र में अथवा इसके 500 मीटर ईर्द-गिर्द कोई शमसान घाट है या नहीं?	हाँ



विश्वासभाजन,

अंचल अधिकारी,
बहरागोड़ा।

अंचल अधिकारी का कार्यालय, बहरागोड़ा।

प्रेषक,

पत्रांक.- १९

अंचल अधिकारी,
बहरागोड़ा।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जगशेदपुर।

बहरागोड़ा, दिनांक - 5/01/23

विषय:- पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के ग्राम-नागुरसाई, थाना न०-745, खाता सं०-218, प्लॉट न० 871, रकबा-132.61 ए० भूमि पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र के संबंध में।

प्रसंग:- भवदीय पत्रांक-21/खनन, दिनांक-03.01.2023।

महाशय,

उपर्युक्त विषयक प्रारंभिक पत्र के संदर्भ में सूचित करना है कि पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के मौजा-नागुरसाई, थाना न०-745, खाता सं०-218, प्लॉट न० 871, रकबा-132.61 एकड़ भूमि पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र संबंधित राज० उ० नि० एवं प्रभारी अंचल निरीक्षक के विन्दुवार जाँच प्रतिवेदनानुसार निम्नलिखित है :-

क्र०	निर्धारित विन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटि सर्व खतियान यथा रजिस्टर-II में जंगल-झाड़ी के रूप में दर्ज है?	नहीं
2	क्या 500 मीटर की दूरी के अन्दर कोई मानव बसाहट (Habitation) स्थित है?	नहीं
3	क्या 500 मीटर की दूरी के अन्दर कोई जलाय निकाय (Dam/Reservoir) स्थित है?	नहीं
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है?	हाँ (स्वर्णरेखा नदी)
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है?	हाँ, कर्नाटक एवं उत्तर प्रदेश राज्य का सीमा स्थित है
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्त्व के स्थल स्थित है?	नहीं
9	आवेदित क्षेत्र में अथवा इसके 50 मीटर के ईर्द-गिर्द कोई सार्वजनिक स्थान है या नहीं?	नहीं
10	आवेदित क्षेत्र में अथवा इसके 500 मीटर ईर्द-गिर्द कोई शमसान घाट है या नहीं?	नहीं



विश्वासभाजन,

अंचल अधिकारी,
बहरागोड़ा।

अंचल अधिकारी का कार्यालय, बहरागोड़ा।

प्रश्नक,

पत्रांक:- 07

अंचल अधिकारी,
बहरागोड़ा।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

बहरागोड़ा, दिनांक- 3/01/23

विषय:- पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के ग्राम-दीपापाल, थाना नं०-744, खाता सं०-50, प्लॉट नं० 185, रकबा-13.75 ए० भूमि पर बालू घाट के निलागी हेतु अनापत्ति प्रमाण पत्र के संबंध में।

प्रसंग:- भवदीय पत्रांक-21/खनन, दिनांक-03.01.2023।

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के संदर्भ में सूचित करना है कि पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के मौजा- दीपापाल, थाना नं०-744, खाता सं०-50, प्लॉट नं० 185, रकबा-13.75 एकड़ भूमि पर बालू घाट के निलागी हेतु अनापत्ति प्रमाण पत्र संबंधित रा०उ०नि० एवं प्रभारी अंचल निरीक्षक के दिन्दुवार जाँच प्रतिवेदनानुसार निम्नलिखित है :-

क्र०	निर्धारित बिन्दु	हाँ/ नहीं
1	क्या अर्जित भूमि की कोटि सर्वे खातियान तथा रजिस्टर-II में जंगल-झाड़ी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अन्दर कोई मानव बसाहट (Habitation) स्थित है?	नहीं
3	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय (Dam/Reservoir) स्थित है?	नहीं
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है?	हाँ (स्वयंरिखा नदी)
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है?	हाँ, बंगाल एवं उड़ीसा राज्य का सीमा स्थित है
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है?	नहीं
9	आर्जित क्षेत्र में अथवा इसके 50 मीटर के इर्द-गिर्द कोई सार्वजनिक स्थान है या नहीं?	नहीं
10	आर्जित क्षेत्र में अथवा इसके 500 मीटर इर्द-गिर्द कोई शमसान घाट है या नहीं?	नहीं



विश्वासभाजन,

2/1/23
अंचल अधिकारी,
बहरागोड़ा

अंचल अधिकारी का कार्यालय, बहरागोड़ा।

पत्रांक- १४

प्रेषक,

अंचल अधिकारी,
बहरागोड़ा।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

बहरागोड़ा, दिनांक- 22-02-2023

विषय:- पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के ग्राम-दीपापाल, थाना नं०-744, खाता सं०-50, प्लॉट नं० 185, रकबा-13.75 ए० एवं प्लॉट सं०-1, रकबा-57.85 ए० भूमि पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र के संबंध में।

प्रसंग:- भवदीय पत्रांक-21/खनन, दिनांक-03.01.2023।

महाशय,

उपर्युक्त विषयक प्रासंगिक पत्र के संदर्भ में सूचित करना है कि पूर्वी सिंहभूम, जिला अन्तर्गत बहरागोड़ा अंचल के मौजा-दीपापाल, थाना नं०-744, खाता सं०-50, प्लॉट नं०-185, रकबा-13.75 एकड़ किस्म भूमि नदी एवं प्लॉट नं०-1, रकबा-57.85 ए० किस्म भूमि पुरानी परती काबिल आवाद भूमि पर बालू घाट के निलामी हेतु अनापत्ति प्रमाण पत्र संबंधित रा०उ०नि० एवं प्रभारी अंचल निरीक्षक के विन्दुवार जाँच प्रतिवेदनानुसार निम्नलिखित है :-

क्र०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर-II में जंगल-डाडी के रूप में दर्ज है ?	नहीं
2	क्या 500 मीटर की दूरी के अन्दर कोई मानव बसाहट (Habitation) स्थित है?	नहीं
3	क्या 500 मीटर की दूरी के अन्दर कोई जलीय निकाय (Dam/Reservoir) स्थित है?	नहीं
4	क्या 500 मीटर की दूरी के अन्दर कोई नदी (River) स्थित है?	हाँ (खर्परखा नदी)
5	क्या 500 मीटर की दूरी के अन्दर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	नहीं
6	क्या 500 मीटर की दूरी के अन्दर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है?	हाँ, बंगाल एवं उडिसा राज्य का सीमा स्थित है
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है?	नहीं
9	आवेदित क्षेत्र में अथवा इसके 50 मीटर के ईर्द-गिर्द कोई सार्वजनिक स्थान है या नहीं?	नहीं
10	आवेदित क्षेत्र में अथवा इसके 500 मीटर ईर्द-गिर्द कोई शगरान घाट है या नहीं?	नहीं

विश्वासभाजन,

अंचल अधिकारी,
बहरागोड़ा।

22-02-23



ANNEXURE-02

COPY OF DFO LETTER



कार्यालय: वन प्रमण्डल पदाधिकारी, जमशेदपुर वन प्रमण्डल, जमशेदपुर।

(सी० एच० एरिया रोड नं० 1, जमशेदपुर-831001)

दूरभाष संख्या- 0857-2231017, फ़ैक्स-0857-2231017, ई-मेल- dfo-jamshedpur@gov.in



पत्रांक: 124 / जमशेदपुर

दिनांक: 17/01/2023

प्रेषक,

वन प्रमंडल पदाधिकारी,
जमशेदपुर वन प्रमंडल,
जमशेदपुर।

सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

विषय :- पूर्वी सिंहभूम जिला अंतर्गत District Survey Report (Sand) का प्रतिवेदन के संबंध में।

प्रसंग :- आपका पत्रांक 23 दिनांक 05.01.2023

महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र के संदर्भ में सूचित करना है कि पूर्वी सिंहभूम जिलान्तर्गत बालूघाटों से संबंधित District Survey Report (Sand) का अनापत्ति प्रमाण पत्र विहित प्रपत्र में संलग्न कर भेजी जा रही है।

अनुलग्नक-यथोक्त।

विश्वासभाजन

वन प्रमण्डल पदाधिकारी,
जमशेदपुर वन प्रमण्डल,
जमशेदपुर।

SR (DISTRICT SURVEY REPORT) OF SAND MINOR MINERALS UNDER THE GUIDELINE OF MOEF & CC JANUARY 2020

**DIVISIONAL FOREST OFFICER
EAST SINGHBHUM, JHARKHAND**

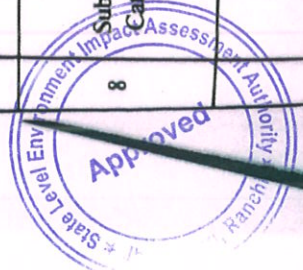
As on Dated : 02.01.2023

Sl. No.	River Details	Sand Ghat Details	Area in (Ha.)	Geo-Coordinate	Distance from Forest Area (Mtr)	Whether the proposed site is outside the notified forest land ? (Yes/No)	Whether the proposed site come under No Mining Zone? (Yes/No)
1	Suamarekha Category - II	1) Gram - Kuliyana, Thana - Ghatshila Thana No.- 1247, Plot No.- 01(P), District - East Singhbhum. 2) Gram- Sundarkalahi, Thana No.-1256, Thana-Ghatshila, Plot No.- 01(P), District - East Singhbhum, Toposheet No. - 73J/6	4.00	1) 22°41'56.78"N 86°22'49.85"E 2) 22°41'57.34"N 86°22'46.12"E 3) 22°42'6.56"N 86°22'52.68"E 4) 22°42'7.66"N 86°22'47.73"E	60	Yes	This matter is not related to Jamshedpur Forest Division.
2	Suamarekha Category - II	Gram - Sonagara Thana - Ghatshila Thana No.- 165 District - East Singhbhum Plot No.- 1599P Toposheet No. - 73J/6	2.54	1) 22°31'0.95"N 86°29'27.96"E 2) 22°30'58.86"N 86°29'28.93"E 3) 22°30'52.50"N 86°29'17.32"E 4) 22°30'53.99"N 86°29'16.21"E	140	Yes	This matter is not related to Jamshedpur Forest Division.
3	Suamarekha Category - II	Gram - Reraya Thana - Ghatshila Thana No.- 474 District - East Singhbhum Plot No.- 1P, 929P Toposheet No. - 73J/11	13.30	1) 22° 25' 33.17" N 86° 35' 30.23"E 2) 22° 25' 34.39" N 86° 35' 34.58"E 3) 22° 24' 58.69" N 86° 35' 42.60"E 4) 22° 24' 59.63" N 86° 35' 38.57"E	20	Yes	This matter is not related to Jamshedpur Forest Division.
4	Suamarekha Category - II	Gram - Chandrapur Thana - Ghatshila Thana No. - 484 District - East Singhbhum Plot No.- 1126, Toposheet No. - 73J/11	4.97	1) 22°24'2.75"N 86°34'53.96"E 2) 22°24'3.28"N 86°34'58.76"E 3) 22°23'50.16"N 86°35'0.60"E 4) 22°23'49.69"N 86°34'56.93"E	25	Yes	This matter is not related to Jamshedpur Forest Division.



Prepared by the Survey application (SR) of Sand Minor Minerals

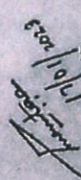
	Gram - Bhakar Thana - Ghatshila Thana No.-483 District - East Singhbhum Plot No.- 126P Toposheet No. - 73J/11	6.29	1) 22°23'33.77"N 86°35'36.89"E 2) 22°23'30.06"N 86°35'34.05"E 3) 22°23'20.76"N 86°35'46.11"E 4) 22°23'24.71"N 86°35'48.80"E	130	Yes	This matter is not related to Jamshedpur Forest Division.
6	Subamarekha Category - II 1) Gram- Balijuri Thana - Ghatshila Thana No.- 1034 District - East Singhbhum Plot No.- 570P 2) Gram - Taraspur, Thana - Ghatshila Thana No.- 1041 Plot No. - 298(P), District - East Singhbhum Toposheet No. - 73J/11	7.37	1) 22°21'25.61"N 86°36'47.27"E 2) 22°21'28.51"N 86°36'48.95"E 3) 22°21'16.62"N 86°37'10.22"E 4) 22°21'14.42"N 86°37'8.71"E	81.6	Yes	This matter is not related to Jamshedpur Forest Division.
7	Subamarekha Category - II Gram- Balijuri II Thana - Ghatshila Thana No.- 1034 District - East Singhbhum Plot No.- 1652P, 1407P Toposheet No. - 73J/11	24.00	1) 22°20'50.66"N 86°37'55.06"E 2) 22°20'57.18"N 86°38'0.91"E 3) 22°20'32.67"N 86°38'25.31"E 4) 22°20'28.45"N 86°38'21.35"E	90	Yes	This matter is not related to Jamshedpur Forest Division.
8	Subamarekha Category - II Gram - Koreyamohanpal & Submarekha Thana - Ghatshila Thana No.- 998 District - East Singhbhum Plot No.- 27(P) Toposheet No. - 73J/11	46.30	1) 22°17'35.37"N 86°39'19.51"E 2) 22°17'33.34"N 86°39'34.13"E 3) 22°17'3.31"N 86°39'38.19"E 4) 22°16'58.68"N 86°39'22.19"E	2100	Yes	This matter is not related to Jamshedpur Forest Division.
9	Subamarekha Category - II Gram - Koreyamohanpal Thana - Ghatshila Thana No.- 1002 District - East Singhbhum Plot No.- 72(P), 27(P) Toposheet No. - 73J/11	34.70	1) 22° 16' 57.89"N 86° 39' 42.00"E 2) 22° 16' 51.48"N 86° 39' 26.45"E 3) 22° 16' 31.76"N 86° 39' 31.99"E 4) 22° 16' 29.89"N 86° 39' 47.36"E	3800	Yes	This matter is not related to Jamshedpur Forest Division.



10	Submarekha Category - II	1) Gram - Koreyamohanpal Thana - Ghatshila Thana No.- 1002 District - East Singhbhum Plot No.- 72(P) 2) Gram - Submarekhanadipal Thana - Ghatshila Thana No.- 999 District - East Singhbhum Plot No.- 39(P) 3) Gram - Submarekhanadipal Thana - Ghatshila Thana No.- 998 District - East Singhbhum Plot No.- 28(P) Toposheet No. - 73J/11	71.00	1) 22° 16' 21.63"N 86° 39' 28.44"E 2) 22° 16' 19.73"N 86° 39' 47.17"E 3) 22° 15' 28.19"N 86° 39' 35.26"E 4) 22° 15' 30.25"N 86° 39' 23.79"E	4800	Yes	This matter is not related to Jamshedpur Forest Division.
11	Submarekha Category - II	Gram - Bankata Thana - Ghatshila Thana No. - 962 District - East Singhbhum Plot No.- 3162P, 3161P Toposheet No. - 73J/12	4.40	1) 22°13'25.40"N 86°41'9.45"E 2) 22°13'25.01"N 86°41'24.30"E 3) 22°13'21.68"N 86°41'23.81"E 4) 22°13'21.83"N 86°41'9.62"E	8900	Yes	This matter is not related to Jamshedpur Forest Division.



<p>1) Gram - Domjuri Thana - Ghatshila Thana No.- 760 District - East Singhbhum Plot No.- 1351(P)</p> <p>2) Gram - Nekradaha Thana - Ghatshila Thana No.- 759 District - East Singhbhum Plot No.- 323(P)</p> <p>3) Gram - Nagursai Thana - Ghatshila Thana No.- 745 District - East Singhbhum Plot No.- 871(P)</p> <p>Toposheet No. - 73J/11</p> <p>4) Gram - Dipapal Thana - Ghatshila Thana No.- 744 District - East Singhbhum Plot No.- I(P), 185(P) Toposheet No. - 73J/12</p>	<p>126.00</p>	<p>1) 22° 13' 4.92"N 86° 44' 25.33"E 2) 22° 13' 18.77"N 86° 44' 49.43"E 3) 22° 13' 10.69"N 86° 44' 53.48"E 4) 22° 12' 58.19"N 86° 44' 29.61"E</p>	<p>7900</p>	<p>Yes</p>	<p>This matter is not related to Jamshedpur Forest Division.</p>
<p>Submarekha Category - II</p>	<p>344.87</p>				


 Divisional Forest Officer
 Jamshedpur Forest Division
 Jamshedpur





कार्यालय-उप वन संरक्षक एवं क्षेत्र निदेशक, गज परियोजना, जमशेदपुर

वन भवन, सी०एच० एरिया, (नॉर्थ-वेस्ट) पारसी आरामगाह एवं साईं मंदिर के पास,
पो-सोनारी, जमशेदपुर 831011

e-mail-dfo-dirpe@gov.in, dcffdjsr@gmail.com ; ☎-0657-2233041 (O) 2960039 (R)

पत्रांक.....117

दिनांक.....16.01.2023



सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

विषय : पूर्वी सिंहभूम जिला अंतर्गत District Survey Report (Sand) का प्रतिवेदन के संबंध में।

प्रसंग : आपका पत्रांक 24 दिनांक 05.01.2023

महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र के संदर्भ में वांछित सूचना की प्राप्ति हेतु उक्त पत्र के साथ संलग्न अभिलेखों के आलोक में विहित प्रपत्र पर वांछित सूचना अंकित कर आपको उपलब्ध कराई जा रही हैं।

सूचनार्थ प्रेषित।

अनुपयथोक्त।

आपका विश्वासी

उप वन संरक्षक एवं क्षेत्र निदेशक,
गज परियोजना, जमशेदपुर।

(Signature)



5793
17.1.23

DSR (DISTRICT SURVEY REPORT) OF SAND MINOR MINERALS UNDER THE GUIDELINE OF MOFE & CC JANUARY 2020

DISTRICT SURVEY REPORT OF RIVER SAND
EAST SINGHBHUM, JHARKHAND

RIVER DETAILS	SAND GHAT DETAILS	AREA IN (HA)	GEO-COORDINATE	Does there any National park located within 10 Km from project location?*	Does there any Wildlife sanctuary located within 10 km distance from project location?*	Does there any ESZ within 10 km distance from project location?*	Whether Proposed project comes under prohibited category of ESZ (Yes or No)?*
Subarnarekha Category-II	1. Gram- Kulyana, Thana- Ghatshila Thana No.- 1247, Plot No.- 01 (P), District- East Singhbhum. 2. Gram- Sundarakanali Thana No.- 1256, Thana- Ghatshila Plot No.- 01(P), District- East Singhbhum Toposheet No.- 73I/6	4.0	1) 22°41'56.78"N 86°22'49.85"E 2) 22°41'57.34"N 86°22'46.12"E 3) 22°42'6.56"N 86°22'52.68"E 4) 22°42'7.66"N 86°22'47.73"E	No	Yes	Yes	No
Subarnarekha Category-II	Gram- Sonagara, Thana- Ghatshila ThanaNo- 165, Plot No.- 1599(P), District - East Singhbhum Toposheet No.- 73I/6	2.54	1) 22°31'0.95"N 86°29'27.96"E 2) 22°30'58.86"N 86°29'28.93"E 3) 22°30'52.50"N 86°29'17.32"E 4) 22°30'53.99"N 86°29'16.21"E	No	No	No	No
Subarnarekha Category-II	Gram- Reruya, Thana- Ghatshila, ThanaNo- 474, Plot No.- 1P, 929P District - East Singhbhum Toposheet No.- 73I/11	13.3	1) 22°25'33.17"N 86°35'30.23"E 2) 22°25'34.39"N 86°35'34.58"E 3) 22°24'58.69"N 86°35'42.60"E 4) 22°24'59.63"N 86°35'38.57"E	No	No	No	No
Subarnarekha Category-II	Gram- Chandanpur, Thana- Ghatshila ThanaNo- 484, Plot No.- 1126 District - East Singhbhum Toposheet No.- 73I/11	4.97	1) 22°24'2.75"N 86°34'53.96"E 2) 22°24'3.28"N 86°34'58.76"E 3) 22°23'50.16"N 86°35'0.60"E 4) 22°23'49.69"N 86°34'56.93"E	No	No	No	No
Subarnarekha Category-II	Gram- Bhakar, Thana- Ghatshila Thana No- 483, Plot No.- 126P District - East Singhbhum Toposheet No.- 73I/11	6.29	1) 22°23'33.77"N 86°35'36.89"E 2) 22°23'30.06"N 86°35'34.05"E 3) 22°23'20.76"N 86°35'46.11"E 4) 22°23'24.71"N 86°35'48.80"E	No	No	No	No



Subamarekha Category-II	1) Gram- Balljuri, Thana- Ghatshila, Thana No- 1034, Plot No- 570(P), District- East Singhbhum 2) Gram- Taraspur, Thana- Ghatshila, Thana No- 1041, Plot No.-298(P), District- East Singhbhum Toposheet No.- 73/11	7.37	1) 22°21'25.61"N 86°36'47.27"E 2) 22°21'28.51"N 86°36'48.93"E 3) 22°21'16.62"N 86°37'10.22"E 4) 22°21'14.42"N 86°37'8.71"E	No	No	No	No
Subamarekha Category-II	Gram- Balljuri-II, Thana- Ghatshila, Thana No- 1034, District- East Singhbhum, Plot No.- 1652P, 1407P Toposheet No.- 73/11	24.0	1) 22°20'50.66"N 86°37'55.06"E 2) 22°20'57.18"N 86°38'0.91"E 3) 22°20'32.67"N 86°38'25.31"E 4) 22°20'28.45"N 86°38'21.95"E	No	No	No	No
Subamarekha Category-II	Gram- Koreyamohanpal & Submarekha Thana- Ghatshila Thana No- 998, Plot No.- 27P District - East Singhbhum Toposheet No.- 73/11	46.3	1) 22°17'35.37"N 86°39'19.51"E 2) 22°17'33.34"N 86°39'34.13"E 3) 22°17'3.31"N 86°39'38.19"E 4) 22°16'58.68"N 86°39'22.19"E	No	No	No	No
Subamarekha Category-II	Gram- Koreyamohanpal Thana- Ghatshila, Thana No- 1002 Plot No.- 72 (P) & 27 (P) District - East Singhbhum Toposheet No.- 73/12	34.7	1) 22°16'57.89"N 86°39'42.00"E 2) 22°16'51.48"N 86°39'26.45"E 3) 22°16'31.76"N 86°39'31.99"E 4) 22°16'29.89"N 86°39'47.36"E	No	No	No	No
Subamarekha Category-II	Gram- Koreyamohanpal Thana- Ghatshila, Thana No- 1002, Plot No.- 72P, District - East Singhbhum 2) Gram- Subamarekhanadipal Thana- Ghatshila, Thana No- 999 Plot No.- 39P, District - East Singhbhum 3) Gram- Subamarekhanadipal Thana- Ghatshila, Thana No- 998 Plot No.- 28(P), District - East Singhbhum Toposheet No.-73/11	71.0	1) 22°16'21.63"N 86°39'28.44"E 2) 22°16'19.73"N 86°39'47.17"E 3) 22°15'28.19"N 86°39'35.26"E 4) 22°15'30.25"N 86°39'23.79"E	No	No	No	No
Subamarekha Category-II	Gram- Bankata, Thana- Ghatshila Thana No- 962, Plot No.- 3162 P, 3161P District - East Singhbhum Toposheet No.- 73/12	4.40	1) 22°13'25.40"N 86°41'9.45"E 2) 22°13'25.01"N 86°41'24.30"E 3) 22°13'21.68"N 86°41'23.81"E 4) 22°13'21.83"N 86°41'9.62"E	No	No	No	No



Subarnarekha Category-II	1) Gram- Damjuri, Thana- Ghatshila Thana No- 760, Plot No.- 1351(P) District - East Singhbhum 2) Gram- Nekradliha Thana- Ghatshila, Thana No- 759 Plot No.- 323(P), District - East Singhbhum 3) Gram- Nagursai, Thana- Ghatshila Thana No- 745, Plot No.-871(P) District - East Singhbhum 4) Gram- Dipapal, Thana- Ghatshila Thana No- 744, Plot No.-1(P) & 185 (P) District - East Singhbhum Toposheet No.- 73I/12	126	1) 22°13'4.92"N 86°44'25.33"E 2) 22°13'18.77"N 86°44'49.43"E 3) 22°13'10.69"N 86°44'53.48"E 4) 22°12'58.19"N 86°44'29.61"E	No	No	No
Total		344.87				

2000/10/12
 Deputy Conservator of Forests
 Field Director Elephant Project
 S. Jharkhand



ANNEXURE-03

COPY OF WILD LIFE DFO





कार्यालय-उप वन संरक्षक एवं क्षेत्र निदेशक, गज परियोजना, जमशेदपुर

वन भवन, सी०एच० एरिया, (नीर्थ-वेस्ट) पापसी आरामगाह एवं साई मंदिर के पास,

पो-सोनारी, जमशेदपुर 831011

e-mail-dfo-dlrpe@gov.in, dcffdljr@gmail.com ; ☎-0657-2233041 (O) 2960039 (R)

पत्रांक.....117

दिनांक.....16.01.2023



सेवा में,

जिला खनन पदाधिकारी,
पूर्वी सिंहभूम, जमशेदपुर।

विषय : पूर्वी सिंहभूम जिला अंतर्गत District Survey Report (Sand) का प्रतिवेदन के संबंध में।

प्रसंग : आपका पत्रांक 24 दिनांक 05.01.2023

महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र के संदर्भ में वांछित सूचना की प्राप्ति हेतु उक्त पत्र के साथ संलग्न अभिलेखों के आलोक में विहित प्रपत्र पर वांछित सूचना अंकित कर आपको उपलब्ध कराई जा रही हैं।

सूचनार्थ प्रेषित।

अनु०यथोक्त।

आपका विश्वासी

उप वन संरक्षक एवं क्षेत्र निदेशक,
गज परियोजना, जमशेदपुर।

(Signature)

DSR (DISTRICT SURVEY REPORT) OF SAND MINOR MINERALS UNDER THE GUIDELINE OF MOFE & CC JANUARY 2020

DISTRICT SURVEY REPORT OF RIVER SAND
EAST SINGHBHUM, JHARKHAND

RIVER DETAILS	SAND GHAT DETAILS	AREA IN (HA)	GEO- COORDINATE	Does there any National park located within 10 Km from project location?*	Does there any Wildlife sanctuary located within 10 km distance from project location?*	Does there any ESZ within 10 km distance from project location?*	Whether Proposed project comes under prohibited category of ESZ (Yes or No)?*
Subarnarekha Category-II	1. Gram- Kuliyaana, Thana- Ghatshila Thana No.- 1247, Plot No.- 01 (P), District- East Singhbhum. 2. Gram- Sundarkanali Thana No.- 1256, Thana- Ghatshila Plot No.- 01(P), District- East Singhbhum Toposheet No.- 73J/6	4.0	1) 22°41'56.78"N 86°22'49.85"E 2) 22°41'57.34"N 86°22'46.12"E 3) 22°42'6.56"N 86°22'52.68"E 4) 22°42'7.66"N 86°22'47.73"E	No	Yes	Yes	No
Subarnarekha Category-II	Gram- Sonagara, Thana- Ghatshila Thana No.- 165, Plot No.- 1599(P), District - East Singhbhum Toposheet No.- 73J/6	2.54	1) 22°31'0.95"N 86°29'27.96"E 2) 22°30'58.86"N 86°29'28.93"E 3) 22°30'52.50"N 86°29'17.32"E 4) 22°30'53.99"N 86°29'16.21"E	No	No	No	No
Subarnarekha Category-II	Gram- Reruya, Thana- Ghatshila, Thana No- 474, Plot No.- 1P, 929P District - East Singhbhum Toposheet No.- 73J/11	13.3	1) 22°25'33.17"N 86°35'30.23"E 2) 22°25'34.39"N 86°35'34.58"E 3) 22°24'58.69"N 86°35'42.60"E 4) 22°24'59.63"N 86°35'38.57"E	No	No	No	No
Subarnarekha Category-II	Gram- Chandanpur, Thana- Ghatshila Thana No.- 484, Plot No.- 1126 District - East Singhbhum Toposheet No.- 73J/11	4.97	1) 22°24'2.75"N 86°34'53.96"E 2) 22°24'3.28"N 86°34'58.76"E 3) 22°23'50.16"N 86°35'0.60"E 4) 22°23'49.69"N 86°34'56.93"E	No	No	No	No
Subarnarekha Category-II	Gram- Bhakar, Thana- Ghatshila Thana No- 483, Plot No.- 126P District - East Singhbhum Toposheet No.- 73J/11	6.29	1) 22°23'33.77"N 86°35'36.89"E 2) 22°23'30.06"N 86°35'34.05"E 3) 22°23'20.76"N 86°35'46.11"E 4) 22°23'24.71"N 86°35'48.80"E	No	No	No	No



Subarnarekha Category-II	1) Gram- Balijuri, Thana- Ghatshila, Thana No- 1034, Plot No.-570(P), District - East Singhbhum 2) Gram- Taraspur, Thana- Ghatshila, Thana No- 1041, Plot No.-298(P), District - East Singhbhum Toposheet No. - 73J/11	7.37	1) 22°21'25.61"N 86°36'47.27"E 2) 22°21'28.51"N 86°36'48.95"E 3) 22°21'16.62"N 86°37'10.22"E 4) 22°21'14.42"N 86°37'8.71"E	No	No	No	No
Subarnarekha Category-II	Gram- Balijuri-II, Thana- Ghatshila, Thana No- 1034, District - East Singhbhum, Plot No.- 1652P, 1407P Toposheet No.- 73J/11	24.0	1) 22°20'50.66"N 86°37'55.06"E 2) 22°20'57.18"N 86°38'0.91"E 3) 22°20'32.67"N 86°38'25.31"E 4) 22°20'28.45"N 86°38'21.35"E	No	No	No	No
Subarnarekha Category-II	Gram- Koreyamohanpal & Subrnarekha Thana- Ghatshila Thana No- 998, Plot No.- 27P District - East Singhbhum Toposheet No.- 73J/11	46.3	1) 22°17'35.37"N 86°39'19.51"E 2) 22°17'33.34"N 86°39'34.13"E 3) 22°17'3.31"N 86°39'38.19"E 4) 22°16'58.68"N 86°39'22.19"E	No	No	No	No
Subarnarekha Category-II	Gram- Koreyamohanpal Thana- Ghatshila, Thana No- 1002 Plot No.- 72 (P) & 27 (P) District - East Singhbhum Toposheet No.- 73J/12	34.7	1) 22°16'57.89"N 86°39'42.00"E 2) 22°16'51.48"N 86°39'26.45"E 3) 22°16'31.76"N 86°39'31.99"E 4) 22°16'29.89"N 86°39'47.36"E	No	No	No	No
Subarnarekha Category-II	Gram- Koreyamohanpal Thana- Ghatshila, Thana No- 1002, Plot No.- 72P, District - East Singhbhum 2) Gram- Subarnarekhanadipal Thana- Ghatshila, Thana No- 999 Plot No.- 39P, District - East Singhbhum 3) Gram- Subarnarekhanadipal Thana- Ghatshila, Thana No- 998 Plot No.- 28(P), District - East Singhbhum Toposheet No.- 73J/11	71.0	1) 22°16'21.63"N 86°39'28.44"E 2) 22°16'19.73"N 86°39'47.17"E 3) 22°15'28.19"N 86°39'35.26"E 4) 22°15'30.25"N 86°39'23.79"E	No	No	No	No
Subarnarekha Category-II	Gram- Bankata, Thana- Ghatshila Thana No- 962, Plot No.- 3162 P, 3161P District - East Singhbhum Toposheet No.- 73J/12	4.40	1) 22°13'25.40"N 86°41'9.45"E 2) 22°13'25.01"N 86°41'24.30"E 3) 22°13'21.68"N 86°41'23.81"E 4) 22°13'21.83"N 86°41'9.62"E	No	No	No	No



Submarekha Category-II	1) Gram- Damjuri, Thana- Ghatshilla Thana No- 760, Plot No.- 1351(P) District - East Singhbhum	126	1) 22°13'4.92"N 86°44'25.33"E 2) 22°13'18.77"N 86°44'49.43"E 3) 22°13'10.69"N 86°44'53.48"E 4) 22°12'58.19"N 86°44'29.61"E	No	No	No	No
	2) Gram- Nekkradlha Thana- Ghatshilla, Thana No- 759 Plot No.- 323(P), District - East Singhbhum						
	3) Gram- Nagursal, Thana- Ghatshilla Thana No- 745, Plot No.-871(P) District - East Singhbhum						
	4) Gram- Dipapal, Thana- Ghatshilla Thana No- 744, Plot No.-1(P) & 185 (P) District - East Singhbhum						
	Toposheet No.- 73/12						
Total		344.87					

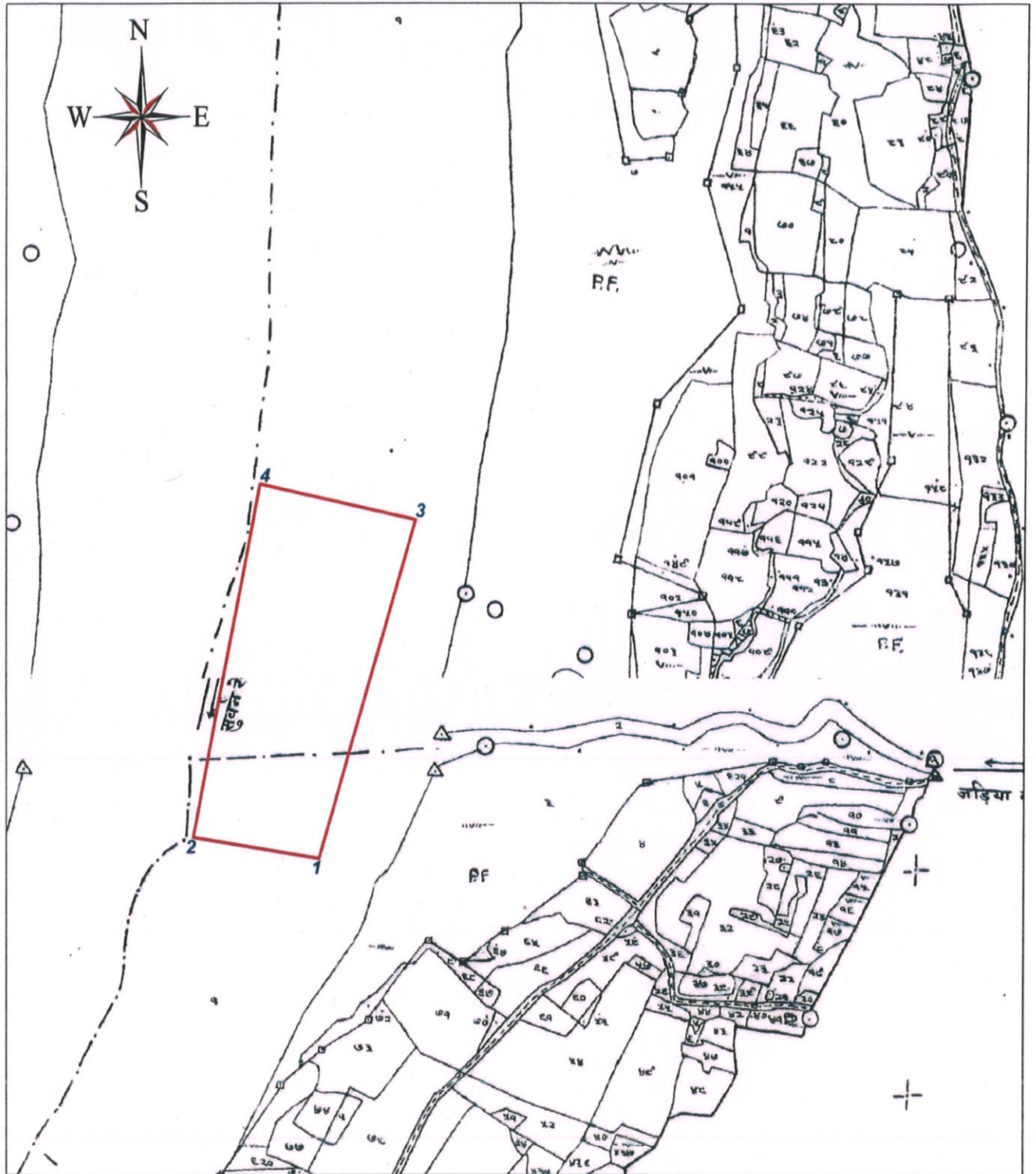
4/10/12
 Deputy Conservator of Forests
 Field Director Elephant Project
 SSI Jamshedpur
 B.



ANNEXURE-04

CADASTRAL MAP OF **POTENTIAL AREA OF SAND**



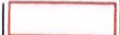



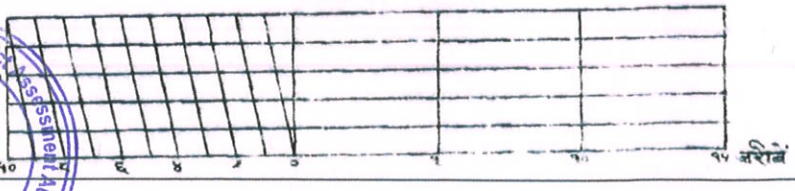
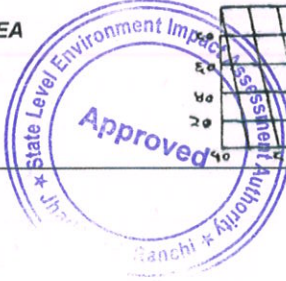
पैमाना १ ई" = १ मील
 प्र.भि.(र.फ.) १:३६६० (मिट्टक.
 सन १९६०-६१ ईस्वी

GRAM - KULIYANA, THANA - GHATSHILA, THANA NO. - 1247, PLOT NO. 01(P)
 DISTRICT - EAST SINGHBHUM,
 GRAM- SUNDARKANALI, THANA- GHATSHILA, THANA NO.-1256, PLOT NO.-01(P),
 DISTRICT - EAST SINGHBHUM
 TOTAL AREA - 4.0 HA

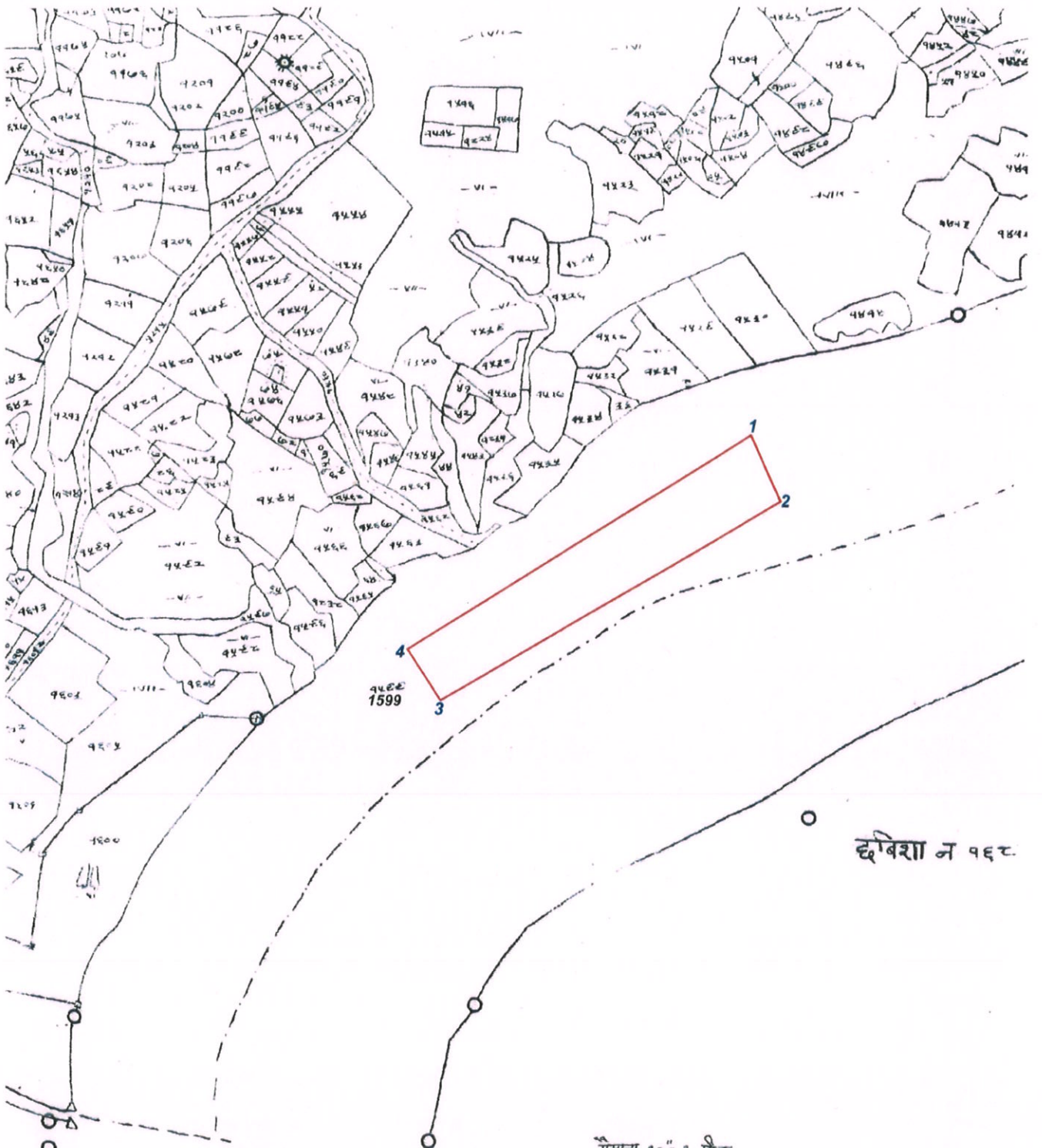
पैमाना १ ई" = १ मील

INDEX

-  PROPOSED POTENTIAL AREA
-  OTHER PLOTS



plh



पैमाना १ इंच = १ मील
 प्र.मि.र.अ. १:३६६० (मोड्यूल)
 सन १९६०-६१ ईस्वी

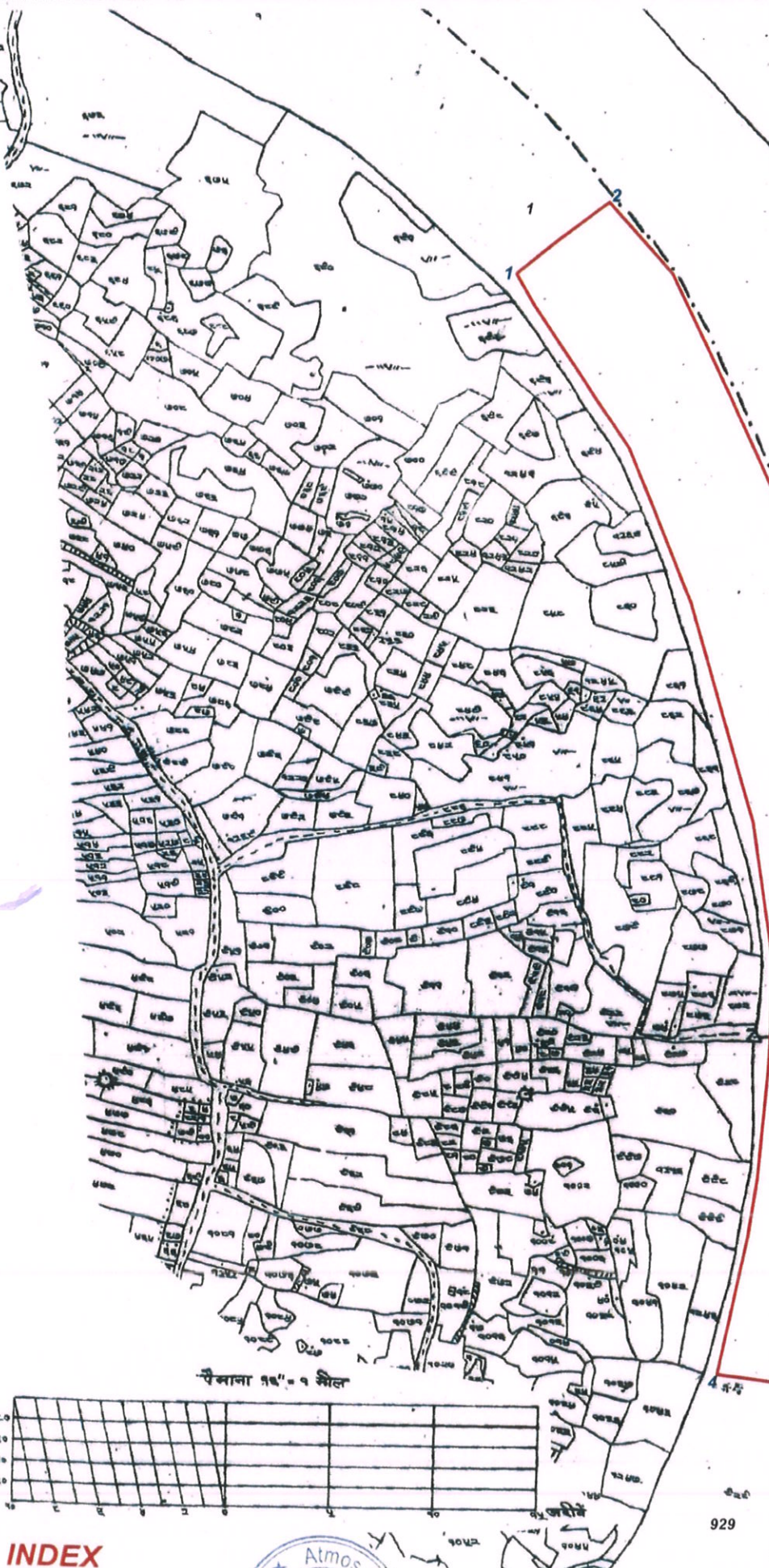
INDEX

- PROPOSED POTENTIAL AREA
- OTHER PLOTS



MOUZA - SONAGARA
 THANA - GHATSHILA, THANA NO. - 165
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 1599(P), AREA - 2.54 HA



लाल धूयान ४६



पैमाना १:१००० = १ सेंटीमीटर



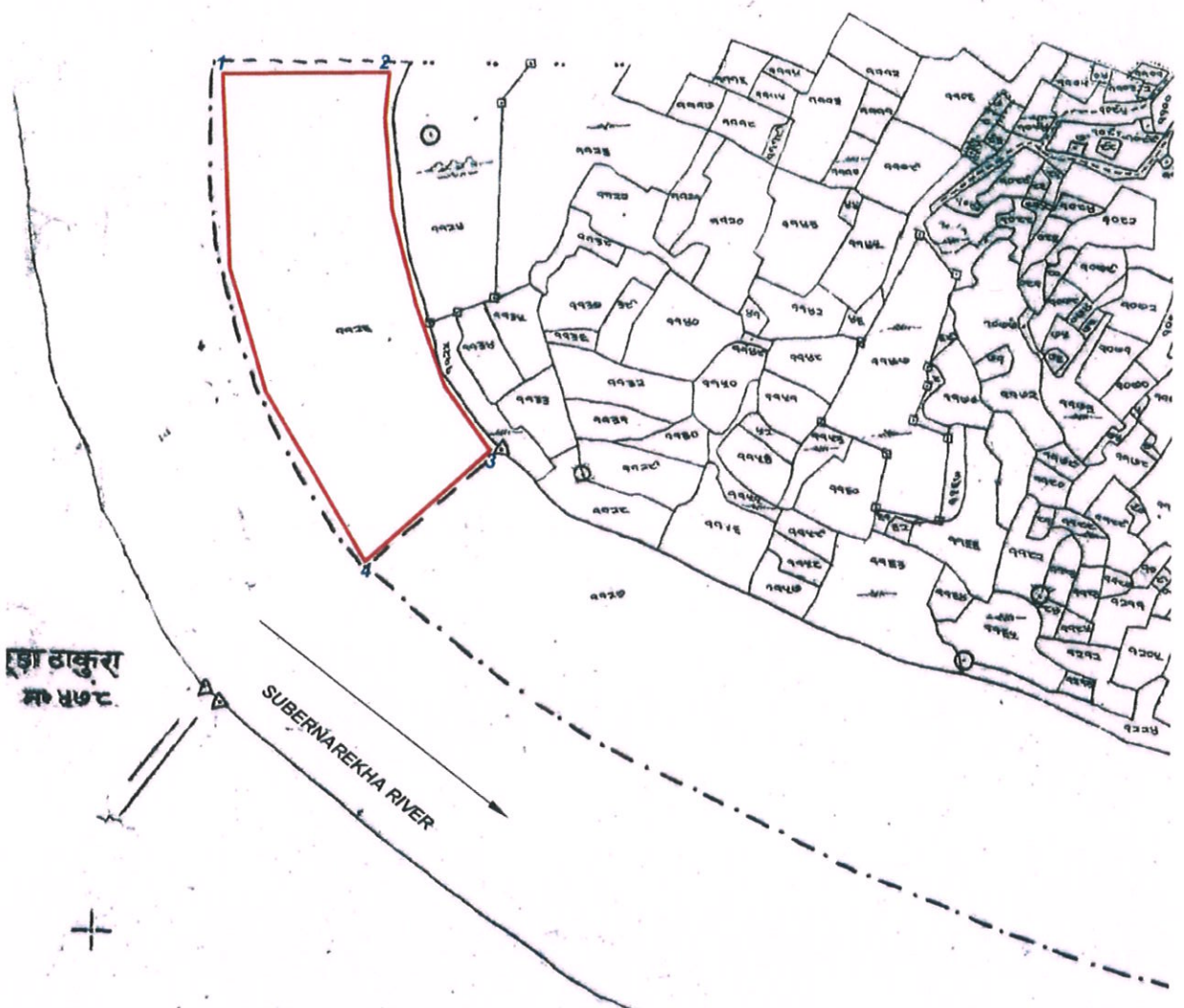
INDEX

-  PROPOSED POTENTIAL AREA
-  OTHER PLOTS



MOUZA - RERUYA
 THANA - GHATSHILA, THANA NO. - 474
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 1(P) & 929(P), AREA - 13.30 HA

feh

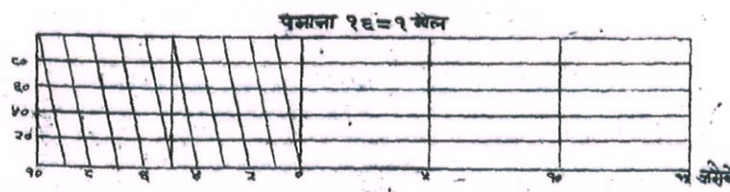


डा ठाकुरा
नं ४७८



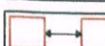
Chandanpur

नाम ग्राम चन्दनपुर चादर नम्बर २
 थाना घाटशिला
 थाना नं ४८४
 तरफ कोकपाड़ा
 जिला सिंहभूम
 पैमाना १ ई = १ मील
 प्रमि (R.N) १:३ ई ई ० (मेट्रिक)
 १ ई ई ० - ६९ इस्वी

माकर नं ४८३



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-  PROPOSED POTENTIAL AREA
-  OTHER PLOTS
-  DISTANCE SUB04 TO SUB05 BLOCK 1.2KM FROM PILLAR NO. 3 & 4



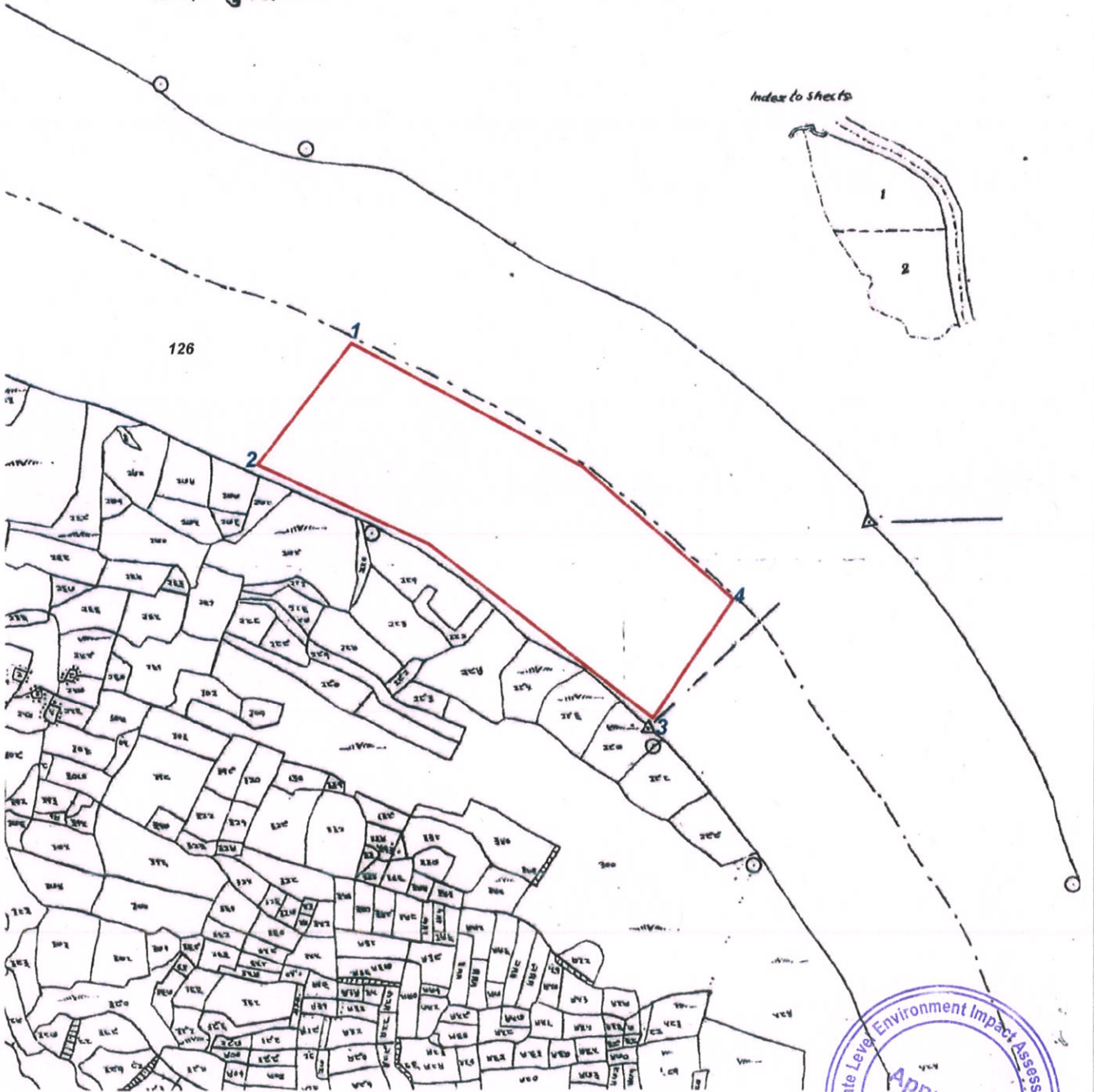
GRAM - CHANDANPUR
 THANA - GHATSHILA, THANA NO. - 484
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 1126, AREA - 4.97 HA

Bhakar



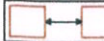
नाम ग्राम भाकर चादर नम्बर १
थाना घाटशिला
थाना नं ४८३
तरफ कोकपाड़ा
जिला सिंहभूम
पैमाना १ ई = १ मील
प्र.मि. (B.S.) १:३ ई = ० (मेट्रिक)
सन १९६०-६१ ईस्वी

चन्दन पुर नं ४८४

Index to sheets



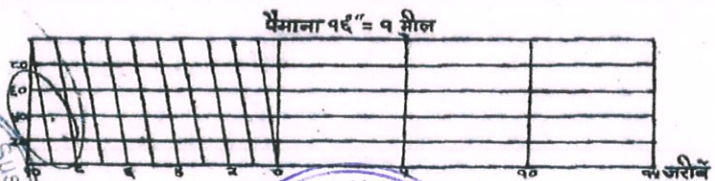
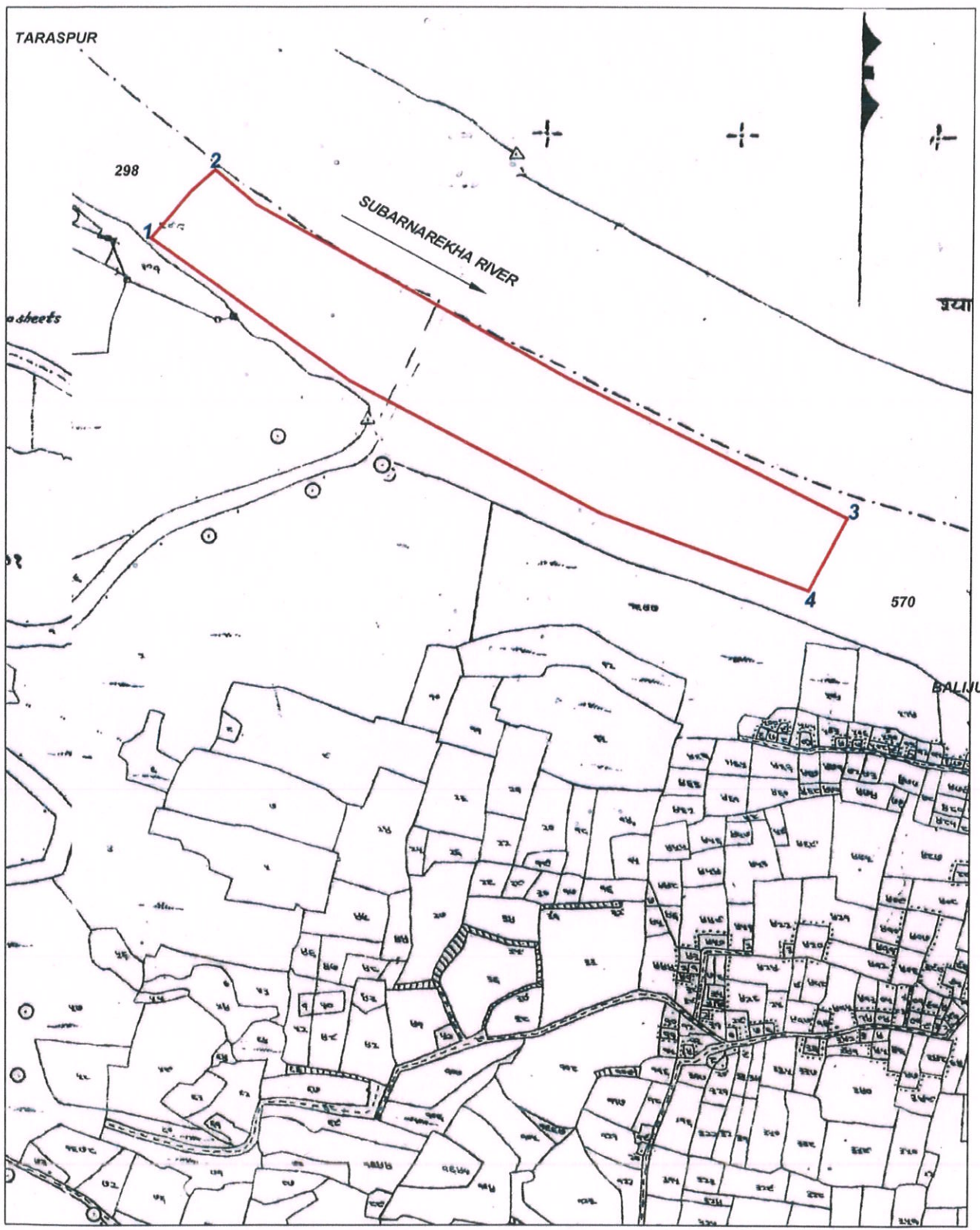
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-  DISTANCE SUB04 TO SUB05 BLOCK - 1.2KM FROM PILLAR NO. 1 & 2



GRAM - BHAKAR
THANA - GHATSHILA, THANA NO. - 483
DISTRICT - EAST SINGHBHUM, JHARKHAND
PLOT NO. 126(P), AREA - 6.29 HA

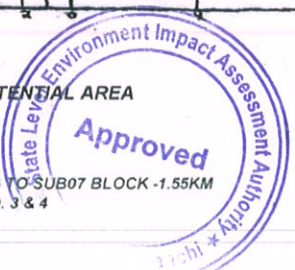




पैमाना १:१००० = १ मील
 प्र. म. (र. फ.) १०३४ (प. १०)
 मन् २०२० - २१ ई.स.वी.



- INDEX**
- PROPOSED POTENTIAL AREA
 - OTHER PLOTS
 - DISTANCE SUB06 TO SUB07 BLOCK -1.55KM FROM PILLAR NO. 3 & 4



GRAM - BALIJURI, THANA - GHATSHILA, THANA NO. - 1034, PLOT NO.-570P, DISTRICT - EAST SINGHBHUM.
 GRAM- TARASPUR, THANA- GHATSHILA, THANA NO.-1041, PLOT NO. 298(P), DISTRICT-EAST SINGHBHUM
 AREA - 7.37 HA

पैमाना १ ई = १ मील






मुदुर खाम नक १३

SUBERNAREKHA RIVER

1652

1407

INDEX

-  PROPOSED POTENTIAL AREA
-  OTHER PLOTS
-  DISTANCE SUB06 TO SUB07 BLOCK -1.55KM FROM PILLAR NO. 1 & 2

GRAM - BALIJURI - II
 THANA - GHATSHILA, THANA NO. - 1034
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 1652 (P) & 1407(P), AREA - 24.00 HA

पैमाना १ ई = १ मील
 प्र. डि. (H. F.) १:३८६० (मेट्रिक)
 सन् १८६० - ६९ ईस्वी



feh



Subarnarekhanadi
 नामग्राम सुनारिखानदी थान नं०
 थान घाटशिला
 जिला सिद्धभुम
 प्रस्ताव नं० १०२
 क्षेत्र नं० १०२

BRIDGE 2.59 KM AWAY

प्लॉट नं० २७
 क्षेत्र नं० १०२
 थान नं० १०२

27

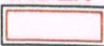

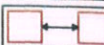


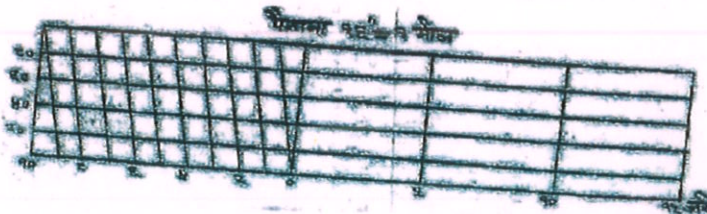
कोरेया मोहानपाल नं० १०२

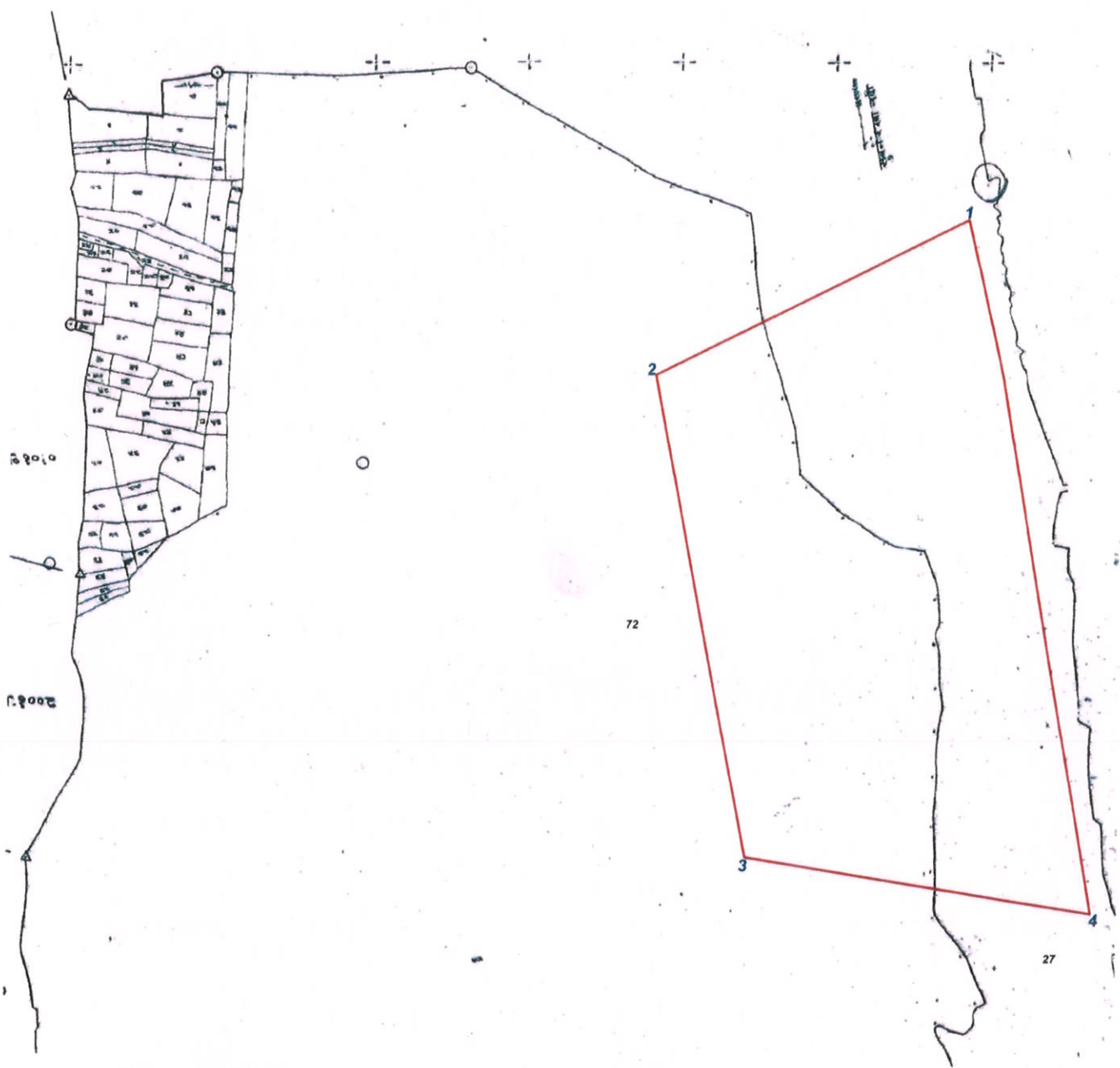


MOUZA - KOREYAMOHPAL/SUBARNAREKHANADI
 THANA - GHATSHILA, THANA NO. - 998
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 27(P), AREA - 46.30 HA

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-  PROPOSED POTENTIAL AREA
-  OTHER PLOTS
-  DISTANCE SUB08 TO SUB09 BLOCK -0.18KM FROM PILLAR NO. 3 & 4





Koreyamohanpal

नाम ग्राम कोडेयामोहनपाल

थाना घाटशिला




थाना नं १००२

तरफ बहुरागाड़ा

जिला सिंहभूम

पैमाना १:१०००
 १ इंच (R. P.) = २५ मीटर
 १ इंच = २५०० सेंटीमीटर
 १ इंच = ६२ इंच

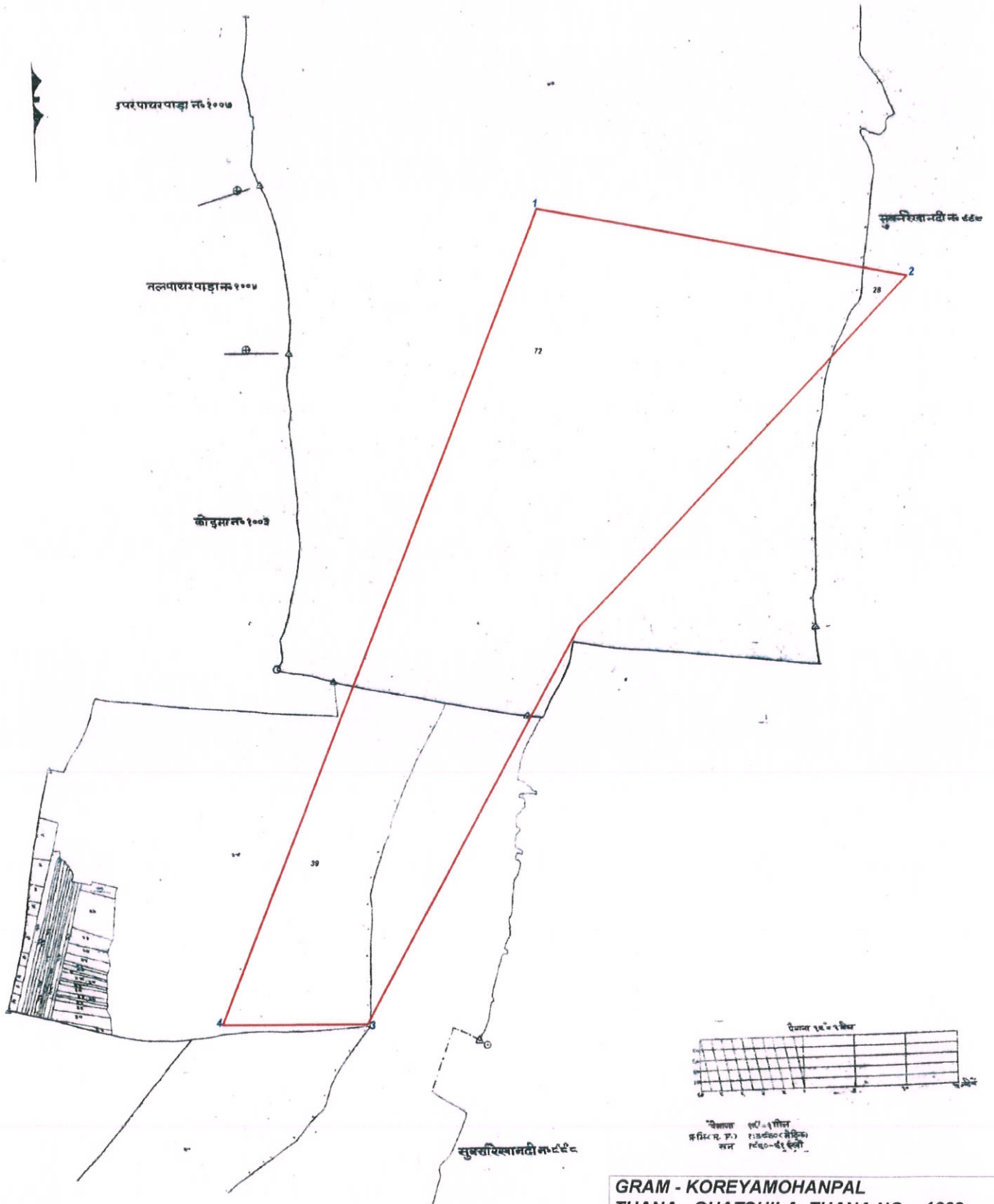
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-  PROPOSED POTENTIAL AREA
-  OTHER PLOTS
-  DISTANCE SUB09 TO SUB10 BLOCK -0.31 KM FROM PILLAR NO. 3 & 4

**GRAM - KOREYAMOHANPAL
 THANA - GHATSHILA, THANA NO. - 1002
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 72(P) & 27(P)
 TOTAL AREA - 34.70 HA.**



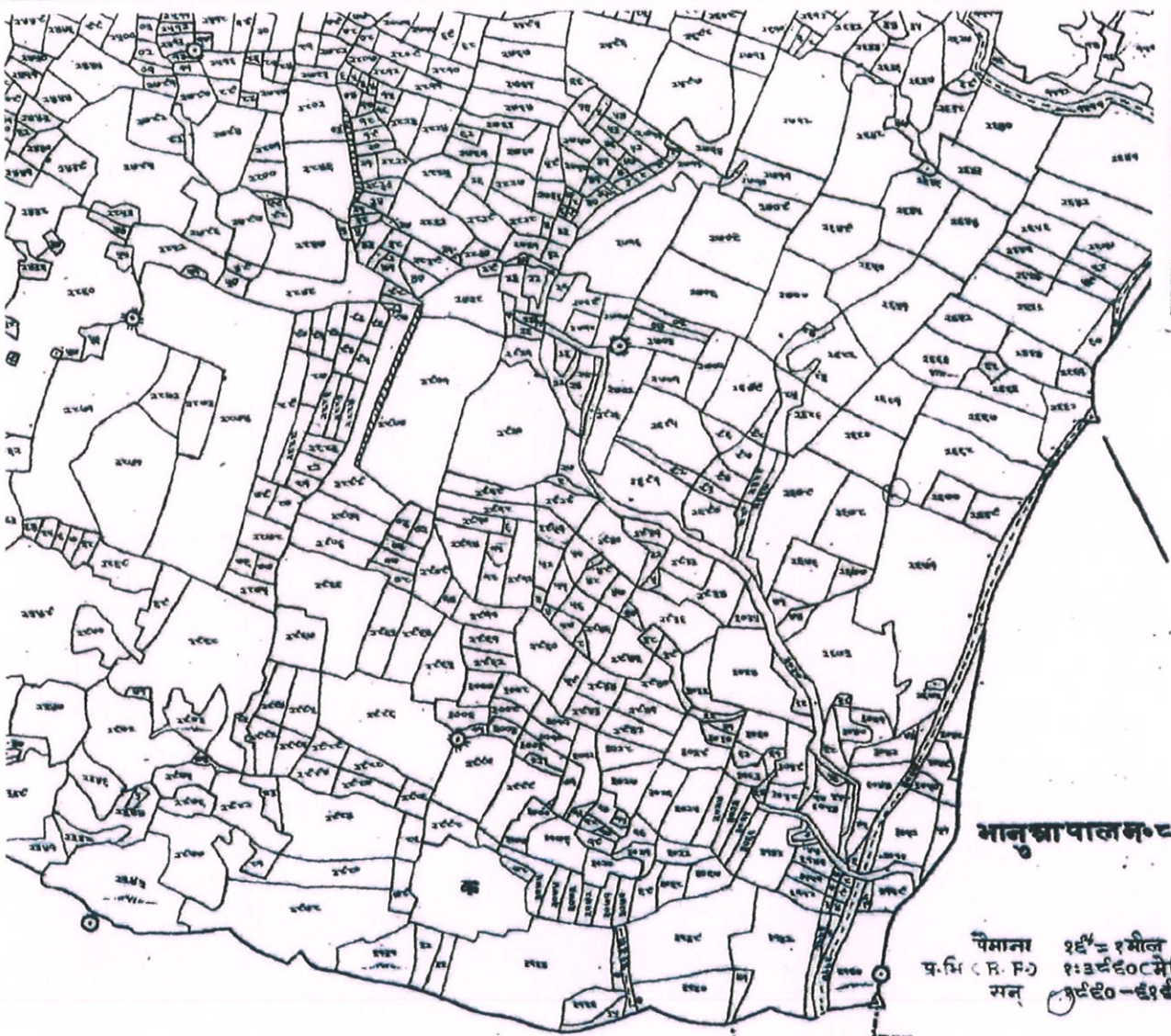
feh



GRAM - KOREYAMOHANPAL
THANA - GHATSHILA, THANA NO. - 1002
DISTRICT - EAST SINGHBHUM, JHARKHAND
PLOT NO. 72(P)
GRAM - SUBARNAREKHANADIPAL
THANA - GHATSHILA, THANA NO. - 999
DISTRICT - EAST SINGHBHUM, JHARKHAND
PLOT NO. 39(P)
GRAM - SUBARNAREKHANADIPAL
THANA - GHATSHILA, THANA NO. - 998
DISTRICT - EAST SINGHBHUM, JHARKHAND
PLOT NO. 28(P)
TOTAL AREA - 71.00 HA.

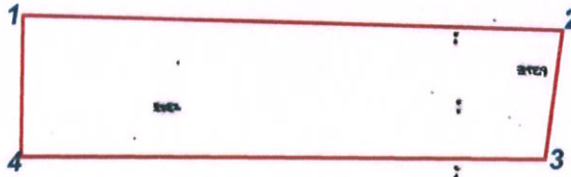


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मानसुपालम-८७१

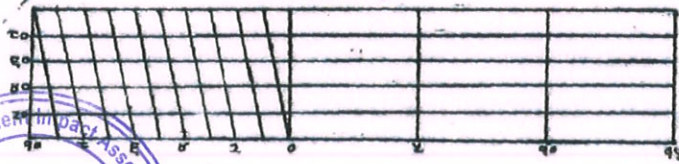
पैमाना १इं = १मील
 प्र.भि (R.F.) १:३८६० (मेट्रिक)
 मन् १:८६० - ६१ ईंकी



सर्का

सुवर्णरेखा नदी

पैमाना १इं = १ मील



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PROPOSED POTENTIAL AREA



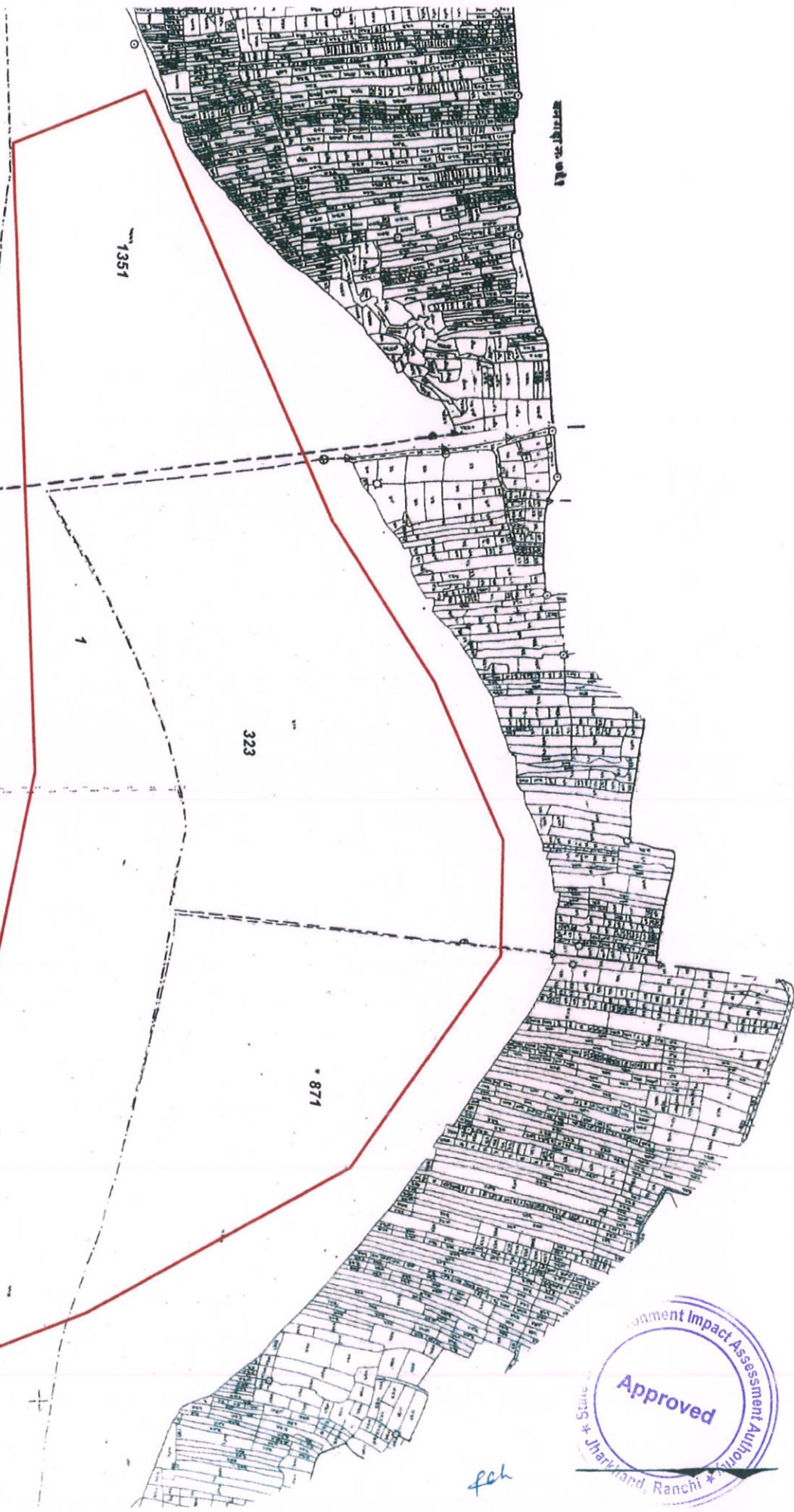
OTHER PLOTS



feh

GRAM - BANKATA
 THANA - GHATSHILA, THANA NO. - 962
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 3161(P) & 3162(P), AREA - 4.40 HA

मसुरी के वडी



GRAM - DAMJURI
 THANA - GHATSHILA, THANA NO. - 760
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 1351(P)
 GRAM - NEKRADHIA
 THANA - GHATSHILA, THANA NO. - 759
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 323(P)
 GRAM - NAAGURSAI
 THANA - GHATSHILA, THANA NO. - 745
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 871(P)
 GRAM - DIPAPAL
 THANA - GHATSHILA, THANA NO. - 744
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 1(P) & 185(P)
 TOTAL AREA - 128.00 HA



मसुरी के वडी
 मसुरी के वडी
 मसुरी के वडी

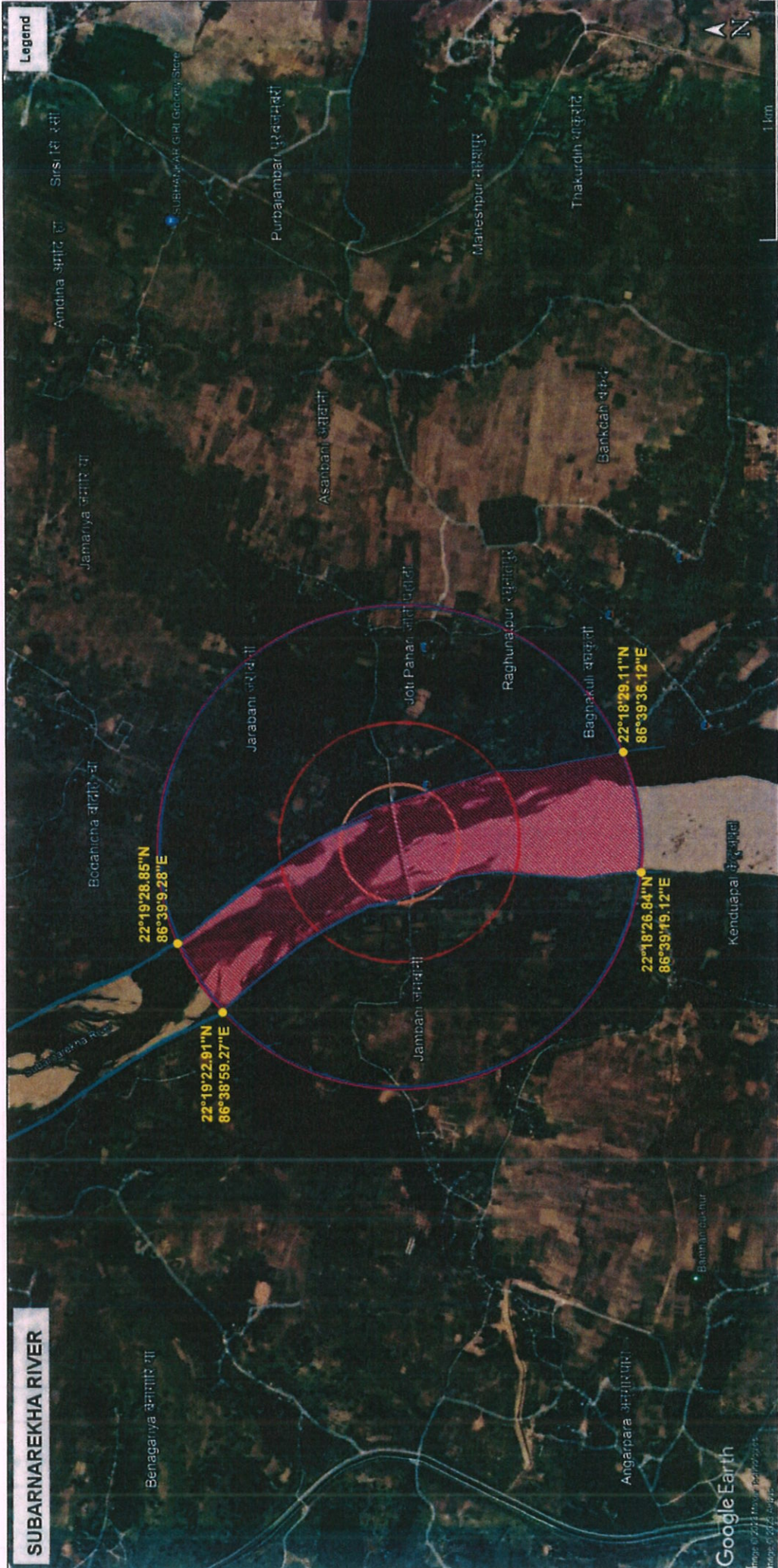


fch

ANNEXURE-05

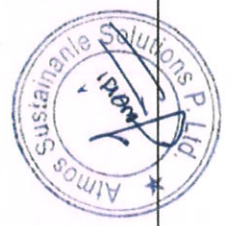
NO MINING ZONE MAP OF **SAND GHAT**

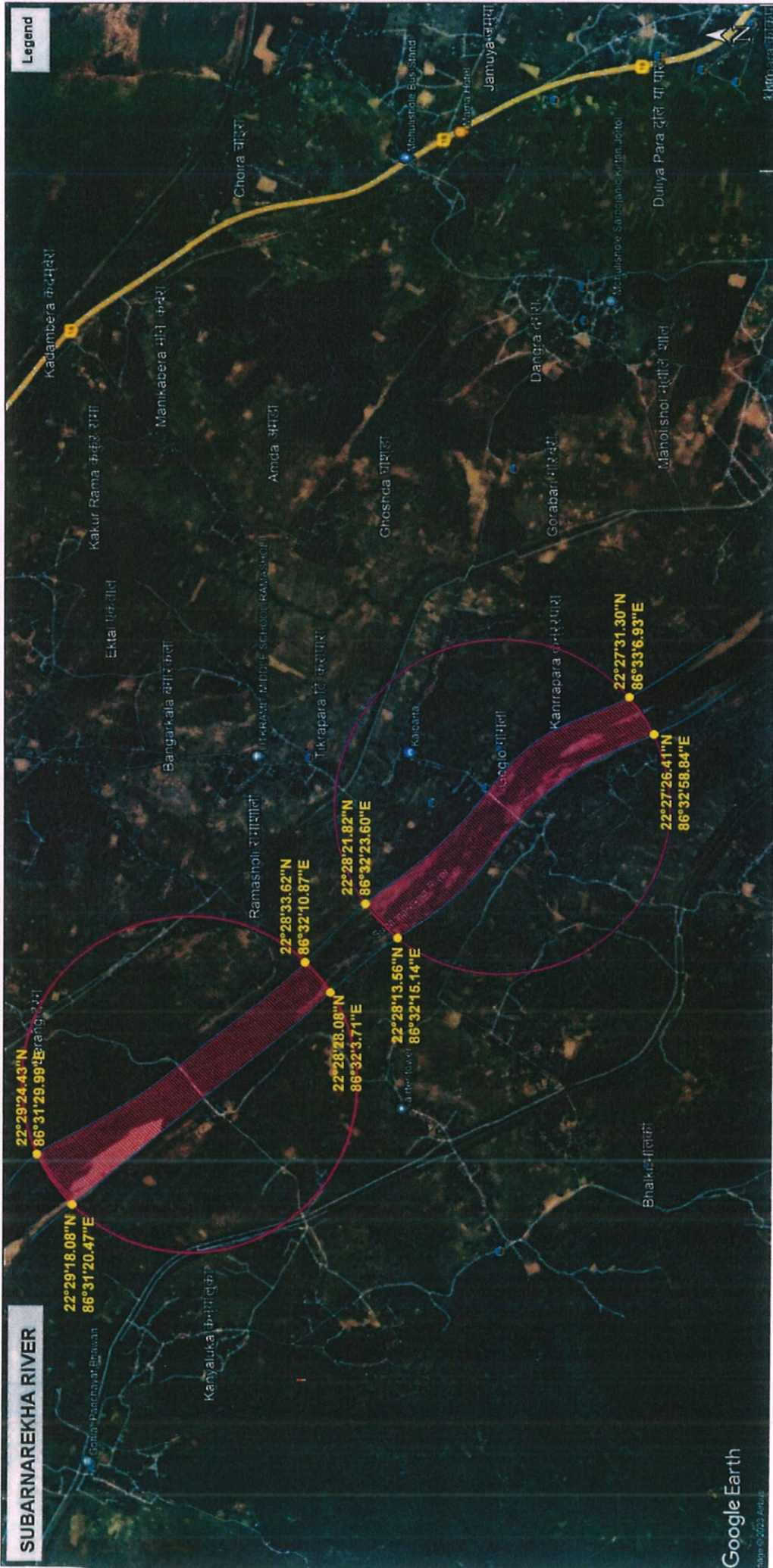




MAP SHOWING NO MINING ZONE AT SUBARNAREKHA RIVER, EAST SINGHBHUM DISTRICT, JHARKHAND

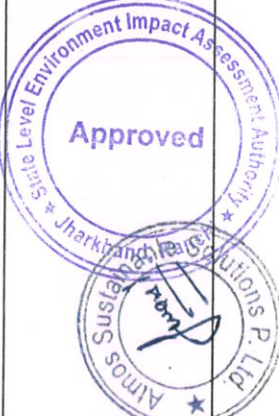
-  NO MINING ZONE
-  1KM BUFFER ZONE






MAP SHOWING NO MINING ZONE AT SUBARNAREKHA RIVER, EAST SINGHBHUM DISTRICT, JHARKHAND

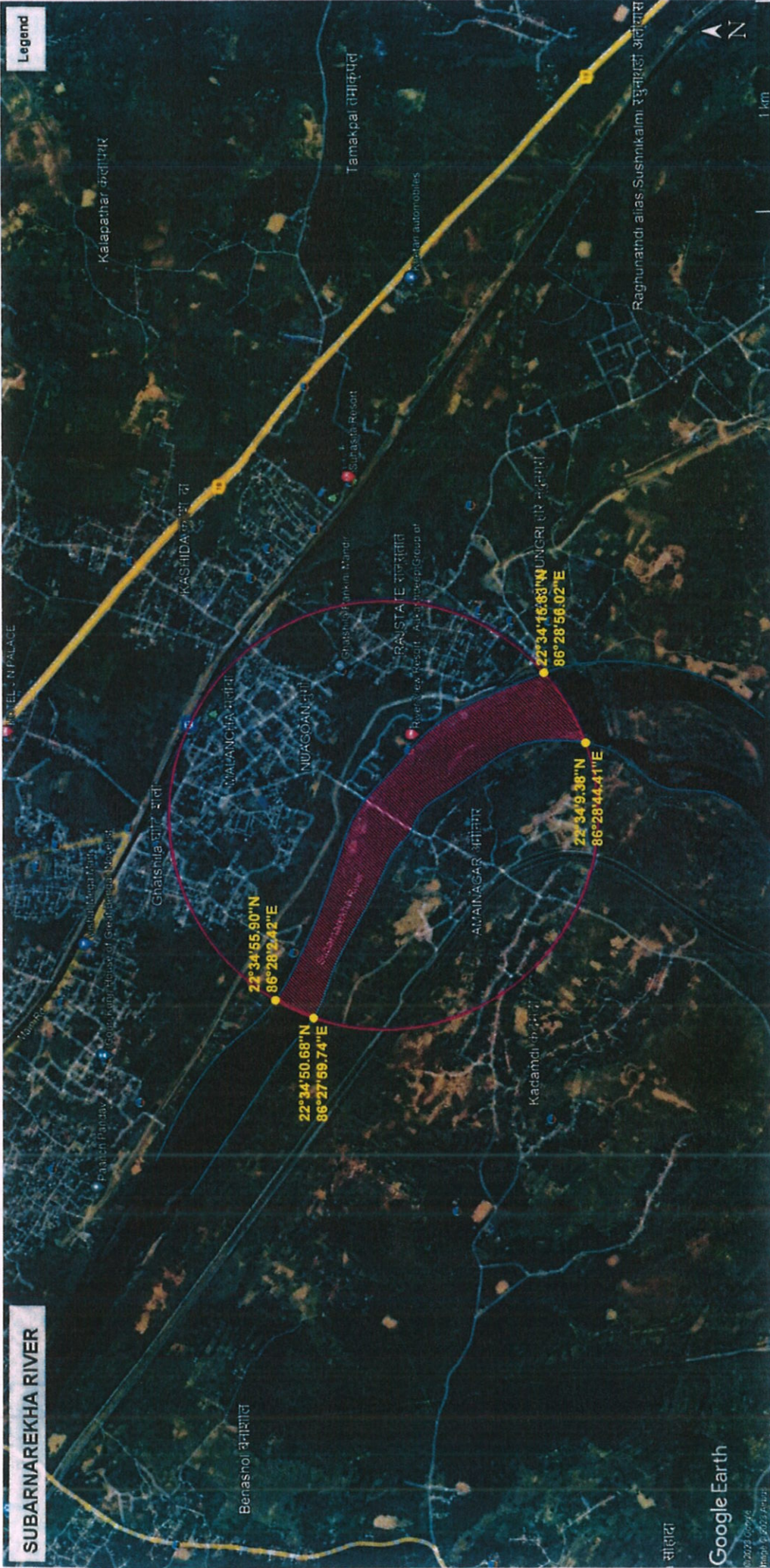
-  NO MINING ZONE
-  1KM BUFFER ZONE



Approved



fk



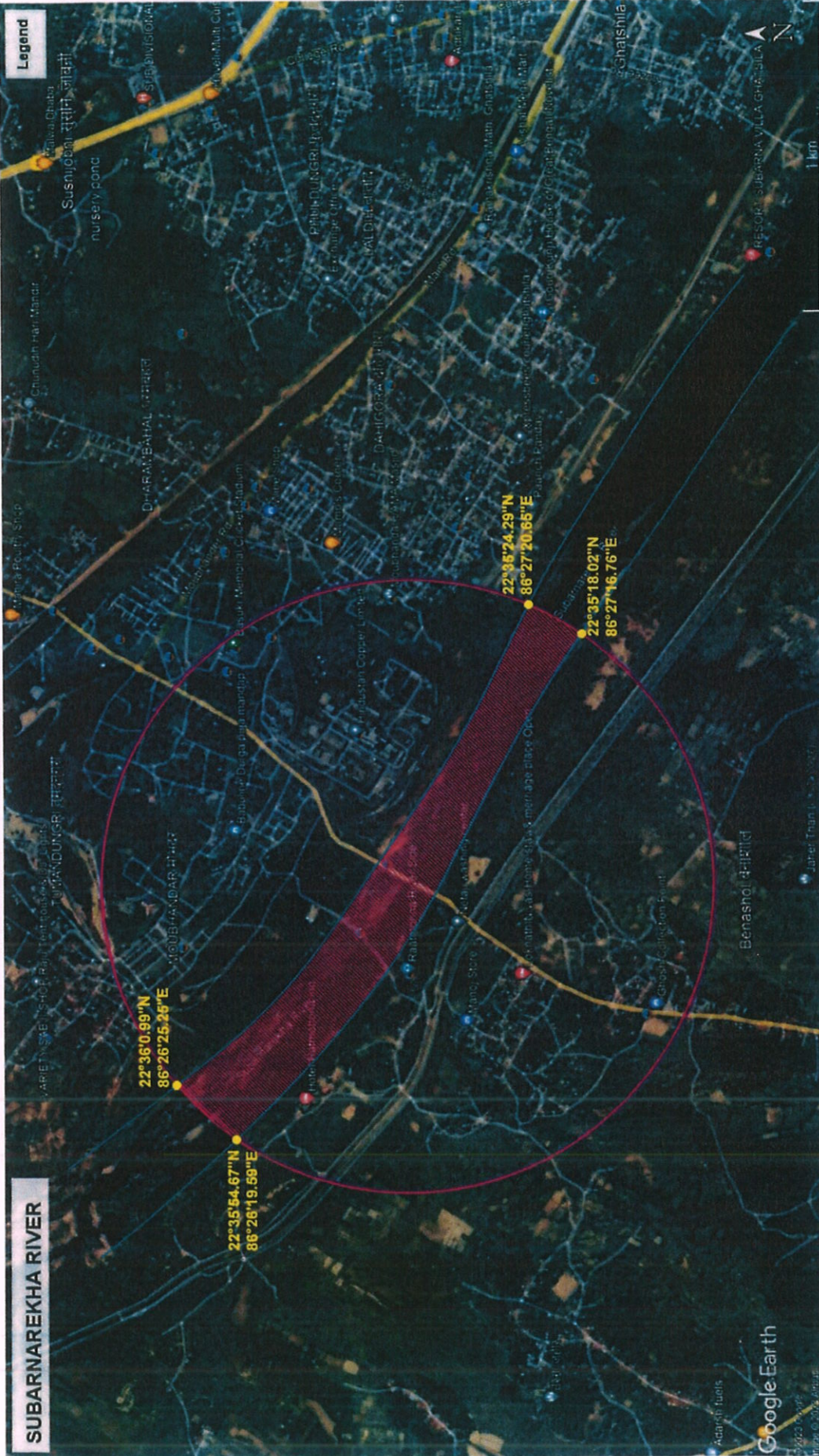
MAP SHOWING NO MINING ZONE AT SUBARNAREKHA RIVER, EAST SINGHBHUM DISTRICT, JHARKHAND

NO MINING ZONE

1KM BUFFER ZONE



for

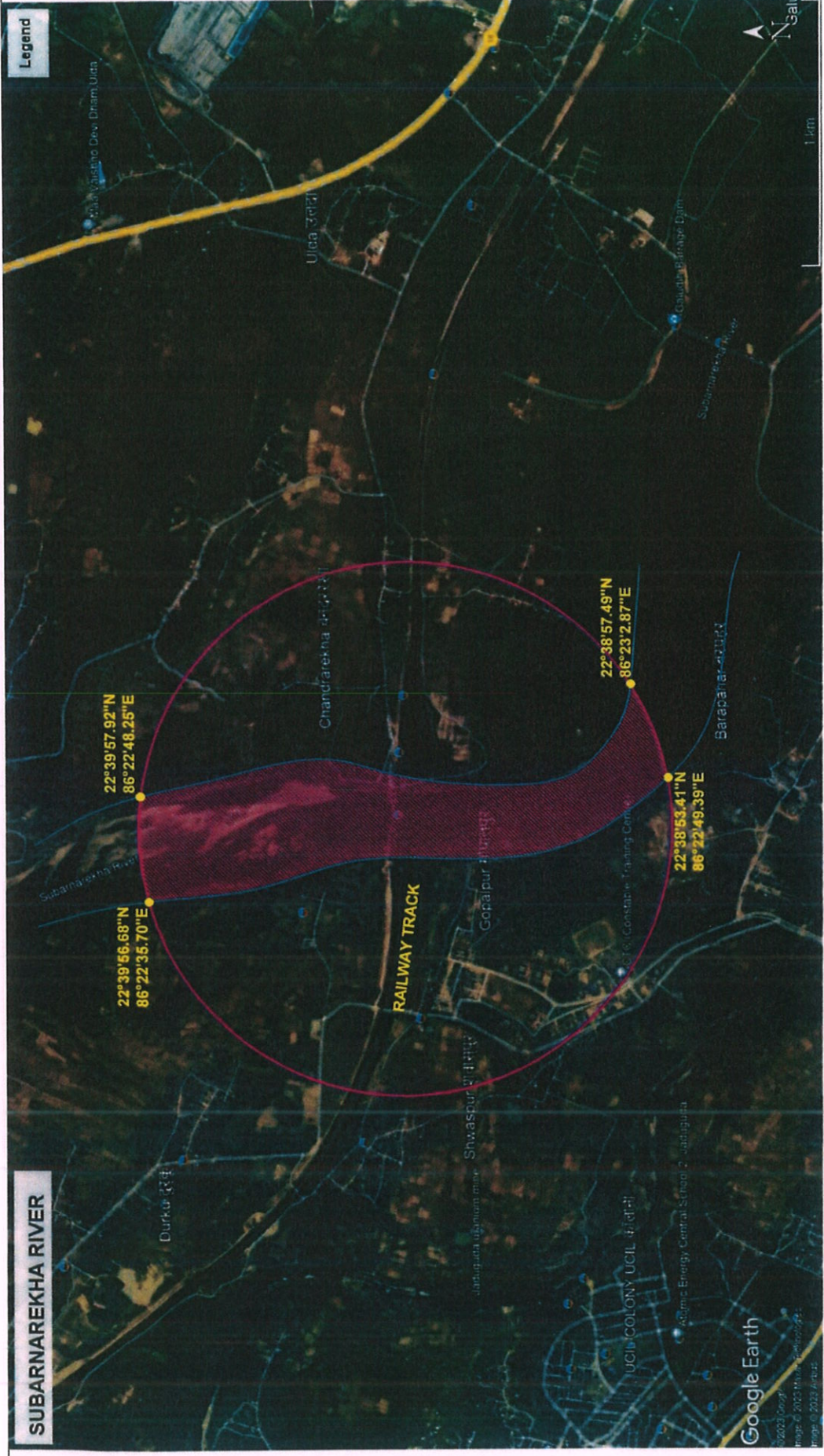


MAP SHOWING NO MINING ZONE AT SUBARNAREKHA RIVER, EAST SINGHBHUM DISTRICT, JHARKHAND

-  NO MINING ZONE
-  1KM BUFFER ZONE



feh



MAP SHOWING NO MINING ZONE AT SUBARNAREKHA RIVER, EAST SINGHBHUM DISTRICT, JHARKHAND

- NO MINING ZONE
- 1KM BUFFER ZONE



fch

ANNEXURE-06

ROUTE MAP OF SAND GHAT



SUB 01 ROUTE MAP
DISTRICT- EAST SINGHBHUM

 Potential Area

 Subarnarekha river

 Metalled Road

 Unmetalled Road

 Plantation

Geo-Coordinates:
22°41'56.78"N
86°22'49.85"E

Approved

Route Map of Sand Ghat of Proposed Site



Water body



No High Tension Line



Metalled road



Human Settlement



No Religious Places



No Archaeological Site



www.districts.gov





Potential Area



Subarnarekha river



Metalled Road



Unmetalled Road



Plantation

Geo-Coordinates:
22°31'0.95"N
86°29'27.96"E



SUB 02 ROUTE MAP
DISTRICT-EAST SINGHBHUM



Legend
POTENTIAL AREA



Route Map of Sand Ghat of Proposed Site



Water body



No High Tension Line



Metalled road



Human Settlement



No Religious Places



No Archaeological Site



www.daridrigg.org

SUB 03 ROUTE MAP
DISTRICT-EAST SINGHBHUM

Legend
POTENTIAL AREA

Potential Area

Subarnarekha river

Metalled Road

Unmetalled Road



Plantation

Geo-Coordinates:

22°25' 33.17"N
86°35' 30.23"E



Route Map of Sand Ghat of Proposed Site



Water body



No High Tension Line



Metalled road



Human Settlement



No Religious Places



No Archaeological Site



w.No.Bridge.org





Potential Area



Subarnarekha river



Metalled Road



Unmetalled Road

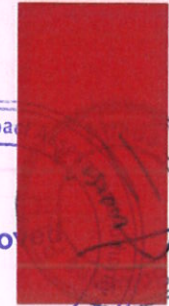


Plantation

Geo-Coordinates:

22 24' 27.5" N 86 34' 53.96" E

22 27' 33.77" N 86 35' 36.89" E



Water body



No High Tension Line



Metalled road



Human Settlement



No Religious Places



No Archaeological Site



www.Bridge.org

SUB 04 & 05 ROUTE MAP

DISTRICT- EAST SINGHBHUM

Legend

POTENTIAL AREA



Google Earth

Image © 2012 Airbus

Route Map of Sand Ghat of Proposed Site

AK



Potential Area



Subarnarekha river



Metalled Road



Unmetalled Road



Plantation

Geo - Coordinate:

22°21'25.61"N
86°36'47.27"E
22°20'50.66"N
86°37'55.06"E



Water body

SUB 06 & 07 ROUTE MAP

DISTRICT- EAST SINGHBHUM



Route Map of Sand Ghat of Proposed Site



No High Tension Line



Metalled road



Human Settlement



No Religious Places



No Archaeological Site



w.No. Bridge.org



Potential Area



Subarnarekha river



Metalled Road



Unmetalled Road



Geo-Coordinates:

22 17' 35.37" N
86 39' 19.51" E



Water body

SUB-08 ROUTE MAP

DISTRICT- EAST SINGHBHUM



Route Map of Sand Ghat of Proposed Site



No High Tension Line



Metalled road



Human Settlement



No Religious Places



No Archaeological Site



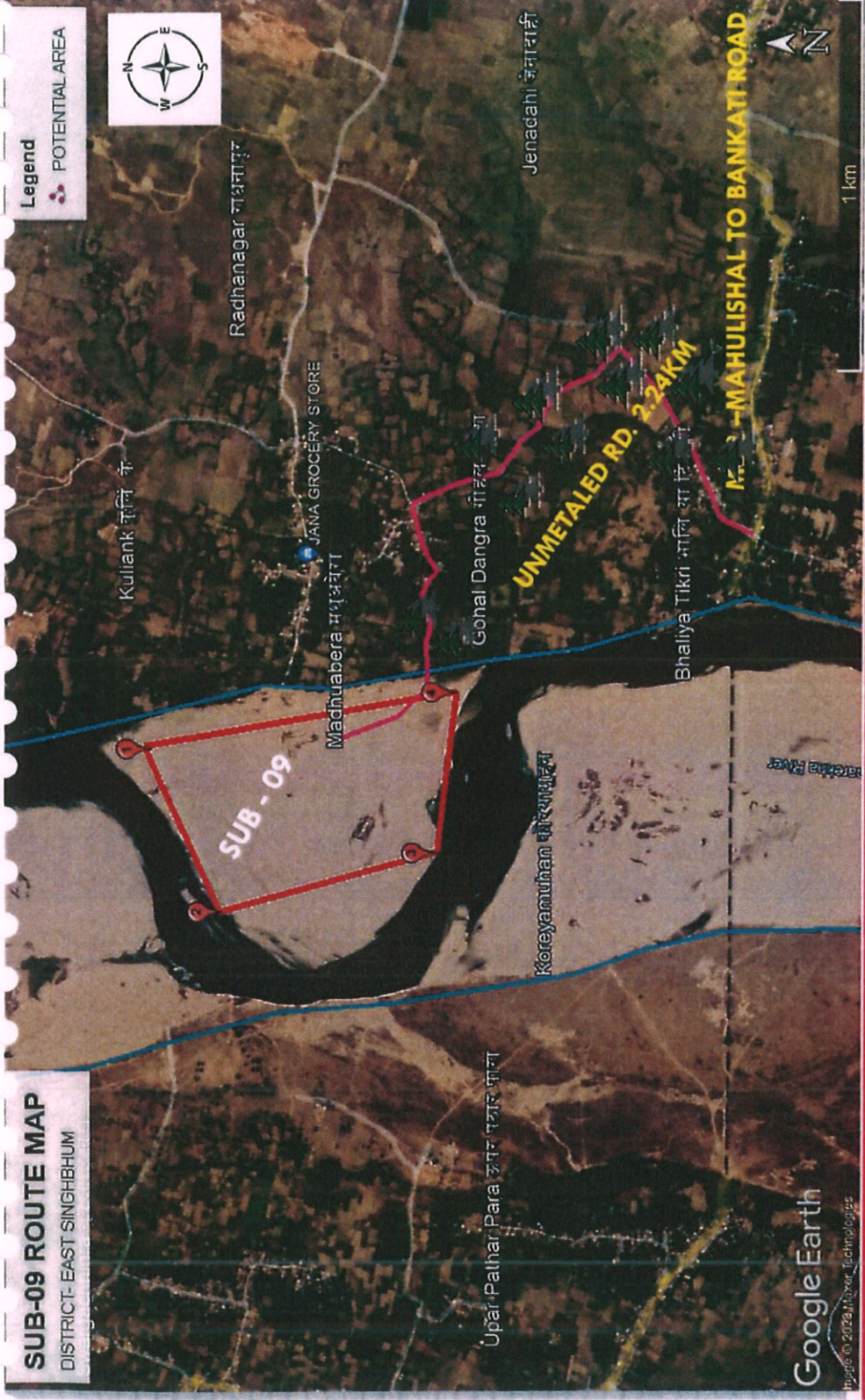
No. Bridge

for

SUB-09 ROUTE MAP
DISTRICT- EAST SINGHBHUM

Legend

POTENTIAL AREA



- Potential Area
- Subarnarekha river
- Metalled Road
- Unmetalled Road
- Plantation
- Geo-Coordinates:**
22 16' 57.88" N
86 39' 42.00" E



Route Map of Sand Ghat of Proposed Site

	Water body
	No High Tension Line
	Metalled road
	Human Settlement
	No Religious Places
	No Archaeological Site
	www.No.Bridge.org



Potential Area



Subarnarekha river



Metalled Road



Unmetalled Road



Plantation

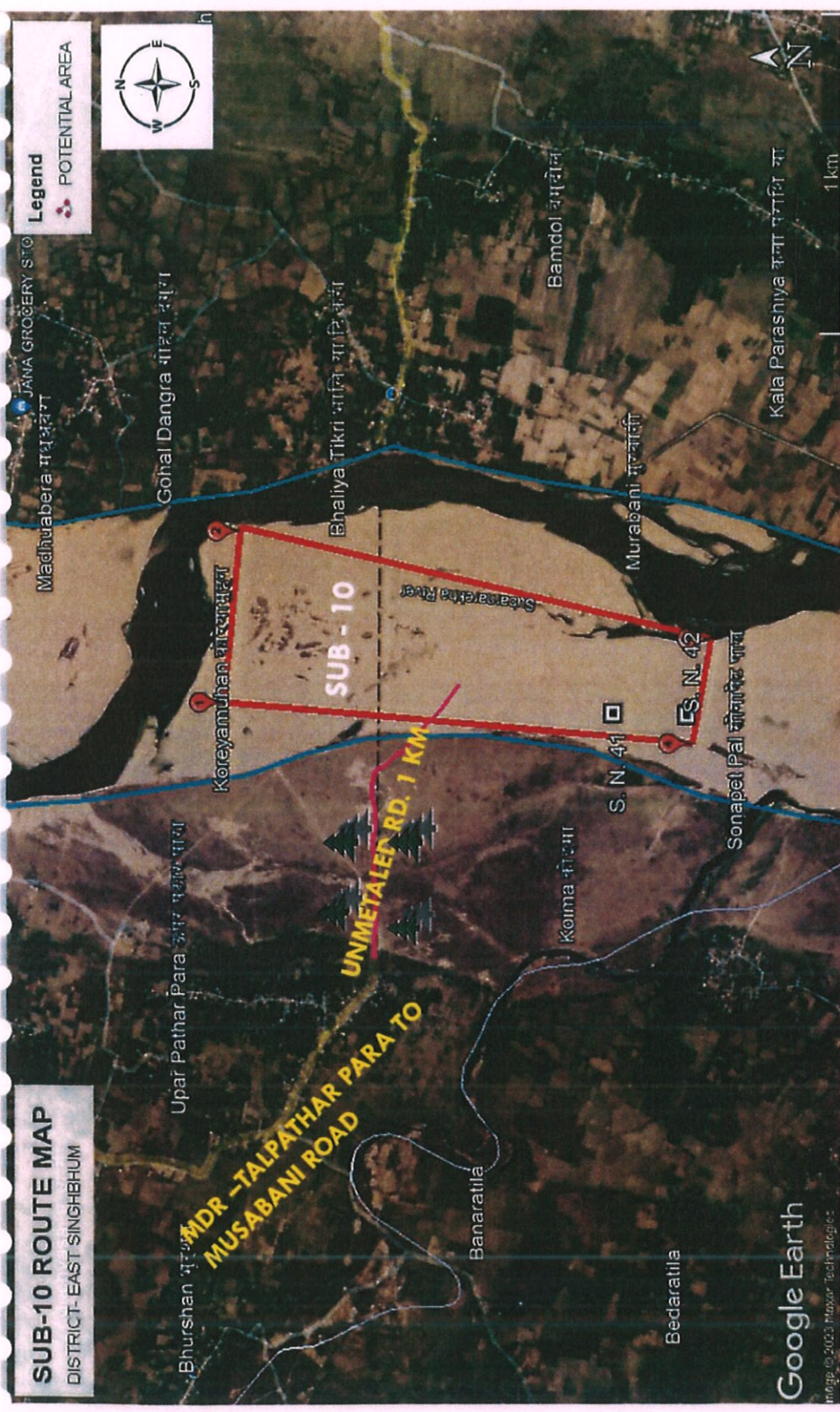
Geo-Coordinates:

22 16'21.63"N
86 39'28.44"E



SUB-10 ROUTE MAP
DISTRICT- EAST SINGHBHUM

Legend
POTENTIAL AREA



Route Map of Sand Ghat of Proposed Site



Water body



No High Tension Line



Metalled road



Human Settlement



No Religious Places



No Archaeological Site



w.No.18n1digeorg

4th



Potential Area



Subarnarekha river



Metalled Road



Unmetalled Road



Plantation

Geo-Coordinates:

22 13'25.40"N
86 41'9.45"E



Water body



No High Tension Line



Metalled road



Human Settlement



No Religious Places



No Archaeological Site



w.No.Bridge.org

फेक

SUB-11 ROUTE MAP
DISTRICT- EAST SINGHBHUM

UNMETALLED RD. 4.27 KM

Muruniya गरीबि गी

Raghunathpur गरीबि गी

Asna गी

E. ab ira गी

Bharat Pet



Legend
POTENTIAL AREA

AH- MUMBAI - KOLKATA HIGHWAY ROAD

ODISMA

Barati

Panchra

Google Earth

Images © 2023 Maxar Technologies

Route Map of Sand Ghat of Proposed Site



Potential Area



Subarnarekha river



Metalled Road



Unmetalled Road



Plantation

Geo-Coordinates:

22 13'4.92"N
86 44'25.33"E

SUB-12 ROUTE MAP
DISTRICT- EAST SINGHBHUM



Legend
POTENTIAL AREA



Route Map of Sand Ghat of Proposed Site



Water body



No High Tension Line



Metalled road



Human Settlement



No Religious Places



No Archaeological Site



w.No.Brindigg.org

4th

ANNEXURE-07

COPY OF ZOOLOGICAL
SURVEY OF INDIA LETTER



Office of the District Mining Officer, East Singhbhum, Jamshedpur.

(Email Id – dmo-jamshedpur@jharkhandmail.gov.in)

Memo no. 09 /Khanan

Dated. 03 / 07 /2023

From,

District mining officer
East Singhbhum. Jamshedpur.

To,

The Director,
Gangetic Plains Regional Centre,
Zoological Survey of India,
Bahadurpur Housing Colony,
Sec-8, Patna- 800026, Bihar,

Subject: - Request to provide details regarding the presence of aquatic animal in the river Subarnarekha of East Singhbhum and proposed Potential area enlisted in East Singhbhum district Jharkhand.

Dera Sir,

With reference to the above-mentioned subject, we would like to bring to your notice that, the work for the preparation of district survey report for Sand Mineral of East Singhbhum is in progress.

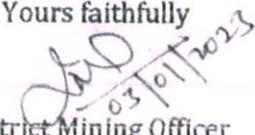
As per direction given by SEAC, Jharkhand we require to submit the undertaking regarding presence of aquatic animal in the river in proximity of the proposed potential area should be verified and certified by concerned Govt. Departments like Zoological survey of India.

It is therefore requested to provide the details of presence of aquatic animal in the river in proximity of the proposed potential area in DSR (District Survey Report).

We are enclosing details of proposed potential area along with Geo-coordinates for your reference.

Thanking You.

Yours faithfully


03/07/2023
District Mining Officer
East Singhbhum, Jamshedpur.





OCCASIONAL PAPER NO. 283

Fish Fauna of Subarnarekha River

A.K. KARMAKAR
A. DAS
P.K. BANERJEE

ZOOLOGICAL SURVEY OF INDIA

OCCASIONAL PAPER No. 283

**RECORDS
OF THE
ZOOLOGICAL SURVEY OF INDIA**

Fish Fauna of Subarnarekha River

A.K. KARMAKAR, A. DAS AND P.K. BANERJEE
Zoological Survey of India, M-Block, New Alipore, Kolkata-700053

Edited by the Director, Zoological Survey of India, Kolkata



**Zoological Survey of India
Kolkata**



CITATION

Karmakar, A.K., Das, A. and Banerjee, P.K. 2008. Fish Fauna of Subarnarekha River,. *Rec. zool. Surv. India, Occ. Paper No., 283* : 1-57, (Published by the Director, *Zool. Surv. India*, Kolkata).

Published : February, 2008

ISBN 978-81-8171-184-7

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PRICE

Indian Rs. 100.00

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Published at the Publication Division, by the Director, Zoological Survey of India, 234/4 A.J.C. Bose Road, 2nd MSO Building, Nizam Palace (13th floor), Kolkata - 700 020 and printed at Krishna Printing Works, Kolkata - 700 006.

CONSERVATION STATUS OF FISHES FROM SUBERNAREKHA RIVER

Name of the species	Critically Endangered	Endangered	Vulnerable	Lower risk near threatened	Lower risk Least concern
Family NOTOPTERIDAE					
<i>Notopterus notopterus</i> (Palles)				+	
Family ANGUILLIDAE					
<i>Anguilla bengalensis bengalensis</i> (Gray)		+			
Family CYPRINIDAE					
Sub-family DANIONINAE (=RASBORINAE)					
<i>Salmostoma bacaila</i> (Hamilton-Buchanan)					+
Sub-family RASBORINAE					
<i>Amblypharyngodon mola</i> (Hamilton-Buchanan)					+
<i>Aspidoparia morar</i> (Hamilton-Buchanan)				+	
<i>Barilius barila</i> (Hamilton-Buchanan)			+		
<i>Barilius barna</i> (Hamilton-Buchanan)				+	
<i>Barilius bendelisis</i> (Hamilton-Buchanan)				+	
<i>Esomus danricus</i> (Hamilton-Buchanan)					+
<i>Rasbora daniconius</i> (Hamilton-Buchanan)				+	
Sub-family CYPRININAE					
<i>Cirrhinus reba</i> (Hamilton-Buchanan)			+		
<i>Labeo angra</i> (Hamilton-Buchanan)				+	
<i>Labeo pangusia</i> (Hamilton-Buchanan)				+	
<i>Osteobrama cotio cotio</i> (Hamilton-Buchanan)				+	
<i>Puntius chola</i> (Hamilton-Buchanan)			+		
<i>Puntius conchoniis</i> (Hamilton-Buchanan)			+		
<i>Puntius sarana sarana</i> (Hamilton-Buchanan)			+		
<i>Puntius sophore</i> (Hamilton-Buchanan)				+	
<i>Purtius ticto</i> (Hamilton-Buchanan)				+	
Sub-family GARRINAE					
<i>Garra gotyla gotyla</i> (Gray)			+		
Family BALITORIDAE					
Sub-family NOEMACHEILINAE					
<i>Acanthocobitis botia</i> (Hamilton-Buchanan)				+	



Name of the species	Critically Endangered	Endangered	Vulnerable	Lower risk near threatened	Lower risk Least concern
Family BAGRIDAE					
<i>Mystus bleekeri</i> (Day)			+		
<i>Mystus cavasius</i> (Hamilton-Buchanan)				+	
<i>Neotropius atherinoides</i> (Bloch)		+			
Family AMBLYCIPITIDAE					
				+	
<i>Amblyceps mangois</i> (Hamilton-Buchanan)					
Family SITORIDAE			+		
<i>Bagarius bagarius</i> (Hamilton-Buchanan)		+			
<i>Glyptothorax nelsoni</i> (Ganguly, Datta & Sen)		+			
<i>Glyptothorax saisii</i> (Jenkins)				+	
<i>Laguvia ribeiroi</i> (Hora)				+	
<i>Gogangra viridescens</i> (Ham-Buch)					
Family SCHILBEIDAE			+		
<i>Clupisoma garua</i> (Hamilton-Buchanan)					
Family PANGASIIDAE	+				
<i>Pangasius pangasius</i> (Hamilton-Buchanan)					
Family HETEROPNEUSTIDAE			+		
<i>Heteropneustes fossilis</i> (Bloch)					
Family CLARIIDAE			+		
<i>Clarius batrachus</i> (Linnaeus)					
Family BELONIDAE				+	
<i>Xenentodon cancila</i> (Hamilton-Buchanan)					
Family MUGILIDAE			+		
<i>Rhinomugil corsula</i> (Hamilton-Buchanan)					
Family GOBIIDAE				+	
<i>Glossogobius giuris</i> (Hamilton-Buchanan)					
Family ANABANTIDAE			+		
<i>Anabas cotojus</i> (Hamilton-Buchanan)					
Family BELONTIDAE				+	
<i>Colisa fasciatus</i> (Schneider)					
Family CHANNIDAE			+		
<i>Channa orientalis</i> Bloch & Schneider				+	
<i>Channa punctatus</i> (Bloch)					
Family MASTACEMBELIDAE				+	

M. pancalus (Hamilton-Buchanan)



5. Vulnerable – 14
6. Lower Risk Near Threatened – 20
7. Lower Risk Least Concern – 3
8. Data Deficient – 2

FISHES ENDEMIC TO INDIA (Karmakar and Das 2005)

1. *Chagunius chagunio* (Hamilton-Buchanan)
2. *Crossocheilus latius latius* (Hamilton-Buchanan)
3. *Garra mullya* (Sykes)
4. *Glyptothorax coheni* Ganguly, Datta & Sen
5. *Glyptothorax nelsoni* Datta & Sen
6. *Glyptothorax saisii* (Jenkins)

SUMMARY

In the present contribution, an attempt has been made to provide an upto date classification, nomenclature, details of material studied, size ranges, distributional record, fishery information along with diagnostic characters of each genus and also identification keys. In all 66 species belonging to 7 orders, 21 families and 43 Genera have been dealt with in detail and their conservation status has been discussed.

ACKNOWLEDGEMENTS

We are thankful to the Director, Zoological Survey of India, Kolkata, for giving the opportunity to work on this project and also for laboratory facilities. I (A.K.K.) am also thankful to Dr. A.K. Sanyal, Scientist 'E' for entrusting me to study the fish material collected from Subarnarekha river in and around Ghatsila and Jamshedpur under his leadership.

REFERENCES

- C.A.M.P. Workshop Report on Indian Freshwater Fishes. 1998. *Zoo Outreach Organization, CBSG, India, Coimbatore* : 1-156.
- Central Board for the prevention and control of water pollution. 1986. *Subarnarekha Basin, ADSORBS 135, 15* : New Delhi : 1-158.
- Day, F. 1889. *Fauna of Brit. India, Fish. 2* : Taylor and Francis, London : 1-548.
- Ganguly, D.N., Datta, N.C and Sen, S. 1972. Two new cat fishes of the genus *Glyptothorax* Blyth (Family : Sisoridae) from Subarnarekha river, Bihar, India, *Copeia*, (2) : 340-344.



ANNEXURE-08

COPY OF FISHERY **DEPARTMENT LETTER**



जिला खनन कार्यालय, पूर्वी सिंहभूम, जमशेदपुर।

(Email Id - dmo-jamshedpur@jharkhandmail.gov.in)

पत्रांक... 112 / खनन
प्रेषक,

दिनांक... 02-02-2023

जिला खनन पदाधिकारी
पूर्वी सिंहभूम, जमशेदपुर।

सेवा में,

जिला मतस्य पदाधिकारी
पूर्वी सिंहभूम, जमशेदपुर।

विषय - जलीय जीवों के संबंध में सूचना एकत्र करने के संबंध में।

प्रसंग - निदेशक, भूतत्व, झारखण्ड, राँची का पत्रांक - 95/2021-77, दिनांक - 31.01.2023

महाराज,

उपर्युक्त विषयक प्रसांगिक पत्र के संबंध में कहना है कि पूर्वी सिंहभूम जिलान्तर्गत बालूघाट की बन्दोबस्ती हेतु चिन्हित बालूघाटों से संबंधित DSR (District Survey Report) For Sand के प्रस्तुतीकरण के दौरान जलीय जीवों के संबंध में सूचना DSR में संलग्न कराने का Observation SEAC के 99th की बैठक में दिया गया है।

अतः आप से अनुरोध है कि पूर्वी सिंहभूम जिलान्तर्गत बालूघाट की बन्दोबस्ती हेतु चिन्हित बालूघाटों से संबंधित DSR (District Survey Report) For Sand के प्रस्तुतीकरण के दौरान जलीय जीवों के संबंध में सूचना एकत्र कर अघोहस्ताक्षरी के कार्यालय को उपलब्ध कराने की कृपा की जाय।

अनु० - यथोक्त।

विश्वासभाजन

जिला खनन पदाधिकारी
पूर्वी सिंहभूम, जमशेदपुर।
02/02/23

RJ2597150#21N IVR:8274259715082
RJ JAMSHEDPUR HD (831881)
Counter No:2,83/02/2023,12:03
To:ZILA MATSYA ,EAST SINGBHM
PIN:831002, Tatanagar SO
From:ZILA KHANNA,E SINGBHM JSR
Wt:30gms
Amt:2.00 (Cash)PS:25.00
<Track on www.indiapost.gov.in
<Dial 18002668888 <Wear Masks, Stay Safe>

ANNEXURE-09

COPY OF NEWS PAPER
CUTTING



NEWS PAPER



खान एवं भूतत्व विभाग
जिला खनन कार्यालय, पूर्वी सिंहभूम, जमशेदपुर।

(dmo-jamshedpur@jharkhandmail.gov.in)

आम सूचना

एतद् द्वारा सर्वसाधारण को सूचित किया जाता है कि पूर्वी सिंहभूम जिले का बालू खनिज का District Survey Report (जिला सर्वेक्षण रिपोर्ट) पूर्वी सिंहभूम जिले के Website - Jamshedpur.nic.in पर प्रकाशित किया गया है। उक्त DSR आम जनता को उपलब्ध करायी जाती है। 30 दिनों के अन्दर आपत्ति या सुझाव यदि कोई हो, तो जिला खनन कार्यालय, पूर्वी सिंहभूम, जमशेदपुर अथवा dmo-jamshedpur@jharkhandmail.gov.in पर प्रेषित किया जा सकते हैं।

हो/-

जिला खनन पदाधिकारी
पूर्वी सिंहभूम, जमशेदपुर।

PR 286145 Mines and Geology(22-23)D

PRAGHAT KHABAR, JAMSHEDPUR
DATE - 22.12.2022



ANNEXURE-10

COPY OF NIC D.C. UPLOAD
SCREEN SHOT



11:24 AM



General Notice | E...
jamshedpur.nic.in

General Notice

Title: District Survey Report for River bed Sand Mining

Description: District Mining Department, East Singhbhum

Start Date : 26/12/2022

End Date : 31/12/2023

File: [View \(10 MB\)](#) [DSR-SAND-2 \(6 MB\)](#) [DSR-SAND-3 \(7 MB\)](#) [CADASTAL-MAP \(2 MB\)](#)

Title: Supply, Installation of Boating facility and training of Manpower at Burudi Dam, Ghatshila, East Singhbhum

Description: Executive Engineer,
Rural Development Special Division, Jamshedpur.

Start Date : 24/12/2022

English Hindi



ANNEXURE-11

COPY OF SUB-DIVISIONAL
COMITTE LETTER



जिला दण्डाधिकारी एवं उपायुक्त का कार्यालय,
पूर्वी सिंहभूम, जमशेदपुर।

कार्यालय आदेश

MoEF&CC के अधिसूचना दिनांक – 25.07.2018 एवं MoEF&CC Enforcement & Monitoring Guideline for Sand Mining 2020 के आलोक में DSR (District Survey Report) Sand तैयार करने हेतु अनुमंडल स्तरीय समिति का गठन करने का निर्देश प्राप्त है।

विदित हो बालूघाटों की निलामी की प्रक्रिया पूर्ण करने हेतु पूर्वी सिंहभूम, जमशेदपुर का DSR (District Survey Report) Sand को तैयार करने के दौरान Monitoring & Site Visit हेतु अनुमंडल स्तरीय समिति का गठन निम्न रूप से किया जाता है :-

क्र०	पदाधिकारी का पदनाम	प्राधिकरण में पदनाम
1	उपायुक्त, पूर्वी सिंहभूम, जमशेदपुर।	अध्यक्ष
2	वन प्रमण्डल पदाधिकारी, जमशेदपुर वन प्रमण्डल, जमशेदपुर।	सदस्य
3	जिला खनन पदाधिकारी, पूर्वी सिंहभूम, जमशेदपुर।	सदस्य
4	सहायक निदेशक, भूतत्व, पूर्वी सिंहभूम, जमशेदपुर।	सदस्य
5	कार्यपालक अभियंता, लघु सिंचाई प्रमण्डल, पूर्वी सिंहभूम, जमशेदपुर।	सदस्य
6	क्षेत्रीय पदाधिकारी, प्रदूषण नियंत्रण पर्वद, आदित्यपुर।	सदस्य



उपायुक्त
पूर्वी सिंहभूम, जमशेदपुर।

ज्ञापांक...925.../खनन, दिनांक...16-11-2022

- प्रतिलिपि – वन प्रमण्डल पदाधिकारी, जमशेदपुर वन प्रमण्डल, जमशेदपुर।
प्रतिलिपि – जिला खनन पदाधिकारी, पूर्वी सिंहभूम, जमशेदपुर।
प्रतिलिपि – सहायक निदेशक, भूतत्व, पूर्वी सिंहभूम, जमशेदपुर।
प्रतिलिपि – कार्यपालक अभियंता, लघु सिंचाई प्रमण्डल, पूर्वी सिंहभूम, जमशेदपुर।
प्रतिलिपि – क्षेत्रीय पदाधिकारी, प्रदूषण नियंत्रण पर्वद, आदित्यपुर।



उपायुक्त
पूर्वी सिंहभूम, जमशेदपुर।



ANNEXURE-12

INDIVIDUAL TOPOSHEET MAP **OF SURVEY OF INDIA**



**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F4516**



22° 43'
22° 42'
22° 41'
22° 40'
22° 39'
22° 38'

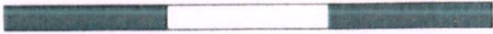


86° 18' 86° 19' 86° 20' 86° 21' 86° 22' 86° 23' 86° 24'

INDEX

- PROPOSED POTENTIAL AREA
- SUB-01 AREA - 4.00 HA

SCALE - 1:1500

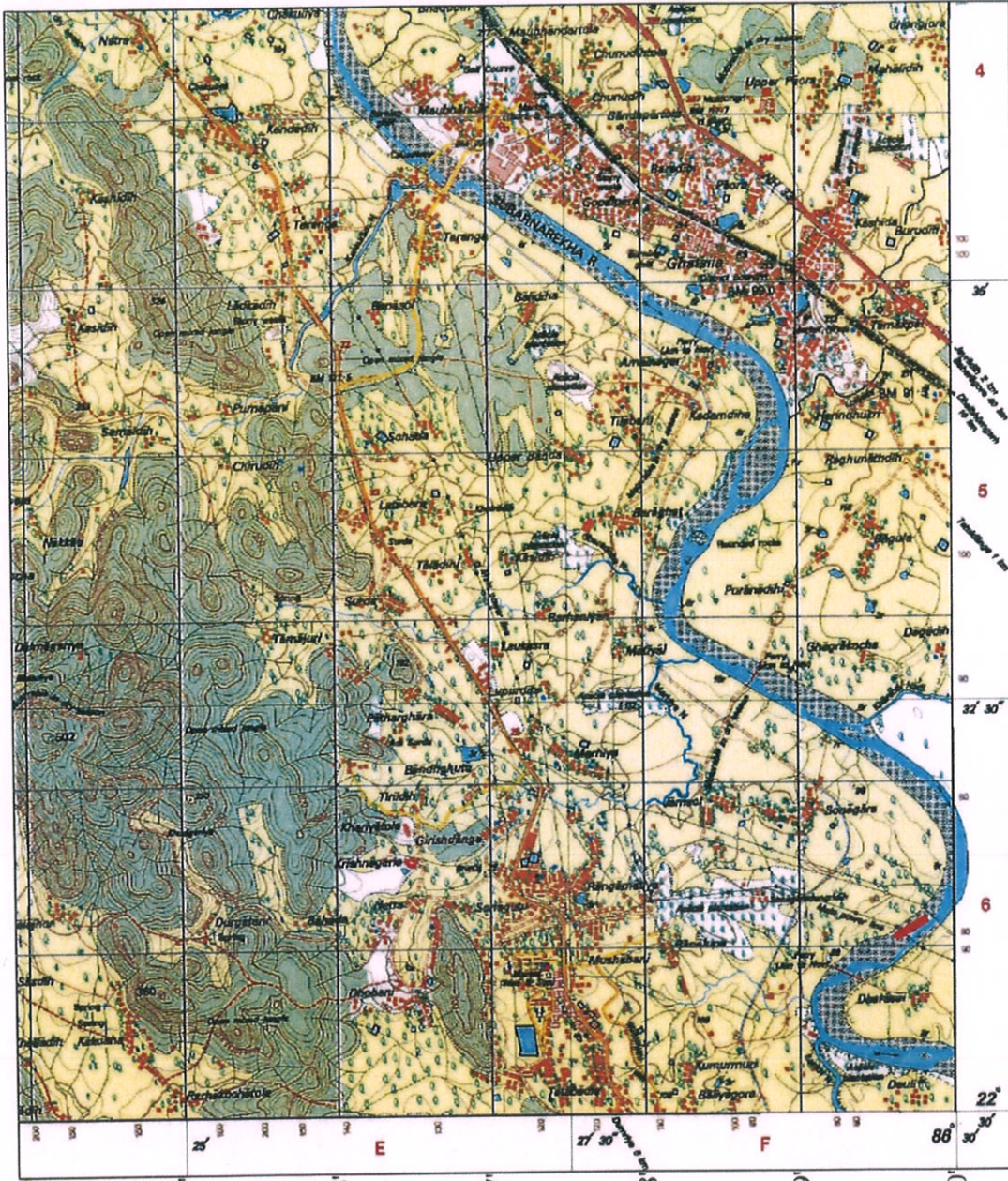


Express Highway: with tally with bridge; with distance stone		Lighthouse, Lightship, Buoy: lighted; unlighted. Anchorage	
Roads, metalled: according to importance		Mine, Vene on trails, Grass, Scrub	
Roads, double carriageway: according to importance		Palms: palmyra; other, Flax, Cotton, Bamboo, Other trees	
Unmetalled road. Cart-track. Path-track with pass. Foot-path		Areas: cultivated; wooded. Surveyed tree	
Streams: with track in bed; unmetalled. Canal		Boundary, international	
Dams: masonry or rock-filled; earthwork. Weir		state demarcated; undemarcated	
River: dry with water channel; with island & rapids. Tidal river		district, subdivision, taluk or Ghatkot forest	
Submerged rocks. Shoal. Swamp. Reeds		Boundary pillars: surveyed; unlocated; village junction	
Wells: shaft; unlined. Tube-well. Spring. Tank: permanent; dry		Heights, triangulated: station; point; approximate	
Embankments: road or rail; tank. Broken ground		Barack-marks: good; ordinary; canal	
Railways, broad gauge: double; single with station; under constn.		Post office. Telegraph office. Overhead tank	
Railways, other gauges: double; single with distance stone; do		Rail house or inspection bangalow. Ghatkot house. Police station	
Mineral line or tramway. Kils. Cutting with tunnel		Camping ground. Forest: reserved; protected	
Contours with sub-features. Rocky slopes. Cliffs		Special names: administrative; locality or tribal	
Sand features: (flat, Obend-hills (permanent), Oboweehilling)		Hospital. Dispensary. Veterinary. Hospital/Dispensary	
Towns or Villages: inhabited; deserted. Fort		Aerodrome. Helipad. Survey site	
Huts: permanent; temporary. Tower. Anikulas		Power line: with pylons surveyed; with poles unsurveyed	

flh



**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F4516**



22° 36'
22° 35'
22° 34'
22° 33'
22° 32'
22° 31'
22° 30'

86° 24' 86° 25' 86° 26' 86° 27' 86° 28' 86° 29' 86° 30'

INDEX

- PROPOSED POTENTIAL AREA
- SUB-02 AREA - 2.54 HA

SCALE - 1:1500

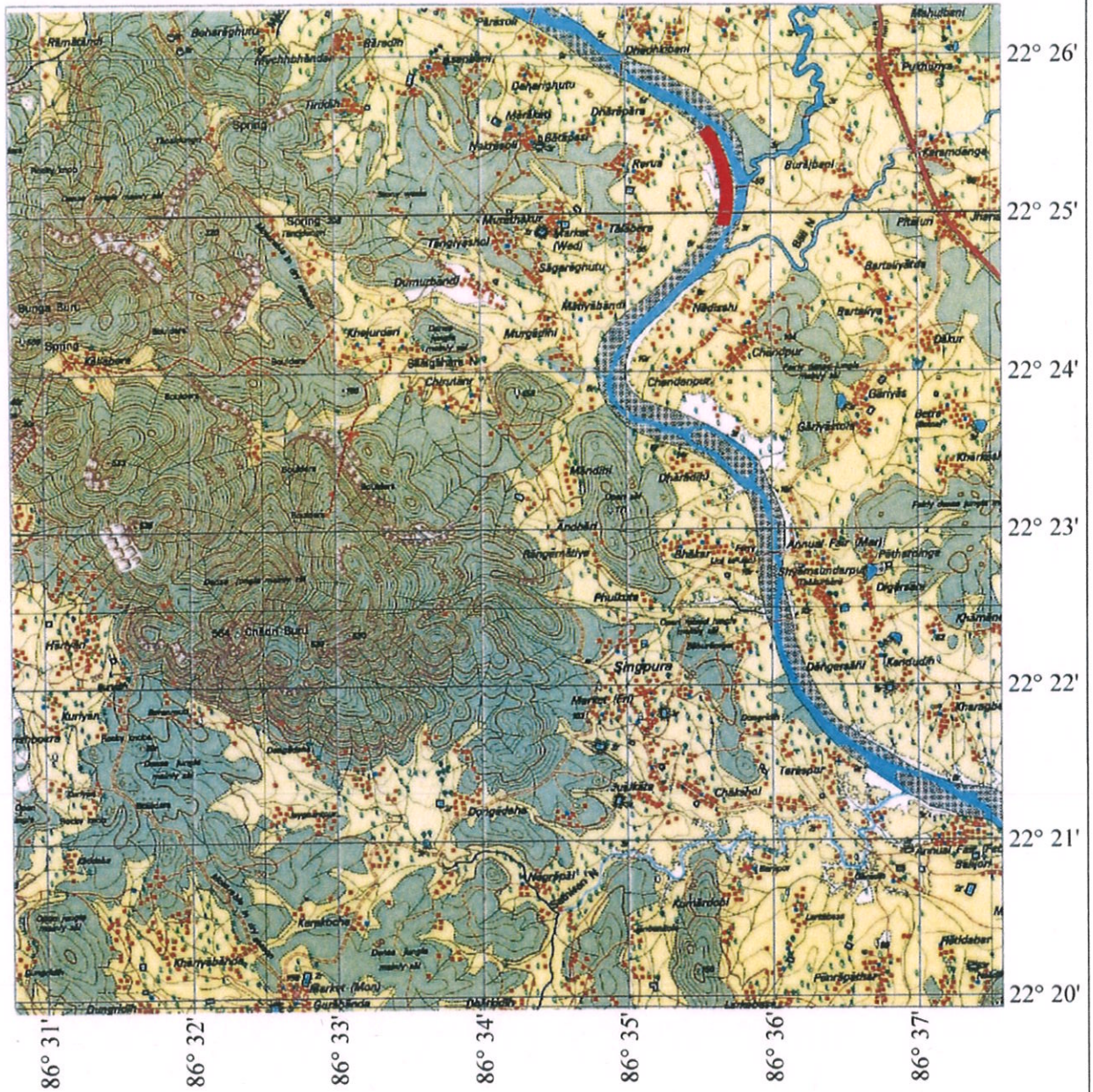
Depress Highway: with sally with bridge with distance stone		Lightnings, Lightning: Bayon: Agreed: unlighted: Anchorage	
Roads, metalled, according to importance		Min. Vils on hills, Grass, Scrub	
Roads, double cartways: according to importance		Police: postoffice, other, Firebrig. Constab. Station, Other uses	
Unmetalled road, Cart-track, Path-track with pass, Foot-path		Areas: cultivated wooded, Surveyed tree	
Stream: with track in bed: unmetalled, Canal		Boundary, International	
Dam: masonry or rock-filled, earthen, Wall		state demarcated, undemarcated	
River: dry with water channel, with island & rocks, Tidal river		district subdivision, taluk or thika forest	
Submerged rocks, Island, Swamp, Roads		Boundary pillars: surveyed: unmetalled village signposts	
Water shed: unmetalled, Tube-well, Spring, Trench: permanent, dry		Height, triangulated, station: point: approximate	
Embankment: road or rail, bank, Broken ground		Beach-mark: geodetic: tertiary: canal	
Railways, broad gauge: double single with station under construction		Post office, Telegraph office, Overhead tank	
Railways, other gauges: double single with distance stone: do		Rail house or inspection building, Check house, Police station	
Miscellaneous line or tramway, Kila, Cutting with tunnel		Camping ground, Forest: reserved: protected	
Contours with sub-features, Rocky slopes, Cliffs		Special names: administrative, locality or other	
Sand features: (Shel) (Sand-hills) (Cementation) (Silt) (Sandblowing)		Hospital, Dispensary, Veterinary, (Police) (Dispensary)	
Towns or Villages: inhabited: deserted, Fort		Aerodrome, Helipad, (Police) (Dispensary)	
Huts: permanent: temporary, Tower, Amphitheatre		Power line: with poles: without poles: unmetalled	



feh



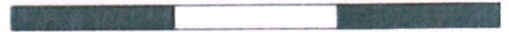
**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F45111**



INDEX

- PROPOSED POTENTIAL AREA
- SUB-03 AREA - 13.30 HA

SCALE - 1:1500

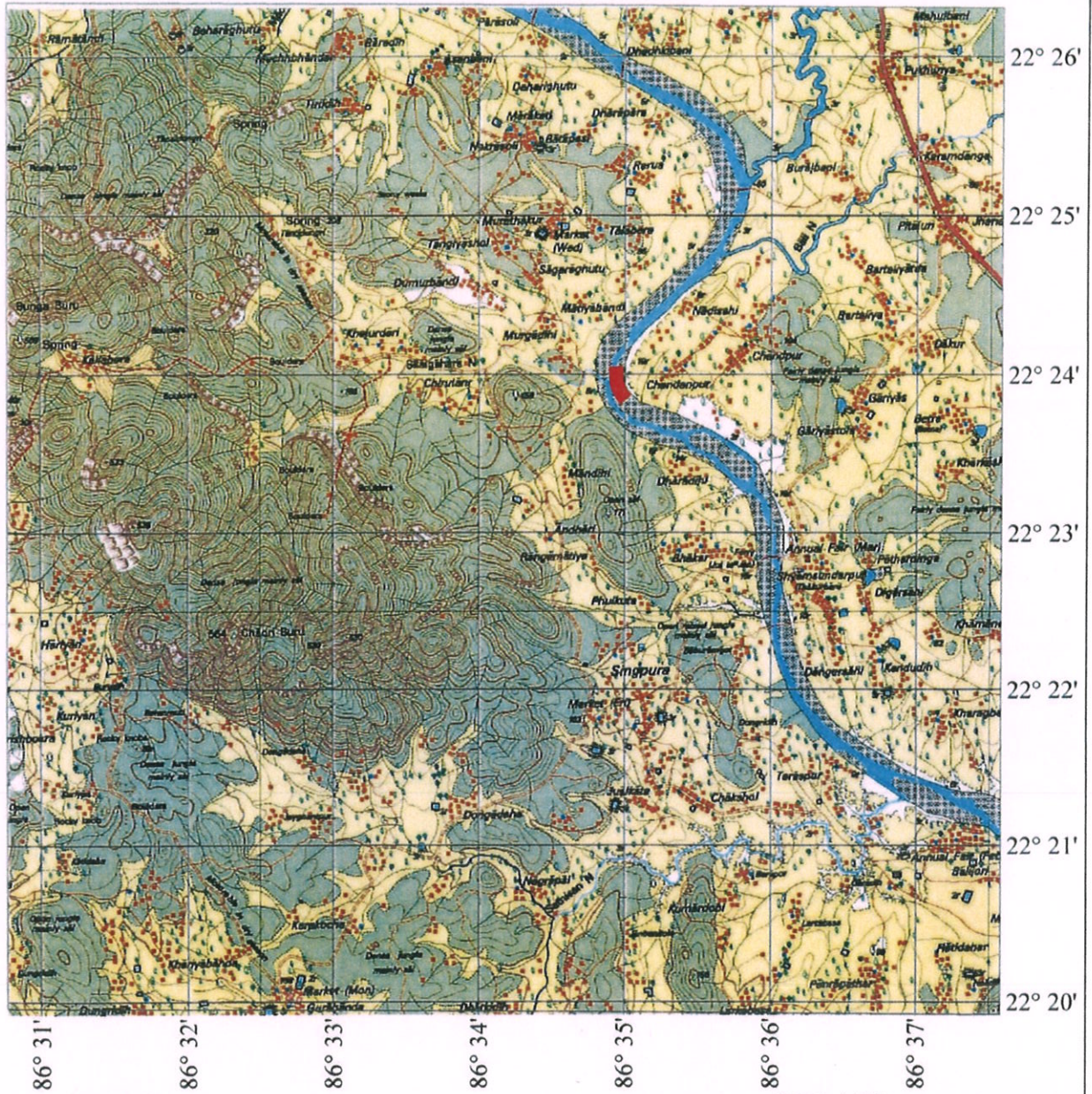


Express Highway: with tally with bridge with distance stone		Lighthouse, Lightship, buoy (lighted), unlighted, Anchorage	
Roads, metalled: according to importance		Mine, Vm on trails, Grass, Scrub	
Roads, double carriageway: according to importance		Palm: palmyra; other: Pinnac, Conifer, Bamboo, Other trees	
Unmetalled road, Cart-track, Pack-track with pass, Foot-path		Areas: cultivated; wooded; Surveyed tree	
Stream: with track in bed; unmetalled, Canal		Boundary, international	
Dam: masonry or rock-filled; earthwork; Weir		state demarcated; undemarcated	
River: dry with water channel; with island & rocks; Tidal river		district subdivision, taluk or tehsil; forest	
Submerged rocks, Shoal, Swamp, Reeds		Boundary pillars: surveyed; unlocated; village junction	
Wells: hand; oilseed; Tube-well, Spring, Tanker permeable; dry		Heights, triangulated; station; point; approximate	
Embankments: road or rail; tank; Broken ground		Bench-mark: geodetic; tertiary; canal	
Railways, broad gauge: double; single with station; under constn.		Post office, Telegraph office, Overhead tank	
Railways, other gauges: double; single with distance stone; do		Rest house or inspection bungalow, Chook house, Police station	
Mineral line or tramway, Kila, Cutting with tunnel		Camping ground, Forest: reserved; protected	
Contours with sub-features, Rocky slopes, Cliffs		Special names: administrative; locality or tribe	
Sand features: (flat, dune, hills) (government, (Sibumehhaling)		Hospital, Dispensary, Veterinary Hospital, Dispensary	
Towns or Villages: inhabited; deserted, Fort		Aerodrome, Helipad, Tourist site	
Huts: permanent; temporary, Tower, Antiquities		Forest: reserved with pylons surveyed; with poles un-surveyed	

fch



**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F45111**



INDEX

- PROPOSED POTENTIAL AREA
- SUB-04 AREA - 4.97 HA

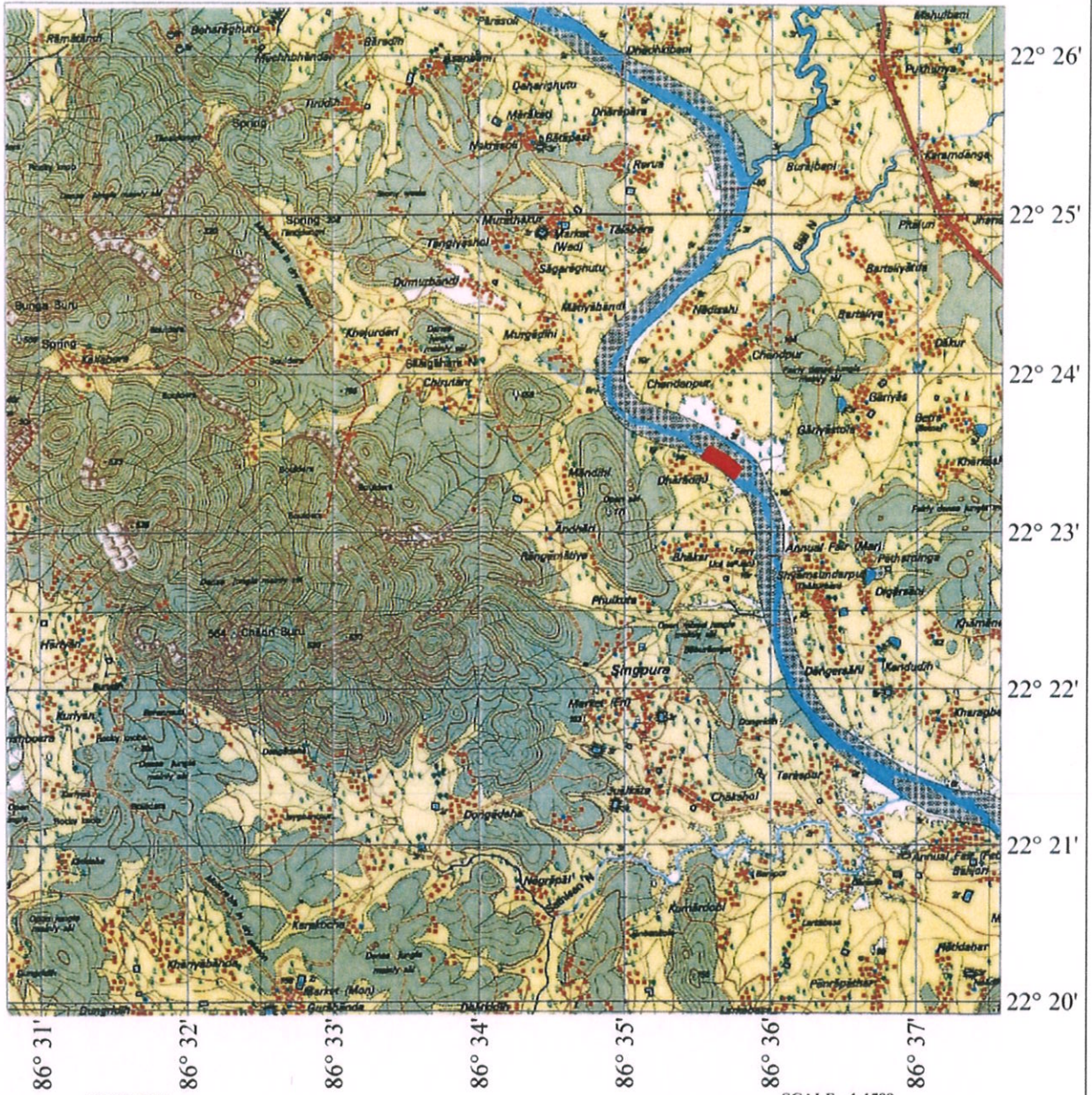
SCALE - 1:1500

Express Highway: with toll; with bridge; with distance stone		Lighthouse, Lightships, Steeper lights; unlighted, Anchorage	
Roads, metalled; according to importance		Mine, Veta on trails, Grass, Scrub	
Roads, double cartways; according to importance		Peets; palmery; other, Plantain, Coriander, Bamboo, Other trees	
Unmetalled road, Cart-track; Path-track with pass, Foot-path		Areas: cultivated; wooded, Surveyed tree	
Streams: with track in bed; unconfined, Canal		Boundary, international	
Dams: masonry or rock-filled; earthenwork, Weir		state demarcated; undemarcated	
River: dry with water channel; with island & rocks, Tidal river		district subdivision, taluk or thika; forest	
Submerged roads, Shoal, Swamps, Reeds		Boundary pillars: surveyed; unlocated; village junction	
Wells: shaft; unlined, Tube-well, Spring, Tank; perennial; dry		Heights, triangulated; station; point; approximate	
Embankments: road or rail; tank, Broken ground		Bench-mark: geodetic; arbitrary; canal	
Railways, broad gauge: double; single with station; under constn.		Post office, Telegraph office, Overhead tank	
Mineral line or tramway, Kila, Cutting with tunnel		Rest house or inspection bungalow, Check house, Police station	
Contours with sub-features, Rocky slopes, Cliffs		Camping ground, Forest: reserved; protected	
Sand features: (Shal, Ghansal-hills permanent, Ghansal-hills)		Speed names: administrative; locality; other	
Towns or villages: inhabited; deserted, Fort		Hospital, Dispensary, Veterinary Hospital / Dispensary	
Huts: permanent; temporary, Tower, Antiquities		Aerodrome, Helipad, Tower	
Tanks: Chhat, Chhat, Manjari, Tank, Tank, Dam		Power line: with pylons surveyed; with poles unsurveyed	



feh

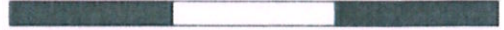
**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F45111**



INDEX

- PROPOSED POTENTIAL AREA
- SUB-05 AREA - 6.29 HA

SCALE - 1:1500



Express highway: with toll; with bridge; with distance stone		Lighthouse, Lightship, Buoy: lighted; unlighted. Anchorage	
Roads, metalled: according to importance		Mine. Veta on trails. Green. Scrub	
Roads, double carriageway: according to importance		Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees	
Unmetalled road. Cart-track. Peda-track with pass. Foot-path		Artes: cultivated; wooded. Surveyed tree	
Streams: with track in bed; unutilised. Canal		Boundary, International	
Dams: masonry or rock-filled; earthwork. Weir		State: demarcated; undemarcated	
River: dry with water channel; with island & rocks. Tidal river		District: subdivision, taluk or taluk forest	
Submerged rocks. Shoal. Swamp. Raeds		Boundary pillars: surveyed; unlocated; village junction	
Wells: fixed; unlined. Tube-well. Spring. Tank: permanent; dry		Height, triangulated: station; point; approximate	
Embankments: road or rail; tank. Broken ground		Bench-mark: geodetic; arbitrary; canal	
Railways, broad gauge: double; single with station; under constr.		Post office. Telegraph office. Overhead tank	
Railways, other gauges: double; single with distance stone; do		Rest house or inspection bungalow. Cross-t house. Police station	
Mineral line or tramway. Kila. Cutting with tunnel		Camping ground. Forest: reserved; protected	
Contours with sub-features. Rocky slopes. Cliffs		Speed names: administrative; locality or tribal	
Sand features: (Wind-blown-hills (permanent). (Blow-sand-hill)...		Hospital. Dispensary. Veterinary Hospital / Dispensary	
Towns or Villages: Inhabited; deserted. Fort		Aerodrome. Helipad. Tourist	
Huts: permanent; temporary. Tower. Antiquities		Power line: with pylons surveyed; with poles unsurveyed	



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**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F45111**

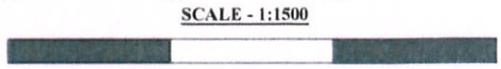


22° 26'
22° 25'
22° 24'
22° 23'
22° 22'
22° 21'
22° 20'

86° 31' 86° 32' 86° 33' 86° 34' 86° 35' 86° 36' 86° 37'

INDEX

- PROPOSED POTENTIAL AREA
- SUB-06 AREA - 7.37 HA

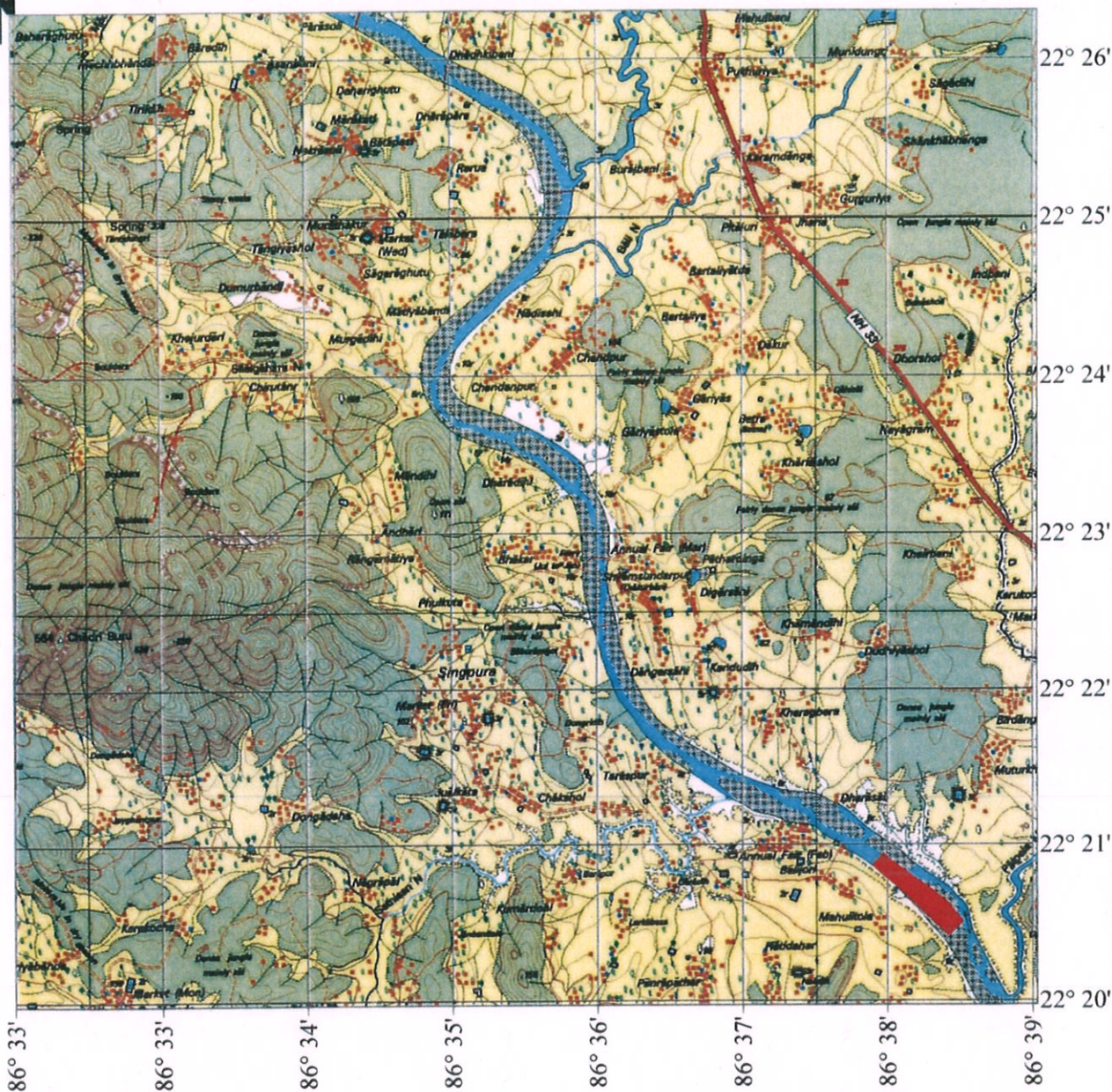


Express Highway: with toll; with bridge; with distance stone		Lighthouse, Ushahita, Steyer, Barbed, unlit, Aachong	
Roads, metalled: according to importance		Mine, Vite on traffic, Grass, Scrub	
Roads, double carriageway: according to importance		Palm: palmyra; other: Plantain, Coffee, Bamboo, Other trees	
Unmetalled road, Cart-track: Path-track with pass, Foot-path		Area: cultivated; wooded; Surveyed tree	
Streams: with track in bed; undammed; Canal		Boundary, international	
Dams: masonry or rock-filled; earthenwork; Weir		state: denuded; underwooded	
River: dry with water channel; with island & rocks; Tidal river		district; subdivision, taluk or taluk forest	
Submerged roads, Shoal, Swamp, Reeds		Boundary pillars: surveyed; unlocated; village trifurcation	
Wells: shaft; unshad; Tube-well; Spring; Tank; panewal; dry		Heights, triangulated: station; point; approximate	
Embankments: road or rail; tank; Broken ground		BM 63-3 . BM 63-9	
Railways, broad gauge: double; single with station; under constr.		BM 63-3 . BM 63-9	
Railways, other gauges: double; single with distance stone; do		Post office, Telegraph office, Overhead tank	
Mineral line or tramway, Kiln, Cutting with tunnel		Rail house or inspection bus, Check house, Police station	
Contours with sub-features: Rocky slopes, Cliffs		Camping ground, Forest: reserved; protected	
Sand features: (Shal, Shand-hills (permanent), Shand-shifting)		Spaced names: administrative; locality or tribal	
Towns or Villages: inhabited; deserted; Fort		Hospital, Dispensary, Veterinary; Hospital / Dispensary	
Huts: permanent; temporary; Tower, Antiquities		Aerodrome, Helipad, Tourist site	
		Power line: with pylons; approved; with poles unsurveyed	



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**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F45111**

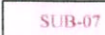


86° 33' 86° 33' 86° 34' 86° 35' 86° 36' 86° 37' 86° 38' 86° 39'

SCALE - 1:1500

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 PROPOSED POTENTIAL AREA

 SUB-07 AREA - 24.00 HA

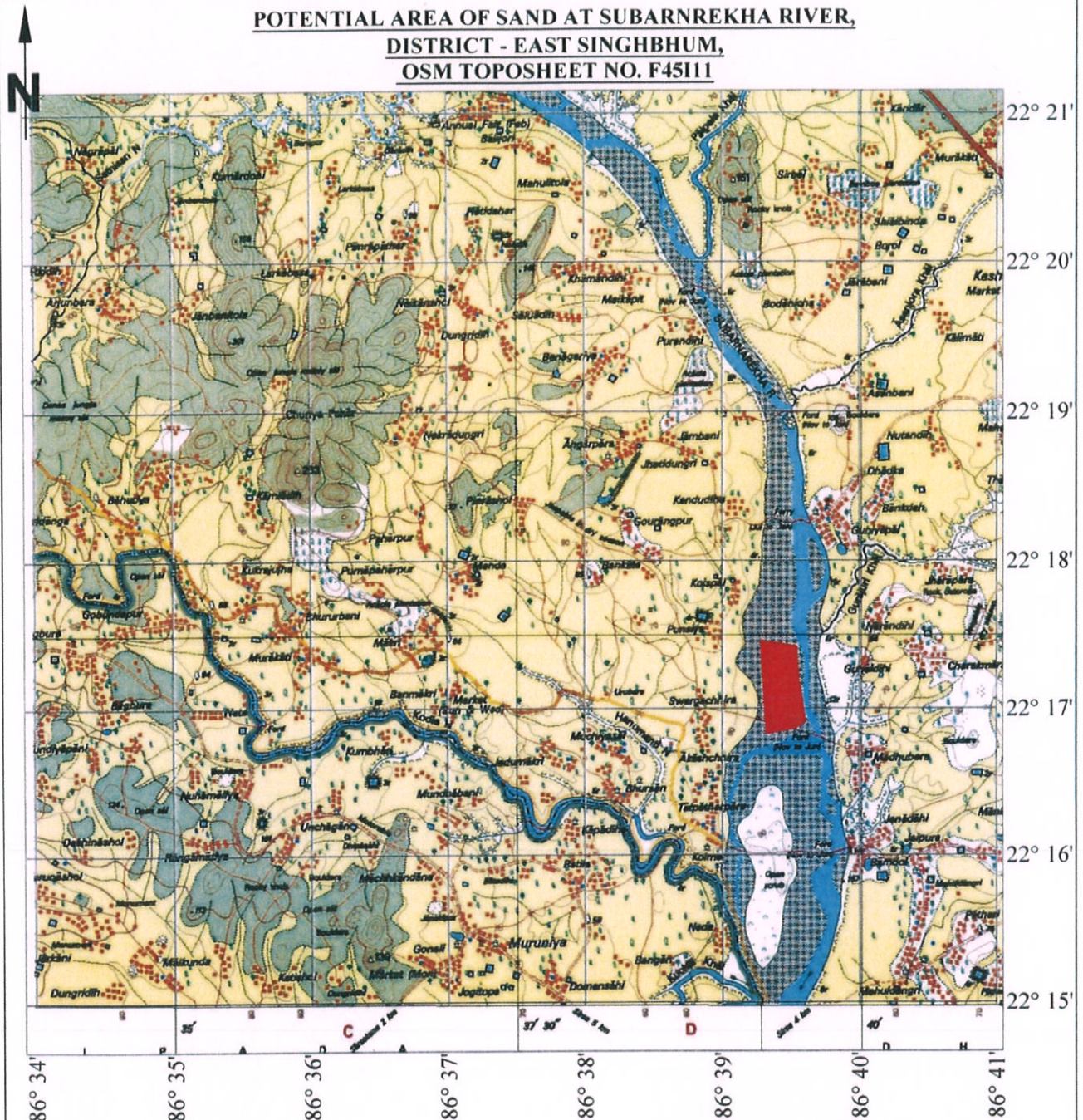


Express Highway: with salt with bridge with distance stone		Lighthouse, Lightship, Buoy: lighted; unlighted. Anchorage	
Roads, metalled: according to importance		Mine, Vind on trails, Grass, Scrub	
Roads, double carriageway: according to importance		Palm: palmyra; other: Plantain, Cassia, Bamboo, Other trees	
Unmetalled road, Cart-track, Path-track with pass, Foot-path		Areas: cultivated; wooded, Surveyed tree	
Streams: with track in bed; unadorned. Canal		Boundary, international	
Dams: masonry or rock-filled; earthwork, Weir		state demarcated; undemarcated	
River: dry with water channel; with island & rocks. Tidal river		district, subdivision, taluk or taluk forest	
Submerged rocks, Shoal, Swamp, Reeds		Boundary pillars: surveyed; unlocated; village junction	
Wells: fixed; unfixed. Tube-well, Spring, Tank, Perennial; dry		Heights, triangulated; station; point; approximate	
Embankments: road or rail; bank. Broken ground		Survey: metric; geodetic; tertiary; canal	
Railways, broad gauge: double; single with station; under constn.		Post office, Telegraph office, Overhead tank	
Railways, other gauges: double; single with distance stone; do		Rest house or inspection house; Club house, Police station	
Mineral line or tramway. Kila, Cutting with tunnel		Cemeteries: general; reserved; protected	
Contours with sub-features. Rocky slopes. Cliffs		Special: census: administrative; locality or district	
Sand features: (Wind-blown-hills (permanent), (Blow-sand-hill))		Dispensary, Veterinary, Hospital / Dispensary	
Towns or Villages: Inhabited; deserted. Fort		Navigation: Helipad, Tourist site	
Huts: permanent; temporary, Tower, Antiquities		Water: river with private survey; well; public supply	

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**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F45111**



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- PROPOSED POTENTIAL AREA
- SUB-08 AREA - 46.30 HA

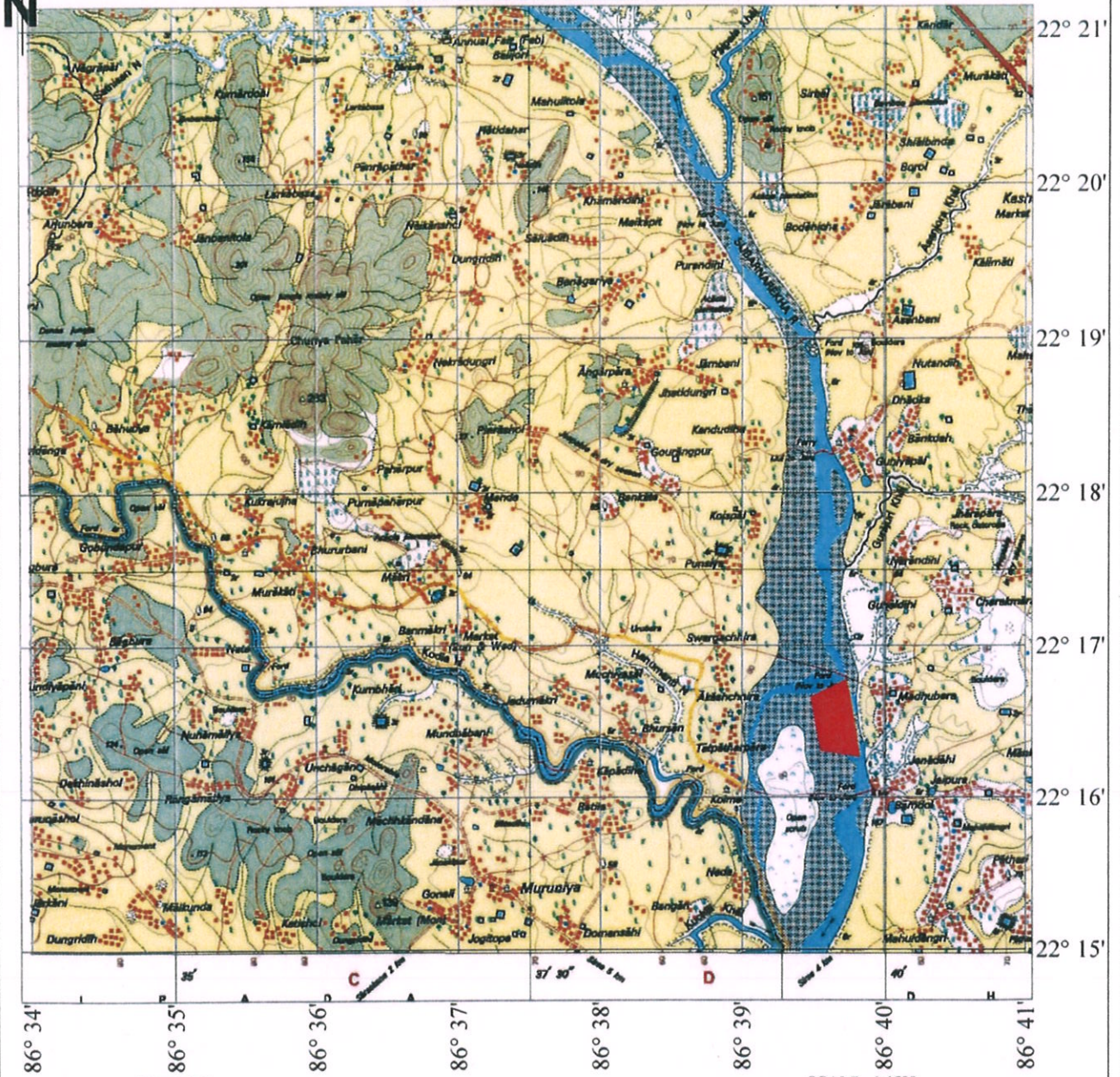
SCALE - 1:1500

Express Highway: with toll; with bridge; with distance stone		Lighthouse, Lightship, Buoy: lighted; unlighted, Anchorage	
Roads, metalled: according to importance		Mine, Vite on trails, Grass, Scrub	
Roads, double carriageway: according to importance		Palms: palmyra; other: Pinnac, Conifer, Bamboo, Other trees	
Unmetalled road, Cart-track, Path-track with pass, Foot-path		Arves: cultivated; wooded, Surveyed tree	
Streams: with track in bed; unadorned, Canal		Boundary, international	
Dams: masonry or rock-filled; earthenwork, Weir		State: demarcated; undemarcated	
River: dry with water channel; with island & rocks, Tidal river		District, subdivision, taluk or block; forest	
Submerged roads, Shoal, Swamp, Reeds		Boundary pillars: surveyed; unlocated; village tri-junction	
Wells: shaft; unroofed, Tube-well, Spring, Tanka; perennial; dry		Height, triangulated; station; point; approximate	
Embankments: road or rail; tank, Broken ground		Bench-mark: geodetic; tertiary; canal	
Railways, broad gauge: double; single with station; under constn.		Post office, Telegraph office, Overhead tank	
Railways, other gauges: double; single with distance stone; do		Rest house or inspection bungalow, Check house, Police station	
Mineral line or tramway, Kin, Cutting with tunnel		Camping ground, Forest, reserved; protected	
Contours with sub-areas, Rocky slopes, Cliffs		Speed name: administrative, locality or tribal	
Band features: (Wet, D) Sand-hills (permanent), (B) Dunehillings		Hospital, Dispensary, Veterinary; Hospital / Dispensary	
Towns or Villages: inhabited; deserted, Fort		Aerodrome, Helipad, Rocket site	
Hut: permanent; temporary, Tower, Antiquities		Power line: with poles surveyed; without poles	



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**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F45111**



INDEX

- PROPOSED POTENTIAL AREA
- SUB-09 AREA - 34.70 HA

SCALE - 1:1500

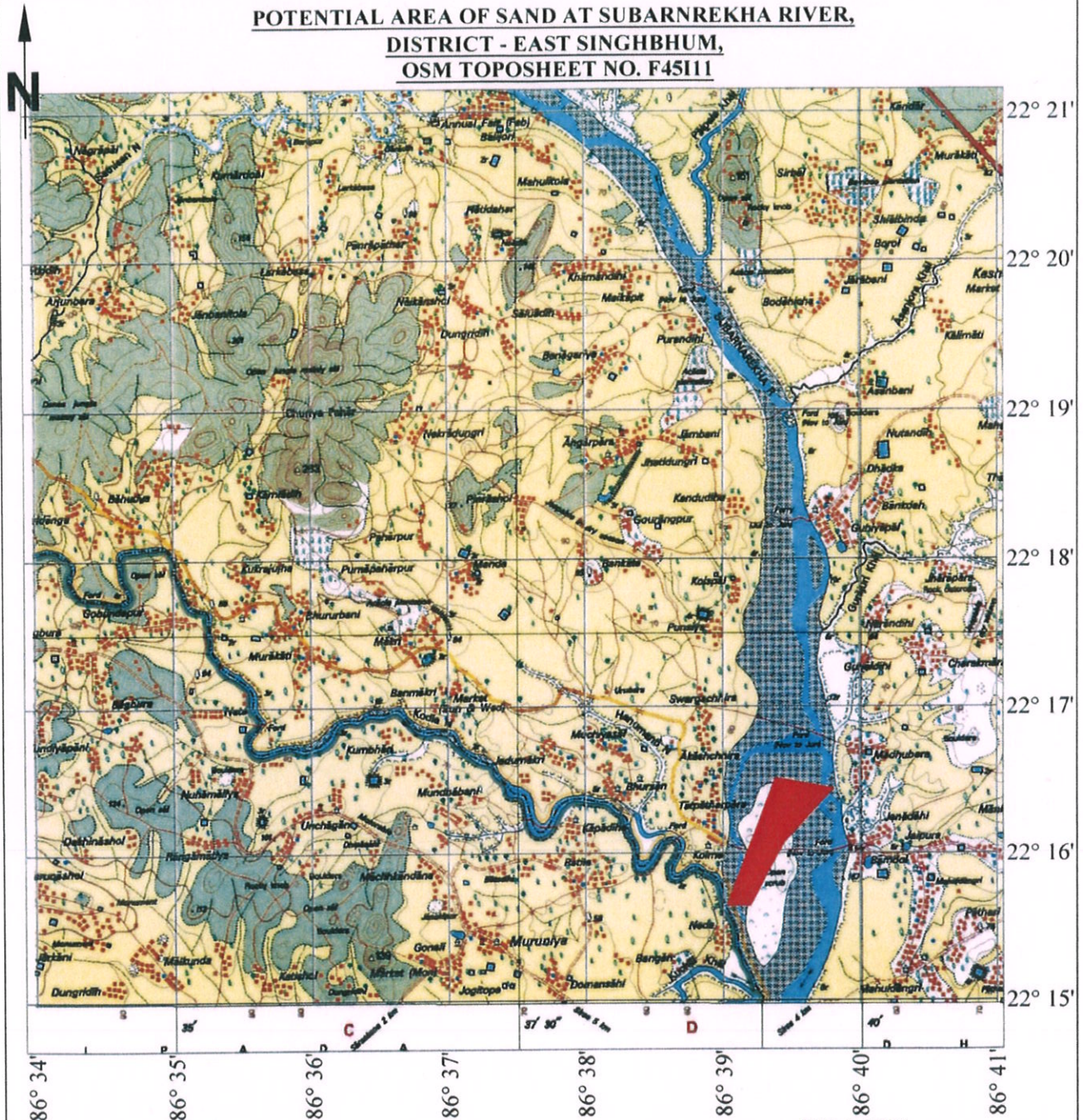


Express Highway: with toll; with bridge; with distance stone		Lighthouse, Ughaship, Buoy; lighted; unlighted; Anchorage	
Roads, metalled: according to importance		Mine, Vite on trolley, Gram, Scrub	
Roads, double carriageway: according to importance		Palms: palmyra; other: Plantain, Conifer, Bamboo, Other trees	
Unmetalled road, Cart-track, Path-track with pass, Foot-path		Artes: cultivated; wooded; Surveyed tree	
Streams: with track in bed; unshaded; Canal		Boundary, international	
Dam: masonry or rock-filled; earthenwork; Weir		state: demarcated; undemarcated	
River: dry with water channel; with island & rocks; Tidal river		district: subdivision, taluk or thuk; forest	
Submerged roads, Shoal, Swamp, Reeds		Boundary pillars: surveyed; uncoloured; village trijunction	
Wells: shaft; unlined; Tube-well; Spring; Tanka; perennial; dry		Height, triangulated; station; point; approximate	
Embankments: road or rail; tank; Broken ground		Bench-mark: geodetic; tertiary; canal	
Railways, broad gauge: double; single with station; under constr.		Post office, Telegraph office, Overhead tank	
Railways, other gauges: double; single with distance stone; do		Rest house or inspection bungalow; Circuit house; Police station	
Miscell line or tramway, Kin, Cutting with tunnel		Camping ground, Forest: reserved; protected	
Contours with sub-features, Rocky slopes, Cliffs		Speed names: administrative; locality or tribal	
Sand features: (Wind-blown-hills (permanents), (Bdunwahibling)		Hospital, Dispensary, Veterinary; Hospital/Dispensary	
Towns or Villages: inhabited; deserted; Fort		Aerodrome, Hospital, Tower	
Huts: permanent; temporary, Tower, Antiquities		Power line: surveyed; with poles surveyed	

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**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F45111**



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- PROPOSED POTENTIAL AREA
- SUB-10 AREA - 71.00 HA

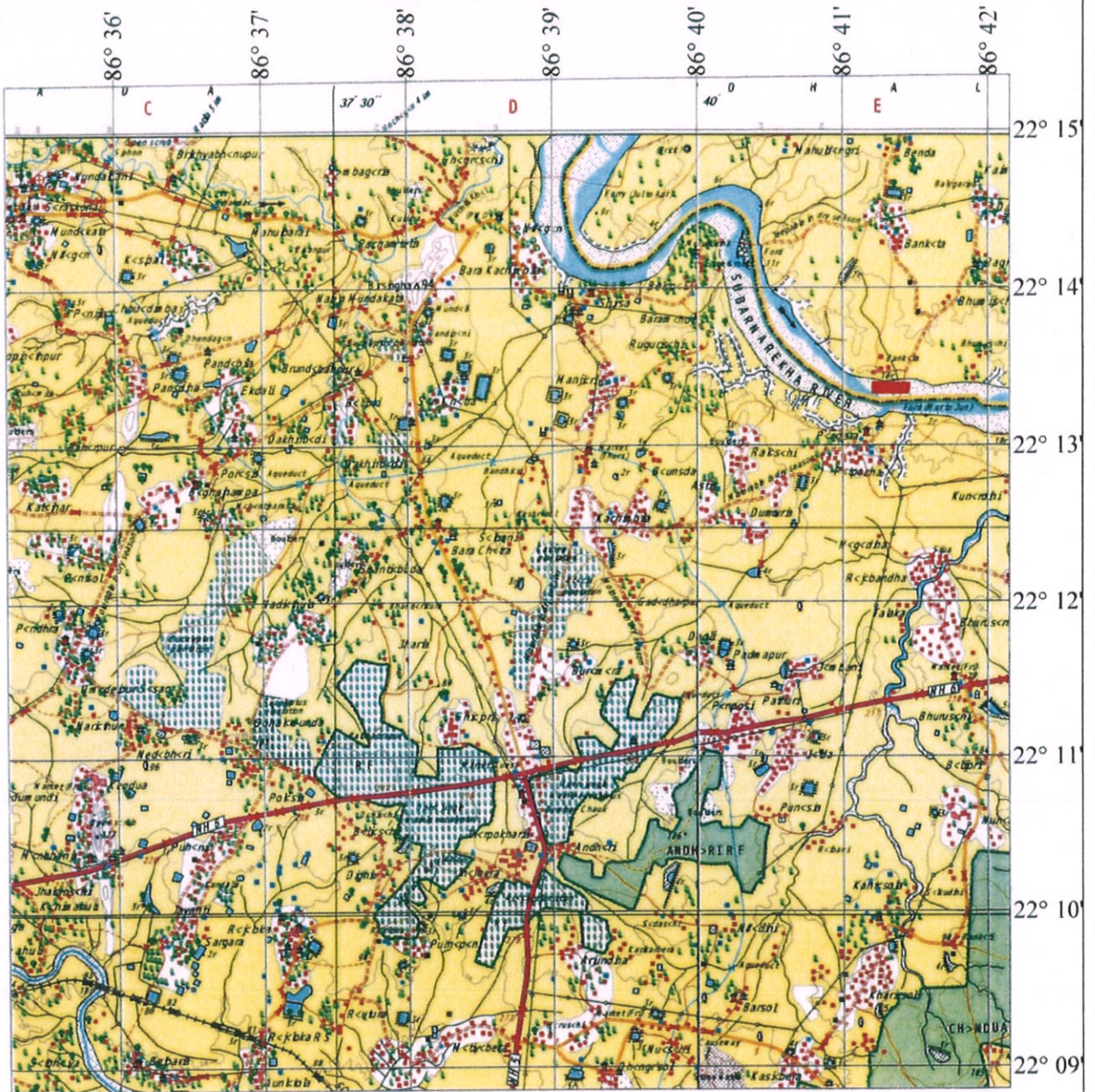
SCALE - 1:1500

Express Highway: with toll; with bridge; with distance stone		Lighthouse, Lightship, Buoy: lighted; unlighted; Anchorage	
Roads, metalled: according to importance		Mine, Vitr. on trails, Grass, Scrub	
Roads, double carriageway: according to importance		Palms: palms; other: Plantain, Cassia, Bamboo, Other trees	
Unmetalled road, Cart-track, Path-track with pass, Foot-path		Areas: cultivated; wooded; Surveyed tree	
Stream: with track in bed; unmetalled; Canal		Boundary, international	
Dams: masonry or rock-filled; earthwork; Weir		state; demarcated; undemarcated	
River: dry with water channel; with island & rocks; Tidal river		district; subdivision, taluk or block; forest	
Submerged rocks, Shoal, Swamp, Reeds		Boundary pillars: surveyed; unlocated; village junction	
Wells: hand; unlined; Tube-well; Spring; Tank; perennial; dry		Height, triangulated; station; point; approximate	
Embankments: road or rail; tank; Broken ground		Bench-mark: geodetic; arbitrary; canal	
Railways, broad gauge: double; single with station; under constr.		Post office, Telegraph office, Overhead tank	
Railways, other gauges: double; single with distance stone; do		Rest house or inspection bungalow, Circuit house, Police station	
Mineral line or tramway, Kils, Cutting with tunnel		Camping ground, Forest: reserved; protected	
Contours with sub-features: Rocky slopes, Cliffs		Speed names: administrative; locality or tribal	
Sand features: (flat, Obund-hills (permanent), Obundehilling)		Hospital, Dispensary, Veterinary; Hospital / Dispensary	
Towns or Villages: inhabited; deserted; Fort		Aerodrome, Airport, Tourist site	
Huts: permanent; temporary; Tower, Antiquities		Power line with pylons; unurveyed; with poles unurveyed	



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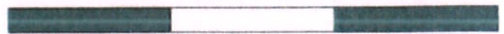
**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F45112**



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- PROPOSED POTENTIAL AREA
- SUB-11 AREA - 4.40 HA

SCALE - 1:1500

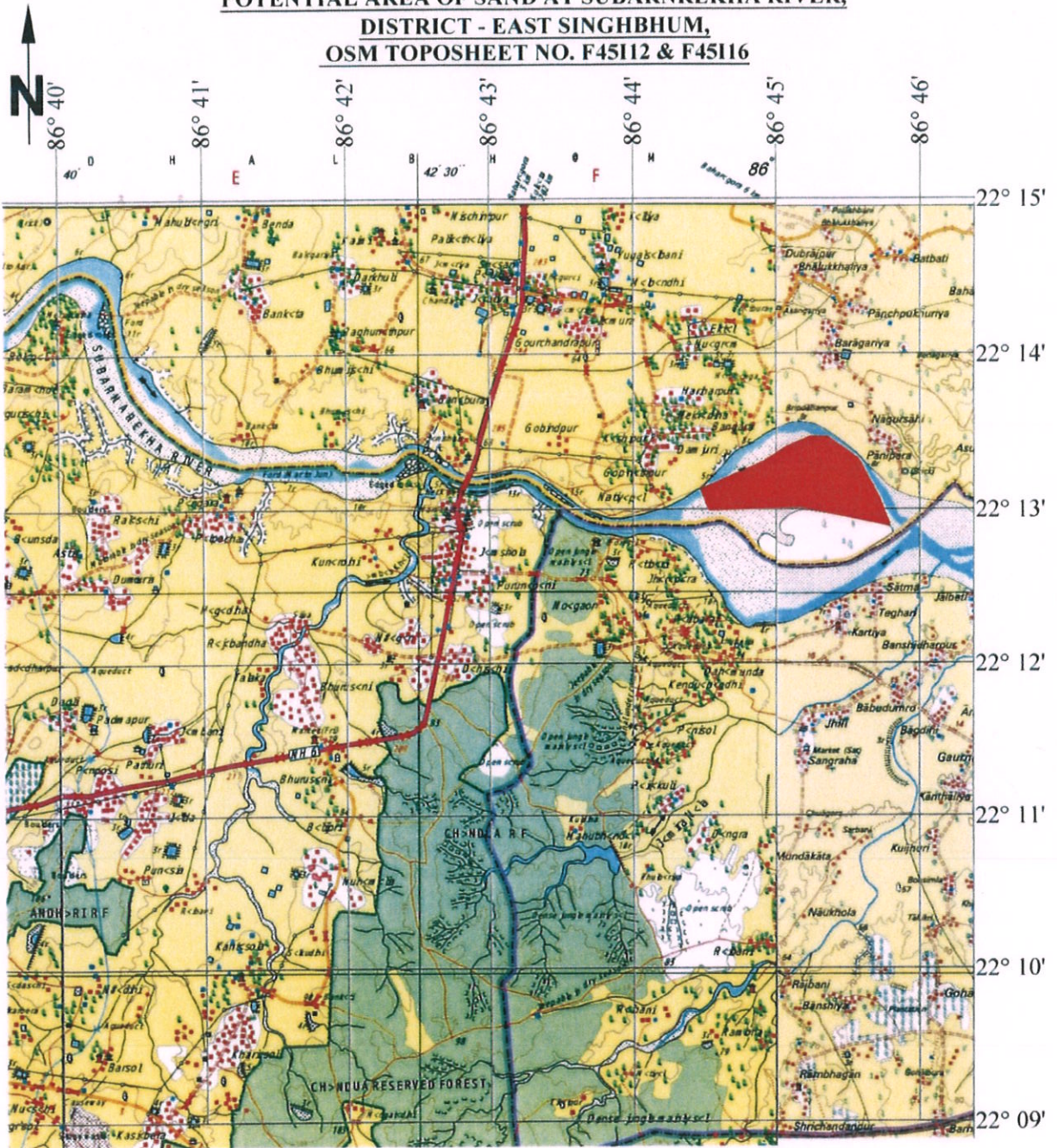


Express Highway: with toll; with bridge; with distance stone		Lighthouse, Lightship, Buoy: lighted; unlighted, Anchorage	
Road metalled: according to importance		Min. Vibe on trails, Grass, Scrub	
Roads double cartwayway: according to importance		Palm: palm; other: Plantain, Coriander, Bamboo, Other tree	
Unmetalled Road, Cart-track, Path-track and pass, Foot-path		Areas: cultivated; wooded; surveyed tree	
Stream: with track in bed; unshaded, Canal		Boundary, International	
Dam: masonry or rock-filled; earthenwork, Weir		water: dammed; undammed	
River: dry with water channel; with island & rocks, Tidal river		diary; subdivision, wall or stile; forest	
Submerged rocks, flood, Swamp, Reeds		Boundary, Pillar: surveyed; uncoloured village boundary	
Wells: fixed; unfixed, Tubo-well, Spring, Tank: perennial; dry		Height, triangulated: station; point; approximate	
Embankment: road or rail; tent, Broken ground		Bench-mark: geodetic; tertiary; canal	
Railways: level gauge: double; single with electric; under construction		Post office, Telegraph office, Overhead cable	
Mineral: line or tracery, Kila, Cladding with tunnel		Rest house or inspection bungalow, Circuit house, Police station	
Contours with sub-features, Rocky slopes, Cliff		Camping ground, Forest: reserved; protected	
Sand features: (flat, dune, hill) (garment), Cloude-shedding		Special names: administrative, locality or tribal	
Towns or Villages: inhabited; deserted, Fort		Hospital, Dispensary, Veterinary, Hospital/Dispensary	
Huts: permanent; temporary, Tower, Antiquities		Aerodrome: lighted, Tourist	
		Power line: with poles surveyed; with poles unsurveyed	

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**POTENTIAL AREA OF SAND AT SUBARNREKHA RIVER,
DISTRICT - EAST SINGHBHUM,
OSM TOPOSHEET NO. F45112 & F45116**



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- PROPOSED POTENTIAL AREA
- SUB-12 AREA - 126.00 HA

SCALE - 1:1500

Express highway: with toll; with bridge; with distance stone		Lighthouse, Lightship, Buoy; lighted; unlighted. Anchorages	
Road: metalled; according to importance		Mine: Vise on walls. Grass. Scrub	
Roads: double cartageway; according to importance		Palm; palmyra; other: Plantain, Canebrake, Bamboo, Other trees	
Unmetalled Road, Cart-track, Path-track and pass, Foot-path		Areas: cultivated; wooded; Surveyed tree	
Stream: with track in bed; unmetalled. Canal		Boundary, International	
Dam: masonry or rock-filled; earthen. Weir		Dam: concrete; unmetalled	
River: dry with water channel; with island & rocks. Tidal river		Island; sub-division, small or tidal; forest	
Submerged roads, Shoal, Swamp, Reeds		Boundary, Pillar: surveyed; unlocated; village junction	
Wells: lined; unlined. Tube-well. Spring. Tanks: permanent; dry		Height, triangulation: station; point; approximation	
Embankment: road or railway. Broken ground		Bound-mark: geodetic; tertiary; canal	
Railways, broad gauge: double; single with sidings; under construction		Post office, Telegraph office, Overhead tank	
Railways, other gauges: double; single with sidings; do		Rest house or inspection bungalow, Choultry house, Police station	
Miscellaneous line or trackway, Kite, Cutting with tunnel		Camping ground, Forest: reserved; protected	
Contours with sub-features, Rocky slopes, Cliffs		Special names: administrative; locality or village	
Barrel features: (Blat, Obeard, hills) permanent, Obourastanding		Hospital, Dispensary, Veterinary: Hospital/Dispensary	
Towns or Villages: inhabited; deserted, Fort		Amusement, Sport, Tourist site	
Huts: permanent; temporary. Towers, Antiquities		Power line: with poles surveyed; with poles unsurveyed	



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ANNEXURE-13

COMPOSITE MAP OF TOPOSHEET MAP OF SURVEY OF INDIA



ANNEXURE-14

SATELLITE MAP OF PRE-
MONSOON AND POST-
MONSOON MAP

&

ZONE WISE



ANNEXURE-14

SATELLITE MAP OF PRE-
MONSOON AND POST-
MONSOON MAP

&

ZONE WISE



ANNEXURE-15

REPLENISHMENT STUDY OF **PRE-MONSOON AND POST** **MONSOON DATA**



SUBARNAREKHA RIVER OF EAST SINGHBHUM DISTRICT

PRE MONSOON										POST MONSOON									
S.NO	UIN SAND BAR	AMSL	AREA IN SQM	AREA IN HA.	UIN SAND BAR	AMSL	AREA IN SQM	AREA IN HA.	THICKNESS OF SAND IN MTR	VOLUME IN CUM	VOL IN M CUM	S.NO	UIN SAND BAR	AMSL	AREA IN SQM	AREA IN HA.	THICKNESS OF SAND IN MTR	VOLUME IN CUM	VOL IN M CUM
1	ES_SUB_PRE_01	95.56	4,56,020	45.60	ES_SUB_POS_01	95.61	4,56,022	45.60	0.05	22801	0.0228	2	ES_SUB_PRE_02	91.29	2,36,578	23.70	0.09	21292	0.0213
3	ES_SUB_PRE_03	71.98	2,32,566	23.30	ES_SUB_POS_03	72.27	2,32,568	23.30	0.29	67445	0.0674	4	ES_SUB_PRE_04	71.28	1,26,174	12.60	0.14	17665	0.0177
5	ES_SUB_PRE_05	70.75	67,720	6.77	ES_SUB_POS_05	70.89	67,721	6.77	0.14	9481	0.0095	6	ES_SUB_PRE_06	67.97	1,09,905	11.00	0.27	29675	0.0297
7	ES_SUB_PRE_07	65.33	1,10,679	11.00	ES_SUB_POS_07	65.59	1,10,681	11.00	0.26	28777	0.0288	8	ES_SUB_PRE_08	63.84	96,514	9.65	0.32	30885	0.0309
9	ES_SUB_PRE_09	63.29	4,15,787	41.60	ES_SUB_POS_09	63.55	4,15,789	41.60	0.26	108105	0.1081	10	ES_SUB_PRE_10	62.48	2,11,995	21.20	0.25	52999	0.0530
11	ES_SUB_PRE_11	60.46	2,53,375	25.30	ES_SUB_POS_11	60.76	2,53,376	25.30	0.3	76013	0.0760	12	ES_SUB_PRE_12	62.23	28,223	2.82	0.5	14113	0.0141
13	ES_SUB_PRE_13	58.41	1,74,278	17.40	ES_SUB_POS_13	58.89	1,74,279	17.40	0.48	83654	0.0837	14	ES_SUB_PRE_14	57.83	8,36,488	83.60	0.53	443340	0.4433
15	ES_SUB_PRE_15	55.92	8,77,647	87.80	ES_SUB_POS_15	56.48	8,77,649	87.80	0.56	491483	0.4915	16	ES_SUB_PRE_16	55.04	44,98,058	450.00	0.67	3013700	3.0137
17	ES_SUB_PRE_17	48.43	13,89,080	139.00	ES_SUB_POS_17	49.17	13,89,081	139.00	0.74	1027920	1.0279	18	ES_SUB_PRE_18	47.08	38,55,822	386.00	0.91	3508799	3.5088
				1398.34				1398.34		9048146	9.0481								



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ESTIMATED POTENTIAL AREA OF SAND BAR OF PRE-MONSOON AND POST MONSOON PERIOD												
SAND REPLENISHMENT ESTIMATION SHEET AS PER GSDA												
PRE MONSOON DATA						POST MONSOON DATA						
SUBARNAREKHA RIVER						SUBARNAREKHA RIVER						
UIN OF SAND BAR	AMSL	AVG AMSL	AREA IN SQM	RIVER WIDHT IN MTR	UIN OF SAND BAR	LATITUDE (N)	LONGITUDE (E)	AMSL	AVG AMSL	AREA IN SQM	SAND THICKNESS IN MTR	VOLUME IN M CUM
ES_SUB_PRE_01	95.65	95.56	456020	306	ES_SUB_POS_01	22.696748	86.379655	95.70	95.61	456022	0.05	0.0228
	93.77					22.696991	86.379363	93.81				
	92.95					22.697277	86.378643	93.00				
	95.26					22.698105	86.377849	95.31				
	93.07					22.697752	86.378855	93.11				
	93.91					22.697248	86.379527	93.95				
	95.30					22.697079	86.379815	95.35				
	93.59					22.697473	86.379639	93.64				
	93.11					22.698053	86.37897	93.16				
	95.37					22.698311	86.377929	95.42				
	93.18					22.698204	86.37927	93.23				
	94.34					22.698002	86.379885	94.38				
	96.01					22.698066	86.380246	96.05				
	93.76					22.698517	86.3795	93.80				
	93.24					22.698674	86.379285	93.29				
	96.24					22.699209	86.378148	96.28				
	93.51					22.698939	86.379396	93.55				
	94.44					22.698909	86.379787	94.49				
	96.66					22.698775	86.380484	96.71				
	97.12					22.698761	86.380607	97.17				
	96.09					22.699015	86.3804	96.14				
	94.43					22.699232	86.379757	94.47				
	93.15					22.699667	86.379062	93.20				
	94.92					22.699892	86.378326	94.96				
	94.00					22.699912	86.379469	94.05				
	95.68					22.699838	86.379975	95.73				
	96.44					22.699816	86.380482	96.49				
	96.96					22.699816	86.380837	97.01				
	97.34					22.699838	86.381113	97.39				
	96.18					22.700146	86.380406	96.23				
	95.79					22.700185	86.380065	95.84				
	94.02					22.700364	86.379512	94.06				
	96.85					22.700899	86.378516	96.90				
	93.87					22.700734	86.379527	93.92				
	95.17					22.70066	86.38005	95.22				
	95.45					22.700595	86.380617	95.50				



94
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								97.12						22.708913	86.378382	97.17				
								96.32						22.709143	86.380583	96.37				
								96.90						22.709127	86.380914	96.95				
								96.91						22.709128	86.38137	96.95				
								97.74						22.709463	86.380925	97.79				
								97.04						22.709534	86.380603	97.09				
								94.95						22.709658	86.379269	95.00				
								96.55						22.710155	86.380332	96.60				
								98.72						22.710683	86.380784	98.77				
								96.02						22.708005	86.380985	96.07				
								95.94						22.706394	86.381014	95.98				
								95.81						22.703171	86.380555	95.86				
								95.51						22.701556	86.380536	95.56				
								95.21						22.699539	86.379935	95.26				
								93.74						22.697495	86.379808	93.79				
								95.40	91.29	236578	351	ES_SUB_POS_02		22.659416	86.380848	95.50	91.38	236580	0.09	0.0213
								93.64						22.65945	86.380623	93.73				
								91.42						22.659441	86.38033	91.51				
								91.51						22.659989	86.378624	91.60				
								90.44						22.659698	86.380222	90.53				
								91.72						22.659707	86.380411	91.81				
								93.63						22.65973	86.380697	93.73				
								94.04						22.65986	86.380802	94.14				
								91.51						22.659889	86.380411	91.60				
								89.94						22.659898	86.380163	90.03				
								91.32						22.660134	86.37862	91.41				
								88.99						22.660153	86.379507	89.08				
								89.88						22.660158	86.38014	89.97				
								90.85						22.660153	86.380316	90.94				
								92.32						22.660183	86.380582	92.41				
								93.15						22.660212	86.38074	93.25				
								91.99						22.660322	86.380531	92.08				
								90.76						22.660352	86.380285	90.85				
								89.75						22.660438	86.380066	89.84				
								88.96						22.660469	86.379239	89.05				
								90.21						22.660589	86.378748	90.30				
								91.05						22.660623	86.378454	91.14				
								90.03						22.660686	86.37877	90.12				
								89.57						22.660705	86.378929	89.66				
								90.11						22.660732	86.380083	90.20				
								90.86						22.660736	86.380274	90.95				
								91.59						22.660766	86.380463	91.68				



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for
JSP

92.37	22.66079	86.380676	92.47
91.42	22.660864	86.38041	91.51
90.70	22.660898	86.380197	90.79
90.21	22.660935	86.380049	90.30
89.45	22.661046	86.379524	89.54
90.48	22.66126	86.378321	90.57
89.24	22.661372	86.378965	89.33
88.93	22.661393	86.379151	89.02
90.42	22.661321	86.379961	90.51
90.97	22.66129	86.380141	91.06
92.03	22.661317	86.380428	92.13
92.67	22.661359	86.380592	92.77
92.90	22.661646	86.380561	93.00
91.87	22.661595	86.380291	91.97
90.90	22.661534	86.380042	91.00
90.48	22.661509	86.379889	90.57
88.97	22.661463	86.379128	89.06
89.91	22.661463	86.378495	90.00
90.51	22.661481	86.378273	90.60
89.72	22.661563	86.378566	89.81
89.21	22.661603	86.378932	89.30
89.03	22.661658	86.379215	89.12
90.56	22.661739	86.379816	90.65
91.46	22.661838	86.380112	91.56
92.31	22.661903	86.380381	92.40
92.67	22.661942	86.380511	92.77
91.47	22.661958	86.380077	91.56
90.68	22.661974	86.379749	90.77
89.30	22.661974	86.379087	89.39
89.41	22.661974	86.378736	89.50
89.52	22.661974	86.378414	89.61
90.07	22.661989	86.378213	90.17
89.41	22.662077	86.378516	89.50
89.44	22.66213	86.378954	89.53
90.53	22.662225	86.379561	90.62
91.23	22.662229	86.37985	91.32
91.97	22.662317	86.380165	92.07
92.47	22.662372	86.380459	92.57
91.99	22.662443	86.380111	92.09
91.27	22.662443	86.379763	91.36
90.37	22.662439	86.379386	90.46
89.05	22.662439	86.378308	89.14



89.52							86.378106	89.61			
89.01						22.662469	86.378358	89.10			
90.02						22.662551	86.378949	90.12			
90.46						22.66268	86.379207	90.55			
91.11						22.662698	86.379527	91.20			
91.75						22.662743	86.379894	91.84			
92.61						22.662803	86.380393	92.70			
91.61						22.662924	86.379748	91.70			
91.13						22.662943	86.379304	91.22			
90.30						22.663024	86.378722	90.39			
90.13						22.663029	86.37975	90.22			
90.19						22.663215	86.378521	90.28			
91.24						22.66323	86.378977	91.33			
91.88						22.663316	86.379354	91.97			
91.89						22.663388	86.379746	91.98			
91.91						22.663467	86.379982	92.00			
92.85						22.66353	86.380318	92.94			
91.75						22.6636	86.379575	91.84			
91.43						22.66361	86.379095	91.52			
90.48						22.663648	86.378626	90.57			
90.16						22.663786	86.377879	90.25			
90.10						22.663825	86.378447	90.19			
90.48						22.663837	86.378673	90.57			
91.12						22.663916	86.379107	91.21			
91.48						22.663956	86.379527	91.58			
91.77						22.664055	86.379865	91.86			
90.97						22.664162	86.379216	91.07			
90.61						22.664314	86.378704	90.70			
90.21						22.664546	86.37804	90.30			
90.90						22.664663	86.378541	91.00			
92.09						22.66463	86.379292	92.18			
92.32						22.66465	86.379666	92.41			
93.29						22.664715	86.3801	93.38			
92.70						22.664859	86.379814	92.79			
92.58						22.664931	86.379094	92.67			
91.24						22.665085	86.378431	91.33			
90.32						22.665096	86.377804	90.41			
91.40						22.665463	86.378296	91.49			
92.39						22.665554	86.378841	92.48			
93.31						22.665592	86.379643	93.41			
93.66						22.665693	86.37992	93.75			
92.87						22.665874	86.379176	92.96			

77
8A

8E



76.30					22.522511	86.498175	76.61		
75.05					22.522602	86.498532	75.36		
74.16					22.522653	86.498732	74.46		
70.81					22.522728	86.499466	71.10		
73.80					22.522856	86.498888	74.09		
75.53					22.522912	86.498608	75.84		
76.86					22.523006	86.498437	77.17		
75.19					22.523052	86.498724	75.49		
73.46					22.523086	86.499004	73.76		
70.93					22.523188	86.499517	71.22		
73.70					22.523328	86.499027	74.00		
76.11					22.523383	86.4987	76.42		
76.62					22.523399	86.498631	76.93		
74.51					22.523479	86.498939	74.81		
72.97					22.523532	86.499162	73.27		
69.54					22.523641	86.499842	69.82		
72.59					22.52373	86.499277	72.88		
73.75					22.523782	86.499095	74.05		
75.75					22.523834	86.498826	76.05		
74.37					22.523908	86.49903	74.67		
72.67					22.523924	86.499299	72.96		
71.73					22.523967	86.499472	72.02		
68.72					22.52403	86.500058	69.00		
71.80					22.52415	86.499484	72.08		
73.43					22.524213	86.499212	73.72		
75.41					22.524269	86.498937	75.72		
73.46					22.524344	86.499207	73.76		
71.72					22.524399	86.499498	72.01		
70.33					22.524442	86.499731	70.61		
68.72					22.524549	86.50024	69.00		
71.03					22.524674	86.499614	71.31		
72.47					22.524712	86.499373	72.76		
74.88					22.524801	86.499036	75.18		
72.94					22.524865	86.499294	73.23		
71.48					22.524904	86.499539	71.76		
70.78					22.524956	86.499656	71.06		
68.72					22.525138	86.500306	69.00		
71.41					22.525162	86.499566	71.70		
73.46					22.52523	86.499248	73.76		
74.54					22.525276	86.499113	74.84		
73.42					22.525355	86.499275	73.72		
72.33					22.525385	86.499448	72.62		



JS

JS

JS

71.11	22.525418	86.499637	71.40
68.72	22.525557	86.500324	69.00
71.09	22.525611	86.499655	71.37
72.46	22.525665	86.499459	72.75
74.19	22.525697	86.499216	74.49
74.74	22.525714	86.499147	75.05
73.41	22.525809	86.499343	73.71
70.72	22.525971	86.499729	71.00
69.06	22.526097	86.499996	69.34
69.39	22.526393	86.500343	69.67
70.80	22.526314	86.499741	71.08
73.16	22.526306	86.499334	73.45
74.36	22.526305	86.499139	74.66
72.39	22.526476	86.499456	72.68
70.63	22.526656	86.499808	70.91
69.72	22.526916	86.500317	70.00
70.63	22.526892	86.499809	70.92
72.84	22.52691	86.499347	73.13
74.65	22.526964	86.499042	74.95
73.28	22.52709	86.499254	73.58
71.60	22.527203	86.499606	71.89
70.81	22.527274	86.499771	71.10
69.72	22.52755	86.50023	70.00
69.72	22.52755	86.500223	70.00
71.05	22.527491	86.499722	71.33
72.86	22.527481	86.499343	73.15
73.32	22.527471	86.498972	75.63
72.27	22.527642	86.499387	72.56
70.59	22.527783	86.499755	70.88
69.72	22.52803	86.500102	70.00
70.65	22.527987	86.499654	70.93
71.82	22.528012	86.499183	72.11
73.74	22.528027	86.49885	74.03
70.85	22.528205	86.499351	71.14
70.00	22.528368	86.499751	70.29
69.72	22.528494	86.500112	70.00
69.72	22.528596	86.500342	70.00
69.93	22.528628	86.499728	70.21
70.29	22.52862	86.499267	70.58
71.70	22.528602	86.498869	71.99
73.11	22.528608	86.498545	73.41
71.90	22.528744	86.498767	72.19



70.80							22.528849	86.498993	71.08		
69.89							22.529004	86.499284	70.17		
69.74							22.529139	86.499579	70.02		
69.72							22.529316	86.499886	70.00		
69.84							22.52945	86.500076	70.12		
69.72							22.529394	86.499632	70.00		
69.96							22.529303	86.499094	70.24		
71.50							22.529217	86.498661	71.78		
73.43							22.529116	86.498205	73.73		
72.21							22.529349	86.498418	72.50		
71.24							22.529568	86.498866	71.53		
70.12							22.529769	86.499019	70.40		
69.72							22.53	86.499274	70.00		
69.86							22.53024	86.499569	70.14		
70.01							22.530365	86.499724	70.29		
69.81							22.530314	86.499376	70.10		
70.20							22.530168	86.498944	70.48		
71.45							22.530039	86.498424	71.74		
73.16							22.52997	86.498038	73.45		
74.49							22.529862	86.497785	74.79		
73.13							22.530108	86.497999	73.42		
71.91							22.53032	86.498198	72.20		
70.76							22.530541	86.498519	71.05		
70.22							22.530737	86.498789	70.51		
69.82							22.530959	86.499065	70.10		
70.36							22.531167	86.499306	70.64		
70.11							22.531024	86.498746	70.39		
71.41							22.530874	86.498117	71.70		
73.42							22.530706	86.497656	73.71		
74.70							22.530589	86.497264	75.00		
73.53							22.530843	86.497538	73.83		
71.27							22.531195	86.497947	71.55		
69.93							22.531501	86.498324	70.21		
70.10							22.531803	86.498655	70.38		
70.26							22.531619	86.497972	70.54		
71.26							22.531489	86.49755	71.55		
73.13							22.531272	86.496969	73.43		
74.09							22.531169	86.496575	74.39		
73.20							22.531521	86.496837	73.49		
71.24							22.531914	86.497173	71.53		
70.31							22.532192	86.49733	70.60		
69.83							22.532403	86.497544	70.11		



JK
JK
JK

69.93									22.532688	86.49769	70.21									
70.08									22.532391	86.497014	70.36									
71.80									22.532115	86.496542	72.09									
73.01									22.531955	86.496153	73.31									
73.64									22.531806	86.495808	73.94									
72.50									22.532134	86.496151	72.80									
70.50									22.532523	86.496443	70.78									
69.72									22.532834	86.496686	70.00									
69.81									22.533378	86.496951	70.09									
69.98									22.533045	86.49646	70.26									
70.92									22.532876	86.496056	71.20									
72.54									22.532601	86.495673	72.83									
73.91									22.532405	86.495154	74.21									
73.56									22.532335	86.495488	73.86									
72.50									22.531935	86.496589	72.80									
70.13									22.531977	86.497791	70.41									
73.39									22.530934	86.497383	73.69									
70.17									22.53118	86.498526	70.45									
73.34									22.530309	86.497872	73.64									
69.94									22.530502	86.499036	70.22									
71.85									22.529675	86.498419	72.14									
69.72									22.529715	86.499557	70.00									
71.59									22.528932	86.498762	71.88									
69.86									22.528818	86.499723	70.14									
71.84									22.528233	86.499019	72.13									
69.86									22.52818	86.499925	70.14									
73.58									22.527687	86.499093	73.88									
70.23									22.527584	86.499885	70.51									
73.90									22.527158	86.499141	74.20									
68.95	ES SUB PRE_04	71.28	126174	280	ES SUB POS 04				22.51237	86.486728	69.09	71.42	126176	0.14						0.0177
68.86									22.51246	86.486502	69.00									
68.95									22.512548	86.486255	69.09									
69.10									22.512598	86.486108	69.24									
69.42									22.512671	86.48591	69.56									
69.24									22.512702	86.486235	69.38									
68.97									22.51265	86.486506	69.11									
69.02									22.512647	86.48683	69.16									
69.12									22.512677	86.486935	69.25									
68.92									22.512761	86.486611	69.06									
69.40									22.512855	86.486315	69.54									
69.84									22.512924	86.486133	69.98									
69.42									22.512951	86.486379	69.56									



68.88						22.51298	86.486709	69.02		
69.10						22.512967	86.487117	69.24		
68.89						22.513116	86.486744	69.02		
69.43						22.513169	86.486469	69.57		
70.19						22.51325	86.486256	70.33		
68.92						22.513276	86.48665	69.05		
68.87						22.513303	86.486941	69.01		
68.93						22.513361	86.487399	69.07		
69.22						22.513482	86.487004	69.36		
69.31						22.513521	86.486709	69.45		
70.51						22.513626	86.486454	70.65		
69.66						22.513666	86.486884	69.80		
69.81						22.513728	86.487266	69.95		
69.73						22.513727	86.487628	69.87		
70.17						22.513878	86.487344	70.31		
70.31						22.513939	86.486978	70.45		
70.52						22.514026	86.48675	70.66		
70.67						22.514086	86.487155	70.81		
70.54						22.514033	86.487464	70.68		
70.15						22.514028	86.487874	70.29		
70.80						22.514176	86.487576	70.94		
71.58						22.514329	86.487298	71.73		
72.54						22.514481	86.487094	72.68		
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70.80						22.514328	86.4878	70.94		
70.33						22.514283	86.488009	70.47		
69.69						22.514268	86.488391	69.83		
70.24						22.514422	86.488074	70.38		
71.35						22.514542	86.487755	71.50		
73.33						22.514741	86.487337	73.47		
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69.56						22.514565	86.488282	69.70		
69.35						22.51451	86.488784	69.49		
69.28						22.514659	86.488386	69.42		
70.18						22.514784	86.488109	70.32		
71.85						22.514879	86.487797	71.99		
73.22						22.514973	86.487591	73.37		
70.67						22.514975	86.488029	70.81		
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69.42						22.51487	86.488818	69.56		
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69.63					22-515032	86.488839	69.77			
69.73					22-515147	86.488464	69.87			
71.18					22-515269	86.488151	71.32			
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70.31					22-515114	86.489365	70.45			
70.16					22-515148	86.489813	70.30			
70.70					22-515284	86.489593	70.84			
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71.83					22-515482	86.488882	71.97			
72.31					22-515663	86.488556	72.45			
72.66					22-515609	86.489067	72.80			
71.81					22-515575	86.489493	71.95			
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70.41					22-515615	86.490159	70.55			
71.56					22-515764	86.489763	71.70			
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74.91					22-516024	86.48903	75.06			
73.43					22-516064	86.489626	73.58			
71.46					22-515986	86.490077	71.61			
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72.11					22-516226	86.490272	72.25			
73.59					22-516309	86.489893	73.74			
75.30					22-516426	86.489639	75.45			
72.76					22-516399	86.490289	72.90			
71.47					22-516317	86.490659	71.61			
70.94					22-516224	86.491086	71.08			
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74.50					22-516701	86.490179	74.65			
74.99					22-516733	86.490118	75.15			
73.28					22-516733	86.490609	73.42			
71.99					22-516625	86.491036	72.13			
72.05					22-516459	86.491604	72.20			
71.58					22-516424	86.491825	71.72			
72.57					22-516659	86.491449	72.72			
74.04					22-516907	86.491049	74.19			



76.35					22.5171	86.49072	76.50					
73.80					22.516903	86.491473	73.95					
72.52					22.516771	86.491872	72.67					
70.59					22.516636	86.492288	70.73					
72.04					22.516853	86.492113	72.18					
74.08					22.517069	86.491741	74.22					
76.18					22.517346	86.491427	76.33					
73.82					22.517218	86.492029	73.97					
71.77					22.517063	86.492497	71.91					
71.61					22.516932	86.492865	71.75					
72.17					22.517117	86.492632	72.32					
73.71					22.517405	86.492378	73.85					
75.44					22.517625	86.492122	75.59					
72.96					22.517417	86.492671	73.11					
71.87					22.517291	86.493048	72.01					
71.44					22.5172	86.493416	71.59					
71.79					22.517424	86.493078	71.93					
73.41					22.517621	86.492842	73.56					
75.08					22.517785	86.492652	75.23					
72.57					22.517661	86.493168	72.72					
70.76					22.517518	86.493514	70.90					
70.41					22.51742	86.493823	70.55					
71.40					22.517638	86.493584	71.54					
73.25					22.517845	86.493365	73.40					
74.32					22.517948	86.493251	74.47					
71.96					22.517801	86.493758	72.11					
70.67					22.517672	86.494069	70.81					
70.21					22.517624	86.494226	70.36					
71.28					22.517823	86.494066	71.43					
72.40					22.517967	86.493897	72.55					
74.06					22.518151	86.493701	74.21					
72.44					22.518065	86.494015	72.59					
71.23					22.517944	86.494258	71.37					
70.10					22.517809	86.494585	70.24					
71.16					22.518018	86.494378	71.30					
72.88					22.518281	86.494119	73.03					
73.36					22.518333	86.494062	73.50					
71.90					22.518253	86.494365	72.04					
70.99					22.518122	86.494536	71.14					
70.09					22.517965	86.494734	70.23					
69.83					22.517955	86.494831	69.97					
70.40					22.518106	86.494723	70.54					

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71.19						22.518281	86.494596	71.33						
72.96						22.518486	86.494445	73.10						
70.44	70.75	67720	292	ES SUB_POS_05		22.513134	86.488817	70.59	70.89	67721	0.14	0.0095		
70.02						22.513132	86.488627	70.16						
69.40						22.513155	86.488386	69.54						
70.45						22.513	86.48854	70.60						
71.82						22.512865	86.488674	71.96						
70.74						22.512866	86.488474	70.88						
69.91						22.512874	86.48826	70.05						
69.88						22.512827	86.488065	70.02						
70.30						22.5127	86.488246	70.44						
71.36						22.512608	86.488424	71.50						
71.87						22.512577	86.488471	72.02						
70.68						22.512569	86.488324	70.82						
70.49						22.512573	86.488159	70.63						
70.13						22.512572	86.487827	70.27						
70.43						22.512507	86.487986	70.57						
70.90						22.512454	86.488147	71.05						
71.47						22.512395	86.488264	71.62						
71.74						22.512372	86.488317	71.89						
71.24						22.512367	86.488069	71.38						
70.76						22.512371	86.487849	70.90						
70.46						22.512377	86.48772	70.61						
71.49						22.512222	86.487905	71.63						
72.53						22.512109	86.48805	72.68						
72.99						22.512063	86.488102	73.14						
72.25						22.512019	86.48789	72.40						
70.74						22.511989	86.487554	70.88						
70.35						22.511954	86.487417	70.49						
71.39						22.511858	86.487631	71.53						
72.79						22.511781	86.487825	72.94						
73.62						22.511724	86.487917	73.77						
72.35						22.511679	86.487712	72.50						
70.71						22.511635	86.487451	70.85						
70.23						22.511588	86.487251	70.37						
70.55						22.511451	86.487472	70.69						
72.28						22.51129	86.487689	72.42						
70.61						22.511255	86.487524	70.75						
70.01						22.511226	86.487211	70.15						
69.82						22.51118	86.487042	69.96						
69.97						22.511003	86.4873	70.11						
69.89						22.510855	86.487491	70.03						



71.57	22.510712	86.487639	71.72							
72.46	22.510642	86.48772	72.61							
69.90	22.510632	86.487503	70.04							
69.91	22.510646	86.487306	70.05							
69.97	22.510653	86.487084	70.11							
69.96	22.510562	86.487245	70.10							
69.90	22.510479	86.487417	70.04							
71.87	22.510391	86.487701	72.02							
69.92	22.510289	86.487422	70.06							
70.11	22.510177	86.487231	70.25							
70.30	22.510127	86.487069	70.44							
69.98	22.510018	86.4874	70.12							
71.20	22.509917	86.487699	71.34							
71.92	22.509861	86.487821	72.06							
70.60	22.509773	86.487626	70.74							
69.91	22.509725	86.487434	70.05							
69.96	22.509659	86.487357	70.10							
69.91	22.50951	86.487511	70.05							
71.06	22.509459	86.487795	71.21							
71.65	22.509422	86.487963	71.80							
70.87	22.509388	86.487775	71.01							
70.13	22.509324	86.487582	70.27							
69.88	22.509255	86.487326	70.02							
70.40	22.509163	86.487727	70.54							
70.94	22.509157	86.487955	71.08							
71.31	22.509102	86.488156	71.45							
70.71	22.509033	86.487924	70.86							
70.25	22.508944	86.487724	70.40							
69.86	22.508823	86.487493	70.00							
70.33	22.5088	86.487849	70.47							
70.71	22.508814	86.488113	70.85							
71.84	22.508811	86.488464	71.98							
70.58	22.50872	86.488142	70.72							
70.17	22.508626	86.487861	70.31							
69.88	22.508518	86.487542	70.02							
70.03	22.508487	86.487881	70.17							
70.17	22.508484	86.488209	70.31							
71.11	22.50849	86.488528	71.26							
71.13	22.50849	86.488531	71.27							
72.65	22.508546	86.488805	72.80							
70.14	22.508302	86.488424	70.28							
69.64	22.508151	86.488808	69.78							

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69.54									22.508067	86.488022	69.68									
69.90									22.508078	86.48847	70.04									
70.85									22.508138	86.488779	71.00									
73.01									22.508193	86.489299	73.15									
70.44									22.507983	86.488814	70.59									
69.46									22.507797	86.488524	69.60									
69.24									22.507736	86.488422	69.37									
69.95									22.507777	86.488987	70.09									
71.43									22.507871	86.489371	71.58									
73.67									22.507943	86.489777	73.82									
70.71									22.507697	86.489512	70.86									
69.05									22.507516	86.489245	69.19									
68.86									22.507429	86.489164	69.00									
69.74									22.507519	86.489749	69.88									
72.26									22.507657	86.490262	72.41									
72.84									22.50766	86.490466	72.98									
71.15									22.507455	86.490395	71.29									
69.78									22.507193	86.490128	69.92									
69.46									22.50708	86.490059	69.60									
69.73									22.507318	86.49003	69.87									
71.46									22.507662	86.489938	71.61									
71.28									22.50782	86.48942	71.43									
71.57									22.508013	86.489216	71.71									
70.12									22.507984	86.488657	70.26									
71.79									22.508312	86.488892	71.94									
69.93									22.508371	86.488129	70.07									
70.64									22.508581	86.488371	70.79									
ES SUB_PRE_06									22.488192	86.522592	71.60	68.24	109907	0.27						0.0297
69.89									22.488277	86.522813	70.18									
68.08									22.488408	86.523202	68.35									
67.52									22.488464	86.523381	67.79									
66.98									22.488592	86.523861	67.25									
67.01									22.488703	86.524694	67.28									
66.78									22.488289	86.524128	67.05									
67.88									22.48809	86.523557	68.16									
69.14									22.487963	86.52324	69.42									
71.49									22.487851	86.522922	71.78									
68.88									22.487793	86.523382	69.16									
67.73									22.487772	86.523811	68.00									
66.73									22.487834	86.524445	67.00									
66.73									22.487867	86.525304	67.00									
66.73									22.487564	86.524685	67.00									



66.87	22.487381	86.524197	67.14						
68.78	22.487224	86.523833	69.06						
70.55	22.48713	86.523574	70.84						
67.30	22.487094	86.524152	67.57						
67.18	22.487122	86.524598	67.45						
67.08	22.487192	86.525035	67.35						
66.82	22.487275	86.52556	67.09						
67.44	22.486905	86.524764	67.71						
67.69	22.486701	86.524303	67.96						
68.92	22.486594	86.52408	69.20						
68.10	22.486567	86.524561	68.38						
67.75	22.486585	86.524966	68.02						
67.28	22.486643	86.525374	67.55						
67.17	22.486648	86.525471	67.44						
66.74	22.486677	86.526002	67.01						
67.07	22.486356	86.525546	67.34						
67.81	22.486063	86.524984	68.08						
69.74	22.485907	86.524692	70.02						
66.85	22.485859	86.52524	67.71						
66.73	22.48591	86.525735	67.12						
66.73	22.485902	86.526275	67.00						
66.88	22.485866	86.52663	67.00						
68.59	22.485848	86.526607	67.00						
70.91	22.485644	86.526131	67.15						
68.11	22.485448	86.525524	68.86						
67.06	22.485315	86.525203	71.20						
66.76	22.485302	86.525704	68.38						
66.99	22.485325	86.526213	67.33						
68.34	22.485327	86.526625	67.03						
70.15	22.485112	86.526421	67.26						
68.48	22.484891	86.525914	68.62						
67.09	22.484754	86.52575	70.44						
66.96	22.4847	86.526251	68.75						
67.33	22.484808	86.526646	67.36						
69.52	22.484501	86.52722	67.23						
70.87	22.484317	86.526765	67.60						
67.67	22.48418	86.526343	69.80						
67.42	22.484218	86.526219	71.16						
67.91	22.484377	86.526887	67.94						
69.52	22.484062	86.527564	67.69						
		86.527106	68.18						
		86.526581	69.80						



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ES SUB PRE 07	69.01	65.33	110679	246	ES SUB POS 07	22.441649	86.567899	69.28	65.59	110681	0.26	0.0288
	67.19					22.441383	86.567872	67.46				
	64.81					22.441017	86.567805	65.07				
	63.74					22.440552	86.567693	64.00				
	63.74					22.440731	86.568028	64.00				
	64.23					22.440884	86.568301	64.48				
	67.03					22.441124	86.568581	67.30				
	68.68					22.441239	86.568779	68.96				
	65.00					22.440914	86.568667	65.26				
	63.95					22.440588	86.568575	64.21				
	63.85					22.440358	86.56853	64.10				
	63.79					22.440196	86.568491	64.05				
	64.04					22.440437	86.568805	64.30				
	64.40					22.440617	86.569077	64.66				
	68.30					22.440934	86.569492	68.58				
	65.34					22.44051	86.569342	65.60				
	64.21					22.440246	86.569216	64.46				
	63.76					22.439883	86.569063	64.02				
	65.00					22.440186	86.569535	65.26				
	66.74					22.440363	86.569759	67.01				
	70.25					22.440631	86.570186	70.53				
	66.91					22.440241	86.570123	67.18				
	64.49					22.439866	86.569907	64.75				
	64.03					22.439507	86.569754	64.29				
	64.61					22.439761	86.570178	64.87				
	65.19					22.439952	86.57045	65.45				
	67.95					22.440254	86.570902	68.23				
	65.27					22.439876	86.570666	65.53				
	64.41					22.439537	86.57041	64.67				
	63.98					22.439317	86.570252	64.24				
	64.63					22.439569	86.5707	64.89				
	65.99					22.439861	86.571126	66.26				
	67.28					22.440034	86.571394	67.55				
	66.01					22.439758	86.571333	66.27				
	64.66					22.439437	86.571182	64.92				
	64.03					22.439264	86.571009	64.28				
	63.74					22.439077	86.57086	64.00				
	63.77					22.439175	86.571125	64.03				
	64.40					22.439329	86.5714	64.66				
	65.61					22.439527	86.571712	65.87				
	67.64					22.439677	86.571998	67.92				
	68.94					22.439722	86.572197	69.22				



65.83	22.439438	86.572004	66.10						
64.15	22.439228	86.571872	64.40						
63.74	22.438733	86.571155	64.00						
63.74	22.439037	86.572118	64.00						
64.96	22.439273	86.572438	65.22						
68.41	22.439437	86.572854	68.68						
64.08	22.439019	86.572567	64.33						
63.74	22.438775	86.572451	64.00						
63.74	22.438426	86.572192	64.00						
63.74	22.438436	86.572203	64.00						
63.74	22.438446	86.572223	64.00						
64.68	22.438807	86.572774	64.94						
68.83	22.439249	86.57326	69.10						
64.71	22.438636	86.572944	64.97						
64.04	22.43822	86.572729	64.30						
65.00	22.438549	86.573306	65.26						
67.00	22.43876	86.573623	67.27						
68.80	22.438905	86.57391	69.08						
65.51	22.438517	86.573717	65.77						
63.95	22.438267	86.573542	64.21						
63.76	22.43802	86.573373	64.01						
63.77	22.438034	86.573398	64.02						
64.54	22.438341	86.573948	64.80						
65.14	22.438403	86.574032	65.40						
67.02	22.438572	86.574253	67.29						
68.06	22.43865	86.574381	68.34						
65.79	22.438406	86.574291	66.06						
64.66	22.438241	86.574211	64.92						
63.47	22.437768	86.573989	63.72						
65.20	22.438129	86.574516	65.46						
67.16	22.438383	86.574738	67.43						
66.14	22.438159	86.574806	66.41						
65.06	22.437972	86.574747	65.32						
63.15	22.437581	86.574763	63.41						
63.23	22.437597	86.574763	63.49						
65.57	22.437928	86.575072	65.84						
67.08	22.43801	86.575309	67.35						
64.55	22.437708	86.57523	64.81						
63.09	22.437409	86.575249	63.34						
63.09	22.437417	86.57525	63.34						
64.83	22.437712	86.575335	65.09						
64.90	22.43772	86.575336	65.16						



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66.58						22.437892	86.57543	66.84						
65.47						22.437853	86.575186	65.73						
65.71						22.438048	86.574868	65.98						
65.48						22.438268	86.574436	65.74						
65.86						22.438509	86.573958	66.13						
66.73						22.438792	86.573428	67.00						
65.21						22.439068	86.572777	65.47						
65.95						22.439412	86.572151	66.21						
66.43						22.439744	86.571621	66.70						
ES_SUB_PRE_08	64.03	63.84	96514	275	ES_SUB_POS_08	22.435971	86.574703	64.36	64.16	96516	0.32	0.0309		
63.56						22.436034	86.574824	63.88						
63.14						22.436163	86.57498	63.45						
63.23						22.436357	86.575262	63.55						
62.92						22.436662	86.575634	63.24						
63.18						22.436232	86.575398	63.50						
63.07						22.436054	86.575221	63.39						
62.83						22.435856	86.575105	63.15						
63.43						22.43573	86.575012	63.75						
62.97						22.435844	86.575233	63.29						
63.20						22.436002	86.575447	63.52						
63.28						22.436066	86.575593	63.59						
62.95						22.43637	86.576035	63.27						
63.55						22.435943	86.575834	63.87						
63.91						22.435706	86.57567	64.23						
64.60						22.435522	86.575533	64.92						
65.03						22.435437	86.575456	65.36						
64.66						22.435483	86.57566	64.98						
64.02						22.435643	86.575952	64.35						
63.35						22.435769	86.57627	63.67						
62.90						22.435883	86.576478	63.21						
64.13						22.435522	86.576228	64.45						
64.87						22.435295	86.576062	65.19						
65.47						22.43508	86.57594	65.79						
65.18						22.435165	86.576222	65.51						
64.59						22.435325	86.576485	64.91						
63.98						22.435459	86.576759	64.30						
63.44						22.435587	86.577034	63.75						
64.75						22.435232	86.576766	65.08						
65.65						22.435006	86.576558	65.98						
66.91						22.43476	86.57634	67.25						
66.02						22.434843	86.57669	66.35						
65.46						22.434942	86.576962	65.78						



64.81	22.435051	86.577271	65.13										
63.85	22.435189	86.577702	64.17										
64.95	22.434903	86.577459	65.28										
65.77	22.434673	86.577239	66.10										
66.47	22.434454	86.577085	66.81										
66.96	22.4343	86.576983	67.30										
66.24	22.434406	86.577377	66.57										
65.01	22.434565	86.577692	65.34										
63.75	22.434669	86.578014	64.07										
62.83	22.434801	86.578385	63.14										
64.47	22.434344	86.577916	64.79										
65.81	22.434121	86.577718	66.14										
67.99	22.433869	86.577515	68.34										
65.40	22.433993	86.577896	65.73										
62.98	22.434146	86.578282	63.30										
62.74	22.434294	86.578642	63.06										
62.87	22.434359	86.578986	63.18										
62.84	22.434025	86.578784	63.16										
63.35	22.433754	86.578608	63.66										
64.25	22.433447	86.578406	64.57										
64.57	22.433354	86.578355	64.90										
63.65	22.433478	86.578676	63.97										
62.82	22.433663	86.579075	63.13										
62.69	22.433779	86.579385	63.00										
62.69	22.433886	86.579638	63.00										
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63.19	22.433112	86.579191	63.51										
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62.69	22.433385	86.579963	63.00										
62.81	22.433496	86.58027	63.13										
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62.44	22.433112	86.580056	62.75										
62.23	22.432852	86.579941	62.54										
62.40	22.432614	86.579815	62.71										
62.50	22.432529	86.579776	62.81										
62.07	22.432643	86.580214	62.39										
62.49	22.432817	86.58057	62.80										
62.73	22.432932	86.580898	63.04										
62.62	22.432712	86.580754	62.93										



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62.39	63.29	415787	270	ES_SUB_POS_09	22.432499	86.580585	62.70					
63.64					22.432199	86.580393	63.96					
63.18					22.432291	86.580637	63.50					
62.88					22.432413	86.580916	63.20					
63.34					22.432229	86.5808	63.66					
63.90					22.432059	86.580708	64.22					
63.46					22.432153	86.580936	63.78					
64.01					22.431963	86.580807	64.34					
63.87					22.431973	86.580929	64.19					
63.97					22.431933	86.580911	64.30					
ES SUB PRE_09	64.73	415787	270	ES_SUB_POS_09	22.428008	86.588999	64.99	63.55	415789	0.26	0.1081	
63.25					22.428202	86.589329	63.51					
62.75					22.428398	86.589762	63.00					
63.48					22.429061	86.590704	63.74					
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62.74					22.428039	86.590025	62.99					
63.67					22.427835	86.589676	63.93					
64.26					22.427706	86.589579	64.52					
62.89					22.427689	86.589961	63.14					
62.48					22.427889	86.590424	62.73					
62.37					22.428069	86.590915	62.62					
61.90					22.428227	86.591526	62.15					
62.06					22.427875	86.591097	62.31					
61.99					22.427695	86.590824	62.24					
62.02					22.427619	86.590713	62.27					
62.74					22.427392	86.590345	63.00					
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62.43										22.423724	86.593787	62.68								
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62.16										22.423203	86.593475	62.41								
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61.92										22.422994	86.594664	62.16								
62.48										22.422945	86.595286	62.74								
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61.94										22.422087	86.594897	62.18								
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65.26										22.42094	86.594216	65.52								
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62.12							22.41956	86.595888	62.37		
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62.57							22.416631	86.594899	62.82		
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63.34							22.415182	86.593803	63.60		
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61.95							22.413723	86.594227	62.19		



Handwritten signature or initials in blue ink.

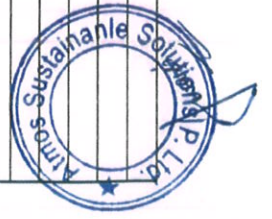
Handwritten initials 'Jh' in blue ink.

Handwritten initials 'Jh' in blue ink.

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62.33	22.413452	86.593121	62.58					62.58					
64.14	22.411354	86.592535	64.40					64.40					
65.84	22.413539	86.592274	66.10					66.10					
62.63	22.413189	86.59249	62.89					62.89					
61.95	22.412818	86.592892	62.20					62.20					
61.99	22.412273	86.59324	62.24					62.24					
63.08	22.41284	86.592288	63.33					63.33					
65.03	22.412866	86.591867	65.29					65.29					
64.26	22.413158	86.59222	64.52					64.52					
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63.14	22.401568	86.583094	63.39					63.39					
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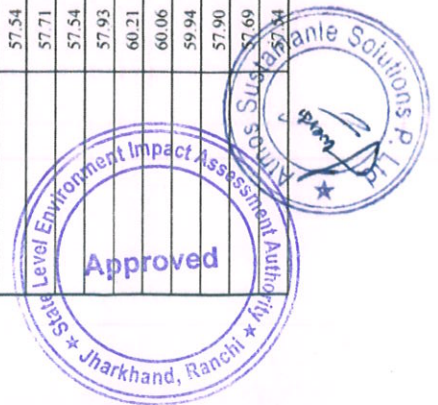
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Handwritten signature

Handwritten initials

Handwritten mark

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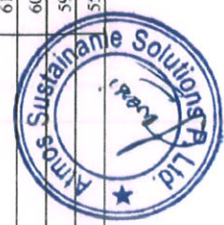


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59.94	22.343864	86.637284	60.48						
62.40	22.344084	86.638243	62.96						
56.13	22.34434	86.639381	56.64						
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60.90	22.343015	86.638856	61.45						
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44

44

44



56.96						22.342814	86.639649	57.47			
57.27						22.342405	86.639346	57.80			
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60.86						22.341336	86.638426	61.41			
60.84						22.341336	86.638433	61.40			
59.19						22.34155	86.6393	59.72			
57.22						22.341832	86.639942	57.74			
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59.24						22.340594	86.639736	59.77			
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60.53						22.340266	86.639453	61.08			
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58.42						22.339773	86.640418	58.95			
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56.58						22.338352	86.641681	57.10			
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55.71									22.337835	86.642322	56.21	
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55.16									22.337445	86.642782	55.66	
56.30									22.337133	86.642206	56.82	
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55.72									22.336782	86.642447	56.23	
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55.59									22.331067	86.647716	56.09	
55.09									22.330585	86.646664	55.59	



for
the

for

55.29					22.330352	86.646151	55.80						
56.48					22.330061	86.645729	57.00						
55.86					22.33009	86.646279	56.37						
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55.55					22.330336	86.6478	56.05						
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55.87					22.329124	86.646828	56.38						
56.80					22.329155	86.647216	57.31						
58.32					22.329245	86.647728	58.85						
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55.75	ES SUB PRE_15	55.92	877647	475	22.322959	86.650298	56.31	56.48	877649	0.56	0.4915		
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53.49					22.323298	86.651146	54.03						
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57.57					22.324113	86.652846	58.15						
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57.63					22.323012	86.653579	58.21						
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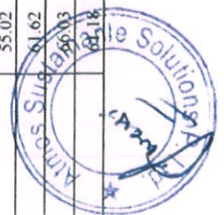


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61.25	22.297647	86.655831	62.00							
59.79	22.297663	86.655149	60.52							
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54.06	22.296866	86.656666	54.72							
51.38	22.296402	86.657679	52.00							
51.02	22.29605	86.658738	51.64							
52.84	22.295737	86.659561	53.48							
57.20	22.295444	86.660602	57.90							
58.28	22.295298	86.660094	58.99							
55.15	22.295314	86.659421	55.82							
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57.23	22.295585	86.656231	57.93							
60.48	22.295678	86.656666	61.22							
62.00	22.295786	86.655508	62.75							
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51.38	22.294286	86.658257	52.00							
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54.97	22.294069	86.660247	55.63							
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54.63	22.293658	86.659592	55.30							
52.51	22.293488	86.65888	53.15							
52.37	22.293264	86.657701	53.01							
56.05	22.293289	86.656595	56.73							
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56.93	22.289835	86.658239	57.62						
54.03	22.289654	86.659023	54.69						
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52.63	22.28951	86.66053	53.27						
55.52	22.289384	86.660999	56.20						
51.78	22.289132	86.659834	52.41						
55.41	22.288879	86.658678	56.08						
54.48	22.28884	86.657569	55.14						
56.73	22.288718	86.656427	57.42						
55.22	22.28868	86.655675	55.89						
57.68	22.288718	86.654845	58.38						
61.08	22.288703	86.65422	61.82						
60.55	22.28874	86.653295	61.29						
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52.98	22.287595	86.655613	53.62						
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57.70	22.287334	86.657834	58.40						
56.30	22.287444	86.658593	56.98						
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53.45	22.286832	86.660039	54.10						
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61.62	22.285813	86.654766	62.37						
60.93	22.285647	86.653715	66.83						
65.18	22.285297	86.654648	61.92						



for
we

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56.17										22.284796	86.656729	56.85								
57.13										22.284559	86.657878	57.82								
56.48										22.284488	86.658893	57.17								
51.38										22.284548	86.660004	52.00								
55.56										22.2843	86.661853	56.23								
51.80										22.28374	86.65992	52.43								
60.61										22.283398	86.658518	61.35								
54.92										22.283224	86.657333	55.59								
57.48										22.283039	86.655975	58.18								
62.86										22.282883	86.654804	63.62								
64.87										22.282874	86.654233	65.66								
58.03										22.282354	86.655554	58.73								
54.20										22.282223	86.657142	54.86								
52.15										22.282029	86.659003	52.79								
51.38										22.28194	86.660463	52.00								
54.56										22.281801	86.662035	55.22								
56.19										22.281689	86.662458	56.87								
54.15										22.281145	86.6614	54.81								
52.16										22.280375	86.659689	52.80								
55.62										22.279751	86.658085	56.30								
58.35										22.279331	86.656924	59.06								
55.85										22.279089	86.65589	56.53								
55.30										22.2789	86.655209	55.97								
58.57										22.278724	86.656581	59.28								
54.49										22.278697	86.657701	55.15								
52.57										22.278642	86.658951	53.21								
54.77										22.27866	86.66037	55.43								
54.36										22.27891	86.661382	55.02								
54.41										22.279013	86.662349	55.07								
56.86										22.279185	86.662855	57.55								
52.43										22.278161	86.661759	53.07								
55.33										22.277541	86.660596	56.01								
50.65										22.276619	86.658933	51.26								
54.52										22.276186	86.657974	55.18								
59.59										22.275204	86.655754	60.32								
54.14										22.275389	86.658063	54.80								
50.42										22.275859	86.659968	51.03								
55.93										22.276421	86.662563	56.61								
59.83										22.276559	86.6633	60.56								
52.29										22.275482	86.661622	52.92								
50.39										22.27461	86.66004	51.00								



50.39	22.27461	86.660023	51.00					
55.03	22.273583	86.658042	55.70					
60.37	22.272934	86.656346	61.11					
60.89	22.272759	86.655826	61.63					
58.03	22.272557	86.65794	58.73					
50.63	22.272265	86.660097	51.25					
50.56	22.271949	86.661882	51.18					
52.25	22.27164	86.663308	52.88					
54.50	22.271596	86.663652	55.16					
50.39	22.271308	86.66221	51.00					
50.88	22.271124	86.661033	51.49					
52.39	22.270735	86.659527	53.03					
55.75	22.270653	86.658215	56.43					
55.91	22.270653	86.658186	56.59					
59.84	22.270518	86.657208	60.57					
58.89	22.270564	86.656057	59.61					
57.51	22.269824	86.657558	58.21					
53.97	22.269675	86.659022	54.63					
52.55	22.269157	86.660733	53.19					
52.35	22.268857	86.662098	52.98					
50.39	22.268517	86.663252	51.00					
50.39	22.268335	86.66387	51.00					
54.37	22.267699	86.662151	55.03					
56.73	22.267187	86.660336	57.42					
54.80	22.266773	86.658649	55.46					
57.28	22.266201	86.65727	57.98					
60.55	22.265732	86.656755	61.29					
56.53	22.265613	86.658444	57.22					
53.87	22.265477	86.660023	54.53					
56.61	22.265317	86.661125	57.30					
56.28	22.265341	86.662117	56.96					
54.30	22.265243	86.66312	54.96					
52.68	22.265219	86.663474	53.32					
56.82	22.264812	86.662595	57.52					
56.30	22.264303	86.661257	56.98					
57.44	22.263781	86.659624	58.14					
60.05	22.263727	86.65794	60.78					
62.00	22.263576	86.656874	62.76					
60.64	22.263292	86.657275	61.38					
59.79	22.263061	86.657604	60.52					
56.27	22.262776	86.659299	56.96					
52.69	22.262776	86.661145	53.33					

for

of



50.68	22.262656	86.66233	51.30						
50.42	22.262656	86.662982	51.03						
54.15	22.261997	86.661645	54.81						
57.21	22.261578	86.660587	57.91						
55.59	22.261141	86.658936	56.27						
54.37	22.260841	86.657218	55.03						
57.21	22.260562	86.656237	57.91						
56.23	22.260328	86.657912	56.91						
58.10	22.259999	86.659526	58.80						
54.84	22.259777	86.660545	55.51						
54.02	22.259738	86.661628	54.67						
51.08	22.259581	86.662353	51.70						
53.75	22.258856	86.660318	54.40						
56.90	22.258622	86.659177	57.59						
56.27	22.258344	86.658052	56.95						
54.55	22.258237	86.657141	55.22						
56.66	22.258128	86.655968	57.35						
56.53	22.257955	86.655402	57.22						
56.44	22.257927	86.655236	57.13						
56.60	22.257731	86.655777	57.29						
52.49	22.257462	86.656737	53.13						
54.34	22.257223	86.657707	55.00						
56.38	22.257026	86.658663	57.06						
55.35	22.256776	86.659783	56.02						
50.43	22.256226	86.661728	51.04						
52.70	22.255852	86.660241	53.34						
52.60	22.255496	86.659074	53.24						
52.85	22.255229	86.657989	53.49						
53.95	22.255046	86.656805	54.60						
52.34	22.254853	86.655894	52.97						
55.07	22.254675	86.654924	55.74						
52.43	22.254408	86.655617	53.07						
53.21	22.254255	86.656561	53.85						
53.18	22.253996	86.657375	53.83						
52.53	22.253626	86.658426	53.17						
53.43	22.253305	86.659477	54.08						
50.20	22.253092	86.660292	50.81						
50.39	22.252982	86.66083	51.00						
51.44	22.252761	86.659661	52.07						
54.56	22.252535	86.658647	55.23						
54.41	22.252477	86.657572	55.07						
55.53	22.252312	86.656443	56.21						



53.36	22.252283	86.65542	54.01						
53.34	22.252281	86.654546	53.99						
53.30	22.251623	86.65533	53.95						
52.90	22.251325	86.656142	53.54						
52.72	22.25095	86.656997	53.36						
53.55	22.250602	86.657659	54.20						
51.80	22.250328	86.658381	52.43						
49.50	22.250006	86.659086	50.10						
50.24	22.249848	86.659436	50.85						
49.76	22.2496	86.658588	50.36						
51.88	22.249479	86.657454	52.52						
51.71	22.249263	86.656572	52.33						
51.29	22.24923	86.655623	51.92						
50.62	22.249192	86.654712	51.23						
56.07	22.24932	86.654192	56.75						
54.34	22.249313	86.653537	55.00						
55.80	22.249019	86.654003	56.48						
51.42	22.248725	86.654723	52.05						
51.36	22.248725	86.65473	51.99						
51.74	22.248292	86.655622	52.37						
50.92	22.248117	86.65609	51.54						
49.41	22.247885	86.656662	50.01						
49.40	22.247592	86.657312	50.00						
49.40	22.247468	86.656121	50.00						
49.40	22.247459	86.65525	50.00						
50.35	22.247417	86.654331	50.96						
52.36	22.247478	86.653616	53.00						
54.01	22.247521	86.65279	54.67						
53.41	22.247094	86.653298	54.06						
52.49	22.246738	86.653953	53.13						
51.19	22.246356	86.654497	51.81						
50.10	22.246162	86.654803	50.71						
50.51	22.245455	86.656007	51.12						
49.79	22.245474	86.654847	50.39						
53.21	22.245635	86.653789	53.86						
53.86	22.245804	86.653102	54.51						
52.68	22.245862	86.652438	53.32						
53.48	22.245879	86.652217	54.13						
53.07	22.24565	86.652614	53.71						
54.99	22.24535	86.653125	55.66						
54.48	22.245007	86.65359	55.14						
54.39	22.245007	86.653603	55.05						

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51.61				22.244791	86.65393	52.24				
49.60				22.24421	86.655087	50.20				
50.58				22.24434	86.65394	51.19				
53.89				22.244412	86.65325	54.54				
55.89				22.244605	86.652652	56.57				
55.61				22.244885	86.651909	56.29				
57.24				22.244316	86.652423	57.94				
55.84				22.24402	86.652902	56.52				
54.82				22.243666	86.653474	55.49				
53.94				22.243438	86.653701	54.60				
57.69				22.243391	86.653027	58.39				
57.65				22.243398	86.653	58.35				
56.59				22.24359	86.652327	57.28				
55.43				22.243665	86.652117	56.10				
56.72				22.243071	86.652927	57.41				
ES SUB PRE 17		ES SUB POS_17	505	22.231256	86.67117	52.70	49.17	1389081	0.74	1.0279
51.16		1389080		22.231437	86.671578	51.94				
52.34				22.231689	86.672118	53.14				
52.18				22.232028	86.672729	52.97				
48.11				22.232326	86.673357	48.84				
48.02				22.232643	86.674069	48.75				
48.23				22.23311	86.675116	48.96				
47.86				22.232533	86.674488	48.59				
48.95				22.232052	86.673946	49.70				
51.90				22.231541	86.673354	52.69				
54.31				22.230968	86.672687	55.14				
52.55				22.230549	86.67223	53.35				
52.25				22.230243	86.671936	53.04				
53.49				22.230438	86.672802	54.31				
54.18				22.23075	86.673695	55.01				
51.51				22.231028	86.67449	52.30				
49.59				22.231345	86.675282	50.35				
48.54				22.231651	86.676372	49.28				
48.97				22.230947	86.675841	49.71				
51.41				22.230542	86.675287	52.20				
52.39				22.230016	86.674775	53.19				
50.89				22.229489	86.674246	51.67				
50.29				22.229018	86.673763	51.05				
50.94				22.228601	86.673285	51.72				
48.67				22.228786	86.674111	49.41				
49.94				22.229028	86.674918	50.70				
49.37				22.229301	86.675763	50.12				



47.83										22.229588	86.676434	48.56								
51.54										22.230079	86.677691	52.33								
47.36										22.229301	86.676889	48.09								
48.41										22.228811	86.676419	49.15								
50.88										22.228314	86.675906	51.65								
49.31										22.22797	86.67563	50.06								
48.65										22.227643	86.675321	49.39								
51.22										22.22715	86.674692	52.00								
47.96										22.227609	86.676118	48.69								
47.96										22.228049	86.676923	48.69								
47.28										22.228334	86.677653	48.00								
52.44										22.228804	86.678704	53.24								
47.28										22.228057	86.678111	48.00								
47.28										22.227468	86.677601	48.00								
47.83										22.226973	86.677214	48.56								
48.98										22.226544	86.67692	49.73								
50.71										22.226001	86.676513	51.49								
48.71										22.226312	86.677405	49.45								
47.56										22.226544	86.677789	48.29								
47.28										22.226762	86.678351	48.00								
47.35										22.227107	86.679218	48.07								
48.99										22.22743	86.679957	49.74								
51.09										22.227504	86.680305	51.87								
47.81										22.22694	86.679842	48.53								
47.28										22.226393	86.679302	48.00								
47.28										22.225939	86.678902	48.00								
48.07										22.225465	86.678405	48.81								
49.57										22.225155	86.678068	50.32								
47.58										22.22531	86.678967	48.30								
47.28										22.22559	86.679867	48.00								
47.31										22.225854	86.680542	48.03								
51.57										22.226287	86.681562	52.35								
47.52										22.225687	86.681077	48.24								
47.28										22.225301	86.680739	48.00								
47.66										22.224814	86.680204	48.39								
48.12										22.224293	86.679687	48.85								
48.39										22.223998	86.679462	49.13								
49.29										22.224151	86.680292	50.04								
50.07										22.224277	86.681035	50.84								
47.24										22.224461	86.682108	47.96								
48.75										22.224741	86.683459	49.49								
46.30										22.223999	86.682523	47.00								



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48.29										22.223402	86.681648	49.03								
49.25										22.222922	86.680685	50.00								
49.75										22.222632	86.680207	50.51								
47.78										22.222662	86.681309	48.51								
45.81										22.222891	86.682516	46.51								
46.61										22.222335	86.683567	47.32								
48.04										22.223843	86.684969	48.77								
50.62										22.224061	86.685788	51.39								
46.83										22.223399	86.685233	47.54								
47.45										22.222423	86.684487	48.17								
46.20										22.221598	86.683821	46.91								
46.68										22.221108	86.683478	47.39								
46.63										22.221546	86.684748	47.35								
46.30										22.221815	86.68579	47.00								
46.66										22.222738	86.686904	47.37								
49.32										22.223461	86.687614	50.07								
53.39										22.224006	86.688082	54.20								
47.45										22.223243	86.688073	48.17								
46.30										22.222473	86.687865	47.00								
48.36										22.221389	86.687767	49.10								
47.38										22.223229	86.688908	48.10								
51.10										22.223294	86.689575	51.88								
53.76										22.223911	86.690235	54.58								
50.13										22.222911	86.690163	50.89								
47.36										22.221968	86.689991	48.08								
47.05										22.22124	86.689862	47.76								
47.31										22.221953	86.690775	48.03								
48.99										22.223226	86.69128	49.73								
50.50										22.223531	86.691715	51.27								
47.60										22.222944	86.691772	48.33								
46.30										22.221984	86.69167	47.00								
48.02										22.220903	86.69163	48.75								
47.79										22.221034	86.691668	48.52								
46.56										22.221937	86.692359	47.27								
47.78										22.222537	86.692791	48.51								
49.45										22.222877	86.693088	50.20								
47.28										22.222124	86.693185	48.00								
46.42										22.221615	86.693222	47.13								
48.87										22.220792	86.693359	49.62								
46.85										22.221482	86.693785	47.56								
46.93										22.221935	86.694056	47.65								
48.93										22.222759	86.694545	49.68								



46.87					22.22215	86.694581	47.58			
46.81					22.221437	86.69462	47.52			
49.00					22.22073	86.694719	49.74			
46.34					22.221626	86.695014	47.05			
46.54					22.222207	86.695316	47.25			
47.60					22.222647	86.695513	48.33			
46.70					22.222078	86.695686	47.41			
46.30					22.221618	86.695729	47.01			
48.76					22.220493	86.695807	49.50			
46.30					22.221066	86.696109	47.00			
46.31					22.221671	86.696393	47.01			
47.99					22.221166	86.696607	48.72			
49.18					22.222819	86.696931	49.93			
47.80					22.222225	86.697269	48.53			
46.30					22.221494	86.697469	47.00			
46.30					22.221093	86.697562	47.00			
47.88					22.219949	86.697628	48.61			
51.09					22.219587	86.697642	51.87			
47.54					22.220317	86.698348	48.26			
46.30					22.221272	86.698677	47.00			
48.20					22.22214	86.698994	48.94			
50.19					22.222656	86.699249	50.96			
47.49					22.222004	86.699327	48.22			
46.36					22.221147	86.699386	47.06			
46.53					22.220895	86.699385	47.24			
50.04					22.21999	86.699084	50.80			
50.63					22.219062	86.699006	51.40			
48.82					22.219502	86.699333	49.56			
45.85					22.220214	86.699846	46.55			
46.30					22.221531	86.700407	47.00			
46.36					22.222408	86.700896	47.07			
46.30					22.22175	86.700875	47.01			
45.30					22.220778	86.700807	45.99			
45.21					22.219872	86.70064	45.90			
49.07					22.219109	86.700417	49.81			
50.93					22.218704	86.700309	51.71			
49.68					22.21928	86.700947	50.44			
43.81					22.220109	86.70157	44.48			
46.30					22.221142	86.702191	47.00			
46.70					22.221858	86.702648	47.41			
46.36					22.221145	86.702641	47.06			
46.72					22.220424	86.702476	47.44			



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	46.60					22.219919	86.702327	47.31					
	46.83					22.219484	86.702174	47.54					
	47.85					22.219077	86.702048	48.58					
	51.02					22.218653	86.701899	51.80					
	48.10					22.219252	86.702473	48.83					
	47.35					22.219894	86.702893	48.07					
	46.48					22.220663	86.703392	47.19					
	46.53					22.221467	86.703902	47.24					
	46.37					22.220684	86.703794	47.08					
	46.94					22.220007	86.703618	47.65					
	47.54					22.21927	86.703399	48.27					
	49.09					22.218915	86.703277	49.84					
	48.54					22.219307	86.70367	49.28					
	48.53					22.21932	86.703678	49.27					
	46.89					22.219914	86.704015	47.60					
	51.22					22.219015	86.703913	52.00					
ES SUB PRE 18	44.44	47.08	3855822	3531	ES SUB POS 18	22.21444	86.738719	45.30	47.99	3855823	0.91	3.5088	
	44.78					22.21611	86.738564	45.65					
	45.05					22.217627	86.738492	45.93					
	44.95					22.216488	86.738814	45.82					
	46.48					22.215468	86.739106	47.38					
	45.09					22.214568	86.73935	45.97					
	44.15					22.213839	86.739506	45.00					
	45.14					22.21459	86.739676	46.02					
	47.42					22.215468	86.739745	48.34					
	48.04					22.216477	86.739923	48.97					
	44.35					22.217568	86.740064	45.21					
	46.70					22.218776	86.740229	47.60					
	46.27					22.217349	86.740455	47.17					
	48.37					22.216359	86.740458	49.31					
	49.23					22.21513	86.740476	50.18					
	45.59					22.214198	86.740374	46.47					
	44.15					22.213273	86.740271	45.00					
	46.67					22.21413	86.740745	47.57					
	50.22					22.215451	86.741111	51.20					
	49.05					22.2167	86.741423	50.01					
	45.96					22.218425	86.741717	46.85					
	45.80					22.220029	86.742084	46.69					
	46.54					22.218372	86.742094	47.44					
	50.87					22.216941	86.742208	51.85					
	49.48					22.215102	86.742479	50.44					
	48.48					22.213512	86.742492	49.42					



44.67	22.212309	86.742481	45.53								
43.41	22.211747	86.742516	44.25								
48.50	22.212849	86.743139	49.44								
50.39	22.214446	86.743706	51.36								
50.85	22.216488	86.744488	51.83								
47.17	22.218126	86.744751	48.08								
44.41	22.219931	86.745028	45.27								
43.39	22.222448	86.745629	44.23								
48.59	22.220313	86.746091	49.53								
49.91	22.218456	86.746408	50.88								
50.27	22.216035	86.746724	51.25								
49.44	22.21413	86.746604	50.40								
48.87	22.212608	86.746527	49.82								
49.41	22.211164	86.746469	50.37								
48.40	22.209419	86.746451	49.33								
48.27	22.210906	86.747491	49.21								
51.20	22.213121	86.748633	52.19								
49.72	22.216598	86.749382	50.68								
47.20	22.219655	86.750247	48.12								
49.19	22.222232	86.750467	50.14								
43.16	22.225772	86.750904	44.00								
44.55	22.223774	86.751463	45.41								
48.25	22.221775	86.75173	49.19								
48.95	22.220034	86.75205	49.90								
49.22	22.217306	86.752305	50.18								

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51.26	22.214035	86.752996	52.25						
50.20	22.211766	86.752895	51.17						
46.56	22.208637	86.752982	47.46						
50.09	22.211681	86.755047	51.06						
48.82	22.217326	86.756	49.77						
48.96	22.221064	86.757281	49.91						
43.42	22.223909	86.75781	44.26						
48.88	22.220142	86.758083	49.83						
50.91	22.216567	86.758322	51.90						
43.32	22.213179	86.758611	52.90						
45.54	22.209837	86.759013	44.16						
50.60	22.211756	86.759587	46.42						
49.06	22.215192	86.760682	51.58						
43.16	22.217144	86.760915	50.01						
48.37	22.220478	86.761663	44.00						
48.01	22.217382	86.761841	49.31						
42.18	22.214295	86.762065	48.94						
42.18	22.212455	86.762068	43.00						
42.19	22.211454	86.761993	43.00						
42.24	22.213817	86.76333	43.01						
42.42	22.215906	86.763891	43.06						
42.18	22.218245	86.76489	49.31						
42.18	22.215938	86.764918	43.24						
42.18	22.21382	86.764622	43.00						
42.18	22.212587	86.764499	43.00						
42.18	22.212773	86.764528	43.00						
43.42	22.214564	86.765253	43.00						
47.26	22.216115	86.765713	44.26						
45.79	22.217643	86.766007	48.17						
48.07	22.217365	86.764296	46.67						
47.96	22.217935	86.760322	49.00						
43.16	22.218513	86.75705	48.89						
49.79	22.22339	86.754802	44.00						
49.72	22.216799	86.750793	50.75						
48.92	22.217037	86.750628	50.69						
50.62	22.220506	86.74801	49.86						
48.12	22.213372	86.745189	51.60						
49.70	22.211467	86.743947	49.06						
50.98	22.213581	86.750915	50.66						
51.97	22.208963	86.750046	51.97						
44.52	22.213372	86.757156	52.98						
	22.209558	86.756681	45.39						



ZONE WISE DETAILS OF DISTRICT EAST SINGHBHUM

<u>UIN OF SAND BAR</u>	<u>GEO-COORDINATE</u>	<u>AREA IN HA</u>
ES_SUB_ZONE_01	X- 22°41'48.17"N Y- 86°22'46.86"E Z-117M	45.6
	X- 22°41'51.44"N Y- 86°22'39.35"E Z-115M	
	X- 22°42'33.68"N Y- 86°22'40.66"E Z-118M	
	X- 22°42'38.86"N Y- 86°22'51.24"E Z-118M	
ES_SUB_ZONE_02	X- 22°39'33.74"N Y- 86°22'51.16"E Z-115M	23.7
	X- 22°39'33.06"N Y- 86°22'43.37"E Z-110M	
	X- 22°40'4.49"N Y- 86°22'37.17"E Z-110M	
	X- 22°40'5.36"N Y- 86°22'44.22"E Z-114M	
ES_SUB_ZONE_03	X- 22°31'18.81"N Y- 86°29'52.06"E Z-96M	23.3
	X- 22°31'16.68"N Y- 86°29'56.68"E Z-89M	
	X- 22°32'0.39"N Y- 86°29'48.90"E Z-90M	
	X- 22°31'56.76"N Y- 86°29'42.35"E Z-93M	
ES_SUB_ZONE_04	X- 22°31'6.71"N Y- 86°29'40.13"E Z-93M	12.6
	X- 22°31'4.70"N Y- 86°29'41.60"E Z-89M	
	X- 22°30'45.61"N Y- 86°29'9.09"E Z-89M	
	X- 22°30'44.45"N Y- 86°29'12.28"E Z-89M	
ES_SUB_ZONE_05	X- 22°30'48.13"N Y- 86°29'18.06"E Z-89M	6.77
	X- 22°30'47.34"N Y- 86°29'19.91"E Z-90M	
	X- 22°30'27.51"N Y- 86°29'26.11"E Z-93M	
	X- 22°30'25.30"N Y- 86°29'24.30"E Z-89M	
ES_SUB_ZONE_06	X- 22°29'21.18"N Y- 86°31'28.00"E Z-87M	11.0
	X- 22°29'17.59"N Y- 86°31'21.23"E Z-91M	



	X- 22°29'1.49"N Y- 86°31'35.64"E Z-89M	
	X- 22°29'3.53"N Y- 86°31'39.33"E Z-87M	
ES_SUB_ZONE_07	X- 22°26'30.18"N Y- 86°34'4.23"E Z-94M	11.0
	X- 22°26'26.03"N Y- 86°34'3.41"E Z-84M	
	X- 22°26'16.47"N Y- 86°34'31.65"E Z-86M	
	X- 22°26'14.47"N Y- 86°34'31.21"E Z-83M	
ES_SUB_ZONE_08	X- 22°26'12.48"N Y- 86°34'31.60"E Z-83M	9.65
	X- 22°26'9.48"N Y- 86°34'28.88"E Z-85M	
	X- 22°25'54.73"N Y- 86°34'51.41"E Z-84M	
	X- 22°25'59.13"N Y- 86°34'51.29"E Z-83M	
ES_SUB_ZONE_09	X- 22°25'45.60"N Y- 86°35'25.82"E Z-83M	41.6
	X- 22°25'40.82"N Y- 86°35'20.21"E Z-84M	
	X- 22°24'46.16"N Y- 86°35'30.31"E Z-85M	
	X- 22°24'43.65"N Y- 86°35'36.04"E Z-82M	
ES_SUB_ZONE_10	X- 22°24'13.78"N Y- 86°35'5.49"E Z-84M	21.2
	X- 22°24'15.42"N Y- 86°34'59.92"E Z-81M	
	X- 22°23'39.78"N Y- 86°35'21.22"E Z-80M	
	X- 22°23'41.99"N Y- 86°35'21.34"E Z-84M	
ES_SUB_ZONE_11	X- 22°23'37.51"N Y- 86°35'27.33"E Z-80M	25.3
	X- 22°23'32.25"N Y- 86°35'24.87"E Z-81M	
	X- 22°23'5.18"N Y- 86°35'54.82"E Z-83M	
	X- 22°23'7.80"N Y- 86°35'58.06"E Z-80M	
ES_SUB_ZONE_12	X- 22°21'49.60"N Y- 86°36'23.48"E Z-85M	2.82
	X- 22°21'48.41"N Y- 86°36'22.38"E Z-79M	



	X- 22°21'35.16"N Y- 86°36'41.48"E Z-80M	
	X- 22°21'36.19"N Y- 86°36'41.85"E Z-83M	
ES_SUB_ZONE_13	X- 22°21'30.19"N Y- 86°36'47.32"E Z-87M	17.4
	X- 22°21'25.90"N Y- 86°36'45.22"E Z-78M	
	X- 22°21'12.67"N Y- 86°37'12.83"E Z-80M	
	X- 22°21'17.63"N Y- 86°37'14.75"E Z-78M	
ES_SUB_ZONE_14	X- 22°21'4.66"N Y- 86°37'50.96"E Z-78M	83.6
	X- 22°20'56.85"N Y- 86°37'47.51"E Z-78M	
	X- 22°19'42.80"N Y- 86°38'48.94"E Z-75M	
	X- 22°19'45.87"N Y- 86°38'52.68"E Z-80M	
ES_SUB_ZONE_15	X- 22°19'28.14"N Y- 86°39'9.28"E Z-78M	87.8
	X- 22°19'22.72"N Y- 86°39'0.84"E Z-75M	
	X- 22°18'12.52"N Y- 86°39'34.45"E Z-73M	
	X- 22°18'12.09"N Y- 86°39'19.15"E Z-80M	
ES_SUB_ZONE_16	X- 22°17'59.74"N Y- 86°39'18.16"E Z-83M	450
	X- 22°17'52.93"N Y- 86°39'45.16"E Z-80M	
	X- 22°14'33.75"N Y- 86°39'9.30"E Z-75M	
	X- 22°14'39.75"N Y- 86°39'19.66"E Z-70M	
ES_SUB_ZONE_17	X- 22°14'1.82"N Y- 86°40'28.23"E Z-68M	139
	X- 22°13'52.52"N Y- 86°40'16.07"E Z-71M	
	X- 22°13'17.39"N Y- 86°42'14.05"E Z-67M	
	X- 22°13'8.41"N Y- 86°42'14.54"E Z-73M	
ES_SUB_ZONE_18	X- 22°13'3.50"N Y- 86°44'17.99"E Z-65M	386
	X- 22°12'51.87"N Y- 86°44'19.09"E Z-65M	



	X- 22°13'3.11"N Y- 86°45'59.21"E Z-68M	
	X- 22°12'45.80"N Y- 86°45'53.27"E Z-63M	
<u>TOTAL AREA IN HA.</u>		1398.34
<u>TOTAL NUMBER OF ZONES</u>		18



ANNEXURE-16

TEST REPORT OF SAND FROM
NABL ACCREDITED AGENCY





A D POWER PVT.LTD. TESTING LAB
QR.NO. CD/488, SECTOR 2, DHURWA, RANCHI-834004, JHARKHAND
SPECIFIC GRAVITY (IS:2386,Part - 3)

EAST SINGHBHUM

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY	BULK DENSITY
SUB-1	Kuliyana & Sundarkanali, Subarnarekha	4	1	22°42'2.03"N 86°22'48.85"E	2.621	1.305
			2	22°41'58.65"N 86°22'48.18"E	2.611	1.298
SUB-2	Sonagara, Subarnarekha	2.54	3	22°30'56.84"N 86°29'21.91"E	2.616	1.296
			4	22°30'54.99"N 86°29'19.35"E	2.618	1.301
SUB-3	Reruya, Subarnarekha	13.3	5	22°25'22.39"N 86°35'37.18"E	2.622	1.305
			6	22°25'10.77"N 86°35'40.65"E	2.609	1.295
			7	22°25'4.06"N 86°35'40.50"E	2.629	1.290
			8	22°25'29.39"N 86°35'35.09"E	2.607	1.288
SUB-4	Chandanpur, Subarnarekha	4.97	9	22°23'58.89"N 86°34'57.37"E	2.615	1.301
			10	22°23'52.37"N 86°34'59.49"E	2.605	1.295
SUB-5	Bhakar, Subarnarekha River	6.29	11	22°23'30.66"N 86°35'38.88"E	2.626	1.285
			12	22°23'27.38"N 86°35'43.90"E	2.619	1.280
			13	22°23'25.10"N 86°35'45.80"E	2.622	1.286
SUB-6	Balijuri & Taraspur, Subarnarekha River	7.37	14	22°21'21.80"N 86°36'55.73"E	2.630	1.296
			15	22°21'18.19"N 86°37'3.11"E	2.614	1.302
			16	22°21'24.53"N 86°36'51.32"E	2.601	1.288
SUB-7	Balijuri-ii, Subarnarekha River	24	17	22°20'45.79"N 86°38'4.71"E	2.611	1.292
			18	22°20'39.18"N 86°38'12.02"E	2.627	1.297
			19	22°20'34.26"N 86°38'19.04"E	2.630	1.286
			20	22°20'49.62"N 86°38'3.14"E	2.624	1.298
			21	22°20'44.60"N 86°38'12.87"E	32.621	1.287
SUB-8	Koreyamohanpal & Subarnarekha, Subarnarekha River	46.3	22	22°17'29.96"N 86°39'22.78"E	2.619	1.295
			23	22°17'20.72"N 86°39'23.13"E	2.613	1.303
			24	22°17'12.10"N 86°39'27.37"E	2.610	1.300
			25	22°17'2.83"N 86°39'29.76"E	2.600	1.296
			26	22°17'23.69"N 86°39'29.26"E	2.619	1.295
			27	22°17'9.77"N 86°39'33.49"E	2.606	1.291
SUB-9	Koreyamohanpal, Subarnarekha River	34.7	28	22°16'50.69"N 86°39'41.39"E	2.632	1.294
			29	22°16'40.57"N 86°39'43.34"E	2.607	1.284
			30	22°16'48.61"N 86°39'32.96"E	2.627	1.286
			31	22°16'41.01"N 86°39'34.87"E	2.615	1.294
			32	22°16'33.79"N 86°39'40.55"E	2.632	1.292
SUB-10	Koreyamohanpal, SubarnarekhaNadipal & SubarnarekhaNadipal, Subarnarekha River	71	33	22°16'13.27"N 86°39'30.02"E	2.602	1.301
			34	22°16'8.98"N 86°39'42.63"E	2.624	1.293
			35	22°16'1.64"N 86°39'29.97"E	2.606	1.296
			36	22°15'52.57"N 86°39'43.84"E	2.623	1.297
			37	22°15'47.42"N 86°39'29.65"E	2.611	1.296
			38	22°15'42.20"N 86°39'40.46"E	2.620	1.299
			39	22°15'37.85"N 86°39'28.83"E	2.613	1.297
			40	22°15'53.11"N 86°39'34.56"E	2.633	1.293
			41	22°16'16.34"N 86°39'39.92"E	2.630	1.286
SUB-11	Bankata, Subarnarekha River	4.4	42	22°13'23.46"N 86°41'15.01"E	2.628	1.289
			43	22°13'23.34"N 86°41'19.66"E	2.629	1.290
SUB-12	Damjuri, Negradiha, Nagursai & Dipapal, Subarnarekha River	126	44	22°13'3.07"N 86°44'30.03"E	2.603	1.302
			45	22°13'2.55"N 86°44'39.76"E	2.623	1.295
			46	22°13'9.99"N 86°44'44.65"E	2.617	1.289
			47	22°13'2.78"N 86°44'52.54"E	2.638	1.291
			48	22°13'17.87"N 86°44'56.76"E	2.623	1.300
			49	22°13'7.65"N 86°45'8.35"E	2.633	1.295
			50	22°13'25.08"N 86°45'15.13"E	2.618	1.297
			51	22°13'19.72"N 86°45'26.21"E	2.628	1.295
			52	22°13'8.25"N 86°45'40.59"E	2.613	1.293
			53	22°13'15.61"N 86°45'33.14"E	2.600	1.290
			54	22°13'15.79"N 86°45'7.22"E	2.618	1.288
			55	22°13'26.12"N 86°45'2.33"E	2.631	1.302

For AD Powers Pvt. Ltd.
TESTING LAB

Authorised Signatory

AUTHORIZED SIGNATORY





A D POWER PVT.LTD. TESTING LAB
QR.NO. CD/488, SECTOR 2, DHURWA, RANCHI-834004, JHARKHAND
SPECIFIC GRAVITY (IS:2386,Part - 3)

EAST SINGHBHUM

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-1	Kufiyana & Sundarkanali, Subarnarekha	4	1	22°42'2.03"N 86°22'48.85"E	2.621
			2	22°41'58.65"N 86°22'48.18"E	2.611
SUB-2	Sonagara, Subarnarekha	2.54	3	22°30'56.84"N 86°29'21.91"E	2.616
			4	22°30'54.99"N 86°29'19.35"E	2.618
SUB-3	Reruya, Subarnarekha	13.3	5	22°25'22.39"N 86°35'37.18"E	2.622
			6	22°25'10.77"N 86°35'40.65"E	2.609
			7	22°25'4.06"N 86°35'40.50"E	2.629
			8	22°25'29.39"N 86°35'35.09"E	2.607
SUB-4	Chandanpur, Subarnarekha	4.97	9	22°23'58.89"N 86°34'57.37"E	2.615
			10	22°23'52.37"N 86°34'59.49"E	2.605
SUB-5	Bhakar, Subarnarekha River	6.29	11	22°23'30.66"N 86°35'38.88"E	2.626
			12	22°23'27.38"N 86°35'43.90"E	2.619
			13	22°23'25.10"N 86°35'45.80"E	2.622
SUB-6	Balijuri & Taraspur, Subarnarekha River	7.37	14	22°21'21.80"N 86°36'55.73"E	2.630
			15	22°21'18.19"N 86°37'3.11"E	2.614
			16	22°21'24.53"N 86°36'51.32"E	2.601
SUB-7	Balijuri-ii, Subarnarekha River	24	17	22°20'45.79"N 86°38'4.71"E	2.611
			18	22°20'39.18"N 86°38'12.02"E	2.627
			19	22°20'34.26"N 86°38'19.04"E	2.630
			20	22°20'49.62"N 86°38'3.14"E	2.624
			21	22°20'44.60"N 86°38'12.87"E	2.621
SUB-8	Koreyamohanpal & Subarnarekha, Subarnarekha River	46.3	22	22°17'29.96"N 86°39'22.78"E	2.619
			23	22°17'20.72"N 86°39'23.13"E	2.613
			24	22°17'12.10"N 86°39'27.37"E	2.610
			25	22°17'2.83"N 86°39'29.76"E	2.600
			26	22°17'23.69"N 86°39'29.26"E	2.619
			27	22°17'9.77"N 86°39'33.49"E	2.606
SUB-9	Koreyamohanpal, Subarnarekha River	34.7	28	22°16'50.69"N 86°39'41.39"E	2.632
			29	22°16'40.57"N 86°39'43.34"E	2.607
			30	22°16'48.61"N 86°39'32.96"E	2.627
			31	22°16'41.01"N 86°39'34.87"E	2.615
			32	22°16'33.79"N 86°39'40.55"E	2.632
SUB-10	Koreyamohanpal, SubarnarekhaNadipal & SubarnarekhaNadipal, Subarnarekha River	71	33	22°16'13.27"N 86°39'30.02"E	2.602
			34	22°16'8.98"N 86°39'42.63"E	2.624
			35	22°16'1.64"N 86°39'29.97"E	2.606
			36	22°15'52.57"N 86°39'43.84"E	2.623
			37	22°15'47.42"N 86°39'29.65"E	2.611
			38	22°15'42.20"N 86°39'40.46"E	2.620
			39	22°15'37.85"N 86°39'28.83"E	2.613
			40	22°15'53.11"N 86°39'34.56"E	2.633
			41	22°16'16.34"N 86°39'39.92"E	2.630
SUB-11	Bankata, Subarnarekha River	4.4	42	22°13'23.46"N 86°41'15.01"E	2.628
			43	22°13'23.34"N 86°41'19.66"E	2.629
SUB-12	Damjuri, Nekradiha, Nagursai & Dipapal, Subarnarekha River	126	44	22°13'3.07"N 86°44'30.03"E	2.603
			45	22°13'2.55"N 86°44'39.76"E	2.623
			46	22°13'9.99"N 86°44'44.65"E	2.617
			47	22°13'2.78"N 86°44'52.54"E	2.638
			48	22°13'17.87"N 86°44'56.76"E	2.623
			49	22°13'7.65"N 86°45'8.35"E	2.633
			50	22°13'25.08"N 86°45'15.13"E	2.618
			51	22°13'19.72"N 86°45'26.21"E	2.628
			52	22°13'8.25"N 86°45'40.59"E	2.613
			53	22°13'15.61"N 86°45'33.14"E	2.600
			54	22°13'15.79"N 86°45'7.22"E	2.618
			55	22°13'26.12"N 86°45'2.33"E	2.631

AUTHORIZED SIGNATORY

For AD Powers Pvt. Ltd.
TESTING LAB

[Handwritten Signature]
 Authorised Signatory





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AD POWER PVT.LTD. TESTING LAB

QR. NO. CD/488, SECTOR2, DHURWA, RANCHI-834004, JHARKHAND

Email: - adpower350@gmail.com, Mobile: -7903166826

NABL Accredited Laboratory

TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/1

Description of Sample: - 02Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-1	Kuliyana & Sundarkanali, Subarnarekha	4	1	22°42'2.03"N 86°22'48.85"E	2.621
			2	22°41'58.65"N 86°22'48.18"E	2.611

AUTHORIZED SIGNATORY

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TESTING LAB

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NABL Accredited Laboratory

TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/2

Description of Sample: - 02 Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-2	Sonagara, Subarnarekha	2.54	1	22°30'56.84"N 86°29'21.91"E	2.616
			2	22°30'54.99"N 86°29'19.35"E	2.618

AUTHORIZED SIGNATORY

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Email:- adpower350@gmail.com, Mobile: -7903166826

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TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/3

Description of Sample: - 04 Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-3	Reruya, Subarnarekha River	13.3	1	22°25'22.39"N 86°35'37.18"E	2.622
			2	22°25'10.77"N 86°35'40.65"E	2.609
			3	22°25'4.06"N 86°35'40.50"E	2.629
			4	22°25'29.39"N 86°35'35.09"E	2.607



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TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/4

Description of Sample: - 02 Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-4	Chandanpur, Subarnarekha River	4.97	1	22°23'58.89"N 86°34'57.37"E	2.615
			2	22°23'52.37"N 86°34'59.49"E	2.605

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For AD Powers Pvt. Ltd.
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TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/5

Description of Sample: - 03 Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

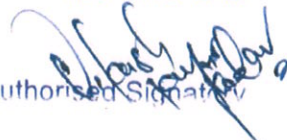
SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-5	Bhakar, Subarnarekha River	6.29	1	22°23'30.66"N 86°35'38.88"E	2.626
			2	22°23'27.38"N 86°35'43.90"E	2.619
			3	22°23'25.10"N 86°35'45.80"E	2.622

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For AD Powers Pvt. Ltd.
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NABL Accredited Laboratory

TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/6

Description of Sample: - 03 Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-6	Balijuri & Taraspur, Subarnarekha River	7.37	1	22°21'21.80"N 86°36'55.73"E	2.630
			2	22°21'18.19"N 86°37'3.11"E	2.614
			3	22°21'24.53"N 86°36'51.32"E	2.601

AUTHORIZED SIGNATORY

For AD Powers Pvt. Ltd.
TESTING LAB

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TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/7

Description of Sample: - 05 Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-7	Balijuri-ii , Subarnarekha River	24	1	22°20'45.79"N 86°38'4.71"E	2.611
			2	22°20'39.18"N 86°38'12.02"E	2.627
			3	22°20'34.26"N 86°38'19.04"E	2.630
			4	22°20'49.62"N 86°38'3.14"E	2.624
			5	22°20'44.60"N 86°38'12.87"E	2.621

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For AD Powers Pvt. Ltd.
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NABL Accredited Laboratory

TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/8

Description of Sample: - 06 Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-8	Koreyamohanpal &Subarnrekha,Subarnarekha River	46.3	1	22°17'29.96"N 86°39'22.78"E	2.619
			2	22°17'20.72"N 86°39'23.13"E	2.613
			3	22°17'12.10"N 86°39'27.37"E	2.610
			4	22°17'2.83"N 86°39'29.76"E	2.600
			5	22°17'23.69"N 86°39'29.26"E	2.619
			6	22°17'9.77"N 86°39'33.49"E	2.606

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For AD Powers Pvt. Ltd.
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TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/9

Description of Sample: - 05 Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-9	Koreyamohanpal, Subarnarekha River	34.7	1	22°16'50.69"N 86°39'41.39"E	2.632
			2	22°16'40.57"N 86°39'43.34"E	2.607
			3	22°16'48.61"N 86°39'32.96"E	2.627
			4	22°16'41.01"N 86°39'34.87"E	2.615
			5	22°16'33.79"N 86°39'40.55"E	2.632

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For AD Powers Pvt. Ltd.
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TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/10

Description of Sample: - 09 Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-10	Koreyamohanpal , SubarnarekhaNadipal & SubarnarekhaNadipal, Subarnarekha River	71	1	22°16'13.27"N 86°39'30.02"E	2.602
			2	22°16'8.98"N 86°39'42.63"E	2.624
			3	22°16'1.64"N 86°39'29.97"E	2.606
			4	22°15'52.57"N 86°39'43.84"E	2.623
			5	22°15'47.42"N 86°39'29.65"E	2.611
			6	22°15'42.20"N 86°39'40.46"E	2.620
			7	22°15'37.85"N 86°39'28.83"E	2.613
			8	22°15'53.11"N 86°39'34.56"E	2.633
			9	22°16'16.34"N 86°39'39.92"E	2.630

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For AD Powers Pvt. Ltd.
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TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/11

Description of Sample: - 02 Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-11	Bankata, Subarnarekha River	4.4	1	22°13'23.46"N 86°41'15.01"E	2.628
			2	22°13'23.34"N 86°41'19.66"E	2.629

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For AD Powers Pvt. Ltd.
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TEST REPORT

Reporting Date: -18.1.2023

Report No.ADP/ES/23-24/TR-NO-1/12

Description of Sample: - 12 Bag Sand sample submitted to us for the Specific Gravity tests.

Source: -SUBARNAREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

UIN	LEASE DETAILS	AREA (Ha.)	SAMPLE NO.	GEO-COORDINATE	SPECIFIC GRAVITY
SUB-12	Damjuri, Nekradiha, Nagursai & Dipapal, Subarnarekha River	126	1	22°13'3.07"N 86°44'30.03"E	2.603
			2	22°13'2.55"N 86°44'39.76"E	2.623
			3	22°13'9.99"N 86°44'44.65"E	2.617
			4	22°13'2.78"N 86°44'52.54"E	2.638
			5	22°13'17.87"N 86°44'56.76"E	2.623
			6	22°13'7.65"N 86°45'8.35"E	2.633
			7	22°13'25.08"N 86°45'15.13"E	2.618
			8	22°13'19.72"N 86°45'26.21"E	2.628
			9	22°13'8.25"N 86°45'40.59"E	2.613
			10	22°13'15.61"N 86°45'33.14"E	2.600
			11	22°13'15.79"N 86°45'7.22"E	2.618
			12	22°13'26.12"N 86°45'2.33"E	2.631

AUTHORIZED SIGNATORY

For AD Powers Pvt. Ltd.
TESTING LAB



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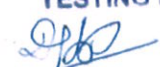
QR.NO. CD/488, SECTOR 2, DHURWA, RANCHI-834004, JHARKHAND

SPECIFIC GRAVITY (IS:2386,Part - 3)

SI. NO.	DETAILS	LATITUDE AND LONGITUDE	SAMPLE NO.	SPECIFIC GRAVITY
1	VILLAGE - SUNDARKANALI, BLOCK - GHATSHLA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°42'0.75"N 86°22'47.29"E	1	2.620
		22°42'4.49"N 86°22'46.66"E	2	2.610
		22°42'6.61"N 86°22'50.74"E	3	2.615
2	VILLAGE - SONAGARA & CHHABISHA, BLOCK - DHALBHUMGARH, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°30'59.60"N 86°29'28.02"E	4	2.618
		22°30'57.64"N 86°29'25.67"E	5	2.622
		22°30'57.35"N 86°29'22.25"E	6	2.609
3	VILLAGE - LALDHUA & RERUYA, BURUJBANI, BLOCK - DHALBHUMGAH & GURBANDHA, CHAKULIA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°25'33.46"N 86°35'32.28"E	7	2.628
		22°25'28.30"N 86°35'35.31"E	8	2.606
		22°25'26.79"N 86°35'37.85"E	9	2.616
4	VILLAGE -CHANDANPUR, MURATHAKURA & BHAKAR, BLOCK - CHAKULIA & GURBANDHA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°24'2.34"N 86°34'58.42"E	10	2.608
		22°23'59.71"N 86°34'55.63"E	11	2.625
		22°23'56.97"N 86°34'58.69"E	12	2.619
		22°23'53.48"N 86°34'59.82"E	13	2.622
		22°23'32.17"N 86°35'34.25"E	14	2.630
		22°23'29.81"N 86°35'40.15"E	15	2.615
		22°23'26.49"N 86°35'43.08"E	16	2.603
22°23'23.98"N 86°35'45.65"E	17	2.611		
5	VILLAGE - TRASPUR & BALJURI, BLOCK - DHALBHUMGARH & BAHARAGORA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°21'23.94"N 86°36'50.83"E	18	2.628
		22°21'23.27"N 86°36'57.03"E	19	2.632
		22°21'19.98"N 86°36'57.30"E	20	2.624
		22°21'19.84"N 86°37'3.01"E	21	2.620
		22°21'16.86"N 86°37'3.38"E	22	2.616
		22°21'17.42"N 86°37'7.75"E	23	2.612
6	VILLAGE - MUTHURKHAM & MAROTALI, BLOCK - CHAKULIYA & BAHARAGORA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°20'47.66"N 86°37'59.46"E	24	2.615
		22°20'48.22"N 86°38'8.07"E	25	2.600
		22°20'42.85"N 86°38'6.80"E	26	2.618
		22°20'44.03"N 86°38'12.29"E	27	2.604
		22°20'38.46"N 86°38'12.07"E	28	2.622
		22°20'36.62"N 86°38'17.27"E	29	2.608
		22°20'33.98"N 86°38'15.19"E	30	2.628
		22°20'31.29"N 86°38'22.15"E	31	2.612



For AD Powers Pvt. Ltd.
TESTING LAB

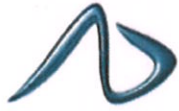

Authorised Signatory

7	VILLAGE - KOREYAMOHANPAL & CHHENGAGHATI KASIPAL, BLOCK - BAHARAGORA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°17'33.08"N 86°39'21.50"E	32	2.632
		22°17'27.40"N 86°39'27.47"E	33	2.602
		22°17'24.99"N 86°39'19.72"E	34	2.628
		22°17'21.86"N 86°39'25.46"E	35	2.606
		22°17'18.07"N 86°39'32.20"E	36	2.624
		22°17'16.30"N 86°39'21.39"E	37	2.610
		22°17'11.40"N 86°39'26.22"E	38	2.620
		22°17'4.50"N 86°39'23.10"E	39	2.614
8	VILLAGE - KOILA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°15'51.38"N 86°39'30.73"E	40	2.612
		22°15'39.08"N 86°39'27.29"E	41	2.603
		22°15'30.98"N 86°39'27.09"E	42	2.621
9	VILLAGE - BANKATA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°13'26.03"N 86°41'5.38"E	43	2.605
		22°13'22.18"N 86°41'14.03"E	44	2.623
		22°13'23.80"N 86°41'23.28"E	45	2.617
10	VILLAGE - DIPAPAL, BLOCK - BAHARAGORA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°13'1.99"N 86°44'30.67"E	46	2.638
		22°12'55.90"N 86°44'33.52"E	47	2.623
		22°13'10.58"N 86°44'43.04"E	48	2.633
		22°13'17.02"N 86°44'57.64"E	49	2.618
		22°13'27.42"N 86°45'11.60"E	50	2.628
		22°13'19.84"N 86°45'26.82"E	51	2.613

For AD Powers Pvt. Ltd.
TESTING LAB


AUTHORIZED SIGNATORY
Authorised Signatory





AD Powers Private Limited

PVT.LTD. TESTING LAB

QR. NO. CD/488, SECTOR2, DHURWA, RANCHI-834004, JHARKHAND

Email.: - adpower350@gmail.com, Mobile: -7903166826

NABL Accredited Laboratory

TEST REPORT

Reporting Date: - 29.11.2022

Report No.ADP/WS/22-23/TR-NO-11/10

Description of Sample: - 01 Bag (2kg) Sand sample submitted to us for the Specific Gravity tests.

Source: - SUBARNREKHA RIVER

SPECIFIC GRAVITY TEST

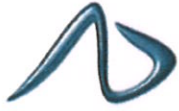
(IS:2386, Part - 3)

SI. NO.	DETAILS	LATITUDE AND LONGITUDE	SAMPLE NO.	SPECIFIC GRAVITY
10	VILLAGE - DIPAPAL, BLOCK - BAHRAGORA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°13'1.99"N 86°44'30.67"E	1	2.638
		22°12'55.90"N 86°44'33.52"E	2	2.623
		22°13'10.58"N 86°44'43.04"E	3	2.633
		22°13'17.02"N 86°44'57.64"E	4	2.618
		22°13'27.42"N 86°45'11.60"E	5	2.628
		22°13'19.84"N 86°45'26.82"E	6	2.613

**For AD Powers Pvt. Ltd.
TESTING LAB**


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AD Powers Private Limited

PVT.LTD. TESTING LAB

QR. NO. CD/488, SECTOR2, DHURWA, RANCHI-834004, JHARKHAND

Email.: - adpower350@gmail.com, Mobile: -7903166826

NABL Accredited Laboratory

TEST REPORT

Reporting Date: - 29.11.2022

Report No.ADP/WS/22-23/TR-NO-11/9

Description of Sample: - 01 Bag (2kg) Sand sample submitted to us for the Specific Gravity tests.

Source: - SUBARNREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

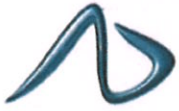
SI. NO.	DETAILS	LATITUDE AND LONGITUDE	SAMPLE NO.	SPECIFIC GRAVITY
9	VILLAGE - BANKATA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°13'26.03"N 86°41'5.38"E	1	2.605
		22°13'22.18"N 86°41'14.03"E	2	2.623
		22°13'23.80"N 86°41'23.28"E	3	2.617

**For AD Powers Pvt. Ltd.
TESTING LAB**


Authorised Signatory

AUTHORIZED SIGNATORY





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QR. NO. CD/488, SECTOR2, DHURWA, RANCHI-834004, JHARKHAND

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NABL Accredited Laboratory

TEST REPORT

Reporting Date: - 29.11.2022

Report No.ADP/WS/22-23/TR-NO-11/8

Description of Sample: - 01 Bag (2kg) Sand sample submitted to us for the Specific Gravity tests.

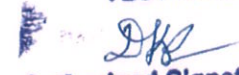
Source: - SUBARNREKHA RIVER

SPECIFIC GRAVITY TEST

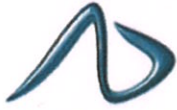
(IS:2386, Part - 3)

SI. NO.	DETAILS	LATITUDE AND LONGITUDE	SAMPLE NO.	SPECIFIC GRAVITY
8	VILLAGE - KOILA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°15'51.38"N 86°39'30.73"E	1	2.612
		22°15'39.08"N 86°39'27.29"E	2	2.603
		22°15'30.98"N 86°39'27.09"E	3	2.621

**For AD Powers Pvt. Ltd.
TESTING LAB**


**Authorized Signatory
AUTHORIZED SIGNATORY**





AD Powers Private Limited

PVT.LTD. TESTING LAB

QR. NO. CD/488, SECTOR2, DHURWA, RANCHI-834004, JHARKHAND

Email.: - adpower350@gmail.com, Mobile: -7903166826

NABL Accredited Laboratory

TEST REPORT

Reporting Date: - 29.11.2022

Report No.ADP/WS/22-23/TR-NO-11/7

Description of Sample: - 01 Bag (2kg) Sand sample submitted to us for the Specific Gravity tests.

Source: - SUBARNREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

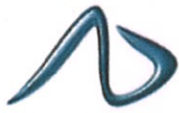
SI. NO.	DETAILS	LATITUDE AND LONGITUDE	SAMPLE NO.	SPECIFIC GRAVITY
7	VILLAGE - KOREYAMOHANPAL & CHHENGAGHATI KASIPAL, BLOCK - BAHARAGORA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°17'33.08"N 86°39'21.50"E	1	2.632
		22°17'27.40"N 86°39'27.47"E	2	2.602
		22°17'24.99"N 86°39'19.72"E	3	2.628
		22°17'21.86"N 86°39'25.46"E	4	2.606
		22°17'18.07"N 86°39'32.20"E	5	2.624
		22°17'16.30"N 86°39'21.39"E	6	2.610
		22°17'11.40"N 86°39'26.22"E	7	2.620
		22°17'4.50"N 86°39'23.10"E	8	2.614

**For AD Powers Pvt. Ltd.
TESTING LAB**


Authorized Signatory

AUTHORIZED SIGNATORY





AD Powers Private Limited

PVT.LTD. TESTING LAB

QR. NO. CD/488, SECTOR2, DHURWA, RANCHI-834004, JHARKHAND

Email.: - adpower350@gmail.com, Mobile: -7903166826

NABL Accredited Laboratory

TEST REPORT

Reporting Date: - 29.11.2022

Report No.ADP/WS/22-23/TR-NO-11/6

Description of Sample: - 01 Bag (2kg) Sand sample submitted to us for the Specific Gravity tests.

Source: - SUBARNREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

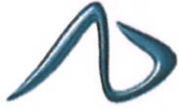
SI. NO.	DETAILS	LATITUDE AND LONGITUDE	SAMPLE NO.	SPECIFIC GRAVITY
6	VILLAGE - MUTHURKHAM & MAROTALI, BLOCK - CHAKULIYA & BAHARAGORA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°20'47.66"N 86°37'59.46"E	1	2.615
		22°20'48.22"N 86°38'8.07"E	2	2.600
		22°20'42.85"N 86°38'6.80"E	3	2.618
		22°20'44.03"N 86°38'12.29"E	4	2.604
		22°20'38.46"N 86°38'12.07"E	5	2.622
		22°20'36.62"N 86°38'17.27"E	6	2.608
		22°20'33.98"N 86°38'15.19"E	7	2.628
		22°20'31.29"N 86°38'22.15"E	8	2.612

**For AD Powers Pvt. Ltd.
TESTING LAB**


Authorised Signatory

AUTHORIZED SIGNATORY





AD Powers Private Limited

PVT.LTD. TESTING LAB

QR. NO. CD/488, SECTOR2, DHURWA, RANCHI-834004, JHARKHAND

Email.: - adpower350@gmail.com, Mobile: -7903166826

NABL Accredited Laboratory

TEST REPORT

Reporting Date: - 29.11.2022

Report No.ADP/WS/22-23/TR-NO-11/5

Description of Sample: - 01 Bag (2kg) Sand sample submitted to us for the Specific Gravity tests.

Source: - SUBARNREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

SI. NO.	DETAILS	LATITUDE AND LONGITUDE	SAMPLE NO.	SPECIFIC GRAVITY
5	VILLAGE - TRASPUR & BALJURI, BLOCK - DHALBHUMGARH & BAHARAGORA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°21'23.94"N 86°36'50.83"E	1	2.628
		22°21'23.27"N 86°36'57.03"E	2	2.632
		22°21'19.98"N 86°36'57.30"E	3	2.624
		22°21'19.84"N 86°37'3.01"E	4	2.620
		22°21'16.86"N 86°37'3.38"E	5	2.616
		22°21'17.42"N 86°37'7.75"E	6	2.612

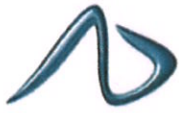
**For AD Powers Pvt. Ltd.
TESTING LAB**



Authorised Signatory

AUTHORIZED SIGNATORY





AD Powers Private Limited

PVT.LTD. TESTING LAB

QR. NO. CD/488, SECTOR2, DHURWA, RANCHI-834004, JHARKHAND

Email.: - adpower350@gmail.com, Mobile: -7903166826

NABL Accredited Laboratory

TEST REPORT

Reporting Date: - 29.11.2022

Report No.ADP/WS/22-23/TR-NO-11/4

Description of Sample: - 01 Bag (2kg) Sand sample submitted to us for the Specific Gravity tests.

Source: - SUBARNREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

SI. NO.	DETAILS	LATITUDE AND LONGITUDE	SAMPLE NO.	SPECIFIC GRAVITY
4	VILLAGE -CHANDANPUR, MURATHAKURA & BHAKAR, BLOCK - CHAKULIA & GURBANDHA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°24'2.34"N 86°34'58.42"E	1	2.608
		22°23'59.71"N 86°34'55.63"E	2	2.625
		22°23'56.97"N 86°34'58.69"E	3	2.619
		22°23'53.48"N 86°34'59.82"E	4	2.622
		22°23'32.17"N 86°35'34.25"E	5	2.630
		22°23'29.81"N 86°35'40.15"E	6	2.615
		22°23'26.49"N 86°35'43.08"E	7	2.603
		22°23'23.98"N 86°35'45.65"E	8	2.611

For AD Powers Pvt. Ltd.
TESTING LAB


Authorized Signatory
AUTHORIZED SIGNATORY





AD Powers Private Limited

PVT.LTD. TESTING LAB

QR. NO. CD/488, SECTOR2, DHURWA, RANCHI-834004, JHARKHAND

Email.: - adpower350@gmail.com, Mobile: -7903166826

NABL Accredited Laboratory

TEST REPORT

Reporting Date: - 29.11.2022

Report No.ADP/WS/22-23/TR-NO-11/3

Description of Sample: - 01 Bag (2kg) Sand sample submitted to us for the Specific Gravity tests.

Source: - SUBARNREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

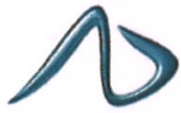
SI. NO.	DETAILS	LATITUDE AND LONGITUDE	SAMPLE NO.	SPECIFIC GRAVITY
3	VILLAGE - LALDHUA & RERUYA, BURUJBANI, BLOCK - DHALBHUMGAH & GURBANDHA, CHAKULIA, DISTRICT - EAST SINGHBHUM, JHARKHAND. SUBARNREKHA RIVER	22°25'33.46"N 86°35'32.28"E	1	2.628
		22°25'28.30"N 86°35'35.31"E	2	2.606
		22°25'26.79"N 86°35'37.85"E	3	2.616

**For AD Powers Pvt. Ltd.
TESTING LAB**


Authorised Signatory

AUTHORIZED SIGNATORY





AD Powers Private Limited

PVT.LTD. TESTING LAB

QR. NO. CD/488, SECTOR2, DHURWA, RANCHI-834004, JHARKHAND

Email.: - adpower350@gmail.com, Mobile: -7903166826

NABL Accredited Laboratory

TEST REPORT

Reporting Date: - 29.11.2022

Report No.ADP/WS/22-23/TR-NO-11/2

Description of Sample: - 01 Bag (2kg) Sand sample submitted to us for the Specific Gravity tests.

Source: - SUBARNREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

SI. NO.	DETAILS	LATITUDE AND LONGITUDE	SAMPLE NO.	SPECIFIC GRAVITY
2	VILLAGE - SONAGARA & CHHABISHA, BLOCK - DHALBHUMGARH, DISTRICT - EAST SINGHBHUM, JHARKHAND SUBARNREKHA RIVER	22°30'59.60"N 86°29'28.02"E	1	2.618
		22°30'57.64"N 86°29'25.67"E	2	2.622
		22°30'57.35"N 86°29'22.25"E	3	2.609

**For AD Powers Pvt. Ltd.
TESTING LAB**

Authorised Signatory

AUTHORIZED SIGNATORY





AD Powers Private Limited

PVT.LTD. TESTING LAB

QR. NO. CD/488, SECTOR2, DHURWA, RANCHI-834004, JHARKHAND

Email.: - adpower350@gmail.com, Mobile: -7903166826

NABL Accredited Laboratory

TEST REPORT

Reporting Date: - 29.11.2022

Report No.ADP/WS/22-23/TR-NO-11/1

Description of Sample: - 01 Bag (2kg) Sand sample submitted to us for the Specific Gravity tests.

Source: - SUBARNREKHA RIVER

SPECIFIC GRAVITY TEST

(IS:2386, Part - 3)

SI. NO.	DETAILS	LATITUDE AND LONGITUDE	SAMPLE NO.	SPECIFIC GRAVITY
1	VILLAGE - SUNDARKANALI, BLOCK - GHATSHLA, DISTRICT - EAST SINGHBHUM, JH. SUBARNREKHA RIVER	22°42'0.75"N 86°22'47.29"E	1	2.620
		22°42'4.49"N 86°22'46.66"E	2	2.610
		22°42'6.61"N 86°22'50.74"E	3	2.615

AUTHORIZED SIGNATORY





National Accreditation Board for
Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

A D POWERS PVT LTD TESTING LAB

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

**"General Requirements for the Competence of Testing &
Calibration Laboratories"**

for its facilities at

SECTOR 2, DHURWA, RANCHI, JHARKHAND, INDIA

in the field of

TESTING

Certificate Number: TC-9476

Issue Date: 28/04/2021

Valid Until:

27/04/2023

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Identity : A D POWERS PRIVATE LIMITED TESTING LAB

Signed for and on behalf of NABL



N. Venkateswaran
Chief Executive Officer



ANNEXURE-17

COPY OF WORK ORDER



GOVERNMENT OF JHARKHAND
DEPARTMENT OF MINES & GEOLOGY
DIRECTORATE OF GEOLOGY
ENGINEERS' HOSTEL, 2ND FLOOR, DHURWA, RANCHI
E-MAIL- dir-geology@jharkhandmail.gov.in

Letter No:- Bhu.Ni. Anve-95/2021 - 2135

M/Ranchi, Date:- 13.10.2022

From,

Vijay Kumar Ojha
Director, Geology

To,

M/s Atmos Sustainable Solutions Private Limited,
A QCI-NABET-Approved EIA Consultant
A-73, 3rd Floor, Sector-65, Noida-201301
e-mail-gilbertmervyn@gmail.com

Subject: Work Order for Preparation/Updation and Revision of District Survey Report (DSR) of Sand in Jharkhand.

Sir,

This is to inform you that M/s Atmos Sustainable Solutions Private Limited has been submitted lowest financial offer for Preparation/Updation and Revision of District Survey Report (DSR) of Sand under the guideline of Enforcement and Monitoring Guidelines for Sand Mining 2020 (EMGSM-2020), Sustainable Sand Mining Management Guidelines 2016 (SSMMG-2016), Ministry of Environment, Forest and Climate Change January 2020 (MoEF&CC) and follow Gazette of India 15th January 2016 and 25th July 2018 and also guidance of Hon'ble Court of Jharkhand and Supreme Court of India. In consequence of that Directorate of Geology intend to give work order for Preparation/Updation and Revision of District Survey Report (DSR) of Sand on the lowest rate decided by the Departmental Purchase Committee.

2. Scope of work:-

- i. Preparation of District Survey Reports of Sand for 7 districts of Jharkhand (as per list contained in this letter further).
- ii. Preparation of DSR of Sand should be done as per the procedure and the parameters lay down under the Sustainable Sand Mining Management Guidelines 2016 and Enforcement & Monitoring Guidelines for Sand Mining 2020 read in sync with each other and carried out as per format prescribed by the MoEF& CC, GoI vide Notification dated 25 July 2018.
- iii. In preparation of DSR of other minor minerals including Sand, various guidelines and direction given by Honourable NGT and MoEF& CC, GoI and SEIAA, Jharkhand shall be strictly adhered to.

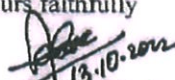
(Signature)



5.	<i>Pakur</i>	Rs. 16.00 (Rupees Sixteen Lakh only)
6.	<i>Simdega</i>	Rs. 18.00 (Rupees Eighteen Lakh only)
7.	<i>Gumla</i>	Rs. 18.50 (Rupees Eighteen Lakh Fifty Thousand only)

4. All terms and conditions mentioned in Expression of Interest No- 08/2021-22 of Directorate of Geology, Department of Mines & Geology, Government of Jharkhand will be applicable and the agency will execute the work accordingly.
5. The Agency shall have to submit the Performance Security Deposit in the form of Bank Guarantee. Performance security deposit shall be 20% of the contract value excluding the taxes. The performance security deposit shall be returned after completion of the warranty period to the satisfaction of the Directorate of Geology and satisfactory performance of the work.
6. You are directed to provide email ID and mobile numbers of each member of your survey team for better communication.
7. Your agency will report progress of work fortnightly to project in-charge as well as Directorate of Geology.
8. Your agency will work under the supervision of authorized representative of Directorate of Geology.
9. **Payment and Termination of Work Order:**
 - i. Payment shall be made after approval of District Survey Report (DSR) by the SEIAA. The company shall submit certified final bill after completion of work to the Directorate of Geology, 2nd floor Engineers' Hostel no-2, Dhurwa Ranchi with completion certificate duly certified by authorized field officer of Directorate of Geology and concern District Mining Officer.
 - ii. In case of any breach of Terms & Conditions mentioned in work order or in the Expression of Interest No. 08/2021-22 of Directorate of Geology, Department of Mines & Geology, work order will be cancelled and the security money and payment will be forfeited after giving 15 day of notice.
 - iii. Any dispute will be mutually settled by the parties. In case any further legal dispute, jurisdiction will be Ranchi only.
10. This work order is being issued after the approval of competent authority.

Yours faithfully


(Vijay Kumar Ojha)
Director, Geology



ANNEXURE-18

MINUTES OF SEAC RANCHI



MINUTES OF THE 97TH MEETING OF STATE LEVEL EXPERT APPRAISAL COMMITTEE (SEAC), JHARKHAND HELD ON 14TH, 15TH, 16TH 17TH and 18TH SEPTEMBER, 2022

The 97th meeting of State Level Expert Appraisal Committee (SEAC), Jharkhand was held on 14th, 15th, 16th 17th and 18th September, 2022 under the Chairmanship of Shri Ashok Kumar Singh, IFS (Retd.) in the Conference Room at SEAC, Ranchi.

The following members were present:

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

SEIAA forwarded various projects to the SEAC for the technical appraisal after the last SEAC meeting held on 16th, 17th, 18th and 19th August, 2022. These projects have been put up for discussions. Besides, these Projects, wherein PP's were asked to provide requisite information / clarifications in the earlier meeting of SEAC, were also considered for appraisal. The Project Proponents have been asked to make technical presentation for the appraisal of their projects before the committee.

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

Day 1 : September 14th, 2022 [Wednesday]

A. Corrigendum EC letter for Residential Building "Panchmukhi Enclave" of M/s Anaadi Group, Mauza : Hatia, Thana no. : 248, Distt. : Ranchi, Jharkhand.

(Proposal No. : SIA/JH/MIS/ 289046/2022)

The PA's vide online application no. SIA/JH/MIS/ 289046/2022 has requested for necessary correction in Environmental Clearance issued vide letter no. EC/SEIAA/2022-23/2620/2022/205, dated 02.08.2022 with regard to change in building blocks, the revised details is being given below :

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

Anaadi Group is proposed to develop a Group housing project "Panchmukhi Enclave" on the total land area measuring 6097.95 m² located at Khesra No. 1590, Khata No. 209, Thana No.248, Mauza - Hatia, Anchal- Namkum, Dist.-Ranchi, Jharkhand. The total build up area is 25723.67m².

Salient Features of the Project

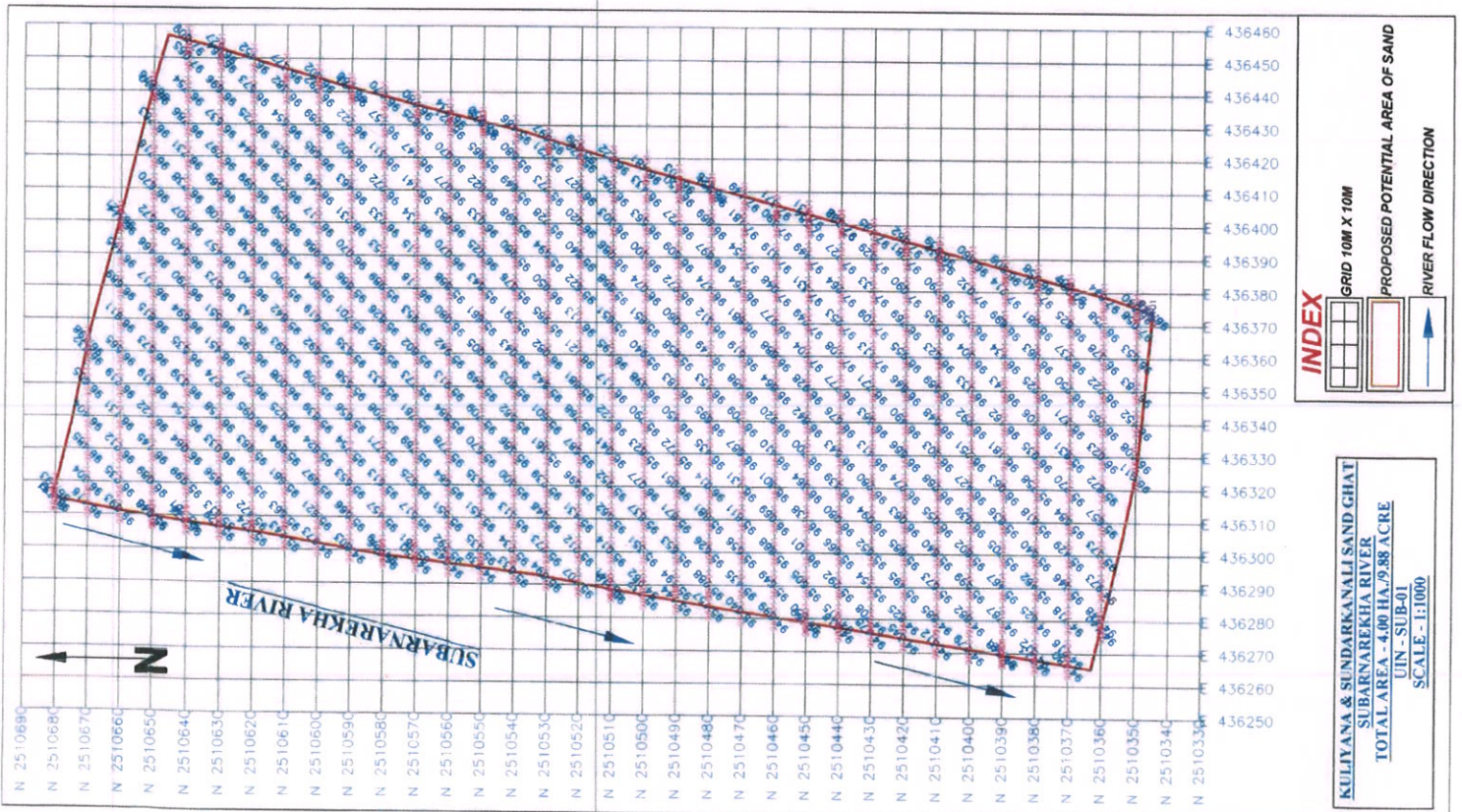
Sl. no.	Particulars
1.	Latitude 23°16'56.42"N

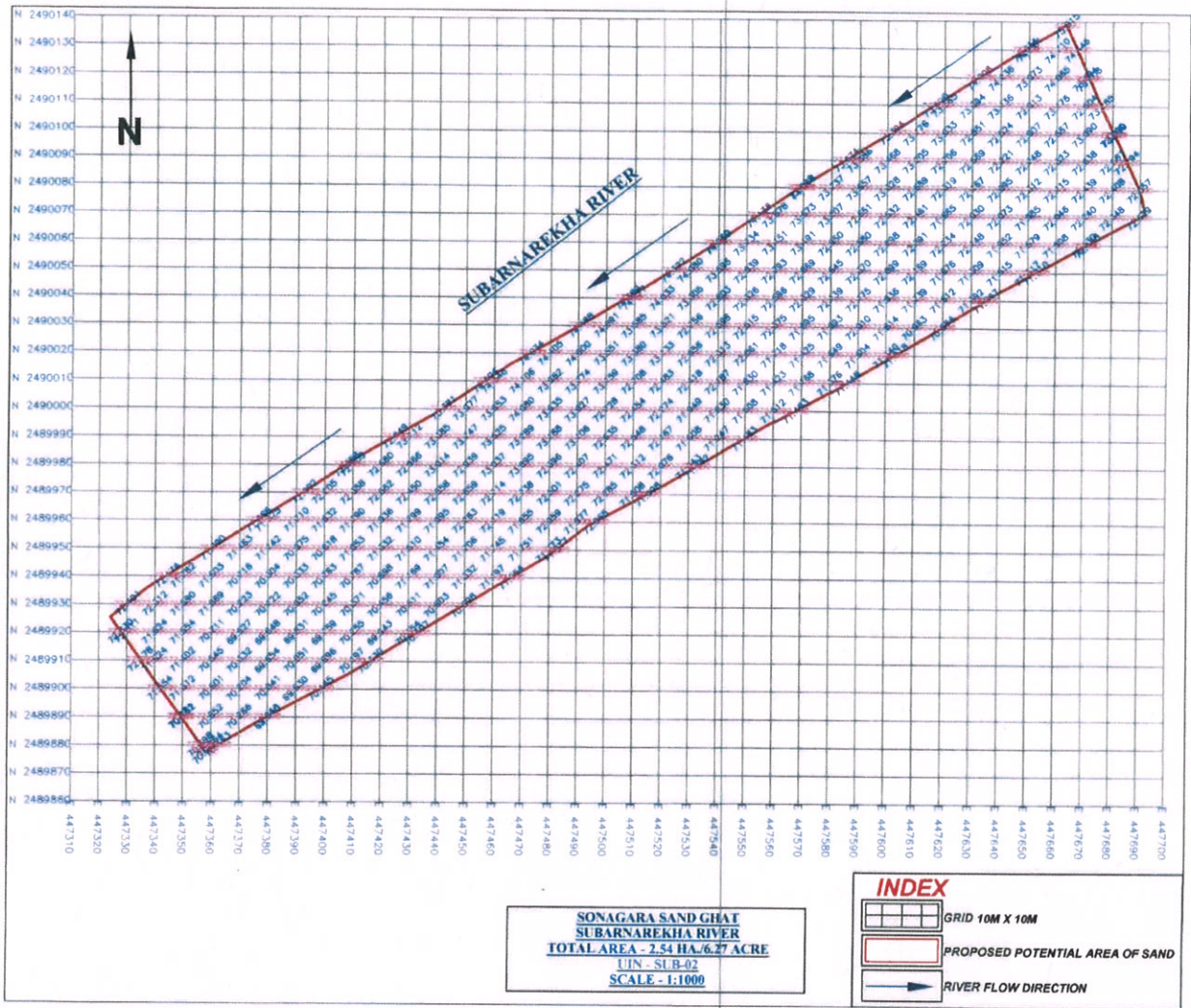


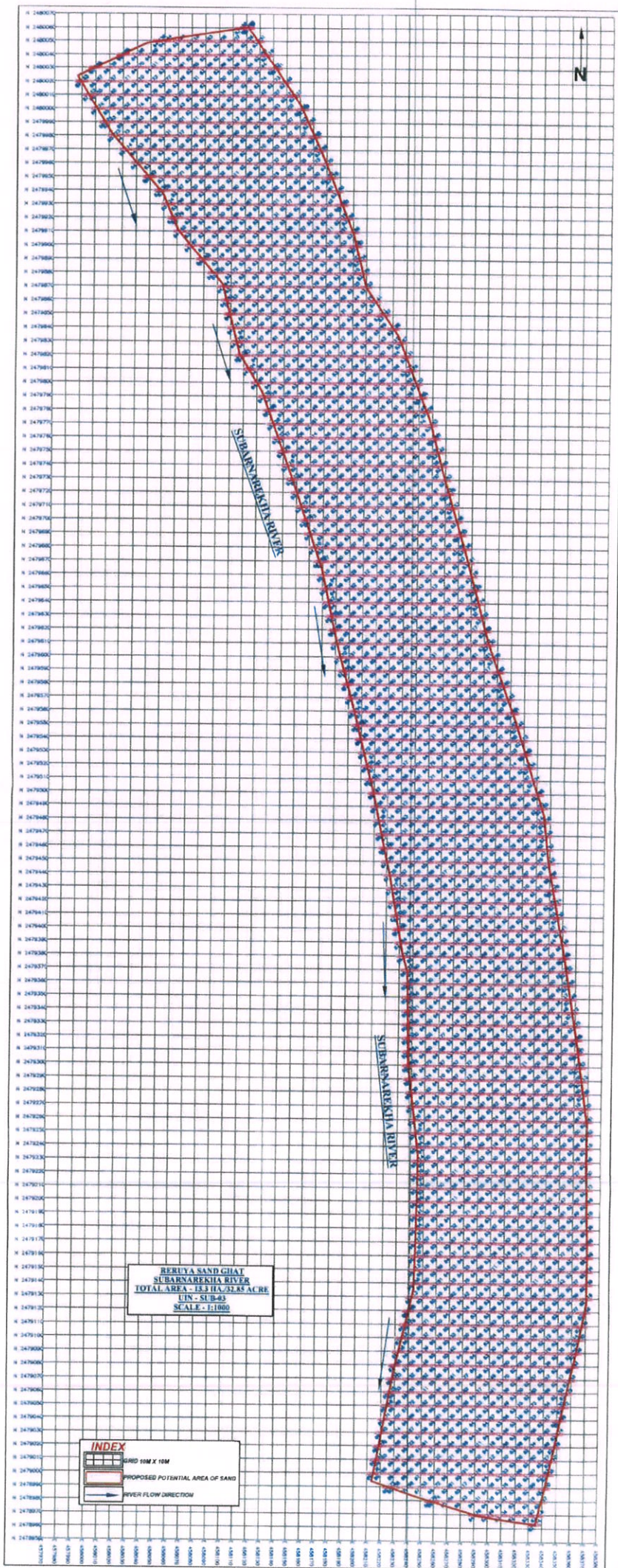
ANNEXURE-19

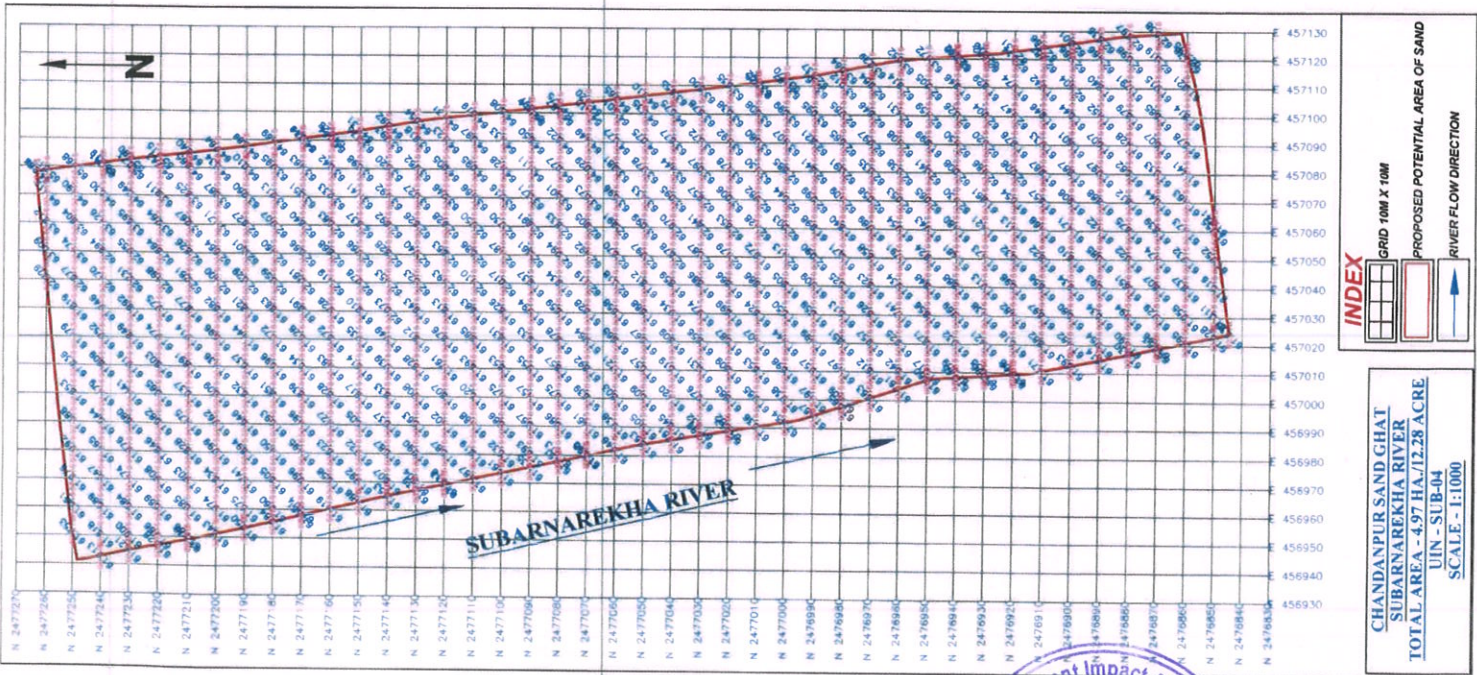
10M X 10M GRID MAP WITH
CROSS SECTION

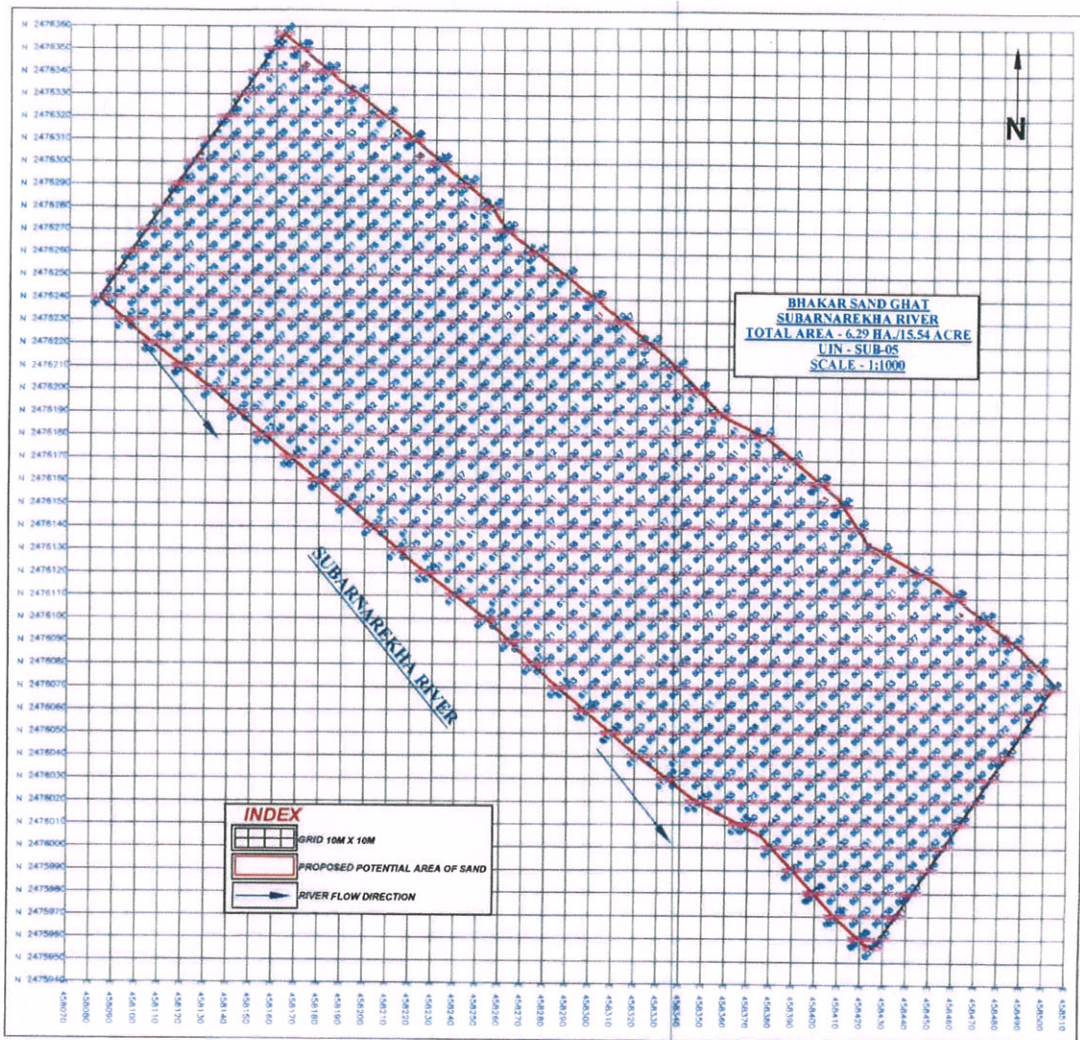


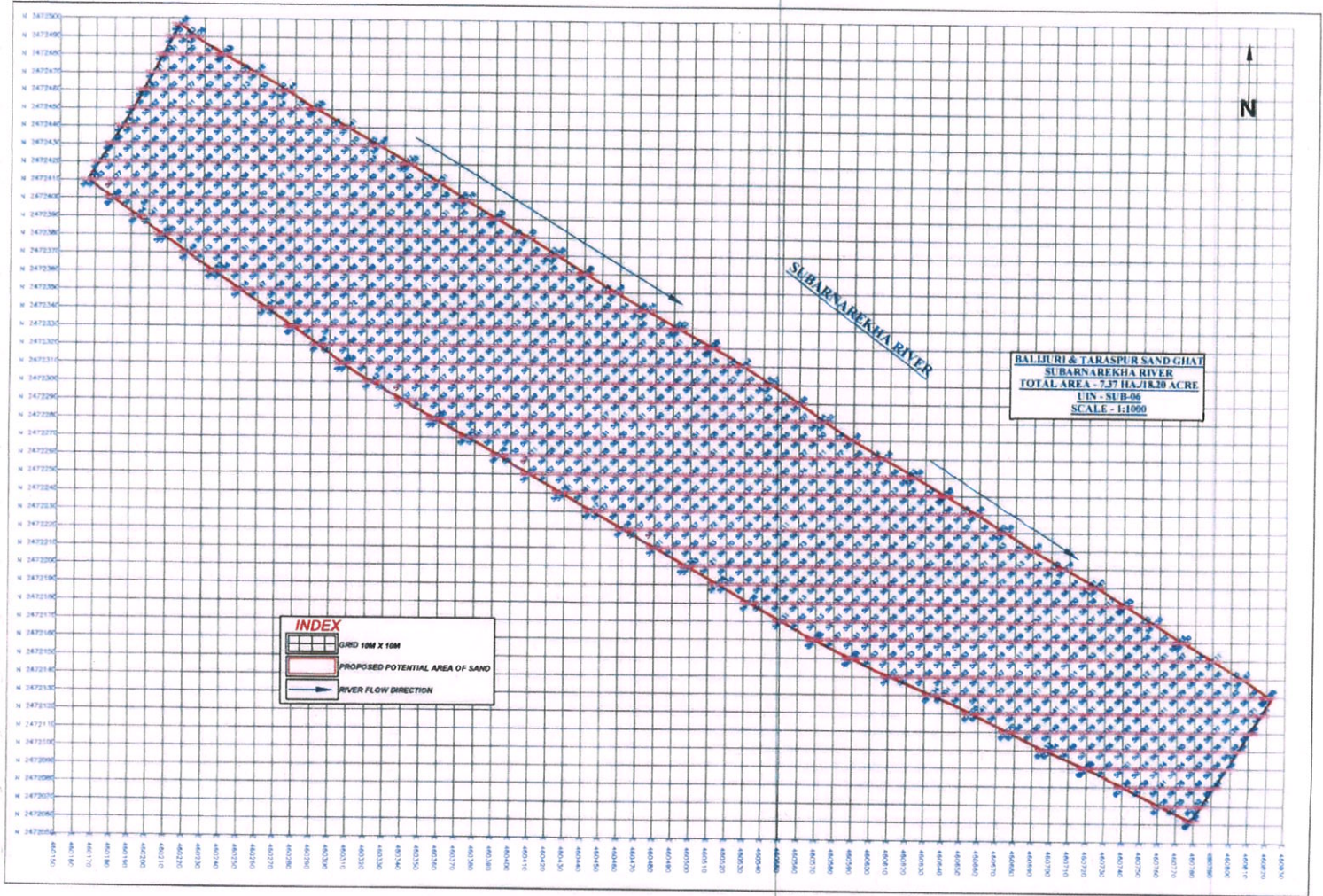


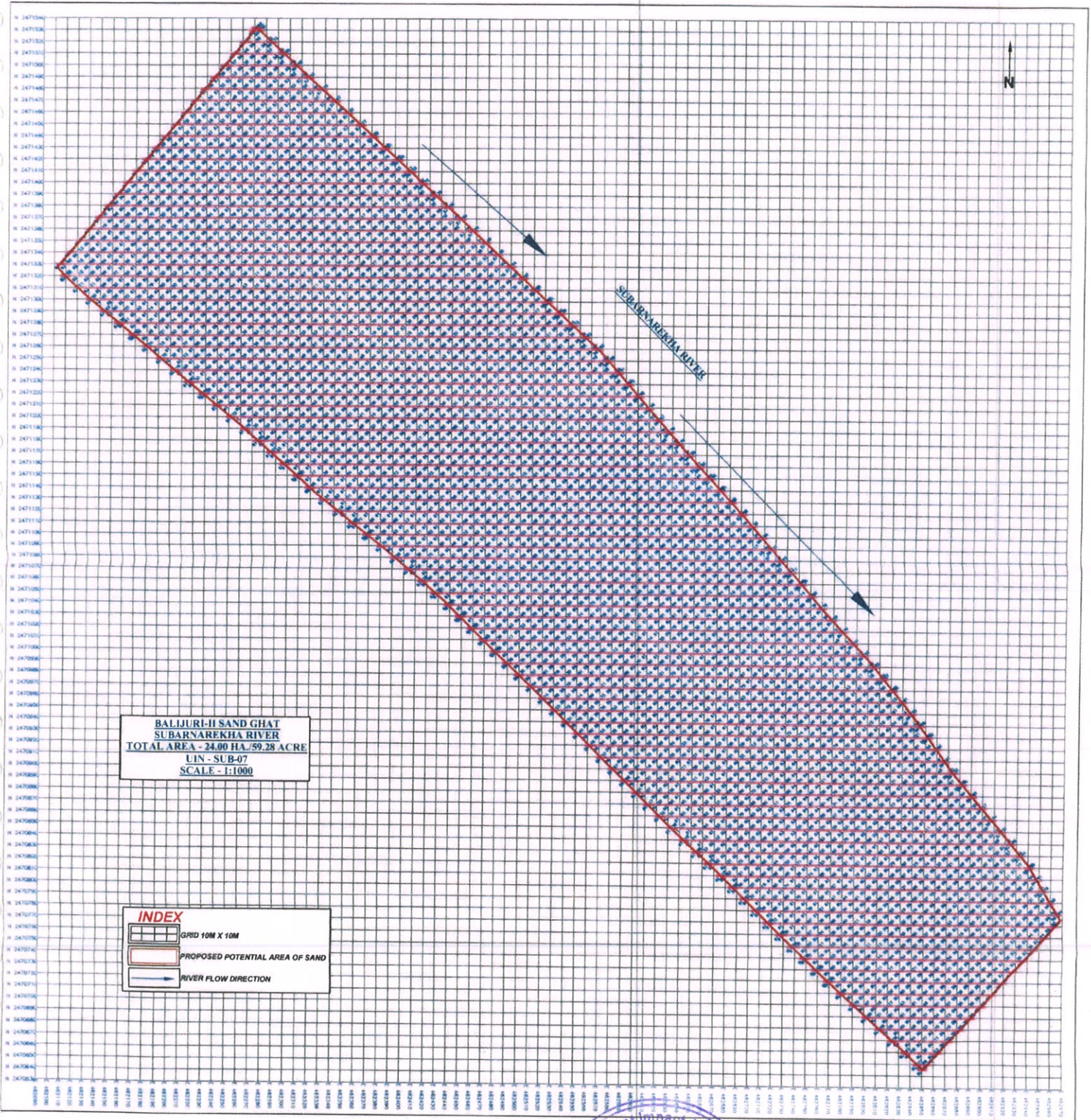








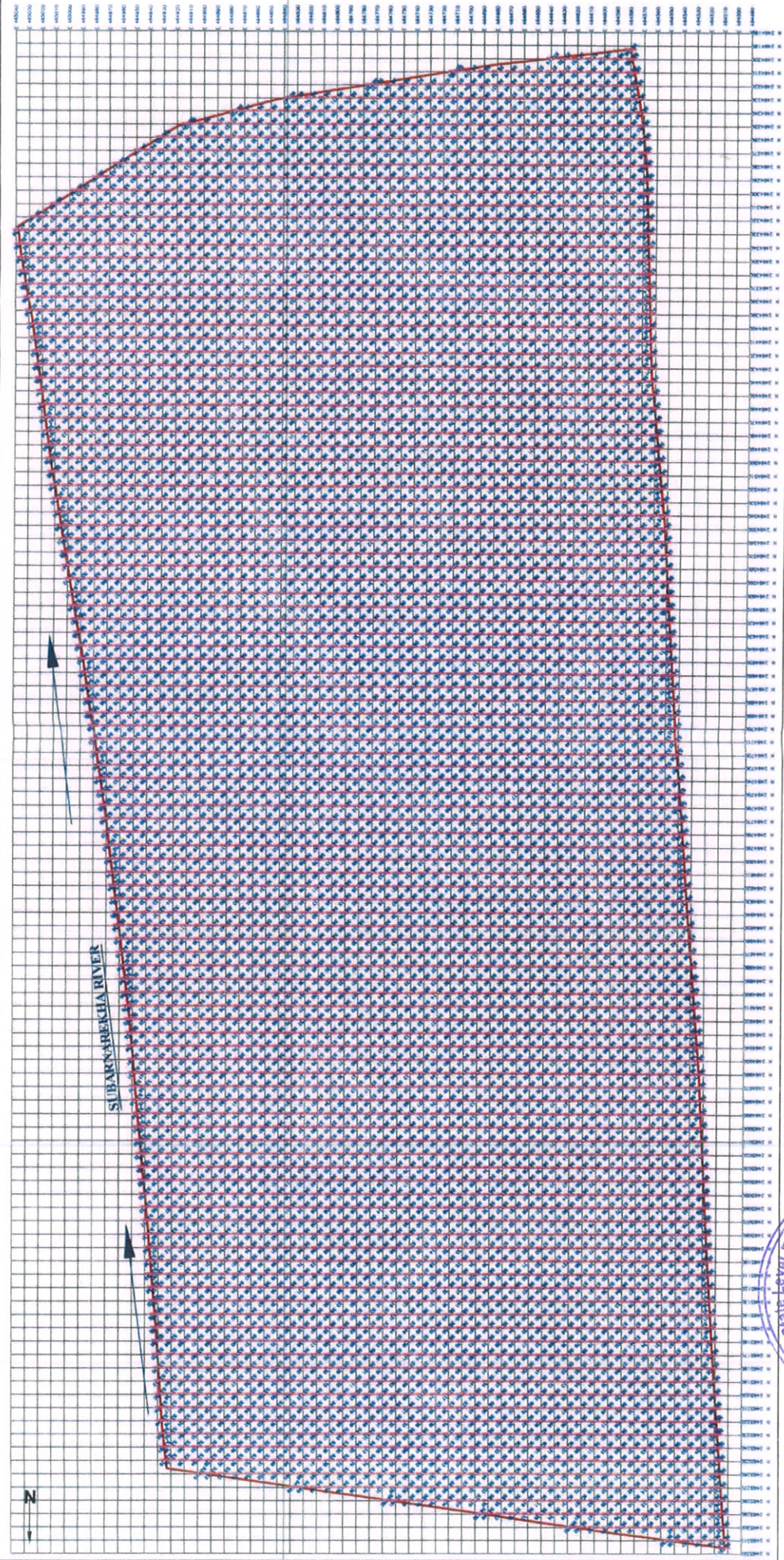




KOREYAMOHANPUR & SUBARNAREKHA SAND GHAT
SUBARNAREKHA RIVER
TOTAL AREA - 46.3 HA/114.36 ACRE
LIN - ST-B-08
SCALE - 1:1000

INDEX

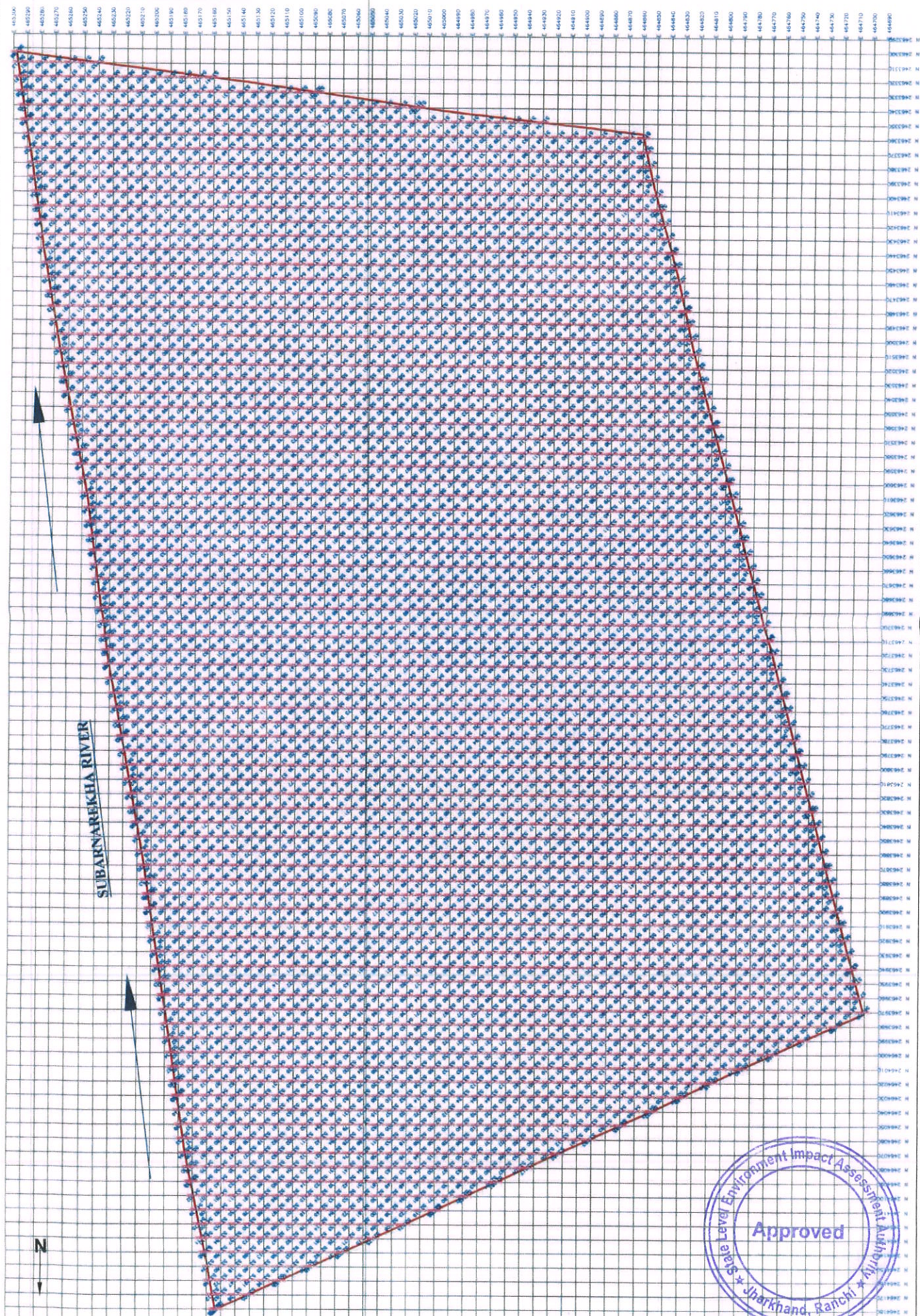
	GRID 10M X 10M
	PROPOSED POTENTIAL AREA OF SAND
	RIVER FLOW DIRECTION



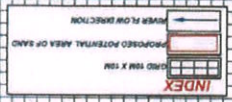
KOREYAMOHANPAL SAND GHAT
SUBARNAREKHA RIVER
TOTAL AREA - 34.7 HA/85.71 ACRE
LIN - SUB-09
SCALE - 1:1000

INDEX

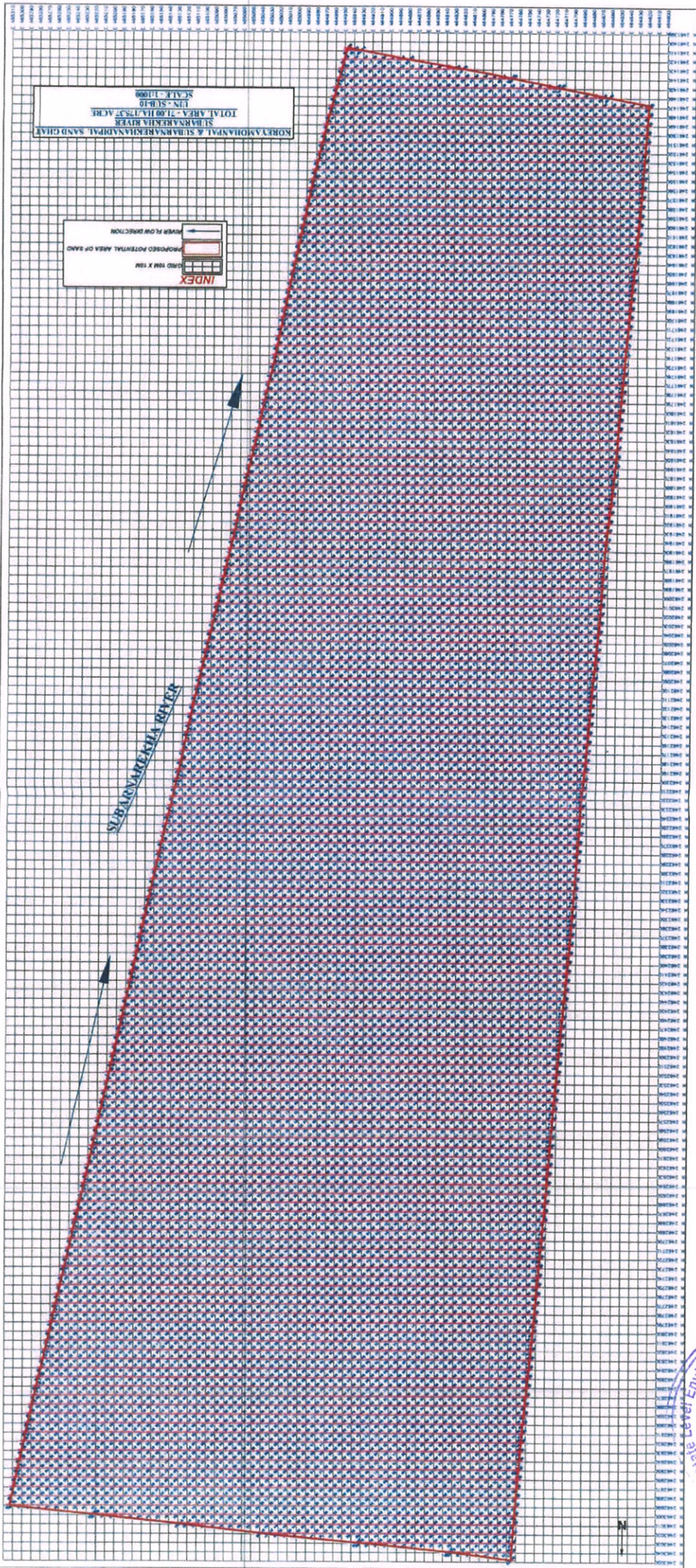
	GRID 10M X 10M
	PROPOSED POTENTIAL AREA OF SAND
	RIVER FLOW DIRECTION

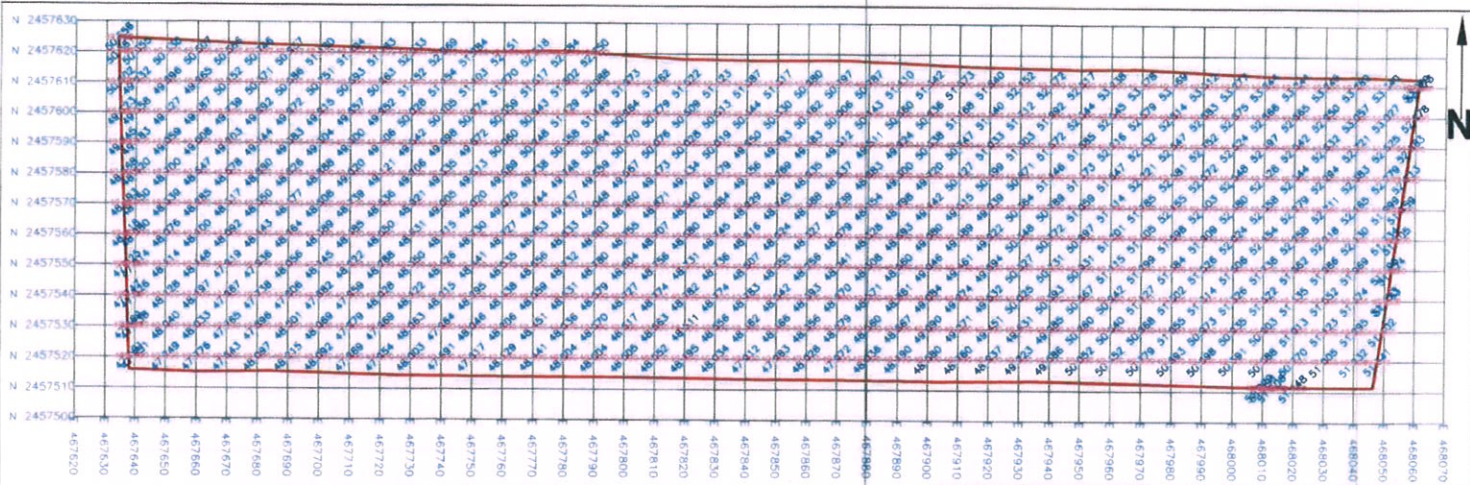


KOREYAPPOHAPAL & SUBARNAKESHA SAND CHIT
TOTAL AREA - 1189.11757 ACRES
SCALE - 1:1000



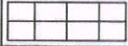
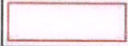
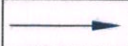
SUBARNAKESHA RIVER



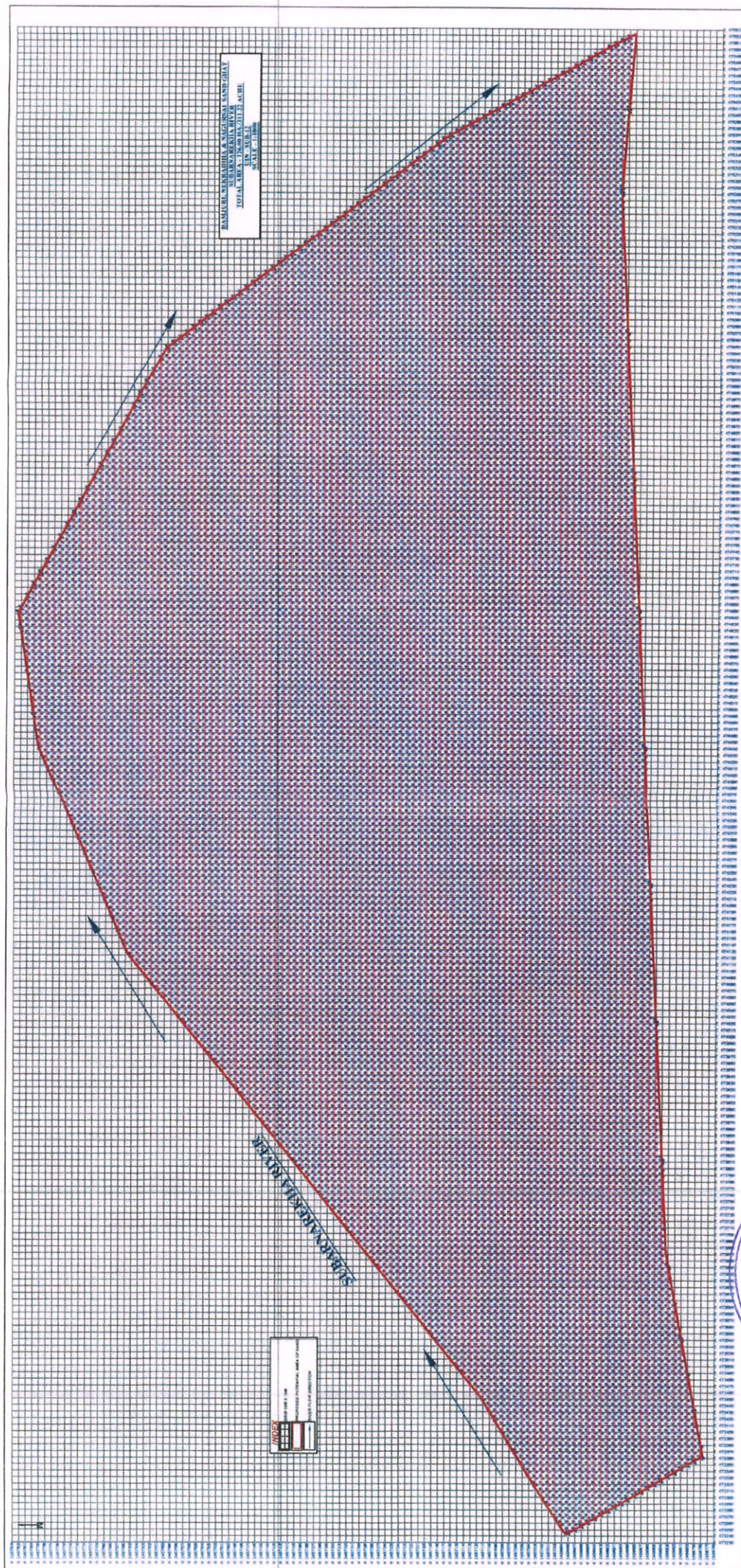


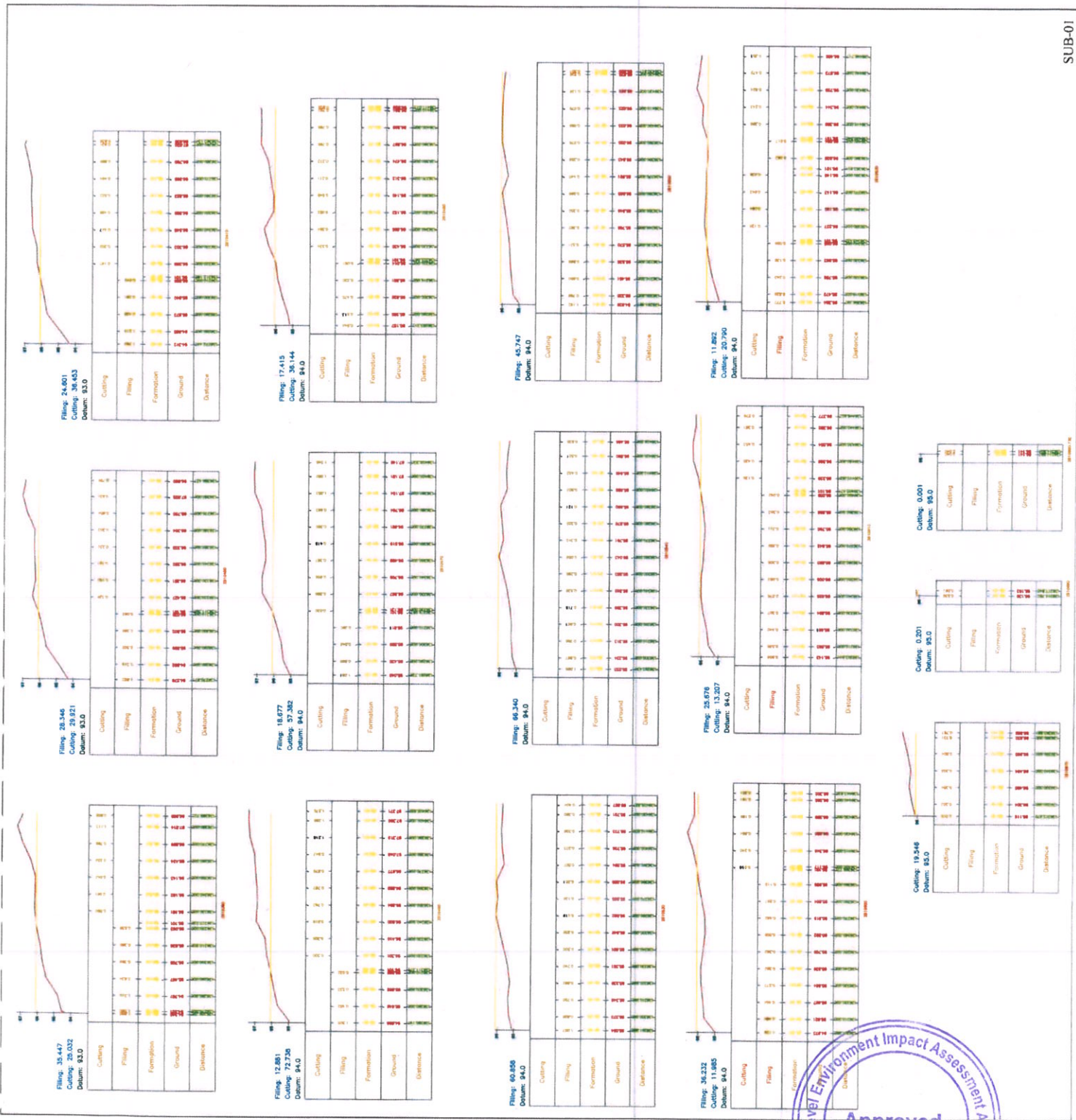
BANKATA SAND GHAT
SUBARNAREKHA RIVER
TOTAL AREA - 4.40 HA./10.87 ACRE
UIN - SUB-11
SCALE - 1:1000

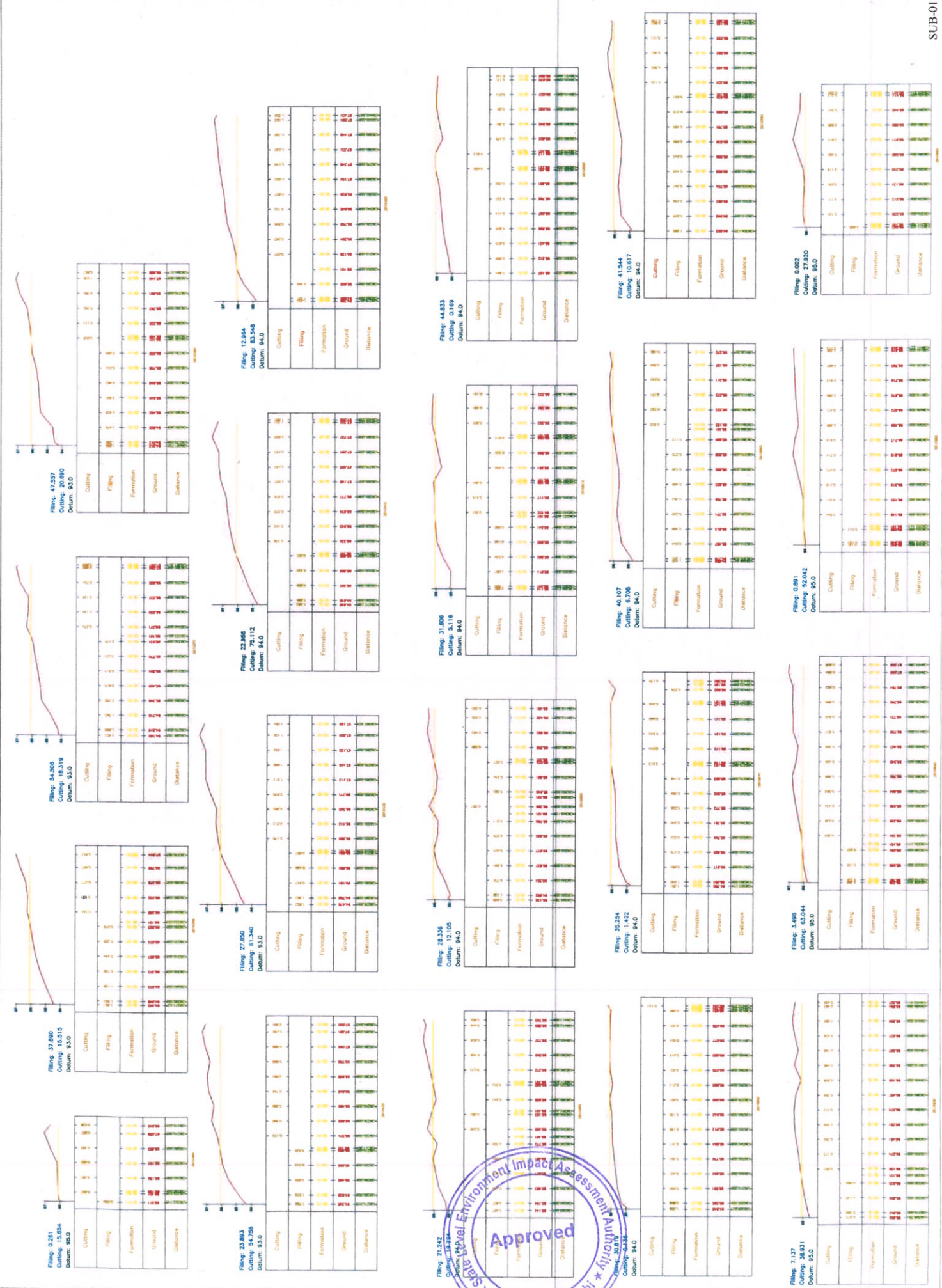
INDEX

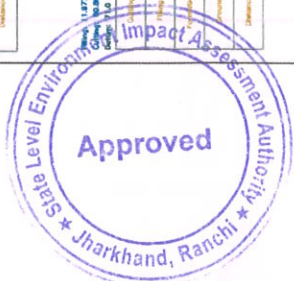
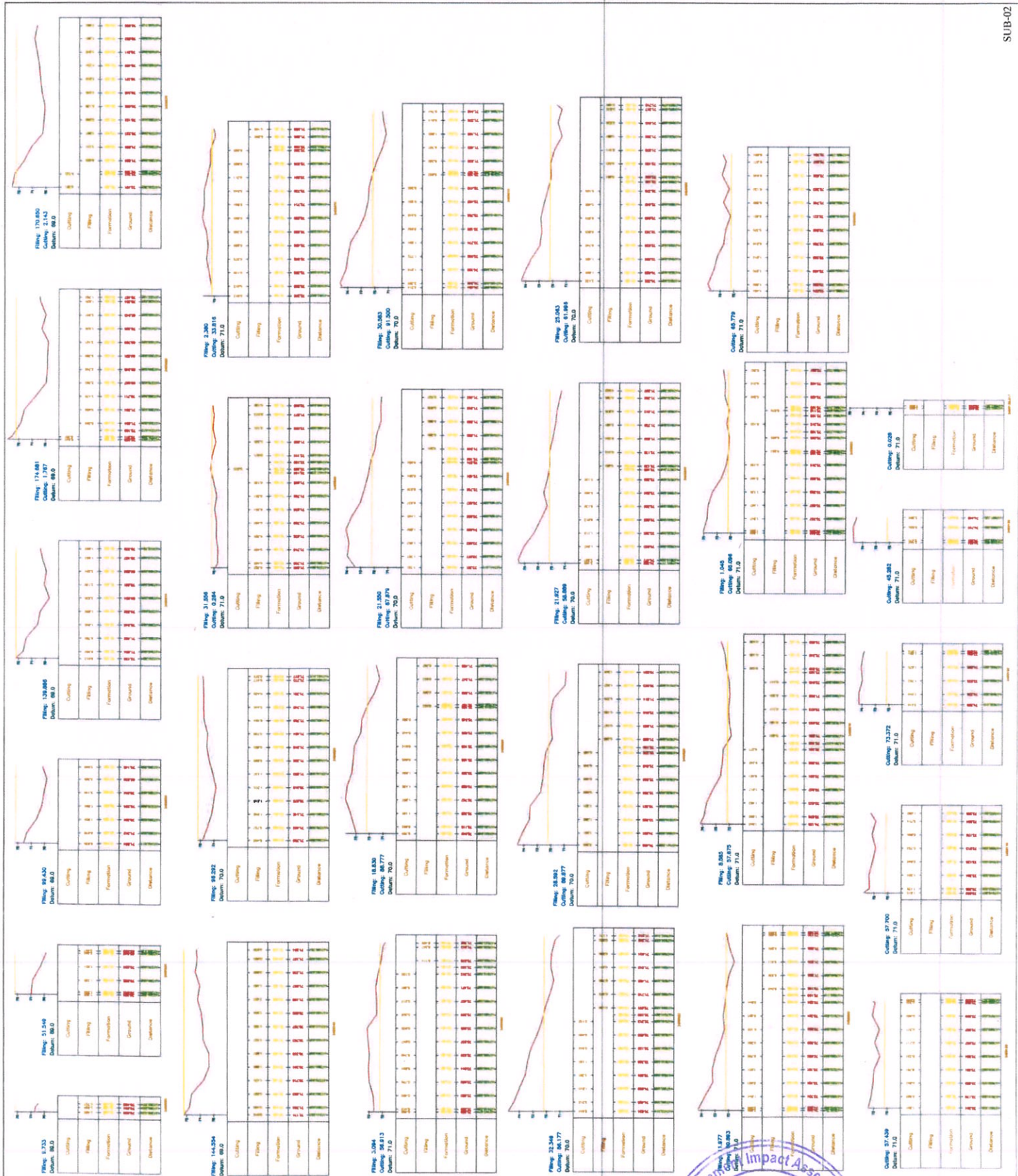
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-  PROPOSED POTENTIAL AREA OF SAND
-  RIVER FLOW DIRECTION



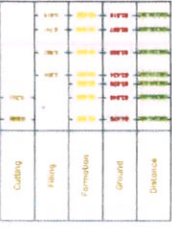




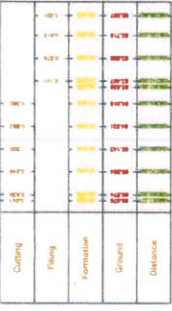




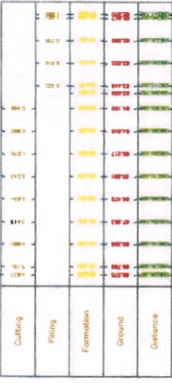
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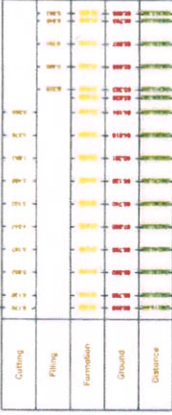
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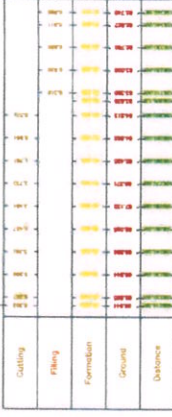
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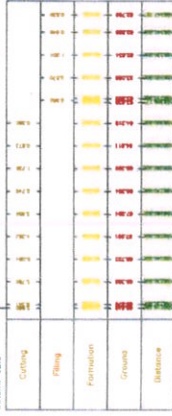
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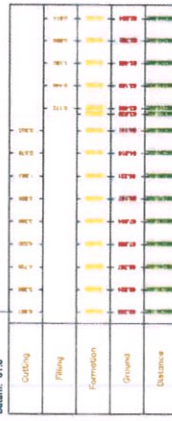
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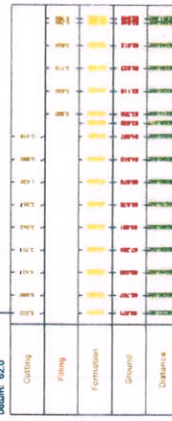
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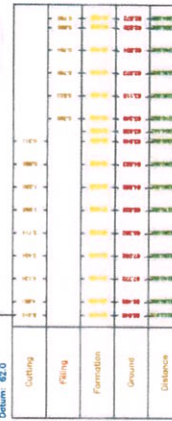
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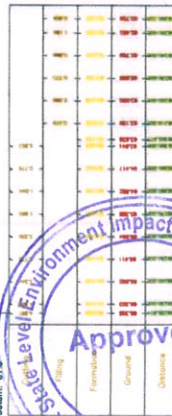
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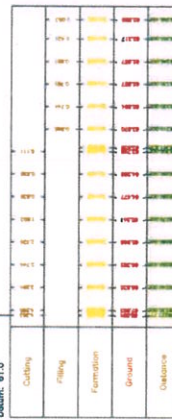
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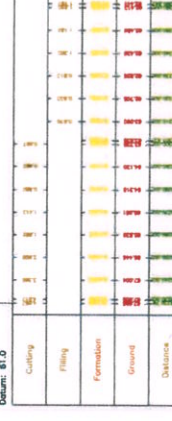
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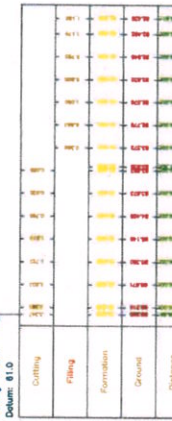
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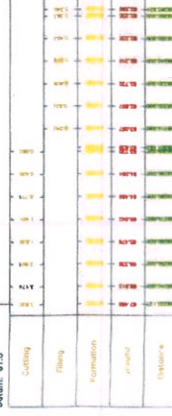
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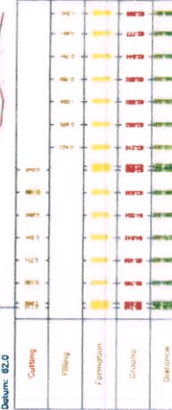
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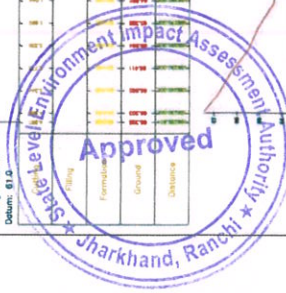
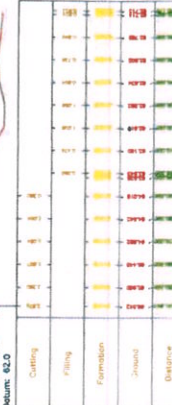
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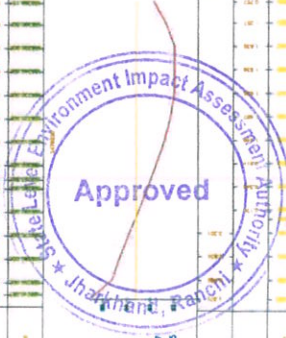
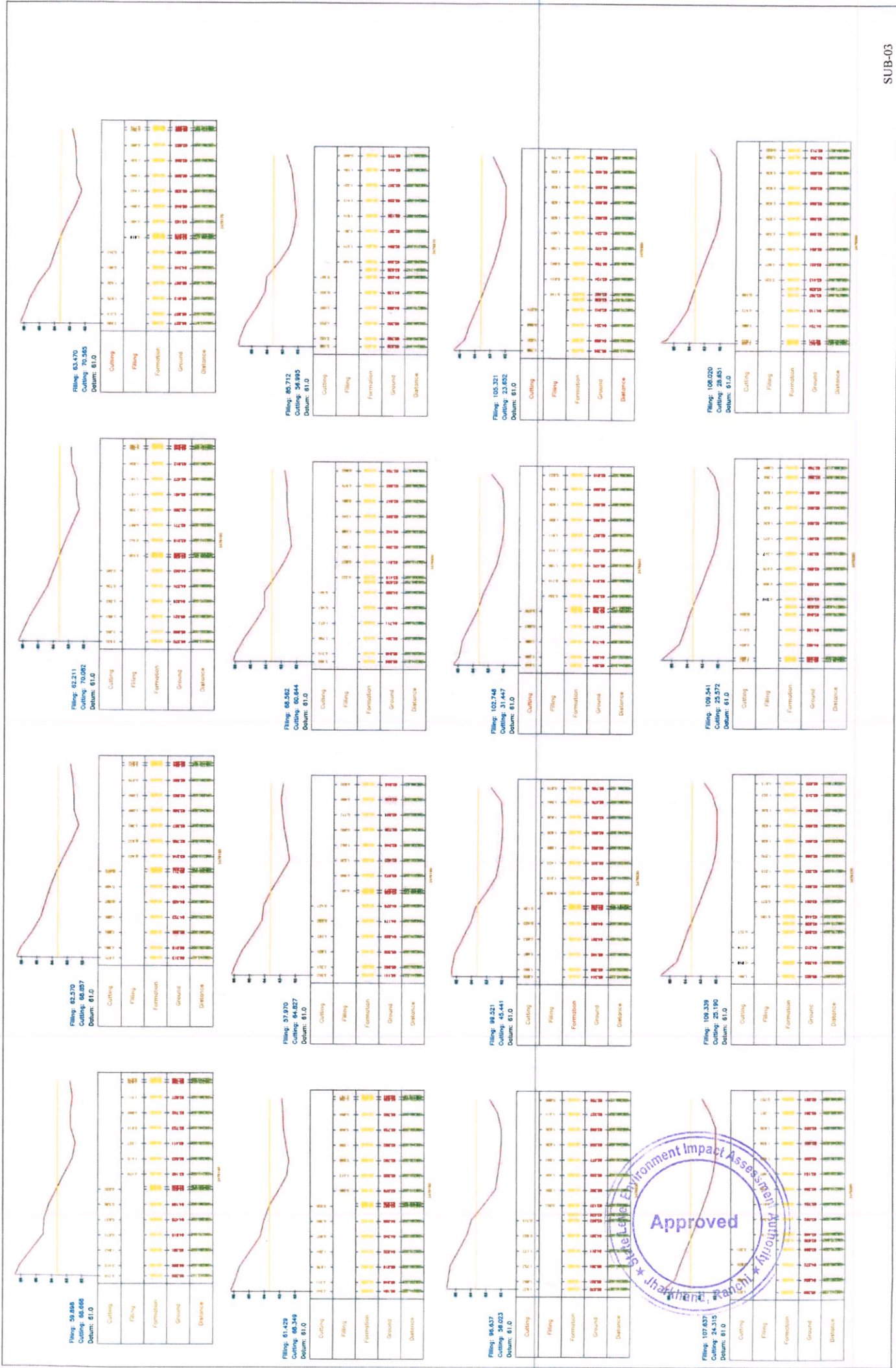


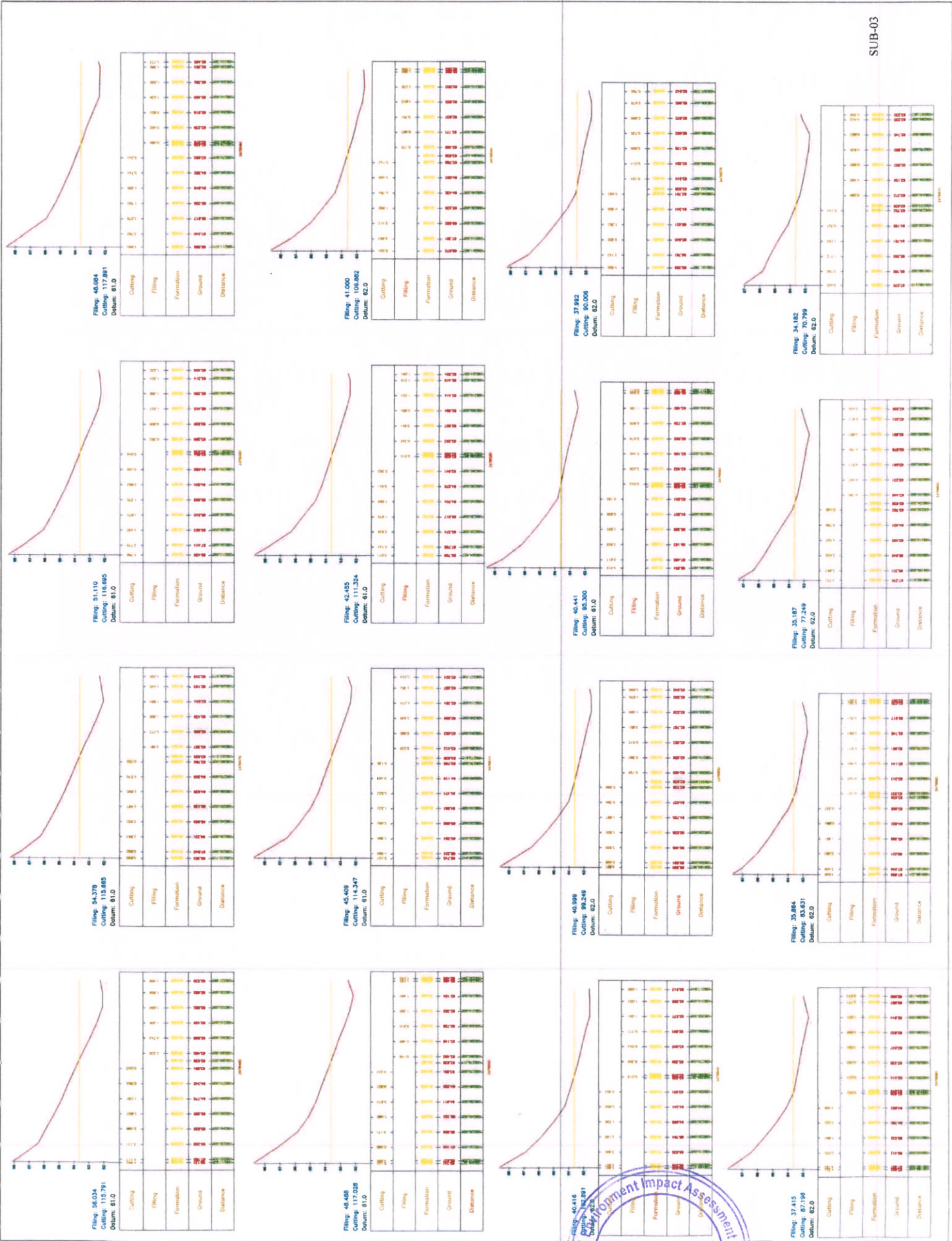
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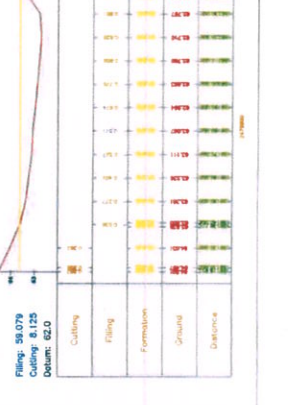
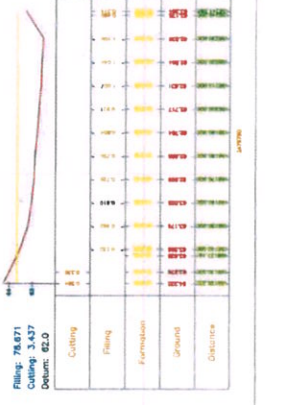
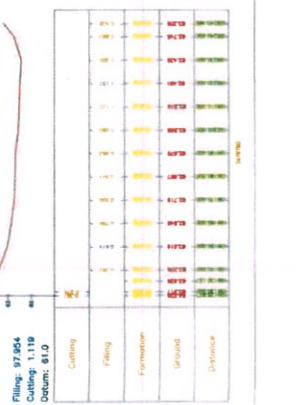
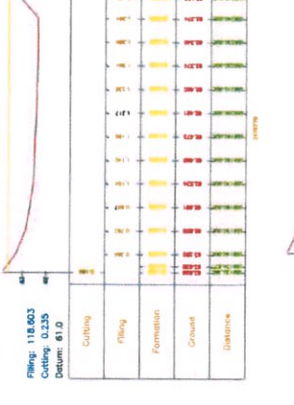
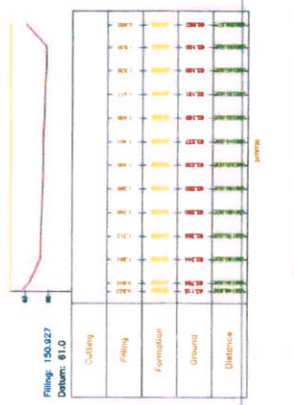
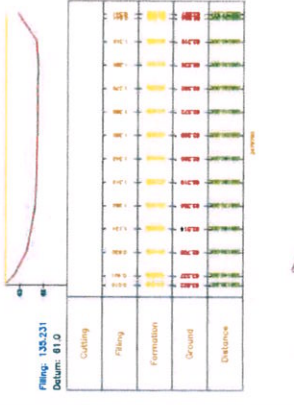
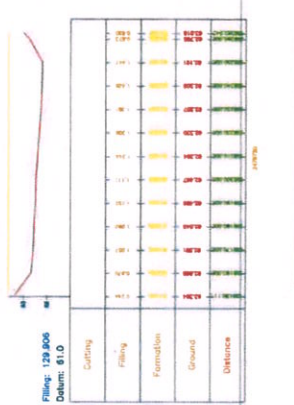
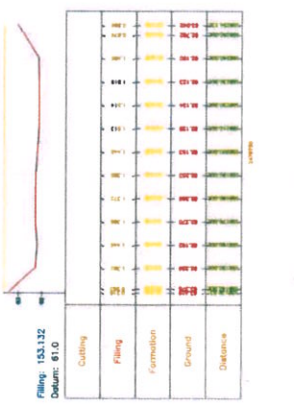
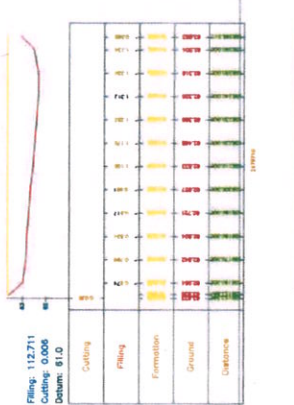
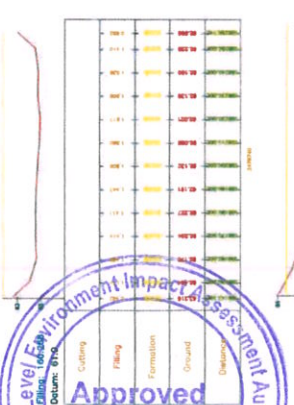
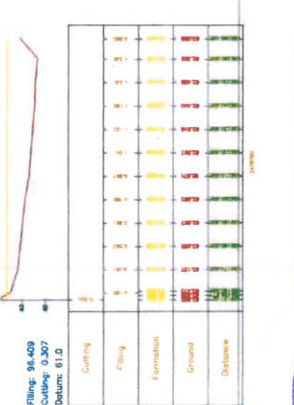
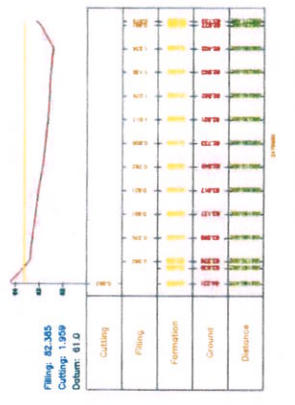
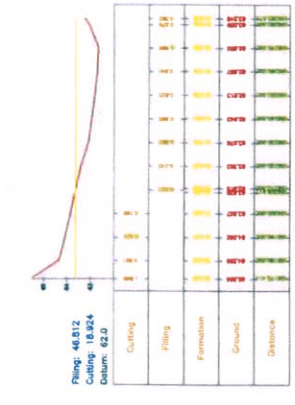
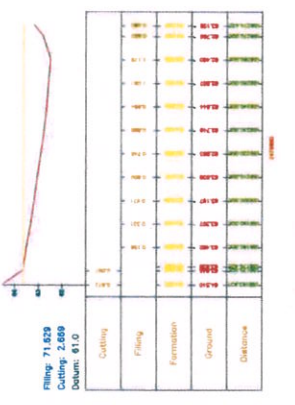
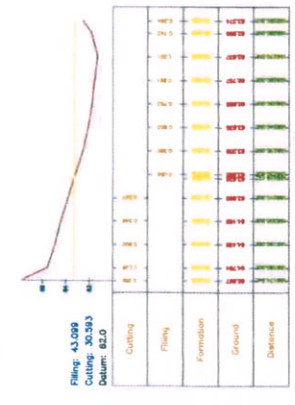
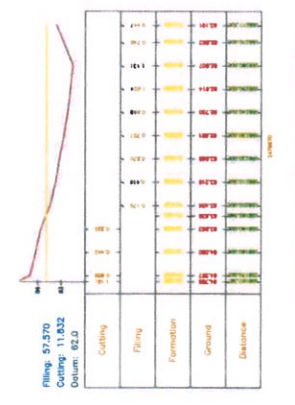
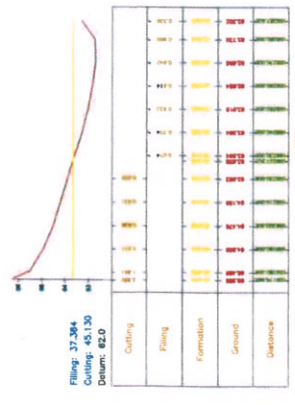
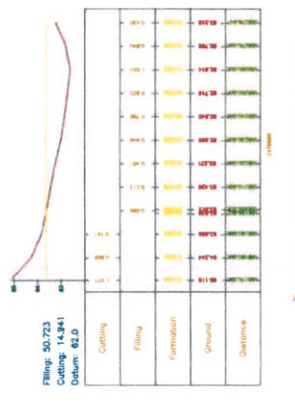
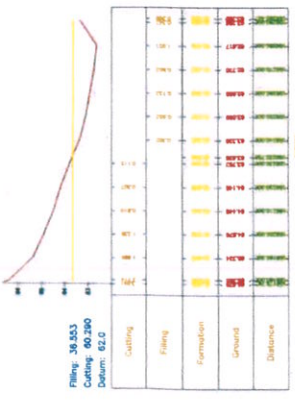


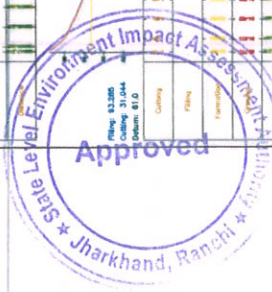
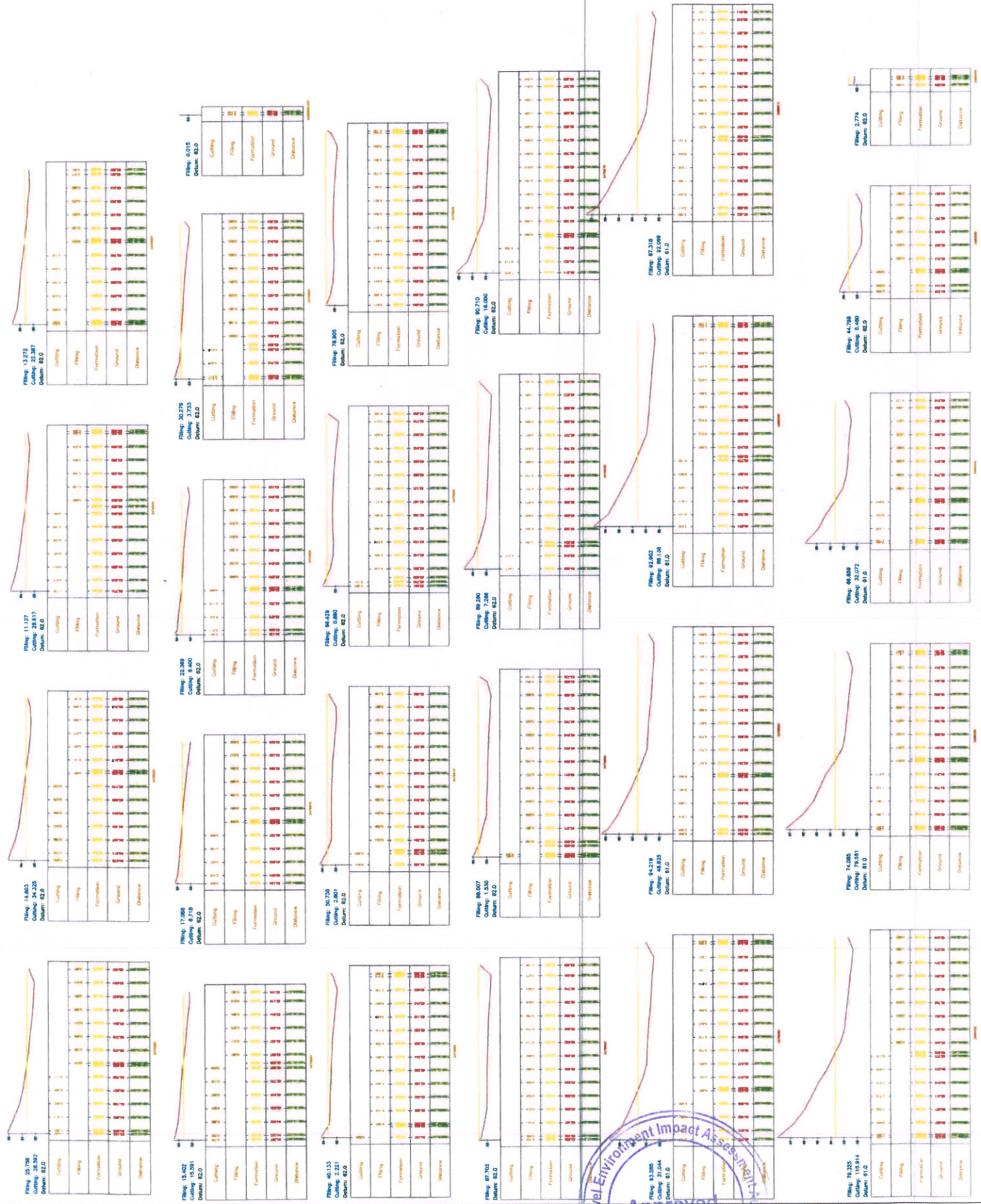
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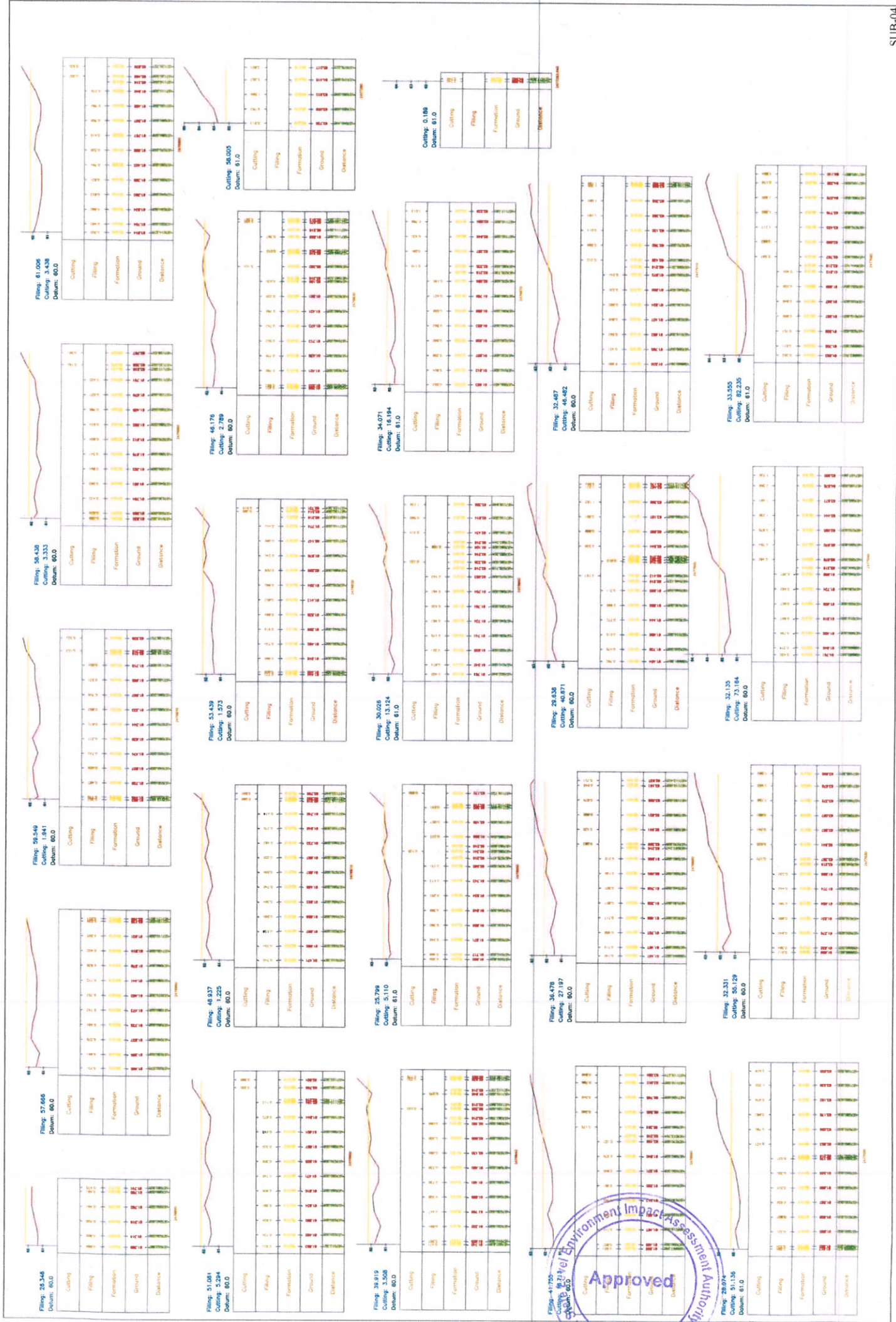




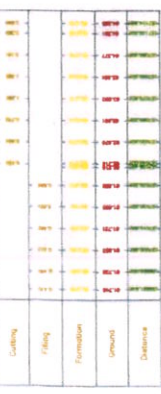




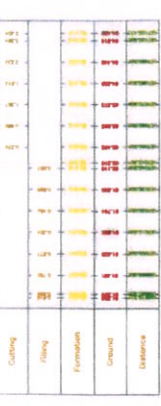




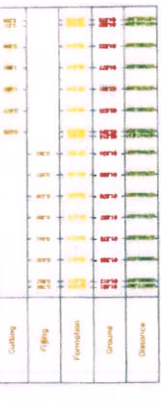
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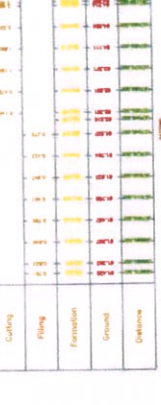
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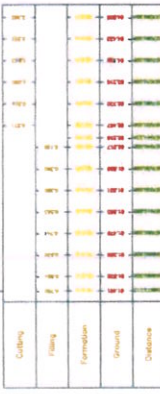
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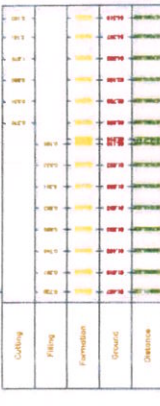
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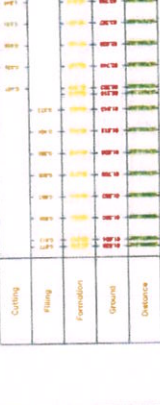
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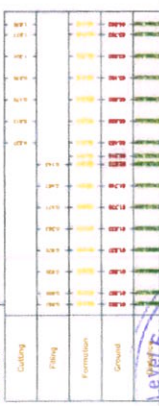
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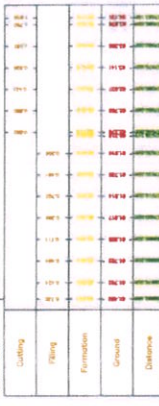
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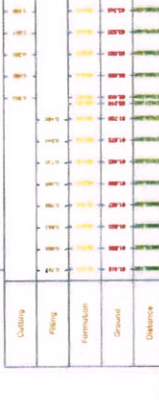
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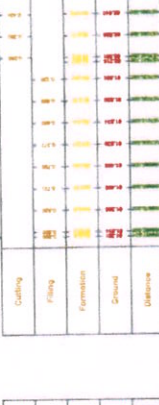
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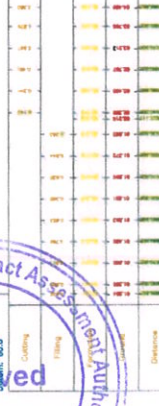
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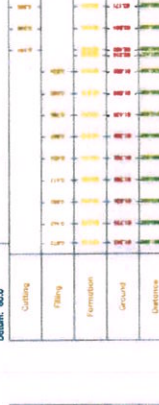
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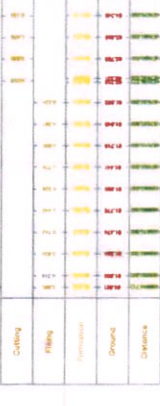
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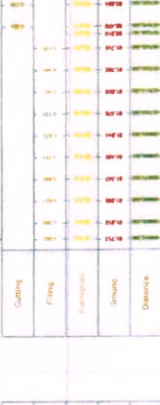
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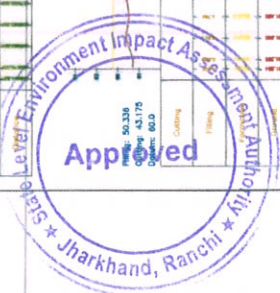
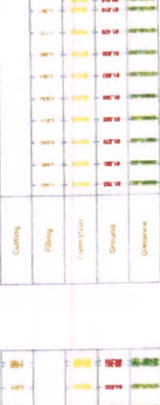
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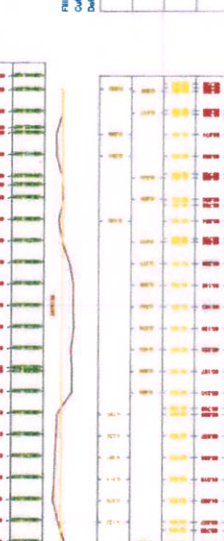
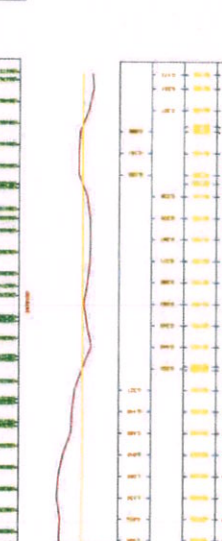
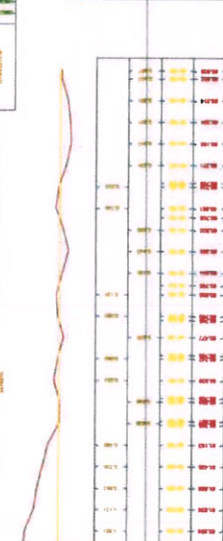
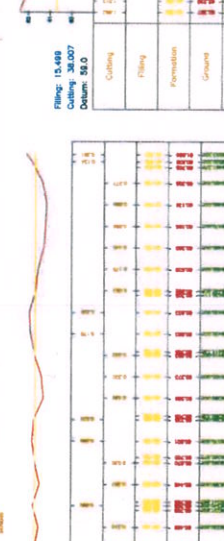
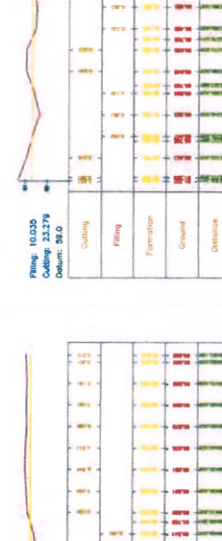
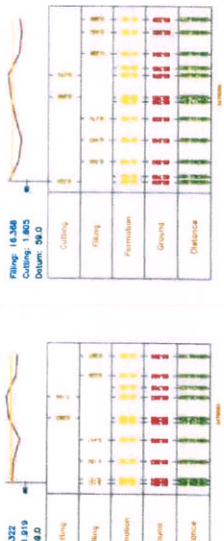
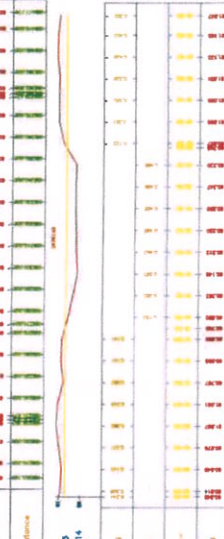
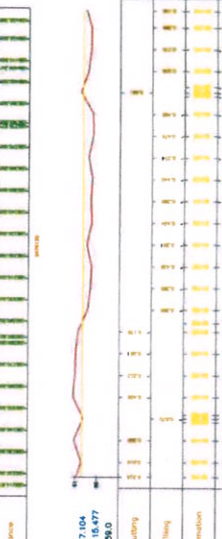
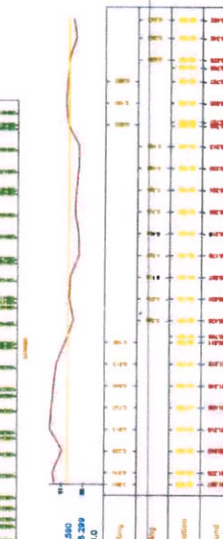
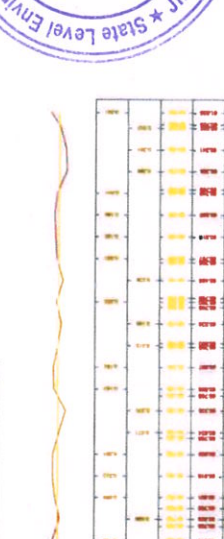
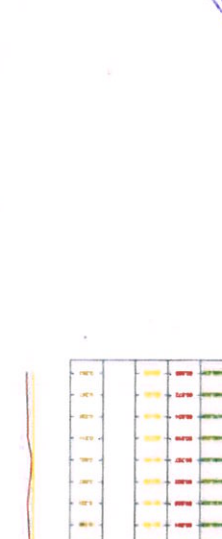
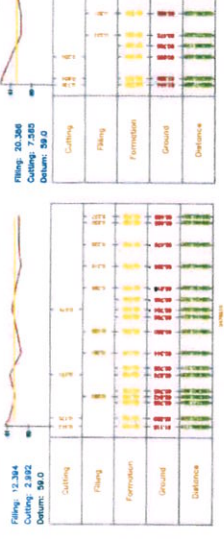
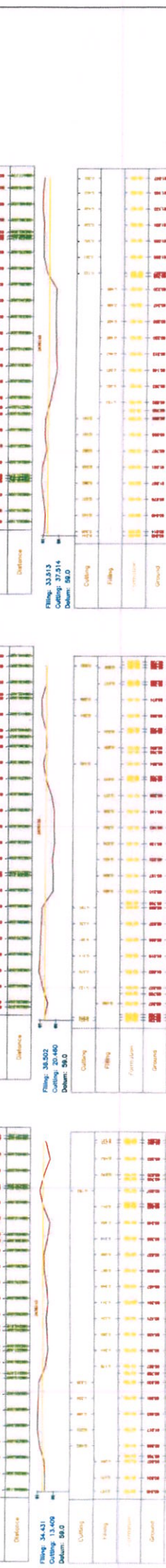
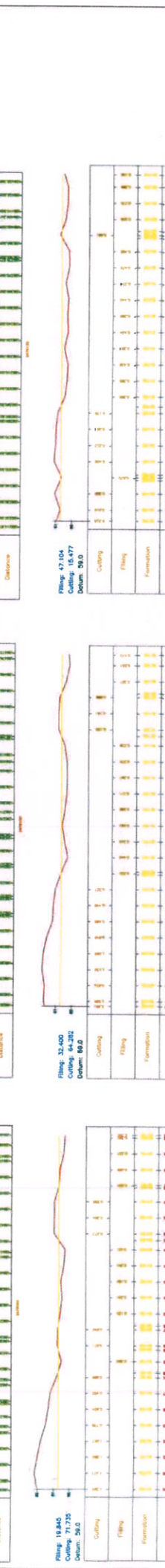
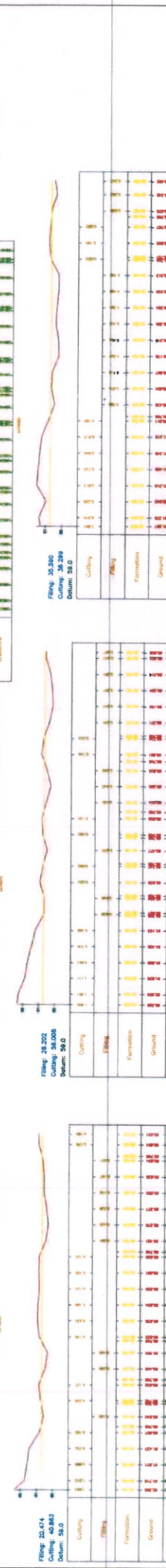
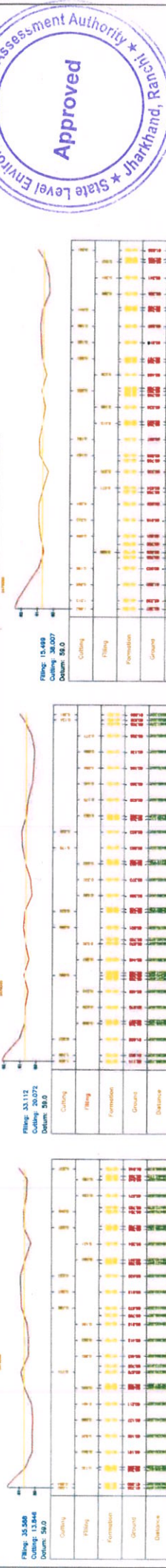
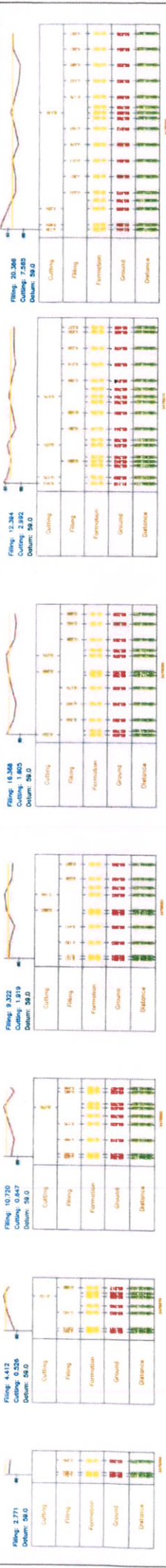


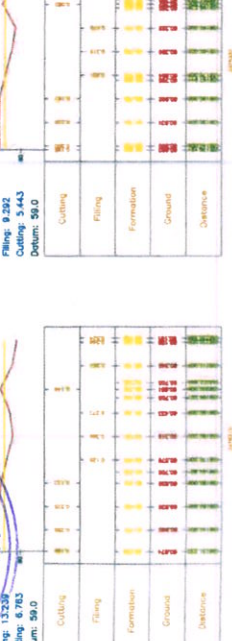
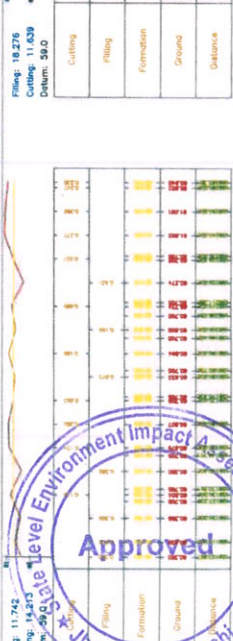
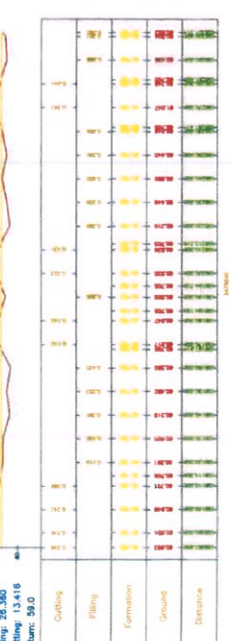
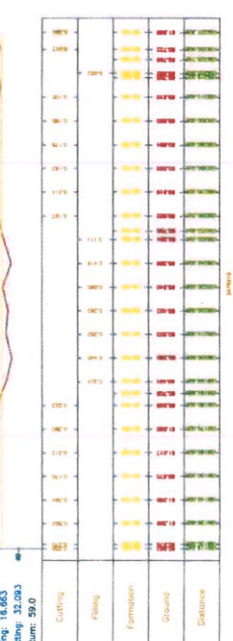
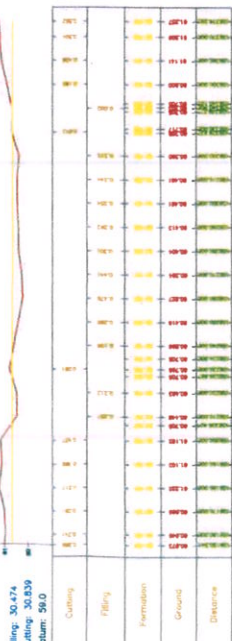
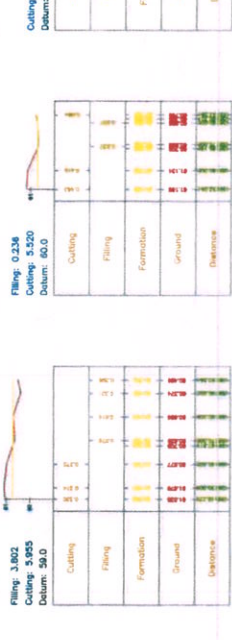
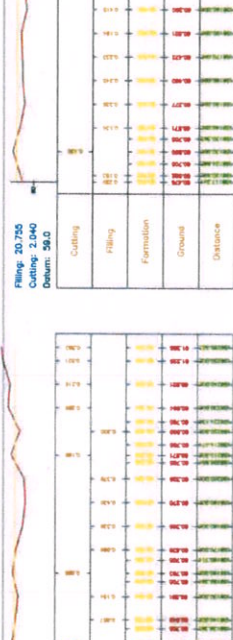
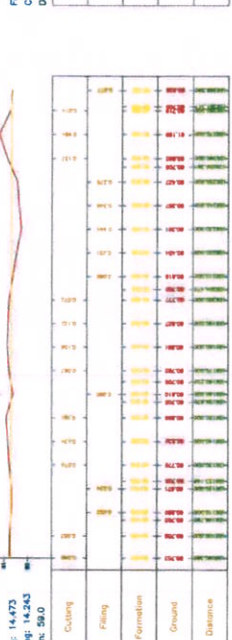
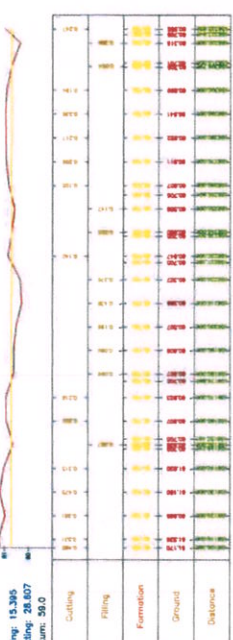
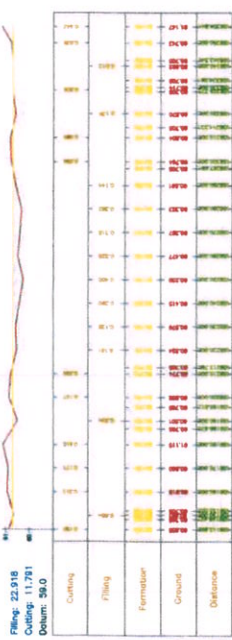
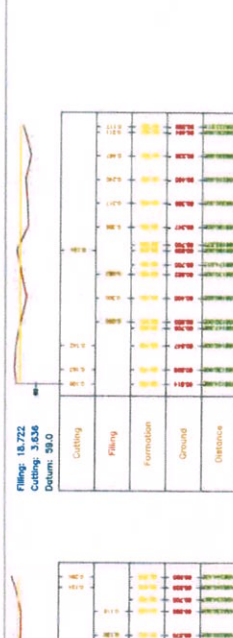
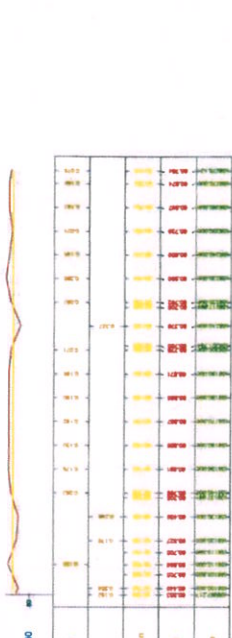
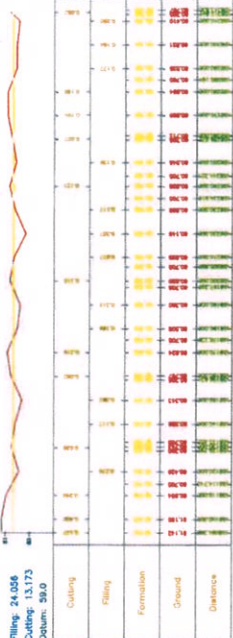
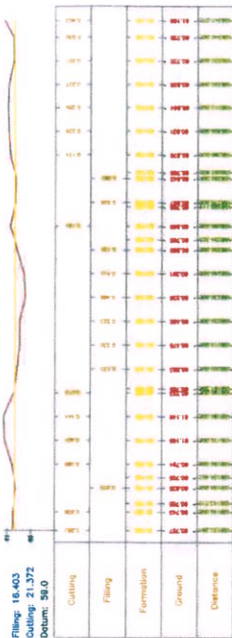
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Datum: 80.0

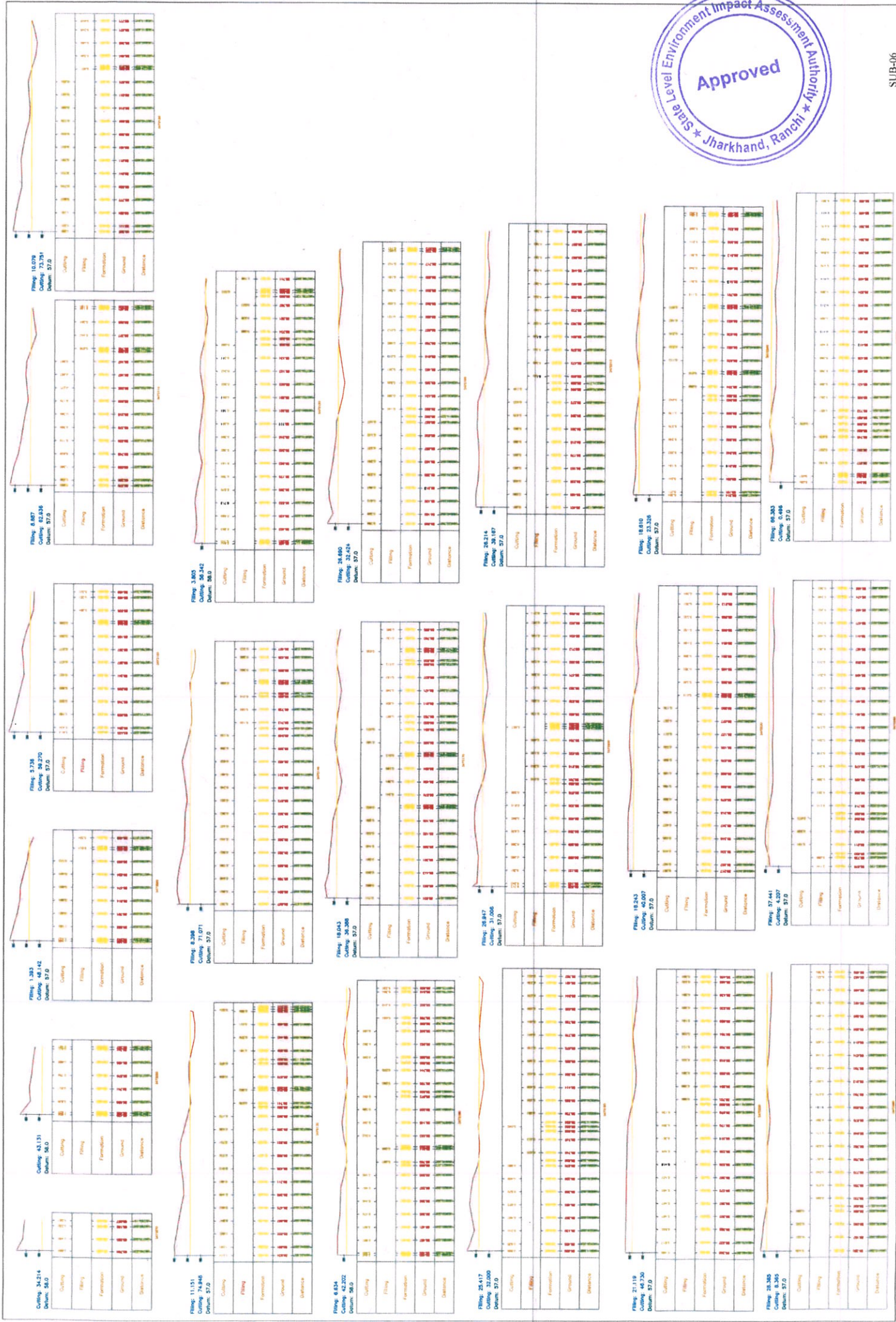


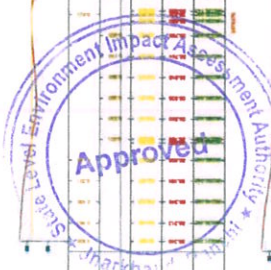
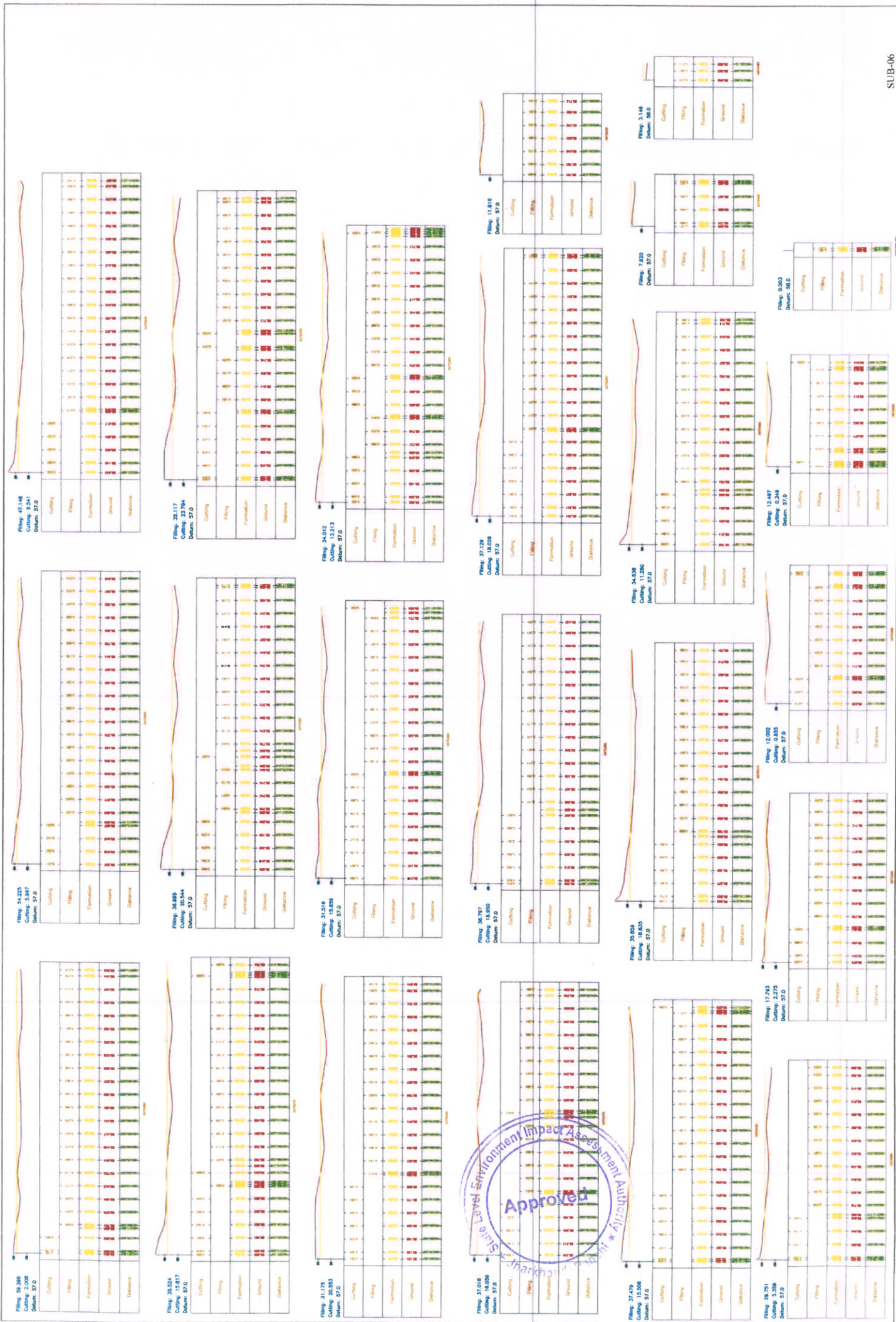
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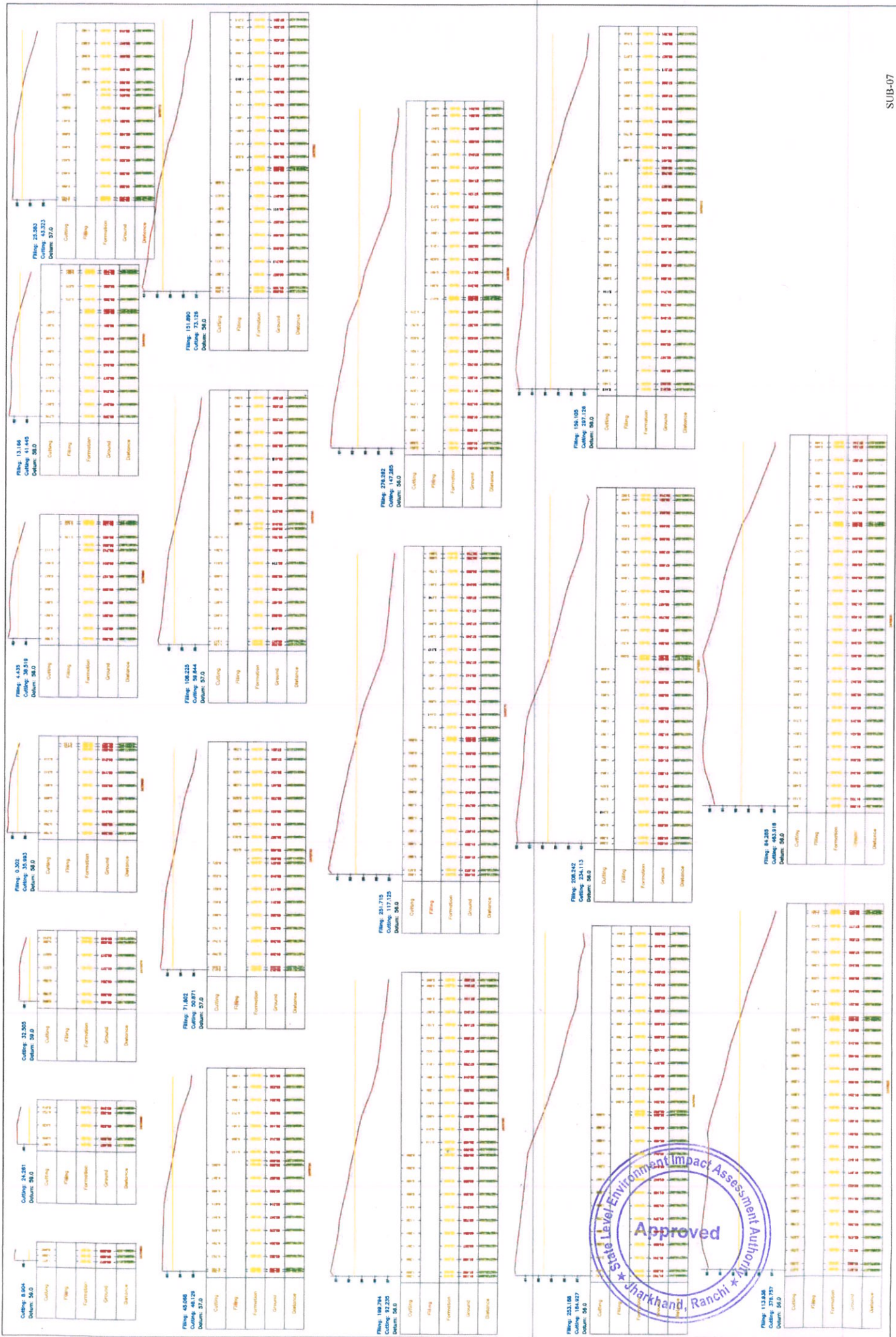


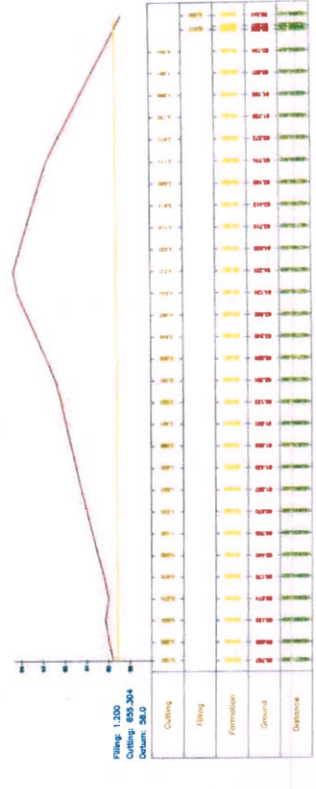
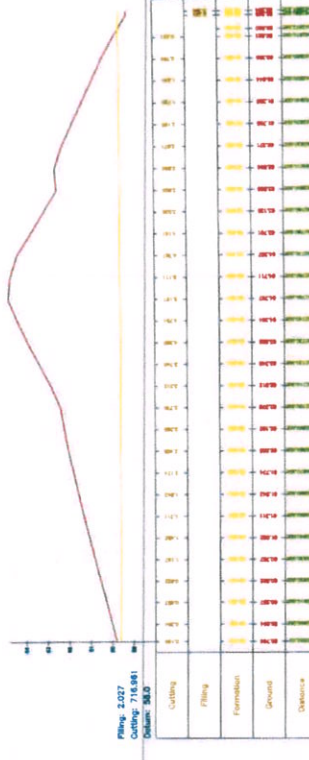
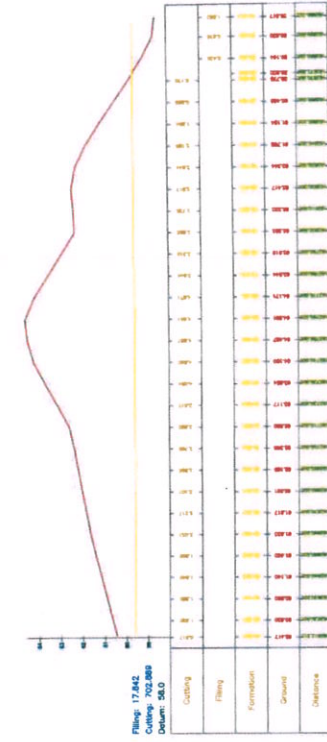
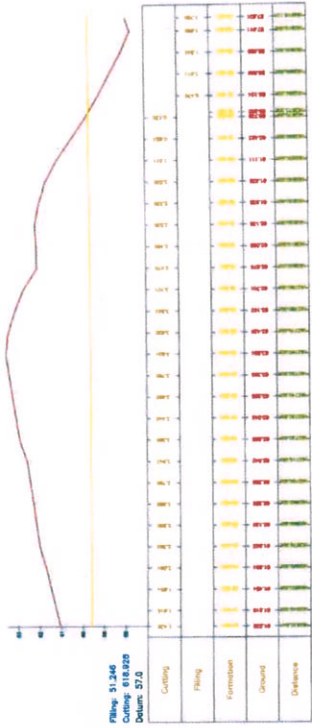
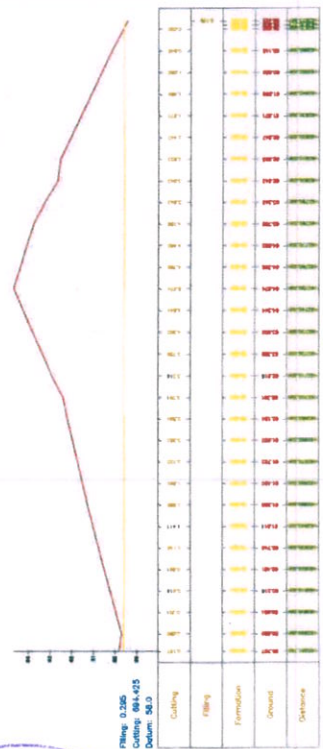
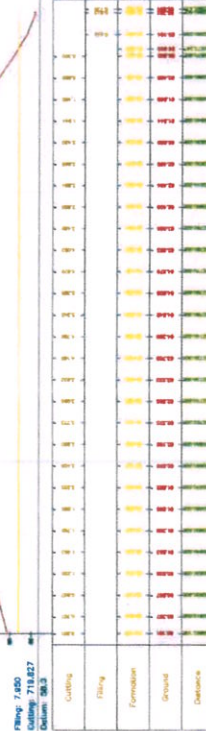
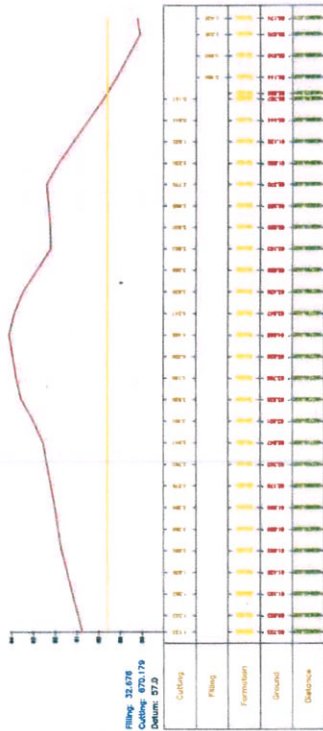
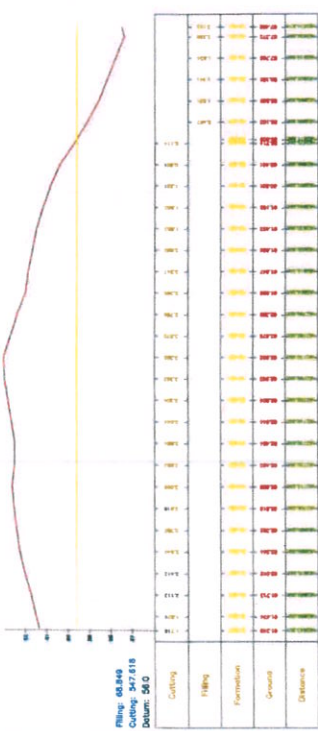


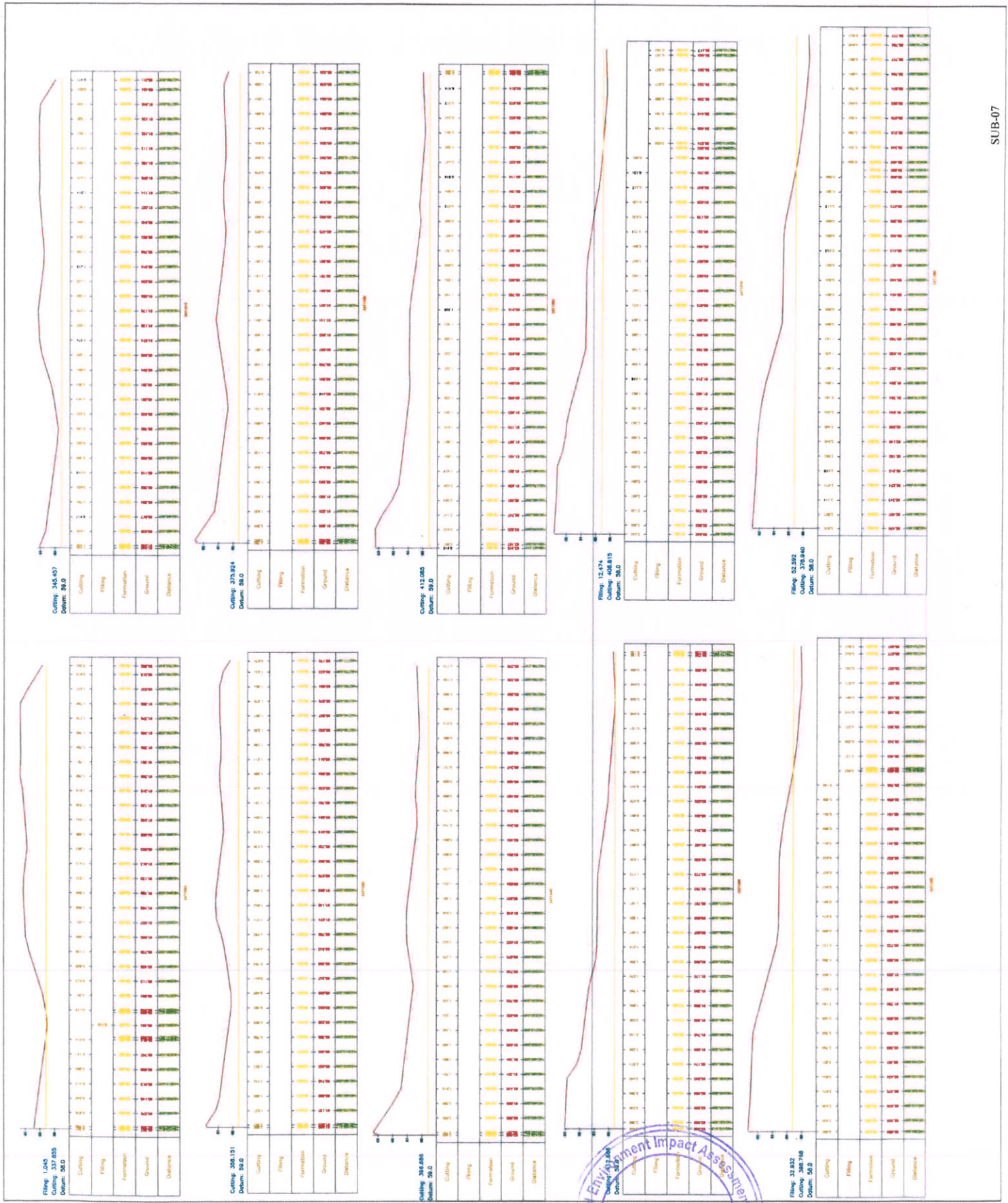


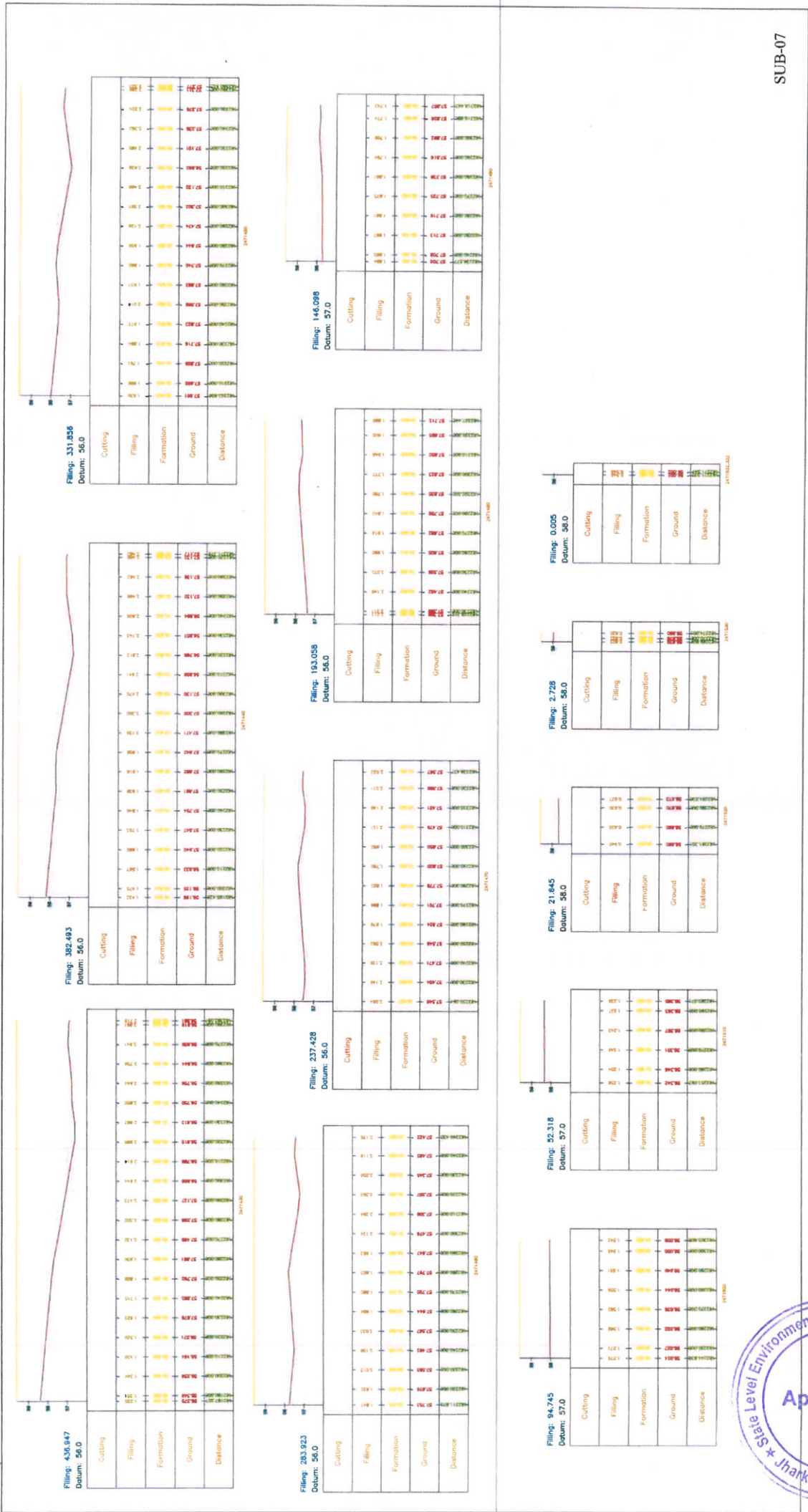


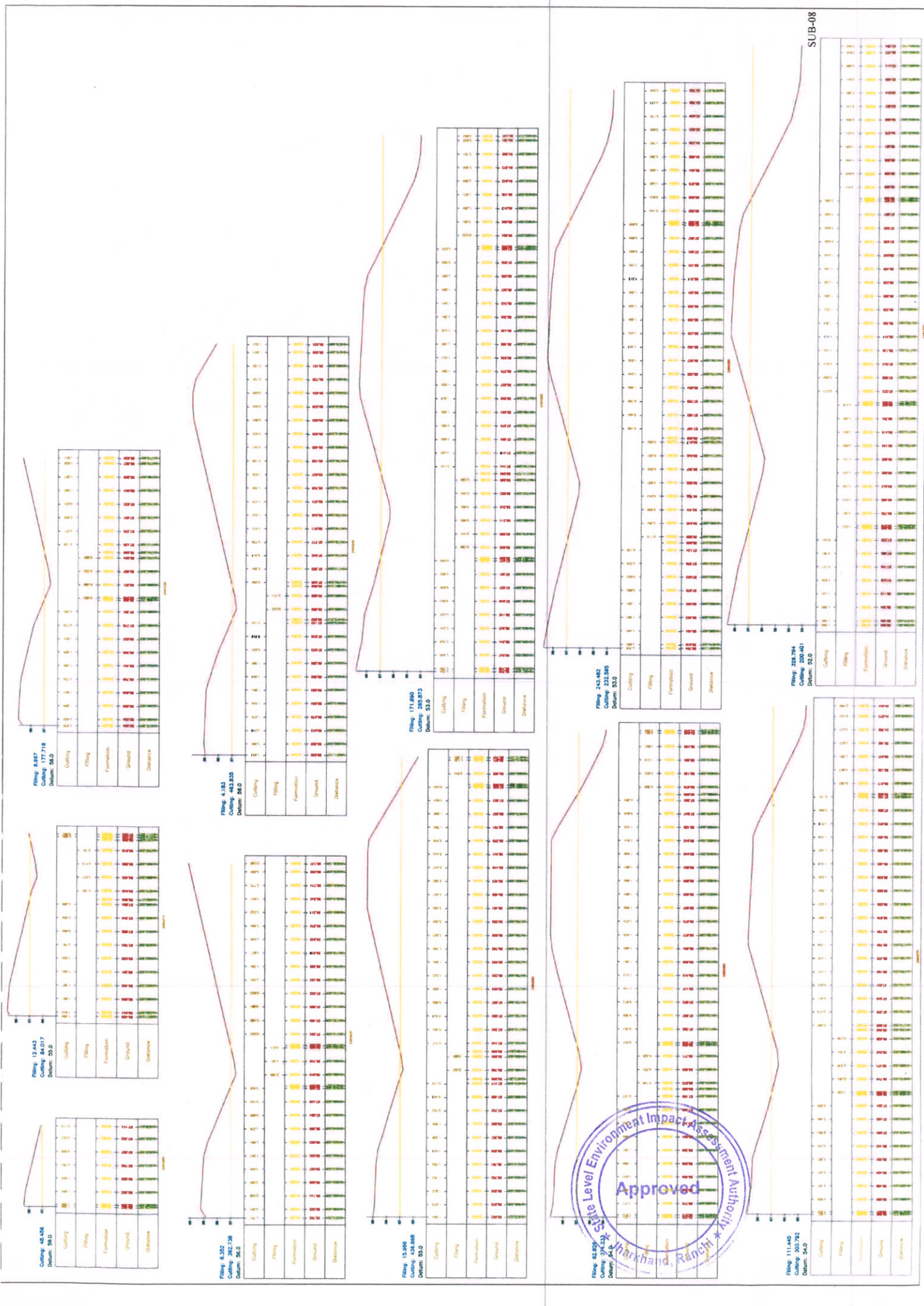












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Datum: 56.0

Filing: 12,443
Cutting: 84,617
Datum: 55.0

Filing: 46,458
Cutting: 28,417
Datum: 56.0

Filing: 41,183
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Datum: 58.0

Filing: 6,352
Cutting: 382,138
Datum: 56.0

Filing: 171,865
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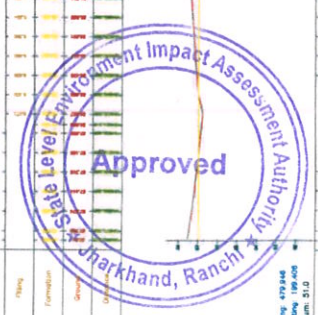
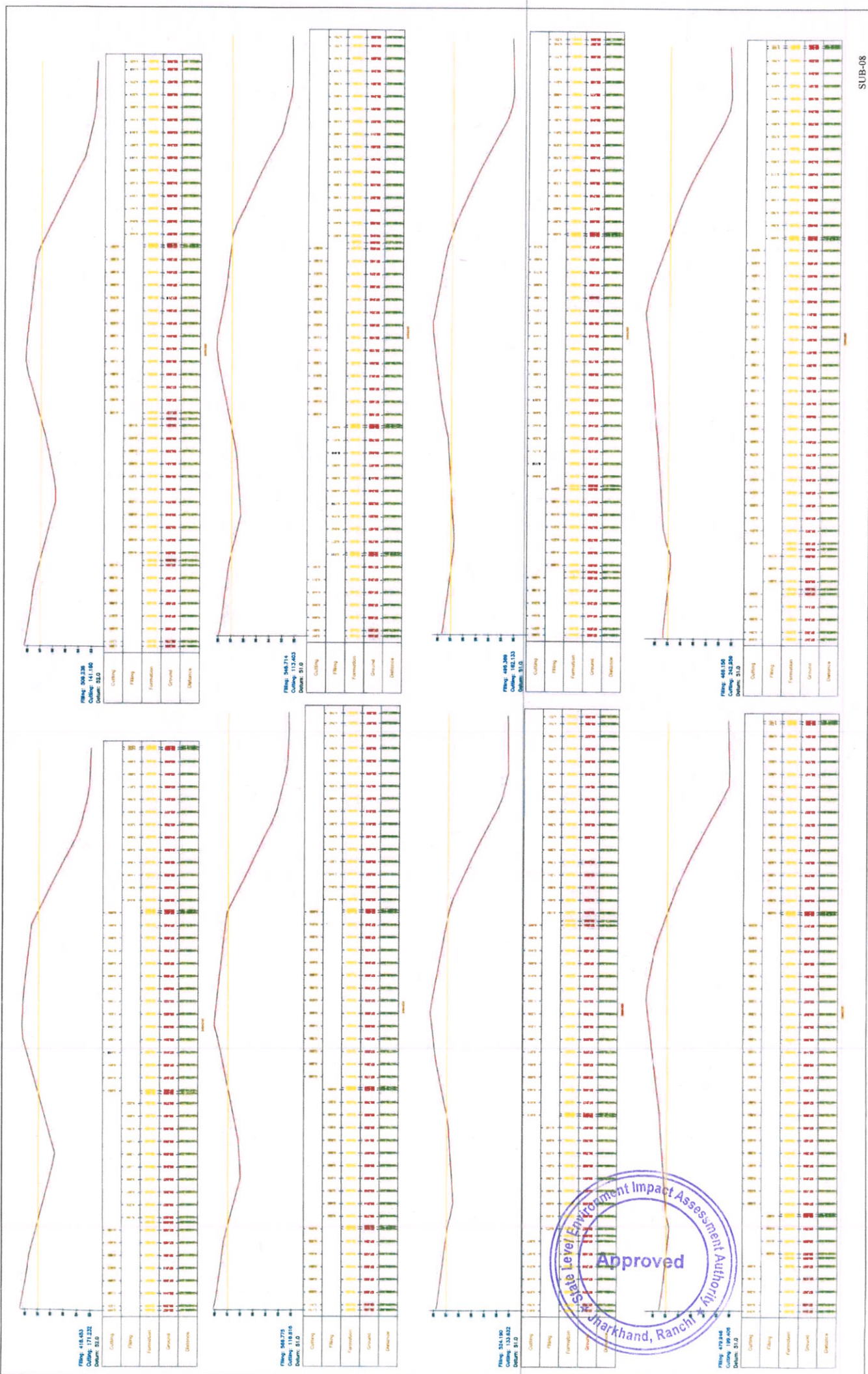
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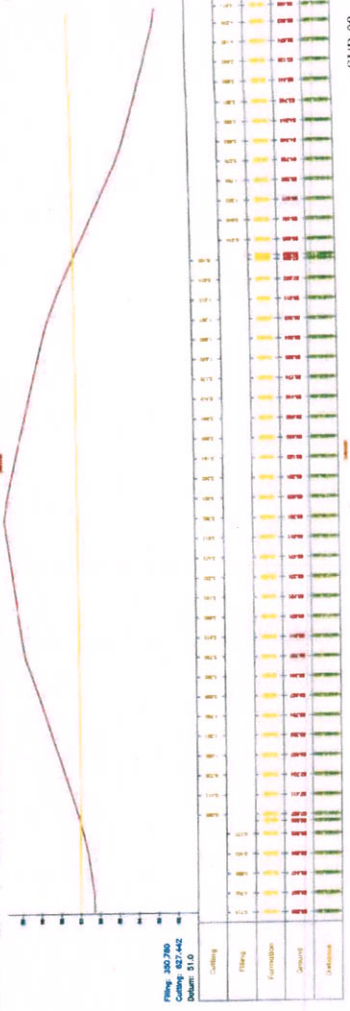
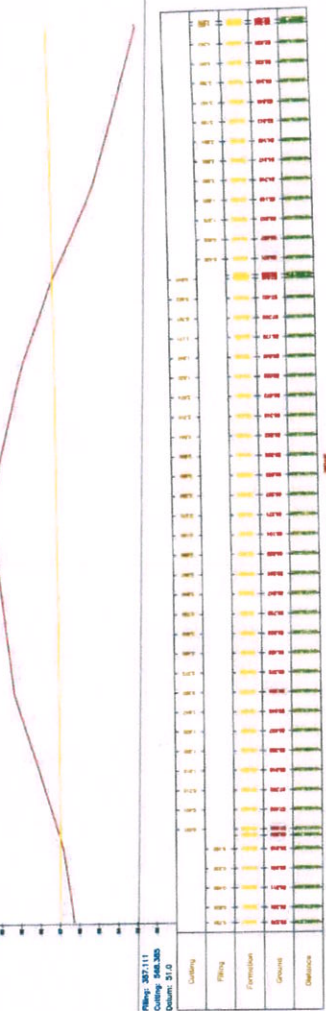
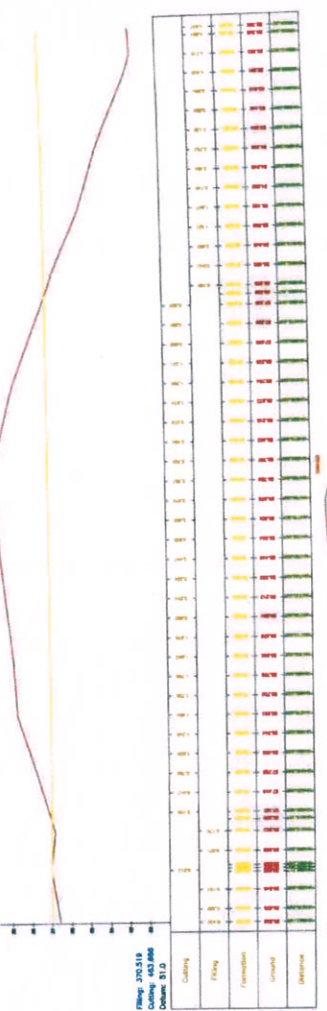
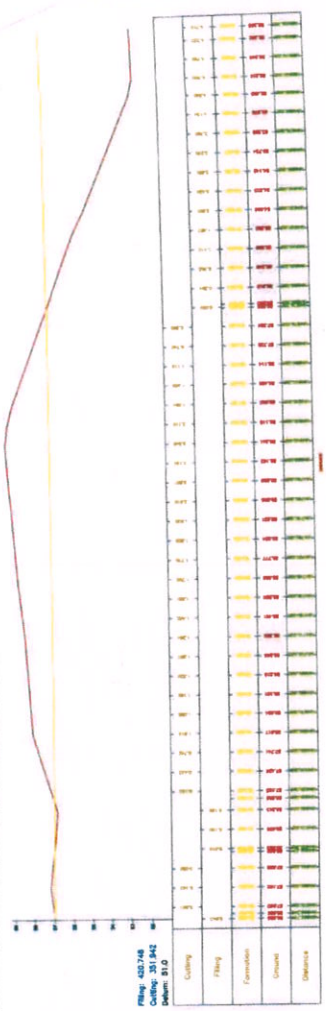
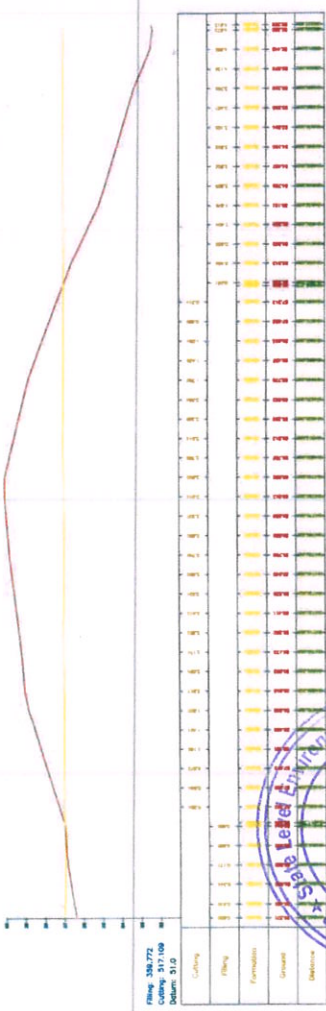
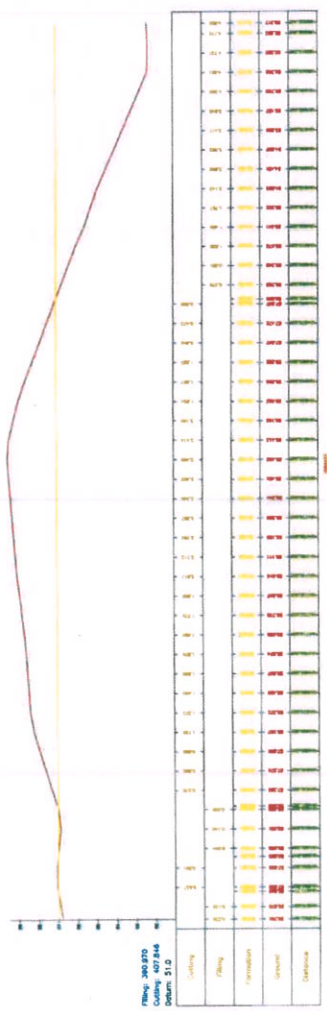
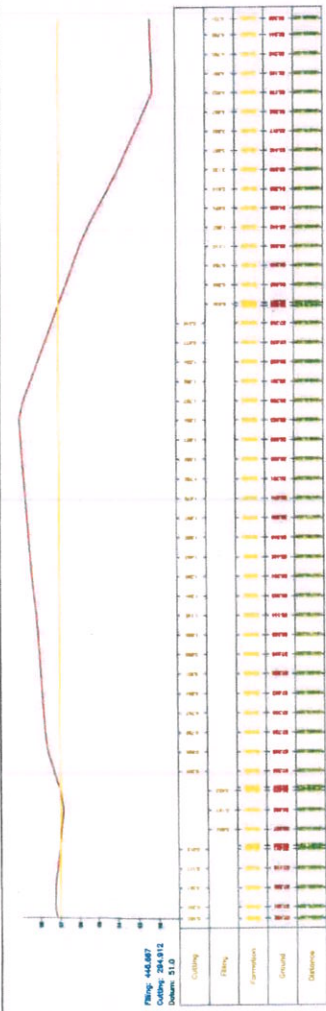
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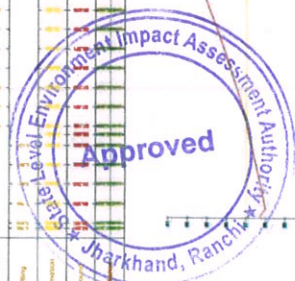
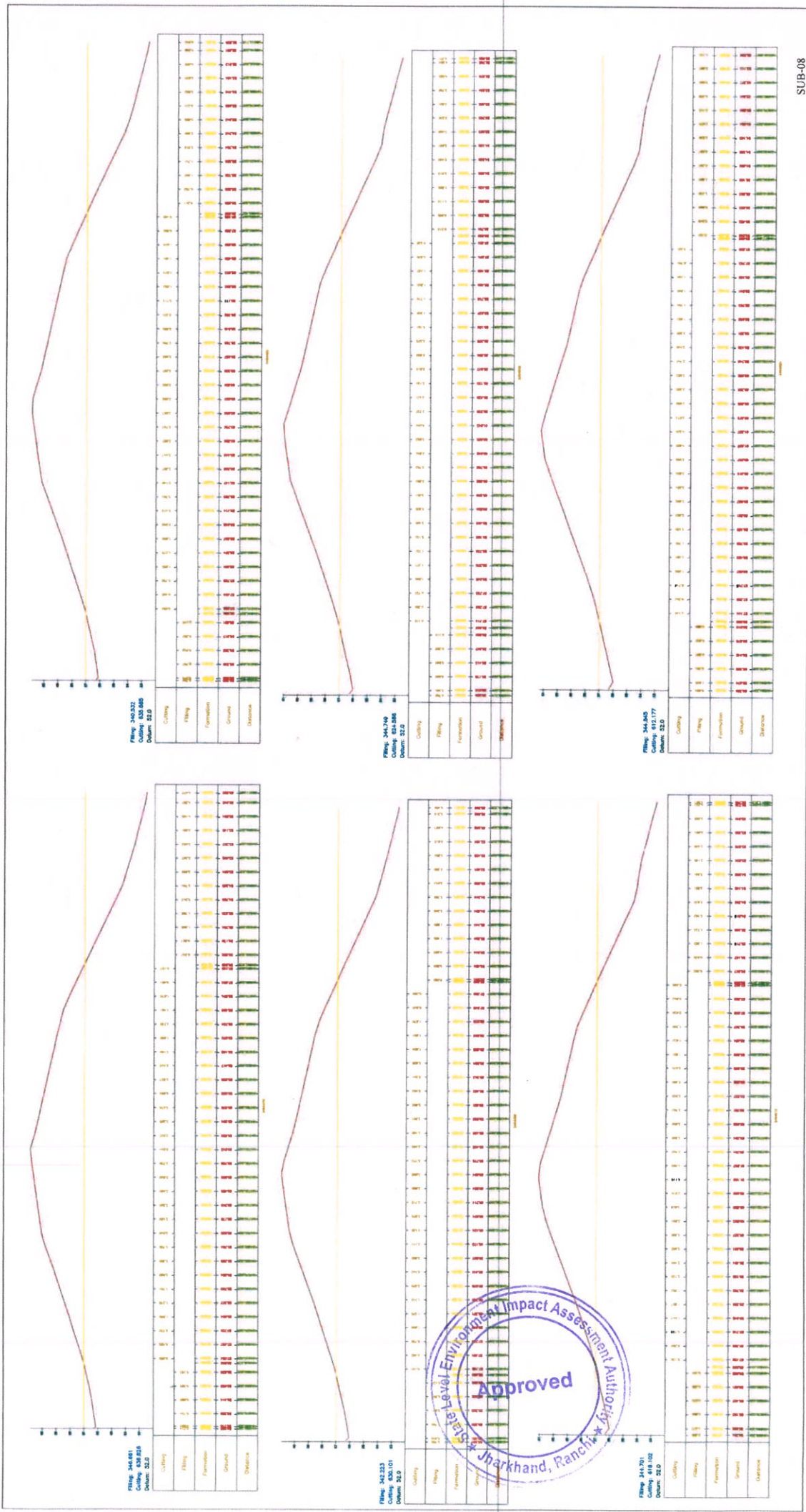
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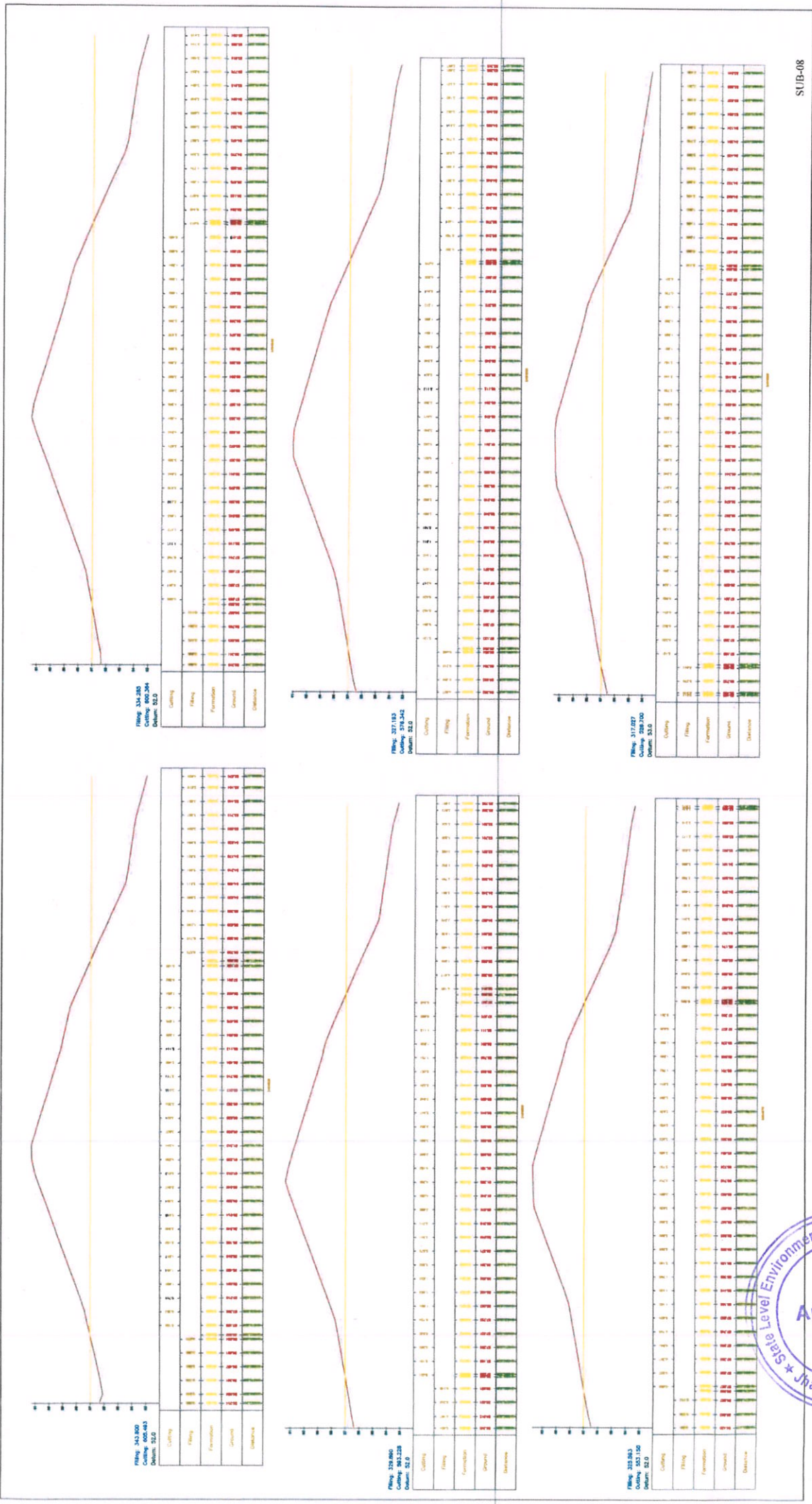
SUB-08

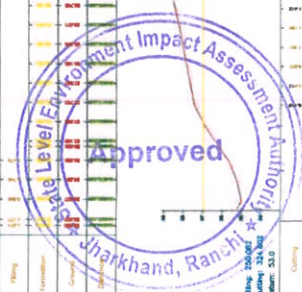
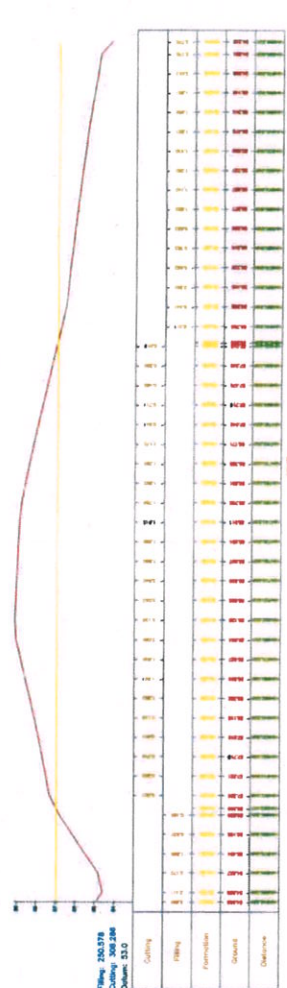
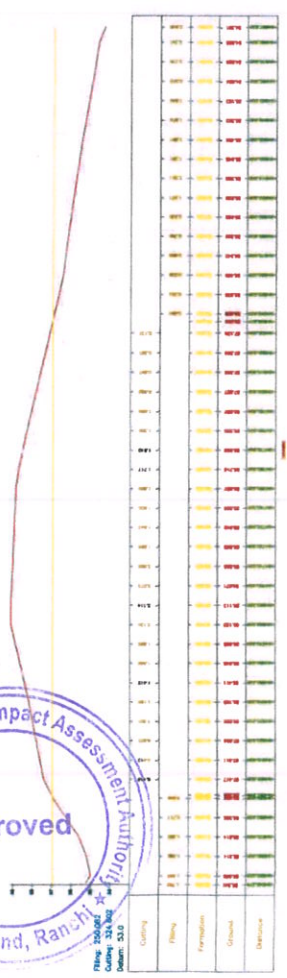
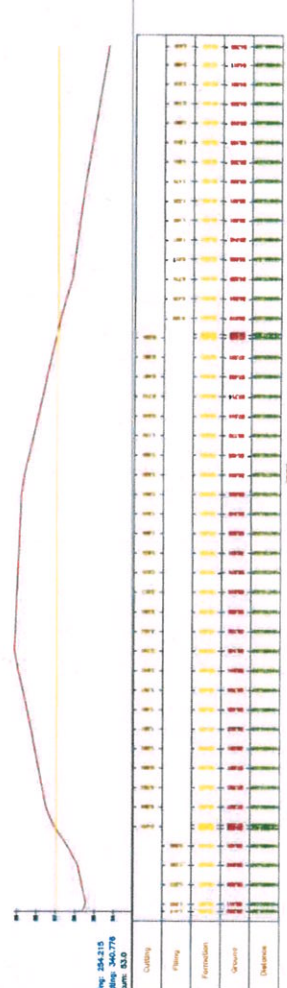
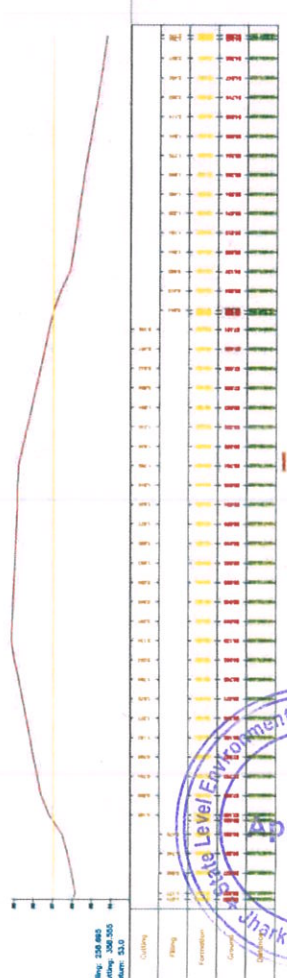
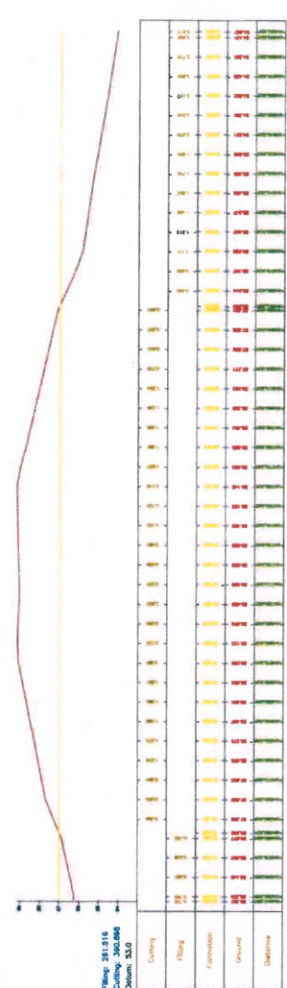
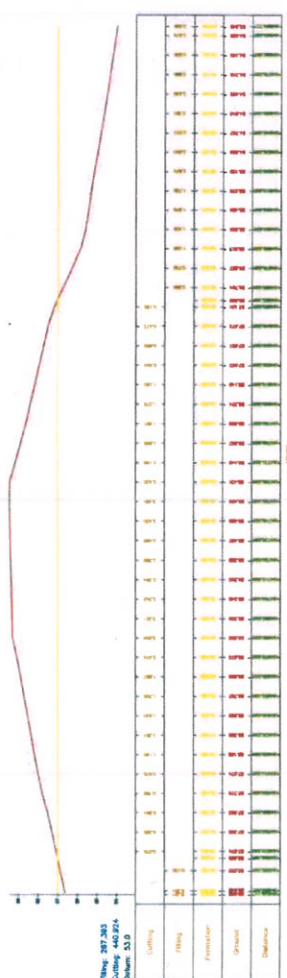
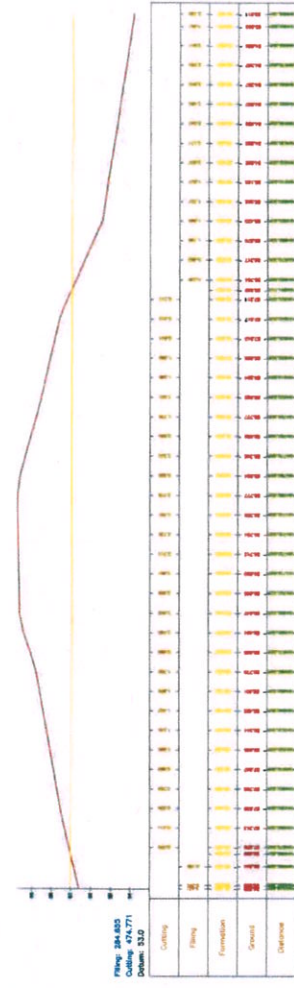
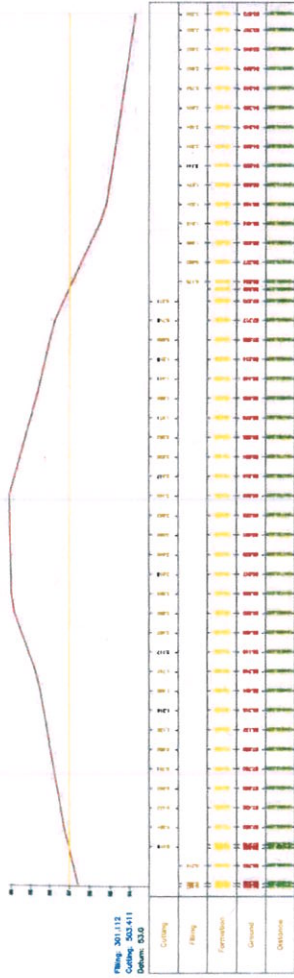


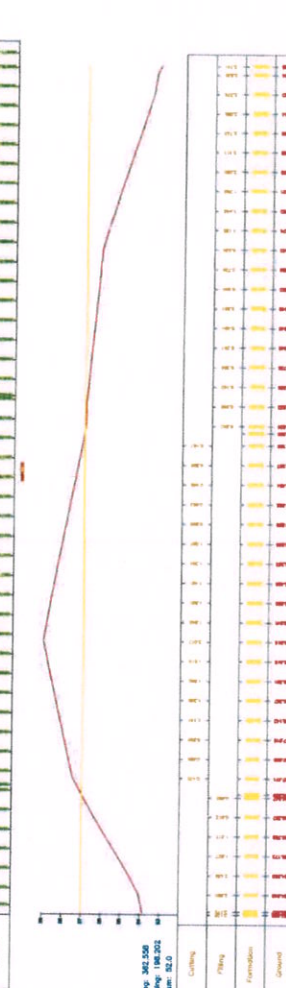
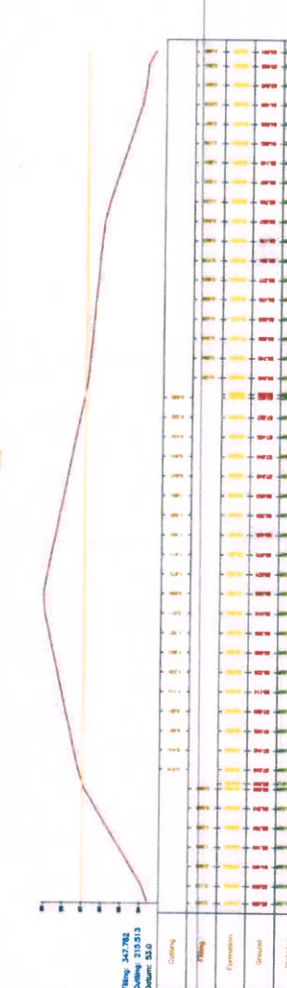
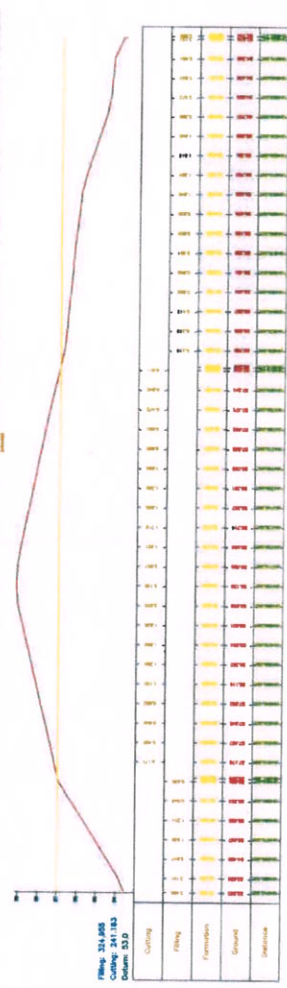
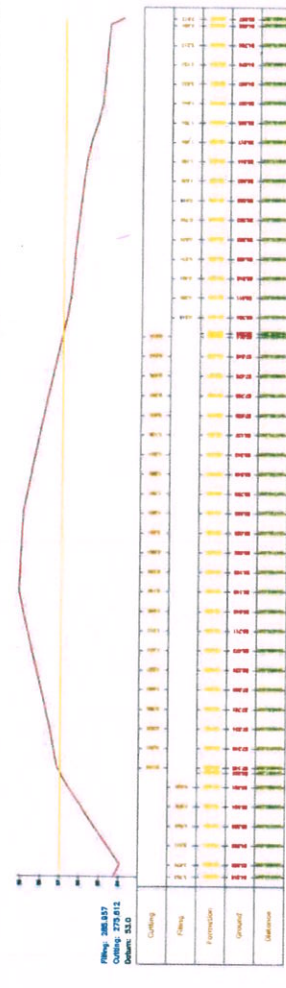
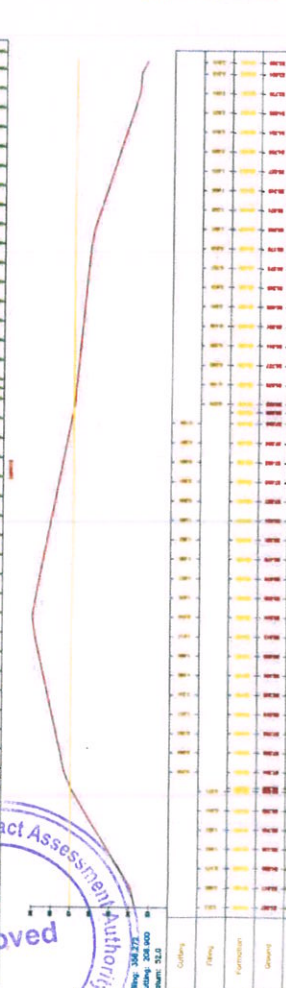
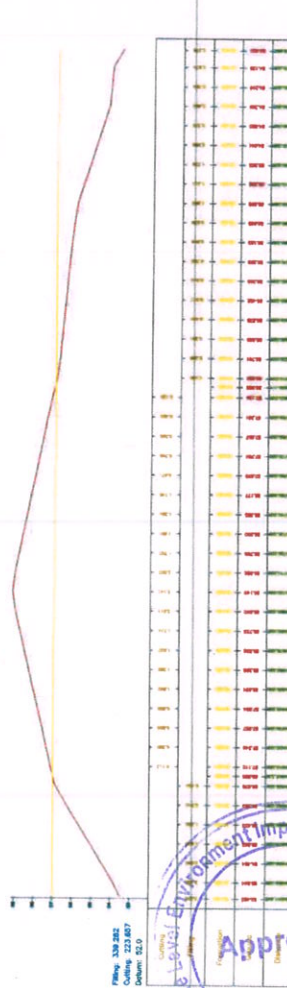
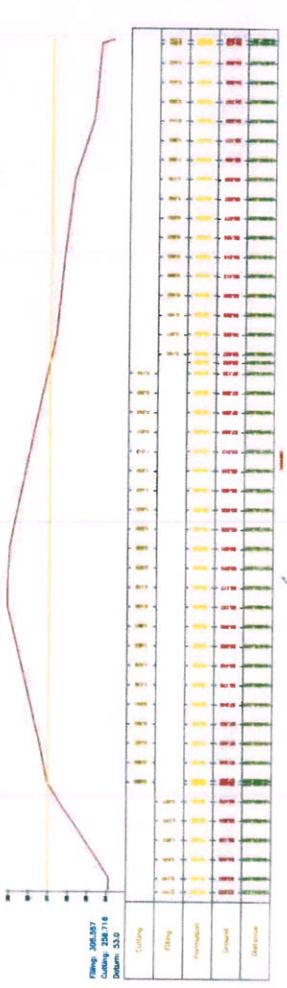
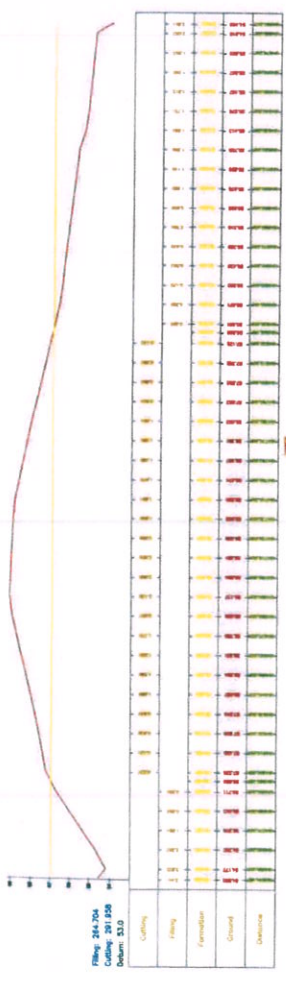


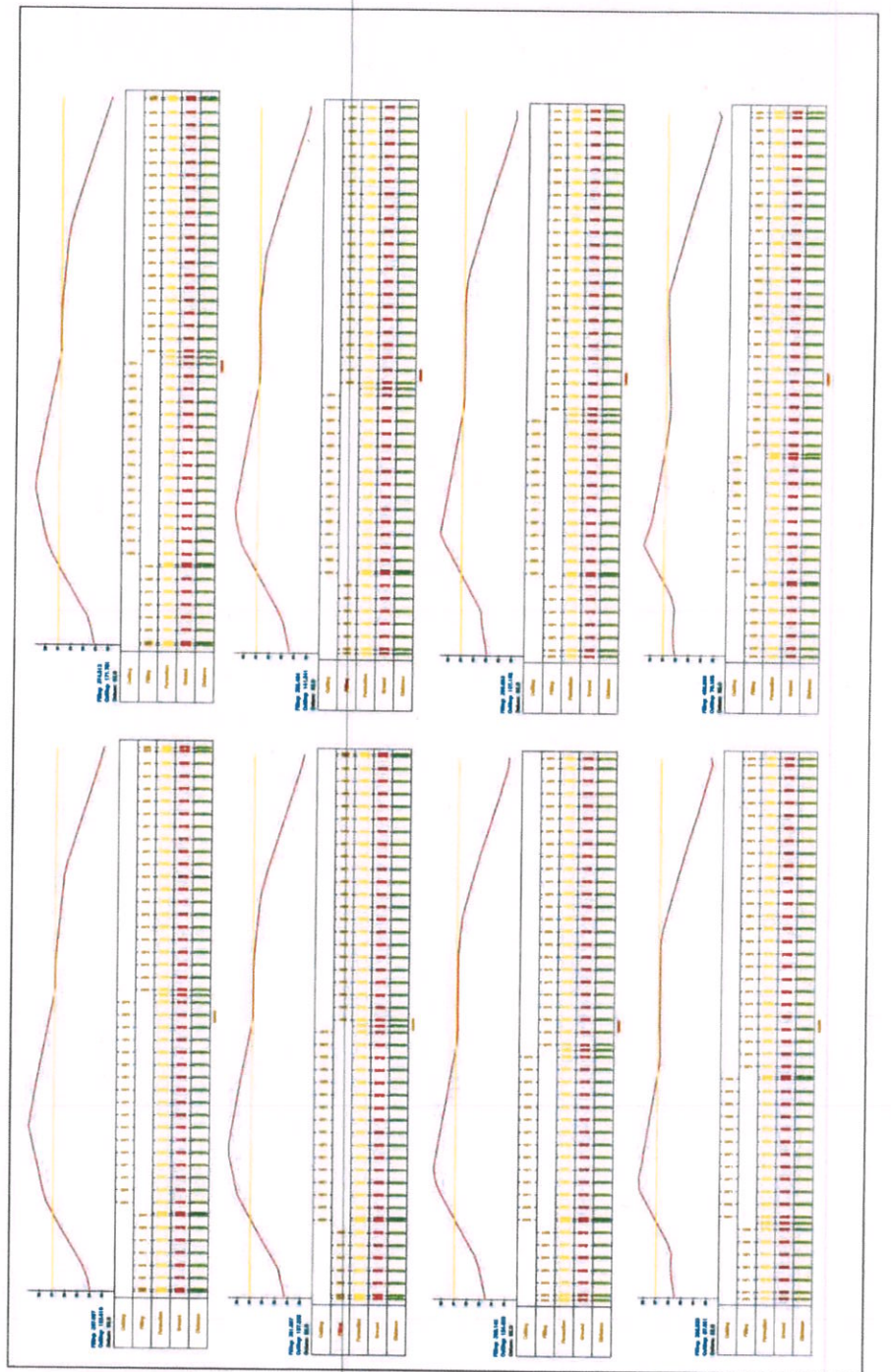


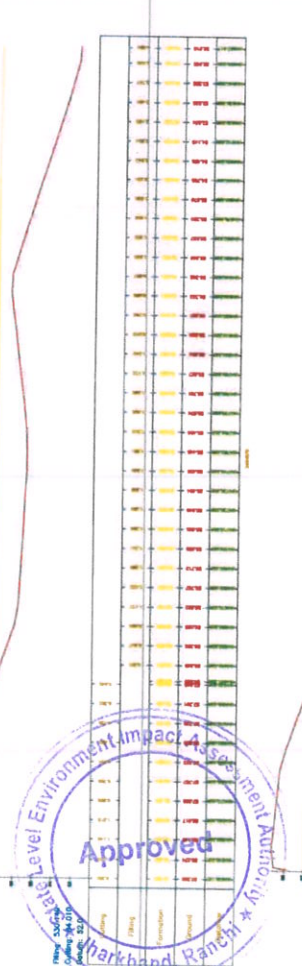
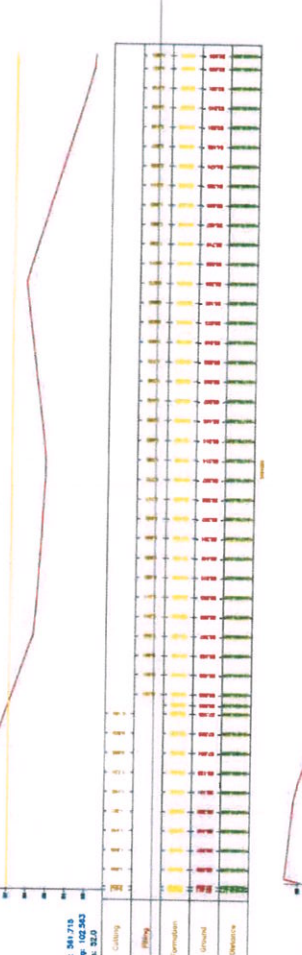
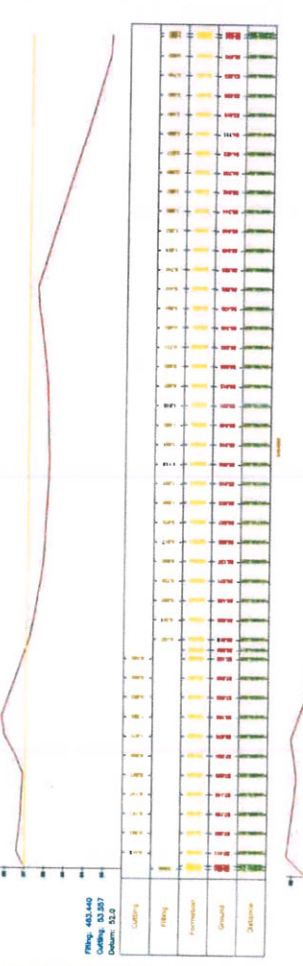
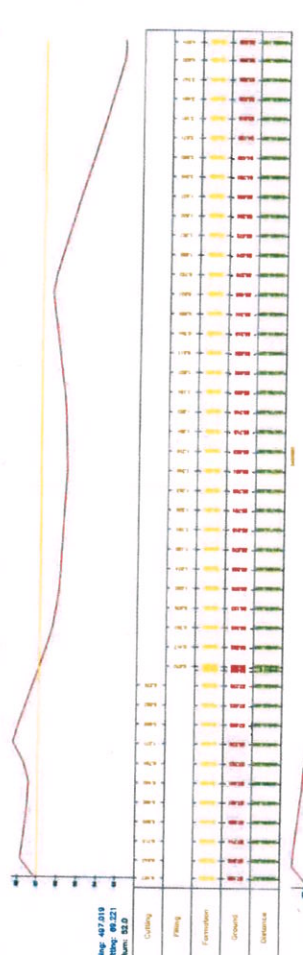
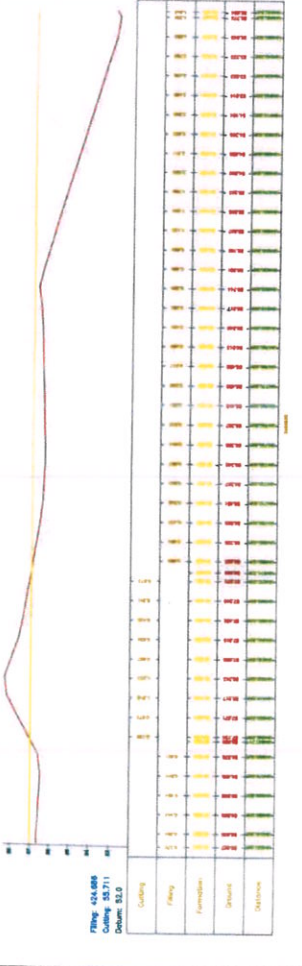
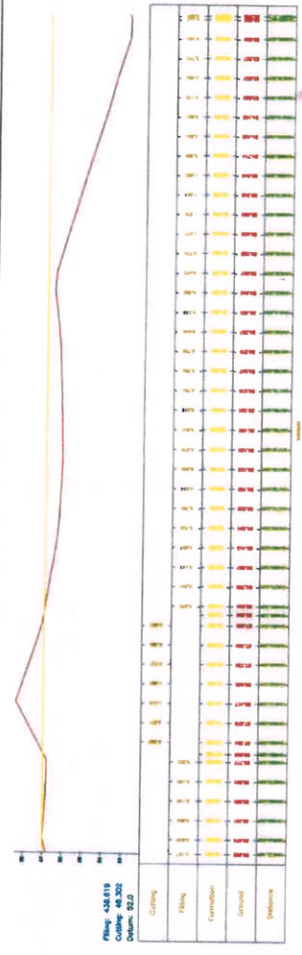


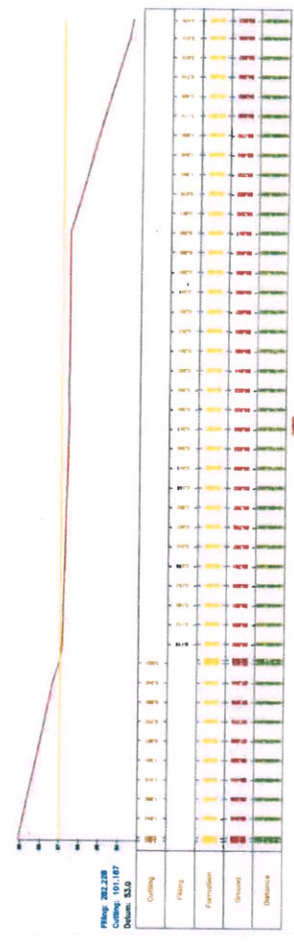
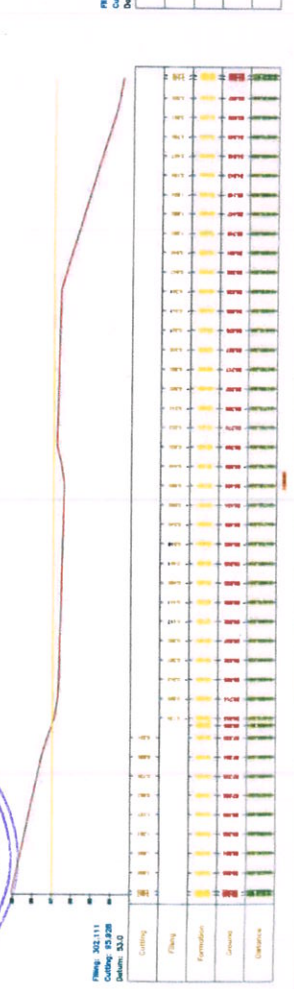
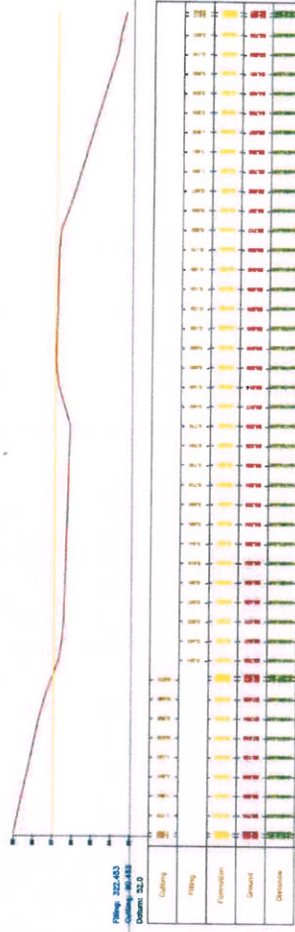
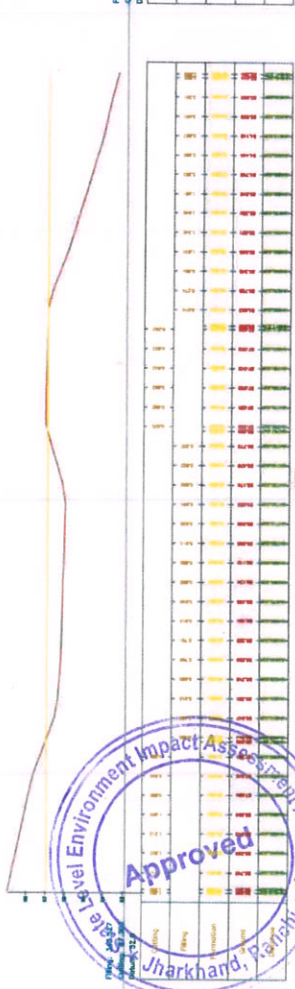
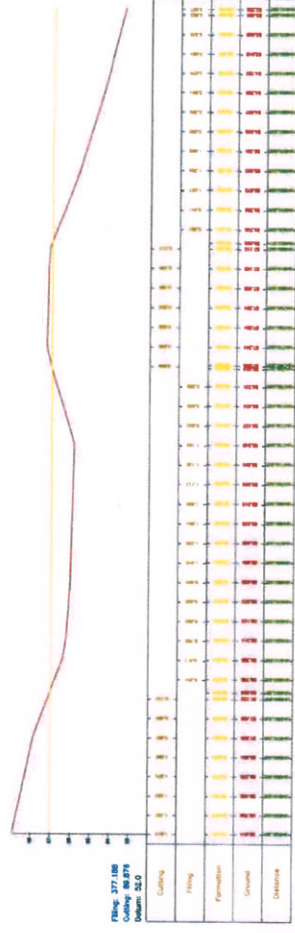
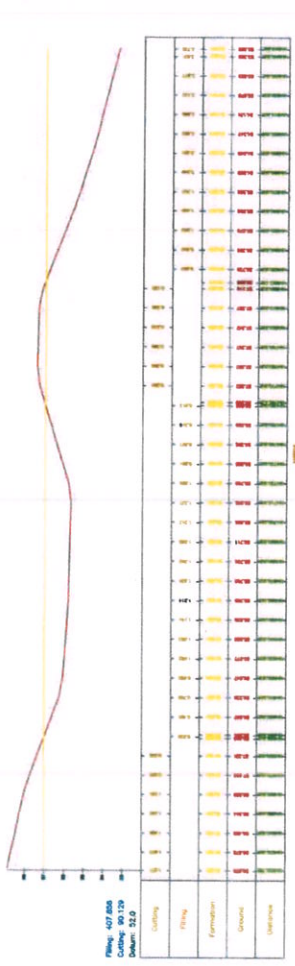
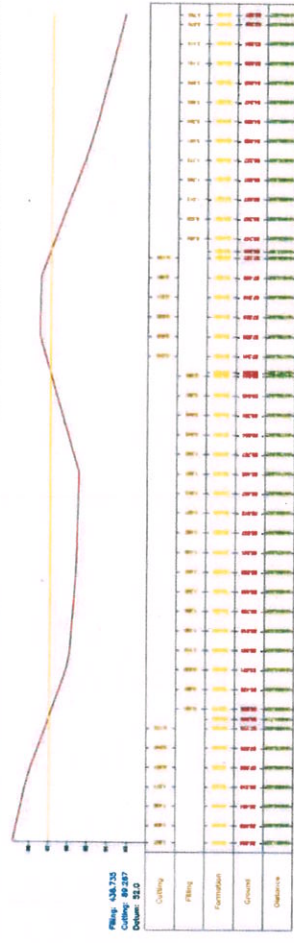
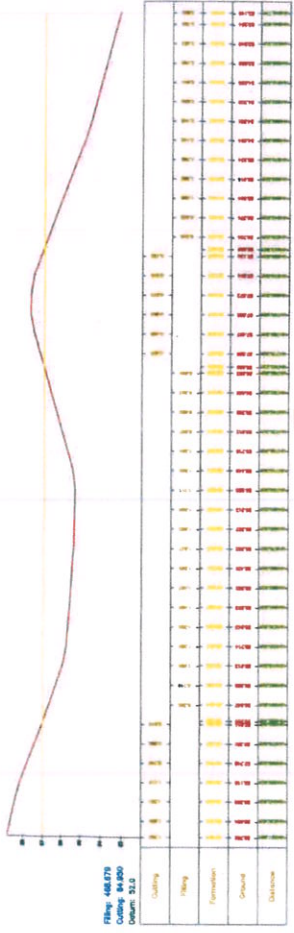


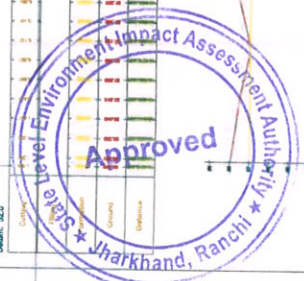
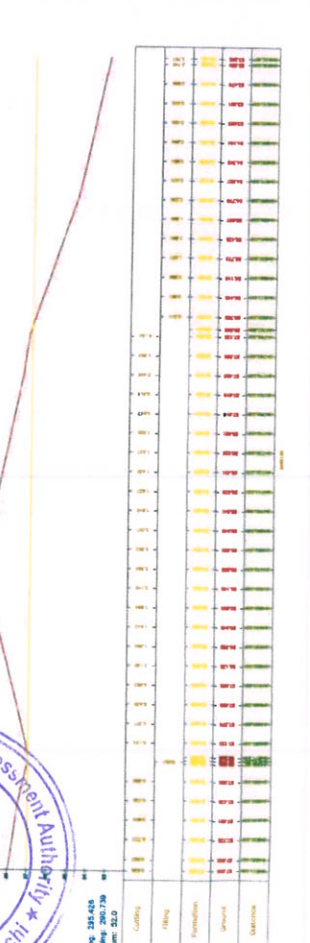
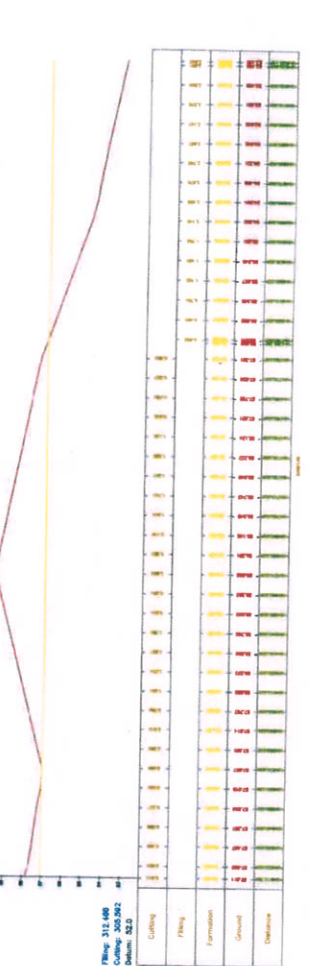
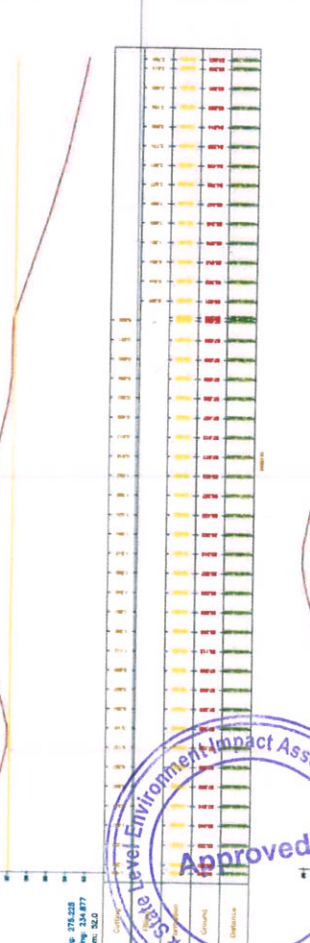
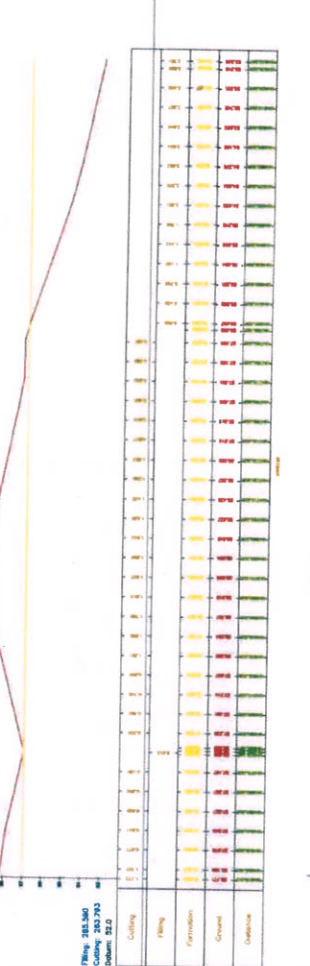
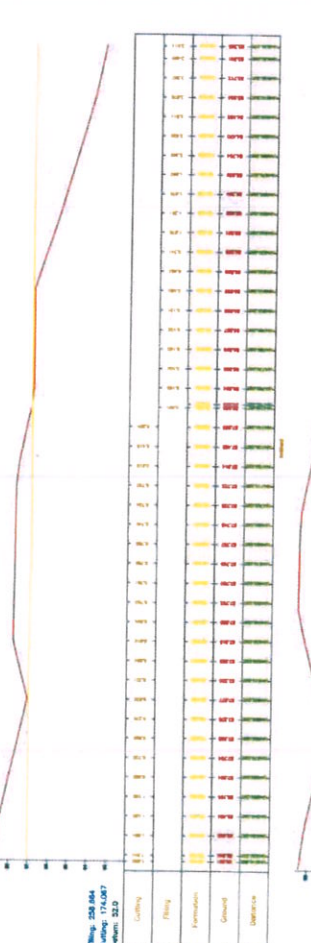
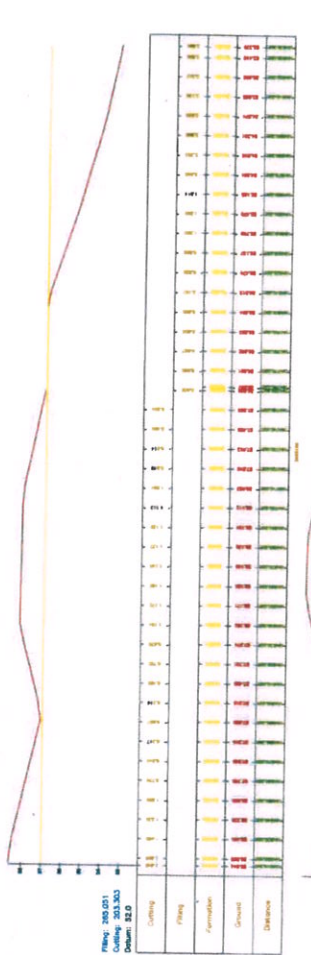
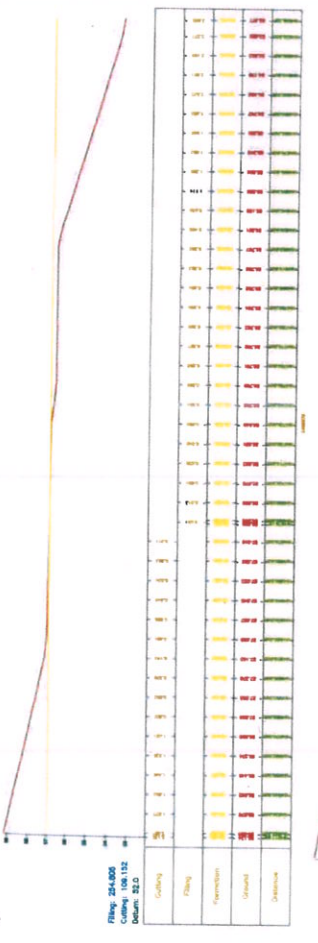
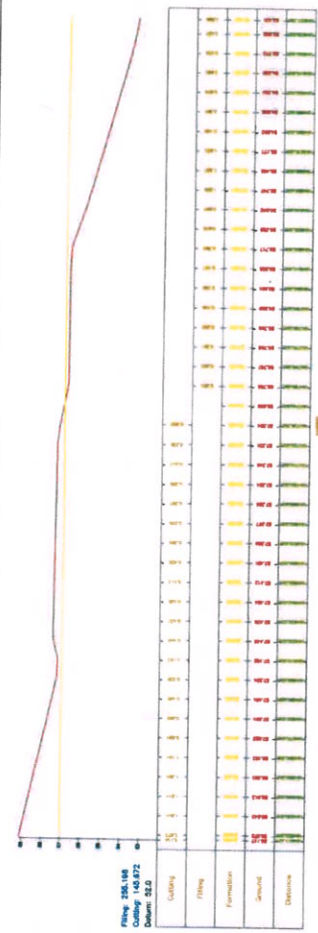


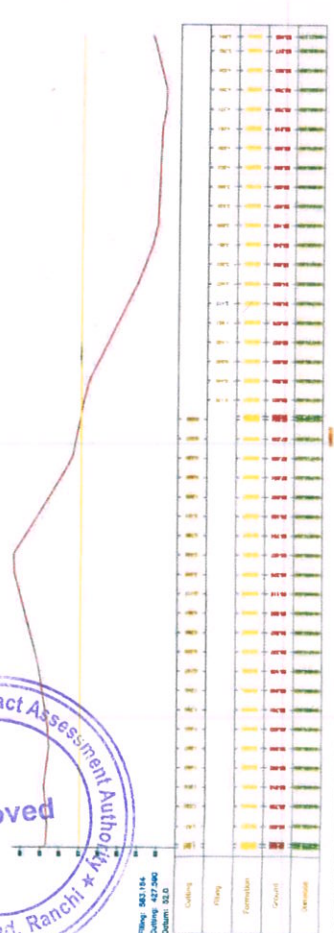
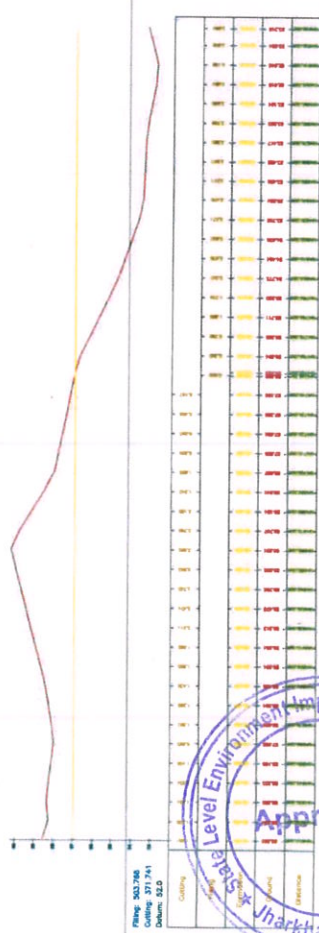
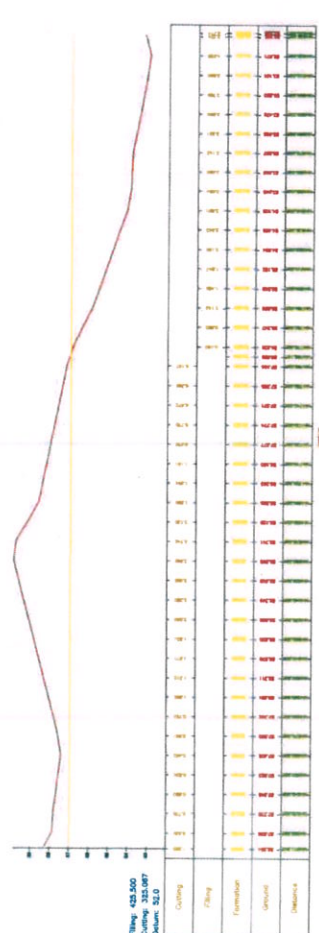
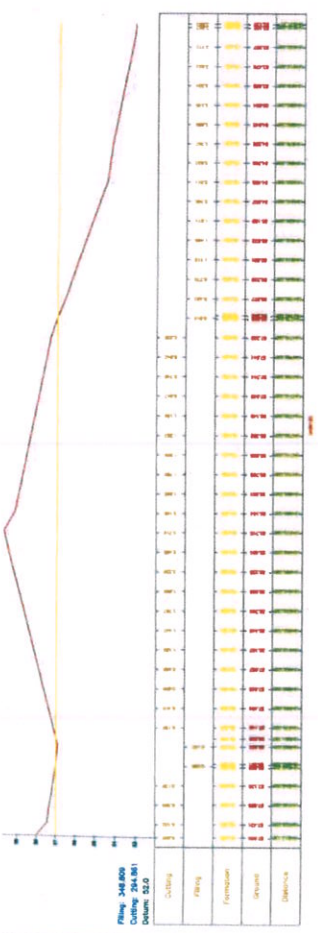
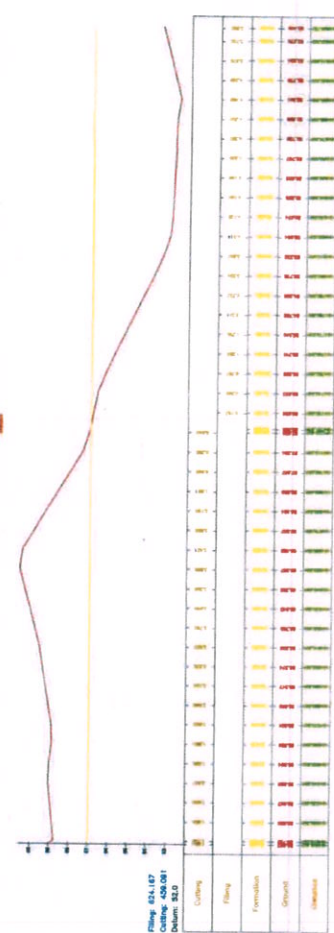
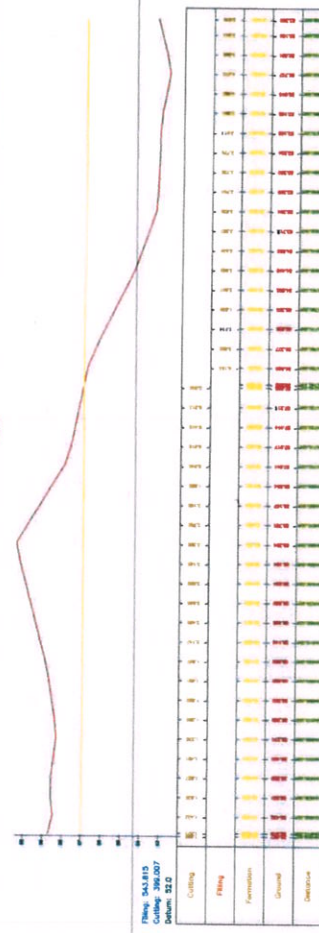
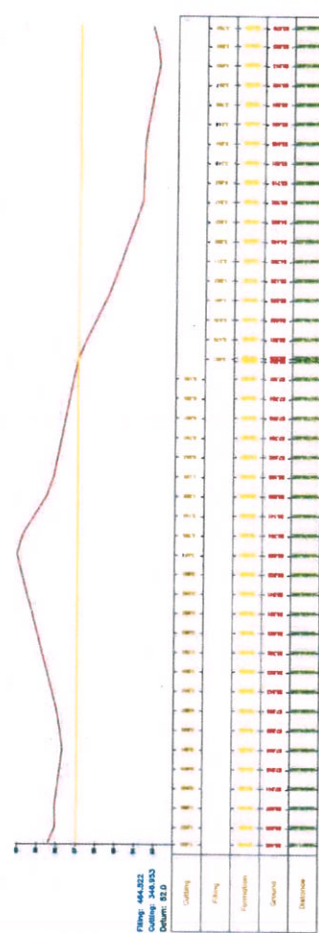
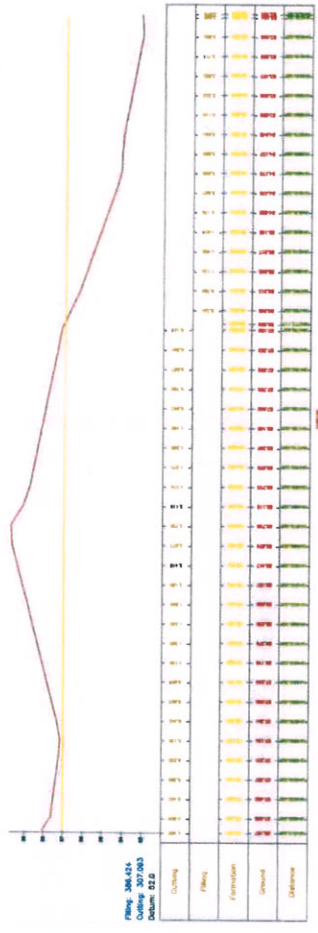


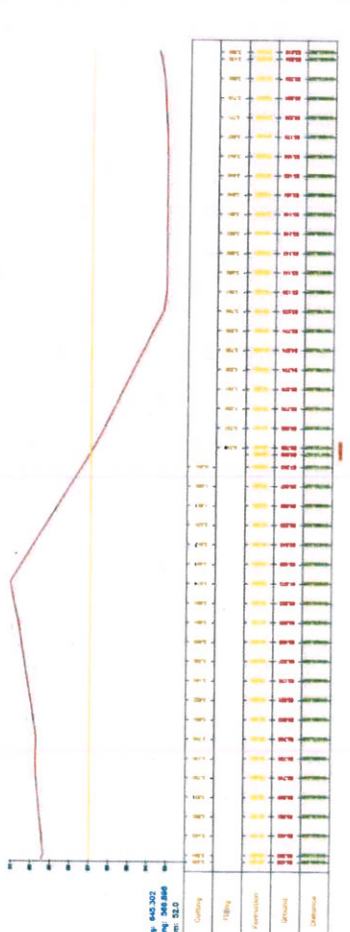
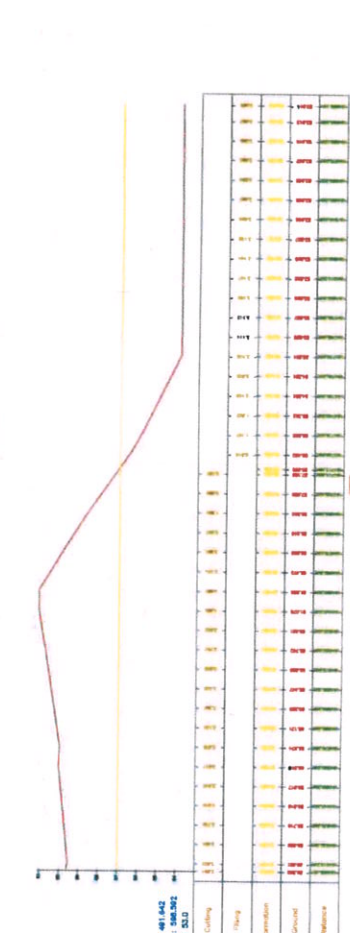
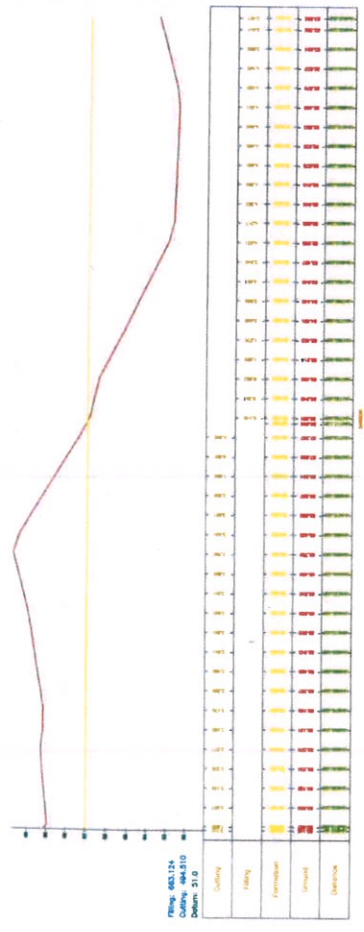
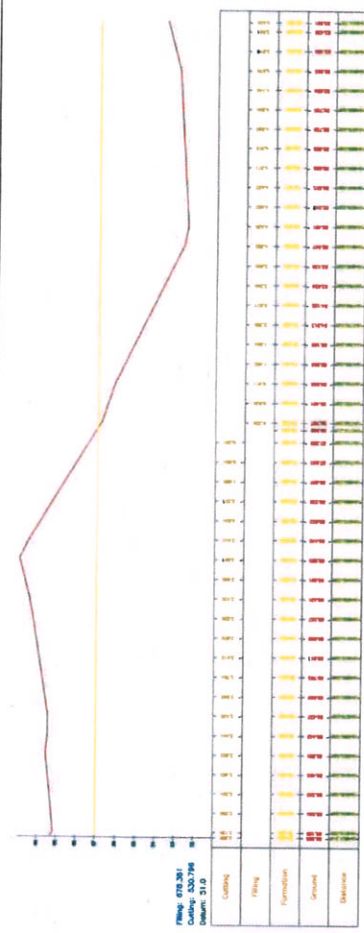


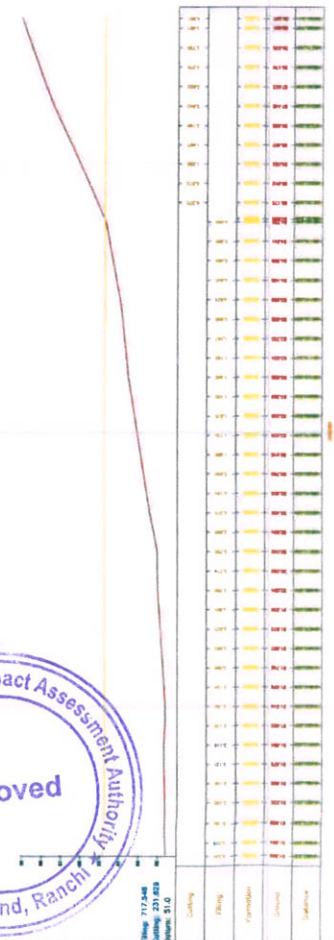
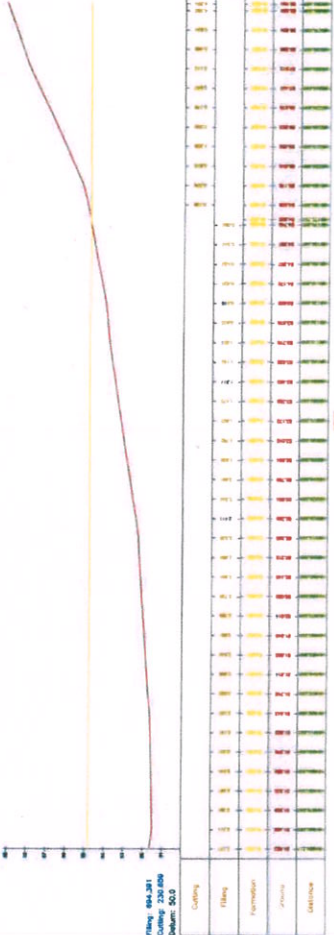
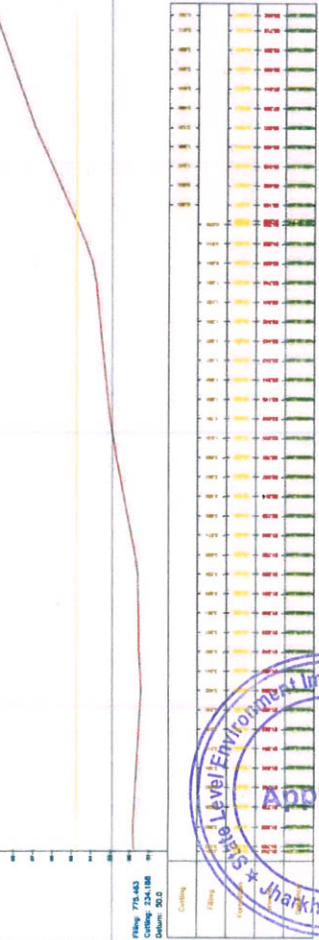
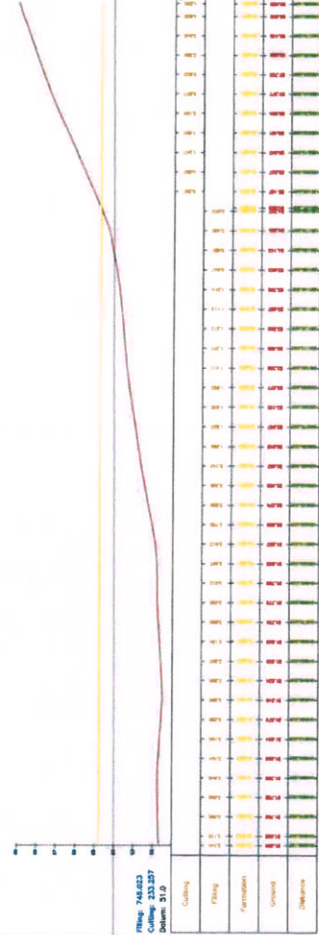
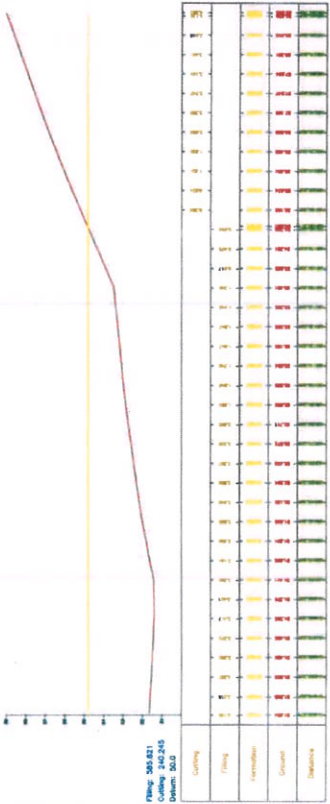
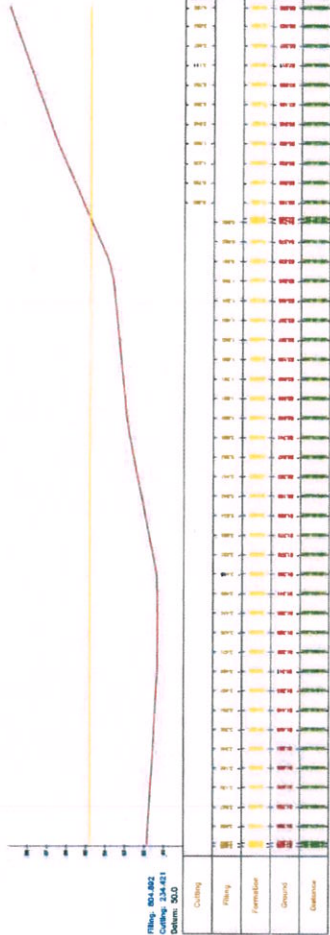
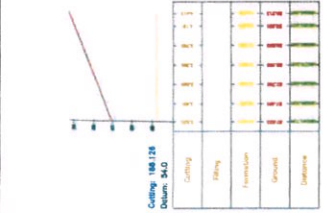
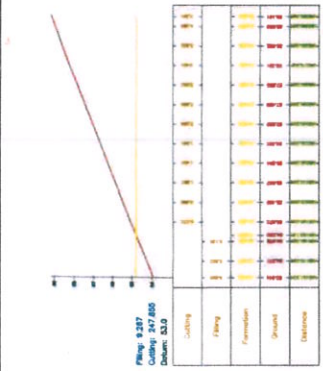
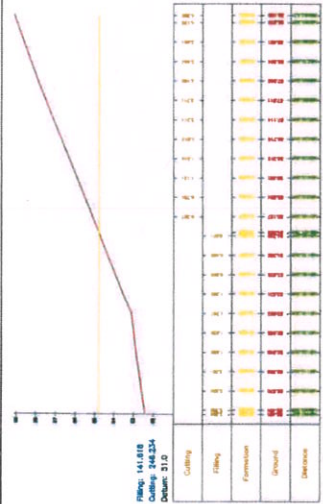
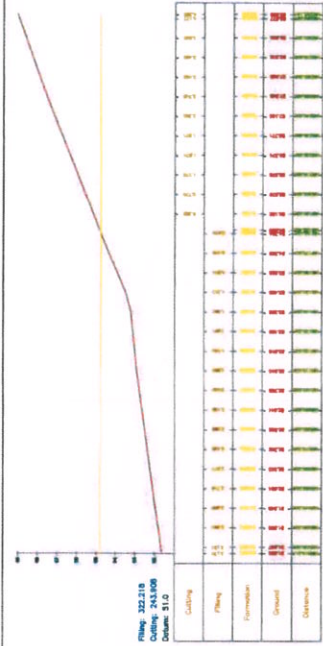


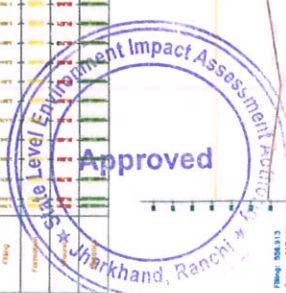
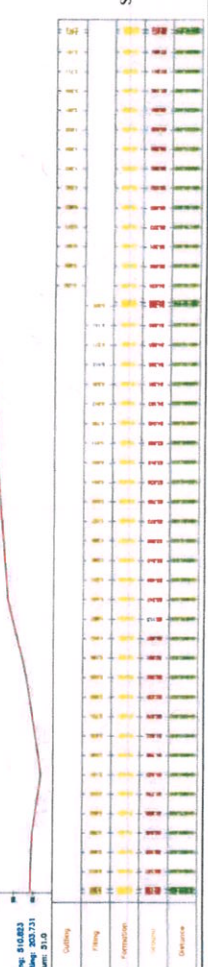
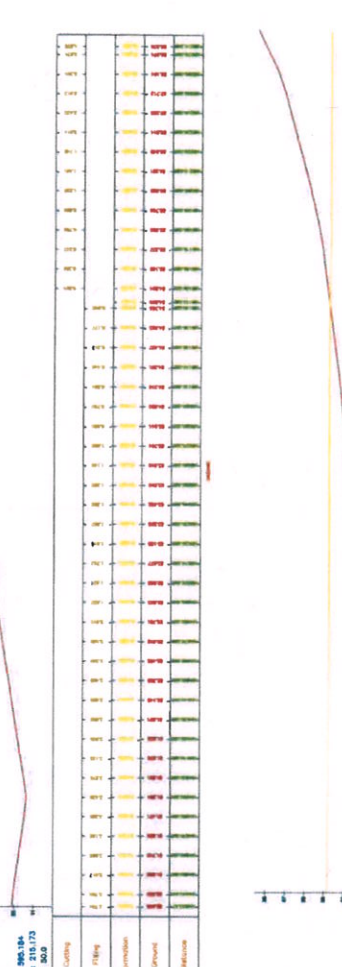
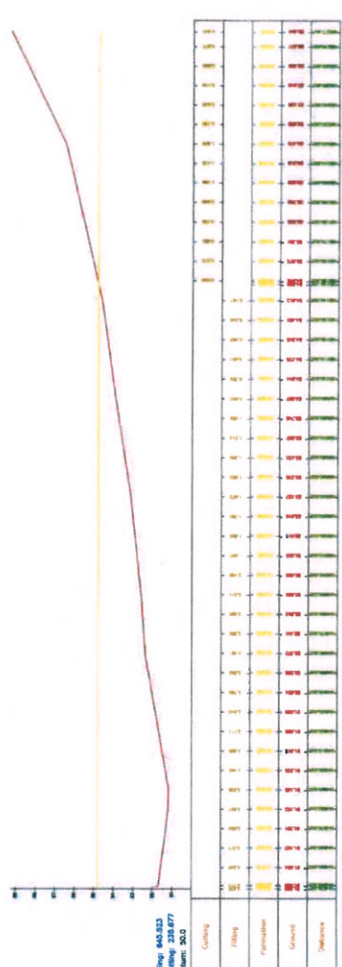
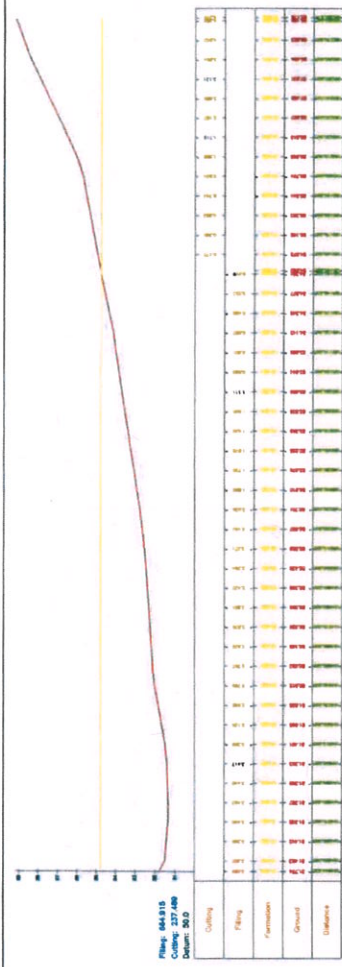
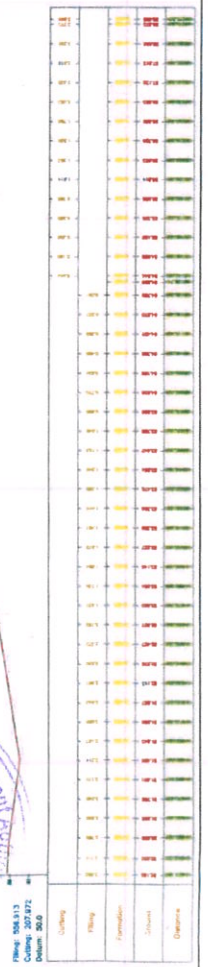
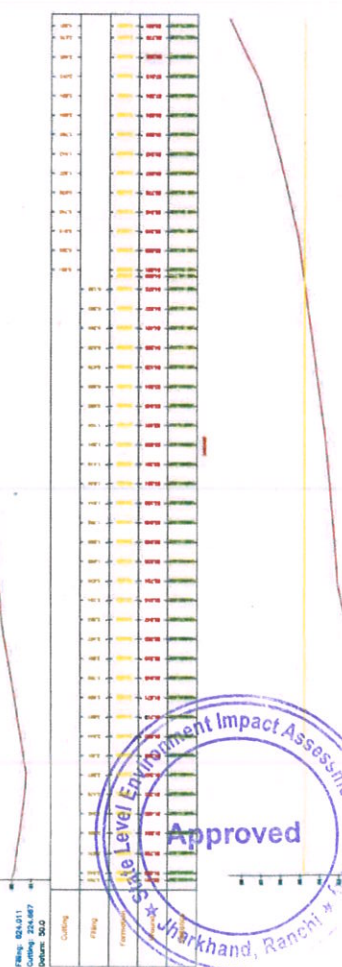
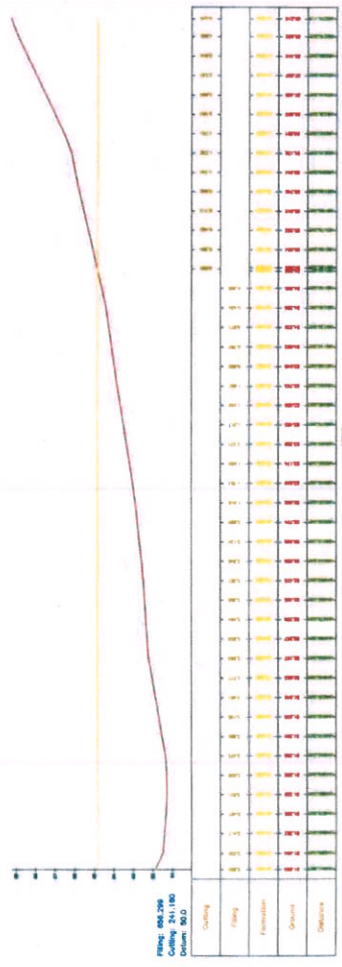
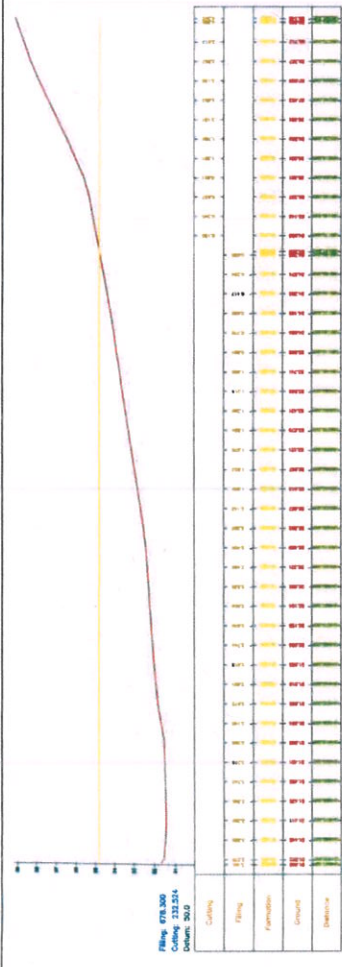


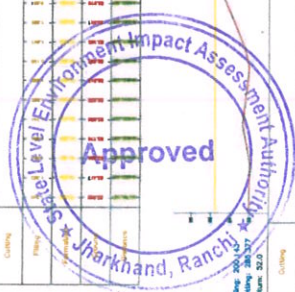
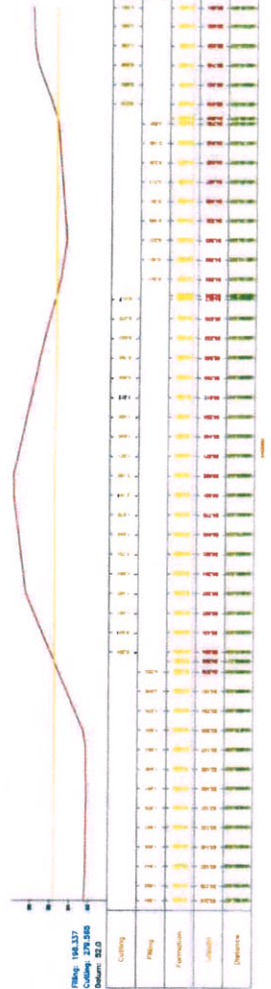
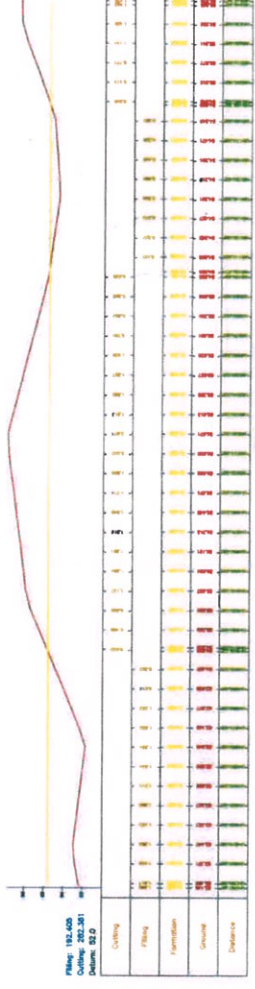
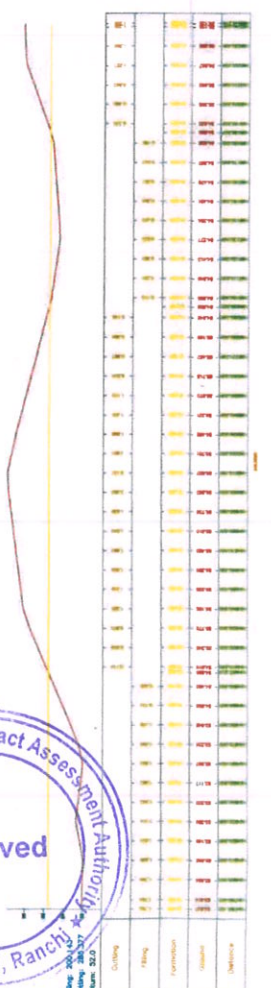
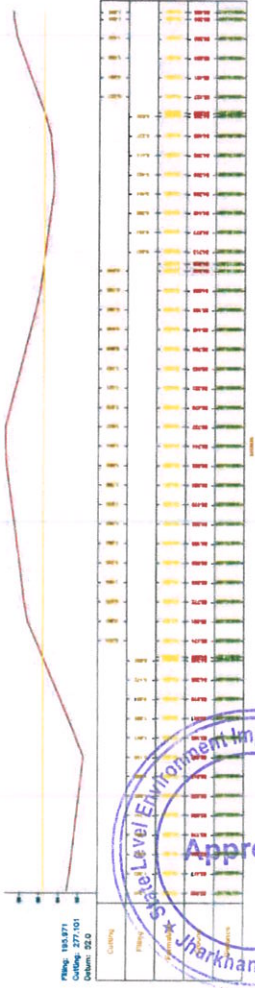
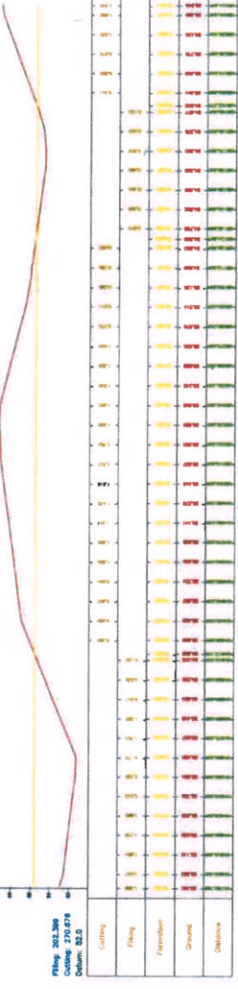
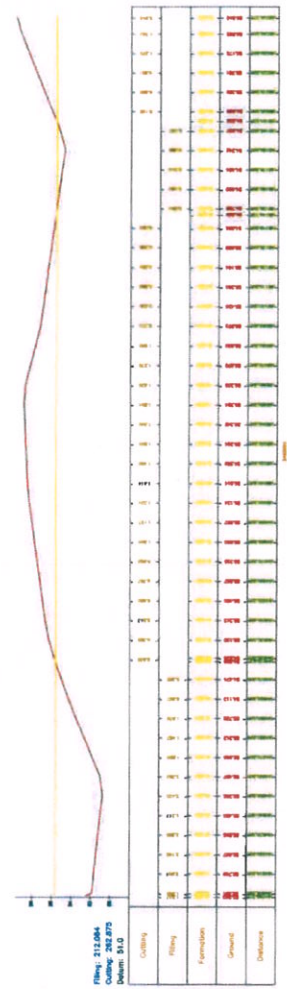
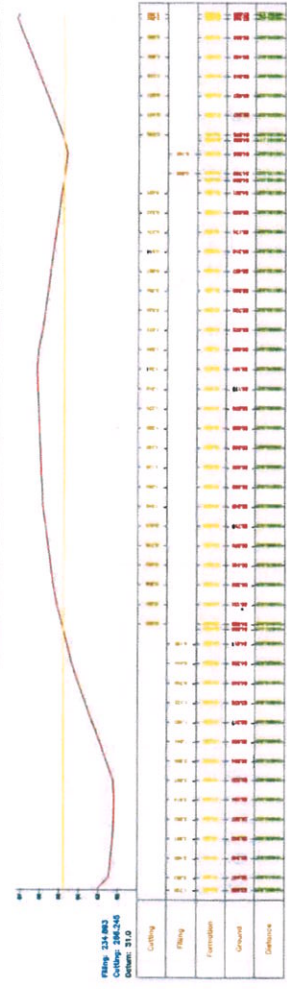
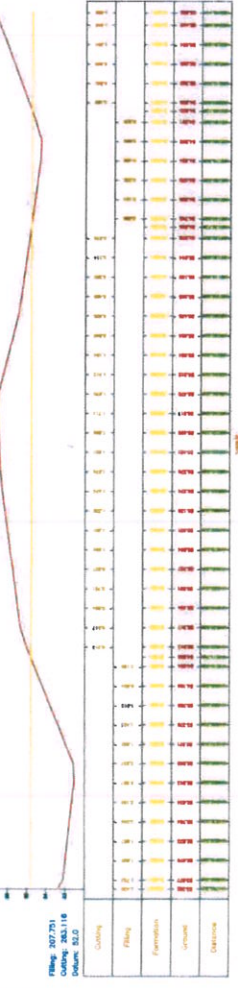
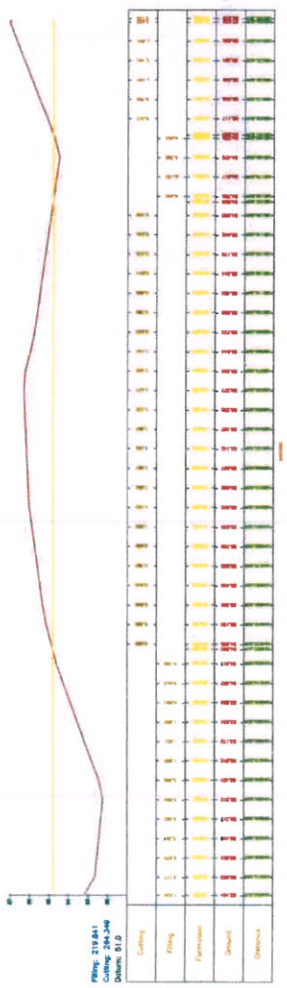
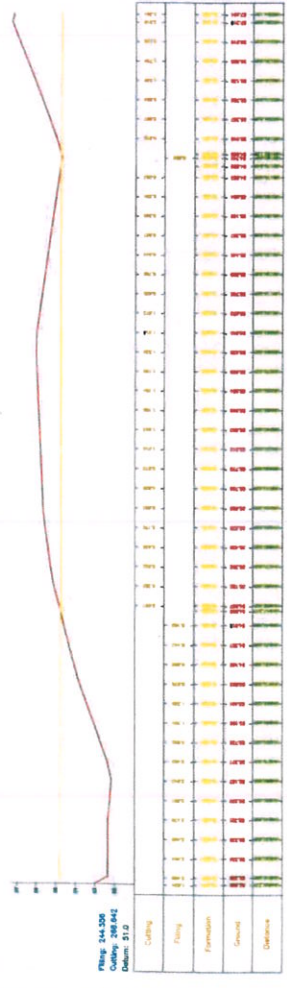


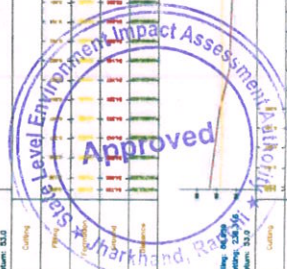
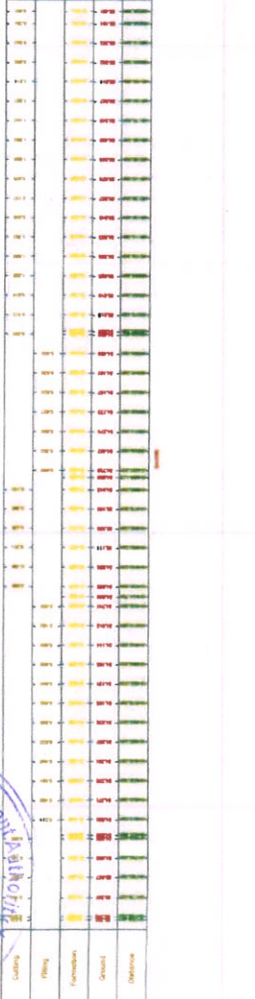
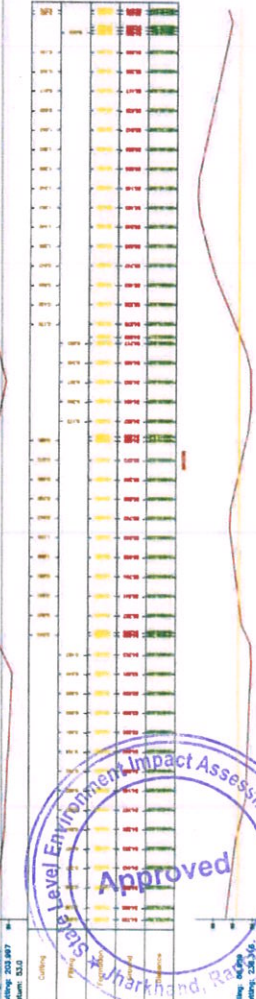
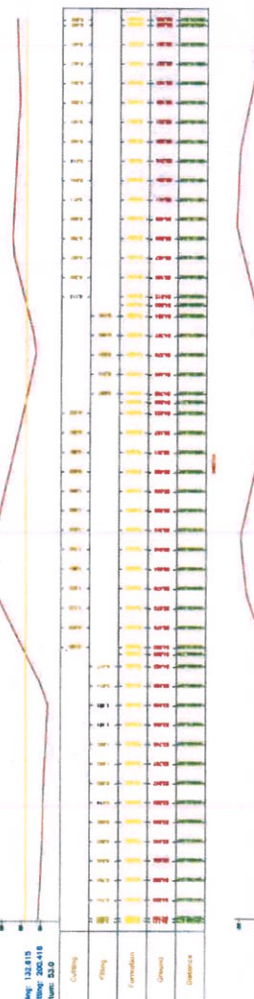
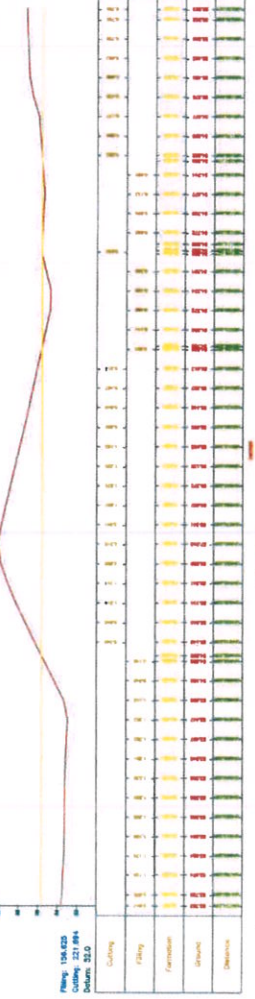
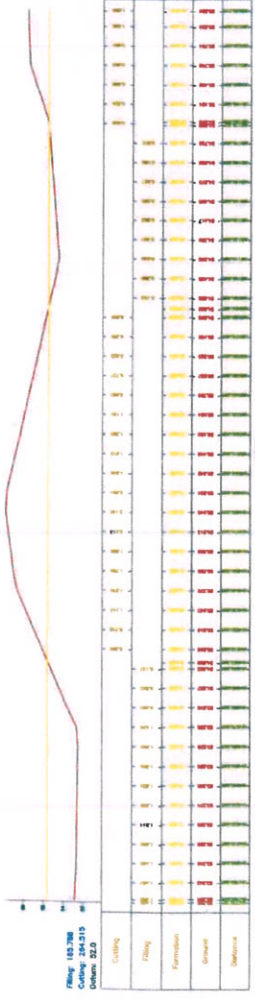
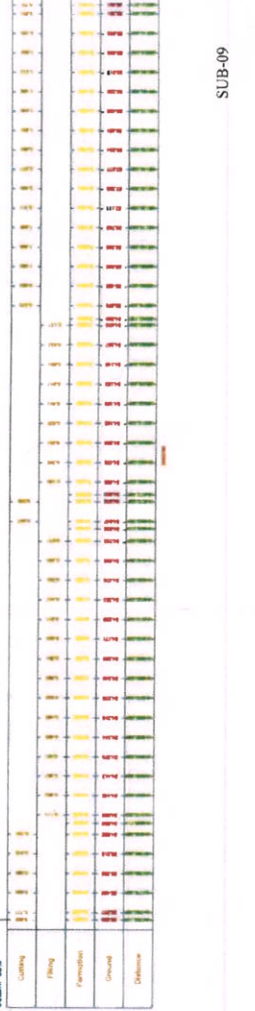
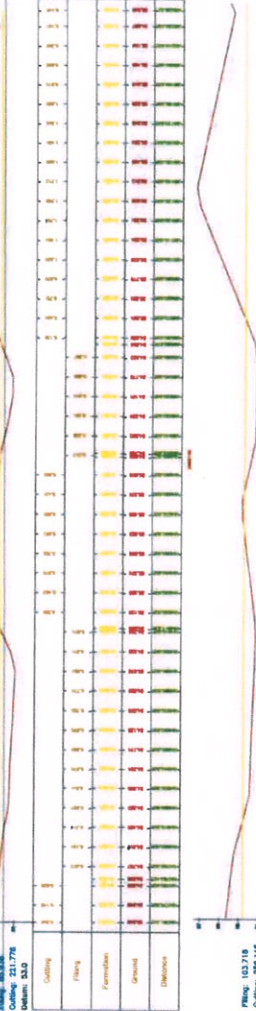
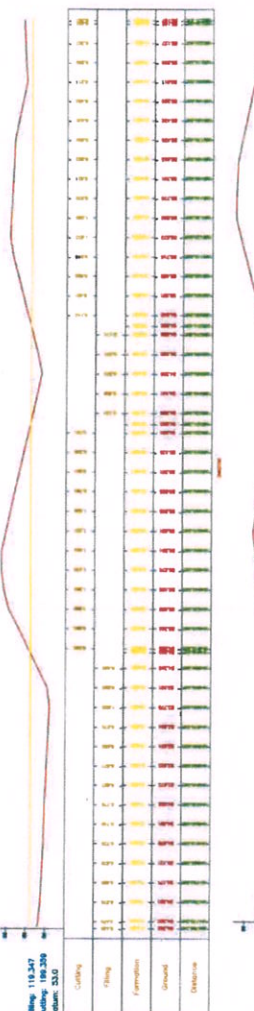
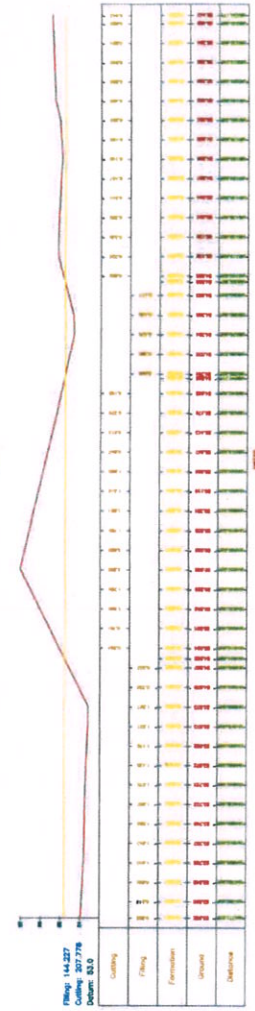
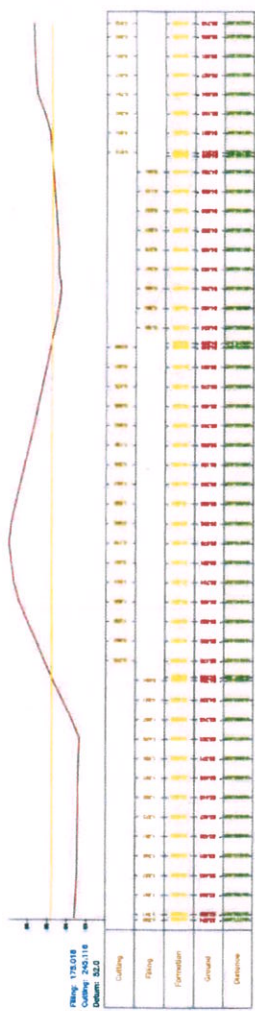


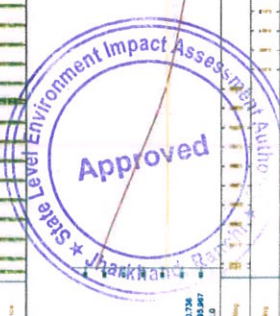
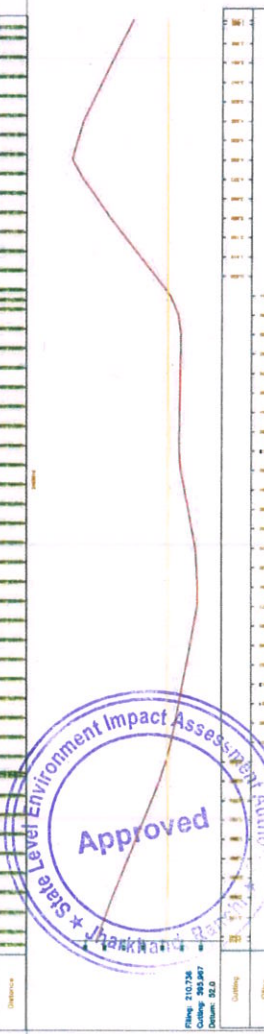
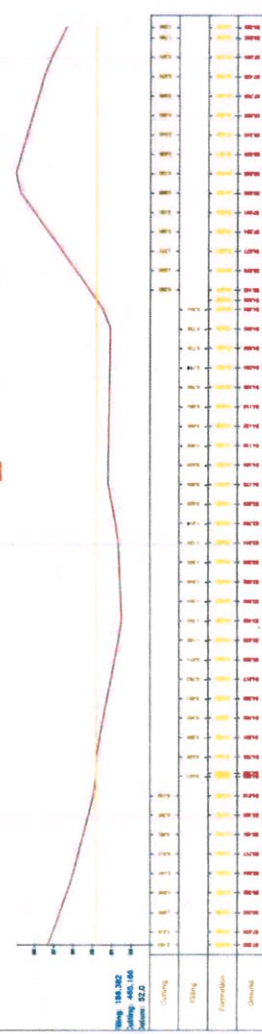
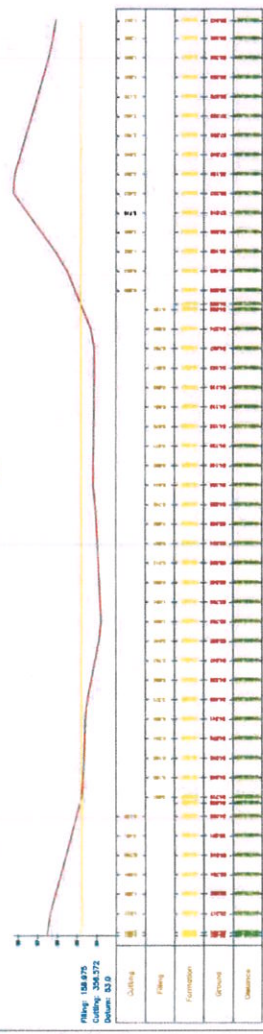
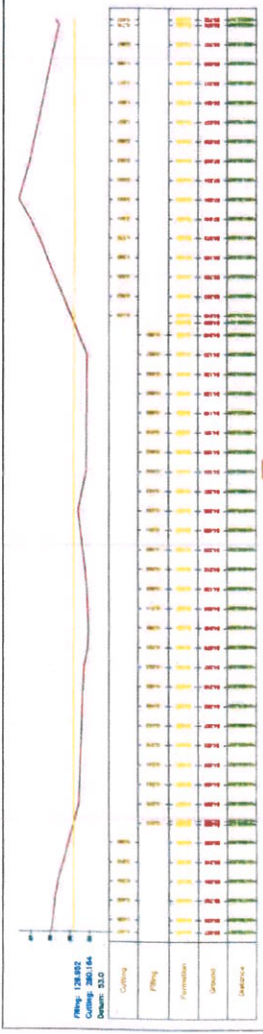
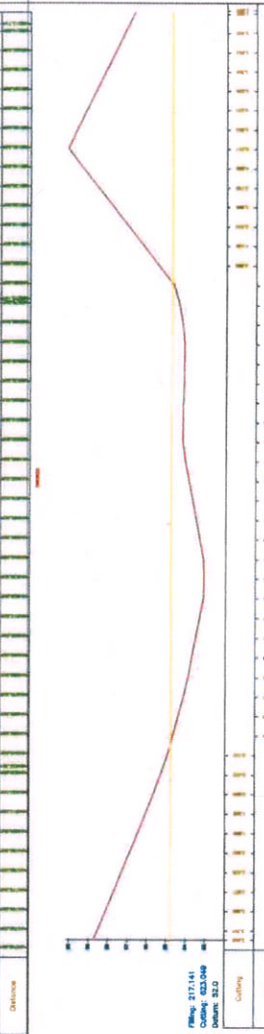
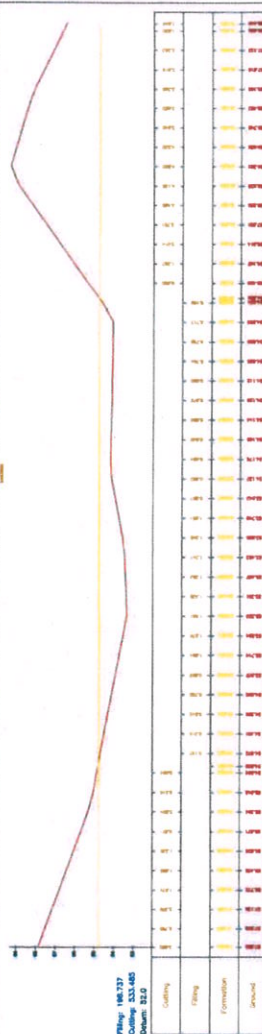
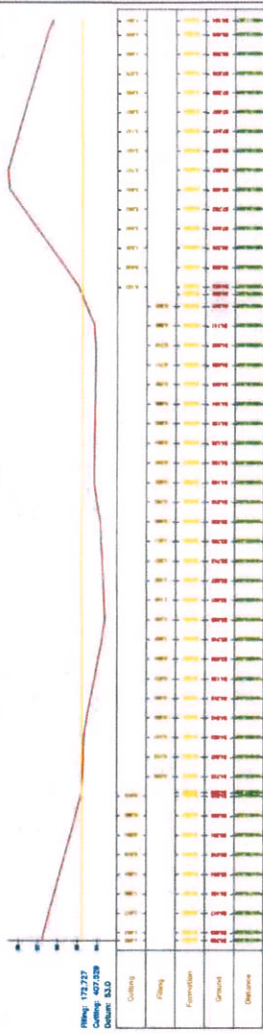
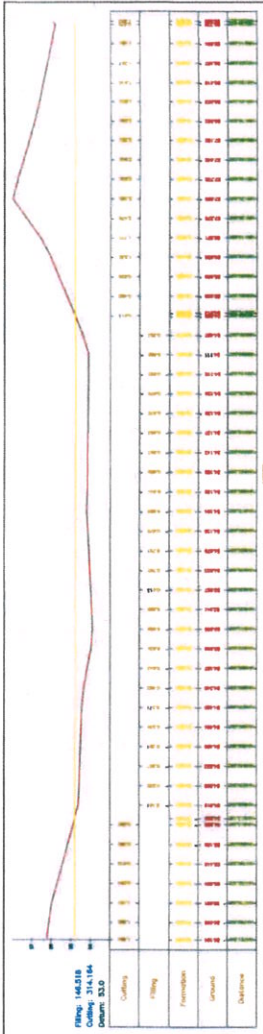


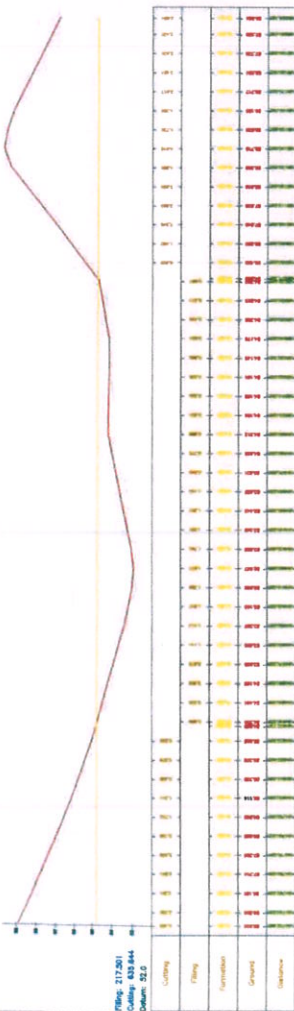
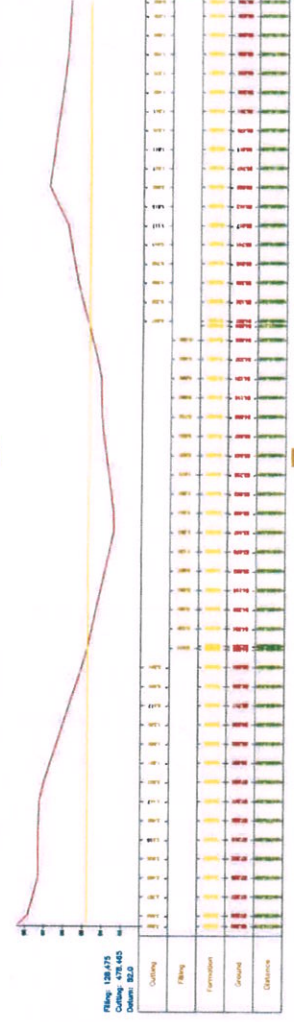
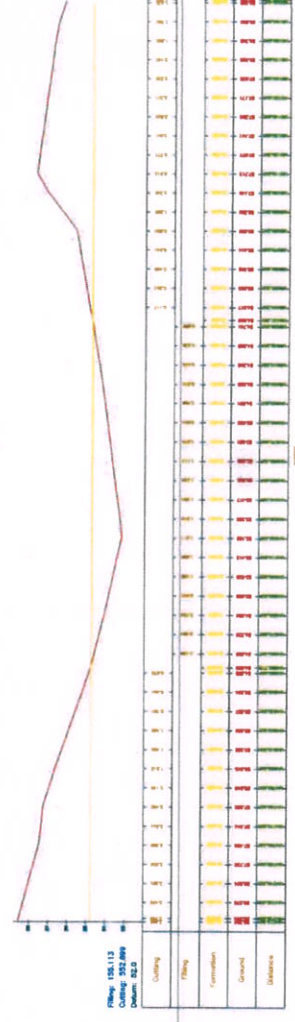
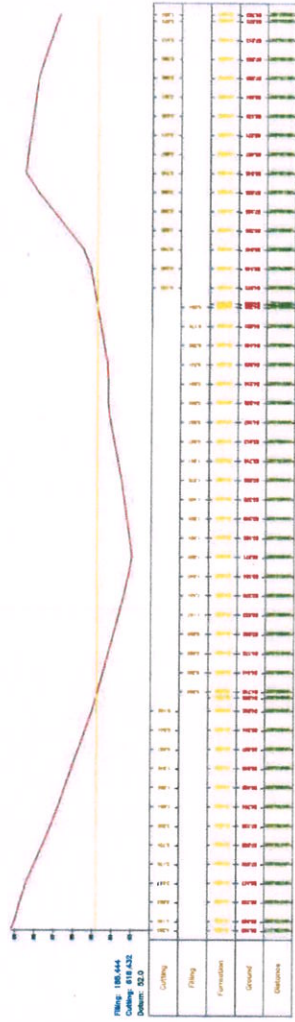
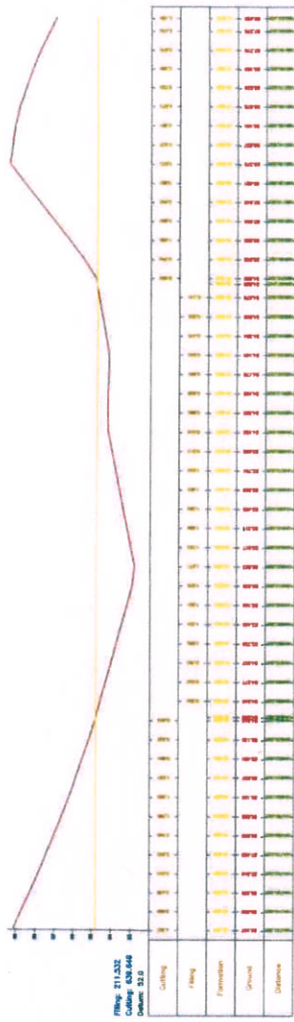


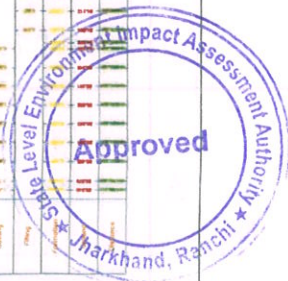
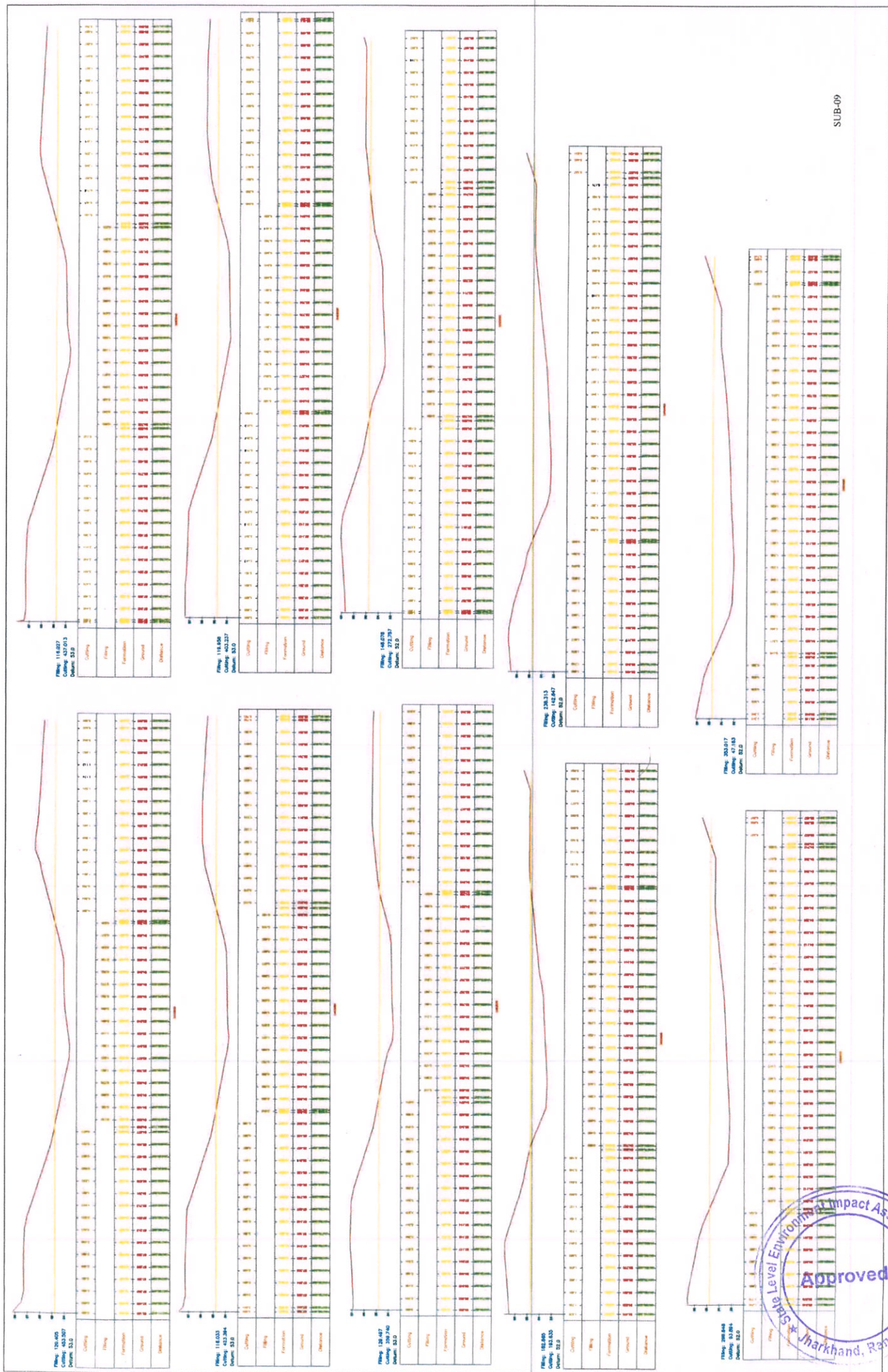


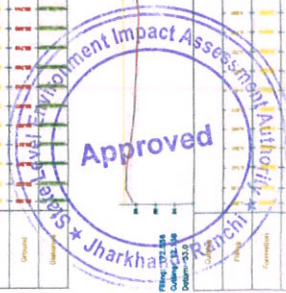
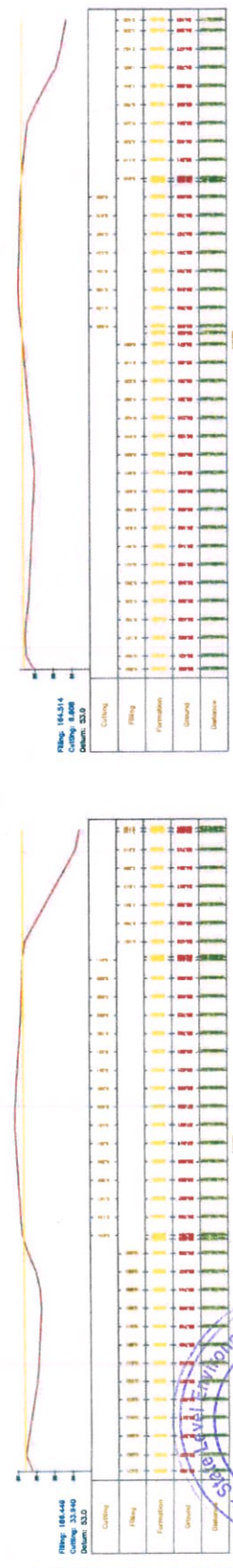
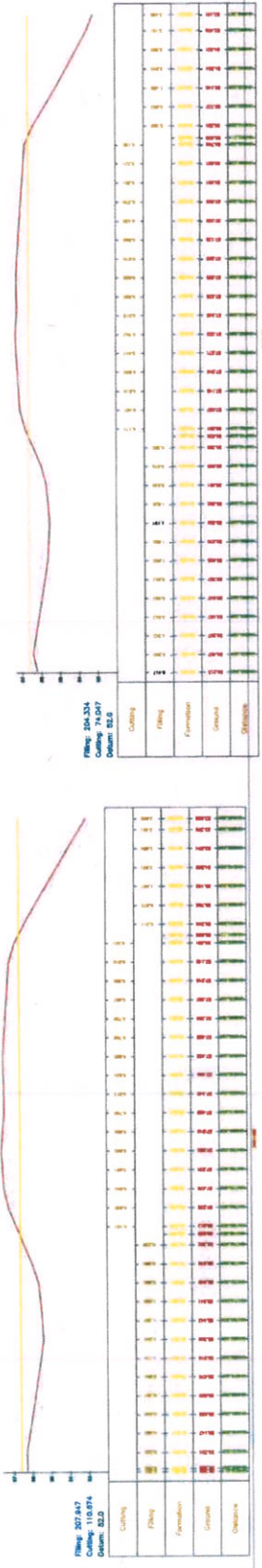
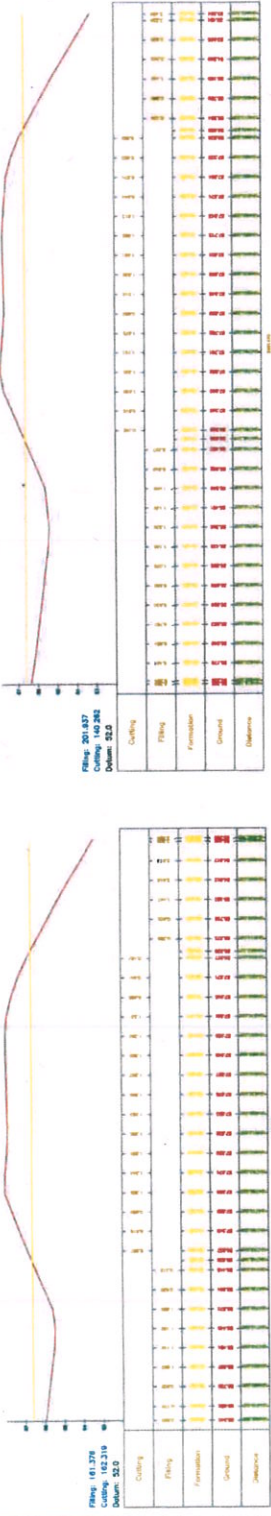
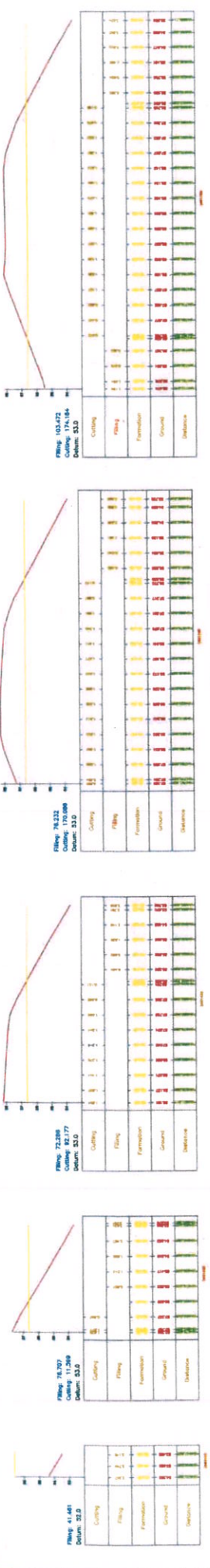


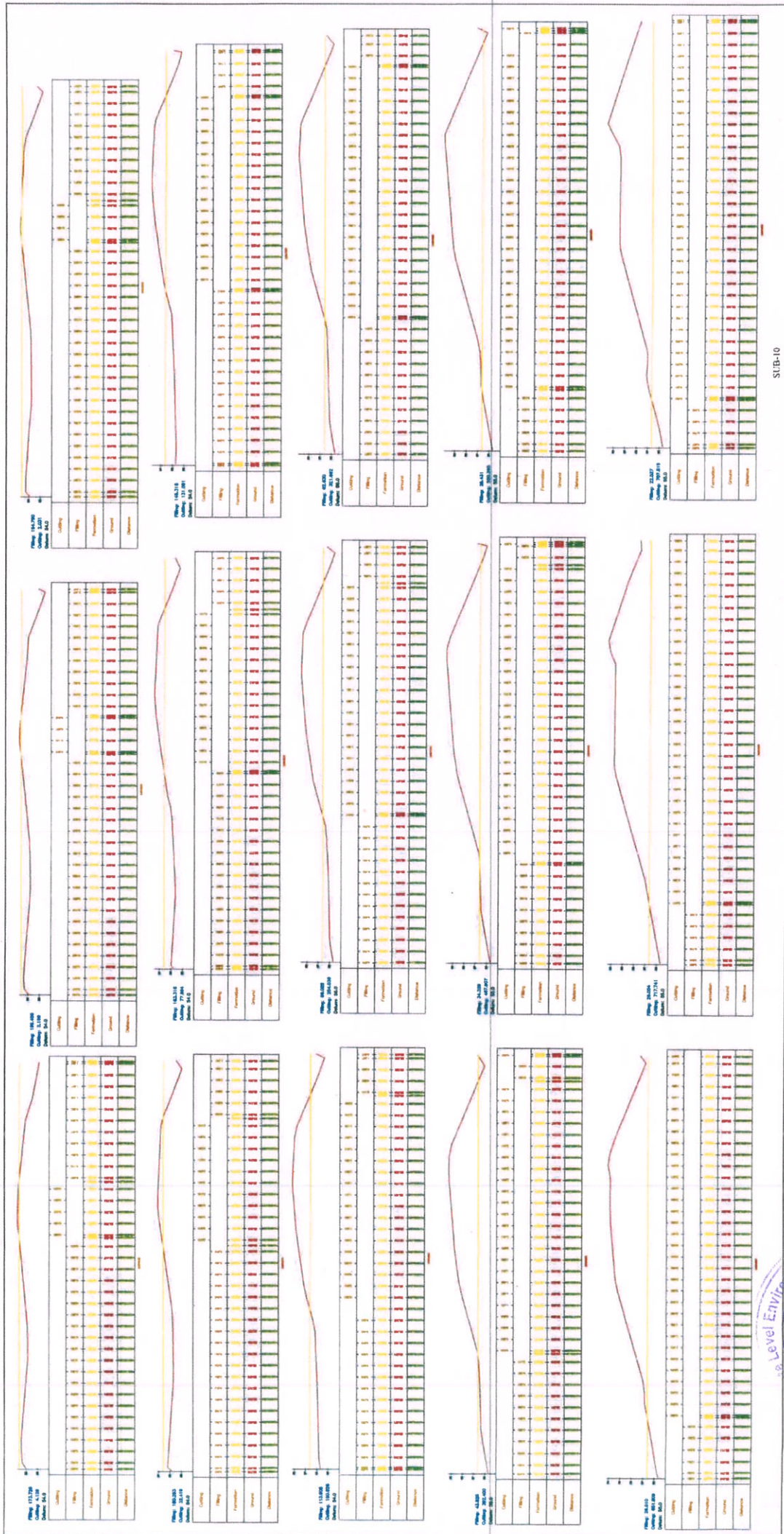






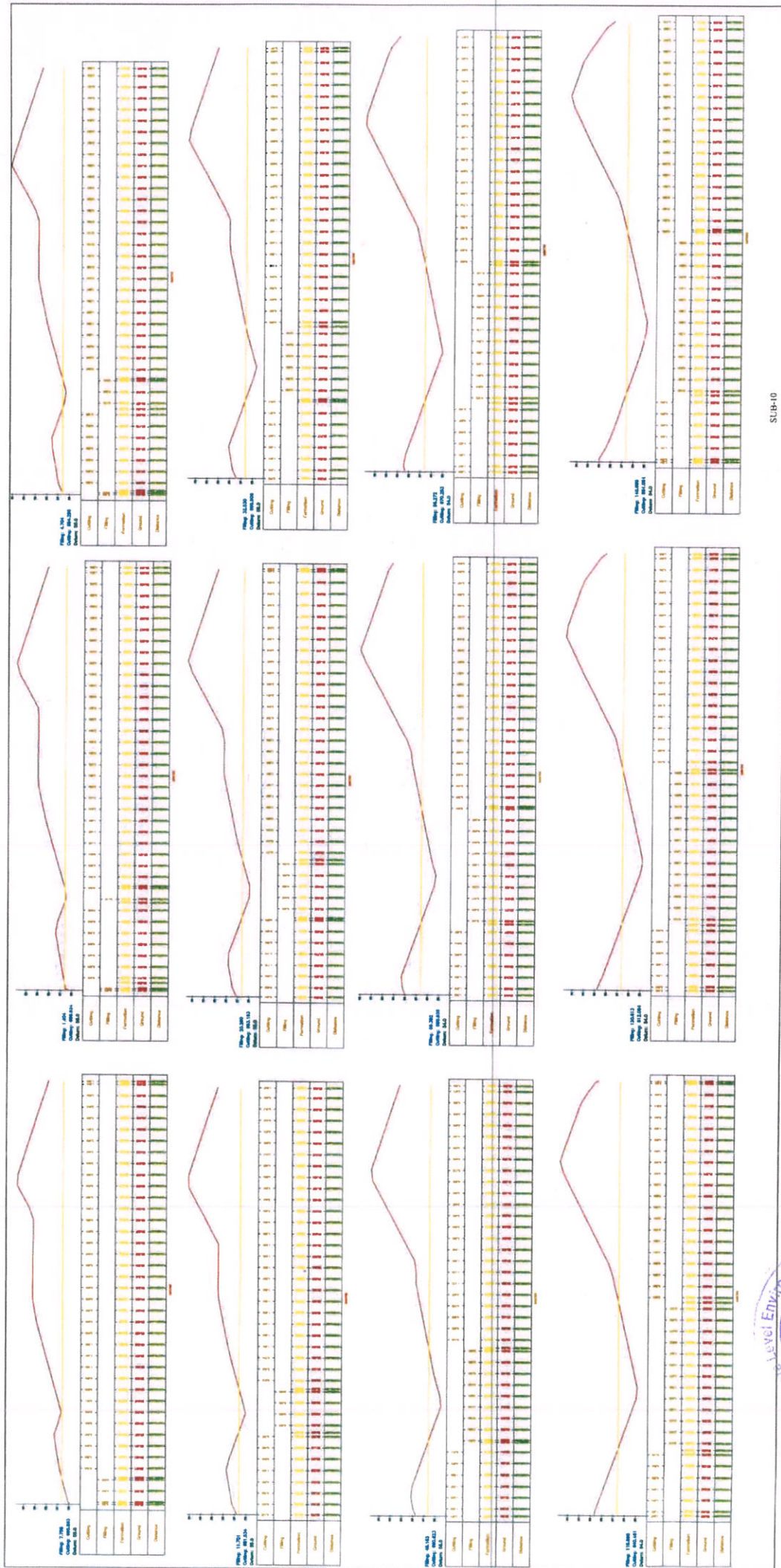






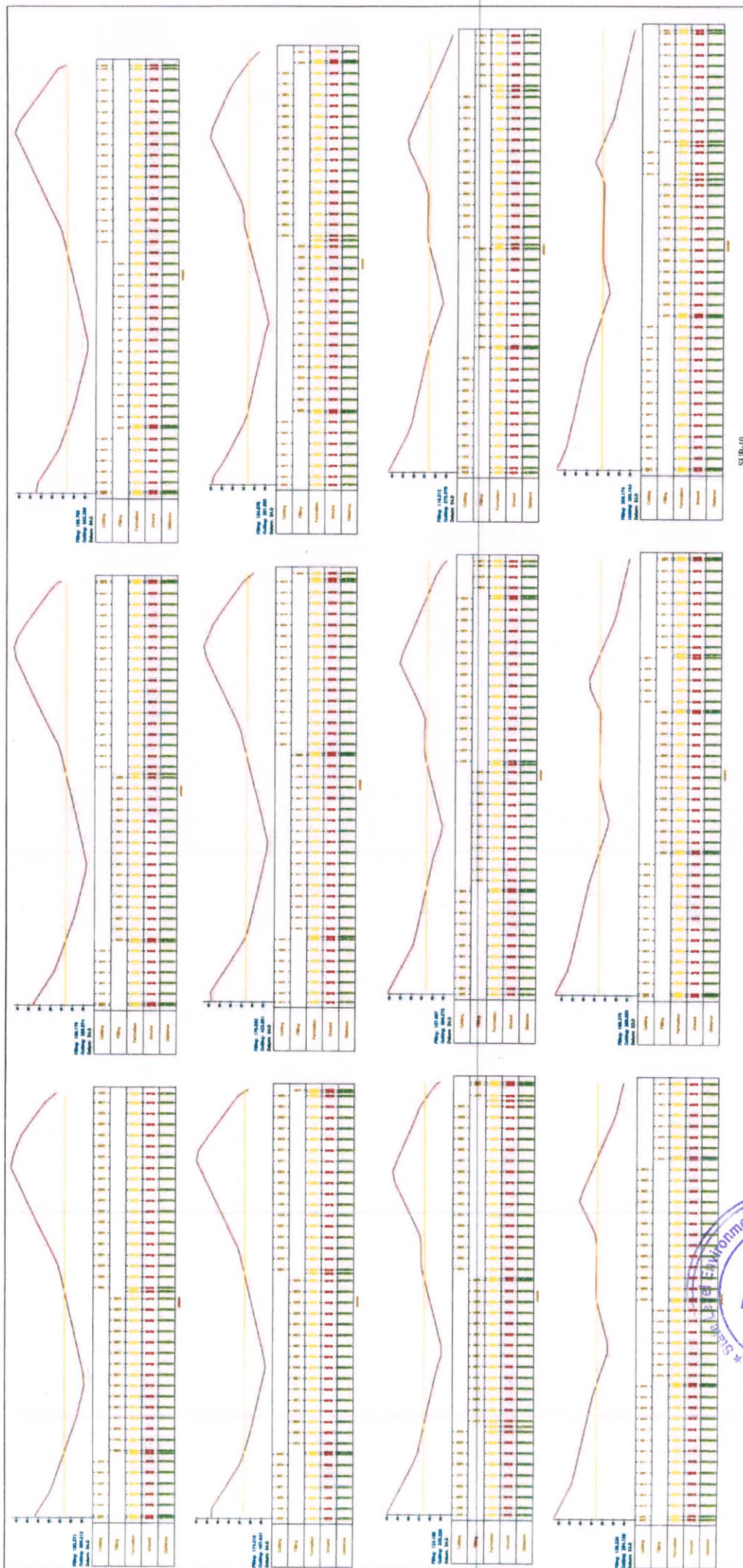
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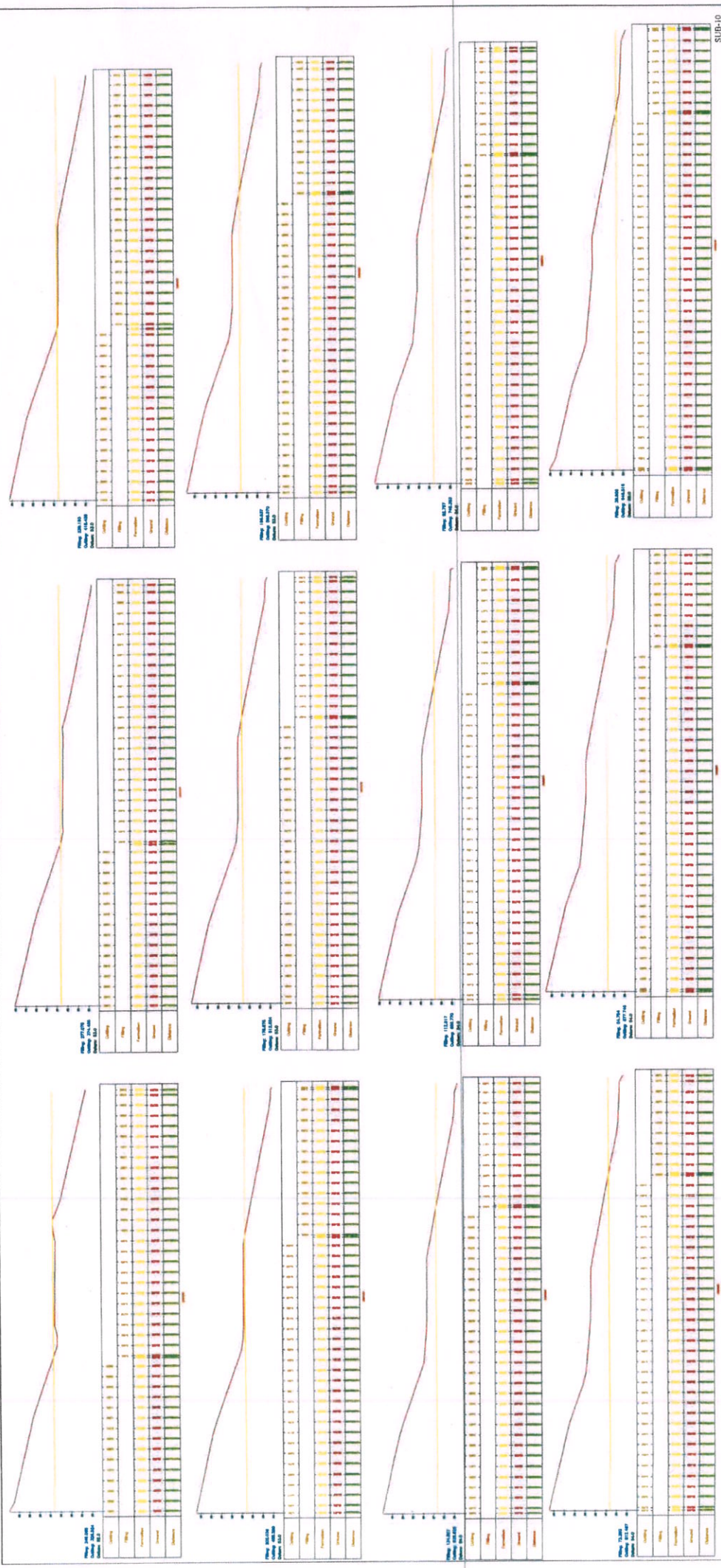
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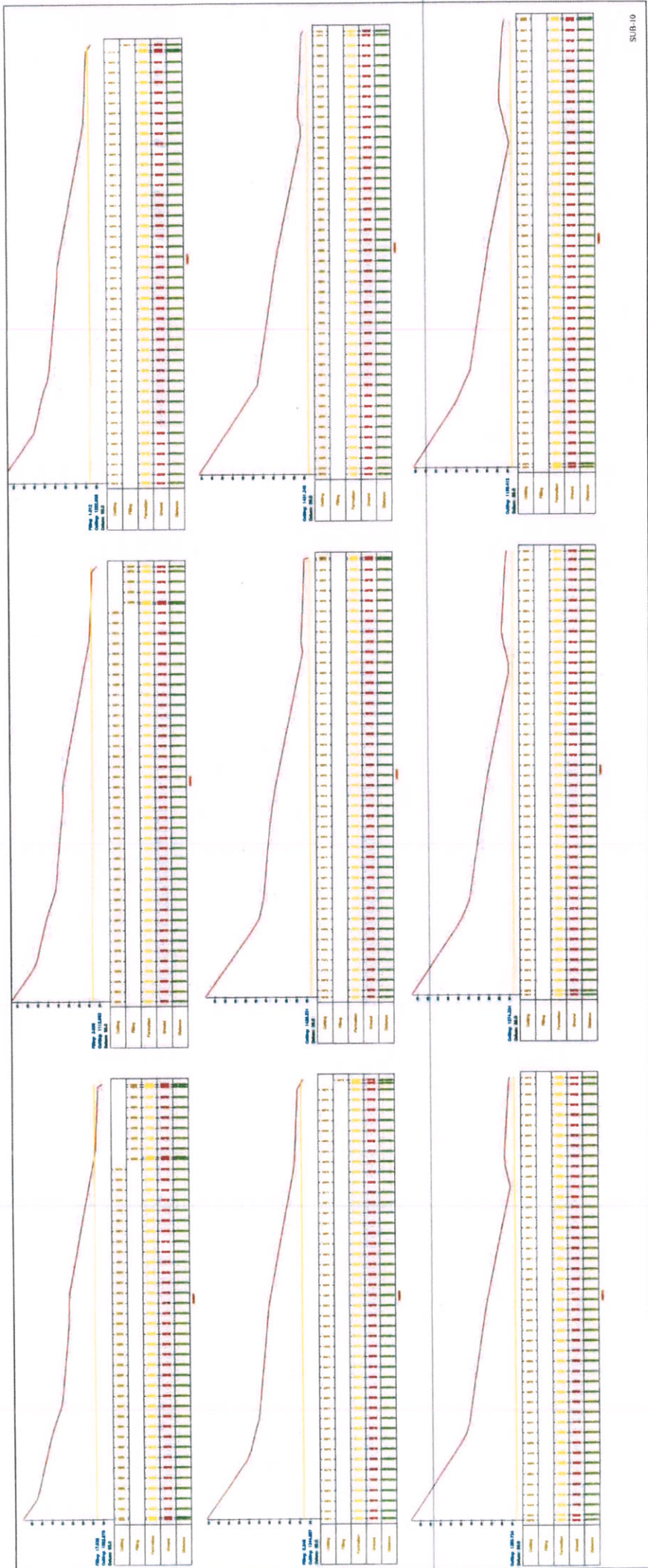
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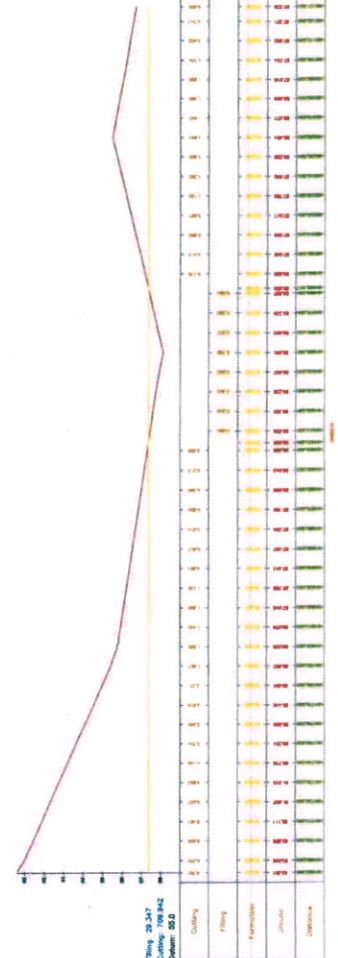
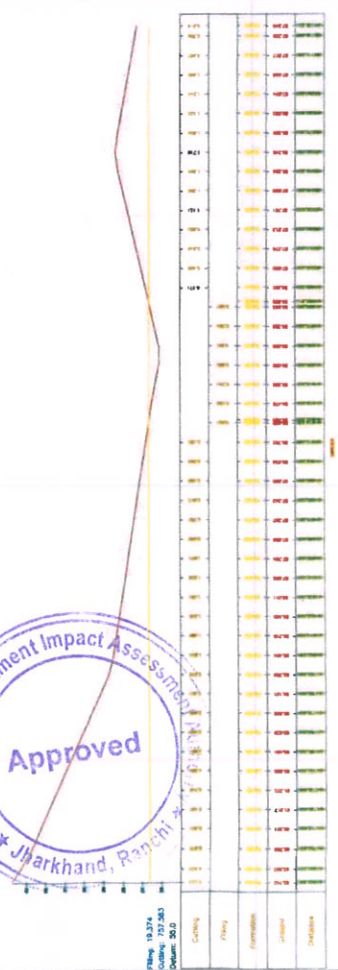
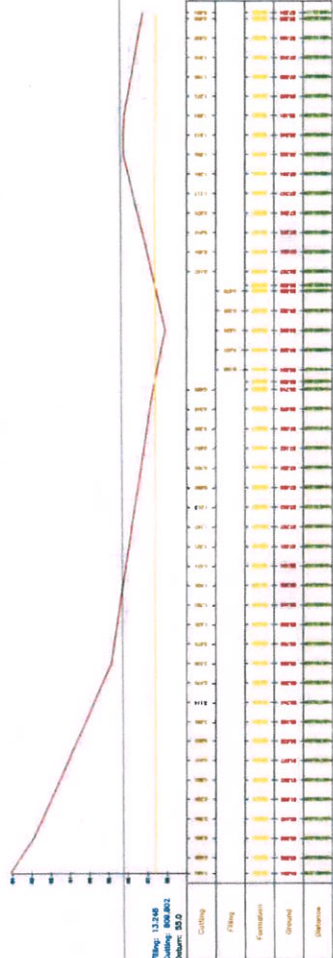
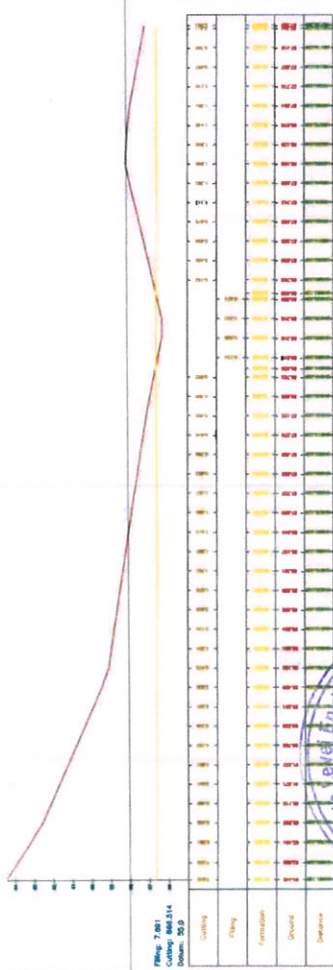
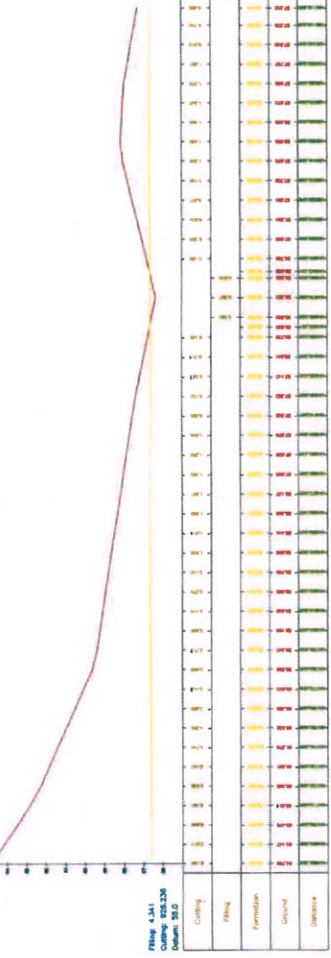
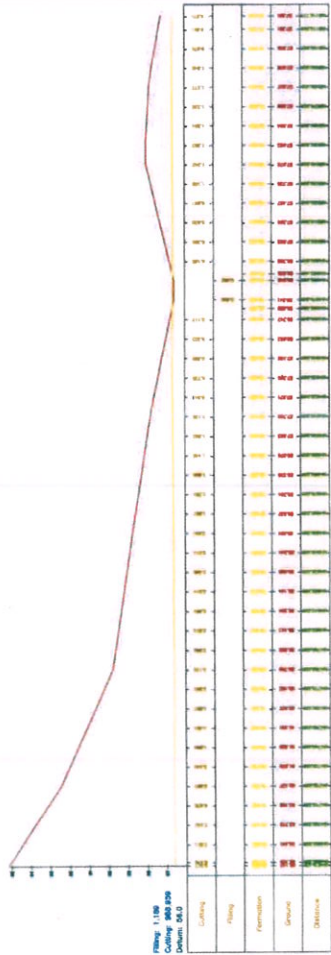
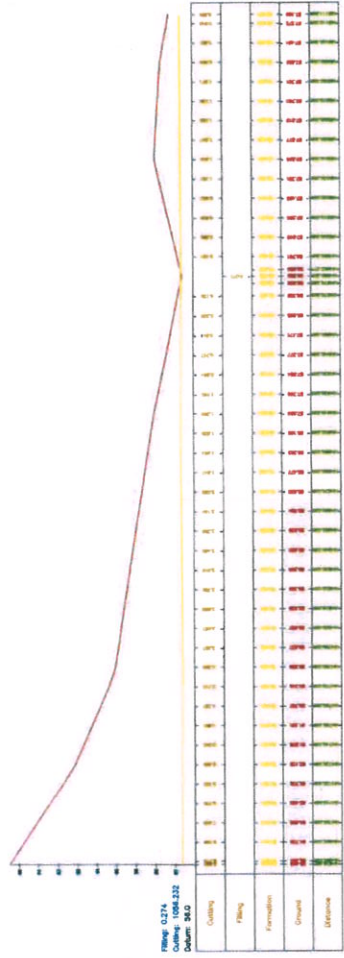
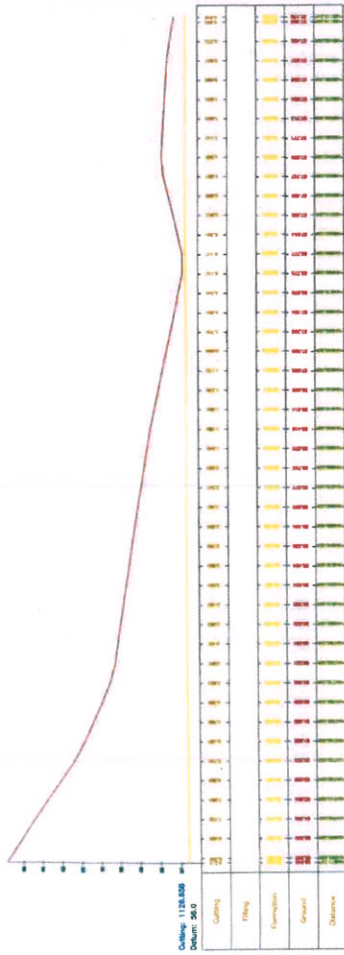
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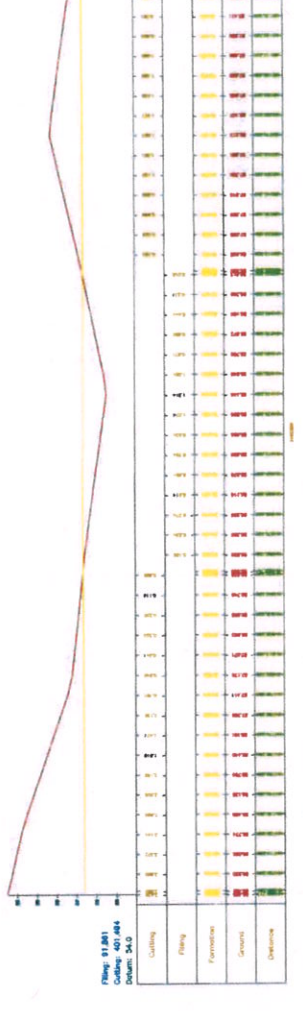
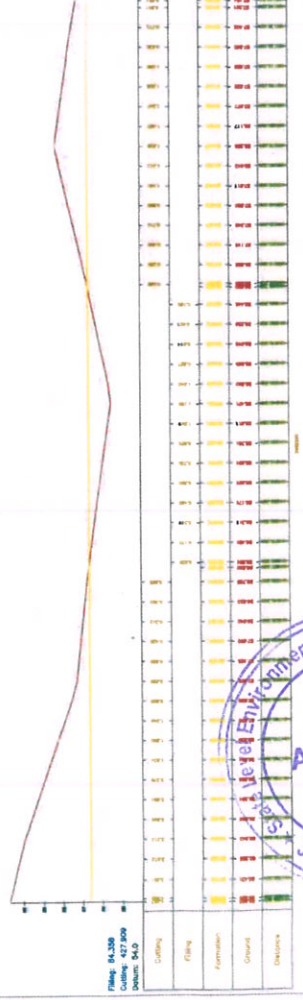
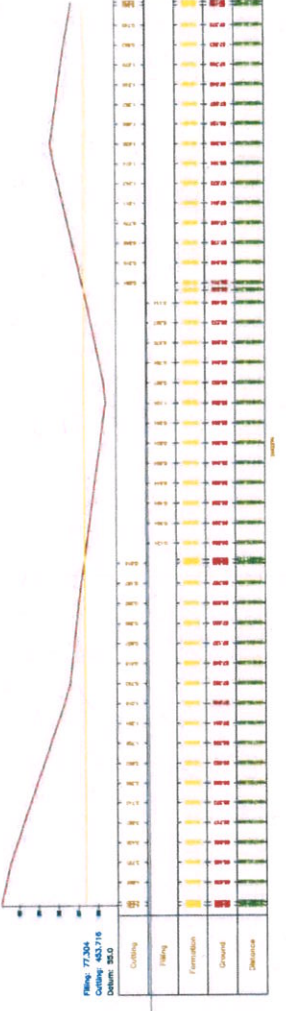
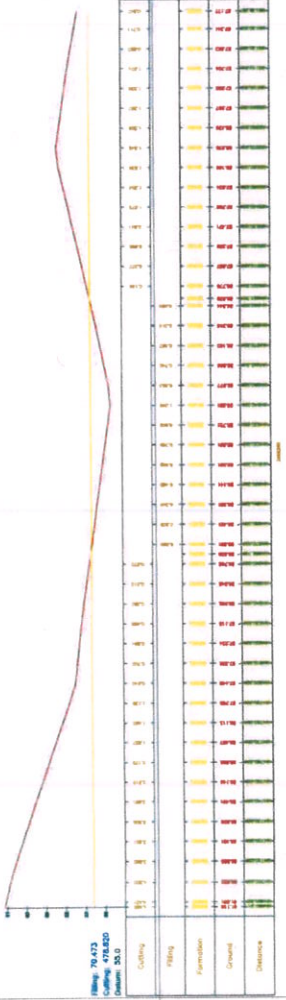
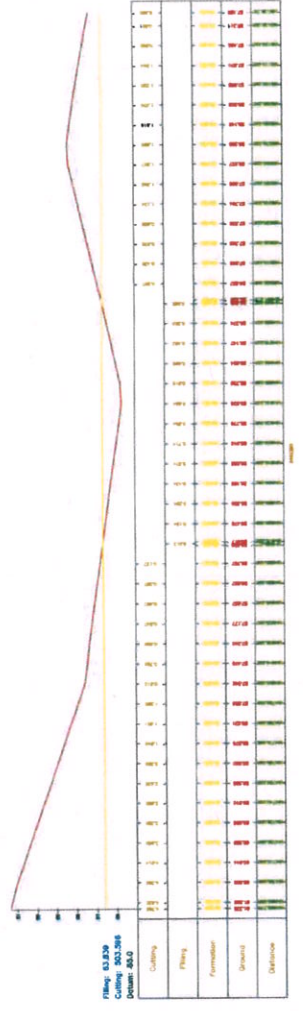
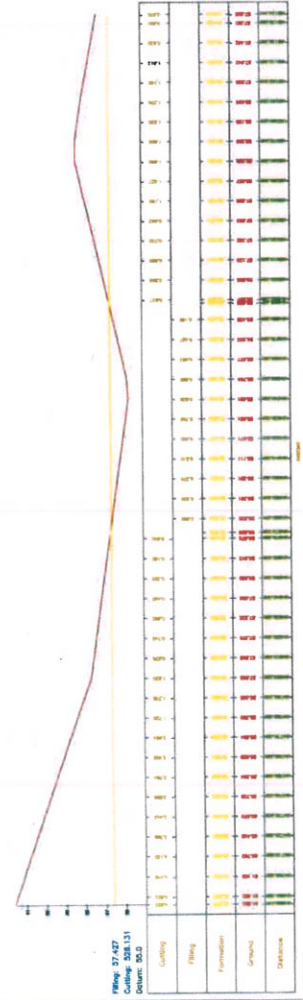
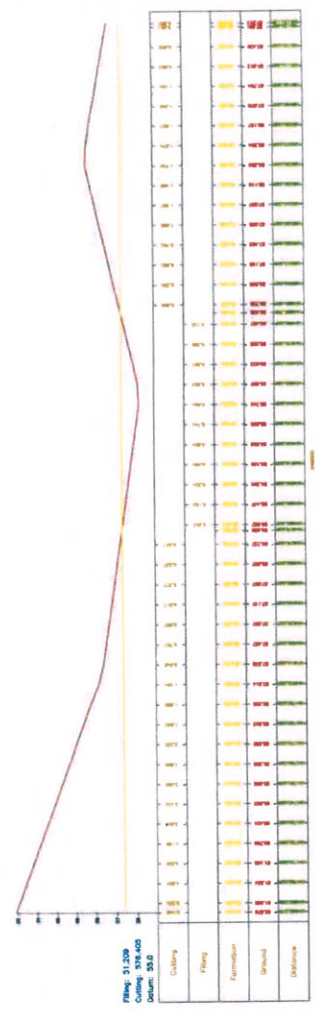
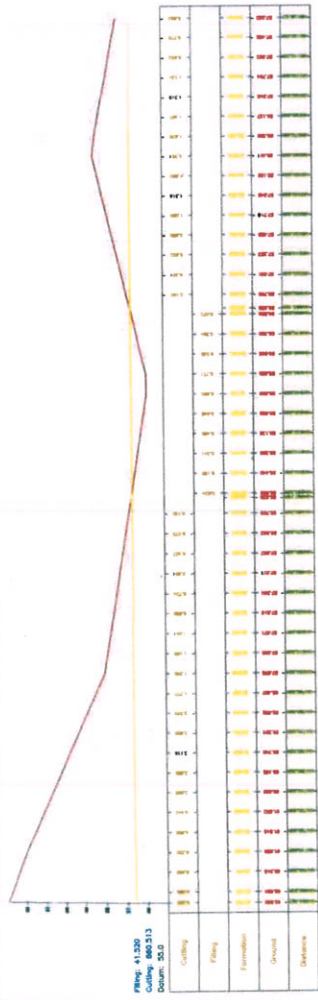


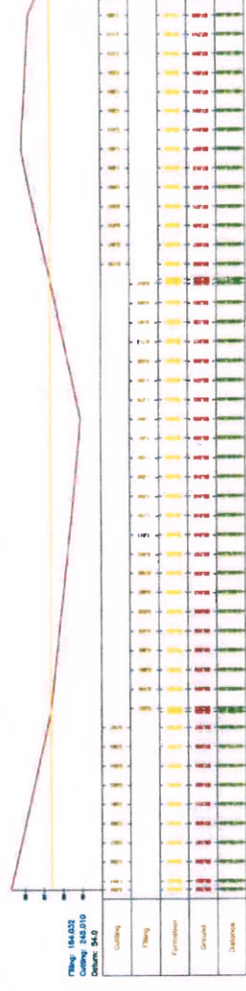
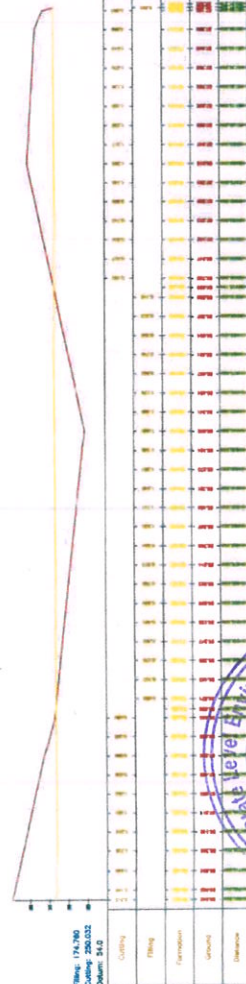
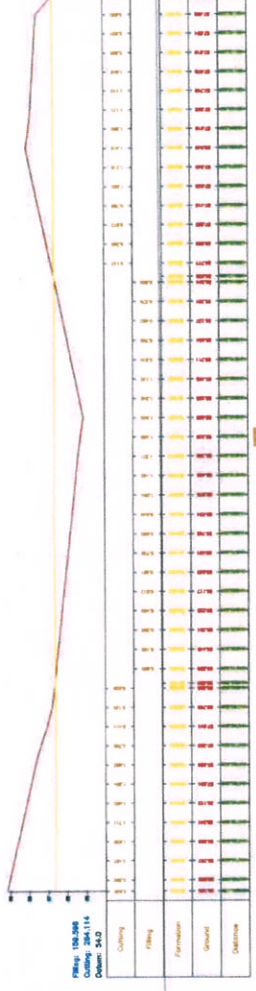
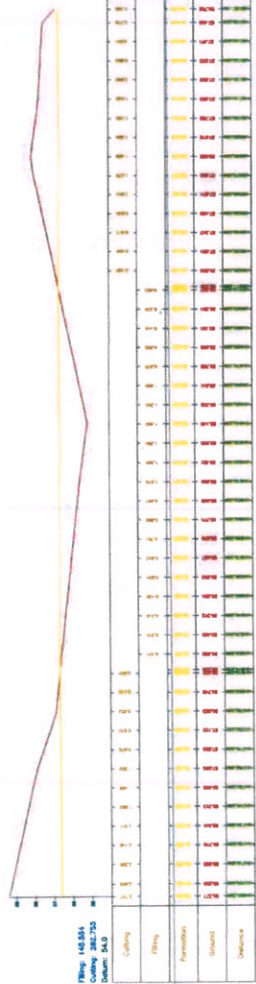
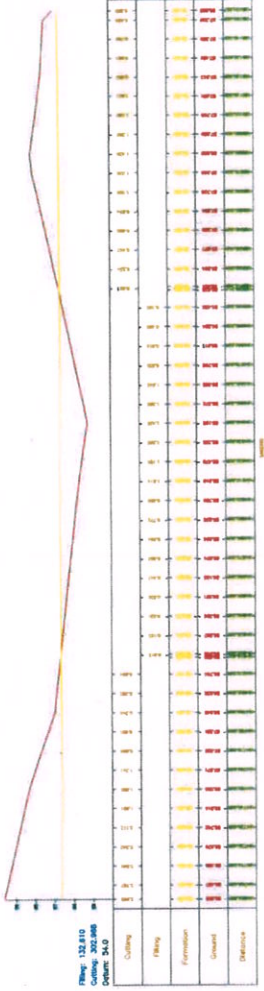
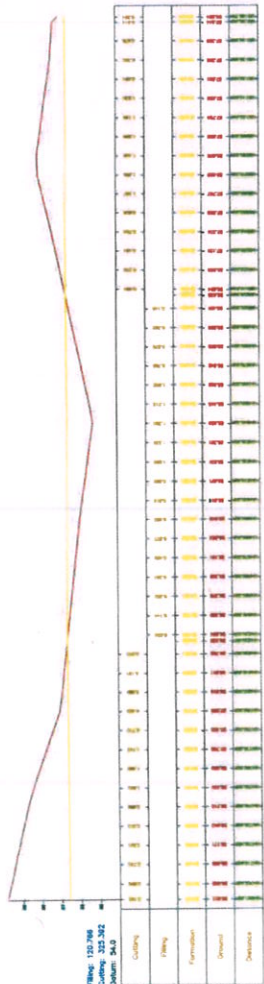
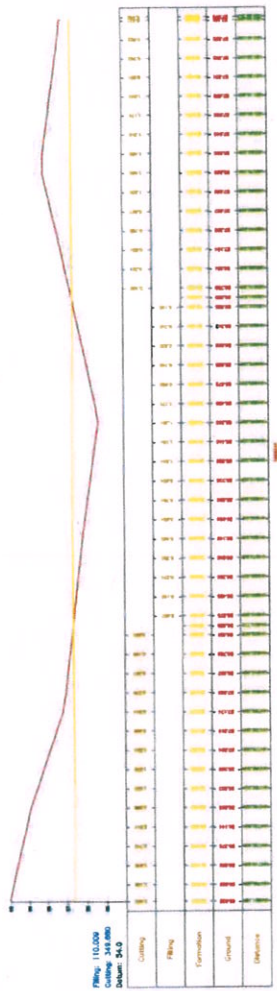
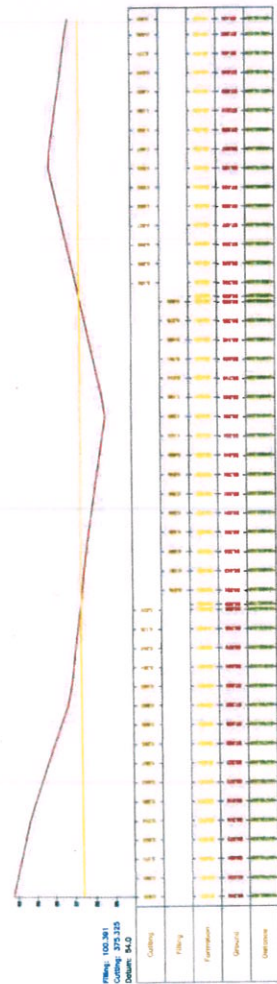


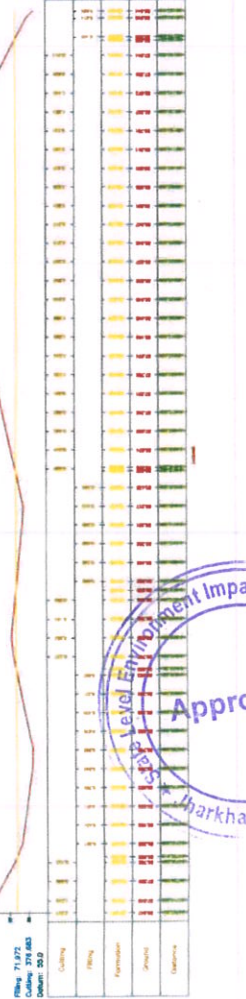
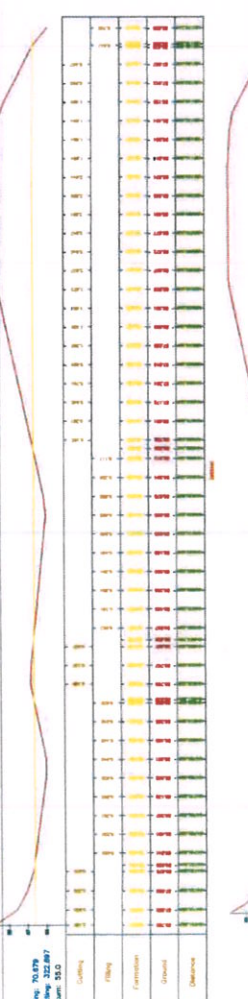
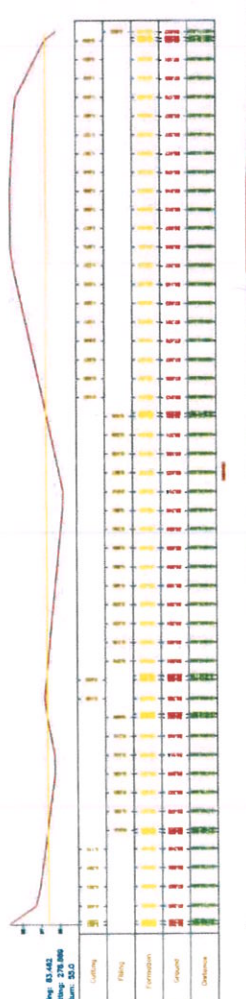
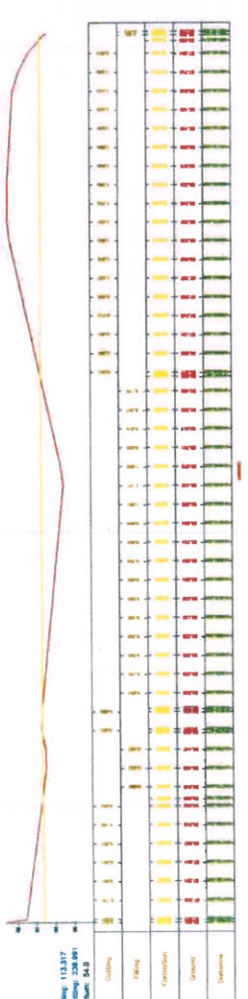
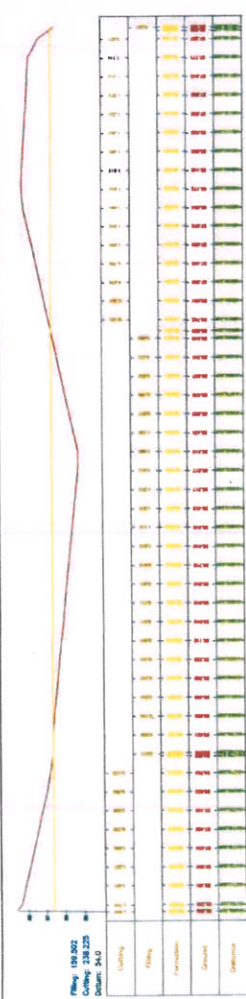
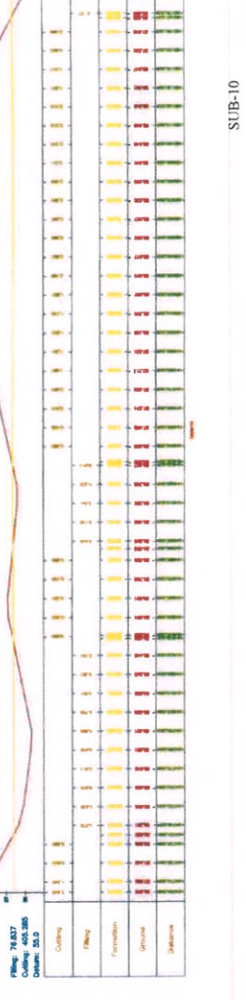
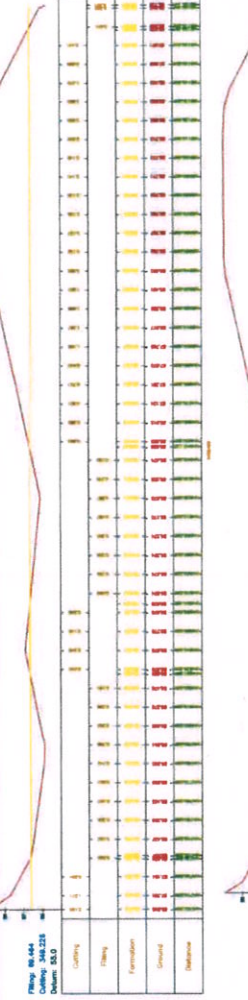
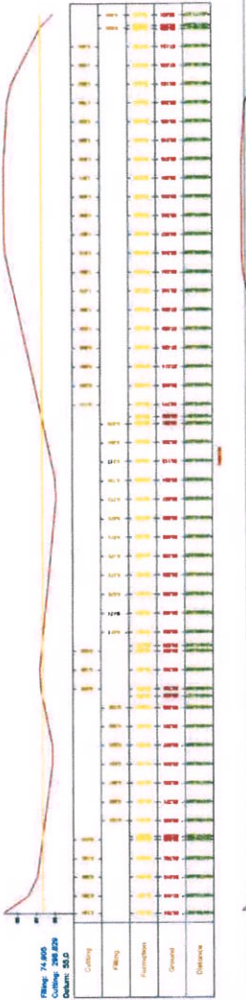
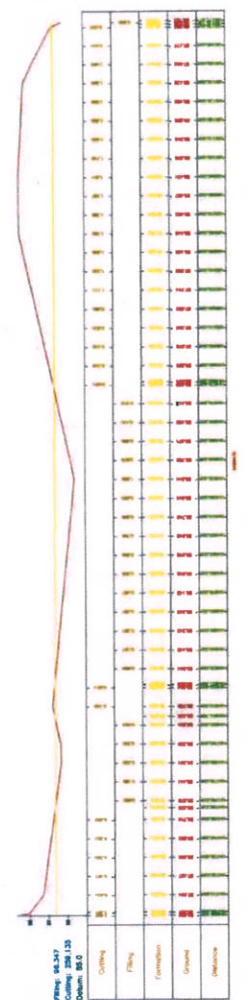
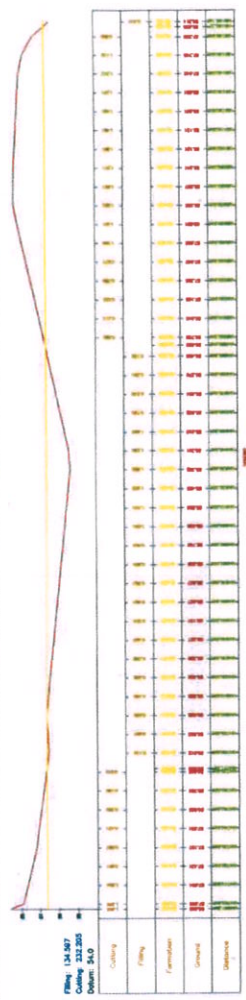
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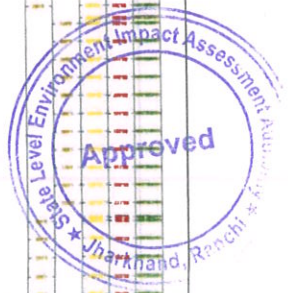
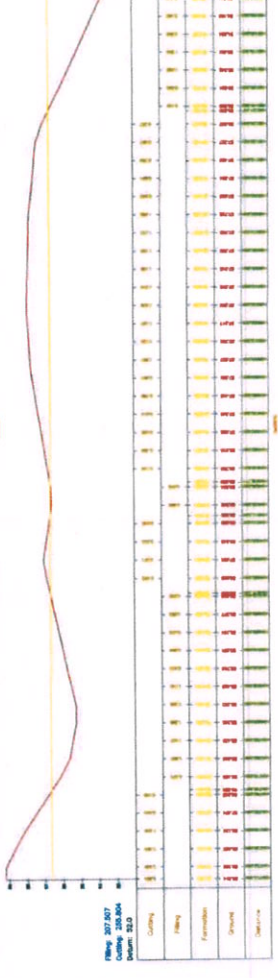
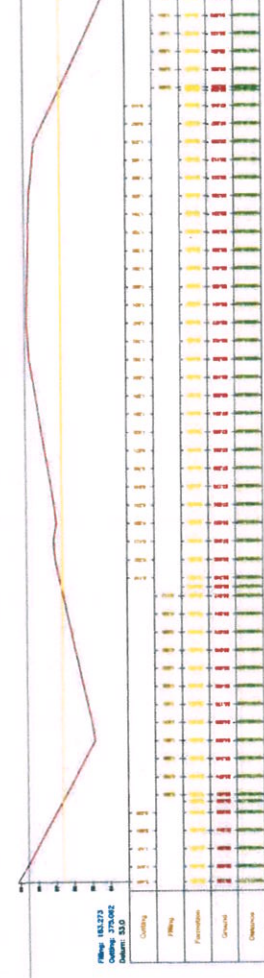
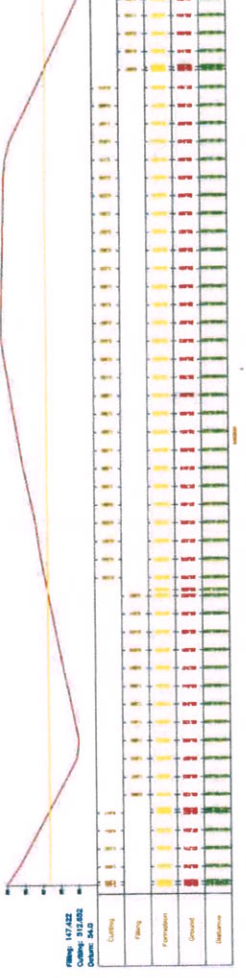
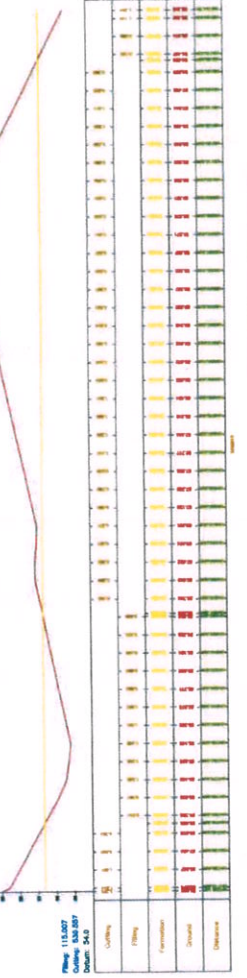
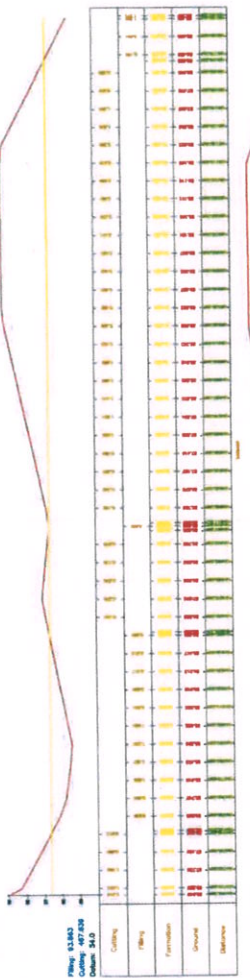
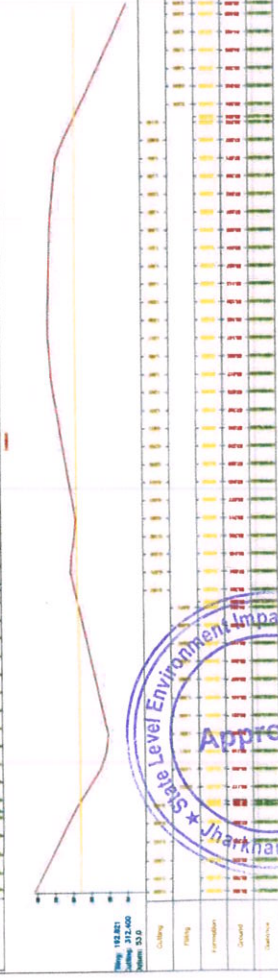
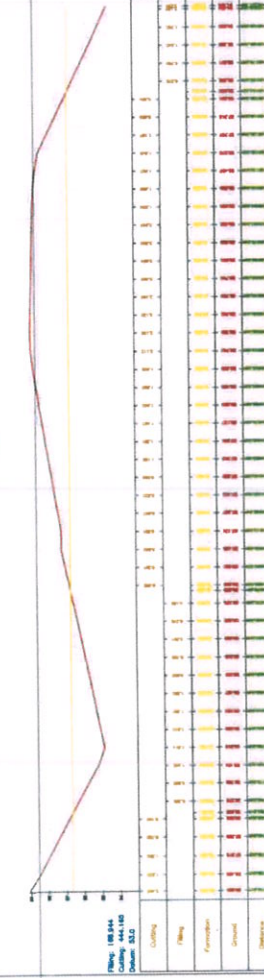
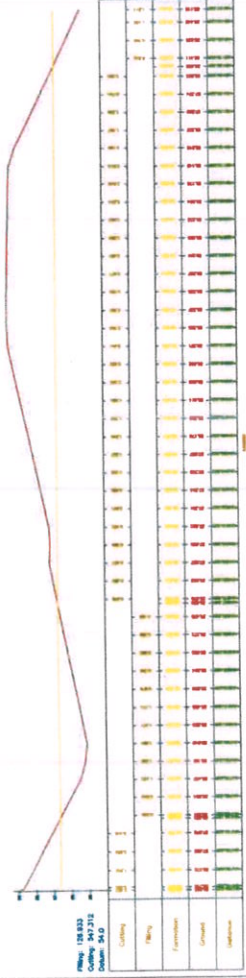
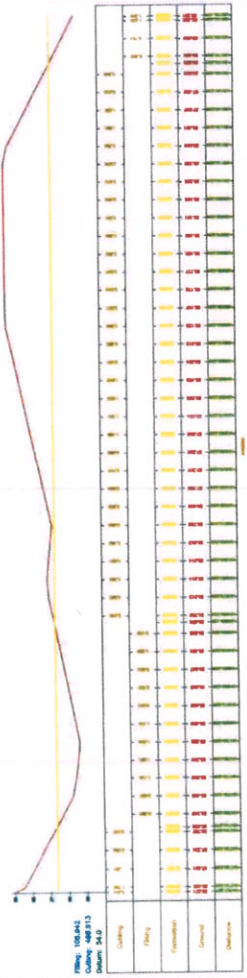
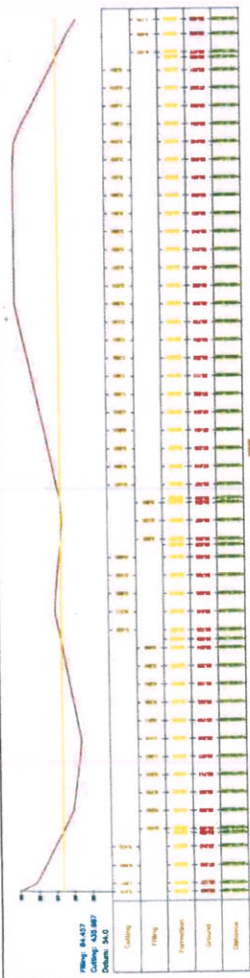


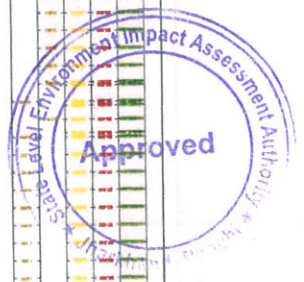
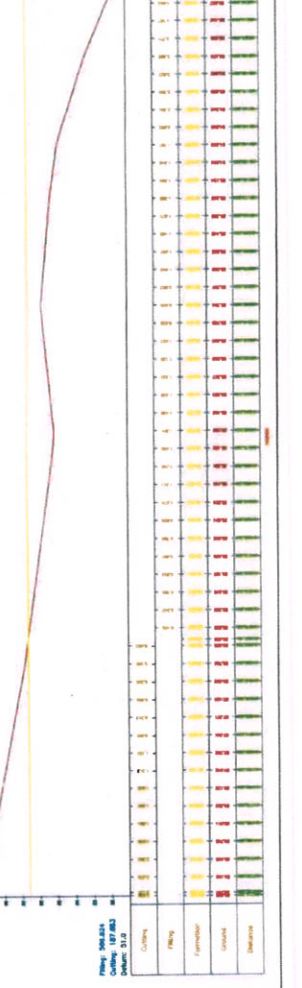
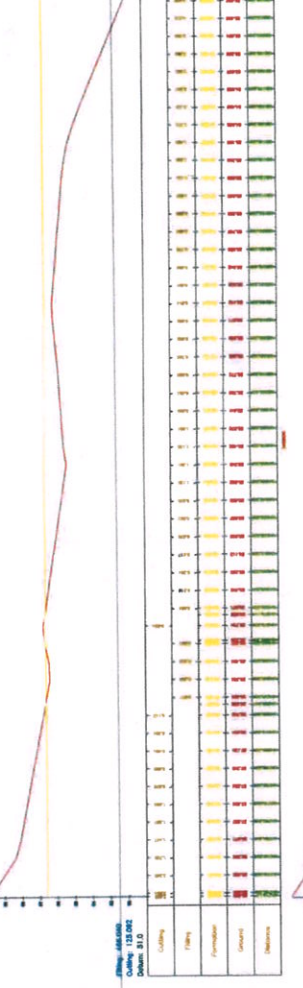
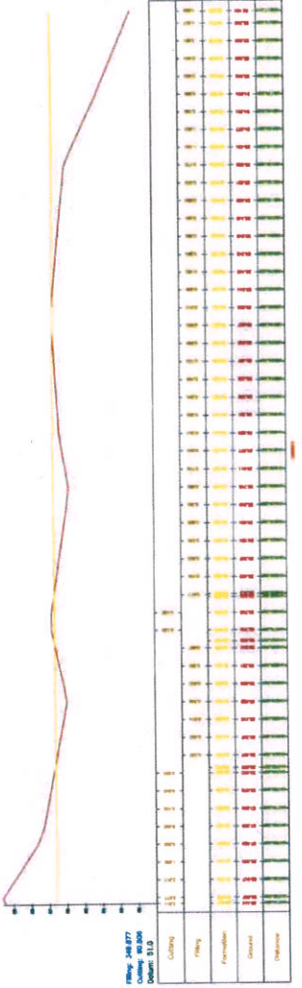
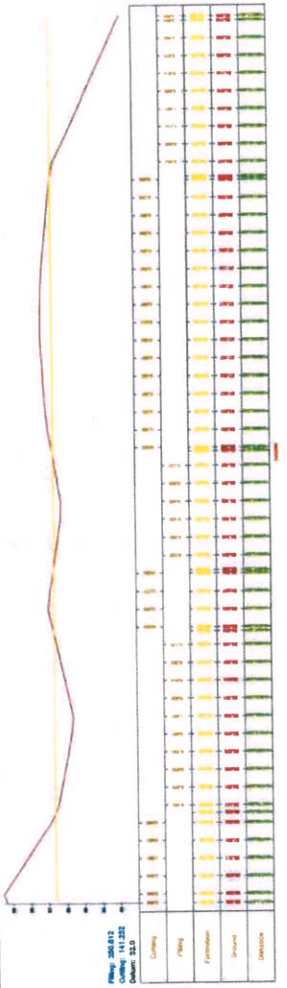
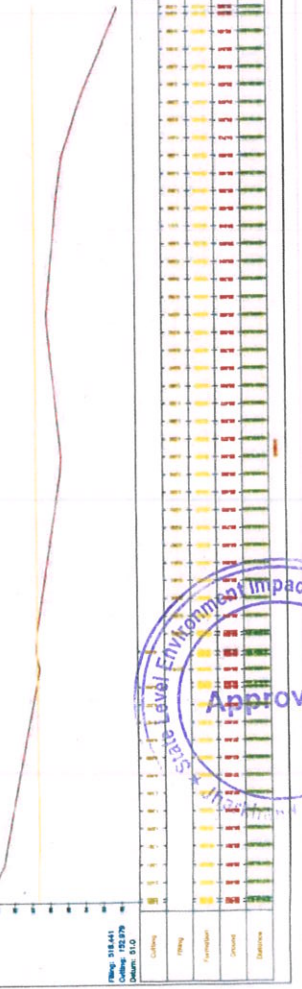
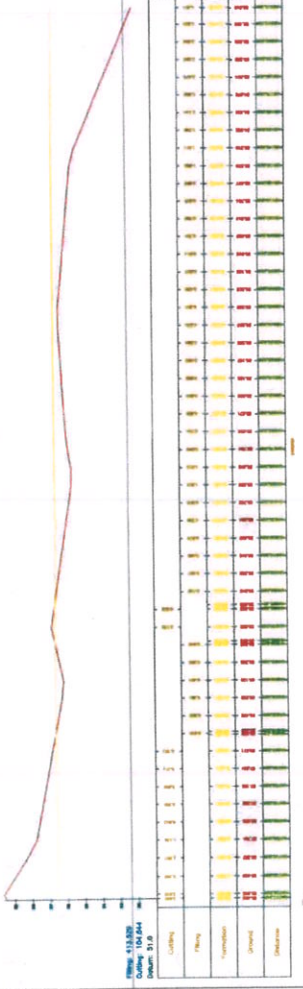
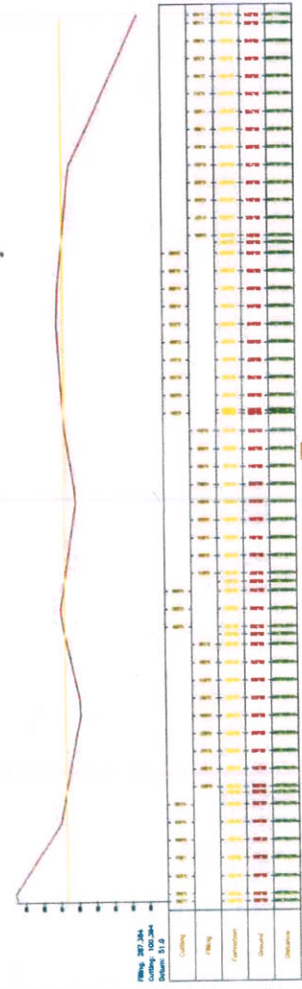
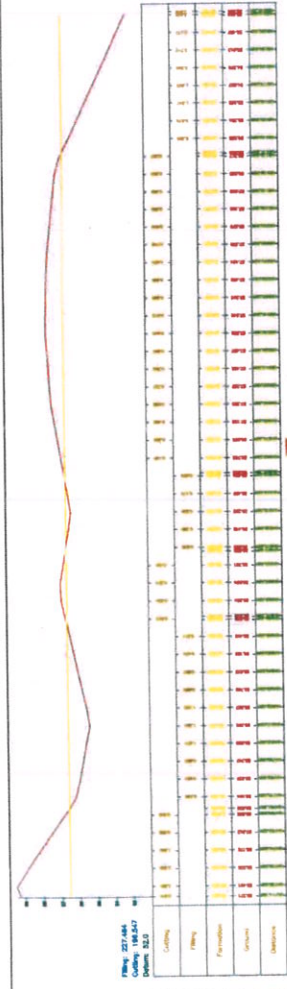


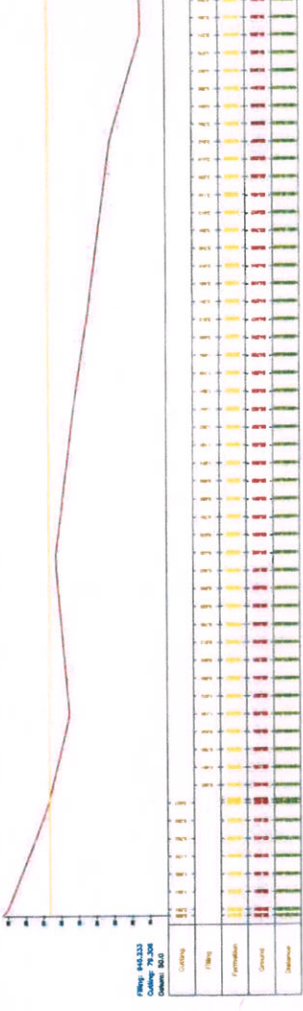
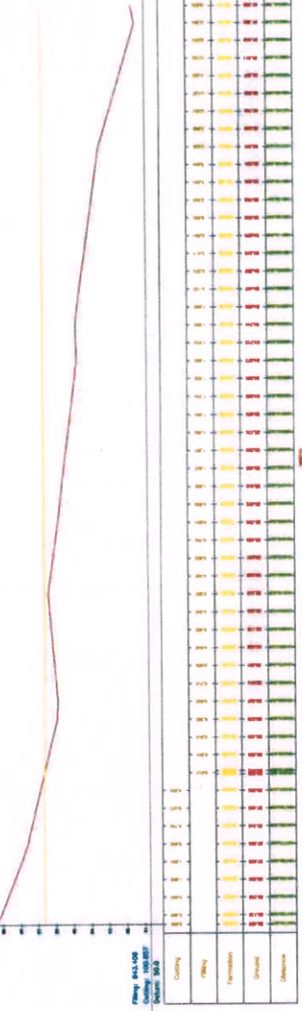
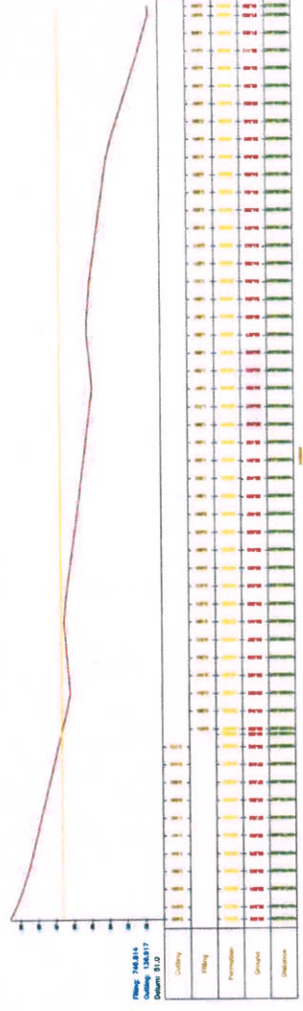
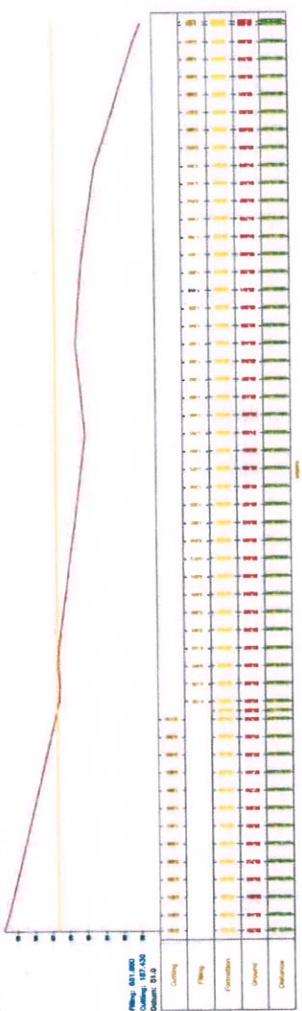
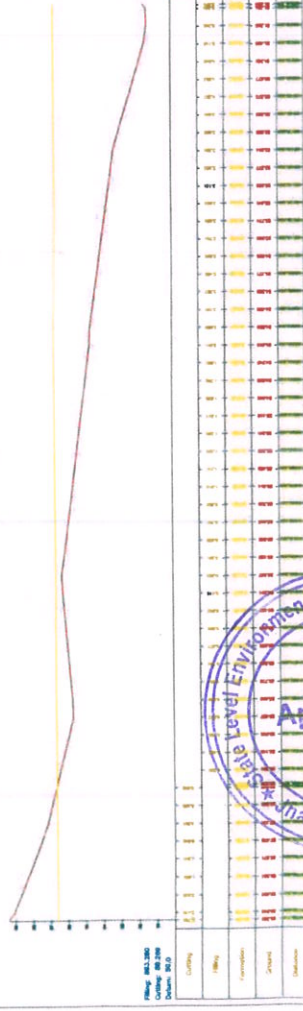
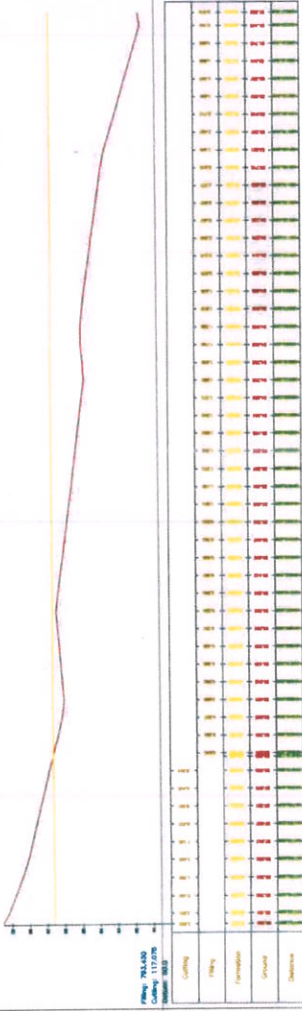
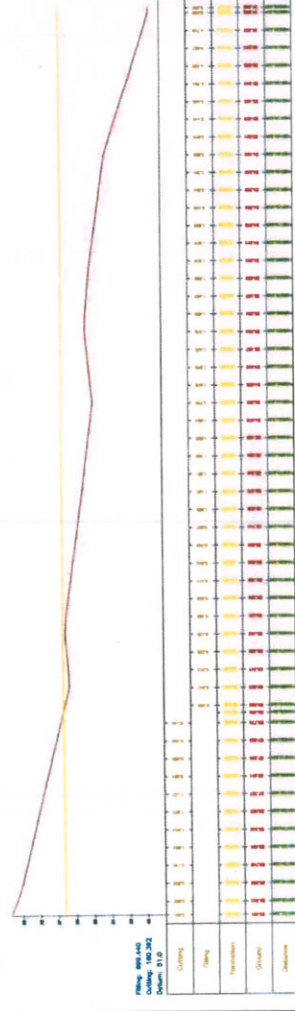
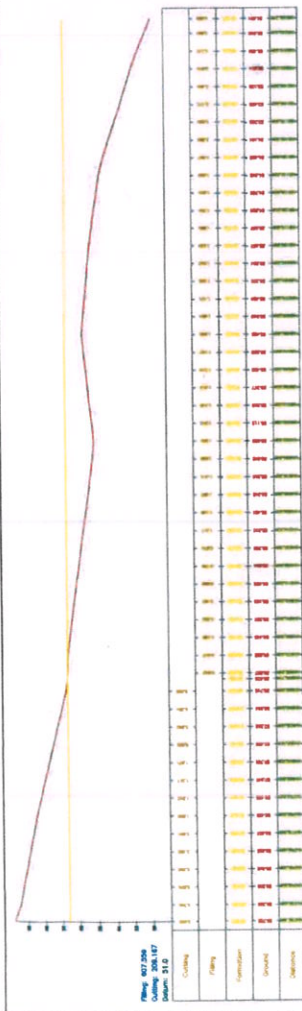


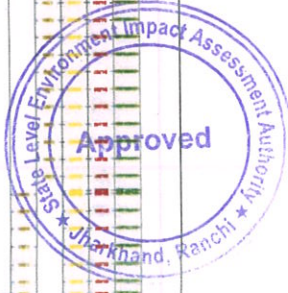
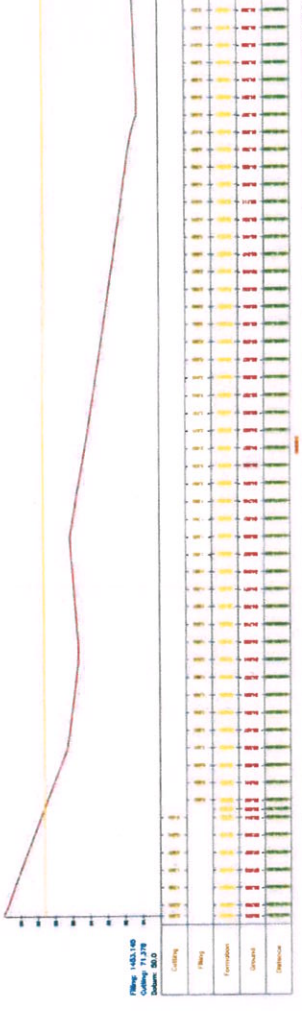
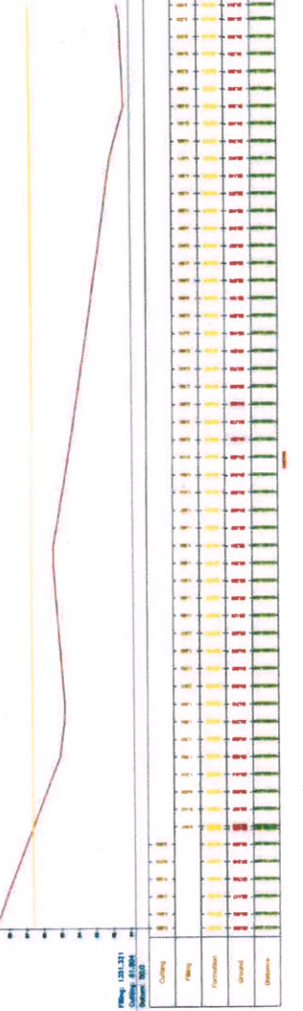
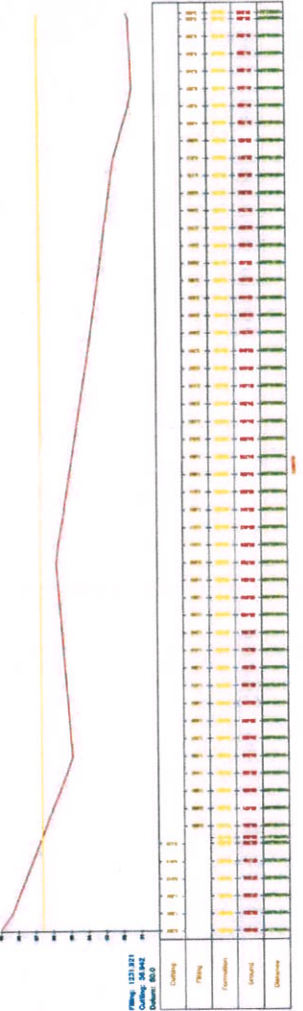
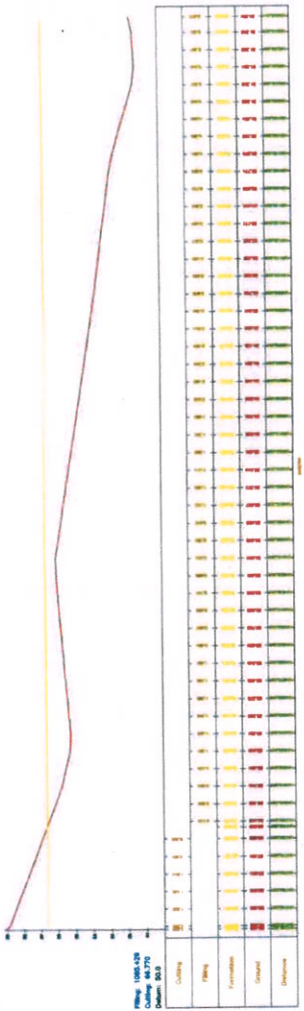
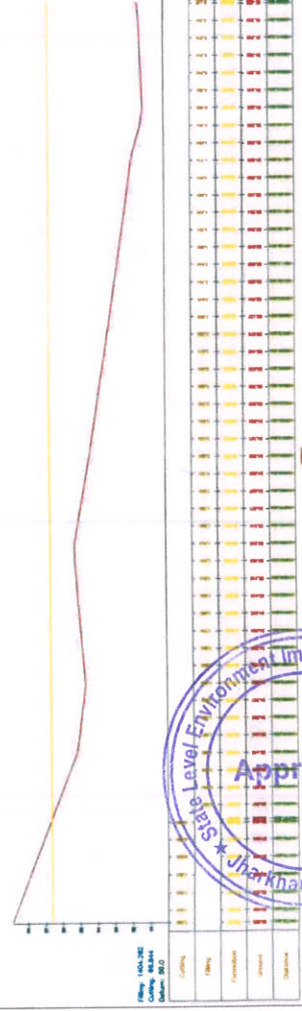
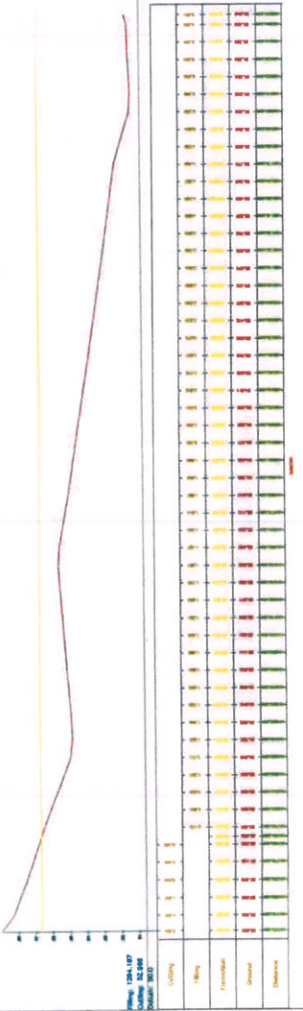
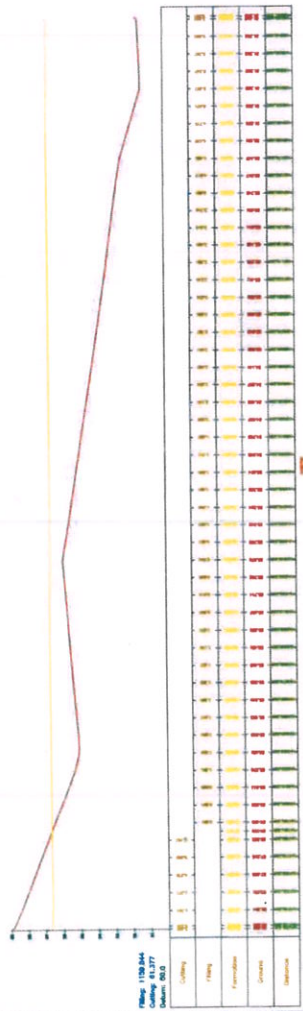
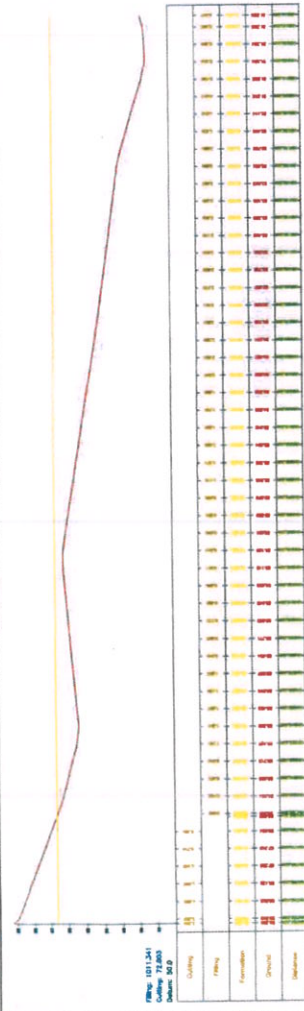


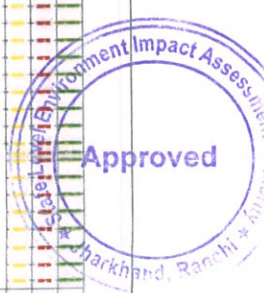
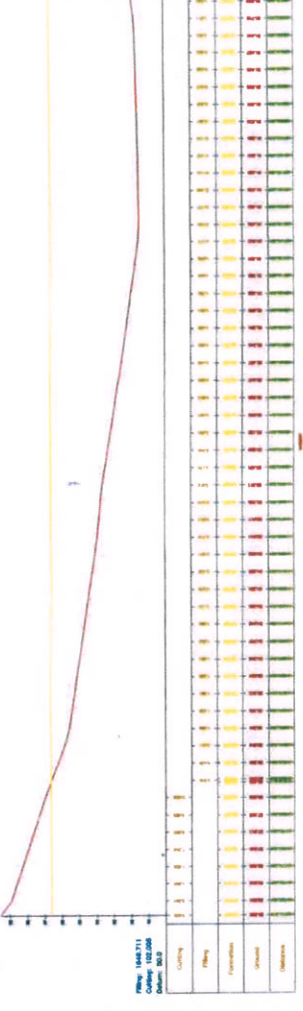
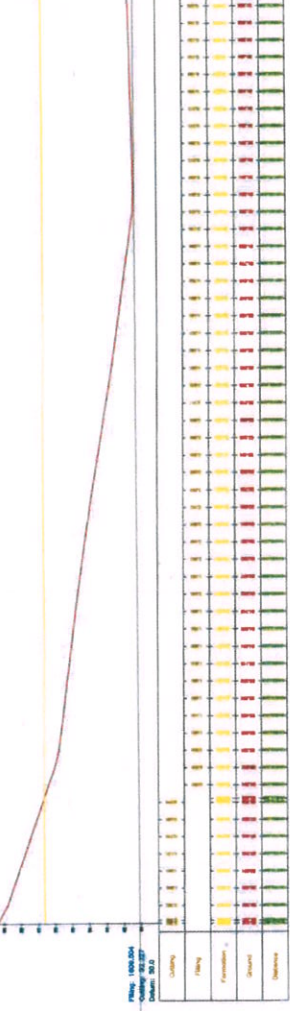
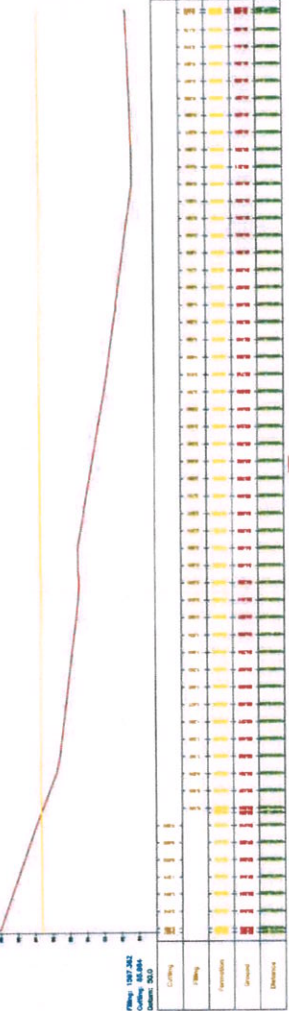
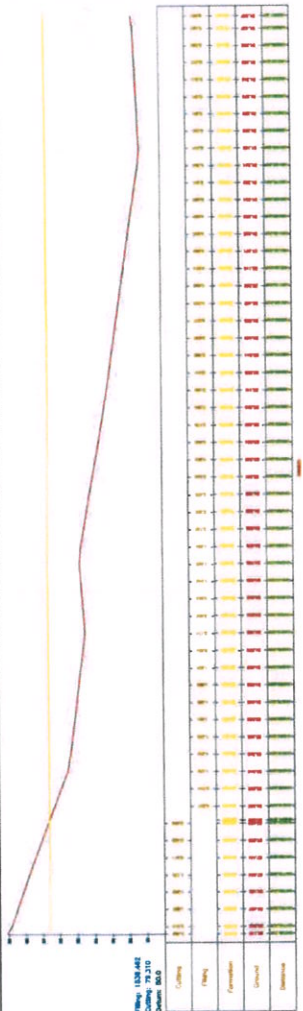
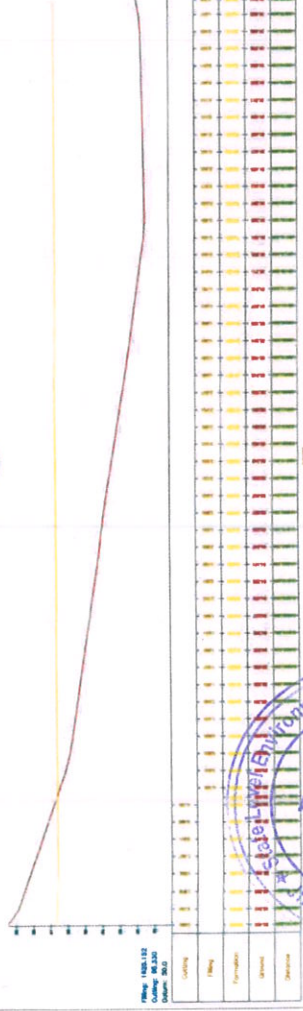
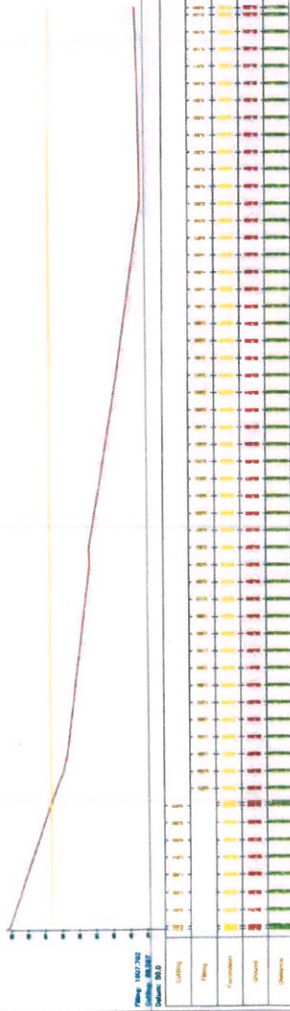
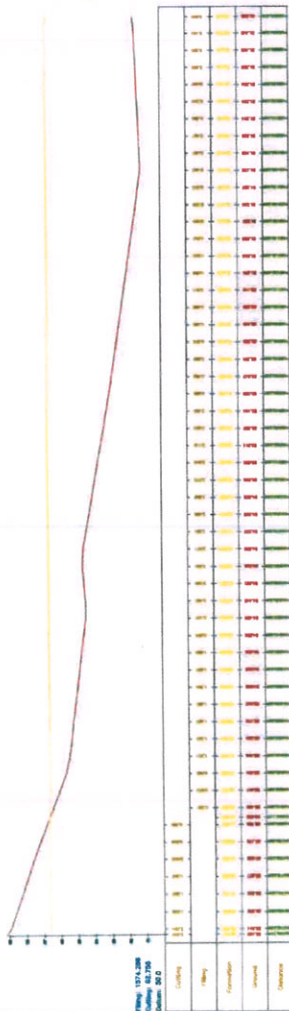
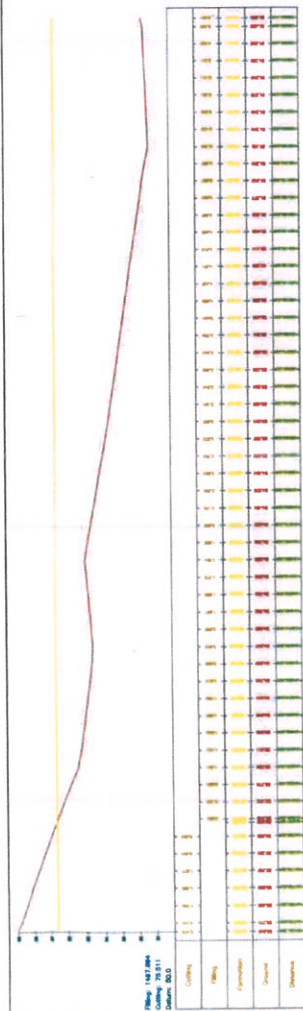


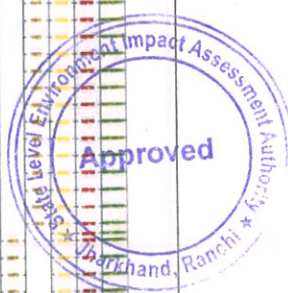
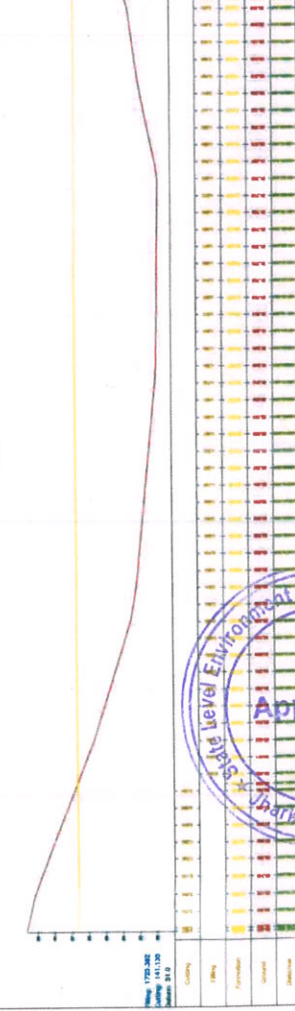
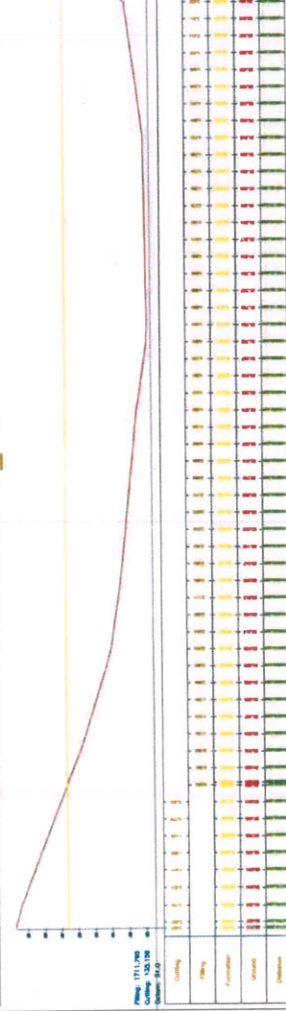
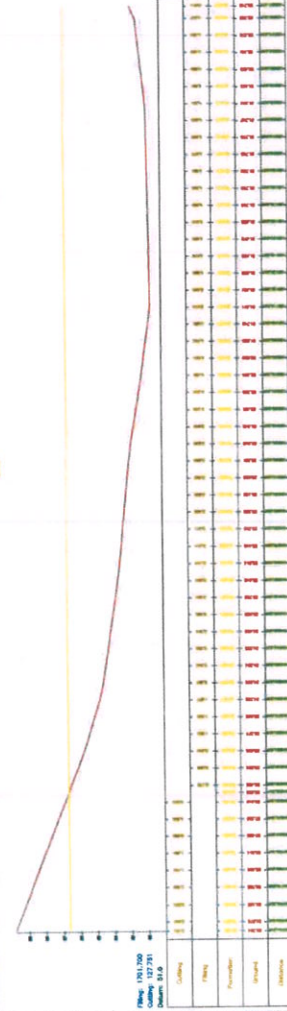
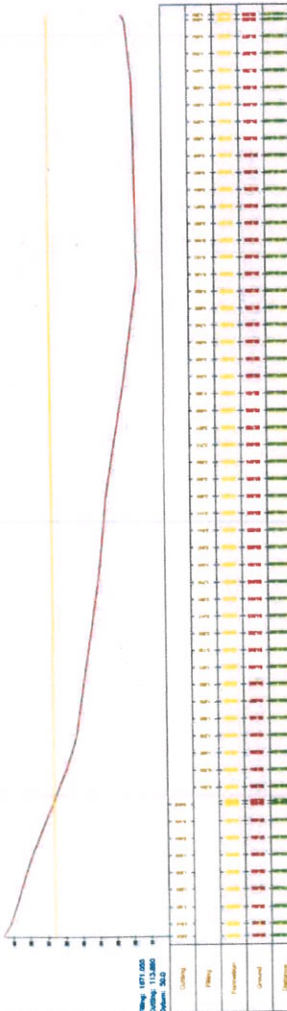
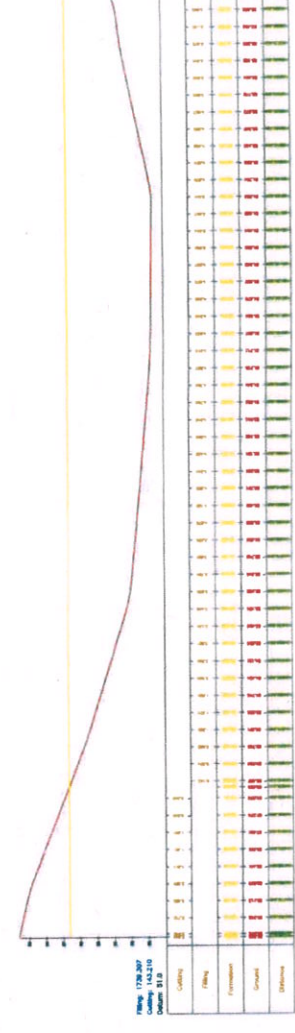
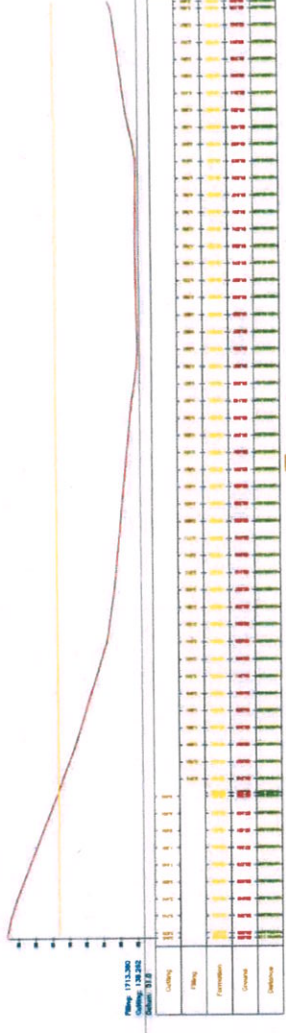
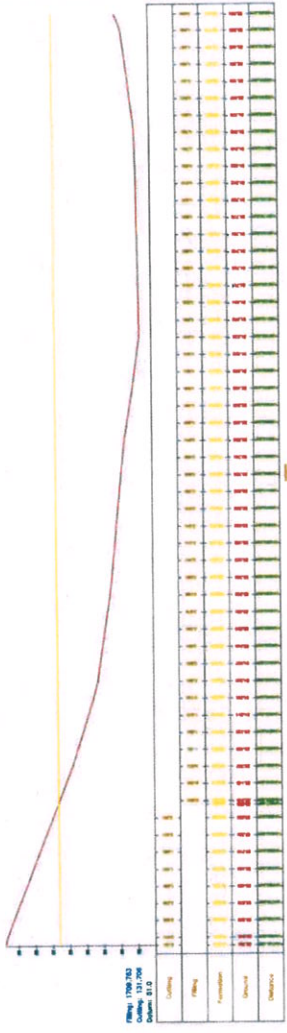
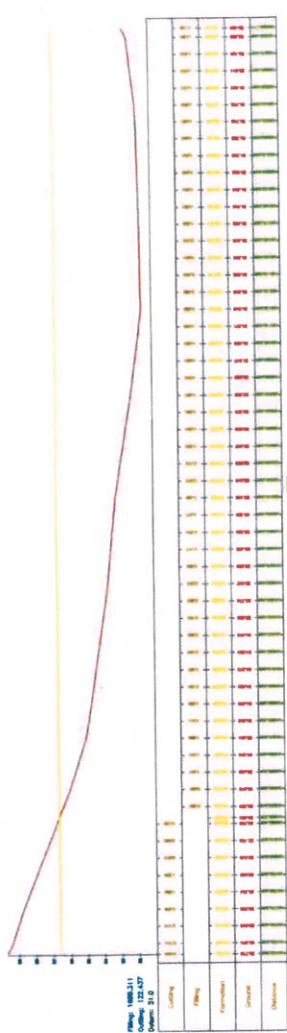


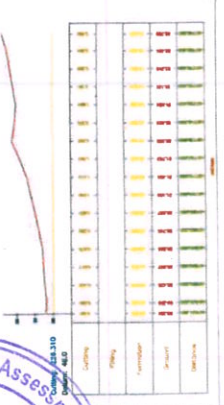
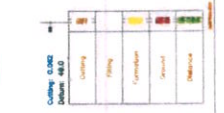
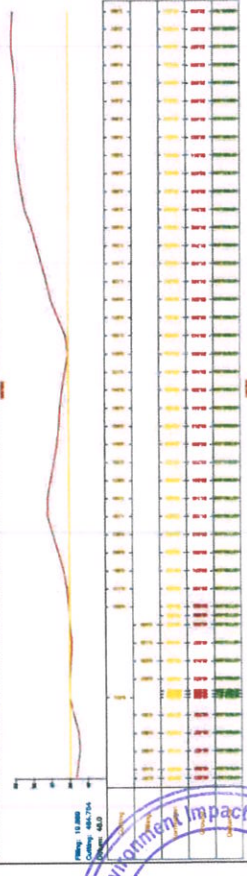
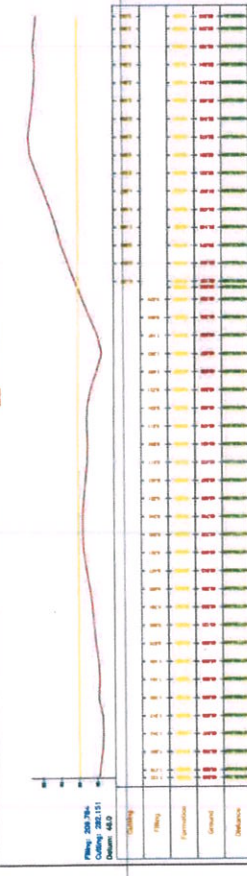
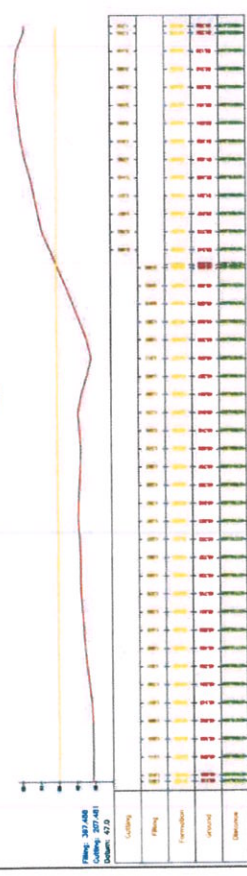
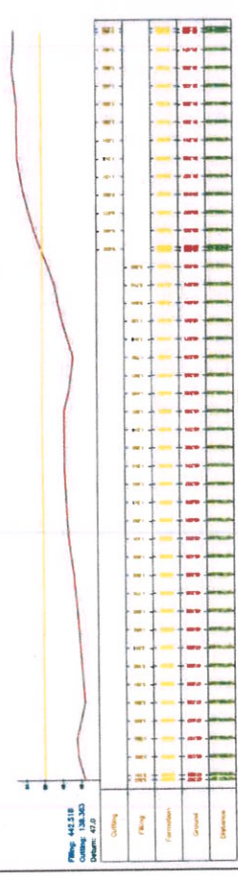
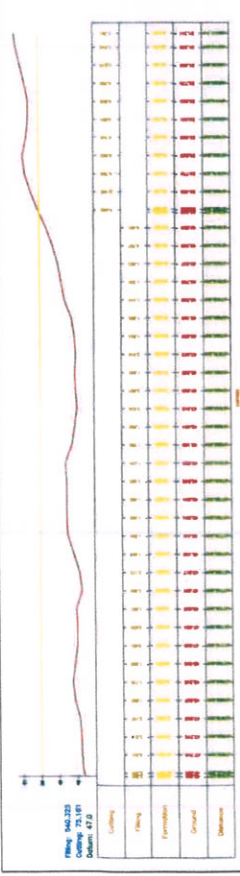
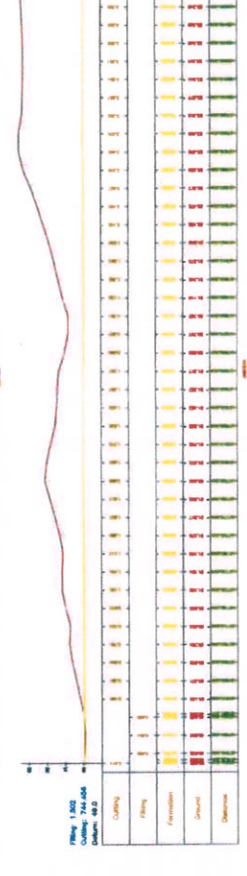
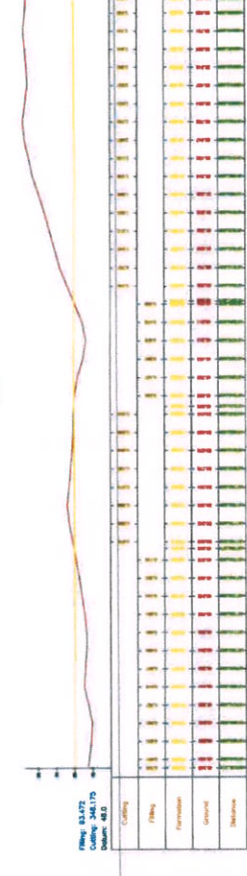
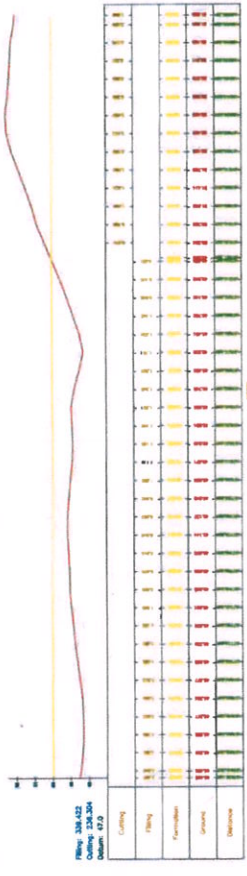
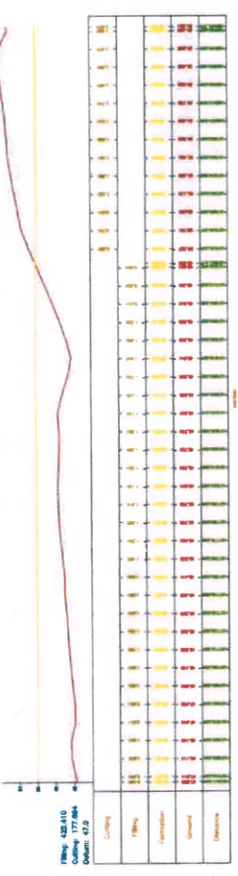
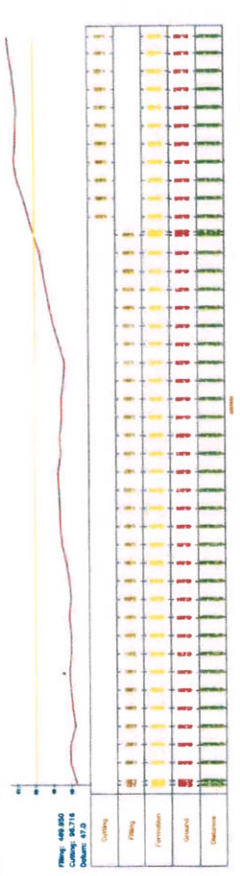


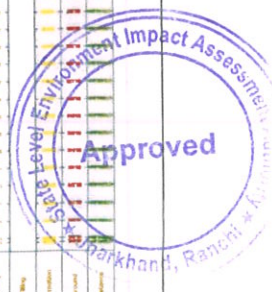
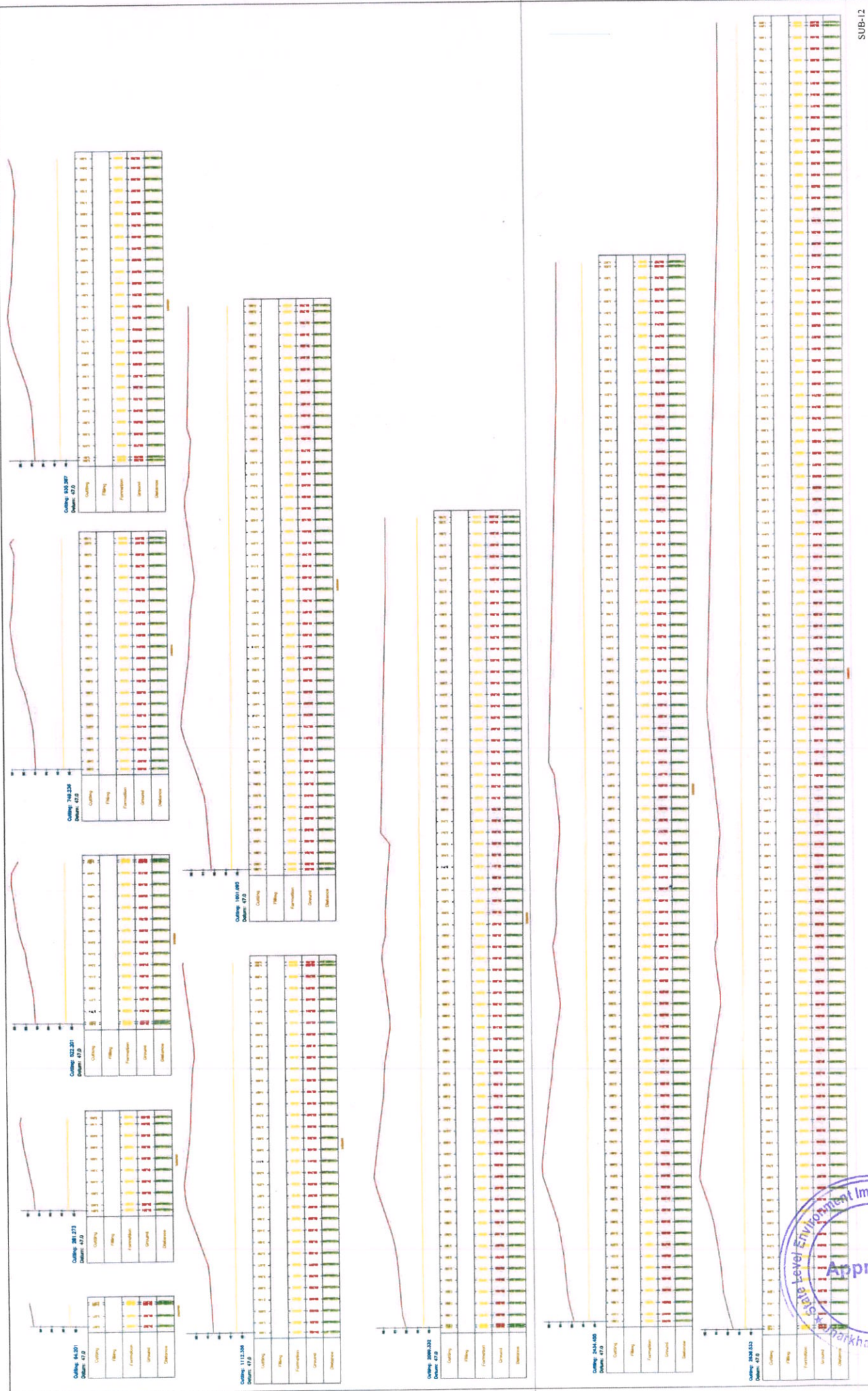


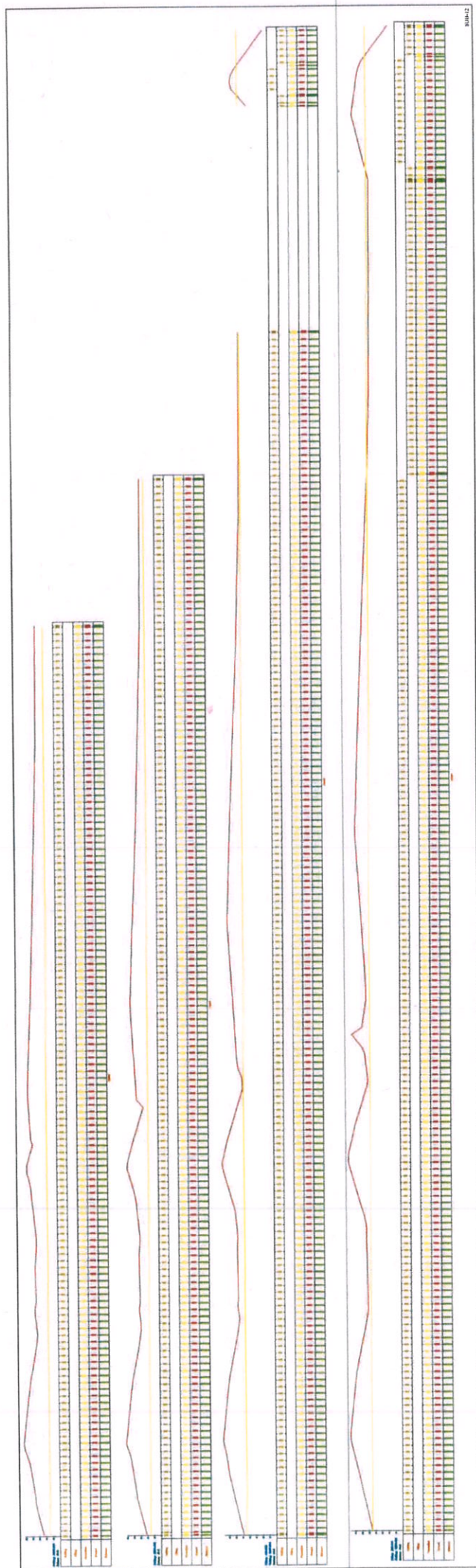


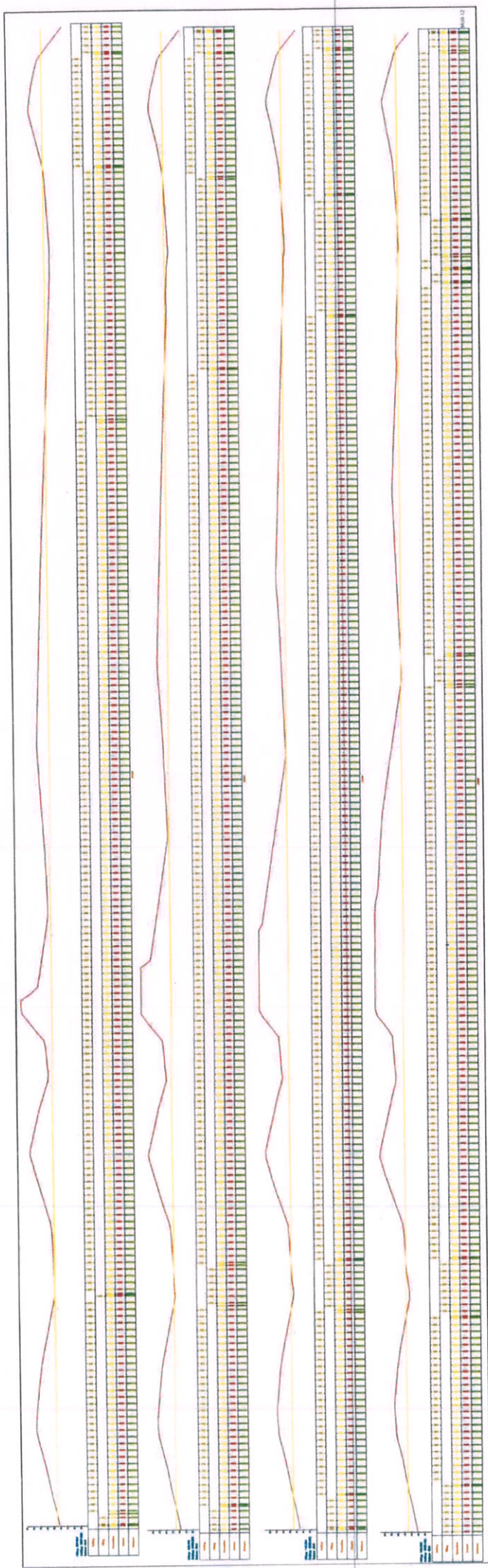


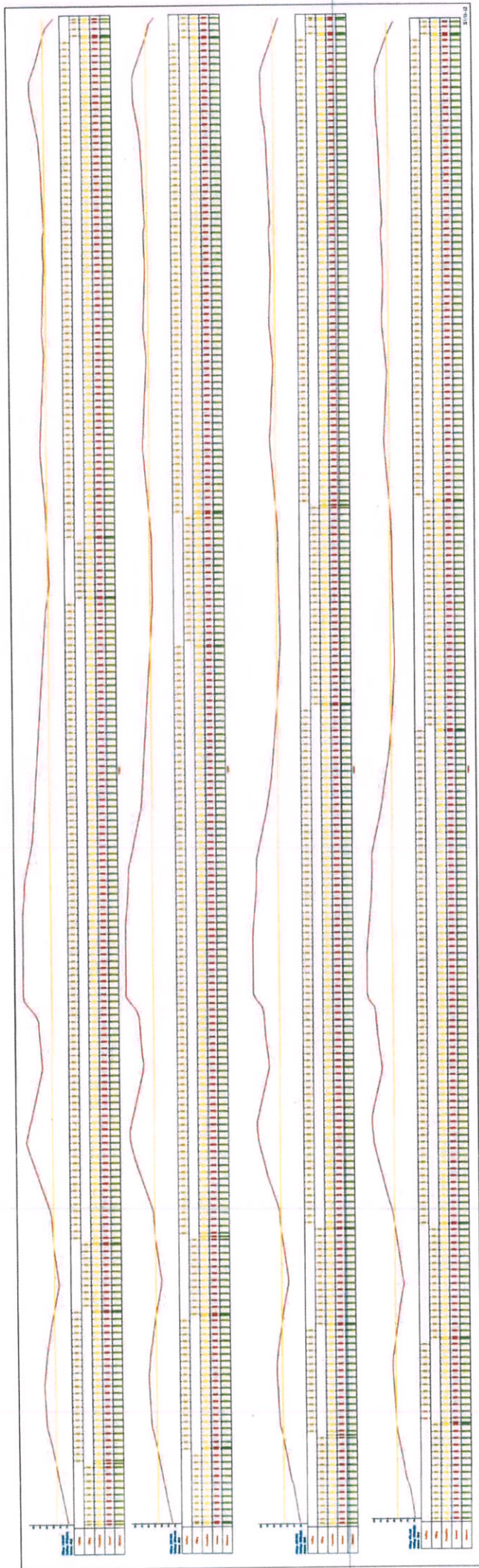


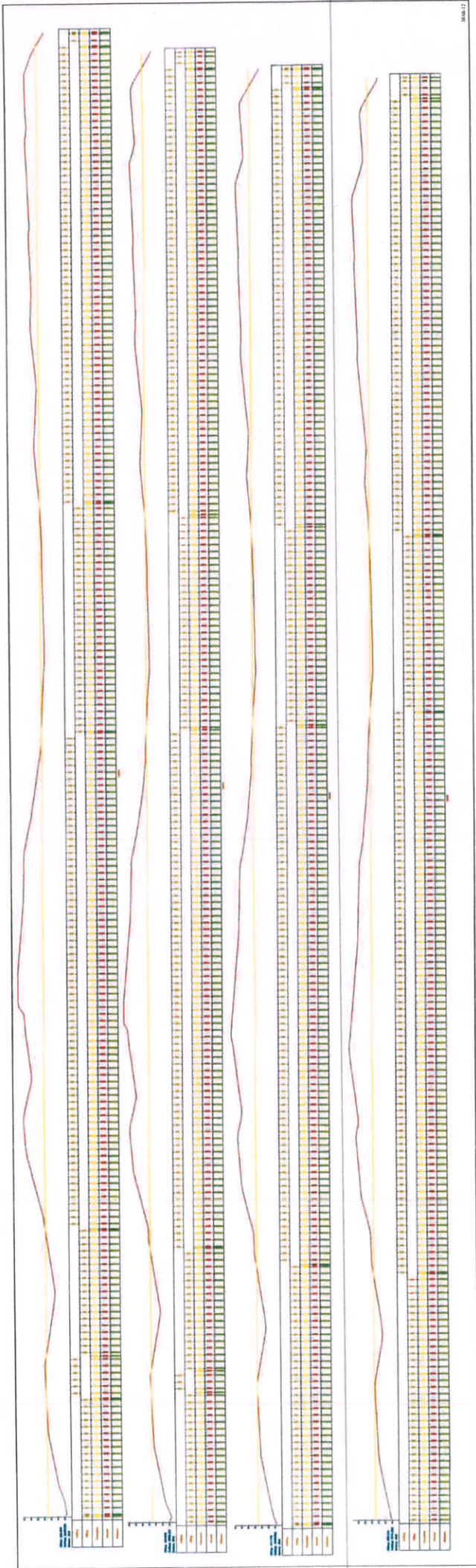






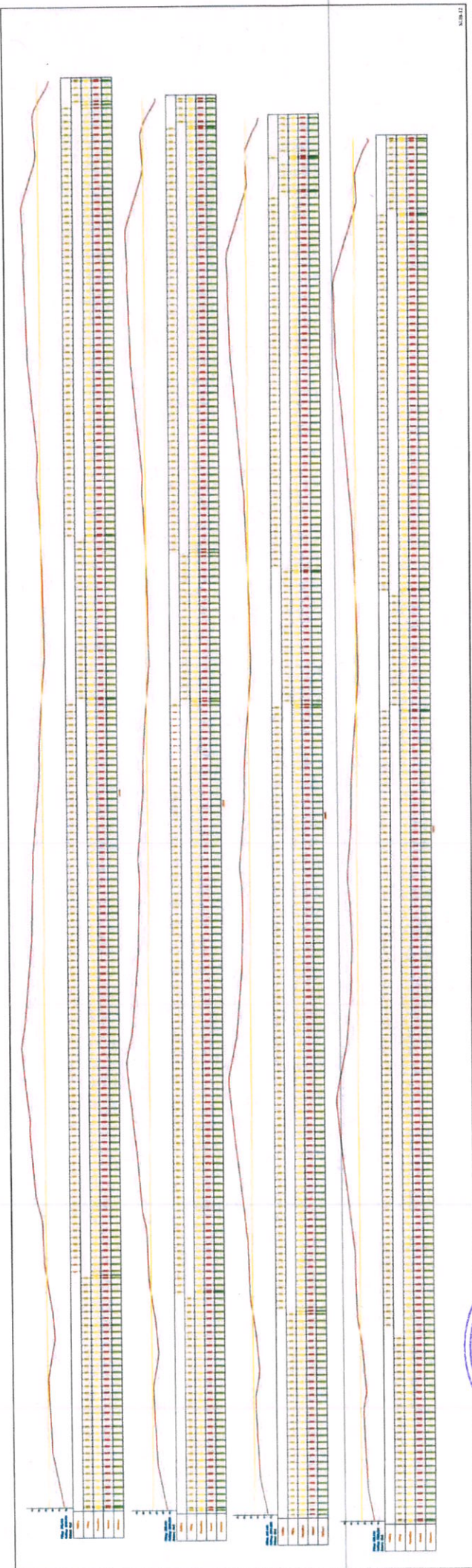


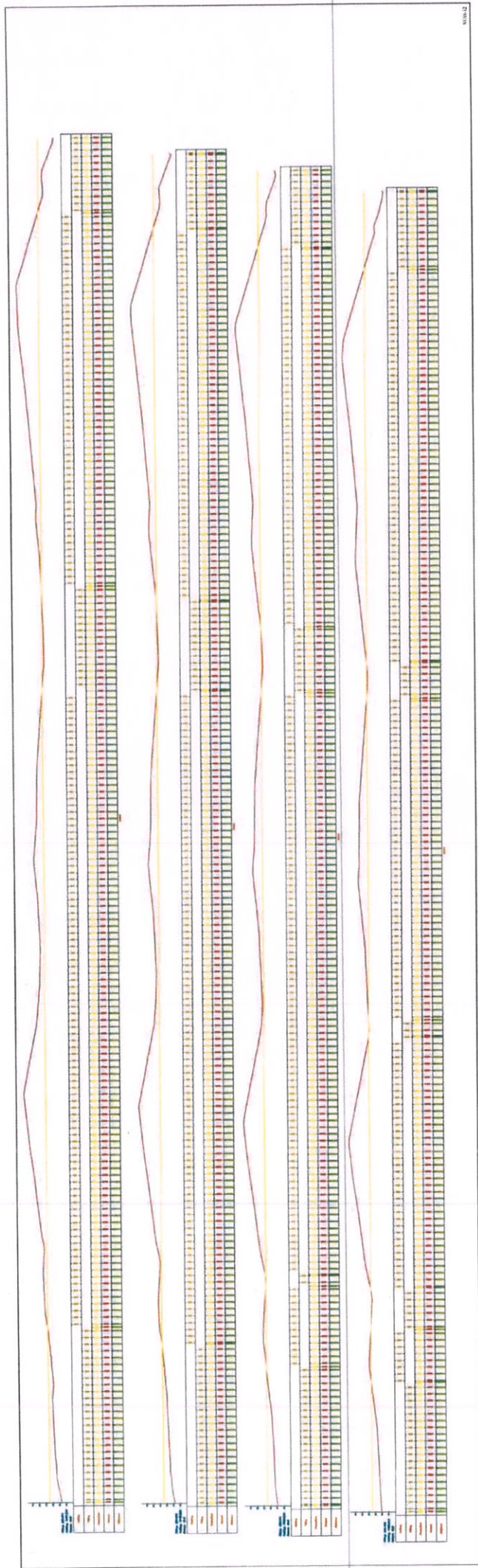




Annex 12

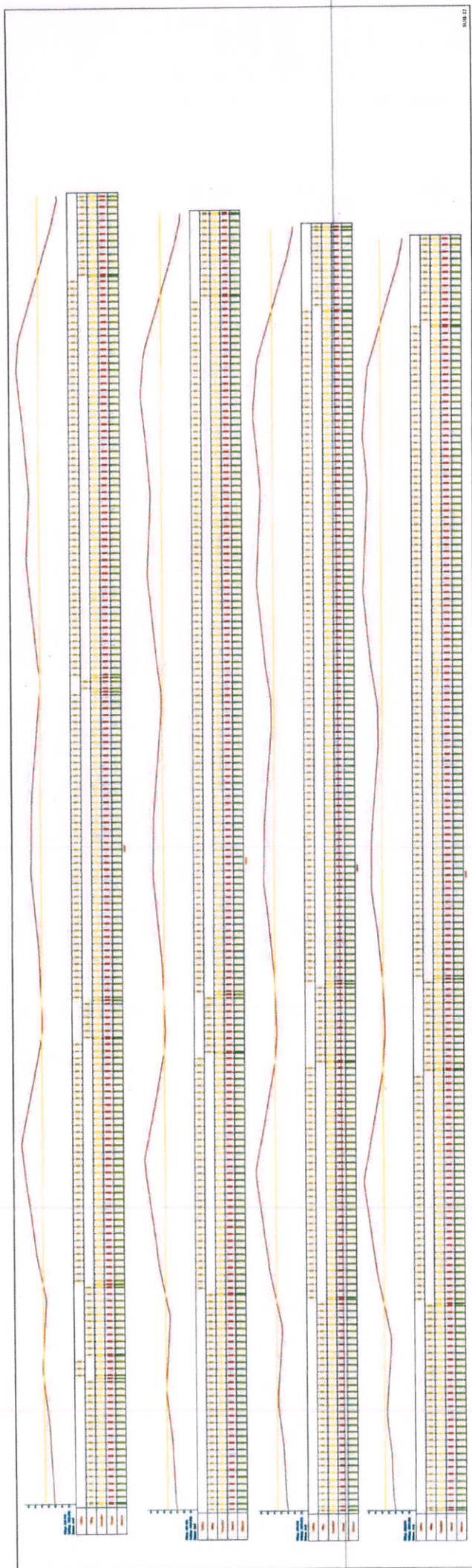


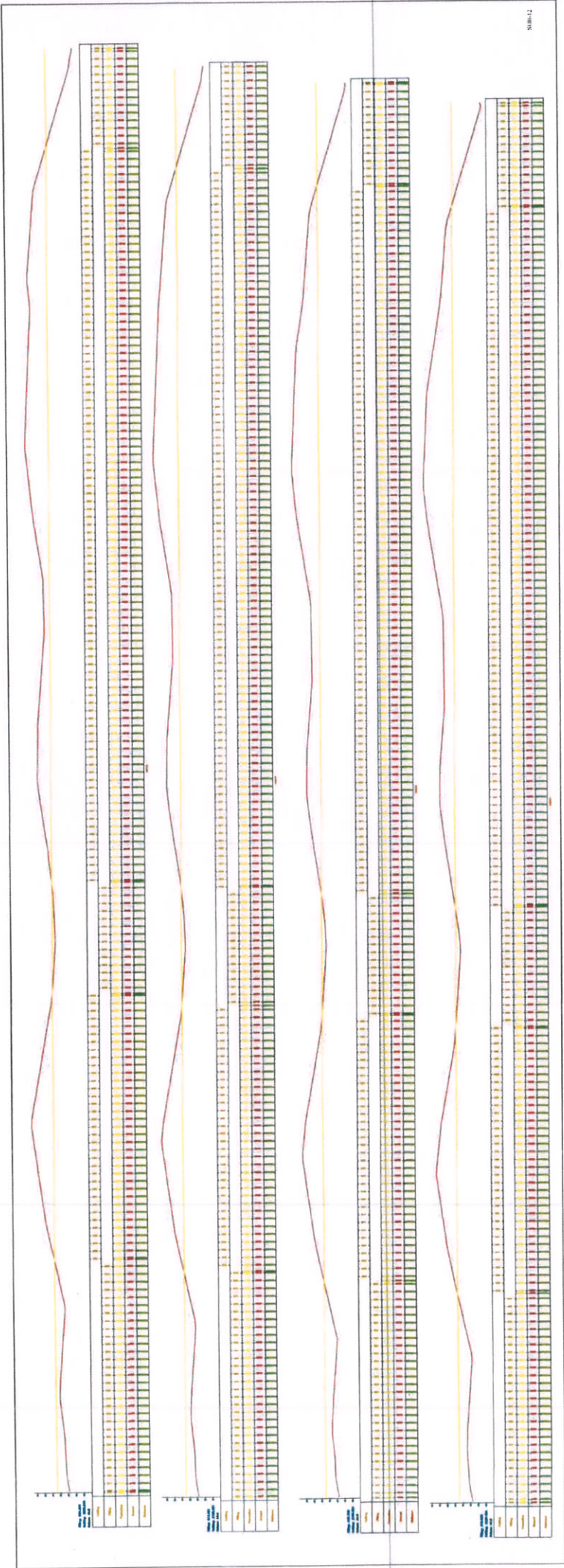


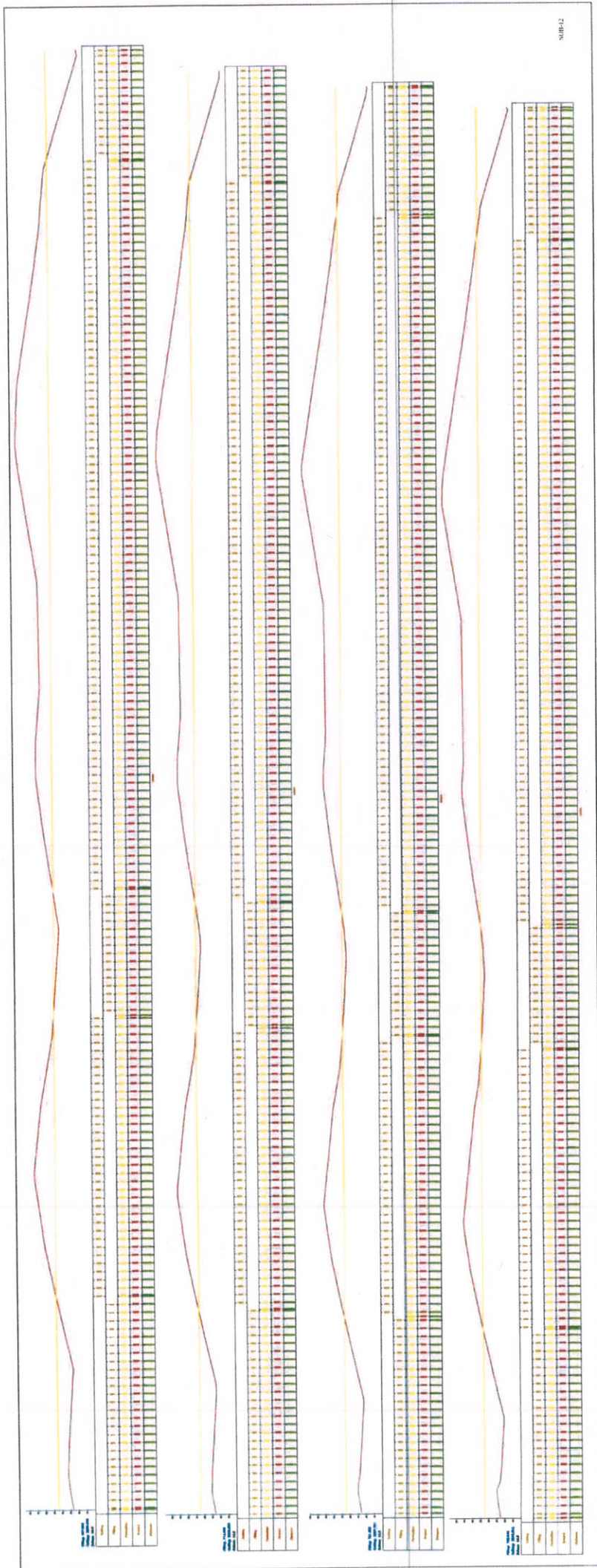


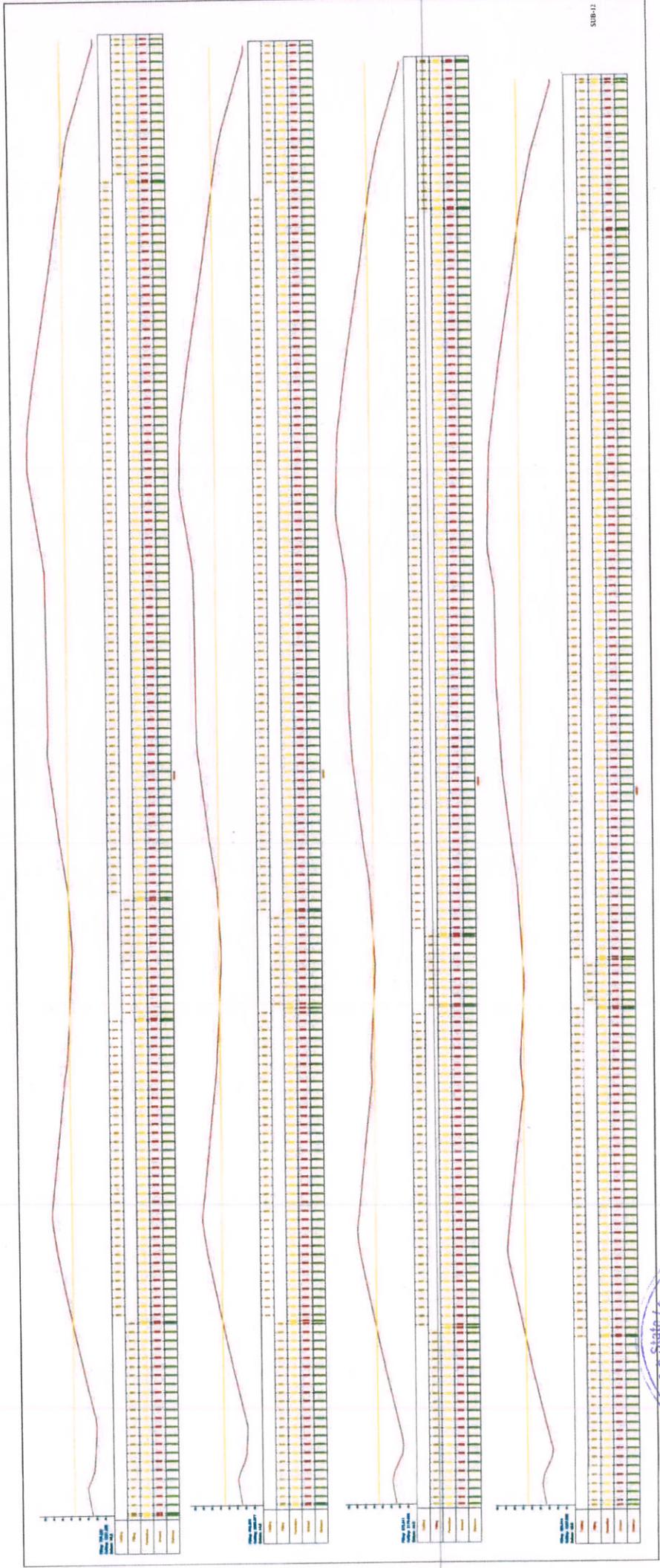
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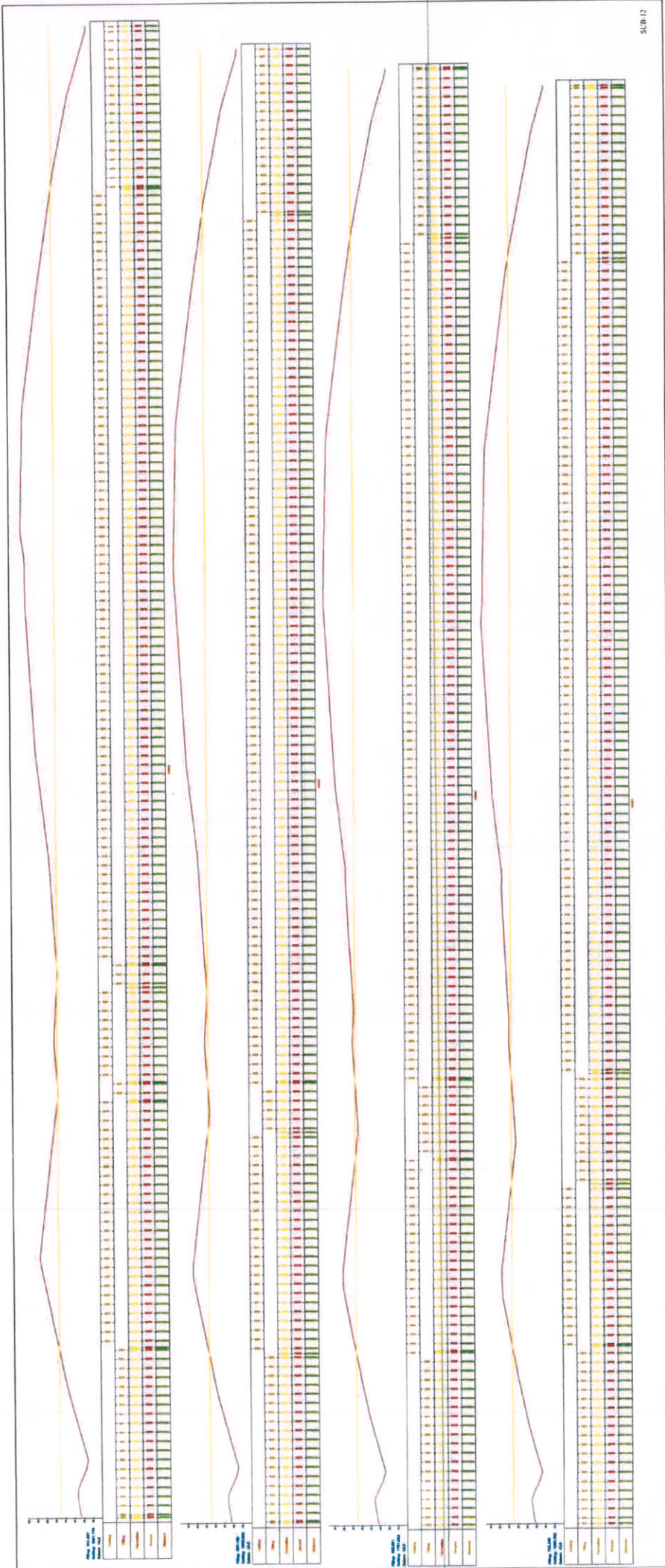


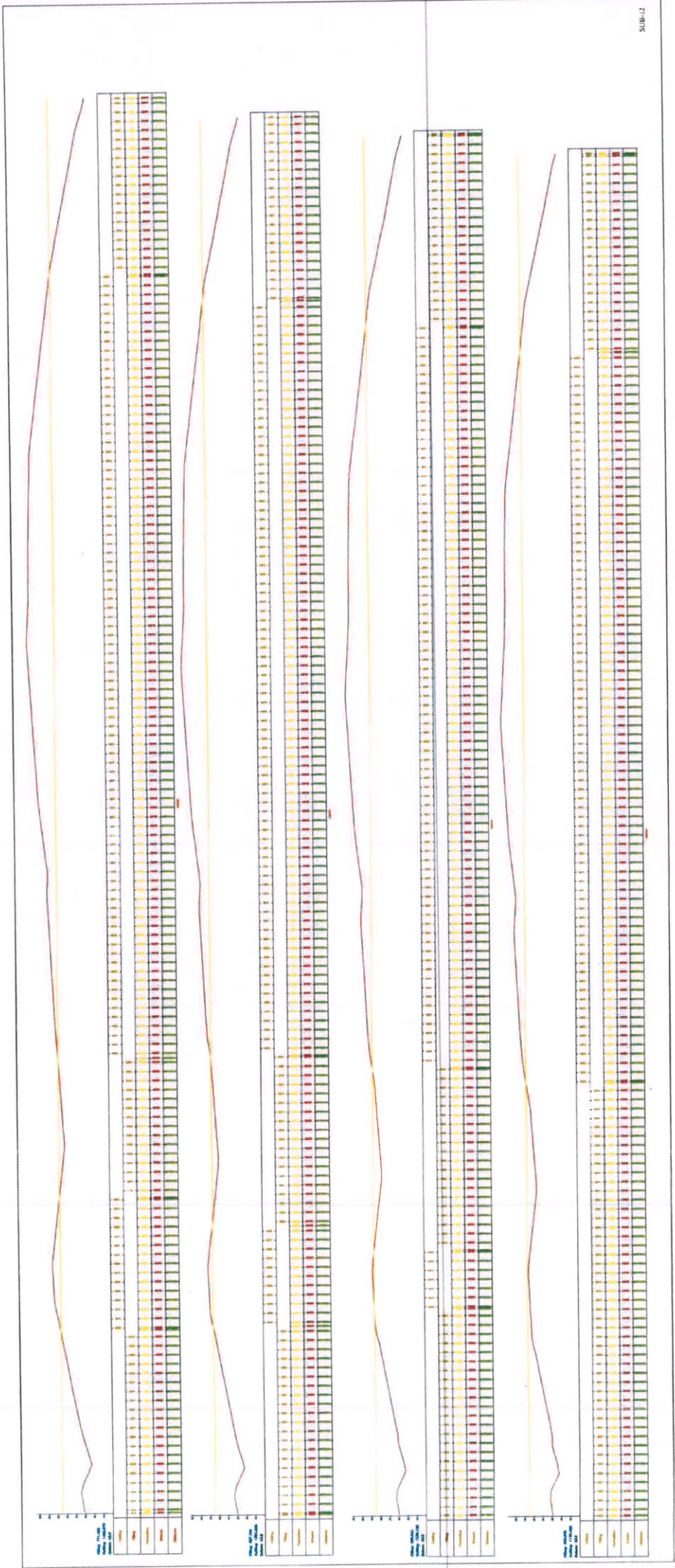


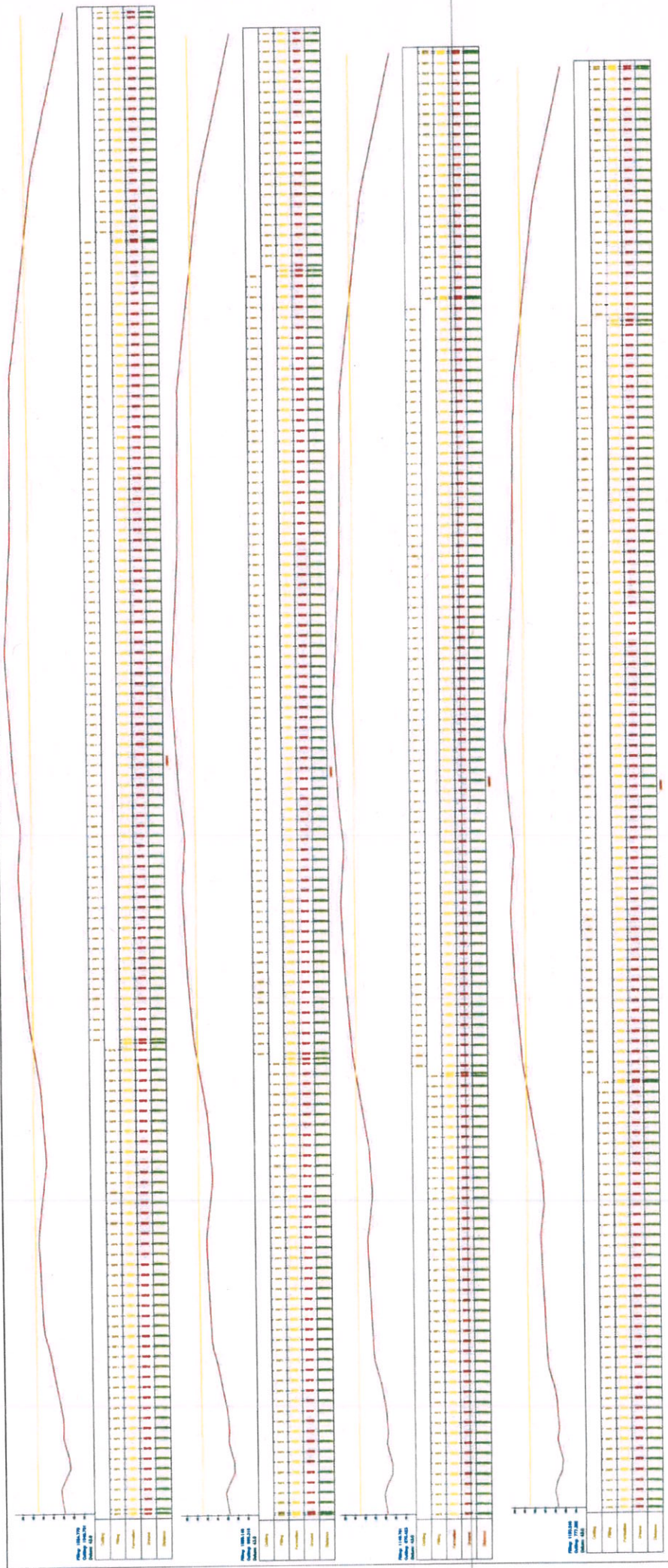


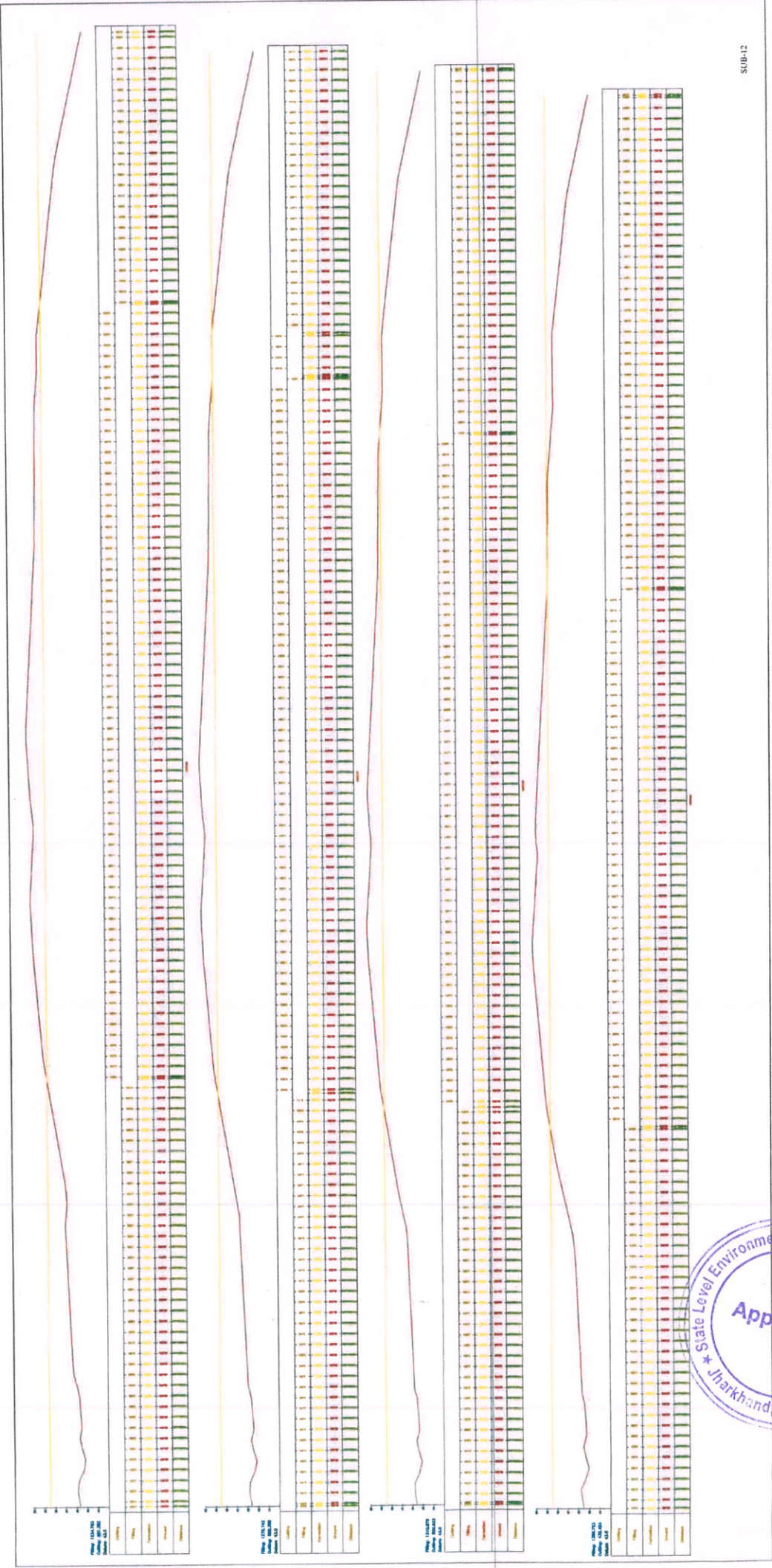


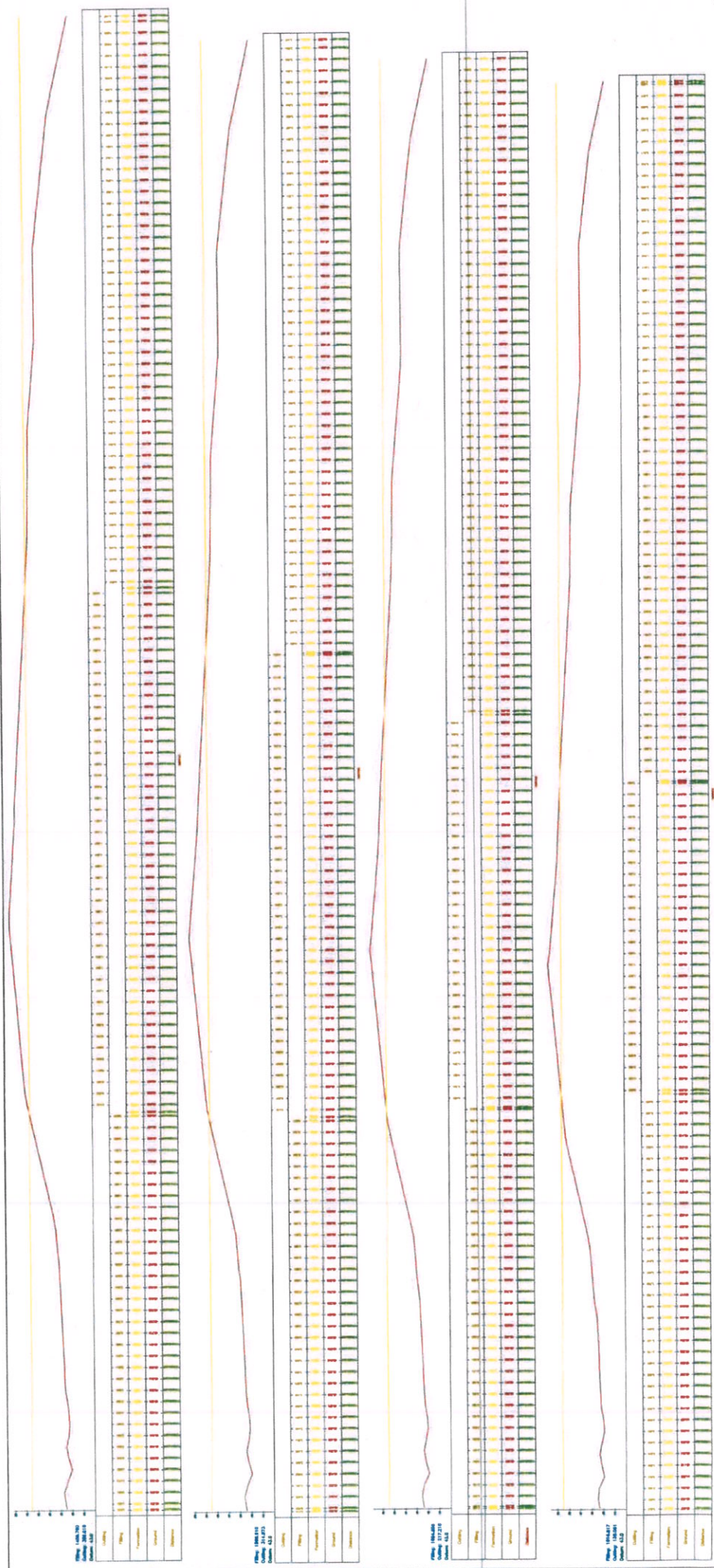


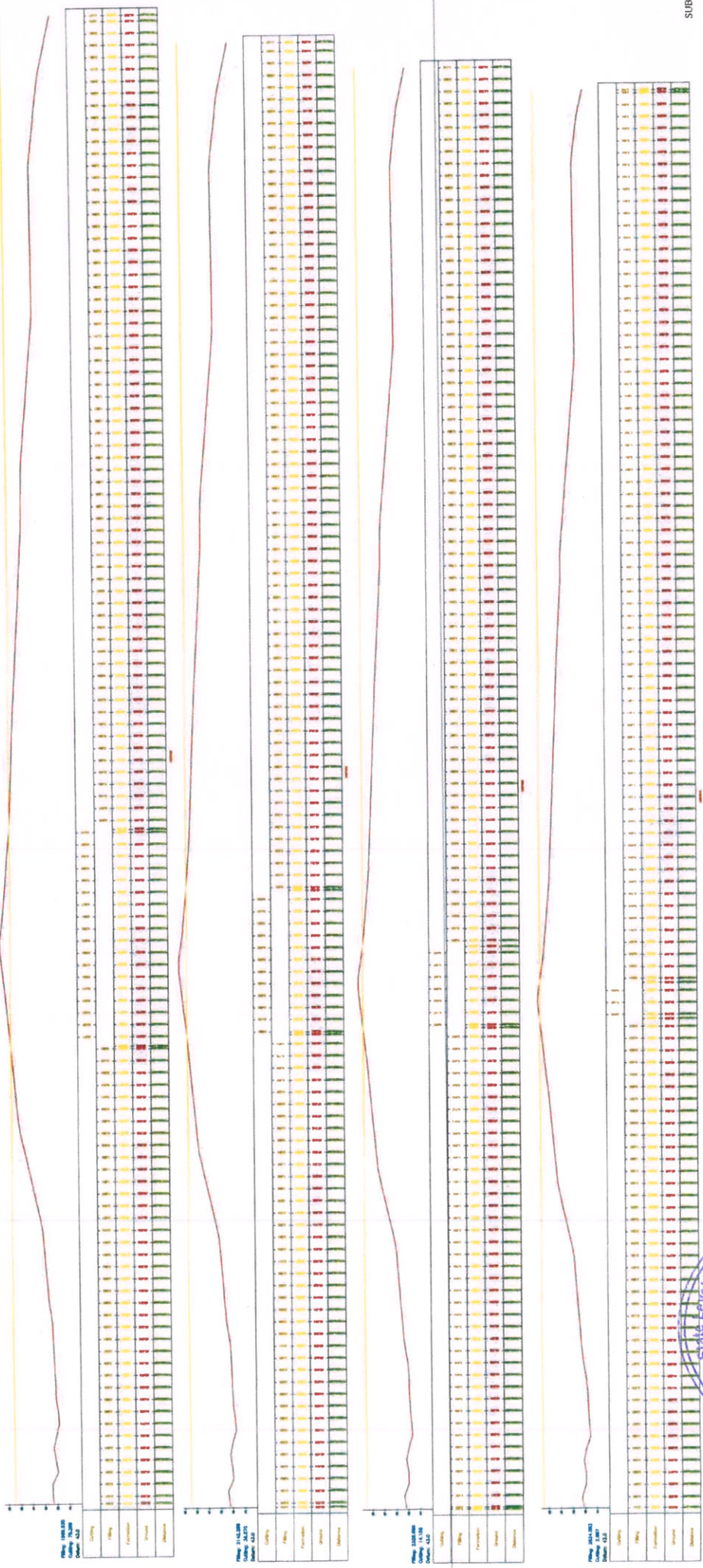


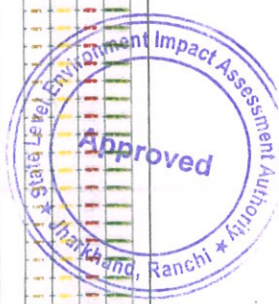




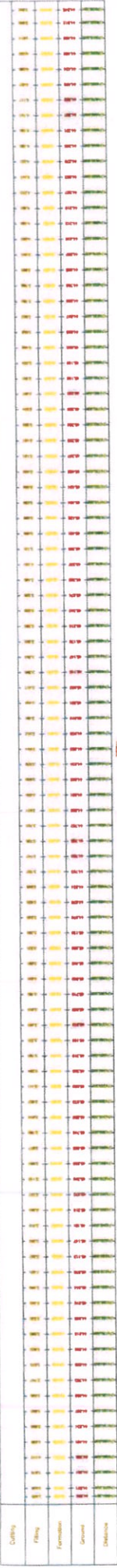




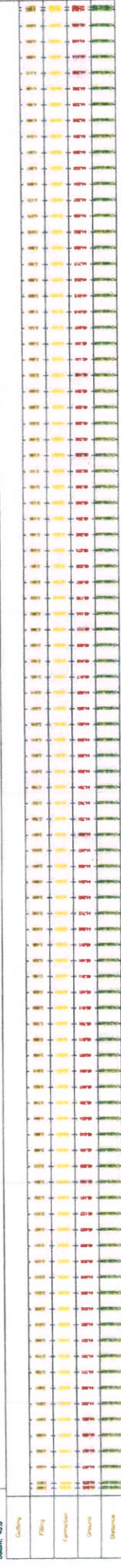




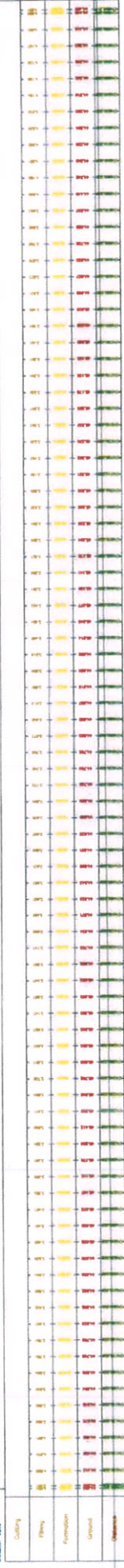
File No. 3326-751
Datum: 42.0



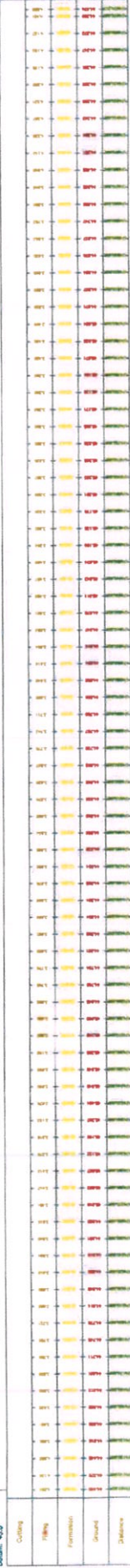
File No. 3326-170
Datum: 42.0



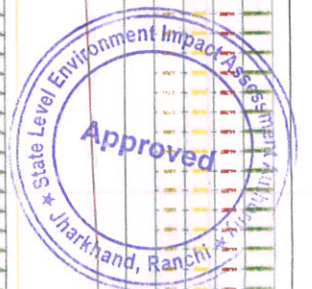
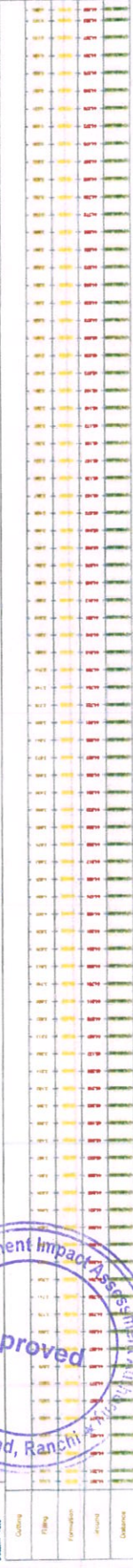
File No. 3326-178
Datum: 42.0



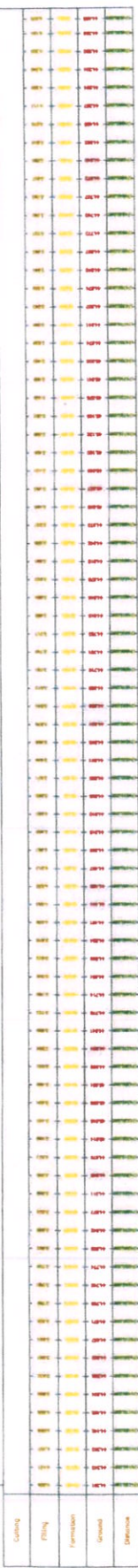
File No. 3108-840
Datum: 42.0



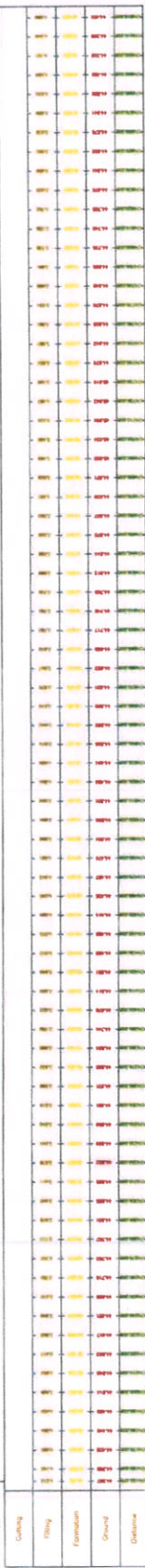
File No. 3120-616
Datum: 42.0



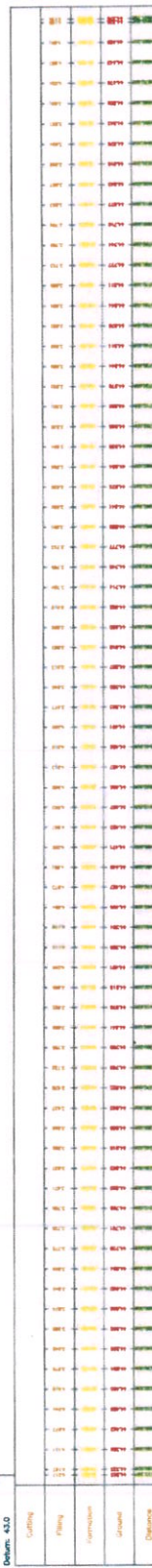
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Datum: 43.0



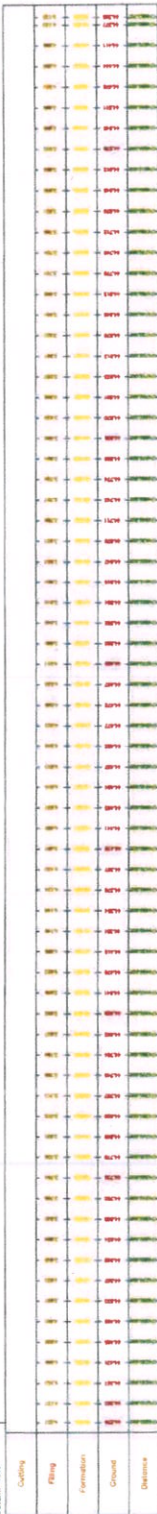
File: 2017.008
Datum: 43.0



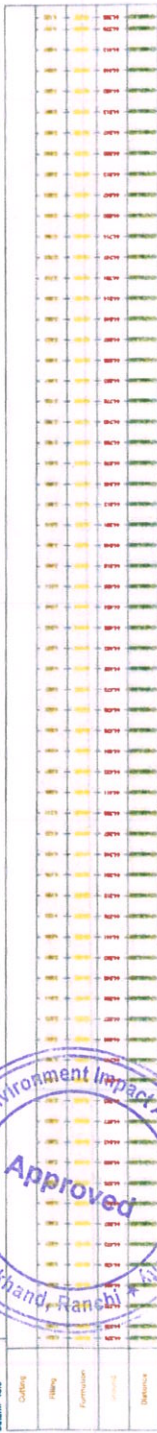
File: 2028.046
Datum: 43.0

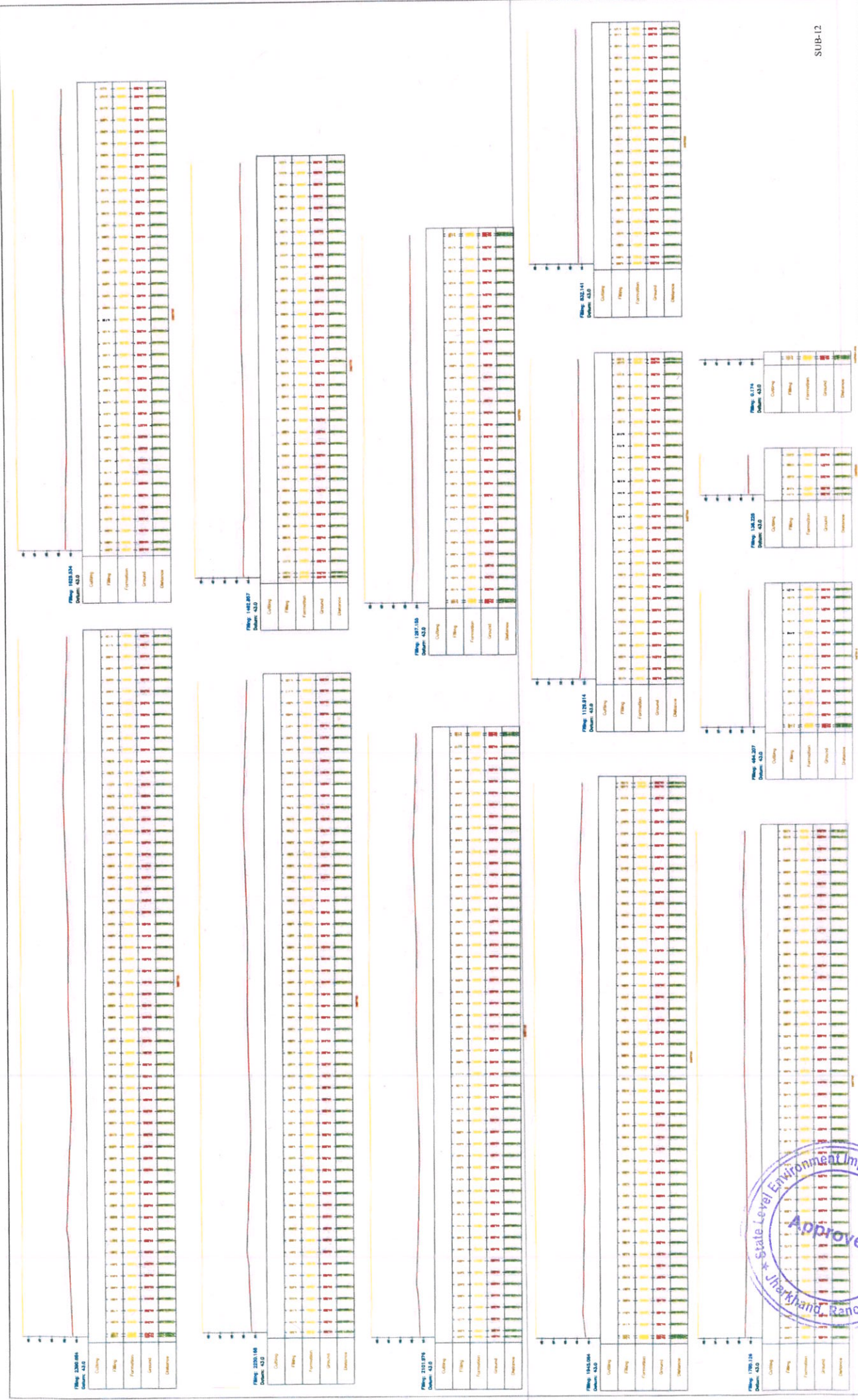


File: 2028.042
Datum: 43.0



File: 2027.206
Datum: 43.0





ANNEXURE-20

COPY OF ACCREDITED **CERTIFICATE**





Quality Council of India
National Accreditation Board for
Education & Training

Certificate of Accreditation

Atmos Sustainable Solutions Pvt. Ltd.

A-73, 3rd Floor, Sector-65, Noida, Uttar Pradesh-201301

Accredited as Category – 'B' organization under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations: Version 3 for preparing EIA/EMP reports in the following sectors:

Sl. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast and underground mining	1	1 (a) (i)	A
2.	River Valley projects	3	1 (c)	A
3.	Industrial estates/ parks/ complexes/areas, export processing Zones(EPZs), Special Economic Zones(SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
4.	Highways,	34	7 (f)	A
5.	Common Municipal Solid Waste Management Facility (CMSWMF)	37	7 (i)	B
6.	Building and construction projects	38	8 (a)	B
7.	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in IA AC Minutes dated December 4, 2020 on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/21/1592 dated January 6, 2021. The accreditation needs to be renewed before the expiry date by Atmos Sustainable Solutions Pvt. Ltd., Noida following due process of assessment.

Sr. Director, NABET
Dated: January 6, 2021

Certificate No.
NABET/EIA/2023/IA0063



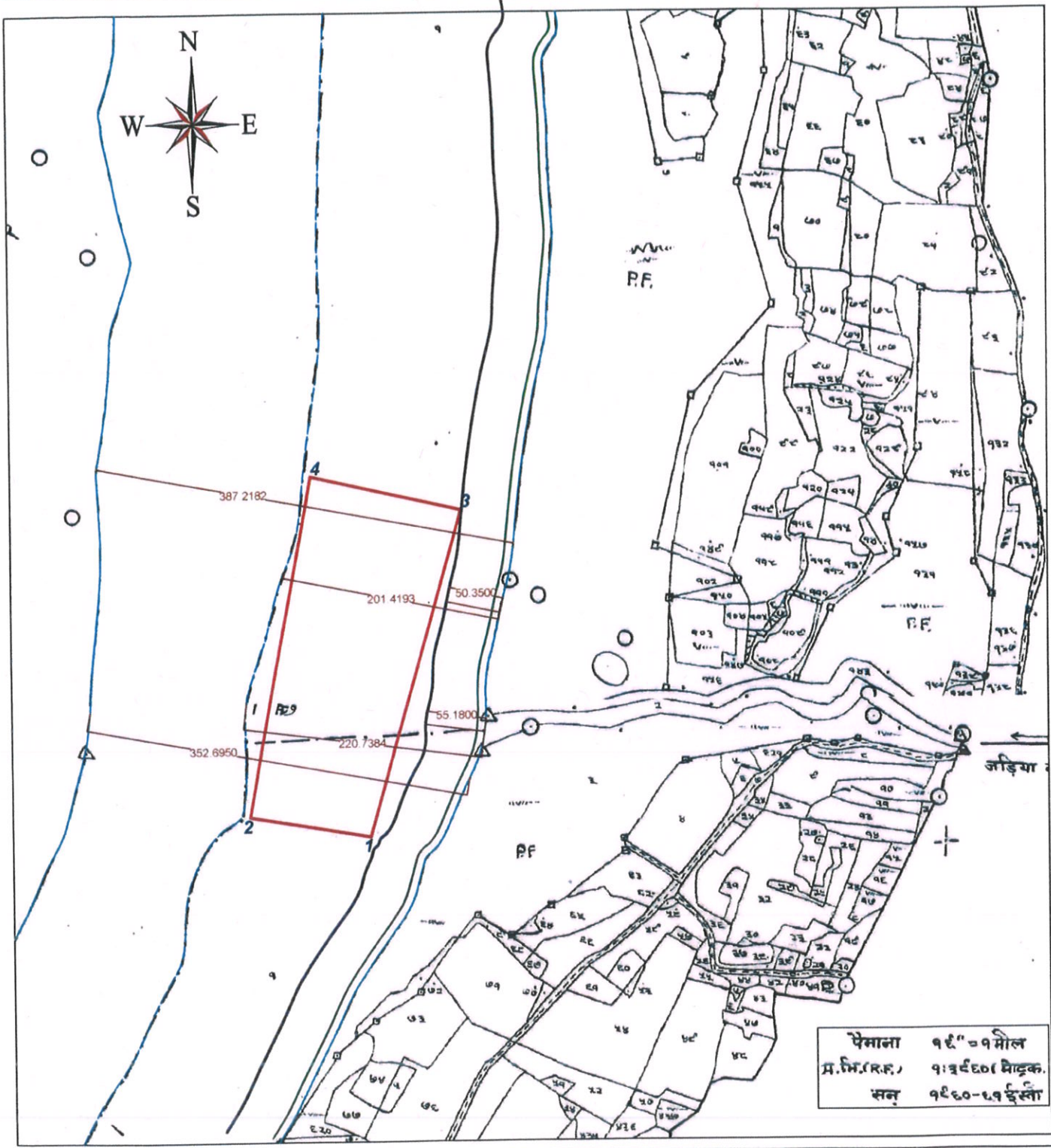
Valid till
September 8, 2023

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.



ANNEXURE-21





पैमाना १ ई. = १ मील
 प्र.मि.(र.र.) १:३६६० (मि.मि.)
 सन् १९६०-६१ ई.स्ती

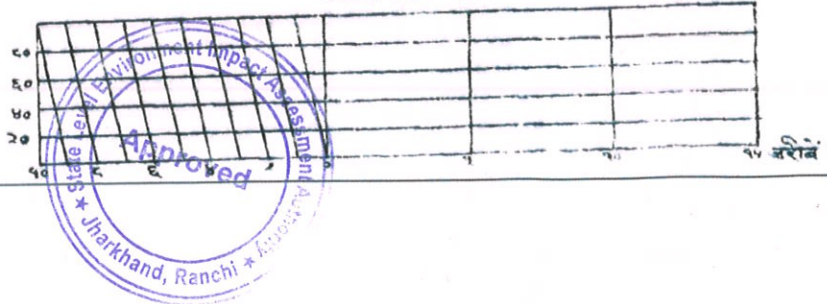
Sl. No.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	4.00	0.00

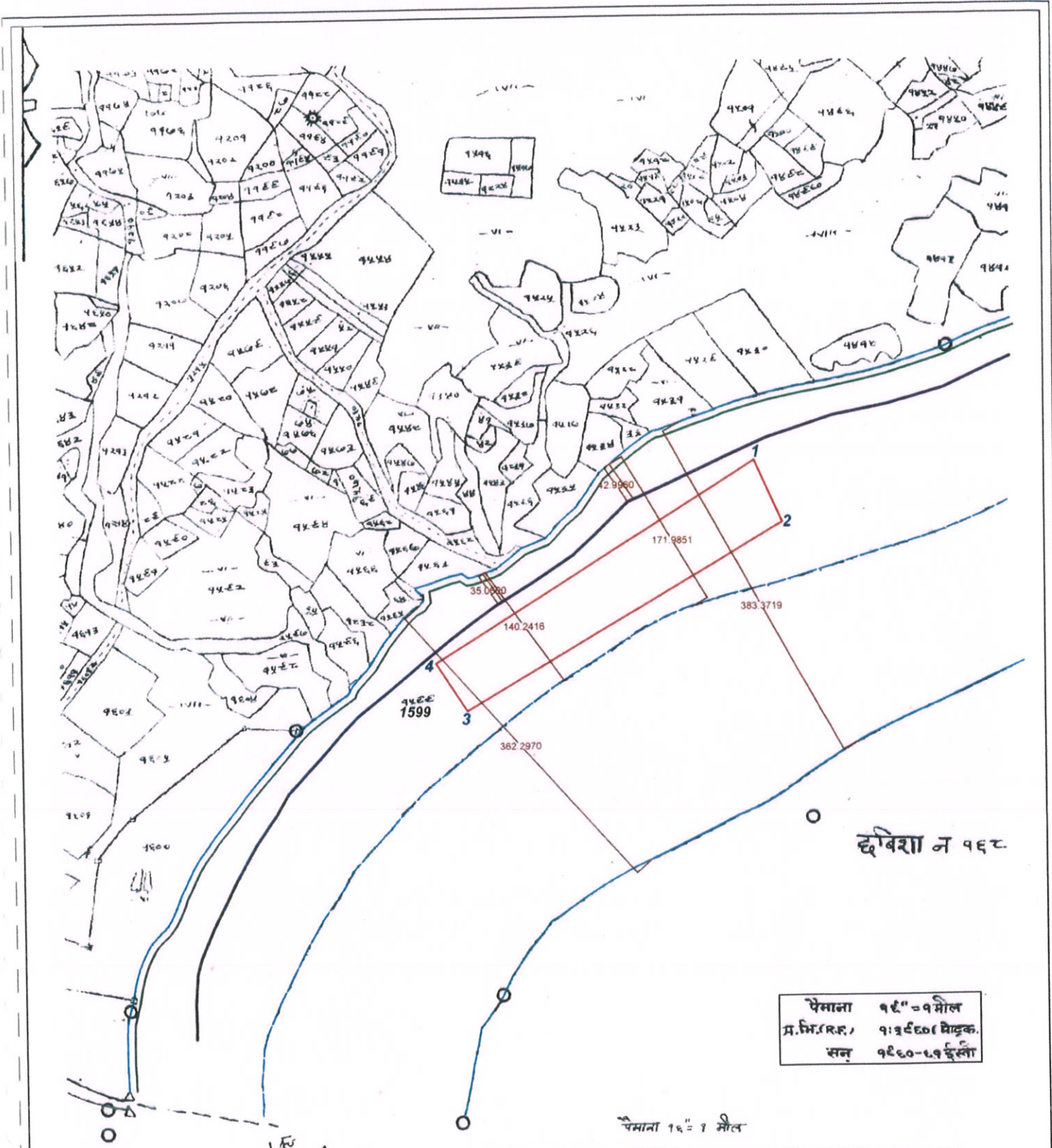
GRAM - KULIYANA, THANA - GHATSHILA, THANA NO. - 1247, PLOT NO. 01(P)
 DISTRICT - EAST SINGHBHUM,
 GRAM- SUNDARKANALI, THANA- GHATSHILA, THANA NO.-1256, PLOT NO.-01(P),
 DISTRICT- EAST SINGHBHUM
 TOTAL AREA - 4.0 HA

पैमाना १ ई. = १ मील

INDEX

- PROPOSED GHAT/MINING AREA
- OTHER PLOTS
- RIVER EDGE
- NO MINING ZONE
- RIVER CENTER
- 1/2 TH OF THE RIVER WIDTH
- 7.5M SAFETY ZONE

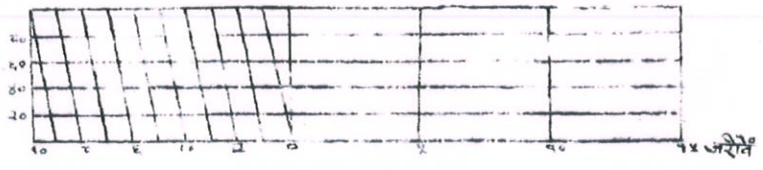




द्विशा न १६८

पैमाना १६" = १ मील
 प्र.मि.(र.ह.) १:३६६०१ मि.मि.
 सन् १९६०-६१ ई.सं.

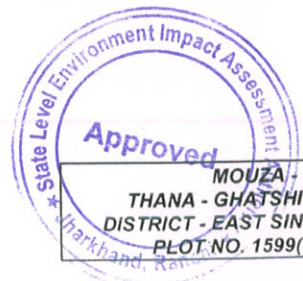
पैमाना १६" = १ मील



Sl. NO.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	2.54	0.00

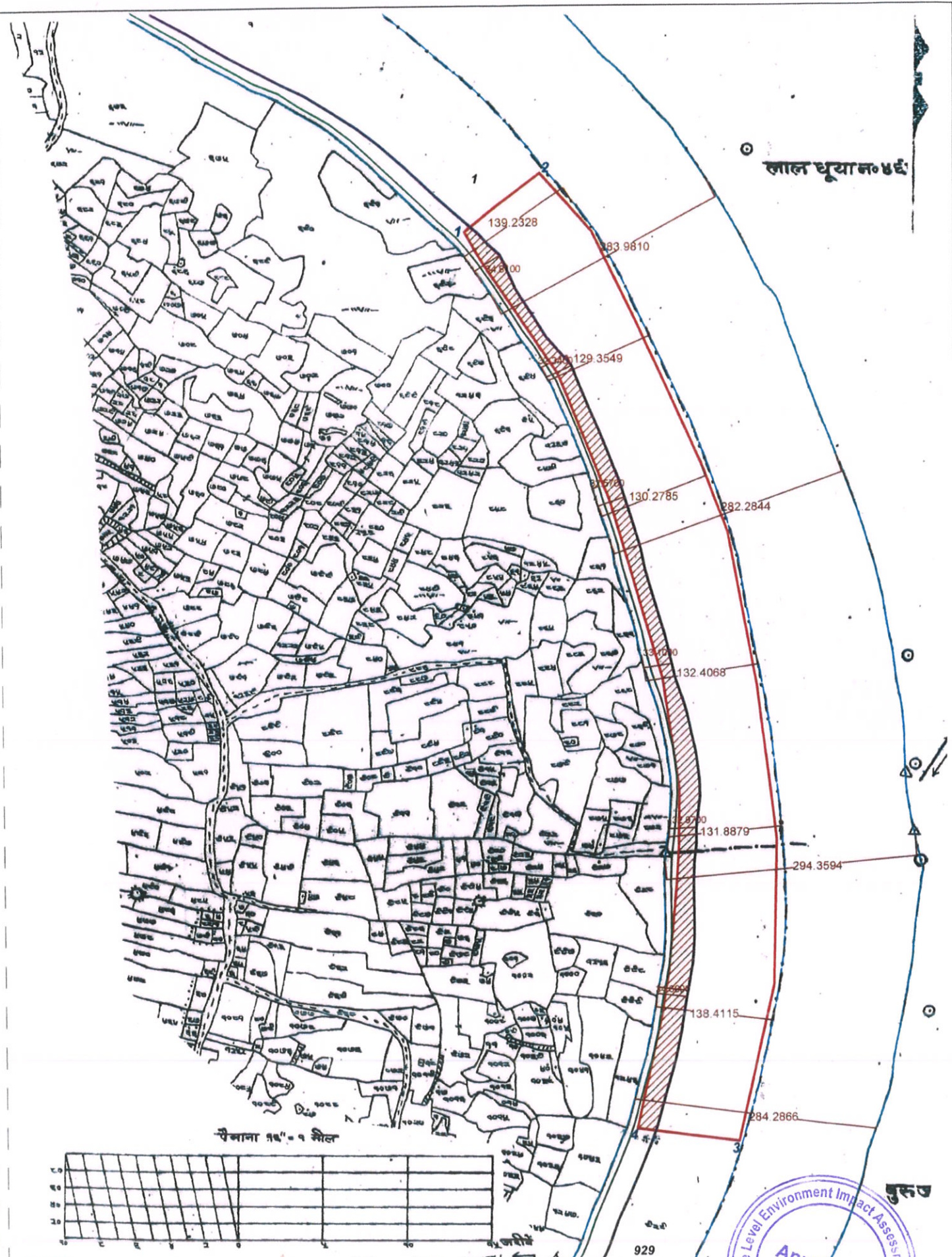
INDEX

- PROPOSED GHAT/ MINING AREA
- OTHER PLOTS
- RIVER CENTER
- RIVER EDGE
- NO MINING ZONE
- 1/4 TH OF THE RIVER WIDTH
- 7.5M SAFETY ZONE



MOUZA - SONAGARA
 THANA - GHATSHILA, THANA NO. - 165
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 1599(P), AREA - 2.54 HA

खाल धूयान ४ई



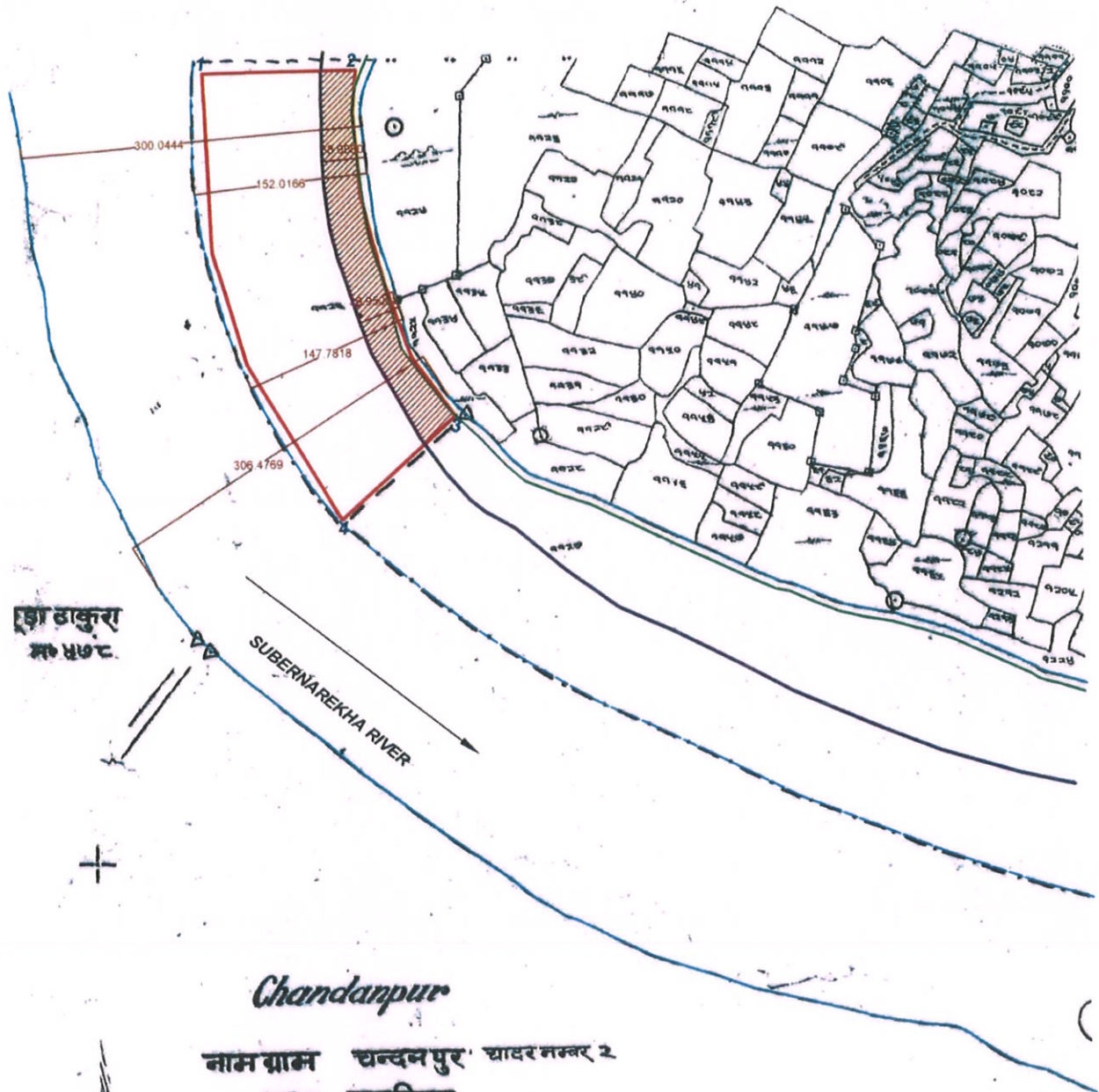
INDEX

	PROPOSED GHAT/MINING AREA
	OTHER PLOTS
	RIVER EDGE
	NO MINING ZONE
	RIVER CENTER
	1/4 TH OF THE RIVER WIDTH
	7.5M SAFETY ZONE

SI. NO.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	13.30	2.26



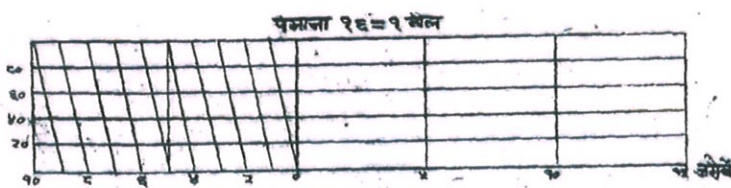
MOUZA - RERUYA
 THANA - GHATSHILA, THANA NO. - 474
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 1(P) & 929(P), AREA - 13.30 HA



Chandanpur

नाम ग्राम चन्दनपुर चादर नम्बर २
 थाना घाटशिला
 थाना नं० ४८४
 तरफ कोकपाड़ा
 जिला सिंहभूम
 पैमाना १ ई = १ मीटर
 प्रमि (ए.स.न.) १: ३० ई = ८ मीटर
 १ ई = ६० - ६९ इंच

माकर नं० ४८३



SI. NO.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	4.97	1.01

- INDEX**
- PROPOSED GHAT/ MINING AREA
 - OTHER PLOTS
 - RIVER EDGE
 - NO MINING ZONE
 - RIVER CENTER
 - 1/4 TH OF THE RIVER WIDTH
 - 7.5M SAFETY ZONE



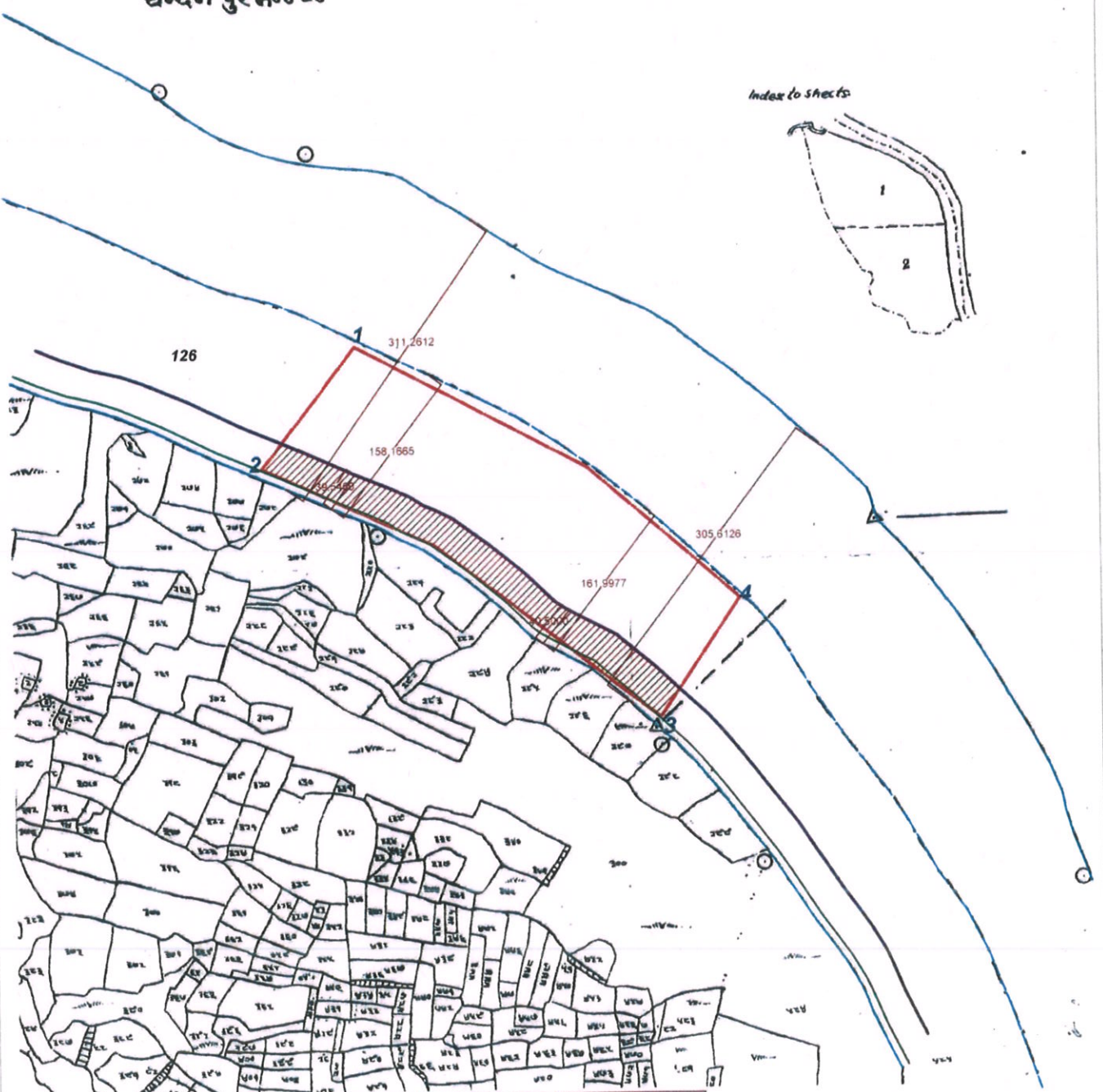
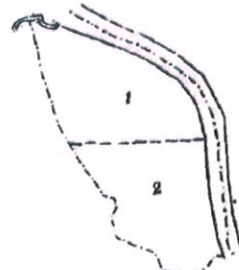
GRAM - CHANDANPUR
 THANA - GHATSHILA, THANA NO. - 484
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 1126, AREA - 4.97 HA

Bhakar

नाम ग्राम भाकर चादर नम्बर १
 घाना घाटशिला
 घाना नं ४८३
 तरफ कोकपाड़ा
 जिला सिंहभूम
 पैमाना १ ई = १ मील
 प्र.मि. (म.म.) १:३-ई० (मैट्रिक)
 स्तर १ ई ६०-ई१ इन्चो

चन्दन पुर नं ४८४

Index to sheets

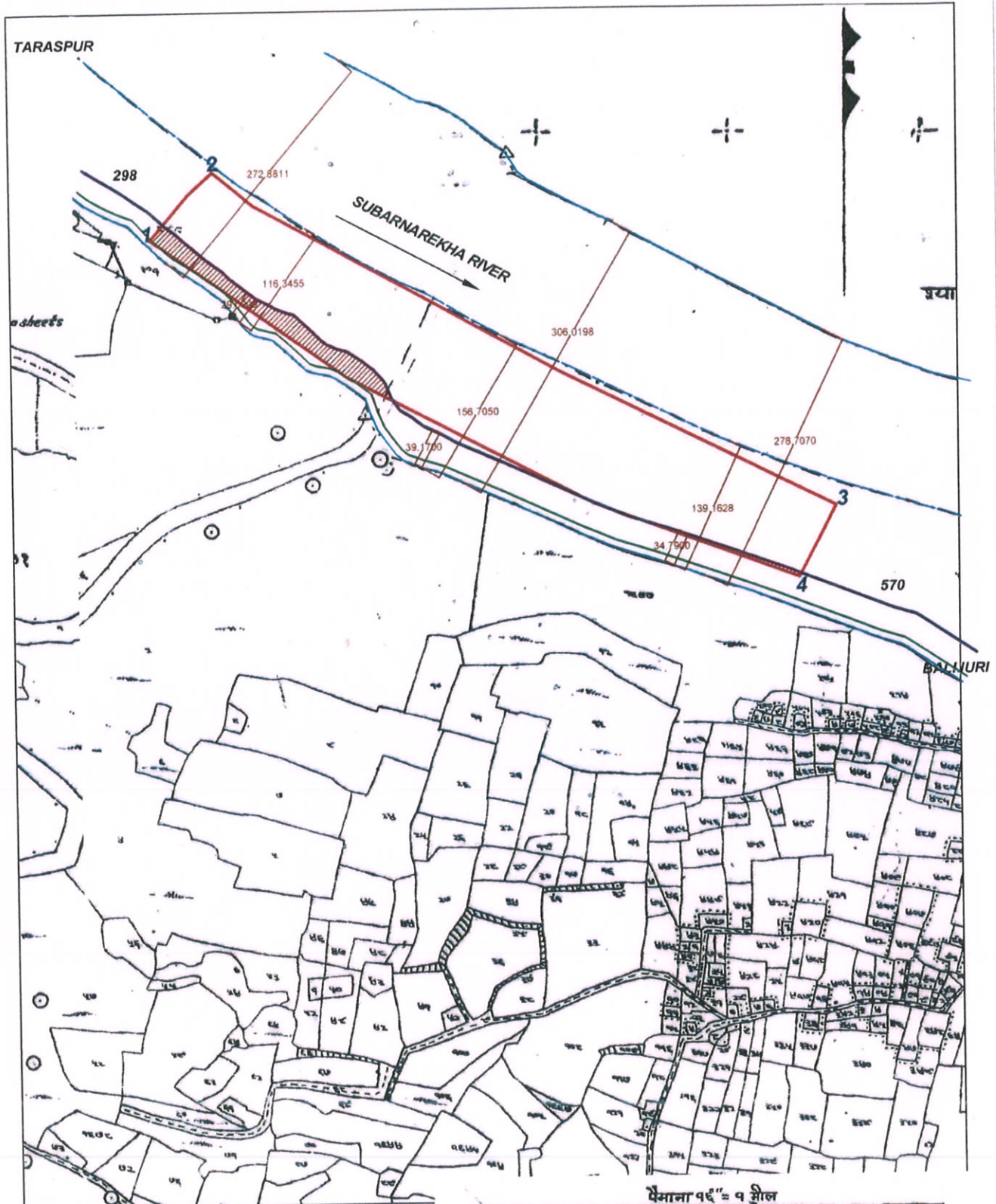


Sl. No.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	6.29	1.45

- INDEX**
- PROPOSED GHAT/ MINING AREA
 - OTHER PLOTS
 - RIVER CENTER
 - RIVER EDGE
 - NO MINING ZONE
 - 1/4 TH OF THE RIVER WIDTH
 - 7.5M SAFETY ZONE

GRAM - BHAKAR
 THANA - GHATSHILA, THANA NO. - 483
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 126(P), AREA - 6.29 HA





SI. NO.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	7.37	0.55



INDEX

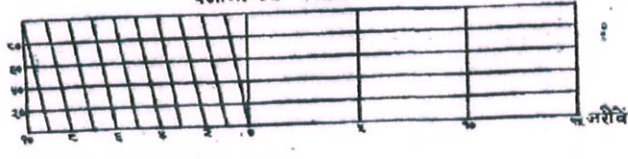
	PROPOSED GHAT/ MINING AREA		RIVER CENTER
	OTHER PLOTS		1/4 TH OF THE RIVER WIDTH
	RIVER EDGE		7.5M SAFETY ZONE
	NO MINING ZONE		



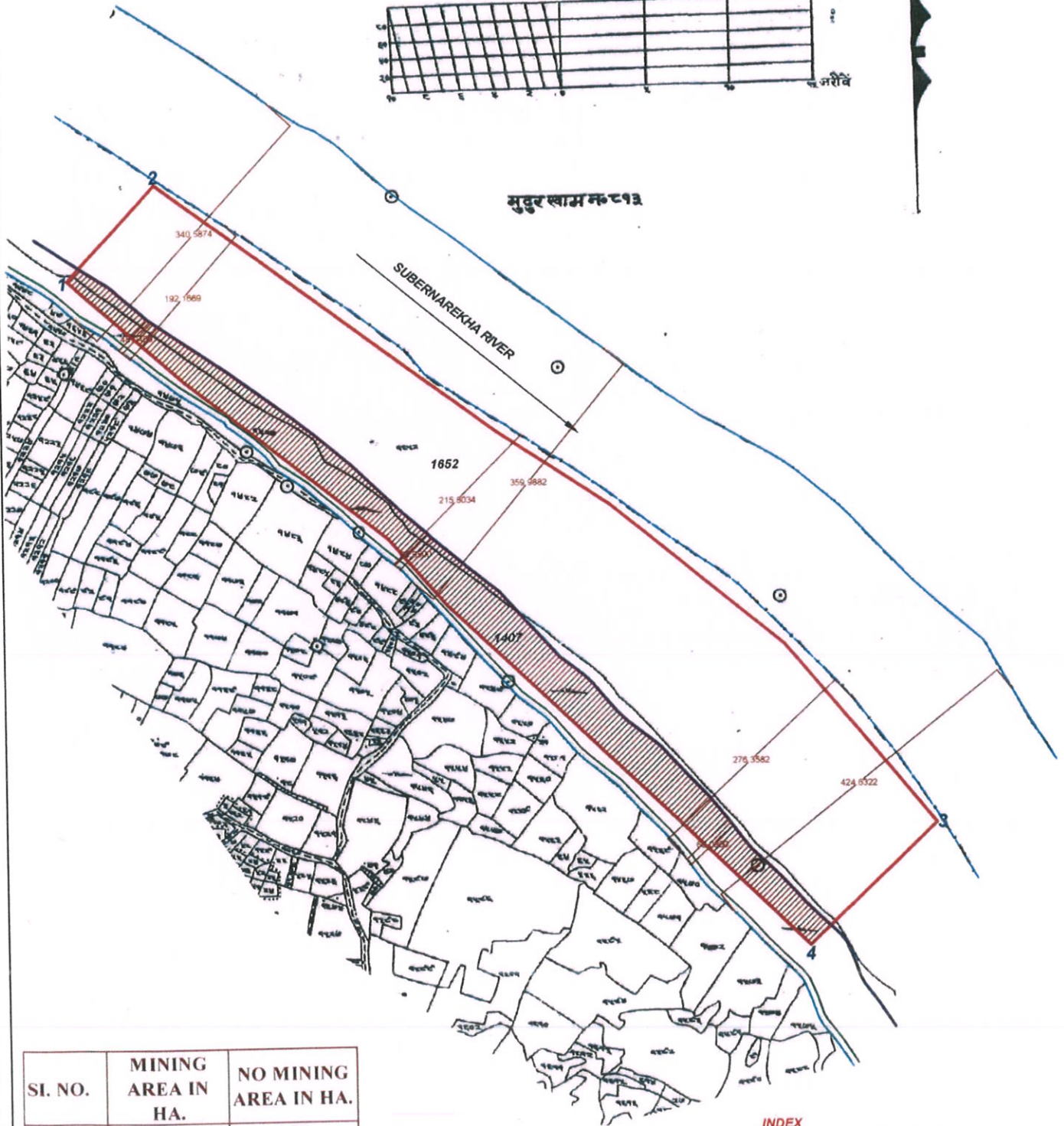
पैमाना १:६००० = १ मील
 अ.मि. (R.F.) १:३६०० (रेडिग)
 मसू १९९०-९१ ईस्वी

GRAM - BALIJURI, THANA - GHATSHILA, THANA NO. - 1034, PLOT NO.-570P, DISTRICT - EAST SINGHBHUM.
 GRAM- TARASPUR, THANA- GHATSHILA, THANA NO.-1041, PLOT NO. 298(P), DISTRICT-EAST SINGHBHUM AREA - 7.37 HA

पैमाना १ ई = १ मील



मुदुर खाम नक ८१३



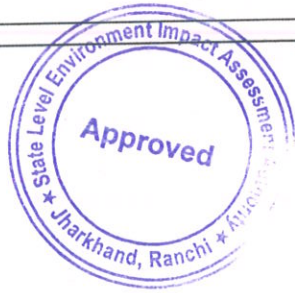
SI. NO.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	24.00	4.90

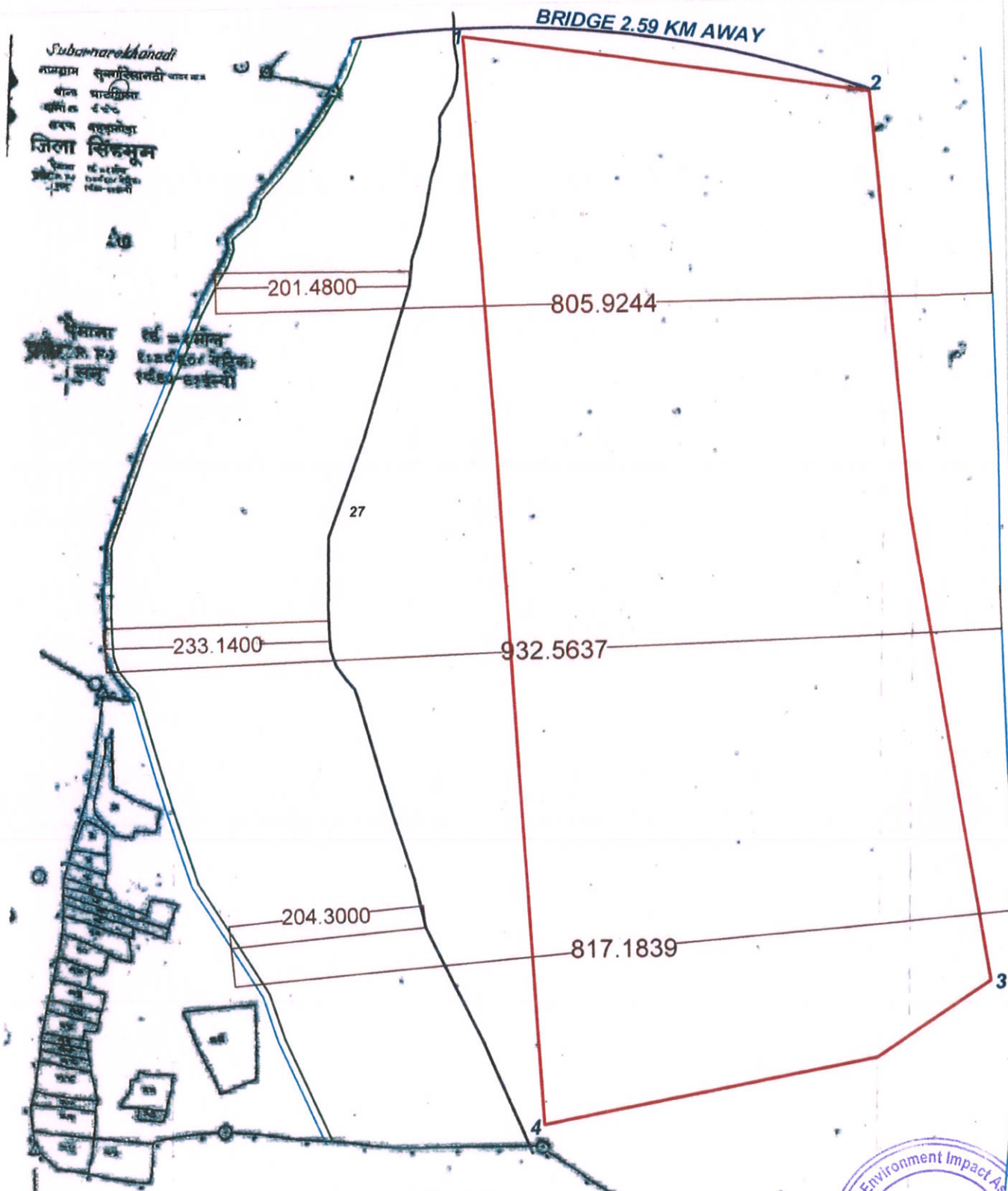
GRAM - BALIJURI - II
 THANA - GHATSHILA, THANA NO. - 1034
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 1652 (P) & 1407(P), AREA - 24.00 HA

पैमाना १ ई = १ मील
 प्र. मि. (R. F) १ : ३८६० (मेट्रिक)
 सन् १९६० - ईप ईस्वी

INDEX

- PROPOSED GHAT/ MINING AREA
- RIVER CENTER
- OTHER PLOTS
- RIVER EDGE
- NO MINING ZONE
- 1/4 TH OF THE RIVER WIDTH
- 7.5M SAFETY ZONE



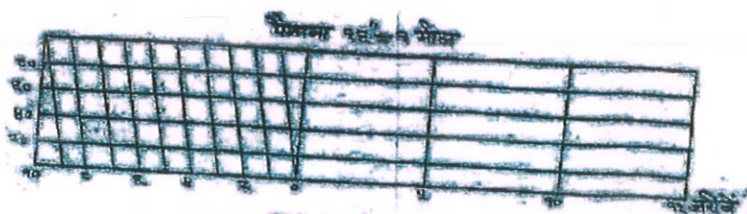


SI. NO.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	46.30	0.00

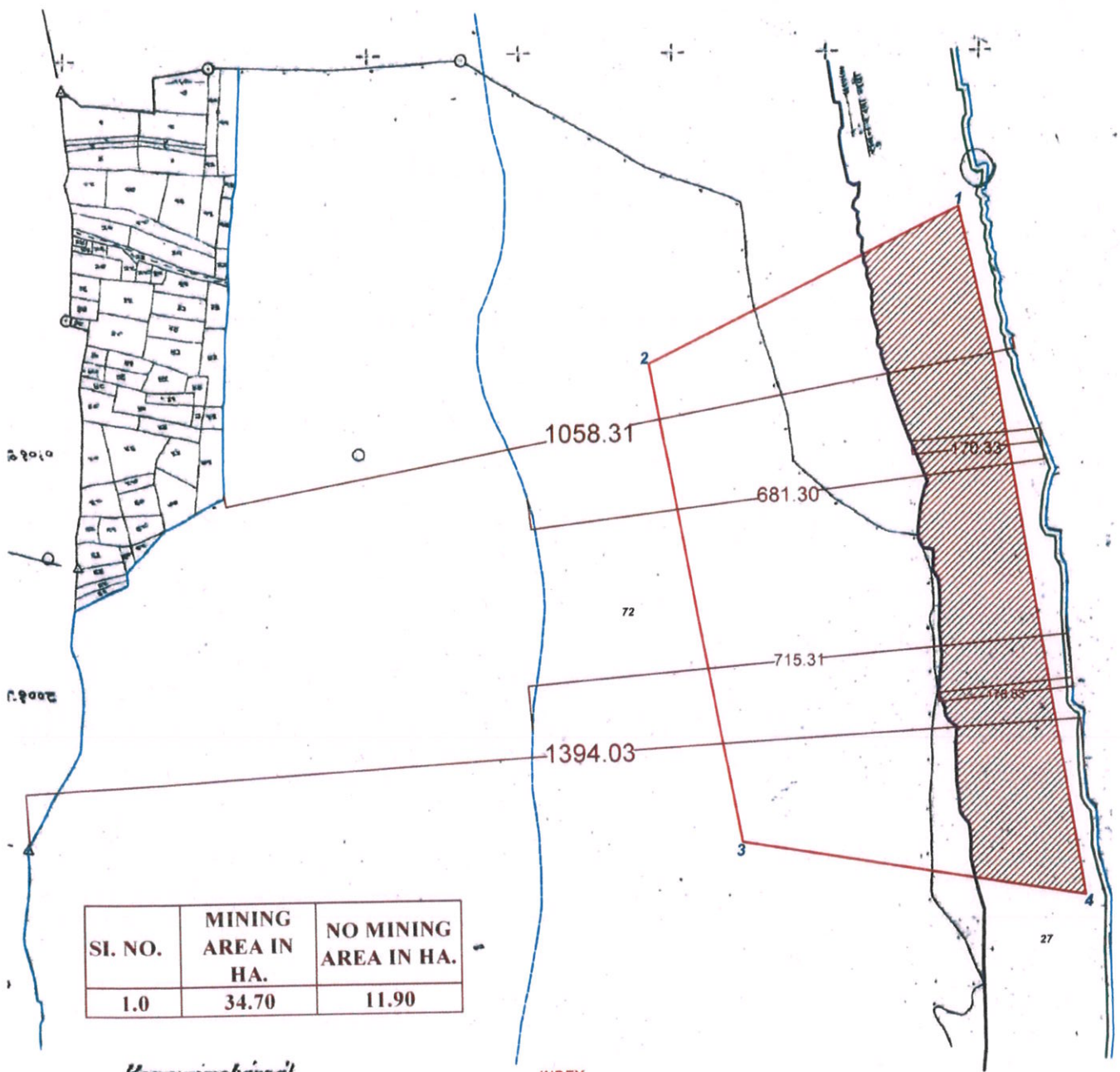


- INDEX**
- PROPOSED GHAT/ MINING AREA
 - OTHER PLOTS
 - RIVER EDGE
 - NO MINING ZONE
 - 1/4 TH OF THE RIVER WIDTH
 - 7.5M SAFETY ZONE

MOUZA - KOREYAMOHPAL/SUBARNAREKHANADI
 THANA - GHATSHILA, THANA NO. - 998
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 27(P), AREA - 46.30 HA



कोरेया मोहनपाल - १००३



SI. NO.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	34.70	11.90

Koreyamohanpal

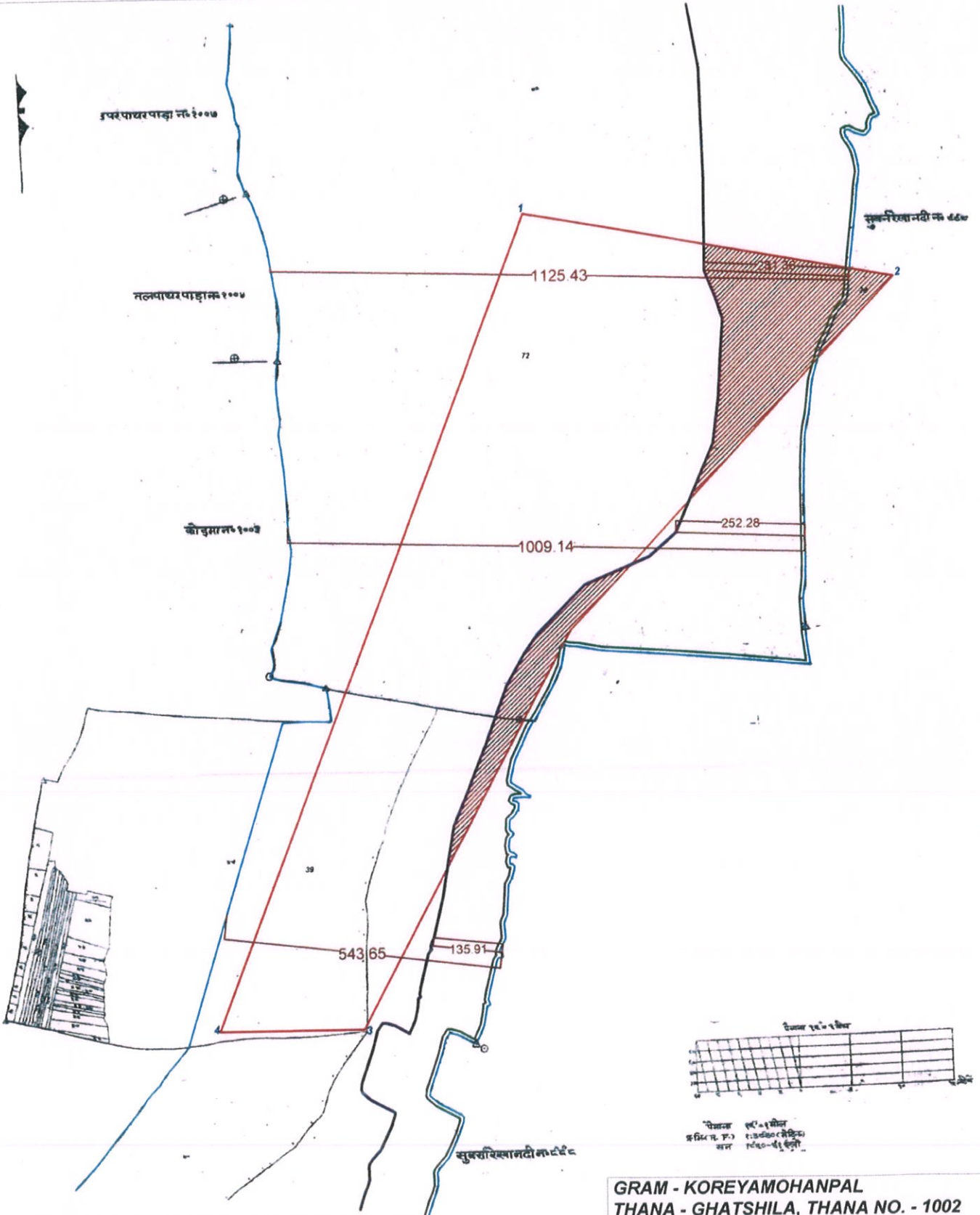
नाम ग्राम कोडेयामोहनपाल
 थाना घाटशिला
 थाना नं १००२
 तहसील बहुसागाड़ा
जिला सिंहभूम
 पैमाना १:२०००
 प्र. शि. (र. प.) १-३०६० / सं. शि. १-२६-६१ इ. सं.

INDEX

	PROPOSED GHAT/ MINING AREA		RIVER CENTER
	OTHER PLOTS		1/3 TH OF THE RIVER WIDTH
	RIVER EDGE		7.5M SAFETY ZONE
	NO MINING ZONE		

GRAM - KOREYAMOHANPAL
THANA - GHATSHILA, THANA NO. - 1002
DISTRICT - EAST SINGHBHUM, JHARKHAND
PLOT NO. 72(P) & 27(P)
TOTAL AREA - 34.70 HA.

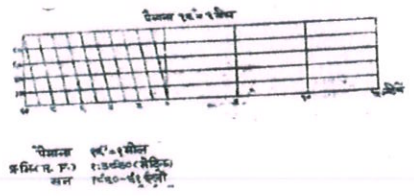




SI. NO.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	71.00	10.44

INDEX

	PROPOSED GHAT/ MINING AREA		1/4 TH OF THE RIVER WIDTH
	OTHER PLOTS		7.5M SAFETY ZONE
	RIVER EDGE		
	NO MINING ZONE		



GRAM - KOREYAMOHANPAL
 THANA - GHATSHILA, THANA NO. - 1002
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 72(P)
 GRAM - SUBARNAREKHANADIPAL
 THANA - GHATSHILA, THANA NO. - 999
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 39(P)
 GRAM - SUBARNAREKHANADIPAL
 THANA - GHATSHILA, THANA NO. - 998
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 28(P)
 TOTAL AREA - 71.00 HA.





भानुशापालम-८७१

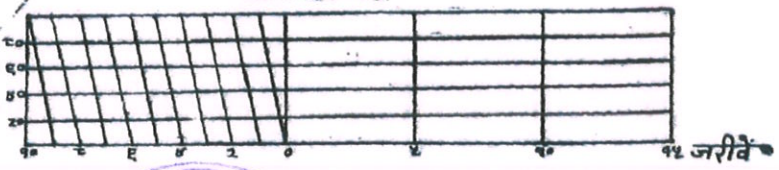
पैमाना १ ईंच = १ मील
 प्र.भि (P.F) १:३००० (मैट्रिक)
 मन् १:८८० - ६९ ईंचवी

सरका








सुवर्णरेखा नदी

पैमाना १ ईंच = १ मील

SI. NO.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	4.40	0.00

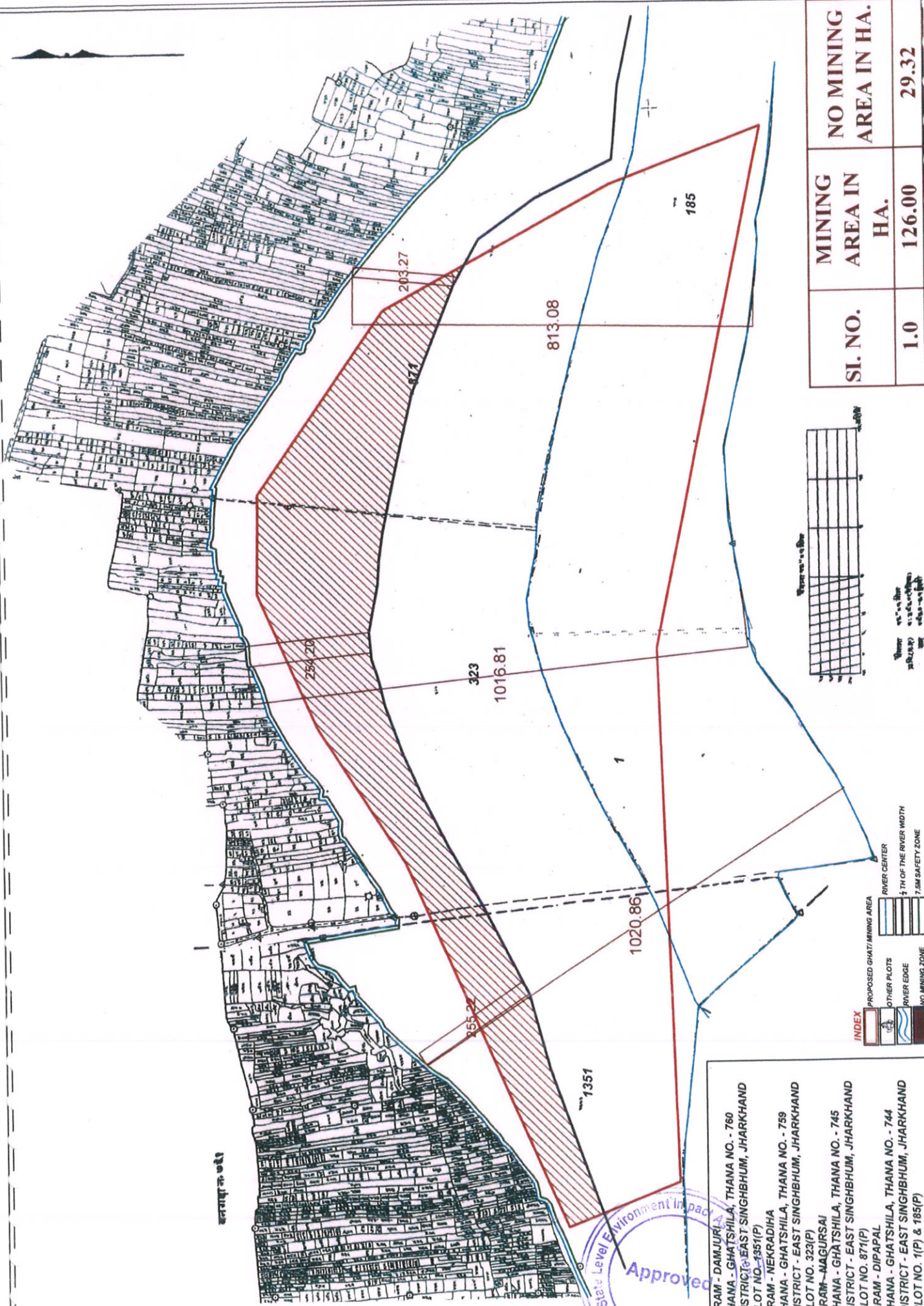


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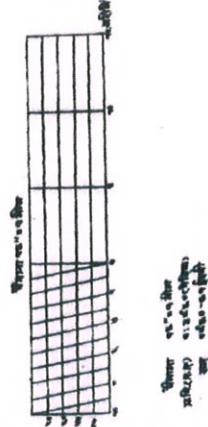
-  PROPOSED GHAT/ MINING AREA
-  OTHER PLOTS
-  RIVER EDGE
-  NO MINING ZONE
-  RIVER CENTER
-  1/4 TH OF THE RIVER WIDTH
-  7.5M SAFETY ZONE



GRAM - BANKATA
 THANA - GHATSHILA, THANA NO. - 962
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 3161(P) & 3162(P), AREA - 4.40 HA



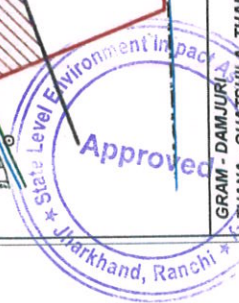
SI. NO.	MINING AREA IN HA.	NO MINING AREA IN HA.
1.0	126.00	29.32



INDEX

	PROPOSED GHAT/ MINING AREA
	OTHER PLOTS
	RIVER EDGE
	RIVER CENTER
	1/4TH OF THE RIVER WIDTH
	7.5M SAFETY ZONE
	NO MINING ZONE

GRAM - DAMJUR/A
 THANA - GHATSHILA, THANA NO. - 760
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. - 1351(P)
 GRAM - NEKRADIHA
 THANA - GHATSHILA, THANA NO. - 759
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 323(P)
 GRAM - NAGURSAI
 THANA - GHATSHILA, THANA NO. - 745
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 871(P)
 GRAM - DIPAPAL
 THANA - GHATSHILA, THANA NO. - 744
 DISTRICT - EAST SINGHBHUM, JHARKHAND
 PLOT NO. 1(P) & 185(P)
TOTAL AREA - 126.00 HA.



To

The Member Secretary
State Level Expert Appraisal Committee(SEAC),
Nursery Complex, Near Dhurwa Bus Stand,
Dhurwa, Ranchi, Jharkhand.

Subject: Compliance regarding Final DSR(Sand) of East Singhbhum District

Respected Sir,

With reference to the subject cited above, DSR Sand for East Singhbhum District has been submitted to your office Vide letter No.-181/Khanan, Dated-23/02/2023, which has been reviewed in 102nd meeting of SEAC, Jharkhand on 21.03.2023. I am authorised to attend the above meeting vide letter No.-292/Khanan, Dated-20/03/2023 of Deputy Commissioner. Compliance on observation of SEAC are as follow.

S.NO	SEAC OBSERVATION	COMPLIANCE
1.	Detail of production of Sand or Bajri or Minor minerals in last five years.	Production of Sand Complied in Page No.-41
2.	Demand and Supply of the river bed material through market survey needs to be carried out.	Demand and Supply of sand are complied in Page No.-50
3.	Any Comment/Suggestion NIC web portal?	Proposed sand ghats has been advertised in newspaper and district NIC web portal for objection/suggestion from public. But no objection/suggestion have been received. Complied Page No.-65.
4.	List of Category-I detailed properly in tabulated format and given all information.	Already given Category-I in Page No.-78
5.	The sand ghats/leases have not to proposed on the confluence/meanders/concavities/active channels of the river.	All sand ghats are avoid near confluence/meanders/concavities/active channels of the river, ghats images are enclosed in Annexure-13
6.	Process of Deposition of sediments in the river of the district	Process of Deposition of sediments complied Page No.-103
7.	The proposed leases/ ghats should meet all the siting criteria of the State Pollution Control Board/SEIAA.	All sand ghats are prepared as per the guidelines of SPCB/SEIAA, Jharkhand. NH-100 Mtr

dsd



schandan



		SH-100Mtr Dist. Metal Road-50Mtr Habitation-200Mtr(CO Letter are Enclosed in Annexure-1) Report from concerned circle officer and DFO has been procured in prescribed format of SEIAA for all proposed sand ghats and attached as Annexure-1 & 2
8.	Sand sample analysis determining the bulk density of proposed sand ghats in the DSR sand.	Bulk Density report of sand from NABL Lab are complied in Annexure-16
9.	Average length and width of the river should be included and mining should be restricted to 3/4 th of the river width and mining should be restricted within 60% of the mineable reserve.	Complied in Annexure-21
10.	Point no.-9.3 of the EMGSM guidelines, 2020 regarding monitoring of the mining near inter-district or inter-state boundary should be addressed in the final DSR, if applicable.	With reference to the C.O report Ghatshila, Musabani, Gurabanda, Chakulia, Bahragora enclosed (Annexure-1). It is verified that none of the identified ghats in the District East Singhbhum is crossing any inter-district or inter-state boundary.

Therefore, you are requested for kind consideration and necessary action.

Thanking You

Sincerely


District Mining Officer
East Singhbhum


Asst. Director Geology
East Singhbhum

