



सत्यमेव जयते

## राज्य स्तरीय पर्यावरण समाघात निर्धारण प्राधिकरण, झारखण्ड

State Level Environment Impact Assessment Authority, Jharkhand

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पत्रांक:- 149

दिनांक:- 04.07.2023

प्रेषक:

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

सेवा में,

उपायुक्त,  
जिला : राँची।

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

प्रसंग : आपका कार्यालय का पत्रांक-715/खनन, दि0-15.06.2023।

महाशय,

उपर्युक्त विषयक आपके कार्यालय के प्रासंगिक पत्र दिनांक 15.06.2023 द्वारा राँची जिला का बालू खनिज से संबंधित DSR की एक प्रति अनुमोदन हेतु दिनांक 17.06.2023 को SEAC कार्यालय में ADS के अनुपालन में समर्पित किया गया।

तदनुसार SEAC, झारखण्ड की 105वीं बैठक दिनांक 15.06.2023 से दिनांक 19.06.2023 में Shri Sanjeev Kumar, District Mining Officer, Ranchi एवं Smt Anima Xess, Assistant Director, Geology, Ranchi की उपस्थिति में M/s Crystal Consultants, Ranchi द्वारा दिनांक 17.06.2023 में SEAC के समक्ष Presentation दिया गया, जिसमें DSR के Salient Feature 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 EMGSM guideline 2020.
3. The replenishment study of pre & post monsoon period is included in final DSR.

4. The final DSR had been placed in the public domain for 01 (One) month from the 29.04.2023. 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.
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 **Ranchi** को अनुमोदन हेतु भेजी गयी अनुशंसा के आलोक में SEIAA, झारखण्ड की 106वीं बैठक दिनांक 03.07.2023 एवं दिनांक 04.07.2023 में विचार किया गया।

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



राँची 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।  
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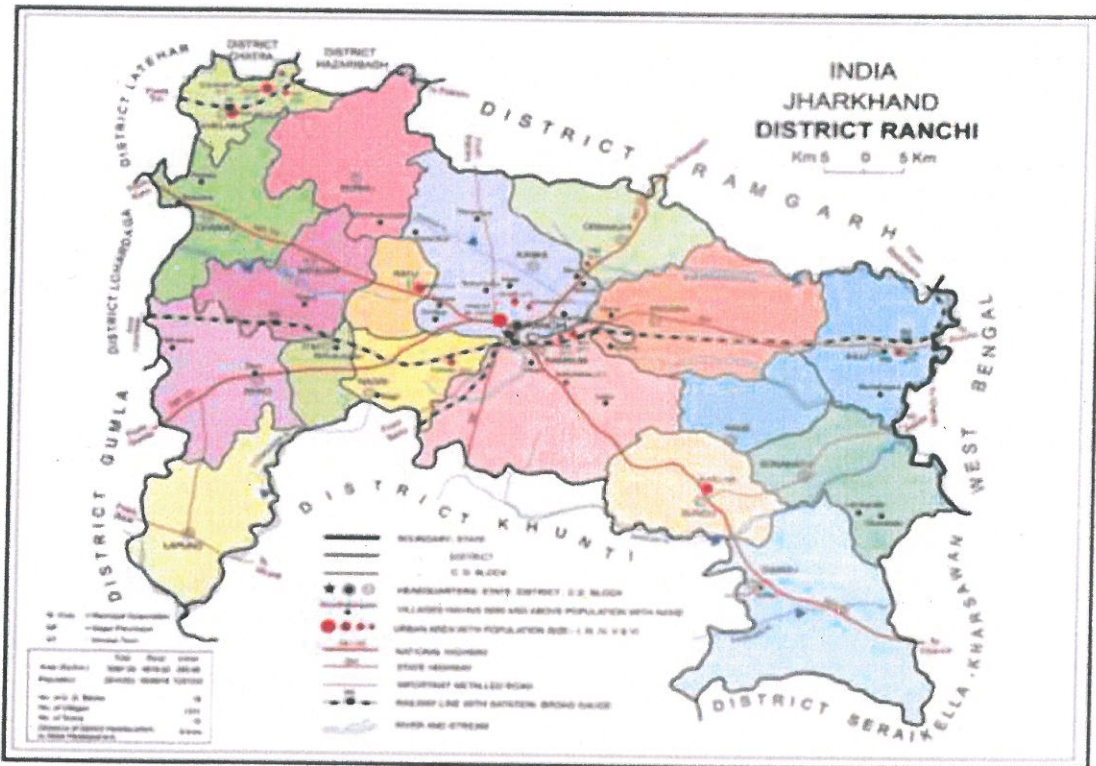




# DISTRICT SURVEY REPORT (DSR) OF SAND MINERAL

District: Ranchi (Jharkhand)

As per Notification No.- S.O.141 (E), 15th January, 2016 & S.O.3611 (E),  
25th July, 2018, of Ministry of Environment Forest and Climate change,  
Government of India, New Delhi

YEAR - 2023



PREPARED BY:	<b>SIGMA RESOURCE DEVELOPMENT CONSULTANTS PRIVATE LIMITED</b>	
	Consortium with	
	 QCI	 NABET
	<b>M/s CRYSTAL CONSULTANTS</b> <b>A QCI (NABET) ACCREDITED CONSULTANTS</b>	
	<b>CERTIFICATE NO. : NABET/EIA/2124/RA 0232</b>	
	<b>VALIDITY : 16/08/2024</b>	



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II	List of Potential Mining Leases (existing & proposed) Rivers
III	Cluster & Contiguous Cluster details Clusters:
IV	Transportation Routes for individual leases and leases in Cluster
V	Final List of Potential Mining Leases (existing & proposed) Rivers
VI	Final List of Cluster & Contiguous Cluster Clusters:
VII	Final Transportation Routes for individual leases and leases in Cluster
B	Pre monsoon data (certified by DMO)
C	Sand analysis report
D	NOC from CO
E	NOC from DFO(T)
F	NOC from DFO(WL)
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**CERTIFICATE**

The District Survey Report (DSR) for River Bed Sand Mining of Ranchi District has been prepared by SIGMA Resource Development Consultants Private Limited in consortium with M/s Crystal Consultants, a QCI (NABET) accredited consultancy firm (*Certificate No. : NABET/EIA/2124/RA 0232 & Validity:16/08/2024*).

District Survey Report of River Bed Sand Mining in the district is prepared under;

- ✓ MoEF & CC, GoI notification S.O. 141 ( E ) dated 15/01/2016
- ✓ Sustainable Sand Mining Guidelines, 2016
- ✓ Sand Policy of Govt. of Jharkhand, 2017
- ✓ MoEF & CC, GoI notification S.O. 3611 ( E ) dated 25/07/2018
- ✓ Enforcement and Monitoring Guidelines for Sand Mining 2020
- ✓ Jharkhand Minor Mineral Concession Rule, 2021

The information mentioned in the District Survey Report for River Bed Sand Mining of Ranchi District, Jharkhand are correct to the best of our knowledge and behalf.

*Shishu Kumar*




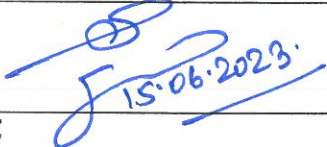


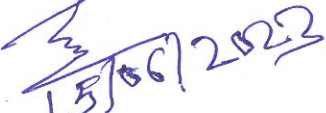
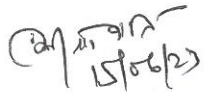
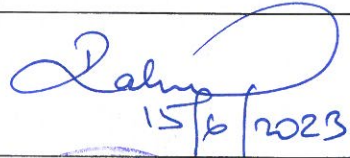

**Authorized Signatory**

**M/s Crystal Consultants**

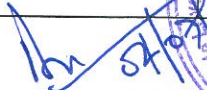
*Shishu Kumar*



**SIGNATURE OF DISTRICT AUTHORITIES**

Assistant Director (Geology), Ranchi	 15/6/2023
District Mining Officer, Ranchi	 15.06.2023
<b>SUB-DIVISIONAL COMMITTEE</b>	
Sub-Divisional Magistrate, Sadar, Ranchi	
Sub-Divisional Magistrate, Bundu	 15/06
Executive Engineer, Irrigation Division, Ranchi	 15/6/23
Executive Engineer, Irrigation Division, Khunti	
Regional Officer, State Pollution Control Board, Ranchi	 15/06/2023
Assitant Conservator of Forest, Ranchi (Nominated)	
Assitant Conservator of Forest cum Forest Range Officer, Tamar (Nominated)	 15/06/23
<b>DEPUTY COMMISSIONER, RANCHI</b>	 15/6/2023
<b>MEMBER SECRETARY, STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, JHARKHAND</b>	 15/06/2023

  
15/06/23  
Member  
State Level Environment Impact  
Assessment Authority, Jharkhand

  
15/06/2023  
Member Secretary  
State Level Environment  
Impact Assessment Authority  
Jharkhand

  
15/06/23  
Chairman  
State Level Environment Impact  
Assessment Authority, Jharkhand



# EXECUTIVE SUMMARY



### **Executive Summary**

1. This DSR for Sand Mining in Ranchi District has been prepared Keeping in consideration provisions in following documents
  - SSMG - 2016
  - EMGS - 2020
  - Sand Policy of Jharkhand State
  - Gazette Notification no 141(E) dt. 15.01.2016 & 3611 dt. 25.07.2018
2. This Report has been structured as recommended in Gazette Notification no 3611 dated. 25.07.2018.
3. Rivers flowing through the district where lease or sand mining can be allotted were preliminary identified on close study SOI Toposheet (1:50000) & KML map.
4. Potential Resource, which are stretch of length of river which is in mining zone as per provisions of EMGSM 2020 & SSMG 2016, were identified & marked on Toposheet.
5. In every river, numbers of PRA were identified.
6. This was followed by reconnaissance field survey. During survey location of PRAs were finalised.
7. After finalizing location of PRAs, field survey was conducted using D.G.P.S.
8. Temporary Bench Marks (TBM) were located near identified rivers. R.L. of these TBMs were determined by fly-levelling method of survey using Auto level. Reference Reduced Level were taken nearest Railway Station / Railway Bridge of spillway of nearest water Resource Project.
9. Geographical co-ordinates of cardinal points of identified PRA were measured by GPS.
10. Every PRA were divided into 10m x 10m grid.
11. Co-ordinates and reduced level of centre of grid were measured during field survey.
12. Reduced level of relevant points within every PRA were measured during post monsoon period (Nov - Dec 22).

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13. Reduced level at different points on sand deposits in different identified PRAs during pre-monsoon period were obtained from the District Mining Office.
14. Annual rate of replenishment of sand in PRAs has been determined using pre and post monsoon observed / measured RL.
15. Land details covered every PRA in respect of Plot No., Thana No. & name of mauza have been determined by use of mauza maps. .
16. Every PRA have been assigned an unique identification no.
17. Based on data collected during field survey, Gross Geological Reserve of sand available in every PRA have been calculated.
18. On both sides of PRA, 1/8<sup>th</sup> width of river will be left as no-mining zone. Mining will be confined to ¾ of river. Reserve of sand available in 3/4<sup>th</sup> width of river is mineable reserve. As per guidelines 60% of this mineable reserve is treated as extractable reserve.
19. Transport route for every PRA have been marked on Toposheet.
20. After this Report is approved by SEIAA, district authorities will issue LOI for allotment of lease for sand mining. Identified PRA will be split into suitable size for allotment of lease.

In this district PRAs have been identified on following rivers (6 rivers in Table-15). Table-15 shows river wise 19 nos. of PRAs in the district works out to 250.75 Ha & total extractable reserve works out to 31,73,127.75 cum. Total demand of sand for the district has been assessed as 15,16,739 cum. Total demand of sand for the district has been assessed based on guidelines given in document titled "Framework for Sand Mining" published by Ministry of Mines G.O.I.

Details covering name of rivers identified for sand mining, no. of identified Potential Resorce Area (PRA) their unique identification number (UIN), Area of identified PRAs, Geological reserve & extractable reserve are given in Table-15. Plate 2, shows rivers identified for sand mining & location of identified PRAs and Transport routes for evacuation of Sand.

Methodology for assessment of demand of Sand for the district is given in Para 1.4.



# CHAPTER-I



## **CHAPTER - I:: INTRODUCTION**

### **1.1 Regulatory Frame Work**

EIA notification 1994 published by MoEF & CC mandated that all mining project of all major minerals having lease area more than 5Ha. will have to obtain Environment clearance from designated regulatory authority. Mining projects for minor minerals were exempted from obtaining environment clearance.

EIA notification No. 1533 dated 14/09/2006 mandates that all activities listed in the schedule attached with the notification are required to obtain environment clearance from competent regulators. Mining activities are listed at Sl. No. 1(a) in the schedule. This notification exempted mining activities having lease area less than 5 Ha. from obtaining environment clearance.

Hon'ble Supreme Court in its judgement at 27<sup>th</sup> February, 2012 in 1A No. 12-13 of 2011 in special leave petition (C) No. 10628-19629 of 2009 in the matter of Deepak Kumar VS State of Haryana & other made prior environment clearance mandatory for minor minerals irrespective of area of mining lease. In order to comply with judgment of Hon'ble Supreme Court the MoEF & CC issued SO 141(E) dt. 15/01/2016. Further MoEF & CC published Sustainable Sand Mining Management Guidelines 2016 for scientific and sustainable sand mining in the Country. The recommendations for the management of sustainable sand extraction are the key objective of the Guidelines. This guideline recommended preparation of District Survey Report for potential sand mining lease in the District. Further the MoEF & CC vide notification SO 3611 (E) dt. 25/07/2018 provided the details on structure of DSR for sand mining projects.

### **1.2 Preparation of District Survey Report**

"Sustainable Sand Mining Guidelines, 2016" issued by MoEF & CC recommends 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 fixing, 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 depend on the quality of District Survey Report. Considering the importance of District Survey Report (DSR), 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.

- a) 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.
- b) The first step is to develop the inventory of the River Bed Material 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.
- c) 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.
- d) Defining the sources of Sand in the district is the next step for identification of the potential area of deposition/aggradation wherein mining lease could be granted. Detailed 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. Once the area of aggradation/deposition are 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 analysing 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.
- e) 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.

- g) 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.
- h) 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.
- i) 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.
- j) 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.
- k) 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.
- l) 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 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.



- m) 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 lease included in the DSR. The DSR should be placed in the public domain for at least twenty-one days from the date of publication of the advertisement for obtaining comments of the general public.

### **1.3 Structure of DSR**

Ministry of Environment, Forest & Climate Change has formulated "Enforcement and Monitoring Guidelines for Sand Mining 2020" to serve uniform protocol for monitoring & enforcement of regulatory provision prescribed for sustainable sand and gravel mining. Guideline serves as a guideline for collection of critical information for enforcement of regulatory provisions and also highlights the essential infrastructural requirements necessary for effective monitoring for sustainable sand mining. This documents supplement to "Sustainable Sand Mining Management Guideline - 2016"

*The structure of DSR suggested by MoEF & CC vide its notification S.O. 3611 (E) dated 25/07/2018 is given below;*

1. Introduction
2. Overview of Mining Activity in the District
3. The List of Mining Leases in the District with Location, Area & Period of Validity
4. Details of Royalty or Revenue Received in Last Three Years
5. Detail of Production of Sand or Bajri or Minor Mineral in Last Three Years
6. Process of Deposition of Sediments in the Rivers of the District
7. General Profile of the District
8. Land Utilization Pattern in the District: Forest, Agriculture, Horticulture, Mining etc.
9. Physiography of the District
10. Rainfall: Month-Wise
11. Geology & Mineral Wealth



#### **1.4 Demand and Supply**

Demand and supply of the river bed material through market survey needs to be carried out. In addition to this, future demand for the next five year also needs to be considered to justify the number and area of the sandghat to be included in the final DSR.

In this case demand for sand has been estimated as given below:

Ministry of Mines in the Govt. of India circulated a document titled "Sand Mining Framework". This document includes a paragraph on (Para 1.2.2) "demand supply estimation".

This document lays down two methodologies for estimation for demand for sand.

##### **(A) RBI Index Based Methodology**

State wise demand for sand in a State may be estimated in following manner

- i. Collect India's Construction GVA (RBI Handbook of Statistics on Indian Economy – Rs. 946396 Crores
- ii. Collect Jharkhand's construction GVA from RBI Handbook of statistics on Indian Economy – Rs. 20482 Crores.
- iii. Ratio of GVA for construction for India is calculated  $20482/946396 = 0.0216$
- iv. Obtain information on total sale of cement in the country during the period – 379MT (Source – website statistics)
- v. Obtain quantity of cement sold in Jharkhand =  $379 \times 0.0216 = 8.1864 \times 10^6$ MT
- vi. Quantity of Sand = Qty. of cement x conversion factor 2.5  
=  $8.1864 \times 2.5 = 20.46 \times 10^6$  MT  
= 20,460,000 Ton  
Bulk Density 1600 Kg/m<sup>3</sup>

Volume of Sand = 12,787,500 cum = 12.787 M cum



Projected Rate of growth of Economy World Bank has revised upward its GDP growth forecast for India to 6.9% for 2022-23

Growth of demand in sand will follow the rate of growth in GDP.

Specific demand for sand for the district of Ranchi has been estimated taking into consideration the population of Jharkhand and Ranchi district. The total demand for sand for Ranchi district has been obtained by multiplying the ratio of population of Ranchi to population of Jharkhand with total demand of the State. Using this logic total demand of sand for Ranchi brought out to 1809030 mt.

This demand will grow @ 7 % per year in future (as per budget 2023).

Sand ghat have been identified based on estimated demand for sand in future.

#### **1.5 Aquatic Animal Resource in the Area**

Jharkhand State Environment Appraisal Committee while appraising draft DSR for the district observed below-

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 (ZSI).

Accordingly, a letter has been addressed to Director, Zoological Survey of India with a request to kindly furnish a report on list of aquatic faunal resource found in the area. So far no response has been received from Director ZSI.

Subsequently, a letter has been addressed to District Fishery Department. District Fishery Department furnish a list of aquatic flora & fauna reply received from District Fishery Officer is attached at annexure F.

Report from ZSI is not received, above information have been obtained from a document titled "Faunal Resource & Assessment of impact of Mining Activities on Fauna of Chotanagpur area in Jharkhand" occasional paper No. 361 ZSI, Kolkata. The report includes list of aquatic animals including Amphibians & pisces. List of Amphibians & pisces are given below:

Class: AMPHIBIA



**Order: OSTEGLLOSSIFORMES Family: NOTOPTERIDAE**

1. *Notopterus notopterus* Pallas

**Order: CYPRINIFORMES Family: CYPRINIDAE**

2. *Amblypharyngodon mola* (Hamilton)
3. *Barilius bendelisis* (Hamilton)
4. *Catlacatla* (Hamilton)
5. *Cirrhinus mrigala* (Hamilton)



Name of the species
6. <i>C.reba</i> (Hamilton)
7. <i>Crossochilaslatuslatus</i> Hamilton
8. <i>Daniodangila</i> (Hamilton)
9. <i>D.rerio</i> (Hamilton)
10. <i>Esomusdanricus</i> (Hamilton)
11. <i>Garraannandalei</i> Hora
12. <i>G.gotyla</i> (Gray)
13. <i>G.mullya</i> (Sykes)
14. <i>G.satyendranathi</i> Ganguly&Datta
15. <i>Labeorohita</i> (Hamilton)
16. <i>L.boggut</i> (Hamilton)
17. <i>L.calbasu</i> (Hamilton)
18. <i>Osteobramacotiocotio</i> (Hamilton)
19. <i>Puntiuschola</i> (Hamilton)
20. <i>P.conchonus</i> (Hamilton)
21. <i>P.guganio</i> (Hamilton)
22. <i>P.sophare</i> (Hamilton)
23. <i>P.ticto</i> (Hamilton)
24. <i>Rasboradaniconius</i> (Hamilton)
25. <i>R.Megarasboraelanga</i> (Hamilton)
26. <i>Salmophasiaacinaces</i> (Valenciennes)
27. <i>Salmophasiabacaila</i> (Hamilton)



**Name of the species**

28. *Tortor*(Hamilton)

Family:COBITIDAE

29. *Lepidocephalichthusguntea*  
(Hamilton)

Family: NEMACHEILIDAE

30. *Acanthocobitisbotia*(Hamilton)

31. *Schisturadayi*Hora

32. *S.denisonii* Day

33. *S.savona*(Hamilton)

34. *Nemacheilussubfusca*(McClelland).

35. *Schistura zonata*(McClelland)Order:SILURIFORMES

Family:BAGRIDAE

36. *Spesataaor*(Hamilton)

37. *Mystuscavasius*(Hamilton)Family:SCHILBEIDAE

38. *Pseudeutropiusatherinoides*

Family:AMBLYCIPITIDAE

39. *Amblycepsmangois*(Hamilton)Family:SISORIDAE

40. *Gogatacenia*(Hamilton)

41. *G.sexualis*Tilak

42. *Glyptothoroxcoheni* Ganguli,Datta&Sen



**Name of the species**

Family:CLARIIDAE

43. *Clarias magur*(Hamilton)

Family:HETEROPNEUSTIDAE

44. *Heteropneustes fossilis*(Bloch)

Order:CHANNIFORMES

Family:CHANNIDAE

45. *Channamarulius*(Hamilton)

46. *C. punctatus*(Hamilton)

47. *C. gachua*(Hamilton)

48. *C. striatus*(Bloch)

Order:PERCIFORMES

Family:CHANDIDAE

49. *Parambassis baculis*Hamilton

50. *Chandanama*Hamilton

51. *Parambassis ranga*HamiltonFamily:NANDIDAE

52. *Nandus nandus*(Hamilton)

Family: CICHLIDAE

53. *Oreochromis mossambica*(Peters)

Family:MUGILIDAE

54. *Sicamugil cascasia*(Hamilton)



**Name of the species**

Family:GOBIIDAE

55. *Glossogobius giuris* (Hamilton)

Family:ANABANTIDAE

56. *Anabastudineus*(Bloch)

Family:BELONTIDAE

57. *Trichogasterfasciata*(Schneider)

Order:MASTACEMBELIFORMES

Family:MASTACEMBELIDAE

58. *Mastacembelusarmatus*(Lacepede)

59. *Macrornathuspanchalus*(Hamilton)



**Class: PISCES**

Subclass: TELEOSTOMI  
Order: OSTEOGLOSSIFORMES

Family: NOTOPTERIDAE

1. *Notopterus notopterus* Pallas

Order: CYPRINIFORMES Family: CYPRINIDAE

2. *Amblypharyngodon mola* (Hamilton)

3. *Barilius bendelisis* (Hamilton)

4. *Catla catla* (Hamilton)

5. *Cirrhinus mrigala* (Hamilton)

6. *C. reba* (Hamilton)

7. *Crossochilus latius* Hamilton

8. *Danio dangila* (Hamilton)

9. *D. rerio* (Hamilton)

10. *Esomus danricus* (Hamilton)

11. *Garra annandalei* Hora

12. *G. gotyla* (Gray)

13. *G. mulya* (Sykes)

14. *G. satyendranathi* Ganguly & Datta

15. *Labeo rohita* (Hamilton)

16. *L. boggut* (Hamilton)

17. *L. calbasu* (Hamilton)

18. *Osteobrama cotio* (Hamilton)

19. *Puntius chola* (Hamilton)

20. *P. conchonus* (Hamilton)

21. *P. guganio* (Hamilton)

22. *P. sophare* (Hamilton)

23. *P. ticto* (Hamilton)

24. *Rasbora daniconius* (Hamilton)

25. *R. Megarasporea elanga* (Hamilton)

26. *Salmophasia acinaces* (Valenciennes)

27. *Salmophasia bacaila* (Hamilton)



28. *Tortor*(Hamilton)  
Family:COBITIDAE
29. *Lepidocephalichthysguntea*  
(Hamilton)  
Family: NEMACHEILIDAE
30. *Acanthocobitisbotia*(Hamilton)
31. *Schisturadayi*Hora
32. *S.denisonii* Day
33. *S.savona*(Hamilton)
34. *Nemacheilussubfusca*(McClelland)
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- Order:SILURIFORMES  
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37. *Mystuscavasius*(Hamilton)
38. Family:SCHILBEIDAE
39. *Pseudotropiusatherinoides*  
Family:AMBLYCIPITIDAE
40. *Amblycepsmangois*(Hamilton)
- Family:SISORIDAE
41. *Gogatacenia*(Hamilton)
42. *G.sexualis*Tilak
43. *Glyptothoroxcoheni* Ganguli,Datta&Sen

M



Family:CLARIIDAE

43. *Clariasmagur*(Hamilton)

Family:HETEROPNEUSTIDAE

44. *Heteropneustesfossilis*(Bloch)

Order:CHANNIFORMES

Family:CHANNIDAE

45. *Channamarulius*(Hamilton)

46. *C.punctatus*(Hamilton)

47. *C.gachua*(Hamilton)

48. *C.striatus*(Bloch)

Order:PERCIFORMES

Family:CHANDIDAE

49. *Parambassisbaculis*Hamilton

50. *Chandanama*Hamilton

51. *Parambassis ranga*Hamilton

Family:NANDIDAE

52. *Nandusnandus*(Hamilton)

Family: CICHLIDAE

53. *Oreochromismossambica*(Peters)

Family:MUGILIDAE

54. *Sicamugilcascasia*(Hamilton)

Family:GOBIIDAE

55. *Glossogobiusgiuris*(Hamilton)

Family:ANABANTIDAE

56. *Anabastestudineus*(Bloch)

Family:BELONTIDAE

57. *Trichogasterfasciata*(Schneider)

Order:MASTACEMBELIFORMES

Family:MASTACEMBELIDAE

58. *Mastacembelusarmatus*(Lacepede)

59. *Macrognathuspanchalus*(Hamilton)



**1.6 PRAs located near inter district / interstate boundary**

In this district there are 4 PRA interstate and 7 inter district PRA located boundary as per CO report.

**1.7 This report was prepared based on following guideline laid down in two documents**

- Sustainable Sand Mining Guidelines – 2016
- Enforcement & Monitoring guidelines for Sand Mining – 2020

This document has been structured in line with recommendation in Gazette Notification No.3611 dated 25.07.2018.

In this document Potential Resource Areas for Sand Mining have been identified. These identified PRA's may be split into suitable size for allotment of mining lease. Siting criteria prescribed by Jharkhand Environment Impact Assessment Authority & Jharkhand State Pollution Control Board for mining projects is attached in Annexure – K for ready reference at the time of Splitting the PRA for mining lease.

An advertisement published on local newspaper dated 30<sup>th</sup> April, 2023. The Draft DSR was uploaded on District Portal from 27<sup>th</sup> April, 2023 to 28<sup>th</sup> May, 2023 for public consultation. The final DSR have been submitted to SEIAA after vetted by Sub- Divisional Committee.

**1.8 Transport Route**

Transport Routes for evacuation of sand mined from different PRAs have been marked for every finalised PRAs. These routes connect a particular PRA's to nearest District Road/State Highway/National Highway. They are enclosed at Annexure – A – VII.



## CHAPTER-II



**CHAPTER - II :: OVERVIEW OF MINING ACTIVITY IN THE DISTRICT**

Major Mineral - Coal, Gold Ore

Minor Mineral - Sand, Stone, Feldspar, Granite, Chinaclay, Limestone, Quartz & Soil

**SOURCE: WEBSITE OF DEPARTMENT OF MINES & GEOLOGY**

**Mineral Map of the District is given in fig. 1 below:**



**Fig. 1 Mineral Map of the District (Source-JSAC)**



# CHAPTER-III



**CHAPTER - III :: THE LIST OF SAND MINING LEASES IN THE DISTRICT WITH LOCATION, AREA & PERIOD OF VALIDITY**

As per the sand policy, 2017 the JSMD has been empowered to operate sandghats all over the state. JSMD did not operate any sandghat in the district since 2018.

**Table: 1**

**List of Sand Mining Leases in the District with Location, Area & Period of Validity**

Si. No.	Name of Sandghats	Name of River	Area (Ha.)	Location	Co-ordinate	Issue Date of LOI/Lease	Validity of LOI/Lease	Remarks
Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

*Source: Data Received from District Mining Office, Ranchi*



*Az*

# CHAPTER-IV



**CHAPTER – IV :: DETAILS OF ROYALTY OR REVENUE RECEIVED IN LAST THREE YEARS**

As per the sand policy, 2017 the JSMDc has been empowered to operate sandghats all over the state. JSMDc did not operate any sandghat in the District since 2018.

Royalty received in last three financial years by District Mining Office, Ranchi are given below in Table 2:

**Table: 2**

**Details of Royalty or Revenue received in Last Three Year**

Mineral	Royalty & Cess		
	2019-2020	2020-2021	2021-2022
Sand	Nil	Nil	Nil
Bajri	Nil	Nil	Nil

***Source: Data Received from District Mining Office, Ranchi***

*M*



# CHAPTER-V



**CHAPTER - V :: DETAIL OF PRODUCTION OF SAND OR BAJRI OR MINOR MINERAL IN LAST THREE YEARS**

As per the sand policy, 2017 the JSMDC has been empowered to operate sandghats all over the state. JSMDC did not operate any sandghat in the District since 2018.

Last 3 year production of sand or bajri in Ranchi District are given in Table 3;

**Table: 3**

**Details of Production of Sand received in Last Three Year**

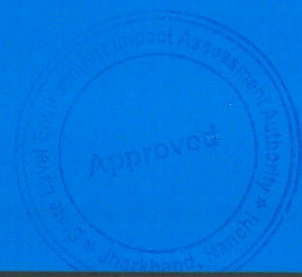
Mineral	Production (CFT)		
	2020	2021	2022
Sand	Nil	Nil	Nil
Bajri	Nil	Nil	Nil

**Source: Data Received from District Mining Office, Ranchi**

*An*



# CHAPTER-VI



## CHAPTER – VI :: PROCESS OF DEPOSITION OF SEDIMENTS IN THE RIVERS OF THE DISTRICT

### 6.1 Introduction

Sediment transport is the movement of organic and inorganic particles by water. In general, the greater the flow, the more sediment that will be conveyed. Water flow can be strong enough to suspend particles in the water column as they move downstream, or simply push them along the bottom of a waterway. Transported sediment may include mineral matter, chemicals and pollutants, and organic material.

Another name for sediment transport is sediment load. The total load includes all particles moving as bedload, suspended load, and wash load.



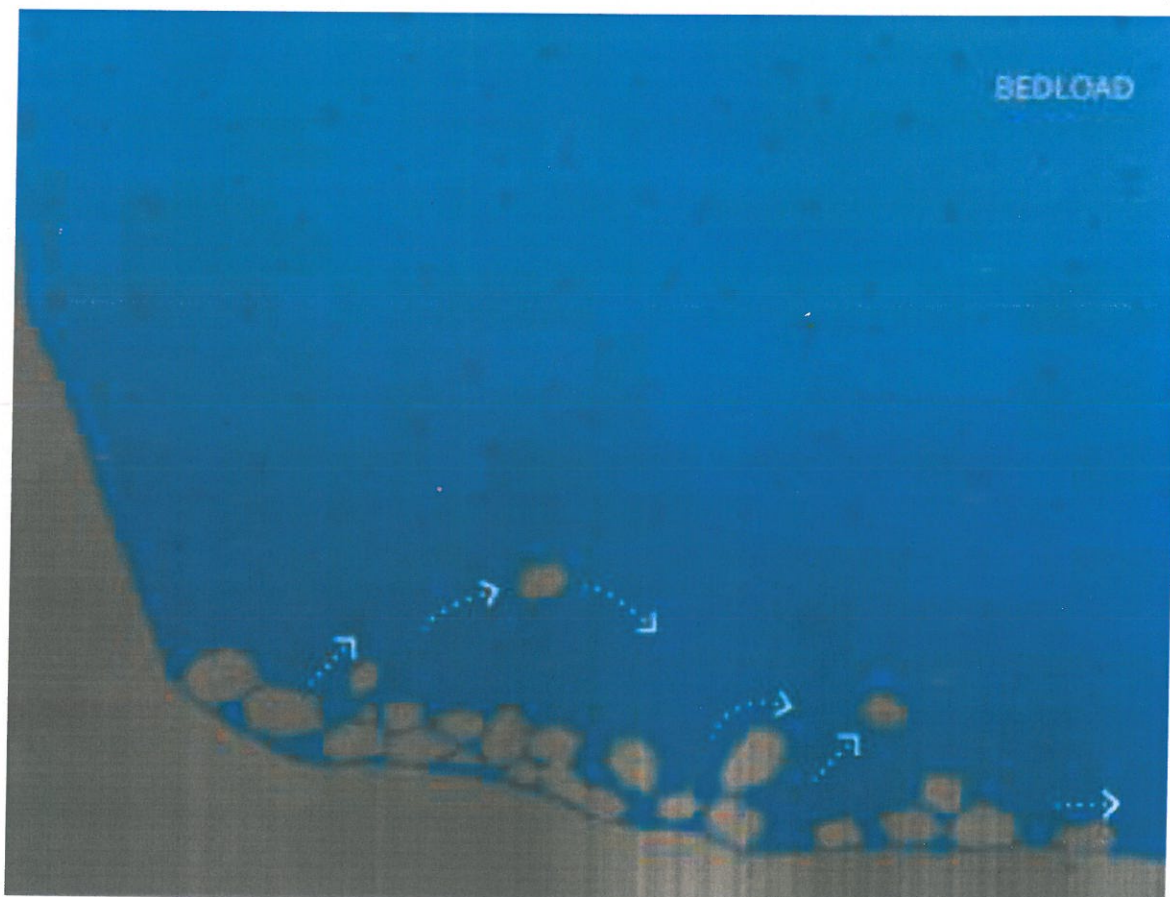
**Fig. 2 Sediment can be carried downstream by water flow (Source – CGWB)**

### 6.2 Bedload

Bedload particles travel with water flow by sliding or bouncing along the bottom. Bedload is the portion of sediment transport that rolls, slides or bounces along the bottom of a waterway. This sediment is not truly suspended, as it sustains intermittent contact with the streambed, and the movement is neither uniform nor continuous. Bedload occurs when the force of the water flow is strong enough to overcome the weight and cohesion of the sediment. While the particles are pushed along, they typically do not move as fast as the water around them, as the flow rate is not great enough to fully suspend them. Bedload transport can occur during low flows (smaller particles) or at high flows (for larger particles). Approximately 5-20% of total sediment transport is bedload. In situations where the flow rate is strong enough, some of the smaller bedload particles can be pushed up into the water column and become suspended.

*Ar*





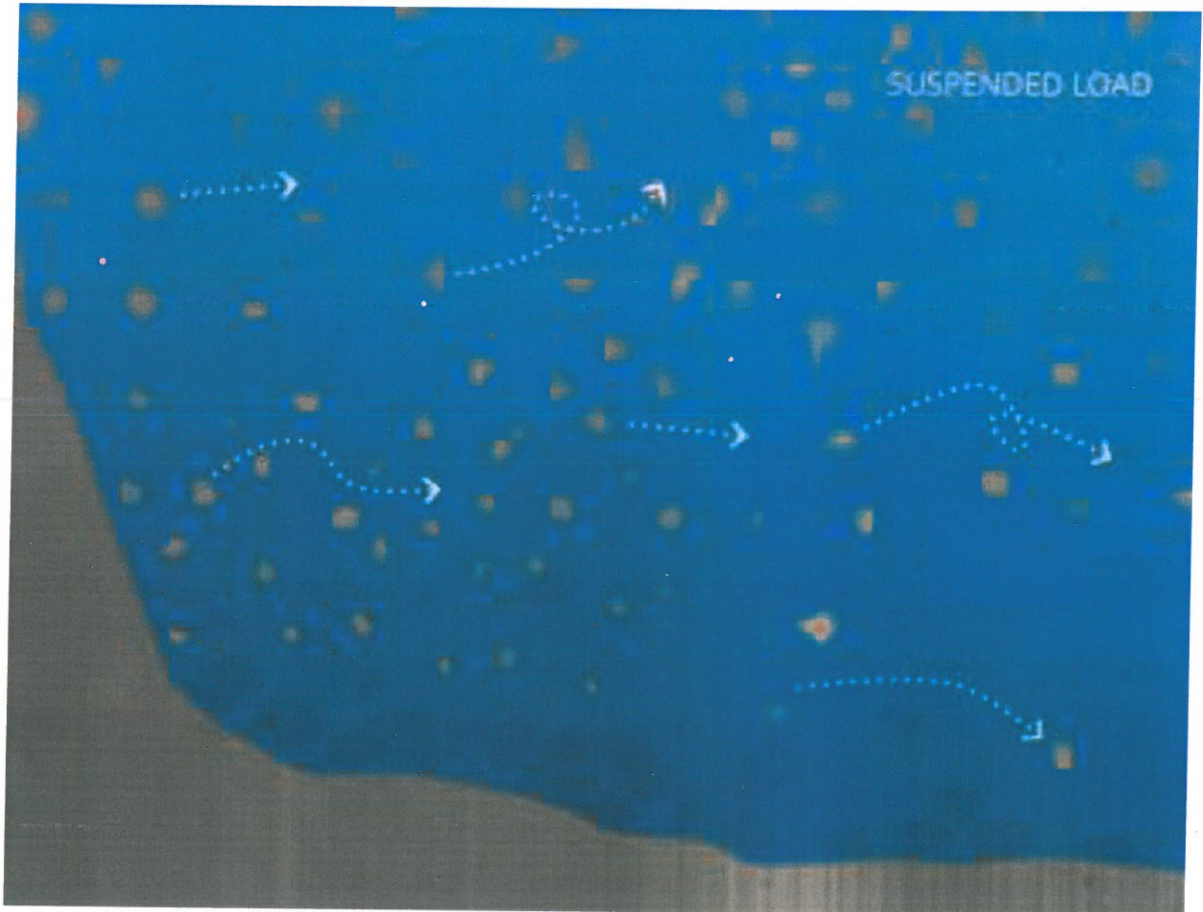
**Fig. 3 Bedload (Source - CGWB)**

### 6.3 Suspended Load

If the water flow is strong enough to pick up sediment particles, they will become part of the suspended load. While there is often overlap, the suspended load and suspended sediment are not the same thing. Suspended sediment are any particles found in the water column, whether the water is flowing or not. The suspended load, on the other hand, is the amount of sediment carried downstream within the water column by the water flow. Suspended loads require moving water, as the water flow creates small upward currents (turbulence) that keep the particles above the bed. The size of the particles that can be carried as suspended load is dependent on the flow rate. Larger particles are more likely to fall through the upward currents to the bottom, unless the flow rate increases, increasing the turbulence at the streambed. In addition, suspended sediment will not necessarily remain suspended if the flow rate slows.

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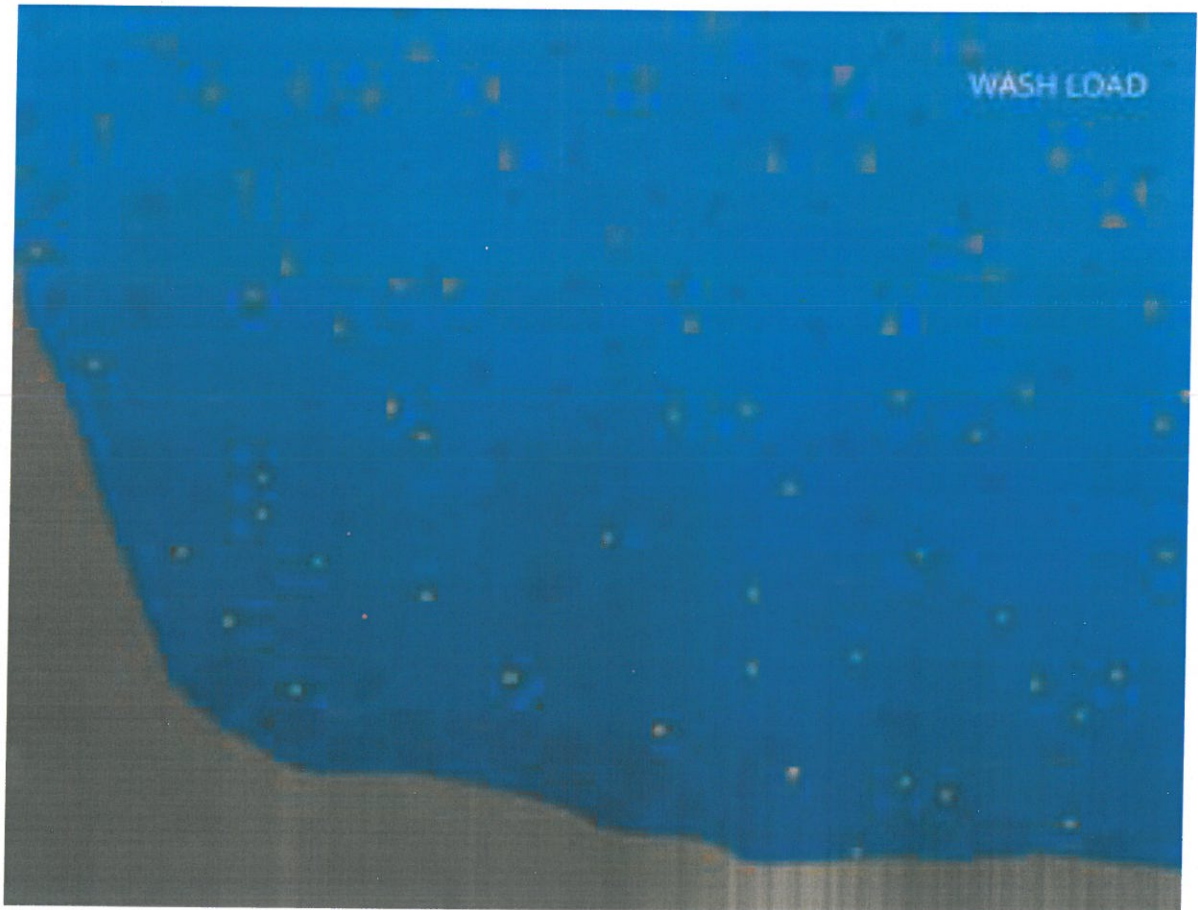
**Fig.4 Sediment Transport Mode (Source - CGWB)**

**6.4 Wash Load**

The wash load is the portion of sediment that will remain suspended even when there is no water flow. The wash load is a subset of the suspended load. This load is comprised of the finest suspended sediment (typically less than 0.00195 mm in diameter). The wash load is differentiated from the suspended load because it will not settle to the bottom of a waterway during a low or no flow period. Instead, these particles remain in permanent suspension as they are small enough to bounce off water molecules and stay afloat. However, during flow periods, the wash load and suspended load are indistinguishable. Turbidity in lakes and slow moving rivers is typically due the wash load 8. When the flow rate increases (increasing the suspended load and overall sediment transport), turbidity also increases. While turbidity cannot be used to estimate sediment transport, it can approximate suspended sediment concentrations at a specific location.

*AW*





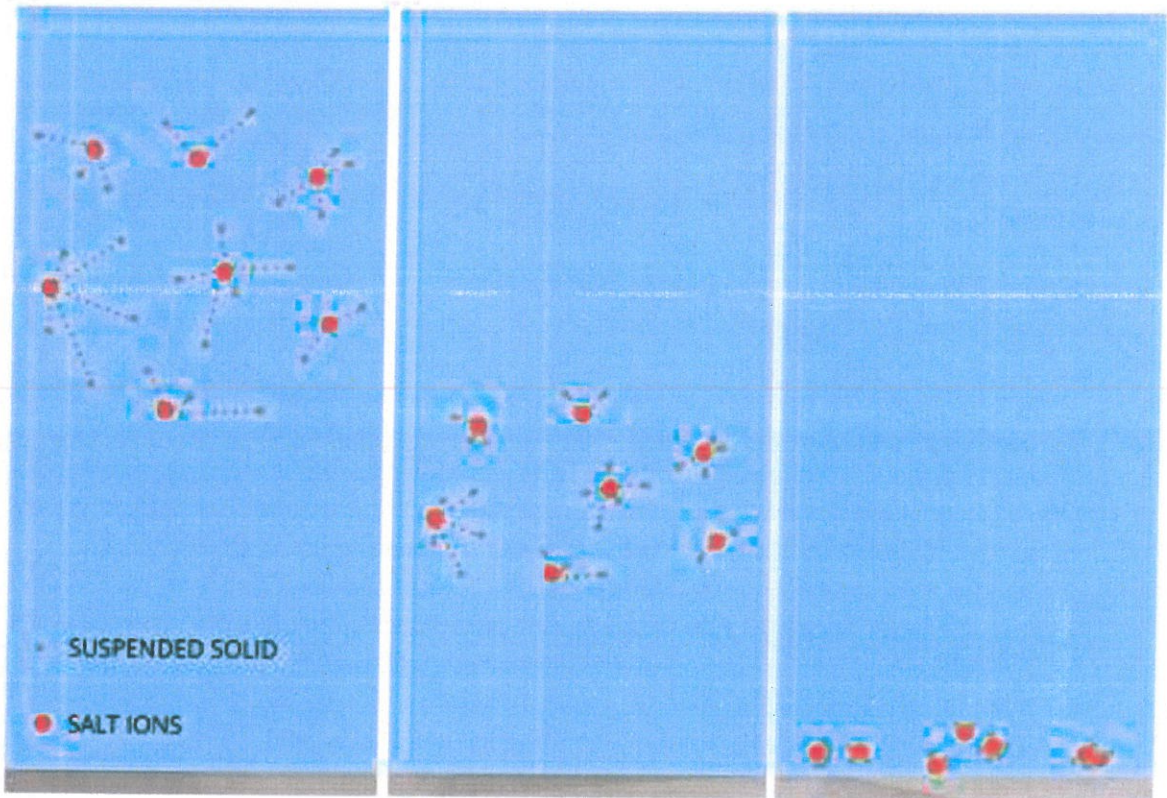
**Fig. 5 Wash Load (Source - CGWB)**

**6.5 Settleable Solids**

The suspended particles that fall to the bottom of a water body are called settleable solids. As they are found in riverbeds and streambeds, these settled solids are also known as bedded sediment. The size of settleable solids will vary by water system – in high flow areas, larger, gravel-sized sediment will settle out first. Finer particles, including silt and clay, can be carried all the way out to an estuary or delta.

*Am*





**Fig. 6 Settleable solid (Source - CGWB)**

**6.6 Sediment Deposition**

When the flow rate changes, some sediment can settle out of the water, adding to point bars, channel bars and beaches. Sediment is necessary to the development of aquatic ecosystems through nutrient replenishment and the creation of benthic habitat and spawning areas 10. These benefits occur due to sediment deposition – when suspended particles settle down to the bottom of a body of water. This settling often occurs when water flow slows down or stops, and heavy particles can no longer be supported by the bed turbulence. Sediment deposition can be found anywhere in a water system, from high mountain streams, to rivers, lakes, deltas and floodplains. However, it should be noted that while sediment is important for aquatic habitat growth, it can cause environmental issues if the deposition rates are too high, or too low.

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**Fig. 7 Sediment Deposition (Source - CGWB)**

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# CHAPTER-VII



**CHAPTER - VII :: GENERAL PROFILE OF THE DISTRICT**

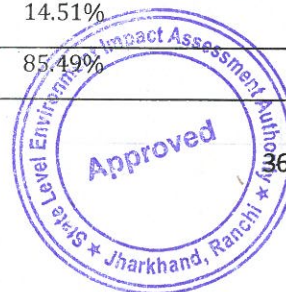
**7.1 Introduction**

General Profile of the district is given below in the Table 4;

**Table: 4 General Profile of the District**

District	Ranchi
Headquarter	Ranchi
No. of Sub Division	02
No. of Blocks	18
No. of Panchayats	305
No. of Villages	1,311
Area (Sq. Km.)	5,097
No. of Police Stations	48
Water Bodies	Subarnarekha River Jumar River Kanchi River Damodar River South Koel River Kharkhai River Bhur River Saphi River Lohagara River Mur River Sapahi River Kanke Reservoir Hatia Reservoir Getalsud Reservoir
Toposheet	F45A14, F45A15, F4516, F45B2, F45B3, F45B4, F45B6, F45B7, F45B8, F45B10, F45B11, F45B12, F45B15, F45B16, F45H9 & F45H13
Co-ordinate	Longitude : 22°52'N to 23°43'N Latitude : 84°51'E to 85°51'E
Total Population	29,14,253
Male Population	14,94,937
Female Population	14,19,316
Percentage urban Population	14.51%
Percentage Rural Population	85.49%

*m*



Sex Ratio	949
Child Sex Ratio (0-6)	980
Percentage Literacy	
<b>Male-</b>	72.59%
<b>Female-</b>	58.21%
ST Population	10,42,016
SC Population	1,52,943
Total Workers	11,42,867
Total Male Worker	7,43,967
Total Female Worker	3,98,900
Total Main Workers	7,56,176
Total Male Main Workers	5,53,949
Total Female Main Workers	2,02,227
Total Marginal Worker	3,86,691
Total Male Marginal Worker	1,90,018
Total Female Marginal Worker	1,96,673
Total Non-Worker	17,71,386
Total Male Non-Worker	7,50,970
Total Female Non-Worker	10,20,416

## 7.2 Drainage

The district is highly dissected by rivers of varying magnitude. The major water divide in the district runs north to south direction through the Ratu and Lodhma. The area in the eastern part of the water divide is drained by Subarnrekha and the western part of the divide is drained by South Koel and Karo. The important river basins are the Subarnrekha, the South Koel, the Damodar and the Karkari. The Kanchi and Raru are the tributaries of river Subarnrekha. The South Koel originates from Piska near Ranchi. The Karkari River drains the south eastern part of the district (Fig-8).

*Am*





Fig. 8 Drainage Map of Ranchi District (Source-JSAC)

**7.3 Geomorphology**

The northernmost and southernmost parts of the district are covered with hillocks and forests. Altitude of the area varies from 500m to 700m above mean sea level in general. There are many hillocks through the district having altitude 700m above mean sea level. The District is the part of Chotanagpur plateau.

*[Handwritten signature]*



#### 7.4 Soils

##### ***Soil Distribution and Classification***

During the course of image interpretation and field check, thirty six soil mapping units have been identified based on the variations in physiography, image characteristics and differences identified during the field traverse. thirty six soil series could be associated with these mapping units. The details of mapping units and soil series are given below:

- Soil series is broadly defined as a group of soils having soil horizons similar in differentiating characters and arrangement in soil profile, except for the texture of the surface soil, and develop from a particular type of parent material. Soils within a series are essentially homogeneous in all soil profile characters except for texture of the 'A' horizon, topographic position and depth to bed rock where these features do not modify greatly the kind and arrangement of soil horizons.
- Soil depth, thickness and arrangement of horizons are the main factors that discriminate one series from the other. As the scale of mapping is 1:50,000 and the Remote Sensing technology is deployed in differentiating the mapping units, association of two or three soil series is encountered in most of the cases single series is encountered very rarely.
- Information on soil depth and slope grade would enable feasibility assessment for levelling, terracing, deep ploughing etc. For example, if soil depth is less than 50cm and slope is over 5%, levelling with heavy machinery would bring subsoil strata to the surface and the precious surface soil would be lost.



Table - 5  
Physiography, Soils, Land Capability and Land Irrigability Classes:

Mapping Unit	Physiography	Soil Series	Soil Composition	Land Capability Sub-class	Land Irrigability Sub-class	Area (sq.km.)
<b>Alluvium:</b>						
301	Nearly level plain	Sangur	Fine loamy Fluvaquentic Epiaquepts	IIIw	3d	6.52
302	Very gently sloping plain	Gangatoli	Fine Oxyaquic Haplustalfs	IIs	2d	15.41
<b>Laterite:</b>						
303	Very gently sloping Plateau top	Nawatoli	Fine Kanhaplic Haplustalfs	IIs	3d	50.03
308	Low ridges/mounds	Kuchu	Loamy skeletal Typic Ustorthents	VIt	6t	20.29
309	Foot slopes of mounds	Chhapartoli	Fine loamy Typic Dystrustepts	IIIs	3t	7.92
<b>Granite &amp; Granite Gneiss Landscape Hills:</b>						
310	Denudational hill	Teontoli	Loamy Skeletal Typic Ustorthents	VIt	6t	198.37
311	Residual hill	Tirha	Loamy skeletal Lithic Ustorthents	VIt	6t	29.18
312	Dissected hills	Karantoli	Loamy skeletal Typic Ustorthents	VIt	6t	139.12
313	Inselberg	Tetra	Loamy skeletal Typic Ustorthents	VIt	6t	51.46



Pediment / Inselberg Complex:						
314	Low lands	Chama	Fine loamy Typic Dystrustepts	IIIlt	4t	98.90
315	Pediment Inselberg Complex	Teontoli	Loamy Skeletal Typic Ustorthents	Vlt	6t	278.81
316	Denudational hill	Teontoli	Loamy Skeletal Typic Ustorthents	Vlt	6t	30.66
317	Footslope	Tangarttoli Hundratoli	Fine loamy Typic Haplustepts Fine loamy Typic Dystrustepts	Vls	4t	40.59
Undulating Pediplain:						
318	Upper Pediplain	Kundo	Fine loamy Ultic Haplustalfs	IIIlet	3t	638.85
319	Middle Pediplains	Balia	Fine loamy Typic Rhodustalfs	IIIs	2t	450.10
320	Lower Pediplains-Gently sloping	Lodhma Jamtoli	Fine Ultic Haplustalfs Fine Ultic Haplustalfs	IVw	4d	160.88
321	Lower Pediplains	Salangapos	Fine Ultic Haplustalfs	IIIIs	3d	98.90
Valleys:						
322	Narrow Valley	Banrotoli	Fine loamy Typic Endoaquepts	IVw	4d	175.77
323	Broad Valleys	Patrotoli	Fine loamy Oxyaquic Ustifluvents	IIw	4d	8.66



**Very gently to gently sloping pediplains:**

324	Plains	Nagri	Fine loamy Typic Haplustepts	IIs	2d	597.85
325	Narrow Valley	Dolaicha	Fine Ultic Haplustalfs	IIs	2d	173.18
326	Broad valley	Lohana	Fine Ultic Haplustalfs	IIs	2d	304.22

**Schist Landscape:**

327	Hills: - Structural hills	Kudda	Fine Typic Haplustepts	VIt	6t	213.79
328	Uplands	Bartuwa	Loamy skeletal Lithic Ustorthents	VIt	6t	117.47
329	Lowlands	Dumbartoli	Fine loamy Udic Ustorthents	IIs	2d	6.89

**Landscape on Phyllite, Mica schist**

330	Structural hill	Joranga	Loamy skeletal Udic Haplustepts	VIt	6t	11.27
331	Undulating buried pediment	Hemromtoli	Fine loamy Typic dystrustepts	IIs	2s	4.13
332	Deep buried pediment	Rargaon	Fine loamy Udic Haplustepts	IIIs	3d	322.37
334	Broad valley	Tanbang	Coarse loamy Udic Haplustepts	IIs	2s	61.93

**Landscape on Sandstone with interbands of shale, silt stone and fire clay**

335	Structural hill	Mahuatoli	Loamy skeletal Lithic Ustorthents	VIt	6t	35.19
336	Uplands	Ganjhitoli	Fine Loamy Udic Haplustepts	IIIt	3t	39.48
337	Lowlands	Hasolong	Fine Loamy Udic Haplustepts	IIs	2d	5.89

**Landscape on Dolerite dyke/Quartzite**

338	Ridges / Dykes	Jarerel	Loamy skeletal Typic Haplustepts	VIt	6t	0.12
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<b>Landscape on Epidiorite/Metavolcanic rocks-mainly intrusives</b>					
<b>Landscape on Metabasic Rocks</b>					
342	Uplands	Ronhe	Fine loamy Typic Haplustepts	III <sub>s</sub>	3 <sub>s</sub> 13.97
<b>Landscape on Crystalline Limestone, Calcareous rocks</b>					
344	Ridges / Dykes	Hariharpur	Loamy skeletal Typic Dystrustepts	III <sub>st</sub>	3 <sub>t</sub> 139.79
345	Gently to moderately sloping upland	Jonha	Fine Udic Haplustepts	III <sub>s</sub>	3 <sub>s</sub> 161.04

**Note:** Minerology class is mixed in all the mapping units and temperature class is "hyperthermic".

**(Source - Soil Resources of Ranchi District, Jharkhand, JSAC & RSi)**



(Based on visual interpretation of IRS-P6 LISS-III)

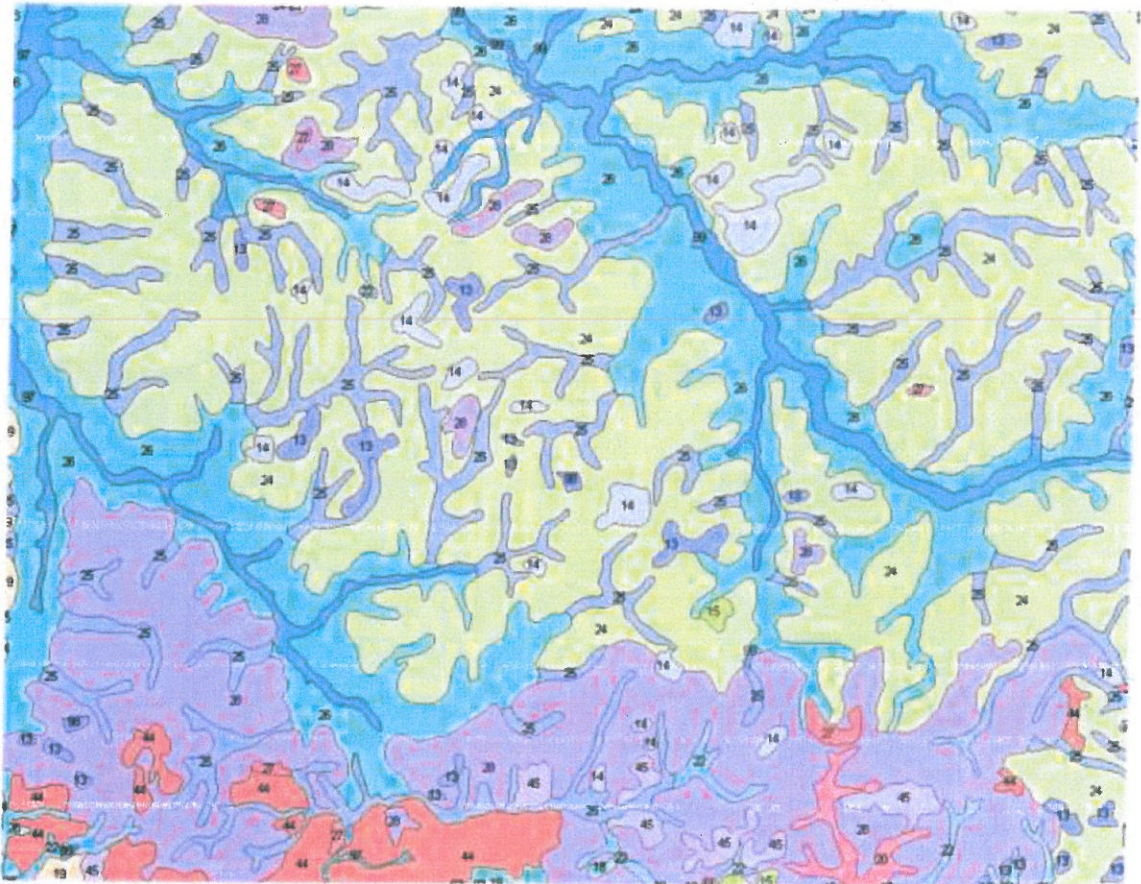


Fig.9. Soil map of the study area on the scale 1:50,000

#### **Alluvial Landscape**

This unit occurs along the river South Koel flowing in north-south direction. It consists of nearly level to very gently sloping plain. However, in Ranchi district both of the above lands are encountered. The soils are covered under paddy cultivation in Kharif season. The description of the mapping units and associated soils are given under.

#### **Nearly level alluvial plain: MU-301**

These are the nearly level plains with slopes varying from 0-1%. The area under this unit is 6.52- sqkm constituting 0.001% of geographical area of the district. Paddy is taken up as Kharif crop in this area. The soil series associated with this unit is Sangur and description of the same is given hereunder.

#### **Sangur**

Soils are deep, dark gray sandy clay loam in the surface and change to dark grayish brown sandy clay loam in the subsurface. The soil is neutral on the surface with pH 7 and it increases with the depth in the subsurface. They have nil to slight erosion, imperfectly drained and the water table is found at a depth of 170 cm. The

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mapping unit has very few limitations and qualifies for land capability class-IIIw and land irrigability class 3d. The soils are very deep with heavy textures.

***Very gently sloping alluvial plain: MU-302***

These are very gently sloping areas occurring along the river. They are having 1-3% slope but are levelled for cultivation of paddy in Kharif season. It is manifested on the image in

dark gray colour with smooth texture.

The soil series associated with this unit is Gangatoli. Soils are deep, grayish brown loam in the surface and change to brown sandy clay loam in the subsurface. The soil is acidic on the surface with pH 5.7, but the subsurface soil has normal soil reaction. They have nil to slight erosion, imperfectly drained and the water table is found at a depth of 140 cm. The mapping unit has very few limitations and qualifies for land capability class-II<sub>s</sub> and land irrigability class 2d. The extent of area covered by this unit is 15.41sq.km constituting 0.003 % of the district. The soils are very deep with heavy textures.

***Lateritic Landscape***

This unit is found in the northwestern and southwestern parts of the district. This landscape consists of nearly level to gently sloping plateau tops, steeply sloping side slopes, ridges and mounds and footslopes. The plateau tops have laterite cappings at places, which support poor vegetation cover. The detailed description of the landforms along with the soils associated with them is given below:

***Plateau Top***

The plateau top can be divided into two units namely nearly level and gently sloping and the details of the same along with the associated soil series are given below:

***Nearly level plateau top: MU-303:***

The slope varies from 0-1% and exhibit capping at some places; the soil series associated with this unit is Nawatoli series. The soils are deep, brown silty clay loam on the surface and yellowish brown to brownish yellow clay in the subsurface. The soils are acidic with pH ranging from 5.2 to 5.5. They have few limitations with respect to soil and topography categorized under Land capability class-II<sub>s</sub> and Irrigability class 3td. The extent of area covered under this unit is 50.03 sqkm. Constituting 0.01% geographical area of the district.

***Low-level ridges/mounds***

The slopes vary from gentle to strong. Strongly sloping mounds are exposures of boulders. Based on the slope this has been divided into two categories, namely strongly sloping and gently sloping.

***Strongly sloping: MU-308***

They have slopes varying from 10-15% and can be identified on the image by dark brownish green colour associated with red mottles. These units are associated with fairly dense scrub. The extent of area of this unit is 20.37sq.km constituting 0.004% of the geographical area of district. The soil series associated with this unit is Kuchu and description of the same is given below:

MS



***Kuchu***

Soils under this series are yellowish red (5 YR4/6) silty clay loam at surface. Solum extends up to 85 cm. pH of these soils is 5.1 at the surface and organic carbon is 0.9 %. Soils are free from neutral salts. Base saturation is low with 51%.

**Gently sloping: MU-309**

These gently sloping ridges have slopes varying from 3-5% and can be identified on the image by greenish brown colour associated with red mottled tone. These mounds are also covered by fairly dense scrublands. The extent of area covered by this unit is 7.92 sq.km accounting for 0.001% of the geographical area of the district. The soils associated with these units are Chhapartoli and the description of the same are given below:

***Chhapartoli***

Soils of Chhapartoli series are yellowish red (5YR5/6) in colour with sandy loam texture at surface and silty loam with sub surface. These are deep soils with solum depth of 100 cm. These soils are encountered on very gently slopes. pH of these soils is in the range of 5.1 to 5.2. Organic carbon is higher (0.55%) at the surface decreasing to 0.19% in the lowest horizon. Base saturation is higher at the subsurface (60%) and lower at the surface (51%).

**Granite and Granite gneiss landscape:**

This unit occurs extensively in the study area except in the eastern side with granite as the main rock type and phyllite and mica schist occurring as minor intrusions. Towards southwest on the border of Gumla district. Chota -Nagpur Gneissic complex covers the area. Several landforms have been identified in this landscape viz; denudational hills, residual hills, dissected hills, pediment/inselberg complex, undulating plains and valleys. The soils occurring in these units are described below:

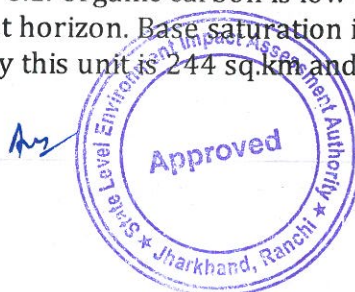
***Denudational hills: MU-310***

These are denudational hills; mostly occur in the highest elevation of the terrain. This unit occurs in the chotanagpur gneissic complex. These areas are severely eroded. Streams and streamlets emanate from this landscape. One soil series i.e. Teontoli occupies 60% of the area and remaining area is occupied by rocky i.e 40%. Descriptions of the soil series are provided here under. Total area occupied by this unit is 198.85 sq.km and constitutes .039% of the total area. These are classified under Loamy skeletal Typic Ustorthents.

***Teontoli (TT)***

Soils of Teontoli series are brown (7.5YR4/4m) in colour with graverly sandy loam texture at the surface and gravelly sandy clay loam in the sub surface. These are moderately deep with solum depth of 36cm. Coarse fragments occur throughout the profile, which are more than 35%. These soils are encountered on very steep slopes (>35%).

pH of these soils is in the range of 5.5 to 6.1. Organic carbon is low (0.42%) at the surface decreasing to 0.35% in the lowest horizon. Base saturation is between 64-68% in the profile. Total area occupied by this unit is 244 sq.km and constitutes to



6.4% of the total area. These are classified under Loamy skeletal, Typic Ustorthents.

***Residual hills: MU-311***

These are hilly areas of Granite and Granite Gneiss. These soils are severely eroded (e3) and rocky. About 80% of the area is barren rocky without vegetation except for bushes and grasses. Total area covered by this unit is 29.01 sq.km accounting for 0.0058% of the gross area. Residual hills have above 8% slope and support soil cover over 20% of the area where the soil series Tirha is identified. Description of Tirha series is provided hereunder.

***Tirha***

Soils of Tirha series are shallow, dark yellowish brown (10YR3.5/4m) gravelly sandy loams. Gravel percent is over 35. The solum is underlaid by lithic contact, which is hard to dig with spade. The slope varies from 25-35% and is covered with scrub vegetation. These soils are severely eroded. Gravels, cobbles and stones cover the surface. pH of these soils is around 6.5. Organic carbon is at 0.4%. Base saturation is low (68%). The total area covered by these soils comes to 29 sq.km, constituting 0.77% of the gross area. These are classified under Loamy skeletal family of Lithic Ustorthents.

***Dissected hills: MU-312***

These are hilly areas of Granite and Granite Gneiss. These soils are severely eroded (e3) and rocky. About 40% of the area is barren and rocky and is devoid of vegetation except for some scrubs. Total area covered by this unit is 139.12sq.km, constituting 0.027% of the gross area. Dissected hills have 15-25% slopes and support soil cover where one soil series, Karantoli is recognised; occurring upto 60% of the landscape. Description of Karantoli series is given hereunder.

***Karantoli (K)***

Karantoli soils are moderately deep with effective depth in the range of 30-35 cm. Textures are gravelly sandy loams, with gravel more than 35%. The area is severely eroded. The slope varies between 15-20%. Solum is underlaid by weathered Granitic murrum occurring mostly within 30cm. Murrum extends upto 100cm. These soils are under rainfed scrub vegetation. Most of the area is left barren. These soils have pH 5.4, which is slightly acidic in nature, and EC is less than 0.02 m.mhos/cm. Organic carbon content is low with value of 0.53%. Base saturation is low (65%). The total area covered by this series comes to 145 sq.km (3.8% of gross area). These are classified under Loamy skeletal family of Typic Ustorthents.

***Footslopes, Pediments and Inselbergs Landscape***

It consists of different mapping units viz. upland areas, dissected pediment and foot slopes and toe slopes. The details of units have been given below:



associated in this mapping unit. They occupy 40% each. Descriptions of these two series were provided with earlier section.

***MU-316: Uplands***

These areas are occurring in Chotanagpur Gnessic complex in pediplain areas. Slope gradient varies from 5-10%. These are severely eroded landscapes supporting moderately deep skeletal soils. Mostly these areas are under scrub vegetation. At some places they are under dry land agriculture. Total area occupied by this mapping unit is 30.66sq.km, computing to 0.006% gross area of the district. One soil series is identified in this area, i.e. Teontoli. Detailed discussion of this soil has been presented in the earlier section.

***MU-317: Dissected pediments/foot slopes***

These lands occur in and around the hilly topography and are moderate to severely eroded. Mostly these areas are under scrub lands intermixed with agricultural lands. As could be visualised, in kharif season, patches of cultivated areas would exist in between pediments and hills. The total area occupied by this mapping unit is 40.59sq.km, computing to 0.008% of gross area. Two soil series viz. Tangartoli and Hundratoli are identified in this unit occupying 60 & 40% of the total area, respectively. Descriptions of these two series are provided here under.

***Tangartoli (TA)***

Tangartoli soils are very deep, dark brown (7.5YR3/4m) sandy loams at surface and dark reddish brown (5YR3/3.5m) clay loam at sub-surface. The solum rests on hard murrum. These soils are found in moderately sloping areas on 5-7% slopes and are moderately eroded. Solum depth is between 100-160cm. These areas are mostly barren and crops like Jowar, Red gram, Castor etc. are grown wherever the lands are suitable for cultivation of crops. pH of these soils is 6.1 on the surface and 5.9 in the sub surface indicating they are slightly acidic side. OC is at 0.88% and is moderately high. Soils are low in base saturation (69%). The soils have light texture on the surface (sandy loam) and heavy texture in the lower layer (Clay loam, clay).

***Hundratoli (HU)***

Hundratoli soils are the associates of Tangartoli in mapping unit-17, occupying 40% of the area. These are reddish brown (5YR4/4m) sandy loams at surface and red (2.5YR4/6m) loam at sub-surface having solum depths of 50-60cm. Weathered granite is encountered down below. These areas possess 3-5% slopes and are subjected to moderate erosion. pH is around 5 which is at acidic side and EC is less than 0.04 mhos/cm. OC is less than 0.3%. Base saturation was almost same in the A1 and B1 horizons. Sand percent ranges between 57-81 in the profile. In the areas with some soil cover, Jowar, red gram and groundnut are grown. The total area occupied by this series computes to 140sq.km (3.7%). These soils are classified Fine loamy family of Typic Dystrustepts.

***Undulating Pediplain***

This landform has different physiographic units such as upper pediplain, middle pediplain and the lower pediplain. The details of the above mapping units and the soils associated with this unit is given below:

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**Upper Pediplain MU-318**

It is convex in shape, and can be identified by its, yellowish to greenish yellow colour on the image. These pediplains occur on the upper reaches of the undulating pediplains, mostly occurs as a water divider. They occur as irregular patches. Moderately active agriculture is observed in this area. Some pockets are gravelly but mostly free from coarse fragments. These areas have 3-5% local gradients but general gradients are 2-3%. The total area occupied by this unit computes to 638.85 sq.km forming 0.12% of gross area. Three soil series viz. Majhauli, Bathantoli and Kundo are identified to occupy this unit with 50, 25, 25% area coverages, respectively. Descriptions of these three soil series are provided hereunder.

**Bathantoli (B)**

Bathantoli soils are deep, strong brown (7.5YR4/6m) silty loam at surface and dark reddish brown (5YR3/3m) sandy clay loam at sub-surface with effective depths of 96cm. These soils occupy 25% of the mapping unit. They occur on 3-5% slope gradients and are subjected to moderate erosion. Some of these areas receive irrigation water from small tanks or from bore wells. Wherever irrigation is available paddy is taken but otherwise Jowar, pulses are mainly grown. Cutans are encountered in sub surface horizons. pH of these soils is 5.6 on the surface and decreases to 5 in the lower horizon. These soils are acidic in nature. OC is 0.6% at surface and gradually decreases to 0.21% in the lower horizon. Base saturation is low with values ranging from 46 on the surface to 59 in the sub surface. Clay varies from 22 to 32% and increases with depth. These soils occupy 142-sq.km areas and constitute 3.77% gross area. These are classified under Fine loamy Ultic Haplustalfs.

**Kundo (KN)**

Kundo soils are moderately deep, yellowish red (5YR5/6m) sandy loam at surface and partially weathred rock at sub-surface with effective depth of 30cm. These soils occupy 25% of the mapping unit. They occur on 5-10% slope gradients and subjected to severe erosion. pH of these soils is around 7.5 ESP is low. OC is 0.24% at surface. Base saturation is high (71%). Clay percent is 21. The upper horizon is fine sub surface is blocky. These soils occupy 140 sq.km accounting for 3.7% gross area. These are classified under Loamy skeletal Typic Ustorthents.

**Middle Pediplain: MU-319**

Gently sloping, mainly rainfed agricultural lands with yellowish green colour. These pediplains occur on middle reaches of the undulating pediplains, mostly above the tanks. They occur as irregular patches. Moderately good active agriculture is observed in this area. Some pockets are gravelly but mostly free from coarse fragments. These areas have 3-5% local gradients but general gradients are 2-3%. The total area occupied by this unit computes to 450.10 sq.km forming 0.089% of gross area. Two soil series viz. Balia and Majhauli are identified to occupy this unit at 50 & 40% area coverages, respectively. Descriptions of these three soil series are provided hereunder. Description of Majhauli is already provided in erlier section.

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**Balia (BA)**

Balia soils are very deep, reddish brown (5YR4/4m) sandy loam at the surface and dark reddish brown (2.5YR3/4m) sandy clay at the sub-surface with effective depth of >170cm. These soils occupy 50% of the mapping unit. They occur on 3-5% slope gradients and subjected to moderate erosion. Some of these areas receive irrigation water from small tanks or from bore wells. Wherever irrigation is available paddy is taken but otherwise Jowar, pulses are mainly grown. The structures is weak fine sub angular blocky. Cutans are encountered in sub surface horizons. pH of these soils is 5 in the surface and increases to 5.8 in the B2T. However the pH in B12 is low (5.1). The soils are acidic in nature and respond well for lime treatment. OC is 0.4% at surface and gradually decreases up to 0.27% in the lower layers. Base saturation is low (60-67%). Percent clay ranges between 21-45%, and increases with depth. These soils occupy 90 sq.km forming to 2.4% gross area. These are classified under Fine loamy family of Typic Rhodustalfs.

**Lower Pediplain-Gently sloping: MU-320**

Gently sloping plain with different tones due to the presence of different crops and other vegetation. These pediplains occur on lower reaches of the undulating pediplains, mostly occurs nearer to rivers and nalas. They occur as irregular patches. Intensive agriculture is observed in this area. These areas have 1-3% slope. The total area occupied by this unit is 160.88 sq.km forming 0.032% of gross area. Three soil series viz. Lodhma, Salangapos and Jamtoli are identified to cover this unit with 40, 40, 20% area coverages, respectively. Descriptions of these three soil series are provided hereunder.

**Lodhma (LD)**

These soils are very deep, grayish brown (2.5Y5/2m) clay loam at surface and light brownish gray to light olive brown (2.5Y6/2, 2.5Y5/3m) clay laoms in the lower layers. Coarse fragments (3-8%) are present throughout the profile. Slope varies from 1-3%. These soils are slightly eroded. Patchy thin cutans are encountered in last two horizons indicating the presence of argillic horizon pH of these soils is 5.2 at surface and increases to 6.1 in the lowest layer indicating that the soils are more acidic at surface than sub-surface. Organic carbon is 0.68% at surface and 0.3% down below. Base saturation is low and ranges between 48%-65% through out the profile. The texture is clay loam but the texture becomes heavier with depth. The total area covered by these soils is 142 sq.km forming 3.7% of gross area. These soils are classified under fine Ultic Haplustalfs.

**Salangapos (S)**

Salangapos soils are deep, dark yellowish brown (10YR3.5/4m) silty loam at surface and dark brown (10YR3/3m) sandy clay loam at sub-surface with effective depth of 82cm. These soils occupy 40% of the mapping unit. They have slope gradient of 2-3% and subjected to slight erosion. Some of these areas receive irrigation water from tanks or from streams/rivers. Paddy is the main crop taken up in this area. Patchy thin cutans are observed in sub surface horizons. The soils are acidic in nature. pH of these soils is 5.5 in the surface and increases to 5.9 in the

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sub surface. OC is 0.45% at the surface and gradually decreasing up to 0.3% in the lower layer. Base saturation is found lowest at the surface (49%) and increased gradually along with the depth. The texture varies from silt loam to sandy clay with percent clay ranging between 24 to 38%, and increases with depth. These soils occupy 454-sq.km area and cover 12% of the gross area. These are classified under Fine loamy Ultic Haplustalfs.

### ***Jamtoli (JA)***

Jamtoli soils are very deep, light yellowish brown (2.5Y6/4m) clay loam at surface and olive brown (2.5Y4/4m) clay at sub-surface with effective depth of >140cm, below which the water table exists. These soils occupy 20% of the mapping unit. They occur on 2-3% slope gradients and subjected to moderate erosion. These are occurring in patches in Undulating pediplains. Patchy thin cutans are seen in sub surface horizons.

pH of these soils is 4.6 at the sub surface and 6.6 in the lower horizons, which indicates acidic nature at surface. OC is 0.65% at surface and 0.24% to 0.41% in the sub-surface horizons. Base saturation is very low at surface (36%) and 69 to 71% in sub-surface (69 to 71%) horizon. Clay % varies from 34% to 46% with maximum clay content in the middle layer. These soils occupy 71 sq.km computing to 1.9% gross area. These are classified under Fine family of Ultic Haplustalfs.

### ***Lower Pediplain- Nearly level: MU-321***

It is nearly level plain area occurring between upper pediplain and stream courses. These pediplains occur on lower reaches of the undulating pediplains, mostly occur nearer to rivers and nalas. They occur as irregular patches. Intensive agriculture is observed in this area. These areas have general slope gradient of 0-1%. The total area covered by this unit is to .98.90 sq.km forming 0.019% of gross area. Only one soil series i.e. Salangapos is identified. Description of this soil series is already provided in earlier sections.

### ***Valleys***

These valleys are found along the rivers Swarnrekha in the East and South Koel in the northwest. Both narrow valleys and broad valleys are encountered in this landform and description of same is given as under:

### ***Valleys-narrow: MU-322***

These landscapes are narrow, elongated and represent the valleys emanating from hills and within plains. These valleys receive soil washed from surrounding landscapes. At places these are, severely eroded because of high slope gradient. Few patches are irrigated under small tanks, but otherwise agriculture is only under rain fed conditions. Total area

occupied by this mapping unit comes to 175.77 sq.km, forming 0.035% gross areas. Two soil series, Banrotoli and Patrotoli are recognised within this mapping unit. They cover in the proportion of 60 and 40% of the area respectively. Descriptions of these two series are provided here under.

### ***Banrotoli (BT)***

Soils of this series are very deep, brown (10YR4/3m) clay loam at surface and dark gray (10YR4/1m) loam in sub-surface horizons. Solum extends up to 110cm



and after 110cm water table is found. On computing the shallow pit data, most of the observations clustered within 140cm depths and hence Banrotoli soils are grouped under deep category. The surface and subsurface layers are acidic with pH ranging from 5.1 to 5.8. However, the lower layers have slightly high pH ranging from 6.3 to 6.4. The distribution of organic carbon is also irregular with maximum found in the second layer. It ranges from 0.2 to 0.06. Base saturation is very irregular within the profile with lowest value in the surface. Banrotoli soils represent 135 sq.km of mapping unit.322, forming 3.6% gross area. These are classified under Fine loamy family of Typic Endoaquepts.

#### ***Patrotoli (PT)***

These soils occupy 40% of the landscape under MU-322. Soils under this series are dark grayish brown (10YR3/3m) sandy clay loams at surface and brown sandy loams to sandy clay loams in sub-surface horizons, which are very deep. Solum extends up to 110cm. Coarse fragments range between 5-10% in sub-surface horizons. pH of these soils is uniform throughout the profile with values ranging from 6 to 6.1. Soils are free from neutral salts. Base saturation is low with values ranging from 53-60% and it was found to decrease with depth gradually. Total area occupied by these soils is 175.77 sq.km, computing to 0.035% gross area. These soils are classified under Fine loamy Oxyaquic Ustifluvents.

#### ***Valleys-Broad MU-323***

Broad valley is elongated in shape, nearly plain, fine textured with cyan tone. These landscapes are broad, elongated and represent the valleys emanating from hills and plains. These valleys receive soil washed from surrounding landscapes. At places these are severely eroded because of higher slope gradient. Most of these areas are under irrigation from tanks, but otherwise it is rainfed agriculture. Total area occupied by this mapping unit comes to 8.66 sq.km and constitutes 0.001% gross area. One soil series, Patrotoli is recognised within this mapping unit. Descriptions of this series are already provided in the earlier sections.

#### ***Very Gently-to-Gently Sloping Pediplains***

The slope varies from 1-3%. In this landscape three mapping units are identified viz pediplains, narrow valleys and broad valleys. Description of these mapping units is provided here under.

#### ***Pediains MU-324***

These pediains occur on lower reaches of the topography of Ranchi district. They occur as irregular patches. Intensive agriculture is observed in this area. These areas have 1-3% slope. The total area occupied by this unit is 597.85sq.km forming 0.119% of gross area. Three soil series viz. Nagri, Majhauli and Bathantoli are identified to occupy with 50, 30 and 20% of the area, respectively. Description of the Majhauli and Bathantoli are already provided in earlier sections. Descriptions of the Nagri soil series are given here under.



***Nagri (N)***

These soils are very deep, yellowish brown (10YR5/4m) clayey in texture at surface and dark brown to light brownish gray (10YR3/3,10YR6/2m) silty clay loam to loam in sub-surface horizons. Slopes of 1-3% converted to 0-1% slopes by levelling. These soils are slightly eroded. pH of these soils is 5.9 at the surface indicating the surface soils are acidic.

However, pH was found to increase with the depth with maximum of 8.4 at lowest horizon. EC varies from 0.023 to 0.032 mhos/cm. Organic carbon is 0.60% at surface and found to decrease with minimum of 0.12 % in the lower horizon. Base saturation was found to increase with depth with 71% in the surface and 79 % in lowest horizon. Significant variations were noticed in texture with in the profile. Heavy texture (clay) was found in the surface and textures have been found to be lighter (loam) in lower layers. . The total area occupied by these soils computes to 6 sq.km forming 0.1% of gross area. These soils are classified under Fine loamy family of Typic Haplustepts.

***Narrow valleys MU-325***

They are gently sloping and are characterized by agriculture and can be identified by curvilinear nature and cyan colour in the image. These landscapes are narrow, elongated and represent the valleys emanating from local uplands. These valleys receive soil washed from surrounding pediplain. Most of the areas are irrigated under small tanks, but otherwise agriculture is only under rain fed conditions. Total area occupied by this mapping unit comes to 173.18 sq.km, computing to 0.034% gross area. One soil series, Dolaicha is recognised within this mapping unit. Descriptions of this soil series are provided here under.

***Dolaicha (DA)***

Soils of this series are very deep, olive yellow (2.5YR6/6m) silty clay loam at surface and light olive brown (2.5YR5/6m) clay in sub-surface horizons. Solum extends, mostly up to 125cm and after 125cm partially weatherd parent material is encountered. On computing the shallow pit data, most of the observations clustered at more than 150cm depth and hence Dolaicha soils are grouped under very deep (d5) category. In these areas ground water depth is shallow. If water is available paddy is grown. pH is around 5.2 in the surface and increases with the depth with a maximum 7 in the lowest horizon (B3). OC ranges between 0.56% at the surface decreasing to 0.48% in sub surface. Base saturation is moderate in the Ap and B2 horizon layer with values ranging from 59%-69% and it was found to decrease with the depth with a minimum of 46 % in the lowest layer. These are classified under Fine family of Ultic Haplustalfs.

***Valleys-Broad MU-326***

These landscapes are broad, elongated and represent the valleys emanating from local uplands. These are valleys receiving soil washed from surrounding pediplain. Most of the areas are irrigated under small tanks and rivers. Main crop is paddy. Total area occupied by this mapping unit comes to 304.22 sq.km, computing to 0.06% gross area. One soil series, Lohana is recognised within this mapping unit. Description of this soil series is Provided here under.



**Lohana (LA)**

Soils of this series are very deep, brown (10YR4/3m) clay loam at surface and grayish brown (2.5Y5/2m) silty clay in sub-surface horizons. Solum extends, mostly up to 160cm. On computing the shallow pit data, most of the observations clustered at more than 150cm depths and hence Lohana soils are grouped within very deep (d5) depth class. In these areas ground water depth is shallow. If water is available paddy is grown. Patchy thin cutans are observed in sub-surface horizons. pH is 6 in A horizon but in B-horizon pH was found to vary between 6.0 to 7.3 and the values are found to increase with depth. However the maximum value (7.3) was found in B12 horizon. EC is very low (0.087 mhos/cm) at the surface. OC ranged between 1% to 0.72% with the maximum value in the top layer with. Base saturation is low at surface (51%) and increased with depth with a maximum of 83% in the last horizon. These are classified under Fine Ultic Haplustalfs.

**Schist Landscape**

This type of formation is seen in patches in different parts of the district except in the central part. In the landscape different landforms namely structural hills, uplands and lowlands are found to occur.

**Structural Hills MU-327**

These are structural hills, mostly forming at the highest altitude of the Schist terrain. These areas are severely eroded. Streams and streamlets emanate from this landscape. Total area occupied by this mapping unit comes to 213.79 sq.km, forming to 0.042% gross area. One soil series i.e. Kudda occupies 60% of the area and remaining area is covered by barren rocky i.e 40%. Description of the soil series is provided here under.

**Kudda (KD)**

Soils of Kudda series are dark grayish brown (10YR3.5/2m) gravelly clay loam at surface and very dark grayish brown (10YR3/2m) gravelly clay at sub surface horizon. These are moderately deep-to-deep with solum depth of 72cm. Coarse fragments occur throughout the profile, which are less than 15%. These soils are encountered on very steep slopes (>35%). The soil is acidic and the pH is 5.5 at the surface and increase to 6 in the subsurface. Organic carbon is 0.84% at surface reducing to 0.80% in the lower horizon. Base saturation is low. These soils are classified as fine Udic Haplustepts.

**Up lands MU-328**

This mapping unit represents upland within the Schist area. This unit is undulating with 10-15% slope and has severe erosion problems. These areas are under scrublands or under forest plants. Total area occupied by this mapping unit computes to 117.47 sq.km (0.023% gross area). One soil series Bartuwa is identified to be associated with this mapping unit. Bartuwa soils occupy 70% of the MU, and the

**Bartuwa (BR)**

Bartuwa soils are shallow, brown (10YR3.5/3m) gravelly loam at surface with partially weathered parent material in the sub-surface. These soils are



encountered on 10-15% slope gradients and are severely eroded. Barren rocky area is also encountered at many places. These areas are mostly under forest. The total area covered by this series is found to be 70 sq. km (1.8%). The pH is 5.8, which indicates that the soil is acidic in nature. Organic carbon is 0.6% and base saturation is 68%. These soils are classified under Loamy skeletal Typic Ustorthents.

***Lowlands MU-329***

These areas are occurring in Schist landscape. The slope gradient is 5-8%. These are slightly eroded landscapes supporting very deep soil cover. Mostly they are under scrub vegetation. At places they are under dry land agriculture. Total area occupied by this mapping unit is 6.89 sq. km, computing to 0.001% gross area of the district. One soil series is identified in this area, i.e. is Dumbartoli.

***Dumbartoli (DU)***

Dumbartoli soils are very deep, yellow (10YR7/6m) sandy clay loam at surface; dark grayish brown to very dark grayish brown (10YR4/2, 10YR3/20m) loam at sub-surface. These soils are encountered on 5-8% slope gradients and are moderately eroded. Barren rocky areas are also encountered at few places as intrusions. The pH is 6.2, which indicates slightly acidic in nature. Organic carbon content is 0.23%, which is at low level. These soils have base saturation of 69%. These areas are mostly under scrub forest and partly dry land agriculture. These soils are best suited for dryland agriculture. They are classified under Fine loamy Udic Ustorthents.

***Phyllite, Mica Schist Landscape***

It consists of variety of landforms, namely structural hills, upper pediplain, lower pediplain narrow valleys and broad valleys, mostly occurring in the south eastern side of the district along the river Swarnarekha. The extent of area covered by this landscape is 568.91sq.km. The description of the individual mapping units and the associated soils are given below:

**Structural hills: MU-330**

They are steep to very steeply sloping with slopes varying from 25-35%. They are covered with fairly dense scrub/vegetation. They are identified on the image by their characteristic brown to dull blue colour with red dotted tone. The extent of area covered by this unit is 11.27sq.km.(0.002%) The soil series associated with this unit is Joranga and the description of it is given below:

**Joranga**

Soils of Joranga series are brown (7.5YR3.5/4m) gravelly silty clay loam at the surface and clay loam in the subsurface. Gravel percent is over 45%. The slope varies from 20-25% and is covered with forest. These soils are severely eroded. Gravels, cobbles and stones cover the surface. pH of these soils is around 5.7. Organic carbon varies between 0.89 to 1.23% and the values are found to decrease with depth. Base saturation ranges from 66% to 70% and value the BS values are found to decrease with depth.

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***Upper pediplain MU-331***

This unit is undulating with slopes varying from 10-15%. It is covered mostly by open scrub. It can be identified on the image with dark brown colour mixed with red mottled tone. The extent of area covered by this unit is 4.13sq.km (0.0008%). The soil series associated with this unit is Hemromtoli and the description of the same is given below.

***Hemromtoli***

Soils of Hemromtoli series are dark grayish brown (10YR3/2m) sandy loam. The slope varies from 12-13% and is under paddy cultivation. These soils are moderately eroded. pH of these soils is around 5.4. Organic carbon is 1.14% at the surface and decreased with depth with a minimum of 0.78 in the last horizon. Base saturation ranges from 50%to 58%.

***Lower pediplain MU-332***

This landform is very gently sloping with slopes varying from 1-3%. This unit occurs in between pediplain and narrow valley. It is identified on image by medium cyan to greenish cyan tone with prominent drainage marks and the area is under rainfed cultivation. The extent of area covered by this unit is 322.37 (0.064%). The soil series associated with this unit is Rargaon and the description of the same is given below:

***Rargaon***

Soils of Rargaon series are moderately deep, brown (7.5YR4/4m) silty clay loam at surface and reddish brown (5YR4/4m) gravelly silty clay loam at sub surface. Coarse fragments occurs throughout the profile which are less than 10% at surface and around 35% in sub-surface. These soils are encountered on gently sloping areas with slope gradient of 1-3%.

The soils are slightly acidic in nature and pH varies between 6.3 and 6.4. Organic carbon is higher (1.21%) at the surface and decrease to 0.85% in the lowest horizon. Base saturation varies between 66-75% with maximum value found in the surface.

***Broad valleys MU-334***

They are very gently sloping with slopes varying from 1-3%. They can be identified on the image by mottle tone and prominent parcelling pattern. Broad valleys are mostly under paddy cultivation. The extent of area covered by this unit is 61.93 sq.km constituting 0.012%. The soil series associated with this unit is Tanbang and the same is described below:

***Tanbang***

Soils of this series are very deep, yellowish brown (10YR4.5/4m) sandy loam at the surface and yellowish brown (10YR5/4m) sandy loam in subsurface horizons. Solum extends, mostly up to 160cm. If water is available paddy is grown. pH is around 5.8 at the surface. In B-horizon, pH was found to vary between 6.0 to 6.2 and the values are found to increase with depth. However, the maximum value



(6.2) was found in B12 horizon. EC varied from .018 to .023 mhos/cm, OC ranged between 0.62% to 0.38% with the maximum value in the top layer. Base saturation is low at surface (64%) and increased with depth with a maximum of 67% in the last horizon.

***Landscape on sandstone with interbands of siltstone, shale, etc.***

This landscape has interbands of siltstone, shale, fire clay and coal and occurs mostly in northwestern side of the district. It has different landforms, namely structural hill/ridges, uplands and low lands and extend over an area of 90.28sq.km. The details of the landforms and the associated soils are given below:

***Structural hills/ridges MU-335***

They are steeply sloping with the slope of about 25%. The hills /ridges are curvilinear in shape, brown in colour with smooth texture. They are covered by fairly dense mixed forest areas. It extends over an area of 35.19(0.007%). The soil series associated with this unit is

Mahuatoli and the same is described below:

***Mahuatoli***

Soils under this series are reddish yellow (7.5 YR6/6m) gravelly sandy loam at surface. Solum extends up to 20 cm. pH of these soils is found to be 6.2 at the surface and organic carbon is 0.3 %. Soils are free from neutral salts and base saturation is low (62%).

***Uplands MU-336***

They are gently to moderately sloping with slopes varying from 5-8%. They can be identified on the image by dark mottled tone. The unit is covered by partly by scrub vegetation and partly by agriculture. The extent of area covered by this unit is 39.48 constituting 0.007% of the total geographical area. The soil series associated with this unit is Ganjhitoli and the description of the same is given below:

***Ganjhitoli***

Soils of this series are deep, brownish yellow (10YR6/6m) loam at surface and dark yellowish brown (10YR4/6m) loam in sub-surface horizons. Solum extends up to 130cm. pH is around 7.5 in the surface. In B-horizon pH was found to vary between 7.3 to 7.6 and the values are found to increase with depth. However, the maximum value (7.6) was found in B12 horizon. EC is found to vary from 0.081 to 0.082 mhos/cm. OC ranged between 0.21% to 0.09% with the maximum value in the top layer. Base saturation is moderate at surface (81%) and decreased with depth.

***Lowlands MU-337***

These are gently sloping with about 3% slope. They can be identified on the image by light dull greenish brown colour. This unit is mostly under rainfed agriculture. The extent of area covered by this unit is 5.89sq.km constituting 0.001% of the total geographical area of the district. The soil series associated with this unit is Hasolong and the same is described below:

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***Hasolong***

Soils of this series are deep, grayish brown (2.5Y5/2m) sandy loam at surface and light olive brown (2.5Y5/4m) sandy clay loam in sub-surface horizons. Solum extends, mostly up to 130cm. pH is around 7.2 but in B-horizon pH was found to vary between 6.9 to 7.1 and the values are found to decrease with depth. However, the maximum value (7.2) was found in Ap horizon. EC varied from 0.29 to 0.37 mhos/cm. OC ranged between 0.81% to 0.48% with the maximum value in the top layer. Base saturation is higher at surface (73%) and decreased with depth.

***Dolerite (Dyke) / Quartzite Landscape MU-338***

Dykes are narrow elongated high relief areas mostly occurring at higher altitude (500m above msl). These areas are severely eroded. Total area occupied by this mapping unit comes to 0.12 sq.km, forming 0.00% of the total geographical area of the district. One soil series i.e. Jarerel occupies an area of 30% and the remaining area is occupied by barren rocky area. Description of the soil series is given here under.

***Jarerel (J)***

Soils of Jarerel series are red (2.5YR5/8m) colour graverly clay loam at surface and red (2.5YR4/6) gravelly loam at sub surface horizon. These are shallow to moderately deep with solum depth of 30-40cm. Coarse fragments occurs throughout the profile which are less than 15% at surface and around 35% in sub-surface. These soils are encountered on hills with slope gradient of 20-25%. The soils are slightly acidic in nature and pH of these soils varies between 6.3 and 6.4. Organic carbon is very less (0.23%) at the surface and increase to 0.65% in the lowest horizon. Base saturation varies between 64 at the surface and 61% at sub-surface. These soils are classified as Loamy skeletal Typic Haplustepts.

***Landscape on Epidiorite / Metavolcanic rocks-mainly intrusive***

This geological formation is seen in all parts of the district in patches except in the central part. The landforms associated with this formation are structural hills, which are steeply sloping and upland with moderate slopes. The details of the landforms and associated soils with them are given below:

***Landscapes on Metabasic rocks***

This geological formation is seen in eastern and southern parts of the district in patches. The landforms associated in these landscapes are ridges, low hills with steep slopes, upland in between the ridges and the lowlands. The soils associated with these landforms are described below:

***Ronhe (R)***

Ronhe soils are deep, yellowish red (5YR5/6m) sandy loam at surface and reddish brown (5YR4/4m) clay loam in sub-surface with partially weathered parent material below. These soils are encountered on 5-10% slope gradients and are severely eroded. Barren rocky areas are encountered at few places. The pH is less than 6.0 throughout the profile, which indicates acidity. Organic carbon content is

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low (0.2%). These soils have base saturation of around 63%. These areas are mostly under agriculture intermixed with scrub vegetation.

***Landscape on Crystalline Limestone, Calcareous rocks***

This formation is seen in the south central parts of the district in a limited area. The landform associated with this landscape is ridges that are gently to strongly sloping and uplands that are gently to moderately sloping. The details of the soils occurring in these units are given below:

***Ridges MU-344***

These are narrow elongated highly relief areas, mostly occurring in high altitude (500m msl). These areas are severely eroded. This unit is occurring as an intrusion in this district. Total area occupied by this mapping unit comes to 139.55 sq.km, (0.027%). One soil series i.e. Hariharpur occupies 30% of the area and the remaining 70% area is covered by rock outcrops. A description of the soil series is provided here under.

***Hariharpur (HA)***

Soils of Hariharpur series are reddish brown (5YR4/4m), gravelly sandy loam at the surface and dark reddish brown (5YR3/3m), gravelly sandy clay loam in the sub surface horizon. These are moderately deep with solum depth of 50 cm. Coarse fragments occur throughout the profiles, which are less than 15% at surface and around 35% in sub-surface. These soils are encountered on 15-25% slopes. The pH of these soils is around 6.8. Organic carbon is 0.87% at the surface and 0.83% in the last horizon. Base saturation is 56% in the surface and increases with the depth (66%). These are classified as Loamy skeletal Typic Dystrustepts.

***Gently to moderately sloping upland MU-345***

This unit has slopes varying from 5-10%. This unit can be identified by dull bluish tone and coarse texture. It is covered by open scrub. The extent of area under this unit is 161.04

sq.km constituting 0.032% of the total geographical area of the district. The soil series associated with this unit is Jonha and description of the series is given below.

***Jonha***

Soils of Jonha series are yellowish red (5YR5/6m) in colour with sandy clay texture at surface and clay with sub surface. These are deep soils with solum depth of 100 cm. These soils are encountered on gentle slopes. pH of these soils is in the range of 5.2 to 6.3. Organic carbon is lower (0.21)% at surface decreasing to 0.06% in the lowest horizon. Base saturation is higher at the lowest horizon (68%) and lower at the surface (55%).

**7.5 Hydrogeology**

The district is having varied hydrogeological characteristics due to which ground water potential differs from one region to another. It is underlain by Chotanagpur granite gneiss of pre-Cambrian age in three-fourth of the district. In Ratu and Bero blocks thick lateritic capping is placed above granite gneiss. A big patch of older

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alluvium is found in Mandar block extending from Brombay and murma areas. Khelari (northernmost portion) area consists of Limestone rocks.

***Aquifer systems***

Two types of aquifers are found. Weathered aquifer and fractured aquifers. Thickness of weathered aquifers varies from 10-25 m in granite terrain and 30-60m in lateritic terrain. In weathered aquifer ground water occurs in unconfined condition while in fractured aquifer ground water occurs in semi confined to confined condition.

***Aquifer geometry***

The aquifer geometry for shallow and deeper aquifer has been established through hydro geological studies, exploration and the surface and sub-surface geophysical studies in the district.

***Shallow aquifer***

The shallow aquifers are being tapped through dug wells, dug -cum borewells and hand pumps. The thickness of weathered mantle varies from 5 to 20 m.bgl. In lateritic terrain many dug wells dry up during summer months. Hand pumps generally tap first fracture zones and its depth is 30-40 m.bgl.

***Deeper aquifer***

In granite gneiss terrain area first fracture occurs between 50-70 m and second fracture is found between 100-120 m depth. Discharge of borewells varies between 10 to 30 m<sup>3</sup>/hr in these areas. Drawdown varies between 13 to 20 m. In lateritic terrain of Nagri first fracture zone is found between 60 to 75 m.bgl and second fracture zone is between 90 to 100 m.bgl. Third set of fracture can be found between 150-200m.bgl depth. Discharge may vary between 15 to 25 m<sup>3</sup>/hr. Drawdown may vary between 20-25 m.

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## 7.6 Depth to Water Levels

### *During pre-monsoon season*

Dug wells were inventoried to know about water level scenario. Depth to water level varies between 6.11 m.bgl. (Dorma) to 10.94 m.bgl in Bero locality. In the lateritic terrain of Ratu, Nagri, Mandar areas water level even goes upto 11 to 12 m.bgl. During summer seasons Dug wells become unsustainable for drinking and irrigation purposes. During peak summer season's deeper water levels may be observed in dug wells. Four zones can be deciphered from the pre-monsoon water level data analysis. Tamar, Lapung and Berro areas have water level more than 10 m.bgl., Parts of Bundu, Sonahatu, Itki, Mandar, Chanho, Burmu and Khelari areas where water level varies between 8-10m.bgl. Nagri, Ratu, Kanke and Ormanjhi areas where water level varies between 6-8 m.bgl. Major parts of Namkum, Silli block, Rahe block and parts of Angara and Kanke varies between 4-6 mbgl.

### *During post-monsoon season*

Dug wells were monitored during November 2012 to know the post-monsoon depth to water levels in the district. Three zones can be deciphered. Water level varies between 6-8 m.bgl in parts of Tamar, Lapung and Berro blocks. Water level varies between 4-6 mbgl in Parts of Sonahatu, Silli, Angara, Itki, Mandar, Chanho, Burmu and Khelari blocks and in Namkom, Bundu, Rahe, Nagri, Ratu, Kanke, Ormanjhi blocks and Parts of Mandar, Angara block water level varies between 2-4m.bgl.



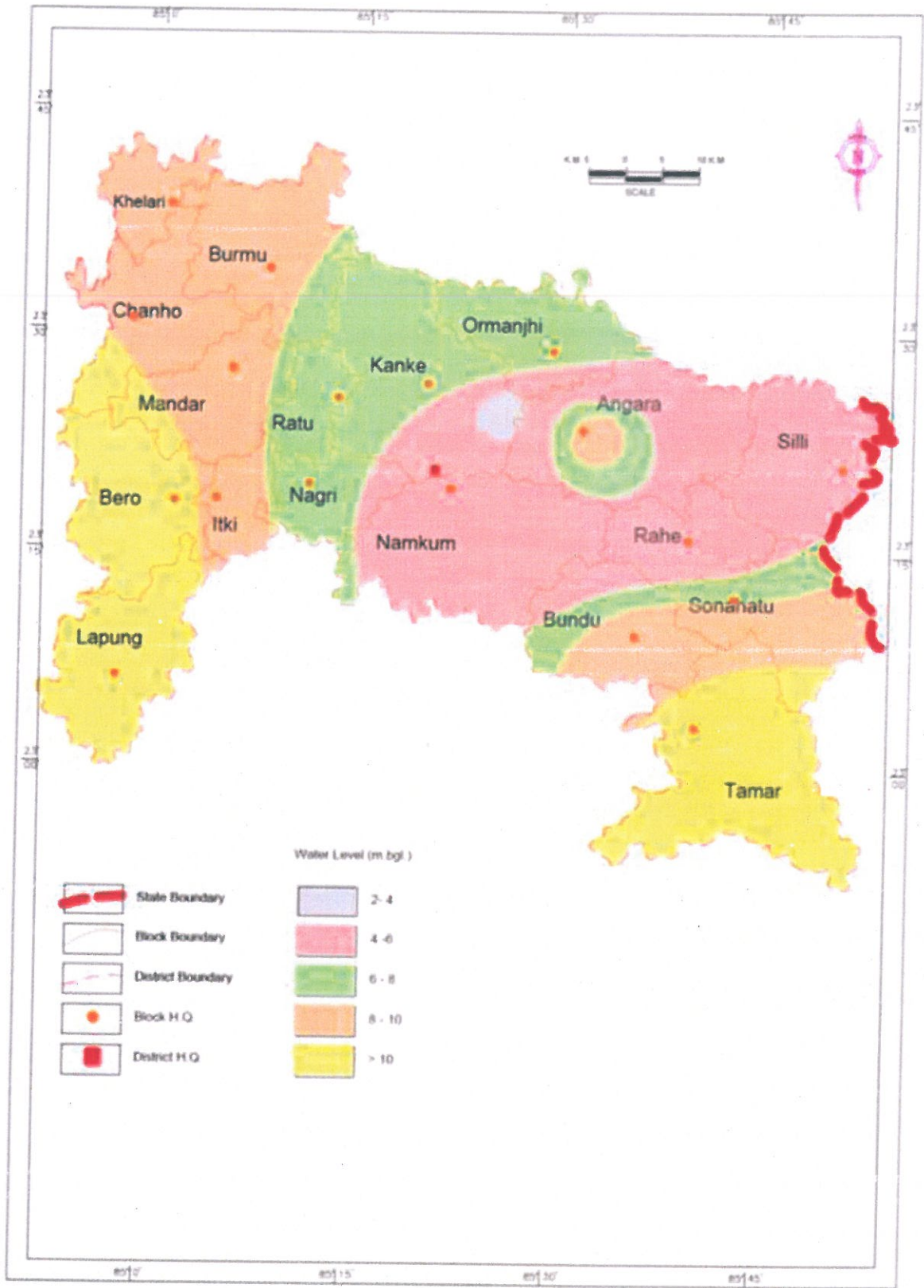


Fig. 11 Pre - Monsoon Depth to Water Level Map of Ranchi District (Source-CGWB)

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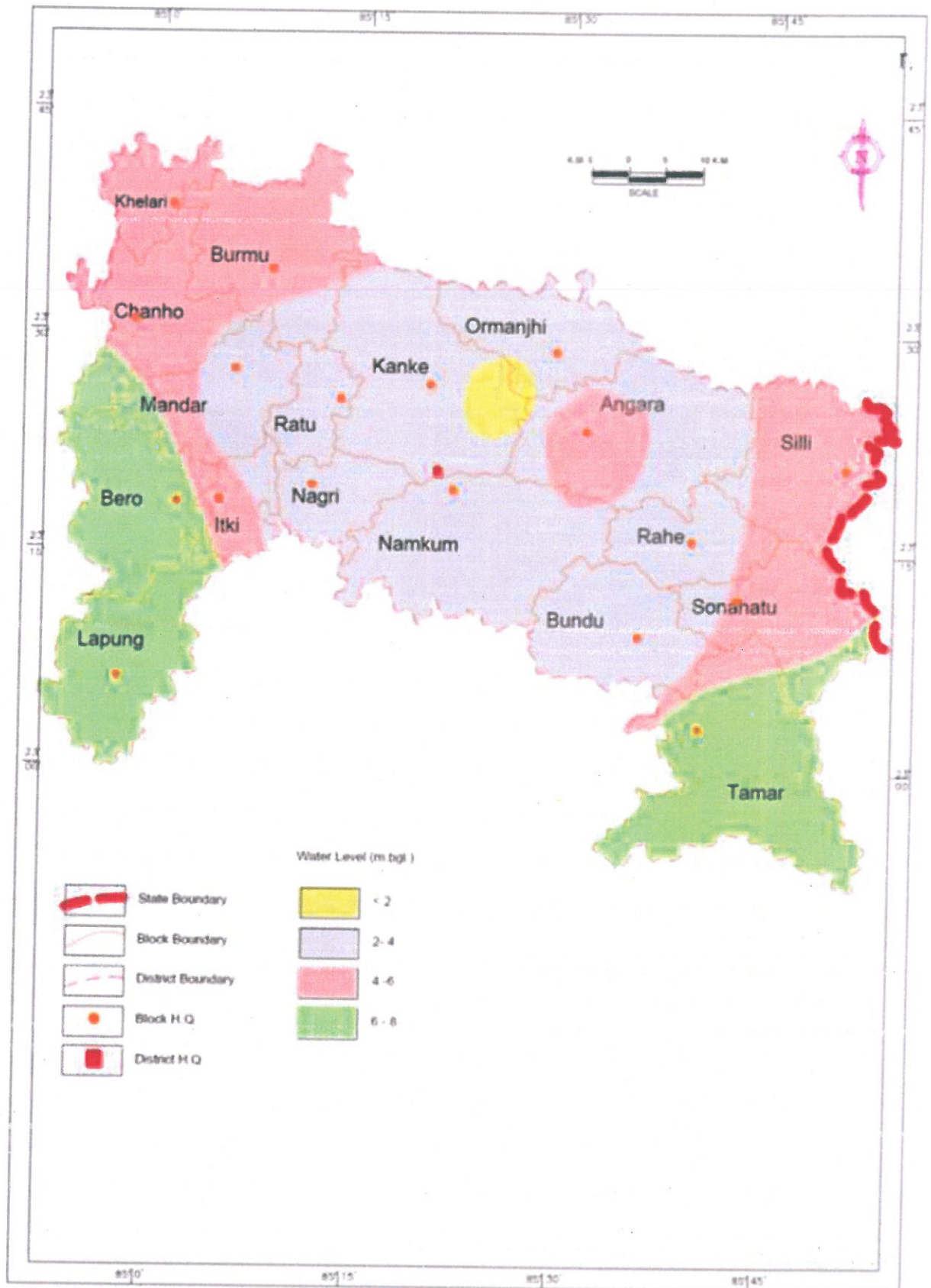


Fig. 12 Post - Monsoon Depth to Water Level Map of Ranchi District (Source-CGWB)

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**7.7 Ground water Resources**

The ground water assessment has been done based on the recommendation of the GEC-1997. The ground water assessment has been carried on block wise basis during 2009 and the assessment varies between Burmu (3832ha-m) and Burmu (1661ha-m). Kanke block is in over-exploited category while Ratu block is in Semi-critical category while other blocks are in safe category. The net annual replenishable ground water resources of the district is 35072 ha-m. The gross ground water draft for all uses is 13954ha-m and allocation for domestic and Industrial requirement up to year 2034 is 5080 ha-m. The present stage of ground water development of the district as on 31st march 2009 is 40% At present maximum ground water development is in Kanke block (112.4%) and minimum ground water development is in Angara block (9%). Details of ground water development and stage of ground water development of all the blocks are given in **(Table 6)**.

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Table-6  
Dynamic Ground Water Resource (as on 2009) of Ranchi District

Sl. No	Assessment Unit/Block	Net Annual Ground water Availability	Existing Gross Ground Water Draft for Irrigation	Existing Gross Ground water Draft for Domestic and Industrial Water Supply	Existing Gross Ground Water Draft For all Uses (10+11)	Allocation for Domestic and Industrial Requirement supply upto next 25 years	Net Ground Water Availability for future irrigation development (9-12-13)	Stage of Ground Water Development (12/9)*100 (%)
1	2	9	10	11	12	13	14	15
1	Angara	2474.69	41.06	173.92	214.98	278.43	2155.19	8.69
2	Bero	2847.15	704.20	222.06	1051.00	355.52	1662.70	36.91
3	Bundu	1660.66	771.00	106.10	465.23	169.86	1131.67	28.01
4	Burmu	3832.05	633.40	207.94	1066.46	332.91	2640.62	27.83
5	Chanho	1808.41	769.00	141.38	901.76	226.35	821.67	49.87
6	Kanke	3495.40	1165.00	1748.75	3928.85	1619.78	818.05	112.40
7	Lapung	1791.21	859.00	89.92	690.57	143.96	1046.61	38.55
8	Mandar	2920.06	1479.40	166.47	1558.47	266.52	1261.54	53.37
9	Namkum	2310.82	671.40	193.09	1323.32	294.77	1451.94	57.27
10	Ormanjhi	1847.23	824.00	128.40	1268.40	205.56	501.66	68.67
11	Ratu	2097.07	1307.00	213.07	1520.15	341.11	448.87	72.49
12	Silli	1773.44	371.00	174.45	545.42	279.29	1123.18	30.75
13	Sonahatu	2583.53	883.00	160.86	584.38	257.53	1902.48	22.62
14	Tamar	3630.35	729.00	192.39	524.04	308.02	2990.69	14.43
	<b>TOTAL</b>	<b>35072.06</b>	<b>11842.40</b>	<b>3918.80</b>	<b>15643.03</b>	<b>5079.62</b>	<b>19956.87</b>	<b>39.78</b>

Approved  
State Level Environment Officer  
Ranchi, Jharkhand

**Table-7**  
**Major Chemical Parameters of Ground Water Samples of Ranchi District**

Location	Well no.	E.C.	pH	CO3	HCO3	Cl	SO4	NO3	F	Ca	Mg	Total hard Hardness (CaCO3)	Na	K
Ormanjhi	BRC1A	472	6.5	ND	118	67	20	45	1.5	60	19	226	14	2.9
Ranchi	BRC3A	325	8.1	ND	79	40	25	20	0.3	33	6	108	25	1.5
Mandar	BRC6	340	7.4	ND	46	63	3.90	50	0.3	23	11	103	29	11
Bero	BRC7	191	8.2	ND	106	6	ND	5.9	0.6	23	6	82	7	1.9
Silli	BRC9	620	6.9	ND	343	27	13	0.1	2.2	74	13	236	48	4.1
Tamar	BRC11	235	8.2	ND	132	8	2.2	4.1	0.7	27	11	113	8	0.9
Chuttupalu	BRC22	325	8.1	ND	165	17	4.8	ND	2.6	27	9	103	33	2.4



## 7.8 Ground Water Quality

Quality of ground water is just as important as its quantity. This is well-recognized part and accepted fact in present day world. Quality of ground water in nature mostly depends on the geological formations holding it i.e. Aquifers. All ground water contains salts in solution that are derived from the locations, and rocks through which it moves. In addition ground water contamination is caused by discharge containing pollutants, which get mixed with them. Quality of ground water is described with reference to the needs i.e., drinking, industrial and irrigation to assess the quality of ground water for different purposes. The physical and chemical constituents are determined and are compared with the standard ones, recommended each for the drinking, industrial and irrigations requirements.

### **Chemical Quality**

Ground water quality in general is potable and found as per specification of Bureau of Indian standards

### **General Range of Chemical Parameter of Ranchi District**

- 1) Electrical conductivity: of ground water of parts of Ranchi District ranges between 60 to 600 micro siemens /cm. at 25OC.
- 2) PH: Ground water of the parts of Ranchi districts are slightly alkaline in nature where pH varies between 7.21 to 7.95.
- 3) Chloride: concentration of chloride varies between 18 to 106 mg/l.
- 4) Nitrate: It is present within permissible limit of BIS. Concentration varies between 7.4 to 56 mg/l.
- 5) Sulphate: Its concentration in ground water varies between 2.4 to 19mg/l.
- 6) Bicarbonate: concentration of bicarbonate is between 43 to 171 mg/l.
- 7) Calcium: Calcium is found between 14 to 64mg/l in study area.
- 8) Magnesium: It occurs between 6 to 19mg/l.
- 9) Sodium and Potassium: concentration of sodium is between 4 to 55mg/l while potassium occurs between 0.3 to 1.95mg/l.
- 10) Fluoride: its value varies between 0.3 to 2.6mg/l. Wells at Chutupalu, Ormanjhi and Silli have concentration above permissible limit.

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**7.9 Status of ground water development**

The ground water is mainly utilized for domestic needs and for irrigation proposes. The ground water abstraction is mainly through dug wells, bore wells. The mode of lifting of water for domestic purpose from dug wells is mainly through rope and bucket. The bore wells / tube wells are fitted with hand pump or submersible power pump. The stage of ground water development is 40% in general. On the basis of stage of development blocks of Ranchi district can be divided into 3 groups- Kanke block having 112% stage of development, Ratu block where stage of development is 72% and rest 16 blocks where stage of development is less than 9-69%. The low development of ground water resources is mainly attributed to lithology of the area, Tribal and backward population, erratic electricity supply, lack of scientific input (adoption of proper drilling and design), inefficient irrigation practices and cropping pattern. In moist of the blocks, only one crop is grown-Paddy in Kharif season, which is mostly rainfed.

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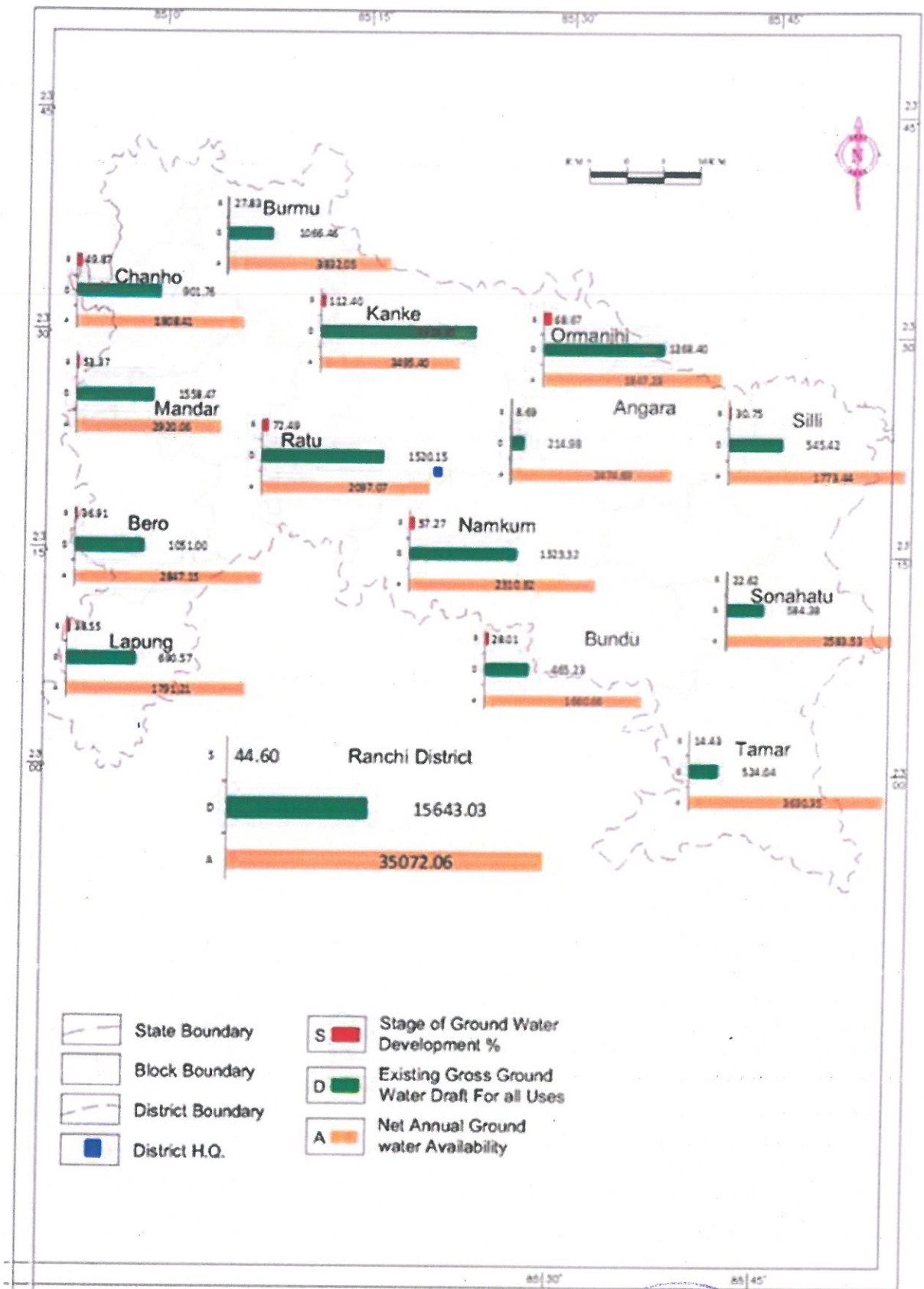


Fig. 13 Stage of Ground Water Development in Ranchi District (Source:CGWB)

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# CHAPTER-VIII



**CHAPTER - VIII LAND UTILIZATION PATTERN IN THE DISTRICT: FOREST, AGRICULTURE, HORTICULTURE, MINING ETC.**

Year Wise Land Utilisation Statistics in the district of Ranchi is given below in Table 8;

**Table 8  
Classification of Land Utilisation Statistics in the District**

Year	Reporting Area	Forest Area	Area under Non-agricultural use	Barren & unculturable land	Permanent pastures & other grazing land	Land under misc. tree groves not included in Net area	Culturable waste land	Fallow land other than Current fallow	Current fallow	Net area sown
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2018-19	486423	91293	32655	25377	1268	3035	26368	57043	86462	162922
2019-20	486423	91293	32281	25376	1285	2973	23918	36978	80666	191653
2020-21	486423	91293	32366	24959	1221	2895	22888	39895	94219	176687

Source: DSO, Ranchi



# CHAPTER-IX



## CHAPTER – IX PHYSIOGRAPHY OF THE DISTRICT

### 9.1 Introduction

The landscape of the district is formed of hills and undulating terrain of Ranchi Plateau. Ranchi plateau is the largest plateau in Jharkhand. The uplands of this plateau are known as Tanrs and the lowlands are locally known as Dons. These lowlands have a number of small hill blocks covered with forests.

### 9.2 Slope

More than 2/3 part (i.e., 69.86%) of the Ranchi district is covered by nearly level and very gently sloping ground. Moderately sloping area is located in the central part of the district. Strongly sloping to very steep sloping ground is located mostly along northern and southern boundaries and in the eastern part of the district. The distribution of the slope categories, in this district, with their area.

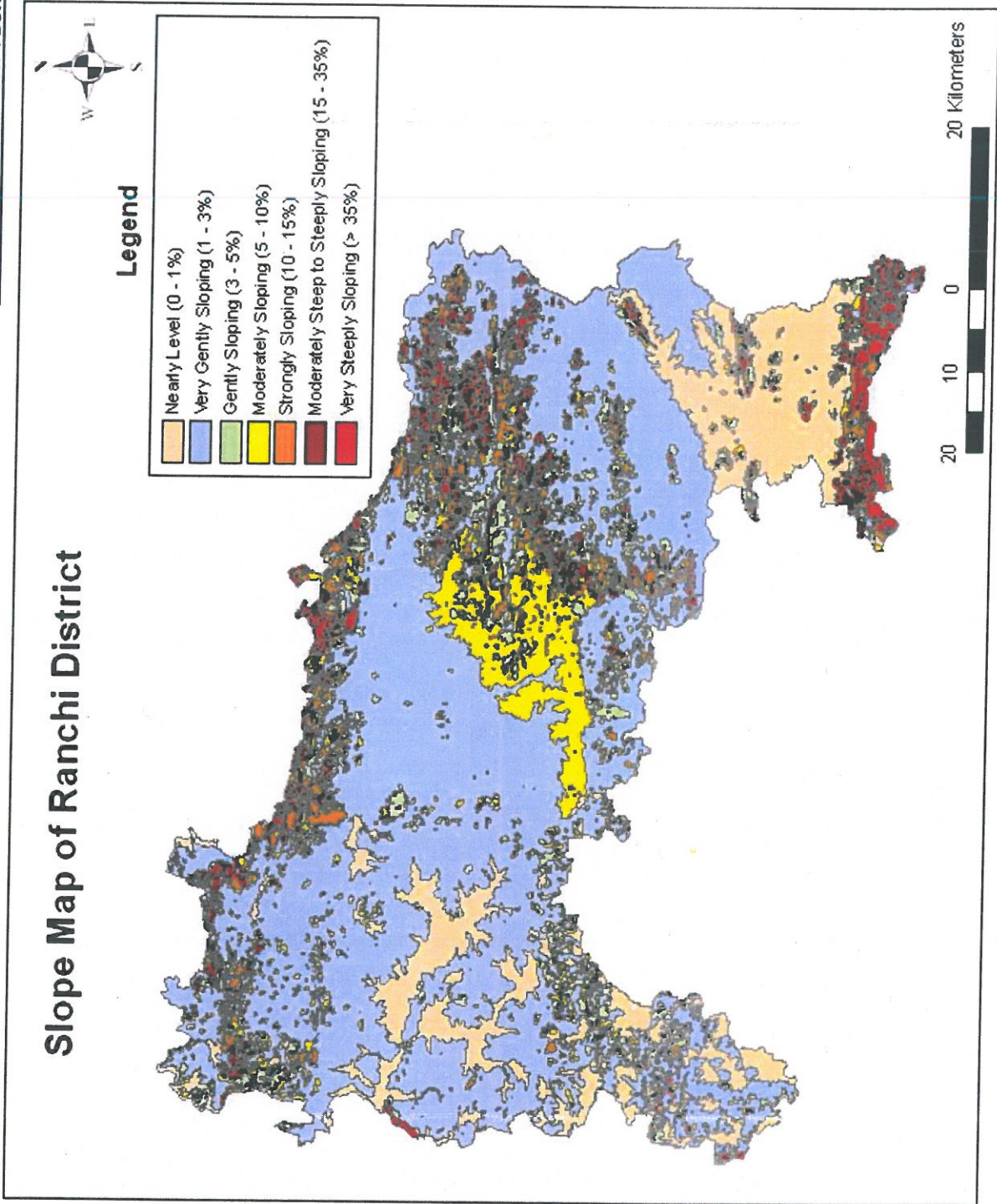
**Table 9**  
**Distribution of Slope Categories in Ranchi District**

Serial No.	Slope Category	Area (in sq.km)	Percentage (%)
1	Nearly Level (0-1%)	768.02	15.28
2	Very Gently Sloping (1-3%)	2742.83	54.57
3	Gently Sloping (3-5%)	282.51	5.62
4	Moderately Sloping (5-10%)	420.85	8.37
5	Strongly Sloping (10-15%)	331.50	6.60
6	Moderately Steep to Steeply Sloping (15-35%)	306.61	6.10
7	Very Steeply Sloping (>35%)	173.49	3.45
	<b>Total</b>	<b>5025.82</b>	<b>100.00</b>

### 9.3 Altitude

Ranchi district is located in the altitudinal zone of 100m to 1100m. In it, major part of the district is in 200-800m zone and a minor part is in 100-200m and 800-1100m zones. 100-200m zone is in two patches along the eastern boundary of the district. 800-1100m zone is also located mostly along the boundary of this district. Ranchi city is located in the altitudinal zone of 600m to 700m.

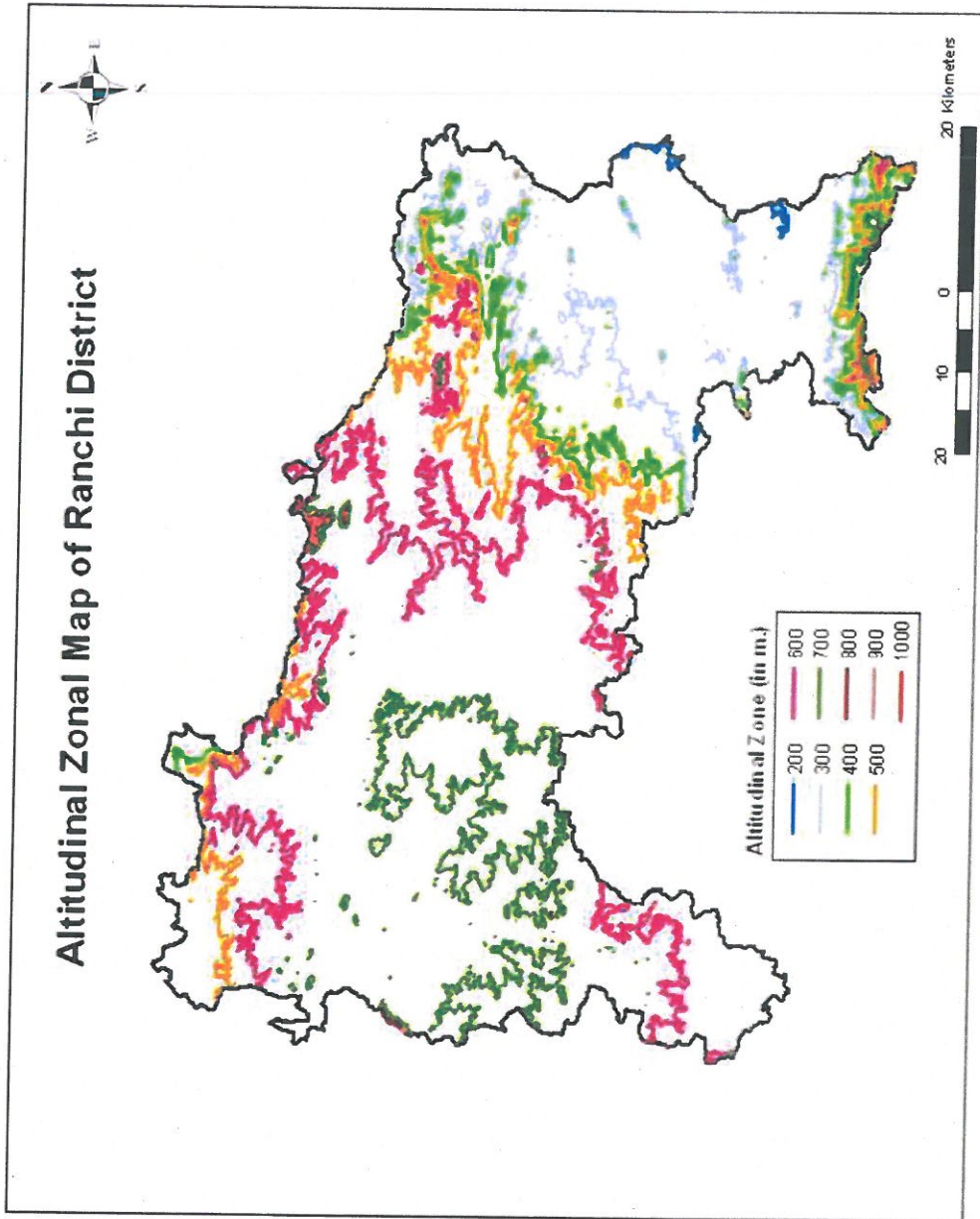




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Fig. 14 Slope Map of Ranchi District (Source-CGWB)



12



Figure-15 Altitudinal zonal Map of Ranchi (Source-CGWB)

# CHAPTER-X



**CHAPTER - X RAINFALL: MONTH-WISE**

Monthly Rainfall in the District of Ranchi is given below:

**Table 10  
Month Wise Rainfall Data**

**District - Ranchi**

District/Month	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
2001	3.3	7.5	36.8	17.7	23.4	384.3	359.1	168.7	89.1	110.2	0.0	0.0	1200.10
2002	18.5	5.5	15.0	7.2	22.7	235.3	166.4	279.4	261.5	71.9	2.0	1.8	1087.20
2003	0.7	35.9	27.8	8.2	13.8	127.1	266.3	230.0	203.0	315.9	8.1	4.5	1241.30
2004	5.0	4.2	3.2	52.8	37.0	151.4	181.8	333.4	163.6	114.9	0.0	3.9	1051.20
2005	20.9	17.1	11.3	2.2	15.2	122.3	235.4	230.4	165.0	46.9	5.3	6.9	878.90
2006	0.0	0.0	25.7	16.3	141.3	188.9	455.6	381.0	218.2	35.3	5.8	0.0	1468.10
2007	0.0	66.4	34.4	22.6	48.0	127.6	379.0	303.7	340.7	43.5	12.0	0.0	1377.90
2008	7.9	4.0	11.7	9.6	32.6	374.6	479.8	258.9	177.1	18.6	0.0	0.0	1374.80
2009	1.2	0.0	4.2	0.4	113.7	80.2	297.8	257.9	288.5	79.1	4.3	0.9	1128.20
2010	0.6	8.0	0.0	9.8	19.4	105.5	186.6	160.9	220.2	63.0	8.2	24.2	806.40
2011	13.1	1.6	2.7	13.1	52.3	395.4	192.7	493.0	364.5	49.5	0.0	0.0	1577.90
2012	46.6	17.5	9.4	12.6	3.1	80.8	306.7	317.1	271.4	34.2	54.3	9.5	1163.20
2013	0.0	11.7	4.7	14.9	61.1	162.3	220.0	225.0	94.2	312.7	0.0	0.0	1106.60
2014	10.0	38.0	35.1	1.0	113.7	153.7	306.7	257.9	288.5	63.0	0.0	0.0	1267.60
2015	15.1	3.3	9.5	86.7	24.7	155.6	370.8	226.8	57.4	39.8	0.9	0.0	990.54
2016	4.4	6.5	14.1	0.4	54.7	105.6	299.9	368.0	239.2	0.0	0.0	0.0	1092.80
2017	0.0	0.0	0.3	76.5	29.2	132.1	648.2	270.0	77.6	84.9	0.4	0.0	1319.20
2018	0.0	0.5	0.0	14.0	32.9	101.2	261.1	250.0	157.3	10.4	0.0	44.3	871.70
2019	1.6	0.0	34.3	9.0	36.5	106.6	186.6	246.7	108.9	51.0	0.0	9.8	791.00
2020	22.1	11.3	25.5	18.8	22.0	169.2	249.4	288.6	125.5	32.2	0.0	0.0	964.59
<b>Total</b>	<b>171.0</b>	<b>239.0</b>	<b>305.7</b>	<b>393.8</b>	<b>897.3</b>	<b>3459.7</b>	<b>6049.9</b>	<b>5547.4</b>	<b>3911.4</b>	<b>1577.0</b>	<b>101.3</b>	<b>105.8</b>	<b>22759.23</b>
<b>Average</b>	<b>8.5</b>	<b>11.9</b>	<b>15.3</b>	<b>19.7</b>	<b>44.9</b>	<b>173.0</b>	<b>302.5</b>	<b>277.4</b>	<b>195.6</b>	<b>78.9</b>	<b>5.1</b>	<b>5.3</b>	<b>1137.96</b>

Source: DSO, Ranchi



# CHAPTER-XI



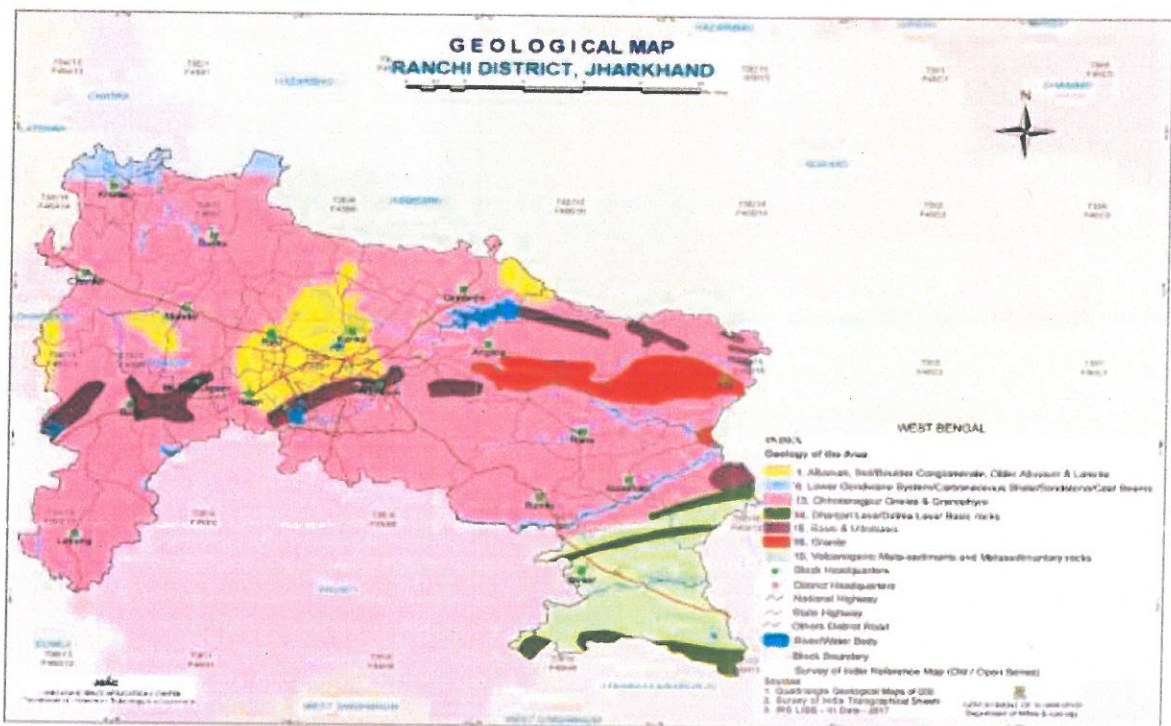
**CHAPTER – XI GEOLOGY & MINERAL WEALTH**

**11.1 Regional Geology**

The rock type exposed in the region consist of a series of a meta sediment like mica schist, quartz schist, quartzite, garnetiferous mica gneiss, feldspathic mica gneiss intruded by granite plutons, amphibolites, dolerites, pegmatite's and quartz veins. Large-scale migmatitisation and feldspathisation is responsible for conversion of mica schist to mica- gneiss. The generalized geological succession of these rock types occurring in area is as follows:

**Stratigraphic Succession:**

Intrusive	Alluvial Quartz vein Pegmatite Dolerite / metadolerite Amphibolite
Pre -Cambrians	Granite gneiss ( feldspathised) Mica schist, biotites schist Tall schist
Para Metamorphics	Quartzite, quartz schist Calc silicate rocks



**Fig. 16 Geological Map of the District (Source-JSAC)**



### 11.2 Methodology for Preparation of District Survey Report:

Potential Resource Area/ Sand bars in every identified river in the district have been selected using ISRO satellite imageries.

Resolution in this process due consideration has been given to siting criteria

- Prescribed by SEIAA (specifically in respect of notified forest and ESZ)
- Distance limitations prescribed in E.M. G. S. 2020 {(in respect of major bridges- E.M.G.S - 2020, In its Paragraph 4.3(H) has prescribed guidelines relating to restricting of sand mining from Major Bridges.  
Indian Road congress in the code IRC 5-2015 Para 102.2 has categorised Bridge depending on Length which is reproduced below:-  
(Minor Bridge is a bridge having a total length of up to 60m)  
(Major Bridge is a bridge having a total length of more than 60m)}
- Guidelines prescribed by JSPCB (with respect to mining projects)
- SSMG - 2016



**Table - 11**  
**Name of Bridge**

Sl. No.	Name of Bridge	Length(m)	Latitude	Longitude
1	Shyamnagar Bridge	227	23.2579	85.8247
2	Jintudih, Dibadih Bridge	95	23.2255	85.8166
3	Sarmali, Dimbujarda Bridge	238	23.1649	85.7139
4	Hethburhadih Bridge	468	23.1500	85.6916
5	Dumarbera Bridge	246	23.3270	85.8621
6	Domadih Bridge	202	23.2045	85.7798
7	Erkia Bridge	225	23.1352	85.6474
8	Tunju Bridge	180	23.1156	85.6157
9	karambu bridge bundu	447	23.1170	85.5673
10	Karambu Bridge	452	23.1165	85.5673
11	Chilutikar Bridge	257	23.1225	85.5160
12	Basantpur Bridge	252	23.2988	85.6951
13	Pogra Bridge	145	23.2872	85.7033
14	Pogra - Nawadih Bridge	344	23.2829	85.7185
15	Ichahatu - Kareyadih Bridge	286	23.2863	85.7568
16	Patarhatu Bridge	323	23.2786	85.7676
17	Basantpur-Tetla Bridge	294	23.2761	85.7868
18	Jhabri-Birdidih Bridge	155	23.2614	85.8093
19	Hesalang Bridge	150	23.6928	84.9394
20	Churi Rail Bridge	75	23.6646	85.0414
21	Churi Bridge	139	23.6797	85.0482

**Distance from Bridge**

UIN No.	Name of Bridge	Distance(m)
R SU 04	Shyamnagar Bridge	600
R KA 10	Jintudih, Dibadih Bridge	1237
R KA 09	Sarmali, Dimbujarda Bridge	1150
R KA 08	Hethburhadih Bridge	1585
R KA 09	Hethburhadih Bridge	967
R SU 02	Dumarbera Bridge	984
R KA 07	Erkia Bridge	517
R KA 06	Tunju Bridge	1070
R KA 03	Karambu Bridge	510
R KA 03	Karambu Bridge	609
R KA 01	Chilutikar Bridge	1621
R KA 02	Chilutikar Bridge	720
R RA 01	Ichahatu - Kareyadih Bridge	283
R RA 08	Jhabri-Birdidih Bridge	1708
R SA 01	Churi Rail Bridge	1083
R SA 01	Churi Bridge	1100

Am



**Step-1: Inventorization of river bed suitable for sand mining;**

For this purpose following maps were procured for the district

1. S.O.I. Topo sheet (1:50,000)
2. KML maps
3. JSAC prepared map of the district
4. Cadastral Map

In addition following documents published by government agencies were also procured.

- Ground water information booklet from CGWB
- Report on slope, aspect and altitude of district published by J.S.A.C.
- Jharkhand river profile (SAUDRP)

Based on details study of above documents, maps, major rivers flowing through the district have been identified and listed in **table 12 & 13 below**



**Table 12**  
**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 (in AMSL)
1.	Subarnarekha River	46	Piska	720
2.	Jumar River	24	Thakur Gaon	660
3.	Kanchi River	90	Bandhea	756
4.	Damodar River	20	Chulha Pani	931
5.	South Koel River	36	Nagri	724
6.	Raru River	21	Ara	639
7.	Kharkhai River	63	Berkela	606
8.	Bhur River	22	Mandar	697
9.	Sapahi River	29	Gutuwa	699
10.	Lohagara River	28	Khartango	705
11.	Mur River	22	Mandar	700
12.	Chatti River	22	Pankartoli	680
13.	Pakro River	27	Saraiya Toli	507



Table 13  
Drainage system with description of main rivers

S. No.	Name of the River	Area drained (Sq. mile)	% Area drained in the District	Mean Annual Run-off (inch)	Rate of Annual Deposition in the River (tons / sq. mile /year)	Annual Deposition (tonne) as per empirical formula (Col. 3 x 6)
1	2	3	4	5	6	7
1.	Subarnarekha	360.24	13.46 %	7.60	10814.30	3895743.43
2.	Kanchi	684.00	20.66 %	3.17	4083.95	2793421.80
3.	South Koel	275.50	9.12 %	7.28	10768.83	2966812.67
4.	Raru	283.86	11.81 %	7.91	11651.10	3307281.25
5.	Chatti	30.78	1.59 %	6.96	13498.10	415471.52
6.	Sapahi	1594.10	6.04 %	7.91	8785.41	14004822.08
7.	Damodar	394.82	2.22 %	6.65	9334.51	3685451.24

AN



For every identified river following information were found out;

- ❖ Point of origin of the river
- ❖ Elevation of the point of origin of river (AMSL)
- ❖ Length of the river flowing through the District
- ❖ Average width
- ❖ Mark existence of Bridges (Railway & Road) along the alignment of the river
- ❖ Existence of notified forest, national park, wildlife sanctuary, Eco-Sensitive zone
- ❖ Calculation of catchment area of the river in the district

**(b) Reconnaissance survey**

After demarcation of location of identified PRA, a reconnaissance field survey was done to ascertain mineability of identified PRA, route for evacuation, physical verification of existence of bridges, other social & environmental hotspots.

**(c)** After reconnaissance survey PRAs found suitable for mining of sand were finalized. All identified PRAs were marked on Survey of India Toposheet (1:50000)

**(d)** Finalised PRA were transferred to mauza map (1:3960). With this superimposed map details regarding name of Village, Plot No., Khata No., Thana No. and area of plot covered by particular PRA were tabulated in Table 15. KML maps for every finalised PRA has been prepared and given in **Plate-5**

**(e)** The map showing different finalised PRAs super imposed on mauza map are shown in **Plate-3**

**(f)** Mauza map for every PRAs were sent to respective circle officer, DFO (Territorial) and DFO (Wildlife) for recording their observation in a prescribed format. This included type of land within the PRA, distance of PRA from notified forest and ESZ. Observation recorded on prescribed format have been received from CO, DFO (T) and DFO (WL) they are enclosed at annexure - observation received. **(Reports received from CO & DFO are enclosed at (Annexure-D, E, F)**

**(g) Assailment of Unique Identification No: (UIN)**

Every identified PRA was assigned a Unique Identification Number (UIN).

This consisted of three letters followed by two numerals. First letter denoted the name of district. This is followed by two letters denoting name of the river. The last two numerals reflected serial no. of the PRA. Counting starting from origin of the rivers towards direction of the flow.

All identified PRAs are shown in **plate II**.

**Step-3: Methodology of Field Survey of PRAs:**

Field survey for preparation of a D.S.R is needed for following purposes

- Location details and bounding co-ordinate of PRA, village, tehsil & district
- Topographical survey of sand deposit within identified PRA in a grid pattern of 10mX 10m.
- Fixing of TBM with its RL (amsl)

*Az*



Field survey of all finalised PRA was conducted using DGPS-

- First of all, TBM was fixed along the river on nearest existing permanent structures like school, bridges of PRA. A.M.S.L of TBM was determined by DGPS.
- Four corners of an identified PRA are assigned as A, B, C and D for upstream side to downstream side. Co-ordinates and elevation (AMSL) measured for all four corners & recorded between cross section axis AB & CD every PRA is divided into section at 100m apart
- Every axis starts 3m away from river bank on left & right bank.

Cross sectional axis are identified by assigning them number denoting distance from the axis AB. LOG (denotes a point on ground 3m away on the left side & ROG (denotes a point on ground 3m away on the right side)

LOG - A Point on Outside bank of River on left side

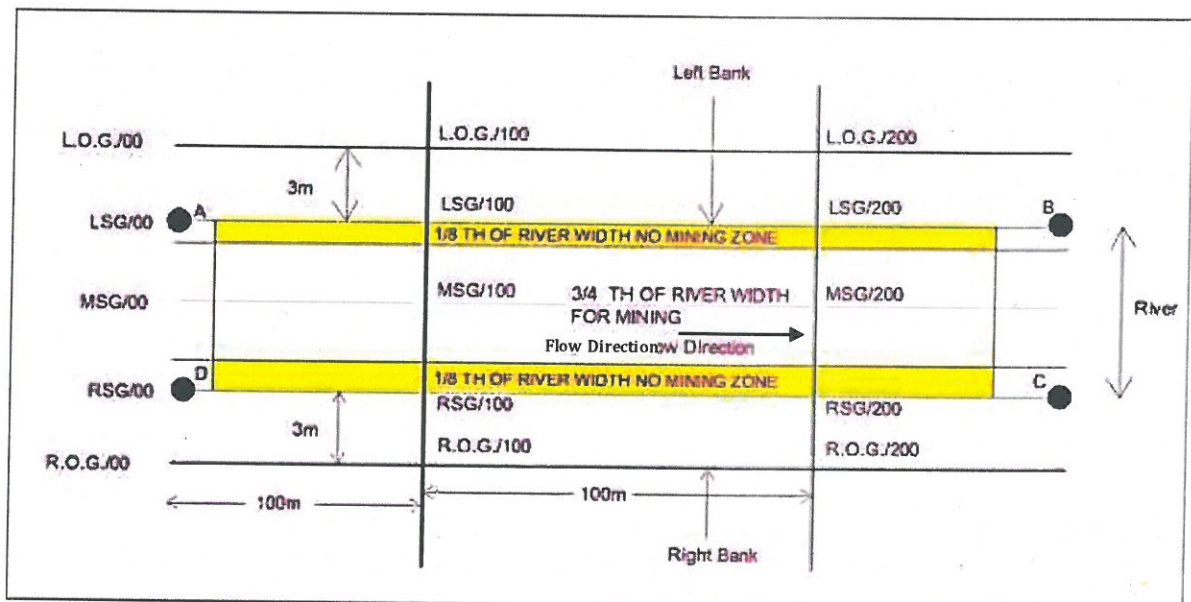
ROG - A Point on Outside bank of River on right side

LSD - R.L of sand deposit on left end side

MSD - R.L of sand deposit at mid-point of river

RSD - R.L of sand deposit on right end side

The above pattern is explained in the Table below:



**Sample of Cross Section of River**

Part of every cross-sectional axis passing through sand deposit is divided in two equal parts.

**Pre-Monsoon field survey**

Pre Monsoon data has been obtained from ISRO generated satellite data.

**Post Monsoon field survey**

This was started in first week of December, 2022. Post monsoon data for 19 PRA have been completed using DGPS.

Temporary Bench Marks (TBMs) were located near identified rivers. R.L. of these TBM were determined by fly-levelling method of survey using Auto level. Reference Reduced Level were taken from nearest Railway Station / Railway Bridge of spillway of nearest water Resource Project.

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**Establishment of Temporary Bench Mark**

For topographical survey of sand deposit in identified rivers, Temporary Bench Marks (TBMS) have been established at convenient locations close to identified Potential Resource Areas.

Co-ordinates of TBMS have been determined by using DGPS. For determination of its reduced level, Flying Survey using Auto - level have been carried out. Reference level has been taken from Hendegir & Gautamdihara Railway station having its amsl as 390.597 m & 455.85 m. Table - below gives details of TBMS in Ranchi district:

**Table 14: List of TBM**

Sl. No.	Name of Bridge	Latitude	Longitude	R.L(m)
1	Shyamnagar Bridge	23.2579	85.8247	243
2	Dumarbera Bridge	23.3270	85.8621	255
3	Erkia Bridge	23.1352	85.6474	276
4	Karambu Bridge	23.1165	85.5673	294
5	Pogra - Nawadih Bridge	23.2829	85.7185	265
6	Hesalang Bridge	23.6928	84.9394	454
7	Churi Bridge	23.6797	85.0482	442

**Step-4: Determination of Extractable Reserve**

Mineable reserve is the product of area of mining zone in PRA with average depth of sand deposit. Extractable reserve has been estimated as 60% of mineable reserve.

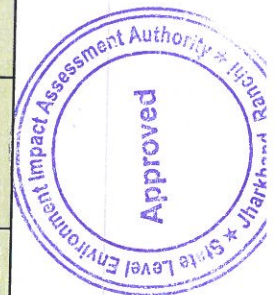
Required details of identified river PRA's mineable reserve and extractable reserve are given in **Table 15**.

*h*



**Table-15 : List of Potential Sand Area of Ranchi (Category-II)**

UIN No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	Length (m)	Width (m)	Depth (m)	Co-ordinate	Geological Reserve (AxD) (cubic metre)	Mineable mineral potential (in cubic metre) (Wx3/4xLxD)	Extractable mineral (cubic metre)
RKA06	Tunju	403(p)	32	Tunju	Bundu	11.00	Kanchi	767	143	3.0	A-23°7'10.38"N 85°35'55.90"E B-23°7'6.14"N 85°35'56.64"E C-23°7'1.8"N 85°35'46.75"E D-23°7'5.88"N 85°35'44.96"E	330000	246782.25	148069.35
						<b>11.00</b>								
RKA04	Karambu	896(p)	35	Tunju	Bundu	13.00	Kanchi	360	361	3.0	A-23°7'6.48"N 85°34'23.06"E B-23°7'3.78"N 85°34'23.96"E C-23°7'9.72"N 85°34'33.83"E D-23°7'15.50"N 85°34'32.92"E	390000	292410.00	175446.00
						<b>13.00</b>								
RKA03	Anredih	410(p)	36	Tunju	Bundu	8.70	Kanchi	630	138	3.0	A-23°6'31.51"N 85°33'38.74"E B-23°6'31.70"N 85°33'40.48"E C-23°6'47.70"N 85°33'50.69"E D-23°6'50.45"N 85°33'45.63"E	261000	195615.00	117369.00
						<b>8.70</b>								
RKA02	Chilutikar	130	41	Barehatu	Bundu	8.65	Kanchi	702	155	3.0	A-23°7'20.08"N 85°31'23.98"E B-23°7'15.67"N 85°31'22.50"E C-23°7'12.24"N 85°31'39.91"E D-23°7'15.50"N 85°31'42.28"E	327000	244822.50	146893.50
	Sarjandih	647(p)	42	Churgi	Bundu	2.25								
						<b>10.90</b>								



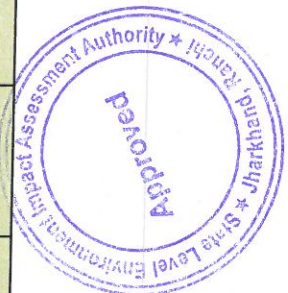
**DISTRICT SURVEY REPORT : DSR/Ranchi/001**

RKA01	Loahatu	1063(p)	43	Churgi	Bundu	6.20	Kanchi	515	198	3.0	A-23°7'20.41"N 85°29'41.62"E B-23°7'23.69"N 85°29'41.60"E C-23°7'21.82"N 85°29'59.88"E D-23°7'20.41"N 85°29'41.62"E	306000	229432.50	137659.50
	Churgi	1395(p)	44			4.00								
RKA07	Erkia	738(p)	2	Sumandih	Bundu	11.20								
	Sumandih	2(p)	1	Sumandih	Bundu	9.75	Kanchi	1347	239	3.0	A-23°8'19.36"N 85°39'4.20"E B-23°8'22.58"N 85°39'56.94"E C-23°8'14.70"N 85°39'56.53"E D-23°8'9.71"N 85°39'9.26"E	967500	724349.25	434609.55
		858	3	Sumandih	Bundu	5.80								
	Sutlong	1098	3	Sumandih	Bundu	5.80								
						32.25								
RKA08	Sutlong	1077(p)	3	Sumandih	Bundu	9.70	Kanchi	1036	191	3.0	A-23°8'25.09"N 85°40'6.61"E B-23°8'46.74"N 85°40'34.89"E C-23°8'40.34"N 85°40'38.02"E D-23°8'21.53"N 85°40'9.64"E	594000	445221.00	267132.60
	Badla	1(p)	211	Dimbujarda	Tamar	10.10								
RKA09	Gomeadh	862(p)	59	Baruhatu	Sonahatu	1.80								
	Haradh	864	210	Dimbujarda	Tamar	1.80	Kanchi	1397	163	3.0	A-23°9'28.20"N 85°41'46.39"E B-23°9'23.38"N 85°41'46.56"E C-23°9'19.75"N 85°42'35.39"E D-23°9'25.47"N 85°42'30.98"E	684000	512349.75	307409.85
		Daruara	1	209										
							22.80							
RKA10	Somadh	556(p)	32	Telwadh	Sonahatu	21.20	Kanchi	1068	198	3.0	A-23°13'9.23"N 85°47'55.51"E B-23°13'4.79"N 85°48'1.83"E C-23°13'31.59"N 85°48'23.44"E D-23°13'38.94"N 85°48'22.01"E	636000	475794.00	285476.40



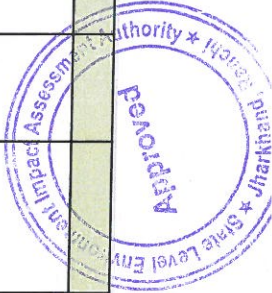
**DISTRICT SURVEY REPORT : DSR/Ranchi/001**

RKA05	Pangura	212	33	Tunju	Bundu	21.20	Kanchi	1196	193	3.0	A- 23° 7' 17.55" N 85° 35' 6.02" E B- 23° 7' 5.84" N 85° 35' 38.69" E C- 23° 6' 51.11" N 85° 35' 39.61" E D- 23° 7' 8.33" N 85° 35' 3.51" E	693000	519363.00	311617.80
		216						870						
	Baredih	1147(p)	34	Tunju	Bundu	23.10								
RRA02	Shyamnagar	511(p)	111	Bantahajam	Silli	14.30	Ruru	1478	199	2.5	A- 23° 15' 2.33" N 85° 49' 14.64" E B- 23° 14' 51.43" N 85° 49' 54.90" E C- 23° 14' 46.89" N 85° 49' 57.11" E D- 23° 14' 58.84" N 85° 49' 10.20" E	737500	551478.75	330887.25
		Birdidih						779(p)	34	Tentia				
		109(p)				29.50								
RRA01	Kareyadih	1299(p)	50	Patrohatsu	Silli	6.00	Ruru	526	218	2.5	A- 23° 17' 28.64" N 85° 45' 0.46" E B- 23° 17' 18.38" N 85° 45' 17.58" E C- 23° 17' 12.17" N 85° 45' 12.91" E D- 23° 17' 20.06" N 85° 45' 0.33" E	287500	215002.50	129001.50
		Ichahatu						1370(p)	43	Nawadih				
						11.50								
RSU04	Shyamnagar	469(p)	111	Bantahajam	Silli	6.50	Subernarekha	671	96	2.5	A- 23° 15' 13.14" N 85° 49' 42.57" E B- 23° 15' 15.01" N 85° 49' 43.69" E C- 23° 15' 0.86" N 85° 50' 2.23" E D- 23° 14' 58.83" N 85° 50' 0.67" E	120780.00	120780.00	72468.00



**DISTRICT SURVEY REPORT : DSR/Ranchi/001**

RSU03	Chokeserang	1341(p)	102	Bantahajam	Silli	3.50	Subnarekha	429	81	2.5	A-23°18'34.66"N 85°50'42.88"E B-23°18'33.19"N 85°50'43.18"E C-23°18'29.46"N 85°50'28.42"E D-23°18'32.09"N 85°50'27.42"E	87500	65154.38	39092.63
RSU02	Chokeserang	921(p)	102	Bantahajam	Silli	4.00	Subnarekha	977	78	2.5	A-23°19'15.00"N 85°51'19.19"E B-23°19'12.98"N 85°51'20.27"E C-23°18'50.26"N 85°50'56.46"E D-23°18'51.53"N 85°50'54.53"E	192500	142886.25	85731.75
	Dumarbera	489(p)	101	Kocho	Silli	3.70								
							7.70							
RSU01	Sundil	546	97	Kocho	Silli	4.00	Subnarekha	829	89	2.5	A-23°20'19.72"N 85°51'54.91"E B-23°19'56.36"N 85°52'30.03"E C-23°19'56.11"N 85°52'11.5"E D-23°20'20.06"N 85°51'51.97"E	100000	138339.38	83003.63
RPA01	Basantpur	78(p)	45	Basantpur	Rahe	4.30	Pakro	278	154	1.5	A-23°17'38.98"N 85°41'28.83"E B-23°17'36.50"N 85°41'30.16"E C-23°17'37.54"N 85°41'38.53"E D-23°17'41.07"N 85°41'38.69"E	64500	48163.50	28898.10
RCH01	Lapra	1(p)	1	Lapra	Khalari	1.70	Chatti	568	29	1.5	A-23°41'12.10"N 84°56'36.66"E B-23°41'27.53"N 84°56'9.19"E C-23°41'27.18"N 84°56'10.13"E D-23°41'11.78"N 84°56'44.47"E	25500	18531.00	11118.60
						1.70								



**DISTRICT SURVEY REPORT : DSR/Ranchi/001**

RSA01	Churi	192(p)	16	Churi Middle	Khalari	4.60	Sapahi	430	211	1.5	136500	102071.25	61242.75
	Ray	1201(p)	18	Ray		4.50							
						250.75							
						6982500.00	5288546.25	3173127.75					



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**JHARKHAND STATE SAND MINING POLICY - 2017**

Department of Industries, Mines & Geology, Government of Jharkhand circulated gazette notification No. Kha.Ni (VIVIDH) – 67/2017 – 1905 dated 16.08.17 relating to Jharkhand state sand mining policy 2017.

In paragraph 2 of the notification relates to categorization of streams River. Which is reproduces below:

Based on District Survey Report the survey committee shall categorize the sand in 1<sup>st</sup> order and 2<sup>nd</sup> order stream/River as category-1 and 3<sup>rd</sup> order and above as category-2.



*Ar*

**Step-5: Determination of Rate of Annual Replenishment of Sand**

The most important aspect in river engineering is prediction of bed load, transport rates (Annual Replenishment Rate) in streams. Three modes of transport namely rolling, sliding and siltation may occur simultaneously in bed load transport. The different modes of transportation are closely related and it is difficult, to separate them completely. There are a number of empirical equations to compute the Rate of Annual Replenishment of Sand for a River.

**(a) Replenishment Study Based on Empirical formula:**

The Replenishment study is based on use of theoretical empirical formula comprising of analytical models to calculate the replenishment estimation. Sedimentation in river bed depends on catchment yield, peak flood discharge, bed load transport rates & sediment yield characteristics of the river use of these empirical formula need assessment of catchment yield, peak flood discharge & sieve analysis of river bed material.

**Commonly used Empirical Equation are given below:**

**i. Ackers and White Equation:-**

Ackers and White (1973) used dimensional analysis based on flow power concept and their proposed formula is as follows.

$$C_t = C_s G_s (d_{50}/h) (v/u_*)^{n'} [(F_{gr}/A_1) - 1]^m$$

The dimensionless particle  $d_{gr}$  is calculated by:

$$d_{gr} = d_{50} (g (G_s - 1)/v^2)^{1/3}$$

The particle mobility factor  $F_{gr}$  is calculated by:

$$F_{gr} = (U^{*n'}/(G_s - 1)g d_{50})^{1/2} * (V/(5.66 \log (10/h d_{50}))^{1-n'}$$

Where,

- $A_1$  = Critical particle mobility factor
- $C_s$  = Concentration coefficient in the sediments transport function
- $C_t$  = Total sediments concentration
- $d_{50}$  = Median grain size
- $d_{gr}$  = Dimensionless particle diameter
- $F_{gr}$  = Particle mobility parameter
- $g$  = Acceleration of gravity
- $D_g S_g$  = Specific gravity
- $h$  = Water depth
- $m$  = Exponent in the sediment transport function



$n'$  = Manning roughness coefficient

$U^*$  = Shear velocity

$V$  = Mean flow velocity

$\nu$  = Kinematic viscosity

ii. **Meyer - Peter's equation :**

Meyer - Peter's equation is based on experimental work carried out at Federal Institute of Technology Zurich. Mayer - Peter gave a dimensionless equation based, Mayer - Peter equations giving an empirical correlation of bed load transport rates in flumes and natural rivers.

The simplified Mayer - Peter's equation is given below:

$$g_b = 0.417 [\tau_0 (\eta' / \eta)^{1.5} - \tau_c]^{1.5}$$

Where,

$g_b$  = Rate of bed load transport (by weight) in N per m width of channel per second.

$\eta'$  = Manning's coefficient pertaining to grain size on an unrippled bed and stickler formula i.e.  $n' = (1/24) \times d^{1/6}$  where  $d$  is the median size ( $d_{50}$ ) of the bed sediment in m.

$\eta$  = The actual observed value of the rugosity coefficient on rippled channels. Its value is generally taken as 0.020 for discharges of more than 11 cumecs, and 0.0225 for lower discharges.

$\tau_c$  = Critical shear stress required to move the grain in  $N/m^2$  and given by equation  $\tau_c = 0.687d_a$ , where  $d_a$  is mean or average size of the sediment in mm. This arithmetic average size is usually found to vary between  $d_{50}$  and  $d_{60}$ .

$\tau_0$  = Unit tractive force product by flowing water i.e.  $\gamma_w RS$ . Truly speaking, its value should be taken as the unit tractive force product by flowing water on bed =  $0.97\gamma_w RS$ .  $R$  is the hydraulic mean depth of the channel (depth of flow for wider channel) and  $S$  is the bed slope.

iii. **Dandy - Bolton Equation :**

Dandy - Bolton formula is used to calculate the sedimentation yield because:



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- The formula uses catchment area and mean annual run-off as key determinants.
- It does not differentiate in basin wide smaller streams and their characteristics.
- Dandy and Bolton equation calculates all type of sediment yield i.e. sheet and rill erosion gully erosion, channel bed and bank erosion and mass movement etc.

Dandy - Bolton determined the combined the influence of run-off 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 inch:**

$$(Q < 2\text{in}) S = 1289 * (Q)^{0.46} * [1.43 - 0.26 \text{Log}(A)]$$

**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 (tones/sq miles/yr)

Q = Mean Annual run-off (inch)

A = Net drainage are in sq mile

Dandy Bolton formula is often used to calculate the sedimentation yield. But use of these equations to predict sediment yield for a specific location would may not give accurate result because of the wide variability caused by local factors not considered in the equations development. However, they may 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, run-off and 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. Studies revealed that sediment yield per unit area generally decrease as drainage as drainage area increases. As drainage area increases, average land slopes usually decreases; and there is less probability of an intense rainstorm over the entire basin. Both phenomena tent to decrease sediment yield per unit area.

**(iv) Catchment Yield Calculation:-**

Total quantity of water that is expected in a given period from a stream at the outlet of catchment is known as yield of the catchment in that period. Annual yield from a catchment is the end product of various processes such as precipitation, infiltration & evapo transpiration operating on the catchment.

Catchment yield (m<sup>3</sup>) = Catchment area (m<sup>2</sup>) x Run-off co-efficient (%) of rainfall (m).

Run-off generated from the water shed has been analysed using Strange's table 16 method to get the reliable yield results. Run-off from a catchment is dependent on annual rainfall as well as catchment characteristics such as soil by type of ground covering land usage. Remote Sensing was used for demarcation of catchment area relevant to drainage system. Catchment of different rivers flowing in the district of Ranchi are given in Table-12.

Run-off co-efficient of the catchment has been established based on Strange's table (Table-16) 50% probability of rainfall.



Table-16  
Strange Table

Total Monsoon rainfall (inches)	Total Monsoon rainfall (mm)	Percentage of Runoff to rainfall			Total Monsoon rainfall (inches)	Total Monsoon rainfall (mm)	Percentage of Runoff to rainfall		
		Good catchment	Average catchment	Bad catchment			Good catchment	Average catchment	Bad catchment
1.0	25.4	0.1	0.1	0.1	31.0	787.4	27.4	20.5	13.7
2.0	50.8	0.2	0.2	0.1	32.0	812.8	28.5	21.3	14.2
3.0	76.2	0.4	0.3	0.2	33.0	838.2	29.6	22.2	14.8
4.0	101.6	0.7	0.5	0.3	34.0	863.6	30.8	23.1	15.4
5.0	127.0	1.0	0.7	0.5	35.0	889.0	31.9	23.9	15.9
6.0	152.4	1.5	1.1	0.7	36.0	914.4	33.0	24.7	16.5
7.0	177.8	2.1	1.5	1.0	37.0	939.8	34.1	25.5	17.0
8.0	203.2	2.8	2.1	1.4	38.0	965.2	35.3	26.4	17.6
9.0	228.6	3.5	2.6	1.7	39.0	990.6	36.4	27.3	18.2
10.0	254.0	4.3	3.2	2.1	40.0	1016.0	37.5	28.1	18.7
11.0	279.4	5.2	3.9	2.6	41.0	1041.4	38.6	28.9	19.3
12.0	304.8	6.2	4.6	3.1	42.0	1066.8	39.8	29.8	19.9
13.0	330.2	7.2	5.4	3.6	43.0	1092.2	40.9	30.6	20.4
14.0	355.6	8.3	6.2	4.1	44.0	1117.6	42.0	31.5	21.0
15.0	381.0	9.4	7.0	4.7	45.0	1143.0	43.1	32.3	21.5
16.0	406.4	10.5	7.8	5.2	46.0	1168.4	44.3	33.2	22.1
17.0	431.8	11.6	8.7	5.8	47.0	1193.8	45.4	34.0	22.7
18.0	457.2	12.8	9.6	6.4	48.0	1219.2	46.5	34.8	23.2
19.0	482.6	13.9	10.4	6.9	49.0	1244.6	47.6	35.7	23.8
20.0	508.0	15.0	11.3	7.5	50.0	1270.0	48.8	36.6	24.4
21.0	533.4	16.1	12.0	8.0	51.0	1295.4	49.9	37.4	24.9
22.0	558.8	17.3	12.9	8.6	52.0	1320.8	51.0	38.2	25.5
23.0	584.2	18.4	13.8	9.2	53.0	1346.2	52.1	39.0	26.0
24.0	609.6	19.5	14.6	9.7	54.0	1371.6	53.3	39.9	26.6
25.0	635.0	20.6	15.4	10.3	55.0	1397.0	54.4	40.8	27.2
26.0	660.4	21.8	16.3	10.9	56.0	1422.4	55.5	41.6	27.7
27.0	685.8	22.9	17.1	11.4	57.0	1447.8	56.6	42.4	28.3
28.0	711.2	24.0	18.0	12.0	58.0	1473.2	57.8	43.3	28.9
29.0	736.6	25.1	18.8	12.5	59.0	1498.6	58.9	44.4	29.4
30.0	762.0	26.3	19.7	13.1	60.0	1524.0	60.0	45.0	30.0



12

**Catchment Yield and Peak Flood Discharge  
Table - 17 (Rainfall in descending order)  
River - Subernarekha**

Sl. No. (n)	Rainfall in descending order in mm	Year	%dependability (n/N+1)*100
1	1577.90	2011	4.76
2	1468.10	2006	9.52
3	1377.90	2007	14.29
4	1374.80	2008	19.05
5	1319.20	2017	23.81
6	1267.60	2014	28.57
7	1241.30	2003	33.33
8	1200.10	2001	38.10
9	1163.20	2012	42.86
10	1128.20	2009	47.62
11	1106.60	2013	52.38
12	1092.80	2016	57.14
13	1087.20	2002	61.90
14	1051.20	2004	66.67
15	990.54	2015	71.43
16	964.59	2020	76.19
17	878.90	2005	80.95
18	871.70	2018	85.71
19	806.40	2010	90.48
20	791.00	2019	95.24

$$m = \frac{n \times p}{100}$$

Where

N = number of years for which rainfall observation available  
Order

m = No.

p = Rainfall dependability percentage

In present case N=20, p=50% dependability of rainfall, 50%

$$m = (20 \times 50)/100 = 10$$

Corresponding to m = 10 the rainfall have been observed as 1128.20 mm

$$n = \frac{31.5 \times 1.128}{100} = 0.355 \text{ m}$$

Referring to strange table given in Table No.- 16 and taking catchment as average the run-off coefficient is 31.5%

With this catchment yield works out to (922.21 x 1000 x 1000 x 0.350) = 327.38 MCM

Calculation of Peak flood Discharge using dickens equation

$$Q = CA^{3/4}$$

Where Q = Peak flood discharge, C a constant depending on characteristics of the catchment, a = catchment area in sq.km

In the present case C = 11, a = 922.21

$$= 11 \times 360.24^{3/4} = 11 \times (922.21)^{3/4}$$

$$= 1840.84 \text{ cum}$$



**Catchment Yield and Peak Flood Discharge  
Table - 18 (Rainfall in descending order)  
River - Kanchi**

Sl. No. (n)	Rainfall in descending order in mm	Year	%dependability (n/N+1)*100
1	1577.90	2011	4.76
2	1468.10	2006	9.52
3	1377.90	2007	14.29
4	1374.80	2008	19.05
5	1319.20	2017	23.81
6	1267.60	2014	28.57
7	1241.30	2003	33.33
8	1200.10	2001	38.10
9	1163.20	2012	42.86
10	1128.20	2009	47.62
11	1106.60	2013	52.38
12	1092.80	2016	57.14
13	1087.20	2002	61.90
14	1051.20	2004	66.67
15	990.54	2015	71.43
16	964.59	2020	76.19
17	878.90	2005	80.95
18	871.70	2018	85.71
19	806.40	2010	90.48
20	791.00	2019	95.24

$$m = \frac{n \times p}{100}$$

Where

N = number of years for which rainfall observation available  
Order

m = No.

p = Rainfall dependability percentage

In present case N=20, p=50% dependability of rainfall, 50%

$$m = (20 \times 50)/100 = 10$$

Corresponding to m = 10 the rainfall have been observed as 1128.20 mm

$$n = \frac{31.5 \times 1.128}{100} = 0.355 \text{ m}$$

Referring to strange table given in Table No.- 16 and taking catchment as average the run-off coefficient is 31.5%

With this catchment yield works out to (1751.04 x 1000 x 1000 x 0.355) = 621.62 MCM

Calculation of Peak flood Discharge using dickens equation

$$Q = CA^{3/4}$$

Where Q = Peak flood discharge, C a constant depending on characteristics of the catchment, a = catchment area in sq.km

In the present case C = 11, a = 1751.04

$$= 11 \times 684.00^{3/4} = 11 \times (1751.04)^{3/4}$$

$$= 2977.59 \text{ cum}$$



**Catchment Yield and Peak Flood Discharge**  
**Table - 19 (Rainfall in descending order)**  
**River - South Koel**

Sl. No. (n)	Rainfall in descending order in mm	Year	%dependability (n/N+1)*100
1	1577.90	2011	4.76
2	1468.10	2006	9.52
3	1377.90	2007	14.29
4	1374.80	2008	19.05
5	1319.20	2017	23.81
6	1267.60	2014	28.57
7	1241.30	2003	33.33
8	1200.10	2001	38.10
9	1163.20	2012	42.86
10	1128.20	2009	47.62
11	1106.60	2013	52.38
12	1092.80	2016	57.14
13	1087.20	2002	61.90
14	1051.20	2004	66.67
15	990.54	2015	71.43
16	964.59	2020	76.19
17	878.90	2005	80.95
18	871.70	2018	85.71
19	806.40	2010	90.48
20	791.00	2019	95.24

$$m = \frac{n \times p}{100}$$

Where

N = number of years for which rainfall observation available  
 Order

m = No.

p = Rainfall dependability percentage

In present case N=20, p=50% dependability of rainfall, 50%

$$m = (20 \times 50)/100 = 10$$

Corresponding to m = 10 the rainfall have been observed as 1128.20 mm

$$n = \frac{31.5 \times 1.128}{100} = 0.355 \text{ m}$$

Referring to strange table give in Table No.- 16 and taking catchment as average the run-off coefficient is 31.5%  
 With this catchment yield works out to (705.28 x 1000 x 1000 x 0.355) = 250.37 MCM

Calculation of Peak flood Discharge using dickens equation

$$Q = CA^{3/4}$$

Where Q = Peak flood discharge, C a constant depending on characteristics of the catchment, a = catchment area in sq.km

In the present case C = 11, a = 705.28

$$= 11 \times 684.00^{3/4} = 11 \times (705.28)^{3/4}$$

$$= 1505.44 \text{ cum}$$



**Catchment Yield and Peak Flood Discharge  
Table - 20 (Rainfall in descending order)  
River - Raru**

Sl. No. (n)	Rainfall in descending order in mm	Year	%dependability (n/N+1)*100
1	1577.90	2011	4.76
2	1468.10	2006	9.52
3	1377.90	2007	14.29
4	1374.80	2008	19.05
5	1319.20	2017	23.81
6	1267.60	2014	28.57
7	1241.30	2003	33.33
8	1200.10	2001	38.10
9	1163.20	2012	42.86
10	1128.20	2009	47.62
11	1106.60	2013	52.38
12	1092.80	2016	57.14
13	1087.20	2002	61.90
14	1051.20	2004	66.67
15	990.54	2015	71.43
16	964.59	2020	76.19
17	878.90	2005	80.95
18	871.70	2018	85.71
19	806.40	2010	90.48
20	791.00	2019	95.24

$$m = \frac{n \times p}{100}$$

Where

N = number of years for which rainfall observation available  
Order

m = No.

p = Rainfall dependability percentage

In present case N=20, p=50% dependability of rainfall, 50%

$$m = (20 \times 50)/100 = 10$$

Corresponding to m = 10 the rainfall have been observed as 1128.20 mm

$$n = \frac{31.5 \times 1.128}{100} = 0.355 \text{ m}$$

Referring to strange table give in Table No.- 16 and taking catchment as average the run-off coefficient is 31.5%

With this catchment yield works out to (726.68 x 1000 x 1000 x 0.355) =

257.97 MCM

Calculation of Peak flood Discharge using dickens equation

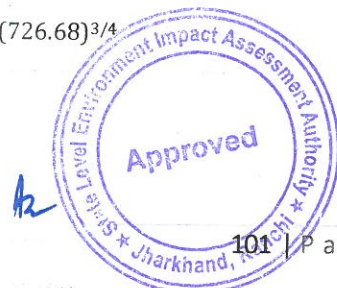
$$Q = CA^{3/4}$$

Where Q = Peak flood discharge, C a constant depending on characteristics of the catchment, a=catchment area in sq.km

In the present case C = 11, a = 726.68

$$= 11 \times 283.86^{3/4} = 11 \times (726.68)^{3/4}$$

$$= 1539.57 \text{ cum}$$



**Catchment Yield and Peak Flood Discharge  
Table - 21 (Rainfall in descending order)  
River - Bhur**

Sl. No. (n)	Rainfall in descending order in mm	Year	%dependability (n/N+1)*100
1	1577.90	2011	4.76
2	1468.10	2006	9.52
3	1377.90	2007	14.29
4	1374.80	2008	19.05
5	1319.20	2017	23.81
6	1267.60	2014	28.57
7	1241.30	2003	33.33
8	1200.10	2001	38.10
9	1163.20	2012	42.86
10	1128.20	2009	47.62
11	1106.60	2013	52.38
12	1092.80	2016	57.14
13	1087.20	2002	61.90
14	1051.20	2004	66.67
15	990.54	2015	71.43
16	964.59	2020	76.19
17	878.90	2005	80.95
18	871.70	2018	85.71
19	806.40	2010	90.48
20	791.00	2019	95.24

$$m = \frac{n \times p}{100}$$

Where

N = number of years for which rainfall observation available

m = Order No.

p = Rainfall dependability percentage

In present case N=20, p=50% dependability of rainfall, 50%

$$m = (20 \times 50)/100 = 10$$

Corresponding to m = 10 the rainfall have been observed as 1128.20 mm

$$n = \frac{31.5 \times 1.128}{100} = 0.355 \text{ m}$$

Referring to strange table give in Table No.- 16 and taking catchment as average the run-off coefficient is 31.5%

With this catchment yield works out to  $(78.80 \times 1000 \times 1000 \times 0.355) =$

27.97 MCM

Calculation of Peak flood Discharge using dickens equation

$$Q = CA^{3/4}$$

Where Q = Peak flood discharge, C a constant depending on characteristics of the catchment, a=catchment area in sq.km

In the present case C = 11, a = 78.80

$$= 11 \times 30.78^{3/4} = 11 \times (78.80)^{3/4}$$

$$= 290.92 \text{ cum}$$

*Az*



**Catchment Yield and Peak Flood Discharge  
Table - 22 (Rainfall in descending order)  
River - Sapahi**

Sl. No. (n)	Rainfall in descending order in mm	Year	%dependability (n/N+1)*100
1	1577.90	2011	4.76
2	1468.10	2006	9.52
3	1377.90	2007	14.29
4	1374.80	2008	19.05
5	1319.20	2017	23.81
6	1267.60	2014	28.57
7	1241.30	2003	33.33
8	1200.10	2001	38.10
9	1163.20	2012	42.86
10	1128.20	2009	47.62
11	1106.60	2013	52.38
12	1092.80	2016	57.14
13	1087.20	2002	61.90
14	1051.20	2004	66.67
15	990.54	2015	71.43
16	964.59	2020	76.19
17	878.90	2005	80.95
18	871.70	2018	85.71
19	806.40	2010	90.48
20	791.00	2019	95.24

$$m = \frac{n \times p}{100}$$

Where

N = number of years for which rainfall observation available  
Order

m = No.

p = Rainfall dependability percentage

In present case N=20, p=50% dependability of rainfall, 50%

$$m = (20 \times 50)/100 = 10$$

Corresponding to m = 10 the rainfall have been observed as 1128.20 mm

$$n = \frac{31.5 \times 1.128}{100} = 0.355 \text{ m}$$

Referring to strange table give in Table No.- 16 and taking catchment as average the run-off coefficient is 31.5%  
With this catchment yield works out to (4080.90 x 1000 x 1000 x 0.355) = 1448.72 MCM

Calculation of Peak flood Discharge using dickens equation

$$Q = CA^{3/4}$$

Where Q = Peak flood discharge, C a constant depending on characteristics of the catchment, a = catchment area in sq.km

In the present case C = 11, a = 4080.90

$$= 11 \times 1594.1^{3/4} = 11 \times (4080.90)^{3/4}$$

$$= 5616.42 \text{ cum}$$



**Catchment Yield and Peak Flood Discharge  
Table - 23 (Rainfall in descending order)  
River - Damodar**

Sl. No. (n)	Rainfall in descending order in mm	Year	%dependability (n/N+1)*100
1	1577.90	2011	4.76
2	1468.10	2006	9.52
3	1377.90	2007	14.29
4	1374.80	2008	19.05
5	1319.20	2017	23.81
6	1267.60	2014	28.57
7	1241.30	2003	33.33
8	1200.10	2001	38.10
9	1163.20	2012	42.86
10	1128.20	2009	47.62
11	1106.60	2013	52.38
12	1092.80	2016	57.14
13	1087.20	2002	61.90
14	1051.20	2004	66.67
15	990.54	2015	71.43
16	964.59	2020	76.19
17	878.90	2005	80.95
18	871.70	2018	85.71
19	806.40	2010	90.48
20	791.00	2019	95.24

$$m = \frac{n \times p}{100}$$

Where

N = number of years for which rainfall observation available  
Order

m = No.

p = Rainfall dependability percentage

In present case N=20, p=50% dependability of rainfall, 50%

$$m = (20 \times 50)/100 = 10$$

Corresponding to m = 10 the rainfall have been observed as 1128.20 mm

$$n = \frac{31.5 \times 1.128}{100} = 0.355 \text{ m}$$

Referring to strange table give in Table No.- 16 and taking catchment as average the run-off coefficient is 31.5%

With this catchment yield works out to (4080.90 x 1000 x 1000 x 0.355) = 358.81 MCM

Calculation of Peak flood Discharge using dickens equation

$$Q = CA^{3/4}$$

Where Q = Peak flood discharge, C a constant depending on characteristics of the catchment, a = catchment area in sq.km

In the present case C = 11, a = 1010.74

$$= 11 \times 1594.1^{3/4} = 11 \times (1010.74)^{3/4}$$

$$= 1971.84 \text{ cum}$$



**Table - 24 - River wise rate of replenishment using Sandy - Bolton equation**

Subernarekha River (Ranchi)															
=	1958	(	2.56	<sup>0.055</sup>	x	7.6	[	1.43	-	0.26	x	Log	360.24	]	)
=	1958	(	2.56	<sup>0.055</sup>	x	7.6	[	1.43	-	0.26	x	2.55659193			
=	1958	(	2.56	<sup>0.055</sup>	x	7.6	[	1.43	-	0.664714					
=	1958	(	2.56	<sup>0.055</sup>	x	7.6	[	0.76529							
=	1958	(	2.56	<sup>0.055</sup>	x	5.8162									
=	1958	(	0.94961		x	5.8162									
=	<b>10814.26</b>														

Kanchi River (Ranchi)															
=	1958	(	2.56	<sup>0.055</sup>	x	3.17	[	1.43	-	0.26	x	Log	684	]	)
=	1958	(	2.56	<sup>0.055</sup>	x	3.17	[	1.43	-	0.26	x	2.8350561			
=	1958	(	2.56	<sup>0.055</sup>	x	3.17	[	1.43	-	0.737115					
=	1958	(	2.56	<sup>0.055</sup>	x	3.17	[	0.69289							
=	1958	(	2.56	<sup>0.055</sup>	x	2.1964									
=	1958	(	0.94961		x	2.1964									
=	<b>4083.948</b>														

South Koel River (Ranchi)															
=	1958	(	2.56	<sup>0.055</sup>	x	7.28	[	1.43	-	0.26	x	Log	275.5	]	)
=	1958	(	2.56	<sup>0.055</sup>	x	7.28	[	1.43	-	0.26	x	2.4401216			
=	1958	(	2.56	<sup>0.055</sup>	x	7.28	[	1.43	-	0.634432					
=	1958	(	2.56	<sup>0.055</sup>	x	7.28	[	0.79557							
=	1958	(	2.56	<sup>0.055</sup>	x	5.7917									
=	1958	(	0.94961		x	5.7917									
=	<b>10768.83</b>														



**Raru River (Ranchi)**

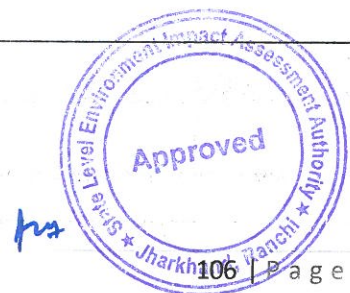
=	1958	(	2.56	<sup>0.055</sup>	x	7.91	[	1.43	-	0.26	x	Log	283.86	]	)
=	1958	(	2.56	<sup>0.055</sup>	x	7.91	[	1.43	-	0.26	x	2.4531042			
=	1958	(	2.56	<sup>0.055</sup>	x	7.91	[	1.43	-	0.637807					
=	1958	(	2.56	<sup>0.055</sup>	x	7.91	[	0.79219							
=	1958	(	2.56	<sup>0.055</sup>	x	6.2662									
=	1958	(	0.94961		x	6.2662									
=	<b>11651.1</b>														

**Bhur River (Ranchi)**

=	1958	(	2.56	<sup>0.055</sup>	x	6.96	[	1.43	-	0.26	x	Log	30.78	]	)
=	1958	(	2.56	<sup>0.055</sup>	x	6.96	[	1.43	-	0.26	x	1.48826862			
=	1958	(	2.56	<sup>0.055</sup>	x	6.96	[	1.43	-	0.38695					
=	1958	(	2.56	<sup>0.055</sup>	x	6.96	[	1.04305							
=	1958	(	2.56	<sup>0.055</sup>	x	7.2596									
=	1958	(	0.94961		x	7.2596									
=	<b>13498.14</b>														

**Sapahi River (Ranchi)**

=	1958	(	2.56	<sup>0.055</sup>	x	7.91	[	1.43	-	0.26	x	Log	1594.1	]	)
=	1958	(	2.56	<sup>0.055</sup>	x	7.91	[	1.43	-	0.26	x	3.20251556			
=	1958	(	2.56	<sup>0.055</sup>	x	7.91	[	1.43	-	0.832654					
=	1958	(	2.56	<sup>0.055</sup>	x	7.91	[	0.59735							
=	1958	(	2.56	<sup>0.055</sup>	x	4.7250									
=	1958	(	0.94961		x	4.7250									
=	<b>8785.407</b>														



**Damodar River (Ranchi)**

=	1958	(	2.56	<sup>0.055</sup>	x	6.65	[	1.43	-	0.26	x	Log	394.82	]	)
=	1958	(	2.56	<sup>0.055</sup>	x	6.65	[	1.43	-	0.26	x	2.59639914			
=	1958	(	2.56	<sup>0.055</sup>	x	6.65	[	1.43	-	0.675064					
=	1958	(	2.56	<sup>0.055</sup>	x	6.65	[	0.75494							
=	1958	(	2.56	<sup>0.055</sup>	x	5.0203									
=	1958	(	0.94961		x	5.0203									
=	<b>9334.507</b>														

**Determination of Rate of Annual Replenishment Based on Field Survey**

Rate of annual replenishment of sand in identified five rivers are given in table 24A.

However, in this case, where there has been no mining of sand during last year.

The rate of replenishment arrived by this method may not be realistic.

**Methodology:**

As explained earlier level of sand deposit in river channel were measured at pre-determined locations points pre monsoon & post monsoon. Replenishment volume was estimate by determination of change in area as explained in following figures.

$$A = (a+b/2) \times W1$$

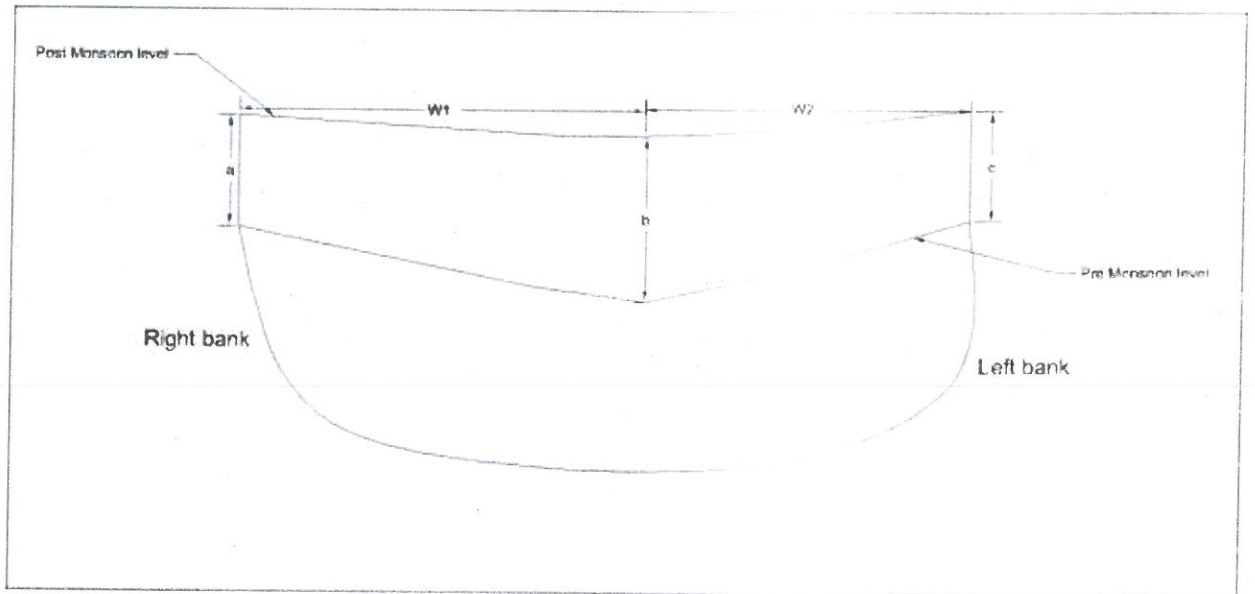
$$\text{difference of level area of C.S} = (a+b)/2 + (b+c)/2$$

$$A2 = (b+c/2) \times W2$$

$$\text{Area of replenishment} = A_1 + A_2$$

$$\text{Volume of replenishment between two cross sections spaced at 100 m} = (A_1 + A_2) \times 100$$





*Ranchi*

Approved

State Level Environment Impact Assessment Authority  
Jharkhand, Ranchi

Table-24A

Sand Replenishment Estimation Sheet												
District		RANCHI		River		KANCHI		Village- Loahatu & Churgi			UIN RKA01	
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	Volume between Consecutive Axis		Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon					a+b/2 in (m)	b+c/2 in (m)		
1	LOG/00	198	248.81	248.81	0.00							
	ROG/00		248.89	248.89	0.00							
	LSD/00		246.93	247.43	0.50	0.50						
	MSD/00		246.94	247.54	0.60		0.60		0.55			
	RSD/00		246.98	247.48	0.50			0.50		0.55	108.9	
2	LOG/100	195	248.82	248.82	0.00							
	ROG/100		248.89	248.89	0.00							
	LSD/100		246.92	247.42	0.50	0.50						
	MSD/100		246.94	247.54	0.60		0.60		0.55			
	RSD/100		246.98	247.48	0.50			0.50		0.55	107.25	5471.4
3	LOG/200	193	248.92	248.92	0.00							
	ROG/200		248.95	248.95	0.00							
	LSD/200		246.90	247.40	0.50	0.50						
	MSD/200		246.94	247.54	0.60		0.60		0.55			
	RSD/200		246.98	247.48	0.50			0.50		0.55	106.15	5414.75
4	LOG/300	200	248.88	248.88	0.00							
	ROG/300		248.90	248.90	0.00							
	LSD/300		246.90	247.40	0.50	0.50						
	MSD/300		246.94	247.54	0.60		0.60		0.55			
	RSD/300		246.95	247.45	0.50			0.50		0.55	110	5606.15
5	LOG/400	201	248.76	248.76	0.00							
	ROG/400		248.83	248.83	0.00							
	LSD/400		246.85	247.35	0.50	0.50						
	MSD/400		246.90	247.50	0.60		0.60		0.55			
	RSD/400		246.90	247.40	0.50			0.50		0.55	110.55	5637.5
6	LOG/500	203	248.72	248.72	0.00							
	ROG/500		248.76	248.76	0.00							
	LSD/500		246.80	247.30	0.50	0.50						
	MSD/500		246.85	247.45	0.60		0.60		0.55			
	RSD/500		246.85	247.35	0.50			0.50		0.55	111.65	5693.05
7	LOG/515	199	248.68	248.68	0.00							
	ROG/515		248.74	248.74	0.00							
	LSD/515		246.80	247.30	0.50	0.50						
	MSD/515		246.85	247.45	0.60		0.60		0.55			
	RSD/515		246.85	247.35	0.50			0.50		0.55	109.45	5584.15
TOTAL												33407



h

Sand Replenishment Estimation Sheet												
District		RANCHI		River		KANCHI		Village- Chilutikar & Sarjamdih			UIN RKA02	
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)		
1	LOG/00	155	248.45	248.45	0.00							
	ROG/00		248.88	248.88	0.00							
	LSD/00		247.04	247.54	0.50	0.50						
	MSD/00		246.90	247.50	0.60		0.60		0.55			
	RSD/00		246.95	247.45	0.50			0.50		0.55	85.25	
2	LOG/100	152	249.03	249.03	0.00							
	ROG/100		249.18	249.18	0.00							
	LSD/100		247.02	247.52	0.50	0.50						
	MSD/100		246.90	247.50	0.60		0.60		0.55			
	RSD/100		246.90	247.40	0.50			0.50		0.55	83.6	4265.25
3	LOG/200	152	248.86	248.86	0.00							
	ROG/200		248.81	248.81	0.00							
	LSD/200		247.00	247.50	0.50	0.50						
	MSD/200		246.85	247.45	0.60		0.60		0.55			
	RSD/200		246.85	247.35	0.50			0.50		0.55	83.6	4263.6
4	LOG/300	153	248.89	248.89	0.00							
	ROG/300		248.76	248.76	0.00							
	LSD/300		246.95	247.45	0.50	0.50						
	MSD/300		246.80	247.40	0.60		0.60		0.55			
	RSD/300		246.80	247.30	0.50			0.50		0.55	84.15	4291.1
5	LOG/400	158	248.83	248.83	0.00							
	ROG/400		248.70	248.70	0.00							
	LSD/400		246.90	247.40	0.50	0.50						
	MSD/400		246.70	247.30	0.60		0.60		0.55			
	RSD/400		246.70	247.20	0.50			0.50		0.55	86.9	4429.15
6	LOG/500	156	248.62	248.62	0.00							
	ROG/500		248.50	248.50	0.00							
	LSD/500		246.60	247.10	0.50	0.50						
	MSD/500		246.60	247.20	0.60		0.60		0.55			
	RSD/500		246.60	247.10	0.50			0.50		0.55	85.8	4376.9
7	LOG/600	154	248.42	248.42	0.00							
	ROG/600		248.35	248.35	0.00							
	LSD/600		246.50	247.00	0.50	0.50						
	MSD/600		246.50	247.10	0.60		0.60		0.55			
	RSD/600		246.50	247.00	0.50			0.50		0.55	84.7	4320.8
8	LOG/702	153	248.31	248.31	0.00							
	ROG/702		248.18	248.18	0.00							
	LSD/702		246.42	246.92	0.50	0.50						
	MSD/702		246.42	247.02	0.60		0.60		0.55			
	RSD/702		246.38	246.88	0.50			0.50		0.55	84.15	4292.2
<b>TOTAL</b>												30239



Sand Replenishment Estimation Sheet													
District		RANCHI		River		KANCHI		Village- Anredih			UIN RKA03		
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	138	248.65	248.65	0.00								
	ROG/00		248.60	248.60	0.00								
	LSD/00		246.82	247.32	0.50	0.50							
	MSD/00		246.70	247.30	0.60		0.60		0.55				
	RSD/00		246.70	247.20	0.50			0.50		0.55	75.9		
2	LOG/100	135	248.70	248.70	0.00								
	ROG/100		248.58	248.58	0.00								
	LSD/100		246.80	247.30	0.50	0.50							
	MSD/100		246.70	247.30	0.60		0.60		0.55				
	RSD/100		246.60	247.10	0.50			0.50		0.55	74.25	3788.4	
3	LOG/200	139	248.62	248.62	0.00								
	ROG/200		248.44	248.44	0.00								
	LSD/200		246.60	247.10	0.50	0.50							
	MSD/200		246.60	247.20	0.60		0.60		0.55				
	RSD/200		246.50	247.00	0.50			0.50		0.55	76.45	3896.75	
4	LOG/300	142	248.33	248.33	0.00								
	ROG/300		248.35	248.35	0.00								
	LSD/300		246.50	247.00	0.50	0.50							
	MSD/300		246.50	247.10	0.60		0.60		0.55				
	RSD/300		246.50	247.00	0.50			0.50		0.55	78.1	3981.45	
5	LOG/400	139	248.15	248.15	0.00								
	ROG/400		248.22	248.22	0.00								
	LSD/400		246.30	246.80	0.50	0.50							
	MSD/400		246.30	246.90	0.60		0.60		0.55				
	RSD/400		246.30	246.80	0.50			0.50		0.55	76.45	3900.6	
6	LOG/500	137	247.88	247.88	0.00								
	ROG/500		247.91	247.91	0.00								
	LSD/500		246.00	246.50	0.50	0.50							
	MSD/500		246.00	246.60	0.60		0.60		0.55				
	RSD/500		246.10	246.60	0.50			0.50		0.55	75.35	3843.95	
7	LOG/630	140	247.83	247.83	0.00								
	ROG/630		247.87	247.87	0.00								
	LSD/630		245.90	246.40	0.50	0.50							
	MSD/630		245.90	246.50	0.60		0.60		0.55				
	RSD/630		246.00	246.50	0.50			0.50		0.55	77	3925.35	
TOTAL												23336.5	



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Sand Replenishment Estimation Sheet													
District		RANCHI		River		KANCHI		Village- Karambu			UIN RKA04		
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	361	248.33	248.33	0.00								
	ROG/00		248.51	248.51	0.00								
	LSD/00		246.50	247.00	0.50	0.50							
	MSD/00		246.50	247.10	0.60		0.60		0.55				
	RSD/00		246.60	247.10	0.50			0.50		0.55	198.55		
2	LOG/100	363	247.99	247.99	0.00								
	ROG/100		248.35	248.35	0.00								
	LSD/100		246.30	246.80	0.50	0.50							
	MSD/100		246.30	246.90	0.60		0.60		0.55				
	RSD/100		246.40	246.90	0.50			0.50		0.55	199.65	10181	
3	LOG/200	358	247.92	247.92	0.00								
	ROG/200		247.99	247.99	0.00								
	LSD/200		246.10	246.60	0.50	0.50							
	MSD/200		246.10	246.70	0.60		0.60		0.55				
	RSD/200		246.20	246.70	0.50			0.50		0.55	196.9	10044.6	
4	LOG/300	362	247.84	247.84	0.00								
	ROG/300		247.79	247.79	0.00								
	LSD/300		245.90	246.40	0.50	0.50							
	MSD/300		245.90	246.50	0.60		0.60		0.55				
	RSD/300		245.90	246.40	0.50			0.50		0.55	199.1	10151.9	
5	LOG/360	359	247.64	247.64	0.00								
	ROG/360		247.76	247.76	0.00								
	LSD/360		245.70	246.20	0.50	0.50							
	MSD/360		245.70	246.30	0.60		0.60		0.55				
	RSD/360		245.80	246.30	0.50			0.50		0.55	197.45	10071.6	
TOTAL											40449.2		


  
 Approved

Sand Replenishment Estimation Sheet													
District		RANCHI		River		KANCHI		Village- Pangura, Baredih			UIN RKA05		
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	193	247.42	247.42	0.00								
	ROG/00		247.51	247.51	0.00								
	LSD/00		245.50	246.00	0.50	0.50							
	MSD/00		245.50	246.10	0.60		0.60		0.55				
	RSD/00		245.60	246.10	0.50			0.50		0.55	106.15		
2	LOG/100	195	247.11	247.11	0.00								
	ROG/100		247.33	247.33	0.00								
	LSD/100		245.30	245.80	0.50	0.50							
	MSD/100		245.30	245.90	0.60		0.60		0.55				
	RSD/100		245.40	245.90	0.50			0.50		0.55	107.25	5468.65	
3	LOG/200	199	246.88	246.88	0.00								
	ROG/200		246.97	246.97	0.00								
	LSD/200		245.00	245.50	0.50	0.50							
	MSD/200		245.00	245.60	0.60		0.60		0.55				
	RSD/200		245.10	245.60	0.50			0.50		0.55	109.45	5579.75	
4	LOG/300	196	246.71	246.71	0.00								
	ROG/300		246.84	246.84	0.00								
	LSD/300		244.80	245.30	0.50	0.50							
	MSD/300		244.90	245.50	0.60		0.60		0.55				
	RSD/300		244.90	245.40	0.50			0.50		0.55	107.8	5499.45	
5	LOG/400	190	246.55	246.55	0.00								
	ROG/400		246.62	246.62	0.00								
	LSD/400		244.60	245.10	0.50	0.50							
	MSD/400		244.70	245.30	0.60		0.60		0.55				
	RSD/400		244.70	245.20	0.50			0.50		0.55	104.5	5332.8	
6	LOG/500	188	246.48	246.48	0.00								
	ROG/500		246.55	246.55	0.00								
	LSD/500		244.50	245.00	0.50	0.50							
	MSD/500		244.50	245.10	0.60		0.60		0.55				
	RSD/500		244.60	245.10	0.50			0.50		0.55	103.4	5274.5	
7	LOG/600	189	246.23	246.23	0.00								
	ROG/600		246.18	246.18	0.00								
	LSD/600		244.30	244.80	0.50	0.50							
	MSD/600		244.30	244.90	0.60		0.60		0.55				
	RSD/600		244.30	244.80	0.50			0.50		0.55	103.95	5300.9	
8	LOG/700	186	245.99	245.99	0.00								
	ROG/700		245.96	245.96	0.00								
	LSD/700		244.10	244.60	0.50	0.50							
	MSD/700		244.20	244.80	0.60		0.60		0.55				
	RSD/700		244.10	244.60	0.50			0.50		0.55	102.3	5218.95	



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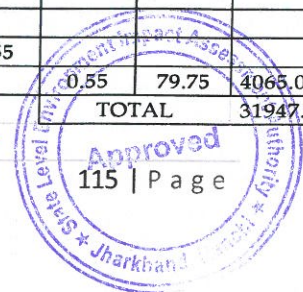
**DISTRICT SURVEY REPORT : DSR/Ranchi/001**

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon								
9	LOG/800	189	245.85	245.85	0.00							
	ROG/800		246.16	246.16	0.00							
	LSD/800		244.00	244.50	0.50	0.50						
	MSD/800		244.00	244.60	0.60		0.60		0.55			
	RSD/800		244.10	244.60	0.50			0.50		0.55	103.95	5299.8
10	LOG/900	192	245.77	245.77	0.00							
	ROG/900		245.89	245.89	0.00							
	LSD/900		243.80	244.30	0.50	0.50						
	MSD/900		243.80	244.40	0.60		0.60		0.55			
	RSD/900		243.90	244.40	0.50			0.50		0.55	105.6	5383.95
11	LOG/1000	193	245.54	245.54	0.00							
	ROG/1000		245.66	245.66	0.00							
	LSD/1000		243.60	244.10	0.50	0.50						
	MSD/1000		243.60	244.20	0.60		0.60		0.55			
	RSD/1000		243.70	244.20	0.50			0.50		0.55	106.15	5413.1
12	LOG/1100	190	245.23	245.23	0.00							
	ROG/1100		145.55	145.55	0.00							
	LSD/1100		243.40	243.90	0.50	0.50						
	MSD/1100		243.40	244.00	0.60		0.60		0.55			
	RSD/1100		243.50	244.00	0.50			0.50		0.55	104.5	5331.15
13	LOG/1196	195	245.16	245.16	0.00							
	ROG/1196		145.42	145.42	0.00							
	LSD/1196		243.28	243.78	0.50	0.50						
	MSD/1196		243.32	243.92	0.60		0.60		0.55			
	RSD/1196		243.44	243.94	0.50			0.50		0.55	107.25	5467
<b>TOTAL</b>											<b>64570</b>	



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Sand Replenishment Estimation Sheet													
District		RANCHI		River		KANCHI		Village- Tunju		UIN		RKA06	
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	143	261.81	261.81	0.00								
	ROG/00		261.78	261.78	0.00								
	LSD/00		259.90	260.40	0.50	0.50							
	MSD/00		259.70	260.30	0.60		0.60		0.55				
	RSD/00		259.88	260.38	0.50			0.50		0.55	78.65		
2	LOG/100	145	261.60	261.60	0.00								
	ROG/100		261.55	261.55	0.00								
	LSD/100		259.72	260.22	0.50	0.50							
	MSD/100		259.50	260.10	0.60		0.60		0.55				
	RSD/100		259.66	260.16	0.50			0.50		0.55	79.75	4066.15	
3	LOG/200	149	261.35	261.35	0.00								
	ROG/200		261.33	261.33	0.00								
	LSD/200		259.51	260.01	0.50	0.50							
	MSD/200		259.30	259.90	0.60		0.60		0.55				
	RSD/200		259.45	259.95	0.50			0.50		0.55	81.95	4177.25	
4	LOG/300	144	261.22	261.22	0.00								
	ROG/300		261.10	261.10	0.00								
	LSD/300		259.30	259.80	0.50	0.50							
	MSD/300		259.05	259.65	0.60		0.60		0.55				
	RSD/300		259.20	259.70	0.50			0.50		0.55	79.2	4041.95	
5	LOG/400	140	261.00	261.00	0.00								
	ROG/400		260.87	260.87	0.00								
	LSD/400		259.10	259.60	0.50	0.50							
	MSD/400		258.80	259.40	0.60		0.60		0.55				
	RSD/400		259.00	259.50	0.50			0.50		0.55	77	3929.2	
6	LOG/500	139	260.83	260.83	0.00								
	ROG/500		260.72	260.72	0.00								
	LSD/500		258.90	259.40	0.50	0.50							
	MSD/500		258.60	259.20	0.60		0.60		0.55				
	RSD/500		258.80	259.30	0.50			0.50		0.55	76.45	3899.5	
7	LOG/600	136	260.62	260.62	0.00								
	ROG/600		260.44	260.44	0.00								
	LSD/600		258.70	259.20	0.50	0.50							
	MSD/600		258.42	259.02	0.60		0.60		0.55				
	RSD/600		258.60	259.10	0.50			0.50		0.55	74.8	3816.45	
8	LOG/700	141	259.35	259.35	0.00								
	ROG/700		260.22	260.22	0.00								
	LSD/700		257.50	258.00	0.50	0.50							
	MSD/700		258.23	258.83	0.60		0.60		0.55				
	RSD/700		258.36	258.86	0.50			0.50		0.55	77.55	3952.3	
9	LOG/767	145	260.22	260.22	0.00								
	ROG/767		260.00	260.00	0.00								
	LSD/767		258.30	258.80	0.50	0.50							
	MSD/767		258.05	258.65	0.60		0.60		0.55				
	RSD/767		258.20	258.70	0.50			0.50		0.55	79.75	4066.05	
<b>TOTAL</b>												31947.9	



Sand Replenishment Estimation Sheet													
District		RANCHI		River		KANCHI		Village- Erkiya, Sumandih, Sutlong			UIN RKA07		
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	239	244.00	244.00	0.00								
	ROG/00		243.95	243.95	0.00								
	LSD/00		242.18	242.68	0.50	0.50							
	MSD/00		241.82	242.42	0.60		0.60		0.55				
	RSD/00		242.06	242.56	0.50			0.50		0.55	131.45		
2	LOG/100	242	243.80	243.80	0.00								
	ROG/100		243.79	243.79	0.00								
	LSD/100		241.86	242.36	0.50	0.50							
	MSD/100		241.60	242.20	0.60		0.60		0.55				
	RSD/100		241.88	242.38	0.50			0.50		0.55	133.1	6786.45	
3	LOG/200	245	243.55	243.55	0.00								
	ROG/200		243.56	243.56	0.00								
	LSD/200		241.64	242.14	0.50	0.50							
	MSD/200		241.44	242.04	0.60		0.60		0.55				
	RSD/200		241.66	242.16	0.50			0.50		0.55	134.75	6870.6	
4	LOG/300	241	243.44	243.44	0.00								
	ROG/300		243.50	243.50	0.00								
	LSD/300		241.50	242.00	0.50	0.50							
	MSD/300		241.35	241.95	0.60		0.60		0.55				
	RSD/300		241.55	242.05	0.50			0.50		0.55	132.55	6762.25	
5	LOG/400	238	243.35	243.35	0.00								
	ROG/400		243.39	243.39	0.00								
	LSD/400		241.45	241.95	0.50	0.50							
	MSD/400		241.30	241.90	0.60		0.60		0.55				
	RSD/400		241.48	241.98	0.50			0.50		0.55	130.9	6677.55	
6	LOG/500	235	243.42	243.42	0.00								
	ROG/500		243.40	243.40	0.00								
	LSD/500		241.45	241.95	0.50	0.50							
	MSD/500		241.30	241.90	0.60		0.60		0.55				
	RSD/500		241.48	241.98	0.50			0.50		0.55	129.25	6593.4	
7	LOG/600	233	243.26	243.26	0.00								
	ROG/600		243.22	243.22	0.00								
	LSD/600		241.30	241.80	0.50	0.50							
	MSD/600		241.18	241.78	0.60		0.60		0.55				
	RSD/600		241.34	241.84	0.50			0.50		0.55	128.15	6536.75	
8	LOG/700	239	243.03	243.03	0.00								
	ROG/700		243.05	243.05	0.00								
	LSD/700		241.10	241.60	0.50	0.50							
	MSD/700		240.90	241.50	0.60		0.60		0.55				
	RSD/700		241.12	241.62	0.50			0.50		0.55	131.45	6700.65	

  
  
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Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon								
9	LOG/800	241	242.55	242.55	0.00							
	ROG/800		242.61	242.61	0.00							
	LSD/800		240.65	241.15	0.50	0.50						
	MSD/800		240.45	241.05	0.60		0.60		0.55			
	RSD/800		240.74	241.24	0.50			0.50		0.55	132.55	6758.95
10	LOG/900	244	242.42	242.42	0.00							
	ROG/900		242.40	242.40	0.00							
	LSD/900		240.50	241.00	0.50	0.50						
	MSD/900		240.30	240.90	0.60		0.60		0.55			
	RSD/900		240.55	241.05	0.50			0.50		0.55	134.2	6842.55
11	LOG/1000	239	242.22	242.22	0.00							
	ROG/1000		242.28	242.28	0.00							
	LSD/1000		240.40	240.90	0.50	0.50						
	MSD/1000		240.12	240.72	0.60		0.60		0.55			
	RSD/1000		240.36	240.86	0.50			0.50		0.55	131.45	6706.7
12	LOG/1100	238	242.22	242.22	0.00							
	ROG/1100		242.26	242.26	0.00							
	LSD/1100		240.30	240.80	0.50	0.50						
	MSD/1100		240.08	240.68	0.60		0.60		0.55			
	RSD/1100		240.30	240.80	0.50			0.50		0.55	130.9	6676.45
13	LOG/1200	242	242.16	242.16	0.00							
	ROG/1200		242.10	242.10	0.00							
	LSD/1200		240.26	240.76	0.50	0.50						
	MSD/1200		240.03	240.63	0.60		0.60		0.55			
	RSD/1200		240.22	240.72	0.50			0.50		0.55	133.1	6785.9
14	LOG/1300	246	241.75	241.75	0.00							
	ROG/1300		241.63	241.63	0.00							
	LSD/1300		239.82	240.32	0.50	0.50						
	MSD/1300		239.66	240.26	0.60		0.60		0.55			
	RSD/1300		239.72	240.22	0.50			0.50		0.55	135.3	6898.1
15	LOG/1347	241	241.45	241.45	0.00							
	ROG/1347		241.41	241.41	0.00							
	LSD/1347		239.52	240.02	0.50	0.50						
	MSD/1347		239.46	240.06	0.60		0.60		0.55			
	RSD/1347		239.54	240.04	0.50			0.50		0.55	132.55	6762.8
<b>TOTAL</b>											<b>94359.1</b>	



Sand Replenishment Estimation Sheet												
District		RANCHI		River		KANCHI		Village- Sutilong, Badla		UIN		RKA08
Volume between Consecutive Axis												
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon								
1	LOG/00	191	240.22	240.22	0.00							
	ROG/00		240.05	240.05	0.00							
	LSD/00		238.58	239.08	0.50	0.50						
	MSD/00		238.41	239.01	0.60		0.60		0.55			
	RSD/00		238.42	238.92	0.50			0.50		0.55	105.05	
2	LOG/100	188	239.82	239.82	0.00							
	ROG/100		239.96	239.96	0.00							
	LSD/100		238.01	238.51	0.50	0.50						
	MSD/100		237.85	238.45	0.60		0.60		0.55			
	RSD/100		238.14	238.64	0.50			0.50		0.55	103.4	5275.05
3	LOG/200	185	239.75	239.75	0.00							
	ROG/200		239.69	239.69	0.00							
	LSD/200		237.88	238.38	0.50	0.50						
	MSD/200		237.67	238.27	0.60		0.60		0.55			
	RSD/200		237.86	238.36	0.50			0.50		0.55	101.75	5190.9
4	LOG/300	189	240.17	240.17	0.00							
	ROG/300		239.45	239.45	0.00							
	LSD/300		238.44	238.94	0.50	0.50						
	MSD/300		237.56	238.16	0.60		0.60		0.55			
	RSD/300		237.58	238.08	0.50			0.50		0.55	103.95	5299.25
5	LOG/400	193	241.11	241.11	0.00							
	ROG/400		239.15	239.15	0.00							
	LSD/400		239.32	239.82	0.50	0.50						
	MSD/400		237.30	237.90	0.60		0.60		0.55			
	RSD/400		237.42	237.92	0.50			0.50		0.55	106.15	5411.45
6	LOG/500	195	240.18	240.18	0.00							
	ROG/500		239.12	239.12	0.00							
	LSD/500		238.49	238.99	0.50	0.50						
	MSD/500		237.30	237.90	0.60		0.60		0.55			
	RSD/500		237.25	237.75	0.50			0.50		0.55	107.25	5468.65
7	LOG/600	199	239.68	239.68	0.00							
	ROG/600		238.95	238.95	0.00							
	LSD/600		237.82	238.32	0.50	0.50						
	MSD/600		237.38	237.98	0.60		0.60		0.55			
	RSD/600		237.07	237.57	0.50			0.50		0.55	109.45	5579.75
8	LOG/700	193	238.69	238.69	0.00							
	ROG/700		238.82	238.82	0.00							
	LSD/700		236.76	237.26	0.50	0.50						
	MSD/700		236.58	237.18	0.60		0.60		0.55			
	RSD/700		236.90	237.40	0.50			0.50		0.55	106.15	5416.95



**DISTRICT SURVEY REPORT : DSR/Ranchi/001**

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon								
9	LOG/800	187	238.13	238.13	0.00							
	ROG/800		238.65	238.65	0.00							
	LSD/800		236.42	236.92	0.50	0.50						
	MSD/800		237.64	238.24	0.60		0.60		0.55			
	RSD/800		236.74	237.24	0.50			0.50		0.55	102.85	5248.65
10	LOG/900	183	238.19	238.19	0.00							
	ROG/900		238.61	238.61	0.00							
	LSD/900		236.38	236.88	0.50	0.50						
	MSD/900		237.13	237.73	0.60		0.60		0.55			
	RSD/900		236.62	237.12	0.50			0.50		0.55	100.65	5135.35
11	LOG/1036	184	238.09	238.09	0.00							
	ROG/1036		238.48	238.48	0.00							
	LSD/1036		236.25	236.75	0.50	0.50						
	MSD/1036		237.04	237.64	0.60		0.60		0.55			
	RSD/1036		236.52	237.02	0.50			0.50		0.55	101.2	5160.65
<b>TOTAL</b>												<b>53186.6</b>



Sand Replenishment Estimation Sheet													
District		RANCHI		River		KANCHI		Village- Gomeadih, Haradih, Daruara			UIN		RKA09
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	163	233.52	233.52	0.00								
	ROG/00		233.45	233.45	0.00								
	LSD/00		231.65	232.15	0.50	0.50							
	MSD/00		231.50	232.10	0.60		0.60		0.55				
	RSD/00		231.58	232.08	0.50			0.50		0.55	89.65		
2	LOG/100	165	233.41	233.41	0.00								
	ROG/100		233.31	233.31	0.00								
	LSD/100		231.45	231.95	0.50	0.50							
	MSD/100		230.80	231.40	0.60		0.60		0.55				
	RSD/100		231.30	231.80	0.50			0.50		0.55	90.75	4627.15	
3	LOG/200	169	233.16	233.16	0.00								
	ROG/200		233.15	233.15	0.00								
	LSD/200		231.25	231.75	0.50	0.50							
	MSD/200		231.08	231.68	0.60		0.60		0.55				
	RSD/200		231.23	231.73	0.50			0.50		0.55	92.95	4738.25	
4	LOG/300	172	232.98	232.98	0.00								
	ROG/300		232.91	232.91	0.00								
	LSD/300		231.10	231.60	0.50	0.50							
	MSD/300		230.97	231.57	0.60		0.60		0.55				
	RSD/300		231.06	231.56	0.50			0.50		0.55	94.6	4822.95	
5	LOG/400	161	232.81	232.81	0.00								
	ROG/400		232.78	232.78	0.00								
	LSD/400		230.90	231.40	0.50	0.50							
	MSD/400		230.70	231.30	0.60		0.60		0.55				
	RSD/400		230.86	231.36	0.50			0.50		0.55	88.55	4522.1	
6	LOG/500	156	232.61	232.61	0.00								
	ROG/500		232.51	232.51	0.00								
	LSD/500		230.72	231.22	0.50	0.50							
	MSD/500		230.58	231.18	0.60		0.60		0.55				
	RSD/500		230.66	231.16	0.50			0.50		0.55	85.8	4378.55	
7	LOG/600	154	232.44	232.44	0.00								
	ROG/600		232.22	232.22	0.00								
	LSD/600		230.52	231.02	0.50	0.50							
	MSD/600		230.40	231.00	0.60		0.60		0.55				
	RSD/600		230.40	230.90	0.50			0.50		0.55	84.7	4320.8	
8	LOG/700	155	232.21	232.21	0.00								
	ROG/700		232.10	232.10	0.00								
	LSD/700		230.30	230.80	0.50	0.50							
	MSD/700		230.18	230.78	0.60		0.60		0.55				
	RSD/700		230.22	230.72	0.50			0.50		0.55	85.25	4347.2	



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Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon								
9	LOG/800	156	231.99	231.99	0.00							
	ROG/800		231.95	231.95	0.00							
	LSD/800		230.16	230.66	0.50	0.50						
	MSD/800		229.98	230.58	0.60		0.60		0.55			
	RSD/800		230.04	230.54	0.50			0.50		0.55	85.8	4375.25
10	LOG/900	156	231.78	231.78	0.00							
	ROG/900		231.79	231.79	0.00							
	LSD/900		229.86	230.36	0.50	0.50						
	MSD/900		229.73	230.33	0.60		0.60		0.55			
	RSD/900		229.80	230.30	0.50			0.50		0.55	85.8	4375.8
11	LOG/1000	159	231.61	231.61	0.00							
	ROG/1000		231.41	231.41	0.00							
	LSD/1000		229.62	230.12	0.50	0.50						
	MSD/1000		229.43	230.03	0.60		0.60		0.55			
	RSD/1000		229.58	230.08	0.50			0.50		0.55	87.45	4458.3
12	LOG/1100	161	231.30	231.30	0.00							
	ROG/1100		231.35	231.35	0.00							
	LSD/1100		229.40	229.90	0.50	0.50						
	MSD/1100		229.20	229.80	0.60		0.60		0.55			
	RSD/1100		229.32	229.82	0.50			0.50		0.55	88.55	4514.95
13	LOG/1200	163	231.08	231.08	0.00							
	ROG/1200		230.99	230.99	0.00							
	LSD/1200		229.18	229.68	0.50	0.50						
	MSD/1200		229.03	229.63	0.60		0.60		0.55			
	RSD/1200		229.15	229.65	0.50			0.50		0.55	89.65	4571.05
14	LOG/1300	165	230.87	230.87	0.00							
	ROG/1300		230.88	230.88	0.00							
	LSD/1300		228.85	229.35	0.50	0.50						
	MSD/1300		228.70	229.30	0.60		0.60		0.55			
	RSD/1300		228.88	229.38	0.50			0.50		0.55	90.75	4627.15
15	LOG/1397	166	230.52	230.52	0.00							
	ROG/1397		230.53	230.53	0.00							
	LSD/1397		228.65	229.15	0.50	0.50						
	MSD/1397		228.50	229.10	0.60		0.60		0.55			
	RSD/1397		228.68	229.18	0.50			0.50		0.55	91.3	4655.75
<b>TOTAL</b>											<b>63335.2</b>	



Sand Replenishment Estimation Sheet													
District		RANCHI		River		KANCHI		Village- Somadih		UIN		RKA10	
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	198	209.52	209.52	0.00								
	ROG/00		209.61	209.61	0.00								
	LSD/00		207.62	208.12	0.50	0.50							
	MSD/00		207.42	208.02	0.60		0.60		0.55				
	RSD/00		207.64	208.14	0.50			0.50		0.55	108.9		
2	LOG/100	200	209.24	209.24	0.00								
	ROG/100		209.30	209.30	0.00								
	LSD/100		207.36	207.86	0.50	0.50							
	MSD/100		207.20	207.80	0.60		0.60		0.55				
	RSD/100		207.40	207.90	0.50			0.50		0.55	110	5608.9	
3	LOG/200	203	209.16	209.16	0.00								
	ROG/200		209.14	209.14	0.00								
	LSD/200		207.20	207.70	0.50	0.50							
	MSD/200		207.00	207.60	0.60		0.60		0.55				
	RSD/200		207.26	207.76	0.50			0.50		0.55	111.65	5692.5	
4	LOG/300	201	209.00	209.00	0.00								
	ROG/300		209.00	209.00	0.00								
	LSD/300		207.00	207.50	0.50	0.50							
	MSD/300		206.80	207.40	0.60		0.60		0.55				
	RSD/300		207.06	207.56	0.50			0.50		0.55	110.55	5639.15	
5	LOG/400	198	208.70	208.70	0.00								
	ROG/400		208.72	208.72	0.00								
	LSD/400		206.80	207.30	0.50	0.50							
	MSD/400		206.56	207.16	0.60		0.60		0.55				
	RSD/400		206.74	207.24	0.50			0.50		0.55	108.9	5555.55	
6	LOG/500	195	208.45	208.45	0.00								
	ROG/500		208.43	208.43	0.00								
	LSD/500		206.55	207.05	0.50	0.50							
	MSD/500		206.36	206.96	0.60		0.60		0.55				
	RSD/500		206.48	206.98	0.50			0.50		0.55	107.25	5471.4	
7	LOG/600	193	208.20	208.20	0.00								
	ROG/600		208.22	208.22	0.00								
	LSD/600		206.30	206.80	0.50	0.50							
	MSD/600		206.10	206.70	0.60		0.60		0.55				
	RSD/600		206.28	206.78	0.50			0.50		0.55	106.15	5414.75	
8	LOG/700	196	207.99	207.99	0.00								
	ROG/700		207.96	207.96	0.00								
	LSD/700		206.12	206.62	0.50	0.50							
	MSD/700		205.88	206.48	0.60		0.60		0.55				
	RSD/700		206.06	206.56	0.50			0.50		0.55	107.8	5496.15	

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Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon								
9	LOG/800	200	207.68	207.68	0.00							
	ROG/800		207.65	207.65	0.00							
	LSD/800		205.80	206.30	0.50	0.50						
	MSD/800		205.65	206.25	0.60		0.60		0.55			
	RSD/800		205.80	206.30	0.50			0.50		0.55	110	5607.8
10	LOG/900	203	207.51	207.51	0.00							
	ROG/900		207.44	207.44	0.00							
	LSD/900		205.55	206.05	0.50	0.50						
	MSD/900		205.43	206.03	0.60		0.60		0.55			
	RSD/900		205.56	206.06	0.50			0.50		0.55	111.65	5692.5
11	LOG/1000	205	207.25	207.25	0.00							
	ROG/1000		207.38	207.38	0.00							
	LSD/1000		205.35	205.85	0.50	0.50						
	MSD/1000		206.20	206.80	0.60		0.60		0.55			
	RSD/1000		206.40	206.90	0.50			0.50		0.55	112.75	5749.15
12	LOG/1068	199	207.15	207.15	0.00							
	ROG/1068		208.18	208.18	0.00							
	LSD/1068		205.22	205.72	0.50	0.50						
	MSD/1068		205.92	206.52	0.60		0.60		0.55			
	RSD/1068		206.21	206.71	0.50			0.50		0.55	109.45	5585.25
<b>TOTAL</b>											<b>61513.1</b>	



Sand Replenishment Estimation Sheet												
District	RANCHI		River		RARU		Village- Kareyadh, Ichahatu			UIN PRA01		
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon								
1	LOG/00	218	234.97	234.97	0.00							
	ROG/00		234.95	234.95	0.00							
	LSD/00		233.18	233.68	0.50	0.50						
	MSD/00		233.01	233.61	0.60		0.60		0.55			
	RSD/00		233.10	233.60	0.50			0.50		0.55	119.9	
2	LOG/100	215	234.82	234.82	0.00							
	ROG/100		234.81	234.81	0.00							
	LSD/100		233.01	233.51	0.50	0.50						
	MSD/100		232.86	233.46	0.60		0.60		0.55			
	RSD/100		232.97	233.47	0.50			0.50		0.55	118.25	6032.4
3	LOG/200	219	234.99	234.99	0.00							
	ROG/200		234.88	234.88	0.00							
	LSD/200		232.96	233.46	0.50	0.50						
	MSD/200		232.85	233.45	0.60		0.60		0.55			
	RSD/200		232.95	233.45	0.50			0.50		0.55	120.45	6140.75
4	LOG/300	222	234.78	234.78	0.00							
	ROG/300		234.81	234.81	0.00							
	LSD/300		232.90	233.40	0.50	0.50						
	MSD/300		232.80	233.40	0.60		0.60		0.55			
	RSD/300		232.92	233.42	0.50			0.50		0.55	122.1	6225.45
5	LOG/400	217	234.72	234.72	0.00							
	ROG/400		234.75	234.75	0.00							
	LSD/400		232.85	233.35	0.50	0.50						
	MSD/400		232.75	233.35	0.60		0.60		0.55			
	RSD/400		232.84	233.34	0.50			0.50		0.55	119.35	6089.6
6	LOG/526	214	234.69	234.69	0.00							
	ROG/526		234.80	234.80	0.00							
	LSD/526		232.80	233.30	0.50	0.50						
	MSD/526		232.70	233.30	0.60		0.60		0.55			
	RSD/526		232.81	233.31	0.50			0.50		0.55	117.7	6004.35
<b>TOTAL</b>												<b>30492.5</b>



Sand Replenishment Estimation Sheet												
District		RANCHI		River		RARU		Village- Syamnagar, Birdidih			UIN PRA02	
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon								
1	LOG/00	199	214.56	214.56	0.00							
	ROG/00		214.60	214.60	0.00							
	LSD/00		212.60	213.10	0.50	0.50						
	MSD/00		212.40	213.00	0.60		0.60		0.55			
	RSD/00		212.70	213.20	0.50			0.50		0.55	109.45	
2	LOG/100	202	214.42	214.42	0.00							
	ROG/100		214.45	214.45	0.00							
	LSD/100		212.50	213.00	0.50	0.50						
	MSD/100		212.26	212.86	0.60		0.60		0.55			
	RSD/100		212.55	213.05	0.50			0.50		0.55	111.1	5664.45
3	LOG/200	205	214.25	214.25	0.00							
	ROG/200		214.29	214.29	0.00							
	LSD/200		212.30	212.80	0.50	0.50						
	MSD/200		212.16	212.76	0.60		0.60		0.55			
	RSD/200		212.32	212.82	0.50			0.50		0.55	112.75	5748.6
4	LOG/300	198	213.99	213.99	0.00							
	ROG/300		214.12	214.12	0.00							
	LSD/300		212.10	212.60	0.50	0.50						
	MSD/300		211.98	212.58	0.60		0.60		0.55			
	RSD/300		212.18	212.68	0.50			0.50		0.55	108.9	5557.75
5	LOG/400	195	213.86	213.86	0.00							
	ROG/400		213.85	213.85	0.00							
	LSD/400		211.90	212.40	0.50	0.50						
	MSD/400		211.90	212.50	0.60		0.60		0.55			
	RSD/400		211.96	212.46	0.50			0.50		0.55	107.25	5471.4
6	LOG/500	193	213.68	213.68	0.00							
	ROG/500		213.71	213.71	0.00							
	LSD/500		211.75	212.25	0.50	0.50						
	MSD/500		211.75	212.35	0.60		0.60		0.55			
	RSD/500		211.78	212.28	0.50			0.50		0.55	106.15	5414.75
7	LOG/600	197	213.53	213.53	0.00							
	ROG/600		213.49	213.49	0.00							
	LSD/600		211.60	212.10	0.50	0.50						
	MSD/600		211.58	212.18	0.60		0.60		0.55			
	RSD/600		211.62	212.12	0.50			0.50		0.55	108.35	5523.65
8	LOG/700	200	213.31	213.31	0.00							
	ROG/700		213.46	213.46	0.00							
	LSD/700		211.40	211.90	0.50	0.50						
	MSD/700		211.26	211.86	0.60		0.60		0.55			
	RSD/700		211.46	211.96	0.50			0.50		0.55	110	5608.35



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Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon								
9	LOG/800	201	212.99	212.99	0.00							
	ROG/800		213.22	213.22	0.00							
	LSD/800		211.20	211.70	0.50	0.50						
	MSD/800		211.10	211.70	0.60		0.60		0.55			
	RSD/800		211.25	211.75	0.50			0.50		0.55	110.55	5637.5
10	LOG/900	204	212.85	212.85	0.00							
	ROG/900		212.93	212.93	0.00							
	LSD/900		211.00	211.50	0.50	0.50						
	MSD/900		210.85	211.45	0.60		0.60		0.55			
	RSD/900		211.08	211.58	0.50			0.50		0.55	112.2	5720.55
11	LOG/1000	198	212.76	212.76	0.00							
	ROG/1000		212.79	212.79	0.00							
	LSD/1000		210.80	211.30	0.50	0.50						
	MSD/1000		210.65	211.25	0.60		0.60		0.55			
	RSD/1000		210.86	211.36	0.50			0.50		0.55	108.9	5557.2
12	LOG/1100	197	212.62	212.62	0.00							
	ROG/1100		212.63	212.63	0.00							
	LSD/1100		210.70	211.20	0.50	0.50						
	MSD/1100		210.55	211.15	0.60		0.60		0.55			
	RSD/1100		210.70	211.20	0.50			0.50		0.55	108.35	5526.4
13	LOG/1200	196	212.52	212.52	0.00							
	ROG/1200		212.58	212.58	0.00							
	LSD/1200		210.60	211.10	0.50	0.50						
	MSD/1200		210.45	211.05	0.60		0.60		0.55			
	RSD/1200		210.62	211.12	0.50			0.50		0.55	107.8	5498.35
14	LOG/1300	196	212.33	212.33	0.00							
	ROG/1300		212.24	212.24	0.00							
	LSD/1300		210.40	210.90	0.50	0.50						
	MSD/1300		210.20	210.80	0.60		0.60		0.55			
	RSD/1300		210.36	210.86	0.50			0.50		0.55	107.8	5497.8
15	LOG/1400	195	212.10	212.10	0.00							
	ROG/1400		212.05	212.05	0.00							
	LSD/1400		210.20	210.70	0.50	0.50						
	MSD/1400		210.00	210.60	0.60		0.60		0.55			
	RSD/1400		210.16	210.66	0.50			0.50		0.55	107.25	5470.3
16	LOG/1478	204	211.95	211.95	0.00							
	ROG/1478		211.91	211.91	0.00							
	LSD/1478		210.00	210.50	0.50	0.50						
	MSD/1478		209.75	210.35	0.60		0.60		0.55			
	RSD/1478		209.96	210.46	0.50			0.50		0.55	112.2	5717.25
<b>TOTAL</b>											<b>83614.3</b>	



Sand Replenishment Estimation Sheet													
District		RANCHI		River		Subernarekha		Village- Sundil		UIN		RSU01	
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	89	228.44	228.44	0.00								
	ROG/00		228.62	228.62	0.00								
	LSD/00		226.60	227.10	0.50	0.50							
	MSD/00		226.40	227.00	0.60		0.60		0.55				
	RSD/00		226.70	227.20	0.50			0.50		0.55	48.95		
2	LOG/100	87	228.33	228.33	0.00								
	ROG/100		228.45	228.45	0.00								
	LSD/100		226.50	227.00	0.50	0.50							
	MSD/100		226.40	227.00	0.60		0.60		0.55				
	RSD/100		226.60	227.10	0.50			0.50		0.55	47.85	2441.45	
3	LOG/200	85	228.33	228.33	0.00								
	ROG/200		228.29	228.29	0.00								
	LSD/200		226.40	226.90	0.50	0.50							
	MSD/200		226.20	226.80	0.60		0.60		0.55				
	RSD/200		226.40	226.90	0.50			0.50		0.55	46.75	2385.35	
4	LOG/300	88	228.25	228.25	0.00								
	ROG/300		228.06	228.06	0.00								
	LSD/300		226.30	226.80	0.50	0.50							
	MSD/300		226.00	226.60	0.60		0.60		0.55				
	RSD/300		226.20	226.70	0.50			0.50		0.55	48.4	2466.75	
5	LOG/400	92	227.98	227.98	0.00								
	ROG/400		228.09	228.09	0.00								
	LSD/400		226.10	226.60	0.50	0.50							
	MSD/400		225.90	226.50	0.60		0.60		0.55				
	RSD/400		226.10	226.60	0.50			0.50		0.55	50.6	2578.4	
6	LOG/500	91	227.88	227.88	0.00								
	ROG/500		228.00	228.00	0.00								
	LSD/500		226.00	226.50	0.50	0.50							
	MSD/500		225.80	226.40	0.60		0.60		0.55				
	RSD/500		226.00	226.50	0.50			0.50		0.55	50.05	2553.1	
7	LOG/600	94	227.77	227.77	0.00								
	ROG/600		227.85	227.85	0.00								
	LSD/600		225.80	226.30	0.50	0.50							
	MSD/600		225.70	226.30	0.60		0.60		0.55				
	RSD/600		226.00	226.50	0.50			0.50		0.55	51.7	2585	
8	LOG/700	93	227.56	227.56	0.00								
	ROG/700		227.58	227.58	0.00								
	LSD/700		225.70	226.20	0.50	0.50							
	MSD/700		225.60	226.20	0.60		0.60		0.55				
	RSD/700		225.60	226.10	0.50			0.50		0.55	51.15	2609.2	
9	LOG/829	88	227.44	227.44	0.00								
	ROG/829		227.41	227.41	0.00								
	LSD/829		225.56	226.06	0.50	0.50							
	MSD/829		225.42	226.02	0.60		0.60		0.55				
	RSD/829		225.54	226.04	0.50			0.50		0.55	48.4	2471.15	
<b>TOTAL</b>											20090.4		



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Sand Replenishment Estimation Sheet													
District		RANCHI		River		Subernarekha		Village- Chokeserang, Dumarbera		UIN		RSU02	
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	78	224.41	224.41	0.00								
	ROG/00		224.46	224.46	0.00								
	LSD/00		222.60	223.10	0.50	0.50							
	MSD/00		222.40	223.00	0.60		0.60		0.55				
	RSD/00		222.60	223.10	0.50			0.50		0.55	42.9		
2	LOG/100	80	224.30	224.30	0.00								
	ROG/100		224.36	224.36	0.00								
	LSD/100		222.40	222.90	0.50	0.50							
	MSD/100		222.20	222.80	0.60		0.60		0.55				
	RSD/100		222.40	222.90	0.50			0.50		0.55	44	2242.9	
3	LOG/200	84	224.16	224.16	0.00								
	ROG/200		224.18	224.18	0.00								
	LSD/200		222.20	222.70	0.50	0.50							
	MSD/200		222.00	222.60	0.60		0.60		0.55				
	RSD/200		222.20	222.70	0.50			0.50		0.55	46.2	2354	
4	LOG/300	87	223.98	223.98	0.00								
	ROG/300		223.90	223.90	0.00								
	LSD/300		222.10	222.60	0.50	0.50							
	MSD/300		221.90	222.50	0.60		0.60		0.55				
	RSD/300		222.00	222.50	0.50			0.50		0.55	47.85	2438.7	
5	LOG/400	82	223.95	223.95	0.00								
	ROG/400		223.83	223.83	0.00								
	LSD/400		222.00	222.50	0.50	0.50							
	MSD/400		221.90	222.50	0.60		0.60		0.55				
	RSD/400		221.90	222.40	0.50			0.50		0.55	45.1	2302.85	
6	LOG/500	77	223.87	223.87	0.00								
	ROG/500		223.72	223.72	0.00								
	LSD/500		221.90	222.40	0.50	0.50							
	MSD/500		221.60	222.20	0.60		0.60		0.55				
	RSD/500		221.80	222.30	0.50			0.50		0.55	42.35	2162.6	
7	LOG/600	75	223.61	223.61	0.00								
	ROG/600		223.52	223.52	0.00								
	LSD/600		221.70	222.20	0.50	0.50							
	MSD/600		221.40	222.00	0.60		0.60		0.55				
	RSD/600		221.60	222.10	0.50			0.50		0.55	41.25	2104.85	
8	LOG/700	71	223.44	223.44	0.00								
	ROG/700		223.21	223.21	0.00								
	LSD/700		221.50	222.00	0.50	0.50							
	MSD/700		221.20	221.80	0.60		0.60		0.55				
	RSD/700		221.30	221.80	0.50			0.50		0.55	39.05	1993.75	



**DISTRICT SURVEY REPORT : DSR/Ranchi/001**

Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon								
9	LOG/800	73	223.23	223.23	0.00							
	ROG/800		223.10	223.10	0.00							
	LSD/800		221.30	221.80	0.50	0.50						
	MSD/800		221.00	221.60	0.60		0.60		0.55			
	RSD/800		221.10	221.60	0.50			0.50		0.55	40.15	2046.55
10	LOG/900	75	222.99	222.99	0.00							
	ROG/900		222.92	222.92	0.00							
	LSD/900		221.10	221.60	0.50	0.50						
	MSD/900		220.80	221.40	0.60		0.60		0.55			
	RSD/900		220.90	221.40	0.50			0.50		0.55	41.25	2102.65
11	LOG/977	78	222.77	222.77	0.00							
	ROG/977		222.63	222.63	0.00							
	LSD/977		220.80	221.30	0.50	0.50						
	MSD/977		220.50	221.10	0.60		0.60		0.55			
	RSD/977		220.70	221.20	0.50			0.50		0.55	42.9	2186.25
<b>TOTAL</b>												<b>21935.1</b>



Sand Replenishment Estimation Sheet													
District		RANCHI		River		Subernarekha		Village- Chokeserang		UIN		RSU03	
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	81	222.30	222.30	0.00								
	ROG/00		222.25	222.25	0.00								
	LSD/00		220.35	220.85	0.50	0.50							
	MSD/00		220.20	220.80	0.60		0.60		0.55				
	RSD/00		220.30	220.80	0.50			0.50		0.55	44.55		
2	LOG/100	84	222.31	222.31	0.00								
	ROG/100		222.16	222.16	0.00								
	LSD/100		220.25	220.75	0.50	0.50							
	MSD/100		220.06	220.66	0.60		0.60		0.55				
	RSD/100		220.28	220.78	0.50			0.50		0.55	46.2	2354.55	
3	LOG/200	80	221.75	221.75	0.00								
	ROG/200		221.82	221.82	0.00								
	LSD/200		220.00	220.50	0.50	0.50							
	MSD/200		219.90	220.50	0.60		0.60		0.55				
	RSD/200		220.06	220.56	0.50			0.50		0.55	44	2246.2	
4	LOG/300	78	221.90	221.90	0.00								
	ROG/300		221.82	221.82	0.00								
	LSD/300		219.95	220.45	0.50	0.50							
	MSD/300		219.85	220.45	0.60		0.60		0.55				
	RSD/300		219.86	220.36	0.50			0.50		0.55	42.9	2189	
5	LOG/400	76	221.80	221.80	0.00								
	ROG/400		221.71	221.71	0.00								
	LSD/400		219.88	220.38	0.50	0.50							
	MSD/400		219.76	220.36	0.60		0.60		0.55				
	RSD/400		219.78	220.28	0.50			0.50		0.55	41.8	2132.9	
6	LOG/429	81	221.55	221.55	0.00								
	ROG/429		221.51	221.51	0.00								
	LSD/429		219.65	220.15	0.50	0.50							
	MSD/429		219.52	220.12	0.60		0.60		0.55				
	RSD/429		219.64	220.14	0.50			0.50		0.55	44.55	2269.3	
<b>TOTAL</b>												<b>11191.9</b>	



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Sand Replenishment Estimation Sheet													
District		RANCHI		River		Subernarekha		Village- Shyamnagar		UIN		RSU04	
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	96	209.60	209.60	0.00								
	ROG/00		209.46	209.46	0.00								
	LSD/00		207.68	208.18	0.50	0.50							
	MSD/00		207.50	208.10	0.60		0.60		0.55				
	RSD/00		207.66	208.16	0.50			0.50		0.55	52.8		
2	LOG/100	99	209.55	209.55	0.00								
	ROG/100		209.48	209.48	0.00								
	LSD/100		207.60	208.10	0.50	0.50							
	MSD/100		207.30	207.90	0.60		0.60		0.55				
	RSD/100		207.55	208.05	0.50			0.50		0.55	54.45	2775.3	
3	LOG/200	103	209.30	209.30	0.00								
	ROG/200		209.43	209.43	0.00								
	LSD/200		207.40	207.90	0.50	0.50							
	MSD/200		207.10	207.70	0.60		0.60		0.55				
	RSD/200		207.45	207.95	0.50			0.50		0.55	56.65	2886.95	
4	LOG/300	98	209.10	209.10	0.00								
	ROG/300		209.26	209.26	0.00								
	LSD/300		207.20	207.70	0.50	0.50							
	MSD/300		206.90	207.50	0.60		0.60		0.55				
	RSD/300		207.30	207.80	0.50			0.50		0.55	53.9	2751.65	
5	LOG/400	94	209.00	209.00	0.00								
	ROG/400		209.03	209.03	0.00								
	LSD/400		207.00	207.50	0.50	0.50							
	MSD/400		206.70	207.30	0.60		0.60		0.55				
	RSD/400		207.10	207.60	0.50			0.50		0.55	51.7	2638.9	
6	LOG/500	91	208.65	208.65	0.00								
	ROG/500		208.78	208.78	0.00								
	LSD/500		206.80	207.30	0.50	0.50							
	MSD/500		206.60	207.20	0.60		0.60		0.55				
	RSD/500		206.90	207.40	0.50			0.50		0.55	50.05	2554.2	
7	LOG/600	89	208.55	208.55	0.00								
	ROG/600		208.62	208.62	0.00								
	LSD/600		206.66	207.16	0.50	0.50							
	MSD/600		206.48	207.08	0.60		0.60		0.55				
	RSD/600		206.70	207.20	0.50			0.50		0.55	48.95	2497.55	
8	LOG/671	94	208.45	208.45	0.00								
	ROG/671		208.53	208.53	0.00								
	LSD/671		206.56	207.06	0.50	0.50							
	MSD/671		206.40	207.00	0.60		0.60		0.55				
	RSD/671		206.60	207.10	0.50			0.50		0.55	51.7	2633.95	
<b>TOTAL</b>												<b>18738.5</b>	



Sand Replenishment Estimation Sheet												
District		RANCHI		River		SAPAHI		Village- Churi, Ray		UIN		RSA01
Volume between Consecutive Axis												
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)	Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon								
1	LOG/00	211	418.56	418.56	0.00							
	ROG/00		418.51	418.51	0.00							
	LSD/00		416.72	417.22	0.50	0.50						
	MSD/00		416.50	417.10	0.60		0.60		0.55			
	RSD/00		416.70	417.20	0.50			0.50		0.55	116.05	
2	LOG/100	215	417.44	417.44	0.00							
	ROG/100		418.41	418.41	0.00							
	LSD/100		415.50	416.00	0.50	0.50						
	MSD/100		416.31	416.91	0.60		0.60		0.55			
	RSD/100		416.47	416.97	0.50			0.50		0.55	118.25	6028.55
3	LOG/200	209	418.20	418.20	0.00							
	ROG/200		418.12	418.12	0.00							
	LSD/200		416.30	416.80	0.50	0.50						
	MSD/200		416.10	416.70	0.60		0.60		0.55			
	RSD/200		416.22	416.72	0.50			0.50		0.55	114.95	5865.75
4	LOG/300	207	418.15	418.15	0.00							
	ROG/300		417.98	417.98	0.00							
	LSD/300		416.20	416.70	0.50	0.50						
	MSD/300		416.00	416.60	0.60		0.60		0.55			
	RSD/300		416.11	416.61	0.50			0.50		0.55	113.85	5807.45
5	LOG/430	210	417.94	417.94	0.00							
	ROG/430		418.00	418.00	0.00							
	LSD/430		416.00	416.50	0.50	0.50						
	MSD/430		415.80	416.40	0.60		0.60		0.55			
	RSD/430		415.98	416.48	0.50			0.50		0.55	115.5	5888.85
<b>TOTAL</b>												<b>23590.6</b>



Sand Replenishment Estimation Sheet													
District	RANCHI		River PAKRO			Village- Basantpur					UIN	RPA01	
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	Volume between Consecutive Axis					Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )	
			Pre Monsoon	Post Monsoon		a in (m)	b in (m)	c in (m)	a+b/2 in (m)	b+c/2 in (m)			
1	LOG/00	152	248.94	248.94	0.00								
	ROG/00		248.88	248.88	0.00								
	LSD/00		247.10	247.60	0.50	0.50							
	MSD/00		246.99	247.59	0.60		0.60		0.55				
	RSD/00		246.99	247.49	0.50			0.50		0.55	83.6		
2	LOG/100	154	248.78	248.78	0.00								
	ROG/100		248.75	248.75	0.00								
	LSD/100		247.01	247.51	0.50	0.50							
	MSD/100		246.92	247.52	0.60		0.60		0.55				
	RSD/100		246.85	247.35	0.50			0.50		0.55	84.7	4318.6	
3	LOG/200	150	248.81	248.81	0.00								
	ROG/200		248.83	248.83	0.00								
	LSD/200		246.90	247.40	0.50	0.50							
	MSD/200		246.79	247.39	0.60		0.60		0.55				
	RSD/200		246.86	247.36	0.50			0.50		0.55	82.5	4209.7	
4	LOG/278	151	248.96	248.96	0.00								
	ROG/278		248.83	248.83	0.00								
	LSD/278		247.05	247.55	0.50	0.50							
	MSD/278		247.14	247.74	0.60		0.60		0.55				
	RSD/278		246.91	247.41	0.50			0.50		0.55	83.05	4235	
<b>TOTAL</b>												<b>12763.3</b>	



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Sand Replenishment Estimation Sheet												
District		RANCHI		River		CHATTI		Village- Lapra			UIN RCH01	
Sl. No.	Nodal Point	Width of the River (in m)	Elevation amsl		Difference in (m)	a in (m)	b in (m)	c in (m)	Volume between Consecutive Axis		Area of cross section in (m <sup>2</sup> )	volume in (m <sup>3</sup> )
			Pre Monsoon	Post Monsoon					a+b/2 in (m)	b+c/2 in (m)		
1	LOG/00	29	429.52	429.52	0.00							
	ROG/00		429.51	429.51	0.00							
	LSD/00		427.62	428.12	0.50	0.50						
	MSD/00		427.42	428.02	0.60		0.60		0.55			
	RSD/00		427.64	428.14	0.50			0.50		0.55	15.95	
2	LOG/100	31	429.29	429.29	0.00							
	ROG/100		429.32	429.32	0.00							
	LSD/100		427.40	427.90	0.50	0.50						
	MSD/100		427.20	427.80	0.60		0.60		0.55			
	RSD/100		427.36	427.86	0.50			0.50		0.55	17.05	868.45
3	LOG/200	34	429.13	429.13	0.00							
	ROG/200		429.00	429.00	0.00							
	LSD/200		427.20	427.70	0.50	0.50						
	MSD/200		427.00	427.60	0.60		0.60		0.55			
	RSD/200		427.14	427.64	0.50			0.50		0.55	18.7	952.05
4	LOG/300	30	428.85	428.85	0.00							
	ROG/300		429.34	429.34	0.00							
	LSD/300		427.00	427.50	0.50	0.50						
	MSD/300		426.80	427.40	0.60		0.60		0.55			
	RSD/300		427.46	427.96	0.50			0.50		0.55	16.5	843.7
5	LOG/400	26	428.80	428.80	0.00							
	ROG/400		428.73	428.73	0.00							
	LSD/400		426.90	427.40	0.50	0.50						
	MSD/400		426.70	427.30	0.60		0.60		0.55			
	RSD/400		426.85	427.35	0.50			0.50		0.55	14.3	731.5
6	LOG/500	24	428.76	428.76	0.00							
	ROG/500		428.71	428.71	0.00							
	LSD/500		426.80	427.30	0.50	0.50						
	MSD/500		426.60	427.20	0.60		0.60		0.55			
	RSD/500		426.75	427.25	0.50			0.50		0.55	13.2	674.3
7	LOG/568	27	428.76	428.76	0.00							
	ROG/568		428.71	428.71	0.00							
	LSD/568		426.80	427.30	0.50	0.50						
	MSD/568		426.60	427.20	0.60		0.60		0.55			
	RSD/568		426.75	427.25	0.50			0.50		0.55	14.85	755.7
										TOTAL	4825.7	



## **CHAPTER - XII COMPLIANCE OF REGULATION**

### **12.1 Introduction**

District Survey Report of Sand Mining or River Bed Mining in the district is prepared under-

- ✓ MoEF & CC, GoI notification S.O. 1533(E) dated 14/09/2006
- ✓ MoEF & CC, GoI notification S.O. 141 (E) dated 15/01/2016
- ✓ Sustainable Sand Mining Guidelines, 2016
- ✓ Sand Policy of Govt. of Jharkhand, 2017
- ✓ MoEF & CC, GoI notification S.O. 3611 (E) dated 25/07/2018
- ✓ Enforcement and Monitoring Guidelines for Sand Mining 2020
- ✓ Jharkhand Minor Mineral Concession Rule, 2021

**12.2** Compliance to provisions in Gazette notification no. S.O 3611 dated 25.07.2018 & sustainable sand mining guideline (SSMG) 2016. Notification 3611 dated 25.07.2018 has laid down structure of DSR for sand mining.

Table below gives status of compliance to above guidelines:

**Table-25 Compliance MoEF & CC, GoI notification S.O. 3611 (E) dated 25/07/2018 & SSMG - 2016 Guidelines Applicable to Preparation of D.S.R for Sand Mining**

Sl. No.	Prescribed Guideline	Complied
1.	The report can have following structure	
A	Introduction	<b>Complied Refer to Chapter - I</b>
B	Overview of Mining Activity in the District	<b>Complied Refer to Chapter - II</b>
C	The List of Mining Leases in the District with location, area and period of validity	<b>Complied Refer to Chapter - III</b>
D	Details of Royalty or Revenue received in last three years	<b>Complied Refer to Chapter - IV</b>
E	Detail of Production of Sand or Bajari or minor mineral in last three years	<b>Complied Refer to Chapter - V</b>
F	Process of Deposition of Sediments in the rivers of the District	<b>Complied Refer to Chapter - VI</b>
G	General Profile of the District	<b>Complied Refer to Chapter - VII</b>
H	Land Utilization Pattern in the district: Forest, Agriculture, Horticulture, Mining etc	<b>Complied Refer to Chapter - VIII</b>



I	Physiography of the District				<b>Complied Refer to Chapter - IX</b>
J	Rainfall: month-wise				<b>Complied Refer to Chapter - X</b>
K	Geology and Mineral Wealth				<b>Complied Refer to Chapter - XI</b>
2.	Drainage System with description of main rivers.				<b>Complied Refer to Table 11</b>
	<b>Sl. No</b>	<b>NAME OF RIVER</b>	<b>AREA DRAINED (Sq. Km)</b>	<b>% AREA DRAINED</b>	
3.	<b>Salient Features of Important Rivers and Streams:</b>				<b>Complied Refer to Table 10</b>
	<b>Sl. No.</b>	<b>Name of the River / Stream</b>	<b>Total Length in the District (in Km)</b>	<b>Place of origin</b>	
4.	<p>Methodology Adopted for Calculating of Mineral Potential</p> <p>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- location, depth of mineable mineral is defined. The area for removal of mineral in a river or stream can be decided depending on geo-morphology and other factors, it can be 50% to 60% of the area of a particular river/stream.</p> <p>The specific gravity of each mineral constituent is different. While calculating the mineral potential, the average specific gravity is taken as 2.25. The percent of mineral constituent like boulder, bajari, sand also varies for different river and streams.</p>				<b>Complied Refer to Chapter - XI</b>
5.	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 geomorphological features developed in the river beds such as channel bar, point bar etc. where annual deposition is more even two to three meters.				<b>Quantum of replenishment of sand has been determined by surveyed data</b>
6.	The specific gravity of each mineral constituents is different. While calculating the mineral potential the average specific gravity is taken as 2.25. The percentage of mineral constituent like boulder, river bajari, sand also varies for different river and streams.				<b>Specific gravity of sand samples collected from every PRA have been tested and enclosed with this report.</b>



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<p>6.</p> <p><b>Present Status of Mining</b></p> <p>This gives the detail of mining leases already in operation in this stretch, area and production in last three years from these leases are calculated.</p> <p>Mineral Potential is calculated in following way:</p> <p><b>Mineral Potential</b></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">Boulder (MT)</th> <th style="padding: 5px;">Bajari (MT)</th> <th style="padding: 5px;">Sand (MT)</th> <th style="padding: 5px;">Total Mineable Mineral Potential (MT)</th> </tr> </thead> <tbody> <tr> <td style="height: 20px;"></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Boulder (MT)	Bajari (MT)	Sand (MT)	Total Mineable Mineral Potential (MT)					<p><b>Complied</b> <b>and given in chapter XI</b></p>
	Boulder (MT)	Bajari (MT)	Sand (MT)	Total Mineable Mineral Potential (MT)								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> </tr> </table>												
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> </tr> </table>												



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# CHAPTER-XII



**12.3 Compliance to Environment Monitoring Guideline for Sand mining 2020.**

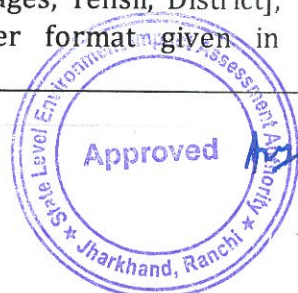
EMGS-2020 has also laid down guidelines for preparation of DSR for sand mining & also for estimating annual rate of replenishment of sand.

In preparation of this DSR these guidelines have been followed.

Status of Compliance to provisions in EMGS – 2020 is given below in table.

**Status of Compliance to provisions in Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) 2020**

Sl. No.	Condition laid down by SSMG	Compliance
a.	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.	District Survey Report for sand mining has been prepared. After its approval appropriate action will be taken by mining department for auction and grant of mining lease.
b.	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.	After detailed survey inventory of rivers in the district has been prepared where sand can be mined. There is no source of M sand in the district. This is covered in chapter – XI
c.	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.	District Survey Report identifies both mining and non-mining zone. This is covered in chapter - XI
d.	Identification of the source of Sand & M- Sand. The sources may be from Rivers, Lakes, Ponds, Dams, De-silting locations, Patta land/ Khatedari 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/Khatedari lands [Owner Name, Si. 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 <b>Annexure-I.</b>	In this District Survey Report, source of sand in the district has been identified as river sand. Only required details on river, land has been furnished in chapter – XI. There is no M-sand plant in the district. Annexure -I has been filled and enclosed.



e.	<p>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 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 are 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 3/4th part of the river, width needs to be identified on a map. Out of the 3/4th part area, where there is a deposition/aggradation of the material needs to be identified. The remaining 1/4th 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.</p>	<p>Source of sand in the district has been found to be sand to be mined from the river bed. OGL for every potential resource area have been recorded along with R.L of sand deposit. Portion of the river channel from where sand will be mined have been identified only 3/4th of river to be mined. Sand samples have been tested by NABL certified labs.</p>
f.	<p>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.</p>	<p>Permanent boundary pillar will be erected after lease is granted.</p>
g.	<p>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 non-sensitive area non-sensitive area needs to be defined in sensitive and non-sensitive area.</p>	<p>No mining zone has been identified based on criteria given EMGSM-2020. Siting criteria as per SPCB and SEIAA will be followed at stage of seeking E.C or CTE.</p>
h.	<p>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.</p>	<p>Demand and supply of sand has been done as per recommendation given in document titled "Sand Mining Framework" published by Ministry of Mines Gov.</p>

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i.	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.	This will be followed at the time when E.C or CTE is sought for individual mining lease.
j.	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.	In this Report Potential Area of sand in rivers have been identified. Final area for mining will be done when mining lease is allotted by mining dept.
k.	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.	There are three cluster condition in the DSR.
l.	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.	No
m.	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.	There is no proposal for mining beyond river bed.
n.	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	Transportation route for every PRA was identified and marked on toposheet and duly certified by competent authority. They are enclosed at plate 4.

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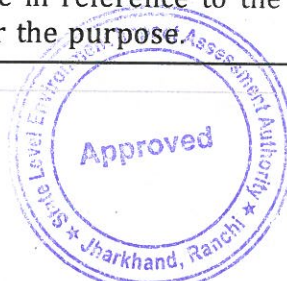


	<p>selected in such a way that the movement of trucks/tippers/tractors from the villages having habitation should be avoided. The transportation route so selected should be verified by the State Government for its carrying capacity.</p>	
o.	<p>Potential site for mining having its impact on the forest, 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.</p>	<p>This DSR was examined by Sub-Divisional Committee. Observations of Sub-Divisional Committee has been recorded in annexure II. Similarly annexure III and IV was filled after visit of Sub-Divisional Committee.</p>
p.	<p>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 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 &amp; 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.</p>	<p>The DSR was uploaded on district NIC portal for one month for getting suggestion from stakeholders. On receipt of suggestion annexure V was be filled up.</p>



**Physical survey of the field by the conventional method as per Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) 2020**

Sl.No	Particular	Compliance/Non-Compliance
1.	<p>The conventional survey technical using DGPS and other survey tools are used to define the topography, contours and offsets of the lease area. The survey should clearly depict the important attributes of the stretch of the river and its nearby important civil and other feature of importance. Such information will provide the eligible spatial area for mining. The contour and the elevation benchmarks will provide the baseline data for assessing the pre. and post-study period scenario.</p>	<p><i>DGPS survey has been done to define topography, contours and offset of PRA's. TBM has been fixed as benchmark for base line survey &amp; reference in future.</i> <i>TBM has been fixed as explained in section-11.2 (Step-2)</i></p>
2.	<p>Physical benchmarks are to be fixed at appropriate intervals (preferable 1 in 30 m) and the Reduced Level (RL) shall be validated from a nearby standard RL. These RL should be engraved on a steel plate (Bench Plate) and shall be fixed and placed at locations which are free from any damages and are available in pre. and post-study period. The bench plates shall be available for use during the mining period as reference for all mining activity. Reference pillar may also be used in place of bench plates with visible and readable demarcation on the ground as common reference points to control the topographic survey and mining activity.</p>	<p><i>TBM, with its reduced level (amsl) have been fixed on bridges/school/buildings. Physical bench marks at interval of 1 in 30m would be fixed once mining lease is allotted.</i></p>
3.	<p>Baseline data on elevation status for a grid of 10 m x 10 m is preferred to have accuracy in the assessment. It is expected that two consecutive cross-sections in longitudinal and lateral direction should not be more than 10- meter distance apart, however, the regulatory authority may fix these intervals depending on the geographical and site-specific conditions, only and after providing the scientific reason for such deviation.</p>	<p><i>Data have been collected through field survey. These being analysed and interpreted. They will be submitted along with the DSR to SEIAA.</i></p>
4.	<p>The changes observed in the elevation in pre and post scenario at each node should be depicted in graphical forms with an appropriate scale to estimate the area of deposition and erosion. These graphical presentations should depict the active channel regime and the flow bed elevation with other important features required to be considered for estimation of the mining area. The area of deposition and erosion shall be calculated for each cross-section after giving due regard to the stability and safety of active channel banks, and other features of importance. The elevation level shall be in reference to the nearest bench-plates established for the purpose.</p>	<p><i>Complied</i> <i>Details given in chapter - XI</i></p>



5.	The levels (MSL & RL) of the corner point of each grid should be identifiable and safety barriers (Non-Mining) demarcated as restricted in consensus with Mineral Concession Rules of respective State, and the provision mentioned in this Sustainable Sand Mining Management Guidelines.	<i>Pre and post monsoon data on elevation of sand deposits are shown in graphical form. Annexure-J. Based on these areas of deposition has been identified.</i>
6.	A clear identification is required to be highlighted between grids under mineable and grids under the non-mineable area. These baseline data (pre and post) be subjected to stimulation with the help of data mine software to derive at the replenishment area and corresponding volume and estimated weight.	<i>Replenishment volume based on pre and post monsoon elevation has been calculated and given in chapter 11</i>
7.	The database should be structured in a tabulated form clearly depicting the nomenclature of the section lines, latitude and longitude of the starting point, chain-age and respective levels of all the points taken on that section line.	<i>Complied.</i>
8.	Net area shall be derived after the summation of the area of deposition minus area of erosion for each cross-section. The volume will be estimated by multiplying the distance between two cross-sections with the average of net area of these two consecutive cross-sections.	<i>This has been covered at chapter 11. (Sand Replenishment Estimation sheet)</i>
9.	One sample per 900 square meters (30 m x 30 m) shall be preferred sample density for assessment of bulk density for estimation of deposition rate. Care should be taken that the sample for assessment of bulk density is taken from the deposition zone and not from erosion. However, depending on the site condition, river morphology and geographical condition, sample density may be adjusted. Reason for such deviation shall be appropriately highlighted in the report with supporting scientific data.	<i>Sand analysis data for each PRA are given in annexure -C.</i>

**12.4** Compliance to observation of state Environment Assessment Committee SEAC, while appraising Draft DSR for sand mining have recorded their observations in Minutes of Meeting Status of compliance to above observations are given in table below:



**STATUS OF COMPLIANCE TO THE POINTS COVERED IN MINUTES OF MEETING OF SEAC ON APPRAISAL OF DRAFT DSR FOR LOHARDAGA & KHUNTI HELD ON 5<sup>TH</sup> DECEMBER 2022 THE SEAC, IN THEIR SUGGESTION COVERED CERTAIN POINTS TO BE INCLUDED IN FINAL DSR**

Sl.	Point Observed by SEAC	Compliance
1.	The DSR submitted was at a draft stage. The final DSR after approval by Sub-Divisional Committee, Deputy Commissioner and incorporation of the public comments is to be submitted for appraisal by SEAC.	Final DSR was submitted to SEAC after approval of sub-divisional committee & incorporation of public comments.
2.	The final DSR should be signed by all members of the Sub-Divisional Committee and the Consultant involved in the preparation of the same. All pages of the DSR should be signed by the authorized officer of the Sub-Divisional Committee.	Complied.
3.	The draft DSR submitted is based only on part survey. In the submitted DSR the complete area of the river/rivers have not been surveyed, only some selected ghats/lease have been surveyed. The complete potential area should be demarcated before proposing the sand leases / ghats as per EMGSM guideline 2020.	This report incorporates all Potential Resource Area (Nineteen) identified in the district. They have been demarcated on KML maps, SOI Toposheet & relevant Mauza Maps.
4.	The field survey of pre-monsoon period is to be included in final DSR.	Primary data has been provided by District Mining Office & validated by satellite imagery.
5.	The DSR should be placed in the public domain for at least 01 (one) month from the date of publication of the advertisement for obtaining comments of the public. The comments received shall be placed. The comments received shall be placed before the concerned Sub-Divisional Committee for consideration. The final DSR should be submitted to SEIAA, after incorporation of all replies of the comments received from the public.	An advertisement has been published on local newspaper dated 30 April, 2023 and the draft DSR was uploaded on district portal from 28 <sup>th</sup> April, 2023 to 29 <sup>th</sup> May, 2023 for public consultation. The final DSR have been submitted to SEIAA after vetted by Sub-Divisional Committee.
6.	Demand and Supply of the river bed material through market survey needs to be carried out. In addition to this, future demand for the next five year also needs to be considered to justify the number and area of the sandghat to be included in the final DSR.	Demand & Supply of river bed material have been provided through data furnished by District Mining Office (Supply) & for demand assessment by method given in documents "Sand Mining Framework" published by Ministry of Mines Govt of India.
7.	The sandghat / leases have not to be proposed on the confluence / meanders / concavities / active channels of the river.	In selection of Potential Resource Area for sand this condition has been considered.
8.	The Khata & Khasra (Class / Nature of land including "Jungle Jhari") of the lease area should be certified by the concerned Circle Officer (CO) and to be incorporated in the final DSR.	These details have been obtained & recorded (Annexure - D)



9.	The distance of sand leases / ghats from the Forest / Wildlife Protected Area / Birds Sanctuary / Wildlife Sanctuary / National Park / Eco Sensitive Zone should be verified and certified by the concerned DFO's of the respective Territorial and Wildlife division.	Distance of Identified Potential Resource Area for sand from notified forest, Wildlife protected area/ Bird sanctuary / National Park have been obtained from DFO (T) & DFO (WL) (Ref. Annexure E&F)
10.	The undertaking regarding presence of aquatic animal in the river in proximity of the proposed sand ghats should be verified and certified by concerned Govt. Departments like Zoological Survey of India.	Letter has been written to Director ZSI, Kolkata with a request to furnish a list of aquatic animals in river in the district. Till the time reply is not received from ZSI.  List of aquatic fauna received from District Fishery Department is attached in annexure G.
11.	The proposed leases / ghats should meet all the siting criteria of State Pollution Control Board / SEIAA.	During selection of ghat or lease all the siting criteria of JSPCB/JSEIAA will be considered.
12.	Clear and high resolution color satellite images of the proposed potential sand mining area should be submitted with final DSR including the date of photographs / geocoded location. Details of all such satellite imageries should be included in the final DSR.	High resolution color satellite imagery have been used in preparation of this report. Photographs taken in course of survey are geocoded. They are enclosed in Plate-5.
13.	The table of estimation of sand resources after pre-monsoon and post monsoon survey should be included in the final DSR.	Gross geological reserve, Mineable reserve and extractable reserve during post - monsoon period have been estimated given in Chapter - XI.
14.	All primary & secondary data should be supported with relevant references and documentary evidences in the final DSR.	This has been complied in preparation of the report.
15.	Bulk density and specific gravity of the sand should be certified by NABL accredited laboratory.	Sand sample collected from PRA have been tested for SP. Gravity & size analysis by NABL accredited lab. They are enclosed at Annexure - C.
16.	Concave side of the river should be avoided for identification of sand leases / ghats.	In selection of PRA concave side of river has been avoided
17.	KML files of existing leases / ghats and proposed lease / ghats should be provided.	There is no existing ghat in the district. KML map of all PRA have been prepared & enclosed at Plate -5
18.	Clusters and contiguous cluster formation should be followed as per EMGSM guidelines, 2020.	Three cluster has been proposed in DSR



19.	Average length and width of the river should be included and mining should be restricted to 3/4 <sup>th</sup> of the river width and mining should be restricted within 60% of the mineable reserve.	Average length & width of river has been furnished in Table 15. Identification of no Mining zone & calculation of mineable reserve only centered 3/4 of river width has been considered extractable reserve has been taken as 60% of mineable reserve.
20.	Transportation routes should be defined for the proposed mining sites and duly certified from the competent Authorities.	Transport route for every PRA have been worked on Toposheet. They are enclosed at Plate - 4.
21.	All the annexures given in the EMGSM guideline, 2020 should be filled and included in the final DSR.	All annexure of EMSG 2020 have been filled & enclosed at Annexure A.
22.	Point no. 9.3 of the EMGSM guidelines, 2020 regarding monitoring of mining near inter-district or interstate boundary should be addressed in the final DSR, if applicable.	In this district there are 4 interstate and 7 interdistrict PRA located.
23.	In addition to above, any other applicable criteria as required under SSMG, 2016 & EMGSM guidelines, 2020 should be included in the final DSR.	Applicable criteria as per SSMG 2016, EMGSM-2020 have been complied (Refer Chapter XII)
24.	The presentation of the final DSR at the time of appraisal by SEAC should cover all the points of SSMG, 2016 & EMGSM guidelines, 2020.	The DSR covers all points of SSMG, 2016 and EMGSM, 2020.



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**REFERENCE**

- *Publications of Directorate of Economics and Statistics, Jharkhand*
- *Census Handbook, 2011*
- *Data from District of Mining Officer (DMO)*
- *Publications of Central Ground Water Authority (CGWA)*
- *Publications of Jharkhand Space Applications Centre (JSAC)*
- *Previous approved District Survey Report (DSR)*
- *Enforcement and monitoring guidelines for sand mining,2020*
- *Sand mining management guidelines,2016*
- *JSPCB Norm for Grant of CTE*
- *SEIAA Norms for grant of E.C. for Minor Mineral.*



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**ANNEXURE - A**



## Details of Sand/M-Sand Sources

## a) Rivers:

River Name/M-Sand Plant	Total Stretch of River (in KM)	Type of River (Perennial or Non-Perennial)
Kanchi	90	Perennial
Raru	21	Perennial
Subernarekha	46	Perennial
Pakro	26	Seasonal
Chatti	15	Seasonal
Sapahi	29	Perennial

## 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:

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum
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 Leases (existing & proposed) Rivers  
(Identified Potential Resource Area)**

River Details	Lease Details	Area (in Ha)	Distance (in KM) from PA/BR/WC/	Distance from Forest Area (in KM)	Mining leases within 500 meters (if yes cluster area)	Total excavation in Tonnes /Annum considering digging depth max as 3 meters	Mineral to be mined (Sand/ Bajri/ RBM etc.)	Existing / Proposed
Kanchi	NIL	11.0	NIL	Refer to Annexure-E	NO	516780.00	Sand	Proposed
Kanchi	NIL	13.0	NIL		NO	610740.00	Sand	Proposed
Kanchi	NIL	13.0	NIL		NO	610740.00	Sand	Proposed
Kanchi	NIL	10.9	NIL		NO	512082.00	Sand	Proposed
Kanchi	NIL	10.2	NIL		NO	479196.00	Sand	Proposed
Kanchi	NIL	41.1	NIL		NO	1930878.00	Sand	Proposed
Kanchi	NIL	19.8	NIL		NO	930204.00	Sand	Proposed
Kanchi	NIL	22.8	NIL		NO	1071144.00	Sand	Proposed
Kanchi	NIL	21.2	NIL		NO	995976.00	Sand	Proposed
Kanchi	NIL	17.1	NIL		NO	803358.00	Sand	Proposed
Raru	NIL	29.5	NIL		NO	1154925.00	Sand	Proposed
Raru	NIL	11.5	NIL		NO	450225.00	Sand	Proposed
Subernarekha	NIL	6.5	NIL		NO	254475.00	Sand	Proposed
Subernarekha	NIL	3.5	NIL		NO	137025.00	Sand	Proposed
Subernarekha	NIL	7.7	NIL		NO	301455.00	Sand	Proposed
Subernarekha	NIL	7.4	NIL		NO	289710.00	Sand	Proposed
Pakro	NIL	4.3	NIL		NO	101007.00	Sand	Proposed
Chatti	NIL	1.7	NIL		NO	39933.00	Sand	Proposed
Sapahi	NIL	9.1	NIL		NO	213759.00	Sand	Proposed
							<b>11403612.00</b>	

Note: Mining lease will be granted only after LOI is issued and EC are granted



**Patta Lands/Khatedari Land: (existing & proposed)**

Owner	Sy. No	Area	District	Tehsil	Village	Total Reserve (MT)	Total Mineral to be mined (MT)	Existing /Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

**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 / Year	Existing /Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

**M-Sand Plants :( existing & proposed)**

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annun	Existing/Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL



**Annexure-III**

**Cluster & Contiguous Cluster details Clusters:**

River Name	Cluster No.	Lease No	Location (Riverbed / Patta Land)	Village	Area (in Ha)	Total Excavation (Ton)	Total Mineral Excavation (Ton)
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

**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

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## Annexure-IV

## Transportation Routes for individual leases and leases in Cluster

Lease No	Transportation Route No	Number of tipper s /day of lease	Number of tipper s /day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road (Black Topped/ unpaved)	The road will be Constructed by Govt/ Lease Owner	Route Map & Location
KA1	KA1	NIL	NIL	0.299	unpaved	unpaved	Lease Owner	Attached
KA2	KA2	NIL	NIL	0.162	unpaved	unpaved	Lease Owner	Attached
KA3	KA3	NIL	NIL	0.103	unpaved	unpaved	Lease Owner	Attached
KA4	KA4	NIL	NIL	0.125	unpaved	unpaved	Lease Owner	Attached
KA5	KA5	NIL	NIL	0.712	unpaved	unpaved	Lease Owner	Attached
KA6	KA6	NIL	NIL	0.328	unpaved	unpaved	Lease Owner	Attached
KA7	KA7	NIL	NIL	0.131	unpaved	unpaved	Lease Owner	Attached
KA8	KA8	NIL	NIL	0.136	unpaved	unpaved	Lease Owner	Attached
KA9	KA9	NIL	NIL	0.995	unpaved	unpaved	Lease Owner	Attached
KA10	KA10	NIL	NIL	0.245	unpaved	unpaved	Lease Owner	Attached
RA1	RA1	NIL	NIL	0.864	unpaved	unpaved	Lease Owner	Attached
RA2	RA2	NIL	NIL	0.156	unpaved	unpaved	Lease Owner	Attached
SU1	SU1	NIL	NIL	0.495	unpaved	unpaved	Lease Owner	Attached
SU2	SU2	NIL	NIL	0.383	unpaved	unpaved	Lease Owner	Attached
SU3	SU3	NIL	NIL	0.374	unpaved	unpaved	Lease Owner	Attached
SU4	SU4	NIL	NIL	0.509	unpaved	unpaved	Lease Owner	Attached
PA1	PA1	NIL	NIL	0.090	unpaved	unpaved	Lease Owner	Attached
CH1	CH1	NIL	NIL	0.136	unpaved	unpaved	Lease Owner	Attached
SA1	SA1	NIL	NIL	0.720	unpaved	unpaved	Lease Owner	Attached



Cluster No	Transportation Route No	Number of tipper s./day of cluster	Number of tipper s./day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/unpaved)	Recommendation for road(Black Topped/unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

*Handwritten signature*



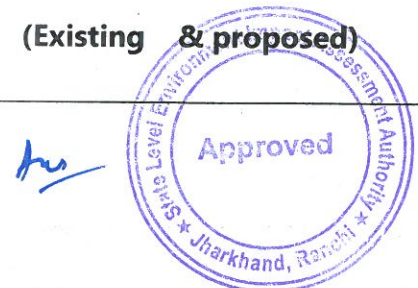
## Final List of Potential Mining Leases (existing &amp; proposed) Rivers

River Details	Lease Details	Area (in Ha)	Distance (in KM) from PA/BR/WC/	Distance from Forest Area (in KM)	Mining leases within 500 meters (if yes cluster area)	Total excavation in (MT/Yr) (Mine depth max as 3 m)	Mineral to be mined (Sand/Bajri/RBM etc.)	Existing /Proposed
Kanchi	NIL	11.00	NIL	Refer to Annexure-E	NO	516780.00	Sand	Proposed
Kanchi	NIL	13.00	NIL		NO	610740.00	Sand	Proposed
Kanchi	NIL	13.00	NIL		NO	610740.00	Sand	Proposed
Kanchi	NIL	10.90	NIL		NO	512082.00	Sand	Proposed
Kanchi	NIL	10.20	NIL		NO	479196.00	Sand	Proposed
Kanchi	NIL	41.10	NIL		NO	1930878.00	Sand	Proposed
Kanchi	NIL	19.80	NIL		NO	930204.00	Sand	Proposed
Kanchi	NIL	22.80	NIL		NO	1071144.00	Sand	Proposed
Kanchi	NIL	21.20	NIL		NO	995976.00	Sand	Proposed
Kanchi	NIL	17.10	NIL		NO	803358.00	Sand	Proposed
Raru	NIL	29.50	NIL		NO	1154925.00	Sand	Proposed
Raru	NIL	11.50	NIL		NO	450225.00	Sand	Proposed
Subernarekha	NIL	6.50	NIL		NO	254475.00	Sand	Proposed
Subernarekha	NIL	3.50	NIL		NO	137025.00	Sand	Proposed
Subernarekha	NIL	7.70	NIL		NO	301455.00	Sand	Proposed
Subernarekha	NIL	7.40	NIL		NO	289710.00	Sand	Proposed
Pakro	NIL	4.30	NIL		NO	101007.00	Sand	Proposed
Chatti	NIL	1.70	NIL		NO	39933.00	Sand	Proposed
Sapahi	NIL	9.10	NIL		NO	213759.00	Sand	Proposed

## Patta Lands/Khatedari Land: (existing &amp; proposed)

Owner	Sy. No	Area	District	Tehsil	Village	Total Reserve (MT)	Total Mineral to be mined (MT)	Existing /Proposed
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

De-Siltation Location: (Lakes/Ponds/Dams etc.) (Existing &amp; proposed)



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

**M-Sand Plants :( existing & proposed)**

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

*Am*



**Final List of Cluster & Contiguous Cluster Clusters:**

River Name	Cluster No.	Lease No	Location (Riverbed / Patta Land)	Village	Area (in Ha)	Total Excavation (Ton)	Total Mineral Excavation (Ton)
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

**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 (in Ha)	Total Mineral Excavation (Ton)
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL



**Annexure-VII**

**Final Transportation Routes for individual leases and leases in Cluster**

Lease No	Transp ortation Route No	Number of tippers /day of lease	Number of tippers /day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recomm endation for road(Blac k Topped/ unpaved)	The road will be Constructed by Govt/Lea se Owner	Route Map & Location
KA1	KA1	NIL	NIL	0.299	unpaved	unpaved	Lease Owner	Attached
KA2	KA2	NIL	NIL	0.162	unpaved	unpaved	Lease Owner	Attached
KA3	KA3	NIL	NIL	0.103	unpaved	unpaved	Lease Owner	Attached
KA4	KA4	NIL	NIL	0.125	unpaved	unpaved	Lease Owner	Attached
KA5	KA5	NIL	NIL	0.712	unpaved	unpaved	Lease Owner	Attached
KA6	KA6	NIL	NIL	0.328	unpaved	unpaved	Lease Owner	Attached
KA7	KA7	NIL	NIL	0.131	unpaved	unpaved	Lease Owner	Attached
KA8	KA8	NIL	NIL	0.136	unpaved	unpaved	Lease Owner	Attached
KA9	KA9	NIL	NIL	0.995	unpaved	unpaved	Lease Owner	Attached
KA10	KA10	NIL	NIL	0.245	unpaved	unpaved	Lease Owner	Attached
RA1	RA1	NIL	NIL	0.864	unpaved	unpaved	Lease Owner	Attached
RA2	RA2	NIL	NIL	0.156	unpaved	unpaved	Lease Owner	Attached
SU1	SU1	NIL	NIL	0.495	unpaved	unpaved	Lease Owner	Attached
SU2	SU2	NIL	NIL	0.383	unpaved	unpaved	Lease Owner	Attached
SU3	SU3	NIL	NIL	0.374	unpaved	unpaved	Lease Owner	Attached
SU4	SU4	NIL	NIL	0.509	unpaved	unpaved	Lease Owner	Attached
PA1	PA1	NIL	NIL	0.09	unpaved	unpaved	Lease Owner	Attached
CH1	CH1	NIL	NIL	0.136	unpaved	unpaved	Lease Owner	Attached
SA1	SA1	NIL	NIL	0.72	unpaved	unpaved	Lease Owner	Attached

Cluster No	Transp ortatio n Route No	Numbe r of tippers /day of cluster	Number of tippers /day of all the clusters on route	Lenct h of Route in KM	Type of Road (Black Topped/ unpaved)	Recomm endation for road(Blac k Topped/ unpaved)	The road will be Construc ted by Govt/Le ase Owner	Route Map & Locati on
NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

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**ANNEXURE - B**



**PRE-MONSOON DATA (RANCHI)**

Sand Ghat	Corner Point	Latitude	Longitude	RL
RKA01	A	23° 7'20.41"N	85°29'41.62"E	248.81
	B	23° 7'23.69"N	85°29'41.60"E	246.98
	C	23° 7'21.82"N	85°29'59.88"E	246.80
	D	23° 7'20.41"N	85°29'41.62"E	246.85

Sand Ghat	Corner Point	Latitude	Longitude	RL
RKA02	A	23° 7'20.08"N	85°31'23.98"E	247.04
	B	23° 7'15.67"N	85°31'22.50"E	246.95
	C	23° 7'12.24"N	85°31'39.91"E	246.42
	D	23° 7'15.50"N	85°31'42.28"E	246.38

Sand Ghat	Corner Point	Latitude	Longitude	RL
RKA03	A	23°6'31.51"N	85°33'38.74"E	246.82
	B	23°6'31.70"N	85°33'40.48"E	246.70
	C	23°6'47.70"N	85°33'50.69"E	245.90
	D	23°6'50.45"N	85°33'50.65"E	246.00

Sand Ghat	Corner Point	Latitude	Longitude	RL
RKA04	A	23°7'6.48"N	85°34'23.06"E	246.50
	B	23°7'3.78"N	85°34'23.96"E	246.60
	C	23°7'9.72"N	85°34'33.83"E	245.70
	D	23°7'15.50"N	85°34'32.92"E	245.80



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Sand Ghat	Corner Point	Latitude	Longitude	RL
RKA05	A	23° 7'17.55"N	85°35'6.02"E	245.50
	B	23° 7'5.84"N	85°35'38.69"E	245.60
	C	23° 6'51.11"N	85°35'39.61"E	243.28
	D	23° 7'8.33"N	85°35'3.51"E	243.44

Sand Ghat	Corner Point	Latitude	Longitude	RL
RKA06	A	23° 7'10.38"N	85°35'55.90"E	259.90
	B	23° 7'6.14"N	85°35'56.64"E	259.88
	C	23° 7'1.8"N	85°35'46.75"E	258.30
	D	23° 7'5.88"N	85°35'44.96"E	258.20

Sand Ghat	Corner Point	Latitude	Longitude	RL
RKA07	A	23° 8'19.36"N	85°39'4.20"E	242.18
	B	23° 8'22.58"N	85°39'56.94"E	242.06
	C	23° 8'14.70"N	85°39'56.53"E	239.52
	D	23° 8'9.71"N	85°39'9.26"E	239.54

Sand Ghat	Corner Point	Latitude	Longitude	RL
RKA08	A	23° 8'25.09"N	85°40'6.61"E	238.58
	B	23° 8'46.74"N	85°40'34.89"E	238.42
	C	23° 8'40.34"N	85°40'38.02"E	236.25
	D	23° 8'21.53"N	85°40'9.64"E	236.52



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Sand Ghat	Corner Point	Latitude	Longitude	RL
RKA09	A	23° 9'28.20"N	85°41'46.39"E	231.65
	B	23° 9'23.38"N	85°41'46.56"E	231.58
	C	23° 9'19.75"N	85°42'35.39"E	228.65
	D	23° 9'25.47"N	85°42'30.98"E	228.68

Sand Ghat	Corner Point	Latitude	Longitude	RL
RKA10	A	23°13'9.23"N	85°47'55.51"E	207.62
	B	23°13'4.79"N	85°48'1.83"E	207.64
	C	23°13'31.59"N	85°48'23.44"E	205.22
	D	23°13'38.94"N	85°48'22.01"E	206.21

Sand Ghat	Corner Point	Latitude	Longitude	RL
RRA01	A	23°17'28.64"N	85°45'0.46"E	233.18
	B	23°17'18.38"N	85°45'17.58"E	233.10
	C	23°17'12.17"N	85°45'12.91"E	232.80
	D	23°17'20.06"N	85°45'0.33"E	232.81

Sand Ghat	Corner Point	Latitude	Longitude	RL
RRA02	A	23°15'2.33"N	85°49'14.64"E	212.60
	B	23°14'51.43"N	85°49'54.90"E	212.70
	C	23°14'46.89"N	85°49'57.11"E	210.00
	D	23°14'58.84"N	85°49'10.20"E	209.96



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Sand Ghat	Corner Point	Latitude	Longitude	RL
RSU01	A	23°20'19.72"N	85°51'54.91"E	226.60
	B	23°19'56.36"N	85°52'3.03"E	226.70
	C	23°19'56.11"N	85°52'1.15"E	225.56
	D	23°20'20.06"N	85°51'51.97"E	225.54

Sand Ghat	Corner Point	Latitude	Longitude	RL
RSU02	A	23°19'15.00"N	85°51'19.19"E	222.60
	B	23°19'12.98"N	85°51'20.27"E	222.60
	C	23°18'50.26"N	85°50'56.46"E	220.80
	D	23°18'51.53"N	85°50'54.53"E	220.70

Sand Ghat	Corner Point	Latitude	Longitude	RL
RSU03	A	23°18'34.66"N	85°50'42.88"E	220.35
	B	23°18'33.19"N	85°50'43.18"E	220.30
	C	23°18'29.46"N	85°50'28.42"E	219.65
	D	23°18'32.09"N	85°50'27.42"E	219.64

Sand Ghat	Corner Point	Latitude	Longitude	RL
RSU04	A	23°15'13.14"N	85°49'42.57"E	207.68
	B	23°15'15.01"N	85°49'43.69"E	207.66
	C	23°15'0.86"N	85°50'2.23"E	206.56
	D	23°14'58.83"N	85°50'0.67"E	206.60



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Sand Ghat	Corner Point	Latitude	Longitude	RL
RSA01	A	23°40'21.67"N	85°02'17.80"E	416.72
	B	23°40'25.33"N	85°02'31.69"E	416.70
	C	23°40'19.19"N	85°02'32.08"E	416.00
	D	23°40'18.09"N	85°02'20.37"E	415.98

Sand Ghat	Corner Point	Latitude	Longitude	RL
RPA01	A	23°17'38.98"N	85°41'28.83"E	247.10
	B	23°17'36.50"N	85°41'30.16"E	246.99
	C	23°17'37.54"N	85°41'38.53"E	247.05
	D	23°17'41.07"N	85°41'38.69"E	246.91

Sand Ghat	Corner Point	Latitude	Longitude	RL
RCH01	A	23°41'12.10"N	84°56'3.66"E	427.62
	B	23°41'27.53"N	84°56'9.19"E	427.64
	C	23°41'27.18"N	84°56'10.13"E	426.80
	D	23°41'11.78"N	84°56'4.47"E	426.75



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*[Handwritten signature]*

# ANNEXURE - C





# Eco Care

Phone : (0341) 2252011  
Fax : (0341) 2252011

Email : ecocareasansol@rediffmail.com

Specialised Hoouse on Environmental Monitoring, Analysis, Assessment & Management  
ISO 9001:2015 Certified, OHSAS 45001:2018 Certified

Manoj Talkies Basement, Kumarpur  
Asansol - 713304  
Paschim Bardhaman (W.B.)

ULR No. TC510923000000321F

Date of Print: 08.12.2022

## Sand Texture Analysis Report

Client Name: Crystal Consultants Pvt. Ltd.

Client Address: Kshitij Kashyap Vihar,

Opposite Ashok Nagar Road No. 3,

Ranchi, Jharkhand, PIN – 834002

Sample Type: Riverbed Sand

Period of Sampling: 10.11.2022 to 16.11.2022

Sampling Density: Two per Hectare

Sample Collected By: Party

Source: Multiple Rivers in Ranchi District

Period of Analysis: 21.11.2022 to 07.12.2022

Sample Condition: Sealed & Preserved

Ghat ID	Area (Ha)	Length (m)	No. of Samples	Sand Sample Collected for texture analysis						Bulk Density
				4.75mm to 2.00 mm		2.00mm to 425 micron		425 to 75 micron		
				Nos.	%	Nos.	%	Nos.	%	
RKA06	11.00	767	22	3	13.64	13	59.09	6	27.27	1.61
RKA04	13.00	360	26	4	15.38	13	50	9	34.62	1.61
RKA03	8.70	630	17	3	17.24	10	57.47	4	25.29	1.62
RKA02	10.90	702	22	3	13.76	12	55.05	7	31.19	1.62
RKA01	10.20	515	20	3	14.71	12	58.82	5	26.47	1.61
RKA07	32.25	1347	65	14	21.71	37	57.36	14	20.93	1.62
RKA08	19.80	1036	40	7	17.68	22	55.56	11	26.77	1.61
RKA09	22.80	1397	46	6	13.16	25	54.82	15	32.02	1.62
RKA10	21.20	1068	42	6	14.15	22	51.89	14	33.96	1.61
RKA05	23.10	1196	46	8	17.32	26	56.28	12	26.41	1.62
PRA02	29.50	1478	59	9	15.25	31	52.54	19	32.2	1.62
PRA01	11.50	526	23	3	13.04	13	56.52	7	30.43	1.62
RSU04	6.50	671	13	2	15.38	7	53.85	4	30.77	1.61
RSU03	3.50	429	7	1	14.29	4	57.14	2	28.57	1.62
RSU02	7.70	977	15	2	12.99	9	58.44	4	28.57	1.61
RSU01	4.00	829	8	1	12.5	5	62.5	2	25	1.62
RPA01	4.30	278	9	1	11.63	5	58.14	3	30.23	1.61
RCH01	1.70	568	3	0	0	2	58.82	1	41.18	1.61
RSA01	9.10	430	18	3	16.48	10	54.95	5	28.57	1.62

1. Test values are reported based on the samples received.
2. Samples will be destroyed after 7 days from the date of issues of the Test Report, subject to nature of preservation; sample will be preserved as per the standard method.
3. The Test report shall not be reproduced without the written approval of the laboratory.

Authorised Signatory

Dr. Mousumi Pal  
Ph.D. (Env.), Scientist  
Authorised Signatory

# **ANNEXURE - D**





# कार्यालय अंचल अधिकारी, खलारी(राँची)

पत्रांक...106(ii)...

प्रेषक,

अंचल अधिकारी,  
खलारी, राँची।

सेवा में,

जिला खनन पदाधिकारी,  
राँची।

दिनांक 21/02/2023

विषय: राँची जिला के खलारी अंचल अंतर्गत स्थित बालू घाट से संबंधित जाँच  
प्रतिवेदन उपलब्ध कराने के संबंध में।

प्रसंग: भवदीय का पत्रांक- 44/एम0, दिनांक 10.01.2023

महाशय,

उपर्युक्त विषय के संबंध में कहना है कि आज दिनांक 21.02.2023 को बालू घाटों की सूची ईमेल द्वारा प्राप्त है। उक्त आलोक में राँची जिला के खलारी अंचल अंतर्गत स्थित बालू घाटों की जाँच राजस्व उपनिरीक्षक से कराया। बालू घाटों का वांछित बिन्दुओं पर जाँच प्रतिवेदन इस पत्र के साथ संलग्न कर आवश्यक कार्रवाई हेतु भेजी जा रही है।

सादर सूचनार्थ समर्पित।

अनु0- यथोक्त।

विश्वासभाजन

*See*  
अंचल अधिकारी,  
खलारी, राँची।

*MV*  
21/02/23



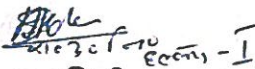


## कार्यालय अंचल अधिकारी, खलारी(राँची)

### जाँच प्रतिवेदन

अंचल कार्यालय – खलारी, हल्का- I, मौजा- लपरा, प्लॉट सं0- 01(P), चट्टी नदी।

क्र0सं0	निर्धारित बिन्दु	हाँ/नहीं
01	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर- II में जंगल झाड़ी के रूप में दर्ज है ?	नहीं
02	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है ?	नहीं
03	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservoir) स्थित है ?	नहीं
04	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है ?	हाँ
05	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Education Insitute) स्थित है ?	नहीं
06	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है ?	नहीं
07	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) सीमा है ?	नहीं
08	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है ?	नहीं

  
राजस्व उपनिरीक्षक,  
खलारी। (हल्का-1)

  
अंचल अधिकारी,  
खलारी।





## कार्यालय अंचल अधिकारी, खलारी(राँची)

### जाँच प्रतिवेदन

अंचल कार्यालय - खलारी, हल्का- III, मौजा- चुरी, प्लॉट सं०- 192(P), सपही नदी।

क्र०सं०	निर्धारित बिन्दु	हाँ / नहीं
01	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर- II में जंगल झाड़ी के रूप में दर्ज है ?	नहीं
02	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है ?	नहीं
03	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservoir) स्थित है ?	नहीं
04	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है ?	हाँ
05	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Education Insitute) स्थित है ?	नहीं
06	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है ?	नहीं
07	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) सीमा है ?	नहीं
08	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है ?	नहीं

राजस्व उपनिरीक्षक,  
खलारी। (हल्का-III)

अंचल अधिकारी,  
खलारी।



12




## कार्यालय अंचल अधिकारी, खलारी(राँची)

### जाँच प्रतिवेदन

अंचल कार्यालय - खलारी, हल्का- III, गौजा- राय, प्लॉट सं०- 1201(P), रामही नदी

क्र०सं०	निर्धारित बिन्दु	हाँ / नहीं
01	क्या आवेदित भूमि की कोटि सर्वे खतियान तथा रजिस्टर- II में जंगल झाड़ी के रूप में दर्ज है ?	नहीं
02	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है ?	नहीं
03	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservoir) स्थित है ?	नहीं
04	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है ?	हाँ
05	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Education Insitute) स्थित है ?	नहीं
06	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है ?	नहीं
07	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) सीमा है ?	नहीं
08	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है ?	नहीं

  
राजरज उपनिरीक्षक,  
खलारी I (हल्का-III)

  
अंचल अधिकारी,  
खलारी I





## कार्यालय अंचल अधिकारी, सिल्ली(राँची)।

प्रेषक,

अंचल अधिकारी,  
सिल्ली।

पत्रांक :-131(ii)

दिनांक:-22.02.2023

सेवा में,

जिला खनन पदाधिकारी,  
राँची।

विषय:- राँची जिला के सिल्ली अंचल अतंगत स्थित बालू घाटों से संबंधित जाँच प्रतिवेदन उपलब्ध कराने के संबंध में।

प्रसंग:- भवदीय पत्रांक 39/एम0 दिनांक 10.01.2023

महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र के संबंध में कहना है कि दिनांक 21.02.2023 को बालू घाटों की सूची ईमेल द्वारा प्राप्त है। उक्त आलोक में राँची जिला के सिल्ली अंचल अतंगत स्थित बालू घाटों की जाँच राजस्व उप निरीक्षक एवं प्रभारी अंचल निरीक्षक से कराया गया। बालू घाटों की वांछित बिन्दुओं पर जाँच प्रतिवेदन इस पत्र के साथ संलग्न कर आवश्यक कारवाई हेतु भेजी जा रही है।

सादर सूचनार्थ समर्पित।

अनुलग्नक:- यथोक्त।

विश्वासभाजन

*21/2/23*

अंचल अधिकारी  
सिल्ली।



# कार्यालय अंचल अधिकारी, सिल्ली(राँची)।

जाँच प्रतिवेदन

अंचल कार्यालय - सिल्ली, हल्का - IX, मौजा - श्यामनगर, प्लॉट सं० - 511 (p) रवणरेखा नदी

क्र०स०	निर्धारित बिन्दु	हाँ / नहीं
1.	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर II में जंगल झाड़ी के रूप में दर्ज है?	हाँ / नहीं नहीं
2.	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है?	नहीं
3.	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam, Reservoir) स्थित है?	नहीं
4.	क्या 500 मीटर दूरी के अंदर कोई नदी (River) स्थित है?	हाँ
5.	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	नहीं
6.	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7.	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) सीमा है?	हाँ
8.	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/ Archaeological) महत्त्व के स्थल स्थित है?	नहीं

C-4070  
21/2/23  
प्रभारी अंचल निरीक्षक,  
सिल्ली, राँची।

OK  
21/2/23  
अंचल अधिकारी,  
सिल्ली, राँची।




# कार्यालय अंचल अधिकारी, सिल्ली(राँची)।

## जाँच प्रतिवेदन

अंचल कार्यालय - सिल्ली, हल्का - IX, मौजा - श्यामनगर, प्लॉट सं० - 469 (p), राहु नदी

क्र०सं०	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 अंदर कोई जलीय निकाय (Dam, Reservoir) स्थित है?	नहीं
4.	क्या 500 मीटर दूरी के अंदर कोई नदी (River) स्थित है?	हाँ
5.	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	नहीं
6.	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7.	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) सीमा है?	हाँ
8.	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/ Archaeological) महत्त्व के स्थल स्थित है?	नहीं

  
प्रभारी अंचल निरीक्षक,  
सिल्ली, राँची।

  
अंचल अधिकारी,  
सिल्ली, राँची।



# कार्यालय अंचल अधिकारी, सिल्ली(राँची)।

जाँच प्रतिवेदन

अंचल कार्यालय - सिल्ली, हल्का - V, मौजा - चोकसेरेंग, प्लॉट सं० - 1341 (p), स्वर्णरेखा नदी

क्र०सं०	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 अंदर कोई जलीय निकाय (Dam,Reservoir) स्थित है?	नहीं
4.	क्या 500 मीटर दूरी के अंदर कोई नदी ( River) स्थित है?	हाँ
5.	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान ( Educational Institute) स्थित है?	नहीं
6.	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय ( Hospital) स्थित है	नहीं
7.	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate ) सीमा है?	हाँ
8.	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय ( Monuments/ Archaeological) महत्त्व के स्थल स्थित है?	नहीं

*How*  
21/2/23  
प्रभारी अंचल निरीक्षक,  
सिल्ली, राँची।

*SK*  
24/02/23  
अंचल अधिकारी,  
सिल्ली, राँची।




# कार्यालय अंचल अधिकारी, सिल्ली(राँची)।

## जाँच प्रतिवेदन

अंचल कार्यालय - सिल्ली, हल्का - V, मौजा - चोकेसेरेंग, प्लॉट सं० - 921 (p), स्वर्णरेखा नदी

क्र०सं०	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 अंदर कोई जलीय निकाय (Dam,Reservoir) स्थित है?	नहीं
4.	क्या 500 मीटर दूरी के अंदर कोई नदी ( River) स्थित है?	हाँ
5.	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान ( Educational Institute) स्थित है?	नहीं
6.	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय ( Hospital) स्थित है	नहीं
7.	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate ) सीमा है?	हाँ
8.	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय ( Monuments/ Archaeological) महत्त्व के स्थल स्थित है?	नहीं

  
प्रभारी अंचल निरीक्षक,  
सिल्ली, राँची।

  
अंचल अधिकारी,  
सिल्ली, राँची।



# कार्यालय अंचल अधिकारी, सिल्ली(राँची)।

## जाँच प्रतिवेदन

अंचल कार्यालय - सिल्ली, हल्का - X, मौजा - डुमखेड़ा, प्लॉट सं० - 489 (p), स्वर्णरेखा नदी

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1.	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर ॥ 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 अंदर कोई जलीय निकाय (Dam,Reservoir) स्थित है?	नहीं
4.	क्या 500 मीटर दूरी के अंदर कोई नदी ( River) स्थित है?	हाँ
5.	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान ( Educational Institute) स्थित है?	नहीं
6.	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय ( Hospital) स्थित है?	नहीं
7.	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate ) सीमा है?	हाँ
8.	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय ( Monuments/ Archaeological) महत्त्व के स्थल स्थित है?	नहीं

*Chopra*  
प्रभारी अंचल निरीक्षक,  
सिल्ली, राँची।

*DK*  
अंचल अधिकारी,  
सिल्ली, राँची।



# कार्यालय अंचल अधिकारी, सिल्ली(राँची)।

जाँच प्रतिवेदन

अंचल कार्यालय - सिल्ली, हल्का - X, मौजा - सुण्डील, प्लॉट सं० - 546, स्वर्णरेखा नदी

क्र०सं०	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 अंदर कोई जलीय निकाय (Dam,Reservoir) स्थित है?	नहीं
4.	क्या 500 मीटर दूरी के अंदर कोई नदी ( River) स्थित है?	हाँ
5.	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान ( Educational Institute) स्थित है?	नहीं
6.	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय ( Hospital) स्थित है	नहीं
7.	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate ) सीमा है?	हाँ
8.	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय ( Monuments/ Archaeological) महत्त्व के स्थल स्थित है?	नहीं

*11/09/23*  
प्रभारी अंचल निरीक्षक,  
सिल्ली, राँची।

*11/09/23*  
अंचल अधिकारी,  
सिल्ली, राँची।



# कार्यालय अंचल अधिकारी, सिल्ली(राँची)।

## जाँच प्रतिवेदन

अंचल कार्यालय - सिल्ली, हल्का - VII, मौजा - कारेयाडीह, प्लॉट सं० - 1299 (p) राढु नदी

क्र०सं०	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 अंदर कोई जलीय निकाय (Dam,Reservoir) स्थित है?	नहीं
4.	क्या 500 मीटर दूरी के अंदर कोई नदी ( River) स्थित है?	हाँ
5.	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान ( Educational Institute) स्थित है?	नहीं
6.	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय ( Hospital) स्थित है?	नहीं
7.	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate ) सीमा है?	नहीं
8.	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय ( Monuments/ Archaeological) महत्त्व के स्थल स्थित है?	नहीं

प्रभारी अंचल निरीक्षक,  
सिल्ली, राँची।

अंचल अधिकारी,  
सिल्ली, राँची।





## कार्यालय अंचल अधिकारी, बुण्डू (राँची)

प्रेषक,

अंचल अधिकारी,  
बुण्डू (राँची)।

पत्रांक-107 (ii).....

दिनांक-23/02/2023

सेवा में,

जिला खनन पदाधिकारी,  
राँची।

विषय-

राँची जिला के बुण्डू अंचल अन्तर्गत स्थित बालू घाट से संबंधित जाँच प्रतिवेदन का प्रेषण।

प्रसंग-

भवदीय ज्ञापांक-35/एम० दिनांक-10/01/2023

महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र के आलोक में राँची जिला के बुण्डू अंचल अन्तर्गत मौजा-एड़केया, सुमानडीह, सुटीलौंग, चुरगी, लोवाहातु, सारजमडीह, तुंजु, कराम्बु, आड़ाडीह, जिलूटीकर, पँगुरा एवं बारेडीह स्थित बालू घाटो से संबंधित जाँच प्रतिवेदन विहित प्रपत्र में तैयार कर इस पत्र के साथ संलग्न कर आवश्यक कार्रवाई हेतु भेजी जा रही है।

कृप्या प्राप्ति स्वीकार की जाय।

अनुलग्नक-यथोक्त।

विश्वासभाजन,

अंचल अधिकारी,  
बुण्डू (राँची)।

प्रतिलिपि- अपर समाहर्ता, राँची को सादर सूचनार्थ समर्पित।

अंचल अधिकारी,  
बुण्डू (राँची)।



## बालू घाट का बिन्दुवार जाँच प्रतिवेदन

मौजा:-एडकेया

पंचायत:-सुगानडीह

प्रखण्ड:-बुण्डू

थाना सं०:-02

प्लॉट सं०:-738

रकबा:-16.80 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाड़ी के रूप में दर्ज है।	खतियान में कांची नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है।	हाँ
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	नहीं
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतरराज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	हाँ
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

राजस्व उप निरीक्षक,

हल्का सं०- IX

अंचल निरीक्षक,

बुण्डू।

अंचल अधिकारी

बुण्डू (रांची)।



## बालू घाट का बिन्दुवार जाँच प्रतिवेदन

मौजा:-सुमानडीह

पंचायत:-सुमानडीह

प्रखण्ड:-बुण्डू

थाना सं०:-01

प्लॉट सं०:-02

रकबा:-14.20 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाड़ी के रूप में दर्ज है।	खतियान में कांची नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है।	हाँ
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	हाँ
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	हाँ
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

राजस्व उप निरीक्षक,  
हल्का सं०- IX

अंचल निरीक्षक,  
बुण्डू।

अंचल अधिकारी  
बुण्डू (राँची)।



## बालू घाट का बिन्दुवार जाँच प्रतिवेदन

मौजा:-सुमानडीह

पंचायत:-सुमानडीह

प्रखण्ड:-बुण्डू

शाना सं०:-01

प्लॉट सं०:-858

रकबा:-5.0 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे खतियान गथा रजिस्टर II में जंगल झाडी के रूप में दर्ज है।	खतियान में कांची नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहत (Habitation) स्थित है।	हाँ
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	हाँ
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	हाँ
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

राजस्व उप निरीक्षक,

हल्का सं०- 1x

अंचल निरीक्षक,

बुण्डू।

अंचल अधिकारी

बुण्डू (राँची)।



## बालू घाट का बिन्दुवार जाँच प्रतिवेदन

मौजा:-सुटीलौंग

पंचायत:-सुमानडीह

प्रखण्ड:-बुण्डू

थाना सं०:-01

प्लॉट सं०:-1098

रकबा:-5.10 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित गूगि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाडी के रूप में दर्ज है।	मुण्डारी खुटकड़ी ग्राम है। खतियान में नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है।	हाँ
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	नहीं
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	हाँ
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

राजस्व उप निरीक्षक,  
हल्का सं०- IX

अंचल निरीक्षक,  
बुण्डू।

23/02/2023  
अंचल अधिकारी  
बुण्डू (साँची)।



## बालू घाट का बिन्दुवार जाँच प्रतिवेदन

गौजा:-लावाहातु  
थाना सं०:-43

पंचायत:-चुरगी  
प्लॉट सं०:-1063 रकबा:-6.20 ए०

प्रखण्ड:-बुण्डू  
नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाड़ी के रूप में दर्ज है।	गुण्डारी खुटकड़ी ग्राम है। खतियान उपलब्ध नहीं है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है।	हाँ
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	हाँ
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्विय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	नहीं
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

राजस्व उप निरीक्षक,  
हल्का सं०- II

अंचल निरीक्षक,  
बुण्डू।

23/02/2023  
अंचल अधिकारी  
बुण्डू (रांची)।



## बालू घाट का बिन्दुवार जाँच प्रतिवेदन

मौजा:-चुरगी

पंचायत:-चुरगी

प्रखण्ड:-बुण्डू

थाना सं०:-44

प्लॉट सं०:-1395

रकबा:-4.00 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाड़ी के रूप में दर्ज है।	खतियान में नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई गानव बसाहट (Habitation) स्थित है।	हाँ
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	हाँ
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	हाँ
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

राजस्व उप निरीक्षक,  
हल्का सं०- II

अंचल निरीक्षक,  
बुण्डू।

23/02/2023  
अंचल अधिकारी  
बुण्डू (रांची)।



# बालू घाट का बिन्दुवार जाँच प्रतिवेदन

मौजा:-सारजमडीह

पंचायत:-चुरगी

प्रखण्ड:-बुण्डू

थाना सं०:-42

प्लॉट सं०:-647

रकबा:-2.25 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाडी के रूप में दर्ज है।	खतियान में नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है।	हाँ
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	हाँ
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	हाँ
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

राजस्व उप निरीक्षक,  
हल्का सं०-II

अंचल निरीक्षक,  
बुण्डू।

अंचल अधिकारी  
बुण्डू (राँची)।



## बालू घाट का बिन्दुवार जाँच प्रतिवेदन

मौजा:-तुंजु

पंचायत:-तुंजु

प्रखण्ड:-बुण्डू

थाना सं०:-32

प्लॉट सं०:-403

रकबा:-11.00 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाड़ी के रूप में दर्ज है।	खतियान में कांची नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है।	नहीं
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservoir) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	नहीं
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतरराज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्विय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	नहीं
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

*Caro*

राजस्व उप निरीक्षक,

हल्का सं०- VIII

*अक्ष*  
अंचल निरीक्षक,

बुण्डू।

*23/02/2023*

अंचल अधिकारी

बुण्डू (राँची)।



## बालू घाट का बिन्दुवार जाँच प्रतिवेदन

मौजा:-जिलूटीकर

पंचायत:-नारुहातु

प्रखण्ड:-बुण्डू

थाना सं०:-41

प्लॉट सं०:-130

रकबा:-8.65 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाड़ी के रूप में दर्ज है।	मुण्डारी खुटकड़ी ग्राम है। खतियान में नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई गानव बसाहट (Habitation) स्थित है।	हाँ
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	हाँ
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	नहीं
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

राजस्व उप निरीक्षक,

हल्का सं०-

अंचल निरीक्षक,

बुण्डू।

अंचल अधिकारी

बुण्डू (राँची)।



## बालू घाट का बिन्दुवार जाँच प्रतिवेदन

गौजा:-पैंगुरा

पंचायत:-तुंजु

प्रखण्ड:-बुण्डू

शाना सं०:-33

प्लॉट सं०:-212

रकबा:-3.70 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाडी के रूप में दर्ज है।	खतियान में नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहत (Habitation) स्थित है।	नहीं
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	नहीं
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतरराज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	नहीं
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

*(Signature)*

राजस्व उप निरीक्षक,

हल्का सं०- *(Signature)*

*(Signature)*

अंचल निरीक्षक,

बुण्डू।

*(Signature)*

अंचल अधिकारी

बुण्डू (राँची)।



# बालू घाट का बिन्दुवार जाँच प्रतिवेदन

गौजा:-बारेडीह

पंचायत:-चुरगी

प्रखण्ड:-बुण्डू

थाना सं०:-42

प्लॉट सं०:-647

रकबा:-2.25 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे स्वतियान यथा रजिस्टर II में जंगल झाडी के रूप में दर्ज है।	स्वतियान में नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है।	हाँ
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	हाँ
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतरराज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	हाँ
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

*[Signature]*

राजस्व उप निरीक्षक,  
हल्का सं०-1

*[Signature]*

अंचल निरीक्षक,  
बुण्डू।

*[Signature]*  
23/02/2023

अंचल अधिकारी  
बुण्डू (राँची)।



# बालू घाट का बिन्दुवार जाँच प्रतिवेदन

मौजा:-आडाडीह

पंचायत:-तुंजु

प्रखण्ड:-बुण्डू

शाना सं०:-36

प्लॉट सं०:-410

रकबा:-13.00 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे स्वतियान गथा रजिस्टर II में जंगल झाडी के रूप में दर्ज है।	हाँ/नहीं स्वतियान में झाडी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई गानव बसाहट (Habitation) स्थित है।	हाँ
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	नहीं
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	नहीं
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

*Law*

राजस्व उप निरीक्षक,

हल्का सं०- VIII

*MS*

अंचल निरीक्षक,

बुण्डू।

*23/02/2023*

अंचल अधिकारी

बुण्डू (रांची)।



*MS*

# बालू घाट का बिन्दुवार जाँच प्रतिवेदन

मौजा:-कराम्बु  
शाना सं०:-35

पंचायत:-तुंजु  
प्लॉट सं०:-896

प्रखण्ड:-बुण्डू  
रकबा:-13.00 ए० नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे खतियान यथा रजिस्टर II में जंगल झाड़ी के रूप में दर्ज है।	खतियान में झाड़ी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है।	नहीं
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	नहीं
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतर्राज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	नहीं
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

*Kana*  
राजस्व उप निरीक्षक,  
हल्का सं०- VIII

*MP*  
अंचल निरीक्षक,  
बुण्डू।

*23/02/2023*  
अंचल अधिकारी  
बुण्डू (राँची)।



# बालू घाट का बिन्दुवार जाँच प्रतिवेदन

मौजा:-पैंगुरा

पंचायत:-तुंजु

प्रखण्ड:-बुण्डू

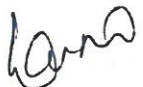
थाना सं०:-33


प्लॉट सं०:-216

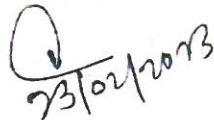
रकबा:-8.70 ए०

नदी का नाम:-कांची

क्र०सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या आवेदित भूमि की कोटी सर्वे स्वतियान यथा रजिस्टर II में जंगल झाडी के रूप में दर्ज है।	स्वतियान में नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है।	नहीं
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservior) स्थित है।	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है।	हाँ
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है।	नहीं
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है।	नहीं
7	क्या 10 कि०मी० की परिधि में कोई अंतरराज्यीय (Interstate) स्थित है।	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है।	नहीं
9	क्या 500 मीटर की दूरी के अंदर कोई पुल (Bridge) स्थित है।	नहीं
10	क्या 500 मीटर की दूरी के अंदर कोई सरना/मसना/श्मशान घाट स्थित है।	हाँ

  
राजस्व उप निरीक्षक,  
हल्का सं०- VIII

  
अंचल निरीक्षक,  
बुण्डू।

  
अंचल अधिकारी  
बुण्डू (राँची)।



# कार्यालय अंचल अधिकारी, सोनाहातु (राँची)।

प्रेषक,

पत्रांक:-135(ii)

दिनांक:- 06.03.2023

अंचल अधिकारी,  
सोनाहातु।

सेवा में

जिला खनन पदाधिकारी,  
राँची।

विषय :- राँची जिला के सोनाहातु अंचल अन्तर्गत स्थित बालू घाट से संबंधित जाँच प्रतिवेदन भेजने के संबंध में।

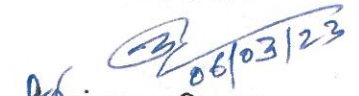
प्रसंग :- जिला खनन पदाधिकारी, राँची के पत्रांक-37/एम0 दिनांक- 10.01.2023

महाशय,

उपर्युक्त विषयक एवं प्रसगाधीन पत्र के आलोक सोनाहातु अंचल अन्तर्गत स्थित बालू घाट की consultant द्वारा प्राप्त सूची एवं SEIAA, झारखण्ड राँची द्वारा निर्धारित वांछित बिन्दुओं पर जाँच कर, जाँच प्रतिवेदन इस पत्र के साथ संलग्न कर अग्रेतर कार्रवाई हेतु भेजी जा रही है।

अनुलग्नक:- यथोक्त।

विश्वासभाजन

  
अंचल अधिकारी,  
सोनाहातु, (राँची)।



क्र० सं	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 अंदर कोई जलीय निकाय (Dam/Reservoir) स्थित है?	नहीं
4.	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है?	हाँ
5.	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	नहीं
6.	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7.	क्या 10 कि०मी० की परिधि में कोई अन्तर्राज्यीय (Interstate) सीमा है?	नहीं
8.	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है?	नहीं

06/03/23  
अंचल अधिकारी,  
सोनाहातु, (राँची)।



Ms

कार्यालय अंचल अधिकारी, सोनाहातु (राँची)।

**List of Potential Sand Area of Ranchi**

Sl No.	Mauza	Plot No.	Thana No.	Panchayat	Block	Area (ha)	River	Whether proposed land is Jungle, Jhadi or not	
								Yes	No
1	Gomeadh	862(P)	59	Baruhatu	Sonahatu	1.80	Kanchi	-	NO
2	Gomeadh	864	59	Baruhatu	Sonahatu	9.40	Kanchi	-	NO
3	Somadh	556(P)	32	Telwadh	Sonahatu	21.20	Kanchi	-	NO
4	Birdidih	779(P)	34	Tentla	Sonahatu	10.40	Raru	-	NO
5	Birdidih	109(P)	34	Tentla	Sonahatu	4.80	Raru	-	NO

*[Signature]*  
राजस्व उप निरीक्षक,  
सोनाहातु।

*[Signature]*  
प्रभासी अंचल निरीक्षक,  
सोनाहातु।

*[Signature]*  
अंचल अधिकारी,  
सोनाहातु।



*[Signature]*

# कार्यालय अंचल अधिकारी, राहे(राँची)।

प्रेषक,

अंचल अधिकारी,  
राहे।

पत्रांक :- 37 (ii)

दिनांक :- 01/02/2023

सेवा में,

जिला खनन पदाधिकारी,  
राँची।

विषय :-

राँची जिला के राहे अंचल अन्तर्गत स्थित बालू घाट से संबंधित जाँच प्रतिवेदन उपलब्ध कराने के संबंध में।

प्रसंग :-

भवदीय पत्रांक- 41/एम०, दिनांक- 10.01.2023

महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र के आलोक में कहना है कि राँची जिला के राहे अंचल अन्तर्गत स्थित बालू घाट से संबंधित जाँच प्रतिवेदन कंडिकावार निम्नवत् है :-

III. Revised format for PP to get the following information/certification from Circle Officer

क्रम सं०	निर्धारित बिन्द	हाँ / नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान तथा रजिस्टर-II में जंगल झाड़ी के रूप में जर्द 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 ?	-
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है?	नहीं
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 अंतर्राज्यीय (Interstate) सीमा है ?	नहीं
8	क्या 500 मीटर की दूरी के अन्दर कोई राष्ट्रीय धरोहर/ पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है ?	नहीं



जि.सं.  
31-1-23  
MC/CJ

विश्वासभाजन,

अंचल अधिकारी,

राहे(राँची)।  
30/01/23



**कार्यालय, अंचल अधिकारी, तमाड़, (राँची)**

पत्रांक...४७(ii)

दिनांक...२३/०२/२०२३

प्रेषक,

अंचल अधिकारी  
तमाड़,(राँची)।

सेवा में,

जिला खनन पदाधिकारी,  
राँची।

**विषय :-** राँची जिला के तमाड़ अंचल अन्तर्गत स्थित बालू घाट से संबंधित जाँच प्रतिवेदन का प्रेषण।

**प्रसंग :-** भवदीय ज्ञापांक ३५/एम० दिनांक १०.०१.२०२३


महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र के आलोक में तमाड़ अंचल अंतर्गत मौजा-बादला, हाराडीह एवं दारुआड़ा स्थित बालू घाटों से संबंधित जाँच प्रतिवेदन विहित प्रपत्र में तैयार कर इस पत्र के साथ संलग्न कर आवश्यक कार्रवाई हेतु भेजी जा रही है।

कृपया प्राप्ति स्वीकार की जाय।

अनुलग्नक :- यथोक्त।

विश्वासभाजन

  
२३/०२/२३  
अंचल अधिकारी  
तमाड़,(राँची)।

  
२३/०२/२३





## बालू घाट हेतु जाँच प्रतिवेदन

अंचल- तमाड़,

जिला- राँची

मौजा- बादला, प्लॉट नं०- 1(P), थाना नं०- 211, पंचायत- डिम्बुजर्दा,

क्र०सं०	निर्धारित बिन्दु	हाँ / नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर- II में जंगल झाड़ी के रूप में दर्ज है?	खतियान में गैरमजरूआ आम नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है?	नहीं
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservoir) स्थित है?	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है?	काँची नदी
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	लगभग 400 मीटर की दूरी पर स्कूल स्थित है।
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7	क्या 10 कि० मी० की परिधि में कोई अंतर्राज्यीय (Interstate) सीमा है?	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है?	नहीं

राजस्व उपनिरीक्षक  
तमाड़।

  
23/2/2023 C.I.

अंचल निरीक्षक  
तमाड़।

अंचल अधिकारी  
तमाड़, (राँची)।



## बालू घाट हेतु जाँच प्रतिवेदन

अंचल- तमाड़,

जिला- राँची

मौजा- हाराडीह, प्लॉट नं०- 8(P), थाना नं०- 210, पंचायत- डिम्बुजर्दा,

क्र०सं०	निर्धारित बिन्दु	हाँ/ नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर- II में जंगल झाड़ी के रूप में दर्ज है?	खतियान में गैरमजरूआ आम नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है?	नहीं
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservoir) स्थित है?	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है?	काँची नदी
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	नहीं
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7	क्या 10 कि० मी० की परिधि में कोई अंतर्राज्यीय (Interstate) सीमा है?	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है?	लगभग 300 मीटर की दूरी में हाराडीह मंदिर स्थित है।

राजस्व उपनिरीक्षक  
तमाड़।

अंचल निरीक्षक  
तमाड़।

अंचल अधिकारी  
तमाड़, (राँची)।



m

## बालू घाट हेतु जाँच प्रतिवेदन

अंचल- तमाड़,

जिला- राँची

मौजा- दारुआड़ा, प्लॉट नं०- 1, थाना नं०- 209, पंचायत- डिम्बुजर्दा,

क्र०सं०	निर्धारित बिन्दु	हाँ / नहीं
1	क्या आवेदित भूमि की कोटि सर्वे खतियान यथा रजिस्टर- II में जंगल झाड़ी के रूप में दर्ज है?	खतियान में गैरमजरूआ आम नदी दर्ज है।
2	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है?	लगभग 300 मीटर में दारुआड़ा बस्ती स्थित है।
3	क्या 500 मीटर की दूरी के अंदर कोई जलीय निकाय (Dam/Reservoir) स्थित है?	नहीं
4	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है?	काँची नदी
5	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	लगभग 200 मीटर की दूरी पर स्कूल स्थित है।
6	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है?	नहीं
7	क्या 10 कि० मी० की परिधि में कोई अंतर्राज्यीय (Interstate) सीमा है?	नहीं
8	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर/पुरातत्वीय (Monuments/Archaeological) महत्व के स्थल स्थित है?	नहीं

  
राजस्व उपनिरीक्षक  
तमाड़।

  
23/2/2023 T.J.  
अंचल निरीक्षक  
तमाड़।

  
23/02/23  
अंचल अधिकारी  
तमाड़, (राँची)।





# ANNEXURE - E





कार्यालय:- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।  
वन भवन, डोरण्डा, राँची- 834002 (झारखण्ड)

E-mail : dfo-ranchi@gov.in Ph. No. 0651-2480265 (O), FAX 0651- 2482386



जहाँ है हरियाली ।  
वहीं है ख़राबारी ॥

पत्रांक:-956 दिनांक:-13.03.2023

सेवा में,

जिला खनन पदाधिकारी,  
राँची।

विषय :- राँची जिला अन्तर्गत विभिन्न मौजा अन्तर्गत चिन्हित कुल- 19 बालूघाटों का वनभूमि से संबंधित प्रतिवेदन उपलब्ध कराने के संबंध में।

प्रसंग :- आपका पत्रांक 34/एम०, दिनांक 10.01.2023, पत्रांक 36/एम०, दिनांक 10.01.2023, पत्रांक 38/एम०, दिनांक 10.01.2023, पत्रांक 40/एम०, दिनांक 10.01.2023, पत्रांक 42/एम०, दिनांक 10.01.2023 एवं पत्रांक 45/एम०, दिनांक 10.01.2023

महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्रों के आलोक में आपसे प्राप्त चिन्हित- 19 बालूघाटों में से इस प्रमण्डल अन्तर्गत बुढमू एवं महिलौंग प्रक्षेत्र के 10 बालूघाटों का वनभूमि से संबंधित प्रतिवेदन इस पत्र के संलग्न कर भेजी जा रही है। शेष 9 बालूघाटों का प्रतिवेदन खूँटी वन प्रमण्डल, खूँटी के द्वारा उपलब्ध कराया जाना है।

अनुरोध है कि बालूघाटों की स्वीकृति के उपरान्त बालू का परिवहन वनभूमि से होकर नहीं कराया जाये।

अनु०:-यथोक्त।

आपका विश्वसी

वन प्रमण्डल पदाधिकारी,  
राँची वन प्रमण्डल, राँची।





कार्यालय:- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।

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जहाँ है हरियाली ।  
वहीं है ख़ुशहाली ॥

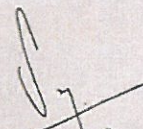
बालूघाट का नाम- श्याम नगर (रारु नदी)

थाना/थाना नम्बर- 111

जिला- राँची

प्लॉट नं०- 469 (P)

क्रम सं०	निर्धारित बिन्दु	हाँ/ नहीं
1	क्या परियोजना स्थल से आरक्षित वन/ सुरक्षित वन भूमि दूरी 250 मीटर है ?	हाँ
2	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं
3	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क है?	नहीं
4	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण एवं जैवविविधता क्षेत्र है?	नहीं
5	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco Sensitive Zone) है?	नहीं
6	क्या आवेदित परियोजना Eco Sensitive Zone के अन्तर्गत प्रबंधित श्रेणी में आता है अथवा नहीं?	नहीं

  
वन प्रमण्डल पदाधिकारी,  
राँची वन प्रमण्डल, राँची।  
12/12





कार्यालय:- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।

वन भवन, डोरण्डा, राँची- 834002 (झारखण्ड)

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जहाँ है हरियारी ।  
वहीं है अग्रगण्य ॥

बालूघाट का नाम- चोकेसेरेंग (स्वर्णरेखा नदी)

थाना/थाना नम्बर- 102

जिला- राँची

प्लॉट नं०- 1341 (P)

क्रम सं०	निर्धारित बिन्दु	हाँ/ नहीं
1	क्या परियोजना स्थल से आरक्षित वन/ सुरक्षित वन भूमि दूरी 250 मीटर है ?	हाँ
2	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं
3	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क है?	नहीं
4	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण एवं जैवविविधता क्षेत्र है?	नहीं
5	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco Sensitive Zone) है?	नहीं
6	क्या आवेदित परियोजना Eco Sensitive Zone के अन्तर्गत प्रबंधित श्रेणी में आता है अथवा नहीं?	नहीं

वन प्रमण्डल पदाधिकारी,  
राँची वन प्रमण्डल, राँची।



A3



कार्यालय:- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।

वन भवन, डोरण्डा, राँची- 834002 (झारखण्ड)

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सर्वो ह्ये हितवर्ती ।  
सर्वो ह्ये अयत्नवर्ती ॥

बालूघाट का नाम- चोकेसेरेंग (स्वर्णरेखा नदी)

थाना/थाना नम्बर- 102

जिला- राँची

प्लॉट नं०- 921 (P)

क्रम सं०	निर्धारित बिन्दु	हाँ/ नहीं
1	क्या परियोजना स्थल से आरक्षित वन/ सुरक्षित वन भूमि दूरी 250 मीटर है ?	हाँ
2	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं
3	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क है?	नहीं
4	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण एवं जैवविविधता क्षेत्र है?	नहीं
5	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco Sensitive Zone) है?	नहीं
6	क्या आवेदित परियोजना Eco Sensitive Zone के अन्तर्गत प्रबंधित श्रेणी में आता है अथवा नहीं?	नहीं

वन प्रमण्डल पदाधिकारी,  
राँची वन प्रमण्डल, राँची।

13/12



*Handwritten signature*

D:\(F) Binod\_21\_16\_Arbaz Misc Letter



कार्यालय:- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।

वन भवन, डोरण्डा, राँची- 834002 (झारखण्ड)

E-mail : dfo-ranchi@gov.in Ph. No. 0651-2480265 (O), FAX 0651-2482386



जहाँ है हृदयवादी ।  
वहाँ है अशासकीय ॥

बालूघाट का नाम- सुण्डील (स्वर्णरेखा नदी)

थाना/थाना नम्बर- 97

जिला- राँची

प्लॉट नं०- 546

क्रम सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या परियोजना स्थल से आरक्षित वन/सुरक्षित वन भूमि दूरी 250 मीटर है ?	हाँ
2	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं
3	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क है?	नहीं
4	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण एवं जैवविविधता क्षेत्र है?	नहीं
5	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco Sensitive Zone) है?	नहीं
6	क्या आवेदित परियोजना Eco Sensitive Zone के अन्तर्गत प्रबंधित श्रेणी में आता है अथवा नहीं?	नहीं

वन प्रमण्डल पदाधिकारी,  
राँची वन प्रमण्डल, राँची।

13/3



A3



कार्यालय:- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।

वन भवन, डोरण्डा, राँची- 834002 (झारखण्ड)

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जहाँ है हरियाली ।  
वहाँ है अरुणदासी ॥

बालूघाट का नाम- करियाडीह (रारु नदी)

थाना/थाना नम्बर- 50

जिला- राँची

प्लॉट नं०- 1299 (P)

क्रम सं०	निर्धारित बिन्दु	हाँ/नहीं
1	क्या परियोजना स्थल से आरक्षित वन/सुरक्षित वन भूमि दूरी 250 मीटर है ?	हाँ
2	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं
3	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क है?	नहीं
4	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण एवं जैवविविधता क्षेत्र है?	नहीं
5	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco Sensitive Zone) है?	नहीं
6	क्या आवेदित परियोजना Eco Sensitive Zone के अन्तर्गत प्रबंधित श्रेणी में आता है अथवा नहीं?	नहीं

वन प्रमण्डल पदाधिकारी,  
राँची वन प्रमण्डल, राँची।

13/3



A2

कार्यालय:- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।

वन भवन, डोरण्डा, राँची- 834002 (झारखण्ड)

E-mail : dfo-ranchi@gov.in Ph. No. 0651-2480265 (O), FAX 0651- 2482386



जहाँ है हरियाली ।  
वहाँ है खुशहाली ॥

बालूघाट का नाम- डुमरबेड़ा (स्वर्णरेखा नदी)

थाना/थाना नम्बर- 101

जिला- राँची

प्लॉट नं०- 489 (P)

क्रम सं०	निर्धारित बिन्दु	हाँ/ नहीं
1	क्या परियोजना स्थल से आरक्षित वन/ सुरक्षित वन भूमि दूरी 250 मीटर है ?	हाँ
2	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं
3	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क है?	नहीं
4	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण एवं जैवविविधता क्षेत्र है?	नहीं
5	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco Sensitive Zone) है?	नहीं
6	क्या आवेदित परियोजना Eco Sensitive Zone के अन्तर्गत प्रबंधित श्रेणी में आता है अथवा नहीं?	नहीं

वन प्रमण्डल पदाधिकारी,  
राँची वन प्रमण्डल, राँची।

13/12



12

कार्यालय:- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।

वन भवन, डोरण्डा, राँची- 834002 (झारखण्ड)

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जहाँ है हरियारी ।  
वहाँ है ख़ुशख़बरी ॥

बालूघाट का नाम- लपरा (चट्टी नदी)

थाना/थाना नम्बर- 1

जिला- राँची

प्लॉट नं०- 1(p)

क्रम सं०	निर्धारित बिन्दु	हाँ/ नहीं
1	क्या परियोजना स्थल से आरक्षित वन/ सुरक्षित वन भूमि दूरी 250 मीटर है ?	नहीं
2	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं
3	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क है?	नहीं
4	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण एवं जैवविविधता क्षेत्र है?	नहीं
5	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco Sensitive Zone) है?	नहीं
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वन प्रमण्डल पदाधिकारी,  
वन प्रमण्डल, राँची।

13/3



A2



कार्यालय:- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।

वन भवन, डोरण्डा, राँची- 834002 (झारखण्ड)

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जहाँ है दृष्टिकोण ।  
वहाँ है अग्रगण्य ॥

बालूघाट का नाम - चुरी (सपाही नदी)

थाना/थाना नम्बर- 16

जिला- राँची

प्लॉट नं०- 192(P)

क्रम सं०	निर्धारित बिन्दु	हाँ/ नहीं
1	क्या परियोजना स्थल से आरक्षित वन/ सुरक्षित वन भूमि दूरी 250 मीटर है ?	नहीं
2	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं
3	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क है?	नहीं
4	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण एवं जैवविविधता क्षेत्र है?	नहीं
5	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco Sensitive Zone) है?	नहीं
6	क्या आवेदित परियोजना Eco Sensitive Zone के अन्तर्गत प्रबंधित श्रेणी में आता है अथवा नहीं?	नहीं

वन प्रमण्डल पदाधिकारी,  
राँची वन प्रमण्डल, राँची।



Ar



कार्यालय:- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।

वन भवन, डोरण्डा, राँची- 834002 (झारखण्ड)

E-mail : dfo-ranchi@gov.in Ph. No. 0651-2480265 (O), FAX 0651- 2482386



जहाँ है हरियारी ।  
वहाँ है ख़ुशाली ॥

बालूघाट का नाम – राय (सपाही नदी)

थाना/थाना नम्बर- 18

जिला- राँची

प्लॉट नं०- 1201(P)

क्रम सं०	निर्धारित बिन्दु	हाँ / नहीं
1	क्या परियोजना स्थल से आरक्षित वन/सुरक्षित वन भूमि दूरी 250 मीटर है ?	नहीं
2	क्या परियोजना स्थल No Mining Zone अन्तर्गत आता है?	नहीं
3	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई नेशनल पार्क है?	नहीं
4	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई अभ्यारण एवं जैवविविधता क्षेत्र है?	नहीं
5	क्या परियोजना स्थल से 10 कि०मी० की दूरी के अन्दर कोई इको सेंसिटिव जोन (Eco Sensitive Zone) है?	नहीं
6	क्या आवेदित परियोजना Eco Sensitive Zone के अन्तर्गत प्रबंधित श्रेणी में आता है अथवा नहीं?	नहीं

वन प्रमण्डल पदाधिकारी,  
राँची वन प्रमण्डल, राँची।  
13/3



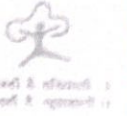
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कार्यालय :- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।

वन भवन, डोरण्डा, राँची- 834002 (झारखंड)

E-mail : dfo-ranchi@gov.in Ph. No. 0651-2480265 (O), FAX 0651-2482386



पत्रांक:- 714 दिनांक:- 23-01-2023

सेवा में,

जिला खनन पदाधिकारी,  
राँची।

विषय:- राँची जिला के बुण्डू अंचल, तमाड़ अंचल, सोनाहातु अंचल अंतर्गत स्थित बालू घाट से संबंधित जाँच प्रतिवेदन के संबंध में।

प्रसंग:- आपका पत्रांक-34/एम0 दिनांक-10.01.2023, 36/एम0 दिनांक-10.01.2023 एवं 38/एम0 दिनांक-10.01.2023

महाशय,

उपर्युक्त विषयक प्रसांगिक पत्रों के आलोक में सूचित करना है कि राँची जिला के बुण्डू अंचल, तमाड़ अंचल, सोनाहातु अंचल अंतर्गत स्थित बालू घाट से संबंधित विवरणी वन प्रमण्डल पदाधिकारी, खूँटी वन प्रमण्डल, खूँटी द्वारा ही निर्गत की जायेगी।

अनुरोध है कि राँची जिला के बुण्डू अंचल, तमाड़ अंचल, सोनाहातु अंचल अंतर्गत बालू घाटों के जाँच प्रतिवेदन हेतु वन प्रमण्डल पदाधिकारी, खूँटी वन प्रमण्डल, खूँटी को पत्राचार करने की कृपा करें।

इस पत्र की एक प्रति वन प्रमण्डल पदाधिकारी, खूँटी वन प्रमण्डल, खूँटी को भी दी जा रही है।

विश्वासभाजन

वन प्रमण्डल पदाधिकारी  
राँची वन प्रमण्डल, राँची।  
23/1/23



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कार्यालय:- वन प्रमण्डल पदाधिकारी, राँची वन प्रमण्डल, राँची।  
वन भवन, डोरण्डा, राँची- 834002 (झारखण्ड)

E-mail : dfo-ranchi@gov.in Ph. No. 0651-2480265 (O), FAX 0651-2482386



जहाँ है हठियाली  
वहाँ है झुरातली

पत्रांक:- 660 दिनांक:- 21-02-2023

सेवा में,

उपायुक्त-सह-जिला दण्डाधिकारी,  
राँची।

विषय :-

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार द्वारा भारत के राजपत्र में प्रकाशित अधिसूचना संख्या 2827 दिनांक 25.07.2018 के तहत बालूघाटों के जिला सर्वेक्षण रिपोर्ट तैयार करने के संबंध में।

प्रसंग :-

आपका पत्रांक 100/एम०, दिनांक 20.01.2023

महाशय,

उपर्युक्त विषयक प्रसंगाधीन पत्र के आलोक में राँची जिला अंतर्गत बालूघाटों के जिला सर्वेक्षण रिपोर्ट तैयार करने के बावत् इस कार्यालय के श्री विश्वनाथ प्रसाद, सहायक वन संरक्षक, राँची वन प्रमण्डल, राँची (मोबाईल नं०- 7488890899) को नामित किया जाता है।

सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

आपका विश्वासी

वन प्रमंडल पदाधिकारी,  
राँची वन प्रमंडल, राँची।



42  
24/2/23

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25/02/2023

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# ANNEXURE - F





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmorenchijharkhand@gmail.com	<b>Battery Point</b>	BASATPUR
<b>District</b>	Ranchi	<b>Thana Name:</b>	RAJHE
<b>Thana No.:</b>	45	<b>Khesra Name:</b>	78P
<b>Khata No.:</b>	N/A	<b>Range Forest Officer</b>	Divisional Forest Officer
<b>#</b>	<b>Checkpoint</b>	<b>Range Forest Officer</b>	<b>Divisional Forest Officer</b>
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Yes
2	Whether Project location come under No Mining Zone? *	Yes	Yes
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

Related to Ranchi Forest Div., Ranchi  
 Related to Ranchi Forest Div., Ranchi

Division **DFO Wildlife Ranchi**  
 Letter No **350**  
 Date of issue **18-04-2023**  
 Signature \_\_\_\_\_  
 Name \_\_\_\_\_

Divisional Forest Officer  
  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

**Divisional Forest Officer**  
**Wildlife Division, Ranchi**





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmoreanchijharkhand@gmail.com	<b>Battery Point</b>	CHILUTIKAR,SARJAMDIH
<b>District</b>	Ranchi	<b>Thana Name:</b>	BUNDU
<b>Thana No.:</b>	41.42	<b>Khesra Name:</b>	130,647P
<b>Khata No.:</b>	N/A	<b>Range Forest Officer</b>	Divisional Forest Officer
<b>#</b>	<b>Checkpoint</b>	<b>Range Forest Officer</b>	<b>Divisional Forest Officer</b>
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Yes <b>Related to Ranchi Forest Div., Ranchi</b>
2	Whether Project location come under No Mining Zone? *	Yes	Yes <b>Related to Ranchi Forest Div., Ranchi</b>
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

Division DFO Wildlife Ranchi  
 Letter No. 356  
 Date of issue 18-04-2023  
 Signature \_\_\_\_\_  
 Name \_\_\_\_\_

Divisional Forest Officer

*[Signature]*  
 18/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

*[Signature]*  
 18/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmoranchijharkhand@gmail.com	<b>Battery Point</b>	CHOKESERANG
<b>District</b>	Ranchi	<b>Thana Name:</b>	SILLI
<b>Thana No.:</b>	102	<b>Khesra Name:</b>	1341P
<b>Khata No.:</b>	N/A	<b>Range Forest Officer</b>	Divisional Forest Officer
<b>#</b>	<b>Checkpoint</b>	<b>Range Forest Officer</b>	<b>Divisional Forest Officer</b>
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Yes <b>Related to Ranchi Forest Div., Ranchi</b>
2	Whether Project location come under No Mining Zone? *	Yes	Yes <b>Related to Ranchi Forest Div., Ranchi</b>
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

Division **DFO Wildlife Ranchi**  
 Letter No. **352**  
 Date of issue **18-04-2023**  
 Signature \_\_\_\_\_  
 Name \_\_\_\_\_

Divisional Forest Officer

*[Signature]*  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

*[Signature]*  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmoranchijharkhand@gmail.com		
<b>District</b>	Ranchi	<b>Battery Point</b>	CHOKESERANG DUMARBERA
<b>Thana No.:</b>	102.101	<b>Thana Name</b>	SILLI
<b>Khata No.:</b>	N/A	<b>Khesra Name:</b>	921P,489P

#	Checkpoint	Range Forest Officer	Divisional Forest Officer
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250.m? *	Yes	Yes
2	Whether Project location come under No Mining Zone? *	Yes	Yes
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

Related to Ranchi Forest Div., Ranchi  
 Related to Ranchi Forest Div., Ranchi

Division DFO Wildlife Ranchi  
 Letter No. 351  
 Date of issue 18-04-2023  
 Signature \_\_\_\_\_  
 Name \_\_\_\_\_

Divisional Forest Officer

*[Signature]*  
 18/04/2023

**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

*[Signature]*  
 18/04/2023

**Divisional Forest Officer**  
**Wildlife Division, Ranchi**





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi		<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government			
<b>Email ID</b>	dmorenchijharkhand@gmail.com		<b>Location of Proposed Land</b>	
<b>District</b>	Ranchi	<b>Battery Point</b>	CHUKURAY	
<b>Thana No.:</b>	16 18	<b>Thana Name:</b>	KHALARI	
<b>Khata No.:</b>	N/A	<b>Khesra Name:</b>	192P, 1201P	
<b>#</b>	<b>Checkpoint</b>	<b>Range Forest Officer</b>	<b>Divisional Forest Officer</b>	
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	<del>Yes</del>	<del>Yes</del>	<b>Related to Ranchi Forest Div., Ranchi</b>
2	Whether Project location come under No Mining Zone? *	<del>Yes</del>	<del>Yes</del>	<b>Related to Ranchi Forest Div., Ranchi</b>
3	Does there any National park located within 10 km from project location? *	No	No	
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No	
5	Does there any ESZ available within 10 km distance from project location? *	No	No	
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No	

Division **DFO Wildlife Ranchi**  
 Letter No. **348**  
 Date of issue **18-04-2023**  
 Signature \_\_\_\_\_  
 Name \_\_\_\_\_

Divisional Forest Officer

*[Signature]*  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

*[Signature]*  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmoreanchijharkhand@gmail.com	<b>Battery Point</b>	GOMEADIH HARADIH DARUARA
<b>District</b>	Ranchi	<b>Thana Name</b>	SONAHATU TAMAR
<b>Thana No.</b>	59.210.209	<b>Khesra Name</b>	862P,864,8P,1
<b>Khata No.</b>	N/A	<b>Range Forest Officer</b>	Divisional Forest Officer
<b>#</b>	<b>Checkpoint</b>		
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	<del>Yes</del>	<del>Yes</del> <b>Related to Ranchi Forest Div., Ranchi</b>
2	Whether Project location come under No Mining Zone? *	<del>Yes</del>	<del>Yes</del> <b>Related to Ranchi Forest Div., Ranchi</b>
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

Division **DFO Wildlife Ranchi**  
 Letter No **343**  
 Date of issue **18-04-2023**  
 Signature \_\_\_\_\_  
 Name \_\_\_\_\_

Divisional Forest Officer

*[Signature]*  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**  
 18/04/2023

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

*[Signature]*  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**  
 18/04/2023





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmoranchijharkhand@gmail.com		
<b>District</b>	Ranchi	<b>Battery Point</b>	KARAMBU
<b>Thana No.:</b>	35	<b>Thana Name:</b>	BUNDU
<b>Khata No.:</b>	N/A	<b>Khesra Name:</b>	896P

#	Checkpoint	Range Forest Officer	Divisional Forest Officer
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Yes
2	Whether Project location come under No Mining Zone? *	Yes	Yes
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

**Related to Ranchi Forest Div., Ranchi**  
**Related to Ranchi Forest Div., Ranchi**

Division **DFO Wildlife Ranchi**  
Letter No **358**  
Date of issue **18-04-2023**  
Signature \_\_\_\_\_  
Name \_\_\_\_\_

Divisional Forest Officer  
  
**18/04/2023**  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

**18/04/2023**  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmoranchijharkhand@gmail.com	<b>Battery Point</b>	KAREYADHILICHAHATU
<b>District</b>	Ranchi	<b>Thana Name:</b>	SILLI RAHE
<b>Thana No.:</b>	50.43	<b>Khesra Name:</b>	1299P,1370P
<b>Khata No.:</b>	N/A		

#	Checkpoint	Range Forest Officer	Divisional Forest Officer
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Yes
2	Whether Project location come under No Mining Zone? *	Yes	Yes
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

Related to Ranchi Forest Div., Ranchi  
Related to Ranchi Forest Div., Ranchi

Division DFO Wildlife Ranchi  
Letter No. 354  
Date of issue 18-04-2023  
Signature \_\_\_\_\_  
Name \_\_\_\_\_

Divisional Forest Officer

*[Signature]*  
18/04/2023

**Divisional Forest Officer  
Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

*[Signature]*  
18/04/2023

**Divisional Forest Officer  
Wildlife Division, Ranchi**



*[Handwritten mark]*



**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

**Name Of Applicant** district Mining Office ranchi  
**Institution Type** Government  
**Email ID** dmoranchijharkhand@gmail.com  
**Contact no.:** 9576100969

**District** Ranchi  
**Thana No.:** 1  
**Khata No.:** N/A  
**Location of Proposed Land**  
**Battery Point** LAPRA  
**Thana Name:** KJIALARI  
**Khesra Name:** IP

#	Checkpoint	Range Forest Officer	Divisional Forest Officer
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Related to Ranchi Forest Div., Ranchi
2	Whether Project location come under No Mining Zone? *	Yes	Related to Ranchi Forest Div., Ranchi
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

**Division** DFO Wildlife Ranchi  
**Letter No.** 349  
**Date of issue** 18-04-2023  
**Signature**  
**Name**

**Divisional Forest Officer**  
  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

**Note:-** As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

**Divisional Forest Officer**  
**Wildlife Division, Ranchi**





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmoranchijharkhand@gmail.com	<b>Battery Point</b>	LOAHATU,CHURGI
<b>District</b>	Ranchi	<b>Thana Name</b>	BUNDU
<b>Thana No.:</b>	43 44	<b>Khesra Name:</b>	1063P,1395P
<b>Khata No.:</b>	N/A	<b>Range Forest Officer</b>	
<b>#</b>	<b>Checkpoint</b>	<b>Divisional Forest Officer</b>	
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Yes
2	Whether Project location come under No Mining Zone? *	Yes	Yes
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

Related to Ranchi Forest Div., Ranchi  
 Related to Ranchi Forest Div., Ranchi

Division **DFO Wildlife Ranchi**  
 Letter No. **359**  
 Date of issue **18-04-2023**  
 Signature \_\_\_\_\_  
 Name \_\_\_\_\_

Divisional Forest Officer  
  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**  
 18/04/2023

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

Divisional Forest Officer  
  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**  
 18/04/2023





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9905098037
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmorenranchijharkhand@gmail.com	<b>Battery Point</b>	PANGURA, BAREDIH
<b>District</b>	Ranchi	<b>Thana Name:</b>	BUNDU
<b>Thana No.:</b>	33.34	<b>Khesra Name:</b>	212,216,1147P
<b>Khata No.:</b>	N/A	<b>Range Forest Officer</b>	
<b>#</b>	<b>Checkpoint</b>	<b>Divisional Forest Officer</b>	
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Yes
2	Whether Project location come under No Mining Zone? *	Yes	Yes
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

Related to Ranchi Forest Div., Ranchi  
 Related to Ranchi Forest Div., Ranchi

Division DFO Wildlife Ranchi  
 Letter No 360  
 Date of issue 18-04-2023  
 Signature \_\_\_\_\_  
 Name \_\_\_\_\_

Divisional Forest Officer

*[Signature]*  
 18/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

*[Signature]*  
 18/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmoranchijharkhand@gmail.com	<b>Battery Point</b>	SHYAMNAGAR BIRDIDIH
<b>District</b>	Ranchi	<b>Thana Name:</b>	SILLI SONAHATU
<b>Thana No :</b>	111.34	<b>Khesra Name:</b>	511P, 779P, 109P
<b>Khata No :</b>	N/A		
<b>#</b>	<b>Checkpoint</b>	<b>Range Forest Officer</b>	<b>Divisional Forest Officer</b>
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Yes <b>Related to Ranchi Forest Div., Ranchi</b>
2	Whether Project location come under No Mining Zone? *	Yes	Yes <b>Related to Ranchi Forest Div., Ranchi</b>
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

Division **DFO Wildlife Ranchi**  
Letter No. **355**  
Date of issue **18-04-2023**  
Signature \_\_\_\_\_  
Name \_\_\_\_\_

Divisional Forest Officer

18/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

18/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**



*Ans*



**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmoranchijharkhand@gmail.com	<b>Battery Point</b>	SHYAMNAGAR
<b>District</b>	Ranchi	<b>Thana Name</b>	SILLI
<b>Thana No.:</b>	111	<b>Khesra Name</b>	469P
<b>Khata No.:</b>	N/A		
<b>#</b>	<b>Checkpoint</b>	<b>Range Forest Officer</b>	<b>Divisional Forest Officer</b>
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Yes
2	Whether Project location come under No Mining Zone? *	Yes	Yes
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

Related to Ranchi Forest Div., Ranchi  
Related to Ranchi Forest Div., Ranchi

Division **DEO Wildlife Ranchi**  
Letter No **353**  
Date of issue **18-04-2023**  
Signature \_\_\_\_\_  
Name \_\_\_\_\_

Divisional Forest Officer

*[Signature]*  
18/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

*[Signature]*  
19/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmorenchijharkhand@gmail.com	<b>Battery Point</b>	SOMADIII
<b>District</b>	Ranchi	<b>Thana Name:</b>	SONAHATU
<b>Thana No.:</b>	32	<b>Khesra Name</b>	556P
<b>Khata No.:</b>	N/A	<b>Range Forest Officer</b>	
<b>#</b>	<b>Checkpoint</b>	<b>Divisional Forest Officer</b>	
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	<input checked="" type="checkbox"/>	<b>Related to Ranchi Forest Div., Ranchi</b>
2	Whether Project location come under No Mining Zone? *	<input checked="" type="checkbox"/>	<b>Related to Ranchi Forest Div., Ranchi</b>
3	Does there any National park located within 10 km from project location? *	No	
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	
5	Does there any ESZ available within 10 km distance from project location? *	No	
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	

Division **DFO Wildlife Ranchi**  
 Letter No. **342**  
 Date of issue **18-04-2023**  
 Signature \_\_\_\_\_  
 Name \_\_\_\_\_

Divisional Forest Officer

*[Signature]*  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

*[Signature]*  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

Name Of Applicant: district Mining Office ranchi  
 Institution Type: Government  
 Email ID: dmoranchijharkhand@gmail.com  
 Location of Proposed Land: Contact no.: 9576100969

District: Ranchi  
 Thana No.: 97  
 Khata No.: N/A  
 Battery Point Thana Name: SUNDIL  
 Khesra Name: SILLI  
 546

#	Checkpoint	Range Forest Officer	Divisional Forest Officer
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Yes
2	Whether Project location come under No Mining Zone? *	Yes	Yes
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

Related to Ranchi Forest Div., Ranchi  
 Related to Ranchi Forest Div., Ranchi

Division: DFO Wildlife Ranchi  
 Letter No: 347  
 Date of issue: 18-04-2023  
 Signature: \_\_\_\_\_  
 Name: \_\_\_\_\_

Divisional Forest Officer

*[Signature]*  
 18/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

*[Signature]*  
 18/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**



*[Handwritten mark]*



**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

<b>Name Of Applicant</b>	district Mining Office ranchi	<b>Contact no.:</b>	9576100969
<b>Institution Type</b>	Government	<b>Location of Proposed Land</b>	
<b>Email ID</b>	dmoranchijharkhand@gmail.com	<b>Battery Point</b>	SUTILONG,BADLA
<b>District</b>	Ranchi	<b>Thana Name:</b>	BUNDU TAMAR
<b>Thana No.:</b>	3.211	<b>Khesra Name:</b>	1077P,IP
<b>Khata No.:</b>	N/A	<b>Range Forest Officer</b>	
<b>#</b>	<b>Checkpoint</b>	<b>Divisional Forest Officer</b>	
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	<input checked="" type="checkbox"/> Yes	<b>Related to Ranchi Forest Div., Ranchi</b>
2	Whether Project location come under No Mining Zone? *	<input checked="" type="checkbox"/> Yes	<b>Related to Ranchi Forest Div., Ranchi</b>
3	Does there any National park located within 10 km from project location? *	<input type="checkbox"/> No	
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	<input type="checkbox"/> No	
5	Does there any ESZ available within 10 km distance from project location? *	<input type="checkbox"/> No	
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	<input type="checkbox"/> No	

Division DFO Wildlife Ranchi  
 Letter No. 344  
 Date of issue 18-04-2023  
 Signature \_\_\_\_\_  
 Name \_\_\_\_\_

Divisional Forest Officer

**Divisional Forest Officer  
 Wildlife Division, Ranchi**

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

**Divisional Forest Officer  
 Wildlife Division, Ranchi**





**Department of Forest, Environment and Climate Change**

**Report of Distance from Notified Forest, National Park, Sanctuary & Eco-Sensitive Zone**

Name Of Applicant  
Institution Type  
Email ID

district Mining Office ranchi  
Government  
dmoranchijharkhand@gmail.com

Contact no.: 9576100969

**Location of Proposed Land**

District  
Thana No.  
Khata No.  
#

Ranchi  
32  
N/A

Battery Point  
Thana Name:  
Khesra Name:

TUNJU  
BUNDU  
403

#	Checkpoint	Range Forest Officer	Divisional Forest Officer
1	Whether Distance of Project location from Reserved Forest/Protected Forest is 250 m? *	Yes	Yes
2	Whether Project location come under No Mining Zone? *	Yes	Yes
3	Does there any National park located within 10 km from project location? *	No	No
4	Does there any Wildlife sanctuary located within 10 km distance from project location? *	No	No
5	Does there any ESZ available within 10 km distance from project location? *	No	No
6	Whether Proposed project comes under prohibited category of ESZ (Yes or No)? *	No	No

**Related to Ranchi Forest Div., Ranchi**  
**Related to Ranchi Forest Div., Ranchi**

Division: DFO Wildlife Ranchi  
Letter No. 346  
Date of issue: 18-04-2023  
Signature: \_\_\_\_\_  
Name: \_\_\_\_\_

Divisional Forest Officer

*[Signature]*  
18/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**  
*Pankaj*

Note:- As per Notification - S.O. 2897(E) dated 09th August 2019 of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, the Eco Sensitive Zone (ESZ) is 350 meters to 05 kilometers around the boundary of Palkot Wildlife Sanctuary, Gumla. Since the battery point is found outside the Eco Sensitive Zone of Palkot Wildlife Sanctuary, hence the proposed activity is not prohibited as per the ESZ Notification.

*[Signature]*  
18/04/2023  
**Divisional Forest Officer**  
**Wildlife Division, Ranchi**  
*Pankaj*



*[Signature]*

**ANNEXURE - G**



कार्यालय जिला मत्स्य पदाधिकारी-सह-मुख्य कार्यपालक पदाधिकारी, राँची।

पत्रांक 242

प्रेषक,

जिला मत्स्य पदाधिकारी-सह-  
मुख्य कार्यपालक पदाधिकारी, राँची।

सेवा में,

जिला खनन पदाधिकारी,  
राँची।

मत्स्य/राँची, दिनांक 24.4.23

विषय :- जलीय जीवों के संबंध में सूचना उपलब्ध कराने के संबंध में।

प्रसंग :- आपका पत्रांक - 254, दिनांक 11.02.2023

महाशय,

उपर्युक्त प्रसंगवर्णित विषय के संबंध में कहना है कि प्रसंगवर्णित पत्र के माध्यम से संलग्न श्रेणी -2 के चिह्नित बालू घाटों की सूची के संदर्भ में तैयार किये जा रहे District Survey Report (DSR) of Sand की समीक्षा के क्रम में राज्य स्तरीय पर्यावरण विशेषज्ञ आक्कलन समिति (SEAC) झारखण्ड के द्वारा किये गये आपत्ति "..... The undertaking regarding presence of aquatic animal in the river in proximity of the proposed sand ghats should be verified and certified by concerned Government Department like Zoological survey of India ....." के आलोक में जलीय जीवों के संबंध में सूचना उपलब्ध कराने का अनुरोध किया गया है।

उक्त के आलोक में श्रेणी - 2 के सूचित बालू घाटों के समीपस्थ नदियों/जलीय निकायों में पाये जाने वाले जलीय जीवों की निम्नांकित सूची संकलित कर प्रेषित की जा रही है।

Sl.No.	River/Area Details	Available Fishes
1	Subarnarekha River, Kanchi River,	<i>Acanthocobitis batia</i>
2	Raru River, Pakro River, Sapahi River,	<i>Amblyceps mangois</i>
3	Chatti River/ Other Water Sources of	<i>Amblypharyngodon mola</i>
4	Ranchi District.	<i>Anabas cobojus</i>
5		<i>Anguilla bengalensis bengalensis</i>
6		<i>Aplocheilus panchax</i>
7		<i>Bagarius bagarius</i>
8		<i>Barilius barila</i>
9		<i>Barilius barna</i>
10		<i>Barilius bendelisis</i>
11		<i>Catla catla</i>
12		<i>Chanda nama</i>
13		<i>Channa orientalis</i>

*[Handwritten Signature]*



*[Handwritten Mark]*

14		<i>Channa punctatus</i>
15		<i>Chela cachius</i>
16		<i>Cirrhinus mrigala</i>
17		<i>Cirrhinus reba</i>
18		<i>Clarias batrachus</i>
19		<i>Clupisoma garua</i>
20		<i>Crossocheilus latius</i>
21		<i>Cyprinus carpio</i>
22		<i>Dario danio</i>
23		<i>Dario devineo</i>
24		<i>Esomus danricus</i>
25		<i>Gagata cenia</i>
26		<i>Gambusia affinis</i>
27		<i>Garra annandalei</i>
28		<i>Garra gotyla</i>
29		<i>Garra lamta</i>
30		<i>Garra mullya</i>
31		<i>Garra nasuta</i>
32		<i>Glossogobius giuris</i>
33		<i>Glossogobius hoesei</i>
34		<i>Glossogobius spp</i>
35		<i>Glyptothorax coheni</i>
36		<i>Glyptothorax nelson</i>
37		<i>Heteropneustes fossilis</i>
38		<i>Hypophthalmichthys molitrix</i>
39		<i>Labeo angra</i>
40		<i>Labeo bata</i>
41		<i>Labeo calbasu</i>
42		
43		<i>Labeo dyocheilus</i>
44		<i>Labeo gonius</i>
		<i>Labeo rohita</i>
45		
46		<i>Lepidocephalus guntea</i>
47		<i>Macrornathus aral</i>
48		<i>Macrornathus pancalus</i>
49		<i>Mastacembelus armatus</i>
50		<i>Mystus aor</i>
51		<i>Mystus arnatus</i>
		<i>Mystus bleekeri</i>

*js*



*Ar*

52		
53		<i>Mystus gulio</i>
54		<i>Nemacheilus spp</i>
55		<i>Notopterus chitala</i>
56		<i>Notopterus notopterus</i>
57		<i>Notopterus notopterus</i>
58		<i>Osteobrama cotio</i>
59		<i>Parambassis ranga</i>
60		<i>Puntius chola</i>
61		<i>Puntius conchoni</i>
62		<i>Puntius sarana</i>
63		<i>Puntius sophore</i>
64		<i>Puntius ticto</i>
65		<i>Puntius spp</i>
66		<i>Rhinomugil corsula</i>
67		<i>Rasbora daniconius</i>
68		<i>Sperata aor</i>
69		<i>Sperata seenghala</i>
70		<i>Oreochromis niloticus</i>
		<i>Oreochromis mossambicus</i>

Sl.No.	River/Area Details	Available Crustaceans
1	Subarnarekha River, Kanchi River, Raru River, Pakro River, Sapahi River, Chatti River/ Other Water Sources of Ranchi District.	<i>Macrobrachium lamarrei</i>
2		<i>Macrobrachium rosenbergii</i>
3		<i>Barytelphusa cunicularis</i>
4		<i>Barytelphusa guerini</i>
5		<i>Vereena litterata</i>

विश्वासभाजन

*Seemar*  
24/4/23

जिला मत्स्य पदाधिकारी-सह-  
मुख्य कार्यपालक पदाधिकारी, राँची।



*12*

# ANNEXURE - H



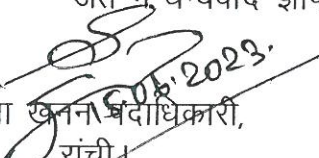
दिनांक 15.06.2023 को पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार के अधिसूचना संख्या 2827 दिनांक 25.07.18 के तहत रांची जिला के बालूघाटों के बाबत District Survey Report (sand) से संबंधित Sub-Divisional Committee की बैठक से संबंधित कार्यवाही :-

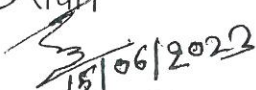
उपस्थिति :- पंजी के अनुसार।

सर्वप्रथम अनुमण्डल पदाधिकारी, एवं बुण्डू, रांची द्वारा बैठक में उपस्थित सभी सदस्यों का स्वागत करते हुए बैठक की कार्यवाही प्रारम्भ की गई।

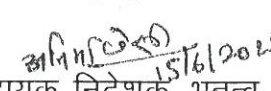
1. जिला खनन पदाधिकारी, रांची द्वारा Consultants M/s Sigma R.D. Consultants Private Limited consortium with Crystal Consultants से District Survey Report (sand) की प्रगति के संबंध में जानकारी प्रस्तुत करने का निदेश दिया गया।
2. जिले के बालू खनिज के लिये तैयार किये जा रहे जिला सर्वेक्षण रिपोर्ट की प्रगति के संबंध में M/s Sigma R.D. Consultants Private Limited consortium with Crystal Consultants के प्रतिनिधि द्वारा बताया गया कि जिलान्तर्गत 19 चिन्हित बालू घाटों के लिये संभावित संसाधन क्षेत्र (Potential Resource Area) के लिये District Survey Report (sand), का प्रारूप तैयार किया गया था। जिसे दिनांक 29.04.2023 को जिला के वेबसाइट <https://ranchi.nic.in> में आमजनों के सुझाव/मन्तव्य के लिए अपलोड किया गया था। जिसकी सूचना दिनांक- 30.04.2023 के स्थानीय दैनिक समाचार पत्र 'दैनिक भास्कर' में प्रकाशित की गई थी।
3. Enforcement and Monitoring Guidelines for Sand Mining, 2020 के अनुसार दिनांक 30.05.2023 को अवधि पूरी हो चुकी है। इस दौरान किसी प्रकार के कोई सुझाव/मन्तव्य/आपत्ति प्राप्त नहीं हुए है। साथ ही SEIAA रांची की 99 वीं बैठक में दिये गये सुझाव के अनुपालन के संबंध में M/s Sigma R.D. Consultants Private Limited consortium with Crystal Consultants के प्रतिनिधि द्वारा बताया गया कि उक्त बैठक में दिये गये सुझाव का सभी बिन्दुओं का अनुपालन कर लिया गया है।
4. समीक्षा के क्रम में तैयार किये गए District Survey Report (sand), के प्रारूप के संबंध में गठित Sub Divisional Committee के सदस्यों से अपना मन्तव्य रखने को कहा गया। सभी सदस्यों द्वारा अग्रेतर कार्रवाई हेतु अनुशंसा की गई।

अंत में धन्यवाद ज्ञापन कर बैठक की कार्रवाई समाप्त की गई।

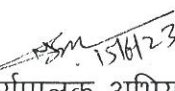
  
जिला खनन पदाधिकारी,  
रांची।


  
क्षेत्रीय पदाधिकारी,  
JSPCB, रांची।

  
अनुमण्डल पदाधिकारी,  
बुण्डू।

  
सहायक निदेशक, भूतत्व,  
जिला भूतात्विक कार्यालय  
रांची।

अनुमण्डल पदाधिकारी,  
सदर, रांची

  
कार्यपालक अभियंता  
लघु सिचाई प्रमण्डल,  
रांची।

  
सहायक वन संरक्षक-सह-  
वन पदाधिकारी, तमाड़ वन प्रक्षेत्र

ज्ञापांक

716

प्रतिलिपि :- उपायुक्त, रांची/ अनुमण्डल पदाधिकारी, रांची/ बुण्डू/ सभी संबंधित पदाधिकारी को सूचनार्थ प्रेषित।



जिला खनन पदाधिकारी,  
रांची।

# ANNEXURE - I





 **GPS Map Camera**

**Shyamnagar, Jharkhand, India**

**6RXF+7PF, Shyamnagar, Jharkhand 835102, India**

**Lat N 23° 14' 52.9152"**

**Long E 85° 49' 20.2332"**

**25/04/23 06:08 PM GMT +05:30**

 **216 m**





 **GPS Map Camera**

**Shyamnagar, Jharkhand, India**

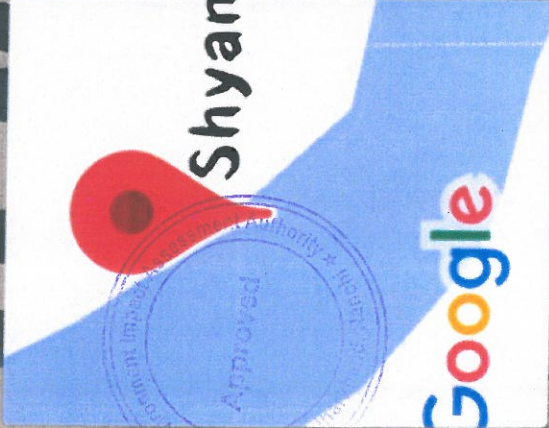
**6RXF+7PF, Shyamnagar, Jharkhand 835102, India**

**Lat N 23° 14' 52.92224"**

**Long E 85° 49' 20.3016"**

**25/04/23 06:08 PM GMT +05:30**

 **216 m**



**Shyan**  
 Approved  
 Google



 GPS Map Camera

Somadih, Jharkhand, India

Unnamed Road, Somadih, Jharkhand 835102, India

Lat N 23° 13' 30.1872"

Long E 85° 48' 14.7996"

25/04/23 03:46 PM GMT +05:30

 227 m



 GPS Map Camera

Somadih, Jharkhand, India

Unnamed Road, Somadih, Jharkhand 835102, India

Lat N 23° 13' 30.3168"

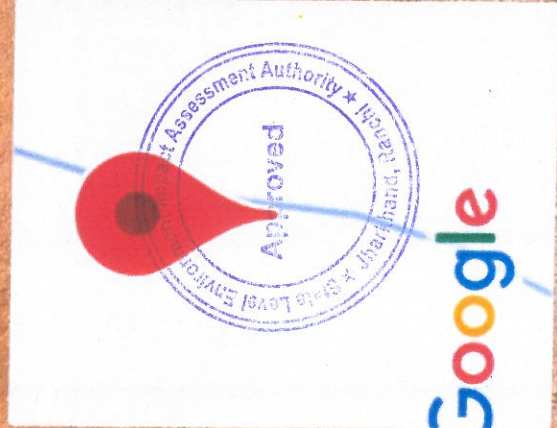
Long E 85° 48' 14.85"

25/04/23 03:45 PM GMT +05:30

 227 m



  
 Approved by  
 State Level Environmental Impact Assessment Authority, Jharkhand  

 **GPS Map Camera**

**Tamar, Jharkhand, India**

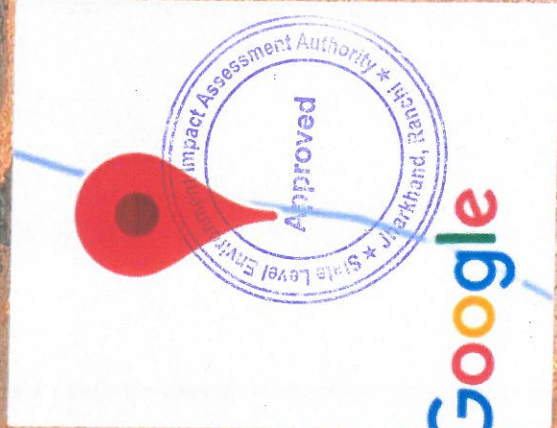
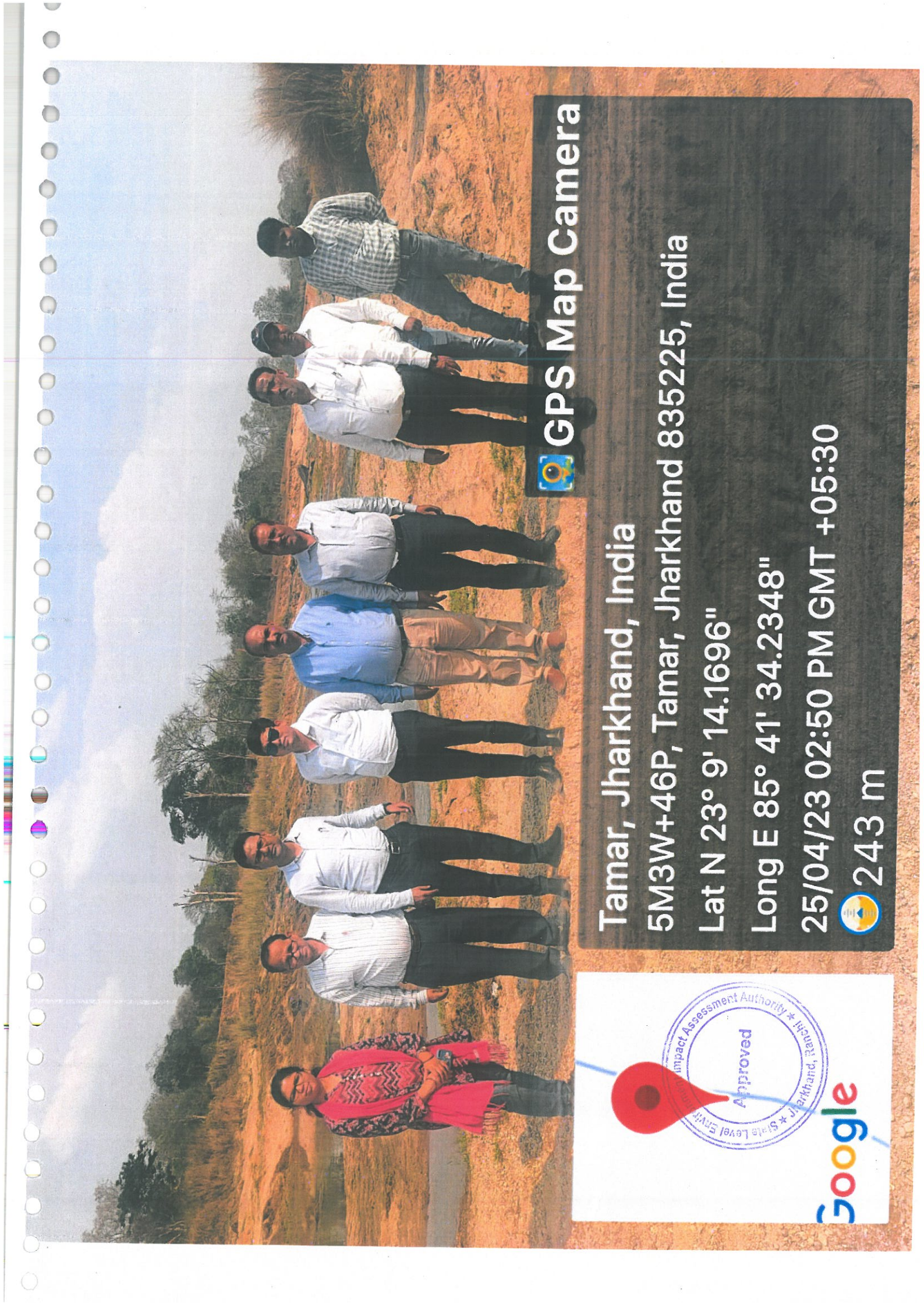
**5M3W+46P, Tamar, Jharkhand 835225, India**

**Lat N 23° 9' 14.1948"**

**Long E 85° 41' 34.1952"**

**25/04/23 02:50 PM GMT +05:30**

 **243 m**



 **GPS Map Camera**

**Tamar, Jharkhand, India**

**5M3W+46P, Tamar, Jharkhand 835225, India**

**Lat N 23° 9' 14.1696"**

**Long E 85° 41' 34.2348"**

**25/04/23 02:50 PM GMT +05:30**

 **243 m**



 **GPS Map Camera**

**Somadih, Jharkhand, India**

**Unnamed Road, Somadih, Jharkhand 835102, India**

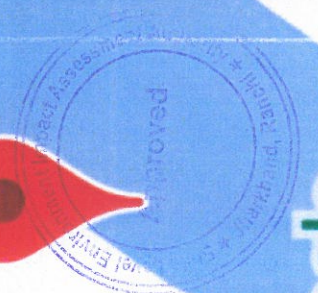
**Lat N 23° 13' 30.1332"**

**Long E 85° 48' 14.7708"**

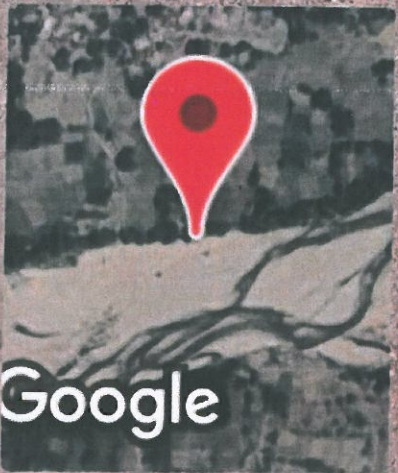
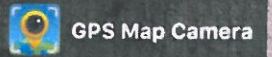
**25/04/23 03:46 PM GMT +05:30**



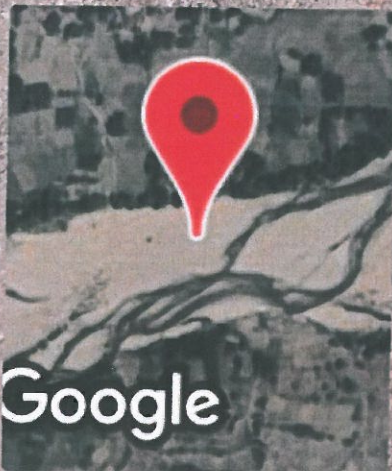
**227 m**



**Google**



**Chokesiring, Jharkhand, India**  
Unnamed Road, Chokesiring, Jharkhand  
835102, India  
Lat 23.309534°  
Long 85.844256°  
13/12/22 01:07 PM GMT +05:30



**Chokesiring, Jharkhand, India**

Unnamed Road, Chokesiring, Jharkhand

835102, India

Lat 23.309203°

Long 85.844368°

13/12/22 01:08 PM GMT +05:30

TBM-2  
G.L. 419  
N. 2620093  
E. 300965



GPS Map Camera



Ranchi, Jharkhand, India  
M2HX+V64 Churi Bridge, Jharkhand

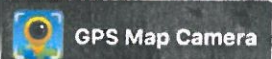
829209, India

Lat 23.67941°

Long 85.048044°

12/12/22 12:28 PM GMT +05:30

Google



**Ranchi, Jharkhand, India**


**Unnamed Road, Jharkhand 835102, India**

**Lat 23.332038°**

**Long 85.867072°**

**13/12/22 11:21 AM GMT +05:30**



 GPS Map Camera



**Dumaro, Jharkhand, India**

Unnamed Road, Dumaro, Jharkhand


829210, India

Lat 23.691147°

Long 84.936053°

12/12/22 10:28 AM GMT +05:30



 GPS Map Camera



**Hesalang, Jharkhand, India**


MWVQ+5P8 Damodar Bridge, Hesalang,  
Jharkhand 829210, India

Lat 23.693405°

Long 84.936809°

12/12/22 10:43 AM GMT +05:30



 GPS Map Camera



# Kaimbo, Jharkhand, India


CXWQ+P78, Kaimbo, Jharkhand 835301, India

Lat 23.447848°

Long 84.98771°

12/12/22 02:15 PM GMT +05:30



 GPS Map Camera

# Nichitpur, Jharkhand, India

Unnamed Road, Nichitpur, Jharkhand

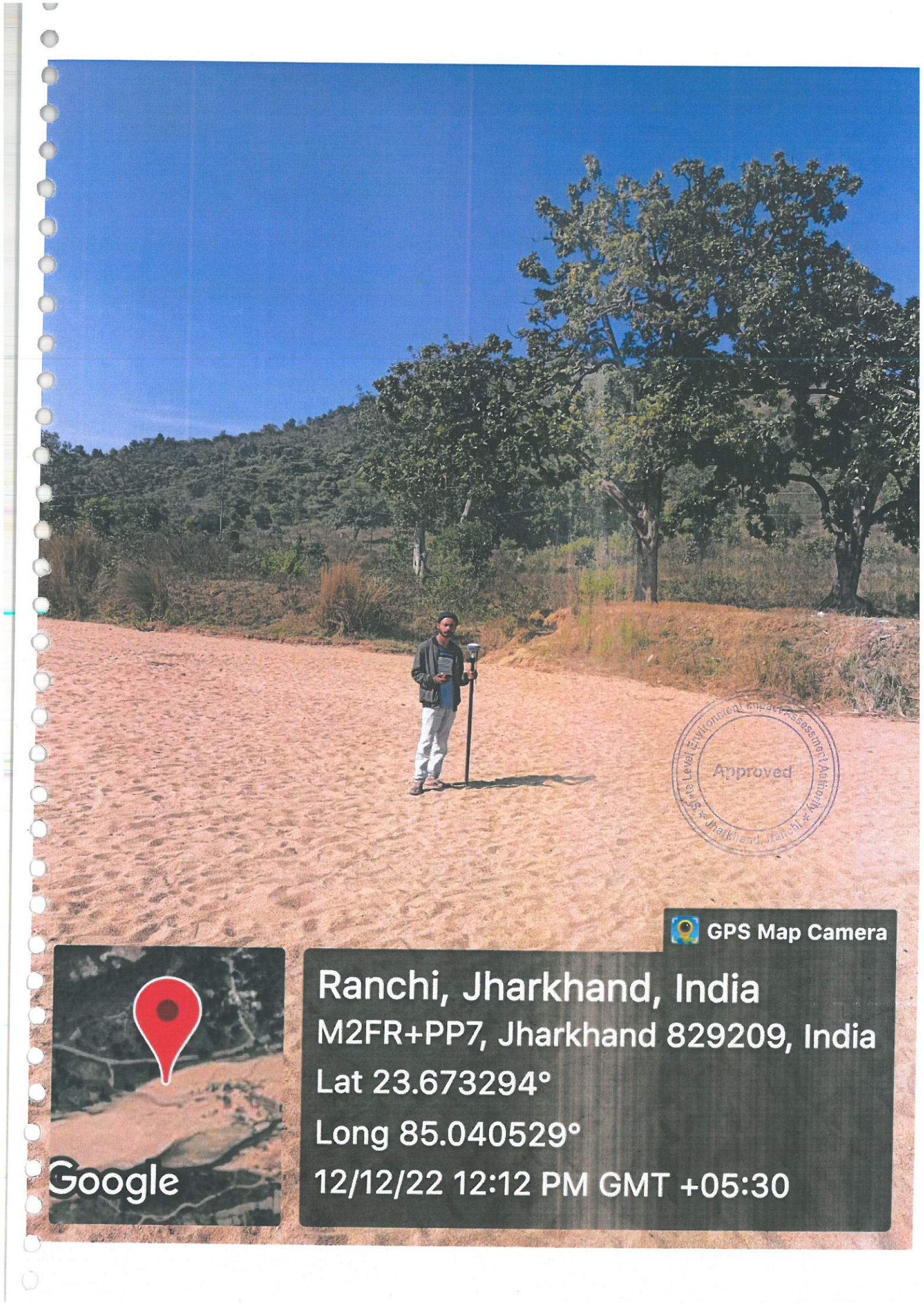
835216, India

Lat 22.905099°

Long 85.061718°

08/12/22 02:17 PM GMT +05:30

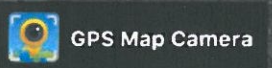
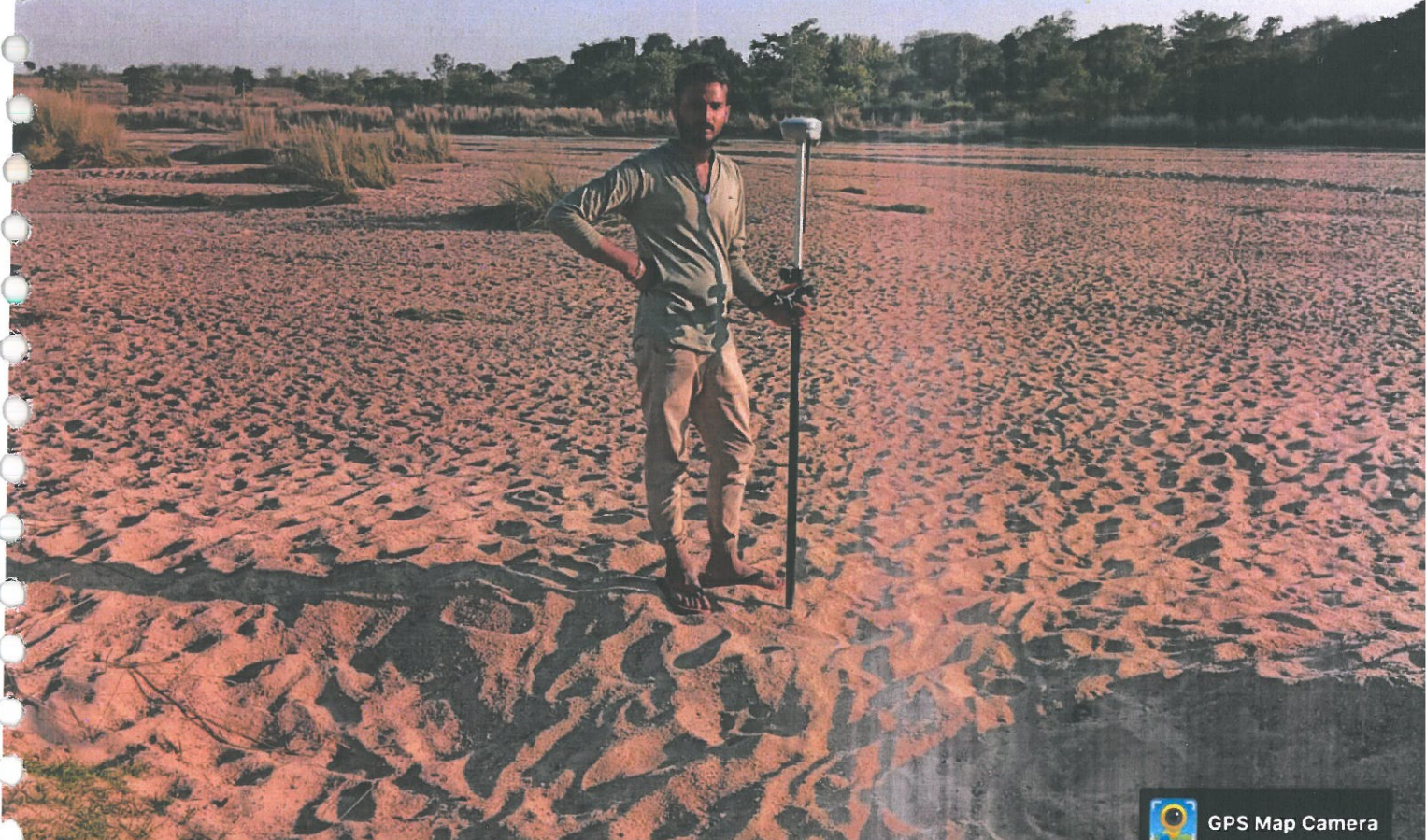




 GPS Map Camera



**Ranchi, Jharkhand, India**  
**M2FR+PP7, Jharkhand 829209, India**  
**Lat 23.673294°**  
**Long 85.040529°**  
**12/12/22 12:12 PM GMT +05:30**



**Shyamnagar, Jharkhand, India**  
**Shyamnagar, Jharkhand 835102, India**  
**Lat 23.246751°**  
**Long 85.827658°**  
**13/12/22 03:47 PM GMT +05:30**



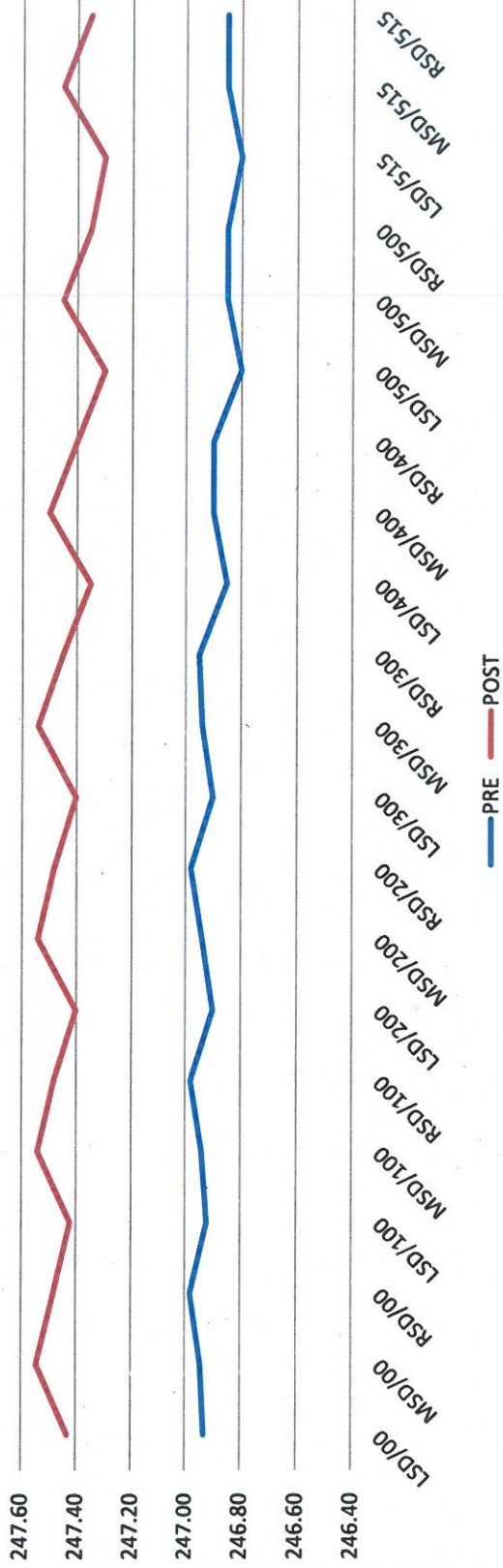
Google

Shyamnagar, Jharkhand, India  
Shyamnagar, Jharkhand 835102, India  
Lat 23.2469°  
Long 85.827629°  
13/12/22 03:46 PM GMT +05:30

**ANNEXURE - J**

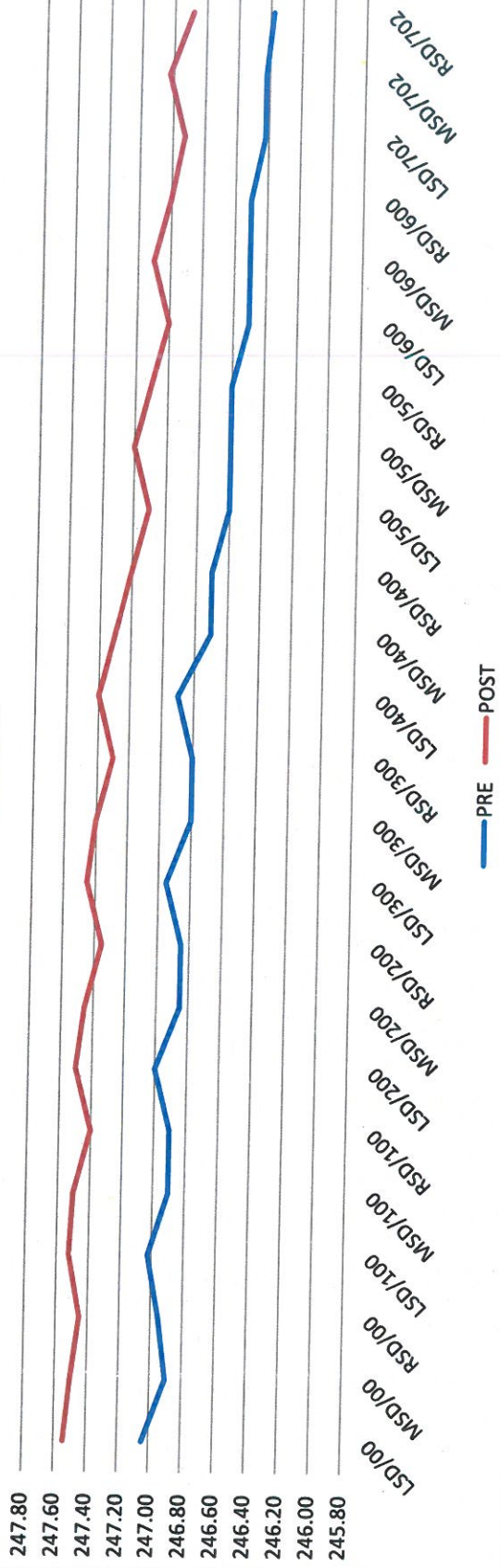


**RKA01**



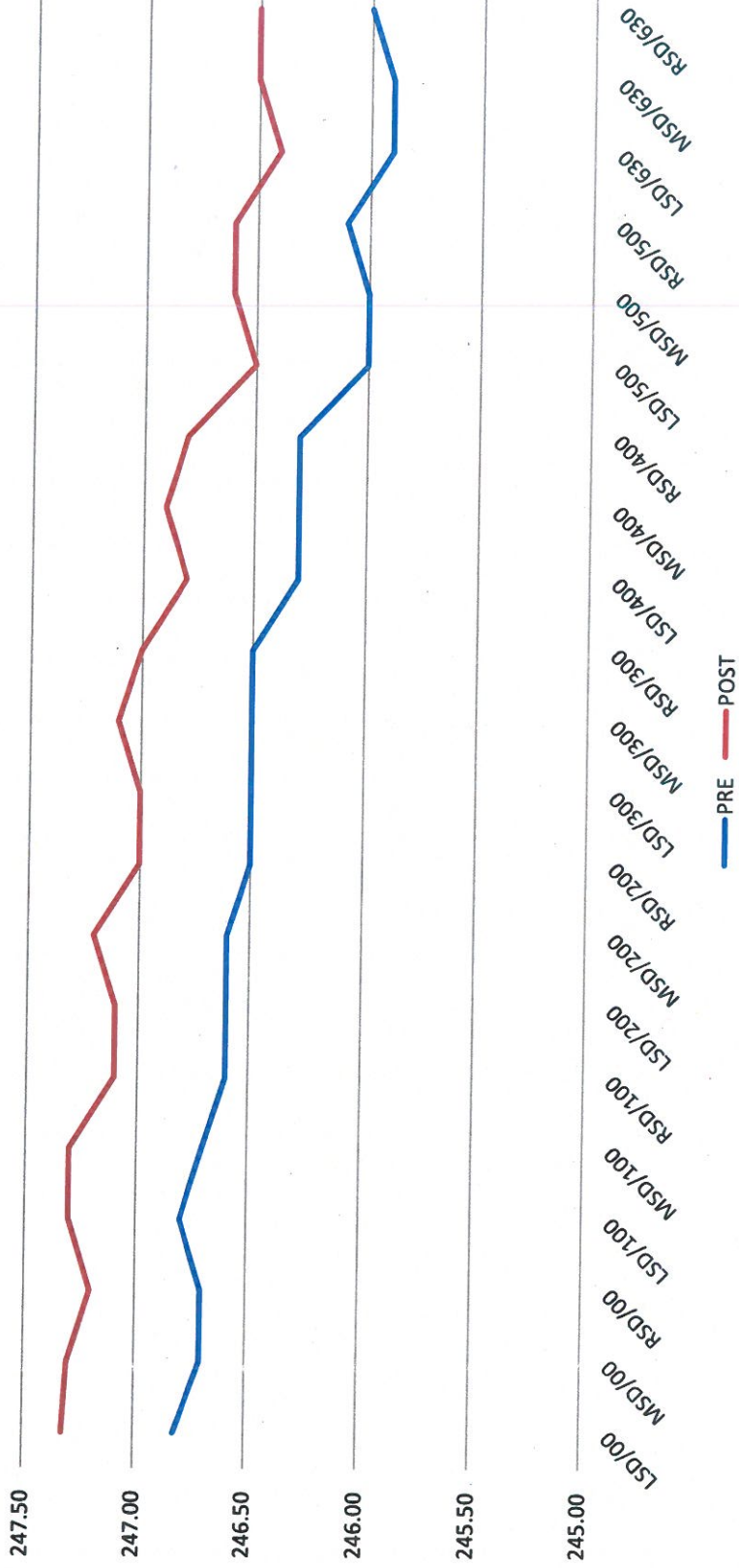
*Handwritten signature or initials in blue ink.*

# RKA02



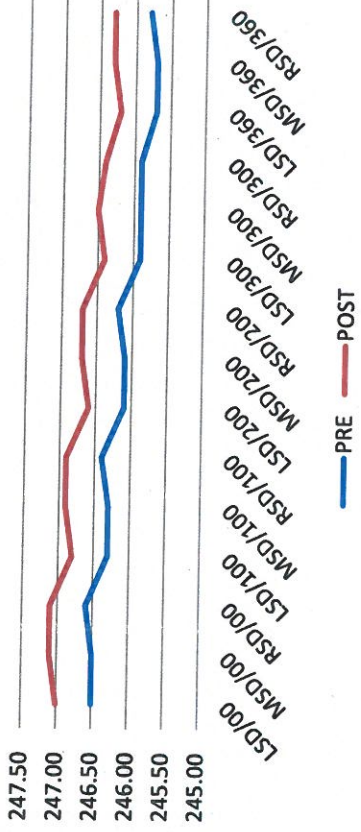
Handwritten signature or initials in blue ink.

RKA03



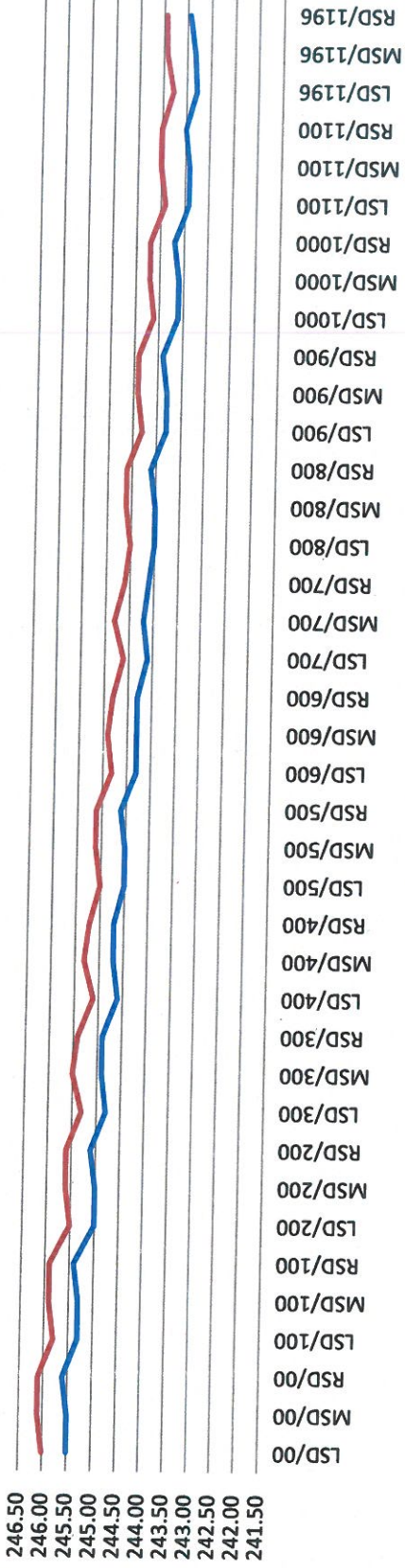
Handwritten signature or initials in blue ink.

**RKA04**



11

# RKA05

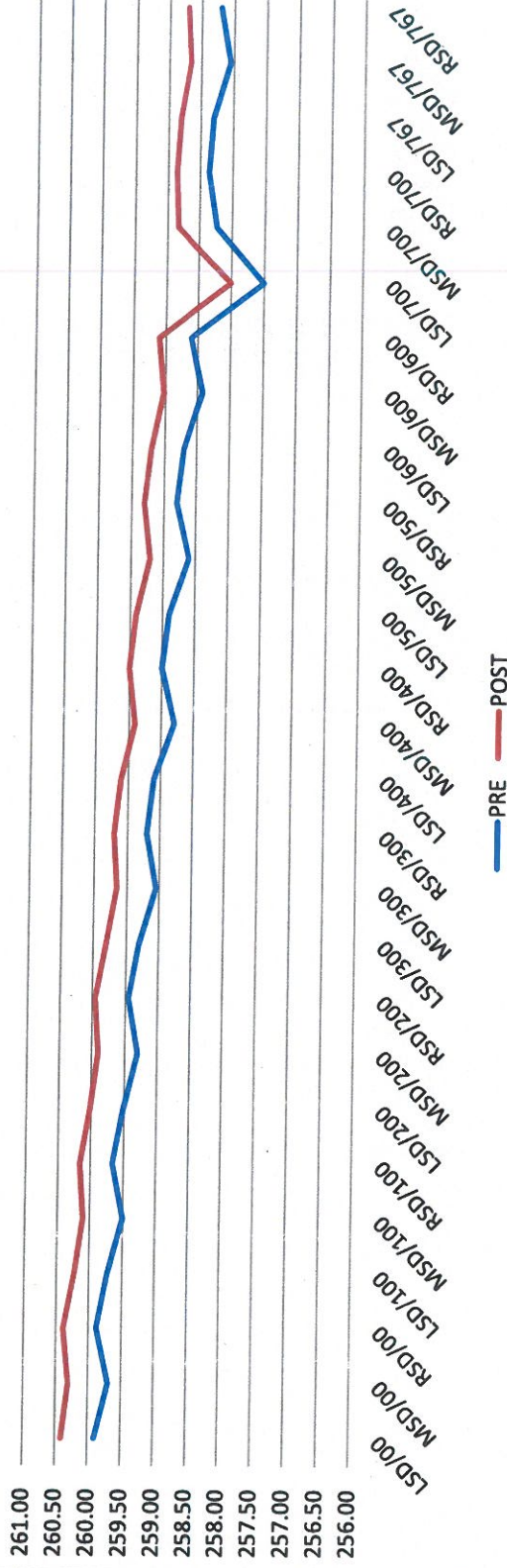


PRE — POST



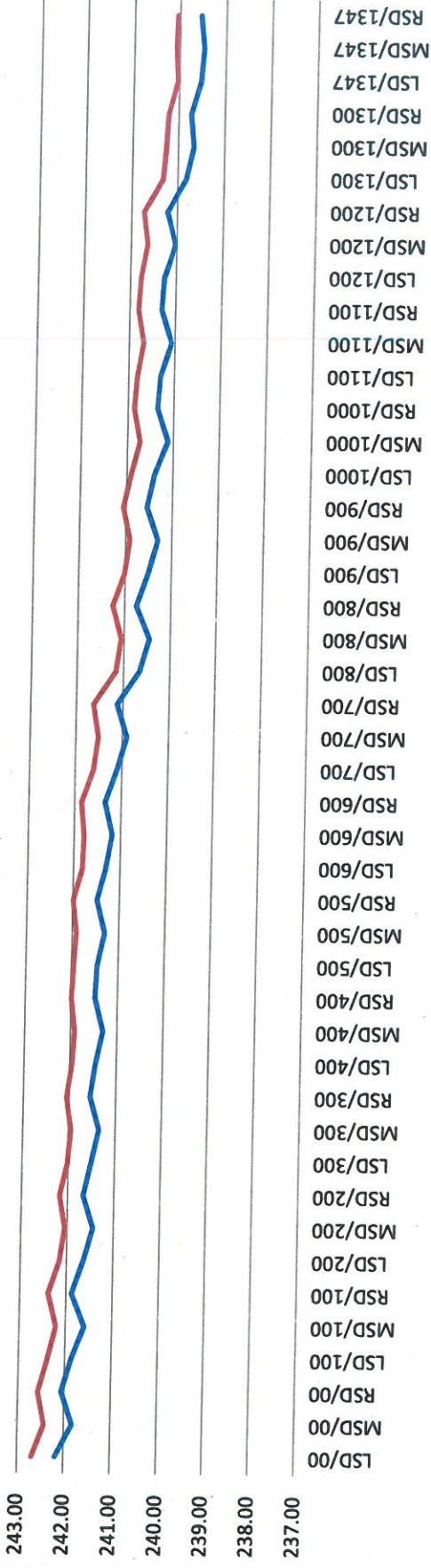
*[Handwritten signature]*

**RKA06**



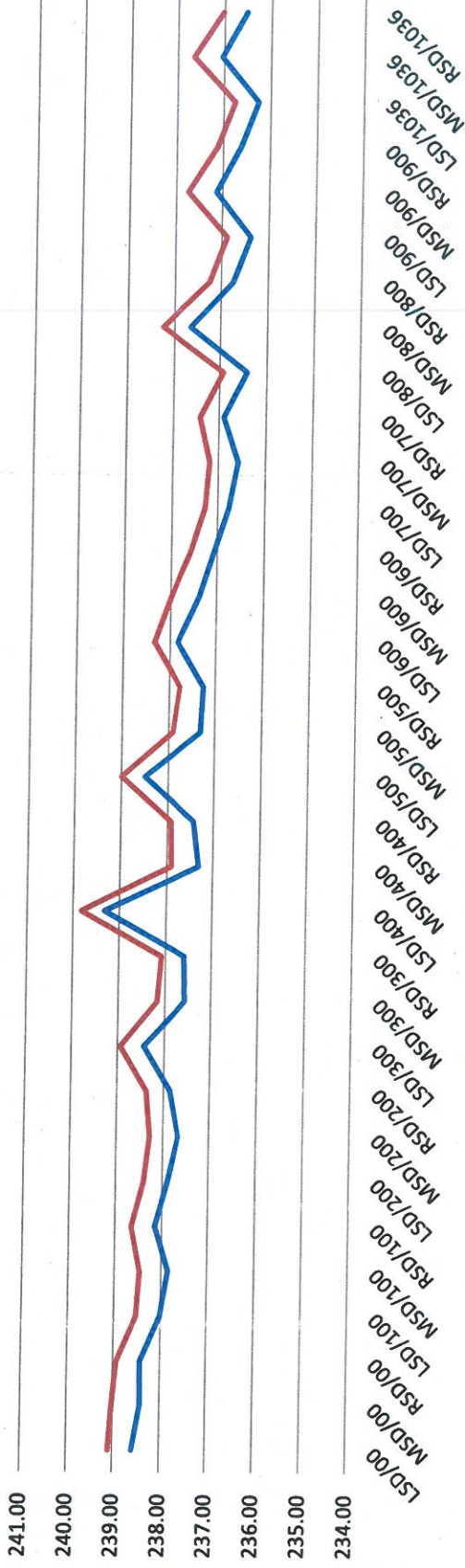
*Mu*

**RKA07**



*M*

**RKA08**

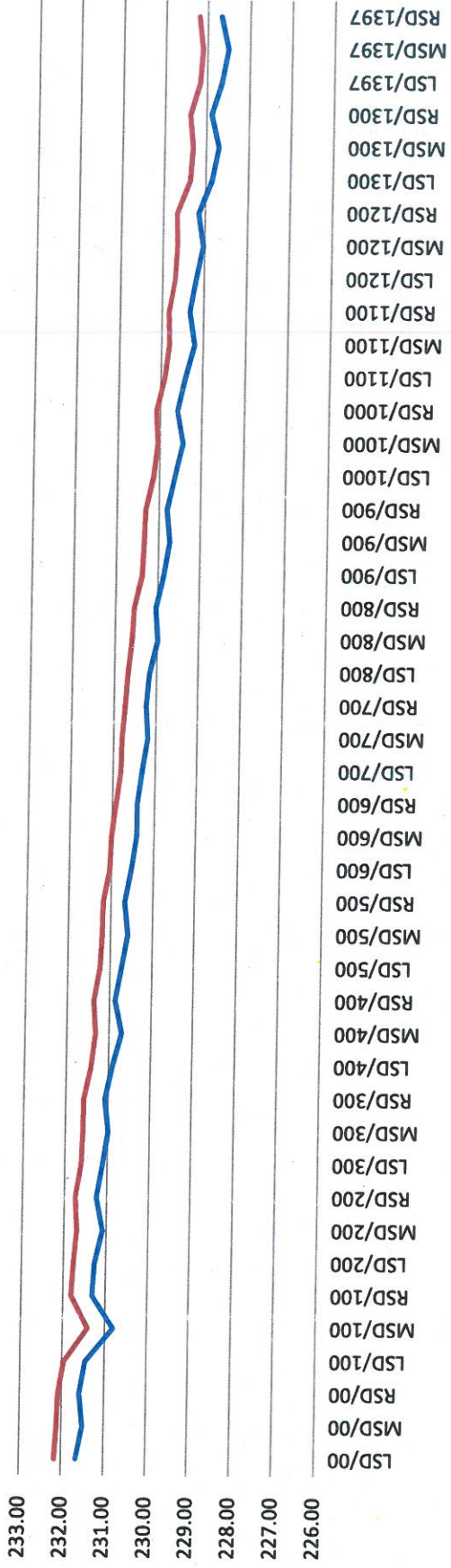


— PRE — POST



*M*

# RKA09



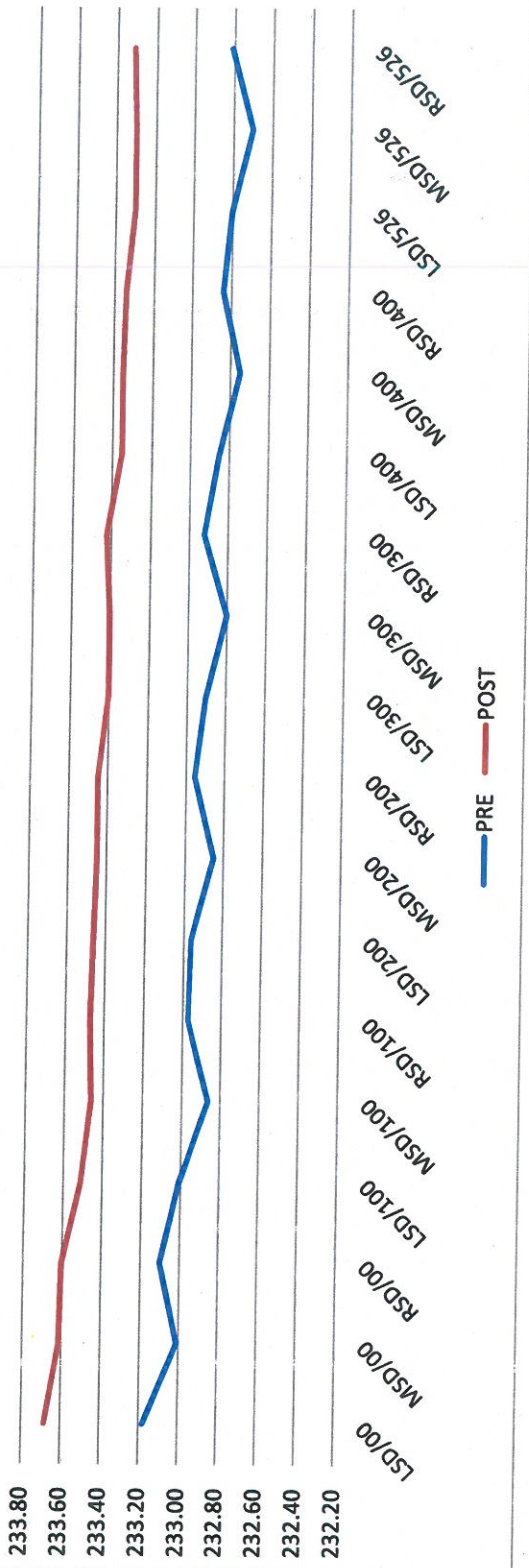
— PRE — POST



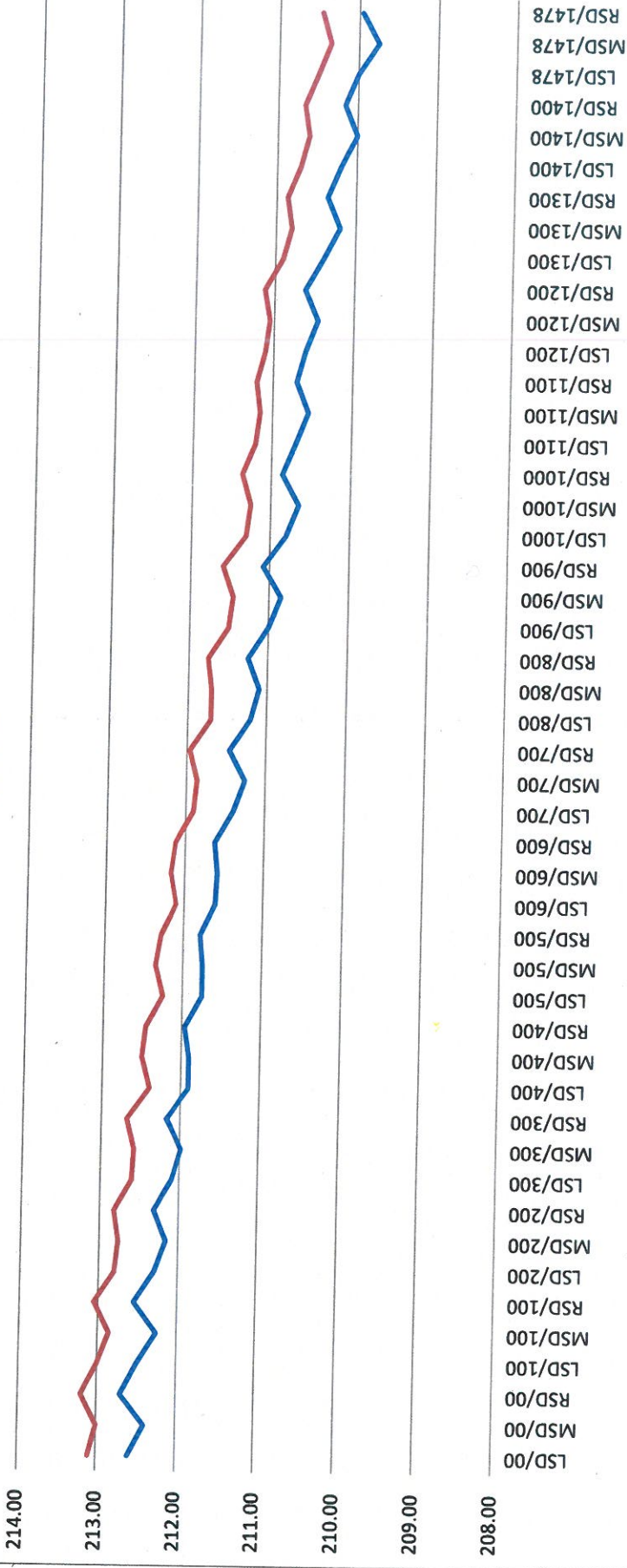
*Handwritten signature*



# RRA01



**RRA02**

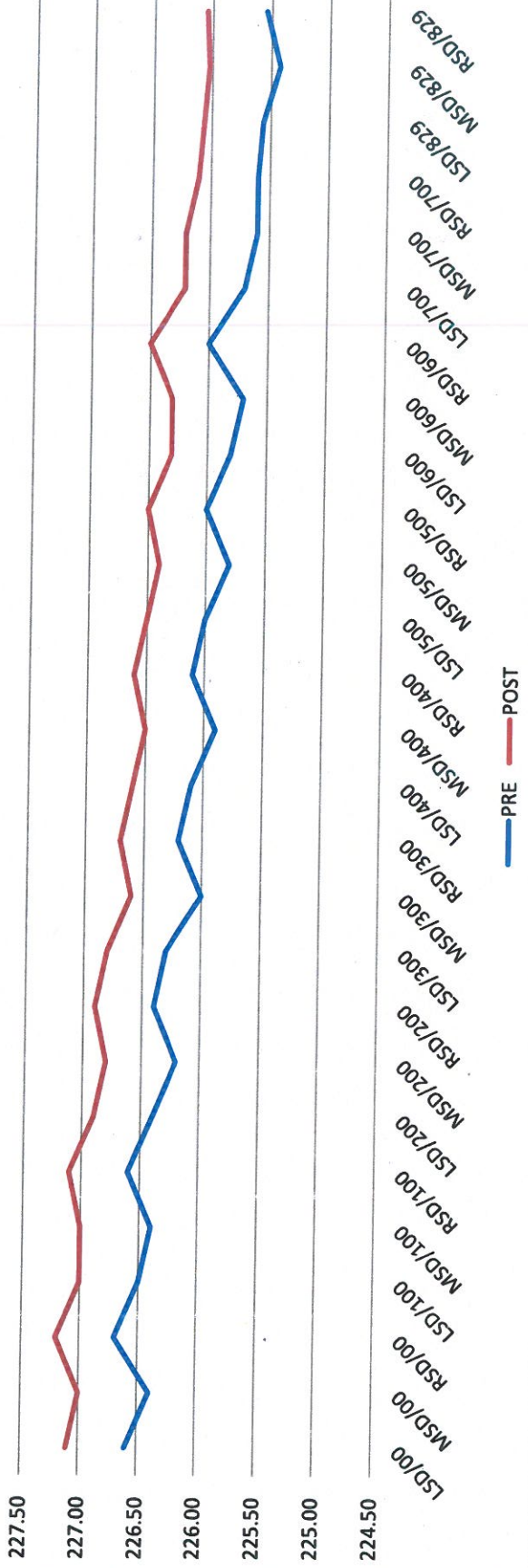


PRE — POST



*M*

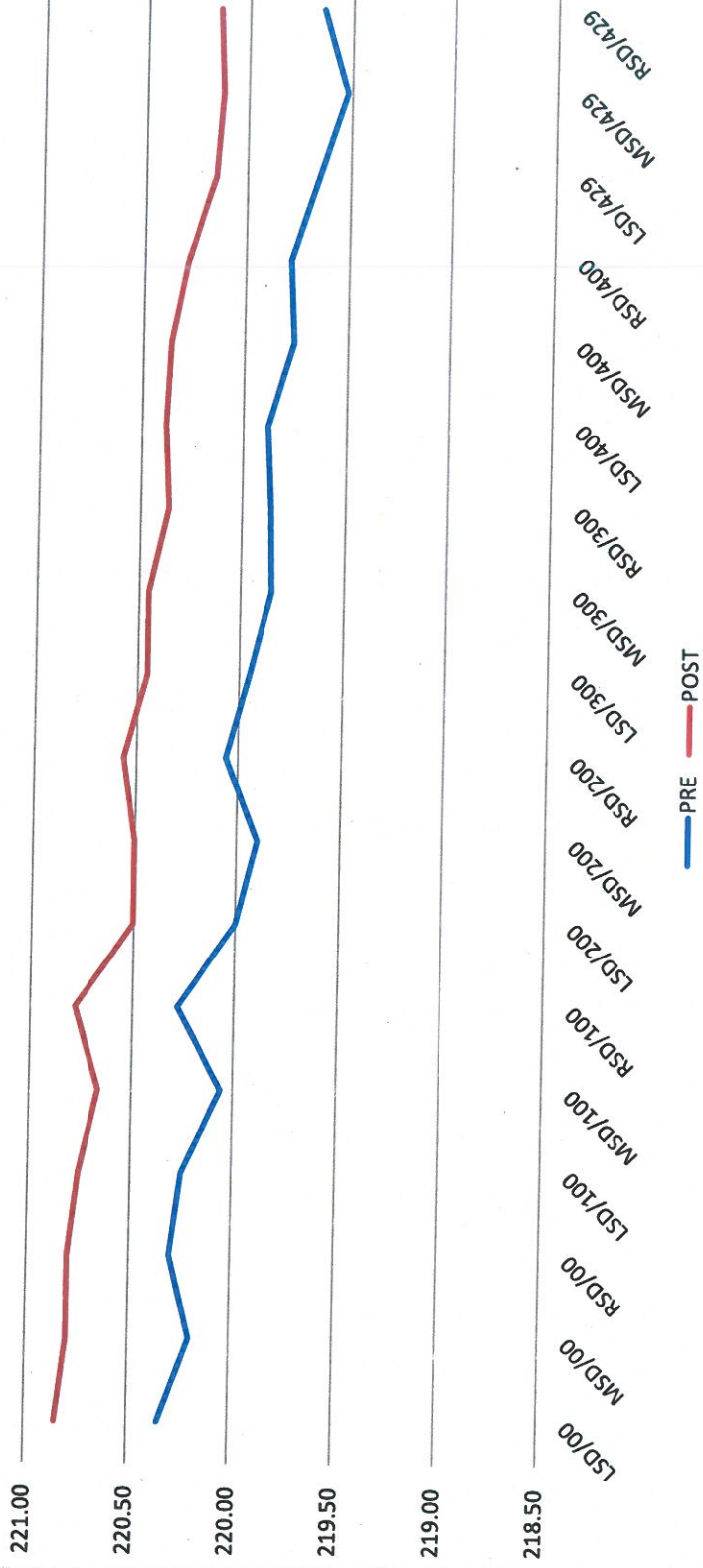
**RSU01**



*[Handwritten signature]*

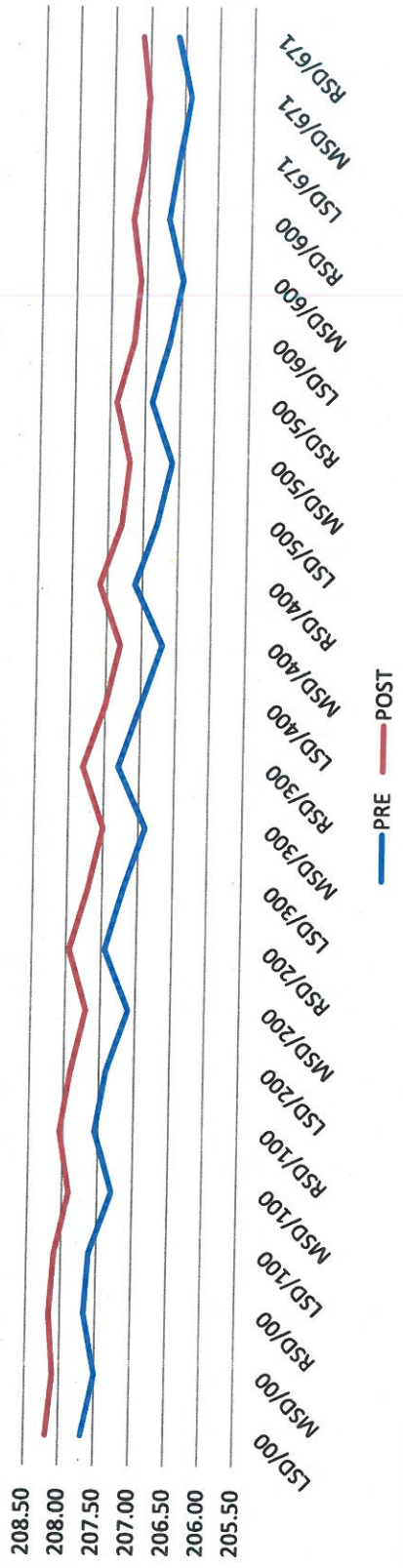


**RSU03**



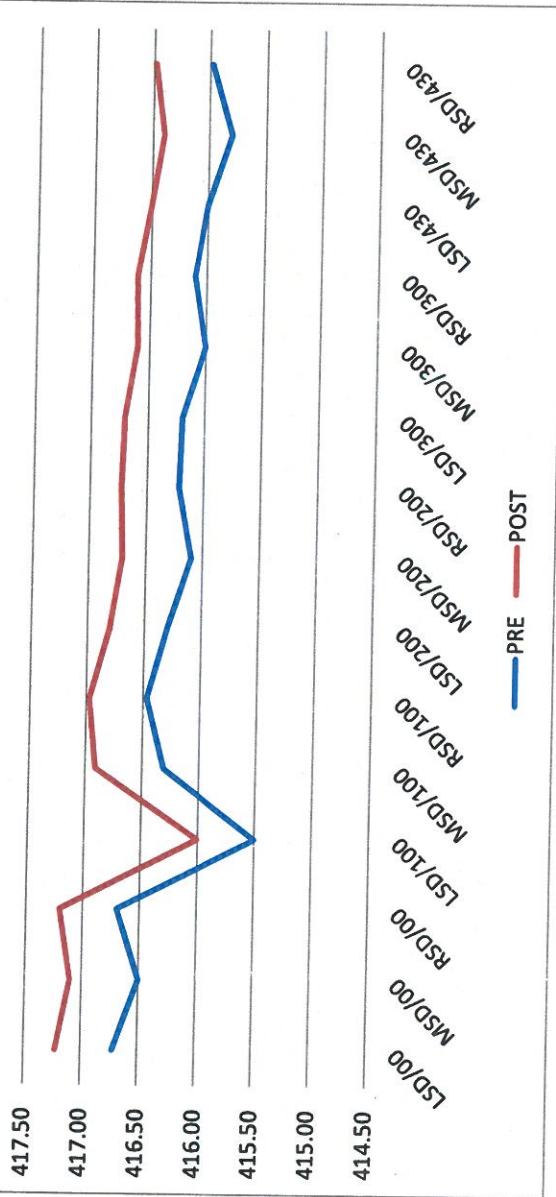
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# RSU04



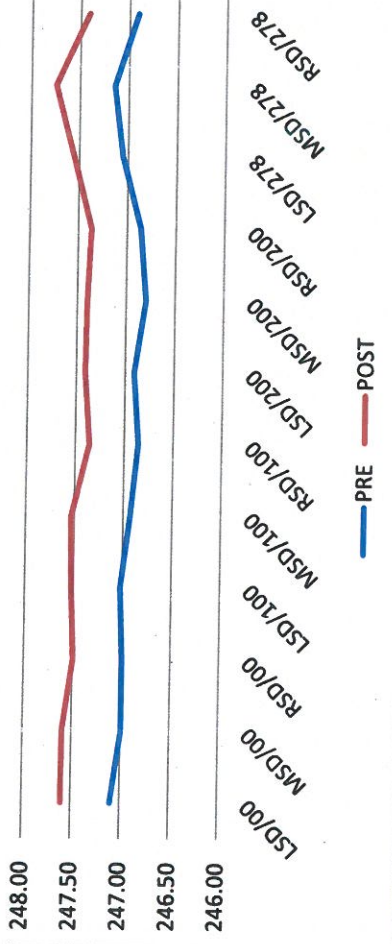
per

# RSA01



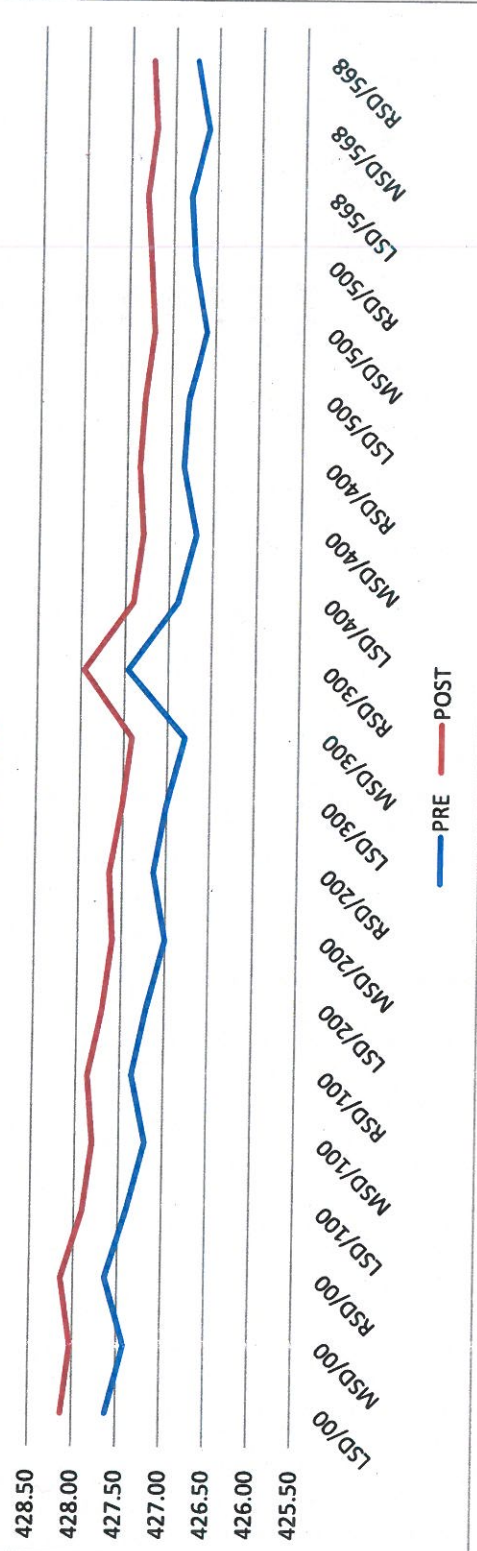
*Handwritten signature*

# RPA01



*Handwritten signature*

# RCH01



*Handwritten signature*

# ANNEXURE - K



**ANNEXURE - L**



## To whom it may concern

Ministry of Environment and Forests, Government of India, all siting criteria/provisions of JSPCB & SEIAA, Jharkhand has been compiled. As per JSPCB notification no. B-21, Ranchi dated 16/08/13.

Sl. No	Minimum distance from	Distance (in meter)
1	NH	100
2	SH	100
3	Distance metal road	50
4	Railway line	100
5	River	100
6	Any other river	100
7	Habitation	200
8	Forest/ Forest land	400

### As per 58th-MOM-of-SEIAA Jharkhand

III. Revised format for PP to get the following information/certification from Circle Officer:-

क्रम सं०	निर्धारित बिन्दु	हाँ / नहीं
1.	क्या आवेदित भूमि की कोटि सर्वे खातियान तथा रजिस्टर-II में जंगल झाड़ी के रूप में दर्ज है?	
2.	क्या 500 मीटर की दूरी के अंदर कोई मानव बसाहट (Habitation) स्थित है?	
3.	क्या 500 मीटर की दूरी के अंदर कोई जलयोज निकाय (Dam Reservoir) स्थित है?	
4.	क्या 500 मीटर की दूरी के अंदर कोई नदी (River) स्थित है?	
5.	क्या 500 मीटर की दूरी के अंदर कोई शैक्षणिक संस्थान (Educational Institute) स्थित है?	
6.	क्या 500 मीटर की दूरी के अंदर कोई चिकित्सालय (Hospital) स्थित है?	
7.	क्या 10 कि०मी० की परिसर में कोई अंतरराज्यीय (Interstate) सीमा है?	
8.	क्या 500 मीटर की दूरी के अंदर कोई राष्ट्रीय धरोहर / पुरातत्वोद्य (Monuments/Archaeological) महल के स्थल स्थित है?	

### As per 67th-MOM-of-SEIAA Jharkhand

iv. Revised format for project proponent to get the following information / certification from Divisional Forest Officer concerned :-

क्रम सं०	निर्धारित बिन्दु	हाँ / नहीं
1.	क्या परियोजना स्थल से आरक्षित वन / सरक्षित वन भूमि से दूरी 250 मी० है?	3.
2.	क्या परियोजना स्थल No Mining Zone अंतर्गत आता है?	
3.	क्या परियोजना स्थल से 10 किलो मीटर की दूरी के अंदर कोई ने प्लन पार्क है?	
4.	क्या परियोजना स्थल से 10 किलो मीटर की दूरी के अंदर कोई अभ्यारण्य एवं जैव विविधता क्षेत्र है?	
5.	क्या परियोजना स्थल से 10 किलो मीटर की दूरी के अंदर कोई इको सेंसिटिव जोन (Eco Sensitive Zone) है?	
6.	क्या आवेदित परियोजना ESZ के अन्तर्गत प्रयुक्त क्षेत्र में आता है अथवा नहीं?	

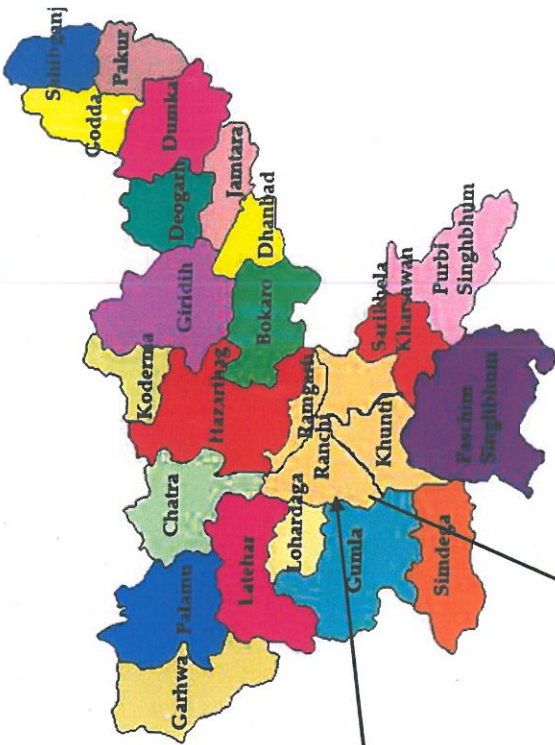
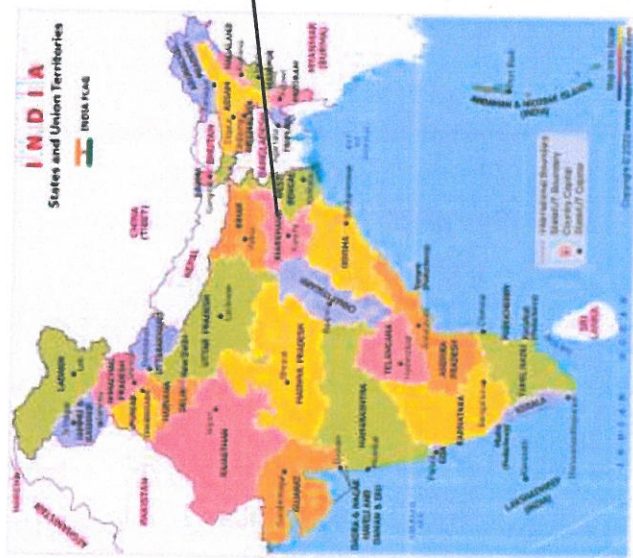


**District Mining Officer, Ranchi**

**PLATE - 1**  
**INDEX PLAN**



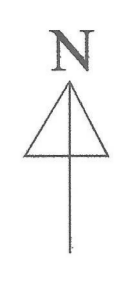
# INDEX MAP



*Am*

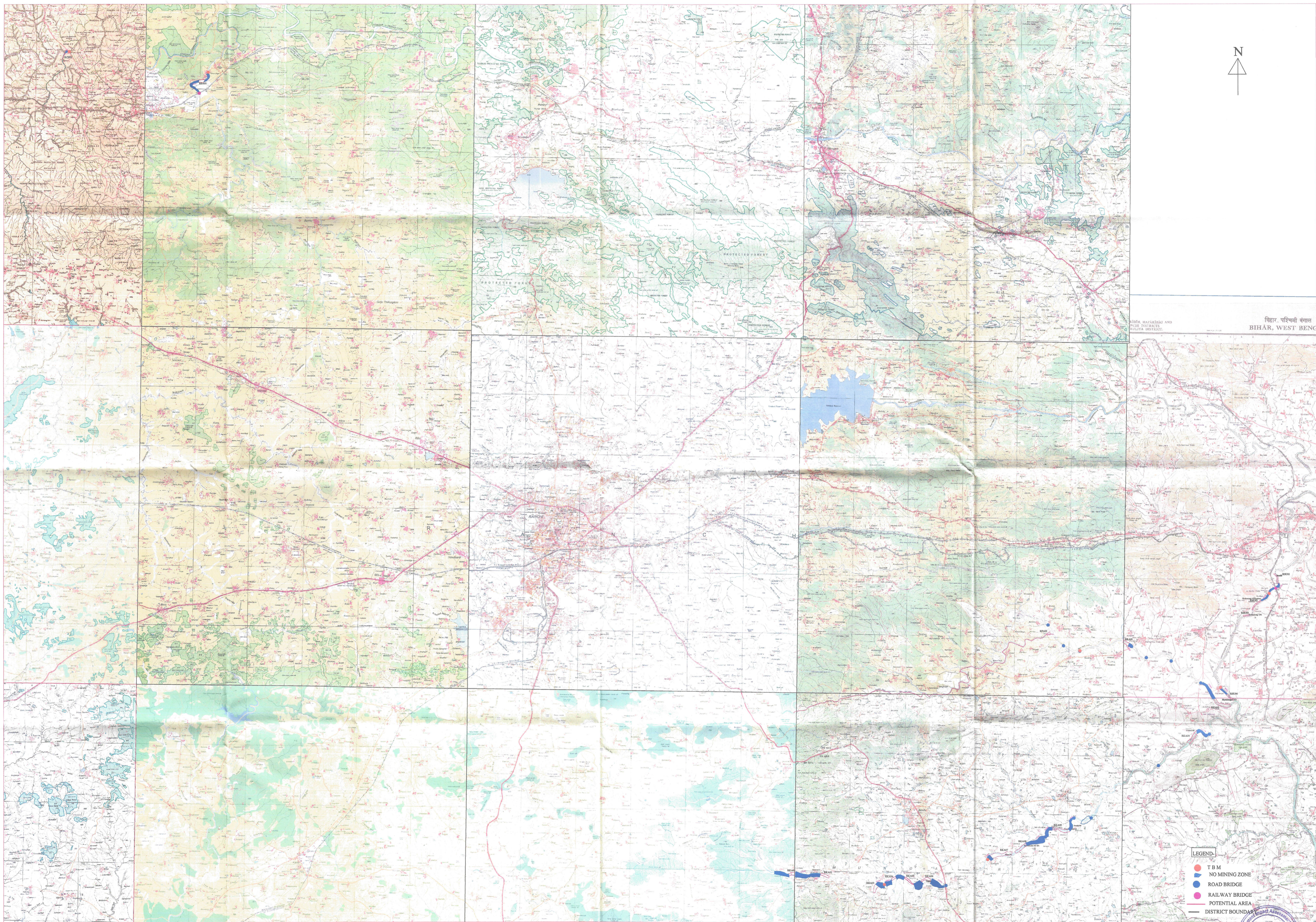
**PLATE - 2**  
**MASTER PLAN ON TOPOSHEET**





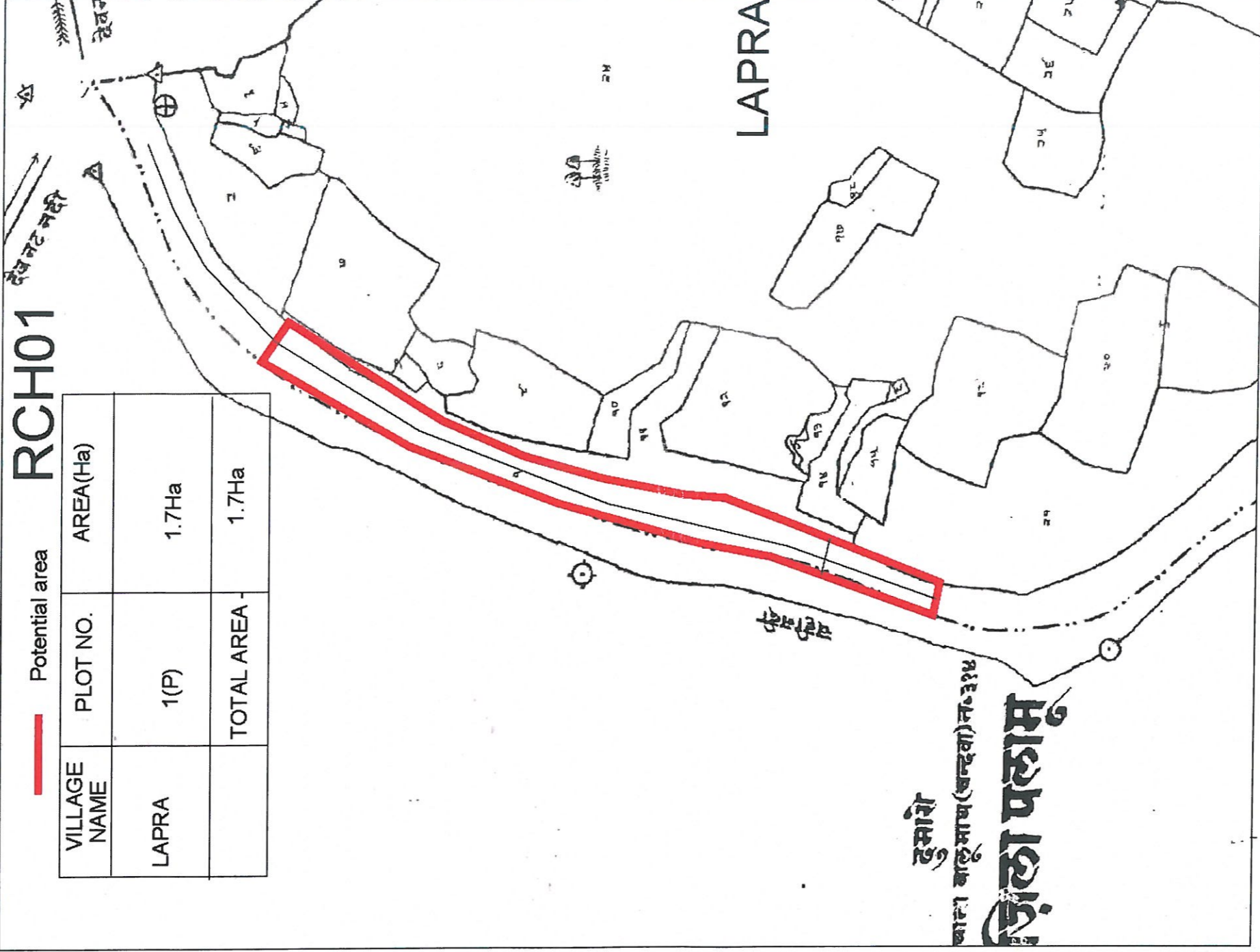
बिहार, पश्चिमी बंगाल  
BIHAR, WEST BENGAL

- LEGEND-
- T B M
  - NO MINING ZONE
  - ROAD BRIDGE
  - RAILWAY BRIDGE
  - POTENTIAL AREA
  - DISTRICT BOUNDARY



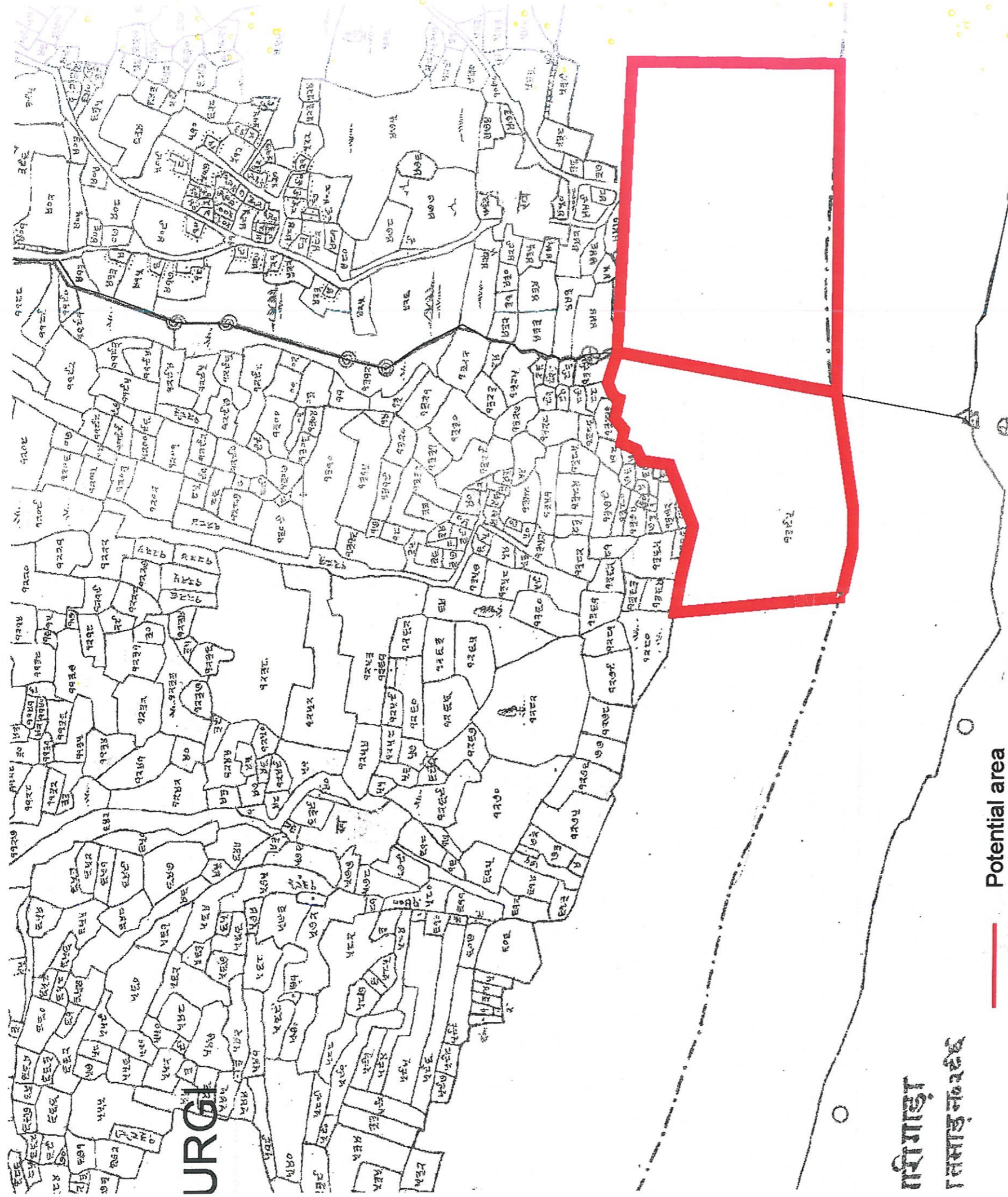
**PLATE - 3**  
**CADASTRAL MAP**





२५





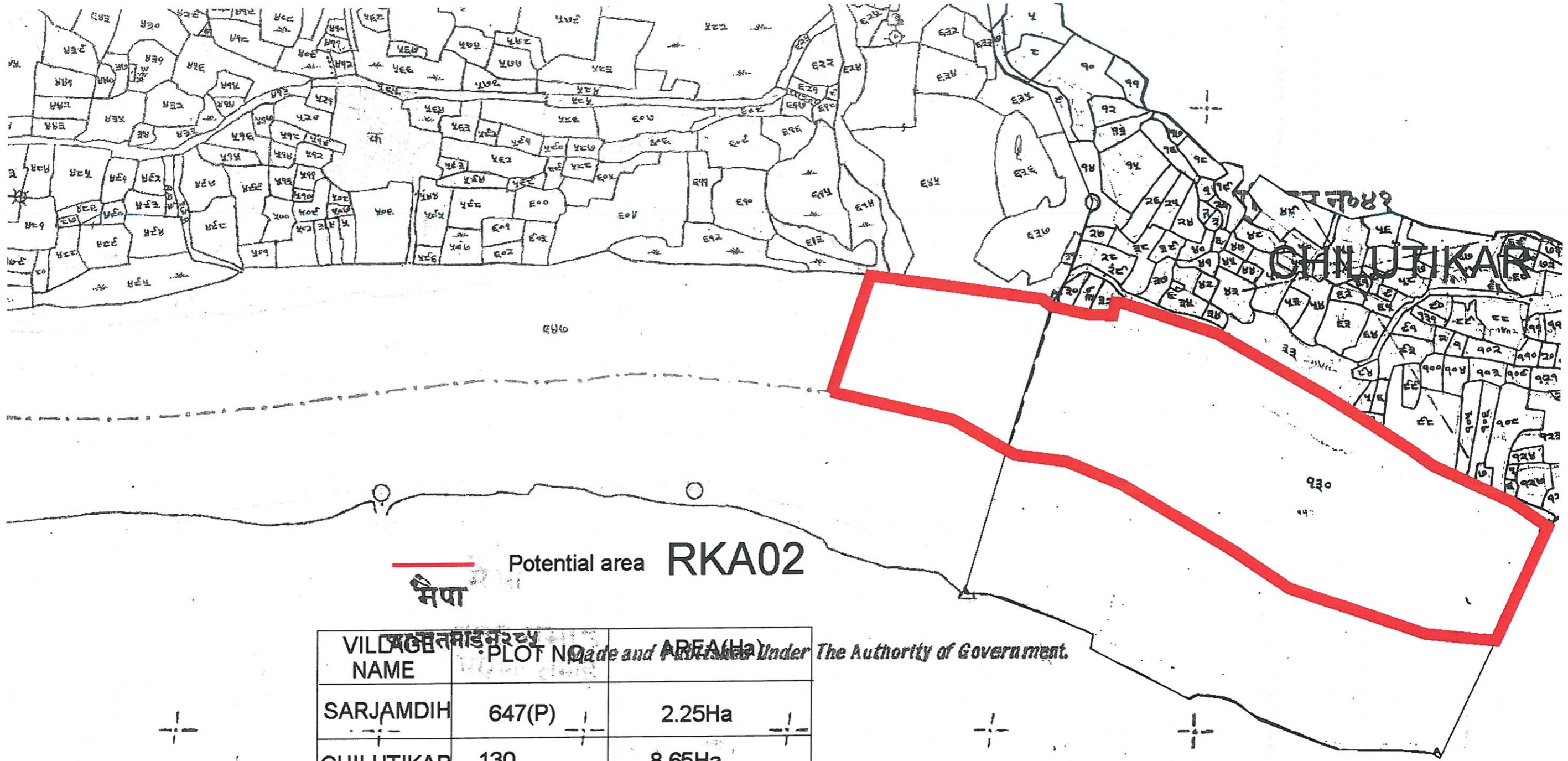
RKA01

VILLAGE NAME	PLOT NO.	AREA(Ha)
CHURGI	1395(P)	4.0Ha
LOAHATU	1063(P)	6.0Ha
	TOTAL AREA -	10.0Ha



Aur

For Signature



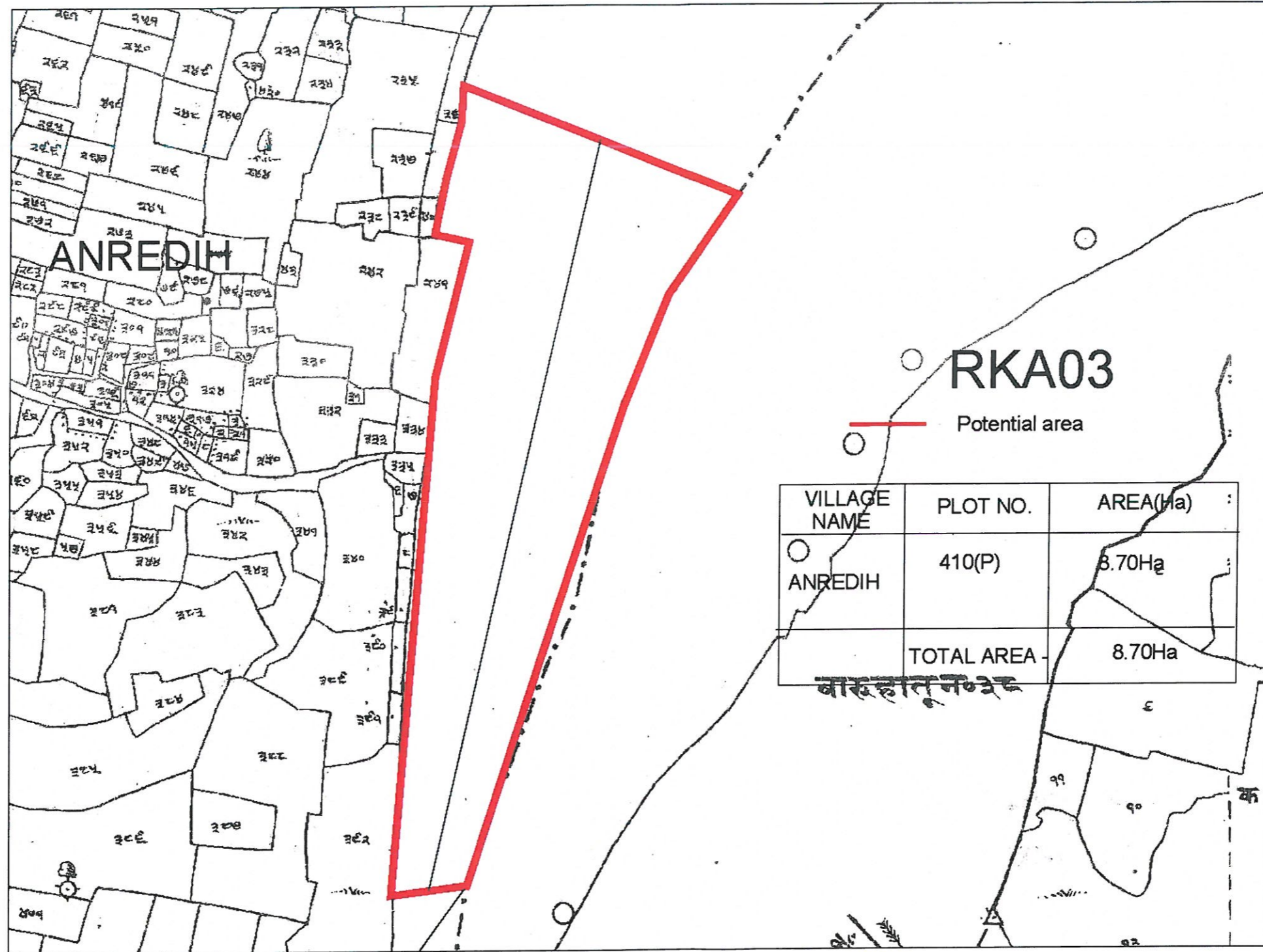
— Potential area RKA02  
 मैपा

VILLAGE NAME	PLOT NO	AREA (Ha)
SARJAMDIH	647(P)	2.25Ha
CHILUTIKAR	130	8.65Ha
TOTAL AREA		10.90Ha

Under The Authority of Government.

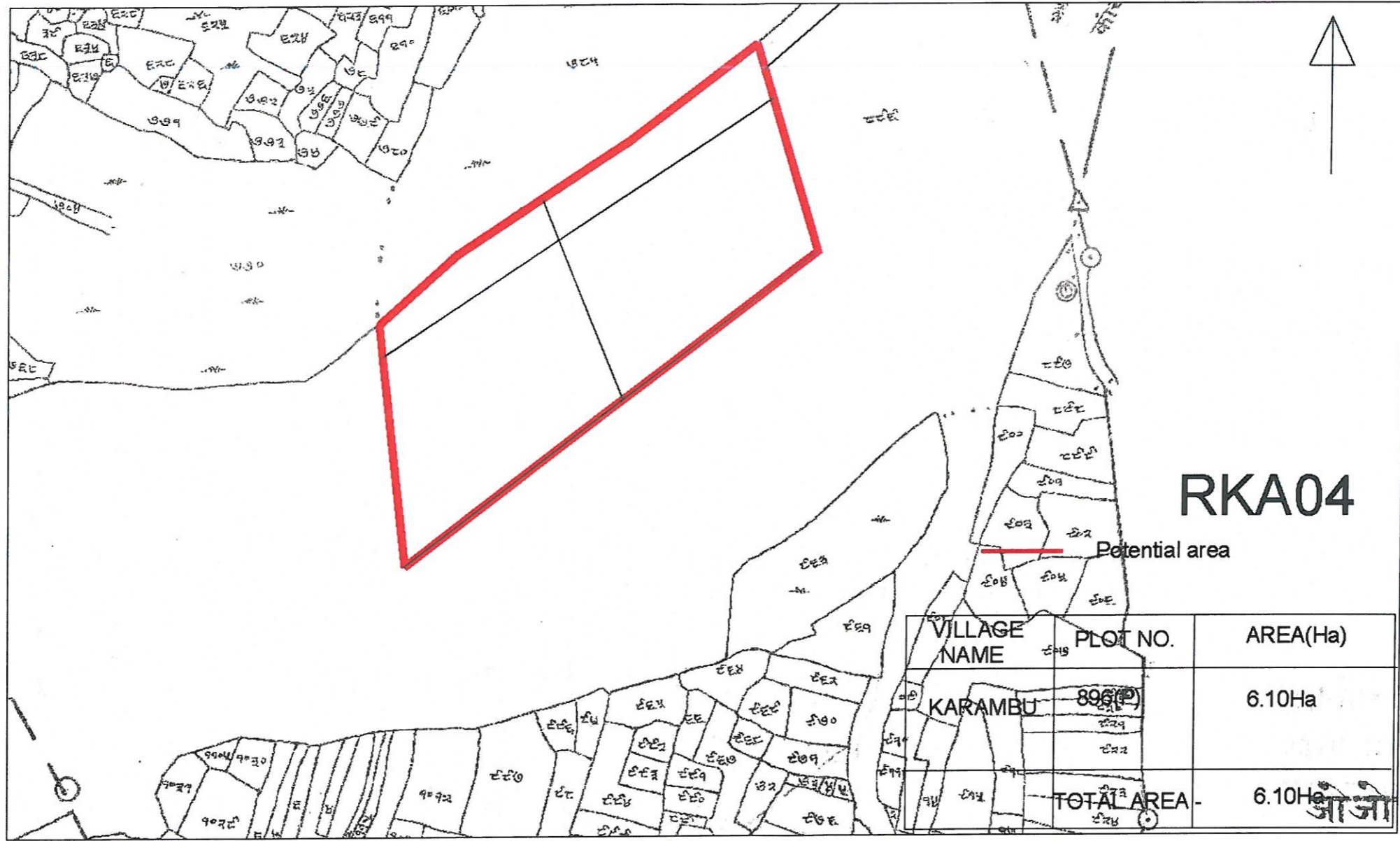


Handwritten signature or initials.



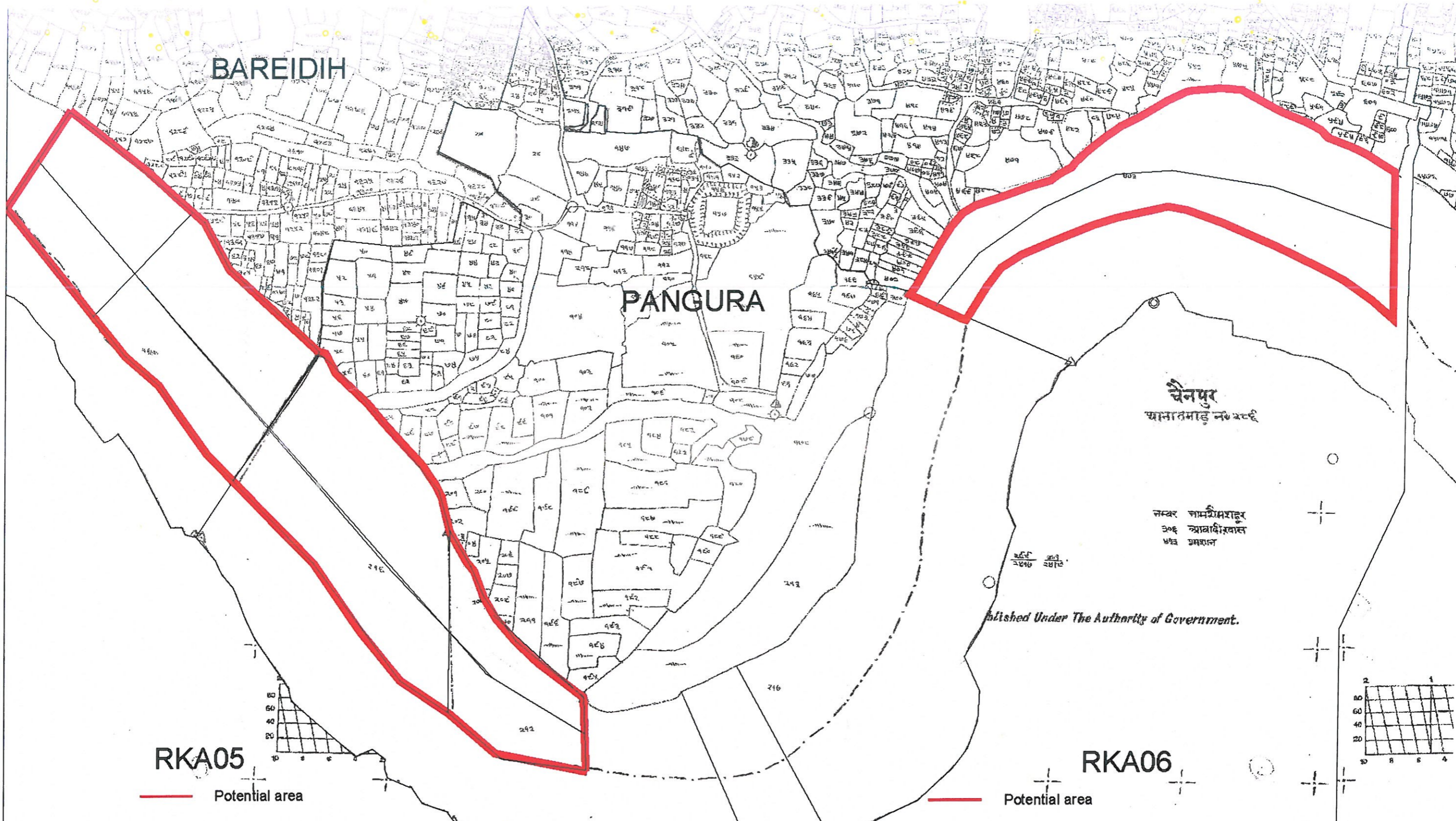
AR





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RKA05

— Potential area

RKA06

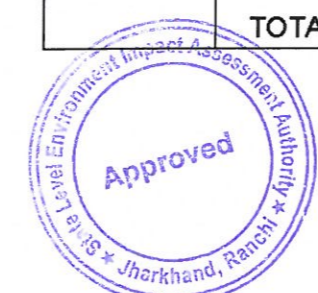
— Potential area

VILLAGE NAME	PLOT NO.	AREA(Ha)
BAREDIH	1147(P)	10.70Ha
PANGURA	212	3.70Ha
	216	8.70Ha
TOTAL AREA -		23.10Ha

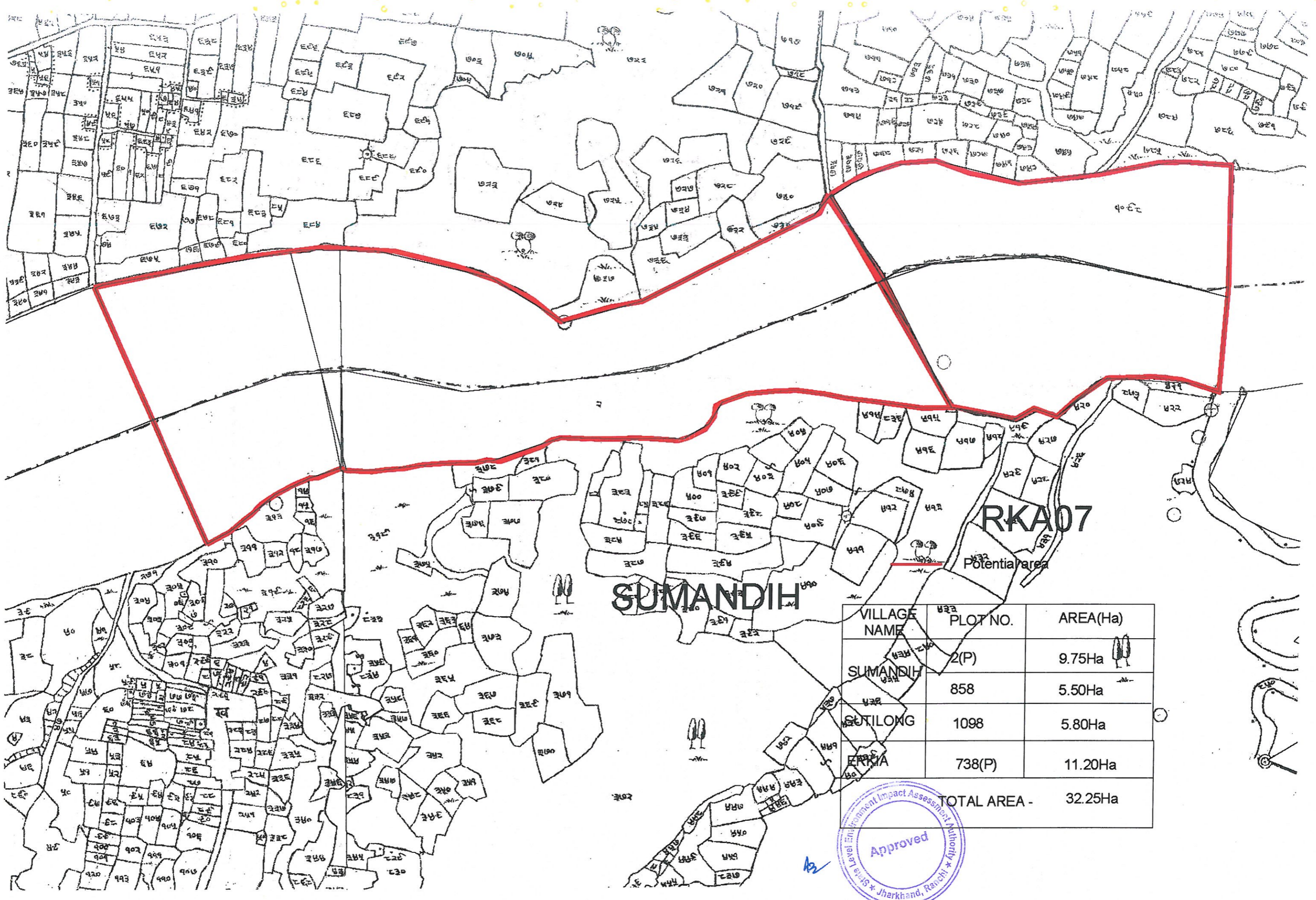
VILLAGE NAME	PLOT NO.	AREA(Ha)
TUNJU	403(P)	11.10Ha
TOTAL AREA -		11.10Ha

चैनपुर  
मानातमाह नं० २८६  
जम्बर नामश्रीमराह  
३०६ आवादीस्वात  
५३३ प्रमशन

Established Under The Authority of Government.



*[Signature]*  
For Superintendent of Sur.



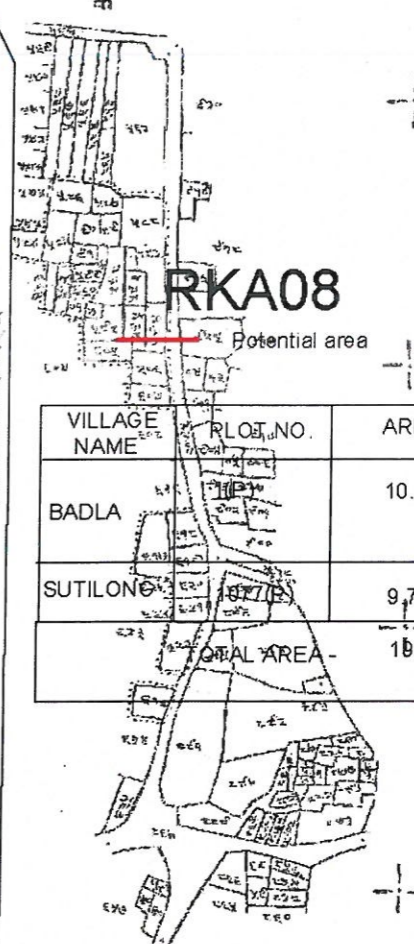
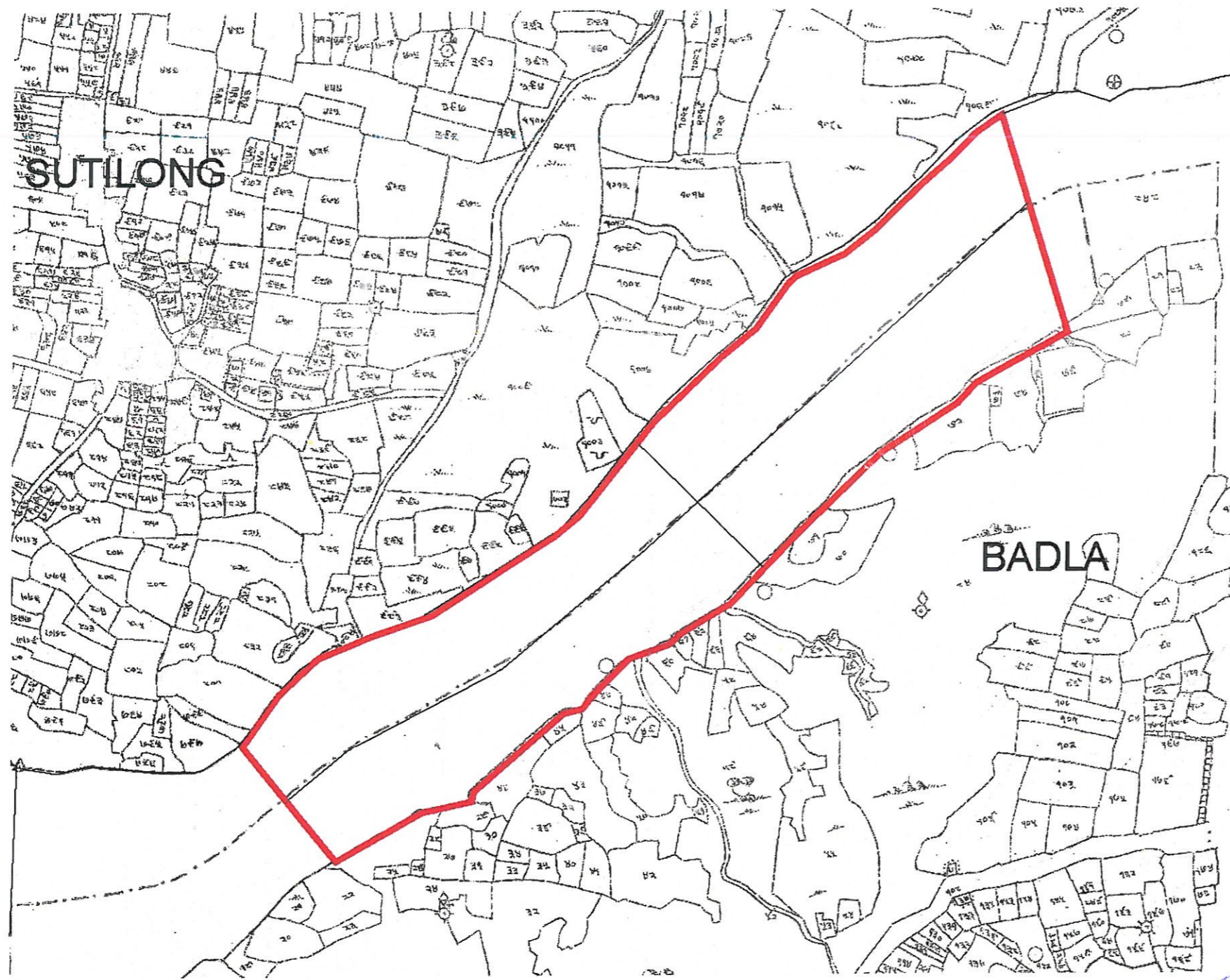
**RKA07**

Potential area

**SUMANDIH**

VILLAGE NAME	PLOT NO.	AREA(Ha)
SUMANDIH	2(P)	9.75Ha
SUTILONG	858	5.50Ha
ERRIA	738(P)	11.20Ha
<b>TOTAL AREA -</b>		<b>32.25Ha</b>





VILLAGE NAME	PLOT NO.	AREA(Ha)
BADLA		10.10Ha
SUTILONG		9.70Ha
TOTAL AREA		19.80Ha

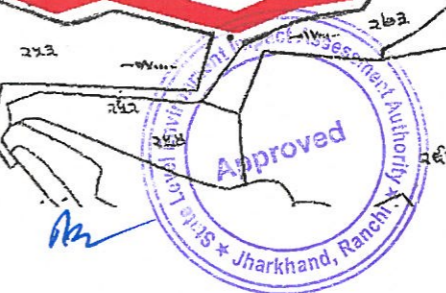
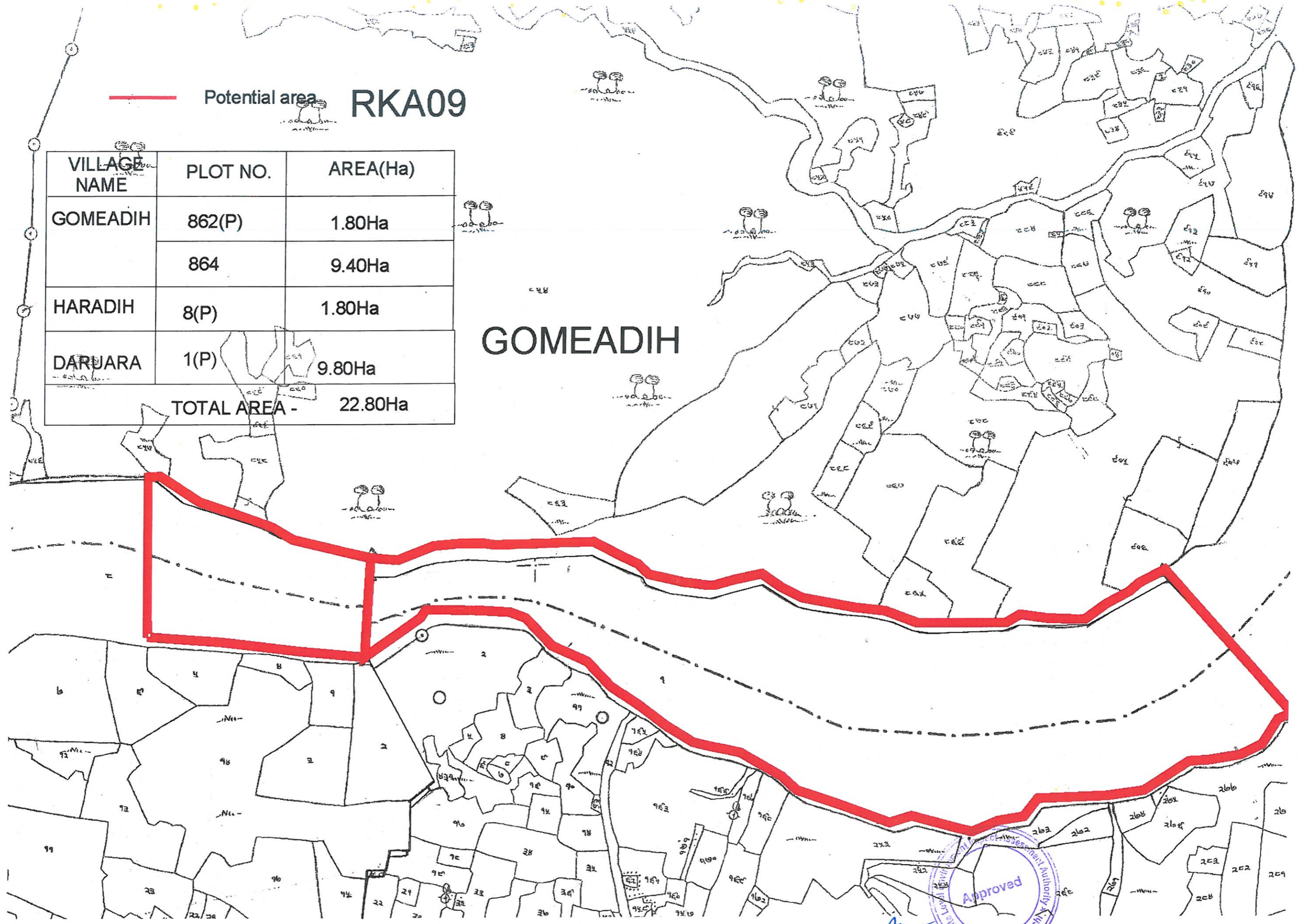


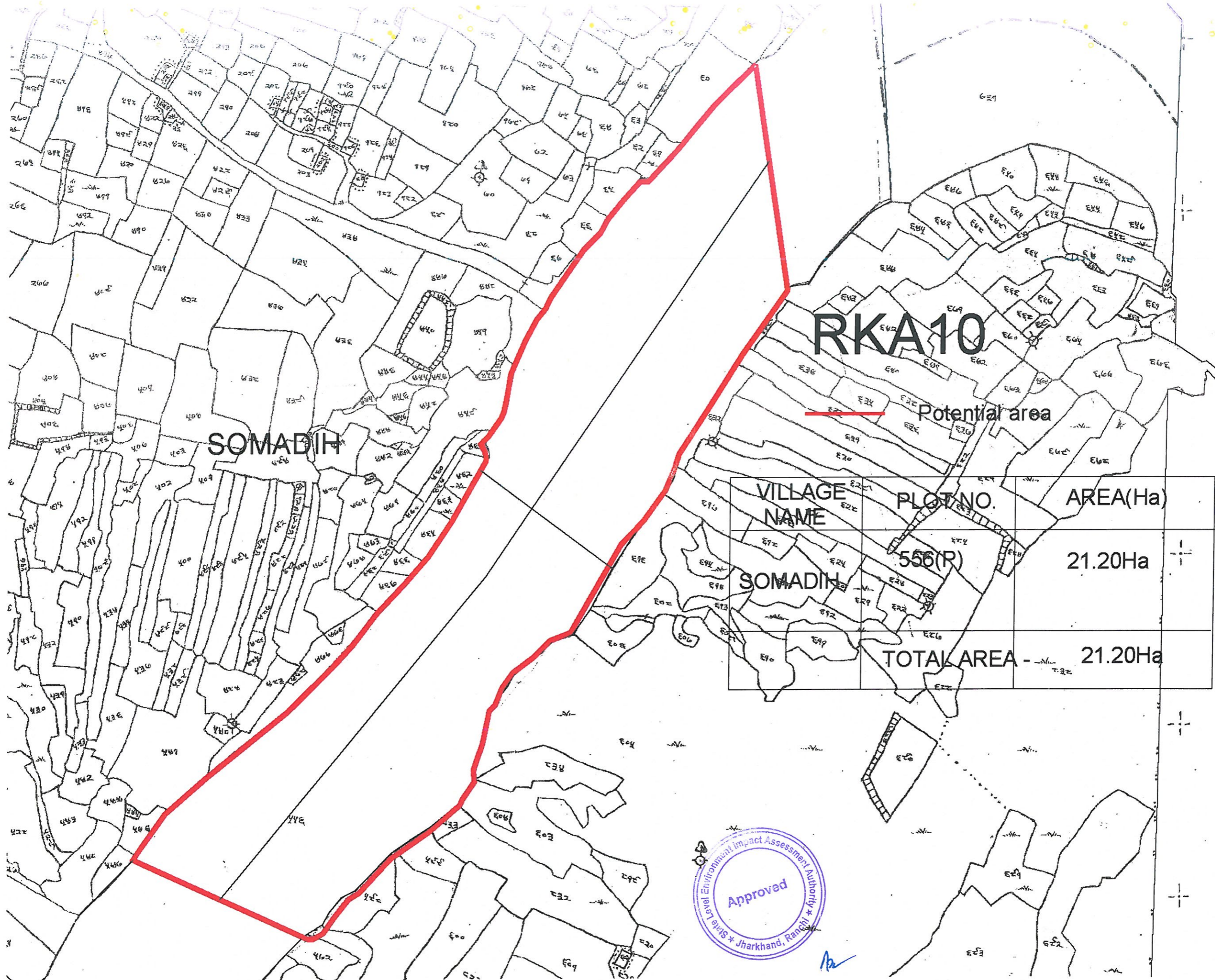
M2

Potential area **RKA09**

VILLAGE NAME	PLOT NO.	AREA(Ha)
GOMEADIH	862(P)	1.80Ha
	864	9.40Ha
HARADIH	8(P)	1.80Ha
DARJARA	1(P)	9.80Ha
TOTAL AREA -		22.80Ha

**GOMEADIH**





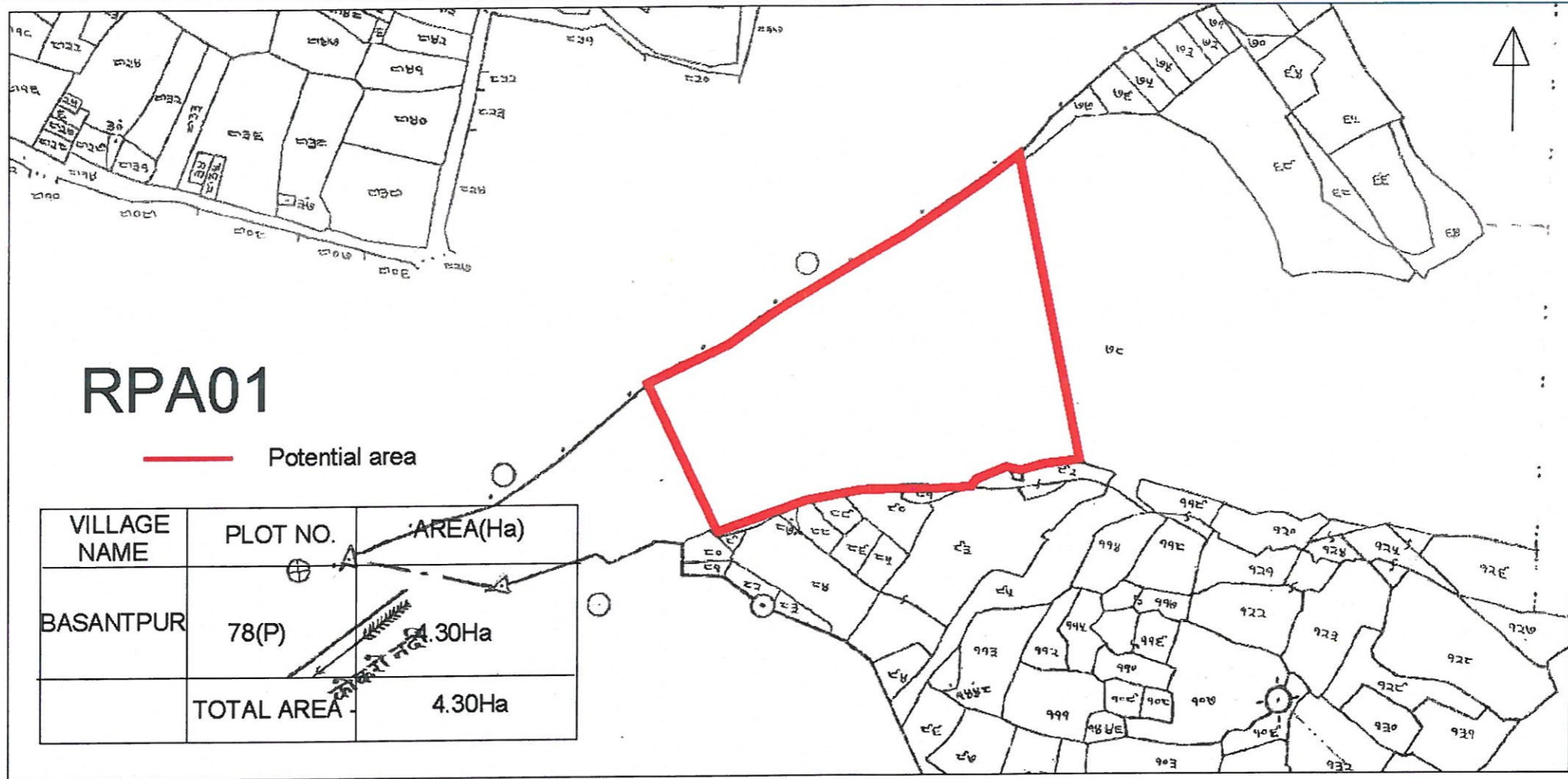
SOMADIH

RKA10

Potential area

VILLAGE NAME	PLOT NO.	AREA(Ha)
SOMADIH	556(R)	21.20Ha
TOTAL AREA -		21.20Ha

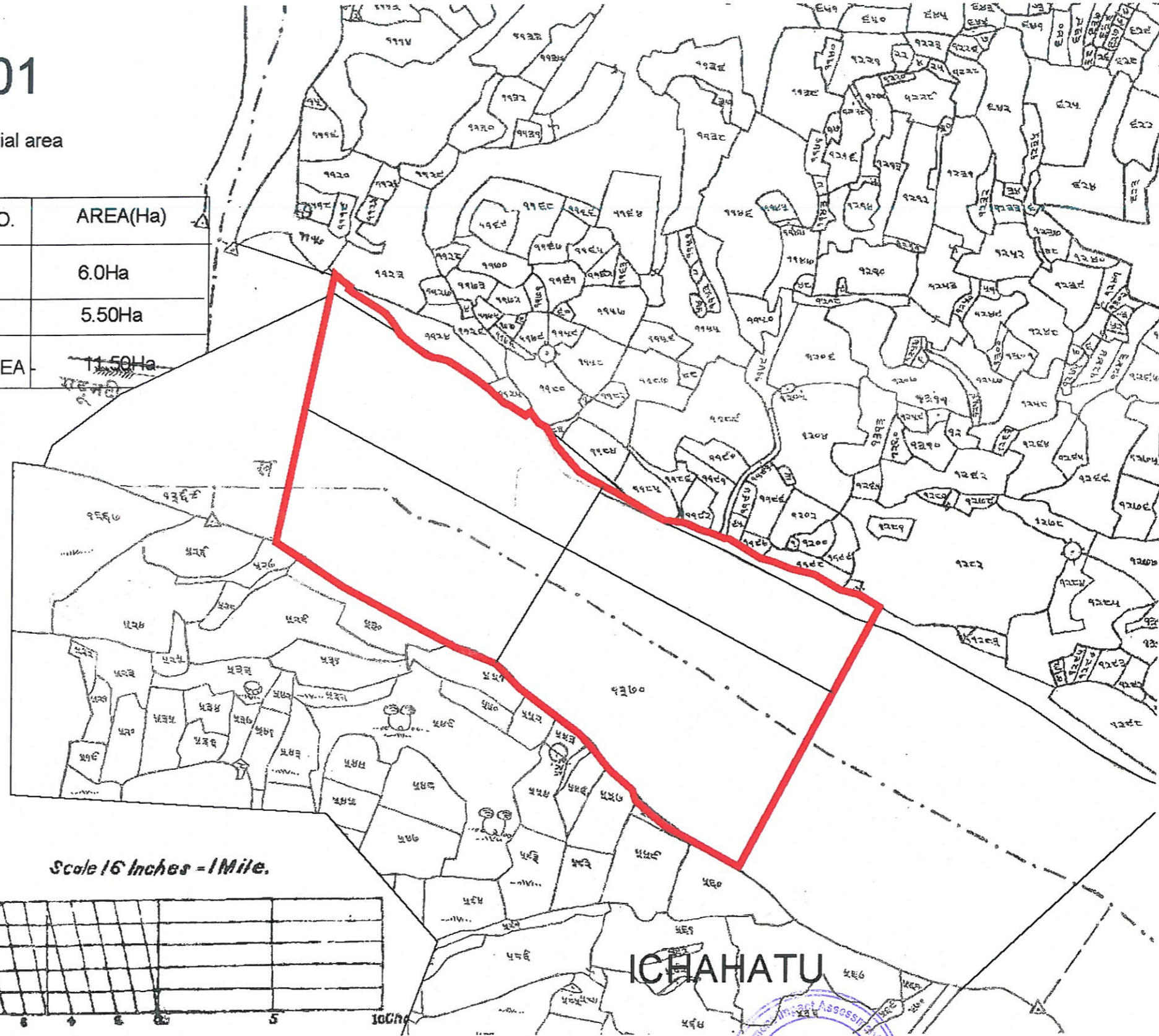




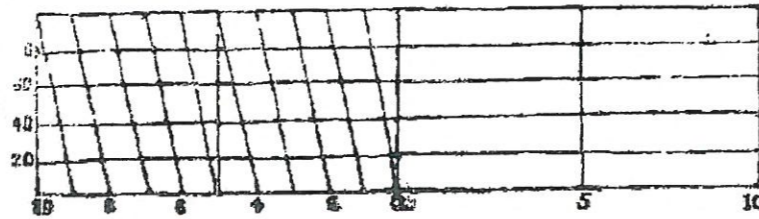
# RRA01

— Potential area

VILLAGE NAME	PLOT NO.	AREA(Ha)
KAREYADIH	1299(P)	6.0Ha
ICHAHATU	1370(P)	5.50Ha
	TOTAL AREA	11.50Ha



Scale 16 Inches = 1 Mile.



ICHAHATU



Potential area

VILLAGE NAME	PLOT NO.	AREA(Ha)
SHYAM NAGAR	469(P)	6.50Ha
TOTAL AREA -		6.50Ha

चक्रकेडयारी  
 खाना मालिदा नं०७९  
 जिला मानभुम

गाडीहालसदन०११०

Potential area RRA02

VILLAGE NAME	PLOT NO.	AREA(Ha)
SHYAM NAGAR	511(P)	14.30Ha
BIRDIDIH	779(P)	10.40Ha
	109(P)	4.80Ha
TOTAL AREA -		29.50Ha

SHYAM NAGAR

BIRDIDIH

BIRDIDIH

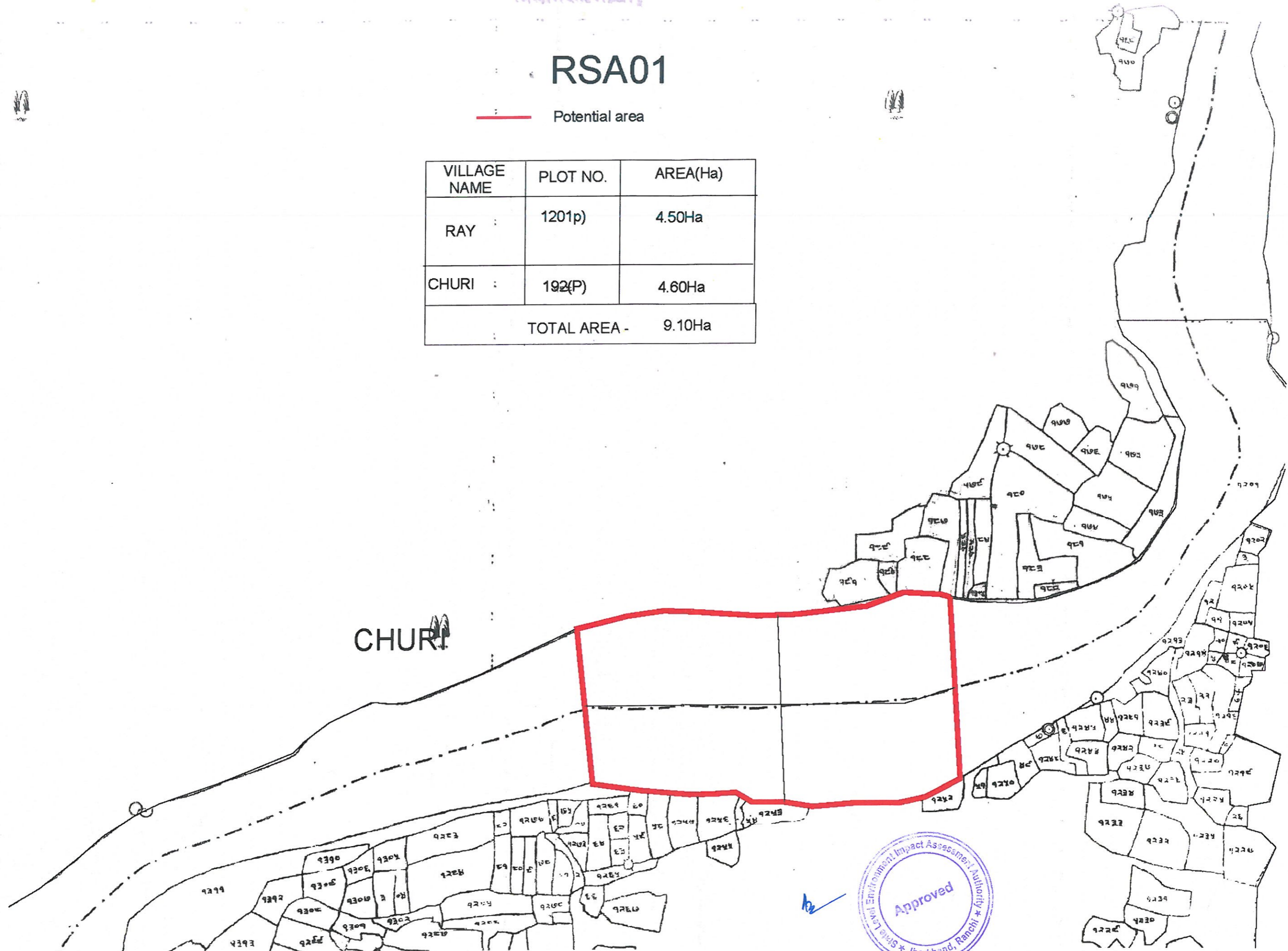


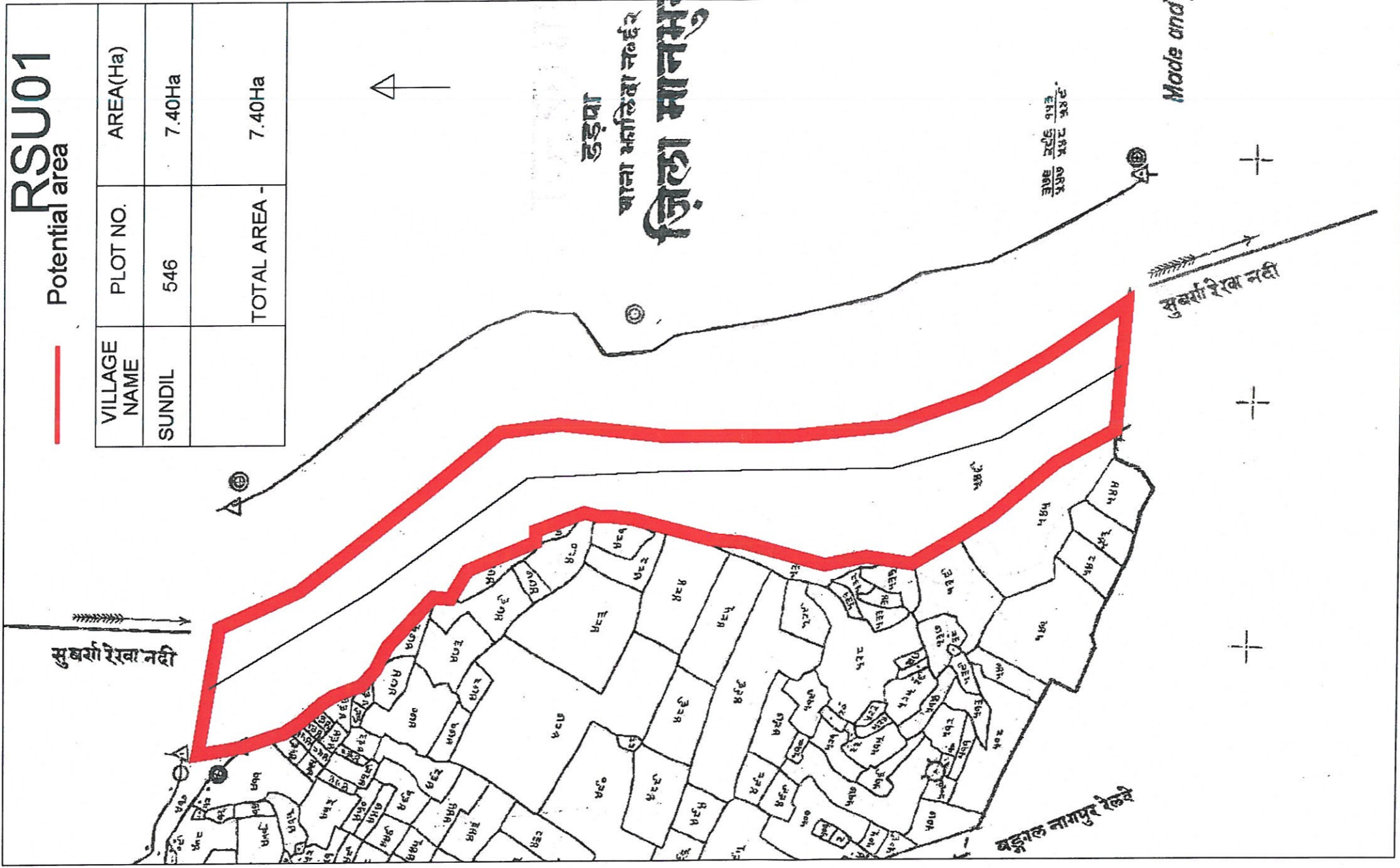
A2

# RSA01

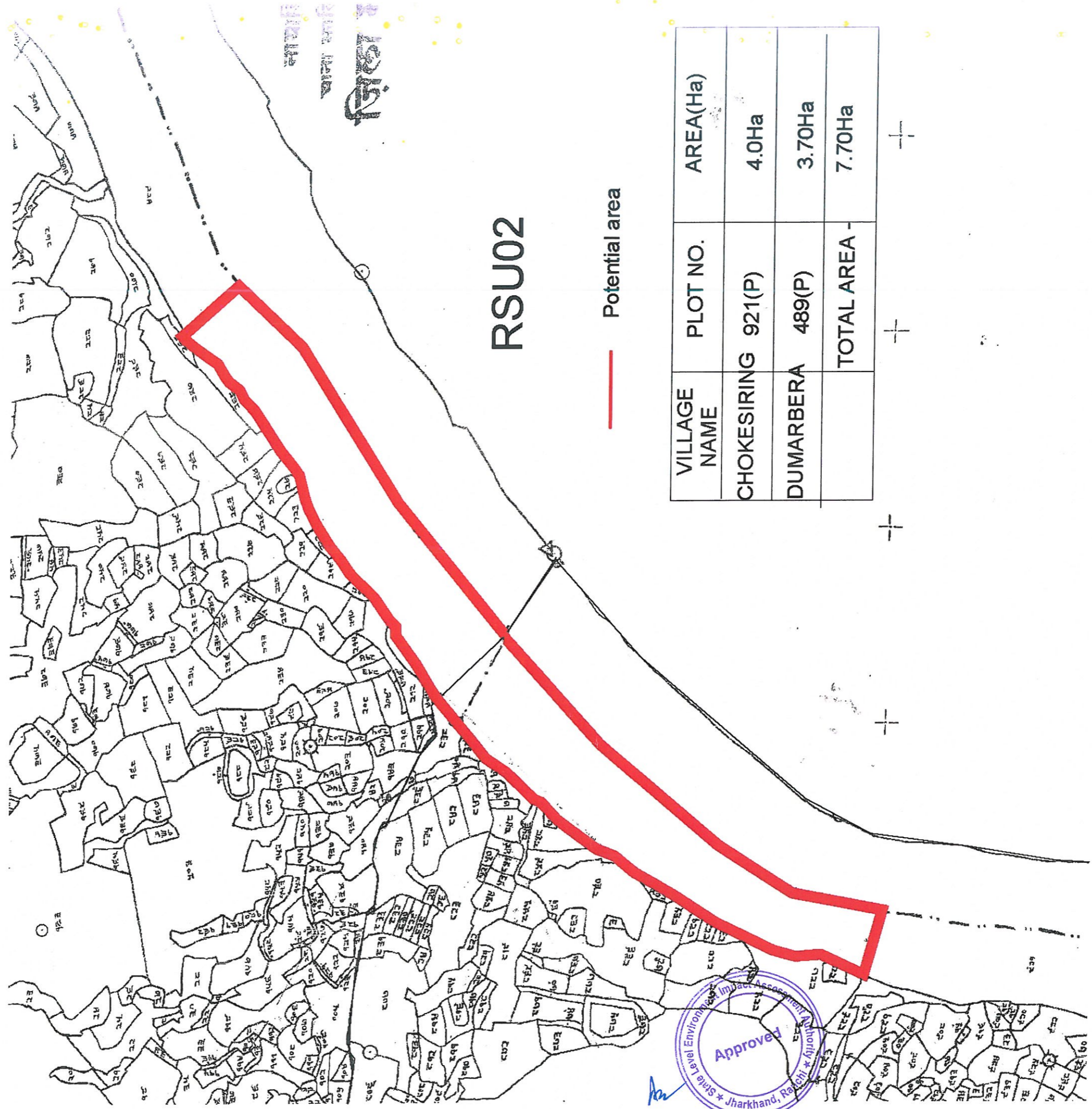
— Potential area

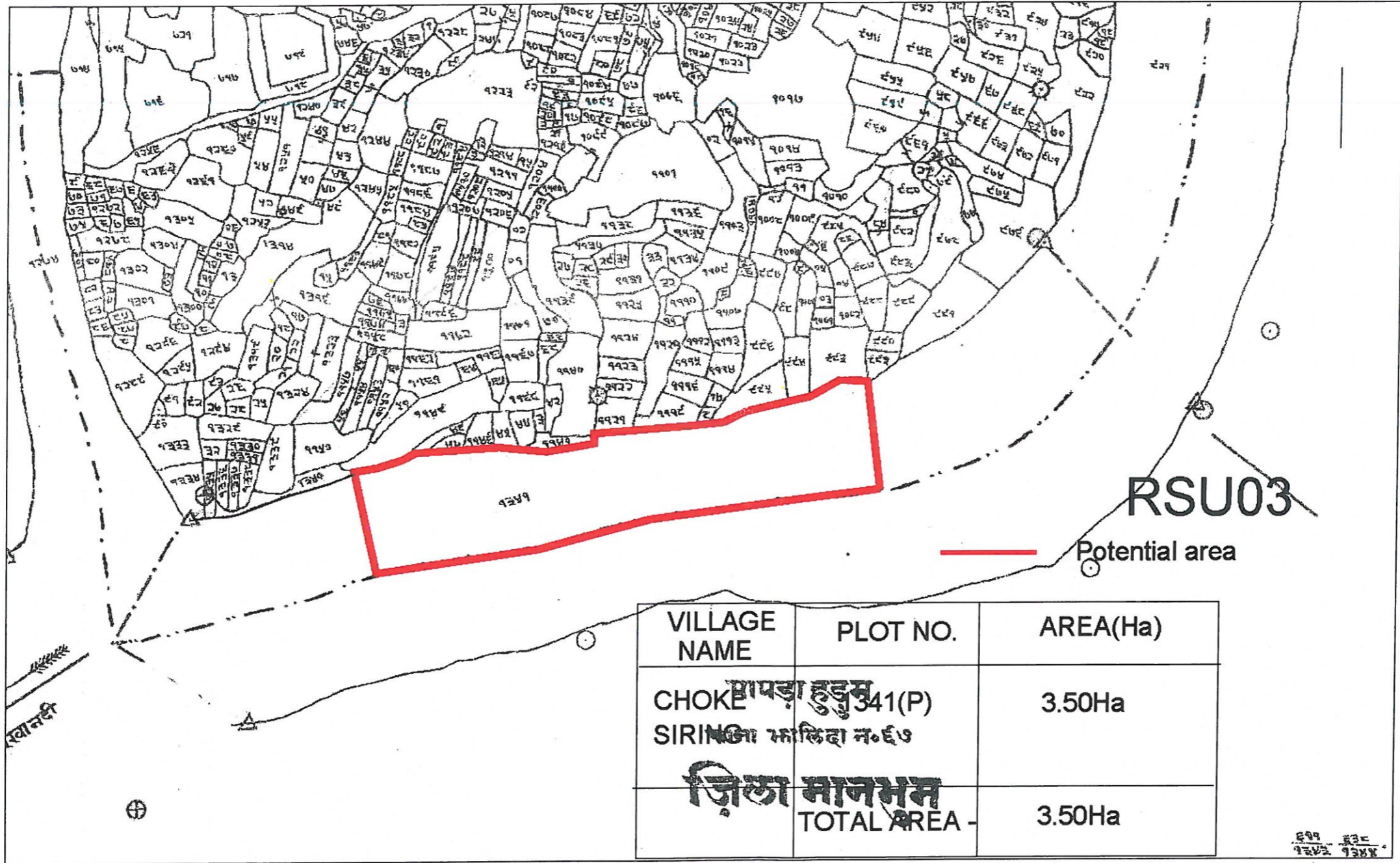
VILLAGE NAME	PLOT NO.	AREA(Ha)
RAY	1201p)	4.50Ha
CHURI	192(P)	4.60Ha
TOTAL AREA -		9.10Ha





*M*

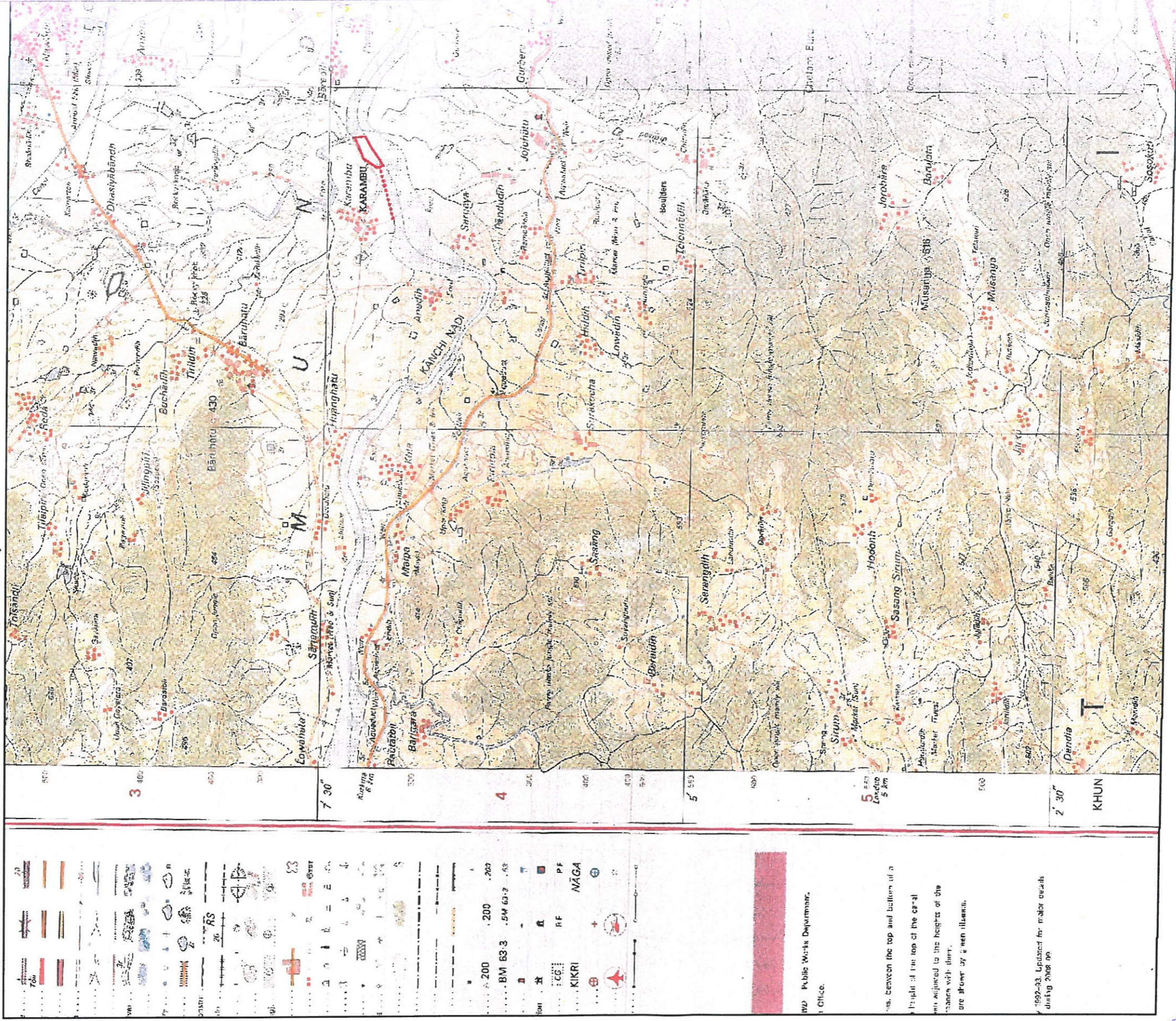




**PLATE - 4**  
**TRANSPORTATION ROUTE**  
**SHOWN ON TOPSHEET**

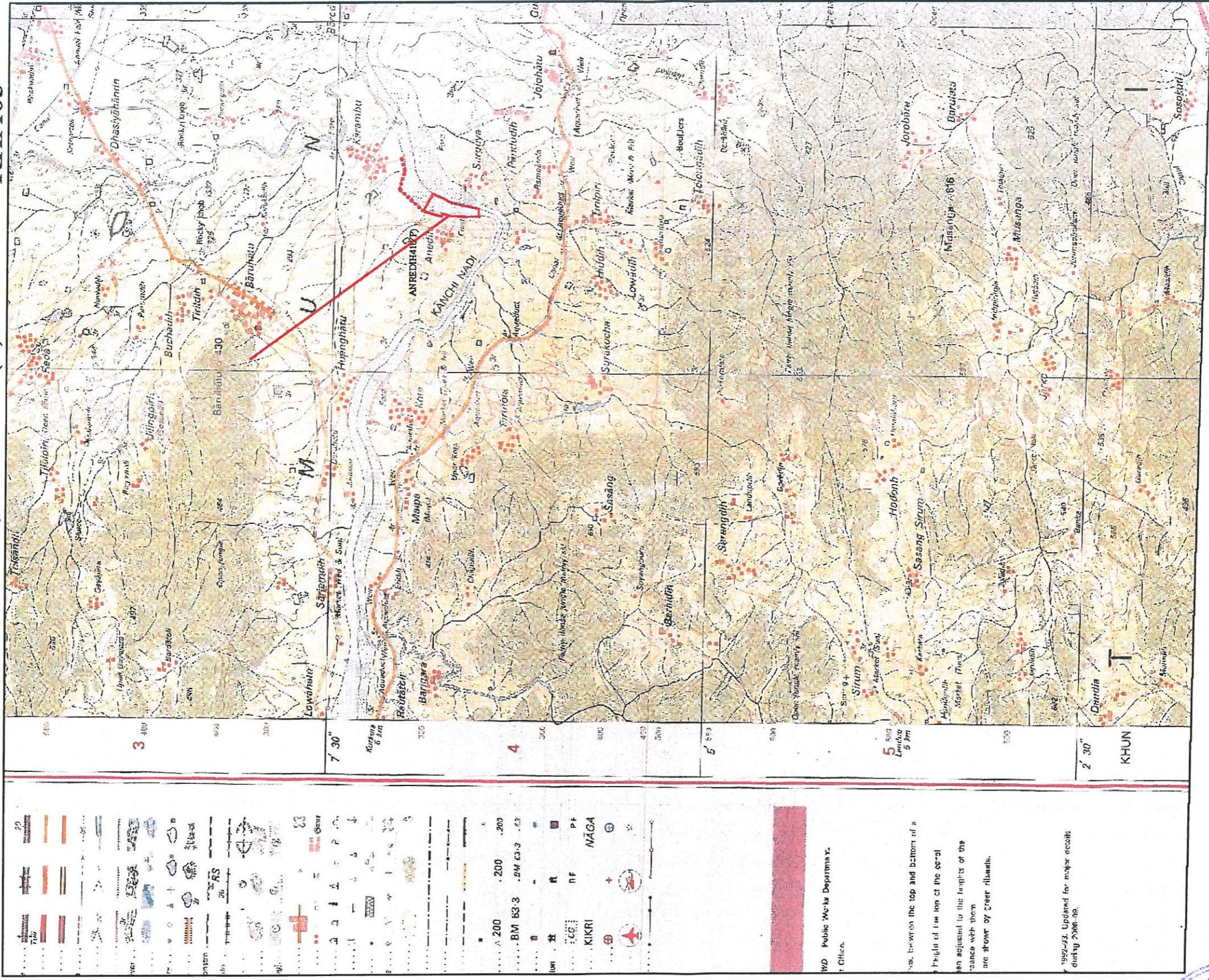


Topo Location Plan of Karambu Balu Ghat Superimposed on  
 Survey of India OSM Sheet NO.- 73E12, Village - Karambu,  
 Area - 13.0 Ha, Plot - 896 RKA04



..... Approach Road

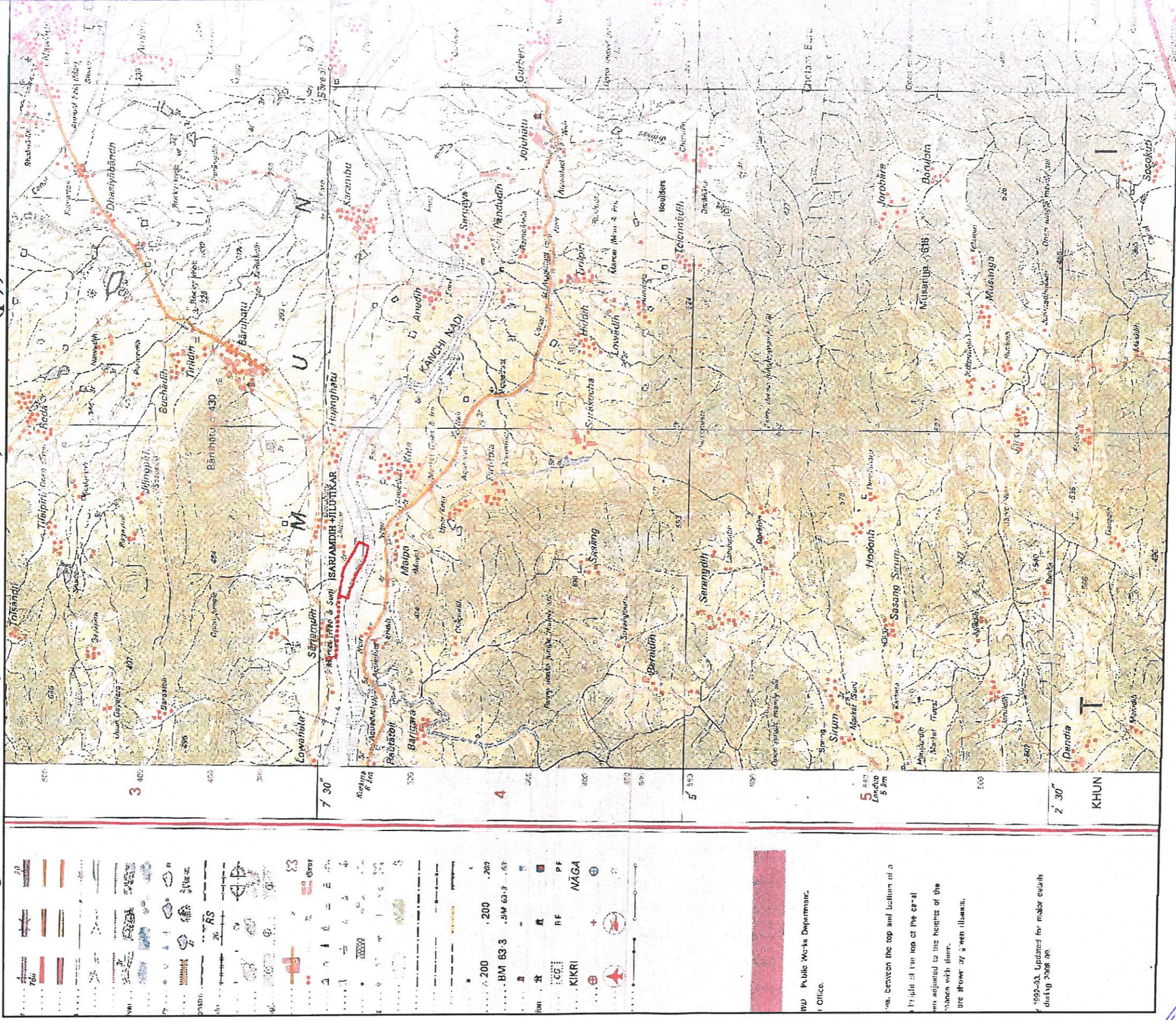
Topo Location Plan of Anredih Balu Ghat Superimposed on  
 Survey of India OSM Sheet NO.- 73E12, Village - Anredih,  
 Area - 13.0Ha, Plot - 410(P) RKA03



..... Approach Road



**Topo Location Plan of Sarjamdih Balu Ghat Superimposed on  
Survey of India OSM Sheet NO.- 73E12, Village -  
Sarjamdih, Jilutkar, Area - 10.90 Ha, Plot -647(p), 130 RKA02**

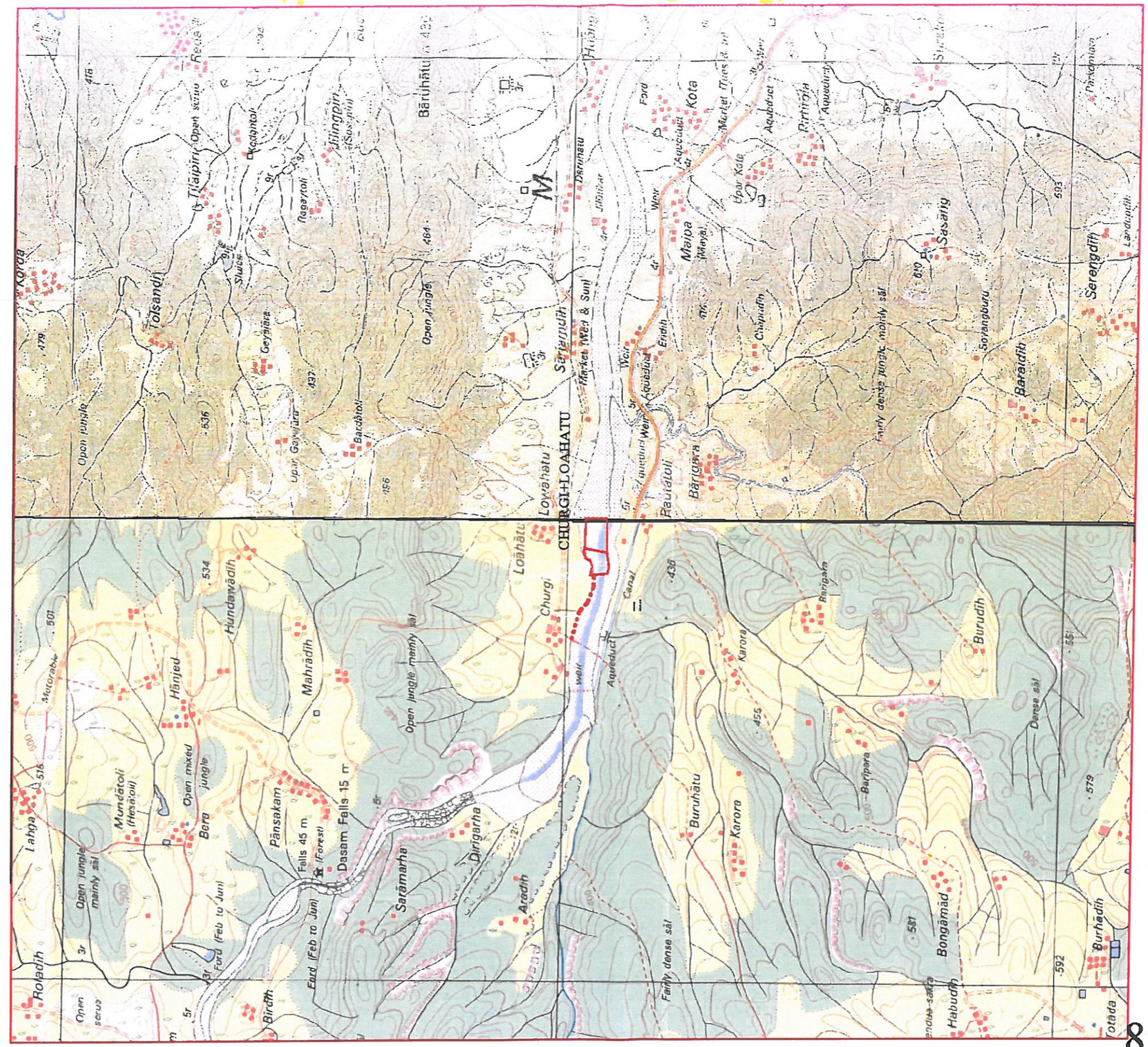


**Approach Road**

**Approved**

\* State Level Environment Impact Assessment Authority \* Jharkhand, Ranchi \*

**Topo Location Plan of Churgi Balu Ghat Superimposed on  
 Survey of India OSM Sheet NO.-73E8 &73E8  
 Village -Churgi&Loahatu , Area - 10.20 Ha,  
 Plot-1395(P)&1063(P) RKA01**



23°10'

23°5'

85°32'30"

85°27'30"

..... Approach Road



Topo Location Plan of Erkia Balu Ghat Superimposed on  
 Survey of India OSM Sheet NO.-F45B12 (73E12) Village  
 -Erkia,Sumandih,Sutitlong, Area -41.10Ha, Plot -  
 738(P),2(P),858,1098 RKA07



85 40'

85 42'30''

..... Approach Road

*Handwritten signature*



Topo Location Plan of Sutulong Balu Ghat Superimposed on  
Survey of India OSM Sheet NO.-F45B12 (73E12) Village  
-Sutulong, Badla Area -19.80Ha, Plot - 1077(P),1(P)

RKA08



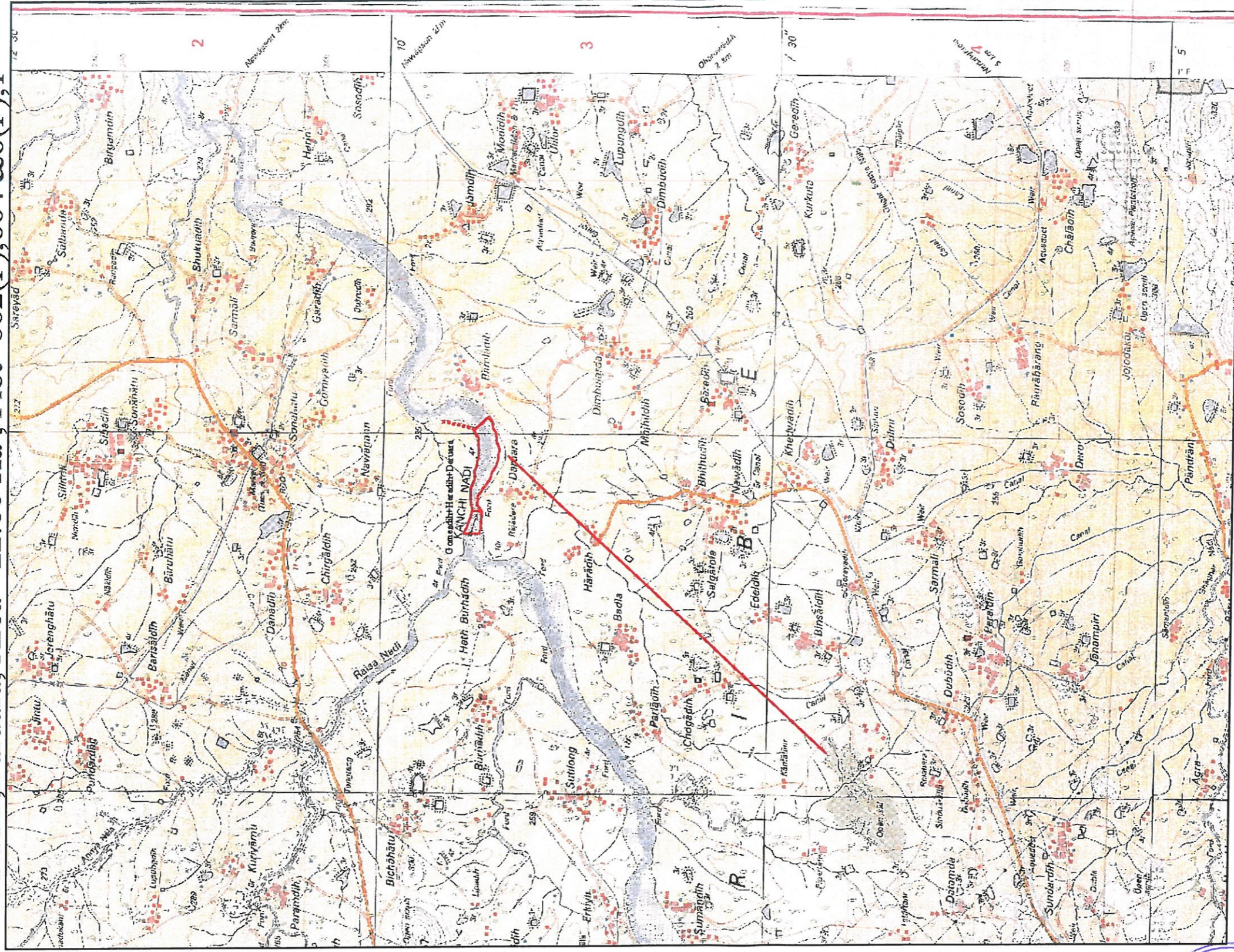
85 40'

85 42'30"

..... Approach Road



Topo Location Plan of Gomiadh Balu Ghat Superimposed on  
Survey of India OSM Sheet NO.-73E12, Village - Gomiadh &  
Haradh, Daruara, Area - 22.80 Ha, Plot- 862(P), 864 & 8(P), 1 RKA09



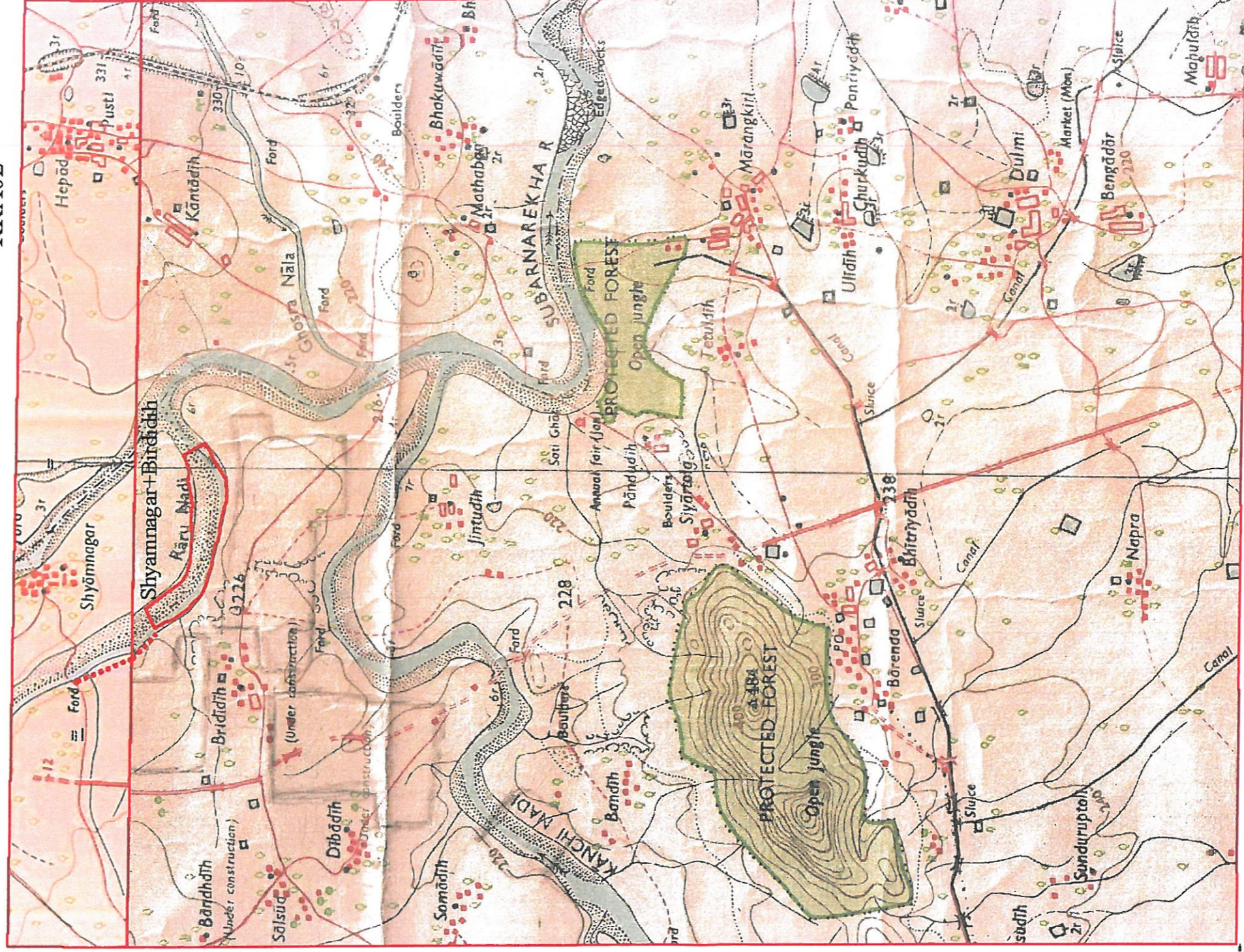
Handwritten signature or initials in blue ink.



..... Approach Road



Topo Location Plan of Shyamnagar Balu Ghat Superimposed on Survey of India OSM  
 Sheet NO.-73E15,73E16 Village - Shyamnagar, Birdidih Area - 29.50 Ha,  
 Plot-511(P),779(P),109(P) RRA02



85945'

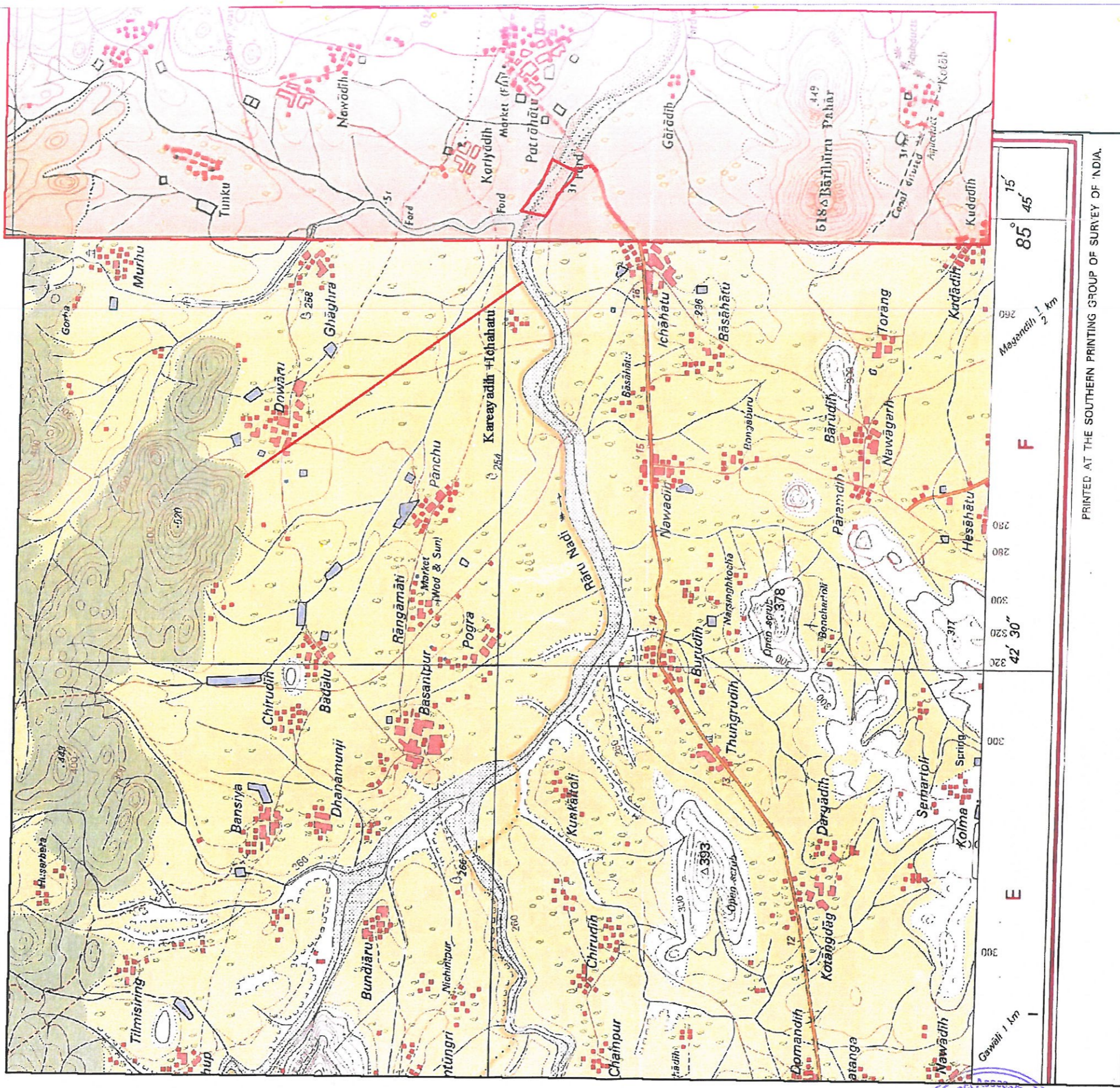
..... Approach Road

2395'

*Handwritten signature*



Topo Location Plan of Kareyadh Bahu Ghat Superimposed  
on Survey of India OSM Sheet NO.-F45B11 Village  
-Karayadh, Ichahatu, Area -11.50 Ha, Plot-1299(P), 1370(P)  
RRA01

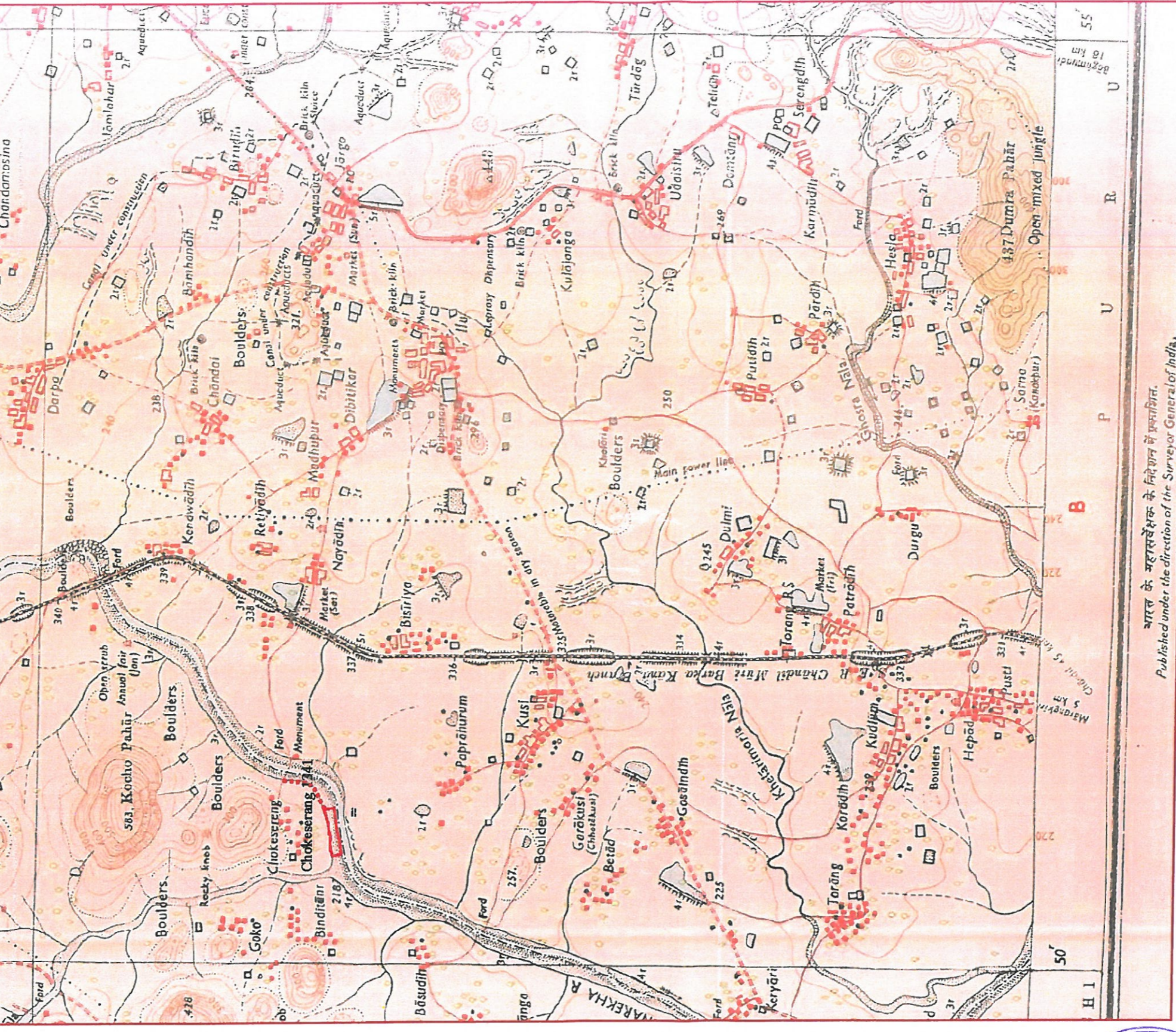


..... Approach Road

PRINTED AT THE SOUTHERN PRINTING GROUP OF SURVEY OF INDIA.



Topo Location Plan of Chokeserang Balu Ghat Superimposed  
 on Survey of India OSM Sheet NO.-73E15  
 Village - Chokeseang , Area -3.50Ha, Plot No.- 1341(P)  
 RSU03



23° 20'

23° 15'

85° 50'

85° 55'

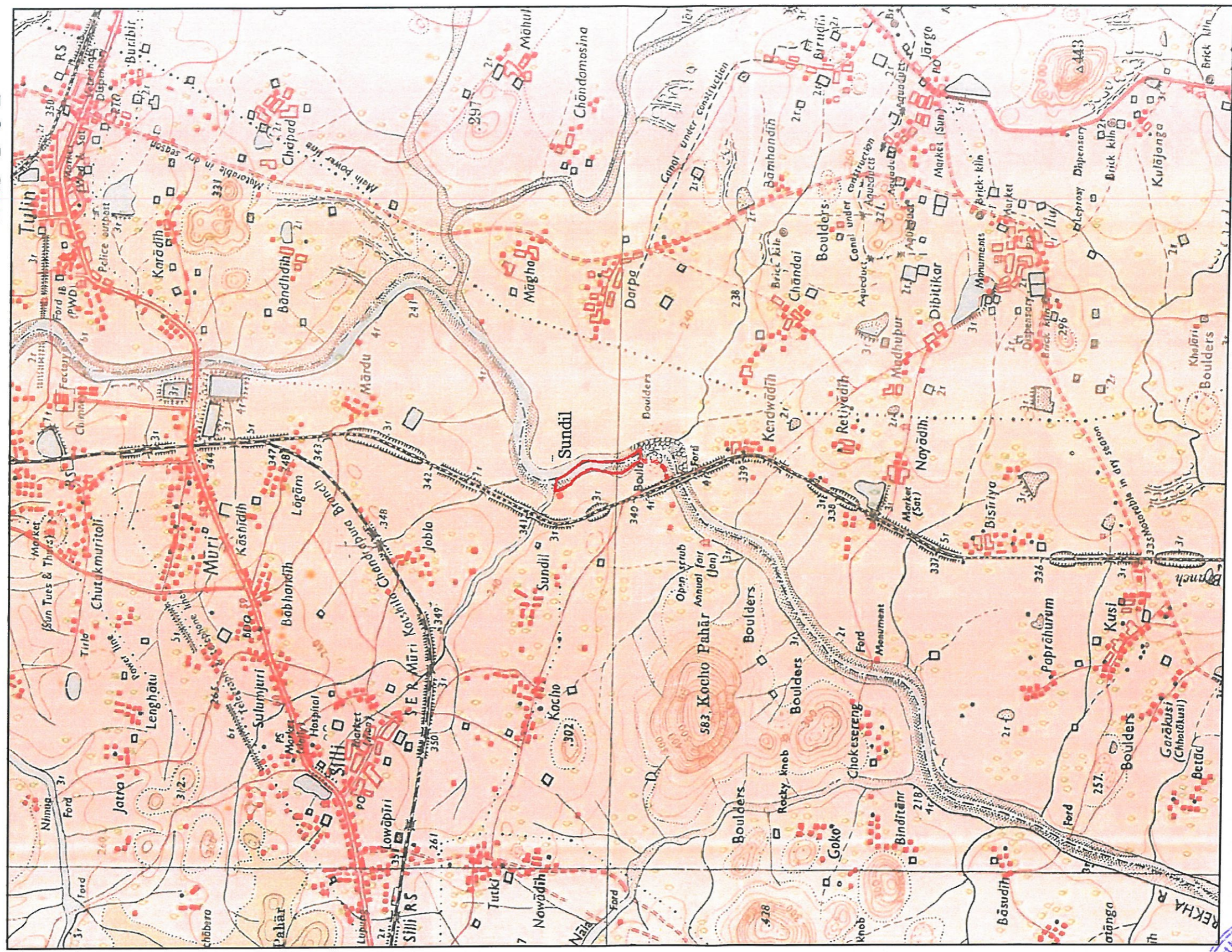
..... Approach Road



भारत के महासर्वेक्षक के निदेशन में प्रकाशित।  
 Published under the direction of the Surveyor General of India.



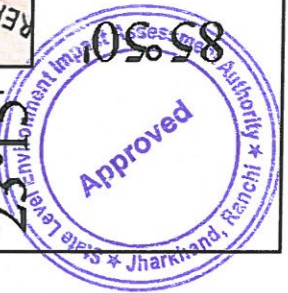
Topo Location Plan of Sundil Balu Ghat Superimposed on  
 Survey of India OSM Sheet NO. - 73E15, Village - Sundil,  
 Area - 7.40 Ha, Plot- 546 **RSU01**



23° 25'

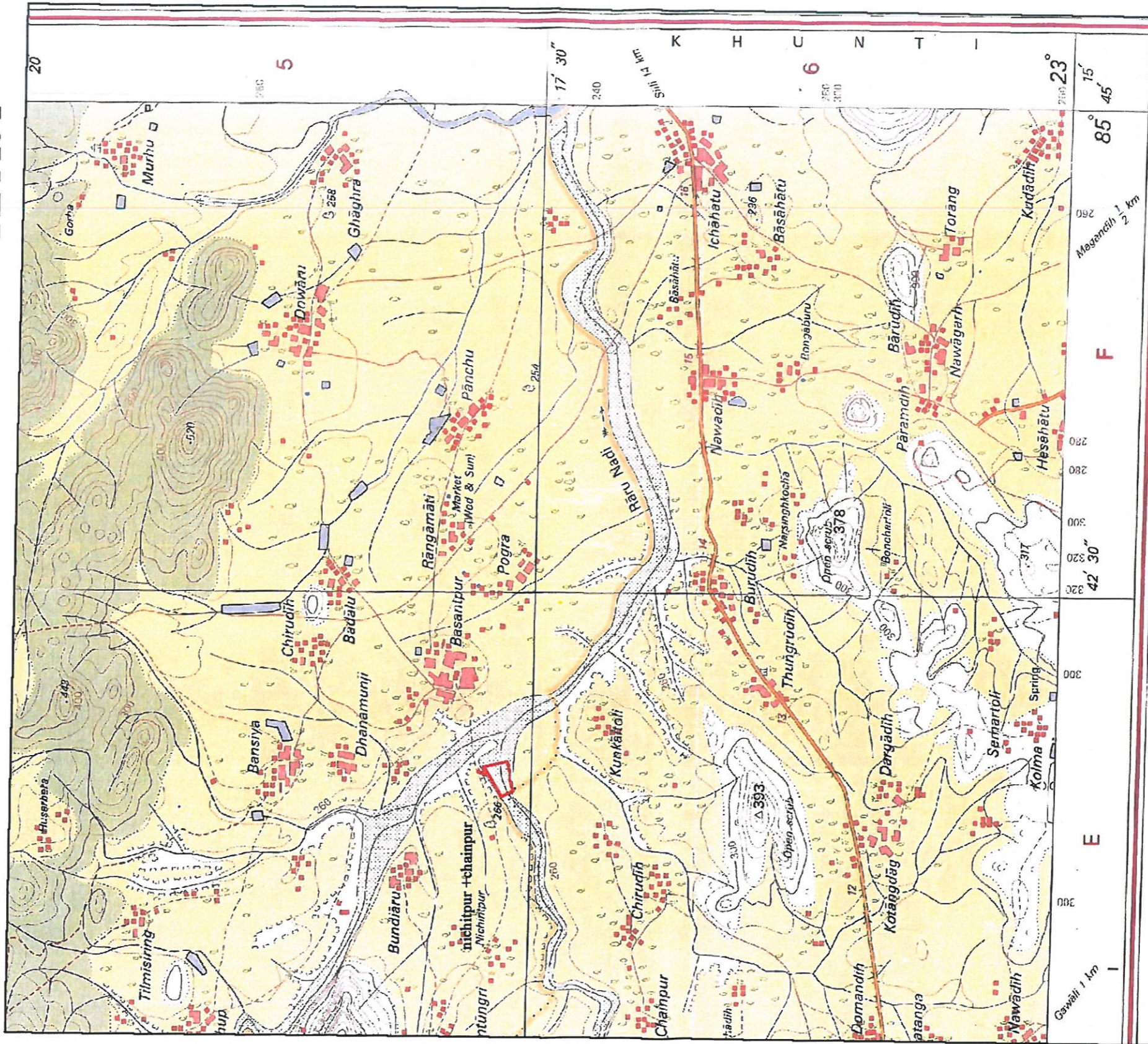
23° 15'

..... Approach Road



Topo Location Plan of Nichitpur Balu Ghat Superimposed on  
 Survey of India OSM Sheet NO.-F45B11 Village  
 -Nichitpur,chainpur, Area -4.30 Ha, Plot-78(P),

RPA01

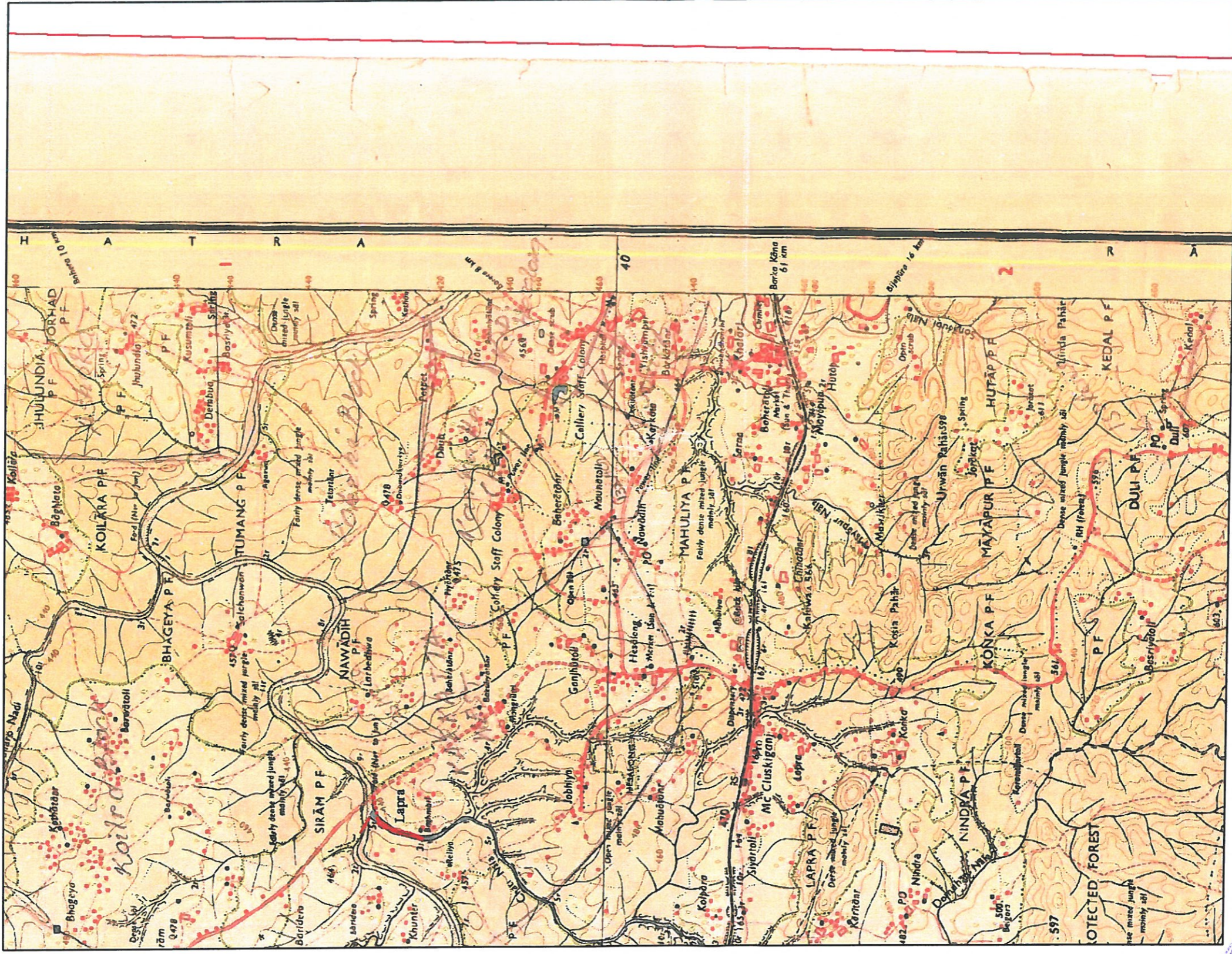


PRINTED AT THE SOUTHERN PRINTING GROUP OF SURVEY OF INDIA.



..... Approach Road

Topo Location Plan of Lapra Balu Ghat Superimposed on  
 Survey of India OSM Sheet NO.-73A14, Village - Lapra,  
 Area - 1.70 Ha, Plot- 1(P) RCH01

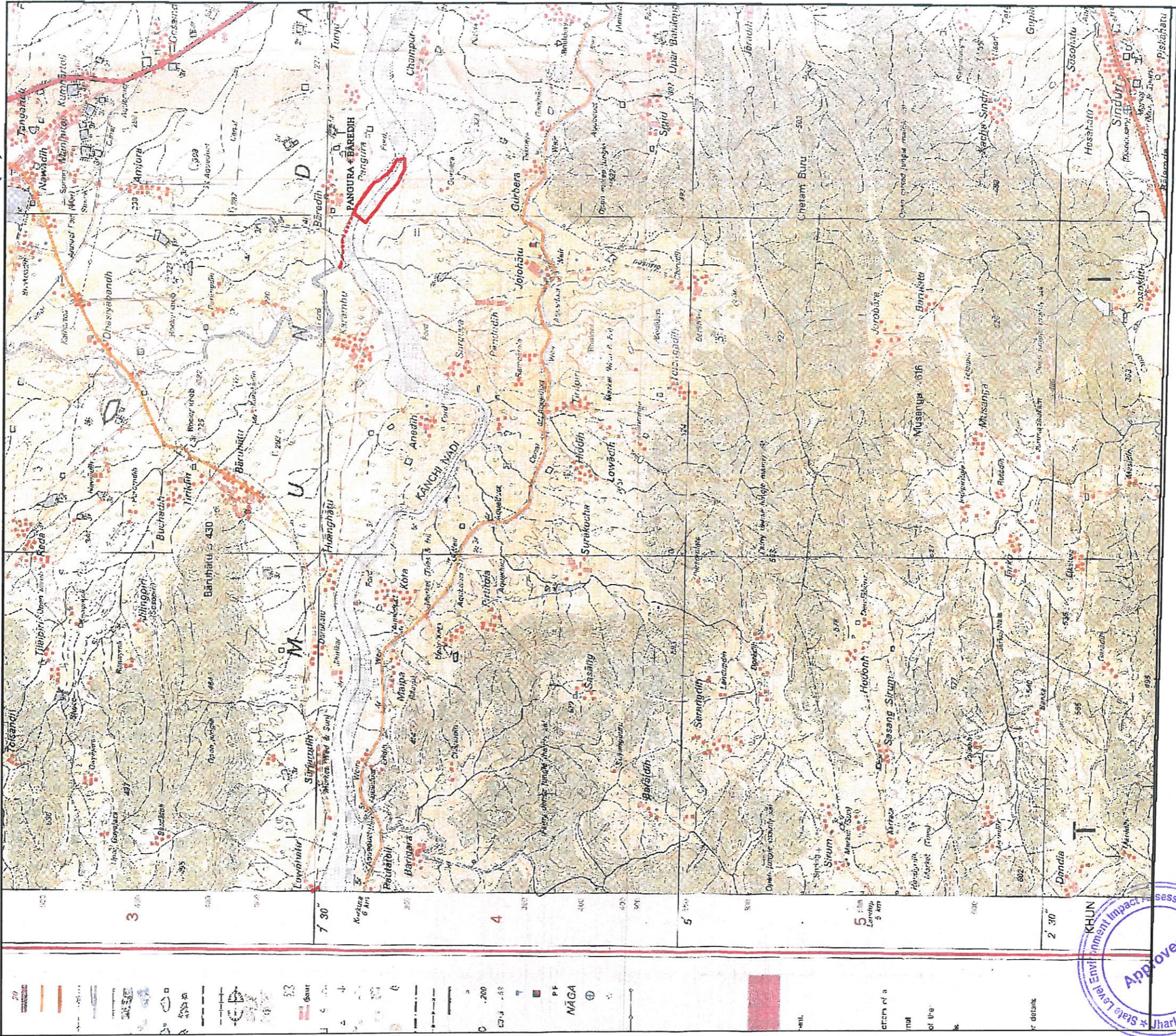


R



Approach Road

Topo Location Plan of Pangura Balu Ghat Superimposed on  
 Survey of India OSM Sheet NO.- 73E12, Village - Pangura,  
 Bredih, Area - 17.10 Ha, Plot - 212,216&1147(P) RKA05

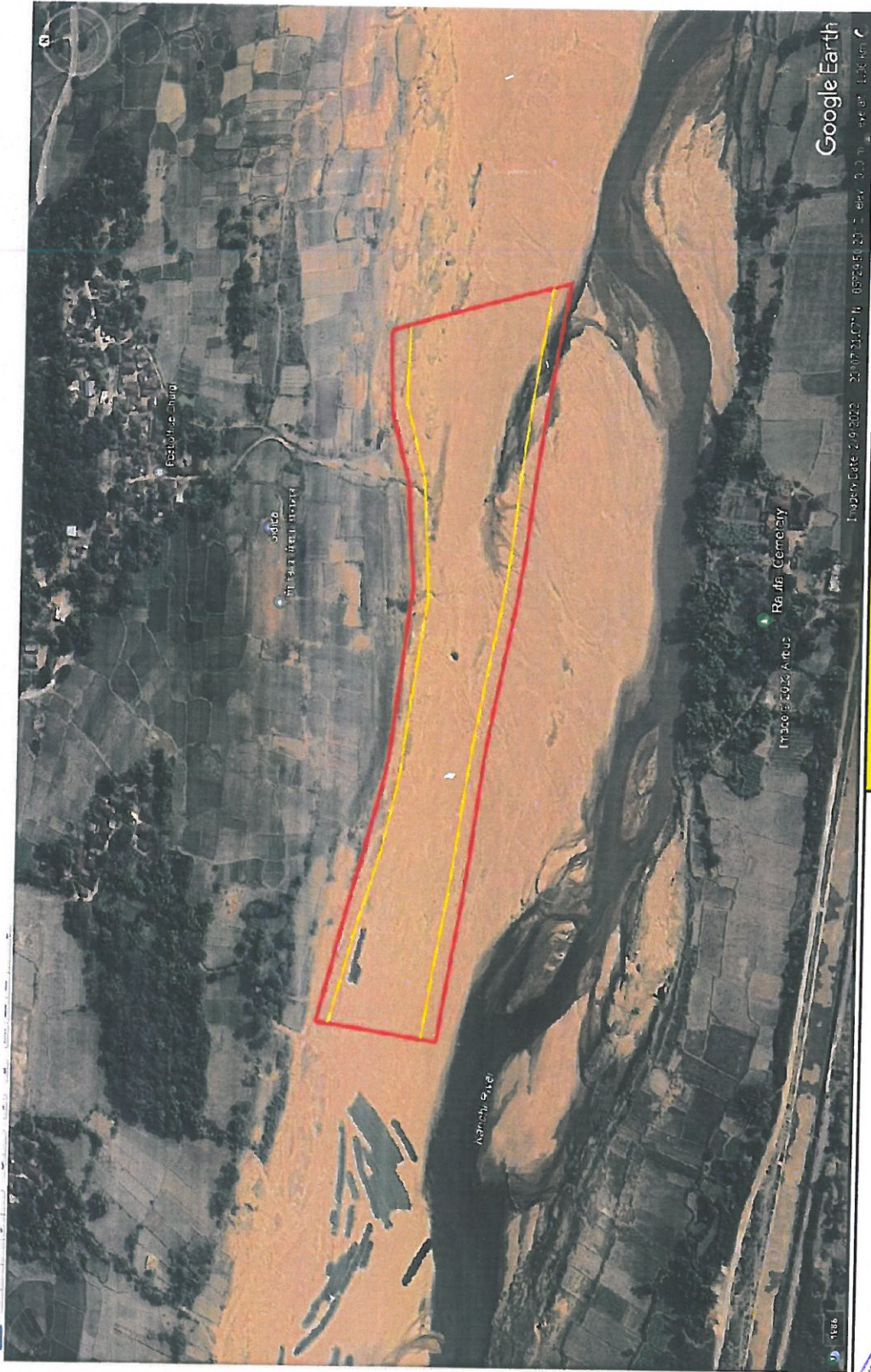


Approved  
 State Level Environmental Impact Assessment Authority  
 Jharkhand, Ranchi

12

**PLATE - 5**  
**KML MAP**



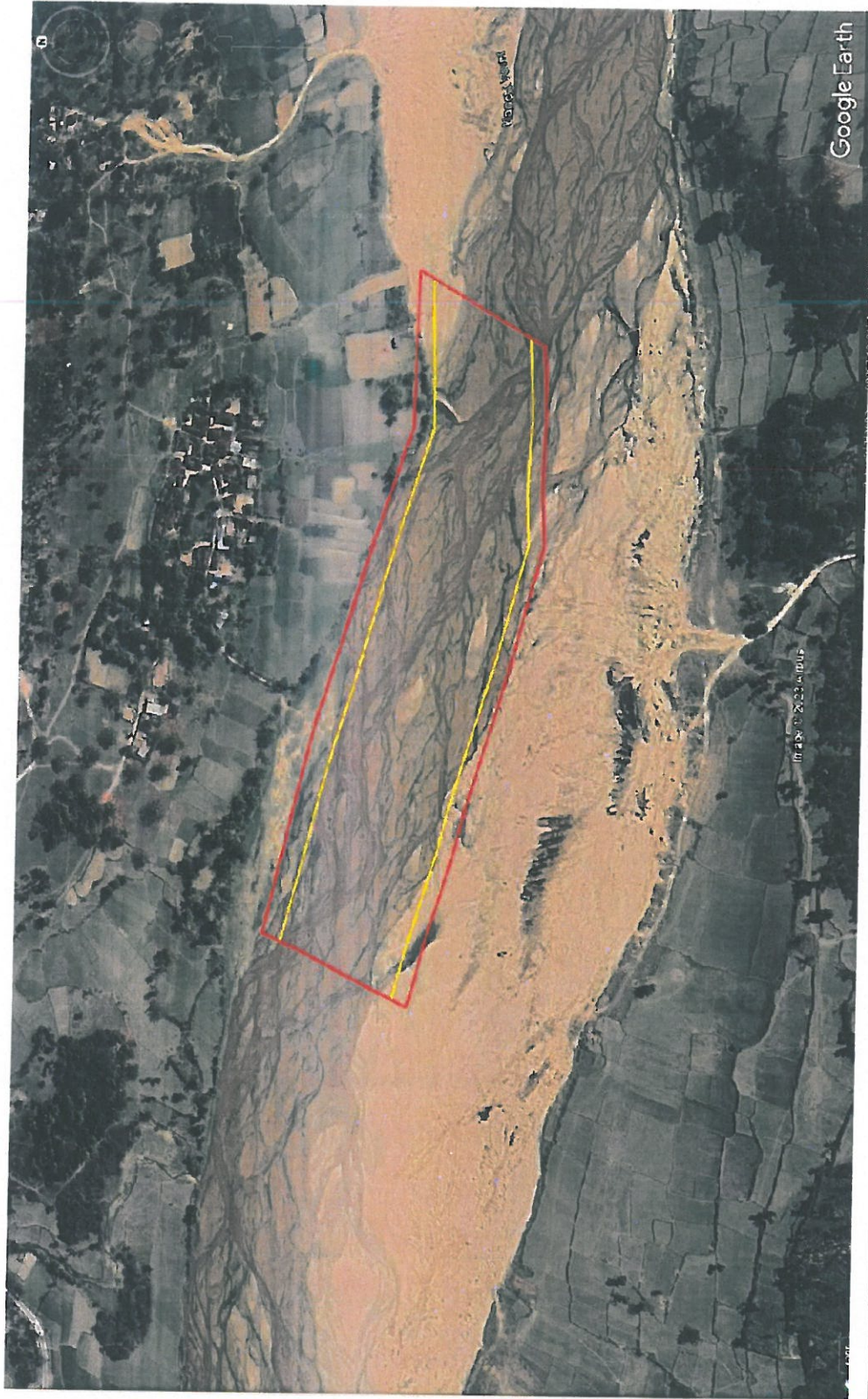


**R K A 01**

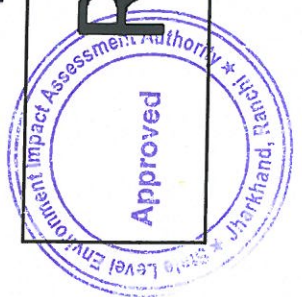


**No Mining Zone  
(1/8th both side River Bank)**

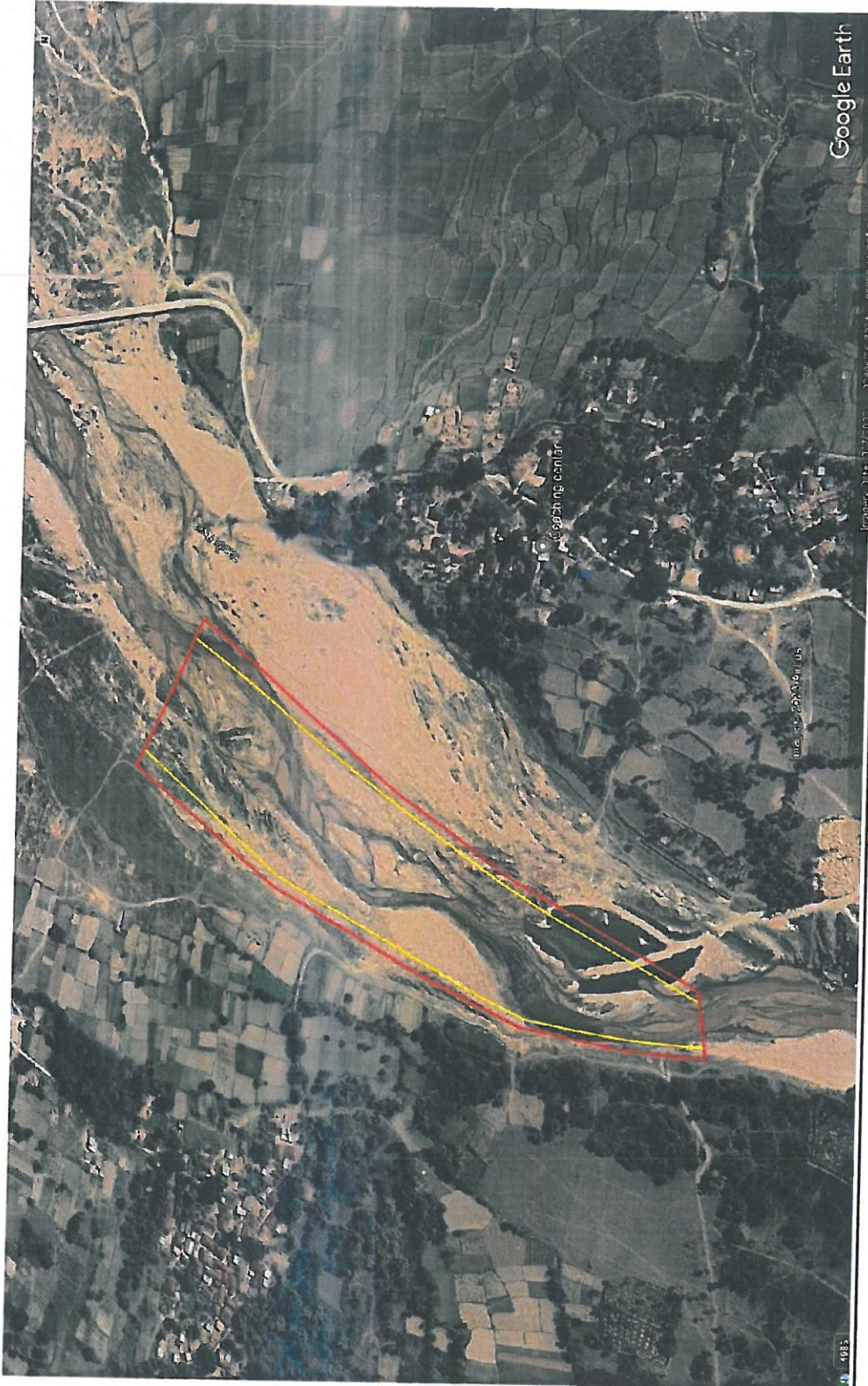
**Proposed Potential  
Resource Area (PRA)**



**R KA 02**



	<p>No Mining Zone (1/8<sup>th</sup> both side River Bank)</p>	
		<p>Proposed Potential Resource Area (PRA)</p>



**R KA 03**



**No Mining Zone  
(1/8<sup>th</sup> both side River Bank)**

**Proposed Potential  
Resource Area (PRA)**



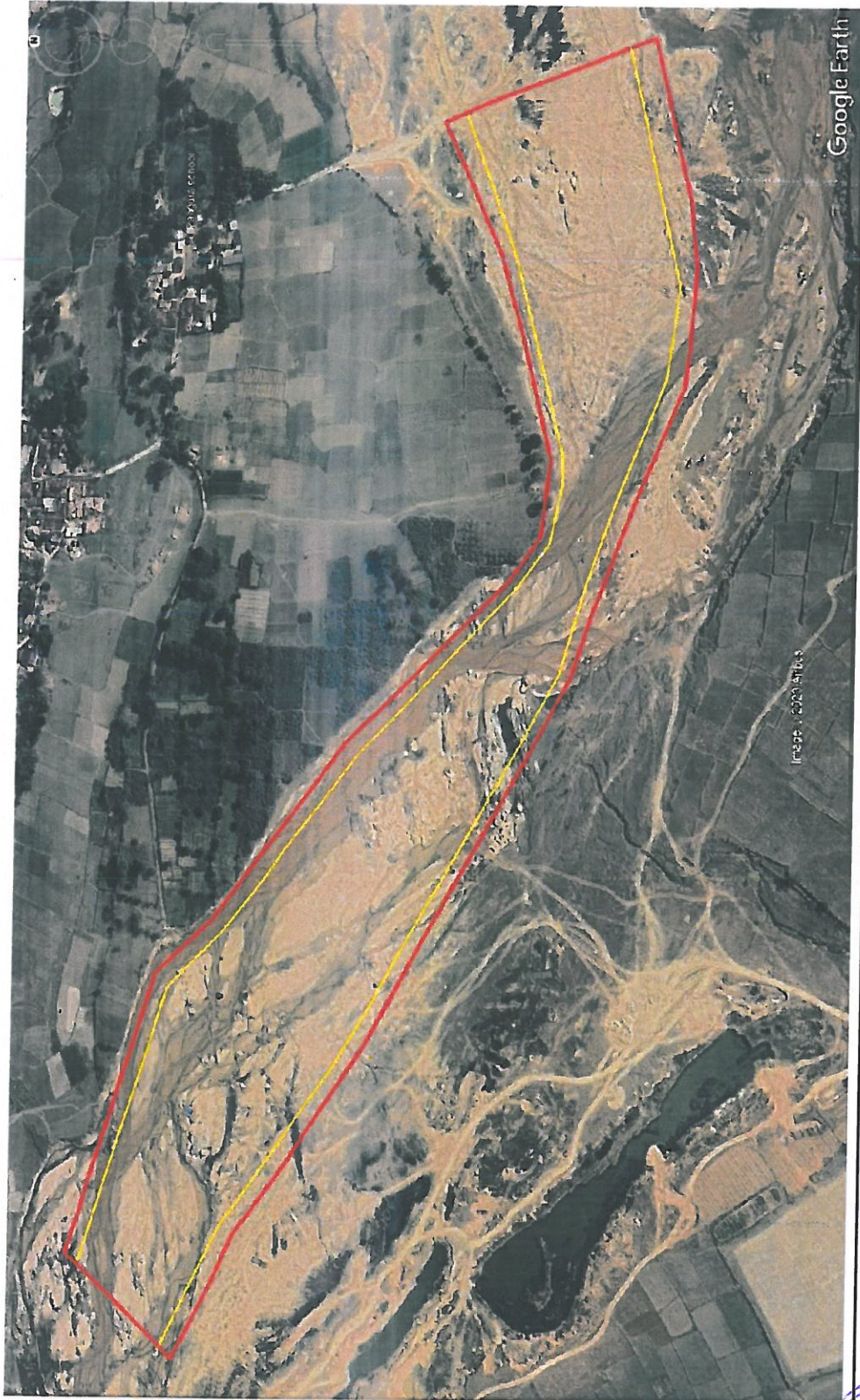


**RKA 04**



No Mining Zone  
(1/8<sup>th</sup> both side River Bank)

Proposed Potential  
Resource Area (PRA)

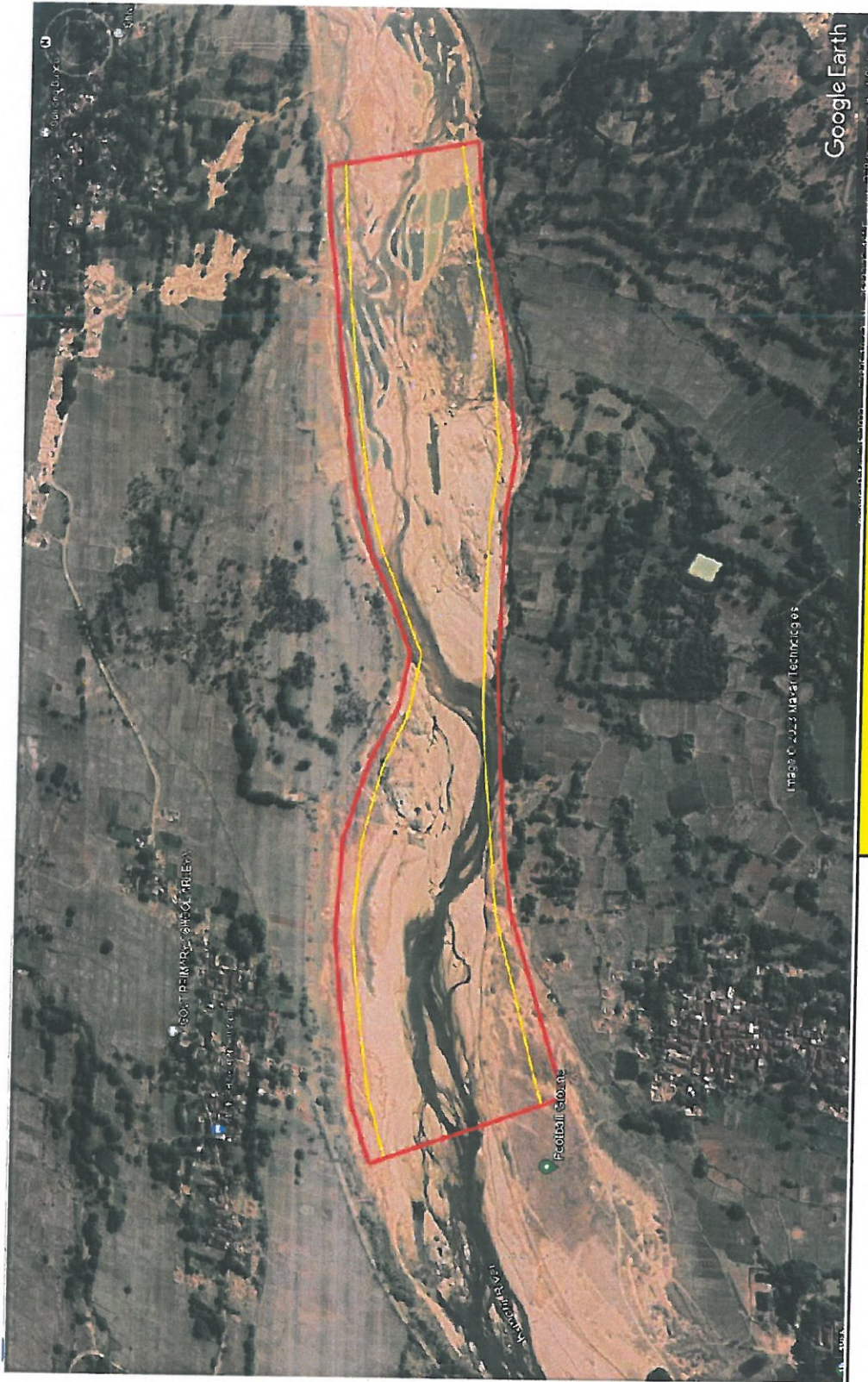


**R KA 05**



Proposed Potential Resource Area (PRA)	No Mining Zone (1/8th both side River Bank)	



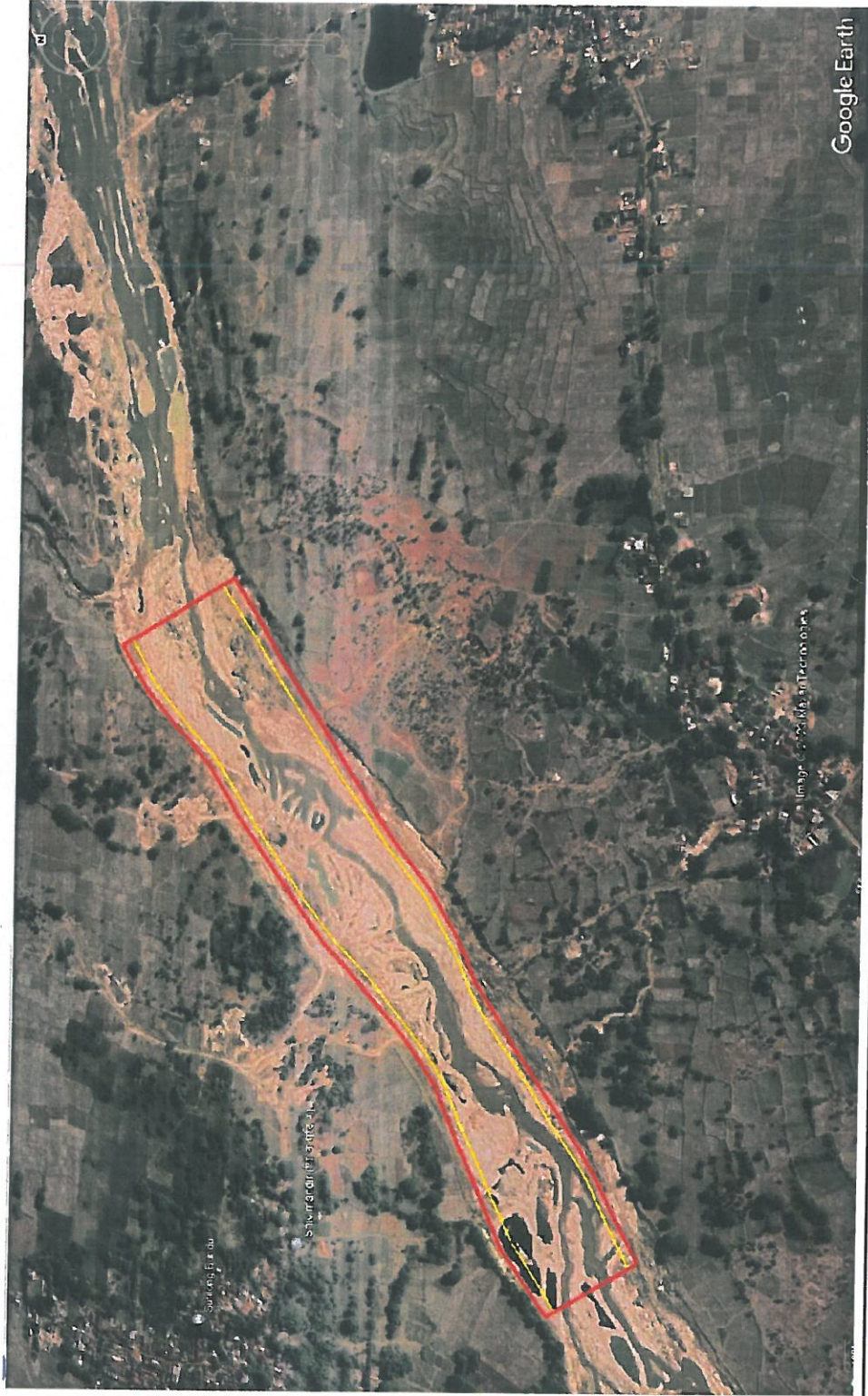


**R K A 07**



**No Mining Zone  
(1/8th both side River Bank)**

**Proposed Potential  
Resource Area (PRA)**



	Proposed Potential Resource Area (PRA)
	No Mining Zone (1/8th both side River Bank)

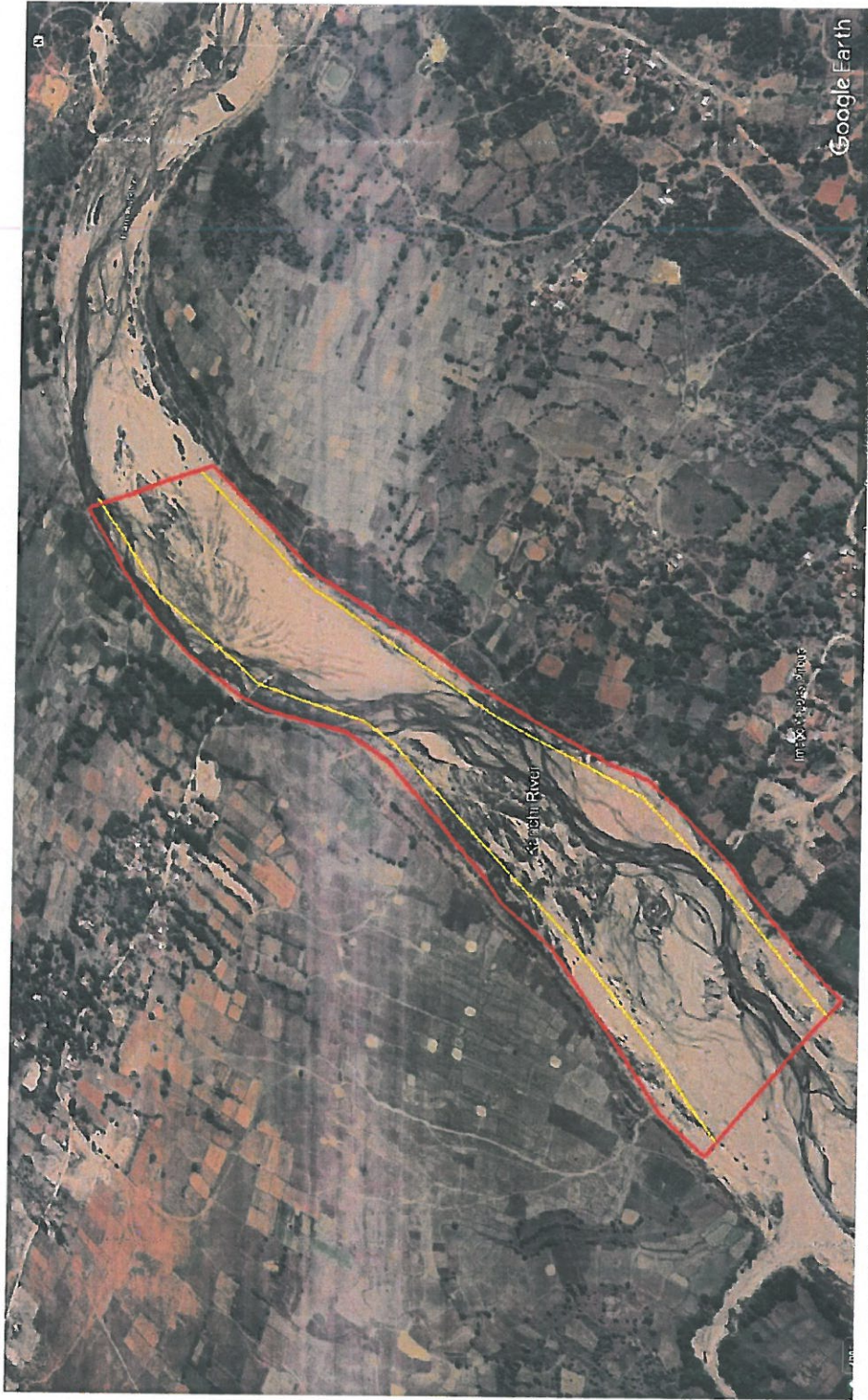
**R KA 08**





**R KA 09**

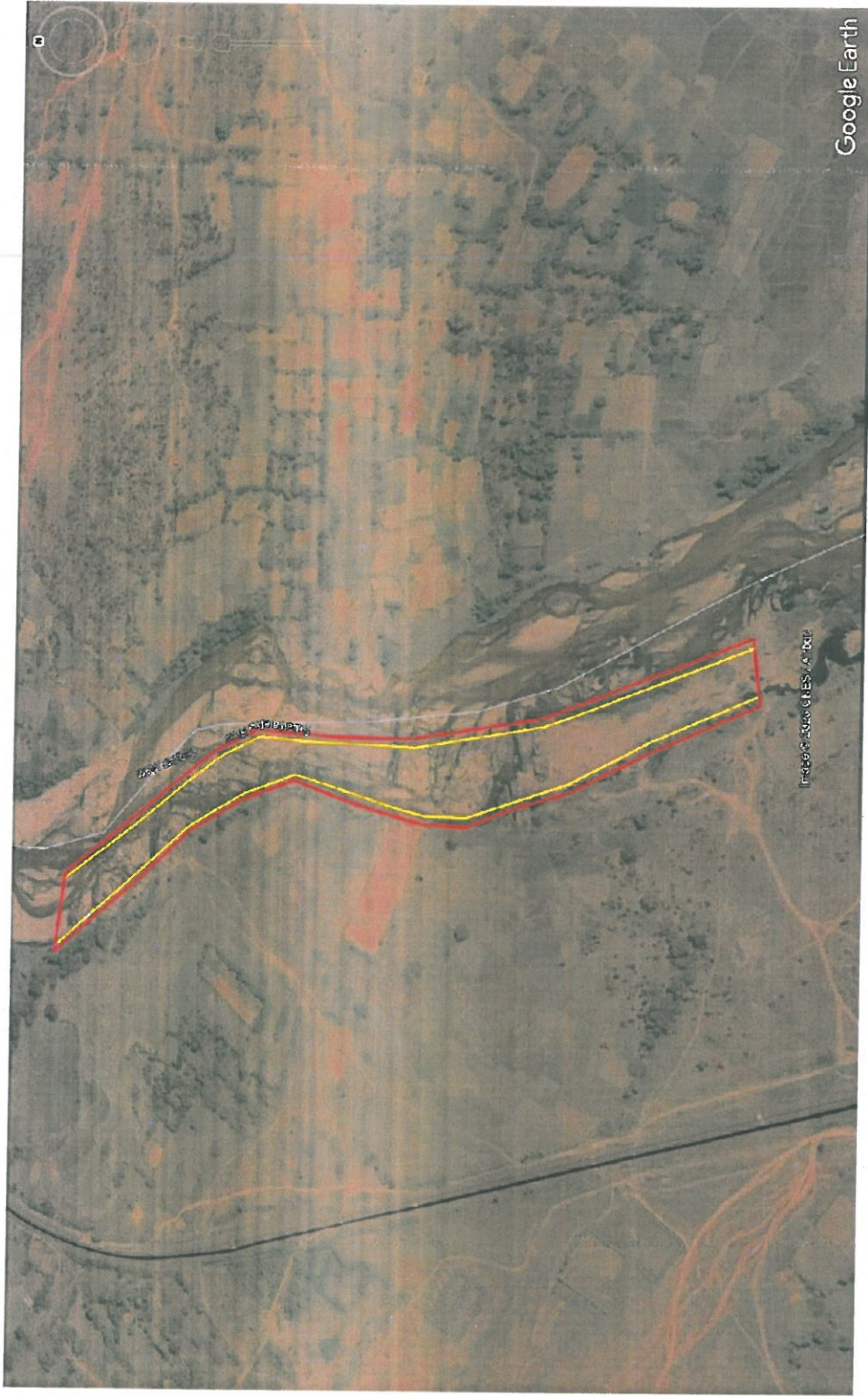
		<p><b>Proposed Potential Resource Area (PRA)</b></p>
<p><b>No Mining Zone (1/8<sup>th</sup> both side River Bank)</b></p>		



**R KA 10**



		Proposed Potential Resource Area (PRA)
No Mining Zone (1/8th both side River Bank)		



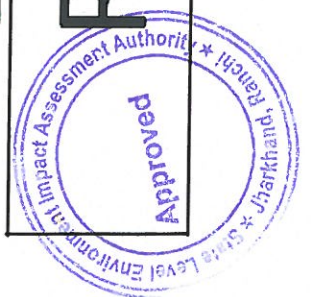
**R SU 01**




		Proposed Potential Resource Area (PRA)
	No Mining Zone (1/8 <sup>th</sup> both side River Bank)	



**R SU 02**



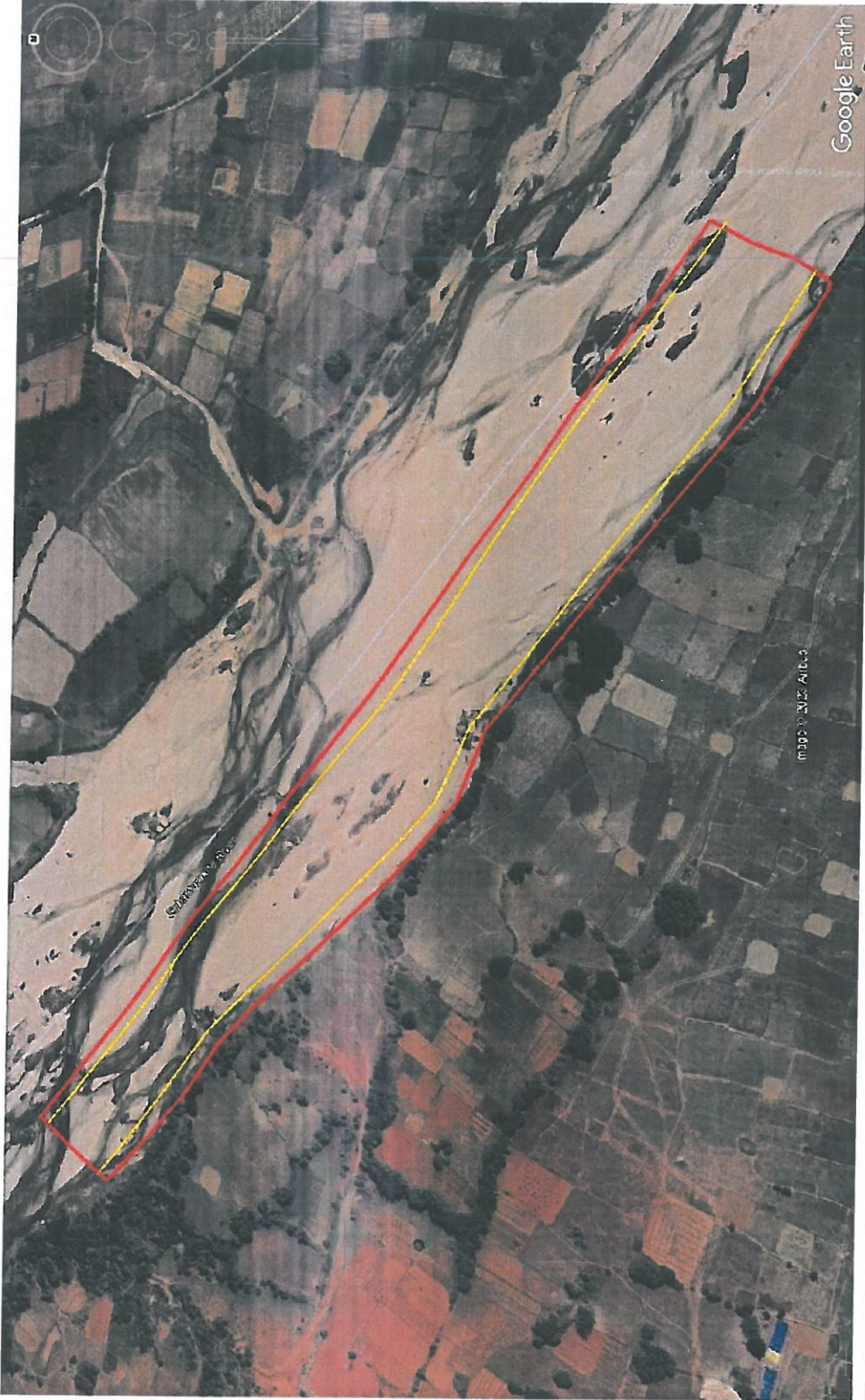
		<p><b>R SU 02</b></p> 
<p><b>Proposed Potential Resource Area (PRA)</b></p>	<p><b>No Mining Zone (1/8th both side River Bank)</b></p>	



**R SU 03**



		<p><b>Proposed Potential Resource Area (PRA)</b></p>
<p><b>No Mining Zone (1/8<sup>th</sup> both side River Bank)</b></p>		



**R SU 04**

	<p><b>No Mining Zone (1/8<sup>th</sup> both side River Bank)</b></p>		<p><b>Proposed Potential Resource Area (PRA)</b></p>
--	--	--	--



**R RA 01**



**No Mining Zone  
(1/8<sup>th</sup> both side River Bank)**

**Proposed Potential  
Resource Area (PRA)**

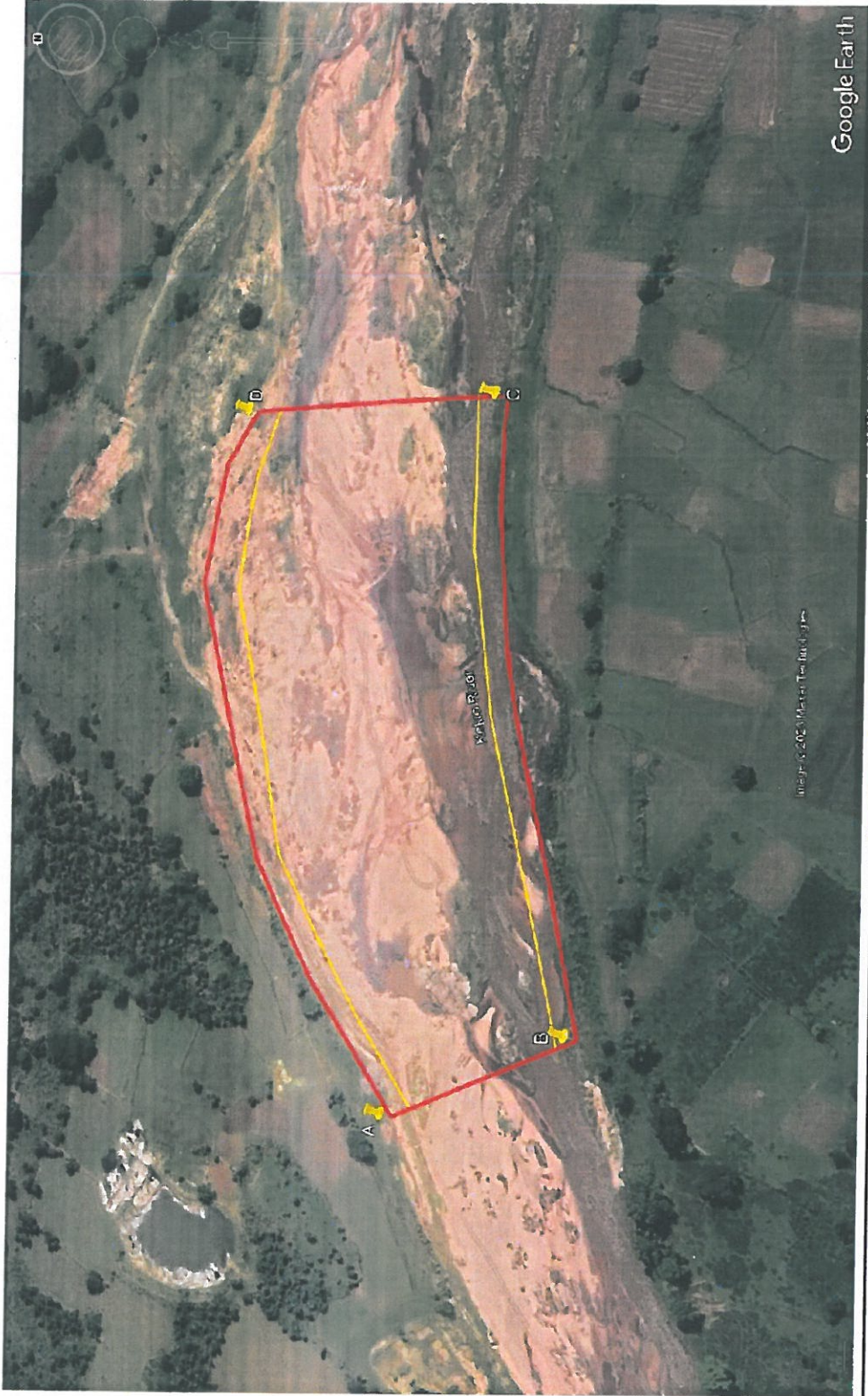


Google Earth

**R RA 02**

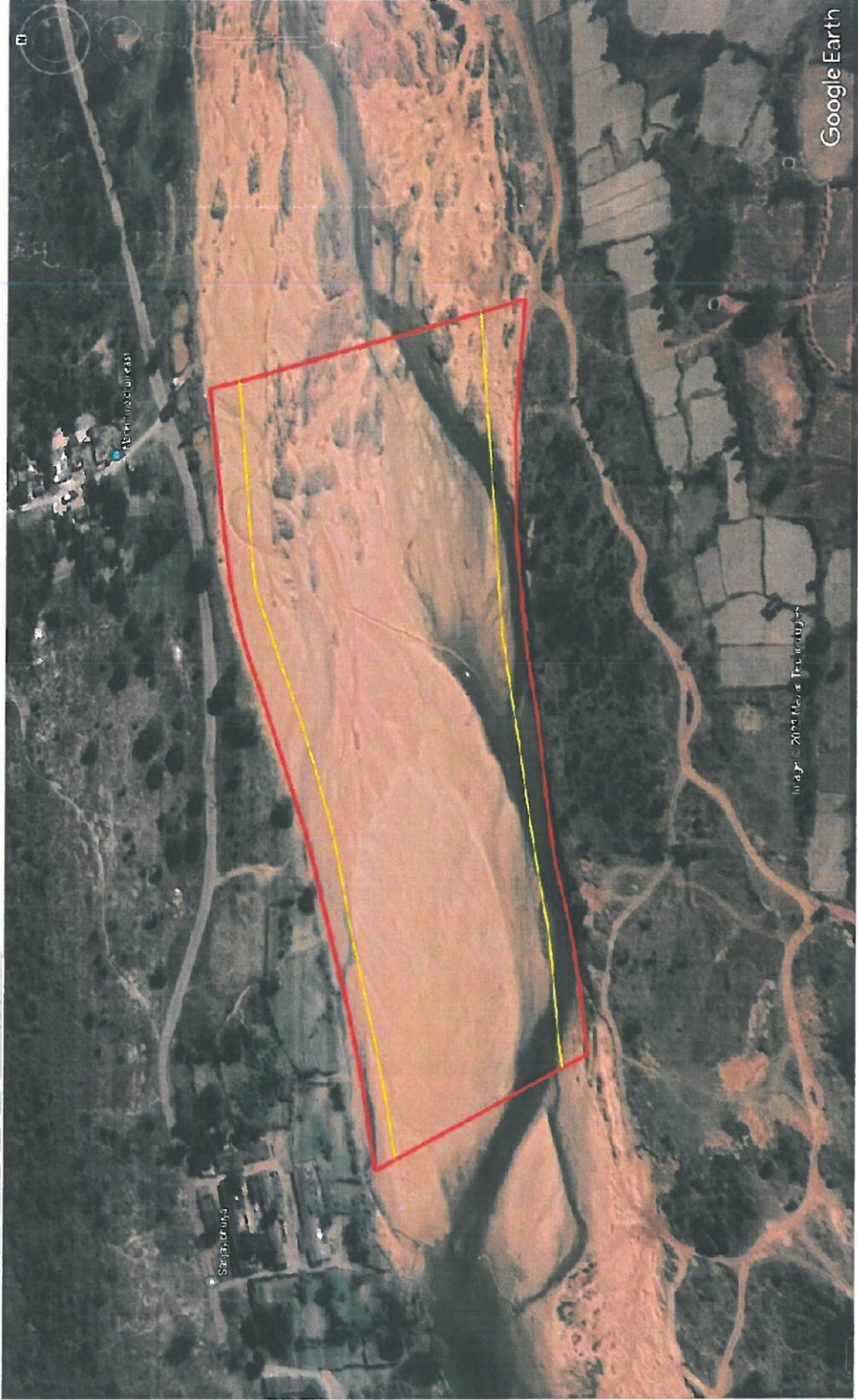


Proposed Potential Resource Area (PRA)	No Mining Zone (1/8 <sup>th</sup> both side River Bank)	



**R PA 01**

	<p>No Mining Zone (1/8<sup>th</sup> both side River Bank)</p>	
		<p>Proposed Potential Resource Area (PRA)</p>



**R SA 01**



	<p>No Mining Zone (1/8<sup>th</sup> both side River Bank)</p>	<p>Proposed Potential Resource Area (PRA)</p>
--	---	---



**RCH 01**

	<b>Proposed Potential Resource Area (PRA)</b>
	<b>No Mining Zone (1/8<sup>th</sup> both side River Bank)</b>