BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, SOUTH ZONE BENCH AT CHENNAI

(Original Application under Section 18(1) r/w Section 16 of the National Green Tribunal Act, 2010)

Original Application No. 45 of 2022

IN THE MATTER OF:

V. Ramasubbu ...Appellant

Vs.

Union of India & Ors. ...Respondents

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Dated at Chennai on this the 27th day of January, 2023.

COUNSEL FOR THE RESPONDENT-5

BEFORE THE NATIONAL GREEN TRIBUNAL
SITTING AT CHENNAI (SZ)
[Under Section 18(1) read with 16 of National Green Tribunal Act, 2010]

Appeal No.45 of 2022

Between:

V. Ramasubbu,
No.8/18 C, Sri Sakthi Nagar,
Krishnapuram, Palayamkottai – 627011,
Tirunelveli.
Email – advramasubbu@gmail.com ...Appellant

And

1. Member Secretary
   State Level Environment Impact Assessment Authority – Andhra Pradesh
   D.No. 33-26-14 D/2, Near Sunrise Hospital,
   Pushpa Hotel Centre, Chalamavari Street, Kasturibaipet,
   Vijayawada – 520010.

2. The Chairman
   Andhra Pradesh Pollution Control Board,
   APPCB D.No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Centre,
   Chalamavari Street, Kasturibaipet,
   Vijayawada – 520010.
   Email: chairman@appcb.gov.in

3. The Secretary
   Department of Atomic Energy,
   Govt. of India,
   Anushakti Bhavan, Chattrapathi Sivaji Maharaj Marg,
   Mumbai – 400 001.
   Email: chairman@dae.gov.in

4. The Director
   Dept. of Mines and Geology,
   Sri Anjaneya Tower, D.No. 7-104, B-Block,
   5th & 6th Floor, Ibrahimpatnam,
   Vijayawada – 521 456.
   Email: admin@apmines.gov.indirectormines@yahoo.co.in

5. The Sr. Vice President
   TRIMEX SANDS PRIVATE LIMITED,
   Vatsavalasa Village Srikurmam P.O,
   Gara mandal Srikakulam District – 532 404. ...Respondents

No Corrns

For TRIMEX SANDS PRIVATE LIMITED

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COUNTER AFFIDAVIT FILED ON BEHALF OF THE RESPONDENT NO. 5

I, Gopinath Prakash, S/o Mr. Srirama Prakash, aged about 45 years, Authorised Signatory of M/s Trimex Sands Private Limited, having office at Trimex Towers, No.1, Subbaraya Avenue, C.P. Ramaswamy Road, Alwarpet, Chennai – 600 018, do hereby solemnly affirm and sincerely state as follows:

01. I am the Authorized Signatory of the 5th Respondent herein. I am authorized to swear to this Counter Affidavit on behalf of the 5th Respondent. The Copy of Board Resolution dated 25.03.22, annexed herein and marked as **ANNEXURE 1**. I am well acquainted with the facts of the case stated hereunder.

02. I hereby deny all the averments and allegations contained in the Appeal dated 25.08.2022 filed by the Appellant, except those that are specially admitted herein.

PRELIMINARY OBJECTIONS:

03. At the outset, it is stated that, the entire case set up by the Appellant is completely wrong and based on unascertained and incorrect facts. It is submitted that, the averments and contentions made in the appeal are devoid of merits and proceeded on an erroneous basis.

NO LOCUS STANDI

04. It is submitted that, the Appellant is neither a resident of Srikakulam District, Andhra Pradesh, where the plant is situated nor a resident of state of Andhra Pradesh.

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P. Gopinath

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Hence the Appellant cannot be an aggrieved person under section 16 of the National Green Tribunal Act,2010 and therefore the Appellant has no locus to file and maintain the present appeal.

05. It is submitted that, the Appellant has not disclosed any significant particulars such as his antecedents or any contribution he has made to the lives of the community in Srikakulam District. No details are furnished as to precisely when the Appellant came to be seized of the issues raised in the present appeal and whose cause he seeks to espouse and therefore it can be reasonably concluded that, the present appeal has been filed with ulterior motives. Hence the same is liable to be dismissed.

06. It is submitted that, the 1st Respondent has issued an environmental clearance to the 5th Respondent after lengthy deliberation process, consultation and application of mind and also taking into all relevant factors for consideration. Therefore the same ought not to be questioned.

07. Before traversing the said averments, the relevant and correct factual matrix is narrated hereunder for the better appreciation of the case.

08. I submit that, M/s.Trimex Industries Limited, the holding company of the 5th Respondent, was granted a prospecting license by the State Government of Andhra Pradesh on 02.06.2001 for Beach Sand minerals like Garnet, Ilmenite, Rutile, Zircon etc., over an area of 10.00 Sq. Kms from Sy.No.1042 of Srikurmam Village to

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Confluence of Vamsadhara River Srikakulam District. After undertaking detailed exploration in the area by conducting drilling, sampling, analysis etc. as per the statutory stipulations, M/s. Trimex Industries Limited filed a mining lease application on 14.03.2002 for Beach Sand minerals over an extent of 822.98 Hectares in various survey numbers of Vatsavalsa and Tonangi Villages of Gara Mandal, Srikakulam District.

09. I submit that, the State Government recommended for grant of Mining lease in favour of M/s.Trimex Industries Limited over an extent of 7.2 Sq. kms (720 Ha), after reducing 103.20 Ha (in Tonangi village) from the total applied area, which was found to be forest land. The State Government of Andhra Pradesh with the prior approval of the Government of India (GOI) granted a mining lease *vide* G.O.Ms.No.31, I & C Department, dated 06.02.2004, for extracting Beach Sand Minerals (including Ilmenite, Garnet, Zircon, Rutile, Sillimanite, Leucoxene etc.,) over an extent of 7.2 Sq.kms (720 Ha) in different survey numbers in Vatsavalasa and Tonangi Villages, Gara Mandal, Srikakulam District, Andhra Pradesh. The mining lease was granted for 30 years.

10. I submit that, thereafter, in the year 2007, Mining Lease was transferred in the name of the 5th Respondent on its earlier name i.e., M/s. East West Mineral Sands Private Limited *vide* G.O.Ms.No.10, I & C Department, dated 17.01.2007 for the remainder of the 30 years lease period. The name of the 5th Respondent was changed from M/s. East West Mineral Sands Private Limited to the present name i.e. Trimex

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Sands Private Limited on 11.04.2007, after duly following the procedure prescribed in the Companies Act, 1956.

11. I submit that, the 5th Respondent started commercial Mining and Plant operations in 2009-10 after obtaining all statutory approvals and licenses viz. Environmental Clearance (EC) and CRZ Clearance from the Ministry of Environment, Forest & Climate Change (MoEF & CC), Consent to Establishment ("*CTE*") and Consent to Operation ("*CTO*") from Andhra Pradesh Pollution Control Board ("*APPCB*"), Mining Plan approvals from Indian Bureau of Mines (IBM) and Atomic Minerals Directorate for Exploration and Research (AMD), License from Atomic Energy Regulatory Board (AERB), Approvals from Directorate General of Mines Safety (DGMS), Revenue Department, Local Panchayat, Irrigation Department, etc.

12. I submit that, the minerals extracted by the 5th Respondent are used for the production of paints, paper, ceramics, filtration media, abrasive insulation, cosmetics, leather, glass, artificial gems, joints etc. I further submit that, the Beach Mineral Sand Industry is a highly capital-intensive industry requiring tailor-made mining and mineral separation facilities with sophisticated technology and imported machinery. The Run of Mine ("*ROM*") from the mine is having about 15-20% useful minerals viz. Ilmenite, Sillimanite, Garnet, Rutile and Zircon, Monazite and the remaining quantity is silica sand and other gangue minerals. However, monazite being a radioactive mineral is not allowed to produce by private companies. The ROM is processed in Pre-Concentration Plants ("*PCPs*") to produce Mineral Concentrates containing all above

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mentioned six minerals and a minor quantity of silica sand & gangue minerals. The Silica sand generated as waste in PCP is used for backfilling of mined-out lands.

13. I submit that, the Concentrates from PCPs are subjected to further physical process to eliminate remaining waste sand and gangue minerals present in the concentrate to separate all the minerals as individual minerals i.e. ilmenite, garnet, zircon, rutile and sillimanite in a Mineral Separation Plant ("*MSP*"). Part of the Sillimanite and Zircon mineral produced is also pulverized in a Ball Mill, which is situated within the MSP premise. The MSP and Ball Mill are situated outside the mining lease area on land under the 5th Respondent's ownership at about 0.50 KM (1.5 KM by road) from the mining lease area towards the landward side. The rejects stream from the MSP containing gangue minerals, silica sand and unrecovered fine minerals is used for backfilling the mined-out pits. Another reject stream from the MSP known as 'monazite rich tails' is stored in earthen pits within the MSP premise as per the license conditions issued by Atomic Energy Regulatory Board (AERB).

14. I submit that, the 5th Respondent has incurred a huge capital investment of about Rs 530. Crores towards setting up Mining, Pre-concentration Plants, Mineral Separation Plant and Ball Mill facilities and were employing about 1000 persons. The Mining, PCPs, MSP and Ball Mill were considered an integrated project and Environmental Clearance was initially granted in the year 2004 by MoEF & CC for 2.0 million tons per annum of raw sand mining after following the due process under EIA notification including a public hearing. Thereafter, the MoEF & CC granted Environmental Clearance for the expansion of the integrated project from 2.0 MTPA

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to 6.0 MTPA and 0.93 MTPA of mineral production at the MSP, vide order No. J-11015/175/2011-IA. II (M) dated 17.04.2015. The Copy of Proceedings dated 03.08.2018 issued by MoEF enclosing the certified copy of the compliance report of the 5th Respondent is annexed herein and marked as **ANNEXURE 2.** The Respondent conducted a public hearing for the expansion project also as stipulated under the EIA notification. Consent to Operate (CTO) for the integrated project was also granted by Andhra Pradesh Pollution Control Board vide APPCB/VSP/VZN/152/HO/CFO/2015 dated 31.05.2015, which was renewed later vide letter dated 25.02.2018.

15. I submit that, the integrated mining cum beneficiation project was in operation till 2018. However, an order was issued by the State Government of Andhra Pradesh on 28.11.2018 determining the mining lease of the 5th Respondent, which resulted in the stoppage of the mining operations. However, said order was stayed by the Hon'ble High Court of Andhra Pradesh in WP No. 44571/2018 vide interim order dated 04.06.2019.

16. I submit that, on 20.02.2019, the Ministry of Mines, GOI vide notification dated 20.02.2019 amending the Schedule A of the Atomic Minerals Concession Rules, 2016 has revised the threshold value for monazite in beach sand mineral deposit and thereby reserved mining of beach sand mineral deposits in India for Government Companies. Further, the Ministry of Mines vide an order dated 01.03.2019 has directed premature termination of all existing mineral concessions for beach sand minerals held by private companies in India. Although, the notification and direction prohibits only mining of beach sand mineral activity by private companies, the Pre-

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concentration Plants, Mineral Separation Plant and Ball Mill operations of the 5th Respondent have also stopped due to non-operation of the Mine.

17. I submit that, the Atomic Mineral Concession Rules, 2016 are framed in exercise of the power under Section 11B of the Mines and Minerals (Development and Regulation) Act, 1957 and are concerned with the grant of licenses and leases for mining of minerals. It is pertinent to note that above said notification dated 20.02.2019 only prohibits mining activities of beach sand minerals by private companies and has no relevance on consideration of applications seeking consent to establish standalone activities where no mining/mineral concession is involved.

Section 11 B is reproduced as under:

> ***"Section 11B. Power of Central Government to make rules for regulating atomic minerals specified under Part B of First Schedule.—****The Central Government may, by notification in the Official Gazette, make rules for regulating the grant of mining leases or other mineral concessions in respect of minerals specified in Part B of the First Schedule and for purposes connected therewith, and the State Government shall grant a reconnaissance permit, prospecting license or mining lease in respect of any such mineral in accordance with such rules".*

18. I submit that, further to the above notification by the Ministry of Mines reserving mining of beach sand minerals for Government companies, Ministry of Mines issued an order dated 01.03.2019 directing premature termination of all mineral concessions for beach sand minerals held by private companies in India. In view of the above, the MOEF & CC has revoked the EC and CRZ clearances granted for the integrated mining project of the 5th Respondent vide reference dated 24.05.2019 and 12.07.2019 respectively. It is pertinent to note that the revocation of the EC and CRZ Clearances was based only on the fact of direction for premature termination of the lease on

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account of the 2019 amendment in Atomic Minerals Concession Rules, 2016 as these clearances were granted for the integrated project where mining of beach sand minerals was the primary activity. On account of the above prohibition in the mining of beach sand minerals, the entire project of the 5th Respondent, the MSP and Ball Mill, which were situated in a separate compound outside the mining lease area, became idle. The 5th Respondent thus decided to undertake a fresh project of utilizing the said Ball mill and subsequently also proposed to include Mineral Separation Plant in the project. This would also become a source of income for the 5th Respondent which has invested around Rs. 270 Crores on setting up this Ball Mill and MSP alone, which are now lying completely idle because of the change in policy concerned with the mining of the beach sand minerals. Further, this would also employ nearly 350 local people in the area. As mentioned above, the proposal of mineral beneficiation project comes within the purview of category 2(b) of the EIA notification schedule, whereas any mining proposal under the category 1(a) of the said schedule, are governed by the mining laws such as MMDR Act and rules framed thereunder.

19. I submit that, since the above standalone project does not involve any mining activities and do not attract any mining law regime. Therefore the 5th Respondent filed an application before the Andhra Pradesh Pollution Control Board (APPCB) on 26.05.2020 for grant of Consent to Establish (CTE) for operating the already established Ball Mill which is situated outside the mining lease area as a standalone project for pulverization of Bauxite, Kyanite, Sillimanite and Zircon minerals.

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20. I submit that, the APPCB vide their letter no. 152/APPCB/CFE/RO-VZM/HO/2015 dated 16.06.2020 rejected the CTE application citing Ball Mill was part of the integrated Mining cum beneficiation project for beach sand minerals and EC granted for the integrated project was revoked by MOEF & CC vide order dated 24.05.2019. Hence the APPCB advised the 5th Respondent to obtain NOC from MoEF & CC to consider the Ball Mill as a standalone unit for grant of CTE. It is pertinent to note that, the EC proposals for projects mentioned under the schedule of EIA notification 2006 amended till date are considered and approved, either by the MOEF&CC or by respective State Environmental Impact Assessment Authority(SEIAA) based on the threshold limit of the project as given in the Schedule . The EC for the subject integrated project was granted in 2015 by MOEF & CC, as the installed capacity of the project was within the purview of the MOEF&CC.

21. I submit that, in furtherance thereto, the 5th Respondent submitted a request to MOEF & CC vide letter dated 22.06.2020 and requested to issue NOC. The 5th Respondent also submitted several reminder letters for the grant of NOC. In the meanwhile, the 5th Respondent got a business opportunity to restart the Mineral Separation Plant (MSP) also by sourcing beach sand mineral concentrates from 3rd parties in India and abroad. As mentioned above, MSP and the Ball Mill are situated outside the mining lease area. Therefore, the 5th Respondent submitted another application with the APPCB for a grant of CTE for the MSP and Ball Mill together vide application dated 03.06.2021. The APPCB did not consider the application citing the pending requirement of NOC from MOEF & CC as mentioned in their earlier letter

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rejecting the CTE application filed by the 5th Respondent for grant of CTE for Ball Mill operation.

22. I submit that, therefore, the 5th Respondent submitted another letter to MOEF & CC on 24.06.2021 requesting the grant of NOC to consider the MSP and Ball Mill as a standalone unit. The application mentioned that the proposal will have no link with the mining activity of beach sand minerals and NOC is to seek relevant approvals from the State Pollution Control Board and other authorities for the operation of the Mineral Separation Plant and Ball Mill as a standalone unit.

23. I submit that, the request for a grant of NOC to issue CTE for operating the MSP and Ball Mill was put before the Expert Appraisal Committee (Non-Coal- Mining) of MOEF & CC for consideration. The Committee considered the proposal in the meeting held on 1st July 2021 and the 5th Respondent was allowed to present the case. The EAC – Non-Coal (Mining) committee has returned the proposal of the Respondent -5. The Minutes of Meeting concludes as under,

> *"In view of the above the Committee observed that that the instant proposal is covered under the category of 2(b) of EIA notification, 2006, which is standalone and outside the mine lease area. EAC-non coal Committee cannot appraise the instant proposal. Further, the Ministry of Mines O.M dated 29.03.2019 requested this Ministry, not to grant clearances of any type for mineral concessions of beach sand minerals held by private persons/companies. Accordingly, MoEF & CC issued O.M vide dated 11.04.2019. Hence the committee* ***returned the proposal"****.*

24. I submit that, thus, the 5th Respondent submitted an application for the operation of the already established mineral separation plant and ball mill to the AP

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State Environmental Impact Assessment Authority (SEIAA), as the threshold limit of the proposed project was within the approval scope of the SEIAA . Fresh Environmental Clearance (EC) was granted to restart the MSP and Ball Mill, which are situated outside the mining lease area, as a standalone unit, by sourcing mineral concentrates from companies in India and abroad. The proposal will not involve any mining activity of beach sand minerals. In such circumstances, the present appeal has been filed which is devoid of merits and liable to be dismissed.

25. The averments contained in Para 1 to 8 (a) to (c) are denied as false and misleading. It is submitted that, the Environment Clearance was not issued arbitrarily and that the Answering Respondent has complied with all conditions and has followed procedure in due respect of Environment law and rules.

26. The averments contained in Para 8 (d) to (g) are vehemently denied as false and misleading. It is submitted that, the Atomic Minerals Concession Rules 2016 (AMCR 2016) was enacted by the Central Govt under Section 11B of the Mines & Minerals (Development & Regulation) Act 1957. Section 11B empowers the Central Government to make rules for regulating the grant of mining leases or other mineral concessions in respect of minerals specified in Part B of the First Schedule and for purposes connected therewith, and the State Government shall grant a reconnaissance permit, prospecting license or mining lease in respect of any such mineral in accordance with such rules. All beach sand minerals are grouped under Part B of the First Schedule.

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27. It is submitted that, under AMCR 2016, the threshold value as contained under Schedule A of the Rules is fixed for the exploitation of BSMs. As per Rules in 2016, deposits having less than 0.75% monazite in total heavy minerals only will be allowed for exploitation by private sector companies and deposits having more than 0.75% monazite are reserved for exploitation by Government companies.

28. It is submitted that, the Central Government vide notifications dated 20.02.2019 have revised the above-said threshold value from 0.75% to 0.0%, thereby none of the private companies are eligible for grant of a mining lease or other mineral concessions in respect of BSMs. Thus, the notification is solely for the grant of mining lease/other mineral concessions in respect of BSMs under AMCR Act,2016.

29. It is submitted that, the above notification has not only stopped the mining of beach sand minerals by the 5th respondent, but also the operations of Pre-concentration Plants, Mineral Separation Plant and Ball Mill of the 5th Respondent. The proposed activity of the 5th Respondent does not involve any kind of mining but is a standalone project to operate the Mineral Separation Plant (MSP) and Ball Mill solely by sourcing the mineral concentrates from suppliers from India and abroad.

30. The averments contained in Para 8(h) is vehemently denied as false and misleading. It is humbly submitted that, the application submitted by the 5th Respondent for environmental clearance does not envisage any mining activities. Hence, the prohibition on mining of beach sand minerals does not apply to the

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proposed operation of the MSP and Ball Mill by sourcing the concentrate from 3rd parties.

31. The averments contained in Para 8 (i) to (k) are denied as false and misleading. It is submitted that, as per Clause 3(d) of the Mineral Conservation and Development Rules, 2017, "beneficiation" means the processing of minerals or ores to upgrade the quality, purity or assay grade of the desired product by removing unwanted constituents like gangue minerals or tailings. It is submitted that, the subject proposed operation of the mineral separation plant involves upgrading the quality and assay grade of each mineral present in the concentrate by removing unwanted constituents like silica sand, monazite and other gangue minerals.

32. It is submitted that, the request submitted by this Respondent in 2021 for a grant of NOC to issue CTE for operating the MSP and Ball Mill was put before the Expert Appraisal Committee (Non-Coal- Mining) of MOEF & CC for consideration. The Committee considered the proposal in the meeting held on 1st July 2021. The Committee had also observed that the proposal is covered under category 2(b) of EIA notification, 2006, which is standalone and outside the mine lease area.

33. It is submitted that, as per the Schedule attached to the EIA notification, 2006 for the grant of environmental clearance, mining proposals are categorized under 1(a) of the schedule and mineral beneficiation proposals are categorized under 2(b) of the schedule. Further, as per the conditions mentioned there, if the mining proposals are submitted along with mineral beneficiation proposal, then the entire proposal shall be

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considered under category 1(a). Therefore, 5th respondent's erstwhile integrated mining cum beneficiation project was considered under category 1(a) and EC was granted. The current proposal of the 5th respondent is for mineral beneficiation only and hence considered under category 2(b) of the schedule and EC is granted. Therefore there cannot be any objection from any quarters whatsoever.

34. It is submitted that, the Respondent already obtained a contract for the processing of the concentrate tails from APMDC vide Letter of Intent dated 04.03.2022. An agreement was also executed with APMDC on 31.03.2022 in this effect. The concentrate tails proposed for processing were confiscated by the State Govt from a leaseholder. As per the contract, this Respondent is required to process and separate available minerals from the concentrate tails and return all the separated minerals to APMDC for further disposal/sale. The Respondent also obtained an expression of interest from two overseas parties for the supply of beach sand mineral concentrates. In none of these proposals, the Respondent involved in mining and hence there is no scope for considering these proposals for mineral beneficiation under the mining category.

35. The averments contained in Para 8 (i) to (p) are denied as false and misleading. It is submitted that, the 5th Respondent has submitted an application along with Form – I and Pre-Feasibility Report with the State Environmental Impact Assessment Authority (SEIAA), Andhra Pradesh on 22.11.2021 for the grant of fresh Environmental Clearance (EC) for the operation of already established Mineral Separation Plant (MSP) and Ball Mill with 0.44 million tons per annum mineral throughput capacity, as

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a standalone unit under Category 2(b) of EIA notification, 2006 ie. mineral beneficiation project. The proposal is to operate the MSP as a standalone unit by sourcing mineral concentrates from suppliers/mining firms in India and abroad. The Respondent also requested for exemption from public hearing as the integrated mining project consisting of beach sand mining and MSP was granted environmental clearance after undergoing the process of public hearing as per the provisions of EIA notification 2006 and also the integrated project was in operation till 2018. Further, the present proposed capacity of the MSP is much lower than the operation covered under the integrated project, for which PH was conducted earlier and EC was granted. The True Copy of the Application for TOR to SEIAA made by the 5th Respondent dated 22.11.2021 along with FORM-I and Pre-Feasibility Report are annexed herewith and marked as **ANNEXURE -3A, ANNEXURE -3B and ANNEXURE -3C** respectively.

36. It is submitted that, the State Environmental Appraisal Committee (SEAC) considered the proposal in its meeting held on 16.12.2021 and recommended the issue of standard TOR with EIA and a public hearing. The request of the 5th Respondent to be exempt from the public hearing was not considered. The True Copy of the SEAC Minutes of Meeting dated 16.12.2021 is annexed herewith and marked as **ANNEXURE- 4.**

37. It is submitted that, subsequent to the SEAC meeting on 16.12.2021, the Respondent submitted a request to the SEIAA with detailed justifications for exemption from Public Hearing. Copy of Letter dated 20.12.21 sent from the 5th Respondent to the 1st Respondent is annexed herein and marked as **ANNEXURE 5**. SEIAA in the

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meeting held on 06.01.2022 has decided to refer the request for exemption from PH to SEAC for examination. The True Copy of the SEIAA Minutes of Meeting dated 06.01.2022 is annexed herewith and marked as **ANNEXURE -6.** The following were the major justifications put forward by the Respondent for exemption from PH.

(a) The public hearing has been conducted in the year 2003 as per EIA notification 2006 for an integrated proposal of Beach sand mining of 2 MTPA & Mineral Separation Plant (MSP) of 0.63 MTPA and EC was obtained in 2004.

(b) Thereafter, for the expansion proposal, PH has been again conducted on 29.12.2012 as per EIA notification 2006 for 6.0 MTPA mining and 0.93 MTPA MSP and obtained EC in 2015.

(c) The current proposal for fresh EC for MSP is 0.44 MTPA only, which is less than 50% capacity for which PH has been conducted & EC issued. No mining is proposed now.

(d) The water requirement, air emissions, solid waste generation, truck transportation & land requirements for the present proposal of 0.44 MTPA is less than 50% of what has been projected during the PH & EC in 2015.

(e) The Mining Lease was valid till 2034. The EC granted in 2015 based on the PH conducted was also valid till 2034. The change in the policy of the GOI in 2019 only resulted in the stoppage of the mining and thereby MSP.

(f) In the PH conducted in 2015, the public was informed about all environmental features of the MSP of 0.93 MTPA. Further, opinions were taken from the public on

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environmental and other aspects of the project and an action plan was prepared and implemented in compliance with the conditions/action plan of EC.

(g) The unit is already established and was in operation for several years till 2018 and all infrastructure facilities including dedicated water and power supply have already been established.

(h) Greenbelt has been developed in 55% of the land as compared to the 33% norm.

(i) No complaints from the public on environmental issues during the operation of the plant.

(j) The MOEF & CC has certified compliance with the EC conditions in 2018.

(k) Several projects have been cleared without PH by MOEF&CC and SEIAA (AP) for expansion projects, which have undergone public hearings earlier as per EIA Notification 2006.

38. It is submitted that, SEAC considered the request for Public Hearing exemption in the meeting held on 14.02.2022, wherein the 5th Respondent has given a detailed presentation of the project and grounds for exemption from Public Hearing. The respondent also submitted a copy of the point wise EC compliance report of the integrated mining cum beneficiation project certified by MoEF & CC vide File No. EP/12.1/2015-16/02/AP/1224 dated 03.08.2018. The SEAC after examining the proposal, presentation, MOEF & CC notifications & OMs and detailed deliberations recommended to issue TOR with EIA and without PH under 7(ii) of EIA notification,

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2006. The justifications for giving exemption from the public hearing are detailed in the minutes of the meeting of the SEAC dated 14.02.2022 as below,

> *"The committee further noted that public hearing has been conducted in the year 2003 and per EIA notification 1994 for integrated proposal of beach sand mining of 2 MTPA & mineral separation plant (MSP) of 0.63 MTPA and EC was obtained in 2004. Thereafter, for expansion proposal, PH has been again conducted on 29.12.2012 as per EIA notification 2006 for 6.0 MTPA mining and 0.93 MTPA MSP and obtained EC in 2015. Now applying fresh EC for MSP of 0.44 MTPA only, which is less than 50% capacity for which PH has been conducted and EC issued.*
> *The mining lease was valid till 2034. The EC granted in 2015 based on the PH conducted was also valid till 2034. The change in the policy of the GOI in 2019 only resulted in the stoppage of the mining and thereby MSP. No mining is proposed now.*
> *The committee noted that as it is an established unit & in operation for several years and it is 50% lower capacity than for which PH was conducted & EC accorded earlier."*

The True Copy of the SEAC Minutes of Meeting dated 14.02.2022 is annexed herewith and marked as **ANNEXURE -7.**

39. It is submitted that, SEIAA during the meeting held on 21.03.2022 has considered and agreed with the recommendation of the SEAC to grant TOR with EIA and without PH. The True Copy of the SEIAA Minutes of Meeting dated 21.03.2022 is annexed herewith and marked as **ANNEXURE 8.**Pursuant thereto, Terms of reference was issued by the 1st Respondent on 12.04.2022. The copy of the same is annexed herein and marked as **ANNEXURE-9.** As per the instructions of the 1st Respondent, the 5th Respondent has submitted the application along with the final Environmental Impact Assessment report for Environmental Clearance for operation of Mineral Separation Plant as a standalone unit to separate individual minerals. The copy of Application dated 29.04.2022 along with Form 2 and Final Environmental Impact Assessment Report is annexed herein and marked as **ANNEXURE 10-A,10-**

For TRIMEX SANDS PRIVATE LIMITED

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B,10-C respectively. Thereafter the SEAC AND SEIAA by its minutes dated 18.05.2022 and 26.05.2022 has recommended for issuance of Environmental Clearance as per the conditions specified in the earlier EC order accorded by MoEF & CC. The Copy of Minutes dated 18.05.2022 and 26.05.2022 are annexed herein and marked as **ANNEXURE 11 & 12** respectively. Thereafter by order dated 28.07.22, the 1st Respondent has issued Environmental Clearance to the 5th Respondent on terms and conditions contained therein. The copy of EC dated 28.07.2022 is annexed herein and marked as **ANNEXURE-13.**

40. The averments contained in Para 8(q) to (cc) are denied as false and misleading. It is submitted that, under sections 2.10.4 and 10.2.3 of the EIA report submitted along with the application for grant of environmental clearance for the project, the Respondent has clearly described the methodology for solid waste management as below:

(a) Silica sand and Fine/non-saleable mineral grades:- It will be used for backfilling earlier mined-out pits/stored for future recovery of any useful minerals.

(b) Any monazite-rich tailings generated in the plant will be disposed of as per the directions/license conditions issued by Atomic Energy Regulatory Board (AERB).

41. It is submitted that, the mining operations of the Respondent faced abrupt stoppage in the year 2018-19, initially through the determination of the mining lease and thereafter through a policy change for the grant of mineral concessions for beach sand minerals, resulting in the revocation of the EC & CRZ clearances, mining plan

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and CTO. In view of this unexpected abrupt stoppage of the mining and plant operations, there are mined-out pits totaling about 20.0 Ha, with an average depth of 4 - 6 m still available in the old mining lease area, requiring backfilling and plantation. Backfilling of mined-out pits is essential from a safety and environmental point of view also. The proposal of disposing solid waste in the old mined-out land was deliberated in detail with a plan and calculations in the EAC committee meeting and the proposal was approved after establishing the requirement of backfilling the old mined out lands. Considering 0.096 million tons of solid waste (plant tails) generation per annum, which is equivalent to about 0.051 million Cu.M, available pits are sufficient to dispose the tails for +20 years. It is proposed to do plantation in these mined out pits after backfilling. There is no proposal to dump any waste in the CRZ area and hence clearance under CRZ Rules is not required. Among the solid waste generated as mentioned under Sl.No.42 above,only Silica sand will be utilized for backfilling the mined-out pits. It is proposed that fine/non-saleable mineral grades having valuable minerals will be stored for future recovery of minerals. This is essential from the mineral conservation point of view. Further, storage of solid waste for future recovery of any useful minerals is subject to generation of fine/non-saleable mineral grades from the plant due to market and technological issues. Storage of such fine/non saleable mineral grades for future recovery of minerals is a temporary measure and such stored material will be processed periodically as per the market conditions and silica tails generated from there will be disposed of in unfilled lands as detailed above. Hence, area of 2.35 Ac earmarked for storage is sufficient.

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42. It is submitted that, the APMDC, a State PSU, floated a tender on 01.02.2022 for the processing of 2.80 lakh tons of beach sand mineral tails, which were confiscated from Transworld Garnet India Pvt Ltd, Srikakulam by the Andhra Pradesh Government. The 5th Respondent also participated in the tendering process and was awarded the contract. As per the terms and conditions of the contract, the 5th Respondent is required to process the concentrate and separate individual beach sand minerals viz. Ilmenite, Sillimanite, Garnet, Rutile and Garnet and hand over these minerals to APMDC for further disposal/sale.

43. It is submitted that, further as per the contract, the APMDC shall facilitate the contractor to obtain the AERB license required to process the concentrate at the mineral separation plant and further the disposal mechanism for the Monazite-rich tailings. In this direction, APMDC submitted a letter dated 25.07.2022 to the Atomic Energy Regulatory Board (AERB) recommending a grant of license to the 5th Respondent under Radiation Protection Rules 2004. The AERB vide their letter dated 01.08.2022 has advised obtaining the license from the Department of Atomic Energy (DAE) under Atomic Energy (Working of the Mines, Minerals & Prescribed Substances) Rules 1984 and thereafter submit the application to AERB for the grant of license under Radiation Protection Rules 2004. The notification issued by DAE in July 2021 in this regard also mandates that all beach sand minerals processing facilities which are not involved in direct mining but procure the raw material from IREL or other countries, AERB issues license under Radiation Protection Rules 2004 only after the facility has been licensed by DAE under Atomic Energy (Working of the

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No Corrns

Mines, Minerals & Prescribed Substances) Rules 1984 for the handling of monazite tailings.

44. It is submitted that, the 5th Respondent and all respective Government authorities are fully aware of the statutory requirements for operating the MSP with beach sand mineral concentrate and handling and disposal of the monazite-rich tailings. The operation of the MSP of the 5th Respondent with beach sand mineral concentrate tails sourced from 3rd parties is subject to the grant of licenses by DAE under Atomic Energy (Working of the Mines, Minerals & Prescribed Substances) Rules 1984 and AERB under Radiation Protection Rules 2004.

45. It is submitted that, the monazite-rich tailing produced is not a saleable product for any Non-Government or non-PSU operators. The Government policy prohibits any private Beach Sand Mineral Producers from the sale of monazite and the handling license issued by DAE is only for storage of monazite-rich tailings. PSU like IREL has a dedicated stream of monazite recovery plants as they are only allowed to process monazite for its Rare Earths recovery. Non-PSU companies like the Respondent are directed by the Government only to store the monazite-rich tailings in the designated pits to contain the radioactivity level. The monazite tailings stored in the pits are monitored periodically by AERB for their radioactivity levels and also directs to take additional measures if required like the topping of monazite tailings with silica sand to keep radiation levels within the permissible levels defined as per the AERB guidelines.

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46. It is submitted that, any monazite-rich tailings generated in the MSP will be disposed of as per the license conditions issued by the Department of Atomic Energy (DAE) and Atomic Energy Regulatory Board (AERB). Moreover, the subject EC granted to the Respondent stipulates that the proponent shall comply with conditions specified in the earlier EC order accorded by MoEF & CC, for Mineral Separation Plant. Conditions in the earlier EC of 2015 specific to radiation safety are,

Clause 5 - Necessary AERB clearance shall be obtained under the Atomic Energy (Radiation Protection) Rules, 2004 for the operation of the Beach Sand Minerals (BSM) facility.

Clause 19 - Radiation survey shall be carried out as stipulated by the Atomic Minerals Directorate for Exploration and Research, Department of Atomic Energy, Government of India to ascertain the effects of radioactive minerals.

The 5th Respondent shall comply with the above conditions, which are specific to radiation safety.

47. It is submitted that, the disposal of solid waste in the old mined-out land was deliberated in detail with a plan and calculations in the EAC committee meeting held on 18.05.2022. The proposal was approved after clearly establishing the requirement of backfilling the old mined out lands and plantations. Further, under section 2.9.2 of the EIA report, it is submitted that to mitigate the liberation of any airborne dust emission from the stack, water sprinklers will be installed at both the raw material storage point and also at the tails storage area. Further, all the conditions imposed by APPCB while granting Consent For Operation (CFO) under Air Act and Water act will be complied including regular monitoring of the air quality as per

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stipulations to ensure that there is no airborne dust more than the permissible limits. It is also pertinent to submit that the 5th respondent has also obtained the Consent For Establishment (CFE) order from the Andhra Pradesh Pollution Control Board (APPCB) for the proposed operation of the MSP and Ball Mill vide order no.580/APPCB /CFE/RO-SKLM/HO/2022 dated 07/09/2022.

48. It is submitted that, the EC applied for the project would become a source of income for the 5th Respondent which has invested around Rs. 270,00,00,000/- (Rupees Two Hundred Seventy Crores Only) on setting up this Ball Mill and MSP alone, which are now lying completely idle because of the change in policy concerned with the mining of the beach sand minerals. Further, this would also employ nearly 350 local people in the area. Further it is pertinent to state that, in the year 2014, the 5th Respondent has constructed and established an English Medium school in Vatsavalasa . village near the project site at a total capital investment of about Rs. 3 Crores which imparts free education from class LKG to X to the local village children.

49. It is submitted that, the 5th Respondent complied with all conditions of the Terms of Reference (TOR) and the Environmental Clearance (EC) for the project was granted vide order No. SEIAA/AP/SKLM/ IND/11/2021/3654/187.60 & 184.53 dated 28.07.2022. There was no arbitrariness in issuance of EC.

50. It is submitted that, it is pertinent to state that, the prior EC for an integrated project had been granted in the year 2004 and the 5th Respondent herein have been conducting their operations within the boundaries of the said Environmental Clearance

For TRIMEX SANDS PRIVATE LIMITED

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without any complaints being raised in that regard. Further the EC dated 17.04.2015 was granted for expansion of the existing capacity and it is pertinent to note that the revocation of the EC and CRZ Clearances was based only on the fact of direction for premature termination of the lease on account of the 2019 amendment in Atomic Minerals Concession Rules, 2016 as these clearances were granted for the integrated project where mining of beach sand minerals was the primary activity.

51. It is submitted that, the EC dated 28.07.2022 applied by the 5th Respondent to restart the MSP and Ball Mill, which are situated outside the mining lease area, as a standalone unit, by sourcing mineral concentrates from companies in India and abroad, The Appellant has not explained that the operation of the standalone unit would adversely affect the environment and has not substantiated the allegations with material documents. The lackadaisical manner in which the Appellant has made allegations against the 5th Respondent who have been operating in India for more than past two decades as explained earlier indicates an attempt by malafide vested interests of the Appellant. The same necessarily requires due consideration by this Tribunal as to the intention behind the present Appeal.

52. It is submitted that, all the grounds cited in the Memorandum of Appeal by the Appellant has been suitably addressed in the aforementioned paragraphs. However, the 5th Respondent craves leave of the Hon'ble Tribunal to file Additional Counter as and when it may be found necessary.

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In the light of the facts and circumstances stated above, it is humbly prayed that this Hon'ble Tribunal may be pleased to dismiss the above appeal with costs and pass such further or other orders as this Hon'ble Tribunal may deem fit and necessary in the circumstance of the case and thus render justice.

Dated at Chennai on this the 27th day of January, 2023.

For TRIMEX SANDS PRIVATE LIMITED

Authorised Signatory

COUNSEL FOR THE RESPONDENT-5

RESPONDENT-5

VERIFICATION

I, Gopinath Prakash, S/o Mr.Srirama Prakash, aged about 45 years, Authorised Signatory of M/s Trimex Sands Private Limited, having office at Trimex Towers, No.1, Subbaraya Avenue, C.P. Ramaswamy Road, Alwarpet, Chennai – 600 018, do hereby solemnly affirm and sincerely declare that the contents of the above affidavit are true and correct to the best of my knowledge and belief and based on the true facts and events and available records.

Dated at Chennai on this the 27th day of January, 2023.

For TRIMEX SANDS PRIVATE LIMITED

Authorised Signatory

RESPONDENT-5

For TRIMEX SANDS PRIVATE LIMITED

Authorised Signatory

For TRIMEX SANDS PRIVATE LIMITED

TRIMEX

EXTRACT OF THE RESOLUTION PASSED BY THE BOARD OF DIRECTORS OF "TRIMEX SANDS PRIVATE LIMITED" AT ITS MEETING HELD ON 25TH MARCH 2022 THROUGH VIDEO CONFERENCE.

RESOLVED THAT Mr. Gopinath Prakash, GM - Finance & Accounts and Mr. C.K. Vishnu Chaithanya Reddy, Officer of the Company, be and are hereby authorized severally for and on behalf of the Company to sign all papers, applications, plaints, petitions, complaint or any other documents relating to the legal issues as may be required to be filed in the appropriate court(s) in connection with the legal proceedings and to tender evidence in such proceedings and to represent the Company in all other matters incidental thereto as may be considered necessary and expedient.

RESOLVED FURTHER THAT the said Mr. Gopinath Prakash, GM - Finance & Accounts and Mr. C.K. Vishnu Chaithanya Reddy, Officer of the Company, be and are hereby authorized severally to appear before the civil and criminal court(s) and Tribunals in connection with the legal proceedings filed by or against the Company and that the aforesaid person is authorized to sign vakalat, plaint, complaint and other necessary documents relating to the legal proceedings.

/ Certified True Copy /

For TRIMEX SANDS PRIVATE LIMITED

TRIMEX SANDS PRIVATE LIMITED

Pavan Kumar Kalagara
DIRECTOR (DIN : 09401725)

Trimex Sands Pvt. Ltd. : Trimex Towers, No. 1 Subbaraya Avenue, C.P. Ramaswamy Road, Alwarpet, Chennai - 600 018. INDIA.
Tel: +91 44 24988822 /8813 Fax: +91 44 24986047, E-mail : info@trimexsands.com, URL: www.trimexgroup.com
CIN : U14299TN2004PTC071437

भारतसरकार

GOVERNMENT OF INDIA

पर्यावरण ,वनएवंजलवायुपरिवर्तनमंत्रालय

MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE

Regional Office (South Eastern Zone),

1st & 2nd floor, HEPC Building, No.34, Cathedral Garden Road,

Nungambakkam, Chennai - 600034

F.No. EP/12.1/ 2015-16/02/AP/1224

03.08.2018

To,
Shri. Deepak Rathod,
M/s. Trimex Sands Private Limited,
Trimex Towers,
No. 1, Subbaraya Avenue,
C.P. Ramaswamy Road,
Alwarpet, Chennai – 600 018.

Subject: Srikurmam Mineral Sand Mine of M/s. Trimex Sands Pvt.Ltd, Village Vatsavalasa, Mandal Gara, District Srikakulam, Andhra Pradesh (720 ha) (2.0 MTPA to 6.0 MTPA) - Environmental Clearance -Reg.

Reference: 1. Letter No. J-11015/175/2011-IA.II (M), Dated: 17.04.2015
2. Your letter dated. 20.07.2018.

Sir/Madam,

With reference to the above mentioned subject, please find enclosed herewith a certified copy of the compliance report. This has been approved by the Addl.PCCF(C) vide diary no. 889, Dated: 27.07.2018.

Yours faithfully,

(Dr.C.Kaliyaperumal)
Director (S)

Encl: As above.

Dr. C. KALIYAPERUMAL, M.E., PhD
Director (S)
Government of India
Ministry of Environment, Forests & Climate Change
Regional Office (South Eastern Zone)
HEPC Building, No.34. Cathedral Garden Road,
Nungambakkam, Chennai-600 034.

Certified copy of Compliance Report

Subject: Srikurmam Mineral Sand Mine of M/s. Trimex Sands Pvt.Ltd, Village Vatsavalasa, Mandal Gara, District Srikakulam, Andhra Pradesh (720 ha) (2.0 MTPA to 6.0 MTPA) - Environmental Clearance -Reg.

Reference: No.J-11015/175/2011-IA.II (M) dated 17-04-2015

Present Status of the Project: The Project Proponent (PP) has obtained new Environmental and CRZ clearances for the project vide no. J-11015/175/2011-IA.II (M) dated 17-04-2015 and currently running at the expanded capacity.

Date of Monitoring: 26.06.2018.

A. Specific conditions.

S.No.	Conditions	Compliance
1.	The 325 dunes recorded in the Trimex Sands Pvt. Ltd. (TSPL) area of which, 13 dunes exist beyond 100m from the high tide, shall be protected and maintained. All effort should be made to ensure that existing natural vegetation of these dunes are fully protected.	Refer below As informed by the PP in the Mining Lease area, 325 sand dunes are identified, out which 13 sand dunes are beyond 100m from HTL and the remaining are in between HTL and 100m line from HTL towards landward side. All dunes are not disturbed and, protected by erecting pillars with barbed wire fencing of about 3 KM length all along the 100m line from HTL. Also, efforts are taken to protect the vegetation i.e. runners like Ipomoea pescaprae, Launaeasarmentosa and grass species like Spinifexsquarostus on these dunes by deploying security staff.
2.	Rs. 1.80 crore proposed for Wildlife Conservation plan should be deposited within one month of issue of EC letter for implementation of Wildlife Conservation plan by the Department.	Refer below PP informed that as per the approved wildlife conservation plan, total amount required to be deposited for conservation work is Rs.180 lakhs for a period of 10 years. PP have deposited Rs180.00 Lakhs with the PCCF, Govt. of AP on 10.07.2017 vide their letter dated 12.07.2017 and informed MoEF, New Delhi vide their letter dated 26.07.2017 (**Annexure-1**).
3.	The Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the standing Committee of National Board of Wildlife,	Refer below As stated it is not applicable, as the area doesn't fall under Wild Life Zone. Wild Life Conservation Plan as required under

S.No.	Conditions	Compliance
	as may be applicable to this project.	the EC stipulation was approved by the Principal Chief Conservator of Forests (WL) & Chief Wildlife Warden, Hyderabad vide Rc. No: 22899/2013/WL-3 Dt: 11.11.2014 and PP has deposited Rs180.00 lakhs with the PCCF, Govt. of AP on 10.07.2017.
4.	The Environmental clearance is subject to obtaining clearance under the Coastal Regulation Zone, Notification, 2011 to this project.	Complied CRZ Clearance obtained vide F.No.11-67/2013-IA-III dated 28-04-2015 (**Annexure-2**)
5.	Necessary AERB clearance shall be obtained under the Atomic Energy (Radiation Protection) Rules, 2004 for operation of Beach Sand Minerals (BSM) facility	Complied AERB License has been obtained and copy of same attached as **Annexure-3**.
6.	The mining activity will commence only after taking necessary approval of water drawl from the concerned Authority of State Government.	Refer below No ground water is drawn for the project use. Mining Activity was commenced in 2009-10. PP has obtained permission from the State Govt. vide G.O.Ms. No. 71 dt:21-01-2007 to draw water from the Vamsadhara river for wet mineral concentration processing and the permission was renewed for further 10 years from 16-06-2014 to 15-06-2024 vide G.O.Ms. No. 103 dt: 24-09-2015 (**Annexure-4).** Daily requirement of river water is about 8000-10000 m^3, for which PP is making payment to the State Govt. The State PCB has stopped cess assessments to industries from 01/07/2017 onwards (**Annexure-5).**
7.	The mined area should be replenished immediately.	Complied The mined-out area is backfilled using the tailings generated during separation of minerals **(Annexure-6).** As on 1st Apr 2018, about 324.97 Ha area is mined, of which 307.50 Ha area is backfilled by dumping 18.37 Million Tons of tailings.
8.	The mineral separation plant/pre-concentration plant should be located outside coastal Regulation Zone area.	Complied Mineral separation plant and pre-concentration plants are located outside CRZ area. Map enclosed as **Annexure -7**
9.	Implementation of Wildlife Conservation	Refer below

S.No.	Conditions	Compliance
	plan for schedule – I species. The conservation plan should be species specific, should have allocation of budget, time frame and agencies to be responsible for the implementation for each of the target species, Conservation plan shall be approved by the State Government.	PP informed that Schedule-I species available in the study area is Olive Ridley Turtle and a detailed conservation plan is prepared through ENVID Group, Andhra University. This plan is approved by the Principal Chief Conservator of Forests (WL) & Chief Wildlife Warden, Hyderabad vide Rc. No: 22899/2013/WL-3 Dt: 11.11.2014 (**Annexure -8**). PP has deposited Rs180.00 lakhs with the PCCF, Govt. of AP on 10.07.2017.
10.	No mining shall be carried out in the inter-tidal zone and within 100m from HTL towards landward side.	Complied No mining is carried out in the inter-tidal zone and within 100m from HTL towards landward side. Area beyond 100m from HTL area is demarcated with boundary pillars & barbed wire fencing of about 3 KM length to ensure that no mining is carried out. Enclosed as **Annexure-9.**
11.	Identification of sand dunes shall be done prior to undertaking mining activities and their conservation shall be as per MoEF guidelines from time to time. No flattening of sand dunes shall be carried out. Dressing or altering the sand dunes, hills, natural features including landscape changes shall not be carried out for beautification/recreational purposes. Precautions shall be taken to prevent intrusion of sea water into hinterland to avoid problem of submersion/flooding.	Refer below All sand dunes are identified before undertaking mining activities, by the ENVID group, Andhra University, Visakhapatnam and the detailed report has been submitted to MoEF, RO Chennai along with previous compliance report vide our letter no. TSPL/MIN/MoEF/ENV/17-18/427 dated 25.11.2017. All these dunes are being protected and maintained as per the approved plan. All precautions as per the recommendations (**Annexure-10**) of the Hydro Geological study by the Andhra university are being implemented to prevent intrusion of sea water into hinterland
12.	Fencing of entire lease area barrier of 100 meters towards sea to prevent olive turtle nesting ground.	Complied 100m from High Tide Line (HTL) towards landward side is demarcated with pillars along with barbed wire fencing of about 3 KM length to ensure that no mining is carried out between 100m line & HTL. (**Annexure-9**)
13.	Tailings and rejects shall be filled back	Complied

S.No.	Conditions	Compliance
	systematically after separating the heavy/rare minerals. Sand tailing shall be put back at the mined area on completion of extraction of rare minerals. Afforestation shall be taken up with suitable species on mined out areas to prevent erosion of shoreline. Under no circumstances, the tailings will be dumped in agricultural lands, wet lands, paddy fields, canals and the backfilling will be carried out only in the inland mined out areas.	Sand tailings and rejects are being back filled to the mined-out areas systematically after separating the heavy minerals. Afforestation is being carried out with different species on backfilled lands to prevent erosion of shoreline. As on 1st Apr 2018, about 324.97 Ha area is mined, of which 307.50 Ha area is backfilled by dumping 18.37 Million Tons of tailings. About 260.55 Ha area is planted with 659039 Nos. of saplings of Casuarina, Acacia, Eucalyptus, Cashew species. No waste is dumped outside the mining lease area.
14.	The mining activities shall be regulated in such a way that there will be minimum disturbance to the fauna during spawning and breeding period i.e. from November to March.	Refer below No mining activity is carried out near the 100 m line during the breeding period.
15.	Mining shall be carried out in phases only. Simultaneous opening of entire beach front is not permissible, There shall be uninterrupted access to the seafront, Minimum 20m width of approach roads shall be provided where necessary.	Complied Mining activity is being done in phases and entire beach front is not opened up at any point of time. For the uninterrupted access of the fishermen to the beach, a 20 Mts. width approach road of about 700 Mts. length is provided.
16.	Tapping of ground water is expressly prohibited in CRZ area. A network of ground water observation wells within and outside the lease area shall be established for regular monitoring of ground water quality and water levels in the surrounding area. These analysis as per norms much be documented and sent regularly (every three months) to the Regional Office MoEF.	Complied No ground water is tapped from the CRZ area. Established 11 Nos. of ground water observation wells within and outside the lease area and monitoring is being carried out by MoEF/PCB approved external laboratory & 7 Nos. of Piezometer wells are provided and ground water level & quality monitoring is being carried out and reports submitted to the regional office of the MoEF quarterly. No adverse impact is observed in any of the parameters monitored so far. Enclosed observation well's location map as **Annexure - 7** and monitoring reports as **Annexure –11(I) & 11 (II).**
17.	The fresh water gradient towards the sea will be maintained by close monitoring of	Complied 11 Nos. of open wells and 7 Nos. of

S.No.	Conditions	Compliance
	water table. Piezometer wells to be constructed and monitored.	Piezometer wells are provided and ground water level & quality monitoring is being carried out. As per the monitoring reports, all parameters are within the permissible limits and no adverse impact of any nature is found so far. Enclosed well details and monitoring data as **Annexure - 11(I) & 11 (II)**.
18.	Mining shall be carried out by permitted methods without the use of any forms of blasting. Use of explosives for blasting is prohibited. The mining should be stated near sea side and mining should be progressed parallel to sea coast so that inland water table is not disturbed.	Complied PP informed that entire mining operations are carried out as per the approved mining plan vide no. AP/SRK//MP/ Garnet-Sillimanite-7/Hyd. dated 02.03.2017 (**Annexure –12**). No blasting is carried out. The mining was started near sea side and mining is progressing parallel to sea coast so that inland water table is not disturbed.
19.	Radiation survey shall be carried out as stipulated by the Atomic Minerals Directorate for Exploration and research, Department of Atomic Energy, Government of India to ascertain the effects of radioactive minerals.	Complied Radiation survey is carried out by Radiological Safety Officer (RSO) approved by Atomic Energy Regulations Board (AERB) on monthly basis at mines, wet plants, backfilling area and dry plant. Survey is carried out as per the directive of the Atomic Energy Regulations Board (AERB), DAE and reports are submitted quarterly & yearly (**Annexure–13).** It is observed that the current background radioactivity level in the backfilled mining area is less than the baseline data.
20.	Occupational health and safety measures, especially concerning radiation hypertension, diabetes etc, should have heath check-up once in six months.	Complied Occupational health checkup and safety measures, especially concerning radiation hypertension, diabetes etc. is carried out by company appointed Doctor once in six months and records are maintained.
21.	The project proponent shall obtain Consent to Operate from the State Pollution Control Board, Andhra Pradesh and effectively implement all the conditions stipulated therein.	Complied Consent to Operate is obtained from the State Pollution Control Board, Andhra Pradesh vide Consent Order No: APPCB/VSP/VZM/152/HO/CFO/2015 Dt: 30.10.2015 and is renewed vide

S.No.	Conditions	Compliance
		order Dt: 25-02-2018 and is valid till 31.05.2023 (**Annexure –14**). All conditions of the CFO are implemented and no shortfall is reported by the PCB so far as informed.
22.	Implementation of conditions laid down in the Mining Plan along with progressive Mine Closure Plan which has been approved by Indian Bureau of Mines, Ministry of Mines vide Letter No. AP/SRK/MP/Garnet-2/Hyd dated 26.09.2003 and 18.06.2009.	Complied Implemented Mining Plan conditions along with Progressive Mine Closure Plan, which has been approved by Indian Bureau of Mines vide letter no. AP/SRK/MP/Garnet-2/Hyd. dated 26.09.2003, 18.06.2009 & 23.09.2014 and Modified Mining Plan approval vide letter no. AP/SRK//MP/ Garnet-Sillimanite-7/Hyd. dated 02.03.2017 (**Annexure –12**)
23.	Implementation of conditions laid down in the Mining Plan which has been approved by atomic Minerals directorate for Exploration and Research, Department of Atomic Energy vide Letter No, AMD/MPA/3M/TRIMEX/03,dated December 08,2003 and Mining scheme approval vide no. AMD/MPA/3M/TSPL/720ha/2009 dated 17.08.2009.	Complied Mining Plan conditions are being implemented as approved by Atomic Minerals Directorate for Exploration and Research, Department of Atomic Energy vide letter no. AMD/MPA/3M/TRIME/03, dated 08.12.2003 and Mining Scheme approval vide no. AMD/MPA/3M/TSPL /720ha/2009 dated 17.08.2009 and vide no. AMD/MRG/TSPL/SM/ /720ha/2014 dated 15.05.2014.
24.	Implementation of the Conditions, if any, as laid down by Andhra Pradesh State Coastal Zone Management Authority.	Complied PP informed that all conditions as stipulated by the Andhra Pradesh State Coastal Zone Management Authority are implemented (**Annexure -15**).
25.	Effective safeguard measures such as conditioning of material with water, regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Complied In dry plant, ambient dust is arrested from the generating points by dust extraction system consisting of de-dusting mechanism, cyclone and bag filters etc. Water sprinklers are installed at MSP rejects discharge point and water tankers are deployed for haul road wetting. Ambient Air Quality monitoring is being carried out in 11 locations through an external laboratory and the parameters are within the permissible limits. No adverse impact is observed in

S.No.	Conditions	Compliance
		any of the parameters monitored so far. Ambient air quality monitoring reports are enclosed as **Annexure -16.**
26.	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(At least four times in a year-pre-monsoon (April-May), monsoon (August), post-monsoon(November)and winter(January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment, Forests & Climate Change and its Regional Office Chennai, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity necessary corrective measures shall be carried out.	Complied Ground water monitoring is being carried in 11 Nos of observation wells situated within and outside the mining lease area. In addition, 7 Nos. of piezometers are also installed in the mining lease area and water table, salinity, pH, TDS etc are monitored. It is observed that there is no depletion in ground water table or negative change in the quality of water. Details are submitted to all authorities as directed **Annexure -17.** No adverse impact is observed in any of the parameters monitored so far.
27.	The project proponent shall ensure that no natural watercourse and /or water resources shall be obstructed due to any operations.	Complied No natural nalla or water course is passing through the mining lease area.
28.	Regular monitoring of water quality upstream and downstream of adjoin water bodies shall be carried out an record of monitoring data should be maintained and submitted to Ministry of Environment,. Forests & Climate Change its Regional office, Chennai, Central Ground water Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.	No water body (except sea) is available within or adjacent to the mining lease area. However, water monitoring is done in a village pond situated near the mining lease area and no adverse impact of any nature is found so far. **(Annexure -18)**
29.	As part of ambient air quality monitoring during operational phase of the project, the air samples shall also be analyzed for their mineralogical composition and	Complied As part of the Ambient Air Quality Monitoring, air samples are analyzed for their mineralogical composition.

S.No.	Conditions	Compliance
	records maintained.	Monitoring reports are enclosed as **Annexure -16.**
30.	Compliance status shall be submitted to the Ministry of Environment, Forests & Climate Change its Regional office, located at Chennai on six monthly basis.	Complied Compliance status is being submitting on six monthly basis to RO, Chennai. Last report was submitted vide letter No. TSPL/MIN/MoEF/ENV/18-19/1182 dated 31-05-2018 **Annexure -19.**
31.	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Complied In dry plant, ambient dust is arrested from the generating points by dust extraction system consisting of de-dusting mechanism, cyclone and bag filters etc. Water sprinklers are installed at MSP rejects discharge point. One 8 KL & 2 Nos 4 KL water tankers are deployed for haul road wetting and each tanker will complete 10 to 12 trips per day. Water for wetting is drawn from wet plant process water tank. Ambient Air Quality monitoring is being carried out as per norms prescribed by the CPCB. No adverse impact is observed in any of the parameters monitored so far. Report as **Annexure -16.**
32.	Vehicular Emissions shall be kept under control and regularly monitored. Vehicles used for transportation of ores and other shall have valid permissions as prescribed under Central Motor Vehicle Rules, 1989 and its amendments. The vehicles shall be covered with a tarpaulin and shall not be over loaded.	Complied Vehicular Emissions are kept under control and regularly monitored. Vehicles used for transportation of ores are having valid permissions as prescribed under Central Motor Vehicle Rules, 1989 and its amendments. The ore carrying vehicles are covered with tarpaulin and not over loaded.
33.	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Chennai.	Complied PP informed that they have initiated the work with the help of authorized agency in association with NRSC. Will be complied as per the directive.
34.	Implementation of Action plan on issues rose during Public Hearing as committed by the project proponent during the public hearing shall be implemented and the report shall be submitted to the Regional Office of the Ministry every year.	Refer below PP informed that all the commitments made during the public hearing are being implemented. Report submitted as **Annexure-20,** CSR expenditure incurred during the year 2017-18 is

S.No.	Conditions	Compliance
		enclosed as **Annexure -21.**
35.	During initial mining stages, a green belt of 7.5m barrier all around the mine lease boundary shall be made. Subsequently to develop 50m barrier zone with 5-tier plantation inside mine lease in a progressive way near the active mining sites. Adequate plantation shall be raised in the ML area, haul roads, vacant area etc. Green belt development shall be carried out considering CPCB guidelines including selection of plant species and in consultation with the local DFO. Herbs and shrubs shall also form a part of afforestation programme besides tree plantation. The density of the trees shall not be less than 2500 plants per ha. The company shall involve local people with the help of self-help group for plantation programme. Details of year wise afforestation programme including rehabilitation of mined out area shall be submitted to the Regional Office of the Ministry every year.	Complied A green belt of 7.5m barrier along the ML boundary has been taken up wherever mining has been completed and also it is continuing. Beyond 7.5m also, plantation is carried out covering entire mined out & backfilled lands. Afforestation is being carried out with in-house nursery saplings and also saplings as advised by the forest dept. Density of plantation is more than 2500 plants per Ha. About 56 persons from local villages are daily deployed exclusively for plantation & maintenance activities. Details of plantation carried out, extent of land covered and green belt developed during the year 2017-18 is attached as **Annexure -22**
36.	Adequate air monitoring stations shall be installed in areas of human habitations near the mine and the results of ambient air quality shall be maintained and regularly submitted to the Regional Office of the Ministry. The monitored data for criteria pollutants shall be regularly uploaded on the company's website and also displayed at project site.	Complied Out of the 11 AAQ monitoring stations, 4 stations are located near the habitations in western direction of the plant and the AAQ monitoring is carried out monthly through approved external laboratory. The levels are within the permissible limits. No adverse impact is observed in any of the parameters monitored so far. Enclosed reports **Annexure-16** & photo as **Annexure -23.**
37.	The waste water from the mine shall be treated to conform to the prescribe standards before discharging in to the natural stream. The discharged water shall be regularly monitored and report submitted to the Ministry of Environment & Forests, Central Pollution Control Board and the State Pollution Control Board.	Complied No water from the mine or plant is discharged into any natural stream. Water used for mineral concentration is pumped to the mined out pit along with tailings for back filling and water is recovered back to the plant through water treatment plant/thickeners for recycling purpose.
38.	A final mine closure plan, along with other details shall be submitted to the Ministry	Agreed to comply.

S.No.	Conditions	Compliance
	of Environment & Forests, 5 years in advance of final mine closure for approval.	

B. **General Conditions:**

S.No.	Conditions	Compliance
1.	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Complied There is no change in the mining technology and scope of working.
2.	No change in the calendar plan including excavation, quantum of beach sand mineral i.e. Ilmenite, Rutile, Zircon, Monozite and Garnet and waste should be made.	Complied There is no change in the calendar plan including RoM excavation, quantum of beach sand minerals produced i.e. Ilmenite, Rutile, Zircon, Sillimanite and Garnet and waste produced. Details of production of RoM, minerals and waste during three financial year against approved mining plan quantities are enclosed as **Annexure-24.**
3.	At least four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e. $PM_{10)}$ and NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board/Central Pollution Control Board once in six months.	Complied The AAQ is monitored in the core as well as in the buffer zone at 11 locations through external approved laboratory for PM10 and PM2.5 and NOx. The parameters are within the permissible limits. No adverse impact is observed in any of the parameters monitored so far. The locations of the AAQMS were decided in consultation with State Pollution Control Board based on the meteorological data, topographical features and environmentally and ecologically sensitive targets. The frequency of monitoring is carried out as directed by the SPCB in their consent, i.e. on monthly basis in day time. Enclosed AAQM reports as per **Annexure-16.**
4.	Measures should be taken for control of noise levels below 85 db in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs.	Complied Noise monitoring being carried out at 10 locations through external laboratory and the levels are within the permissible limit. No adverse impact is observed in any of the parameters monitored so far.

S.No.	Conditions	Compliance
		Enclosed reports as **Annexure-25** Workers engaged in HEMM operation are provided with ear plugs.
5.	There will be zero waste water discharge from the plant.	Complied The water used for mineral processing activities is pumped into the mined out pit along with the tailings in the form of slurry and no waste water is discharged outside. For the toilets and canteen waste water, septic tanks and soak pits are provided.
6.	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.	Complied Personnel working in dusty areas are provided with personnel protective equipment. Details of the PPE issued, during the last year period is enclosed as **Annexure -26.**
7.	Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Complied Occupational health surveillance programme of the workers is being carried our regularly as per the requirements stipulated in Mines Act and records are maintained.
8.	A separate environmental management cell with suitable qualified personal should be should be set up under the control o a Senior Executive, who will report directly to the Head of the Organization.	Complied. Separate environment management cell with qualified person under the control of Senior Executive is provided. Monitoring of environmental parameters is done through external MoEF/PCB approved laboratory.
9.	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Chennai.	Complied PP informed that adequate fund for environment management activities is provided and it is kept in a separate account and also not diverted for any other purpose. Year wise expenditure is reported to RO, Chennai. Non-recurring and recurring expenditure incurred during the financial year 2017-18 is given as **Annexure-27.**
10.	The project authorities should inform to the Regional Office located at Chennai regarding date of financial closures and final approval of the project by the concerned authorities and the date of start	Complied Informed to RO, Chennai regarding EC/CRZ approvals vide our letter dated 05.05.2015. Also intimated the RO about final approval for the project i.e. CFO

S.No.	Conditions	Compliance
	of land development work.	dated 30.10.2015 for the project vide our letter dated 28.11.2015.
11.	The Regional Office of this Ministry located at Chennai shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation the officers(s) of the Regional Office furnishing the requisite data/information/monitoring reports.	Complied. The PP extended full co-operation during the inspection and also provided the required documents.
12.	The project proponent shall submit six monthly reports on the status compliance of the stipulated environmental clearance conditions including results of monitored data ((both in hard copies as well as by e-mail) to the Ministry of Environment, Forests & Climate Change , its Regional Office Chennai, the respective Zonal Office of Central Pollution Control Board and State Pollution Control Board. The Proponent shall upload the status of compliance of the environmental clearance conditions including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment, Forest 7 Climate Change Chennai, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.	Complied Six monthly compliance reports in hard and soft copy is submitted to the Regional Office, Chennai and the reports are uploaded on the company website http://www.trimexsands.com regularly.
13.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Prishad/Municipal Corporation, urban Local Body and the Local NGO, If any from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Complied PP informed that a copy of EC was sent to local panchayat vide our letter dated 30.04.2015 **Annexure-28**. The clearance letter also was put on the website of the company : http://www.trimexsands.com
14.	The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/Tehsildar's	Complied As informed a copy of EC was sent to State Pollution Control Board's Regional Office, District Industry Centre and the

S.No.	Conditions	Compliance
	Office for 30days.	District Collector's office vide their letter dated 30.04.2015 **Annexure-29**. The clearance letter also was put on the website of the company.
15.	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment, Forests & Climate Change, Chennai by e-mail.	Complied Form-V is submitted to RO and uploaded on the company website. Copy of same for the period 2016-17 is enclosed as **Annexure-30**.
16.	The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment, Forests & Climate Change at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Chennai.	Complied PP had given an advertisement in two local newspaper and submitted copies of the same to RO, Chennai vide our letter dated 05.05.2015.

This has the approval of Addl. PCCF(C) vide diary No.889, Dated: 27.07.2018.

(Dr.C. Kaliyaperumal)
Director (S)

Dr. C. KALIYAPERUMAL, M.E., PhD
Director (S)
Government of India
Ministry of Environment, Forests & Climate Change
Regional Office (South Eastern Zone)
HEPC Building, No.34. Cathedral Garden Road,
Nungambakkam, Chennai-600 034.

TRIMEX

Date: 22nd November 2021

To

The Chairman,

State Environment Impact Assessment Authority,

O/o A.P. Pollution Control Board (Head office),

Vijayawada, Andhra Pradesh

Respected Sir,

Sub: Request for issue of Environmental Clearance for Operation of Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from 0.44 MTPA of the mineral concentrate of throughput in Survey Nos. 78, 79, 80, 84, 176 to 183 & 193 Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh - Submission of Application - Reg.

Ref: Environmental Clearance issued by Ministry vide order No. F. No. J-11025/175//2011-IA. II (M) dated 17th April 2015

A mining lease for beach sand minerals over an extent of 720 Ha in Vatsavalasa &Tonangi villages of Gara Mandal, Srikakulam has been granted to Trimex Sands Pvt Ltd (TSPL) vide GO MS No.31 dated 07.02.2004. After obtaining all approvals including Environmental Clearance from MOEF & CC, CFE and CFO from APPCB, CRZ Clearance etc and completion of the Plant constructions, the project started commercial operations in the year 2009-10. The project involves mining, wet Pre-Concentration Plants (PCP) and Mineral Separation Plant (MSP) to produce Ilmenite, Garnet, Rutile, Zircon and Sillimanite. The Mining and PCPs are established within the mining lease area, whereas the MSP has been established outside the mining lease area.

The Hon'ble Ministry has accorded Environmental Clearance vide reference order No. F. No. J-11025/175//2011-IA. II (M) dated 17th April 2015 cited above for the expansion of the integrated mining & mineral separation project for 6.0 MTPA of Beach sand minerals mining and 0.93 MTPA of Mineral Separation Plant (MSP) **(Copy enclosed as Annexure -1)**. Subsequently CFO has been obtained from A.P. Pollution Control Board for Mining and MSP vide No. APPCB/VSP/VZM/ 152/HO/CFO/2015 dated 30.10.2015 **(Copy enclosed as Annexure -2).** The same has been renewed through an auto-renewal order dated 25.02.2018 and was valid up to 31.05.2023 **(Copy enclosed as Annexure -3)**.

The Ministry of Mines, Govt of India vide Notification No. GSR 134(E) dated 20.02.2019 has reserved mining of beach sand minerals for Govt companies. Because of the said notification, the mining activities of the project proponent have come to a standstill, causing stoppage of the MSP operation

Trimex Sands Pvt Ltd, Vatchavalasa (V), Srikurmam P.O, Gara Mandal,
Srikakulam District - 532 404, Andhra Pradesh.
E-mail: info@trimexsands.com, URL: www.trimexsands.com
CIN: U14299TN2004PTC071437

also. Thereafter, respective authorities have revoked the EC and CFO of the integrated mining project citing a prohibition on the mining operations. A detailed history of the project is included under Clause 1.1 of the Pre-Feasibility Report attached with this application.

Further to the stoppage of the mining operations, the project proponent has applied to the APPCB for the issue of CFE to operate the MSP & Ball Mill by sourcing mineral concentrates/minerals from outside, since these facilities are situated outside the mining lease area. However, the APPCB advised the PP to obtain NOC from the MoEF & CC as earlier granted EC for the integrated mining project was revoked. The PP approached the MoEF & CC and requested for NOC to operate the MSP & Ball Mill. The matter was referred to the EAC (Non-Coal) and the committee considered the proposal in their meeting dated 1st July 2021. However, the Committee returned the proposal stating that the EAC-Non-Coal Committee cannot appraise the proposal since the instant proposal for operating the MSP & Ball Mill is covered under Category 2(b) of the EIA notification, 2006 (mineral beneficiation), which is standalone and outside the mine lease area; the EC granted for the integrated mining project was revoked and the Ministry of Mines has advised to not grant clearances for mineral concessions of beach sand minerals held by private companies **(Copy of the Minutes is enclosed as Annexure -4)**.

Now it has been proposed to utilize the above-mentioned existing Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from 0.44 MTPA of mineral concentrate throughput sourced from suppliers/mining firms in India and abroad including IREL (India) Ltd and Andhra Pradesh Mineral Development Corporation (APMDC). Reduction in MSP capacity w.r.t integrated project capacity is proposed now considering past performance of the MSP, market demands and availability of concentrates etc. Part of the sillimanite and zircon minerals will be pulverized in a ball mill already available in the MSP premise. The flotation circuit to separate the Sillimanite minerals presently available at the PCP also will be dismantled and re-erected at the MSP. However, no mining or operation of the wet concentration plants situated within the ML area, which we're working on earlier, will be operated under the proposal submitted now.

Now the present proposal has been submitted to SEIAA for appraisal under Category 2(b) project of EIA notification, 2006 (as Mineral Beneficiation throughput is less than 0.5 MTPA) for grant of **Fresh Environmental Clearance** for the operation of the Mineral Separation Plant (MSP).

As per the Ministry of Environment, Forest & Climate change Notification dated 14th September, 2006 and its subsequent amendments, we are here with submitting Form I along with the Draft Terms of Reference (TOR) for EIA & Pre-feasibility Report (PFR) for obtaining Environmental Clearance for our present proposal.

As per the G.O.RT. No.3 dated 04/01/2016 issued by Government of Andhra Pradesh, we are herewith submitting a DD for Rs.4,50,000/- through DD No. 024408 dated 22.11.2021 drawn in favour of the Member Secretary, SEIAA, Andhra Pradesh for Environmental clearance processing fee.

Request for exemption from Public Hearing:

We would like to bring to your kind notice that the Environmental clearance under reference above has been accorded for the integrated mining project consisting of beach sand mining and MSP after undergoing the process of public hearing as per the provisions of EIA notification 2006 and its subsequent amendments. The public hearing has been held on 29th December 2012 and thereafter, we have obtained EC and CFO for the integrated Mining and MSP project.

The present proposal of MSP operation with 0.44 MTPA of throughput capacity is much lower than the 6.0 MTPA of mining and 0.93 MTPA of MSP operation covered under the integrated project, for which PH was conducted earlier and EC granted. Further, the present proposal was in operation till 2018 and the total processing capacity, output, pollution load and land extent proposed now is much less than what is approved in the integrated project.

Now the present proposal is to operate the same MSP as a standalone unit with 0.44 MTPA throughput capacity by sourcing mineral concentrates from suppliers/mining firms in India and abroad.

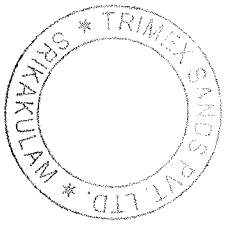
Considering the above, we humbly request the Hon`ble SEIAA/SEAC to kindly exempt the public hearing for the present proposal.

We request your good selves to kindly process our application and issue us the TOR for the subject proposal with exemption from the public hearing.

Thanking you,

Yours faithfully,

for **Trimex Sands Private Limited**



V H Rafi Ahammed

Sr Vice President (Operations)

Encl: 1. Annexures as above
2. Form – I Application
3. Pre-Feasibility Report

BY SPEED POST

No. J-11015/175/2011-IA.II (M)
Government of India
Ministry of Environment, Forests & Climate Change
Impact Assessment Division

3rd Floor, Vayu Wing,
Indira Paryavaran Bhawan,
Jorbagh Road, Aliganj,
New Delhi-110 003
Dated: 17th April, 2015

To

M/s Trimex Sands Pvt. Ltd.
56, Telugu Musalayaa Layout,
Adithya Nagar, Arasavilli Road,
srikakulam-532001
Andhra Pradesh.
Tel: 044-24988822
Fax: 044-24986047

Subject: Srikurmam Mineral Sand Mine of M/s Trimex Sands Pvt. Ltd., Village Vatsavalasa, Mandal Gara, District Srikakulam, Andhra Pradesh (720 ha) (2.0MTPA to 6.0 MTPA)-Environmnetal Clearancee regarding.

Sir,

This has reference to your letter nos. TSPL/SRIKURMAM-MINING/2011-07/001, dated 12.07.2011 and subsequent letters dated 12.01.2012, 05.04.2012, 16.10.2012, 02.02.2013, 11.06.2013, 14.02.2014, 04.06.2014 and 20.11.2014 on the subject mentioned above. The project was prescribed Terms of Reference (TORs) by the Ministry of Environment, Forests & Climate Change on dated 06.07.2012. The Project Proponent decided to reduce the capacity of expansion from 8.00 MTPA to 6.00 MTPA due to technical and market issues involved. In this regard, the PP was permitted for downscaling the earlier proposal of expansion from 8.0 MTPA to 6.0 MTPA vide letter No. J-11015/175/2011-IA.II (M) dated 09.09.2013. The proponent submitted its application to the Ministry on 18.02.2014 for seeking environmental clearance. The proposal was considered in the EAC meeting held during 28-30 May 2014 and re-considered in the EAC meeting held during January 15-16, 2015 wherein the Committee recommended the proposal for environmental clearance.

2. The proposal is for expansion of Mineral Sand Mining from 2.0 MTPA to 6.0 MTPA & Mineral Sand production from 0.63 MTPA to 0.93 MTPA. Mine lease area is 720 ha for mining of heavy mineral sand having Ilmenite, Rutile, Zircon, Garnet, Sillimanite & 59.27 ha Plant Area located at Vatsavalasa & Tonangi Villages, Gara Mandal, Srikakulam District, Andhra Pradesh. The area is covered under Survey of India Toposheet No. 74B/3, B/4, B/7 and lies between Latitudes from 18°15'56" N to 18°19'19" N and Longitudes from 84°02'39" E to 81°07'44" E.

3. The State Govt of Andhra Pradesh has granted a mining lease for mining of heavy mineral sand having Ilumenite, Rutile, Zircon, Garnet, Silliminite minerals

from 23.02.2004 to 22.02.2034 in 720 ha area at Vatsavalasa & Tonangi Villages, Gara Mandal, Srikakulam District, Andhra Pradesh. The Ministry of Environment & Forest has earlier granted Environmental and CRZ clearance for the project for 2.0 MTPA.

4. The Mine lease area is 720 ha & Plant area is 59.27 ha situated outside ML area. There is no forest land in the lease area. The land usage of mining lease is 364 ha of agriculture land and 356 ha of Government waste land. Scheme of Mining for a further period of five years from 2009-2010 to 2013-2014 was approved by the Indian Bureau of Mines vide letter no AP/SRK/MP/Garnet-2/Hyd dated 18/6/2009 and by Atomic Minerals Directorate for Exploration and Research (AMD) vide letter no. AMD/MPA/3M/TSPL/720Ha/2009 dated 17.08.2009.

5. The mine is opencast and will be worked by mechanized method involving dry mining and dredging. No drilling and blasting are involved or sorting of the material at the mine site. Run-off mine ore will be mined and concentrated with advanced environment friendly equipment and technology, wherein ore mining, concentration, backfilling and afforestation on reclaimed land takes place simultaneously, thus limiting the gap between mining and rehabilitation to pre-mining stage to only a few months.

6. Mined/dredged heavy mineral sand is screened, slurried and pumped to a pre-Concentration Plant (CP) to concentrate minerals in the ROM into three to four mineral rich concentrates. The concentrates from this Plant will be further transported to a Mineral Separation Plant (MSP) for separation of individual minerals. Heavy mineral sand from lower layers having high slime content will be additionally cleaned in a slime cleaning Plant before it is pumped to the pre-Concentration Plant. The excavated area will be simultaneously refilled with tailings generated from pre-Concentration Plant and afforested with local suitable plant species to restore the ecological balance of the area. Total Mineral Reserves are about 27.98 million tonnes with mineral resources of 37.45 million tonnes. Life of the mine is about 8 years.

7. It was reported by the PP that solid waste generation will be about 22.958 million tonnes of silica sand which form the reject quantity during the first five years when 27.65 million tonnes of ROM will be handled. The plant waste/tailings contain shells, silica & silt/slime and this waste sand will be dewatered by cyclones. The tailings which form about 83% of ROM will be transported/pumped back for refilling the mined out areas and subsequent afforestation.

8. The total water requirement for the project is estimated as 15,000 KLD. The PP holds permission to draw 500 m^3/hr from the Vamsadhara River. It was reported by PP that mining (dredging) will be carried out below the ground water table, however, there is no mine dewatering involved. A comprehensive hydro geological study carried out by Andhra University was submitted.

9. It was reported by the PP that there is no wildlife sanctuary/tiger reserve/national park, etc within the 10 km radius area around the mine lease. Schedule I species i.e Olive Ridley Turtle is found in the study area. Baseline studies were carried out during summer season 2012 (March -May). All the parameters for air, water, and noise quality were reported to be within prescribed standards. The study on the impact of the mining on Olive Riddley Turtles, traffic, ground water, flora & fauna etc. are also carried out and submitted along with final EIA. HTL/LTL demarcation by authorized agency has also been carried out and report submitted.

10. It was informed by the PP that the Public Hearing for the project was conducted on 29.12.2012 near Project site. The PH was chaired by District Collector, Srikakulam. The issues raised during Public Hearing are considered and discussed in the final EIA. It was informed by Project Proponent that as per the villager's requirements, they would give preference to locals for employment; health issues, providing education and assistance in vocational training etc. The estimated cost of the project is Rs 140 Crores. It was reported by the PP that there is no court case pending against the project.

11. The Ministry of Environment, Forests & Climate Change has examined the application in accordance with the EIA Notification, 2006 and hereby accords environmental clearance under the provisions thereof to the above mentioned proposal of M/s Trimex Heavy Minerals Pvt. Ltd. for Mineral Sand Mine proposed expansion of production capacity from 2.0MTPA to 6.0 MTPA in 720 ha mine lease area and 59.27 ha plant area located at village Vatsavalasa, Mandal Gara, District Srikakulam, Andhra Pradesh subject to implementation of the following conditions and environmental safeguards:

A. Specific Conditions

(i) The 325 dunes recorded in the TSPL area of which, 13 dunes exist beyond 100m from the high tide, shall be protected and maintained. All effort should be made to ensure that existing natural vegetation of these dunes are fully protected.

(ii) Rs. 1.80 corers proposed for Wildlife Conservation plan should be deposited within one month of issue of EC letter for implementation of Wildlife Conservation plan by the Department.

(iii) The Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the Standing Committee of National Board of Wildlife, as may be applicable to this project.

(iv) The Environmental clearance is subject to obtaining clearance under the Coastal Regulation Zone, Notification, 2011 to this project.

(v) Necessary AERB clearance shall be obtained under the Atomic Energy (Radiation Protection) Rules, 2004 for operation of BSM (Beach Sand Minerals) facility.

(vi) The mining activity will commence only after taking necessary approval of water drawl from the concerned Authority of State Government.

(vii) The Mined area should be replenished immediately.

(viii) The mineral separation plant/pre-concentration plant should be located outside coastal Regulation zone area.

(ix) Implementation of Wildlife Conservation plan for Schedule-I species. The Conservation Plan should be species specific, should have allocation of budget, time frame and agencies to be responsible for the implementation for each of the target species. Conservation plan shall be approved by the State Government.

(x) No mining shall be carried out in the inter-tidal zone and within 100 m from HTL towards landward side.

(xi) Identification of sand dunes shall be done prior to undertaking mining activities and their conservation shall be as per MoEF guidelines from time to time. No flattening of sand dunes shall be carried out. Dressing or altering the sand dunes, hills, natural features including landscape changes shall not be carried out for beautification/recreational purposes. Precautions shall be taken to prevent intrusion of sea water into hinterland to avoid problem of submersion/flooding.

(xii) Fencing of entire lease area, barrier of 100 meters towards sea to prevent olive turtle nesting ground.

(xiii) Tailings and rejects shall be filled back systematically after separating the heavy/rare minerals. Sand tailing shall be put back at the mined area on completion of extraction of rare minerals. Afforestation shall be taken up with suitable species on mined out areas to prevent erosion of shoreline. Under no circumstances, the tailings will be dumped in agricultural lands, wet lands, paddy fields, canals and the backfilling will be carried out only in the inland mined out areas.

(xiv) The mining activities shall be regulated in such a way that there will be minimum disturbance to the fauna during spawning and brooding period i.e. from November to March.

(xv) Mining shall be carried out in phases only. Simultaneous opening of entire beach front is not permissible. There shall be uninterrupted access to the seafront. Minimum 20m width of approach roads shall be provided where necessary.

(xvi) Tapping of ground water is expressly prohibited in CRZ area. A network of ground water observation wells within and outside the lease area shall be established for regular monitoring of ground water quality and water levels in the surrounding area. These analysis as per norms much be documented and sent regularly (every three month) to the Regional Office MoEF.

(xvii) The fresh water gradient towards the sea will be maintained by close monitoring of water table. Piezometer wells to be constructed and monitored.

(xviii) Mining shall be carried out by permitted methods without the use of any forms of blasting. Use of explosives for blasting is prohibited. The mining should be stated near sea side and mining should be progressed parallel to sea coast so that inland water table is not disturbed.

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(xix) Radiation survey shall be carried out as stipulated by the Atomic Minerals Directorate for Exploration and Research, Department of Atomic Energy, Government of India to ascertain the effects of radioactive minerals.

(xx) Occupational health and safety measures, especially concerning radiation to be enhanced for workers who are having some ailments like hypertension, diabetes etc. should have health check-up once in six months.

(xxi) The project proponent shall obtain Consent to Operate from the State Pollution Control Board, Andhra Pradesh and effectively implement all the conditions stipulated therein.

(xxii) Implementation of conditions laid down in the Mining Plan along with Progressive Mine Closure Plan which has been approved by Indian Bureau of Mines, Ministry of Mines vide Letter No. AP/SRK/MP/Garnet-2/Hyd dated 26.09.2003 and 18.06.2009.

(xxiii) Implementation of conditions laid down in the Mining Plan which has been approved by Atomic Minerals Directorate for Exploration and Research, Department of Atomic Energy vide Letter No. AMD/MPA/3M/TRIMEX/03, dated December 08, 2003 and Mining scheme approval vide no. AMD/MPA/3M/TSPL/720 ha/2009 dated 17.08.2009.

(xxiv) Implementation of the Conditions, if any, as laid down by Andhra Pradesh State Coastal Zone Management Authority

(xxv) Effective safeguard measures such as conditioning of material with water, regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

(xxvi) Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment, Forests & Climate Change and its Regional Office Chennai, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.

(xxvii) The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any operations.

(xxviii) Regular monitoring of water quality upstream and downstream of adjoining water bodies shall be carried out and record of monitoring data should be maintained and submitted to Ministry of Environment, Forests & Climate Change , its Regional Office, Chennai, Central Groundwater Authority,

Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.

(xxix) As part of ambient air quality monitoring during operational phase of the project, the air samples shall also be analysed for their mineralogical composition and records maintained.

(xxx) Compliance status shall be submitted to the Ministry of Environment, Forests & Climate Change and its Regional Office located at Chennai on six monthly basis.

(xxxi) Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

(xxxii) Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of ores and others shall have valid permissions as prescribed under Central Motor Vehicle Rules, 1989 and its amendments. The vehicles shall be covered with a tarpaulin and shall not be overloaded.

(xxxiii) Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Chennai.

(xxxiv) Implementation of Action plan on issues rose during Public Hearing. As committed by the project proponent during the public hearing shall be implemented and the report shall be submitted to the Regional Office of the Ministry every year.

(xxxv) During initial mining stages, a green belt of 7.5m barrier all around the mine lease boundary shall be made. Subsequently to develop 50m barrier zone with 5-tier plantation inside mine lease in a progressive way near the active mining sites. Adequate plantation shall be raised in the ML area, haul roads, vacant area etc. Green belt development shall be carried out considering CPCB guidelines including selection of plant species and in consultation with the local DFO. Herbs and shrubs shall also form a part of afforestation programme besides tree plantation. The density of the trees shall not be less than 2500 plants per ha. The company shall involve local people with the help of self-help group for plantation programme. Details of year wise afforestation programme including rehabilitation of mined out area shall be submitted to the Regional Office of the Ministry every year.

(xxxvi) Adequate air monitoring stations shall be installed in areas of human habitations near the mine and the results of ambient air quality shall be maintained and regularly submitted to the Regional Office of the Ministry. The monitored data for criteria pollutants shall be regularly uploaded on the company's website and also displayed at project site.

(xxxvii) The waste water from the mine shall be treated to conform to the prescribe standards before discharging in to the natural stream. The discharged water shall be regularly monitored and report submitted to the

Ministry of Environment & Forests, Central Pollution Control Board and the State Pollution Control Board.

(xxxviii) A final mine closure plan, along with other details shall be submitted to the Ministry of Environment & Forests, 5 years in advance of final mine closure for approval.

B. General Conditions

(i) No change in technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.

(ii) No change in the calendar plan including excavation, quantum of beach sand mineral i.e. Illemnite, Rutile, Zircon, Monozite and Garnet and waste should be made.

(iii) At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e., PM_{10}) and NO_X monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board. The data so recorded should be regularly submitted to the Ministry including its Regional office located at Chennai and the State Pollution Control Board / Central Pollution Control Board once in six months.

(iv) Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.

(v) There will be zero waste water discharge from the plant.

(vi) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

(vii) Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

(viii) A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.

(ix) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Chennai.

(x) The project authorities should inform to the Regional Office located at Chennai regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

(xi) The Regional Office of this Ministry located at Chennai shall monitor compliance of the stipulated conditions. The project authorities should

extend full cooperation to the officer(s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

(xii) The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment, Forests & Climate Change , its Regional Office Chennai, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment, Forests & Climate Change , Chennai, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.

(xiii) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.

(xiv) The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.

(xv) The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment, Forests & Climate Change , Chennai by e-mail.

(xvi) The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment, Forests & Climate Change at **http://envfor.nic.in** and a copy of the same should be forwarded to the Regional Office of this Ministry located at Chennai.

12. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

13. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may

result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

14. 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 other orders passed by the Hon'ble Supreme Court of India/ High Court of Andhra Pradesh/ National Green Tribunal and any other Court of Law relating to the subject matter.

15. 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.

(Dr. U. Sridharan)
Scientist 'F'

Copy to:

1). **The Secretary**, Ministry of Mines, Government of India Shastri Bhawan, New Delhi.

2). **The Secretary**, Department of Atomic Energy, Atomic Minerals Directorate for Exploration and Research, Government of India, 1-10-153-156, Begumpet, Hyderabad-500 016

3). **The Secretary**, Department of Environment, Government of Andhra Pradesh, Hyderabad.

4). **The Secretary**, Department of Forests, Government of Andhra Pradesh, Hyderabad.

5). **The Secretary**, Department of Mines and Geology, Government of Andhra Pradesh, Hyderabad.

6). **The Secretary**, Department of Industries and Commerce (M-III), Govt. of Andhra Pradesh, Hyderabad.

7). **The Additional Principal Chief Conservator of Forests**, Regional Office Chennai, Ist and IInd floor handloom export promotion council, 34, Cathedral Garden Road, Nungambakkam, Chennai-34.

8). **The Chairman**, Andhra Pradesh State Pollution Control Board, Paryavaran Bhawan, A-3 Industrial Estate, Sanath Nagar, Hyderabad - 500 018

9). **The Member Secretary**, Central Ground Water Authority, A2, W- 3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.

10). **The Controller General**, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur- 440 001.

11). **The District Collector**, District Srikakulam, State of Andhra Pradesh.

12). **Guard File**

13). **MoEF Website.**

(Dr. U. Sridharan)
Scientist 'F'

ANDHRA PRADESH POLLUTION CONTROL BOARD
Paryavarana Bhavan, A-III, Industrial Estate,
Sanathnagar, Hyderabad-500 018
Phone : 040-23887500
Website : www.appcb.ap.nic.in

RED CATEGORY
CONSENT & AUTHORISATION ORDER
BY REGISTERED POST WITH ACKNOWLEDGEMENT DUE

Consent Order No : APPCB/VSP/VZM/152/HO/CFO/2015 **Date : 30.10.2015**

Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof, Operation of the plant under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Renewal of Authorisation under Rule 5 of the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 & Amendments thereof.

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974, under section 21 of Air (Prevention & Control of Pollution) Act 1981 and Authorisation under the provisions of HW (MH & TM) Rules, 2008 (hereinafter referred to as 'the Acts', `the Rules') and the rules and orders made thereunder to:

M/s. Trimex Sands Pvt., Ltd.,
(After Expansion)
(Beach Sand Mining, Wet Plant & Mineral Separation Plants),
Vatsavalasa (V) and Tonangi(V), Gara (M),
Srikakulam District – 532 001
E-mail: info@trimexsands.com
(hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of Emissions per hour from the chimneys as detailed below:

i) Out lets for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge KLD	Point of Disposal
Wet Plant, Tonangi(V):			
1.	Process (Outlet of Thickener)	1500	For disposal into mined out area of the industry.
2.	Domestic	2	Septic tank followed by soak pit.
Mineral Separation Plant / Wet Plant, Vatsavalasa(V):			
3.	Process (Outlet of Thickener)	4050	For disposal into mined out area of the industry.
4.	Domestic	15	Septic tank followed by soak pit.
Sand Mining			
5	Domestic	3	STP / Septic tank followed by soak pit

ii) Emissions from chimneys:

Chimney No.	Description of Chimney	Quantity of Emissions at peak flow
Mineral Separation Plant / Wet Plant, Vatsavalasa(V):		
1.	Attached to 70 TPH FBD-I (IRZ Section)	--
2.	Common stack attached to 15 TPH FBD-2 (Garnet Section), 15 TPH FBD-3 (Sillimanite Section) and 2 TPH FBD-4 (Zircon Section)	--
3.	Attached to 25 TPH FBD-1 (Garnet Section)	--

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4.	Attached to 6 TPH FBD-2 (Sillimanite / Ball Mill Section)	--
5.	Attached to 10 TPH FBD-3 (Sillimanite sintering)	--
6.	Attached to 200 KVA D.G. Set	--
7.	Attached to 4 x 1500 KVA D.G. Sets	--
8.	Attached to 2000 KVA D.G. Set	--
9.	Attached to 315 KVA D.G. Set	--
Wet Plant, Tonangi(V):		
10.	Attached to 2000 KVA D.G. Set	--

iii) HAZARDOUS WASTE AUTHORISATION (FORM – II) [See Rule 5 (4)]:

M/s. Trimex Sands Pvt., Ltd., (Beach Sand Mining, Wet Plant & Mineral Separation Plant), Vatsavalasa (V) & Tonangi(V), Gara (M),Srikakulam District is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

- **HAZARDOUS WASTES WITH RECYCLING OPTION:**

S. No.	Name of the hazardous waste	Stream	Quantity	Disposal option
1	Waste lubricant oil	5.1 of Schedule – I	430 LPM	To Authorised Reprocessors / Recyclers.

This consent order is valid to manufacture the following products with quantities indicated only:

S.No.	Product	Quantity
1.	Ilmenite	1100 TPD
2.	Sillimanite / Flour / Mulite	550 TPD
3.	Garnet	550 TPD
4.	Rutile	44 TPD
5.	Zircon	44 TPD
6.	Mineral Rich Tailings	260 TPD
	Total	**2548 TPD (0.93 million TPA)**
Beach Sand Mining:		
1.	Mining of Raw Sand	6.0 Millions TPA

This order is subject to the provisions of 'the Acts' and the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorisation shall be valid for a period ending with the **31st day of May, 2018.**

Sd/-
MEMBER SECRETARY

To
M/s. Trimex Sands Pvt., Ltd.,
(Beach Sand Mining, Wet Plant & Mineral Separation Plants),
Vatsavalasa (V), Tonangi(V), Gara (M),
Srikakulam District – 532 001

Copy to:

1. The JCEE, Zonal Office, **Visakhapatnam** for information and necessary action.
2. The JCEE (Cess), APPCB, **Hyderabad** for information.
3. The JCEE(HWM), APPCB, **Hyderabad** for information.
4. The Environmental Engineer, Regional Office, **Vizianagaram** for information and necessary action.

//T.C.F.B.O//

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O/C

JOINT CHIEF ENVIRONMENTAL ENGINEER
UNIT HEAD - IV

SCHEDULE – A

1. The applicant shall make applications through Online for renewal of Consent (under Water and Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorization of the Board and detailed compliance of CFO conditions.
2. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water(Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air(Prevention and Control of Pollution) Act, 1981.
3. The facility shall immediately submit the revised application for consent to this Board in the event of any change in activity, quantity of trade effluents & quantity of emissions etc.
4. The applicant shall not change or alter either the quality or the quantity or the rate of the discharge or the route of discharge and shall not change or alter either the prescribed quality or the rate of emission without the previous written permission of the Board.
5. The applicant shall, not later than 30 days from the date of issue of this consent order, certify in writing to the Board that the applicant has installed or provided for an alternative electric power source sufficient to operate all facilities installed by the applicant, to comply with the terms and conditions of this consent. In absence of alternative electric power source sufficient to operate all facilities installed by the applicant, to comply with the terms and conditions of this consent, production shall be stopped.
6. Any up-set condition in any plant/plants of the facility, which result in, increased effluent discharge and/ or violation of standards stipulated in this order **or** the emission of any Air Pollutant into the environment in excess of the standards laid down by the Board, occurs or is apprehended to occur due to accident, or other unforeseen act or event, the person-in-charge of the premises, from where such discharge / emission occurs or is apprehended to occur shall forthwith intimate the fact of such occurrence or the apprehension of such occurrence to this Board, by fax / email under intimation to the Collector and District Magistrate.
7. In case of such episodal discharges / emissions mentioned in item 4 above, the facility shall take immediate action to bring down the discharge / emission below the limits prescribed in this order.
8. A good house keeping shall be maintained both within the facility and in the premises. All hoods, pipes, valves, sewers and drains shall be leak proof. Floor washings shall be admitted into the effluent collection system only and shall not be allowed to find their way into storm drains or open areas.
9. a) The facility shall carryout analysis of waste water discharges or emissions through chimneys, for the parameters mentioned in Schedule – B of this order at regular intervals.
   b) The facility shall maintain following records to accessible to the Board, whenever required.
   1. Analysis reports of waste water/ emissions.
   2. Log book for operation of pollution control systems.
   3. Inspection book
10. Separate power connection with energy meter shall be provided for the Pollution Control Equipments and record of power consumption and chemicals consumption for the operation of pollution control equipment shall be maintained separately.
11. The applicant shall comply with the directives/orders issued by the Board in this order and at all subsequent times without any negligence on his part. The applicant shall be liable for such legal action against him as per provisions of the Law/Act in case if non-compliance of any order/directive issued at any time and/or violation of the terms and conditions of this consent order.
12. The applicant shall furnish to the visiting officer and / or the Board any information regarding the construction, installation or operation of the effluent treatment system / air

pollution control equipment / secured storage area of Hazardous Waste and such other particulars as may be pertinent for preventing and controlling pollution.

13. The facility is liable to pay compensation for any environmental damage caused by it, as fixed by the Collector and District Magistrate as Civil liability.
14. All the rules & regulations notified by Ministry of Environment and Forests, Government of India in respect of management, handling, transportation and storage of hazardous chemicals and wastes shall be followed.
15. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 shall be followed.
16. The occupier shall educate the workers and nearby public of possible accidents and remedial measures.
17. For any accident or spillage of hazardous wastes causing damage to the Environment, the occupier or the transporter as the case shall be held responsible.
18. In case of closure of facility, the un-used/not consumed raw materials falling under the category of Hazardous Chemicals and mentioned in Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and Amendment Rules, 2003 shall be removed and sold to other units within 90 days from the date of closure to prevent any possibility of occurrence of an accident. In case the above hazardous chemicals have lost their properties originally acquired, then they shall be treated, as Hazardous Waste and they shall be disposed off only to the agencies authorized by APPCB in a safe manner.
19. The occupier shall prepare/update Emergency preparedness plan for safe handling of hazardous waste from time to time and submit the same to APPCB. Emergency preparedness plan must be implemented immediately whenever there is fire, explosion or release of hazardous waste or hazardous waste constituents, which could endanger to human health or environment.
20. Packaging, labeling and transportation of Hazardous Wastes shall be in accordance with the provisions of the rules issued by the Central Govt. under the Motor Vehicles Act, 1988 and other guidelines issued from time to time. The packaging and labeling shall be based on the composition and hazardous constituent of the waste, however all Hazardous Waste containers shall be provided with a general label.
21. The driver who transports Hazardous Waste shall be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter shall carry a Transport Emergency (TREM) Card (as given in the guidelines for management and handling of hazardous wastes) duly filled by the Hazardous Waste generator.
22. No Hazardous Wastes shall be mixed with any other wastes or shall be discharged to a common, other internal, external sewerage or other drainage system without prior approval of APPCB.
23. If HDPE bags are used for storing Hazardous Wastes, it shall be ensured that they are perfectly sealed mechanically or double hot sealed. If MS/HDPE bags or drums are used for storing Hazardous Wastes, these drums / bags shall be ensured that they are perfectly sealed.
24. The person authorizated shall not rent, lend, sell, transfer their industrial premises without obtaining prior permission of the State Pollution Control Board.
25. Any authorization change in personnel, equipment as working condition as mentioned in the application by the person authorized shall constitute a breach of his authorization.
26. The facility shall comply with the provisions of Batteries (Management & Handling) Rules, 2001.
27. The facility shall put up two sign boards (6x4 ft. each) at publicly visible places at the main gate. The first sign board shall provide information on specific conditions of CFO and Hazardous Waste Authorisation. The second sign board shall display online data on quantity and nature of hazardous chemicals being used in the plant, as well as water, air emissions and solid waste generated within the factory premises.
28. The applicant shall exhibit the Consent & HW Authorisation order of the Board in the factory premises at a prominent place for the information of the inspecting officers of different departments.
29. Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves the right and powers under Section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and its amendments thereof **and** under Section 21 of the

Air (Prevention & Control of Pollution) Act, 1981 and its amendments thereof to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.

30. The Authorization issued under Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008 and its amendments thereof, shall comply with the provision of the Environment (Protection) Act, 1986.

SCHEDULE - B

1. **The industry shall handover the original Consent order No. APPCB/VSP/VZM/152/HO/CFO/2015-460, dated 21.04.2015, having validity upto 31.05.2018, to the RO, Vizianagaram after receipt of this order. The same stands cancelled from the date of receipt of this order.**

2. The water consumption quantities of the facility are mentioned below:

S.No	Purpose	Sand Mine	Quantity (Wet Plant at Vatsavalasa)	Quantity (Mineral Separation plant)	Wet Plant at Tonangi
1.	Process (Makeup)	--	11619 KLD	275 KLD	3000 KLD
2.	Spraying in Stock Yard & Wetting the Roads	20.0	10 KLD	10 KLD	10 KLD
3.	Gardening / Irrigation	--	5 KLD	15 KLD	5 KLD
4.	Domestic / Canteen	6.0 KLD	6 KLD	20 KLD	4 KLD
	Total	**26.0 KLD**	**11640 KLD**	**320 KLD**	**3019 KLD**

The industry shall maintain separate meters with necessary pipe-line for assessing the quantity of water used for each purpose at each Plant and maintain records.

3. The industry shall file the water cess returns in Form-I as required under section (5) of Water (Prevention and Control of Pollution) Cess Act, 1977 on or before the 5th of every calendar month, showing the quantity of water consumed in the previous month along with water meter readings. The industry shall remit water cess as per the assessment orders as and when issued by Board.

4. The industry shall comply with emission limits for DG sets of capacity upto 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 under the Environment (Protection) Amendment Rules, 2003 and G.S.R.448(E), dated 12.07.2004 under the Environment (Protection) Second Amendment Rules, 2004. In case of DG sets of capacity more than 800 KW shall comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial no.96, under the Environment (Protection) Act, 1986.

5. The industry shall comply with ambient air quality standards of PM_{10} (Particulate Matter size less than 10μm) - 100 μ/ m^3; $PM_{2.5}$ (Particulate Matter size less than 2.5 μm) - 60 μg/ m^3; SO_2 - 80 μg/ m^3; NO_x - 80 μg/m^3, outside the factory premises at the periphery of the industry.

   Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009 shall be complied. Following standards prescribed for noise shall be complied.

   Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
   Night time (10 PM to 6 AM) - 70 dB (A).

6. The industry shall not manufacture any product / activity, other than those mentioned in this order.

7. **The industry shall submit the time bound action plan for backfilling of 6000 Tons of waste sand available at Vatsavalsa dry plant in the mined out areas.**

8. The industry shall provide separate water meters with necessary pipeline Plant wise for assessing the quantity of water used for each of the purposes mentioned below.

   a. Industrial cooling, boiler feed.

b. Domestic purposes.
c. Processing, whereby water gets polluted and pollutants are easily biodegradable.
d. Processing, whereby water gets polluted and pollutants are not easily biodegradable.

9. The industry shall maintain the following records and the same shall be made available to the Board Officials during the inspection.
   a. Daily production details, RG-I records and Central Excise Returns.
   b. Quantity of Effluents generated, recycled and disposed.
   c. Log Books for pollution control systems.
   d. Daily solid waste generated and disposed.
10. Thick green belt shall be maintained Plant wise with tall growing trees in atleast 33% of total area in the vacant spaces of the unit.
11. A network of observation wells within and outside the lease area shall be maintained for regular monitoring of ground water quality and ground water table.
12. A network of observation wells within and outside the lease area shall be maintained for regular monitoring of ground water quality and ground water table.
13. The industry shall comply with EC conditions dated 17.04.2015 and CFE conditions dated 23.06.2015.
14. The industry shall maintain the compliance of directions issued by the Board from time to time.
15. The applicant shall submit Environment statement in Form V before 30th September every year as per Rule No.14 of E(P) Rules, 1986 & amendments.
16. The conditions stipulated are without prejudice to the rights and contentions of this Board in any Hon'ble court of Law.

Wet & Dry Plants, Vatsavalasa(V):

17. The emissions shall not contain constituents in excess of the prescribed limits mentioned below:

Chimney No.	Parameter	Emission Standards
1 to 5	Particulate matter	115mg/Nm^3

18. The industry shall maintain separate energy meter for Effluent Treatment Plant (ETP) i.e., for sludge thickener and for air pollution control equipment.
19. The industry shall submit performance evaluation / efficiency of the Air Pollution Control Systems installed on quarterly basis.
20. The industry shall not cause dust / air pollution to surrounding environment during transportation of mined sand. Industry shall provide water sprinklers at raw material handling section for dust suppression.
21. The industry shall not discharge any effluents into Perlavanipet agricultural fields.
22. The industry shall maintain green belt in the mined area after leveling and towards sea side on reclaimed mined area.
23. The industry shall operate water sprinklers to control fugitive emissions at different transfer points and haul roads.
24. The industry shall maintain water sprinklers at raw material handling section for dust suppression and maintain records.
25. All transit water storage facilities shall be maintained with impervious lining to prevent pollution.
26. The thickener sludge / sand shall be disposed for back filling in mined out areas.
27. Total generation of Silica sand (Plant Tails) from the Wet Plants at Vatsavalasa and Tonangi shall not exceed 5.07 Million TPA. The plant tails shall be used for backfilling the mined out areas by transportation/pumping in the form of slurry and stock piling.

Wet Plant, Tonangi(V):

28. Water sprinklers shall be maintained for dust suppression.
29. The industry shall not discharge any effluent to outside the premises.
30. The industry shall control fugitive emissions generated at different transfer points and material storage and handling system.
31. The industry shall maintain water sprinklers at raw material handling section for dust suppression and maintain records.
32. All transit water storage facilities shall be provided with impervious lining to prevent pollution.
33. The thickner sludge / sand shall be disposed for back filling in mined out areas. The industry shall submit mine plan and back filling plan to RO, Vizianagaram.
34. The industry shall not cause dust / air pollution to surrounding environment during transportation of mined sand.

Beach Sand Mining, Vatsavalasa(V), Gara(M):

35. **The industry shall submit the mining plan as well as back filling plan. The industry shall dispose the OB dump in the mined area only for back filling and shall not dump in unauthorized places.**
36. The mining shall be in accordance with the mining plan approved by AMD & IBM.
37. The industry shall not carryout mining towards inter tidal area and within 100 Mts. from HTL towards landward side as stipulated in the EC order dated 17.04.2015.
38. The industry shall carryout radiation survey regularly as per statutory requirement.
39. The industry shall not cause dust / air pollution to the surrounding environment during transportation of mined sand.
40. The industry shall comply with the following:

Existing: Wet & Dry Plants

S. No.	Type of solid Waste	Source of Generation	Quantity at Vatsavalasa	Quantity at Tonangi	Sand Mine	Dry plant	Method of Disposal
1	Silica tailing containing low grade Minerals	Process	2433 TPD	2433 TPD	-----	------	Back filling in mined out areas
2	Thickener Sludge (Slurry)	Thickener	2000 KLD	1000 KLD	-----	50 KLD	Back filling in mined out areas
3	Waste Lubricating Oil (Hazardous)	DG Set / Gear Boxes	100 LPM	100 LPM	10 LPM	100 LPM	To disposed to authorized agencies
4	Mineral Rich Tails from Dry mill of Mineral Separation plant		Non-Hazard	-----		170 TPD	Back filling in mined out areas

After Expansion: Wet Plant-I & II

S. No.	Solid Waste generated from	Exist-ing	Expansion Quantity	Total	Method of disposal
1.	Silica Sand (Plant Tails) from Wet mill of Pre-concentration plants	4867 TPD (1.77 MTPA)	3.30 MTPA	5.07 MTPA	Reused for back filling the mined out areas by transportation/ pumping in the form of slurry and stock piling.

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2.	Mineral Rich Tails from Dry mill of Mineral Separation plant	170 TPD(0.062 MTPA)	0.032 MTPA	0.094 MTPA	
3.	Waste Lubricating Oil (Hazardous)	310 LPM	120 LPM	430 LPM	To be disposed to authorized agencies

41. During initial mining stages, a green belt of width 7.5 m. shall be developed all around the mine lease boundary. Subsequently to develop 50m barrier zone with 5-tier plantation inside mine lease in a progressive way near the active mining sites as specified in the EC order dt. 17.04.2015.
42. Fencing of entire lease area, barrier of 100m towards sea shall be done to protect Olive Turtle nesting ground.
43. The proponent shall obtain all clearances from all competent authorities.

SCHEDULE-C

[see rule 5(4)]

[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. The industry shall give top priority for waste minimization and cleaner production practices.
2. The industry shall not store hazardous waste for more than 90 days as per the Hazardous Wastes (Management. Handling and Transboundary Movement) Rules, 2008 and amendments thereof.
3. The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal.
4. The industry shall not dispose Waste oils to the traders and the same shall be disposed to the authorized Reprocessors/ Recyclers.
5. The industry shall dispose Used Lead Acid Batteries to the manufacturers / dealers on buyback basis.
6. The industry shall not dispose spent solvents / mixed spent solvents to the traders.
7. The industry shall take necessary practical steps for prevention of oil spillages and carry over of oil from the premises.
8. The industry shall maintain 6 copy manifest system for transportation of waste generated and a copy shall be submitted to Board Office and concerned Regional Office.
9. The industry shall maintain good house keeping & maintain proper records for Hazardous Wastes stated in Authorisation.
10. The industry shall maintain proper records for Hazardous Wastes stated in Authorisation in FORM-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 22(2) of the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 and amendments thereof.
11. The industry shall dispose of e-waste to the authorised recyclers only.
12. The industry shall submit the condition wise compliance report of the conditions stipulated in Schedule A, B & C of this Order on half yearly basis to Board Office, Hyderabad and concerned Regional Office.

Sd/-
MEMBER SECRETARY

To
M/s. Trimex Sands Pvt., Ltd.,
(Beach Sand Mining, Wet Plant & Mineral Separation Plants),
Vatsavalasa (V), Tonangi(V), Gara (M),
Srikakulam District – 532 001

//T.C.F.B.O//

31/10/15

JOINT CHIEF ENVIRONMENTAL ENGINEER
UNIT HEAD - IV

ANDHRA PRADESH POLLUTION CONTROL BOARD
D.No.33-26-14D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamalavaari Street, Kasturibaipet, Vijayawada - 520 010
Phone. No.0866-2436217, Website : www.appcb.ap.nic.in

AUTO RENEWAL OF CONSENT, HAZARDOUS WASTE AUTHORISATION ORDER FOR OPERATIONS

In response to your application dated 30.01.2018 for Auto Renewal of Consent for Operation & Hazardous waste Authorisation Order, the Board is hereby extending validity period of Consent and Authorisation order issued vide Order APPCB/VSP/VZN/152/HO/CFO/2015, dated 30/10/2015 and valid upto 31.05.2018, for further period of 5 (five) years **i.e., upto 31.05.2023** under sections 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorization under Rule 6 of the Hazardous & Other Wastes (Management & Transboundary, Movement) Rules, 2016.

1. All other conditions mentioned in Schedules A, B & C of the combined CFO&HWA order issued by the Board vide order dated 30.10.2015 will remain same.
2. The industry shall comply with the standards issued by MoEF&CC / CPCB from time to time.
3. The facility shall submit the compliance report to all the stipulated conditions for Consent for Operation for every six months i.e. on 1st of January and 1st of July of every year.
4. The facility shall ensure that dedicated fund is allotted towards Environment Relief Fund (ERF) in the Public Liability Insurance policy and submit a copy of the policy at the Regional Office: Vizianagaram every year.
5. In case of false certification, non compliance of conditions / directions and discrepancy in furnishing the information by the industry, the Board can withdraw the auto renewed consent and take action under provisions of relevant Acts & Rules.

Date: 25.02.2018 **MEMBER SECRETARY**

To

M/s. Trimex Sands Private Limited,
Vatsavalasa, Tonangi Villages,
Gara (M),
Srikakulam District
E-mail: info@trimexsands.com

Copy to:
1. The JCEE, Zonal Office, **Visakhapatnam** for information and necessary action.
2. The JCEE, Unit-II, APPCB, Vijayawada for information and necessary action.
3. The JCEE (HWM), APPCB, Vijayawada for information and necessary action.
4. The Environmental Engineer, Regional Office, **Vizianagaram** for information and necessary action.

Digitally Signed By B. S. Prasad (Member Secretary\)
Date : 26-Feb-2018 17:38:32 IST

Single Desk Approval Ref Id : SDPCB069170323

iv. The Project Proponent needs to submit the conceptual plan for broken up area for extraction of mineable reserves.

DAY 4: 1st July, 2021 (Thursday)

4.1 Request for NOC for operating mineral pulverizing unit of M/s Trimex Sands Pvt. Limited.

Project Proponent vide letter dated 22.06.2020 submitted the request for NOC from MoEF&CC. PP submitted that NOC is required to consider the applications by AP Pollution Control Board and other authorities for grant of approval to restart the Mineral Separation Plant and Ball Mill, which were part of the EC granted integrated mining project currently not in operation. The proposal was placed in the EAC (non-coal) meeting held during 28 June, 2021 to 1 July, 2021.

2. PP submitted that "Trimex Sands Pvt. Limited was operating a beach sand mineral mining project to separate beach sand minerals at Vatsavalasa & Tonangi Villages in Srikakulam District, Andhra Pradesh. The project area falls in the Survey of India Topo Sheet No 74 B/3, B/4, and B/7. The said project involves.

i. Mining of beach sand minerals (RoM) containing five minerals viz. Ilmenite, Rutile, Zircon, Garnet and Sillimanite.
ii. Processing of beach sand minerals in Pre-Concentration Plants (PCP) to produce mineral concentrates containing all minerals.
iii. The concentrates from PCPs are subjected to physical separation as individual minerals in a Mineral Separation Plant (MSP).
iv. Part of the Sillimanite produced is pulverized in a Ball Mill situated within the MSP.

4. PP submitted that the MSP and Ball Mill are situated outside the mining lease area in company owned land at about 0.5 km from the mining lease area towards the land ward side (1.5 km by road). PP also submitted that the Mining, PCPs, MSP and Ball Mill were considered as an integrated project and Environmental Clearance was granted by MoEF & CC- vide No.J-11015/175/2011-IA.II (M) dated 17.04.2015. The project was in operation till 2018.

5. Further, PP submitted that the Ministry of Mines Govt. of India issued vide notification no. G.S.R 134 (E) dated 20.02.2019 and reserved mining of beach sand minerals for Govt companies. The notification prohibits mining of beach sand minerals by private companies. Thereafter, our PCPs, MSP and Ball Mill operations have also stopped since then due to non-operation of the Mine. As per the said notification, the MoEF & CC has revoked the Environmental Clearance of the integrated project- vide

F.No.Z-11012/11/2018-IA.II(M) dated 24.05.2019. In view of the notification restricting private companies EC's revoked, the MSP and Ball Mill, which are situated outside the mining lease area, are not covered under any approvals granted by MoEF & CC now. M/s Trimex Sands Pvt. Limited propose to restart the MSP and Ball Mill situated outside the mining lease area as a standalone unit, by sourcing mineral concentrates from Govt/Govt approved companies in India or abroad. M/s IREL vide their letter dated 12.01.2021 have communicated their willingness to supply raw material for the ball mill operation. The proposal will not involve any mining activity of beach sand minerals.

6. M/s Trimex Sands Pvt. Limited also informed that recently APMDC floated a tender for sale of beach sand mineral concentrates from nearby area. But we could not participate as our MSP is not in operation. Otherwise, we could have added more value to the concentrate by separating all minerals, which would have benefited the Govt also in the form of more revenue.

7. Further PP also submitted that an investment of about Rs 270.00 Cr made in the MSP and Ball Mill are idle since 2019. If restarted, MSP & Ball Mill could provide employment to about 600 local people, directly and indirectly. It is pertinent to submit here that there are few beach sand mineral separation plants operating in the SEZ area of Vizag and in nearby districts by sourcing concentrate from India and abroad.

8. In this connection, PP submitted that they have applied to AP Pollution Control Board (APPCB) for grant of permission to operate the Ball Mill as standalone unit. APPCB have rejected our application for want of NOC from MoEF & CC since MSP and Ball Mill, though situated outside the mining lease area, were part of the integrated mining project for which EC was granted by MoEF&CC and revoked later. PP also submitted that another application filed with APPCB recently to grant permission to operate the MSP is also not considered mentioning requirement of NOC from MOEF & CC.

9. Therefore, M/s Trimex Sands Pvt. Limited. requested EAC to consider and issue NOC to seek relevant approvals from the State Pollution Control Board and other authorities for the operation of the Mineral Separation Plant and Ball Mill as standalone unit as mentioned above."

10. After detailed deliberation, the EAC opined that, as per the EIA notification, 2006, there is no provision to grant NOC. As per the EIA notification, 2006 as amended time to time only prior Environmental Clearance is granted before establishing activities listed under the Schedule. The said proposal is for running beneficiation plant which is located outside the Mine lease area thus, the activity of Mineral beneficiation is listed in the Schedule of EIA notification at serial no 2(b).

11. Further, the Committee opined that Ministry of Mines also issued an Order no 1/1/2019-M.VI dated 1 March, 2019 inter-alia stating that the Beach sand minerals mineral concessions held by a Government company or corporation owned or controlled by the Government and which are not in contravention of any of the preventions of the Minerals (Development and regulation) Act,1957 and the rules framed there under shall continue hence forth, any mineral concession of Beach Sand Minerals shall be granted to a Government company or corporation owned or controlled by the Government under the provisions of the Atomic Minerals Concession rules, 2016.

12. Ministry of Mines, Govt. of India issued an OM vide letter F.No.7/6/2019-M.IV dated 29th March, 2019 inter-alia stating that "Ministry of Mines in consultation with stakeholder Departments of State Governments has exercised the powers conferred under Section 4A(1) of the MMDR Act in the interest of regulation of mines and minerals development and conservation of mineral resources to prematurity terminate all the existing minerals concession of Beach Sand Minerals held by Private person/company in the country. And also requested to this Ministry not to grant any clearance of any type for mineral concession of Beach Sand Minerals held by Private Person/company".

13. Accordingly, this Ministry issued a circular no F.No.22-19/2019-IA.III dated 11th April, 2019 inter-alia stating that Ministry of Mines has requested to this Ministry not to grant clearances of any type of Mineral concessions of Beach Sand Minerals held by private person/company and comply the directions of Ministry of Mines.

14. Accordingly, Ministry revoked the EC and CRZ clearances vide letter no Z-11012/11/2018-IA.II(M) dated 24.05.2019 and Z-11011/11/2018-IA.II(M) dated 12th July, 2019 granted to the M/s Trimex Sands Pvt. Limited.

15. In view of the above the Committee observed that that the instant proposal is covered under category of 2(b) of EIA notification, 2006, which is standalone and outside the mine lease area. EAC-non coal Committee cannot appraise the instant proposal. Further, Ministry of Mines O.M dated 29.03.2019 requested this Ministry, not to grant clearances of any type for mineral concessions of beach sand minerals held by private person/company. Accordingly, MoEF & CC issued O.M vide dated 11.04.2019. Hence the committee **returned the proposal**.

4.2 Proposal for Environmental Clearance of M/s National Aluminium Company Limited (NALCO) for Pottangi Bauxite Mine with Total Excavation - 3.893 Million TPA (Production Capacity of 3.5 Million TPA (ROM), Top Soil - 0.047 Million TPA, Over Burden - 0.346 Million TPA) in the mine lease area of 697.979 ha at Pottangi

FORM-I

SUBMISSION
TO
STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, ANDHRA PRADESH.

By

Trimex Sands Private Limited

[Operation of Mineral Separation Plant (MSP) of 0.44 MTPA throughput capacity for Beach Sand Minerals]

Category – B Project

at

Sy. Nos. 78, 79, 80, 84, 176 to 183 & 193

Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh.

Prepared by

PIONEER ENVIRO
LABORATORIES & CONSULTANTS PVT. LTD.

Accredited by NABET

2nd Floor, A-Z Elite, Plot No. 197, Kavuri Hills, Madhapur, Hyderabad -500081
Ph.No. : 040-23114270

APPENDIX I
(See paragraph – 6)
FORM I

<table>
<tr><td>S. No</td><td></td><td></td></tr>
<tr><td>(I)</td><td>BASIC INFORMATION</td><td></td></tr>
<tr><td>1.</td><td>Name of the project</td><td>Trimex Sands Private Limited</td></tr>
<tr><td>2.</td><td>S. No. in the schedule</td><td>2 (b)</td></tr>
<tr><td>3.</td><td>Proposed capacity / area / length / tonnage to be handled / command area / lease area / number of wells to be drilled</td><td>
<table>
<tr><th>S.No</th><th>Product</th><th>Production</th></tr>
<tr><td>1.</td><td colspan="2">Beneficiation of Beach sand minerals - 4,40,000 TPA (Throughput)</td></tr>
<tr><th>S.No</th><th>Mineral</th><th>Quantity to be produced (in TPA)</th></tr>
<tr><td>1</td><td>ilmenite</td><td>2,40,000</td></tr>
<tr><td>2</td><td>Garnet</td><td>45,000</td></tr>
<tr><td>3</td><td>Sillimanite/Pulverised Sillimanite</td><td>45,000</td></tr>
<tr><td>4</td><td>Rutile</td><td>8,000</td></tr>
<tr><td>5</td><td>Zircon/Pulverised Zircon</td><td>6,000</td></tr>
<tr><td></td><td>Total</td><td>3,44,000</td></tr>
</table>
</td></tr>
<tr><td>4.</td><td>New/Expansion/Modernization</td><td>New,
However, Trimex Sands Private Limited has obtained EC, CFE & CFO for integrated mining project for beach sand minerals consisting of 6.0 MTPA mining & Pre-Concentration Plants (situated within the ML area) and 0.93 MTPA Mineral Separation Plant (MSP) (situated outside the ML area) and has been in operation till 2018. After the ban notified by Govt. of India for mining beach sand minerals by private companies, the EC, CFE/CFO of the integrated mining project have been revoked. Now propose to seek fresh EC for the operation of MSP situated outside the ML area by sourcing mineral concentrate.</td></tr>
<tr><td>5.</td><td>Existing capacity/Area etc.</td><td>No</td></tr>
<tr><td>6.</td><td>Category of project i.e. ‘A’ or ‘B’.</td><td>B</td></tr>
</table>

7.	Does it attract the general condition? If yes, please specify.	**No**
8.	Does it attract the specific condition? If yes, please specify.	**No**
9.	Location	
	~~Plot~~/Survey~~/Khasra No~~.	**78, 79, 80, 84, 176 to 183 & 193**
	Village	**Vatsavalasa**
	Mandal	**Gara**
	District	**Srikakulam**
	State	**Andhra Pradesh**
10.	Nearest railway station/airport along with distance in kms.	**Amudalavalasa RS –20.0 Kms.** **Vishakapatnam Airport – 105.0 Kms.**
11.	Nearest Town, City, District Headquarters along with distance in Kms	**Nearest town: Gara - 4.7 Kms** **District Headquarter: Srikakulam -13.3 Kms**
12.	Village Panchayats, Zilla Parishad, Municipal corporation, Local body (complete postal addresses with telephone nos to be given)	**Vatsavalasa Village,** **Gara Mandal,** **Srikakulam District-532404**
13.	Name of the Applicant	**Trimex Sands Private Limited**
14.	Registered Address	**Trimex Sands Private Limited,** **Trimex Towers, No.1, Subbaraya Avenue, C.P. Ramaswamy Road, Alwarpet, Chennai – 600 018 Tamil Nadu.**
15.	Address for correspondence:	
	Name	**VH Rafi Ahammed**
	Designation(owner/partner/CEO)	**Vice President (Operations) & Plant Head**
	Address	**Trimex Sands Private Limited,** **Vatsavalasa Village, Srikurmam PO, Gara Mandal, Srikakulam, Andhra Pradesh – 532404**
	Pin code	**532404**
	E-Mail	**rafi.ahammed@trimexsands.com**
	Telephone No.	**9704928886**
	Fax No.	--
16.	Details of Alternative sites examined, if any. Location these sites should be shown	**No alternative sites have been considered, as the present proposal is for obtaining**

	on a topo sheet	**environmental for earlier operated plant for which EC, CFE & CFO has already been obtained**
17.	Interlinked Projects	**No**
18.	Whether separate application of interlinked project has been submitted?	**No**
19.	If yes, the date of submission	**Not applicable**
20.	If no, reason	**Not applicable**
21.	Whether the proposal involves approval/clearance under; if yes, details of the same and their status to be given. (a) The Forest (Conservation)Act,1980 (b) The Wildlife (Protection)Act,1972 (c) The C.R.Z Notification, 1991?	**Not Applicable**
22.	Whether there is any government order/policy relevant/relating to the site?	**Not Applicable**
23.	Forest land involved(hectares)	**Not Applicable**
24.	Whether there is any litigation pending against the project and/or land in which the project is proposed to be set up ? (a)Name of the court (b)Case No. (c) Orders/directions of the court, if any and its relevance with the proposed project.	**Not Applicable**

(II) ACTIVITY

1. Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with the source of information data
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)	**No**	**Trimex Sands Private Limited has established MSP after taking necessary approvals like EC, CFE, CFO, etc. and has been operated till 2018 after the ban imposed by Govt. of India for beach sand mining by private companies came into force. Since the EC, CFE, CFO are integrated approvals for beach sand mining, PCP (within ML area) & MSP (outside ML area), the EC, CFE & CFO have been revoked.** **Now It has been proposed to utilize the above-mentioned existing Mineral Separation Plant (MSP) as a standalone**

			unit to process 0.44 MTPA of mineral concentrate (throughput) to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from the mineral concentrate. The present use of land is Industrial. As the present proposal does not involve major construction activity, there will not be any significant changes in land use, topography due to the present proposal.
1.2	Clearance of existing land, vegetation and buildings?	**No**	**No clearance of existing land, vegetation and buildings is envisaged as the present proposal is for obtaining fresh environmental clearance for already existing plant for which EC, CFE and CFO were obtained earlier. No major construction activities are proposed in the present proposal**
1.3	Creation of new land uses?	**No**	**Present use of land is industrial.**
1.4	Pre-construction investigations e.g. bore houses, soil testing?	**No**	**Soil testing & Bore well water investigations were conducted.**
1.5	Construction works?	**No**	**The plant is already established and hence no construction work is required to be taken up. However, shifting of the existing sillimanite flotation circuit from the Pre-concentration plant (PCP) to the MSP is required and will be taken up after obtaining the Prior Environmental clearance from the SEIAA Andhra Pradesh and Consent for Establishment from SPCB.**
1.6	Demolition works?	**No**	**Not applicable**
1.7	Temporary sites used for construction works or housing of construction workers?	**No**	**Not applicable**
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	**No**	**Not applicable**
1.9	Underground works including mining or tunneling?	**No**	**Not applicable**
1.10	Reclamation works?	**No**	**Not applicable**
1.11	Dredging?	**No**	**Not applicable**
1.12	Offshore structures?	**No**	**Not applicable**
1.13	Production and manufacturing	**Yes**	**The proposal is for Mineral Separation**

	processes?		**Plant (MSP) of individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from the mineral concentrate which will be sourced from suppliers/mining firms in India and abroad. Part of the sillimanite and zircon minerals produced/sourced minerals will be pulverized in a ball mill already available in the MSP.**
1.14	Facilities for storage of goods or materials?	**No**	**Storage yard for raw materials, Products and Solid waste was already provided within the existing plant premises.**
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	**Yes**	**<u>Liquid effluent:</u>** **The wastewater from MSP plant will pass through thickner and supernetant will be recycled in to the process and under flow will be used for greenbelt in the MSP and old mine areas belongs to Trimex (patta land).** **Sanitary wastewater will be treated in STP and after ensuring compliance with the stipulated norms, the treated sewage will be utilized for greenbelt development.** **Zero liquid effluent discharge will be maintained.** **Solid waste:** **Fine/non-saleable mineral grades and silica sand - it will be stored for future recovery of any useful minerals/used for backfilling earlier mined out.** **Municipal solid wastes (Organic Bio-degradable) from the Canteen will be treated in Digester & methane recovered will be used in the canteen. Inorganic wastes (Non-biodegradable) will be sent to Authorized Recyclers.**
1.16	Facilities for long-term housing of operational workers?	**No**	**No housing colony or township is proposed**
1.17	New road, rail or sea traffic during construction or operation?	**Yes**	***During Construction:*** **No increase in traffic volume since the plant is already constructed.** ***During Operation:*** **The raw materials will be transported by**

			road in covered trucks. The existing road is connected to SH # 37 (Srikakulam - Kalingapatnam) at a distance of 4.4 Kms. (by Road), which can handle the increase in traffic. Hence there will not be any adverse impact on traffic due to the proposed project.
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	**No**	**No external new road/rail/ air transport infrastructure is envisaged in the proposed project.** **The plant site is well connected to SH # 37 (Srikakulam - Kalingapatnam), which is capable of absorbing additional vehicular movement due to transportation.**
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	**No**	**No closure or diversion of transporting facilities is envisaged due to the present proposal.**
1.20	New or diverted transmission lines or pipelines?	**No**	**There will be no diversion of transmission lines due to the present proposal, as the Power required for the plant will be sourced from State Grid through the existing line.** **Water required for the present proposal will be sourced from Vamsadara river, which is at 5.1 Kms. from the plant site. The pipeline is already laid from Vamsadara river to the plant site.**
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	**No**	**No damming, culverting, realignment is envisaged. There will not be any changes to the hydrology of watercourses or aquifers.**
1.22	Stream crossings?	**No**	**Not applicable**
1.23	Abstraction or transfers of water from ground or surface waters?	**No**	**Water required for the present proposal will be sourced from Vamsadara river, which is at 5.1 Kms. from the plant site. The pipeline is already laid from Vamsadara river to the plant site**
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	**No**	**No change in the drainage pattern**
1.25	Transport of personnel or materials for construction, operation or decommissioning?	**Yes**	**During pre-operation and operation stages, most of the personnel to be engaged for the work will be erstwhile plant employees, who are from local villages. Transport facility to the employees coming from Srikakulam**

			town areas will be provided by the company. **The raw materials, products and solid waste will be transported in covered trucks by road. The existing roads are well connected to SH # 37 (Srikakulam - Kalingapatnam) at a distance of 4.4 Kms. (by Road), which is capable of handling additional vehicular traffic.**
1.26	Long-term dismantling or decommissioning or restoration works?	**No**	**No such works are envisaged.**
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	**No**	**No such works are envisaged**
1.28	The influx of people to an area either temporarily or permanently?	**Yes**	**During the operation of the plant, preference will be given to the local people for employment.** **The proposed project will generate direct employment opportunities for about 50 persons & contract employments for about 300 persons.**
1.29	Introduction of alien species?	**No**	**No such activity is envisaged**
1.30	Loss of native species or genetic diversity?	**No**	**Not applicable**
1.31	Any other actions?	**No**	**Nil**

2. Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

S.No.	Information/checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with the source of information data
2.1	Land especially undeveloped or land (ha)	**Yes**	**Trimex Sands Private Limited has established MSP as part of the integrated mining project after taking necessary approvals like EC, CFE, CFO, etc. and has been in operation till 2018 ie. till the ban imposed by Govt. of India for beach sand mining by private companies came into force. Since the EC, CFE, CFO are integrated approvals for beach sand mining, PCP (within ML area) & MSP (outside ML area), the EC, CFE & CFO have been revoked.** **Now it has been proposed to utilize the above-mentioned existing Mineral Separation Plant (MSP) as a standalone**

			unit to process 0.44 MTPA of mineral concentrate (throughput) to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from the mineral concentrate. **The extent of the MSP plant is 66.46 acres (26.17 Ha.) of land and is fully owned by the project proponent.** **This present proposal is for obtaining fresh environmental clearance for the existing MSP for which EC, CFE and CFO were obtained earlier as part of an integrated mining project. No additional land is envisaged for the present proposal.**
2.2	Water (expected source & competing users) unit: KLD	**Yes**	**The total water requirement for the plant is 805 KLD.** **Process water required for the project is about 760 KLD, domestic water requirement is 20.0 KLD, Greenbelt requirement is 20 KLD and dust suppression is 5 KLD.** **The Source of water is from the Vamsadara river, for which approval has already been accorded to draw up to 0.14 TMC (10860 KLD) of water. Infiltration galleries are established in the riverbed to draw the water.**
2.3	Minerals (MT)	**Yes**	**The proposed project will involve the usage of the following minerals feed:** **Mineral sand concentrate – 4,40,000 TPA**
2.4	Construction material–stone, aggregates, sand/soil (expected source – MT)	**Yes**	**The plant is already established and hence no major construction activities are envisaged under the present proposal.**
2.5	Forests and timber (source – MT)	**No**	**Not required**
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)	**No**	**Power will be taken from the sanctioned existing power line of APEPDCL at 33 KV. Power requirement – 4.40 MW. 1.05 MW solar power station is already existing as part of the MSP. HSD/F.O requirement – 8.0 KLD.**
2.7	Any other natural resources (use appropriate standard units)	**No**	**Not applicable.**

3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.

S.No.	Information/checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with the source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	**No**	**Not Applicable**
3.2	Changes in the occurrence of disease or affect disease vectors (e.g. insect or waterborne diseases)	**No**	**Not Applicable**
3.3	Affect the welfare of people e.g. by changing living conditions?	**Yes**	**During the operation of the plant, preference will be given to the local people for employment. The proposed project will generate employment opportunities for about 350 persons, which will help in improving the socio-economic conditions of the region.**
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,	**No**	**All control measures will be taken to protect Air Environment, Water Environment & Noise Environment. Hence there will not be any significant impact on people.**
3.5	Any other causes	**No**	**Not Applicable.**

4. Production of solid wastes during construction or operation or decommissioning (MT/month)

S.No.	Information/checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with the source of information data
4.1	Spoil, overburden or mine wastes	**No**	**Not applicable**
4.2	Municipal waste (domestic and or commercial wastes)	**Yes**	**Solid wastes (Organic Bio-degradable) from the Canteen will be treated in Digester & methane recovered will be used in the canteen. Inorganic wastes (non-biodegradable) will be sent to Authorized Recyclers.**
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	**Yes**	**Spent/Waste oil generation @ 1.20 KL per annum, which will be collected in drums, temporarily stored at the earmarked place and will be sold to the**

			authorized SPCB recyclers.
4.4	Other industrial process wastes	**Yes**	**Fine/non saleable mineral grades and silica sand - it will be stored for future recovery of any useful minerals/used for backfilling earlier mined out pits** **Solid wastes (Organic Bio-degradable) from the Canteen will be treated in Digester & methane recovered will be used in the canteen. Inorganic wastes (non-biodegradable) will be sent to SPCB Authorized Recyclers.**
4.5	Surplus product	**No**	**Not Applicable**
4.6	Sewage sludge or other sludge from effluent treatment	**Yes**	**Sewage sludge generated from the proposed STP (which will be designed for 20 KLD) will be used as manure for Greenbelt development.**
4.7	Construction or demolition wastes	**No**	**Not Applicable**
4.8	Redundant machinery or equipment	**No**	**No redundant machinery will be kept on the premises.**
4.9	Contaminated soils or other materials	**No**	**HSD/FO will be stored in existing licensed storage tanks. Waste oil will be stored in Barrels in a closed shed with a cement floor.** **All the Vehicles & Mobile Machinery will be regularly maintained and kept in good condition to prevent spillages.**
4.10	Agricultural wastes	**No**	**Not Applicable**
4.11	Other solid wastes	**No**	**Not Applicable**

5. Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)

S.No.	**Information/checklist confirmation**	**Yes/No**	**Details thereof (with approximate quantities/ rates, wherever possible) with the source of information data**
5.1	Emissions from the combustion of fossil fuels from stationary or mobile sources	**Yes**	**Emission is expected from transport vehicles and driers.**
5.2	Emissions from production processes	**Yes**	**Emissions from the proposed project will be of particulate matter, oxides of nitrogen (NOx) and Sulphur dioxide (SO2).** **Following are the air emission control measures in the present proposal:** ➢ **Dust suppression system** ➢ **Covered conveyers** ➢ **Bag filters with outlet dust emission less than 50 mg/Nm^3.** ➢ **Pucca internal roads to prevent**

			flying off of fugitive dust. ➢ Greenbelt development in minimum 1/3rd of the total area.
5.3	Emissions from materials handling including storage or transport	**Yes**	**Dust generated near raw material handling and transfer points will be prevented by suppression through spraying of water & dust extraction systems with bag filters. Hence, there will not be any fugitive dust emissions due to raw material handling.** **All the trucks will be covered with a tarpaulin sheet to avoid any spillage.** **All the Vehicles & Mobile Machinery will be regularly maintained and kept in good condition to control the emissions.** **Pucca road already exists up to the site. This road was handling this traffic during the operational phase of the project. All internal roads will be asphalted.** **Hence, there will not be any adverse effect due to the transportation of raw materials and product for the proposed project.**
5.4	Emissions from construction activities including plant and equipment	**No**	**Not applicable**
5.5	Dust or odors from handling of materials including construction materials, sewage and waste	**No**	**Not applicable**
5.6	Emissions from the incineration of waste	**No**	**No such proposal is envisaged**
5.7	Emissions from burning of waste in the open air (e.g. slash materials, construction debris)	**No**	**No such proposal is envisaged**
5.8	Emissions from any other sources	**No**	**Nil**

6. Generation of Noise and Vibration, and Emissions of Light and Heat:

S.No.	Information/checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with the source of information data
6.1	From the operation of equipment e.g. engines, ventilation plant, crushers	**Yes**	**Noise levels from all machinery will be following MOEF norms.**

6.2	From industrial or similar processes	**Yes**	**Noise levels from all machinery will be following MOEF norms.**
6.3	From construction or demolition	**No**	**Not applicable as no major construction activity will be involved in the present proposal.**
6.4	From blasting or piling	**No**	**No such operations will be involved.**
6.5	From construction or operational traffic	**Yes**	**Vehicles used during operation will be there. All the precautions will be taken to control noise levels following MOEF notification.**
6.6	From lighting or cooling systems	**No**	**Not applicable**
6.7	From any other sources	**No**	**Not applicable**

7. Risks of contamination of land or water from releases of pollutants into the ground or sewers, surface waters, groundwater, coastal waters or the sea:

S.No.	Information/checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with the source of information data
7.1	From handling, storage, use or spillage of hazardous materials	Yes	**Good housekeeping practices will be followed while handling, storage and preventing any spillage of hazardous materials.**
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	Yes	• **The wastewater from MSP plant will pass through thickner and supernetant will be recycled in to the process and under flow will be used for greenbelt in the MSP and old mine areas belongs to Trimex (patta land).** • **Sanitary wastewater is treated in STP and after ensuring compliance with the stipulated norms, the treated sewage will be utilized for greenbelt development.** • **Zero liquid effluent discharge will be maintained**
7.3	By deposition of pollutants emitted to air into the land or water	**No**	**A dust suppression system will be provided at raw material unloading areas.** **A dust extraction system with bag filters will be provided at all the dust emanating areas in the plant.** **For control of emissions, the plant will be equipped with adequate APCS and cleaned flue gases will be vented**

			through stacks of adequate height. Hence there will not be any significant deposition of pollutants into the air/land/water.
7.4	From any other sources	**No**	**Not applicable**
7.5	Is there a risk of long-term build up of pollutants in the environment from these sources?	**No**	**All emissions will comply with MoEF&CC/CPCB/SPCB Norms. Hence there will not be any risk of long-term buildup of pollutants in the environment.**

8. Risk of accidents during construction or operation of the Project, which could affect human health or the environment:

S.No.	Information/checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with the source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances	**No**	**Spillages if any will be collected and utilized within the plant. Accidental fire will be identified as hazardous. Risk assessment and the post-disaster management plan will be prepared in later stages and implemented.**
8.2	From any other causes	**No**	**Not applicable**
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudbursts etc)?	**No**	**Project area falls in Seismicity zone – II MSL of the Plant area – 13 m to 20 m**

9. Factors that should be considered (such as consequential development) that could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality:

S.No.	Information/checklist confirmation		Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with the source of information data
9.1	Lead to the development of supporting utilities, ancillary development or development stimulated by the project which could have an impact on the environment e.g.:		**Yes**	**Through this project, we intend to provide direct & indirect employment opportunities on merit to local villages. In addition, Education up to secondary level school through an existing company run school, Health facilities through dispensary equipped with emergency needs, Hygiene & Sanitation, Drinking water facility, Improved road networks and other infrastructural needs, developing Greenbelt etc through**
	❖	Supporting infrastructure (roads, power supply, waste or wastewater treatment, etc.)		
	❖	Housing development		
	❖	Extractive industries		
	❖	Supply industries		

	❖ Other		**the corporate social responsibility works of the company, contributing towards socio-economic development of villages.**
9.2	Lead to after-use of the site, which could have an impact on the environment	**No**	**Not applicable**
9.3	Set a precedent for later developments	**Yes**	**With the improvement in the socio-economic status of the people in the area, later developments & upliftment of standard of living of the people in the region/ neighborhood are expected.**
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	**Yes**	**The emissions from the proposed project that are permitted by MoEF&CC/SPCB will be considered for the prediction of an incremental rise in ground level concentrations in the EIA report.**

(III) ENVIRONMENTAL SENSITIVITY

S.No.	Information/checklist confirmation	Yes/No	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	**No**	**Not Applicable**
2	Areas that are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	**Yes**	**Forest:** **Srikurmam RF –0.97 Kms.** **Tonangi RF – 3.6 Kms.** **Water Bodies:** **Bay of Bengal - 1.3 Kms** **Vamshadhara River - 5.1 Kms,** **Bhairi Kaluva – 1.5 Kms,** **Vastavalasa cheruvu - 0.25 Kms** **Nagavali river – 13.3 kms** **Few pond/cheruvu areas present with 10 Km radius**
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	**Yes**	**Olive Ridley Turtles are present in the study area.**
4	Inland, coastal, marine or underground waters	**Yes**	**Bay of Bengal – 1.3 Km**
5	State, National boundaries	**No**	**Not applicable**
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	**Yes**	**NH-5 - 10.8 Km**
7	Defense installations	**No**	**Not applicable**

8	Densely populated or built-up area	**Yes**	**Gara - 4.7 Kms** **Srikakulam -13.3 Kms**
9	Areas occupied by sensitive man-made land uses *(hospitals, schools, places of worship, community facilities)*	**Yes**	**Pedda Vastavalasa – 0.5 Kms.**
10	Areas containing important, high quality or scarce resources *(groundwater resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)*	**Yes**	**Forest:** **Srikurmam RF –0.97 Kms.** **Tonangi RF – 3.6 Kms.** **Water Bodies:** **Vamshadhara River- 5.1 Kms,** **Bay of Bengal – 1.3 Kms** **Vastavalasa cheruvu 0.25 Kms** **Nagavali river – 13.3 Kms** **Few pond/cheruvu area present with 10 Km radius**
11	Areas already subjected to pollution or environmental damage. *(Those where existing legal environmental standards are exceeded)*	**No**	**Not applicable**
12	Areas susceptible to natural hazards which could cause the project to present environmental problems *(Earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)*	**No**	**Based on the historical data, the site is not likely to be prone to earthquakes, floods, etc.**

(IV)	PROPOSED TERMS OF REFERENCE FOR EIA STUDIES
	Standard Terms of Reference Prescribed for preparation of EIA report for Mineral beneficiation, as prescribed in Notification S.O. 996 (E) dt. 10th April 2015 will be followed. As permitted by MoEF & CC vide Office Memorandum dated 29th August 2017, we have commenced baseline data collection from 1st October, 2021 and will continue till 31st December 2021. Kindly consider and approve this.

"I hereby give an undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance given if any to the project will be revoked at our risk and cost.

Date: 22/11/2021
Place: Vatsavalasa

V H Rafi Ahammed
Trimex Sands Private Limited
Sr Vice President (Operations)
Vatsavalasa Village, Srikurmam P.O,
Gara Mandal, Srikakulam District – 532404

Pre-Feasibility Report

By

Trimex Sands Private Limited

[Operation of Mineral Separation Plant (MSP) of 0.44 MTPA throughput capacity for Beach Sand Minerals)]

Category – B Project

at

Sy. Nos. 78, 79, 80, 84, 176 to 183 & 193

Vatsavalasa village, Gara Mandal, Srikakulam District, Andhra Pradesh.

Prepared by

PIONEER ENVIRO
LABORATORIES & CONSULTANTS PVT. LTD.

Accredited by NABET

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Chapter –1: EXECUTIVE SUMMARY

1.1 SALIENT FEATURES OF THE PROJECT

PREAMBLE

A mining lease for beach sand minerals over an extent of 720 Ha in Vatsavalasa &Tonangi villages of Gara Mandal, Srikakulam has been granted to Trimex Sands Pvt Ltd (TSPL) vide GO MS No.31 dated 07.02.2004. After obtaining all approvals including Environmental Clearance (EC) from MOEF, Consent For Establishment (CFE) from APPCB, Consent For Operation (CFO) from APPCB , CRZ Clearance etc and completion of Plant constructions, the project started commercial operations in the year 2009-10 with an approved capacity of 2.0 MTPA of RoM production. The project involves mining, wet Pre-Concentration Plants (PCP) and Mineral Separation Plant (MSP) to produce Ilmenite, Garnet, Rutile, Zircon and Sillimanite. A part of the sillimanite/zircon produced was also pulverized in a ball mill facility installed in the mineral separation plant. The Mining and PCPs are established within the mining lease area, whereas the MSP has been established outside the mining lease area.

Subsequently expansion has been proposed and all new approvals like EC, CFE, CFO, CRZ etc have been obtained in the year 2015 for the expansion capacity from 2.0 MTPA 6.0 MTPA of RoM production with 0.93 MTPA of minerals production. The mining lease extent remained at 720 Ha and the MSP extent at 59.27 Ha.

The State Govt suspended the mining operation in Sept 2018 and determined the lease on 28.11.2018 citing a report of the State Vigilance & Enforcement dept alleging mining operations in a part of the mining lease area without obtaining revenue clearance. The company filed a WP against the State Govt order, resulting in the submission of a revised report by the Vigilance & Enforcement dept setting aside all the recommendations contained in the earlier report. Also obtained a stay from the Hon'ble High Court on the determination of the mining operations by the State Govt.

In the meantime, the Central Government vide Notification No. GSR 134(E) dated 20.02.2019 has barred mining of beach sand minerals by private companies. Because of the said notification, all the mining activities of the project proponent including downstream PCPs and MSP activities are remain suspended as of date. Thereafter, respective authorities revoked the EC, CFE and CFO of the integrated project citing a prohibition on the mining operations.

Further to the stoppage of the mining operations, the project proponent has applied the APPCB for the issue of CFE to operate the MSP & Ball Mill, since these facilities are situated outside the mining lease area. However, the APPCB advised the PP to obtain NOC from the MoEF& CC as earlier granted EC for the integrated mining project was revoked. The PP approached the MoEF& CC and requested for NOC to operate the MSP & Ball Mill. The matter was referred to the EAC (Non-Coal) and the committee considered the proposal in their meeting dated 1st July 2021. However, the Committee returned the proposal stating that the EAC-Non-Coal Committee cannot appraise the proposal since the instant proposal for operating the MSP & Ball Mill is covered under Category 2(b) of the EIA notification, 2006 (mineral beneficiation), which is standalone and outside the mine lease area; the EC granted for the integrated mining project was revoked and the Ministry of Mines has advised to not grant clearances for mineral concessions of beach sand minerals held by private companies.

PRESENT PROPOSAL :

Now it has been proposed to utilize the above-mentioned existing Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from 0.44 MTPA of mineral concentrate throughput sourced from suppliers/mining firms in India and abroad including IREL (India) Ltd and Andhra Pradesh Mineral Development Corporation (APMDC). Part of the sillimanite and zircon minerals produced/sourced minerals will be pulverized in a ball mill installed in the MSP premise. The flotation circuit to separate the Sillimanite minerals presently available at the PCP also will be dismantled and re-erected at the MSP. However, no mining or operation of PCPs, which were working earlier, will be operated under the proposal submitted now.

Now the present proposal has been submitted to SEIAA for appraisal under Category 2(b) project under EIA notification, 2006 (as Mineral Beneficiation throughput is less than 0.5 MTPA) for grant of Fresh EC for the operation of the Mineral Separation Plant (MSP).

Project Description & Process details are presented in Chapter-03 of the Report. The technology selected for all the plant facilities is well proven.

In the earlier EC, approval was accorded to produce 0.93 MTPA of mineral production from MSP and the land extent was 59.27 Ha. The CFO was also obtained for 0.93 MPTA, comprising 0.80 MTPA of mineral production + 0.13 MTPA of mineral-rich tailings. However, due to an unexpected decrease in the mineral content in the RoM and lack of demand for fine size Garnet and Sillimanite, the MSP production was less than 50% of the approved capacity. Now, 0.344 MTPA of mineral production is planned from 0.44 MTPA of throughput (feed) capacity, for which MSP is already established and was in operation till Sept month of the year 2018. Further, 26.17 Ha of land from the earlier approved

59.27 Ha will be utilized for the current proposal and no additional land will be taken up for the operation of MSP. No additional cost will be required, as the plant is already established.

The water requirement for the MSP for 0.44 MTPA of throughput capacity is 760 KLD and will be sourced from the Vansadhara river. Permission to draw 0.14 TMC of water per annum from Vamsadara River has been granted vide GO MS. 103 dated 24.09.2015 and is valid till 15.06.2024. The power required for the plant is 4.40 MW. Power required for the plant will be sourced from the State Grid, for which approval is already existing. Further, a company-established 1.05 MW solar power plant is already existing in the project area.

The MSP plant will employ about 350 persons after the plant again resumes the commercial operation.

1.2 PROJECT PROPONENT

M/s Trimex Sands Pvt Ltd (TSPL) is a private limited company. Trimex had identified the beach sand mineral-related business as an opportunity with a great future and went on to identify suitable deposits from the year 1998. The work on beach sand mineral exploration has started when the Government of India liberalized private sector participation in the exploitation of beach sand minerals deposits in 1998 for the benefit of the Nation and maximum utilization of national resources. After obtaining a prospecting license in 2001 and a mining lease over an extent of 7.20 Sq. kms (720 Ha) in 2004 for beach sand minerals at Vatsavalasa & Tonangi Villages of Gara Mandal, Srikakulam District, the TSPL has established the Mining, Pre-Concentration Plants (PCP) and Mineral Separation Plant (MSP) to produce beach sand minerals i.e. Ilmenite, Rutile, Zircon, Garnet and Sillimanite. The mine is located on the Andhra Pradesh coastal line and is 24 Km away by road from Srikakulam, the District headquarters in Andhra Pradesh.

The company draws power from a dedicated 33KV power line drawn from Chilakapalem sub-station, 40 km away. The company also has 100% power backup through Diesel Generators and a 1.05 MW solar power station within the project area. Process water is drawn from the Vamsadara river through a dedicated 9 Km Pipeline laid by the company. TSPL has ensured utility requirements i.e. Power, Water, Road etc. for the effective running of the plants.

The Board of Directors of Trimex Sands Private Limited are as follows.

Table – 1.1 : List of Directors

Name of the Person	Designation
Sri. T.V. Chowdary	Director
Smt. K. Vimaladevi	Director
Sri. Prashant Koneru	Director

Chapter – 2: INTRODUCTION OF THE PROJECT / BACKGROUND INFORMATION

2.1 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

Trimex Sands Private Limited is a Private limited company incorporated as per the Companies Act in 1985. Trimex Group is a minerals business house with interests in extraction, sourcing, procurement, delivery, and R&D. Trimex delivers products such as Barite, Bentonite, Iron Ore, Feldspar, Bauxite, Ball Clay and Kaolin, among others, to the world's leading Oil Drilling, Ceramic, Glass, Construction, Energy, Steel, and Fertilizer companies.

The Group manages the minerals business through two strategic business units. Trimex International, based in Dubai, oversees the international business. Trimex Industries represents the Indian operations of the Group. Trimex Sands Pvt Ltd is a subsidiary of Trimex Industries.

Name of the Project	:	Mineral Separation Plant (MSP)
Location		
Village	:	Vatsavalasa
Mandal	:	Gara
District	:	Srikakulam
State	:	Andhra Pradesh
Throughput capacity	:	0.44 MTPA
Production	:	0.344 MTPA
Area	:	26.17 Ha in Sy. Nos. 78, 79, 80, 84, 176 to 183 & 193

Name & Address of the Project Proponent

M/s Trimex Sands Private Limited
Vatsavalasa (Village), Srikurmam P.O,
Gara (Mandal), Srikakulam – 532404
Andhra Pradesh

2.2 BRIEF DESCRIPTION OF THE NATURE OF THE PROJECT

The present proposal is to operate the existing Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from 0.44 MTPA of the mineral concentrates, which will be sourced from suppliers/mining firms in India and abroad including IREL (India) Ltd and Andhra Pradesh Mineral Development Corporation (APMDC). Part of the

sillimanite and zircon minerals produced/sourced minerals will be pulverized in a ball mill already installed within the MSP. The quantities of minerals to be produced in the 0.44 MTPA Mineral Separation Plant are as follows.

Table – 2.1 Product and production details

S.No	Mineral	Quantity to be produced (in TPA)
1	ilmenite	2,40,000
2	Garnet	45,000
3	Sillimanite/Pulverised Sillimanite	45,000
4	Rutile	8,000
5	Zircon/Pulverised Zircon	6,000
TOTAL		**3,44,000**

Note: *The mineral production from MSP may change depending upon the individual mineral content in the concentrate received from the suppliers, but will not exceed the figures given above.*

2.3 NEED FOR THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY AND/ OR REGION

There is a significant demand for minerals like ilmenite, Garnet,Sillimanite, Rutile, Zircon, etc in the domestic market and also globally. Considering this , Mineral Separation Plant is proposed to be restarted. After obtaining EC, CFE, CFO and Factory license, these minerals produced at MSP will be sold domestically and also exported to many countries viz. UAE, UK, Australia, Malaysia, China etc. There is an extensive demand for these minerals. The benefits of this project to the country include tax revenues, employment creation, helping hand in the upliftment of the socio-economic condition of local people in the plant area, etc

2.4 DEMAND AND SUPPLY GAP

There is a continuous growing demand for the minerals like Ilmenite, Garnet,Sillimanite, Rutile, Zircon, etc in the domestic and global markets.

Ilmenite and Rutile are the two chief minerals of titanium. Ilmenite contains about 50-60% TiO2, while Rutile contains 92 to 96% TiO2. The titanium dioxide (TiO2) pigment industry consumes about 94% of the world's Ilmenite production. Because of a unique combination of its superior properties of high refractive index, low specific gravity, high hiding power and opacity and non-toxicity, titanium dioxide finds application in the manufacture of all types of white and pastel shades of paints, white-walled tyres, glazed papers, plastics, printed fabrics, flooring materials like linoleum, pharmaceuticals, soaps,

face powders and other cosmetic products, etc. Because of its non-toxic nature, it is used in cosmetics, pharmaceuticals, and even added to foodstuffs as well as in toothpaste to improve their brightness. Titanium dioxide is used in the manufacture of many sunscreen lotions and creams because of its non-toxicity and ultraviolet absorption properties.

Rutile is mainly used in the electrode manufacturing industry. Ferro-titanium alloy industry consumes a minor quantity of Rutile. Synthetic rutile is used for coating welding electrodes as flux components and for the manufacture of titanium tetrachloride which in turn is used in making titanium sponges. Synthetic rutile is also used as an ingredient of special abrasives.

The hardness of Garnet varies from 7.5 to 8.0 and its Specific gravity is 4.0 to 4.2. Almandine Garnet is one of the best natural Abrasives and is preferred over other natural abrasives like Silica sand, Mineral Sands & Flint. The major industrial uses of almandine Garnet are abrasive blast cleaning (Sandblasting) for surface preparations, water jet cutting (Abrasive injected into water) for surface preparations, water filtration, manufacturing of coated abrasives, micronized Garnet powder for polishing metals, glass, ceramics & plastics etc.

The hardness of Sillimanite varies from 6.0 -7.0 and its specific gravity is 3.4. Sillimanite is mainly used for the production of high Alumina refractories capable of withstanding high temperatures with more life span. Since the recovery of Sillimanite from hard rocks is becoming costlier, the granular sillimanite from the beach sands can be profitably utilized after suitable sintering/agglomeration.

Zircon is a valuable mineral used mainly in the manufacture of vitrified tiles, zirconium compounds, electronic equipment and partially stabilized zirconia in refractories.

2.5 EXPORT POSSIBILITY

There is a tremendous demand for these minerals globally. Govt of India is also offering several tax incentives for export-oriented units. Hence the minerals like Ilmenite, Garnet,Sillimanite, Rutile, Zircon, etc will be exported to countries like Japan, Malaysia,China , UAE, etc.

2.6 DOMESTIC/EXPORT MARKETS

Apart from above said overseas buyers, there are many pigments and synthetic rutile manufacturers in India for Ilmenite consumption. Ilmenite with low values of titanium has to be necessarily upgraded into a value-added product, viz. Synthetic Rutile, which will be the feedstock used in the manufacture

of Titanium dioxide pigments. The majority of the Rutile produced in India is being consumed by these industries and there is a lack of availability for the export market.

The majority of the Garnet being produced in India is exported to the above-mentioned industries in countries like Australia, UAE, Malaysia, UK etc. Sillimanite is mainly dispatched to domestic ceramic lining/brick manufacturing industries. There is a huge demand for this mineral in the domestic as well as in overseas markets.

2.7 EMPLOYMENT GENERATION (DIRECT AND INDIRECT) DUE TO THE PROJECT

The local areas will be benefited by way of the generation of employment opportunities, increased demand for local products and services. There will be an overall improvement in the income level of the local people once the plant commences operation.

The plant will provide direct employment to about 50 persons and contract employment to about 300 persons, which will be as officials, staff, skilled, semi-skilled labour, security, transport staff etc.

Top priority will be given to locals for Semi-Skilled and Unskilled jobs. With the operation of this Plant, there will be a lot of scope for more ancillary development, which will in turn benefit the local area and the nation.

Chapter – 3 : PROJECT DESCRIPTION

3.1 TYPE OF THE PROJECT INCLUDING INTERLINKED PROJECT

3.1.1 TYPE OF THE PROJECT

Trimex Sands Private Limited has established MSP after taking necessary approvals like EC, CFE, CFO, etc. and has been in operation till the ban imposed by Govt. of India for beach sand mining by private companies came into force. Since the EC, CFE, CFO was integrated with approvals for beach sand mining , PCP (within ML area) & MSP (outside ML area), the EC, CFE & CFO have been revoked, after the Govt banned mining.

Now it has been proposed to utilize the above-mentioned existing Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from 0.44 MTPA of mineral concentrate, which will be sourced from suppliers/mining firms in India and abroad including IREL (India) Ltd and Andhra Pradesh Mineral Development Corporation (APMDC). Part of the sillimanite and zircon minerals produced/sourced minerals will be pulverized in a ball mill installed in the MSP premise. However, no mining and PCPs, which we're working on earlier, will be operated under the proposal submitted now.

Now the present proposal has been submitted to SEIAA for appraisal under Category 2(b) project under EIA notification, 2006 (as Mineral Beneficiation throughput capacity is less than 0.5 MTPA) for grant of EC for the operation of Mineral Separation Plant (MSP).

3.1.2 INTERLINKED PROJECTS

No interlinked project was envisaged.

3.2 LOCATION OF THE PROJECT

Trimex Sands Private Limited has established the MSP in Survey Nos. Sy. Nos. 78, 79, 80, 84, 176 to 183 & 193 Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh. Land envisaged for the project is having an extent of 26.17 Ha. The plant site falls in Survey of India Topo sheet no. 74B/3. The following are plant site coordinates.

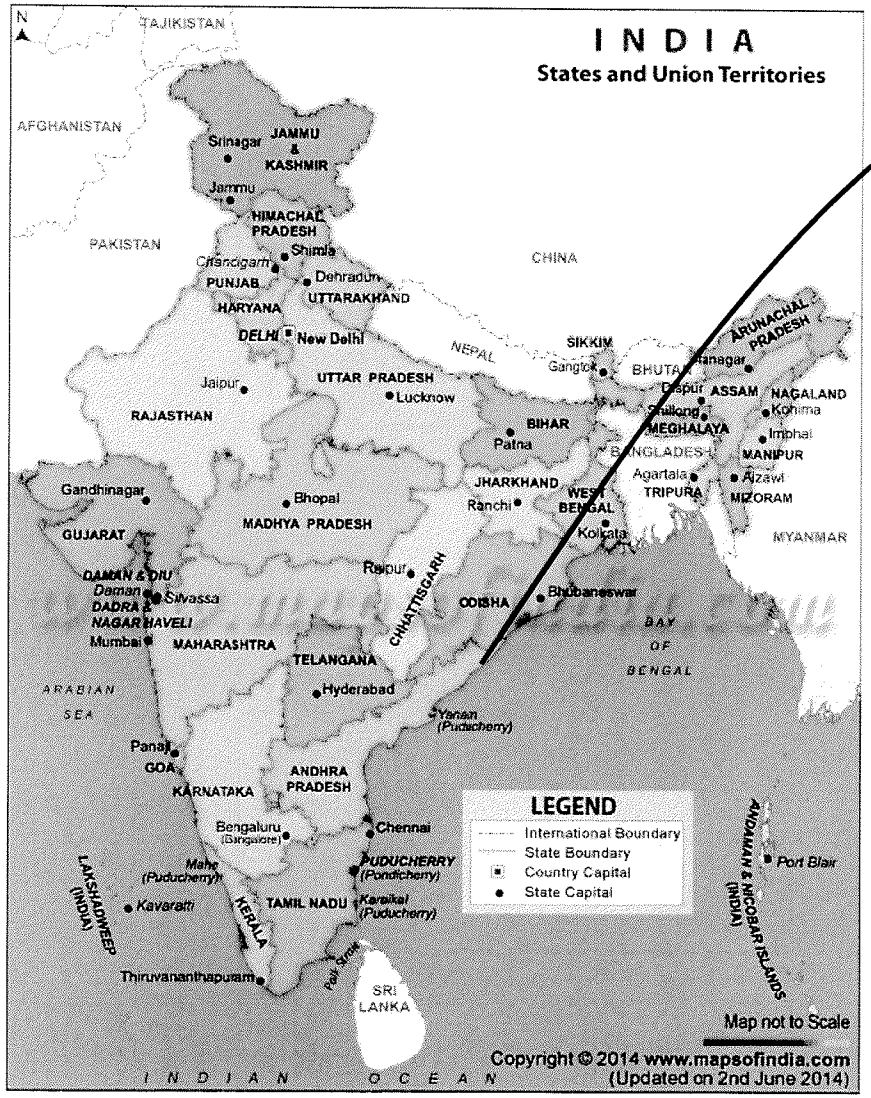
Table No. 3.1 :Coordinates of the plant site (26.17 Ha. of land)

S.NO.	LATITUDE	LONGITUDE
A	18° 17' 12.00"N	84° 02' 42.70"E

B	18° 17' 07.80"N	84° 02' 56.60"E
C	18° 16' 58.20"N	84° 02' 58.20"E
D	18° 16' 50.10"N	84° 02' 52.90"E
E	18° 16' 51.16"N	84° 02' 48.47"E
F	18° 16' 52.87"N	84° 02' 48.76"E
G	18° 16' 55.13"N	84° 02' 41.84"E
H	18° 16' 58.98"N	84° 02' 42.59"E
I	18° 16' 58.80"N	84° 02' 37.70"E

Map showing general location, the topographical map showing 10 km radius and a google map showing the plant site and are shown as figure no. 3.1, 3.2 & 3.3. The plant layout is shown in figure no.3.4.

Figure : 3.1 – General Location of Plant site



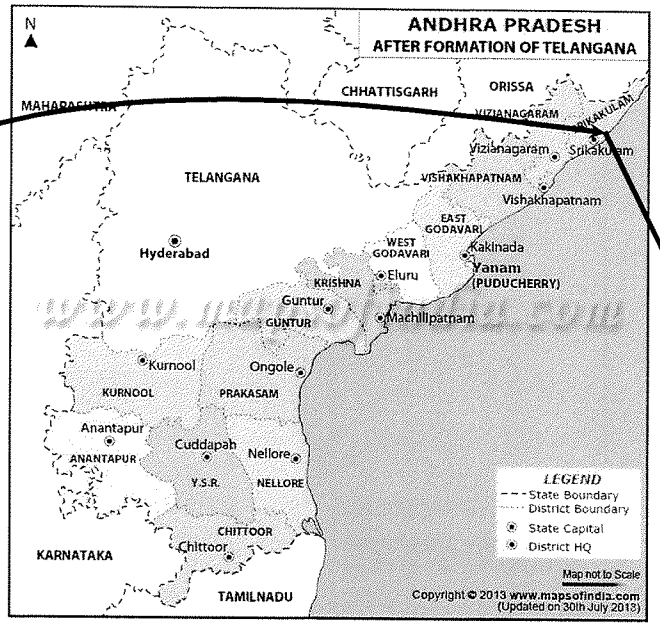


Figure : 3.2 – Topographical map showing plant site and surrounding 10 Km radius

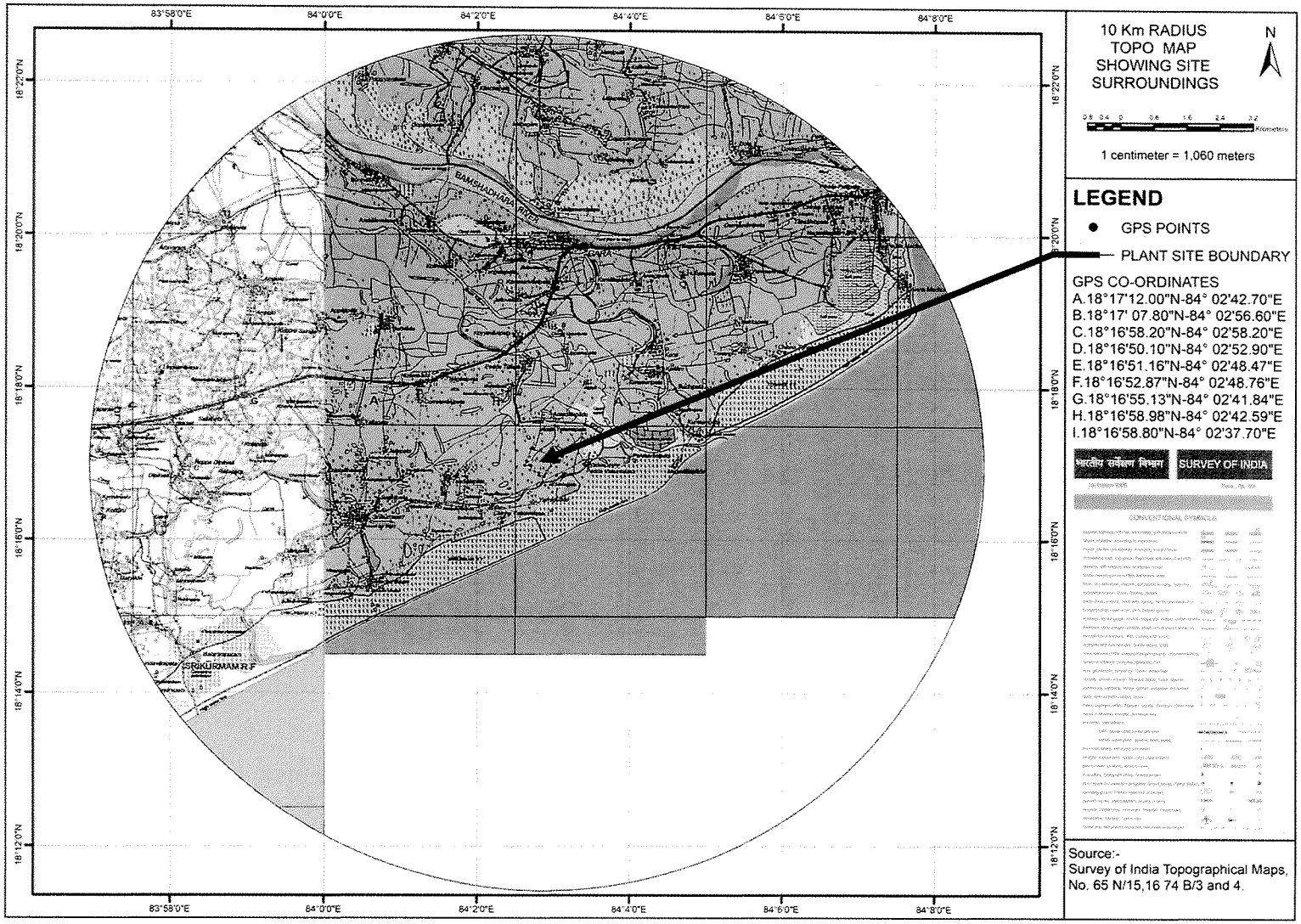
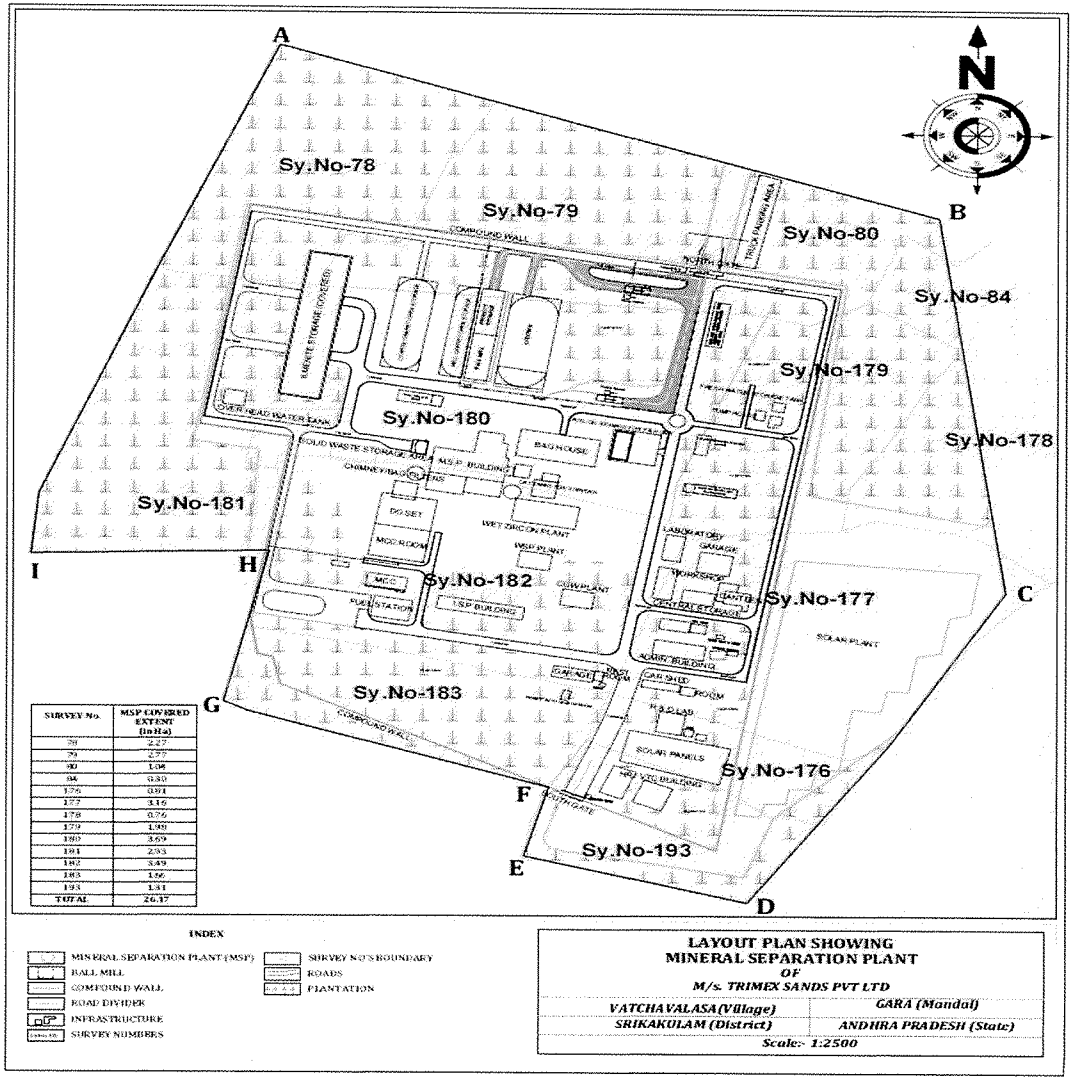


Figure : 3.3 – Google map showing plant site

98

Figure : 3.4 – Plant Layout



SURVEY No.	MSP COVERED EXTENT (In Ha)
78	2.27
79	2.77
80	1.08
84	0.80
179	0.91
177	3.16
178	0.76
179	1.99
180	3.69
181	2.93
182	5.89
183	1.96
193	1.31
TOTAL	26.37

3.3 DETAILS OF THE ALTERNATE SITES

The Mineral Separation Plant (outside ML area) has already been established after obtaining EC, CFE & CFO as an integrated proposal along with beach sand mining. Due to the notification issued by the Central Govt reserving beach sand mining for Govt companies, the EC, CFE, CFO for the integrated proposal has been revoked. Now it has been proposed to operate the same MSP plant which is situated outside the mining lease area and has been established earlier after duly obtaining EC, CFE & CFO, by sourcing mineral concentrates from outside firms. Hence no alternate sites have been chosen for the plant.

3.4 SIZE OR MAGNITUDE OF OPERATION

Following is the plant configuration and production capacity of the proposed project:

Table No. 3.2 : Proposed Production Capacities of Minerals

S.NO	MINERAL	QUANTITY TO BE PRODUCED (IN TPA)
1	Ilmenite	2,40,000
2	Garnet	45,000
3	Sillimanite/Pulverised Sillimanite	45,000
4	Rutile	8,000
5	Zircon/Pulverised Zircon	6,000
TOTAL		**3,44,000**

3.5 MANUFACTURING PROCESS

Mineral concentrates sourced will be a mixture of all beach sand minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon. The mineral concentrates can be broadly classified as 1) magnetic mineral concentrate predominantly containing Ilmenite and a minor fraction of other minerals 2) magnetic mineral concentrate predominantly containing Garnet and a minor fraction of other minerals, 3) non-magnetic mineral concentrate predominantly containing Sillimanite, Rutile and Zircon and a minor fraction of other minerals.

To separate as individual minerals, these concentrates are processed in different circuits available in the MSP. The non-magnetic mineral concentrate is initially processed in a flotation circuit to concentrate sillimanite minerals. To facilitate this, the flotation circuit presently available at the PCP will be dismantled and re-erected at the MSP. All these concentrates are dried in a separate fluidized bed drier/rotary driers and passed through a combination of magnetic & electrostatic separators and screens. Some unrecoverable minerals along with silica sand will be generated as waste. This will be

stored for further study on recovery of any useful minerals and also will be used for backfilling some of the old mined-out pits. AERB guidelines and approvals as necessary will be followed/obtained in disposing of monazite tailings, if any. However, individual mineral production from MSP may vary depending upon the individual mineral content in the concentrates received from the suppliers, but will not exceed the figures given above.

Part of the minerals produced from MSP viz. Sillimanite and Zircon will be value-added by pulverization in a ball mill available within the MSP premise. A ball mill is a horizontal cylinder partly filled with ceramic balls that rotate on its axis, imparting a tumbling and cascading action to the balls. Material fed through the mill is crushed by impact and ground by attrition between the balls.

All products will be supplied to the paint pigment, welding electrode, ceramic, wet jet cutting, abrasive and other industries in India and abroad.

Process Description

The separation of individual minerals is done based upon their physical properties like magnetic susceptibility, electrical conductivity, specific gravity and size range. Equipment normally used for the separation of magnetic and non-magnetic concentrate minerals are induced roll magnetic separators, high-intensity roll magnetic separators, semi lift magnetic separators, rare earth drum separators, cross belt magnetic separators, high tension separators, electrostatic plate separators etc. Also, screens are used to size the minerals as per market requirements. In addition, Furnace Oil/HSD fired fluidized bed/ rotary dryers are used to eliminate moisture in the feed concentrate and also to heat dry solids before high tension separation.

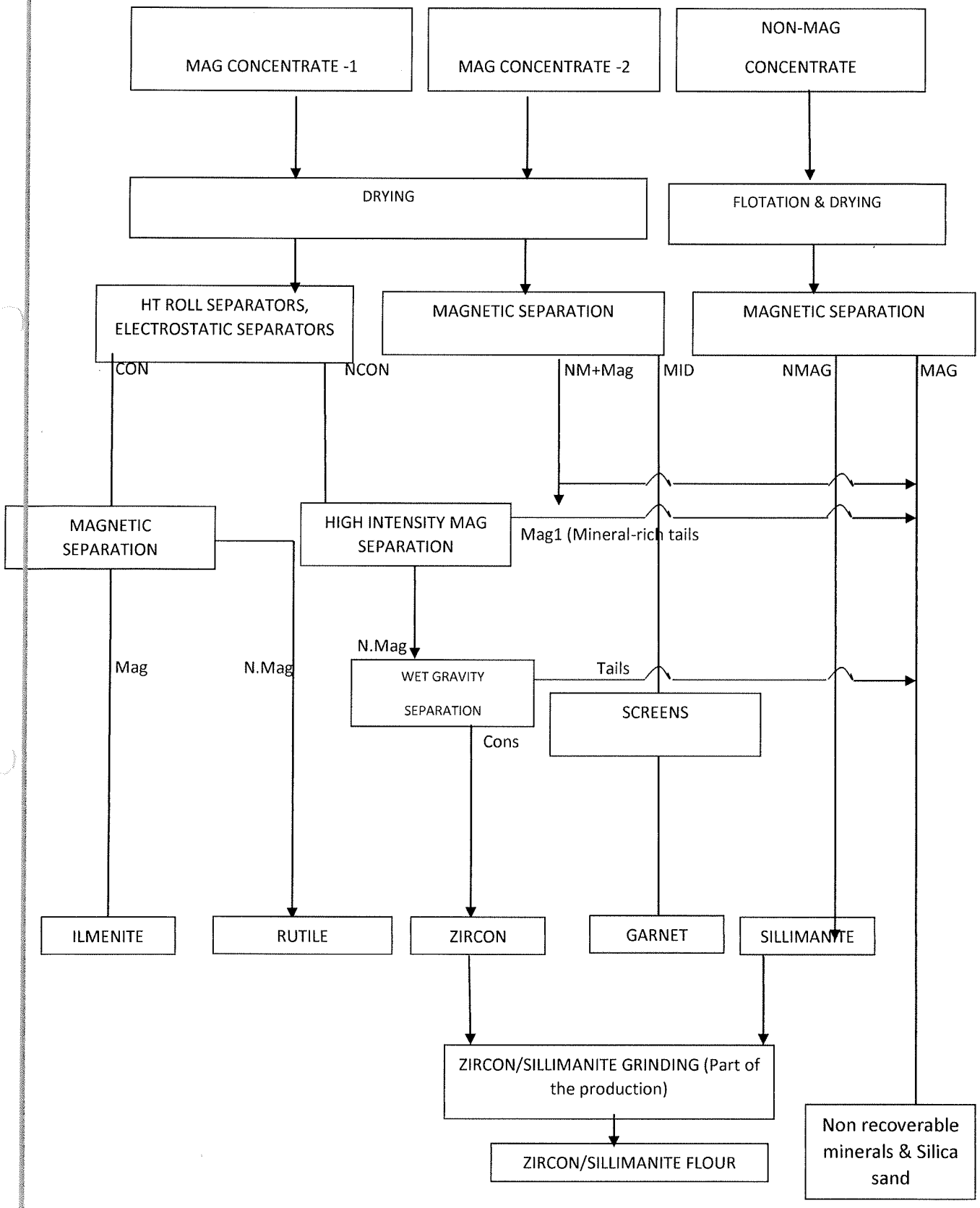
The Ball Mill system is a Gravity fed Closed-Circuit Grinding system with Ball Mill, Classifier/s and Bag Filters. Dry feed is supplied to the inlet of the Feed Hopper via a belt feeder to the end peripheral discharge type ball mill. The product, after getting ground in the ball mill, is discharged into the boot of the Mill discharge Bucket Elevator. The classifier separates the fine and oversize fractions from the feed. The oversize is conveyed back to the mill feed point through Rotary Airlock Valve, by a Screw Conveyor & connecting chute and fines fraction product is collected in the Bag Filter.

Final Products

Separated minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon and pulverized minerals viz. sillimanite and zircon of two sizes,-200 # and -325 # are packed. Normally, the final product except Ilmenite will be bagged in 50kg/1MT/2MT bags through bagging machine as per customer requirements and Ilmenite will be bagged or stored in bulk as per customer requirements.

Figure 3.5: Schematic Diagram showing Mineral Separation Process

Flow Chart of Mineral Separation Plant



3.6 RAW MATERIAL REQUIREMENT

The following will be the raw material required for the 0.44 MTPA Mineral Processing Plant.

Table No. 3.3 : Raw Material Requirement, Source & Mode of Transport

Raw material	Raw material requirement	Source	Mode of Transportation
Mineral Concentrates of Beach sand minerals	0.44 MTPA	Mineral concession holders in India and abroad including APMDC, IREL (India) Ltd – OSCOM Plant	By road (through covered trucks)

3.6.1 MODE OF TRANSPORT OF RAW MATERIAL AND FINISHED PRODUCTS

- Raw material /products will be transported in covered trucks by road from/to the port .
- All the trucks used for the transport of raw materials, products and wastes will be completely covered with tarpaulin and ensure no spillage during transportation.
- No. of trucks utilized for raw material and product transportation will be about 37 trucks/day.
- The plant is well connected to State Highway # 37 (4.4 Kms. from the plant site). MSP plant, which was (outside ML area) in operation is well connected with the existing road network. The existing road network was adequate to handle the truck movements during the operation of the beach sand mining as well as MSP. Hence there is no additional truck movement due to the proposed operation of the MSP.
- All trucks used for transport will have PUC certification.

3.6.2 MARKETING OF PRODUCTS

The processed minerals will be sold domestically and exported to countries like Japan, Malaysia, China, UAE, UK etc.

3.7 WATER REQUIREMENT AND ITS SOURCE

- The total water requirement for the plant is 805 KLD.
- Process water required for the project is about 760 KLD, domestic water requirement is 20.0 KLD, Greenbelt requirement is 20 KLD and for spraying is 5 KLD.
- The Source of water is from the Vamsadara river, for which approval has already been accorded to draw up to 0.14 TMC (10860 KLD) of water. Infiltration galleries are established in the riverbed to draw the water.

Table No. 3.4: WATER REQUIREMENT & BREAK-UP

S.NO.	ITEM	WATER REQUIREMENT (IN KLD)
1.	Process water	760
2.	Dust suppression	5
3.	Greenbelt development	20
4.	Domestic	20
Total		**805**

3.7.1 WATER BALANCE

The total process water requirement is 760 KLD. Processed water will be treated in a thickener/water treatment plant to recover maximum water and will be reused in the process. Thickener underflow water will be used for watering the plantation in MSP and old mining areas. Every effort will be taken to recover maximum water through the thickener and to reduce the underflow. The following is the breakup of process water utilization in KLD.

Thickener U/F	400
All Driers (2000 TPD feed @ 5-6% moisture)	140
Pumping loss from the river to plant (9 km distance)	40
Evaporation loss in tanks	20
Evaporation losses in CT & others	160

3.8 WASTE WATER GENERATION & ITS MANAGEMENT

- The wastewater from MSP plant will pass through thickner and supernetant will be recycled in to the process and under flow will be used for greenbelt in the MSP and old mine areas belongs to Trimex (patta land).
- Sanitary wastewater, is treated in STP and after ensuring compliance with the stipulated norms, the treated sewage will be utilized for greenbelt development.
- Zero liquid effluent discharge will be maintained.

Table No. 3.5 : WASTEWATER GENERATION AND ITS BREAKUP

S.NO.	SOURCE	QUANTITY (KLD)
1.	Sanitary Wastewater	16
Total		**16**

EFFLUENT TREATMENT PLANT

The wastewater will be treated in a thickener and the underflow will be utilized for greenbelt development in MSP & old mining areas. A closed-loop water system will be maintained. No effluent will be let out of the plant premises. Zero Liquid Discharge will be adopted.

3.9 POWER REQUIREMENT AND ITS SOURCE

Power will be drawn from the sanctioned existing power line of APEPDCL at 33 KV and will be utilized after stepping down to 440 V. Further, a 1.05 MW capacity solar power station is already existing within the project area.

3.10 SOLID & HAZARDOUS WASTE GENERATION & ITS MANAGEMENT

3.10.1 Solid waste :

The following is the solid waste generation from the plant.

Table No. 3.6: SOLID WASTE GENERATION AND ITS DISPOSAL

Solid Waste	Quantity (MTPA)	Method of disposal
Fine/non-saleable mineral grades and silica sand	0.096	It will be stored for future recovery of any useful minerals/used for backfilling earlier mined out pits

3.10.2 Hazardous waste :

The following is the Hazardous waste generation from the plant.

Table No. 3.7: HAZARDOUS WASTE GENERATION AND ITS UTILISATION

Hazardous Waste	Quantity (KLPA)	Method of storage & disposal
Used lubricant oil from transformers, Genset, forklifts, loading equipment etc.	1.2	it will be stored in covered HDPE drums in a designated area and will be given to APPCB Authorised Recyclers/Reprocessors.

3.11 AIR EMISSION & ITS MANAGEMENT

Following are the air emission control measures in the present proposal:

- Dust suppression system
- Covered conveyers
- Bag filters with outlet dust emission less than 50 mg/Nm^3.
- Pucca internal roads to prevent flying off of fugitive dust.

- Greenbelt development in minimum 1/3rd of the total area.

The number of stacks :

No of stacks -2nos for FBD/Rotary Driers and 2 nos for DG sets each of 2000 KVA.

Bagfilter locations & Specifications :

(a) Mag Concentrate Drier Bag Filter.

Mag concentrate is heated in a Furnace Oil/HSD fired fluidized drier before high tension separation to ensure free-flowing material. Flue gases generated inside the drier will be drawn through an induced draught fan and passes the entire flue gas through bag filters and the cleaned gases with particulate emission of less than 50 mg/Nm^3 discharged into the atmosphere through the stack of 33 m height.

b)Magnetic Concentrate Bag filter

Parameter	unit	Mill Vent
Flue gas volume	m^3/hr	48,760
Design Pressure	mmwg	±500
Flue gas Temperature	^0C	105
Air to cloth ratio	$m^3/min/m^2$	1.2
Dust type	---	mixed fines of Zircon, Sillimanite & Garnet
Inlet dust load	gm/m^3	100
Outlet dust emission (Max)	mg/Nm^3	50
Bag size	mm x mm	152 x 3750
Number of Bags	---	542

c)Common Bag filter

- Gas type - : exhaust gas
- Gas flow rate : 16,650 Nm^3/hr
- Fluegas temperature : 105^0C
- Dust type : mineral fines
- Outlet Particulate emission : 50 mg/Nm^3
- No. of bags : 280

Parameter	unit	Mill Vent

Flue gas volume	m^3/hr	16,650
Design Pressure	mmwg	±500
Flue gas Temperature	^0C	105
Air ot cloth ratio	$m^3/min/m^2$	1.2
Dust type	---	ilmenite fines
Inlet dust load	gm/m^3	100
Outlet dust emission (Max)	mg/Nm^3	50
Bag size	mm x mm	152 x 3750
Number of Bags	---	280

(b)Ball Mill Bag Filter

- Mill Vent Bag filter
- Separation Bag filter

Parameter	Unit	Mill Vent	Separation Vent
Flue gas volume	m^3/hr	18,600	22,000
Design Pressure	Mmwg	±500	±1000
Flue gas Temperature	^0C	100	100
Air ot cloth ratio	$M^3/min/m^2$	1.2	1.1
Inlet dust load	gm/m^3	100	425
Outlet dust emission (Max)	mg/Nm^3	50	50
Bag size	mm x mm	152 x 3750	152 x 3750
Number of Bags	---	144	176

The bag filter dust is collected in a silo and disposed of along with silica sand tailings.

3.12 SCHEMATIC REPRESENTATION OF THE FEASIBILITY DRAWINGS WHICH GIVE INFORMATION OF EIA PURPOSE

As per the Ministry of Environment, Forest & Climate Change (MoEF&CC), New Delhi, EIA notification dated 14th September 2006 & its subsequent amendments, all Mineral processing industries activities are falling under Sl. No. 2 (b), for the grant of Environmental Clearance. As the proposed throughput

capacity of the plant is 0.44 MTPA, the proposal comes under Category 'B' project, requiring appraisal at State Level (SEIAA).

As per the provision of the EIA notification 2006 & its subsequent amendments, it is necessary to get Environmental Clearance by applying to SEIAA along with the Environmental Impacts Assessment Study Report for the proposed project before commissioning of the project activities. Therefore, the EIA is required to comply with the provisions of EIA notification 2006 & its subsequent amendments made for projects coming under Sl. No. 2 (b) "B" Category projects as given under Schedule of the notification.

Chapter – 4 : SITE ANALYSIS

4.1 CONNECTIVITY

The plant site is well connected with the Road network. The following table gives a brief regarding the connectivity of the proposed site:

Table -4.1 Site connectivity

Component		Description
Road	:	The site is connected to SH#37 by tar road at a distance of 4.4 Kms (by road)
Rail	:	Amudalavalasa RS (20.0 Kms By aerial)
Air	:	Vishakapatnam Airport (105.0 Kms By aerial)

4.2 LAND FORM, LAND USE & LAND OWNERSHIP

Land Form

- The existing Mineral Beneficiation plant is located at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh.
- A Mineral Beneficiation plant has been established after obtaining EC, CFE & CFO for the integrated beach sand mining involving 720 Ha & Mineral Beneficiation Plant in 59.72 Ha of land.
- Present land use is industrial, as the MSP has been established and was operational till 2018. Due to change in Central govt policy, beach sand mining by private companies has been barred. Thus, the same established MSP plant will be operational after obtaining necessary approvals such as EC, CFE & CFO.
- It has been proposed to consider 26.17 Ha. of land for the proposal.
- Entire land is in possession of the company.

4.3 TOPOGRAPHY

Existing land is more or less flat without many undulations. The Topographical map is shown Figure No. 3.2

4.4 EXISTING LAND USE PATTERN

Existing plant is having 26.17 Ha of land, which is converted for non agriculture purpose.

4.5 EXISTING INFRASTRUCTURE

Infrastructure like Internal Roads, Storage area, Parking areas etc. was already provided in the existing plant. The same infrastructures will be utilized for the proposed project. For successful operation of the plant, it is imperative to ensure availability of the following infrastructure:

- Road / Railhead connection so that the raw materials and products can be easily and economically transported.
- Availability of water.
- Permanent and reliable source of power.
- Adequate land for the plant, storage of raw material and products & disposal of waste material.

Chapter – 5 : PLANNING BRIEF

5.1 PLANNING CONCEPT

The present proposal is to operate the existing Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from a throughput capacity of 0.44 MTPA of the mineral concentrate, which will be sourced from suppliers/mining firms in India and abroad including IREL (India) Ltd and Andhra Pradesh Mineral Development Corporation (APMDC). Part of the sillimanite and zircon minerals produced/sourced minerals will be pulverized in a ball mill installed in the MSP premises. The quantities of minerals to be produced in the Mineral Separation Plant are as following.

Table – 5.1 : Product and production details

S.No	Mineral	Quantity to be produced (in TPA)
1	Ilmenite	2,40,000
2	Garnet	45,000
3	Sillimanite/Pulverised Sillimanite	45,000
4	Rutile	8,000
5	Zircon/Pulverised Zircon	6,000
Total		**3,44,000**

5.2 POPULATION PROJECTION

Local Language of the project area is Telugu. Total population of Vatsavalasa Panchayat, which comprises 8 village hamlets, is 3196 and number of houses are about 774. Female Population is 48.7%. The village literacy rate is 55.6% and the Female Literacy rate is 20.9%.

Table – 5.2 : Population details

Census Parameter	Census Data
Total Population	3196
Total No of Houses	774
Female Population %	48.7 % (1555)
Total Literacy rate %	55.6 % (1777)
Female Literacy rate	20.9 % (667)
Scheduled Tribes Population %	0.2 % (5)
Scheduled Caste Population %	0.0 % (0)
Working Population %	45.8 %
Child(0 -6) Population by 2011	324

Girl Child(0 -6) Population % by 2011	48.1 % (156

Most of the employment will be generated for the people from the local areas only. There will not be much population projection due to the proposed project.

5.3 LAND USE PLANNING

The total land for the present proposal will be 66.46 acres (26.17 Ha.). The following is land use planning/statement of the plant area:

Table No. 5.3: LAND USE STATEMENT OF PROJECT SITE

S.No.	DESCRIPTION	AREA IN (ACRES)
1.	Built of area	2.77
2.	Storage area	2.35
3.	Greenbelts	36.68
4.	Roads	10.80
5.	Solar Power Plant	4.20
6.	Water reservoir	0.05
7.	Parking area	0.25
8.	Admin and others etc	9.36
TOTAL		**66.46**

5.4 ASSESSMENT OF INFRASTRUCTURE DEMAND (PHYSICAL & SOCIAL)

Basic infrastructure demand for sustained and healthy growth of a nearby area of the site would be better road connectivity, availability of clean and pure drinking water, availability of good schools, availability of Hospitals, community halls, public toilets, easy and faster means of transportation and connectivity to nearby town and city, availability of uninterrupted electricity etc. Since it is an established plant, all these infrastructural facilities are already existing. Additional infrastructural facilities, if needed will be established after the commencement of the plant operations.

5.5 AMENITIES / FACILITIES

For the social development activities, the project proponent has already established a Company run School giving free education till 10th Class. During the operational phase of the project, the company has spent more than Rs 22.00 Crores in various CSR activities in Srikakulam District, mainly covering sectors like education, health, drinking water, infrastructural facilities etc. With the proposed project, the company would continue to contribute to various CSR activities in the locality including free education, medical facility, drinking water etc based on the social impact assessment.

Chapter – 6 : PROPOSED INFRASTRUCTURE

6.1 INDUSTRIAL AREA (PROCESSING AREA)

The main plant area comprises of Mineral separation plant, raw material storage, product storage, waste storage, internal roads, water reservoir, truck parking, Solar Power plant of 1.05 MW etc.

6.2 RESIDENTIAL AREA (NON PROCESSING AREA)

No Township / Colony is proposed, however, facilities like Admin building, canteen, restrooms facilities are available.

6.3 GREENBELT

Out of a total of 66.46 Acres of land, 36.68 acres i.e. 55% of the land is already covered under the greenbelt.

6.4 SOCIAL INFRASTRUCTURE

As a part of the present proposal, the company will take up social infrastructure development in the nearby villages. For the economical development of the people in the area, the company will provide priority in employment as per qualification & eligibility.

6.5 CONNECTIVITY

The plant site is well connected with the road network. The following table gives a brief regarding the connectivity of the proposed site:

Table -6.1 Site connectivity

Component		Description
Road	:	The site is connected to SH#37 by tar road at a distance of 4.4 Kms (by road)
Rail	:	Amudalavalasa RS (20.0 Kms By Aerial)
Air	:	Vishakapatnam Airport (105.0 Kms By Aerial)

6.6 DRINKING WATER MANAGEMENT

The drinking water requirement of the employees for the present proposal will be taken from the RO plant which is already installed in the earlier plant.

6.7 SEWERAGE SYSTEM

It is proposed to collect sewerage through sewerage network from the plant and will lead to the Sewerage Treatment Plant (STP). The treatment plant will consist of a screen, grit separator, Equalization tank, primary clarifier, aeration tank, secondary clarifier, sludge recirculation pump house, etc. The treated sewage will comply with the stipulated standards and will be utilized for greenbelt development.

6.8 INDUSTRIAL WASTEWATER MANAGEMENT

- The wastewater from MSP plant will pass through thickner and supernetant will be recycled in to the process and under flow will be used for greenbelt in the MSP and old mine areas belongs to Trimex (patta land).
- Sanitary wastewater, is treated in STP and after ensuring compliance with the stipulated norms, the treated sewage will be utilized for greenbelt development.
- Zero liquid effluent discharge will be maintained.

Table No. 6.2 : WASTEWATER GENERATION AND ITS BREAKUP

S.NO.	SOURCE	QUANTITY (KLD)
1.	Sanitary Wastewater	16
Total		**16**

EFFLUENT TREATMENT PLANT

The wastewater will be treated in a thickener and the underflow will be utilized for greenbelt development in MSP & old mining areas. A closed-loop water system will be maintained. No effluent will be let out of the plant premises. Zero Liquid Discharge will be adopted.

6.9 SOLID WASTE MANAGEMENT

The Following is the solid waste generation and disposal of existing and proposed operations:

Table No. 6.3: SOLID WASTE GENERATION AND ITS MANAGEMENT

Solid Waste	Quantity (MTPA)	Method of disposal
Fine/non-saleable mineral grades and silica sand	0.096	it will be stored for future recovery of any useful minerals/used for backfilling earlier mined out pits

6.10 POWER REQUIREMENT

Power will be taken from the sanctioned existing power line of APEPDCL at 33 KV after stepping down to 440 V. In addition, a 1.05 MW solar power station is already existing within the project site.

Chapter – 7: REHABILITATION & RESETTLEMENT (R & R) PLAN

Trimex Sands Private Limited has established the MSP after taking necessary approvals like EC, CFE, CFO, etc. and has been operated till the policy change imposed by the Govt. of India for beach sand mining by private companies. Because of the policy change, the EC, CFE, CFO integrated approvals for beach sand mining, PCP (within ML area) & MSP (outside ML area), have been revoked.

Now It has been proposed to utilize the above-mentioned existing Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals from a throughput capacity of 0.44 MTPA of mineral concentrate sourced from outside firms. Therefore, no rehabilitation and resettlement are required as the existing MSP was in operation till 2018 at Vatsavalasa village, Gara Mandal, Srikakulam District, Andhra Pradesh.

Further, the same land is used for the proposed project and no habitation exists in the total plant site. Hence, no R & R is required.

Chapter – 8 : PROJECT SCHEDULE & COST ESTIMATES

8.1 PROJECT SCHEDULE

The proposed project will be implemented in 2 months from the date of receipt of Environmental Clearance from the SEIAA & Consent For Establishmentfrom from SPCB.

8.2 ESTIMATED PROJECT COST

The cost incurred for the proposed MSP project is Rs. 269.90 Crores including estimated pre-operative expenses and margin money for working capital requirements. The following is the breakup of it.

Table No.8.1: Estimated Project Cost

S.NO.	UNIT	PROJECT COST (RS.)
1.	Land	3,13,01,085
2.	Civil works	59,97,45,072
3.	Plant & Machinery	2,04,13,48,586
4.	Miscellaneous works	2,67,00,000
Total		**269,90,94,743**

Chapter – 9 : ANALYSIS OF PROPOSAL

9.1 FINANCIAL AND SOCIAL BENEFITS

With the implementation of the proposed project, the socio-economic status of the local people will improve substantially. The land rates in the area will improve in the nearby areas due to the proposed activity. This will help in the upliftment of the social status of the people in the area. Additional educational institutions will come up and will lead to improvement of the educational status of the people in the area. The primary health center will also be developed and the medical facilities will improve due to the proposed project.

9.2 SOCIO-ECONOMIC DEVELOPMENTAL ACTIVITIES

Trimex Sands Private Limited will actively contribute to improving the Socioeconomic conditions of the area by providing employment, education, health facilities and drinking water to the local persons from the nearby villages. The continuing commitment to contribute to economic development will improve the quality of life of employees and their families as well as that of the local community and society at large.

Item No.172.80	**1.041 Ha Road Metal & Building Stone quarry lease Smt B.Asha covering over an extent of 1.041 Ha in Sy.No. 01 of Chinagudaba Village, Garugubilli Mandal, Vizianagaram District, Andhra Pradesh (61519)**
	Category : B2 The project proposal is for mining **Road metal & Building Stone** in an area of **1.041 Ha**. With a proposed production quantity of **Road metal & Building stone – 9266.40 m³/Annum** with a condition that the total production during a scheme should be limited to the approved quantity as per Mining scheme/ plan. **A letter should be addressed to MoEF&CC for clarification regarding violation. deferred the case.**
Item No.172.81	**Beneficiation of Beach sand minerals of M/s. Trimex Sands Private Limited at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh (69360)**
	Category : B1 The project proponent and their consultant, M/s. Pioneer Enviro Labs have attended the meeting. The Committee after examining the project proposals, presentations, MoEF&CC' Notifications & OMs and detailed deliberations, recommended **for issue of Standard TOR with EIA & Public Hearing**
Item No.172.82	**4.970 Ha Black Galaxy Granite of Sri. Kandula Rami Reddy, at Compartment No. 370, Chimakurthy Reserve Forest, Ongole Range, Giddaluru Division, Prakasam District Andhra Pradesh (SIA/AP/MIN/235168/2021)**
	Category : B2 The project proposal is for mining **Black Galaxy Granite** in an area of **4.970 Ha** with a proposed production quantity of **Black Galaxy Granite – m 2025 m3/annum to 22,603 m3/annum** with a condition that the total production during a scheme should be limited to the approved quantity as per Mining scheme/ plan. The proposed project falls under Item No. 1(a) of the schedule of the EIA Notification 2006 and its amendments thereof - (i). Mining of minerals (<100 ha of mining lease area in respect of non-coal mine lease). The project proponent and their consultant, M/s. S.V. Enviro Labs have attended the meeting. The Committee noted that as per cluster letter issued by the Asst. Director of Mines & Geology, Ongole, vide Letter dated: 21.09.2021, there is One existing quarry areas within the radius of 500 mtrs area. The project falls under B2 category as per the MoEFCC Notification No. S.O.2269(E),dated 1st July, 2016. The Committee after examining the project proposals, presentations, MoEF&CC' Notifications & OMs and detailed deliberations, recommended **for issue Expansion of Environmental Clearance for Black Galaxy Granite – m 2025 m3/annum to 22,603 m3/annum. The life of mine is 11.3 years.** **1) Conditions in the Forest NOC should be followed.**

MEMBER SECRETARY
SEAC, A.P.

CHAIRMAN
SEAC, A.P.

TRIMEX

Date: 20th December 2021

To

The Chairman,
State Environment Impact Assessment Authority,
O/o A.P. Pollution Control Board (Head office),
Vijayawada, Andhra Pradesh

Respected Sir

Sub: Request for grant of Environmental Clearance for Operation of Mineral Separation Plant (MSP) – Exemption from Public Hearing - Reg.

Ref: EC application in reference File No. AP/SKLM/IND/11/2021/3654

We have submitted an application under reference above for grant of Environmental Clearance (EC) for the operation of Mineral Separation Plant (MSP) situated at Vatsavalasa village, Gara (M), Srikakulam District.

Above cited MSP is already established in 2009-10 as part of the integrated Mining cum Beneficiation project for beach sand minerals, for which EC was obtained from MoEF & CC after conducting public hearing. The project has undergone expansion in 2015 and fresh EC for expansion was also obtained after conducting PH. The policy decision of the GOI in 2019 to permit only Govt companies in the mining of beach sand minerals resulted in the stoppage of the MSP, though it is situated outside the ML area. To facilitate restarting of the MSP operations by sourcing mineral concentrate from India/abroad, we have submitted subject application for grant of TOR and requested for exemption from PH. The Honourable SEAC in their meeting dated 16th December 2021 have appraised the proposal for grant of Terms of Reference (TOR). We were informed after the meeting that the TOR is approved, but the request for exemption from PH is not considered.

In this connection, we humbly submit before your good self that our request for PH exemption may be favourably considered under the following grounds:

1) Public hearing has been conducted in the year 2003 as per EIA notification 2006 for integrated proposal of Beach sand mining of 2 MTPA & Mineral Separation Plant (MSP) of 0.63 MTPA and EC was obtained in 2004.
2) Thereafter, for expansion proposal, PH has been again conducted on 29.12.2012 as per EIA notification 2006 for 6.0 MTPA mining and 0.93 MTPA MSP and obtained EC in 2015.

Trimex Sands Pvt Ltd, Vatchavalasa (V), Srikurmam P.O, Gara Mandal,
Srikakulam District - 532 404, Andhra Pradesh,
E-mail: info@trimexsands.com

3) Now we are requesting fresh EC for MSP of 0.44 MTPA only, which is less than 50% capacity for which PH been conducted & EC issued. No mining is proposed now.
4) The water requirement, air emissions, solid waste generation, truck transportation & land requirements for the present proposal of 0.44 MTPA is less than 50% of what has been projected during the PH & EC in 2015.
5) The Mining Lease was valid till 2034. The EC granted in 2015 based on the PH conducted was also valid till 2034. The change in policy of the GOI in 2019 only resulted in the stoppage of the mining and thereby MSP.
6) In the PH conducted in 2015, public were informed about all environmental features of the MSP of 0.93 MTPA. Further, opinions were taken from the public on environmental and other aspects of the project and action plan was prepared and implemented.
7) All infrastructure facilities including water pipeline from the river has already been laid.
8) Greenbelt has been developed in 55% of the land as compared to the 33% norm.
9) No complaints from public on environmental issues during the operation of the plant. The MOEF & CC has certified compliance of the EC conditions in 2018.
10) Several projects have been cleared without PH by MOEF&CC and SEIAA (AP) for expansion projects, which have undergone public hearing earlier as per EIA Notification 2006 (copy attached as Annexure).

Under the above circumstances, as it is an established unit & in operation for several years and permission is sought for 50% lower capacity than for which PH was conducted & EC accorded earlier, we humbly request the Honourable State Environment Impact Assessment Authority to kindly issue us the TOR with exemption from public hearing.

Thanking you

Yours truly

For Trimex Sands Pvt Ltd

Authorised Signatory

TRIMEX SANDS PVT. LTD. * SRIKAKULAM *

Enclosure: As above

129.51 & 121.51

State Level Environment Impact Assessment Authority (SEIAA)
Andhra Pradesh
Ministry of Environment, Forests & Climate Change,
Government of India
D.No.33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamavari Street, Kasturibaipet, Vijayawada-520010

By Speed Post

Lr No. SEIAA/AP/KRI/IND/07/2019/1075 1084 . **Dt: 13.09.2019**

To
Sri Raymond Peter, Mg. Director,
M/s. Sentini Bio Products (P) Limited,
Plot No.9, 4th Lane, Umashankar Nagar,
Kannuru, **Vijayawada**.

Sir,

Sub: SEIAA - A.P. – Grain based Distillery unit of M/s.Sentini Bio Products (P) Limited at Sy.Nos. 63, 101-103 & 224-229 of Gandepally Village, Kanchikacherla Mandal, Krishna District, Andhra Pradesh - Terms of Reference (TOR) - Issued - Reg.

Ref: Your application received through online on 09.07.2019 (SIA/AP/IND2/**38913**/2019).

***

In continuation of the above, it is to inform that your application was examined by the State Expert Appraisal Committee (SEAC) in its meeting held on 20.07.2019.

Category:B1 (TOR)

The representatives of the project proponent and your consultant M/s. Pioneer Enviro Labs& Consultants have attended the meeting.

The committee noted that earlier EC was issued by MoEFCC on 07.04.2017 for the grain based Distillery – 150 KLPD and now applied for expansion of production capacity from 150 KLPD to 200 KLPD.

The Committee recommended for issue of Standard Terms of Reference (TOR) with exemption of public hearing for the proposed expansion of Grain based Distillery project for expansion of production capacity from 150 KLPD to 200 KLPD. The committee recommended for exemption of public hearing as there is no change in land, water consumption, wastewater generation, air pollution or waste load and the public hearing is already conducted earlier. There is process change through new technology/upgradation. Hence, the public hearing is exempted with due diligenc.e

The issue was placed before the SEIAA in its meeting held on 14.08.2019 and the Authority agreed with the recommendation of the SEAC, A.P. for issue of Standard Terms of Reference with exemption of public hearing duly stipulating the condition that the project proponent shall not increase the extent of existing land, water consumption, waste water generation and water & air pollution load.

In view of the above, you are requested to prepare EIA report based on the standard TOR with exemption of Public hearing with additional conditions and submit to the SEAC for appraisal. The Terms of the reference are valid for a period of three years.

Yours faithfully,

MEMBER SECRETARY,
SEIAA, A.P

	26400 m^3/Annum. The life of mine is 06 years. **Decision Of SEIAA:-** Agreed with the recommendation of the SEAC for issue of Environmental Clearance.
Item No. 172.81& 169.69	**Beneficiation of Beach sand minerals of M/s. Trimex Sands Private Limited at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh (69360)**
	Recommendations of the SEAC on 14.12.2021 to 16.12.2021. **Category : B1** The project proponent and their consultant, M/s. Pioneer Enviro Labs have attended the meeting. The Committee after examining the project proposals, presentations, MoEF&CC' Notifications & OMs and detailed deliberations, recommended **for issue of Standard TOR with EIA & Public Hearing** **Decision Of SEIAA:-** Refer to SEAC to examine in the light of request letter submitted by the proponent.
Item No. 172.82&169.70	**4.970 Ha Black Galaxy Granite of Sri. Kandula Rami Reddy, at Compartment No. 370, Chimakurthy Reserve Forest, Ongole Range, Giddaluru Division, Prakasam District Andhra Pradesh (SIA/AP/MIN/235168/2021)**
	Recommendations of the SEAC on 14.12.2021 to 16.12.2021. **Category : B2** The project proposal is for mining **Black Galaxy Granite** in an area of **4.970 Ha** with a proposed production quantity of **Black Galaxy Granite - m 2025 m3/annum to 22,603 m3/annum** with a condition that the total production during a scheme should be limited to the approved quantity as per Mining scheme/ plan. The proposed project falls under Item No. 1(a) of the schedule of the EIA Notification 2006 and its amendments thereof - (i). Mining of minerals (<100 ha of mining lease area in respect of non-coal mine lease). The project proponent and their consultant, M/s. S.V. Enviro Labs have attended the meeting. The Committee noted that as per cluster letter issued by the Asst. Director of Mines & Geology, Ongole, vide Letter dated: 21.09.2021, there is One existing quarry areas within the radius of 500 mtrs area. The project falls under B2 category as per the MoEFCC Notification No. S.O.2269(E),dated 1st July, 2016. The Committee after examining the project proposals, presentations, MoEF&CC' Notifications & OMs and detailed deliberations, recommended **for issue Expansion of Environmental Clearance for Black Galaxy Granite - m 2025 m3/annum to 22,603 m3/annum. The life of mine is 11.3 years.** 1. **Conditions in the Forest NOC should be followed.**

Agenda Item No:179.01	**Beneficiation of Beach sand minerals of M/s. Trimex Sands Private Limited at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra PradeshState – TOR – Refer back case - Reg.**
SIA/AP/IND/69360/2021	**Category : 2(b)** **M/s. Trimex Sands Private Limited at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra PradeshState**applied for TOR for Mineral Separation Plant (MSP). The project proponent and their consultant, M/s. Pioneer Enviro Labs have attended the meeting. The proponent informed that MSP is already established in 2009-10 as part of the integrated Mining cum Beneficiation project for beach sand minerals, for which EC was obtained from MoEF& CC after conducting public hearing. The project has undergone expansion in 2015 and fresh EC for expansion was also obtained after conducting PH. The policy decision of the GOI in 2019 to permit only Govt companies in the mining of beach sand minerals resulted in the stoppage of the MSP, though it is situated outside the ML area. To facilitate restarting of the MSP operations by sourcing mineral concentrate from India/abroad, the proponent submitted application for grant of TOR and also requested for exemption from Public Hearing. The Committee further noted that public hearing has been conducted in the year 2003 as per EIA notification 1994 for integrated proposal of Beach sand mining of 2 MTPA & Mineral Separation Plant (MSP) of 0.63 MTPA and EC was obtained in 2004. Thereafter, for expansion proposal, PH has been again conducted on 29.12.2012 as per EIA notification 2006 for 6.0 MTPA mining and 0.93 MTPA MSP and obtained EC in 2015. Now applying fresh EC for MSP of 0.44 MTPA only, which is less than 50% capacity for which PH been conducted & EC issued. The Mining Lease was valid till 2034. The EC granted in 2015 based on the PH conducted was also valid till 2034. The change in policy of the GOI in 2019 only resulted in the stoppage of the mining and thereby MSP. No mining is proposed now. The issue was placed in the 172nd SEAC and recommended for issue of Standard TOR with EIA & Public Hearing Further, the SEIAA has reviewed in 169th meeting, the Committee Referred to SEAC to examine in the light of request letterdt. 20.12.2021submitted by the proponent. **The Committee noted that as it is an established unit & in operation for several years and it is 50% lower capacity than for which PH was conducted & EC accorded earlier.** The Committee after examining the project proposals, presentations, MoEF&CC Notifications & OMs and detailed deliberations, recommended for issue of Standard TOR with EIA, without Public Hearing under 7(II) of EIA Notification, 2006.
Agenda Item: 179.02	**4.800 Ha Quartz mine of Sri G.M. Nagaraju Sy. No. 1, Mustikovela Village, Chennekothapalli Mandal, Anantapur District, Andhra Pradesh – Environmental Clearance – Reg.**
SIA/AP/MIN/251794/2022	**Category: B2** The proposed project is for mining of **Quartz minein an area of 4.800 Ha.** with a proposed production quantity of **Quartz – 31941 Tons/Annum** with a condition that the total production during a scheme should be limited to the approved quantity as per Mining scheme/ plan. The proposed project falls under Item No. 1(a) of the schedule of the EIA Notification 2006 and its amendments thereof - (i). Mining of minerals (<100 ha of mining lease area in respect of non-coal mine lease). The representative of proponent and their consultant **Sai Geo Services (G. Eswar Reddy)**have attended the meeting.

3.	Dr. P.V.ChalapathiRao, I.F.S Special Secretary to Govt., Environment, Forests, Sciences and Technology Department, Govt. of Andhra Pradesh & Member Secretary, SEIAA,A.P.	Member Secretary

Agenda Item No : 179.01& 177.01	**Beneficiation of Beach sand minerals of M/s. Trimex Sands Private Limited at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra PradeshState – TOR –Refer back case - Reg.**
SIA/AP/IND/69360/2021	Recommendations of the SEAC on 14.02.2022 **Category : 2(b)** **M/s. Trimex Sands Private Limited at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra PradeshState**applied for TOR for Mineral Separation Plant (MSP). The project proponent and their consultant, M/s. Pioneer Enviro Labs have attended the meeting. The proponent informed that MSP is already established in 2009-10 as part of the integrated Mining cum Beneficiation project for beach sand minerals, for which EC was obtained from MoEF& CC after conducting public hearing. The project has undergone expansion in 2015 and fresh EC for expansion was also obtained after conducting PH. The policy decision of the GOI in 2019 to permit only Govt companies in the mining of beach sand minerals resulted in the stoppage of the MSP, though it is situated outside the ML area. To facilitate restarting of the MSP operations by sourcing mineral concentrate from India/abroad, the proponent submitted application for grant of TOR and also requested for exemption from Public Hearing. The Committee further noted that public hearing has been conducted in the year 2003 as per EIA notification 1994 for integrated proposal of Beach sand mining of 2 MTPA & Mineral Separation Plant (MSP) of 0.63 MTPA and EC was obtained in 2004. Thereafter, for expansion proposal, PH has been again conducted on 29.12.2012 as per EIA notification 2006 for 6.0 MTPA mining and 0.93 MTPA MSP and obtained EC in 2015. Now applying fresh EC for MSP of 0.44 MTPA only, which is less than 50% capacity for which PH been conducted & EC issued.

	The Mining Lease was valid till 2034. The EC granted in 20 15 based on the PH conducted was also valid till 2034. The change in policy of the GOI in 2019 only resulted in the stop page of the mining and thereby MSP. No mining is propose d now. The issue was placed in the 172nd SEAC and recommende d for issue of Standard TOR with EIA & Public Hearing Further, the SEIAA has reviewed in 169th meeting, the Com mittee Referred to SEAC to examine in the light of request l etterdt. 20.12.2021submitted by the proponent. **The Committee noted that as it is an established unit & i n operation for several years and it is 50% lower capacit y than for which PH was conducted & EC accorded earli er.** The Committee after examining the project proposals, prese ntations, MoEF&CC' Notifications & OMs and detailed delib erations, recommended for issue of Standard TOR with EIA, without Public Hearing under 7(II) of EIA Notification, 2006. **Decision of SEIAA**:- Agreed with the recommendation of th e SEAC.
Agenda Item: 17 9.02&177.02	**4.800 Ha Quartz mine of Sri G.M. Nagaraju Sy. No. 1, Mu stikovela Village, Chennekothapalli Mandal, Anantapur District, Andhra Pradesh – Environmental Clearance – R eg.**

177.01

State Level Environment Impact Assessment Authority (SEIAA)
Andhra Pradesh
Ministry of Environment, Forests & Climate Change,
Government of India
D.No.33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamavari Street, Kasturibaipet, Vijayawada-520010

By Speed Post

Lr No. SEIAA/AP/SKLM/IND/11/2021/3654 -1128 **Dt. .04.2022**

To
M/s. Trimex Sands Pvt Ltd,
56, Telugu Musalayya Layout,
Adithya Nagar, Arasavalli Road,
Srikakulam – 532001, A.P.

Sir,

Sub: SEIAA, A.P. – **Beneficiation of Beach sand minerals of M/s. Trimex Sands Private Limited at Sy. Nos. 78, 79, 80, 84, 176 to 183 & 193, Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh State – TOR – Standard Terms of Reference (TOR)** – Issued - Reg.

Ref: Your application received through online on 22.11.2021 (Proposal No. SIA/AP/IND/69360/2021).

**

With reference to the above, it is to inform that your application was examined by the State Expert Appraisal Committee (SEAC), A.P., in its meeting held on **14th, 15th & 16th February, 2022.**

M/s. Trimex Sands Private Limited at Sy. Nos. 78, 79, 80, 84, 176 to 183 & 193 Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh State applied for TOR for Mineral Separation Plant (MSP).

The proposed project falls under Item No. 2(b) of the schedule of the EIA Notification 2006 and its amendments thereof - (i).Mineral beneficiation (<0.5Million ton/annum minerals throughoutput).

The project proponent and their consultant, M/s. Pioneer Enviro Labs have attended the meeting.

The proponent informed that MSP is already established in 2009-10 as part of the integrated Mining cum Beneficiation project for beach sand minerals, for which EC was obtained from MoEF& CC after conducting public hearing. The project t has undergone expansion in 2015 and fresh EC for expans ion was also obtained after conducting PH. The policy decision of the GOI in 2019 to permit only Govt companies in the mining of beach sand minerals resulted in the stoppage of the MSP, though it is situated outside the ML area. To facilitate restarting of the MSP operations by sourcing mineral concentrate from India/abroad, the proponent submitted application for grant of TOR and also requested for exemption from Public Hearing.

The Committee further noted that public hearing has been conducted in the year 2003 as per EIA notification 1994 for integrated proposal of Beach sand mining of 2 MTPA & Mineral Separation Plant (MSP) of 0.63 MTPA and EC was obtained in 2004. Thereafter, for expansion proposal, PH has been again conducted on 29.12.2012 as per EIA notification 2006 for 6.0 MTPA mining and 0.93 MTPA MSP and obtained EC in 2015. Now applying fresh EC for MSP of 0.44 MTPA only, which is less than 50% capacity for which PH been conducted & EC issued.

The Mining Lease was valid till 2034. The EC granted in 2015 based on the PH conducted was also valid till 2034. The change in policy of the GOI in 2019 only resulted in the stoppage of the mining and thereby MSP. No mining is proposed now.

The issue was placed in the 172nd SEAC and recommended for issue of Standard TOR with EIA & Public Hearing.Further, the SEIAA has reviewed in 169th meeting, the Committee Referred to SEAC to examine in the light of request letter dt. 20.12.2021submitted by the proponent.

The Committee noted that as it is an established unit & in operation for several years and it is 50% lower capacity than for which PH was conducted & EC accorded earlier.

The Committee after examining the project proposals, presentations, MoEF&CC' Notifications & OMs and detailed deliberations, recommended for issue of Standard TOR with EIA, without Public Hearing under 7(II) of EIA Notification, 2006.

The issue was placed before the SEIAA, A.P., in its meeting held on 21.03.2022. Decision of SEIAA: Agreed with the recommendation of the SEAC.

In view of the above, you are requested to prepare EIA report based on the standard TOR without Public hearing and submit to the SEAC,A.P., for appraisal. The Terms of the reference are valid for a period of three years.

12/4/22

MEMBER SECRETARY,
SEAC, A.P.

TRIMEX

Date: 29th April 2022

To,
The Chairman
State Environment Impact Assessment Authority,
O/o A.P. Pollution Control Board (Head office)
Vijayawada, Andhra Pradesh

Sub: Environmental Clearance for Operation of Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from 0.44 MTPA (throughput) of the mineral concentrate in Survey Nos. 78, 79, 80, 84, 176 to 183 & 193 Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh – ***Submission of Final EIA report*** – **Reg.**

Ref: TOR letter issued by SEIAA Andhra Pradesh vide SEIAA/AP/SKLM/IND/11/2021/3654-1128 dated 12/04/2022

Respected Sir,

Trimex Sands Private Limited has already established a Mineral Separation Plant (MSP) after obtaining EC, CFE & CFO as an integrated proposal along with beach sand mining. Due to the notification issued by the Central Govt reserving beach sand mining for Govt companies, the EC, CFE, CFO for the integrated proposal has been revoked. Now it has been proposed to operate the same MSP plant which is situated outside the mining lease area and has been established earlier after duly obtaining EC, CFE & CFO.

Now it has been proposed to utilize the above-mentioned existing Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from 0.44 MTPA (throughput) of mineral concentrate sourced from suppliers/mining firms in India and abroad.

In order to obtain Environmental Clearance for the proposed project, Form - I, proposed TOR along with Pre-Feasibility Report were submitted to the Honourable State Environmental Impact Assessment Authority (SEIAA), Andhra Pradesh vide online proposal No. SIA/AP/IND/69360/2021 dated 22/11/2021. Presentation was made before the Hon'ble State Expert Appraisal Committee on 14/02/2022 for the approval of TOR (Terms of Reference) for EIA study. Subsequently the TOR has been accorded by Honourable SEIAA, Andhra Pradesh vide Lr. No. SEIAA/AP/SKLM/IND/11/2021/3654-1128 dated 12/04/2022 with exemption of public hearing for the proposed project. Final EIA report has been prepared incorporating the Terms of Reference issued by the SEIAA, Andhra Pradesh. Now, we are herewith submitting the Final EIA report.

Trimex Sands Pvt Ltd: Vatchavalasa (V), Gara Mandal, Srikakulam District - 532 404, Andhra Pradesh, India.
Tel: +91 8942 283755, Fax: +91 8942 283758, E-mail: info@trimexsands.com, URL:www.trimexsands.com
CIN : U14299TN2004PTC071437

In this regard, we request your goodselves to kindly process our application and place our proposal before the Hon`ble State Expert Appraisal Committee (SEAC) for issue of Environmental Clearance at the earliest.

Thanking you,
Regards

Yours sincerely
for Trimex Sands Private Limited

V H Rafi Ahammed
Sr Vice President (Operations)

Form-2

APPLICATION FOR PRIOR ENVIRONMENTAL CLEARANCE

S. No.	Item	Details
	Whether it is a violation case and application is being submitted under Notification No. S.O.804(E) dated 14.03.2017 ?	No
1.	**Details of Project:**	
	(a)Name of the project(s)	Trimex Sands Private Limited
	(b)Name of the Company / Organisation	TRIMEX SAND PRIVATE LIMITED
	(c)Registered Address	Vatsavalasa village srikumam P.O Gara mandal srikakulam District,,Srikakulam,Andhra Pradesh-532404
	(d)Legal Status of the Company	Private
2.	**Address for the correspondence:**	
	(a)Name of the Applicant	V H Rafi Ahammed
	(b)Designation (Owner/ Partner/ CEO)	sr Vice President
	(c)Address	Vatsavalasa village srikumam P.O Gara mandal srikakulam District,Srikakulam,Andhra Pradesh-532404
	(d)Pin code	532404
	(e)E-mail	rafi.ahammed@trimexsands.com
	(f)Telephone No.	0-
	(g)Fax No.	
	(h)Copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency .	Annexure-Uploaded Copy of documents in support of the competence/authority
3.	**Category of the Project/Activity as per Schedule of EIA Notification,2006:**	
	(a)Major Project/Activity	**2(b) Mineral beneficiation**
	(b)Minor Project/Activity	**NIL**
	(c)Category	**B1**
	(d)Proposal Number	**SIA/AP/IND/69360/2021**
	(e)Master Proposal Number(Single Window)	**SW/270581/2022**
	(f)EAC concerned (for category A Projects only)	**Industrial Projects - 1**
	(g)Project Type	**Fresh EC**
4.	**Location of the Project:**	
	(a)Plot/Survey/Khasra No.	78, 79, 80, 84, 176 to 183 & 193
	(b)Pincode	532404
	(c)Bounded Latitudes (North)	
	From	
	Degree	18
	Minutes	16
	Second	50
	From	
	Degree	18
	Minutes	17
	Second	12
	(d)Bounded Longitudes (East)	
	From	
	Degree	84
	Minutes	02
	Second	37
	From	
	Degree	84
	Minutes	02
	Second	58
	(e)Survey of India Topo Sheet No.	74B/3
	(f)Uploaded Topo Sheet File	Copy of Topo Sheet File
	(g)Maximum Elevation Above Means Sea Level(AMSL)	18
	(h)Uploaded (kml) File	Copy of Kml File
	(i)Distance of Nearest HFL from the project boundary within the study area	1
	(j)Seismic Zone	3
5.	(a)Number of States in which Project will be Executed	1
	(b)Main State of the project	Andhra Pradesh

Details of State(s) of the project

S. No.	State Name	District Name	Tehsil Name	Village Name
(1.)	Andhra Pradesh	Srikakulam	Gara	Vatsavalasa

6.	**Details of Terms of Reference (ToR):**	
	(a)MoEF&CC / SEIAA File Number	AP SKLM IND 11 2021 3654
	(b)Date of Apply of TOR	22 Nov 2021
	(c)Date of Issue of TOR / Standard ToR	12 Apr 2022
	(d)Previous TOR Letter	Copy of Previous TOR letter
7.	**Details of Public Consultation:**	
	(a)Whether the Project Exempted from Public Hearing?	Yes
	(b)Reason	ph already done earlier EC obtained project
	(c)Supporting Document	Copy of Supporting Document
8.	**Details of Project Configuration/Product:**	

8.1. **Project Configuration**

S. No.	Plant/Equipment/Facility	Configuration	Remarks
(1.)	BEACH SAND MINERAL SEPERATION PLANT	0.44 MTPA (THROUGHPUT)	NIL

8.2. **Product**

S. No.	Product/Activity (Capacity/Area)	Quantity	Unit	Other Unit	Mode of Transport / Transmission of Product	Other Mode of Transport / Transmission of Product
(1.)	Ilmenite	240000	Tons per Annum		Road	
(2.)	Garnet	45000	Tons per Annum		Road	
(3.)	Sillimanite/Pulverised Sillimanite	45000	Tons per Annum		Road	
(4.)	Rutile	8000	Tons per Annum		Road	
(5.)	Zircon/Pulverised Zircon	6000	Tons per Annum		Road	

9.	**In case of Expansion / Modernisation / One Time Capacity Expansion (only for Coal Mining) / Expansion under Clause 7(ii) / Modernisation under Clause 7(ii) / Change of Product Mix under Clause 7(ii):**	
	Details Not Applicable	
9.1.	**Details of Consent to Operate**	
	(i)Whether Consent to operate obtained ?	NA
	(ii)Copies of all Consent to operate obtained since inception	NA
	(iii)Date of Issue	29 Apr 2022
	(iv)Valid Upto	29 Apr 2022
	(v)File No.	NIL
	(vi)Application No.	NIL
	(vii)Copy of Consent to operate valid as on date	Copy of Consent to Operate
10.	**Project Cost:**	
	(a)Total Cost of the Project at current price level (in crores)	269.90
	(b) Funds Allocated for Environment Management (Capital) (in crores)	1.76
	(c) Funds Allocated Towards ESC (Entrepreneur Social Responsibility) (in crores)	2.3
	(d) Funds Allocated for Environment Management Plan (EMP) (Recurring per Annum) (in crores)	1.41
	(e) Funds Allocated for Environment Management Capital(%)	0.65
11.	**Whether project attracts the General Condition specified in the Schedule of EIA Notification ?**	No
12.	**Whether project attract the Specific Condition specified in the Schedule of EIA Notification ?**	No
13.	**Raw Material / Fuel Requirement:**	
	(a)Proposed quantity of raw material/fuel	0
	(b)Existing quantity of raw material/fuel	N/A

	(c)Total quantity of raw material/fuel	0

13.1. **Raw Material / Fuel Profile**

S. No.	Raw Material / Fuel	Quantity	Unit	Other Unit	Source (incase of Import. please specify country and Name of the port from which Raw Material / Fuel is received)	Mode of Transport	Other Mode of Transport	Distance of Source from Project Site (in Kilometres) (In case of import, distance from the port from which the raw material / fuel is received)	Type of Linkage	Other Type of Linkage	Uploaded Copy of Linkage
(1.)	Mineral Concentrates of Beach sand minerals	440000	Tons per Annum		APMDC AND IMPORTED	Road		150	LOA		Copy of Linkage

14.	**Baseline Data :**	
	(a)Period of Base Line Data Collection	FROM 01 Oct 2021 To 31 Dec 2021
	(b)Season	Post-Monsoon

14.1. **No. of ambient Air Quality (AAQ) Monitoring Locations : 8**

S. No.	Criteria Pollutants	Other Criteria Pollutants	Unit	Maximum Value	Minimum Value	98 Percentile Value	Prescribed Standard
(1.)	PM10		Micro Gram per Meter Cube	69.3	28.0	69.3	100
(2.)	SO2		Micro Gram per Meter Cube	13.9	6.0	13.9	80
(3.)	Others	CO	Micro Gram per Meter Cube	1120	423	1120	2000
(4.)	PM2.5		Micro Gram per Meter Cube	41.5	16.8	41.5	60
(5.)	NOx		Micro Gram per Meter Cube	19.7	6.5	19.7	80

14.2. **No. of Ground Water Monitoring Locations : 8**

S. No.	Criteria Pollutants	Other Criteria Pollutants	Heavy Metal	Unit	Other Unit	Maximum Value	Minimum Value	Desirable Limit	Maximum Permissible Limit
(1.)	Chlorides			mg/l		472	278	250	1000
(2.)	Fluoride			mg/l		0.78	0.61	1.0	1.5
(3.)	pH			NA		8.0	7.6	6.5	8.5
(4.)	TSS			mg/l		2.4	1.4	1.5	3.0
(5.)	TDS			mg/l		847	458	500	2000
(6.)	Heavy Metals		Fe	mg/l		0.26	0.2	0.3	1.0
(7.)	Total Hardness			mg/l		451	428	300	600

14.3. **No. of Surface Water Monitoring Locations : 8**

S. No.	Criteria Pollutants	Other Criteria Pollutants	Unit	Other Unit	Maximum Value	Minimum Value	Classification of inland water body
(1.)	pH		NA		8.2	7.9	C
(2.)	DO		mg/l		6.4	4.0	C
(3.)	BOD		mg/l		4.1	2.1	C
(4.)	COD		mg/l		9	6	C

14.4. **No. of Ambient Noise Monitoring Locations : 8**

S. No.	Parameter	Unit	Maximum Value	Minimum Value	Prescribed Standard
(1.)	Leq(Day)	A-weighted decibels(dB(A))	49.6	40.5	75
(2.)	Leq(Night)	A-weighted decibels(dB(A))	32.4	28.4	70

14.5. **No. of Soil Sample Monitored Locations : 8**

S. No.	Parameter	Unit	Other Unit	Maximum Value	Minimum Value
(1.)	pH			7.7	7.5
(2.)	N(Nitrogen)	Kilogram per hectare		149	114
(3.)	P(Phosphorus)	Kilogram per hectare		178	158
(4.)	K(Potassium)	Kilogram per hectare		47	30
(5.)	Electric Conductivity	Millisiemens per Centimetre		99	85

14.6. **Details of Ground Water Table:**

(a)Range of Water Table Pre-Monsoon Season (Meters Below Ground Level (m bgl))	From 30 To 40
(b)Range of Water Table Post-Monsoon Season (Meters Below Ground Level (m bgl))	From 20 To 30
(c)Whether Ground Water Intersection will be there ?	No

15. **Details of Water Requirement (During Operation)**

S. No.	Source	Source Other	Required Quantity	Distance from Source	Copy of Permission from Competent Authority	Mode of Transport	Other Mode of Transport	Method of Water Withdrawal	Other Method of Water Withdrawal	Letter No.	Date of Issue	Permitted Quantity
(1.)	Surface		805	7.0	Copy of Permission Letter	Pipeline		Intake Well		13	24 Sep 2015	10860

15.1. (a)Whether Desalination is proposed — No

16. **Waste Water Management(During Operation)**

S. No.	Type/Source	Quantity of Waste Water Generated (Kilolitre per Day)	Treatment Capacity (Kilolitre per Day)	Treatment Method	Mode of Disposal	Other Mode of Disposal	Quantity of Treated Water Used in Recycling/Reuse (Kilolitre per Day)	Quantity of Discharged Water (Kilolitre per Day)
(1.)	PROCESS WASTEWATER	400	400	thickener	Green Belt Renewal Plant		400	
(2.)	SANITARY	16	16	SEPTIC TANK	Others	LAND	0	16

16.1.

(a)Total Waste Water Generation	416
(b)Total Discharged Water	16
(c)Total Reused Water	400

17. **Solid Waste Generation/Management**

S. No.	Name of Waste	Item	Other Item	Quantity per Annum	Unit	Distance from Site(KM)	Mode of Transport	Other Mode of Transport	Mode of Disposal	Other Mode of Disposal
(1.)	WASTE	Others	Fine/non-saleable mineral grades and silica sand	96000	Tons	10	Road		Others	BACK FILLING MINEDOUT PITS

18.

18.1. **Air Quality Impact Prediction**

S. No.	Criteria Pollutants	Other Criteria Pollutants	Unit	Baseline Concentration	Distance GLC	Incremental Concentration	Total GLC	Prescribed Standard
(1.)	PM10		Microgram per Meter Cube	69.3	525	1.08	70.38	100
(2.)	PM2.5		Microgram per Meter	41.5	525	0.64	42.14	60

			Cube					
(3.)	SO2		Microgram per Meter Cube	13.9	525	12.1	26.0	80
(4.)	NOx		Microgram per Meter Cube	19.7	525	6.9	26.6	80
(5.)	Others(Specify)	CO	Microgram per Meter Cube	1120	525	1.3	1121.3	2000

18.2. **Stack Details**

S. No.	Source	Fuel	Stack Height(m)	Stack Diameter(m)	Pollutants	Other Pollutants	Emission (GLS)
(1.)	COMBINED DRIERS	HSD/HFO	35	0.6	NOx		0.5
(2.)	COMBINED DRIERS	HSD/HFO	35	0.6	PM10		0.1
(3.)	MAG CONCENTRATED FBD	HSD/HFO	35	1.1	PM10		0.35
(4.)	MAG CONCENTRATE	HSD/HFO	35	1.1	SO2		5.8
(5.)	MAG CONCENRTRATE FBD	HSD/HFO	35	1.1	NOx		1.75
(6.)	COMBINED DRIERS	HSD/HFO	35	0.6	SO2		5.2

19.	**Power Requirement:**	
	(a)Quantity (Kilo Volt Amps (kVA))	8
	(b)Source	APEPDCL
	(c)Uploaded Copy of Agreement	Not Applicable
	(d)Standby Arrangement (Details of DG Sets)	2X2000 KVA
	(e)Stack Height (in m)	35
20.	**Land Ownership Pattern:**	
	(a)Forest Land	0
	(b)Private Land	26.17
	(c)Government Land	0
	(d)Revenue Land	0
	(e)Other Land	0
	Total Land	**26.17**
21.	**Present Land Use Breakup of the Study Area in Ha:**	
	(a)Agriculture Area	12057.6
	(b)Waste/Barren Land	1099.0
	(c)Grazing/ Community Land	0
	(d)Surface Water Bodies	13031
	(e)Settlements	973.4
	(f)Industrial	345.4
	(g)Forest	2041.0
	(h)Mangroves	0
	(i)Marine Area	1852.6
	(j)Others : MIL	0
	Total	**31400**

22. **Land Requirement for Various Activities**

S. No.	Description of Activity / Facility / Plant / Others	Others	Land Requirement	Remarks
(1.)	Main Plant		1.12	NIL
(2.)	Green belt		14.57	NIL
	Total		15.69	

23.	**Ecological and Environmental Sensitivity (Within 10 Km):- WLS-Wild Life Species; NPA-Notified Protected Area; ESAs-Eco Sensitive Areas; ESZs-Eco Sensitive Zones :**

23.1. **Details of Ecological Sensitivity :**

S. No.	Details of Ecological Sensitivity	Name	Distance from the Project (Km)	Remarks
(1.)	NPA	NIL	0	NIL

(2.)	ESAs	NIL	0	NIL
(3.)	Corridors	NIL	0	NIL
(4.)	Wildlife Corridors	NIL	0	NIL
(5.)	ESZs	NIL	0	NIL
(6.)	Critically Polluted Area	NIL	0	NIL
(7.)	WLS	NIL	0	NIL

23.2. **Details of Environmental Sensitivity :**

S. No.	Details of Environmental Sensitivity	Other Details of Environmental Sensitivity	Name	Distance from the Project (Km)	Remarks
(1.)	Forest		Srikurmam	0.97	NIL
(2.)	Defence Installations		NIL	0	NIL
(3.)	Archaeological Sites		NIL	0	NIL

23.3.	(a)Whether Noc / Permission from the competent authority is required?	No
	(b)Whether NBWL recommendation is required?	No
24.	**Forest Land:**	
	Whether any Forest Land involved?	No
25.	**Tree Cutting:**	
	(a)No. of Trees Cut for the Project (if Forest Land not Involved)	0
	(b)Details of Tree Cutting and Planting of Trees	Copy of Details of Tree Cutting and Planting of Trees
26.	**Land Acquisition Status:**	
	(a)Acquired Land(Ha)	26.17
	(b)Land yet to be acquired(Ha)	0
	(c)Status of Land acquisition if not acquired	NIL
27.	**Rehabilitation and Resettlement (R&R):**	
	(a)No. of Villages	0
	(b)No. of Households	0
	(c)No. of PDFs (Project Displaced Families)	0
	(d)No. of PAFs (Project Affected Families)	0
	(e)Funds Allocated for R&R(in Rs)	0
	(f)Status of R&R	Yet To Start
28.	**Details of Presence of Schedule-I Species:**	
	(a)Whether there is Presence of Schedule-I Species ?	Yes
	(i)Details of Schedule-I Species	Olive Ridley Turtle
	(b)Whether conservation plan for Schedule-I Species has been prepared ?	Yes
	(i)Uploaded copy of conservation plan	Copy of conservation plan
	(ii)Fund Provision made	18040000
	(iii)Period of Implementation	10
	(c)Whether conservation plan for Schedule-I Species has been approved by competent authority ?	Yes
	(i)Uploaded copy of approval	Copy of approval
	(ii)Letter No.	22899/2013/WL-3
	(iii)Date of issue	11 Nov 2014
	(iv)Recommendation	NA
29.	**Details of Presence of Water Bodies in Core Area:**	
	(a)Whether there is Presence of Water Bodies in Core Area ?	No
	(b)Whether there is Diversion Required ?	No
	(c)Whether permission has been obtained from competent authority ?	No
30.	**Details of Presence of Water Bodies in Buffer Area:**	
	(a)Whether there is Presence of Water Bodies in Buffer Area ?	Yes
	(i)Details of Water Bodies in Buffer Area	CHERUVU
	(ii)Direction of Water Bodies in Buffer Area	South East
	(iii)Distance of Water Bodies in Buffer Area	0.25
31.	**Manpower Requirement:**	
	(a)Permanent Employment-During Construction	0

	(b)Permanent Employment-During Operation	350
	(c)Temporary Employment- During Construction	0
	(d)Temporary Employment- During Operation	0
	(e)No. of working days	350
	(f)Total Manpower	350
32.	**Green Belt in Ha:**	
	(a)Total Area of Green Belt (in hectare)	14.57
	(b)Percentage of Total Project Area	55.67
	(c)No. of Plants to be Planted	0
	(d)Funds Allocated for Plantation	0
	(e)Uploaded Green Belt plan	Copy of Green Belt Plan

33. **Project Benefits**

S. No.	Type of Project Benefits	Details of Project Benefits
(1.)	Financial	REVENUE TO VILLAGE
(2.)	Social	EMPLOYMENT

34. CRZ Specific Details : Not Applicable

35. Sector Specific Details : NOT APPLICABLE

35. Sector Specific Details For Industrial Projects - 1

S. No.	Item	Details
S. No.	Item	Details
36.	**Details of Court Cases:**	
	(a)Whether there is any Court Cases pending against the project and/or land in which the project is proposed to be set up ?	No
37.	**Details of Direction Issued under Environment (Protection) Act / Air (Prevention & Control of Pollution)) Act / Water (Prevention & Control of Pollution) Act:**	
	(a)Whether any Direction issued under EPA Act/Air Act/Water Act ?	No
38.	**Details of EIA Consultant:**	
	(a)Have you hired Consultant for preparing document?	Yes
	(i)Accreditation No.	NABET/EIA/1922/SA 0148
	(ii)Name of the EIA Consultant	PIONEER ENVIRO LABORATORIES AND CONSULTANTS PRIVAT
	(iii)Address	HYDERABAD
	(iv)Mobile No.	9440677333
	(v)Landline No.	23421170
	(vi)Email Id	info@pioneerenvirolabs.com
	(vii)Category of Accreditation	B
	(viii)Sector of Accreditation	Industrial Projects - 1
	(ix)Validity of Accreditation	21 Sep 2022
	(x)Uploaded Certificate of Accreditation certified by QCI/NABET	Copy of Certificate of Accreditation
39.	**Documents to be Attached:**	
	(a.I)Upload Copy of EIA/EMP(Text)	Copy of EIA/EMP(Text)
	(a.II)Upload Copy of EIA/EMP(Annexures) Report	Copy of EIA/EMP(Annexures)
	(a.III)Upload Copy of EIA/EMP(Maps/Plans/Figures only)	Copy of EIA/EMP(Maps/Plans/Figures only)
	(b)Uploaded Copy of Risk Assessment Report	Copy of Risk Assessment
	(c)Uploaded Copy of Feasibility Report/ Detailed Project Report(DPR) /Detailed Engineering Report /Detailed Conceptual Plan /Approved Mining Plan	Copy of Feasibility Report/ Detailed Project Report(DPR) /Detailed Engineering Report /Detailed Conceptual Plan /Approved Mining Plan
	(d)Uploaded Copy of Final Layout Plan	Copy of Final Layout Plan
	(e)Uploaded Cover Letter	Copy of Cover Letter
	(f)Uploaded Copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency	Copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency
	(i)Uploaded Additional File	NA
	(j)Uploaded Proposal Presentation (To be given in EAC meeting)	Copy of Uploaded Proposal Presentation

	(k)Uploaded Updated Form1	NA

Essential Details Sought			
S. No.	EDS Sought Date	EDS Sought	Letter
NO Record			

Addtional Details Sought			
S. No.	ADS Sought Date	ADS Sought	Letter
NO Record			

Undertaking

I hereby give undertaking that the data and information given in the application and enclosures are true to be best of my knowledge and belief. And I am aware that if any part of the data and information found to be false or misleading at any stage, the project will be rejected and clearance given, if any to the project will be revoked at our risk and cost. In addition to above, I hereby give undertaking that no activity/ construction/ expansion has since been taken up.

Name of Applicant	V H Rafi Ahammed
Designation	sr Vice President
Name of Company (Applicant Name should not be given here)	TRIMEX SAND PRIVATE LIMITED
Address	Vatsavalasa village srikumam P.O Gara mandal srikakulam District

FINAL
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

[BASED ON TOR LETTER VIDE LR.NO. SEIAA/AP/SKLM/IND/11/2021/3654-1128 DATED 12/04/2022]

PREPARED FOR

Trimex Sands Private Limited

[Operation of Mineral Separation Plant (MSP) of 0.44 MTPA throughput of Beach Sand Minerals]

at

Sy. Nos. 78, 79, 80, 84, 176 to 183 & 193

Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh.

PREPARED BY

PIONEER ENVIRO
LABORATORIES & CONSULTANTS PVT. LTD.

ISO 9001: 2008 Certified

Accredited by NABET

Plot No. 197,| A-Z Elite| 2nd Floor| Kavuri Hills | Guttala Begumpet Village | Madhapur | Hyderabad- 81 |
E mail: pelcpl@yahoo.co.in, info@pioneerenvirolabs.com|www.pioneerenvirolabs.com
| PEOPLE WHO CARE FOR ENVIRONMENT | SAVE ENVIRONMENT |

DECLARATION

Declaration by Experts contributing to the Final EIA report for the proposed Mineral Separation Plant (MSP) of 0.44 MTPA throughput of Beach Sand Minerals in Survey Nos. 78, 79, 80, 84, 176 to 183 & 193 Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh by Trimex Sands Private Limited.

We, hereby, certify that we were part of the EIA team in the following capacity that developed the above EIA.

Name of the coordinator	:	Mr. Sudhir Singh Mourya
Signature	:	Sudhir Singh
Date	:	29-04-2022

DECLARATION BY FUNCTIONAL AREA EXPERTS INVOLVED IN THE PREPARATION OF EIA REPORT

FUNCTIONAL AREA	NAME OF THE EXPERT	INVOLVEMENT (PERIOD)	SIGNATURE
AP	Mr. Y. Maheshwara Reddy	Nov. 2021 to Till date	Y M Reddy
WP	Mr. Y. Maheshwara Reddy	Nov. 2021 to Till date	Y M Reddy
SHW	Mr. Y. Maheshwara Reddy	Nov. 2021 to Till date	Y M Reddy
AQ	Mr. Y. Maheshwara Reddy	Nov. 2021 to Till date	Y M Reddy
SE	Mr. I. Durga Prasad	Nov. 2021 to Till date	
EB	Prof. Bayyapu Reddy	Nov. 2021 to Till date	
SC	Prof. Bayyapu Reddy	Nov. 2021 to Till date	
HG	Mr. V. Tarun Chander	Nov. 2021 to Till date	
GEO	Mr. V. Tarun Chander	Nov. 2021 to Till date	
NV	Smt. T Srilatha	Nov. 2021 to Till date	T Srilatha
LU	Dr. Y. Ramamohan	Nov. 2021 to Till date	
RH	Mr. D.H. Patel	Nov. 2021 to Till date	

INVOLVED AS	NAME OF THE PERSON	INVOLVEMENT (PERIOD)	SIGNATURE
Team Member	U. Venkatreddy	Nov. 2021 to Till date	U. Venkat Reddy

Declaration by the Head of the Accredited Consultant Organization

I, Y. Maheshwara Reddy, hereby, confirm that the above mentioned experts prepared the EIA for Trimex Sands Private Limited for the proposed Beach Sand Minerals plant – 0.44 MTPA (through put) in Survey Nos. 78, 79, 80, 84, 176 to 183 & 193 Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh. I also confirm that I shall be fully accountable for any misleading information mentioned in this statement.

Signature : Y M Reddy
Name : Y. Maheshwara Reddy
Designation : Managing Director
Organization : Pioneer Enviro Laboratories & Consultants Pvt. Ltd.

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TRIMEX

UNDERTAKING

I, **V H Rafi Ahammed, Sr Vice President (Operations)** of **Trimex Sands Private Limited** give this undertaking to the effect that the TOR prescribed by SEIAA, Andhra Pradesh vide Lr. No.- **SEIAA/AP/SKLM/IND/11/2021/3654-1128 DATED 12/04/2022** for the proposed Mineral Separation Plant (MSP) of 0.44 MTPA throughput of Beach Sand Minerals in Survey Nos. 78, 79, 80, 84, 176 to 183 & 193 Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh has been complied with and the data submitted are factually correct.

Date: 29/04/2022

Place: Vatsavalasa

For: Trimex Sands Private Limited

V H Rafi Ahammed
Sr Vice President (Operations)

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State Level Environment Impact Assessment Authority (SEIAA)
Andhra Pradesh
Ministry of Environment, Forests & Climate Change,
Government of India
D.No.33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamavari Street, Kasturibaipet, Vijayawada-520010

By Speed Post

Lr No. SEIAA/AP/SKLM/IND/11/2021/3654 -1128 **Dt. .04.2022**

To
M/s. Trimex Sands Pvt Ltd,
56, Telugu Musalayya Layout,
Adithya Nagar, Arasavalli Road,
Srikakulam – 532001, A.P.

Sir,

Sub: SEIAA, A.P. – **Beneficiation of Beach sand minerals of M/s. Trimex Sands Private Limited at Sy. Nos. 78, 79, 80, 84, 176 to 183 & 193, Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh State – TOR – Standard Terms of Reference (TOR)** – Issued - Reg.

Ref: Your application received through online on 22.11.2021 (Proposal No. SIA/AP/IND/69360/2021).

**

With reference to the above, it is to inform that your application was examined by the State Expert Appraisal Committee (SEAC), A.P., in its meeting held on **14th, 15th & 16th February, 2022.**

M/s. Trimex Sands Private Limited at Sy. Nos. 78, 79, 80, 84, 176 to 183 & 193 Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh State applied for TOR for Mineral Separation Plant (MSP).

The proposed project falls under Item No. 2(b) of the schedule of the EIA Notification 2006 and its amendments thereof - (i).Mineral beneficiation (<0.5Million ton/annum minerals throughoutput).

The project proponent and their consultant, M/s. Pioneer Enviro Labs have attended the meeting.

The proponent informed that MSP is already established in 2009-10 as part of the integrated Mining cum Beneficiation project for beach sand minerals, for which EC was obtained from MoEF& CC after conducting public hearing. The project t has undergone expansion in 2015 and fresh EC for expans ion was also obtained after conducting PH. The policy decision of the GOI in 2019 to permit only Govt companies in the mining of beach sand minerals resulted in the stoppage of the MSP, though it is situated outside the ML area. To facilitate restarting of the MSP operations by sourcing mineral concentrate from India/abroad, the proponent submitted application for grant of TOR and also requested for exemption from Public Hearing.

The Committee further noted that public hearing has been conducted in the year 2003 as per EIA notification 1994 for integrated proposal of Beach sand mining of 2 MTPA & Mineral Separation Plant (MSP) of 0.63 MTPA and EC was obtained in 2004. Thereafter, for expansion proposal, PH has been again conducted on 29.12.2012 as per EIA notification 2006 for 6.0 MTPA mining and 0.93 MTPA MSP and obtained EC in 2015. Now applying fresh EC for MSP of 0.44 MTPA only, which is less than 50% capacity for which PH been conducted & EC issued.

The Mining Lease was valid till 2034. The EC granted in 2015 based on the PH conducted was also valid till 2034. The change in policy of the GOI in 2019 only resulted in the stoppage of the mining and thereby MSP. No mining is proposed now.

The issue was placed in the 172nd SEAC and recommended for issue of Standard TOR with EIA & Public Hearing.Further, the SEIAA has reviewed in 169th meeting, the Committee Referred to SEAC to examine in the light of request letter dt. 20.12.2021submitted by the proponent.

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The Committee noted that as it is an established unit & in operation for several years and it is 50% lower capacity than for which PH was conducted & EC accorded earlier.

The Committee after examining the project proposals, presentations, MoEF&CC' Notifications & OMs and detailed deliberations, recommended for issue of Standard TOR with EIA, without Public Hearing under 7(II) of EIA Notification, 2006.

The issue was placed before the SEIAA, A.P., in its meeting held on 21.03.2022. Decision of SEIAA: Agreed with the recommendation of the SEAC.

In view of the above, you are requested to prepare EIA report based on the standard TOR without Public hearing and submit to the SEAC,A.P., for appraisal. The Terms of the reference are valid for a period of three years.

12/4/22

MEMBER SECRETARY,
SEAC, A.P.

TORs COMPLIANCE

Compliance made on TOR issued by SEIAA, Andhra Pradesh vide Lr. No. SEIAA/AP/SKLM/IND/11/2021/3654-1128 dated 12/04/2022 for Trimex Sands Private Limited.

TOR No.	TOR point	TOR Compliance
1.	The alternate sites considered, the relative merits and demerits and the reasons for selecting the proposed site for the Beneficiation Plant should be indicated.	Kindly refer to page no. 5.1 of EIA report of Chapter – 5 for alternate sites.
2.	Details of the technology and process involved for beneficiation should be given.	Kindly refer to page no. 2.14 to 2.18 of EIA report of Chapter – 2 for flow sheet of the process.
3.	Location of the proposed Plant w.r.t. the source of raw material and mode of transportations of the ore from mines to the beneficiation plant should be justified.	Kindly refer to page no. 2.11 to 2.13 of EIA report of Chapter – 2 for raw material and mode of transportations of the ore
4.	Treatment of run of mine (ROM) and or of the fines/waste dump should be spelt out.	Not applicable, as the Mineral separation plant was established outside the ML area.
5.	Estimation of the fines going into the washings should be made and its management described.	Kindly refer to page no. 10.7 of EIA report of Chapter – 10 for fines.
6.	Details of the equipment, settling pond etc. should be furnished.	Details of the equipment installed in the Plant are furnished in **Annexure – 1.** No settling ponds are proposed.
7.	Detailed material balance should be provided.	Kindly refer to page no. 2.14 of EIA report of Chapter – 2 for material balance.
8.	Sources of raw material and its transportation should be indicated. Steps proposed to be taken to protect the ore from getting air borne should be brought out.	Kindly refer to page no. 2.11 to 2.13 of EIA report of Chapter – 2 for raw material and mode of transportations of the ore

9.	Management and disposal of tailings and closure plan of the tailing pond, if any after the project is over, should be detailed in a quantified manner.	Not applicable, as the tailings generated during the plant operations will be disposed concurrently and there will not be creation of any tailings pond.
10.	The water requirement for the project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the project should also be indicated.	Kindly refer to page no. 4.4 of EIA report of Chapter – 4 for water requirement, source and water balance. The Source of water is from the Vamsadara river, for which approval has already been accorded to draw up to 0.14 TMC (10860 KLD) of water. Infiltration galleries are established in the riverbed to draw the water and a copy of the same is attached **annexure -2.**
11.	A copy of the document in support of the fact that the Proponent is the rightful lessee of the unit should be given.	Not applicable, as the Mineral separation plant is a standalone unit and no mining is involved.
12.	All documents including EIA and public hearing should be compatible with one another in terms of the production levels, waste generation and its management and technology and should be in the name of the lessee.	As the proposed project is beach sand mineral separation plant, this is not applicable in the instant case.
13.	All corner coordinates of the Unit, superimposed on a High Resolution Imagery/Toposheet should be provided. Such an Imagery of the proposed Unit should clearly show the land use and other ecological features of the study area (core and buffer zone).	Kindly refer to page no. 2.5 of EIA report of Chapter – 2 for plant site corner coordinates superimposed on Toposheet
14.	It should be clearly indicated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the	Kindly refer to page no. 10.10 to 10.13 of EIA report of Chapter – 10 for Environmental Policy of the company.

	EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	
15.	Issues relating to Safety should be detailed. The proposed safeguard measures in each case should also be provided. Disaster management plan shall be prepared and included in the EIA/EMP Report.	Kindly refer to page no. 7.6 to 7.20 of EIA report of Chapter – 7 for Safety and Disaster management plan
16.	The study area will comprise of 10 km zone around the Plant.	Baseline data has been collected around 10 Km radius from plant site
17.	Cumulative impact study of both Beneficiation Plant with suggested mitigation measures as per the study should be described.	Kindly refer to page no.4.1 to 4.4 of EIA report of Chapter – 4 GLCs of Mineral separation plant only. The isopleths plot on topographical map is attached as **annexure -3** Kindly refer to page no. 10.2 to 10.4 of EIA report of Chapter – 10 for air emission mitigation measures
18.	Location of Railway siding with its handling capacity and safety measures should be indicated.	Company is not proposing any Railway siding in the plant
19.	Option to provide only silo for storage of minerals instead of open stacking to avoid fugitive dust should be explored and arrangements finalized justified.	All minerals produced in the plant except Ilmenite will be bagged in HDPE jumbo bags, sealed and stored in closed

		warehouses. Ilmenite mineral will be stored in bulk in closed warehouse.
20.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Kindly refer to page no. 3.35 to 3.38 of EIA report of Chapter – 3 for LULC of the study area
21.	Details of the land for any Over Burden Dumps outside the lease, such as extent of land area, distance from lease, its land use, R&R issues, if any, should be given.	Not applicable, company is not proposing any mining operations and proposal is for operation of the beach sand mineral separation plant.
22.	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the Project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	Not applicable, company is proposing beach sand mineral separation plant only and no mining operation or mining lease is proposed. No forest land involved in the plant site.
23.	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not applicable, company is proposing beach sand mineral separation plant only and no mining operation or mining lease is proposed. No forest land involved in the plant site.

24.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not applicable, company is proposing beach sand mineral separation plant only and no mining operation or mining lease is proposed. No forest land involved in the plant site.
25.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	Kindly refer to page no. 3.42 to 3.45of EIA report of Chapter – 3 for vegetation in the study area
26.	A study shall be got done to ascertain the impact of the Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly detailed mitigative measures required, should be worked out with cost implications and submitted.	Kindly refer to page no. 4.10 of EIA report of Chapter – 4 for vegetation in the study area
27.	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/(existing as well as proposed) within 10 km of the mine lease.
28.	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details	Kindly refer to page no. 4.10 of EIA report of Chapter – 4 for vegetation in the study area. There is one scheduled I fauna found in the study area i.e. Olive Ridley Turtle. Conservation plan was prepared and was approved PCCF Govt. Andhra Pradesh and a copy of the same is attached as **Annexure – 4.**

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	furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	
29.	Proximity to Areas declared as 'Critically Polluted' shall also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB/CPCB shall be secured and furnished to the effect that the proposed activities could be considered	There are no 'Critically Polluted within 10 km of the plant area
30.	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the unit w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	The Mineral Separation Plant is located outside the CRZ area at a distance of 1.60 km from the seashore. The CRZ map, prepared earlier by an authorised agency for the integrated mining project, and showing the MSP location is attached as **Annexure -5**
31.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects, should be discussed in the report.	Not applicable, company is proposing operation of the Beach mineral separation plant, which is already established after obtaining EC, CFE and CFO approvals.
32.	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on	Kindly refer to page no. 3.1 to 3.9 of EIA report of Chapter – 3 for baseline data of the study area

	ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the unit in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given	Kindly refer to **Annexure – 6** for one season ambient air quality data
33.	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Kindly refer to page no. 4.1 to 4.4 of EIA report of Chapter – 4 for Air quality modelling. The isopleths plot on topographical map is attached as **annexure -3.**
34.	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Kindly refer to page no. 4.4 of EIA report of Chapter – 4 for water requirement, source and water balance.
35.	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be secured and copy furnished.	Kindly refer to page no. 4.4 of EIA report of Chapter – 4 for water requirement, source and water balance. The Source of water is from the Vamsadara river, for

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		which approval has already been accorded to draw up to 0.14 TMC (10860 KLD) of water. Infiltration galleries are established in the riverbed to draw the water and a copy of the same is attached **annexure -2.**
36.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Kindly refer to page no. 10.8 & 10.8 of EIA report of Chapter – 10 for water conservation measures.
37.	Impact of the project on the water quality, both surface and groundwater should be assessed and necessary safeguard measures, if any required, should be provided.	Kindly refer to page no. 4.5 of EIA report of Chapter – 4 for water conservation measures.
38.	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	No stream, seasonal nalah passing through the plant site
39.	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to the pollution.	Kindly refer to page no. 10.8 of EIA report of Chapter – 10 for Greenbelt Development Plan.
40.	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network	Kindly refer to page no. 4.8 to 4.9 of EIA report of Chapter – 4 for truck traffic.

	(including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered.	
41.	Details of the onsite shelter and facilities to be provided to the workers should be included in the EIA report.	Company will provide all the onsite shelter facilities to the workers of the plant
42.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area should be detailed.	Kindly refer to page no. 7.17 to 7.20 of EIA report of Chapter – 7 for occupational health measures.
43.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Kindly refer to page no. 10.1 to 10.12 of EIA report of Chapter – 10
44.	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Kindly refer to page no. 8.1 to 8.2 of EIA report of Chapter – 8 for socio economic development activities
45.	Public hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	Hon`ble SEAC and SEIAA has exempted the Public hearing for proposed project
46.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.	No court case/ litigation pending against the project

47.	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Kindly refer to page no. 10.10 of EIA report of Chapter – 10 for cost of the Project, capital cost and recurring cost.
48.	A brief background of the Project, its financial position, Group Companies and legal issues etc should be provided with past and current important litigations if any.	Kindly refer to page no. 1.2 to 1.3 of EIA report of Chapter – 1 for brief background of the Project.
49.	Benefits of the Project, if the project is implemented should be outlined. The benefits of the projects shall clearly indicate environmental, social, economic, employment potential, etc.	This project is value addition to the mineral separation. The separated minerals will be transported in the trucks to the end users. The plant will provide direct employment to about 50 persons and contract employment to about 300 persons, which will be as officials, staff, skilled, semi-skilled labour, security, transport staff etc. Company has earmarked Rs. 2.3 crores for CSR activities which will be spent over a period of 3 years

CHAPTER – 1
INTRODUCTION

1.0 PURPOSE OF THE REPORT:

Environmental management plays a vital role in sustainable development of a country. Recognizing its importance, the Ministry of Environment, Forest and Climate Change, Government of India had formulated policies and procedures governing the industrial and other developmental activities to prevent indiscriminate exploitation of natural resources and to promote integration of environmental concern in developmental projects.

The Ministry of Environment, Forest and Climate Change has made prior Environmental Clearance (EC) for certain developmental projects mandatory through its notification issued on 14th September 2006 and its subsequent amendment.

Environmental Impact Assessment (EIA) is systematic process to identifying, predicting, evaluating and mitigating the biophysical, social and other relevant environmental effects due to the proposed developmental project. It plays a vital role in providing information for decision-making on the environmental consequences of proposed projects. It promotes environmentally sound and sustainable development through the identification of appropriate enhancement and mitigation measures.

The proposed project has both positive and negative impacts on the environment. The negative impacts include environmental degradation. It is the responsibility of the company to document the associated positive and negative impacts along with well thought out mitigating factors, so that the attempts can be made to minimize the effects due to the negative impacts by adopting proper Environmental mitigation measures and maximize the benefits due to the positive impacts. In this regards, Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) have been considered as the most important documentation in understanding the environmental implications and safeguarding the environment, while ensuring economic growth.

1.1 IDENTIFICATION OF PROJECT & PROJECT PROPONENT:

Trimex Sands Private Limited is a Private limited company incorporated in 1985 under Companies Act 1956. Trimex Group is a minerals business house with interests in extraction, sourcing, procurement, delivery, and R&D. Trimex delivers products such as Barite, Bentonite, Iron Ore,

Feldspar, Bauxite, Ball Clay and Kaolin, among others, to the world's leading Oil Drilling, Ceramic, Glass, Construction, Energy, Steel, metallurgical and Fertilizer companies.

The Group's parent Company is Trimex Industries Pvt Ltd which trades in many Industrial Minerals such as Coking Coal, Thermal Coal, Feldspar and pioneer in exporting Barites for more than three decades. The Group manages the minerals business through two strategic business units. Trimex International, based in Dubai, oversees the international business. Trimex Industries represents the Indian operations of the Group. Trimex Sands Pvt Ltd is a subsidiary of Trimex Industries.

PROJECT PROPONENT: [STANDARD TOR # 48]

M/s Trimex Sands Private Limited (TSPL) is a private limited company. Trimex had identified the beach sand mineral-related business as an opportunity with a great future and went on to identify suitable deposits from the year 1998. The work on beach sand mineral exploration has started when the Government of India liberalized private sector participation in the exploitation of beach sand minerals deposits in 1998 for the benefit of the Nation and maximum utilization of national resources. After obtaining a prospecting license in 2001 and a mining lease over an extent of 7.20 Sq. kms (720 Ha) in 2004 for beach sand minerals at Vatsavalasa & Tonangi Villages of Gara Mandal, Srikakulam District, the TSPL has established the Mining, Pre-Concentration Plants (PCP) and Mineral Separation Plant (MSP) to produce beach sand minerals i.e. Ilmenite, Rutile, Zircon, Garnet and Sillimanite. The project is located in Gara Mandal of Srikakulam District and is 20 Km away by road from Srikakulam town, the District headquarters in Andhra Pradesh.

The company draws power from a dedicated 33KV power line drawn from Chilakapalem sub-station, 40 km away, with backup power supply available from Ampol sub-station situated, 16 km away. The company also has 100% power backup through Diesel Generators and a 1.05 MW solar power station within the project area. Process water is drawn from the Vamsadara river through a dedicated 9 Km Pipeline laid by the company. TSPL has ensured utility requirements i.e. Power, Water, Road etc. for the effective running of the plant. The following are the current Directors of the Trimex Sands Private Limited.

TABLE NO.1.1: LIST OF DIRECTORS

Sl. No.	Name	Designation
1	Sri Vijay Garg	Director
2	Sri K. Pavan Kumar	Director

INTEGRATED BEACH SAND MINERAL PROJECT DETAILS:

A mining lease for beach sand minerals over an extent of 720 Ha in Vatsavalasa &Tonangi villages of Gara Mandal, Srikakulam has been granted to Trimex Sands Pvt Ltd (TSPL) vide GO MS No.31 dated 07.02.2004. After obtaining all approvals including Environmental Clearance (EC) from MOEF, Consent For Establishment (CFE) from APPCB, Consent For Operation (CFO) from APPCB, CRZ Clearance etc and completion of Plant constructions, the project started commercial operations in the year 2009-10 with an approved capacity of 2.0 MTPA of RoM production. The project involves mining, wet Pre-Concentration Plants (PCP) and Mineral Separation Plant (MSP) to produce Ilmenite, Garnet, Rutile, Zircon and Sillimanite. A part of the sillimanite/zircon produced was also pulverized in a ball mill facility installed in the mineral separation plant. The Mining and PCPs are established within the mining lease area, whereas the MSP has been established outside the mining lease area.

Subsequently expansion has been proposed and all new approvals like EC, CFE, CFO, CRZ etc have been obtained in the year 2015 for the expansion capacity from 2.0 MTPA 6.0 MTPA of RoM production with 0.93 MTPA of minerals production. The mining lease extent remained at 720 Ha and the MSP extent at 59.27 Ha.

The most environmentally friendly mining and mineral separation methodology was adopted by the company. After processing of raw sand and separation of heavy minerals, waste sand and water is transported back to the mined-out lands for back filling and reclamation and the water is recovered through the thickener.

The State Govt suspended the mining operation in Sept 2018 and determined the lease on 28.11.2018 citing a report of the State Vigilance & Enforcement dept alleging mining operations in a part of the mining lease area without obtaining revenue clearance. The company filed a WP against the State Govt order, resulting in the submission of a revised report by the Vigilance & Enforcement dept setting aside all the recommendations contained in the earlier report. Also obtained a stay from the Hon'ble High Court on the determination of the mining operations by the State Govt.

In the meantime, the Central Government vide Notification No. GSR 134(E) dated 20.02.2019 has barred mining of beach sand minerals by private companies. Because of the said notification, all the mining activities of the project proponent including downstream PCPs and MSP activities are

remain suspended as of date. Thereafter, respective authorities revoked the EC, CFE and CFO of the integrated project citing a prohibition on the mining operations.

Further to the stoppage of the mining operations, the project proponent has applied the APPCB for the issue of CFE to operate the MSP & Ball Mill, since these facilities are situated outside the mining lease area. However, the APPCB advised the PP to obtain NOC from the MoEF & CC as earlier granted EC for the integrated mining project was revoked. The PP approached the MoEF & CC and requested for NOC to operate the MSP & Ball Mill. The matter was referred to the EAC (Non-Coal) and the committee considered the proposal in their meeting dated 1st July 2021. However, the Committee returned the proposal stating that the EAC-Non-Coal Committee cannot appraise the proposal since the instant proposal for operating the MSP & Ball Mill is covered under Category 2(b) of the EIA notification, 2006 (mineral beneficiation), which is standalone and outside the mine lease area; the EC granted for the integrated mining project was revoked and the Ministry of Mines has advised to not grant clearances for mineral concessions of beach sand minerals held by private companies.

PRESENT PROPOSAL:

Now it has been proposed to utilize the above-mentioned existing Mineral Separation Plant (MSP) and Ball Mill as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from 0.44 MTPA of mineral concentrate throughput sourced from suppliers/mining firms in India and abroad including Andhra Pradesh Mineral Development Corporation (APMDC), IREL (India) Ltd etc. Part of the sillimanite and zircon minerals produced in the MSP/sourced minerals will be pulverized in a ball mill installed in the MSP premise. The flotation circuit to separate the Sillimanite minerals presently available at the PCP also will be dismantled and re-erected at the MSP. However, no mining or operation of PCPs, which were working earlier, will be operated under the proposal submitted now.

In the earlier EC, approval was accorded to produce 0.93 MTPA of mineral production from MSP and the land extent was 59.27 Ha. The CFO was also obtained for 0.93 MPTA, comprising 0.80 MTPA of mineral production + 0.13 MTPA of mineral-rich tailings. However, due to an unexpected decrease in the mineral content in the RoM and lack of demand for fine size Garnet and Sillimanite, the MSP production was less than 50% of the approved capacity. Now, 0.344 MTPA of mineral production is planned from 0.44 MTPA of throughput (feed) capacity, for which MSP is already established and was in operation till Sept month of the year 2018. Further, 26.17 Ha of

land from the earlier approved 59.27 Ha will be utilized for the current proposal and no additional land will be taken up for the operation of MSP. No additional cost will be required, as the plant is already established.

The water requirement for the MSP for 0.44 MTPA of throughput capacity is 760 KLD and will be sourced from the Vansadhara river. Permission to draw 0.14 TMC of water per annum from Vamsadara River has been granted vide GO MS. 103 dated 24.09.2015 and is valid till 15.06.2024. The power required for the plant is 4.40 MW. Power required for the plant will be sourced from the State Grid, for which approval is already existing. Further, a company-established 1.05 MW solar power plant is already existing in the project area.

As per the Ministry of Environment & Forests, New Delhi EIA notification, dated 14th September, 2006 and its subsequent amendments, ore Beneficiation plant less than 0.5 Million TPA are classified under Category 'B'.

In order to obtain Environmental Clearance for the proposed project, Form - I, proposed TOR along with Pre-Feasibility Report were submitted to the Honourable State Environmental Impact Assessment Authority (SEIAA), Andhra Pradesh vide online proposal No. SIA/AP/IND/69360/2021 dated 22/11/2021. Presentation was made before the Hon'ble State Expert Appraisal Committee on 14/02/2022 for the approval of TOR (Terms of Reference) for EIA study. Subsequently the TOR has been accorded by Honourable SEIAA, Andhra Pradesh vide Lr. No. SEIAA/AP/SKLM/IND/11/2021/3654-1128 dated 12/04/2022 with exemption of public hearing for the proposed project. Final EIA report has been prepared incorporating the Terms of Reference issued by the SEIAA, Andhra Pradesh.

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India for conducting EIA studies for Mineral Beneficiation Industries, have prepared Environmental Impact Assessment (EIA) report for the proposed project.

This report furnishes the details of location of Site, Description of the project, prevailing baseline status w.r.t Air Environment, Water Environment, Noise Environment, Land Environment, Flora & Fauna and Socio-economic environment. This report also helps in identification of environmental impacts and suggesting mitigation measures to be followed during Pre-operation and Operation of the proposed project as a part of Environmental Management Plan. This report also acts as

guidance manual for the proponent for following the Environmental Management Plan (EMP) and for adopting post project Environmental Monitoring Program as per statutory norms.

1.2 BRIEF DESCRIPTION:

1.2.1 NATURE OF THE PROJECT:

The present proposal is to operate the existing Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from the mineral concentrates sourced from suppliers/mining firms in India and abroad including Andhra Pradesh Mineral Development Corporation (APMDC), IREL (India) Ltd etc. Part of the sillimanite and zircon minerals produced at MSP/sourced minerals will be pulverized in a ball mill already installed within the MSP. The proposed throughput of the plant is 0.44 Million Tons Per Annum (MTPA). The quantities of individual minerals to be produced in the 0.44 MTPA Mineral Separation Plant are as follows,

1.2.2 SIZE OF THE PROJECT:

The following are production details of the proposed project.

TABLE NO.1.2: PRODUCT AND PRODUCTION DETAILS

S.NO	MINERAL	QUANTITY (IN TPA)
1	Ilmenite	2,40,000
2	Garnet	45,000
3	Sillimanite/Pulverised Sillimanite	45,000
4	Rutile	8,000
5	Zircon/Pulverised Zircon	6,000
TOTAL		**3,44,000**

Note: *The individual mineral production from MSP may change depending upon the individual mineral content available in the concentrate received from the suppliers but will not exceed the figures given above.*

1.2.3 LOCATION OF THE PROJECT:

Trimex Sands Private Limited has established the MSP in Survey Nos. Sy. Nos. 78, 79,80,84, 176 to 183 & 193 of Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh. Land

envisaged for the project is having an extent of 26.17 Ha and is fully owned by the project proponent.

Rail: Srikakulam Road Railway Station (26 Km)

Road: The MSP is connected by a 4 km length tar road connecting Srikakulam-Kalingapatnam State Highway at Tulugu village. Srikakulam town is at a distance of 20 Km.

Sea port: Visakhapatnam 120 km SW from the MSP

1.2.4 IMPORTANCE OF PROJECT:

There is a significant demand for minerals like ilmenite, Garnet, Sillimanite, Rutile, Zircon, etc in the domestic market and also globally. Considering this, Mineral Separation Plant is proposed to be restarted. After obtaining EC, CFE, CFO and Factory license, these minerals produced at MSP will be sold domestically and also exported to many countries viz. UAE, UK, Australia, Malaysia, China etc. There is an extensive demand for these minerals. The benefits of this project to the country include tax revenues, foreign exchange earnings, CSR benefits to the public, employment creation, helping hand in the upliftment of the socio-economic condition of local people in the plant area, generation of ancillary industrial units etc. It is also to mention the fact that there are no major industries in the region to provide for employment at this scale.

DEMAND AND SUPPLY GAP"

There is a continuous growing demand for the minerals like Ilmenite, Garnet, Sillimanite, Rutile, Zircon, etc in the domestic and global markets. Many MSMEs in Welding Industry are paying huge price to buy the raw materials like Rutile.

Ilmenite and Rutile are the two chief minerals of titanium. Ilmenite contains about 50-60% TiO2, while Rutile contains 92 to 96% TiO2. The titanium dioxide (TiO2) pigment industry consumes about 94% of the world's Ilmenite production. Because of a unique combination of its superior properties of high refractive index, low specific gravity, high hiding power and opacity and non-toxicity, titanium dioxide finds application in the manufacture of all types of white and pastel shades of paints, white-walled tyres, glazed papers, plastics, printed fabrics, flooring materials like linoleum, pharmaceuticals, soaps, face powders and other cosmetic products, etc. Because of its non-toxic nature, it is used in cosmetics, pharmaceuticals, and even added to foodstuffs as well as in toothpaste to improve their brightness. Titanium dioxide is used in the manufacture of many sunscreen lotions and creams because of its non-toxicity and ultraviolet absorption properties.

Rutile is mainly used in the electrode manufacturing industry. Ferro-titanium alloy industry consumes a minor quantity of Rutile. Synthetic rutile is used for coating welding electrodes as flux components and for the manufacture of titanium tetrachloride which in turn is used in making titanium sponges. Synthetic rutile is also used as an ingredient of special abrasives.

The hardness of Garnet varies from 7.5 to 8.0 and its Specific gravity is 4.0 to 4.2. Almandine Garnet is one of the best natural Abrasives and is preferred over other natural abrasives like Silica sand, Mineral Sands & Flint. The major industrial uses of almandine Garnet are abrasive blast cleaning (Sandblasting) for surface preparations, water jet cutting (Abrasive injected into water) for surface preparations, water filtration, manufacturing of coated abrasives, micronized Garnet powder for polishing metals, glass, ceramics & plastics etc.

The hardness of Sillimanite varies from 6.0 -7.0 and its specific gravity is 3.4. Sillimanite is mainly used for the production of high Alumina refractories capable of withstanding high temperatures with more life span. Since the recovery of Sillimanite from hard rocks is becoming costlier and is of inferior quality, the granular sillimanite from the beach sands can be profitably utilized after suitable sintering/agglomeration.

Zircon is a valuable mineral used mainly in the manufacture of vitrified tiles, zirconium compounds, electronic equipment and partially stabilized zirconia in refractories.

EXPORT POSSIBILITY:

There is a tremendous demand for these minerals globally. Govt of India is also offering several tax incentives for export-oriented units. Hence the minerals like Ilmenite, Garnet, Sillimanite, Rutile, Zircon, etc will be exported to countries like Japan, Malaysia, China, UAE, etc.

DOMESTIC/EXPORT MARKETS:

Apart from above said overseas buyers, there are many pigments and synthetic rutile manufacturers in India for Ilmenite consumption. Ilmenite with low values of titanium has to be necessarily upgraded into a value-added product, viz. Synthetic Rutile, which will be the feedstock used in the manufacture of Titanium dioxide pigments. The majority of the Rutile produced in India is being consumed by welding electrode manufacturing industries and there is a lack of availability for the export market.

The majority of the Garnet being produced in India is exported to the above-mentioned industries in countries like Australia, UAE, Malaysia, UK etc. Sillimanite is mainly dispatched to domestic ceramic lining/brick manufacturing industries. There is a huge demand for this mineral in the domestic as well as in overseas markets.

1.3 SCOPE OF THE STUDY:

The scope of work includes a detailed characterization of the environment in an area of 10 Km. radius of the project site for various environmental parameters like Air environment, Water environment, Noise environment, Land environment, Biological environment, Socio-economic aspects etc. The Final EIA Report is prepared based on TOR issued by SEIAA, Andhra Pradesh.

CHAPTER – 2
PROJECT DESCRIPTION

2.0 TYPE OF PROJECT:

Trimex Sands Private Limited has established MSP as part of the integrated beach sand mining project after taking necessary approvals like EC, CFE, CFO, etc. and has been in operation till the ban imposed by Govt. of India for beach sand mining by private companies came into force in 2018-19. Since the EC, CFE, CFO was integrated with approvals for beach sand mining, PCP (within ML area) & MSP (outside ML area), the EC, CFE & CFO have been revoked, after the Govt banned mining.

Now it has been proposed to utilize the above-mentioned existing Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from 0.44 MTPA of mineral concentrate, which will be sourced from suppliers/mining firms in India and abroad including IREL (India) Ltd and Andhra Pradesh Mineral Development Corporation (APMDC). Part of the sillimanite and zircon minerals produced at MSP/sourced minerals will be pulverized in a ball mill installed in the MSP premise. However, no mining and PCPs, which we're working on earlier, will be operated under the proposal submitted now.

2.1 NEED FOR THE PROJECT:

There is a significant demand for minerals like ilmenite, Garnet, Sillimanite, Rutile, Zircon, etc in the domestic market and also globally. Considering this, Mineral Separation Plant is proposed to be restarted. After obtaining EC, CFE, CFO and Factory license, these minerals produced at MSP will be sold domestically and also exported to many countries viz. UAE, UK, Australia, Malaysia, China etc. There is an extensive demand for these minerals. The benefits of this project to the country include tax revenues, employment creation, helping hand in the upliftment of the socio-economic condition of local people in the plant area, etc.

The present proposal is to operate the existing Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from a throughput capacity of 0.44 MTPA of the mineral concentrate, which will be sourced from suppliers/mining firms in India and abroad including IREL (India) Ltd and Andhra Pradesh Mineral

Development Corporation (APMDC). Part of the sillimanite and zircon minerals produced/sourced minerals will be pulverized in a ball mill installed in the MSP premises.

2.2 LOCATION OF THE PROJECT:

Trimex Sands Private Limited has established the MSP in Survey Nos. 78, 79, 80, 84, 176 to 183 & 193 in Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh. The following are plant site coordinates.

TABLE NO.2.1: COORDINATES OF THE PLANT SITE

S.NO.	LATITUDE	LONGITUDE
A	18°17'12.00"N	84° 02'42.70"E
B	18°17' 07.80"N	84° 02'56.60"E
C	18°16'58.20"N	84° 02'58.20"E
D	18°16'50.10"N	84° 02'52.90"E
E	18°16'51.16"N	84° 02'48.47"E
F	18°16'52.87"N	84° 02'48.76"E
G	18°16'55.13"N	84° 02'41.84"E
H	18°16'58.98"N	84° 02'42.59"E
I	18°16'58.80"N	84° 02'37.70"E

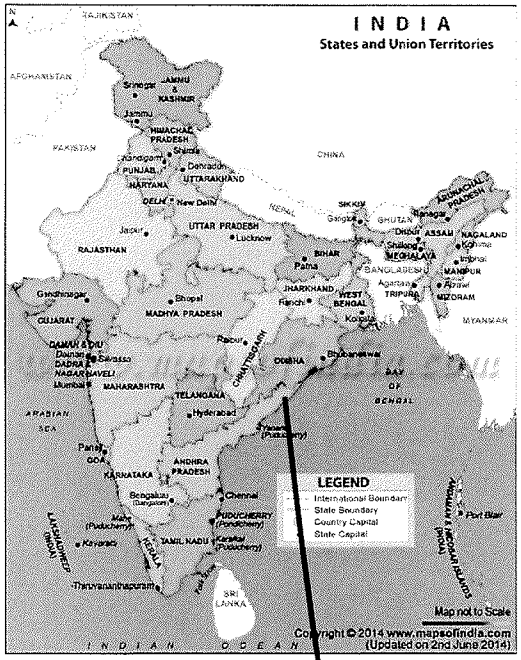
The general location, topographical, Google location maps and plant site photographs are show in figures below as Fig: 2.1, 2.2, 2.3, 2.4 respectively.

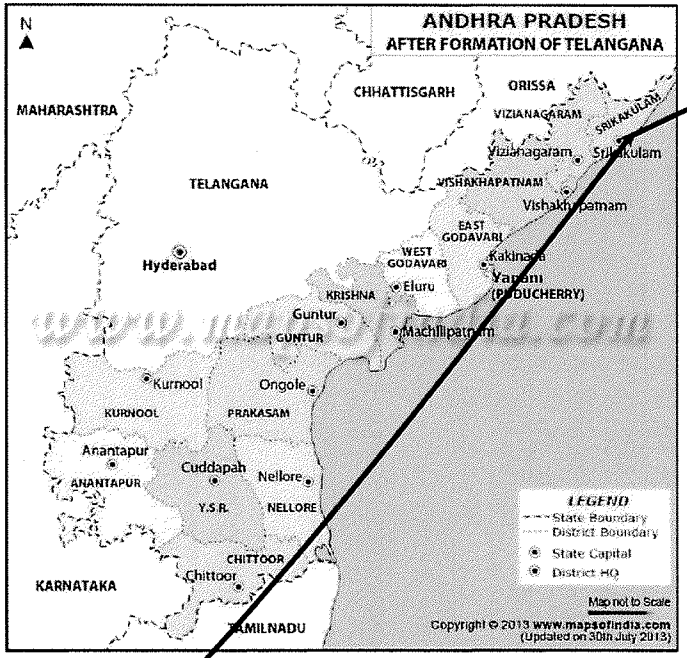
ADDRESS OF THE PROJECT PROPONENT:

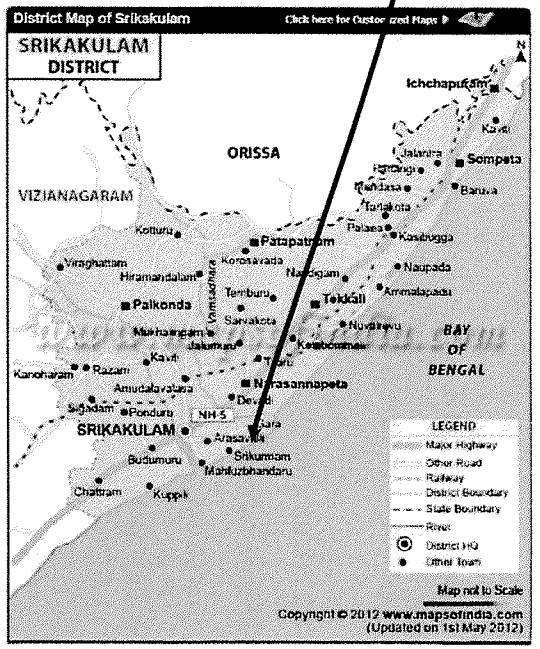
M/s Trimex Sands Private Limited	
Corporate Office: Trimex Towers, No: 1, Subbaraya Avenue, C.P. Ramaswamy Road, Alwarpet, Chennai – 600 018, Tamilnadu Email: info@trimexsands.com	**Site Office:** Vatsavalasa Village and Post, Gara Mandal, Srikakulam – 532 404 Andhra Pradesh Email: rafi.ahammed@trimexsands.com

GENERAL LOCATION OF THE PLANT SITE

FIGURE: 2.1

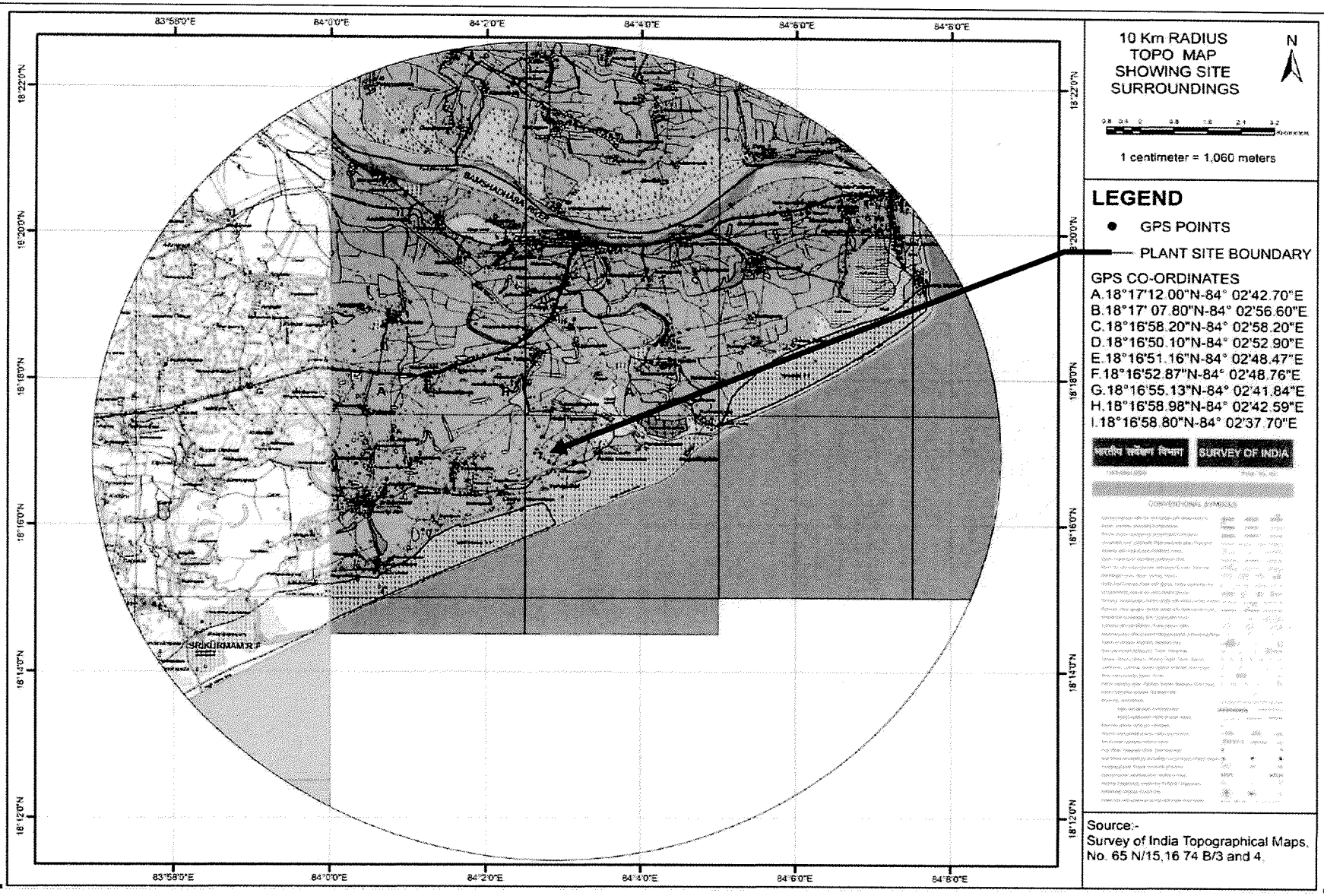






TOPOGRAPHICAL MAP SHOWING PLANT SITE AND SURROUNDING 10 KM RADIUS

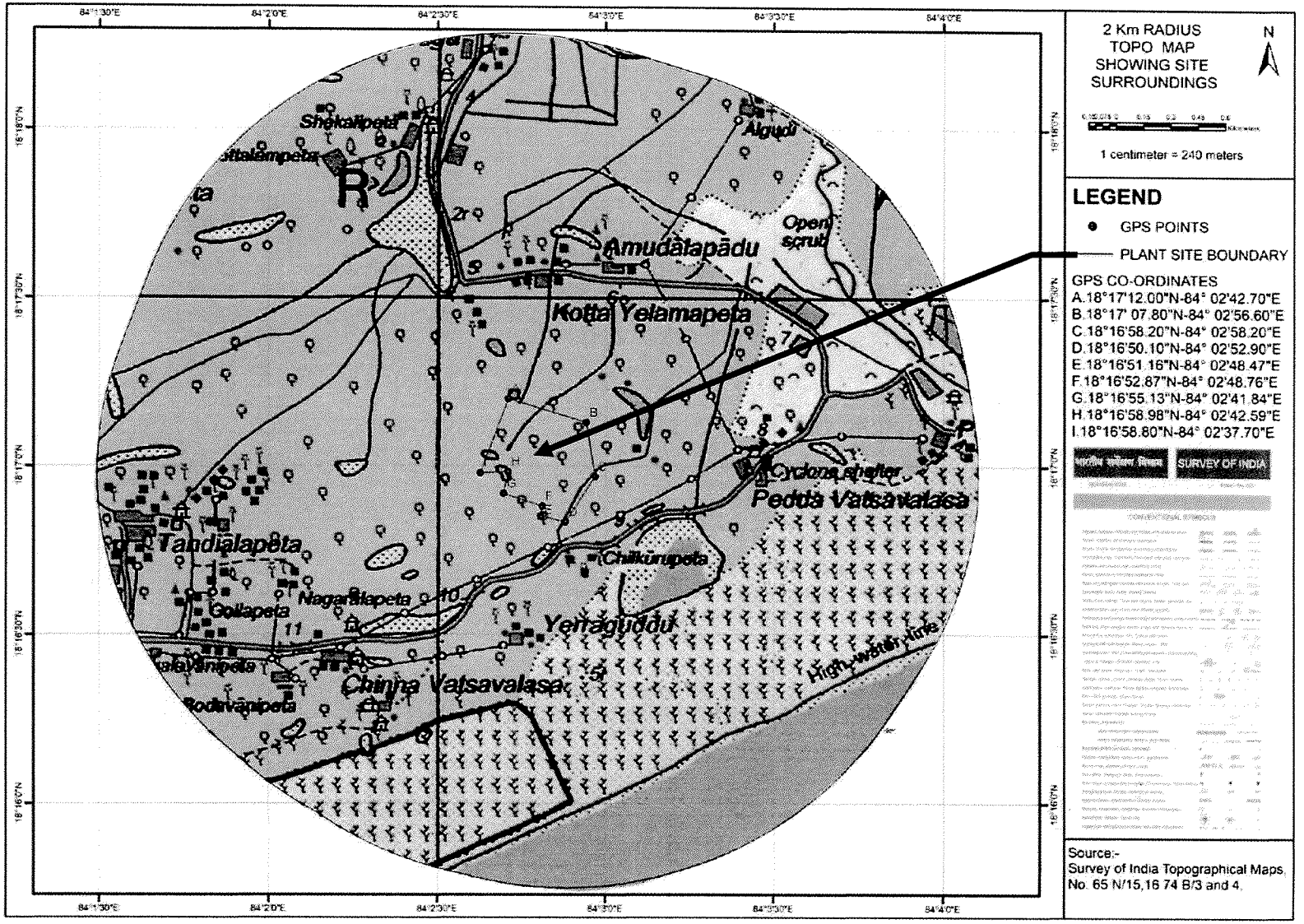
FIGURE: 2.2



TOPOGRAPHICAL MAP SHOWING PLANT SITE AND COORDINATES

FIGURE: 2.3

[STANDARD TOR # 13]



GOOGLE MAP SHOWING PLANT SITE

FIGURE: 2.4

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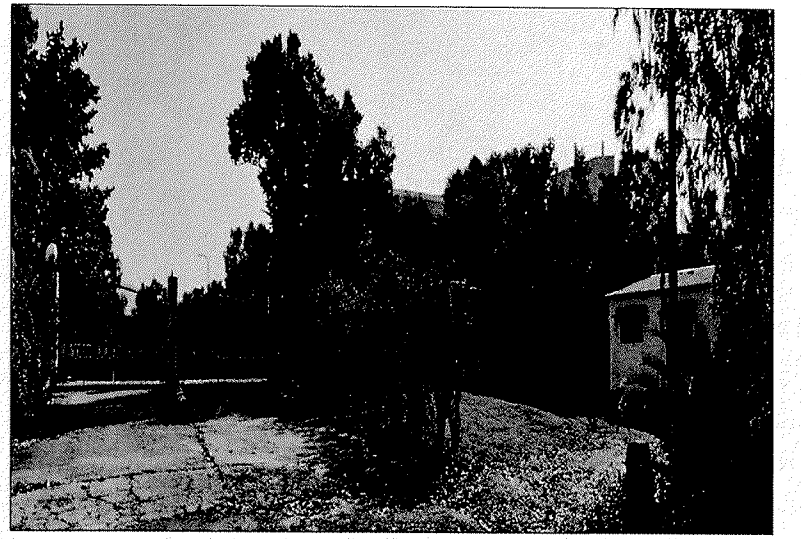
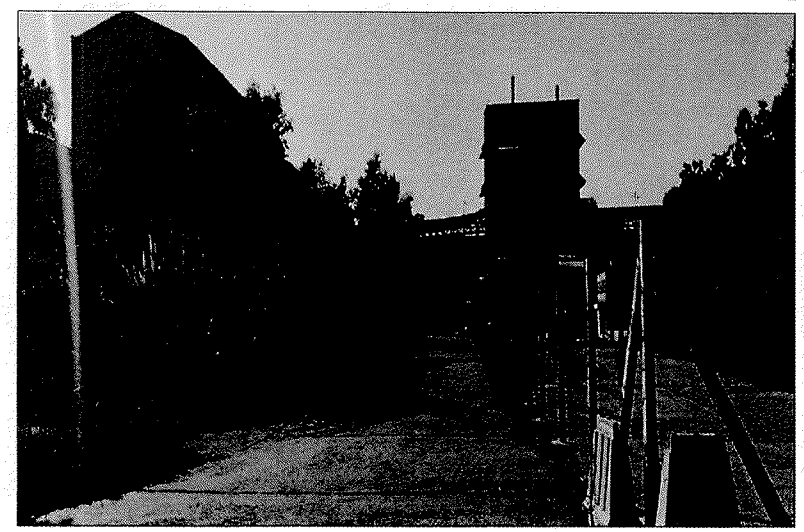
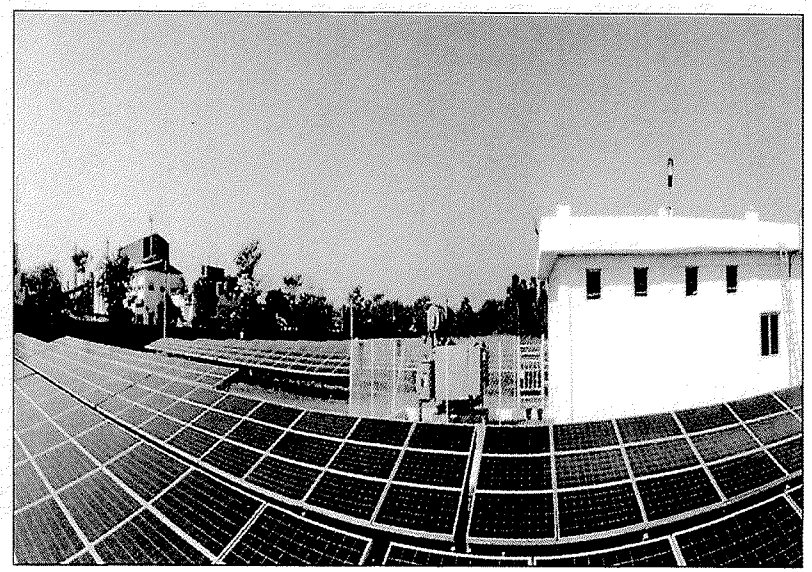
PHOTOGRAPHS SHOWING EARLIER ESTABLISHED PLANT

FIGURE: 2.5







2.3 ENVIRONMENTAL SETTING OF THE PLANT SITE:

The Environmental features within 10 Km. radius of the plant site are as following.

TABLE NO.2.2: ENVIRONMENTAL FEATURES

SALIENT FEATURES / ENVIRONMENTAL FEATURES	DISTANCE W.R.T. SITE / REMARKS
Present land use	Industrial Land
National Park/ Wildlife sanctuary / Biosphere reserve / Tiger Reserve / Elephant Corridor / migratory routes for Birds	Nil, however, Olive Ridley Turtles are present in the study area.
Historical places / Places of Tourist importance / Archeological sites	Nil within 10 Km radius
Industrial areas / cluster (MoEF & CC office memorandum dated 13th January 2010)	Nil within 10 Km radius
Defense Installations	Nil within 10 Km radius
Nearest village	Pedda Vastavalasa – 0.5 Kms.
Reserved forests	A) Srikurmam RF – 0.97 Kms. B) Tonangi RF – 3.6 Kms.
Water bodies	Vamshadhara River – 5.1 Kms. Bay of Bengal – 1.3 Kms. Vastavalasa cheruvu – 0.25 Kms. Few ponds exists within 10 Km. Radius
Railway Station	Nil within 10 Km radius
Port facility	Nil within 10 Km radius
Airport	Nil within 10 Km radius
Interstate Boundary	Nil within 10 Km radius
Seismic zone as per IS-1893	Seismic zone – III
Nation Highway/State Highway	SH # 37 – 2.3 Kms

2.4 PROJECT COST:

The following will the cost of the proposed project.

TABLE NO.2.3: PROJECT COST (ALREADY INCURRED)

S.NO.	ITEM	COST (in Rs.)
1	Land cost	3,13,01,085
2	Civil works	59,97,45,072
3	Plant & Machinery	2,04,13,48,586
4	Miscellaneous works	2,67,00,000
	Total	**269,90,94,743**

2.5 DETAILS OF LAND:

Land Form

- The existing Mineral Beneficiation plant is located at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh.
- A Mineral Beneficiation plant has been established after obtaining EC, CFE & CFO for the integrated beach sand mining involving 720 Ha & Mineral Beneficiation Plant in 59.72 Ha of land.
- Present land use is industrial, as the MSP has been established and was operational till 2018. Due to change in Central govt policy, beach sand mining by private companies has been barred. Thus, the same established MSP plant will be operational after obtaining necessary approvals such as EC, CFE & CFO.
- It has been proposed to consider 26.17 Ha. (64.66 Acres) of land for the proposal.
- Entire land is in possession of the company
- Plant layout is shown in below figure 2.6.

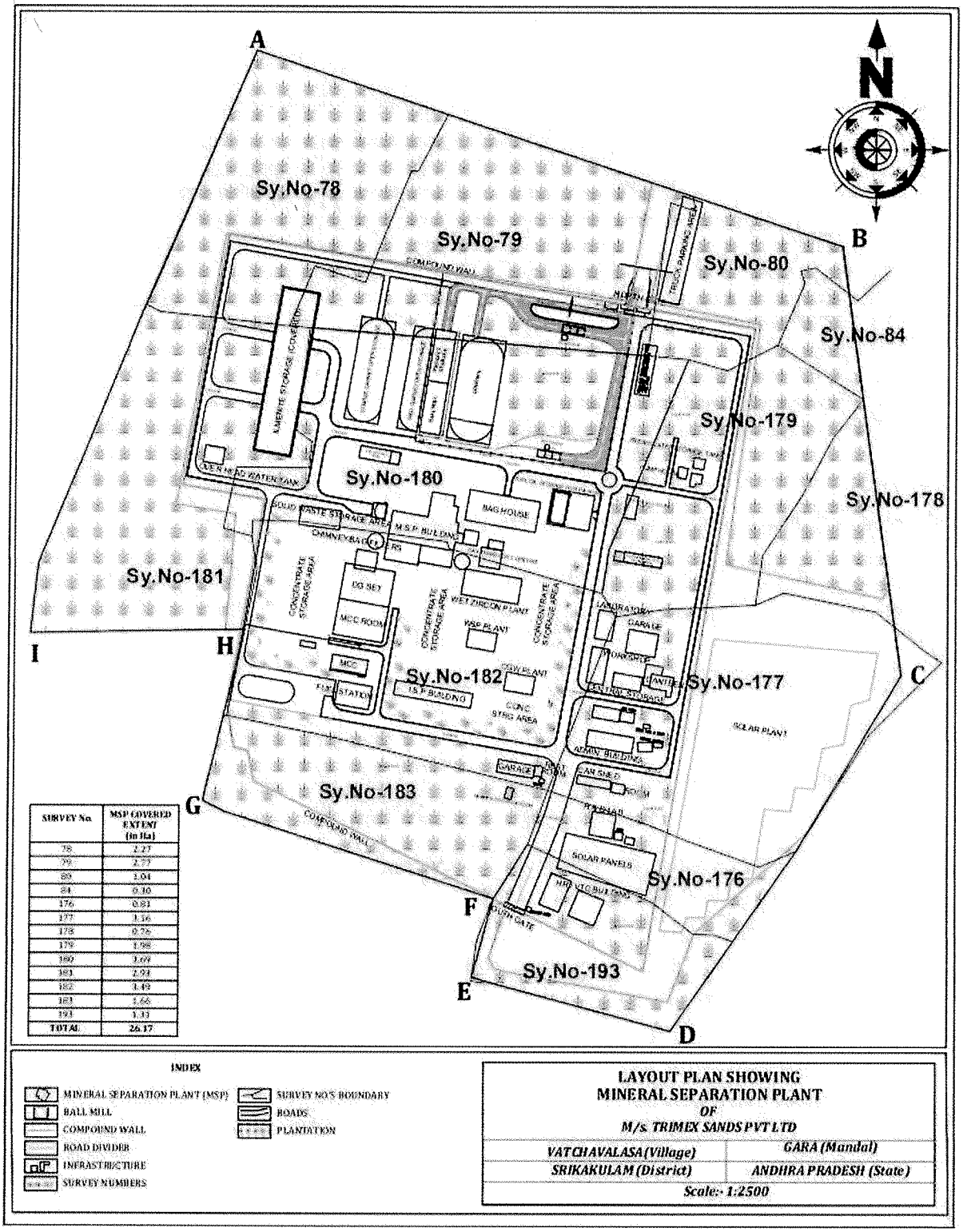
The following is the land use statement of Mineral Separation plant:

TABLE NO.2.4: LAND USE STATEMENT

S.No.	DESCRIPTION	AREA IN Ha/(Ac)
1.	Built of area	1.12(2.77)
2.	Storage area	0.95(2.35)
3.	Greenbelts	14.57(36.00)
4.	Roads	4.37(10.80)
5.	Solar Power Plant	1.70(4.20)
6.	Water reservoir	0.02(0.05)
7.	Parking area	0.10(0.25)
8.	Admin and others etc	3.34(8.24
TOTAL		**26.17(64.66)**

Trimex Sands Private Limited	0.44 MTPA capacity MSP

PLANT LAYOUT **FIGURE: 2.6**



SURVEY No.	MSP COVERED EXTENT (in Ha)
78	2.27
79	2.77
80	1.04
84	0.30
176	0.83
177	1.56
178	0.76
179	1.98
180	3.69
181	2.94
182	3.48
183	1.66
193	1.33
TOTAL	26.17

2.6 LIST OF INDUSTRIES IN THE STUDY AREA:

- There are no major industries in the study area

2.7 SIZE/MAGNITUDE OF OPERATION:

The following table shows the proposed product & their production capacities.

TABLE NO.2.5: LIST OF PRODUCTS AND PRODUCTION CAPACITY

S.NO	MINERAL	QUANTITY (IN TPA)
1	Ilmenite	2,40,000
2	Garnet	45,000
3	Sillimanite/Pulverised Sillimanite	45,000
4	Rutile	8,000
5	Zircon/Pulverised Zircon	6,000
Total		**3,44,000**

2.8 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION:

The proposed project will be implemented in 2 months from the date of issue of Environmental Clearance from SEIAA, Andhra Pradesh and CFE from APPCB.

2.9 TECHNOLOGY AND PROCESS DESCRIPTION:

2.9.1 RAW MATERIALS: [STANDARD TOR # 3 & 8]

The following will be the raw material required for Mineral Separation Plant.

TABLE NO.2.6: RAW MATERIAL

RAW MATERIAL	RAW MATERIAL REQUIREMENT	SOURCE	MODE OF TRANSPORTATION (DOMESTIC)
Mineral Concentrates of Beach sand minerals	4,40,000 TPA	APMDC and Imported from China and other countries	By road (Through covered trucks)

2.9.2 RAW MATERIAL/PRODUCT TRANSPORT, STORAGE & HANDLING:

Transport:

Beach mineral sand concentrates containing Ilmenite, Garnet, Sillimanite, Zircon and Rutile and other gangue minerals are the major raw material to operate the mineral processing plant. It is proposed to transport the concentrate from the APMDC stock point situated at about 8 km distance from the MSP through the existing roads by using a tipper–loader combination. The

concentrate imported from abroad will be received at Vizag port or other port and transported to the MSP through the existing road network by using a tipper-loader combination. Finished products from the plant also will be dispatched to customers in India and abroad by utilizing the above said existing road network.

These movements can be considered as two types:

a) Concentrated minerals are transported from the suppliers to the Mineral Separation Plant (MSP).

b) Mineral products are transported from the Mineral Separation Plant (MSP) to Vizag port/customers in India.

In the activity mentioned under (a) above, the maximum distance involved for transportation is about 8km in respect of concentrate sourced from APMDC and about 120 km for concentrates sourced through Vizag port. Entire minerals, which are produced at MSP under (b) above, will be loaded onto trucks and transported to Visakhapatnam, 120 km south of Srikakulam or other domestic destinations. The tailings from the MSP is transported back to the old mined out pits for backfilling and afforestation. No. of trucks utilized for raw material and product transportation will be about 79 trucks/day.

Of the 120 km distance, a stretch of 100 km, from Vizag port to Srikakulam, is a six-lane national highway. From Srikakulam to Tulugu junction, a stretch of 16 km, is a state highway from Srikakulam to Kalingapatnam. From Tulugu junction to TSPL's MSP, it is a stretch of about 4 km of 20 ft wide R&B tar road.

Apart from the mineral concentrate, other raw materials required for the operation of the plant are water, electricity, HSD, furnace oil, water treatment flocculants and flotation reagents. Water required for the operation will be pumped from the existing infiltration gallery constructed at the Vamsadara riverbed to the Plant storage tanks through an existing dedicated pipeline. Approval for the drawl of water is already existing from the State Government. Power requirement for the operation of the plant shall be sourced from the existing dedicated State EPDCL line, for which approval is already in force. HSD and furnace oil are utilized for the operation of fluidized bed driers/rotary driers in the plant and also for the operation of the loading equipment, generators etc. These fuels will be transported from the IOCL/HPCL depots or other authorized sellers in 12KL/16KL tankers. Licensed storage tanks of 187 KL total capacity for HSD and furnace oil is already existing in the plant. It is also proposed to obtain license for storing an additional quantity

of 70 KL HSD in the plant. Dedicated distribution lines will take the fuel from the storage tanks to driers/dispensing units for consumption. Also dedicated closed storage tanks are available for water treatment flocculants and flotation reagents.

Storage:

The concentrate received at the Plant will be unloaded by tipping the tippers at designated places. A separate storage location is identified for mag concentrate and non-mag concentrate. Both storage locations are open ground within the MSP premise and due to the inert properties of the concentrate material, no impact on the storage ground or land is envisaged. Material dumped from the tippers will be stacked using 1.0-1.50 Cu.M capacity excavators/loaders. To mitigate the liberation of any airborne dust emission from the stack, water sprinklers will be installed at both the raw material storage point and also at the tails storage area.

The concentrates from the storage point will be fed to the mineral separation plant using front-end loaders of 1.5 Cu.M capacity for mag concentrate and 1.0 Cu.M capacity for non-mag concentrate.

Minerals produced at the plant will be stored as detailed below:

Ilmenite: The mineral will be transported from the plant to the dedicated closed warehouse in a closed belt conveyor. The warehouse situated within the MSP premise has a storage capacity of 30,000 MT, which is equivalent to about 1 ½ month of expected ilmenite production. The mineral proposed for dispatch to customers in India/abroad will be loaded into the tippers/containers by using front end loader and mobile conveyor.

Sillimanite, Garnet, Zircon, and Rutile: These minerals from the respective circuits in the plant will be collected in 1MT/2MT jumbo bags from their respective product bins. Loaded bags will be shifted by using the forklift to dedicated closed warehouses situated within the MSP premise. The Sillimanite and Garnet warehouses are having the capacity to store about 7000 MT and 10000 MT of minerals respectively, whereas Rutile and Zircon warehouses can store about 500 MT each. The mineral proposed for dispatch are loaded into trucks/containers by using forklifts or hydra cranes.

All these warehouses are fully protected from any ingress of rainwater and are also with RCC ground. Further, no direct manpower handling is involved in the storage or dispatch of any of these minerals.

2.9.3 MASS BALANCE/MATERIAL BALANCE: [STANDARD TOR # 7]

TABLE NO.2.7: MASS BALANCE

S.NO.	NAME OF THE RAW MATERIAL	QUANTITY IN TPA	NAME OF THE PRODUCT/ BY PRODUCTS	QUANTITY IN TPA
1.	Mineral Concentrates of Beach sand minerals	4,40,000	Ilmenite	2,40,000
2.			Garnet	45,000
3.			Sillimanite/Pulverised Sillimanite	45,000
4.			Rutile	8,000
5.			Zircon/Pulverised Zircon	6,000
6.			Fine/non-saleable mineral grades and silica sand	96,000
	Total	**4,40,000**		**4,40,000**

2.9.4 MANUFACTURING PROCESS: [STANDARD TOR # 2]

Mineral separation plant is aimed to produce /separate individual minerals viz Ilmenite, Rutile, Zircon, Garnet and Sillimanite. The separation of individual minerals is done based upon their physical properties like magnetic susceptibility, electrical conductivity, specific gravity and size range. Major equipment normally used are vibrating screens, elevators, conveyors, high tension electrostatic roll separators, high tension electrostatic plate separators, permanent magnetic roll separators, induced magnetic roll separators etc. In addition, Furnace Oil/HSD fired fluidized bed/ rotary dryers are used to eliminate moisture in the feed concentrate and also to heat dry solids before high tension separation.

Processing of Ilmenite:

The mag concentrate is first feeding to drier to remove the moisture and to ensure the material is in bone dry condition. The hot material is subject to screening before passing to high tension separators through elevators. The feed material separated as conducting –and non-conducting fraction due to the following actions

a) Contact electrification

b) Electrification by conductive induction

c)Electrification by ion bombardment

The conduction fraction is predominantly consist Ilmenite and Rutile. It is then pass through

Permanent magnetic roll separators. Ilmenite is magnetic in nature, it gets separated easily and can be stored as ilmenite product.

Processing of Rutile:

The non mag fraction would be of rutile and garnet. Which will be again pass through series of high tension separators to separate conducting and non conducting fractions. Since rutile is conducting in nature, the conducting fraction is then screened and pass through induced magnetic roll separators to remove the embedded mag particles if any. The non mag Rutile fraction is stored as product.

Processing of Garnet:

The mid fraction separated from high tension roll separators is further passes through series of magnetic roll separators. Garnet is being a feebly susceptible to magnetic field, it is collected as a mid fraction and is being further passes through vibrating screens for sizing and then to product bins. Garnet products are separated and bagged based on the gran sizes requirement of different type of industrial applications.

Processing of Zircon:

The nonconducting fractions from high tension separators are collected in bin and passes through floatex density separators and set of spirals. The concentrate fraction collected is feeding to wet shaking tables for further concentration. The rich concentrate fraction is then again pass to high tension separators through drier for further improving the purity. The nonconducting fraction is then feeds through induced roll magnetic separators to eliminate the mag materials if any. Further it is treating in Air tables to get the desired product specification before bagging.

Processing of Sillimanite:

The non mag concentrate pass through set of spirals and the mid fractions which is predominantly sillimanite with some gangue minerals is treating in floatation cell. Floatation cells are widely used for separating, recovering and concentrating valuable particulate material from undesired gangue. The recovered sillimanite is then further treating in rare earth roll separators after passing it through a drier and cooler. The non mag fraction is stored in product bins after sieving.

Water recovering system -Thickener:

The thickener normally utilize a center feed inlet well. The center feed well design is equipped with a chemical addition system with mixing and flocculation. All the waste/discharged water from the process stream is fed to the thickener center well where suitable flocculants are added which helps liberation of waste solids from water and the clear water is collected at the outer well trough of the thickener is again used to meet the process requirement. Waste solids collected at the center can be discharged along with the plant waste generation or can be pumped to fill the mined-out location.

Bag filters to prevent dust generation:

Bag filters are used for the clarification /filtration of fluids that have a relatively small loading of particle to be removed. The particle suspension passes through and the particle settle in the bag. The plant is equipped with three separate units of bag filters and one dedusting unit each unit is attached to the different driers and the dedusting unit is connected to the separating machines to draw the generated dust during process

Fire hydrant system:

Plant is having a dedicated fire hydrant system which is covering inside and outside the plant. Water is drawn from a dedicated reservoir where it is get water from pump house located at Vamsadhara river bed. Reservoir is equipped with high capacity discharge pump (7kg/cm2) with a standby unit.

Ball mill:

The Ball Mill system is a Gravity fed Closed-Circuit Grinding system with Ball Mill, Classifier/Dynamic separator and Bag Filters. Dry feed is supplied to the inlet of the Feed Hopper via a belt feeder to the end peripheral discharge type ball mill. The product, after getting ground in the ball mill, is discharged into the boot of the Mill discharge Bucket Elevator. The classifier/dynamic separator, separates the fine and oversize fractions from the feed. The oversize is conveyed back to the mill feed point through Rotary Airlock Valve, by a Screw Conveyor & connecting chute and fines fraction product is collected in the Bag Filter.

Final Products:

Separated minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon and pulverized minerals viz. sillimanite and zircon of two sizes -200 # and -325 # are packed. Normally, the final product except Ilmenite will be bagged in 50kg/1MT/2MT bags through bagging machine as per customer requirements and Ilmenite will be bagged or stored in bulk as per customer requirements.

Detailed flowsheet is given below:

Trimex Sands Private Limited	0.44 MTPA capacity MSP

SCHEMATIC DIAGRAM SHOWING MINERAL SEPARATION PROCESS **FIGURE: 2.7**

Flow Chart of Mineral Separation Plant

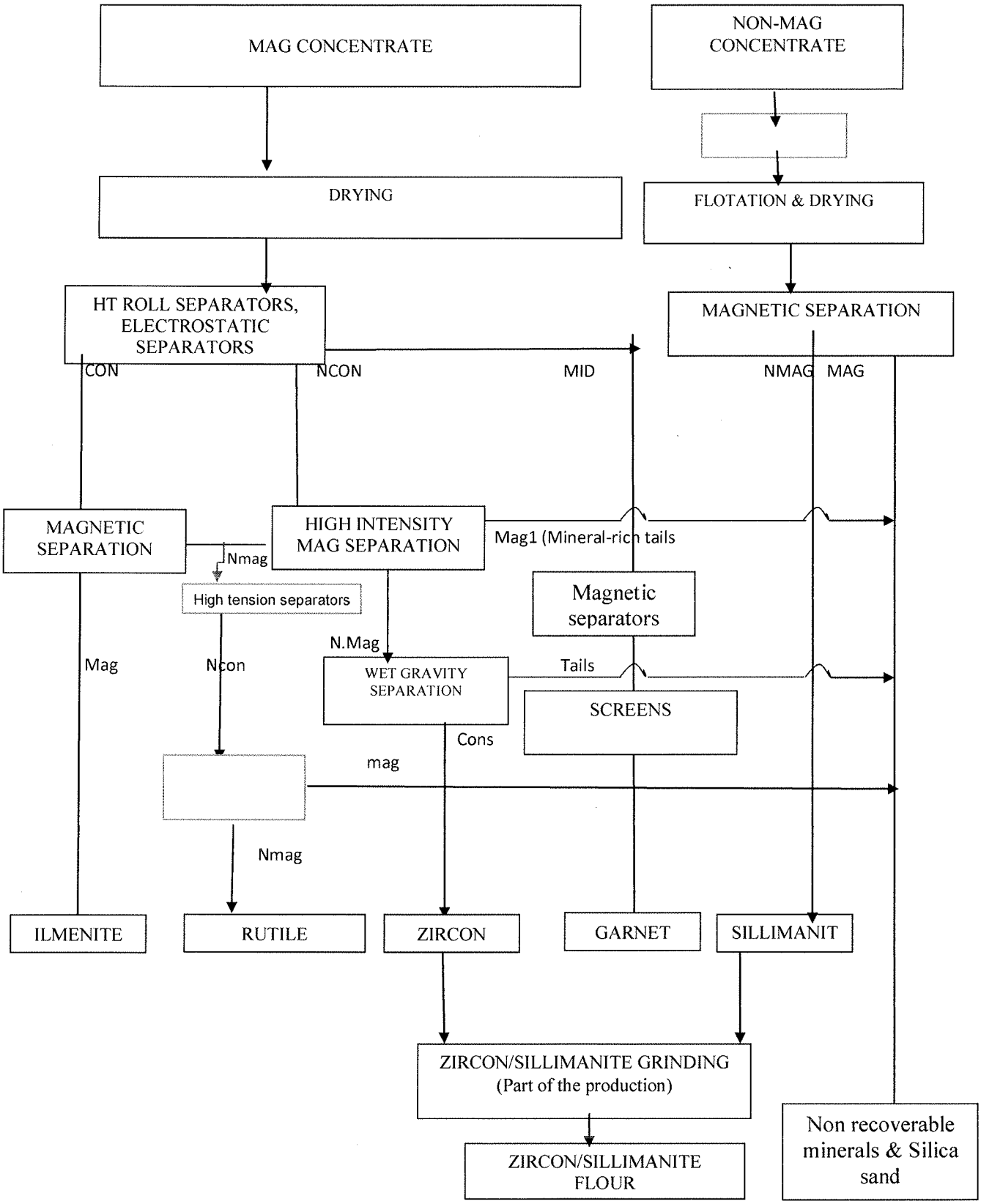
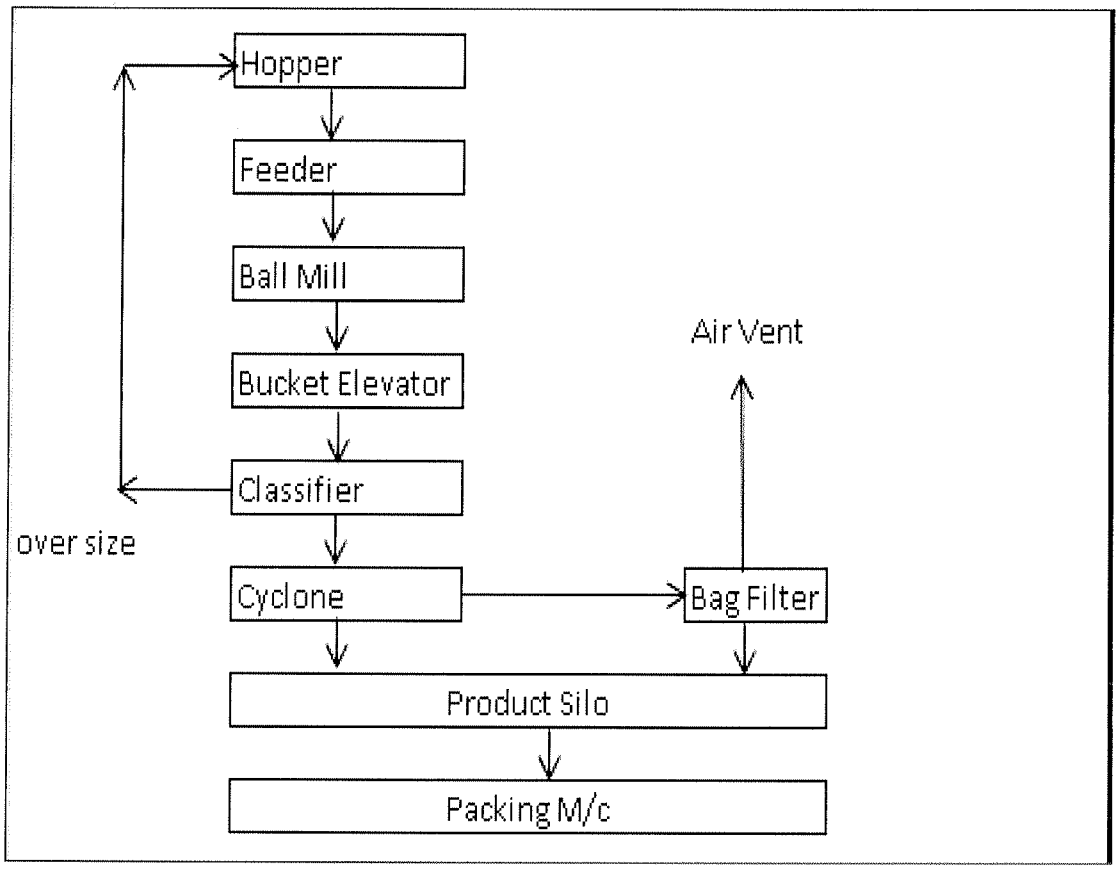


FIGURE 2.8: PROCESS FLOW SHEET FOR SILLIMANITE/ZIRCON GRINDING



2.10 ENVIRONMENTAL MITIGATION MEASURES:

2.10.1 AIR EMISSION CONTROL:

Following are the air emission control measures in the present proposal:

- Dust suppression system
- Covered conveyers
- Bag filters with outlet dust emission less than 50 mg/Nm^3.
- Pucca internal roads to prevent flying off of fugitive dust.
- Greenbelt development in minimum 1/3rd of the total area. Currently, about 55% of the land area is covered under green belt development.
- Dust extraction system

Details are provided in Chapter 10, Environmental Management Plan

2.10.2 WASTEWATER MANAGEMENT:

The wastewater generation from the mineral process plant will be process wastewater and Sanitary wastewater.

EFFLUENT TREATMENT PLANT:

Fresh water is utilized for the concentration/separation of Sillimanite and Zircon concentrates in flotation cells/spirals and wet tables. The wastewater generated from process will be treated in a thickener and the underflow will be sent to old mined out pits for decantation and clear water will be utilized for greenbelt development in old mining areas. A closed-loop water system will be maintained. No effluent will be let out of the plant premises and all discharges shall be as per CPCB/MOEF norms. Sanitary wastewater generated will be stored in soak pits followed by subsurface dispersion. Zero liquid effluent discharge will be maintained.

2.10.3 NOISE CONTROL:

The major noise levels will be confined to the working zones of the plant. Ear plugs will be provided to all employees who will enter the noise prone areas. Greenbelt already available and maintained in the project land will help in further attenuating the noise levels.

2.10.4 SOLID WASTE MANAGEMENT:

The following is the solid waste generation and disposal from the plant

TABLE NO. 2.8: SOLID WASTE GENERATION AND ITS DISPOSAL

SOLID WASTE	QUANTITY (TPA)	METHOD OF DISPOSAL
Silica sand and Fine/non-saleable mineral grades	96,000	It will be used for backfilling earlier mined out pits/ stored for future recovery of any useful minerals

Any monazite rich tailings generated in the plant will be disposed as per the directions/license conditions issued by Atomic Energy Regulatory Board (AERB).

2.11 ASSESSMENT OF NEW & UNTESTED TECHNOLOGY FOR THE RISK OF TECHNOLOGICAL FAILURE:

Beach sand Mineral separation technology is well proven technology all over the world. Hence there will not be any risk of technological failure from the proposed project and the project proponent is well experienced and well equipped in the proposed operational areas.

2.12 PERMISSIONS AND LICENSES:

On receipt of the environmental clearance for the project, the following additional permissions and licenses will be obtained before starting the plant operations.

- CFE/CFO from AP Pollution Control Board

- License from the Factories Department
- Mineral Dealers License from the Directorate of Mines & Geology, AP
- License from the State Electrical Inspectorate
- License from the Atomic Energy Regulatory Board (AERB) based on the content of the monazite in the concentrate feed
- Any other approvals as required

CHAPTER – 3
DESCRIPTION OF ENVIRONMENT (BASELINE ENVIRONMENTAL STATUS)

3.1 BASELINE ENVIRONMENTAL STATUS: [STANDARD TOR # 32]

This chapter gives an idea and description of environmental status of the study area with reference to the prominent environmental attributes. The main objective of describing the environment is to assess present environmental quality & the environmental impacts. The study area 10 Km. radius of the plant site is covered in Survey of India **Toposheet Nos. 65 N/15, 16 & 74 B/3, 4.**

The impact identification always commences with the collection of baseline data such as ambient air quality, ground water quality, surface water quality, noise levels, land environment, land use pattern, flora & fauna and socio economic aspects within the study zone of 10 Km. radius during **October, 2021 to December 2021.**

Baseline data has been collected pertaining to Ambient Air, Noise, Water & Soil by an external laboratory M/s. Global Enviro Labs (GEL), which is a MoEF & CC recognized laboratory. Due care has been taken by PIONEER ENVIRO to ensure that calibrated samplers/equipments/instruments have been utilized for sampling & analysis. Adequate care has also been taken to ensure proper Preservation & Transportation methods in accordance with the standard procedures. It is ensured by PIONEER ENVIRO that Standard Operating Procedures.

3.2 AIR ENVIRONMENT:

3.2.1 METEOROLOGY:

Meteorology of the study area plays an important role in the air pollution studies. The prevailing micro meteorological conditions at the plant site will regulate the dispersion and dilution of air pollutants in the atmosphere. The predominant wind directions and the wind speed will decide the direction and distance of the most affected zone from the proposed activity. The meteorological data collected during the monitoring period is very useful in interpretation of baseline data as input for dispersion models for predicting the Ground Level Concentrations (GLC).

3.2.2 METEOROLOGICAL DATA RECORDED AT SITE:

A Temporary Weather Monitoring Station has been installed at the plant site and temperature, relative humidity, wind direction, wind speed, rainfall, etc. were recorded for one season **October, 2021 to December 2021.**

Cloud cover:

During study period, generally light clouds were observed in the evenings with clear mornings.

Temperature:

The maximum temperature recorded was 23.1°C and the minimum temperature was 8.5 °C at the weather monitoring station at the plant site.

Rainfall:

No rainfall during study period at site.

Wind Pattern at Project Site during the study period:

Weather monitoring station has been established at site to collect Meteorological data.

Wind speed and direction are recorded at site every hour.

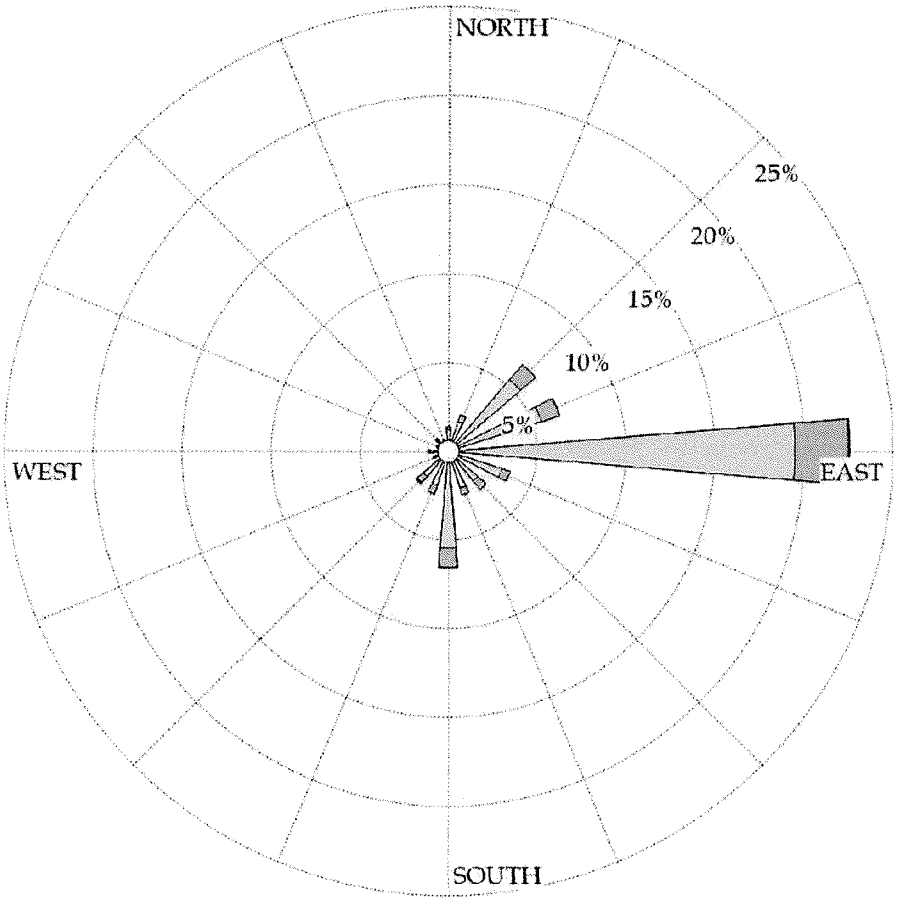
The predominant winds during this season are mostly from **East to West**. The wind rose diagram at site is shown in fig. 3.1.

Trimex Sands Private Limited	0.44 MTPA capacity MSP

WIND ROSE AT SITE **FIGURE: 3.1**

WIND ROSE PLOT:
WIND ROSE AT PLANT SITE
Period : OCT 2021 TO DEC 2021

DISPLAY:
Wind Speed
Direction (blowing from)



WIND SPEED
(m/s)
>= 14.0
11.0 - 14.0
9.0 - 11.0
7.0 - 9.0
4.5 - 7.0
1.5 - 4.5
1.0 - 1.5
0.5 - 1.0
Calms: 35.78%

COMMENTS:		COMPANY NAME: TRIMEX SANDS PRIVATE LIMITED	
	CALM WINDS: 35.78%		
	AVG. WIND SPEED: 1.79 m/s		PROJECT NO.:

WRPLOT View - Lakes Environmental Software

3.2.3 AIR QUALITY:

The ambient air quality with respect to the study zone of 10 Km. radius around the plant site forms the baseline information. The study area represents mostly rural environment. The various sources of air pollution in the region are vehicular traffic, dust arising from unpaved village roads and other activities. The Prime objective of baseline air quality survey is to assess the existing air quality of the area. This will also be useful in assessing the conformity to standards of the ambient air quality during the plant operation.

3.2.3.1 SAMPLING & ANALYTICAL TECHNIQUES INSTRUMENTS USED FOR SAMPLING:

Envirotech RDS, APM 550 dust samplers for monitoring $PM_{2.5}$, PM_{10}, SO_2, NOx and CO. $PM_{2.5}$ & PM_{10} are estimated by gravimetric method West & Gaeke method (IS –5182, part III 1969) has been adopted for estimation of SO_2, Jacob – Hochheiser method (IS –5182, part IV, 1975) has been adopted for estimation of NOx. CO was analyzed on Gas Chromatograph. The standard operating Procedures have been used for sampling and analysis. Techniques used for ambient air quality monitoring are shown in table 3.2.1.

Calibration:

Calibration charts have been prepared for all gaseous pollutants. The Calibration is carried out when new absorbing solutions are prepared.

TABLE NO. 3.2.1: TECHNIQUES USED FOR AMBIENT AIR QUALITY MONITORING

S.NO	PARAMETER	TECHNIQUE	MINIMUM DETECTABLE LIMIT ($\mu G/M^3$)
1.	Particulate Matter ($PM_{2.5}$)	APM 550 dust sampler (Gravimetric Method)	5.0
2.	Particulate Matter (PM_{10})	Respirable Dust Sampler (Gravimetric Method)	5.0
3.	SO_2	EPA Modified West & Gaeke method	4.0
4.	NOx	Arsenite modified Jacob & Hochheiser	4.5
5.	CO	Adsorption and Desorption followed by GC analysis	12.5

3.2.3.2 SELECTION OF SAMPLING STATIONS:

The base line status of the ambient air quality can be accessed through scientifically designed Ambient Air Quality Monitoring Network.

The selection of sampling locations in the air quality surveillance programme is based on the

following.

(a) Representation of the plant site.

(b) Representation of down wind direction.

(c) Representation of upwind direction.

(d) Representation of cross wind direction

(e) Representation of residential areas (densely populated area).

(f) Representation of sensitive receptors

3.2.3.3 PARAMETERS MONITORED:

8 (Eight) nos. of Ambient Air Quality Monitoring Stations have been established with in the study zone of the plant area in accordance with CPCB guidelines.

Ambient air quality was monitored for 2 days in a week for three months **(from October, 2021 to December 2021)** to assess the existing status of air pollution and pollution dispersion pattern over the whole air basin of plant as per the National Ambient Air Quality Standards vide No. S. No. 826 (E) dated 16th November, 2009.

The sampling locations and their distances are shown in Table 3.2.2 and in Fig 3.2. The Max., Min., and 98th percentile values for all the sampling locations for $PM_{2.5}$, PM_{10}, SO_2, NO_X & CO are shown in Table 3.2.3 to 3.2.10.

TABLE NO. 3.2.2: AMBIENT AIR QUALITY MONITORING STATIONS

S.NO	STATION	DIRECTION W.R.T SITE	DISTANCE W.R.T SITE (IN KMS.)	CRITERIA FOR SELECTION
A1	Plant site	--	--	Represents the Plant site
A2	Pedda Vastavalasa	E	0.5	Represents the Nearest habitation & Upwind direction
A3	Tandialapeta	W	1.8	Represents Down wind direction
A4	Kangappavanipeta	W	3.7	Represents Down wind direction
A5	Amudalapadu	N	0.7	Represents Crosswind direction
A6	Macheshilisam	SWW	4.4	Represents near sensitive area (Forest)
A7	Gara	N	5.2	Represents Crosswind direction and near sensitive area (River)
A8	Kalingapatanam	NEE	9.6	Represents Urban area

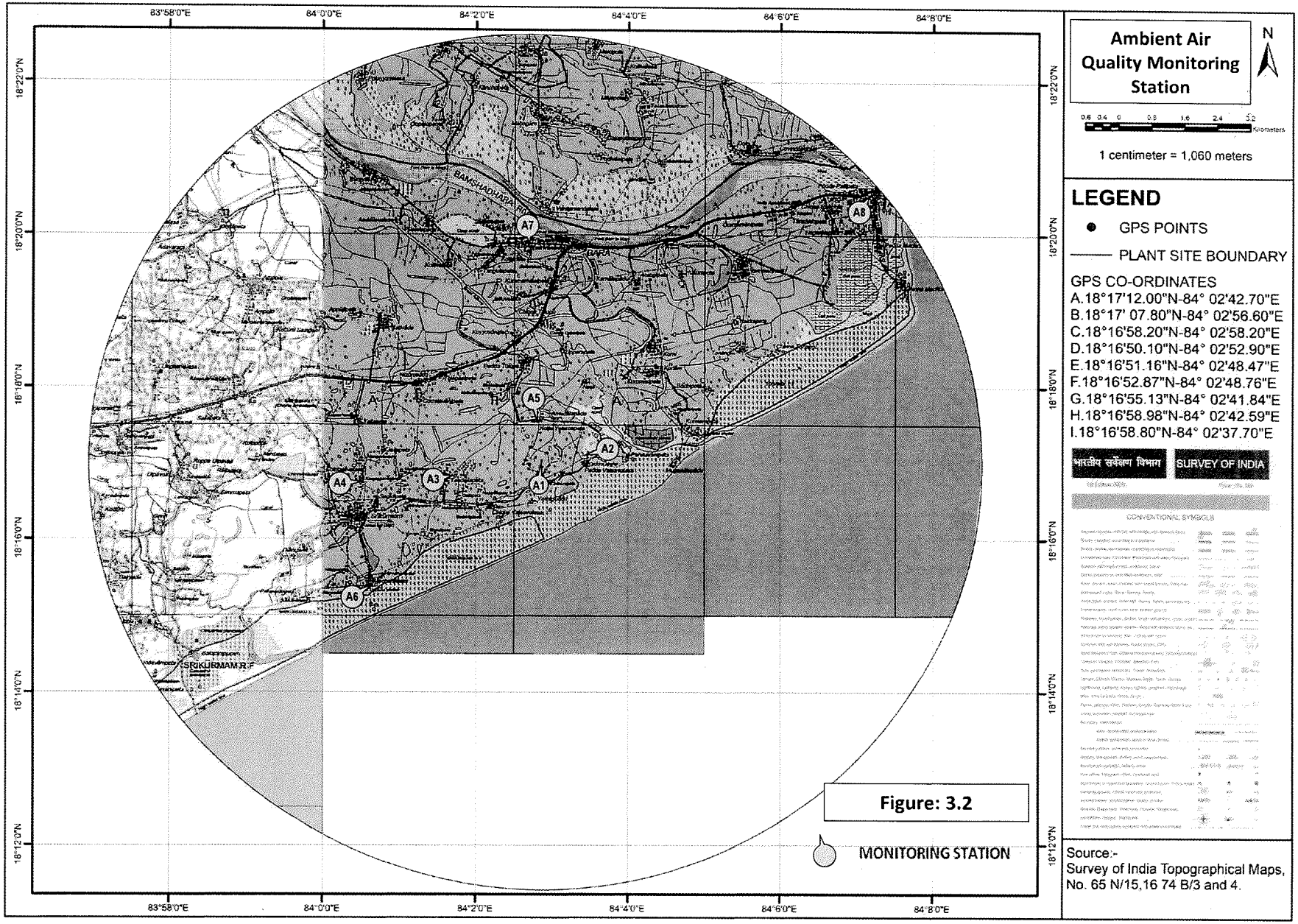

83°58'0"E
84°0'0"E
84°2'0"E
84°4'0"E
84°6'0"E
84°8'0"E
18°22'0"N
18°20'0"N
18°18'0"N
18°16'0"N
18°14'0"N
18°12'0"N
A1
A2
A3
A4
A5
A6
A7
A8
BAMCHADHARA R.F
SRIKURMAM R.F
Figure: 3.2
MONITORING STATION
Ambient Air Quality Monitoring Station
N
0.8 0.4 0 0.8 1.6 2.4 3.2 Kilometers
1 centimeter = 1,060 meters
LEGEND
GPS POINTS
PLANT SITE BOUNDARY
GPS CO-ORDINATES
A.18°17'12.00"N-84° 02'42.70"E
B.18°17' 07.80"N-84° 02'56.60"E
C.18°16'58.20"N-84° 02'58.20"E
D.18°16'50.10"N-84° 02'52.90"E
E.18°16'51.16"N-84° 02'48.47"E
F.18°16'52.87"N-84° 02'48.76"E
G.18°16'55.13"N-84° 02'41.84"E
H.18°16'58.98"N-84° 02'42.59"E
I.18°16'58.80"N-84° 02'37.70"E
भारतीय सर्वेक्षण विभाग
SURVEY OF INDIA
CONVENTIONAL SYMBOLS
Source:-
Survey of India Topographical Maps, No. 65 N/15,16 74 B/3 and 4.

TABLE NO. 3.2.3

Sampling Location: Plant site Unit : µg /m³			Sampling Period: Oct. 2021 to Dec. 2021	
Parameter	**Maximum**	**Minimum**	**98th percentile**	**Standard as per NAAQS**
$PM_{2.5}$	27.9	19.0	27.9	60
PM_{10}	46.5	31.7	46.5	100
SO_2	7.0	6.4	7.0	80
NO_X	8.8	7.6	8.8	80
CO	524	491	524	2000

TABLE NO. 3.2.4

Sampling Location: Pedda Vastavalasa Unit : µg /m³			Sampling Period: Oct. 2021 to Dec. 2021	
Parameter	**Maximum**	**Minimum**	**98th percentile**	**Standard as per NAAQS**
$PM_{2.5}$	29.1	18.3	29.1	60
PM_{10}	48.5	30.6	48.5	100
SO_2	7.8	6.7	7.8	80
NO_X	9.2	8.0	9.2	80
CO	634	584	634	2000

TABLE NO. 3.2.5

Sampling Location: Tandialapeta Unit : µg /m³			Sampling Period: Oct. 2021 to Dec. 2021	
Parameter	**Maximum**	**Minimum**	**98th percentile**	**Standard as per NAAQS**
$PM_{2.5}$	30.7	19.5	30.7	60
PM_{10}	51.3	32.6	51.3	100
SO_2	8.5	7.3	8.5	80
NO_X	10.2	8.0	10.2	80
CO	685	644	685	2000

TABLE NO. 3.2.6

Sampling Location: Kangappavanipeta Unit : µg /m³			Sampling Period: Oct. 2021 to Dec. 2021	
Parameter	**Maximum**	**Minimum**	**98th percentile**	**Standard as per NAAQS**
$PM_{2.5}$	28.3	17.7	28.3	60
PM_{10}	47.3	29.6	47.3	100
SO_2	7.7	7.0	7.7	80
NO_X	8.9	7.9	8.9	80
CO	614	574	614	2000

TABLE NO. 3.2.7

Sampling Location: Amudalapadu Unit : µg /m³			Sampling Period: Oct. 2021 to Dec. 2021	
Parameter	**Maximum**	**Minimum**	**98th percentile**	**Standard as per NAAQS**
$PM_{2.5}$	29.9	18.5	29.9	60
PM_{10}	49.9	30.8	49.9	100
SO_2	7.9	6.9	7.9	80
NO_X	9.2	7.7	9.2	80
CO	588	562	588	2000

TABLE NO. 3.2.8

Sampling Location: Macheshilisam Unit : µg /m³			Sampling Period: Oct. 2021 to Dec. 2021	
Parameter	**Maximum**	**Minimum**	**98th percentile**	**Standard as per NAAQS**
$PM_{2.5}$	25.7	16.8	25.7	60
PM_{10}	42.9	28.0	42.9	100
SO_2	6.5	6.0	6.5	80
NO_X	7.2	6.5	7.2	80
CO	468	423	468	2000

TABLE NO. 3.2.9

Sampling Location: Gara Unit : µg /m³			Sampling Period: Oct. 2021 to Dec. 2021	
Parameter	**Maximum**	**Minimum**	**98th percentile**	**Standard as per NAAQS**
$PM_{2.5}$	41.5	29.8	41.5	60
PM_{10}	69.3	49.7	69.3	100
SO_2	13.9	10.3	13.9	80
NO_X	19.7	14.8	19.7	80
CO	1120	1068	1120	2000

TABLE NO. 3.2.10

Sampling Location: Kalingapatanam Unit : µg /m³			Sampling Period: Oct. 2021 to Dec. 2021	
Parameter	**Maximum**	**Minimum**	**98th percentile**	**Standard as per NAAQS**
$PM_{2.5}$	39.1	27.0	39.1	60
PM_{10}	65.2	45.1	65.2	100
SO_2	12.2	9.8	12.2	80
NO_X	17.5	12.6	17.5	80
CO	1085	1023	1085	2000

The 98th percentile $PM_{2.5}$ concentration recorded at the **plant site** is 27.9 μg /m^3.

The 98th percentile PM_{10} concentration recorded at the **plant site** is 46.5 μg /m^3.

The 98th percentile SO_2 & NOx concentrations recorded at the **plant site** are 7.0 & 8.8 μg/m^3 respectively.

The 98th percentile CO concentration recorded at the **plant site** is 524 μg /m^3.

The highest 98th percentile $PM_{2.5}$ concentration is recorded at **Gara** is 41.5 μg/m^3.

The highest 98th percentile PM_{10} concentration is recorded at **Gara** is 69.3 μg/m^3.

The highest 98th percentile SO_2 & NOx concentrations is recorded at **Gara** are 13.9 & 19.7 μg/m^3.

The highest 98th percentile CO concentration is recorded at **Gara** is 1120 μg /m^3.

3.3 NOISE ENVIRONMENT:

The physical description of sound concerns its loudness as a function of frequency. Noise in general is sound, which is composed of many frequency components of various loudness distributed over the audible frequency range. Various noise scales have been introduced to describe, in a single number, the response of an average human being to a complex sound made up various frequencies at different loudness levels. The most common and heavily favoured of those scales is the weighted decibel (dBA). This is more suitable for audible range of 20 to 20,000 Hertz. The scale has been designed to weigh various components of noise according to the response of a human ear.

The impact of noise sources on surrounding community depends on

- Characteristics of noise sources (instantaneous, intermittent or continuous in nature). It is well known that steady noise is not as annoying as one that is continuously varying in loudness.
- The time, at which noise occurs, for example loud noise levels at night in residential areas are not acceptable because of sleep disturbance.
- The location of the noise source, with respect to noise sensitive area, which determines the loudness and period of noise exposure.

The environmental impact of noise can have several effects varying from Noise Induced Hearing Loss (NIHL) to annoyance depending on loudness of Noise levels.

The environmental impact assessment of noise from the plant can be carried out by taking into consideration of various factors: potential damage to hearing, potential physiological responses, annoyance and general community responses.

The main objective of noise level monitoring is to assess the background noise levels in different zones viz., industrial, commercial, residential and silence zones within the study area.

The basic studies conducted were

a. Assessment of background noise levels.
b. Identification and monitoring the major noise generating sources in the study area.
c. Impact of noise on general population in the study zone of 10 Km. radius.

3.3.1 RECONNAISSANCE:

Noise levels were measured at different locations within 10 Km. radius of the plant site such as villages, bus stands etc.

3.3.1.1 BACKGROUND NOISE:

Baseline noise data has been measured at different locations using A-weighted sound pressure level meter.

3.3.1.2 SOURCES OF NOISE:

Typical considerations in environmental noise assessment can be divided into two categories; one is related to noise sources and the other related to potential receiver.

Two quantities are needed to describe completely the strength of the source. They are sound power level and directivity. Sound power levels measures the total sound power radiated by the source in all directions where as directivity is a measure of difference in radiation with direction. This concept of sound power level and directivity index makes it possible to calculate the sound pressure level created by the source.

3.3.2 COMMUNITY NOISE:

The ambient noise level is characterized by significant variations above a base or a residual noise level. The residual noise level is that level below which the ambient noise does not seem to drop during a given time interval and is generally caused by the unidentified distant sources. It differs in rural and urban areas. At night, its level is low due to lesser elements of noise. The annoyance that

people experience depends upon the number of noise elements that produce noise concurrently at a given time that occur during a time interval.

The noise rating developed by EPA for specification of community noise from all sources is the day night sound level, Ldn. It is similar to a 24 hour equivalent sound level except that during the night period, which extends from 10.00 p.m. to 6.00 a.m. A 10 dBA weighing penalty is added to the account for the fact that noise at night when people are trying to sleep is judged more annoying than the same noise during the day time.

The Ldn for a given location in a community is calculated from an hourly equivalent sound level given be the following equation.

$$Ldn = 10 \log (1/24 [15 (10^{(Ld/10)} + 9 (10^{(Ln+10)/10})])$$

Where Ld is the equivalent noise level during day time (6A .M. to 10 P.M.)

Ln is the equivalent noise level during night time (10 P.M. to 6 A.M.)

3.3.2.1 OCCUPATIONAL EXPOSURE:

To assess the magnitude of impact due to noise sources, it is essential to know the following.

a. The duration of sound.
b. Distribution through the working day.
c. Overall noise levels.
d. It's composition including frequency and intensity at various intervals of time.

Other factors regarding receiver include

a. The age of the individual.
b. The sensitivity of the individual.
c. The efficiency of the protective devices used.

After characterizing the noise sources noise at receiver's location, the impact must be assessed. The environmental impact of noise can lead to the following effects.

a. Damages the hearing capacity.
b. Interference in communication.
c. Interference with work.
d. Interference with sleep.
e. Causes annoyance.

3.3.3 METHODOLOGY ADOPTED FOR NOISE LEVEL OBSERVATION:

For measurement of Ambient Noise level in the Study area, a Digital Sound Level Meter *(Make & Model: Lutron SL-4001)* was used. The instrument was calibrated with a Standard Acoustic calibrator before using in the field. The measurements were carried out continuously for the 24-hour period to obtain hourly equivalent sound pressure level, 1 hour Leq. From these values, day and night time as well as 24-hour Leq values were also calculated. The Leq is the equivalent continuous sound level, which is equivalent to the same sound energy as the fluctuating sound measured in the same period.

TABLE NO. 3.3.1: GUIDANCE FOR ASSESSMENT OF REPRESENTATIVENESS AND RELIABILITY OF BASELINE ENVIRONMENTAL ATTRIBUTES

Attributes & Sampling			Measurement Method	Remarks
Noise	Network	Frequency		
Hourly equivalent noise levels	Identified study area	Once in each season	Instrument: Noise level meter	IS:4954-1968 as adopted by CPCB
Hourly equivalent noise levels	Highways	Once in each season	Instrument: Noise level meter	CPCB/IS:4954-1968

3.3.4 NOISE LEVEL OBSERVATIONS IN THE STUDY AREA:

Baseline noise levels have been monitored at different locations within the study zone of the plant site. 8 nos. of stations have been selected for measurement of noise levels and their distances with respect to site are shown in Table 3.3.2. The noise sampling stations are shown in fig. 3.3. The noise levels data is shown in Table 3.3.3.

TABLE NO.3.3.2: NOISE LEVEL MONITORING STATIONS

S.No	STATION	DIRECTION w.r.t Site	DISTANCE w.r.t Site (in Kms.)	CATEGORY OF AREA
N1	Plant site	--	--	Representing plant site
N2	Pedda Vastavalasa	E	0.5	Representing Nearest Habitation
N3	Yerragudda	SSW	0.65	Representing Residential area
N4	Chinna Vastavalasa	SW	1.2	Representing Silence zone (Near Forest)
N5	Gollapeta	SWW	1.8	Representing Residential area
N6	Tandialapeta	W	1.8	Representing Silence zone (Near School)
N7	Kota Yelamapeta	N	0.7	Representing Residential area

N8	Amudalapadu	NNE	0.8	Representing Residential area

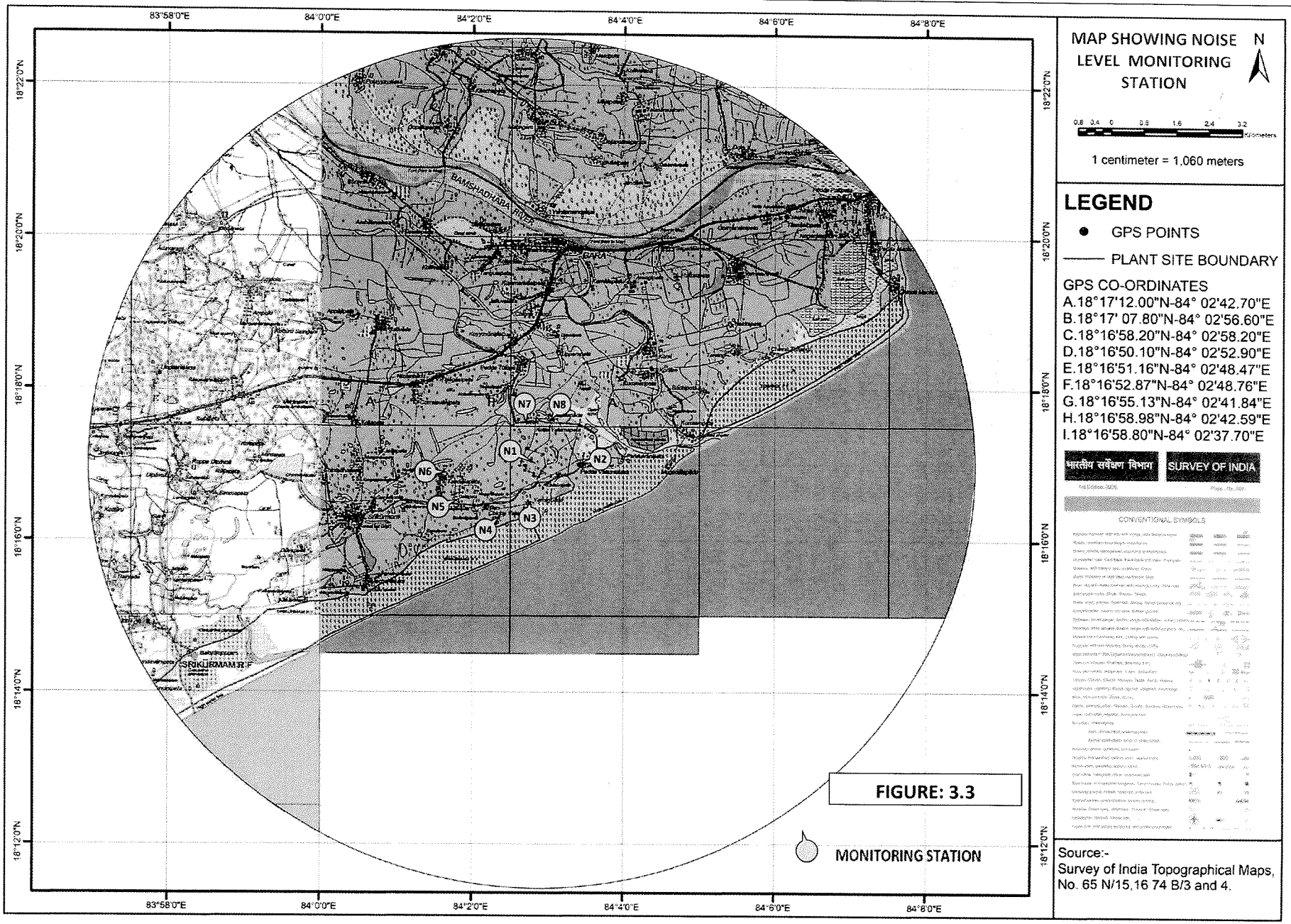
TABLE NO.3.3.3 : EQUIVALENT DAY NIGHT NOISE LEVEL

S.No.	LOCATION	EQUIVALENT NOISE LEVELS (dBA)			Standard
		DAY	NIGHT	DAY-NIGHT	
N1	Plant site*	40.5	29.4	40.11	**<u>*Industrial</u>** Day time – 75 dBA Night time – 70 dBA **<u>Residential</u>** Day time – 55 dBA Night time – 45 dBA **# <u>Commercial areas</u>** Day time – 65 dBA Night time – 55 dBA **<u>Silence zone **</u>** Daytime – 50 dBA Night time – 40 dBA
N2	Pedda Vastavalasa	47.8	31.7	46.35	
N3	Yerragudda	48.7	28.4	46.89	
N4	Chinna Vastavalasa**	48.5	30.6	46.86	
N5	Gollapeta	48.9	29.4	47.14	
N6	Tandialapeta**	49.6	31.7	47.96	
N7	Kota Yelamapeta	45.6	31.2	44.41	
N8	Amudalapadu	48.0	32.4	46.62	

*The noise levels monitored at plant site is within the norms prescribed for Industrial Zone.

** The noise levels monitored at Silence zone (i.e. Chinna Vastavalasa and Tandialapeta) is within the norms prescribed for Silence Zone.

The noise levels monitored at all residential areas are within the norms prescribed for Residential Zone.


MAP SHOWING NOISE LEVEL MONITORING STATION
N
0.8 0.4 0 0.8 1.6 2.4 3.2
Kilometers
1 centimeter = 1,060 meters
LEGEND
GPS POINTS
PLANT SITE BOUNDARY
GPS CO-ORDINATES
A.18°17'12.00"N-84° 02'42.70"E
B.18°17' 07.80"N-84° 02'56.60"E
C.18°16'58.20"N-84° 02'58.20"E
D.18°16'50.10"N-84° 02'52.90"E
E.18°16'51.16"N-84° 02'48.47"E
F.18°16'52.87"N-84° 02'48.76"E
G.18°16'55.13"N-84° 02'41.84"E
H.18°16'58.98"N-84° 02'42.59"E
I.18°16'58.80"N-84° 02'37.70"E
भारतीय सर्वेक्षण विभाग
SURVEY OF INDIA
CONVENTIONAL SYMBOLS
Source:-
Survey of India Topographical Maps, No. 65 N/15,16 74 B/3 and 4.
N1
N2
N3
N4
N5
N6
N7
N8
A
B
C
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E
F
G
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I
83°58'0"E
84°0'0"E
84°2'0"E
84°4'0"E
84°6'0"E
84°8'0"E
18°22'0"N
18°20'0"N
18°18'0"N
18°16'0"N
18°14'0"N
18°12'0"N
SRIKURMAM R.F
MONITORING STATION

FIGURE: 3.3

3.4 WATER QUALITY IMPACTS:

3.4.1 SURFACE WATER QUALITY:

Two nos. of surface water samples from Vamshadhara River upstream & downstream and 6 other surface water samples were collected to assess surface water quality. These water samples are analysed for various parameters as per IS: 2296. The location and distance of surface water sample is show in Table 3.4.1. The surface water characteristics were shown in table No. 3.4.2 to 3.4.8.

TABLE NO. 3.4.1: SURFACE WATER QUALITY SAMPLING STATIONS

S.NO	LOCATION	DIRECTION W.R.T. PLANT SITE	DISTANCE B/W SAMPLING POINT TO PLANT SITE IN KMS.
1)	Vamshadhara River – upstream (SW1)	NNE	5.1
2)	Vamshadhara River downstream (SW2)	NNE	5.1
3)	Chilkurupeta Village Pond (SW3)	SSE	0.3
4)	Kummaripeta Village Pond (SW4)	NEE	3.2
5)	Upparapeta Village Pond (SW5)	NNE	2.1
6)	Shekalipeta Village Pond (SW6)	N	0.8
7)	Chinatalavalasa Village Pond (SW7)	W	5.1
8)	Chinna Vastavalasa Village Pond (SW8)	SWW	1.0

TABLE NO. 3.4.2: SURFACE WATER QUALITY

SAMPLING LOCATION: VAMSHADHARA RIVER (SW1 & SW2) **MONTH:** DECEMBER, 2021

S.NO.	PARAMETER	STANDARD AS PER BIS: 2296	UNIT	SW1 (DOWNSTREAM)	SW2 (DOWNSTREAM)
PHYSICAL CHARACTERISTICS					
1.	Colour	---	---	---	---
2.	pH	6.5-8.5	---	8.1	8.2
3.	Turbidity	---	NTU	8	8
4.	Electrical Conductivity	---	ms/cm	409	460
5.	Total Dissolved Solids	1500	mg/l	258	267
6.	Dissolved Oxygen	4 (Min.)	mg/l	6.3	6.4
CHEMICAL CHARACTERISTICS					
7.	Total Hardness	1500	mg/l	139	142
8.	Calcium Hardness (as Ca)	200	mg/l	86	88
9.	Magnesium Hardness (as Mg)	100	mg/l	53	54

10.	Alkalinity	---	mg/l	110	117
11.	Sulphates	400	mg/l	85	101
12.	Chlorides	600	mg/l	147	139
13.	Nitrates as NO_3	20	mg/l	1.5	1.9
14.	Fluoride as F	1.5	mg/l	0.51	0.53
15.	Sodium as Na	---	mg/l	26	30
16.	BOD (3 days at 27^0C)	3 (Max.)	mg/l	2.1	2.2
17.	COD	---	mg/l	6	6
18.	Residual chlorine	---	mg/l	<0.01	<0.01
19.	Cyanides as CN^-	0.05	mg/l	<0.01	<0.01
20.	Phenols as C_6H_5OH	0.005	mg/l	Absent	Absent
21.	Hexavalent chromium as Cr	0.05	mg/l	<0.01	<0.01
22.	Iron as Fe	50	mg/l	0.26	0.29
23.	Copper as Cu	1.5	mg/l	<0.01	<0.01
24.	Arsenic as As	0.2	mg/l	<0.01	<0.01
25.	Selenium	<0.01	mg/l	<0.01	<0.01
26.	Cadmium as cd	<0.01	mg/l	<0.01	<0.01
27.	Boron as B	<0.01	mg/l	<0.01	<0.01
28.	Mercury as Mg	<0.01	mg/l	<0.001	<0.001
29.	Lead as Pb	0.1	mg/l	<0.01	<0.01
30.	Silica as SiO_2	---	mg/l	1.2	4.3
31.	Mineral oil	<0.01	mg/l	<0.01	<0.01
32.	Total coliforms	5000	(MPN/100 ml)	29	34

TABLE NO. 3.4.3: SURFACE WATER QUALITY

STATION: CHILKURUPETA VILLAGE POND **MONTH:** DECEMBER, 2021

S.NO.	PARAMETER	STANDARD AS PER BIS: 2296	UNIT	SAMPLE (SW3)
PHYSICAL CHARACTERISTICS				
1.	Colour	---	---	---
2.	pH	6.5-8.5	---	7.9
3.	Turbidity	---	NTU	5
4.	Electrical Conductivity	---	ms/cm	387
5.	Total Dissolved Solids	1500	mg/l	248
6.	Dissolved Oxygen	4 (Min.)	mg/l	4.3
CHEMICAL CHARACTERISTICS				
7.	Total Hardness	1500	mg/l	175
8.	Calcium Hardness (as Ca)	200	mg/l	109
9.	Magnesium Hardness (as Mg)	100	mg/l	67
10.	Alkalinity	---	mg/l	150

11.	Sulphates	400	mg/l	95
12.	Chlorides	600	mg/l	129
13.	Nitrates as NO_3	20	mg/l	5.7
14.	Fluoride as F	1.5	mg/l	1.15
15.	Sodium as Na	---	mg/l	124
16.	BOD (3 days @ 27°C)	3	mg/l	3.6
17.	COD	---	mg/l	8
18.	Residual chlorine	---	mg/l	<0.01
19.	Cyanides as CN^-	0.05	mg/l	<0.01
20.	Phenols as C_6H_5OH	0.005	mg/l	Absent
21.	Hexavalent chromium as Cr	0.05	mg/l	<0.01
22.	Iron as Fe	50	mg/l	0.11
23.	Copper as Cu	1.5	mg/l	<0.01
24.	Arsenic as As	0.2	mg/l	<0.01
25.	Selenium	<0.01	mg/l	<0.01
26.	Cadmium as cd	<0.01	mg/l	<0.01
27.	Boron as B	<0.01	mg/l	<0.01
28.	Mercury as Mg	<0.01	mg/l	<0.001
29.	Lead as Pb	0.1	mg/l	<0.01
30.	Silica as SiO_2	---	mg/l	5.6
31.	Mineral oil	<0.01	mg/l	<0.01
32.	Total coliforms	500	(MPN/100 ml)	126

TABLE NO. 3.4.4: SURFACE WATER QUALITY

STATION: KUMMARIPETA VILLAGE POND **MONTH:** DECEMBER, 2021

S.NO.	PARAMETER	STANDARD AS PER BIS: 2296	UNIT	SAMPLE (SW4)
PHYSICAL CHARACTERISTICS				
1.	Colour	--	---	---
2.	pH	6.5-8.5	---	8
3.	Turbidity	----	NTU	4
4.	Electrical Conductivity	---	ms/cm	435
5.	Total Dissolved Solids	1500	mg/l	261
6.	Dissolved Oxygen	4 (Min.)	mg/l	4.8
CHEMICAL CHARACTERISTICS				
7.	Total Hardness	1500	mg/l	184
8.	Calcium Hardness (as Ca)	200	mg/l	114
9.	Magnesium Hardness (as Mg)	100	mg/l	70
10.	Alkalinity	---	mg/l	174
11.	Sulphates	400	mg/l	102
12.	Chlorides	600	mg/l	133

13.	Nitrates as NO_3	20	mg/l	6.9
14.	Fluoride as F	1.5	mg/l	1.24
15.	Sodium as Na	---	mg/l	107
16.	BOD (3 days @ 27°C)	3	mg/l	3.8
17.	COD	---	mg/l	9
18.	Residual chlorine	---	mg/l	<0.01
19.	Cyanides as CN^-	0.05	mg/l	<0.01
20.	Phenols as C_6H_5OH	0.005	mg/l	Absent
21.	Hexavalent chromium as Cr	0.05	mg/l	<0.01
22.	Iron as Fe	50	mg/l	0.15
23.	Copper as Cu	1.5	mg/l	<0.01
24.	Arsenic as As	0.2	mg/l	<0.01
25.	Selenium	<0.01	mg/l	<0.01
26.	Cadmium as cd	<0.01	mg/l	<0.01
27.	Boron as B	<0.01	mg/l	<0.01
28.	Mercury as Mg	<0.01	mg/l	<0.001
29.	Lead as Pb	0.1	mg/l	<0.01
30.	Silica as SiO_2	---	mg/l	5.8
31.	Mineral oil	<0.01	mg/l	<0.01
32.	Total coliforms	500	(MPN/100 ml)	147

TABLE NO.3.4.5: SURFACE WATER QUALITY

STATION: UPPARAPETA VILLAGE POND **MONTH:** DECEMBER, 2021

S.NO.	PARAMETER	STANDARD AS PER BIS: 2296	UNIT	SAMPLE (SW5)
PHYSICAL CHARACTERISTICS				
1.	Colour	---	---	---
2.	pH	6.5-8.5	---	8.2
3.	Turbidity	---	NTU	6
4.	Electrical Conductivity	---	ms/cm	386
5.	Total Dissolved Solids	1500	mg/l	259
6.	Dissolved Oxygen	4 (Min.)	mg/l	4.7
CHEMICAL CHARACTERISTICS				
7.	Total Hardness	1500	mg/l	173
8.	Calcium Hardness (as Ca)	200	mg/l	107
9.	Magnesium Hardness (as Mg)	100	mg/l	66
10.	Alkalinity	---	mg/l	162
11.	Sulphates	400	mg/l	88
12.	Chlorides	600	mg/l	145
13.	Nitrates as NO_3	20	mg/l	6.1
14.	Fluoride as F	1.5	mg/l	1.26

15.	Sodium as Na	---	mg/l	118
16.	BOD (3 days @ 27°C)	3	mg/l	3.3
17.	COD	---	mg/l	7
18.	Residual chlorine	---	mg/l	<0.01
19.	Cyanides as CN^-	0.05	mg/l	<0.01
20.	Phenols as C_6H_5OH	0.005	mg/l	Absent
21.	Hexavalent chromium as Cr	0.05	mg/l	<0.01
22.	Iron as Fe	50	mg/l	0.16
23.	Copper as Cu	1.5	mg/l	<0.01
24.	Arsenic as As	0.2	mg/l	<0.01
25.	Selenium	<0.01	mg/l	<0.01
26.	Cadmium as cd	<0.01	mg/l	<0.01
27.	Boron as B	<0.01	mg/l	<0.01
28.	Mercury as Mg	<0.01	mg/l	<0.001
29.	Lead as Pb	0.1	mg/l	<0.01
30.	Silica as SiO_2	---	mg/l	5.5
31.	Mineral oil	<0.01	mg/l	<0.01
32.	Total coliforms	500	(MPN/100 ml)	150

TABLE NO.3.4.6: SURFACE WATER QUALITY

STATION: SHEKALIPETA VILLAGE POND **MONTH:** DECEMBER, 2021

S.NO.	PARAMETER	STANDARD AS PER BIS: 2296	UNIT	SAMPLE (SW6)
PHYSICAL CHARACTERISTICS				
1.	Colour	---	---	---
2.	pH	6.5-8.5	---	8
3.	Turbidity	---	NTU	5
4.	Electrical Conductivity	---	ms/cm	433
5.	Total Dissolved Solids	1500	mg/l	247
6.	Dissolved Oxygen	4 (Min.)	mg/l	4
CHEMICAL CHARACTERISTICS				
7.	Total Hardness	1500	mg/l	179
8.	Calcium Hardness (as Ca)	200	mg/l	111
9.	Magnesium Hardness (as Mg)	100	mg/l	68
10.	Alkalinity	---	mg/l	154
11.	Sulphates	400	mg/l	82
12.	Chlorides	600	mg/l	141
13.	Nitrates as NO_3	20	mg/l	5.5
14.	Fluoride as F	1.5	mg/l	1.2
15.	Sodium as Na	---	mg/l	119
16.	BOD (3 days @ 27°C)	3	mg/l	3.7

17.	COD	---	mg/l	8
18.	Residual chlorine	---	mg/l	<0.01
19.	Cyanides as CN^-	0.05	mg/l	<0.01
20.	Phenols as C_6H_5OH	0.005	mg/l	Absent
21.	Hexavalent chromium as Cr	0.05	mg/l	<0.01
22.	Iron as Fe	50	mg/l	0.18
23.	Copper as Cu	1.5	mg/l	<0.01
24.	Arsenic as As	0.2	mg/l	<0.01
25.	Selenium	<0.01	mg/l	<0.01
26.	Cadmium as cd	<0.01	mg/l	<0.01
27.	Boron as B	<0.01	mg/l	<0.01
28.	Mercury as Mg	<0.01	mg/l	<0.001
29.	Lead as Pb	0.1	mg/l	<0.01
30.	Silica as SiO_2	---	mg/l	5.7
31.	Mineral oil	<0.01	mg/l	<0.01
32.	Total coliforms	500	(MPN/100 ml)	129

TABLE NO.3.4.7: SURFACE WATER QUALITY

STATION: CHINATALAVALASA VILLAGE POND **MONTH:** DECEMBER, 2021

S.NO.	PARAMETER	STANDARD AS PER BIS: 2296	UNIT	SAMPLE (SW7)
PHYSICAL CHARACTERISTICS				
1.	Colour	---	---	---
2.	pH	6.5-8.5	---	8.1
3.	Turbidity	---	NTU	4
4.	Electrical Conductivity	---	ms/cm	423
5.	Total Dissolved Solids	1500	mg/l	233
6.	Dissolved Oxygen	4 (Min.)	mg/l	5
CHEMICAL CHARACTERISTICS				
7.	Total Hardness	1500	mg/l	188
8.	Calcium Hardness (as Ca)	200	mg/l	117
9.	Magnesium Hardness (as Mg)	100	mg/l	71
10.	Alkalinity	---	mg/l	159
11.	Sulphates	400	mg/l	75
12.	Chlorides	600	mg/l	135
13.	Nitrates as NO_3	20	mg/l	6.4
14.	Fluoride as F	1.5	mg/l	1.16
15.	Sodium as Na	---	mg/l	125
16.	BOD (3 days @ 27°C)	3	mg/l	4.1
17.	COD	---	mg/l	9
18.	Residual chlorine	---	mg/l	<0.01

19.	Cyanides as CN^-	0.05	mg/l	<0.01
20.	Phenols as C_6H_5OH	0.005	mg/l	Absent
21.	Hexavalent chromium as Cr	0.05	mg/l	<0.01
22.	Iron as Fe	50	mg/l	0.16
23.	Copper as Cu	1.5	mg/l	<0.01
24.	Arsenic as As	0.2	mg/l	<0.01
25.	Selenium	<0.01	mg/l	<0.01
26.	Cadmium as cd	<0.01	mg/l	<0.01
27.	Boron as B	<0.01	mg/l	<0.01
28.	Mercury as Mg	<0.01	mg/l	<0.001
29.	Lead as Pb	0.1	mg/l	<0.01
30.	Silica as SiO_2	---	mg/l	5.1
31.	Mineral oil	<0.01	mg/l	<0.01
32.	Total coliforms	500	(MPN/100 ml)	138

TABLE NO.3.4.8: SURFACE WATER QUALITY

STATION: CHINNA VASTAVALASA VILLAGE POND **MONTH:** DECEMBER, 2021

S.NO.	PARAMETER	STANDARD AS PER BIS: 2296	UNIT	SAMPLE (SW8)
PHYSICAL CHARACTERISTICS				
1.	Colour	---	---	---
2.	pH	6.5-8.5	---	7.9
3.	Turbidity	---	NTU	5
4.	Electrical Conductivity	---	ms/cm	421
5.	Total Dissolved Solids	1500	mg/l	270
6.	Dissolved Oxygen	4 (Min.)	mg/l	4.4
CHEMICAL CHARACTERISTICS				
7.	Total Hardness	1500	mg/l	185
8.	Calcium Hardness (as Ca)	200	mg/l	115
9.	Magnesium Hardness (as Mg)	100	mg/l	70
10.	Alkalinity	---	mg/l	166
11.	Sulphates	400	mg/l	93
12.	Chlorides	600	mg/l	150
13.	Nitrates as NO_3	20	mg/l	7.2
14.	Fluoride as F	1.5	mg/l	1.11
15.	Sodium as Na	---	mg/l	132
16.	BOD (3 days @ 27°C)	3	mg/l	4
17.	COD	---	mg/l	8
18.	Residual chlorine	---	mg/l	<0.01
19.	Cyanides as CN^-	0.05	mg/l	<0.01
20.	Phenols as C_6H_5OH	0.005	mg/l	Absent
21.	Hexavalent chromium as Cr	0.05	mg/l	<0.01

22.	Iron as Fe	50	mg/l	0.13
23.	Copper as Cu	1.5	mg/l	<0.01
24.	Arsenic as As	0.2	mg/l	<0.01
25.	Selenium	<0.01	mg/l	<0.01
26.	Cadmium as cd	<0.01	mg/l	<0.01
27.	Boron as B	<0.01	mg/l	<0.01
28.	Mercury as Mg	<0.01	mg/l	<0.001
29.	Lead as Pb	0.1	mg/l	<0.01
30.	Silica as SiO_2	---	mg/l	5.5
31.	Mineral oil	<0.01	mg/l	<0.01
32.	Total coliforms	500	(MPN/100 ml)	155

3.4.2 GROUND WATER QUALITY ASSESSMENT:

The ground water samples have to be collected and analyzed for various parameters like pH, Suspended Solids, Total Dissolved Solids, Temperature, Total Hardness, Calcium Hardness, Magnesium hardness, Alkalinity, Fluoride, Chloride, Sulphates, Nitrates, Chemical Oxygen Demand (COD) and for various heavy metals and is compared with the standards to know the water quality. Selection of sampling locations will be generally done based on the following factors:

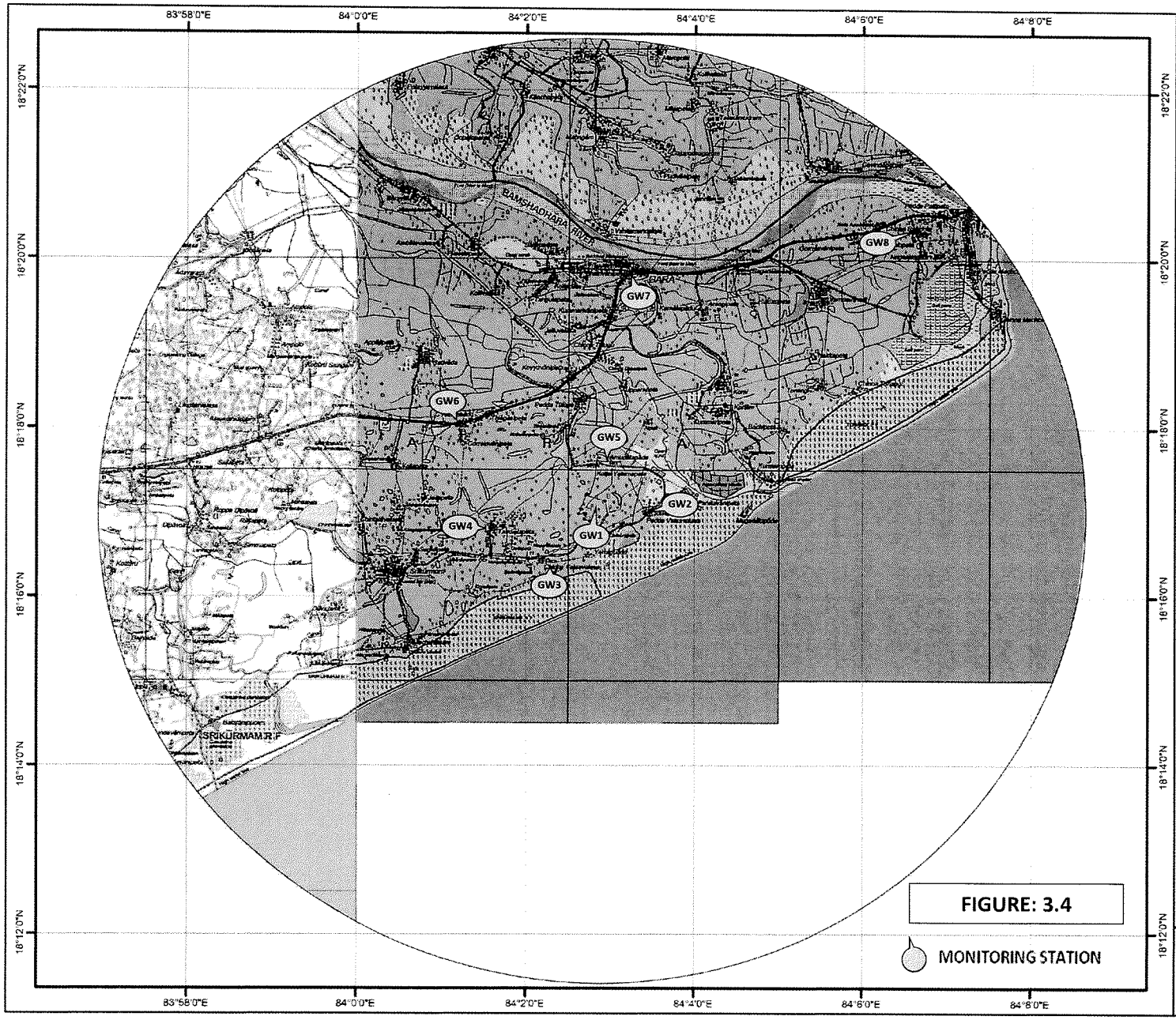
- Representation of plant
- Topography
- Industrial Areas
- Residential areas
- Agricultural Activity

8 nos. of ground water samples from open wells/bore wells were collected from the nearby villages to assess ground water quality impacts. The ground water sampling locations and their distances from the proposed Project site are shown in Table 3.4.9. and These water samples are analyzed for various parameters as per IS: 10500. The water quality sampling stations are shown in fig. 3.4. The ground water characteristics were shown in table Nos. 3.4.10 to 3.4.17.

TABLE NO.3.4.9: GROUND WATER QUALITY SAMPLING STATIONS

S.NO	STATION	DIRECTION W.R.T PLANT SITE	DISTANCE W.R.T PLANT SITE (IN KMS.)	CATEGORY REPRESENTING

GW1	Plant site	--	--	Borewell sample representing Industrial area
GW2	Pedda Vastavalasa	E	0.7	Borewell sample representing nearest Habitation area
GW3	Chinna Vastavalasa	SWW	1.2	Borewell sample representing Residential & agricultural activity
GW4	Tandialapeta	W	2.1	Borewell sample selected based on Topography (Downstream) & agricultural activity
GW5	Amudalapadu	N	1.1	Borewell sample representing Residential & agricultural activity
GW6	Nizambada	NWW	3.0	Borewell sample selected based on Topography (Upstream) & agricultural activity
GW7	Gara	N	5.0	Borewell sample representing commercial area
GW8	Kalingapatanam	NEE	8.8	Borewell sample representing commercial area



MAP SHOWING GROUND WATER QUALITY MONITORING STATION

N

0.8 0.4 0 0.8 1.6 2.4 3.2 Kilometers

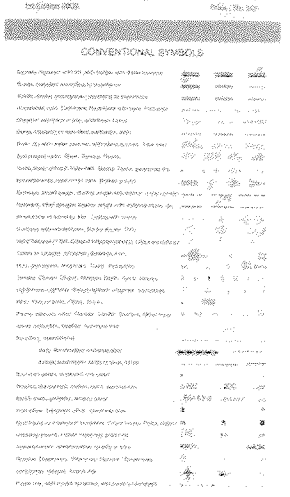
1 centimeter = 1,060 meters

LEGEND

- GPS POINTS
- PLANT SITE BOUNDARY

GPS CO-ORDINATES
A.18°17'12.00"N-84° 02'42.70"E
B.18°17' 07.80"N-84° 02'56.60"E
C.18°16'58.20"N-84° 02'58.20"E
D.18°16'50.10"N-84° 02'52.90"E
E.18°16'51.16"N-84° 02'48.47"E
F.18°16'52.87"N-84° 02'48.76"E
G.18°16'55.13"N-84° 02'41.84"E
H.18°16'58.98"N-84° 02'42.59"E
I.18°16'58.80"N-84° 02'37.70"E

भारतीय सर्वेक्षण विभाग SURVEY OF INDIA



Source:-
Survey of India Topographical Maps, No. 65 N/15,16 74 B/3 and 4.

TABLE NO. 3.4.10: GROUND WATER QUALITY ANALYSIS				
SAMPLING LOCATION: PLANT SITE			**MONTH:** DECEMBER 2021	
S.NO.	**PARAMETER**	**STANDARD AS PER IS: 10500 DESIRABLE LIMIT (PERMISSIBLE LIMIT)**	**UNIT**	**SAMPLE**
	PHYSICAL CHARACTERISTICS			
1.	Colour	5 (25)	Hazen	< 5
2.	Odour	U/O	---	U/O
3.	pH	6.5 – 8.5		7.8
4.	Turbidity	5 (10)	NTU	4.1
5.	Electrical Conductivity	Limit not specified	µs/cm	1388
6.	Total Dissolved Solids	500 (2000)	mg/l	847
7.	Total Soluble Solids	---	mg/l	1.8
	CHEMICAL CHARACTERISTICS			
8.	Total Hardness	300 (600)	mg/l	438
9.	Calcium Hardness	75 (200 as Ca)	mg/l	272
10.	Magnesium Hardness	30 (100 as Mg)	mg/l	166
11.	Alkalinity	200 (600)	mg/l	287
12.	Sulphates	200 (400)	mg/l	304
13.	Chlorides	250 (1000)	mg/l	458
14.	Nitrates as NO_3	45 (45)	mg/l	1.6
15.	Fluoride as F	1.0/1.5	mg/l	0.68
16.	Sodium as Na	Limit not specified	mg/l	95
17.	Residual chlorine	0.2	mg/l	<0.01
18.	Cyanides as CN^-	0.05 (0.05)	mg/l	<0.01
19.	Phenols as C_6H_5OH	0.001 (0.002)	mg/l	Absent
20.	Total chromium as Cr	0.05 (0.05)	mg/l	<0.01
21.	Iron as Fe	0.3 (1.0)	mg/l	0.22
22.	Copper as Cu	0.05 (1.5)	mg/l	<0.01
23.	Arsenic as As	0.01 (0.01)	mg/l	<0.01
24.	Selenium as Se	0.01 (0.01)	mg/l	<0.01
25.	Cadmium as cd	0.01 (0.01)	mg/l	<0.01
26.	Boron as B	1.0 (5.0)	mg/l	<0.01
27.	Mercury as Hg	0.001 (0.001)	mg/l	<0.001
28.	Lead as Pb	0.05 (0.05)	mg/l	<0.01
29.	Silica as SiO_2	---	mg/l	4.2
30.	Manganese as Mn	0.1 (0.3)	Mg/l	<0.01
31.	Anionic detergents as MBAS	0.2 (1.0)	Mg/l	<0.01
32.	Total coliforms	10 (-)	(MPN/100 ml)	Absent

U/O – Unobjectionable

TABLE NO. 3.4.11: GROUND WATER QUALITY ANALYSIS				
SAMPLING LOCATION: PEDDA VASTAVALASA			**MONTH:** DECEMBER 2021	
S.NO.	**PARAMETER**	**STANDARD AS PER IS: 10500 DESIRABLE LIMIT (PERMISSIBLE LIMIT)**	**UNIT**	**SAMPLE**
	PHYSICAL CHARACTERISTICS			
1.	Colour	5 (25)	Hazen	< 5
2.	Odour	U/O	---	U/O
3.	pH	6.5 – 8.5		7.9
4.	Turbidity	5 (10)	NTU	4.4
5.	Electrical Conductivity	Limit not specified	µs/cm	1279
6.	Total Dissolved Solids	500 (2000)	mg/l	806
7.	Total Soluble Solids	---	mg/l	1.5
	CHEMICAL CHARACTERISTICS			
8.	Total Hardness	300 (600)	mg/l	428
9.	Calcium Hardness	75 (200 as Ca)	mg/l	257
10.	Magnesium Hardness	30 (100 as Mg)	mg/l	171
11.	Alkalinity	200 (600)	mg/l	294
12.	Sulphates	200 (400)	mg/l	297
13.	Chlorides	250 (1000)	mg/l	428
14.	Nitrates as NO_3	45 (45)	mg/l	1.8
15.	Fluoride as F	1.0/1.5	mg/l	0.62
16.	Sodium as Na	Limit not specified	mg/l	90
17.	Residual chlorine	0.2	mg/l	<0.01
18.	Cyanides as CN^-	0.05 (0.05)	mg/l	<0.01
19.	Phenols as C_6H_5OH	0.001 (0.002)	mg/l	Absent
20.	Total chromium as Cr	0.05 (0.05)	mg/l	<0.01
21.	Iron as Fe	0.3 (1.0)	mg/l	0.25
22.	Copper as Cu	0.05 (1.5)	mg/l	<0.01
23.	Arsenic as As	0.01 (0.01)	mg/l	<0.01
24.	Selenium as Se	0.01 (0.01)	mg/l	<0.01
25.	Cadmium as cd	0.01 (0.01)	mg/l	<0.01
26.	Boron as B	1.0 (5.0)	mg/l	<0.01
27.	Mercury as Hg	0.001 (0.001)	mg/l	<0.001
28.	Lead as Pb	0.05 (0.05)	mg/l	<0.01
29.	Silica as SiO_2	---	mg/l	4.8
30.	Manganese as Mn	0.1 (0.3)	mg/l	<0.01
31.	Anionic detergents as MBAS	0.2 (1.0)	mg/l	<0.01
32.	Total coliforms	10 (-)	(MPN/100 ml)	Absent

U/O – Unobjectionable

TABLE NO. 3.4.12: GROUND WATER QUALITY ANALYSIS				
SAMPLING LOCATION: CHINNA VASTAVALASA			**MONTH:** DECEMBER 2021	
S.NO.	**PARAMETER**	**STANDARD AS PER IS: 10500 DESIRABLE LIMIT (PERMISSIBLE LIMIT)**	**UNIT**	**SAMPLE**
	PHYSICAL CHARACTERISTICS			
1.	Colour	5 (25)	Hazen	< 5
2.	Odour	U/O	---	U/O
3.	pH	6.5 – 8.5		7.6
4.	Turbidity	5 (10)	NTU	4.2
5.	Electrical Conductivity	Limit not specified	µs/cm	1271
6.	Total Dissolved Solids	500 (2000)	mg/l	814
7.	Total Soluble Solids	---	mg/l	2.4
	CHEMICAL CHARACTERISTICS			
8.	Total Hardness	300 (600)	mg/l	447
9.	Calcium Hardness	75 (200 as Ca)	mg/l	291
10.	Magnesium Hardness	30 (100 as Mg)	mg/l	156
11.	Alkalinity	200 (600)	mg/l	274
12.	Sulphates	200 (400)	mg/l	261
13.	Chlorides	250 (1000)	mg/l	472
14.	Nitrates as NO_3	45 (45)	mg/l	2.4
15.	Fluoride as F	1.0/1.5	mg/l	0.63
16.	Sodium as Na	Limit not specified	mg/l	101
17.	Residual chlorine	0.2	mg/l	<0.01
18.	Cyanides as CN^-	0.05 (0.05)	mg/l	<0.01
19.	Phenols as C_6H_5OH	0.001 (0.002)	mg/l	Absent
20.	Total chromium as Cr	0.05 (0.05)	mg/l	<0.01
21.	Iron as Fe	0.3 (1.0)	mg/l	0.2
22.	Copper as Cu	0.05 (1.5)	mg/l	<0.01
23.	Arsenic as As	0.01 (0.01)	mg/l	<0.01
24.	Selenium as Se	0.01 (0.01)	mg/l	<0.01
25.	Cadmium as cd	0.01 (0.01)	mg/l	<0.01
26.	Boron as B	1.0 (5.0)	mg/l	<0.01
27.	Mercury as Hg	0.001 (0.001)	mg/l	<0.001
28.	Lead as Pb	0.05 (0.05)	mg/l	<0.01
29.	Silica as SiO_2	---	mg/l	4.2
30.	Manganese as Mn	0.1 (0.3)	Mg/l	<0.01
31.	Anionic detergents as MBAS	0.2 (1.0)	Mg/l	<0.01
32.	Total coliforms	10 (-)	(MPN/100 ml)	Absent

U/O – Unobjectionable

TABLE NO. 3.4.13: GROUND WATER QUALITY ANALYSIS				
SAMPLING LOCATION: TANDIALAPETA			**MONTH:** DECEMBER 2021	
S.NO.	**PARAMETER**	**STANDARD AS PER IS: 10500 DESIRABLE LIMIT (PERMISSIBLE LIMIT)**	**UNIT**	**SAMPLE**
	PHYSICAL CHARACTERISTICS			
1.	Colour	5 (25)	Hazen	< 5
2.	Odour	U/O	---	U/O
3.	pH	6.5 – 8.5		7.7
4.	Turbidity	5 (10)	NTU	4.7
5.	Electrical Conductivity	Limit not specified	µs/cm	1204
6.	Total Dissolved Solids	500 (2000)	mg/l	795
7.	Total Soluble Solids	---	mg/l	2.0
	CHEMICAL CHARACTERISTICS			
8.	Total Hardness	300 (600)	mg/l	451
9.	Calcium Hardness	75 (200 as Ca)	mg/l	298
10.	Magnesium Hardness	30 (100 as Mg)	mg/l	153
11.	Alkalinity	200 (600)	mg/l	285
12.	Sulphates	200 (400)	mg/l	295
13.	Chlorides	250 (1000)	mg/l	420
14.	Nitrates as NO_3	45 (45)	mg/l	2.6
15.	Fluoride as F	1.0/1.5	mg/l	0.71
16.	Sodium as Na	Limit not specified	mg/l	96
17.	Residual chlorine	0.2	mg/l	<0.01
18.	Cyanides as CN^-	0.05 (0.05)	mg/l	<0.01
19.	Phenols as C_6H_5OH	0.001 (0.002)	mg/l	Absent
20.	Total chromium as Cr	0.05 (0.05)	mg/l	<0.001
21.	Iron as Fe	0.3 (1.0)	mg/l	0.26
22.	Copper as Cu	0.05 (1.5)	mg/l	<0.01
23.	Arsenic as As	0.01 (0.01)	mg/l	<0.01
24.	Selenium as Se	0.01 (0.01)	mg/l	<0.01
25.	Cadmium as cd	0.01 (0.01)	mg/l	<0.01
26.	Boron as B	1.0 (5.0)	mg/l	<0.01
27.	Mercury as Hg	0.001 (0.001)	mg/l	<0.001
28.	Lead as Pb	0.05 (0.05)	mg/l	<0.01
29.	Silica as SiO_2	---	mg/l	4.7
30.	Manganese as Mn	0.1 (0.3)	mg/l	<0.01
31.	Anionic detergents as MBAS	0.2 (1.0)	mg/l	<0.01
32.	Total coliforms	10 (-)	(MPN/100 ml)	Absent

U/O – Unobjectionable

TABLE NO. 3.4.14: GROUND WATER QUALITY ANALYSIS				
SAMPLING LOCATION: AMUDALAPADU			**MONTH:** DECEMBER 2021	
S.NO.	**PARAMETER**	**STANDARD AS PER IS: 10500 DESIRABLE LIMIT (PERMISSIBLE LIMIT)**	**UNIT**	**SAMPLE**
	PHYSICAL CHARACTERISTICS			
1.	Colour	5 (25)	Hazen	< 5
2.	Odour	U/O	---	U/O
3.	pH	6.5 – 8.5		7.9
4.	Turbidity	5 (10)	NTU	4.2
5.	Electrical Conductivity	Limit not specified	µs/cm	1259
6.	Total Dissolved Solids	500 (2000)	mg/l	781
7.	Total Soluble Solids	---	mg/l	1.7
	CHEMICAL CHARACTERISTICS			
8.	Total Hardness	300 (600)	mg/l	446
9.	Calcium Hardness	75 (200 as Ca)	mg/l	272
10.	Magnesium Hardness	30 (100 as Mg)	mg/l	174
11.	Alkalinity	200 (600)	mg/l	290
12.	Sulphates	200 (400)	mg/l	292
13.	Chlorides	250 (1000)	mg/l	410
14.	Nitrates as NO_3	45 (45)	mg/l	2.4
15.	Fluoride as F	1.0/1.5	mg/l	0.78
16.	Sodium as Na	Limit not specified	mg/l	94
17.	Residual chlorine	0.2	mg/l	<0.01
18.	Cyanides as CN^-	0.05 (0.05)	mg/l	<0.01
19.	Phenols as C_6H_5OH	0.001 (0.002)	mg/l	Absent
20.	Total chromium as Cr	0.05 (0.05)	mg/l	<0.001
21.	Iron as Fe	0.3 (1.0)	mg/l	0.23
22.	Copper as Cu	0.05 (1.5)	mg/l	<0.01
23.	Arsenic as As	0.01 (0.01)	mg/l	<0.01
24.	Selenium as Se	0.01 (0.01)	mg/l	<0.01
25.	Cadmium as cd	0.01 (0.01)	mg/l	<0.01
26.	Boron as B	1.0 (5.0)	mg/l	<0.01
27.	Mercury as Hg	0.001 (0.001)	mg/l	<0.001
28.	Lead as Pb	0.05 (0.05)	mg/l	<0.01
29.	Silica as SiO_2	---	mg/l	4.2
30.	Manganese as Mn	0.1 (0.3)	mg/l	<0.01
31.	Anionic detergents as MBAS	0.2 (1.0)	mg/l	<0.01
32.	Total coliforms	10 (-)	(MPN/100 ml)	Absent

U/O – Unobjectionable

TABLE NO. 3.4.15: GROUND WATER QUALITY ANALYSIS				
SAMPLING LOCATION: NIZAMBADA			**MONTH:** DECEMBER 2021	
S.NO.	**PARAMETER**	**STANDARD AS PER IS: 10500 DESIRABLE LIMIT (PERMISSIBLE LIMIT)**	**UNIT**	**SAMPLE**
	PHYSICAL CHARACTERISTICS			
1.	Colour	5 (25)	Hazen	< 5
2.	Odour	U/O	----	U/O
3.	pH	6.5 – 8.5		8
4.	Turbidity	5 (10)	NTU	4
5.	Electrical Conductivity	Limit not specified	µs/cm	1164
6.	Total Dissolved Solids	500 (2000)	mg/l	780
7.	Total Soluble Solids	---	mg/l	1.6
	CHEMICAL CHARACTERISTICS			
8.	Total Hardness	300 (600)	mg/l	439
9.	Calcium Hardness	75 (200 as Ca)	mg/l	299
10.	Magnesium Hardness	30 (100 as Mg)	mg/l	140
11.	Alkalinity	200 (600)	mg/l	299
12.	Sulphates	200 (400)	mg/l	269
13.	Chlorides	250 (1000)	mg/l	433
14.	Nitrates as NO_3	45 (45)	mg/l	1.8
15.	Fluoride as F	1.0/1.5	mg/l	0.61
16.	Sodium as Na	Limit not specified	mg/l	97
17.	Residual chlorine	0.2	mg/l	<0.01
18.	Cyanides as CN^-	0.05 (0.05)	mg/l	<0.01
19.	Phenols as C_6H_5OH	0.001 (0.002)	mg/l	Absent
20.	Total chromium as Cr	0.05 (0.05)	mg/l	<0.001
21.	Iron as Fe	0.3 (1.0)	mg/l	0.21
22.	Copper as Cu	0.05 (1.5)	mg/l	<0.01
23.	Arsenic as As	0.01 (0.01)	mg/l	<0.01
24.	Selenium as Se	0.01 (0.01)	mg/l	<0.01
25.	Cadmium as cd	0.01 (0.01)	mg/l	<0.01
26.	Boron as B	1.0 (5.0)	mg/l	<0.01
27.	Mercury as Hg	0.001 (0.001)	mg/l	<0.001
28.	Lead as Pb	0.05 (0.05)	mg/l	<0.01
29.	Silica as SiO_2	---	mg/l	4.6
30.	Manganese as Mn	0.1 (0.3)	mg/l	<0.01
31.	Anionic detergents as MBAS	0.2 (1.0)	mg/l	<0.01
32.	Total coliforms	10 (-)	(MPN/100 ml)	Absent

U/O – Unobjectionable

TABLE NO. 3.4.16: GROUND WATER QUALITY ANALYSIS				
SAMPLING LOCATION: GARA			**MONTH:** DECEMBER 2021	
S.NO.	**PARAMETER**	**STANDARD AS PER IS: 10500 DESIRABLE LIMIT (PERMISSIBLE LIMIT)**	**UNIT**	**SAMPLE**
	PHYSICAL CHARACTERISTICS			
1.	Colour	5 (25)	Hazen	< 5
2.	Odour	U/O	---	U/O
3.	pH	6.5 – 8.5		7.9
4.	Turbidity	5 (10)	NTU	3.9
5.	Electrical Conductivity	Limit not specified	µs/cm	726
6.	Total Dissolved Solids	500 (2000)	mg/l	458
7.	Total Soluble Solids	---	mg/l	2.1
	CHEMICAL CHARACTERISTICS			
8.	Total Hardness	300 (600)	mg/l	428
9.	Calcium Hardness	75 (200 as Ca)	mg/l	282
10.	Magnesium Hardness	30 (100 as Mg)	mg/l	146
11.	Alkalinity	200 (600)	mg/l	283
12.	Sulphates	200 (400)	mg/l	134
13.	Chlorides	250 (1000)	mg/l	278
14.	Nitrates as NO_3	45 (45)	mg/l	1.9
15.	Fluoride as F	1.0/1.5	mg/l	0.63
16.	Sodium as Na	Limit not specified	mg/l	93
17.	Residual chlorine	0.2	mg/l	<0.01
18.	Cyanides as CN^-	0.05 (0.05)	mg/l	<0.01
19.	Phenols as C_6H_5OH	0.001 (0.002)	mg/l	Absent
20.	Total chromium as Cr	0.05 (0.05)	mg/l	<0.01
21.	Iron as Fe	0.3 (1.0)	mg/l	0.22
22.	Copper as Cu	0.05 (1.5)	mg/l	<0.01
23.	Arsenic as As	0.01 (0.01)	mg/l	<0.01
24.	Selenium as Se	0.01 (0.01)	mg/l	<0.01
25.	Cadmium as cd	0.01 (0.01)	mg/l	<0.01
26.	Boron as B	1.0 (5.0)	mg/l	<0.01
27.	Mercury as Hg	0.001 (0.001)	mg/l	<0.001
28.	Lead as Pb	0.05 (0.05)	mg/l	<0.01
29.	Silica as SiO_2	---	mg/l	4.1
30.	Manganese as Mn	0.1 (0.3)	Mg/l	<0.01
31.	Anionic detergents as MBAS	0.2 (1.0)	Mg/l	<0.01
32.	Total coliforms	10 (-)	(MPN/100 ml)	Absent

U/O – Unobjectionable

TABLE NO. 3.4.17: GROUND WATER QUALITY ANALYSIS				
SAMPLING LOCATION: KALINGAPATANAM			**MONTH:** DECEMBER 2021	
S.NO.	**PARAMETER**	**STANDARD AS PER IS: 10500 DESIRABLE LIMIT (PERMISSIBLE LIMIT)**	**UNIT**	**SAMPLE**
	PHYSICAL CHARACTERISTICS			
1.	Colour	5 (25)	Hazen	< 5
2.	Odour	U/O	---	U/O
3.	pH	6.5 – 8.5		7.9
4.	Turbidity	5 (10)	NTU	4.3
5.	Electrical Conductivity	Limit not specified	µs/cm	1401
6.	Total Dissolved Solids	500 (2000)	mg/l	827
7.	Total Soluble Solids	---	mg/l	1.4
	CHEMICAL CHARACTERISTICS			
8.	Total Hardness	300 (600)	mg/l	430
9.	Calcium Hardness	75 (200 as Ca)	mg/l	292
10.	Magnesium Hardness	30 (100 as Mg)	mg/l	138
11.	Alkalinity	200 (600)	mg/l	277
12.	Sulphates	200 (400)	mg/l	301
13.	Chlorides	250 (1000)	mg/l	444
14.	Nitrates as NO_3	45 (45)	mg/l	2.5
15.	Fluoride as F	1.0/1.5	mg/l	0.67
16.	Sodium as Na	Limit not specified	mg/l	99
17.	Residual chlorine	0.2	mg/l	<0.01
18.	Cyanides as CN^-	0.05 (0.05)	mg/l	<0.01
19.	Phenols as C_6H_5OH	0.001 (0.002)	mg/l	Absent
20.	Total chromium as Cr	0.05 (0.05)	mg/l	<0.01
21.	Iron as Fe	0.3 (1.0)	mg/l	0.24
22.	Copper as Cu	0.05 (1.5)	mg/l	<0.01
23.	Arsenic as As	0.01 (0.01)	mg/l	<0.01
24.	Selenium as Se	0.01 (0.01)	mg/l	<0.01
25.	Cadmium as cd	0.01 (0.01)	mg/l	<0.01
26.	Boron as B	1.0 (5.0)	mg/l	<0.01
27.	Mercury as Hg	0.001 (0.001)	mg/l	<0.001
28.	Lead as Pb	0.05 (0.05)	mg/l	<0.01
29.	Silica as SiO_2	---	mg/l	4
30.	Manganese as Mn	0.1 (0.3)	Mg/l	<0.01
31.	Anionic detergents as MBAS	0.2 (1.0)	Mg/l	<0.01
32.	Total coliforms	10 (-)	(MPN/100 ml)	Absent

U/O – Unobjectionable

3.5 LAND ENVIRONMENT:

Studies on land use aspects of eco system play an important role in identifying sensitive issues and to take appropriate action by maintaining ecological homeostatic in the initial stages of development of the Project. The basic objective of this part of the study is to define the present environmental status and to evaluate all possible eventualities, to ensure that all negative impacts are minimized.

3.5.1 HYDROGEOLOGY OF THE STUDY AREA:

The district is underlain by variety of geological formations from the oldest Archaeans to Recent Alluvium. The Archaean Group of rocks includes Khondalites and Charnockites of Eastern Ghat Super Group and Granitic gneisses of Migmatite Group. The Gondwana rocks which are represented by sandstones are of very limited aerial extent. These sandstones occur as outlier in Ranastalam mandal on western part of the district. The thickness of this formation is more than 220 m. The recent sediments constitute coarse to fine sands, gravels, silts and clays. Structurally the are is highly disturbed as evidenced by the structurally controlled rivers viz: Vamsadhara and Nagavali which are observed to flow in the faulted zone trending NW-SE direction. Prominent lineaments are trending in NE-SW, NW-SE and NNW SSE.

Ground water occurs in almost all geological formations. From the ground water point of view, the aquifers found in the district can be broadly classified into hard rocks (khondalites, quartzites, charnockites, granitic gneisses etc.) and soft rocks (sand stones, river alluvium, coastal alluvium etc.). Ground water occurs under unconfined to semi-confined conditions in the hard rock formations, while it occurs under unconfined to confined conditions in soft rock formations. The yields in the weathered zones of khondalites and charnockites are very limited and are in the order of 10 to 20 m3 /d. In the weathered granitic gneisses the yields are in the ranges from 10 to 40 m3 /d. The bore wells constructed in the hard rocks generally tap the fractured and fissured zones. The yields of the bore wells range between

Water Level Scenario:

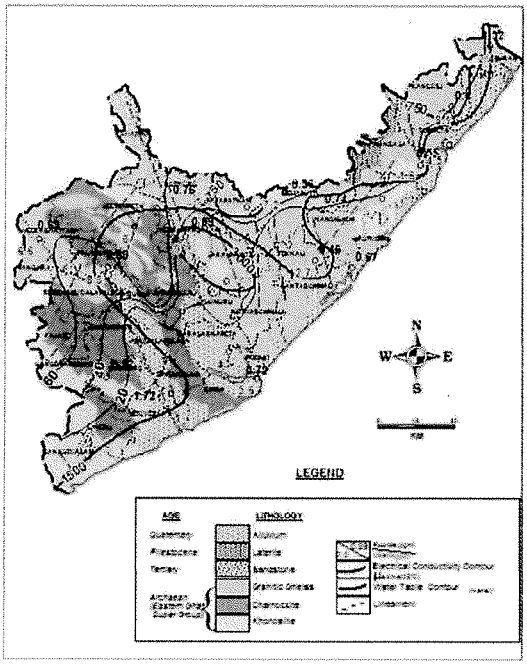
The depth to water level during pre monsoon season (May, 2012) in the district generally ranges between 5 and 10 mbgl (Fig. 5). Shallow water levels less than 5 m bgl occur in parts of Seetampeta, Veeraghattam, Vangara, Saravakota, Gara, Meliaputti, Patapatnam, and Ichapuram mandals. whereas water levels more than 10 m bgl are recorded at Palasa and Kotturu. The depth to water

level during post monsoon season (Nov, 2012) in the district generally less than 2 mbgl (Fig. 6). Deeper water levels more than 2 mbgl occur in Laveru, G.Sigadam, Ponduru, Rajam and Ranastalam mandals.

Ground water levels fluctuate considerably in response to the recharge and draft conditions of ground water reservoir. Rise in water levels from pre-monsoon to post-monsoon is in the range of 1.31 m to 9.05 m exist in the district. Majority of the district is below 4 m fluctuation. The minimum average fluctuation is in alluvium, whereas maximum average fluctuation is in khondalites. Long-term trend of water level (2001 to 2011) indicates during pre monsoon an overall raise in the district in the range of 0.002 to 0.532 m/yr where as fall in the range of 0.007 to 0.228 m/yr exist at Kanchili, Ponduru, Heeramandalam and Srikakulam. During post-monsoon period overall raise exists in the district, it varies from 0.003 to 0.487 m/yr except at Srikakulam and Kanchili, where fall recorded of 0.013 and 0.018 m/yr respectively.

The water table elevation ranges between <1 m amsl (Kalingapatnam) and 139 m.amsl (Sitampeta). The water table contours are almost parallel to the topographic contours with gentle slopes along higher order streams of Vamsadhara and Nagavali and steep slopes in the hilly and intermontane upland areas. The general ground water flow direction is towards south directing towards the sea. Pumping test data of exploratory wells drilled by CGWB reveal that the transmissivity values in hard rocks vary between 2 and 44 m2/day while the storativity ranges from 2.5x10-4 to 5.8x10-4 The aquifer parameters will be very high in soft rock formations i.e. alluvium and sandstone due to high yield potential.

Fig.4 : Hydrogeology - Srikakulam District

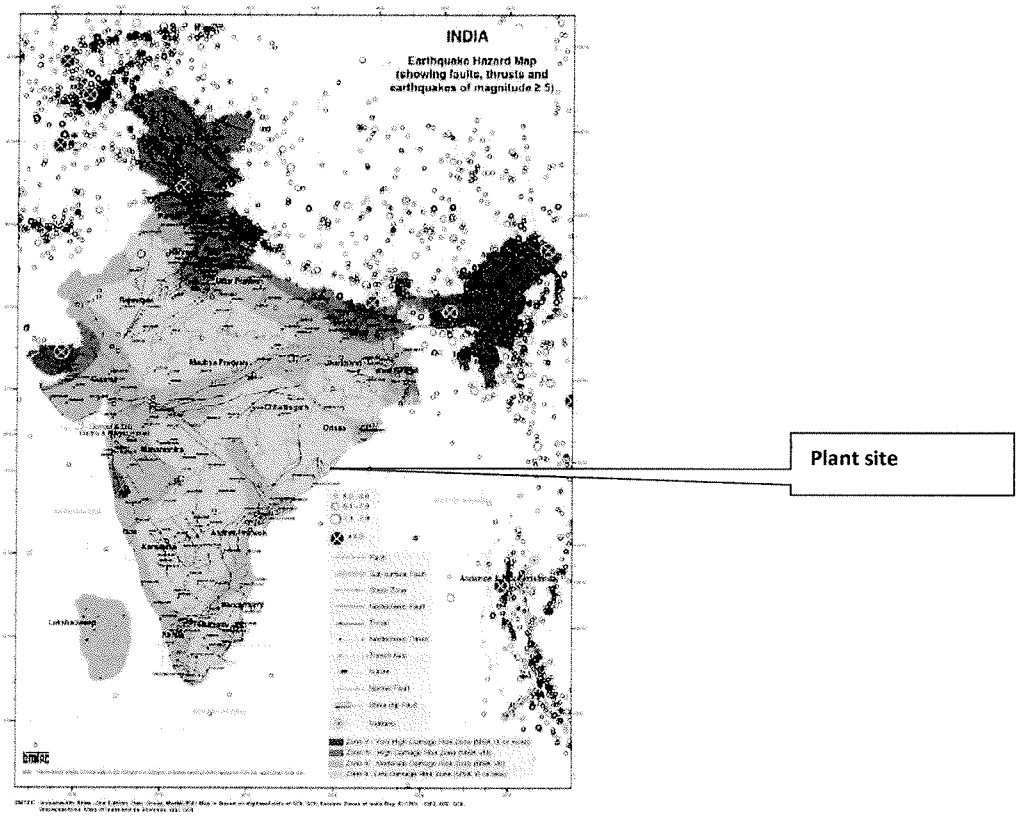


3.5.2 MINERAL RESERVES:

The district has rich deposits of mineral resources like Beach sand minerals in the study area.

3.5.3 SEISMIC EFFECT:

The Plant site falls in zone-II of Seismic Zone classification of India.



3.5.4 LAND USE PATTERN: [STANDARD TOR # 20]

The detailed land use and land cover within 10 Km radius from the Plant area is shown in table 3.5.1 as follows: The maps of the satellite imagery and land use and land cover within 10 Km radius from the plant is shown figure below of 3.5A & B.

TABLE NO.3.5.1: LAND USE CLASSIFICATION OF STUDY AREA

SL. NO.	LANDUSE	AREA (SQ. KM)	%
1.	**BUILT- UP LAND**		
	A. Settlements	9.734	3.1
	B. Industrial area	3.454	1.1
2.	**FOREST**		
	A. Scrub forest	20.41	6.5

3.	**WATERBODIES** A. Tank / River etc.	130.31	41.5
4.	**CROP LAND** A. Single crop B. Double crop C. Plantation	 67.196 35.796 17.584	 21.4 11.4 5.6
5	**WASTELANDS** A. Land with scrub B. Land without scrub C. Costal Sand D. Creek E. Mud Flat F. Salt Plan	 6.908 4.082 5.652 4.396 4.71 3.768	 2.2 1.3 1.8 1.4 1.5 1.2
	TOTAL	**314**	**100**

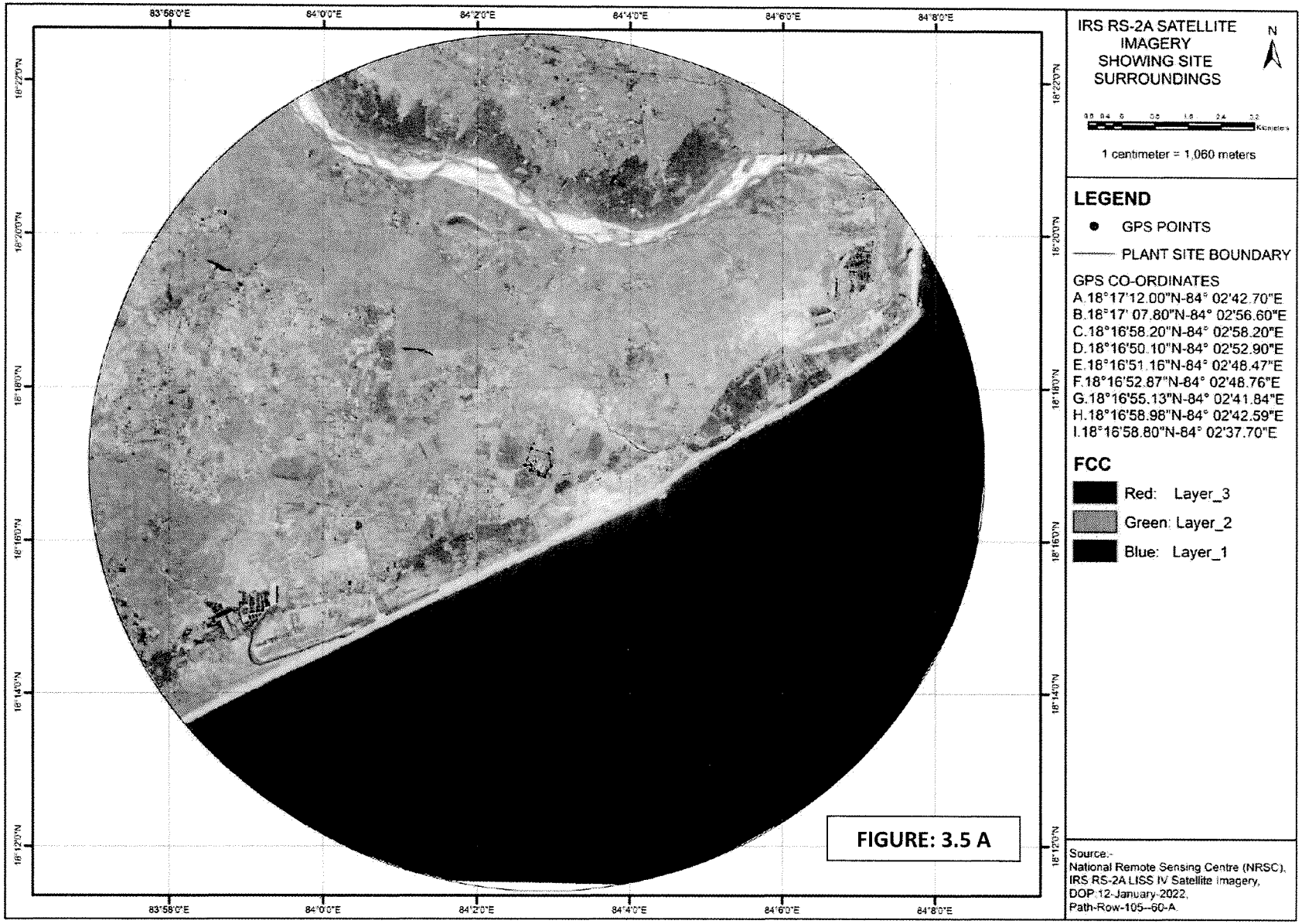

83°58'0"E
84°0'0"E
84°2'0"E
84°4'0"E
84°6'0"E
84°8'0"E
18°22'0"N
18°20'0"N
18°18'0"N
18°16'0"N
18°14'0"N
18°12'0"N
IRS RS-2A SATELLITE IMAGERY SHOWING SITE SURROUNDINGS
N
1 centimeter = 1,060 meters
LEGEND
GPS POINTS
PLANT SITE BOUNDARY
GPS CO-ORDINATES
A.18°17'12.00"N-84° 02'42.70"E
B.18°17' 07.80"N-84° 02'56.60"E
C.18°16'58.20"N-84° 02'58.20"E
D.18°16'50.10"N-84° 02'52.90"E
E.18°16'51.16"N-84° 02'48.47"E
F.18°16'52.87"N-84° 02'48.76"E
G.18°16'55.13"N-84° 02'41.84"E
H.18°16'58.98"N-84° 02'42.59"E
I.18°16'58.80"N-84° 02'37.70"E
FCC
Red: Layer_3
Green: Layer_2
Blue: Layer_1
Source:-
National Remote Sensing Centre (NRSC),
IRS RS-2A LISS IV Satellite Imagery,
DOP:12-January-2022,
Path-Row-105--60-A.

FIGURE: 3.5 A

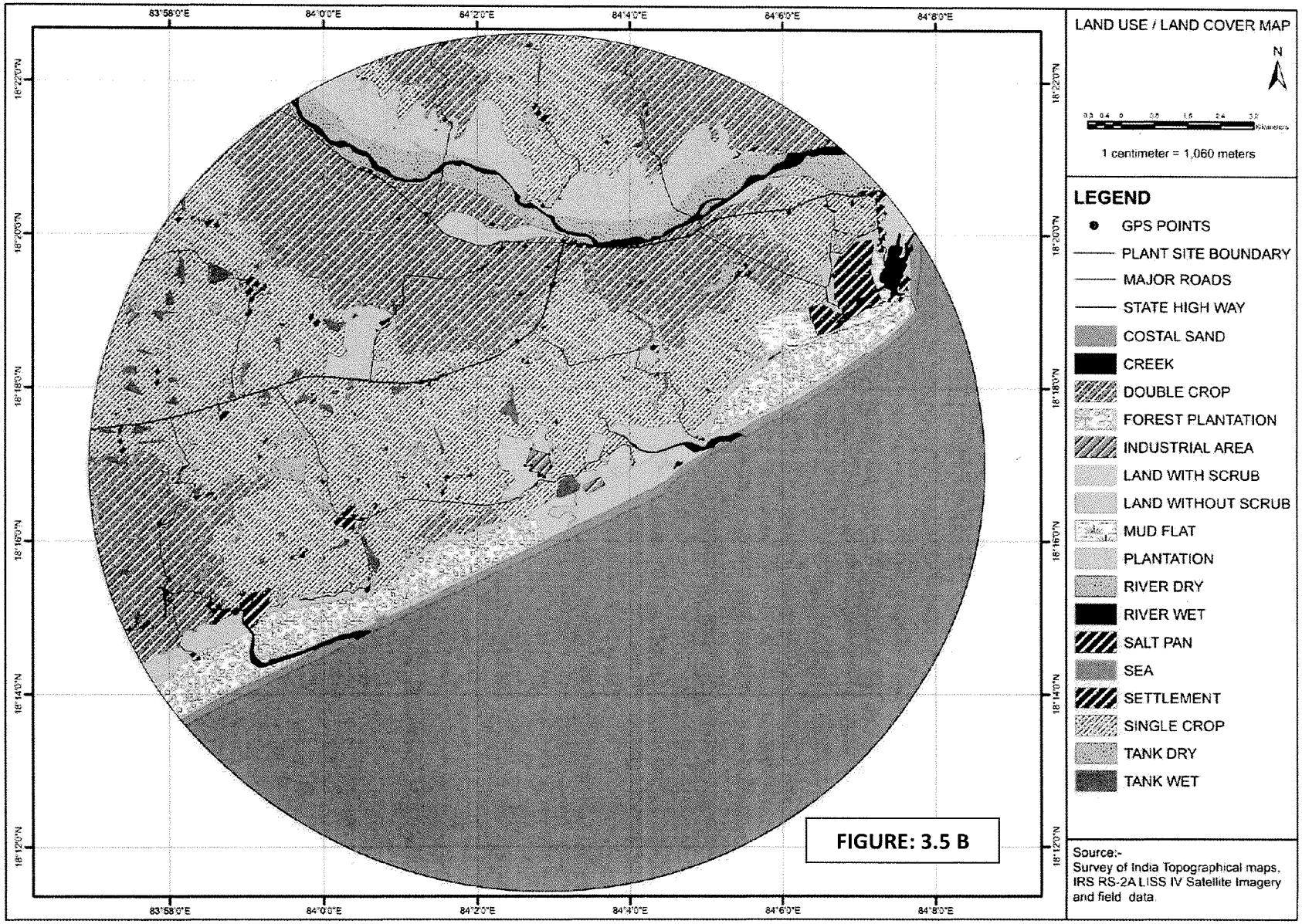

LAND USE / LAND COVER MAP
N
1 centimeter = 1,060 meters
LEGEND
GPS POINTS
PLANT SITE BOUNDARY
MAJOR ROADS
STATE HIGH WAY
COSTAL SAND
CREEK
DOUBLE CROP
FOREST PLANTATION
INDUSTRIAL AREA
LAND WITH SCRUB
LAND WITHOUT SCRUB
MUD FLAT
PLANTATION
RIVER DRY
RIVER WET
SALT PAN
SEA
SETTLEMENT
SINGLE CROP
TANK DRY
TANK WET
Source:-
Survey of India Topographical maps,
IRS RS-2A LISS IV Satellite Imagery
and field data.
83°58'0"E
84°0'0"E
84°2'0"E
84°4'0"E
84°6'0"E
84°8'0"E
18°22'0"N
18°20'0"N
18°18'0"N
18°16'0"N
18°14'0"N
18°12'0"N

FIGURE: 3.5 B

3.5.5 SOIL ENVIRONMENT:

Eight (8) soil samples were collected and for analyzed for various parameters like texture, infiltration rate, bulk density, pH, Calcium, Electrical Conductivity, N, P, K, Mn, Zn, Pb etc. Soil sampling stations are shown in the Table 3.5.2. The soil characteristics at various sampling stations are shown in Table No. 3.5.3. The soil quality sampling stations are shown in fig. 3.5C.

Selection of sampling locations will be generally done based on land use such as:

- Representation of plant site.
- Industrial Areas
- Residential areas
- Agricultural Activity
- Proximity to the Forest
- Proximity to Water body

TABLE NO. 3.5.2 : SOIL SAMPLING STATIONS

S.NO	STATION	DIRECTION W.R.T PLANT SITE	DISTANCE W.R.T PLANT SITE (IN KMS.)	CRITERIA OF SELECTION
1.	Plant site	--	--	Represents Industrial Activity
2.	Pedda Vastavalasa	E	0.7	Represents Nearest Residential Activity
3.	Chinna Vastavalasa	SWW	1.2	Represents Residential & Agricultural Activity
4.	Tandialapeta	W	2.1	Represents Residential & Agricultural Activity
5.	Amudalapadu	N	1.1	Represents Residential & Agricultural Activity
6.	Nizambada	NWW	3.0	Represents Residential & Agricultural Activity
7.	Gara	N	5.0	Represents commercial area
8.	Kalingapatanam	NEE	8.8	Represents commercial area

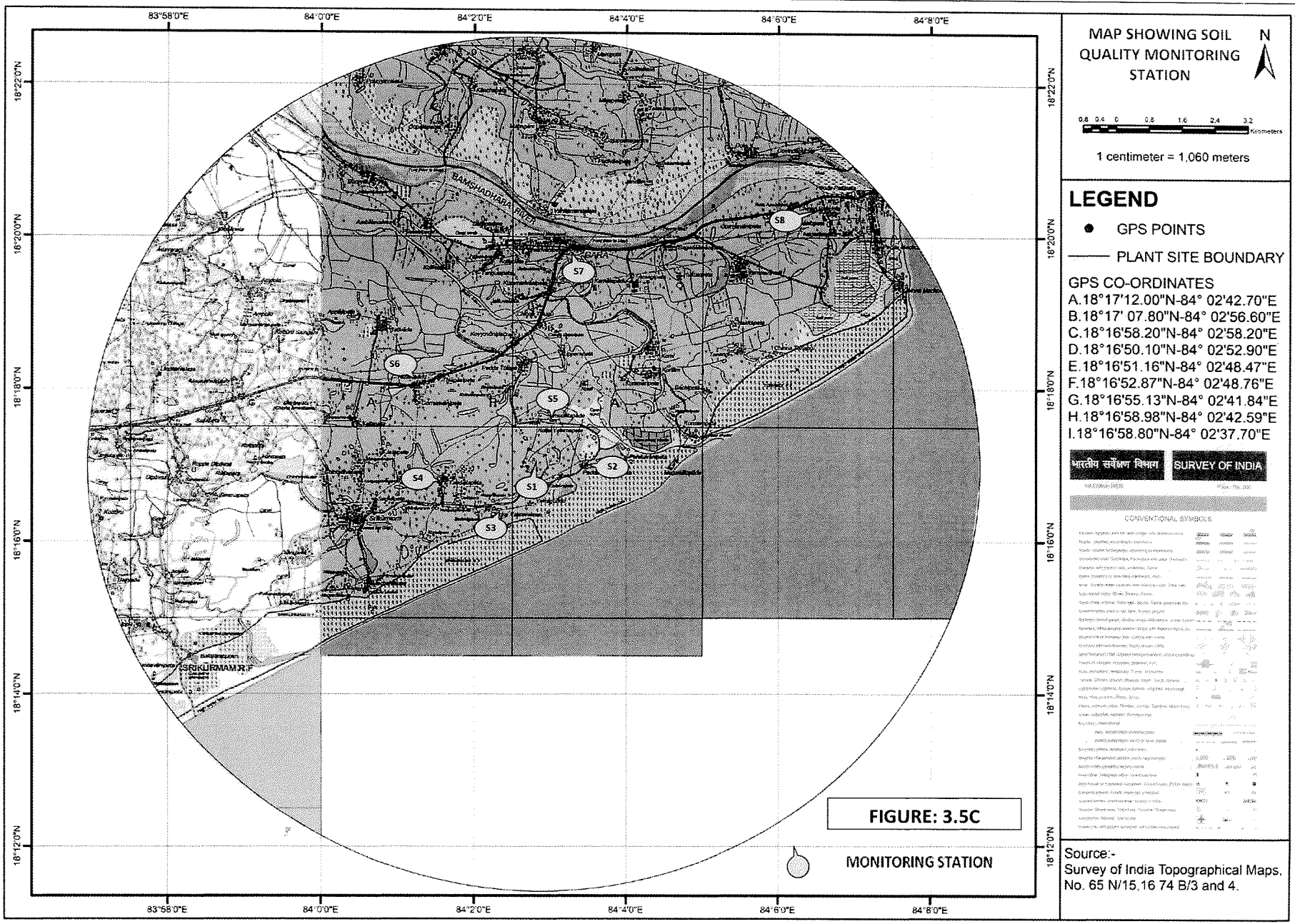

MAP SHOWING SOIL QUALITY MONITORING STATION
N
0.8 0.4 0 0.8 1.6 2.4 3.2
Kilometers
1 centimeter = 1,060 meters
LEGEND
GPS POINTS
PLANT SITE BOUNDARY
GPS CO-ORDINATES
A.18°17'12.00"N-84° 02'42.70"E
B.18°17' 07.80"N-84° 02'56.60"E
C.18°16'58.20"N-84° 02'58.20"E
D.18°16'50.10"N-84° 02'52.90"E
E.18°16'51.16"N-84° 02'48.47"E
F.18°16'52.87"N-84° 02'48.76"E
G.18°16'55.13"N-84° 02'41.84"E
H.18°16'58.98"N-84° 02'42.59"E
I.18°16'58.80"N-84° 02'37.70"E
भारतीय सर्वेक्षण विभाग
SURVEY OF INDIA
CONVENTIONAL SYMBOLS
Source:-
Survey of India Topographical Maps, No. 65 N/15,16 74 B/3 and 4.
83°58'0"E
84°0'0"E
84°2'0"E
84°4'0"E
84°6'0"E
84°8'0"E
18°22'0"N
18°20'0"N
18°18'0"N
18°16'0"N
18°14'0"N
18°12'0"N
S1
S2
S3
S4
S5
S6
S7
S8
SRIKURMAM R.F
FIGURE: 3.5C
MONITORING STATION

TABLE NO. 3.5.3: SOIL CHARACTERISTICS
PERIOD: DECEMBER 2021

S.NO	PARAMETER	UNITS	SAMPLING LOCATIONS							
			S1	S2	S3	S4	S5	S6	S7	S8
1.	Bulk Density	g/cc	1.7	1.6	1.6	1.8	1.8	1.7	1.5	1.6
2.	Infiltration rate	Cm/sec	1.3	1.3	1.4	1.4	1.3	1.4	1.3	1.4
3.	pH	---	7.5	7.5	7.6	7.7	7.5	7.6	7.7	7.6
4.	Soil type	---	Clay soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
5.	Calcium	mg/Kg	748	769	784	780	768	750	766	773
6.	Electrical Conductivity	µS/cm	98	85	96	90	93	99	88	94
7.	Available Nitrogen as N	Kg/Ha	125	114	138	125	149	115	129	140
8.	Available Phosphorous as P	Kg/Ha	36	39	42	40	33	30	47	35
9.	Available Phosphorous as K	Kg/Ha	167	174	160	178	169	158	164	175
10.	Mn	mg/Kg	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11.	Zn	mg/kg	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
12.	Pb	mg/Kg	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

3.6 BIOLOGICAL ENVIRONMENT: [STANDARD TOR # 25 & 28]

The plant and animal species listed below are found in a radius of about 10 Km from the plant site during the study period. A comprehensive list of tree and herbaceous species found in the 10 Km radius is given in Tables.

TABLE NO.3.6.1: FLORA OF THE STUDY AREA.

No.	Family	Scientific Name	Habit
1	Acanthaceae	Acanthus ilicifolius Linn.	S
2	Acanthaceae	Barleria cristata L.	S
3	Acanthaceae	Cressa cretica Linn.	H
4	Agavaceae	Agave americana Linn	H
5	Aizoaceae	Gisekia Pharmaceoides L.	H
6	Aizoaceae	Sesuvium portulacastrum L.	H
7	Amaranthaceae	Amaranthus spinosa L.	H
8	Anacardium	Anacardiaceae occidentale Linn	T
9	Annonaceae	Annona reticulate L.	T
10	Annonaceae	A. squamosa L.	T
11	Annonaceae	Polyalthia suberosa (Roxb.) Hook.f. & Thoms	T
12	Apocynanaceae	Alstonia venenata R.Br	T
13	Arecaceae	Borassus flabellifer L.	T
14	Arecaceae	Cocos nusifera L.	T
15	Arecaceae	Phoenix sylvestris (L.) Roxb.	T
16	Asclepiadaceae	Sarcolobus carinatus Wall.	H
17	Asclepiadaceae	Calotropis gigantia (L.) R. Br	S
18	Asclepiadaceae	Sarcostemma acidum (Roxb) Voigt	S
19	Asteraceae	Gnaphalium indicum L.	H
20	Asteraceae	Launaea sarmentosa (Willd) O. Ktze	H
21	Asteraceae	Vernonia cinerea (L).Less.	H
22	Asteraceae	Xanthium strumarium Linn.	S
23	Asteraceae	Eupatorium odoratum Linn.	S
24	Begoniaceae	Opuntia stricta Haw var dillenii (Ker – Gawl) Benson	S
25	Boraginaceae	Coldenia procumbens L.	H
26	Burseraceae	Garuga pinnata Roxb.	T
27	Burseraceae	Protium serratum	T
28	Caesalpiniaceae	Caesalpinia crista L.	H
29	Caesalpiniaceae	Cassia mimosoides L.	H
30	Caesalpiniaceae	Caesalpina pulcherrima (L). Sw	S
31	Caesalpiniaceae	Cassia auriculata L.	S
32	Caesalpiniaceae	Pterolobium hexapetalum (Roth) Sant & Wagh	S
33	Chenopodiaceae	Arthrocnemum Indicum (Willd.) Moq	H
34	Chenopodiaceae	Salicornia brachiata Roxb.	H
35	Chenopodiaceae	Suaeda maritima (L.)Dumort	H
36	Chenopodiaceae	Suaeda nudiflora Moq.	H

37	Convolvulaceae	Ipomoea pes-caprae (Linn.)	H
38	Convolvulaceae	Ipomoea violaceae L.	H
39	Cyperaceae	Cyperus kyllinga Endl.	H
40	Cyperaceae	Fimbristylis bisumbellata (Forsk) Bubani.	H
41	Cyperaceae	Fimbristylis ferruginia (L.) Vahl.	H
42	Elaeocarpaceae	*Elaeocarpus tectorius (Lour.)*	T
43	Euphorbiaceae	*Euphorbia cattimandoo Elliot*	S
44	Euphorbiaceae	*Euphorbia hirta (L.)*	H
45	Fabaceae	*Derris trifoliate Lour.*	H
46	Fabaceae	*Zornia gibbosa L.*	H
47	Fabaceae	*Abrus precatorius L.*	S
48	Fabaceae	*Clitoria ternatea Linn*	S
49	Fabaceae	*Dalbergia spinosa Roxb.*	S
50	Hydrocaretaceae	*Halophylla ovata (R. Br.) Hook.f.*	H
51	Malvaceae	*Hibiscus tiliaceous L.*	H
52	Malvaceae	*Melochia cochorifolia L.*	H
53	Malvaceae	*Sida Acuta Burm.f.*	H
54	Malvaceae	*Hibiscus cannabinus L.*	S
55	Meliaceae	*Aglaia elaeagnoidea (A. Juss).*	T
56	Meliaceae	*Cipadessa baccifera (Roth.)*	T
57	Meliaceae	*Melia azadirachta L.*	T
58	Menispermaceae	*Tiliacora acuminate(L am.) Miers.*	S
59	Mimosaceae	*Prosopis cineraria(L.) Druce*	
60	Myrsinaceae	*Aegiceras corniculatum (L.)Blanco*	S
61	Myrtaceae	*Eucalyptus L, Herit*	T
62	Nyctaginaceae	*Bougainvillea spectabilis Willd*	S
63	Nyctaginaceae	*Boerhavia diffusa L.*	H
64	Pandanaceae	*Pandanus fascicularis (L). Lam.*	S
65	Pedaliaceae	*Pedalium murex L.*	H
66	Periplocaceae	*Phyllanthus debilis Willd*	H
67	Poaceae	*Aeluropus lagopoides(L.) Trin. Ex Thw*	H
68	Poaceae	*Aristida funiculata Trin. & Rup.*	H
69	Poaceae	*Brachiaria brizanta L.*	H
70	Poaceae	*Dactyloctenium aegyptium (L).Beauv*	
71	Poaceae	*Myriostachya wightiana (Nees ex Steud) Hooker*	H
72	Poaceae	*Oryza sativa L.*	H
73	Poaceae	*Perotis indica (L).O. Ktze*	H
74	Poaceae	*Porteresia coarctata(Roxb.)Tateoka*	H
75	Poaceae	*Spinifex littoreus (Burm.f.) Merr.*	H
76	Pontederiaceae	*Eichhornia crassipes (Mart.) Solms – Laub*	H
77	Portulacaceae	*Portulaca quadrifida L.*	H
78	Portulacaceae	*Portulaca oleracea L.*	H
79	Ramanculaceae	*Thalictrum foliolosum DC.*	H
80	Rhamnaceae	*Scutia myrtina(Burm.f.) Kyrz*	H

81	Rubiaceae	*Borreria articularis L.*	H
82	Rubiaceae	*Spermacoce hispida L.*	H
83	Rutaceae	*Atlantia monophylla (L.)*	T
84	Rutaceae	*Citrus medica L.*	T
85	Rutaceae	*Glycomis mauritiana (Lam.)*	T
86	Rutaceae	*Glycosmis pentaphylla*	T
87	Rutaceae	*Limonia acidissima L.*	T
88	Rutaceae	*Murraya koengii (L.)*	T
89	Sapindaceae	*Sapindus emarginatus Vahl.*	T
90	Simaroubaceae	*Ailanthus excelsa Roxb.*	T
91	Solanaceae	*Datura metel L.*	H
92	Solanaceae	*Solanum surattense Burm.f.*	H
93	Sonneratiaceae	*Sonneratia apetala Buch.-Ham*	T
94	Sterculiaceae	*Helicteres isora L.*	T
95	Sterculiaceae	*Sterculia urens Roxb.*	T
96	Tiliaceae	*Trianthemum portulacastrum L*	H
97	Tiliaceae	*Crozophora rottelerei (Geis) Sprl.*	S
98	Tiliaceae	*Grewia hirsute Vahl*	S
99	Tiliaceae	*Grewia tiliifolia Vahl.*	T
100	Verbenaceae	*Lantana camara L.*	S
101	Violaceae	*Homalium nepalense (Wall.)*	T

H = Herb; S = Shrub; T = Tree

TABLE NO. 3.6.2: DOMINANT VERTEBRATE FAUNA OF THE STUDY AREA

no.	Scientific Name	Common Name	Frq.	Status
Amphibians:				
1	*Rana hexadactyla*	Frog	C	IV
2	*R. cyanophylyctua*	Frog	O	IV
3	*Bufo melanostictus*	Toad	O	-
Retiles:				
4	*Kachuga tectum*	Terrapin	O	IV
5	*Lepidochelys olivacea*	Olive Ridley Turtle		I
6	*Hemidactylus brooki*	Common Wall Gecko	C	-
7	*Hemidactylus giganteus*	Tree Gecko	O	-
8	*Calotes versicolor*	Garden Lizard	C	-
9	*Mabuya carinata*	Striped skink	O	-
10	*Lygosoma dussumeri*	Red tailed skink	O	-
11	*Enhydris enhydris*	Fresh water snake	C	IV
12	*Dryophis pulverulents*	Green snake	C	-
13	*Vipera russelli*	Russels viper	C	II
14	*Bangarus caereleus*	Banded krait	C	IV
15	Naja naja	Cobra	O	II
Avians:				

16	*Ardeola grayii*	Pond heron	C	IV
17	*Bubulcus ibis*	Cattle egrets	C	IV
18	*Egretta garzetta*	Little egrets	C	IV
19	*Haliastur indus*	Brahminy Kite	C	-
20	*Francolinus pondicerianus*	Grey Patridge	O	IV
21	*Vanellus malabaricus*	Yellow Wattled Lapwing	C	-
22	*Tringa glareola*	Spotted Sandpipers	C	IV
23	*Rostratula benghalensis*	Painted snipe	R	IV
24	*Columba livia*	Blue rock Pigeon	C	IV
25	*Larus brunnicephalus*	Brown headed gull	C	IV
26	*Psittacula krameri*	Rose ringed Parakeet	C	IV
27	*Cuculus varius*	Common cuckoo	R	IV
28	*Otus scops*	Scops Owl	C	IV
29	*Alcedo atthis*	Common Kingfisher	C	IV
30	*Coracious bengalensis*	Indian Roller	C	IV
31	*Dicrurus adsimilis*	Black Drongo	C	IV
32	*Acridotheres tristis*	Common Myna	C	IV
33	*Corvus splendens*	House Crow	C	-
34	*Corvus macrorynchos*	Jungle crow	R	-
35	*Turdoides affinis*	White headed babbler	O	IV
36	*Passer domesticus*	House sparrow	C	-
37	Butorides striatus	Little Green Heron	C	IV
38	Casmerodius albus	Large Egret	O	IV
39	Phalocrocorax niger	Little Cormorant	C	IV
40	Tringa totanus	Common Redshank	O	IV
Mammals:				
41	*Rattus rattus*	House rat	C	-
42	*Funambulus pennati*	Squirrel	C	-
43	*Mus musculus*	house Mouse	C	-
44	*Mus boduga*	Field Mouse	C	-
45	*Bandicota bengalensis*	Indian Mole Rat	C	-
46	*Lepus nigricollis*	Common hare	R	IV
47	*Herpestes benghalensis*	Mongoose	C	II
48	*Macaca mulatta*	Rhesus macaque	O	II
49	*Vulpes bengalensis*	Indian Fox	R	II
50	*Hyaena hyaena*	Striped Hyena	R	II

3.7 SOCIO ECONOMIC ENVIRONMENT

The study area covers within a radius of 10 km from the Plant site. The socio-economic profile of the study area of 34 Villages is presented based on site visits; discussions with the villagers and the secondary data available from various agencies such as Hand Books for Census 2011. Demographic details based on Hand Books for Census 2011 of the study area is shown below:

TABLE NO.3.7.1: POPULATION BREAK UP AS PER CENSUS 2011

S.NO.	VILLAGE NAME	NO_HH	TOT_P	TOT_M	TOT_F	P_SC	M_SC	F_SC	P_ST	M_ST	F_ST
1	Adavaram	203	850	419	431	113	50	63	0	0	0
2	Ambalavalasa	242	915	455	460	108	54	54	0	0	0
3	Ampolu	2399	9770	5010	4760	719	352	367	14	7	7
4	Balivada	199	778	388	390	24	13	11	0	0	0
5	Buravalli	432	1629	792	837	224	119	105	1	1	0
6	Deepavali	300	1181	586	595	50	21	29	6	3	3
7	Dola	436	1405	677	728	72	31	41	0	0	0
8	Gajapathinagaram	116	477	232	245	17	6	11	0	0	0
9	Gara	20126	79617	39729	39888	4688	2357	2331	282	131	151
10	Gonti	199	777	388	389	97	48	49	0	0	0
11	Govindapuram	346	1264	647	617	185	93	92	0	0	0
12	Hukumpeta	78	267	128	139	22	8	14	0	0	0
13	Ippili	1523	5875	2962	2913	98	46	52	0	0	0
14	Jalluvalasa	141	582	293	289	83	43	40	0	0	0
15	Jonnalapadu	76	293	145	148	0	0	0	0	0	0
16	Jonnam	112	472	221	251	45	18	27	0	0	0
17	Killam	318	1118	522	596	85	34	51	0	0	0
18	Kollivalasa	111	405	205	200	23	13	10	0	0	0
19	Korlam	631	2421	1232	1189	116	67	49	4	3	1
20	Korni	461	1726	883	843	49	24	25	0	0	0
21	Kothapeta	480	1779	896	883	33	16	17	33	16	17
22	Kothurusyrigam	381	1489	764	725	106	54	52	0	0	0
23	Lingalavalasa	141	574	277	297	52	27	25	0	0	0
24	Mabagam	926	3556	1740	1816	309	154	155	14	7	7
25	Nakkapeta	151	604	310	294	0	0	0	0	0	0
26	Nizamabad	346	1439	709	730	142	70	72	4	1	3
27	Sandhipeta	107	463	243	220	0	0	0	0	0	0

S.NO.	VILLAGE NAME	NO_HH	TOT_P	TOT_M	TOT_F	P_SC	M_SC	F_SC	P_ST	M_ST	F_ST
28	Sativada	466	1958	977	981	137	74	63	46	25	21
29	Srikurmam	4341	16973	8402	8571	1074	554	520	10	6	4
30	Talasamudram	581	2007	1019	988	182	90	92	0	0	0
31	Thonangi	1387	5548	2730	2818	12	6	6	4	2	2
32	Vanithamandalam	183	665	330	335	29	17	12	0	0	0
33	Vatsavalasa	774	3196	1641	1555	0	0	0	5	2	3
34	Vomaravalli	930	3974	1756	2218	260	105	155	37	11	26

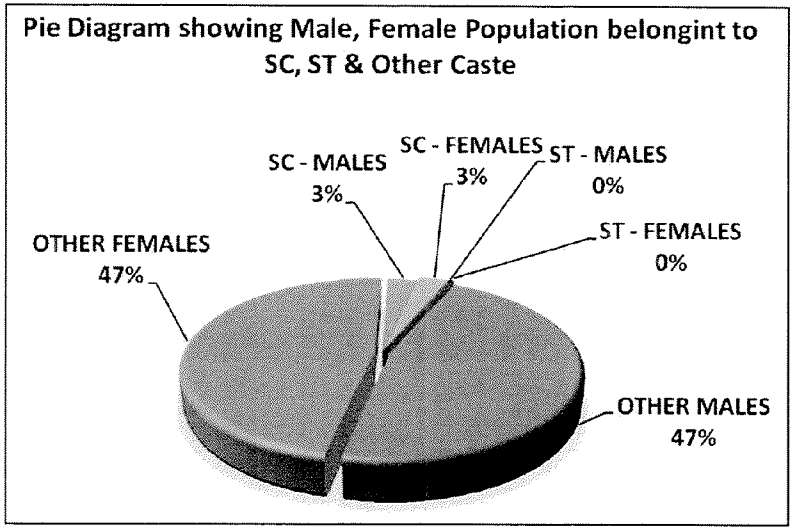


TABLE NO.3.7.2: LITERACY LEVELS OF THE POPULATION UP AS PER CENSUS 2011

S.NO.	VILLAGE NAME	P_LIT	M_LIT	F_LIT	P_ILL	M_ILL	F_ILL
1	Adavaram	459	280	179	391	139	252
2	Ambalavalasa	494	285	209	421	170	251
3	Ampolu	4571	2798	1773	5199	2212	2987
4	Balivada	402	228	174	376	160	216

S.NO.	VILLAGE NAME	P_LIT	M_LIT	F_LIT	P_ILL	M_ILL	F_ILL
5	Buravalli	897	488	409	732	304	428
6	Deepavali	567	319	248	614	267	347
7	Dola	789	444	345	616	233	383
8	Gajapathinagaram	243	136	107	234	96	138
9	Gara	42222	24402	17820	37395	15327	22068
10	Gonti	439	258	181	338	130	208
11	Govindapuram	488	304	184	776	343	433
12	Hukumpeta	96	52	44	171	76	95
13	Ippili	3114	1812	1302	2761	1150	1611
14	Jalluvalasa	408	229	179	174	64	110
15	Jonnalapadu	136	78	58	157	67	90
16	Jonnam	222	132	90	250	89	161
17	Killam	712	390	322	406	132	274
18	Kollivalasa	202	114	88	203	91	112
19	Korlam	1473	868	605	948	364	584
20	Korni	1008	592	416	718	291	427
21	Kothapeta	1145	653	492	634	243	391
22	Kothurusyrigam	634	382	252	855	382	473
23	Lingalavalasa	307	168	139	267	109	158
24	Mabagam	1950	1100	850	1606	640	966
25	Nakkapeta	270	169	101	334	141	193
26	Nizamabad	665	387	278	774	322	452
27	Sandhipeta	215	133	82	248	110	138
28	Sativada	940	540	400	1018	437	581
29	Srikurmam	8367	4828	3539	8606	3574	5032
30	Talasamudram	1095	650	445	912	369	543
31	Thonangi	2730	1599	1131	2818	1131	1687
32	Vanithamandalam	373	214	159	292	116	176
33	Vatsavalasa	1777	1110	667	1419	531	888
34	Vomaravalli	2554	1195	1359	1420	561	859

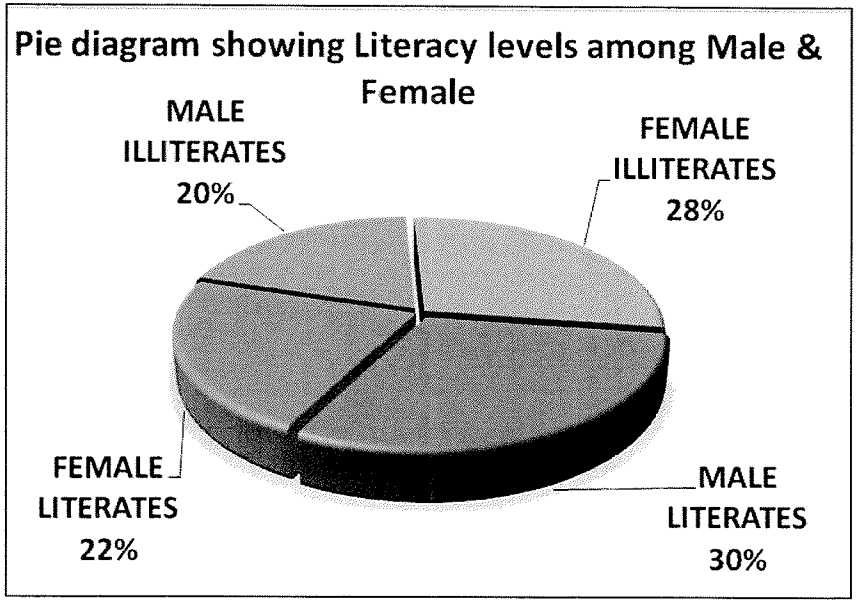


TABLE NO.3.7.3: WORKERS CLASSIFICATION AS PER CENSUS 2011 (MAIN & MARGINAL)

S.NO.	VILLAGE NAME	TOT_WORK_P	TOT_WORK_M	TOT_WORK_F	MAINWORK_P	MAINWORK_M	MAINWORK_F	MARGWORK_P	MARGWORK_M	MARGWORK_F
1	Adavaram	412	247	165	285	232	53	127	15	112
2	Ambalavalasa	472	261	211	462	252	210	10	9	1
3	Ampolu	4922	2836	2086	3748	2449	1299	1174	387	787
4	Balivada	436	233	203	220	145	75	216	88	128
5	Buravalli	937	491	446	906	484	422	31	7	24
6	Deepavali	558	351	207	391	302	89	167	49	118
7	Dola	758	408	350	408	360	48	350	48	302
8	Gajapathinagaram	269	130	139	267	129	138	2	1	1
9	Gara	37149	23127	14022	30716	20510	10206	6433	2617	3816
10	Gonti	327	230	97	315	226	89	12	4	8

S.NO.	VILLAGE NAME	TOT_WORK_P	TOT_WORK_M	TOT_WORK_F	MAINWORK_P	MAINWORK_M	MAINWORK_F	MARGWORK_P	MARGWORK_M	MARGWORK_F
11	Govindapuram	687	377	310	675	372	303	12	5	7
12	Hukumpeta	114	69	45	70	66	4	44	3	41
13	Ippili	2878	1783	1095	1855	1427	428	1023	356	667
14	Jalluvalasa	235	162	73	234	162	72	1	0	1
15	Jonnalapadu	96	77	19	95	77	18	1	0	1
16	Jonnam	325	164	161	246	123	123	79	41	38
17	Killam	543	314	229	150	132	18	393	182	211
18	Kollivalasa	238	121	117	237	121	116	1	0	1
19	Korlam	941	695	246	605	420	185	336	275	61
20	Korni	740	514	226	655	508	147	85	6	79
21	Kothapeta	704	512	192	335	282	53	369	230	139
22	Kothurusyrigam	655	443	212	636	441	195	19	2	17
23	Lingalavalasa	352	164	188	163	148	15	189	16	173
24	Mabagam	1917	1077	840	1805	1052	753	112	25	87
25	Nakkapeta	382	190	192	380	190	190	2	0	2
26	Nizamabad	853	471	382	845	465	380	8	6	2
27	Sandhipeta	271	147	124	204	118	86	67	29	38
28	Sativada	948	575	373	818	538	280	130	37	93
29	Srikurmam	8310	4974	3336	6292	4153	2139	2018	821	1197
30	Talasamudram	1037	632	405	980	617	363	57	15	42
31	Thonangi	2309	1574	735	1679	1339	340	630	235	395
32	Vanithamandalam	388	196	192	356	176	180	32	20	12
33	Vatsavalasa	1464	990	474	1214	911	303	250	79	171
34	Vomaravalli	1711	974	737	1640	946	694	71	28	43

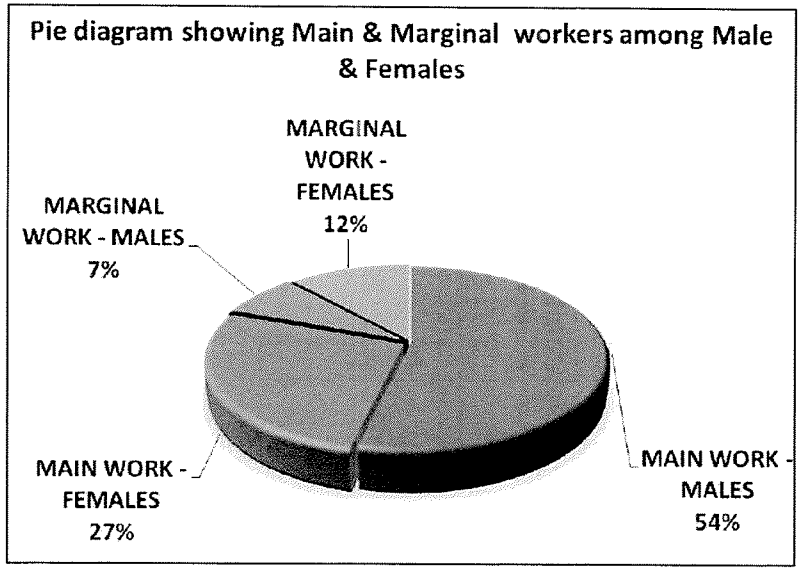


TABLE NO.3.7.4: CULTIVATORS CLASSIFICATION AS PER CENSUS 2011 (MAIN & MARGINAL)

S.NO.	VILLAGE NAME	MAIN_CL_P	MAIN_CL_M	MAIN_CL_F	MARG_CL_P	MARG_CL_M	MARG_CL_F
1	Adavaram	104	104	0	2	2	0
2	Ambalavalasa	69	53	16	0	0	0
3	Ampolu	428	296	132	30	7	23
4	Balivada	26	23	3	14	3	11
5	Buravalli	104	71	33	5	1	4
6	Deepavali	43	39	4	8	1	7
7	Dola	62	59	3	16	2	14
8	Gajapathinagaram	18	14	4	0	0	0
9	Gara	3152	2481	671	157	65	92
10	Gonti	90	70	20	0	0	0
11	Govindapuram	150	92	58	0	0	0

S.NO.	VILLAGE NAME	MAIN_CL_P	MAIN_CL_M	MAIN_CL_F	MARG_CL_P	MARG_CL_M	MARG_CL_F
12	Hukumpeta	4	4	0	3	1	2
13	Ippili	270	243	27	11	6	5
14	Jalluvalasa	74	73	1	0	0	0
15	Jonnalapadu	57	55	2	0	0	0
16	Jonnam	27	14	13	0	0	0
17	Killam	54	51	3	1	0	1
18	Kollivalasa	2	2	0	0	0	0
19	Korlam	112	106	6	1	1	0
20	Korni	162	149	13	4	2	2
21	Kothapeta	42	34	8	3	3	0
22	Kothurusyrigam	191	152	39	0	0	0
23	Lingalavalasa	59	58	1	1	1	0
24	Mabagam	205	179	26	10	2	8
25	Nakkapeta	120	62	58	0	0	0
26	Nizamabad	107	64	43	0	0	0
27	Sandhipeta	22	15	7	4	0	4
28	Sativada	185	122	63	26	9	17
29	Srikurmam	441	333	108	24	18	6
30	Talasamudram	184	155	29	17	3	14
31	Thonangi	34	26	8	12	4	8
32	Vanithamandalam	2	2	0	0	0	0
33	Vatsavalasa	56	41	15	5	3	2
34	Vomaravalli	126	120	6	2	1	1

NOTE:

MAIN CL P	MAIN CULTIVATORS POPULATION
MAIN CL M	MAIN CULTIVATORS MALE
MAIN CL F	MAIN CULTIVATORS FEMALE
MARG CL P	MARGINALCULTIVATORS POPULATION
MARG CL M	MARGINAL CULTIVATORS MALE
MARG CL F	MARGINAL CULTIVATORS FEMALE

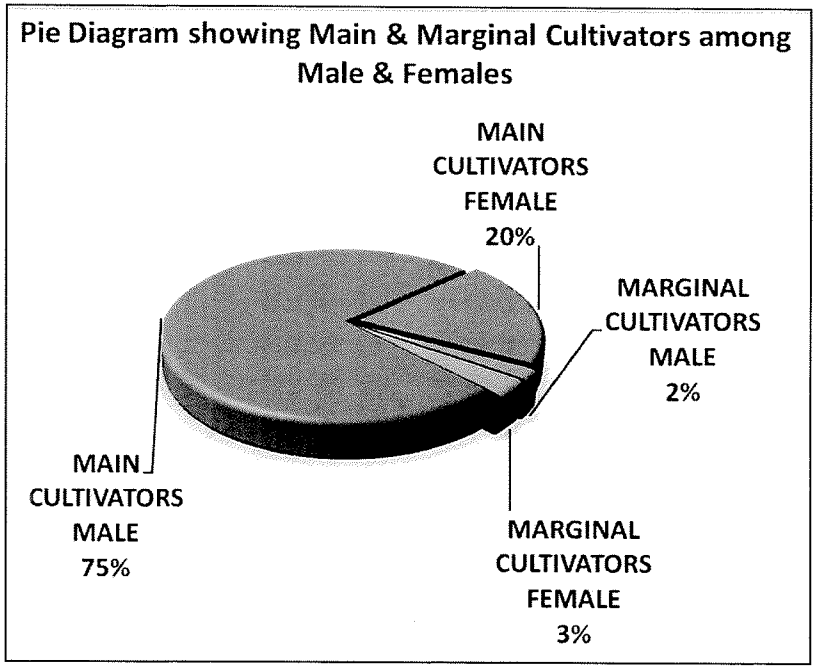


TABLE NO.3.7.5: AGRICULTURAL LABOURS CLASSIFICATION AS PER CENSUS 2011 (MAIN & MARGINAL)

S.NO.	VILLAGE NAME	MAIN_AL_P	MAIN_AL_M	MAIN_AL_F	MARG_AL_P	MARG_AL_M	MARG_AL_F
1	Adavaram	113	78	35	112	6	106
2	Ambalavalasa	324	141	183	0	0	0
3	Ampolu	1988	994	994	782	157	625
4	Balivada	117	54	63	185	70	115
5	Buravalli	652	310	342	22	5	17
6	Deepavali	107	49	58	151	44	107
7	Dola	233	204	29	315	41	274
8	Gajapathinagaram	224	102	122	2	1	1
9	Gara	16206	8344	7862	3903	993	2910
10	Gonti	167	105	62	10	3	7

S.NO.	VILLAGE NAME	MAIN_AL_P	MAIN_AL_M	MAIN_AL_F	MARG_AL_P	MARG_AL_M	MARG_AL_F
11	Govindapuram	485	251	234	10	5	5
12	Hukumpeta	63	59	4	35	1	34
13	Ippili	729	427	302	826	301	525
14	Jalluvalasa	111	59	52	0	0	0
15	Jonnalapadu	32	17	15	0	0	0
16	Jonnam	189	89	100	6	3	3
17	Killam	11	8	3	360	156	204
18	Kollivalasa	204	100	104	0	0	0
19	Korlam	343	192	151	19	2	17
20	Korni	427	298	129	81	4	77
21	Kothapeta	32	26	6	227	108	119
22	Kothurusyrigam	305	168	137	18	1	17
23	Lingalavalasa	7	5	2	182	13	169
24	Mabagam	1320	657	663	63	15	48
25	Nakkapeta	235	106	129	0	0	0
26	Nizamabad	561	252	309	1	1	0
27	Sandhipeta	180	101	79	63	29	34
28	Sativada	426	253	173	80	21	59
29	Srikurmam	3284	1634	1650	1129	286	843
30	Talasamudram	683	376	307	26	5	21
31	Thonangi	575	299	276	383	38	345
32	Vanithamandalam	341	164	177	1	0	1
33	Vatsavalasa	440	243	197	89	32	57
34	Vomaravalli	1138	526	612	55	17	38

NOTE:

MAIN AL P	MAIN AGRICULTURAL LABOR POPULATION
MAIN AL M	MAIN AGRICULTURAL LABOR MALE
MAIN AL F	MAIN AGRICULTURAL LABOR FEMALE
MARG AL P	MARGINALAGRICULTURALLABORPOPULATION
MARGAL M	MARGINAL AGRICULTURAL LABOR MALE
MARG AL F	MARGINAL AGRICULTURAL LABOR FEMALE

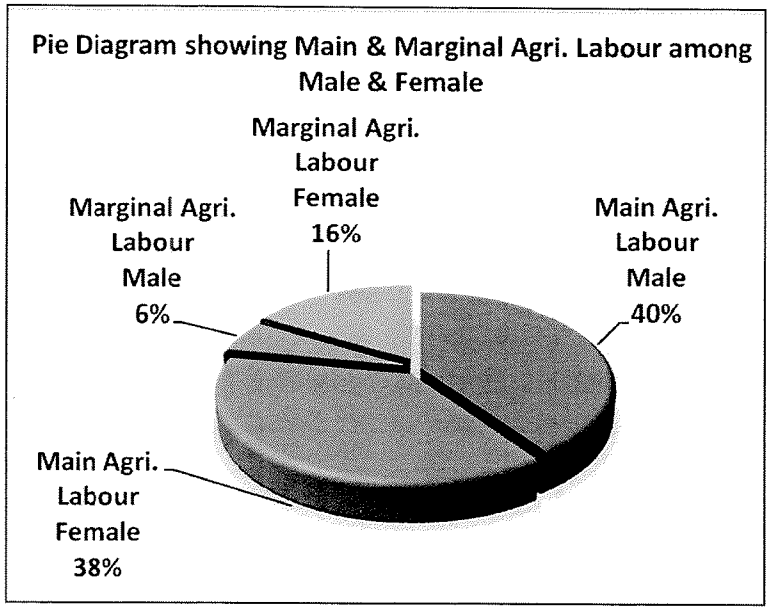


TABLE NO.3.7.6: HOUSEHOLD INDUSTRY WORKERS CLASSIFICATION AS PER CENSUS 2011 (MAIN & MARGINAL)

S.NO.	VILLAGE NAME	MAIN_HH_P	MAIN_HH_M	MAIN_HH_F	MARG_HH_P	MARG_HH_M	MARG_HH_F
1	Adavaram	20	13	7	3	1	2
2	Ambalavalasa	0	0	0	0	0	0
3	Ampolu	98	83	15	7	4	3
4	Balivada	1	1	0	2	2	0
5	Buravalli	46	23	23	0	0	0
6	Deepavali	7	4	3	0	0	0
7	Dola	2	2	0	0	0	0
8	Gajapathinagaram	6	3	3	0	0	0
9	Gara	622	467	155	74	36	38
10	Gonti	1	1	0	0	0	0
11	Govindapuram	0	0	0	0	0	0

S.NO.	VILLAGE NAME	MAIN_HH_P	MAIN_HH_M	MAIN_HH_F	MARG_HH_P	MARG_HH_M	MARG_HH_F
12	Hukumpeta	0	0	0	2	0	2
13	Ippili	21	19	2	0	0	0
14	Jalluvalasa	2	1	1	0	0	0
15	Jonnalapadu	0	0	0	0	0	0
16	Jonnam	0	0	0	1	1	0
17	Killam	2	2	0	5	2	3
18	Kollivalasa	8	2	6	1	0	1
19	Korlam	13	10	3	6	6	0
20	Korni	0	0	0	0	0	0
21	Kothapeta	9	5	4	2	0	2
22	Kothurusyrigam	1	1	0	0	0	0
23	Lingalavalasa	0	0	0	3	0	3
24	Mabagam	5	4	1	15	0	15
25	Nakkapeta	0	0	0	0	0	0
26	Nizamabad	12	8	4	0	0	0
27	Sandhipeta	0	0	0	0	0	0
28	Sativada	29	20	9	6	0	6
29	Srikurmam	87	63	24	25	6	19
30	Talasamudram	5	5	0	0	0	0
31	Thonangi	5	5	0	7	3	4
32	Vanithamandalam	1	1	0	31	20	11
33	Vatsavalasa	10	6	4	0	0	0
34	Vomaravalli	14	8	6	0	0	0

NOTE:

MAIN HH P	MAIN HOUSE HOLDERS POPULATION
MAIN HH M	MAIN HOUSE HOLDERS MALE
MAIN HH F	MAIN HOUSE HOLDERS FEMALE
MARG HH P	MARGINAL HOUSE HOLDERS POPULATION
MARG HH M	MARGINAL HOUSE HOLDERS MALE
MARG HH F	MARGINAL HOUSE HOLDERS FEMALE

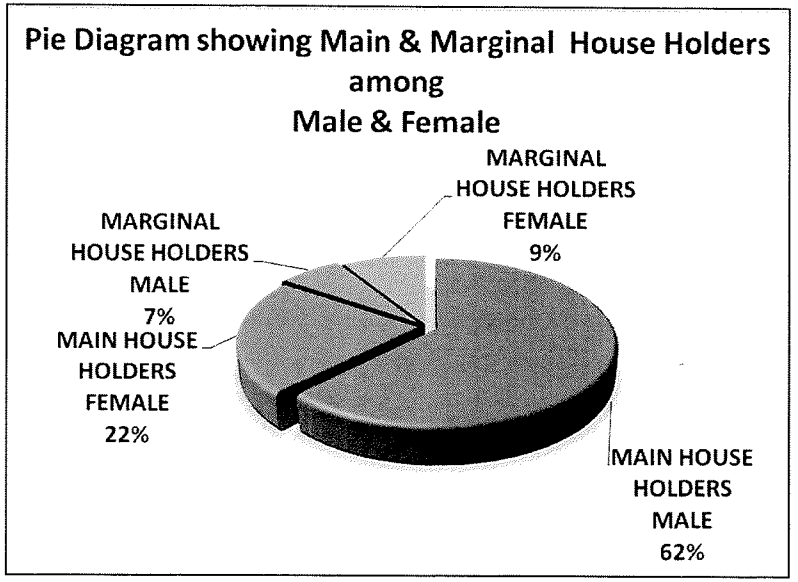


TABLE NO.3.7.7: OTHER WORKERS CLASSIFICATION AS PER CENSUS 2011 (MAIN & MARGINAL)

S.NO	VILLAGE NAME	MAIN_OT_P	MAIN_OT_M	MAIN_OT_F	MARG_OT_P	MARG_OT_M	MARG_OT_F
1	Adavaram	48	37	11	10	6	4
2	Ambalavalasa	69	58	11	10	9	1
3	Ampolu	1234	1076	158	355	219	136
4	Balivada	76	67	9	15	13	2
5	Buravalli	104	80	24	4	1	3
6	Deepavali	234	210	24	8	4	4
7	Dola	111	95	16	19	5	14
8	Gajapathinagaram	19	10	9	0	0	0
9	Gara	10736	9218	1518	2299	1523	776
10	Gonti	57	50	7	2	1	1
11	Govindapuram	40	29	11	2	0	2
12	Hukumpeta	3	3	0	4	1	3
13	Ippili	835	738	97	186	49	137

S.NO	VILLAGE NAME	MAIN_OT_P	MAIN_OT_M	MAIN_OT_F	MARG_OT_P	MARG_OT_M	MARG_OT_F
14	Jalluvalasa	47	29	18	1	0	1
15	Jonnalapadu	6	5	1	1	0	1
16	Jonnam	30	20	10	72	37	35
17	Killam	83	71	12	27	24	3
18	Kollivalasa	23	17	6	0	0	0
19	Korlam	137	112	25	310	266	44
20	Korni	66	61	5	0	0	0
21	Kothapeta	252	217	35	137	119	18
22	Kothurusyrigam	139	120	19	1	1	0
23	Lingalavalasa	97	85	12	3	2	1
24	Mabagam	275	212	63	24	8	16
25	Nakkapeta	25	22	3	2	0	2
26	Nizamabad	165	141	24	7	5	2
27	Sandhipeta	2	2	0	0	0	0
28	Sativada	178	143	35	18	7	11
29	Srikurmam	2480	2123	357	840	511	329
30	Talasamudram	108	81	27	14	7	7
31	Thonangi	1065	1009	56	228	190	38
32	Vanithamandalam	12	9	3	0	0	0
33	Vatsavalasa	708	621	87	156	44	112
34	Vomaravalli	362	292	70	14	10	4

NOTE:

MAIN OT P	MAIN OTHER WORKERS POPULATION
MAIN OT M	MAIN OTHER WORKERS MALE
MAIN OT F	MAIN OTHER WORKERS FEMALE
MARG OT P	MARGINALOTHER WORKERS POPULATION
MARGOT M	MARGINAL OTHER WORKERS MALE
MARG OT F	MARGINAL OTHER WORKERS FEMALE

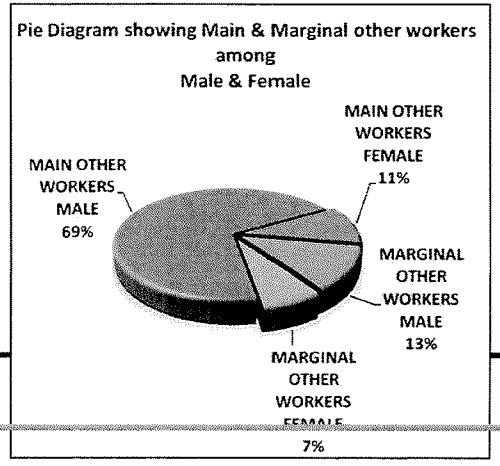
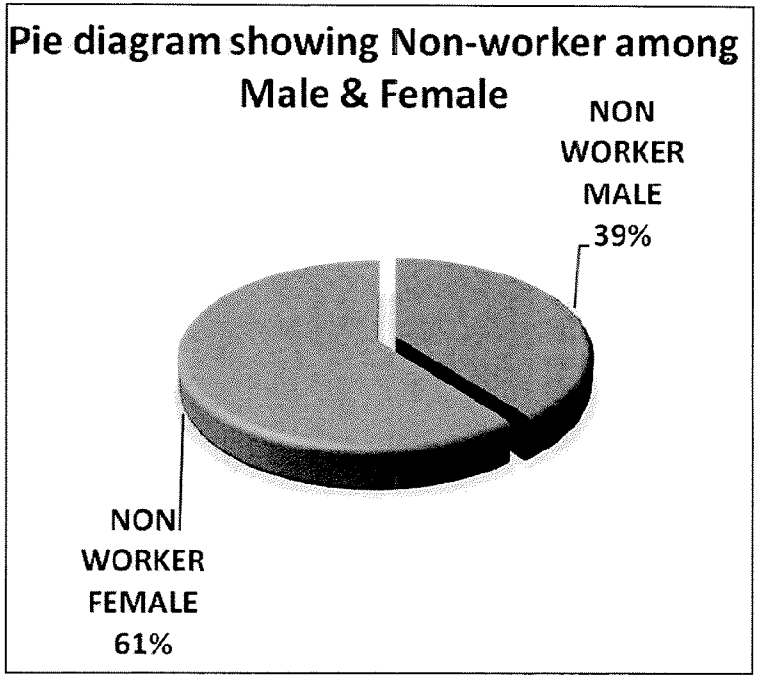


TABLE NO.3.7.8: NONWORKERS CLASSIFICATION AS PER CENSUS 2011

S.NO	VILLAGE NAME	NON_WORK_P	NON_WORK_M	NON_WORK_F
1	Adavaram	438	172	266
2	Ambalavalasa	443	194	249
3	Ampolu	4848	2174	2674
4	Balivada	342	155	187
5	Buravalli	692	301	391
6	Deepavali	623	235	388
7	Dola	647	269	378
8	Gajapathinagaram	208	102	106
9	Gara	42468	16602	25866
10	Gonti	450	158	292
11	Govindapuram	577	270	307
12	Hukumpeta	153	59	94
13	Ippili	2997	1179	1818
14	Jalluvalasa	347	131	216
15	Jonnalapadu	197	68	129
16	Jonnam	147	57	90
17	Killam	575	208	367
18	Kollivalasa	167	84	83
19	Korlam	1480	537	943
20	Korni	986	369	617
21	Kothapeta	1075	384	691
22	Kothurusyrigam	834	321	513
23	Lingalavalasa	222	113	109
24	Mabagam	1639	663	976
25	Nakkapeta	222	120	102
26	Nizamabad	586	238	348
27	Sandhipeta	192	96	96
28	Sativada	1010	402	608

S.NO	VILLAGE NAME	NON_WORK_P	NON_WORK_M	NON_WORK_F
29	Srikurmam	8663	3428	5235
30	Talasamudram	970	387	583
31	Thonangi	3239	1156	2083
32	Vanithamandalam	277	134	143
33	Vatsavalasa	1732	651	1081
34	Vomaravalli	2263	782	1481



CHAPTER – 4
ANTICIPATED ENVIRONMENTAL IMPACTS
&
MITIGATION MEASURES

4.0 INTRODUCTION:

Impact prediction is a very important phenomenon in evaluating the environmentally potential adverse impacts for any proposed industrial project. The impact prediction is always carried out under worst possible conditions so as to mitigate or to eliminate the environmental hazards. These predictions thus calculated are superimposed over the baseline data to calculate the net impact on the environment after the project comes into production.

4.1 AIR ENVIRONMENT: [STANDARD TOR # 17 & 33]

Prediction of impacts is the most important component in the environmental impact assessment studies. Several scientific techniques and methodologies are available to predict impacts of developmental activities on Physico, ecological and socioeconomic environments. Such predictions are superimposed over the baseline (pre project) status of environmental quality to derive the ultimate (post project) scenario of environmental conditions. The prediction of impacts helps to identify the environmental management plan required to be executed during and after commissioning the proposed project to minimize the adverse impacts on environmental quality.

The mathematical models are the best tools to quantitatively describe cause-effect relationships between sources of pollution and different components of environment. In case, mathematical models are not available or it is not possible to identify/validate through models for particular situation, prediction could be arrived at through available scientific knowledge and judgments.

The mathematical model used for predictions in the present study include, steady state Gaussian Plume dispersion model designed for multiple point sources for air quality, Wave divergence and Federal Highway Administration (FHWA) models for noise levels. In case of water, land, biological and socio-economic environments the prediction have been made based on available scientific knowledge and judgments.

4.1.1 IMPACT ON TOPOGRAPHY:

The major envisaged topographical changes would be limited to the immediate vicinity of the plant. The changes in topography was only due to mineral separation plant, its related activities and Administrative buildings. Further, it has invited positive benefits in the form of land levelling and green belt development in the plant vicinity. However, no additional change/impact on the topography is envisaged as the plant is already established.

4.1.2 PREDICTION OF IMPACTS ON AIR ENVIRONMENT:

It is absolutely essential to study the impacts of air pollution on its environs due to the proposed project. These impacts are assessed with the help of Mathematical model based on steady state Gaussian Plume Dispersion Model designed for multiple point sources for short term. In the present case, Industrial Source Complex Short Term (ISCST-3), 1993 dispersion model based on steady state Gaussian plume dispersion, designed for multiple point sources for short term developed by United States Environment Protection Agency (USEPA) has been used for simulations from point sources.

Model Input:

Emissions:

The emission data from the stacks is shown in Table No. 4.1.1

TABLE NO.4.1.1: STACK EMISSIONS

S. NO.	STACK ATTACHED TO	NO. OF STACKS	DIA. (m)	HEIGHT (m)	TEMP. OF FLUE GAS (^{0}K)	VELOCITY OF FLUE GAS (m/sec)	PM (g/s)	SO_2 (g/s)	NOx (g/s)
1.	Mag concentrate FBD	1	1.1	35	373	9.0	0.35	5.8	1.75
2	Combined Driers	1	0.6	35	373	9.0	0.1	5.2	0.5

Receptor Locations:

The software is capable of generating a polar receptor grid at every 10 radial angles at specified distances (in Kms).

Meteorological data:

For the prediction of rise in Ground Level concentrations of pollutants, the actual hourly meteorological data recorded at the site during the study period (October, 2021 to December, 2021) is converted to mean meteorological hourly data as specified by CPCB and the same is used

in the model. In the absence of site specific mixing heights, mixing heights published in 'Spatial distribution of hourly mixing depths over Indian region' by Dr. R.N. Gupta have been used.

Presentation of results:

In the present case model simulations have been carried out for the summer season. For the short term simulations, the concentrations have been estimated around 1600 receptors to obtain optimum description of variations in concentrations over the site in 10 Km. radius covering 16 directions.

Model Output:

The output contains the first through sixth highest concentration values at each receptor, Maximum concentration tables and daily concentration tables for each averaging period.

4.1.2.1 STACK HEIGHT CALCULATION:

a) Mag concentrate FBD:

HSD/HFO consumption	:	6.27 TPD (6.6 KLD)
Max. Sulphur content in fuel	:	4.0% (by mass max.)
Total Sulphur dioxide Emission	:	6.27x 1000 x 4 x 2 / 24 x 100
	:	20.9 kg / hour
Stack height H	:	$14 (Q)^{0.3}$
	:	$14 (20.9)^{0.3}$
	:	34.8 m say 35 m

Stacks height of 35 m height is provided to Mag concentrate FBD for effective dispersion of pollutants into the atmosphere

b)Combined Driers:

HSD/HFO consumption	:	5.7 TPD (6.0 KLD)
Max. Sulphur content in fuel	:	4.0% (by mass max.)
Total Sulphur dioxide Emission	:	5.7x 1000 x 4 x 2 / 24 x 100
	:	19.0 kg / hour
Stack height H	:	$14 (Q)^{0.3}$
	:	$14 (19.0)^{0.3}$
	:	33.8 m say 35 m

Stacks height of 35 m height is provided to Combined Driers for effective dispersion of pollutants into the atmosphere

Sources of Air Emissions:

The emissions from the driers & vehicular emissions are considered to assess the incremental GLCs.

The net resultant concentrations (Maximum baseline conc. + predicted incremental rise in conc.) of PM_{10}, SO_2 and NO_X are shown in Table No. 4.1.2. The isopleths plot on topographical map is attached as annexure-3. The net resultant concentrations of PM_{10}, SO_2 and NO_X & CO are well within the National Ambient Air Quality Standards (NAAQS) stipulated by MoEF&CC when the plant commences the operation. Hence there will not be any adverse impact on air environment due to the proposed project.

TABLE NO. 4.1.2: NET RESULTANT MAXIMUM CONCENTRATIONS DURING OPERATION

(Maximum baseline + incremental conc. Due to stack emission + vehicular emissions)

Item	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_X ($\mu g/m^3$)	CO ($\mu g/m^3$)
Maximum baseline conc. in the study area	69.3	13.9	19.7	1120
Maximum predicted incremental Concentrations due to the proposed mineral separation plant	0.83	12.1	4.1	--
Maximum predicted incremental Concentrations due to the vehicular emissions from the proposed mineral separation plant	0.25	--	2.8	1.3
Net resultant concentrations during operation phase	**70.38**	**26.0**	**26.6**	**1121.3**
National Ambient Air Quality Standards (As per MOEF Notification dated 16-11-2009)	**100**	**80**	**80**	**2000**

4.2 PREDICTION OF IMPACTS ON WATER ENVIRONMENT:

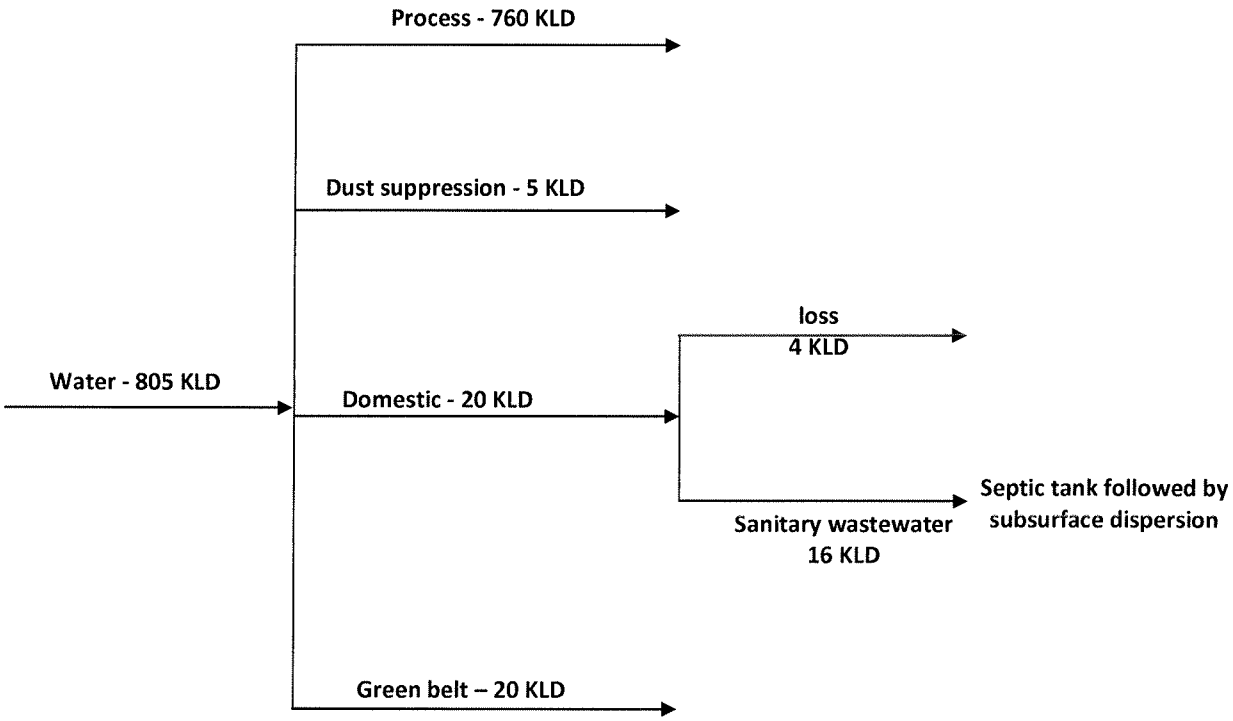
4.2.1 WATER REQUIREMENT: [STANDARD TOR # 10 & 34]

The total water requirement for the plant is 805 KLD. The Source of water is from the Vamsadara river, for which approval has already been accorded to draw up to 0.14 TMC (10860 KLD) of water. Infiltration galleries are established in the riverbed to draw the water and a copy of the same is attached annexure -2. The details of water requirement are given below.

TABLE NO.4.2.1: WATER REQUIREMENT

S.NO.	ITEM	WATER REQUIREMENT (IN KLD)
1.	Process water	760
2.	Dust suppression	5
3.	Greenbelt development	20
4.	Domestic	20
Total		**805**

WATER BALANCE DIAGRAM:



4.2.2 WASTEWATER GENERATION:

The wastewater generation from the mineral process plant will be process wastewater and Sanitary wastewater. Detailed waste water treatment mechanism is provided in chapter 10. The following is the breakup of it.

TABLE NO.4.2.2: WASTE WATER GENERATION

S.NO.	SOURCE	WASTE WATER in KLD
1	Process wastewater	400
2	Sanitary Water	16
	TOTAL	**416**

TABLE NO.4.2.3: CHARACTERISTICS OF SANITARY WASTE WATER (UNTREATED)

PARAMETER	CONCENTRATION
pH	7.0 – 8.5
BOD	200 – 250 mg/l
COD	300 – 400 mg/l

TDS	800 – 900 mg/l

4.2.3 IMPACT ON GROUND AND SURFACE WATER [STANDARD TOR # 37]

Vamshadhara River(5.1 Kms.), Bay of Bengal (1.3 Kms.), Vastavalasa cheruvu (0.25 Kms.) and few tanks/ ponds are present within 10 Kms. radius from plant site.

Water required for the proposed plant will be sourced from Vamshadhara River. The Source of water is from the Vamsadara river, for which approval has already been accorded to draw up to 0.14 TMC (10860 KLD) of water. Infiltration galleries are established in the riverbed to draw the water.

The wastewater generation from the mineral process plant will be process wastewater and Sanitary wastewater.

EFFLUENT TREATMENT PLANT:

Fresh water is utilized for the concentration/separation of Sillimanite and Zircon concentrates in flotation cells/spirals and wet tables. The wastewater generated from process will be treated in a thickener and the underflow will be sent to old mined out pits for decantation and clear water will be utilized for greenbelt development in old mining areas. A closed-loop water system will be maintained. No effluent will be let out of the plant premises and all discharges shall be as per CPCB/MOEF norms.

Sanitary wastewater generated will be stored in soak pits followed by subsurface dispersion. Zero liquid effluent discharge will be maintained.

Hence there will not be any impact on surface water due to the proposed project.

4.3 PREDICTION OF IMPACTS DUE TO NOISE:

4.3.1 PREDICTION OF IMPACT DUE TO THE PROPOSED ACTIVITY:

The sound pressure level generated by noise source decreases with increasing distance from the source due to wave divergence.

An additional decrease in sound pressure level with distance from the source is expected, due to atmospheric effect or its interaction with objects in the path of transmission. For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations, due to different sources using model based on first principle, as per the following equation:

$$Lp2 = Lp1 - 20 \text{ Log } (r2/r1) - Ael.2$$

Where Lp1 and Lp2 are sound pressure levels at points located at distance r1 and r2 from the source and Ae1.2 is the excess attenuation due to environmental conditions. Combined affect of all the sources then can be determined at various locations by logarithmic addition.

It is first approximation one can assume that for all general population in the villages, every noise source in the plane is a point source. The average equivalent sound power level of such a point source can be estimated for different distances and directions from hypothetical source by applying following equation:

$$Lp = Lw - 20 \text{ Log } r - Ae - 8$$

Where Lw is the sound power level of the source, Lp is sound pressure level at a distance r and Ae is environmental attenuation factor. A combined noise level Lp (total) of all the sources at a particular place is given by:

$$Lp(total) = 10 \text{ Log } (10^{Lp1/10} + 10^{(Lp2/10)} + \text{---------})$$

Major noise generating sources were identified from the proposed activity for prediction purposes. The major noise generating sources are crusher, Vehicular movement, DG sets, etc Predictions have been made to represent the worst scenario by considering the cumulative impacts of noise due to all the units put together. The noise levels at various distances were calculated using CUSTIC model.

Acoustic enclosures will be provided to the DG Sets. All noise producing machinery procurement will be done keeping in view the latest MOEF&CC/OSHA standards on Noise levels. The Ambient Noise levels will be within the standards prescribed by MOEF&CC, GOI under the Noise pollution (regulation & control) Rules.

4.3.2 PREDICTION OF IMPACTS ON COMMUNITY:

A day and Night sound pressure level, Ldn is often used to describe the community noise exposure which includes 10 dBA night time penalty. As the nearest human settlement is Pedda Vastavalasa at a distance of 0.5 Kms. from the proposed project site, the impact of noise on general population would be insignificant.

As per the WHO recommendation, there is no identified risk and damage of hearing due to the noise levels (Leq = 8 hours) less than 75 dBA. Most of the international damage risk criteria for

hearing loss permit (Leq = 12 hours) upto 87 dBA. Further, WHO recommendation on community noise annoyance, permits day time out door noise levels of 55 dBA. Leq and night time outdoor noise level of 45 dBA leq to meet sleep criteria i.e. Leq (24 hours) = 52.2. dBA and Ldn = 5.5 dBA.

4.3.3 PREDICTION OF IMPACT ON OCCUPATIONAL HEALTH:

The damage risk criteria as enforced by OSHA (Occupation Safety and Health Administration) to reduce hearing loss, stipulates that noise level upto 85 dBA are acceptable for 8 hour working shift per day. Plant authorities will provide ear plugs to the employees working in noisy areas and will be enforced to be used by the employees.

4.4 PREDICTION OF IMPACTS ON LAND ENVIRONMENT:

To control the fugitive emissions, dust extraction system and dust suppression system will be installed at all the possible dust emanating areas.

The wastewater generated from process will be treated in a thickener and the underflow will be sent to old mined out pits for decantation and clear water will be utilized for greenbelt development in old mining areas. A closed-loop water system will be maintained. No effluent will be let out of the plant premises. Zero Liquid Discharge will be adopted. Sanitary waste water generated will be soak pit followed by subsurface dispersion after ensuring compliance with the stipulated norms.

Solid waste generated from this i.e. Silica sand and unrecovered mineral rejects will be utilized/ disposed to old mined out pits and afforestation or will be stored for future extraction of valuable minerals, if any. Hence there will not be any adverse impact on land environment due to the proposed project.

The land use pattern of the study area will certainly improve due to the proposed activity. Land price in the area will increase and will benefit the local people. This industry may attract some ancillary works also which will also help in improving the land use pattern of the area.

Greenbelt is considered essential for maintaining the stability of the environment of the area.

4.5 PREDICTION OF IMPACTS DUE TO VEHICULAR MOVEMENT: [STANDARD TOR # 40]

Vehicular Traffic Study:

Raw material and products will be transported in covered trucks by road from/to the port. All the trucks used for the transport of raw materials, products and wastes will be completely covered with tarpaulin and ensure no spillage during transportation. No. of trucks utilized for raw material and product transportation will be about 79 trucks/day. The plant is well connected to State

Highway #37 (4.0 Kms. from the plant site). MSP plant, which was in operation earlier is well connected with the existing road network. The existing road network was adequate to handle the truck movements during the operation of the beach sand mining as well as MSP of higher capacity. Hence there is no additional truck movement due to the proposed operation of the MSP. All trucks used for transport will have PUC certification. The area earmarked for truck parking is 0.25 acres. The plant site is well connected by Pucca road which is capable of absorbing additional truck movement due to transportation.

- All the trucks used for the transport of mineral will be "Environmentally compliant".
- All the internal road and approach road will be water sprinkled with water to control the dust emissions.

Vehicular Traffic Study has been carried out considering frequency of vehicles for transportation of materials, due to proposed project is shown below.

The following table shows the baseline traffic, additional traffic due to the proposed project.

TABLE: No.4.5.1: TRAFFIC DETAILS

Name of plant : Trimex Sands Private Limited
Location of the plant : Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh

Type of Vehicle	Existing Vehicular Traffic							Peak Traffic during operation of the plant							Carrying Capacity PCU (per day) as per IRC : 73-1980
	Gollapeta to Kalingapatnam (SH # 37)			Kalingapatanam to Gollapeta (SH # 37)			Total	Gollapeta to Kalingapatnam (SH # 37)			Kalingapatanam to Gollapeta (SH # 37)			Total	
	Actual Count (per Day)	As % of Total Vehicular Count	As PCU (per day)	Actual Count (per Day)	As % of Total Vehicular Count	As PCU (per day)	Total PCU (per Day)	Actual Count (per Day)	As % of Total Vehicular Count	As PCU (per day)	Actual Count (per Day)	As % of Total Vehicular Count	As PCU (per day)	Total PCU (per Day)	
Passenger car, Tempo, Auto rickshaw or Agricultural Tractor	189	37.4	**189**	197	37.6	**197**	386	10	7.8	**10.0**	10	7.8	**10**	20.0	**10000 - (for 2 lane un divided highway)**
Cycle, Motor Cycle or Scooter	231	45.7	**115.5**	250	47.7	**125**	240.5	40	31.0	**20.0**	40	31.0	**20**	40.0	
Truck, Bus, or Agricultural Tractor Trailer unit	80	15.8	**240**	72	13.7	**216**	456	79	61.2	**237.0**	79	61.2	**237**	474.0	
Bullock Cart	5	1.0	**40**	5	1.0	**40**	80	0	0.0	**0.0**	0	0.0	**0**	0.0	
Total (daily basis)	**505**	**100.0**	**584.5**	**524**	**100**	**578**	**1162.5**	**129**	**100**	**267.0**	**129**	**100**	**267**	**534.0**	

Total load on the road from Gollapeta to Kalingapatnam (SH # 37), during operation of the proposed plant

Traffic load before operation of the Proposed plant	:	1162.5	PCU/day
Additional traffic load during operation of the proposed plant :	:	534.0	PCU/day
Total load	**:**	**1696.5**	**PCU/day**
Traffic Capacity as per IRC 73: 1980	**:**	**10000.0**	**PCU/day**

4.6 PREDICTION OF IMPACTS ON FLORA & FAUNA: [STANDARD TOR # 26]

There are no Eco-sensitive areas such as National Park / Wildlife Sanctuary / Biosphere Reserves present within 10 Km. radius of the plant site. All the required Air emissions control systems such as bagfilters, dust suppression system, covered conveyers, etc. will be installed and operated to comply with MOEF&CC/CPCB/SPCB norms. Zero liquid effluent discharge system will be maintained in the proposed project. All solid waste disposal will be in accordance with the norms. When all norms are compiled, there will not be any adverse impact on Flora & Fauna due to the proposed project.

4.7 PREDICTION OF IMPACTS ON SOCIO ECONOMIC ENVIRONMENT:

The local areas will be benefited by way of the generation of employment opportunities, increased demand for local products and services. There will be an overall improvement in the income level of the local people once the plant commences operation.

The plant will provide direct employment to about 50 persons and contract employment to about 300 persons, which will be as officials, staff, skilled, semi-skilled labour, security, transport staff etc.

Top priority will be given to locals for Semi-Skilled and Unskilled jobs. With the operation of this Plant, there will be a lot of scope for more ancillary development, which will in turn benefit the local area and the nation.

The project authorities intend to continue the operation of existing school imparting free education to local students and propose to conduct regular health checkups in the villages. Therefore, there will be a certain enhancement of educational and medical standards of people in the study area. There will be generally positive and beneficial impacts by way of economic improvements, transportation, aesthetic environment and business generation. There will be an overall upliftment of socio-economic status of people in the area.

CHAPTER – 5

ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

5.0 ALTERNATIVE TECHNOLOGIES:

The Mineral Separation Plant has already been established after obtaining EC, CFE & CFO as an integrated proposal along with beach sand mining. Due to the notification issued by the Central Govt reserving beach sand mining for Govt companies, the EC, CFE, CFO for the integrated proposal has been revoked. Now it has been proposed to operate the same MSP plant which is situated outside the mining lease area and has been established earlier after duly obtaining EC, CFE & CFO, by sourcing mineral concentrates from outside firms. The proposed technology and equipment for the separation of the minerals are same as that were engaged during the operation of the plant. Hence no alternate technologies have been chosen for the plant.

5.1 ALTERNATIVE SITES EXAMINED FOR SETTING UP OF PLANT: [STANDARD TOR # 1]

As mentioned above, the Mineral Separation Plant (outside ML area) has already been established in company owned lands at an investment of about Rs269 Crores after obtaining EC, CFE & CFO as an integrated proposal along with beach sand mineral mining. Due to the notification issued by the Central Govt reserving beach sand mining for Govt companies, the EC, CFE, CFO for the integrated proposal has been revoked.

Now it has been proposed to operate the same MSP plant which is situated outside the mining lease area and has been established earlier after duly obtaining EC, CFE & CFO, by sourcing mineral concentrates from outside firms. Hence no alternate sites have been chosen for the plant.

CHAPTER – 6

ENVIRONMENTAL MONITORING PROGRAM

6.1 TECHNICAL ASPECTS:

6.1.1 METHODOLOGIES:

Environmental monitoring will be required to know the Ambient Air Quality, Meteorological Data, Fugitive Emissions, Water Quality, Wastewater Quality, Noise Levels etc. during the operation phase of the proposed project. The methodologies adopted for environmental monitoring will be in accordance with the CPCB procedures.

6.1.2 FREQUENCY & LOCATIONS OF ENVIRONMENTAL MONITORING:

A comprehensive monitoring programme is given under. This environmental monitoring will be entrusted to a third party, approved by MOEF & CC for the work.

TABLE NO. 6.1.1: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

S.NO	PARTICULARS	FREQUENCY OF MONITORING	DURATION OF SAMPLING	PARAMETERS REQUIRED TO BE MONITORED
1.	**Water & Waste water quality**			
A.	Water quality in the area (Ground)	Once in a month	Composite sampling (24 hourly)	As per IS: 10500
2.	**Air Quality**			
A.	Stack Monitoring	CEMS Once in a month	Continuous	PM_{10} SO_2 & NO_x
B.	Ambient Air quality	CAAQMS Once in a month	Continuous 24 hours continuously	$PM_{2.5}$, PM_{10} $PM_{2.5}$, PM_{10}, SO_2, NO_x & CO
C.	Fugitive emission monitoring	Quarterly once	--	Particulate matter
3.	**Meteorological Data**			
	Meteorological data to be monitored at the plant.	Daily	Continuous monitoring	Temperature, Relative Humidity, rainfall, wind direction & wind speed.
4.	**Noise Levels**			
	Ambient Noise levels	Once in a month (hourly)	Continuous for 24 hours with 1 hour interval	Noise levels

6.1.3 DATA ANALYSIS:

All the parameters will be analysed as per IS procedures specified for those parameters. All water samples will be analysed for various parameters as per IS: 10500 with the specified procedures.

The methodology adopted for monitoring & analysis of $PM_{2.5}$ & PM_{10} is as per IS: 5182 Part IV SO_2 & NO_x as per IS: 5182 Part II & Part VI respectively. Samples will be analysed for SO_2 using improved West-Gaeke method for air samples using a spectrophotometer at a wavelength of 560 nm.

Samples will be analysed for NO_x using Jacob and Hochheiser modified (Na-As) method, for Air samples using a spectrophotometer at wavelength of 540 nm. $PM_{2.5}$ & PM_{10} in ambient air are found by using Respirable Dust Sampler (RDS).

6.1.4 REPORTING SCHEDULE:

Whenever pollution control systems fails, the production in that unit will be stopped and it will be restored only after rectification of the system.

6.1.5 EMERGENCY PROCEDURES:

In case of emergency shutdown, all the safety precautions will be taken as per the procedure given by the supplier. All precautions will be taken to prevent any environmental problems during shut down.

6.1.6 DETAILED BUDGET & PROCUREMENT SCHEDULES:

Continuous Ambient Air Quality Monitoring System (CAAQMS), Continuous Emission Monitoring System (CEMS) for all Stacks & Continuous Weather Monitoring Station will be provided.

However, a third party also will be engaged to monitor all the environmental parameters as per CPCB /SPCB norms once the project comes into operation. The budgetary allocation for Environmental monitoring is approx. Rs. 7.0 Lakhs/Annum.

TABLE NO. 6.1.2: BUDGETARY ALLOCATION FOR ENVIRONMENTAL MONITORING

S.No.	Monitoring Item	No. of units	Monitoring Parameters	Frequency of Monitoring	No. of Samples /annum	Cost / Sample (Rs.)	Total cost in (Rs.)
1	Stack	1	PM, SO_2 & NO_2	Quarterly basis	4	5000	20,000
2	AAQ	4	PM_{10}, $PM_{2.5}$ SO_2, NO_2 & CO	Quarterly basis	16	7000	1,12,000
3	Fugitive	2	PM	Quarterly	8	2000	16,000

	emissions			basis			
4	Effluent	2	pH, TDS, TSS, O&G, Free Available Cl, Cu, Fe, Zn, Chromium, PO_4	Once in a month	24	6000	144000
5	Ground water	2	As per IS: 10500	Once in a month	24	7000	168000
6	Noise levels	4	---	Once in a month (hourly)	1152	100	115200
7	Performance Evaluation of APCD	---	---	Once in a year	1	100000	100000
				Total			**6,75,200**
							Approx. Rs. 7.0 Lakhs/Annum
Note: CAAQMS, CEMS & Continuous Weather Monitoring Station will be provided							

CHAPTER – 7
ADDITIONAL STUDIES

7.1 RISK ASSESSMENT:

7.1.1 INTRODUCTION:

Risk analysis deals with the identification and quantification of risks, the plant equivalent and personnel are exposed to, due to accidents resulting from the hazards present in the factory. Hazard analysis involves the identification and quantification of the various hazards that are likely to occur in the factory.

Both hazard and risk analysis very extensive studies, and require a very detailed design and engineering information.

The various hazard analysis techniques that may be applied are Hazard and Operability (HAZOP) studies, Fault - Tree Analysis (FTA), event –tree analysis and, failure and effects mode analysis.

Risk analysis follows an extensive hazard analysis. It involves the identification and assessment of risks the neighboring populations are exposed to as result of hazard present. This requires a through knowledge of failure probability, credible accident scenario, vulnerability of populations etc. Much of this information is difficult to get or generate. Consequently, the risk analysis is often confined to maximum creditable accident studies.

7.1.2 SCOPE OF THE STUDY:

The scope of study includes the study of proposed operations, storage and handling of raw materials with respect to Hazard Identification. Risk Assessment and preparation of Disaster Management plan. Based on the Hazard Identification and analysis, the major disaster scenarios would be worked out to estimate the consequence of failure. A Disaster Management Plan (DMP) would also be evolved to meet the emergency situation including the occupational health and safety.

7.1.3 FIRE PROTECTION SYSTEM:

The following Fire Protection system will be provided in the proposed plant.

- Hydrant system covering the entire plant including all important auxiliaries and buildings is proposed. The system will be complete with piping, valves instrumentation, hoses, nozzles and hydrants, valves etc.
- Portable extinguisher such as pressurized water type, carbon dioxide type and foam type will be located at strategic locations through out the plant.

The following pumps will be provided in the fire protection system.

Fire water pumps.

(Fire water reservoir is part of the main water reservoir)

a) AC motor driven fire water pumps for hydrant, medium velocity water spray system and foam system.
b) AC motor driven fire water pumps for high velocity water spray system.
c) Diesel engine driven pump as stand by for the above.
d) Jackey pump 1 no. (AC motor driven) for maintaining pressure.

7.1.4 FIRE ALARM SYSTEM:

Cable areas, control room will be provided with Ionization and photo electric smoke detectors.

The above system will be designed as per the requirements of Tariff Advisory Committee (TAC) of Insurance companies of India.

Suitable number of electric motor driven and diesel engine operated hydrant and spray pumps with automatic starting will be provided for the above systems. The fire water pumps will take suction from the fire water reservoir to be created in the plant area.

7.1.5 METHODOLOGY OF MCA ANALYSIS:

The MCA Analysis involved ordering and ranking of various sections in terms of potential vulnerability. The following steps were involved in MCA Analysis.

- Preparation of an inventory of major storages and rank them on the basis of their hazard properties.
- Identification of potentially hazardous storage sections and representative failure cases from the vessels and the pipelines.
- Visualization of chemical release scenarios.

- Effect and damage calculation from the release cases through mathematical modeling.
- Inventory Analysis and Fire & Explosion and Toxicity Index (FETI) are the two techniques employed for hazard identification process.

7.1.6 FIRE & EXPLOSION AND TOXICITY INDEX:

The role of Fire & Explosion Index (FEI) aids quantitative hazard identification. The FEI is calculated by evaluating the loss potential of all the units in the storage area and the hazardous areas were classified accordingly. The role of FEI is

- Identification of the equipment/areas that could likely contribute to the creation or escalation of incident and relatively rank the incidents.
- Quantification of the expected damage of potential fire and explosion incidents.
- Preparation of guidelines for mitigating fire hazards.

The loss potential which could actually be experienced under the most adverse operating conditions is quantitatively evaluated. The FEI is used for any operation in which a flammable, combustible or reactive material is stored, handled or processed.

FEI = MF * GPH * SPH

Where MF: Material factor

GPH: General Process Hazard

SPH: Special Process Hazard

TOXICITY INDEX

The Toxicity Index is calculated using the Nh, Ts, GPH and SPH. TI is calculated by the following formula.

$$TI = \frac{(Nh + Ts) * (1 + GPH + SPH)}{100}$$

TABLE NO. 7.1.1: FIRE AND EXPLOSION INDEX AND TOXICITY INDEX

S.NO	NAME OF THE EQUIPMENT	MF	FEI	TI	CATEGORY OF HAZARD
1	Storage tank (HSD/HFO)	10	43.75	-	Light

7.1.7 ASSESSMENT OF RISK AT M/S. TRIMEX SANDS PRIVATE LIMITED:

Based on the storage inventory, the following areas are identified as potential safety risk areas as shown in Table No.7.1.2

TABLE NO.7.1.2: POSSIBLE RISKS FROM THE EXISTING ACTIVITY

S.NO.	AREA	CAPACITY / QUANTITY	HAZARDS IDENTIFIED
1.	HSD /HFO Tanks	187 KL	Fire

7.1.8 RISK & CONSEQUENCE ANALYSIS OF FIRE:

The principle objective of this study is to identify the potential hazards estimate the effects of hazards to people both with in and outside the plant premises.

- Identification of possible failure cases of the facilities which might affect the population and property within the plant boundary.
- Assessment of consequential effect on surrounding population, property etc., due to onset of such failures.
- Suggest recommendations based on consequence analysis relevant to the situations.

7.1.8.1 METHODOLOGY:

The hazards expected from this plant include the pool fire situation due to the leakage of Diesel/HFO from the storage tanks. There are four storage tanks of total 187 KL capacity. This tanks are made of Mild steel and is provided with dyke around the tanks. The most credible failure is due to the rupture of the pipes connecting the storage tank. The worst case can be assumed as when the entire contents leak out into the dyke forming a pool, which may catch fire on finding source of ignition.

DISEAL/HFO STORAGE TANKS - POOL FIRE SCENARIO:

The maximum quantity of HSD/HFO stored at site is 187 KL capacity. In the event of tanks spilling its contents through a small leakage or due to rupture of pipelines connecting the tanks and on ignition fire will ensue. As the tanks are provided with dyke, the fire will be confined within the dyke. However, it will be ensured that pipeline carrying HSD/HFO will be of best quality and routine inspection/replacement of the pipes will be carried out to mitigate any rupture. Threshold limit for first degree burns is 4.5 kw/m^2. Based on these results it may be concluded that the vulnerable zone

in which the thermal fluxes above the threshold limit for first degree burns (4.5 kw/m^2) is restricted to 25 m.

The hazard distances for various radiation intensities for Diesel storage tanks are shown in table 7.1.3.

TABLE NO.7.1.3: HAZARD DISTANCES (ON FIRE - SCENARIO)

HSD/HFO QUANTITY: 187 KL	
RADIATION INTENSITY	**HAZARD DISTANCES**
37.5 kw/m^2 (100% lethality)	7 m
25.0 kw/m^2 (50% lethality)	14 m
12.5 kw/m^2 (1% lethality)	20 m
4.5 kw/m^2 (1^{st} degree burns)	28 m

The hazard distances for Thermal radiation are confined to the plant premises only. Hence there will not be any thermal radiation impact on outside the population due to the pool fire scenario. The thick green belt already developed will help to further mitigate the radiation intensity level outside plant boundary.

7.1.8.2 GENERAL FIRE HAZARDS WITHIN THE PROPOSED ACTIVITY:

The potential hazardous operations and processes in the system are listed below:

Cable Galleries

For containment of fire and preventing it from spreading in the cable galleries, unit wise fire barriers with self- closing fireresistant doors with minimum fire rating of approximately 90 minutes are planned. Also to avoid spreading of fire, all cable entries/openings in cable galleries, channels, barriers etc. are sealed with non-inflammable /fire resistant sealing material. Instrumentation cables used are of fire Resistant low smoke type.

7.1.8.3 HAZARDOUS CHEMICALS:

No hazardous chemicals will be used in the projects.

7.2 DISASTER MANAGEMENT PLAN: [STANDARD TOR # 15]

7.2.1 DISASTERS:

A disaster is catastrophic situation in which suddenly, people are plunged into helplessness and suffering and as a result, need protection, clothing, shelter, medical and social care and other necessities of life.

Disasters can be divided into two main groups. In the first, are Disasters resulting from natural phenomena like earthquakes, volcanic eruptions, cyclones, tropical storms, floods, avalanches, landslides etc. The second group includes disastrous events occasioned by man, or by man's impact upon the environment. Examples are industrial accidents, radiation accidents, factory fires, explosions and escape of toxic gases or chemical substances, river pollution, mining or other structural collapses, air, sea, rail and road transport accidents and can reach catastrophic dimensions in terms of human loss.

There can be no set criteria for assessing the gravity of a disaster in the abstract it depends to a large extent on the physical, economic and social environment in which it occurs. What would be considered a major disaster in developing country, will be equipped to cope with the problems involved, and may not mean more than temporary emergency elsewhere. However all disasters bring in their wake similar consequences that call for immediate action, whether at the local, national or international level, for the rescue and relief of the victims. This includes the search for the dead and injured, medical and social care, removal of the debris, the provision of temporary shelter for the homeless food, clothing and medical supplies, and the rapid re-establishment of essential services.

7.2.2 OBJECTIVES OF DISASTER MANAGEMENT OF PLAN:

The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. For effective implementation of Disaster Management Plan, it will be widely circulated and personnel training through rehearsals.

The Disaster Management Plan would reflect the probable consequential severity of undesired event due to deteriorating conditions or through knock on effects. Further the management should be able to demonstrate that their assessment of the consequences uses good supporting evidence and

based on currently available and reliable information, incident data from internal and external sources and if necessary the reports of out side agencies.

To tackle the consequences of a major emergency inside the factory or immediate vicinity of the factory, a Disaster Management Plan has to be formulated and this planned emergency is called Disaster Management Plan.

The objective of the Industrial Disaster Management Plan is to make use of the combined resources of the Plant and the outside services to achieve the following:

- Minimize damage to property and the environment.
- Effect the rescue and medical treatment of causalities.
- Provide for the needs of relatives.
- Provide authoritative information to news media.
- Secure the safe rehabilitation of affected areas.
- Safeguard other people.

Initially contain and then ultimately bring the situation under the control. Preserve subsequent records and equipment for subsequent enquiry the cause and circumstances leading to emergency.

7.2.3 EMERGENCIES:

7.2.3 1 GENERAL, INDUSTRIAL, EMERGENCIES:

The emergencies that could be envisaged in the Plant are as follows:

- Contamination of food / water.
- Sabotage / social disorder.
- Structural failures.
- Slow isolated fires.

7.2.3.2 SPECIFIC EMERGENCIES ANTICIPATED:

During the study of risk assessment, the probabilities of occurrence of hazards are worked out along with the nature of damage. This is the reason why one should study risk assessment in conjunction with DMP.

7.2.3.3 EMERGENCY ORGANISATION:

The project proponent intends to setup an Emergency Organization. A senior executive who has control over the affairs of the Plant would be heading the Emergency Organization. He would be designated as Site Controller. In the case of stores, utilities, open areas which are not under the control of production heads, executive responsible for maintenance of utilities would be designated as Incident Controller. All the Incident Controllers would be reporting to the site controller.

Each Incident Controller organizes a team responsible for controlling the incident with the personnel under his control. Shift in-charge would be the reporting Officer, who would bring the incident to the notice of the Incident Controller and the Site Controller.

Emergency Coordinators would be appointed who would undertake the responsibilities like fire fighting, rescue, rehabilitation, transport and support services. For this purposes, Security in-charge, Personal Department, Essential services personnel would be engaged. All these personnel would be designated as key personnel.

In each shift, electrical supervisor, electrical fitters, pump house in charge and other maintenance staff would be drafted for emergency operations. In the event of Power communication system failure, some of staff members in the office/ Plant offices would be drafted and their services would be utilised as messengers for quick passing of communications. All these personnel would be declared as essential personnel.

7.2.3.4 EMERGENCY COMMUNICATION:

Whoever notices an emergency situation such as fire, growth of fire, leakage etc. would inform his immediate superior and Emergency Control Center. The person on duty in the Emergency Control Centre would appraise the site controller. Site controller verifies the situation from the Incident Controller of that area or the shift in charge and takes a decision about implementing on Site Emergency. This would be communicated to all the Incident Controllers, Emergency Coordinators. Simultaneously, the emergency warning system would be activated on the instructions of the Site Controller.

7.2.3.5 EMERGENCY RESPONSIBILITIES:

The responsibilities of the key personnel are appended below

7.2.3.5.1 SITE CONTROLLER:

On receiving information about emergency he would rush to Emergency Control Centre and take charge of ECC and the situation and assesses the magnitude of the situation on the advice of incident controller and decides.

- Whether affected area needs to be evacuated.
- Whether personnel who are at assembly points need to be evacuated.
- Declares Emergency and orders for operation of emergency siren.
- Organizes announcement by public address system about location of emergency.
- Assesses which areas are likely to be affected, or need to be evacuated or to be altered.
- Maintains a continuous review of possible development and assesses the situation in consultation with Incident Controller and other key personnel whether shutting down the Plant or any section of the Plant required and if evacuation of persons is required.
- Directs personnel of rescue, rehabilitation, transport, fire brigade, medical and other designated mutual support systems locally available for meeting emergencies.
- Controls evacuation of affected areas, if the situation is likely to go out of control or effects are likely to go beyond the premises of the factory, informs to District Emergency Authority, Police, and Hospital and seeks their intervention and help.
- Informs Inspector of factories, Deputy Chief Inspector of factories, SPCB and other statutory authorities.
- Gives public statement if necessary.
- Keeps record of chronological events and prepares an investigation report and preserves evidences.

On completion of onsite Emergency and restoration of normalcy, declares all clear and orders for all clear signal.

7.2.3.5.2 INCIDENT CONTROLLER:

- Assembles the incident control team.

- Directs operations within the affected areas with the priorities for safety to personnel minimize damage to the Plant, property and environment and minimize the loss of materials.
- Directs the shutting down and evacuation of Plant and areas likely to be adversely affected by the emergency.
- Ensures that all-key personnel help is sought.
- Provides advice and information to the Fire and Security officer and the local Fire Services as and when they arrive.
- Ensures that all non-essential workers / staff of the effected areas evacuated to the appropriate assembly points and the areas are searched for causalities.
- Has regard to the need for preservation of evidence so as to facilitate any enquiry into the cause and circumstances, which caused or escalated the emergency.
- Coordination on with emergency services at the site.
- Provides tools and safety equipments to the team members.
- Keeps in touch with the team and advice them regarding the method of control to be used.
- Keep the site Controller of Emergency informed of the progress being made.

7.2.3.5.3 EMERGENCY COORDINATOR - RESCUE, FIRE FIGHTING:

- On knowing about emergency, rushes to Emergency Control Centre.
- Helps the incident controller in containment of the emergency.
- Ensure fire pumps in operating conditions and instructs pump house operator to be ready for any emergency.
- Guides the fire fighting crew i.e. Firemen trained Plant personnel and security staff.
- Organizes shifting the fire fighting facilities to the emergency site, if required.
- Takes guidance of the Incident Controller for fire fighting as well as assesses the requirements of outside help.
- Arranges to control the traffic at the gate and the incident area / directs the security staff to the incident site to take part in the emergency operations under his guidance and supervision.

- Evacuates the people in the Plant or in the near by areas as advised by site controller.
- Searches for casualties and arranges proper aid for them.
- Assembles search and evacuation team.
- Arranges for safety equipments for the members of his team.
- Decides which paths the evacuated workers should follow.
- Maintains law and order in the area, and if necessary seeks the help of police.

7.2.3.5.4 EMERGENCY COORDINATOR - MEDICAL, MUTUAL AID, REHABILITATION, TRANSPORT AND COMMUNICATION:

- The event of failure of electric supply and there by internal telephone, sets up communication point and establishes contact with the Emergency Control Center (ECC).
- Organizes medical treatment to the injured and if necessary will shift the injured to near by hospitals.
- Mobilizes extra medical help from outside, if necessary
- Keeps a list of qualified first abiders of the factory and seek their assistance.
- Maintains first aid and medical emergency requirements.
- Makes sure that all safety equipment are made available to the emergency team.
- Assists Site Controller with necessary data and to coordinate the emergency activities.
- Assists Site Controller in updating emergency plan.
- Maintains liaison with Civil Administration.
- Ensure availability of canteen facilities and maintenance of rehabilitation centre.
- He will be in liaison with Site Controller / Incident Controller.
- Ensures availability of necessary cash for rescue / rehabilitation and emergency expenditure.
- Controls rehabilitation of affected areas on discontinuation of emergency.
- Makes available diesel petrol for transport vehicles engaged in emergency operation.

7.2.3.5.5 EMERGENCY COORDINATOR – ESSENTIAL SERVICES:

He would assist Site Controller and Incident Controller

- Maintains essential services like Diesel Generator, Water, Fire Water, Compressed Air / Instrument Air, Power Supply for lighting.
- He would plan alternate facilities in the event of Power failure, to maintain essential services such as lighting, etc.
- He would organize separate electrical connections for all utilities and during emergency be coordinates that the essential services and utilities are not affected.
- Gives necessary instructions regarding emergency electrical supply, isolation of certain sections etc to shift in charge and electricians.
- Ensure availability of adequate quantities of protective equipment and other emergency materials, spares etc.

7.2.3.5.6 GENERAL RESPONSIBILITIES OF EMPLOYEES DURING AN EMERGENCY:

During an emergency, it becomes more enhanced and pronounced when an emergency warning is raised, the workers if they are in charge of process equipment should adopt safe and emergency shut down and attend any prescribed duty as an essential employee. If no such responsibility is assigned, he should adopt a safe course to assembly point and await instructions. He should not resort to spread panic. On the other hand, he must assist emergency personnel towards objectives of DMP.

7.2. 3.6. EMERGENCY FACILITIES:

7.2.3.6.1 EMERGENCY CONTROL CENTRE:

For the time being, administrative office block is identified as Emergency control centre. It would have external Telephone & Fax facility. All the Incident controller officers, senior personnel would be located here. The following information and equipment are to be provided at the Emergency control centre (ECC).

- Intercom, telephone
- P&T telephone
- Fire suit / gas tight goggles / gloves / helmets
- Factory layout, site plan
- Emergency lamp / torchlight

- Plan indicating locations of hazard inventories, Plant control room, sources of safety equipment, work road plan, assembly points, rescue location vulnerable zones, escape routes.
- Hazard chart
- Safe contained breathing apparatus
- Hand tools, wind direction, wind velocity indications
- Public Address Megaphone, Hand bell, Telephone directories (Internal, P&T)
- Address with telephone numbers and key personnel, Emergency coordinator.
- Important addresses, telephone numbers such as experts from outside, government agencies neighboring industries etc.
- Emergency shut down procedures.
- Nominal roll of employees.

7.2.3.6.2 EMERGENCY POWER SUPPLY:

Plant facilities would be connected to Diesel Generator and would be placed in auto mode.

7.2.3.6.3 FIRE FIGHTING FACILITIES:

First Aid Firefighting equipment suitable for emergency should be maintained as per statutory requirements per TAC Regulations. Fire hydrant line converting major areas would be laid. It would be maintained as 6 kg / sq.cm. pressure.

7.2.3.6.4 LOCATION OF WIND SOCK:

On the top of administrative block, wind socks would be installed to indicate direction of wind during emergency period.

7.2.3.6.5 EMERGENCY MEDICAL FACILITIES:

General first aid materials for dealing with chemical burns, fire burns etc. would be maintained in the medical centre as well as in the emergency control room. Private medical practitioner's help would be sought. Government hospital would be approached for emergency help.

Apart from Plant first aid facilities, external facilities would be augmented. Names of Medical Personnel, Medical facilities in Srikakulam town would be prepared and updated. Necessary specific

medicines for emergency treatment of Burns patients and for those affected by toxicity would be maintained.

Breathing apparatus and other emergency medical equipment, emergency vehicle/ambulance would be provided and maintained. The help of near by industrial managements in this regard would be taken on mutual support basis.

7.2.3.7 EMERGENCY ACTIONS:

7.2.3.7.1 EMERGENCY WARNING:

Communication of emergency would be made familiar to the personnel inside the plant and people outside. An emergency warning system would be established.

7.2.3.7.2 EMERGENCY SHUTDOWN:

There are number of facilities which can be provided to help in dealing with hazard conditions. The suggested arrangements are

Stop feed
Deluge contents
Remove heat
Transfer contents

Methods of removing additional heat include operation of the normal cooling arrangements or use of an emergency cooling system. Cooling facilities which is vaporizing liquid may be particularly effective, since a large increase in vaporization can be obtained by dropping pressure.

7.2.3.7.3 EVACUATION OF PERSONNEL:

The area would have adequate number of exits and staircases. In the event of an emergency, unconnected personnel have to escape to assembly point. Operators have to take emergency shutdown procedure and escape. Time office maintains a copy of deployment of employees in each shift at Emergency Communication Centre. If necessary, persons can be evacuated by rescue teams.

7.2.3.7.4 ALL CLEAR SIGNAL:

At the end of emergency, after discussing with Incident Controllers and Emergency Coordinators, the site controller orders an all-clear signal.

7.3 OCCUPATIONAL HEALTH AND SURVEILLANCE: (Standard TOR # 42)

Large industries where multifarious activities are involved during construction, erection, testing, commissioning, operation and maintenance; the men, materials and machines are the basic inputs. Along with the booms, the industrialization generally brings several problems like occupational health and safety.

7.3.1 OCCUPATIONAL HEALTH:

Occupational health needs attention, both during construction and operation phases. However the problem varies both in magnitude and variety in the above phases.

7.3.2 CONSTRUCTION & ERECTION:

The occupational health problems envisaged at this stage can mainly be due to constructional and noise.

To overcome these hazards, in addition to arrangements required to reduce it within TLV'S, personnel protective equipments should also be supplied to workers. However, In the subject project, construction activities are already completed and the plant is established.

7.3.3 OPERATION & MAINTENANCE:

The working personnel should be given the following appropriate personnel protective equipments.

- Industrial Safety helmets
- Crash helmets
- Face shield with replacement acrylic vision
- Zero power plain goggles with cut type filters on both ends
- Zero power goggles with cut type filters on both sides and blue colour glasses
- Welders equipment for eye and face protection
- Cylindrical type earplug
- Ear plugs

- Face mask against dust pollution
- Leather apron
- Safety belt / line man's safety belt
- Leather hand gloves
- Asbestos hand gloves
- Canvas cum leather hand gloves with leather palm
- Industrial safety shoes with steel toe
- Electrical safety shoes without steel toe and gum boots

7.3.4 RADIATION SAFETY:

Based on the content of the monazite mineral, a prescribed substance under Atomic Energy Act, the project proponent will take the following precautions as contained under relevant rules and regulations for the radiation safety of the people working in the plant and also to mitigate any mismanagement of the minerals.

- As prescribed by the Directorate General of Foreign Trade vide notification No.26/2015-2020 dated 21August 2018, all the exports of Beach Sand Minerals will be canalized through Indian Rare Earths Limited, a PSU under DAE which has been nominated as State Trading Enterprise.
- In line with above notification, all export consignment of beach sand minerals shall be subject to obtaining the Monazite Test Certificate (MTC) from the AMD. This will ensure that every export consignment is not having monazite content more than the prescribed limit stipulated by AERB.
- The provisions under Radiation Protection Rules, 2004 administered by Atomic Energy Regulatory Board (AERB) will also mitigate radiation safety issues, if any due to handling of monazite.
- Under Radiation Protection Rules 2004, DAE trained Radiological Safety Officer (RSO) authorised by AERB will be appointed in the MSP to ensure radiological safety of the employees, management of the monazite mineral and timely submission of the details to all statutory authorities.

7.3.5 OCCUPATIONAL HEALTH: [STANDARD TOR # 42]

- Pre employment medical examination shall be conducted.
- A doctor will conduct the medical check-ups periodically.
- All workers shall be medically tested once in a year and at the end of his term of employment.
- Medical records (health profile) of all employees will be maintained.
- Evaluation of heat illumination, dust, any other chemicals, metals suspected in the environment, and their entry into the body of workers through inhalation, ingestion or through skin absorption will be done.
- Steps will be taken to avoid musculo skeletal disorders (MSD), backache, and pain in minor and major joints, fatigue etc.
- The flue gas temperatures are around 100 Deg C. These flue gases will be discharged into the atmosphere through chimney of adequate height. By the time these gases reaches the ground there will not be any thermal impact on environment
- All workers engaged in dry mineral separation plant will be regularly examined for lung diseases such as PFT (Pulmonary Function Test) tests.
- Designing and implementation of Hazards based Medical Surveillance System consisting of Preventive Health Examinations e.g., Pre-employment, Periodic health check ups
- Radiation safety monitoring of the work places and persons will be conducted as per AERB norms under Radiological Protection Rules 2004
- Organization policy development for decreasing Tobacco, Alcohol usage
- Training workshops on "Occupational Health & Safety issues" will be conducted.
- Health awareness and Training Programs on key health issues e.g., workplace hygiene, personal protective devices, first aid, nutrition, communicable diseases viz TB, Hepatitis, Malaria, tobacco and alcohol health impacts, HIV and other relevant issues.
- Personal Protective Equipment (PPE) Program, Health Information System Development including reporting formats, check lists

7.4 SAFETY PLAN:

Safety of both men and materials during construction and operation phases is of concern. The preparedness of an industry for the occurrence of possible disasters is known as emergency plan. The disaster in Project is possible due to collapse of structures and fire/explosion etc. The details of fire fighting equipments to be installed are given below.

- Carbon dioxide
- Foam type
- DCP
- Soda acid type
- Fire buckets
- Fire hydrants

Keeping in view the safety requirement during construction, operation and maintenance phases, Trimex Sands Private Limited has formulated safety policy with the following regulations.

- To take steps to ensure that all known safety factors are taken into account in the design, construction, operation and maintenance of Plants, machinery and equipment.
- To allocate sufficient resources to maintain safe and healthy conditions of work.
- To ensure that adequate safety instructions are given to all employees.
- To provide where ever necessary protective equipment, safety appliances and clothing and to ensure their proper use.
- To inform employees about materials, equipments or processes used in the work which are known to be potentially hazardous to health and safety.
- To keep all operations and methods of work under regular review for making necessary changes from the safety point of view in the light of experience and up to date knowledge.
- To provide appropriate facilities for first aid and prompt treatment of injuries and illness at work.
- To provide appropriate instructions, training and supervision to employee's health and safety, first aid and to ensure that adequate publicity is given to these matters.

- To ensure proper implementation of fire preventive methods and an appropriate fire fighting service along with training facilities for personnel involved in this service.
- To publish / notify regulations, instructions and notices in the common language employees.
- To prepare separate safety rules for each type of process involved.
- To ensure regular safety inspection by a competent person at suitable intervals of all buildings, equipments, work places and operations.

7.4.1 SAFETY ORGANISATION:

7.4.1.1 CONSTRUCTION AND ERECTION PHASE:

A highly qualified and experienced safety officer will be appointed. The responsibilities of the safety officers include identification of the hazardous conditions and unsafe acts of workers and advice on corrective actions, conduct safety audit, organize training programme and provide professional expert advice on various issues related to occupational safety and health.

7.4.1.2 OPERATION & MAINTENANCE PHASE:

The posting of safety officers should be in accordance with the requirement of factories act and their duties and responsibilities should be as defined thereof.

7.4.1.3 SAFETY CIRCLE:

In order to fully develop the capabilities of the employees in identification of hazardous processes and improving safety and health, safety circles would be constituted in each area of work. The circle would consist of 5-6 employees from that area. The circle normally should meet for about an hour every week.

7.4.2 SAFETY TRAINING:

A full-fledged training centre is already established at Trimex Sands Private Limited. Safety training will be provided by the safety officers with the assistance of faculty members called from professional safety institutions and universities. In addition to regular employees, limited contractor labors will also given safety training.

To create safety awareness, safety films will be shown to workers and leaflets etc. will be distributed. Housekeeping of high standard helps in eliminating the causes of fire and regular fire watching system strengthens fire prevention and fire fighting.

7.4.3 HEALTH AND SAFETY MONITORING PLAN:

All the potential occupational hazardous work places will be monitored regularly. The health of employees working in these areas will be monitored once in a year

7.5 SOCIAL IMPACT ASSESSMENT:

The local areas will be benefited by way of generation of employment opportunities, increased demand for local products and services. There will be an overall improvement in the income level of the local people after implementation of the proposed project.

The plant will provide direct employment to about 50 persons and contract employment to about 300 persons, which will be as officials, staff, skilled, semi-skilled labour, security, transport staff etc.

The project proponent intends to continue the company owned school imparting free education to local students and also to conduct regular health checkups in the surrounding villages. Therefore there will be a certain enhancement of educational and medical standards of people in the study area. There will be generally positive and beneficial impacts by way of economic improvements, transportation, aesthetic environment and business generation. There will be an overall upliftment.

7.6 R & R ACTION PLAN:

The Mineral Separation Plant (outside ML area) has already been established after obtaining EC, CFE & CFO as an integrated proposal along with beach sand mining. Due to the notification issued by the Central Govt reserving beach sand mining for Govt companies, the EC, CFE, CFO for the integrated proposal has been revoked.

Now it has been proposed to operate the same MSP plant which is situated outside the mining lease area and has been established earlier after duly obtaining EC, CFE & CFO, by sourcing mineral concentrates from outside firms.

No habitation exists in earlier proposed project site. Hence no Rehabilitation & Resettlement Action Plan has been envisaged in the proposed project.

CHAPTER – 8
PROJECT BENEFITS

8.0 SOCIO-ECONOMIC DEVELOPMENT: [STANDARD TOR # 44]

8.1 PHYSICAL INFRASTRUCTURE:

Once the proposed activity is commissioned, the socio-economic status of the local people will improve through direct and indirect creation of employment. It helps in sustainable development of this area including further development of physical infrastructural facilities. The following physical infrastructure facilities will improve due to proposed operation of the project.

- Road Transport facilities
- Educational facilities already established by the company
- Health facilities
- Water supply and sanitation

8.2 SOCIAL INFRASTRUCTURE:

With the implementation of the proposed project, the socio-economic status of the local people will improve. The workmen and staff will come from the nearby villages and there is no displacement involved. The project activity will improve the economic status of the people around the project area. Continued plant activities will benefit the local people due to employment during operation; infrastructural facilities provided by the industry boost up the local market and will attract people from different places to install their ancillary units. There will a positive impact on the socioeconomics of people living in the nearby villages.

8.3 EMPLOYMENT POTENTIAL:

The plant will provide direct employment to about 50 persons and contract employment to about 300 persons, which will be as officials, staff, skilled, semi-skilled labour, security, transport staff etc.

8.4 SOCIO-ECONOMIC DEVELOPMENTAL ACTIVITIES PROPOSED:

M/s. Trimex Sands Private Limited will actively contribute to improve the Socio-economic conditions of the area by providing assistance for local persons preferable from the nearby villages. The continuing commitment by business to behave ethically and contribute to economic development while improve the quality of life of workforce and their families as well as that of the

local community and society at large. A survey will be conducted in the local villages to identify the needs of the people residing in the study area.

The project proponent has already constructed and established an English medium school at a total capital investment of about Rs.3.0 Crores and the school is being maintained and operated now also. This school impart free education from Class LKG to Class X to students from the local villages and the current recurring expense is about Rs.25-30 lakhs per annum. It is proposed to continue the school facilities during the operation of the proposed project also. After the successful implementation of the project, a budget of Rs 2.3 Crores will be spent for social & infrastructural development and the following will be the activities.

TABLE NO. 8.1: DETAILED ACTIVITY WISE EXPENDITURE TO BE INCURRED IN 3 YEARS

S.NO.	MAJOR ACTIVITY HEADS	YEARS (RS. IN LAKHS)			TOTAL EXPENDITURE (RS. IN LAKHS)
		1st	2nd	3rd	
1	**Community & Infrastructure Development Programs**	10	10	15	35
2	**for Health & Hygiene of the community** (Medical camps, Mineral Water plants, construction of toilets in villages, etc.)	10	10	15	35
3	**Free education through existing school (Salary of teachers, educational tools, maintenance of the school etc)**	25	30	35	90
4	**Skill Development** ii)Workshop with latest tailoring machines for training women (like tailoring, stitching etc.) ii)Skill development / Computer / IT Training Centre for improving computer knowledge and making Industry ready.	10	10	10	30
5	**for Education & Sports** (Merit Scholarships (for), construction of class rooms in schools, providing computers in class rooms, development of library facility)	05	05	10	20
6	**Other Need based activities**	05	05	10	20
	TOTAL	**65**	**70**	**95**	**230**

CHAPTER – 9
ENVIRONMENTAL COST BENEFIT ANALYSIS

At scoping stage, Environmental Cost Benefit analysis not recommended. Hence Environmental Cost Benefit analysis has not been carried out.

All required Emission control systems are already installed and operated to comply with the SPCB Norms.

CHAPTER – 10
ENVIRONMENTAL MANAGEMENT PLAN

10.0 INTRODUCTION: [STANDARD TOR # 43]

The major objective and benefit of utilizing Environmental Impact Assessment in project planning stage itself, is to prevent avoidable losses of environmental resources and values as a result of Environmental Management. Environmental Management includes protection/mitigation/ enhancement measures as well as suggesting post project monitoring programme. Environmental management may suggest revision of project site or operation to avoid adverse impacts or more often additional project operations may have to be incorporated in the conventional operation.

The industrial development in the study area needs to be intertwined with judicious utilization of non-renewable resources of the study area and with in the limits of permissible assimilative capacity. The assimilative capacity of the study area is the maximum amount of pollution load that can be discharged in the environment without affecting the designated use and is governed by dilution, dispersion, and removal due to Physico-chemical and biological processes. The Environment Management Plan (EMP) is required to ensure sustainable development in the study area of the proposed plant site, hence it needs to be an all encompassive plan for which the proposed industry, Government, Regulating agencies like Pollution Control Board working in the region and more importantly the affected population of the study area need to extend their cooperation and contribution.

It has been evaluated that the study area has not been affected adversely and is likely to get new economical fillip.

The affected environmental attributes in the region are air quality, water quality, soil, land use, ecology and public health.

The Management Action Plan aims at controlling pollution at the source level to the possible extent with the available and affordable technology followed by treatment measures before they are discharged.

Environmental Management aims at the preservation of ecosystem by considering the pollution abatement facilities at the plant inception. In the upcoming units, pollution abatement has become an integral part of planning and design along with Techno economic factors.

10.1 MANAGEMENT DURING CONSTRUCTION PHASE:

There will be no construction in this proposal, as the present proposal is for obtaining Environmental clearance for already established and operated MSP plant earlier with prior EC, CFE and CFO.

10.2 POST CONSTRUCTION PHASE:

10.2.1 AIR EMISSION MANAGEMENT: [STANDARD TOR # 17]

Following are the air emission control measures in the present proposal:

- Dust suppression system
- Covered conveyers
- Bag filters with outlet dust emission less than 50 mg/Nm^3.
- Pucca internal roads to prevent flying off of fugitive dust.
- Greenbelt development in minimum 1/3^{rd} of the total area.

THE NUMBER OF STACKS:

No of stacks -2nos for FBD/Rotary Driers and 2 nos for DG sets each of 2000 KVA.

BAG FILTER LOCATIONS & SPECIFICATIONS:

(a) Mag Concentrate Drier Bag Filter:

Mag concentrate is heated in a Furnace Oil/HSD fired fluidized drier before high tension separation to ensure free-flowing material. Flue gases generated inside the drier will be drawn through an induced draught fan and passes the entire flue gas through bag filters and the cleaned gases with particulate emission of less than 50 mg/Nm^3 discharged into the atmosphere through the stack of 33 m height.

(b) Magnetic Concentrate Bag filter:

TABLE NO. 10.2.1: MAGNETIC CONCENTRATE BAG FILTER

PARAMETER	UNIT	MILL VENT
Flue gas volume	m^3/hr	48,760
Design Pressure	mmwg	±500
Flue gas Temperature	^{0}C	105
Air to cloth ratio	$m^3/min/m^2$	1.2

Dust type	--	mixed fines of Zircon, Sillimanite& Garnet
Inlet dust load	gm/m^3	100
Outlet dust emission (Max)	mg/Nm^3	50
Bag size	mm x mm	152 x 3750
Number of Bags	--	542

(c) Common Bag filter:

- Gas type - : exhaust gas
- Gas flow rate : 16,650 Nm^3/hr
- Fluegas temperature : 105^0C
- Dust type : mineral fines
- Outlet Particulate emission: 50 mg/Nm^3
- No. of bags : 280

TABLE NO. 10.2.2: COMMON BAG FILTER

PARAMETER	UNIT	MILL VENT
Flue gas volume	m^3/hr	16,650
Design Pressure	mmwg	±500
Flue gas Temperature	^0C	105
Air ot cloth ratio	$m^3/min/m^2$	1.2
Dust type	---	ilmenite fines
Inlet dust load	gm/m^3	100
Outlet dust emission (Max)	mg/Nm^3	50
Bag size	mm x mm	152 x 3750
Number of Bags	---	280

(d) Ball Mill Bag Filter:

- Mill Vent Bag filter
- Separation Bag filter

TABLE NO. 10.2.3: BALL MILL BAG FILTER

PARAMETER	UNIT	MILL VENT	SEPARATION VENT
Flue gas volume	m^3/hr	18,600	22,000
Design Pressure	Mmwg	±500	±1000
Flue gas Temperature	^0C	100	100
Air ot cloth ratio	$M^3/min/m^2$	1.2	1.1
Inlet dust load	gm/m^3	100	425
Outlet dust emission (Max)	mg/Nm^3	50	50
Bag size	mm x mm	152 x 3750	152 x 3750

Number of Bags	---	144	176

The bag filter dust is collected in a silo and disposed of along with silica sand tailings.

10.2.1.1 INTERNAL ROADS:

All internal roads are already made pucca to prevent the fugitive dust emission due to vehicular movement.

10.2.2 WATER POLLUTION MANAGEMENT:

The wastewater generation from the mineral process plant will be process wastewater and Sanitary waste water. The following is the breakup of it.

TABLE NO. 10.2.4: WASTEWATER

S.NO.	SOURCE	WASTEWATER IN KLD
1	Process wastewater	400
2	Sanitary Water	16
	TOTAL	**416**

PROCESS EFFLUENT TREATMENT PLANT & DISPOSAL:

The wastewater will be treated in a thickener and the underflow will be utilized for greenbelt development in MSP & old mining areas. A closed-loop water system will be maintained. No effluent will be let out of the plant premises. Zero Liquid Discharge will be adopted.

SANITARY WASTEWATER TREATMENT AND DISPOSAL:

The sanitary wastewater generated from project will be 16 KLD, which will be disposed through soak pits followed by subsoil dispersion.

DESCRIPTION OF THICKENER OPERATION:

Introduction:

Most mineral separation processes involve the use of substantial quantities of water and the process water in which the solids may be high has to be recovered. Sedimentation is most efficient to recover the water when there is a large density difference between liquid and solid. This is always the case in beach sand mineral processing where the carrier liquid is water and solids are fine minerals and slime. The bulk of the water is removed by sedimentation, or thickening, which produces a thickened pulp of about 55-65% solids by weight and up to 80% of the water can be separated at this stage. The fine particles present in the process water are to be agglomerated, or flocculated, into relatively large lumps, called flocks, that settle out more rapidly.

Coagulation and flocculation:

Coagulants are electrolytes having an opposite charge to the particles, thus causing charge neutralization when dispersed in the system, allowing the particles to come into contact and adhere because of molecular forces.

Flocculation involves the formation of much more open agglomerates than those resulting from coagulation and relies upon molecules of reagent acting as bridges between separate suspended particles. The reagents used to form the "bridges" are long chain polyelectrolytes. The majority of these are anionic in character but some of them are cationic. The polyacrylamides, which vary widely in molecular weight and charge density, are extensively used as flocculants.

The behavior of the flocculated suspension and the performance of solid-liquid separations are determined by the size of the flocs and by their structure. Large flocs promote settling and are desirable for clarification and thickening. Conversely, dense flocs are most appropriate for consolidation of the sediment, and size is of lesser importance in this stage. The maximum effect of a flocculants is achieved at an optimum dosage rate and pH; excess polymer can cause dispersion of the particles due to floc breakdown.

Flocculants are normally made up of stock solutions of about 0.51 %, which are diluted to about 0.01 % before adding to the slurry. The diluted solution must be added at enough points in the stream to ensure its contact with every portion of the system. Mild agitation is essential at the addition points, and shortly thereafter, to assist in flocculant dispersion in the process stream. Care should be taken to avoid severe agitation after the flocs have been formed.

Gravity sedimentation/Thickeners:

Gravity sedimentation or thickening is the most widely applied dewatering technique in mineral processing, and it is a relatively cheap, high-capacity process, which involves very low shear forces, thus providing good conditions for flocculation of fine particles.

The thickener is used to increase the concentration of the suspension by sedimentation, accompanied by the formation of a clear liquid. Thickener consists of relatively shallow tanks from which the clear liquid is taken off at the top, and the thickened suspension at the bottom.

The thickener is constructed with mild steel consists of a cylindrical tank, 15m dia. and side wall depth 3m (make - Outotec, model – High rate thickener). Process water is fed into the center via a feed-well placed up to 1 m below the surface, in order to cause as little disturbance as possible. The processed water enters via a hollow drive shaft where flocculant is added and is rapidly dispersed by staged mechanical mixing. This staged mixing action is said to improve thickening since it makes

most effective use of the flocculant. The clarified liquid overflows a peripheral launder, while the solids which settle over the entire bottom of the tank are withdrawn as a thickened slurry from an outlet at the centre. Within the tank are rotating radial arms, from each of which are suspended a series of blades, shaped so as to rake the settled solids towards the central outlet. These arms rise automatically if the torque exceeds a certain value, thus preventing damage due to overloading.

Underflow pumps are variable speed slurry pumps and are suited to the handling of thick viscous fluids and driven by VVVFD electric motor. Variable speed pumps are connected to nucleonic density gauges on the thickener underflow lines, which control the rate of pumping to maintain a constant underflow density. The thickened underflow is pumped to mined out lands for backfilling and afforestation.

Thickener Mechanism and System:

Outotec Thickener is equipped with planetary gear reducers for their thickener drive. Planetary reducers are very efficient and have excellent torque and load capability with their compact size. The planetary gearbox consists of number of stages, each with a fixed ratio. By mounting these stages vertically, a low torque - high speed input, such as hydraulic motor, is converted into a high torque low speed output for driving the rake mechanism.

The rake design consists of two long arm and two short arms; connected with tie rods to distribute any unbalanced torque loads that may occur. This is coupled with hydraulic drive system eliminates the chance of rake failure.

The hydraulic power pack is mounted on the bridge alongside the drive. The control panel is typically mounted above the power pack. The use of a hydraulic rake drive offers many benefits over other drive configurations, including:

Reversibility - The hydraulic motor can receive hydraulic fluid in bi-directional flow from the directional valve and solenoid. This allows for reverse rake rotation a useful operating and maintenance features.

Minimisation of Shock loads - the hydraulic drive allows a soft start and thus reduces the wear on the gears, splines and the mechanisms. Hydraulic oil pressure from a single circuit provides an accurate means by which to monitor rake torque, through use of a 4-20mA pressure transmitter. This applies to both single planetary and multi pinion drives.

Rake lift of the drive base and rake mechanism is via 2 hydraulic cylinders. These are powered by a dedicated pump on the bridge mounted hydraulic power pack. Lift travel shall be 200mm with rise and lower speed control. The rake lift system is protected through electric and mechanical stops in

addition to pressure relieve valve. Hydraulic cylinders are fitted with over center valves for hydraulic locking in case of hose failure.

The Automatic Flocculant dosing system consists of a preparation tank and dosing tank equipped with level detectors, transfer pump, flocculant dosing pump, and solenoid valves for automatic control of the dosing system. The dry flocculant is fed to the preparation tank through a screw feeder. The flocculent prepared in the prepared in the preparation tank is further diluted to the desired level through online dilution system.

In addition to the proposed system for water recovery, all efforts will be taken to continuously increase the water recovery through the thickener and also by installing other suitable water recovery mechanism like multi grade filter, clarifier etc so that wastewater generation and corresponding freshwater requirements from the river can be gradually brought down.

10.2.3 SOLID WASTE GENERATION & DISPOSAL: [STANDARD TOR # 5]

The following will be solid waste generation & disposal.

TABLE NO. 10.2.5: SOLID WASTE GENERATION AND ITS DISPOSAL

SOLID WASTE	QUANTITY (TPA)	METHOD OF DISPOSAL
Fine/non-saleable mineral grades and silica sand	96,000	It will be used for backfilling earlier mined out pits/ stored for future recovery of any useful minerals

Hazardous waste:

The following is the Hazardous waste generation from the plant.

TABLE NO. 10.2.6: HAZARDOUS WASTE GENERATION AND ITS UTILISATION

HAZARDOUS WASTE	QUANTITY (KLPA)	METHOD OF STORAGE & DISPOSAL
Used lubricant oil from transformers, Genset, forklifts, loading equipment etc.	1.2	it will be stored in covered HDPE drums in a designated area and will be given to APPCB Authorised Recyclers/Reprocessors.

MONAZITE RICH TAILING DISPOSAL:

Based on the content of monazite mineral in the feed, monazite gets enhanced in the tailings due to recovery of all other minerals from the concentrate material. Such tailings, if any will be disposed as per the directions/license of the Atomic Energy Regulatory Board (AERB).

10.2.4 NOISE LEVEL MANAGEMENT:

The major noise generating sources in the proposed project will be Motors and Vehicular moments. All machinery will be manufactured as per MoEF&CC guidelines. The major noise levels will be confined to the working zones of the plant. The Leq of eight hours will be within the prescribed standards. Community noise levels are not likely to be effected due to the proposed thick green belt and attenuation due to the physical barriers. The ambient noise levels will be less than 75 dBA during day time & less than 70 dBA during night time. Wherever operational noise level is more than the permissible level, suitable ear plug will be provided.

10.2.5 LAND ENVIRONMENT:

To control the fugitive emissions, dust extraction system and dust suppression system are installed at all the possible dust emanating areas.

The wastewater generated from process will be treated in a thickener and the underflow will be sent to old mined out pits for decantation and clear water will be utilized for greenbelt development in old mining areas. A closed-loop water system will be maintained. No effluent will be let out of the plant premises. Zero Liquid Discharge will be adopted.

Solid waste generated from this unit will be utilized/ disposed as per the norms. Hence there will not be any adverse impact on land environment due to the proposed project.

The land use pattern of the study area will certainly improve due to the proposed activity. Land price in the area will increase and will benefit the local people. This industry may attract some ancillary works also which will also help in improving the land use pattern of the area.

Greenbelt is considered essential for maintaining the stability of the environment of the area.

10.2.6 GREEN BELT DEVELOPMENT: [STANDARD TOR # 39]

Out of a total of 66.46 Acres of land, 36.68 acres i.e. 55% of the land is already developed with greenbelt, against the minimum requirement of 33%.

10.2.7 RAINWATER HARVESTING: [STANDARD TOR # 36]

Rain water harvesting structures was already constructed to harvest the run-off water from roof tops by laying a separate storm water drainage system for recharging of ground water. The harvested water will be reused to reduce the net water requirement of the plant. Rain water harvesting and groundwater recharge structures also will be constructed outside the plant premises in consultation with local Gram Panchayat and Village Heads to augment the ground water level.

10.2.8 POST PROJECT MONITORING STRATEGY:

The monitoring of various environmental parameters is necessary which is part of the environmental protection measures. Monitoring is an important feature because the efficiency of control measures can only be determined by monitoring. A comprehensive monitoring programme is given here under. $PM_{2.5}$, PM_{10}, SO_2, NO_X & CO are monitored as per Ministry notification vide G.S.R. No. 826(E) dated 16th November, 2009.

Locations and frequency of monitoring as per the guidelines of APPCB and MOEF&CC are tabulated below.

TABLE NO.10.2.7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

S.NO.	PARTICULARS	FREQUENCY OF MONITORING	DURATION OF SAMPLING	PARAMETERS REQUIRED TO BE MONITORED
1.	**Water & Waste water quality**			
A.	Water quality in the area (Ground)	Once in a month	Composite sampling (24 hourly)	As per IS: 10500
2.	**Air Quality**			
A.	Stack Monitoring	CEMS Once in a month	Continuous	PM_{10} SO_2 & NO_x
B.	Ambient Air quality	CAAQMS Once in a month	Continuous 24 hours continuously	$PM_{2.5}$, PM_{10} $PM_{2.5}$, PM_{10}, SO_2, NO_x & CO
C.	Fugitive emission monitoring	Quarterly once	--	Particulate matter
3.	**Meteorological Data**			
	Meteorological data to be monitored at the plant.	Daily	Continuous monitoring	Temperature, Relative Humidity, rainfall, wind direction & wind speed.
4.	**Noise Levels**			
	Ambient Noise levels	Once in a month (hourly)	Continuous for 24 hours with 1 hour interval	Noise levels

Infrastructure for Environmental Protection:

Man Power:

The project authorities will hire the services of external laboratory for carrying out periodical environmental monitoring during operation of the plant.

Environmental Engineer / Safety Officer:

He will be a graduate engineer with adequate experience, responsible for implementing and monitoring the environmental impacts and all the safety aspects. He will act as a liaison officer between the proposed plant and regulatory agencies like SPCB, CPCB etc.

Monitoring system:

Environmental monitoring during the operation phase of the plant will be entrusted to a third party which will cover Ambient air quality monitoring, stack monitoring, water quality, Noise levels, etc. Monitoring will be carried out as per CPCB / SPCB norms. A budgetary allocation of Rs. 7.0 Lakhs will be earmarked for Environmental monitoring.

10.3 COST FOR ENVIRONMENTAL PROTECTION: [STANDARD TOR # 47]

From the total project cost, amount invested for the environmental management plan (EMP) is as below:

TABLE NO.10.3.1: EMP COST BREAKUP

S.NO.	UNIT	CAPITAL PROJECT COST (RS.) (ALREADY INVESTED)	RECCURING COST EXPENSE (RS.)
1.	Thickener	50,00,000.00	60,00,000.00
2.	Bag Filters	30,00,000.00	60,00,000.00
3.	Green Belt development	18,00,000.00	2,50,000.00
4.	Chimneys	55,00,000.00	10,00,000.00
5.	Dust extraction system	15,00,000.00	6,00,00.00
6.	Dust suppression system	--	6,00,000.00
7.	Miscellaneous works	8,00,000	2,00,000.00
Total		**1,76,00,000.00**	**1,41,10,000.00**

10.4 ENVIRONMENT POLICY: [STANDARD TOR #14]

The management will periodically review the Environmental Management System (EMS) to ensure its effectiveness and sustainability. The need for possible changes in the environmental policy and objectives for continual improvement will be ascertained and revisions will be made accordingly.

ENVIRONMENT POLICY:

Trimex Sands Private Limited (TSPL) believes in green business and so, focuses attention on clean and green technology in all its operations to protect the environment.

We are committed to,

- Comply with all statutory requirements concerning environmental management at all times, at all locations, and at all stages of procurement, operations and closure.
- Do periodical monitoring of all environmental parameters including air, water, noise and emissions by authorized agency.
- Implement environment friendly mineral processing with right mitigation of pollution and preservation of Biodiversity.
- Ensure sustainable development by maximizing recycle and reducing wastage.
- Ensure green belt development in and around the plant area.
- Create awareness amongst employees, contractors and stakeholders on health and environmental protection practices through pro-active communication and training.

This policy is available to the public.

A Copy of the signed Environment Policy by the company is shown below:

TRIMEX

CORPORATE ENVIRONMENTAL POLICY

The **"Trimex Sands Private Limited"** is committed for its contribution to the upliftment of the Society, is forever committed to protect and save the Environment, keeping in mind the Sustainable Development.

Resolution: **Trimex Sands Private Limited** on **28th April 2022**, the Management has taken a decision on Environment Policy, that it is committed to operate the Plant at Survey Nos. 78, 79, 80, 84, 176 to 183 & 193 Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh with the following objectives.

Quality Policy

- Delivering the required products at the right place at the right time at the right cost from our Plant form the very backbone of our Principles of Manufacturing.
- We view improvement as a continuous process. We are constantly aspiring to achieve betterment of our core processes, be it manufacturing, quality control, sales or delivery. There is a joint effort to achieve Manufacturing Excellence.
- Strict monitoring and compliance of the conditions stipulated in Environmental clearance & Environment Protection Act & Rules
- Strict monitoring and compliance of the conditions stipulated in Consent for Establishment issued by State Pollution Control Board (SPCB).
- Ensuring implementation and regular operation of air emission control measures.
- Periodical monitoring of all environmental parameters such as Ambient air quality, water quality, noise levels, soil quality, etc. and submission of the same to statutory authorities periodically.
- Maintaining good housekeeping practices.
- The compliance of the EC conditions / SPCB norms will be reported to the Board of Directors every Six (6) months.
- Appropriate corrective measures will be taken along with sanction of the budget.

Corporate Environment Responsibility Policy

As a Corporate Organization we believe that it is our primary purpose to give back to society. Giving and sharing what we have received is embedded deeply in us. We will actively pursue to raise the quality of life of the people around us. We hold hands in our joint effort to create better tomorrows.

Trimex Sands Pvt Ltd: Vatchavalasa (V), Gara Mandal, Srikakulam District - 532 404, Andhra Pradesh, India.
Tel: +91 8942 283755, Fax: +91 8942 283758, E-mail: info@trimexsands.com, URL:www.trimexsands.com
CIN : U14299TN2004PTC071437

Occupational Health & Safety Policy

We follow the occupational health and safety policy as below

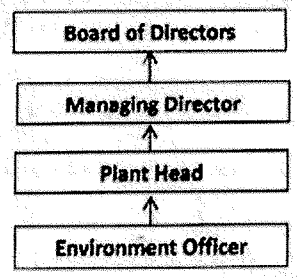
- Create an environment which is safe and secure for everyone in its vicinity, be it a worker, contractor, visitor and even the local community. All identifiable risks and hazards are treated with the gravest concern.
- To constantly endeavour towards the highest level of health and safety such that injuries, waste and emissions are reduced to the bare minimum.
- Train all employees to work safely and responsibly thus preventing injury to themselves and others.
- Ensure that optimum conditions exist for the proper execution of all the stipulated health and safety norms.

Hierarchy to implement Environment Policy

An Environmental Officer will be appointed to look after all environmental issues and ensure compliance with Environmental Clearance conditions / SPCB norms and will report to Unit Head who ultimately will report to Managing Director and the Board of Directors. Subsequently it will be discussed in the Board meeting and it will be made aware of the Environmental Policy and compliance on Environmental Clearance / SPCB norms to all. Any non-compliance / deviations will be brought to the notice of the Managing Director & Board of Directors.

Review of compliance on Environmental Clearance / SPCB norms at Six-monthly frequency.

The following will be the organisation chart pertaining to Environment Policy.



Place: Vatsavalasa
Date: 28.04.2022

For: Trimex Sands Private Limited

Sri. V H Rafi Ahammed
Sr Vice President (Operations) & Plant Head
Vatsavalasa Village, Srikurmam P.O,
Gara Mandal, Srikakulam District – 532404

CHAPTER – 11

SUMMARY & CONCLUSION

11.1 INTRODUCTION:

A mining lease for beach sand minerals over an extent of 720 Ha in Vatsavalasa & Tonangi villages of Gara Mandal, Srikakulam has been granted to Trimex Sands Private Limited (TSPL) vide GO MS No.31 dated 07.02.2004. After obtaining all approvals including Environmental Clearance (EC) from MOEF, Consent For Establishment (CFE) from APPCB, Consent For Operation (CFO) from APPCB, CRZ Clearance etc., and completion of Plant constructions, the project started commercial operations in the year 2009-10 with an approved capacity of 2.0 MTPA of RoM production. The project involves mining, wet Pre-Concentration Plants (PCP) and Mineral Separation Plant (MSP) to produce Ilmenite, Garnet, Rutile, Zircon and Sillimanite. A part of the sillimanite/zircon produced was also pulverized in a ball mill facility installed in the mineral separation plant. The Mining and PCPs are established within the mining lease area, whereas the MSP has been established outside the mining lease area.

Subsequently expansion has been proposed and all new approvals like EC, CFE, CFO, CRZ etc have been obtained in the year 2015 for the expansion capacity from 2.0 MTPA 6.0 MTPA of RoM production with 0.93 MTPA of minerals production. The mining lease extent remained at 720 Ha and the MSP extent at 59.27 Ha.

The State Govt suspended the mining operation in Sept 2018 and determined the lease on 28.11.2018 citing a report of the State Vigilance & Enforcement dept alleging mining operations in a part of the mining lease area without obtaining revenue clearance. The company filed a WP against the State Govt order, resulting in the submission of a revised report by the Vigilance & Enforcement dept setting aside all the recommendations contained in the earlier report. Also obtained a stay from the Hon'ble High Court on the determination of the mining operations by the State Govt.

In the meantime, the Central Government vide Notification No. GSR 134(E) dated 20.02.2019 has barred mining of beach sand minerals by private companies. Because of the said notification, all the mining activities of the project proponent including downstream PCPs and MSP activities are

remain suspended as of date. Thereafter, respective authorities revoked the EC, CFE and CFO of the integrated project citing a prohibition on the mining operations.

Further to the stoppage of the mining operations, the project proponent has applied the APPCB for the issue of CFE to operate the MSP & Ball Mill, since these facilities are situated outside the mining lease area. However, the APPCB advised the PP to obtain NOC from the MoEF& CC as earlier granted EC for the integrated mining project was revoked. The PP approached the MoEF& CC and requested for NOC to operate the MSP & Ball Mill. The matter was referred to the EAC (Non-Coal) and the committee considered the proposal in their meeting dated 1st July 2021. However, the Committee returned the proposal stating that the EAC-Non-Coal Committee cannot appraise the proposal since the instant proposal for operating the MSP & Ball Mill is covered under Category 2(b) of the EIA notification, 2006 (mineral beneficiation), which is standalone and outside the mine lease area; the EC granted for the integrated mining project was revoked and the Ministry of Mines has advised to not grant clearances for mineral concessions of beach sand minerals held by private companies.

11.2. PRESENT PROPOSAL:

Now it has been proposed to utilize the above-mentioned existing Mineral Separation Plant (MSP) as a standalone unit to separate individual minerals viz. Ilmenite, Garnet, Sillimanite, Rutile and Zircon, from 0.44 MTPA of mineral concentrate throughput sourced from suppliers/mining firms in India and abroad including IREL (India) Ltd and Andhra Pradesh Mineral Development Corporation (APMDC). Part of the sillimanite and zircon minerals produced/sourced minerals will be pulverized in a ball mill installed in the MSP premise. The flotation circuit to separate the Sillimanite minerals presently available at the PCP also will be dismantled and re-erected at the MSP. However, no mining or operation of PCPs, which were working earlier, will be operated under the proposal submitted now.

In the earlier EC, approval was accorded to produce 0.93 MTPA of mineral production from MSP and the land extent was 59.27 Ha. The CFO was also obtained for 0.93 MPTA, comprising 0.80 MTPA of mineral production + 0.13 MTPA of mineral-rich tailings. However, due to an unexpected decrease in the mineral content in the RoM and lack of demand for fine size Garnet and Sillimanite, the MSP production was less than 50% of the approved capacity. Now, 0.344 MTPA of mineral production is planned from 0.44 MTPA of throughput (feed) capacity, for which MSP is already established and was in operation till Sept month of the year 2018. Further, 26.17 Ha of

land from the earlier approved 59.27 Ha will be utilized for the current proposal and no additional land will be taken up for the operation of MSP. No additional cost will be required, as the plant is already established.

The water requirement for the MSP for 0.44 MTPA of throughput capacity is 760 KLD and will be sourced from the Vansadhara river. Permission to draw 0.14 TMC of water per annum from Vamsadara River has been granted vide GO MS. 103 dated 24.09.2015 and is valid till 15.06.2024. The power required for the plant is 4.40 MW. Power required for the plant will be sourced from the State Grid, for which approval is already existing. Further, a company-established 1.05 MW solar power plant is already existing in the project area.

As per the Ministry of Environment & Forests, New Delhi EIA notification, dated 14th September, 2006 and its subsequent amendments, ore Beneficiation plant less than 0.5 MILLION TPA are classified under Category 'B'.

In order to obtain Environmental Clearance for the proposed project, Form - I, proposed TOR along with Pre-Feasibility Report were submitted to the Honourable State Environmental Impact Assessment Authority (SEIAA), Andhra Pradesh vide online proposal No. SIA/AP/IND/69360/2021 dated 22/11/2021. Presentation was made before the Hon'ble State Expert Appraisal Committee on 14/02/2022 for the approval of TOR (Terms of Reference) for EIA study. Subsequently the TOR has been accorded by Honourable SEIAA, Andhra Pradesh vide Lr. No. SEIAA/AP/SKLM/IND/11/2021/3654-1128 dated 12/04/2022 with exemption of public hearing for the proposed project. Final EIA report has been prepared incorporating the Terms of Reference issued by the SEIAA, Andhra Pradesh.

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India for conducting EIA studies for Metallurgical Industries, have prepared Environmental Impact Assessment (EIA) report for the proposed project.

11.3 DETAILS ABOUT THE PROJECT:

The following are the project details:

1.	Location of the plant	:	Sy. Nos. 78, 79, 80, 84, 176 to 183 & 193 of Vatsavalasa & Tonangi Villages of Gara Mandal, Srikakulam, Andhra Pradesh.

2.	Proposed plant	:	Beach sand Mineral beneficiation (0.44 MTPA through put)
3.	Total land allocated for Beneficiation plant	:	A Mineral Beneficiation plant has been established after obtaining EC, CFE & CFO for the integrated beach sand mining involving 720 Ha & Mineral Beneficiation Plant in 59.72 Ha of land (Outside the ML area)
4.	Cost for plant	:	Rs. 269,90,94,743/-
5.	Source of water	:	The Source of water is from the Vamsadara river, for which approval has already been accorded to draw up to 0.14 TMC (10860 KLD) of water. Infiltration galleries are established in the riverbed to draw the water
6.	Water requirement	:	805 KLD
7.	Wastewater generation	:	The wastewater generation from the mineral process plant will be process waste water (400 KLD) and Sanitary waste water (16 KLD).
8.	Air Emission Control equipment's	:	Stack
9.	Wastewater management	:	The wastewater generated from process will be treated in a thickener and the underflow will be utilized for greenbelt development in MSP & old mining areas. A closed-loop water system will be maintained. No effluent will be let out of the plant premises. Zero Liquid Discharge will be adopted. Sanitary waste water generated will be treated in STP and after ensuring compliance with the stipulated norms, the treated sewage will be utilized for greenbelt development. Zero liquid effluent discharge will be maintained.
10.	Solid waste disposal	:	Fine/non-saleable mineral grades and silica sand(96,000 TPA) - It will be stored for future recovery of any useful minerals/used for backfilling earlier mined out pits
11.	Green belt development	:	Out of a total of 66.46 Acres of land, 36.68 acres i.e. 55% of the land is already developed with greenbelt.

11.3 CONCLUSION:

Management of Trimex Sands Private Limited will support local areas that will be benefited by way of generation of employment opportunities, increased demand for local products and services. There will be an overall improvement in the income level of the local people.

The plant will provide direct employment to about 50 persons and contract employment to about 300 persons, which will be as officials, staff, skilled, semi-skilled labour, security, transport staff etc. In addition, there will be overall socio-economic development of the area due to direct & indirect employment generation and CSR activities undertaken by the project proponent. Further, ancillary industrial and other units are expected in the locality. Also, additional revenue to the Govt is expected in the form of GST, Income tax etc.

CHAPTER – 12
DISCLOSURE OF CONSULTANT ENGAGED

12.1 DISCLOSURE OF CONSULTANT ENGAGED:

PIONEER ENVIRO LABORATORIES & CONSULTANTS PVT. LTD. is QCI-NABET accredited EIA Consultant, vide certificate No. NABET/EIA/1922/SA 0148(Rev.01). It is one of the leading Environmental Consultancy organizations in South India and Chhattisgarh. Established in 1996 PIONEER ENVIRO has an excellent track record of serving several well-established Group companies across the Country.

PIONEER ENVIRO is a team of professionals in various disciplines such as Environmental Engineering & Environmental Management. The team is slated to double in next two years.
Our goals are to provide all of our clients with quality services at a fair, competitive price. By offering a turnkey service (excepting some specific areas), we can maximize the efficiency of data collection so that our clients pay one time for similar services. The technologies deployed at PIONEER ENVIRO are current and leading edge, duly validated.

PIONEER ENVIRO has an exceptional team of Environment professionals. PIONEER ENVIRO has the expertise to assess the impact of various industrial activities such Coal Washery, Power Plants, Steel Plants, Distilleries, Cement Plants etc., on the environment. These assessments will help the industry to install the best Environmental Management Systems and to maintain the plant in accordance with the norms stipulated for ISO-14001 & ISO-18000. PIONEER ENVIRO services range from site assessments, environmental audits, environmental impact statements and risk assessments to waste management.
A copy of certificate issued by NABET is shown below.

QUALITY COUNCIL® OF INDIA
Creating an Ecosystem for Quality

National Accreditation Board for Education and Training

Certificate of Accreditation

Pioneer Enviro Laboratories and Consultants Private Limited

2nd Floor, A-Z Elite, Plot No. 197, Kavuri Hills, Guttala Begumpet Village, Madhapur, Hyderabad-500081

*The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals - Opencast mining only	1	1 (a) (i)	A
2	River Valley projects	3	1 (c)	A
3	Thermal power plants	4	1 (d)	A
4	Coal Washeries	6	2 (a)	A
5	Mineral beneficiation	7	2 (b)	B
6	Metallurgical industries (ferrous & non-ferrous)	8	3 (a)	A
7	Cement plants	9	3 (b)	A
8	Asbestos milling and asbestos based products	12	4 (c)	A
9	Distilleries	22	5 (g)	A
10	Sugar Industry	25	5 (j)	B
11	Building and construction projects	38	8 (a)	B
12	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated Sep. 17, 2021 and supplementary minutes dated Mar. 29, 2022 posted on QCI-NABET website

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/22/2227 dated Feb. 01, 2022. The accreditation needs to be renewed before the expiry date by Pioneer Enviro Laboratories and Consultants Private Limited, Hyderabad following due process of assessment.

Sr. Director, NABET	Certificate No.	Valid up to
Dated: Apr. 16, 2022	NABET/EIA/1922/SA 0148(Rev.01)	Sep. 21, 2022

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

Following are some of the services which are PIONEER ENVIRO core competency:

- Helping the client to select the suitable site as per the norms of Ministry of Environment and Forest, Govt. of India and State Pollution Control Boards in India.
- Environmental Impact assessment studies carried out as per the guidelines issued by Ministry of Environment and Forest, Govt. of India and State Pollution Control Boards in India.
- Environment Audits.
- Risk Assessment and Disaster Management Studies.
- Occupational health & industrial hygiene.
- Solid waste management.
- Environmental baseline studies covering the fields of ambient Air, Surface water, Ground water, Soil, Noise and Biological Environment (Flora & Fauna).
- Stack Emission Monitoring, Effluent Analysis, Ground water analysis.
- Design of Effluent Treatment Plant
- Design of Sewage Treatment Plant

ANNEXURES

ANNEXURE -1

TRIMEX SANDS PRIVATE LIMITED
DETAILS OF THE EQUIPMENT

MAG CON- 1 CIRCUIT		
S.NO.	Equipment Description	Capacity in KW
1	Fluidized Bed Drier (65 TPH)	
	a) FD Fan motor	160
	b) PA Fan motor	37
	c) ID Fan motor -1	132
	d) ID Fan motor -2	132
	d) Bag filter RAV motors	6* 0.37
2	Bucket Elevators	
	a) Bucket Elevator -1	22
	b) Bucket Elevator-2	22
	c) Bucket Elevator-3	22
	d) Bucket Elevator- 4	22
	e) Bucket Elevator -5	7.5
	f) Bucket Elevator- 6	5.5
3	Belt Conveyors	
	a) Belt Conveyor-1	30
	b) Belt conveyor -2	7.5
	c) Belt Conveyor-3	1.5
	d) Belt Conveyor-4	1.5
	e) Belt Conveyor-5	2.2
	f) Belt Conveyor-6	2.2
	g) Belt Conveyor-7	2.2
4	IRZ Table feeder	15
5	Vibrating screen	2*5.5
6	FBD drier fuel pumps	
	a) Disesl pump-1	1.1
	b) Diesel pump-2	1.1
	c) HFO Pump-1	1.1
	d) HFO Pump-2	1.1
7	a) Rutile Elevator -1	5.5
	b) Rutile Elevator-2	3.7
	c) Rutile Elevator-3	3.7
	d) Rutile Elevator-4	3.7
	e) Rutile Elevator-5	3.7
	f) Rutile Elevator-6	3.7
	g) Rutile Elevator-7	3.7
	h) Rutile Elevator-8	3.7
	i) Rutile Elevator-9	3.7

	j) Rutile Elevator-10	3.7
8	a) Rutile Conveyor -1	1.5
	b) Rutile Conveyor-2	1.5
	c) Rutile Conveyor-3	1.5
	d) Rutile Conveyor -4	3.7
9	Product conveyor-1	11
10	Product conveyor-2	7.5
11	Screens	10
12	Rutile Reheaters	250
13	Rytile Reheater blowers	11
14	Mineral Separation Machines	
	a) High Tension Roll Separators -	27* 5
	b) Rare Earth Drum Magnetic Separators	10*5
	c) Rare Earth Magnetic Roll Separators	9 * 3.5
	d) Induced Roll Magnetic Separators	4 * 5
	e) Electro Static Plate Separators	11*5
	Total Connected Load	965

GARNET CIRCUIT

S.NO.	Equipment Description	Capacity in KW
1	Feed conveyor-1	7.5
2	Table feeder-1	11
3	Feed Conveyor-2	5.5
	Fluidized Bed Drier	
4	ID Fan-1	55
5	Combustion Blower	22
6	Atomizing blower	5.5
7	Fludizing Blower	75
8	Fuel Pumps	1.2*2
9	RAV	1.2*3
	Screw	2.1*3
10	Vibrating Screen	5*2
11	Elevator -1	7.5KW
12	Cooler	22KW
13	RED machines	3.84*3
14	Elevator-2	7.5KW
15	RED machines	3.84KW
16	Elevator-3	7.5KW
17	ESP	0.37*2*2
18	Feed Conveyor-3	1.5KW
19	Mogensenscreen	22KW
20	Feed conveyor-4	3.7KW

21	screen -2	1.5*2
22	Elevator-4	5.5KW
23	MGP-WF-01	1.5KW
24	Product Conveyor	3.7KW
	Total	295
NON MAG CON CIRCUIT		
Sillimanite		
S.NO.	Equipment Description	Capacity in KW
1	Vibrating screen 1	5
2	Vibrating Screen 2	5
3	Table feeder	7.5
4	Product Conveyor	5.5
5	Feed Conveyor-1	1.5
6	Feed conveyor-2	1.5
7	feed Conveyor-3	1.5
8	Elevator-1	7.5
9	Elevator-2	7.5
10	Elevator-3	7.5
Fluidized Bed drier		
11	FD fan	75
12	PA fan	22
13	SL-FA-03	3.7
14	SL cooler fan01	22
15	SL cooler fan02	22
16	SL RAV motors1	0.37
17	SL RAV motors2	0.37
18	SL automizing fan	5.5
19	SL-EXfan -01	55
20	SL-EXfan -02	55
21	SL-CO-03	22
22	SL-CO-04	22
23	SL RAV motor3	0.37
24	SL RAV motor4	0.37
25	SL-FSC-01	1.5
26	SL-FSC-02	1.5
27	SL-FSC-03	1.5
	Total	360.18
ZIRCON		
S.NO.	Equipment Description	Capacity in KW
1	Dry Zircon Elevator -1	3.7
2	Dry Zircon Elevator -2	3.7
3	Dry Zircon Elevator -3	3.7

4	Dry Zircon Elevator -4	3.7
5	Dry Zircon Elevator -5	3.7
6	Dry Zircon Elevator -6	3.7
7	Dry Zircon Conveyor-1	1.5
8	Dry Zircon Conveyor-2	1.5
9	Dry Zircon Conveyor-3	1.5
10	Dry Zircon Conveyor -4	1.5
11	DZ-CYRV-01	0.37
12	DZ-BF-RV-01	0.37
13	Reheater -1	60
14	Reheater -2	40
15	Reheater -3	40
16	Reheater -4	40
17	Vibrating Screen	5
18	Table feeder	2.2
19	Product Conveyor	3.7
	Zircon Fludized Bed drier	
20	Drier FD fan	15
21	Drier PA fan	7.5
22	DZ-RE-01 blower	7.5
23	DZ-RE-02 blower	3.7
24	DZ-RE-03 blower	3.7
	DZ - Belt Filter	
1	DZ-VACUME PUMP	11
2	DZ-FILTER PUMP	15
3	DZ-BELT FEEDER	0.25
4	DZ-SUMP PUMP	7.5
Wet section		
1	Wet Zircon wet Tables	19* 1.5
2	Wet Zircon Pump-1	11
3	Wet Zircon Pump-2	15
4	Wet Zircon Pump-3	7.5
5	Wet Zircon Pump-4	7.5
6	Wet Zircon Pump-5	7.5
7	Wet Zircon Pump-6	11
8	Wet Zircon Pump-7	11
9	Wet Zircon Pump-8	7.5
10	Wet Zircon Pump-9	22
11	Wet Zircon Pump-10	15
12	Wet Zircon Pump-11	15
13	Wet Zircon Pump-12	3.7
14	Wet Zircon Pump-13	7.5
15	Wet Zircon Pump-14	11
16	Wet Zircon Pump-15	15

17	Wet Zircon Pump-16	30
18	Wet Zircon Pump-17	15
19	Wet Zircon Pump-18	5.5
20	Wet Zircon Pump-19	30
21	Wet Zircon Pump-20	30
22	Wet Zircon Pump-21	30
23	Wet Zircon Elevator	7.5
24	Metso pump	11
25	Thickener rake	5.5
26	Slime PU-01	5.5
27	Slime PU-02	5.5
28	Dosing PU-01	0.75
29	Dosing Sol.trans.pu	1.5
30	Agitator	0.37
31	Agitator	0.37
	Total	345.69
ZIRCON AIR TABLES		
1	DZ-ELEVATOR-1	1.5
2	DZ-ELEVATOR-2	1.5
3	DZ-ELEVATOR-3	1.5
4	DZ-ELEVATOR-4	1.5
5	DZ-ELEVATOR-5	1.5
6	DZ-CV-1	1.5
7	DZ-CV-2	1.5
8	DZ-CV-3	1.5
9	DZ-CV-4	1.5
10	DZ - ELEVATOR-6	1.5
11	IRM Separation Machine	7
12	Air Table-1	5
13	Air Table-2	5
14	Air Table-3	5
15	Air Table-4	5
16	Air Table-5	5
17	Air Table-6	5
	Total	52
BALL MILL		
S.NO	Equipment Description	Capacity in KW
1	BALL MILL MOTOR	560
2	Elevator-1	5.5
3	Elevator-2	5.5
4	Elevator-3	5.5
5	ASB-1	3.7

6	ASB-2	2.2
7	ASB-3	3.7
8	ASB-4	5.5
9	ASB-5	2.2
10	CONVEYOR-1	2.2
11	CONVEYOR-2	0.75
12	RAV-1	0.75
13	RAV-2	1.5
14	RAV-3	1.5
15	RAV-4	0.37
16	LUB OIL PUMP(MDE-1)	0.37
17	LUB OIL PUMP(MDE-2)	0.37
18	LUB OIL PUMP(DE-1)	0.37
19	LUB OIL PUMP(DE-2)	2.2
20	GB OIL PU-1	1.5
21	GB OIL PU-2	2.2
22	COOLING TOWER PU-1	1.5
23	COOLING TOWER PU-2	2.2
24	COOLING TOWER PU-3	
25	COOLING TOWER FAN	45
26	MILL VENT FAN	55
27	SEPRA VENT FAN	7.5
28	AIR COMPRESSOR-1	7.5
29	AIR COMPRESSOR-2	7.5
30	AIR COMPRESSOR-3	7.5
31	AIR COMPRESSOR-1	7.5
32	AIR COMPRESSOR-2	7.5
33	AIR COMPRESSOR-3	11
34	DYNAMIC SEPARATOR	0.75
35	BLEEDAIR DAMPER	0.3
36	BAGGING VIBRATOR	0.3
37	BAGGING VIBRATOR	3
38	BAGING VIBRATOR-1	3
39	BAGING VIBRATOR-2	3
	TOTAL	777.93

COMMON UTILITIES

RAW WATER PUMPS

S.NO.	Equipment Description	Capacity in KW
1	Raw water pump-1	11
2	Raw water pump-2	15
3	Raw water pump-3	11
4	Raw water pump-4	15

5	Raw water pump-5	45
6	Cooling tower pump-1	11
7	Cooling tower pump -2	11
7	Cooling tower fan(NEW)	5.5
8	Cooling tower fan(OLD)	2.2
TOTAL		126.7
DIESEL PUMPS		
1	Diesel Pump-1	3.7
2	Diesl Pump -2	3.7
3	Furnace oil pump-1	3.7
4	Furnace oil pump-2	3.7
5	Diesel Pump -3	1.1
6	Diesel Pump-4	1.1
7	Furnace oil pump-3	1.1
8	HFO Centrifuge	15
9	Furnace oil pump-4	1.1
TOTAL		34.2
AIR COMPRESSORS		
1	Air compressor -1	132
2	Air compressor -2	132
3	Air compressor -3	132
4	Air compressor -4	75
5	Air compressor -5	75
6	Air compressor- 6	75
7	Air compressor -7	75
Total		696
FIRE HYDRAUNT SYSTEM		
1	Main Pump	30
2	Jockey Pump	15
3	Diesel Engine pump	30
Total		75
LIGHTING		
1	Plant Lighting load	100
2	AC's Load	125
3	Office Lighting	50
4	RO plant	5
5	Lab Equipment	75
Total		355
DEDUSTING SYSTEM		
1	Dedusting Fan-1	132
2	Dedusting Fan-2	110
3	RAV's- 6 no's	6*0.37
4	Screw conveyor -1	3.7
5	Screw conveyor -2	3.7
6	Common Exhaust fan	55

Total		304.4
CGW		
1	CONVEYOR-1	3.7
2	CONVEYOR-2	3.7
3	CONVEYOR-3	1.5
4	BELT FEEDER	3.7
5	CGW PU-1	22
6	CGW PU-2	2.2
7	CGW PU-3	7.5
8	CGW PU-4	7.5
9	CFS-PU-5	15
10	PU-6	30
11	PU-7	3.7
12	PU-8	15
13	VACUME PUMP	75
14	SCRUBBER	15
15	SCRUBBER PUMP-1	30
16	SCRUBBER PUMP-2	30
17	METSO PUMP	7.5
Total		273
MG Drier		
1	MG-CV-01	22
2	MG-TF-01	22
3	MG-CV-02	18.5
4	ID Fan-1	37
5	Combustion Blower	7.5
6	Atomizing blower	11
7	Fludizing Blower	11
8	Fuel Pumps	11
9	RAV	11
10	Screw	11
11	MG-CP-01	5.5
12	MG-VC-01	11
13	MG-EL-01	11
14	MG-HX-01	11
15	MG-RD-01/03	18.5
16	MG-EL-2	18.5
17	MG-RD-04	18.5
18	MG-EL-3	18.5
19	MG-EP-01/02	7.5
20	GA-CV-03	7.5
21	Mogensenscreen	15
22	GA-CV-04	15
23	MG-SC-02	7.5

24	MG-EL-04	45
25	MGP-WF-01	75
26	WIL-CV-07	75
Total		522
MGPW		
1	MGP-PU-01	15
2	MGP-PU-02	15
3	MGP-PU-03	15
4	MGP-PU-04	18.5
6	MGP-PU-05	30
7	MGP-PU-06	45
9	MGP-PU-07A	15
10	MGP-PU-07B	18.5
11	MGP-PU-08	45
12	MGP-PU-09 (Motor & VFD)	45
13	Filter drive motor	5.5
14	Filtrate pump	11
15	vac pump	55
16	MGP-AT-01	30
17	MGP-AT-02	30
18	MGP-AT-03	18.5
19	MGP-AT-04	22
20	MGP-CV-01	5.5
21	MGP-TF-01	5.5
22	MGP-CV-02	5.5
23	Vacuum blower	7.5
24	Girth gear motor	11
25	Fuel pump motor	5.5
26	MGP-CV-03	5.5
27	MGP-El-01	7.5
28	MGP-SC-01	3.7
29	Cooler	22
30	ID fan	7.5
31	MGP-El-02	7.5
32	Air compressor	75
Total		603.2
WSP circuit		
1	SL-PU-01	22
2	SL-PU-02	22
3	SL-PU-03	18.5
4	SL-PU-04	37
5	SL-PU-05	7.5
6	SL-FR-1.1	11
7	SL-FR-1.2	11

8	SL-FR-1.3	11
9	SL-FR-1.4	11
10	SL-FR-1.5	11
11	SL- CV-04	5.5
12	SL-FA-04	11
13	SL-FA-05	11
14	SL-FE-02	11
15	SL-AGS-01	18.5
16	SL-AGS-02	18.5
17	SL-AGS-03	18.5
18	SL-AGS-04	18.5
19	SL-AG-01	7.5
20	SL-AG-02	7.5
21	SL-AG-03	15
22	SL-AG-04	15
23	SL-SC-02	7.5
24	WP-DG-01	45
25	Air Comp1	75
26	Air Comp2	75
Total		522

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ANNEXURE-2

GOVERNMENT OF ANDHRA PRADESH
ABSTRACT

Water Resources Department - Industrial Water Supply - SLSWCC - Renewal Permission to draw 0.14 TMC of water per annum from the Vamsadhara River in favour of M/s. Trimex Sands Pvt. Ltd., at Vatsavalalsa (V), Gara (M) of Srikakulam District for a further period of 10 years for consumptive use - Accorded - Orders - Issued.

WATER RESOURCES (REFORMS) DEPARTMENT

G.O.Ms.No.103. Dated:24-09-2015.

Read the following:-

1) G.O.Ms.No.71, I&CAD(PW:Reforms) Deptt., dt:21-01-2007.
2) From the E.N.C.(Irr.), Hyd., Lr.No.ENC(I)/DCE.DW/OT.5/AEE17/ Trimex Industries, dated:25-03-2015.

>><<

ORDER:

In the reference 1st read above, Government have accorded permission to M/s.TRIMEX Industries Limited to draw 0.14 TMC of water from the Vamsadhara River near Vatsavalasa(V), Srikakulam District for a period of five years subject to payment of water charges @ Rs..5.50/1000 gallons for consumptive use. However, agreement for water drawl was concluded by M/s. Trimex Sands Private Limited, Vatsavalasa (V), Gara(M) of Srikakulam District with Superintending Engineer, Irrigation Circle, Bobbili vide agreement No.28SE/2009-10, dated:16-6-2009 and expired on 15.06.2014.

2. In the reference 2nd read above, the Engineer-in-Chief(Irrigation), Hyderabad has submitted proposals for renewal permission to draw 0.14 TMC of water from Vamsadhara River for a further period of 10 years from 16.06.2014 to 15.06.2024 in favour of M/s.Trimex Sands Private Limited, Vatsavalasa (V), Gara(M) of Srikakulam District, taking into account on change of name as per G.O.Ms.No.10, Industries & Commerce(M-III) Department, dated:17-01-2007 and Registrar of Companies, A.P. Certificate, dated:11-4-2007.

3. Government after careful examination, hereby accord renewal permission for drawl of 0.14 TMC water in favour of M/s. Trimex Sands Private Limited, Vatsavalasa (V), Gara(M) of Srikakulam District from Vamsadhara River for a further period of 10 years from 16-06-2014 to 15-06-2024 for consumptive use with usual terms and conditions subject to payment of water charges @ Rs.5.50/1000 gallons as ordered in the reference 1st read above. The water royalty charges are likely to be revised by the Government from time to time and the industry shall pay the revised rates as fixed by the Government from time to time. The royalty charges on water shall be paid in advance every year.

4. The other conditions as stipulated in the G.O. 1st read above shall also be adhered to.

P.T.O.,

5. The Engineer-in-Chief(Irrigation), A.P., Hyderabad shall take necessary action in the matter, accordingly.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

ADITYA NATH DAS,
PRINCIPAL SECRETARY TO GOVERNMENT.

To
The Engineer-in-Chief(Irrigation), I&CAD Department,
Jalasouda Buildings, Errum Munzil, Hyderabad.
The Superintending Engineer, Irrigation Circle, Bobbili – 535 558.
The District Collector, Srikakulam.
Copy to:
The Managing Director, A.P. Pollution Control Board, Hyderabad.
The Commissioner of Industries, Govt. of A.P., Chirag Ali Lane, Hyd.
The P.S. to Hon'ble Minister (WRD).
The P.S. to Principal Secretary to Govt.(WRD).
M/s. Trimex Sands Private Limited, Plot No.56, Telugumusalayya Layout,
Srikakulam District - 532001.
SF/SC.

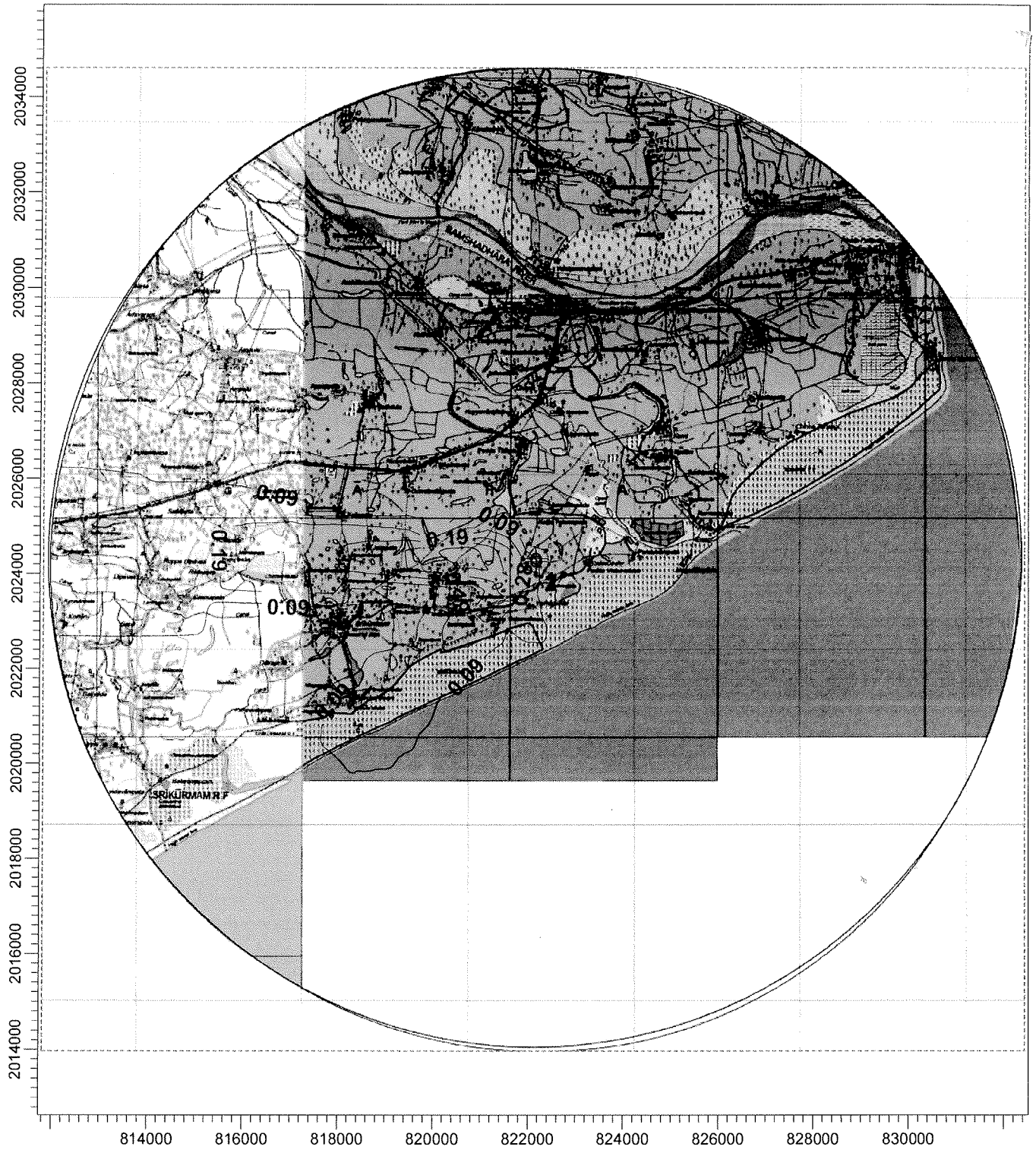
//FORWARDED :: BY ORDER//

I. Satyanarayana
SECTION OFFICER.

ANNEXURE -3

PROJECT TITLE:

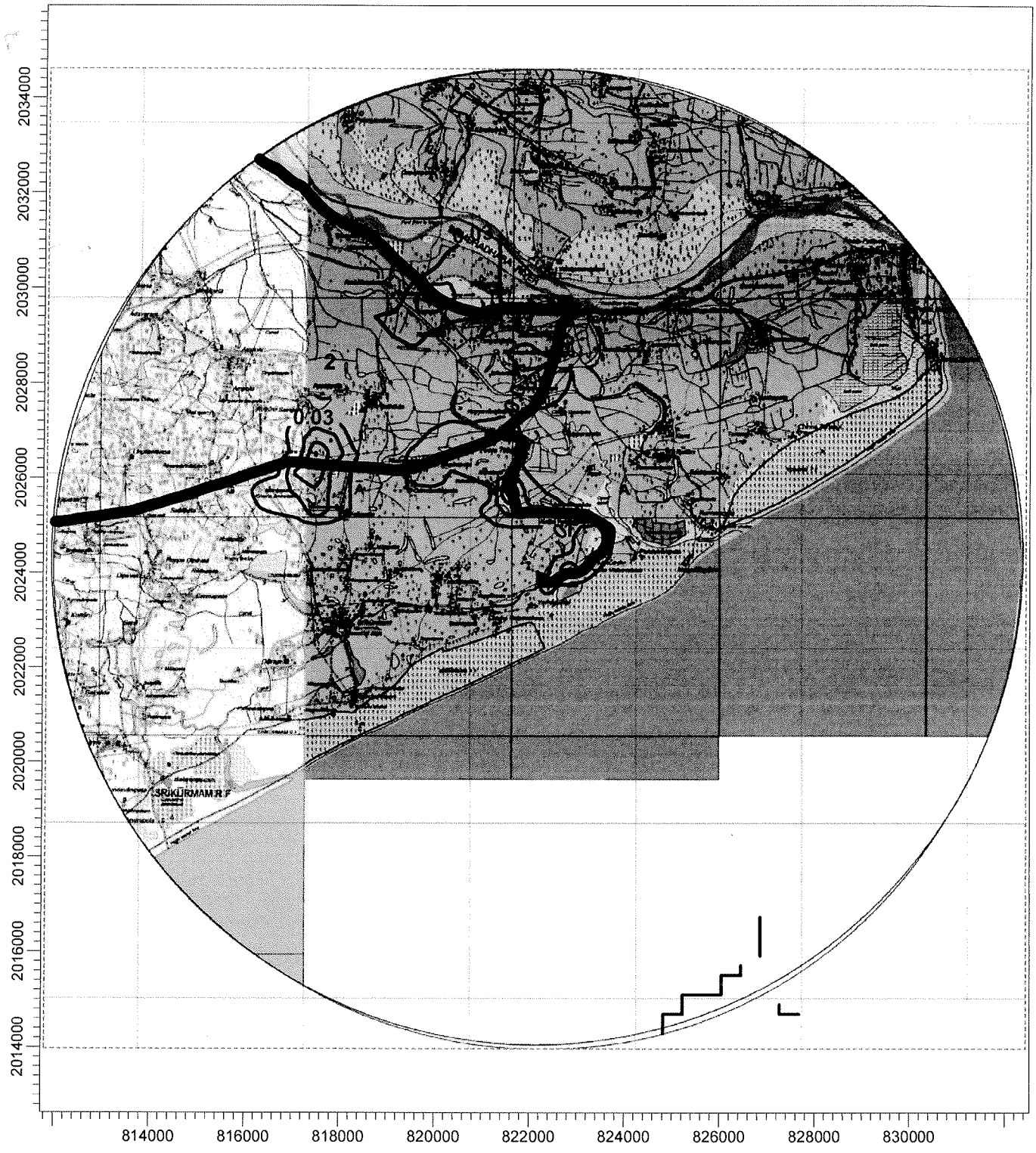
NET RESULTANT GLCs OF PM DUE TO THE PROJECT



	SOURCES **2**	**TRIMEX SANDS PRIVATE LIMITED**	
	RECEPTORS **1600**		
	Concentration	SCALE: 1:115,000 0 4 km	
	MAX: **0.83555 ug/m^3**		

PROJECT TITLE:

NET RESULTANT GLCs OF PM DUE TO THE VEHICLES



SOURCES **2**	**TRIMEX SANDS PRIVATE LIMITED**	
RECEPTORS **1600**		
Concentration	SCALE: 1:115,000 0 4 km	
MAX: **0.25403 ug/m^3**		

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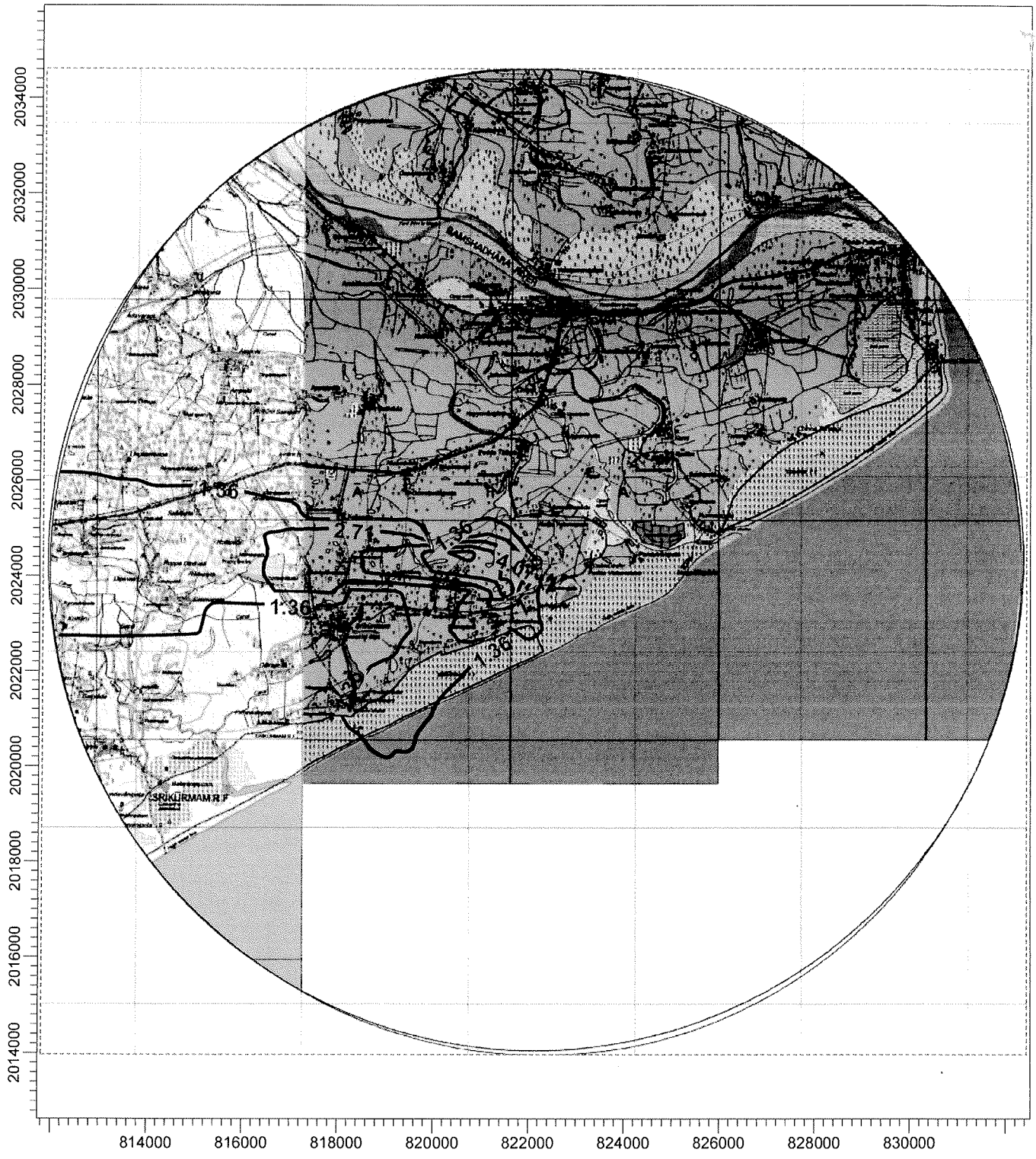
PROJECT TITLE:

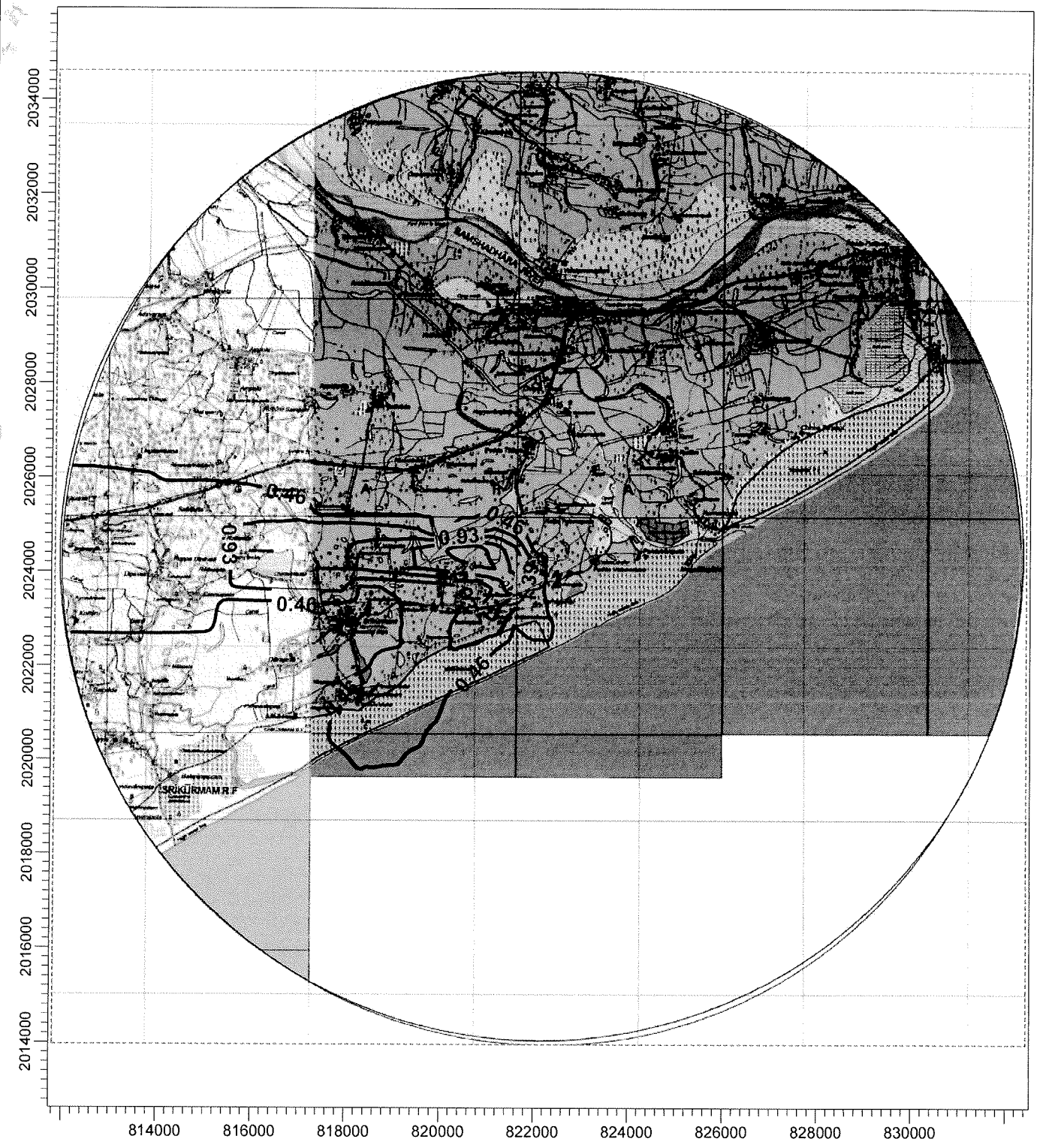
NET RESULTANT GLCs OF SO2 DUE TO THE PROJECT



	SOURCES **2**	**TRIMEX SANDS PRIVATE LIMITED**	
	RECEPTORS **1600**		
	Concentration	SCALE: 1:115,000 0 4 km	
	MAX: **12.19816 ug/m^3**		

PROJECT TITLE:

NET RESULTANT GLCs OF NOX DUE TO THE PROJECT



SOURCES **2**	**TRIMEX SANDS PRIVATE LIMITED**	
RECEPTORS **1600**		
Concentration	SCALE: 1:115,000 0 4 km	
MAX: **4.17776 ug/m^3**		

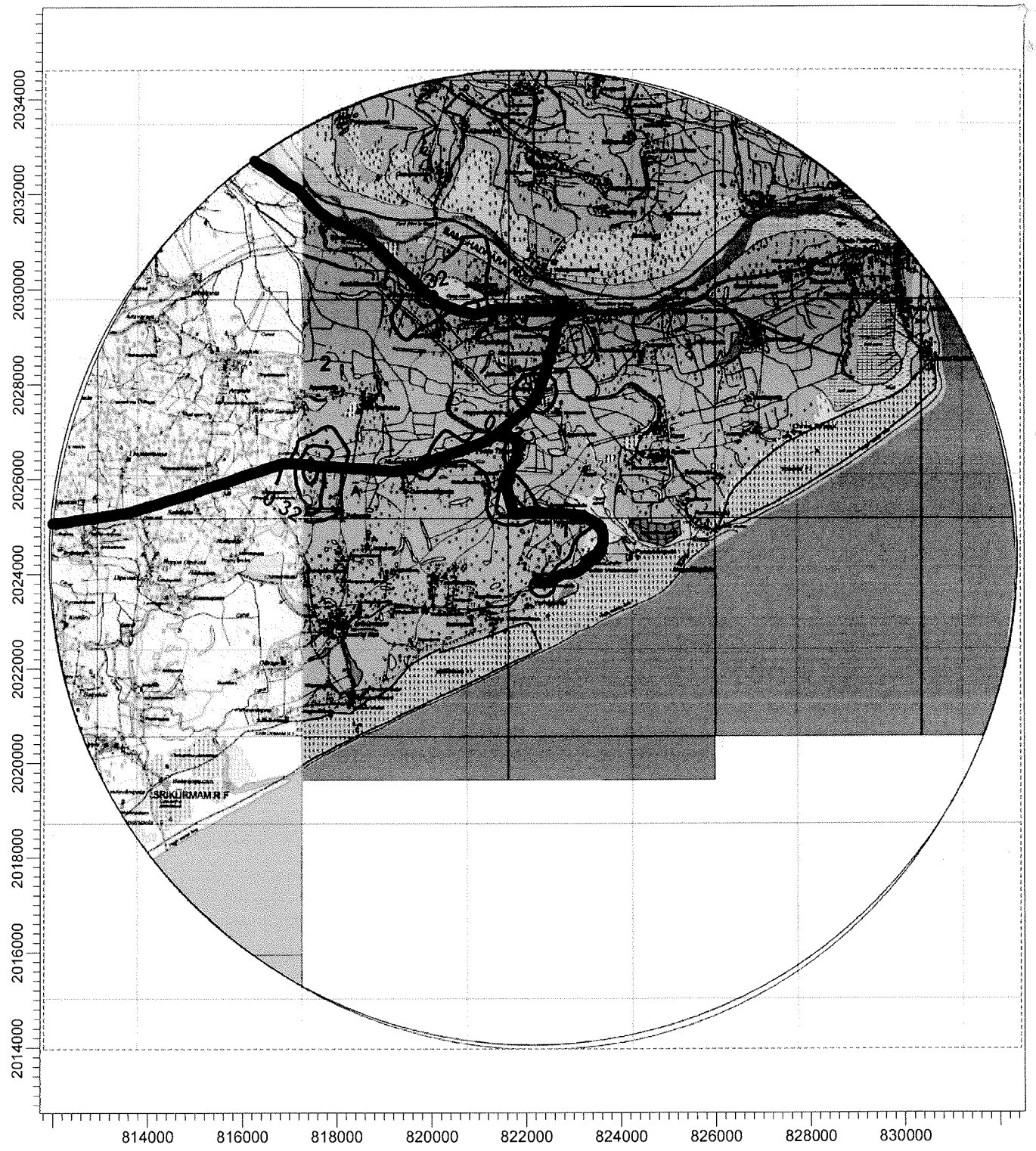
AERMOD View - Lakes Environmental Software

G:\Modelling Projects\TRIMEX SANDS\NOX\NOX.isc

328

PROJECT TITLE:

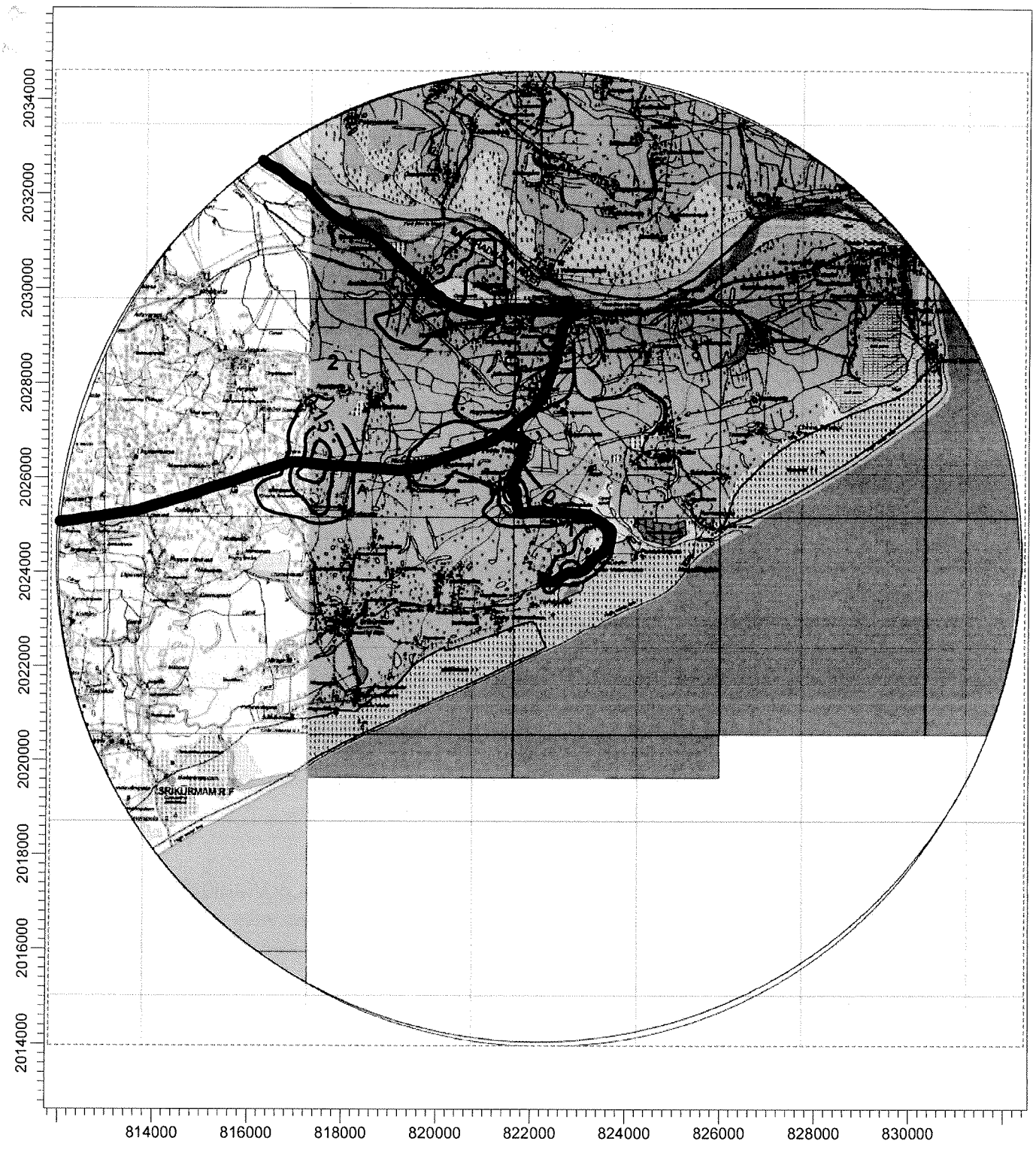
NET RESULTANT GLCs OF NOX DUE TO THE VEHICLES



SOURCES **2**	**TRIMEX SANDS PRIVATE LIMITED**	
RECEPTORS **1600**		
Concentration	SCALE: 1:115,000 0 4 km	
MAX: **2.88415 ug/m^3**		

PROJECT TITLE:

NET RESULTANT GLCs OF CO DUE TO THE VEHICLES



SOURCES **2**	**TRIMEX SANDS PRIVATE LIMITED**	
RECEPTORS **1600**		
Concentration	SCALE: 1:115,000 0 4 km	
MAX: **1.34023 ug/m^3**		

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ANNEXURE-4

GOVERNMENT OF ANDHRA PRADESH
FOREST DEPARTMENT

Rc.No: 22899/2013/WL-3
Dated: 11.11.2014.

Office of Prl.Chief Conservator of Forests,
Aranya Bhavan, Saifabad, Hyderabad.

Sri A.V.Joseph., I.F.S.,
Prl. Chief Conservator of Forests (HoFF)
Prl.Chief Conservator of Forests (WL) &
Chief Wildlife Warden (A.P.)

Sub: Forest Department – Wildlife – Expansion of Srikurmam Heavy mineral and sand Project of Trimex Sands Pvt Ltd., in Vatsavalasa and Tonangi Villages of Gara (M), Srikakulam District – Wildlife Conservation Plan – Agreed to – Regarding.

Ref: CF, Visakhapatnam Rc.No. 4475/2013/TO (1), dated: 30.10.2014

** ** **

Attention is invited to the reference cited. The Conservator of Forests, Vishakapatnam is informed that the revised Wildlife Conservation Plan submitted by the User Agency (Trimex Sands Pvt, Ltd.,), through the Conservator of Forests, Visakhapatnam, vide reference cited with regard to proposed Expansion of Srikurmam Heavy mineral and sand Project of Trimex Sands Pvt Ltd., in Vatsavalasa and Tonangi Villages of Gara (M), Srikakulam District over an area of 7.20 Sq.Kms for a period of 10 years with a proposed cost of Rs.180.40 lakhs is hereby agreed to.

The Conservator of Forests, Visakhapatnam is requested to take action accordingly and keep reporting the developments periodically.

Sd/- A.V.Joseph,
Prl.Chief Conservator of Forests (WL) &
Chief Wildlife Warden

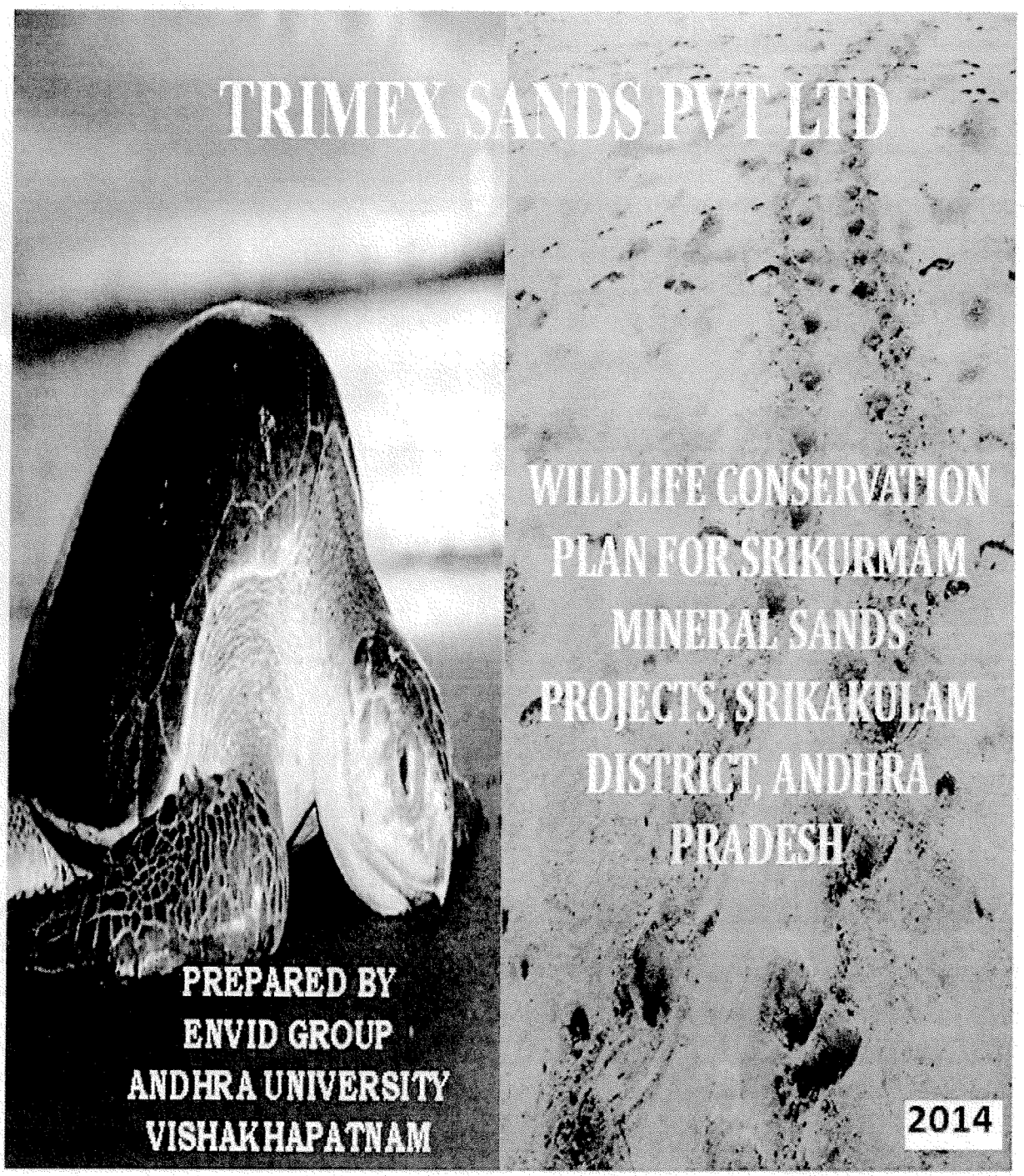
To
The Conservator of Forests,
Visakhapatnam

Copy to the Divisional Forest Officer, Srikakulam

Copy to the M/s Trimex Sands Pvt Ltd., Plot No. 56, Telugu Musalayaa Layout, Adithya Nagar, Arasavilli Road, Srikakulam – 532001Andhra Pradesh

// T.C.B.O.//

Sai Prasad
Superintendent
12/11/2014



For PCCF

10.11.2014

Sivala Rambabu, IFS.,
Attached to APCCF(WL)

12 NOV 2014

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For PCCF

10-11-2014

12 NOV 14

1. INTRODUCTION

Trimex Sands Pvt. Ltd (TSPL) is a part of the Trimex Group, which is a leading export house involved in mining, mineral processing and export of Iron Ore, Bauxite, Coal, Beach Sand Minerals and other industrial minerals.

Trimex Group has set up Mining and Mineral separation facilities based on the existing Srikurmam deposit in Srikakulam, Andhra Pradesh to produce heavy minerals i.e Ilmenite, Rutile, Zircon, Garnet and Sillimanite. Srikurmam mineral sand deposit lie on the Andhra Pradesh coastal line, east on Bay of Bengal and it is 15 Km away from Srikakulam, the District Head quarter in Andhra Pradesh.

The Mining lease has been granted over an extent of 7.20 Sq km (720 Ha) for mining of heavy mineral sand having Ilmenite, Garnet, Zircon, Rutile, Sillimanite etc in Vatsavalasa and Tonangi Villages, Gara Mandal, Srikakulam District, Andhra Pradesh, for a period of 30 years from 23.02.2004 to 22.02.2034.

1.1. ADDRESS OF THE APPLICANT:

M/S TRIMEX SANDS PRIVATE LTD	
Corporate Office: Trimex Towers No: 1, Subbaraya Avenue, C.P. Ramaswamy Road, Alwarpet CHENNAI – 600 018 Ph No: 044 – 24988813/22 Fax: 044 – 24986047	**Site Office:** Plot No 56, Telugu Musalayya Layout Adithya Nagar, Arasavilli Road, Srikakulam – 532 001 Andhra Pradesh

For PCCF
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Sivala Lambabu, FFS.I
Attached to APCCF (WL)

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1.2 SALIENT FEATURES OF THE PROJECT ACTIVITY:

Trimex Sands Pvt Ltd (TSPL) have prospected the area and obtained Mining Lease over an area of 720 ha and after obtaining Environmental Clearance from MoEF (letter no: J – 19011/11/2003-IA III dated 10.11.2004) and other statutory permissions and operating the mine since 2009 with an installed capacity of 2.0 MTPA. Presently, TSPL proposes to expand its mining of heavy mineral sand capacity from 2.0 MTPA to 6.0 Million tonnes per annum with Pre-Concentration Plant @ 850 TPH and Mineral Separation Plant/ Value addition Plants @ 145 TPH and the area shall be mined as per the approved mining plan. The salient features of the proposed mining project are summarily presented below:

Details of The Area	
District & State	Srikakulam, Andhra Pradesh
Mandal	Gara
Villages	Vatsavalasa and Tonangi
Total Mine Lease Area	720 ha / 7.2 sq.km
Ownership of the land	Patta Land, D-Patta Land & Govt. Land and Govt. Coastal Poramboke Land
Type of lease area	Coastal Land – falling under Private, D-Patta, Govt and Govt. Coastal Poramboke Land
Present Land use Pattern	Uncultivable sandy stretches of beach sand
Latitude	18° 115' 55" N to 18° 16' 25" N & 18° 19' 03" N to 18° 19' 20" N
Longitude	84° 02' 37" E to 84° 02' 55" E & 84° 02' 38" E to 84° 02' 52" E
General Climatic Conditions	
Maximum Temperature	39.0 ^{0}C
Minimum Temperature	17.2 ^{0}C

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10-11-2014
Sivala Ramulu, DFO
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Annual Rainfall	800 mm – 1000 mm
Wind Pattern during study Period (summer 2009)	Southwest
Accessibility	
Road Connectivity	National Highway No.5
Rail Connectivity	Srikakulam Road (30 Km)
Airport	Vishakapatnam 130 Km (approx.)
Seaport	Vishakapatnam 130 Km (approx.)
District Head Quarter	Srikakulam Town (25 Km)
River Head	Vamsadhara (10 Km)
Transport	Srikakulam (25 Km)

1.3 SCOPE AND PURPOSE OF THE WILDLIFE CONSERVATION PLAN:

This document presents the proposed *Wildlife Conservation Plan* for the project area / Mine Lease Area (MLA) of 7.2 km^2 and also for the project buffer area (within 10 km radius from the MLA), as required by the TSPL Environmental Policy and also as per the Terms of Reference (ToR) suggested by the Expert Appraisal Committee for Environmental Clearance. The Plan was developed by the ENVID Group of the Andhra University, Department of Environmental Sciences in consultation with the DFO, Srikakulam, for a period of 10 years, focusing on the ***Schedule-I*** species of the area; protection of the wildlife habitats; motivation of the native communities for their participation in the conservation efforts by creating awareness and building their capacities; developing the wildlife habitats as approved by the Wildlife Warden; and monitoring the populations of the Schedule-I species and other species associated with the Schedule-I species. Even though the mining lease is granted for a maximum period of 30 years and valid till 2034, this conservation plan is prepared initially for a period of 10 years i.e up to 2024 since available mineral deposits may exhaust much before the lease period. However, we

For Perf
10-11-2014
Sivaa Rambabu, IFS.
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undertake that this conservation plan will continue to be implemented beyond the period of 10 years till the mineral reserves available in the lease area is exhausted fully and mining lease is surrendered back to the Government.

1.4 HEAVY MINERALS MINING METHODS OF TSPL:

It is proposed to work this deposit by opencast mechanized mining method involving dry mining/dredging and manual mining. No drilling and blasting or sorting of the material at mine site are necessary. Run-off mine ore will be mined and concentrated with advanced environmental friendly equipment and technology, wherein ore mining, concentration, backfilling and afforestation on reclaimed land takes place simultaneously, thus limiting the gap between mining and rehabilitation to pre-mining stage to only a few months. It is proposed to have a re-locatable /floating pre concentration plant at Tonangi and a slime removal plant at Vatsavalsa, in addition to the existing PCP at Vatsavalsa. Re-locatable/floating pre-concentration plant (PCP) moves/floats along with the advance of mining face and the ore is excavated with the help of Excavators/tippers/Front-end loaders and/or dredgers taking care that the water table of the area is not disturbed and water level is maintained above the MSL with water gradient always towards the sea. 0.50 Million tonnes is proposed to be mined by employing manual labour. RoM manually excavated will be loaded into tippers/tractors and transported to the nearest PCP for concentration.

Dredging is sub aqueous excavation of sand and recommended in sand deposits lying below the water table. Different types of dredgers are available like bucket wheel, cutter suction, grab etc. It is proposed to use bucket wheel dredger because of its superior performance in hard strata. The

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bucket wheel having bottomless buckets will cut the sand layer below the water and direct it to the suction mouth of a gravel pump. The gravel pump placed on the deck of the floating dredger will pump the slurry to a pre concentration plant which will have the ability to be anchored on mine surface and dragged along with the advance of the dredger by dozers and also float on the dredge pond created by the dredger.

At Vatsavalsa, excavator/manual mining will be utilized to mine the heavy mineral sand above the water table & having less than 5% slime content and transported in tippers/tractors to the existing PCP, slurried and fed to a trommel screen module to remove all roots, pebbles and other debris. The clean sand will then be mixed with water and pumped to the pre-concentration plant where latest imported equipments viz spirals, classifiers, screens would be used to concentrate minerals in the RoM into three to four mineral rich concentrates viz., Concentrate-1 containing very heavy minerals (others), Concentrate-2 containing predominately Sillimanite and Concentrate-3 and 4 containing mainly Garnet.

At Tonangi, excavator/manual mining will be utilized to mine the heavy mineral sand above the water table and transported in tippers/tractors to the proposed re-locatable PCP at Tonangi. RoM received will be slurried and fed to a trommel screen module to remove all roots, pebbles and other debris. The clean sand will then be mixed with water and pumped to the pre-concentration plant where latest imported equipments viz spirals, classifiers, screens would be used to concentrate minerals in the RoM into a mineral rich concentrates containing all the five minerals.

For perf
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Sivada Rambabu, IFS.1
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Concentrate produced from this Plant is transported or pumped to the existing PCP at Vatsavalsa for further concentration and production of individual mineral concentrates. Initial location of the PCP is shown in the working plans and other plans. Location of the PCP will be changed as the mining advances beyond 1.5 km radius distance and reserves available below the initial plant location will be mined thereafter.

The RoM dredged from below water table will be concentrated in the re-locatable Pre-concentration plant and will be further transported with the help of tippers or pumped to the existing PCP at Vatsavalsa. Individual mineral concentrates produced at the existing PCP at Vatsavalsa will be transported / pumped to the existing Mineral Separation Plant located at a distance of 1.5 KM from the PCP. All the PCP tailings and MSP tailings devoid of minerals will be simultaneously pumped/transported back to the mined out areas for refilling, reclamation and afforested with local suitable plant species.

Heavy mineral sand from lower layer having high slime content will be additionally cleaned in a slime cleaning plant at before it is pumped to the trammel. Slime separated in the slime removal plant or PCP plant will be used to cover the back filled tailings to support vigorous plantation in the currently barren sandy coastal deposit.

Due to such planned reclamation measures of the mined out areas simultaneous with excavation, the net land degradation at any point of time would be very minimum and very eco-friendly mining activity. The production of heavy minerals is only 0.93 MTPA and there will be simultaneous backfilling of the mined out areas with sand tailings Therefore, the gap between

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mining and restoration to pre-mining stage to only a few months and the impact of mining on local environment will be very minimum.

As the sand zones opened at any particular area or any particular point of time in the year is very meager (around 2-5% distributed at 2-3 different parts of the lease area), the impacts of mining shall not adversely affect the habitats.

1.5 IMPACTS OF MINING ON WILDLIFE AND BIOTA:

For the purpose of obtaining the Environmental Clearance for its expansion project activities, TSPL has carried out a detailed Environmental Impacts Assessment, under which special studies on Flora, Fauna, Wildlife habitats or sensitive ecosystems were documented and impacts assessment was made.

As per these studies, in the core area of the project, only one species, ***Lepidochelysolivacea*** *(Olive Ridley Sea turtle),* a marine inhabitant, belonging to Schedule-I, was reported to have its occasional and sporadic nesting, while the nesting intensity is very low and insignificant. However, in view on the importance of the species and its conservation, the nesting zone was excluded from the mining area, leaving a safe barrier zone of 60 m width between the nesting zone and the mining area. Thus, the TSPL mining activities can have least or no adverse impacts on the nesting habitats of the Olive Ridley turtles.

2.0 PROJECT IMPACT AREA

For the purpose of the wildlife conservation plan development, the project impact area is considered as the area covering a 10km radius, from 10 km South and 10 km North of the ML area coastline was considered as the ***Study Area*** **(Fig.1)**.

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The core area supports two main villages, ***Tonangi*** at the northeast and ***Vatsavalasa*** at the south west, along the coast line, and in the buffer zone three major habitations like ***Bandaruvanipeta*** (North), ***Tulugu*** (West) and ***Srikurmam*** (South Block) are existing. The state highway from Srikakulam to Kalingapatnam passes through the buffer zone and in parallel to the core area. Pucca road access is available to all the main villages.

2.1 TOPOGRAPHY:

Based on the satellite images, topo maps and the field surveys, four types of landscape elements and ten types of land uses were identified in the study area and the use of these landscape elements for different purposes, and the dependent people were identified. The study area covers the area within10 km radius from the project site with a total extent of around 320 km^2 or 32000 ha, and the terrain is almost plain with a gentle slope towards east.

The terrain is complex with four different landscapes. Abutting the sea, the ***Shorelands*** run all along the eastern side. Lotic water bodies forms the second landscape, which includes a major river head, Vamsadhara mouth at the northern end; and a smallstorm waters drain that separates the Vatsavalasa and Tonangi blocks. The remaining area can be considered as two major landscapes, ***Low-lying*** wetlands and ***Elevated*** plains.

2.2 DRAINAGE:

The Drainage pattern in the area is Dendritic to intricate drainage pattern. A major storm water drain passes through the area and finally merges with the sea between the Vatsavalasa and Tonangi blocks of the core area. The tidal influence on the salinity of this is very insignificant. In

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addition to this, the mouth of river Vamsadhara that originates in the Eastern Ghats exists at the northern end of the study area, Bandaruvanipeta to Kalingapatnam. Some small nallahs (drains) which drain into water ponds/tanks are also seen in the area.

2.3 MAJOR HABITATIONS AND LAND USE:

The Srikakulam rural areas of Ampolu, Priyagaraharam, Polaki, Kalingapatnam etc., which fall within the 10 km radius from the Srikurmam MLA are coastal plain areas (generally < 50m msl) and are traversed by irrigation and riparian canals, water tanks, and cultivated fields (Fig. 1).

The entire area can be considered as a rural side as no major urban centre exists. Agriculture accounts for 16.98% of the total land use in the area, and another 11.42% is under different plantation crops. Only 1.74% of the area is under forests, which were highly degraded to less than 10% cover. Smaller water bodies such as tanks, ponds, ditches near villages are present, of which, *Talada Cheruvu* near Narasannapeta, *Nandigama Cheruvu* near Nandigam, a Water tank on the way to Ampolu are important for agriculture. There is no specific area which is a protected area or recorded as an ecologically sensitive area.

2.4 OCCUPATIONAL PATTERN OF THE POPULATION:

The project Area falls under a coastal mandal (***Gara***) of the Srikakulam district and supports more than 19 habitations in 5 major villages, and a population of over 0.7 lakhs. The community composition of the Project Area indicates that about 79% of the Households (Hh) belong to *Socially Backward Classes*, while 12% were *Scheduled Communities*, and the remaining 9% were *Other Castes*. The occupational pattern of the area reveals that, the major occupations are Farming and Fishing. About 17% of the families are involved in both the activities. While

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fishing is carried out almost throughout the year, agriculture in the area is highly seasonal, limited to only one season. About 47% of the Hh are landless; of this group more than a half are mainly dependent on marine fishing.

3. BIOTA AND WILDLIFE HABITATS

3.1 FLORA AND VEGETATION:

All the flowering plant species of the study area, in its all land use types, were recorded systematically and 101 species of angiosperms were recorded from the seven land use types of the region ***(Annexure - I)***. Of these, 50 species (49.5%) were herbs; 22 (21.78%) were shrubs; and 29 (28.72%) were tree species. Of the 101 species in the study area, only 28 species were present in the ML Area, which includes 18 herbs, 4 shrubs and 6 were tree species.

The 101 species recorded from the study region belonged to **46 families** and **90 genera**, and has a FGS (Family: Genera: Species) ratio of **1: 1.96: 2.20**.

Out of 40 families recorded in the present study, **only six families** were represented by four or more species and all such families with more than four species were considered as '***high diversity families***'. The **8** high diversity families contained **42** species accounting for **41.58**% of the total species recorded in the region. Poaceae family was represented by 9 species (8.91%) was ranked first among the high diversity families, and was followed by Rutaceae with 6 species (5.94%). Asteraceae, Fabaceae and Caesasalpiniaceae were represented by 5 species (4.95%) each. The remaining three families, Tiliaceae, Malvaceae and Chenopodiaceae were represented by 4 species (3.96%) each. There were no endemic or endangered or threatened plant species in the region.

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3.2 FAUNA:

Terrestrial habitats of the study area were surveyed for the vertebrate species, and a total of 50 species were recorded (**Annexure–2**). Of these, 3 were Amphibians; 12 were Reptiles; 25 were Aves; and 10 were mammals.

The faunal inventory shows that in the entire Project Impact area, only one species of turtle, ***Lepidochelys olivacea*** (Olive Ridley turtle) had only its occasional nesting habitats along the shore lands. All other species are mostly common species, which are widely distributed in India. There were no endemic species in the region.

3.3. NEED FOR WILDLIFE CONSERVATION

Although the mining activities of the TSPL have no adverse impacts on the wildlife or their habitats in the region, as per the Environmental policy of the company, TSPL owns the responsibility of participating in the conservation of nature and wildlife so as to ensure that the rare habitats of the region are protected and conserved.

At the *beach zone*, the nesting turtle may face few threats as follows;

- ✓ Nests are threatened by the predators like dogs, and other canines.
- ✓ Natural threats like storm, high tide, tsunami etc
- ✓ Some subsistence and marginal fishermen used to collect the eggs of the turtles either for own consumption or for income generation by selling the eggs.

Thus, to create awareness on the importance of protecting the schedule I species and their habitat, TSPL proposes an action plan for the Wildlife Conservation in the region.

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3.4 WILDLIFE CONSERVATION PLAN

M/s TSPL, Srikakulam, propose the following Wildlife Conservation Plan with the following objectives for the approval by, and necessary permissions from the Chief Wildlife Warden of Andhra Pradesh state, and the District Wildlife Warden, Srikakulam.

3.4.1 BROAD OBJECTIVES:

A. To collaborate and strengthen the wildlife conservation activities of the state wildlife wing in the Srikakulam district;

B. To help protect the Schedule-I species and their habitats existing in the coastal mandal of Srikakulam district;

C. To contribute for the development of wildlife habitats improvement and implement the same as approved and delineated by the Wildlife Warden;

D. To create awareness among the public, especially the students, youth, farmers, fishermen folks and women, and involve them in the wildlife conservation by motivating them and building their capacities;

E. To establish a wildlife ecology data centre at TSPL, and document monitoring information on the Protected species, their habitats quality and also act as a 24X7 helpline for public to receive information on the wildlife sightings, violations, and other incidentals;

F. To develop wildlife rescue teams in major villages by sponsoring their training programmes with centers recognized by the state.

3.4.2 PRINCIPAL APPROACH FOR THE PLAN IMPLEMENTATION:

Collaborative and Participatory approach shall be followed for implementing the plan. Guided by the State Chief Wildlife Warden and the District Wildlife Warden, the plan will be

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executed and implemented through the Environment & Wildlife Conservation Cell of the TSPL, Srikakulam. The Cell shall have two members as Core Staff, a Programme Officer and a Field Assistant, who will be working as per the guidelines of the approved plan and reporting to the District Wildlife Warden and the CEO of the TSPL, Srikurmam.

Guided by the Wildlife Warden, a Wildlife Management Committee (WMC) formed with all stakeholders shall be facilitating the design and implementation of the plan interventions. The composition of the WMC is proposed as described below:

1.	Chairman	State Chief Wildlife Warden
2.	Vice-Chairman-I	Conservator of Forests, Vizag
3.	Vice-Chairman-II	District Wildlife Warden
4	Vice Chairman-III	CEO of TSPL
5.	Secretary	Program Officer, Wildlife Conservation Cell
6.	Member	Principal of a Graduation College of the Region
7.	Member	MRO/Tashildar
8.	Member	FRO
9	Member	Youth Clubs
10	Member	Fishermen Society
11	Member	Farmers Society
12	Member	TSPL Employees Association

4.0 PROPOSED PLAN INTERVENTIONS:

The Wildlife Conservation Plan interventions are chiefly focused on the protection and development of the major wildlife habitats identified and also targeted to all other ecosystems through the participation of different target groups of the society. A special emphasis is given to Olive Ridley turtle, the endangered and Schedule-I species inhabiting the region. However, the awareness programme focus all groups of plant and animal species, along with the best management practices to be adopted to avoid the threats to the wildlife species and their habitats.

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4.7 Interventions for Conservation of Sea-turtles:

The Olive Ridley turtle, ***Lepidochelys olivacea*** is the major turtle utilizing the beaches of the region. Although the nesting activity was highly sporadic and very low, TSPL, as per its Environmental Policy, wish to protect the nesting zone, as predators were found to have disturbed the rare sporadic nests during the last four years (2009-13). Thus the following interventions are proposed:

i. ***Fencing of the Nesting Beaches:*** In order to implement the nesting zone as *No Mining* zone, TSPL shall fence its mining area towards the beach side at 100 m line from the HTL. The nesting zone in the region is up to 40 m from the HTL, thus, a clear 60 m barrier is left between the Nesting zone and mining area. Further, the fencing shall also protect the nesting zone by acting as a barrier and helps monitoring the beach visitors.

ii. ***Rescued Turtle nests Hatchery:*** In case if the Wildlife Warden deems it is necessary to have a Hatchery for relocating the nests, if any and to protect them, TSPL volunteers to sponsor the costs of construction of the Hatchery at a location identified by the Warden, and also support with the watch and ward staff for the hatchery.

iii. ***Promotion of use of TEDs by Fishing Gear:*** To protect the sea turtles falling in the nets of the deep sea fishing, use of TEDs (Turtles Exclusion Devices) shall be promoted by motivating the fishermen involved in the deep sea fishing. TSPL shall subsidize the costs of the TEDs to the fishermen of the fishing villages in the region.

iv. ***Organizing Turtle Walks:*** To create awareness among the youth and students, on selective dates during the nesting season ***Turtle Walk*** shall be organized so as to identify the nesting and also to educate the target groups on the sea turtles. These walks have

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proved to be successful in protecting sporadic nesting in Visakhapatnam and other regions of Andhra Pradesh.

v. ***Monitoring of the Nesting Activity:*** Village level teams with the youth shall be formed in all the shore bound villages and these teams will be monitoring the turtle nesting activity from the onset of the nesting season till the end of the hatching season. These teams shall be trained and guided by the experts on how to conduct monitoring and recording the information.

Budget for the Interventions on Sea turtles in Rs Lakhs:

Sl No.	Activity	1st Year	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total
1	Fencing the Nesting Zone	1.00	1.00	1.00	1.00	1.00	1.20	1.20	1.20	1.40	1.40	11.40
2	Turtle Hatchery	1.00	1.00	1.00	1.00	1.00	1.20	1.20	1.20	1.40	1.40	11.40
3	Promotion of TEDs	0.50	0.50	0.50	0.50	0.50	0.60	0.60	0.70	0.70	0.70	5.80
4	Organizing turtle Walks	0.50	0.50	0.50	0.50	0.50	0.60	0.60	0.70	0.70	0.70	5.80
5	Nesting Monitoring	2.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	3.00	3.00	25.00
	TOTAL	**5.00**	**5.00**	**5.00**	**5.00**	**5.00**	**6.60**	**6.60**	**6.80**	**7.20**	**7.20**	**59.40**

Above budget provided for the interventions on sea turtles or period of interventions will be increased as per the requirements.

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4.2 Interventions for protecting shelter belt:

Tonangi block of the ML area run for over 3.5 km along the coastline and Tonangi shelter forest is between the ML block and the Sea. Owing to the pressure from the native for fuel wood and fodder, the shelter forest belt is susceptible to degradation and this need to be prevented to keep the shelter belt. The following activities are planned during the initial 10 years period.

i. In addition to the plantation activity planned in the mined and refilled lands of the ML lands (approx. 1000 - 1500 saplings per hectare), it is proposed to have plantation activity outside the forest shelter belt and ML area in village common lands identified by the communities, with diverse native species suitable to the locals.

ii. Training of a team of village youth in the management of the community lands with fuel-wood and fodder plantations;

Budget:

Sl No.	Activity	1st Year	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total
1	No of Saplings	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	50000
2	Plantation Activity (Rs Lakh)	4.00	4.00	4.00	5.00	5.00	5.0	5.0	6.0	6.0	6.0	50.00
3	Village teams & Training (Rs Lakh)	0.80	0.80	0.80	1.00	1.00	1.0	1.0	1.20	1.20	1.20	10.00
	Total amount (in Rs Lakh)	**4.80**	**4.80**	**4.80**	**6.00**	**6.00**	**6.0**	**6.0**	**7.20**	**7.20**	**7.20**	**60.00**

Above budget provided for the development of village shelter bed or period of development will be increased as per the requirements.

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The above interventions are subject to the approval of the Chief Wildlife Warden, Andhra Pradesh. The budget provisions are tentatively proposed and TSPL takes pride in supporting any activity that promotes wildlife conservation in the areas where TSPL works. The summary of the budget is presented below

4.4 SUMMARY OF THE BUDGET FOR THE WILDLIFE CONSERVATION PLAN

No	Item	Per Yr (Aver)	Total for 10 Years
		(Rs. In Lakhs)	
1	Fencing the Nesting Zone	1.14	11.40
2	Turtle Hatchery	1.14	11.40
3	Promotion of TEDs	0.58	5.80
4	Organizing turtle Walks	0.58	5.80
5	Nesting Monitoring	2.50	25.00
6	Plantation Activity	5.00	50.00
7	Village Teams& Training	1.00	10.00
8	Awareness Programmes& Training	0.60	6.00
9	Wildlife Youth Clubs	0.90	9.00
10	Publicity & Publications	3.50	35.00
11	General Contingencies	1.10	11.00
	TOTAL COSTS OF THE WL CONSERVATION PLAN	**18.04**	**180.40**

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4.3 Other Major Interventions:

These interventions focus on general activities common to all the wildlife habitats and other habitats which are not focused, but can be addressed through motivating the public and supporting them with some institutional frame work to strengthen the conservation efforts of the state. The following common activities are proposed:

i. The ***Wildlife Conservation Cell*** to be established at TSPL, will also be acting as the Data base center and wildlife Communication Helpline for the public of the TSPL region and extend the core staff services and visiting experts to the activities;

ii. Conduct of Awareness programmes in Schools and colleges on the wildlife conservation and enhancing their role in the conservation;

iii. Wildlife Youth Clubs will be formed, trained and guided at the 4 major coastal villages of the region.

iv. Support the Forest Department in publicizing the wildlife of the region and on the conservation activities by putting hoardings or posters at important places, and publishing focused brochures on the wildlife education, extension and conservation.

v. Necessary education and awareness programs will be conducted among the local communities on sea turtle conservation measures and needs.

Budget in Rs Lakhs:

Sl No.	Activity	1st Year	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total
1	Awareness programmes	0.50	0.50	0.50	0.50	0.50	0.7	0.7	0.7	0.7	0.7	6.00
2	Wildlife Youth Clubs	0.80	0.80	0.80	0.80	0.80	1.0	1.0	1.0	1.0	1.0	9.00
3	Publicity & Publications	3.00	3.00	3.00	3.00	3.00	4.0	4.0	4.0	4.0	4.0	35.00
4	General Contingencies	1.00	1.00	1.00	1.00	1.00	1.20	1.20	1.20	1.20	1.20	11.00
	TOTAL	**5.30**	**5.30**	**5.30**	**5.30**	**5.30**	**6.90**	**6.90**	**6.90**	**6.90**	**6.90**	**61.00**

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4.4 SUMMARY OF THE BUDGET FOR THE WILDLIFE CONSERVATION PLAN

No	Item	Per Yr (Aver)	Total for 10 Years
		(Rs. In Lakhs)	
1	Fencing the Nesting Zone	1.14	11.40
2	Turtle Hatchery	1.14	11.40
3	Promotion of TEDs	0.58	5.80
4	Organizing turtle Walks	0.58	5.80
5	Nesting Monitoring	2.50	25.00
6	Plantation Activity	5.00	50.00
7	Village Teams& Training	1.00	10.00
8	Awareness Programmes& Training	0.60	6.00
9	Wildlife Youth Clubs	0.90	9.00
10	Publicity & Publications	3.50	35.00
11	General Contingencies	1.10	11.00
	TOTAL COSTS OF THE WL CONSERVATION PLAN	**18.04**	**180.40**

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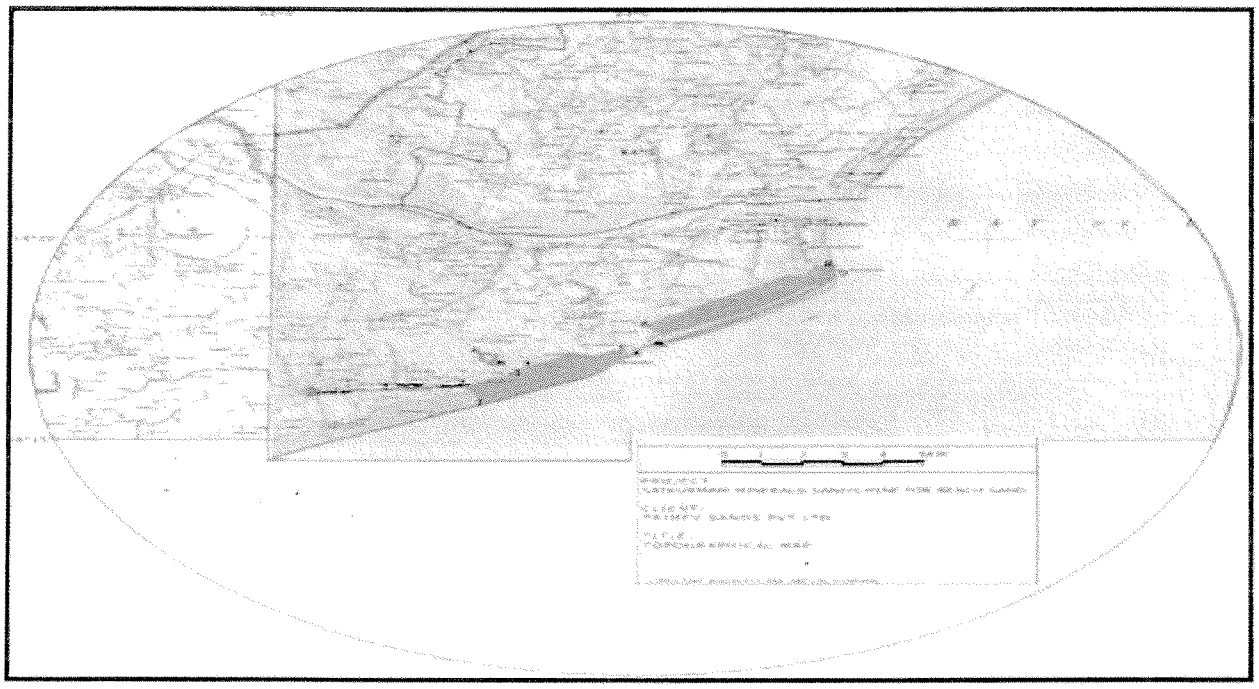
Fig.1.

Fig2



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ANNEXURE – I

Table 1. Flora of the Study area

No.	Family	Scientific Name	Habit
1	Acanthaceae	*Acanthus ilicifolius Linn.*	S*
2	Acanthaceae	*Barleriacristata L.*	S
3	Acanthaceae	*Cressacretica Linn.*	H
4	Agavaceae	*Agave americana Linn*	H*
5	Aizoaceae	*GisekiaPharmaceoides L.*	H
6	Aizoaceae	*Sesuviumportulacastrum L.*	H
7	Amaranthaceae	*Amaranthusspinosa L.*	H*
8	Anacardium	*Anacardiaceaeoccidentale Linn*	T*
9	Annonaceae	*Annona reticulate* L.	T
10	Annonaceae	*A. squamosa*L.	T
11	Annonaceae	*Polyalthiasuberosa*(Roxb.) Hook.f. &Thoms	T
12	Apocynanaceae	*Alstoniavenenata R.Br*	T
13	Arecaceae	*Borassusflabellifer L.*	T*
14	Arecaceae	*Cocosnusifera L.*	T*
15	Arecaceae	*Phoenix sylvestris (L.) Roxb.*	T*
16	Asclepiadaceae	*Sarcolobuscarinatus Wall.*	H
17	Asclepiadaceae	*Calotropisgigantia(L.) R. Br*	S*
18	Asclepiadaceae	*Sarcostemmaacidum (Roxb) Voigt*	S
19	Asteraceae	*Gnaphaliumindicum L.*	H
20	Asteraceae	*Launaeasarmentosa (Willd) O. Ktze*	H
21	Asteraceae	*Vernoniacinerea (L).Less.*	H
22	Asteraceae	*Xanthium strumarium Linn.*	S
23	Asteraceae	*Eupatorium odoratum Linn.*	S
24	Begoniaceae	*Opuntiastricta Haw vardillenii (Ker – Gawl) Benson*	S
25	Boraginaceae	*Coldeniaprocumbens L.*	H
26	Burseraceae	*GarugapinnataRoxb.*	T
27	Burseraceae	*Protiumserratum*	T
28	Caesalpiniaceae	*Caesalpinia crista L.*	H
29	Caesalpiniaceae	*Cassia mimosoides L.*	H
30	Caesalpiniaceae	*Caesalpinapulcherrima (L). Sw*	S
31	Caesalpiniaceae	*Cassia auriculata L.*	S
32	Caesalpiniaceae	*Pterolobiumhexapetalum (Roth) Sant&Wagh*	S
33	Chenopodiaceae	*ArthrocnemumIndicum (Willd.) Moq*	H
34	Chenopodiaceae	*SalicorniabrachiataRoxb.*	H*
35	Chenopodiaceae	*Suaedamaritima(L.)Dumort*	H*

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36	Chenopodiaceae	*SuaedanudifloraMoq.*	H*
37	Convolvulaceae	*Ipomoea pes-caprae (Linn.)*	H*
38	Convolvulaceae	*Ipomoea violaceae L.*	H*
39	Cyperaceae	*CyperuskyllingaEndl.*	H
40	Cyperaceae	*Fimbristylisbisumbellata (Forsk) Bubani.*	H*
41	Cyperaceae	*Fimbristylisferruginia (L.) Vahl.*	H*
42	Elaeocarpaceae	*Elaeocarpustectorius (Lour.)*	T
43	Euphorbiaceae	*Euphorbia cattimandoo Elliot*	S
44	Euphorbiaceae	*Euphorbia hirta (L.)*	H
45	Fabaceae	*Derris trifoliate Lour.*	H
46	Fabaceae	*Zorniagibbosa L.*	H
47	Fabaceae	*Abrusprecatorius L.*	S
48	Fabaceae	*Clitoriaternatea Linn*	S
49	Fabaceae	*DalbergiaspinosaRoxb.*	S
50	Hydrocaretaceae	*Halophyllaovata (R. Br.) Hook.f.*	H
51	Malvaceae	*Hibiscus tiliaceous L.*	H
52	Malvaceae	*Melochiacochorifolia L.*	H
53	Malvaceae	*SidaAcutaBurm.f.*	H
54	Malvaceae	*Hibiscus cannabinus L.*	S
55	Meliaceae	*Aglaiaelaeagnoidea (A. Juss).*	T
56	Meliaceae	*Cipadessabaccifera (Roth.)*	T
57	Meliaceae	*Meliaazadirachta L.*	T*
58	Menispermaceae	*Tiliacoraacuminate(L am.) Miers.*	S
59	Mimosaceae	*Prosopiscineraria(L.) Druce*	T*
60	Myrsinaceae	*Aegicerascorniculatum (L.)Blanco*	S*
61	Myrtaceae	*Eucalyptus L. Herit*	T
62	Nyctaginaceae	*Bougainvillea spectabilisWilld*	S
63	Nyctaginaceae	*Boerhaviadiffusa L.*	H*
64	Pandanaceae	*Pandanusfascicularis (L). Lam.*	S*
65	Pedaliaceae	*Pedalium murex L.*	H*
66	Periplocaceae	*PhyllanthusdebilisWilld*	H
67	Poaceae	*Aeluropuslagopoides(L.) Trin. Ex Thw*	H
68	Poaceae	*AristidafuniculataTrin. & Rup.*	H*
69	Poaceae	*Brachiariabrizanta L.*	H
70	Poaceae	*Dactylocteniumaegyptium (L).Beauv*	H*
71	Poaceae	*Myriostachyawightiana (Nees ex Steud) Hooker*	H
72	Poaceae	*Oryza sativa L.*	H
73	Poaceae	*Perotisindica (L).O. Ktze*	H*
74	Poaceae	*Porteresiacoarctata(Roxb.)Tateoka*	H
75	Poaceae	*Spinifexlittoreus(Burm.f.) Merr.*	H*
76	Pontederiaceae	*Eichhorniacrassipes (Mart.) Solms – Laub*	H*

For PCCF, ...
10/11/2014
Sivala Rambabu, IFS
Addl. PCCF

77	Portulacaceae	*Portulacaquadrifida L.*	H*
78	Portulacaceae	*Portulacaoleracea L.*	H
79	Ramanculaceae	*Thalictrumfoliolosum DC.*	H
80	Rhamnaceae	*Scutiamyrtina(Burm.f.) Kyrz*	H
81	Rubiaceae	*Borreriaarticularis L.*	H
82	Rubiaceae	*Spermacocehispida L.*	H
83	Rutaceae	*Atlantiamonophylla (L.)*	T
84	Rutaceae	*Citrus medica L.*	T
85	Rutaceae	*Glycomismauritiana (Lam.)*	T
86	Rutaceae	*Glycosmispentaphylla*	T
87	Rutaceae	*Limoniaacidissima L.*	T
88	Rutaceae	*Murrayakoengii (L.)*	T
89	Sapindaceae	*SapindusemarginatusVahl.*	T
90	Simaroubaceae	*Ailanthus excelsaRoxb.*	T
91	Solanaceae	*Daturametel L.*	H
92	Solanaceae	*SolanumsurattenseBurm.f.*	H*
93	Sonneratiaceae	*SonneratiaapetalaBuch.-Ham*	T
94	Sterculiaceae	*Helicteresisora L.*	T
95	Sterculiaceae	*SterculiaurensRoxb.*	T
96	Tiliaceae	*Trianthemumportulacastrum L.*	H
97	Tiliaceae	*Crozophorarottelerei (Geis) Sprl.*	S
98	Tiliaceae	*Grewia hirsute Vahl*	S
99	Tiliaceae	*GrewiatiliifoliaVahl.*	T
100	Verbenaceae	*Lantana camara L.*	S
101	Violaceae	*Homaliumnepalense (Wall.)*	T

H: Herb S: Shrub T: Tree

ANNEXURE – 2

Table: Dominant Vertebrate Fauna of the Study Area:

no.	Scientific Name	Common Name	Frq.	Status
Amphibians:				
1	*Ranahexadactyla*	Frog	C	IV
2	*R. cyanophlyctina*	Frog	O	IV
3	*Bufomelanostictus*	Toad	O	-
Retiles:				
4	*Kachugarectum*	Terrapin	O	IV
5	*Lepidochelysolivacea*	Olive Ridley Turtle	O	I
6	*Hemidactylusbrooka*	Common Wall Gecko	C	-
7	*Hemidactylusgiganteus*	Tree Gecko	O	-
8	*Calotesversicolor*	Garden Lizard	C	-
9	*Mabuyacarinata*	Striped skink	O	-
10	*Lygosomadussumeri*	Red tailed skink	O	-
11	*Enhydrisenhydris*	Fresh water snake	C	IV

Frwd
10.11.2014

12	*Dryophispulverulents*	Green snake	C	-
13	*Viperarusselli*	Russels viper	C	II
14	*Bungaruscaereleus*	Banded krait	C	IV
15	*Naganaja*	Cobra	O	II
Avians:				
16	*Ardeolagrayii*	Pond heron	C	IV
17	*Bubulcus ibis*	Cattle egrets	C	IV
18	*Egrettagarzetta*	Little egrets	C	IV
19	*Haliasturindus*	Brahminy Kite	C	-
20	*Francolinuspondiceriamus*	Grey Patridge	O	IV
21	*Vanellusmalabaricus*	Yellow Wattled Lapwing	C	-
22	*Tringaglareola*	Spotted Sandpipers	C	IV
23	*Rostrahulabenghalensis*	Painted snipe	R	IV
24	*Columba livia*	Blue rock Pigeon	C	IV
25	*Larusbrunnicephalus*	Brown headed gull	C	IV
26	*Psittaculakrameri*	Rose ringed Parakeet	C	IV
27	*Cuculussarius*	Common cuckoo	R	IV
28	*Otusscops*	Scops Owl	C	IV
29	*Alcedoatthis*	Common Kingfisher	C	IV
30	*Coraciousbengalensis*	Indian Roller	C	IV
31	*Dicrurusadsimilis*	Black Drongo	C	IV
32	*Acridotherestristis*	Common Myna	C	IV
33	*Corvussplendens*	House Crow	C	-
34	*Corvusmacrorynchos*	Jungle crow	R	-
35	*Turdoidesaffinis*	White headed babbler	O	IV
36	*Passer domesticus*	House sparrow	C	-
37	*Butoridesstriatus*	Little Green Heron	C	IV
38	*Casmerodiusalbus*	Large Egret	O	IV
39	*Phalocrocoraxniger*	Little Cormorant	C	IV
40	*Tringatotanus*	Common Redshank	O	IV
Mammals:				
41	*Rattusrattus*	House rat	C	-
42	*Funambuluspennati*	Squirrel	C	-
43	*Musmusculus*	house Mouse	C	-
44	*Musbodiga*	Field Mouse	C	-
45	*Bandicotabengalensis*	Indian Mole Rat	C	-
46	*Lepusnigricollis*	Common hare	R	IV
47	*Herpestesbenghalensis*	Mongoose	C	II
48	*Macacamulatta*	Rhesus macaque	O	II
49	*Vulpesbengalensis*	Indian Fox	R	II
50	*Hyenahyaena*	Striped Hyena	R	II

C: Common **O: Occasional** **R: Rare**

For perf
10.11.2014
Sivade Rambabu, DFO,
Attested

For PCCF

10.11.2014

Sivala Rambabu, IFS,
Attached to APCCF(WL)

TRIMEX

12 July 2017

The Principal Chief Conservator of Forests (WL) &
Chief Wildlife Warden,
Aranya Bhavan, Sankurathri Residency,
Agathavarappadu, Mahatma Gandhi Inner Ring Road,
Peda Kakani Mandal, Guntur - 522509,
Andhra Pradesh,

Respected Sir,

Sub: Approved Wildlife Conservation Plan - Expansion of Srikurmam Heavy Mineral Sand Project of Trimex Sands Pvt. Ltd. - Remittance of budgeted amount for interventions to the Forest Department - Regarding...

Ref:
1) Wildlife Conservation Plan approved vide R.C.No.22899/2013 NVL-3 dated 11.11.2014
2) Principal CCF, AP Letter No. Rc No. 22899/2013/WL-3 dated 20.04.2015
3) Our letter dated 16.06.2015
4) Letter from PCCF vide RC.No.22899/2013/WL-3 dated 12.04.2017
5) Letter from DFO vide Rc.No.2398/2016/A4 dated 27.04.2017
6) Letter from PCCF vide Rc.No.22899/2013/WL-3, dated 24.05.2017
7) Our letter dated 09.06.2017
8) Letter from DFO vide Rc.No.1316/2015-A1, dated 16.06.2017
9) Our letter dated 22.06.2017

With reference to above subject, we wish to inform you that we have complied and deposited the entire amount of Rs.180.40 lakhs as budgeted in the Wildlife Conservation Plan approved vide reference (1) in account of **BIOSAP, Andhra Bank, Secretariat Branch, Hyderabad** as furnished below.

Sl. No.	Cheque No.	Date	Amount (in Rs.)
1	CNAAEASFM1	10.07.2017	Rs.85,40,023.60/-
2	CNAAEARUA7	10.07.2017	Rs.95,00,023.60/-
		Total (in Rs.)	**Rs.180,40,047.20/-**

The copy of receipt of e-payment is attached as **Annexure-1.**
We request you to kindly acknowledge the receipt of the same.

Thanking you,
Yours Sincerely
For M/s Trimex Sands Pvt. Ltd.,

TRIMEX SANDS (P) LIMITED

Deepak Rathod
General Manager (Tech.Services)

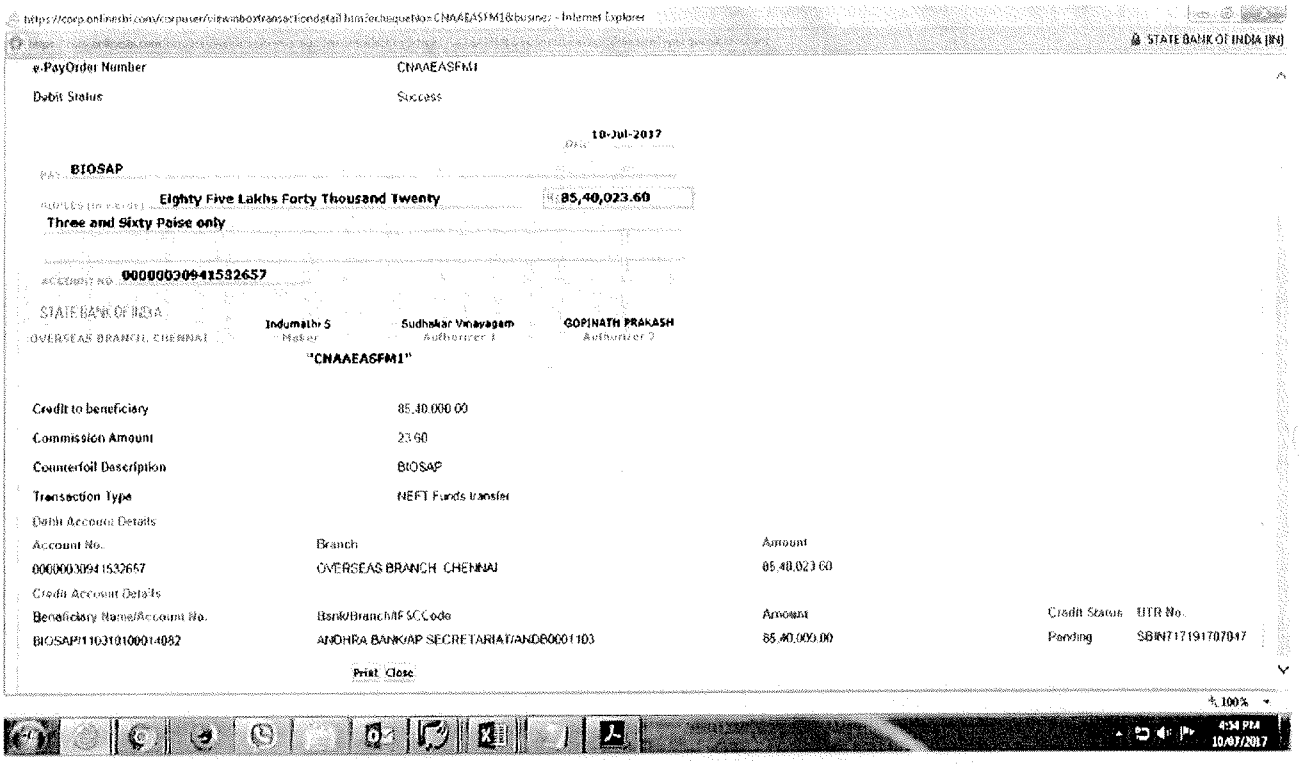
Encl : as above

CC :
1) The Chief Conservator of Forests, Vishakapatnam Circle, Vishakapatnam
2) The DFO, Forest Dept. Govt. of Andhra Pradesh, Srikakulam
3) The Forest Range Officer, Srikakulam

Trimex Sands Pvt. Ltd. Reg. Office : Trimex Towers, No. 1 Subbaraya Avenue, C.P. Ramaswamy Road, Alwarpet, Chennai - 600 018. INDIA.
Tel: +91 44 24988822 /8813 Fax: +91 44 24986047, E-mail : info@trimexsands.com, URL: www.trimexgroup.com
CIN : U14299TN2004PTC071437

360

ANNEXURE-1



https://corp.onlinesbi.com/corpuser/viewinboxtransactiondetail.htm?echequeNos=CNAAEASFM1&business... - Internet Explorer

STATE BANK OF INDIA [IN]

e-PayOrder Number: CNAAEASFM1

Debit Status: Success

Date: 10-Jul-2017

PAY: BIOSAP

RUPEES (IN WORDS): Eighty Five Lakhs Forty Thousand Twenty Three and Sixty Paise only

₹ 85,40,023.60

ACCOUNT NO. 0000003094153265 7

STATE BANK OF INDIA
OVERSEAS BRANCH, CHENNAI

Indumathi S (Maker) | Sudhakar Vinayagam (Authorizer 1) | GOPINATH PRAKASH (Authorizer 2)

"CNAAEASFM1"

Credit to beneficiary	85,40,000.00
Commission Amount	23.60
Counterfoil Description	BIOSAP
Transaction Type	NEFT Funds transfer

Debit Account Details

Account No.	Branch	Amount
0000003094153265 7	OVERSEAS BRANCH, CHENNAI	85,40,023.60

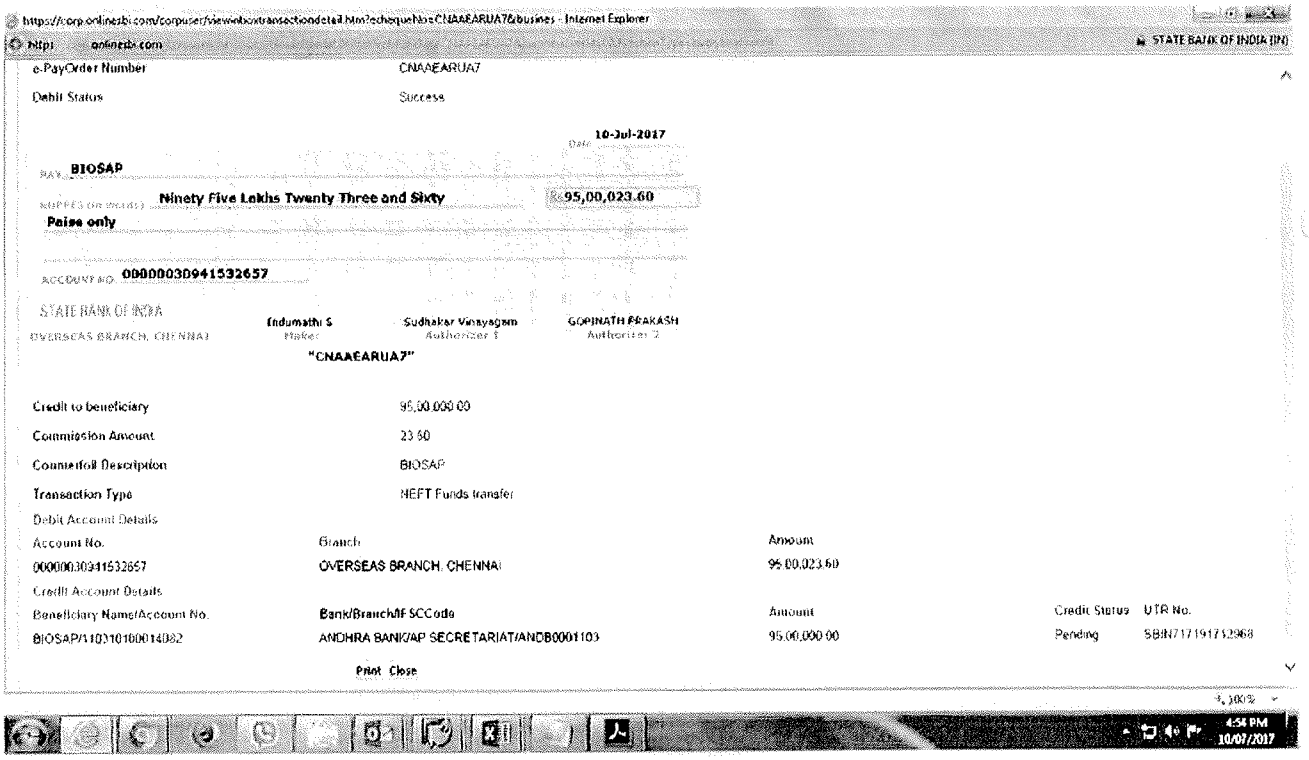
Credit Account Details

Beneficiary Name/Account No.	Bank/Branch/IFSCCode	Amount	Credit Status	UTR No.
BIOSAP/110310100014082	ANDHRA BANK/AP SECRETARIAT/ANDB0001103	85,40,000.00	Pending	SBIN717191707047

Print Close

100%

4:54 PM 10/07/2017



https://corp.onlinesbi.com/corpuser/viewinboxtransactiondetail.htm?echequeNos=CNAAEARUA7&business... - Internet Explorer

https onlinesbi.com

STATE BANK OF INDIA [IN]

e-PayOrder Number: CNAAEARUA7

Debit Status: Success

Date: 10-Jul-2017

PAY: BIOSAP

RUPEES (IN WORDS): Ninety Five Lakhs Twenty Three and Sixty Paise only

₹ 95,00,023.60

ACCOUNT NO. 0000003094153265 7

STATE BANK OF INDIA
OVERSEAS BRANCH, CHENNAI

Indumathi S (Maker) | Sudhakar Vinayagam (Authorizer 1) | GOPINATH PRAKASH (Authorizer 2)

"CNAAEARUA7"

Credit to beneficiary	95,00,000.00
Commission Amount	23.60
Counterfoil Description	BIOSAP
Transaction Type	NEFT Funds transfer

Debit Account Details

Account No.	Branch	Amount
0000003094153265 7	OVERSEAS BRANCH, CHENNAI	95,00,023.60

Credit Account Details

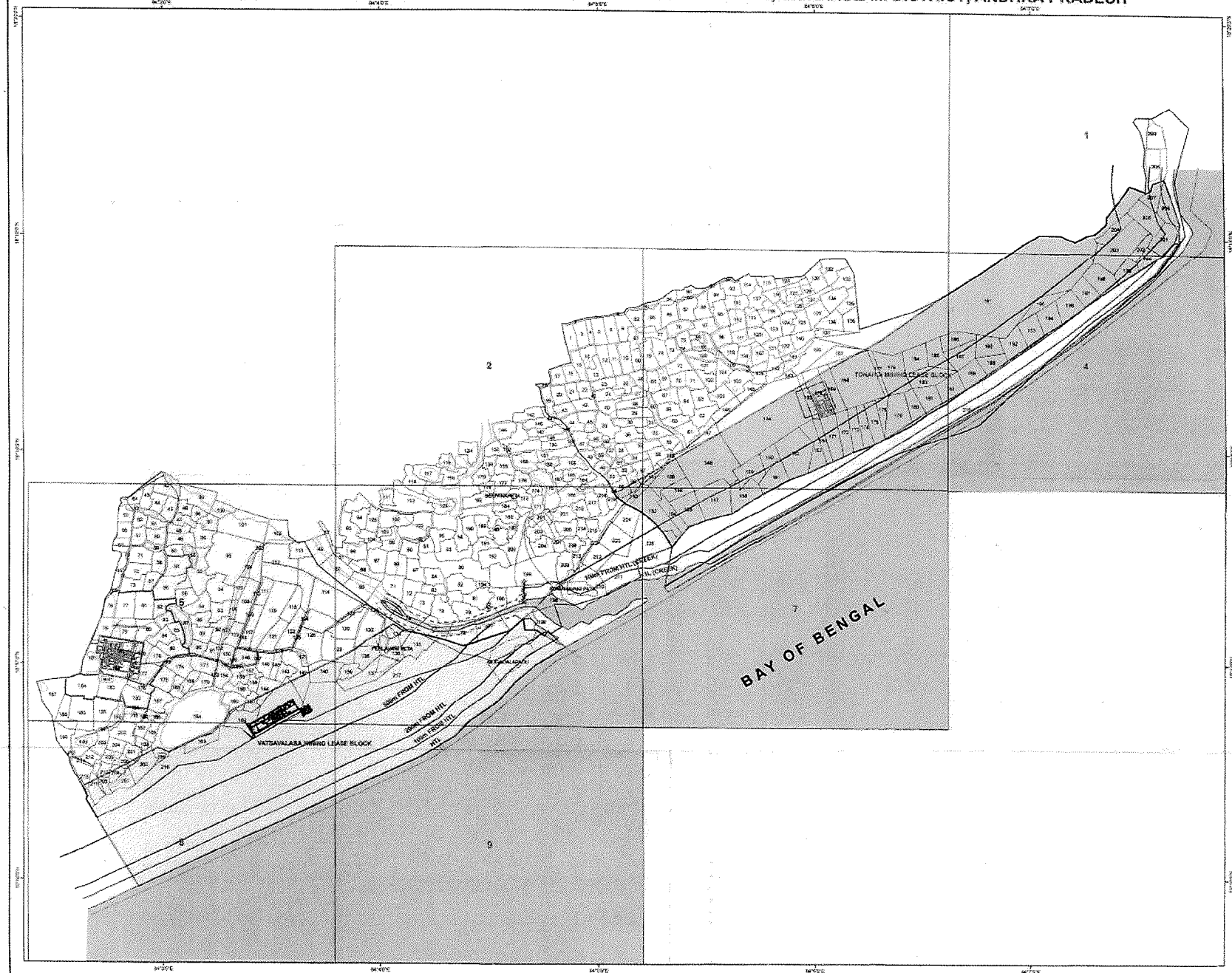
Beneficiary Name/Account No.	Bank/Branch/IFSCCode	Amount	Credit Status	UTR No.
BIOSAP/110310100014082	ANDHRA BANK/AP SECRETARIAT/ANDB0001103	95,00,000.00	Pending	SBIN717191712968

Print Close

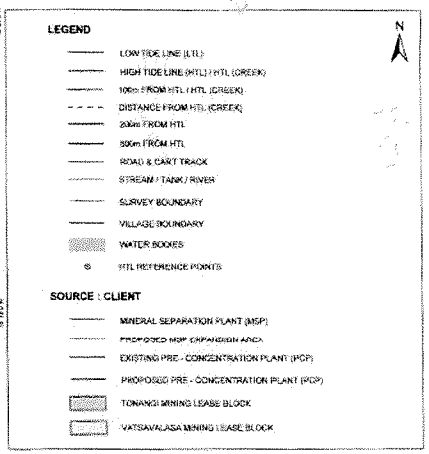
100%

4:54 PM 10/07/2017

DEMARCATION OF HIGH TIDE LINE / LOW TIDE LINE FOR M/s. TRIMEX SANDS PVT. LTD., SRIKAKULAM DISTRICT, ANDHRA PRADESH



INDEX MAP



ANNEXURE -5

PREPARED BY
INSTITUTE OF REMOTE SENSING
ANNA UNIVERSITY
CHENNAI - 600 025

FOR
M/s. TRIMEX SANDS PVT. LTD.
VATCHAVALASA (V), GARA MANDAL
SRIKAKULAM DISTRICT – 532 404
ANDHRA PRADESH

PREPARED BY	K. [illegible]
VERIFIED BY	[illegible]
APPROVED BY	Dr. N. RAMALINGAM, BE, ME, Ph.D Director Institute of Remote Sensing Anna University Chennai-600 025

ANNEXURE -6

TRIMEX SANDS PRIVATE LIMITED

AMBIENT AIR QUALITY DATA- (SAMPLING PERIOD: 1st October 2021 to 31st December 2021)

Units : µg/m³ PLANT SITE							Units : µg/m³ PEDDA VASTAVALASA					
DATE	$PM_{2.5}$	PM_{10}	SO_2	NO_X	CO		DATE	$PM_{2.5}$	PM_{10}	SO_2	NO_X	CO
02/10/2021	19.4	32.4	6.9	7.7	502		02/10/2021	24.6	33.4	6.7	9.1	620
03/10/2021	20.3	31.7	6.8	8.1	497		03/10/2021	18.3	31.5	7.0	9.2	591
07/10/2021	19.6	33.6	7.0	8.2	491		07/10/2021	22.6	41.2	7.3	8.6	617
08/10/2021	19.0	32.3	6.5	7.9	500		08/10/2021	27.1	30.6	6.9	8.0	600
14/10/2021	21.5	34.9	6.6	8.8	523		14/10/2021	25.6	47.1	7.4	8.3	584
15/10/2021	25.3	35.1	6.9	8.3	504		15/10/2021	23.7	48.0	7.8	9.1	630
21/10/2021	22.4	41.5	7.0	7.9	520		21/10/2021	28.9	44.7	7.1	9.1	587
22/10/2021	25.6	32.6	6.4	8.3	499		22/10/2021	24.0	43.6	6.9	8.8	592
01/11/2021	24.7	45.8	6.7	7.7	514		01/11/2021	27.3	42.9	6.8	8.2	614
02/11/2021	23.8	38.3	6.9	7.9	507		02/11/2021	26.4	41.9	7.0	8.7	622
04/11/2021	22.9	39.1	6.4	8.0	496		04/11/2021	25.0	41.0	7.7	9.1	593
05/11/2021	23.4	41.2	6.7	8.8	505		05/11/2021	27.6	40.1	7.5	9.2	607
12/11/2021	27.9	39.4	6.8	8.4	524		12/11/2021	28.2	39.7	7.6	8.6	619
13/11/2021	25.8	43.6	6.9	7.6	519		13/11/2021	29.1	38.3	7.4	8.0	599
18/11/2021	24.1	41.7	6.4	7.7	520		18/11/2021	18.8	37.4	6.8	8.3	604
19/11/2021	27.7	45.5	6.4	8.2	513		19/11/2021	19.4	36.5	7.0	8.4	611
02/12/2021	26.2	42.6	6.7	8.4	506		02/12/2021	20.5	35.9	7.8	9.1	630
03/12/2021	22.3	45.9	6.9	8.3	512		03/12/2021	19.9	34.7	7.1	8.8	629
10/12/2021	24.5	46.5	6.4	8.5	518		10/12/2021	21.6	48.5	6.9	8.2	621
11/12/2021	27.1	39.8	6.7	7.8	515		11/12/2021	22.7	33.6	6.8	8.7	605
16/12/2021	26.3	41.7	6.8	7.9	521		16/12/2021	23.3	35.9	7.0	9.2	634
17/12/2021	24.4	38.7	6.9	7.6	503		17/12/2021	24.8	37.8	7.7	8.3	615
23/12/2021	25.8	39.2	6.4	8.8	517		23/12/2021	23.6	39.1	7.5	8.5	593
24/12/2021	23.4	44.6	7.0	8.6	523		24/12/2021	21.2	30.9	7.6	8.7	595
Max.	**27.9**	**46.5**	**7.0**	**8.8**	**524**		**Max.**	**29.1**	**48.5**	**7.8**	**9.2**	**634**
Min.	**19.0**	**31.7**	**6.4**	**7.6**	**491**		**Min.**	**18.3**	**30.6**	**6.7**	**8.0**	**584**
98th percentile	**27.9**	**46.5**	**7.0**	**8.8**	**524**		**98th percentile**	**29.1**	**48.5**	**7.8**	**9.2**	**634**

Units : µg/m^{3}TANDIALAPETA							Units : µg/m^{3}KANGAPPAVANIPETA					
DATE	$PM_{2.5}$	PM_{10}	SO_2	NO_X	CO		DATE	$PM_{2.5}$	PM_{10}	SO_2	NO_X	CO
02/10/2021	22.4	44.2	8.0	9.9	649		02/10/2021	18.0	30.2	7.1	8.0	589
03/10/2021	19.5	50.9	7.3	10.0	644		03/10/2021	17.7	33.4	7.0	8.8	592
07/10/2021	20.6	49.8	7.5	8.3	652		07/10/2021	18.4	37.9	7.2	8.3	599
08/10/2021	26.4	51.3	8.2	8.0	673		08/10/2021	21.6	47.3	7.4	8.9	614
14/10/2021	25.2	47.6	8.4	9.8	675		14/10/2021	20.9	41.2	7.5	8.5	600
15/10/2021	24.9	50.6	7.5	9.1	662		15/10/2021	22.3	29.6	7.3	8.9	610
21/10/2021	23.7	32.7	7.4	8.4	654		21/10/2021	19.5	30.5	7.6	8.6	576
22/10/2021	27.9	47.1	7.7	8.7	672		22/10/2021	18.4	36.5	7.7	8.4	582
01/11/2021	26.2	33.7	7.4	10.2	681		01/11/2021	24.3	41.9	7.1	8.3	593
02/11/2021	29.1	45.2	8.3	9.7	680		02/11/2021	25.7	30.5	7.0	8.2	601
04/11/2021	30.2	46.8	7.5	9.6	663		04/11/2021	28.1	32.2	7.5	8.1	611
05/11/2021	25.4	32.6	8.5	8.3	669		05/11/2021	27.4	46.2	7.4	8.0	591
12/11/2021	29.3	41.4	7.9	8.2	679		12/11/2021	26.2	45.3	7.5	8.9	583
13/11/2021	27.5	50.5	8.0	8.8	682		13/11/2021	23.8	44.9	7.3	8.6	598
18/11/2021	19.7	44.5	7.6	9.2	666		18/11/2021	19.6	42.7	7.6	8.8	609
19/11/2021	21.2	47.3	7.9	8.5	676		19/11/2021	20.5	41.3	7.7	8.5	603
02/12/2021	20.4	48.9	7.8	9.6	685		02/12/2021	21.3	40.5	7.5	8.2	584
03/12/2021	22.6	50.3	8.1	8.7	683		03/12/2021	25.5	40.9	7.2	8.1	575
10/12/2021	26.3	49.2	8.4	8.8	677		10/12/2021	27.6	41.5	7.6	7.9	577
11/12/2021	30.7	48.1	7.6	10.1	659		11/12/2021	28.3	30.7	7.7	8.3	574
16/12/2021	27.1	47.7	8.5	8.6	665		16/12/2021	17.9	33.4	7.1	8.7	585
17/12/2021	28.2	46.6	7.9	9.3	671		17/12/2021	22.2	32.8	7.0	8.4	590
23/12/2021	19.9	49.4	7.4	9.7	668		23/12/2021	23.6	45.9	7.5	8.6	595
24/12/2021	21.6	50.9	7.6	8.2	650		24/12/2021	24.9	46.8	7.2	8.7	602
Max.	30.7	51.3	8.5	10.2	685		**Max.**	**28.3**	**47.3**	**7.7**	**8.9**	**614**
Min.	19.5	32.6	7.3	8.0	644		**Min.**	**17.7**	**29.6**	**7.0**	**7.9**	**574**
98th percentile	30.7	51.3	8.5	10.2	685		**98th percentile**	**28.3**	**47.3**	**7.7**	**8.9**	**614**

Units : µg/m³AMUDALAPADU							Units : µg/m³MACHESHILISAM					
DATE	$PM_{2.5}$	PM_{10}	SO_2	NO_X	CO		DATE	$PM_{2.5}$	PM_{10}	SO_2	NO_X	CO
02/10/2021	19.6	31.9	7.5	8.4	564		02/10/2021	19.0	29.3	6.0	6.9	430
03/10/2021	22.2	40.0	7.0	8.9	579		03/10/2021	21.2	30.7	6.2	7.1	446
07/10/2021	23.4	49.9	7.3	9.2	582		07/10/2021	22.6	33.0	6.4	6.6	457
08/10/2021	20.1	33.4	7.7	8.6	570		08/10/2021	25.7	28.4	6.3	7.2	468
14/10/2021	24.6	32.9	7.2	8.3	587		14/10/2021	20.0	40.0	6.1	6.8	440
15/10/2021	29.9	41.7	7.9	8.1	562		15/10/2021	18.6	30.0	6.4	7.0	432
21/10/2021	26.0	31.5	7.6	8.4	585		21/10/2021	22.0	38.9	6.0	6.5	447
22/10/2021	18.9	48.7	7.1	8.5	567		22/10/2021	17.7	32.4	6.2	7.2	453
01/11/2021	22.4	49.5	7.0	9.2	571		01/11/2021	22.8	40.6	6.4	6.8	425
02/11/2021	20.5	32.0	7.3	8.0	580		02/11/2021	21.6	28.0	6.3	6.5	449
04/11/2021	23.8	46.1	7.7	7.8	572		04/11/2021	18.4	31.3	6.1	6.7	463
05/11/2021	19.2	33.7	7.2	8.6	566		05/11/2021	23.9	42.4	6.0	7.1	434
12/11/2021	28.9	49.2	7.6	9.0	581		12/11/2021	19.2	29.5	6.2	6.6	450
13/11/2021	20.0	30.8	7.8	7.7	583		13/11/2021	24.0	41.0	6.4	6.5	439
18/11/2021	22.7	42.4	6.9	7.9	573		18/11/2021	17.0	28.8	6.3	6.9	423
19/11/2021	24.6	47.9	7.1	8.2	569		19/11/2021	22.5	42.0	6.1	7.2	444
02/12/2021	18.5	32.3	7.7	9.1	563		02/12/2021	24.7	30.1	6.5	6.8	438
03/12/2021	23.0	33.0	7.2	7.8	588		03/12/2021	25.0	35.4	6.2	6.6	467
10/12/2021	27.3	43.5	7.0	8.9	574		10/12/2021	18.9	32.7	6.0	7.0	460
11/12/2021	19.4	31.0	7.3	8.7	568		11/12/2021	23.0	42.9	6.2	6.5	427
16/12/2021	24.0	44.2	7.7	8.0	575		16/12/2021	16.8	31.8	6.4	7.0	442
17/12/2021	20.3	48.0	7.1	7.9	584		17/12/2021	19.4	36.4	6.3	6.7	451
23/12/2021	25.9	32.5	7.6	8.5	578		23/12/2021	21.4	30.5	6.1	6.9	436
24/12/2021	19.0	45.0	7.8	8.3	565		24/12/2021	18.0	29.0	6.4	7.1	464
Max.	**29.9**	**49.9**	**7.9**	**9.2**	**588**		**Max.**	**25.7**	**42.9**	**6.5**	**7.2**	**468**
Min.	**18.5**	**30.8**	**6.9**	**7.7**	**562**		**Min.**	**16.8**	**28.0**	**6.0**	**6.5**	**423**
98th percentile	**29.9**	**49.9**	**7.9**	**9.2**	**588**		**98th percentile**	**25.7**	**42.9**	**6.5**	**7.2**	**468**

Units : µg/m^3					GARA		Units : µg/m^3					KALINGAPATANAM
DATE	$PM_{2.5}$	PM_{10}	SO_2	NO_X	CO		DATE	$PM_{2.5}$	PM_{10}	SO_2	NO_X	CO
02/10/2021	38.7	52.1	11.0	15.6	1079		02/10/2021	39.1	48.3	10.4	13.3	1038
03/10/2021	30.0	50.8	13.1	17.3	1100		03/10/2021	35.9	60.0	11.0	15.3	1050
07/10/2021	40.5	55.7	11.8	16.9	1094		07/10/2021	31.3	47.9	9.8	14.4	1081
08/10/2021	39.1	51.3	12.6	18.4	1089		08/10/2021	36.6	53.6	11.6	16.0	1029
14/10/2021	32.6	66.1	10.3	14.8	1120		14/10/2021	28.9	45.1	10.3	17.5	1070
15/10/2021	34.3	69.3	13.2	19.0	1116		15/10/2021	33.5	56.8	11.4	16.4	1054
21/10/2021	41.5	65.7	12.9	16.8	1088		21/10/2021	36.3	49.2	10.9	14.1	1034
22/10/2021	38.2	52.9	12.0	19.2	1098		22/10/2021	29.7	52.8	10.4	15.4	1066
01/11/2021	33.0	53.3	10.5	15.0	1115		01/11/2021	36.0	61.4	11.1	16.6	1079
02/11/2021	34.1	56.4	12.8	16.5	1093		02/11/2021	31.9	45.9	9.9	17.3	1037
04/11/2021	30.4	50.0	13.4	18.6	1070		04/11/2021	38.8	53.5	10.3	16.1	1085
05/11/2021	36.3	64.8	11.2	15.8	1119		05/11/2021	27.0	57.1	11.5	17.0	1073
12/11/2021	40.2	52.7	13.6	17.0	1092		12/11/2021	33.8	54.9	10.8	13.5	1040
13/11/2021	38.0	60.0	12.1	16.4	1080		13/11/2021	37.7	46.6	11.7	15.6	1074
18/11/2021	32.9	57.8	13.9	18.0	1117		18/11/2021	29.5	62.7	12.2	16.9	1057
19/11/2021	39.3	49.7	11.3	19.7	1106		19/11/2021	39.0	54.1	10.5	12.6	1030
02/12/2021	39.0	54.9	13.5	16.7	1096		02/12/2021	32.1	65.2	11.2	15.8	1041
03/12/2021	37.6	51.4	11.4	17.1	1068		03/12/2021	27.6	50.3	12.0	16.2	1084
10/12/2021	29.8	62.3	12.2	19.3	1099		10/12/2021	37.9	63.8	10.5	14.7	1059
11/12/2021	40.0	50.4	10.7	15.2	1085		11/12/2021	30.0	52.7	10.7	17.1	1023
16/12/2021	33.3	58.8	13.0	18.9	1109		16/12/2021	35.6	47.7	12.1	13.0	1078
17/12/2021	39.7	53.0	11.9	16.0	1073		17/12/2021	32.4	51.9	10.6	16.3	1044
23/12/2021	30.9	59.7	12.4	17.5	1090		23/12/2021	38.5	55.3	10.2	15.1	1032
24/12/2021	40.9	51.0	11.6	19.1	1107		24/12/2021	28.0	64.5	11.3	13.9	1080
Max.	**41.5**	**69.3**	**13.9**	**19.7**	**1120**		**Max.**	**39.1**	**65.2**	**12.2**	**17.5**	**1085**
Min.	**29.8**	**49.7**	**10.3**	**14.8**	**1068**		**Min.**	**27.0**	**45.1**	**9.8**	**12.6**	**1023**
98th percentile	**41.5**	**69.3**	**13.9**	**19.7**	**1120**		**98th percentile**	**39.1**	**65.2**	**12.2**	**17.5**	**1085**

Agenda Item No:187.60	**Beneficiation of Beach sand minerals of M/s. Trimex Sands Private Limited at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh State – EC – Reg.**
SIA/AP/IND/ 69360/2021	**Category : 2(b)** **M/s. Trimex Sands Private Limited at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh State** applied for EC for Mineral Separation Plant (MSP). The project proponent and their consultant, M/s. Pioneer Enviro Labs have attended the meeting and appraised the proposal. The proponent informed that MSP is already established in 2009-10 as part of the integrated Mining cum Beneficiation project for beach sand minerals, for which EC was obtained from MoEF&CC after conducting public hearing. The project has undergone expansion in 2015 and fresh EC for expansion was also obtained after conducting PH. The policy decision of the GOI in 2019 to permit only Govt companies in the mining of beach sand minerals resulted in the stoppage of the MSP, though it is situated outside the ML area. To facilitate restarting of the MSP operations by sourcing mineral concentrate from India/abroad, the proponent submitted application for grant of TOR and also requested for exemption from Public Hearing. The Committee further noted that public hearing has been conducted in the year 2003 as per EIA notification 1994 for integrated proposal of Beach sand mining of 2 MTPA & Mineral Separation Plant (MSP) of 0.63 MTPA and EC was obtained in 2004. Thereafter, for expansion proposal, PH has been again conducted on 29.12.2012 as per EIA notification 2006 for 6.0 MTPA mining and 0.93 MTPA MSP and obtained EC in 2015. Now applying fresh EC for MSP of 0.44 MTPA only, which is less than 50% capacity for which PH been conducted & EC issued. The Mining Lease was valid till 2034. The EC granted in 2015 based on the PH conducted was also valid till 2034. The change in policy of the GOI in 2019 only resulted in the stoppage of the mining and thereby MSP. No mining is proposed now. The issue was placed in the 172nd SEAC and recommended for issue of Standard TOR with EIA & Public Hearing. accordingly, TOR issued on 12.04.2022. Now, the unit has applied for EC. Further, the SEIAA has reviewed in 169th meeting, the Committee Referred to SEAC to examine in the light of request letter dt. 20.12.2021 submitted by the proponent. The SEAC again reviewed the case in the 179th SEAC meeting and recommended to SEIAA for the TOR without Public Hearing. SEIAA in its meeting held on 177th SEIAA meeting agreed with 179th SEAC meeting recommendations. Accordingly, TOR was issued. The Proponent and their consultant M/s. Pioneer Enviro Consultant have attended the meeting and appraised the case. The Committee noted that this is a mineral beneficiation unit wherein the water used for jigging and extraction purposes is proposed to be recycled and the

	entire process will be under wet condition. The source of air pollution from the proposed unit is emissions generated from the burning of fuel in the boiler, in generators and fugitive emission dust from the movement of vehicles. The Proponent has proposed air pollution control equipment to the boiler. The proponent shall obtain necessary approvals in case of processing of radio active minerals viz., monazite from the department of atomic energy. The proponent proposed to provide mineral water plant in the surrounding villages. The Committee after examining the project proposals, presentations, MoEF&CC' Notifications & OMs and detailed deliberations, recommended for issue of Environmental Clearance with conditions specified in the earlier EC order accorder by MoEF & CC.

Sd/-

Member Secretary
SEAC

Sd/-

Chairman
SEAC

REVISED MINUTES of 184th (Day-2) MEETING OF STATELEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY (SEIAA) A.P., MEETING HELD ON 26.05.2022 AT VIJAYAWADA A.P.

184th SEIAA

Day -2

सत्यमेव जयते

REVISED MINUTES OF THE AGENDA ITEM 184.52 & 184.53 OF STATELEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY (SEIAA) A.P., MEETING HELD ON 26.05.2022 AT VIJAYAWADA A.P.

Present:

The following members were present. (Through Video Conference)

1.	Sri P.Venkata Rami Reddy, I.A.S, (Retired).	Chairman
2.	Dr.Thatiparthi Byragi Reddy Professor. Department of Environmental Sciences, Andhra University, Visakhapatnam	Member
3.	Dr. P.V.Chalapathi Rao, I.F.S Special Secretary to Govt., Environment, Forests, Sciences and Technology Department, Govt. of Andhra Pradesh & Member Secretary, SEIAA,A.P.	Member Secretary

187.59 & 184.52	3.5 Ha. Colour granite (Minor mineral) of Dr. Chatti Hanumantha Rao, Sy.No: 27, Meelasathiwada Village, Tekkali Mandal, Srikakulam District, Andhra Pradesh SIA/AP/MIN/76441/2022
	Recommendations of the SEAC on 17.05.2022. **Category : B2.** The proposed project is for mining of **Colour granite** in an area of 3.5**Ha**. with a proposed production capacity of **Colour granite- 3600 CuM/ Annum** with a condition that the total production during a scheme should be limited to the approved quantity as per Mining scheme/ plan. The proposed project falls under Item No. 1(a) of the schedule of the EIA Notification 2006 and its amendments thereof - (i). Mining of minerals (<100 ha of mining lease area in respect of non-coal mine lease). The proponent and their consultant SriV.Vijay Kumar, B. S Envi Tech have attended the meeting. The Committee noted that as per cluster letter issued by the Assistant Director of Mines & Geology, Tekkali, Srikakulam has issued a letter vide Lr.No.1065/Q/2021, dt.29.04.2022 there are fourteen quarry lease existing within the radius of 500mts.**Total cluster area is< 5.0 Ha.** The project falls under **B2**category as per the MoEFCC Notification No. S.O.2269 (E),dated 1st July, 2016. The proponent informed that the lease was executed in the favour of him vide Mines & Geology Department proceedings No.1105/Q/2003 dated 16.08.2003 in respect of 3.5 Ha in Sy.No.27 of Meelisathivada village, Tekkali Mandal of Srikakulam district, Andhra Pradesh for a period of 15 years from 18.08.2003 to 17.08.2018. Further, he has informed that he applied for renewal of lease period one year prior to expiry of mine lease. The Committee after examining the project proposals, presentations, MoEF&CC' Notifications, OM dated 07.07.2020& OMs and detailed deliberations, recommended to issue **Violation TOR without public hearing** as the total cluster area is 3.5 Ha which is less than 5.0 Ha. **Decision of SEIAA:-** Agreed with the recommendation of the SEAC to issue Violation TOR without public hearing.
187.60 & 184.53	Beneficiation of Beach sand minerals of M/s. Trimex Sands Private Limited at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh SIA/AP/IND/69360/2021
	Recommendations of the SEAC on 17.05.2022.

Category : 2(b)

M/s. Trimex Sands Private Limited at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh State applied for EC for Mineral Separation Plant (MSP).

The project proponent and their consultant, M/s. Pioneer Enviro Labs have attended the meeting and appraised the proposal.

The proponent informed that MSP is already established in 2009-10 as part of the integrated Mining cum Beneficiation project for beach sand minerals, for which EC was obtained from MoEF&CC after conducting public hearing. The project has undergone expansion in 2015 and fresh EC for expansion was also obtained after conducting PH. The policy decision of the GOI in 2019 to permit only Govt companies in the mining of beach sand minerals resulted in the stoppage of the MSP, though it is situated outside the ML area. To facilitate restarting of the MSP operations by sourcing mineral concentrate from India/abroad, the proponent submitted application for grant of TOR and also requested for exemption from Public Hearing.

The Committee further noted that public hearing has been conducted in the year 2003 as per EIA notification 1994 for integrated proposal of Beach sand mining of 2 MTPA & Mineral Separation Plant (MSP) of 0.63 MTPA and EC was obtained in 2004. Thereafter, for expansion proposal, PH has been again conducted on 29.12.2012 as per EIA notification 2006 for 6.0 MTPA mining and 0.93 MTPA MSP and obtained EC in 2015. Now applying fresh EC for MSP of 0.44 MTPA only, which is less than 50% capacity for which PH been conducted & EC issued.

The Mining Lease was valid till 2034. The EC granted in 2015 based on the PH conducted was also valid till 2034. The change in policy of the GOI in 2019 only resulted in the stoppage of the mining and thereby MSP. No mining is proposed now.

The issue was placed in the 172ndSEAC and recommended for issue of Standard TOR with EIA & Public Hearing. accordingly, TOR issued on 12.04.2022. Now, the unit has applied for EC.

Further, the SEIAA has reviewed in 169th meeting, the Committee Referred to SEAC to examine in the light of request letter dt. 20.12.2021submitted by the proponent. The SEAC again reviewed the case in the 179th SEAC meeting and recommended to SEIAA for the TOR without Public Hearing. SEIAA in its meeting held on 177th SEIAA meeting agreed with 179th SEAC meeting recommendations. Accordingly, TOR was issued.

The Proponent and their consultant M/s. Pioneer Enviro Consultant have attended the meeting and appraised the case.

The Committee noted that this is a mineral beneficiation unit wherein the water used for jigging and extraction purposes is proposed to be recycled and the entire process will be under wet condition. The source of air pollution from the proposed unit is emissions generated from the burning of fuel in the boiler, in generators and fugitive emission dust from the movement of vehicles. The Proponent has proposed air pollution control equipment to the boiler. The proponent shall obtain necessary approvals in case of processing of radio active minerals viz., monazite from the department of atomic energy. The proponent proposed to provide mineral water plant in the surrounding villages.

The Committee after examining the project proposals, presentations, MoEF&CC' Notifications & OMs and detailed deliberations, recommended for issue of

	Environmental Clearance with conditions specified in the earlier EC order accorder by MoEF& CC. **Decision of SEIAA:-** Agreed with the recommendation of the SEAC to issue Environmental Clearance with a condition that the proponent shall comply with conditions specified in the earlier EC order accorded by MoEF& CC, for Mineral Separation Plant.

Special Secretary To Govt

Dr. P.V.Chalapathi Rao, I.F.S	Dr.Thatiparthi Byragi Reddy	Sri P.Venkata Rami Reddy, I.A.S, (Retired).
Special Secretary to Govt., Environment, Forests, Sciences and Technology Department, Govt. of Andhra Pradesh & Member Secretary, SEIAA,A.P.	Professor. Department of Environmental Sciences, Andhra University, Visakhapatnam	Chairman, SEIAA,A.P

Signed by Dr P V Chalapathi Rao
Date: 22-06-2022 19:55:10
Reason: Approved

ENVIRONMENTAL CLEARANCE

PARIVESH

(Pro-Active and Responsive Facilitation by Interactive, and Virtuous Environmental Single-Window Hub)

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

To,

The sr Vice President
TRIMEX SAND PRIVATE LIMITED
Vatsavalasa village srikurmam P.O Gara mandal Srikakulam District - 532404

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/AP/IND/69360/2021 dated 30 Apr 2022. The particulars of the environmental clearance granted to the project are as below.

1.	**EC Identification No.**	**EC22B007AP161295**
2.	**File No.**	AP SKLM IND 11 2021 3654
3.	**Project Type**	New
4.	**Category**	B1
5.	**Project/Activity including Schedule No.**	2(b) Mineral beneficiation
6.	**Name of Project**	Trimex Sands Private Limited
7.	**Name of Company/Organization**	TRIMEX SAND PRIVATE LIMITED
8.	**Location of Project**	Andhra Pradesh
9.	**TOR Date**	12 Apr 2022

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

Date: 28/07/2022

(e-signed)
DR. P.V.CHALAPATHI RAO
Member Secretary
SEIAA - (Andhra Pradesh)

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.

State Level Environment Impact Assessment Authority (SEIAA)
Andhra Pradesh
Ministry of Environment, Forests & Climate Change
Government of India
D.No.33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamavari Street, Kasturibaipet, Vijayawada-520010

REGD.POST WITH ACK.DUE

Order No. SEIAA/AP/SKLM/ IND/11/2021/3654/187.60 & 184.53

Sub: SEIAA, A.P. – Beach Sand Mineral separation plant of M/s. Trimex Sands Private Limited at Sy.No. 78, 79, 80, 84, 176 to 183 & 193, Vatsavalasa Village, Gara Mandal, Srikakulam District Andhra Pradesh - Environmental Clearance – Issued - Reg.

I. This has reference to your application submitted through online on 30.04.2022 (SIA/AP/IND/**69360**/2021), seeking Environmental Clearance for the proposed **Beneficiation of Beach Sand Minerals at Sy. No. 78, 79, 80, 84, 176 to 183 & 193, Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh** in favour of **M/s. Trimex Sands Private Limited.** Total area of the plant is 64.66 Acres (26.17 Ha). It was reported that the nearest human habitation viz., Pedda Vastavalasa (V) exists at a distance of about 0.5 km from the Plant. It was noted that the capital investment of the project is Rs. 269.90 Crores and capacity of the project is as follows:

Mineral Separation Plant (MSP) of 0.44 MTPA in 64.66 Acres.

The proposal has been examined and processed in accordance with EIA Notification, 2006 and its amendments thereof. The State Level Expert Appraisal Committee (SEAC) examined the application in its meetings held on **18.05.2022. M/s. Trimex Sands Private Limited at Vatsavalasa Village, Gara Mandal, Srikakulam District, Andhra Pradesh State** applied for EC for Mineral Separation Plant (MSP). The project proponent and their consultant, M/s. Pioneer Enviro Labs have attended the meeting and appraised the proposal. The proponent informed that MSP is already established in 2009-10 as part of the integrated Mining cum Beneficiation project for beach sand minerals, for which EC was obtained from MoEF&CC after conducting public hearing. The project has undergone expansion in 2015 and fresh EC for expansion was also obtained after conducting PH. The policy decision of the GOI in 2019 to permit only Govt companies in the mining of beach sand minerals resulted in the stoppage of the MSP, though it is situated outside the ML area. To facilitate restarting of the MSP operations by sourcing mineral concentrate from India/abroad, the proponent submitted application for grant of TOR and also requested for exemption from Public Hearing. The Committee further noted that public hearing has been conducted in the year 2003 as per EIA notification 1994 for integrated proposal of Beach sand mining of 2 MTPA & Mineral Separation Plant (MSP) of 0.63 MTPA and EC was obtained in 2004. Thereafter, for expansion proposal, PH has been again conducted on 29.12.2012 as per EIA notification 2006 for 6.0 MTPA mining and 0.93 MTPA MSP and obtained EC in 2015. Now applying fresh EC for MSP of 0.44 MTPA only, which is less than 50% capacity for which PH been conducted & EC issued. The Mining Lease was valid till 2034. The EC granted in 2015 based on the PH conducted was also valid till 2034. The change in policy of the GOI in 2019 only resulted in

the stoppage of the mining and thereby MSP. No mining is proposed now. The issue was placed in the 172nd SEAC and recommended for issue of Standard TOR with EIA & Public Hearing. accordingly, TOR issued on 12.04.2022. Now, the unit has applied for EC. Further, the SEIAA has reviewed in 169th meeting, the Committee Referred to SEAC to examine in the light of request letter dt. 20.12.2021submitted by the proponent. The SEAC again reviewed the case in the 179th SEAC meeting and recommended to SEIAA for the TOR without Public Hearing. SEIAA in its meeting held on 177th SEIAA meeting agreed with 179th SEAC meeting recommendations. Accordingly, TOR was issued. The Proponent and their consultant M/s. Pioneer Enviro Consultant have attended the meeting and appraised the case. The Committee noted that this is a mineral beneficiation unit wherein the water used for jigging and extraction purposes is proposed to be recycled and the entire process will be under wet condition. The source of air pollution from the proposed unit is emissions generated from the burning of fuel in the boiler, in generators and fugitive emission dust from the movement of vehicles. The Proponent has proposed air pollution control equipment to the boiler. The proponent shall obtain necessary approvals in case of processing of radio active minerals viz., monazite from the department of atomic energy. The proponent proposed to provide mineral water plant in the surrounding villages. The Committee after examining the project proposals, presentations, MoEF&CC' Notifications & OMs and detailed deliberations, recommended for issue of Environmental Clearance with conditions specified in the earlier EC order accorder by MoEF& CC. The committee in the appraisal report clearly stated that they have approved the Form-I/II, PFR/DPR and EMP for compliance by the proponent. The State Level Environment Impact Assessment Authority (SEIAA), in its meeting held on **26.05.2022** examined the proposal and the recommendations of SEAC and decided to accept SEAC recommendations aforesaid for strict compliance by the proponent and to issue EC with a condition that the proponent shall comply with conditions specified in the earlier EC order accorded by MoEF& CC, for Mineral Separation Plant. The SEIAA, A.P hereby accords Environmental Clearance to the project as mentioned at Para No. I under the provisions of the EIA Notification 2006 and its subsequent amendments issued under Environment (Protection) Act, 1986 subject to implementation of the following specific and general conditions

Part A. Special Conditions:

1. This EC order is issued for Mineral Separation Plant (MSP) of capacity 0.44 MTPA only. The operations of mineral separation plant shall be done by sourcing mineral concentrate from India/abroad. No mining operations shall be carried out without obtaining Environmental Clearance.
2. The proponent shall comply with conditions specified for Mineral Separation Plant in the earlier EC order accorded by MoEF& CC.

a) Air Pollution:-

i. The industry shall store raw material & finished products in covered sheds/ silos to minimize pollution.

ii. They emissions from crusher and screening shall be connected to a hood, followed by bag filters before letting out the emissions in to atmosphere through a stack height of 15 m. At no time the particulate emissions should exceed 50 mg/Nm^3. The D.G. Sets shall be provided with adequate stack height, as per CPCB norms.

iii. Sampling Port with removable dummy of not less than 15cm diameter in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends

etc., shall be provided to monitor stack emissions.

iv. Ambient air quality including ambient noise levels must not exceed the standards stipulated under Notification dt. 16.11.2009 issued by the MoE&F,GOI. Monitoring of ambient air quality and stack emissions shall be carried out regularly in consultation with APPCB and report submitted to the Board and to the Ministry's Regional Office at Bangalore half yearly.

v. The company shall install adequate dust collection and extraction system to control fugitive dust emissions at various transfer points.

vi. Raw materials and products shall be transported in covered trucks. Storage of raw material shall be in roof sheds. Water spray system shall be provided all around the stockpiles and dust suppression system around the conveyor system. All the conveyor belts shall be covered with G.I. Sheets. All the roads in the plant area shall be asphalted / concreted and water sprayed to reduce the fugitive dust emissions

vii. In-plant control measures for checking fugitive emissions from all the vulnerable sources like spillage/raw materials handlings etc. shall be provided. Further, specific measures like provision of dust suppression system consisting of water sprinkling, suction hoods, fans and bag filters etc. shall be installed at material transfer points, and other raw material handling areas.

viii. Interlocking facility should be provided in the pollution control equipment so that in the event of the pollution control equipment not working, the feeding of raw materials is stopped automatically.

ix. Green belt shall be developed in an area of along the boundary and vacant places in the unit, in consultation with the local DFO.

2) Water Pollution:-

i. The Source of water is from the Vamsadara river. Total water requirement is 805 KLD, Out of that 760.0 KLD is used for Process; 5.0 KLD is used for Dust suppression; 20.0 KLD is used for green belt development; 20.0 KLD is used for domestic purpose.

The total waste water generation from process is 760 KLD which shall be treated in water treatment plant to recover maximum water and will be reused in the process and the domestic effluents 16.0 KLD shall be disposed into septic tank followed by soak pit.

No effluent shall be discharged outside the plant premises.

ii. The company must harvest the rainwater from the rooftops and storm water drains to recharge the ground water.

3) Solid Waste :-

i. The Solid waste - Fine/non-saleable mineral grades and silica sand - 0.096 MTPA generated from the beneficiation plant shall be stored for future recovery of any useful minerals/used for backfilling earlier mined out pits; Used lubricant oil - 1.2 KLPA shall be stored in covered HDPE drums in a designated area and shall be given to APPCB Authorised Recyclers/Re-processors. Waste oils, used oils, used lead batteries generated from the plant shall be disposed as per the Hazardous and other wastes (Management and transboundary movement) Rules 2016 its to the recyclers authorized by APPCB.

B. General Conditions:

i. **This order is valid for a period of 7 years.**

ii. "Consent for Establishment" shall be obtained from Andhra Pradesh Pollution Control Board under Air and Water Act before the start of any activity / construction work at site.

iii. The project shall implement the commitments, if any, made in the public hearing;

iv. Provision shall be made for the housing of the construction labour within the site with all necessary infrastructure and facilities such as safe drinking water, fuel for cooking, mobile toilets, mobile STP, medical health care, crèche etc., The housing may be in the form of temporary structures to be removed after the completion of the project. The safe disposal of wastewater and solid wastes generated during the construction phase should be ensured.

v. No change in the process technology and scope of working should be made without prior approval of the SEIAA, A.P. No further expansion or modifications in the plant shall be carried out without prior approval of the SEIAA, AP/ MoE&F, GoI, New Delhi, as applicable.

vi. The proponent shall submit half-yearly compliance reports in respect of the terms and conditions stipulated in this order in hard and soft copies to the SEIAA; and CCF, Regional office of MoE&F, GoI, Vijayawada on 1st June and 1st December of each calendar year.

vii. Officials from the Regional Office of MoE&F, Vijayawada who would be monitoring the implementation of environmental safeguards should be given full co-operation, facilities and documents/data by the project proponents during their inspection. A complete set of all the documents shall be submitted to the CCF, Regional Office to MoE&F, Vijayawada.

viii. Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.

ix. Data on ambient air quality should be regularly submitted to the Ministry including its

Regional Office located at Bangalore and the State Pollution Control Board/ Central Pollution Control Board once in six months.

x. Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

xi. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

xii. A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.

xiii. The funds earmarked for environmental protection measures **(Capital cost Rs. 176.0 Lakhs and Recurring cost Rs.141.1 Lakhs/Annum)** should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Vijayawada.

xiv. The project proponent shall submit the copies of the environmental clearance to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

xv. The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and SEIAA, A.P. This order shall be displayed in the website of the project proponent.

xvi. The SEIAA or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

xvii. The company shall undertake eco-development measures including community welfare measures in the project area.

xviii. The proponent shall obtain all other mandatory clearances from respective departments.

xix. 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.

xx. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

xxi. The SEIAA may revoke or suspend the order, if implementation of any of the above

conditions is not satisfactory. The SEIAA reserves the right to alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

xxii. 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.

MEMBER SECRETARY, SEIAA, A.P. | **MEMBER, SEIAA, A.P.** | **CHAIRMAN, SEIAA, A.P.**

To

M/s. Trimex Sands Private Limited,
Sri V H Rafi Ahammed, Sr. Vice President,
Vatsavalasa Village Srikumam P.O,
Gara Mandal, Srikakulam District,
Andhra Pradesh-532404.

Copy to:

1. The Chairman, SEAC, A.P. for kind information.
2. The Member Secretary, APPCB for kind information.
3. The EE, RO: Srikakulam, APPCB for information.
4. The Regional Officer, MOEF&CC, GOI, Vijayawada for kind information.
5. The Secretary, MOEF&CC, GOI New Delhi for kind information.
6. Monitoring cell, MoEF&CC, GOI, New Delhi for kind information.
7. The District Collector, Srikakulam District, Andhra Pradesh for kind information.

Validity unknown
Digitally signed by DR P.V.CHALAPATHI RAO
Member Secretary
Date: 7/28/2022 6:03:02 PM

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, SOUTH ZONE BENCH AT CHENNAI

(Original Application under Section 18(1) r/w Section 16 of the National Green Tribunal Act, 2010)

Original Application No. 45 of 2022

IN THE MATTER OF:

V. Ramasubbu

...Appellant

Vs.

Union of India & Ors.

...Respondents

TYPED SET

MR. P. GOWTHAMAN

COUNSEL FOR THE RESPONDENT-5