NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH, NEW DELHI

OA No. 532 of 2023

Balbir Sandhu ..... Appellant

Versus

Union of India and others ..... Respondents

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NEW DELHI

DATED: 0/03/2024

Anshul Mangla

(ANSHUL MANGLA)
Advocate RESPONDENT NO. 8
P/2238/2011
#477, Sector 12, Panchkula
Anshul.mangla16@gmail.com
8283097167

NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH, NEW DELHI

OA No. 532 of 2023

Balbir Sandhu

Versus

Union of India and others

Written Statement on behalf of respondent No. 8 i.e. M/s RM Mines and Infra Pvt. Ltd.

RESPECTFULLY SHOWETH:

1. That the answering respondent is a private limited Company duly registered with the Registrar of Companies, New Delhi. The answering respondent is filing the present written statement through its director and authorized signatory namely Sh. Veerbhan Wadhwa. A copy of the Board Resolution dated 26.10.2023 is attached herewith as **Annexure R-8/1.**

PRELIMINARY OBJECTIONS:

2. That it is submitted that no substantial questions relating to Environment are involved in the present case and there is no civil dispute between the parties in the present case. Hence, the Original Application is not maintainable.

3. That respondent No. 5 had issued an e-auction notice dated 31.05.2022 for the purpose of grant of mining contracts for extraction of minor minerals namely "Boulder, Gravel and Sand" from the minor mineral mines located at District Ambala, Haryana. A copy of the e-auction notice dated 31.05.2022 is attached herewith as **Annexure R-8/2.**

4. That the bare perusal of the e-auction notice dated 31.05.2022 shall reveal that respondent No. 5 had proposed to grant mining contract for extraction of minor minerals at Toka-Hamidpur Mining Block. As per the details appended with the auction notice, the mining block consisted of land located in 8 villages with a total area of 247 acres and reserve price of Rs. 20.57 crores per annum. The notice had the details of the land comprised in the mining lease area through specific khasra numbers as per the revenue record.

5. That as per the knowledge of the answering respondent, the e-auction notice dated 31.05.2022 was issued in consonance with the District Survey Report for District Ambala (Annexure A-1/2). The area included in the Toka-Hamidpur Mining Block is based upon the details of the minerals bearing area enshrined in *Annexure B* appended with the District Survey Report which includes the land located at Villages – Toka, Shahpur, Sangrani, Rau Majra, Hamidpur, Dera, Deher and Chechi Majra.

6. That it shall be pertinent to mention that the e-auction notice also incorporates the geo-coordinates of the land comprised in

the aforesaid mining block which clearly establishes the fact that the Department had followed due diligence.

7. That the answering respondent had participated in the e-auction which was conducted on 29.06.2022 in pursuance of e-auction notice dated 31.05.2022. The answering respondent had submitted bid to the tune of Rs. 50,02,00,000/- which was the highest bid. Respondent No. 5 had communicated the acceptance of the bid by way of issuance of Letter of Intent (LOI) dated 28.07.2022. A copy of the Letter of Intent dated 28.07.2022 is attached herewith as **Annexure R-8/3.**

8. That it shall be imperative to state that respondent No. 5 had issued a letter dated 08.12.2022 whereby it was clarified that certain khasra numbers were wrongly mentioned in the LOI dated 28.07.2022 due to typographical mistake. The correct khasra numbers were mentioned in the said letter and the LOI was revised to that extent. A copy of letter dated 08.12.2022 is **Annexure R-8/4.**

9. That after seeking NOC from the State Forest Department vide letter dated 23.12.2022, the answering respondent had submitted the Mining Plan and Progressive Mine Closure Plan with respondent No. 5 on 16.02.2023 for the purpose of seeking approval. A copy of the Mining Plan and Progressive Mine Closure Plan dated 16.02.2023 is attached herewith as **Annexure R-8/5.**

10. That it is submitted that the for the purpose of preparation of the Mining Plan, detailed map of the mining lease area was prepared by superimposing the mining lease area (through the geo-coordinates provided in the auction notice) on the toposheets available on the official website of Survey of India, Government of India. In this regard, a copy of the Plate No. 1 i.e. Location Map and Plate No. 2 i.e. Key Plan 5 KM Radius, as appended with the Mining Plan, are attached herewith as **Annexure R-8/6**.

11. That the bare perusal of the Location Map and Key Plan 5 km Radius shall reveal that the Toka-Hamidpur mining block lies on Toposheets No. 53F/2 and 53F/3. Furthermore, as per Key Plan 5 Km Radius, the mining area located at Village Dera is within the riverbed area of Trilokpur Nadi (which is also known as Sukroon River). A copy of the Toposheets is attached herewith as **Annexure R-8/7.**

12. That the bare perusal of the Mining Plan shall further reveal that entire mining lease area was identified with the help of geo-coordinates. Furthermore, while assessing the estimate quantity of mineral reserves, the established method was followed. Based upon detailed and scientific analysis, it was stated that the total mineable reserve in the area are 44,66,189 MT and the target production was fixed at 44,60,000 MT per annum. It was further stated that the target production shall be achieved by conducting mining in 183.83

acres out of the total mining lease area which is free from any sort of restriction.

13. That after careful analysis of the Mining Plan submitted by the answering respondent, respondent No. 5 had granted approval for the same in exercise of powers available under Haryana State Mining Rules, 2012. Respondent No. 5 had granted the approval vide Letter dated 27.02.2023 which is attached herewith as **Annexure R-8/8.**

14. That after seeking approval of the Mining Plan, the answering respondent had approached respondent No. 6 for the purpose of seeking environmental clearance and the same is pending adjudication before respondent No. 6.

15. That it is submitted that the Mining Plan was prepared as per the prescribed procedure; and there is no violation of the District Survey Report while granting approval to the Mining Plan submitted by the answering respondent. In so far as the total quantity of the mineable minerals mentioned in the District Survey Report is concerned, it is apparent that the same is a result of some inadvertent mistake considering the total area for proposed mining blocks. Furthermore, the issue with regards to inclusion of mining area at Trilokpur Nadi in the Mining Plan is completely misconceived since the Trilokpur Nadi is locally known as Sukroon River and the same is duly incorporated in the DSR.

16. That it humbly submitted that there is no violation of the District Survey Report in the present case and there is no substantial question relating to the environment is involved in the present case. The Original Application filed by the applicant is without any merits and the same is liable to be dismissed.

REPLY ON MERITS:-

1. That the contents of paragraph No. 1 does not require any reply.

2. That the contents of paragraph No. 2 does not require any reply.

3. That the contents of paragraph No. 3 are admitted to the extent that the Original Application has been filed under Section 14 of NGT Act, 2010. The rest of the contents are denied being false. It is submitted that the applicant is not aggrieved and there is no cause of action in his favour to file the Original Application.

4. That the contents of paragraph No. 4 are denied being false. It is submitted that no substantial question relating to Environment is involved in the present case.

5. That the contents of paragprah No. 5 relates to the jurisdiction of this Hon'ble Tribunal. However, it is submitted that the since no substantial questions relating to Environment is

involved in the present case and there is no civil dispute, the Original Application is not maintainable.

6. That the contents of paragraph No. 6 are denied being false. It is submitted that the Original Application is not maintainable and there is no violation of the Green Laws or the orders issued by this Hon'ble Tribunal. In this regard, the contents of preliminary submissions are re-iterated.

7. That the contents of paragraph No. 7 are denied being false. It is submitted that answering respondent had submitted the Mining Plan after following the prescribed procedure with regards to its preparation. It is further submitted that the approval was granted by the respondent No. 5 after exercising due diligence. In this regard, the contents of preliminary submissions are re-iterated.

8. That the reply to the sub-paragraphs of paragraph No. 8 is as follows:-

   I. That the contents of sub-para No. I refers to judgment of Hon'ble Supreme Court. Hence, no reply is needed. However, the said judgment is not applicable in the present case.

   II. That the contents of sub-para No. II refers to notification dated 15.01.2016 as well as SSMG, 2016. Hence, no reply is needed.

   III. That the contents of sub-para No. III refers to judgment of this Hon'ble Tribunal. Hence, no reply is needed.

However, the said judgment is not applicable in the present case.

IV. That the contents of sub-para No. IV refers to EMGSM, 2020. Hence, no reply is needed.

V. That the contents of sub-para No. II refers to notification dated 15.01.2016 and 25.07.2018. Hence, no reply is needed.

VI. That the contents of sub-para No. VI are admitted. However, it is submitted that the notification dated 15.01.2016 was amended by notification dated 25.07.2018.

VII. That the contents of sub-para No. VII are a reproduction of the contents of SSMG, 2016. Hence, no reply is needed. However, it is submitted that the District Survey Report was duly taken into consideration while issuing the e-auction notice dated 31.05.2022 and the Mining Plan was also prepared as per the prescribed procedure. There is no violation of the DSR in the present case.

VIII. That the contents of sub-para No. VII are a matter of record.

IX. That the contents of sub-para No. IX are a reproduction of the contents of DSR vide Annexure A1/2. However, it submitted that the quantity of the mineable reserves has

been inadvertently mentioned at 38.29 lakhs MT. It is submitted that the mention of 10.11 hectares is also a typographical mistake. In so far as the sources of the minerals with regards to rivers/streams is concerned, it is clarified that River Sukroon is formally known as Trilokpur Nadi/River.

It is submitted that as per the District Survey Report, the minerals are available in the riverbed of 5 rivers i.e. Markanda, Tangri, Begna, Roon and Sukroon (Trilokpur). The total area recommended for mineral concession for first four of the aforesaid five rivers is 1,59,55,000 square meters which is 1595.5 hectares; and after including the area available in the fifth river i.e. Sukroon/Trilokpur, the total area shall be 1,60,00,000 square meters which is around 1600 hectares or 3953.686 acres. By taking the density of the riverbed material to be 2.00 grams / cubic centimeters (as mentioned in the mining plan) and considering the mineral potential @ 60%, the total quantity of minerals available shall be around 1,92,00,000 MT per annum. In this regard, reliance is placed upon the Sustainable Sand Mining Management Guidelines, 2016 wherein the methodology for calculation of mineral potential has been prescribed. A copy of SSMG, 2016 is attached herewith as **Annexure R-8/9**

X. That the contents of sub-para No. X are a matter of record.

XI. That the contents of sub-para No. XI are denied being false. In this regard, the contents of preliminary submissions are re-iterated.

XII. That no reply is being submitted with regards to contents of sub-para No. XII since the same are not related to answering respondent in any manner.

XIII. That no reply is being submitted with regards to contents of sub-para No. XIII since the same are not related to answering respondent in any manner.

XIV. That no reply is being submitted with regards to contents of sub-para No. XIV since the same are not related to answering respondent in any manner.

XV. That no reply is being submitted with regards to contents of sub-para No. XV since the same are not related to answering respondent in any manner.

XVI. That no reply is being submitted with regards to contents of sub-para No. XVI since the same are not related to answering respondent in any manner.

XVII. That no reply is being submitted with regards to contents of sub-para No. XVII since the same are not related to answering respondent in any manner.

XVIII. That the contents of sub-para No. XVIII are a matter of record.

XIX. That the contents of sub-para No. XIX are a matter of record.

XX. That the contents of sub-para No. XX are a reproduction of the contents of letter dated 28.07.2022

XXI. That the contents of sub-para No. XIX are a matter of record. However, it is clarified that there is correct number of villages is 8.

XXII. That the contents of sub-para No. XXII are a matter of record.

XXIII. That the contents of sub-para No. XXIII are not disputed.

XXIV. That the contents of sub-para No. XXIV are a matter of record.

XXV. That the contents of sub-para No. XXV are a reproduction of the contents of the mining plan but subject to the actual contents of the mining plan since certain figures are not correctly reproduced.

XXVI. That the contents of sub-para No. XXVI are a reproduction of the contents of the mining plan but subject to the actual contents of the mining plan since certain figures are not correctly reproduced.

XXVII. That the contents of sub-para No. XXVII are a matter of record.

XXVIII. That the contents of sub-para No. XXVIII are a matter of record.

XXIX. That no reply is being submitted with regards to contents of sub-para No. XXIX since the same are not related to answering respondent in any manner.

XXX. That no reply is being submitted with regards to contents of sub-para No. XXX since the same are not related to answering respondent in any manner.

XXXI. That no reply is being submitted with regards to contents of sub-para No. XXXI since the same are not related to answering respondent in any manner.

XXXII. That no reply is being submitted with regards to contents of sub-para No. XXXII since the same are not related to answering respondent in any manner.

XXXIII. That no reply is being submitted with regards to contents of sub-para No. XXXIII since the same are not related to answering respondent in any manner.

XXXIV. That the contents of sub-para No. XXXIV are denied being false in so far as reference to answering respondent is made. It is submitted that there is neither any violation of DSR nor the Green Laws applicable in

the present case. In this regard, the contents of preliminary submissions are re-iterated.

XXXV. That the contents of sub-para No. XXXV are denied being false in so far as reference to answering respondent is made. It is submitted that there is no contradiction with regards to the capacity of the mineable minerals in the mining area. The estimate given in the Mining Plan is based upon scientific assessment and the quantity mentioned in the DSR is a result of inadvertent mistake. It is further submitted that the issue with regards to mining at Trilokpur River is misconceived since the same is duly reflected in Plate No. 2 appended with Mining Plan and Trilokpur River is locally known as Sukroon River which is mentioned in the DSR as well. It is submitted that the issue with the permitted for mining at District Ambala is completely misconceived since the total area available for mineral concession is 1,60,00,000 square meters or 1600 hectares or 3953.686 acres and mention of 10.11 hectares at one place is a result of typographical mistake. It is further submitted that the issue with regards to bulk density of mineable minerals is also misconceived and the assessment is based upon scientific analysis. In this regard, the contents of preliminary submissions are re-iterated. Further to satisfy the averment made by the applicant, the answering respondent had engaged the services of

consultant which is NABL recognized Laboratory. The consultant had started the sampling for assessment of Bulk Density of Mineable Minerals as per the provisions laid down in Enforcement and Monitoring Guidelines for Sand Mining, 2020 w.e.f. from 28.10.2023 and the testing of the sample in the laboratory is under process. The report shall be duly submitted with the Mines and Geology Department, Government of Haryana in due course. A copy of the Letter dated 28.10.2023 issued by the Consultant is attached herewith as **Annexure R-8/10.**

XXXVI. That the contents of sub-para No. XXXVI are denied being false. It is submitted that the blocked reserves, as mentioned in the Mining Plan, are based upon scientific analysis and there is no violation of the conditions mentioned in the Letter of Intent.

XXXVII. That the contents of sub-para No. XXXVII are denied being false. It is submitted that there is no violation of the DSR or the applicable laws. The Mining Plan was prepared as per the prescribed procedure and the same was approved after exercise of due diligence.

XXXVIII. That the contents of sub-para No. XXXVIII are denied being false. It is submitted that there is no violation of the DSR or the applicable laws. The Mining Plan was prepared as per the prescribed procedure and the same was approved after exercise of due diligence.

9. That the contents of paragraph No. 9 are denied for want of knowledge.

10. That the contents of paragraph No. 10 are denied being false. It is submitted that there is no civil dispute between the parties and the applicant has not suffered any injury or loss. The question of balance of convenience does not arise at all.

GROUNDS:-

A. That the contents of paragraph No. A are reproduction of the judgment of this Hon'ble Tribunal. However, the said judgment is not applicable in the present case. It is further submitted that there is no violation of the notification dated 15.01.2016 and the same has been adhered to in letter and spirit.

B. That the contents of paragraph No. B are reproduction of the judgment of this Hon'ble Tribunal. However, the said judgment is not applicable in the present case. It is further submitted that there is no violation of the notification dated 15.01.2016 and the same has been adhered to in letter and spirit. It is further submitted that the Appendix A appended with notification dated 15.01.2016 was substituted by notification dated 25.07.2018 and the same has been duly complied with in the present case. It is further submitted that the methodology for calculation of the mineral potential is prescribed in SSMG, 2016 (Annexure R-8/9).

C. That the contents of paragraph No. C are reproduction of the judgment of this Hon'ble High Court. However, the said judgment is not applicable in the present case. It is submitted that the fact that the mining lease area mentioned in the auction notice is in consonance with Annexure B of the DSR shows that the same was issued after proper assessment.

D. That the contents of paragraph No. D are reproduction of the judgment of this Hon'ble High Court. However, there is neither any violation of the Article 21 or the law laid down in the said judgment.

E. That the contents of paragraph No. E are reproduction of the judgment of this Hon'ble High Court. However, the said judgment is not applicable in the present case.

F. That the contents of paragraph No. F are denied since the reference to the judgment of this Hon'ble Tribunal is completely misconceived. It is submitted that the prescribed procedure has been adhered to in letter and spirit.

G. That the contents of paragraph No. G are reproduction of the judgment of this Hon'ble Supreme Court. However, the said judgment is not applicable in the present case since the Mining Plan was sanctioned in consonance with the provisions of DSR and after exercising due diligence.

H. That the contents of paragraph No. H are denied being false. The contents of reply to contents of paragraph No. 10 are re-iterated.

I. That the contents of paragraph No. I are denied for want of knowledge.

LIMITATION

That the contents of paragraph are denied being false. It is submitted that the Original Application has not being filed within the prescribed period of limitation and the same is liable to dismissed on that score alone.

PRAYER

In the light of the submissions made herein above, it is most respectfully prayed that the Original Application may kindly be dismissed with costs.

NEW DELHI
DATED:

RESPONDENT NO. 8

Through Counsel:

(ANSHUL MANGLA)
Advocate
P/2238/2011
#477, Sector 12, Panchkula
Anshul.mangla16@gmail.com
8283097167

NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH, NEW DELHI

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AFFIDAVIT

I, Veerbhan Wadhwa aged 58 years son of Sh. Dayal Dass resident of Village Gumthala Rao, Tehsil Radaur, District Yamunanagar, Haryana do, hereby, solemnly affirm and state as under:

1. That the deponent is the director of on behalf of M/s RM Mines and Infra Pvt. Ltd. The deponent has been authorized to depose by way of present affidavit on behalf of M/s RM Mines and Infra Pvt. Ltd. by way of Board Resolution dated 26.10.2023.

2. That the deponent has read and understood the contents of the accompanying written statement. The facts stated therein are true and correct to record of the case, which the deponent believes to be true. Nothing material has been concealed therefrom.

3. That accompanying written statement has been drafted by my advocate-on-record on my instructions.

4. That the Annexures filed herewith are true copies/English translation of their respective originals.

NOTARY MAM CHAND Advocate Notary for Distt. Yamuna Nagar Haryana (India) नोटरी Regd. No. 3963 GOVT OF INDIA

DEPONENT

VERIFICATION

I, the above named deponent, do hereby verify that the contents of the above stated affidavit are true and correct to my knowledge and belief and no part thereof is false and nothing material has been concealed there from. Verified at Jagadhri on this the 7th day of October, 2023.

DEPONENT

ATTESTED
7/3/24
MAM CHAND
Advocate & Notary
Distt. Yamuna Nagar (HR.)

R. No. 930
Date 7-3-24

ANNEXURE-R8-1

R. M. MINES AND INFRA PRIVATE LIMITED

CIN: UI4294HR2021PTC093579
REG OFF: # 149. LUXMI GARDEN, YAMUNA NAGAR, HARYANA -135001
CORRESPONDENCE ADDRESS: SHOP NO.2., PHOOSGARH ROAD, BEHIND SECTOR -7, OIL COMPLEX KARNAL.. HARYANA 132001
Mob: 99960-15005

CERTIFIED TRUE COPY OF THE RESOLUTION PASSED BY THE BOARD OF DIRECTORS OF R. M. MINES AND INFRA PRIVATE LIMITED HELD ON 26-10-2023 AT 10:00 A.M. AT SHOP NO.2. PHOOSGARH ROAD. BEHIND SECTOR -7, OIL. COMPLEX KARNAL, HARYANA -132001

RESOLVED THAT Mr. Veerbhan Wadhwa, Director of the company, is hereby authorized to sign and submit all the necessary papers. letters, forms, etc to be submitted in following Department

1. Town & Country Planning Department (DTP)
2. Goods & Service Tax (GST) Department
3. Haryana State Pollution Control Board, Haryana Water Resources (Conservation. Regulation and Management) Authority (HWRA)
4. Department of Mines and Geology, Haryana
5. Uttar Haryana Bijli Vitran Nigam (UHBVN)
6. Irrigation & Water Resourees Department
7. Haryana, Forest & Wild Life Department. Haryana or any concerned authorities of State & Central Govt. like Tehsil- Naraingarh, Ambala.
8. Hon'ble Supreme Court.
9. Hon'ble High Court (Punjab and Haryana).
10. Hon'ble National Green Tribunal (NGT).
and Other Appellate Authorities.

BY ORDER OF THE BOARD
FOR R.M. MINES AND INFRA PRIVATE LIMITED

MOHIT KUMAR

DIN:05113393

For R M Mines And Infra Private Limited

Director/Auth. Sign

Date: 26/10/2023

Place: Karnal

For R M Mines And Infra Private Limited

Director/Auth. Sign

ANNEXURE-R8-2

Department of Mines and Geology
Government of Haryana

e-Auction Notice

Date 31st May, 2022

No. DMG/HY/e-Auction/Amb/2022/3573

It is hereby notified for the information of the General Public that for grant of mining contracts/mineral rights, for excavation of minor mineral namely "Boulder, Gravel, Sand, and Sand" from the minor mineral mines of the district Ambala, the **e**-Auction process (Registration/User ID) and submission of bidding will be as per schedule given below:

Sr. No.	Titles	From	To
1	**Registration and Creation of user ID and uploading of documents**	01.06.2022 10:00 AM	24.06.2022 Upto 05:00PM
2	**Deposition of EMD**	01.06.2022 10:00 AM	24.06.2022 Upto 05:00 PM
3	**E-service fee**	01.06.2022	24.06.2022 Upto 05:00 PM
4	**Bidding**	27.6.2022 10:00 AM	Till the conclusion of Auction
Note: The manual for prospective bidders shall be available on e-Auction portal.			

The important instructions for participation in the online e-Auction are as under:

1. The bids shall be made online on **the e-Auction web portal**, link of which is available on website of the Department **https://minesharyana.gov.in/** under the tab '**Auctions/Tenders**'.
2. The intending bidders before participation in the e- Auction/bidding process will be required to create a User Account **and to obtain a User-ID and Password for the e-Auction Platform by following the link given on the** website of the Department of Mines and Geology, Haryana i.e.; **minesharyana.gov.in** under the tab '**Auctions/Tenders**'.

3. The intending bidders once registered/ having created the "user account" would not be required to get registered again.
4. On successful Registration a **Wallet** for the bidder will get created in the name of bidder/ intending bidder for keeping additional amount.
5. The detailed instructions for participation in e-Auction can be perused at "**Bidders Manuals**" attached as Annexure A. The copy of same can also be downloaded from link "**Download Manuals**" at e-Auction web portal.
6. The prospective/intending bidders having created user account shall upload following documents (in PDF format not exceeding limit of 10 MB for individual document)
    i. **No-Dues-Certificate(s)** from the concerned Officer In-Charge(s) of the District Mining Office (s) or an affidavit sworn before any Magistrate to the effect that no amount of contract money, royalty, dead rent or surface rent is due in respect of any mining lease/contract or mineral concession held by him (or any of his family members) currently or in the past.
    ii. **Copy of the Partnership Deed** (where bidding entity is a partnership firm) or Articles of Association (where bidding entity is a registered Company) or an Affidavit (where bidding entity is a sole proprietorship firm and the bidder is participating as an Individual).

        No transfer or addition or deletion of the Partners/Directors will be permissible before execution of the agreement;
    iii. **A copy of the authority letter** by the Partnership Firm (where bidding entity is a partnership firm) or a copy of the resolution of the Board of Directors (BoD) of the Company (where bidding entity is a registered Company) in favor of the person (authorized representative) who shall be offering the bids online on behalf of the bidding entity.;
    iv. **An affidavit by the authorized representative** of the bidding entity participating in the bid to the effect that the bidder/any of the partners of the partnership firm/any of the Directors of the Company have not been debarred from participation in the auction and from obtaining a mineral concession/s from the State of Haryana.

7. **Deposition of amount of Earnest Money Deposit (EMD): Earnest Money for participation in bidding process for any** mining area/ site/ unit/ block shall be **equal to** 10% of the reserve price rounded by an amount of Rs. 10,000/-.

8. The prospective bidders would have option to select one or more mines of their interest for participation in the auction and would have option to be change the same before the last date for deposit of EMD

9. The perspective bidders shall deposit lumpsum amount of EMD, which shall not be less than 10% of the highest amount of reserve price among the mines opted to be participated by the bidder.

10. The prospective bidders for participation in the bidding shall transfer (RTGS/NEFT) funds in lumpsum amount, to be deposited as EMD and other amount of bid security etc., online to the Account of the Department as per detail given below:

TYPE OF ACCOUNT: CURRENT ACCOUNT
Account No: DMGZ9999
MICR Code: 160751005
SWIFT BIC CODE: IDFBINBB
IFSC CODE: IDFB0010209

Note: All amount will be accepted in INR and refunds, if any, will also be in INR.
The prospective bidder is required to make single transaction for the EMD amount.

11. On successful transfer of lumpsum amount as EMD and other amount/s towards bid security etc. in the above said Account of the Department up to **24.06.2022 till 05:00 PM** and successfully verification [UTR **22 digits (in case of RTGS) or 16 digits (in case of NEFT)** Verification on the e-Auction portal, as a part of e-Auction process] of the EMD deposited along with the prospective bidder having already submitted other documents as per clause 6 shall be eligible to offer further bid for mine.

12. In case the amount deposited is not verified (UTR Verification on the e-Auction portal) within stipulated time frame, the intending bidder will not be allowed to enter in e-Auction of mine(s)/block(s). In case of highest bidder of any of the mine, the amount equal to 10% of the reserve price rounded by Rs. 10,000/- will be deducted from the lumpsum EMD already deposited and such highest bidder will be able to offer bids for further mines, if so desire, only in case the balance amount is equal or more than 10% of the reserve price of next mine selected for bidding. If the balance

amount is less than the 10% of the reserve price of next mine selected for bidding, the bidder may add additional amount before commencement of bidding time for mine to be participated in the e-auction.

13. **Process for Top-up of EMD from wallet of the bidder:** The prospective bidder, in addition to depositing EMD in the Account of the Department, may deposit and keep additional amount in his wallet, by clicking the link "**My Account**" available on top right corner on portal;

    Note: It is clarified that amount of EMD to be deposited initially has to be deposited as per steps given in clause (10) above and in case of deposits (Top-up of EMD) in wallet by following payment gateway by clicking link "My Account".

14. **Refund of the EMD**

    On completion of the auction process of all the mines in this list, the amount of EMD of the un-successful bidders or balance amount of EMD out of lumpsum amount to the successful bidders, if any, would be refunded, provided the same is otherwise not ordered to be forfeited. The prospective bidders shall furnish details of their account for **refund of EMD** (a) Refund Account Name (b) Refund Account No. (c) IFSC code of the Bank.

    Note: Please cross check the information to be submitted online before saving the same as the information in non-editable.

15. **Refund from the wallet:**

    Bidder may request for refund by clicking on '**Request for Refund'** button available under the section "**My Account**" and will get refunded to his Refund Account.

16. **Deposition of amount of E-service fee for participation in the e-auction** The prospective bidders shall have to pay **e-Service Fee/Administrative Charges of Rs. 11000/- plus GST online** for each of the mine to be participated for e-auction through Debit Card/Internet Banking by using the service of secure electronic payment gateway available on the e-Auction portal itself with the link titled as '**Pay Now'**. The secure electronic payments gateway is an online interface between contractors and online payment authorization networks. The Payment for e-Service Fee/Administrative Charges of the bank can be made by eligible bidders/contractors online directly through **Debit Cards & Internet Banking Accounts**.

17. **Furnishing of wrong information or documents:** In case any of the information furnished for creation of User Account and/or any of the documents uploaded as above are found to be wrong/false at any stage during or after the e-Auction, the same shall be liable for action as under:

i. The Department shall be entitled to invoke revocation/cancellation of bid;

ii. The Department shall be entitled to forfeit the amount deposited (EMD or any other amount) at the time of auction;

iii. Even in case, the false information/document is detected after the award of mineral concession, the Department shall be entitled to terminate the mineral concession.

iv. The Department shall debar the bidder from participation in any subsequent auction for a period of 5 years.

18. **Information /training/ clarification/ difficulty for participation in the e-auction process:** In case of any query regarding process of **e-Auction and for undertaking training**, the intending bidder can contact **Help-desk support for e-Auction Portal** for offering Technical Support Assistance over telephone from Monday to Friday (**Exclusions: GAZETTED HOLIDAYS**) between **10:00 A.M to 06:30 P.M as per details given below:**

Following helpdesk No. shall be open between **10: 00 AM to 18:30 PM** IST		
Contact Person	**Email ID**	**Tel. No.**
1. Ms. Neeti Bala Chandra	neeti.bala@c1india.com	+91-7291981128
2. Mr. Chandan Kumar	chandan.kumar@c1india.com	+91-9015145373
3. Mr. Sandeep	Sandeep@c1india.com	+91-9050287464
4. Ms. Sneha Kapoor	sneha.kapoor@c1india.com	+91-9953126803
In case the issue is not resolved by the above team, kindly contact on contact given below		
1. Mr. Mukesh Kumar	mukesh.kumar@c1india.com	+91-7291981127
Monday to Friday (Exclusions: Gazette Holidays)		
Dedicated centralized email id: auctions@c1india.com		

i. The bidders may also send queries to the help-desk through e-mail by sending an email to **auctions@c1india.com** along with appropriate screenshots or error description.

ii. The Online **Training Videos** for prospective bidders shall be available on e-Auction portal.

19. **Bidding Process:**

Serial auction of mines: The mines shall be put-up for auction serially from top to bottom as per list notified in the Auction Notice.

i. The bidding process shall start on 27.06.**2022 at 10.00 AM.**

ii. On the start of the bidding process, the name and the particulars of the mine at Sr. No. 1 to be put-up for e-Auction shall be displayed to the bidders.

iii. The perspective bidder would be allowed to offer bids only in case the mine put to auction is selected for participation in bidding.

iv. In case no bid is received during first 60 minutes after the commencement of bidding process the first round of auction of said mine/block offered shall conclude. The new mine/next in the Sr. no., from the list of mines being taken up for auction, would be offered for auction on 10:00 AM of the following day.

v. If a bid/s is/are received during first 50 minutes but no bid is received during last 10 minutes of the auction (50 minutes to 60 minutes), the bidding shall be concluded by the system after 60 minutes of commencement of bidding.

vi. In case a bid is received during last 10 minutes (50 minutes to 60 minutes) the auction shall be extended by blocks of 10 minutes till such time that no bid is received during the last extended block of 10 minutes. Thus, the bidding shall be concluded when no bid has been received in the last 10-minute extended block.

Note: To illustrate, if a bid is received in say, the 55th minute, the bidding process shall extend by 10 minutes from 60 to 70 minutes. If a bid is now received, say in the 69th minute, the bidding process shall again get extended for another block of 10 minutes from 70 to 80 minutes. If no bid is received from 70 to 80 minutes the bidding process will conclude after expiry of 80 minutes.

vii. Fresh Round of auction for unsuccessful mines: The mines which fail to attract bidders during first round of auction, completed serial wise, shall again be offered for e-auction for second time to explore the possibility of attracting bidders.

Note: To illustrate say there are total 02 mines offered/notified for auction. The mine at Sr. no 1 fails to attract any bid

during first 60 minutes and the auction gets concluded as explained in Sub Clause (iv) above. The mine at Sr. no 2 will be offered for e-auction/bidding on next day (day two). Finally, after concluding auction process for all mine in serial, the mine says at Sr. no 1 which failed to attract bidders in first round will be again offered for bidding. The same process will be followed for any other mine which fails to attract bid in first round.

viii. **Incremental amount**: Minimum incremental bid amount shall be Rs. 5,00,000/- and its multiples.

ix. **Auction without any break:** Auction of any mine that has started at 10:00 AM shall be completed, without any break, irrespective of the number of days taken in the process.

x. **Auction of new mine on following day of conclusion of auction:** Any new mine, from the list of mines being taken up for auction, would **be** offered for auction on 10:00 AM of the following day on which the ongoing auction of last mine was/ is concluded.

xi. **Confidentiality of bids/Display of the bids:** All bidding participants shall be able to view the quoted highest bid value during online bidding process and they will be able to have details of all of their own quoted bids at their end. However, the names/identity of any of bidder in any manner will not be accessible to anyone during auction.

xii. **Payment of balance amount of initial bid security by highest bidder:**

On conclusion of the bid/auction for any particular mine, a system generated confirmation of highest bid offered by the highest bidder shall be sent automatically on the registered email and SMS will be sent on the registered mobile number, directing the highest bidder to deposit an amount equal to 10% of the highest bid after adjusting the EMD deposited for said mine/ block, as 'Initial Bid Security' within 24 hours of such confirmation. The payment has to be made through RTGS/NEFT mode (as process mentioned in clause 10). The payment is required to be made into Department's account directly and a 22 digits (in case of RTGS) or 16 digits (in case of NEFT) UTR number will

be required to verified through the option available on portal for Verification of UTR by the highest bidder. Further, it may also be noted that the highest bidder is not allowed to adjust the amount available in the wallet for payment of difference account. The highest bidder is required to make a single independent transaction for the balance amount.

xiii. In case the highest bidder of preceding mine has funds available in Account (after retention of amount equal to EMD for his successful bid by the Department) equal to EMD for any subsequent mine being offered for auction he may opt for participation in the bidding like any of the other bidders.

xiv. **Non-payment of balance amount of initial bid security by the highest bidder:** In case the bidder is not able to deposit the initial bid security within period allowed as above, the EMD shall be forfeited and he shall be debarred for 5 (five) years to participate in any further/future auction.

xv. **Prospective Effect of Debarment:** The highest bidder of any mine, may participate in subsequent bids for other mine/s in the auction list during the period of 24 hours provided to pay the balance amount towards initial bid security for earlier highest bid. The following scenarios may emerge:

- The bidder fails to deposit the balance amount for the first mine for which he was the highest bidder. The EMD for the mine in question shall be forfeited and he shall be debarred from participating in future auctions for a period of 5 years. The system shall block the bidding by this bidder in all ongoing/ subsequent bids. Any other highest bids offered subsequently by the bidder thus debarred shall automatically stand cancelled.
- The bidder deposits the balance amount for the first mine for which he was the highest bidder but fails to deposit the balance amount for the subsequent mine for which he was also the highest bidder. The bid for the first mine shall be accepted. The EMD for the mine for

which the balance amount was not deposited shall be forfeited and the bidder shall be debarred from participating in future auctions for a period of 5 years.

xvi. **Refund of EMD:** After the completion of the bidding process the EMD amount of the unsuccessful or any balance amount of the highest bidder after adjustment of amount to be deposited, would be refunded/transferred to the account of the bidders on conclusion of the auction process. The unsuccessful bidder may request for refund through **"Refund EMD"** available under **"My Account"** section.

20. The details of the areas of the Mining Blocks along with reserve price and period of mining contract etc. are attached as **Annexure-A**.

21. **The terms and conditions of the Auction:**

i) The period of contract shall commence w.e.f. the date of grant of environmental clearance by the Competent Authority and the Consent to Operate (CTO) by the State Pollution Control Board, whichever is later, or on expiry of the period of 12 months from the date of issuance of LoI, whichever is earlier.

ii) Any site/area/ mine offered for auction can be withdrawn from the Auction without assigning any reason;

iii) Due care had been taken in specifying the details of the areas of the mining blocks. However, in case of any inadvertent clerical mistake in area detail/Khasra number etc., the same shall be got rectified/corrected even after the completion of the auction but before execution of contract agreement;

iv) The contract areas are Tentative and are being notified on 'as is where is' basis and all prospective bidders are expected and presumed to have surveyed the areas to make their own assessment for the potential of the areas for which bids are to be offered.

v) The bidders are expected and presumed to have gone through the terms and conditions of auction notice and also the applicable Acts and Rules for undertaking mining. The State government shall not be responsible for any kind of loss in land/area or any other loss to the bidders/contractors at any point of time (before or after grant of contract) on any account including on account of reduction of land/area/production/non grant of permission for mining in part area or otherwise on account of any

condition stipulated for undertaking mining by any competent authority.

vi) No request regarding reduction in bid amount on account of reduction in land/area of the Mining Block, on any account including that of change in description of khasra numbers/location etc. at any stage will be entertained on any ground. This shall also include any loss/reduction of area for actual mining for want of compliance of applicable laws/restrictions for mining or part of the contracted area had already been operated in the past. Needless to state that this also includes the changes, if any, as per condition above and the prospective bidder shall give their bids taking account of all such eventualities;

vii) No person shall be eligible to participate in the Auction, who or any of his family members is a defaulter of any mining dues in respect of any mineral concession granted in the past or any other current mineral concession. In case any of the partners of a Partnership Firm or a Director of a company participating in the auction process or any of their family members are found to be defaulter, the bidder firm/company would be held ineligible. Further, any person, firm or company as the case may be who had been specifically debarred to participate in the auction would not be eligible to participate in the auction;

viii) In case any bidder participated in the auction is found to be default in arrears of government dues on account of any mineral concession obtained from the State of Haryana at any stage, his bid shall be revoked/cancelled with forfeiture of the amount deposited in order to obtain the said mine on contract;

ix) All intended participant can view the highest quoted bid during online bidding process. The highest bidder will be informed for confirmation of the same through e-mail and SMS alert at his online registered email and Mobile Number respectively on the conclusion of the respective mine;

x) The highest bid received/quoted shall become the 'annual contract money' amount payable by the bidder/contractor. The amount of annual contract money initially determined on the basis of competitive bids/auctions shall be increased by 10% on completion of each block of three years; for every three years.

Explanation: If the initially determined annually bid/ contract money is Rs. 100/, it shall be increased to Rs. 110/- with the commencement of the fourth year and to Rs. 121/- with the commencement of the 7th year and

so on and so forth for the next each block of three years.

xi) The highest bidder would be informed about the same- confirmation that he being declared as highest bidder- as per which he shall be liable to deposit 25% of the annual bid/ contract money amount as "security" and one month's advance contract money. The above said amount shall be deposited as per following schedule:

a) an amount equal to 10% of the annual bid amount/ highest bid, after adjusting the EMD deposited for said mine/ block, as 'initial bid security' within 24 hours of conclusion of the bidding process as per details given in **clause 19 (xii).**

b) balance amount of bid security i.e. 15% of an annual bid amount before commencement of the mining operation or before expiry of the period of 12 months from the date of issuance of Letter of Intent (LoI), whichever is earlier;

Provided that where the Letter of Intent holder/contractor having taken all steps on his part, fails to obtain required environmental clearance and Consent To Operate (CTO) for undertaking mining operations within the said period of 12 months from the date of issuance of LoI, such letter of intent holder/contractor on a specific application submitted to the Director, at least *thirty days* prior to the end of the period mentioned above, giving details of the action already taken may seek additional time up to another twelve months, over and above the time of 12 months already allowed for commencement of the period of contract, on payment of a non-refundable fee as per the following:-

1	Extension of further period up to six months	On payment of a non-refundable fee at the rate of one percent per month of the annual bid for each month of requested extension period
2	Extension for a second period up to six months	On payment of a non-refundable fee at the rate of two percent per month of the annual bid for each month of requested extension period
Note: Extension shall be allowed only in month (s) and any request for period less/part of the month shall be summarily rejected and shall apply along with advance amount of the fee for such requested period of extension.		

xii) In case the highest bidder fails to deposit 10% of the annual bid amount online towards the "Initial bid Security" within 24 hours given for the

same, the earnest money deposited shall stand forfeited. Further such bidder(s) shall not be eligible to participate in any future auctions/Tenders/ competitive bidding process in respect of any area for obtaining mineral concession in the State for a period of 5 years;

xiii) The bids offered/received during the e-auction process shall be provisionally accepted and shall be regarded as successful bid only after accepantace by the State Government;

xiv) The LOI would be issued through e-auction portal/online itself on registered e-mail of the bidder, after validating all the documents and approval from the State Government.

xv) After deposit of 10% of the bid amount (as initial bid security) after the conclusion of auction by the highest bidder(s), no request from the highest bidder(s) regarding revocation or the withdrawal of the highest bid shall be considered. In case, any such request is made, the same shall be followed by the Penal Action i.e. 10% amount deposited towards initial bid security shall stand forfeited and such bidder(s) shall be **debarred** from participation in any future auctions/tenders/competitive bidding process in respect of any area for obtaining mineral concession in the State for a period of 5 years;

xvi) The earnest money deposited by the bidders other than highest bidders shall be refunded upon completion of the auction proceedings;

xvii) After the acceptance of highest bid by the State Government and on issuance of Letter of Intent, the LoI holder shall execute an agreement in Form MC-I appended to the '**Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012'** within a period of 90 days of the order of grant of LoI;

xviii) The agreement executed shall be got duly registered under relevant law with concerned Registering Authority and they shall be liable to pay applicable stamp duty and registration fee etc. as per the applicable rates and demanded by the Registering Authority/Revenue Department.

xix) In case of failure to execute the agreement, after issuance of acceptance of bid/LOI within prescribed period of 90 days from the date of issuance of LOI, the acceptance/LOI shall be deemed to have been revoked and 10% amount deposited towards "initial bid security" shall stand forfeited and such bidder shall debarred from participation in any future

auctions/tenders/competitive bidding process in respect of any area for obtaining mineral concession in the State for a period of 5 years.;

xx) After execution of agreement, either before commencement of the mining operation or before expiry of the time allowed, if any, as per **clause 21(xi)(b)** above, in case of failure to deposit the balance 15% amount towards security (as required under clause 21(xi)(b) above) the acceptance of bid/issuance of LoI/execution of agreement shall be deemed to have been revoked and 10% amount deposited towards as initial bid security after the conclusion of auction shall stand forfeited. Further, such bidder shall be debarred from participation in any future auctions/tenders/competitive bidding process in respect of any area for obtaining mineral concession in the State for a period of 5 years.

xxi) In case of default as per clause **17 and 19 (XIV and XV)** above, wherever the bidder/contractor are debarred from participation future auctions/ tenders/competitive bidding process, it may be noted that in case of such default by a company, the said company and all of its Promoter/s and Director/s, in case of Partnership Firm along with such firm all of its partners shall be debarred from participation whether individually or as partner/ proprietor/director in a company in bids for the period prescribed.

xxii) The contractor shall also deposit/pay an additional amount equal to 7.5% of the due contract money along with installments towards the 'Mines and Minerals Development, Restoration and Rehabilitation Fund'

xxiii) The contractor shall also deposit/pay an additional amount equal to 2.5% of the due contract money along with installments towards the 'District Mineral Fund'.

xxiv) The contractor shall be liable to pay advance Income Tax as per provisions of Section 206 (c) of the Income Tax Act, in addition to the contract money payable as per terms and conditions of the contract agreement;

xxv) On enhancement of the contract money by 10% with expiry of every three years period, the contractor shall deposit the balance amount of security so as to upscale the security amount equal to 25% of the revised annual contract money as applicable for one year with respect to the next block of three years;

xxvi) No interest, whatsoever, shall be payable on the security amount deposited under proper security head of the government;

xxvii) The LoI holder/contractor shall also furnish a solvent surety for a sum equal to the amount of the annual bid for execution of the agreement. In case the surety offered by the contractor(s) during the subsistence of the contractor is not found solvent, the contractor (s) shall offer another solvent surety and a supplementary deed to this effect shall be executed;

xxviii) The mining contractor shall got prepare a Mining Plan along with the Mine Closure Plan (Progressive & Final) from the Recognized Qualified Person as per Chapter 10 of the "State Rules, 2012" for mining area granted on contract and shall get the same approved by an officer authorized by the Director, Mines & Geology, in this behalf.

xxix) The contractor / LoI shall obtain prior Environmental Clearance for the Mining block(s)/area from Competent Authority as required under notification dated 14/09/2006 issued by the MoE&F, GoI or as amended from time to time and also other required approvals for mining including Consent to Establish and Consent to Operate before commencement of actual mining operations;

xxx) The Mining contractor would also be liable to pay following to the land owners;

(a) The annual rent in respect of the land area blocked under the concession but not being operated, and;

(b) The rent plus compensation in respect of the area used for actual mining operations.

xxxi) The amount of annual rent and the compensation shall be settled mutually between the landowner and the mining contractor. In case of non-settlement of the rent and compensation, the same shall be decided by the District Collector concerned in accordance with the provisions of Chapter 9 of "the State Rules, 2012".

xxxii) The total mineral excavated and stacked by the concession holder within the area granted on mining contract shall not exceed two times of the average monthly production as per approved Mining Plan at any point of time.

xxxiii) The Mining contractor shall not stock any mineral outside the concession area granted on mining contract, without obtaining a valid Mineral Dealer License as per provisions contained in Chapter 14 of the "Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention

of Illegal Mining Rules, 2012";

xxxiv) The contractor shall not carry out any mining operations in any reserved/protected forest or any area prohibited by any law in force in India, or prohibited by any authority without obtaining prior permission in writing from such authority or an officer authorized in this behalf. In case of refusal of permission by such authority or officer authorized in this behalf, contractor(s) shall not be entitled to claim any relief in payment of contract money on this account;

xxxv) The following special conditions shall be applicable for excavation of minor mineral(s) from river beds in order to ensure safety of river-beds, structures and the adjoining areas:

i. No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 meters on the up-stream side and 500 meters on the down-stream side;

ii. There shall be maintained an un-mined block of 50 meters width after every block of 1000 meters over which mining isundertaken or at such distance as may be directed by the Director or any officer authorized by him;

iii. The maximum depth of mining in the river-bed shall not exceed 3 meters from the un-mined bed level at any point in time with proper bench formation;

iv. Mining shall be restricted within the central 3/4th width of the river/ rivulet;

v. In case of areas adjoining to rivers/rivulets, no mining shall be permissible in an area up to a width of 500 meters from the active edges of embankments on either side of all other rivers/ rivulets in case of river Yamuna. (This clause is applicable for mining outside riverbed area);

vi. Any other condition(s), as may be required by the Irrigation Department of the state from time to time for river-bed mining in consultation with the Mines & Geology Department, may be made applicable to the mining operations in riverbeds.

vii. No mining operation may be carried out from 01-07 to 15-09 every year (rainy season)

xxxvi) That no mining operation shall be allowed in the urbanize zone of area notified by Town and Country Planning Department. Further, in case of the agriculture zone notified by Town and Country Planning Department mining shall be permissible only after obtaining prior permission from the competent authority;

xxxvii) A safety margin of two meters (2m) shall be maintained above the ground water table while undertaking mining and no mining operations shall be permissible below this level unless a specific permission is obtained from the competent authority in this behalf.

xxxviii) The contractor shall not undertake any mining operations in the area granted on mining contract without obtaining requisite permission from the competent authority as required for undertaking mining operations under relevant laws;

xxxix) The contractor shall be under obligation to carryout mining in accordance with all other provisions applicable as per Mines Act, 1952, Mines and Minerals (Development and Regulation) Act, 1957, Forest (Conservation) Act, 1980 and Environment (Protection) Act, 1986 and the rules made there under Wild Life (Protection) Act, 1972, Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981;

xl) Further information, if any required, can be had on any working day from the office of the Mining Officer, Mines & Geology Department, Ambala or from the O/o the Director, Mines and Geology, Haryana, DHL Square, Plot No 9, IT Park, Sector 22, Panchkula, Haryana.

Director, Mines & Geology,
Haryana.

Annexure- A

Sr. No.	Name of the Block		Detail of Khasra Nos.	GPS reading of all corner point taken by HARSAC by using DGPS			Village Wise Area for Mining Activity (In Acres)	Total Area for Mining Activity (In Acres)	Village Wise Area for Ancillary Activities	Total Area for Ancillary Activities	Total Mineral Concession Area (in Acres)	Name of Mineral	Reserve Price (Rs. in Crores Per Annum)	Period (In years)
1.	**2.**	**3.**	**4.**	**5.**			**6.**	**7.**	**8.**	**9.**	**10.**	**11.**	**12.**	**13.**
1	**Toka-Hamidpur**	Toka	**For Mining areas 10//**7/2 min, 8 min, 13/1, 13/2 min, 18 min **For Ancillary areas 11//** 4/1/2, 4/2, 5, 6, 7	**Pillar**	**Longitude**	**Latitude**	1.78	228.63	3.82	18.37	247.00	Boulder, Gravel and Sand	20.57	10
				A	77°10'18.712"E	30°31'26.981"N								
				A1	77°10'18.161" E	30°31'22.915"N								
				Z	77°10'17.939" E	30°31'20.068"N								
				Z1	77°10'21.633" E	30°31'26.317"N								
		Chichi Majra	**For Mining areas 7//**, 25 min **8//**, 19, 20 min, 21 min, 22 min, **9//**, 1 min, 2 min, **10//**, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min	**Pillar**	**Longitude**	**Latitude**	7.29		0					
				A1	77°10'18.161" E	30°31'22.915"N								
				B	77°10'15.703" E	30°31'22.936"N								
				C	77°10'14.477" E	30°31'21.283"N								
				D	77°10'11.109" E	30°31'18.786"N								
				E	77°10'08.593" E	30°31'17.937"N								
				F	77°10'05.765" E	30°31'16.054"N								
				X	77°10'09.468" E	30°31'15.984"N								
				Y	77°10'14.839" E	30°31'17.466"N								
				Z	77°10'17.939" E	30°31'20.068"N								
		Sangrani	**For Mining areas 6//**, 11, 20, 21, 22 min, **12//**, 1, 2 min, 9 min, 10/1, 10/2 min, 11 min, 12, 19, 20 min, 21 min, 22, **19//**, 1/1 min,1/2 min,2,**27//**1, 2, 3 min, 8 min, 9, 10, 11, 12, 19, 20, 21, **28//**, 5 min, 6 min, 15 min, 16/1 min, 16/2 min, 25 min, **33//**,4 min, 5, 6, 7 min, 8 min, 13 min,	**Pillar**	**Longitude**	**Latitude**	34.34		5.50			Boulder, Gravel and Sand		
				A1	77°9'46.599" E	30°30'07.206"N								
				A2	77°9'46.407" E	30°29'59.390"N								
				A3	77°9'47.029" E	30°29'53.117"N								
				A4	77°9'47.413" E	30°29'49.605"N								

			14, 15, 16, 17, 18, 19 min **For Ancillary areas 7//** 18/1, 18/2, 19, 22, 23, **32//**15, **33//**11	A5	77°9'45.480" E	30°29'31.877"N								
				A6	77°9'43.504" E	30°29'25.032"N								
				A7	77°9'43.615" E	30°29'23.399"N								
				A8	77°9'42.083" E	30°29'19.999"N								
				A9	77°9'39.041" E	30°29'18.245"N								
				A10	77°9'37.052" E	30°29'14.443"N								
				B1	77°9'48.848" E	30°30'7.163"N								
				B2	77°9'49.029" E	30°30'3.294"N								
				B3	77°9'51.427" E	30°29'57.341"N								
				B4	77°9'51.373" E	30°29'49.632"N								
				B5	77°9'53.326" E	30°29'31.798"N								
				B6	77°9'50.715" E	30°29'27.993"N								
				B7	77°9'50.623" E	30°29'24.075"N								
				B8	77°9'48.259" E	30°29'24.041"N								
				B9	77°9'47.959" E	30°29'18.216"N								
				B10	77°9'45.518" E	30°29'18.216"N								
				B11	77°9'45.346" E	30°29'14.361"N								
		Rao Majra	**For Mining areas 3//**, 20, 21 min, 22 min, **4//**, 15 min, 16 min, 25 min, **9//**, 5 min, **10//**, 1 min, 2 min, 8 min 9 min, 10 min, 11 min, 12, 13 min, 11//25 min, 13// 1 min, 2 min, 3 min, 4 min, 5 min, 8 min, 9 min, 10 min	Pillar	Longitude	Latitude	11.52		0					
				A11	77°9'31.478" E	30°29'08.067"N								
				A12	77°9'32.082" E	30°29'02.986"N								
				A13	77°9'34.921" E	30°28'56.715"N								
				B12	77°9'34.671" E	30°29'04.740"N								
				B13	77°9'39.209" E	30°28'56.715"N								
		Shahpur	**For Mining areas 17//**, 23 min, **18//**, 3 min, 4 min, 7 min, 8 min, 13 min, 14, 15 min, 17 min	Pillar	Longitude	Latitude	3.89		0					
				A21	77°9'36.595" E	30°28'23.201"N								
				A22	77°9'39.936" E	30°28'16.644"N								

				B28	77°9'37.821" E	30°28'25.066"N								
				B29	77°9'42.549" E	30°28'17.928"N								
		Dera	**For Mining areas 7//**, 8 min, 11 min, 12 min , 13 min, 18 min, 19 min, 20 min, 21 min, 22 min, **8//**, 16 min, 24 min, 25 min, **11//**, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 12 min, 13 min, 18 min, 19 min, 20 min, 21 min, 22 min, 23 min **21//**1 min, 2 min, 3 min, 8 min, 9 min, 10 min, 11 min, 12 min, 13 min, 18 min, 19 min, 20 min, 21 min, 22 min, 23 min, **24//**, 1 min, 2, 9 min, 10 min, 11 min, 12 min, 19 min, 20 min, 21 min, 22 min, **36//**, 10 min, 11 min, 20 min, 21 min, **37//**, 6 min, 15 min, 16 min, 24 min, 25 min, **42//**, 4 min, 5 min, 6 min, 7 min, 14 min, 15 min, 16 min, 17 min, 24 min, 25 min, **43//**, 1 min, 10 min, 11 min, 20 min, 21 min, **57//**, 1 min, 10 min, 11 min, 58//, 4 min, 5 min, 6 min, 7 min, 14 min, 15 min, 16 min, 17 min, 23 min, 24 min, 25 min, **63//**, 3 min, 4 min, 5 min, 7 min, 8 min, 12 min, 13 min, 14 min, 18 min, 19 min, 20 min, 21 min, 22 min, **62//**, 25 min, **81//**, 1 min , 10 min, **82//**, 4 min, 5, 6, 7, 8 min, 13 min, 14 min, 15 min, 16 min, 17, 18 min, 23 min, 24, 25 min, **88//**, 4 min, 5 min, 6 min, 7 min, 8 min, 12 min, 13 min, 14 min, 15 min, 16 min, 17 min, 18 min, 19 min, 21 min, 22 min, 23 min, 24 min, **108//**, 1 min, 2 min, 3 min, 4 min, 7 min, 8 min, 9, 10, 11, 12, 13, 14 min, 18 min, 19 min, 20, 21 min, 22 min, **109//**, 5 min, 6 min, 14 min, 15 min, 16, 17 min, 23 min, 24, 25, **114//**, 3 min, 4, 5 min, 7 min, 8 min, 13 min, 14 min, 17 min, 18, 19 min, 22 min, 23 min, **115//**, 1 min, **134//**, 2 min, 3 min, 9 min, 10 min, 12 min, **120//**, 6 min, 7 min, 13	A	77°11'3.027" E	30°30'18.077"N	117.94		3.95					
				A1	77°10'44.306" E	30°29'48.431"N								
				A2	77°10'36.752" E	30°29'40.976"N								
				A3	77°10'45.492" E	30°29'39.183"N								
				A4	77°10'46.437" E	30°29'43.105"N								
				A5	77°10'47.810" E	30°29'46.814"N								
				A6	77°10'48.038" E	30°29'52.329"N								
				A7	77°10'50.057" E	30°29'59.737"N								
				A8	77°11'0.693" E	30°30'8.858"N								
				B	77°11'3.977" E	30°30'22.529"N								
				C	77°11'3.957"E	30°30'29.449"N								
				C3	77°10'43.097"E	30°29'33.780"N								
				C39	77°10'24.689"E	30°29'18.364"N								
				C4	77°10'32.120" E	30°29'29.079"N								
				C40	77°10'27.890" E	30°29'24.256"N								
				C41	77°10'28.660" E	30°29'27.093"N								
				C42	77°10'29.691" E	30°29'30.480"N								
				C43	77°10'30.499" E	30°29'32.158"N								
				C44	77°10'31.277" E	30°29'33.931"N								
				C45	77°10'32.646" E	30°29'35.047"N								
				C5	77°10'31.554" E	30°29'25.259"N								
				C6	77°10'30.874" E	30°29'23.673"N								

			min, 14 min, 15 min, 16 min, 17, 18 min, 23 min, 24 min, 25 min, **128//**, 4 min For **Ancillary areas 113//** 16/1, 16/2, 25/1, 25/2, **114//**20, 21	C7	77°10'26.142" E	30°29'17.356"N									
				D	77°11'2.912" E	30°30'32.398"N									
				E	77°11'5.050" E	30°30'38.365"N									
				F	77°11'7.145" E	30°30'42.733"N									
				G	77°11'8.111" E	30°30'50.579"N									
				H	77°11'8.338" E	30°30'53.419"N									
				I	77°11'8.226" E	30°30'59.649"N									
				J	77°11'9.903" E	30°31'3.903"N									
				J1	77°11'23.418" E	30°31'12.052"N									
				K	77°11'7.148" E	30°31'4.819"N									
				K1	77°11'23.369" E	30°31'15.987"N									
				L	77°11'3.478" E	30°31'0.006"N									
				M	77°11'3.629" E	30°30'57.734"N									
				N	77°11'3.520" E	30°30'52.069"N									
				O	77°11'2.966" E	30°30'46.221"N									
				P	77°11'4.535" E	30°30'42.388"N									
				Q	77°11'3.375" E	30°30'38.365"N									
				R	77°11'1.168" E	30°30'33.609"N									
				S	77°10'59.523" E	30°30'30.790"N									
				T	77°10'57.695" E	30°30'26.071"N									
				U	77°11'58.843" E	30°30'15.740"N									
				V	77°10'55.468" E	30°30'8.518"N									
				W	77°10'53.161" E	30°30'4.660"N									
				X	77°10'43.902" E	30°29'58.301"N									
				Y	77°10'43.674" E	30°29'52.862"N									

				Z	77°10'44.125" E	30°29'50.160"N								
				A	77°11'48.827" E	30°29'28.235"N								
				B	77°11'44.046" E	30°29'21.744"N								
				U1	77°11'47.297" E	30°29'19.117"N								
				V1	77°11'50.504" E	30°29'21.860"N								
		Hamid-pur	**For Mining areas 4//**, 22 min, 23, **6//,** 1 min, 2 min, 3 min, 4 min, 8 min, 9 min, 10 min, 11 min, 12 min, 20 min, **7//,** 6 min, 7 min, 11 min, 12 min, 13 min, 14 min, 15 min, 16 min, 17 min, 18 min, **17//**, 19 , 20 min, 21 min, 22 min, 23 min, **8//**, 16 min, 17 min, 24 min, 25 min, **22//,** 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 13 min, 14, 17 min, 18 min, 23 min, 24 min, **29//,** 3 min, 4 min, 7 min, 8 min, 13 min, 14 min, 17 min, 18 min, 19 min, 21 min, 22 min, 23 min, 24 min, **42//,** 5 min, 6 min, 15 min, 16 min, 17 min, 24 min, 25 min, **43//,** 1 min, 2 min, 3 min, 9 min, 10 min, 11 min, 20 min, **48//,** 3 min, 4 min, 5 min, 7 min, 8 min, 13 min, 14 min, 17 min, 18 min **For Ancillary areas 21//** 14, 15, 16, 17	B	77°11'44.046" E	30°29'21.744"N	46.47		3.90			Boulder, Gravel and Sand		
				C	77°11'36.267" E	30°29'17.114"N								
				D	77°11'30.811" E	30°29'15.836"N								
				E	77°11'22.623" E	30°29'13.425"N								
				F	77°11'19.474" E	30°29'9.072"N								
				G	77°11'18.604" E	30°29'3.418"N								
				H	77°11'18.719" E	30°28'55.499"N								
				I	77°11'12.236" E	30°28'48.976"N								
				J	77°11'7.784" E	30°28'40.057"N								
				K	77°11'6.953" E	30°28'35.636"N								
				L	77°11'9.584" E	30°28'34.745"N								
				M	77°11'10.201" E	30°28'39.756"N								
				N	77°11'13.850" E	30°28'45.178"N								
				O	77°11'21.148" E	30°28'53.067"N								
				P	77°11'23.050" E	30°29'2.704"N								
				Q	77°11'23.769" E	30°29'8.229"N								
				R	77°11'25.671" E	30°29'10.979"N								
				S	77°11'32.070" E	30°29'12.701"N								
				T	77°11'38.160" E	30°29'13.369"N								
				U1	77°11'47.297" E	30°29'19.117"N								
		Dehar	**For Mining areas 2//,** 12 min,	B	77°10'10.682" E	30°26'32.254"N	5.40		1.20			Sand		

			9//, 2 min, 3 min, 8 min, 9 min, 12 min, 13 min, 18 min, 19 min, 23 min **For Ancillary areas (Nanhera) 23//** 9/1, 9/2, 10	C	77°10'12.833" E	30°26'21.564"N								
				D	77°10'14.841" E	30°26'14.932"N								
				E	77°10'15.349" E	30°26'13.161"N								
				F	77°10'13.462" E	30°26'14.865"N								
				G	77°10'11.168" E	30°26'19.003"N								
				H	77°10'11.522" E	30°26'19.879"N								
				I	77°10'11.035" E	30°26'22.129"N								
				J	77°10'9.665" E	30°26'26.268"N								
				K	77°10'8.529" E	30°26'29.870"N								
				L	77°10'7.649" E	30°26'33.460"N								
2	**Fatehpur, Nagoli**	Fateh-pur	**For Mining areas 3//** 24 min, 25 min, **14//** 4 min, 5 min, 6 min, 7 min, 8 min, 13 min, 14 min, 17 min, 18 min, 23 min, 24 min, **16//** 3 min, 4 min, 7 min, 8 min, 9 min, 11 min, 12 min, 13 min, 18 min, 19 min, 20, 21, 22 min, **17//** 3 min, 4 min, 5 min, 6 min, 7, 8 min, 13 min, 14, 15 min, 16, 17, 18 min, 23 min, 24, 25, **28//** 3 min, 4, 5, 6, 7, 8 min, 12 min, 13, 14, 15, 16 min, 17, 18 min, 19 min, 21 min, 22 min, 23 min, 24 min, 25 min, **29//** 1 min, 10 min, 11 min, 20 min **31//,** 1 min, 9 min, 10 min, 11 min, 20 min, **32//,** 6 min, 15 min, 16 min, 24 min, 25 min, **39//** 4 min, 5 min, 6 min, 7 min, 14 min, 15 min, 16 min, 17 min, 24 min, 25 min, **42//** 4 min, 5 min, 6 min, 7 min, 14 min, **For Ancillary areas 42//**8, 9, 12, 13	Z1	77°6'23.489" E	30°32'25.472"N	48.95	86.22	4.0	19.29	105.51	Boulder, Gravel and Sand	7.76	10
				Z2	77°6'23.423" E	30°32'28.036"N								
				Z3	77°6'23.607" E	30°32'34.871"N								
				Z4	77°6'23.660" E	30°32'38.173"N								
				Z5	77°6'27.294" E	30°32'44.835"N								
				Z6	77°6'28.392" E	30°32'47.932"N								
				Z7	77°6'32.327" E	30°32'51.832"N								
				Z8	77°6'32.914" E	30°32'54.043"N								
				A29	77°6'26.268" E	30°32'27.255"N								
				A30	77°6'25.853" E	30°32'28.668"N								
				A31	77°6'27.521" E	30°32'40.907"N								
				A32	77°6'33.809" E	30°32'50.635"N								
				A33	77°6'39.131" E	30°32'50.971"N								
				A34	77°6'42.28" E	30°32'55.14"N								
				A35	77°6'43.77" E	30°32'59.19"N								
				A36	77°6'50.25" E	30°33'7.08"N								

				A37	77°6’49.10” E	30°33’8.39”N								
				A38	77°6’45.80” E	30°33’5.20”N								
				A39	77°6’41.29” E	30°33’3.55”N								
				A40	77°6’37.65” E	30°33’11.39”N								
				A41	77°6’39.63” E	30°33’18.93”N								
				A42	77°6’37.26” E	30°33’21.01”N								
				A43	77°6’36.73” E	30°33’15.76”N								
				A44	77°6’35.03” E	30°33’12.29”N								
				A45	77°6’36.39” E	30°33’3.56”N								
		Laha	**For Mining areas** 90 min **For ancillary areas 4//**6, **5//** 8, 9, 10	A	77°6’13.290” E	30°31’16.790”N	11.75		3.50			Sand		
				B	77°6’15.874” E	30°31’18.664”N								
				C	77°6’17.274” E	30°31’23.148”N								
				D	77°6’17.948” E	30°31’25.872”N								
				E	77°6’17.339” E	30°31’27.895”N								
				F	77°6’18.289” E	30°31’29.400”N								
				G	77°6’19.524” E	30°31’29.607”N								
				H	77°6’20.431” E	30°31’31.393”N								
				I	77°6’14.024” E	30°31’32.323”N								
				J	77°6’12.010” E	30°31’34.449”N								
				K	77°6’11.955” E	30°31’35.808”N								
				L	77°6’17.586” E	30°31’38.730”N								
				M	77°6’20.597” E	30°31’42.562”N								
				N	77°6’21.037” E	30°31’44.730”N								
				A1	77°6’14.097” E	30°31’16.009”N								
				A2	77°6’17.098” E	30°31’18.109”N								
				A3	77°6’18.338” E	30°31’22.929”N								

				A4	77°6’18.847” E	30°31’26.050”N								
				A5	77°6’18.498” E	30°31’27.889”N								
				A6	77°6’18.949” E	30°31’28.865”N								
				A7	77°6’21.985” E	30°31’29.236”N								
				A8	77°6’22.712” E	30°31’30.509”N								
				A9	77°6’20.235” E	30°31’33.071”N								
				A10	77°6’13.834” E	30°31’34.063”N								
				A11	77°6’14.060” E	30°31’35.966”N								
				A12	77°6’18.634” E	30°31’37.959”N								
				A13	77°6’22.483” E	30°31’41.809”N								
				A14	77°6’23.355” E	30°31’45.910”N								
		Batoura	**For Mining areas 1//**, 16 min, 17 min, 23 min, 24 min, 22 min, **2//**, 11 min, 20 min, **6//**, 2 min, 3 min, 10 min, 11 min, 20 min, 21 min, **7//**, 15, 16, **8//**, 10 min, 11 min, 19 min, 20, 21 min, 22 min	A	77°5’59.453” E	30°30’16.400”N	5.98		0			Sand		
				A1	77°6’4.428” E	30°30’15.633”N								
				A2	77°6’1.042” E	30°30’22.630”N								
				A3	77°6’2.221” E	30°30’27.821”N								
				A4	77°6’2.555” E	30°30’31.496” N								
				A5	77°6’6.889” E	30°30’34.200” N								
				A6	77°6’10.675” E	30°30’35.844” N								
				A7	77°6’14.216” E	30°30’37.229” N								
				A8	77°6’16.333” E	30°30’38.260” N								
				C	77°6’0.882” E	30°30’27.515”N								
				D	77°6’1.878” E	30°30’31.529”N								
				E	77°6’6.365” E	30°30’34.375”N								
				F	77°6’10.451” E	30°30’36.101”N								
				G	77°6’14.172” E	30°30’37.621”N								
				H	77°6’15.948” E	30°30’38.469”N								

		Nagoli	**For mining areas** 33//, 24 min, 25 min, 35//, 4 min, 5 min, 6 min, 7 min, 14 min, 15 min, 16 min, 17 min, 24 min, 37//, 4 min, 7 min **For Ancillary area 35//** 1, 2, 3/1, 8, 9	B1	77°5'57.603" E	30°30'31.157"N	3.50		3.46			Sand		
				B2	77°5'58.802" E	30°30'39.203"N								
				B3	77°5'59.074" E	30°30'45.293"N								
				C1	77°5'56.077" E	30°30'31.910"N								
				C2	77°5'57.830" E	30°30'39.026"N								
				C3	77°5'58.173" E	30°30'46.239"N								
		Banaudi	**For Mining areas 13//,** 20 min, **14//,** 16 min, 25 min, **21//,** 5 min, 6 min, 15 min, 16 min, 64 min, 65 min, 66 min, **22//,** 1 min, 10 min, 11 min, 20 min, 21 min, **29//,** 5 min, **28//** 11 min, 12/1 min, 19 min, 20 min, 22 min, 23 min, **35//,** 3 min, 7 min, 8 min, 14 min, 16 min, 17 min, 25 min, **36//,** 21 min, 22 min, **43//,** 1 min, 2 min, 3 min, 6 min, 7 min, 8 min, **42//,** 1 min, 10 min, **37//,** 4 min, 5 min, 7 min, 8 min, 13 min, 18 min, 19 min, 21 min, 22 min, **26//,** 16 min, 24 min, 25 min, **25//,** 11 min, 19 min, 20 min, 22 min, 23 min, **38//,** 3 min, 4 min, 7 min, 14 min, 15 min, 16 min, **39//,** 20 min, 21 min, 22 min, 23 min **For Ancillary areas 47//** 6/2, 15, 16/1, **48//** 11, 19, 20	A33	77°4'48.253" E	30°26'40.879"N	10.82		5.33			Sand		
				A32	77°4'42.847" E	30°26'40.886"N								
				A31	77°4'39.022" E	30°26'44.206"N								
				A30	77°4'34.020" E	30°26'50.466"N								
				A29	77°4'31.737" E	30°26'52.971"N								
				A28	77°4'28,095" E	30°26'52.104"N								
				A27	77°4'23.124" E	30°26'45.689"N								
				A26	77°4'17.196" E	30°26'38.471"N								
				A25	77°4'15.717" E	30°26'36.852"N								
				A24	77°4'13.534" E	30°26'35.827"N								
				A23	77°4'6.708" E	30°26'39.133"N								
				A22	77°4'0.761" E	30°26'43.430"N								
				A21	77°3'53.584" E	30°26'53.091"N								
				A20	77°3'51.889" E	30°26'56.622"N								
				A19	77°3'50.577" E	30°27'0.386"N								
				A18	77°3'50.217" E	30°27'2.235"N								
				A17	77°3'50.090" E	30°27'4.240"N								
				A16	77°3'50.102" E	30°27'8.023"N								
				A15	77°3'49.814" E	30°27'11.176"N								
				A14	77°3'51.311" E	30°27'13.643"N								

				Z6	77°4’48.419” E	30°26’41.568”N								
				Z5	77°4’43.334” E	30°26’41.573”N								
				Z4	77°4’39.612” E	30°26’44.405”N								
				Z3	77°4’34.348” E	30°26’51.193”N								
				Z2	77°4’31.966” E	30°26’53.815”N								
				Z1	77°4’31.694” E	30°26’53.886”N								
				Z0	77°4’31.319” E	30°26’54.012”N								
				Z	77°4’22.431” E	30°26’45.670”N								
				1Z	77°4’27.454” E	30°26’52.254”N								
				Y	77°4’16.676” E	30°26’38.993”N								
				X	77°4’15.094” E	30°26’37.230”N								
				W	77°4’13.572” E	30°26’36.411”N								
				V	77°4’6.864” E	30°26’39.737”N								
				U	77°4’1.182” E	30°26’43.817”N								
				T	77°3’54.446” E	30°26’53.298”N								
				S	77°3’52.719” E	30°26’56.925”N								
				R	77°3’51.091” E	30°27’2.352”N								
				R	77°3’51.514” E	30°27’0.474”N								
				Q	77°3’51.199” E	30°27’4.107”N								
				P	77°3’51.389” E	30°27’7.876”N								
				O	77°3’51.009” E	30°27’11.398”N								
				N	77°3’52.085” E	30°27’13.208”N								
		Bari Bassi	**For Mining areas 24//,** 5 min, 6 min, 15 min, 16 min, 24 min, 25 min, **27//,** 4 min, 5 min, 7 min, 8 min, 12 min, 13 min, 19 min **For Ancillary areas 26//** 11, 12, 20, **27//** 15, 16	1A	77°4’54.100” E	30°28’16.468”N	5.22		3.0			Sand		
				2A	77°4’55.025” E	30°28’16.022”N								
				A	77°4’53.268” E	30°28’14.345”N								
				A0	77°4’54.935” E	30°28’13.290”N								

				A1	77°4’55.276” E	30°28’10.294”N								
				A2	77°4’52.275” E	30°28’5.956”N								
				A3	77°4’46.400” E	30°28’1.364”N								
				B	77°4’53.991” E	30°28’11.002”N								
				C	77°4’51.499” E	30°28’7.253”N								
				D	77°4’45.737” E	30°28’2.667”N								
3	**Badhauli-Tamnauli**	Badhauli	**For Mining areas** 13// 1 min, 2 min, 8 min, 9 min, 10 min, 12 min, 13 min, 17 min, 18 min, 23 min, 24 min, **33//** 11 min, 20 min, 21 min, **34//** 4 min, 5 min, 6 min, 15 min, 16 min, **77//** 10 min, 11 min, 15 min, 16 min, 17 min, 22 min, 23 min, 24 min, 25 min, **81//** 6 min, 7 min, 13 min, 14 min, 18 min, **82//** 1 min, 2 min, 3 min **For Ancillary areas 77//** 2, 3, 4, 7, 8, 9	A1	77°2’19.234” E	30°22’15.571”N	5.37	142.33	6.0	31.34	173.67	Sand	10.24	10
				A2	77°2’20.000” E	30°22’15.000”N								
				A3	77°2’21.600” E	30°22’12.500”N								
				A4	77°2’23.156” E	30°22’12.276”N								
				A5	77°2’24.900” E	30°22’9.500”N								
				A6	77°2’26.837” E	30°22’7.155”N								
				A7	77°2’28.500” E	30°22’5.000”N								
				A8	77°2’29.300” E	30°22’3.800”N								
				A9	77°2’30.347” E	30°22’0.785”N								
				A10	77°2’31.400” E	30°21’57.400”N								
				A11	77°2’6.500” E	30°21’25.300”N								
				A12	77°2’5.100” E	30°21’24.300”N								
				A13	77°2’3.400” E	30°21’22.200”N								
				A14	77°2’1.700” E	30°21’20.700”N								
				A15	77°1’58.770” E	30°21’19.623”N								
				A16	77°1’55.700” E	30°21’18.500”N								
				A17	77°1’53.515” E	30°21’18.265”N								
				A18	77°1’51.900” E	30°21’17.900”N								
				A19	77°1’51.000” E	30°21’16.900”N								
				A20	77°1’46.900” E	30°21’14.100”N								

				A21	77°1’45.800” E	30°21’12.700”N								
				B1	77°2’21.090” E	30°22’15.324”N								
				B2	77°2’22.805” E	30°22’13.599”N								
				B3	77°2’24.051” E	30°22’12.559”N								
				B4	77°2’25.678” E	30°22’9.794”N								
				B5	77°2’27.411” E	30°22’7.340”N								
				B6	77°2’28.900” E	30°22’5.100”N								
				B7	77°2’29.700” E	30°22’3.900”N								
				B8	77°2’30.794” E	30°22’0.864”N								
				B9	77°2’31.800” E	30°21’57.400”N								
				B10	77°2’6.500” E	30°21’24.700”N								
				B11	77°2’5.500” E	30°21’24.100”N								
				B12	77°2’3.700” E	30°21’21.900”N								
				B13	77°2’2.100” E	30°21’20.600”N								
				B14	77°1’59.109” E	30°21’19.274”N								
				B15	77°1’55.800” E	30°21’18.200”N								
				B16	77°1’53.701” E	30°21’17.661”N								
				B17	77°1’52.531” E	30°21’17.378”N								
				B18	77°1’51.374” E	30°21’16.537”N								
				B19	77°1’47.400” E	30°21’14.000”N								
				B20	77°1’46.300” E	30°21’12.500”N								
		Tamnauli	**For Mining areas 34//** 17 min, 24 min, **48//** 4 min, 7 min, 14 min, 17 min, 24 min, **51//** 4 min, 7 min, 14/2 min, 17 min, 24 min, **66//** 4 min, **68//** 18 min, 19 min, 20 min, **69//** 16 min, 18 min, **70//** 23 min, **75//** 3 min, 8 min, 13 min, 18 min	C1	77°2’11.700” E	30°19’13.600”N	4.59		0			Sand		
				C2	77°2’11.200” E	30°19’10.200”N								
				C3	77°2’11.300” E	30°19’7.400”N								
				C4	77°2’11.100” E	30°19’2.100”N								
				C5	77°2’10.800” E	30°18’57.500”N								

				C6	77°2’10.389” E	30°18’55.658”N									
				C7	77°2’10.265” E	30°18’53.529”N									
				C8	77°2’10.226” E	30°18’51.139”N									
				C29	77°1’56.120” E	30°18’35.918”N									
				C30	77°1’54.537” E	30°18’35.996”N									
				C31	77°1’51.800” E	30°18’35.700”N									
				C32	77°1’49.300” E	30°18’35.100”N									
				C35	77°1’44.156” E	30°18’34.715”N									
				C33	77°1’47.500” E	30°18’34.800”N									
				C34	77°1’45.400” E	30°18’35.000”N									
				C36	77°1’43.255” E	30°18’34.143”N									
				C38	77°1’42.300” E	30°18’30.800”N									
				C39	77°1’42.600” E	30°18’27.700”N									
				C37	77°1’42.690” E	30°18’32.624”N									
				C40	77°1’42.522” E	30°18’26.406”N									
				C41	77°1’41.962” E	30°18’25.160”N									
				D1	77°2’12.100” E	30°19’13.500”N									
				D2	77°2’11.600” E	30°19’10.200”N									
				D3	77°2’11.500” E	30°19’7.400”N									
				D4 (P)	77°2’11.500” E	30°19’2.100”N									
				D5	77°2’11.201” E	30°18’57.534”N									
				D6	77°2’10.865” E	30°18’55.685”N									
				D7	77°2’10.583” E	30°18’53.558”N									
				D8	77°2’10.602” E	30°18’51.685”N									
				D30	77°1’55.823” E	30°18’35.565”N									
				D31	77°1’54.600” E	30°18’35.700”N									

				D32	77°1’51.816” E	30°18’35.267”N							
				D33	77°1’49.300” E	30°18’34.600”N							
				D34	77°1’47.462” E	30°18’34.458”N							
				D35	77°1’46.492” E	30°18’34.490”N							
				D36	77°1’45.100” E	30°18’34.600”N							
				D37	77°1’43.700” E	30°18’34.000”N							
				D38	77°1’43.106” E	30°18’32.635”N							
				D39	77°1’42.737” E	30°18’31.043”N							
				D40	77°1’42.800” E	30°18’29.700”N							
				D41	77°1’43.047” E	30°18’27.858”N							
				D42	77°1’42.963” E	30°18’26.455”N							
				D43	77°1’42.400” E	30°18’25.100”N							
		Gokalgarh	**For Mining areas 27//** 4 min, 7 min, 14 min, 17/1 min, 17/2 min, 24/1 min, 24/2 min, **42//** 4/1 min 4/2 min, 3/2 min, 8 min, 13/1 min, 13/2 min, 18 min, 23 min, **43//** 17 min, 18 min, 24 min, 25 min, **44//** 5 min, 6 min, 15 min, **45//** 3 min, 8/1 min, 8/2 min, 9 min, 10 min, 11 min, 12 min **For ancillary areas 41//** 2, 3, 4, 7, 8, 9	C8	77°2’10.226” E	30°18’51.139”N	3.28		5.98			Sand		
				C9	77°2’10.320” E	30°18’48.510”N							
				C10	77°2’10.500” E	30°18’46.700”N							
				C11	77°2’10.500” E	30°18’45.500”N							
				C12	77°2’10.300” E	30°18’44.300”N							
				C13	77°2’8.900” E	30°18’40.400”N							
				C14	77°2’7.527” E	30°18’37.343”N							
				C15	77°2’6.900” E	30°18’35.800”N							
				C16	77°2’7.000” E	30°18’34.000”N							
				C17	77°2’7.700” E	30°18’32.200”N							
				C18	77°2’7.756” E	30°18’30.241”N							
				C19	77°2’6.200” E	30°18’29.100”N							
				C20	77°2’4.300” E	30°18’28.400”N							
				C21	77°2’3.102” E	30°18’28.355”N							

				C22	77°2’2.150” E	30°18’28.301”N								
				C23	77°2’1.619” E	30°18’28.481”N								
				C24	77°2’1.673” E	30°18’29.185”N								
				C25	77°2’1.142” E	30°18’30.716”N								
				C26	77°2’0.100” E	30°18’32.900”N								
				C27	77°1’58.800” E	30°18’34.200”N								
				C28	77°1’57.100” E	30°18’35.700”N								
				C29	77°2’56.120” E	30°18’35.918”N								
				D8	77°2’10.602” E	30°18’51.685”N								
				D9	77°2’10.638” E	30°18’48.556”N								
				D10	77°2’10.763” E	30°18’46.688”N								
				D11	77°2’10.791” E	30°18’45.443”N								
				D12	77°2’10.600” E	30°18’44.200”N								
				D13	77°2’9.100” E	30°18’40.300”N								
				D14	77°2’7.822” E	30°18’37.269”N								
				D15	77°2’7.400” E	30°18’35.700”N								
				D16	77°2’7.300” E	30°18’34.000”N								
				D17	77°2’7.900” E	30°18’32.200”N								
				D18	77°2’8.063” E	30°18’30.121”N								
				D19	77°2’6.516” E	30°18’28.697”N								
				D20	77°2’4.839” E	30°18’28.070”N								
				D21	77°2’3.590” E	30°18’28.020”N								
				D22	77°2’2.280” E	30°18’27.869”N								
				D23	77°2’1.273” E	30°18’28.005”N								
				D24	77°2’1.144” E	30°18’28.471”N								
				D25	77°2’1.217” E	30°18’29.123”N								

				D26	77°2'0.713" E	30°18'30.643"N								
				D27	77°1'59.766" E	30°18'32.737"N								
				D28	77°1'58.445" E	30°18'33.978"N								
				D29	77°1'56.886" E	30°18'35.240"N								
				D30	77°1'55.823" E	30°18'35.565"N								
		Jharumajra	**For Mining areas** 34// 16 min, 24 min, 25 min, 35// 12 min, 13 min, 14 min, 16 min, 17 min, 18, 19 min, 20 min, 21, 22 min, 23 min, 24 min, 38// 1 min, 2 min, 10 min, 39// 4 min, 5, 6 min, 7 min, 13 min, 14, 15 min, 16 min, 17, 18 min, 41// 20 min, 21 min, 22 min, 42// 16 min, 17 min, 18 min, 19 min, 23, 24 min, 25 min, 44// 5 min, 45// 1 min, 2	C28	77°4'39.938" E	30°17'35.086"N	19.26		0			Sand		
				C29	77°4'35.200" E	30°17'35.300"N								
				C30	77°4'29.900" E	30°17'33.800"N								
				C31	77°4'27.100" E	30°17'31.600"N								
				C32	77°4'25.154" E	30°17'25.189"N								
				C38	77°3'57.303" E	30°17'21.831"N								
				C39	77°3'53.200" E	30°17'24.500"N								
				C40	77°3'48.100" E	30°17'26.100"N								
				C41	77°3'45.019" E	30°17'24.823"N								
				D25	77°4'41.460" E	30°17'33.567"N								
				D26	77°4'31.800" E	30°17'30.400"N								
				D27	77°4'28.529" E	30°17'25.055"N								
				D37	77°3'55.587" E	30°17'20.163"N								
				D38	77°3'50.500" E	30°17'23.500"N								
				D39	77°3'47.913" E	30°17'22.616"N								
		Tangail	**For mining areas** 3// 17 min, 18 min, 23 min, 24 min, 7// 2 min, 3 min 4 min, 7 min, 8, 9 min, 11 min, 12 min, 13, 14 min, 18 min, 19 min, 20 min, 21 min, 22 min, 8// 10 min, 11 min, 12 min, 13 min, 16 min, 17 min, 18 min, 19, 20 min, 22 min, 23 min, 24 min, 25 min, 9// 2 min, 3 min, 6 min, 7 min, 8 min, 9 min, 13 min, 14 min, 15, 16 min, 17 min, 13//	C32	77°4'25.154" E	30°17'25.189"N	21.61		7.80			Sand		
				C33	77°4'24.210" E	30°17'21.112"N								
				C34	77°4'17.700" E	30°17'14.600"N								
				C35	77°4'15.000" E	30°17'14.800"N								
				C36	77°4'7.000" E	30°17'18.100"N								
				C37	77°4'2.100" E	30°17'19.400"N								

			4 min, 5 min **For Ancillary 7//** 1, 10, **8//** 3, 4, 5, 6, 7, 8	C38	77°3'57.303" E	30°17'21.831"N								
				D27	77°4'28.529" E	30°17'25.055"N								
				D28	77°4'27.000" E	30°17'21.000"N								
				D29	77°4'26.100" E	30°17'16.200"N								
				D30	77°4'21.900" E	30°17'14.100"N								
				D31	77°4'20.200" E	30°17'12.900"N								
				D32	77°4'14.500" E	30°17'11.700"N								
				D33	77°4'14.500" E	30°17'12.800"N								
				D34	77°4'9.800" E	30°17'13.600"N								
				D35	77°4'7.800" E	30°17'14.400"N								
				D36	77°4'0.952" E	30°17'16.876"N								
				D37	77°3'55.587" E	30°17'20.163"N								
		Rolaheri	**For Mining areas 2//** 18 min, 19 min, 20 min, 21 min, 22 min, **3//** 11 min, 12 min, 16 min, 17 min, 18 min, 19 min, 20 min, 21 min, 22 min, 23 min, 24 min, 25 min, **4//** 13 min, 14 min, 15 min, 16 min, 17, 18 min, 19 min, 22 min, 23, 24, 25 min, **6//** 5 min, 6 min, 7 min, 13 min, 14 min, 15, 16, 17, 18, 23 min, 24 min, 25 min, **7//** 1 min, 2, 3, 4 min, 8 min, 9, 10, 11, 12 min, 13 min, 19/1 min, 19/2 min, 20/1, 20/2, 21 min, 22 min	C21	77°5'24.752" E	30°17'44.468"N	33.03		0			Sand		
				C22	77°5'17.325" E	30°17'43.684"N								
				C23	77°5'9.000" E	30°17'45.800"N								
				C24	77°5'5.600" E	30°17'46.000"N								
				C25	77°5'1.000" E	30°17'44.100"N								
				C26	77°4'55.300" E	30°17'39.000"N								
				C27	77°4'50.060" E	30°17'35.255"N								
				D17	77°5'27.593" E	30°17'43.597"N								
				D18	77°5'22.600" E	30°17'41.700"N								
				D19	77°5'19.000" E	30°17'40.900"N								
				D20	77°5'15.900" E	30°17'41.100"N								
				D21	77°5'9.100" E	30°17'43.300"N								
				D22	77°4'59.600" E	30°17'34.900"N								
				D23	77°4'58.600" E	30°17'31.800"N								

				D24	77°4’48.672” E	30°17’33.329”N								
		Ramgarh	**For Mining areas** 38// 16 min, 17, 39// 11 min, 12 min, 13 min, 18 min, 19 min, 20 min	C27	77°4’50.060” E	30°17’35.255”N	2.84		0			Sand		
				C28	77°4’39.938” E	30°17’35.086”N								
				D24	77°4’48.672” E	30°17’33.329”N								
				D25	77°4’41.460” E	30°17’33.567”N								
		Gaganheri	**For Mining areas** 32// 11, 12, 18, 19, 20 min, 22 min, 23, 24, 25 33// 1 min, 2 min, 3 min, 4 min, 6, 7, 8, 9, 10, 11 min, 12 min, 13 min, 14 min, 15 min, 16 min 34// 4 min, 5 min, 6, 7 min, 13 min, 14 min, 15 min, 16 min, 17, 18 min, 23 min, 24, 25 min, **43//** 2 min, 3/1, 3/2, 4, 5 min, 6 min, 7/1, 7/2, 8 min, 12 min, 13 min, 14, 15/1 min, 15/2 min, 16 min, 17, 18, 19 min, 21 min, 22 min, 23, 24, 25 min, **45//** 2 min, 3 min, 4 min, 5 min, **48//** 1 min, 2, 3, 4, 5 min, 6 min, 7 min, 8 min, 9 min, 10 min, 13 min, 14 min, **49//** 6 min, 14 min, 15 min, 16 min, 17 min, 18 min, 22 min, 23 min, 24 min , 55// 16 min, 25 min, 56// 2 min, 3 min, 9 min, 10 min, 11 min, 12 min, 20 min, 21 min, 59// 4 min, 5 min, 6 min, 7 min, 8 min, 12 min, 13 min, 14 min, 18 min **For Ancillary areas 55//** 11, 12, 13, 14, 17, 18, 19, 20, 21, 22, 23, 24	C1	77°6’24.102” E	30°18’19.022”N	52.35		11.56			Sand		
				C2	77°6’16.505” E	30°18’22.405”N								
				C3	77°6’11.801” E	30°18’25.167”N								
				C4	77°6’6.872” E	30°18’26.064”N								
				C5	77°6’8.407” E	30°18’28.249”N								
				C6	77°6’4.700” E	30°18’28.800”N								
				C7	77°6’2.300” E	30°18’29.400”N								
				C8	77°5’59.000” E	30°18’28.500”N								
				C9	77°5’56.800” E	30°18’27.100”N								
				C10	77°5’52.700” E	30°18’21.500”N								
				C11	77°5’52.200” E	30°18’18.700”N								
				C12	77°5’52.735” E	30°18’15.006”N								
				C13	77°5’49.300” E	30°18’9.800”N								
				C14	77°5’45.400” E	30°18’6.300”N								
				C15	77°5’39.100” E	30°18’0.500”N								
				C16	77°5’37.100” E	30°17’57.700”N								
				C17	77°5’35.700” E	30°17’54.500”N								
				C18	77°5’34.000” E	30°17’52.300”N								
				C19	77°5’31.300” E	30°17’49.800”N								
				C20	77°5’26.800” E	30°17’45.700”N								
				C21	77°5’24.752” E	30°17’44.468”N								

				D1	77°6’20.400” E	30°18’18.100”N								
				D2	77°6’17.800” E	30°18’18.300”N								
				D3	77°6’15.200” E	30°18’21.000”N								
				D4	77°6’8.800” E	30°18’24.100”N								
				D5	77°6’5.200” E	30°18’25.200”N								
				D6	77°5’59.700” E	30°18’23.300”N								
				D7	77°5’57.800” E	30°18’16.800”N								
				D8	77°5’58.300” E	30°18’12.500”N								
				D9	77°5’57.600” E	30°18’7.300”N								
				D10	77°5’54.400” E	30°18’5.400”N								
				D11	77°5’51.500” E	30°18’6.200”N								
				D12	77°5’47.600” E	30°18’6.100”N								
				D13	77°5’44.741” E	30°18’3.362”N								
				D14	77°5’40.600” E	30°18’0.200”N								
				D15	77°5’37.900” E	30°17’55.700”N								
				D16	77°5’32.600” E	30°17’48.200”N								
				D17	77°5’27.593” E	30°17’43.597”N								
4	**Kakarkunda-Binjalpur**	Kakar kunda	**For Mining areas 35//** 24 min, 25 min, **36//** 21 min, 22 min, 23 min, **38//** 21 min, **39//** 20 min, 21 min, 22 min, 23 min, 24 min, 25 min, **40//** 1, 2 min, 3 min, 4 min, 7 min, 8 min, 9 min, 10 min, 11 min, 13 min, 14 min, 15 min, 16 min, 17 min, 20 min, 21 min, 24 min, 25 min, **41//** 3 min, 4 min, 5, 6, 7 min, 8 min, 13 min, 14 min, 15, 16, 17, 18 min, 21 min, 22 min, 23 min, 24, 25 min, **42//** 24 min, 25 min, **46//** 4 min, 5 min, 6 min, 7, 8, **47//** 8 min, 9 min, 10 min, 11, 12, 13, 14 min, 15 min, 16 min, 17, 18, 25	B46	77° 7’ 15.572”E	30° 18’27.971”N	49.68	188.72	0	11.27	199.99	Sand	13.58	08
				A48	77° 7’ 10.600”E	30° 18’28.700”N								
				B48	77° 7’ 4.800”E	30° 18’27.100”N								
				A49	77° 7’ 2.900”E	30° 18’29.800”N								
				B49	77° 7’ 0.600”E	30° 18’28.600”N								
				B50	77° 6’ 59.300”E	30° 18’29.800”N								
				A50	77° 6’ 58.300”E	30° 18’35.400”N								
				A51	77° 6’ 56.900”E	30° 18’38.000”N								

			min, **48//** 3 min, 4 min, 5, 6 min, 7 min, 9 min, 10 min, 11 min, 12 min, 19 min, 20 min, 21 min, **49//** 1, 2, 3, 4 min, 5 min, 7 min, 8 min, 9 min, 10 min	B51	77° 6' 54.900"E	30° 18'37.000"N									
				A52	77° 6' 53.700"E	30° 18'39.600"N									
				A53	77° 6' 52.000"E	30° 18'39.600"N									
				A54	77° 6' 50.000"E	30° 18'39.200"N									
				A55	77° 6' 47.300"E	30° 18'38.500"N									
				A56	77° 6' 45.500"E	30° 18'37.700"N									
				A57	77° 6' 44.400"E	30° 18'36.300"N									
				A58	77° 6' 47.000"E	30° 18'34.200"N									
				B52	77° 6' 50.200"E	30° 18'33.700"N									
				B53	77° 6' 50.900'E	30°18'29.500" N									
				B54	77° 6' 47.000"E	30° 18'26.000"N									
				B55	77° 6' 42.900"E	30° 18'24.900"N									
				A59	77° 6' 41.100"E	30° 18'28.600"N									
				A60	77° 6' 35.500"E	30° 18'29.000"N									
				A61	77° 6' 32.300"E	30° 18'28.300"N									
				B56	77° 6' 32.500"E	30° 18'26.500"N									
				B57	77° 6' 31.100"E	30° 18'25.700"N									
				A62	77° 6' 29.800"E	30° 18'26.400"N									
				A63	77° 6' 23.907"E	30° 18'23.756"N									
				B58	77° 6' 26.500"E	30° 18'21.000"N									
				A64	77° 6' 17.200"E	30°18'25.200"N									
				A65	77° 6' 14.200"E	30° 18'26.000"N									
				A66	77° 6' 12.600"E	30° 18'26.300"N									

				B59	77° 6’ 24.102”E	30° 18’19.022”N								
				A67	77° 6’ 8.407”E	30° 18’28.249”N								
				B60	77° 6’ 16.505”E	30° 18’22.405”N								
				B61	77° 6’ 11.801”E	30° 18’25.167”N								
				B62	77° 6’ 6.872”E	30° 18’26.064”N								
				A47	77° 7’ 13.316”E	30° 18’29.621”N								
		Binjalpur	**For Mining areas 2//**19/1, 19/2, 20 min, 21/1 min, 21/2, 22 min, **3//** 25/1 min, 25/2 min, **6//** 25/2 min, **7//** 3/1 min, 4/1 min, 4/2 min, 5/1, 5/2, 6 min, 7/1 min, 7/2, 8/1 min, 8/2, 9/1 min, 9/2 min, 11 min, 12/1 min, 12/2, 13/1 min, 14 min, 19/1 min, 19/2, 20/1 min, 20/2 min, 21/1 min, 21/2 min, 21/3 min, 22 min, **13//** 1 min, 10 min, 11 min , 20 min, 21 min, **14//** 5 min, 6 min, 15 min, 16 min, 25 min, **16//** 25 min, **17//** 5 min, 6 min, 15 min, 16 min, 17 min, 21 min, 22 min, 23 min, 24 min, 25 min, **18//** 1 min, 10 min, 11 min, 20 min, **30//** 1 min, 2 min, 3 min, 4 min, 5 min **For Ancillary areas 7//**25, **8//** 21, 22, **12//** 1, 2, 9, 10, 11, 12, **13//** 5, 6, 15	A37	77° 7’ 43.593”E	30° 19’0.091’’ N	23.90		11.27			Sand		
				B36	77° 7’ 45.095”E	30° 18’58.663”N								
				B37	77° 7’ 41.100”E	30° 18’54.900”N								
				B38	77° 7’ 38.100”E	30° 18’53.600”N								
				B39	77° 7’ 34.700”E	30° 18’52.800”N								
				A39	77° 7’ 33.300”E	30° 18’54.800”N								
				A40	77° 7’ 29.200”E	30° 18’50.800”N								
				A41	77° 7’ 28.500”E	30° 18’49.200”N								
				B40	77° 7’ 29.800”E	30° 18’47.800”N								
				B41	77° 7’ 28.600”E	30° 18’41.500”N								
				A42	77° 7’ 25.900”E	30° 18’42.500”N								
				A43	77° 7’ 26.100”E	30° 18’33.000”N								
				B42	77° 7’ 28.400”E	30° 18’30.600”N								
				B43	77° 7’ 26.300”E	30° 18’28.400”N								
				B44	77° 7’ 24.700”E	30° 18’26.700”N								
				B45	77° 7’ 22.800”E	30° 18’25.900”N								
				A44	77° 7’ 22.900”E	30° 18’27.800”N								

				A45	77° 7’ 20.400’’E	30° 18’28.000’’N								
				A46	77° 7’ 17.000’’E	30° 18’29.900’’N								
				B46	77° 7’ 15.572’’E	30° 18’27.971’’N								
				A38	77° 7’ 38.164’’E	30° 18’57.211’’N								
				A47	77° 7’ 13.316’’E	30° 18’29.621’’N								
		Jafarpur	8// 25 min, 9// 4, 5min, 6 min, 7 min, 14 min, 15 min, 16 min, 17 min, 18 min, 22 min, 23 min, 24 min, 25 min, 21// 2 min 3 min, 4 min, 8 min, 9, 10 min, 11, 12, 13 min, 19 min, 20, 21, 22 min, **22//** 15, 16, 17, 24 min, 25, 24// 4 min, 5, 6, 7 min, 15 min, **25//** 1, 2 min, 9 min, 10, 11, 12 min, 19 min, 20 min, 21 min, 22 min, 23 min, **40//**2 min**,** 3 min, 7 min, 8 min, 9 min, 13 min, 14 min, 17/1 min, 18/1 min, 19 min, 20 min, 21 min, 22 min, **41//** 16 min, 23 min, 24 min, 25/1 min, **43//** 25 min **44//** 2 min, 3 min, 4 min, 5 min, 6, 7, 8, 9, 11, 12, 13, 14 min, 15 min, 17 min, 18, 19, 20, 21, 22, 23, 24, 25 min, **45//** 1 min, 2 min, 3, 4, 5, 7, 8, 9, min, 10, 11 min, **61//** 10 min, 11 min, 12 min, 13 min, 17 min, 18 min, 19, 20 min, 22 min, 23, 24 min, **62//**1 min, 2, 3, 4, 5 min, 6 min, 7, 8, 9 min, 10 min, 12 min, 13 min, 14/1 min, 14/2 min, 15, 16 min, **65//**, 6 min, 7 min, 8 min, 12 min, 13 min, 14 min, 15 min, 18 min, **66//** 1 min, 2 min, 3 min, 4 min, 8 min, 9, 10, 11 min, 12 min, 13 min	A9	77° 8’ 14.977’’E	30° 20’1.832’’ N	88.41		0			Sand		
				A10	77° 8’ 16.472’’E	30° 20’0.072’’ N								
				A11	77° 8’ 11.200’’E	30° 19’54.000’’N								
				A12	77° 8’ 6.524’’E	30° 19’51.190’’N								
				A13	77° 8’ 4.841’’E	30° 19’48.915’’N								
				A14	77° 8’ 2.887’’E	30° 19’46.406’’N								
				A15	77° 8’ 2.600’’E	30° 19’43.200’’N								
				A16	77° 8’ 4.100’’E	30° 19’41.700’’N								
				A17	77° 8’ 6.900’’E	30° 19’39.600’’N								
				A18	77° 8’ 9.300’’E	30° 19’35.800’’N								
				A19	77° 8’ 12.900’’E	30°19’31.600’’ N								
				A20	77° 8’ 12.900’’E	30° 19’29.800’’N								
				A21	77° 8’ 7.900’’E	30° 19’28.800’’N								
				A22	77° 8’ 2.800’’E	30° 19’27.000’’N								
				A23	77° 7’ 57.800’’E	30° 19’25.500’’N								
				A24	77° 7’ 53.500’’E	30° 19’25.000’’N								
				A25	77° 7’ 45.947’’E	30° 19’24.550’’N								
				A28	77° 7’ 40.370’’E	30° 19’17.202’’N								
				A29	77° 7’ 43.200’’E	30° 19’13.500’’N								
				A30	77° 7’ 49.500’’E	30° 19’10.700’’N								

				A31	77° 7’ 55.000”E	30° 19’9.100” N								
				A32	77° 7’ 56.946”E	30° 19’7.337” N								
				A33	77° 7’ 56.100”E	30° 19’4.800” N								
				A34	77° 7’ 53.100”E	30° 19’4.100” N								
				A35	77° 7’ 50.900”E	30° 19’4.100” N								
				A36	77° 7’ 48.700”E	30° 19’4.300” N								
				A37	77° 7’ 43.593”E	30° 19’0.091” N								
				B9	77° 8’ 18.369”E	30° 20’5.247” N								
				B10	77° 8’ 19.800”E	30° 20’3.300” N								
				B11	77° 8’ 19.800”E	30° 19’59.900”N								
				B12	77° 8’ 18.200”E	30° 19’56.900”N								
				B13	77° 8’ 13.800”E	30° 19’53.700”N								
				B14	77° 8’ 12.400”E	30° 19’50.600”N								
				B15	77° 8’ 11.100”E	30° 19’45.100”N								
				B16	77° 8’ 10.600”E	30° 19’39.200”N								
				B17	77° 8’ 11.800”E	30° 19’35.800”N								
				B18	77°8’ 12.800”E	30° 19’35.400”N								
				B19	77° 8’ 15.200”E	30° 19’31.400”N								
				B20	77° 8’ 14.300”E	30° 19’29.000”N								
				B21	77° 8’ 13.100”E	30° 19’28.400”N								
				B22	77° 8’ 11.000”E	30° 19’28.300”N								
				B23	77° 8’ 5.500”E	30° 19’25.300”N								
				B24	77° 8’ 2.300”E	30° 19’23.900”N								
				B25	77° 7’ 50.900”E	30° 19’20.300”N								
				B26	77° 7’ 52.563”E	30° 19’13.615”N								

				B27	77° 8’ 0.700”E	30° 19’9.600” N								
				B28	77° 8’ 3.200”E	30° 19’6.300” N								
				B29	77° 8’ 1.100”E	30° 19’4.800” N								
				B30	77° 8’ 0.300”E	30° 19’3.200” N								
				B31	77° 7’ 58.300”E	30° 19’1.000” N								
				B32	77° 7’ 55.000”E	30° 19’0.500” N								
				B33	77° 7’ 52.300”E	30° 19’1.600” N								
				B34	77° 7’ 50.600”E	30° 19’2.500” N								
				B35	77° 7’ 48.900”E	30° 19’1.500” N								
				B36	77° 7’ 45.095”E	30° 18’58.663”N								
		Nurhad	**For Mining areas** 7// 2 min, 3 min, 8 min, 9 min, 10 min, 11 min, 12, 13 min, 18 min, 19, 20 min, 21 min, 22, 23 min, **17//** 1 min, 2, 3 min, 8, 9, 10 min, 11 min, 12 min, 13 min, 14 min, 17 min, 16 min, 18, 19 min, 22 min, 23 min, 24, 25 min, **18//** 21/1 min, 21/2 min, **21//** 1 min, 3 min, 4 min, 8 min, 9 min, 10, 11 min, 12 min, **22//** 3 min, 4, 5/1, 5/2, 6, 7/1, 7/2, 15 min, 51// 11 min, 52// 15 min, 16 min, 25 min	A1	77° 7’ 55.814”E	30° 20’24.684”N	26.73		0			Sand		
				A2	77° 7’ 54.946”E	30° 20’18.469”N								
				A3	77° 7’ 55.700”E	30° 20’11.700”N								
				A4	77° 7’ 59.400”E	30° 20’6.500” N								
				A5	77° 8’ 2.400”E	30° 20’3.700” N								
				A6	77° 8’ 6.700”E	30° 20’1.600” N								
				A7	77° 8’ 9.600”E	30° 20’1.700” N								
				A8	77° 8’ 12.400”E	30° 20’3.800” N								
				A9	77° 8’ 14.977”E	30° 20’1.832” N								
				A25	77° 7’ 45.947”E	30° 19’24.550”N								
				A26	77° 7’ 41.600”E	30° 19’22.800”N								
				A27	77° 7’ 40.600”E	30° 19’21.600”N								
				A28	77° 7’ 40.370”E	30° 19’17.202”N								
				B1	77° 7’ 59.246”E	30° 20’24.921”N								

				B2	77° 7’ 58.300’’E	30° 20’19.000’’N								
				B3	77° 7’ 58.500’’E	30° 20’12.700’’N								
				B4	77° 7’ 3.300’’E	30° 20’9.400’’ N								
				B5	77° 8’ 5.200’’E	30° 20’8.600’’ N								
				B6	77° 8’ 8.500’’E	30° 20’4.700’’ N								
				B7	77° 8’ 11.400’’E	30° 20’4.900’’ N								
				B8	77° 8’ 14.300’’E	30° 20’6.500’’ N								
				B9	77° 8’ 18.369’’E	30° 20’5.247’’ N								
5.	**Paplotha-Mullana**	Paplotha	**For Mining areas 20//** 8 min, 13 min, 14 min, 17 min, 24/2 min, 25 min, **26//** 11 min, 20 min, 21 min, **27//** 5/2 min, 6 min, 15 min, 16 min, **36//** 1 min , 9 min, 10 min, 11 min, 12 min, 19 min, 20 min, 21, 22 min, **41//** 1 min 18 min, 19 min, 20 min, 21 min, 22 min, 23 min, 24 min, 25 min, **42//** 5 min, 6 min, 15 min, 16 min, 25 min **For Ancillary areas 26//** 3, 4, 5, 6, 7, 8	C1	77°1’28.600” E	30°17’21.700”N	3.95	119.04	6.0	38.65	157.69	Sand	8.57	08
				C2	77°1’29.700” E	30°17’19.000”N								
				C3	77°1’31.536” E	30°17’16.264”N								
				C4	77°1’32.800” E	30°17’14.100”N								
				C5	77°1’33.200” E	30°17’11.400”N								
				C6	77°1’34.600” E	30°17’8.700”N								
				C7	77°1’35.100” E	30°17’5.100”N								
				C8	77°1’35.086” E	30°17’3.105”N								
				C9	77°1’36.400” E	30°17’2.300”N								
				C10	77°1’37.200” E	30°16’59.900”N								
				C11	77°1’37.301” E	30°16’58.095”N								
				C12	77°1’36.700” E	30°16’56.000”N								
				C13	77°1’34.900” E	30°16’54.000”N								
				C14	77°1’33.779” E	30°16’52.479”N								
				C15	77°1’32.369” E	30°16’50.390”N								
				C16	77°1’32.300” E	30°16’48.200”N								
				C17	77°1’33.418” E	30°16’46.637”N								
				C18	77°1’34.011” E	30°16’46.594”N								

				C19	77°1’36.000” E	30°16’46.700”N								
				C20	77°1’38.200” E	30°16’47.000”N								
				C21	77°1’41.200” E	30°16’46.500”N								
				C22	77°1’43.441” E	30°16’45.893”N								
				C23	77°1’43.959” E	30°16’44.596”N								
				D1	77°1’29.000” E	30°17’22.000”N								
				D2	77°1’30.000” E	30°17’19.100”N								
				D3	77°1’31.917” E	30°17’16.516”N								
				D4	77°1’33.500” E	30°17’14.100”N								
				D5	77°1’33.400” E	30°17’12.000”N								
				D6	77°1’33.958” E	30°17’10.779”N								
				D7	77°1’35.200” E	30°17’8.900”N								
				D8	77°1’35.571” E	30°17’5.478”N								
				D9	77°1’35.600” E	30°17’3.800”N								
				D10	77°1’36.800” E	30°17’2.700”N								
				D11	77°1’37.700” E	30°16’59.900”N								
				D12	77°1’37.774” E	30°16’58.002”N								
				D13	77°1’36.870” E	30°16’55.421”N								
				D14	77°1’35.293” E	30°16’53.847”N								
				D15	77°1’34.310” E	30°16’52.298”N								
				D16	77°1’32.883” E	30°16’50.310”N								
				D17	77°1’32.822” E	30°16’48.300”N								
				D18	77°1’33.941” E	30°16’46.856”N								
				D19	77°1’35.885” E	30°16’47.032”N								
				D20	77°1’38.348” E	30°16’47.389”N								
				D21	77°1’41.407” E	30°16’46.912”N								

				D22	77°1'43.824" E	30°16'46.488"N								
				D23	77°1'44.600" E	30°16'45.000"N								
		Mullana	**For Mining areas 17//** 6 min, 15 min, 16 min, **18//** 10, 11 min, 20 min, **19//** 1 min, 2 min, 3 min, **31//** 22 min, 23 min, 24 min, 25 min, **35//** 2 min, 3, 4, 8 min, 9 min **For Ancillary areas 31//** 11 **32//** 14, 15, 16/2, 17	A1	77° 3' 45.019"E	30° 17'24.823"N	8.88		4.40			Sand		
				A2	77° 3' 41.800"E	30° 17'23.800"N								
				A3	77° 3' 34.300"E	30° 17'23.100"N								
				A4	77° 3' 28.900"E	30° 17'21.100"N								
				A5	77° 3' 24.686"E	30° 17'17.058"N								
				B1	77° 3' 47.958"E	30° 17'22.631"N								
				B2	77° 3' 42.769"E	30° 17'21.005"N								
				B3	77° 3' 35.504"E	30° 17'20.192"N								
				B4	77° 3' 30.100"E	30° 17'18.400"N								
				B5	77° 3' 27.308"E	30° 17'15.515"N								
		Hema Majra	**For Mining areas 34//** 16 min, 22 min, 23 min, 24 min, 25 min, **35//** 7 min, 12 min, 13 min, 14 min, 18 min, 19 min, 20 min, 21 min, 22 min, **44//** 1/1 min, 1/2 min, 2 min, 3 min, 10 min, **45//** 5 min, 6/1 min, 6/2 min, 7 min, 8 min, 12 min, 13/1 min, 13/2 min, 14/1 min, 18 min, 19 min, 20 min, 21 min, 22 min, **46//** 25/2 min, **50//** min, 6 min, 14 min, 15 min, 16/1 min, 17 min, 23 min, 24/1 min, 24/2 min, **51//** 1 min, **60//** 1 min, 2 min, 3/1 min, 3/2 min, 4/1 min, 4/2/1 min, 4/2/2 min, 9 min, 10 min, **61//** 5 min, 6 min, 15 min **For Ancillary area 44//** 12, 13, 14, 17, 18, 19	E1	77°0'15.330" E	30°16'3.076" N	14.50		5.75			Sand		
				E2	77°0'7.959" E	30°15'59.838"N								
				E3	77°0'1.819" E	30°15'58.740"N								
				E4	76°59'48.430" E	30°15'54.620"N								
				E5	76°59'40.456" E	30°15'47.987"N								
				E6	77°59'37.906" E	30°15'42.303"N								
				E7	77°59'36.345" E	30°15'38.511"N								
				E8	77°59'34.665" E	30°15'37.712"N								
				E9	77°59'30.319" E	30°15'37.159"N								
				E10	77°59'26.988" E	30°15'36.952"N								
				E11	77°59'25.618" E	30°15'36.215"N								

				F1	77°0'15.800" E	30°16'2.300"N								
				F10	77°59'27.700" E	30°15'35.900"N								
				F11	77°59'27.231" E	30°15'33.350"N								
				F2	77°0'8.200" E	30°15'58.500"N								
				F3	77°0'2.100" E	30°15'57.800"N								
				F4	76°59'49.351" E	30°15'53.162"N								
				F5	76°59'41.200" E	30°15'47.400"N								
				F6	76°59'39.000" E	30°15'41.900"N								
				F7	76°59'37.100" E	30°15'37.200"N								
				F8	77°59'35.528" E	30°15'36.340"N								
				F9	77°59'30.100" E	30°15'36.000"N								
		Harda	**For Mining areas 28//** 6, 7 min, 14/1 min, 42/2 min, 15/1 min, 15/2 min, 16 min, 17/1 min, 18/2 min, 23 min, 24 min, **31//** 2 min, 3 min, 8 min, 9 min, 11/1 min, 11/2 min, 12 min, 20 min, 21/1 min, **32//** 16 min, 25/1 min, 25/2 min, 25/3 min, **46//** 4 min, 5 min, 7 min, 8 min, 13 min, 12 min, 19 min **For Ancillary areas 27//** 12, 13, 14, 15, 16, 17, 18, 19	A1	76°59'25.618" E	30°15'36.215"N	6.39		8.0			Sand			
				A2	76°59'24.075" E	30°15'32.012"N								
				A3	76°59'19.235" E	30°15'25.623"N								
				A4	76°59'12.517" E	30°15'18.404"N								
				A5	76°59'8.499" E	30°15'15.509"N								
				A6	76°59'5.605" E	30°15'12.571"N								
				B1	76°59'27.231" E	30°15'33.350"N								
				B2	76°59'20.295" E	30°15'25.160"N								
				B3	76°59'13.300" E	30°15'17.800"N								
				B4	76°59'10.503" E	30°15'15.610"N								
				B5	76°59'7.800" E	30°15'13.500"N								
		Ghelri	**For Mining areas**	A6	76°59'5.605" E	30°15'12.571"N	23.67		0			Sand		

			430 min, 433 min, 429 min, 428 min, 427 min, 420 min, 412 min, 413 min, 405 min, 406 min, 407 min, 398 min, 399 min, 400 min, 401 min, 390 min, 391 min, 392 min, 387 min, 388 min, 377 min, 378 min, 374 min, 375 min, 376 min, 365 min, 368 min, 369 min, 373 min, 372 min, 370 min, 371 min, 116 min, 117 min, 115 min, 118 min, 119 min, 120 min, 123 min, 121 min, 133 min, 134 min, 132 min, 135 min, 131 min, 130 min, 136 min, 137 min, 266 min, 267 min, 268 min, 265 min, 270 min, 264 min, 271 min, 276/2 min, 263 min, 272 min, 275 min, 262 min, 273 min, 227 min, 231 min, 236 min, 237 min, 244 min, 235 min, 245 min,	A7	76°59'3.299" E	30°15'9.450"N								
				A8	76°59'2.236" E	30°15'5.989"N								
				A9	76°59'2.509" E	30°15'3.088"N								
				A10	76°59'3.726" E	30°15'1.652"N								
				A11	76°59'6.295" E	30°15'0.419"N								
				A12	76°59'7.698" E	30°14'57.338"N								
				A13	76°59'7.719" E	30°14'55.463"N								
				A14	76°59'6.451" E	30°14'54.401"N								
				A15	76°59'4.292" E	30°14'53.997"N								
				A16	76°58'59.334" E	30°14'54.853"N								
				A17	76°58'56.092" E	30°14'54.579"N								
				A18	76°58'54.087" E	30°14'51.839"N								
				A19	76°58'52.745" E	30°14'44.125"N								
				A20	76°58'53.784" E	30°14'40.672"N								
				A21	76°58'55.824" E	30°14'37.754"N								
				A22	76°58'52.762" E	30°14'35.201"N								
				A25	76°58'42.809" E	30°14'32.948"N								
				A26	76°58'35.961" E	30°14'32.383"N								
				B25	76°58'42.144" E	30°14'31.750"N								
				B26	76°58'39.635" E	30°14'31.622"N								
				B27	76°58'32.467" E	30°14'31.470"N								
				A6	76°59'5.605" E	30°15'12.571"N								
		Sabga	**For Mining areas 76//** 15 min, 16 min, 24 min, 25 min, **77//** 9 min, 10/1 min, 10/2 min, 11 min, 12 min, 20 min, 21 min,	C1	76°56'31.400" E	30°12'50.700"N	9.98		5.15			Sand		
				C2	76°56'29.800" E	30°12'50.000"N								

			87// 4 min, 5 min, 6 min, 7 min, 14/1 min, 14/2 min, 15/1 min, 15/2 min, 17 min, 23 min, 24 min, **95//** 14 min, 15/1 min, 15/2 min, 16/1 min, 17 min, 18 min, 23 min, **96//** 2/2 min, 3 min, 4 min, 8 min, 9/1 min, 9/2 min, 10/2 min, 10/4 min, 11 min **For ancillary area 76//**21, 22, 23, **87//**1, 2, 3/1	C3	76°56'29.700" E	30°12'48.900"N								
				C4	76°56'26.400" E	30°12'43.900"N								
				C5	76°56'25.300" E	30°12'40.000"N								
				C6	76°56'25.200" E	30°12'37.000"N								
				C7	76°56'23.700" E	30°12'34.800"N								
				C8	76°56'21.700" E	30°12'32.900"N								
				C9	76°56'19.500" E	30°12'31.700"N								
				C10	76°56'16.700" E	30°12'30.500"N								
				C11	76°56'11.400" E	30°12'28.300"N								
				C12	76°56'9.399" E	30°12'26.430"N								
				D1	76°56'32.684" E	30°12'49.768"N								
				D2	76°56'30.277" E	30°12'46.092"N								
				D3	76°56'27.683" E	30°12'42.968"N								
				D4	76°56'27.026" E	30°12'39.746"N								
				D5	76°56'26.359" E	30°12'36.010"N								
				D6	76°56'24.576" E	30°12'33.905"N								
				D7	76°56'22.442" E	30°12'32.046"N								
				D8	76°56'19.927" E	30°12'30.914"N								
				D9	76°56'17.007" E	30°12'29.342"N								
				D10	76°56'12.213" E	30°12'27.076"N								
				D11	76°56'10.422" E	30°12'26.018"N								
		Rain Majra	**For Mining areas** 2// 21 min, 22 min, 23 min, 4// 1 min, 2 min, 5// 4 min, 5 min, 6 min, 7	C12	76°56'9.399" E	30°12'26.430"N	6.32		0			Sand		
				C13	76°56'7.643" E	30°12'25.443"N								

			min, 8 min, 9 min, 10/1 min, 11 min, 12 min, 6// 14 min, 15 min, 16 min, 17 min, 18 min, 19 min, 21 min, 22 min, 23 min, 7// 25 min, 8// 4 min, 5 min, 9// 1 min	C14	76°56'3.808" E	30°12'23.866"N								
				C15	76°56'1.628" E	30°12'23.369"N								
				C16	76°55'52.985" E	30°12'21.420"N								
				C12	76°56'9.399" E	30°12'26.430"N								
				C18	76°55'35.539" E	30°12'14.498"N								
				C17	76°55'45.584" E	30°12'18.268"N								
				D11	76°56'10.422" E	30°12'26.018"N								
				D12	76°56'4.301" E	30°12'23.136"N								
				D14	76°55'53.267" E	30°12'20.452"N								
				D16	76°55'36.547" E	30°12'13.893"N								
				D15	76°55'45.866" E	30°12'17.300"N								
				D13	76°55'59.024" E	30°12'22.067"N								
		Tandwal	**For Mining areas** 3 min, 4 min, 7 min, 8 min, 9/2 min, 10/2 min, 11 min, 12 min, 18 min, 84 min	A22	76°58'52.762" E	30°14'35.201"N	3.33		0			Sand		
				A23	76°58'50.329" E	30°14'34.194"N								
				A24	76°58'46.751" E	30°14'33.457"N								
				A25	76°58'42.809" E	30°14'32.948"N								
				B22	76°58'54.300" E	30°14'34.400"N								
				B23	76°58'51.100" E	30°14'33.400"N								
				B24	76°58'47.400" E	30°14'32.400"N								
				B25	76°58'42.144" E	30°14'31.750"N								
		Panjail	**For Mining areas 33//** 18 min, 19/1 min, 19/2 min, 20 min, 21 min, 22 min, 23 min, 24 min, 25 min, **34//** 16 min, 17 min, 18 min, 22/2 min, 23 min, 24 min, **37//** 2/1 min, 2/2 min, 3 min, 9	A1	76°55'26.216" E	30°12'16.445"N	14.37		6.0			Sand		
				A2	76°55'23.904" E	30°12'18.348"N								
				A3	76°55'17.300" E	30°12'23.100"N								

			min, 12 min, **38//** 5 min, **39//** 1 min, 2 min, 8 min, 9 min, 10 min, 12 min, 13 min, 14/1 min, 16 min, 17 min, 18 min, 24 min, 25 min, **40//** 21 min, **43//** 1 min, 2 min, 8 min, 9 min, 10 min, 12 min, 13 min, 14 min, 16 min, 17 min, 25 min, **44//** 5 min, **For Ancillary areas 43//** 4, 5, 6, 7, **42//** 1, 10	A4	76°55'13.200" E	30°12'26.100"N								
				A5	76°55'6.866" E	30°12'30.972"N								
				A6	76°55'1.329" E	30°12'35.120"N								
				A7	76°54'58.652" E	30°12'36.551"N								
				A8	76°54'51.140" E	30°12'38.097"N								
				A9	76°54'46.200" E	30°12'38.300"N								
				A10	76°54'43.150" E	30°12'37.242"N								
				A11	76°54'40.400" E	30°12'35.700"N								
				A12	76°54'38.775" E	30°12'31.994"N								
				B1	76°55'25.253" E	30°12'15.883"N								
				B2	76°55'21.621" E	30°12'18.675"N								
				B3	76°55'16.598" E	30°12'22.360"N								
				B4	76°55'12.382" E	30°12'25.309"N								
				B5	76°55'5.715" E	30°12'30.494"N								
				B6	76°55'0.669" E	30°12'34.494"N								
				B7	76°54'57.154" E	30°12'35.947"N								
				B8	76°54'51.082" E	30°12'37.136"N								
				B9	76°54'46.416" E	30°12'37.341"N								
				B10	76°54'41.819" E	30°12'34.968"N								
				B11	76°54'39.996" E	30°12'31.170"N								
		Dinarpur	**For Mining areas** 29// 12 min, 17 min, 18 min, 19 min, 22 min, 23 min, 24 min, 25 min, 30// 10 min, 11 min, 20 min, 31// 4 min, 5 min, 6 min, 15 min, 16 min, 24 min, 25 min, 48// 3 min, 4/1	A12	76°54'38.475" E	30°12'31.994"N	16.83		0			Sand		
				A13	76°54'39.223" E	30°12'29.169"N								
				A14	76°54'41.469" E	30°12'27.136"N								

			min, 4/2 min, 5 min, 7/3 min, 7/4 min, 7/5 min, 8 min, 9 min, 11 min, 12 min, 13 min, 19 min, 20/1 min, 20/2 min, 21 min, 47// 16/2 min, 20 min, 21 min, 22 min, 23 min, 24 min, 25 min, 51// 1 min, 2 min, 3 min, 4 min, 46// 7 min, 8/1 min, 13 min, 14 min, 15 min, 16 min	A15	76°54'45.800" E	30°12'25.600"N								
				A16	76°54'46.900" E	30°12'23.000"N								
				A17	76°54'46.899" E	30°12'19.664"N								
				A18	76°54'45.477" E	30°12'16.494"N								
				A19	76°54'43.000" E	30°12'14.200"N								
				A20	76°54'39.854" E	30°12'11.794"N								
				A21	76°54'36.486" E	30°12'9.612"N								
				A22	76°54'31.000" E	30°12'7.100"N								
				A23	76°54'28.024" E	30°12'7.104"N								
				A24	76°54'25.800" E	30°12'8.000"N								
				A25	76°54'21.431" E	30°12'11.752"N								
				A26	76°54'18.830" E	30°12'13.400"N								
				A27	76°54'18.132" E	30°12'13.372"N								
				A28	76°54'17.250" E	30°12'12.608"N								
				A29	76°54'16.016" E	30°12'10.714"N								
				B11	76°54'39.996" E	30°12'31.170"N								
				B12	76°54'41.371" E	30°12'28.384"N								
				B13	76°54'44.783" E	30°12'27.536"N								
				B14	76°54'46.785" E	30°12'26.140"N								
				B15	76°54'48.115" E	30°12'23.529"N								
				B16	76°54'49.234" E	30°12'22.519"N								
				B17	76°54'48.451" E	30°12'18.848"N								
				B18	76°54'46.946" E	30°12'16.146"N								

				B19	76°54’44.581” E	30°12’13.247”N								
				B20	76°54’37.914” E	30°12’8.704”N								
				B21	76°54’34.480” E	30°12’6.837”N								
				B22	76°54’31.199” E	30°12’5.981”N								
				B23	76°54’27.664” E	30°12’5.639”N								
				B24	76°54’25.763” E	30°12’6.132”N								
				B25	76°54’24.966” E	30°12’6.847”N								
				B26	76°54’20.968” E	30°12’10.960”N								
				B27	76°54’18.474” E	30°12’12.608”N								
				B28	76°54’17.215” E	30°12’11.728”N								
				B29	76°54’16.564” E	30°12’10.254”N								
		Hasanpur	**For Mining areas 2//** 18 min, 19 min, 22 min, 23/1 min, **4//** 2/1 min, 2/2 min, 3/1 min, 9 min, 12/1 min, 12/2 min, 19 min, 22/1 min, 22/2 min, **11//** 2 min, 9 min, 12 min, 19/1 min, 19/2 min, 22 min, 23 min, **14//** 2 min, 3 min, 8 min, 9 min, 12 min, 13 min, 18 min, 19 min, 23 min, **20//** 3 min, 8 min, 9 min, 12 min, 13 min, 19 min, 21 min, 22 min, **21//** 1 min, 2 min, 10 min, 11 min, **For Ancillary areas 3//** 20, 21, **4//** 17, 24, 25	A29	76°54’16.016” E	30°12’10.714”N	10.82		3.35			Sand		
				A30	76°54’14.757” E	30°12’5.436”N								
				A31	76°54’13.571” E	30°11’58.264”N								
				A32	76°54’14.308” E	30°11’47.517”N								
				A33	76°54’15.265” E	30°11’43.149”N								
				A34	76°54’15.483” E	30°11’35.300”N								
				A35	76°54’13.787” E	30°11’30.417”N								
				A36	76°54’10.032” E	30°11’22.204”N								
				B29	76°54’16.564” E	30°11’10.254”N								
				B30	76°54’15.717” E	30°11’4.906”N								
				B31	76°54’14.838” E	30°11’57.796”N								
				B32	76°54’15.590” E	30°11’47.373”N								

				B33	76°54’16.405” E	30°11’43.452”N								
				B34	76°54’16.651” E	30°11’35.005”N								
				B35	76°54’14.763” E	30°11’29.980”N								
				A29	76°54’16.016” E	30°12’10.714”N								
				B36	76°54’10.950” E	30°11’21.607”N								
6.	**Rayawali Sadhanpur**	Rayawali	**44**/2/1/2 min	A28	76°55’50.603” E	30°28’3.065”N	2.0	77.68	0	12.61	90.29	Sand	5.59	08
				A29	76°55’54.723” E	30°27’55.149”N								
				Z1	76°55’49.587” E	30°28’2.914”N								
				Z4	76°55’54.595” E	30°27’53.355”N								
		Sadhanpur	**For Mining areas** 16 min, 17 min, 75 min, 14 min, 19 min, 23 min, 38 min, 49 min, 66 min, 191 min, 67 min, 183 min, 181 min, 101 min, 102 min, 103 min, 104 min	A30	76°56’1.085” E	30°27’49.807”N	9.99		0			Sand		
				A31	76°56’3.611” E	30°27’46.279”N								
				A32	76°56’4.043” E	30°27’44.187”N								
				A33	76°56’2.738” E	30°27’40.482”N								
				A34	76°56’0.834” E	30°27’39.601”N								
				A35	76°55’56.999” E	30°27’39.269”N								
				A36	76°55’51.979” E	30°27’40.313”N								
				Z5	76°55’58.967” E	30°27’49.416”N								
				Z6	76°56’0.088” E	30°27’49.212”N								
				Z7	76°56’2.807” E	30°27’43.768”N								
				Z8	76°55’58.854” E	30°27’40.498”N								
				Z9	76°55’50.874” E	30°27’41.402”N								
		Jatwar	**For Mining areas** **4//,** 17 min, 18 min, 23 min, **6//**, 3 min, 8 min, 13 min, 17 min, 18 min, 23 min, 24 min, **17//**, 6	A37	76°55’49.300” E	30°27’37.700”N	39.10		12.61			Sand		
				A38	76°55’48.800” E	30°27’28.800”N								

			min, 7 min, 13 min, 14 min, **18//**, 1 min, 2 min, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 10/1, 10/2, **28//**, 21 min, **29//**, 18 min, 19 min, 20 min, 21, 22, 23, 24 min, 25 min, **30//**, 16 min, 25 min, **37//**, 25 min, **38//**, 4 min, 5, 6 min, 7 min, **38//**, 12 min, 13 min, 14 min, 15 min, 18 min, 19 min, 20 min, 21 min, **39//**, 1 min, 2 min, 3 min, 4 min, 5 min, **40//**, 1 min, 2 min, 3 min, 4 min, 5 min, **61//**, 1 min, 21 min, 22 min, **62//**, 4 min, 5 min, 6 min, 7 min, 13 min, 14 min, 17 min, 18 min, 23 min, 24 min, 25 min, **67//**, 1 min, 2 min, 3 min, 4 min, 6 min, 7, 8, 14 min, 15 min, 16 min, **68//,** 10 min, 11 min, 12 min, 19 min, 20 , 22 min, 23 min, **109//**, 17 min, 23 min, 24 min, 25 min, **108//**, 21 min, **111//**, 5 min, **112//**, 1 min, 2 min, 3 min, 8 min, 13 min, 14 min, 17 min, 18 min, 23 min, 24 min, **128//**, 2 min, 3 min **For Ancillary areas 40//** 24, 25, **41//** 21, 22, **59//** 4, 5, 6, 7, 14, 15, **58//** 1/1, 1/2, 9, 10/1, 10/2,	A39	76°55'50.700" E	30°27'27.100"N									
				A40	76°55'51.600" E	30°27'25.300"N									
				A41	76°55'51.700" E	30°27'24.000"N									
				A42	76°55'48.700" E	30°27'23.600"N									
				A43	76°55'41.700" E	30°27'23.000"N									
				A44	76°55'38.600" E	30°27'22.400"N									
				A52	76°55'13.900" E	30°27'5.700"N									
				A53	76°55'7.700" E	30°27'5.500"N									
				A54	76°54'59.200" E	30°27'7.100"N									
				A55	76°54'51.600" E	30°27'5.800"N									
				A56	76°54'50.000" E	30°27'3.900"N									
				A57	76°54'47.481" E	30°27'2.566"N									
				A58	76°54'45.599" E	30°27'1.571"N									
				A59	76°54'43.500" E	30°27'0.600"N									
				A60	76°54'41.000" E	30°26'59.300"N									
				A61	76°54'38.500" E	30°26'56.600"N									
				A62	76°54'34.900" E	30°26'53.800"N									
				A63	76°54'34.100" E	30°26'49.800"N									
				A64	76°54'39.400" E	30°26'49.500"N									
				A66	76°54'56.200" E	30°26'39.900"N									
				A77	76°55'8.537" E	30°26'7.123"N									
				A78	76°55'9.615" E	30°26'5.955"N									
				A79	76°55'11.390" E	30°26'1.704"N									

				A80	76°55'8.755" E	30°25'57.469"N									
				Z10	76°55'48.400" E	30°27'38.000"N									
				Z11	76°55'47.800" E	30°27'28.800"N									
				Z12	76°55'49.600" E	30°27'27.000"N									
				Z13	76°55'49.900" E	30°27'24.800"N									
				Z14	76°55'41.700" E	30°26'24.200"N									
				Z15	76°55'38.300" E	30°27'23.000"N									
				Z22	76°55'13.600" E	30°27'6.700"N									
				Z23	76°55'8.400" E	30°27'6.700"N									
				Z24	76°54'58.600" E	30°27'9.100"N									
				Z25	76°54'54.200" E	30°27'10.600"N									
				Z26	76°54'51.100" E	30°27'9.900"N									
				Z27	76°54'49.000" E	30°27'8.200"N									
				Z28	76°54'47.300" E	30°27'4.100"N									
				Z29	76°54'41.500" E	30°27'1.100"N									
				Z30	76°54'40.500" E	30°27'0.200"N									
				Z31	76°54'36.600" E	30°26'57.700"N									
				Z32	76°54'33.900" E	30°26'55.100"N									
				Z33	76°54'32.100" E	30°26'51.100"N									
				Z34	76°54'32.900" E	30°26'49.300"N									
				Z35	76°54'34.900" E	30°26'48.400"N									
				Z36	76°54'38.700" E	30°26'48.200"N									
				Z37	76°54'50.600" E	30°26'41.400"N									

				Z45	76°55'3.009" E	30°26'8.112"N							
				Z46	76°55'7.698" E	30°26'6.547"N							
				Z47	76°55'9.131" E	30°26'5.177"N							
				Z48	76°55'10.521" E	30°26'1.755"N							
				Z49	76°55'7.201" E	30°25'57.877"N							
		Samru	**For Mining areas** 33//, 2 min	A45	76°55'34.500" E	30°27'20.600"N	5.02		0			Sand	
				A46	76°55'62.200" E	30°27'18.400"N							
				A47	76°55'31.400" E	30°27'15.400"N							
				A48	76°55'30.100" E	30°27'13.200"N							
				A49	76°55'27.600" E	30°27'10.700"N							
				A50	76°55'24.900" E	30°27'9.300"N							
				A51	76°55'17.500" E	30°27'6.400"N							
				Z16	76°55'34.300" E	30°27'21.300"N							
				Z17	76°55'31.300" E	30°27'19.300"N							
				Z18	76°55'30.300" E	30°27'15.100"N							
				Z19	76°55'26.400" E	30°27'11.700"N							
				Z20	76°55'22.000" E	30°27'8.900"N							
				Z21	76°55'17.600" E	30°27'7.500"N							
		Khera Jatan	**For Mining areas** 27 min	A72	76°54'39.040" E	30°26'26.988"N	3.0		0			Sand	
				A73	76°54'37.447" E	30°26'25.335"N							
				A74	76°54'34.776" E	30°26'24.095"N							
				Z41	76°54'39.125" E	30°26'28.283"N							
				Z42	76°54'35.091" E	30°26'25.796"N							

				Z43	76°54'35.011" E	30°26'24.193"N								
		Bodyo	**For Mining areas 1//**, 16 min, 25 min, **2//,** 20, 21, 22 min, **4//**, 1, 2 min, 9 min, 10 min, 11 min, 20 min, **5//**, 5 min, 6 min, 15 min, 16 min, 25 min, **6//**, 5 min, 29/4 min, 29/3 min, 31 min, 23 min, 24 min, **11//**, 3 min, 4 min, 5 min, 6 min, **10//**, 1 min, 10 min, 11 min, 12 min, 28/9 min, 28/10 min	A65	76°54'51.685" E	30°26'33.322"N	17.15		0			Sand		
				A67	76°54'53.600" E	30°26'35.000"N								
				A68	76°54'50.024" E	30°26'30.639"N								
				A69	76°54'47.541" E	30°26'26.628"N								
				A70	76°54'44.792" E	30°26'24.201"N								
				A71	76°54'43.460" E	30°26'24.027"N								
				A75	76°54'57.910" E	30°26'11.858"N								
				Z38	76°54'49.100" E	30°26'33.500"N								
				Z39	76°54'45.535" E	30°26'27.703"N								
				Z40	76°54'42.243" E	30°26'26.850"N								
				Z44	76°54'56.444" E	30°26'10.994"N								
		Tepla	**For Mining areas** 2//, 14 min, 16, 17 min, 24 min, 25, 11//, 5 min	Z2	76°55'50.603" E	30°27'59.565"N	1.42		0			Sand		
				Z3	76°55'51.719" E	30°27'57.080"N								
				Z4	76°55'54.595" E	30°27'53.355"N								
7	**Gadauli-Ambli**	Gada-uli	**For Mining areas 135//,** 5 min, 6 min, 14 min, 15, 16, 17 min, 23 min, 24 min, 25, **136//,** 1 min, 2 min, 3 min, 9 min, 10 min, 11 min, 12 min, 20 min, 21 min, **146//**, 1 min, 10 min, 11 min, 20 min, 21 min, **147//**, 3 min, 4, 5, 6, 7, 8 min, 13 min, 14, 15, 16, 17 min, 18 min, 24 min, 25, **154//**, 4 min, 5, 6 min, 7 min, 13 min, 14, 15 min, 16 min, 17 min, 18 min, 19 min, 21 min, 22 min, 23 min, 24 min, 25 min, **155//**, 1 min, **167//,** 1, 2, 3, 4 min, 5 min, 7 min, 8 min, 9, 10, 11 min, 12 min, 13 min, **168//**, 1, 2 min, 3 min, 4 min, 5 min, 6, 7, 8, 9, 13	A12	77°9'56.214" E	30°22'39.063"N	48.21	83.59	7.80	15.50	99.09	Sand	6.01	08
				A13	77°9'52.972" E	30°22'34.741"N								
				A14	77°9'50.587" E	30°22'29.935"N								
				A15	77°9'50.421" E	30°22'25.477"N								
				A16	77°9'50.910" E	30°22'21.192"N								
				A17	77°9'49.466" E	30°22'15.752"N								
				A18	77°9'49.176" E	30°22'13.115"N								
				A19	77°9'47.497" E	30°22'9.861"N								
				A20	77°9'45.015" E	30°22'7.478"N								

			min, 14 min, 15 min, **152//,** 25 min, **153//**, 21 min **For Ancillary areas 134//** 6, 15, 16, 25, **135//** 10, 11, 20, 21	A21	77°9'40.715" E	30°22'5.671"N								
				A22	77°9'38.718" E	30°22'5.528"N								
				A23	77°9'34.911" E	30°22'5.887"N								
				A24	77°9'30.779" E	30°22'6.699"N								
				Z	77°9'23.422" E	30°22'13.096"N								
				Y	77°9'32.003" E	30°22'9.341"N								
				X	77°9'38.584" E	30°22'11.408"N								
				W	77°9'41.699" E	30°22'14.388"N								
				V	77°9'44.843" E	30°22'16.825"N								
				U	77°9'45.954" E	30°22'18.970"N								
				T	77°9'45.852" E	30°22'22.925"N								
				S	77°9'44.343" E	30°22'23.956"N								
				R	77°9'43.330" E	30°22'29.148"N								
				Q	77°9'47.411" E	30°22'34.419"N								
				P	77°9'49.260" E	30°22'39.693"N								
		Ambli	**For Mining areas 20//**, 17 min, 24 min, **36//,** 4 min, 7 min, 14, 13 min, 17, 18 min, 23 min, 24, **38//,** 3 min, 4, 5, 6, 7, 8 min, 13 min, 14, 15 min, 16 min, 17 min, 18 min, 19 min, 22 min, 23 min, 24 min, **54//,** 2 min, 3 min, 4 min, 8 min, 9 min, 10 min, 11 min, 12, 13 min, 18 min, 19, 20 min, 21 min, 22, 23, 24 min, **56//**, 11 min, 19 min, 20 min, 21 min, 22 min, 23 min, **57//**, 2 min, 3, 4 min, 5 min, 6 min, 7, 8 min, 9 min, 13 min, 14 min, 15, 16 min, 17 min, **74//**, 1 min, 2 min, 3 min, **For Ancillary areas 21//** 17, 18, 19, 20, 21, 22, 23, 24	A	77°10'26.792" E	30°25'1.217"N	35.38		7.70			Sand		
				B	77°10'25.957" E	30°24'53.852"N								
				C	77°10'25.052" E	30°24'49.006"N								
				D	77°10'22.346" E	30°24'38.486"N								
				E	77°10'20.288" E	30°24'34.790"N								
				F	77°10'19.286" E	30°24'32.126"N								
				G	77°10'20.338" E	30°24'27.276"N								
				H	77°10'22.529" E	30°24'23.995"N								
				I	77°10'24.142" E	30°24'23.165"N								
				J	77°10'25.561" E	30°24'22.236"N								

				K	77°10’29.564” E	30°24’20.072”N								
				L	77°10’31.291” E	30°24’18.377”N								
				M	77°10’33.826” E	30°24’15.191”N								
				N	77°10’42.050” E	30°24’9.870”N								
				O	77°10’33.817” E	30°24’20.439”N								
				P	77°10’31.147” E	30°24’21.970”N								
				Q	77°10’24.127” E	30°24’29.786”N								
				P	77°10’24.151” E	30°24’34.960”N								
				Q	77°10’28.557” E	30°24’40.406”N								
				R	77°10’29.711” E	30°24’45.120”N								
8	**Kharu Khera**	Kharu Khera	**For Mining area** 27 min **For ancillary area 12**//22, 23	B1	76°55’41.263” E	30°19’31.298”N	7.15	7.15	1.83	1.83	8.98	Sand	0.51	08
				B2	76°55’39.840” E	30°19’31.426”N								
				C1	76°55’41.517” E	30°19’30.448”N								
				C2	76°55’39.844” E	30°19’30.529”N								
				B3	76°55’35.866” E	30°19’31.480”N								
				C3	76°55’35.616” E	30°19’31.100”N								
				B4	76°55’35.434” E	30°19’31.520”N								
				C4	76°55’32.018” E	30°19’30.928”N								
				B6	76°55’22.740” E	30°19’28.271”N								
				C5	76°55’23.038” E	30°19’27.642”N								
				C6	76°55’21.415” E	30°19’26.892”N								
				B7	76°55’20.921” E	30°19’27.136”N								
				C7	76°55’20.812” E	30°19’25.620”N								

				B8	76°55'20.090" E	30°19'25.894"N								
				B9	76°55'19.380" E	30°19'21.242"N								
				C8	76°55'20.220" E	30°19'21.158"N								

Speed/Registered

ANNEXURE-R8-3

From

The Director,
Mines and Geology Haryana,
Plot No. 9, I.T. Park, Sector-22,
Panchkula.

To

M/s R M Mines and Infra Private Limited,
149, Luxmi Garden, Yamuna Nagar, Haryana – 135001.

Memo No. DMG/HY/Cont./Toka Hamidpur/AMB/2022/ 4860
Dated Panchkula, the 28.07.2022.

Subject: Acceptance of the highest bid in respect of the minor mineral Boulder, Gravel and Sand contract of "Toka Hamidpur (BGS)" having tentative area of 247 Acres in the district Ambala, offered in e-auction held on 29.06.2022/issuance of Letter of Intent (LoI)- regarding.

You participated in the e-auction held on 29.06.2022 on the e-Auction web portal (https://minesharyana.c1auctions.com/) for grant of mining contract of minor mineral Boulder, Gravel and Sand mine after accepting the terms and conditions of the auction notice issued vide notification no. DMG/HY/e-Auction/Amb./2022/3573 dated 31.05.2022 and Corriengendum No. DMG/HY/e-Auction/Amb./2022/3629 dated 09.06.2022 in order to obtain mining contract of minor mineral Boulder, Gravel and Sand mine of the district Ambala.

2. You offered the highest bid of Rs. 50,02,00,000/- (Rs. Fifty Crores two lacs only) per annum against the Reserve Price of Rs. 20,57,00,000/- for obtaining the Mining Contract of Minor Mineral Mine namely 'Toka Hamidpur (BGS)' for extraction of 'Boulder, Gravel and Sand' having total area of 247 Acres. The details of the khasra number of the area under above said Mining (228.63 hectares in riverbed for mining and 18.37 hectares for ancillary activities) is attached as Annexure 'A'.

3. You are hereby informed that the State Government has accepted the highest bid of Rs. 50,02,00,000/- per annum offered by you in respect of 'Toka Hamidpur (BGS)' under the provision of Haryana Minor Mineral Concession, Stocking, Transportation of Minerals & Prevention of Illegal Mining Rules, 2012 (State Rules, 2012). Accordingly, you have become the successful bidder in respect of above said mine.

4. The State Government having accepted the aforementioned highest bid of Rs. 50,02,00,000/- per annum offered by you, the Department is pleased to issue this Letter of Intent (LoI) in your favour in respect of the Mining area namely of 'Toka Hamidpur (BGS)' subject to the following terms and conditions:

4.1 The period of the contract shall be 10 years and the same shall commence w.e.f. the date of grant of Environmental Clearance by the competent authority and the Consent to Operate (CTO) by the State Pollution Control

Board, whichever is later, or on expiry of the period of 12 months from the date of issuance of LoI, whichever is earlier;

4.2 As per the terms and conditions of the grant, you are liable to deposit Rs. 12,50,50,000/- i.e. equal to 25% of the annual bid amount as "Security", out of which you have already deposited an amount of Rs. 5,00,20,000/- (Rs. Five Crore twenty thousand only) i.e. equal to 10% of the annual bid amount as 'initial bid security' after the conclusion of e-auction. The balance amount of Rs. 7,50,30,000/- of the bid security i.e. 15% of the annual bid amount shall be deposited before commencement of the mining operation or before expiry of the period of 12 months from the date of issuance of Letter of Intent (LoI), whichever is earlier;

Provided that in case having taken all steps on your part, if you fails to obtain required environmental clearance and consent to operate(CTO) for undertaking mining operations within the said period of 12 months from the date of issuance of LoI, such letter of intent holder/contractor on a specific application submitted to the Director, at least thirty days prior to the end of the period mentioned above, giving details of the action already taken may seek additional time up to another twelve months, over and above the time of 12 months already allowed for commencement of the period of contract, on payment of a non-refundable fee as per the following:-

1	Extension of further period up to six months	On payment of a non-refundable fee at the rate of one percent per month of the annual bid for each month of requested extension period
2	Extension for a second period up to six months	On payment of a non-refundable fee at the rate of two percent per month of the annual bid for each month of requested extension period
Note: Extension shall be allowed only in month (s) and any request for period less/part of the month shall be summarily rejected and shall apply along with advance amount of the fee for such requested period of extension.		

4.3 You may note that the detail of the area of the mining is tentative and was notified on 'as is where is' basis (refer condition no. 21 (iv) of the auction notice). In case of any inadvertent mistake in the area detail/Khasra number etc., the same shall be got rectified/corrected before execution of the contract agreement (refer condition no. 21 (iii) of the auction notice);

4.4 No request regarding reduction in bid amount on account of reduction in land/area of the Mining Block, on any account including that of change in description of Khasra numbers / location etc. at any stage will be entertained on any ground. This shall also include any loss/reduction of area for actual mining for want of compliance of applicable laws/restrictions for mining or part of the contracted area had already been operated in the past. Needless to state that this also includes the changes, if any, as per condition no. 21 (vi) of the auction notice.

4.5 You offered bid after having gone through the terms and conditions of auction notice and also the applicable Acts and Rules for undertaking mining. The State government shall not be responsible for any kind of loss to you being the highest bidders/contractor at any point of time (before or after grant of contract) on any account including on account of reduction of land/ area/ production/ non grant of permission for mining in part area or otherwise on account of any condition stipulated for undertaking mining by any competent authority.

4.6 The amount of the highest bid i.e. Rs. 50,02,00,000/- (Rs. Fifty Crores two lacs only) per annum shall be the "Annual Contract Money" payable by you as the contractor money in the manner prescribed in the contract agreement to be executed on form MC-1 appended to State Rules.

As per orders dated 01.07.2022 of the State Government you will have to open Escrow Account with the Department wherein all the sale proceed made through E-rawaana portal will required to be deposited.

4.7 The annual contract money shall be increased at the rate of 10% on completion of each block of three years. Accordingly, the year-wise amount of the annual contract money shall be as per details given below:

Sr. No.	Year of the contract Period	Annual Contract Money [in Rs.]
1	First Year	50,02,00,000/-
2	Second Year	50,02,00,000/-
3	Third Year	50,02,00,000/-
4	Fourth Year	55,02,20,000/-
5	Fifth Year	55,02,20,000/-
6	Sixth Year	55,02,20,000/-
7	Seventh Year	60,52,42,000/-
8	Eighth Year	60,52,42,000/-
9	Ninth Year	60,52,42,000/-
10	Tenth Year	66,57,66,200/-

4.8 You are directed to execute the Contract Agreement in Form MC-1 appended to the State Rules, 2012 within a period of 90 days from the date of order of issuance of this LoI.

Note: 90 days period is for execution of Contract Agreement. Therefore, it is advised to submit draft agreement along with all relevant documents preferably within 45 days, so that agreement could be executed within 90 days after completing all the formalities of scrutiny and verification.

4.9 In case of the Partnership Deed (where bidding entity is a partnership firm) or Articles of Association (where bidding entity is a registered Company) or an Affidavit (where bidding entity is a sole proprietorship firm and the bidder is participating as an Individual), no transfer or addition or deletion of the Partners/Directors will be permissible before execution of the agreement;

4.10 The Contract Agreement executed shall be got duly Registered under relevant laws with concerned Registering Authority and you will be liable to pay applicable stamp duty and registration fee etc. as per the applicable rates and as demanded by the Registering Authority/Revenue Department at the time of Registration.

4.11 In case of failure to execute the agreement, after issuance of this acceptance of bid/LoI within the prescribed period of 90 days, this LoI shall be deemed to have been revoked and 10% amount of the highest bid deposited as initial bid security shall be forfeited and you, will be debarred from participation in any future auctions/tenders/competitive bidding process in respect of any area for obtaining mineral concession in the State for a period of 5 years.

4.12 You shall also furnish a solvent surety for a sum equal to the amount of the annual bid for execution of the Agreement. The documents in support of solvency of the surety shall be submitted dully evaluated by the concerned Revenue Authority along with Non Encumbrance Certificate from the concerned Revenue Authority. In case, the surety offered by the contractor(s) during the subsistence of the contract is not found solvent, the contractor(s) shall offer another solvent surety and a supplementary deed shall be executed to this effect.

4.13 After execution of agreement, either before commencement of the mining operation or before expiry of the time allowed, if any, as per condition No. 4.2 above, in case of failure to deposit the balance 15% amount towards security (as required under clause 4.2 above), the acceptance of bid/issuance of LoI/execution of agreement shall be deemed to have been revoked and 10% amount deposited towards as initial bid security after the conclusion of auction shall stand forfeited. Further, such bidder shall debarred from participation in any future auctions/Tenders/competitive bidding process in respect of any area for obtaining mineral concession in the State for a period of 5 years.

4.14 You shall be liable to deposit the contract money in advance at monthly intervals as per provisions of Contract Agreement i.e. from the date of commencement of the contract period.

4.15 You shall also deposit/ pay an additional amount equal to 7.5% of the due contract money along with the monthly instalments towards the 'Mines and Mineral Development, Restoration and Rehabilitation Fund.

4.16 You shall also deposit/ pay an additional amount equal to 2.5% of the due contract money along with the monthly instalments towards the 'District Mineral Fund'.

4.17 You shall also be liable to pay advance Income Tax as per provisions of Section 206(c) of Income Tax Act in addition to contract money, payable as per terms and conditions of contract agreement.

4.18 On enhancement of the contract money with the expiry of every three years period, you shall deposit the balance amount of security so as to upscale the security amount equal to 10% of the revised annual contract money as applicable for one year with respect to the next block of three years. No interest, whatsoever, shall be payable on the security amount deposited under the prescribed security head of the government;

4.19 You shall prepare a Mining Plan along with the Mine Closure Plan (Progressive & Final) from the Recognized Qualified Person as per chapter 10 of the State Rules, 2012 for the "Mining Unit" and get the same approved from an officer authorised by the Director, Mines & Geology, in this behalf.

4.20 Further, the actual mining will be allowed to be commenced only after prior Environment Clearance is obtained by you as the LoI holder/ Mining contractor for the Mining from the Competent Authority as required under EIA notification dated 14/09/2006 issued by Ministry of Environment, Forests and Climate Change, Government of India or as amended from time to time and also other required approvals for mining including Consent to Establish and Consent to Operate from the Haryana State Pollution Control Board before commencement of actual mining operations.

4.21 You will also be liable to pay the following to the landowners to undertake mining operations:

(a) Annual rent in respect of the land area blocked under the concession but not being operated; and
(b) Rent Plus compensation in respect of the area used for actual mining operations.

4.22 The amount of annual rent and the compensation shall be settled mutually between the landowner and the mining contractor. In case of non-settlement of the rent and compensation, the same shall be decided by the District Collector concerned in accordance with the provisions contained in Chapter 9 of the "State Rules, 2012";

4.23 The total mineral excavated and stacked by the concession holder within the area granted on mining contract, however, the quantity of mineral stacked shall not exceed three times of the average monthly production as per approved Mining Plan and/or quantity approved under Environmental Clearance, at any point of time.

4.24 The Mining Contractor shall not stock any mineral outside the concession area granted on mining contract, without obtaining a valid Mineral Dealer Licence as per provisions contained in Chapter 14 of the State Rules, 2012.

4.25 The contractor shall not carry out any mining operations in any reserved/ protected forest or any area prohibited by any law in force in India, or prohibited by any authority without obtaining prior permission in writing from such authority or officer authorized in this behalf. In case of refusal of permission by such authority or officer authorised in this behalf,

contractor(s) shall not be entitled to claim any relief in payment of contract money on this account;

4.26 Following are the general/ special conditions applicable for excavation of minor mineral(s) from river beds in order to ensure safety of riverbeds, structures and the adjoining areas:

i. No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge structure on up-stream side and ten time the span of such bridge structure on down-stream side, subject to a minimum of 250 meters on the up-stream side and 500 meters on the down-stream side;

ii. There shall be maintained an un-mined block of 50 meters width after every block of 1000 meters over which mining is undertaken or at such distance as may be directed by the Director or any officer authorised by him;

iii. The maximum depth of mining in the river-bed shall not exceed three meters from the un-mined bed level at any point in time with proper bench formation;

iv. Mining shall be restricted within the central 3/4th width of the river/ rivulet;

v. Any other condition(s), as may be required by the Irrigation Department of the state from time to time for river-bed mining in consultation with the Mines & Geology Department, may be made applicable to the mining operations in river-beds.

vi. No mining operation may be carried out from 1st July to 15th September every year (rainy season).

4.27 No mining operation shall be allowed in the urbanize zone of area notified by Town and Country Planning Department. Further, in case of the agriculture zone notified by Town and Country Planning Department mining shall be permissible only after obtaining prior permission from the competent authority;

4.28 The contractor shall not undertake any mining operation in the area granted on mining contract without obtaining requisite permission from the competent authority as are required for undertaking mining operations under relevant laws;

4.29 The contractor shall be under obligation to carry out mining in accordance with all other provisions as applicable under the Mines Act, 1952. Mines and Minerals (Development and Regulation) Act, 1957, Indian Explosive Act, 1884, Forest (Conservation) Act, 1980 and Environment (Protection) Act, 1986 and the rules made thereunder, Wild life (Protection) Act, 1972, Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981;

4.30 All other terms and conditions shall remain as per auction notice, and the contract agreement to be executed in Model Form MC-1 appended to the

State Rules, 2012. Further, the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 and Rules made thereunder shall prevail over all the terms and conditions.

5. In view of above, it is once again stated that the highest bid of Rs. 50,02,00,000/- (Rs. Fifty Crores two lacs only) per annum offered by you in respect of minor mineral mine namely 'Toka Hamidpur (BGS)" of district Ambala have been accepted by the State Government and the Department is pleased to issue this Letter of Intent (LoI) in your favour for grant of mining contract of said mine subject to the above said terms and conditions. Accordingly, you are advised to execute the Contract Agreement by submitting all requisite documents including a solvent surety(s) for a sum equal to the amount of the annual bid for execution of the agreement, within a period of 90 days from the date of issue of this bid acceptance letter and the LoI.

Director, Mines & Geology,
Haryana.

Speed/Registered

Endst. No. DMG/HY/Cont./Toka Hamidpur/AMB/2022/4861 Dated: 28.7.22

A copy is forwarded to the following for information and necessary action please:-

1. The Principal Secretary to Government Haryana, Mines and Geology Department.
2. The Chairman, Haryana State Pollution Control Board, Panchkula.
3. The Deputy Commissioner, Ambala.
4. The Mining Officer, Mines & Geology Department, Ambala. He is directed to ensure that proper and complete 'Draft Contract Agreement Documents' as required are submitted within stipulated period.

Director, Mines & Geology,
Haryana.

Director, Mines and Geology, Haryana

Annexure 'A'.

Sr. No.	Name of mining Contract Unit with name of Mineral	Name of village	Details of Khasra Nos.	Area as per Revenue record (in Acres)	Period (in years)
1	Toka Hamidpur (BGS)	Toka	**For Mining areas 10//**7/2 min, 8 min, 13/1, 13/2 min, 18 min **For Ancillary areas 11//** 4/1/2, 4/2, 5, 6, 7	247	10
		Chichi Majra	**For Mining areas 7//**, 25 min **8//**, 19, 20 min, 21 min, 22 min, **9//**, 1 min, 2 min, **10//**, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min		
		Sangrani	**For Mining areas 6//**, 11, 20, 21, 22 min, **12//**, 1, 2 min, 9 min, 10/1, 10/2 min, 11 min, 12, 19, 20 min, 21 min, 22, **19//**, 1/1 min,1/2 min,2,**27//**1, 2, 3 min, 8 min, 9, 10, 11, 12, 19, 20, 21, **28//**, 5 min, 6 min, 15 min, 16/1 min, 16/2 min, 25 min, **33//**,4 min, 5, 6, 7 min, 8 min, 13 min, 14, 15, 16, 17, 18, 19 min **For Ancillary areas 7//** 18/1, 18/2, 19, 22, 23, **32//**15, **33//**11		
		Rao Majra	**For Mining areas 3//**, 20, 21 min, 22 min, **4//**, 15 min, 16 min, 25 min, **9//**, 5 min, **10//**, 1 min, 2 min, 8 min 9 min, 10 min, 11 min, 12, 13 min, 11//25 min, 13// 1 min, 2 min, 3 min, 4 min, 5 min, 8 min, 9 min, 10 min		
		Shahpur	**For Mining areas 17//**, 23 min, **18//**, 3 min, 4 min, 7 min, 8 min, 13 min, 14, 15 min, 17 min		
		Dera	**For Mining areas 7//**, 8 min, 11 min, 12 min , 13 min, 18 min, 19 min, 20 min, 21 min, 22 min, **8//**, 16 min, 24 min, 25 min, **11//**, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 12 min, 13 min, 18 min, 19 min, 20 min, 21 min, 22 min, 23 min **21//**1 min, 2 min, 3 min, 8 min, 9 min, 10 min, 11 min, 12 min, 13 min, 18 min, 19 min, 20 min, 21 min, 22 min, 23 min, **24//**, 1 min, 2, 9 min, 10 min, 11 min, 12 min, 19 min, 20 min, 21 min, 22 min, **36//**, 10 min, 11 min, 20 min, 21 min, **37//**, 6 min, 15 min, 16 min, 24 min, 25 min, **42//**, 4 min, 5 min, 6 min, 7 min, 14 min, 15 min, 16 min, 17 min, 24 min, 25 min, **43//**, 1 min, 10 min, 11 min, 20 min, 21 min, **57//**, 1 min, 10 min, 11		

			min, 58//, 4 min, 5 min, 6 min, 7 min, 14 min, 15 min, 16 min, 17 min, 23 min, 24 min, 25 min, **63//**, 3 min, 4 min, 5 min, 7 min, 8 min, 12 min, 13 min, 14 min, 18 min, 19 min, 20 min, 21 min, 22 min, **62//**, 25 min, **81//**, 1 min , 10 min, **82//**, 4 min, 5, 6, 7, 8 min, 13 min, 14 min, 15 min, 16 min, 17, 18 min, 23 min, 24, 25 min, **88//**, 4 min, 5 min, 6 min, 7 min, 8 min, 12 min, 13 min, 14 min, 15 min, 16 min, 17 min, 18 min, 19 min, 21 min, 22 min, 23 min, 24 min, **108//**, 1 min, 2 min, 3 min, 4 min, 7 min, 8 min, 9, 10, 11, 12, 13, 14 min, 18 min, 19 min, 20, 21 min, 22 min, **109//**, 5 min, 6 min, 14 min, 15 min, 16, 17 min, 23 min, 24, 25, **114//**, 3 min, 4, 5 min, 7 min, 8 min, 13 min, 14 min, 17 min, 18, 19 min, 22 min, 23 min, **115//**, 1 min, **134//**, 2 min, 3 min, 9 min, 10 min, 12 min, **120//**, 6 min, 7 min, 13 min, 14 min, 15 min, 16 min, 17, 18 min, 23 min, 24 min, 25 min, **128//**, 4 min For **Ancillary areas 113//** 16/1, 16/2, 25/1, 25/2, **114//**20, 21		
		Hamid-pur	**For Mining areas 4//**, 22 min, 23, **6//**, 1 min, 2 min, 3 min, 4 min, 8 min, 9 min, 10 min, 11 min, 12 min, 20 min, **7//**, 6 min, 7 min, 11 min, 12 min, 13 min, 14 min, 15 min, 16 min, 17 min, 18 min, **17//**, 19 , 20 min, 21 min, 22 min, 23 min, **8//**, 16 min, 17 min, 24 min, 25 min, **22//**, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 13 min, 14, 17 min, 18 min, 23 min, 24 min, **29//**, 3 min, 4 min, 7 min, 8 min, 13 min, 14 min, 17 min, 18 min, 19 min, 21 min, 22 min, 23 min, 24 min, **42//**, 5 min, 6 min, 15 min, 16 min, 17 min, 24 min, 25 min, **43//**, 1 min, 2 min, 3 min, 9 min, 10 min, 11 min, 20 min, **48//**, 3 min, 4 min, 5 min, 7 min, 8 min, 13 min, 14 min, 17 min, 18 min **For Ancillary areas 21//** 14, 15, 16, 17		
		Dehar	**For Mining areas 2//**, 12 min, **9//**, 2 min, 3 min, 8 min, 9 min, 12 min, 13 min, 18 min, 19 min, 23 min **For Ancillary areas (Nanhera) 23//** 9/1, 9/2, 10		

Speed/Registered

ANNEXURE-R8-4

From

The Director,
Mines and Geology Haryana,
Plot No. 9, I.T. Park, Sector-22,
Panchkula.

To

M/s R M Mines and Infra Private Limited,
149, Luxmi Garden, Yamuna Nagar, Haryana – 135001.

Memo No. DMG/HY/Cont./Toka Hamidpur/AMB/2022/ 7257
Dated Panchkula, the 8-12-22

Subject: Request regarding Revise of Letter of Intent of 'Toka-Hamidpur' Block of district Ambala.

Reference your letter dated 17.10.2022 received through email on the subjected noted above.

2. Vide letter under reference you sought/requested to issue NOC without Khasra No. 17//21, 22 and 23 which falls under Forest area of village Hamidpur, district Ambala.

3. Your request has been considered and it has been found that due to *Typographical mistake, the Khasra Nos.* 7//21, 22 and 23 were mentioned as *17//21, 22 and 23 at the time of issuance of Letter of Intent (LoI) dated 28.07.2022. So, the Khasra Nos.* of village Hamidpur, district Ambala shown in the LoI dated 28.07.2022 may be read as **Khasra Nos. 7//21min, 22min and 23min** instead of 17//21, 22 and 23.

3. Accordingly, henceforth your contract of 'Toka-Hamidpur' district Ambala shall be for an area of 247 acres. You may note that all terms and conditions of the grant/LoI dated 28.07.2022 including annual amount for contract shall remain same.

4. You are directed to take further necessary action, if any, is required on your behalf.

Mining Engineer,
for Director , Mines & Geology,
Haryana.

ANNEXURE-R8-5

MINING PLAN AND PROGRESSIVE MINE CLOSURE PLAN

FOR

BOULDER, GRAVEL & SAND

Toka Hamidpur Block

(Prepared under sub-rule 8 of rule 70 of Haryana Minor Mineral Concession, Stocking, Transportation of Minerals & Prevention of Illegal Mining Rules, 2012.)

(Area- 247 Acres; Lease period -10 Years; Proposed Production4.46 MMT/Annum)

DISTRICT: AMBALA; STATE: HARYANA.

APPLICANT-

M/s R M Mines & Infra Private Ltd., 149, Luxmi Garden, Yamuna Nagar, Haryana(135001)

PREPARED BY

S.N. Sharma (B E Mining,1982) & D.C.Yadav (M.Sc.Geology,1984; RQP DMG/HY /2018/03)

House No. 282, sector 11-D, Faridabad (Haryana)

SUBMITTED TO: THE DIRECTOR GENERAL MINES & GEOLOGY, HARYANA,

PLOT NO.9, I.T.PARK, SECTOR-22, PANCHKULA

Dated : 16.02.2023

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APPROVED
Deepak Kumar

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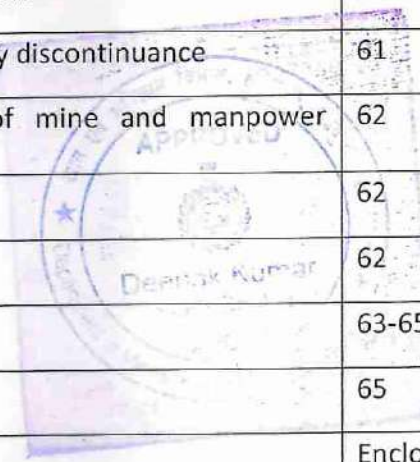

List of annexure

Annexure No.	Description
1	A copy of LOI and details of area.
2	Consent letter from applicant to prepare the mining plan
3	RQP Certificate
4	Replenishment Study report

LIST OF PLATES

Plate. No.	Description
1	Location Plan
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MINING PLAN AND PROGRESSIVE MINE CLOSURE PLAN TOKA HAMIDPUR BLOCK BOULDER, GRAVEL & SAND

INTRODUCTION

M/s R M Mines & Infra Private Ltd.,149,Luxmi Garden,Yamuna Nagar,Haryana-135001 was the highest bidder (50.02 Crores) for the Boulder, gravel & sand quarries of Toka Hamidpur for which auction was held on 29-06-2022.

Letter of Intent has been issued by the Director Mines & Geology Haryana vide letter No. DMG/HY/Cont./Toka Hamidpur/AMB/2024/4860 dated28-07-2022 for Mining of Boulder ,gravel & sand (Minor Mineral) in 7 villages namely Toka,Chechi Majra,Sangrani,Rao Majra,Shahpur,Dera,Hamidpur and Dehar(Toka Hamidpur Block) over an area of 247 Acres in district Ambala, Haryana for a period of 10 years (Copy of LOI & Details of area enclosed as annexure-1).

The applicant is involved in the Mining & construction business for last many years. The applicant can invest necessary funds for the scientific and systematic development of mines including land rejuvenation and progressive reclamation programme and other measures necessary to protect the quality of the environment and human health etc.

The objective of preparation of this mining plan and progressive mine closure plan is to fulfill the conditions stipulated by the Department of Mines & Geology, Haryana required under Haryana Minor Mineral Concession Rules, 2012 . The conditions which are related to the mining plan are reproduced here below.

- The mining contractor shall got prepare a "Mining Plan" along with the Mine Closure Plan (Progressive & Final) from the Recognized Qualified Person as per chapter 10 of the "Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012" for the area granted on mining contract. The contractor shall not commence mining operations in any area except in accordance with such Mining Plan duly approved by an officer authorized by the Director, Mines & Geology, in this behalf. It has also been stipulated, actual mining will be undertaken only after prior Environmental Clearance is obtained from Competent Authority as required under notification dated 14/9/2006 issued by the MoE&F& C C,GOI or as amended from time to time.

- The total mineral excavated and stacked by the concession holder within the area granted on mining contract shall not exceed three times of the average monthly production as per approved Mining Plan at any point of time.
- The contractor shall not carry out any mining operations in any reserved/protected forest or any area prohibited by any law in force in India, or prohibited by any authority without obtaining prior permission in writing from such authority or officer authorized in this behalf. In case of refusal of permission by such authority or officer authorized in this behalf, contractor(s) shall not be entitled to claim any relief in payment of contract money on this account. (In the instant case, no Forest Land is involved, hence same is not relevant.)
- The Department has also stipulated special conditions for excavation of minor mineral(s) from river beds in order to ensure safety of river-beds, structures and the adjoining areas, the same are as under :

(i) No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 meters on the up-stream side and 500 meters on the down-stream side;

(ii) There shall be maintained an un-mined block of 50 meters width after every block of 1000 meters over which mining is undertaken or at such distance as may be directed by the Director or any officer authorized by him;

(iii) The maximum depth of mining in the river-bed shall not exceed three meter from the un-mined bed level at any point in time with proper bench formation;

(iv) Mining shall be restricted within the central 3/4th width of the river/ rivulet;

(v) In case of areas permitted for excavation outside river/rivulets i.e. areas adjoining to rivers/rivulets, no mining shall be permissible in an area up to a width of 500 meters from the active edges of embankments in case of river Yamuna, 250 metres in case of Dangri, Markanda and Ghaggar and 100

meters on either side of all other rivers/ rivulets. (The present area of contract does not fall outside river bed, so this condition is not relevant.)

(vi) Any other condition(s), as may be required by the Irrigation Department of the state from time to time for river-bed mining in consultation with the Mines & Geology Department, may be made applicable to the mining operations in river-beds.

- That no mining operation shall be allowed in the urbansizable zone of area notified by Town and Country Planning Department. Further, in case of the agriculture zone notified by Town and Country Planning Department mining shall be permissible only after obtaining prior permission from the competent authority.
- A safety margin of two meters (2m) shall be maintained above the ground water table while undertaking mining and no mining operations shall be permissible below this level unless a specific permission is obtained from the competent authority in this behalf.
- The contractor shall not undertake any mining operations in the area granted on mining contract without obtaining requisite permission from the competent authority as required for undertaking mining operations under relevant laws.
- The contractor shall be under obligation to carryout mining in accordance with all other provisions applicable as per Mines Act, 1952, Mines and Minerals (Development and Regulation) Act, 1957, Indian Explosive Act, 1884, Forest (Conservation) Act, 1980 and Environment (Protection) Act, 1986 and the rules made there under Wild Life (Protection) Act, 1972, Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981.(Where ever it is applicable.)

1.0. **GENERAL:**

a) **Name and address of the Lessee/applicant:**

M/s R M Mines & Infra Private Ltd., 149, Luxmi Garden, Yamuna Nagar, Haryana-135001

b) **Status of the Applicant;**-The applicant is a Pvt. Ltd Co.

c) **Name, Address and registration number of the RQP preparing the mining plan**

(Consent letter enclosed as annexure -II and copy of RQP certificates as annexure-III a and b)

The applicant has assigned the work of preparation of mining plan to Sh S.N.Sharma Qualified Person (BE Mining)& D.C.Yadav(M.Sc Geology) Qualified Persons

House No. 282 Sector 11-D Faridabad (Haryana)

Mobile no.09560848579; 9416214247

Email- sn_sharma1959@rediffmail.com ; dcyadav747@gmail.com

2.0 Details of the Mining lease

a) Details of the land covered in the 'Area' notified by Hr. Govt. on31-05-2022 &09-06-2022 is as under:-

Mining Lease of Boulder, gravel & sand (Minor Mineral) over an area of 247 Acres is located in District –Ambala **Toka Hamidpur Block**, containing 8 villages for extraction of the Boulder, Gravel and Sand;

MINING PLAN AND PROGRESSIVE MINE CLOSURE PLAN TOKA HAMIDPUR BLOCK BOULDER, GRAVEL & SAND

Sr. No.	Name of the Block		Detail of Khasra Nos.	GPS reading of all corner point taken by HARSAC by usingDGPS		
1.	2.	3.	4.	5.		
1	Toka-Hamidpur	Toka	**For Mining areas** **10//**7/2min,8min,13/1,13/2 min,18min **For Ancillary areas** **11//**4/1/2,4/2, 5,6, 7	**Pillar**	**Longitude**	**Latitude**
				A	77°10'18.712"E	30°31'26.981"N
				A1	77°10'18.161"E	30°31'22.915"N
				Z	77°10'17.939"E	30°31'20.068"N
				Z1	77°10'21.633"E	30°31'26.317"N
		Chichi Majra	**ForMiningareas7//**,25min **8//**,19,20min,21min,22min,**9//**,1min, 2min,**10//**,3min,4 min,5 min, 6min,7 min, 8 min	**Pillar**	**Longitude**	**Latitude**
				A1	77°10'18.161"E	30°31'22.915"N
				B	77°10'15.703"E	30°31'22.936"N
				C	77°10'14.477"E	30°31'21.283"N
				D	77°10'11.109"E	30°31'18.786"N
				E	77°10'08.593"E	30°31'17.937"N
				F	77°10'05.765"E	30°31'16.054"N
				X	77°10'09.468"E	30°31'15.984"N
				Y	77°10'14.839"E	30°31'17.466"N
				Z	77°10'17.939"E	30°31'20.068"N
		Sangrani	**ForMiningareas6//**,11,20,21,22min,1 **2//**,1,2min, 9min,10/1,10/2min,11min,12,19,20mi n,21min,22,**19//**,1/1min,1/2min,2,**27/ /**1,2,3min,8min,9,**10,11**,12,19,20,21, **28//**, 5 min, 6 min, 15 min, 16/1min, 16/2 min, 25 min,**33//**,4min,5,6,7min,8min,13min ,	**Pillar**	**Longitude**	**Latitude**
				A1	77°9'46.599"E	30°30'07.206"N
				A2	77°9'46.407"E	30°29'59.390"N
				A3	77°9'47.029"E	30°29'53.117"N
				A4	77°9'47.413"E	30°29'49.605"N
			14,15,16,17,18,19min **ForAncillaryareas7//**18/1,18/2,19, 22,23,**32//**15, **33//**11	A5	77°9'45.480"E	30°29'31.877"N
				A6	77°9'43.504"E	30°29'25.032"N
				A7	77°9'43.615"E	30°29'23.399"N
				A8	77°9'42.083"E	30°29'19.999"N
				A9	77°9'39.041"E	30°29'18.245"N
				A10	77°9'37.052"E	30°29'14.443"N
				B1	77°9'48.848"E	30°30'7.163"N
				B2	77°9'49.029"E	30°30'3.294"N
				B3	77°9'51.427"E	30°29'57.341"N
				B4	77°9'51.373"E	30°29'49.632"N
				B5	77°9'53.326"E	30°29'31.798"N

				B6	77°9'50.715"E	30°29'27.993"N
				B7	77°9'50.623"E	30°29'24.075"N
				B8	77°9'48.259"E	30°29'24.041"N
				B9	77°9'47.959"E	30°29'18.216"N
				B10	77°9'45.518"E	30°29'18.216"N
				B11	77°9'45.346"E	30°29'14.361"N
		RaoMajra	**ForMiningareas3//**,20,21 min,22min,**4//**,15min,16 min,25min,**9//**,5min,**10//**,1 min,2min,8min9min,10min, 11min,12,13min,**11//**25min, 13//1min,2min,3min,4min, 5min, 8min,9 min, 10min	Pillar	Longitude	Latitude
				A11	77°9'31.478"E	30°29'08.067"N
				A12	77°9'32.082"E	30°29'02.986"N
				A13	77°9'34.921"E	30°28'56.715"N
				B12	77°9'34.671"E	30°29'04.740"N
				B13	77°9'39.209"E	30°28'56.715"N
		Shahpur	**ForMiningareas17//**,23min, **18//**, 3min, 4min,7min, 8min, 13min,14,15min,17min	Pillar	Longitude	Latitude
				A21	77°9'36.595"E	30°28'23.201"N
				A22	77°9'39.936"E	30°28'16.644"N
				B28	77°9'37.821"E	30°28'25.066"N
				B29	77°9'42.549"E	30°28'17.928"N
		Dera	**ForMiningareas7//**,8min,11min,12min,13min,18min,19 min,20min,21min,22min, **8//**,16min,24min,25min, **11//**, 3min, 4min,5min, 6min, 7min,8min,9min,12min,13 min, 18 min, 19 min, 20 min, 21min, 22 min, 23 min **21//**1 min,2min,3min,8min,9min,10 min,**11**min,12min,13min,18 min,19min,20min,21min,22 min,23min, **24//**,1min,2,9 min,10min,11min,12min,19 min,20min,21min,22min, **36//**, 10 min,11min,20 min,21 min,**37//**,6min,15min,**16** min,24min,25min,**42//**,4 min,5min,6min,7 min,14min, 15min,16min,17min,24min, 25min,**43//**,1min,10min,11 min,20min,21min,**57//**,1 min,10min,11min,58//,4min, 5min,6min,7min,14min,15 min,16min,17min,23min,24 min,25min,**63//**,3min,4min, 5min,7min,8min,12min,13 min,14min,18min,19min,20 min,21min,22min,**62//**,25min, **81//**, 1 min , 10 min, **82//**,4min,5,6,7,8min,13min,14 min,15min,16min,17,18min, 23min,24,25min,**88//**,4min, 5min,6min,7min,8min,12 min,13min,14min,15min,16 min,17min,18min,19min,21 min,22min,23min,24min, **108//**,1min,2min,3min,4 min,7min,8min,9,10,11,12, 13,14min,18min,19min,20, 21min,22min,**109//**,5min,6	A	77°11'3.027"E	30°30'18.077"N
				A1	77°10'44.306"E	30°29'48.431"N
				A2	77°10'36.752"E	30°29'40.976"N
				A3	77°10'45.492"E	30°29'39.183"N
				A4	77°10'46.437"E	30°29'43.105"N
				A5	77°10'47.810"E	30°29'46.814"N
				A6	77°10'48.038"E	30°29'52.329"N
				A7	77°10'50.057"E	30°29'59.737"N
				A8	77°11'0.693"E	30°30'8.858"N
				B	77°11'3.977"E	30°30'22.529"N
				C	77°11'3.957"E	30°30'29.449"N
				C3	77°10'43.097"E	30°29'33.780"N
				C39	77°10'24.689"E	30°29'18.364"N
				C4	77°10'32.120"E	30°29'29.079"N
				C40	77°10'27.890"E	30°29'24.256"N
				C41	77°10'28.660"E	30°29'27.093"N
				C42	77°10'29.691"E	30°29'30.480"N
				C43	77°10'30.499"E	30°29'32.158"N
				C44	77°10'31.277"E	30°29'33.931"N
				C45	77°10'32.646"E	30°29'35.047"N
				C5	77°10'31.554"E	30°29'25.259"N

			min,14min,15min,16,17min, 23min, 24,25,**114//**, 3min,4,5 min,7min,8min,13min,14 min,17min,18,19min,22min, 23min,**115//**,1min,**134//**,2 min,3min,9min,10min,12 min,**120//**,6min,7min,13	C6	77°10'30.874"E	30°29'23.673"N

			min,14min,15min,16min,17, 18min,23min,24min,25min, **128//**,4 min For**Ancillaryareas113//** 16/1, 16/2, 25/1, 25/2, **114//**20,21	C7	77°10'26.142"E	30°29'17.356"N
				D	77°11'2.912"E	30°30'32.398"N
				E	77°11'5.050"E	30°30'38.365"N
				F	77°11'7.145"E	30°30'42.733"N
				G	77°11'8.111"E	30°30'50.579"N
				H	77°11'8.338"E	30°30'53.419"N
				I	77°11'8.226"E	30°30'59.649"N
				J	77°11'9.903"E	30°31'3.903"N
				J1	77°11'23.418"E	30°31'12.052"N
				K	77°11'7.148"E	30°31'4.819"N
				K1	77°11'23.369"E	30°31'15.987"N
				L	77°11'3.478"E	30°31'0.006"N
				M	77°11'3.629"E	30°30'57.734"N
				N	77°11'3.520"E	30°30'52.069"N
				O	77°11'2.966"E	30°30'46.221"N
				P	77°11'4.535"E	30°30'42.388"N
				Q	77°11'3.375"E	30°30'38.365"N
				R	77°11'1.168"E	30°30'33.609"N
				S	77°10'59.523"E	30°30'30.790"N
				T	77°10'57.695"E	30°30'26.071"N
				U	77°11'58.843"E	30°30'15.740"N
				V	77°10'55.468"E	30°30'8.518"N
				W	77°10'53.161"E	30°30'4.660"N
				X	77°10'43.902"E	30°29'58.301"N
				Y	77°10'43.674"E	30°29'52.862"N

				Z	77°10'44.125"E	30°29'50.160"N
				A	77°11'48.827"E	30°29'28.235"N
				B	77°11'44.046"E	30°29'21.744"N
				U1	77°11'47.297"E	30°29'19.117"N
				V1	77°11'50.504"E	30°29'21.860"N
		Hamid-pur	**ForMiningareas4//**,22min,23,6//, 1min,2min,3min,4 min,8min,9min,10min,11 min,12min,20min,**7//**,6min, 7min,11min,12min,13min, 14min,15min,16min,17min, 18min,**17//**,19,20min,21 min,22min,23min,**8//**,16	B	77°11'44.046"E	30°29'21.744"N
				C	77°11'36.267"E	30°29'17.114"N
				D	77°11'30.811"E	30°29'15.836"N
				E	77°11'22.623"E	30°29'13.425"N
				F	77°11'19.474"E	30°29'9.072"N

			min,17min,24min,25min, **22//,**3 min,4 min,5 min, 6min, 7min,8 min,13min, 14, 17min, 18min,23min,24min,**29//,**3 min,4min,7min,8 min,13min, 14min,17min,18min,19min, 21min,22min,23min,24min, **42//,**5min,6min,15min,16 min,17min,24min,25min, **43//,**1 min,2 min,3 min, 9min, 10min,11min,20min,**48//,**3 min,4min,5min,7min,8min, 13min,14min,17 min,18min **ForAncillaryareas21//**14,15,16,17	G	77°11'18.604"E	30°29'3.418"N
				H	77°11'18.719"E	30°28'55.499"N
				I	77°11'12.236"E	30°28'48.976"N
				J	77°11'7.784"E	30°28'40.057"N
				K	77°11'6.953"E	30°28'35.636"N
				L	77°11'9.584"E	30°28'34.745"N
				M	77°11'10.201"E	30°28'39.756"N
				N	77°11'13.850"E	30°28'45.178"N
				O	77°11'21.148"E	30°28'53.067"N
				P	77°11'23.050"E	30°29'2.704"N
				Q	77°11'23.769"E	30°29'8.229"N
				R	77°11'25.671"E	30°29'10.979"N
				S	77°11'32.070"E	30°29'12.701"N
				T	77°11'38.160"E	30°29'13.369"N
				U1	77°11'47.297"E	30°29'19.117"N
		Dehar	**ForMiningareas2//**,12min,	B	77°10'10.682"E	30°26'32.254"N
			9//,2min,3min,8min,9min, 12min,13min,18min,19min, 23min **ForAncillaryareas(Nanhera)23//**9 /1,9/2,10	C	77°10'12.833"E	30°26'21.564"N
				D	77°10'14.841"E	30°26'14.932"N
				E	77°10'15.349"E	30°26'13.161"N
				F	77°10'13.462"E	30°26'14.865"N
				G	77°10'11.168"E	30°26'19.003"N
				H	77°10'11.522"E	30°26'19.879"N
				I	77°10'11.035"E	30°26'22.129"N
				J	77°10'9.665"E	30°26'26.268"N
				K	77°10'8.529"E	30°26'29.870"N
				L	77°10'7.649"E	30°26'33.460"N

Village wise area details are as shown in table below

Village	VillageWiseAreaforMiningActivity(In Acres)	TotalArea forMiningActivity (InAcres)	Village WiseArea forAncillaryActivities	Total AreaforAncillaryActivities	TotalMineralConcessionArea (inAcres)	Name Of Mineral
Toka	1.78	228.63	3.82	18.37	247.00	Boulder, Gravel and Sand
Chichi	7.29		0			Boulder, Gravel and

Majra						Sand
Sangrani	34.34		5.50			Boulder, Gravel and Sand
RaoMajra	11.52		0			Boulder, Gravel and Sand
Shahpur	3.89		0			Boulder, Gravel and Sand
Dera	117.94		3.95			Boulder, Gravel and Sand
Hamid-pur	46.47		3.90			Boulder, Gravel and Sand
Dehar	5.40		1.20			Sand
	234.63	228.63	18.37	18.37	247.00	

b) Name of Mineral

Boulder, gravel & sand (minor mineral) is occurring in the lease area.

c) Description report of the mining lease/ quarry license with plan (copy of sanction order/ lease deed/ license)

Based on the details published vide Haryana Government Gazette notification dated 31-05-2022 issued by DMG, Haryana and the Khasra map submitted by the applicant, survey of the area was carried out along the course of the river Markanda, Roon, & Trilokpur Nadi in the revenue villages detailed above which flow from North East to South West side. Workings will be restricted within the lease area/ khasra's allotted. Mining activities will be carried out in a manner so that there is no obstruction to the movement of water flow, if any, during rainy season. The total length of the lease area is about 25 kms.

d) Key plan of the area

Key plan is enclosed as **Plate – 02.**

e) Location map of the mining lease showing the details of the approach roads up to the mine

Lease area is shown on the Key Plan. It forms a part of G. T. Sheet No's–53 F/2 &53F/3

Table: showing location of different quarries

Name & no. of block	Name of quarry	Distance from Narayangarh Town (KM)and direction	Distance from Ambala and direction
Toka-Hamidpur	Toka	23 km NW	46 KM NE
	Chichi Majra	6.6km NE	45km ENE
	Sangrani	5.1 km E	42km ENE
	Rao Majra	3.8km SE	41 KM NE
	Shahpur	19 km S	41 KM E
	Dera	9.7km NE	47 KM NE
	Hamidpur	13 km E	50km E
	Dehar	8.8 km S	44 km NE

Toposheet is enclosed as **Plate – 02.**

The area is approachable from various nearest towns as detailed below

These are located about from 40-50 Kms east and north east of Ambala City and about 5-10 Kms east and north east of Narayan garh Tehsil. All these quarries are connected by metalled road.

State Headquarters: Chandigarh is about 90 km in the North of the lease area.

f) Infrastructure facilities:

Nearest railway station	Ambala Cant Terminus Railway station about 40km
Police station	Narayangarh
Post office	All the nearby villages
Medical facilities	Narayangarh and Ambala

Electricity	electrical supply is available in all nearby villages.
Education facilities	Most of the nearby villages have secondary schools and for higher education institutes are available at Narayangarh and,Ambala, Kurukshetra, and Chandigarh & other nearby towns
Mode of transportation of mineral	Mineral Boulder, gravel & sandwill be transported by hired trucks. Loaded trucks will travel on Kuccha road made for plying of trucks. No. of such temporary road will provide access to the river bed and the movement of loaded trucks. As the lease area stretches in a length of around 32 km, working will be carried out in number of villages. Each village has its outlet meeting the tar road on the nearby villages and from where the mineral is sent to various destinations. Similarly, mineral will be transported on the other side through approach roads which finally merge with tar roads for final destinations.
River/ canal/ port	.

3) DETAILS OF EXISTING MINING PITS, THEIR DIMENSION AND LOCATIONS

Mineral Boulder, gravel & sand is the critical component in construction activities. Presently there is no pit available in the river bed. The past rainy season floods/ monsoon waters have peneplained the earlier worked river bed . Earlier Boulder, gravel & sand from this area used to transported from the road network ultimately to various destinations. Surface & geological plan & sections enclosed as **Plate – 03A,.3B,3C,3D,&3E for each village.**

Present Land use Pattern :- (in Acres)

S. No.	Particulars		Present land use (Acres.)
1.	Pit area		0.00
2.	Dump area		0.00
3.	Safety zone	Bridge & anicuts roads,7.5m lease boundry, 25% restricted area of river banks , 50m barrier at each km	44.70
4.	Infrastructure (Office, Temp. shelter etc) in safety one		0.00
5.	Ancillary area/Mineral Storage		18.37
6.	Plantation in safety one and ancillary area		0.00
7.	Un-worked		228.63
Total			**247.00**

3.1 Physiography, Hydrogeology, Drainage and Climate

The district area is occupied by Indo-Gangetic alluvim. There are no surface features worth to mention except that the area is traversed and drained by seasonal streams namely Tangri, Beghna and Markanda. The Major River Markanda flows from NE to SW which originates in Nahan hills.Chautang, Khand and Omla nalas of local existence also drain the district. The general slope of the land surface is From NE to SW and elevation of the lease area varies from 343m above msl near Toka in north east to 295 meters above msl in south west. The river Markanda& Roon provides the major drainage in the lease area. The general phygiograpy of the Lease area is gently sloping from NE to SW side indicating the flow direction of river.

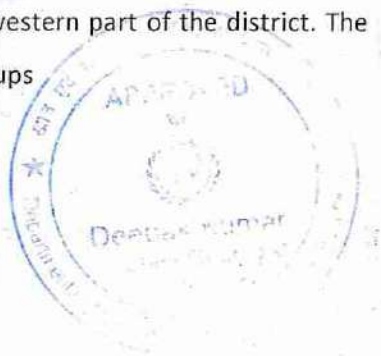
Physiographic ally the area is flat terrain. However a little part in the extreme northeastern area of the district is occupied by Siwalik hills, and falls in the zone of "Dissected Rolling Plain". The area slopes towards southwest with an average gradient of 1.5m/km. The general elevation in the district varies between 245m to 300m above MSL. The soils are non-calcareous and sandy loam on the surface, and loam to

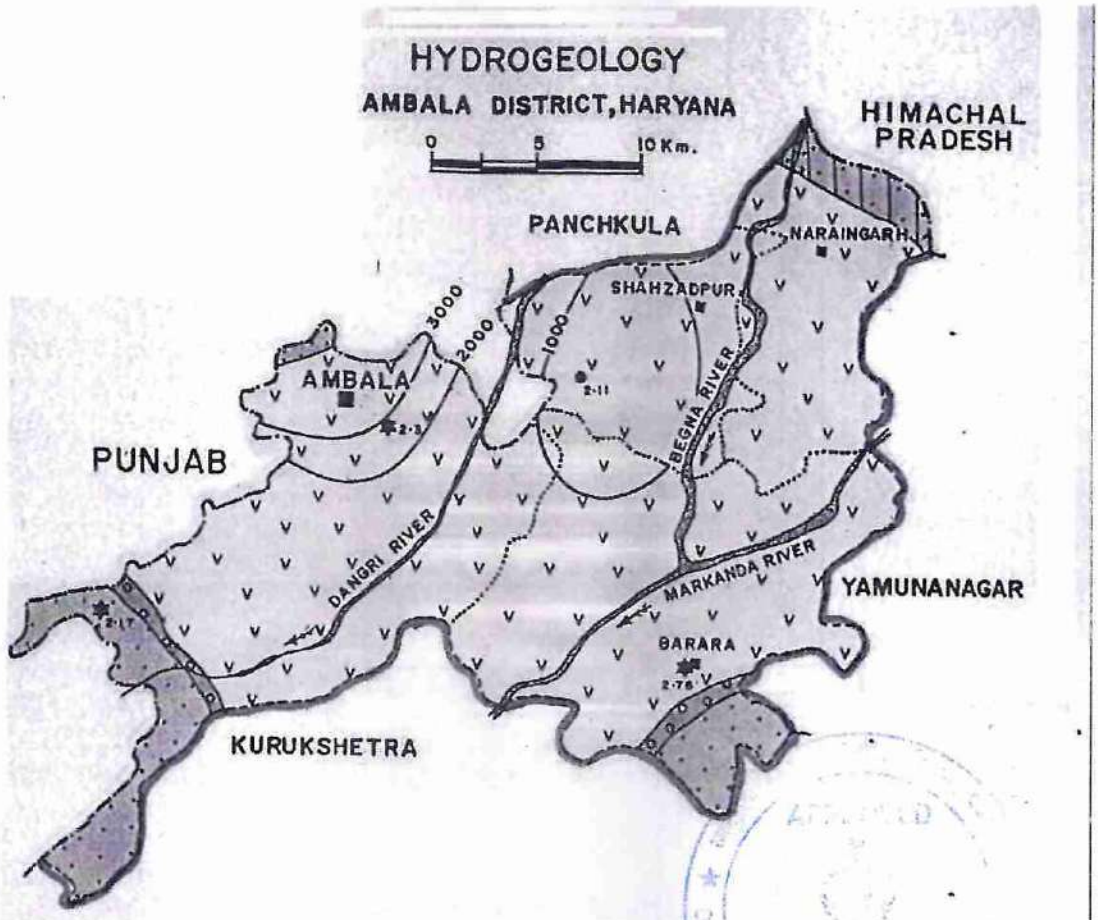
clayey loam at depth, and placed under the classification of soil as Udipsamments/Udorthents.

Hydrogeology (*Source: District Groundwater Brochure CGWB*).

The district is occupied by Indo-Gangetic alluvial plain of Quaternary age. The Central Ground Water Board has drilled 20 exploratory borehole, 3 slim holes, and 13 piezometers to delineate and determine potential aquifer zones, evaluation of aquifer characteristics etc. Seismic surveys conducted in the area reveal that alluvial thickness in the district is large and the basement rock is estimated to be encountered at 3000m depth below MSL. And thickness of alluvium thins down towards southwest. In south west and western parts of the district the sediments are more fine grained in nature, and constituted of fine to medium grained sands, clays, silts and kankars with occasional gravel. The clays are usually brown to yellowish in colour and sticky to silty in nature. The sands are usually fine grained,

hence it becomes difficult to develop wells so as to give sand free water with conventional well designs. Towards east and south eastern part of the district the clays are cream or light grey coloured and are soft and silty. The sands are also mostly medium to coarse grained in nature in comparison to the fine texture of sands in south western and western part of the district. The ground water exploration revealed the presence of 3 aquifer groups





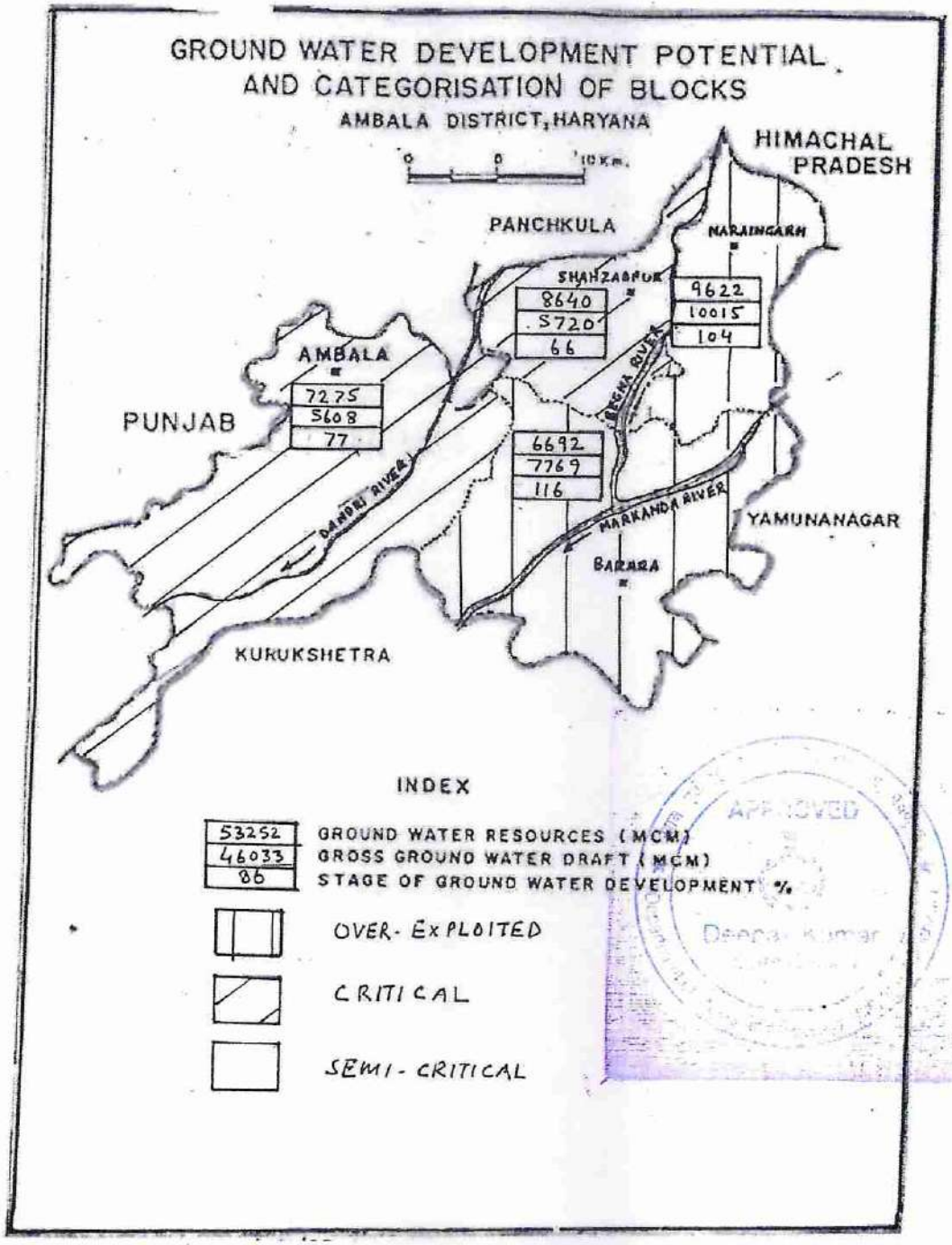
INDEX

	WELLS FEASIBLE	RIGS SUITABLE	DEPTH OF WELL(m)	DISCHARGE (lpm)	SUITABLE ARTIFICIAL RECHARGE STRUCTURES
SOFT ROCK AQUIFER	TUBE WELLS	REVERSE / DIRECT ROTARY	50 — 440	480 — 3200	RECHARGE TRENCH WITH INJECTION WELL
SOFT ROCK AQUIFER	TUBE WELLS	REVERSE / DIRECT ROTARY	20 — 100	360 — 480	RECHARGE TRENCH AND RECHARGE SHAFT
SOFT ROCK AQUIFER	TUBE WELLS	REVERSE / DIRECT ROTARY	20 — 60	240 — 360	RECHARGE TRENCH AND RECHARGE SHAFT

ELECTRICAL CONDUCTIVITY (MICROMHOS/CM AT 25°C)
1000

2-76 IRON > PERMISSIBLE LIMIT (1·0 ppm)

2-11 FLUORIDE > PERMISSIBLE LIMIT (1·5 ppm)


GROUND WATER DEVELOPMENT POTENTIAL
AND CATEGORISATION OF BLOCKS
AMBALA DISTRICT, HARYANA
0 5 10 Km.
HIMACHAL PRADESH
PANCHKULA
NARAINGARH
SHAHZADPUR
8640
5720
66
9622
10015
104
AMBALA
7275
5608
77
PUNJAB
6692
7769
116
BEGNA RIVER
MARKANDA RIVER
YAMUNANAGAR
BARARA
KURUKSHETRA
INDEX
53252
46033
86
GROUND WATER RESOURCES (MCM)
GROSS GROUND WATER DRAFT (MCM)
STAGE OF GROUND WATER DEVELOPMENT %
OVER-EXPLOITED
CRITICAL
SEMI-CRITICAL

CLIMATE

The climate of Ambala district can be classified as subtropical monsoon, mild &dry winter, hot summer and sub-humid which is mainly dry with very hot summer and cold winter except during monsoon season when moist air of oceanic origin penetrates into the district. The hot weather season starts from mid March to last week of the June followed by the south west monsoon which lasts up to September. The transition period from September to November forms the post monsoon season. The winter season starts late in November and remains up to first week of March.

Rainfall: The normal annual rainfall of the district is 1076 mm , and is unevenly distributed over the area. The average rainy days are 44. The south west monsoon sets in from last week of June and withdraws in the end of September, contributing about 81% of normal annual rainfall. July and August are the wettest months. Rest 19% rainfall is received during non-monsoon period in the wake of western disturbances and thunderstorms. Generally rainfall in the district increases from southwest to northeast .The mean maximum temperature is 40.8◦ C(May &June) and mean minimum is 6.8◦ C (January) of the district.

Normal Annual Rainfall: 1076 mm

Normal monsoon Rainfall: 879 mm

Temperature

Mean Maximum: 40.8°C(May & June)

Mean Minimum: 6.8 °C(January)

Normal Rainy days: 44

. (*Source: District Groundwater Brochure CGWB*).

3.2 Geology of the Area

3.2.1 Regional Geology

The north-eastern part of Haryana is predominantly characterized by sedimentary lithology in the Sub-Himalayan zone comprising Subathus, Dagshais, Kasaulis and Siwaliks. A general Regional stratigraphic sequence in the area is given in Table.

Table: Regional stratigraphic sequence

Age	Super group	group	Formation	Lithology
Holocene			Newer alluvium and Newer Aeolian Deposits	Gravel, Sand,silt, clay, limestone,gypsum
Lower to upper Pleistocene			older alluvium and Older Aeolian Deposits	Gravel, grey sand,silt, clay,brown sand,calcrete
Lower to Middle Pleistocene	S I W A L I K	Upper Siwalik	Boulder Conglomerates formation	Conglomerate,sandstone,silt,clay
Upper Pliocene			Pinjore Formation	Coarse grit,red sand stone and clay, conglomerate
			Tatrot Formation	Friable Sandstone and variegated clay
		Middle Siwalik	Dhokpathan Formation	Brown sandstone and orange clay
Middle Miocene			Nagri Formation	Hard grey sand stone, mudstoneand minor shale
		Lower Siwalik	Nahan Formation	Coarse grity clay and red sandstone often calcareous, brownish shale with lignite lenticles, greenish white Quartzite
Lower Miocene		Sirmur	Kausauli Formation	Grey and stone,green shale and grey clay
			Dagsai Formation	Purple and green sand stone, deep red gritty,clay,white andstone with ferruginous concretions
Upper Eocene			Subathu formation	Sandstone with gritu clay. Impure fossiliferous limestone calcareous slate,greenish shale and dark brown

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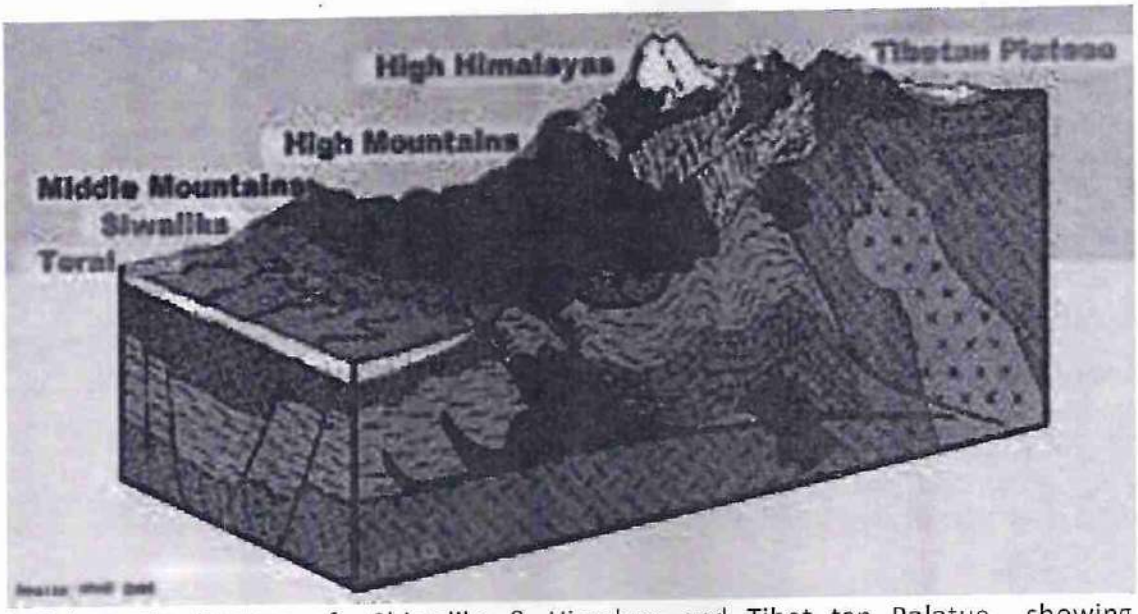
				quartzite
Pre-proterozoic			Tunda pathar	Thickly bedded ,sstromatolite limestone with carboniferous shale and quartzite



A Schematic diagram of Shiwaliks & Himalyas and Tibet tan Palatue showing formations and Structure.

3.2.2 LOCAL GEOLOGY

The litho units encountered in the riverbed and surrounding areas belongs to the Shivalik super groups. The sediments are river borne and has deposited in the riverbed and the flood plains.

The different formations of the area belong to Shiwalik Super group and are a mixture of boulders, pebbles, sand, silt and clay. The following sequences have been observed in the area.

Soil/Alluvium

Sand

Gravel

Boulder

There is no clear demarcation between the litho units. They have been deposit in a mixed form. The Litho- units exposed around the riverbed belong to Shivalik Super- Group. The mineral Boulders, Gravel and sand have formed by weathering of rocks and than deposition on the flood plains of the

rivers originated from the Shivaliks. These have been washed by rainwater during rainy season and deposited in river bed in the form of boulders, gravels and sand of different sizes and shapes. These minerals are sorted by screening. The max depth of the minerals is not known.

Soil/ alluvium varying in thickness from 2-4m constitute the top horizons in the area suitable for agriculture. Markanda River meanders through the area exposing the alluvium and soil at the banks. Boulder, gravel & sand is found in the river bed. Thickness of Boulder, gravel & sand is more than 10meters. This bed is presently dry and water flows only during the rainy season The Boulder,gravel &Sand exposed in the River bed of Markanda,Roon and surrounding areas is the product of the deposition of the sediments brought and deposited in the flood plains of River Markanda and its tributries . These sediments are of recent geological formation. The litho-units exposed within the river and surrounding areas have formed as water borne sediments brought by flood water during rainy season every year and deposited in riverbed. Geological map and section are enclosed as **Plate – 03A,3B,3C,3D,3E(for each village)**

3.2.3 DESCRIPTION OF FORMATION

The description of Boulder, gravel & sand found in the lease area as minor mineral has been as under:

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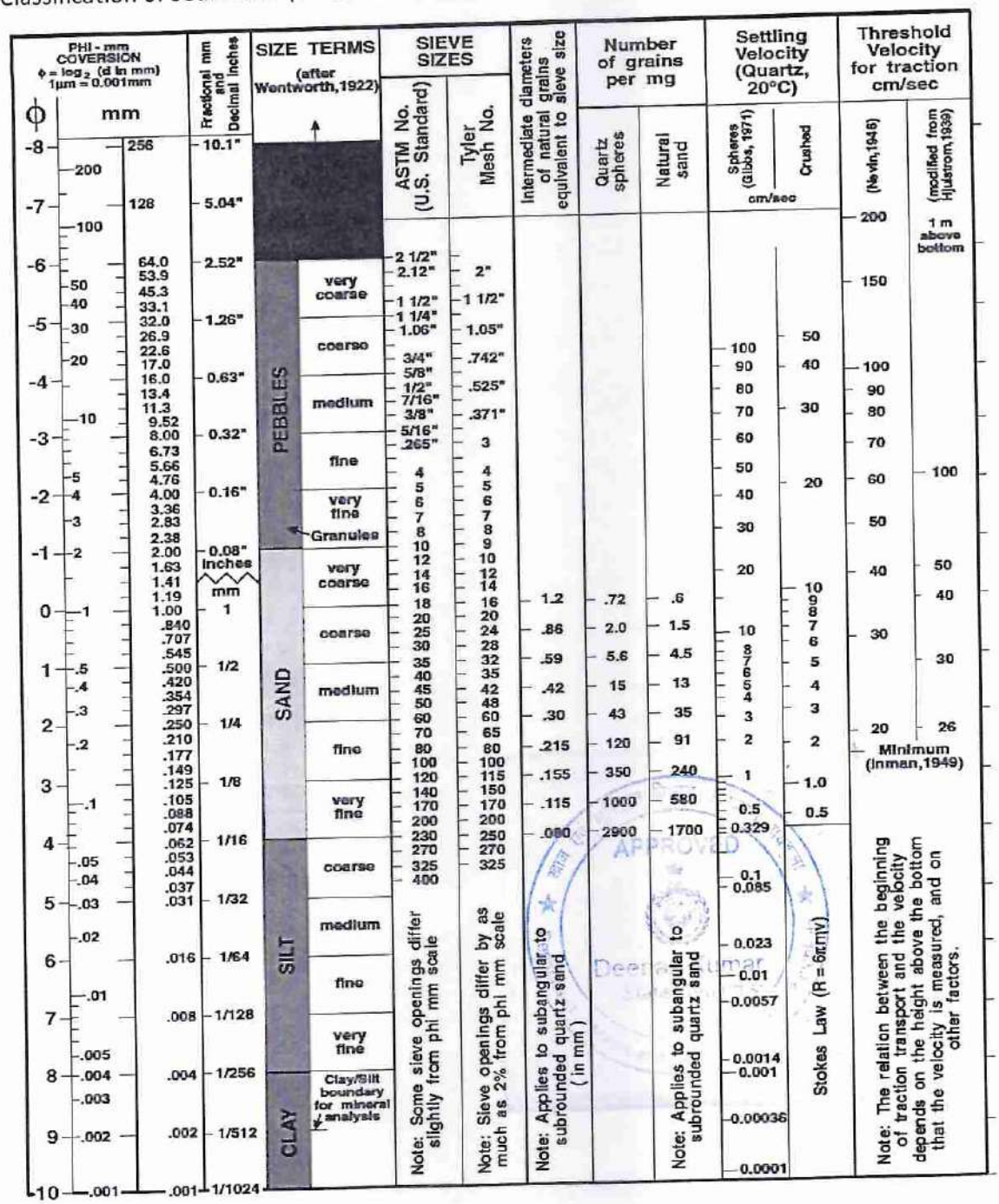
3.2.4 (Boulder, gravel & sand)

Sediments of various sizes and in mixed form are predominantly deposited in the river bed and outside the river bed as well in the central part. There is no perfect classification between boulders, cobbles, pebbles and sand. They are deposited in a mixed state. The classification is done by grab mining and the sediments are passed through different sieves in the screening plants.

Sediments of various sizes and in mixed form are predominantly deposited in the river bed and there is no perfect classification between sediments. These may be called as coarse sand, medium sand and fine sand.

The term sand is used to denote an aggregate of mineral or rock grains greater than 1/16mm and less than 2 mm in diameter.

Classification of Sediments (Wentworth Grain size Chart)



3.2.5 PHYSICAL & CHEMICAL CHARACTERISTICS OF MINERAL

Technically, sand is merely a size category. Sand is particulate matter that's larger than silt and smaller than gravel. Different specialists set different limits for sand:

Engineers call sand anything between 0.074 and 2 millimeter, or between a U.S. standard #200 sieve and a #10 sieve.

Soil scientists classify grains between 0.05 and 2 mm as sand, or between sieves #270 and #10.

Sedimentologists put sand between 0.062 mm (1/16 mm) and 2 mm on the Wentworth scale, or 4 to –1 unit on the phi scale, or between sieves #230 and #10. In some other nations a metric definition is used instead, between 0.1 and 1 mm.

From a geological viewpoint, sand is anything small enough to be carried by the wind but big enough that it doesn't stay in the air, roughly 0.06 to 1.5 millimeters. It indicates a vigorous environment.

Sand Composition and Shape

Most sand is made of quartz or its microcrystalline cousin chalcedony, because that common mineral is resistant to weathering. The farther from its source rock sand is, the closer it is to impure quartz. But Markanda and Roon River boulder,gravels & sands contain quartz grains, tiny bits of rock (lithics), or dark minerals like sand stone, limestone and ferruginous concretions.

The size of the sediments is variable. The grains whether small or large are rounded in shape. Sand is grey, brown in color,coarse to fine grained. The present deposits are of good quality and can be used for building industries. There is no other use of this material.

3.2.6 ORIGIN AND CONTROL OF MINERALISATION (ANNUAL REPLENISHMENT OF MINERAL IN RIVER BED AREA vis-à-vis SEDIMENTATION)

Sedimentation, in the geological sciences, is a process of deposition of a solid material from a state of suspension or solution in a fluid (usually air or water).

Broadly defined it also includes deposits from glacial ice and those materials collected under the impetus of gravity alone, as in talus deposits, or accumulations of rock debris at the base of cliffs. The term is commonly used as a synonym for sedimentary petrology and sedimentology.

Sedimentation is generally considered by geologists in terms of the textures, structures, and fossil content of the deposits lay down in different geographic and geomorphic environments.

The factors which affects the "Computation of Sediment":

a) Geomorphology & Drainage Pattern : The following geomorphic units plays important role :

- Structural Plain
- Structural Hill
- Structural Ridge
- Denudation Ridge & Valley
- Plain & Plateau of Gangetic plain
- Highly Dissected pediment
- Un dissected pediment

b) Distribution of Basin Area River wise (Area in Sq. Km or Sq. Miles)

c) Drainage System/Pattern of the area (Drainage Density = Km/Sq. Km of Yamuna River

d) Rainfall & Climate: Year wise Rainfall data for previous 10 years of Yamuna Basin/River

e) As per Dandy & Bolton study "Sediment Yield" can be related to

i) Catchment Area and

ii) Mean Annual Run-off

Sand is an essential minor mineral used extensively across the country as a useful construction constituent and variety of other uses in sports, agriculture, glass making

(a form of sand with high silica content) etc. It is common knowledge that minerals are non-renewable but this form of mineral naturally gets replenished from time to time in a given river system and is very much interrelated to the hydrological cycle in a river basin.

Panchkula district has a sub tropical continental monsoon climate having, hot summers, cool winters, good monsoon rainfall. It has great variation in temperature (-1 °C to 43 °C). Sometimes winter frost occurs during December and January. The district also receives winter rains from the western disturbance. The rainfall is mostly received in the monsoon. Morni hills constitute the highest point of the district as well as of Haryana. The Ghaggar is the only perennial river, which is very shallow outside of the monsoons. The mountains and hills of Kasauli are clearly visible from Panchkula.

Generally the slope of the district is from north east to south west and in this direction, most of the rivers/streams rain-fed torrents flow down and spread much gravel and pebbles in their beds. Only the Sirsariver, in Kalka Tehsil, flows towards north-west. The soils in the district are mainly light loam.

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The underground water in the district is generally fresh and suitable for domestic and purposes. The underground water level is generally high in the southern parts and low in north and north-east which is hilly tract. The district lies in the Himalayas boundary fault zones and earthquakes of moderate to high intensity have occurred in the past.

Dandy &Boltan formula for calculation of Sediment Yield:

Dandy Bolton formula is often used to check whether the sedimentation yield exceeds the replenishment rate but the whole question is whether there is adequate monitoring of the river basin, the answer is no as hydrological stations are sparsely spread. The formula uses catchment area and mean annual runoff as key determinants to give a yield value. It does not differentiate in basin wide smaller streams and their characteristics. CWC distinguishes river basins as classified and non-classified, as per the latest hydrological data for unclassified River basins; there are 122 GDSW (Gauge, Discharge, Sediment & Water Quality) sites in 12 such basins, the number was 147 in

2005. This brings in context the whole issue of scientific mining, thereby indicating that the monitoring of sediment yield in rivers / streams within the river basins is essential to arrive at extraction rates and express and conduct environmental studies based on these basin wide characteristics which should become part of the 'Terms of Reference' for Environmental Clearance.

Sediment Yield versus Drainage Area

Dandy and Bolton studied sedimentation data from about 1500 reservoirs, ponds, and sediment detention basins. In developing their formulas, they used data from about 800 of these reservoirs with drainage areas greater than or equal to 1 mi2. The smaller watersheds-those of drainage area less than 1 mi2-were excluded because of their large variability of sediments yield, reflecting the diverse effects of soils, local terrain, vegetation, land use, and agricultural practices.

For drainage areas between 1 and 30,000 mi2, Dandy and Bolton found that the annual sediment yield per unit area was inversely related to the 0.16 power of the drainage area: In which S= sediment yield in tons per square mile per year; SR = Reference sediment yield Corresponding to a 1-mile square drainage area, equal to 1645 tons per year; A = drainage area in square miles; and AR = reference drainage area (1 mi2)

Sediments Yield versus Mean Annual Runoff

Dandy and Bolton studied sedimentation data from 505 reservoirs having mean annual runoff data. Annual sediment yield per unit area was shown to increase sharply as mean annual runoff Q in- creased from 0 to 2 in. Thereafter, for mean annual runoff from 2 to 50 in. annual sediment yield per unit area decreased exponentially.

This led to the following equations.

For Q <2 in.:

For Q >2 in.:

In which QR = reference mean annual runoff QR = 2 in.

Dandy and Bolton combined Eqs. 15-10 and 15-11 into a set of equations to express sediment

yield in terms of drainage area and mean annual runoff.

For Q <2 in.:

For Q >2 in.:

Sec: 15.2 Sediment Productions.

For SR = 1645 tons/mi2/y, QR = 2 in., and AR = 1 mi2, Eq. 15-12 reduces to the followings:

For Q <2 in.: S = 1280 Q0.46 (1.43 – 0.26 log A)

For Q >2 in.: S = 1965e-0.055Q (1.43 – 0.26 log A)

Equations 5-12 and 5-13 are based on average values of grouped data; therefore, they should be used with caution. In Certain cases, local factors such as soils, geology, topography, land use, and vegetation may have greater influence on sediment yield than either mean annual runoff or drainage area. Nevertheless, these equations provide a first approximation to be of sediment yield for watershed planning purposes.

Calculation of Sediment Yield for Boulder, Gravel &Sand Mine of Toka-Hamidpur Block-

Area under riverbed : 91.452 ha(228.63 acres)

- Drainage basin area of river Markanda and is tributaries in Haryana : 744 Hactares
- Normal Annual Rainfall of Panchkula district (1978 to 2005) :1057mm or 42.28 inch

With above inputs, the calculation of the sediment yield by the Dandy and Bolton formula is illustrated below :

	S.No.	Q (in inches)	A (in square mile)	S
Sample Set	1	3.5	150	1400.823
	2	27.4	8214	179.4756

$$S = 1965\, e^{-0.055Q}[1.43 - 0.26 \log(A)]$$

Dandy &Boltan formula also says that actual sediments yield from individual drainage basins may vary 10-fold or even 100 fold from computed yields. Since itinerary of river Yamuna indicates that its basis comprises of sediment rocks with good average rainfall therefore there are fair chances of yield of sediments to be 50 fold of computed results hence Actual Sediment Yield will be :50-55 lakh MT per Annum.

The equations express the general relationships between sediment yield runoff and drainage area.

They may provide a quick rough approximation of mean sediment yields on a regional basis for preliminary watershed planning. Because Dandy & Bolton have derived the equation form average values computed sediment yields normally would be low for highly erosive area and high for well stabilized drainage basins with high plant density. Factors which have direct bearing on sediments yield & limitations of Dandy & Bolton equation.

Sediment yield of a sediment basin has direct impact of local terrain, climate, vegetation, soils, agricultural practices & land use pattern of catchment area of the sediment basin aforesaid factors varies from basin to basin therefore, Dandy & Bolton has category stated that use of the equation to predict sediment yield for a specific location would be unwise because of the wide variability caused by local factors not considered in the equation development. Actual sediment yield form individual drainage basins may vary 10-fold or even 100-fold from computed yields.

Assessment &Monitoring:

The mining of the mineral from the river bed area would be undertaken over maximum death of 3 meter from the existing level of the bed, which at present is 356.80 MRL. It will be ensured that at no point of time the mining is undertaken below the 3 metre of the existing bed level. To ensure the compliance of the same regular monitoring of the bed level would be ensured by taking the bed level after fixed intervals, including after the rainy season. It is proposed that the MRL of the river bed area of the contracted area length wise would be taken after every 500 meter after regular intervals i.e. at the time of commencement of mining, on 30th June, 15th September (immediately after end of monsoon season), 30th December, and 31st March.

In view of the above applicant has carried out the replenishment Study repot through M/s P&M Solution(Copy of report enclosed as(annexure IV).Further it is recommended that Project Proponent is required to conduct sedimentation study of the project area every year through reputed agency so that accordingly production can be monitored regularly.

3.2.7 Grade & Use of (Boulder, gravel & sand)

Boulder, gravel & sand are made of quartz or quartzite/its microcrystalline cousin chalcedony, because that common mineral is resistant to weathering. Boulder, gravel & sands contain quartz, feldspar grains, tiny bits of rock (lithics), or dark minerals like ilmenite and magnetite.

The size of the sediments is variable. The grains whether small or large are rounded in shape. Sand, boulder and gravel are mainly grey, brown in color, coarse to fine grained.

The present deposits are of good quality and can be used for building industries. There is no other use of this material.

3.3 RESERVE

3.3.1 METHOD OF ESTIMATION OF RESERVE

PROVED RESERVES

a) Survey was conducted in the proposed area of Markanda River and its tributaries bed as per the area allocated in different villages, vide list given byDMG,Haryana. This is the basic document provided by the authorities. Khasra plan was provided by the applicant.

b) Following special conditions which are applicable for excavation of minor mineral(s) from river beds in order to ensure safety of river-beds, structures and the adjoining areas are considered while calculating the reserves of this area:

(i) No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 meters on the up-stream side and 500 meters on the down-stream side;

(ii) There shall be maintained an un-mined block of 50 meters width after every block of 1000 meters over which mining is undertaken or at such distance as may be directed by the Director or any officer authorized by him;

(iii) The maximum depth of mining in the river-bed shall not exceed three meter from the un-mined bed level at any point in time with proper bench formation;

(iv) Mining shall be restricted within the central 3/4th width of the river/ rivulet;

(v) In case of areas permitted for excavation outside river/rivulets i.e. areas adjoining to rivers/rivulets, no mining shall be permissible in an area up to a width of 500 meters from the active edges of embankments in case of river Yamuna, 250 metres in case of Tangri, Markanda and Ghaggar and 100 meters on either side of all other rivers/ rivulets;

(vi) Any other condition(s), as may be required by the Irrigation Department of the state from time to time for river-bed mining in consultation with the Mines & Geology A safety margin of two meters (2m) shall be maintained above the ground water table while undertaking mining and no mining operations shall be permissible below this level unless a specific permission is obtained from the competent authority in this behalf. Further the depth of excavation of mineral shall not exceed nine meters (9m) at any point of time.

c) The contractor shall not undertake any mining operations in the area granted on mining contract without obtaining requisite permission from the competent authority as required for undertaking mining operations under relevant laws.

d) There are bridges and anicuts exist in the lease area. They provide a way for transportation of mineral also. Safety zone on upstream side and downstream side has been provided depending upon the length of the bridges/ anicuts as a measure of safeguard. No workings will be extended in this zone.

e) Metalled roads pass through the lease area. A safety zone of 50 m on each side of roads is earmarked. In this zone no activities will be conducted.

f) A barrier of 7.5 m width will be left from the lease boundary, if falling in the river bed.

g) River is not having any water flow during post monsoon period and sand bed remains dry.

h) **Mineral reserves are calculated up to 3 m depth from river bed surface RL.**

All reserves are proved reserves. Details are given as below.

Methods of estimation of reserves:-

For estimating the reserve of Sand the following

Parameters are considered as follows:

Basics of Mineral Reserves Calculation – River Bed Area

1) Mineral Reserves falling in the river bed area has been calculated taking the maximum permissible depth of 3 m from the river bed surface RL.

2) The bulk density of Graval,boulder &Sand is considered 2.0

3) Volumetric method is adopted for calculating reserves of Sand.

4) The mineable reserves are calculated by deducting "Blocked Geological Reserves on account of river banks, lease boundary, railway line, highways, bridges, anicuts (where ever applicable) from total proved Geological Reserves".

5) It is considered that river bed Sand shall be replenished every year as evident from preceding paragraph (3.2.6) on " Annual Replenishment of Mineral in River Bed Area vis-à-vis Sedimentation"

UNFC classification – Codes of UNFC are followed for reserve calculation

1. UNFC is a three digit code based system, the economic viability axis representing the first digit, the feasibility axis the second digit and the geological axis the third digit. Each digit provided.
2. Codes 1, 2 and 3 in decreasing order. The highest category of resources under UNFC system has code (111) and for lowest category the code is (334).
3. Code (111): This code is provided for the economically mineable part of the measured mineral resources (proved category reserves).
4. Code (121): This code is provided for the economically mineable part of the indicated mineral resources (probable category reserves).
5. Code (211): The part of the measured mineral resources (proved category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5 meters buffer zone and 50 meters from permanent structure.
6. Code (222): The part of the indicated mineral resources (probable category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5 meters buffer zone and 50 meters from permanent structure.
7. Code (480): Tonnage, Grade and mineral contents can be estimated with low level of confidence and resources are also inferred from geological.

The reserves of Sand calculated by volumetric method and are summarized here below: -

Table : Geological Reserves

Mineral concession area in Acres	Mining area in Acres	Ancillary area in acres	Bulk density MT/m3	Blocked area in acres	Total proved Geological reserves MT=Areaxdepthx	Blocked area Reserves of 50m strip after each km, 25% blocked in river banks, railways, roads/bridges/lease	Mineable reserves in MT	Planned production in MT

					BD (UNFC code111)	boundy etc= Acres UNFC Code 211 &222)		
247.00	228.63	18.37	2.0	44.70	55,51,594	10,85,405	44,66,189	44,60,000

A) PROVED RESERVES AS PER UNFC CODE (111)

Total Reserves =55, 51,594

B) BLOCKED RESERVES AS PER UNFC CODE (211 & 222) =10,85,405 MT

C MINEABLE RESERVES =(A-B) =44,66,189 MT

C) TARGETED PRODUCTION

44, 60,000 MT per Year up to the lease period

D) Balance reserves

For Balance reserves it is presumed that the mineral will be replenished every year during the rainy season. New mineral will be added every year in the river bed.

(Replenishment report enclosed as (annexure iv)

APPROVED
Deepak Kumar

4.0 DETAILS OF PRODUCTION & DISPATCHES OF FIVE YEARS

This is a new lease area allotted to the applicant. Future production programme has been planned as per the details given below:

Production Programme (Plate no.4 A,4B,4C,4D,4E)

Lease has been allotted for a period of 10 years only. Lease area consists of 247 acres area in 08 villages(Khasra)in a total stretch of 25 km. out of which about 44.70Acres area is under restricted zone. About 183.93Acre area is free from restriction and the mining is proposed in this area only. Mining is proposed in all the revenue villages

Daily production proposed = 16519 tons

Production programme is 661trips/ day @ 25 ton per trip

Working days have been taken as 270 days per annum.

Projected Production per Year =270 x16519 = 44,60,000 Tons

Table : Five Years Proposed Production Details (MT/A)

Year	Trips/ day	MTPA	Area (Acres)
I	661	44,60,000	185.83
II	661	44,60,000	185.83
III	661	44,60,000	185.83
IV	661	44,60,000	185.83
V	661	44,60,000	185.83

5.0 PHYSICAL AND GEOLOGICAL CHARACTERISTICS OF THE DEPOSIT

Deposit is moderate to good quality Boulder, gravel & sand. It is widely used in construction, buildings, bridges and other infrastructure. It is free from clay and non sticky in nature.

6.0 DETAILS OF MINING MACHINERY DEPLOYED OR TO BE DEPLOYED AND THE DETAIL SPECIFICATIONS

This is a new mining lease. Following equipments are proposed to be deployed for the desired production.

Table: List of Machinery

S. No.	Name of machinery	Capacity	Nos.
1	JCB/Excavator	0.9 m^3 -1.3 m^3	*10*
2	Tippers/ Trucks	25 tons	70
3	Water Tanker	4000 liters	*4*
4	Light vehicles	--	4

7.0 METHOD OF MINING

River bed mining is for extracting Boulder,gravel &sand from Markanda River and its tributries bed. As per Haryana Minor Mineral Concession Rules, 2012 extraction is limited to 3.0 m depth only.River bed is dry. Lease area allotted is 247Acres in district –Ambala.Total length of the area as per the description report stretches in the length of 25 km. Mining activity will be carried out in allocated areas only, enclosed as **Annexure–I.**

Effective length of lease area for wining of mineral is 25 km.Total production envisaged is

1 6,519 TPD. Activities will be carried out as per the production schedule given earlier. The mining quarry will be working as self sustained units with all facilities like site office, rest shelter, first aid and drinking water etc. All these mines will be connected suitably with communication system.

Light weight excavators/JCB will be deployed for extraction. Mineral will be removed in 3.0 m layer only forming one bench. This is as per the digging depth of the equipments. Mineral will be loaded in trucks of 25 tons capacity. Trucks and equipments will be on hire basis. There will be no OB or waste generation as the sand is exposed in the river bed.

Bench will advance parallel to the banks of the river. Height of bench will be 3.0 m. Width of the bench will be around 20.0 m. Workings will be restricted within the lease area/ khasra as per the description report given by Mining Department. Mining activities will be carried out in a manner so that there is no obstruction to the movement of water flow, if any, during rainy season. The bench will be in the form of slices/ strips parallel to the banks of the river. Roads in the lease area for the movement of loaded trippers/ trucks will not have slopes more than 1 in 20.However, movement of trucks after mineral loading will be towards both sides through approach roads connecting to tar roads. Every block will have its own approach roads, well connected to main highways. No processing of mineral will be done.

7.1 Proposed year wise development for five years

Boulder, gravel & sand lease has been granted for a period of ten years only. Calendar plan has already been made and details have been given. Sequence of operation has been depicted in **Plate No – 4 A,4B,4C,4D &4E**

Ultimate limit will be 3.0 m below existing bed level as indicated in the working section.

7.2 Proposed rate of production when the mine is fully developed

Work will be carried out for 270 days in year. Year wise production during the plan period will be as follows:

Table : Proposed Production

Year	Targeted Production MT/annum	OB/ Waste (M^3)
1	44,60,000	-
2	44,60,000	-
3	44,60,000	-
4	44,60,000	-
5	44,60,000	-

7.3 Mineable reserves and anticipated life of the mine

Lease will be granted for a period of 10 years as per HMMCR, 2012. During rainy season there is replenishment of the mineral, which helps in sustaining the production.

Estimated Minable reserves up to 3.0 m available are = 44,66,189 MT which are replenished every year during rains.

Anticipated production during lease period will be = 4, 46, 00,000 MT or say 44.6 MMT million tones

7.4 Proposed method of mining

Mining activity will be carried out by open cast mechanized method.

- Light weight excavators will be used for digging & loading of mineral in tippers.
- No OB/ waste material will be produced.
- No drilling/ blasting is required as the material is loose in nature.
- Proper benching of 3.0 m height will be maintained.
- Roads will be properly made and sprayed by water for suppression of dust.
- Roads in the lease area for the movement of loaded trippers/ trucks will not have slopes more than 1 in 20.
- Total extent of lease is about 25 km including prohibited area.

- Extraction activities will start in the blocks from the upstream side to downstream side. This will not obstruct the movement of water, if any, during monsoon period in the river course.
- Approach roads from the various blocks as already described earlier will be merging with permanent tar roads on both sides of the river for transportation of the mineral to final destinations.

As per MMR 1961, following precautions shall be undertaken during operations of HEMM.

Shovel/ excavator: -

1. Excavators will be provided with efficient warning devices, front & rear lights and efficient brakes.
2. Excavator will be under the charge of a competent person authorized in writing by the manager designated as operator.
3. No person other than the operator or his helper if any will ride on the excavator or even enter the excavator's cabin.
4. No person will be permitted to ride in the bucket of a Shovel/ excavator.
5. No inflammable material will be stored in the excavator housing or cab.
6. Shovel/ excavator dippers will be lowered to the ground during greasing operation.
7. When a Shovel/ excavator is to be moved from one point to another its boom shall be kept in strict alignment with direction of travel while the bucket/ dipper shall be held m above the ground.
8. No Shovel/ excavator will be operated in the position where any part of the machines, suspended loads or lines are brought closer than 3 m to the exposed high voltage line.
9. Every movement of a Shovel/ excavator shall be preceded by warning signals.
10. When not in use, the Shovel/ excavator will be moved to and stood on stable ground, the bucket shall be kept resting on stable ground and will never be left hanging.

11. The Shovel/ excavator will be so spaced that there will be no danger of accident from flying & falling objects.
12. Safety appliances, booms will be examined thoroughly once in a year.
13. Emergency switches, safety limit switches will be examined and tested once in four months.
14. All brakes will be tested for their operation worthiness once in a week.
15. The following signboards will be carried in and around the machine: -
    (i) "Warning— Do Not Enter The Working Range Of The Machine".
    (ii) "Lubricating Prohibited While the Machine in Running Condition".

Duties of Shovel/ excavator operator: -

1. At the commencement of every shift the operator will personally inspect and test the machine, paying special attention to the following details: -
    (i) The brakes and every warning device are in working order.
    (ii) Lights are in working order.
    (iii) The operator will neither take out the machine for work nor will he work the machine unless he is satisfied that it is mechanically shown and in efficient working order.
    (iv) The operator will maintained a record of every inspection made in a bond paged book, kept for the purpose and shall sign every entry made there in.
    (v) The operator will keep the cab window clean so as to ensure clear vision at all times.
    (vi) The operator will not operate the machine when persons are in such proximity as to be endangered.

(vii) Before leaving the machine, the operator will lower the bucket to the ground.

(viii) The operator will not leave his machine during the shift. Whenever, he finishes his work, he will hand over the machine to his relief or lock the excavators cab.

(ix) The operator will not allow any unauthorized person to ride on the machine.

Dumper: -

1. Every dumper will be provided with efficient brakes.
2. Efficient audible warning devices will be provided with the dumpers.
3. The dumper, if required to work after daylight hours, efficient headlights and taillights will be used.
4. Every dumper will be under the charge of a competent person, authorized in writing by the manager.
5. No person, other than the driver or his helper, if any, will ride on a dumper.
6. No person will be permitted to ride in the running board of a dumper.
7. The loaded dumpers will not be reversed on gradients.
8. Sufficient stop blocks will be provided at every tipping point and these will be used on every occasion when material is dumped.
9. Standard traffic rules shall be adopted and followed during movement of all dumpers. They shall be prominently displayed at relevant places in the opencast workings and haulm roads.
10. When not in use, every dumper will be moved to and stood on proper parking places.
11. No person will be permitted to work on a chassis of a dumper, with the body in rest position, until after the dumper body has been securely blocked in position.
12. The mechanical wised mechanism will not be depended upon to whole the body of a dumper in a rest position.

13. No unauthorized person will be permitted to enter or remain in any turning points.
14. While inflating tyres, suitable protective cages shall be used.
15. Tyres will never be inflated by sitting either in the front or on the top of the same.
16. While the vehicle is being loaded / unloaded on gradient, the same will be secured stationary by the parking brake, and other means suitably designed stopper block, which could be placed below the tyres.
17. At least once in every two weeks the brakes of every dumper will be tested as below: -
    (a) Service Brake test: - The brake will be tested on a specified gradient and speed when the vehicle is fully loaded. The vehicle should stop within the specified distance when the brake is applied.
    (b) Parking brake test: - The parking brake shall be capable to hold the vehicle when it is fully loaded and placed at the maximum gradient. Maximum gradient of the roadway which is permitted only for a period of at least 10 minutes.
    (c) A record of such test will be maintained in a bound paged book and will be signed by the competent person carrying out the test. These records will be countered signed by the engineer and manager.
    (d) All vehicles shall be tested and examined once at least in every 6 months.
    (e) A notice shall be displayed outside every vehicle that **"No Unauthorized Travelling Allowed".**
    (f)

Duties of dumper operators: -

1. At the commencement of every shift, the operator shall personally inspect and test the machine, paying special attention to the following details: -

(i) Tyre pressure, brakes, horn and the Lights are in working order.

(ii) The driver will neither take out the machine for work nor will he work the machine unless he is satisfied that it is mechanically shown and in efficient working order.

(iii) The driver will maintained a record of every inspection made in a bound paged book, kept for the purpose and shall sign every entry made there in.

(iv) The driver will keep the cab window clean so to ensure clear vision at all times.

(v) Driver will ensure that the gear is in neutral position before stopping the engine. He will park the vehicle: -

(a) In reverse gear, on level roads and down gradients.

(b) In low gear, on up gradients.

(vi) The driver will negotiate downhill gradients in low gear, so that minimum of braking is required.

(vii) The driver will not drive too fast, avoid distractions and drive defensively.

(viii) Before crossing a road / railway line he will reduce his speed looking both directions along the road or railway line and will proceed across the road or line only if it is safe to do so.

(ix) The driver will not operate the dumper in reverse unless he has a clear view of the area behind the vehicle.

(x) The driver will see that : -

(a) The vehicle is not overloaded.

(b) The material is not loaded in a dumper so as to project horizontally beyond the sides of its body.

(xi) The driver will not allow any unauthorized person to ride on the vehicle.

(xii) When there is a poor visibility, the speed of a vehicle will be restricted in a manner that the braking distance is maintained shorter the distance of visibility.

(xiii) The driver will not leave his machine during the shift. When he finishes his work, he will hand over the machine to his reliever or lock the excavators cab.

7.5 Conceptual Mining Plan

Mine lease area will be worked in blocks for ease of operation. However, as the digging depth will be restricted to 3.0 m only, material will still be available below. This will be further replenished during rainy season. Blocks will be worked systematically as the width is limited while length is much more. Sequence of working has been shown on **Plate no – 4A,4B,4C,4D,4E** of Composite plan. As the lease period is only 10 years, some of the area will be left un-worked at the end of lease period.

(i) Final Slope Angle To Be Adopted

Thickness of the bench is limited to 3.0 m only and width will be more than the height of the bench. River bank side will be protected by working in 3/4 patr of middle of the river. Bank side natural slope will not be disturbed. This will prevent collapse of bank and erosion. However, the height of the bank with respect to river bed is varying from 2-3 m only.

(ii) During plan period workings will be carried out in a number of villages at a time of the lease area simultaneously. Scattered workings will ensure safety, remove congestion of vehicles and will have better control and management.

(iii) Ultimate Capacity Of Dumps

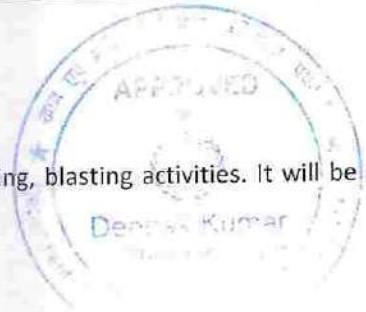
- There will be no OB removal and waste generation during the plan period. No dumping area is needed. No outside material will be filled up in the extracted zone

a) Landuse Pattern of Mining Lease Area at Various Stages

Land use pattern will be as follows:

Table : Land Use Pattern of Mining Lease area at Various Phases

S. No.	Particulars		Present land use (Acres.)	At the end of 5th year (Acres.)
1.	Pit area		0.00	0.00
2.	Dump area		0.00	0.00
3.	Safety zone	Bridge & anicuts roads,7.5m lease boundry, 25% restricted area of river banks , 50m barrier at each kmetc	44.70	44.70
4.	Infrastructure (Office, Temp. shelter etc) in ancillary area		0.00	0.50
5.	Mineral Storage/Ancillary area		0.00	18.37
6.	Plantation (in safety zone)		0.00	10 .00
7.	Un-worked		183.93	0.00
8	Naturally reclaimed area		--	183.93
Total			**247**	**247**



7.6 Blasting

Boulder, gravel & sand extraction will not require any drilling, blasting activities. It will be directly loaded in to trucks.

7.7 Mines Drainage

The Major River Markanda flows from NE to SW which originates in Nahan hills.Chautang, Khand and Omla nalas of local existence also drain the district. The general slope of the land surface is From NE to SW. The river Markanda provides the major drainage in the lease area. The general phygiograpy of the Lease area is gently sloping from NE to SW side indicating the flow direction of river.

The general phygiograpy of the Lease area is gently sloping from NE to SW side indicating the flow direction of River Markanda. RL details along the river course are as given below:

Table : RL Details of River Bed

Village Name	Highest Bed RL (m)	Lowest bed level(m)
Toka	335.66	334.0
Chechi Majra	334.25	333.38
Sangrani(i)	312.90	312.16
(ii)	310.15	309.32
Rao Majra	311.90	311.07
Shahpur	305.0	304.75
Dera	337.0	320.37
Hamidpur	315.50	312.20
Dehar	292.63	291.55

There is no flow of water in the river bed in post monsoon period. Area is having 1076 mm rainfall in a year. During rainy season, catchment water flows in the river. During dry period the Boulder, gravel & sand is excavated which gets replenished during rainy period. No mining activities will be carried out during rainy season when there is water flowing in the working area.

There will be no intersection of water table as working will be carried out upto 3.0 m depth only from surface of river bed while the water level is 8-10 m below the surface of river bed.

7.8 Water Requirement

The requirement of water for the project will be as under

Sr.no	Activity	Requirement in KLD	Source
1	Dust suppression	25.0	Hired Tankers
2	Drinking	4.0	Hired Tankers
3	Green belt	10.00	Hired Tankers
	Total	39.00	

7.9 SITE SERVICE: -

. Manager's Office:

1 competent Managers and 2 numbers of assistant Managers (At least one for each Shift) will be required to supervise the mining operations. An office for Manager 5 x 3 meters shall be provided near the central location of each quarry. An additional room for other supervisory staff is also proposed.

. Canteen -cum-rest shelter:

In order to provide the rest shelter for the workers working in the mine and also to provide tea etc. the arrangement shall be made to install a rest shelter-cum-canteen at each quarry and shall be utilized by the workers. The rest shelter will be for having rest during the lunch hours by the workers/ labor. The size of rest shelter shall be about 20 x 5 meter to accommodate the workers.

First Aid Room:

To provide the first aid for any sort of injuries encountered during the mining operation, one small first aid room shall be provided at each sub block. First aid kit and sufficient stock of material/medicines needed for first aid shall be provided as

per requirement. As the Mining Engineer/Manager and Mining Mates are qualified first aides, they can provide first aid to the labor on the spot.

Crèche: If women workers are employed, arrangement for a small crèche shall be made as per the requirement.

Electricity Supply:

Electric connection will be got connected for office and security purpose.

Water Supply:

The water supply for drinking purpose proposed will be made available by hired tanker.

8.0 YEAR WISE ANNUAL PROGRAMME OF MINING FOR NEXT 5 YEARS

Boulder, gravel & sand mineral is targeted for 16519 tons per day i.e. 4.46million tones per annum (maximum). Extraction is planned for 5 years duration only. Production programme is given below:

Table: Production Programme

Year	Targeted Production (in MMTA)	OB/ Waste (M^3)
1	*4.46*	-
2	*4.46*	-
3	*4.46*	-
4	*4.46*	-
5	*4.46*	-

9.0 DETAILS OF EMPLOYMENT

Man power will be about persons as per the details given below:

Table : Employment Details

S. No.	Category	Numbers
1	Manager – Ist Class	1
2	Assistant managers	2
3	Foreman/Mates	8
4	Supervisory staff	10
5	Skilled personnel	10
6	Semi-skilled personnel	70
7	Un-skilled personnel	20
Total		**121**

10.0 MEASURES TAKEN AND TO BE TAKEN FOR LAND RESTORATION, RECLAMATION AND PLANTATION IN/ OR NEARBY LEASE AREA

- Envisaged mining operation will be carried out in the River bed . This will be dry bed mining.There will be no mining activities when there is flow of water in the working zones. During rainy season, the activities will be stopped, if there is flow in the river.
- Besides resource extraction, following activities will be kept in view:
  a) Protection and restoration of ecological system
  b) Prevent damages to the river regime
  c) Protect riverine configuration such as bank erosion, change of water course gradient, flow regime etc.
  d) Prevent contamination of ground water

Safeguard Measures

While carrying out mining activity following measures will be taken:

- Mining activities will be carried out only in dry bed. No in stream mining will be practiced.
- Identification of river stretches for mining will be completed.
- There will be no mining near the banks. This is to protect the bank erosion and river migration.
- Mineral Boulder, gravel & sand from river will be restricted to a maximum depth of 3.0 m from the existing bed level. This is for safety and sustainability.
- As the lease area is quite large and long in length, systematic extraction will be carried out to prevent seasonal scouring and enhanced erosion.
- Extraction will be carried out in a manner that there is no obstruction to flow of water, if any, during rainy season.
- Mining on the concave side of the river channel should be avoided to prevent bank erosion. Similarly meandering segment of river will be selected to prevent natural eroding banks and to promote mining on natural building (aggrading) meanders component

Reclamation of Mined Out Area (plate no.5 A,5B,5C,5D,5E)

There is no generation of OB/ waste material. No backfilling has been proposed in the excavated zone. River bed will be replenished by sediments during rainy season.

Greenbelt

The lease area is in the river bed and devoid of any vegetation. Mining activities will not cause any harm to riparian vegetation cover as the working will not extend beyond the

offset left against the banks in the river.Land on both sides is the private agriculture land. Link road from the active zone pass through the areas.It is proposed to have plantation on both sides of the roads as greenbelt to provide cover against dust dissemination.River banks will be strengthened by way of plantation on the banks. Plantation will also be carried out as social forestry programme in villages, school and the areas allocated by the Panchayat/ State authorities.

Native plants like Neem, Pipal, Khejri, Mango and other local species will be planted. A suitable combination of trees that can grow fast and also have good leaf cover shall be adopted to develop the greenbelt. It is proposed to plant 25,000 no's of native species along with some fruit bearing and medicinal trees during the plan period.

Table: Greenbelt Programme

Year	Saplings to be planted	Survival 80 %	Species	Place of Plantation
I	5000	4000	Neem, Peepal, Mango, Shisham, Sirish, Babool, Gulmohar	Along the roads, Along the river banks in schools and public building and other social forestry programme.
II	5000	4000		
III	5000	4000		
IV	5000	4000		
V	5000	4000		
Total	**25,000**	**20,000**		

11.0 MEASURES TAKEN AND TO BE TAKEN FOR PROTECTION OF ENVIRONMENT IN AND AROUND MINING LEASE AREA

- Dry bed mining will only be carried out.
- Mining activities will be confined to 3.0 m depth from surface level of river bed.
- All link roads from the mining area to the tar road will be properly sprayed with water for dust suppression.
- Greenbelt and plantation on road side and river banks will help in dust suppression and will also reduce noise level.

- Plantation will improve ecology and aesthetic beauty of the area
- Measures will be taken to prevent the workings from extending in safety zones, cutting the banks and exceeding 3.0 m depth limit from the river bed surface.

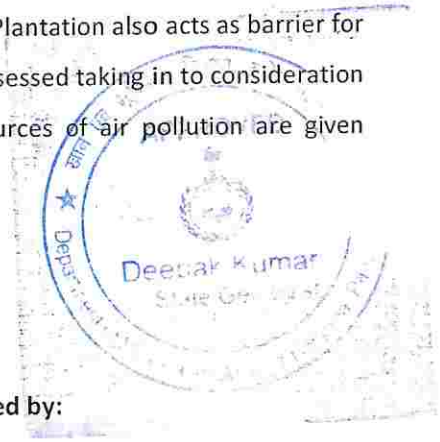
12.0 MEASURES TAKEN AND TO BE TAKEN FOR DUMPING OVERBURDEN, STACKING OF TOP SOIL AND UTILIZATION OF TOP SOIL

There is no top soil in the lease area. No overburden and waste is likely to be generated during lease period. There will be neither any stacking of soil nor creation of OB dumps.

13.0 MEASURES TAKEN AND TO BE TAKEN FOR THE CONTROL OF WATER, NOISE AND AIR POLLUTION

Air Pollution:

Emission of gases and dust takes place due to movement of vehicles. Spraying of water and plantation along the road side prevents the spread of dust. Plantation also acts as barrier for restricting pollution. Impact on air environment has been assessed taking in to consideration the proposed production and increase emissions. The sources of air pollution are given below:



- Operation of mining machinery/ loading operations
- Transportation of mineral
- Wind erosion from barren area and river bed

Air pollutants released during production can be checked by:

- Dust suppression system/ water spraying would be adopted at mine working and loading points
- Excavation operations to be suspended during very strong wind conditions
- Afforestation will be carried out for control of dust
- Plantation with wide canopy trees along approach road will help in dust suppression
- Persons to be provided with dust mask and other personal protective equipments, particularly during summer months and dust storm periods

Transportation

- Regular water spraying on haulage roads during mineral transportation by water sprinklers,
- Avoid over loading of tippers & consequent spillage on the roads,

- Mineral carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to atmosphere,
- Air quality shall be regularly monitored both in the core zone and the buffer zone.

Controlling of NOx level

The source of NOx is due to vehicular emission. This can be controlled by proper maintenance and servicing of vehicles. Only P.U.C. certificated vehicles will be permitted

Noise Pollution

There is no drilling and blasting for mineral extraction. Noise pollution due to transportation will not cause any problem to the inhabitants of this area because there is no human settlement in close proximity to the link roads in lease area.Effective steps will be taken to keep the noise level well below the DGMS prescribed limit of 85 dBA.

Noise control is achieved by the following:

- Proper care and maintenance of the equipments will be carried out.
- Personal protective equipments will be provided to the workers.

14.0 DEMOGRAPHIC DETAILS OF THE STUDY AREA (plate no.2)

Total number of villages in which lease area falls is 8. Demographic details of the nearby villages is as follows.Main occupation is agriculture. The details are given below:-

Table: Demographic Details

Name	Households	Population	Males	Females
Chechi Majra (192)	29	173	87	86
Toka (191)	103	670	349	321
Dera (190)	1392	6807	3911	2896
Mianpur (84)	140	853	464	389
Sangrani (85)	201	1138	596	542
Jagatpur (310)	24	146	79	67
Kullarpur (309)	192	1014	536	478
Mugal Majra (83)	51	316	171	145
Jangu Majra (82)	92	485	245	240
Rampur (75)	94	652	336	316
Dudhli (76)	42	266	140	126
Danora (74)	117	728	401	327
Laha (77)	298	1605	804	801
Nagauli (72)	118	729	398	331
Chhoti Kohri (71)	142	847	465	382
Batora (73)	100	674	372	302

Mirpur (90)	95	540	295	245
Ballopur (306)	75	550	281	269
Akbarpur (305)	84	442	237	205
Baroli (89)	285	1805	937	868
Milk (Part)(307)	118	677	367	310
Husaini (Part)(308)	232	1476	765	711
Naraingarh (Rural)(Part)(88)	6	50	28	22
Nabipur (311)	135	822	441	381
Rao Majra (312)	61	458	236	222
Hamidpur (86)	364	1765	902	863
Shahpur (87)	87	490	282	208
Chhoti Rasaur (94)	27	158	83	75
Barsu Majra (300)	94	644	345	299
Bari Rasaur (92)	219	1120	587	533

15.0 DETAILS OF HEALTH CHECKUP AND INSURANCE OF ALL THE EMPLOYED PERSONS (FOR EXISTING LEASE)

All workers will be subjected to medical examination as per Mines Rule 1955 both at times of appointment and at least once in five years. Medical camps will be organized for this activity. Insurance of all employees as per the rules will be carried out.

15.1 Corporate Social Responsibility

As a corporate responsibility following measures along with budget provision is proposed for improving the conditions of persons in and around the project area:

Sr. No.	Description	Amount (in lacs)
1	Health check up camps	5.0
2	Surveillance programme of the workers	2.0
3	Insurance cover of workers	2.0
4	Assistance to local schools, scholarship to students	10.0
5	Sanitations and drinking water facilitites	10.0
6	Vocational training to persons for income generation	2.0
7	Assistance to self help groups	10.00
Total		**41.00**

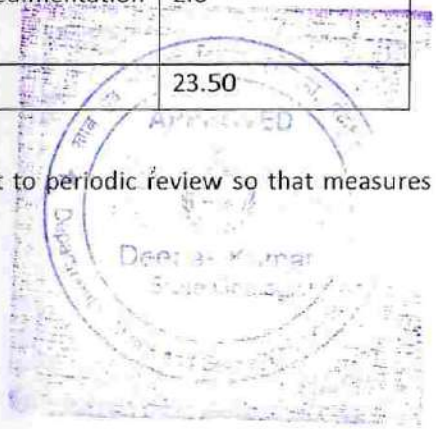
15.2 Fund Provision for Environmental Management

It is proposed to create an Environment Management Fund. The contractor shall deposit/pay an amount equal to 7.5 % of the due contract money along with instalments towards the **'Mines and Minerals Development, Restoration and Rehabilitation fund**& 2.5 % for District Mineral Fund.

15.3 Fund Provision for EMP Measures

Following provisions are proposed to be taken for improving, control and monitoring of environment protection measures

Sr. No.	Particulars	Amount (in lacs)
1	Pollution monitoring – Air, Water, Noise	4.0
2	Pollution monitoring – Water sprinkling	3.0
3	Wire fencing at plantation sites	2.0
4	Plantation including maintenance	2.50
5	Rainwater harvesting	5.00
6	Haul road and other roads repair and maintenance	5.00
7	Premoonsoon and post monsoon survey for sedimentation in the river bed	2.0
	Total	23.50



The protection measures will be dynamic and subject to periodic review so that measures remain effective and appropriate.

PART –II

PROGRESSIVE MINE CLOSURE PLAN

1.0 Introduction

Name & address of the lessee

M/s R M Mines & Infra Private Ltd.,149,Luxmi Garden,Yamuna Nagar,Haryana

(B) LOCATION OF THE LEASE AREA

Location/Villages/River	Area(hect.)
Tehsil -Sahabad :Toka Hamidpur Block Markanda,Roon and Trilokpur Nadi/ River bed	247

(C) EXTENT OF THE LEASE AREA

247 acres spread over 08 villages as explained at 2.0 in the main mining plan

(D) PRESENT LAND USE PATTERN

Details are given below:

S. No.	Particulars		Present land use (acres)
1.	Pit area		0.00
2.	Dump area		0.00
3.	Safety zone	Bridge & anicuts roads,7.5m lease boundry, 25% restricted area of river banks , 50m barrier at each kmetc	44.70
4.	Infrastructure (Office, Temp. shelter etc)		0.00
5.	Mineral Storage		0.00
6.	Plantation (in safety zone)		0.00
7.	Un-worked		183.93

8	Naturally reclaimed area	183.93
Total		**247**

(E) METHOD OF MINING:

River bed mining is for extracting boulder,gravel &sand from Markanda river bed and its tributries. As per HMMC Rules,2012 extraction is limited to 3.0 m depth only.River bed is dry. Lease area allotted is 247Acres.Total length of the proposed lease area as per the description report stretches in the length of 25 km. Mining activity will be carried out in allocated areas only,

Total production envisaged is 16519 TPD. Activities will be carried out as per the production schedule given earlier. These blocks will be working as self sustained units with all facilities like site office, rest shelter, first aid and drinking water etc. All these blocks will be connected suitably with communication system.

Light weight excavators will be deployed for extraction. Mineral will be removed in 3.0 m layer only forming one bench. This is as per the digging depth of the equipments. Mineral will be loaded in trucks of 25 tons capacity. Trucks and equipments will be on hire basis. There will be no OB or waste generation as the sand is exposed in the river bed.

Bench will advance parallel to the banks of the river. Height of bench will be 3.0 m. Width of the bench will be around 20.0 m. Workings will be restricted within the lease area/ khasra as per the description report given by Mining Department. Mining activities will be carried out in a manner so that there is no obstruction to the movement of water flow, if any, during rainy season. The bench will be in the form of slices/ strips parallel to the banks of the river. Roads in the lease area for the movement of loaded trippers/ trucks will not have slopes more than 1 in 20.However, movement of trucks after mineral loading will be towards both sides through approach roads connecting to tar roads. Every block will have its own approach roads, well connected to main highways. No processing of mineral will be done.

(F) MINERAL PROCESSING OPERATION:

No mineral processing is envisaged for Boulder, gravel & sand (minor mineral) produced during the mining activity.

1.1 Reasons for closure:

The progressive mine closure plan has been prepared in compliance of Haryana Minor Mineral Concession Rules 2012 under MMCR 1986. No immediate closure is planned as sufficient reserves are available to carry on the activities. There is market potential in domestic demands.

1.2 Statutory Obligations:

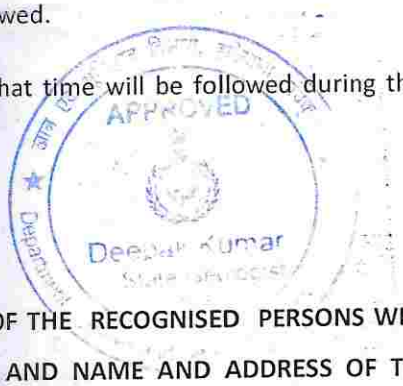
The lessee is bound to submit the Progressive mine closure plan either with Mining plan or Scheme of Mining.

Lessee is bound to follow the terms and conditions as will be stipulated in the lease deed.

In addition to it the rules pertaining to the Protection of Environment i.e Environment Act. Environment Rules and other associated rules for the protection of environment will have to be followed.

During the course of mining the rules stipulated in Mines Act, Mines rules Metalliferous Mines Regulation1961 and RMMCR.1986 will be followed.

All other rules pertaining to the mining existing at that time will be followed during the course of mining activities.



1.3 Closure plan preparations

NAME, ADDRESS AND REGISTRATION NUMBER OF THE RECOGNISED PERSONS WHO PREPARED THE PROGRESSIVE CLOSURE PLAN AND NAME AND ADDRESS OF THE EXECUTING AGENCY WHO IS INVOLVED IN THE PREPARATION OF PROGRESSIVE MINE CLOSURE PLAN.

S.N.S Sharma& D.C.Yadav (RQPs)

(Annexure-III)

Lessee will himself implement the closure plan; no outside agency will be involved.

2.0 MINE DESCRIPTION

2.1 General Geology and Local Geology

2.1.1 Regional Geology

The north-eastern part of Haryana is predominantly characterized by sedimentary lithology in the Sub-Himalayan zone comprising Subathus, Dagshais, Kasaulis and Siwaliks. A general Regional stratigraphic sequence in the area is given in Table. Tertiary sequence of Haryana

Age	Super group	group	Formation	Lithology
Holocene			Newer alluvium and Newer Aeolian Deposits	Gravel, Sand,silt, clay, limestone,gypsum
Lower to upper Pleistocene			older alluvium and Older Aeolian Deposits	Gravel, grey sand,silt, clay,brown sand,calcrete
Lower to Middle Pleistocene	S I W A L I K	Upper Siwalik	Boulder Conglomerates formation	Conglomerate,sandstone,silt,clay
Upper Pliocene			Pinjore Formation	Coarse grit,red sand stone and clay, conglomerate
			Tatrot Formation	Friable Sandstone and variegated clay
		Middle Siwalik	Dhokpathan Formation	Brown sandstone and orange clay
Middle Miocene			Nagri Formation	Hard grey sand stone, mudstoneand minor shale
		Lower Siwalik	Nahan Formation	Coarse grity ,clay and red sandstone often calcareous, brownish shale with lignite lenticles, greenish white Quartzite
Lower Miocene			Kausauli Formation	Grey and stone,green shale and grey clay
			Dagsai Formation	Purple and green sand stone, deep red gritty,clay,white andstone with ferruginous concretions

Upper Eocene		Sirmur	Subathu formation	Sandstone with gritu clay. Impure fossiliferous limestone calcareous slate,greenish shale and dark brown quartzite
Pre-proterozoic			Tunda pathar	Thickly bedded ,sstromatolite limestone with carboniferous shale and quartzite

2.1.2 LOCAL GEOLOGY

The litho units encountered in the riverbed and surrounding areas belongs to the Shivalik super groups. The sediments are river borne and has deposited in the riverbed and the flood plains.

The different formations of the area belong to Shivalik Super group and are a mixture of boulders, pebbles, sand, silt and clay. The following sequences have been observed in the area.

Soil/Alluvium

Sand

Gravel

Boulder

There is no clear demarcation between the litho units. They have been deposit in a mixed form. The Litho- units exposed around the riverbed belong to Shivalik Super- Group. The mineral Boulders, Gravel and sand have formed by weathering of rocks and then deposition on the flood plains of the rivers originated from the Shivaliks. These have been washed by rainwater during rainy season and deposited in river bed in the form of boulders, gravels and sand of different sizes and shapes. These minerals are sorted by screening. The max depth of the minerals is not known.

Soil/ alluvium varying in thickness from 2-4m constitute the top horizons in the area suitable for agriculture. Markanda River& its Tributries meanders through the area exposing the alluvium and soil at the banks. Boulder, gravel & sand is found in the river bed. Thickness of Boulder, gravel & sand is more than 10meters. This bed is presently dry and water flows only during the rainy season The Sand exposed in the River bed of Markanda and surrounding areas is the product of the deposition of the sediments brought and deposited in the flood plains of River Markanda . These sediments are of recent geological formation. The litho-units exposed within the river and surrounding areas have formed as water borne sediments brought by flood water during rainy season every year and deposited in riverbed. Geological map and section are enclosed as **Plate – 03A,3B,3C,3D,3E(for each village)**

2.2 Reserves

Method of Estimation of Reserve METHOD OF ESTIMATION OF RESERVE

PROVED RESERVES

i) Survey was conducted in the Markanda ,Roon and Trilokpur River bed as per the area allocated in different villages, vide list given byDMG,Haryana. This is the basic document provided by the authorities. Khasra plan was provided by the applicant.

j) Following special conditions which are applicable for excavation of minor mineral(s) from river beds in order to ensure safety of river-beds, structures and the adjoining areas are considered while calculating the reserves of this area:

(i) No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 meters on the up-stream side and 500 meters on the down-stream side;

(ii) There shall be maintained an un-mined block of 50 meters width after every block of 1000 meters over which mining is undertaken or at such distance as may be directed by the Director or any officer authorized by him;

(iii) The maximum depth of mining in the river-bed shall not exceed three meter from the un-mined bed level at any point in time with proper bench formation;

(iv) Mining shall be restricted within the central 3/4th width of the river/ rivulet;

(v) In case of areas permitted for excavation outside river/rivulets i.e. areas adjoining to rivers/rivulets, no mining shall be permissible in an area up to a width of 500 meters from the active edges of embankments in case of river Yamuna, 250 metres in case of Tangri, Markanda and Ghaggar and 100 meters on either side of all other rivers/ rivulets;

(vi) Any other condition(s), as may be required by the Irrigation Department of the state from time to time for river-bed mining in consultation with the Mines & Geology A safety margin of two meters (2m) shall be maintained above the ground water table while undertaking mining and no mining operations shall be permissible below this level unless a specific permission is obtained from the competent authority in this behalf. Further the depth of excavation of mineral shall not exceed nine meters (9m) at any point of time.

k) The contractor shall not undertake any mining operations in the area granted on mining contract without obtaining requisite permission from the competent authority as required for undertaking mining operations under relevant laws.

l) There are bridges and anicuts exist in the lease area. They provide a way for transportation of mineral also. safety zone on upstream side and downstream side has been provided

depending upon the length of the bridges/ anicuts as a measure of safeguard. No workings will be extended in this zone.

m) Metalled roads passes through the lease area. A safety zone of 50 m on each side of roads is earmarked. In this zone no activities will be conducted.

n) A barrier of 7.5 m width will be left from the lease boundary, if falling in the river bed.

o) River is not having any water flow during post monsoon period and sand bed remains dry.

p) **Mineral reserves are calculated up to 3 m depth from river bed surface RL.**

All reserves are proved reserves. Details are given as below.

Methods of estimation of reserves:-

For estimating the reserve of Sand the following

Parameters are considered as follows:

1. The reserves are calculated on the basis of established width, thickness and strike length/influence of the mineralized formation in the area.
2. The entire reserves of Sand up to the depth of 3.0 m are calculated.
3. The bulk density of Sand is considered 2.0
4. The reserves of Sand calculated by volumetric method and are summarized here below:

Mineral concession area in Acres	Mining area in Acres	Ancillary area in acres	Bulk density MT/m3	Blocked area in acres	Total proved Geological reserves MT=Areaxdepthx BD (UNFC code111)	Blocked area Reserves of 50m strip after each km, 25% blocked in river banks, railways, roads/bridges/lease boundy etc= Acres UNFC Code 211 &222)	Mineable reserves in MT	Planned production in MT
247.00	228.63	18.37	2.0	44.70	55,51,594	10,85,405	44,66,189	44,60,000

A) PROVED RESERVES AS PER UNFC CODE (111)

Total Reserves =55,51,594

B) BLOCKED RESERVES AS PER UNFC CODE (211 & 222) =10,85,405

C MINEABLE RESERVES =(A-B) =44,66,189MT

C) TARGETED PRODUCTION

44, 60,000 MT per Year up to the lease period

D) Balance reserves

For Balance reserves it is presumed that the mineral will be replenished every year during the rainy season. New mineral will be added every year in the river bed.

2.3 Mining Method

Mining method to be followed is described in chapter of mining at 7.1 in mining plan.

2.4 Mineral Beneficiation

No mineral beneficiation is envisaged.

3.0 Review of implementation of mining plan including five years progressive closure plan upto the final closure plan

Mining Plan and Progressive mine closure plan are being submitted for the first time. It will be reviewed after five years and review of implementation will be given with next mining scheme.

4.0 CLOSURE PLAN

4.1 Mined - out land

About 183.93.11 Acre area is available for mining. Land use at various stages is given in the table below:

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State Geologist

Table : Land Use

S. No.	Particulars		Present land use (Acres.)	At the end of 5th year (Acres.)
1.	Pit area		0.00	0.00
2.	Dump area		0.00	0.00
3.	Safety zone	Bridge & anicuts roads,7.5m lease boundary, 25% restricted area of river banks , 50m barrier at each kmetc	44.70	44.70

4.	Infrastructure (Office, Temp. shelter etc)	0.00	0.50
5.	Mineral Storage	0.00	0.00
6.	Plantation (in safety zone)	0.00	10 .00
7	Naturally reclaimed area	183.93	183.93
Total		**247**	**247**

4.2 Water quality management

The only river Markanda flows in the north-western part of the district which originates in Nahan hills.Chautang, Khand and Omla nalas of local existence also drain the district.The general slope of the land surface is From NE to SW.

The general phygiograpy of the Lease area is gently sloping from NE to SW side indicating the flow direction of river.

There is no flow of water in the river bed in post monsoon period.Area is having 1076 mm rainfall in a year. During rainy season, catchment water flows in the river. During dry period the Boulder, gravel & sand is excavated which gets replenished to some extent during this period. No mining activities will be carried out during rainy season when there is water flowing in the working area.

There will be no intersection of water table as working will be carried out upto 3.0 m depth only from surface of river bed while the water level is 10 m below the surface of river bed.

4.3 Air Quality Management:

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face mask, ear plug/ muffs.

For air pollution management at the progressive mine closure of mine, greenbelt will be developed to prevent and control air pollution.

4.4 Waste Management:

As stated in mining method, there will be no OB/ waste generation and there will not be any OB/ waste dumps.

4.5 Top Soil Management

There is no top soil.

4.6 Tailing dam management

There is no proposal of beneficiation of mineral. No tailing dam is envisaged.

4.7 Infrastructure:

The infrastructure facilities like site office, first–aid station, rest shelter/ store, drinking water etc. will be established.

4.8 Disposal of mining machinery:

Machinery is proposed on hire basis. Hence no de-commissioning of mining machinery is proposed/Reqquired.

4.9 Safety &Security:

Safety measures will be implemented to prevent access to excavation area by un-authorized persons as per Mine Act 1952, MMR 1961.

i. Safety measures will be implemented as per Mines Act1952, MMR1961, Mines Rules1955.
ii. Provisions of MMR1961 shall be followed strictly and all roads shall be10 m wide and have a gradient of not more than 1 in 20.
iii. Excavation will be not more than 3 m depth.
iv. Width of bench will be kept around 20.0 m for ease of operations and provide sufficient room for the movement of equipments.
v. Protective equipment like dust masks, ear plugs/ muffs and other equipments shall be provided for use by the work persons.
vi. Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
vii. Danger signs shall be displayed near the excavations.
viii. Security guards will be posted.
ix. In the event of temporary closer, approaches will be fenced off and notice displayed.

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4.10 Disaster Management and Risk Assessment:

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

- The shallow depth of activities in river bed mining will not involve any high risk accident due to side falls/collapse.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, RMMCR 1986 and other laws applicable to mine will strictly be complied with.
- During heavy rainfall the mining activities will be closed.
- All persons in supervisory capacity will be provided with proper communication facilities. Competent persons will be provided FIRST AID kits which they will always carry.

4.11 Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:

  Mine roads and approach roads,

  Fencing on approach roads,

  Checking and maintenance of machines and equipment,

  Drinking water arrangements,

  Mine office, first aid stations etc.

- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.

- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

5.0 ECONOMIC REPERCUSSION OF CLOSURE OF MINE AND MANPOWER RETRENCHMENTS

Lease area will be granted for a period of 10 years only. As per the production programme envisaged, at the end of lease period, still sufficient un-worked area would be left available for continuing production activities further. Hence, no closure is planned. There will be no affect on the man power as the persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

6.0 TIME SCHEDULING FOR ABANDONMENT

The lease area has enormous potential for continuance of operations even after the expiry of the awarded period. The details of time schedule of all abandonment will be given at the time of final closer plan. Mining activities are confined to river bed, up to 3.0 m. depth, relatively shallow depth of workings. Partial replenishment of the Boulder, gravel & sand being removed from the river bed is a natural process particularly during monsoon periods.

7.0 ABANDONMENT COST

As at present mining is not going to be closed so abandonment cost could not be assessed. However based on the progressive mine closure activities during the plan period, cost is assessed as given below:

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Abandonment Cost

ACTIVITY	YEAR					Rate	Amount (in Rs.)
	First	Second	Third	Fourth	Fifth		
Plantation (in no.)	5000	5000	5000	5000	5000	@ 100 Rs per sapling including maintenance	25,00,000
Plantation cost	5,00,000	5,00,000	5,00,000	5,00,000	5,00,000		
Wire fencing (meter)	1000	1000	1000	1000	1000	@ of 200Rs per meter	10,00,000
Total							**35,00,00**

8.0 FINANCIAL ASSURANCE

Total 183.93acres area will be put in use upto the end of the plan period. Details of area put in use as given below (As per circular No.4/2006 issued by CCOM, Nagpur following table has been considered for calculation for financial assurance).

S. No.	Particulars		Present land use (acres.)	At the end of 5th year (Acres.)
1.	Pit area		0.00	0.00
2.	Dump area		0.00	0.00
3.	Safety zone	Bridge & anicuts roads,7.5m lease boundry, 25% restricted area of river banks , 50m barrier at each kmetc	44.70	44.70
4.	Infrastructure (Office, Temp. shelter etc)		0.00	0.50
5.	Mineral Storage		0.00	0.00
6.	Plantation (in safety zone)		0.00	10 .00
7.	Un-worked		183.93	0.00
8	Naturally reclaimed area		-	183.93
Total			**247**	**247**

Calculation for Financial Assurance

S. No.	Item	Area put on use at start of plan (Acres) (A)	Requirement at the end of plan period (Acres)	Total area put to use (Acres) (B)	Area considered as fully reclaimed & rehabilitation (Acres) (C)	Net area considered for calculation (Acres) D = (B-C)
1.	Area to be excavated	0.0	228.63	228.63	0.0	228.63
2.	Storage for topsoil	0.0	0.0	0.0	0.0	0.0
3.	Overburden/ dumps	0.0	0.0	0.0	0.0	0.0
4.	Mineral storage	0.0	18.37	18.37	0.0	18.37
5.	Infrastructure (Workshop, Adm. Building & Road)	-	0.50*	0.50*	0.50	0.50
6.	Safety zones (Bridge roadswells)	0.0	44.70	44.70	0.0	44.70
7.	Green belt* in resrtricted/ancillary area	0.0	10.0	10.0	10.0	0.0
8.	Tailing pond	0.0	0.0	0.0	0.0	0.0
9.	Effluent treatment plan	0.0	0.0	0.0	0.0	0.0
10.	Mineral separation plant	0.0	0.0	0.0	0.0	0.0
11.	Township area	0.0	0.0	0.0	0.0	0.0
12.	Others to specify	0.0	0.0	0.0	0.0	0.0
Total		**0.0**	**228.63**	**54.7**	**10.5**	**247.00**

Total 247Acres (98.80 ha) area will be put in use. Against this area the total financial assurance (@15000/- per Hectares comes out to Rs 14,82,000/ which will be deposited in the form of Surety bond/ bank guarantee to the director mines & Geology Haryana.

9.0 CERTIFICATE

It is enclosed with the report.

10.0 PLAN AND SECTION

Plan and section are prepared and enclosed with the mining plan.

S.N. SHARMA
B.E(MINING)
Qualified Person

Certificate

We, S.N.Sharma,& D.C.Yadav duly recognized qualified persons to prepare mining plan under Rule 22 C of the Mineral Concession Rules, 1960 (Revised 2016) have prepared the Mining Plan of Boulder, Gravel &SAND (Minor Mineral) over an area of 247Acresof M/s R M Mines & Infra Private Ltd.,149,Luxmi Garden,Yamuna Nagar,Haryana-135001 for Toka Hamidpur block falling under Survey of India toposheet No . 53 F/2 &53F/3. The various data and write up enclosed have been complied and verified by us. The working plan and all other details given in the plan have been prepared under my guidance and duly verified by me. The mining plan and progressive mine closure plan complies all statutory rules , regulations , orders made by the Central or State Government, statutory organizations, court etc. have been taken into consideration and wherever any specific permission is required the lessee will approach the concerned authorities

S.N. Sharma

S.N. SHARMA
B.E(MINING)
Qualified Person

Qualified Person

APPROVED

Deepak Kumar

Director, Mines and Geology, Haryana

Speed/Registered

From

The Director,
Mines and Geology Haryana,
Plot No. 9, I.T. Park, Sector-22,
Panchkula.

To

M/s R M Mines and Infra Private Limited,
149, Luxmi Garden, Yamuna Nagar, Haryana – 135001.

Memo No. DMG/HY/Cont./Toka Hamidpur/AMB/2022/ 4860
Dated Panchkula, the 28.07.2022.

Subject: Acceptance of the highest bid in respect of the minor mineral Boulder, Gravel and Sand contract of "Toka Hamidpur (BGS)" having tentative area of 247 Acres in the district Ambala, offered in e-auction held on 29.06.2022/issuance of Letter of Intent (LoI)- regarding.

You participated in the e-auction held on 29.06.2022 on the e-Auction web portal (https://minesharyana.c1auctions.com/) for grant of mining contract of minor mineral Boulder, Gravel and Sand mine after accepting the terms and conditions of the auction notice issued vide notification no. DMG/HY/e-Auction/Amb./2022/3573 dated 31.05.2022 and Corriengendum No. DMG/HY/e-Auction/Amb./2022/3629 dated 09.06.2022 in order to obtain mining contract of minor mineral Boulder, Gravel and Sand mine of the district Ambala.

2. You offered the highest bid of Rs. 50,02,00,000/- (Rs. Fifty Crores two lacs only) per annum against the Reserve Price of Rs. 20,57,00,000/- for obtaining the Mining Contract of Minor Mineral Mine namely 'Toka Hamidpur (BGS)' for extraction of 'Boulder, Gravel and Sand' having total area of 247 Acres. The details of the khasra number of the area under above said Mining (228.63 hectares in riverbed for mining and 18.37 hectares for ancillary activities) is attached as Annexure 'A'.

3. You are hereby informed that the State Government has accepted the highest bid of Rs. 50,02,00,000/- per annum offered by you in respect of 'Toka Hamidpur (BGS)' under the provision of Haryana Minor Mineral Concession, Stocking, Transportation of Minerals & Prevention of Illegal Mining Rules, 2012 (State Rules, 2012). Accordingly, you have become the successful bidder in respect of above said mine.

4. The State Government having accepted the aforementioned highest bid of Rs. 50,02,00,000/- per annum offered by you, the Department is pleased to issue this Letter of Intent (LoI) in your favour in respect of the Mining area namely of 'Toka Hamidpur (BGS)' subject to the following terms and conditions:

4.1 The period of the contract shall be 10 years and the same shall commence w.e.f. the date of grant of Environmental Clearance by the competent authority and the Consent to Operate (CTO) by the State Pollution Control

Board, whichever is later, or on expiry of the period of 12 months from the date of issuance of LoI, whichever is earlier;

4.2 As per the terms and conditions of the grant, you are liable to deposit Rs. 12,50,50,000/- i.e. equal to 25% of the annual bid amount as "Security", out of which you have already deposited an amount of Rs. 5,00,20,000/- (Rs. Five Crore twenty thousand only) i.e. equal to 10% of the annual bid amount as 'initial bid security' after the conclusion of e-auction. The balance amount of Rs. 7,50,30,000/- of the bid security i.e. 15% of the annual bid amount shall be deposited before commencement of the mining operation or before expiry of the period of 12 months from the date of issuance of Letter of Intent (LoI), whichever is earlier;

Provided that in case having taken all steps on your part, if you fails to obtain required environmental clearance and consent to operate(CTO) for undertaking mining operations within the said period of 12 months from the date of issuance of LoI, such letter of intent holder/contractor on a specific application submitted to the Director, at least thirty days prior to the end of the period mentioned above, giving details of the action already taken may seek additional time up to another twelve months, over and above the time of 12 months already allowed for commencement of the period of contract, on payment of a non-refundable fee as per the following:-

1	Extension of further period up to six months	On payment of a non-refundable fee at the rate of one percent per month of the annual bid for each month of requested extension period
2	Extension for a second period up to six months	On payment of a non-refundable fee at the rate of two percent per month of the annual bid for each month of requested extension period
Note: Extension shall be allowed only in month (s) and any request for period less/part of the month shall be summarily rejected and shall apply along with advance amount of the fee for such requested period of extension.		

4.3 You may note that the detail of the area of the mining is tentative and was notified on 'as is where is' basis (refer condition no. 21 (iv) of the auction notice). In case of any inadvertent mistake in the area detail/Khasra number etc., the same shall be got rectified/corrected before execution of the contract agreement (refer condition no. 21 (iii) of the auction notice);

4.4 No request regarding reduction in bid amount on account of reduction in land/area of the Mining Block, on any account including that of change in description of Khasra numbers / location etc. at any stage will be entertained on any ground. This shall also include any loss/reduction of area for actual mining for want of compliance of applicable laws/restrictions for mining or part of the contracted area had already been operated in the past. Needless to state that this also includes the changes, if any, as per condition no. 21 (vi) of the auction notice.

4.5 You offered bid after having gone through the terms and conditions of auction notice and also the applicable Acts and Rules for undertaking mining. The State government shall not be responsible for any kind of loss to you being the highest bidders/contractor at any point of time (before or after grant of contract) on any account including on account of reduction of land/ area/ production/ non grant of permission for mining in part area or otherwise on account of any condition stipulated for undertaking mining by any competent authority.

4.6 The amount of the highest bid i.e. Rs. 50,02,00,000/- (Rs. Fifty Crores two lacs only) per annum shall be the "Annual Contract Money" payable by you as the contractor money in the manner prescribed in the contract agreement to be executed on form MC-1 appended to State Rules.

As per orders dated 01.07.2022 of the State Government you will have to open Escrow Account with the Department wherein all the sale proceed made through E-rawaana portal will required to be deposited.

4.7 The annual contract money shall be increased at the rate of 10% on completion of each block of three years. Accordingly, the year-wise amount of the annual contract money shall be as per details given below:

Sr. No.	Year of the contract Period	Annual Contract Money [in Rs.]
1	First Year	50,02,00,000/-
2	Second Year	50,02,00,000/-
3	Third Year	50,02,00,000/-
4	Fourth Year	55,02,20,000/-
5	Fifth Year	55,02,20,000/-
6	Sixth Year	55,02,20,000/-
7	Seventh Year	60,52,42,000/-
8	Eighth Year	60,52,42,000/-
9	Ninth Year	60,52,42,000/-
10	Tenth Year	66,57,66,200/-

4.8 You are directed to execute the Contract Agreement in Form MC-1 appended to the State Rules, 2012 within a period of 90 days from the date of order of issuance of this LoI.

Note: 90 days period is for execution of Contract Agreement. Therefore, it is advised to submit draft agreement along with all relevant documents preferably within 45 days, so that agreement could be executed within 90 days after completing all the formalities of scrutiny and verification.

4.9 In case of the Partnership Deed (where bidding entity is a partnership firm) or Articles of Association (where bidding entity is a registered Company) or an Affidavit (where bidding entity is a sole proprietorship firm and the bidder is participating as an Individual), no transfer or addition or deletion of the Partners/Directors will be permissible before execution of the agreement;

Director, Mines and Geology, Haryana

4.10 The Contract Agreement executed shall be got duly Registered under relevant laws with concerned Registering Authority and you will be liable to pay applicable stamp duty and registration fee etc. as per the applicable rates and as demanded by the Registering Authority/Revenue Department at the time of Registration.

4.11 In case of failure to execute the agreement, after issuance of this acceptance of bid/LoI within the prescribed period of 90 days, this LoI shall be deemed to have been revoked and 10% amount of the highest bid deposited as initial bid security shall be forfeited and you, will be debarred from participation in any future auctions/tenders/competitive bidding process in respect of any area for obtaining mineral concession in the State for a period of 5 years.

4.12 You shall also furnish a solvent surety for a sum equal to the amount of the annual bid for execution of the Agreement. The documents in support of solvency of the surety shall be submitted dully evaluated by the concerned Revenue Authority along with Non Encumbrance Certificate from the concerned Revenue Authority. In case, the surety offered by the contractor(s) during the subsistence of the contract is not found solvent, the contractor(s) shall offer another solvent surety and a supplementary deed shall be executed to this effect.

4.13 After execution of agreement, either before commencement of the mining operation or before expiry of the time allowed, if any, as per condition No. 4.2 above, in case of failure to deposit the balance 15% amount towards security (as required under clause 4.2 above), the acceptance of bid/issuance of LoI/execution of agreement shall be deemed to have been revoked and 10% amount deposited towards as initial bid security after the conclusion of auction shall stand forfeited. Further, such bidder shall debarred from participation in any future auctions/Tenders/competitive bidding process in respect of any area for obtaining mineral concession in the State for a period of 5 years.

4.14 You shall be liable to deposit the contract money in advance at monthly intervals as per provisions of Contract Agreement i.e. from the date of commencement of the contract period.

4.15 You shall also deposit/ pay an additional amount equal to 7.5% of the due contract money along with the monthly instalments towards the 'Mines and Mineral Development, Restoration and Rehabilitation Fund.

4.16 You shall also deposit/ pay an additional amount equal to 2.5% of the due contract money along with the monthly instalments towards the 'District Mineral Fund'.

4.17 You shall also be liable to pay advance Income Tax as per provisions of Section 206(c) of Income Tax Act in addition to contract money, payable as per terms and conditions of contract agreement.

4.18 On enhancement of the contract money with the expiry of every three years period, you shall deposit the balance amount of security so as to upscale the security amount equal to 10% of the revised annual contract money as applicable for one year with respect to the next block of three years. No interest, whatsoever, shall be payable on the security amount deposited under the prescribed security head of the government;

4.19 You shall prepare a Mining Plan along with the Mine Closure Plan (Progressive & Final) from the Recognized Qualified Person as per chapter 10 of the State Rules, 2012 for the "Mining Unit" and get the same approved from an officer authorised by the Director, Mines & Geology, in this behalf.

4.20 Further, the actual mining will be allowed to be commenced only after prior Environment Clearance is obtained by you as the LoI holder/ Mining contractor for the Mining from the Competent Authority as required under EIA notification dated 14/09/2006 issued by Ministry of Environment, Forests and Climate Change, Government of India or as amended from time to time and also other required approvals for mining including Consent to Establish and Consent to Operate from the Haryana State Pollution Control Board before commencement of actual mining operations.

4.21 You will also be liable to pay the following to the landowners to undertake mining operations:

(a) Annual rent in respect of the land area blocked under the concession but not being operated; and
(b) Rent Plus compensation in respect of the area used for actual mining operations.

4.22 The amount of annual rent and the compensation shall be settled mutually between the landowner and the mining contractor. In case of non-settlement of the rent and compensation, the same shall be decided by the District Collector concerned in accordance with the provisions contained in Chapter 9 of the "State Rules, 2012";

4.23 The total mineral excavated and stacked by the concession holder within the area granted on mining contract, however, the quantity of mineral stacked shall not exceed three times of the average monthly production as per approved Mining Plan and/or quantity approved under Environmental Clearance, at any point of time.

4.24 The Mining Contractor shall not stock any mineral outside the concession area granted on mining contract, without obtaining a valid Mineral Dealer Licence as per provisions contained in Chapter 14 of the State Rules, 2012.

4.25 The contractor shall not carry out any mining operations in any reserved/ protected forest or any area prohibited by any law in force in India, or prohibited by any authority without obtaining prior permission in writing from such authority or officer authorized in this behalf. In case of refusal of permission by such authority or officer authorised in this behalf,

contractor(s) shall not be entitled to claim any relief in payment of contract money on this account;

4.26 Following are the general/ special conditions applicable for excavation of minor mineral(s) from river beds in order to ensure safety of riverbeds, structures and the adjoining areas:

i. No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge structure on up-stream side and ten time the span of such bridge structure on down-stream side, subject to a minimum of 250 meters on the up-stream side and 500 meters on the down-stream side;

ii. There shall be maintained an un-mined block of 50 meters width after every block of 1000 meters over which mining is undertaken or at such distance as may be directed by the Director or any officer authorised by him;

iii. The maximum depth of mining in the river-bed shall not exceed three meters from the un-mined bed level at any point in time with proper bench formation;

iv. Mining shall be restricted within the central 3/4th width of the river/ rivulet;

v. Any other condition(s), as may be required by the Irrigation Department of the state from time to time for river-bed mining in consultation with the Mines & Geology Department, may be made applicable to the mining operations in river-beds.

vi. No mining operation may be carried out from 1st July to 15th September every year (rainy season).

4.27 No mining operation shall be allowed in the urbanize zone of area notified by Town and Country Planning Department. Further, in case of the agriculture zone notified by Town and Country Planning Department mining shall be permissible only after obtaining prior permission from the competent authority;

4.28 The contractor shall not undertake any mining operation in the area granted on mining contract without obtaining requisite permission from the competent authority as are required for undertaking mining operations under relevant laws;

4.29 The contractor shall be under obligation to carry out mining in accordance with all other provisions as applicable under the Mines Act, 1952. Mines and Minerals (Development and Regulation) Act, 1957, Indian Explosive Act, 1884, Forest (Conservation) Act, 1980 and Environment (Protection) Act, 1986 and the rules made thereunder, Wild life (Protection) Act, 1972, Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981;

4.30 All other terms and conditions shall remain as per auction notice, and the contract agreement to be executed in Model Form MC-1 appended to the

State Rules, 2012. Further, the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 and Rules made thereunder shall prevail over all the terms and conditions.

5. In view of above, it is once again stated that the highest bid of Rs. 50,02,00,000/- (Rs. Fifty Crores two lacs only) per annum offered by you in respect of minor mineral mine namely 'Toka Hamidpur (BGS)" of district Ambala have been accepted by the State Government and the Department is pleased to issue this Letter of Intent (LoI) in your favour for grant of mining contract of said mine subject to the above said terms and conditions. Accordingly, you are advised to execute the Contract Agreement by submitting all requisite documents including a solvent surety(s) for a sum equal to the amount of the annual bid for execution of the agreement, within a period of 90 days from the date of issue of this bid acceptance letter and the LoI.

Director Mines & Geology,
Haryana.

Speed/Registered

Endst. No. DMG/HY/Cont./Toka Hamidpur/AMB/2022/4861 Dated: 28-7-22

A copy is forwarded to the following for information and necessary action please:-

1. The Principal Secretary to Government Haryana, Mines and Geology Department.
2. The Chairman, Haryana State Pollution Control Board, Panchkula.
3. The Deputy Commissioner, Ambala.
4. The Mining Officer, Mines & Geology Department, Ambala. He is directed to ensure that proper and complete 'Draft Contract Agreement Documents' as required are submitted within stipulated period.

APPROVED
Deepak Kumar
State Geologist

Director Mines & Geology,
Haryana.

Director, Mines and Geology, Haryana

Annexure 'A'.

Sr. No.	Name of mining Contract Unit with name of Mineral	Name of village	Details of Khasra Nos.	Area as per Revenue record (in Acres)	Period (in years)
1	Toka Hamidpur (BGS)	Toka	For Mining areas 10//7/2 min, 8 min, 13/1, 13/2 min, 18 min For Ancillary areas 11// 4/1/2, 4/2, 5, 6, 7	247	10
		Chichi Majra	For Mining areas 7//, 25 min 8//, 19, 20 min, 21 min, 22 min, 9//, 1 min, 2 min, 10//, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min		
		Sangrani	For Mining areas 6//, 11, 20, 21, 22 min, 12//, 1, 2 min, 9 min, 10/1, 10/2 min, 11 min, 12, 19, 20 min, 21 min, 22, 19//, 1/1 min,1/2 min,2,27//1, 2, 3 min, 8 min, 9, 10, 11, 12, 19, 20, 21, 28//, 5 min, 6 min, 15 min, 16/1 min, 16/2 min, 25 min, 33//,4 min, 5, 6, 7 min, 8 min, 13 min, 14, 15, 16, 17, 18, 19 min For Ancillary areas 7// 18/1, 18/2, 19, 22, 23, 32//15, 33//11		
		Rao Majra	For Mining areas 3//, 20, 21 min, 22 min, 4//, 15 min, 16 min, 25 min, 9//, 5 min, 10//, 1 min, 2 min, 8 min 9 min, 10 min, 11 min, 12, 13 min, 11//25 min, 13// 1 min, 2 min, 3 min, 4 min, 5 min, 8 min, 9 min, 10 min		
		Shahpur	For Mining areas 17//, 23 min, 18//, 3 min, 4 min, 7 min, 8 min, 13 min, 14, 15 min, 17 min		
		Dera	For Mining areas 7//, 8 min, 11 min, 12 min , 13 min, 18 min, 19 min, 20 min, 21 min, 22 min, 8//, 16 min, 24 min, 25 min, 11//, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 12 min, 13 min, 18 min, 19 min, 20 min, 21 min, 22 min, 23 min 21//1 min, 2 min, 3 min, 8 min, 9 min, 10 min, 11 min, 12 min, 13 min, 18 min, 19 min, 20 min, 21 min, 22 min, 23 min, 24//, 1 min, 2, 9 min, 10 min, 11 min, 12 min, 19 min, 20 min, 21 min, 22 min, 36//, 10 min, 11 min, 20 min, 21 min, 37//, 6 min, 15 min, 16 min, 24 min, 25 min, 42//, 4 min, 5 min, 6 min, 7 min, 14 min, 15 min, 16 min, 17 min, 24 min, 25 min, 43//, 1 min, 10 min, 11 min, 20 min, 21 min, 57//, 1 min, 10 min, 11		

APPROVED
Deepak Kumar

			min, 58//, 4 min, 5 min, 6 min, 7 min, 14 min, 15 min, 16 min, 17 min, 23 min, 24 min, 25 min, 63//, 3 min, 4 min, 5 min, 7 min, 8 min, 12 min, 13 min, 14 min, 18 min, 19 min, 20 min, 21 min, 22 min, 62//, 25 min, 81//, 1 min , 10 min, 82//, 4 min, 5, 6, 7, 8 min, 13 min, 14 min, 15 min, 16 min, 17, 18 min, 23 min, 24, 25 min, 88//, 4 min, 5 min, 6 min, 7 min, 8 min, 12 min, 13 min, 14 min, 15 min, 16 min, 17 min, 18 min, 19 min, 21 min, 22 min, 23 min, 24 min, 108//, 1 min, 2 min, 3 min, 4 min, 7 min, 8 min, 9, 10, 11, 12, 13, 14 min, 18 min, 19 min, 20, 21 min, 22 min, 109//, 5 min, 6 min, 14 min, 15 min, 16, 17 min, 23 min, 24, 25, 114//, 3 min, 4, 5 min, 7 min, 8 min, 13 min, 14 min, 17 min, 18, 19 min, 22 min, 23 min, 115//, 1 min, 134//, 2 min, 3 min, 9 min, 10 min, 12 min, 120//, 6 min, 7 min, 13 min, 14 min, 15 min, 16 min, 17, 18 min, 23 min, 24 min, 25 min, 128//, 4 min For Ancillary areas 113// 16/1, 16/2, 25/1, 25/2, 114//20, 21		
		Hamid-pur	For Mining areas 4//, 22 min, 23, 6//, 1 min, 2 min, 3 min, 4 min, 8 min, 9 min, 10 min, 11 min, 12 min, 20 min, 7//, 6 min, 7 min, 11 min, 12 min, 13 min, 14 min, 15 min, 16 min, 17 min, 18 min, 17//, 19 , 20 min, 21 min, 22 min, 23 min, 8//, 16 min, 17 min, 24 min, 25 min, 22//, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 13 min, 14, 17 min, 18 min, 23 min, 24 min, 29//, 3 min, 4 min, 7 min, 8 min, 13 min, 14 min, 17 min, 18 min, 19 min, 21 min, 22 min, 23 min, 24 min, 42//, 5 min, 6 min, 15 min, 16 min, 17 min, 24 min, 25 min, 43//, 1 min, 2 min, 3 min, 9 min, 10 min, 11 min, 20 min, 48//, 3 min, 4 min, 5 min, 7 min, 8 min, 13 min, 14 min, 17 min, 18 min For Ancillary areas 21// 14, 15, 16, 17		
		Dehar	For Mining areas 2//, 12 min, 9//, 2 min, 3 min, 8 min, 9 min, 12 min, 13 min, 18 min, 19 min, 23 min For Ancillary areas (Nanhera) 23// 9/1, 9/2, 10		

CONSENT LETTER FROM APPLICANT (Annexure-II)

The mining plan in respect of (Boulder ,gravel & Sand mine of Toka - Hamidpur of M/s R M Mines & Infra Private Ltd.,149,Luxmi Garden,Yamuna Nagar, Haryana , over an area of 247Acres District- Ambala; State –Haryana has been prepared by S.N. Sharma & D. C. Yadav bearing registration no. RQP/DDN/0135/2001-A.& RQP/DMG/HRY/2018/03

We request The Director Mines and Geology, Haryana to make further correspondence regarding modification of the mining plan with the said RQP on the following address:-

S.N. Sharma

RQP/DDN/0135/2001-A.

First Floor,282 sector 11 D, DLF , Faridabad -121006 (Haryana)

We also authorize Shri S.N. Sharma to make correspondence with your office.

I hereby undertake that the mining plan in respect of the area prepared by RQP be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Place:

Date:

Signature of the applicant

№ 138

THE UNIVERSITY OF JODHPUR

PROVISIONAL CERTIFICATE

Roll No. 16 Enrolment No. Ju 76/167.

It is certified that SATYA NARAYAN SHARMA

Son/~~Daughter~~ of KRISHNA CHANDRA - had pursued a course of study in this University for the Degree of Bachelor of Engineering (MINING.) and found qualified for the degree on having passed the Final Examination held in OCT 1981.

He/~~She~~ secured 2052 marks out of 3170 marks in the aggregate and was placed in FIRST Division.

APPROVED

Deepak Kumar

REGISTRAR

JODHPUR, the 13 Mar 1982.

NOTE : The printed certificate/diploma of passing the examination will be issued to him/her in due course of the Convocation.

GOVERNMENT OF HARYANA

DIRECTORATE OF MINES AND GEOLOGY, HARYANA,
30-BAYS BUILDING, SECTOR 17, CHANDIGARH.

CERTIFICATE OF RECOGNITION AS A QUALIFIED PERSON TO PREPARE MINING PLAN/SCHEME OF MINING FOR MINOR MINERAL MINES

(Under Rule 67 of Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012)

Shri Duli Chand Yadav S/o Shri Ramji Lal, resident of village Dhani Bania Wali, PO Nangal Chaudhary, District Mahendergarh having given satisfactory evidence of his qualifications and experience, is hereby granted recognition under Rule 67 of the Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012, as a "Qualified Person" to prepare Mining Plans/Scheme of Mining in respect of minor minerals mines in the State of Haryana.

2. His registration No. is DMG/HRY/RQP/2018/03.

3. This recognition shall be valid for a period of ten years ending on 26.04.2028

Place : Chandigarh
Dated : 26.04.2018

APPROVED
Deepak Kumar
State Geologist

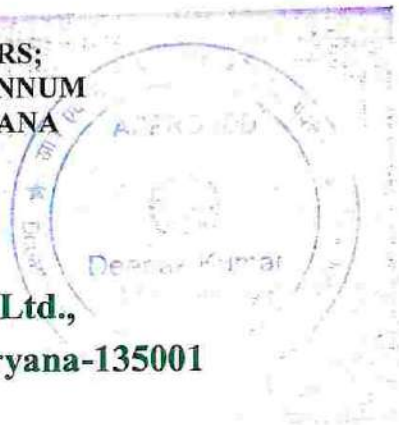
(Sanjay Joon, IAS)
Director,
Mines & Geology, Haryana,
Chandigarh.

REPLENISHMENT STUDY REPORT FOR YEAR 2022 RIVERBED MINING PROJECT

AT

BOULDER, GRAVEL & SAND
TOKA HAMIDPUR BLOCK
(AREA: 247 ACRES; LEASE -10 YEARS;
PROPPSED PRODUCTION 4.46 MMT/ANNUM
DISTRICT: AMBALA; STATE: HARYANA

APPLICANT



M/ s R M Mines & Infra Private Ltd.,
149, Luxmi Garden, Yamuna Nagar, Haryana-135001

CONSULTANT
P&M Solution
C-88, Sector 65, Noida -201301 – U.P
A QCI –NABET Accredited Organization

1. INTRODUCTION

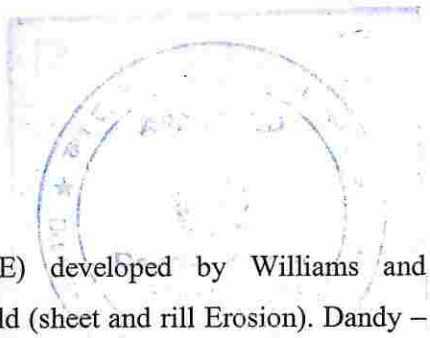
For sustainability of river sand mining, it is necessary that the mine pits formed as a result of sand excavation are refilled with sand by natural process of replenishment in a reasonable period of time so that the area is again available for mining. Replenishment rate is the rate at which sand/gravel is deposited on the river flood plain by the river during monsoon season. Itis dependent on several factors such as geology and topography of the catchment area of the river, breadth of the flood plain, rainfall in that particular year (which is quite variable and not very much predictable much in advance),etc.

There are many sediment transport equations which are suitable for use in the prediction of the replenishment rate of rivers/ watershed. Some of the famous sediment transport equations are:-

1. Dandy–Bolton Equation

2. Yang Equations

3. Engelund-Hansen Equation



4. Modified Universal Soil Loss Equation (MUSLE) developed by Williams and Berndt(1977) – it includes only one type of sediment yield (sheet and rill Erosion). Dandy – Bolton formula is often used to calculate the sedimentation yield. The formula uses catchment area and mean annual runoff as key determinants to give a yield value. It does not differentiate in basin wide smaller streams and their characteristics. Dandy and Bolton equation calculates all types of sediment yield i.e. sheet and rill Erosion, gully Erosion, channel Bed and bank erosion and mass movement etc.

The hypothetical derivation of replenishment data is not supported by any ground evidence as the same can be derived only after annual study due to inconsistent rains.

The sediment load (Boulder, Gravel and Sand) may represent a natural resource for use by society. The potential usefulness of the sediment load is enhanced when it is composed of particle sizes found in deposits on the river bed that would be replenished by newly transported sediment after mining. As such, river deposits become renewable resources, periodically replaced by sediment transport in the river.

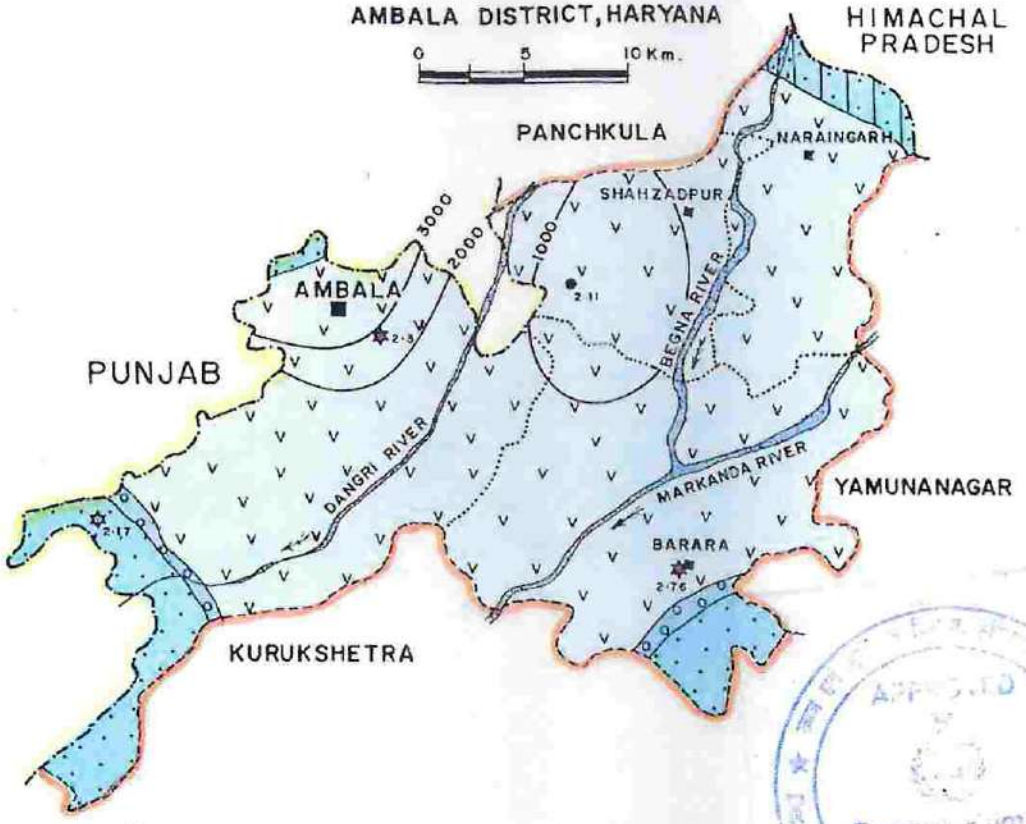
Physiography, Hydrogeology, Drainage and Climate

The district area is occupied by Indo-Gangetic alluvim. There are no surface features worth to mention except that the area is traversed and drained by seasonal streams namely Tangri, Beghna and Markanda. The Major River Markhanda flows from NE to SW which originates in Nahan hills. Chautang, Khand and Omla nalas of local existence also drain the district. The general slope of the land surface is From NE to SW and elevation of the lease area varies from 343m above msl near Toka in north east to 295 meters above msl in south west. The river Markhanda & Roon provides the major drainage in the lease area. The general phygiograpy of the Lease area is gently sloping from NE to SW side indicating the flow direction of river.

Physiographic ally the area is flat terrain. However, a little part in the extreme northeastern area of the district is occupied by Siwalik hills, and falls in the zone of "Dissected Rolling Plain". The area slopes towards southwest with an average gradient of 1.5m/km. The general elevation in the district varies between 245m to 300m above MSL. The soils are non-calcareous and sandy loam on the surface, and loam to clayey loam at depth, and placed under the classification of soil as Udipsamments/Udorthents.

HYDROGEOLOGY

AMBALA DISTRICT, HARYANA



INDEX

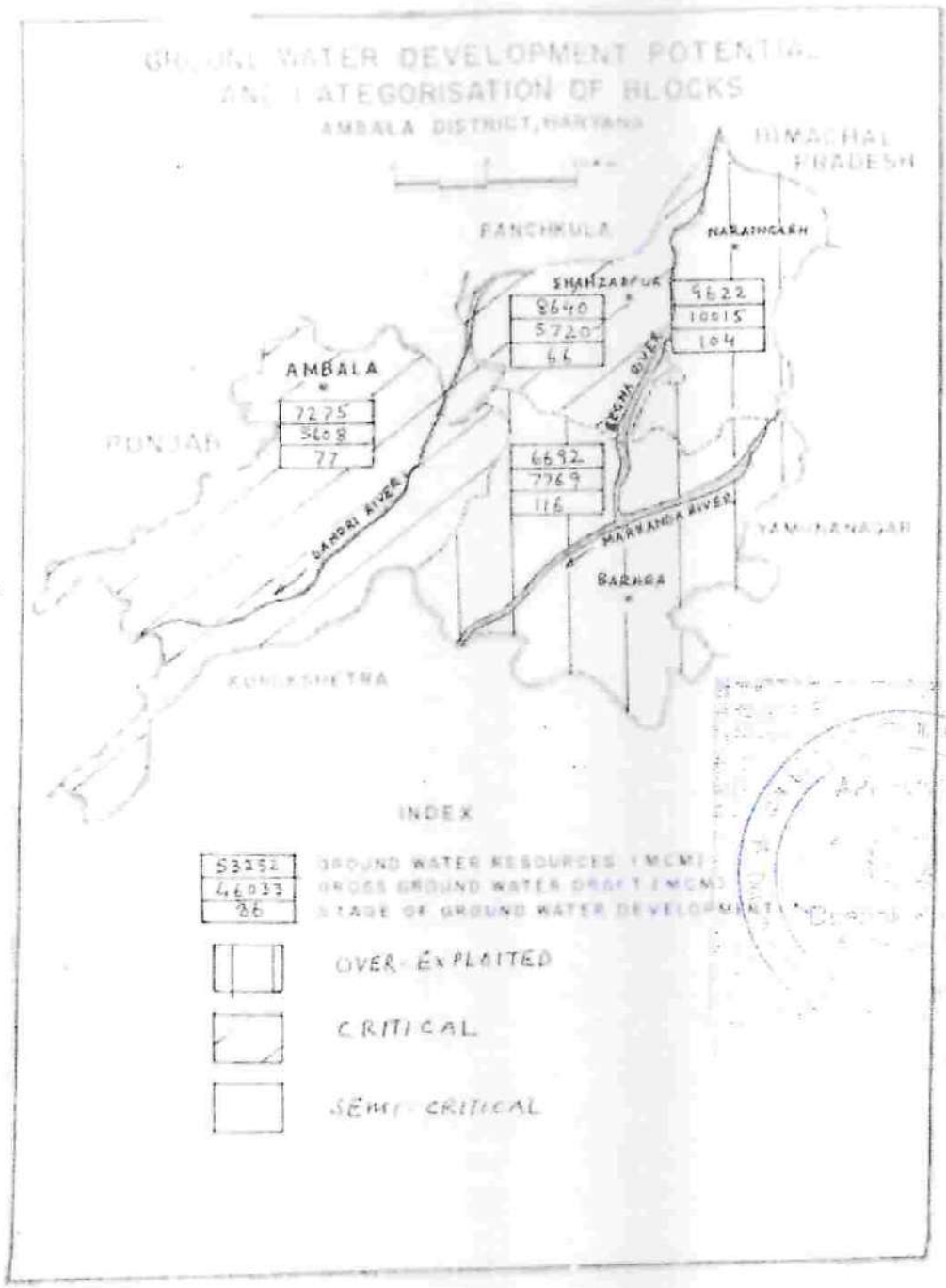
	WELLS FEASIBLE	RIGS SUITABLE	DEPTH OF WELL(m)	DISCHARGE (lpm)	SUITABLE ARTIFICIAL RECHARGE STRUCTURES
SOFT ROCK AQUIFER	TUBE WELLS	REVERSE / DIRECT ROTARY	50 – 440	480 – 3200	RECHARGE TRENCH WITH INJECTION WELL
SOFT ROCK AQUIFER	TUBE WELLS	REVERSE / DIRECT ROTARY	20 – 100	360 – 480	RECHARGE TRENCH AND RECHARGE SHAFT
SOFT ROCK AQUIFER	TUBE WELLS	REVERSE / DIRECT ROTARY	20 – 60	240 – 360	RECHARGE TRENCH AND RECHARGE SHAFT

ELECTRICAL CONDUCTIVITY (MICROMHOS/CM AT 25°C)

1000

2·76 IRON > PERMISSIBLE LIMIT (1·0 ppm)

2·11 FLUORIDE > PERMISSIBLE LIMIT (1·5 ppm)


GROUND WATER DEVELOPMENT POTENTIAL
AND CATEGORISATION OF BLOCKS
AMBALA DISTRICT, HARYANA
HIMACHAL PRADESH
PANCHKULA
NARAINGARH
SHAHZADPUR
8640
5720
66
9622
10015
104
AMBALA
7275
5608
77
PUNJAB
TANGRI RIVER
6692
7769
116
MARKANDA RIVER
YAMUNANAGAR
BARARA
KURUKSHETRA
INDEX
53252
46033
86
GROUND WATER RESOURCES (MCM)
GROSS GROUND WATER DRAFT (MCM)
STAGE OF GROUND WATER DEVELOPMENT
OVER-EXPLOITED
CRITICAL
SEMI-CRITICAL

CLIMATE

The climate of Ambala district can be classified as subtropical monsoon, mild & dry winter, hot summer and sub-humid which is mainly dry with very hot summer and cold winter except during monsoon season when moist air of oceanic origin penetrate into the district. The hot weather season starts from mid March to last week of the June followed by the south west monsoon which lasts upto September. The transition period from September to November forms the post monsoon season. The winter season starts late in November and remains upto first week of March.

Rainfall : The normal annual rainfall of the district is 1076 mm , and is unevenly distributed over the area. The average rainy days are 44. The south west monsoon, sets in from last week of June and withdraws in the end of September, contributing about 81% of normal annual rainfall. July and August are the wettest months. Rest 19% rainfall is received during non-monsoon period in the wake of western disturbances and thunderstorms. Generally rainfall in the district increases from southwest to northeast .The mean maximum temperature is 40.8o C(May &June) and mean minimum is 6.8o C (January) of the district.

Normal Annual Rainfall :1076 mm

Normal monsoon Rainfall :879 mm

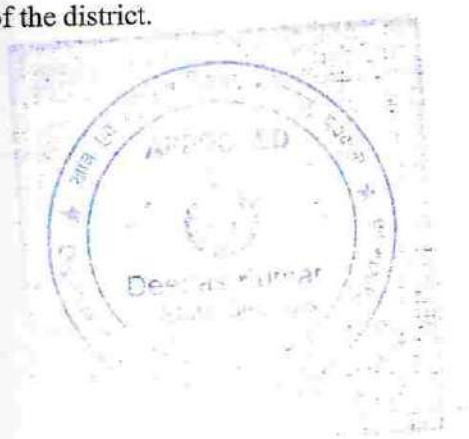
Temperature

Mean Maximum :40.8°C(May & June)

Mean Minimum :6.8 °C(January)

Normal Rainy days :44

(*Source: District Groundwater Brochure CGWB*).



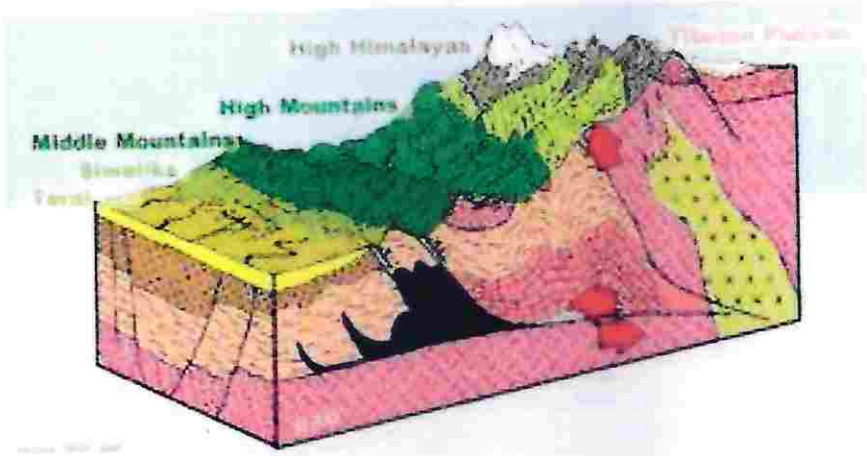
Geology of the Area

Regional Geology

The north-eastern part of Haryana is predominantly characterized by sedimentary lithology in the Sub-Himalayan zone comprising Subathus, Dagshais, Kasaulis and Siwaliks. A general Regional stratigraphic sequence in the area is given in Table.

Table: Regional stratigraphic sequence

Age	Super group	group	Formation	Lithology
Holocene			Newer alluvium and Newer Aeolian Deposits	Gravel, Sand,silt, clay, limestone,gypsum
Lower to upper Pleistocene			older alluvium and Older Aeolian Deposits	Gravel, grey sand,silt, clay,brownsand,calcrete
Lower to Middle Pleistocene	S I W A L I K	Upper Siwalik	Boulder Conglomerates formation	Conglomerate,sandstone,silt,clay
Upper Pliocene			Pinjore Formation	Coarse grit,red sand stone and clay, conglomerate
			Tatrot Formation	Friable Sandstone and variegated clay
		Middle Siwalik	Dhokpathan Formation	Brown sandstone and orange clay
Middle Miocene			Nagri Formation	Hard grey sand stone, mudstoneand minor shale
		Lower Siwalik	Nahan Formation	Coarse grity ,clay and red sandstone often calcareous, brownish shale with lignite lenticles, greenish white Quartzite
Lower Miocene		Sirmur	Kausauli Formation	Grey and stone,green shale and grey clay
			Dagsai Formation	Purple and green sand stone, deep red gritty,clay,whiteandstone with ferruginous concretions
Upper Eocene			Subathu formation	Sandstone with gritu clay. Impure fossiliferous limestone calcareous slate,greenish shale and dark brown quartzite
Pre-proterozoic			Tunda pathar	Thickly bedded ,sstromatolite limestone with carboniferous shale and quartzite



A Schematic diagram of Shiwaliks & Himalyas and tibetatanPalatue showing formations and Structure.

LOCAL GEOLOGY

The litho units encountered in the riverbed and surrounding areas belongs to the Shivalik super groups. The sediments are river borne and has deposited in the riverbed and the flood plains.

The different formations of the area belong to Shivalik Super group and are a mixture of boulders, pebbles, sand, silt and clay. The following sequences have been observed in the area.

Soil/Alluvium

Sand

Gravel

Boulder

There is no clear demarcation between the litho units. They have been deposit in a mixed form. The Litho- units exposed around the riverbed belong to Shivalik Super- Group. The mineral Boulders, Gravel and sand have formed by weathering of rocks and than deposition on the flood plains of the rivers originated from the Shivaliks. These have been washed by rainwater during rainy season and deposited in river bed in the form of boulders, gravels and sand of different sizes and shapes. These minerals are sorted by screening. The max depth of the minerals is not known.

Soil/ alluvium varying in thickness from 2-4m constitute the top horizons in the area suitable for agriculture. Markanda River meanders through the area exposing the alluvium and soil at the banks. Boulder, gravel & sand is found in the river bed. Thickness of Boulder, gravel & sand is more than

10meters. This bed is presently dry and water flows only during the rainy season The Boulder,gravel&Sand exposed in the River bed of Markanda,Roon and surrounding areas is the product of the deposition of the sediments brought and deposited in the flood plains of River Markanda and its tributries . These sediments are of recent geological formation. The litho-units exposed within the river and surrounding areas have formed as water borne sediments brought by flood water during rainy season every year and deposited in riverbed.

DESCRIPTION OF FORMATION

The description of Boulder, gravel & sand found in the lease area as minor mineral have been as under:

(Boulder, gravel & sand)

Sediments of various sizes and in mixed form are predominantly deposited in the river bed and outside the river bed as well in the central part. There is no perfect classification between boulders, cobbles , pebbles and sand. They are deposited in a mixed state. The classification is done by grab mining and the sediments are passed through different sieves in the screening plants.

Sediments of various sizes and in mixed form are predominantly deposited in the river bed and there is no perfect classification between sediments. These may be called as coarse sand, medium sand and fine sand.

The term sand is used to denote an aggregate of mineral or rock grains greater than 1/16mm and less than 2 mm in diameter.

Classification of Sediments (Wentworth Grain size Chart)

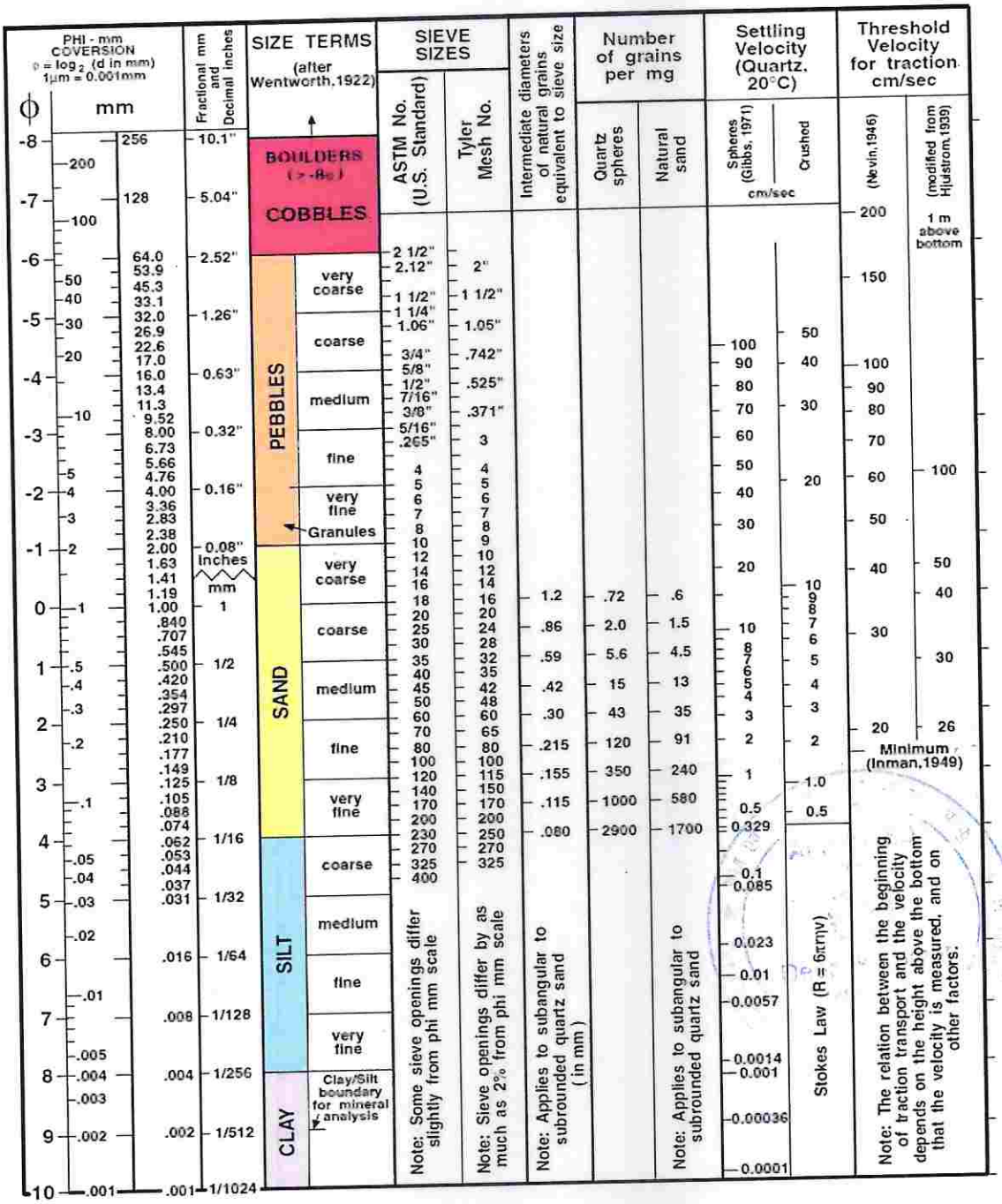

PHI - mm COVERSION
φ = log2 (d in mm)
1μm = 0.001mm
φ
mm
Fractional mm and Decimal inches
SIZE TERMS
(after Wentworth,1922)
BOULDERS (> -8φ)
COBBLES
PEBBLES
very coarse
coarse
medium
fine
very fine
Granules
SAND
very coarse
coarse
medium
fine
very fine
SILT
coarse
medium
fine
very fine
CLAY
Clay/Silt boundary for mineral analysis
SIEVE SIZES
ASTM No. (U.S. Standard)
Tyler Mesh No.
Note: Some sieve openings differ slightly from phi mm scale
Note: Sieve openings differ by as much as 2% from phi mm scale
Intermediate diameters of natural grains equivalent to sieve size
Note: Applies to subangular to subrounded quartz sand (in mm)
Number of grains per mg
Quartz spheres
Natural sand
Note: Applies to subangular to subrounded quartz sand
Settling Velocity (Quartz, 20°C)
Spheres (Gibbs, 1971)
Crushed
cm/sec
Stokes Law (R = 6rηv)
Threshold Velocity for traction cm/sec
(Nevin,1946)
(modified from Hjulstrom,1939)
1 m above bottom
Minimum (Inman,1949)
Note: The relation between the beginning of traction transport and the velocity depends on the height above the bottom that the velocity is measured, and on other factors.

Table-1:Details about the Project

Sr. No.	Name of the Block		Detail of Khasra Nos.	GPS reading of all corner point taken by HARSAC by using DGPS		
1.	2.	3.	4.	5.		
1	**Toka-Hamidpur**	Toka	**For Miningareas10//**7/2min,8min,13/1,13/2 min,18min **For Ancillaryareas 11//**4/1/2,4/2, 5,6, 7	**Pillar**	**Longitude**	**Latitude**
				A	77°10'18.712" E	30°31'26.981"N
				A1	77°10'18.161"E	30°31'22.915"N
				Z	77°10'17.939"E	30°31'20.068"N
				Z1	77°10'21.633"E	30°31'26.317"N
		Chichi Majra	**ForMiningareas7//**,25min **8//**,19,20min,21min,22min,**9//**,1min,2min,**10//**,3min,4 min,5 min, 6min,7 min, 8 min	**Pillar**	**Longitude**	**Latitude**
				A1	77°10'18.161"E	30°31'22.915"N
				B	77°10'15.703"E	30°31'22.936"N
				C	77°10'14.477"E	30°31'21.283"N
				D	77°10'11.109"E	30°31'18.786"N
				E	77°10'08.593"E	30°31'17.937"N
				F	77°10'05.765"E	30°31'16.054"N
				X	77°10'09.468"E	30°31'15.984"N
				Y	77°10'14.839"E	30°31'17.466"N
				Z	77°10'17.939"E	30°31'20.068"N
		Sangrani	**ForMiningareas6//**,11,20,21,22min,**12//**,1,2min, 9min,10/1,10/2min,11min,12,19,20min,21min,22,**19//**,1/1min,1/2min,2,**27//**1,2,3min,8min,9,10,11,12, 19,20,21, **28//**, 5 min, 6 min, 15 min, 16/1min, 16/2 min, 25 min,**33//**,4min,5,6,7min,8min,13 min,	**Pillar**	**Longitude**	**Latitude**
				A1	77°9'46.599"E	30°30'07.206"N
				A2	77°9'46.407"E	30°29'59.390"N
				A3	77°9'47.029"E	30°29'53.117"N
				A4	77°9'47.413"E	30°29'49.605"N
			14,15,16,17,18,19min **ForAncillaryareas7//**18/1,18/2, 19, 22,23,**32//**15, **33//**11	A5	77°9'45.480"E	30°29'31.877"N
				A6	77°9'43.504"E	30°29'25.032"N
				A7	77°9'43.615"E	30°29'23.399"N
				A8	77°9'42.083"E	30°29'19.999"N
				A9	77°9'39.041"E	30°29'18.245"N
				A10	77°9'37.052"E	30°29'14.443"N
				B1	77°9'48.848"E	30°30'7.163"N
				B2	77°9'49.029"E	30°30'3.294"N
				B3	77°9'51.427"E	30°29'57.341"N

				B4	77°9'51.373"E	30°29'49.632"N
				B5	77°9'53.326"E	30°29'31.798"N
				B6	77°9'50.715"E	30°29'27.993"N
				B7	77°9'50.623"E	30°29'24.075"N
				B8	77°9'48.259"E	30°29'24.041"N
				B9	77°9'47.959"E	30°29'18.216"N
				B10	77°9'45.518"E	30°29'18.216"N
				B11	77°9'45.346"E	30°29'14.361"N
		Rao Majra	**For Miningareas3//**,20,21 min,22min,**4//**,15min,16 min,25min,**9//**,5min,**10//**,1 min,2min,8min9min,10min, 11min,12,13min,11//25min, 13//1min,2min,3min,4min, 5min, 8min,9 min, 10min	Pillar	Longitude	Latitude
				A11	77°9'31.478"E	30°29'08.067"N
				A12	77°9'32.082"E	30°29'02.986"N
				A13	77°9'34.921"E	30°28'56.715"N
				B12	77°9'34.671"E	30°29'04.740"N
				B13	77°9'39.209"E	30°28'56.715"N
		Shahpur	**ForMiningareas17//**,23min, **18//**, 3min, 4min,7min, 8min, 13min,14,15min,17min	Pillar	Longitude	Latitude
				A21	77°9'36.595"E	30°28'23.201"N
				A22	77°9'39.936"E	30°28'16.644"N
				B28	77°9'37.821"E	30°28'25.066"N
				B29	77°9'42.549"E	30°28'17.928"N
		Dera	**ForMiningareas7//**,8min,11min, 12min,13min,18min,19 min,20min,21min,22min, **8//**,16min,24min,25min, **11//**, 3min, 4min,5min, 6min, 7min,8min,9min,12min,13 min, 18 min, 19 min, 20 min, 21min, 22 min, 23 min **21//**1 min,2min,3min,8min,9min,10 min,11min,12min,13min,18 min,19min,20min,21min,22 min,23min, **24//**,1min,2,9 min,10min,11min,12min,19 min,20min,21min,22min, **36//**, 10 min,11min,20 min,21 min,**37//**,6min,15min,16 min,24min,25min,**42//**,4 min,5min,6min,7 min,14min, 15min,16min,17min,24min, 25min,**43//**,1min,10min,11 min,20min,21min,**57//**,1 min,10min,11min,58//,4min, 5min,6min,7min,14min,15 min,16min,17min,23min,24 min,25min,**63//**,3min,4min,	A	77°11'3.027"E	30°30'18.077"N
				A1	77°10'44.306" E	30°29'48.431"N
				A2	77°10'36.752" E	30°29'40.976"N
				A3	77°10'45.492" E	30°29'39.183"N
				A4	77°10'46.437" E	30°29'43.105"N
				A5	77°10'47.810" E	30°29'46.814"N
				A6	77°10'48.038" E	30°29'52.329"N
				A7	77°10'50.057" E	30°29'59.737"N
				A8	77°11'0.693"E	30°30'8.858"N
				B	77°11'3.977"E	30°30'22.529"N
				C	77°11'3.957"E	30°30'29.449"N
				C3	77°10'43.097" E	30°29'33.780"N
				C39	77°10'24.689" E	30°29'18.364"N
				C4	77°10'32.120" E	30°29'29.079"N

			5min,7min,8min,12min,13 min,14min,18min,19min,20 min,21min,22min,**62**//,25min, **81**//, 1 min , 10 min, **82**//,4min,5,6,7,8min,13min,14 min,15min,16min,17,18min, 23min,24,25min,**88**//,4min, 5min,6min,7min,8min,12 min,13min,14min,15min,16 min,17min,18min,19min,21 min,22min,23min,24min, **108**//,1min,2min,3min,4 min,7min,8min,9,10,11,12, 13,14min,18min,19min,20, 21min,22min,**109**//,5min,6 min,14min,15min,16,17min, 23min, 24,25,**114**//, 3min,4,5 min,7min,8min,13min,14 min,17min,18,19min,22min, 23min,**115**//,1min,**134**//,2 min,3min,9min,10min,12 min,**120**//,6min,7min,13	C40	77°10'27.890" E	30°29'24.256"N
				C41	77°10'28.660" E	30°29'27.093"N
				C42	77°10'29.691" E	30°29'30.480"N
				C43	77°10'30.499" E	30°29'32.158"N
				C44	77°10'31.277" E	30°29'33.931"N
				C45	77°10'32.646" E	30°29'35.047"N
				C5	77°10'31.554" E	30°29'25.259"N
				C6	77°10'30.874" E	30°29'23.673"N
			min,14min,15min,16min,17, 18min,23min,24min,25min, **128**//,4 min For**Ancillaryareas113**// 16/1, 16/2, 25/1, 25/2, **114**//20,21	C7	77°10'26.142"E	30°29'17.356"N
				D	77°11'2.912"E	30°30'32.398"N
				E	77°11'5.050"E	30°30'38.365"N
				F	77°11'7.145"E	30°30'42.733"N
				G	77°11'8.111"E	30°30'50.579"N
				H	77°11'8.338"E	30°30'53.419"N
				I	77°11'8.226"E	30°30'59.649"N
				J	77°11'9.903"E	30°31'3.903"N
				J1	77°11'23.418"E	30°31'12.052"N
				K	77°11'7.148"E	30°31'4.819"N
				K1	77°11'23.369"E	30°31'15.987"N
				L	77°11'3.478"E	30°31'0.006"N
				M	77°11'3.629"E	30°30'57.734"N
				N	77°11'3.520"E	30°30'52.069"N
				O	77°11'2.966"E	30°30'46.221"N
				P	77°11'4.535"E	30°30'42.388"N
				Q	77°11'3.375"E	30°30'38.365"N
				R	77°11'1.168"E	30°30'33.609"N
				S	77°10'59.523"E	30°30'30.790"N
				T	77°10'57.695"E	30°30'26.071"N

				U	77°11’58.843”E	30°30’15.740”N
				V	77°10’55.468”E	30°30’8.518”N
				W	77°10’53.161”E	30°30’4.660”N
				X	77°10’43.902”E	30°29’58.301”N
				Y	77°10’43.674”E	30°29’52.862”N
				Z	77°10’44.125” E	30°29’50.160”N
				A	77°11’48.827” E	30°29’28.235”N
				B	77°11’44.046” E	30°29’21.744”N
				U1	77°11’47.297” E	30°29’19.117”N
				V1	77°11’50.504” E	30°29’21.860”N
		Hamid-pur	**ForMiningareas4**//,22min,23,**6**//,1min,2min,3min,4min,8min,9min,10min,11min,12min,20min,**7**//,6min,7min,11min,12min,13min,14min,15min,16min,17min,18min,**17**//,19,20min,21min,22min,23min,**8**//,16min,17min,24min,25min,**22**//,3 min,4 min,5 min, 6min,7min,8 min,13min,14, 17min,18min,23min,24min,**29**//,3min,4min,7min,8min,13min,14min,17min,18min,19min,21min,22min,23min,24min,**42**//,5min,6min,15min,16min,17min,24min,25min,**43**//,1 min,2 min,3 min, 9min,10min,11min,20min,**48**//,3min,4min,5min,7min,8min,13min,14min,17min,18min **ForAncillaryareas21**//14,15,16,17	B	77°11’44.046” E	30°29’21.744”N
				C	77°11’36.267” E	30°29’17.114”N
				D	77°11’30.811” E	30°29’15.836”N
				E	77°11’22.623” E	30°29’13.425”N
				F	77°11’19.474” E	30°29’9.072”N
				G	77°11’18.604” E	30°29’3.418”N
				H	77°11’18.719” E	30°28’55.499”N
				I	77°11’12.236” E	30°28’48.976”N
				J	77°11’7.784”E	30°28’40.057”N
				K	77°11’6.953”E	30°28’35.636”N
				L	77°11’9.584”E	30°28’34.745”N
				M	77°11’10.201” E	30°28’39.756”N
				N	77°11’13.850” E	30°28’45.178”N
				O	77°11’21.148” E	30°28’53.067”N
				P	77°11’23.050” E	30°29’2.704”N
				Q	77°11’23.769” E	30°29’8.229”N
				R	77°11’25.671” E	30°29’10.979”N
				S	77°11’32.070” E	30°29’12.701”N

				T	77°11'38.160" E	30°29'13.369"N
				U1	77°11'47.297" E	30°29'19.117"N
		Dehar	**ForMiningareas2/** /,12min,	B	77°10'10.682" E	30°26'32.254"N
			9//,2min,3min,8min, 9min, 12min,13min,18min, 19min, 23min **ForAncillaryareas (Nanhera)23**//9/1,9 /2,10	C	77°10'12.833" E	30°26'21.564"N
				D	77°10'14.841" E	30°26'14.932"N
				E	77°10'15.349" E	30°26'13.161"N
				F	77°10'13.462" E	30°26'14.865"N
				G	77°10'11.168" E	30°26'19.003"N
				H	77°10'11.522" E	30°26'19.879"N
				I	77°10'11.035" E	30°26'22.129"N
				J	77°10'9.665"E	30°26'26.268"N
				K	77°10'8.529"E	30°26'29.870"N
				L	77°10'7.649"E	30°26'33.460"N

Village wise area details are as shown in table below

Village	Village Wise Area for Mining Activity (In Acres)	Total Area for Mining Activity (In Acres)	Village Wise Area for Ancillary Activities	Total Area for Ancillary Activities	Total Mineral Concessio nArea (in Acres)	Name Of Mineral
Toka	1.78	228.63	3.82	18.37	247.00	Boulder, Gravel and Sand
Chichi Majra	7.29		0			Boulder, Gravel and Sand
Sangrani	34.34		5.50			Boulder, Gravel and Sand
Rao Majra	11.52		0			Boulder, Gravel and Sand
Shahpur	3.89		0			Boulder, Gravel and Sand
Dera	117.94		3.95			Boulder, Gravel and Sand
Hamid-pur	46.47		3.90			Boulder, Gravel and Sand
Dehar	5.40		1.20			Sand
	234.63	228.63	18.37	18.37	247.00	

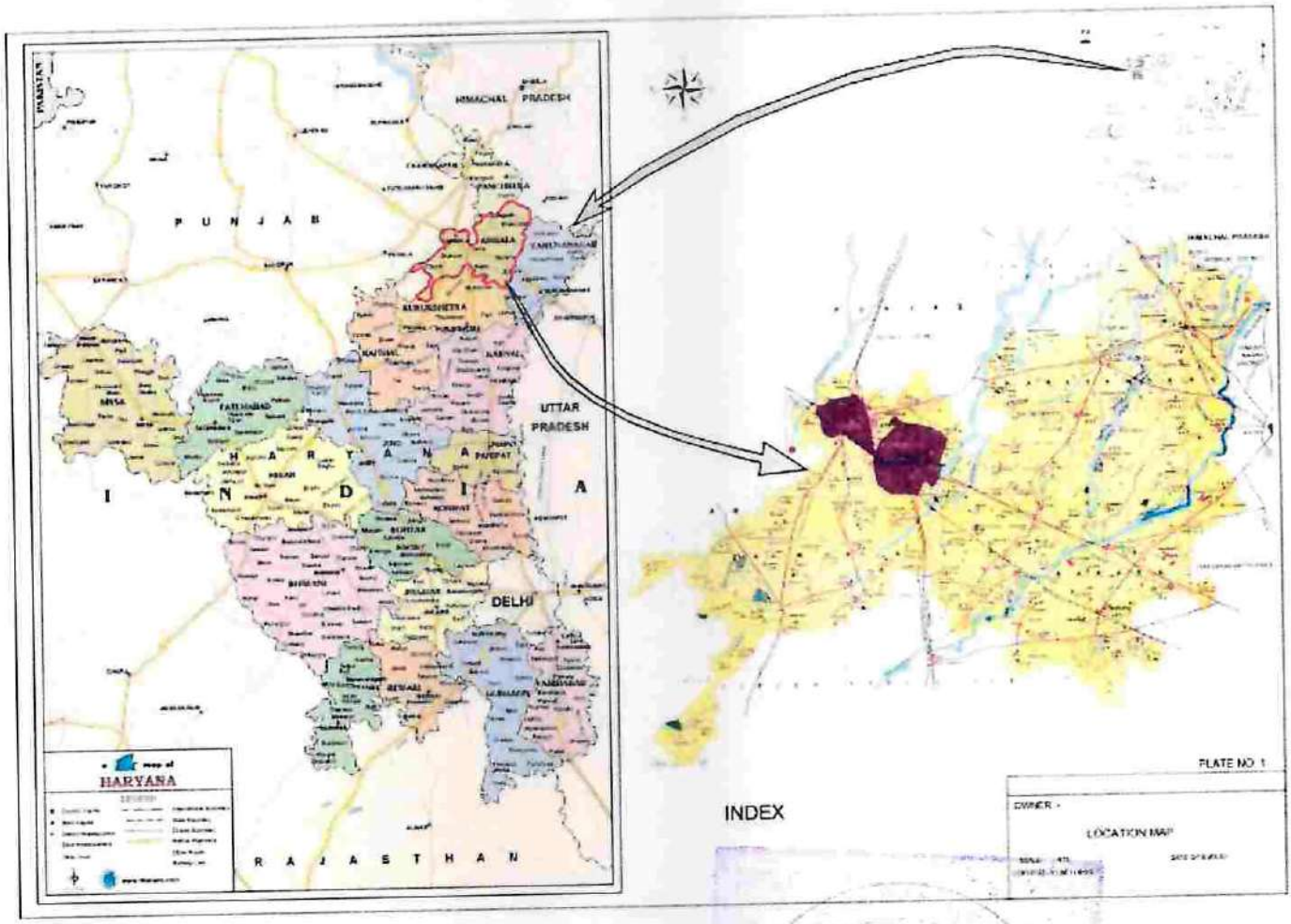


Fig2:-Location Map of the project site

2. DEPOSITION OF MINERALS ON RIVERBED: -

Drainage system is the pattern formed by streams, rivers and lakes in a drainage basin. In a drainage system, streams or rivers always connect together to form networks. Many factors such as topography, soil type, bedrock type, climate and vegetation cover influence input, output and transport of sediment and water in a drainage basin (Charlton,2008). These factors also influence the nature of the pattern of water bodies (Twidale,2004).As a consequence, drainage pattern can reflect geographical characteristics of a river network to a certain extent. There are several types of drainage pattern. So far, much research has been done on the description of drainage patterns in geography and hydrology (e.g. Howard, 1967; Lambert,1998; Twidale,2004; Pidwirny, 2006).

In addition , sedimen transport knowledge is important in river restoration,ecosystem protection,navigation,watershed studies and reservoir management.Bed load represents the lower portion of sediment load in natural rivers.Fluvial sediment load materials are transported by rivers. Sediment load can be divided into bed load and suspended load based on the mode of transport. Bed load is transported close to the bed where particles moved by rolling, sliding, orjumping (Adegbola,2012). Xlaoqing (2003) explained that bed load transport in natural rivers is a complicated phenomenon. Its movement is quite uneven in both the transverse and longitudinal directions, which vary considerably.

Sediments of various sizes and in mixed form are predominantly deposited in the river bed and outside the river bed as well in the central part. There is no perfect classification between boulders, cobbles, pebbles and sand. They are deposited in a mixed state. The classification is done by grab mining and the sediments are passed through different sieves in the screening plants.

Sediments of various sizes and in mixed form are predominantly deposited in the river bed and there is no perfect classification between sediments. These may be called as coarse sand, medium sand and fine sand.

The term sand is used to denote an aggregate of mineral or rock grains greater than 1/16mmandless than 2 mm in diameter.

Sedimentation, in the geological sciences, is a process of deposition of a solid material from a state of suspension or solution in a fluid (usually air or water). Broadly defined it also includes deposits from glacial ice and those materials collected under the impetus of gravity alone, as in talus deposits, or accumulations of rock debris at the base of cliffs. The term is commonly used as a synonym for sedimentary petrology and sedimentology.

Sand is an essential minor mineral used extensively across the country as a useful construction constituent and variety of other uses in sports, agriculture, glass making (a form of sand with high silica content) etc. It is common knowledge that minerals are non-renewable but this form of mineral naturally gets replenished from time to time in a given river system and is very much interrelated to the hydrological cycle in a river basin.

3. RESERVECALCULATION: -

Keeping in view the mode of deposition and occurrence of mineralization in the river bed all the reserves in the block proposed for lease have been considered as of proved category in the plan area. The entire mineral resource is liable to be converted into mineral reserves and comprehensively termed as River Bed Material and has been calculated volumetrically by multiplying the following parameters:

- Thickness of bed up to the depth of 3 meters from the riverbed surface RL.
- The bulk density of riverbed material has been considered as 2.0

The nature of mineralization observed doesn't warrant the application of UNFC Code as such cannot be perfectly employed for converting the resource into the mineral reserves. Thus, all the three digits (111) of proved category satisfy the field conditions as per market survey conducted. Since all the material recovered during mining activity shall be put to use. Now a stage of material is apprehended.

Geological Reserves=55,51,594 Proved (calculated from the following tabulated parameters)

Mineral concession area in Acres	Mining area in Acres	Ancillary area in acres	Bulk density MT/m3	Blocked area in acres	Total proved Geological reserves MT=Area x depth x BD (UNFC code111)	Blocked area Reserves of 50m strip after each km, 25% blocked in river banks, railways, roads/bridges/lease boundy etc= Acres UNFC Code 211 &222)	Mineable reserves in MT	Planned production in MT
247.00	228.63	18.37	2.0	44.70	55,51,594	10,85,405	44,66,189	44,60,000

Source: Mining Plan

Production Target=44,60,000(MTPA)

The reserves for requirement of envisaged target of annual production from the block have been estimated up to the depth of 3.0 only from the surface contours by surface area method volumetrically taking into consideration the dry bulk density of mineralized formation in the blocks which can be replenished after every consecutive monsoon period by maintaining the general gradient of the river bed and the morphological features of the river shall remain undisturbed

B.Actual Production:

Production have been calculated up to 3 m depth from surface. Benches having height 1.0m &width 6.0m drawn from the ultimate pit limit in the block. Area of each benches have been calculated multiplied by strike influence to get the volume. The volume multiplied by bulk density (2.0) to get the tonnage.

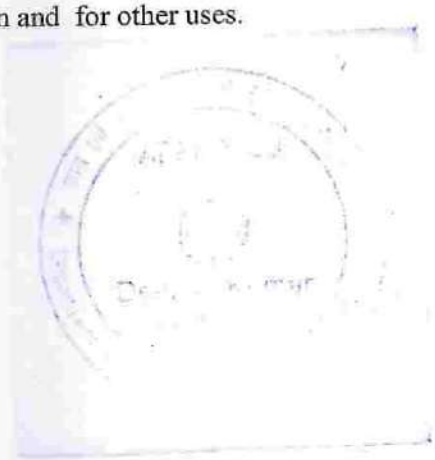
Production Target=44,60,000(MTPA) As per Mining Plan

4. REPLENISHMENT STUDY OF MINE AREA:-

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

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

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



The material occurring in the rivers and streams is produced due to disintegration of rocks by the processes of weathering. As a result the sand and other allied material get deposited seasonally in the form of sand bars, braided bars and as longitudinal grooves all along the present course and its paleochannels, which is very well exposed on the surface and the quantity remains subject to vary every year thus no specific method of exploration with respect to quantification is employed. The minerals excavated from the river bed will be replenished gradually during the monsoon season every year. In order to know the behavior of general gradient of river bed the profile was drawn.

5. METHODOLOGY FOR REPLENISHMENT STUDY:-

The methodology used for Replenishment study is based on the measurement of Reduced Level(RL) at selected Grids monitoring stations within the lease area in Pre-monsoon season & Post Monsoon season respectively. For the said project replenishment study has been done during the pre-monsoon (May-2022) and post-monsoon season (Oct. – 2022) for 2022 by field survey (volumetric survey) method. Firstly, Volumetric Survey was done in the proposed mining blocks in pre monsoon season from where mining was done. By this method spot RL/level was marked & mapped and sections were drawn for 907 Grids monitoring locations within the mine area. After that, for post-monsoon season again spot RL/level was marked & mapped on the same location and sections were drawn. The RL(m) observed during Pre-monsoon & Post monsoon season of all 907 Grids locations are shown in Table-4, 5,6,7,8,9,10 & 11.

Survey map of Pre-Monsoon& Post-Monsoon is shown in Fig-1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19 & Fig-20 Sections of the pre-monsoon and post monsoon are shown inFig-8.

Table 4:-RL(m)Grids measurement in Pre & Post Monsoon 2022 in block Toka Block

Grid_No	Post Monsoon Elevation mtr	Grid Area (Sq.m)	Pre-Monsoon Elevation mtr	Difference of Elevation (Pre & Post Monsoon)	Replenished/Mineable/ Reserve in (Ton)
1	335.50	739.53	332.50	3.00	**4,437.20**
2	335.50	775.79	332.50	3.00	**4,654.72**
3	335.65	540.92	332.65	3.00	**3,245.52**
4	335.40	900.00	332.40	3.00	**5,400.00**
5	335.40	900.00	332.40	3.00	**5,400.00**
6	335.35	895.92	332.35	3.00	**5,375.52**
7	335.35	759.69	332.35	3.00	**4,558.14**
8	335.35	900.00	332.35	3.00	**5,400.00**
12	335.35	791.55	332.35	3.00	**4,749.32**
		7,203.40		3.00	43,220.42
	Total replenished Quantity of the Material in the Toka Block				**43,220.42**

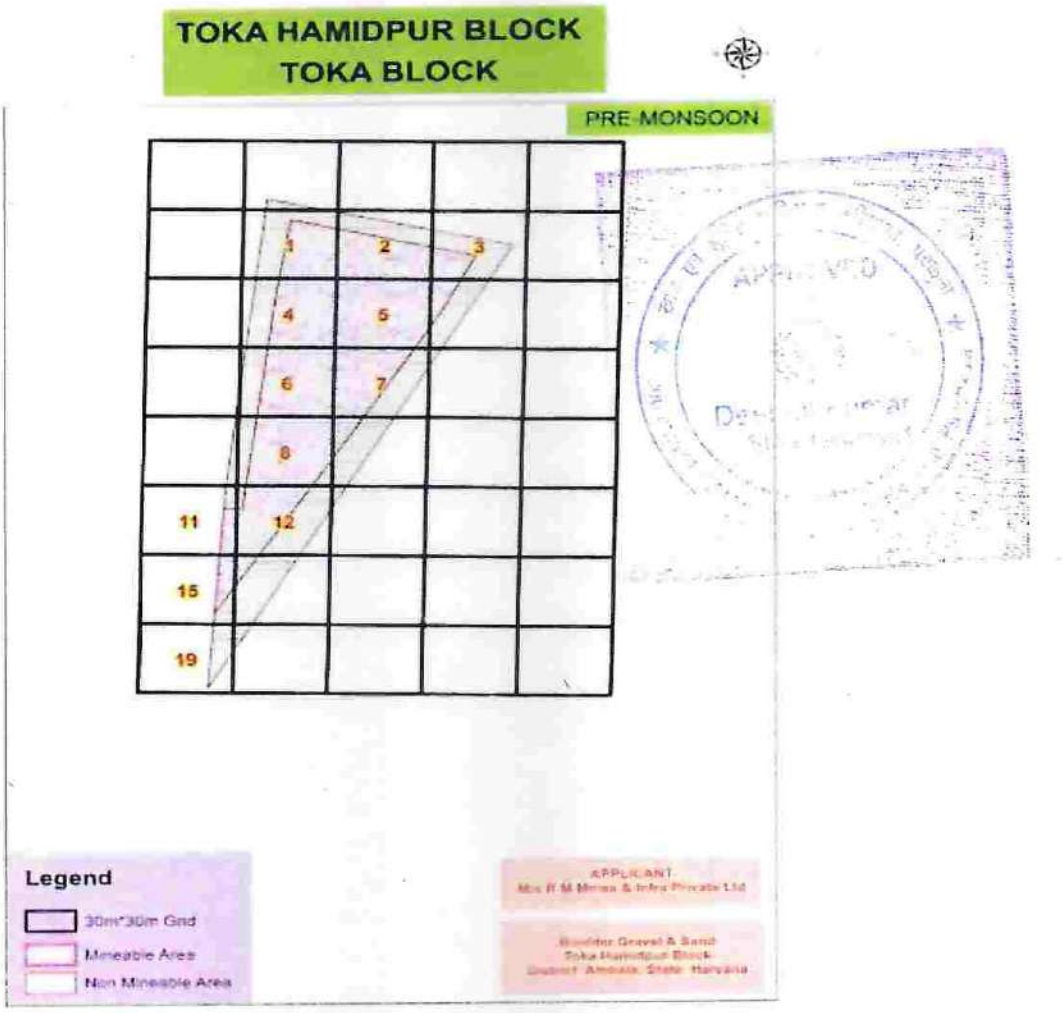


Fig-5

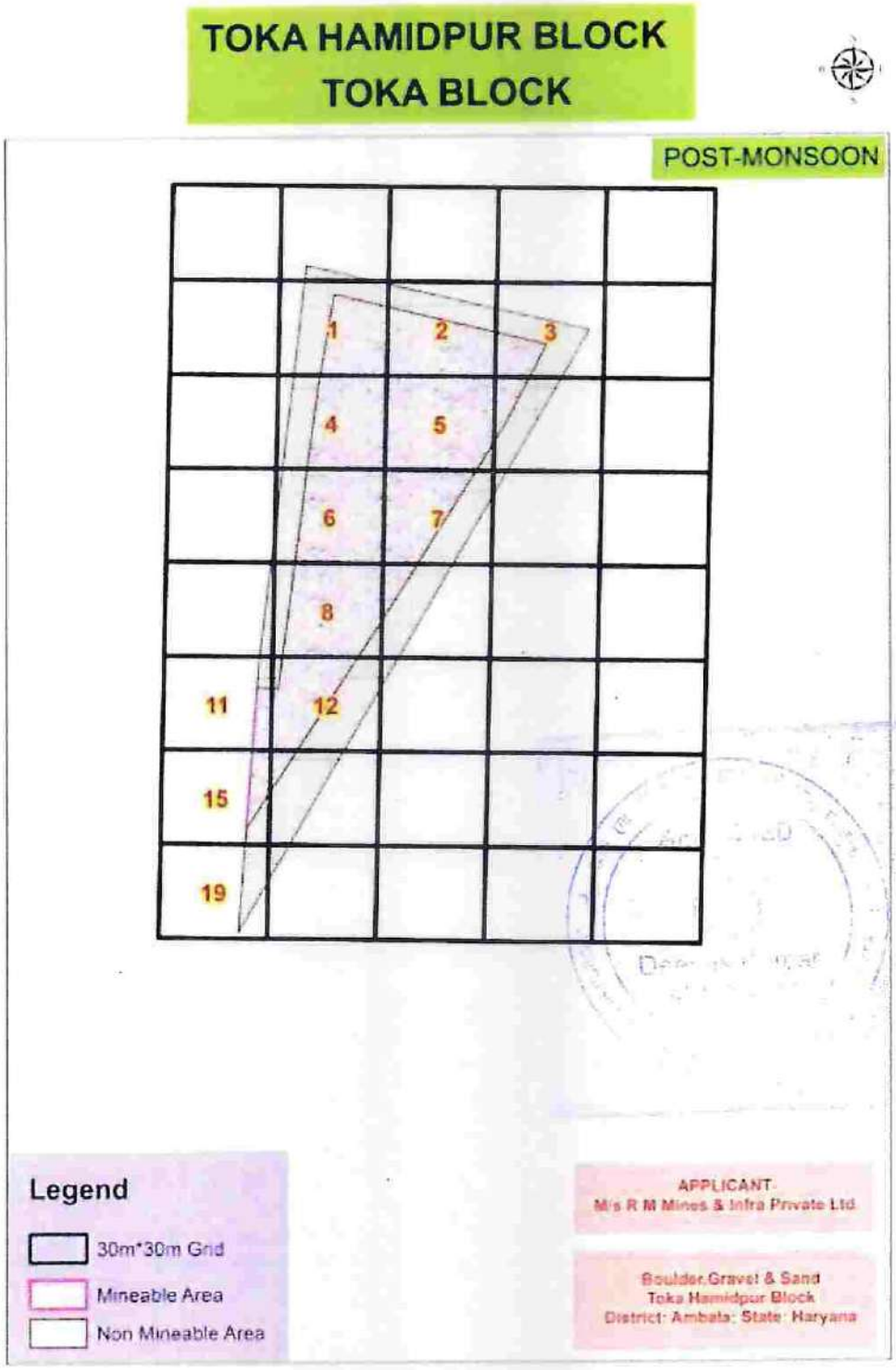

TOKA HAMIDPUR BLOCK
TOKA BLOCK
POST-MONSOON
1
2
3
4
5
6
7
8
11
12
15
19
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
APPLICANT-
M/s R M Mines & Infra Private Ltd
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala; State: Haryana

Fig-6

Table 5:-RL(m)Grids measurement in Pre & Post Monsoon 2022 in block Chachi Majra

Grid_No	Post Monsoon Elevation mtr	Grid Area (Sq.m)	Pre Monsoon Elevation mtr	Difference of Elevation (Pre & Post Monsoon)	Replenished/Mineable/ Reserve in (Ton)
9	334.25	808.58	331.05	3.20	5,174.93
10	334.25	801.19	331.25	3.00	4,807.14
11	334.25	807.54	331.04	3.21	5,184.41
13	334.25	808.58	331.05	3.20	5,174.93
14	334.25	900.00	331.60	2.65	4,770.00
15	334.25	900.00	331.05	3.20	5,760.00
16	334.25	885.76	331.05	3.20	5,668.88
17	334.25	900.00	331.05	3.20	5,760.00
18	334.12	900.00	330.92	3.20	5,760.00
19	334.12	900.00	330.92	3.20	5,760.00
20	333.74	900.00	330.54	3.20	5,760.00
21	333.74	900.00	331.50	2.24	4,032.00
22	333.74	900.00	330.54	3.20	5,760.00
23	333.74	900.00	330.54	3.20	5,760.00
24	333.74	818.13	330.54	3.20	5,236.06
25	333.74	900.00	330.54	3.20	5,760.00
26	333.85	900.00	330.65	3.20	5,760.00
27	333.85	836.72	330.65	3.20	5,355.00
28	333.46	900.00	330.26	3.20	5,760.00
29	333.46	900.00	330.26	3.20	5,760.00
30	333.66	899.27	330.46	3.20	5,755.35
30	333.66	900.00	330.46	3.20	5,760.00
31	333.67	900.00	330.47	3.20	5,760.00
32	333.67	846.68	330.47	3.20	5,418.73
32	333.67	765.21	330.47	3.20	4,897.33
33	333.67	821.79	330.47	3.20	5,259.44
34	333.47	867.24	330.25	3.22	5,585.05
35	333.47	899.16	330.27	3.20	5,754.60
35	333.47	899.16	330.27	3.20	5,754.60
36	333.38	807.83	331.25	2.13	3,441.36
36	333.38	808.08	330.18	3.20	5,171.72
37	333.38	900.00	330.18	3.20	5,760.00
38	333.38	900.00	330.18	3.20	5,760.00
39	333.38	820.48	330.18	3.20	5,251.05
		29,501.40		3.12	1,84,092.58
	Total replenished Quantity of the Material in the Chachi Majra Block				**1,84,092.58**

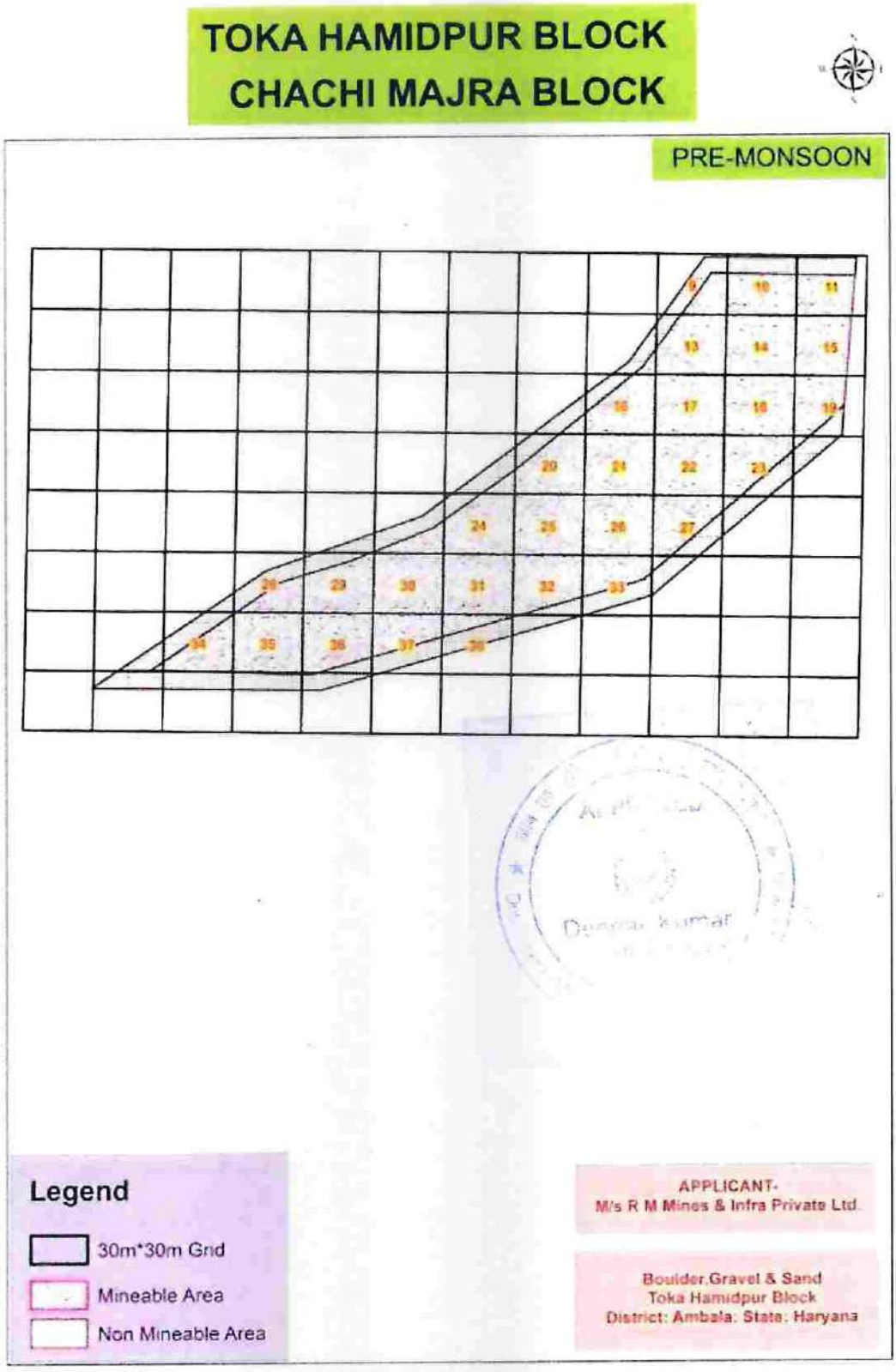

TOKA HAMIDPUR BLOCK
CHACHI MAJRA BLOCK
PRE-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
APPLICANT-
M/s R M Mines & Infra Private Ltd.
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala, State: Haryana

Fig-7

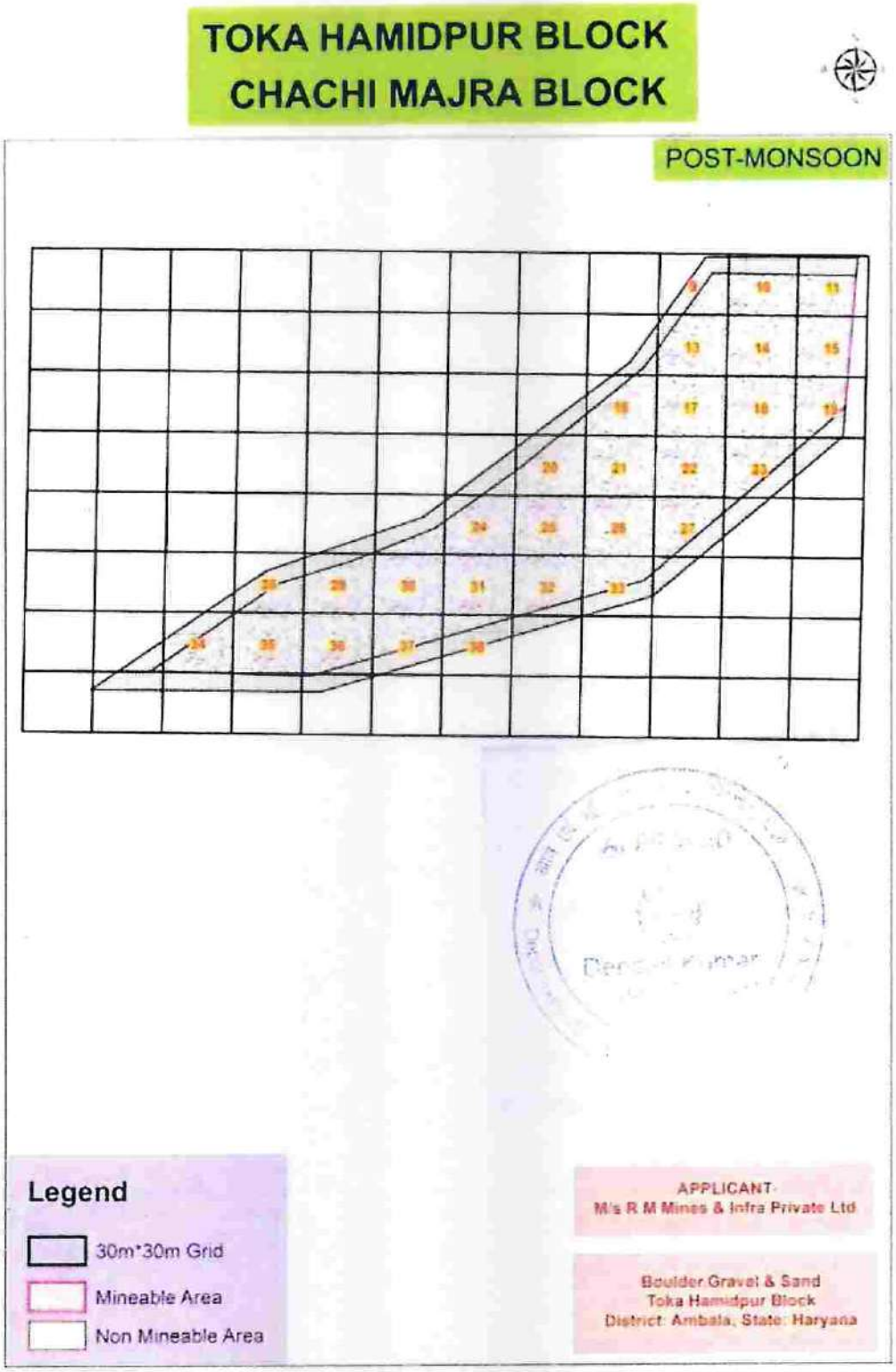

TOKA HAMIDPUR BLOCK
CHACHI MAJRA BLOCK
POST-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
APPLICANT-
M/s R M Mines & Infra Private Ltd
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala, State: Haryana

Fig-8

Table 6:-RL(m)Grids measurement in Pre & Post Monsoon 2022 in block Dera

Grid_No	Post Monsoon Elevation mtr	Grid Area (Sq.m)	Pre Monsoon Elevation mtr	Difference of Elevation (Pre & Post Monsoon)	Replenished/Mineable/ Reserve in (Ton)
39	336.80	898.63	333.80	3.00	5,391.79
40	336.80	900.00	333.80	3.00	5,400.00
41	336.80	900.00	333.80	3.00	5,400.00
42	336.80	900.00	333.80	3.00	5,400.00
43	336.80	900.00	333.80	3.00	5,400.00
44	336.80	898.63	333.80	3.00	5,391.79
45	336.80	832.05	333.80	3.00	4,992.33
46	336.80	564.88	333.80	3.00	3,389.28
47	336.80	900.00	333.80	3.00	5,400.00
48	336.80	841.21	333.80	3.00	5,047.24
49	336.80	865.72	333.80	3.00	5,194.30
50	335.75	817.83	332.75	3.00	4,906.96
51	335.75	828.04	332.75	3.00	4,968.25
52	335.75	897.63	332.75	3.00	5,385.77
53	335.75	900.00	332.75	3.00	5,400.00
54	335.75	879.96	332.75	3.00	5,279.78
55	335.75	857.54	332.75	3.00	5,145.25
56	335.75	837.27	332.75	3.00	5,023.63
57	335.75	824.11	332.75	3.00	4,944.66
58	335.75	830.62	332.75	3.00	4,983.74
59	335.75	845.12	332.75	3.00	5,070.72
60	335.75	892.56	332.75	3.00	5,355.39
60	335.75	887.44	332.75	3.00	5,324.61
61	335.75	891.53	332.75	3.00	5,349.19
62	335.75	836.12	332.75	3.00	5,016.73
63	335.75	834.05	332.75	3.00	5,004.33
64	335.75	900.00	332.75	3.00	5,400.00
65	335.75	853.15	332.75	3.00	5,118.87
66	334.62	900.00	331.62	3.00	5,400.00
67	334.62	876.48	331.62	3.00	5,258.88
68	334.62	900.00	331.62	3.00	5,400.00
69	334.62	854.55	331.62	3.00	5,127.28
70	334.62	846.70	331.62	3.00	5,080.19
71	334.62	864.95	331.62	3.00	5,189.73
72	334.62	900.00	331.62	3.00	5,400.00
73	334.62	884.09	331.62	3.00	5,304.54
74	334.62	818.15	331.62	3.00	4,908.89
75	334.62	836.90	331.62	3.00	5,021.39
76	334.62	900.00	331.62	3.00	5,400.00
77	334.62	900.00	331.62	3.00	5,400.00
78	334.62	829.71	331.62	3.00	4,978.25
79	334.62	900.00	331.62	3.00	5,400.00
80	334.62	900.00	331.62	3.00	5,400.00
81	334.62	870.38	331.62	3.00	5,222.30
82	334.62	895.00	331.62	3.00	5,369.98

83	334.62	900.00	331.62	3.00	5,400.00
84	334.62	900.00	331.62	3.00	5,400.00
85	334.62	896.50	331.62	3.00	5,379.00
86	334.62	876.39	331.62	3.00	5,258.33
87	334.62	880.22	331.62	3.00	5,281.32
88	334.62	900.00	331.62	3.00	5,400.00
89	333.50	885.77	330.50	3.00	5,314.60
90	333.50	808.75	330.50	3.00	4,852.48
91	333.50	900.00	330.50	3.00	5,400.00
92	333.50	875.07	330.50	3.00	5,250.41
93	333.50	841.56	330.50	3.00	5,049.36
94	333.50	900.00	330.50	3.00	5,400.00
95	333.50	868.91	330.50	3.00	5,213.45
96	333.50	869.25	330.50	3.00	5,215.49
97	333.50	900.00	330.50	3.00	5,400.00
98	333.50	862.16	330.50	3.00	5,172.96
99	333.50	878.32	330.50	3.00	5,269.89
100	333.50	900.00	330.50	3.00	5,400.00
101	333.50	858.91	330.50	3.00	5,153.48
102	333.50	787.38	330.50	3.00	4,724.29
103	333.50	900.00	330.50	3.00	5,400.00
104	333.50	855.67	330.50	3.00	5,134.00
105	333.50	796.45	330.50	3.00	4,778.69
106	333.50	900.00	330.50	3.00	5,400.00
107	333.50	852.42	330.50	3.00	5,114.52
108	333.50	805.52	330.50	3.00	4,833.09
109	333.50	900.00	330.50	3.00	5,400.00
110	333.50	849.17	330.50	3.00	5,095.04
111	332.37	900.00	329.37	3.00	5,400.00
112	332.37	900.00	329.37	3.00	5,400.00
113	332.37	900.00	329.37	3.00	5,400.00
114	332.37	900.00	329.37	3.00	5,400.00
115	332.37	900.00	329.37	3.00	5,400.00
116	332.37	900.00	329.37	3.00	5,400.00
117	332.37	900.00	329.37	3.00	5,400.00
118	332.37	900.00	329.37	3.00	5,400.00
119	332.37	832.72	329.37	3.00	4,996.31
120	332.37	900.00	329.37	3.00	5,400.00
121	332.37	900.00	329.37	3.00	5,400.00
122	332.37	900.00	329.37	3.00	5,400.00
123	332.37	841.79	329.37	3.00	5,050.72
124	332.37	900.00	329.37	3.00	5,400.00
125	332.37	900.00	329.37	3.00	5,400.00
126	332.37	900.00	329.37	3.00	5,400.00
127	332.37	900.00	329.37	3.00	5,400.00
128	332.37	900.00	329.37	3.00	5,400.00
129	332.37	900.00	329.37	3.00	5,400.00
130	332.37	900.00	329.37	3.00	5,400.00
131	332.37	859.92	329.37	3.00	5,159.55
132	332.37	900.00	329.37	3.00	5,400.00

133	332.37	900.00	329.37	3.00	5,400.00
134	332.37	900.00	329.37	3.00	5,400.00
135	332.37	868.99	329.37	3.00	5,213.96
136	332.37	900.00	329.37	3.00	5,400.00
137	332.37	900.00	329.37	3.00	5,400.00
138	332.37	878.06	329.37	3.00	5,268.38
139	332.37	900.00	329.37	3.00	5,400.00
140	332.37	900.00	329.37	3.00	5,400.00
141	332.37	887.13	329.37	3.00	5,322.80
142	332.37	900.00	329.37	3.00	5,400.00
143	332.37	900.00	329.37	3.00	5,400.00
144	331.25	896.17	328.25	3.00	5,377.04
145	331.25	900.00	328.25	3.00	5,400.00
146	331.25	899.41	328.25	3.00	5,396.44
147	331.25	900.00	328.25	3.00	5,400.00
148	331.25	900.00	328.25	3.00	5,400.00
149	331.25	896.34	328.25	3.00	5,378.03
150	331.25	900.00	328.25	3.00	5,400.00
151	331.25	893.00	328.25	3.00	5,357.98
152	331.25	900.00	328.25	3.00	5,400.00
153	331.25	889.65	328.25	3.00	5,337.93
154	330.27	900.00	327.27	3.00	5,400.00
155	330.27	886.31	327.27	3.00	5,317.88
156	330.27	883.69	327.27	3.00	5,302.15
157	330.27	900.00	327.27	3.00	5,400.00
158	330.27	899.79	327.27	3.00	5,398.72
159	330.27	900.00	327.27	3.00	5,400.00
160	330.27	887.50	327.27	3.00	5,325.02
161	330.70	825.17	327.70	3.00	4,951.01
162	330.70	900.00	327.70	3.00	5,400.00
163	330.70	871.27	327.70	3.00	5,227.63
164	330.70	867.97	327.70	3.00	5,207.82
165	330.70	888.70	327.70	3.00	5,332.21
166	330.70	894.17	327.70	3.00	5,365.02
167	330.70	823.30	327.70	3.00	4,939.80
168	330.70	877.66	327.70	3.00	5,265.95
169	330.70	900.00	327.70	3.00	5,400.00
170	330.70	894.67	327.70	3.00	5,368.03
171	330.30	878.09	327.30	3.00	5,268.53
172	330.30	900.00	327.30	3.00	5,400.00
173	330.30	876.10	327.30	3.00	5,256.59
174	330.30	900.00	327.30	3.00	5,400.00
175	330.30	900.00	327.30	3.00	5,400.00
176	330.30	881.68	327.30	3.00	5,290.05
177	330.30	900.00	327.30	3.00	5,400.00
178	330.30	900.00	327.30	3.00	5,400.00
179	330.30	900.00	327.30	3.00	5,400.00
180	330.30	900.00	327.30	3.00	5,400.00
181	330.30	900.00	327.30	3.00	5,400.00
182	330.30	900.00	327.30	3.00	5,400.00

183	330.30	900.00	327.30	3.00	5,400.00
184	330.30	900.00	327.30	3.00	5,400.00
185	330.30	898.76	327.30	3.00	5,392.54
186	330.30	821.28	327.30	3.00	4,927.69
187	330.30	900.00	327.30	3.00	5,400.00
188	330.30	900.00	327.30	3.00	5,400.00
189	330.30	896.58	327.30	3.00	5,379.47
190	330.30	881.88	327.30	3.00	5,291.26
191	330.30	900.00	327.30	3.00	5,400.00
192	330.30	900.00	327.30	3.00	5,400.00
193	330.30	894.40	327.30	3.00	5,366.40
194	329.20	900.00	326.20	3.00	5,400.00
195	329.20	900.00	326.20	3.00	5,400.00
196	329.20	900.00	326.20	3.00	5,400.00
197	329.20	892.22	326.20	3.00	5,353.33
198	329.20	900.00	326.20	3.00	5,400.00
199	329.20	900.00	326.20	3.00	5,400.00
200	329.20	900.00	326.20	3.00	5,400.00
201	329.20	890.04	326.20	3.00	5,340.26
202	329.20	900.00	326.20	3.00	5,400.00
203	329.20	900.00	326.20	3.00	5,400.00
204	329.20	900.00	326.20	3.00	5,400.00
205	329.20	887.87	326.20	3.00	5,327.19
206	329.20	900.00	326.20	3.00	5,400.00
207	329.20	900.00	326.20	3.00	5,400.00
208	329.20	900.00	326.20	3.00	5,400.00
209	329.20	885.69	326.20	3.00	5,314.12
210	329.20	900.00	326.20	3.00	5,400.00
211	329.20	900.00	326.20	3.00	5,400.00
212	329.20	900.00	326.20	3.00	5,400.00
213	329.20	883.51	326.20	3.00	5,301.04
214	329.15	900.00	326.15	3.00	5,400.00
215	329.15	900.00	326.15	3.00	5,400.00
216	329.15	900.00	326.15	3.00	5,400.00
217	329.15	881.33	326.15	3.00	5,287.97
218	329.15	900.00	326.15	3.00	5,400.00
219	329.15	900.00	326.15	3.00	5,400.00
220	329.15	900.00	326.15	3.00	5,400.00
221	329.15	879.15	326.15	3.00	5,274.89
222	329.15	898.94	326.15	3.00	5,393.64
223	329.15	900.00	326.15	3.00	5,400.00
224	329.15	900.00	326.15	3.00	5,400.00
225	329.15	876.97	326.15	3.00	5,261.81
226	329.15	876.36	326.15	3.00	5,258.18
227	329.15	900.00	326.15	3.00	5,400.00
228	329.15	900.00	326.15	3.00	5,400.00
229	329.15	874.79	326.15	3.00	5,248.73
230	329.15	898.27	326.15	3.00	5,389.65
231	329.15	900.00	326.15	3.00	5,400.00
232	329.15	872.61	326.15	3.00	5,235.65

233	329.15	865.50	326.15	3.00	5,192.99
234	329.15	900.00	326.15	3.00	5,400.00
235	329.15	900.00	326.15	3.00	5,400.00
236	329.15	898.31	326.15	3.00	5,389.84
237	329.15	900.00	326.15	3.00	5,400.00
238	329.15	887.73	326.15	3.00	5,326.38
239	329.15	900.00	326.15	3.00	5,400.00
240	329.15	842.88	326.15	3.00	5,057.25
241	329.15	838.27	326.15	3.00	5,029.61
242	329.15	900.00	326.15	3.00	5,400.00
243	329.15	893.59	326.15	3.00	5,361.54
244	329.15	900.00	326.15	3.00	5,400.00
245	329.15	900.00	326.15	3.00	5,400.00
246	329.15	900.00	326.15	3.00	5,400.00
247	329.15	843.05	326.15	3.00	5,058.32
248	328.10	893.21	325.10	3.00	5,359.28
249	328.10	900.00	325.10	3.00	5,400.00
250	328.10	900.00	325.10	3.00	5,400.00
251	328.10	900.00	325.10	3.00	5,400.00
252	328.10	900.00	325.10	3.00	5,400.00
253	328.10	899.08	325.10	3.00	5,394.45
254	328.10	900.00	325.10	3.00	5,400.00
255	328.10	899.61	325.10	3.00	5,397.67
256	328.10	859.36	325.10	3.00	5,156.18
257	328.10	900.00	325.10	3.00	5,400.00
258	328.10	900.00	325.10	3.00	5,400.00
259	328.10	894.03	325.10	3.00	5,364.19
261	328.10	876.40	325.10	3.00	5,258.37
262	328.10	886.79	325.10	3.00	5,320.73
263	328.10	836.52	325.10	3.00	5,019.14
264	328.10	900.00	325.10	3.00	5,400.00
265	328.10	890.31	325.10	3.00	5,341.84
266	328.10	806.61	325.10	3.00	4,839.65
267	327.07	900.00	324.07	3.00	5,400.00
268	327.07	864.17	324.07	3.00	5,185.02
269	327.07	852.32	324.07	3.00	5,113.91
270	327.07	883.09	324.07	3.00	5,298.51
271	327.07	803.62	324.07	3.00	4,821.72
272	327.07	896.15	324.07	3.00	5,376.91
273	327.07	853.99	324.07	3.00	5,123.93
274	327.07	842.00	324.07	3.00	5,051.97
275	327.07	811.25	324.07	3.00	4,867.48
276	327.07	900.00	324.07	3.00	5,400.00
277	327.07	870.40	324.07	3.00	5,222.38
278	327.07	861.54	324.07	3.00	5,169.26
279	326.50	839.17	323.50	3.00	5,035.01
280	326.50	870.40	323.50	3.00	5,222.41
281	326.50	900.00	323.50	3.00	5,400.00
282	326.50	840.69	323.50	3.00	5,044.13
283	326.50	842.01	323.50	3.00	5,052.03

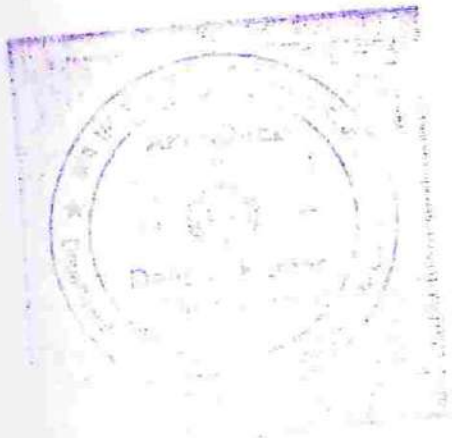
284	326.50	838.33	323.50	3.00	5,029.99
285	326.50	860.01	323.50	3.00	5,160.08
286	326.50	883.74	323.50	3.00	5,302.44
287	326.50	872.19	323.50	3.00	5,233.14
287	326.50	827.81	323.50	3.00	4,966.86
288	326.50	900.00	323.50	3.00	5,400.00
289	326.03	886.04	323.03	3.00	5,316.26
290	326.03	899.66	323.03	3.00	5,397.94
291	326.03	900.00	323.03	3.00	5,400.00
292	326.03	899.32	323.03	3.00	5,395.92
293	326.03	846.89	323.03	3.00	5,081.32
294	326.03	900.00	323.03	3.00	5,400.00
295	326.03	900.00	323.03	3.00	5,400.00
296	326.03	825.58	323.03	3.00	4,953.51
297	326.03	851.93	323.03	3.00	5,111.59
298	326.03	900.00	323.03	3.00	5,400.00
299	326.03	900.00	323.03	3.00	5,400.00
300	326.03	851.85	323.03	3.00	5,111.09
301	326.03	856.98	323.03	3.00	5,141.86
302	326.03	900.00	323.03	3.00	5,400.00
303	326.03	889.26	323.03	3.00	5,335.56
304	326.03	812.82	323.03	3.00	4,876.91
305	326.03	862.02	323.03	3.00	5,172.13
306	326.03	900.00	323.03	3.00	5,400.00
307	326.03	821.86	323.03	3.00	4,931.18
308	326.03	866.99	323.03	3.00	5,201.96
309	326.03	900.00	323.03	3.00	5,400.00
310	326.03	822.13	323.03	3.00	4,932.76
311	326.03	870.69	323.03	3.00	5,224.14
312	326.03	900.00	323.03	3.00	5,400.00
313	326.03	845.47	323.03	3.00	5,072.79
314	325.60	873.93	322.60	3.00	5,243.57
315	325.60	900.00	322.60	3.00	5,400.00
316	325.60	868.80	322.60	3.00	5,212.82
317	325.60	877.17	322.60	3.00	5,262.99
318	325.60	900.00	322.60	3.00	5,400.00
319	325.60	892.14	322.60	3.00	5,352.85
320	325.60	880.40	322.60	3.00	5,282.42
321	325.60	900.00	322.60	3.00	5,400.00
322	325.60	815.48	322.60	3.00	4,892.87
323	325.60	883.64	322.60	3.00	5,301.85
324	325.60	900.00	322.60	3.00	5,400.00
325	325.60	838.82	322.60	3.00	5,032.90
326	325.10	886.88	322.10	3.00	5,321.28
327	325.10	900.00	322.10	3.00	5,400.00
328	325.10	851.17	322.10	3.00	5,107.04
329	325.10	864.61	322.10	3.00	5,187.63
330	325.10	895.97	322.10	3.00	5,375.83
331	325.10	900.00	322.10	3.00	5,400.00
332	325.10	811.92	322.10	3.00	4,871.52

333	325.10	900.00	322.10	3.00	5,400.00
334	325.10	817.72	322.10	3.00	4,906.35
335	325.10	900.00	322.10	3.00	5,400.00
336	325.10	900.00	322.10	3.00	5,400.00
337	325.10	824.26	322.10	3.00	4,945.56
338	325.10	872.50	322.10	3.00	5,235.01
339	325.10	900.00	322.10	3.00	5,400.00
340	325.10	900.00	322.10	3.00	5,400.00
341	325.10	900.00	322.10	3.00	5,400.00
342	325.10	900.00	322.10	3.00	5,400.00
343	325.10	876.94	322.10	3.00	5,261.66
344	325.10	861.33	322.10	3.00	5,167.96
345	325.10	900.00	322.10	3.00	5,400.00
346	325.10	900.00	322.10	3.00	5,400.00
347	325.10	900.00	322.10	3.00	5,400.00
348	325.10	845.73	322.10	3.00	5,074.40
349	325.10	900.00	322.10	3.00	5,400.00
350	325.10	815.87	322.10	3.00	4,895.21
351	325.10	900.00	322.10	3.00	5,400.00
352	325.10	900.00	322.10	3.00	5,400.00
353	325.10	900.00	322.10	3.00	5,400.00
354	325.10	900.00	322.10	3.00	5,400.00
355	325.10	825.81	322.10	3.00	4,954.86
356	325.10	893.34	322.10	3.00	5,360.06
357	325.10	900.00	322.10	3.00	5,400.00
358	325.10	900.00	322.10	3.00	5,400.00
359	325.10	900.00	322.10	3.00	5,400.00
360	325.10	900.00	322.10	3.00	5,400.00
361	325.10	877.10	322.10	3.00	5,262.62
362	325.10	841.77	322.10	3.00	5,050.61
363	325.10	894.34	322.10	3.00	5,366.06
364	325.10	900.00	322.10	3.00	5,400.00
365	325.10	900.00	322.10	3.00	5,400.00
366	325.10	900.00	322.10	3.00	5,400.00
367	325.10	900.00	322.10	3.00	5,400.00
368	325.10	848.71	322.10	3.00	5,092.25
369	324.20	900.00	321.20	3.00	5,400.00
370	324.20	808.75	321.20	3.00	4,852.49
371	324.20	900.00	321.20	3.00	5,400.00
372	324.20	900.00	321.20	3.00	5,400.00
373	324.20	900.00	321.20	3.00	5,400.00
374	324.20	900.00	321.20	3.00	5,400.00
375	324.20	900.00	321.20	3.00	5,400.00
376	324.20	884.59	321.20	3.00	5,307.55
377	324.20	900.00	321.20	3.00	5,400.00
378	324.20	900.00	321.20	3.00	5,400.00
379	324.20	900.00	321.20	3.00	5,400.00
380	324.20	900.00	321.20	3.00	5,400.00
381	324.20	900.00	321.20	3.00	5,400.00
382	324.20	900.00	321.20	3.00	5,400.00

383	324.20	900.00	321.20	3.00	5,400.00
384	324.20	837.36	321.20	3.00	5,024.14
385	324.20	864.45	321.20	3.00	5,186.68
386	324.20	900.00	321.20	3.00	5,400.00
387	324.20	900.00	321.20	3.00	5,400.00
388	324.20	900.00	321.20	3.00	5,400.00
389	324.20	900.00	321.20	3.00	5,400.00
390	324.20	900.00	321.20	3.00	5,400.00
391	324.20	900.00	321.20	3.00	5,400.00
392	324.20	887.16	321.20	3.00	5,322.98
393	324.20	839.30	321.20	3.00	5,035.78
394	324.20	864.32	321.20	3.00	5,185.94
395	324.20	900.00	321.20	3.00	5,400.00
396	324.20	900.00	321.20	3.00	5,400.00
397	324.20	900.00	321.20	3.00	5,400.00
398	324.20	900.00	321.20	3.00	5,400.00
399	324.20	900.00	321.20	3.00	5,400.00
400	324.20	900.00	321.20	3.00	5,400.00
401	324.20	846.74	321.20	3.00	5,080.44
402	324.20	712.17	321.20	3.00	4,273.00
403	324.20	900.00	321.20	3.00	5,400.00
404	324.20	900.00	321.20	3.00	5,400.00
405	324.20	900.00	321.20	3.00	5,400.00
406	324.20	900.00	321.20	3.00	5,400.00
407	324.20	900.00	321.20	3.00	5,400.00
408	324.20	900.00	321.20	3.00	5,400.00
409	324.20	900.00	321.20	3.00	5,400.00
410	324.20	287.76	321.20	3.00	1,726.58
411	324.20	450.00	321.20	3.00	2,700.02
412	324.20	900.00	321.20	3.00	5,400.00
413	324.20	900.00	321.20	3.00	5,400.00
414	324.20	900.00	321.20	3.00	5,400.00
415	324.20	900.00	321.20	3.00	5,400.00
416	324.20	900.00	321.20	3.00	5,400.00
417	324.20	900.00	321.20	3.00	5,400.00
418	324.20	900.00	321.20	3.00	5,400.00
419	324.20	762.78	321.20	3.00	4,576.69
420	324.20	900.00	321.20	3.00	5,400.00
421	324.20	884.52	321.20	3.00	5,307.11
422	324.20	900.00	321.20	3.00	5,400.00
423	324.20	900.00	321.20	3.00	5,400.00
424	324.20	900.00	321.20	3.00	5,400.00
425	324.20	900.00	321.20	3.00	5,400.00
426	324.20	900.00	321.20	3.00	5,400.00
427	324.20	894.05	321.20	3.00	5,364.29
428	324.20	621.16	321.20	3.00	3,726.93
429	324.20	900.00	321.20	3.00	5,400.00
430	322.90	752.89	319.90	3.00	4,517.34
431	322.90	900.00	319.90	3.00	5,400.00
432	322.90	900.00	319.90	3.00	5,400.00

433	322.90	900.00	319.90	3.00	5,400.00
434	322.90	900.00	319.90	3.00	5,400.00
435	322.90	900.00	319.90	3.00	5,400.00
436	322.90	900.00	319.90	3.00	5,400.00
437	322.90	900.00	319.90	3.00	5,400.00
438	322.90	900.00	319.90	3.00	5,400.00
439	322.90	900.00	319.90	3.00	5,400.00
440	322.90	900.00	319.90	3.00	5,400.00
441	322.90	900.00	319.90	3.00	5,400.00
442	322.90	900.00	319.90	3.00	5,400.00
443	322.90	809.84	319.90	3.00	4,859.06
444	322.90	899.54	319.90	3.00	5,397.24
445	322.90	825.88	319.90	3.00	4,955.28
446	322.90	900.00	319.90	3.00	5,400.00
447	322.90	900.00	319.90	3.00	5,400.00
448	322.90	900.00	319.90	3.00	5,400.00
449	322.90	900.00	319.90	3.00	5,400.00
450	322.90	900.00	319.90	3.00	5,400.00
451	322.90	900.00	319.90	3.00	5,400.00
452	322.90	900.00	319.90	3.00	5,400.00
453	322.90	900.00	319.90	3.00	5,400.00
454	322.90	900.00	319.90	3.00	5,400.00
455	322.90	900.00	319.90	3.00	5,400.00
456	322.90	900.00	319.90	3.00	5,400.00
457	322.90	900.00	319.90	3.00	5,400.00
458	322.90	900.00	319.90	3.00	5,400.00
459	321.80	900.00	318.80	3.00	5,400.00
460	321.80	900.00	318.80	3.00	5,400.00
461	321.80	900.00	318.80	3.00	5,400.00
462	321.80	900.00	318.80	3.00	5,400.00
463	321.80	900.00	318.80	3.00	5,400.00
464	321.80	900.00	318.80	3.00	5,400.00
465	321.80	900.00	318.80	3.00	5,400.00
466	321.80	900.00	318.80	3.00	5,400.00
467	321.80	900.00	318.80	3.00	5,400.00
468	321.80	900.00	318.80	3.00	5,400.00
469	321.80	900.00	318.80	3.00	5,400.00
470	321.80	900.00	318.80	3.00	5,400.00
471	321.80	900.00	318.80	3.00	5,400.00
472	321.80	900.00	318.80	3.00	5,400.00
473	321.80	900.00	318.80	3.00	5,400.00
474	320.70	900.00	317.70	3.00	5,400.00
475	320.70	900.00	317.70	3.00	5,400.00
476	320.70	900.00	317.70	3.00	5,400.00
477	320.70	900.00	317.70	3.00	5,400.00
478	320.70	900.00	317.70	3.00	5,400.00
479	320.70	900.00	317.70	3.00	5,400.00
480	320.70	900.00	317.70	3.00	5,400.00
481	320.70	900.00	317.70	3.00	5,400.00
482	320.70	900.00	317.70	3.00	5,400.00

483	320.70	900.00	317.70	3.00	5,400.00
484	320.70	900.00	317.70	3.00	5,400.00
485	320.70	900.00	317.70	3.00	5,400.00
486	324.20	900.00	321.20	3.00	5,400.00
487	324.20	894.05	321.20	3.00	5,364.29
488	324.20	621.16	321.20	3.00	3,726.93
489	324.20	900.00	321.20	3.00	5,400.00
490	322.90	852.89	319.90	3.00	5,117.34
491	322.90	900.00	319.90	3.00	5,400.00
492	322.90	852.89	319.90	3.00	5,117.34
493	322.90	892.89	319.90	3.00	5,357.34
		4,01,126.38		3.00	24,06,758.31
Total replenished Quantity of the Material in the Dera Block					**24,06,758.31**



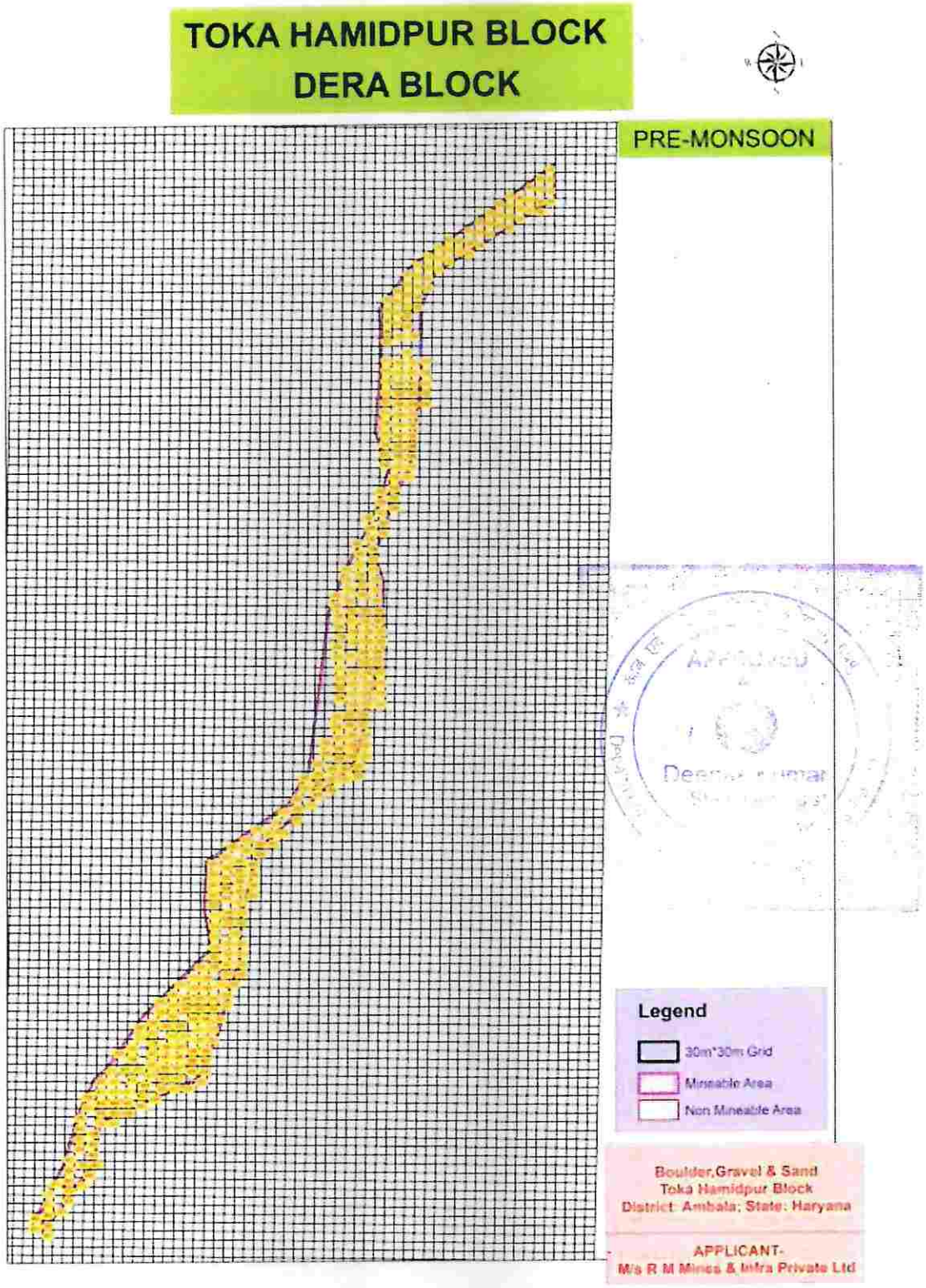

TOKA HAMIDPUR BLOCK
DERA BLOCK
PRE-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala; State: Haryana
APPLICANT-
M/s R M Mines & Infra Private Ltd

Fig-9

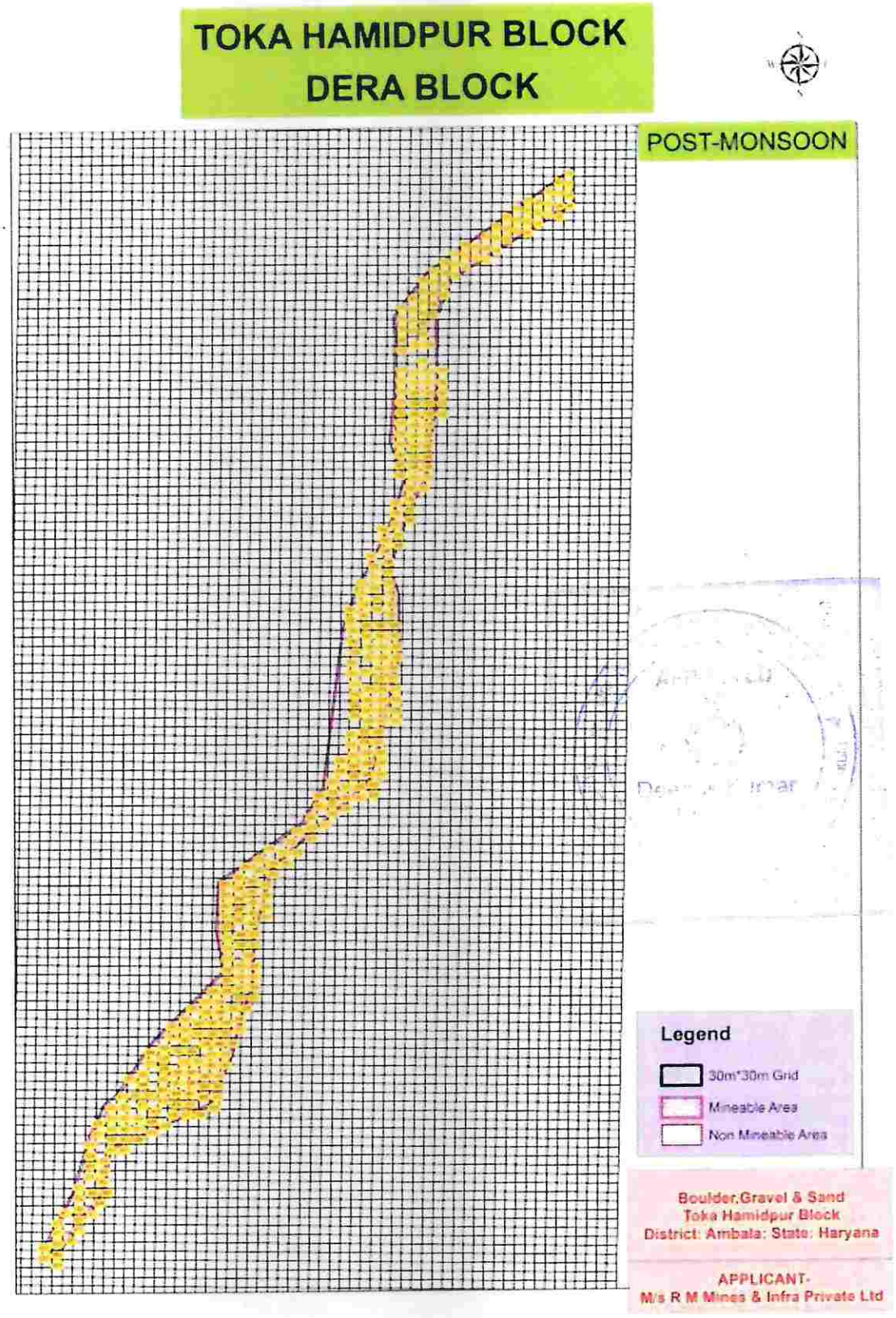

TOKA HAMIDPUR BLOCK
DERA BLOCK
POST-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala: State: Haryana
APPLICANT-
M/s R M Mines & Infra Private Ltd

Fig-10

Table 7:-RL(m)Grids measurement in Pre & Post Monsoon 2022 in block Sangrani

Grid_No	Post Monsoon Elevation mtr	Grid Area (Sq.m)	Pre Monsoon Elevation mtr	Difference of Elevation (Pre & Post Monsoon)	Replenished/Mineable/ Reserve in (Ton)
486	312.90	900.00	309.90	3.00	5,400.00
487	312.90	900.00	309.90	3.00	5,400.00
488	312.81	900.00	309.81	3.00	5,400.00
489	312.84	900.00	309.84	3.00	5,400.00
490	312.82	884.93	309.82	3.00	5,309.57
491	312.82	893.59	309.82	3.00	5,361.51
492	312.70	852.61	309.70	3.00	5,115.67
493	312.70	720.50	309.70	3.00	4,322.99
494	312.70	820.28	309.70	3.00	4,921.69
495	312.70	899.90	309.70	3.00	5,399.41
496	312.60	796.74	309.60	3.00	4,780.44
497	312.60	900.00	309.60	3.00	5,400.00
498	312.60	864.34	309.60	3.00	5,186.05
499	312.57	748.07	309.57	3.00	4,488.39
500	312.57	900.00	309.57	3.00	5,400.00
501	312.57	798.67	309.57	3.00	4,792.00
502	312.53	866.25	309.53	3.00	5,197.48
503	312.53	900.00	309.53	3.00	5,400.00
504	312.50	900.00	309.50	3.00	5,400.00
505	312.50	900.00	309.50	3.00	5,400.00
506	312.50	884.41	309.50	3.00	5,306.45
507	312.50	900.00	309.50	3.00	5,400.00
508	312.50	900.00	309.50	3.00	5,400.00
509	312.50	900.00	309.50	3.00	5,400.00
510	312.42	799.65	309.42	3.00	4,797.89
511	312.42	900.00	309.42	3.00	5,400.00
512	312.42	900.00	309.42	3.00	5,400.00
513	312.42	900.00	309.42	3.00	5,400.00
514	312.40	900.00	309.40	3.00	5,400.00
515	312.40	900.00	309.40	3.00	5,400.00
516	312.40	900.00	309.40	3.00	5,400.00
517	312.40	900.00	309.40	3.00	5,400.00
518	312.35	745.59	309.35	3.00	4,473.53
519	312.35	900.00	309.35	3.00	5,400.00
520	312.35	900.00	309.35	3.00	5,400.00
521	312.35	857.32	309.35	3.00	5,143.94
522	312.30	892.65	309.30	3.00	5,355.88
523	312.30	900.00	309.30	3.00	5,400.00
524	312.27	900.00	309.27	3.00	5,400.00
525	312.27	891.81	309.27	3.00	5,350.88
526	312.27	895.33	309.27	3.00	5,371.97
526	312.27	894.67	309.27	3.00	5,368.03
527	312.27	900.00	309.27	3.00	5,400.00

528	312.27	900.00	309.27	3.00	5,400.00
529	312.27	895.23	309.27	3.00	5,371.39
529	312.27	844.77	309.27	3.00	5,068.61
530	312.27	900.00	309.27	3.00	5,400.00
531	312.27	850.70	309.27	3.00	5,104.20
532	312.32	895.23	309.32	3.00	5,371.39
532	312.32	874.77	309.32	3.00	5,248.61
533	312.32	900.00	309.32	3.00	5,400.00
534	312.16	795.38	309.16	3.00	4,772.28
		45,463.38		3.00	2,72,780.27
Total replenished Quantity of the Material in the Sangrani Block 1					**2,72,780.27**

Table 7 (II):-RL(m)Grids measurement in Pre & Post Monsoon 2022 in block Sangrani

Grid_No	Post Monsoon Elevation mtr	Grid Area (Sq.m)	Pre Monsoon Elevation mtr	Difference of Elevation (Pre & Post Monsoon)	Replenished/Mineable/ Reserve in (Ton)
535	320	900.00	317.00	3.00	5400
536	320	900.00	317.00	3.00	5400
537	319	900.00	316.00	3.00	5400
538	319	826.70	316.00	3.00	4960
539	314	847.60	311.00	3.00	5086
540	310.07	843.99	307.07	3.00	5064
541	310.07	900.00	307.07	3.00	5400
542	310.07	900.00	307.07	3.00	5400
543	310.07	900.00	307.07	3.00	5400
544	310.07	882.64	307.07	3.00	5296
545	310.07	900.00	307.07	3.00	5400
546	310.07	900.00	307.07	3.00	5400
547	310.07	900.00	307.07	3.00	5400
548	310.07	900.00	307.07	3.00	5400
549	310.07	697.57	307.07	3.00	4185
550	310.10	900.00	307.10	3.00	5400
551	309.05	900.00	306.05	3.00	5400
552	309.05	900.00	306.05	3.00	5400
553	309.05	900.00	306.05	3.00	5400
554	309.05	821.72	306.05	3.00	4930
555	309.05	892.62	306.05	3.00	5356
556	309.05	900.00	306.05	3.00	5400
557	309.05	900.00	306.05	3.00	5400
558	309.05	900.00	306.05	3.00	5400
559	309.97	884.72	306.97	3.00	5308
560	309.60	900.00	306.60	3.00	5400
561	309.60	900.00	306.60	3.00	5400
562	309.60	900.00	306.60	3.00	5400
563	309.60	839.17	306.60	3.00	5035
564	309.60	900.00	306.60	3.00	5400
565	309.60	900.00	306.60	3.00	5400

566	309.60	900.00	306.60	3.00	5400
567	309.60	900.00	306.60	3.00	5400
568	309.90	900.00	306.90	3.00	5400
569	309.90	900.00	306.90	3.00	5400
570	309.72	900.00	306.72	3.00	5400
571	309.80	702.31	306.80	3.00	4214
572	309.72	845.78	306.72	3.00	5075
573	309.80	895.73	306.80	3.00	5374
574	309.80	900.00	306.80	3.00	5400
575	309.80	900.00	306.80	3.00	5400
576	309.80	886.21	306.80	3.00	5317
577	309.78	789.57	306.78	3.00	4737
578	309.78	900.00	306.78	3.00	5400
579	309.78	900.00	306.78	3.00	5400
580	309.78	851.69	306.78	3.00	5110
581	309.78	869.71	306.78	3.00	5218
582	309.78	900.00	306.78	3.00	5400
583	309.78	900.00	306.78	3.00	5400
584	309.78	900.00	306.78	3.00	5400
585	309.78	817.18	306.78	3.00	4903
586	309.78	851.78	306.78	3.00	5111
587	309.78	900.00	306.78	3.00	5400
588	309.78	900.00	306.78	3.00	5400
589	309.78	900.00	306.78	3.00	5400
590	309.78	882.67	306.78	3.00	5296
591	309.69	861.43	306.69	3.00	5169
592	309.62	900.00	306.62	3.00	5400
593	309.62	900.00	306.62	3.00	5400
594	309.70	900.00	306.70	3.00	5400
595	309.70	848.15	306.70	3.00	5089
596	309.65	883.06	306.65	3.00	5298
597	309.65	816.82	306.65	3.00	4901
598	309.65	900.00	306.65	3.00	5400
599	309.65	900.00	306.65	3.00	5400
600	309.65	889.42	306.65	3.00	5337
601	309.65	900.00	306.65	3.00	5400
602	309.65	900.00	306.65	3.00	5400
603	309.60	895.85	306.60	3.00	5375
604	309.60	880.84	306.60	3.00	5285
605	309.45	900.00	306.45	3.00	5400
606	309.45	900.00	306.45	3.00	5400
607	309.50	900.00	306.50	3.00	5400
608	309.50	899.33	306.50	3.00	5396
609	309.50	854.72	306.50	3.00	5128
610	309.50	900.00	306.50	3.00	5400
611	309.50	900.00	306.50	3.00	5400
612	309.50	900.00	306.50	3.00	5400
613	309.50	900.00	306.50	3.00	5400
614	309.49	900.00	306.49	3.00	5400
615	309.49	900.00	306.49	3.00	5400

616	309.49	900.00	306.49	3.00	5400
617	309.49	900.00	306.49	3.00	5400
618	309.49	900.00	306.49	3.00	5400
619	309.47	900.00	306.47	3.00	5400
620	309.48	812.66	306.48	3.00	4876
621	309.48	900.00	306.48	3.00	5400
622	309.32	900.00	306.32	3.00	5400
623	309.32	681.87	306.32	3.00	4091
624	309.32	900.00	306.32	3.00	5400
625	309.32	900.00	306.32	3.00	5400
		80,153.50		3.00	480921
Total replenished Quantity of the Material in the Sangrani Block 2					4,80,921

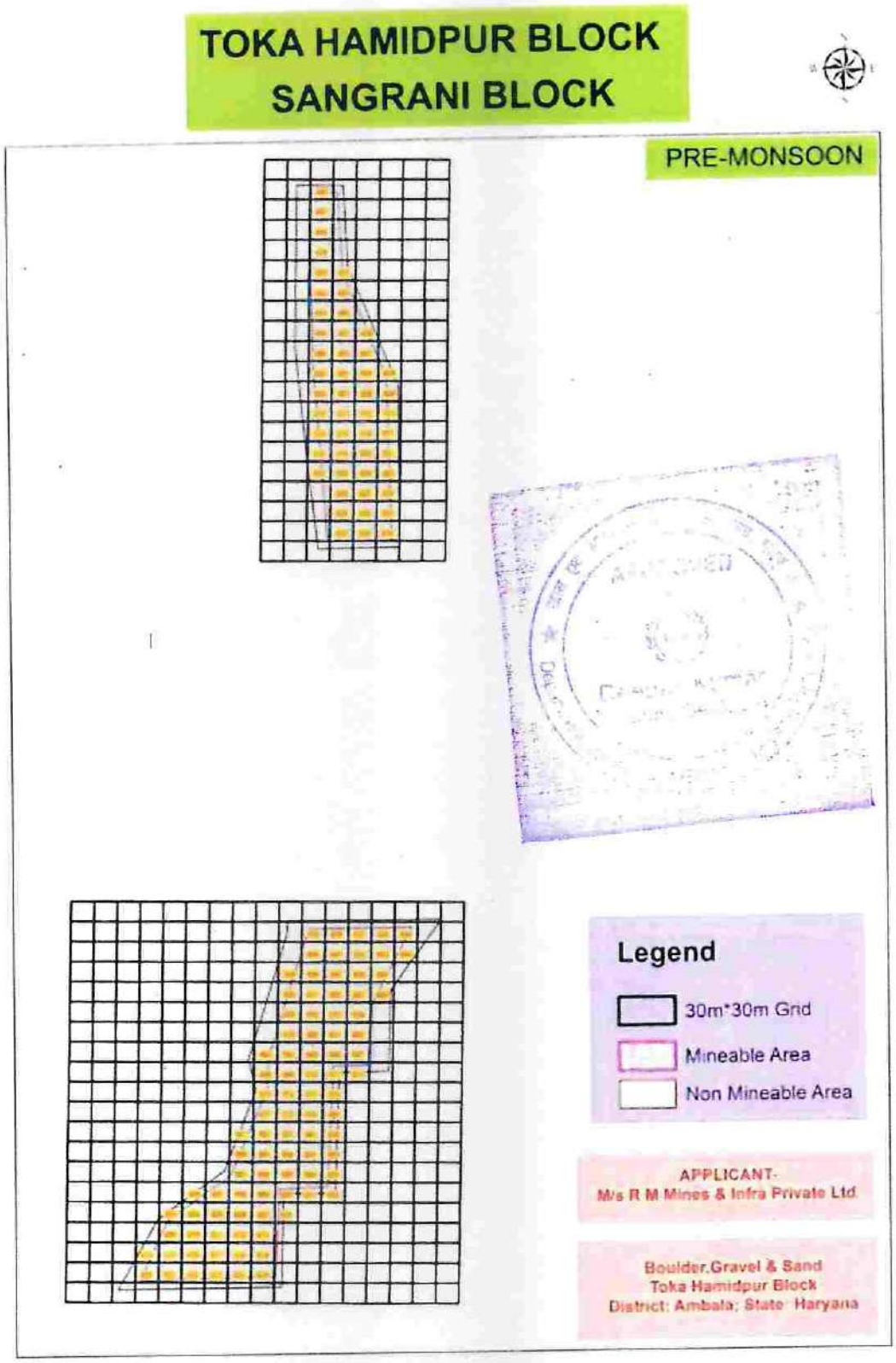

TOKA HAMIDPUR BLOCK
SANGRANI BLOCK
PRE-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
APPLICANT-
M/s R M Mines & Infra Private Ltd
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala; State: Haryana

Fig-11

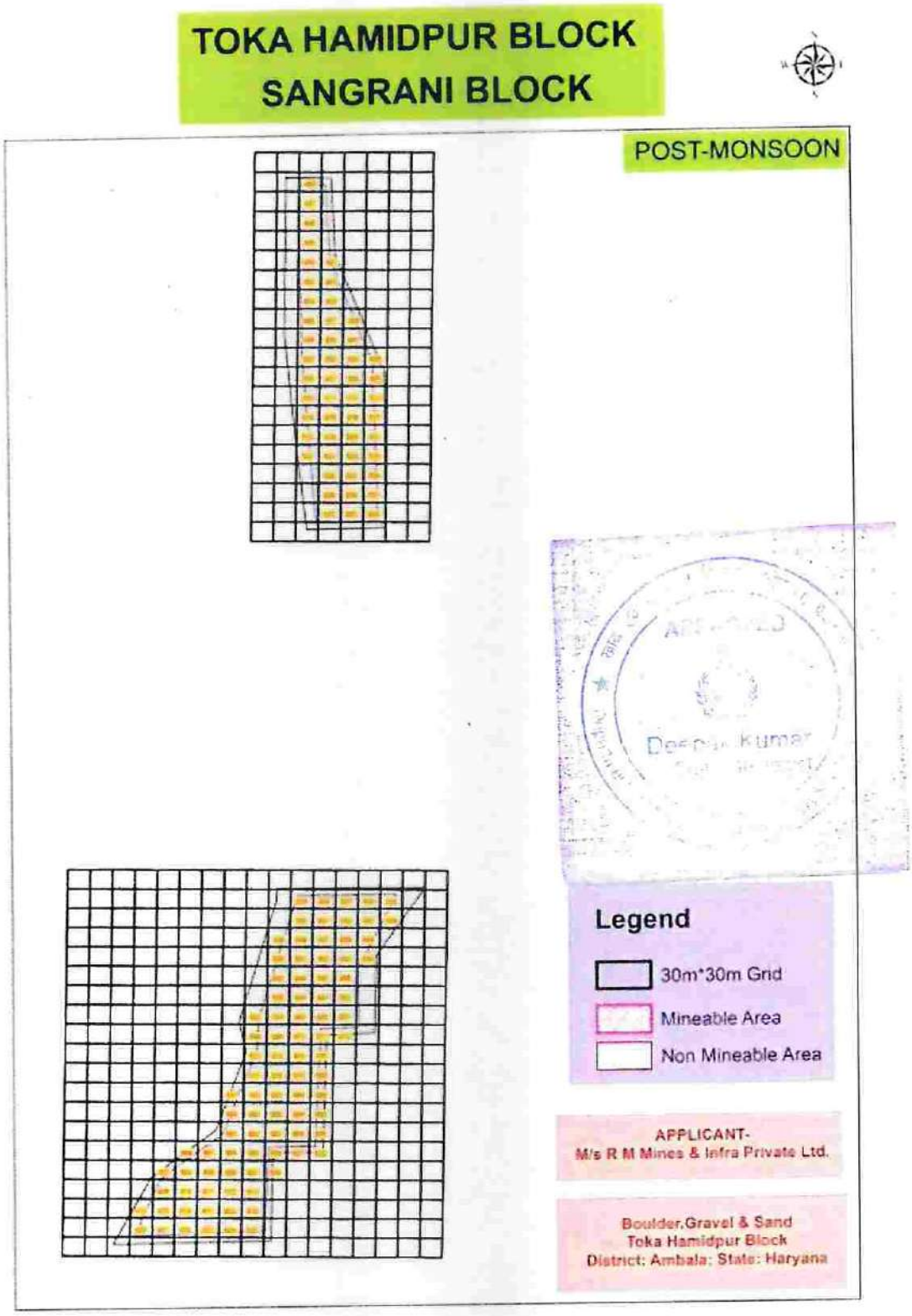

TOKA HAMIDPUR BLOCK
SANGRANI BLOCK
POST-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
APPLICANT-
M/s R M Mines & Infra Private Ltd.
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala; State: Haryana

Fig-12

Table 8:-RL(m)Grids measurement in Pre & Post Monsoon 2022 in block Rao Majra

Grid_No	Post Monsoon Elevation mtr	Grid Area (Sq.m)	Pre Monsoon Elevation mtr	Difference of Elevation (Pre & Post Monsoon)	Replenished/Mineable/ Reserve in (Ton)
626	311.80	900.00	308.80	3.00	5,400.00
627	311.80	900.00	308.80	3.00	5,400.00
628	311.80	900.00	308.80	3.00	5,400.00
629	311.80	900.00	308.80	3.00	5,400.00
630	311.73	898.30	308.73	3.00	5,389.81
631	311.73	829.91	308.73	3.00	4,979.48
632	311.62	900.00	308.62	3.00	5,400.00
633	311.62	839.02	308.62	3.00	5,034.11
634	311.62	840.62	308.62	3.00	5,043.74
635	311.53	900.00	308.53	3.00	5,400.00
636	311.53	859.40	308.53	3.00	5,156.42
637	311.57	810.50	308.57	3.00	4,863.02
638	311.57	900.00	308.57	3.00	5,400.00
639	311.57	850.08	308.57	3.00	5,100.49
640	311.57	900.00	308.57	3.00	5,400.00
641	311.57	845.86	308.57	3.00	5,075.17
642	311.57	897.82	308.57	3.00	5,386.91
643	311.57	900.00	308.57	3.00	5,400.00
644	311.57	900.00	308.57	3.00	5,400.00
645	311.21	874.48	308.21	3.00	5,246.86
646	311.21	900.00	308.21	3.00	5,400.00
647	311.21	868.16	308.21	3.00	5,208.94
648	311.21	900.00	308.21	3.00	5,400.00
649	311.18	900.00	308.18	3.00	5,400.00
650	311.18	900.00	308.18	3.00	5,400.00
651	311.18	900.00	308.18	3.00	5,400.00
652	311.18	840.61	308.18	3.00	5,043.66
653	311.15	876.12	308.15	3.00	5,256.74
654	311.15	801.80	308.15	3.00	4,810.82
655	311.15	900.00	308.15	3.00	5,400.00
656	311.15	886.63	308.15	3.00	5,319.79
657	311.15	844.56	308.15	3.00	5,067.37
658	311.12	900.00	308.12	3.00	5,400.00
659	311.12	900.00	308.12	3.00	5,400.00
660	312.11	900.00	309.11	3.00	5,400.00
661	312.11	864.14	309.11	3.00	5,184.81
662	311.07	900.00	308.07	3.00	5,400.00
663	311.07	715.34	308.07	3.00	4,292.01
664	311.07	900.00	308.07	3.00	5,400.00
665	311.07	900.00	308.07	3.00	5,400.00
666	311.15	886.63	308.15	3.00	5,319.79
667	311.15	844.56	308.15	3.00	5,067.37

668	311.12	900.00	308.12	3.00	5,400.00
669	311.12	900.00	308.12	3.00	5,400.00
670	312.11	900.00	309.11	3.00	5,400.00
671	312.11	864.14	309.11	3.00	5,184.81
672	311.07	900.00	308.07	3.00	5,400.00
673	311.07	715.34	308.07	3.00	4,292.01
674	311.07	900.00	308.07	3.00	5,400.00
675	311.07	900.00	308.07	3.00	5,400.00
		43,754.02		3.00	2,62,524.15
	Total replenished Quantity of the Material in the Rao-Majra Block				**2,62,524.15**

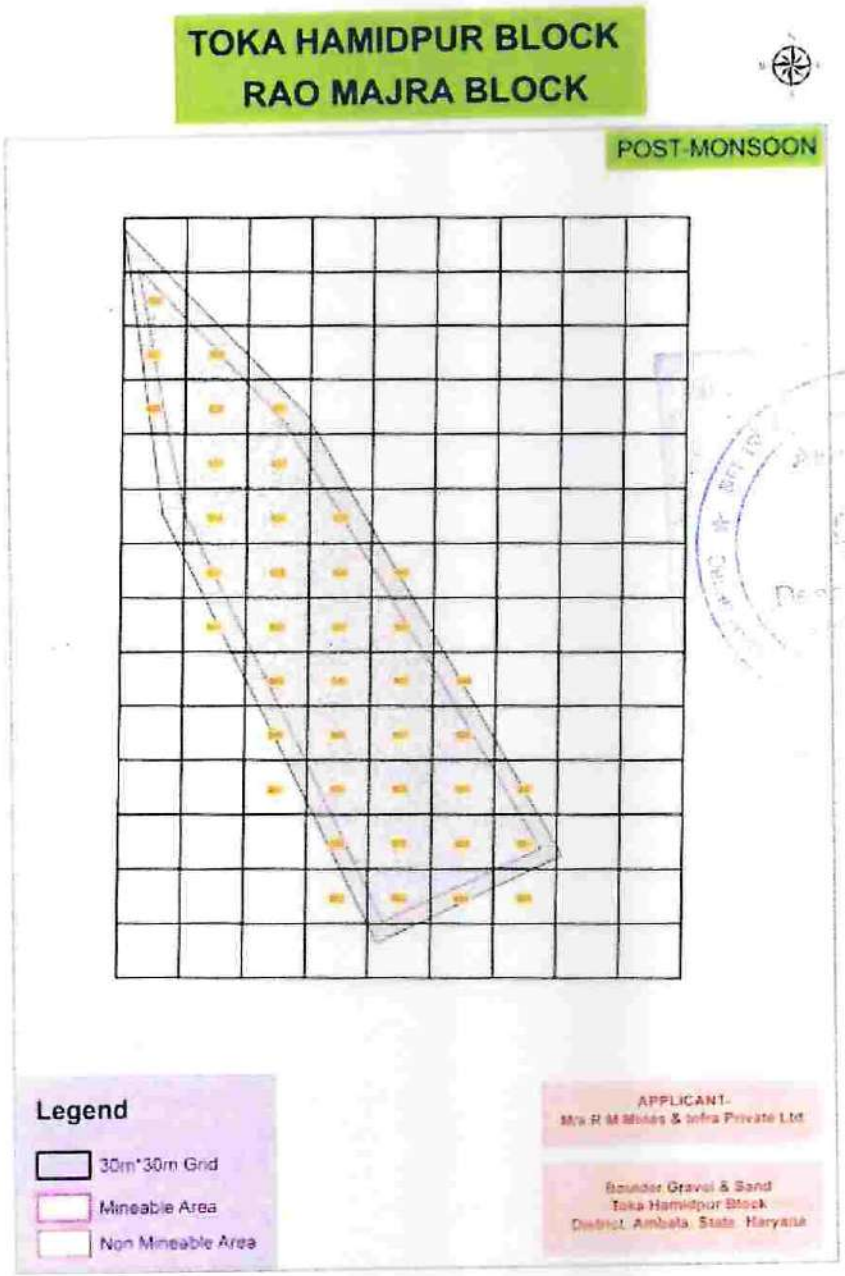


Fig-13

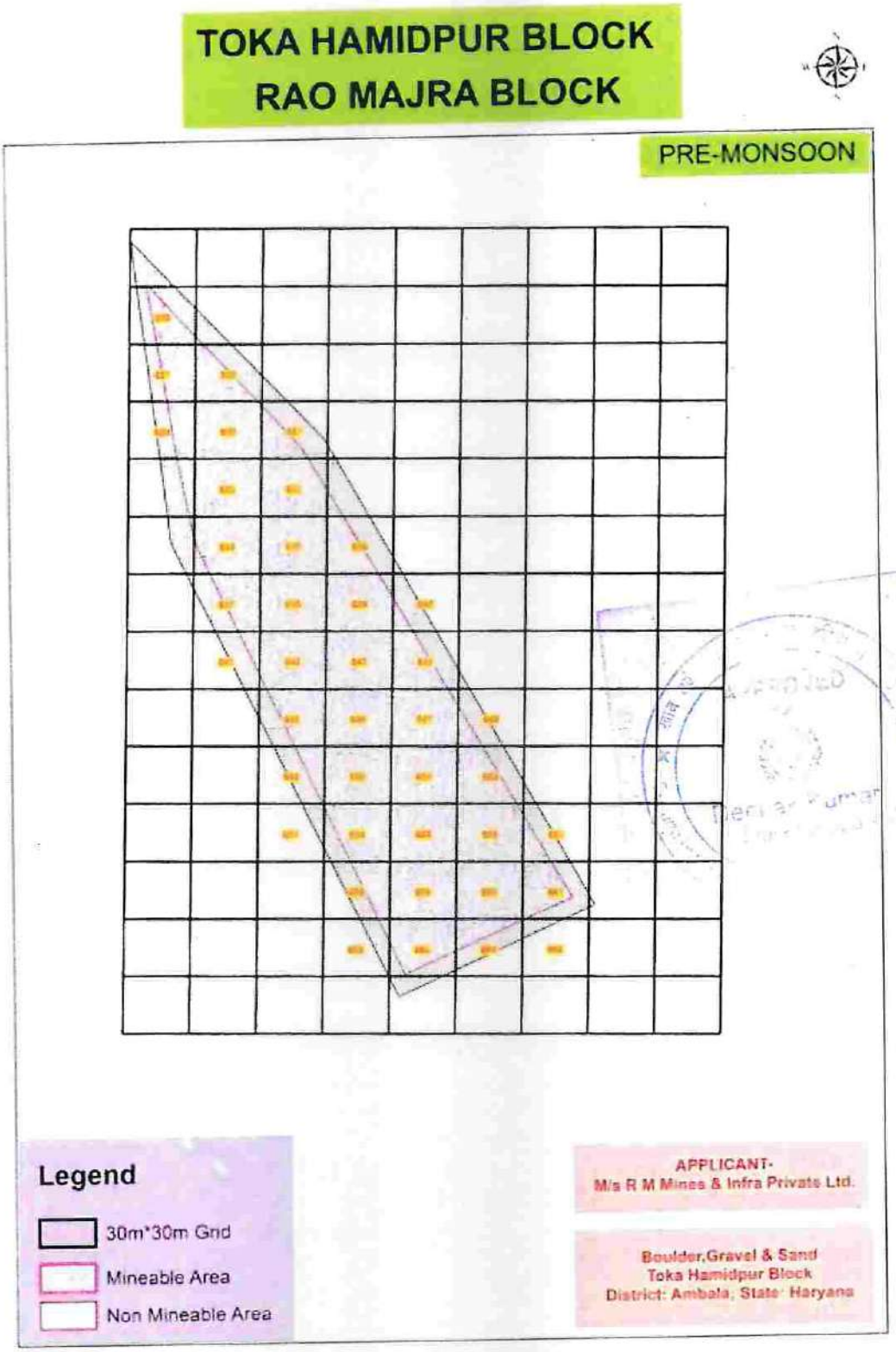

TOKA HAMIDPUR BLOCK
RAO MAJRA BLOCK
PRE-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
APPLICANT-
M/s R M Mines & Infra Private Ltd.
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala, State: Haryana

Fig-14

Table 9:-RL(m)Grids measurement in Pre & Post Monsoon 2022 in block Shahpur

Grid_No	Post Monsoon Elevation mtr	Grid Area (Sq.m)	Pre Monsoon Elevation mtr	Difference of Elevation (Pre & Post Monsoon)	Replenished/Mineable/ Reserve in (Ton)
666	305.10	642.93	302.10	3.00	3,857.57
667	305.10	157.50	302.10	3.00	945.02
668	305.10	899.25	302.10	3.00	5,395.52
669	305.10	432.07	302.10	3.00	2,592.41
670	305.04	659.16	302.04	3.00	3,954.93
671	305.04	868.32	302.04	3.00	5,209.91
672	305.04	122.56	302.04	3.00	735.39
673	305.04	228.22	302.04	3.00	1,369.34
674	305.04	900.00	302.04	3.00	5,400.00
675	305.04	643.21	302.04	3.00	3,859.26
676	305.00	694.28	302.00	3.00	4,165.70
677	305.00	900.00	302.00	3.00	5,400.00
678	305.00	294.43	302.00	3.00	1,766.56
679	304.87	249.46	301.87	3.00	1,496.75
680	304.87	900.00	301.87	3.00	5,400.00
681	304.90	801.08	301.90	3.00	4,806.50
682	304.80	702.49	301.80	3.00	4,214.96
683	304.80	826.31	301.80	3.00	4,957.89
684	304.80	164.90	301.80	3.00	989.40
		11,086.19		3	66,517.12
	Total replenished Quantity of the Material in the Shahpur Block				**66,517.12**

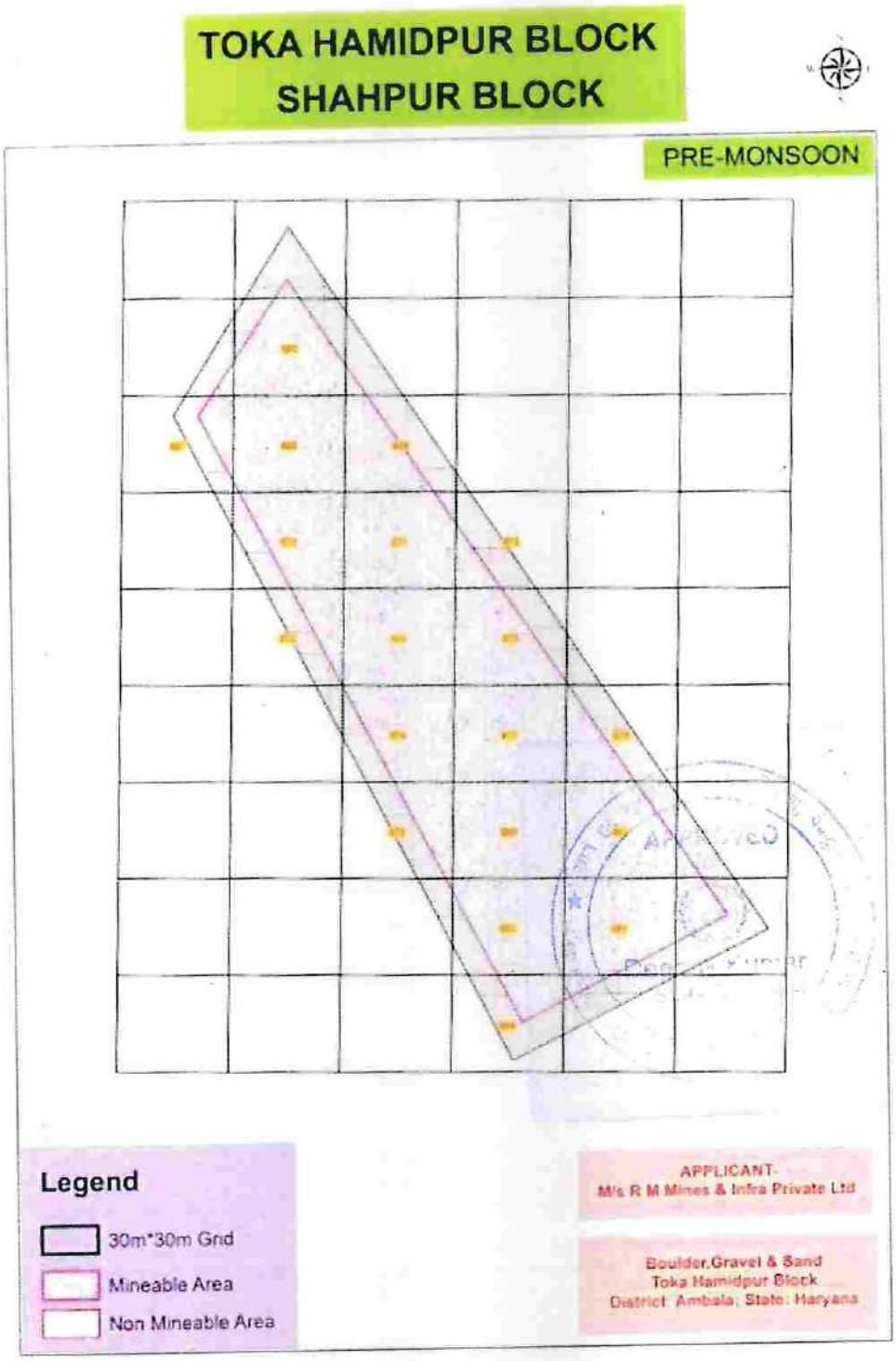

TOKA HAMIDPUR BLOCK
SHAHPUR BLOCK
PRE-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
APPLICANT-
M/s R M Mines & Infra Private Ltd
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala; State: Haryana

Fig-15

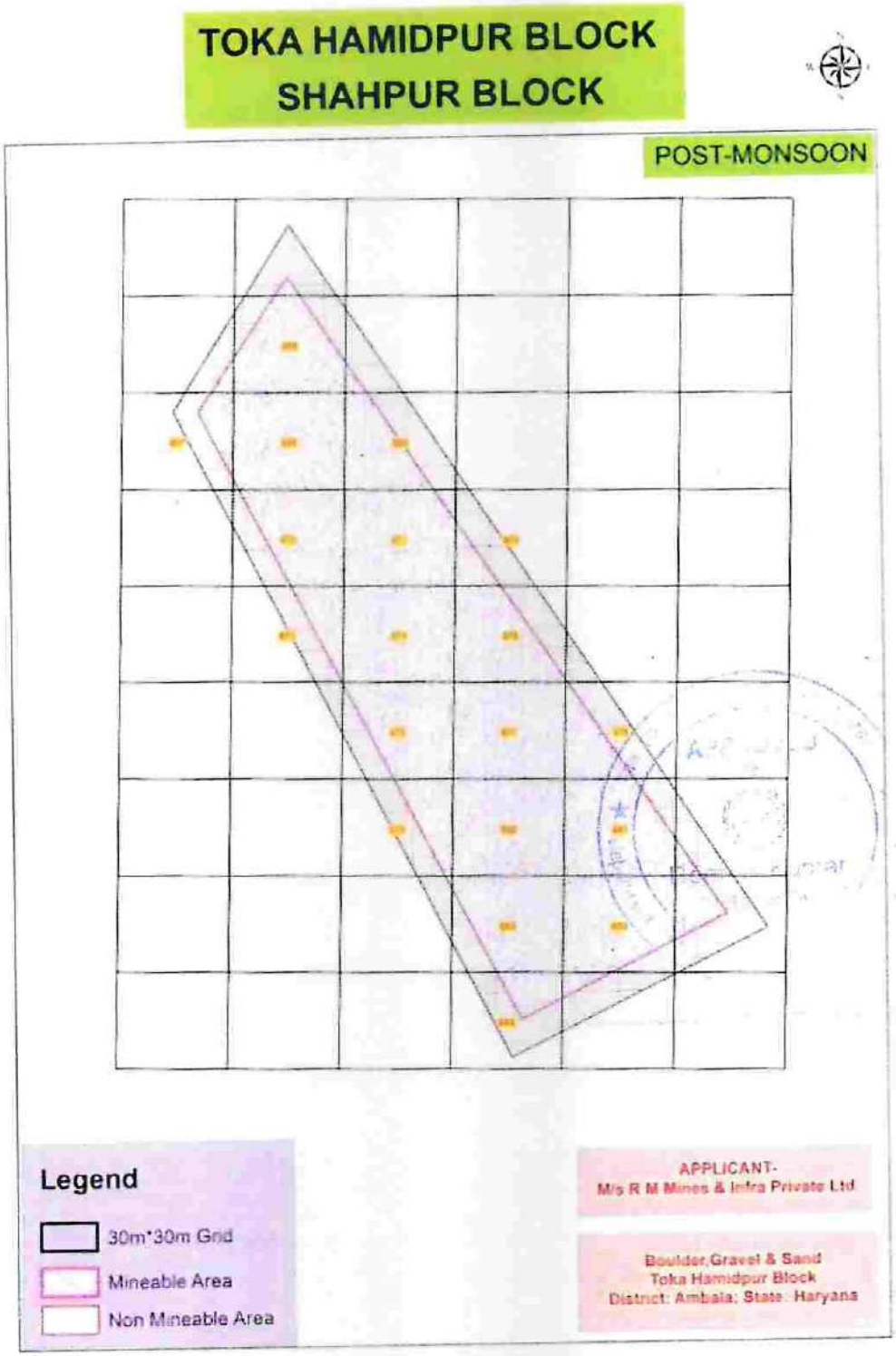

TOKA HAMIDPUR BLOCK
SHAHPUR BLOCK
POST-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
APPLICANT-
M/s R M Mines & Infra Private Ltd
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala; State: Haryana

Fig-16

Table 10:-RL(m)Grids measurement in Pre & Post Monsoon 2022 in block Hamidpur

Grid_No	Post Monsoon Elevation mtr	Grid Area (Sq.m)	Pre Monsoon Elevation mtr	Difference of Elevation (Pre & Post Monsoon)	Replenished/Mineable/ Reserve in (Ton)
685	308.62	266.06	305.62	3.00	1,596.34
686	308.62	52.12	305.62	3.00	312.73
687	307.62	807.57	304.62	3.00	4,845.42
688	308.62	526.43	305.62	3.00	3,158.58
689	308.62	900.00	305.62	3.00	5,400.00
690	308.62	173.01	305.62	3.00	1,038.09
691	308.43	200.35	305.43	3.00	1,202.10
692	308.43	892.82	305.43	3.00	5,356.93
693	308.43	900.00	305.43	3.00	5,400.00
694	308.43	273.50	305.43	3.00	1,641.00
695	308.33	18.11	305.33	3.00	108.69
696	308.33	741.80	305.33	3.00	4,450.83
697	308.33	900.00	305.33	3.00	5,400.00
698	308.42	900.00	305.42	3.00	5,400.00
699	308.42	367.99	305.42	3.00	2,207.94
700	308.20	109.74	305.20	3.00	658.42
701	308.20	648.66	305.20	3.00	3,891.96
702	308.20	900.00	305.20	3.00	5,400.00
703	308.20	900.00	305.20	3.00	5,400.00
704	308.20	667.87	305.20	3.00	4,007.21
705	308.13	364.76	305.13	3.00	2,188.59
706	308.13	853.46	305.13	3.00	5,120.74
707	308.13	900.00	305.13	3.00	5,400.00
708	308.13	900.00	305.13	3.00	5,400.00
709	308.13	604.40	305.13	3.00	3,626.39
710	308.13	25.21	305.13	3.00	151.28
711	307.96	662.75	304.96	3.00	3,976.51
712	307.96	900.00	304.96	3.00	5,400.00
713	307.96	900.00	304.96	3.00	5,400.00
714	307.96	900.00	304.96	3.00	5,400.00
715	307.96	530.26	304.96	3.00	3,181.57
716	307.96	9.39	304.96	3.00	56.33
717	307.76	822.05	304.76	3.00	4,932.29
718	307.76	900.00	304.76	3.00	5,400.00
719	307.76	900.00	304.76	3.00	5,400.00
720	307.76	881.99	304.76	3.00	5,291.95
721	307.76	377.68	304.76	3.00	2,266.11
722	307.88	602.91	304.88	3.00	3,617.49
723	307.88	804.51	304.88	3.00	4,827.05
724	307.88	900.00	304.88	3.00	5,400.00
725	307.88	900.00	304.88	3.00	5,400.00

726	307.88	900.00	304.88	3.00	5,400.00
727	307.76	820.34	304.76	3.00	4,922.06
728	307.76	217.79	304.76	3.00	1,306.73
729	307.90	122.60	304.90	3.00	735.62
730	307.90	417.11	304.90	3.00	2,502.68
731	307.90	712.81	304.90	3.00	4,276.84
732	307.90	897.38	304.90	3.00	5,384.29
733	307.90	900.00	304.90	3.00	5,400.00
734	307.65	900.00	304.65	3.00	5,400.00
735	307.65	900.00	304.65	3.00	5,400.00
736	307.60	900.00	304.60	3.00	5,400.00
737	307.60	900.00	304.60	3.00	5,400.00
738	307.60	714.86	304.60	3.00	4,289.15
739	307.60	101.53	304.60	3.00	609.17
740	307.56	424.58	304.56	3.00	2,547.50
741	307.56	725.74	304.56	3.00	4,354.42
742	307.56	898.82	304.56	3.00	5,392.92
743	307.56	900.00	304.56	3.00	5,400.00
744	307.56	900.00	304.56	3.00	5,400.00
745	307.58	900.00	304.58	3.00	5,400.00
746	307.58	900.00	304.58	3.00	5,400.00
747	307.58	900.00	304.58	3.00	5,400.00
748	307.58	900.00	304.58	3.00	5,400.00
749	307.58	900.00	304.58	3.00	5,400.00
750	307.58	565.53	304.58	3.00	3,393.17
751	307.23	368.99	304.23	3.00	2,213.93
752	307.23	900.00	304.23	3.00	5,400.00
753	307.23	900.00	304.23	3.00	5,400.00
754	307.50	900.00	304.50	3.00	5,400.00
755	307.50	888.47	304.50	3.00	5,330.84
756	307.50	666.96	304.50	3.00	4,001.75
757	307.50	444.58	304.50	3.00	2,667.46
758	307.50	287.81	304.50	3.00	1,726.86
759	307.50	210.95	304.50	3.00	1,265.68
760	307.50	135.75	304.50	3.00	814.52
761	307.50	60.94	304.50	3.00	365.65
762	307.23	70.84	304.23	3.00	425.05
763	307.23	836.23	304.23	3.00	5,017.37
764	307.23	900.00	304.23	3.00	5,400.00
765	307.12	700.94	304.12	3.00	4,205.67
766	307.12	355.20	304.12	3.00	2,131.22
767	307.12	82.16	304.12	3.00	492.95
768	307.12	543.19	304.12	3.00	3,259.12
769	307.12	900.00	304.12	3.00	5,400.00
770	307.12	849.52	304.12	3.00	5,097.10
771	306.84	181.97	303.84	3.00	1,091.79
772	306.84	892.16	303.84	3.00	5,352.97
773	306.70	900.00	303.70	3.00	5,400.00
774	306.70	422.05	303.70	3.00	2,532.30
775	306.84	527.79	303.84	3.00	3,166.73

776	306.84	900.00	303.84	3.00	5,400.00
777	306.70	818.69	303.70	3.00	4,912.16
778	306.84	706.09	303.84	3.00	4,236.51
779	306.84	900.00	303.84	3.00	5,400.00
780	306.70	609.59	303.70	3.00	3,657.54
781	306.64	869.22	303.64	3.00	5,215.32
782	306.60	900.00	303.60	3.00	5,400.00
783	306.60	423.16	303.60	3.00	2,538.97
784	306.64	162.68	303.64	3.00	976.09
785	306.64	900.00	303.64	3.00	5,400.00
786	306.60	900.00	303.60	3.00	5,400.00
787	306.60	236.73	303.60	3.00	1,420.40
788	306.64	336.48	303.64	3.00	2,018.86
789	306.64	900.00	303.64	3.00	5,400.00
790	306.60	895.06	303.60	3.00	5,370.37
791	306.35	500.96	303.35	3.00	3,005.78
792	306.35	900.00	303.35	3.00	5,400.00
793	306.40	763.87	303.40	3.00	4,583.22
794	306.35	651.95	303.35	3.00	3,911.69
795	306.35	900.00	303.35	3.00	5,400.00
796	306.40	577.44	303.40	3.00	3,464.62
797	306.35	750.56	303.35	3.00	4,503.34
798	306.35	900.00	303.35	3.00	5,400.00
799	306.40	387.87	303.40	3.00	2,327.22
800	306.35	843.77	303.35	3.00	5,062.64
801	306.35	900.00	303.35	3.00	5,400.00
802	306.40	173.93	303.40	3.00	1,043.57
803	306.20	899.50	303.20	3.00	5,397.02
804	306.38	845.37	303.38	3.00	5,072.20
805	306.38	9.46	303.38	3.00	56.75
806	306.20	900.00	303.20	3.00	5,400.00
807	306.38	635.72	303.38	3.00	3,814.32
808	306.20	900.00	303.20	3.00	5,400.00
809	306.38	416.61	303.38	3.00	2,499.68
810	306.20	900.00	303.20	3.00	5,400.00
811	306.38	197.50	303.38	3.00	1,184.99
812	306.07	476.74	303.07	3.00	2,860.44
813	306.07	858.24	303.07	3.00	5,149.42
814	306.07	17.11	303.07	3.00	102.67
815	306.07	246.56	303.07	3.00	1,479.33
816	306.07	888.88	303.07	3.00	5,333.31
817	310.73	650.66	307.73	3.00	3,903.98
818	306.07	77.08	303.07	3.00	462.49
819	306.07	816.76	303.07	3.00	4,900.57
820	310.73	900.00	307.73	3.00	5,400.00
821	310.73	425.98	307.73	3.00	2,555.87
823	306.07	632.49	303.07	3.00	3,794.94
824	306.07	900.00	303.07	3.00	5,400.00
825	310.73	778.51	307.73	3.00	4,671.06
826	306.07	375.93	303.07	3.00	2,255.60

827	306.07	900.00	303.07	3.00	5,400.00
828	306.07	850.94	303.07	3.00	5,105.66
829	305.80	149.30	302.80	3.00	895.79
830	305.80	867.69	302.80	3.00	5,206.12
831	305.49	891.18	302.49	3.00	5,347.09
832	305.49	266.12	302.49	3.00	1,596.71
834	305.80	652.54	302.80	3.00	3,915.22
835	305.80	900.00	302.80	3.00	5,400.00
836	305.49	481.63	302.49	3.00	2,889.79
837	309.68	165.44	306.68	3.00	992.62
838	309.60	897.85	306.60	3.00	5,387.12
839	309.20	740.97	306.20	3.00	4,445.85
840	309.20	573.83	306.20	3.00	3,442.98
841	309.20	879.50	306.20	3.00	5,277.01
842	309.20	169.67	306.20	3.00	1,018.03
843	309.20	101.72	306.20	3.00	610.34
844	309.20	882.20	306.20	3.00	5,293.19
845	309.20	454.52	306.20	3.00	2,727.12
846	309.20	488.24	306.20	3.00	2,929.41
847	309.20	810.08	306.20	3.00	4,860.49
848	304.78	844.97	301.78	3.00	5,069.82
849	304.88	353.72	301.88	3.00	2,122.30
850	304.78	393.34	301.78	3.00	2,360.06
851	304.88	746.86	301.88	3.00	4,481.17
852	304.78	8.49	301.78	3.00	50.93
853	304.78	784.15	301.78	3.00	4,704.90
854	304.88	256.12	301.88	3.00	1,536.73
855	304.78	221.77	301.78	3.00	1,330.61
856	304.78	739.77	301.78	3.00	4,438.64
857	304.78	461.63	301.78	3.00	2,769.77
858	304.78	551.65	301.78	3.00	3,309.87
859	304.73	664.79	301.73	3.00	3,988.73
860	304.88	371.86	301.88	3.00	2,231.17
861	304	11.90	300.73	3.00	71.39
862	304.73	856.05	301.73	3.00	5,136.30
863	304.88	192.08	301.88	3.00	1,152.46
864	302	428.71	298.73	3.00	2,572.29
865	304.88	29.04	301.88	3.00	174.23
		1,10,528.48		3.00	6,63,170.90
	Total replenished Quantity of the Material in the Hamidpur Block				**6,63,170.90**

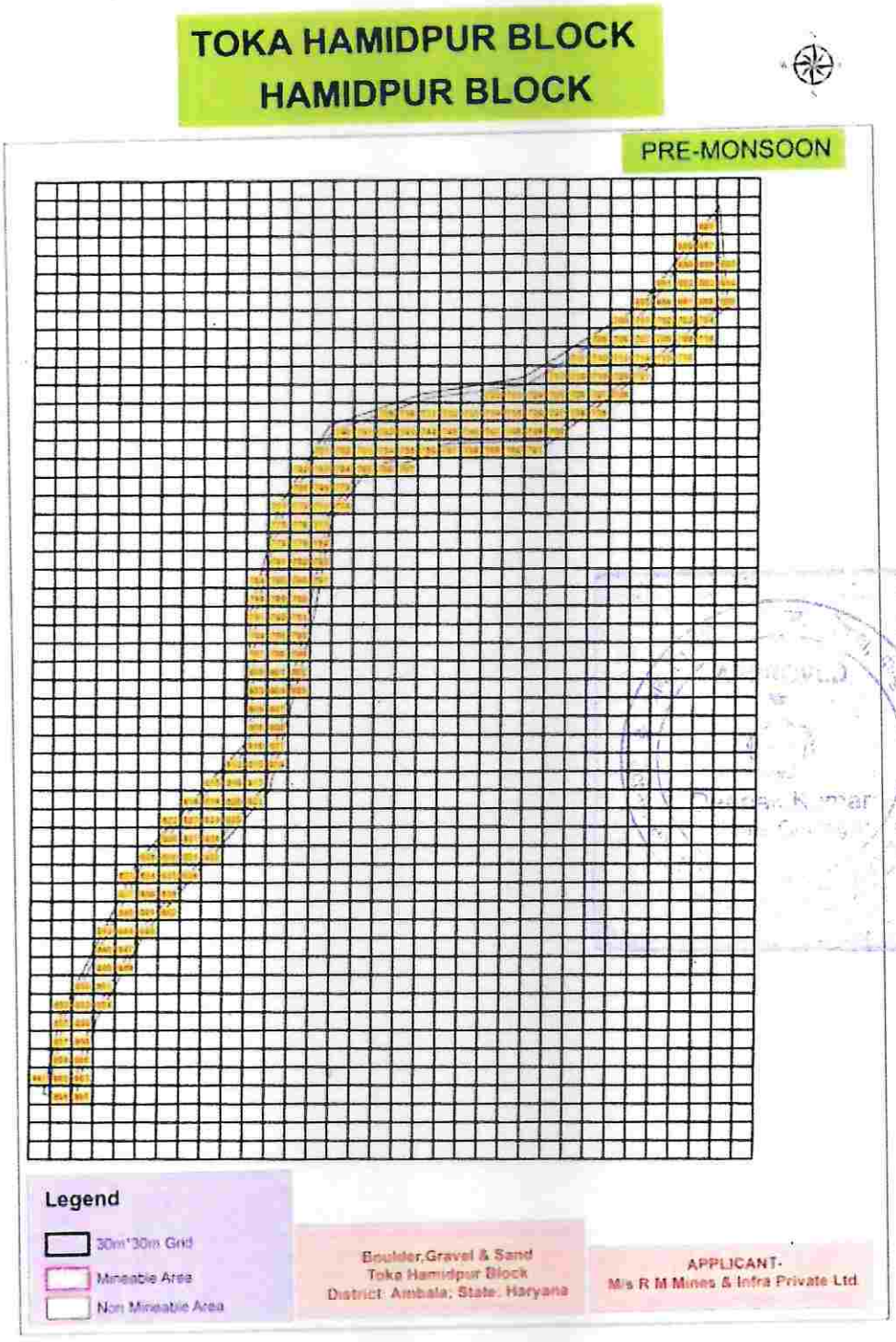

TOKA HAMIDPUR BLOCK
HAMIDPUR BLOCK
PRE-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala; State: Haryana
APPLICANT-
M/s R M Mines & Infra Private Ltd

Fig 17

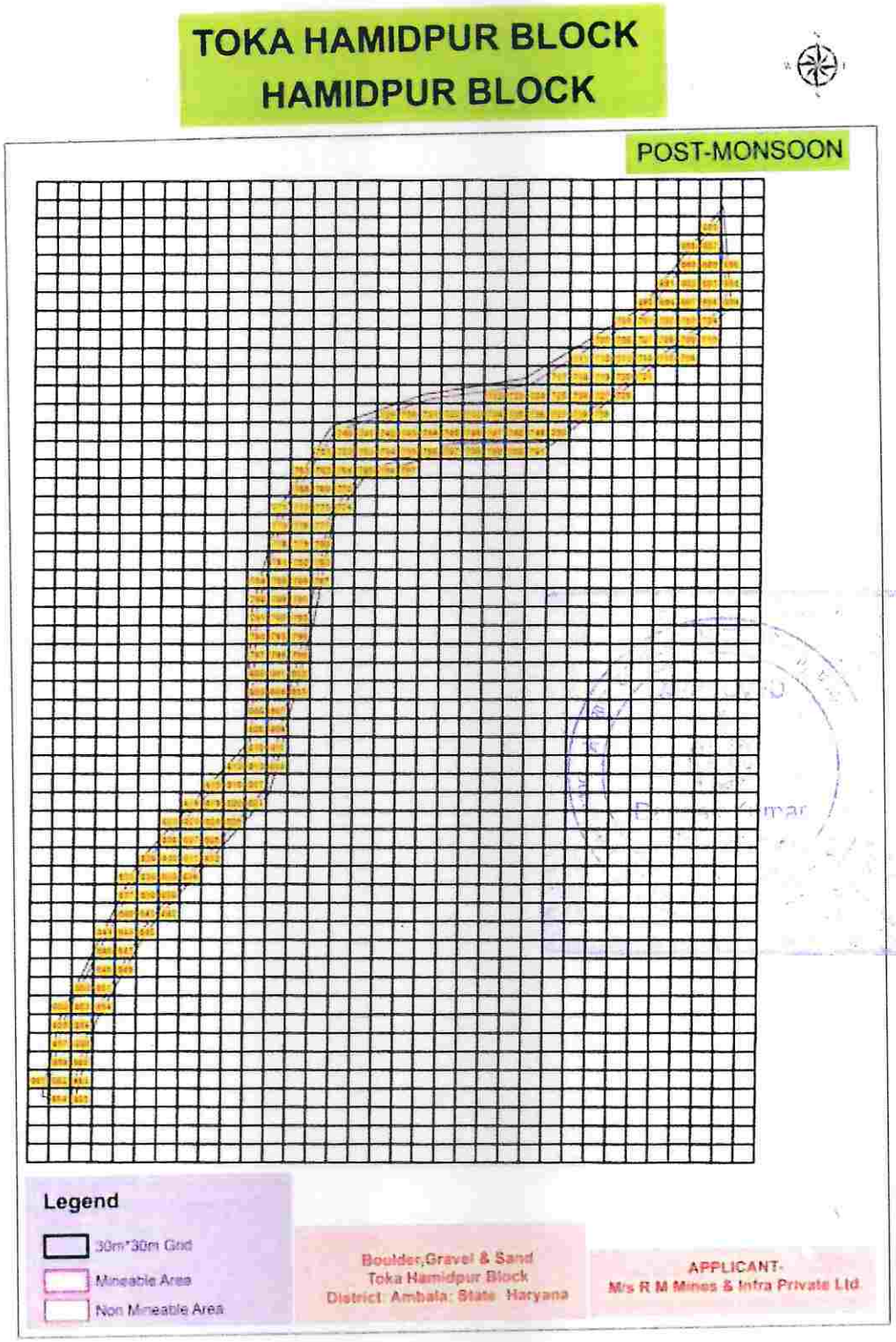

TOKA HAMIDPUR BLOCK
HAMIDPUR BLOCK
POST-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala: State: Haryana
APPLICANT-
M/s R M Mines & Infra Private Ltd.

Fig 18

Table 11:-RL(m)Grids measurement in Pre & Post Monsoon 2022 in block Dehar

Grid_No	Post Monsoon Elevation mtr	Grid Area (Sq.m)	Pre Monsoon Elevation mtr	Difference of Elevation (Pre & Post Monsoon)	Replenished/Mineable/ Reserve in (Ton)
866	292.63	365.77	289.33	3.00	2,194.59
867	292.63	756.37	288.20	3.00	4,538.20
868	292.63	460.36	289.33	3.00	2,762.17
869	292.63	900.00	289.33	3.00	5,400.00
870	292.63	900.00	288.40	3.00	5,400.00
871	294.00	900.00	290.70	3.00	5,400.00
872	294.00	900.00	290.70	3.00	5,400.00
873	292.58	900.00	289.28	3.00	5,400.00
874	292.58	900.00	288.60	3.00	5,400.00
875	292.58	900.00	289.28	3.00	5,400.00
876	292.58	900.00	289.28	3.00	5,400.00
877	292.58	900.00	289.28	3.00	5,400.00
878	292.14	900.00	288.84	3.00	5,400.00
879	292.14	900.00	288.84	3.00	5,400.00
880	292.14	900.00	288.84	3.00	5,400.00
881	292.14	900.00	288.84	3.00	5,400.00
882	292.14	900.00	288.84	3.00	5,400.00
883	292.14	900.00	288.84	3.00	5,400.00
884	292.14	31.36	288.84	3.00	188.18
885	292.14	856.41	288.84	3.00	5,138.47
886	292.14	576.51	288.84	3.00	3,459.09
887	292.20	595.48	288.90	3.00	3,572.90
888	292.20	800.97	288.90	3.00	4,805.85
889	292.24	900.00	288.94	3.00	5,400.00
890	292.24	900.00	288.94	3.00	5,400.00
891	292.24	141.65	288.94	3.00	849.91
892	292.24	754.30	288.94	3.00	4,525.83
893	292.24	7.71	287.60	3.00	46.28
894	292.24	916.28	288.94	3.00	5,497.67
895	292.03	900.00	288.73	3.00	5,400.00
896	292.03	322.84	288.73	3.00	1,937.04
897	292.03	16.91	288.73	3.00	101.48
898	292.03	795.76	288.73	3.00	4,774.55
899	292.03	583.75	288.73	3.00	3,502.51
900	291.87	375.85	288.57	3.00	2,255.11
901	291.87	827.19	287.20	3.00	4,963.13
902	291.54	27.48	288.24	3.00	164.86
903	291.55	814.92	288.25	3.00	4,889.54
904	291.55	425.39	288.25	3.00	2,552.35
905	291.55	430.74	287.20	3.00	2,584.41
906	291.55	415.89	288.25	3.00	2,495.33
907	291.55	887.19	288.25	3.00	5,323.13
		28,387.10		3	1,70,322.58
	Total replenished Quantity of the Material in the Dehar Block				1,70,322.58

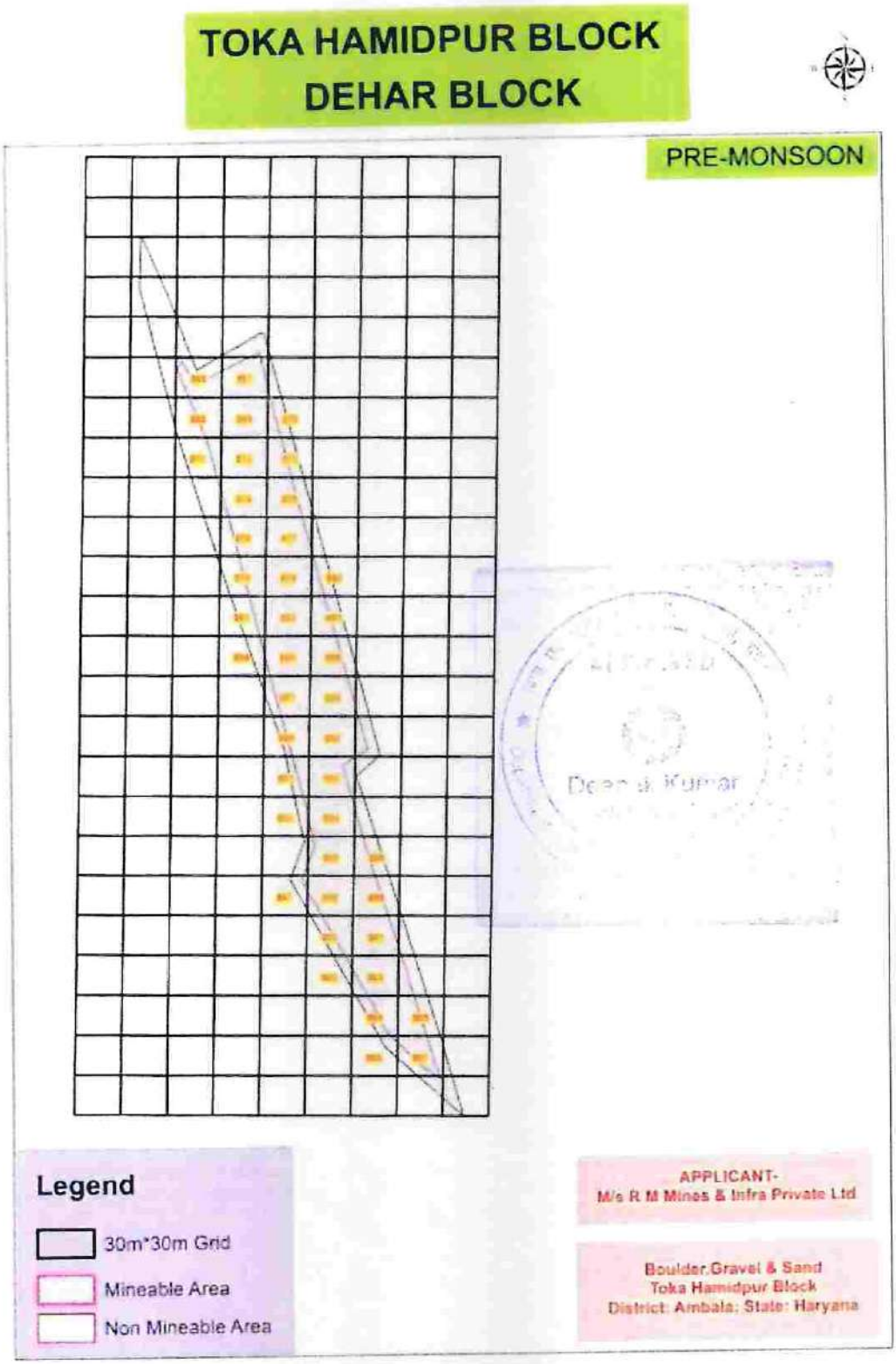

TOKA HAMIDPUR BLOCK
DEHAR BLOCK
PRE-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
APPLICANT-
M/s R M Mines & Infra Private Ltd
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala; State: Haryana

Fig-19

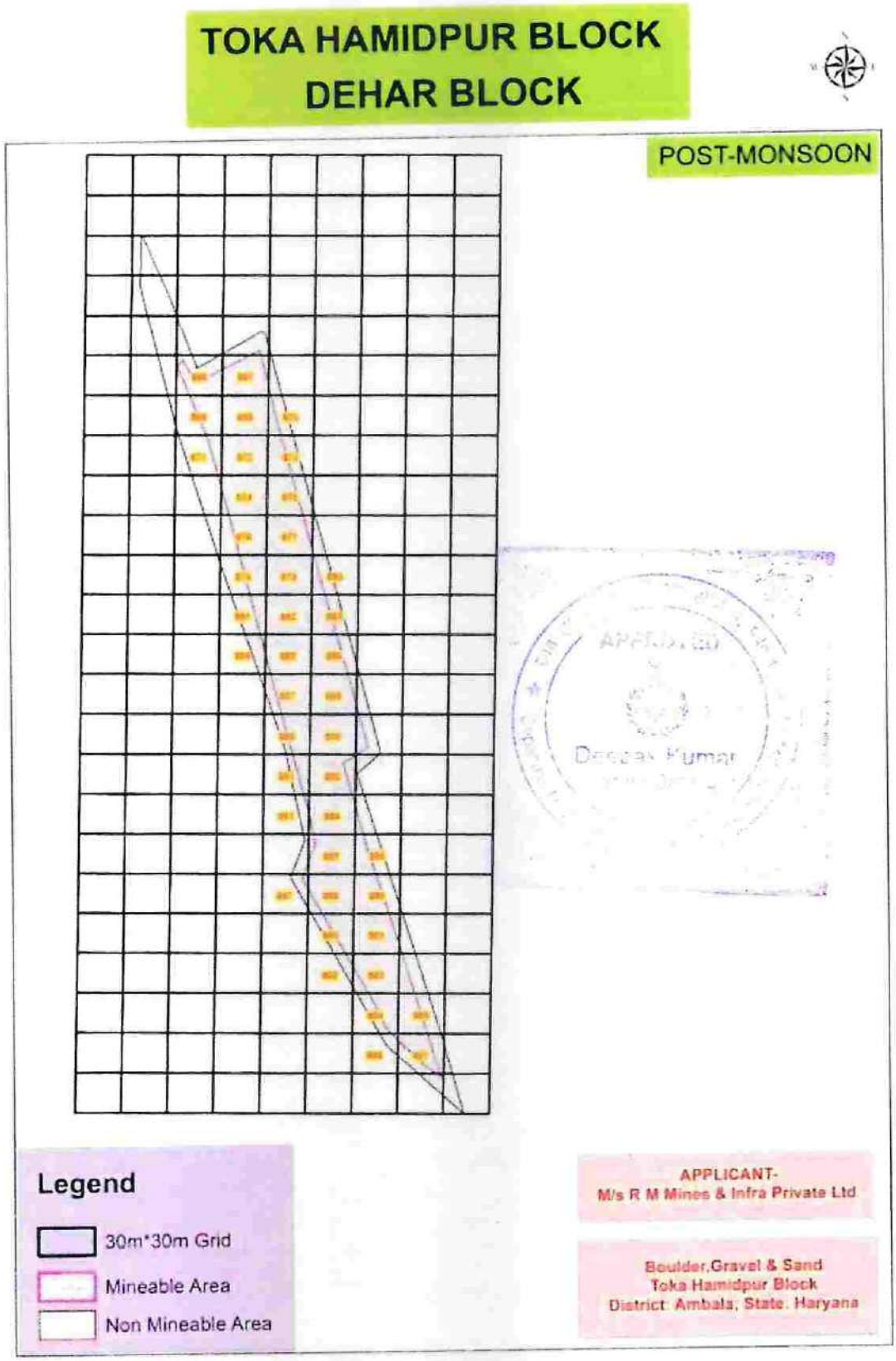

TOKA HAMIDPUR BLOCK
DEHAR BLOCK
POST-MONSOON
Legend
30m*30m Grid
Mineable Area
Non Mineable Area
APPLICANT-
M/s R M Mines & Infra Private Ltd
Boulder,Gravel & Sand
Toka Hamidpur Block
District: Ambala, State: Haryana

Fig-20

6. OBSERVATION OF THE STUDY: -

S no	Block	Total Replenished quantity (Tonn)
1	Toka Block	43,220.42
2	Chanchi Majra	1,84,092.58
3	Dera	24,06,758.31
4	Sangrani block 1	2,72,780.27
5	Sangrani block 2	4,80,921.00
6	Rao Majra	2,62,524.15
7	Shahpur	6,65,17.12
8	Hamidpur	6,63,170.9
9	Dehar	1,70,322.58
Total Replenished Quantity		**45,50,307.33**

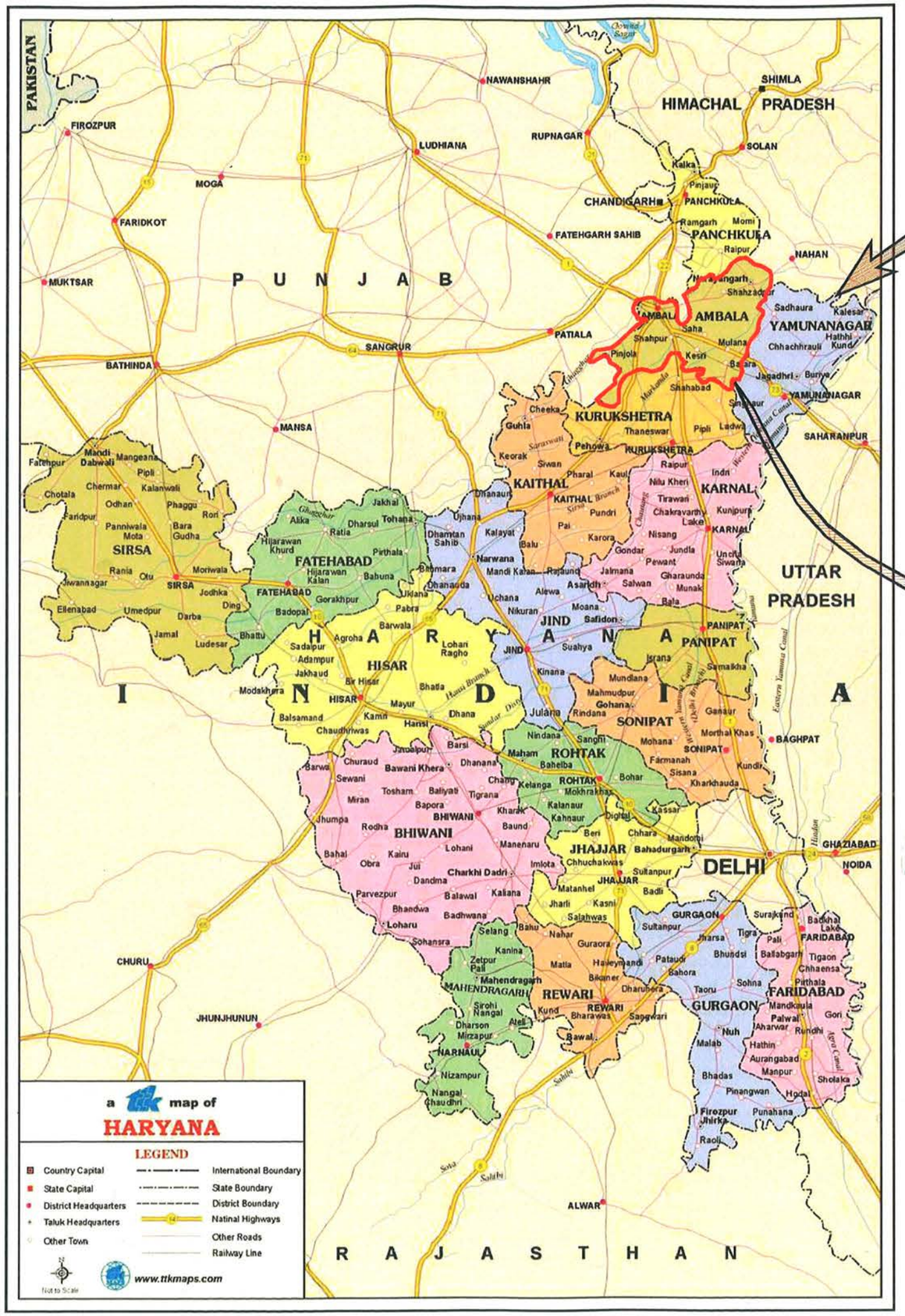
Mining Block	Total Area in Acre.	Total Replenished quantity
Boulder, Gravel & Sand Toka Hamidpur Block (Area: 247 Acres; Lease -10 Years; Proposed Production 4.46 Mmt/Annum District: Ambala; State: Haryana	247 acres	**45,50,307.33**

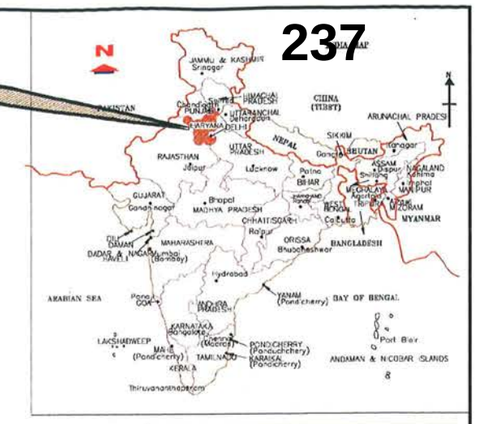
7. CONCLUSION:

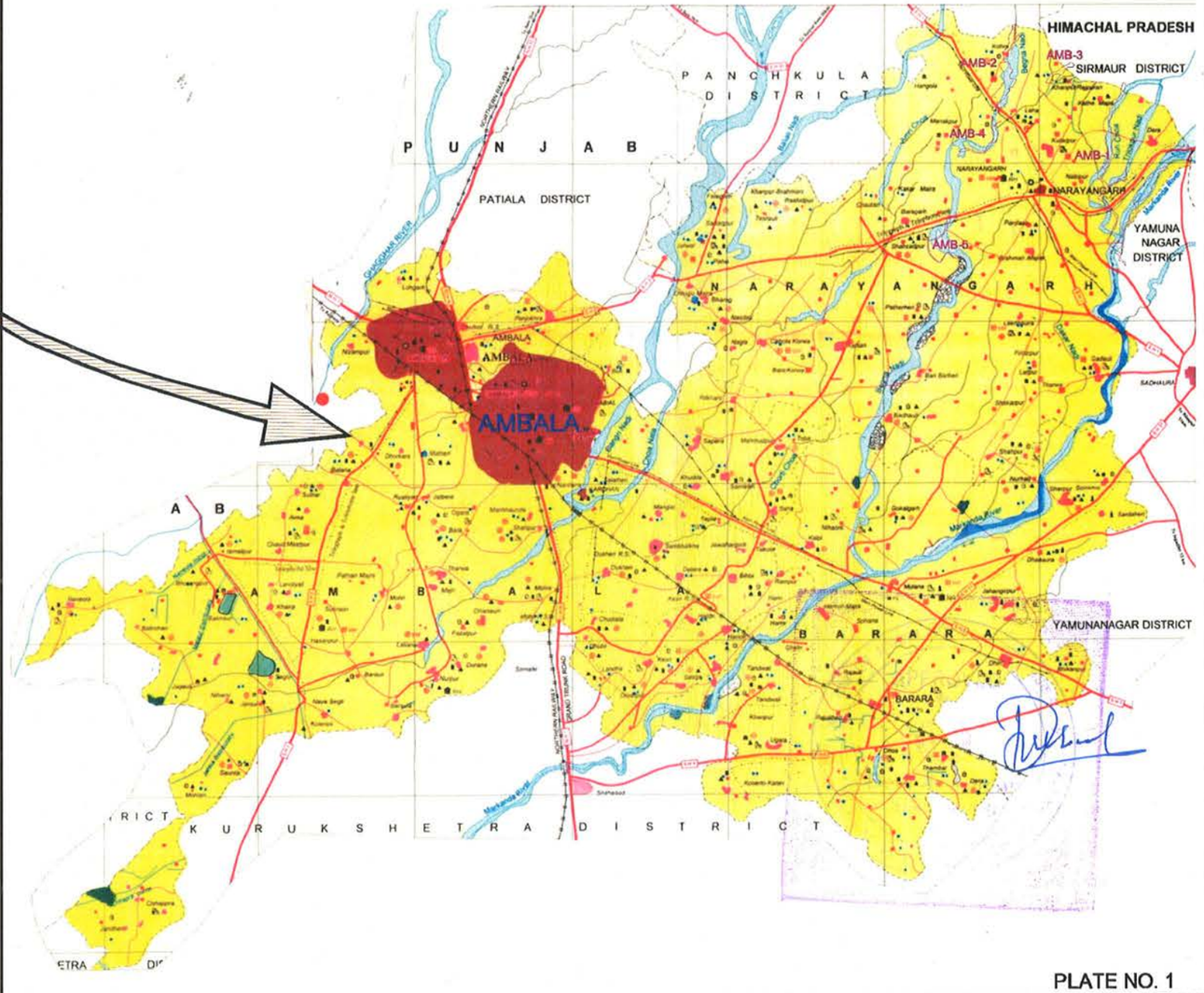
From the findings received from theRL (m) variation in Pre & post monsoon seasons of all 907 Grids stations within lease area and the actual production details of 2022, it has been observed that thereplenished quantity of the sand forRiver Bed is higher than the quantity mined out from the mine area in year 2022. This replenishment study shows ,the rate of replenishment was more than 100 % as per the actual production.

Amount of sand deposited is **45,50,307.33** ***Tonn*** is i.e. more than. 100% replenishment has been done.

In the applied lease area replenishment depends upon the rainfall, if adequate amount of sand will not replenish during monsoon, then excavation of sand will be limited to the quantity which will be equivalent to the replenished material.







INDEX

MINE BOUNDARY

PLATE NO. 1

TOKA HAMIDPUR BLOCK BOULDER, GRAVEL & SAND MINE, AMBALA

OWNER :- M/S R. M. MINES AND INFRA PVT. LTD.

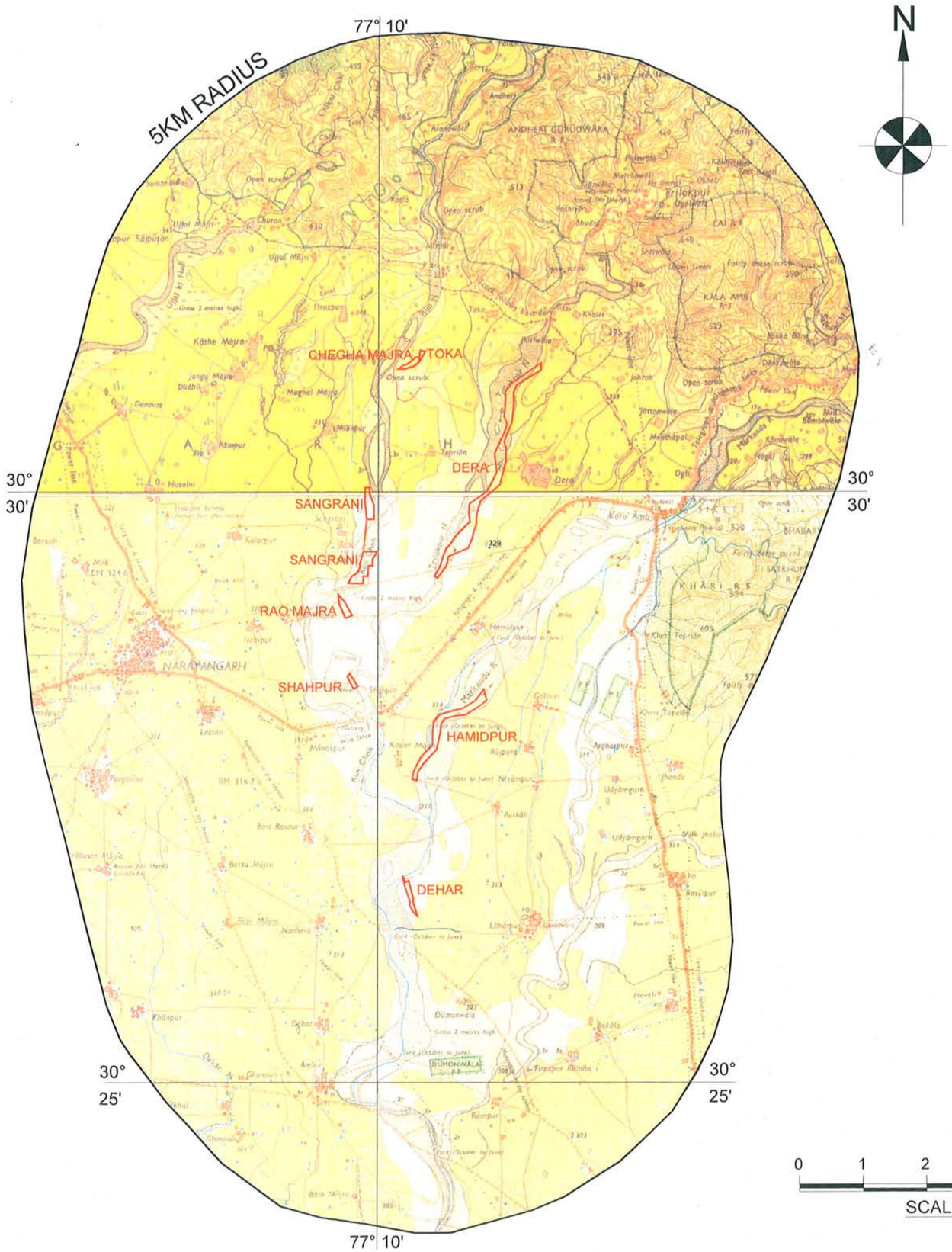
LOCATION MAP

SCALE : NTS

DATE OF SURVEY : July, 2022

CERTIFIED TO BE CORRECT

S.N. SHARMA
B.E(MINING)
Qualified Person



INDEX

ROADS METALLED/UNMETALLED	
CART TRACK/PACK TRACK/FOOT PATH	
STATE BOUNDARY/DISTT. BOUNDARY	
CONTOURS	
STREAMS/CANALS/NATURAL DRAIN	
BROKEN GROUNDS	
TOWN OR VILLAGE	
TUBEWELL/TANKS/PERENNIAL/DRY	
TEMPLE	
TREES	
BOUNDARY PILLARS SURVEYED/UNLOCATED	
VILLAGE TRIJUNCTION	
WELLS LINED/UNLINED	
HUTS PERMANENT/TEMPORARY	
HEIGHTS TRIANGULATED/STATION POINT (T.L)	△287 · 280
BENCH MARK/GEODETING/TERTIARY	BM 276
POWER LINE & TELEPHONE LINE	
CONTOUR INTERVAL	10 mtr.
LEASE BOUNDARY	
HILLY TERRAIN/WESTE LAND	
OPEN SCRUB/GRAZING LAND	

0 1 2 3 4km

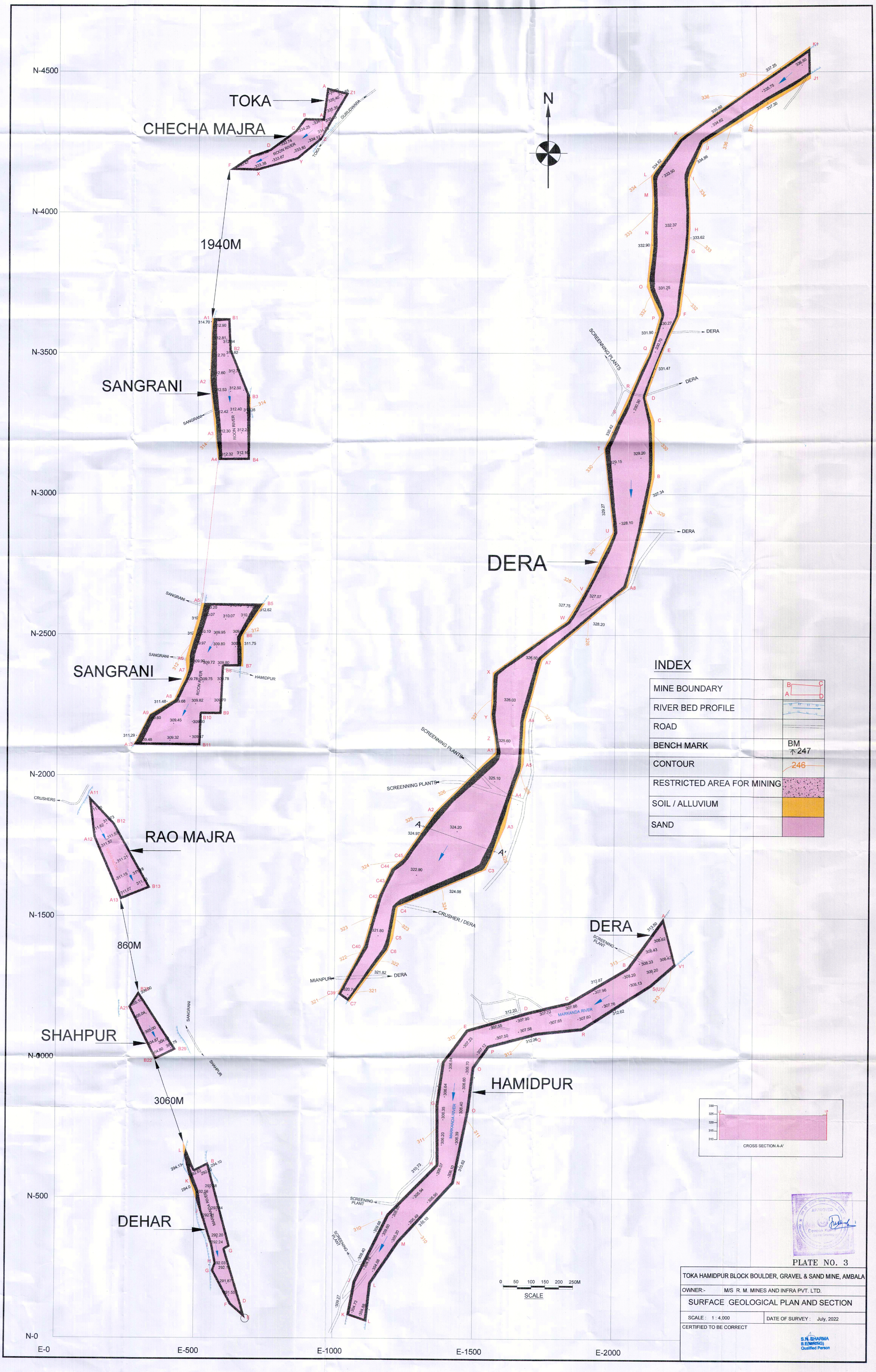
SCALE

SOURCE: SOI TOPOSHEET NO. 53F/2, 53F/3, 53F/6 and 53F/7

PLATE NO. 2

TOKA HAMIDPUR BLOCK BOULDER, GRAVEL & SAND MINE, AMBALA	
OWNER:- M/S R. M. MINES AND INFRA PVT. LTD.	
KEY PLAN 5KM RADIUS	
SCALE : 1 : 50,000	DATE : July, 2022
CERTIFIED TO BE CORRECT	

S.N. SHARMA
B.E(MINING)
Qualified Person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E-1500
E-2000
TOKA
CHECHA MAJRA
ROON RIVER
GURUDWARA
TOKA
1940M
SANGRANI
SANGRANI
ROON RIVER
SANGRANI
SANGRANI
SANGRANI
ROON RIVER
HAMIDPUR
RAO MAJRA
CRUSHERS
860M
SHAHPUR
SANGRANI
SHAHPUR
3060M
DEHAR
ROON RIVER
N
DERA
DERA
SCREENNING PLANTS
DERA
DERA
SCREENNING PLANTS
SCREENNING PLANTS
CRUSHER / DERA
MIANPUR
DERA
HAMIDPUR
MARKANDA RIVER
SCREENING PLANT
SCREENING PLANT
DERA
SCREENING PLANT
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SOIL / ALLUVIUM
SAND
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0 50 100 150 200 250M
SCALE
APPROVED
Deepak Kumar
PLATE NO. 3
TOKA HAMIDPUR BLOCK BOULDER, GRAVEL & SAND MINE, AMBALA
OWNER:- M/S R. M. MINES AND INFRA PVT. LTD.
SURFACE GEOLOGICAL PLAN AND SECTION
SCALE : 1 : 4,000
DATE OF SURVEY : July, 2022
CERTIFIED TO BE CORRECT
S.N. SHARMA
B.E(MINING)
Qualified Person

N-4500

N-4000

N-3500

N-3000

N-2500

N-2000

N-1500

N-1000

N-500

N-0

E-0

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E-2000

TOKA

CHECHA MAJRA

ROON RIVER

TOKA

GURUDWARA

1940M

SANGRANI

SANGRANI

ROON RIVER

SANGRANI

SANGRANI

ROON RIVER

HAMIDPUR

SANGRANI

SHAHPUR

SHAHPUR

3060M

CRUSHERS

RAO MAJRA

ROON RIVER

860M

DEHAR

MARKANDA RIVER

N

DERA

SCREENNING PLANTS

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DERA

SCREENNING PLANTS

SCREENNING PLANTS

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BED BAR	

CROSS SECTION A-A'

0 50 100 150 200 250M

SCALE

PLATE NO. 4

TOKA HAMIDPUR BLOCK BOULDER, GRAVEL & SAND MINE, AMBALA

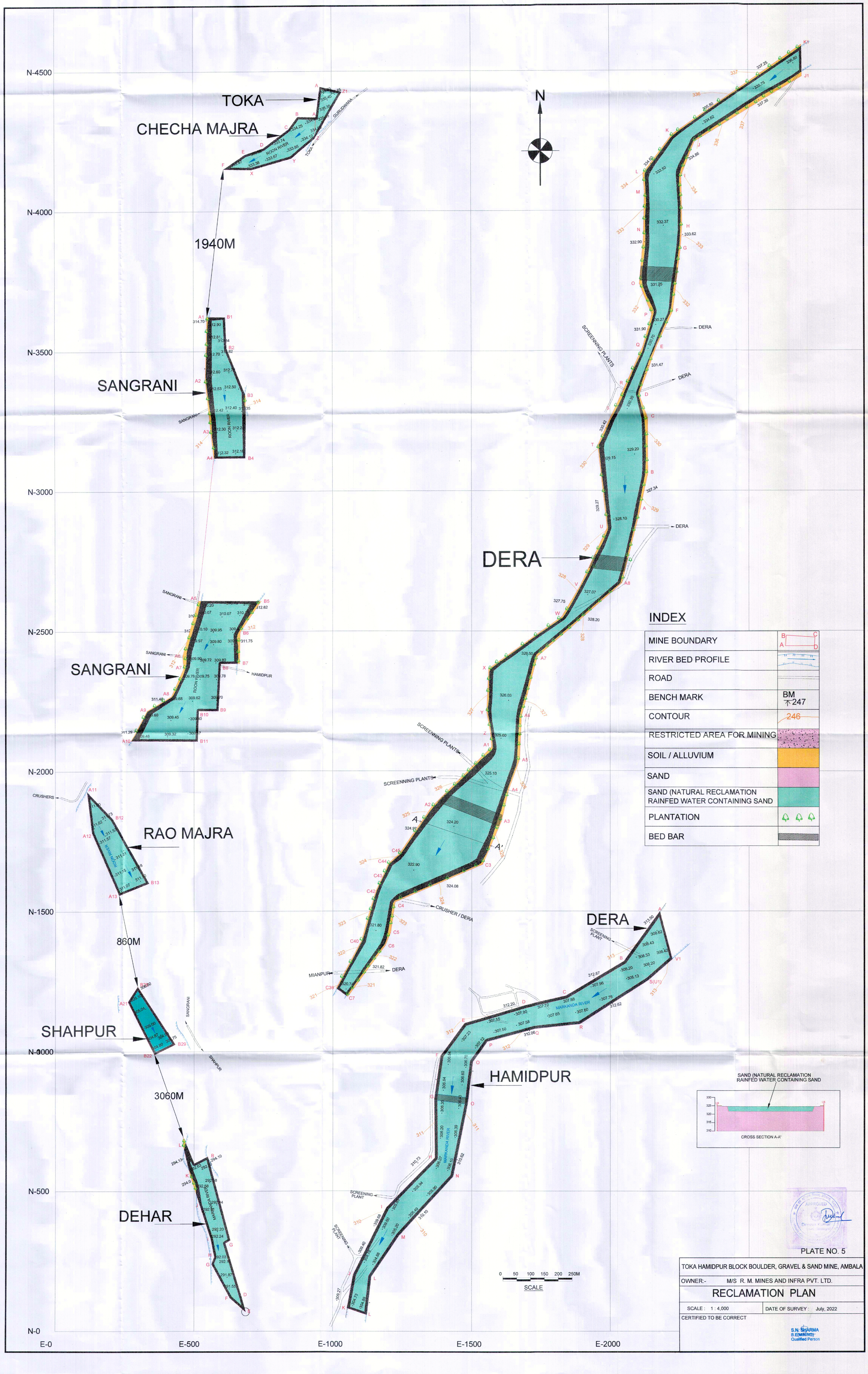
OWNER:- M/S R. M. MINES AND INFRA PVT. LTD.

PLAN AND SECTION SHOWING THE POSTION OF MINE WORKINGS AT THE END OF 5TH YEAR

SCALE : 1 : 4,000 | DATE OF SURVEY : July, 2022

CERTIFIED TO BE CORRECT

S.N. SHARMA
B.E(MINING)
Qualified Person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SANGRANI
ROON RIVER
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HAMIDPUR
SANGRANI
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CRUSHERS
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SHAHPUR
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CRUSHER / DERA
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PLANTATION
BED BAR
SAND (NATURAL RECLAMATION RAINFED WATER CONTAINING SAND
CROSS SECTION A-A'
0 50 100 150 200 250M
SCALE
APPROVED
Deepak Kumar
PLATE NO. 5
TOKA HAMIDPUR BLOCK BOULDER, GRAVEL & SAND MINE, AMBALA
OWNER:- M/S R. M. MINES AND INFRA PVT. LTD.
RECLAMATION PLAN
SCALE : 1 : 4,000
DATE OF SURVEY : July, 2022
CERTIFIED TO BE CORRECT
S.N. SHARMA
B.E(MINING)
Qualified Person

77° 10'

30°
30'

CHECHA MAJRA

TOKA

SANGRANI

SANGRANI

RAO MAJRA

SHAHPUR

DERA

HAMIDPUR

DEHAR

500M

N

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HUTS PERMANENT/TEMPORARY	
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CONTOUR INTERVAL	10 mtr.
LEASE BOUNDARY	
HILLY TERRAIN/WESTE LAND	
OPEN SCRUB/GRAZING LAND	

0 0.5 1.0 1.5 2.0KM

SCALE

PLATE NO. 6

TOKA HAMIDPUR BLOCK BOULDER, GRAVEL & SAND MINE, AMBALA

OWNER:- M/S R. M. MINES AND INFRA PVT. LTD.

ENVIRONMENTAL PLAN

SCALE : 1 : 10,000 DATE : July, 2022

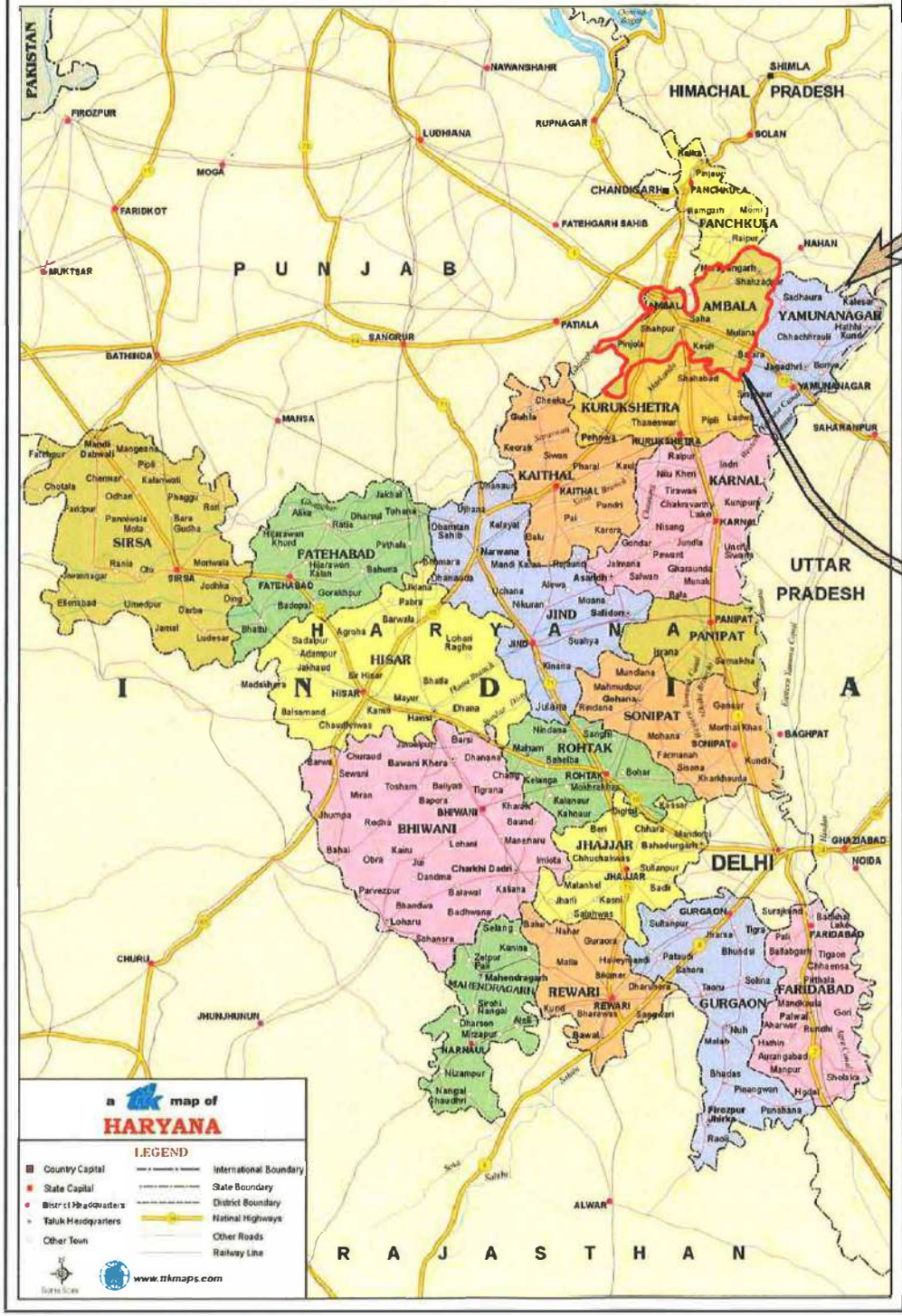
CERTIFIED TO BE CORRECT

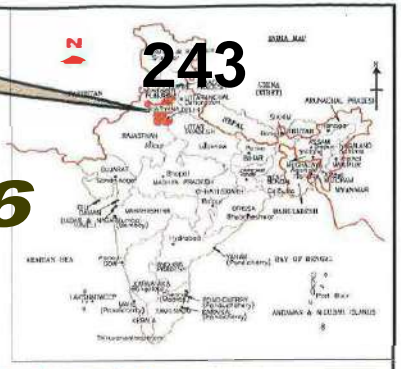
S.N. SHARMA
B.E(MINING)
Qualified Person

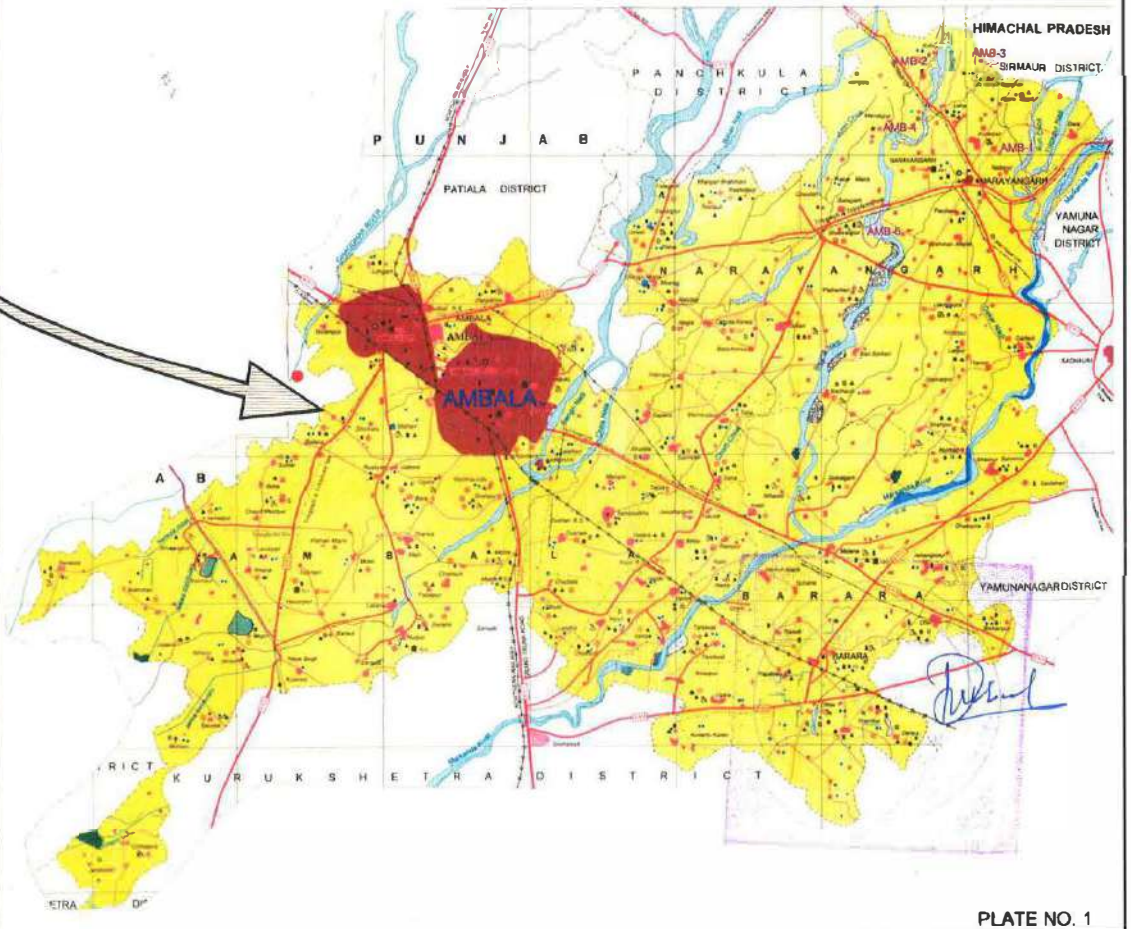
1204

243

ANNEXURE-R8-6







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MINE BOUNDARY

PLATE NO. 1

TOKA HAMIDPUR BLOCK BOULDER, GRAVEL & SAND MINE, AMBALA

OWNER :- M/S R. M. MINES AND INFRA PVT. LTD.

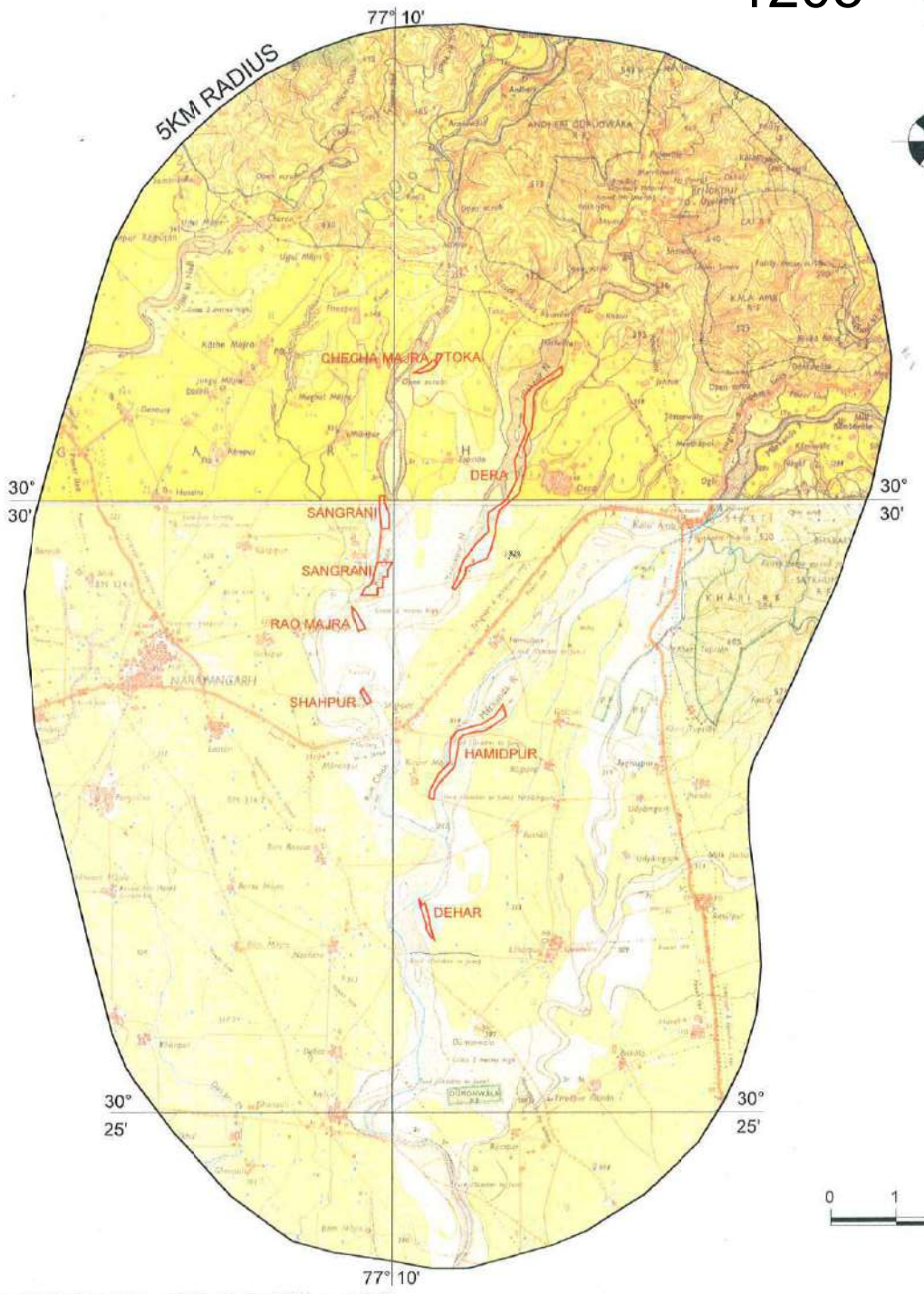
LOCATION MAP

SCALE : NTS

DATE OF SURVEY : July, 2022

CERTIFIED TO BE CORRECT

S.N. SHARMA
B.E(MINING)
Qualified Person



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POWER LINE & TELEPHONE LINE	
CONTOUR INTERVAL	10 mtr.
LEASE BOUNDARY	
HILLY TERRAIN/WESTE LAND	
OPEN SCRUB/GRAZING LAND	

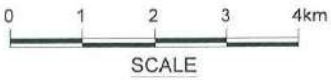


PLATE NO. 2

TOKA HAMIDPUR BLOCK BOULDER, GRAVEL & SAND MINE, AMBALA

OWNER:- M/S R. M. MINES AND INFRA PVT. LTD.

KEY PLAN 5KM RADIUS

SCALE : 1 : 50,000 | DATE : July, 2022

CERTIFIED TO BE CORRECT

S.N. SHARMA
B.E(MINING)
Qualified Person

ANNEXURE-R8-8

From

The Director,
Mines and Geology Haryana,
Plot No. 9, I.T. Park, Sector-22,
Panchkula.

To

M/s R M Mines & Infra Private Ltd,
149, Luxmi Garden,
Yamunanagar, (Haryana)-135001

Memo No. DMG/HY/MP/Toka Hamidpur/2022/ 1055
Dated Panchkula, the 27-02-23

Subject- **Submission of Mining Plan & Progressive Mine Closure Plan for Boulder, Gravel & Sand Mine (Minor Minerals) of Toka Hamidpur Unit of Ambala District, Haryana comprising an area of 247 Acres of M/s R M Mines & Infra Private Ltd., Yamuna Nagar, Haryana.**

****

Reference to your letter dated 16.02.2023 on the subject noted above.

2. Vide letter under reference, the Mining Plan along with Progressive Mine Closure Plan in respect of an area of 247 Acres of land in Toka-Hamidpur Unit, District Ambala was submitted for approval.

3. In exercise of the powers conferred by Rule 69 of the Haryana Minor Mineral Concession, Stoking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012, I hereby approve the above said Mining Plan along with Progressive Mine Closure Plan in respect of Boulder,Gravel and Sand mine of Villages –Toka,Chechi Majra,Sangrani,Rao Majra,Shahpur,Dera,Hamipur &Dehar, over an area of 247 Acres of land situated in district Ambala. This approval is subject to the following conditions:-

(i) That this Mining Plan and Progressive Mine Closure Plan is approved without prejudice to any other laws applicable to the mine/area from time to time whether made by the Central Government or State Government or any other authority.

(ii) That this approval of the "Mining Plan along with Progressive Mine Closure Plan" of Mining does not in any way imply the approval of the State Government in terms of any other provisions of the Mines and Minerals (Development & Regulation) Act, 1957 or Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012 or any other law including Forest (Conservation) Act, 1980 and Environment Protection Act, 1986 and rules framed there under.

(iii) That this "Mining Plan along with Progressive Mine Closure Plan" is being approved on the basis of data provided by you. In case, at any point of time any ambiguity in the same is found, the approval will be revoked with suspension of the mining operations and will be allowed to resume operation only after modification/rectification of the same, if so required.

(iv) That this "Mining Plan along with Progressive Mine Closure Plan" is approved without prejudice to any other order or direction from any court of any competent jurisdiction and is for a period of five years only and shall not be make you entitled for any extension of the lease period.

(v) That all the norms and provisions as envisaged in the Mining Plan would be adhered to, during the working of mine.

(vi) That the Financial Assurance of Rs. 14,82,000/- (Rs. Fourteen lac Eighty Two thousand only) as required under the provisions of Rule 71(6) of "Haryana Minor Mineral Concession, Stocking, Transportation of Minerals & Prevention of Illegal Mining Rules, 2012, shall be furnished within a period of 60 days or before start of mining operations, whichever is earlier.

4. Further, as per condition no. 4.20 of the LoI dated 28.07.2022, the actual mining will be allowed to be commenced only after Prior Environmental Clearance from the Competent Authority as required under EIA notification dated 14/9/2006, as amended from time to time by the MoE&F, GoI and guidelines/ circulars issued in this behalf.

State Geologist,
for Director, Mines and Geology,
Haryana

Encl: Mining Plan & Progressive
Mine Closure Plan (2 copies)

Registered Post
Endst. No. DMG/HY/MP/Toka Hamidpur/2022/ Dated:

A copy along with a copy of the dully approved Mining Plan and Progressive Mine Closure Plan is forwarded to the Director Mines Safety, Room No. 201-203, 2nd Floor, B-Block, CGO Complex-II, Hapur Road, Ghaziabad for information and necessary action.

-Sd-
State Geologist,
for Director, Mines and Geology,
Haryana.

Encl: Mining Plan & Progressive
Mine Closure Plan

Endst. No. DMG/HY/MP/Toka Hamidpur/2022/ Dated:

A copy along with a copy of the dully approved Mining Plan and Progressive Mine Closure Plan is forwarded to the Mining Officer, Mines and Geology Department, Ambala for information and necessary action.

-Sd-
State Geologist,
for Director, Mines and Geology,
Haryana.

Encl: Mining Plan & Progressive
Mine Closure Plan

Endst. No DMG/HY/MP/Toka Hamidpur/2022/ Dated:

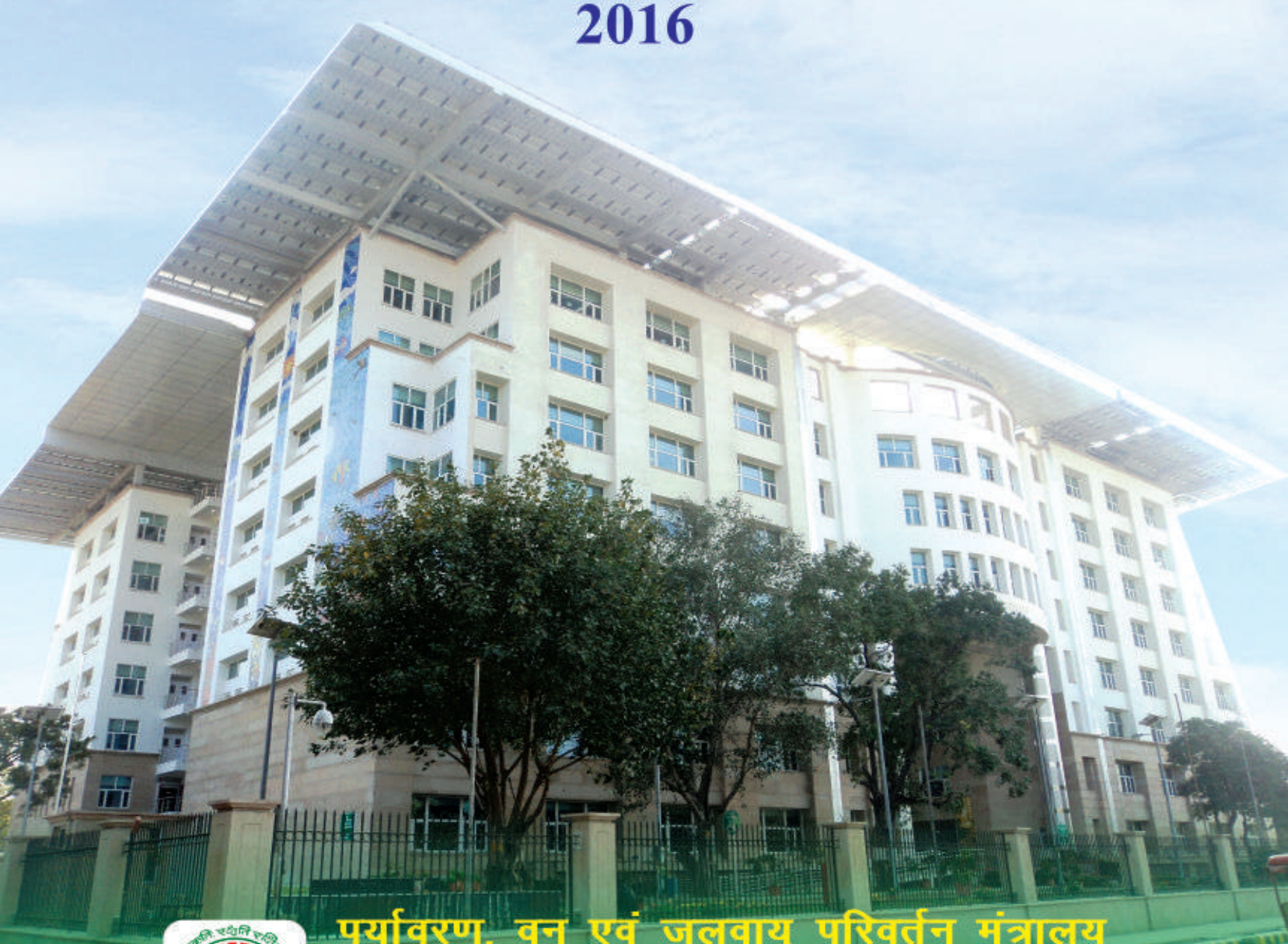
A copy is forwarded to Sh. S.N.Sharma& Sh.D. C. Yadav, House No. 282, Sector 11-D, Faridabad – 121 001 (Haryana) w.r.t. his letter dated 16.02.2023 for information and necessary action.

-Sd-
State Geologist,
for Director , Mines and Geology,
Haryana.

ANNEXURE-R8-9

सत्यमेव जयते

SUSTAINABLE SAND MINING MANAGEMENT GUIDELINES 2016



पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
इंदिरा पर्यावरण भवन, जोर बाग रोड, नई दिल्ली–110 003
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhavan, Jor Bagh Road, New Delhi - 110 003
www.moef.nic.in

Acknowledgment

The Sustainable Sand Mining Management Guidelines 2016, has been prepared after extensive consultation with the States and stakeholders over a period of last one year. The Guideline assimilates the knowledge and experience of stakeholder. The main objective of the Guidelines is to ensure sustainable sand mining and environment friendly management practices in order to restore and maintain the ecology of river and other sand sources. The team of the officers of Ministry of Environment, Forest and Climate Change who have worked for preparing these Guidelines comprised of following:

1. Shri Manoj Kumar Singh, Joint Secretary
2. Dr. U. Sridharan, Scientist 'F'
3. Dr. R.B. Lal, Scientist 'D'
4. Dr. Sonu Singh, Scientist 'D'

SUSTAINABLE SAND MINING MANAGEMENT GUIDELINES

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प्रकाश जावडेकर
Prakash Javadekar

सत्यमेव जयते

राज्य मंत्री (स्वतंत्र प्रभार)
MINISTER OF STATE (INDEPENDENT CHARGE)
पर्यावरण, वन एवं जलवायु परिवर्तन
ENVIRONMENT, FOREST & CLIMATE CHANGE
भारत सरकार / GOVERNMENT OF INDIA

FOREWORD

Environmental Protection and Sustainable Development have been the cornerstones of the policies and procedures governing the industrial and other developmental activities in India. The Ministry of Environment, Forest and Climate Change has taken several policy initiatives and enacted environmental and pollution control legislations to prevent indiscriminate exploitation of natural resources and to promote integration of environmental concerns in developmental projects. One such initiative is the Notification on Environmental Impact Assessment (EIA) of developmental projects issued on 14th September, 2006 under the provisions of Environment (Protection) Act, 1986, making EIA mandatory for certain categories of developmental projects.

Another land mark decision has been taken with the new notifications dated 15.01.2016 and 20.01.2016 on mining of minor minerals and constitution of District Level Environment Impact Assessment Authority and District Level Environment Appraisal Committee. This will ensure environmentally sustainable mining especially for sand and gravel under close supervision of district authorities. Use of information technology and information technology enabled services for scientific monitoring of mining and transportation of mined out material is another important feature of above notification.

Sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. There are different sources of sand and gravel, the most important among them is the river. As the requirement of these construction materials is on rise, they also are very vital for the health, physical character of the river and the different important functions of the river. The extraction of sand and gravel from the river bodies has to be regulated and done with adoption of required environmental safeguards.

In view of evolving scenario in industry and development sector, My Ministry has prepared a "Sustainable Sand Mining Management Guidelines". The Guidelines *infer-alia* focus on preparation of District Survey Report; Management Plan; Marine Sand Mining and Impact on Marine Biodiversity; Issues and Management of Mining in Cluster; Management of Sand Deposited after Flood on Agricultural Field of Farmers; Mining of Sand from Agricultural Field; Monitoring System for Sustainable Sand Mining using Information Technology System; Creation of District Level Environment Impact Assessment Authority (DEIAA) and District Level Expert Appraisal Committee (DEAC) for granting Environment Clearance for Mining of Minor Minerals; Exemption of certain cases for requirement of Environment Clearance and Standard Environmental Conditions for Sustainable Sand Mining.

The Guidelines will help the Departments of Mines and Geology, State Pollution Control Boards/Committees, Industries, Regulators, Authorities and various Stakeholders to ensure environmentally sustainable mining in the Country.

(Prakash Javadekar)

Paryavaran Bhawan, Jor Bagh Road, New Delhi-110 003
Tel.: 011-24695136, 24695132, Fax : 011-24695329
www.youtube.com/prakashjavadekar www.facebook.com/prakashjavadekar
www.twitter.com/prakashjavadekar e-mail :mefcc@gov.in
website : www.prakashjavadekar.com

अशोक लवासा
ASHOK LAVASA, IAS

सत्यमेव जयते

सचिव
भारत सरकार
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Secretary
Government of India
Ministry of Environment, Forest and Climate Change

PREFACE

Sand is naturally occurring granular material composed of finely divided rock and mineral particles. Sand and gravel together known as aggregate, represent the highest volume of raw material used on earth. The mining of aggregate has been continuing for many years. Now the mining of aggregates has reached a level threatening the environment and ecosystem besides also reaching a level of scarcity that would threaten the economy. It is recommended that sand and aggregate mining, and quarrying should be done only after sound scientific assessment and adopting best practices to limit the impact on the environment.

The main objectives of the Guidelines, inter-alia, includes to ensure that sand and gravel mining is done in environmentally sustainable and socially responsible manner; availability of adequate quantity of aggregate in sustainable manner; improve the effectiveness of monitoring of mining and transportation of mined out material; conservation of the river equilibrium and its natural environment by protection and restoration of the ecological system; avoid aggradation at the *downstream* reach especially those with hydraulic structures such as jetties, water intakes etc.; to ensure the rivers are protected from bank and bed erosion beyond its stable profile; no obstruction to the river flow, water transport and restoring the riparian rights and in-stream habitats; to avoid pollution of river water leading to water quality deterioration; to prevent depletion of ground water reserves due to excessive draining out of ground water; and streamlining the process for grant of environmental clearance (EC) for sustainable mining.

The recommendations for management of sustainable sand extraction are the key objectives of the Guidelines. Emphasis is given to the setting up of monitoring plans that will provide data on profile changes and sediment transport capacity to enable the authorities to evaluate the long-term effect of the mining activities both upstream and downstream of sand extraction sites. Special emphasis is given on monitoring of the mined out material, which is key to the success of environment management plan. So use of IT and IT enabled services for effective monitoring of the quantity of mined out material and transportation along with process reengineering has been made a part of the Guideline. The Guidelines propose delegation of responsibility and authority to the cutting edge level i.e. the District Environment Impact Assessment Authority along with streamlining the process of impact assessment, environment management plan and environment clearance in cluster situation.

(Ashok Lavasa)

New Delhi
Date: 15-03-2016

इंदिरा पर्यावरण भवन, जोर बाग रोड़, नई दिल्ली-110 003 फोन : (011) 24695262, 24695265, फैक्स : (011) 24695270
INDIRA PARYAVARAN BHAWAN, JOR BAGH ROAD, NEW DELHI-110 003 Ph. : (011) 24695262, 2465265, Fax : (011) 24695270
E-mail : secy-moef@nic.in, alavasa@nic.in, Website : moef.gov.in

EXECUTIVE SUMMARY

The sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. There are different sources of sand and gravel, the most important among them is the river. As the requirement of these construction materials is on rise, they also are very vital for the health, physical character of the river and the different important functions of the river. The extraction of sand and gravel from the river bodies has to be regulated and done with adoption of required environmental safeguards.

For making available these resources, a mapping of these resources at the district level, identification of appropriate sites for extraction, appraisal of the extraction process, putting in place the required environmental safeguards, and rigorous monitoring of the volume of extracted material is required to ensure sustainability of the entire process.

The district is the unit of administration which is best placed to do the mapping of these resources, adopt the best environmental practices for extraction of these materials and monitor its extraction and movement. The large number of leases which are awarded, the scattered geographical location of the availability of these materials and decentralized requirement and usage of the sand and aggregates also places districts in a unique position to play a vital role in adoption of environmental safeguards needed for sustainable extraction of river sand and gravel.

Recommendations for management of sustainable sand extraction are the key objective of the Guidelines. Emphasis is given to the setting up of monitoring plans that will provide data on profile changes and sediment transport capacity to enable the authorities to evaluate the long-term effect of the mining activities both upstream and downstream of sand extraction sites.

Special emphasis is given on monitoring of the mined out material, which is key to the success of environment management plan. So use of IT and IT enabled services for effective monitoring of the quantity of mined out material and transportation along with process reengineering has been made a part of the Guideliness. The Guidelines proposes delegation of responsibility and authority to the cutting edge level i.e. the District Environment Impact Assessment Authority along with streamlining the process of impact assessment, environment management plan and environment clearance in cluster situation.

Promotion of manufactured sand, artificial sand and alternative technologies in construction materials and processes are also required for reducing the dependence and demand on naturally occurring sand and gravel. Development of slag sand, sand from stone chips and there certification under BIS is an important step in this direction.

INTRODUCTION

Sustainable Development is built on three pillars - environmental, social and economic. Sustainable development cannot be achieved if the environment is protected but poverty is prevalent in a significant part of the population. Similarly, sustainable development cannot be achieved through inappropriate economic growth, if it undermines the environment in which people and businesses exists. These Guideliness support that fundamental concept, promoting environmental protection, limiting negative physiological, hydrological and social impacts under pinning sustainable economic growth.

Sand and gravel have long been used as aggregate for construction of roads and building. Today, the demand for these materials continues to rise. In India, the main sources of sand are river flood plain, coastal sand, paleo channel sand, and sand from agricultural fields.

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

Removing sediment from the active channel bed in river interrupt the continuity of sediment transport through the river system, disrupting the sediment mass balance in the river downstream and induces channel adjustments (usually incision) extending considerable distances (commonly one kilometer or more) beyond the extraction site.

The magnitude of the impact basically depends on the magnitudes of the extraction relative to bed load sediment supply and transport through the reach. Implementation of the principles and processes outlined in this Guidelines will limit the negative externalities of sand and gravel mining.

NEED FOR POLICY GUIDELINES

Sand is naturally occurring granular material composed of finely divided rock and mineral particles between 150 micron to 4.75 mm in diameter (IS 383-1970). Sand is formed due to weathering of rocks due to mechanical forces. In the process the weathered rocks forms gravel and then sand.

Sand and gravel together known as aggregate, represent the highest volume of raw material used on earth after water. The mining of aggregate has been continuing for many years. Now the mining of aggregates has reached a level threatening the environment and ecosystem besides also reaching a level of scarcity that would threaten the economy. It is recommended that sand & aggregate mining, and quarrying should be done only after sound scientific assessment and adopting best practices to limit the impact on the environment.

It is also felt that the greater use of substitute material (Manufactured Sand, artificial sand etc.) & construction technology, and sustainable use of the resource could drastically reduce adverse impact of mining on the environment.

OBJECTIVE OF THE GUIDELINES

The Guideliness has been based on the following principles:

- Uncontrolled sand mining is not sustainable.
- Compliance with present and future legislation and regulations on the subject is mandatory and not voluntary.
- Each lease holder should be given the opportunity to self-regulate to the extent that it can demonstrate compliance with legislation and regulations.
- Where self- regulation fails to deliver compliance with legislation and regulations, increased formal enforcement and monitoring should be implemented with punitive measures applied in line with the legal framework.
- There is a need to protect the environment and the right of the population to live in clean and safe surroundings, with the need to use natural resources in a way that will make a positive and sustainable contribution to the economy.

The main objectives of the Guidelines

- To ensure that sand and gravel mining is done in environmentally sustainable and socially responsible manner.
- To ensure availability of adequate quantity of aggregate in sustainable manner.
- To improve the effectiveness of monitoring of mining and transportation of mined out material.

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

THE EFFECT OF SAND AND GRAVEL MINING

Mining within or near riverbed has a direct impact on the stream's physical characteristics, such as channel geometry, bed elevation, substratum composition and stability, in-stream roughness of the bed, flow velocity, discharge capacity, sediment transport capacity, turbidity, temperature etc. Alteration or modification of the above attributes may cause hazardous impact on ecological equilibrium of riverine regime. This may also cause adverse impact on in-stream biota and riparian habitats. This disturbance may also cause changes in channel configuration and flow-paths.

The effects of sand and gravel mining are as follows:

a) Extraction of bed material in excess of replenishment by transport from upstream causes the bed to lower (degrade) upstream and downstream of the site of removal.

b) In-stream habitat is impacted by increase in river gradient, suspended load, sediment transport and sediment deposition. Excessive sediment deposition for replenishment increases turbidity which prevents penetration of light required for photosynthesis and reduces food availability of aquatic fauna.

c) Riparian habitat including vegetative cover on and adjacent to the river banks it controls erosion, provide nutrient inputs into the stream and prevents intrusion of pollutants in the stream through runoff. Bank erosion and change of morphology of the river can destroy the riparian vegetative cover.

d) Bed degradation are responsible for channel shifting, causing loss of properties and degradation of landscape, it can also undermine bridge supports, pipe lines or other structures.

e) Degradation may change the morphology of the river bed, which constitutes one aspect of the aquatic habitat.

f) Degradation can deplete the entire depth of gravelly bed material, exposing other substrates that may underlie the gravel, which could in turn affect the quality of aquatic habitat. Lowering of ground water table in the flood plain because of lowering of riverbed level as well as river water level takes place because of extraction and draining out of excessive ground water from the adjacent areas. So, if a floodplain aquifer drains to the stream, groundwater levels can be lowered as a result of bed degradation.

g) Lowering of the water table can destroy riparian vegetation.

h) Excessive pumping of ground water in the process of mining in abandoned channels depletes ground water causing scarcity of irrigation and drinking water. In extreme cases it may create ground fissures and subsidence in adjacent areas.

i) Flooding is reduced as bed elevations and flood heights decrease, reducing hazard for human occupancy of floodplains and the possibility of damage to engineering works.

j) The supply of overbank sediments to floodplains is reduced as flood heights decrease.

k) An un-scientific and unregulated sand and gravel mining tends to increase channel bank

scouring and erosion. This causes a large degree of meandering of rivers and sometimes it could be in kms.

l) Rapid bed degradation may induce bank collapse and erosion by increasing the heights of banks.

m) Polluting ground water by reducing the thickness of the filter material especially if mining is taking place at top of recharge fissures.

n) Choking of sand layer which acts as filter for ingress of ground water from river by dumping of finer material, compaction of filter zone due to movement of heavy vehicles. It also reduces the permeability and porosity of the filter material.

o) Removal of gravel from bars may cause downstream bars to erode if they subsequently receive less bed material than is carried downstream from them by fluvial transport.

p) Ecological effects on bird nesting, fish migration, angling, etc.

q) Indiscrete mining activities lead to increased concentration of suspended sediment in the river which in turn causes siltation of water resources projects.

r) Un-scientific and unregulated sand and gravel mining leads to the severe health hazards like air quality degradation and dust fog.

s) Direct destruction from heavy equipment operation; discharges from equipment and refueling.

t) Biosecurity and pest risks.

u) Impacts on coastal processes.

The other deleterious impacts of indiscrete mining include

Loss of riparian habitat resulting from direct removal of vegetation along the stream bank to facilitate the use of a dragline or through the process of lowering the water table, bank undercutting, and channel incision. The physical composition and stability of substrates are altered as a result of in-stream mining and most of these physical effects may exacerbate sediment entrainment in the channel.

Furthermore, the process of in-stream mining and gravel washing produces fine sediments under all flow conditions, resulting in a deposition of fine sediment in riffles as well as other habitats at low discharge. Excess sediment is considered the greatest pollutant in waters and constitutes one of the major environmental factors in the degradation of stream fisheries.

However, in-stream mining may contribute additional sediment to downstream reaches due to the disruption of substrate stability. Once sediment enters the stream, it is best to let natural geomorphological and hydrological processes reach a dynamic equilibrium, rather than further exacerbating the situation by additional disturbance.

All other things being equal:

a) Extracting gravel from an excavation that does not penetrate the water table and is located away from an active stream channel should cause little or no change to the natural hydrological processes unless the stream captures the pit during periods of flooding.

b) In-stream extraction of gravel from below the water level of a stream generally causes more changes to the natural hydrologic processes than limiting extraction to a reference point above the water level.

c) In-stream extraction of gravel below the deepest part of the channel (the thalweg) generally causes more changes to the natural hydrological processes than limiting extraction to a reference point above the thalweg.

d) Excavating sand and gravel from a small straight channel with a narrow floodplain generally will have a greater impact on the natural hydrological processes than excavations on a braided channel with a wide floodplain.

e) Extracting sand and gravel from a large river or stream will generally create less impact than extracting the same amount of material from a smaller river or stream.

f) Over-extraction of gravel can destabilise channels and banks, and/or affect the ecologic functioning of rivers particularly if undertaken at the wrong time, or in the wrong place, or in a way that damages the river bed or margins.

GENERAL APPROACH TO SUSTAINABLE SAND AND GRAVEL MINING

Following considerations should be kept in mind for sand / gravel mining:

a) Parts of the river reach that experience deposition or aggradation shall be identified first. The Lease holder/ Environmental Clearance holder may be allowed to extract the sand and gravel deposit in these locations to manage aggradation problem.

b) The distance between sites for sand and gravel mining shall depend on the replenishment rate of the river. Sediment rating curve for the potential sites shall be developed and checked against the extracted volumes of sand and gravel.

c) Sand and gravel may be extracted across the entire active channel during the dry season.

d) Abandoned stream channels on terrace and inactive floodplains be preferred rather than active channels and their deltas and flood plains. Stream should not be diverted to form inactive channel.

e) Layers of sand and gravel which could be removed from the river bed shall depend on the width of the river and replenishment rate of the river.

f) Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

g) Segments of braided river system should be used preferably falling within the lateral migration area of the river regime that enhances the feasibility of sediment replenishment.

h) Sand and gravel shall not be extracted within 200 to 500 meter from any crucial hydraulic structure such as pumping station, water intakes, and bridges. The exact distance should be ascertained by the local authorities based on local situation. The cross-section survey should cover a minimum distance of 1.0 km upstream and 1.0 km downstream of the potential reach for extraction. The sediment sampling should include the bed material and bed material load before, during and after extraction period. Develop a sediment rating curve at the upstream end of the potential reach using the surveyed cross- section. Using the historical or gauged flow rating curve, determine the suitable period of high flow that can replenish the extracted volume. Calculate the extraction volume based on the sediment rating curve and high flow period after determining the allowable mining depth.

i) Sand and gravel could be extracted from the downstream of the sand bar at river bends. Retaining the upstream one to two thirds of the bar and riparian vegetation is accepted as a method to promote channel stability.

j) Flood discharge capacity of the river could be maintained in areas where there are significant flood hazard to existing structures or infrastructure. Sand and gravel mining may be allowed to maintain the natural flow capacity based on surveyed cross- section history.

k) Alternatively, off-channel or floodplain extraction is recommended to allow rivers to replenish the quantity taken out during mining.

l) The Piedmont Zone (Bhabhar area) particularly in the Himalayan foothills, where riverbed material is mined, this sandy-gravelly track constitutes excellent conduits and holds the greater potential for ground water recharge. Mining in such areas should be preferred in locations selected away from the channel bank stretches.

m) Mining depth should be restricted to 3 meter and distance from the bank should be 3 meter or 10 percent of the river width whichever less.

n) The borrow area should preferably be located on the river side of the proposed embankment, because they get silted up in course of time. For low embankment less than 6 m in height, borrow area should not be selected within 25 m from the toe/heel of the embankment. In case of higher embankment the distance should not be less than 50 m. In order to obviate development of flow parallel to embankment, cross bars of width eight times the depth of borrow pits spaced 50 to 60 meters centre-to-centre should be left in the borrow pits.

o) Demarcation of mining area with pillars and geo-referencing should be done prior to start of mining.

THE WORLD SCENARIO

Sand and gravel are mined world-wide and account for the largest volume of solid material extracted globally. Formed by erosive processes over thousands of years, they are now being extracted at a rate far greater than their renewal. Furthermore, the volume being extracted is having a major impact on rivers, deltas and coastal and marine ecosystems, resulting in loss of land through river or coastal erosion, lowering of the water table and decrease in the amount of sediment supply. Despite the colossal quantities of sand and gravel being used, increasing dependence on them and the significant impact that their extraction has on the environment, this issue needs far better attention and awareness.

Globally, between 47 and 59 billion tonnes of material is mined every year of which sand and gravel, known as aggregates, account for both the largest share (from 68% to 85%) and the fastest growth in extraction increase. Although more sand and gravel are mined than any other material, reliable data on their extraction is not available. The absence of global data on aggregates mining makes environmental assessment very difficult and has contributed to the lack of awareness about this issue. One way to estimate the global use of aggregates indirectly is through the production of cement for concrete (concrete is made with cement, water, sand and gravel). The production of cement is reported by 150 countries and it reached 3.7 billion tonnes in 2012 (USGS, 2013a). For each tonne of cement, the building industry needs about six to seven times more tonnes of sand and gravel (USGS, 2013b). Thus, the world's use of aggregates for concrete can be estimated at 25.9 billion tonnes a year for 2012 alone.

Added to this are all the aggregates used in land reclamation, shoreline developments and road embankments (for which the global statistics are unavailable), added to this is the 180 million tonnes of sand used in industry (USGS, 2012). Aggregates also contribute to 90% of asphalt pavements and 80% of concrete roads (Robinson and Brown, 2002). Taking all these estimates into account, a conservative estimate for the world consumption of aggregates exceeds 40 billion tonnes a year.

This large quantity of material cannot be extracted and used without a significant impact on the environment. Extraction has an impact on biodiversity, water turbidity, water table levels and landscape and on climate through carbon dioxide emissions from transportation. There are also socio-economic, cultural and even political consequences. In some extreme cases, the mining of marine aggregates has changed international boundaries, such as through the disappearance of sand islands in Indonesia (New York Times, 2010; Guerin, 2003).

The impacts of sand mining can be mainly categorized as follows:

IMPACTS ON	DESCRIPTION
Biodiversity	Impacts on related ecosystems (for example; fisheries)
Land losses	Both inland and coastal through erosion
Hydrological functions	Change in water flows, flood regulation and marine currents
Water supply	Through lowering of the water table and pollution
Infrastructures	Damage to bridges, river embankments and coastal infrastructures
Climate	Directly through transport emissions
Landscape	Coastal erosion, changes in deltaic structures, quarries, pollution of rivers
Extreme events	Decline of protection against extreme events (flood, drought, storm surge)

World over sand was until recently extracted in land quarries and riverbeds; however, a shift to marine and coastal aggregates mining has occurred due to the decline of inland resources. River and marine aggregates remain the main sources for building and land reclamation. For concrete, in-stream gravel requires less processing and produces high-quality material while marine aggregate needs to be thoroughly washed to remove salt. If the chloride is not removed from marine aggregate, a structure built with it might collapse after few decades due to corrosion of steel reinforced structures. Most sand from deserts cannot be used for concrete and land reclaiming, as the wind erosion process forms round grains that do not bind well.

INDIAN SCENARIO

The data on consumption of sand and aggregate in country is not available with any source. It can be derived indirectly from the usage of cement, construction of roads and stowing of mines. The trend for aggregates extraction can be estimated using cement production as a proxy.

Cement production has multiplied three-fold in the last 20 years from 1.37 billion tonnes of cement in 1994 to 3.7 billion tonnes in 2012 (USGS, 2013a) mainly as a result of rapid economic growth in Asia (UNEP and CSIRO, 2011). Five countries: China (58%), India (6.75%), the United States (2%), Brazil and Turkey - produce 70% of the world's cement (USGS, 2013c). The consumption of cement is expected to reach 324 million tonnes, which equates to use of 2.2 billion tonnes of aggregates. This is in addition to sand and aggregates used in stowing of mines, industry and other allied usage.

In India the main sources of sand are:

(a) River (riverbed and flood plain).

(b) Lakes and reservoirs.

(c) Agricultural fields (Haryana).

(d) Coastal / marine sand.

(e) Palaeo-channels (Bikaner in Rajasthan).

THE PRICE ELASTICITY FOR DEMAND OF SAND

As the price elasticity of demand for sand is inelastic (-0.88), any increase in price in absence of marketable alternative will not have any significant impact on demand. Use of crushed stones or other substitute material should be promoted. The regional context of aggregate resources, market demand, and the environmental impacts of various alternatives must be understood before any site-specific proposal for aggregate extraction can be reviewed.

Evaluation of aggregate supply and demand should be undertaken on the basis of production-consumption regions, encompassing the market for aggregate and all potential sources of aggregate within an economical transport distance. The finite nature of high-quality alluvial gravel resources must be recognized, and high-quality PCC-grade aggregates should be reserved only for the uses demanding this quality material (such as concrete). Alternative sources should be used in less demanding applications (such as road sub-base). Part replacement with fly ash in roads and embankments be promoted in place of sand and aggregates.

The environmental costs of sand mining should be incorporated into the price of the product so that alternative sources that require more processing but have less environmental impact become more attractive.

PROCESS OF SEDIMENT TRANSPORT

The loose boundary (consisting of movable material) of an alluvial channel deforms under the action of flowing water and the deformed bed with its changing roughness (bed forms) interacts with the flow. The resulting movement of the bed material (sediment) in the direction of flow is called sediment transport and a critical bed shear stress must be exceeded to start the particle movement.

Such a critical shear stress is referred as incipient (threshold) motion condition, below which the particles will be at rest and the flow is similar to that on a rigid boundary. Some sediment particles roll or slide along the bed intermittently and some others saltate (hopping or bouncing along the bed). The material transported in one or both of these modes is called 'bed load'.

Finer particles (with low fall velocities) are entrained in suspension by the fluid turbulence and transported along the channel in suspension. This mode of transport is called 'suspended load'. Sometimes finer particles from upland catchment (sizes which are not present in the bed material), called 'wash load', are also transported in suspension. The combined bed material and wash load is called 'total load'.

Bed load ranges from a few percent of total load in lowland rivers to perhaps 15% in Mountain Rivers to over 60% in some arid catchments. Although a relatively small part of the total sediment load, the arrangement of bed load sediment constitutes the architecture of sand, and gravel-bed channels.

The rate of sediment transport typically increases as a power function of flow; that is, a doubling of flow typically produces more than a doubling in sediment transport and most sediment transport occurs during floods. The environmental impacts from in-stream mining can be avoided, if the annual bed load is calculated and aggregate extraction is restricted to that value or some portion of it. To accurately limit extraction to some portion of bed load, the amount of sediment that passes the in-stream mining site during a given period of time must be calculated.

There is a large amount of uncertainty in the process of calculating annual rates of bed load transport. How much coarse material is moved, how long it remains in motion as also how far it moves depends on the size, shape & packing of the material and the characteristics of the river flow.

Downstream movement commonly occurs as irregular bursts of short-distance movement separated by longer periods, when the particles remain at rest. Because bed load changes from hour-to-hour, day-to-day, and year-to-year, estimating annual bed load rates is a dynamic process involving careful examination.

Constant variations in the flow of the river make the channel floor and riverbanks a dynamic interface, where some materials are being eroded while others are being deposited. The net balance of this activity, on a short- term basis, is referred to as scour or fill.

On a long-term basis, continued scour results in erosion (degradation), while continued fill results in deposition (aggradation).

A general indicator of the stability of a stream relates to the amount of vegetation present. Gravel bars that are vegetated or where the gravel is tightly packed, generally indicate streams, where the gravel supply is in balance. Streams with excessive gravel generally have gravel bars with little or no vegetation, and are surfaced with loosely packed gravel.

SUSTAINABLE SAND AND GRAVEL MINING GUIDELINES

The broad principle on which any sustainable sand mining Guidelines / policy can be based is that river/ natural resources must be utilized for the benefit of the present and future generation, so river resources should be prudently managed and developed. The preparation of District Survery Report is an important initial step.

The Processes under the Guidelines:

(a) Identification of areas of aggradation / deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited. Use of satellite imagery for identifying areas of sand deposit and quantity be done.

(b) Calculation of annual rate of replenishment and allowing time for replenishment after mining in area.

(c) Identifying ways of scientific and systematic mining.

(d) Identifying measures for protection of environment and ecology.

(e) Determining measures for protection of bank erosion.

(f) A bench mark (BM) with respect to mean sea level (MSL) should be made essential to in-mining channel reaches (MCR). Below which no mining shall be allowed.

(g) Identifying steps for conservation of mineral.

(h) Permanent gauging facilities (for discharge and sediment both) should be made compulsory for the sites having excessive mining in consultation with Central Water Commission or any competent State Agency.

(i) Implementing safeguards for checking illegal and indiscrete mining.

Following the above processes, to begin with it is important to prepare a survey document mapping the status of sand sources in a district. This survey should be conducted and report be prepared for each district. Though it is an acceptable fact that rivers cut across districts and States and every river is an ecosystem in itself. But, keeping in view the fact that the district is the most established unit of administration at which this kind of survey, planning and monitoring can be ensured effectively, it is proposed that every district will prepare this document taking the river stretch in that district as an ecological unit and inventorising other sources of sand in the district.

Besides, the production of aggregate in a particular area is a function of availability of natural resources, the size of the population, the economy of the area and various developmental and infrastructural works being undertaken in the area.

The natural resources must be utilized in environment friendly manner in scientific and systematic way and with the objective of sustainable development the policy on the subject should have provisions for protection of environment & ecology. These factors can be accounted for in a most efficient manner at district level.

The sustainable mining plan needs to be dynamic. A survey should be carried out by the District Environment Impact Assessment Authority (DEIAA) with the assistance of Geology Department, Irrigation Department, Forest Department, Public Works Department, Ground Water Boards, Remote Sensing Department and Mining Department etc. in the district at regular intervals.

The survey shall contain:

1. District wise detail of river or stream and other sand source.
2. District wise availability of sand or gravel or aggregate resources.
3. District wise detail of existing mining leases of sand and aggregates.

Based on this survey document, the action plan shall divide the river/ stream/ other sources of the District into the following categories:

1. River / Stream beds sections / other sources suitable for extraction of sand and aggregates.
2. River / Stream beds sections / other sources prohibited for extraction of sand and aggregates.

The river/ streams/ other sources of sand and aggregate are studied on following parameters:

a) Geomorphological studies

i) Place of origin
ii) Catchment area.
iii) General profile of river stream.
iv) Annual deposition factor.
v) Replenishment.
vi) Total potential of minor mineral in the river bed.

b) Geological studies

i) Lithology of catchment area.
ii) Tectonics and structural behavior of rocks.

c) Climatic Factors

i) Intensity of rainfall.
ii) Climate Zone.
iii) Temperature variation

The following points to be considered while selecting the river / stream for mining besides the above parameters:

i) A stable river is able to constantly transport the flow of sediments produced by watershed such that it's dimensions (width and depth) pattern and vertical profile are maintained without aggrading (building up) or degrading (scouring down).

ii) The amount of boulders, cobbles, pebbles, and sand deposited in river bed equals to the amount delivered to the river from catchment area and from bank erosion minus amount transported downstream each year.

iii) It is compulsive nature of river to meander in their beds and therefore they will have to be provided with adequate corridor for meandering without hindrance. Any attempt to diminish the width of the corridor (floodway) and curb the freedom to meander would prove counterproductive.

iv) Erosion and deposition is law of nature. The river stream has to complete its geomorphological cycles from youth, mature to old age.

v) River capturing is unavoidable.

vi) Fundamentally the lowest point of any stream is fixed by sea level.

This survey document should be prepared in the district based on direct and indirect benefits of mining and identification of the potential threats to the river / stream beds in the district.

Besides, calculating the carrying capacity of the river / stream beds / other sources to find out maximum quantity available to be allowed for removal each year from the sources, it should also provide various measures to regulate sand and aggregate mining in a systemic way.

It has to provide for environmentally safe depth of mining and safeguards of banks by prescribing safe distance from banks. It is required that there should be a Sub-Divisional Committee which should visit each site and make recommendation. The Committee should comprise of Sub-Divisional Magistrate, Officers from Irrigation department, State Pollution Control Board or Committee, Forest department, Geology or mining officer shall visit each site for which environmental clearance has been applied for and make recommendation on suitability of site for mining or prohibition thereof.

THE STRUCTURE OF DISTRICT SURVEY REPORT

The report can have following structure:

1. Introduction
2. Overview of Mining Activity in the District
3 The List of Mining Leases in the District with location, area and period of validity
4. Details of Royalty or Revenue received in last three years
5. Detail of Production of Sand or Bajari 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 and Mineral Wealth

12. Drainage System with description of main rivers.

Sl.No.	NAME OF RIVER	AREA DRAINED (Sq. Km)	% AREA DRAINED

13. Salient Features of Important Rivers and Streams:

Sl.No.	Name of the River / Stream	Total Length in the District (in Km)	Place of origin	Altitude at Origin

14. Methodology Adopted for Calculating of Mineral Potential

The mineral potential is calculated based on field investigation and geology of the catchment area of the river/ streams. As per the policy of the State and location, depth of minable mineral is defined. The area for removal of mineral in a river or stream can be decided depending on geo-morphology

and other factors, it can be 50% to 60% of the area of a particular river/stream, e.g. in Himachal Pradesh mineral constituents like boulders, river born bajari, sand up to a depth of one meter are considered as resource mineral. Other constituents like clay and silt are excluded as waste while calculating the mineral potential of particular river/ stream.

The specific gravity of each mineral constituent is different. While calculating the mineral potential, the average specific gravity is taken as 2.25. The percent of mineral constituent like boulder, river bajari, sand also varies for different river and streams. While calculating the mineral potential the percentage of each mineral constituent is taken as, Boulders 35-40%, Bajari - 30-35%, Sand 25-30% and 5-10% for silt and clay.

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

For illustration one example of Yamuna River in Sirmaour district of Himachal Pradesh is given below:

Portion of the River / Stream Recommended for Mineral Concession	Length of area recommended for mineral concession (in kilometer)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)
From Downstream of confluence with Tons River to Behral near Haryana and Uttar Pradesh border	31	478	14818000	16803612

Note: Considering the density of river bed material to be **1.89 g/cm^3**

Present Status of Mining

This gives the detail of mining leases already in operation in this stretch, area and production in last three years from these leases is calculated.

Mineral Potential is calculated in following way:

Mineral Potential

Boulder (MT)	Bajari (MT)	Sand (MT)	Total Mineable Mineral Potential (MT)
5601204	6801462	4400946	16803612

Annual Deposition

336072	408088	264057	1008217

Recommendation:

From the above it is clear that about 16803612 metric tonnes of mineral is available up to depth of one meter in the river bed of Yamuna in Sirmour district.
The annual deposition is 1008217 MT.
The average annual production is 80000 MT.
So, 16723612 MT of mineral can be safely removed.

In similar manner it should be calculated for each river and stream in the district and compiled in following format:

Sl.No.	River/ Stream	Portion of the river / stream recommended for mineral concession	Length of the recommended area for mineral concession (in kilometer)	Average width of the recommended area for mineral concession (in meters)	Area recommended for mineral concession (in sq.mtrs.)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)
Total for the District						

About the size of the mining leases for the aggregates it should be borne in mind that a river / stream can be divided into two zones, which in-turn is dynamic i.e. the zone of erosion and

zone of deposition. These zones of deposition and erosion are extended in different patches in the river.

Any mining lease granted in larger tract can cover both the zones, and mining activity in zone of erosion can further aggravate the problem of erosion and as such the mining activity can be allowed only in the zone of the deposition. The mining leases of larger areas in rivers are neither in interest of environment nor in the interest of mineral conservation.

In Himalayan states the rivers and wasteland has been mostly classed as forest land and mining on that requires diversion of forest land and payment of compensatory afforestation and NPV etc. The land in river beds in hilly tracts and many small rivers at any one site seldom exceed 5 hectare, so not allowing sand mining leases less than 5 hectare on river beds further aggravates the situation. So the size of mining lease for river sand mining should be determined by the State as per the local situation.

MANAGEMENT PLAN

1. River Bed Mining Recommendations:

a) Permit Mining Volume Based on Measured Annual Replenishment

In the first year following adoption of the management plan, a volume equal to the estimated annual replenishment could be extracted from the reach of channel. Replenishment (up to the elevation of the selected channel configuration) would need to occur before subsequent extraction could take place. The concept of annual replenishment accounts for the episodic nature of sediment transport. For example, during wet periods with high stream flows, and a high contribution of sediment from hill slopes and tributaries, monitoring data would show that sand and gravel bars are replenished quickly. During drought periods with low stream flow, and little sediment supply or transport, monitoring data would likely show that bars were replenished at a slower rate.

The use of monitoring data is essential in measuring when actual replenishment occurs. The use of the concept of annual replenishment protects long-term channel stability as well as aquatic and riparian habitat by extracting a volume sustainable by watershed processes.

b) Establish an Absolute Elevation below Which No Extraction May Occur (Minimum Enveloped Level or Redline).

The absolute elevation below which no mining could occur or "redline" would be surveyed on a site-specific basis in order to avoid impacts to structures such as bridges and to avoid vegetation impacts associated with down-cutting due to excessive removal of sediment. An extraction site can be determined after setting the deposition level at 1 m above natural channel thalweg elevation, as determined by the survey approved by mine plan approving authority.

c) Limit River Bed Extraction Methods to Bar Skimming

If mining is limited to the downstream end of the bar with a riparian buffer on both the channel and hill slope (or floodplain) side, bar skimming would minimise impacts. Other methods such as excavation of trenches or pools in the low flow channel lower the local base level, and maximise upstream (head cutting and incision) and downstream (widening and braiding) impacts. In addition, direct disturbance of the substrate in the low flow channel should be avoided. Trenching on bars may be beneficial in the future if the river becomes severely aggraded, flat, shallow and braided. Trenching of bars may initially impact a smaller area of riparian habitat than skimming - as a result of excavating deeper rather than shallow skimming of a large area. However, over the

long-term, the upstream and downstream effects of a trench on the bar or in the channel may offset any short-term benefit derived from this method.

d) Extract Sand and Gravel from the Downstream Portion of the Bar:

Retaining the upstream one to two thirds of the bar and riparian vegetation while excavating from the downstream one to two third of the bar is accepted as a method to promote channel stability and protect the narrow width of the low flow channel necessary for aquatic life. Sand and gravel would be re-deposited in the excavated downstream one to two thirds of the bar (or downstream of the widest point of the bar) where an eddy would form during sediment transporting flows. In contrast, if excavation occurs on the entire bar after removing existing riparian vegetation, there is a greater potential for widening and braiding of the low flow channel.

e) Concentrate Activities to Minimise Disturbance:

River bed extraction activities should be concentrated or localised to a few bars rather than spread out over many bars. This localisation of extraction will minimise the area of disturbance of upstream and downstream effects. Skimming decreases habitat and species diversity - these effects should not be expanded over a large portion of the area.

f) Review Cumulative Effects of Sand and Gravel Extraction:

The cumulative impact of all mining proposals should be reviewed on an annual basis to determine if cumulative riverine effects or effects to the estuary are likely.

g) Maintain Flood Capacity:

Flood capacity in the river should be maintained in areas where there are significant flood hazards to existing structures or infrastructure.

h) Establish a Long-term Monitoring Program:

Monitoring of changes in bed elevation and channel morphology, and aquatic and riparian habitat upstream and downstream of the extraction would identify any impacts of sand and gravel extraction to biologic resources. Long-term data collected over a period of decades as sand and gravel extraction occurs will provide data to use in determining trends.

i) Minimise Activities That Release Fine Sediment to the River:

No washing, crushing, screening, stockpiling, or plant operations should occur at or below the streams "average high water elevation," or the dominant discharge. These and similar activities have the potential to release fine sediments into the stream, providing habitat conditions harmful to local fish.

j) Retain Vegetation Buffer at Edge of Water and Against River Bank:

Riparian vegetation performs several functions essential to the proper maintenance of geomorphic and biological processes in rivers. It shields river banks and bars from erosion. Additionally, riparian vegetation, including roots and downed trees, serves as cover for fish, provides food source, works as a filter against sediment inputs, and aids in nutrient cycling. More broadly, the riparian zone is necessary to the integrity of the ecosystem providing habitat for invertebrates, birds and other wildlife.

k) The River Bed mining should only be allowed during the dry season.

No River bed mining should be permitted during rainy season (see Appendix 9).

l) An Annual Status and Trends Report:

This report should review permitted extraction quantities in light of results of the monitoring program, or as improved estimates of replenishment become available. The report should document changes in bed elevation, channel morphology, and aquatic and riparian habitat. The report should also include a record of extraction volumes permitted, and excavation location. Finally, recommendations for reclamation, if needed should be documented.

2. Off-Channel or Floodplain Extraction Recommendations

a) Floodplain Extraction should be set back from the Main Channel

In a dynamic alluvial system, it is not uncommon for meanders to migrate across a floodplain. In areas where sand and gravel occurs on floodplains or terraces, there is a potential for the river channel to migrate toward the pit. If the river erodes through the area left between the excavated pit and the river, there is a potential for "river capture," a situation where the low flow channel is diverted though the pit. In order to avoid river capture, excavation pits should set back from the river to provide a buffer, and should be designed to withstand the 100-year flood (100-year ARI). Adequate buffer widths and reduced pit slope gradients are preferred over engineered structures which require maintenance in perpetuity. Hydraulic, geomorphic, and geotechnical studies should be conducted prior to design and construction of the pit and bund. In addition to river capture, extraction pits create the possibility of stranding fish.

b) The maximum depth of Floodplain Extraction should remain above the Channel Thalweg

Floodplain pits should not be excavated below the elevation of the thalweg in the adjacent channel. This will minimise the impacts of potential river capture by limiting the potential for head cutting and the potential of the pit to trap sediment. A shallow excavation (above the water table) would provide a depression that would fill with

water part of the year, and develop seasonal wetland habitat. An excavation below the water table would provide deep water habitat.

c) Side Slopes of Floodplain Excavation Should Range from 3:1 to 10:1

Side slopes of a floodplain pit should be graded to a slope that ranges from 3:1 to 10:1. This will allow for a range of vegetation from wetland to upland. Steep side slopes excavated in floodplain pits on other systems have not been successfully reclaimed, since it is difficult for vegetation to become stabilised. Terrace pits should be designed with a large percentage of edge habitat with a low gradient which will naturally sustain vegetation at a variety of water levels.

d) Place Stockpiled Topsoil above the 25-year Return Period or ARI Level

Stockpiled topsoil can introduce a large supply of fines to the river during a flood event and degrade fish habitat. Storage above the 25-year flood (25-year ARI) inundation level is sufficient to minimise this risk.

e) Floodplain Pits Should Be Restored to Wetland Habitat or Reclaimed for Agriculture

The key to successful restoration or reclamation is to conserve or import adequate material to re-fill the pit, while ensuring that pit margins are graded to allow for development of significant wetland and emergent vegetation.

f) Establish a Long-term Monitoring Program

A long-term monitoring program should provide data illustrating any impacts to river stability, groundwater, fisheries, and riparian vegetation. The monitoring program should assess the success of any reclamation or restoration attempted.

g) An Annual Status and Trends Report

The status and trends report described previously should include a section on the hydrologic and biologic components of floodplain pit reclamation.

3. Extraction Methods

The important methods of sand and gravel mining operations are as below:

a) **Bar scalping or skimming** is extraction of sand and gravel from the surface of bars. This method generally requires that surface irregularities be smoothed out and that the extracted material be limited to what could be taken above an imaginary line sloping upwards and away from the water from a specified level above the river's water surface at the time of extraction (typically 0.3 - 0.6 m (1-2 ft). Bar scalping is commonly repeated year after year. To maintain the hydraulic control provided to upstream by the Riffle head, the preferred method of bar scalping is now generally to leave the top one-third (approximately) of the bar undisturbed, mining only from the downstream two-

thirds.

b) Dry-Pit Channel Mining

Dry-pit channel mines are pits excavated within the active channel on dry intermittent or ephemeral stream beds. Dry pits are often left with abrupt upstream margins, from which head cuts are likely to propagate upstream.

c) Wet-Pit Channel Mining

Wet-pit mining involves excavation of a pit in the active channel below the surface water in a perennial stream or below the alluvial groundwater table.

d) Bar Excavation

A pit is excavated at the downstream end of the bar as a source of aggregate and as a site to trap sand and gravel. Upon completion, the pit may be connected to the channel at its downstream end to provide side channel habitat.

e) Channel-wide River bed Mining

In rivers with a highly variable flow regime, sand and gravel are commonly extracted across the entire active channel during the dry season. The bed is evened out and uniformly (or nearly so) lowered.

4. Reclamation Plans

Reclamation plans should include:

a) A baseline survey consisting of existing condition cross-section data: Cross-sections must be surveyed between two documented endpoints set back from the top of bank, and elevations should be referenced to bench mark;

b) The proposed mining cross-section data should be plotted over the baseline data to illustrate the vertical extent of the proposed excavation;

c) The cross-section of the replenished bar should be the same as the baseline data. This illustrates that the bar elevation after the bar is replenished will be the same as the bar before extraction;

d) A planimetric map showing the aerial extent of the excavation and extent of the riparian buffers;

e) A planting plan developed by a plant ecologist familiar with the flora of the river for any areas such as roads that need to be restored;

f) A monitoring plan: The appropriate reclamation plans can turn river-bed and floodplain sand and gravel mining operations into something perceived by the public as desirable.

MARINE SAND MINING AND IMPACT ON MARINE BIODIVERSITY

The mining of marine aggregates is increasing significantly. Marine sand mining has had an impact on seabed flora and fauna. Dredging and extraction of aggregates from the benthic (sea bottom) zone destroys organisms, habitats and ecosystems and deeply affects the composition of biodiversity, usually leading to a net decline in faunal biomass and abundance or a shift in species composition. Aggregate particles that are too fine to be used are rejected by dredging boats, releasing vast dust plumes and changing water turbidity, resulting in major changes to aquatic and riparian habitats over large areas.

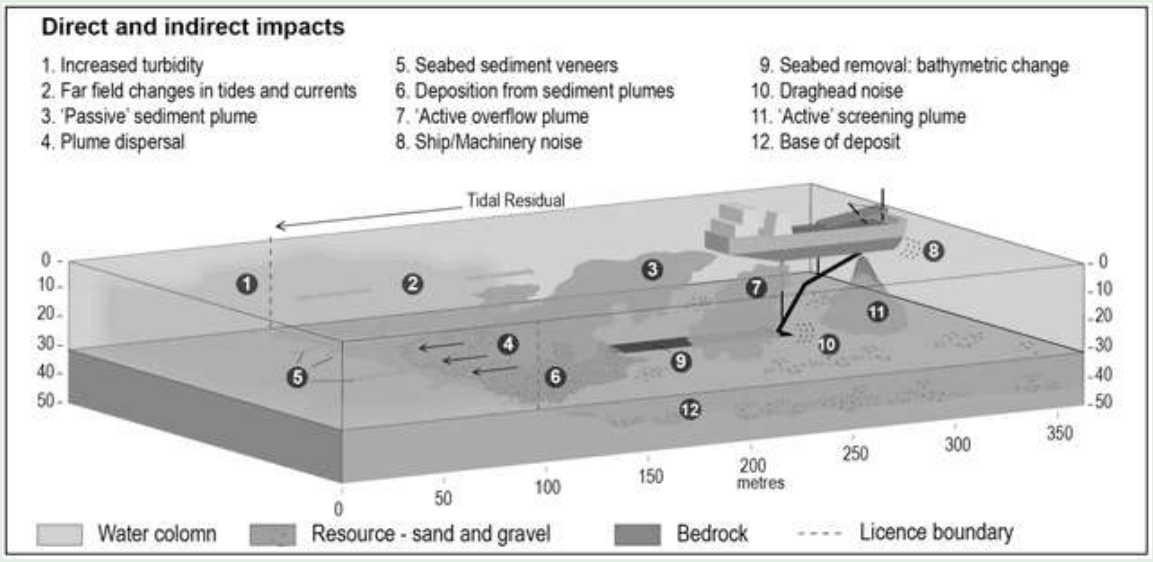

Figure: Direct and indirect consequences of aggregates dredging on the marine environment.

Source: Tillin, H.M., Houghton, A.J., Saunders, J.E., Drabble, R. and Hull, S.C., 2011. Direct and Indirect Impacts of Aggregate Dredging, Marine Aggregate Levy Sustainability Fund (MALSF). Science Monograph Series 1, 1-46.

REDUCING CONSUMPTION OF SAND

Because sand is still very cheap - sand itself is freely accessible; only extraction and transportation costs need to be covered - there is little or no incentive to induce a change in our consumption. Despite the very high value of minerals found in the sand, it is mostly used for concrete or is buried under highways. Recycled building and quarry dust material can be a substitute for sand. Concrete rubble should be recycled to avoid using aggregates, at least for low-quality uses.

Substitutes for sand are available. Quarry dust could be used to replace sand in general concrete structures. The replacement of sand by up to 40% of incinerator ash exhibits higher compressive strength than regular cement mortars. Some desert sand can be used if mixed with other material. There are alternatives for building houses, including wood, straw and recycled material. However, the current building industry is geared toward concrete know-how and equipment.

Training of architects and engineers, new laws and regulations, and positive incentives are needed to initiate a shift for lowering our dependency on sand. Renewable and recycled materials need to be targeted for building houses and roads. Use of Manufactured Sand (M-Sand) also needs to be promoted.

Alternative sources of sand and gravel, which accumulate at the bottom of dams, can also be targeted. Their use would address the problem of these aggregates accumulating which leads to a reduced capacity of dams to store water and could result in the dams' water intakes being blocked. Dams regularly release large amounts of water to flush out aggregates.

The important standard setting bodies in India are taking steps to promote the usage of alternatives to sand and gravel. Bureau of Indian Standards, the National Standards Body of the country, considering the scarcity of sand and coarse aggregates from natural sources, has evolved number of alternatives which are ultimately aimed at conservation of natural resources apart from promoting use of various waste materials without compromising in quality.

These measures include permitting in the Concrete Code (IS 456) as also in the National Building Code of India, the use of slag - a waste from steel industry, fly ash - a waste from thermal power plants, crushed over-burnt bricks and tiles - waste from clay brick and tile industry, in plain cement concrete as an alternative to sand/natural aggregate, subject to fulfilling the requirements of the Code. This Code, further, encourages use of fly ash and ground granulated blast furnace slag as part replacement of ordinary Portland cement in plain as well as reinforced cement concrete.

The Indian Standard on concrete mix design (IS 10262) has been upgraded to include guidance and examples of designing concrete mixes using fly ash and slag. Provisions for compliance for requisite quality of concrete made using fly ash and slag have been duly covered for the manufacturers of ready-mixed concrete in the Indian Standard Code of practice for RMC (IS 4926).

BIS has also formulated an Indian Standard Specification for artificial lightweight aggregates covering manufactured aggregates, such as foamed blast furnace slag, bloated clay aggregate, sintered fly ash aggregate and cinder aggregate (IS 9142).

A series of Indian Standards has also been formulated on various precast concrete products such as solid and hollow concrete blocks, light weight concrete blocks, autoclaved aerated concrete blocks, preformed foam concrete blocks, partial prefabricated concrete flooring and roofing units, concrete pipes, etc, all permitting use of fly ash and slag.

THE REPORT OF THE COMMITTEE HEADED BY SECRETARY, MoEF - 2010

A Committee headed by Secretary, Ministry of Environment and Forest was set up on the subject in 2010. The Committee considered this subject in detail and prepared a report. The important parts of the report are as follows:

Definition of Minor Mineral:

The term 'minor mineral' is defined in clause (e) of Section 3 of MMDR Act, 1957: '3 (e) "minor minerals" means building stones, gravel, ordinary clay, ordinary sand other than sand used for prescribed purposes and any other material which the Central Government may, by Notification in the Gazette of India declare to be a minor mineral;'

The term `ordinary sand' used in clause (e) of Section 3 of the MMDR Act, 1957 has been further clarified in rule 70 of the MCR, 1960 as:

(iv) Purposes of stowing in coal mines,
(v) For manufacture of silvicrete cement,
(vi) Manufacture of sodium silicate and for
(vii) Manufacture of pottery and glass.

Additionally, the Central Government has declared the following minerals as minor minerals:

Sl.No.	Minor Minerals
i)	Boulder
ii)	Shingle
iii)	Chalcedony pebbles used for ball mill purposes only
iv)	Lime shell, kankar and limestone used in kilns for manufacture of lime used as building material
v)	Murrum

Sl.No.	Minor Minerals
vi)	Brick-earth
vii)	Fuller's earth
viii)	Bentonite
ix)	Road metal
x)	Reh-matti

Sl.No.	Minor Minerals
xi)	Slate and shale when used for building material
xii)	Marble
xiii)	Stone used for making household utensils
xiv)	Quartzite and sandstone when used for purposes of building or for making road metal and household utensils
xv)	Saltpetre, and

xvi)	Ordinary earth (Used for filling or leveling purposes in construction or embankments, roads, railways building).

It may thus be observed that minerals have been classified into major and minor minerals based on their end use rather than level of production, level of mechanization, export and import etc. There do exist some minor mineral mines of silica sand and limestone where the scale of mechanization and level of production is much higher than those of industrial mineral mines. Further, in terms of the economic cost and revenue, it has been estimated that the total value of minor minerals constitutes about 10% of the total value of mineral production whereas the value of non- metallic minerals comprises only 3%. It is, therefore, evident that the operations of mines of minor minerals need to be subject to some regulatory parameters as that of mines of major minerals. Further, unlike India there does not exist such system in any other country where minerals are classified as major and minor based on end usage. Thus, there is a need to re-look at the definition of 'minor minerals' per se. It is, therefore, recommended that Ministry of Mines along with Indian Bureau of Mines, in consultation with the State Governments may re-examine the classification of minerals into major and minor categories so that the regulatory aspects and environment mitigation measures are appropriately integrated for ensuring sustainable and scientific mining with least impacts on environment.

Size of the Mine Lease:

Area for grant of mine lease varies from State to State. Maximum area which can be held under one or more mine lease is 2590 ha or 25.90 sq. miles in Jammu and Kashmir. Rajasthan prescribed a minimum limit of 1 ha for a lease. Maximum area prescribed for permit is 50x50 m. In most of the States area of permit is not specified in the rules.

It has recently been observed by Punjab and Haryana High Court in its order dated 15.05.2009 that State Government are apparently granting short term permits by dividing the mining area into small zones in effect to avoids environmental norms. There is, thus a need to bring uniformity in the extent of area to be granted for mine lease so as to ensure that eco- friendly scientific mining practices can be adopted. It is recommended that the minimum size of mine lease should be 5 ha. Further, preparation of comprehensive mine plan for contiguous stretches of mineral deposits by the respective State Governments may also be encouraged. This may suitably be incorporated in the Mineral Concession Rules, 1960 by Ministry of Mines.

Period of Mine Lease:

The period of lease varies from State to State depending on type of concessions, minerals and its end use. The minimum lease period is one year and maximum 30 years. Minerals like granite where huge investments are required, a period of 20 years is generally given with the provisions of renewal. Permits are generally granted for short periods which vary from one month to a maximum one year. In States like Haryana, minor mineral leases are auctioned for a particular time period. Mining is considered to be capital intensive industry and considerable time is lost for developing the mine before it attains the status of fully developed mine. If the tenure of the mine lease is short, it would encourage the lessee to concentrate more on rapid exploitation of mineral without really undertaking adequate measures for reclamation and rehabilitation of mined out area, posing thereby a serious threat to the environment and health of the workers and public at large.

There is thus, a need to bring uniformity in the period of lease. It is recommended that a minimum period of mine lease should be 5 years, so that eco- friendly scientific and sustainable mining practices are adopted. However, under exceptional circumstances arising due to judicial interventions, short term mining leases / contracts could be granted to the State Agencies to meet the situation arising there from.

Cluster of Mine Approach for Small Sized Mines:

Considering the nature of occurrence of minor mineral, economic condition of the lessee and the likely difficulties to be faced by Regulatory Authorities in monitoring the environmental impacts and implementation of necessary mitigation measures, it may be desirable to adopt cluster approach in case of smaller mine leases being operated presently. Further, these clusters need be provided with processing/crusher zones for forward integration and minimizing excessive pressure on road infrastructure. The respective State Governments / Mine Owners Associations may facilitate implementation of Environment Management Plans in such cluster of mines.

Requirement of Mine Plan for Minor Minerals:

At present, most of the State Governments have not made it mandatory for preparation of mining plan in respect of minor minerals. In some States like Rajasthan, eco- friendly mining plans are prepared, which are approved by the State Mining Department. The eco- friendly mining plans so prepared, though conceptually welcome, are observed to be deficient and need to be made comprehensive in a manner as is being done for major minerals. Besides, the aspects of reclamation and rehabilitation of mined out areas, progressive mine closure plan, as in vogue for major minerals could be introduced for minor minerals as well.

It is recommended that provision for preparation and approval of mine plan, as in the case of major minerals may appropriately be provided in the Rules governing the mining of minor minerals by the respective State Governments. These should specifically include the provision for reclamation and rehabilitation of mined out area, progressive mine closure plan and post mine land use.

Creation of Separate Corpus for Reclamation / Rehabilitation of Mines of Minor Minerals:

Mining of minor minerals, in our country, is by and large unorganized sector and is practiced in haphazard and unscientific manner. At times, the size of the leasehold is also too small to address the issue of reclamation and rehabilitation of mined outs areas. It may, therefore, be desirable that before the concept of mine closure plan for minor minerals is adopted, the existing abandoned mines may be reclaimed and rehabilitated with the involvement of the State Government. There is thus, a need to create a separate corpus, which may be utilized for reclamation and rehabilitation of mined out areas. The respective State Governments may work out a suitable mechanism for creation of such corpus on the `polluter pays' principle. An organizational structure may also need to be created for undertaking and monitoring these activities.

Depth of Mining:

Mining of minerals, whether major or minor have a direct bearing on the hydrological regime of the

area. Besides, affecting the availability of water as a resource, it also affects the quality of water through direct run of going into the surface water bodies and infiltration / leaching into groundwater. Further, groundwater withdrawal, dewatering of water from mine pit and diversion of surface water may cause surface and sub- surface hydrologic systems to dry up. An ideal situation would require that quarrying should be restricted to unsaturated zone only above the phreatic water table and should not intersect the groundwater table at any point of time. However, from the point of view of mineral conservation, it may not be desirable to impose blanket ban on mining operation below groundwater table. It is, therefore, recommended that detailed hydro-geological report should be prepared in respect of any mining operation for minor minerals to be undertaken below groundwater table. Based on the findings of the study so undertaken and the comments/ recommendations of Central Ground Water Authority/ State Ground Water Board, a decision regarding restriction on depth of mining for any area should be taken on case to case basis.

Uniform Minor Mineral Concession Rules:

The economic value of the minor minerals excavated in the country is estimated to contribute to about 9% of the total value of the minerals whereas the non- metallic minerals contribute to about 2.8%. Keeping in view the large extent of mining of minor minerals and its significant potential to adversely affect the environment, it is recommended that Model Mineral Concession rules may be framed for minor minerals as well and the minor minerals may be subjected to a simpler regulatory regime, which is, however, similar to major minerals regime.

River Bed Mining:

1. Environment damage being caused by unregulated river bed mining of sand, bajri and boulders is attracting considerable attention including in the courts. The following recommendations are therefore made for the river bed mining.

    (a) In the case of mining leases for riverbed sand mining, specific river stretches should be identified and mining permits/lease should be granted stretch wise, so that the requisite safeguard measures are duly implemented and are effectively monitored by the respective Regulatory Authorities.

    (b) The depth of mining may be restricted to 3m / water level, whichever is less.

    (c) For carrying out mining in proximity to any bridge and / or embankment, appropriate safety zone should be worked out on case to case basis, taking into account the structural parameters, locational aspects, flow rate etc. and no mining should be carried out in the safety zone so worked out.

Conclusion:

Mining of minor minerals, though individually, because of smaller size of mine leases is perceived to have lesser impact as compared to mining of major minerals. However, the activity as a whole is seen to have significant adverse impacts on environment. It is, therefore, necessary that the mining of minor minerals is subjected to simpler but strict regulatory regime and carried out only under an

approved framework of mining plan, which should provide for reclamation and rehabilitation of the mined out areas. Further, while granting mining leases by the respective State Governments "location of any eco-fragile zone (s) within the impact zone of the proposed mining area, the linked Rules/ Notifications governing such zones and the judicial pronouncements, if any, need be duly noted.

The Union Ministry of Mines along with Indian Bureau of Mines and respective State Governments should therefore make necessary provisions in this regard under the Mines and Minerals (Development and Regulation) Act, 1957, Mineral Concession Rules, 1960 and adopt model Guideliness to be followed by all States (emphasis supplied)".

REGIME OF LAW AND ADMINISTRATIVE ORDERS RELATING TO MINING OF MINOR MINERALS

The Entry 54 of List 1 in Schedule VII to the Constitution of India is the entry which empowers the Parliament in respect of 'Regulation of Mines and Minerals Development. Entry 23 of List 2 of the same Schedule, read with Article 246 (3) of the Constitution confers legislative powers on the State Legislature in respect of Regulation of Mines and Mineral Development, but, this power is subject to the provisions of List 1 with respect to the regulation and development under the control of the Union. The Parliament, with the object to amend and consolidate the law relating to the regulation of labour and safety in mines enacted the Mines Act, 1952. Section 2 (JJ) of the Mines Act, 1952 defines "minerals" to mean, all substances which can be obtained from the earth by mining, digging, drilling, dredging, hydraulicing, quarrying or by any other operation and includes mineral oils (which, in turn, include natural gas and petroleum). On 1st June, 1958, the Mines and Minerals (Development and Regulation) Act, 1957 was promulgated. This Act provides, inter alia, for general restrictions on undertaking prospecting and mining operations, the procedure for obtaining prospecting licenses or mining leases in respect of the land in which the minerals vests in the Government, the rule making power for regulating the grant of prospecting licenses and mining leases, special powers of Central Government to undertake prospecting or mining operations in certain cases, and for development of minerals.

The protection of natural environment is one of the fundamental duties of every citizen under Article 51-A of the Constitution of India. Article 48-A of the Constitution, obliged the State to endeavor to protect and improve the environment and to safeguard the forests and wild life of the country. The Environment (Protection) Act and Rules, 1986 were enacted and came into force on 19th November, 1986. The object of this Act is to provide for the protection and improvement of environment and for matters connected therewith. Under provisions of the Act and Rules of 1986, MoEFCC has issued various Notifications regulating the mining of minor minerals, specifically stating the procedures that were required to be complied by persons intending to carry on such mining activity and for the authorities to regulate the same.

Prior to 1994, there was no specific regime in place in relation to mining activity being carried out. The Notification issued by MoEF on 27th January, 1994, in exercise of the powers vested in it under Sub-Rule 3 of Rule 5 of the Rules of 1986 and Sub Section (1) and Clause (v) of Sub-Section (2) of Section 3 of the Act of 1986, prescribed the requirement and procedure for seeking Environmental Clearance for the projects listed in Schedule I. Schedule I of this Notification did not list mining projects of minor minerals. On the contrary, the projects covered under S. No. 20 of Schedule I of this Notification were only "mining projects (major mineral) with leases more than 5 hectares".

It provided for the constitution of Expert Committees and preparation of Environmental Impact Assessment Report which was to be evaluated and assessed by the Impact Assessment Agency. In exercise of its statutory powers afore-indicated, the Central Government on 14th September, 2006,

issued a Notification, i.e., 'Environment Impact Assessment Notification, 2006'. In terms of this Notification, the projects as stated in the Schedule to this Notification required prior Environmental Clearance as per the procedure. The projects have been categorised into two kinds, i.e., Category 'A' and Category 'B' under Clause 2 of the Notification. Projects under Category 'A' were required to take prior Environmental Clearance by MoEFCC. For Category 'B' projects, Environmental Clearance was to be given by State Environment Impact Assessment Authority (SEIAA).

The mining of minerals (both major and minor) were brought under the ambit of the EIA Notification, 2006. The mine lease area of more than equal to 50 ha was Category 'A' and mine lease area less than 50 ha and more than equal to 5 ha was category 'B' project. Mine lease area of less than 5 ha (both major and minor) was kept out of EIA Notification purview.

The Notification of 2006 came to be amended by Notification dated 1st December, 2009. It included the category of non-coal mine and coal mine lease and provided that non-coal mine lease of area more than equal to 5 ha and less than 50 ha will be category 'B' and mine lease area more than equal to 50 ha will be category 'A'. Similarly, mine lease area of more than equal to 5 ha and less than 150 ha for coal mine lease will be category 'B' and mine lease area of coal mine more than 150 ha will be category 'A'. Here again mining lease area of less than 5 ha (both coal and non-coal mine) was kept out of EIA Notification purview.

The Hon'ble Supreme Court, vide its order dated 27.2.2012 in I.A. No.12-13 of 2011 in SLP (C) No.19628-19629 of 2009 titled Deepak Kumar etc. v/s State of Haryana & Ors. has inter alia ordered *"We, in the meanwhile, order that leases of minor mineral including their renewal for an area of less than five hectares be granted by the States/Union Territories only after getting environmental clearance from the MoEF."*

Hon'ble Apex Court in Deepak Kumar's case (supra) extensively examined the environmental concerns, in the context of mining of minor minerals, considering its impact on the environment. The Apex Court observed that Extraction of alluvial material from within or near a streambed has a direct impact on the stream's physical habitat characteristics. These characteristics include bed elevation, substrate composition and stability, in-stream roughness elements, depth, velocity, turbidity, sediment transport, stream discharge and temperature. Altering these habitat characteristics can have deleterious impacts on both in-stream biota and the associated riparian habitat. The demand for sand continues to increase day by day as building and construction of new infrastructures and expansion of existing ones is continuous thereby placing immense pressure on the supply of the sand resource and hence mining activities are going on legally and illegally without any restrictions. Lack of proper planning and sand management cause disturbance of marine ecosystem and also upset the ability of natural marine processes to replenish the sand. Quarrying, mining and removal of sand from in-stream and upstream of several rivers, which may have serious environmental impact on ephemeral, seasonal and perennial rivers and river beds and sand extraction may have an adverse effect on bio-diversity as well. Further it may also lead to bed degradation and sedimentation having a negative effect on the aquatic life.

Apex Court observed that without conducting any study on the possible environmental impact on/

in the river beds and else- where the auction notices have been issued. Hon'ble Apex Court observed that "We are of the considered view that when we are faced with a situation where extraction of alluvial material within or near a river bed has an impact on the rivers physical habitat characteristics, like river stability, flood risk, environmental degradation, loss of habitat, decline in biodiversity, it is not an answer to say that the extraction is in blocks of less than 5 hectares, separated by 1 kilo meter, because their collective impact may be significant, hence the necessity of a proper environmental assessment plan".

In order to ensure compliance of the aforesaid order of the Hon'ble Supreme Court, MoEF issued an OM No.L-11011/47/2011-IA.II(M) dated 18.05.2012 stating inter alia that all mining projects of minor minerals including their renewal, irrespective of the size of the lease would henceforth require prior EC and that the projects of minor minerals with lease area less than 5 ha would be treated as Category "B" as defined in EIA Notification, 2006 and will be considered by the respective State Environment Impact Assessment Authorities (SEIAAs) notified by MoEF and following the procedure prescribed under the EIA Notification, 2006.

On 24th June, 2013, MoEF issued another Office Memorandum stating Guideliness for consideration of proposals for grant of Environmental Clearance under the Notification of 2006 for mining of 'brick earth' and 'ordinary earth' having lease area of less than 5 hectares. Referring to the judgment of the Hon'ble Supreme Court in the case of Deepak Kumar (supra) and its Office Memorandum dated 18th May, 2012, it further considered that the 'brick kiln' manufactures had stated that it was a small scale activity requiring that certain depth should be kept outside the purview of Environmental Clearance. Having considered various aspects, examining the recommendations of the Expert Committee, constituted by MoEF, finally it was directed as follows:

"(a) The activities of borrowing / excavation of 'brick earth' and ordinary earth', upto an area of less than 5 ha, may be categorized under 'B2' Category subject to the following Guideliness in terms of the provisions under '7.I Stage(1)-Screening' of EIA Notification, 2006:

(i) The activity associated with borrowing/excavation of 'brick earth' and 'ordinary earth' for purpose of brick manufacturing, construction of roads, embankments etc. shall not involve blasting.

(ii) The borrowing/excavation activity shall be restricted to a maximum depth of 2 m below general ground level at the site.

(iii) The borrowing/excavation activity shall be restricted to 2 m above the ground water table at the site.

(iv) The borrowing/excavation activity shall not alter the natural drainage pattern of the area.

(v) The borrowed/excavated pit shall be restored by the project proponent for useful purpose(s).

(vi) Appropriate fencing all around the borrowed/excavated pit shall be made to prevent any mishap.

(vii) Measures shall be taken to prevent dust emission by covering of borrowed/excavated earth during transportation.

(viii) Safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to borrowing/excavation of earth.

(ix) Workers / labourers shall be provided with facilities for drinking water and sanitation.

(x) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.

(xi) A minimum distance of 15 m from any civil structure shall be kept from the periphery of any excavation area.

2. (a) The concerned SEIAA while considering granting environmental clearance for such activity for brick earth / ordinary earth will prescribe the Guideliness as stated at (i) to (xi) above and specify that the clearance so granted shall be liable to be cancelled in case of any violation of above Guideliness.

(b) Notwithstanding what has been stated at (a) above, the following will apply:

(i) No borrowing of earth / excavation of 'brick earth' or 'ordinary earth' shall be permitted in case the area of borrowing/ excavation is within 1 km of boundary of national parks and wild life sanctuaries.

(ii) In case the area of borrowing / excavation is likely to result into a cluster situation i.e. if the periphery of one borrow area is less than 500 m from the periphery of another borrow area and the total borrow area equals or exceeds 5 ha, the activity shall become Category 'B 1' Project under the EIA Notification, 2006. In such a case, mining operations in any of the borrow areas in the cluster will be allowed only if the environmental clearance has been obtained in respect of the cluster. This issues with the approval of the Competent Authority."

These directions which were specific only to 'brick earth' and 'ordinary earth' activities for areas less than 5 hectares, as decided to be categorised as 'B 2' Category projects, subject to the restrictions stated in the memorandum, provided that if the cluster area exceeded 5 hectares, then it would become Category 'B 1' and would not be treated as Category 'B 2' projects. The above Office Memorandum was not dealing with the issues of sand mining or any other minor mineral activity except 'brick earth' and 'ordinary earth'. Further, MoEF has issued an amendment to EIA Notification vide Notification S.O. 2731 (E) dated 9th September 2013 and amended the EIA Notification, 2006 for item 1 (a) as follows:

(1)	(2)	(3)	(4)	(5)
"1(a)	(i) Mining of minerals.	≥ 50 ha of mining lease area in respect of non-coal mine lease	<50 ha of mining lease area in respect of minor minerals mine lease ; and < 50 ha ≥5 ha of mining lease area in respect of other non-coal mine lease.	General Conditions shall apply except for project or activity of less than 5 ha of mining lease area for minor minerals: Provided that the above exception shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded environment clearance and are located within 500 metres from the periphery of such project or activity equals or exceeds 5 ha.
		>150 ha of mining lease area in respect of coal mine lease.	≤ 150 ha ≥ 5 ha of mining lease area in respect of coal mine lease.	(i) Prior environmental clearance is required at the stage of renewal of mine lease for which an application shall be made up to two years prior to the date due for renewal. Further, a period of two years with effect from the 4th April, 2011 is provided for obtaining environmental clearance for all those mine leases, which were operating as

(1)	(2)	(3)	(4)	(5)
				on the 4th April, 2011 with requisite valid environmental clearance and which have fallen due for renewal on or after the 4th November, 2011: Provided that no fresh environmental clearance shall be required for a mining project or activity at the time of renewal of mining lease, which has already obtained environmental clearance under this notification.
	(ii) Slurry pipelines (coal lignite and other ores) passing through national parks or sanctuaries or coral reefs, ecologically sensitive areas.	All projects.		(ii) Mineral prospecting is exempted.

In this Notification a new category of minor mineral was introduced and it was provided that mining lease area of minor mineral less than 50 ha will be category 'B' and will require EC. Accordingly the minor mineral mining projects having less than 5 hectare of lease area are required to be appraised by the SEIAA/SEAC of respective State for granting environment clearance. It was provided that the project or activity of less than 5 ha of mining lease area for minor minerals will be exempt from the General Conditions. Simultaneously the concept of cluster was introduced and it was provided that the exemption of applicability of General Conditions shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded EC and are located within 500 m from the periphery of such project or activity equal or exceeds 5 ha.

The Ministry, on 24th December, 2013, issued another Office Memorandum for consideration of proposals for grant of Environmental Clearance regarding categorisation of Category 'B' projects into Category 'B (1)' and 'B (2)'. Mining of minor minerals had been separately dealt with in this Office Memorandum. This Office Memorandum stated that no river sand mining project with mining lease area of less than 5 hectares may be considered for grant of Environmental Clearance. Such area up to 25 hectares would be categorised as 'B (2)' and such projects were to be considered, subject to the stipulations stated therein. This Office Memorandum stated that no Environmental Clearance would be granted for extraction of minor minerals from any riverbed where the area is less than 5 hectares. Sand mining, in area other than riverbeds, would be permitted, only if the Project Proponent takes Environmental Clearance.

The Ministry vide Notification No. S.O. 1599 (E) dated 25.06.2014 reduced the area of 10 kilo meter to 5 kilo meters for applicability of General Conditions increasing the delegation to States by taking out projects located in 5 to 10 kilo meter of interstate boundary, CEPI, and, PAs from category 'A'.

The anomaly created by the Notification dated 09.09.2013 was corrected vide Notification No. S.O. 2601 (E) dated 7th October 2014, and category of minor mineral was deleted and mining leases were again classed as non-coal mine and coal mine and mining lease area of less than 50 ha was made category 'B' for non-coal mine and mine lease area of less than equal to 150 ha for coal mine was made category 'B'. The mine lease area of less than 5 ha was exempt from the applicability of General Conditions and cluster concept of Notification dated 09.09.2013 was retained.

Notification S.O. 2601 (E) dated 7th October 2014 provides as follows:

(1)	(2)	(3)	(4)	(5)
"1(a)	(i) Mining of minerals.	≥ 50 ha of mining lease area in respect of non-coal mine lease. >150 ha of mining lease area in respect of coal mine lease. Asbestos mining irrespective of mining area.	<50 ha of mining lease area in respect of non-coal mine lease. ≤ 150 ha of mining lease area in respect of coal mine lease.	General Conditions shall apply except for project or activity of less than 5 ha of mining lease area: Provided that the above exception shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded environment clearance and are located within 500 metres from the periphery of such project or activity equals or exceeds 5 ha. Note: (i) Prior environmental clearance is required at the stage of renewal of mine lease for which an application shall be made up to two years prior to the date due for renewal. Provided that no fresh environmental clearance shall be required for a mining project or activity at the time of renewal of mining lease, which has already obtained environmental clearance under this notification. (ii) Mineral prospecting is exempted. "
	(ii) Slurry pipelines (coal lignite and other ores) passing through national parks or sanctuaries or coral reefs, ecologically sensitive areas	All projects.		

The NGT vide order dated 13.01.2015 (O.A. No. 123 of 2014 and M.A. No. 419 of 2014) has declared the Notification dated 09.09.2013 as invalid, inoperative and quashed it. The above order has also quashed the paragraph 4 (b) (i) of O.M. dated 24th June 2013 which provided that "No borrowing of earth / excavation of 'brick earth' or 'ordinary earth' shall be permitted in case the area of borrowing / excavation is within 1 km of boundary of national parks and wild life sanctuary." Though this provision was taken from the observation of Hon'ble Supreme Court in W.P. No. 435 of 2012 (Goa Foundation Vs. Union of India) and order dated 04.08.2006 of Supreme Court in *T.N. Godavarman Thirumulpad v. Union of India & Ors.* Supreme Court has taken a view that 1 km. from the boundaries of National Parks and Sanctuaries would be a safety zone, subject to the orders that may be made in IA No.1000 regarding Jamua Ramgarh Sanctuary and the State will not grant any Temporary Working Permit (TWP) in these safety zones comprising 1 km. from the boundaries of National Parks and Sanctuaries.

Similarly the proviso at paragraph 2 (iii) of O.M. dated 24.12.2013 which says that "No river sand mining project, with mine lease area less than 5 ha, may be considered for granting EC" has been quashed. This condition was taken from the recommendations of the Committee headed by the Secretary, MoEF constituted in 2010. The above proviso were quashed on the ground that as EIA Notification places no such restriction, so same cannot be imposed by an executive order and many hill States find it very difficult to get an area equal to or more than 5 ha. in riverbed. The information made available by the States also makes it clear that majority of the mining leases of sand are of area less than 5 hectares.

THE ISSUES AND MANAGEMENT OF MINING IN CLUSTER

In I.A. No. 12-13 of 2011 in SLP Nos. 729-731 / 2011, 21833 / 2009, 12498-499 / 2010, SLP (C) CC … 16157 / 2011 & CC 18235 / 2011 (Deepak Kumar and Ors. Vs. State of Haryana and Ors. etc.) Hon'ble Supreme Court in its order dated 27.02.2012 on the subject of cluster has quoted the submission of affidavit dated 23.11.2011 of MOEFCC. It says that "The Ministry is of the opinion that where the mining area is homogeneous, physically proximate and on identifiable piece of land of 5 ha. or more, it should not be broken into smaller sizes to circumvent the EIA Notification, 2006 as the EIA Notification, 2006 is not applicable to the mining projects having lease area of less than 5 ha. The Report of Committee on Minor Minerals, under the Chairmanship of Secretary (E&F) with representatives of various state governments as members including the State of Haryana and Rajasthan recommended a minimum lease size of 5 ha for minor minerals for undertaking scientific mining for the purpose of integrating and addressing environmental concerns. Only in cases of isolated discontinued mineral deposits in less than 5 ha, such mining leases may be considered keeping in view the mineral conservation".

The order further quotes that "Cluster of Mine Approach for Small Sized Mines: Considering the nature of occurrence of minor mineral, economic condition of the lessee and the likely difficulties to be faced by Regulatory Authorities in monitoring the environmental impacts and implementation of necessary mitigation measures, it may be desirable to adopt cluster approach in case of smaller mine leases being operated presently. Further these clusters need be provided with processing / crusher zones for forward integration and minimizing excessive pressure on road infrastructure. The respective State Governments / Mine Owners Association may facilitate implementation of Environment Management Plans in such cluster of mines." The order has further quoted the letter dated 1.06.2010 written by the then Minister of Environment, Forest and Climate Change which says on the subject that "A cluster approach to mines should be taken in case of smaller mines leases operating currently". The Hon'ble Court has ordered that "The State of Haryana and various other States have not so far implemented the above recommendations of the MoEF or the Guideliness issued by the Ministry of Mines before issuing auction notices granting short term permits by way of auction of minor mineral boulders gravel, sand etc., in the river beds and elsewhere of less than 5 hectares. We therefore, direct to all the States, Union Territories, MoEF and the Ministry of Mines to give effect to the recommendations made by MoEF in its report of March 2010 and the model Guideliness framed by the Ministry of Mines, within a period of six months from today and submit their compliance reports."

"We in the meanwhile, order that leases of minor mineral including their renewal for an area of less than five hectares be granted by the States/ Union Territories only after getting environmental clearance from the MoEF."

The Ministry vide O.M. No. L-11011/47/2011-IA.II (M) dated 18th May 2012 said that "In order to ensure compliance of the above referred order of the Hon'ble Supreme Court dated 27.02.2012, it has now been decided that all mining projects of minor minerals including their renewal, irrespective of the size of the lease would henceforth require prior environment clearance. Mining projects with lease area up to less than 50 ha including projects of minor mineral with lease area less than 5 ha would be treated as Category 'B' as defined in EIA Notification, 2006 and will be considered by the respective SEIAAs notified by MoEF and following the procedure prescribed under EIA Notification, 2006."

On the issue of cluster, the Notifications No. S.O. 2731 (E) dated 09.09.2013 and Notification No. S.O. No. 2601 (E) of 07.10.2014 were issued.

The above Notifications in Schedule at Item No. 1 (a) in Conditions mentions that "General Conditions shall apply except for projects or activity of less than 5 ha of mining lease area:

Provided that the above exception shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded environment clearance and are located within 500 meters from the periphery of such projects or activity equals or exceeds 5 ha. The Office Memorandum No. J-13012/12/2013-IA-II (1) dated 24.12.2013 is about Guideliness for consideration of proposals for grant of environment clearance under Environment Impact Assessment Notification 2006 and its amendments - regarding categorization of Category 'B' projects/ activities into Category 'B1' & 'B2'.

The above O.M. besides categorizing the Category B into Category B1 & B2 also has directions on mining of brick earth / ordinary earth and river sand mining. These provisions are as follows:

"Mining of minor minerals:

As of now, mining projects of minor minerals with less than 50 hectare of mining lease areas are categorized as Category 'B' as per Notification S.O. 2731 (E) dated 9th September 2013. Also vide O.M. No. L-11011/47/2011-IA-II (M) dated 24.06.2013, Guideliness has been issued regarding categorization of mining projects of brick earth and ordinary earth having lease areas less than 5 hectare as Category 'B2' subject to stipulations stated therein.

In the above backdrop, the projects of mining of minor minerals, categorized as Category 'B' are hereby categorized as 'B2' as per the following:

(i) 'Brick Earth' / 'Ordinary Earth' mining projects having lease area less than 5 ha will be considered for granting EC as per the aforesaid Guideliness issued by MOEF on 24.06.2013.

(ii) 'Brick Earth' / 'Ordinary Earth' mining projects with mining lease area more than equal to 5 ha but less than equal to 25 ha and all other minor , mineral mining projects with mining lease area < 25 ha, except for river sand mining projects will be appraised as Category 'B2' projects.

These projects will be appraised based on the following documents:

(a) Form-1 as per the Appendix-I under the EIA Notification 2006

(b) Pre-feasibility report of the project

(c) Mining plan approved by the authorized agency of the concerned State Government.

Provided in case the mining lease area is likely to result into a cluster situation, i.e. if the periphery of one lease area is less than 500 meter from the periphery of another lease area and the total lease area equals or exceeds 25 ha, the activity shall become Category 'B1' Project under the EIA

Notification, 2006. In such a case, mining operations in any of the mine lease areas in the cluster will be allowed only if the environmental clearance has been obtained in respect of the cluster.

About river sand mining it says that:

(iii) No river sand mining project, with mine lease area less than 5 ha, may be considered for granting EC. The river sand mining projects with lease area more than equal to 5 ha but less than 25 ha will be categorized as 'B2'. In addition to the requirement of documents, as brought out above under sub-para (ii) above for appraisal, such projects will be considered subject to the following stipulations:

(a) The mining activity shall be done manually. The depth of mining shall be restricted to 3 m / water level, whichever is less.

(b) For carrying out mining in proximity to any bridge and / or embankment, appropriate safety zone shall be worked out on case to case basis to the satisfaction of SEAC / SEIAA, taking into account the structural parameters, locational aspects, flow rate etc., and no mining shall be carried out in the safety zone so worked out. No in-stream mining shall be allowed.

(c) The mining plan approved by the authorized agency of the State Government shall inter-alia include study to show that the annual replenishment of sand in the mining lease area is sufficient to sustain mining operations at levels prescribed in the mining plan and that the transport infrastructure is adequate to transport the mines material. In case of transportation by road the transport vehicles will be covered with the tarpaulin to minimize dust/ sand particle emissions.

(d) EC will be valid for mine lease period subject to a ceiling of 5 years.

Provided, in case the mining lease area is likely to result into a cluster situation i.e. if the periphery of one lease area is less than 1 km from the periphery of another lease area and total lease area equals to or exceeds 25 ha., the activity shall become Category 'B1' Projects under EIA Notification, 2006. In such a case, mining operation in any of the mine lease area in the cluster will be allowed only if the environment clearance has been obtained in respect of the cluster.

The NGT order dated 13.01.2015 in O.A. No. 123 of 2014 and M.A. No. 419 of 2014 has following directions on the issue of cluster: "In light of the judgment of the Supreme Court and what has emerged from the various cases that are subject matter of this Judgment, we direct the Ministry of Environment and Forest to formulate a uniform cluster policy in consultation with the States for permitting minor mineral mining activity including its regulatory regime, in accordance with law.

Notification S.O. 1559 (E) dated 25th June 2014 provides that "Any project or activity specified in Category 'B' will be appraised at the Central Level as Category 'A', if located in whole or in part within 5 km. from the boundary of: (i) Protected Areas; (ii) CEPI; (iii) ESA; (iv) Inter-state boundaries or international boundaries ……".

The NGT vide its order dated 13.01.2015 has quashed the Notification dated 9th September 2013, but similar provision on clusters exists in Notification dated 7th October 2014.

The EIA Notification 2006, as amended makes it clear that projects in respect of non-coal mine leases, where the area is more than equal to 50 hectares would require prior Environmental Clearance from MoEFCC, while the projects of area less than 50 hectares would be appraised for prior Environmental Clearance at the level of SEIAA.

The EIA Notification of 2006 in Clause 7 specifies the stages through which projects for grant of Environmental Clearance are required to be passed and processed. The stages include Screening, Scoping, Public Consultation and Appraisal, upon which, the Expert Appraisal Committee makes recommendation to the MoEF/SEIAA. Under 'Screening', this Clause 7 also provides for a further bifurcation of projects falling under category 'B' into 'B 1' and 'B 2'. The relevant part of Clause 7, dealing with this aspect, reads as under: "Stage (1) - Screening (Only for Category 'B' projects and activities): In case of Category 'B' projects or activities, this stage will entail the scrutiny of an application seeking prior environmental clearance made in Form 1 by the concerned State level Expert Appraisal Committee (SEAC) for determining whether or not the project or activity requires further environmental studies for preparation of an Environmental Impact Assessment (EIA) for its appraisal prior to the grant of environmental clearance depending up on the nature and location specificity of the project . The projects requiring an Environmental Impact Assessment report shall be termed Category 'B1' and remaining projects shall be termed Category 'B2' and will not require an Environment Impact Assessment report. For categorization of projects into B1 or B2 except item 8 (b), the Ministry of Environment and Forests shall issue appropriate Guideliness from time to time."

The Ministry on 24th December, 2013, issued Office Memorandum for consideration of proposals for grant of Environmental Clearance regarding categorisation of Category 'B' projects into Category 'B1' and 'B2'. Mining of minor minerals had been separately dealt with in this Office Memorandum. Such area up to 25 hectares would be categorised as 'B 2' and such projects were to be considered, subject to the stipulations stated therein.

The EIA Notification, 2006 does not provide for issuance of Environment Clearance to Cluster of mines. It provides for EC to individual lease holders / project proponents. This position has also been upheld by the Hon'ble Supreme Court in its judgment of Vivek Bansal Vs. State of Haryana that EC should be applied for and granted to the individual lease holder.

There has been rising concerns about adverse impact of mining on small leases (less than 5 hectare) in case the numbers of such leases are large and they are located in close proximity to each other. This leads to the definition of Cluster. To avoid the rigors of environment impact assessment studies, environment management plan and the environment clearance there has been a tendency to break the leases into size which does not attract the provisions of environment impact assessment studies, environment management plan, public consultation and the environment clearance. In Deepak Kumar's case Hon'ble Supreme Court also encountered this situation and in its order dated 27.02.2012 mandated that no mining lease or renewal be done without environment clearance irrespective of size.

It is seen that the categorization of mines into 'B1' and 'B2' category in which Category 'B2' leases are being exempted from the requirement of Environment Impact Assessment, Environment Management Plan, and Public Consultation for grant of EC, in many cases now the mining leases are being given for 25 hectares or less. This defeats the purpose and intent of Hon'ble Supreme Court Judgment which orders environment clearance for all mining leases irrespective of size. The environment clearance without Environment Impact Assessment, Environment Management Plan, and Public Consultation does not serve the purpose of environment clearance which is to ensure environmentally sustainable and socially responsible mining. So if a cluster or individual lease size exceeds 5 hectare, the EIA/ EMP should be completed in the process of grant of prior environment clearance.

The EIA Notification, 2006 and subsequent amendments to that or any O.M. issued by the Ministry do not provide for procedures and Competent Authority for environment clearance for cluster. In a cluster there will mostly be situation where there are a number of different lease holders and as per the settled law the lease holder has to do the working of mine and the lease holder is the one who can apply for and get the environment clearance. The conditions stipulated in the environment clearance have to be complied by the EC holder and any violation of that empowers the authority to cancel the environment clearance or prosecute the EC holder if necessitated by the circumstances.

For cluster there is no mechanism about who will apply for EC, EC will be issued in whose name, and who will be responsible for compliance of EC conditions.

The intent of cluster assessment is to have a holistic knowledge of the impact on environment by different mines operating in close proximity of each other. There are also requirement of mitigative measures which need implementation in concerted manner by different EC holders of that cluster. To ensure that it is important that there should be an integrated Environment Impact Assessment /

Environment Management Plan for the cluster to be presented before the authority appraising the projects and considering the proposals for grant of EC. This integrated EIA/ EMP can be prepared by either the lease holder, group of lease holders, State or the State Agencies. This EIA/ EMP need to be prepared by the accredited consultants / Registered Qualified Persons of the State Governments. The application for EC and grant of EC should be done in the name of individual lease holders in the background of the integrated EIA/EMP report. The Competent Authority (SEIAA/ SEAC / EAC) will entertain individual lease holder's application for grant of EC to individual mining lease projects in that cluster in the name of lease holders. The conditions related to mitigative measures necessitated by the integrated EIA/EMP may run across more than one lease holder or EC holders, that should figure in each EC accordingly and its compliance be ensured by the individual EC holders.

The Hon'ble Supreme Court, NGT, SEAC/EAC and the Project Proponents have raised issue of cluster in mine lease allotment and environment clearance for the same, so following conditions need to be ensured for cluster of mines:

1. To address the concern of adverse impact of minor mineral mining on environment it is proposed that all mining activity including river sand mining (above 5 hectare individual or cluster) will need to prepare Environment Impact Assessment Report and Environment Management Plan before grant of environment clearance. These reports (EIA /EMP) can be prepared by the State or State nominated Agency / the Project Proponent (s).
2. As can be seen from the data provided by the States most of the mining leases for minor minerals are of lease area less than 5 hectare. It is also reported that in hill states getting a stretch in river with area more than 5 hectare is very uncommon. So the size of lease for minor minerals including river sand mining will be determined by the States as per their circumstances.
3. The EIA Notification, 2006 does not provide for cluster EC, it provides for issuance of EC to individual project proponents and the same has also been upheld in the judgment of Hon'ble Supreme Court in Vijay Bansal vs. State of Haryana case. So EC will have to be applied for and issued to the individual project proponent.
4. A cluster shall be formed when the distance between the peripheries of one lease is less than 500 meters from the periphery of other lease in a homogeneous mineral area.
5. The mining of minor minerals is mostly in clusters. The Environment Impact Assessment or Environment Management Plan are required to be prepared for the entire cluster in order to capture all the possible externalities. These reports shall capture carrying capacity of the cluster, transportation and related issues, replenishment and recharge issues, geo-hydrological study of the cluster area. The Environment Impact Assessment or Environment Management Plan shall be prepared by the State or State nominated Agency or group of project proponents

in the Cluster or the project proponent in the cluster.

6. The individual lease holders in cluster can use the same Environment Impact Assessment or Environment Management Plan for application for environmental clearance. The cluster Environment Impact Assessment or Environment Management Plan shall be updated as per need keeping in view any significant change.

7. There shall be one public consultation for entire cluster after which the final Environment Impact Assessment or Environment Management Plan report for the cluster shall be prepared.

8. The details of cluster Environment Impact Assessment or Environment Management Plan shall be reflected in each environmental clearance in that cluster and District Expert Appraisal Committee (DEAC), SEAC, and EAC shall ensure that the mitigative measures emanating from the Environment Impact Assessment or Environment Management Plan study are fully reflected as environmental clearance conditions in the environmental clearance's of individual project proponents in that cluster.

9. As the sand is mostly mined from rivers and majority of the rivers which are important source of sand also form boundary between States, so because of General Conditions most of the sand mining projects become Category 'A' project. So the General Conditions will not apply in case of river sand and gravel mining projects on account of being in 5 kilometer of inter-state boundary.

10. The Committee headed by the District Magistrate or District Collector will be empowered to appraise and grant EC for mining leases up to 5 ha in case of individual lease and up to 25ha in case of cluster for sand mining.

11. In case the mining leases are in cluster (if periphery of one lease is within 500 meters), fowling are the categorization of projects:-

- Category 'B2'Project: Cluster area of mine leases up to 5 ha and to be dealt at DEIAA/ DEAC level
- Category 'B2'Project: Cluster area of Mine leases > 5 ha and < 25 ha with no individual lease > 5 ha and to be dealt at DEIAA/DEAC level
- Category 'B1'Project: Cluster of mine leases of area > 25 hectares with individual lease size < 50ha and to be dealt at SEIAA/SEAC level
- Category 'A' Project: Cluster of any size with any of the individual lease >50ha and to be dealt at MoEFCC/EAC level

The schematic presentation of requirements on Environmental Clearance of Sand Mining including cluster situation is detailed as below:-

Area of Lease (Hectare)	Category of Project	Require-ment of EIA / EMP	Require-ment of Public Hearing	Require-ment of EC	Who can prepare EIA/ EMP	Who will apply for EC	Authority to appraise/ grant EC	Authority to monitor EC compliance
EC Proposal of Sand Mining in cluster situation								
Cluster area of mine leases up to 5 ha	**'B2'**	Form-1M, PFR and Approved Mine Plan	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC
Cluster area of Mine leases > 5 ha and < 25 ha with no individual lease > 5 ha	**'B2'**	Form-I, PFR and Approved Mine Plan and one EMP for all leases in the Cluster	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	
Cluster of mine leases of area > 25 hectares with individual lease size < 50ha	**'B1'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	SEAC/ SEIAA	

Cluster of any size with any of the individual lease > 50ha	**'A'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	EAC/ MoEFCC	

MANAGEMENT OF SAND DEPOSITED AFTER FLOOD ON AGRICULTURAL FIELD OF FARMERS

The Standing Committee on Water Resources on issues, concerning flood management, compensation, and status of ownership of submerged and eroded land in the country including compensation to farmers for loss of their crops destroyed by floods and right to disposal of the sand left in the fields of farmers in its meeting held on 29.04.2015 made observations on this subject.

The Committee observed that pursuant to Hon'ble Supreme Court of India decision in "Deepak Kumar Case" in 2012, regulations were framed by the Ministry of Mines to guide environmental clearance of minor minerals. … The Committee, therefore, desires the Ministry of Water Resources, River Development and Ganga Rejuvenation to work in close coordination with the Ministry of Mines and Environment, Forest and Climate Change to frame regulations / Guideliness in this regard expeditiously.

Mining of Sand

The Committee further observed that due to the floods, the agricultural land of farmer is destroyed and rendered infertile. Further the farmer loses his livelihood as the produce of his land is destroyed by flood and become unsalable. The farmer is also deprived of the right of lifting sand from his land. He is therefore, left helpless and destitute and leave their land in search of job.

The Committee observes that "mining operation" means any operation undertaken for the purpose of winning any mineral. Accordingly, if desilting is undertaken perse with the objective of winning a mineral then only it will be construed as a mining operation. Apparently, if the desilting is undertaken not for winning any mineral, it will not be construed as mining operation and therefore, the farmer can remove the sand from the land without requiring the requisite permits. However, the Committee strongly feels that the farmer be given the right to use and dispose-off the sand accumulated over their land post flood, by incorporating the necessary provisions in the Mines and Mineral (Development and Regulation) Act, 1957".

Removal of sand from the agricultural field by the owner farmer of the land from environment point of view will not be considered as mining operation and its removal and disposal can be allowed without the requirement of environment clearance till it is done only to the extent of reclaiming the agricultural land. The sand deposited after flood only be removed, so no mining / digging below the ground level is allowed. For removing sand in case where private land has gone into the river due to erosion, the requirement of mining lease and environment clearance will continue. This operation

of removal of sand deposited on agricultural field should be done after a mapping of deposition is done by the Land Management Committee of the Gram Panchayat. The sand so deposited post flood can be removed by the farmer owning the land / group of farmers affected by this post flood sand deposition or the Gram Panchayat. Customary rights to remove and dispose off the sand should be given to the farmer affected by deposition of sand on account of sudden flood in his agricultural land.

MINING OF SAND FROM AGRICULTURAL FIELD

This practice is prevalent in Haryana, where the top layer of soil varying between 1 and 2 meters is removed and stacked separately and thereafter the sand deposit which may be 10-15 meter deep is mined. After removing the sand layer up to a maximum depth of 09 meters, the top soil stacked is spread out on the field and the same is brought under the cultivation. Though the level of this land (mined out area) is lowered to the depth of the excavation and in initial years of cultivation the productivity is low, but the productivity of the fields improves with continued cultivation and addition of organic manure in the field. In Haryana some leases are of large area (ranging from 1000 hectare to 2000 hectare) the agricultural fields and river bed both are included in the same lease for mining.

The following recommendations should be kept in mind for mining in such leases:

1. Mining of sand in such mine leases will require environment clearance.
2. The lease should be of sand mining either from the agricultural field or river. In same lease both type of area should not be included.
3. The sand mining from agricultural field is being done in Haryana for a long time and it can be done in a more sustainable manner without adverse impact on agricultural productivity, if proper environmental safeguards are taken.
4. The slope of mining area adjacent to agricultural fields should be proper (preferably 45-60 degree) and adequate gap (minimum 10 feet) be left from adjacent agricultural field to avoid erosion and scouring.

CUSTOMARY RIGHT ON SAND MINING

The native people have their long held customary rights to take silt, sand & soil from their tanks and nearby rivers for their use or community works in the village in almost all the States in some form or the other.

Next to the reserved forests, tanks and rivers are the biggest common properties in India. Most of the village tanks are 'government properties' with some exceptions of privately held tanks. Land revenue department, irrigation department and forest department is given powers to deal with property right' and hence protecting all tanks and rivers preventing damages including encroachments is their responsibility. The local villagers were given 'customary rights' under the Revenue Department Orders, and other laws related to Panchayats and Easements to take sand, soil and earth for agricultural and domestic purposes without seeking any permission from anyone. The States strive to keep these customary rights to use such resources like soil and sand for individuals work and community work in the village intact without requirement of any permit and clearance. These customary rights need to be protected and respected.

DESILTING OF RESERVOIRS / BARRAGES / ANNECUTS / LAKES / CANALS

These structures are generally in possession and maintenance of Irrigation Department / Minor Irrigation Department / PHED of State Governments. The dams and reservoirs can be a significant source of sand. Many such structures are silted and their water holding capacity has gone down considerably. In some instances to compensate for silted capacity raising of height of dam or construction of new structures is proposed which further leads to submergence of new areas of agricultural field and forests. Taking up desilting of such projects can serve dual purpose of increasing the water holding capacity and making available the sand for other usage. In some States the Irrigation Department is permitted to use it for the departmental works free of charge and balance can be disposed of in market after paying the due royalty. A detailed study is required to be carried out to verify economic viability and environmental sustainability before contemplating dredging of storage reservoirs for sand / gravel mining.

The de-silting of reservoir, dredging for upkeep and maintenance of structures, channels and averting natural disasters will not be treated as mining for the purpose of environmental clearance.

The Ministry of Water Resources (MoWR) view on desiltation from flood control point of view is as follows:

A multidisciplinary Committee (Mittal Committee) under the chairmanship of Dr. B.K. Mittal, former Chairman, Central Water Commission was constituted by MoWR, vide letter dated 08.10.2001 to identify cause and extent of siltations in rivers, suggest measures to minimize siltation, examine as to whether desilting is a technically feasible means to minimize magnitude of flood in rivers, suggest appropriate technology/ methods of desilting of rivers, propose a realistic operational programme in a time bound manner and other related aspects. The committee studied in respect of few sites on Ganga, Brahmputra, Godavari, Krishna etc., and inter-alia concluded that:

i) Siltation in river is not pronounced and alarming;

ii) Desilting of rivers for flood control is not an economically viable solution;

iii) Dredging in general has been found to be inadequate and should not be resorted to, particularly in major rivers;

iv) There are, of course, some locations such as tidal rivers, confluence points with narrow constrictions and the like which can be tackled by desilting after thorough examination and techno-economic justification;

v) Selective dredging is suggested depending upon local conditions; and

vi) Desilting of rivers can marginally minimize the magnitude of floods and be effective only for a short period.

Thus, desilting in general is not feasible technically, due to several reasons like non-sustainability, non- availability of vast land required for disposal of dredged material etc. This cannot be viewed in isolation of other approaches to manage floods. Desilting of rivers in vulnerable reaches may be suggested based on model study, if it is found techno-economically viable. For navigation purposes, the river reaches in the water ways path may be dredged to have minimum depth of water.

MINING PLAN

The Environment Clearance shall be given to only those mining leases which have mine plan approved by the Competent Authority designated by the States. Modification of the mining plan during operation will also need approval of the Competent Authority. The Mining Plan shall be prepared by the Recognised Qualified Persons (RQP). The person to be recognized for preparing the mining plan should be a holding a degree of Mining Engineering, Environmental Engineering or a post graduate degree in Geology granted by a University established or incorporated by or under a Central Act or a State Act including any institutions recognized by the UGC or any equivalent qualification granted by any University or institution outside India and have a professional experience of three years of working in a supervisory capacity in the field of mining after obtaining a degree. The States will devise their own mechanism of selection and empanelment of RQPs. A mining plan should be valid for a period of 5 years, which can be renewed further.

EVALUATING THE IMPACT OF SAND MINING

To assess the impact of mining and effect of remedial measures can be assessed through monitoring. This is also required for mid-course corrections. Monitoring will provide data to evaluate the upstream and downstream effects of sand and gravel extraction activities, and long-term changes. A brief report summarizing the annual results of the physical and biological monitoring should document the evolution of the sites over time, and the cumulative effects of sand and gravel extraction. The summary should also recommend any modification of extraction rates needed to minimize impacts of extraction.

Sand Replenishment, Geomorphology and Hydrology:

Physical monitoring requirements of sand and gravel extraction activities should include surveyed channel cross-sections, longitudinal profiles, bed material measurements, geomorphic maps, and discharge and sediment transport measurements. The physical data will illustrate bar replenishment and any changes in channel morphology, bank erosion, or particle size.

In addition to local monitoring for replenishment at specific mining sites, monitoring of the entire reach through the estuary will provide information on the cumulative response of the system to sand and gravel extraction. For example, it is important for downstream bars and the estuary to receive sufficient sand and gravel to maintain estuarine structure and function. Because the elevation of the bed of the channel is variable from year to year, a reach-based approach to monitoring will provide a larger context for site-specific changes. If long-term monitoring data show that there is a reach-scale trend of bed lowering (on bars or in the thalweg), the extraction could be limited.

Cross-sections:

Surveyed channel cross-sections should be located at permanently documented sites upstream, downstream and within the extraction area. Cross-sections intended to show reach- scale changes

should be consistently located over geomorphic features such as at the head of riffles, across the deepest part of pools, or across particular types of channel bars.

Cross-section spacing should be close enough to define the morphology of the river channel. Cross-section data should be surveyed in March or April to evaluate changes that may occur during the flooding season.

Cross-section data should be collected over the reach to the estuary, and locally upstream, downstream, and within each mining site. This long-term monitoring data should be collected and analyzed even if no mining occurs in order to understand and estimate the sand budget of the river reach.

Photo-documentation:

Photographs of the project sites should be taken prior to excavation to document the baseline conditions, and again during each monitoring session. Photos should be taken twice a year. Photos of structures nearby like outfalls / off-takes, intakes, bridges and other structures may also be regularly taken.

Groundwater Level:

Monitoring wells should be established adjacent to each off-channel floodplain excavation to record changes in ground water levels. Measurements should be taken monthly. This should help analyse surface water and ground water interaction along the reach.

Extent and Quality of Riparian Vegetation:

Document the extent and quality of riparian vegetation, including successional status, and any increase in disturbance indicators (non-native plants). The extent of riparian habitat can be determined utilising aerial photos. Habitat quality data, i.e., successional status and species composition, must be determined through field reconnaissance.

Riparian Vegetation Maps:

Develop yearly maps of the sensitive habitat areas and document their aerial extent over time. These maps may be combined with the geomorphic maps. Monitor sites identified as sensitive for disturbance in excess of expected geomorphic trends - i.e., massive bank wasting up or downstream from an active mine site. Monitor sand and gravel mining impacts which may translate up and downstream, causing accelerated erosion of sensitive zones and impacting the ability of new habitat to form due to excessive scour or sedimentation.

This monitoring / documentation should be done by the EC holders and will be regularly checked and assessed by the DEIAA for corrective steps in time. The DEIAA should review the status of monitoring and documentation data of each mining site especially for sand mining once in a year.

MONITORING SYSTEM FOR SUSTAINABLE SAND MINING

The implementation of these Guideliness on Sustainable Sand Mining is not possible till States create a robust mechanism to monitor the mining operation and measure the mined out mineral. The entire exercise of Environment Impact Assessment and Environment Management Plan aims towards making the mining process environmentally sustainable. The Environment Clearance letter indicates the EC capacity that is the quantity of material which can be mined in a year. If this quantity is not measured, and much more mineral than envisaged in the EC is mined out then the entire process of EC is rendered futile. Keeping above objective in mind it is required of the State / State Agencies to create and establish a robust system to monitor and measure the mined out mineral at each lease location and its transportation in State.

The State Governments have tried various methods for monitoring the sand mining in their areas, the main feature of which generally has been through Transport Permits (T.P.). The printing of Transport Permits on security paper, invisible ink mark, fugitive ink background, VOID pantograph and Unique Barcode are some of the tools used by the States. These tools need to be backed by suitable software and dedicated websites with security certifications at different levels.

The system proposed is that States should issue Transport Permit. Bar code on the T.P. when scanned using the system, will generate a unique invoice number. The bidder has to enter destination, distance between plot and destination, vehicle number etc in the system. After scanning, unique bar code number; invoice date & time and validity date & time is sent to the bidder, which need to be written on T.P. Validity of T.P. is calculated based on distance between plot and destination. After validity time is over the T.P. stands invalid. The officers involved in monitoring should be provided with the android application using which the T.P. can be checked anywhere on road. As soon as the bar code on T.P. gets scanned through using android application, all details of T.P. such as plot details, vehicle details, validity time etc. should get fetched from server. This means, if anything is re-written on T.P. and attempt is made to reuse the same, it can be traced immediately. Registering of T.P. on server can be done using website, using android application (smartphone with internet) or even through SMS (smartphone without internet). This implies that TP can be registered on server even if only mobile phone range is available on plot. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.

MONITORING SYSTEM FOR SUSTAINABLE SAND MINING

PROCEDURE FOR MONITORING OF SAND MINING OR RIVER BED MINING

1. The security feature of Transport Permit shall be as under:

(a) Printed on Indian Banks' Association (IBA) approved Magnetic Ink Character Recognition (MICR) Code paper.

(b) Unique Barcode.

(c) Unique Quick Response (QR) code.

(d) Fugitive Ink Background.

(e) Invisible Ink Mark.

(f) Void Pantograph.

(g) Watermark.

2. Requirement at Mine Lease Site:

(a) Small Size Plot (Up to 5 hectare): Android Based Smart Phone.

(b) Large Size Plots (More than 5 hectare): CCTV camera, Personal Computer (PC), Internet Connection, Power Back up.

(c) Access control of mine lease site.

(d) Arrangement for weight or approximation of weight of mined out mineral on basis of volume of the trailer of vehicle used.

3. Scanning of Transport Permit or Receipt and Uploading on Server:

(a) Website: Scanning of receipt on mining site can be done through barcode scanner and computer using the software;

(b) Android Application: Scanning on mining site can be done using Android Application using smart phone. It will require internet availability on SIM card;

(c) SMS: Transport Permit or Receipt shall be uploaded on server even by sending SMS through mobile. Once Transport Permit or Receipt get uploaded, an unique invoice code gets generated with its validity period.

4. Proposed working of the system:

The State Mining Department should print the Transport Permit or Receipt with security features enumerated at Paragraph 1 above and issue them to the mine lease holder through the District Collector. Once these Transport Permits or Receipts are issued, they would be uploaded on the server against that mine lease area. Each receipt should be preferably with pre-fixed quantity, so the total quantity gets determined for the receipts issued.

When the Transport Permit or Receipt barcode gets scanned and invoice is generated, that particular barcode gets used and its validity time is recorded on the server. So all the details of transporting of mined out material can be captured on the server and the Transport Permit or Receipt cannot be reused.

5. Checking On Route:

The staff deployed for the purpose of checking of vehicles carrying mined mineral should be in a position to check the validity of Transport Permit or Receipt by scanning them using website, Android Application and SMS.

6. Breakdown of Vehicle:

In case the Vehicle breakdown, the validity of Transport Permit or Receipt shall be extended by sending SMS by driver in specific format to report breakdown of vehicle. The server will register this information and register the breakdown. The State can also establish a call centre, which can register breakdowns of such vehicles and extend the validity period. The subsequent restart of the vehicle also should be similarly reported to the server or call centre.

7. Tracking of Vehicles:

The route of vehicle from source to destination can be tracked through the system using check points, RFID Tags, and GPS tracking.

8. Alerts or Report Generation and Action Review:

The system will enable the authorities to develop periodic report on different parameters like daily lifting report, vehicle log or history, lifting against allocation, and total lifting. The system can be used to generate auto mails or SMS. This will enable the District Collector or District Magistrate to get all the relevant details and shall enable the authority to block the scanning facility of any site found to be indulged in irregularity. Whenever any authority intercepts any vehicle transporting illegal sand, it shall get registered on the server and shall be mandatory for the officer to fill in the report on action taken. Every intercepted vehicle shall be tracked.

The monitoring of mined out mineral, environmental clearance conditions and enforcement of Environment Management Plan will be ensured by the DEIAA, SEIAA and the State Pollution Control Board or Committee. The monitoring arrangements envisaged above shall be put in place. The monitoring of enforcement of environmental clearance conditions shall be done by the Central Pollution Control Board, Ministry of Environment, Forest and Climate Change and the agency nominated by the Ministry for the purpose.

ADMINISTRATIVE STRUCTURE FOR ENVIRONMENT CLEARANCE AND ENSURING COMPLIANCE OF EC CONDITIONS

An no mining in allowed without Envirnomental Clearance. The process of EC involves preparation of EIA/EMP, PER and mine plan.

The EIA/EMP can be prepared by the State Government or any agency of the State, group of project proponents in the cluster or the individual project proponent. The EIA / EMP can be prepared by the accredited consultants or the Registered Qualified Person(s) / agencies selected by the States.

DISTRICT ENVIRONMENT IMPACT ASSESSMENT AUTHORITY

The Central Government has constituted the District Level Environment Impact Assessment Authority (DEIAA), for grant of environmental clearance for Category 'B2' Projects for mining of minor minerals, for all the districts in the country.

For, minor minerals including sand and gravel mining lease of area up to 5 hectare in case of individual lease and up to 25 ha in case of cluster for sand mining, the grant of EC will be done by the District Environment Impact Assessment Authority (DEIAA) headed by the District Magistrate or District Collector. This Authority will be responsible for proper and sustainable management of sand mining in the district. The Authority will be responsible for designating the area / stretch in river suitable for mining in the district and also identifying the area / stretch in river prohibited for sand mining. The Authority will ensure clear demarcation of mining site, its documentation, and ensuring that no mining takes place without EIA / EMP and EC of the mining site.

The Chairperson and official members of the Authority for the districts should hold office during their tenure in the district on said posts and the expert member shall hold office for a period of three years from the date of nomination by the Competent Authority. The Committee shall meet at least once in a month.

The District Environment Impact Assessment Authority (DEIAA) :

The DEIAA will have following composition :

1.	District Magistrate or District Collector of the district	Chairperson
2.	Senior most Divisional Forest Officer in the district	Member
3.	An expert member to be nominated by the Divisional Commissioner or Chief Conservator of the Forest	Member
4.	Sub-Divisional Magistrate or Sub-Divisional Officer of the district head quarter	Member-Secretary

DISTRICT LEVEL EXPERT APPRAISAL COMMITTEE:

The District Level Expert Appraisal Committee (DEAC) will appraise the cases and make recommendations to the District Environment Impact Assessment Authority for environmental clearance. This Committee will also make recommendations / suggestions on the District Survey Report to the DEIAA. The DEAC will have following composition:

1.	Senior most Executive Engineer, Irrigation Department	Chairperson
2.	Senior most Sub-Divisional Officer (Forest)	Member
3.	A representative of Remote Sensing Department or Geology Department or State Ground Water Department to be nominated by the District Magistrate or District Collector	Member
4.	Occupational health expert or Medical Officer to be nominated by the District Magistrate or District Collector	Member
5.	Engineer from Zila Parishad	Member
6.	A representative of State Pollution Control Board or Committee	Member
7.	An expert to be nominated by the Divisional Commissioner or Chief Conservator of Forest	Member
8.	An expert to be nominated by the Divisional Commissioner or Chief Conservator of Forest	Member
9.	An expert to be nominated by the Divisional Commissioner or Chief Conservator of Forest	Member
10.	Senior most Assistant Engineer, Public Works Department	Member
11.	Assistant Director or Deputy Director or District Mines Officer or Geologist in the district in that order	Member- Secretary

The DEAC will meet at least once a month, depending on the work load the frequency of meetings can be decided by the Chairperson of DEAC and Chairperson, DEIAA.

Each proposal for the mining lease under consideration for environmental clearance in the district will be inspected on-site by the Sub-Divisional Level Committee headed by the SDM.

The Sub-Divisional Committee should comprise of following officers:

Sub-Divisional Magistrate	Chairperson
Sub-Divisional Officer, Forest/ Assistant Conservator of Forest/ Forest Range Officer	Member
Representative of State Pollution Control Board	Member
SDO, Irrigation Department	Member
Geologist or Assistant Geologist or Mining Officer / Mining Inspector	Member

The presence of at least three members will be needed for inspection. This Committee shall submit its report within 15 days from the receipt of the proposal.

The monitoring of EC conditions and enforcement of EMP will be ensured by the District Collector and the, State Pollution Control Board. The monitoring of enforcement of EC conditions can also be done by the Central Pollution Control Board, Ministry of Environment, Forest & Climate Change and the agency nominated by the Ministry for the purpose.

Schematic Presentation of Requirements on Environmental Clearance of Sand Mining including cluster situation

Area of Lease (Hectare)	Category of Project	Require-ment of EIA / EMP	Require-ment of Public Hearing	Require-ment of EC	Who can prepare EIA/ EMP	Who will apply for EC	Authority to appraise/ grant EC	Authority to monitor EC compliance
EC Proposal of Sand Mining on the basis of individual mine lease								
0 - 5ha	**'B2'**	Form - 1M, PFR and Approved Mine Plan	No	Yes	Project Proponent	Project Proponent	DEAC/ DEIAA	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC

> 5 ha and < 25 ha	**'B2'**	Form-I, PFR and Approved Mine Plan and EMP	No	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC
≥ 25ha and < 50ha	**'B1'**	Yes	Yes	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	
≥ 50 ha	**'A'**	Yes	Yes	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	
EC Proposal of Sand Mining in cluster situation								
Cluster area of mine leases up to 5 ha	**'B2'**	Form - 1M, PFR and Approved Mine Plan	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC
Cluster area of Mine leases > 5 ha and < 25 ha with no individual lease > 5 ha	**'B2'**	Form -I, PFR and Approved Mine Plan and one EMP for all leases in the Cluster	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	

Cluster of mine leases of area ≥ 25 hectares with individual lease size < 50ha	**'B1'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	SEAC/ SEIAA	
Cluster of any size with any of the individual lease ≥ 50ha	**'A'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	EAC/ MoEFCC	

General Conditions will not apply on account of inter- state boundaries for river sand mining leases.

EXEMPTION OF CERTAIN CASES FROM BEING CONSIDERED AS MINING FOR THE PURPOSE OF REQUIREMNT OF ENVIRONMENTAL CLEARANCE

Keeping in view the purpose, maintenance of infrastructure, abatement of disasters, customary easement and property rights, it is felt that following cases may not be treated as mining for the purpose of requirement of environmental clearance. The following cases shall not require prior environmental clearance, namely:-

1. Extraction of ordinary clay or sand, manually, by the Kumhars (Potter) to prepare earthen pots, lamp, toys, etc. as per their customs.
2. Extraction of ordinary clay or sand, manually, by earthen tile makers who prepare earthen tiles.
3. Removal of sand deposits on agricultural field after flood by farmers.
4. Customary extraction of sand and ordinary earth from sources situated in Gram Panchayat for personal use or community work in village.
5. Community works like de-silting of village ponds or tanks, construction of village roads, ponds, bunds undertaken in Mahatama Gandhi National Rural Employment and Guarantee Schemes, other Government sponsored schemes, and community efforts.
6. Dredging and de-silting of dams, reservoirs, weirs, barrages, river, and canals for the purpose of their maintenance, upkeep and disaster management.
7. Traditional occupational work of sand by Vanjara and Oads in Gujarat vide notification number GU/90(16)/MCR-2189(68)/5-CHH, dated the 14th February, 1990 of the Government of Gujarat.
8. Digging of well for irrigation or drinking water.
9. Digging of foundation for buildings not requiring prior environmental clearance.
10. Excavation of ordinary earth or clay for plugging of any breach caused in canal, nala, drain, water body, etc., to deal with any disaster or flood like situation upon orders of District Collector or District Magistrate.
11. Activities declared by State Government under legislations or rules as non- mining activity with concurrence of the Ministry of Environment, Forest and Climate Change, Government of India.

STANDARD ENVIRONMENTAL CONDITIONS FOR SAND MINING

Impact Category	S.No.	Environmental Conditions
Stakeholder Engagement	1	In the case of private land not owned by the lease holder an affidavit should be obtained regarding consent of the concerned land owner (s) for carrying out the mining operation.
	2	Stakeholder awareness and ability to raise concerns and getting it to be addressed.
	3	Implementation of Action Plan on the issues raised during the Public Hearing. The Proponent shall complete all the tasks as per the Action Plan submitted with the budgetary provisions during the Public Hearing.
	4	Having valid lease and all the permits is very much needed.
	5	To establish a Monitoring Committee including Local Panchayat, to check on traffic due to transportation and submit an annual report on the same.
	6	The directions given by the Hon'ble Supreme Court of India vide order dated 27.02.2012 in Deepak Kumar case [SLP(C) Nos. 19628-19629 of 2009] and order dated 05.08.2013 of the Hon'ble National Green Tribunal in application No. 171/2013 may be strictly followed.
	7	All the provisions made and restrictions imposed as covered in the Minor Mineral Rule, shall be complied with, particularly regarding Environment Management Practices and its fund management and Payment of compensation to the land owners.
Sustainable Mining Practices	8	District level Survey Report should be prepared and area suitable for mining and area prohibited for mining be identified.
	9	The depth of mining in Riverbed shall not exceed one meter or water level whichever is less, provided that where the Joint Inspection Committee certifies about excessive deposit or over accumulation of mineral in certain reaches requiring channelization, it can go up to 3 meters on defined reaches of the River.
	10	No River sand mining be allowed in rainy season.
	11	To submit annual replenishment report certified by an authorized agency. In case the replenishment is lower than the approved rate of production,

		then the mining activity / production levels shall be decreased / stopped accordingly till the replenishment is completed.
	12	Ultimate working depth shall be up to 3.0 m from Riverbed level and not less than one meter from the water level of the River channel whichever is reached earlier. In hilly terrain this depth be preferably restricted to one meter.
	13	In River flood plain mining a buffer of 3 meter to be left from the River bank for mining.
	14	In mining from agricultural field a buffer of 3 meter to be left from the adjacent field.
	15	Mining shall be done in layers of 1 meter depth to avoid ponding effect and after first layer is excavated, the process will be repeated for the next layers.
	16	To maintain safety and stability of Riverbanks i.e. 3 meter or 10% of the width of the River whichever is more will be left intact as no mining zone.
	17	No stream should be diverted for the purpose of sand mining. No natural water course and/ or water resources are obstructed due to mining operations.
	18	No blasting shall be resorted to in River mining and without permission at any other place.
	19	Depending upon the location, thickness of sand, deposition, agricultural land/Riverbed, the method of mining may be manual, semi-mechanized or mechanized; however, manual method of mining shall be preferred over any other method.
Identification and Preparation of Mining Site	20	Mining should be done only in area / stretch identified in the District Level Survey Report suitable for mining and so certified by the Sub-Divisional Level Committee after site visit.
	21	Mining should begin only after pucca pillar marking the boundary of lease area is erected at the cost of the lease holder after certification by the mining official and its geo coordinates are made available to the District Level Committee.
	22	The top soil in case of surface land mining shall be stored temporarily in an earmarked site and concurrently used for land reclamation.

Monitoring the Mining of Mineral and its Transportation	23	The EC holder shall keep a correct account of quantity of mineral mined out, dispatched from the mine, mode of transport, registration number of vehicle, person in-charge of vehicle and mine plan. This should be produced before officers of Central Government and State for inspection.
	24	For each mining lease site the access should be controlled in a way that vehicles carrying mineral from that area are tracked and accounted for.
	25	The State / District Level Environment Committee should use technology like Bar Coding, Information and Communications Technology (ICT), Web based and ICT enabled services, mobile SMS App etc. to account for weight of mineral being taken out of the lease area and the number of trucks moving out with the mineral.
	26	There should be regular monitoring of the mining activities in the State to ensure effective compliance of stipulated EC conditions and of the provisions under the Minor Mineral Concessions Rules framed by the State Government.
Noise Management	27	Noise arising out of mining and processing shall be abated and controlled at source to keep within permissible limit.
	28	Restricted working hours. Sand mining operation has to be carried out between 6 am to 7 pm.
Air Pollution and Dust Management	29	The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly.
	30	Air Pollution due to dust, exhaust emission or fumes during mining and processing phase should be controlled and kept in permissible limits specified under environmental laws.
	31	The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Wheel washing facility should be installed and used.
Management of Visual Impact	32	The mining operations are to be done in a systematic manner so that the operations shall create a major visual impact on the site.
Bio-Diversity Protection	33	Restoration of flora affected by mining should be done immediately. Twice the number of trees destroyed by mining to be planted preferably of indigenous species. Each EC holder should plant and maintain for lease period at least 5 trees per hectare in area near lease.
	34	No mining lease shall be granted in the forest area without forest clearance in accordance with the provisions of the Forest Conservation Act, 1980 and the rules made thereunder.

	35	Protection of turtle and bird habitats shall be ensured.
	36	No felling of tree near quarry is allowed. For mining lease within 10km of the National Park / Sanctuary or in Eco-Sensitive Zone of the Protected Area, recommendation of Standing Committee of National Board of Wild Life (NBWL) have to be obtained as per the Hon'ble Supreme Court order in I.A. No. 460 of 2004.
	37	Spring sources should not be affected due to mining activities. Necessary Protection measures are to be incorporated.
Management of Instability and Erosion	38	Removal, stacking and utilization of top soil in mining are should be ensured. Where top soil cannot be used concurrently, it shall be stored separately for future use keeping in view that the bacterial organism should not die and should be spread nearby area.
	39	The EC should stipulate conditions for adequate steps to check soil erosion and control debris flow etc. by constructing engineering structures
	40	Use of oversize material to control erosion and movement of sediments
	41	No overhangs shall be allowed to be formed due to mining and mining shall not be allowed in area where subsidence of rocks is likely to occur due to steep angle of slope.
	42	No extraction of stone / boulder / sand in landslide prone areas.
	43	Controlled clearance of riparian vegetation to be undertaken
Waste Management	44	Site clearance and tidiness is very much needed to have less visual impact of mining.
	45	Dumping of waste shall be done in earmarked places as approved in Mining Plan.
	46	Rubbish burial shall not be done in the Rivers.
Pollution Prevention	47	The EC holder shall take all possible precautions for the protection of environment and control of pollution.
	48	Effluent discharge should be kept to the minimum and it should meet the standards prescribed.
Protection of Infrastructure	49	Mining shall not be undertaken in a mining lease located in 200-500 meter of bridge, 200 meter upstream and downstream of water supply / irrigation scheme, 100 meters from the edge of National Highway and railway line, 50 meters from a reservoir, canal or building, 25 meter from the edge of State Highway and 10 meters from the edge of other

		roads except on special exemption by the Sub-Divisional level Joint Inspection Committee.
	50	For carrying out mining in proximity to any bridge or embankment, appropriate safety zone (not less than 200 meters) should be worked out on case to case basis, taking into account the structural parameters, location aspects and flow rate, and no mining should be carried out in the safety zone so worked out.
	51	Mining activities shall not be done for mine lease where mining can cause danger to site of flood protection works, places of cultural, religious, historical, and archeological importance.
Enhancement Road Safety	52	Vehicles used for transportation of sand are to be permitted only with **of** fitness and PUC Certificates.
	53	Junction at takeoff point of approach road with main road be properly developed with proper width and geometry required for safe movement of traffic by concession holder at his own cost.
	54	Project Proponent shall ensure that the road may not be damaged due to transportation of the mineral; and transport of minerals will be as per IRC Guideliness with respect to complying with traffic congestion and density.
	55	No stacking allowed on road side along National Highways.
Closure and Reclamation of Mined Out Area	56	The Project Proponent shall undertake phased restoration, reclamation and rehabilitation of land affected by mining and completes this work before abandonment of mine.
	57	Restoration, reclamation and rehabilitation in cluster should be done systematically and jointly by each EC holder in that cluster. This should be appropriately reflected as EC condition in each EC in cluster.
	58	Site specific plan with eco-restoration should be in place and implemented.
Health and Safety	59	Health and safety of workers should be taken care of.
	60	Transport of mineral will not be done through villages / habitations.
	61	The Project Proponent shall make arrangement for drinking water, first aid facility (along with species specific anti-venom provisioning) in case of emergency for the workers.

	62	Project Proponent shall implement the Disaster Management Plan if the mine lease area is located in Seismic Zone-IV. Project Proponent shall appoint a Committee to have a check over any disaster to warn workers well before for the safety of the workers. Emergency helpline number will be displayed at all levels.
	63	Project Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and records maintained; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smokers, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. Recommendations of National Institute for Labour for ensuring good occupational environment for mine workers would also be adopted.
Monitoring the Impact of Mining	64	The Project Proponent shall report monitoring data on replenishment, traffic management, levels of production, River Bank erosion and maintenance of Road etc.
Mineral Conservation	65	Use of alternate material such as M-sand in place of natural River sand shall be encouraged in order to reduce stress on natural eco-system.

APPENDIX: TABLE - 1

REVENUE FROM SAND MINING IN STATES / UTs

(Rs. in crores)

Sl.No.	STATE / U.T	2012 - 2013	2013 - 2014	2014 - 2015
01	Andaman & Nicobar	0.073	0	0
02	Arunachal Pradesh	7	8	5
03	National Capital Territory of Delhi	0	0	
04	Himachal Pradesh	0.70	0.35	0.07
05	Jharkhand	4.25	3.04	0.07
06	Karnataka	23.74	15.33	25.99
07	Madhya Pradesh	184.93	179.41	172.53
08	Meghalaya	14.50	15.88	15.50 (as forest royalty from govt. contractors)
09	Mizoram	0.018	0.0475	0.0861
10	Puducherry	0.80	0.20	0.03
11	Rajasthan	173.36	252.06	134
12	Tamil Nadu	188.50	117.73	109.10
13	Uttar Pradesh	97.27	166.45	168.38

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 2

NUMBER OF MINING LEASES IN STATE

Sl.No.	STATE / U.T	In stream	Flood Plain	Sea Shore	Agricul-tural field	River	Total
01	Andaman & Nicobar						Nil
02	Andhra Pradesh						Nil
03	Haryana	5	12		7		31
04	Jammu & Kashmir					650	650
05	Jharkhand	10				387	397
06	Lakshadweep					1090	1090
07	Manipur						NIL
08	Meghalaya						NIL
09	Odisha						NIL
10	Punjab	2 + 80 Temporary Working Permit				73	155
11	Sikkim		85				85
12	Tripura	21	244		5		270

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 3

AVERAGE SIZE OF SAND MINING LEASES IN STATE / UT: 2014-15

(In Hectare)

Sl.No.	STATE / U.T	AVERAGE SIZE	SMALLEST MINING LEASE AREA	LARGEST MINING LEASE AREA
01	Andaman & Nicobar	NOT APPLICABLE		
02	Arunachal Pradesh	ONLY MINING PERMITS		
03	Himachal Pradesh	1.20	0.25	4.09
04	Jharkhand	0.25	0.13	87.38
05	Karnataka	5	5	19.42
06	Madhya Pradesh	8.52	0.30	306.98
07	Meghalaya	Mostly < 1.5 ha.		
08	Mizoram	NA		
09	Puducherry	NA		
10	Rajasthan	2 5 in Bikaner	24.82 2 in Bikaner	1901.89 5 in Bikaner
11	Tamil Nadu	29 leases < 10 ha.	14 leases of 10 - 15 ha.	42 leases > 15 ha.
12	Uttar Pradesh	25	5	200

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 4

AVERAGE PERIOD OF SAND MINING LEASES IN STATE / UT

(In Hectare)

Sl.No.	STATE / U.T	AVERAGE MINING LEASE PERIOD (YEARS)
01	Andaman & Nicobar	Not Applicable
02	Arunachal Pradesh	Only mining permit is given
03	Himachal Pradesh	5
04	Jharkhand	3
05	Karnataka	2
06	Madhya Pradesh	5 to 10
07	Meghalaya	No lease in operation currently
08	Mizoram	No mining lease in operation currently
09	Puducherry	One year permit
10	Rajasthan	5 20-30 years in Bikaner
11	Tamil Nadu	3
12	Uttar Pradesh	3

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 5

COMMON METHOD AND PRACTICE OF SAND MINING IN STATE / UT

Sl.No.	STATE / U.T	COMMON METHOD AND PRACTICE OF SAND MINING
01	Andaman & Nicobar	1. The Apex Court in its order dated 7.5.2002 in I.A. No. 502 in WP (C) No. 202 of 1995, had directed that extraction of sand be phased out @ minimum 20% per year on reducing balance basis to bring the sand mining to a level of 33% of the present level of mining within a maximum period of five years. 2. Since the level of extraction of sand in the territory in the year 2001-02 i.e. the base year, was 68909 cubic meter, the quantity of extractable sand is fixed at 22581 cubic meter. 3. The quantity of sea sand so allowed by MoEF is extracted from the identified and approved sites having such deposits on the sea beaches (identified accreting area) with adequate environmental safeguards so as to prevent any damage to the sensitive coastal eco-system including corals, turtle/ bird nesting sites and the protected areas. 4. The allotment of sea sand is made to the individuals by the Sand Allotment Committee constituted by the Lieutenant Governor under the Chairmanship of Chief Secretary who also heads the A&N CZMA. The quantum of sea sand allotted is fixed by the Committee on the basis of availability of sea sand and the number of applicants (local) applied for their bonafide use.
02	Arunachal Pradesh	1. Mining of sand restricted to foothills only that too for a very short period. Grant of mining lease is kept in abeyance, short term mining permits are issued to various Central and State agencies for carrying out developmental works under the strict supervision of the departmental officers.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	COMMON METHOD AND PRACTICE OF SAND MINING
03	Himachal Pradesh	Manual. The mining lease areas are sanctioned on the river bed if the area is approved in survey document. The mining activities are allowed strictly in accordance with the approved working cum Environment Management Plan and after the environment clearance.
04	Jharkhand	Manual
05	Karnataka	Manual
06	Madhya Pradesh	Manual
07	Meghalaya	Hill quarrying in private areas
08	Mizoram	Extraction of sand limited mainly for domestic purpose in the state. The produce extracted illegally is seized as per the Mizoram Forest Act, 1955. Mining is only limited to river banks and riverbeds with improvised equipments like spade, shovel, small canoes, etc.
09	Puducherry	Manual
10	Rajasthan	In Rajasthan sand is available in seasonal streams and rivers except Chambal which is perennial but mining is banned because of Chambal Crocodile Sanctuary. Mining is done up to 3 meters and is open cast. It is filled in trucks either manually or semi mechanized method. In Bikaner no river exists and mining for sand is being done from palaeo-channel. In this palaeo-channel the sand deposit occurs at the depth of 5 meter to 20 meter below ground level with an over burden of 5 to 20 meters. The mining here is done open cast benching method, where overlying blown sand, gravel, pebble etc. is removed, the sand is further sieved, graded and washed upto 12 to 18 mesh size.
11	Tamil Nadu	Manual mining is carried out in certain quarries. In most of the sand quarries two poclains are used by the PWD.
12	Uttar Pradesh	Manual and Semi-mechanised

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 6

SUGGESTIONS / RECOMMENDATIONS FROM STATES / UTs FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
01	Andaman & Nicobar	The quantum of extractable sand fixed at 22581 cubic meter should be enhanced. This limit has been fixed by the orders of Hon'ble Supreme Court subject to study by National Institute of Oceanography.
02	Arunachal Pradesh	1. For environmentally sustainable sand mining a strict and comprehensive sand mining policy need to be framed.
		2. River sand is becoming a scarce commodity and hence exploring alternative to it has become imminent. Manufactured sand is a good alternative both for fine as well as coarse sand used in concrete.
		3. Sand mining should be restricted to surface collection only without the use of heavy machinery.
		4. Due to turbulent and inaccessible nature of rivers flowing in the hilly terrains of the state, deposition of the sand in the river bed is very negligible and except for few quarries in the foothills and plains, most of the notified quarries are boulders and mining of sand is very negligible.
		5. In view of environment related issues the grant of mining lease for river bed minor mineral viz. sand, gravel, shingle, aggregate, boulder are kept in abeyance and extraction of these minerals is regulated only by grant of mining permits, that too not exceeding 3000 cubic meter in one permit.
		6. For scientific mining of sand and other minor minerals Guideliness has been prepared and accordingly Geo-Technical Committee has been constituted under the chairmanship of ADC/SDO in the district level to determine the quantity of quarriable mineral that can be safely removed and also to give technical clearance for notification of quarries of smaller size, preferably within one hectare.
03	Chhattisgarh	1. While attempting to prepare a model Guidelines / policy for the country, the differences that exist in different states may be taken into account. It may be tried to take all stakeholders along.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		2. To ease the process of EC granting, SEIAA may have benches across the State with each bench having a SEAC under it. Time bound clearance with ease of access and grant.
		3. Sand mining with use of machinery should be allowed.
		4. Road construction material like murram should be exempted from EC considering their local / pocket occurrences and impossibility of obtaining EC.
		5. Considering the traffic issue at urban areas and to reduce intermediaries like storage point dealers, night mining with adequate lighting should be allowed.
		6. To make the availability of sand from local rivulet / streams the river bank to in-stream mine area distance should be reduced from 10 meter to 3 meters.
04	NCT of Delhi	1. Location of sand mining should be identified by a committee comprising of revenue deptt., Irrigation Deptt., CGWB, SPCB, Forest Department and mining department. Mining area should distinctly be marked at site, before allowing mining.
		2. Depth of mining should be restricted to 3 mtrs or water level, whichever is less and that to from aggradation areas. The side slope of excavation should be less than 3:1.
		3. Requirement of sand and gravel should be reduced by utilization of construction and demolition waste. It requires not only legislative support but also awareness campaign among the society.
		4. Guidelines should be distinctly clear and easy to understand covring do's and don't during mining operation.
		5. Sufficient safe distance should be left between mining site and adjoining engineering structures like embankment, spurs, bed bars, bridges, reservoir and regulator etc.
		6. Security amount should be sufficient enough to compel the agency to carry out rehabilitation, corrective measures and to ensure strict compliance of conditions of lease. S.D. should be released after inspection of committee and recording of certificate that agency complied with the lease conditions.
		7. Mining may be carried out by state agency instead of private agaencies.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
05	Himachal Pradesh	1. Working cum Environment Management Plan has been made mandatory. The mining activities are allowed after submission of environment clearance.
		2. In compliance of order of Hon'ble Supreme Court dated 27.02.2012 in Deepak Kumar case, the Himachal Pradesh has repealed its rules called the Himachal Pradesh Minor Mineral (Concession) and Mineral (Prevention of illegal mining, transportation and Storage) Rule, 2015 in accordance to the recommendation of the Ministry of Environment & Forest and rules circulated by the Ministry of Mines. Hence the State of Himachal Pradesh has complied with the above directions of the Hon'ble Apex Court,
		3. Therefore the condition of applicability of Environment Clearance on the area less than 5 hectare shall be exempted.
		4. Further keeping in view, the peculiar topography, geography and socio-economic fabric of the State, the condition for the minimum size of the lease should be exempted as the rivers are in youth stage forming different land forms, land holdings are less, population is thin and scattered and the demand of minor mineral is limited, which could be met out locally by exploiting local resources on the small scale.
06	Jammu & Kashmir	1. Uniform Guidelines be framed for sand mining and river bed mining as they cannot be segregated.
		2. Identification of sand belts be made in consultation with CGWB and while framing Guideliness CGWB may be taken on board.
		3. Sand mining leases less than 5 hectare be exempted from EC and comprehensive policy may be made for hilly states for easing the process of grant of lease.
07	Jharkhand	1. Machine should not be used in sand mining. Only manual mining should be done.
		2. The depth of mining shall be restricted to 3 meter / water level whichever is less.
		3. No mining should be carried out in proximity of any bridge / embankment.
		4. In-stream mining should not be allowed.
		5. Mining should be done in accordance with an approved mining plan.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		6. EC should be valid for settlement period subject to ceiling of five years.
08	Karnataka	1. Undertaking sand mining activity through a Government agency to be governed by District Level Sand Monitoring Committee headed by Deputy Commissioner.
		2. The area should be properly surveyed and mapped with the help of GPS to assign geo coordinates and accordingly erect boundary pillars so as to avoid illegal and unscientific mining.
		3. Depth of sand available may be indicated in a contour map using suitable drilled holes to ensure sand mining do not exceed one meter depth.
		4. Once thickness is established sand mining may be permitted to one meter depth where the thickness of sand is more than three meter deep. If the thickness of sand is less than three meter, sand mining shall not be permitted.
		5. Sufficient spacing shall be ensured from one block to another block and sufficient time gap shall be provided for replenishment before undertaking mining activity in the same block.
		6. Mining activity shall be restricted to only non-monsoon season and in the area that is exposed.
		7. No in-stream mining shall be permitted.
		8. No stream should be diverted for the purpose of sand mining. No natural water course and/ or water resources are obstructed due to mining operations.
		9. Site specific plan with eco-restoration should be in place.
		10. Sand mining shall be undertaken only by manual method without use of earth moving equipment such as JCB etc. Use of mechanized boats for sucking sand from in-stream area shall be strictly prohibited.
		11. Appropriate safety zones shall be maintained in proximity to any bridge / and / or embankment and other permanent structures. No sand mining shall be undertaken in such safety / buffer zones. Guideliness issued by the Ministry of Mines in this regard shall also be adhered to.
		12. The quarrying activity shall not intersect subterranean water level and ground water table.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		13. The top soil in case of surface land mining shall be stored temporarily in an earmarked site and concurrently used for land reclamation.
		14. Use of alternate material such as M-sand in place of natural river sand shall be encouraged in order to reduce stress on natural eco-system.
09	Madhya Pradesh	1. Geographical location of the state should be taken care of.
		2. Keep provision for extraction of sand from forest areas.
		3. Expedite the EC process.
		4. In inter-state boundary leases sand mining EC be giver by the SEIAA.
		5. Clear Guidelines for B-1, B2 be issued.
		6. Simplify cluster cases.
		7. Exempt mining leases of less than 5 hectare from EC.
10	Meghalaya	1. No sand mining within 3 kilometer from Protected area and Reserved Forest area.
		2. Advance royalty etc for entire quantity of mineral be realized in full.
		3. Only loose boulder and sand are allowed to be removed from the mid river stream leaving 15 meter on either side untouched.
		4. No collection of sand is allowed on 15 meter of either side of structures like bridge, culvert etc.
		5. No blasting allowed.
		6. No extraction of stone / boulder / sand in landslide prone areas.
		7. No stacking allowed on road side along national highways.
		8. No felling of tree near quarry is allowed.
		9. No transportation of forest produce (sand from forest area) is allowed after sunset.
		10. Export fee realized if sand is sent outside the state.
		11. Stone crusher cannot be installed without permission of DFO.
		12. Tree should be planted at quarry after completion of mining.
		13. Violation of above conditions will result in cancellation of permit and forfeiture of advance royalty already paid.
11	Mizoram	1. Extraction of sand from the forest may be permitted strictly as per mining plan approved by the Competent Authority and after getting necessary clearance under various acts related to the forest and environment.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
12	Odisha	1. EC may be exempted for leases less than 5 hectare.
		2. EC should not be required for earth mining.
		3. Minor minerals even close to inter-state borders should be allowed to be cleared by the SEIAA.
		4. In case a river is forming boundary of states and mechanized mining of sand is causing tension in states it should be resolved at the national level.
13	Puducherry	1. Environment Clearance is issued by SEIAA, Puducherry strictly under the provisions of the EIA Notification, 2006 and subsequent amendments.
14	Rajasthan	1. The bajari mined out from river bed is filled back by the river itself during the next rainy season. So, nature itself reclaims the mined out area every year. The formation of bajari is a natural process in the river and it is also essential to remove bajari from the river bed to avoid silting. If the sand deposited in the river bed is not removed, it may cause change of river course and may also results in flood plains will be developed.
		2. Price control system adopted in Rajasthan. Sand is a essential commodity.
		3. The depth of mining should be restricted to 3 meters or above water table.
		4. Machinery having boom height more than 3 meter shall not be allowed in extraction of bajari.
		5. Size of mining leases be allowed below 5 hectare.
		6. In streams with low deposit of sand and if use is mostly local no mechanized mining should be allowed and EC should not be required.
		7. In larger deposits there should be semi-mechanised mining with EC.
		8. The sand (river and stream) in different categories, with their availability, use and size of the deposit. **Category A:** Small deposits in river and stream where thickness of sand bed is very less and sand is used locally in villages and towns only and no mechanical mining is done, in such areas restriction of obtaining Environment Clearance can be relaxed for manual mining.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		Category B: Large deposits, where in rivers and streams having thickness of sand bed is medium to large, sand mining, shall be allowed with semi mechanized manner after obtaining Environment Clearance. **Bikaner District:** Bikaner district is a desert terrain where ground water table is very deep. Bajari is excavated above water table and it does not affect the water table. In addition to this boulder, gravel and waste generated due to bajari mining is used in reclamation of pits. Hence environment is not adversely affected due to bajari mining.
15	Sikkim	1. Forest department is the nodal department for sand and stone extraction from the riverbed.
		2. Use of machines is prohibited.
		3. Quarrying sites are allotted to village youth cooperatives.
		4. For bigger companies quarry sites in forest area are allotted after FC.
		5. State Government has considerations for allotment of quarries for Border Road Organization and MoD.
		6. GoI can monitor mining in states through GIS.
16	Tamil Nadu	1. Excess sand deposits identified in the flood plains and in-stream areas only to be mined in order to safeguard and maintain ground water table.
		2. Sand mining operation has to be carried out between 6 am to 7 pm.
		3. Mining operation should be carried out in a systematic manner without affecting environment and ecology of the area.
17	Uttar Pradesh	1. Depth of mining cannot be more than 3 meter or water table whichever is less.
		2. Mining can be done in slices forming benches where bench height cannot be more than 1 meter and bench width cannot be less than 10 meter.
		3. A width of not less than 50 meter or 10% width of river can be restricted for mining activities from river bank. A condition can be imposed that mining will be done from river activities from river bank.
		4. SEIAA should be decentralized to expedite EC process. It can be decentralized to district or zonal level.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		5. Make EC conditions practical.
		6. Requirement of mining plan in river bed mining be done away with.
		7. There should not be requirement of EC for short term permit.
		8. The quantity of sand should not be fixed in EC as it leads to loss in revenue and illegal mining.
		9. Semi-mechanised form of sand mining be allowed.
		10. Sand mining to be exempted from EC as it takes 6-8 months and environment department do not have requisite work force to enforce EC conditions. A Guidelines for environmentally sustainable sand mining be framed and it can be complied by imposing it in the lease condition.
18	Uttarakhand	1. Area less than 5 hectare be exempted from EC.
		2. Use of machine be allowed for scientific mining and reducing the cost of production.
		3. RBM deposition in the lease should not be fixed for the entire lease period. RBM in lease area be assessed after rains every year.
		4. 70% of leases in state not operating for want of EC and these vacant lots are source of illegal mining.

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 7

BEST PRACTICE OF SAND MINING ADOPTED IN DISTRICT / STATE / UT

Sl.No.	STATE / U.T	DESCRIPTION OF BEST PRACTICES
01	Andaman & Nicobar	Institute of Ocean Management has been entrusted the task of identification of sand accreting sites.
02	Arunachal Pradesh	Mining of sand is restricted to foothills only that too for a very short period.
03	National Capital Territory of Delhi	In Delhi sand mining lease is granted by Revenue department. NOC from I&FC Deptt. Were issued with condition of limitation of depth, area of mining, operation timing limitation and limited period of NOC. Compliance of laid down conditions and monitoring is ensured by collector.
04	Himachal Pradesh	1. The mining activities on river beds are allowed strictly as per the provisions of river / stream bed mining policy as under.
		2. No river / stream bed mining shall be allowed without the recommendation of the Sub Divisional Level Committee constituted under the Chairmanship of Sub Divisional Magistrate having XEN PWD, Irrigation and Public Health, SPCB, DFO and Mining Officer as its member.
		3. Nor river / stream bed mining shall be allowed within 75 meter from the periphery of soil conservation works, nursery plantations, check dams or within the distance as recommended by the Sub-Divisional Committee whichever is more.
		4. No river / stream bed mining shall be allowed within 1/10th of its span or 5 meters from the banks or as specified by the Sub-Divisional Level Committee, whichever is more.
		5. Nor river / stream bed mining shall be allowed within 200 meters upstream and downstream of water supply scheme or as specified by the Committee whichever is more.
		6. Nor river / stream bed mining shall be allowed within 200 meters upstream and 200 to 500 meters downstream of bridges depending upon the site specific conditions.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	DESCRIPTION OF BEST PRACTICES
		7. No approach road from PWD road shall be allowed to lease area unless lessee / contractor obtains written permission from XEN, PWD for making road leading to all intake places from the PWD road. 8. No boulders/ cobbles/ hand broken road ballast shall be allowed to be transported outside the State from river/stream beds. 9. No digging for more than 3 feet shall be allowed in river/ stream beds. 10. No blasting shall be allowed in river/stream beds.
05	Madhya Pradesh	1. In some districts the Cooperative Societies of Labour are doing the sand collection, loading and unloading work.
06	Tamil Nadu	Permission has been granted in favour of PWD for quarrying sand in the river Poramboke lands in 16 districts in the state of Tamil Nadu. Sand mining is being carried out by the PWD in the entire State.
07	Uttar Pradesh	U.P. Minor Mineral Concession Rules, 1963.

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE - 8

STATUS OF PROMULGATION OF RULE ON SAND MINING IN THE STATE / UT

Sl.No.	STATE / U.T	NAME OF RULE WITH YEAR OF PROMULGATION
01	Andaman & Nicobar	Indian Forest Act, 1927 as sand has been included as forest produce.
02	Arunachal Pradesh	APMMCR 2002 and made effective from 1.01.2003
03	Himachal Pradesh	1. River/Stream bed Mining Policy-2004.
		2. Himachal Pradesh Minor Mineral Policy-2013.
		3. Himachal Pradesh Minor Mineral (Concession) and Mineral (Prevention of illegal mining, transportation and storage) Rule, 2015.
04	Jharkhand	Rule 12 of Jharkhand Minor Mineral Concession (Amendment) Rule 2014.
05	Karnataka	Karnataka Sand Policy was brought out in the year 2011 and as such amendment to the Karnataka Minor Mineral Concession Rule 1994 were made in the year 2011 and a separate chapter IV B for sand mining was introduced under Rule 31-R. Further, as per the Hon'ble Supreme Court orders sated 27.02.2012 in SLP No. 19628-19629 between Deepak Kumar and State of Haryana and others and as per the model Guideliness issued by the Government of India for Environmental Management of Mining of Minor Minerals, amendment to the Karnataka Minor Mineral Concessions Rule 1994 were brought out on 16.12.2013 incorporating a new chapter II A applicable to all minor minerals on Systematic, Scientific Mining and Protection of Environment, wherein Quarrying Plan, Environmental Management Plan and Environment Clearance was made mandatory. Amendments to Rule 31- R were also made wherein the Government, PWD Department was entrusted with sand mining, storage and transportation, under the District Sand Monitoring Committee and Taluk Sand Monitoring Committee.
06	Madhya Pradesh	Rules have been framed as per the orders of Hon'ble Supreme Court for sand mining under M.P. Minor Mineral Rules 1996 and Sand Mining Policy 2015 is also formulated in the State.

* States/UTs not mentioned have not provided the data.

Sl.No.	STATE / U.T	NAME OF RULE WITH YEAR OF PROMULGATION
07	Meghalaya	No rules notified by the state on sand mining
08	Mizoram	Mizoram Forest Act, 1955, which came into force on 1.01.1956.
09	Puducherry	Puducherry Minor Minerals (Concession) Rules, 1977.
10	Rajasthan	RMMCR, 1986 Notification dated 2.11.2012: 1. First proviso of Rule 8(2) and first proviso of 17 (1) - Renewal of Bajari Mining Leases is not allowed. 2. Rule 16 (3) - Mining Leases of Bajari to be granted for 5 years. 3. Rule 18 (18) - Part surrender of lease area of Bajari not allowed. Notification dated 3.4.2013 - (First proviso Rule 7 (1)- Mining leases of Bajari to be granted only by way of tender or auction. Notification dated 12.07.2013 - (First proviso Rule 11 (2)) - Maximum area limit of 10 sq. km. not applicable for Bajari Mining Leases. Bikaner District: Chapter II of RMMCR, 1986 (last amended 12.07.2013).
11	Sikkim	Sikkim Forest (Allotment of Areas for Quarrying of Sand and Stone), 2006.
12	Tamil Nadu	1. As per G.O. Ms. No. 95 Industries (MMCI) Department dated 1.10.2003, a new Rule 38 A has been introduced in the Tamil Nadu Minor Mineral Concession Rules, 1959. Accordingly quarrying and sale of sand is being carried out by PWD in the state of Tamil Nadu since October 2003. 2. As per G.O. Ms. No. 158 Industries (MMIC) Department dated 25.08.2008, a new Rule 38 B has been introduced in the Tamil Nadu Minor Mineral Concession Rules, 1959. Accordingly transportation of sand outside the state not to be made. To regulate storage and transportation of sand a new Rule 38 C B has been introduced in the Tamil Nadu Minor Mineral Concession Rules, 1959 vide G.O. No. 32 Industries (MMIC) Department dated 11.02.2011.

* States/UTs not mentioned have not provided the data.

APPENDIX: TABLE -9

NORMAL DATES OF ONSET AND WITHDRAWAL OF SOUTH-WEST MONSOON

The India Meteorological Department, Nagpur, vide letter No. NAGPUR RMC /CS-312, dated 18th January,2016 has provided the period of Rainy Season viz. Normal dates of Onset and Withdrawal of Southwest Monsoon over India as state-wise and union territory- wise which are as below:-

States	Normal date of Onset of SW-Monsoon	Normal date of Withdrawal of SW-Monsoon
Andhra Pradesh	1st June	15th October
Arunachal Pradesh	5th June	15th October
Assam	5th June	15th October
Bihar	10th June	15th October
Chhattisgarh	10th June	15th October
Goa	5th June	15th October
Gujarat	15th June	15th September
Haryana	1st July	15th September
Himachal Pradesh	1st July	15th September
Jammu & Kashmir	1st July	15th September
Jharkhand	10th June	15th October
Karnataka	5th June	15th October
Kerala	1st June	15th October
Madhya Pradesh	15th June	1st October
Maharashtra	10th June	1st October
Manipur	1st June	15th October
Meghalaya	1st June	15th October
Mizoram	1st June	15th October
Nagaland	5th June	15th October
Odisha (Orissa)	5th June	15th October
Punjab	1st July	15th September
Rajasthan	1st July	1st September
Sikkim	5th June	15th October
Tamil Nadu	1st June	15th October
Telangana	5th June	15th October
Tripura	1st June	15th October

States	Normal date of Onset of SW-Monsoon	Normal date of Withdrawal of SW-Monsoon
Uttar Pradesh	15th June	1st October
Uttarakhand	15th June	1st October
West Bengal	10th June	15th October
Union territory	**Normal date of Onset of SW-Monsoon**	**Normal date of Withdrawal of SW-Monsoon**
Andaman and Nicobar Islands	20th May	15th October
Dadra and Nagar Haveli	10th June	1st October
Daman and Diu	10th June	1st October
Lakshadweep	1st June	15th October
Delhi	1st July	15th September
Puducherry	1st June	15th October

Note: The District Environment Impact Assessment Authority (DEIAA) in consultation with District Expert Appraisal Committee (DEAC) can make necessary changes as per local meteorological variations in this period of rainy season with respect to prohibition of River Sand Mining in the District.

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ENSURING SUSTAINABLE SAND MINING FOR SUSTAINABLE DEVELOPMENT

A Major Initiative of Ministry of Environment, Forest and Climate Change for ensuring Environmentally Sustainable Sand Mining and Prevention of illegal Sand Mining.

{Notification No: SO No. 141 (E) dated 15.01.2016 and S.O. No. 190 (E) dated 20.01.2016 available at www.envfor.nic.in}

- Use of Satellite imagery to decide the site suitable for mining and quantity of sand which can be mined.
- Transit permit with tamper proof security features and tracking of mined out mineral.
- Monitoring of mined out mineral to prevent mining in excess of environmental clearance capacity.

- Delegation of power to grant environmental clearance for sand mining to an authority headed by District Magistrate.

- Intergration of power with District Authorities to grant environmental clearance and prevent illegal mining.

Note : Any information of mining without environmental clearance or against the norms prescribed in these notifications be reported at e-mail id: sandmining-moef@gov.in

ITS TESTING LABORATORY (P) LTD.

Laboratory: A-114, Sector-80, Phase-II Noida, Gautam Budh Nagar - 201305, (U.P.)

(An ISO 9001: 2015, ISO 14001:2015 & ISO 45001:2018 Certified Laboratory)

MOEF & CC (Ministry of Environment Forest & Climate Change)

Website: www.itslab.in, Email: contact@itslab.in, itlrclab@gmail.com, info@itslab.in, itlrclab@gmail.com

+91 9911659800, 9305780312, 09958849764, 07210888634

To,

Date : 28/10/2023

R M Mines & Infra Pvt Ltd.
149,Luxmi Nagar,
Yamuna Nagar,Haryana

ANNEXURE-R8-10

Subject: Regarding River Bed Material samples collected for the purpose of calculation of Bulk Density.

Respected Sir,

As per our ongoing discussions regarding the conducting Lab sampling for river bed material from your site "Toka-Hamidpur Block" Consisting of 8 Villages: Chichi Majra , Toka, Hamidpur, Shahpur, Dera, Dehar,Rao Majra and Sangrani in District Ambala.

This is to inform you that we have collected the samples today i.e., 28.10.2023 and the sample have been received at our Laboratory and undergoing testing.

We will be submitting the final reports you to after analysis has been completed.

Please find the attached our NABL Accreditation certificates for your perusal.

Thanking you.

Yours Faithfully,

Vikash Kumar

Director

ITS Testing Laboratory Private Limited

Terms & Conditions :

1. Test reports are valid only for the samples tested in our laboratory. 2. Samples will destroyed as per quality policy.
3. Any complaints about the report should be communicated in writing within 7 days.
4. Total liability or our laboratory is limited to invoiced amount.

Gmail

Vaibhav Niti <vaibhavniti.office@gmail.com>

Re: Balbir Sandhu v. UoI & Ors., O.A. No. 532 of 2023, pending before Hon'ble NGT

1 message

Vaibhav Niti <vaibhavniti.office@gmail.com> Fri, Mar 8, 2024 at 3:14 PM
To: rkhuranalegal@gmail.com, emailtogkb@gmail.com
Cc: Anshul Mangla <anshul.mangla16@gmail.com>

Dear Sir,

In the above matter, **by way of service**, please find attached herewith the reply/written statement being filed on behalf of **Respondent No. 8**.

Regards,

Vaibhav Niti
Advocate
Office of Anshul Mangla, Advocate,
477, Sector 12, Panchkula,
Haryana

NGT - REPLY BY RESPONDENT NO. 8.pdf