

**BEFORE THE NATIONAL GREEN TRIBUNAL,  
EASTERN ZONE BENCH, KOLKATA  
ORIGINAL APPLICATION NO.47 OF 2024 EZ**

YOUTH UNITED FOR SUSTAINABLE  
ENVIRONMENT TRUST

.....APPLICANT

-VERSUS-

STATE OF ODISHA & OTHERS

.....RESPONDENTS

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BY THE RESPONDENT NO.13 THROUGH

CUTTACK  
DATE:-16.08.2024

  
ANANYA PRADHAN  
ADVOCATE  
ENR. NO. O-599/2020  
MOB:-8917222517  
Email:-palit\_subir02@yahoo.com



**BEFORE THE NATIONAL GREEN TRIBUNAL,  
EASTERN ZONE BENCH, KOLKATA  
ORIGINAL APPLICATION NO.47 OF 2024 EZ**

YOUTH UNITED FOR SUSTAINABLE  
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-V E R S U S-

STATE OF ODISHA & OTHERS

.....RESPONDENTS

**COMPOSITE COUNTER AFFIDAVIT FILED ON  
BEHALF OF RESPONDENT NO.13**

I, Sri Pitambar Bhutia, aged about 45 years, S/o.-Bhaskar Bhutia, At/P.O-Mandapal, Talcher Town, Pin-759107, Lessee of Nizgarhjami Sand Quarry, do hereby solemnly affirm and state as follows:

1. That, I am the Respondent No.13 arrayed in this Original Application filed by the applicant and I am competent to swear the present affidavit.
2. That, I have gone through the averments made in the Original Application filed by the applicant and have understood

*Pradipta*  
**PRADIPTA KUMAR MOHANTI**  
Notary, Cuttack Town

*Pitambar Bhutia*

the contents therein and I am swearing the present affidavit in reply thereof.

3. The Applicant in the present Original Application has sought the following reliefs:-

- i. "Direct the Mining Department to conduct Drone Survey to assess the mining beyond lease areas and excess mining.
- ii. Direct the SEIAA Odisha to withdraw the EC letter for violation of EC condition.
- iii. Direct the Independent Committee to inquire into the illegalities of mining such as mechanical mining and in-stream mining. Excess sand mining in violation of the permitted quantity.
- iv. Direct the State Respondents to seize the Excavators used for Sand Mining in Brahmani River at Gopinathpur.
- v. Direct the State Respondents to immediately remove the illegal approach road constructed by the lease holders/sand mafias to ensure the free flow of river by removing the artificial approach roads for transportation of sand loading vehicles inside the river.
- vi. Direct the State Respondents for GPS TRACKING OF VEHICLES AND MAKE E-TRANSIT PASS MANDATORY FOR MINING OPERATION."

*P. Pradipta Mohanty*

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4. That, the learned Tribunal, upon careful examination of the claims presented in the application, refined them into a total of nine distinct allegations which are enumerated herein below:

- i. *"Use of 4 heavy machines (Excavators) and hundreds of Heavy vehicles when Mechanical Mining is prohibited as per Sustainable Sand Mining Guidelines 2016 and EC conditions.*
- ii. *Mining beyond lease area in Gopinathpur Mouza.*
- iii. *Sand mining operation during Monsoon seasons while the same is prohibited as per Sustainable Sand Mining Management Guidelines, 2016.*
- iv. *Excess mining to the tune of more than 50 Hyva Truck load / day (one Hyva is having load capacity of around 20 cubic metres of sand) which is around 1,000 CM/ Day when the permission is only for 18000 CM for the first year and 4,500 for the entire second year. Roughly around 85.71 Cubic Meter per day in the first year and 21.42 Cubic Metre per day in the second year of mining, considering 210 days of sand mining in a year. The rate at which mining is ongoing, the annual target has already been exhausted within 5 days of mining operation.*
- v. *Daily Mining Register has not been maintained and transit permits (Form Y) not given to every vehicle and this is being done in collusion with Tahasildar and Revenue Inspector.*

Pitambar Bhatnagar

*P. Pradipta Mohanty*

- vi. *No Pillar Posting and Demarcation of Lease Area prior to commencement of mining and presently quarry area beyond the lease area. Vehicles engaged in mining area overloaded and the spill over of wet sands on road makes the road muddy and accident prone during rainy days and cause air pollution during non-monsoon days.*
- vii. *Annual replenishment study and Pre-monsoon assessment has not been conducted while allowing the mine to operate.*
- viii. *There has been no monitoring of quantity of sand excavated and GPS Tracking of vehicles, Electronic Transit Pass, CCTV camera in mining site as prescribed in Enforcement & Monitoring Guidelines for Sand Mining, 2020.*
- ix. *Vehicular Transportation through densely populated villages and in front of Sub-Divisional Hospital Talcher. Further the carrying capacity of the roads has not assessed and as such the existing road cannot withstand the pressure of hundreds of sand loaded heavy vehicles."*

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5. That, the learned Tribunal after admitting the original application vide its order dated 12.03.2024 was pleased to pass the following direction:-

XX XX XX    XX XX XX    XX XX XX    XX XX XX

*Pradipta*  
**PRADIPTA KUMAR MOHANTY**  
 Notary, Cuttack Town  
 Regd.No-ON-04/1995

“20. Considering the allegations made, we deem it appropriate to constitute a Committee to elicit the veracity of the allegations comprising of the following Members:-

(i) Senior Scientist, Odisha State Pollution Control Board,

(ii) Senior Scientist, SEIAA, Odisha, and

(iii) District Collector, Angul, or his representative not below the rank of Additional District Magistrate,

21. The Committee shall inspect the site in question and submit its Report within four weeks on affidavit with regard to the allegations made.

22. The District Collector, Angul, shall be the Nodal Agency for all logistic purposes.

23. The Committee Report on affidavit shall be filed by the Odisha State Pollution Control Board.

6. That, in compliance of the order of the learned Tribunal, a Joint Committee visited the alleged site at Nizgarhzami Sand Quarry (locally known as Gopinathpur sand quarry), over an area of 24.86 Acres in village-Nizgarhzami, Tahasil-Talcher, Dist-Angul on 22.04.2024.

7. That, further the Respondent No.13 in compliance of the orders of the learned Tribunal dated 12.03.2024 and 08.07.2024 humbly craves leave of the learned Tribunal to file a composite

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counter affidavit in reply to the Original Application filed by the applicant.

8. That, the mining lease of river sand of Nizgarhzami Sand Quarry, Tahasil-Talcher, District-Angul lying in the Brahmani River bed over an area of Ac.24.86 belongs to the Respondent No.13. The mining lease is an identified sairat source in the DSR. There are three sand sources in village-Gopinathpur and Nizigarh area named as Mandapal River Sand Mines area 17.805ha. Nizigarhzami Sand Sairat area 10.06ha. and Gopinathpur Sand Quarry area 9.10ha. are located 900meter distance from one source to other source. The distance between Mandapal River Sand Mines to Gopinathpur sand Quarry is approximately 300mtr.

9. That, the Nizgarhzami Sand Quarry (Brahmani River Bed), sairat source was leased out under the OMMC Rules, 2016 by the Tahasildar, Talcher-Sadar to the successful bidder (lessee) on the basis of public auction for a lease period of 5 years. The lease period of 5 years was to be taken effect from the date of registration of the duly executed lease deed in this regard by the Tahasildar. Accordingly, the Respondent No.13 was declared successful bidder and thereafter he applied his proposal vide

P. 4/20/2020

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04.07.2022 for Environment Clearance to SEIAA vide application no.SIA/OR/MIN/61829/2021 dated 04.07.2022 after completion of Environment Impact Assessment (EIA), Environment Management Plan (EMP) and Annual Rate of Replenishment of Sand (ARRS) and after public hearing certain additional documents were sought by the State Level Expert Appraisal Committee (SEAC) on 29.08.2022, which finally proclaimed that the site in question is feasible for sand quarry.

10. That, a mining plan has been sanctioned in favour of the present Respondent No.13, prepared under Rule 28(4) of the Odisha Minor Mineral Concession Rules, 2016 and approved by the competent authority which pertains to the Nizgarhzami Sand Quarry over an area of 10.06 HA or 24.86 acres in village Nizgarhzami under Talcher Tahasil of Angul District, Odisha. A bare perusal of the mining plan makes it evident that the Respondent No.13 was permitted to undertake mining by Semi-mechanised method under Chapter-III of the Mining Plan. The relevant portion of the mining plan is extracted herein below for ready reference of this learned Tribunal:

a) **Whether manual or semi-mechanized or mechanized.**

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**Semi Mechanized Only.** Mining shall be undertaken to extract sand mainly through an open pit spread over the river course devoid of water or nominal water that may be encountered below.

**Mining Method:**

The mode of the deposit, geomorphology of the area and its hydrological condition are some of the factors that favours the open cast method of mining.

Mining will be done with semi-mechanized excavation & loading into Haiwa / Trucks / Tractors for transport to the users destination. The mining will be undertaken on single shift basis. The local man power shall be engaged in the mine.

**b) If semi-mechanized or mechanized number, type and capacity of machines to be used:**

Loading of the sand to transporting vehicles will be achieved through deployment of excavator. The transportation from the river sand bed site to respective users / destinations shall be achieved by Haiwa / Trucks / Tractors. The numbers of fleets with their capacity is as below:

S.L No.	Name	Capacity	No. of Fleet
1	Small Excavator	0.9 m <sup>3</sup>	1
2	Haiwa / Trucks / Tractors	13Cum/6Cum /3Cum	8/16/32

*Pithead Block*

X

3	Safety gears Helmets, safety shoes, Goggles & Hand gloves	-----	As required
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(Copy of the Mining plan is annexed herewith as

**Annexure-A/13)**

11. That, the Respondent No.13 was granted the Environmental Clearance by the State Environment Impact Assessment Authority (SEIAA), Orissa, under the aegis of the Ministry of Environment, Forest and Climate Change, on 28.12.2022 for a period of two years i.e., from 10.01.2023 to 10.01.2025 with a maximum production of 18000 cum per annum. Further, a condition was imposed that on non-submission of the ARRS report after one year the 2<sup>nd</sup> year extraction quantity will be 4500 cum.

(Copy of Environmental Clearance report dated 28.12.2022 is annexed herewith as **Annexure-B/13)**

12. That, it is humbly and respectfully submitted here that the Respondent No.13 in compliance of the conditions of the Environment Clearance has submitted the amount of Rs.4,50,000/- to the District Environment Society on 25.07.2023

P. K. Mohanty

for raising 1000 plants of native species within 2 years in a suitable location adjoining to quarry area.

(Copy of the letter no.4554 dated 04.08.2023 is annexed herewith as **Annexure-C/13**)

13. That, after grant of the Environment Clearance as per the Odisha Minor Mineral Concession Rules, 2016, the Respondent No.13 duly executed a lease deed dated 19.01.2023 for a period of two months i.e. from 10.01.2023 to 31.03.2023. The said agreement was further extended on 03.04.2023 for a period of twelve months from 01.04.2023 to 31.03.2024 with a Minimum Guaranteed Quantity of 15055 cum and deposit of Rs 86,52,213/- towards royalty, additional charges & etc.

(Copy of the lease deed dated 03.04.2023 is annexed herewith as **Annexure-D/13**)

14. . That, along with the Environment clearance and the lease agreement, the Respondent No.13 had also duly obtained the Consent to operate, under Section 25 & 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under Section 21 of Air (Prevention & Control of Pollution) Act, 1981 and the rules framed thereunder, on dated 21.01.2023 which was valid till

31.03.2023. Further, the said Consent to operate was extended on 06.04.2023 till 31.03.2024.

(Copy of the Consent to operate dated 21.01.2023 & 06.04.2023 are annexed herewith as **Annexure-E/13 Series**)

15. That, the statutory clearances duly procured by Respondent No.13 unequivocally demonstrate the lessee's good faith in the management of the sand quarry, strictly adhering to the pertinent regulations and legal framework. This effectively negates any likelihood or prospect of illicit operations being conducted, contrary to the unsubstantiated claims presented by the applicant.

16. That, at the outset all the allegations made by the applicants are bald and mere exaggerations made with an intent to fabricate an unsubstantiated case against the lessee Respondent No.13. The assertions posited within the petition do not rest upon any solid foundation or empirical evidence, rendering the application devoid of credibility and warranting its dismissal on such grounds.

17. That, it is contended that the purported infractions pertaining to the deployment of four heavy excavation machines and a multitude of heavy vehicles, at a juncture when Mechanical

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Mining stands proscribed as per the Sustainable Sand Mining Guideline of 2016 and the stipulations of the Environmental Clearance, are premature and lack precise delineation. Such indistinctness does not substantiate a direct attribution of liability to Respondent No.13, nor does it establish a demonstrable nexus of causation linking the alleged contraventions with Respondent No.13.

18. That, it is hereby affirmed that Respondent No.13 has, in compliance with all requisite statutory mandates, procured the necessary statutory authorizations and, subsequent thereto, has engaged in the extraction of minerals within the demarcated boundaries authorized for such activities. This has been conducted in strict adherence to the prevailing legal framework, and there have been no transgressions imputable to the said respondent. The conduct of mining operations by Respondent No. 13 has been executed with due regard for the legal stipulations governing such activities, ensuring that all operations within the sanctioned premises are devoid of any infraction. Further, it is humbly and respectfully submitted here that the Respondent No.13 has engaged in semi-mechanised extraction of mineral within a demarcated boundaries in consonance with the approved

P. Pradipta Mohanti

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mining plan. Moreover, as on date there is no blanket restriction the use of semi-mechanised method of extraction.

19. That, the contention made by the applicant that the Respondent No.13 is violating condition 15 of the CTO by transporting heavy loaded vehicles through the village road without having permission from the concerned authorities is vague and ambiguous. The area in question consists of three sand quarries and there is no specific proof to substantiate the fact that the heavy loaded vehicles belong only to the Respondent No.13. Hence, as there was no specific violation of the conditions in the Consent to operate and thus the CTO was never revoked.

20. That, a perusal of the replenishment study report clearly reveals that the Respondent No.13 was not operating during the monsoon season which is a mandatory requirement as per the Sustainable Sand Mining Guidelines, 2016. This is also evident of the fact that the replenishment study has been conducted in consonance with the Sustainable Sand Mining Guidelines, 2016 and the stipulations of the EC.

21. That, the assertion that Respondent No.13 has exceeded the annual extraction quota within a mere five days of commencing mining operations is patently unfounded and incorrect. It is

P. Pradipta Mohanty

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categorically stated that the vehicles implicated in the purported over-extraction of sand bear no relation to Respondent No.13. It is plausible that such vehicles are associated with one of the other two quarries active in the vicinity. Consequently, any allegations of over-extraction should be directed towards the appropriate quarry operators, not Respondent No.13.

22. That, the report submitted by the State Pollution Control Board, Odisha definitively indicates that the accusations of non-maintenance of the daily mining register and the non-issuance of transit permits (Form-Y) to each vehicle, suggesting purported complicity with the Tahasildar and Revenue Inspector, are entirely unsubstantiated and appear to be fabricated to malign Respondent No.13. Moreover, such claims inherently contradict the prior accusations of unauthorized transportation of minerals, as verification of such activities is dependent on the aforementioned register and permits. Consequently, the allegations posited by the Applicant are based solely on speculations and conjectures.

23. That, excess mining to the tune of more than 50 Hyva Truck load / day (one Hyva is having load capacity of around 20 cubic meters of sand) which is around 1,000 CM/ Day when the

*Pradipta Kumar Mohanty*

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permission is only for 18,000 CM for the first year and 4,500 for the entire second year is merely a bald allegation without any substantial proof.

24. That, the approved mining plan unequivocally authorizes the lessee to engage in semi-mechanized quarrying operations. Assertions that the lessee was confined solely to manual extraction methods are unsubstantiated. In compliance with the sanctioned mining scheme and environmental clearances, the lessee has legitimately conducted its quarrying activities through semi-mechanized means.

25. That, in response to the assertions concerning non-compliance with the Sand Mining Guidelines of 2016 and 2020, it is hereby affirmed that a thorough replenishment study was executed. The findings of said study were presented to the State Environmental Assessment Committee (SEAC) on 26th February 2024, which subsequently endorsed the amendment proposal for the Environmental Clearance based on the project proponent's report. It is proposed that a volume of 9,586 cubic meters of sand is suitable for extraction in the ensuing year, contingent upon the requisite alterations to the Mining Plan. However, the matter

*P. Pradipta Kumar Mohanti*

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stood deferred due to present application pending before the learned Tribunal.

(Copy of the Annual Rate of Replenishment Study report is annexed herewith as **Annexure-F/13**)

26. That, the Pillar Posting and Demarcation of the lease area are mandated prerequisites as per the Environmental Clearance, which must be fulfilled before the finalization of the lease agreement. Compliance with this precondition by Respondent No.13 was a requisite for the execution of the lease in their favour. Therefore, the accusation regarding the nonexistence of pillar posting and demarcation of the lease area constitutes an unfounded attempt to implicate the respondent in the purported illegal activities within the vicinity.

27. That, the report submitted by the Regional Officer of the State Pollution Control Board, Odisha in compliance of this learned Tribunal's order dated 12.03.2024 states that the Joint Committee visit was conducted on 22.04.2024. The joint committee made the following observations with regard to the Respondent No.13 sand quarry:

9. During joint visit it is observed that the major part of the lease of Nizigharhjami Sand Sairat source is submerged

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*under water hence, the area of sand extraction and depth of mining activities could not be ascertained. However, neither any mining activities was carried out nor any heavy machineries (excavators) were engaged during visit at this site. The committee has not observed any illegal and excess mining in the lease area of Nizigarhjami Sand Sairat source during filed visit and also from official record for the present time being.*

*10. The concerned Revenue Inspector (RI) identified the source. It is observed that there are some pillars posting exist at river embankment side, there is no sign board for the quarry identification.*

*11. Daily mining register has been maintained and transit permits are being duly provided.*

28. That, the applicant has relied upon certain previous pronouncement of this learned Tribunal and the Hon'ble Apex Court to buttress his submissions. However, all of those pronouncements are in a totally different factual scenario, wherein the lessees had indulged in flagrant over extraction and or illegal mining. In the present case the lessee – Respondent No.13 has not at all indulged in any illegal / over extraction mining. As such none of these pronouncements can come to the aid of the applicant.

*P. Pradipta Kumar Mohanti*

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29. That, the averments which are not specifically denied are hereby denied.

30. That, the Respondent No.13 humbly craves leave to file any further affidavit as may be required in the facts and circumstances of the case.

31. That, the facts stated above are true to the best of my knowledge and belief.

Identified by

*Ananya Pradhan*  
Advocate

*P. Shanku Bhatta*  
Deponent

**CERTIFICATE**

Certified that due to want of cartridge papers thick and durable plain papers have been used.

Cuttack

Date: 16.08.24

*[Signature]*  
Advocate

For Respondent No.13

Solemnly sworn before *P. Bhatta*  
me by.....  
being identified by..... *A. Pradhan Advocate*  
at Cuttack Town Dated..... *16/08/2024*  
*Noty*  
*16/08/2024*  
P.K. MOHANTY, Notary, Cuttack Town  
Regd. No-ON-04/1995



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Annexure - A/13



# MINING PLAN

(Prepared under Rule 28 (4) of the Odisha Minor Mineral Concession Rules, 2016)

OF

## NIZGARHZAMI SAND QUARRY

OVER 10.06 HA OR 24.86 ACRES IN VILLAGE NIZGARHZAMI  
UNDER TALCHER TAHASIL OF ANUGUL DISTRICT, ODISHA

APPLICANT -: TAHASILDAR, TALCHER

PREPARED BY

BIPIN BEHARI KHANDUAL

RQP/OD/049/2016

GEO CONSULTANTS PVT LTD.

BHUBANESWAR

**APPROVED**  
*[Signature]*  
Joint Director of Geology  
Talcher Survey, Bhubaneswar



## CONSENT LETTER FROM APPLICANT

The Mining Plan of the Nizgarhjami Sand Quarry in respect of the Quarry Lease area over an area of 10.46 Ha or 25.86 Acres in village Nizgarhjami under Talcher Tahasil of Angul District, Odisha, has been prepared by Sri Bipin Behari Khandual, Consulting Geologist, Regn. No. RQP/OD/049/2016. I request the Authorised Officer, O/o The Joint Director Geology, Zonal Survey, Dhenkanal, Odisha, to make further correspondence regarding final approval of the mining plan, with the said recognised person in his following address.

Geo Consultants Pvt. Ltd.  
 853, Gobind Prasad (Medical Lane)  
 In front of Reliance fresh (Radhika Complex)  
 Bhubaneswar-751006  
 Phone - 0674-2575702  
 Email - consultants\_geo@yahoo.co.in  
 Mobile - +91-9437019019

I hereby undertake that all modifications so made in the mining plan by the said recognised person be deemed to have been made with my knowledge and consent and shall be acceptable to me.

*A. N. S. 12*  
 Name of the applicant  
**Tahasildar, Talcher**  
 Tahasildar, Talcher

Place : Talcher

Date :



## UNDERTAKING

This is to undertake that the financial assurance related to the Progressive Mine Closure Plan of the Mining Plan in respect of the Nizgarhazami Sand Quarry in respect of the Quarry Lease area over an area of 10.06 Ha or 24.86 Acres in village Nizgarhazami under Talcher Tahasil of Angul, District, Odisha, will be submitted by the successful auction holder in the form of bank guarantee from any nationalized bank as and when required by the competent authority.

Place : Talcher

Date :

*ANR*  
Name of the applicant  
**Tahasildar, Talcher**  
Tahasildar, Talcher



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**APPROVED**

  
 Joint Director of Geology  
 Zonal Survey, Dhenkanal

  
 SIPIN BEHARI KHANDUAL

#08/00/048/2016



~~XXXX~~

### LIST OF PLATES

Plate No	Description	Scale (R F)
I	Key Plan	1 : 50,000
II	Lease plan	16" = 1 mile
III	Surface Plan	1 : 1,000
IV	Geological Plan	1 : 1,000
V	Composite development plan	1 : 1,000
VI	Progressive Mine Closure Plan	1 : 1,000

**APPROVED**

  
 Joint Director of Geology  
 Zonal Survey, Dhenkanal



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### LIST OF ANNEXURES

DESCRIPTION	ANNEXURE NO.
Copy of letter of Tahasildar to prepare mining plan	I
Copy of RQP certificate	II
Copy of letter of Revenue Authority in Support of demarcation of area on field	III

**APPROVED**  
 Joint Director of Geology  
 Zonal Survey, Dhanbani



## CHAPTER -0.0

### Introduction:

The area over **24.86 Ac. Or 10.06 Ha** under reference is located in village Nizgarhazami of Talcher Tahasil in Angul district of Odisha. Quarry lease for minor mineral (River Sand) has been proposed to be granted by the Tahasilidar, Talcher to the highest auction holder only after obtaining statutory clearances like mining plan and environmental clearance for five years (Annexure 1). **However, the lease period will be effective from the date of execution.**

The area under reference is featured in the Survey of India Topo-sheet no. 73H/1 and bounded between the latitudes of  $20^{\circ}55'20.56''$  N to  $20^{\circ}55'35.14''$  N and longitudes of  $85^{\circ}14'19.86''$  E to  $85^{\circ}14'31.77''$  E. The area is located at a distance of 21 Km from the district head quarters Anugul and is at a distance of 130 Km from the state capital Bhubaneswar.

In the absence of boundary description of the area by the competent authority, the area as shown by the Revenue authority has been surveyed by the RQP through hand held GPS for obtaining the co-ordinates and RL's of the required points. The co-ordinates of boundary corner points are listed in the Surface Plan (Plate NO III).

Nizgarhazami Lease Pillar Coordinate		
Pillar No	Longitude	Latitude
1	$85^{\circ}14'19.86''$	$20^{\circ}55'25.52''$
2	$85^{\circ}14'20.42''$	$20^{\circ}55'26.37''$
3	$85^{\circ}14'21.37''$	$20^{\circ}55'27.68''$
4	$85^{\circ}14'21.87''$	$20^{\circ}55'28.74''$
5	$85^{\circ}14'22.62''$	$20^{\circ}55'29.72''$
6	$85^{\circ}14'23.47''$	$20^{\circ}55'30.78''$
7	$85^{\circ}14'25.05''$	$20^{\circ}55'32.79''$
8	$85^{\circ}14'26.38''$	$20^{\circ}55'34.68''$
9	$85^{\circ}14'26.84''$	$20^{\circ}55'34.85''$
10	$85^{\circ}14'26.96''$	$20^{\circ}55'35.14''$
11	$85^{\circ}14'31.77''$	$20^{\circ}55'35.12''$
12	$85^{\circ}14'31.67''$	$20^{\circ}55'20.56''$

APPROVED

Director of Geology  
Dhanbad



~~-26-~~  
FORM-O

[See Rule 28 (4) of the Odisha Minor Mineral Concession Rules, 2018]

**MINING PLAN FOR WINNING OF RIVER SAND FROM BRAHMANI RIVER UNDER  
NIZGARHZAMI VILLAGE IN TALCHER TAHASIL OF ANGUL DISTRICT.**

**CHAPTER - 1**

1. Name & Address of the Lessee : Tahasildar, Talcher vide Annexure- I wants to prepare the mining plan of the area after which the sairat will be auctioned for leasing purpose. Hence, at present there is no lessee.
2. Particulars of the area (Acreage, Boundary Description & Land Schedule): : Name of the Quarry- Nizgarhzami sand Quarry  
Area- 24.86 acres or 10.06 hectares  
(Attach location map and surface Land schedule mentioned on plan plan showing the existing features provided by revenue Authority and of the area with contours at 2 m attached as **Plate no -II**. Location Map- interval) Ref. Plate no- I, Surface Plan - Ref. Plate no- III.
3. Status of the Lessee (Private individual/ Private Company/ Public sector Undertaking / Joint sector Undertaking/ Others) : The sairat will be leased out by the Tahasildar after obtaining statutory clearances.
4. Period of Concession : For 5 years.
5. Mineral intended to be won : River Sand

**APPROVED**

*[Signature]*  
Joint Director of Geology,  
Zonal Survey, Dhanbad

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6. Name, Address & Regd. No. of RQP preparing the mining plan with validity of Recognition

: Bipin Behari Khandual  
Geo Consultants Pvt. Ltd.  
853, Gobind Prasad (Medical Lane)  
In front of Reliance fresh (Radhika Complex)  
Bhubaneswar-751006  
Phone - 0674-2575702  
Email - consultants\_geo@yahoo.co.in  
Mobile - 9437019019  
Registration No - RQP/OD/049/2016  
Valid up to-02.08.2026

7. Order No. & date of competent Authority granting the Concession (copy of the Order to be attached)

: Not applicable as the area is yet to be leased out.

8. If, forest area, whether forest clearance Obtained (attach copy of forest clearance)

: The total area is non-forest Govt. land as deciphered from the land schedule of the area.  
Hence, Forest clearance is not required.

**APPROVED**  
*[Signature]*  
Joint Director of Geology  
Zonal Survey, Dhanbani

*[Signature]*

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## CHAPTER -2



9. Reserve (Estimation to be based on the Exploration, if any, carried out in the area or on local Parameters):

The reserve is estimated based on local parameters. The lease area belongs to recent quaternary River bed deposits consisting of sand, silt, clay, gravel and alluvial deposits.

**a. Physiography:**

The Sand bed is on the river Brahmani. The Nizgarhazami sand bed deposit represents a gently sloping to almost flat terrain with highest altitude of ~58 mRL to the central part of the lease area. Vegetation is scanty with small bushes existing in the auction hold area. There is no human settlement within the area.

**b. Regional Geology:**

Gondwana Group Palaeozoic-Mesozoic Upper Mahanadi valley basin which is in this basin, the Gondwana sediments unconformably overlie the Precambrian basement; the latter comprising migmatitic granitic gneiss, amphibolite, schist and quartzite traversed by pegmatite and quartz veins. Era (Upper Carboniferous – Early Permian) - Glacio-lacustrine and fluvial sediments were deposited in linear basins along faulted troughs over the Precambrian basement. These sediments, characterized by fluvial assemblages of interbedded sandstone-shale sequence. While the Lower Gondwana rocks are a vast repository of coal, the Upper Gondwana witness sandstones of Palaeozoic-Mesozoic era. Gondwana rocks are exposed over a large area along NW-SE trending linear belt in the Mahanadi valley (rift/graben in three major basin (Tcher, Ib river & aihgarh). Beside these, a number of small patches outliers) of Gondwana rocks occur in Angul, Dhenkanal districts and others. The lower Gondwana rocks have vast resources of coal. The Stratigraphic successions are as bel



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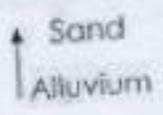
Stratigraphic set-up

Upper Gondwana	Migmatitic granitic gneiss, amphibolite, schist and quartzite	Palaeozoic-Mesozoic
	Conglomerate, sandstone, shale fireclay	Lower Cretaceous
Middle Gondwana	Conglomerate, ferruginous sandstone, red shales	Lower to Middle Triassic
----- Un-conformity -----		
Lower Gondwana	Fine to medium grained sandstone, siltstone, clay-beds, coal	Upper Permian
	Sandstone, shale, clay, ironstone shale	Middle Permian
	Conglomerate, sandstone, shale, fireclay, coal	Lower Permian
----- Un-conformity -----		
	Boulder Bed, green shale, sandstone, marlstone	Upper carboniferous to lower Permian
----- Un-conformity -----		
	Gnite, greisses, amphibolites, migmatites	Precambrian

**c. Local Geology**

The sand deposit in Brahmani River near Nizgarhazami belongs to recent to sub recent deposits of Holocene age. Beach Sand, younger and older alluvium also belongs to the same age. The proposed area is occupied by a gently sloping to almost flat deposits of sand.

The basement consists of Tertiary deposits and the sequence of litho-units encountered in the auction hold area is as follows:





**d. Lithology:**

The characteristic features of the litho units of the area are described below:

**Sand:** The area under reference is covered with grey to white sand deposits with average thickness of 1 m throughout the lease area. Sand by definition is a loose, incoherent mass of mineral materials and is a product of natural processes. These processes are the disintegration of rocks and corals under the influence of weathering and abrasion. When sand is freshly formed, the particles are usually angular and sharply pointed, but they grow gradually smaller and more rounded as they become constantly worn down by the wind or water. Sand particles tend to settle quite rapidly because of their shape, density and size. Therefore, the concentration of sand is highest near the bed of a river and lowest near the surface. Clean sand is indeed a rare commodity on land, but common in sand dunes and beaches.

The composition of sand is highly variable in nature, depending on the local rock types/sources and conditions, but the most common constituent of sand in inland continental settings and non-tropical coastal settings is silica (silicon dioxide or  $SiO_2$ ), usually in the form of quartz which because of its chemical inertness and considerable hardness, is the most common mineral resistant to weathering.

**Alluvium:** Decomposed vegetal materials admixed with clay and soil constitutes alluvium which is underlain by the sand bed with some clayey matter.

**e. Reserve**

The Geological reserve has been estimated by considering the following parameters.

- i) Outcome of geological mapping: No existing quarry/excavated patch is present in the applied lease area. River sand occurs throughout the applied area.



- ~~XXXX~~
- ii) In the particular area, the difference in elevation between the highest and lowest points is much less i.e. around 1m. Gradient of the river is also very low. Therefore, Surface area method has been adopted for estimation of reserve for this river bed sand.
  - iii) Thickness of sand zone: The mRL of the surface sand zone is around 58m. Considering the geological mapping, and RL of water level the thickness of sand is taken as 1m.
  - iv) The area of occurrence of river bed sand bed within the proposed lease area has been demarcated on the Geological plan. (Plate No IV).
  - v) The reserve has been calculated under probable category as there is no quarry.

**Probable reserve:**

No existing quarry/excavated patch is present in the applied lease area. Considering the geological mapping, adjacent quarry and as revealed from the applicant the thickness of sand is taken as 1m.

**Mineable Reserve:**

Safety Zone area with 7.5 m barrier all along the applied lease boundary has been excluded for computation of mineable reserve.

- vi) The foreign particles in the sand such as wood and other floating waste have been considered as waste. However, the volume of waste is negligible in quantity and in practice the waste will not be separated during mining. So recovery factor has been taken as 100% for sand.
- vii) Total volume of excavation of sand is saleable.

**Calculation of Reserve:**

Based on the above considerations, site specificity & chosen local parameters, the reserve has been calculated for river bed sand zone by surface area method.



Formula adopted for calculation of volume of river sand is  $V = A \times T \times RF$

Where,

V is total volume of river sand in  $m^3$

A is the surface area of occurrence of sand bed.

T is the average thickness of sand bed in m &

RF is recovery factor in %.

The total geological reserve has been estimated as 103069 Cum.

Similarly, the mineable reserve of river bed sand is worked out to be 90636 Cum.

The geological reserve and mineable reserve of sand Quarry calculated under various categories are given in table no.1 & 2 respectively as follows:

Table.No.1

GEOLOGICAL RESOURCE CALCULATION OF FOR THE QL PERIOD OF FIVE YERAS				
AREA OF POTENTIAL SAND ZONE ( $m^2$ )	THICKNESS OF SAND (m)	REPLENISHMENT FACTOR (100%)	GEOLOGICAL RESOURCE OF SAND ( $m^3$ )	CATEGORY
A	B	C	D= A X B X C	E
85891	1	2	103069	PROBABLE
TOTAL			103069	

Table No.2

MINEABLE RESERVE CALCULATION FOR THE QL PERIOD					
AREA OF POTENTIAL SAND ZONE EXCLUDING SAFETY ZONE ( $m^2$ )	THICKNESS OF SAND (m)	REPLENISHMENT FACTOR (100%)	MINEABLE RESERVE OF SAND ( $m^3$ )	EXTRACTABLE MINEABLE RESERVE	CATEGORY
A	B	C	D=A X B X C	E= D X 0.6	F
75530	1	2	151060	90636	PROBABLE
TOTAL				98843	

Right now, the sand resource available within the sources is  $46488 m^2 \times 1m = 46488 m^3$  which is more than the MGQ provided by the Tehasildar.



## CHAPTER -3

### 10. Mining

- a. Whether manual or semi-mechanized or mechanized  
**Semi Mechanized only.** Mining shall be undertaken to extract sand, mainly through an open pit spread over the river course devoid of water or nominal water that may be encountered below.

#### Mining Method:

The mode of the deposit, geomorphology of the area and its hydrological condition are some of the factors that favours the open cast method of mining.

Mining will be done with semi mechanized excavation & loading into Haiwa/trucks/ tractors for transport to the users' destination. The mining will be undertaken on single shift basis. The local man power shall be engaged in the mine.

- b. If semi-mechanized or mechanized, number, type and capacity of machines to be used:

Loading of the sand to transporting vehicles will be achieved through deployment of excavator. The transportation from the River sand bed site to respective users/destinations shall be achieved by Haiwa/trucks/tractors. The no. of fleets with their capacity is as below:

Sl. no	Name	Capacity	No. of Fleet
1	Small Excavator	0.9 m <sup>3</sup>	1
2	Haiwa/Trucks/Tractors	13Cum/6Cum /3Cum	8/16/32
3	Safety gears Helmets, safety shoes, Goggles, & Hand gloves	-----	As required



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c. Whether drilling and blasting will be made use of, if yes, state monthly quantity of explosive consumed:

As such the river bed sand are loose. No drilling & blasting is required.

d. Benching pattern (Height x Width): Benching pattern is not feasible in case of sand, as the angle of repose of sand is  $35^\circ$ , based on this the Ultimate pit slope Limit has been taken as  $35^\circ$ . The maximum depth of mining will be of 1m or up to water table whichever is less.

e. Proposed pit face lay out (Plate No-V):

As there is no existing quarry with the applied area, hence development for five year plan period is proposed accordingly in fresh area. First year is proposed in the western part of the lease area due to presence of accessible road. It will gradually progress towards east in subsequent years of the plan period. The composite year wise development plan for five years has been provided on a scale 1:1000 in Plate-V.

f. Quarry Floor Level (RL) at the end of the year or period of the concession:

58 mRL or up to water table whichever is less. The present level of the lease area is 58mRL. During plan period, the quarry floor will be 57 mRL or up to water table whichever is less. The proposed pit lay out have been shown in the development plan and also in Progressive Mine Closure Plan (Ref Plate-V & Plate-VI).

g. Quantity of mineral to be won (Annual Level of Production) :

Total available mineable reserve over the area has been estimated considering the probable zone of occurrence of river sand bed within the proposed area which will be extracted year wise during the plan period. Based on the total extractable mineable reserve, the MGQ has been fixed by the competent authority and this much quantity of sand has been planned to be extracted each year from the source as mentioned below:



Table No.3  
YEAR WISE PRODUCTION OF SAND DURING PLAN PERIOD

YEAR	PRODUCTION (m <sup>3</sup> )
1 <sup>ST</sup> YEAR	18000
2 <sup>ND</sup> YEAR	18000
3 <sup>RD</sup> YEAR	18000
4 <sup>TH</sup> YEAR	18000
5 <sup>TH</sup> YEAR	18000
<b>TOTAL</b>	<b>90000</b>

In case the lessee finds the resource of sand is not sufficient to stick to the production program of this plan, he may modify the plan within the QL period after seeking permission of the competent authority. But this exercise can be done just after the monsoon any substantiating year of the QL period before undertaking any excavation within the area.

The above annual production has been determined on the basis of availability of mineable sand within the proposed area. It is not possible to adhere to the minimum guaranteed quantity suggested by the competent authority as because the quantity of mineable reserve available within the area is less than the minimum guaranteed quantity. Planning has been made for the reserve which is available right now within the area without any extrapolation for future replenishment.

**h. Quantity of overburden to be removed (Show location of such disposal in development plan) :**

Since the river bed sand deposit is devoid of any over burden, development for over-burden does not arise.

**i. Whether heavy blasting to be adopted: If yes, location of nearest habitation (to be shown in the surface plan)**

No blasting is required for sand mining.

**j. Safety precautions to be adopted:**

No safety measures are required as there will no blasting operations.

**k. Brief description on the method of Procurement and storage of explosives:**

Not applicable.

**APPROVED**  
Joint Director of Geology  
Zonal Survey, Dhanbad

*[Signature]*

~~36~~

## CHAPTER -4



11. Waste disposal:

(a) Location (show it in the development plan): No dump has been proposed as there will be no generation of waste in this case.

(b) Area covered: Not applicable as no dump has been proposed.

(c) Environment safeguards for such disposal: Not applicable as no dump has been proposed.

**APPROVED**

  
Joint Director of Geology  
Zonal Survey, Darshanal



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### CHAPTER -5

12 Mine drainage :  
(Give details of total make of water during dry and rainy season and its method of handling)

The shallow depth excavation on dry/nominally wet sand close to the bank or dry river bed has been proposed, which will have negligible or no impact on drainage. Abandoned stream channels on terrace and inactive flood plains have been preferred rather than active channels and flood-plains.

Water that might percolate (if any) into excavation area has to be pumped out to channelize to river course during excavation. Stream will not be diverted to form inactive channel. Mining below subterranean water level will be avoided as a safeguard against any water contamination. Excavation at the concave side of river bank/channel has been avoided to prevent bank erosion.

It is observed from the dug well in the adjacent plain area and in the nearby villages that the ground water table varies between 4m to 14 m from the surface level depending upon seasonal variations. During dry season the water table falls to 14m from the surface where as during rainy season the water table remains at 4m from the surface. As the mining activities presently proposed are maximum up to 0.4m that to within the river course and the total mining operation will be achieved through manual means, so there will be no effect on ground water table.

**APPROVED**  
*[Signature]*  
Joint Director of Geology  
Zonal Survey, Dhanbad

*[Signature]*  
RQP/00/049/201



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### CHAPTER -6

13. Mineral Processing : (Give details of processing including sizing, Sorting, generation of rejects/lines etc)  
Sand excavation from the river bed mining is not required to be processed as the end consumer will purchase the sand as such for their requirement.

APPROVED

  
Joint Director of Geology  
Zonal Survey, Dibrugarh

  
BINODHARI KHANDUA  
RQP/OD/049/2015

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## CHAPTER -7



14. a) No. of trees to be uprooted due to mining operation:

There is no tree within the auction area on the river-bed sand and hence not applicable.

b) Programme of Plantation:

It is proposed for planting @50 saplings of suitable species per annum by the lessee in vicinity of the river bank as avenue plantation which is to be undertaken in consultation with the concerned authority.

**APPROVED**

*[Signature]*  
Joint Director of Geology,  
Zonal Survey, Dhankul.

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### CHAPTER -8

15. Manpower:

a) Supervisory (Inclusive of statutory personnel's) :

1 (one) number of supervisory personnel preferably Mining Mate with Certificate of Competency from DGMS will be employed.

b) Non- Supervisory (skilled, semi-skilled & unskilled):

Skilled: 5

Semi-skilled-5

Unskilled-19

Total- 29+1

c) OMS

Total production during plan period : 90000Cum

Average ore production /annum : 18000 Cum

Working days in the year : 200 days (on an average)

Production per day : 18000/200= 90Cum

Output per man shift (OMS)=90/30=3 Cum

APPROVED

Joint Director of Geology  
Zonal Survey, Dhenkanal

- 41 -

# CHAPTER -9



16. Use of Mineral : (Specification and monthly quantity to be dispatched be furnished)

a) For domestic use: For construction purpose the sand of Brahmani river will be used. 18000 Cum of sand per annum likely to be dispatched by the lessee (auction holder) to domestic users only

b) For export: No material will be exported at present.

**APPROVED**  
*[Signature]*

Joint Director of Geology  
Bihar Survey, Dhanbad

*[Signature]*  
JIPIN BEHARI KHANDEJA  
ROR/ODD/48/2016

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## CHAPTER -10



### 17. Mine Closure Plan:

a) Describe the process/activities to be undertaken for reclamation and Rehabilitation in respect of the following:

- i) **Mined out land:** During plan period the mined out land will be 7.55 ha.

The Nizgarhjami sand Quarry comprises of 24.86 acres or 10.06 hectares under Talcher Tahasil of Anugul district. The entire area is of river bed and devoid of any forest growth. Since it is a sand quarry and the total mining activities will be confined to the Brahmani river sand bed, no reclamation measure is proposed for mine closure. Invariably, the volume of sand extracted in each year will be re-deposited in subsequent years during rainy season. The replenishment of sand in the mining lease area is sufficient to sustain the mining operations at prescribed levels, restricted to <3m as per guidelines. Therefore, only avenue plantation has been proposed @50 saplings per annum on the river bank adjacent to his leasehold.

The existing land use as well as proposed land use of the area is given as below:

Type of land use	Area (Ha)
Water channel area	1.29
Left over area adjacent to water channel	0.40
Quarry Safety zone area	0.82
Potential Mineable surface area within the plan period	7.55
<b>Total</b>	<b>10.06</b>

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- ii) **Waste/reject dump:** Does not arise as there will be no generation of waste.
- iii) **Topsoil stack and its utilization:** There will be no generation of top soil in this Quarry since the mining for sand will be carried out within the river bed

**b) Financial assurance: (To be furnished as a bank guarantee)**

The area to be put to use will be 7.55 Ha. Hence the financial assurance as decided by the competent authority would be submitted by the auction holder on demand. Also, the auction holder has to pay 5% of the royalty towards environment management fund.

**APPROVED**

*[Signature]*  
Joint Director of Geology  
Zonal Survey, Dhanbani

*[Signature]*  
BUPIN BEHARI KHANDE  
RO/00/049/2011



~~- 4A -~~

## CERTIFICATE

18.0

I, Gouri Naik, OAS (JB), Tahasildar, Talcher hereby solemnly affirm that the plans and programmes in this mining plan will be scrupulously implemented by the auction holder of the lease of the Nirgorhazami Sand Quarry in respect of the Quarry Lease area over an area of 10.06 Ha or 24.86 Acres in village Nirgorhazami under Talcher Tahasil of Angul, District, Odisha, and will be strictly held responsible for any deviation thereof.

I also hereby certify that the provisions of Mines and Minerals (Development & Regulation) Act, 1957, and the Mines Act, 1952 and Rules and Regulations made under these Acts, along with the provisions of Odisha Minor Mineral Concession Rules, 2016 will be strictly adhered to by the auction holder while implementing this Mining Plan and wherever specific permissions will be required the auction holder will approach the concerned authorities of Directorate General of Mines Safety and the State Government as the case may be.

*G.N.52*

Name of the applicant  
Tahasildar, Talcher  
Tahasildar, Talcher

Place : Talcher

Date :



ANNEXURE - 1

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## OFFICE OF THE TAHASILDAR, TALCHER

Letter No: - 1454, Date 21.05.2020

To

Mr Chandrabhanu Das  
Recognised Qualified person  
O/o Geo Consultants Pvt. Ltd  
Bhubaneswar.

Sub: Preparation of Mining Plans.

Ref: Your letter no. 512, dated 21.02.2020

Sir,

In inviting reference on the subject cited above I am to say that the quantum of suggestive MGQ reported under reference is here by accepted and the mining plan of the following minor mineral sources under Talcher Tahasil to be prepared by RQP of your office accordingly as per the MGQ of each source as mentioned below.

Sl No	Name of the source	Area in Ac	Suggestive MGQ in m <sup>3</sup> Per Year
1	Gopinathpur Sand Quarry	9.11 Ha.	10500
2	Dhobapal Sand Quarry	18.00	14500
3	Nargahzami Sand Quarry	10.00 Ha.	18000
4	Sinoda Sand Quarry	18.00	10700
5	Santapada Sand Quarry-A	18.00	24800
6	Haluripa Sand Quarry	20.50	6000
7	Dasanali Sand Quarry	18.00	13500
8	Santapada Sand Quarry-B	28.00	16600
9	Kerkis Sand Quarry	18.00	11500

This is for your information and necessary action.

Yours Faithfully,

*[Signature]*  
21.05.2020

Tahasildar, Talcher



ANNEXURE - II



GOVERNMENT OF ODISHA  
DEPARTMENT OF STEEL AND MINES  
DIRECTORATE OF MINES

**CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON**  
(Under sub-rule (2) of rule 20 of Odisha Minor Mineral Concession Rules, 2004)

*Sri Bipin Behari Khandual, S/o Nabaghana Khandual,  
At/P.O. Dhunpur, Via: Tiran, Dist: Jagatsinghpur - 754138,  
whose photograph and signature are affixed herein, having  
given satisfactory evidence of his qualification and  
experience, is hereby recognised under sub-rule (2) of rule  
20 of Odisha Minor Mineral Concession Rules, 2004 as a  
qualified person to prepare Mining Plans for Minor  
Minerals within the State of Odisha, India.*



*Bipin Behari Khandual*

His Registration No. is

RQP/OD/049/2016

This Recognition is valid for a period of 10 years ending on 02.08.2026.  
This certificate will be liable to be withdrawn/ cancelled in the event of furnishing  
wrong information/ documents in the Mining Plans to be submitted by him.

Place: Bhubaneswar  
Date: 03.08.2016

*[Signature]*  
DIRECTOR OF MINES, ODISHA  
BHUBANESWAR

*[Signature]*  
BIPIN BEHARI KHANDUAL  
RQP/OD/049/2016



ANNEXURE - III

~~57~~

CERTIFICATE OF REVENUE INSPECTOR

This is to intimate that the area proposed to be granted for quarry lease in respect of Nizgarhazami Sand Quarry in respect of the Quarry Lease area over an area of 10.4 Ha or 24.86 Acres in village Nizgarhazami under Talcher Tahasil of Angul District, Odisha, has been demarcated on field by me with the help of existing revenue village sheets of the adjoining area for preparation of mining plan.

Date:-

Place:-

Signature  
Revenue Inspector  
Talcher Circle

SPIN BEHARI KHANOU

ROBID/049/2016

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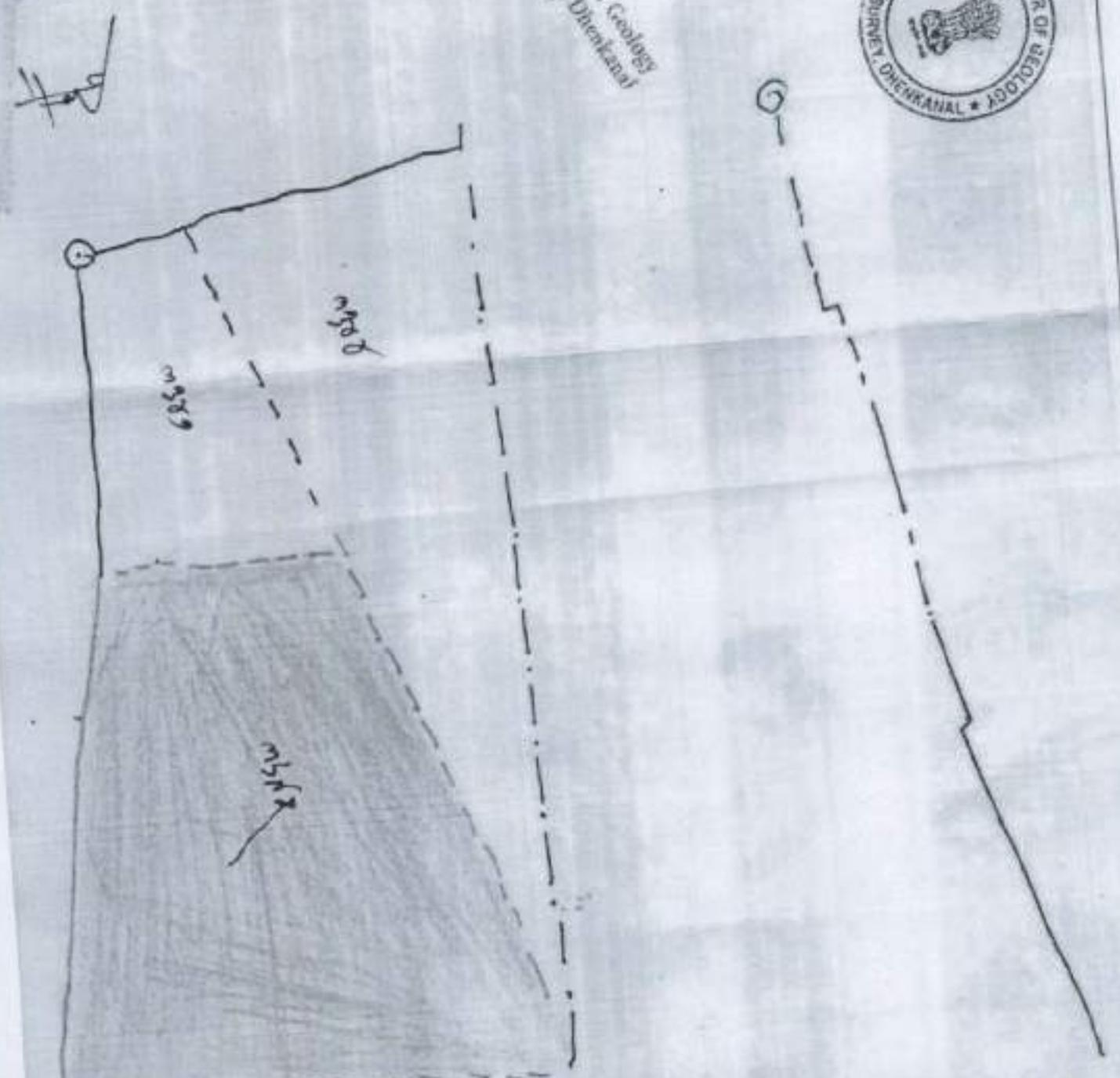
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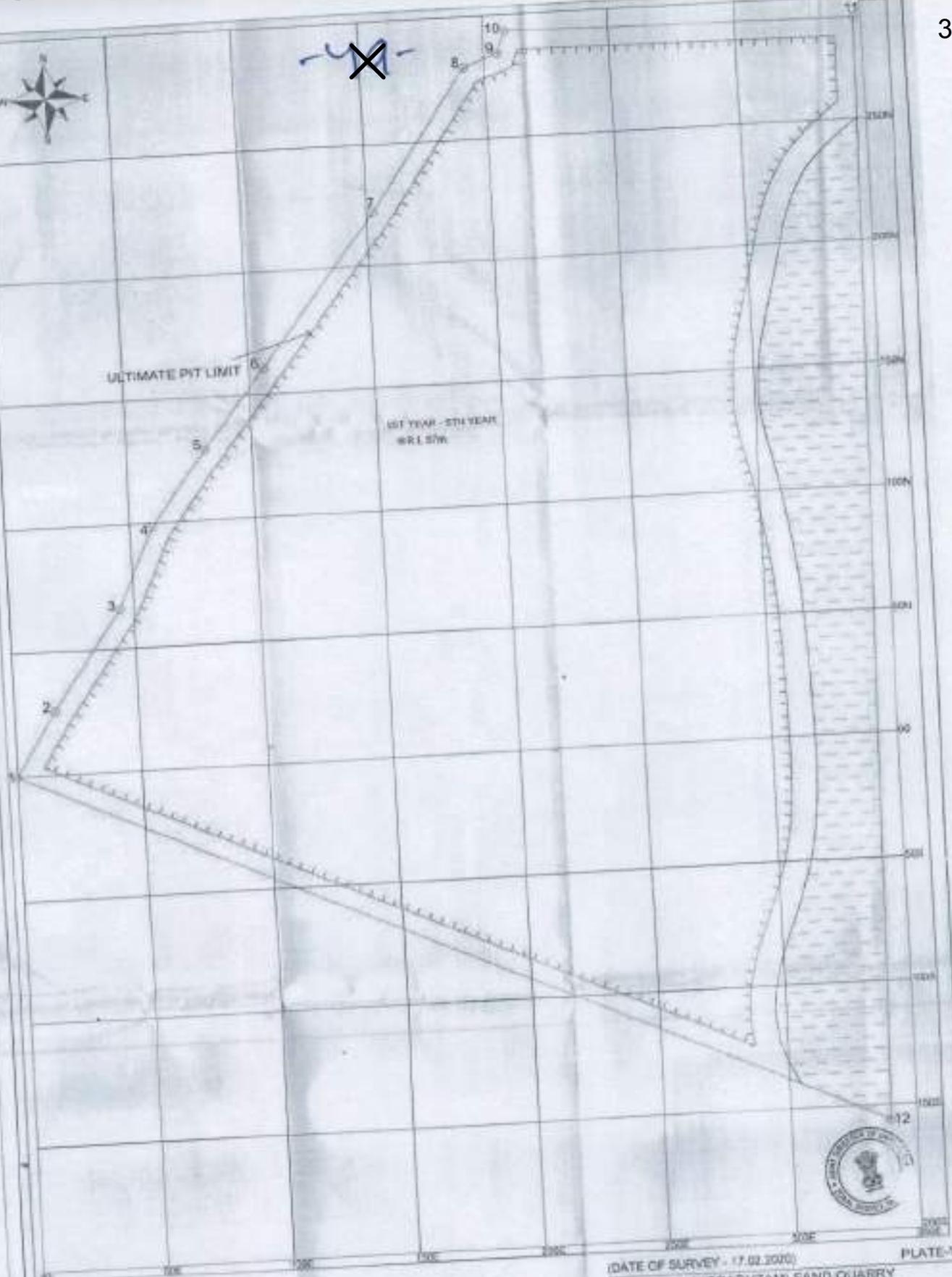
Joint Director of Geology  
 Zonal Survey, Dhenkanal



IT IS HEREBY CERTIFIED THAT THIS PLATE IS CORRECT AND UP TO DATE

BIPIN BEHARI KHANOUAL  
 ROP/10D/1049/2015





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**TOPOGRAPHICAL FEATURES**

	QUARRY LEASE AREA
	SAFETY ZONE
	APPROACH ROAD

**GEOLOGICAL FEATURES**

	POTENTIAL AREA FOR SAND DEPOSITION
	ULTIMATE PIT LIMIT

**PROPOSED FEATURES**

	AREA OF EXCAVATION DURING 1ST YEAR - 5TH YEAR
	PROPOSED RL



(DATE OF SURVEY - 17.02.2020)

PLATE-V

NIZGARHZAMI SAND QUARRY  
OVER 10.86 HECT / 24.86 ACRE  
IN ANGUL DISTRICT, ODISHA.

**DEVELOPMENT PLAN**

R.F 1:1,000



APPLICANT - TAHASILDAR, TALCHER  
**APPROVED**

*(Signature)*  
Joint Director of Geology

BY ORDER OF GOVERNOR THE  
PUNJAB GOVT  
SUNIL KUMAR SHARMA  
DIRECTOR OF GEOL.



INDEX		GEOLOGICAL FEATURES	
	QUARRY LEASE AREA		EXISTING SAND DEPOSIT
	SAFETY ZONE		POTENTIAL AREA FOR SAND DEPOSITION
	APPROACH ROAD		ULTIMATE PIT LIMIT
	SPOT RL		

(DATE OF SURVEY - 17/02/2020) PLATE-IV

**NIZGARHZAMI SAND QUARRY  
OVER 10.06 HECT / 24.88 ACRE  
IN ANGUL DISTRICT, ODISHA**

**GEOLOGICAL PLAN**

R.F. 1:1,000

APPLICANT:- TAHASILDAR, TALCHER

**APPROVED**

Tahasildar, Talcher

Officer, Talcher



- INDEX**
- TOPOGRAPHICAL FEATURES**
- QUARRY LEASE AREA
  - SAFETY ZONE
  - APPROACH ROAD
  - SPOT R.L.

**Nigrahmani Bnd. Co-Ordinates**

Pillar Id	Longitude	Latitude
1	85°14'18.80"	20°55'25.50"
2	85°14'10.40"	20°55'26.97"
3	85°14'23.37"	20°55'27.68"
4	85°14'21.87"	20°55'28.24"
5	85°14'22.62"	20°55'29.22"
6	85°14'23.47"	20°55'30.28"
7	85°14'25.05"	20°55'31.29"
8	85°14'26.36"	20°55'34.68"
9	85°14'26.88"	20°55'34.85"
10	85°14'26.96"	20°55'35.14"
11	85°14'31.27"	20°55'36.12"

(DATE OF SURVEY - 17.02.2020) PLATE-III

**NIZGARHIZAMI SAND QUARRY  
OVER 10.06 HECT / 24.86 ACRE  
IN ANGUL DISTRICT, ODISHA**

**SURFACE PLAN**

RF: 1:1,000

APPLICANT - TAHASILDAR, TALCHER

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**APPROVED**

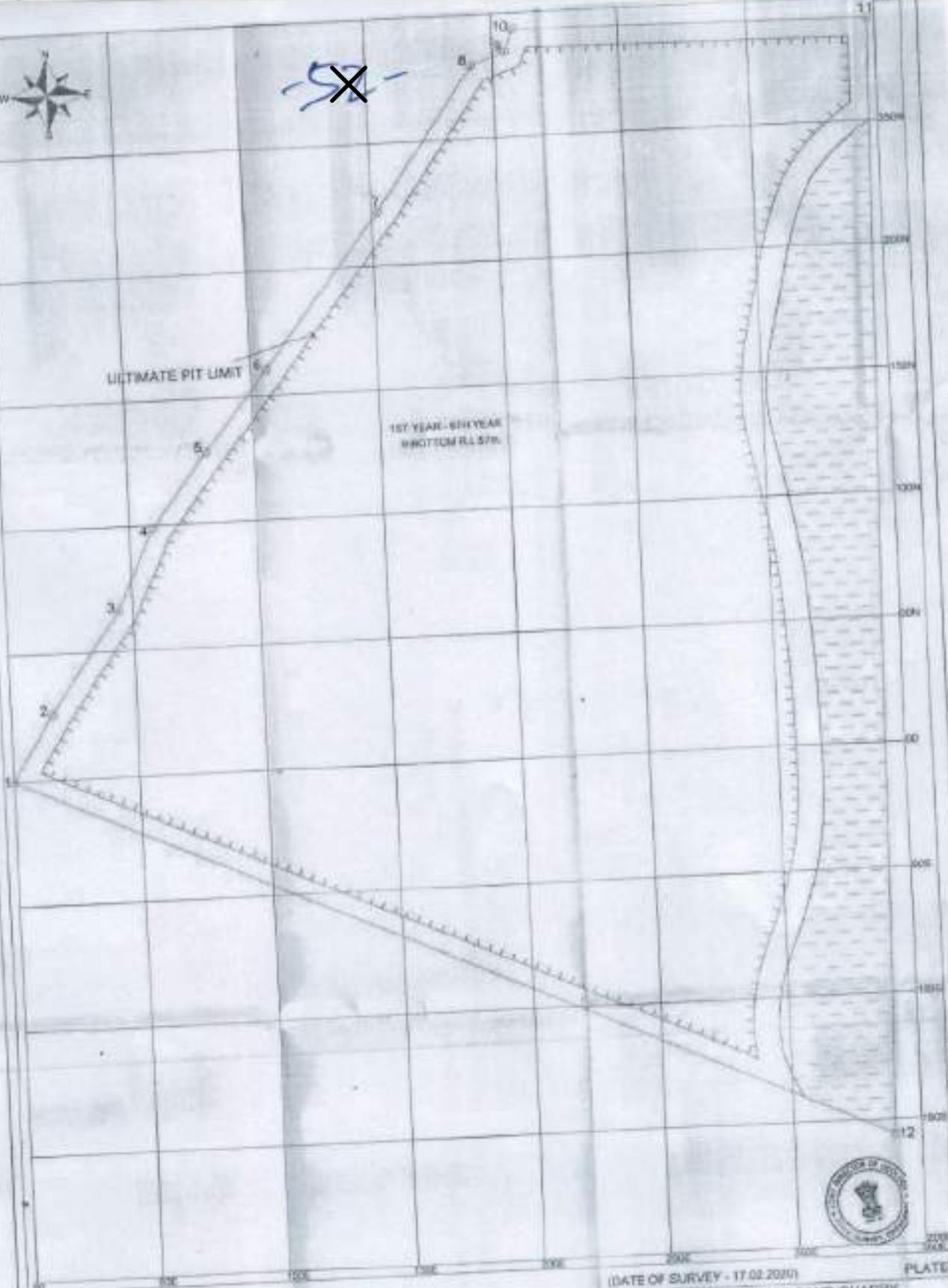
*[Signature]*  
Joint Director of Geology  
Sand Survey, Bhubaneswar

*[Signature]*  
Joint Director of Geology  
BSP/CO-188/2018





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INDEX

-  QUARRY LEASE AREA
-  SAFETY ZONE
-  APPROACH ROAD
-  ULTIMATE PIT LIMIT
-  AREA OF EXCAVATION DURING 1ST YEAR - 5TH YEAR
-  PROPOSED R.L.



(DATE OF SURVEY - 17.02.2020) PLATE-VI

NITGARHZAM SAND QUARRY  
OVER 10.06 HECT / 24.86 ACRE  
IN ANGUL DISTRICT, ODISHA

PROGRESSIVE MINE CLOSURE PLAN

R.F. 1:1,000

APPLICANT:- TAHASELDAR, TALCHER

Appo  
Joint Director of Geology  
Bhubaneswar, Odisha

STATE OF ODISHA  
TALCHER  
TALCHER



-51-

Answer-B/13

ENVIRONMENTAL  
CLEARANCE

Government of India  
Ministry of Environment, Forest and Climate Change  
(Issued by the State Environment Impact Assessment  
Authority (SEIAA), Orissa)

To,

The LESSEE  
PITAMBAR BHUTIA  
MANDAPAL TALCHER TOWN -759107

**Subject:** Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/OR/MIN/61829/2021 dated 04-Jul-2022. The particulars of the environmental clearance granted to the project are as below.

1. EC Identification No.	EC22B001OR190307
2. File No.	61829/250-MINB1/07-2022
3. Project Type	New
4. Category	B1
5. Project/Activity including Schedule No.	1(a) Mining of minerals
6. Name of Project	Nizgarhazami Sand Quarry
7. Name of Company/Organization	PITAMBAR BHUTIA
8. Location of Project	Orissa
9. TOR Date	08 Jul 2021

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 28/12/2022

(e-signed)  
Dr. K. Murugesan, IFS  
Member Secretary  
SEIAA - (Orissa)

*Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH. Please quote identification number in all future correspondence.*

*This is a computer generated cover page.*

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**STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, ODISHA**

SRF-2/1, Unit-IX, Bhubaneswar-751022, Tel: 0674-3510075, Email: seiaaodisha@gmail.com  
*statutory body constituted by Ministry of Environment, Forest & Climate Change under Environment  
 (Protection) Act, 1986*

**ENVIRONMENTAL CLEARANCE FOR SAND QUARRY**

**Subject: Application of Sri Pitambar Bhutia for mining of Sand from Nizgarhzami Sand Quarry Over an area of 24.86Acres or 10.06Ha in Village- Village –Nizgarhzami, Tahasil- Talcher, District- Angul - Environmental Clearance reg.**

The Project Proponent Sri Pitambar Bhutia has submitted an application for EC to SEIAA, Odisha through the Parivesh portal of MOEF&CC,GOI vide online application no. SIA/OR/MIN/61829/2021 dated 04.07.2022 for mining of Sand from Nizgarhzami Sand Quarry Over an area of 24.86Acres or 10.06Ha in Village- Village –Nizgarhzami, Tahasil- Talcher, District- Angul in terms of the provisions of the Environment Impact Assessment(EIA) Notification, 2006 & amendments thereto under the Environment(Protection) Act,1986.

**2. Proposal in Brief:**

Proposal No.	SIA/OR/MIN/61829/2021
Date of Application	04.07.2022
File No.	61829/250-MINB1/07-2022
Project Type	EC
Category	B1
Project/Activity including Schedule No.	1(a) Mining of minerals
Name of the Project	Proposal for EC for Nizgarhzami Sand Quarry Over an area of 24.86Acres or 10.06Ha in Village- Village –Nizgarhzami, Tahasil- Talcher, District- Angul
Name of the company/Organization	Sri Pitambar Bhutia
Location of Project	Odisha
ToR Date	24.05.2021

**3. Project details:** The highlights of the project, as ascertained from the application and as revealed from the proceedings/discussions held during the meetings of SEAC/SEIAA, are given as under:

- (i) This is a proposal for mining of river sand of Nizgarhzami Sand Quarry lying in the Brahmani River bed, over an area of 24.86 Acre or 10.06 Ha located at Village - Nizgarhzami, Tahasil- Talcher, District- Angul of Sri Pitambar Bhutia.
- (ii) The mining lease is an identified sairat source in the DSR. The Nizgarhzami Sand Quarry (Brahmani River bed), sairat source will be leased out under the OMMC Rules,2016 by

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- Tahasildar, Talcher Sadar to the successful bidder (lessee) on the basis of public auction for a lease period of 5 years. The lease period of 5 years shall take effect from the date of registration of duly executed lease deed in this regard by the Tahasildar.
- (iii) The mining plan for the sand mining project has been approved by Joint Director of Geology Zonal Survey, Dhenkanal vide letter No. 666 on 01.06.2020.
- (iv) The cluster certificate has been furnished by the Tahasildar certifying that there is no other mine located within 500 meters from the periphery of the proposed mine lease area. As reported by the Tahasildar, this sairat source is not a part of any cluster.
- (v) The Terms of Reference (ToR) has been granted by SEIAA, Odisha vide letter no. 1341/SEIAA dated 24.05.2021 for undertaking detailed EIA study for the project.
- (vi) The public hearing has been conducted on 24.11.2021 at 10 A.M. at Tahasil Office, Talcher under Angul district, Odisha. Major issues raised during PH were on Employment opportunity to local villagers, sand at low cost to the villagers for construction of their house, Plantation in village and Water sprinkling for dust suppression.
- (vii) The baseline data has been collected from Dec, 2020 to Feb, 2021 (post Monsoon) for the project.
- (viii) Location and Connectivity - The mining area is a part of Survey of India Toposheet No.73H/1, bounded by Latitude: 20° 55' 20.56" N to 20° 55' 35.14" N & Longitude: 85° 14' 19.86" E to 85° 14' 31.77" E. The quarry area is accessible by all weather & well-connected by road and rail. The lease area is located at a distance of 3.2kms from Talcher town, 21kms from the District Headquarters Angul and 130kms from the State Capital Bhubaneswar. Talcher Railway station is the nearest railway station located at a distance of 4.13kms from the lease area. Nearest Road bridge is at a distance of 1kms from the mining lease. Metal road connecting to the lease area with the village - Nizgarhazami is at distance of 0.32 meters. SH - 63 is the nearest State Highway which is at distance of 17.7km. NH 200 is the nearest National Highway at 1 km and NH 23 which is major district road at a distance of 2.5kms. The project proponent has submitted that there is no national park, wild life sanctuary, eco sensitive areas situated within 10Kms radius of the lease area.
- (ix) Total Reserves and Production Details: - The project proponent has submitted that the total geological reserve has been estimated as 103069 cum considering the thickness of the sand is 1.0m for the QL period. Similarly, the extractable mineable reserve of river bed sand has been estimated to be 46488 cum (excluding safety zone) considering the thickness of the sand is 1.0m. The project proponent has proposed a total production of 90000 cum of sand considering the thickness of the sand is 1.0m from this quarry during the valid lease period of 5 years, with a maximum production 18000 cum per annum. Mining will be done by semi mechanized method. Excavation & loading of sand will be

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done through dumpers and trucks/tractors.

- (x) Replenishment study: - The replenishment study has been carried out during May,2021 (pre monsoon) and November, 2021 (post monsoon) by volumetric method. Estimated annual replenishment volume is 20120 cum. However, the extractable Mineable Reserve as per approved Mining Plan is 90636 cum. The annual proposed production is 18000 cum.
  - (xi) Water Requirement: - The total water requirement will be 7.0 KLD for different purposes like Domestic, Dust suppression, plantation purposes. Source: Nearby village with the help of tankers.
  - (xii) Power Requirement: - No use of electric power as the operation will be done in the day time.
  - (xiii) Green Belt Development: Greenbelt plantation will be done by planting 940 nos. saplings of suitable species by the lessee in vicinity of the river bank, haulage roads and near village.
  - (xiv) Employment Potential - A total of 30 nos. of workers are to be employed during mining operation.
  - (xv) The project cost is estimated to be Rs.60.00 lakhs and there is a budgetary provision of Rs.4.67 lakhs as capital cost and Rs.4.20 Lakhs as recurring cost towards environmental protection measures. The PP has estimated a budget of Rs.1.20 lakhs on CER.
  - (xvi) Whether the DSR has been prepared as per the MoEF& CC, Govt. of India Notification S.O. 3611(E) dated 25.07.2018, Sustainable sand mining guidelines-2016 and Enforcement & Monitoring Guideline for sand mining-2020- No
  - (xvii) Whether the replenishment rate study of sand was done as per the Enforcement & Monitoring Guideline for sand mining-2020-No
  - (xviii) The Environment consultant M/s P & M Solutions, Noida (U.P) along with the project proponent has made a detailed presentation on the EIA/EMP report on 05.08.2022.
4. This proposal conforms to the item no. 1(a) in the schedule of EIA Notification, 2006 as amended time to time, and the minor mineral extraction project falls under Category B1 as the mining lease area is more than 5ha.
  5. The proposal is duly appraised by the SEAC in its meeting held on 05.11.2022. The SEAC has submitted the appraisal report and recommended for grant of EC for the proposal with stipulated conditions.
  6. The matter was further examined in the State Environment Impact Assessment Authority (SEIAA), Odisha in its 102<sup>nd</sup> meeting held on 06.12.2022 in accordance with the EIA Notification, 2006 and further amendments thereto as well as the Judgement dated 2<sup>nd</sup> February,2022 of Hon'ble National Green Tribunal in OA No.33/2020/EZ (Laxmidhar PalaiVrs. District Collector, Balasore).

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7. Environmental Clearance (EC) is granted under the provisions of EIA Notification No. S.O. 1533 (E) dated the 14<sup>th</sup> September, 2006 of the Government of India in the erstwhile Ministry of Environment and Forests, as amended from time to time for mining of Sand from Nizgarhjami Sand Quarry Over an area of 24.86 Acres or 10.06 Ha located in Village- Village -Nizgarhjami, Tahasil- Talcher, District- Angul with the following stipulations, environmental conditions and safeguards.

**A: Stipulations:**

Sl.	Descriptions	Stipulation
(i)	Lease Area:	24.86 Acres or 1.06 Ha
(ii)	No Mining Zone:	1/4 <sup>th</sup> of river width for protection of river bank and 7.5 meter safety zone from all side of lease boundary.
(iii)	Maximum Depth of Mining:	1.0 meter as per the approved mining plan
(iv)	Permitted Quantity:	1 <sup>st</sup> year: 18000 cum 2 <sup>nd</sup> year: 4500 cum
(v)	Validity Period of EC:	Two years from date of issue

**B: SPECIFIC ENVIRONMENTAL CONDITIONS AND SAFEGUARDS WHICH NEED TO BE COMPLIED WITH BY THE TAHASILDAR BEFORE LEASE AGREEMENT:**

- 7.1 **Boundary Demarcation:-**The boundary of the lease area shall be demarcated on ground at the project cost, by erecting 1.20 meter (4 feet approx.) high reinforced concrete pillars above ground, each inscribed with its serial number, distance from pillar to pillar and GPS co-ordinates by any empanelled agency of ORSAC.
- 7.2 **Digital Map:-**A digital map (in KML format as well as PDF version) showing GPS coordinates of all boundary pillars duly countersigned by the Tahasildar shall be submitted to SEIAA, Odisha through email at [seiaaorissa@gmail.com](mailto:seiaaorissa@gmail.com).
- 7.3 **Intimation of EC:-**The copies of the EC shall be sent to the Sarpanch(s) of the concerned Gram Panchayat(s), Urban Local Bodies and relevant other Offices of the Government with a request to display the same for 30 days from the date of receipt.
- 7.4 **Tree Plantation:-**Compensatory Tree Planting (CTP) shall be carried out with minimum @100 trees per Ha. of lease area as per the approved cost norm for avenue plantations of the State Forest Department. The Project Proponent (lease holder) shall deposit Rs. 4,50,000/-, with the respective District Environment Society for raising 1000 plants of native species within 2 years in a suitable location adjoining to quarry.

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- 7.5 **State EMF Fund:-**An amount equal to five percent(5%) of the royalty payable shall be collected from the lessee by the Tahasildar and deposited to the State Environment Management Fund, which will be utilized as per provisions of Rule 49(3) of the OMMC Rule, 2016 preferably, in and around the areas where mining activities are undertaken.
- 7.6 **Condition by Collector:-**Any other condition(s) the Collector & Chairman, District Environment Impact Assessment Authority (DEIAA), may impose in the interest of protection and safeguarding the local environment.
- 7.7 **Compliance report for Transfer of EC:-**Any transfer of EC to a PP/Lessee shall be considered by SEIAA, Odisha only after receipt of the full compliance report through Tahasildar concerned of the above environmental conditions and safeguards.
- C: STANDARD ENVIRONMENTAL CONDITIONS AND SAFEGUARDS WHICH NEED TO BE COMPLIED ON FIELD AFTER THE LEASE AGREEMENT**
- 7.8 **Specific Condition:** NOC from Irrigation Deptt., Govt. of Odisha shall be obtained that proposed mining will not affect the barrage proposed/under construction adversely. Mining activity shall be commenced after obtaining NoC from Irrigation Deptt., Govt. of Odisha
- 7.9 **Maximum permissible depth:** This Environmental Clearance is given with the condition that maximum depth of digging of sand shall be 1.0m as per mining plan. Any flouting of this restriction shall make this EC liable to cancellation.
- 7.10 **Maximum permissible quantity:** Maximum quantity of quarry material that can be permitted by the lesser to be removed from the quarry area is 18000 cum in the 1<sup>st</sup> year and 4500 cum in the 2<sup>nd</sup> year. Any flouting of this quantitative restriction shall make this EC liable to cancellation.
- 7.11 **Annual Replenishment Rate Study of Sand:-**The Project Proponent shall carry out by engaging appropriate consultant, annual replenishment rate study of sand as per prescribed drone method by collecting pre monsoon & post monsoon data from the field to know the quantum of volume of sand deposited/replenished & extracted in the mining lease area. The detailed comparison of both pre-monsoon and post-monsoon elevation data shall be included in the study report. The detailed methodology for finding the rate of replenishment study of sand is laid down in the Enforcement & Monitoring Guidelines for Sand Mining, 2020 issued by the MoEF & CC, Govt. of India. The finding of the study shall be submitted to SEIAA to assess the actual rate of replenishment of mined out sand in the lease area.
- 7.12 **District Survey Report:** The District Survey Report (DSR) shall be prepared by the competent District Authority as per the MoEF & CC, Govt. of India Notification S.O.3611(E) dated 25.07.2018, Sustainable Sand Mining Guidelines-2016 and

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- Enforcement & Monitoring Guidelines for Sand Mining-2020 and submitted to competent authority for approval.
- 7.13 **EC Extension:**-Any further extension of EC beyond two year shall be considered only with submission of duly approved District Survey Report and Annual Replenishment Rate Study report of sand.
- 7.14 **Any change in mining plan requires fresh EC:**-Any change in the calendar plan, change in production quantity or method of mining shall not be made without **prior** approval of the SEIAA. Mining activity shall adhere to the working parameters of approved mining plan prepared for this project. The detailed production of sand from the lease area of each year shall be submitted in tabular form during submission of compliance report.
- 7.15 **Environmental Management Plan:** EMP shall be implemented by PP to ensure compliance with the environmental conditions specified above. The year wise funds earmarked for environmental protection measures shall be kept in separate account and shall be spent according to the plan proposed in EMP. Year wise progress of implementation of EMP shall be reported to the SEIAA, Odisha and OSPCB along with the compliance report. The Tahasildar shall ensure the compliance of this condition along with all lease holders of his jurisdiction.
- 7.16 **No Working Zone:** - The lessee shall ensure that no sand mining is carried out in the areas as specified below:-
- a) During the rainy season;
  - b) Within the water channel or stream flow area throughout the year;
  - c) 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 meter from the edge of National Highway and railway line, 50 meter from a reservoir, canal or building, 25 meter from the edge of State Highway and 10 meter from the edge of other roads except on special exemption by the Sub-Divisional level Joint Inspection Committee.
  - d) The mining or any ancillary activity shall not in any way disturb the flow pattern of the river water during the non monsoon period.
  - e) No stream shall be diverted for the purpose of sand mining and no natural water course shall be obstructed.
  - f) Sand mining operations shall not affect the existing sources for irrigation / drinking water / industrial purpose.
  - g) The natural sand dunes, if any, near or surrounding the lease area shall not be disturbed.
- 7.17 **Transport Safeguards:**

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- a) No transportation of the minerals shall be allowed on any road passing through villages/habitations without prior explicit permission.
- b) Transportation of minerals through existing rural roads can be allowed only by the concerned Govt. Department/ Gram Panchayat/BDO after required strengthening such that the carrying capacity of road is increased to handle the mineral carrying truck traffic. The project proponent shall bear the cost towards the widening and strengthening of existing public roads in case the same is proposed to be used for the project.
- c) Project proponent shall ensure that the transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and traffic density.
- d) Vehicles hired for transportation of minor mineral from the site should be in good condition and should have pollution check certificate and should conform to applicable air and noise emission standards and should be operated only during non-peak hours. Speed of vehicle be regulated and in no case >30 Kms / hr be allowed.
- e) The vehicles shall not be overloaded and shall be covered with Tarpaulin. The Tahasildar may collect an appropriate additional road maintenance levy from the lessee as part of the lease conditions on the basis of quantum of mineral transported, and utilize the proceeds of the levy for proper maintenance of the extraction paths and roads to prevent their degradation on account of plying of mineral carrying trucks.
- f) Water spraying should be made on the village road to control particulate matter (dust particles) pollution in surrounding air during transportation from the quarry. Garland drain shall be constructed on the hill slope to arrest downward flow of particulate matter with rainwater.

7.18 **Other Environmental Conditions:**-The Project Proponent shall follow all the provisions of Sand Policy of Govt. Of Odisha dated 02.09.2021 for this sand mining project.

- a) The Tahasildar shall take adequate measures to prevent unauthorized mining;
- b) The project proponent should carry out river bed sand mining manually by engaging local laborers to check over exploitation of sand at the source;
- c) The lessee shall ensure safety of human life and livestock from accidents in case village / any habitation is very nearby the mining lease area.
- d) River Bank stabilization shall be made through stone patching. Stone patching on river bank with plantation in-between and the ramp construction shall be done in consultation with and advice of concerned Water Resource Department, Government of Odisha.

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- e) At the end of mine closure, the proponent shall immediately remove all the sheds put up in the quarry and all the equipment in the area before closure of the quarry.
- 7.19 **Common Forum for EMP:-** All the individual quarry lessee holders coming under the Tahasil may create a common forum in coordination with the Tahasildar and contribute funds to it for grading, compaction and maintenance of haulage road, provision of water spray on the village road to control particulate matter (dust particles) pollution in surrounding air during transportation from the quarry, and provision of thick, multilayer and a continuous green belt around the lease area excluding the entry and exit gate for prevention of environmental pollution and noise during mining activity.
- 7.20 **Public Hearing Compliance:-**The activities proposed in action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the action plan and within a stipulated time frame as submitted in the Final EIA/EMP Report. The Status Report on implementation of action plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration. The project proponent shall comply in true spirit all the issues raised and recorded in proceedings of public hearing w.r.t. environment / pollution / CER shall be complied by the Mining Authority as per OM F. No. 22-65/2017-IA.III, dated 30.09.2020 of MoEF&CC, Govt. of India.
- 7.21 **Intimation of EC:-** (i) The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen on the website of the Ministry. The advertisement shall be made within seven days from the date of receipt of the Clearance letter and a copy of the same shall be forwarded to the Regional Office of MoEF&CC, Bhubaneswar.  
 (ii) A copy of this Environmental Clearance letter shall be displayed on the website of the Odisha State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industries centre and Collector's Office/ Tahasildar's office for 30 days.
- 7.22 **Half-yearly Compliance Report:-**It shall be mandatory for the project management to submit half yearly compliance reports on the status of implementation of the above stipulated environmental safeguards to the SEIAA, Odisha / Regional Office of the MoEF& CC, Bhubaneswar in soft copies on 1<sup>st</sup> day of June and December of each calendar year. The proponent shall also upload the compliance report including results of monitored data, as applicable in the website of the Ministry for monitoring of EC Conditions, failing which EC is liable to be revoked.

*D.A.J.*



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- 7.23 **Concomitant Monitoring:**-The conditions stipulated in the environmental clearance will be closely monitored on the ground by the lease granting authority, i.e. the Tahasildar, who shall ensure compliance of the stipulated conditions and take corrective measures promptly in case of any non-compliance and also ensure that the project proponent submits quarterly compliance reports.
- 7.24 **Independent Monitoring:**-The concerned Regional Office of the MoEF & CC/ SPCB, Odisha shall periodically monitor compliance of the stipulated conditions as applicable for this project. The project authorities should extend full cooperation to the MoEF & CC officer(s)/SPCB officer(s) by furnishing the requisite data / information / monitoring reports.
- 7.25 **Revocation of EC:**-The SEIAA, Odisha may revoke or suspend the EC, if implementation of any of the above conditions is not satisfactory. The SEIAA, Odisha reserves the right to alter /modify the above conditions or stipulate any further condition in the interest of environment protection.
- 7.26 **Change in Ownership of Lease:**-This EC shall not be transferred without the permission of SEIAA, Odisha. The Tahasildar shall inform the SEIAA of any change in ownership of the mining lease. No mining is allowed without transfer of EC as per provisions of the para 11 of EIA Notification, 2006, as amended from time to time.
8. **Basis of Permitted Quantity:**-It is made clear that the EC granted is on adhoc basis as the applicant has not submitted the approved District Survey Report (DSR) or Annual Replenishment Rate Study Report (ARRS). In the absence of approved District Survey Report (DSR) the area for removal of minerals shall not exceed 60% of the mine lease area, and any deviation or relaxation in this regard shall be adequately supported by the scientific report (Refer Para: 4.3 (r) of the Enforcement & Monitoring Guidelines for Sand Mining issued in January, 2020 by the Ministry of Environment, Forest and Climate change). The permitted quantity in the 1<sup>st</sup> year has been calculated on the basis of 60% mine lease area or quantity mentioned in the Mining Plan, whichever is less. Further in the absence of approved Annual Replenishment Rate Study Report an annual replenishment rate of @25% of the 1<sup>st</sup> year quantity is allowed for 2<sup>nd</sup> year w.r.t Order dated 02.02.02022 of the Hon'ble NGT in OA No.33/2020/EZ (Laxmidhar Palai Vrs. District Collector, Balasore). Further amendment to the permitted quantity in the 2<sup>nd</sup> year shall be considered on submission of duly approved ARRS.
9. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any

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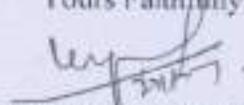
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 (Protection) Act, 1986

other orders passed by the Hon'ble Supreme Court of India/ High Court and any other Court of Law relating to the subject matter.

10. This Environmental Clearance (EC) is subject to orders/judgment of Hon'ble Supreme Court of India, Hon'ble High Court and Hon'ble NGT as may be applicable.
11. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act, 2010.

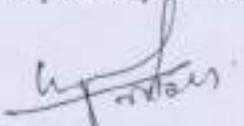
Yours Faithfully,

  
 Member Secretary

Copy to

1. Additional Chief Secretary, Forests & Environment Dept., Government of Odisha for information.
2. Member Secretary, State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-8, Bhubaneswar for information.
3. Member Secretary, SEAC, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar for information.
4. Deputy D.G.Forest., Regional Office (EZ), Ministry of Environment & Forests, A-31, Chandrasekharapur, Bhubaneswar for information.
5. Principal Secretary, Revenue and DM Department, Govt. of Odisha Bhubaneswar for information.
6. Collector & DM, Angul/ DFO, Angul/ Sub Collector, Talcher /Tahasildar, Talcher for Information and necessary action with specific reference to para in respect of year wise permitted quantity.
7. Guard file for record/Website/Parivesh Portal.

SH

  
 Member Secretary

True Copy Attested

  
 Advocate

Signature Not Verified

Digitally signed by D. K. Murugesan, IFS  
 Member Secretary

Annexure- C/13

## OFFICE OF THE DIVISIONAL FOREST OFFICER: ANGUL DIVISION: ANGUL

Letter No. 4554 / Dated. 4.8.23

To

The Tahasildar,  
Talcher.

Sub: - Regarding deposit of Rs. 4,50,000/- for tree plantation.

Ref: - 1) Your letter No. 4398 dt. 21.07.2023.  
2) This office letter No. 4373 dt. 26.07.2023.

Sir,

With reference to the above cited letter No. on the captioned subject, it is to inform that Sri Pitambar Bhutia, S/o- Banambar Bhutia, of Village- Mandapal, Talcher, Ward No. 03, P.O- Talcher, Dist. - Angul has been deposited in M/S District Environment Society Account vide A/C No. 096601000003509, IFSC-IOBA0000966 for Rs. 4,50,000/- (Rupees Four lakh fifty thousand) only on dt. 27.07.2023 for raising of 1000 plants of native species within 2 years in a suitable location adjoining to quarry. The copy of the deposit receipt and pass Book print is enclosed herewith for your reference.

Encl: - As above.

Yours faithfully,

*R. B. B. B.*  
04/08/2023  
for Divisional Forest Officer  
Angul Division

Memo No. 4555 /Date. 4.8.23

Copy forwarded to Sri Pitambar Bhutia, S/o- Banambar Bhutia, of Village- Mandapal, Talcher, Ward No. 03, P.O- Talcher, Dist.- Angul for information and necessary action with reference to this office memo No. 4374 dt. 26.07.2023.

*R. B. B. B.*  
04/08/2023  
for Divisional Forest Officer  
Angul Division

Memo No. 4556 /Date. 4.8.23

Copy forwarded to the Additional District Magistrate (Revenue), Angul/ Sub-Collector, Talcher for kind information and necessary action with reference to this office memo No. 4375 dt. 26.07.2023.

*R. B. B. B.*  
04/08/2023  
for Divisional Forest Officer  
Angul Division



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07-05-2022		Int. Pd: 01-02-202		3117.00	499265.88 Cr
07-05-2022		NEFT-UCBA-UCBAH2		53600.00	552865.88 Cr
27-05-2022		NEFT-PUNB-PUNBH2		50000.00	602865.88 Cr
04-06-2022	331709	NATIONAL GREEN C	53600.00		549265.88 Cr
06-06-2022	331790	RANGE OFFICER	50000.00		499265.88 Cr
10-08-2022		Int. Pd: 01-05-202		3611.00	502876.88 Cr
07-11-2022		Int. Pd: 01-08-202		3486.00	506362.88 Cr
24-01-2023		NEFT-RBIS-RB1025		100000.00	606362.88 Cr
03-02-2023		Int. Pd: 01-11-202		3570.00	609932.88 Cr
<hr/>					
17-03-2023		NEFT-SBIN-SBIN42		135000.00	744932.88 Cr
05-05-2023		Int. Pd: 01-02-202		4548.00	749480.88 Cr
29-05-2023		NEFT-UCBA-UCBAH2		30000.00	779480.88 Cr
06-06-2023	331791	FORESTRANGE OFFIC	40000.00		739480.88 Cr
27-07-2023		RTGS-UCBA-UCBAH2		450000.00	1189480.88 Cr

True Copy Attested  
  
 Advocate

52300570  
12005230024

GOVT. OF ODISHA  
SR, TALCHER  
ANGUL



STAMP DUTY  
000000

NON JUDICIAL

Rs. = 0432700 = -4.4.2023

365498

ODISHA

LICENSE NO : ANGFRA005

INDIA \*\*Zero-Four-Three-Two-Seven-Zero-Zero\*\*

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Annexure-D/13

*P. S. Ch.*  
SUB-REGISTRAR  
TALCHER

1-Registration ID No.  
2-Registration Document No.  
3-Registration Book No.  
4-Registration Volume No.  
5-Date of Registration

570  
560  
2  
12  
4.4.23

*P. S. Ch.*  
Registering Officer  
TALCHER

Fee Paid  
AV) 173045 /-  
o/c. 280  
173295 /-

Ref:- Privious Lease deed Agreement No. 10052300140 made on dt.  
19.01.2023 from 10.01.2023 to 31.03.2023

**LEASE DEED AGREEMENT**

THIS INDENTURE MADE THIS 03.04.2023 between, the Government of Odisha, represented through Tahasildar, Talcher hereinafter called the COMPETENT AUTHORITY.

AND

Sri Pitambar Bhutia, aged about 44 years

S/o: Banabar Bhutia

Caste : Gopal , By profession : Business,

Resident of Village : Mandapal, Talcher Town

Ward No. 03 PO : Talcher, PS- Talcher Dist; Angul

Mob. No.- 9437291585 Adhar No. 7161 9435 9929



Dt.03.04.2023

*Pitambar Bhutia*  
4.4.23  
*Banabar Bhutia*  
4.4.23  
Tahasildar

*P. S. Ch.*  
Tahasildar

1781 573694

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ରସିଦ୍ ପୁସ୍ତକ  
RECEIPT BOOK

ସଂ. 0289401

[ ଓଡ଼ିଶା ନିଜାଉତ ପୁଲଗଣ ପୁସ୍ତକ, 1963 ନିୟମ 31(i) ଦ୍ୱାରା ]

ପୁସ୍ତକ ସଂ. 01 ମସିହା 2022-23

କାର୍ଯ୍ୟାଳୟ ପ୍ରାପ୍ତ ହେଲା Pitambar Bhutia Lessee of  
Nizgarhazami Sand Quarry  
towards Royalty & etc for operation of  
କର୍ମ କାରକର Nizgarhazami Sand Quarry for the year  
(2023-24) from 01.04.23 to 31.03.24

ନଗର ଆକାରରେ	1. Addl. charges	Rs. 67,74,750/-
	2. Royalty	Rs 5,26,925/-
	3. E.M.F	Rs. 3,65,084/-
ଝାମ୍ପା ଆକାରରେ	4. DMF	Rs. 7,90,168/-
	5. Surface Rent.	Rs 3,622/-
	6. Dead Rent	Rs 1,05,630/-
ମୋଟ	7. T.D.S	Rs. 1,46,034/-
	Total -	Rs 86,52,213.00

(Rupees Eighty six Lakh Fifty two Thousand -  
(ଅଷ୍ଟଶହ ଶହ ଅଠାଅଶୀ ହଜାର ଦୁଇ ଶହ ଠିକ୍ଷା)  
Two Hundred Thirteen) only  
through UCO Bank chq. No. 000011  
dt. 03/04/23

OGP (FORMS) DTP-207-10,000 Bks.-24-07-2012

ସ୍ୱକ୍ଷ୍ମ ନିର୍ଦ୍ଦେଶକ  
03/04/23

**Nazir**  
Tahasil Office, Talcher

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1. Sairat Case record No. : 08/2020-2021
2. Name of the Quarry : NIZGARHZAMI SAND QUARRY  
(BRAHMANI RIVER SAND BED)
3. Lease period : 2022-2023 TO 2027-2028
4. Agreement period : 01.04.2023 to 31.03.2024  
(For the year 2023-2024)
5. Minimum Guaranteed Quantity : **15055 cum**
6. Quoted Rate : Rs. 450.00 per cum
7. Amount deposited for 01.04.2023 to 31.03.2024 (2023-24)  
The lessee has deposited Rs. 86,52,213/- towards Royalty, Addl. Charges & etc. as detailed below :
- |  |                 |
|--|-----------------|
| 1. Addl.Charge (450 x 15055cum)          | Rs. 67,74,750/- |
| 2. Royalty(@ofRs.35/-Per Cum)            | Rs. 5,26,925/-  |
| 3. E.M.F (5% of Royalty + Addl. Charges) | Rs. 3,85,084/-  |
| 4. D.M.F.(10%ofRoyalty+Addl.Charges)     | Rs. 7,30,168/-  |
| 5. Surface Rent (360x10.06Hq / 2.47)     | Rs. 3,622/-     |
| 6. Dead Rent (10500 x 10.06Hq / 2.47)    | Rs. 1,05,630/-  |
| 7. T.D.S.(2% of Royalty + Addl. Charge)  | Rs. 1,46,034/-  |
- Total amount** Rs. 86,52,213/-  
(Rupees eighty six lakh fifty two thousand two hundred thirteen) only

## 8. LOCATION OF THE QUARRY

Mouza	Khata No.	Plot no.	Kissam	Area (AC & HA)
Nizgarhzami Sand Quarry	446 ( Four Four Siz)	3695 (Three six nine Five)	Nadi	Ac. 24.86 10.06 (Hect)

P. L. L. L. L.  
4.4.23

P. L. L. L. L.  
TAHASILDAR  
TALCHER

-20-

WHEREAS the Registered Qualified Person, Sri Bipini Bihari Khandual, Regd No. – RQP /OD /049/2016, BBSR (SL No. 32 of RQP list provided by Govt. of Odisha Forest and Environment Department vide L No. **11573/F & E Bhubanewar Dt. 24.06.2014**) has prepared the mining plan of the sairat source i.e Nizgarhzami Sand Quarry in favour of Sri Pitambar Bhutia, S/o- Banabar Bhutia, Village : Mandapal, Ward No. 03, PO: Talcher PS: Talcher , Dist; Angul which has been approved by the Joint Director of Geology, Zonal Survey, Dhenkanal and Environment clearance has been granted by the Member Secretary, State Environment Impact Assessment Authority (SEIAA) Odisha on Dt. 28.12.2022 to operate the source for the year **2022-2023 to 2024-2025** i.e from 10.01.2023 to 10.01.2025 The lessee will extract the minor mineral as per Mining which plan has been prepared by Registered Qualified Person and approved by the Joint Director of Geology, Zonal Survey, Dhenkanal.

The Lessee has deposited the above mentioned charges amounting to Rs. **86,52,213/- (Rupees eighty six lakh fifty two thousand two hundred thirteen)** only for the period from **01.04.2023 to 31.03.2024** towards Royalty, Additional Charges, Surface Rent, Dead Rent, DMF including environmental management fund and income tax charge.

The lessee shall abide by the provision of Minor Minerals Rules & Regulation framed here under and orders received from the higher authorities communicated from time to time for the development of the sources of minor minerals.

The competent authority reserves the right to cancel /amend the agreement as and when required if necessary without any reason thereof.



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08. The lessee will be held responsible, if the pillar posting of the sand quarry are disturbed from their fixed positions and the re-affixation of the pillars will be done by the lessee.
  09. The lessee shall pay deed rent for the remaining period of the year within a fortnight of the execution of the lease deed and thereafter pay yearly deed rent on or before the 15<sup>th</sup> January and every year. An account of the royalty payable by him shall be kept by the competent authority and as soon as the royalty payable by him becomes equal to or in excess of the deed rent already paid by him, he shall remove the minor minerals only after payment of royalty. Advance deed rent paid by him shall be deemed to have been merged into the amount of royalty he was liable to pay.
  10. The lessee shall pay to the government compensation for all damages, injuries or disturbance which has been caused by him in the course of operating the lease and shall indemnify government against all claims which may be made by third parties in respect of such damage injuries or disturbances.
  11. The lessee shall operate the quarry manually in adherence to the guidelines issued by the Ministry of Forest & Environment No. J13012/12/2013-IA-II(I) dt. 24.12.2013.

The lessee will operate the sairat source as the terms and conditions given by the Member Secretary, SEIAA Odisha vide his ref No. 6493/SE on dt. 28.12.2022.

The lease of the sairat source is subject to the terms and conditions as laid down in Rule 29 Chapter IV of OMMC Rule-2004 and subsequent amendment brought by Government from time to time in 2016 onwards.

*P. K. Sahu* *S. K. Sahu*  
4.4.23

*P. K. Sahu*  
TALASILDAR  
TALCHER

- ~~33~~
12. Quarrying operation shall commence within three months from the date of execution of the lease agreement. The lease shall thereafter carry on quarrying in a proper, skillful and workman like manner.
  13. If the lessee does not work upon the quarry for a continuous period of six months, the lease shall be liable to be cancelled, unless prior permission has been granted for such stoppage by the competent authorities on reasonable grounds.
  14. The lessee shall allow reasonable facilities of access to other bonafide concessionaries.
  15. If any minor mineral not specified in the lease is discovered in the leased area, the lessee shall report in forthwith to the competent authority and the Director. The lessee shall not win or dispose of any such minor mineral without obtaining a proper lease or permit or permission of the competent authority in writing. If he fails to apply for a lease or permit to extract the newly discovered minor mineral within three months from the date of discovery or if he declares his intention not to work upon the minor mineral, the competent authority may grant, lease or permit in respect of that minor mineral to any other person after observing the procedure in these rules for the purpose.
  16. The lessee shall nor carry on or allow to be carried on any quarrying operation at any point within a distance of,
    - (a) One hundred meters from any Railway line (except under and in accordance with the written permission of the Railway Administration concerned), National Highway, State Highway, monuments, heritage sites, or any reservoir, or

*Rishabh . B. Talcher*  
4.4.23

*Poc. dr*  
TALCHER  
TALCHER

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- (b) Within a distance of fifty meters from any tank, canal, road (other than National or State Highway or public works or building or inhabited sites) except under the accordance with the previous permission of the Collector. The railway Administration or the Collector, as the case may be granted such permission on such conditions as it or he may specify.
17. The State or Central Government shall have right to construct any road railway or canal, reservoir to pay electric or telephone lines in or over the lands held under the lease.
  18. The lessee may erect on the area granted to him any building and structure required for the purpose of quarrying operations. Provided he does not offend any lawful orders issued by the office or authority competent to issue such orders.
  19. The lessee shall in his own expense, erect and all times maintain and keep in good condition boundary marks and pillars necessary to delineate the lease area.
  20. The lessee shall obtain permission of the competent authority of the Forest Department, Orissa to carry on any operation in forest area.
  21. The lessee shall abide by the provisions of all laws for time being in force, relating to the working of quarries and matters affecting the safety health and convenience of the persons employed for quarrying and of the public. He shall also obey all existing law of way, water and other easements and shall not use power cutters and other machinery in case of literate quarries.

*Potul Bhalu*  
4.4.23

*Pocchi*

TALASHIDAR  
TALCHER

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22. The lessee shall keep correct accounts of minor minerals quarries and dispatched and shall furnish a quarter return in Form-R and annual return in Form-Y to the competent authority and the director.
23. The lessee shall afford reasonable facilities of inspection of the quarries in the lease land accounts and records pertaining to working of lease, to the competent authority and Director or any other officer authorized by any of them. Such officer may issue directions to prevent wasteful extraction of minerals and to ensure observance of the provisions of rules and specify the time limit no exceeding thirty days within which the directions shall be complied with if the lessee does not allow the inspecting officer responsible facilities for inspection or fails to comply authority may forfeit the whole or part of security deposit paid by the lessee or impose penalty not exceeding rupees five thousand only and may carried the lessee and forfeit the security deposit.
24. All the accidents involve injury or loss of life or loss or damage to property shall be reported forth with to the competent authority as well as to the Collector of the District.
25. If any Government dues payable under the lease agreement remain unpaid for one month, beyond the date fixed in lease agreement for such payment, the competent authority or any officer authorized by him may either into the eased area and distain all or any of the minor minerals or other immovable property and may dispose of such of the distain minor minerals or property as will be sufficient for the satisfaction of the Government dues and all costs and expense occasioned by the non payment there, if any such Government dues remain unpaid over two months beyond the date fixed in the lease agreement for such payment,

*P. S. S. S.* *3/4/27*

*P. S. S. S.*  
TANASILDAR



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30. The Quarry owner shall carry out mining activities with appropriate safeguards to the river embankment and bridge if any. The quarry owner shall not carry on quarrying operation within a distance of 50 meters from any Public Road, Public Building, Temple, Reservoir, Dam, Burial Ground, Railway Track etc and not cause and damage to public private property.
  31. The lessee shall keep the Government indemnified from any liability compensation, damage etc. arising out of his acts or omissions as lessee during the substance of the lease.
  32. No rejection/off grade major mineral shall be removed on payment of royalty as minor minerals, under this rule.
  33. If the land leased out a private land, the lessee shall pay such just and reasonable compensation as may be agreed upon between the lessee and the owner of the land.
  34. The competent authority may include such other conditions in the lease agreement with the approval of the controlling authority.

If any event orders of the competent authority revised reviewed or cancelled by the concerned authority or the lessee fails to fulfill the terms and conditions of the auction sale due to force major such act of God, War, Insurrections, Riot Civil commotion, Strike, Earth quake, storm, Tidal wave, floor, Lightening Explosion, Fire and any other happening beyond control of lease, delay in development of infrastructure ruse of land for public purpose the lessee shall not claim for any compensation.

The lessee shall pay a wage not less than minimum wage prescribed by the State Government from time to time under the minimum Wages Act, 1948.

*R. Parth Bhalu*  
4.4.23

*Yoshi*

TANASILDAR

~~SECRET~~

Sign board should be displayed at the site giving full information and status of the source as Name of the source, Name of the Lessee, Plot No. Area, Name of the minor Minerals and Amount of Action, Price/Royalty paid etc at the cost of the lessee. The contract details (with phone Numbers) of the lessee should be written on the board.

The lessee shall not engage children within the age group of 6-14 on quarrying operation as per Letter No. 5975/R & D.M. Dated 19.02.2013

35. The lessee shall abide by the provision of the Mines Act, 1952 OMMC Rules 2014 OMMC (Amendment) Rules 2015 and subsequent Notification No. 6309 dt. 10.07.2015 of Steel and Mines Department and rules and regulations made there under for development of the source of minor minerals in workman like manner and for avoidable or any danger arising out of such wining of minor minerals.
36. The lessee shall deposit the charges towards compensatory Afforestation as decided by the Authorized Officer or Higher quarter of the concerned department of the Government.
37. The lessee shall bear the cost of any amendment if made to the existing plan submitted by him the approving authority.
38. The lessee shall carryout the operation in the interest of safe and scientific mining conservation of minerals as well as for protection of the environment.
39. The depth of the mining shall be restricted to three meters or water level whichever is less.

*P. S. Sub*      *4.4.23*

*T. S. S. D. A. R.*

T. S. S. D. A. R.  
T. S. S. D. A. R.

- 29 -
40. The lessee shall to mining operation beyond the safety zone as determined by Assistant Engineer of Water Resources Deptt.
  41. The lessee shall not change or obstruct the flow rate of the river to carry out quarrying operation.
  42. Lessees shall not carryout in streaming mining operation.
  43. The lessee shall obey all existing rights of way water and other easements.
  44. The authority reserves the right to cancel the agreement without assigning any reason on violation of the terms and conditions by the lessee.
  45. The Department of Steel & Mines Notification No. IV(A)/SM-44/2015 (Pt. IV)7745/SM dt. 18.08.2015 & Government of Odisha Steel & Mines Department Notification No. 6309 dt. 10th July 2015 IV(DS) SM-29/2014(pt), the lessee' to abide by the above notification terms and condition during the period of operation of the sairat source.
  46. The lessee if fails to deposit before February of each year, the lease deed stands infractuous.
  47. As the lessee has not deposited the total amount for 5 years i.e from 2022-2023 TO 2027-2028, this lease agreement is subject to renewal during the month of March of each financial year with enhancement of 10% value in royalty. Otherwise this lease agreement will be deemed to be cancelled automatically and the long term lease will be cancelled and settled in favour of subsequent lessees and the EMD will be forfeited to Govt.
  48. Competent authority may imposed such further condition as he may think necessary in the interest of mineral development.

*P. S. S. S.* *4.4.23*

*J. S. S.*  
INSPECTOR  
WALCHER



**Endorsement of the certificate of admissibility**

Admissible under rule 25: duly stamped under the Indian stamp (Orissa Amendment act 1 of 2008) Act 1899, Schedule 1-A No. 35@ Fees Paid : A5(b)-173045 ,, User Charges-250 ,Total 173295

Date: 04/04/2023

*[Signature]*  
Signature of Registering officer

**Endorsement under section 52**

Presented for registration in the office of the Sub-Registrar, Sub-Registrar TALCHER between the hours of 10:00 AM and 1:30 PM on the 04/04/2023 by PITAMBAR BHUTIA son/daughter/wife of BANAMBAR BHUTIA , of MANDAPAL, TALCHER WARD NO.3, , ANGUL , by caste General , profession Business and finger prints affixed.



*[Signature]*

Signature of Presenter / Date: 04/04/2023

*[Signature]*  
Signature of Registering officer.

**Endorsement under section 58**

Execution is admitted by :

Name	Photo	Thumb Impression	Signature	Date of Admission of Execution
GOVERNMENT OF ODISHA THROUGH TAHASILDAR TALCHER(GOVT)	Execution By GOVERNMENT OF ODISHA THROUGH TAHASILDAR TALCHER(GOVT) Who is Exempt from personal Appearance in this office U/S 88 Act XVI of 1908 approved by	Execution By GOVERNMENT OF ODISHA THROUGH TAHASILDAR TALCHER(GOVT) Who is Exempt from personal Appearance in this office U/S 88 Act XVI of 1908 approved by	Execution By GOVERNMENT OF ODISHA THROUGH TAHASILDAR TALCHER(GOVT) Who is Exempt from personal Appearance in this office U/S 88 Act XVI of 1908 approved by Signature of the Registering officer	—
PITAMBAR BHUTIA		 243786080	<i>[Signature]</i>	04-Apr-2023

~~SI~~

49. The auction holder shall pay surface rent and deed rent in advance and not after 31<sup>st</sup> January of each year.

IN WITNESS WHEREOF the parties to this quarry lease put their respective hands and seal being present on date, month and year first above mentioned after the contents are read and explained to them and finding the same to be true and correct.

Signed by

In presence of

*[Signature]*  
20/04/2023  
(Competent Authority)  
TALASHILDAR  
TALCHER

Witness -1 *Sanjay a u. Pany*  
S.A.A.

Witness -2 *Pradyumna Key Pradhan.*  
(Sr. R.A)

Signed by

In presence of

*[Signature]*  
(The Lessee)

Witness -1 *Kyamesh Chandra Bori* son of *Hanash Bori* *[Signature]* *Kyamesh Chandra Bori*  
AT/PO - Talcher Town, PS. Talcher, Dist - Angul Pin - 759107  
Adm - 4535 29771017 Mob - 9090410647 dt 4.4.23

Witness -2 *Sachin Kumar Padhi* Son of *Rajendra Padhi* *[Signature]* *Sachin Kumar Padhi*  
AT - Baghubal PO - Hataulaha, PS - Talcher, Dist - Angul Pin - 759100  
Adm - 2283 1871 3101 mob - 7008768089, dt 4.4.23

Drafted and prepared by me  
as per direction of the party.

Identified by me

*[Signature]*  
4.4.23  
*[Signature]*  
F. No - 0-566/2000

The Copy attached

4000810

*[Signature]*  
4.4.23

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Identified by **KYAMESH CHANDRA BAI** Son/Wife of **HARESH BAI** of **TALCHER TOWN, ANGUL ANGUL** by profession **Cultivation**

Name	Photo	Thumb Impression	Signature	Date of Admission of Execution
KYAMESH CHANDRA BAI		 42742801		04-Apr-2023

Date: 04/04/2023

  
Signature of Registering officer

**Endorsement of certificate of registration under section 60**

Registered and true copy filed in : Office of the Sub-Registrar, TALCHER

Book Number : 1 || Volume Number : 12

Document Number : 10052300560

For the year : 2023

Seal :

Date: 05/04/2023



  
Signature of Registering officer

  
Registering Officer  
TALCHER

True Copy Attested  
  
Advocate

Annexure - E/13 series

Page-1

E-mail: [rospcb.angul@ospboard.org](mailto:rospcb.angul@ospboard.org)Website: [www.ospboard.org](http://www.ospboard.org)

**OFFICE OF THE REGIONAL OFFICER  
STATE POLLUTION CONTROL BOARD, ODISHA**

(DEPARTMENT OF FOREST, ENVIRONMENT & CLIMATE CHANGE, GOVT. OF ODISHA)

Plot No. S-3/3, Industrial Estate, Hakimpada, Angul-759143

"By Registered Post"

**CONSENT ORDER**

No. 258 / QUARRY/ROSPCB/AGL/86/2017-18

Date: 21.01.2023

**CONSENT ORDER NO.638**

**Sub:** Consent for discharge of sewage and trade effluent under section 25/26 of Water (PCP) Act, 1974 and for existing/new operation of the plant under section 21 of Air (PCP) Act, 1981.

**Ref:** Your Consent to Operate online Application No.4643783.

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to:

Name of the Industry/ Mine : Nizagarh Zami Sand Quarry (Brahmani River Sand Bed)

Name of the Occupier & Designation : Sri Pitambar Bhutia, Lessee

Address of the quarry : Plot No.3695, Khata No.446 (Kisam-Nadi), Total ML Area of 24.86 acres or 10.06ha, Mouza: Nizagarh Zami, PS /Tahasil: Talcher, Dist: Dhenkanal

This consent order is valid for the period up to 31.03.2023

This consent order is valid for the product quantity, specified outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated therein.

**A. Details of products manufactured:**

Sl. No.	Product	Period	Production Capacity (as per Approved Mining Plan & Environmental Clearance)
1.	Minor Mineral - Sand	1 <sup>st</sup> Year	18,000 Cubic Meter/Annum



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## CONSENT ORDER

Page-2

**B. Discharge permitted through the following outlet subject to the standard**

Outlet No.	Description of outlet	Point of discharge	Quantity of discharge KLD or KL/hr.	Prescribed standard			
				pH	TSS (mg/l)	BOD (mg/l)	Oil & Grease (mg/l)
1.	Domestic waste water	To soak pit via septic tank	---	---	---	---	---

**C. Emission permitted through the following stack subject to the prescribed standard.**

Chimney Stack No.	Description of stack	Stack height (m)	Quantity of emission	Prescribed standard

**D. Disposal of solid waste permitted in the following manner**

Sl. No.	Type of Solid waste	Quantity generated (TPD)	Quantity to be reused on site (TPD)	Quantity to be reused off site (TPD)	Quantity disposed off (TPD)	Description of disposal site.

**E. GENERAL CONDITIONS FOR ALL UNITS**

- The consent is given by the Board in consideration of the particulars given in the application. Any change of alternation or deviation made in actual practice from the particulars furnished in the application will also be the ground liable for review/variation/revocation of the consent order under section 27 f the Act of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 and to make such variations deemed fit for the purpose of the Acts.
- The industry would immediately submit revised application or consent to operate to the Board in the event of any change in the quantity and quality of raw material/and products/manufacturing process or quantity / quality of the effluent rate of emission/air pollution control equipment/system etc.
- The applicant shall not change or alter either the quality or quantity of the rate of discharge or temperature or the route of discharge without the previous written permission of the Board.
- The application shall comply with and carry out the directives/orders issued by the Board in this consent order and at all subsequent times without any negligence on his part. In case of non-compliance of any order/directives issued at any time and/or violation of the terms and conditions of this consent order, the applicant shall be liable for legal action as per the provisions of the Law/Act.
- The applicant shall make an application for grant of fresh consent at least 90 days before the date of expiry of this consent order.
- The issuance of this consent does not convey any property right in either real or personal property or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State laws or regulation.
- This consent does not authorize or approve the construction of any physical structure or facilities or the undertaking of any work in any natural water course.
- The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
- An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
- The applicant shall furnish to the visiting officer of the Board any information regarding the construction, installation or operation of the plant or of effluent treatment system/air pollution control system/stack monitoring system any other particulars as may be pertinent to preventing and controlling pollution of Water/Air.
- Meters must be affixed at the entrance of the water supply connection so that such meters are easily accessible for inspection and maintenance and for other purposes of the Act provided that the place where it is affixed shall in no case be at a point before which water has been tapped by the consumer for utilization for any purposes whatsoever.
- Separate meters with necessary pipe-line for assessing the quantity of water used for each of the purposes mentioned below:
  - Industrial cooling, spraying in mine pits or boiler feed.



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- b) Domestic purpose  
c) Process

13. The applicant shall display suitable caution board at the place where the effluent is entering into any water-body or any other place to be indicated by the Board, indicating therein that the area into which the effluents are being discharged is not fit for the domestic use/ bathing.
14. Storm water shall not be allowed to mix with the trade and/or domestic effluent on the upstream of the terminal manholes where the flow measuring devices will be installed.
15. The applicant shall maintain good house-keeping both within the factory and the premises. All pipes, valves, sewers and drains shall be leak-proof. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
16. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems install or used by him to achieve with the term(s) and conditions of the consent.
17. Care should be taken to keep the anaerobic lagoons, if any, biologically active and not utilized as mere stagnation ponds. The anaerobic lagoons should be fed with the required nutrients for effective digestion. Lagoons should be constructed with sides and bottom made impervious.
18. The utilization of treated effluent on factory's own land, if any, should be completed and there should be no possibility of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.
19. The effluent disposal on land, if any, should be done without creating any nuisance to the surroundings or inundation of the lands at any time.
20. If at any time the disposal of treated effluent on land becomes incomplete or unsatisfactory or create any problem or becomes a matter of dispute, the industry must adopt alternate satisfactory treatment and disposal measures.
21. The sludge from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank.
22. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.
23. The applicant shall provide port holes for sampling the emissions and access platform for carrying out stack sampling and provide electrical outlet points and other arrangements for chimneys/stacks and other sources of emissions so as to collect samples of emission by the Board or the applicant at any time in accordance with the provision of the Act or Rules made therein.
24. The applicant shall provide all facilities and render required assistance to the Board staff for collection of samples/stack monitoring/inspection.
25. The applicant shall not change or alter either the quality or quantity or rate of emission or install, replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in any change in quality and/or quantity of emissions, without the previous written permission of the Board.
26. No control equipments or chimney shall be altered or replaced or as the case may be erected or re-erected except with the previous approval of the Board.
27. The satisfaction the liquid effluent arising out of the operation of the air pollution control equipment shall treated in the manner and to ion of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended).
28. The stack monitoring system employed by the applicant shall be opened for inspection to this Board at any time.
29. There shall not be any fugitive or episodal discharge from the premises.
30. In case of such episodal discharge/emissions the industry shall take immediate action to bring down the emission within the limits prescribed by the Board in conditions/stop the operation of the plant. Report of such accidental discharge/emission shall be brought to the notice of the Board within 24 hours of occurrence.
31. The applicant shall keep the premises of the industrial plant and air pollution control equipments clean and make all hoods, pipes, valves, stacks/chimneys leak proof. The air pollution control equipments, location, inspection chambers, sampling port holes shall be made easily accessible at all times.
32. Any upset condition in any of the plant/plants of the factory which is likely to result in increased effluent discharge/emission of air pollutants and/or result in violation of the standards mentioned above shall be reported to the Headquarters and Regional Office of the Board by fax/speed post within 24 hours of its occurrence.



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**CONSENT ORDER**

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33. The industry has to ensure that minimum three varieties of trees are planted at the density of not less than 1000 trees per acre. The trees may be planted along boundaries of the industries of industrial premises. This plantation is stipulated over and above the bulk plantation of trees in that area.
34. The solid waste such as sweeping, wastage packages, empty containers residues, sludge including that from air pollution control equipments collected within the premises of the industrial plants shall be disposed off scientifically to the satisfaction of the Board, so as not to cause fugitive emission, dust problems through leaching etc, of any kind.
35. All solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by:
  - i. Land fill in case of inert material, care being taken to ensure that the material does not give rise to leachate which may percolate into ground water or carried away with storm run-off.
  - ii. Controlled incineration, wherever possible in case of combustible organic material.
  - iii. Composting, in case of bio-degradable material.
36. Any toxic material shall be detoxicated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The detoxication or sealing and burying shall be carried out in the presence of Board's authorized persons only. Letter of authorization shall be obtained for handling and disposal of hazardous waste.
37. If due to any technological improvement or otherwise this Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any control equipment either in whole or in part) this Board shall after giving the applicant an opportunity of being heard, vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.
38. The applicant, his/heirs/legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.
39. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.
40. Notwithstanding anything contained in this conditional letter of consent, the Board hereby reserves to it the right and power under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Act by the Board.
41. The conditions imposed as above shall continue to be in force until revoked under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981.
42. In case the consent fee is revised upward during this period, the industry shall pay the differential fees to the Board (for the remaining years) to keep the consent order in force. If they fail to pay the amount within the period stipulated by the Board the consent order will be revoked without prior notice.
43. The Board reserves the right to revoke/refuse consent to operate at any time during period for which consent is granted in case any violation is observed and to modify/stipulate additional conditions as deemed appropriate.

**F. SPECIAL CONDITIONS:**

01. Conditions stipulated in the Environmental Clearance approved and issued by SEIAA vide EC ID No.EC22B001OR190307 (Proposal No. SIA/OR/MIN/61829/ 2021), dtd.28.12.2022 shall be abided
02. The Project Proponent shall carry out by engaging appropriate consultant, annual replenishment rate study of sand as per prescribed drone method by collecting pre monsoon & post monsoon data from the field to know the quantum of volume of sand deposited/replenished & extracted in the mining lease area. The detailed comparison of both pre-monsoon and post-monsoon elevation data shall be included in the study report. The detailed methodology for finding the rate of replenishment study of sand is laid down in the Enforcement & Monitoring Guidelines for Sand Mining, 2020 issued by the MoEF & CC, Govt. of India. The finding of the study shall be submitted to



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- SEIAA/SPCB to assess the actual rate of replenishment of mined out sand in the lease area.
03. Mining activity shall be carried out as per approved mining plan prepared for this project.
  04. Any change in the calendar plan, quantity to be produced, or method of mining shall require prior approval from the Board.
  05. The project proponent shall take prior statutory and regulatory clearance as required from the concerned authorities in respect of the project, before carrying out any operation.
  06. The lease area and the actual working area shall be demarcated on the ground by erecting durable masonry /concrete pillars by the project proponent.
  07. The operation of excavation as proposed shall be manual and shall be strictly as per the method laid down in the approved mining plan. No excavator machine shall be deployed/used by the project proponent for the extraction of sand from the river bed.
  08. Mining operation should not be carried out without compliance of provisions as enumerated in the OMMC Rules, 2016 as amended thereof along with the Notifications of Ministry of Environment, Forest and Climate Change from time to time.
  09. Environmental Management Plan (EMP) shall be implemented by PP to ensure compliance with the environmental conditions specified above.
  10. The proponent shall take necessary measures to ensure that there is no adverse impact of the mining operations on the human habitation, if any, existing nearby.
  11. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010 issued by the MoEF, GOI.
  12. The lessee shall ensure that no sand mining is carried out in the areas as specified below;
    - a) During the rainy season.
    - b) Within the water channel or stream flow area throughout the year;
    - c) 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 meter from the edge of National Highway and railway line, 50 meter from a reservoir, canal or building, 25 meter from the edge of State Highway and 10 meter from the edge of other roads except on special exemption by the Sub-Divisional level Joint Inspection Committee.
    - d) The mining or any ancillary activity shall not in any way disturb the flow pattern of the river water during the non-monsoon period.
    - e) No stream shall be diverted for the purpose of sand mining and no natural water



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CONSENT ORDER

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course shall be obstructed.

- f) Sand mining operations shall not affect the existing sources for irrigation / drinking water / industrial purpose.
  - g) The natural sand dunes, if any, near or surrounding the lease area shall not be disturbed.
13. 1/4<sup>th</sup> of the width of river shall be left intact along the embankments on both sides as 'no mining zone' and 7.5m safety zone shall be left from all side of lease boundary.
  14. River Bank stabilization shall be made through stone patching. Stone patching on river bank with plantation in-between and the ramp construction shall be done in consultation with and advice of concerned Water Resource Department, Government of Odisha..
  15. No transportation of the minerals shall ordinarily be allowed on any road passing through villages/habitations/forest land without prior explicit permission.
  16. Transportation of minerals through existing rural roads can be allowed only by the concerned Govt. Department/ Gram Panchayat/BD0 after required strengthening such that the carrying capacity of road is increased to handle the mineral carrying truck traffic. The project proponent shall bear the cost towards the widening and strengthening of existing public roads in case the same is proposed to be used for the project.
  17. Project proponent shall ensure that the transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and traffic density.
  18. Vehicles hired for transportation of minor mineral from the site should be in good condition and should have pollution check certificate and should conform to applicable air and noise emission standards and should be operated only during non-peak hours. Speed of vehicle be regulated and in no case >30 Kms / hr be allowed.
  19. The vehicles shall not be overloaded and shall be covered with Tarpaulin. The Tahasildar may collect an appropriate road maintenance levy from the lessee as part of the lease conditions on the basis of quantum of sand transported, and utilize the proceeds of the levy for proper maintenance of the extraction paths and roads to prevent their degradation on account of plying of sand trucks.
  20. The following measures are to be implemented to reduce Noise pollution:-
    - a. Proper and regular maintenance of vehicles and other equipment
    - b. Limiting time of exposure of workers to excessive noise.
    - c. The workers employed shall be provided with protection equipment and earmuffs etc.
    - d. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 30 kmph to prevent undue noise from empty trucks.



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CONSENT ORDER

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21. The project proponent shall take all precautionary measures against causing damage to flora and fauna of the locality.
22. Compensatory Tree Planting (CTP) shall be carried out with minimum @100 trees per Ha. of lease area as per the approved cost norm for avenue plantations of the State Forest Department. The project proponent shall plant saplings of native tree species along the approach roads, river banks and in community areas in consultation with the Forest Gram Panchayat.
23. Water spray should be made on the road/extraction paths to control dust emission during transportation of sand.
24. The Project Proponent shall undertake phased restoration, reclamation and rehabilitation of land affected by mining and completes this work before abandonment of mine.
25. The unit shall maintain ambient air quality in order to meet the prescribed standard as per National Ambient Air Quality Standard.
26. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by SPCB, Odisha.
27. Mine shall abide by the provisions of Environment (Protection) Act, 1986 and rules framed there under.
28. The annual production and point wise compliances to the consent conditions shall be submitted to the Board latest by 30<sup>th</sup> April every year.
29. In case the consent fee is revised upwards during this period of consent, the unit shall pay the differential amount to the Board to keep the consent order in force. If the industry fails to pay the amount within the period stipulated by the Board the consent order will be revoked without giving prior notice.
30. The Board reserves the right to revoke/refuse consent at any time during this period incase any violation is observed and to modify / stipulate additional conditions as deemed appropriate.
31. If any information furnished by the applicant is found to be incorrect or suppressed and detected on later stage, the consent to operate shall be revoked including initiation of appropriate legal action as deemed fit as per the provisions of Air (Prevention and Control of Pollution) Act, 1981 as amended thereof and rules framed thereunder.
32. In case the proprietor/partner sells/transfers the unit to any other person, he shall intimate the same in advance and submit the audited balance sheet showing capital cost of investment including land & building, plant & machinery without depreciated cost.



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CONSENT ORDER

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The occupier must comply with the conditions stipulated in section A,B,C,D,E & F to keep this consent order valid.

To

Sri Pitambar Bhutia, Lessee  
Nizagarh Zami Sand Quarry (Brahmani River Sand Bed),  
AT/PO: Mandhapal, Talcher Town,  
Dist: Angul-759107, Odisha

*Halbick*  
21-01-23

REGIONAL OFFICER

Memo No. 259 /Date 21.01.2023,Copy forwarded to:

1. The Member Secretary, SPC Board, Odisha, Bhubaneswar
2. The Collector & District Magistrate, Angul
3. The D.F.O., Angul
4. The Joint Director Geology, Zonal Survey, Dhenkanal
5. The Tahasildar, Talcher, Angul
6. Guard File, Regional Office, Angul.

*Halbick*  
21-01-23

REGIONAL OFFICER

*etc*

E-mail: [rospcb.angul@ospcboard.org](mailto:rospcb.angul@ospcboard.org)Website: [www.ospcboard.org](http://www.ospcboard.org)

## OFFICE OF THE REGIONAL OFFICER STATE POLLUTION CONTROL BOARD, ODISHA

(DEPARTMENT OF FOREST, ENVIRONMENT &amp; CLIMATE CHANGE, GOVT. OF ODISHA)

Plot No. S-3/3, Industrial Estate, Hakimpada, Angul-759143

"By Registered Post"

### CONSENT ORDER

No. 1292 / QUARRY/ROSPCB/AGL/86/2017-18

Date: 06.04.2023

#### CONSENT ORDER NO.638

Sub: Consent for discharge of sewage and trade effluent under section 25/26 of Water (PCP) Act, 1974 and for existing/new operation of the plant under section 21 of Air (PCP) Act, 1981.

Ref: Your Consent to Operate online Application No.4850261.

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to:

Name of the Industry/ Mine : Nizagarh Zami Sand Quarry (Brahmani River Sand Bed)

Name of the Occupier & Designation : Sri Pitambar Bhutia, Lessee

Address of the quarry : Plot No.3695, Khata No.446 (Kisam-Nadi), Total ML Area of 24.86 acres or 10.06ha, Mouza: Nizagarh Zami, PS /Tahasil: Talcher, Dist: Angul

This consent order is valid for the period up to 31.03.2024.

This consent order is valid for the product quantity, specified outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated therein.

#### A. Details of products manufactured:

Sl. No.	Product	Period	Production Capacity (as per Approved Mining Plan & Environmental Clearance)
1.	Minor Mineral - Sand	1 <sup>st</sup> Year	18,000 Cubic Meter
		2 <sup>nd</sup> Year	4,500 Cubic Meter



**B. Discharge permitted through the following outlet subject to the standard**

Outlet No.	Description of outlet	Point of discharge	Quantity of discharge KLD or KL/hr.	Prescribed standard			
				pH	TSS (mg/l)	BOD (mg/l)	Oil & Grease (mg/l)
1.	Domestic waste water	To soak pit via septic tank	---	---	---	---	---

**C. Emission permitted through the following stack subject to the prescribed standard.**

Chimney Stack No.	Description of stack	Stack height (m)	Quantity of emission	Prescribed standard

**D. Disposal of solid waste permitted in the following manner**

Sl. No.	Type of Solid waste	Quantity generated (TPD)	Quantity to be reused on site (TPD)	Quantity to be reused off site (TPD)	Quantity disposed off (TPD)	Description of disposal site.

**E. GENERAL CONDITIONS FOR ALL UNITS**

- The consent is given by the Board in consideration of the particulars given in the application. Any change of alternation or deviation made in actual practice from the particulars furnished in the application will also be the ground liable for review/variation/revocation of the consent order under section 27 f the Act of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 and to make such variations deemed fit for the purpose of the Acts.
- The industry would immediately submit revised application or consent to operate to the Board in the event of any change in the quantity and quality of raw material/and products/manufacturing process or quantity / quality of the effluent rate of emission/air pollution control equipment/system etc.
- The applicant shall not change or alter either the quality or quantity of the rate of discharge or temperature or the route of discharge without the previous written permission of the Board.
- The application shall comply with and carry out the directives/orders issued by the Board in this consent order and at all subsequent times without any negligence on his part. In case of non-compliance of any order/directives issued at any time and/or violation of the terms and conditions of this consent order, the applicant shall be liable for legal action as per the provisions of the Law/Act.
- The applicant shall make an application for grant of fresh consent at least 90 days before the date of expiry of this consent order.
- The issuance of this consent does not convey any property right in either real or personal property or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State laws or regulation.
- This consent does not authorize or approve the construction of any physical structure or facilities or the undertaking of any work in any natural water course.
- The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
- An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
- The applicant shall furnish to the visiting officer of the Board any information regarding the construction, installation or operation of the plant or of effluent treatment system/air pollution control system/stack monitoring system any other particulars as may be pertinent to preventing and controlling pollution of Water/Air.
- Meters must be affixed at the entrance of the water supply connection so that such meters are easily accessible for inspection and maintenance and for other purposes of the Act provided that the place where it is affixed shall in no case be at a point before which water has been tapped by the consumer for utilization for any purposes whatsoever.
- Separate meters with necessary pipe-line for assessing the quantity of water used for each of the purposes mentioned below:
  - Industrial cooling, spraying in mine pits or boiler feed.



- b) Domestic purpose  
c) Process
13. The applicant shall display suitable caution board at the place where the effluent is entering into any water-body or any other place to be indicated by the Board, indicating therein that the area into which the effluents are being discharged is not fit for the domestic use/ bathing.
  14. Storm water shall not be allowed to mix with the trade and/or domestic effluent on the upstream of the terminal manholes where the flow measuring devices will be installed.
  15. The applicant shall maintain good house-keeping both within the factory and the premises. All pipes, valves, sewers and drains shall be leak-proof. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
  16. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by him to achieve with the term(s) and conditions of the consent.
  17. Care should be taken to keep the anaerobic lagoons, if any, biologically active and not utilized as mere stagnation ponds. The anaerobic lagoons should be fed with the required nutrients for effective digestion. Lagoons should be constructed with sides and bottom made impervious.
  18. The utilization of treated effluent on factory's own land, if any, should be completed and there should be no possibility of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.
  19. The effluent disposal on land, if any, should be done without creating any nuisance to the surroundings or inundation of the lands at any time.
  20. If at any time the disposal of treated effluent on land becomes incomplete or unsatisfactory or create any problem or becomes a matter of dispute, the industry must adopt alternate satisfactory treatment and disposal measures.
  21. The sludge from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank.
  22. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.
  23. The applicant shall provide port holes for sampling the emissions and access platform for carrying out stack sampling and provide electrical outlet points and other arrangements for chimneys/stacks and other sources of emissions so as to collect samples of emission by the Board or the applicant at any time in accordance with the provision of the Act or Rules made therein.
  24. The applicant shall provide all facilities and render required assistance to the Board staff for collection of samples/stack monitoring/inspection.
  25. The applicant shall not change or alter either the quality or quantity or rate of emission or install, replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in any change in quality and/or quantity of emissions, without the previous written permission of the Board.
  26. No control equipments or chimney shall be altered or replaced or as the case may be erected or re-erected except with the previous approval of the Board.
  27. The satisfaction the liquid effluent arising out of the operation of the air pollution control equipment shall be treated in the manner and to ion of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended).
  28. The stack monitoring system employed by the applicant shall be opened for inspection to this Board at any time.
  29. There shall not be any fugitive or episodal discharge from the premises.
  30. In case of such episodal discharge/emissions the industry shall take immediate action to bring down the emission within the limits prescribed by the Board in conditions/stop the operation of the plant. Report of such accidental discharge/emission shall be brought to the notice of the Board within 24 hours of occurrence.
  31. The applicant shall keep the premises of the industrial plant and air pollution control equipments clean and make all hoods, pipes, valves, stacks/chimneys leak proof. The air pollution control equipments, location, inspection chambers, sampling port holes shall be made easily accessible at all times.
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34. The solid waste such as sweeping, wastage packages, empty containers residues, sludge including that from air pollution control equipments collected within the premises of the industrial plants shall be disposed off scientifically to the satisfaction of the Board, so as not to cause fugitive emission, dust problems through leaching etc, of any kind.
35. All solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by:
  - i. Land fill in case of inert material, care being taken to ensure that the material does not give rise to leachate which may percolate into ground water or carried away with storm run-off.
  - ii. Controlled incineration, wherever possible in case of combustible organic material.
  - iii. Composting, in case of bio-degradable material.
36. Any toxic material shall be detoxicated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The detoxication or sealing and burying shall be carried out in the presence of Board's authorized persons only. Letter of authorization shall be obtained for handling and disposal of hazardous waste.
37. If due to any technological improvement or otherwise this Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any control equipment either in whole or in part) this Board shall after giving the applicant an opportunity of being heard, vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.
38. The applicant, his/heirs/legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.
39. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.
40. Notwithstanding anything contained in this conditional letter of consent, the Board hereby reserves to it the right and power under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Act by the Board.
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**F. SPECIAL CONDITIONS:**

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02. The Project Proponent shall carry out by engaging appropriate consultant, annual replenishment rate study of sand as per prescribed drone method by collecting pre monsoon & post monsoon data from the field to know the quantum of volume of sand deposited/replenished & extracted in the mining lease area. The detailed comparison of both pre-monsoon and post-monsoon elevation data shall be included in the study report. The detailed methodology for finding the rate of replenishment study of sand is laid down in the Enforcement & Monitoring Guidelines for Sand Mining, 2020 issued by the MoEF & CC, Govt. of India. The finding of the study shall be submitted to



SEIAA/SPCB to assess the actual rate of replenishment of mined out sand in the lease area.

03. Mining activity shall be carried out as per approved mining plan prepared for this project.
04. Any change in the calendar plan, quantity to be produced, or method of mining shall require prior approval from the Board.
05. The project proponent shall take prior statutory and regulatory clearance as required from the concerned authorities in respect of the project, before carrying out any operation.
06. The lease area and the actual working area shall be demarcated on the ground by erecting durable masonry /concrete pillars by the project proponent.
07. The operation of excavation as proposed shall be manual and shall be strictly as per the method laid down in the approved mining plan. No excavator machine shall be deployed/used by the project proponent for the extraction of sand from the river bed.
08. Mining operation should not be carried out without compliance of provisions as enumerated in the OMMC Rules, 2016 as amended thereof along with the Notifications of Ministry of Environment, Forest and Climate Change from time to time.
09. Environmental Management Plan (EMP) shall be implemented by PP to ensure compliance with the environmental conditions specified above.
10. The proponent shall take necessary measures to ensure that there is no adverse impact of the mining operations on the human habitation, if any, existing nearby.
11. Measures should be taken to comply with the provisions laid under Noise Pollution (Regulation and Control) (Amendment) Rules, 2010 issued by the MoEF, GOI.
12. The lessee shall ensure that no sand mining is carried out in the areas as specified below;
  - a) During the rainy season.
  - b) Within the water channel or stream flow area throughout the year;
  - c) 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 meter from the edge of National Highway and railway line, 50 meter from a reservoir, canal or building, 25 meter from the edge of State Highway and 10 meter from the edge of other roads except on special exemption by the Sub-Divisional level Joint Inspection Committee.
  - d) The mining or any ancillary activity shall not in any way disturb the flow pattern of the river water during the non-monsoon period.
  - e) No stream shall be diverted for the purpose of sand mining and no natural water



- course shall be obstructed.
- f) Sand mining operations shall not affect the existing sources for irrigation / drinking water / Industrial purpose.
  - g) The natural sand dunes, if any, near or surrounding the lease area shall not be disturbed.
13. 1/4<sup>th</sup> of the width of river shall be left intact along the embankments on both sides as 'no mining zone' and 7.5m safety zone shall be left from all side of lease boundary.
  14. River Bank stabilization shall be made through stone patching. Stone patching on river bank with plantation in-between and the ramp construction shall be done in consultation with and advice of concerned Water Resource Department, Government of Odisha..
  15. No transportation of the minerals shall ordinarily be allowed on any road passing through villages/habitations/forest land without prior explicit permission.
  16. Transportation of minerals through existing rural roads can be allowed only by the concerned Govt. Department/ Gram Panchayat/BDO after required strengthening such that the carrying capacity of road is increased to handle the mineral carrying truck traffic. The project proponent shall bear the cost towards the widening and strengthening of existing public roads in case the same is proposed to be used for the project.
  17. Project proponent shall ensure that the transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and traffic density.
  18. Vehicles hired for transportation of minor mineral from the site should be in good condition and should have pollution check certificate and should conform to applicable air and noise emission standards and should be operated only during non-peak hours. Speed of vehicle be regulated and in no case >30 Kms / hr be allowed.
  19. The vehicles shall not be overloaded and shall be covered with Tarpaulin. The Tahasildar may collect an appropriate road maintenance levy from the lessee as part of the lease conditions on the basis of quantum of sand transported, and utilize the proceeds of the levy for proper maintenance of the extraction paths and roads to prevent their degradation on account of plying of sand trucks.
  20. The following measures are to be implemented to reduce Noise pollution:-
    - a. Proper and regular maintenance of vehicles and other equipment
    - b. Limiting time of exposure of workers to excessive noise.
    - c. The workers employed shall be provided with protection equipment and earmuffs etc.
    - d. Speed of trucks entering or leaving the mine is to be limited to moderate speed of 30 kmph to prevent undue noise from empty trucks.



21. The project proponent shall take all precautionary measures against causing damage to flora and fauna of the locality.
22. Compensatory Tree Planting (CTP) shall be carried out with minimum @100 trees per Ha. of lease area as per the approved cost norm for avenue plantations of the State Forest Department. The project proponent shall plant saplings of native tree species along the approach roads, river banks and in community areas in consultation with the Forest Gram Panchayat.
23. Water spray should be made on the road/extraction paths to control dust emission during transportation of sand.
24. The Project Proponent shall undertake phased restoration, reclamation and rehabilitation of land affected by mining and completes this work before abandonment of mine.
25. The unit shall maintain ambient air quality in order to meet the prescribed standard as per National Ambient Air Quality Standard.
26. Waste oils, used oils generated from the EM machines, mining operations, if any, shall be disposed as per the Hazardous and Other Wastes (Management & Trans-boundary Movement) Rules, 2016 and its amendments thereof to the recyclers authorized by SPCB, Odisha.
27. Mine shall abide by the provisions of Environment (Protection) Act, 1986 and rules framed there under.
28. The annual production and point wise compliances to the consent conditions shall be submitted to the Board latest by 30<sup>th</sup> April every year.
29. In case the consent fee is revised upwards during this period of consent, the unit shall pay the differential amount to the Board to keep the consent order in force. If the industry fails to pay the amount within the period stipulated by the Board the consent order will be revoked without giving prior notice.
30. The Board reserves the right to revoke/refuse consent at any time during this period incase any violation is observed and to modify / stipulate additional conditions as deemed appropriate.
31. If any information furnished by the applicant is found to be incorrect or suppressed and detected on later stage, the consent to operate shall be revoked including initiation of appropriate legal action as deemed fit as per the provisions of Air (Prevention and Control of Pollution) Act, 1981 as amended thereof and rules framed thereunder.
32. In case the proprietor/partner sells/transfers the unit to any other person, he shall intimate the same in advance and submit the audited balance sheet showing capital cost of investment including land & building, plant & machinery without depreciated cost.



CONSENT ORDER

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The occupier must comply with the conditions stipulated in section A,B,C,D,E & F to keep this consent order valid.

To

Sri Pitambar Bhutia, Lessee  
Nizagarh Zami Sand Quarry (Brahmani River Sand Bed),  
AT/PO: Mandhapal, Talcher Town,  
Dist: Angul-759107, Odisha

*Mallick*  
06-04-23

REGIONAL OFFICER  
Regional Officer

State Pollution Control Board  
ANGUL

Memo No. \_\_\_\_\_ /

Date \_\_\_\_\_

Copy forwarded to:

1. The Member Secretary, SPC Board, Odisha, Bhubaneswar
2. The Collector & District Magistrate, Angul
3. The D.F.O., Angul
4. The Joint Director Geology, Zonal Survey, Dhenkanal
5. The Tahasildar, Talcher, Angul
6. Guard File, Regional Office, Angul.

REGIONAL OFFICER

True Copy Attested

*[Signature]*  
Advocate

- ✕ -

Annexure-F/13



OFFICE OF THE DEPUTY DIRECTOR MINES, TALCHER CIRCLE, TALCHER  
DIST: ANGUL.

Letter No- 1913 / Mines, Dated, 21/11/2023

To

All the Lessees of Sand Quarry,  
Angul, District.

Sub:

Pre-monsoon and after monsoon Replenishment Study of the Sand  
Quarry.

Sir,

With reference to the subject cited above, I am to say that all the sand quarries are required to be done Pre-monsoon and after monsoon replenishment study for the year 2023-24 as per provisions of OMVC Rules-2016 & Amendment Rules, 2023.

Therefore you are requested to make Pre-monsoon and after monsoon replenishment study of your sand quarry for the year 2023-24 as soon as possible for further action at this end.

Yours faithfully,

Competent Authority-cum-Mining Officer,  
Angul, District.

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**REPLENISHMENT STUDY REPORT  
ON  
M/s NIZGARHZAMI SAND QUARRY**

Over an area of 24.86 acres or 10.06 hectares bearing  
khata no:- 446, plot no:- 3695

Period of Data Acquisition: May-2023 – Nov-2023

**Applicant**

**Sri Pitambara Bhutia**

**Location: Mandapal, Talcher Town**

**Tahasil: Talcher**

**District: Anugul(Odisha)**

**Prepared By:**

**M/s P and M Solution**

(Accredited by QCI/NABET)

Accreditation No.: NABET/EIA/1992/IA0053

C-88, Sector 65, Noida, New Delhi

[www.pmsolution.in](http://www.pmsolution.in)

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## ACKNOWLEDGEMENT

M/s P & M Solution, Noida express its deep appreciation to Sri Pitambar Bhutia for entrusting the assignment of conducting the Replenishment study for Nizgharzami Sand Quarry, at Nizgharzami under Talcher Tahasil in Anugul district, Odisha; also for the active interest & help extended by staffs.

Our sincere thanks to M/s Geocon Surveys, Bhubaneswar without which, the study could not have been possible. The co-operation extended by the officials of GRPI and constant involvement during the entire field study is also gratefully acknowledged.

Signature of the  
Consultant / ROP



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ODISHA SPACE APPLICATIONS CENTRE (OSAC)

Department of Space Technology, Government of Odisha

OSAC/REGISTRATION/2023/24-25/01/03/01  
REGISTRATION

For: Registration of Agencies under OSAC to undertake SATELLITE Technology Project for the Year 2023-2025

This is to inform that, the 3<sup>rd</sup> round of Project Proposals for satellite under OSAC for the year for 2023-2025 is invited. The eligible agency, which should possess minimum 50% of completed work after the realization of ground station, medical capability, ground facilities of telecom, satellite of satellite services and approved in society status, forward of proposal against as requested by website link registered and select the same with the format 'Satellite Project (2023)' to the official website OSAC (www.osac.gov.in). The interested agency will get access that documents reference website within the stipulated time frame that can be applied for participating in the registration. If the interested party is not able to access the website.

The list of participating agencies with their address details is attached for reference.

*[Signature]*  
CHIEF EXECUTIVE

For more details, please visit the registration website of OSAC (www.osac.gov.in) or contact the OSAC office at the address mentioned above.

**ODISHA SPACE APPLICATIONS CENTRE (OSAC)**  
Department of Space Technology, Government of Odisha

1	Mr. Anand Kumar Prasad	1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 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1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 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## INTRODUCTION

### 1.1 General:

River sand is one of primary raw material in all type of construction and infrastructure project. The need of sand in all fields are very essential as it is a compulsory for all types of construction and industries fields. This report presents the technical information about the survey aspects of sites located in, Nizgharzami village of Talcher Tahasil in Anugul district of Odisha. The methodology adopted and the results from survey are summarized in this document.

Replenishment Rate is the rate at which sand is transported into the river channel, which is subjected to sand extraction. This volume is often considered as sustainable yield of that river. The replenishment period may vary on nature of the channel and season of deposition arising due to variation in the flow. Such period and season may vary on the geographical and precipitation characteristic of the region.

In view of the above condition, Sri Pitambar Bhutia has engaged M/s M/s P & M Solution, Noida to carry out the Replenishment Study of Nizgharzami Sand Quarry and to submit the report with recommendation.

Since accuracy of UAV data for volume measurement compared to conventional techniques such as a Total Station has been evaluated and proven better than the conventional method, so GISPL studied the requirement and understood that only volumetric method using Drone survey can only derive the accurate estimation of replenishment, which is also comply the methodology as detailed in Enforcement & Monitoring Guidelines for Sand Mining, 2020. So, GISPL initiate the job in association with M/s Geocon Surveys, Bhubaneswar for Drone and DGPS survey, who have carried out the Drone/DGPS survey for this purpose.

#### Sand Mining in the State of Odisha

According to clause (e) of Section 3 of the Mines and Minerals (Development & Regulation) Act (MMDR) Act, 1957 and as per Rule 70 of the Mineral Conservation Rules (MCR), 1960; sand is classified as minor mineral based on the end use. Mines and Minerals (Development & Regulation) Act, 1957, under section 15, empowers the State Government to make rules in respect of minor mineral.

In exercise of the powers conferred by sub-section (1) of Section 15 of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957) and in supersession of the

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provisions contained in the Odisha Minor Mineral Concession Rules, 2004, the State government promulgated the Odisha Minor Mineral Concession Rules, 2016.

As per sub rule 8 of Rule 9 of the Odisha Minor Mineral Concession Rules, 2016, On receipt of the application for mining lease the Government shall take decision to grant precise area for the said purpose and communicate such decision to the applicant and on receipt of communication from the Government of the precise area to be granted, the applicant shall submit a duly approved mining plan within a period of six months or such other period as may be allowed by the Government.

The Revenue & Disaster Management Department, Govt of Odisha vide Resolution No. 26372 dated 2.09.2021 published the Odisha Sand policy, 2021 wherein emphasis given on the replenishment study.

#### Policy & Guidelines

The Hon<sup>ble</sup> Supreme Court in its Judgment dated the 27th February 2012 in I.A. No.12-13 of 2011 in Special Leave Petition (C) No.19628-19629 of 2009, in the matter of Deepak Kumar etc. Vs. State of Haryana and Others etc. made prior environment clearance mandatory for mining of minor minerals irrespective of the area of mining lease.

In order to comply with the judgment of Hon<sup>ble</sup> Supreme Court, the Ministry issued S.O.141 (E) dated 15.01.2016. Further, MoEF & CC published Sustainable Sand Mining Management Guidelines 2016 for scientific and sustainable sand mining in the Country. The followings are two guidelines issued by MoEF & CC.

- i. **Sustainable Sand Mining Management guidelines 2016**
- ii. **Enforcement and Monitoring Guidelines for sand mining issued in January 2020**
  - State Environment Impact Assessment Authority, Odisha (SEIAA), Bhubaneswar in their letter No.400 dated. 08.02.2021 has emphasized to the project proponents to carry out proper study with regard to
    - (a) Annual rate of replenishment of the river bed proposed for sand mining.
    - (b) Time frame for such replenishment after mining closure.
  - SEIAA, Bhubaneswar, in the same letter has also mentioned some other stipulations in the ECs for sand mining from river bed, which are as follows:
    - (i) The lease area and the actual working area shall be demarcated on the ground by erecting durable masonry / concrete pillars by the project proponent.
    - (ii) There shall be a "no working zone" of prescribed width to project the embankment on sides, road or Rail Bridge, dam, weir, water intake structure or drinking water project, or any cross drainage structure, if any, in the vicinity.

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(iii) The actual area for extraction of sand shall accordingly be carved out within the leasehold.

(iv) Exact map of the lease area, and the no mining zone" shall be drawn to scale, showing the DGPS coordinates of all corner points, and the location of the bridge, embankment, extraction route & other structures; and such map has to be submitted to SEIAA by the project proponent through the Tahasildar within three months of the date of issues of the EC.

(v) The project proponent should preferably carry out river bed mining manually by engaging local labor force, as there is apprehension of over exploitation of sand if machines are deployed for extraction.

- Government of Odisha, Revenue and disaster management Department issued Resolution No 26372/R & DM Bhubaneswar dated 02.09.2021 on Odisha Sand Policy.
- It shall be obligatory for the project management to submit quarterly compliance reports on the status of implementation of the above stipulated environmental safeguards to the SEIAA, Odisha.
- Thus, it may be concluded as follows
  - ❖ Permit mining volume based on measured annual replenishment
  - ❖ Establish an absolute elevation below which no extraction may occur
  - ❖ Review cumulative effects of sand extraction
  - ❖ Maintain River channel flood discharge capacity
  - ❖ Establish a long-term monitoring programme
  - ❖ Minimize activities that release of fine sediments to the River
  - ❖ Limit mining operation to the period between post monsoons to pre monsoon only.

A plan clearly mentioning the width of the river, lease boundaries, left under safety zones as prescribed under Sustainable Sand Mining Management Guideline 2016, and Odisha Miner Mineral concession Rule 2017, and order made there under have to be complied in.

### 1.2 Purpose of the Study:

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

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configuration and flow-paths. This may also cause an adverse impact on in-stream biota and riparian habitats. It is assumed that the riparian habitat disturbance is minimum if the replenishment is equal to excavation for a given stretch. Therefore, to minimize the adverse impact arising out of sand mining in a given river stretch, it is imperative to have a study of replenishment of material during the defined period.

### 1.3 Scope of the Study:

An Unmanned Aerial Vehicle (UAV), commonly known as drone, was used to carry out survey of the area. Drone is an aircraft without a human pilot on board. The main objective of this survey in the present project was to obtain the Digital Elevation Models (DEM) of the area by getting the elevations at all points of the study area and access elevation of points/grids wherever required. DEM is the digital representation of topographic and manmade features located on the surface of the earth. Drone consist mainly a vehicle itself, a ground-based controller, and a system of communications between the two. The report aims to quantify the amount of replenishment of sand on the basis of survey done with UAV/Drone during Pre-monsoon & Post monsoon '2022. The objectives of the drone survey are as follows:

- Perform Differential Global positioning survey
- Data acquisition using drone
- Data processing and preparation of outputs
- Volume Calculation Report

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## LOCATION & PROJECT DESCRIPTION

### 2.1 Overview of the Site

The total lease area of Nizgharzami Sand Quarry is about an area of 10.06 Ha. / 24.86 Acre over Khata no.- 446 and Plot no.- 3695 situated in village Nizgharzami, Tahasil- Talcher, Dist.- Anugul, Odisha. The lease is located in survey of India Topo Sheet No. - 73H/1 bounded by Latitude: 20°55'20.56" N to 20°55'35.14" N, Longitude: 85°14'19.86" E to 85°14'31.77" E, The location of the lease has been shown in the following image with red color lease boundary.



Over view of the site

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## GPS Boundary Co-ordinates

Pillar No	Latitude	Longitude
1	20° 55' 25.52"	85° 14'19.86"
2	20° 55' 26.37"	85° 14'20.42"
3	20° 55' 27.68"	85° 14'21.37"
4	20° 55' 28.74"	85° 14'21.87"
5	20° 55' 29.72"	85° 14'22.62"
6	20° 55' 30.78"	85° 14'23.47"
7	20° 55' 32.79"	85° 14'25.05"
8	20° 55' 34.68"	85° 14'26.38"
9	20° 55' 34.85"	85° 14'26.84"
10	20° 55' 35.14"	85° 14'26.96"
11	20° 55' 35.12"	85° 14'31.77"
12	20° 55' 20.56"	85° 14'31.67"

**2.2 Project Description:**

Nizagarhzami Sand Quarry is a sand mining project over an area of 10.06 Ha. at Nizagarhzami, Tahasil- Talcher, District- Anugul. The mining plan is prepared by Sri Bipin Bihari Khandual of M/s Geo Consultant Pvt. Ltd. and is approved by Joint Director of Geology, Zonal Survey, Dhenkanal Vide Letter No.-666 on Dated.- 01/06/2020.

**A) Local Geology:**

The sand deposit lies in Nizgharzami village belongs to recent deposits of younger and older Alluvia. The proposed area is occupied by a gently sloping to almost flat deposits of sand. The basement consists of tertiary deposits and sequence of litho-units encountered in the auction hold area. The average thickness is 1 m throughout the quarry lease area.

**B) Reserves:**

Reserve is calculated by area of influence method considering by the following diameters.

- I. Extension of sand deposit.
- II. Thickness of sand deposit.
- III. Water table of the river.



#### Geological reserve

- For calculation of geological reserve, average thickness 1m of sand of the lease area has been taken.

#### Mineable Reserve

- For calculation of mineable reserve of sand quarry has been calculated after deducting the safety zone area. Thickness of the sand has been taken up to water table.

#### Method of reserve estimation

The reserve of river sand in the leasehold area has been calculated by calculating the lease area graphically and multiplied by thickness of sand.

$$C = A \times B$$

Where, C = reserve in cum,

A = Surface Area of sand in (m<sup>2</sup>)

And, B = Avg. thickness of sand in (m)

$$E = C \times D$$

Where, E = reserve in cum

D = recovery factor

#### Proved Reserve

It is exposed river sand rich. So proved zone have been considered up to 1m depth from the top.

#### • Geological Reserve per Annum

Category	Surface area in sq.mt	Thickness of sand in meter	Replenishment factor (100%)	Volume of sand in cu.m
Proved	85891	1	2	103069
Total				103069

#### Mineable reserve per Annum

Category	Surface area in sq.mt	Thickness of sand in meter	Replenishment factor (100%)	Mineable reserve of sand (m <sup>3</sup> )	Extractable minable reserve
	A	B	C	D = A X B X C	E = D X 0.6
Proved	75530	1	2	151060	90636
Total					90636

#### C) Annual Level of Approved Production:

YEAR	PRODUCTION (M <sup>3</sup> )
FIRST YEAR	18000
SECOND YEAR	18000
THIRD YEAR	18000
FOURTH YEAR	18000
FIFTH YEAR	18000



**D) Environmental Clearance:**

Initially, the Environmental Clearance for the Nizgharzami Sand Quarry, has been obtained in favor of Sri. Pitambar Bhutia vide file no -61829/250-MINB1/07-2022 on dated 28.12.2022. and also CTO has been obtained from SPCB, Anugul vide order no.- 1292 on dated 06.04.2023.

In the EC conditions SEIAA, Odisha has recommended to submit the rate of annual replenishment study report of sand as per the sustainable Sand guidelines and Monitoring' 2020 and other applicable as per regulatory requirement. Accordingly, we have studied our pre-monsoon survey in the month of May, 2023 and post-monsoon survey in the month of November, 2023 which report has enclosed here.

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## REPLENISHMENT SURVEY

### 3.1 Methodology

For the said project replenishment study has been done by UAV/Drone survey (volumetric survey) method.

In this case, replenishment study requires three surveys. The first survey has been carried out in the month of May/June before closing of mines for monsoon season. This survey provided the quantity of the material excavated before the offset of monsoon. The second survey is carried out in the Month of Nov/Dec after the monsoon to know the quantum of material deposited/replenished in the mining lease. The third survey will be carried out at the end of March to know the quantity of material excavated during the financial year. For the subsequent years, same practice will be continued.

Presently, for the purpose of replenishment study, two surveys were carried out for data acquisition, the first one for pre-monsoon data and the second one for post monsoon data by using UAV/ Drone.

### 3.2 Drone Survey

A drone survey refers to the use of a drone, or unmanned aerial vehicle (UAV), to capture aerial data with downward-facing sensors, such as RGB or multispectral cameras, and LIDAR payloads. With a drone, it is possible to carry out topographic surveys of the same quality as the highly accurate measurements collected by traditional methods, but in a fraction of the time. This substantially reduces the cost of a site survey and the workload of specialists in the field. This technology has promising potential in the survey of sand mining zones due to its fast and reliable output deliveries.

During a drone survey with an RGB camera, the ground is photographed several times from different angles, and each image is tagged with coordinates. From this data, photogrammetry software can create geo-referenced orthomosaics, elevation models or 3D models of the project area. These maps can also be used to extract information such as highly- accurate distances or volumetric measurements. Unlike manned aircraft or satellite imagery, drones can fly at a much lower altitude, making the generation of high-resolution, high-accuracy data, much faster, less expensive and independent of atmospheric conditions such as cloud cover.

### 3.3 Survey Procedure

#### A) DGPS Survey:

This section describes the details of DGPS survey. This survey is done to take the coordinates of the Ground Control Points (GCPs) using DGPS instrument. Base reading is estimated by placing the base station on a nearby ideal location and leaving the DGPS instrument for 6-8 hours. The UAV mapping is done with PPK technique enabled. The GCP readings are taken by observing DGPS reading for 1 minute.

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Table 1: Reference Systems of Coordinates

Coordinates	Reference Coordinate System
Latitude, Longitude (degrees)	World Geodetic System (WGS84)
Easting, Northing	Universal Transverse Mercator (UTM) Zone 45N

**B) Site – Orthometric Heights:**

A base station on a nearby ideal location and GCP readings are taken with respect to this base. The details of the survey are given below:

**C) DATA ACQUISITION USING DRONE**

To obtain good images, it is very important to design a good images acquisition plan considering: type of project (aerial, terrestrial, mixed), type of terrain / object, type of camera, purpose of the project, image rate that the images are taken, distance (flight height) at which the images are taken and with which angle to take the images, path(s) to follow to take the images, etc.

For aerial projects, this also implies: selecting corridor path or regular grid and / or circular grid, deciding whether terrestrial images will be used, if more than one flight are needed to cover the full area

**D) MISSION PLANNING**

A data acquisition plan is made specific to the site that needs to be surveyed. It depends on the type of terrain / object to be reconstructed. Flight polygons are designed and data acquired is as per this plan. The flying altitude is designed to capture resolution which best fits the project.

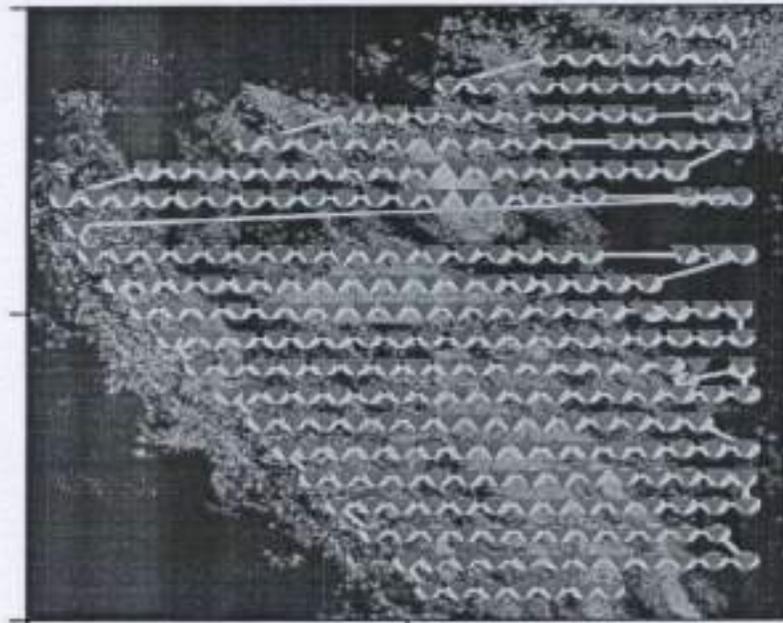


Table: Details of Mission Plan

Parameters	Details
Drone	Phantom 4 pro V2
Flying Altitude	50 m
Ground Sampling Distance (GSD)	3.5cm/pixel
Overlap (%)	75/80
Data type	RGB images
Software	Agisoft MetashapeProfessional/

### 3.4 Data Processing

The data acquired from the drone survey has been processed using the technique called Digital Photogrammetric. Entire drone data is stitched together to produce quality outputs of the site, or analysis for any particular application of the data set. Processing of images with Metashape included the following main steps;

- loading images into Metashape;
- inspecting loaded images, removing unnecessary images;
- aligning cameras;
- building dense point cloud;
- building mesh (3D polygonal model);
- generating texture;
- building tiled model;
- building digital elevation model (DEM);
- building orthomosaic;

#### 3.4.1 ALIGNING CAMERAS

Each drone image has a collection of unique features which differentiate it from other images. These are known as key points. Key points from each image are extracted using automatic computer vision algorithms. Extracted features are then searched (in the nearby images) and matching is performed. Using GPS data to search relevant images makes the matching process much faster and accurate. From matched features, fundamental matrix is derived and the relative position between two cameras is estimated. Relative position estimated from the fundamental matrix is generally prone to errors. Bundle block adjustment is used to simultaneously refine the 3D coordinates (Latitude, Longitude, Elevation), orientation parameters (Yaw, Pitch, Roll), and the optical characteristics

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(distortion parameters) of the camera(s) employed to acquire the images. Bundle block adjustment is a nonlinear iterative optimization process where the objective function is Mean Re-projection Error (MRE) and parameters are the position, orientation and camera distortion coefficients.

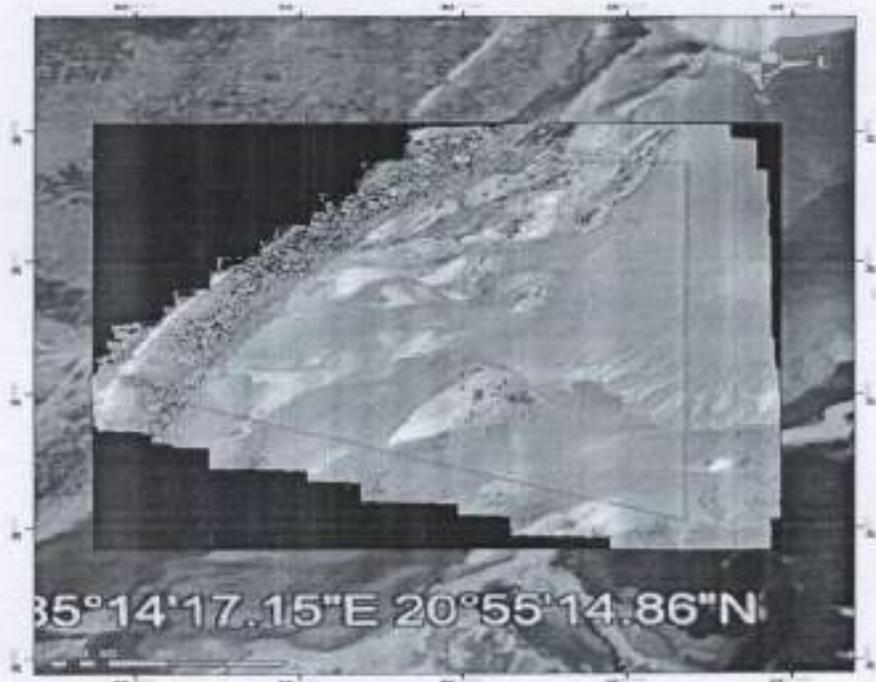
#### 3.4.2 DENSE POINT CLOUD

Depth value is estimated for every pixel in the image using Multi-View Stereo algorithms. Individual depth map of an image is fused together with the depth map of the neighboring image to obtain a 3D point. These points are often called as the dense point cloud. It may even consist of greater than 1 crore points for a relatively smaller area. 3D points are triangulated to create Digital Elevation Model (Raster). Every pixel in raster has latitude, longitude and elevation information. Interpolation techniques like IDW are often used to do 3D point cloud to obtain the elevation model.

#### 3.4.3 ORTHOMOSAIC & DIGITAL ELEVATION MODELS

Ortho rectification of each photo is done using DEM. Ortho rectification step involves creating a visibility or occlusion map with respect to each image. This Ortho-mosaic can be used to measure true distances, because it is an accurate representation of the Earth's surface, having been adjusted for topographic relief, lens distortion, and camera tilt. A digital elevation model (DEM) is a 3D representation of a terrain created from its elevation data. A digital surface model (DSM) represents the earth's surface and includes all objects on it. The digital terrain model (DTM) represents the bare ground surface without any objects like plant and buildings.

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Pre- Monsoon Ortho image

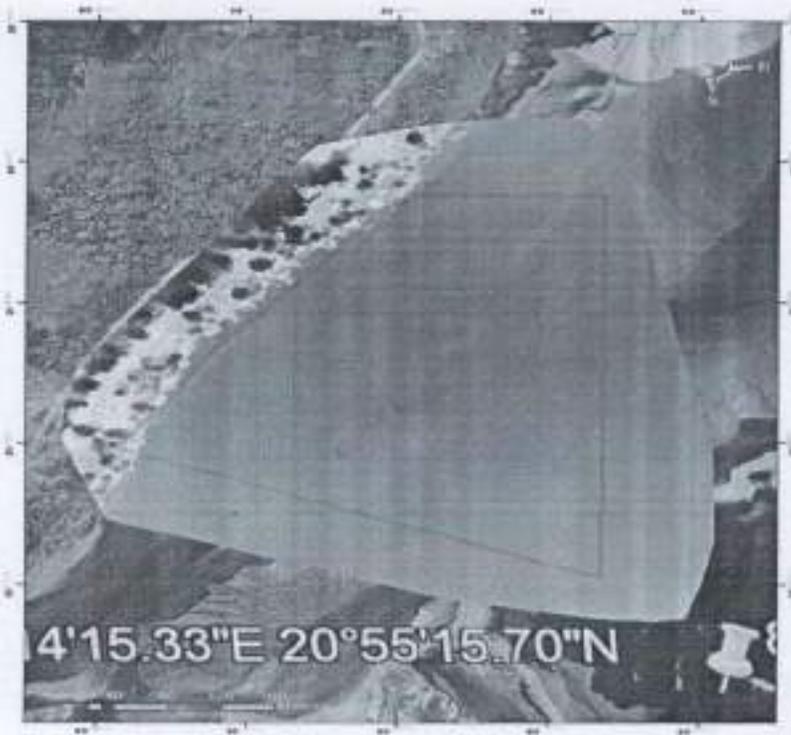


Post- Monsoon Ortho image

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Pre-DEM Image



Post-DEM Image

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### 3.5 SURVEY OUTPUT (PRE-MONSOON)

Pre-monsoon Survey was carried out on 20.05.2023 before offset of monsoon. For the data acquisition, the Drone was used to fly covering the river stretch in the lease area. A data acquisition plan is made specific to the site that needs to be surveyed. It depends on the type of terrain / object to be reconstructed. Flight polygons are designed and data acquired is as per this plan. The flying altitude is designed to capture resolution which best fits the project.

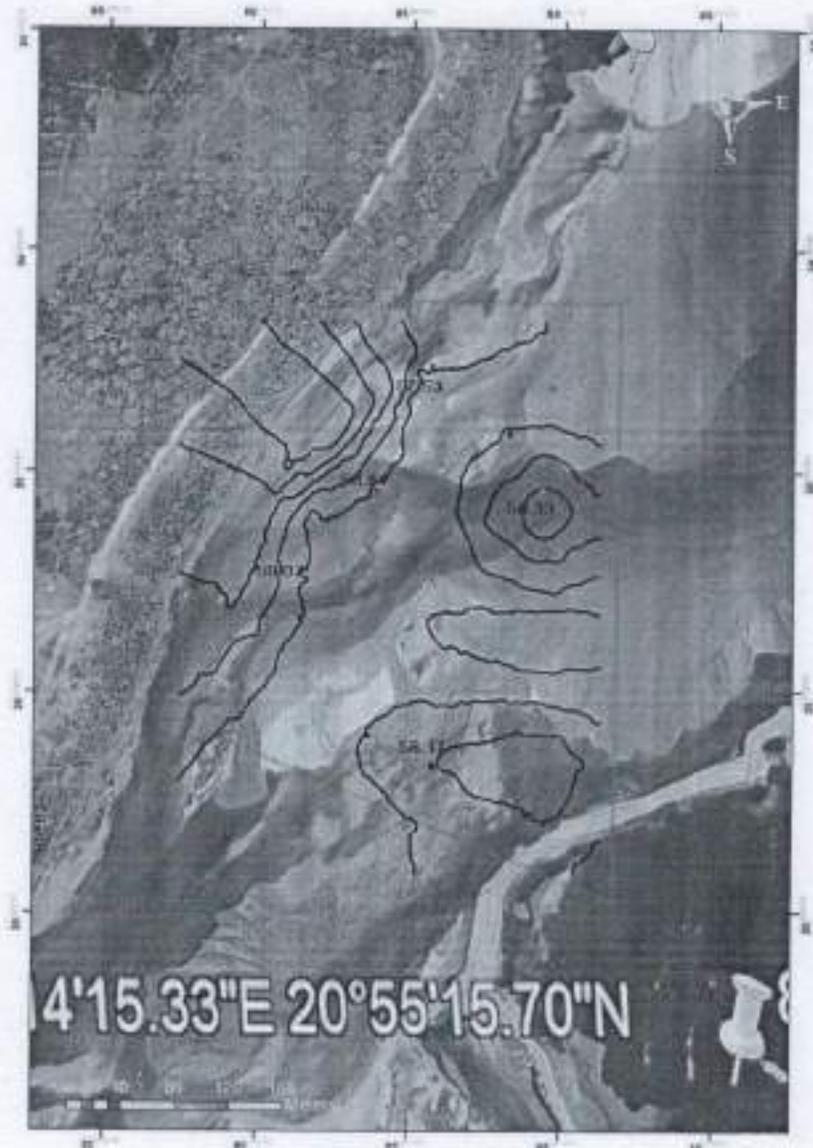


Contour Map Pre-Monsoon

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### 3.6 SURVEY OUTPUT (POST-MONSOON)

Post- monsoon Survey was carried out on 25.11.2023 after the monsoon before starting of mining operation. For the data acquisition, the Drone was again used to fly covering the river stretch in the lease area. The major outputs from photogrammetric processing include Ortho- mosaic, Digital Surface Model and Digital Terrain Model.



Contour Map Post-Monsoon

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## VOLUME ESTIMATION

### 4.1 Estimation of Reserve / Replenishment

In order to estimate the replenished volumes of sand, both the surveyed data were merged / superimposed, the data obtained in pre- monsoon & post- monsoon. The digital method using DEM to DEM comparison has been used for estimating the amount of sand deposition or erosion. The difference in elevation within safe common workable area shows the amount of river erosion (if negative) and deposition (if positive). The area calculation was done using virtual surveyor software. The volume reports for the pre- monsoon survey and post –monsoon survey are given.

### 4.2 Safe workable Area

The safe workable area due to various statutory mining restrictions as per the Sand Mining Guideline, 2020 has been considered for calculations of reserve estimation using software as below;

- River bed sand mining shall be restricted within the central 3/4th width of the river/rivulet or 7.5 meters (inward) from river banks but up to 10% of the width of the river, which needs to be protected. In this lease area, the bank of river is aligned with the lease boundary and the effective width of the river in the lease area varies from 100 to 150m. The river width variation is in sync with the variation of SBZ.

#### Common Safe workable Area

Since the most of lease area was water logged during post monsoon survey as compare to pre-monsoon survey, Drone survey could not be processed in water logged area. Hence, only that safe workable area in post monsoon survey which is common with pre-monsoon safe workable area has been taken into account for estimation of replenishment study. So, it is estimated that total area **26,629 m<sup>2</sup>** for Nizgharzami Sand Quarry is considered as common with pre-monsoon and post-monsoon safe workable area.



### 4.3 Calculation of Replenished Volume

#### a) Replenished volume by cross-sectional method in the entire lease area

The classical method of cross-sections has been used for estimating the amount of sand erosion / depositions. The difference in elevation along a cross-section shows the amount of river erosion (if negative) and deposition (if positive). The area calculation was done using virtual surveyor software.

#### b) Replenished volume in common safe workable area

The volume metric calculations of common safe workable area or minable area have been done from photogrammetric software and results are as follow;

DEM Map Post-Monsoon



DEM Map Pre-Monsoon



#### c) Volume of Sand available during Pre-monsoon survey in safe workable area

Considering all the mining constrains of a total safe workable area the volume of sand computed as below. The volume of sand available with a average mRL 57.18 after the Pre- Monsoon Survey.

#### d) Volume of Sand available during post-monsoon survey in safe workable area

The volume of sand available with a average mRL 57.54 with a height of 0.36 m for the quarries after the post-monsoon survey. The details computed as below;

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Location Points	Latitude X-Axis	Longitude Y-Axis	Elevation Z-Axis	
			Pre-Monsoon	Post-Monsoon
DJI_0001	20.9250982	85.2422908	57.93	59.3
DJI_0002	20.9249126	85.2422828	57.51	57.88
DJI_0003	20.9249119	85.2421509	57.62	57.98
DJI_0004	20.9249139	85.2420638	57.81	58.17
DJI_0005	20.9249162	85.2419694	57.03	57.39
DJI_0006	20.9249174	85.2418757	57.98	58.34
DJI_0007	20.924919	85.2417768	57.98	58.33
DJI_0008	20.9249214	85.2416871	57.04	57.4
DJI_0009	20.9249233	85.2415927	57.15	57.53
DJI_0010	20.9249238	85.241503	57.17	57.55
DJI_0011	20.9249262	85.2414087	57.37	57.73
DJI_0012	20.9249275	85.2413099	57.42	57.78
DJI_0013	20.9249285	85.2412204	57.28	57.63
DJI_0014	20.9249298	85.2411263	57.2	57.56
DJI_0015	20.9249321	85.241033	57.07	57.41
DJI_0016	20.9249346	85.2409433	57.02	57.38
DJI_0017	20.9249361	85.2408493	57.03	57.39
DJI_0018	20.9249379	85.2407555	57.03	57.35
DJI_0019	20.9249392	85.2406604	57.17	57.55
DJI_0020	20.9249411	85.2405662	57.35	57.69
DJI_0021	20.9249418	85.2404779	57.2	57.54
DJI_0022	20.9249436	85.2403842	57.02	57.38
DJI_0023	20.9249457	85.2402899	57	57.34
DJI_0024	20.9249479	85.2401964	57.09	57.44
DJI_0025	20.9249489	85.2401022	57.95	58.32
DJI_0026	20.9249497	85.2400075	57.89	58.25
DJI_0027	20.9249515	85.2399181	57.76	58.12
DJI_0028	20.9249536	85.2398231	57.58	57.91
DJI_0029	20.9249555	85.2397293	57.39	57.74
DJI_0030	20.9249571	85.2396357	57.15	57.51
DJI_0031	20.9249593	85.239542	57.94	58.28
DJI_0032	20.92496	85.2395135	57.76	58.1
DJI_0033	20.9247752	85.2393642	57.35	57.69
DJI_0034	20.9247701	85.239501	57.95	58.29
DJI_0035	20.9247673	85.2395934	57.62	57.96
DJI_0036	20.9247655	85.2396822	57.31	57.66
DJI_0037	20.9247634	85.2397754	57.86	58.2
DJI_0038	20.9247618	85.2398643	57.35	57.71
DJI_0039	20.92476	85.2399584	57.04	57.4
DJI_0040	20.9247588	85.2400523	57.72	58.07
DJI_0041	20.9247575	85.240151	57.49	57.84
DJI_0042	20.9247554	85.2402451	57.35	57.71
DJI_0043	20.9247542	85.2403343	57.18	57.54
DJI_0044	20.9247525	85.2404283	57.08	57.42
DJI_0045	20.9247504	85.2405229	57.93	58.28
DJI_0046	20.9247492	85.2406169	57.73	58.09
DJI_0047	20.9247478	85.2407066	57.63	57.98
DJI_0048	20.9247462	85.2408007	57.55	57.89

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DJI_0049	20.9247447	85.2408947	57.51	57.85
DJI_0050	20.9247426	85.2409886	57.45	57.81
DJI_0051	20.9247412	85.2410821	57.29	57.63
DJI_0052	20.9247395	85.2411762	57.31	57.68
DJI_0053	20.9247376	85.2412702	57.3	57.64
DJI_0054	20.924736	85.2413597	57.2	57.57
DJI_0055	20.9247343	85.2414537	57.21	57.57
DJI_0056	20.9247328	85.2415478	57.27	57.63
DJI_0057	20.924731	85.2416377	57.32	57.66
DJI_0058	20.9247294	85.2417321	57.2	57.56
DJI_0059	20.9247281	85.2418266	57.13	57.48
DJI_0060	20.924726	85.2419207	57.16	57.52
DJI_0061	20.9247242	85.2420145	57.2	57.56
DJI_0062	20.9247226	85.2421085	57.08	57.44
DJI_0063	20.9247215	85.2421981	57.11	57.45
DJI_0064	20.9247194	85.2422899	57.13	57.48
DJI_0065	20.9247187	85.242304	58.17	57.52
DJI_0066	20.9245317	85.2422964	58.95	58.31
DJI_0067	20.924533	85.2421587	58.18	57.51
DJI_0068	20.9245347	85.2420757	57.44	57.78
DJI_0069	20.9245362	85.2419818	57.63	57.99
DJI_0070	20.924538	85.2418879	57.67	58.03
DJI_0071	20.9245393	85.2417941	57.59	57.93
DJI_0072	20.9245407	85.2417	57.45	57.79
DJI_0073	20.9245424	85.2416108	57.47	57.81
DJI_0074	20.9245434	85.2415163	57.4	57.76
DJI_0075	20.924545	85.2414229	57.3	57.66
DJI_0076	20.9245473	85.2413287	57.27	57.63
DJI_0077	20.9245486	85.2412347	57.27	57.63
DJI_0078	20.9245507	85.2411407	57.23	57.58
DJI_0079	20.9245524	85.2410416	57.26	57.65
DJI_0080	20.9245543	85.2409518	57.23	57.56
DJI_0081	20.9245557	85.2408629	57.28	57.64
DJI_0082	20.9245575	85.2407646	57.21	57.56
DJI_0083	20.9245592	85.2406749	57.21	57.56
DJI_0084	20.9245612	85.240581	57.29	57.65
DJI_0085	20.9245621	85.2404919	57.29	57.65
DJI_0086	20.924563	85.2403971	57.25	57.6
DJI_0087	20.9245647	85.2403028	57.18	57.53
DJI_0088	20.9245669	85.2402085	57.18	57.53
DJI_0089	20.9245693	85.2401103	57.06	57.42
DJI_0090	20.9245708	85.2400213	57.03	57.39
DJI_0091	20.9245725	85.2399267	57.02	57.38
DJI_0092	20.924574	85.2398322	57.05	57.41
DJI_0093	20.9245754	85.2397428	58.98	59.32
DJI_0094	20.9245768	85.2396439	58.96	59.3
DJI_0095	20.9245787	85.2395539	58.91	59.25
DJI_0096	20.9245809	85.2394553	58.88	59.23
DJI_0097	20.9245824	85.2393662	58.84	59.18
DJI_0098	20.9245838	85.2392722	58.83	59.18
DJI_0099	20.9245863	85.2391924	58.87	59.23
DJI_0100	20.9243986	85.2390968	58.66	59.02
DJI_0101	20.9243958	85.239228	58.81	59.15

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DJI_0102	20.9243933	85.2393242	58.79	59.15
DJI_0103	20.9243912	85.2394181	58.79	59.13
DJI_0104	20.9243894	85.2395064	58.78	59.12
DJI_0105	20.9243877	85.2396008	58.83	59.18
DJI_0106	20.9243858	85.239695	58.85	59.21
DJI_0107	20.9243841	85.239784	58.79	59.13
DJI_0108	20.9243825	85.2398781	58.78	59.12
DJI_0109	20.9243809	85.2399724	58.77	59.11
DJI_0110	20.9243792	85.2400665	58.76	59.1
DJI_0111	20.924377	85.2401606	58.8	59.14
DJI_0112	20.9243755	85.2402489	58.81	59.15
DJI_0113	20.9243738	85.240348	58.8	59.15
DJI_0114	20.924372	85.2404373	58.7	59.06
DJI_0115	20.9243698	85.2405364	57.5	57.84
DJI_0116	20.9243685	85.2406262	57.15	57.51
DJI_0117	20.9243671	85.2407203	57.04	57.39
DJI_0118	20.9243656	85.2408098	57.05	57.41
DJI_0119	20.9243637	85.2409036	57.14	57.49
DJI_0120	20.9243622	85.240998	57.98	58.34
DJI_0121	20.9243608	85.2410926	57.91	58.25
DJI_0122	20.924359	85.2411816	57.92	58.26
DJI_0123	20.9243574	85.2412808	57.78	58.12
DJI_0124	20.9243557	85.241375	57.68	58.02
DJI_0125	20.9243539	85.241469	57.59	57.93
DJI_0126	20.9243526	85.2415581	57.4	57.74
DJI_0127	20.9243507	85.2416528	57.54	57.88
DJI_0128	20.9243493	85.2417464	57.57	57.93
DJI_0129	20.9243475	85.2418411	57.48	57.82
DJI_0130	20.9243466	85.2419311	57.52	57.87
DJI_0131	20.9243446	85.2420254	57.59	57.95
DJI_0132	20.9243426	85.2421189	57.55	57.91
DJI_0133	20.924341	85.2422083	57.54	57.88
DJI_0134	20.9243391	85.2423043	57.57	57.92
DJI_0135	20.9243378	85.2423177	57.55	57.91
DJI_0136	20.9241518	85.2423092	57.35	57.71
DJI_0137	20.9241517	85.2421764	57.69	58.05
DJI_0138	20.9241542	85.242085	57.88	58.24
DJI_0139	20.9241563	85.2419957	57.91	58.25
DJI_0140	20.9241581	85.2419016	57.01	57.37
Total Average			57.18	57.54

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**VOLUME ESTIMATION:**

Quantity extracted during the quarter period with respect to initial/latest survey pit position as per site requirement. This includes of material extracted from Mines, material added and total quantity in dumps, material added/removed quantity in stockpile and reclaimed area, water accumulation in the pit.

For each of the cut/fill regions, the volume is calculated. For a single cell, the formula for the volume is:

$$\text{Volume (m}^3\text{)} = (\text{cell area}) * \Delta Z$$

Where:

$$\Delta Z = Z_{\text{before}} - Z_{\text{After}}$$

Basing on the Approved mining Plan, Total Lease Area= 10.06 Ha

Minable Area (A) = Area – Safety Zone = 75530sq.m.

Estimated Minable Reserve as per approved Mining Plan = 90636m<sup>3</sup>

**Common safe workable area in pre-monsoon and post-monsoon Replenishment Study**

$$= 26,629 \text{ m}^2$$

Pre-Monsoon Standard Elevation = 57.18

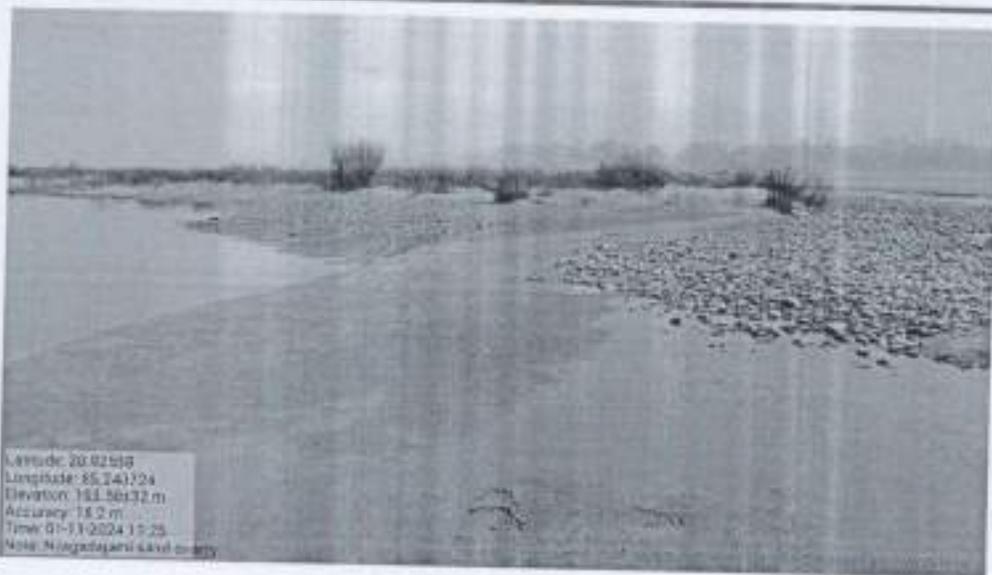
Post-Monsoon Standard Elevation = 57.54

Difference in Elevation (D) = 57.54-57.18= 0.36

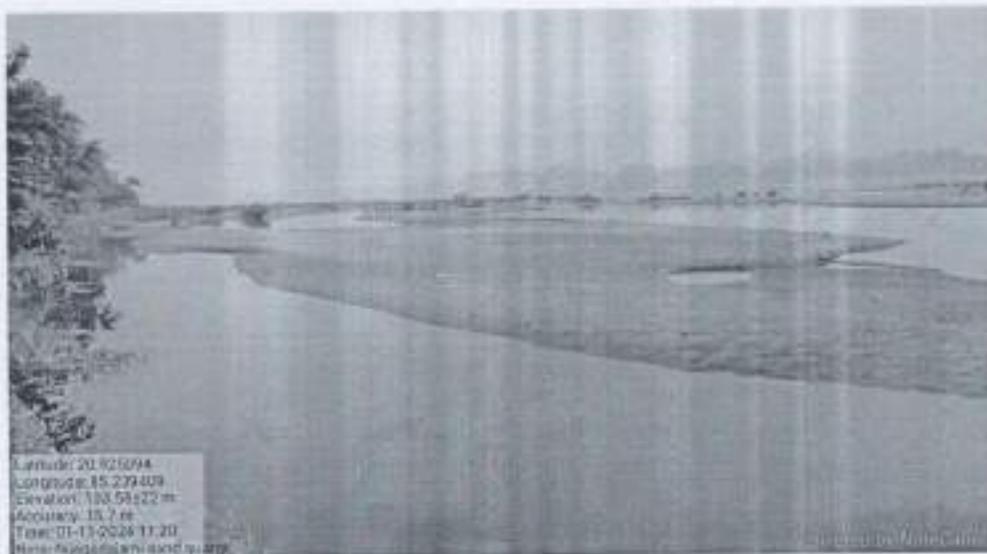
Volume = A X D = 26,629 X 0.36 = 9,586.44

Approved Annual Production Capacity = 18000m<sup>3</sup> as per mining plan and EC has given by SEIAA, Odisha.

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## CONCLUSION & RECOMMENDATION

### 5.1 Conclusion

The field survey and the data generation thereof for the pre and post monsoon season was undertaken and the data were compiled and analyzed with the help of standard engineering and mining software. The mineable area considered for assessment of deposit or erosion, was in compliance to the sustainable Sand guidelines' 2020 and other applicable regulatory requirements.

The calculation of deposits was made based on the survey data arising out of pre and post monsoon survey and standard calculation method (Cross-section area method and Digital elevation Model DEM)). The estimated average erosion thickness is computed within the entire lease area and common safe workable area respectively.

However, the total area available in Nizagarhjami Sand Quarry after post monsoon study is around 26,629 m<sup>2</sup> after leaving the safety zone. The available sand for mining is 9,586.44 m<sup>3</sup> which can be treated as safe extractable within the framework of the study after arrival of river level. In the first year SEIAA, Odisha has given the quantity production of sand is 18,000 m<sup>3</sup>.

### 5.2 Recommendations

In our considered opinion, there is need to consider the concept of resource accounting of sand and take the volume of replenishment as a measure for resource augmentation. As the mine has started the operation of the quarry and after the replenishment study we found that around 9,586.44 cum of sand available for mining during the study period. Based on this estimation, replenishable quantity of sand available for mining of this period which may allow for mining activity. But, the approved quantity of sand 18000 Cum. as per the Mining Plan and SEIAA, Odisha for first year. So, we request to the Hon'ble SEIAA, Odisha may permit for mining the Replenisable quantity of sand.

Signature of the  
Consultant / RQP



Pilamban Bhutta  
Signature of the Lessee

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**ANEXXURE**

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# ODM Quality Report

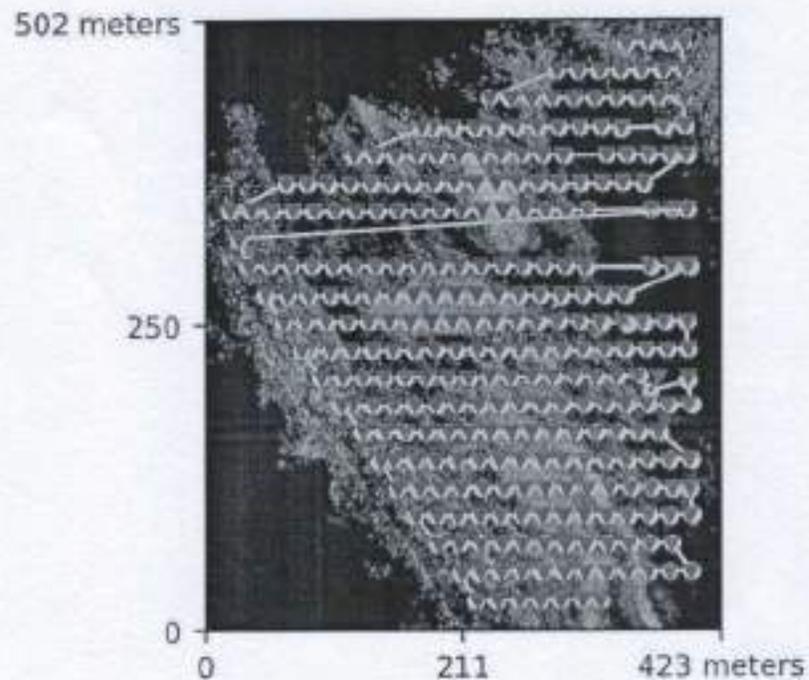
Processed with ODM version 3.1.9

## Dataset Summary

Date	05/12/2023 at 06:34:26
Area Covered	0.175138 km <sup>2</sup>
Processing Time	1.0h:3.0m:47.0s
Capture Start	21/11/2023 at 15:51:51
Capture End	21/11/2023 at 17:06:13

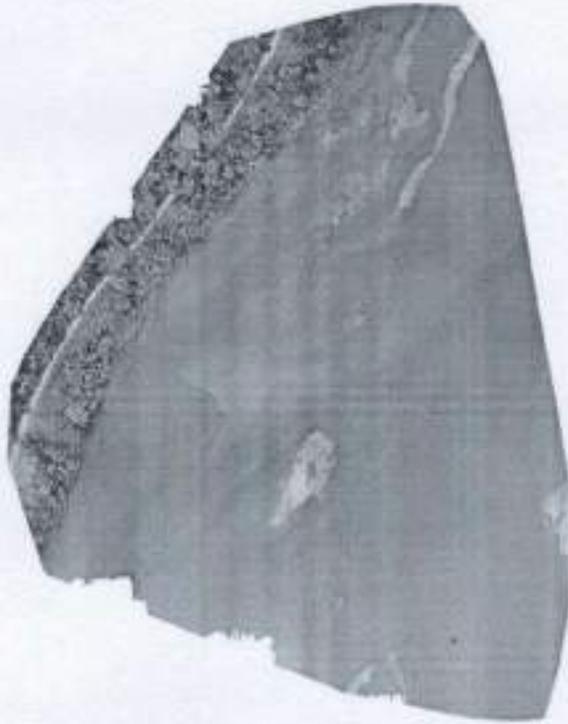
## Processing Summary

Reconstructed Images	304 over 319 shots (95.3%)
Reconstructed Points (Sparse)	138832 over 172289 points (80.6%)
Reconstructed Points (Dense)	24,859,382 points
Average Ground Sampling Distance (GSD)	6.0 cm
Detected Features	8,165 features
Reconstructed Features	1,561 features
Geographic Reference	GPS
GPS errors	1.46 meters



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Previews



Orthophoto



Digital Surface Model



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Digital Terrain Model



51.86m

87.72m

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**Survey Data**



■ 2 ■ 3 ■ 4 ■ 5+

**GPS/GCP/3D Errors Details**

GPS	Mean	Standard Deviation	RMS Error
X Error (meters)	-0.005	0.935	0.935
Y Error (meters)	0.006	0.981	0.981
Z Error (meters)	0.001	1.103	1.103
Total			1.457

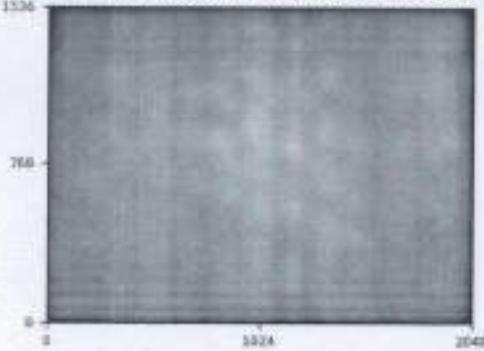
3D	Mean	Standard Deviation	RMS Error
X Error (meters)	0.044	0.292	0.295
Y Error (meters)	0.060	0.458	0.462
Z Error (meters)	0.130	0.707	0.719
Total			0.160

	Absolute	Relative
Horizontal Accuracy CE90 (meters)	1.481	0.132
Vertical Accuracy LE90 (meters)	1.687	0.207

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### Features Details

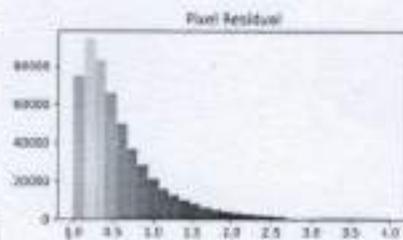
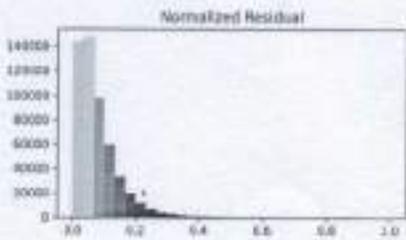
Detected features heatmap for camera v2 (p) f0.7903 2048 1536 brown 0.6666



	Min.	Max.	Mean	Median
Detected	4283	13779	8347	8165
Reconstructed	29	5289	1786	1561

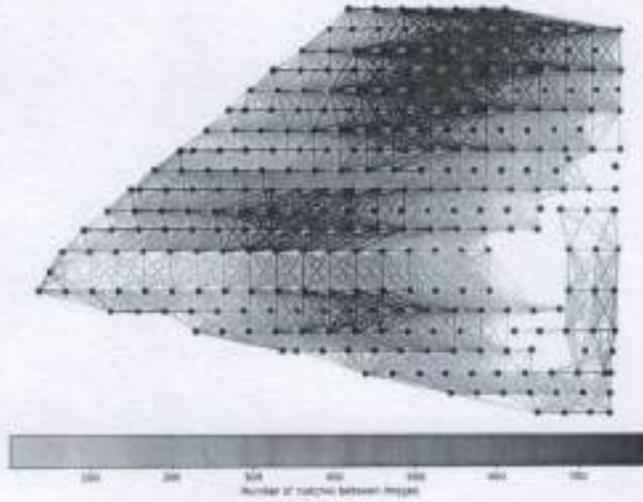
### Reconstruction Details

Average Reprojection Error (normalized / pixels / angular)	0.08 / 0.59 / 0.00034
Average Track Length	3.91 images
Average Track Length (> 2)	6.23 images



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### Tracks Details

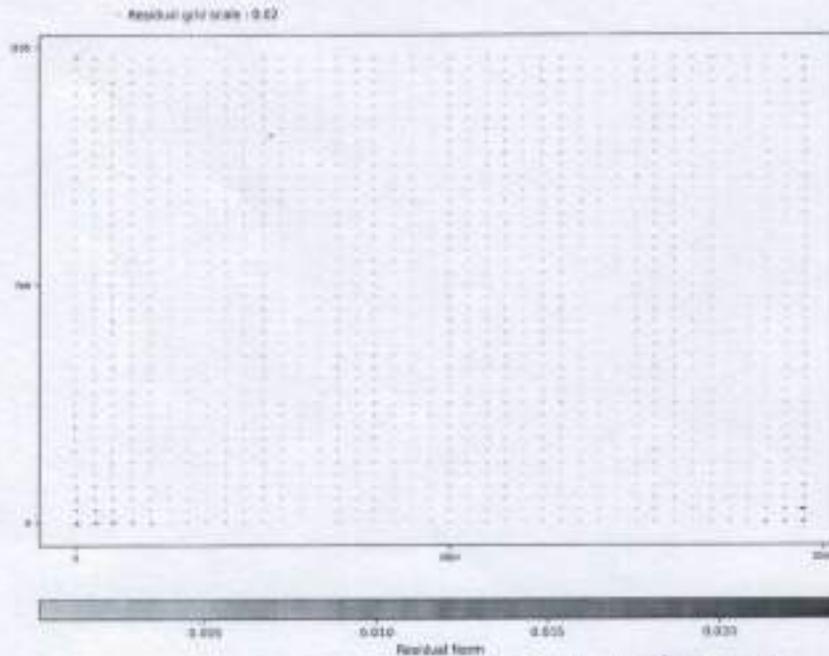


Length	2	3	4	5	6	7	8	9	10
Count	76098	24268	10668	5952	3926	2898	2290	1819	1468

### Camera Models Details

v2 dji fc7303 2048 1536 brown 0.6666

	k1	k2	k3	p1	p2	focal	aspect_ratio	cx	cy
Initial	0.0000	0.0000	0.0000	0.0000	0.0000	0.6667	1.0000	0.0000	0.0000
Optimized	0.0041	-0.0226	0.0109	0.0013	-0.0002	0.7448	1.0000	-0.0022	0.0027



True Copy Attesteg