

**BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE BENCH AT CHENNAI
ORIGINAL APPLICATION No. 261 OF 2024
EARLIER O.A. NO.1055 OF 2024(PB)**

IN THE MATTER OF: -

Tribunal on its own motion Suo Moto based on News Item titled "Unscientific work by NHAI led to Shirur landslide Geological Survey of India report" appearing in the Indian Express dated 02.08.2024.

VERSUS

National Highways Authority of India & Ors.

... Respondent(s)

INDEX

Sl No.	Particulars	Pg. No.
1.	Reply Affidavit on behalf of Respondent No. 3 [The Ministry of Environment, Forest, and Climate Change]	1-5
2.	Copies of the EC dated 10.08.2009 have been annexed herewith as Annexure-R3/1.	6-12
3.	Copies of the EC dated 19.02.2014 have been annexed herewith as Annexure-R3/2.	13-20
4.	A copy of the Office Memorandum dated 25.11.2022 is annexed herewith as Annexure-R3/3.	21-23
5.	A copy of the letter dated 22.10.2024 has been annexed herewith as Annexure-R3/4.	24
6.	A copy of the inspection report dated 05.03.2025 has been annexed herewith as Annexure-R3/5.	25-207
7.	Copy of the SCN dated 05.05.2025 has been annexed herewith as Annexure-R3/6.	208-211

Dated at Chennai on this 13TH

day of June, 2025


Counsel for the 3rd Respondent

BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE BENCH AT CHENNAI
ORIGINAL APPLICATION No. 261 OF 2024
EARLIER O.A. NO.1055 OF 2024(PB)

IN THE MATTER OF: -

Tribunal on its own motion Suo Moto based on News Item titled "Unscientific work by NHAI led to Shirur landslide Geological Survey of India report" appearing in the Indian Express dated 02.08.2024.

VERSUS

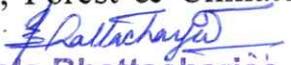
National Highways Authority of India & Ors.

... Respondent(s)

**REPLY AFFIDAVIT ON BEHALF OF RESPONDENT NO. 3 [THE
MINISTRY OF ENVIRONMENT, FOREST, AND CLIMATE
CHANGE]**

I, Dr. Dola Bhattacharjee D/o Shri. Samirendra Nath Bhattacharya, aged about 42 years, presently working as Scientist "B" in the Ministry of Environment, Forest & Climate Change (hereinafter referred to as "MoEF&CC"), Regional Office-Bengaluru, do hereby, in my official capacity, solemnly affirm and state on oath as under-

1. That, I am duly competent to swear the present affidavit on behalf of Respondent No.3 i.e., the Ministry of Environment, Forest & Climate


Dr. Dola Bhattacharjee
Scientist 'B'

Change based the official records maintained therein.

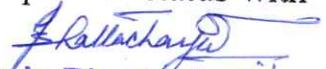
2. It is humbly submitted that all the averments made in the instant application are denied except those which are specifically admitted herein in this reply affidavit.
3. It is humbly submitted that the present Original Application has been registered *suo motu* on the basis of a news report titled "*Unscientific work by NHAI led to Shirur Landslide: Geological Survey of India report*" published in *The Indian Express* dated 02.08.2024. The report pertains to the landslide that occurred in coastal Karnataka's Uttara Kannada district. As per the article, a preliminary report by the Geological Survey of India (GSI) attributes the incident to the "unscientific" construction of NH-66 by the National Highways Authority of India (NHAI), compounded by heavy rainfall over a short duration, both identified as contributing factors to the disaster.
4. It is humbly submitted that the Coastal Regulation Zone (hereinafter referred to as "CRZ") and Environmental Clearance (herein after referred to as "EC") for 4/6 laning of Kundapur/Suratkal stretch of NH-17 by M/s. National Highways Authority of India was granted by the Answering Respondent vide letter no. 5-26/2008-IA.III dated 10.08.2009. Further, another Environmental and CRZ Clearance for widening and upgradation of existing carriageway to 4/6 laning of Goa-Karnataka Border (km 93.700) to Kundapur (km 283.300) Section of NH-17 in the State of Karnataka was granted by the Answering Respondent vide letter no. 10-107/2011-IA.III dated 19.02.2014. Copies of the EC dated 10.08.2009 and 19.02.2014 have been annexed herewith as **Annexure-R3/1** and **Annexure-R3/2**, respectively.



Dr. Dola Bhattacharjee
Scientist 'B'

MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
Integrated Regional Office, Kendriya Sadan
IVth Floor, E&F Wings, Bengaluru - 560 034.

5. It is humbly submitted that the Answering Respondent has established a Standard Operating Procedure (hereinafter referred to as "SoP") for Post Environmental Clearance Monitoring and compliance of the projects *vide* Office Memorandum dated 25.11.2022. A copy of the Office Memorandum dated 25.11.2022 is annexed herewith as **Annexure-R3/3**.
6. It is humbly submitted that in line of the above mentioned SoP, the Answering Respondent *vide* letter dated 22.10.2024 requested the Regional Office (hereinafter referred to as "RO") of the Ministry at Bengaluru to furnish a factual status report concerning the issues raised in the Original Application, along with a condition-wise compliance status report (s) for all the ECs associated with the project. A copy of the letter dated 22.10.2024 has been annexed herewith as **Annexure-R3/4**.
7. It is humbly submitted that, in furtherance of the Answering Respondent's letter dated 22.10.2024, the RO Bengaluru conducted a site inspection on 07.11.2024 and subsequently, submitted a site inspection report *vide* letter no. F(C)A/12.7/732/NGT/KAR760 dated 05.03.2025. A copy of the inspection report dated 05.03.2025 has been annexed herewith as **Annexure-R3/5**.
8. It is humbly submitted that the inspection report was examined within the Ministry and as far as factual present status of the project is concerned, as per the RO Bengaluru's observation it is noted that a landslide occurred on 16.07.2024 at Km 147.900 near Shiroor Village, Ankola, causing significant damage and disruption to NH 66. During the site visit, the RO observed that no toe supports were seen in the affected stretch, and overburden and debris were found spilled into the river. The RO further observed several inadequacies in the compliance status with


Dr. Dola Bhattacharjee
Scientist 'B'

MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
Integrated Regional Office, Kendriya Sadan
IVth Floor, E&F Wings, Bengaluru - 560 034.

respect to the forest clearance granted to this project, including the absence of plantations along the roadside and central verges, roadside dumping of overburden and lack of slope stabilization measures, etc.

9. It is humbly submitted that with respect to the EC compliance status in reference to the ECs dated 10.08.2009 and 19.02.2014 issued by the Answering Respondent, the inspection report submitted by the RO Bengaluru revealed significant non-compliance which *inter-alia* include inadequate desilting, dumping of overburden along the roadside, obstruction of natural drainage, no environmental cell, no hot mix plant, no sprinklers, multiple wildlife casualties etc. posing serious risk to health, environment and biodiversity. Accordingly, the Answering Respondent issued a Show Cause Notice vide letter no. IA-L-11011/57/2024-IA-I dated 05.05.2025 to the Project Proponent. Copy of the SCN dated 05.05.2025 has been annexed herewith as **Annexure-R3/6**. The reply to the SCN from the Project Proponent viz. M/s. NHAI is still awaited.

10. It is humbly submitted that the present Reply Affidavit may kindly be taken on record and into consideration and the Hon'ble Tribunal may pass appropriate Order(s). direction(s) as deemed fit and proper under the facts and circumstances of the present case.

11. It is humbly submitted that the Answering Respondent seeks leave to make additional submissions, if required, during the course of the proceedings.

Dated at Bengaluru on this 13 th day of June,2025



Counsel for the 3rd Respondent


DEPONENT

Dr. Dola Bhattacharjee
Scientist 'B'

MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
Integrated Regional Office, Kendriya Sadan
IVth Floor, E&F Wings, Bengaluru - 560 034.

VERIFICATION

I, the above-named Deponent, do hereby verify that the contents of the above affidavit are true and correct to my knowledge as per the records of the answering respondents. No part of it is false and nothing material has been concealed there from. Verified at Bengaluru on this 12th day of June, 2025.

Dated at Bengaluru on this 13 day of June, 2025.



DEPONENT

Dr. Dola Bhattacharjee

Scientist 'B'

MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
Integrated Regional Office, Kendriya Sadan
IVth Floor, E&F Wings, Bengaluru - 560 034.



No. 5-26/2008-IA.III
 Government of India
 Ministry of Environment & Forests
 (IA Division)

635/KAR

Paryavaran Bhawan,
 CGO Complex, Lodhi Road,
 New Delhi - 110 003.

Dated: 10th August, 2009.

To
 The Chairman,
 National Highway Authority of India,
 G-5 & 6, Sector - 10, Dwarka,
 New Delhi - 110 045.

Subject: CRZ and Environmental Clearance for 4/6 laning of
 Kundapur/Suratkal stretch of NH-17 by M/s. National
 Highways Authority of India - Reg.

This has reference to the letter of Secretary to Government (E&E), Forest, Ecology and Environment Department, Govt. of Karnataka dated 14.07.2008 and subsequent letters dated 12.08.2008 and 01.10.2008, seeking prior Clearance for the above project under the CRZ Notification, 1991 and EIA Notification, 2006. The proposal has been appraised as per prescribed procedure in the light of provisions under the CRZ Notification, 1991 and EIA Notification, 2006 on the basis of the mandatory documents enclosed with the application viz., the Questionnaire, EIA, EMP and the additional clarifications furnished in response to the observations of the Expert Appraisal Committee constituted by the competent authority in its meetings held on 21st - 22nd August 2008 and 21st - 22nd May, 2009.

2. It is interalia, noted that the proposal involves the 4 laning of Kundapur (Km 283.300) to Suratkal (existing Km 358.080, proposed Km 358.686). The major towns along the alignment are Saligrama (Kundapur), Udupi and Mulky. The highway passes through Mulky bridge, Bangala bridge, Udyavara bridge, Udyavara Backwater, Uppoor bridge, Bhadragiri bridge and Mabukala bridge. Existing road stretch is from Km 282.69 to Km 358.08. Length of the road is 75.386 km. Existing ROW is 24 to 247m and proposed ROW is 45m to 60 m. Existing junction includes, 7 major bridges, 7 minor bridges, 162 culverts and 21 major junctions and proposed includes 7 major bridges, 7 minor bridges and 198 culverts with 14 cattle crossings, 7 pedestrian underpasses, 1 vehicular overpasses, 4 vehicular underpasses and service road of 36.53km. 56 villages, 3 towns, 3 talukas, Kundapur, Udupi, Mangalore. 149.44ha of land acquisition is involved for the project. The total cost of the project is Rs.704.70 crores.

Shamul

3. The project falls under activity 7 (f) "Highways" of EIA Notification 2006 and CRZ Notification, 1991. The road passes through mainly CRZ-III area as per the approved Coastal Zone Management Programme of Karnataka. A small portion also passed through CRZ-I and CRZ-III. Few mangroves patches are observed along Pavanje Bridge, Karnadu (backwater of Shambhavi river), Mulki Bridge, Udyavara bridge and Mabukala bridge, mangrove afforestation plan proposed. Affected mangrove area is around 0.8 ha and area proposed to be afforested is 2.4 ha. Identified land is part of backwater and in continuation to the site of existing mangrove. Hence, will lead to successful afforestation of the new mangrove.

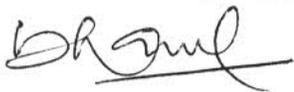
4. The Expert Appraisal Committee, after due consideration of the relevant documents submitted by the project proponent and additional clarifications furnished in response to its observations, have recommended for the grant of CRZ and Environmental Clearance for the project. Accordingly, the Ministry hereby accord necessary CRZ and Environmental Clearance for the above project as per the provisions of CRZ Notification, 1991 and EIA Notification, 2006 and its subsequent amendments, subject to strict compliance of the terms and conditions as follows:

5. **Specific Conditions:**

- (i) All necessary clearances from the concerned authorities including forest clearance shall be obtained before initiating the project.
- (ii) To prevent damage to the agricultural land, the drainage flow shall be diverted to the natural course avoiding the agricultural land.
- (iii) Necessary mitigative measures against adverse impact to the water bodies/back waters that are to affected shall be provided.
- (iv) The road profile shall be raised on the low lying structures to prevent flooding of road.
- (v) Green belt development and mangrove plantation shall undertake as suggested in Environmental Management Plan.
- (vi) By passes shall be provided in all the habitated areas.
- (vii) Water harvesting structures shall be located at every 500 mts along the road. Vertical drain type rainwater harvesting structures shall be set up to minimize surface runoff losses of rainwater.
- (viii) No ground water shall be used for the project.



- (ix) River water shall be used for the project after obtaining due permission from concerned authorities.
- (x) Sidewalk shall be provided along the bridges.
- (xi) The drain shall be at least 1 m. away from the toe of the embankment of the road adopting IRC guidelines.
- (xii) Longitudinal drains shall be provided all along the project road to ensure proper drainage of the area. In addition, adequate number of under passes and culverts to act as cross drainage structures shall also be provided.
- (xiii) The solid waste generated shall be used for rehabilitating the borrow areas.
- (xiv) For providing safety to the crossing animals and avoid road accidents speed breakers/rumbled strips shall be constructed at the identified locations of the animal movements.
- (xv) Minimum of three times the number of trees to be cut shall be planted. It shall be ensured that the trees planted as a part of the afforestation shall be looked after by NHAI. A detailed plan earmarking funds for this purpose shall be provided.
- (xvi) The tree plantation shall be taken up on the extreme end of the road.
- (xvii) Necessary permission for tree felling from the concerned department shall be obtained before commencement of the project work and copies of the same shall be submitted to this Ministry.
- (xviii) Adequate number of underpasses shall be provided in the habitation areas. The details of such underpasses shall be provided to the Ministry within 6 months from the date of issue of this letter.
- (xix) Necessary clearance from the State Government shall be obtained for extraction of sand.
- (xx) Proper signage shall be installed at appropriate locations for the convenience of the traffic movement.
- (xxi) The embankments/slopes and the slopes left after cutting shall be provided with vegetative turfing to avoid soil erosion.



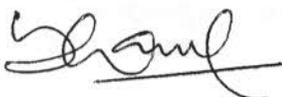
- (xxii) The hot mix plant shall be located at least 500 mts. Away from habitation and on the barren land to avoid its adverse impact on the human population.
- (xxiii) Rehabilitation and payment of compensation to the project affected people (PAPs) shall be made as per the policy of the State Government.
- (xxiv) Noise barriers shall be provided at appropriate locations particularly in the areas where the alignment passes through inhabited areas so as to ensure that the noise levels do not exceed the prescribed standards.
- (xxv) Details of the use of fly ash in the project shall be provided to the Ministry before its initiation. In any case, the project shall utilize fly ash in the construction of road embankments as per the provisions of Notification S.O.No.763 (E), dated 14.09.1999 as amended vide S.O. 979 (E) dated 27.08.2003.
- (xxvi) For road safety, IRC guidelines in respect of road signages, service roads, bus bays, inter-sections, pedestrians crossings, etc. shall be strictly adhered to.

6. **General Conditions:**

- (i) Adequate provision for infrastructure facilities including water supply, fuel and sanitation must be ensured for construction workers during the construction phase of the project to avoid any damage to the environment.
- (ii) Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.
- (iii) Borrow sites for each quarry sites for road construction material and dump sites must be identified keeping in view the following:
 - (a) No excavation or dumping on private property is carried out without written consent of the owner.
 - (b) No excavation or dumping shall be allowed on wetlands, forest areas or other ecologically valuable or sensitive locations.
 - (c) Excavation work shall be done in close consultation with the Soil Conservation and Watershed Development Agencies working in the area, and



- (d) Construction spoils including bituminous material and other hazardous materials must not be allowed to contaminate water courses and the dump sites for such materials must be secured so that they shall not leach into the ground water.
- (iv) The construction material shall be obtained only from approved quarries. In case new quarries are to be opened, specific approvals from the competent authority shall be obtained in this regard.
- (v) Adequate precautions shall be taken during transportation of the construction material so that it does not affect the environment adversely.
- (vi) Borrow pits and other scars created during the road construction shall be properly levelled and treated.
- (vii) Adequate financial provision must be made in the project to implement the aforesaid safeguards.
- (viii) The project proponent will set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.
- (ix) Full support shall be extended to the officers of this Ministry/ Regional Office at Bangalore by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.
- (x) Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.
- (xi) The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.
- (xii) In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.
- (xiii) The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.



- (xiv) Safety provision such as bus bays, service roads intersection improvement etc., will be carried out by the project proponent. The project proponent shall provide adequate facilities as per IRC norms/guidelines.
- (xv) Karnataka State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Center and Collector's Office/Tehsildar's office for 30 days.

7. These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006, including the amendments and rules made thereafter.

8. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.

9. The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the Karnataka State Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests at <http://www.envfor.nic.in>. The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bangalore.

10. Environmental clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

11. Any appeal against this Environmental Clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Act, 1997.

12. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla 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.



13. The proponent shall upload the status of compliance of the stipulated EC 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 MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

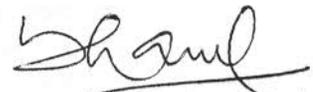
14. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.

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 EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.

(Bharat Bhushan)
Director (IA-III)

Copy to:

- (1) The Secretary, Department of Environment, Government of Karnataka, Bangalore.
- (2) The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 110 032.
- (3) The Member Secretary, Karnataka Coastal Zone Management Authority & Director, Environment Technical Cell, Department of Forests, Ecology and Environment, Govt. of Karnataka.
- (4) The Member Secretary, Karnataka State Pollution Control Board, "Parisara Bhavan, 4th & 5th Floor, # 49, Church Street, Bangalore - 560 001.
- (5) The CCF, Regional Office, Ministry of Environment & Forests(SZ), Kendriya Sadan, IVth floor, E&F wings, 17th Main Road, Koramangala II Block, Bangalore - 560 034.
- (6) IA - Division, Monitoring Cell, MOEF, New Delhi - 110003.
- (7) Guard file.


(Bharat Bhushan)
Director (IA-III)

10.08.2008

F.No.10-107/2011-IA.III
Government of India
Ministry of Environment & Forests
(IA-III Section)

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi - 110 003,

Dated: 19th February, 2014

To
The Chief General Manager (LA),
M/s National Highways Authority of India,
G- 5&6, Sector – 10, Dwarka,
New Delhi – 110075

Contact Person Details:

Shri V.K. Sharma,
Tel. No. 011-25074100, 25074200
Fax No. 011-25093543
Email: vksharma@nhai.org

Subject: Environmental and CRZ Clearance for widening and upgradation of existing carriageway to 4/6 laning of Goa – Karnataka Border (km 93.700) to Kundapur (km 283.300) Section of NH- 17 in the State of Karnataka by M/s. NHAI - Reg.

This has reference to your letter No: 1013/1/2k/GM(Env.)/375 dated 24.09.2013 and subsequent letters dated 12.12.2013 and 12.12.2013 and 20.12.2013 Environmental and CRZ Clearance under the Environment Impact Assessment Notification, 2006 and Coastal Regulation Zone Notification, 2011. The proposal has been appraised as per prescribed procedure in the light of provisions under the Coastal Regulation Zone Notification, 2011 and EIA Notification – 2006 and on the basis of the mandatory documents enclosed with the application viz., the Questionnaire, recommendation of State Coastal Zone Management Authority, EIA, EMP and the additional clarifications furnished in response to the observations of the Expert Appraisal Committee constituted by the competent authority in its meetings held on 28th - 30th October, 2013 and 20th – 23rd November, 2013 and 22nd -24th January, 2014.

2. It is interalia, noted that the proposal involves widening and upgradation of existing carriageway to 4/6 laning of Goa – Karnataka Border (Km 93.700) to Kundapur (Km 283.300) Section of NH-17 in the State of Karnataka. Project road is part of NH-66 (formerly NH-17) starts from Goa - Karnataka border at km 93.700 and ends in Kundapur in Udupi District, Karnataka at km 283.300. The proposed road passes towards south from Goa-Karnataka Border through congested townd/villages viz. Karwar, Karwar Port, Navy's Sea Bird Project, Amadalli, Kumta, Haldipura, Honnavara, Kasarkod, Shirali, Bhatkal, Shirur, Byndoor, Maravanthe and Tallur. The proposed project is a part of NHDP programme of 4/6 laning and has total length of 189.600 km, whereas proposed length is 187.240km. The existing RoW width varies from 11m to 45m from km 93.600 to km 241.000 and from Km 241.000 to Km 283.300 it is 45m on the project road (11m in mountainous terrain to 45min plain terrain). As per NHAI Notification, a uniform width of 60m will be maintained throughout the project stretch for 4/6 lane carriageway

along the project road. Therefore widening of the road would require additional lands to accommodate the proposed RoW width throughout the project length. The project stretch passes through 120.130km of plain terrain, 24.20km of hilly terrain and 45.67km of rolling and hilly terrain. Land use along the highway is predominantly built-up and agriculture. The entire stretch of the project road falls under Seismic Zone-III of India. Patches of reserved forests are situated along the existing RoW. The existing RoW is not sufficient and for accommodating 60m of RoW width, acquisition of forest area would be required thus affecting forests. Approximately 162.429 Ha of forest land is required to be acquired including 2.629 ha mangroves area. Few sections of the existing highway fall under CRZ and the road is proposed on stilt in mangroves. The Project is located within 10km of proposed Catigaon Wildlife Sanctuary, Goa. There are about 23,491 plants/trees along the roadside which are likely to be affected due to the proposed development. The land which is required to be acquired all along the project road for widening of the existing 2-lane road to 4-lane is 525.16 ha, where the available RoW is less than design requirements. There are 13 major bridges, 40 minor bridges and 606 nos. of culverts along the existing road. Existing bridges and culverts along the existing road will be upgraded or reconstructed during the proposed development. There are 2 pedestrian/cattle underpasses, 4 numbers of RUBs and 2 numbers of ROBAs along the existing alignment. In the proposed development, 22 underpasses (3 vehicular, 19 pedestrian and cattle), 4 new flyovers have been proposed. There are 15 major junctions along the existing alignment. A total of 4 number of truck lays and 53 number of bus bays have been proposed. 3 new Toll Plazas have been proposed. 7m wide service roads of 60.742km are proposed on both sides at urban and rural built up stretches. The total water requirement would be 1829.868 KLD. 59.09 lakh cum of soil, 33.17 lakhs cum of aggregate and 2.07 lakh cum of sand shall be required and is proposed to be taken from nearby quarries/borrow areas. Cost of Environmental Management Plan is Rs. 45.00 Crore. It was informed that 1132 structures will be affected and the total cost of R&R is Rs. 328.32 Crore. The total cost of the project is Rs. 1756.32 Crore.

3. The project was considered by EAC in its meeting held on 10th – 11th January, 2012 and finalised ToR including conduct of Public Hearing. The Public Hearing was conducted on 05.12.2012 at Byndoor, 02.04.2013 at Kumta. The major issues raised are tree cutting, forests land involvement etc.

4. The Karnataka Coastal Zone Management Authority has recommended the project vide letter no. FEE 136 CRZ 2013 dated 12.09.2013.

5. The proposal was discussed in the EAC meeting in October, 2013 and the Committee decided that Shri S.K. Sinha, Member, EAC, will go through the original map and provide comments since it is not giving clear CRZ boundary. Though, the Project Proponent has prepared the CRZ maps of 1:4000 scale through IRS, Anna University, however they have not submitted maps of scale in view of the large size and numbers. In 128th meeting of the EAC held in November, 2013, the Member informed that the total length of Proposed Right of Way (PROW) is 189.6 km (from chainage 93.7 km to 283.3 km). The intersections of PROW with CRZ Zone are CRZ I (A) – 2.13 km, CRZ I (B) – 9.75 km, CRZ II – nil and CRZ III – 34.32 km. CRZ I crossings are mainly over the creeks. The PROW directly overlaps 10.5 hectares of mangrove area. All the above estimates are based on the original survey/mapping generated by IRS which was offered for examination.

6. While processing of the project, complaints from Rastriya Heddari Bhuswa Dhina Virodhi Horata Samitee, Uttar Kannada – Karwar and copy of complaint from Bhuswadhin a Virodhi Samitee filed before National Human Rights Commission were received against the

project. Main issues are land acquisition, forest and Wildlife Clearance, destruction of mangroves, involving blasting operation for making tunnel in forests area, submission of false data to Ministry etc. Copy of the complaint was provided to the NHAI for comments. NHAI has submitted detailed response on the complaint and details on tunnels. Tunnel is proposed after London Bridge in Karwar bypassing the Karwar Port. The tunnel has a length of 550 m on LHS and 594 m on RHS. Total length of the tunnel is 1144 m.

7. The Expert Appraisal Committee, after due consideration of the relevant documents submitted by the project proponent and additional clarifications furnished in response to its observations, have recommended for the grant of Environmental and CRZ Clearance for the project. Accordingly, the Ministry hereby accords necessary Environmental and CRZ Clearance for the above project as per the provisions of Coastal Regulation Zone Notification, 2011 and EIA Notification, 2006, subject to strict compliance of the terms and conditions as follows:

8. SPECIFIC CONDITIONS:

- (i) Road in Mangrove areas shall be on stilts. It is noted that the proposed ROW overlaps 10.5 ha of mangrove area. The Project Proponent shall carry out mangrove plantation in an area of 50 ha. in consultation with Forest Department.
- (ii) As the project is located within 10 km of proposed Catigaon Wildlife Sanctuary, Goa, prior clearance from NBWL shall be obtained.
- (iii) The project involves diversion of 162.429 ha protected forest land including 2.629 ha mangroves area for which the proponent shall obtain the requisite FC. The proponent can execute the above project on the entire stretch located in non-forest land, provided that the proponent submits an undertaking while making application to get FC that the execution of work on non- forest land shall not be cited as a reason for grant of FC and in case FC is declined, width of the portion of road falling in the forest land will be maintained at its existing level.
- (iv) It is indicated that 23491 nos. of trees are proposed to be cut for the project. Necessary permission from competent authority shall be obtained for tree cutting. Necessary compensatory plantation shall be carried out and cost provision should be made for regular maintenance.
- (v) It is noted that according to NHAI, the impact zone is 50-200 m and the nearby habitation is Karwar Town at 600 m. However, NHAI shall intimate local authority before carrying out the blasting. If there are any damage caused due to blasting, NHAI shall compensate 100 % under the notice of local Authority.
- (vi) All the other required clearances for carrying out blasting shall be obtained from the competent Authority including Forests / Wildlife.
- (vii) The blasting shall be restricted only from 8 am to 6 pm.
- (viii) The technique adopted for controlled blasting at identified locations is non-electric detonating technique.

- (ix) Explore the possibilities of using cold mix technology wherever possible particularly near Wildlife Sanctuary.
- (x) Permission for ground water drawl shall be obtained from competent Authority.
- (xi) Rain water harvesting including oil and grease trap shall be provided. Water harvesting structures shall be located at every 500 mts along the road. Vertical drain type rainwater harvesting structures shall be set up to minimize surface runoff losses of rainwater.
- (xii) R&R shall be as per the guidelines of State/Central Government.
- (xiii) IRC guidelines shall be followed for widening & up-gradation of road.
- (xiv) The responses/commitments made during public hearing shall be complied with letter and spirit.
- (xv) All the recommendation of the EMP shall be complied with letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF along with half yearly compliance report to MoEF-RO.
- (xvi) Green belt development shall be undertaken as suggested in EMP.
- (xvii) The seismic nature of the area shall be taken into account while designing the project.
- (xviii) The project proponent shall obtain necessary permission from the State Irrigation Department before drawing water from the river sources for the purpose of the proposed construction activity.
- (xix) Sidewalk shall be provided along the bridges.
- (xx) The drain shall be at least 1 m. away from the toe of the embankment of the road adopting IRC guidelines.
- (xxi) Longitudinal drains shall be provided all along the project road to ensure proper drainage of the area. In addition, adequate number of under passes and culverts to act as cross drainage structures shall also be provided.
- (xxii) The solid waste generated shall be used for rehabilitating the borrow areas.
- (xxiii) For providing safety to the crossing animals and avoid road accidents speed breakers/rumbled strips shall be constructed at the identified locations of the animal movements. Enough hoardings and signages shall also be put up for the public and vehicles convenience.
- (xxiv) Minimum of three times the number of trees to be cut shall be planted. It shall be ensured that the trees planted as a part of the afforestation shall be looked after by NHAI. Tree plantation shall be of the same species/local species and survival

shall be monitored. Transplantation of trees shall be carried out wherever possible. The tree plantation shall be taken up on the extreme end of the road.

- (xxv) Necessary clearance from the State Government shall be obtained for extraction of sand from the rivers.
- (xxvi) Proper signage shall be installed at appropriate locations for the convenience of the traffic movement.
- (xxvii) The embankments/slopes and the slopes left after cutting shall be provided with vegetative turning to avoid soil erosion.
- (xxviii) The hot mix plant shall be located at least 500 mts. Away from habitation and on the barren land to avoid its adverse impact on the human population.
- (xxix) Rehabilitation and payment of compensation to the project affected people (PAPs) shall be made as per the policy of the State Government.
- (xxx) Noise barriers shall be provided at appropriate locations particularly in the areas where the alignment passes through inhabited areas so as to ensure that the noise levels do not exceed the prescribed standards.
- (xxxi) For road safety, IRC guidelines in respect of road signages, service roads, bus bays, inter-sections, pedestrians crossings, etc. shall be strictly adhered to.

9. GENERAL CONDITIONS:

- (i) Adequate provision for infrastructure facilities including water supply, fuel and sanitation must be ensured for construction workers during the construction phase of the project to avoid any damage to the environment.
- (ii) Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.
- (iii) Borrow sites for each quarry sites for road construction material and dump sites must be identified keeping in view the following:
 - (a) No excavation or dumping on private property is carried out without written consent of the owner.
 - (b) No excavation or dumping shall be allowed on wetlands, forest areas or other ecologically valuable or sensitive locations.
 - (c) Excavation work shall be done in close consultation with the Soil Conservation and Watershed Development Agencies working in the area, and
 - (d) Construction spoils including bituminous material and other hazardous materials must not be allowed to contaminate water courses and the dump sites for such materials must be secured so that they shall not leach into the ground water.

- (iv) The construction material shall be obtained only from approved quarries. In case new quarries are to be opened, specific approvals from the competent authority shall be obtained in this regard.
- (v) Adequate precautions shall be taken during transportation of the construction material so that it does not affect the environment adversely.
- (vi) Borrow pits and other scars created during the road construction shall be properly levelled and treated.
- (vii) Adequate financial provision must be made in the project to implement the aforesaid safeguards.
- (viii) The project proponent will set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.
- (ix) Full support shall be extended to the officers of this Ministry/ Regional Office by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.
- (x) A six-Monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry regarding the implementation of the stipulated conditions.
- (xi) Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.
- (xii) The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.
- (xiii) In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.
- (xiv) The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.
- (xv) A copy of the clearance letter shall be marked to concerned Panchayat/local NGO, if any, from whom any suggestion/ representation has been made received while processing the proposal.
- (xvi) Safety provision such as bus bays, service roads intersection improvement etc., will be carried out by the project proponent. The project proponent shall provide adequate facilities as per IRC norms/guidelines.

(xvii) State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Center and Collector's Office/Tehsildar's office for 30 days.

10. These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006, including the amendments and rules made thereafter.

11. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.

12. The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental and CRZ Clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests at <http://www.envfor.nic.in>. The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional Office of this Ministry.

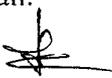
13. Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

14. This Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

15. Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.

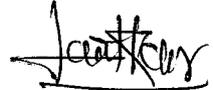
16. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.

17. 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 Clearance conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.


(Lalit Kapur)
Director (IA-III)

Copy to:

- (1) The Secretary, Department of Environment, Government of Karnataka, Bangalore.
- (2) The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi – 110 032.
- (3) The Member Secretary, Karnataka Coastal Zone Management Authority & Director, Environment Technical Cell, Department of Forests, Ecology and Environment, Govt. of Karnataka.
- (4) The Member Secretary, Karnataka State Pollution Control Board, "Parisara Bhavan, 4th & 5th Floor, # 49, Church Street, Bangalore-560 001.
- (5) The CCF, Regional Office, Ministry of Environment & Forests(SZ), Kendriya Sadan, IVth floor, E&F wings, 17th Main Road, Koramangala II Block, Bangalore – 560 034.
- (6) IA - Division, Monitoring Cell, MOEF, New Delhi - 110003.
- (7) Guard file.



(Lalit Kapur)
Director (IA-III)

IA-J-11014/112/2022-IA-I
Government of India
Ministry of Environment, Forest & Climate Change
Impact Assessment Division

Indira Paryavaran Bhavan,
 Jor Bagh Road, New Delhi-110 003
 Dated: 25th November, 2022

Office Memorandum

Sub:- Standard Operating Procedure (SOP) for Post Environmental Clearance Monitoring and Compliance of the project -reg.

Background

The Ministry has established 19 Integrated Regional Office (IROs) vide Notification No. 1-5/2013-ROHQ dated 13th August, 2020 with a view to achieving mandated outcomes related to Monitoring and Compliance of the project in an improved, timely and effective manner.

2. As far as monitoring and compliance of EC conditions are concerned, as per para 10 of the EIA Notification, 2006, it is mandatory for the project proponent to submit half-yearly compliance reports in respect of the stipulated EC conditions to the Ministry and its Integrated Regional Offices (IROs).

The prescribed SOP wrt the Monitoring & Compliance is as given below:

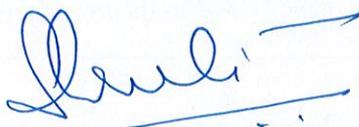
1. IROs undertake inspection of the unit, with respect to the following scenarios:

- i. IRO identifies ambiguity in half-yearly compliance reports with respect to the stipulated EC conditions submitted by Project Proponent (PP).
- ii. PP request IRO for issuance of Certified Compliance Report (CCR) in order to apply for expansion of the project under EIA, Notification 2006.
- iii. Complaint received against the project.
- iv. Direction from the Ministry based on PMO/VIP/PG/RTI etc. references.
- v. Random Inspection of projects.
- vi. Direction from Hon'ble court in various Court Matter.

2. Based on the observations during Monitoring IRO seeks Clarification/Action Taken Report (ATR) to the PP and submit Monitoring Report along with the clarification letter to the Ministry.

3. If PP fails to respond to it a reminder letter is sent by IA-Monitoring Cell allowing PP to submit ATR in 15 days.

4. **Action on the Monitoring Report by the Monitoring Cell:** Monitoring Cell of Ministry analyse the monitoring report submitted by IRO. Based on the observed Major and Minor partial/non-compliances clarification/ATR, if necessary, is sought from Project Proponent with direction to submit the response within a period of Thirty (30) days. If PP fails to submit the response of clarification/ATR letter within the time line period, a reminder letter as warning issued to the PP.



5. The response submitted by PP is examined in the Ministry and the Action taken report submitted by PP is sent to IRO for further verification. Based on IRO's verification report following actions are contemplated:

- i. If no satisfactory action has been taken by the PP and EC conditions are yet to be complied Ministry may issue Show-Cause Notice under the Section 5 and other provisions which may include Section 15 and 19 of the Environment (protection) Act, 1986.
- ii. If it is observed that the non-compliances are not rectified, Ministry provides an opportunity to PP for clarification in personal hearing under the chairmanship of officer not below the rank of Joint Secretary. Based on the outcome of the personal hearing if necessary, direction for Compensation/Suspension of EC may be issued.
- iii. If it is observed that PP has taken credible action to comply with the condition and the action is expected to be completed with some additional time, Ministry grant additional time in which actions are expected to be completed by PP to fully comply with the conditions mentioned in the EC and submit the compliance report duly verified by concerned IRO to the Ministry.
- iv. If it is observed that PP has now complied with all the conditions and the same has been confirmed in the verification report, Ministry issues Action Closure Letter (ACL) to the PP with direction to continuously submit six monthly compliance report on time.
- v. If it is observed that PP has violated the provisions of EIA Notification, 2006 and attracts the provisions of SOP dated 07.07.2022, Monitoring Cell intimates the concerned sector for taking appropriate action as deem fit.

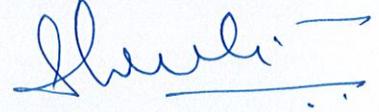
6. Action after issuance of Show Cause Notice:

- i. Monitoring Cell of the Ministry prescribes a time line of Fifteen (15) days or Thirty (30) days for submission of reply of SCN based on the gravity of non-compliances. If PP fails to submit the response of SCN within the prescribed time period, if necessary, a warning letter may be issued.
- ii. The response to SCN submitted by PP is examined in the Ministry and if found necessary the reply submitted by PP is sent to IRO for further verification. Based on IRO's verification report following actions are contemplated:
 - a) If it is observed that PP has now complied with all the conditions and the same has been confirmed in the verification report, Ministry issues ACL to the PP with direction to continuously submit six monthly compliance report on time.
 - b) If it is observed that the non-compliances are not rectifiable, Ministry provides an opportunity to PP for clarification during personal hearing under the chairmanship of officer not below the rank of Joint Secretary. Based on the outcome of the personal hearing if necessary, direction for Compensation/Suspension of EC may be issued.

7. Action in other scenarios:

- i. If it is observed that there is imminent risk to the environment and health due to noncompliance by the PP, SCN with time line of Fifteen (15) days is issued to PP. If PP fails to submit the response of SCN within the prescribed time period, if necessary

- a warning letter may be issued otherwise after Fifteen (15) days personal hearing may be conducted under the chairmanship of officer not below the rank of Joint Secretary.
- ii. Based on the outcome of the personal hearing if necessary, direction for Suspension of EC or other prescribed action under EPA may be issued.
- iii. If it is observed that due to non-compliance, accident has already been taken place, Ministry may immediately suspend the EC of the project till all the conditions are complied and duly verified by concerned IRO.



(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E'

Encl.: As above

To,
All Concerned

Copy for information to:

1. PS to Hon'ble Minister for Environment, Forest and Climate Change
2. PS to Hon'ble MoS (EF&CC)
3. PPS to Secretary (EF&CC)
4. PPS to DGF&SS (EF&CC)
5. PPS to AS (TK)/PPS to JS(SKB)
6. Guard File/Spare Copies
7. US(IT)/Consultant(IT)

URGENT
Speed Post/Online

File no. IA-L-11011/57/2024-IA-I
Government of India
Ministry of Environment, Forest and Climate Change
(I.A. Division)

Indira Paryavaran Bhavan
Jor Bagh Road, Aliganj
New Delhi-110 003
Email: bhardwaj.adiraju@gov.in
Dated: 22nd October, 2024

To,

Deputy Director General of Forests (C),
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office Kendriya Sadan,
4th Floor, E&F Wings, 17th Main Road,
Koramangala II Block, Bangalore – 560034

Sub: Earlier OA No. 1055/2024 new OA No. 261/2024 in the mater of News Item titled "Unscientific work by NHAI led to Shirur landslide Geological Survey of India report" appearing in the Indian Express dated 02.08.2024 pending before NGT (SZ) Chennai-reg.

Ref:

- i. A copy of news report published in The Indian Express on 02.08.2024.
- ii. NGT's order dated 12.08.2024.
- iii. Ministry's EC letter no. 5-26/2008-IA.III dated 10.08.2009

Sir,

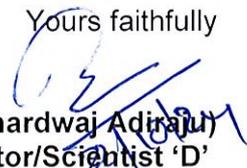
This is in reference to communication no F(C)/12.7/732/NGT/KAR/314 dated 13.09.2024 from Regional Office (RO), Bengaluru informing about the above cited *suo moto* proceedings initiated in NGT(PB) (OA No. 1055/2024) and subsequently transferred to NGT(SZ) (OA No. 261/2024), based on a news item titled "*Unscientific work by NHAI led to Shirur landslide - Geological Survey of India report*", published in The Indian Express on 02.08.2024 (Copy enclosed)

2. In this regard, the RO, Bengaluru is requested to furnish (i) the factual status report concerning the issues raised in the application, along with (ii) condition-wise compliance status report (s) for all the ECs associated with the project.
3. Being a Court Matter, timely response will be appreciated.

This issues with the approval of the competent Authority.

Enclosed: as above.

Yours faithfully


(Dr. Bhardwaj Adiraju)
Joint Director/Scientist 'D'



Government Of India

भारत सरकार/ Government of India

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय/ Ministry of Environment, Forest and Climate Change

क्षेत्रीय कार्यालय – बेंगलुरु / Regional Office - Bengaluru

केन्द्रीय सदन, चौथी मंजिल, ई एंड एफ विंग्स / Kendriya Sadan, 4th Floor, E&F Wings17वीं मेन रोड, II ब्लॉक, कोरमंगला, बेंगलुरु 560034 / 17th Main Road, II Block, Koramangala,

Bengaluru 560034



File No. F(C)A/12.7/732/NGT/KAR 760

05.03.2025

To

The Scientist D and Joint Director

Ministry of Environment, Forest and Climate Change

Compliance & Monitoring Division – IA Division

Indira Paryavaran Bhawan

Jor Bagh Road, Aliganj, New Delhi 110003

bhardwaj.adiraju@gov.in

Sub.: Monitoring report of EC & CRZ Clearance for widening and upgradation of existing carriageway to 4/6 laning in Goa – Karnataka border to Kundapur section of NH-17 in the State of Karnataka by NHA1 – Site inspection report regarding.

Ref.: Your Letter No. IA-L-11011/57/2024-IA.I dated 30.01.2025.

Sir,

Apropos to your above cited letter, the site inspection reports wrt both the ECs (No. 10-107/2011-IA.III dated 19.02.2014 & 5-26/2008-IA.III dated 10.08.2009) are enclosed for necessary action at your end.

This issues with the approval of the Competent Authority.

Yours faithfully

(Dr. Dola Bhattacharjee)

Scientist 'B'

Encl. As above.

Government of India
Ministry of Environment, Forest and Climate Change
Regional Office - Bengaluru

SITE INSPECTION REPORT

PART-I

DATA SHEET

1. Project type : Highway Project (Infrastructure)
2. Name of the Project : Environmental and CRZ Clearance for widening and upgradation of existing carriageway to 4/6 laning in Goa – Karnataka Border (Km 93.700) to Kundapur (KM 283.300) Section of NH-17 in the State of Karnataka by M/s NHAI.
3. Environmental Clearance (EC) No. & date : 10-107/2011-IA.III dated 19.02.2014 (EC No. 5-26/2008-IA.III dt 10.08.2009 was earlier granted for 4/6 laning of the stretch).
4. State : Karnataka
5. Address of Correspondence
 - a. Address for Correspondence of the project proponent (PP) : The Chief General Manager (LA), M/s NHAI, G-5&6, Sector 10, Dwaraka, New Delhi 110075.
 - b. Representative Officer of the PP with whom correspondences were made : Shri. M. Shivakumar, DGM(T) & Project Director, NHAI, PIU-Honnavar (Ph. 8310783346, email: piuhonnavar@nhai.org)
6. Salient features : As per the EC, the project involves widening and upgradation of existing carriageway. The project road is part of NH66.
7. Whether forest land is involved : Yes [Forest Clearance for diversion of 163.283 ha of forest land in Karwar, Honnavar and Kundapura divisions has been obtained by the PP].
8. Status of project : In operation.
9. Project cost : Rs. 1756.32 Cr as per the available records.
10. Date of site inspection for this report : 07.11.2024.

BRIEF NOTE ON THE PROJECT IN RESPECT OF THE LANDSLIDE ISSUE

As per the available records, the project is part of NH66 and involves widening and upgradation of existing carriageway. The road passes towards south from Goa-Karnataka border through congested towns/ villages (viz., Karwar, Kumta, Shirur, Bhatkal, Honnavar, etc.). The road also passes through hilly terrain, plains and rolling-hilly terrains.

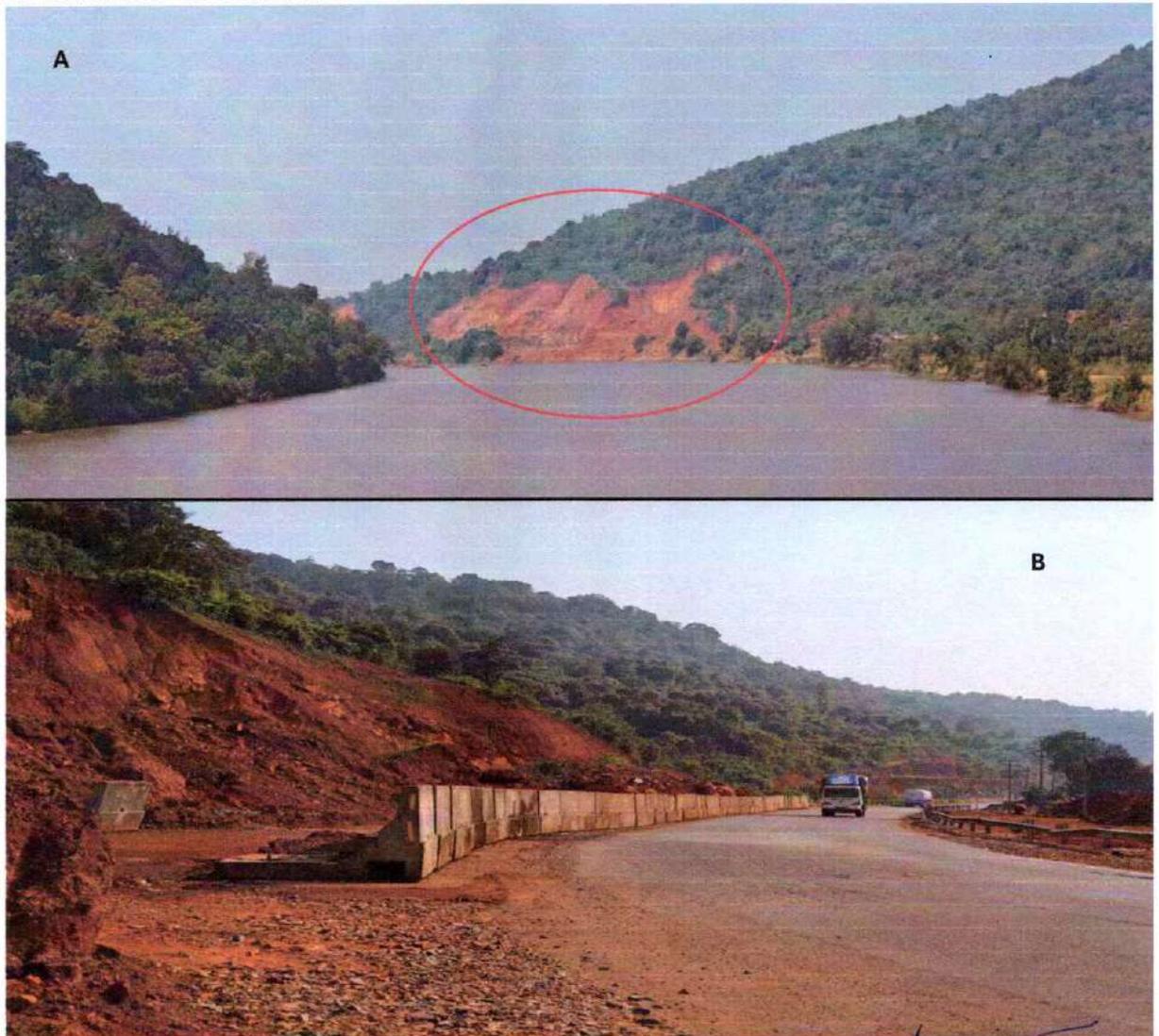
The Karnataka CZMA had recommended this project vide its Letter No. FEE136CRZ2013 dated 12.09.2013. A landslide incident occurred around 8.45 am on 16.07.2024 on this national highway at Km.147.900 near Shiroor Village, Ankola. As reported by the PP, the area received torrential rains during the period. It was also

 1

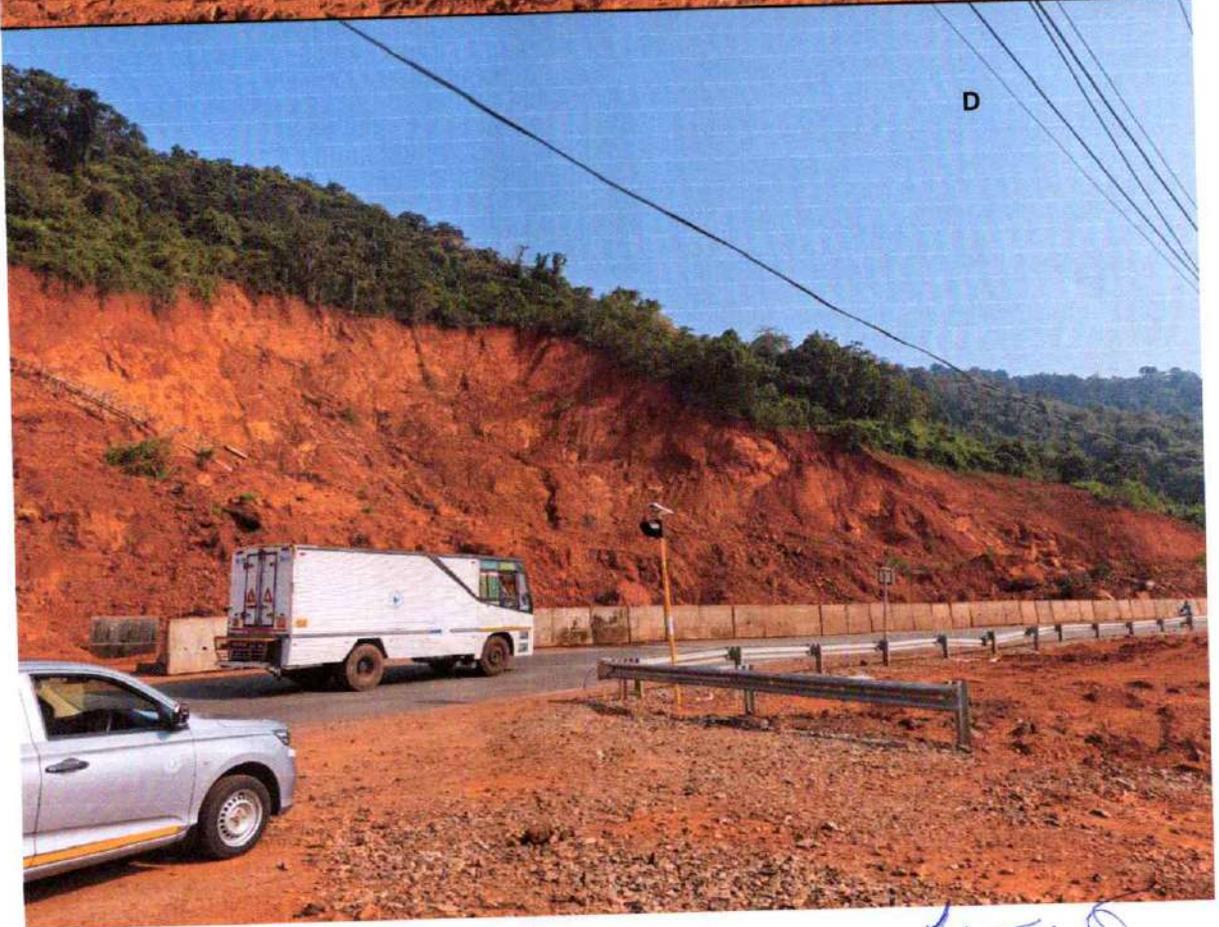
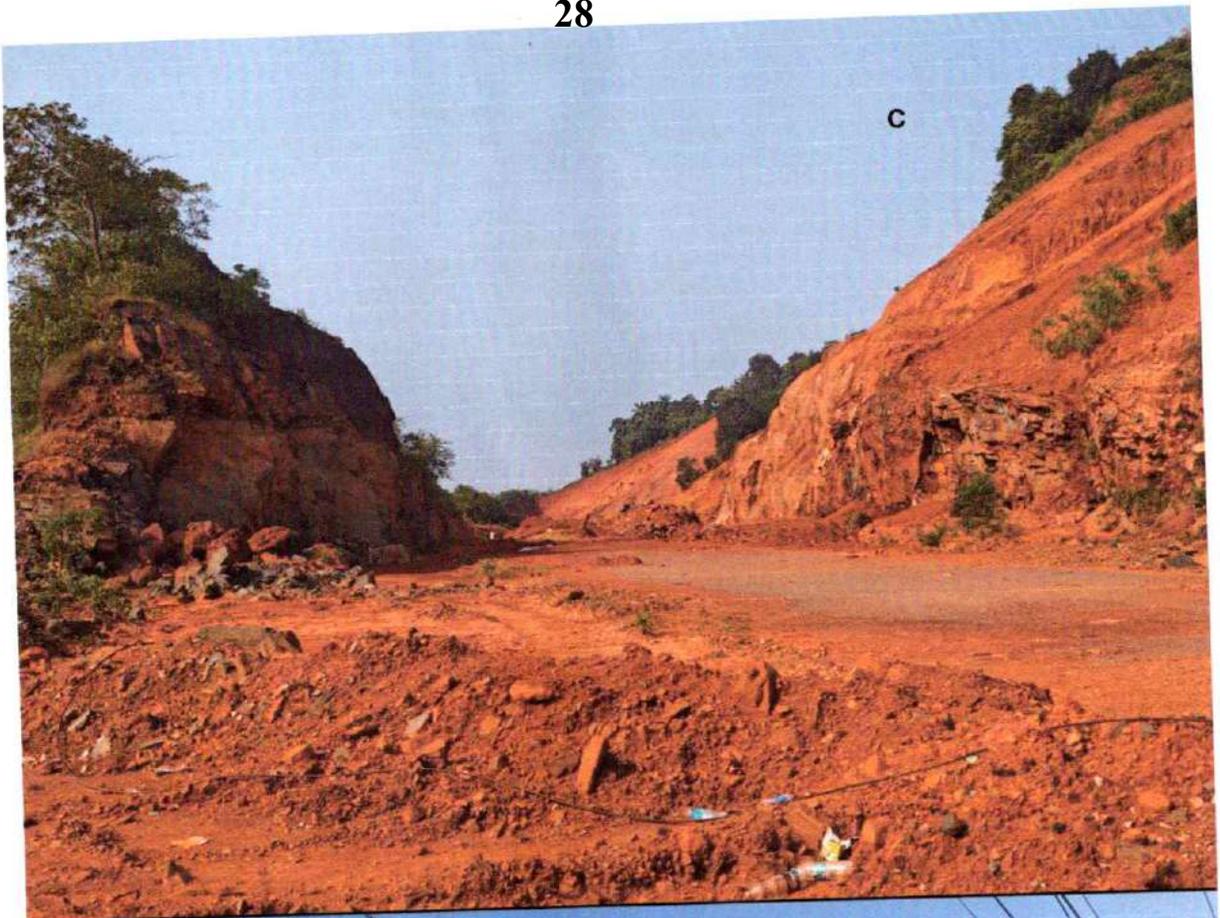
gathered from the news items and the locals that trucks, houses, roadside shops got washed away in the landslide leading to several fatalities and disruption of traffic on NH66.

During the inspection, it was noted that at this location, there is a hill (with steep gradient of the slope) on one side and river on the other side. Part of the carriageway at the location was seen to be partially blocked while the debris have been dumped along the roadside. Vehicle movements was seen to be hampered on this stretch of the highway. Vide letter dated 06.12.2024, the PP has intimated that the site was inspected by their experts, and it was noted that the landslide commenced from nearly 50 m further from the project ROW on the hill side, crossed the project width right upto the riverside. As per the submission made by the PP, the experts after the inspection (on 22.07.2024) stated that the probable cause of the landslide being over-saturation of lithomarge soil leading to concentrated seepage along the soil-rock interface (PP's submission is enclosed as [Annexure I](#)). Action points were also suggested by their expert committee including maintenance of vigilance through trained security/ police personnel, display of cautionary boards, ensuring no vehicles stop in the affected area, restricting vehicular speed to 20 Km/hr etc. However, no such arrangements were seen at the affected site during this inspection. No toe supports were also seen in and around this stretch and overburden/ debris were seen to have been spilled into the river. The PP intimated that detailed reports from Geo-technical experts are awaited.

Further, several inadequacies have been recorded in the status of compliance with respect to the forest clearance granted to this project. For instance, plantations have not been raised along the roadside/ on the central verges, overburden has been dumped along the roadsides, slope stabilization work has not been carried out, etc. The report of the site inspection carried out by the Forest Wing of this office during 19th and 22nd November 2024 is enclosed as [Annexure II](#).



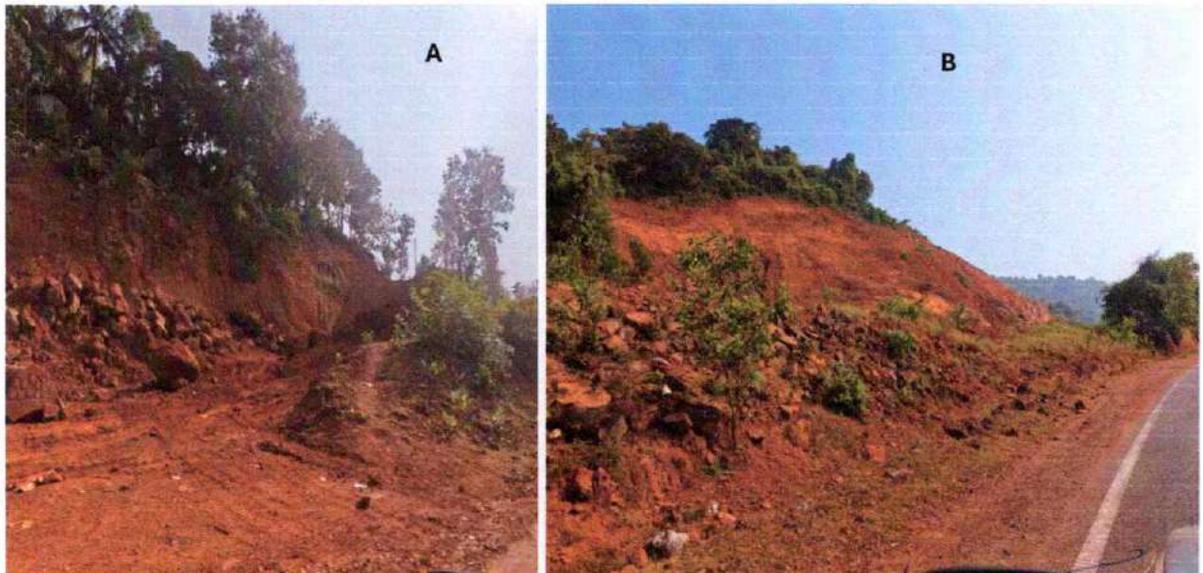
Prattichay



Shattacharya



Fig. (A to G) - Glimpses of the affected project site in Shiroor [DOP: 07.11.2024].



Phalkechariya

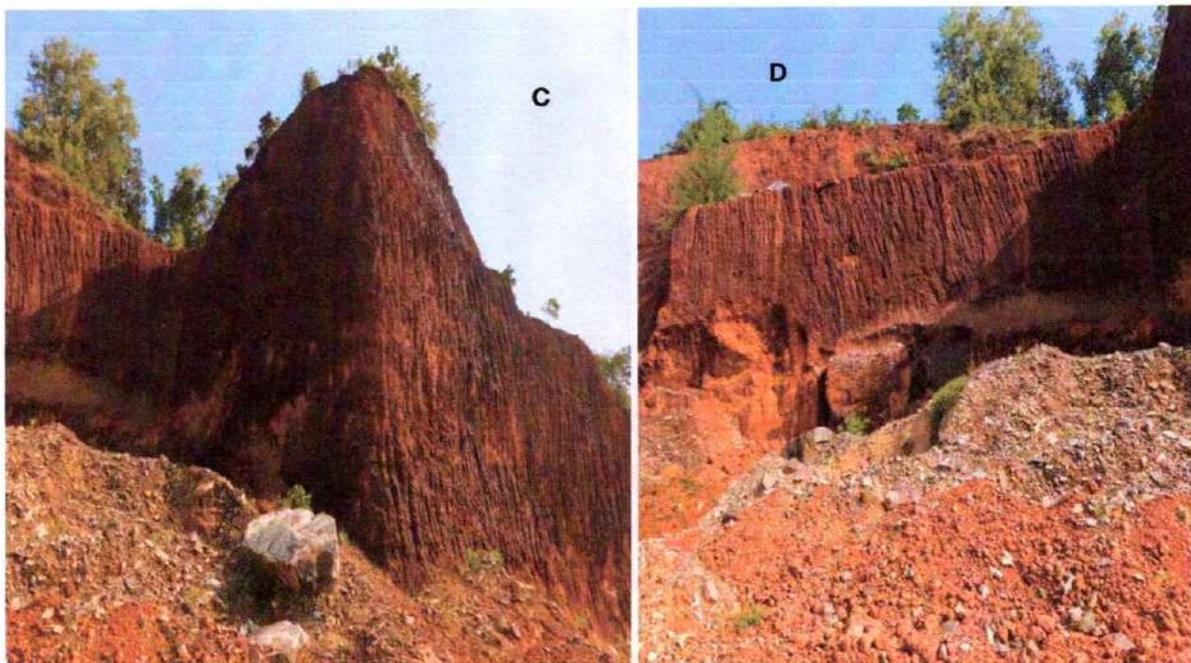


Fig. (A to D) – Other areas (roadside) along NH66 that are hazard prone in Shiroor [DOP: 07.11.2024].

Detailed point-wise compliance report is as follows.

PART - II & III

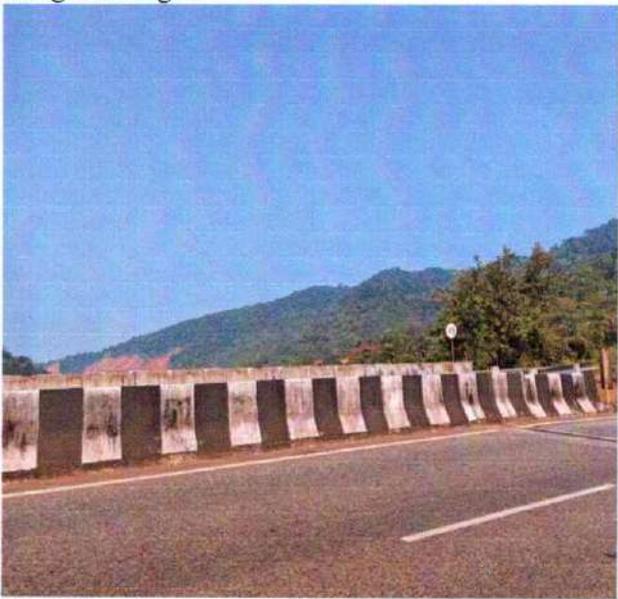
EC No. 10-107/2011-IA.III dt 19.02.2014:

Specific Conditions -

Sl. No.	Conditions as stipulated in EC No. 10-107/2011-IA.III dt 19.02.2014	Status of compliance
i	Road in mangrove areas shall be on stilts. It is noted that the proposed ROW overlaps 10.5 ha of mangrove area. The project proponent (PP) shall carry out mangrove plantation in an area of 50 ha in consultation with Forest Department.	Being complied. The inspected mangrove stretches are having bridges. As per the site inspection report of November 2024 that was made available by the Forest Wing of RO-Bengaluru, MoEFCC, mangrove plantations have been raised in Honnavar and Kumta ranges (Karnataka) by the PP (the report is enclosed as Annex. I)
ii	As the project is located within 10 Km of proposed Catigaon Wildlife Sanctuary, Goa, prior clearance from NBWL shall be obtained.	Complied. As per the records, the proposed project is located 5.5 km away from Catigaon WL sanctuary in Goa. The Eco-Sensitive Zone for Catigaon WL Sanctuary, that was Notified vide SO 630 (E) dated 3 March 2014, is spread upto 3 km from the boundary. Considering that the road is located outside the Eco-Sensitive Zone of the sanctuary, the Standing Committee of NBWL (in the meeting held on 18.08.2015) recommended the project for environment clearance.
iii	The project involves diversion of 162.429 ha protected forest land including 2.629 ha mangroves area for which the proponent shall obtain the requisite FC. The proponent can execute the above project on the entire stretch located in non forest land, provided that the proponent submits an undertaking	Complied. The PP has obtained a Forest Clearance for diversion of 163.283 ha of forest land in Karwar, Honnavar and Kundapura divisions vide Letter No. F.No. 4-KRA973/2013-BAN/1660 dated 06.03.2020.

[Handwritten Signature]

	while making application to get FC that the execution of work on non forest land shall not be cited as a reason for grant of FC and in case FC is declined, width of the portion of road falling in the forest land will be maintained at its existing level.	
iv	It is indicated that 23491 nos. of trees are proposed to be cut for the project. Necessary permissions from competent authority shall be obtained from tree cutting. Necessary compensatory afforestation shall be carried out and cost provision should be made for regular maintenance.	<p>Refer below.</p> <p>The PP submitted that they have obtained the requisite permissions from the concerned Divisions (Karwar, Honnavar and Kundapur). However, copies of the permission letters were not made available to this office. Therefore, the status of compliance with this condition could not be ascertained.</p> <p>Further, the records indicate that 14660 forest trees and 19694 non-forest trees have been cut as of now. Therefore, the PP has cut a total of 34,354 trees.</p> <p>Further, as per the site inspection report of November 2024 that was made available by the Forest Wing of RO-Bengaluru, MoEFCC, compensatory afforestation of a total of 370 ha have been raised in Tumkur and Honnavar divisions. The PP has paid Rs. 95876920 toward this afforestation.</p>
v	It is noted that according to NHAI, the impact zone is 50-200 m and the nearby habitation is Karwar town at 600 m. However, NHAI shall intimate local authority before carrying out the blasting. If there are any damage caused due to blasting, NHAI shall compensate 100% under the notice of local Authority.	<p>Refer below.</p> <p>The status of compliance could not be ascertained because the PP did not furnish any detail/ supporting document to this office in this regard.</p>
vi	All the other required clearances for carrying out blasting shall be obtained from the competent authority including forest/ Wildlife.	<p>Refer below.</p> <p>As informed by the PP vide letter dated 06.12.2024, license for use of explosives was obtained and the same was valid till 31.03.2023. However, a copy of the license letter was not made available to this office. Therefore, the status of compliance with this condition could not be ascertained.</p>
vii	The blasting shall be restricted only from 8 am to 6 pm.	<p>Refer below.</p> <p>PP submitted that the conditions are being complied with. However, no supporting details furnished by the PP in this regard. Therefore, the status of compliance with this condition could not be ascertained.</p>
viii	The technique adopted for controlled blasting at identified locations is non-electric detonating technique.	
ix	Explore the possibilities of using cold mix technology wherever possible particularly near wildlife sanctuary.	<p>Refer below.</p> <p>No information furnished by the PP in these regards. Therefore, the status of compliance with this condition could not be ascertained.</p>
x	Permission for the groundwater drawl shall be obtained from competent authority.	
xi	Rainwater harvesting including oil and grease trap shall be provided. Water harvesting structures shall be located at every 500 m along the road. Vertical drain type rainwater harvesting structures shall be set up to minimize surface runoff losses of rainwater.	

xii	R&R shall be as per the guidelines of State/ Central Government.	Refer below. The status of compliance could not be ascertained because the PP did not furnish any detail/ supporting document to this office in this regard.
xiii	IRC guidelines shall be followed for widening and upgradation of road.	Refer below. The status of compliance could not be ascertained because the PP did not furnish any detail/ supporting document to this office in this regard.
xiv	The response/ commitments made during public hearing shall be complied with letter and spirit.	Refer below. The status of compliance could not be ascertained because the PP did not furnish any detail/ supporting document to this office in this regard.
xv	All the recommendation of the EMP shall be complied with letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be	Refer below. The status of compliance could not be ascertained because the PP did not furnish any detail/ supporting document to this office in this regard.
xvi	Green belt development shall be undertaken as suggested in the EMP.	
xvii	The seismic nature of the area shall be taken into account while designing the project.	Complied. As per the records, the entire stretch of the project road falls under Seismic Zone – III of India.
xviii	The project proponent shall obtain necessary permission from the State Irrigation Department before drawing water from the river source for the purpose of the proposed construction activity.	Refer below. Vide letter dated 06.12.2024, the PP has submitted that the condition is not applicable to the project. However, no information regarding the requirement/ source of water furnished by the PP.
xix	Sidewalk shall be provided along the bridges.	Complied. The stretches inspected were seen to have sidewalks along the bridges. 
xx	The drain shall be atleast 1 m away from the toe of the embankment of the road adopting IRC guidelines.	Refer below. The status of compliance could not be ascertained because the PP did not furnish any detail/ supporting document to this office regarding the adopting/ implementation of the IRC guidelines.

Bhattacharya

xxi	Longitudinal drains shall be provided all along the project road to ensure proper drainage of the area. In addition, adequate number of underpasses and culverts to act as cross drainage structures shall be provided.	Complied. The stretches inspected were seen to have longitudinal drains. Culverts were also seen to be in the place. However, the drainage channels are not being adequately desilted/ maintained, thereby posing the risk of waterlogging on the roads during rainy seasons.
xxii	The solid waste generated shall be used for rehabilitating the borrow areas.	Refer below. Vide letter dated 06.12.2024, the PP has submitted that they have implemented the condition. However, no details were furnished in the matter. Further, at some places along the inspected stretch, overburden generated was seen to have been dumped on either side of the road.
xxiii	For providing safety to the crossing animals and avoid road accidents, speed breakers/ rumbled strips shall be constructed at the identified locations of the animal movements. Enough hoardings and signages shall also be put up for the public and vehicles' convenience.	Not complied. Speed breakers were seen at some stretches only. Not enough hoardings and signages were seen along the inspected stretch thereby posing the risk of road accidents. Further, several wildlife kills have been recorded on NH66 including that of leopard.
xxiv	Minimum of three times the number of trees to be cut shall be planted. It shall be ensured that the trees as a part of the afforestation shall be looked after by NHAI. Tree plantation shall be of the same species/ local species and survival shall be monitored. Transplantation of trees shall be carried out wherever possible. The tree plantation shall be taken up on the extreme end of the road.	Partially complied. The PP has not furnished any plan/ design for raising plantations on either side of the road. For a few stretches in the Kundapura Division a single row of plantations has been raised along the roadside. Most of the areas do not have roadside plantations. Further, the central verge has been planted at some stretches with ornamental plants.
xxv	Necessary clearance from the State Government shall be obtained for extraction of sand from the rivers.	Refer below. Vide letter dated 06.12.2024, the PP has submitted that they have implemented the condition. However, no details were furnished in the matter and so, the status of compliance could not be ascertained.
xxvi	Proper signage shall be installed at appropriate locations for the convenience of the traffic movement.	Not complied. Not enough signages were seen along the inspected stretch, thereby posing the risk of traffic mismanagement and road accidents. Several wildlife kills have already been recorded on NH66.
xxvii	The embankments/ slopes and the slopes left after cutting shall be provided with vegetative turfing to avoid soil erosion.	Partially complied. The roads have been cut through hills without providing adequate embankments. The slopes are steep and no adequate vegetations have been developed on the slopes to avoid soil erosion.
xxviii	The hot mix plant shall be located at least 500 m away from the habitation and on the barren land to avoid its adverse impact on the human population.	Refer below. No hot mix plant was seen along the inspected stretch.
xxix	Rehabilitation and payment of compensation to the project affected people (PAPs) shall be made as per the policy of the State Government.	Refer below. Vide letter dated 06.12.2024, the PP has submitted that they have implemented the condition. However, no details were furnished in the matter and so, the status of compliance could not be ascertained.
xxx	Noise barriers shall be provided at appropriate locations particularly in the	Not complied.



	areas where the alignment passes through inhabited areas so as to ensure that the noise levels do not exceed the prescribed standards.	No such arrangements were seen along the inspected stretch.
xxxix	For road safety, IRC guidelines in respect of road signages, service roads, bus bays, inter-sections, pedestrians crossings, etc. shall be strictly adhered to.	Not complied. No information/ supporting documents furnished by the PP in respect of the implementation of IRC guidelines. As already mentioned above, not enough hoardings and signages were seen along the inspected stretch thereby posing the risk of road accidents. Further, several wildlife kills have been recorded on NH66 including that of leopard.
General Conditions		
i	Adequate provisions for infrastructure facilities including water supply, fuel and sanitation must be ensured for construction workers during the construction phase of the project to avoid any damage to the environment.	Refer below. No major construction/ digging activities were seen along the inspected stretch. However, vide letter dated 06.12.2024, the PP has submitted that they have implemented the conditions.
ii	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	
iii	Borrow sites for each quarry sites for road construction material and dump sites must be identified keeping in view the following: (a) No excavation or dumping on private property is carried out without written consent of the owner. (b) No excavation or dumping shall be allowed on wetlands, forest areas or other ecologically valuable or sensitive locations. (c) Excavation work shall be done in close consultation with the soil conservation and watershed development agencies working in the area, and (d) Construction spoils including bituminous materials and other hazardous materials must not be allowed to contaminate water courses and the dump sites for such materials must be secured so that they shall not leach into the groundwater.	Refer below. It was intimated vide letter dated 06.12.2024 that the PP – (a) has obtained consent letters from the landowners of the borrow areas, (b) has not excavated/ dumped on wetlands, forest areas or other ecologically valuable or sensitive locations, (c) is in the process of consultation with soil conservation and watershed development agencies working in the area. However, no supporting documents were furnished in support of the submissions made by the PP. Therefore, the status of compliance could not be ascertained. Further, with respect to the stipulation no. (d), at some places along the inspected stretch, overburden was seen to have been dumped on either side of the roads.
iv	The construction material shall be obtained only from approved quarries. In case new quarries are to be opened, specific approvals from the competent authority shall be obtained in this regard.	Refer below. It was intimated vide letter dated 06.12.2024 that the PP has complied with the condition. However, no supporting documents were furnished in support of the submissions made by the PP. Therefore, the status of compliance could not be ascertained.
v	Adequate precautions shall be taken during transportation of the construction	Refer below. During the inspection, no such transportation activities were noted along the inspected stretch. However, PP

S. Bhattacharya 9

	material so that it does not affect the environment adversely.	vide letter dated 06.12.2024 has commented that ' <i>all the trucks carrying construction materials found uncovered. Water sprinkled on haulage roads to mitigate dust pollution is inadequate</i> '.
vi	Borrow pits and other scars created during the road construction shall be properly levelled and treated.	Being complied. The closed borrow pits are being levelled. It was intimated vide letter dated 06.12.2024 that the PP has instructed the concessionaire to rehabilitate and close the borrow areas.
vii	Adequate financial provision must be made in the project to implement the aforesaid safeguards.	Not complied. No information/ details furnished in this regard.
viii	The project proponent will set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.	Not complied. No information (date of constitution) or details (composition of the cell, members, SOP of the cell, etc.) have been furnished in this regard.
ix	Full support shall be extended to the Officers of the Ministry/ Regional Office by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	Not complied. Relevant project related information/details, sought by this office, have not been furnished by the PP.
x	A six-monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry regarding the implementation of the stipulated conditions.	Not complied. Based on the available records it was noted that the PP is not regularly submitting the six-monthly monitoring report to this office.
xi	Ministry of Environment and Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	PP vide letter dated 06.12.2024 has agreed to comply.
xii	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.	
xiii	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.	
xiv	The project proponent shall inform the Regional office as well as the Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Complied. PP vide letter dated 06.12.2024 has intimated the date of financial closure has been intimated to the Ministry through letter No. IWCT/BD/FC&AD/13/12552 dated 24.12.2013. However, copy of the letter was not found in the records of this office.
xv	A copy pf the clearance letter shall be marked to concerned Panchayath/ local NGO, if any, from whom any suggestion/ representation has been made while processing the proposal.	Not complied. No supporting documents were furnished in this regard by the PP.



xvi	Safety provision such as bus bays, service roads intersection improvement etc. will be carried out by the project proponent. The project proponent shall provide adequate facilities as per IRC norms/ guidelines.	Refer below. The status of compliance with the IRC norms/ guidelines could not be ascertained because the PP did not furnish any detail/ supporting document to this office in this regard.
xvii	State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Centre and Collector's Office/ Tehsildar's Office for 30 days.	The condition for compliance by the SPCB, DIC and Collector's Office/ Tehsildar's Office.

EC No. 5-26/2008-IA.III dated 10.08.2009

Specific Conditions

Sl. No.	Conditions as stipulated in EC No. 10-107/2011-IA.III dt 19.02.2014	Status of compliance
i	All necessary clearances from the concerned authorities including forest clearance shall be obtained before initiating the project.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. iii and vi).
ii	To prevent damage to the agriculture land, the drainage flow shall be diverted to the natural course avoiding the agriculture land.	Being complied , however, the drainage channels are not being adequately desilted/ maintained.
iii	Necessary mitigative measures against adverse impact to the water bodies/ back waters that are to affected shall be provided.	Refer below. No details provided by the PP in this regard.
iv	The road profile shall be raised on the low lying structures to prevent flooding of road.	Being complied , however, the drainage channels are not being adequately desilted/ maintained, thereby posing the risk of waterlogging on the roads during rainy seasons.
v	Greenbelt development and mangrove plantation shall undertake as suggested in Environmental Management Plan.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. i).
vi	By passes shall be provided in all the habituated areas.	Refer below. By-passes were seen at some stretches. However, PP has not provided any detail in this regard.
vii	Water harvesting structures shall be located at every 500 m along the road. Vertical drain type rainwater harvesting structures shall be set up to minimize surface runoff losses of rainwater.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xi).
viii	No groundwater shall be used for the project.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. x).
ix	River water shall be used for the project after obtaining due permission from concerned authorities.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xviii).
x	Sidewalk shall be provided along the bridges.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xix).
xi	The drain shall be at least 1 m away from the toe of the embankment of the road adopting IRC guidelines.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xx).
xii	Longitudinal drains shall be provided all along the project road to ensure proper drainage of the area. In addition,	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xxi).

[Handwritten Signature]
11

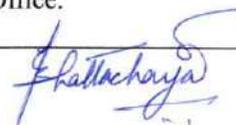
	adequate number of underpasses and culverts to act as cross drainage structures shall be provided.	
xiii	The solid waste generated shall be used for rehabilitating the borrow areas.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xxii).
xiv	For providing safety to the crossing animals and avoid road accidents, speed breakers/ rumbled strips shall be constructed at the identified locations of the animal movements.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xxiii).
xv	Minimum of three times the number of trees to be cut shall be planted. It shall be ensured that the trees as a part of the afforestation shall be looked after by NHAI. A detailed plan earmarking funds for this purpose shall be provided.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xxiv).
xvi	The tree plantation shall be taken up on the extreme end of the road.	
xvii	Necessary permission for tree felling from the concerned department shall be obtained before commencement of the project work and copies of the same shall be submitted to this Ministry.	Complied. As per the information submitted by the PP, permission was obtained from DCF Mangalore Division (Karnataka Forest Department) vide letter Nos. No/TBR/CR/86/NH:2007-08 dated 24.06.2010; No/TBR/CR/15/NH:TFP:2007-08 24.06.2010. Also, permission was obtained from DCF Kundapura Division (Forest Department) vide Letter No. C2:CR:53/06-07/NH dated 15.06.2010. However, copies have not been made available to this office.
xviii	Adequate number of underpasses shall be provided in the habitation areas. The details of such underpasses shall be provided to the Ministry within 6 months from the date of issue of this letter.	Refer below. As per the information made available to this office, 3 cattle passes, 3 vehicle under passes, 1 overpass, 7 pedestrian underpasses, 3 flyovers, 2 FOB and 1 subway have been provided along the highway stretch. However, the adequacy of these underpasses could not be ascertained.
xix	Necessary clearance from the State Government shall be obtained for extraction of sand.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xxv).
xx	Proper signage shall be installed at appropriate locations for the convenience of the traffic movement.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xxvi).
xxi	The embankments/ slopes and the slopes left after cutting shall be provided with vegetative turving to avoid soil erosion.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xxvii).
xxii	The hot mix plant shall be located at least 500 m away from the habitation and on the barren land to avoid its adverse impact on the human population.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xxviii).
xxiii	Rehabilitation and payment of compensation to the project affected people (PAPs) shall be made as per the policy of the State Government.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xxix).
xxiv	Noise barriers shall be provided at appropriate locations particularly in the areas where the alignment passes through inhabited areas so as to ensure	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xxx).



	that the noise levels do not exceed the prescribed standards.	
xxv	Details of the use of flyash in the project shall be provided to the Ministry before its initiation. In any case, the project shall utilize flyash in the construction of road embankments as per the provisions of Notification SO No. 763(E) dated 14.09.1999 as amended vide SO 979(E) dated 27.08.2003.	Not complied. From the available records it was noted that the PP tried to procure flyash from a thermal power plant in Udupi. However, they were not successful in the attempt of flyash procurement due to some local public agitation.
xxvi	For road safety, IRC guidelines in respect of road signages, service roads, bus bays, inter-sections, pedestrians crossings, etc. shall be strictly adhered to.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, Specific Condition No. xxxi).
General Conditions		
i	Adequate provisions for infrastructure facilities including water supply, fuel and sanitation must be ensured for construction workers during the construction phase of the project to avoid any damage to the environment.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, General Condition No. i & ii).
ii	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	
iii	Borrow sites for each quarry sites for road construction material and dump sites must be identified keeping in view the following: (a) No excavation or dumping on private property is carried out without written consent of the owner. (b) No excavation or dumping shall be allowed on wetlands, forest areas or other ecologically valuable or sensitive locations. (c) Excavation work shall be done in close consultation with the soil conservation and watershed development agencies working in the area, and (d) Construction spoils including bituminous materials and other hazardous materials must not be allowed to contaminate water courses and the dump sites for such materials must be secured so that they shall not leach into the groundwater.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, General Condition No. iii).
iv	The construction material shall be obtained only from approved quarries. In case new quarries are to be opened, specific approvals from the competent authority shall be obtained in this regard.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, General Condition No. iv).



v	Adequate precautions shall be taken during transportation of the construction material so that it does not affect the environment adversely.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, General Condition No. v).
vi	Borrow pits and other scars created during the road construction shall be properly levelled and treated.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, General Condition No. vi).
vii	Adequate financial provision must be made in the project to implement the aforesaid safeguards.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, General Condition No. vii).
viii	The project proponent will set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, General Condition No. viii).
ix	Full support shall be extended to the Officers of the Ministry/ Regional Office by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, General Condition No. ix).
x	Ministry of Environment and Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	PP vide letter dated 06.12.2024 has agreed to comply.
xi	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.	PP is aware of the condition.
xii	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.	Complied. PP later proposed to widen and upgrade the existing carriageway to 4/6 laning in Goa – Karnataka Border (Km 93.700) to Kundapur (KM 283.300) Section of NH-17 in the State of Karnataka. Accordingly, expansion EC was granted vide No. 10-107/2011-IA.III dated 19.02.2014 by the Ministry.
xiii	The project proponent shall inform the Regional office as well as the Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Complied. PP vide letter dated 06.12.2024 has intimated the date of financial closure has been intimated to the Ministry through letter No. IWCT/BD/FC&AD/13/12552 dated 24.12.2013. However, a copy of the letter was not found in the records of this office.
xiv	Safety provision such as bus bays, service roads intersection improvement etc. will be carried out by the project proponent. The project proponent shall provide adequate facilities as per IRC norms/ guidelines.	As already mentioned above (EC No. 10-107/2011-IA.III dt 19.02.2014, General Condition No. xvi).
xv	Karnataka State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District	The condition for compliance by the SPCB, DIC and Collector's Office/ Tehsildar's Office.



Industries Centre and Collector's Office/ Tehsildar's Office for 30 days.	
--	--



(Dr. Dola Bhattacharjee)
Scientist 'B'

Dr. Dola Bhattacharjee
Scientist 'B'

Date: 13.01.2025

Place: Regional Office- Bengaluru, MoEFCC.

MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
Integrated Regional Office, Kendriya Sadan
IVth Floor, E&F Wings, Bengaluru - 560 034.



सत्यमेव जयते

भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन एवं राजमार्ग मंत्रालय, भारत सरकार)

National Highways Authority of India

(Ministry of Road Transport & Highways, Government of India)

परियोजना कार्यान्वयन इकाई-होन्नार/Project Implementation Unit - Honnavar

2nd Floor, Part 1, Vasudeva Business Park, Adjacent To HDFC Bank,
Mastikatte, Honnavar - 581 334

Email : piunhainonnavar@gmail.com Email : piuhonnavar@nhai.org

Annexure-I



No. NHAI/PIU-HNVR/11021/2024-25/1270

06.12.2024

To

Dr. Dola Bhattacharjee, Scientist 'B'
Government of India
Ministry of Environment, Forest and climate change
Regional Office-Bengaluru
Kendriya Sadan, 4th Floor, E&F Wings
17th Main Road, II Block, Koramangala
Bengaluru-560034

Sub: Four laning of Goa-Karnataka Border to Kundapur section of NH-66 (formerly NH-17) from Km. 93.700 to Km. 283.300 in the State of Karnataka to be executed as BOT Project on DBFOT Pattern under NHDP-IV: -Earlier OA No.1055/2024 new OA No.261/2024 in the matter of News Item titled "Unscientific work by NHAI led to Shirur landslide - Geological Survey of India Report" appearing in the Indian Express dated-02.08.2024 pending before the Hon'ble NGT (SZ) Chennai-Submission of factual status report-reg.

Ref:

1. MoEF&CC letter no. F(C)A/12.7/732/NGT/KAR/394 dated-05.11.2024.
2. NHAI PIU-Honnavar letter no. NHAI/PIU-HNVR/11021/2024-25/1151 dated-18.11.2024.
3. NHAI PIU-Honnavar letter no. NHAI/PIU-HNVR/11021/2024-25/1152 dated-18.11.2024.
4. Concessionaire letter no.IRBWTL/CTO/KKBOT/6566/2024 dated-27.11.2024.
5. IE letter no.THEME/GOA-KAR/2024-25/949 dated-28.11.2024.

Sir,

This has reference to your letter cited 1st, referring to the NGT case (Earlier O.A No.1055/2024 new OA No.261/2024, SUO MOTU initiated by the Hon'ble NGT against NHAI & ors, based on a News item titled - "unscientific work by NHAI led to Shirur landslide-Geological Survey of India Report", appearing in the Indian Express dated-02.08.2024) and the Ministry letter No.IA-L-11011/577/2024-IA-I, dated-22.10.2024. The following information/documents were requested by you vide letter cited 1st.

- I. Copies of all the Environmental Clearances (ECs) associated with the project.
 - II. Condition wise EC Compliance status report and,
 - III. The factual status report concerning the issues raised in the application (Enclosed), to this office within 7 working days along with the contact details of a responsible officer for direct correspondence.
2. In this regard, point wise reply is as follows:
- I. Copies of all the Environmental Clearances (ECs) associated with the project,
Ministry of Environment & Forests had accorded necessary Environmental and CRZ clearance for the Project as per the provision of Coastal Regulation Zone Notification, 2011 and EIA Notification 2006 vide F.No.10-107/2011-IA.III dated-19.02.2014, copy of the same is enclosed as Annexure - I.

प्रधान कार्यालय, जी ५ और ६, सेक्टर-२०, द्वारका, नई दिल्ली - ११० ०७५

Headquarters, National Highways Authority of India, G 5&6, Sector-10, Dwarka, New Delhi - 110 075 www.nhai.gov.in

II. Condition wise EC Compliance status report:

Environment monitoring report, which consist of condition wise EC compliance is enclosed as Annexure - 2.

III. The factual status report concerning the issues raised in the application:

- ❖ A landslide occurred around 8:45 am on 16.07.2024 at Km.147.900 on NH-66 near Shiroor, Ankola Taluk of Uttara Kannada District causing loss of lives & disruption to traffic on NH-66.
- ❖ It is to be noted that the alignment is a brownfield and not a green field, where a 2-lane road already existed before 4-laning. At this location, there is a hill/ forest on one side and river on the other. The location restricts widening of the road on river side.
- ❖ The 3-day antecedent rainfall in the area was 503mm, causing saturation of thick debris material and lithomarge, thereby increasing pore water pressure.
- ❖ The Land slide, as it is clearly evident from the site inspection has commenced from nearly 50 meters further from the Project ROW, on the hill side forest area and crossed the project width right upto riverside. A tea stall and few vehicles parked were washed off due to the land slide.
- ❖ The origin of the land slide begins beyond the Project RoW and the landslide may be primarily caused due to incessant torrential rains.

Committee/Expert visits subsequent to land slide:

- i. Visit by Dr. R. Sajeew, Director, GSI on 17th & 18th July, 2024.
- ii. Visit by Geotechnical Expert (Prof Dr. D. N. Singh), deployed by NHAI on 19th and 22nd July, 2024.
- iii. Visit by Expert Committee constituted by NHAI on 22nd July, 2024. Its members are as follows -
 - a) Dr. Anand Kumar Pandey, Chief Scientist, National Geophysical Research Institute, Hyderabad.
 - b) Dr. D N Singh, Professor, Department of Civil Engineering, IIT - Bombay
 - c) Sh. Ashish D. Gharpure, MD, Genstru Consultants Pvt. Ltd.
 - d) Dr. R. Sajeew, Director, Geological Survey of India.

Committee/Experts after their visit to the site, submitted the following -

- ❖ Probable causes for the landslide:
 - i. Over-saturation of lithomarge soil due to heavy rainfall, leading to concentrated seepage along the soil-rock interface.
 - ii. Presence of water bodies in the forest behind the crown of the scar, resulting in a dam burst-like situation.
 - iii. Sloughing at the interface between rock strata and overburden soil due to reduce d friction.
 - iv. Movement of topsoil against the underlying rock.
 - v. Erosion of the soil mass due to suffusion, leading to instability and collapse of the hillock.
- ❖ Immediate Actions Recommended:
 - i. Channel water from the hilltop to facilitate proper runoff.
 - ii. Allow traffic only after implementing short-term measures along the main Carriageway.

- iii. Restrict vehicle speed to 20 km/hr and prohibit honking or abrupt manoeuvres.
- iv. Ensure no vehicles stop in the affected area.
- v. Monitor for any signs of soil movement and halt traffic if necessary.
- vi. Maintain vigilance through trained security/police personnel and display cautionary signboards.

❖ Long-term Engineering Actions:

- i. Conduct a technical audit of the affected stretch after rains cease.
- ii. Perform a high-resolution drone/manual survey, including topographical and contour mapping.
- iii. Assess slope stabilization options based on site conditions and resources available.
- iv. Collaborate with relevant state agencies for a comprehensive geotechnical investigation.

IV. Contact details of a responsible officer for direct correspondence as requested by you, are as follows:

<p>1. Shri. M Shivakumar, Dy. General Manager (T) & Project Director, NHAI, PIU - Honnavar, Ph. No. 8310783346.</p>	<p>2. Shri. Mandadi Bhavith Reddy, Deputy Manager (T), NHAI, PIU - Honnavar. Ph. No. 7981052255.</p>
<p>Address: 2nd Floor, Part-I, Vasudeva Business Park, Adjacent to HDFC Bank, Mastikatte, Honnavar-581334 Email piunhahonnavar@gmail.com, piuhonnavar@nhai.org.</p>	

3. PIU vide letter cited 3rd, requested the Concessionaire & Independent Engineer M/s. Theme Engineering Services Pvt Ltd., to submit the details/documents sought vide letter cited 1st. Accordingly, Concessionaire and Independent Engineer, vide letter cited 5th & 4th respectively submitted the Compliance. The same is enclosed herewith.

4. It is important to note that PIU - Honnavar was established last year 15.03.2023. Prior to this, the subject project was under the jurisdiction of PIU - Mangalore and was subsequently transferred to PIU - Honnavar upon its establishment. Besides your letters were addressed to PIU - Mangalore. As a result, there was some delay in giving a swift response.

Thanking you,

Yours Faithfully

M. Shivakumar 6/12/24
DGM (T) & Project Director,
NHAI, PIU-Honnavar

CC: The Regional Officer, NHAI Bengaluru-for kind information.

Ref. No: THEME/GOA-KAR/2024-25/ 949

28th November 2024

To,
The Project Director,
 National Highway Authority of India,
 (Ministry of Road Transport and Highways),
 Project Implementation unit, Honnavara,
 Vasudev Business Park, Second Floor, adjacent to HDFC Bank,
 Masthikatte Honnavara, Uttara Kannada-581334.

Subject: Consultancy Services as Independent Engineer during Operation & Maintenance for Four laning of Goa-Karnataka Border to Kundapur section of NH-66 (formerly NH-17) from Km. 93.700 to Km. 283.300 in the State of Karnataka on DBFOT basis under NHDP-IV - **Earlier OA NO.1055/2024 new OA No.1055/2024 new OA No.261/2024 in the matter of news Item titled "Unscientific work by NHAI led to Shiroor Landslide-Geological Survey of India Report" appearing in the Indian Express dated-02.08.2024 pending before Hon'ble NGT (SZ) Chennai-Submission of factual status report - Reg.**

Ref: 01. Concessionaire letter No. IRBWTL/CTO/KKBOT/6566/2024 dated 27.11.2024.
 02. Our office letter No. THEME/GOA-KAR/2024-25/931 dated 19.11.2024.
 03. NHAI office letter No. NHAI/PIU-HNVR/11011/IE & IRB/2024-25/1152 dated 18.11.2024.
 04. MOEF-RO Bangalore letter No.F(C)A/12.7/732/NGT/KAR/394 dated 05.11.2024.

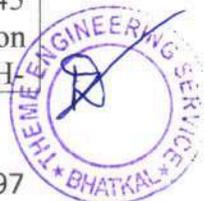
Dear Sir,

With respect to the above-mentioned subject matter, the concessionaire has submitted the compliance vide ref (01) as tabulated below,

Sl.No.	Documents as required	Concessionaire Compliance	IE's Remarks
01.	Copies of all the Environmental Clearances (ECs) associated with the project	Enclosed Annexure-A	Enclosed the Concessionaire letter No.6566 dated 27.11.2024.
02.	Condition-wise EC compliance status reports	Enclosed Annexure-B	Enclosed the Concessionaire letter No. 5874 dated 13.04.2023.
03.	The factual status report concerning the issues raised in the application.	Landslide occurred around 8:45 am on 16.07.2024 at Km.147+900 due to incessant torrential rains	A landslide incident occurred around 8:45 am on 16.07.2024 on National Highway NH

Head Office: B-24, Gokul Vatika, Jawahar Circle, Jaipur-302018, Ph. No. +91-141-2724495-97
 Fax- +91-141-2724491

E mail: theme@themeengineering.com, Website: www.themeengineering.com

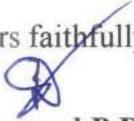


		<p>since past couple of days. The rainfall along the Western Ghats more than 500mm+ for the last 24 hrs. Due to the said incident of landslide, four-lane carriageways have been completely blocked for the movement of vehicles on highway due to debris. Detailed report from Geo-technical experts awaited for long term measures to avoid any landslides at that locations.</p>	<p>66 at Km.147.925 to Km.148.075 at Shiroor Village, Ankola Taluk. The rainfall along the Western Ghats was more than 500mm+ during the said 24 hrs causing the natural calamity.</p> <p>Four-lane carriageways have been completely blocked for the movement of vehicles on the highway due to debris.</p> <p>Detailed reports from Geo-technical experts are awaited for long-term measures to avoid any landslides in future.</p>
--	--	---	---

This is for your kind information.

Thanking you,

Yours faithfully,




Dayanand P Dhavalegar

Highway Maintenance Cum Resident Engineer
Theme Engineering Services Private Limited
Bhatkal.

CC: The Project Manager, IRB West Coast Tollway Ltd, Kumta - For information.

Head Office: B-24, Gokul Vatika, Jawahar Circle, Jaipur-302018, Ph. No. +91-141-2724495-97

Fax- +91-141-2724491

E mail: theme@themeengineering.com, Website: www.themeengineering.com

Corporate Office :

3rd Floor, IRB Complex, Chandivali Farm, Chandivali Village, Andheri (E), Mumbai - 400 072.

Tel: 91 - 22 - 6640 4220 / 4880 4200 • Fax: 91 - 22 - 2857 3441 • e-mail: info@irb.co.in

irbinfrastructuretrust@irb.co.in • www.irb.co.in

CIN : U45400MH2012PLC234786



IRBWTL/CTO/KKBOT/6566/2024

27/11/2024

To,

The Resident Engineer &
Highway Maintenance Engineer,
M/s. Theme Engineering Services Pvt. Ltd,
Naveed Residency, #202, 2nd Floor,
Good Luck Road, Hindu Colony,
Bhatkal, Uttara Kannada District-581320.

Project: Four Laning of Goa / Karnataka Border to Kundapur section of NH-17 from Km.93.700 to Km. 283.300 in the state of Karnataka under NHDP Phase IV on Design, Build, Operate, Transfer (DBFOT) Toll basis.

Subject: - Submission of factual states report (NGT) for regarding Earlier OA no.1055/2024 new OA No.1055/2024 new OA No.261/2024 in the matter of news item titled "Unscientific works by NHAI led to Shiroor land slide –Geotechnical Survey of India Report" appearing in the Indian Express dated 02.08.2024.

Ref: 1] NHAI PIU letter No. NHAI/PIU-HNVR/11011/IE& IRB/2024-25/1152 dated 18.11.2024.
2] MOEF-RO Bangalore letter No. F©A/12.7/732/NGT/KAR/394 dated 05.11.204
3] Your office letter No. THEME/GOA-KAR/2024-25/931 dated 19.11.2024

Dear Sir,

With reference to the subject above, please find enclosed herewith the point wise compliance mention below.

Sr. No	Independent Engineer Document required	Concessionaire Compliance
1	Copies of all the Environmental Clearances (ECs) associated with the project	Enclosed Annexure-A
2	Condition-wise EC compliance status reports	Enclosed Annexure-B
3	The factual status report concerning the issues raised in the application.	Landslide occurred around 8:45 am on 16.07.2024 at Km.147+900 due to incessant torrential rains since past couple of days. The rainfall along the Western ghats more than 500mm+ for the last 24 hrs. Due to the said incident of landslide, four lane carriageways has been completely blocked for the movement of vehicles on highway due to debris. Detailed report from Geo-technical experts awaited for long term measures to avoid any landslides at that locations.

Thanking you,

Yours faithfully,

Mohanadoss . S

(Project Director)

Encl: As stated above.

CC.: Project Director, NHAI, PIU, Honnavar - For kind information.

E C
Annexure - A

F.No.10-107/2011-IA.III
Government of India
Ministry of Environment & Forests
(IA-III Section)

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi - 110 003.

Dated: 19th February, 2014

To
The Chief General Manager (LA),
M/s National Highways Authority of India,
G- 5&6, Sector - 10, Dwarka,
New Delhi - 110075

Contact Person Details:

Shri V.K. Sharma,
Tel. No. 011-25074100, 25074200
Fax No. 011-25093543
Email: vksharma@nhai.org

Subject: Environmental and CRZ Clearance for widening and upgradation of existing carriageway to 4/6 laning of Goa - Karnataka Border (km 93.700) to Kundapur (km 283.300) Section of NH- 17 in the State of Karnataka by M/s. NHAI - Reg.

This has reference to your letter No: 1013/1/2k/GM(Env.)/375 dated 24.09.2013 and subsequent letters dated 12.12.2013 and 12.12.2013 and 20.12.2013 Environmental and CRZ Clearance under the Environment Impact Assessment Notification, 2006 and Coastal Regulation Zone Notification, 2011. The proposal has been appraised as per prescribed procedure in the light of provisions under the Coastal Regulation Zone Notification, 2011 and EIA Notification - 2006 and on the basis of the mandatory documents enclosed with the application viz., the Questionnaire, recommendation of State Coastal Zone Management Authority, EIA, EMP and the additional clarifications furnished in response to the observations of the Expert Appraisal Committee constituted by the competent authority in its meetings held on 28th - 30th October 2013 and 20th - 23rd November, 2013 and 22nd - 24th January, 2014.

2. It is interalia, noted that the proposal involves widening and upgradation of existing carriageway to 4/6 laning of Goa - Karnataka Border (Km 93.700) to Kundapur (Km 283.300) Section of NH-17 in the State of Karnataka. Project road is part of NH-66 (formerly NH-17) starts from Goa - Karnataka border at km 93.700 and ends in Kundapur in Udupi District, Karnataka at km 283.300. The proposed road passes towards south from Goa-Karnataka Border through congested town/villages viz. Karwar, Karwar Port, Navy's Sea Bird Project, Amadalli, Kumta, Haldipura, Honnavara, Kasarkod, Shirali, Bhatkal, Shirur, Byndoor, Maravanthe and Tallur. The proposed project is a part of NHDP programme of 4/6 laning and has total length of 189.600 km, whereas proposed length is 187.240km. The existing RoW width varies from 11m to 45m from km 93.600 to km 241.000 and from Km 241.000 to Km 283.300 it is 45m on the project road (11m in mountainous terrain to 45m in plain terrain). As per NHAI Notification, a uniform width of 60m will be maintained throughout the project stretch for 4/6 lane carriageway

along the project road. Therefore widening of the road would require additional lands to accommodate the proposed RoW width throughout the project length. The project stretch passes through 120.130km of plain terrain, 24.20km of hilly terrain and 45.67km of rolling and hilly terrain. Land use along the highway is predominantly built-up and agriculture. The entire stretch of the project road falls under Seismic Zone-III of India. Patches of reserved forests are situated along the existing RoW. The existing RoW is not sufficient and for accommodating 60m of RoW width, acquisition of forest area would be required thus affecting forests. Approximately 162.429 Ha of forest land is required to be acquired including 2.629 ha mangroves area. Few sections of the existing highway fall under CRZ and the road is proposed on still in mangroves. The Project is located within 10km of proposed Cārigaon Wildlife Sanctuary, Goa. There are about 23,491 plants/trees along the roadside which are likely to be affected due to the proposed development. The land which is required to be acquired all along the project road for widening of the existing 2-lane road to 4-lane is 525.16 ha, where the available RoW is less than design requirements. There are 13 major bridges, 40 minor bridges and 606 nos. of culverts along the existing road. Existing bridges and culverts along the existing road will be upgraded or reconstructed during the proposed development. There are 2 pedestrian/cattle underpasses, 4 numbers of RUBs and 2 numbers of ROBb along the existing alignment. In the proposed development, 22 underpasses (3 vehicular, 19 pedestrian and cattle), 4 new flyovers have been proposed. There are 15 major junctions along the existing alignment. A total of 4 number of truck lays and 53 number of bus bays have been proposed. 3 new Toll Plazas have been proposed. 7m wide service roads of 60.742km are proposed on both sides at urban and rural built up stretches. The total water requirement would be 1829.868 KLD. 59.09 lakh cum of soil, 33.17 lakhs cum of aggregate and 2.07 lakh cum of sand shall be required and is proposed to be taken from nearby quarries/borrow areas. Cost of Environmental Management Plan is Rs. 45.00 Cröre. It was informed that 1132 structures will be affected and the total cost of R&R is Rs. 328.32 Cröre. The total cost of the project is Rs. 1756.32 Cröre.

3. The project was considered by EAC in its meeting held on 10th – 11th January, 2012 and finalised ToR including conduct of Public Hearing. The Public Hearing was conducted on 05.12.2012 at Byndoor, 02.04.2013 at Kumta. The major issues raised are tree cutting, forests land involvement etc.

4. The Karnataka Coastal Zone Management Authority has recommended the project vide letter no. FEE.136 CRZ 2013 dated 12.09.2013.

5. The proposal was discussed in the EAC meeting in October, 2013 and the Committee decided that Shri S.K. Sinha, Member, EAC, will go through the original map and provide comments since it is not giving clear CRZ boundary. Though, the Project Proponent has prepared the CRZ maps of 1:4000 scale through IRS, Anna University, however they have not submitted maps of scale in view of the large size and numbers. In 128th meeting of the EAC held in November, 2013, the Member informed that the total length of Proposed Right of Way (PROW) is 189.6 km (from chainage 93.7 km to 283.3 km). The intersections of PROW with CRZ Zone are CRZ I (A) – 2.13 km, CRZ I (B) – 9.75 km, CRZ II – nil and CRZ III – 34.32 km. CRZ I crossings are mainly over the creeks. The PROW directly overlaps 10.5 hectares of mangrove area. All the above estimates are based on the original survey/mapping generated by IRS which was offered for examination.

6. While processing of the project, complaints from Rastriya Heddari Bhuswa Dhira Virodhi Horata Samitee, Uttar Kannada – Karwar and copy of complaint from Bhuswadhin a Virodhi Samitee filed before National Human Rights Commission, were received against the

project. Main issues are land acquisition, forest and Wildlife Clearance, destruction of mangroves, involving blasting operation for making tunnel in forests area, submission of false data to Ministry etc. Copy of the complaint was provided to the NHAI for comments. NHAI has submitted detailed response on the complaint and details on tunnels. Tunnel is proposed after London Bridge in Karwar bypassing the Karwar Port. The tunnel has a length of 550 m on LHS and 594 m on RHS. Total length of the tunnel is 1144 m.

7. The Expert Appraisal Committee, after due consideration of the relevant documents submitted by the project proponent and additional clarifications furnished in response to its observations, have recommended for the grant of Environmental and CRZ Clearance for the project. Accordingly, the Ministry hereby accords necessary Environmental and CRZ Clearance for the above project as per the provisions of Coastal Regulation Zone Notification, 2011 and EIA Notification, 2006, subject to strict compliance of the terms and conditions as follows:

8. **SPECIFIC CONDITIONS:**

- (i) Road in Mangrove areas shall be on stilts. It is noted that the proposed ROW overlaps 10.5 ha of mangrove area. The Project Proponent shall carry out mangrove plantation in an area of 50 ha. in consultation with Forest Department.
- (ii) As the project is located within 10 km of proposed Catigao Wildlife Sanctuary, Goa, prior clearance from NBWL shall be obtained.
- (iii) The project involves diversion of 162.429 ha protected forest land including 2.629 ha mangroves area for which the proponent shall obtain the requisite FC. The proponent can execute the above project on the entire stretch located in non-forest land, provided that the proponent submits an undertaking while making application to get FC that the execution of work on non-forest land shall not be cited as a reason for grant of FC and in case FC is declined, width of the portion of road falling in the forest land will be maintained at its existing level.
- (iv) It is indicated that 23491 nos. of trees are proposed to be cut for the project. Necessary permission from competent authority shall be obtained for tree cutting. Necessary compensatory plantation shall be carried out and cost provision should be made for regular maintenance.
- (v) It is noted that according to NHAI, the impact zone is 50-200 m and the nearby habitation is Karwar Town at 600 m. However, NHAI shall intimate local authority before carrying out the blasting. If there are any damage caused due to blasting, NHAI shall compensate 100 % under the notice of local Authority.
- (vi) All the other required clearances for carrying out blasting shall be obtained from the competent Authority including Forests / Wildlife.
- (vii) The blasting shall be restricted only from 8 am to 6 pm.
- (viii) The technique adopted for controlled blasting at identified locations is non-electric detonating technique.

- (ix) Explore the possibilities of using cold mix technology wherever possible particularly near Wildlife Sanctuary.
- (x) Permission for ground water drawl shall be obtained from competent Authority.
- (xi) Rain water harvesting including oil and grease trap shall be provided. Water harvesting structures shall be located at every 500 mts along the road. Vertical drain type rainwater harvesting structures shall be set up to minimize surface runoff losses of rainwater.
- (xii) R&R shall be as per the guidelines of State/Central Government.
- (xiii) IRC guidelines shall be followed for widening & up-gradation of road.
- (xiv) The responses/commitments made during public hearing shall be complied with letter and spirit.
- (xv) All the recommendation of the EMP shall be complied with letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF along with half yearly compliance report to MoEF-RO.
- (xvi) Green belt development shall be undertaken as suggested in EMP.
- (xvii) The seismic nature of the area shall be taken into account while designing the project.
- (xviii) The project proponent shall obtain necessary permission from the State Irrigation Department before drawing water from the river sources for the purpose of the proposed construction activity.
- (xix) Sidewalk shall be provided along the bridges.
- (xx) The drain shall be at least 1 m. away from the toe of the embankment of the road adopting IRC guidelines.
- (xxi) Longitudinal drains shall be provided all along the project road to ensure proper drainage of the area. In addition, adequate number of under passes and culverts to act as cross drainage structures shall also be provided.
- (xxii) The solid waste generated shall be used for rehabilitating the borrow areas.
- (xxiii) For providing safety to the crossing animals and avoid road accidents speed breakers/rumbled strips shall be constructed at the identified locations of the animal movements. Enough hoardings and signages shall also be put up for the public and vehicles convenience.
- (xxiv) Minimum of three times the number of trees to be cut shall be planted. It shall be ensured that the trees planted as a part of the afforestation shall be looked after by NHAI. Tree plantation shall be of the same species/local species and survival

shall be monitored. Transplantation of trees shall be carried out wherever possible. The tree plantation shall be taken up on the extreme end of the road.

- (xxv) Necessary clearance from the State Government shall be obtained for extraction of sand from the rivers.
- (xxvi) Proper signage shall be installed at appropriate locations for the convenience of the traffic movement.
- (xxvii) The embankments/slopes and the slopes left after cutting shall be provided with vegetative turning to avoid soil erosion.
- (xxviii) The hot mix plant shall be located at least 500 mts. away from habitation and on the barren land to avoid its adverse impact on the human population.
- (xxix) Rehabilitation and payment of compensation to the project affected people (PAPs) shall be made as per the policy of the State Government.
- (xxx) Noise barriers shall be provided at appropriate locations particularly in the areas where the alignment passes through inhabited areas so as to ensure that the noise levels do not exceed the prescribed standards.
- (xxxi) For road safety, IRC guidelines in respect of road signages, service roads, bus bays, inter-sections, pedestrians crossings, etc. shall be strictly adhered to.

9. GENERAL CONDITIONS:

- (i) Adequate provision for infrastructure facilities including water supply, fuel and sanitation must be ensured for construction workers during the construction phase of the project to avoid any damage to the environment.
- (ii) Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.
- (iii) Borrow sites for each quarry sites for road construction material and dump sites must be identified keeping in view the following:
 - (a) No excavation or dumping on private property is carried out without written consent of the owner.
 - (b) No excavation or dumping shall be allowed on wetlands, forest areas or other ecologically valuable or sensitive locations.
 - (c) Excavation work shall be done in close consultation with the Soil Conservation and Watershed Development Agencies working in the area, and
 - (d) Construction spoils including bituminous material and other hazardous materials must not be allowed to contaminate water courses and the dump sites for such materials must be secured so that they shall not leach into the ground water.

- (iv) The construction material shall be obtained only from approved quarries. In case new quarries are to be opened, specific approvals from the competent authority shall be obtained in this regard.
- (v) Adequate precautions shall be taken during transportation of the construction material so that it does not affect the environment adversely.
- (vi) Borrow pits and other scars created during the road construction shall be properly levelled and treated.
- (vii) Adequate financial provision must be made in the project to implement the aforesaid safeguards.
- (viii) The project proponent will set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.
- (ix) Full support shall be extended to the officers of this Ministry/ Regional Office by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.
- (x) A six-Monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry regarding the implementation of the stipulated conditions.
- (xi) Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.
- (xii) The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.
- (xiii) In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.
- (xiv) The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.
- (xv) A copy of the clearance letter shall be marked to concerned Panchayat/local NGO, if any, from whom any suggestion/ representation has been made received while processing the proposal.
- (xvi) Safety provision such as bus bays, service roads intersection improvement etc., will be carried out by the project proponent. The project proponent shall provide adequate facilities as per IRC norms/guidelines.

(xvii) State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Center and Collector's Office/Tehsildar's office for 30 days.

10. These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006, including the amendments and rules made thereafter.

11. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.

12. The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental and CRZ Clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests at <http://www.envfor.nic.in>. The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional Office of this Ministry.

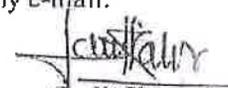
13. Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

14. This Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

15. Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.

16. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.

17. 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 Clearance conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.


(Lalit Kapur)
Director (IA-III)

Copy to:

- (1) The Secretary, Department of Environment, Government of Karnataka, Bangalore.
- (2) The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 110 032.
- (3) The Member Secretary, Karnataka Coastal Zone Management Authority & Director, Environment Technical Cell, Department of Forests, Ecology and Environment, Govt. of Karnataka.
- (4) The Member Secretary, Karnataka State Pollution Control Board, "Parisara Bhavan, 4th & 5th Floor, # 49, Church Street, Bangalore-560 001.
- (5) The CCF, Regional Office, Ministry of Environment & Forests(SZ), Kendriya Sadan, IVth floor, E&F wings, 17th Main Road, Koramangala II Block, Bangalore - 560 034.
- (6) IA - Division, Monitoring Cell, MOEF, New Delhi - 110003.
- (7) Guard file.



(Lalit Kapur)
Director (IA-III)

**Four Laning of Goa/Karnataka Border to Kundapura
section of NH-66 (formerly NH-17) from Km 93.700 to
Km 283.30m – Slope stability issues and requirement
of slope protection at KKBOT site**

Site Visit Report

CLIENT

**M/s Modern Road Makers Pvt. Ltd.
(A Subsidiary of IRB Infrastructure Developers Ltd.) B/301,
Universal Business Park, Near Kamani Oil Mills, Chandivali,
Mumbai 400072.**

CONSULTANT

**Prof. T. G. Sitharam
Professor in Civil Engineering**



**DEPARTMENT OF CIVIL ENGINEERING
INDIAN INSTITUTE OF SCIENCE
BANGALORE- 560012**

August 30th, 2018

Consultant visited the site at four locations (at Km 246+750, Km 199+440, Km 167+700, Km 165+100) and observed excavated slopes treatment to the slopes and failures in these sections. This year due to heavy rains in this area, it was observed that the rain water seeps through the porous lateritic soil, which has a tendency to gush out at the interface of soil layers particularly at the junction of lithomargic clay and laterite layer. Lithomargic clay is a cohesionless sandy silt material which is highly erosion prone due to seepage. The main problems that are presently encountered in dealing with lateritic soil encompass presence of lithomargic clay extending to considerable depth, which is resulting in instability to slopes and landslides, when it gets exposed and comes in contact with huge rain water. These instabilities are attributed to the peculiar type of the soil, which consist of large depth of impervious lithomargic clay strata underlying the porous hard lateritic layers. Slope stability issues and requirement of slope protection at KKBOT sites at chainages have been discussed in the following sections.

1. Location Km. 246.500 -Km. 246.900

As recommended in Consultant's previous report, soil treatment measures such as providing drains, trenches, shotcreting & also turfing with vetivar grass in some portion was completed at selected locations.

Drain at the top of the cut slope of almost 4 to 5m wide and about 3 to 4 m deep was constructed to stop the flow of water directly on the slope faces. This has helped in reducing the rain water flow towards the cut slope. However, it was observed that the drain was unlined . Looking at the quantum of the water which the drain caters & due to the permeability of lateritic soil, the water percolates through the soil & gets out at the cut slopes causing damage to the slope at few locations. It was observed that for such large amount of water inflow the perforated pipes provided for drainage were inadequate & the same needs to be increased by providing the same at closer spacing. Concessionaire has attempted to provide additional pipes where the flow of water was huge & thereby reducing the pore pressure due to which the slope has been able to withstand the excess pressure. It is seen that the water pressure due to heavy flows and erosion of lithomargic clay is the major cause of failure of the slopes.

Considering the prevailing site situation, It is recommended to flatten the slopes in the ratio of 1V:2H in order to have more stable slope. **The top drain shall be lined at the bottom and atleast a minimum of 1.5m vertical height on both sides.** Treating the surface by providing additional weep holes/Drainage Pipes at the closer spacing is recommended. Considering the site situation, a shotcrete layer is recommended as detailed in my previous report.

2. Location Km.192.200, Km 199+440, Km 167+700, Km 165+100

Concessionaire has informed the consultant that the proposal for acquisition of land for flattening of slopes is processed & it is expected that land will be made available by authority to carry out the flattening of cut slope work at this chainage.

At all these locations also Lithomargic clay is embedded in between the lateritic soil, when such Lithomargic clay comes in contact with high velocity rainwater as well as water inflow, due to erosion the slope yields causing the failure.

As recommended in my previous report it is reiterated to flatten the slopes to ratio of 1V:2H in order to have more stable slope and treating the surface by providing weep holes/Drainage Pipes and finally the surface shall be shotcreted as per the specifications given earlier.

3. Location Km. 165+050

It was seen that for a small portion the cut slope on service road side with the treatment has collapsed and presently concessionaire has put granular material butting against the caved in slope surface. Even at this site, the same lithomargic clay is embedded below the hard lateritic soil & as the clay comes in contact with flowing seepage water, it causes erosion of this cohesionless material and making the slope to collapse. The slope at such locations has caved in & in such situation it would be advisable to construct a breast wall upto @ 2m height & fill granular or lateritic soil behind it, so as to confine the lithomargic material and also provide a toe support.

Following points are concluded from the site visit:

1. The flattened slope with safety measures as detailed in my previous report if executed properly at site should be sufficient to ensure the safety of slopes. It is also recommended to drain away any large flow of water from the slope and keep the amount of ingress rain water a minimum. However, looking at the quantum of rain water flow it would be preferable to provide lined drain at the top at Km 246+500 to Km 246+900 (see last para on page 2).
2. The exposed cut surface with flattened slopes shall be treated by providing appropriate drainage with weep holes (perforated drain pipes). The entire surface including berms shall be shotcreted with necessary slopes at the berm.
3. As a preventive measure the pore water pressure on the soil slopes shall be released by providing additional weep holes/drain pipes (in the form of perforated PVC pipes of 50 mm dia of driven @1-1.5m inside the surface). However, spacing of pipes shall be minimized or reduced based on the flow of water observed.
4. At the locations where the cut slopes have caved and no further land is available presently to flatten the slope, PCC/UCR breast wall of @ 2m height shall

be provided beyond drain in order to protect the spilling of soil on road. The gap between the breast wall face & soil shall be filled with granular/lateritic material. A toe drain also needs to be provided.

CONSULTANT


(Prof. T.G. Sitharam)

Date: 30th August 2018

Place: Bangalore

**Four Laning of Goa/Karnataka Border to Kudampura
section of NH-66 (formerly NH-17) from Km 93.70 to km km
283.30m – Slope stability issues and requirement of slope
protection at KKBOT site**

Technical Report

CLIENT

**Modern Road Makers Pvt. Ltd.
(A Subsidiary of IRB Infrastructure Developers Ltd.)
B/301, Universal Business Park, Near Kamani Oil Mills,
Chandivali, Mumbai 400072.**

CONSULTANT

**Prof. T.G. Sitharam
Professor in Civil Engineering**



DEPARTMENT OF CIVIL

ENGINEERING

INDIAN INSTITUTE OF SCIENCE

BANGALORE – 560 012

March 17th, 2017

NB: (A) This report consists of 26 pages.

(B) This report should not be published either in part or in full without the permission in writing from the director of the Institute.

SLOPE STABILITY ISSUES AND REQUIREMENT OF SLOPE PROTECTION AT KKBOT SITE

1. INTRODUCTION

Consultant visited the site at seven locations (at Chainages 247 km, 245 km, 165km,160m, 148.60, 148.0km and 146.5 km) and observed excavated slopes and failures in these sections. Due to heavy rain in this area and excavations, water seeps through the porous lateretic soil, which has a tendency to gush out at the interface of soil layers. The main problems that are presently encountered in dealing with lateritic soil encompass presence of lithomargic clay extending to considerable depth which might result in instability to slopes and landslides, when it gets exposed. These instabilities are attributed to the peculiar type of the soil which consisted of large depth of impervious lithomargic clay strata underlying the porous hard lateritic layers. Slope stability issues and requirement of slope protection at KKBOT sites at chainages around 245 km, 160km, and 190 km have been analyzed at great depth. After the initial visit , consultant recommended soil testing at these locations and has provided detailed tests to be carried out. M/s Modern Road Makers Pvt Ltd submitted some of the geotechnical test reports. Consultant reviewed the geotechnical test reports and selected appropriate properties, cross section and soil profiles for the 3 chainages (at Chainages 245 km, 160km, and 190 km). Prof. Sitharam had visited site first time before initializing the project and witnessed all the failures. Detailed slope stability analyses had been carried out with deep seated failures in these slopes and the same was shared with the client (M/s Modern Road Makers Pvt Ltd.). Initially many chainages have been analyzed and looking at the similarity of the issues, only 3 sites were selected after the second site visit.

2. Second Visit Report

Prof. T G Sitharam, consultant from M/s Indian Institute of Science (IISc) visited the site of unstable slopes on 20th and 21st Feb 2017 at chainages 245.0 km; 190.0 km; 160.0 km; 148 km; and 146.0 km. Mr. Prashant Dongre from head office along with

site engineers for each of the section visited all the above locations. Following are the observations and recommendations:

- i. Generally, at all the locations the instability is related to the presence and expose of lithomargic clay (Shedi soil) layer. Shedi soil (Lithomargic clay), a yellowish-white silty soil underlying lateritic soil (which is densely deposited along Konkan belt of India) is the cause for the slope instability when section is excavated and these shedi soils were exposed for the purpose of road construction. Shedi soil (Lithomargic clay) is the name given to the locally available whitish, pinkish or yellowish silty sand. This is very sensitive to water and loses its strength when it is saturated. Generally, these soils are classified as silty sand or sandy silt with higher percentage of silt content. In particular, when they are exposed and loses its confinement the soil layer settles and causes the slope instability of upper layers. All the test reports at some of these locations as suggested by M/s IISc has already been carried out and submitted to M/s IISc.
- ii. The slope instability was severe at these locations and it has happened as and when the shedi soil gets saturated due to heavy rains and also when exposed to excavations losing the confinement. When soil loses its shear strength, it flows out along with this, it brings down the upper layers. At all the above sections, similar behaviour of instability was observed. Sections adopted for excavations were generally 1H: 8V slopes for the lower layers in lithomargic clay and murrum layers and 1H:12V in the upper hard lateritic layers.
- iii. Sections at chainage 245.0 km; 190.0 km and 160 km were critical and others such as 146.0 and 148 km, there were minor slips with water saturation. M/s Modern road makers Pvt Ltd has asked M/s IISc to look at these critical sections and provide appropriate measures to stabilize the slopes.
- iv. At some stretches (for some length of about 100 to 200m), at these locations corresponding to chainages 245.0 km, 190.0 km and 160 km the land availability was an issue which does not permit any flattening of these slopes. These slopes has to be maintained at 1H:8V and 1H:12V slopes in the final sections of excavated slopes adjacent to the NH carriage way. In particular, at Chainage 245,0 km the road takes a turn and this is in fact critical as heights of about 30m deep cuts have to be stabilized.
- v. Typically, these are stratified soil layers. Typical sections are 10 to 12m hard lateritic layer up to about 10 to 12m from the top followed by 5m of reddish murrum soil and about 8 to 10m of yellowish / whitish soft silty soil which is invariably saturated. Instability has initiated as soon as the bottom soft silty soils are exposed due to excavation. Invariably in all these cross sections the slipped surface started at the upper berms. And has a maximum width of about 2 to 4m from the berm edge (Surface). M/s IISc requested Modern road makers to give us the failed profiles at these locations. Slip surfaces are not circular and they are sort of planar failure forming some sort of wedge failure restricting the failure surface to 2nd and 3rd layers from the top. M/s IISc informed that analyses will be carried out using planar

failure surfaces at these locations instead deep seated circular failure surfaces. At these three critical sections, due to non-availability of additional land, either for flattening the slopes or for the creation of other mitigation measures such as Gabion walls / RCC retaining walls, M/s IISc suggested for soil nailing in these areas as a remedial measure.

- vi. M/s Modern road makers agreed to send the following details immediately
- vii. Critical cross section at chainage @245 km (with almost 25 m high excavation - which has been completed during the visit) with clearly identifying the layers, type of layer and its description, failed profile superposed on the cross section with dimensions, and shear strength properties (if any additional tests which are being carried out).
- viii. Critical cross section at 190.65 km chainage with the layers, type of layer and its description, failed profile superposed on the cross section with dimensions, and shear strength properties (if any additional tests).
- ix. Critical cross section at 160 km chainage the layers, type of layer and its description, failed profile superposed on the cross section with dimensions, and shear strength properties
- x. It was also informed that chainages near 146 km , 148 and 147 are minor slips and site will handle the same with soil nailing at their end
- xi. M/s IISc has asked the site people to try driving 20mm dia TOR steel rod using Jack hammer and send us their experience in the soft soil layer of silty sand lithomargic clay layer along with some photographs
- xii. M/s IISc asked the company to explore the right of way on the top of the hill if any for fattening of the slope. If there is no extra space available the same may be communicated to M/s IISc
- xiii. Drainage : M/s IISc informed the clients the importance of drainage both at the berm and also within the slope. It was informed that the slope on the berms shall be done towards the slope face during construction to drain out the water naturally without any stagnation and it shall be completely covered with shotcrete after works. Good perforated drain pipes covered geofabric having a batter angle of about 5 to 10 degrees from the horizontal shall be installed as per the final recommendation of M/s IISc, so that no excess pore pressure developed behind the soil nailed walls.

3. MATERIAL PROPERTIES

Geotechnical report of each site was provided which was reviewed and site properties were selected after a review of geotechnical report and are presented in Table1.

Table 1 : Material property adopted for slope stability analysis

S.No.	Soil Type	Properties			color
		Cohesion(c) (kPa)	Unit weight (γ) (kN/m ³)	Friction angle(ϕ) (degrees)	
1	Murum *	20	17	19	
2	Lithomargic clay(yellowish /whitish)*	14	17	12	
3	Hard Laterite soil**	18	18	30	

* (Reference: Laboratory test report on soil core samples ,by Civil Aid Technoclinic Pvt Ltd. & Laboratory test report on soil samples by NITK.

**;Reference: Nayak, S., Sunil, B. M., Shrihari, S., "Shear strength characteristics and chemical characteristics of Leachate contaminated lateritic soils". A Journal Engineering Geology, Vol. 106, pp 20 - 25, 2009)

4. SOFTWARE USED FOR THE SLOPE STABILITY ANALYSIS

RocScience geotechnical analysis software "Slide" is used for the stability analysis of the proposed slope section remedial measures. This is a 2-D program with a CAD based graphical interface with a wide range of modeling and data interpretation options. Among the various analysis methods available in SLIDE, Bishop Simplified method is adopted for our analysis. The strength type is assumed to be Mohr-Coulomb. In this report, the nonlinear shallow failure surface were assumed similar to the slope failures during the field observations. Initial analyses using deep seated circular failure surfaces were carried out and after detailed deliberations with client at site, these deep seated failures were ruled out after the second visit. Even the analyses indicated too long nails for establishing a safe slope using deep seated circular failure surfaces which were not really practical.

5. SECTIONS ANALYSED

5.1 Section 160 chainage area

Cross section analyzed: Chainage 160 – critical section at chainage at 160.020 - 23.240 m height of slope as shown in Fig.1 is selected. All existing slopes are unstable. After remedial measures (with Soil nails –6m length and 32 mm diameter at spacing of 0.9

m) the slopes are found to be safe. An assumption has been made regarding ground water considering Ru Coefficient. Analyses has been carried out considering Ru coefficient =0.3. Seismic coefficient of (horizontal acceleration coefficient =0.04 as per IS 1893:1984) 0.04 was selected for the Kundapura – Karwar area. Cross sections were provided by M/s Modern Road makers Pvt Ltd. Suggested remedial measures are safe. Analyses was carried out with different lengths of soil nails and optimum lengths were arrived at. Summary of results obtained at 160.020 km chainage has been presented in Table.2.

Table 2 : Summary of results obtained from stability analysis slopes at 160.020

S.No	Chainage	Condition	Factor of safety	Remark
1	160.020 km	Existing slope	0.547 (Fig 2)	Unstable
2	160.020 km	Slope with Soil nail as Remedial measure	1.472 (Fig 4)	Safe
3	160.020 km	Slope with Soil nail as Remedial measure with seismic coefficient 0.04	1.435 (Fig 5)	

5.2 Section 246.900 chainage area

Cross section analyzed: Chainage 246 – critical section at chainage 246.900-29.440 m height of slope as shown in Fig.11) is selected. All existing slopes are unstable. After remedial measures (with Soil nails –6m length and 32 mm diameter at spacing of 0.9 m) the slopes are found to be safe. An assumption has been made regarding ground water considering Ru Coefficient. Analyses has been carried out considering Ru coefficient =0.3. Seismic coefficient of (horizontal acceleration coefficient =0.04 as per IS 1893:1984) 0.04 was selected for the Kundapura – Karwar area. Cross sections were provided by M/s Modern Road makers Pvt Ltd. Geotechnical report of each site was provided which was reviewed and site properties were selected after a review of geotechnical report and are presented in Table1. Suggested remedial measures are

safe. Analyses was carried out with different lengths of soil nails and optimum lengths were arrived at. Summary of results obtained at 246.900 km chainage has been presented in Table.4.

Table 3 : Summary of results obtained from stability analysis slopes at 246.900 km

S.No	Chainage	Condition	Factor of safety	Remark
1	246.900 km	Existing slope	0.521 (Fig 7)	Unstable
2	246.900 km	Slope with Soil nail as Remedial measure	1.514 (Fig 9)	Safe
3	246.900 km	Slope with Soil nail as Remedial measure with seismic coefficient 0.04	1.465 (Fig 10)	

5.3 Section 246.900 chainage area

Cross section analyzed: Chainage 246 – critical section at chainage 246.900-29.440 m height of slope as shown in Fig.11) is selected. All existing slopes are unstable. After remedial measures (with Soil nails –6m length and 32 mm diameter at spacing of 0.9 m) the slopes are found to be safe. An assumption has been made regarding ground water considering Ru Coefficient. Analyses has been carried out considering Ru coefficient =0.3. Seismic coefficient of (horizontal acceleration coefficient =0.04 as per IS 1893:1984) 0.04 was selected for the Kundapura – Karwar area. Cross sections were provided by M/s Modern Road makers Pvt Ltd. Geotechnical report of each site was provided which was reviewed and site properties were selected after a review of geotechnical report and are presented in Table1. Suggested remedial measures are safe. Analyses was carried out with different lengths of soil nails and optimum lengths were arrived at. Summary of results obtained at 246.900 km chainage has been presented in Table.4.

Table 4 : Summary of results obtained from stability analysis slopes at 246.900 km

S.No	Chainage	Condition	Factor of safety	Remark
1	246.900 km	Existing slope	0.521 (Fig 12)	Unstable
2	246.900 km	Slope with Soil nail as Remedial measure	1.514 (Fig 14)	Safe
3	246.900 km	Slope with Soil nail as Remedial measure with seismic coefficient 0.04	1.465 (Fig 15)	

a. Critical section selected at 160.020 chainage

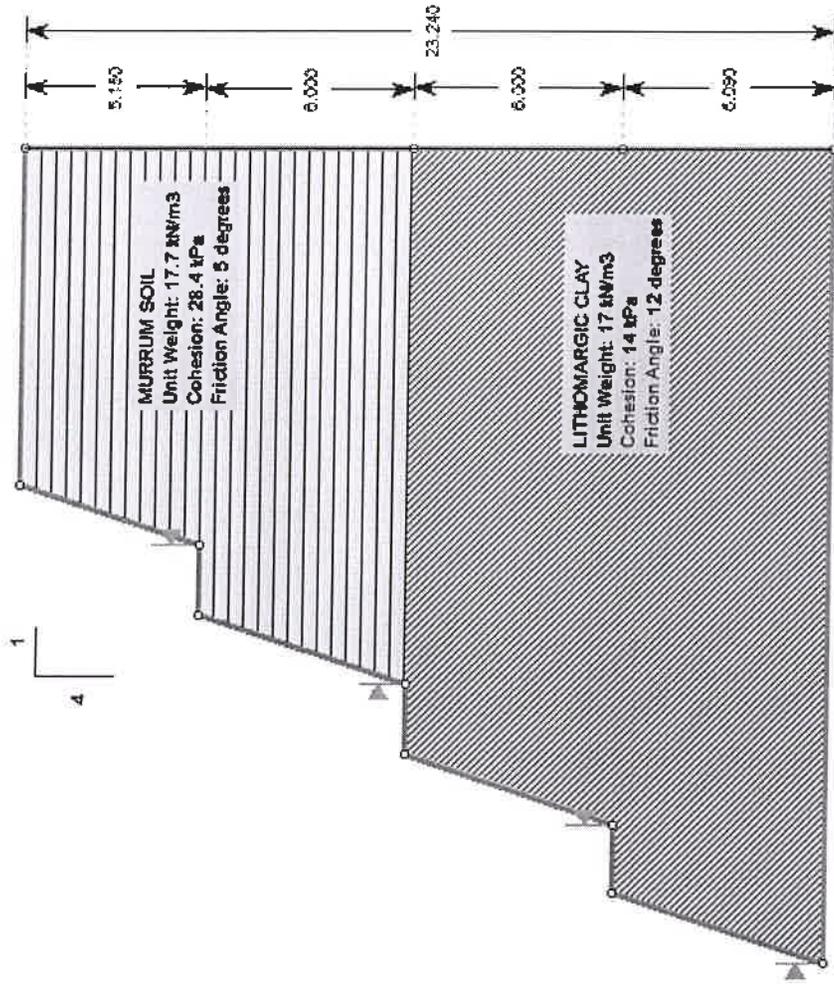


Fig. 1 Critical Section selected at chainage 160.020 km

b. Stability analysis for critical section at 160.020 chainage

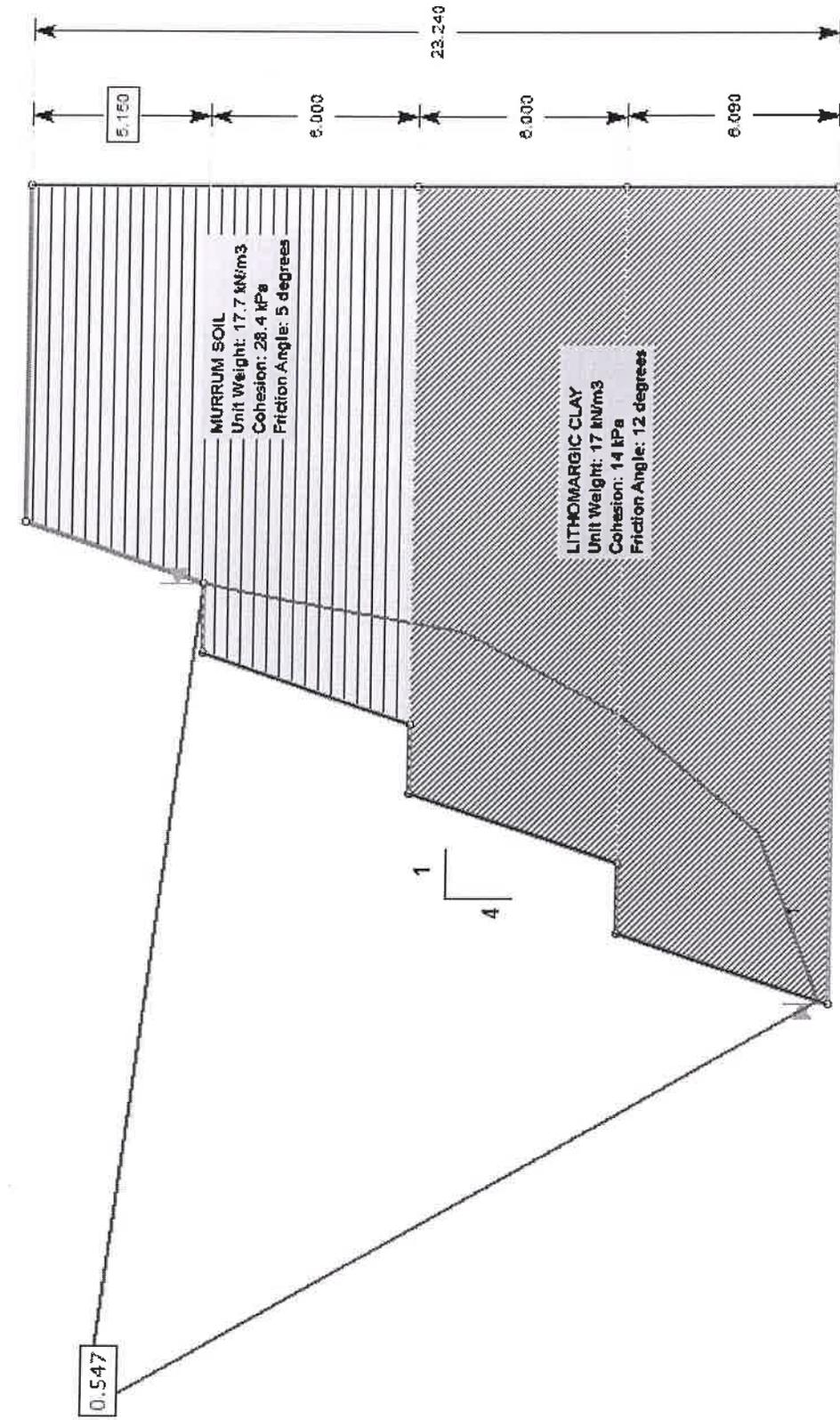


Fig.2 Stability analysis of existing slope at 160.020 km chainage (FS= 0.547, UNSAFE)

c. Proposed remedial measures at 160.020 chainage

Adopted : 32 mm diameter soil nail , length = 6 m , spacing =0.9 m

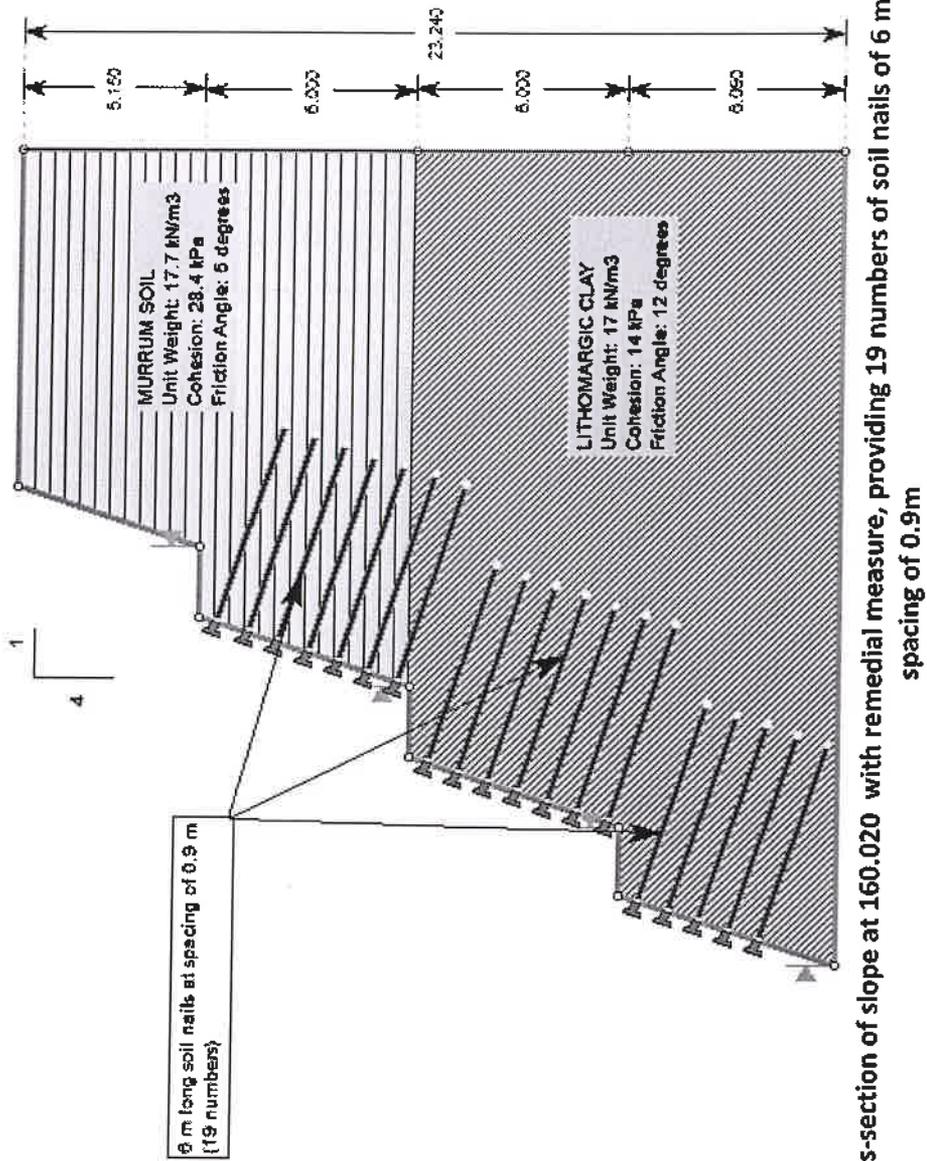


Fig.3 Cross-section of slope at 160.020 with remedial measure, providing 19 numbers of soil nails of 6 m length at spacing of 0.9m

c. Stability analysis with proposed remedial measures at 160.020 chainage

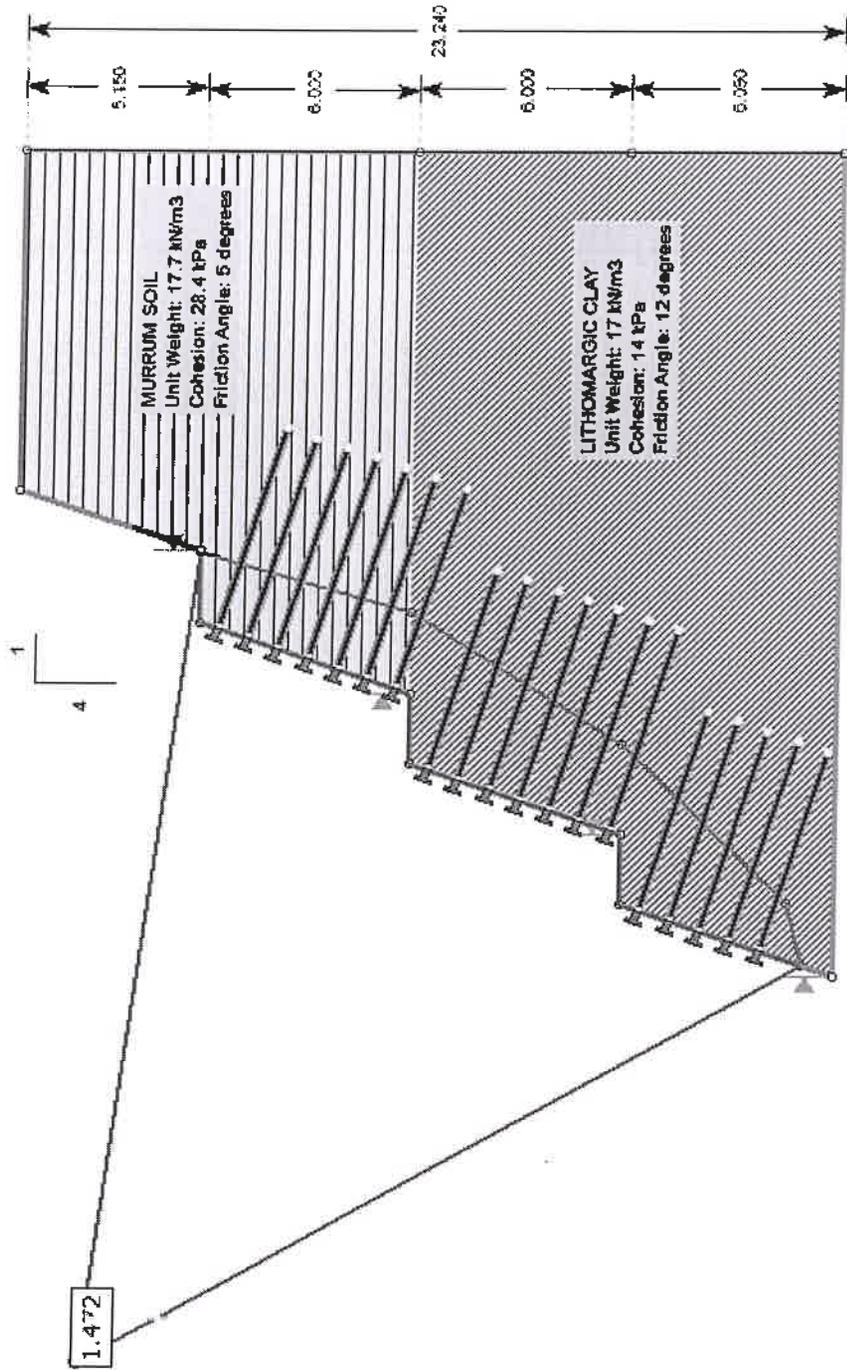


Fig.4 Stability analysis of slope at 160.020 km chainage ,providing 19 numbers of soil nails of 6 m length at spacing of 0.9m (FS= 1.472, SAFE)

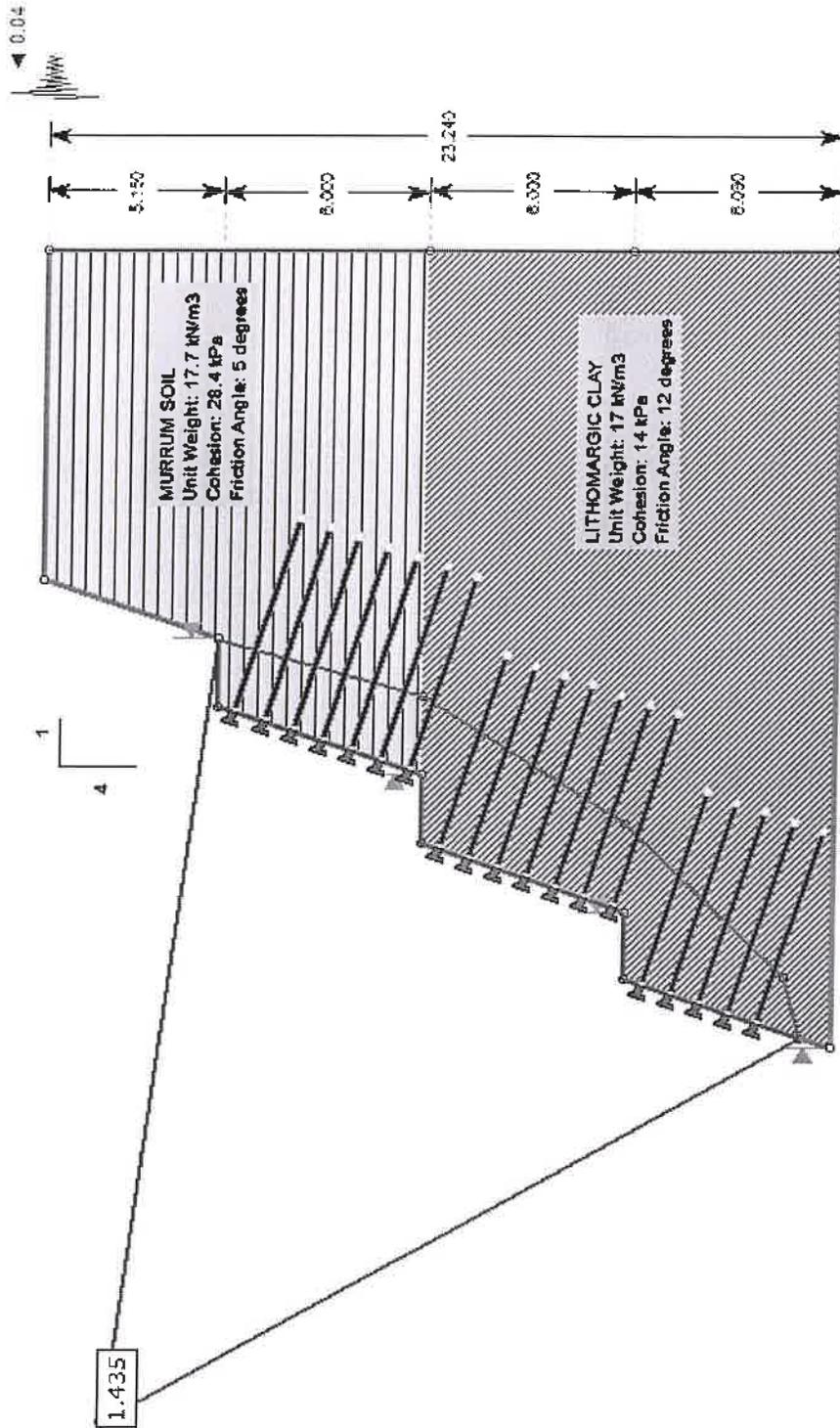


Fig.5 Stability analysis of slope at 160.020 km chainage ,providing 19 numbers of soil nails of 6 m length at spacing of 0.9m seismic coefficient 0.04 (FS= 1.435, SAFE)

e. Critical section selected at 190.640 chainage

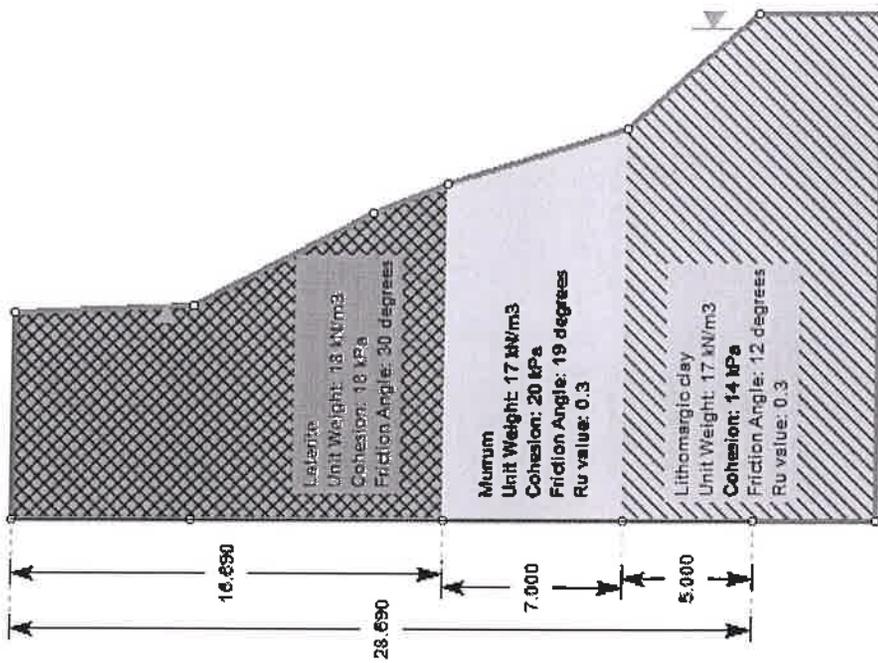


Fig.6 Critical Section selected at chainage 190.640 km

f. Stability analysis for critical section at 190.640 chainage

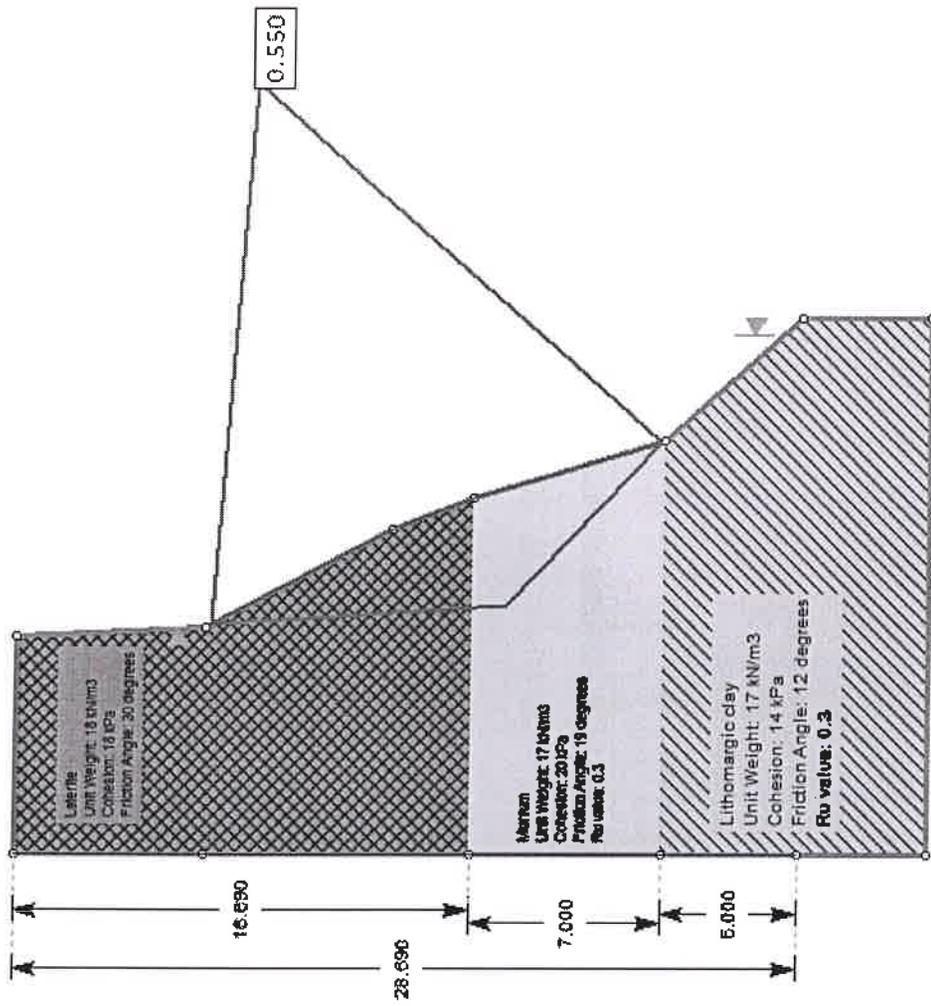


Fig. 7 Stability analysis of existing slope at 190.640 km chainage (FS= 0.550, UNSAFE)

g. Proposed remedial measures at 190.640 chainage

Adopted : 32 mm diameter soil nail , length = 6 m , spacing =0.9 m , 29 numbers

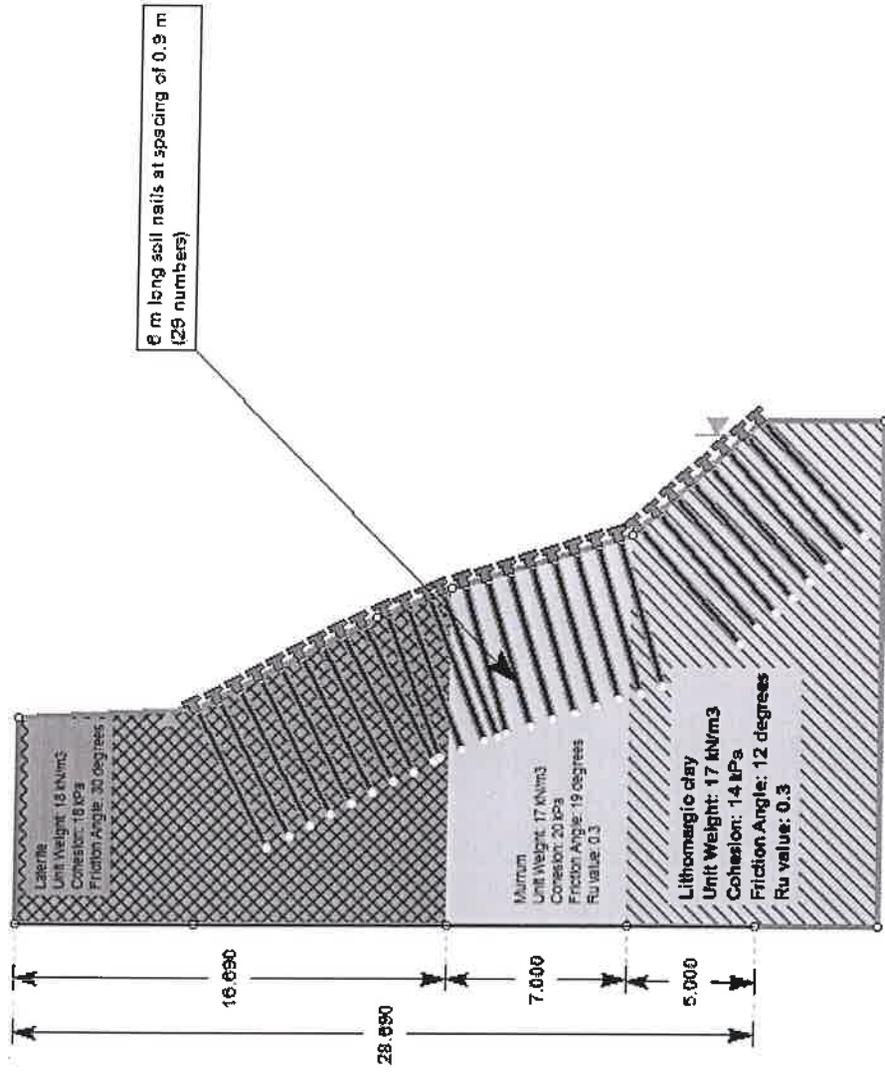


Fig.8 Cross-section of slope at 190.640 with remedial measure, providing 29 numbers of soil nails of 6 m length at spacing of 0.9m

h. Stability analysis with proposed remedial measures at 190.640 chainage

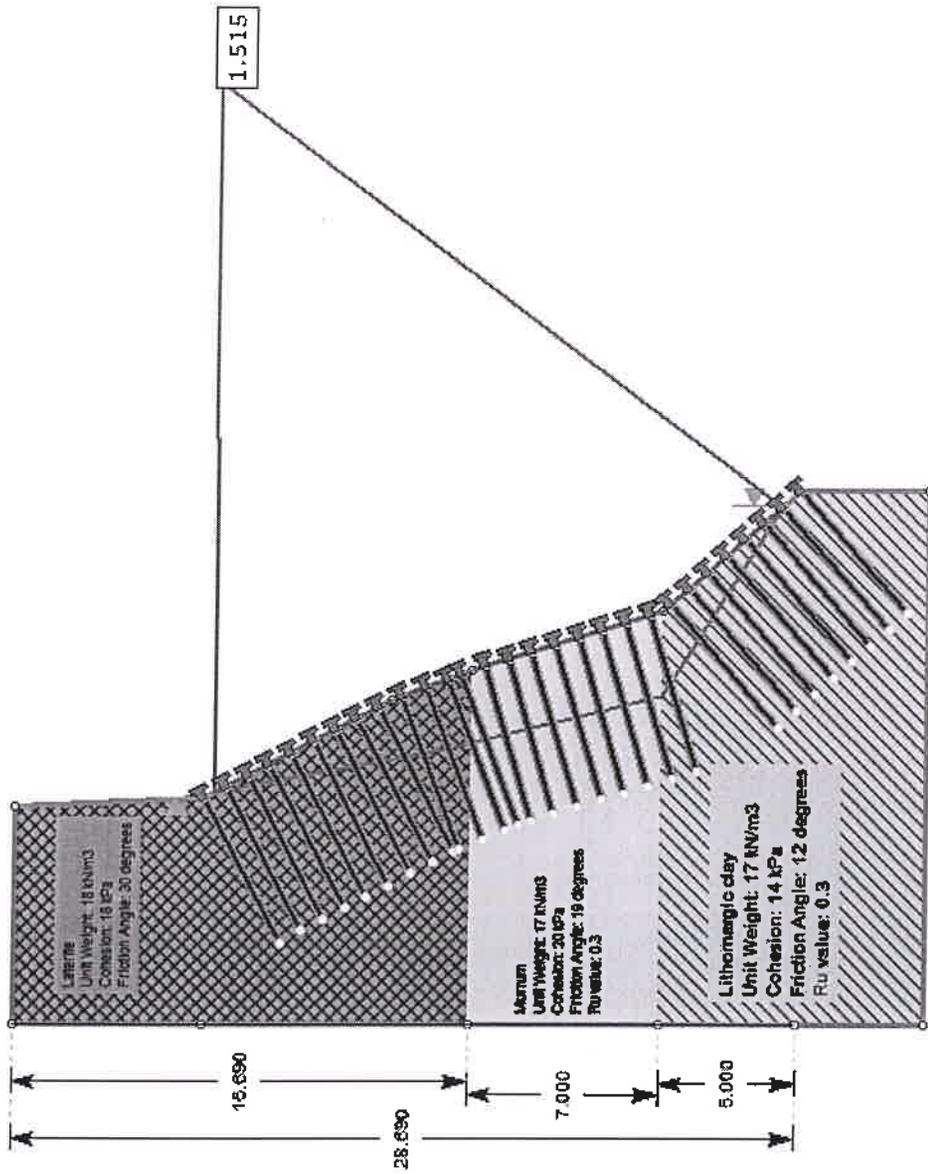


Fig.9 Stability analysis of slope at 190.640 km chainage ,providing 29 numbers of soil nails of 6 m length at spacing of 0.9 m (FS= 1.515, SAFE)

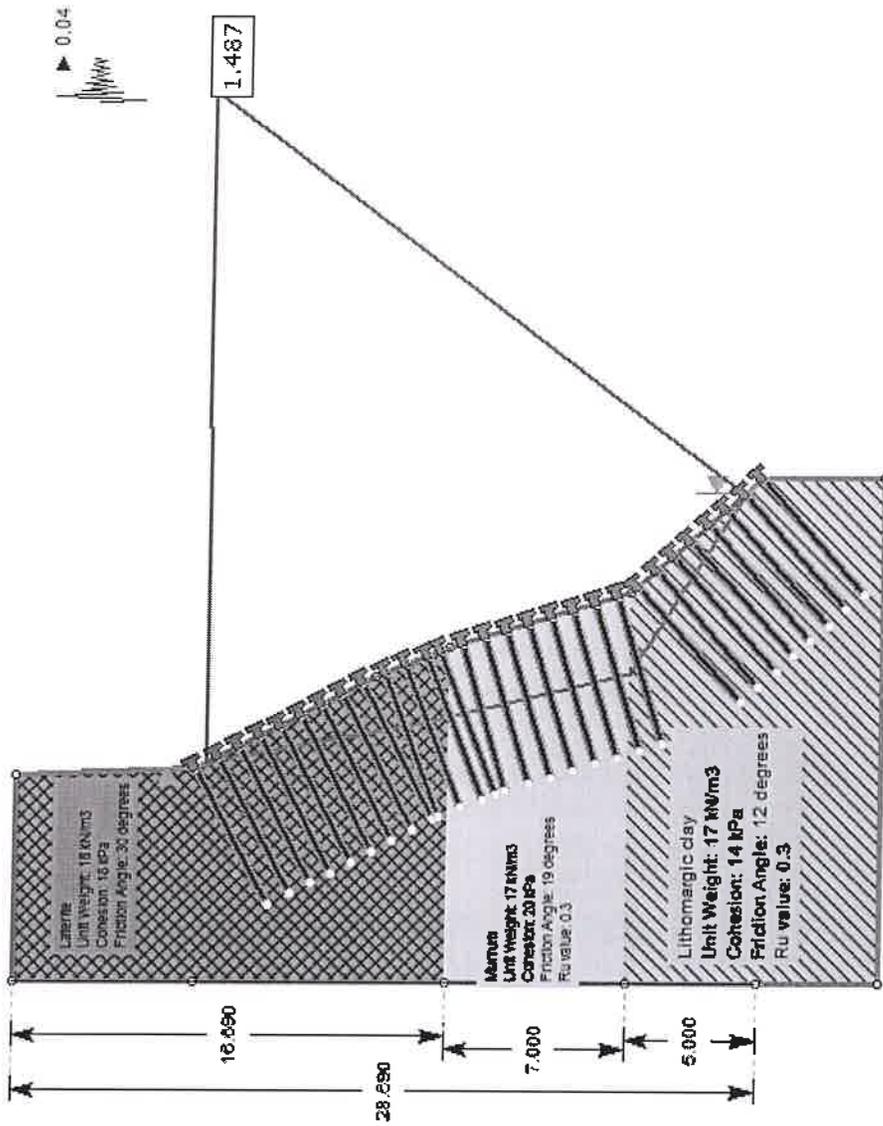


Fig.10 Stability analysis of slope at 190.640 km chainage ,providing 29 numbers of soil nails of 6 m length at spacing of 0.9m with seismic coefficient 0.04 (FS= 1.487, SAFE)

i. Critical section selected at 246.900 chainage

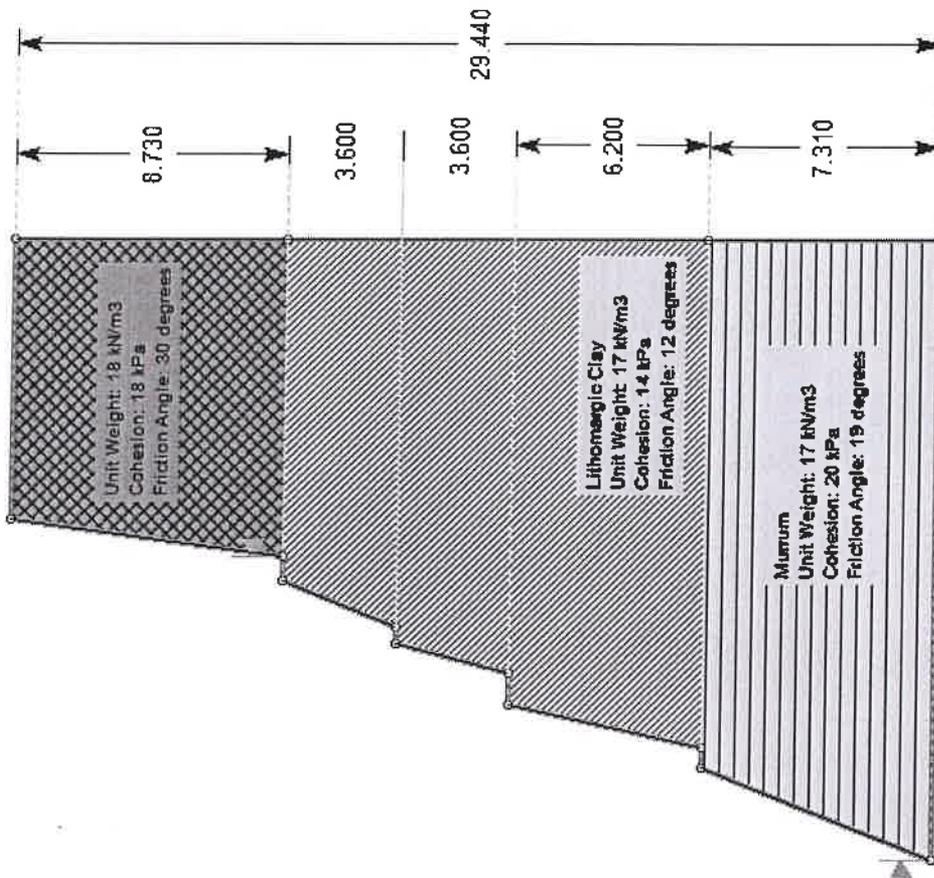


Fig. 11 Critical Section selected at chainage 246.900 km

j. Stability analysis for critical section at 246.900 chainage

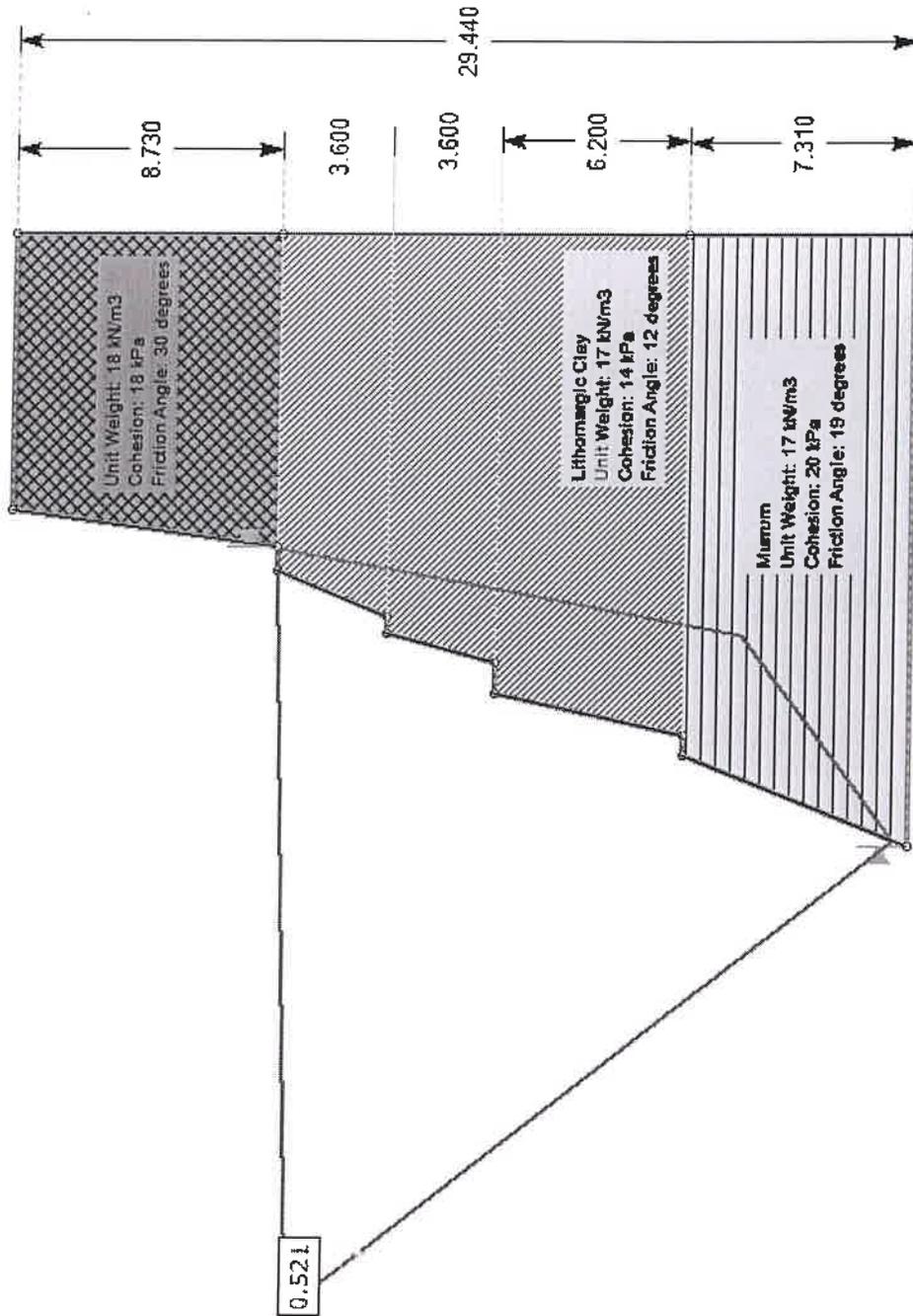


Fig.12 Stability analysis of existing slope at 246.900 km chainage (FS= 0.521, UNSAFE)

k. Proposed remedial measures at 246.900 chainage

Adopted : 32 mm diameter soil nail , length = 6 m , spacing = 0.9 m , 22 numbers

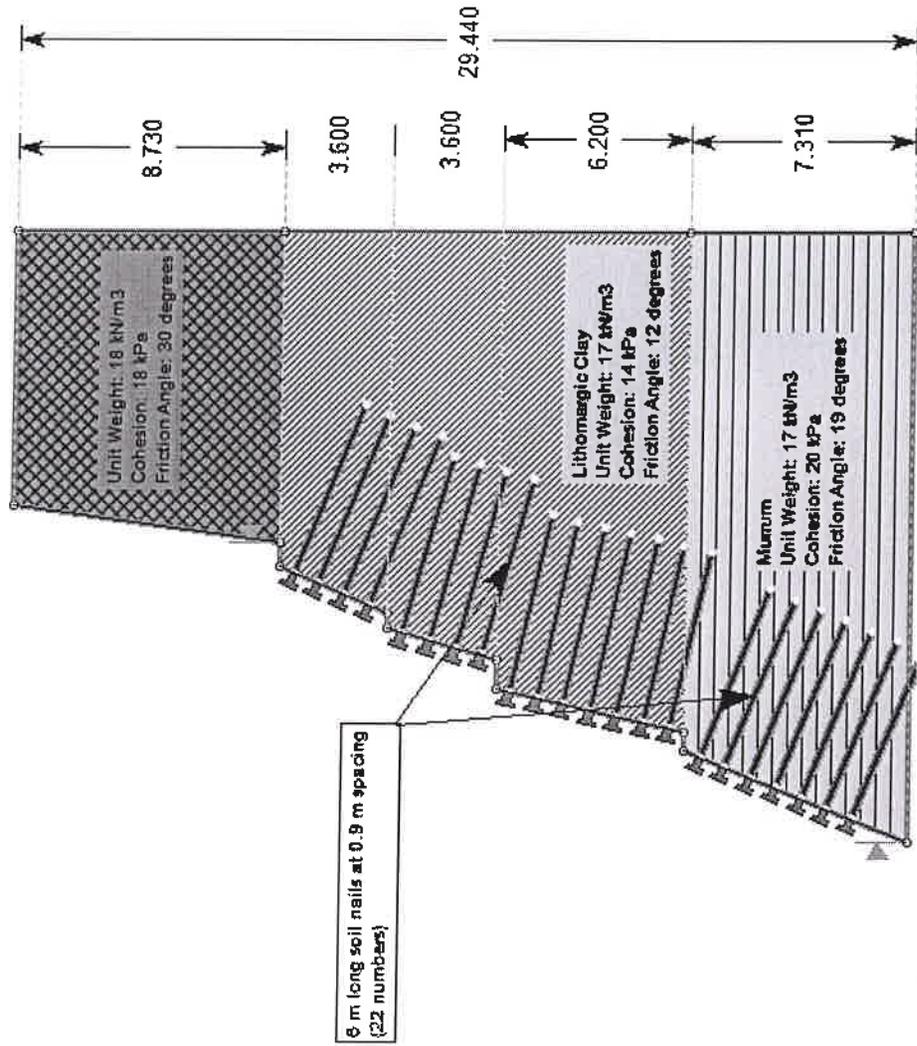


Fig.13 Cross-section of slope at 246.900 with remedial measure, providing 22 numbers of soil nails of 6 m length at spacing of 0.9m

I. Stability analysis with proposed remedial measures at 246.900 chainage

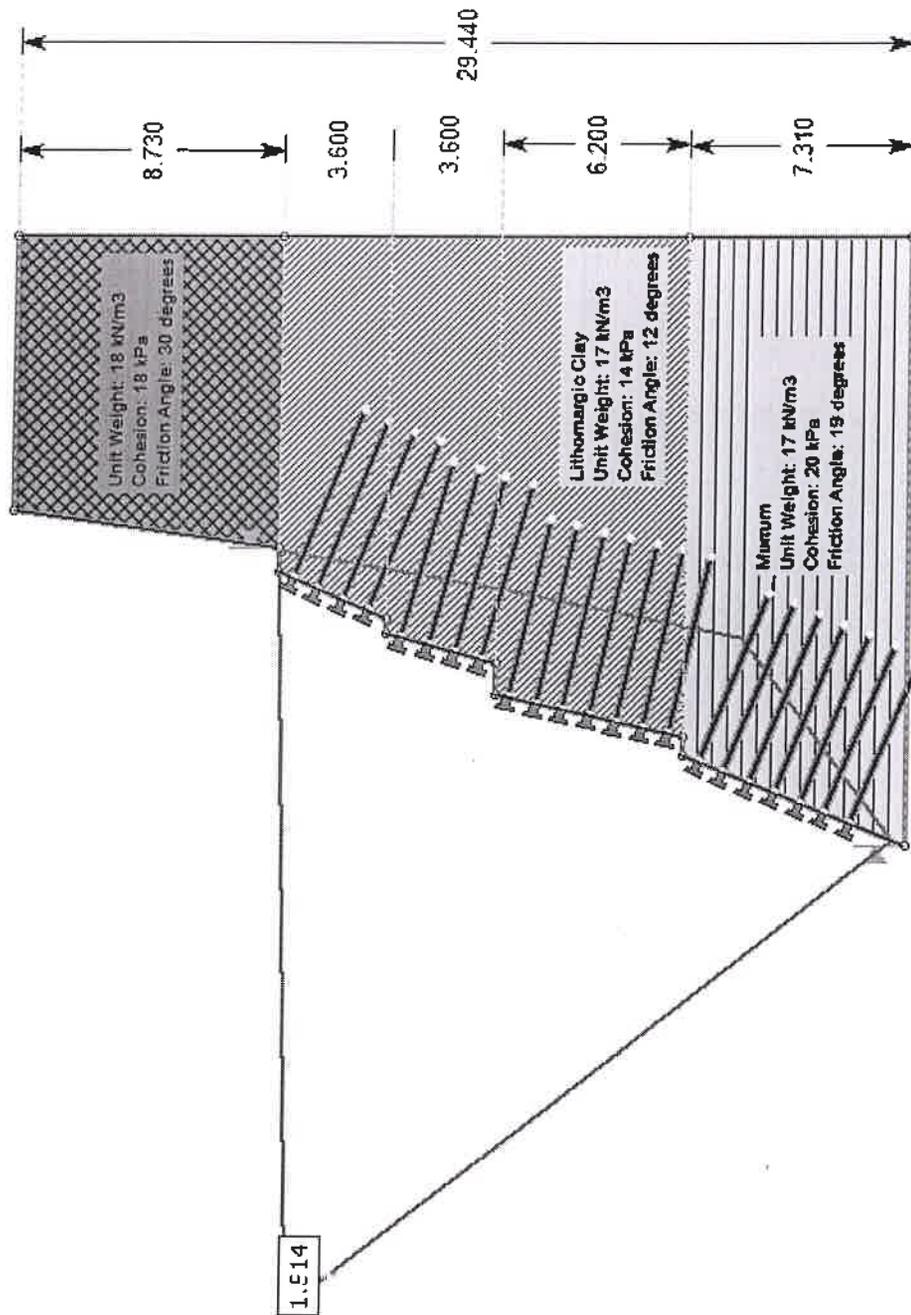


Fig.14 Stability analysis of slope at 246.900 km chainage ,providing 22 numbers of soil nails of 6 m length at spacing of 0.9m (FS= 1.514, SAFE)

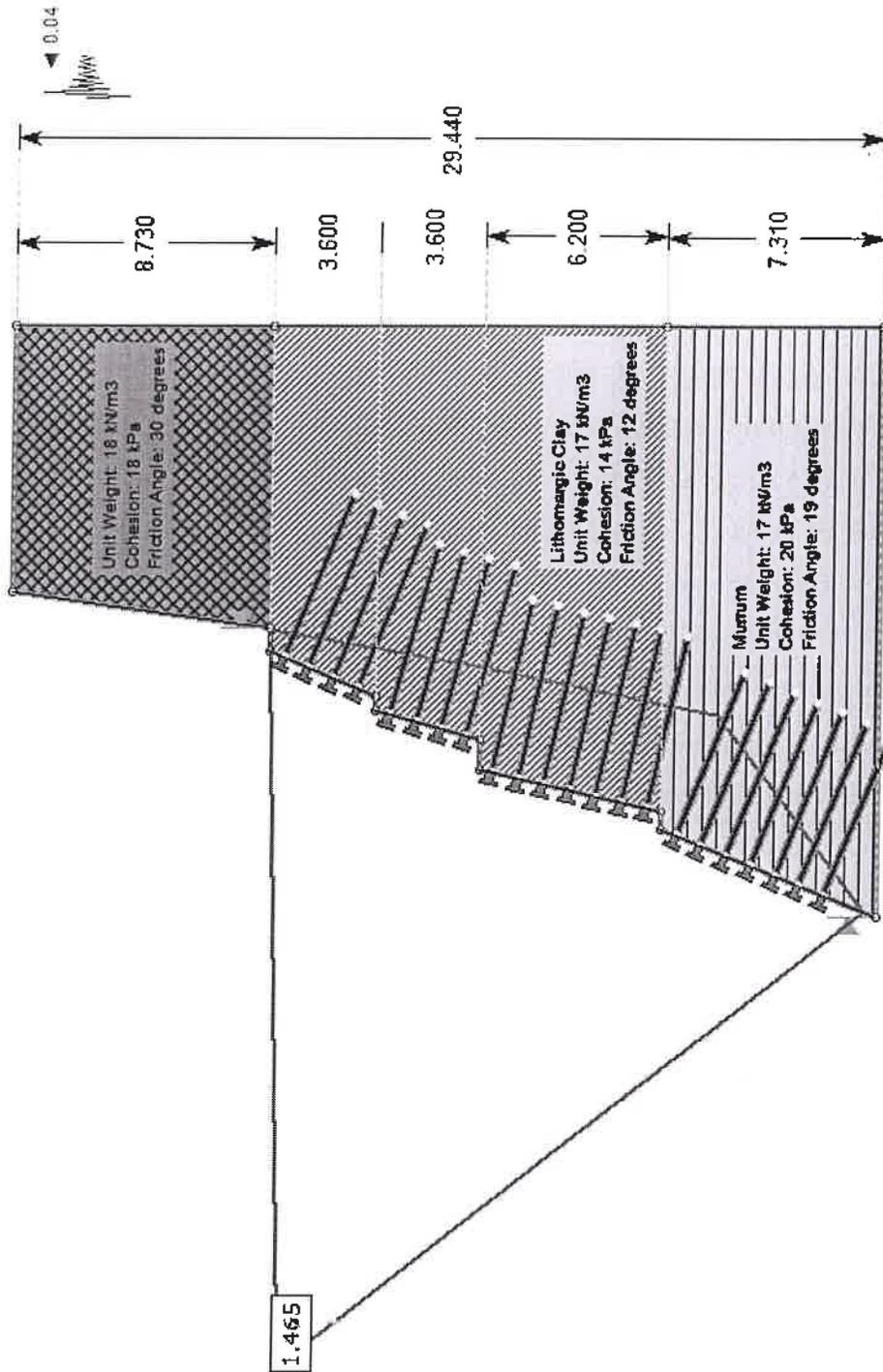


Fig.15 Stability analysis of slope at 246.900 km chainage ,providing 22 numbers of soil nails of 6 m length at spacing of 0.9m seismic coefficient 0.04 (FS= 1.465, SAFE)

6. RECOMMENDATIONS

- For the soil profiles (for the 3 chainages i.e at 160 km, 190 km and 245 km), analyses was carried out for provided sections considering the critical sections(at around chainages 160.020 , 190.640 and 246.900km).
- With the observed shallow seated failures in Lithomargic clay and murrum soil layers, excavated slopes are found to be unsafe, thus as a remedial measure with soil nails have been provided (32 mm diameter, 6 m length at each). Use Grade Fe 415; $f_y = 415$ MPa Tor Steel rods as soil nails.
- All critical slopes found to be stable by providing the 6 m long soil nails (32 mm diameter) at spacing of 0.9 m both ways (as against minimum required factor of safety 1.3)
- The recommended procedure is to provide driven nail system for soil nailed wall. Soil-nail reinforcement is directly driven into the ground by the ballistic method using a compressed air launcher/ by the percussive method using jack hammering equipment, or by the vibratory method using a vibrator. During the driving process, the ground around the reinforcement will be displaced and compressed. The installation process is rapid and it causes minimal ground disruption.
- If the soil-nail reinforcement is damaged by the presence of a boulder or corestones, the equivalent length which did not penetrate may be provided in the adjacent area by reducing the spacing.
- As the soil-nail reinforcement is in direct contact with the ground, it is susceptible to corrosion, thus Tor steel rod is recommended with sacrificial additional thickness.
- It is recommended to drive the nail perpendicular to the exposed surface
- Apply shotcrete of 75mm thick in two stages.
- Apply the 1st phase of shotcrete with welded wire mesh (with a square grid) tied to the driven Tor Steel rods. Welded wire mesh (temporary facing): WMM 102 x 102–MW19 x MW19 is recommended.
- Square Bearing plate of Grade 250 ($f_y = 250$ MPa); Shape: Square; Length: LBP = 225 mm; Thickness: $t_p = 25$ mm is recommended at the end of the torsteel rod.

- A shotcrete of Grade M20 with characteristic compressive strength: $f_{ck} = 20 \text{ MPa}$ is recommended.
- After the bearing plate is placed in position over the 1st Phase of shotcrete, second phase of shotcrete shall be applied.
- Total thickness of shotcrete recommended is 75mm (apply equally in both phases)
- 2inch (50mm dia) perforated PVC pipes wrapped around using 200 GSM geofabric filter, which are of length 2m with an upward gradient of 5 to 10 degrees is recommended for weep holes In between the nails (one weep hole for 4 soil nails). Weep holes are critical element of the soil nailed walls to arrest any excess pore pressure development behind the shotcreted wall.
- It is also recommended to do atleast two field pullout tests in each of the chainages area to capture variation in the soil properties and asses the pullout resistance of the bars.

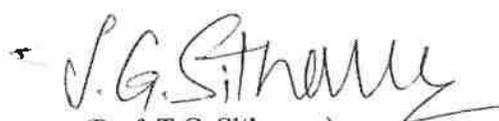
7. DESIGN BASIS and PROCEDURE OF CONSTRUCTION OF SOIL NAILED WALL

A soil-nailed system is considered as a soil-nailed retaining wall if the facing of the system is sub-vertical, and it is designed to perform as a structural member that provides retention action to the ground by virtue of its self-weight, bending strength or stiffness. The soil nailing technique improves the stability of slopes, retaining walls and excavations principally through the mobilization of tension in the soil nails. The tensile forces are developed in the soil nails primarily through the frictional interaction between the soil nails and the ground as well as the reactions provided by soil-nail heads/facing. Soil-nail heads and the facing also provide a confinement effect by limiting the ground deformation close to normal to the slope surface. Weepholes / drain pipe releases any excess pore pressure due to water behind the soil nailed walls. A soil-nailed system has been designed to fulfil fundamental requirements of stability, serviceability and durability during construction and later on as well. A pull out capacity of nail with a factor of safety 2.5 has been taken as 25 KN/m.

Procedure for installation of soil nailed walled is described as below:

1. As the slopes are already excavated it is recommended to provide soil nails from bottom to top. The staggered spacing of nails in each row shall be followed.
2. Install 6m long 32mm dia Tor Steel rods / nails by using Jack hammer with a spacing of 0.9 m x 0.9m almost perpendicular to the surface.
3. IN each area, once installation of nails are completed, tie the wire mesh to the rod, carryout the 1st phase of shotcrete
4. Place the square bearing plate on each of nails abutting to the shotcreted surface, complete the second phase of the shotcrete layer.
5. Repeat steps until the entire excavated soil surfaces in the excavation levels are soil nailed.
6. Drainage / weep holes are provided before installing the shotcrete and covered during the shotcreting face.
7. Install the toe drain (PCC section) at the toe of the slope adjacent to the carriage way, one side of the toe drain is abutted to the toe of the slope. PCC section shall be a minimum of 1m depth towards the slope, which will also act as tow wall.

CONSULTANT


(Prof. T.G. Sitharam)

Place: Bangalore

Date: 17.03.2017

IRB Westcoast Tollway Pvt. Ltd.

A subsidiary of

IRB

INFRASTRUCTURE DEVELOPERS LTD

Mumbai Office:

B-301, Universal Business Park, Komani Oil Mill Road, Chandivli Estate, Andheri (E),
Mumbai-400 072 • Tel: 91-22-6733 5900 • Fax: 91-22-6733 5905 • www.irb.co.in
CIN : U45400MH2012PTC234786

**IRBWTP/CTO/KKBOT/2473/2017
22/06/2017**

To

The Team Leader,

M/s. AECOM Asia Company Ltd. in association with Rodic Consultants Pvt. Ltd.

C/o Nagashree Building,

Rajithagiri, KHB Colony,

Honnagara – 581334 Uttara Kannada, Karnataka

Project: - Four Laning of Goa / Karnataka Border to Kundapur section of NH-17 from Km. 93.700 to Km. 283.300 in the state of Karnataka under NHDP Phase IV on Design, Build, Operate, Transfer (DBFOT) toll basis.

Subject: - Potential land slide location during Monsoon Season

Reference: - Your office letter no. AECOM/HWH/2017-18/GOA/2434, dated 16.06.2017

Dear Sir,

This is in reference to your office letter cited above, vide which your office has enclosed list of the locations alongwith photographs, stating further that these locations are Vulnerable and Potential danger due to hill cutting for the formation and requested us to take all the preventive safety measures to avoid inconvenience to the road users, traffic and the public next three months of Monsoon period.

In regards to your said statement, we would like invite your attention towards the Clause 4.4 (a) of Appendix BIV of revised Schedule B of the Concession Agreement and the Cross Section type 17, which is to be followed for the cutting section. The Cross type 17 given at page 285 under Appendix –II of Schedule B of the Concession Agreement is for hill cutting sections. According to which, the side slope of 12 (Vertical): 1 (Horizontal) is to be provided upto 6m height then Berm of 2m width and thereafter again slope of 12 (Vertical): 1(Horizontal) is to be provided upto height of 15m of hill.

You are well aware that the width of ROW handover by NHAI is maximum 60m, mostly pertains to Forest Department. You are aware that the process of land acquisition as well as diversion of Forest land was initiated by NHAI with State Government and MoEF in the year 2012-13 on the basis of detailed Project Report prepared by DPR Consultant appointed by NHAI prior to bidding.

You are also aware that the working permission from MoEF was received in August 2014 subjected to fulfillment of certain conditions stipulated therein, which was to be fulfilled by NHAI. However, the work in the Forest land could be commenced in October'2015 after fulfilling the conditions by NHAI and Tree Felling by the Forest Department being their Policy.

The developed Cross sections in conformity to the Scope of Work defined under Schedule B & C of the Concession Agreement were submitted to your office, which had been reviewed & consented by your office.

Registered Office : IRB Complex, Chandivli Farm, Chandivli Village, Andheri (E), Mumbai - 400 072.
Tel: 91 - 22 - 6640 4220 • Fax: 91 - 22 - 6675 1024 • e-mail: info@irb.co.in • www.irb.co.in

The work has been executed at site in accordance to the Cross Sections submitted and cross section given under Schedule B, which is a scope of work as per the Concession Agreement. Whereas we have made more flatter slopes and provided more berms within available ROW against the 12 (Vertical): 1(Horizontal) mentioned in the Concession Agreement. Further, the Forest Officials did not allowed to work in their land.

You are also aware that there is no provision made under the type 17 cross section given under Schedule B of the Concession Agreement for protection. However, we had engaged the Consultant Dr. Uday Kulkarni of M/s. Nobel Geo-Structs, who had studied the hill sections & suggested the slope protection measures in cut sections, but during the site office of Manager (T), NHAI in 1st week of October 2016, it was instructed to engage the IISC, Bangalore for studying the cutting section and suggest their recommendations. In accordance to said instructions, we had engaged to Professor Sitharam of IISC, Bangalore for the said purpose, who had visited the entire site twice in presence of Independent Engineer & our representative and submitted the report with his recommendations for soil nailing at 3 locations. The said report was submitted to Authority / Independent Engineer vide this office letter no. IRBWTP/CTO/KKBOT/2290/2017, dated 31/03/2017. Kindly refer this office letter no. IRBWTP/CTO/KKBOT/2297/2017, dated 03/04/2017, wherein it is requested to convey in principle approval under Change of Scope as the said protection work is beyond the scope of work defined in the Cross Section given under Schedule B of the Concession Agreement. The In-principal approval of the same under Change of Scope is still awaited from the Independent Engineer / Authority. However, keeping pending approval of Change of Scope, the work of soil nailing was commenced at Km. 246+700 in LHS by inserting 32mm dia. rods and partial work had been completed, further work could not be continued due to restriction of working space required for machinery movement for drilling & inserting the 6m long rod in cut section at height of 6m & above height.

In the meantime, unprecedented heavy & continues rains started in the said region and the land slide in certain sections took place, which was a purely "Natural Calamity" arising out due to incessant torrential rain, which was beyond our control.

It is also noticed due to continuous heavy rains, the small pockets of the cut sections collapses, for which one of the reason is seepage from the backside of hill i.e. from outside the ROW, which percolates through the hill.

Considering the above, we are hereby propose to have the slope of 1.5 (Vertical): 1(Horizontal) minimum to have more stable scope to avoid sliding, for which additional land varying from 15m to 50m width according the height of cutting at the locations mentioned in your letter, is required. The details enclosed under Annexure – 1.

You are hereby kindly requested to take up the matter with Authority to provide additional land by end of September 2017 by taking up the matter with State Government & Forest Department on TOP PRIORITY, so that the slopes are cut and protective measure are taken up immediately once the rainy season is over and completed prior to next rainy season.

IRB Westcoast Tollway Pvt. Ltd.

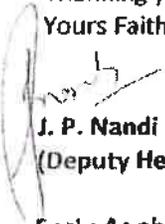


You are also requested to convey the In-principle approval for additional works to be carried out by us for cutting of extra slopes and providing protective measures i.e. Soil Nailing, as the said works are additional works and beyond the Scope of Work defined in the Cross Section provided under Schedule B of the Concession Agreement.

Please note that the Concessionaire shall not be held responsible for untoward incidence / accident, if any take place, due to sliding of cut sections due to non-availability of adequate land as required.

An early action is solicited in this regard.

Thanking you,
Yours Faithfully,



J. P. Nandi
(Deputy Head Project Construction)

Encl.: As above.

- C.C.: - 1) GM (T) & Ro, Bangalore - For kind information and necessary action please.
- 2) The Project Director, National Highway Authority of India, (Ministry of Road Transport and Highways), Project Implementation Unit- Mangalore - For kind information and necessary action please.

AECOM RODIC JV	
Received	24/06/17
Time	
By Name	Dina
Signature	Dina

MODERN ROAD MAKERS PVT LTD

Four Lanes of Goa/ Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.300 in the State of Karnataka under NHDP phase IV on design, build, operate, transfer (DBFOT) toll basis

Statement for Additional Land required for provision of stable slopes from Km.140+00 to Km.195+00

Sr.No	Location	Village Name	From	To	Side	Length (Km)	Additional width required beyond PROW (M)	Total Area in Sqm
1	192+175	Near colnel Hill, Honnavar	191.950	192.175	LHS	225.000	32.000	7,200.00
2	190+700	Karki Naka	190.600	190.800	LHS	200.000	48.000	9,600.00
3	168+600	Devgi	168.600	168.800	LHS	200.000	35.000	7,000.00
4	167+800	Tandrakuli , Devgi	167.700	167.800	LHS	100.000	50.000	5,000.00
5	165+100	Kathgal Sirsi Junction	165.050	165.200	LHS	150.000	42.000	6,300.00
6	160+000	Near Bargi	159.900	160.100	RHS	200.000	24.000	4,800.00
7	151+600 to 151+900	Balale Cross	151.600	151.900	LHS	300.000	17.000	5,100.00
8	164+450	Mirjan (Opp Tourist Hotel)	164.400	164.550	LHS	150.000	15.000	2,250.00
9	165+600	Mirjan , Khaire	165.550	165.650	LHS	100.000	15.000	1,500.00
10	181+700	Dhareshwar	181.550	181.700	RHS	150.000	22.000	3,300.00
Total Additional area required for flatter Slope (1.5 : 1) beyond PROW in Sqm								52,050.00

AECOM

In association with

O/o Construction Supervision Consultants
Nagashree Building, Rajithagiri,
KHB Colony, Honnavara-581334
Uttam KANNADA (KSA), KARNATAKA
www.aecom.com and www.rodieconsultants.com

Ref: AECOM/HWH/2018-19/GOA/3167

Date: 15/06/2018

To,

The Project Director
National Highways Authority of India
Project Implementation Unit
Door No.3-29, Bethel,
Tharethota, Near Pumpwell (NH-66)
Mangalore - 57505

2
15/6/18

Subject: Four Laning of Goa/Karnataka border – Kundapur Section of NH-17 (Now NH 66) from Km.93.700 to km.283.300 in the state of Karnataka under NHDP phase IV on design build Operate Transfer (DBFOT) toll basis- Additional land required for making the slope stable as suggested by prof. Sh. T.G. Sitaram -reg.

Ref: IRB letter No. IRBWTP/CTO/KKBOT/3021/2018 dated 16/04/2018 received 18.04.2018

Dear Sir,

We are in receipt of concessionaire letter no IRB letter No. IRBWTP/CTO/KKBOT/3021/2018 dated 16/04/2018 received on 18.04.2018 we have gone through content of letter where in the concessionaire has assessed the additional forest land required is 27.015 Ha.

The enclosed list along with this letter is found in order.

This is for your kind information and necessary action.

Thanking you

Yours faithfully,
For AECOM Asia Company Ltd. In Association with
Rodie Consultants Pvt Ltd

(Kiran S. Vishwaroop)
Team Leader

Encl: As stated above.

Cc: 1 The Project Manager, IRB weastcost Pvt.Ltd, Kumta.
2. AECOM Asia Company Ltd, Gurgaon.
3. Rodie Consultants Pvt. Ltd. Gurgaon.

} -For your kind information.

IRB Westcoast Tollway Pvt. Ltd.

Corporate Office:

3rd Floor, IRB Complex, Chandivali Farm, Chandivali Village, Andheri (E), Mumbai - 400 072
 Tel: 91 - 22 - 6640 4220 • Fax: 91 - 22 - 6675 1024 • e-mail: info@irb.co.in • www.irb.co.in
 CIN : U45400MH2012PTC234786

A subsidiary of



IRBWTP/CTO/KKBOT/3201/2018

16/04/2018

To,

The Project Director,

National Highways Authority of India,

(Ministry of Road Transport and Highways),

Project Implementation Unit - Mangalore,

Door No. 3-29, Bethel, Tharathota, Near Pumpwell (NH-66),

Mangalore-575005

Project : Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km. 93.700 to Km. 283.300 in the State of Karnataka under NHDP Phase-IV on Design, Build, Operate, and Transfer (DBFOT) Toll Basis.

Subject : Additional land required for making the slope stable as suggested by Prof. Sh. T.G. Sitaram.

Ref : 1] IE letter no. AECOM/HWH/2017-18/GOA/2424, dated: 13.06.2017.
 2] IE letter no. AECOM/HWH/2017-18/GOA/2480, dated: 10.07.2017.
 3] Our office letter no. IRBWTP/CTO/KKBOT/2536/2017, dated: 12.07.2017.
 4] IE letter no. AECOM/HWH/2017-18/GOA/2689, dated: 06.11.2017.
 5] Our office letter no. IRBWTP/CTO/KKBOT/2816/2017, dated: 08.11.2017.
 6] IE letter no. AECOM/HWH/2017-18/GOA/2659, dated: 10.10.2017.
 7] IE letter no. AECOM/HWH/2017-18/GOA/2740, dated: 28.11.2017.
 8] IE letter no. AECOM/HWH/2017-18/GOA/2805, dated: 26.12.2017.
 9] Our office letter no. IRBWTP/CTO/KKBOT/3132/2018, dated: 17.03.2018.

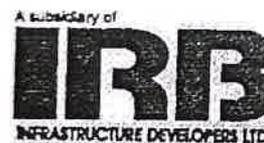
Dear Sir,

This is with reference to the subject & letters cited above. Referring to the contents of the letter of the Independent Engineer referred at Sr no. (8) above it is noticed that the total additional area required for stable slope proposed by the Independent Engineer is 29.156 Ha.

Further we have assessed the requirement of additional land as per the requirement of site in correlation with the letter of the Independent Engineer which works out to 27.015 Ha (Statement enclosed for reference).

Please note that the assessment is done division wise as we need to acquire the land from the forest department. It is hereby requested to your good self to kindly take up the matter with the offices of the concerned DCF and write letter from your end to concerned DCF's so that the

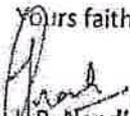
IRB Westcoast Tollway Pvt. Ltd.



process of handing over of the forest land can be commenced from the forest department as the procedure itself is time consuming and a lengthy process.

This is for your information & further necessary action.

Thanking you,
Yours faithfully,


P. Nandi
(Deputy Head Project Construction)

AECOM RODIC JV	
Received	18/04/18
Time:	
By Name:	Pradeep
Signature:	

Encl.: As stated above.

CC: The Team Leader, AECOM Asia Company Ltd.: For kind information.

IRB West Coast Tollway Pvt. Ltd.
 Mining of Goa/ Karnataka Border to Kundapur Section of NH 17 from 93.70 to km 283.350 in the state of Karnataka under NHDP phase IV on design build,
 operate, transfer (DBFO) toll basis.

Statement showing details of additional land required for Provision of Stable slopes (1.5 H : 1 V)

Proposed by AECOM (Independent Engineer)

No	District	Taluk	Village	Forest Survey Numbers	From	To	Side	Length (m)	Additional width required beyond PROW (m)	Total Area in Sqm
Karwar Forest Division										
1	U.K	Karwar	Baad	1445A	107.220	107.245	LHS	25	15	375
2	U.K	Karwar	Baad	1336	107.245	107.455	LHS	210	15	3150
3	U.K	Karwar	Baad	1378	107.455	107.470	LHS	15	15	225
4	U.K	Karwar	Baad	1336	107.460	107.455	RHS	55	15	825
5	U.K	Karwar	Baad	1376	107.455	107.470	RHS	15	15	225
					TOTAL					4800
6	U.K	Karwar	Binaga	16A1A	107.820	107.900	LHS	80	15	1200
7	U.K	Karwar	Binaga	16A1A	107.820	107.900	RHS	80	15	1200
8	U.K	Karwar	Binaga	9A1	109.850	109.960	LHS	110	15	1650
					TOTAL					4050
9	U.K	Karwar	Arga	52A1A	109.960	110.000	LHS	40	15	600
10	U.K	Karwar	Arga	52A1A	110.000	110.160	LHS	160	15	2400
11	U.K	Karwar	Arga	52A1A	110.160	110.790	LHS	630	15	9450
12	U.K	Karwar	Arga	52A1A	111.100	111.450	LHS	350	15	5250
13	U.K	Karwar	Arga	52A1A	111.750	111.900	BHS	300	15	4500
14	U.K	Karwar	Arga	66A1A	112.600	112.790	LHS	190	15	2850
					TOTAL					25050
15	U.K	Karwar	Amdalli	489A1	123.450	124.700	LHS	1250	15	18750
16	U.K	Karwar	Amdalli	489A1	123.950	124.100	RHS	150	15	2250
17	U.K	Karwar	Amdalli	489A1	124.460	124.500	RHS	40	15	600
18	U.K	Karwar	Amdalli	489A1	124.620	124.700	RHS	80	15	1200
					TOTAL					22800
19	U.K	Ankola	Harwada	169	127.400	127.490	RHS	90	15	1350
					TOTAL					1350
20	U.K	Ankola	Aversa	300A	127.490	127.500	RHS	10	15	150
					TOTAL					150
21	U.K	Ankola	Shedgeri	108A	136.520	136.640	LHS	120	15	1800
22	U.K	Ankola	Shedgeri	108A	136.520	136.640	RHS	120	15	1800
23	U.K	Ankola	Shedgeri	319A1A1A1A	144.800	145.650	RHS	850	15	12750
					TOTAL					16350
24	U.K	Ankola	Belse	319A1A1A1A	144.800	145.650	RHS	850	10	8500
25	U.K	Ankola	Belse	319A1A1A1A	145.650	145.700	LHS	50	10	500
					TOTAL					9000
26	U.K	Ankola	Shirur	164A1A1	145.700	145.850	LHS	150	10	1500
27	U.K	Ankola	Shirur	164A1B1	146.200	146.520	RHS	320	10	3200
28	U.K	Ankola	Shirur	169A1A1	146.520	146.850	RHS	330	10	3300
29	U.K	Ankola	Shirur	169A1A1	146.900	147.100	RHS	200	10	2000
30	U.K	Ankola	Shirur	169A1A1	147.300	147.550	RHS	250	51	12750
31	U.K	Ankola	Shirur	169A1A1	147.600	148.000	RHS	400	37	14800
					TOTAL					37550
32	U.K	Ankola	Kodsani	26	148.100	148.400	BHS	300	15	4500
33	U.K	Ankola	Kodsani	19A1	148.800	149.000	LHS	200	68	13600
					TOTAL					18100
Karwar Forest Division Total area in Sqmts										139200
Honnavar Forest Division										

District	Taluk	Village	Forest Survey Numbers	From	To	Side	Length (m)	Additional width required beyond PROW (m)	Total Area in Sqm	
U.K	Ankola	Balale	17	151.600	151.900	BHS	300	12	3600	
				TOTAL					3600	
U.K	Kumta	Bargi-Kurigadde	32	159.200	159.500	RHS	300	60	18000	
				TOTAL					18000	
36	U.K	Kumta	Yettinbail	23	159.900	160.100	LHS	200	24	4800
				TOTAL					4800	
37	U.K	Kumta	Mirjan	127	164.400	164.550	LHS	150	30	4500
38	U.K	Kumta	Mirjan	145	165.050	165.200	LHS	150	42	6300
				TOTAL					10800	
39	U.K	Kumta	Anlarvalli	330	165.550	165.650	RHS	100	15	1500
				TOTAL					1500	
40	U.K	Kumta	Divgi	96A1	167.700	167.800	LHS	100	50	5000
41	U.K	Kumta	Divgi	96A1	168.050	168.250	LHS	200	20	4000
42	U.K	Kumta	Divgi	96A1	168.600	168.800	LHS	200	35	7000
				TOTAL					16000	
43	U.K	Kumta	Manaki	106B3	170.100	170.330	LHS	230	10	2300
44	U.K	Kumta	Manaki	108B2	170.330	170.500	LHS	170	10	1700
				TOTAL					4000	
45	U.K	Honnavar	Honnavar	483A1	190.600	190.600	LHS	200	30	6000
				TOTAL					6000	
46	U.K	Honnavar	Kelaginoor	400A1	199.600	199.830	RHS	230	60	13600
47	U.K	Honnavar	Kelaginoor	400A1	199.830	200.150	RHS	320	32	10240
				TOTAL					24040	
48	U.K	Honnavar	Gunavante	275	201.450	201.600	RHS	150	30	4500
				TOTAL					4500	
49	U.K	Honnavar	Manki	238	208.370	208.500	LHS	130	9	1170
				TOTAL					1170	
50	U.K	Honnavar	Sulebeetu	11	213.020	213.160	RHS	140	11	1540
				TOTAL					1540	
Honnavar Forest Division Total area in Sqmts									95950	
Kundapur Forest Division										
51	Udupi	Byndoor	Shirur	217	245.100	245.300	LHS	200	20	4000
52	Udupi	Byndoor	Shirur	217	245.350	245.550	LHS	200	35	7000
					TOTAL				11000	
53	Udupi	Byndoor	Paduvari	241	246.550	246.950	LHS	400	60	24000
					TOTAL				24000	
Kundapur Forest Division Total area in Sqmts									35000	
Karwar Forest Division area in Hec								13.920		
Honnavar Forest Division area in Hec								9.595		
Kundapur Forest Division area in Hec								3.500		
Total additional land required for Provision of Stable slopes (1.5 H : 1 V) beyond PROW in Hec								27.015		

IRB Westcoast Tollway Pvt Ltd.

A subsidiary of

IRB
INFRASTRUCTURE DEVELOPERS LTD

Mumbai Office:

W-201, Universal Business Park, Koramangla 4th Road, Chandrai Estate, Andheri (E),
Mumbai-400 072 • Tel: 91-22-6733 5900 • Fax: 91-22-6733 5905 • www.irb.co.in

CIN : U45400MH2012PTC234786

IRBWTPL/CTO/KKBOT/2495/2017

29/06/2017

To
The Team Leader,
M/s. AECOM Asia Company Ltd.,
in association with Rodic Consultants Pvt. Ltd.,
C/o Nagashree Building,
Rajithagiri, KHB Colony,
Honnavaara – 581334 Uttara Kannada, Karnataka

Project: - Four Laning of Goa / Karnataka Border to Kundapur section of NH-17 from Km. 93.700 to Km. 283.300 in the state of Karnataka under NHDP Phase IV on Design, Build, Operate, Transfer (DBFOT) toll basis.

Subject: - Potential land slide during monsoon season - Additional Land required for provision of stable slopes from Km. 199+350 to Km. 208+500.

Ref: - 1] Your office letter no. AECOM/HWH/2017-18/GOA/2434, dated: 16.06.2017
2] Our office letter no. IRBWTPL/CTO/KKBOT/2473/2017, dated: 22.06.2017.

Dear Sir,

This is in continuation of our office letter referred at Sr no. (2) cited above, we require additional land for provision of stable slopes from Km. 199+350 to Km. 208+500. So we hereby propose to have the slope of 1.5 (Vertical): 1(Horizontal) minimum to have more stable slope to avoid sliding, for which additional land varying from 15m to 50m width according the height of cutting at the locations mentioned in your letter, is required. The details enclosed under Annexure-I.

You are hereby kindly requested to take up the matter with Authority to provide additional land by end of September-2017 by taking up the matter with State Government & Forest Department on TOP PRIORITY, so that the slopes are cut and protective measure are taken up immediately once the rainy season is over and completed prior to next rainy season.

You are also requested to convey the In-principle approval for additional works to be carried out by us for cutting of extra slopes and providing protective measures i.e. Soil Nailing, as the said works are additional works and beyond the Scope of Work defined in the Cross Section provided under Schedule B of the Concession Agreement.

Please note that the Concessionaire shall not be held responsible for untoward incidence / accident, if any take place, due to sliding of cut sections due to non-availability of adequate land as required.

Registered Office: IRB Complex, C-1, MIDC, Thane, Maharashtra, India. Tel: 91-22-6640 4220 • Fax: 91-22-6675 1024 • e-mail: info@irb.co.in • www.irb.co.in

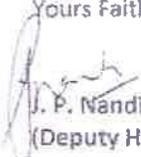
IRB Westcoast Tollway Pvt. Ltd.

A subsidiary of

IRB
INFRASTRUCTURE DEVELOPERS LTD

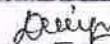
An early action is solicited in this regard.

Thanking you,
Yours Faithfully,


J. P. Nandi
(Deputy Head Project Construction)

Encl.: As above.

- CC.: - 1) GM (T) & Ro, Bangalore - For kind information and necessary action please.
- 2) The Project Director, National Highway Authority of India, (Ministry of Road Transport and Highways), Project Implementation Unit- Mangalore - For kind information and necessary action please.

AECOM RODIC JV	
Received On:	29/06/17
Time:	
By Name:	Pinpa
Signature:	

MODERN ROAD MAKERS PVT LTD
 Four Laning of Goa/ Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.300 in the State of Karnataka under NHDP phase IV on design, build, operate, transfer (DBFOT) toll basis

Statement for Additional Land required for provision of stable slopes from Km.199+350 to Km.208+500

Sr.No	Location	Village Name	From	To	Side	Length (km)	Additional width required beyond PROW (M)	Total Area in Sqm
1	199.440	Kelaginoor	199.350	199.520	RHS	170.000	35.500	6,035.00
2	199.740	Kelaginoor(haajar cross)	199.600	199.830	RHS	230.000	25.500	5,865.00
3	199.940	Kelaginoor	199.830	200.150	RHS	320.000	48.500	15,520.00
4	202.400	Gunavante	202.380	202.550	RHS	170.000	11.500	1,955.00
5	208.460	Manki	208.370	208.500	LHS	130.000	22.500	2,925.00
Total Additional area required for flatter slope (1.5 : 1) beyond PROW in Sqm								32,300.00

IRB Westcoast Tollway Limited

Corporate Office :

3rd Floor, IRB Complex, Chandivali Farm, Chandivali Village, Andheri (E), Mumbai - 400 072.
Tel: 91 - 22 - 6640 4220 / 4880 4200 • Fax: 91 - 22 - 2857 3441 • e-mail: info@irb.co.in • www.irb.co.in
CIN : U45400MH2012PLC234786

A subsidiary of



IRBWTP/CTO/KKBOT/5874/2023

13/04/2023

To,
The Project Director,
National Highways Authority of India,
(Ministry of Road Transport and Highways),
Project Implementation Unit- Mangalore,
Door No.3-29, Bethel, Tharethota, Near Pumpwell (NH-66),
Mangalore-575005.

Project: - Four Laning of Goa / Karnataka Border to Kundapur section of NH-17 from km.93.700To km. 283.300 in the state of Karnataka under NHDP Phase IV on Design, Build, Operate, Transfer (DBFOT) toll basis.

Subject: - Submission of Environmental Monitoring Report No. 16 from September-2022 to February-2023.

Ref: -

- (1) IRB Lr no. IRBWTP/CTO/KKBOT/9970/2014, dt: 28.10.2014.
- (2) IRB Lr no. IRBWTP/CTO/KKBOT/245/2014, dt: 02.12.2014 (Mar-14 to Aug-14).
- (3) IE Lr no. AECOM/HWH/2014-15/GOA/512, dt. 20.03.2015.
- (4) IE Lr no. AECOM/HWH/2015-16/GOA/584, dt: 28.04.2015 (Sep-14 to Feb-15).
- (5) IRB Lr no. IRBWTP/CTO/KKBOT/981/2015, dt: 26.11.2015 (Mar-15 to Aug-15).
- (6) IRB Lr no. IRBWTP/CTO/KKBOT/1306/2016, dt: 25.03.2016 (Sep-15 to Feb-16).
- (7) IE Lr no. AECOM/HWH/2015-16/GOA/1275, dt: 30.03.2016.
- (8) IRB Lr no. IRBWTP/CTO/KKBOT/1855/2016, dt: 09.11.2016 (Mar-16 to Aug-16).
- (9) IE Lr no. AECOM/HWH/2016-17/GOA/1863, dt: 18.11.2016.
- (10) IRB Lr no. IRBWTP/CTO/KKBOT/2336/2017, dt: 17.04.2017 (Sep-16 to Feb-17).
- (11) IE Lr no. AECOM/HWH/2017-18/GOA/2300, dt: 20.04.2017.
- (12) IRB Lr no. IRBWTP/CTO/KKBOT/2910/2017, dt: 06.11.2017 (Mar-17 to Aug-17).
- (13) IE Lr no. AECOM/HWH/2017-18/GOA/2700, dated: 09.11.2017.
- (14) IRB Lr no. IRBWTP/CTO/KKBOT/3245/2018, dt: 09.05.2018 (Sep-17 to Feb-18).
- (15) IE Lr no. AECOM/HWH/2018-19/GOA/3108, dated: 14.05.2018.
- (16) IRB Lr no. IRBWTP/CTO/KKBOT/3717/2018, dt: 22.11.2018.
- (17) IE Lr no. AECOM/HWH/2018-19/GOA/3651, dated: 05.12.2018.
- (18) IRB Lr no. IRBWTP/CTO/KKBOT/3770/2018, dt: 14.12.2018 (Mar-18 to Aug-18).
- (19) IE Lr no. AECOM/HWH/2018-19/GOA/3722, dated: 31.12.2018.
- (20) IRB Lr no. IRBWTP/CTO/KKBOT/4074/2019, dt: 11.04.2019 (Sep-18 to Feb-19).
- (21) IE Lr no. AECOM/HWH/2019-20/GOA/4110, dated: 16.04.2019.
- (22) IRB Lr no. IRBWTP/CTO/KKBOT/4574/2019, dt: 25.11.2019 (Mar-19 to Aug-19).
- (23) IE Lr no. AECOM/HWH/2019-20/GOA/4862, dated: 29.11.2019.
- (24) IRB Lr no. IRBWTP/CTO/KKBOT/4592/2019, dt: 04.12.2019.
- (25) IE Lr no. AECOM/HWH/2019-20/GOA/4878, dated: 06.12.2019.

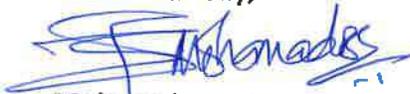
- (26) IE Lr no. AECOM/HWH/2020-21/GOA/5411, dated: 07.07.2020.
(27) IRB Lr no. IRBWTPL/CTO/KKBOT/4935/2020, dt: 18.08.2020.
(28) IE Lr no. AECOM/HWH/2020-21/GOA/5668, dated: 24.10.2020.
(29) IRB Lr no. IRBWTPL/CTO/KKBOT/5096/2020, dt: 17.12.2020 (Sep-19 to Aug-20).
(30) IE Lr no. AECOM/HWH/2020-21/GOA/5845, dated: 02.01.2021.
(31) IRB Lr no. IRBWTPL/CTO/KKBOT/5374(A)/2021, dt: 09.07.2021 (Sep-20 to Feb-21).
(32) IRB Lr no. IRBWTPL/CTO/KKBOT/5651/2022, dt: 29.06.2022 (Mar-21 to Feb-22).
(33) IRB Lr no. IRBWTPL/CTO/KKBOT/5713/2022, dt: 04.10.2022 (Mar-22 to Aug-22).

Dear Sir,

With reference to the subject and letters cited above. We are submitting herewith Six Monthly (MoEF) **Environmental Monitoring Report no. 16** for period **September-2022 to February-2023** for your perusal.

As per General Condition a Six-Monthly Monitoring Report shall need to be submitted by the Project Proponents to the Regional Office of this Ministry regarding the implementation of the stipulated condition.

Thanking you,
Yours faithfully,



Mohanadoss . S
(Chief General Manager)

Encl: As stated above.

CC.: The Team Leader, M/s. Theme Engineering Services Pvt. Ltd, Bhatkal- For kind information.

PDF Excel

Show 10 entries

Search:

Action	UPC	Reference No	Type of Correspondences	Subject	Contractor Letter No.	Contractor Date	Contractor Remark	Contractor Document	AE Letter No.
	N/04002/02001/KA	N/04002/02001/KA_477360	General matters	Environmental Monitoring Report no. 16 [Sep-2022 to Feb-2023 (6 Monthly)].	5874	13/04/2023	-	KKBOTOUTNHAI587413.0	
	N/04002/02001/KA	N/04002/02001/KA_477347	General matters	Require Police Protection to complete 4-Laning in Kurmita jurisdiction (Sy no's. 147-1)- [w.r.t. IRB Lr no. 5815].	5873	12/04/2023	-	KKBOTOUTNHAI587312.0	
	N/04002/02001/KA	N/04002/02001/KA_477328	Toll Related Matter	Submission cost estimate for Hybrid ETC lanes & FASTags lanes-(Rs. 8.63 Cr)-w.r.t. IRB Lr no. 57231	5871	12/04/2023	-	KKEnglish (United States) English (India) keyboard	

To switch input methods, press Windows key+Space.



**NATIONAL HIGHWAYS AUTHORITY OF INDIA
(MINISTRY OF ROAD TRANSPORT & HIGHWAYS)
(Government of India)**

**FOUR LANING OF GOA/KARNATAKA BORDER TO KUNDAPUR SECTION
OF NH - 17 FROM KM 93.700 TO KM 283.300 IN THE STATE OF
KARNATAKA UNDER NHDP PHASE IV ON DESIGN, BUILD, OPERATE,
TRANSFER (DBFOT) TOLL BASIS.**



Environmental Monitoring Report No. 16

(From September' 2022 to February' 2023)

Independent Engineer

AECOM-RODIC CONSULTANTS PVT.LTD.

Concessionaire



IRB WESTCOAST TOLLWAY LIMITED

Principal EPC Contractor



IRB INFRASTRUCTURE DEVELOPERS LIMITED

Associate EPC Contractor



MODERN ROAD MAKERS PVT. LTD

Table of Content

1.0	INTRODUCTION
1.1	Concessionaire
1.2	Independent Engineer
2.0	LOCATION MAP
3.0	SAILENT FEATURES
4.0	LINE DIAGRAM
4.1	Status of Borrow Area
4.2	Status of Plant and Statutory Clearance
4.3	Status of Tree Cutting
5.0	Environmental Management Plan
5.1	Implementation of Environment Management Plan (EMP) During Construction Period.
5.2	One Time Approval
5.3	Periodic Monitoring
5.4	Work Monitoring by Concessionaire.
5.5	Reporting
6.0	APPROACH AND METHODOLOGY ENGAGED FOR ENVIRONMENTAL MONITORING OF THE PROJECT
6.1	Monitoring Basis
6.2	Standards / Monitoring Methods Employed for Assessment
6.3	Environmental Monitoring Plan
7.0	SUMMARY OF ENVIRONMENTAL MONITORING RESULTS
8.0	FINDINGS
9.0	POINT WISE COMPLIANCE STATEMENT
10.0	POINT WISE COMPLIANCE STATEMENT
	ANNEXURE – I (Half yearly Environmental Monitoring Reports)
	ANNEXURE – II (Status of License for Crusher & Plants)
11.0	PROJECT ENVIRONMENTAL PHOTOS

1.0 INTRODUCTION

ENVIRONMENTAL MONITORING REPORT

1.0 Introduction

The existing 2-lane National Highway No. 66 (formerly NH-17) starts from Panvel in Maharashtra and passes through Karnataka on west coast before reaching to Edapally (near Cochin) in Kerala. The project road starts from Goa - Karnataka border (km 93.700) and ends at Kundapur (km 283.300). The total length of project road is 189.600 km based on existing km stones. The project highway alignment is located between Arabian Sea coast and Western Ghats in Karnataka. At few stretches the highway is close to the Arabian Sea (within 500 m). NH: 63 from Gooty joins the project road near Ankola at km 135.450 and NH: 206 from Tumkur joins at Honnavar at Km 195.450.

Land use along the highway is predominantly for agriculture. Majority of the land is being used for wet crop viz, Paddy, Cashew plantation. There are number of settlements all along the road. The settlements are for Residential, Commercial, Schools, Hospitals, Petrol stations, Religious structures etc. Major settlements are close to the existing highway at number of locations, i.e. Karwar port from Km 108.300 to Km 108.800 (500m), Seabird compound wall from Km 109.000 to Km 115.800 (7.800 km length) and Navy Fence on either side of project road approx. from Km 132.050 to Km 135.000 (2.950 km length).

The project consists of Design, Build, Finance, Operation and Transfer of National Highway. Development of project consists of Four laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93+700 to Km. 283+300 [Design Length - 187. 240 Km] in the State of Karnataka.

Project Location

The project highway alignment is located between Arabian Sea coast and Western Ghats. At few stretches the highway is close to the Arabian Sea (within 500m). The project road from Goa - Karnataka border passes towards South through number of congested locations viz Karwar (km 106.700), Karwar port (km 108.800), Navy's Sea bird project, Amadalli (Km 122.950), Kumata (km 174.400), Haladipura (km 186.600), Honnavara (km 194.500), Kasarakod (km 197.850), Shirali (km 227.450), Bhatkal (km 232.350), and other villages in Karawar and Udupi districts before reaching to Kundapur (Km 283.300).

Package No	Stretch	Length (Km)	District / State	By pass
NHDP Phase-IV on Design, Build, Operate, and Transfer (DBFOT) Toll Basis	Km. 93+700 to Km. 283+300 (Section 1, Section- II, Section-III and Section - IV)	Existing length : 189.600 Kms, Design Length : 187.220	Karwar and Udupi, Karnataka	

1.1 Concessionaire

The contract for the construction of this project was awarded to **M/s IRB Westcoast Tollway Limited** as the concessionaire date of Contract Agreement was signed on 25th March 2013 and Principle EPC Contractor IRB INFRASTRUCTURE DEVELOPERS LIMITED and Associate EPC Contractor M/s. Modern Road Makers Private Limited.

1.2 Independent Engineer Services

The Independent Engineer Services Contract for monitoring of this project was awarded to M/s. AECOM Rodic Consultants Pvt.Ltd, by the National Highways Authority of India (NHAI). The Independent Engineer

2.0 LOCATION MAP

3.0 SAILENT FEATURES

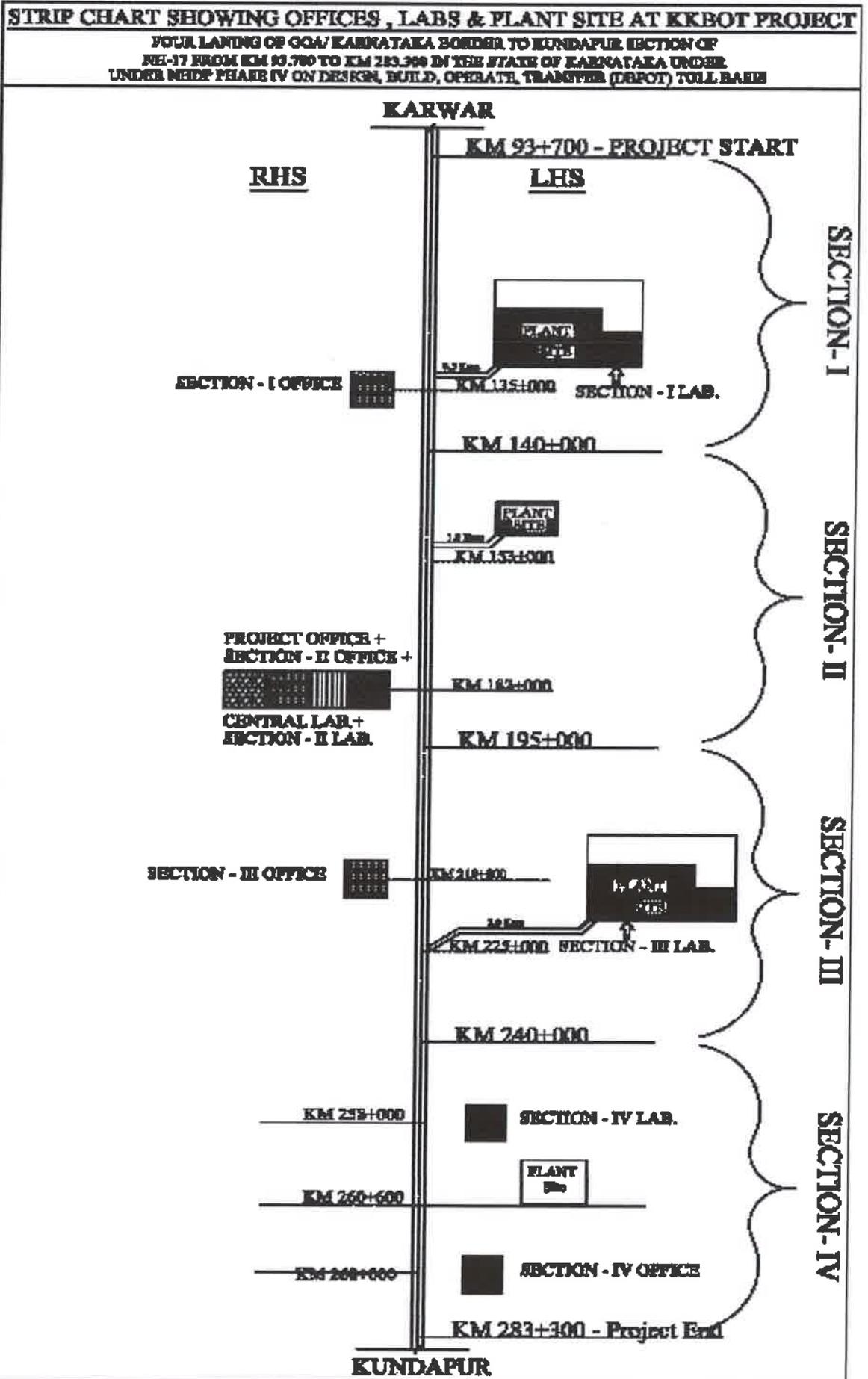
3.0 SALIENT FEATURES OF THE PROJECT

SR. NO.	PARTICULARS	DESCRIPTION
1.	Name of Project	Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 From Km. 93.700 to Km. 283.300 in The State of Karnataka Under NHDP Phase IV On Design, Build, Operate, Transfer (DBFOT) Toll Basis.
2.	Total Length of Project	187.240 Kms. (Design Length)
3.	Contract / Phase	NHDP Phase-IV.
4.	Client / Authority	National Highways Authority of India. (Ministry of Road Transport & Highways).
5.	Concessionaire	M/s IRB West Coast Tollway Pvt. Ltd., Mumbai - 400072
6.	Independent Engineer	M/s. AECOM Asia Company Ltd., in Association with RODIC Consultants Pvt. Ltd., Gurgaon.
7.	Principal EPC Contractor	M/s. IRB Infrastructure Developers Ltd., Mumbai.
8.	Associate EPC Contractor	M/s Modern Road Makers Pvt. Ltd., Mumbai.
9.	Total Project Cost	INR 1655.01Cr.
10.	Date of signing of Concession Agreement	25 th March, 2013.
11.	Appointed date	3 rd March, 2014.
12.	Construction Completion Period	910 days from Appointed date
13.	Construction Completion date	28/08/2016
14.	Concession Period	28 Years commencing from Appointed date (including construction period of 910days).

Broad Scope of Work & Current Status

Sr. No	Description	Unit	Proposed Facility	Existing Facility	Remarks
1	Widening from 2 Lane to 4 Lane.	Km	165.31	-	
2	Realignment	Km	21.93	-	
3	Service Road (Km)	Km	61.262	-	Both Sides
4	Longitudinal Drain	Km	61.262	-	Both Sides
5	Major Bridges	Nos.	14	13	
6	Flyovers	Nos.	04	-	
7	Vehicular Underpass	Nos.	03	02	
8	Cattle underpass	Nos.	06	-	
9	Pedestrian underpass	Nos.	13	-	
10	Minor Bridges	Nos.	39	41	
11	ROB	Nos.	02	02	
12	RUB	Nos.	01	04	
13	Box Culverts	Nos.	66	-	New Construction
14	Slab Culverts	Nos.	122	128	26 No's Reconstruction, 96 No's Widening
15	Hume Pipe Culverts	Nos.	385	478	304 No's Reconstruction, 81 No's Widening
16	Twin Tunnel Tubes (02 Nos.)	Km.	1.144	-	
17	Toll Plazas	Nos.	03	-	
18	Rest Area	No.	03	-	
19	Bus Bays& Bus Shelter	Nos.	53	-	
20	Truck Lay Bys	Nos.	04	-	

**4.0 LINE DIAGRAM / STATUS OF PLANT & STATUTORY
CLEARNACE, BORROW AREA AND TREE CUTTING**



4.1 STATUS OF BORROW AREA

LIST OF IE APPROVED BORROW AREAS										
Sr. No	Borrow Area Location	Sampling Date.	Borrow Area No	Section	Borrow Area Name	Ownership of Land	Concessionaire's Letter Reference & Submission Date	IE'S Letter Reference & Approval Date.	Remarks	
1	At km:- 255+980[LHS]; Inside Lead 1.2km	03-05-2014	1	IV	Kambadak one Village	Pvt.Land	IRBWTP/CTO/KKBOT/8563/ 2014-Dtd-28th May-2014	AECOM/HWH/2015 -14/GOA/53-Dtd- 30th May-2014	APPROVED	
2	At km:- 199+800[RHS]; Adjacent to NH- 17	09-05-2014	2	III	Gunavanth e Village	Pvt.Land	IRBWTP/CTO/KKBOT/8562/ 2014-Dtd-28th May-2014	AECOM/HWH/2015 -14/GOA/52-Dtd- 30th May-2014	APPROVED	
3	At km:- 255+980[RHS]; Inside Lead 1.0km	11-08-2014	3	IV	Kambadak one Village	Pvt.Land	IRBWTP/CTO/KKBOT/294/2 014-Dtd-29th Dec-2014	APPROVED	
4	At km:- 187+000[LHS]; Inside Lead 4.5km	24-07-2014	4	II	Hal dipur Village-01	Pvt.Land	IRBWTP/CTO/KKBOT/9877/ 2014-Dtd-17th October- 2014	AECOM/HWH/2014 -15/GOA/340-Dtc- 28th November,- 2014	APPROVED	
5	At km:- 206+860[LHS]; Inside Lead 1.3km	23-09-2014	6	III	Manki Village	Pvt.Land	IRBWTP/CTO/KKBOT/...../ 2014-----Dtd-04th November-2014	AECOM/HWH/2014 -15/GOA/318-Dtd- 12th November,- 2014	APPROVED	
6	At km:- 220+325[LHS]; Inside Lead 1.2km	23-09-2014	7	III	Ternamakk i Village	Pvt.Land	IRBWTP/CTO/KKBOT/...../ 2014-Dtd-04th November- 2014	AECOM/HWH/2014 -15/GOA/317-Dtd- 12th November,- 2014	APPROVED	

LIST OF IE APPROVED BORROW AREAS

Sr. No	Borrow Area Location	Sampling Date.	Borrow Area No	Section	Borrow Area Name	Ownership of Land	Concessionaire's Letter Reference & Submission Date	IE'S Letter Reference & Approval Date.	Remarks
7	At km:- 231+300[LHS]; Inside Lead 2.2km	23-09-2014	8	III	Bhatkal Town	Pvt.Land	IRBWTP/CTO/KKBOT/...../ 2014-Dtd-04th November- 2014	AECOM/HWH/2014 -15/GOA/316-Dtd- 12th November,- 2014	APPROVED
8	At km:- 241+500[LHS]; Inside Lead 1.0km	23-09-2014	9	III	Shiror Village	Pvt.Land	IRBWTP/CTO/KKBOT/9968/ 2014-Dtd-28th October- 2014	AECOM/HWH/2014 -15/GOA/340-Dtd- 28th November,- 2014	APPROVED
9	At km:- 260+800[LHS]; Inside Lead 1.0km	30-09-2014	10	IV	Herur Village	Pvt.Land	IRBWTP/CTO/KKBOT/10090 /2014-Dtd-12th November- 2014	APPROVED
10	At km:- 245+800[RHS]; Inside Lead 0.2km	31-10-2014	12	IV	Bendoor Village	Pvt.Land	IRBWTP/CTO/KKBOT/410/2 015- Dtd-04/03/2015	AECOM/HWH/2014 -15/GOA/499-Dtd - 16/03/2015	APPROVED
11	At km:- 234+600[RHS]; Inside Lead 0.4km	31-10-2014	22	IV	Bendoor Village	Pvt.Land	IRBWTP/CTO/KKBOT/568/2 015-Dtd-28/05/2015	AECOM/HWH/2014 -15/GOA/499-Dtd- 16/03/2015	APPROVED
12	At km:- 271+690[LHS]; Inside Lead 4.0km	09-09-2015	24	IV	Hakladi Village	Pvt.Land	IRBWTP/CTO/KKBOT/850/2 015-Dtd-01/10/2015	AECOM/HWH/2015 -16/GOA/917-Dtc- 12/10/2015	APPROVED
13	At km:- 244+700[RHS]; Inside Lead 0.4km	09-11-2015	29	IV	Shiror Village	Pvt.Land	IRBWTP/CTO/KKBOT/1056/ 2015-Dtd-22/12/2015	AECOM/HWH/2014 -15/GOA/1064-Dtc- 02/01/2016	APPROVED
14	At km:- 250+000[LHS]; Inside Lead 0.4km	18-11-2015	30	IV	Tysarsi Village	Pvt.Land	IRBWTP/CTO/KKBOT/989/2 015-Dtd-30/11/2015	AECOM/HWH/2015 -16/GOA/1008-Dtc- 11/12/2015	APPROVED

LIST OF IE APPROVED BORROW AREAS

Sr. No	Borrow Area Location	Sampling Date.	Borrow Area No	Section	Borrow Area Name	Ownership of Land	Concessionaire's Letter Reference & Submission Date	IE'S Letter Reference & Approval Date.	Remarks
15	At km:- 250+000[LHS]; Inside Lead 6.0km	27-11-15	31	IV	Tygarsi Village	Pvt.Land	IRBWTP/CTO/KKBOT/1057/ 2015-Dtd-22/12/2015	AECOM/HWH/2014 -15/GOA/1065-Dtd- 02/01/2016	APPROVED
16	At km:- 257+830[LHS]; Inside Lead 2.0km	23-11-15	32	IV	Kirimanjes hwari Village	Pvt.Land	IRBWTP/CTO/KKBOT/1058/ 2015-Dtd-22/12/2015	AECOM/HWH/2014 -15/GOA/1066-Dtd- 02/01/2016	APPROVED
17	At km:- 277+900[LHS]; Inside Lead 0.1km	28-11-15	33	IV	Tallur Village	Pvt.Land	IRBWTP/CTO/KKBOT/1060/ 2015-Dtd-22/12/2015	AECOM/HWH/2014 -15/GOA/1067-Dtd- 02/01/2016	APPROVED
18	At km:- 270+100[LHS]; Inside Lead 0.2 km	09-11-15	34	IV	Hasadu Village	Pvt.Land	IRBWTP/CTO/KKBOT/1059/ 2015-Dtd-22/12/2015	AECOM/HWH/2014 -15/GOA/1068-Dtd- 02/01/2016	APPROVED
19	At km:- 243+750[LHS]; Inside Lead 5.0km	02-12-2015	35	IV	Yedthare Village	Pvt.Land	IRBWTP/CTO/KKBOT/1046/ 2015-Dtd-15/12/2015	AECOM/HWH/2016 -17/GOA/1323-Dtd- 18/04/2016	APPROVED
20	At km:- 274+980[LHS]; Inside Lead 8.0km	07-12-15	36	IV	Kirimanjes hwari Village	Pvt.Land	IRBWTP/CTO/KKBOT/1100/ 2016-Dtd-05/01/2016	AECOM/HWH/2014 -15/GOA/1115-Dtd- 15/01/2016	APPROVED
21	At km:- 270+800[LHS]; Inside Lead 2.0km	12-11-15	37	IV	Trasi Village	Pvt.Land	IRBWTP/CTO/KKBOT/1101/ 2016-Dtd-05/01/2016	AECOM/HWH/2014 -15/GOA/1114-Dtd- 15/01/2016	APPROVED
22	At km:- 260+800[LHS]; Inside Lead 7.0km	14-12-15	38	IV	Herror Village	Pvt.Land	IRBWTP/CTO/KKBOT/1102/ 2015-Dtd-05/01/2016	AECOM/HWH/2014 -15/GOA/1113-Dtd- 15/01/2016	APPROVED

LIST OF IE APPROVED BORROW AREAS

Sr. No	Borrow Area Location	Sampling Date.	Borrow Area No	Sect ion	Borrow Area Name	Ownership of Land	Concessionaire's Letter Reference & Submission Date	IE'S Letter Reference & Approval Date.	Remarks
23	At km:- 183+930[LHS]; Inside Lead 0.2km	14-11-15	39	IV	Hasadu Village	Pvt.Land	IRBWTPL/CTO/KKBOT/1088/ 2015-Dtd-30/12/2016	AECOM/HWH/2014 -15/GOA/1140-Dtd- 28/01/2016	APPROVED
24	At km:- 260+800[LHS]; Inside Lead 4.0km	15-11-15	42	IV	Heroor Village	Pvt.Land	IRBWTPL/CTO/KKBOT/1171/ 2016-Dtd-08/02/2016	AECOM/HWH/2014 -15/GOA/1193-Dtd- 19/02/2016	APPROVED
25	At km:- 260+800[LHS]; Inside Lead 2.0km	01-11-15	43	IV	Heroor Village	Pvt.Land	IRBWTPL/CTO/KKBOT/1267/ 2016-Dtd-28/04/2016	AECOM/HWH/2016 -17/GOA/1257-Dtd- 03/05/2016	APPROVED
26	At km:- 271+700[LHS]; Inside Lead 6.0km	17-11-15	44	IV	Kundabara ndadi Village	Pvt.Land	IRBWTPL/CTO/KKBOT/1277/ 2016-Dtd-28/04/2016	AECOM/HWH/2016 -17/GOA/1264-Dtd- 03/05/2016	APPROVED
27	At Km:- 260+800[LHS]; Inside Lead 6.30Km	19-04-2016	45	IV	Kirimanjes hware Village	Pvt.Land	IRBWTPL/CTO/KKBOT/1429/ 2016-Dtd-19/05/2016	AECOM/HWH/2016 -17/GOA/1391-Dtd- 24/05/2016	APPROVED
28	At Km:- 202+300[LHS]; Inside Lead 1.7Kms	17-08-2016	47	III	Gunavanthe Village	Pvt.Land	IRBWTPL/CTO/KKBOT/1720/ 2016-Dtd-09/09/2016	AECOM/HWH/2016 -17/GOA/1714-Dtd- 16/09/2016	APPROVED
29	At Km:- 234+990 [LHS]; Inside Lead 4Kms	17-08-2016	48	III	Sarpankatta Village	Pvt.Land	IRBWTPL/CTO/KKBOT/1721/ 2016-Dtd-09/09/2016	AECOM/HWH/2016 -17/GOA/1712-Dtd- 16/09/2016	APPROVED
30	At Km:- 274+940 [LHS]; Inside Lead 11Kms	15-09-2016	49	IV	Vandse Village	Pvt.Land	IRBWTPL/CTO/KKBOT/1764/ 2016-Dtd-03/10/2016	AECOM/HWH/2016 -17/GOA/1787-Dtd- 19/10/2016	APPROVED

LIST OF IE APPROVED BORROW AREAS

Sr. No	Borrow Area Location	Sampling Date.	Borrow Area No	Section	Borrow Area Name	Ownership of Land	Concessionaire's Letter Reference & Submission Date	IE'S Letter Reference & Approval Date.	Remarks
31	At Km:- 210+130 [RHS] ; Inside Lead 1.5Kms	10-11-2016	53	III	Jaddi Village	Pvt.Land	IRBWTP/CTO/KKBOT/1872/ 2016-Dtd-17/11/2016	AECOM/HWH/2016 -17/GOA/1927-Dtd- 06/12/2016	APPROVED
32	At Km:- 210+130 [RHS] ; Inside Lead 1.5Kms	12-10-2017	51	III	Yarkone Village	Pvt.Land	IRBWTP/CTO/KKBOT/1918/ 2016-Dtd-29/11/2016	AECOM/HWH/2016 -17/GOA/1928-Dtd- 06/12/2016	APPROVED
33	At Km:- 274+940 [LHS] ; Inside Lead 11Kms	23-11-2016	54	IV	Vandse Village	Pvt.Land	IRBWTP/CTO/KKBOT/1973/ 2016-Dtd-15/12/2016	AECOM/HWH/2016 -17/GOA/1990-Dtd- 23/12/2016	APPROVED
34	At Km:- 271+690 [LHS] ; Inside Lead 6.20Kms	13-12-2016	56	IV	Vandse Village	Pvt.Land	IRBWTP/CTO/KKBOT/2000/ 2016-Dtd-28/12/2016	AECOM/HWH/2016 -17/GOA/2011-Dtd- 03/01/2017	APPROVED
35	At Km:- 206+860 [LHS] ; Inside Lead 3.6Kms	04-01-2017	58	III	Manki Village	Pvt.Land	IRBWTP/CTO/KKBOT/2043/ 2017-Dtd-10/01/2017	-	APPROVED
36	At Km:- 277+490 [LHS] ; Inside Lead 17.6Kms	25-01-2017	59	IV	Bellal Village	Pvt.Land	IRBWTP/CTO/KKBOT/2124/ 2017-Dtd-07/02/2017	AECOM/HWH/2016 -17/GOA/2115-Dtd- 18/02/2017	APPROVED
37	At Km:- 241+300 [LHS] ; Inside Lead 7.0Kms	03-02-2017	60	III	Shiror Village	Pvt.Land	IRBWTP/CTO/KKBOT/2159/ 2017-Dtd-15/02/2017	AECOM/HWH/2016 -17/GOA/2125-Dtd- 21/02/2017	APPROVED
38	At Km:- 260+800 [LHS] ; Inside Lead 6.3Kms	28-01-2017	51 (A)	IV	Kirmanjes hwari Village	Pvt.Land	IRBWTP/CTO/KKBOT/2158/ 2017-Dtd-15/02/2017	AECOM/HWH/2016 -17/GOA/2126-Dtd- 21/02/2017	APPROVED

LIST OF IE APPROVED BORROW AREAS										
Sr. No	Borrow Area Location	Sampling Date.	Borrow Area No	Section	Borrow Area Name	Ownership of Land	Concessionaire's Letter Reference & Submission Date	IE'S Letter Reference & Approval Date.	Remarks	
39	At Km:- 202+300 [RHS] ; Inside Lead 1.7Kms	21-02-2017	62	III	Gunavanth e Village	Pvt.Land	IRBWTP/CTO/KKBOT/2214/ 2016-Dtd-04/03/2017	AECOM/HWH/2016 -17/GOA/2169-Dtd- 08/03/2017	APPROVED	
40	At Km:- 250+000 [LHS] ; Inside Lead 12.5Kms	04-03-2017	55 (B)	IV	Yelajeet Village	Pvt.Land	IRBWTP/CTO/KKBOT/2273/ 2017-Dtd-29/03/2017	AECOM/HWH/2016 -17/GOA/2249-Dtd- 04/04/2017	APPROVED	
41	At Km:- 271+690 [LHS] ; Inside Lead 8.2Kms	10-02-2017	61	IV	Kundabara ndadi Village	Pvt.Land	IRBWTP/CTO/KKBOT/2276/ 2017-Dtd-29/03/2017	AECOM/HWH/2016 -17/GOA/2248-Dtd- 04/04/2017	APPROVED	
42	At Km:- 260+800 [LHS] ; Inside Lead 6.3Kms	21-03-2017	51 (B)	IV	Kirimanjies hwari Village	Pvt.Land	IRBWTP/CTO/KKBOT/2309/ 2017-Dtd-07/04/2017	AECOM/HWH/2017 -18/GOA/2288-Dtd- 18/04/2017	APPROVED	
43	At Km:- 93+900 [LHS] ; Inside Lead 0.50Kms	20-05-2017	63	I	Goa/Karna taka Border	Pvt.Land	IRBWTP/CTO/KKBOT/2461/ 2017-Dtd-17/06/2017	AECOM/HWH/2017 -18/GOA/2448-Dtd- 21/06/2017	APPROVED	
44	At Km:- 101+250 [LHS] ; Inside Lead 4.50Kms	14-11-2017	64	I	Hosali Village	Pvt.Land	IRBWTP/CTO/KKBOT/2876/ 2017-Dtd-02/12/2017	AECOM/HWH/2017 -18/GOA/2751-Dtd- 06/12/2017	APPROVED	
45	At Km:- 271+690 [LHS] ; Inside Lead 8.50Kms	18/11/2017	65	IV	Harkhur Village	Pvt.Land	IRBWTP/CTO/KKBOT/2889/ 2017-Dtd-08/12/2017	AECOM/HWH/2017 -18/GOA/2763-Dtd- 14/12/2017	APPROVED	
46	At Km:- 274+880 [LHS] ; Inside Lead 8.20Kms	28/11/2017	66	IV	Karkungi Village	Pvt.Land	IRBWTP/CTO/KKBOT/2889/ 2017-Dtd-08/12/2017	AECOM/HWH/2017 -18/GOA/2764-Dtd- 14/12/2017	APPROVED	

LIST OF IE APPROVED BORROW AREAS

Sr. No	Borrow Area Location	Sampling Date.	Borrow Area No	Section	Borrow Area Name	Ownership of Land	Concessionaire's Letter Reference & Submission Date	IE'S Letter Reference & Approval Date.	Remarks
47	At Km:- 271+690 [LHS]; Inside Lead 7.30Kms	20/12/2017	67	IV	Kattinama kki Village	Pvt.Land	IRBWTP/CTO/KKBOT/2955/ 2018-Dtd-08/01/2018	AECOM/HWH/2017 -18/GOA/2853-Dtd- 17/01/2018	APPROVED
48	At Km:- 274+880 [LHS]; Inside Lead 12.80Kms	23/12/2017	68	IV	Vandse Village	Pvt.Land	IRBWTP/CTO/KKBOT/2958/ 2018-Dtd-10/01/2018	AECOM/HWH/2017 -18/GOA/2854-Dtd- 17/01/2018	APPROVED
49	At Km:- 274+880 [LHS]; Inside Lead 13.0Kms	12-01-2018	69	IV	Chitturu Village	Pvt.Land	IRBWTP/CTO/KKBOT/3022/ 2018-Dtd-03/02/2018	AECOM/HWH/2017 -18/GOA/2895-Dtd- 07/02/2018	APPROVED
50	At Km:- 274+880 [LHS]; Inside Lead 10.50Kms	30/02/2018	70	IV	Vandse Village	Pvt.Land	IRBWTP/CTO/KKBOT/3068/ 2018-Dtd-21/02/2018	AECOM/HWH/2017 -18/GOA/2946-Dtd- 26/02/2018	APPROVED
51	At Km:- 244+700 [RHS]; Inside Lead 1.50Kms	16-03-2018	71	IV	Nirgaddhe Village	Pvt.Land	IRBWTP/CTO/KKBOT/3186/ 2018-Dtd-09/04/2018	AECOM/HWH/2018 -19/GOA/3068-Dtd- 21/04/2018	APPROVED
52	At Km:- 277+490 [LHS]; Inside Lead 17.50Kms	03-04-2018	72	IV	Bellal Village	Pvt.Land	IRBWTP/CTO/KKBOT/3197/ 2018-Dtd-16/04/2018	AECOM/HWH/2018 -19/GOA/3069-Dtd- 21/04/2018	APPROVED
53	At Km:- 270+800 [LHS]; Inside Lead 2.00Kms	11-10-2018	37A	IV	Kamarkudr a Village	Pvt.Land	IRBWTP/CTO/KKBOT/3675/ 2018-Dtd-26/10/2018	AECOM/HWH/2018 -19/GOA/3537-Dtd- 30/10/2018	APPROVED
54	At Km:- 250+000 [LHS]; Inside Lead 12.00Kms	11-10-2018	74	IV	Yaljeet Village	Pvt.Land	IRBWTP/CTO/KKBOT/3676/ 2018-Dtd-26/10/2018	AECOM/HWH/2018 -19/GOA/3538-Dtd- 30/10/2018	APPROVED

LIST OF IE APPROVED BORROW AREAS

Sr. No	Borrow Area Location	Sampling Date.	Borrow Area No	Sect ion	Borrow Area Name	Ownership of Land	Concessionaire's Letter Reference & Submission Date	IE'S Letter Reference & Approval Date.	Remarks
55	At Km:- 260+800 [LHS]; Inside Lead 10.00Kms	13-10-2018	75	IV	Heroor Village	Pvt.Land	IRBWTP/CTO/KKBOT/3688/ 2018-Dtd-31/10/2018	AECOM/HWH/2018 -19/GOA/3611-Dtd- 17/11/2018	APPROVED
56	At Km:- 222+800 [LHS]; Inside Lead 3.00Kms	31-10-2018	76	III	Bengre Village	Pvt.Land	IRBWTP/CTO/KKBOT/3721/ 2018-Dtd-22/11/2018	AECOM/HWH/2018 -19/GOA/3624-Dtd- 30/11/2018	APPROVED
57	At Km:- 143+100 [LHS]; Inside Lead 0.1Kms	13-11-2018	77	II	Belse Village	Pvt.Land	IRBWTP/CTO/KKBOT/3728/ 2018-Dtd-23/11/2018	AECOM/HWH/2018 -19/GOA/3623-Dtd- 30/11/2018	APPROVED
58	At Km:- 133+874 [LHS]; Inside Lead 5.5 Kms	01-12-2018	78	I	Navagadde Village	Pvt.Land	IRBWTP/CTO/KKBOT/3803/ 2018-Dtd-28/12/2018	AECOM/HWH/2018 -19/GOA/3721-Dtd- 31/12/2018	APPROVED
59	At Km:- 250+000 [LHS]; Inside Lead 6.5 Kms	16-02-2019	55	IV	Yeljeet Village	Pvt.Land	IRBWTP/CTO/KKBOT/3981/ 2019-Dtd-01/03/2019	AECOM/HWH/2019 -20/GOA/4088-Dtd- 09/04/2019	APPROVED
60	At Km:- 250+000 [LHS]; Inside Lead 14.0 Kms	28-02-2019	79	IV	Yeljeet Village	Pvt.Land	IRBWTP/CTO/KKBOT/4075/ 2019-Dtd-11/04/2019	AECOM/HWH/2019 -20/GOA/4104-Dtd- 16/04/2019	APPROVED
61	At Km:- 235+630 [LHS]; Inside Lead 6.0 Kms	04-03-2019	80	III	Hadlur Village	Pvt.Land	IRBWTP/CTO/KKBOT/4021/ 2019-Dtd-15/03/2019	AECOM/HWH/2019 -20/GOA/4017-Dtd- 19/03/2019	APPROVED

4.2 Status of Plants & Machinery:

Sl.No.	Category	Capacity	Deployed at Site
A	PLANT		
1	Hot Mix Plant	160 TPH	01
	Hot Mix Plant	120 TPH	00
2	WMM Plant	200 TPH	01
	WMM Plant	100 TPH	01
3	Crusher	200 TPH	02
4	Concrete Batching Plant	60 Cum/Hr.	02
5	Concrete Batching Plant	30 Cum/Hr.	02
6	Concrete Batching Plant	45 Cum/Hr.	01
B	Machineries & Other Equipment		
1	Excavator with Bucket	60 - 80 Cum/Hr.	28
2	Excavator with Breaker	60 - 80 Cum/Hr.	07
3	JCB (3DX)	0.23 - 1.0 Cum	12
4	JCB (Wheel Loader, 430 Z)	1.75 Cum	07
5	Hydra	12/25 MT	05
6	Crane	Tonne	01
7	Transit Mixer	-	12
8	Soil Compactor	10 T	04
9	Tandem Roller	10 T	08
10	Sensor Paver	-	05
11	Water Tanker	10 KL	18
12	Dumper	10 MT	35
13	PTR	-	03
14	Dumper (06 & 10 Wheel)	10/12 MT	96
15	Tractor Dozer	-	00
16	Loader	-	00
17	Grader	130/180 HP	02
18	05 KVA D.G. Set	05 KVA	01
19	15 KVA D.G. Set	15 KVA	01
20	62 KVA D.G. Set	62 KVA	03
21	62 KVA D.G. Set	62 KVA	09
22	62 KVA D.G. Set	62 KVA	00
23	125 KVA D.G. Set	125 KVA	02

Sl.No.	Category	Capacity	Deployed at Site
25	200 KVA D.G. Set	200 KVA	01
26	250 KVA D.G. Set	250 KVA	00
27	320 KVA D.G. Set	320 KVA	01
28	380 KVA D.G. Set	380 KVA	01
29	750 KVA D.G. Set	750 KVA	05
30	82.5 KVA D.G. Set	82.5 KVA	04
31	Boom Placer	-	00
32	Pilling Equipment, winch Machine	-	01
33	Welding Machine	-	06
34	Rolling Machine	-	00
35	Pontoon	-	00
36	Hydraulic Arrangement for Pilling	-	01
37	Conventional Systems for Pilling (Tripod)	-	00
38	Diesel Tanker	-	00
39	Weigh Bridge	60 T	07
40	Weigh Bridge	100 T	06
41	Trailer	-	02
42	Tractor	-	02
43	Drilling Machine	-	23
44	Mechanical Boomer	-	04
45	Concrete Pump	-	01
46	Kerb Machine	-	03
47	Spray Bowzer	-	05
48	Kerb Cutting Machine	-	01
49	Screed Vibrator	-	03
50	Tractor Compressor	-	02
51	Light source	-	06
52	Each vehicle	-	04
53	Wagon Driller	-	02
54	Pump 3.0 HP	3.0 HP	00
55	Pump 5.0 HP	5.0 HP	03
56	Sand Classifier (SACL-01)	-	01
57	Milling Machine	-	00
58	Short Crete Machine	0.2 -0.4MPa	02

Sl.No.	Category	Capacity	Deployed at Site
60	Baby Roller	25 KN	04
61	Kerb Painting Machine	-	01
62	Vacuum Sweeper	-	01

Note:- The condition for operation for Hot Mix Plant submitted by PCB has to be complied strictly.

Applied Permissions :

Sr. No.	Permission Type	Approval Required for	Approval Type	Date	Actions	Remarks
1.1 (a)	Permission of the State Government for extraction of boulder from quarry.	Permits for extraction of boulder from quarry from District Collector	Permit for extraction of boulder	22.01.15	Obtained	1) Ch.225+000: Quarry operations closed. 2) Ch.142+000: Quarry operations Closed. Ample stock of Boulders is available for production of balance quantity of aggregates.
B	Permission of Village Panchayat and Pollution Control Board for installation of crusher;	Establishment for Crusher. NOCS obtained from Aligere, Shirkuli, Shagadgere & Belase (Ankola Taluk) Panchayats.	NOCS for NA & for the establishment of Crusher & Plants to be submitted to KSPCB Karwar	09.09.2014	Obtained	1) Ch.135+000: Valid up to 13.09.2021. 2) Ch.142+000: Crusher dismantled 3) Ch.225+000: Crusher dismantled. 4) Ch. 260+800: Crusher dismantled. Ample stock of aggregates is available and 01 Crusher is sufficient for production of balance quantity of aggregates.
C	License for use of explosives.				Obtained	Valid up to 31.03.2023.
D	Permission of State Government for drawing water from river/reservoir.	Not applicable	Not applicable	Not applicable	Not applicable	N/A

Applied Permissions :

Sr. No.	Permission Type	Approval Required for	Approval Type	Date	Actions	Remarks
E	License from the inspector of factories.	Applied for & Papers are with RO Belgaum	permission for establishment for Crusher & all other Plants	22.12.2014	Obtained	1) Ch.135+000: Valid up to 31.12.2022. 2) Ch.142+000: Crusher dismantled. 3) Ch.153+000: Closed. 4) Ch.224+000: Valid up to 31.12.2022. 5) Ch.225+000: Closed 6) Ch.260+800: Closed
F	Clearance of Pollution Control Board for setting up Batching Plant;	Establishment for Crusher. NOCS obtained from Aligere, Shirkuli, Shagadgere & Belase (Ankola Taluk) Panchayats	NOCS for NA & for the establishment of Crusher & Plants to be submitted to KSPCB Karwar	09.09.2014	Obtained	1) Ch.135+000: Valid up to 30.09.2029. 2) Ch.153+000: Closed. 3) Ch.224+000: Valid up to 31.12.2026. 4) Ch.260+800: Closed.
G	Clearance of Village Panchayats and Pollution Control Board for Asphalt Plant	Establishment for Crusher. NOCS obtained from Aligere, Shirkuli, Shagadgere & Belase (Ankola Taluk) Panchayats	NOCS for NA & for the establishment of Crusher & Plants to be submitted to KSPCB Karwar	09.09.2014	Obtained	1) Ch.135+000: Valid up to 30.09.2029. 2) Ch.153+000: Closed. 3) Ch.225+000: Closed 4) Ch.260+800: Closed
H	Permission of Village Panchayat and State Government for borrow areas	NOCS obtained from Kambadkone, Shirur (Kundapur Taluk), Muttali, Kaikini, Kadle & Devagiri Panchayats (under UK districts)	for the lifting of soil (murrum) to be used in NH road work	NA	Obtained	

Applied Permissions :

Sr. No.	Permission Type	Approval Required for	Approval Type	Date	Actions	Remarks
i	Permission of State Government for cutting of trees.	1) Non Forest Area : Tree cutting work is completed in Karwar, Honnavar & Kundapur 2) Forest area : Tree Cutting is completed in Kundapur forest division. Honnavar & Karwar forest division, tree cutting is in progress	Tree Cutting (Forest and Non Forest Area)	22.05.14	Obtained	
j	Any other permits or clearances required under Applicable Laws	Labour License	Labour	03.08.14	Obtained	Valid up to 03.08.2023.

4.3 Tree Cutting Status :

Sr.No	Description	Total Affected Nos	Completed	Balance quantity	Remark
			Up to date		
A)	Forest Tree	14828.00	14660.00	168	
B)	Non Forest Tree	19734.00	19694.00	40	

5.0 ENVIRONMENTAL MANAGEMENT PLAN

5.0 ENVIRONMENTAL MANAGEMENT PLAN

5.1 Implementation of Environment Management Plan (EMP) during Construction period: During the construction stage the Independent Engineer plays a vital role in supervising the environmental aspects and adoption of the best suitable mitigation measures for an effective implementation of the Environmental Management Plan by the Concessionaire. As a part of the Independent Engineer Services and "Schedule-E" of CA Compliance, Environmental monitoring has been carried out during the month of **January, 2023**. Covers the inspection of borrow areas , quarry site, crusher plant, HM Plant, batching Plant, Wet mix Macadam Plant, Base camp site, median plantation etc. Based on the field visit and subsequent discussions had with concerned officials from Concessionaire a standard environmental Performa have been prepared covering all the environmental issues related to major highway project.

5.2 One time approval:

One time approval required for various activities which are undertaken by Contractor before start of construction include identification of location for sitting stone crusher units, WMM plant and Batching Plant, Borrow Area, quarry sites, workers camp, workshop and vehicle maintenance yard, material storage and waste disposal. The purpose procedures and formats for submitting information on various environmental measures during construction stages are required to be complied as per the statutory and regulatory requirements.

EMP also outlines the requirements of various permits as per **Schedule-E** of Concession agreement and consent from concerned authorities, necessary for shifting and operating of various plants, obtaining for construction etc.

5.3 Periodic monitoring:

Periodic monitoring has been carried out with the help of standard Environmental check list which covers all the environmental issues. The Construction activities are inspected periodically and summary of observations are given in the finding of the environmental report. The major construction activities inspected are given below:

- Borrow Area Operation
- Quarry Area Operation
- Material Storage Area
- Topsoil Storage
- Construction Material Re-used and Disposal
- Workers Camp
- Soil Erosion and Sediment Control
- Drainage Control
- Air, Noise and Water Pollution Control and Monitoring
- Avenue plantation, median plantation and land scaping.
- Health and Sanitation.
- Landscaping and Aesthetic.
- Tree Plantation

5.4 Work monitoring by Concessionaire:

For effective implementation of Environmental Management Plan, Concessionaire has established an environmental cell headed by the Project Manager. The Environment cell looks after day to day implementation of EMP, obtaining statutory clearances, conducting half yearly environmental monitoring and attending all MoEF / KSPCB & CRZ compliance conditions as specified in Environmental Clearance. The above works will be performed in coordination or to the satisfaction of the Independent Engineer.

5.5 Reporting:

The rationale for a reporting system was based on accountability to ensure that the measures proposed as a part of the Environmental Management plan get implemented in the project. Concessionaire has asked to submit environmental report to the IE office on monthly basis. The Environmental Engineer reviews the monthly status report and accordingly suggested the suitable mitigation measures.

**6.0 APPROACH AND METHODOLOGY
ENGAGED FOR ENVIRONMENTAL
MONITORING OF THE PROJECT**

6.0 Approach and Methodology Engaged for Environmental Monitoring of the Project:

6.1 Monitoring Basis

a) The criteria followed for selection of sampling / monitoring locations will be IS Codes/MoEF guidelines/ State Pollution Control Board guidelines etc.

b) In assessing the environmental impact, collection and interpretation of baselines data is of prime importance. The primary data were collected half yearly basis in the project for environmental attributes i.e., air, water, (surface, ground and drinking water), noise and emission etc.

6.2 Standards / Monitoring Methods Employed for Assessment

The standard methods employed for the monitoring of environmental attributes are given below:

- I. Air - IS:5182 and CPCB Manual
- II. Water - Surface water : IS:10500,
Ground water : IS:10500 and CPCB Manual
- III. Noise - CPCB and Precision Integrated Sound Level Meter.

6.3 ENVIRONMENTAL MONITORING PLAN

Environmental component	Project stage	Monitoring			Institutional Responsibility	
		Parameters	Frequency	Standards	Implementation	Supervision
Air	Construction Stage	PM-10, PM-2.5, SO ₂ , NO _x & CO	24 hours continuous 4 times in a year during construction	Air quality, NAAQ Standard & norms will be followed	Concessionaire through approved monitoring agency	PIU Mangalore & IE, Theme Engineering Services Pvt Ltd.
Water Quality	Construction Stage	pH, BOD, COD, TDS, TSS, Oil and Grease, DO, conductivity, chloride sulphate Coli form Count (Pb and Cr in industrial area)	2 times in a year during construction	Water quality CPCB Standard & IS standard will be followed	Concessionaire through approved monitoring agency	PIU Mangalore & IE, Theme Engineering Services Pvt Ltd.

7.0 SUMMARY OF ENVIRONMENTAL MONITORING RESULTS

7.0 Summary of environmental monitoring results

Environmental monitoring matrix as suggested in Environmental Management Plan is being implemented during the construction period. To assess the existing status, the environmental monitoring (air, noise & water) has been carried out during the month of **January'2023**. The results were compared with National Ambient Air Quality, CPCB & IS Standards. The observations from the monitoring report are as follows.

Environmental Impact is studied for the following Environmental Attributes.

- Air
- Noise
- Water
- Monitoring & Analysis Reports Third Party submitted by the Concessionaire was Reviewed and tests report is enclosed as Annexure – 1.

a) Air Quality Monitoring:

- Ambient Air Quality Monitoring has been carried out at our projects in different location in the month of **January'2023**.
- At all locations the observed values of Particulate Matter (PM-10), Particulate Matter (PM-2.5), Sulphur Dioxide (SO₂), Nitrogen Dioxide(NO₂) & Carbon Monoxide (CO) & Lead values are found well within the specified limit of National Ambient Air Quality Monitoring (NAAQM) standards.

b) Noise Quality Monitoring

- Noise Quality Monitoring different Project locations.
(3) Residential locations (4) Commercial locations (6) Industrial locations. Noise level was analyses for day time and night time as notified by the Central Pollution Control board (CPCB) for the impact area.

At all the location in the project Day Noise equivalent dB (A) & Night Noise equivalent dB (A) level are found within the Central Pollution Control Board Standards. Graphical representation of Ambient Noise level Status is given as Fig 7 & 8. The Ambient Noise Quality Standards in respect of noise for different areas /zones are report attached.

C) Source Emission Test Report

- The source emission test report has been conducted at Base camp and Crusher location are found within the limit.

d) Water Quality Monitoring:

Surface water sample were collected from different locations along the project: The surface water sample analysis report is found with high concentration of chloride.

Ground Water Sample were collected from different location along the project. The analysed samples were to be compatible and meeting IS: 10500 Standards for drinking water.

8.0 FINDINGS

8.0 FINDINGS

Concessionaire has obtained applicable permits as per of CA and all are valid (refer **Annexure-2**). The major findings of the environmental issues and commitment of the concessionaire summarized below:

- a) Statutory Environmental Clearance is obtained from the Ministry of Environment and Forests, New Delhi Vide Letter No: F.No.10-107/2011-IA.III dated 19.02.2015.
- b) Consent for Establishment /NOC is obtained from the Karnataka State Pollution Control Board (KSPCB), Bangalore, Applied.
- c) Half yearly Monitoring of Air, Water and Noise quality parameters during period as per the condition of Karnataka State Pollution Control Board and MOEF were carried on **January'2023**. Concessionaire is advised to conduct Half yearly Monitoring of Air, water & Noise as mentioned in MOEF and KSPCB compliance.
- d) Dust control measures taken at crushers, hot mix plants on haulage roads, quarry areas, work sites etc., water sprinklers needs to be improved. At present the frequency of water sprinkling for dust suppression is found to be three in a day.
- e) Infrastructural facilities provided at labour camps are satisfactory.
- f) Approval of competent authorities for use of ground water has to be obtained prior to start of the project.
- g) Solid waste disposal sites for hazardous waste like bitumen (in dismantled pavement) are used in the link road and haulage road of Quarry site. However, documentation for the same found updated.
- h) Instructed the Concessionaire to Provide barricaded and warning signage board in the Quarry area as per statutory conditions. Safety measures Adopted.
- i) All the borrow areas in the project stretch are with no objection Certificates from concerned land owners. The majority of the granular sub Base (GSB) Material /earth material used in the project was collected locally. List of borrow areas has been mentioned. The Concessionaire needs to take necessary action for rehabilitation of the closed borrow area at the earliest. Work under progress.
- j) Top soil management practice shall be followed for the borrow areas. Top soil properly staked or stored.
- k) Tree cutting permission have been obtained from Deputy Conservator of forest Mangalore Division and Kundapur Division. Avenue plantation plan as per the condition of MOEF has not been submitted by the Concessionaire for review of IE. Already reminded IE.
- l) To protect soil erosion of high embankment, (more than 30 m) stone pitching Will be provided and embankment height less than 3.0 m Will be provided with grass turfing.

- m) Median plantation are not in accordance with the specification (IRC:SP:21:2009). Already Submitted.
- n) Rain water harvesting pits as specified in CA and CRZ clearance of the project shall be adopted in the project. Water harvesting structures shall be located at every 500 m along the road. Vertical drain type rainwater harvesting structures shall be set up minimize surface runoff losses of rainwater.
- o) As per provision of Notification S.O. No.763 (E) dated 14.09.1999 as amended vide S.O.979 (E) dated 27.08.2003, fly ash was not utilized in this project due to public agitation.

9.0 POINTWISE COMPLIANCE STATEMENT

9.0 POINT WISE COMPLIANCE STATEMENT

FOR THE CONDITIONS SET IN THE :- CRZ AND Environmental Clearance for Four laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km. 93.700 to Km. 283.300 in the State of Karnataka under NHDP Phase IV.

Issued By Ministry of Environment & Forest (IA-III Division) Government of India on 19.02.2014.

Specific Condition:

Compliance

Sl. No.	Description	Compliance Status
(i)	Road in Mangrove areas shall be on stilts. It is noted that the proposed ROW overlaps 10.5 ha of mangrove area. The Project Proponent shall carry out mangrove plantation in an area of 50 ha. In consultation with Forest Department.	Being complied.
(ii)	As the project is located within 10 km of proposed Catigaon Wildlife Sanctuary, Goa, prior clearance from NBWL shall be obtained.	Under final stage
(iii)	The project involves diversion of 162.429 ha protected forest land including 2.629 ha mangroves area for which the proponent shall obtain the requisite FC. The proponent can execute the above project on the entire stretch located in non-forest land, provided that the proponent submits an undertaking while making application to get FC that the execution of work on non-forest land shall not be cited as a reason for grant of FC and in case FC is declined, width of the portion of road falling in the forest land will be maintained at its existing level.	Complied
(iv)	It is indicated that 23491 nos of trees are proposed to be cut for the project. Necessary permission from competent authority shall be obtained for tree cutting Necessary compensatory plantation shall be carried out and cost provision should be made for regular maintenance.	Permission obtained from Concerned Division like, karwar, Honnavar and Kundapur.
(v)	It is noted that according to NHAI, the impact zone is 50-200m and the nearby habitation is Karwar Town at 600m. However, NHAI shall intimate local authority before carrying out the blasting. If there are any damage caused due to blasting, NHAI shall compensate 100% under the notice of local Authority.	Safety measures are taken
(vi)	All the other required clearances for carrying out blasting shall be obtained from the competent Authority including Forests/Wildlife.	Being complied.
(vii)	The blasting shall be restricted only from 8 am to 6pm.	Being Complied
(viii)	The technique adopted for controlled blasting at identified locations is non-electric detonating technique.	Complied

Sl. No.	Description	Compliance Status
(x)	Permission for ground water drawl shall be obtained from competent Authority.	Not applicable
(xi)	Rain water harvesting including oil and grease trap shall be provided. Water harvesting structures shall be located at every 500 mts along the road. Vertical drain type rainwater harvesting structures shall be set up to minimize surface runoff losses of rainwater.	Being implemented.
(xii)	R&R shall be as per the guidelines of State/Central Government.	Complied
(xiii)	IRC guidelines shall be followed for widening & up-gradation of road.	Complied
(xiv)	The responses/commitments made during public hearing shall be complied with latter and spirit.	complied
(xv)	All the recommendation of the EMP shall be complied with latter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF along with half yearly compliance report to MoEF-RO.	Implemented.
(xvi)	Green belt development shall be undertaken as suggested in EMP.	Implemented.
(xvii)	The seismic nature of the area shall be taken into account while designing the project.	considered
(xviii)	The project proponent shall obtain necessary permission from the State Irrigation Department before drawing water from the river source for the purpose of the proposed construction activity.	Not applicable
(xix)	Sidewalk shall be provided along the bridges.	1.5m wide footpath is provided on every new bridge.
(xx)	The drain shall be at least 1m away from the toe of the embankment of the road adopting IRC guidelines.	As per codal norms
(xxi)	Longitudinal drains shall be provided all along the project road to ensure proper drainage of the area. In addition, adequate number of under passes and culverts to act as cross drainage structures shall be provided.	Provided
(xxii)	The solid waste generated shall be used for rehabilitating the borrow areas.	Implemented.
(xxiii)	For providing safety to the crossing animals and avoid road accidents speed breakers/rumbled strips shall be constructed at the identified locations of the animal movements. Enough hoardings and signages shall also be put up for the public and vehicles convenience.	Complied as per designs
(xxiv)	Minimum of three times the number of trees to be cut shall be planted. It shall be ensured that the trees planted as a part of the afforestation shall be looked after by NHA. Tree plantation shall be of the same species/local species and survival shall monitored. Transplantation of trees shall be carried out wherever possible. The tree plantation shall be taken up on the extreme end of the road.	Complied.

Sl. No.	Description	Compliance Status
(xxv)	Necessary clearance from the State Government shall be obtained for extraction of sand from the rivers.	Implemented
(xxvi)	Proper signage shall be installed at appropriate locations for the convenience of the traffic movement.	Provided
(xxvii)	The embankments/slopes and the slopes left after cutting shall be provided with vegetative turning to avoid soil erosion.	Complied
(xxviii)	The hot mix plant shall be located at least 500 mts. Away from habitation and on the barren land to avoid its adverse impact on the human population.	Complied
(xxix)	Rehabilitation and payment of compensation to the project affected people (PAPs) shall be made as per the policy of the State Government.	Implemented
(xxx)	Noise barriers shall be provided at appropriate locations particularly in the areas where the alignment passes through inhabited areas so as to ensure that the noise levels do not exceed the prescribed standards.	Provided
(xxxi)	For road safety, IRC guidelines in respect of road signages, service roads, but bays, inter-sections, pedestrians crossings, etc. shall be strictly adhered to.	As per designs

General Conditions:

(i)	Adequate provision for infrastructure facilities including water supply, fuel and sanitation must be ensured for construction workers during the construction phase of the project to avoid any damage to the environment.	All infrastructure facilities including water supply, Electricity and community Toilets are provided at Base Camp.
(ii)	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Precautionary measures are taken to avoid any likely degradation of water quality.
(iii)	<p>Borrow sites for each quarry sites for road construction material and dump sites must be identified keeping in view the following:</p> <p>(a) No excavation or dumping on private property is carried out without written consent of the owner.</p> <p>(b) No excavation or dumping shall be allowed on wetlands, forest areas or other ecologically valuable or sensitive locations.</p> <p>(c) Excavation work shall be done in close consultation with the Soil Conservation and Watershed Development Agencies working in the area, and</p> <p>(d) Construction spoils including bituminous material and other hazardous materials must not be allowed to contaminate water courses and the dump sites for such materials must be secured so that they shall not leach into the ground water.</p>	<p>(a) Obtained consent letters from the land owners of the borrow areas.</p> <p>Solid waste generated being utilized for rehabilitation of the borrow area, approach road & village link road.</p> <p>(b) Complied.</p> <p>(c) Consultation with the Soil Conservation and Watershed Development Agencies working in the area is under process.</p> <p>(d) Solid wastes (Bituminous material) disposal site yet to be identified and</p>

		being used in pothole filling, village road, crusher and quarry road developments and borrow area access roads.
(iv)	The construction material shall be obtained only from approved quarries. In case new quarries are to be opened, specific approvals from the competent authority shall be obtained in this regard.	Approved quarry permits are obtained.
(v)	Adequate precautions shall taken during transportation of the construction material so that it does not affect the environment adversely.	All trucks carrying construction materials found uncovered. Water sprinkled on haulage roads to mitigate dust pollution is inadequate.
(vi)	Borrow pits and other scars created during the road construction shall be properly levelled and treated.	All closed borrow areas will be levelled and rehabilitated properly. Instructed Concessionaire to rehabilitate the closed borrow area as per the EMP norms.
(vii)	Adequate financial provision must be made in the project to implement the aforesaid safeguards.	Provided in the project CA.
(viii)	The project proponent will set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.	Separate Environmental Management cell working effectively at project site for the effective implementation of the stipulated environmental safeguards.
(ix)	Full support shall be extended to the officers of this Ministry/Regional Office by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	Noted for compliance.
(x)	A six-Monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry regarding the implementation of the stipulated conditions.	Being complied
(xi)	Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	Any changes will be complied with
(xii)	The ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.	Noted for action.
(xiii)	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.	If any changes occur, the same shall be intimated to the Ministry of Environmental & Forests.
(xiv)	The project proponents shall inform the Regional Office as well as the Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Date of Financial Closer: letter submitted to Authority vide letter no. IWCT/BD/FC&AD/13/12552 dated 24 th December, 2013. Date of start of land development

	any suggestion/representation has been made received while processing the proposal.	
(xvi)	Safety provision such as bus bays, service roads intersection improvement etc., will be carried out by the project proponent. The project proponent shall provide adequate facilities as per IRC norms/guidelines.	Facilities will be provided as per CA.
(xvii)	State Pollution Control Board shall display a copy of the clearance letter at eh Regional Office, District Industries Central and Collector's Office / Tahsildar's office for 30 days.	Implemented

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/1.8/F/01

Page. No 1|15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

- 1 Name of Client : IRB West Coast Toll ways Pvt. Ltd.,
Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
- 2 Name of Station : Near Crusher Kundapur CH-263+000 LHS Navunda Plant S-4
- 3 Sample Collected By : SKAEW Representative
- 4 Sampling Method : IS 5182 (Part 14) :2000 (RA:2005)
- 5 Discipline : Chemical
- 6 Product Group : Atmospheric Pollution
- 7 Date of Collection : 02-01-2023
- 8 Date of Sample Receipt : 03-01-2023
- 9 Date of Analysis Started : 03-01-2023
- 10 Sample Code : 400A/1
- 11 Environmental Parameters During : Ambient Temperature : 27° C
Relative Humidity : 44%
Wind Direction : SE
Wind Speed : 10 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	70.12	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	33.25	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	11.90	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	15.88	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	1.40	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	0.10	SKAEW/SOP/13

Statement of Conformity | Tested Parameters complies with NAAQM standards

NOTE:

- The Results listed above pertain only to the tested sample and applicable parameters,
- This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

Verified by,
Sumitha M

Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

*** END OF REPORT ***

041

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836 2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 2 | 15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Name of Station	: Near Crusher CH-225+000 LHS Bengre Plant S-3
3	Sample Collected By	: SKAEW Representative
4	Sampling Method	: IS 5182 (Part 14) :2000 (RA:2005)
5	Discipline	: Chemical
6	Product Group	: Atmospheric Pollution
7	Date of Collection	: 02-01-2023
8	Date of Sample Receipt	: 03-01-2023
9	Date of Analysis Started	: 03-01-2023
10	Sample Code	: 400A/2
11	Environmental Parameters During	: Ambient Temperature : 28° C Relative Humidity : 40% Wind Direction : SE Wind Speed : 13 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	74.65	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	35.65	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	10.89	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	13.49	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	1.70	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	0.08	SKAEW/SOP/13

Statement of Conformity	Tested Parameters complies with NAAQM standards
-------------------------	---

NOTE:

- 1 The Results listed above pertain only to the tested sample and applicable parameters,
- 2 This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

Verified by,
Sumith M

Radha M Bengeri
Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

*** END OF REPORT ***

042

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krshnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 3 | 15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Name of Station	: Near Batching Plant & HMP CH-153+000 LHS Madanagere Plant S-2
3	Sample Collected By	: SKAEW Representative
4	Sampling Method	: IS 5182 (Part 14) :2000 (RA:2005)
5	Discipline	: Chemical
6	Product Group	: Atmospheric Pollution
7	Date of Collection	: 02-01-2023
8	Date of Sample Receipt	: 03-01-2023
9	Date of Analysis Started	: 03-01-2023
10	Sample Code	: 400A/3
11	Environmental Parameters During	: Ambient Temperature : 28° C Relative Humidity : 48% Wind Direction : SE Wind Speed : 08 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	69.54	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	33.59	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	13.96	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	13.59	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	1.80	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	0.20	SKAEW/SOP/13

Statement of Conformity	Tested Parameters complies with NAAQM standards
-------------------------	---

- NOTE:
- 1 The Results listed above pertain only to the tested sample and applicable parameters,
 - 2 This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

Sumith M
Verified by,
Sumith M

Radha M Bengeri
Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 4/15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

- 1 Name of Client : IRB West Coast Toll ways Pvt. Ltd.,
Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
- 2 Name of Station : Baleguli Plant, Near HMP & Batching Plant CH -135+000 LHS S-1
- 3 Sample Collected By : SKAEW Representative
- 4 Sampling Method : IS 5182 (Part 14) :2000 (RA:2005)
- 5 Discipline : Chemical
- 6 Product Group : Atmospheric Pollution
- 7 Date of Collection : 02-01-2023
- 8 Date of Sample Receipt : 03-01-2023
- 9 Date of Analysis Started : 03-01-2023
- 10 Sample Code : 400A/4
- 11 Environmental Parameters During : Ambient Temperature : 28° C
Relative Humidity : 46%
Wind Direction : SE
Wind Speed : 11 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	60.36	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	29.89	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	9.90	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	11.15	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	2.00	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	0.25	SKAEW/SOP/13

Statement of Conformity	Tested Parameters complies with NAAQM standards
-------------------------	---

NOTE:

- The Results listed above pertain only to the tested sample and applicable parameters.
- This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.

Verified by,
Samith M

Radha M Bengeri
Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

*** END OF REPORT ***

044

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678.

Mobile : +91 94480 51534, +91 94800 28018.

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 5115

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

- 1 Name of Client : IRB West Coast Toll ways Pvt. Ltd.,
Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
- 2 Name of Station : Shirali Village CH-225+000
- 3 Sample Collected By : SKAEW Representative
- 4 Sampling Method : IS 5182 (Part 14) :2000 (RA:2005)
- 5 Discipline : Chemical
- 6 Product Group : Atmospheric Pollution
- 7 Date of Collection : 03-01-2023
- 8 Date of Sample Receipt : 04-01-2023
- 9 Date of Analysis Started : 04-01-2023
- 10 Sample Code : 400A/5
- 11 Environmental Parameters During : Ambient Temperature : 27° C
Relative Humidity : 48%
Wind Direction : S
Wind Speed : 12 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	59.96	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	29.23	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	11.78	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	15.20	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	1.30	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	BDL	SKAEW/SOP/13

Statement of Conformity | Tested Parameters complies with NAAQM standards

NOTE:

- The Results listed above pertain only to the tested sample and applicable parameters,
- This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

Verified by,
Sumith M

Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

*** END OF REPORT ***

1045

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/P/01

Page. No 6 | 15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

- 1 Name of Client : IRB West Coast Toll ways Pvt. Ltd.,
Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
- 2 Name of Station : On Road Side Shivamogga Circle Honnavar CH-194+580 LHS
- 3 Sample Collected By : SKAEW Representative
- 4 Sampling Method : IS 5182 (Part 14) :2000 (RA:2005)
- 5 Discipline : Chemical
- 6 Product Group : Atmospheric Pollution
- 7 Date of Collection : 03-01-2023
- 8 Date of Sample Receipt : 04-01-2023
- 9 Date of Analysis Started : 04-01-2023
- 10 Sample Code : 400A/6
- 11 Environmental Parameters During : Ambient Temperature : 30° C
Relative Humidity : 52%
Wind Direction : S
Wind Speed : 10 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	62.55	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	36.96	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	12.22	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	18.69	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	1.90	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	BDL	SKAEW/SOP/13

Statement of Conformity	Tested Parameters complies with NAAQM standards
-------------------------	---

NOTE:

- The Results listed above pertain only to the tested sample and applicable parameters,
- This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

Verified by,
Sumitha M

Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

*** END OF REPORT ***

1046

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 7|15

Report No. : SKAEW/ANAL/305A/23-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Name of Station	: Shirali Village CH-225+148
3	Sample Collected By	: SKAEW Representative
4	Sampling Method	: IS 5182 (Part 14) :2000 (RA:2005)
5	Discipline	: Chemical
6	Product Group	: Atmospheric Pollution
7	Date of Collection	: 03-01-2023
8	Date of Sample Receipt	: 04-01-2023
9	Date of Analysis Started	: 04-01-2023
10	Sample Code	: 400A/7
11	Environmental Parameters During	: Ambient Temperature : 30° C Relative Humidity : 47% Wind Direction : S Wind Speed : 11 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	44.23	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	25.47	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	9.45	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	13.88	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	BDL	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	BDL	SKAEW/SOP/13

Statement of Conformity	Tested Parameters complies with NAAQM standards
-------------------------	---

NOTE:

- The Results listed above pertain only to the tested sample and applicable parameters,
- This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,


 Verified by,
 Semith M


 Authorized Signatory,
 Mrs. Radha M Bengeri,
 (Proprietor)

*** END OF REPORT ***

047

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabeenger@gmail.com, krishnaaquaeng@gmail.com



SKAEW/7.8/F/01

Page. No 8 | 15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

- 1 Name of Client : IRB West Coast Toll ways Pvt. Ltd.,
Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-
17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP
phase IV.
- 2 Name of Station : Byndoor - on Road side in front of new bus stand CH-247+800 S-4
- 3 Sample Collected By : SKAEW Representative
- 4 Sampling Method : IS 5182 (Part 14) :2000 (RA:2005)
- 5 Discipline : Chemical
- 6 Product Group : Atmospheric Pollution
- 7 Date of Collection : 03-01-2023
- 8 Date of Sample Receipt : 04-01-2023
- 9 Date of Analysis Started : 04-01-2023
- 10 Sample Code : 400A/8
- 11 Environmental Parameters During : Ambient Temperature : 31 ° C
Relative Humidity : 40%
Wind Direction : SE
Wind Speed : 08 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	67.89	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	27.89	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	12.31	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	17.36	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	1.10	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	BDL	SKAEW/SOP/13

Statement of Conformity	Tested Parameters complies with NAAQM standards
-------------------------	---

NOTE:

- The Results listed above pertain only to the tested sample and applicable parameters,
- This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

Verified by,
Sumitha M

Radha M Bengeri
Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

*** END OF REPORT ***

1048

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 9|15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

- 1 Name of Client : IRB West Coast Toll ways Pvt. Ltd.,
Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-
17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP
phase IV.
- 2 Name of Station : Baleguli Cross Near Crusher CH-135+000 LHS S-1
- 3 Sample Collected By : SKAEW Representative
- 4 Sampling Method : IS 5182 (Part 14) :2000 (RA:2005)
- 5 Discipline : Chemical
- 6 Product Group : Atmospheric Pollution
- 7 Date of Collection : 04-01-2023
- 8 Date of Sample Receipt : 05-01-2023
- 9 Date of Analysis Started : 05-01-2023
- 10 Sample Code : 400A/9
- 11 Environmental Parameters During : Ambient Temperature : 27 °C
Relative Humidity : 42%
Wind Direction : S
Wind Speed : 11 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	65.36	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	31.89	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	9.53	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	19.25	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	2.00	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	BDL	SKAEW/SOP/13

Statement of Conformity	Tested Parameters complies with NAAQM standards
-------------------------	---

NOTE:

- The Results listed above pertain only to the tested sample and applicable parameters,
- This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

Verified by,
Sumith M

Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

*** END OF REPORT ***

1049

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 10115

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

- 1 Name of Client : IRB West Coast Toll ways Pvt. Ltd.,
Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
- 2 Name of Station : On Road Side Murdeshwar Junction CH-219+250 S -3
- 3 Sample Collected By : SKAEW Representative
- 4 Sampling Method : IS 5182 (Part 14) :2000 (RA:2005)
- 5 Discipline : Chemical
- 6 Product Group : Atmospheric Pollution
- 7 Date of Collection : 04-01-2023
- 8 Date of Sample Receipt : 05-01-2023
- 9 Date of Analysis Started : 05-01-2023
- 10 Sample Code : 400A/10
- 11 Environmental Parameters During : Ambient Temperature : 29 ° C
Relative Humidity : 47%
Wind Direction : S
Wind Speed : 15 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	62.85	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	33.33	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	14.23	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	18.47	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	2.00	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	BDL	SKAEW/SOP/13

Statement of Conformity | Tested Parameters complies with NAAQM standards

NOTE:

- The Results listed above pertain only to the tested sample and applicable parameters,
- This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

Verified by,

Sumith M

Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 11|15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1	Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH- 17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Name of Station	:	On Road Side Karwar Junction CH-106+066 LHS S-1
3	Sample Collected By	:	SKAEW Representative
4	Sampling Method	:	IS 5182 (Part 14) :2000 (RA:2005)
5	Discipline	:	Chemical
6	Product Group	:	Atmospheric Pollution
7	Date of Collection	:	04-01-2023
8	Date of Sample Receipt	:	05-01-2023
9	Date of Analysis Started	:	05-01-2023
10	Sample Code	:	400A/11
11	Environmental Parameters During	:	Ambient Temperature : 30 °C Relative Humidity : 50% Wind Direction : SE Wind Speed : 13 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	53.31	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	30.56	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	13.11	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	17.88	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	0.80	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	BDL	SKAEW/SOP/13

Statement of Conformity | Tested Parameters complies with NAAQM standards

NOTE:

- The Results listed above pertain only to the tested sample and applicable parameters,
- This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,


 Verified by,
 Sumith M


 Authorized Signatory,
 Mrs. Radha M Bengeri,
 (Proprietor)

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 12/15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1	Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Name of Station	:	On Road Side Kumata Junction CH-174+000 RHS S-2
3	Sample Collected By	:	SKAEW Representative
4	Sampling Method	:	IS 5182 (Part 14) :2000 (RA:2005)
5	Discipline	:	Chemical
6	Product Group	:	Atmospheric Pollution
7	Date of Collection	:	04-01-2023
8	Date of Sample Receipt	:	05-01-2023
9	Date of Analysis Started	:	05-01-2023
10	Sample Code	:	400A/12
11	Environmental Parameters During	:	Ambient Temperature : 28° C Relative Humidity : 48% Wind Direction : SE Wind Speed : 11 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	54.19	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	27.78	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	13.41	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	18.81	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	1.90	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	BDL	SKAEW/SOP/13

Statement of Conformity	Tested Parameters complies with NAAQM standards
-------------------------	---

NOTE:

- 1 The Results listed above pertain only to the tested sample and applicable parameters,
- 2 This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.

Verified by,
Sumithra

Radha M Bengeri
Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

*** END OF REPORT ***

1052

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar. HUBLI 580 021. Tel. : (Lab) 0836-2375678,
Mobile . +91 94480 51534, +91 94800 20010,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 13/15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1	Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Name of Station	:	Infront of Sandeep School MRMPL CH-257+170
3	Sample Collected By	:	SKAEW Representative
4	Sampling Method	:	IS 5182 (Part 14) :2000 (RA:2005)
5	Discipline	:	Chemical
6	Product Group	:	Atmospheric Pollution
7	Date of Collection	:	05-01-2023
8	Date of Sample Receipt	:	06-01-2023
9	Date of Analysis Started	:	06-01-2023
10	Sample Code	:	400A/13
11	Environmental Parameters During	:	Ambient Temperature : 30° C Relative Humidity : 55% Wind Direction : S Wind Speed : 14 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	53.47	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	26.48	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	14.79	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	16.98	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	2.00	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	BDL	SKAEW/SOP/13

Statement of Conformity	Tested Parameters complies with NAAQM standards
-------------------------	---

NOTE:

- 1 The Results listed above pertain only to the tested sample and applicable parameters,
- 2 This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

Verified by,
Sumitha

Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

*** END OF REPORT ***

053

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhambengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 14/15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

- 1 Name of Client : IRB West Coast Toll ways Pvt. Ltd.,
Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
- 2 Name of Station : Near Crusher Ankola Highgadh Plant CH-142+800 S-1
- 3 Sample Collected By : SKAEW Representative
- 4 Sampling Method : IS 5182 (Part 14) :2000 (RA:2005)
- 5 Discipline : Chemical
- 6 Product Group : Atmospheric Pollution
- 7 Date of Collection : 05-01-2023
- 8 Date of Sample Receipt : 06-01-2023
- 9 Date of Analysis Started : 06-01-2023
- 10 Sample Code : 400A/14
- 11 Environmental Parameters During : Ambient Temperature : 29 °C
Relative Humidity : 50%
Wind Direction : S
Wind Speed : 11 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	57.88	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	30.45	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	11.88	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	14.55	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	2.20	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	0.50	SKAEW/SOP/13

Statement of Conformity	Tested Parameters complies with NAAQM standards
-------------------------	---

NOTE:

- The Results listed above pertain only to the tested sample and applicable parameters,
- This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

Verified by,
Sumith M

Authorized Signatory,
Mrs. Radha M Bengeri,
(Proprietor)

*** END OF REPORT ***

1054

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 15|15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1	Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Name of Station	:	On Road side in front of Check Post Mahasati Canteen Shirur CH-241+365 S-4
3	Sample Collected By	:	SKAEW Representative
4	Sampling Method	:	IS 5182 (Part 14) :2000 (RA:2005)
5	Discipline	:	Chemical
6	Product Group	:	Atmospheric Pollution
7	Date of Collection	:	05-01-2023
8	Date of Sample Receipt	:	06-01-2023
9	Date of Analysis Started	:	06-01-2023
10	Sample Code	:	400A/15
11	Environmental Parameters During	:	Ambient Temperature : 31 °C Relative Humidity : 49% Wind Direction : SE Wind Speed : 09 Km/h

Sr. No	Parameters	NAAQM Standards for Industrial, Residential, Rural & Other area	Results	Methods
1	Particular Matter (Size less than 10µm) or PM10, µg/m ³	100.00	53.69	IS 5182 (Part 23) : 2006 (RA 2012)
2	Particular Matter (Size less than 2.5µm) or PM2.5, µg/m ³	60.00	31.43	IS 5182 (Part 24) : 2006 (RA 2012)
3	Sulphur Dioxide as (SO ₂), µg/m ³	80.00	13.12	IS 5182 (Part 02) : 2006 (RA 2012)
4	Nitrogen Dioxide as (NO ₂), µg/m ³	80.00	19.22	IS 5182 (Part 06) : 2006 (RA 2012)
5	Carbon Monoxide (CO), mg/m ³	4.00	2.80	Carbon Monoxide Analyser
4	Lead (Pb), µg/m ³	1.00	0.33	SKAEW/SOP/13

Statement of Conformity | Tested Parameters complies with NAAQM standards

NOTE:

- 1 The Results listed above pertain only to the tested sample and applicable parameters,
- 2 This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.


 Verified by,
 Sumithra


 Authorized Signatory,
 Mrs. Radha M Bengeri,
 (Proprietor)

*** END OF REPORT ***

1055

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyannagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabenger@gmail.com, krishnapandhari@gmail.com

SKAEW/7.8/F/02
Page. No 1|15Report No. : SKAEW/ANAL/305A/22-23
Report Issue Date: 12-01-2023**AMBIENT NOISE LEVEL REPORT**

1 Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	:	Given
2 Sample Collected By	:	SKAEW Representative
3 Method Adopted	:	IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	:	Chemical
5 Group	:	Atmospheric Pollution
6 Date of Collection	:	02-01-2023
7 Date of Sample Receipt	:	03-01-2023
8 Date of Analysis Started	:	03-01-2023
9 Sample Code	:	400A/16
10 Environmental Conditions	:	Ambient Temperature : 27° C Relative Humidity : 44%

Sr. No	Time Frequency	Near Crusher Kundapur CH-263+000 LHS Navunda Plant S-4 (Industrial zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	71.79	54.34
2	dB (A)	72.73	55.75
3	dB (A)	74.05	56.07
4	dB (A)	70.68	57.15
5	dB (A)	71.79	57.46
6	dB (A)	79.82	58.46
7	dB (A)	84.83	54.11
8	dB (A)	81.09	55.19
9	dB (A)	78.52	
10	dB (A)	74.17	
11	dB (A)	72.73	
12	dB (A)	76.99	
13	dB (A)	71.79	
14	dB (A)	67.87	
15	dB (A)	65.44	
16	dB (A)	64.16	
	L _{EQ}	71.29	47.55
	Min	64.16	54.11
	Max	84.83	58.46

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A) Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
------------------	---

Verified By
Sumith M

Authorized Signatory
Mrs. Radha Bengeri

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



Report No. : SKAEW/ANAL/305A/22-23
Report Issue Date: 12-01-2023

SKAEW/7.8/F/02
Page. No 2/15

AMBIENT NOISE LEVEL REPORT

1 Name of Client	: IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	: Given
2 Sample Collected By	: SKAEW Representative
3 Method Adopted	: IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	: Chemical
5 Group	: Atmospheric Pollution
6 Date of Collection	: 02-01-2023
7 Date of Sample Receipt	: 03-01-2023
8 Date of Analysis Started	: 03-01-2023
9 Sample Code	: 400A/17
10 Environmental Conditions	: Ambient Temperature : 28° C Relative Humidity : 48%

Sr. No	Time Frequency	Near Batching Plant & HMP CH-153+000 LHS Madanagere Plant S-2 (Industrial zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	65.87	52.15
2	dB (A)	67.58	49.44
3	dB (A)	69.34	51.51
4	dB (A)	74.14	55.19
5	dB (A)	76.42	57.60
6	dB (A)	82.31	58.44
7	dB (A)	82.87	58.13
8	dB (A)	80.91	58.92
9	dB (A)	79.84	
10	dB (A)	77.73	
11	dB (A)	81.00	
12	dB (A)	77.38	
13	dB (A)	73.73	
14	dB (A)	73.16	
15	dB (A)	66.95	
16	dB (A)	68.81	
	L _{EQ}	72.08	47.57
	Min	65.87	49.44
	Max	82.87	58.92

INFERENCE

As per CPCB/KSPCB Standards (2009)
Report Status: Measured values for the above parameters are within the limit.
Ambient Noise Quality Standards:
Industrial Zone - Day time 75dB(A) and Night time 70dB(A).
Commercial Zone - Day time 65dB(A) and Night time 55dB(A).
Residential Zone - Day time 55dB(A) and Night time 45dB(A).
Silent Zone - Day time 50dB(A) and Night time 40dB(A)
Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.

Verified By

Sumith M

Authorized Signatory
Mrs. Radha Bengeri

057

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krisnapandhar@gmail.com



Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

SKAEW/7.8/F/02

Page. No 3|15

AMBIENT NOISE LEVEL REPORT

1 Name of Client	: IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	: Given
2 Sample Collected By	: SKAEW Representative
3 Method Adopted	: IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	: Chemical
5 Group	: Atmospheric Pollution
6 Date of Collection	: 03-01-2023
7 Date of Sample Receipt	: 04-01-2023
8 Date of Analysis Started	: 04-01-2023
9 Sample Code	: 400A/18
10 Environmental Conditions	: Ambient Temperature : 27° C Relative Humidity : 48%

Sr. No	Time Frequency	On Road Side Shirali Village CH-225+000 (Industrial zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	64.33	43.87
2	dB (A)	65.11	44.93
3	dB (A)	67.24	41.95
4	dB (A)	70.04	45.71
5	dB (A)	72.32	48.16
6	dB (A)	73.36	44.93
7	dB (A)	74.58	48.72
8	dB (A)	68.53	50.75
9	dB (A)	73.61	
10	dB (A)	76.01	
11	dB (A)	78.81	
12	dB (A)	72.41	
13	dB (A)	70.38	
14	dB (A)	68.46	
15	dB (A)	67.24	
16	dB (A)	64.56	
	L _{EQ}	66.67	38.22
	Min	64.33	41.95
	Max	78.81	50.75

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A) Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
-----------	---

Verified By
Sumith M

Authorized Signatory
Mrs. Radha Bengeri

058

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

Shri Krishna Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabenger@gmail.com, krishnapendhart@gmail.com



Report No. : SKAEW/ANAL/305A/22-23
Report Issue Date: 12-01-2023

SKAEW/7.8/F/02
Page. No 14/15

AMBIENT NOISE LEVEL REPORT

1 Name of Client	: IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	: Given
2 Sample Collected By	: SKAEW Representative
3 Method Adopted	: IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	: Chemical
5 Group	: Atmospheric Pollution
6 Date of Collection	: 02-01-2023
7 Date of Sample Receipt	: 03-01-2023
8 Date of Analysis Started	: 03-01-2023
9 Sample Code	: 400A/19
10 Environmental Conditions	: Ambient Temperature : 28° C Relative Humidity : 46%

Sr. No	Time Frequency	Baleguli Plant Near HMP & Batching Plant CH -135+000 LHS S-1 (Industrial Zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	67.93	55.19
2	dB (A)	68.72	56.09
3	dB (A)	70.71	57.78
4	dB (A)	73.16	58.44
5	dB (A)	70.68	58.64
6	dB (A)	72.83	58.92
7	dB (A)	74.18	54.21
8	dB (A)	78.61	55.19
9	dB (A)	77.38	
10	dB (A)	81.98	
11	dB (A)	81.00	
12	dB (A)	83.28	
13	dB (A)	75.03	
14	dB (A)	73.35	
15	dB (A)	71.98	
16	dB (A)	71.39	
	L _{EQ}	71.30	48.39
	Min	67.93	54.21
	Max	83.28	58.92

INFERENCE

As per CPCB/KSPCB Standards (2009)
Report Status: Measured values for the above parameters are within the limit.
Ambient Noise Quality Standards:
Industrial Zone - Day time 75dB(A) and Night time 70dB(A).
Commercial Zone - Day time 65dB(A) and Night time 55dB(A).
Residential Zone - Day time 55dB(A) and Night time 45dB(A).
Silent Zone - Day time 50dB(A) and Night time 40dB(A)
Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.

Verified By
Sumith M

Authorized Signatory
Mrs. Radha Bengeri

1059

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 500 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/02

Page. No 15|15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

AMBIENT NOISE LEVEL REPORT

1 Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	:	Given
2 Sample Collected By	:	SKAEW Representative
3 Method Adopted	:	IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	:	Chemical
5 Group	:	Atmospheric Pollution
6 Date of Collection	:	04-01-2023
7 Date of Sample Receipt	:	05-01-2023
8 Date of Analysis Started	:	05-01-2023
9 Sample Code	:	400A/20
10 Environmental Conditions	:	Ambient Temperature : 27° C Relative Humidity : 42%

Sr. No	Time Frequency	Baleguli Cross Near Crusher CH-135+000 LHS S-1 (Industrial Zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	66.98	52.84
2	dB (A)	68.91	54.77
3	dB (A)	66.10	50.62
4	dB (A)	69.21	55.78
5	dB (A)	69.92	50.73
6	dB (A)	76.65	56.19
7	dB (A)	77.31	55.76
8	dB (A)	76.65	56.77
9	dB (A)	81.25	
10	dB (A)	78.47	
11	dB (A)	80.92	
12	dB (A)	71.23	
13	dB (A)	71.96	
14	dB (A)	70.05	
15	dB (A)	71.96	
16	dB (A)	66.98	
	L _{EQ}	69.77	45.97
	Min	66.10	50.62
	Max	81.25	56.77

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A) Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
------------------	---

Verified By
Sumith M

Authorized Signatory
Mrs. Radha Bengeri

060

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhar@gmail.com



Report No. : SKAEW/ANAL/305A/22-23
Report Issue Date: 12-01-2023

SKAEW/7.8/F/02
Page. No 4 | 15

AMBIENT NOISE LEVEL REPORT

1 Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	:	Given
2 Sample Collected By	:	SKAEW Representative
3 Method Adopted	:	IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	:	Chemical
5 Group	:	Atmospheric Pollution
6 Date of Collection	:	02-01-2023
7 Date of Sample Receipt	:	03-01-2023
8 Date of Analysis Started	:	03-01-2023
9 Sample Code	:	400A/21
10 Environmental Conditions	:	Ambient Temperature : 28° C Relative Humidity : 40%

Sr. No	Time Frequency	Near Crusher CH-225+000 LHS Bengre Plant S-3 (Industrial zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	65.97	40.52
2	dB (A)	67.92	41.05
3	dB (A)	68.91	42.25
4	dB (A)	70.82	42.88
5	dB (A)	73.98	44.84
6	dB (A)	75.33	46.15
7	dB (A)	69.13	40.94
8	dB (A)	70.82	44.93
9	dB (A)	76.41	
10	dB (A)	74.97	
11	dB (A)	74.30	
12	dB (A)	73.29	
13	dB (A)	70.93	
14	dB (A)	67.23	
15	dB (A)	63.07	
16	dB (A)	60.85	
	L _{EQ}	66.26	34.66
	Min	60.85	40.52
	Max	76.41	46.15

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A) Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
-----------	---

Verified By
Sumith M

Authorized Signatory
Mrs. Radha Bengeri

061

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



Report No. : SKAEW/ANAL/305A/22-23
Report Issue Date: 12-01-2023

SKAEW/7.8/F/02
Page. No 5|15

AMBIENT NOISE LEVEL REPORT

1 Name of Client	: IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	: Given
2 Sample Collected By	: SKAEW Representative
3 Method Adopted	: IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	: Chemical
5 Group	: Atmospheric Pollution
6 Date of Collection	: 03-01-2023
7 Date of Sample Receipt	: 04-01-2023
8 Date of Analysis Started	: 04-01-2023
9 Sample Code	: 400A/22
10 Environmental Conditions	: Ambient Temperature : 30° C Relative Humidity : 52%

Sr. No	Time Frequency	On Road Side Shivmogga Circle Honnavar CH-194+580 LHS (Commercial Zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	60.53	56.65
2	dB (A)	60.92	39.58
3	dB (A)	57.72	47.24
4	dB (A)	60.82	48.89
5	dB (A)	61.50	51.02
6	dB (A)	59.85	47.72
7	dB (A)	62.76	47.72
8	dB (A)	60.53	44.52
9	dB (A)	68.29	
10	dB (A)	58.98	
11	dB (A)	61.98	
12	dB (A)	60.92	
13	dB (A)	60.92	
14	dB (A)	61.21	
15	dB (A)	58.98	
16	dB (A)	59.36	
	LEQ	56.04	41.64
	Min	57.72	39.58
	Max	68.29	56.65

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A) Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
-----------	---

Verified By

Sumith M

Authorized Signatory
Mrs. Radha Bengeri

062

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



Report No. : SKAEW/ANAL/305A/22-23
ಕುರೂಪಿ ಟಿಪ್ಪಣಿ ದಿನ 13 01 2023

SKAEW/7.0/1/0a
Page. No 6/15

AMBIENT NOISE LEVEL REPORT

- 1 Name of Client : IRB West Coast Toll ways Pvt. Ltd.,
Karwar Four Laning of Goa/Karnataka Border to Kundapur
Section of NH-17 from Km 93.700 to Km 283.00 in the State of
Karnataka under NHDP phase IV.
- 2 Name of Station : Given
- 2 Sample Collected By : SKAEW Representative
- 3 Method Adopted : IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
- 4 Discipline : Chemical
- 5 Group : Atmospheric Pollution
- 6 Date of Collection : 03-01-2023
- 7 Date of Sample Receipt : 04-01-2023
- 8 Date of Analysis Started : 04-01-2023
- 9 Sample Code : 400A/23
- 10 Environmental Conditions : Ambient Temperature : 30° C
Relative Humidity : 47%

Sr. No	Time Frequency	Near Shirali CH-225+148 Batching Plant (Industrial Zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	71.27	64.87
2	dB (A)	73.04	63.95
3	dB (A)	77.08	65.90
4	dB (A)	73.96	67.56
5	dB (A)	76.39	61.86
6	dB (A)	78.09	62.94
7	dB (A)	84.15	64.16
8	dB (A)	85.41	63.86
9	dB (A)	86.17	
10	dB (A)	87.18	
11	dB (A)	83.05	
12	dB (A)	79.10	
13	dB (A)	72.03	
14	dB (A)	73.08	
15	dB (A)	70.01	
16	dB (A)	66.99	
	L _{EQ}	75.43	55.96
	Min	66.99	61.86
	Max	87.18	67.56

INFERENCE

As per CPCB/KSPCB Standards (2009)
Report Status: Measured values for the above parameters are within the limit.
Ambient Noise Quality Standards:
Industrial Zone - Day time 75dB(A) and Night time 70dB(A).
Commercial Zone - Day time 65dB(A) and Night time 55dB(A).
Residential Zone - Day time 55dB(A) and Night time 45dB(A).
Silent Zone - Day time 50dB(A) and Night time 40dB(A)
Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.

Verified By

Sumith M

Authorized Signatory
Mrs. Radha Bengeri

063

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



Report No. : SKAEW/ANAL/305A/22-23
Report Issue Date: 12-01-2023

SKAEW/7.8/F/02
Page. No 7115

AMBIENT NOISE LEVEL REPORT

1 Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	:	Given
2 Sample Collected By	:	SKAEW Representative
3 Method Adopted	:	IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	:	Chemical
5 Group	:	Atmospheric Pollution
6 Date of Collection	:	03-01-2023
7 Date of Sample Receipt	:	04-01-2023
8 Date of Analysis Started	:	04-01-2023
9 Sample Code	:	400A/24
10 Environmental Conditions	:	Ambient Temperature : 31° C Relative Humidity : 40%

Sr. No	Time Frequency	Byndoor- on Road side in front of new bus stand CH-247+800 S-4 (Commercial Zone)		
		Every one hr in dB (A)	Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)		66.46	49.09
2	dB (A)		63.43	44.64
3	dB (A)		61.31	46.06
4	dB (A)		66.46	48.68
5	dB (A)		66.96	44.64
6	dB (A)		62.32	49.69
7	dB (A)		65.35	51.41
8	dB (A)		65.35	52.22
9	dB (A)		71.10	
10	dB (A)		61.41	
11	dB (A)		64.54	
12	dB (A)		63.43	
13	dB (A)		63.43	
14	dB (A)		71.51	
15	dB (A)		68.78	
16	dB (A)		66.96	
	L _{EQ}		60.92	40.36
	Min		61.31	44.64
	Max		71.51	52.22

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A) Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
-----------	---

Verified By

Sumith M

Authorized Signatory
Mrs. Radha Bengeri

064

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



Report No. : SKAEW/ANAL/305A/22-23
Report Issue Date: 12-01-2023

SKAEW/7.8/F/02
Page. No 8|15

AMBIENT NOISE LEVEL REPORT

1 Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	:	Given
2 Sample Collected By	:	SKAEW Representative
3 Method Adopted	:	IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	:	Chemical
5 Group	:	Atmospheric Pollution
6 Date of Collection	:	04-01-2023
7 Date of Sample Receipt	:	05-01-2023
8 Date of Analysis Started	:	05-01-2023
9 Sample Code	:	400A/25
10 Environmental Conditions	:	Ambient Temperature : 29° C Relative Humidity : 47%

Sr. No	Time Frequency	On Road Side Murdeshwar Junction CH-219+250 S-3 (Commercial Zone)		
		Every one hr in dB (A)	Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)		62.76	46.24
2	dB (A)		66.15	48.62
3	dB (A)		68.77	50.79
4	dB (A)		64.31	49.69
5	dB (A)		63.83	51.76
6	dB (A)		61.01	51.37
7	dB (A)		67.03	50.88
8	dB (A)		62.76	53.05
9	dB (A)		68.29	
10	dB (A)		58.98	
11	dB (A)		61.98	
12	dB (A)		60.92	
13	dB (A)		60.92	
14	dB (A)		68.68	
15	dB (A)		70.62	
16	dB (A)		66.35	
	L _{EQ}		60.12	41.95
	Min		58.98	46.24
	Max		70.62	53.05

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A). Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
-----------	--

Verified By
Sumith M

Authorized Signatory
Mrs. Radha Bengeri

065

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/02
Page. No 9/15

Report No. : SKAEW/ANAL/305A/22-23
Report Issue Date: 12-01-2023

AMBIENT NOISE LEVEL REPORT

1 Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	:	Given
2 Sample Collected By	:	SKAEW Representative
3 Method Adopted	:	IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	:	Chemical
5 Group	:	Atmospheric Pollution
6 Date of Collection	:	04-01-2023
7 Date of Sample Receipt	:	05-01-2023
8 Date of Analysis Started	:	05-01-2023
9 Sample Code	:	400A/26
10 Environmental Conditions	:	Ambient Temperature : 30° C Relative Humidity : 50%

Sr. No	Time Frequency	On Road Side Karwar Junction CH-106+066 LHS S-1 (Commercial Zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	58.78	45.65
2	dB (A)	61.00	41.21
3	dB (A)	60.10	49.19
4	dB (A)	68.88	47.07
5	dB (A)	67.27	49.39
6	dB (A)	62.32	49.69
7	dB (A)	65.95	51.21
8	dB (A)	63.02	47.27
9	dB (A)	64.44	
10	dB (A)	61.41	
11	dB (A)	64.54	
12	dB (A)	63.43	
13	dB (A)	61.41	
14	dB (A)	69.99	
15	dB (A)	58.98	
16	dB (A)	55.75	
	L _{EQ}	58.80	39.62
	Min	55.75	41.21
	Max	69.99	51.21

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A) Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
------------------	---

Verified By

Sumith M

Authorized Signatory
Mrs. Radha Bengeri

066

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/02
Page. No 10|15

Report No. : SKAEW/ANAL/305A/22-23
Report Issue Date: 12-01-2023

AMBIENT NOISE LEVEL REPORT

1 Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	:	Given
2 Sample Collected By	:	SKAEW Representative
3 Method Adopted	:	IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	:	Chemical
5 Group	:	Atmospheric Pollution
6 Date of Collection	:	04-01-2023
7 Date of Sample Receipt	:	05-01-2023
8 Date of Analysis Started	:	05-01-2023
9 Sample Code	:	400A/27
10 Environmental Conditions	:	Ambient Temperature : 28° C Relative Humidity : 48%

Sr. No	Time Frequency	On Road Side Kumata Junction CH-174+000 RHS S-2 (Commercial Zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	58.02	55.27
2	dB (A)	59.19	39.98
3	dB (A)	58.31	47.73
4	dB (A)	61.45	46.26
5	dB (A)	62.13	47.92
6	dB (A)	60.47	48.22
7	dB (A)	63.41	48.22
8	dB (A)	61.15	42.43
9	dB (A)	62.52	
10	dB (A)	59.58	
11	dB (A)	62.62	
12	dB (A)	61.54	
13	dB (A)	59.58	
14	dB (A)	61.54	
15	dB (A)	57.23	
16	dB (A)	54.10	
	L _{EQ}	54.97	40.42
	Min	54.10	39.98
	Max	63.41	55.27

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A) Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
-----------	---

Verified By

Sumith M

Authorized Signatory
Mrs. Radha Bengeri

067

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com

SKAEW/7.8/F/02
Page. No 11|15Report No. : SKAEW/ANAL/305A/22-23
Report Issue Date: 12-01-2023**AMBIENT NOISE LEVEL REPORT**

1 Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	:	Given
2 Sample Collected By	:	SKAEW Representative
3 Method Adopted	:	IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	:	Chemical
5 Group	:	Atmospheric Pollution
6 Date of Collection	:	05-01-2023
7 Date of Sample Receipt	:	06-01-2023
8 Date of Analysis Started	:	06-01-2023
9 Sample Code	:	400A/28
10 Environmental Conditions	:	Ambient Temperature : 30° C Relative Humidity : 55%

Sr. No	Time Frequency	Infront of Sandeep School MRMPL CH-257+170 (Silence zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	27.07	24.85
2	dB (A)	29.19	23.13
3	dB (A)	30.50	26.66
4	dB (A)	34.74	30.50
5	dB (A)	34.04	32.52
6	dB (A)	35.55	36.06
7	dB (A)	40.10	36.46
8	dB (A)	42.52	36.16
9	dB (A)	53.23	
10	dB (A)	51.41	
11	dB (A)	48.68	
12	dB (A)	46.06	
13	dB (A)	46.66	
14	dB (A)	49.09	
15	dB (A)	50.60	
16	dB (A)	50.30	
	L _{EQ}	41.52	24.39
	Min	27.07	23.13
	Max	53.23	36.46

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A) Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
-----------	---

Verified By

Sumith M

Authorized Signatory
Mrs. Radha Bengeri

068

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyonagar, HUBLI 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/02
Page. No 12|15

Report No. : SKAEW/ANAL/305A/22-23
Report Issue Date: 12-01-2023

AMBIENT NOISE LEVEL REPORT

1 Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	:	Given
2 Sample Collected By	:	SKAEW Representative
3 Method Adopted	:	IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	:	Chemical
5 Group	:	Atmospheric Pollution
6 Date of Collection	:	05-01-2023
7 Date of Sample Receipt	:	06-01-2023
8 Date of Analysis Started	:	06-01-2023
9 Sample Code	:	400A/29
10 Environmental Conditions	:	Ambient Temperature : 31° C Relative Humidity : 49%

Sr. No	Time Frequency	On Road side in front of Check Post Mahasati Canteen Shirur CH-241+365 S-4 (Commercial Zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	59.58	44.30
2	dB (A)	65.27	41.75
3	dB (A)	63.80	47.73
4	dB (A)	66.84	45.67
5	dB (A)	65.27	51.65
6	dB (A)	60.47	52.53
7	dB (A)	63.99	52.43
8	dB (A)	61.15	49.78
9	dB (A)	62.52	
10	dB (A)	65.07	
11	dB (A)	62.62	
12	dB (A)	61.54	
13	dB (A)	59.58	
14	dB (A)	67.91	
15	dB (A)	57.72	
16	dB (A)	55.27	
	L _{EQ}	57.79	40.87
	Min	55.27	41.75
	Max	67.91	52.53

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A). Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
-----------	--

Verified By
Sumith

Authorized Signatory
Mrs. Radha Bengeri

069

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/02

Page. No 13|15

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

AMBIENT NOISE LEVEL REPORT

1 Name of Client	:	IRB West Coast Toll ways Pvt. Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2 Name of Station	:	Given
2 Sample Collected By	:	SKAEW Representative
3 Method Adopted	:	IS:9989 - 1981 (Reaffirmed:2006) (Direct Measurement)
4 Discipline	:	Chemical
5 Group	:	Atmospheric Pollution
6 Date of Collection	:	05-01-2023
7 Date of Sample Receipt	:	06-01-2023
8 Date of Analysis Started	:	06-01-2023
9 Sample Code	:	400A/30
10 Environmental Conditions	:	Ambient Temperature : 29° C Relative Humidity : 50%

Sr. No	Time Frequency	Near Crusher Ankola Hichgadh Plant CH-142+800 S-1 (Industrial Zone)	
		Day (6:00 AM to 10:00 PM)	Night (10:00 PM to 6:00 AM)
1	dB (A)	75.69	53.37
2	dB (A)	77.14	57.52
3	dB (A)	73.99	59.39
4	dB (A)	79.20	60.75
5	dB (A)	81.22	59.49
6	dB (A)	82.17	61.73
7	dB (A)	83.15	62.45
8	dB (A)	83.97	61.47
9	dB (A)	84.89	
10	dB (A)	87.36	
11	dB (A)	81.86	
12	dB (A)	76.12	
13	dB (A)	74.08	
14	dB (A)	70.71	
15	dB (A)	68.67	
16	dB (A)	67.69	
	L _{EQ}	75.33	51.45
	Min	67.69	53.37
	Max	87.36	62.45

INFERENCE	As per CPCB/KSPCB Standards (2009) Report Status: Measured values for the above parameters are within the limit. Ambient Noise Quality Standards: Industrial Zone - Day time 75dB(A) and Night time 70dB(A). Commercial Zone - Day time 65dB(A) and Night time 55dB(A). Residential Zone - Day time 55dB(A) and Night time 45dB(A). Silent Zone - Day time 50dB(A) and Night time 40dB(A). Day time Shall mean from 6:00 am to 10:00 Pm and Night time shall mean from 10:00 Pm to 6:00 am.
------------------	--

Verified By

Sumith M

Authorized Signatory
Mrs. Radha Bengeri

END OF REPORT

070

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/06

Page. No 1|05

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Borewell Water @ Navund Plant
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per APHA 23 rd Edition - 2017
5	Discipline	:	Chemical
6	Group	:	Water
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/41
11	Environmental condition during sampling	:	Ambient Temperature : 28 °C Relative Humidity : 47%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 10500-2012 (RA-2018)	
					AL	PL
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	37	200 Max	600 Max
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Wrinkler method	mg/L	15	Not Specified	
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	41	75 Max	200 Max
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	31	250 Max	1000 Max
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	62	Not Specified	
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	7	Not Specified	
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	297	Not Specified	
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	0	1.0 Max	1.5 Max
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	0	1.0 Max	No Relaxation
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	25	30 Max	100 Max
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	1	45.0 Max	No Relaxation
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Agreeable	
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	Not Specified	
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	8	6.5 - 8.5	No Relaxation
15	Color	APHA 23rd Edition 2120 B	Hazen	3	5	15
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable	
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	17	200 Max	400 Max
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	244	500 Max	2000 Max
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	211	200 Max	600 Max
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	3	Not Specified	
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	1	1 Max	5 Max
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	<0.5	Shall not be detectable in any 100ml sample	

- Note
1. AL-Acceptable Limits, PL- Permissible Limits, RA-Reaffirmed
 2. Samples which are degradable will be disposed immediately after testing and others will be disposed after fifteen days from the date of sample receipt unless otherwise specified.
 3. Total liability of our laboratory is limited to the invoice amount.
 4. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.
 5. In case any reconfirmation of contents of this Test Report is required, please contact our office.
 6. Subjected to Hubli - Jurisdiction.

Statement of Conformity/ Tested parameters Complies with IS:10500-2012

Verified By
Sumith M

Authorized Signatory
Mrs. Radha M Bengeri

071

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/06

Page. No 2/05

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Borewell Water @ Madanageri Plant CH-153+00
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per APHA 23 rd Edition - 2017
5	Discipline	:	Chemical
6	Group	:	Water
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/42
11	Environmental condition during sampling	:	Ambient Temperature : 30 °C Relative Humidity : 51%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 10500-2012 (RA-2018)	
					AL	PL
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	74	200 Max	600 Max
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B. Wrinkler method	mg/L	16	Not Specified	
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	12	75 Max	200 Max
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	36	250 Max	1000 Max
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	66	Not Specified	
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	6	Not Specified	
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	295	Not Specified	
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1	1.0 Max	1.5 Max
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	0	1.0 Max	No Relaxation
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	7	30 Max	100 Max
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	3	45.0 Max	No Relaxation
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Agreeable	
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	Not Specified	
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	7	6.5 - 8.5	No Relaxation
15	Color	APHA 23rd Edition 2120 B	Hazen	5	5	15
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable	
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	14	200 Max	400 Max
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	163	500 Max	2000 Max
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	62	200 Max	600 Max
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	3	Not Specified	
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	1	1 Max	5 Max
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	<0.5	Shall not be detectable in any 100ml sample	

- Note
1. AL-Acceptable Limits, PL- Permissible Limits, RA-Reaffirmed
 2. Samples which are degradable will be disposed immediately after testing and others will be disposed after fifteen days from the date of sample receipt unless otherwise specified.
 3. Total liability of our laboratory is limited to the invoice amount.
 4. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.
 5. In case any reconfirmation of contents of this Test Report is required, please contact our office.
 6. Subjected to Hubli - Jurisdiction.

Statement of Conformity/ Tested parameters Complies with IS:10500-2012

Verified By
Sumith M

Authorized Signatory
Mrs. Radha M Bengeri

072

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengcn@gmail.com, kristinapandhari@gmail.com



SKAEW/7.8/F/06

Page. No 3|05

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Borewell Water @ Bengere Plant (Crusher) CH-142+000 S-2
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per APHA 23 rd Edition - 2017
5	Discipline	:	Chemical
6	Group	:	Water
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/43
11	Environmental condition during sampling	:	Ambient Temperature : 31 °C Relative Humidity : 55%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 10500-2012 (RA-2018)	
					AL	PL
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	70	200 Max	600 Max
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Wrinkler method	mg/L	4	Not Specified	
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	11	75 Max	200 Max
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	40	250 Max	1000 Max
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	18	Not Specified	
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	6	Not Specified	
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	260	Not Specified	
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1	1.0 Max	1.5 Max
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	0	1.0 Max	No Relaxation
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	7	30 Max	100 Max
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	2	45.0 Max	No Relaxation
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Agreeable	
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	Not Specified	
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	7	6.5 - 8.5	No Relaxation
15	Color	APHA 23rd Edition 2120 B	Hazen	6	5	15
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable	
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	22	200 Max	400 Max
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	140	500 Max	2000 Max
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	58	200 Max	600 Max
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	3	Not Specified	
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	1	1 Max	5 Max
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	<0.5	Shall not be detectable in any 100ml sample	

- Note
1. AL-Acceptable Limits, PL- Permissible Limits, RA-Reaffirmed
 2. Samples which are degradable will be disposed immediately after testing and others will be disposed after fifteen days from the date of sample receipt unless otherwise specified.
 3. Total liability of our laboratory is limited to the invoice amount.
 4. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.
 5. In case any reconfirmation of contents of this Test Report is required, please contact our office.
 6. Subjected to Hubli - Jurisdiction.

Statement of Conformity | Tested parameters Complies with IS:10500-2012

Verified By
Sumith M

Authorized Signatory
Mrs. Radha M Bengeri

073

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/06

Page. No 4/05

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Borewell Water @ Bengere Plant (Crusher)
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per APHA 23 rd Edition - 2017
5	Discipline	:	Chemical
6	Group	:	Water
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/44
11	Environmental condition during sampling	:	Ambient Temperature : 33 °C Relative Humidity : 43%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 10500-2012 (RA-2018)	
					AL	PL
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	70	200 Max	600 Max
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Wrinkler method	mg/L	4	Not Specified	
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	16	75 Max	200 Max
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	17	250 Max	1000 Max
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	17	Not Specified	
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	6	Not Specified	
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	269	Not Specified	
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1	1.0 Max	1.5 Max
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	0	1.0 Max	No Relaxation
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	10	30 Max	100 Max
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	2	45.0 Max	No Relaxation
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Agreeable	
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	Not Specified	
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	7	6.5 - 8.5	No Relaxation
15	Color	APHA 23rd Edition 2120 B	Hazen	6	5	15
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable	
17	Suphate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	13	200 Max	400 Max
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	131	500 Max	2000 Max
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	80	200 Max	600 Max
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	4	Not Specified	
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	1	1 Max	5 Max
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	<0.5	Shall not be detectable in any 100ml sample	

- Note
1. AL-Acceptable Limits, PL- Permissible Limits, RA-Reaffirmed
 2. Samples which are degradable will be disposed immediately after testing and others will be disposed after fifteen days from the date of sample receipt unless otherwise specified.
 3. Total liability of our laboratory is limited to the invoice amount.
 4. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.
 5. In case any reconfirmation of contents of this Test Report is required, please contact our office.
 6. Subjected to Hubli - Jurisdiction.

Statement of Conformity/ Tested parameters Complies with IS:10500-2012

Verified By
Sumith M

Authorized Signatory
Mrs. Radha M Bengeri

074

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/06

Page. No 5105

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Borewell Water @ Hichgada Plant
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per APHA 23 rd Edition - 2017
5	Discipline	:	Chemical
6	Group	:	Water
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/45
11	Environmental condition during sampling	:	Ambient Temperature : 33 °C Relative Humidity : 43%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 10500-2012 (RA-2018)	
					AL	PL
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	35	200 Max	600 Max
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Wrinkler method	mg/L	18	Not Specified	
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	5	75 Max	200 Max
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	19	250 Max	1000 Max
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	77	Not Specified	
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	6	Not Specified	
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	75	Not Specified	
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	0	1.0 Max	1.5 Max
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	0	1.0 Max	No Relaxation
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	3	30 Max	100 Max
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	2	45.0 Max	No Relaxation
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Agreeable	
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	Not Specified	
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	8	6.5 - 8.5	No Relaxation
15	Color	APHA 23rd Edition 2120 B	Hazen	4	5	15
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable	
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	7	200 Max	400 Max
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	38	500 Max	2000 Max
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	24	200 Max	600 Max
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	4	Not Specified	
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	1	1 Max	5 Max
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	<0.5	Shall not be detectable in any 100ml sample	

- Note
1. AL-Acceptable Limits, PL- Permissible Limits, RA-Reaffirmed
 2. Samples which are degradable will be disposed immediately after testing and others will be disposed after fifteen days from the date of sample receipt unless otherwise specified.
 3. Total liability of our laboratory is limited to the invoice amount.
 4. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.
 5. In case any reconfirmation of contents of this Test Report is required, please contact our office.
 6. Subjected to Hubli - Jurisdiction.

Statement of Conformity | Tested parameters Complies with IS:10500-2012

Verified By

Sumith M

Authorized Signatory
Mrs. Radha M Bengeri

075

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/05

Page. No 1 | 10

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	: River Water Near Main Bridge CH-256+800
3	Sample Collected By	: SKAEW Representative
4	Method Adopted	: As per APHA 23 rd Edition - 2017
5	Discipline	: Chemical
6	Group	: Water
7	Date of Collection	: 06-01-2023
8	Date of Sample Receipt	: 07-01-2023
9	Date of Analysis Started	: 07-01-2023
10	Sample Code	: 400A/31
11	Environmental condition during sampling	: Ambient Temperature : 30 °C Relative Humidity : 47%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 2296-1982 Class A - Drinking water source without conventional treatment but after disinfection
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	91.00	--
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Wrinkler method	mg/L	51.00	2
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	129.00	200
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	755.00	250
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	205.00	--
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	7.00	6
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	5,568.00	--
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1.00	1.5
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	1.00	0.3
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	78.00	100
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	3.00	20
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Unobjectionable
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	---
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	8.00	6.5 to 8.5
15	Color	APHA 23rd Edition 2120 B	Hazen	6.00	10
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	152.00	400
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	2,817.00	500
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	658.00	300
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	30.00	---
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	4.00	---
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	24.00	50

Note: 1. The Results listed above pertain only to the tested sample and applicable parameters.

2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.

3. Subjected to Hubli - Jurisdiction.

Verified By
Sumith M

Authorized Signatory
Mrs. Radha M Bengeri

END OF REPORT

076

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/P/05

Page. No 2/10

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	: River Water Near Honnavar Bridge Sharavati Bridge (Exisiting Chainage) CH-196+500
3	Sample Collected By	: SKAEW Representative
4	Method Adopted	: As per APHA 23 rd Edition - 2017
5	Discipline	: Chemical
6	Group	: Water
7	Date of Collection	: 06-01-2023
8	Date of Sample Receipt	: 07-01-2023
9	Date of Analysis Started	: 07-01-2023
10	Sample Code	: 400A/32
11	Environmental condition during sampling	: Ambient Temperature : 32 °C Relative Humidity : 52%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 2296-1982 Class A - Drinking water source without conventional treatment but after disinfection
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	202.00	--
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Winkler method	mg/L	36.00	2
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	231.00	200
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	1,069.00	250
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	141.00	--
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	7.00	6
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	8,204.00	--
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1.00	1.5
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	1.00	0.3
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	140.00	100
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	3.00	20
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Unobjectionable
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	---
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	8.00	6.5 to 8.5
15	Color	APHA 23rd Edition 2120 B	Hazen	6.00	10
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	147.00	400
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	3,698.00	500
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	1,171.00	300
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	23.00	---
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	3.00	---
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	22.00	50

Note: 1. The Results listed above pertain only to the tested sample and applicable parameters,

2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

3. Subjected to Hubli - Jurisdiction.

Verified By
Sumith M

Authorized Signatory
Mrs. Radha M Bengeri

077

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/05

Page. No 3110

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	: River Water Near Venkatapura River Bridge CH-228+650
3	Sample Collected By	: SKAEW Representative
4	Method Adopted	: As per APHA 23 rd Edition - 2017
5	Discipline	: Chemical
6	Group	: Water
7	Date of Collection	: 06-01-2023
8	Date of Sample Receipt	: 07-01-2023
9	Date of Analysis Started	: 07-01-2023
10	Sample Code	: 400A/33
11	Environmental condition during sampling	: Ambient Temperature : 30 °C Relative Humidity : 45%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 2296-1982 Class A - Drinking water source without conventional treatment but after disinfection
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	33.00	--
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Wrinkler method	mg/L	7.00	2
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	6.00	200
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	13.00	250
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	28.00	--
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	7.00	6
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	105.00	--
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1.00	1.5
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	1.00	0.3
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	4.00	100
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	2.00	20
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Unobjectionable
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	--
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	8.00	6.5 to 8.5
15	Color	APHA 23rd Edition 2120 B	Hazen	7.00	10
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	20.00	400
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	61.00	500
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	31.00	300
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	6.00	--
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	3.00	--
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	8.00	50

Note: 1. The Results listed above pertain only to the tested sample and applicable parameters.

2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

3. Subjected to Hubli - Jurisdiction.

Verified By
Sumith M

Radha M Bengeri
Authorized Signatory
Mrs. Radha M Bengeri

078

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhart@gmail.com



SKAEW/7.8/F/05

Page. No 4/10

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	: River Water Near Maravalli CH-266+800
3	Sample Collected By	: SKAEW Representative
4	Method Adopted	: As per APHA 23 rd Edition - 2017
5	Discipline	: Chemical
6	Group	: Water
7	Date of Collection	: 06-01-2023
8	Date of Sample Receipt	: 07-01-2023
9	Date of Analysis Started	: 07-01-2023
10	Sample Code	: 400A/34
11	Environmental condition during sampling	: Ambient Temperature : 30 °C Relative Humidity : 48%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 2296-1982 Class A - Drinking water source without conventional treatment but after disinfection
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	67.00	--
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Winkler method	mg/L	17.00	2
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	7.00	200
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	42.00	250
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	67.00	--
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	7.00	6
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	181.00	--
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1.00	1.5
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	1.00	0.3
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	4.00	100
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	2.00	20
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Unobjectionable
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	---
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	7.00	6.5 to 8.5
15	Color	APHA 23rd Edition 2120 B	Hazen	6.00	10
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	11.00	400
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	87.00	500
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	36.00	300
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	17.00	---
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	2.00	---
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	12.00	50

Note: 1. The Results listed above pertain only to the tested sample and applicable parameters.

2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

3. Subjected to Hubli - Jurisdiction.

Verified By
Sumith M

Authorized Signatory
Mrs. Radha M Bengeri

END OF REPORT

079

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabenger@gmail.com, krishnapandhan@gmail.com



SKAEW/7.8/F/05

Page. No 5110

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	: River Water Near Gangavati River Bridge CH-15+050
3	Sample Collected By	: SKAEW Representative
4	Method Adopted	: As per APHA 23 rd Edition - 2017
5	Discipline	: Chemical
6	Group	: Water
7	Date of Collection	: 06-01-2023
8	Date of Sample Receipt	: 07-01-2023
9	Date of Analysis Started	: 07-01-2023
10	Sample Code	: 400A/35
11	Environmental condition during sampling	: Ambient Temperature : 32 °C Relative Humidity : 55%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 2296-1982 Class A - Drinking water source without conventional treatment but after disinfection
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	81.00	--
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Winkler method	mg/L	21.00	2
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	481.00	200
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	7,046.00	250
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	85.00	--
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	7.00	6
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	19,035.00	--
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1.00	1.5
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	1.00	0.3
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	293.00	100
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	4.00	20
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Unobjectionable
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	--
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	8.00	6.5 to 8.5
15	Color	APHA 23rd Edition 2120 B	Hazen	6.00	10
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	231.00	400
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	9,439.00	500
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	2,416.00	300
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	114.00	---
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	15.00	---
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	31.00	50

Note: 1. The Results listed above pertain only to the tested sample and applicable parameters,

2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

3. Subjected to Hubli - Jurisdiction.

Verified By
Sumith M

Authorized Signatory
Mrs. Radha M Bengeri

080

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyannagar, HUBLI - 500 021. Tel. : (Lab) 0838 23/60/8,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/05

Page. No 6|10

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	: River Water Near Kollur River CH-275+850
3	Sample Collected By	: SKAEW Representative
4	Method Adopted	: As per APHA 23 rd Edition - 2017
5	Discipline	: Chemical
6	Group	: Water
7	Date of Collection	: 06-01-2023
8	Date of Sample Receipt	: 07-01-2023
9	Date of Analysis Started	: 07-01-2023
10	Sample Code	: 400A/36
11	Environmental condition during sampling	: Ambient Temperature : 31 °C Relative Humidity : 65%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 2296-1982 Class A - Drinking water source without conventional treatment but after disinfection
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	78.00	--
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Winkler method	mg/L	11.00	2
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	172.00	200
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	1,290.00	250
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	43.00	--
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	7.00	6
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	6,616.00	--
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1.00	1.5
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	1.00	0.3
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	105.00	100
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	4.00	20
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Unobjectionable
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	---
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	8.00	6.5 to 8.5
15	Color	APHA 23rd Edition 2120 B	Hazen	4.00	10
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	158.00	400
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	3,893.00	500
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	864.00	300
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	14.00	---
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	3.00	---
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	35.00	50

Note: 1. The Results listed above pertain only to the tested sample and applicable parameters,

2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

3. Subjected to Hubli - Jurisdiction.

Verified By
Sumith M

Authorized Signatory
Mrs. Radha M Bengeri

081

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengon@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/05

Page. No 7/10

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	: River Water Near Aganashini Bridge CH -171+100
3	Sample Collected By	: SKAEW Representative
4	Method Adopted	: As per APHA 23 rd Edition - 2017
5	Discipline	: Chemical
6	Group	: Water
7	Date of Collection	: 07-01-2023
8	Date of Sample Receipt	: 08-01-2023
9	Date of Analysis Started	: 08-01-2023
10	Sample Code	: 400A/37
11	Environmental condition during sampling	: Ambient Temperature : 31 °C Relative Humidity : 47%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 2296-1982 Class A - Drinking water source without conventional treatment but after disinfection
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	23.00	--
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Winkler method	mg/L	5.00	2
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	8.00	200
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	15.00	250
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	11.00	--
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	7.00	6
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	81.00	--
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1.00	1.5
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	1.00	0.3
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	5.00	100
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	4.00	20
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Unobjectionable
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	---
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	8.00	6.5 to 8.5
15	Color	APHA 23rd Edition 2120 B	Hazen	8.00	10
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable
17	Suphate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	14.00	400
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	52.00	500
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	21.00	300
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	4.00	---
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	2.00	---
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	<0.5	50

Note: 1. The Results listed above pertain only to the tested sample and applicable parameters,
2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media
without written approval of the laboratory,
3. Subjected to Hubli - Jurisdiction.

Verified By
Sumith M

Radha M Bengeri
Authorized Signatory
Mrs. Radha M Bengeri

END OF REPORT

082

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/05

Page. No 8|10

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	: River Water Near Hemareddi Bridge CH-279+150
3	Sample Collected By	: SKAEW Representative
4	Method Adopted	: As per APHA 23 rd Edition - 2017
5	Discipline	: Chemical
6	Group	: Water
7	Date of Collection	: 07-01-2023
8	Date of Sample Receipt	: 08-01-2023
9	Date of Analysis Started	: 08-01-2023
10	Sample Code	: 400A/38
11	Environmental condition during sampling	: Ambient Temperature : 34 °C Relative Humidity : 40%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 2296-1982 Class A - Drinking water source without conventional treatment but after disinfection
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	37.00	--
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Winkler method	mg/L	9.00	2
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	117.00	200
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	1,867.00	250
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	34.00	--
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	6.00	6
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	5,832.00	--
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	2.00	1.5
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	1.00	0.3
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	71.00	100
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	4.00	20
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Unobjectionable
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	---
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	8.00	6.5 to 8.5
15	Color	APHA 23rd Edition 2120 B	Hazen	6.00	10
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	101.00	400
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	2,922.00	500
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	607.00	300
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	16.00	---
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	4.00	---
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	22.00	50

Note: 1. The Results listed above pertain only to the tested sample and applicable parameters.

2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

3. Subjected to Hubli - Jurisdiction.

Verified By
Sumith M

Authorized Signatory
Mrs. Radha M Bengeri

083

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhahongri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/05

Page. No 9|10

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	: River Water Near Kundapur Bridge CH-281+800
3	Sample Collected By	: SKAEW Representative
4	Method Adopted	: As per APHA 23 rd Edition - 2017
5	Discipline	: Chemical
6	Group	: Water
7	Date of Collection	: 07-01-2023
8	Date of Sample Receipt	: 08-01-2023
9	Date of Analysis Started	: 08-01-2023
10	Sample Code	: 400A/39
11	Environmental condition during sampling	: Ambient Temperature : 31 °C Relative Humidity : 52%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 2296-1982 Class A - Drinking water source without conventional treatment but after disinfection
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	440.00	--
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Winkler method	mg/L	13.00	2
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	226.00	200
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	702.00	250
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	86.00	--
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	7.00	6
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	3,264.00	--
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1.00	1.5
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	1.00	0.3
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	119.00	100
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	9.00	20
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Unobjectionable
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	---
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	8.00	6.5 to 8.5
15	Color	APHA 23rd Edition 2120 B	Hazen	5.00	10
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	121.00	400
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	2,023.00	500
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	1,050.00	300
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	21.00	---
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	4.00	---
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	27.00	50

Note: 1. The Results listed above pertain only to the tested sample and applicable parameters,

2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

3. Subjected to Hubli - Jurisdiction.

Verified By
Sumithra

Authorized Signatory
Mrs. Radha M Bengeri

END OF REPORT

084

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants

"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyannagar, HUBLI - 500 021. Tel. : (Lab) 0836-2375678,
Mobile : +91 94480 51534, +91 94800 28018,
E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/05

Page. No 10|10

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF WATER QUALITY

1	Name of Client	: IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	: River Water Near Tallur Bridge Halladi CH-280+900
3	Sample Collected By	: SKAEW Representative
4	Method Adopted	: As per APHA 23 rd Edition - 2017
5	Discipline	: Chemical
6	Group	: Water
7	Date of Collection	: 07-01-2023
8	Date of Sample Receipt	: 08-01-2023
9	Date of Analysis Started	: 08-01-2023
10	Sample Code	: 400A/40
11	Environmental condition during sampling	: Ambient Temperature : 31 °C Relative Humidity : 54%

Sr. No	Parameters	Protocol	Unit	Result	Standard IS 2296-1982 Class A - Drinking water source without conventional treatment but after disinfection
1	Total Alkalinity as CaCO ₃	IS: 3025 (Part - 23)	mg/L	467.00	--
2	Biochemical Oxygen Demand (BOD ₅ @ 20° C)	APHA 23rd Edition 5210 B, Winkler method	mg/L	13.00	2
3	Calcium as Ca	IS: 3025 (Part - 40)	mg/L	240.00	200
4	Chloride as Cl	IS: 3025 (Part - 32)	mg/L	745.00	250
5	Chemical Oxygen Demand	APHA 23rd Edition 5220 B	mg/L	91.00	--
6	Dissolved Oxygen	IS: 3025 (Part - 38)	mg/L	7.00	6
7	Electrical Conductivity EC	IS: 3025 (Part - 14)	µS/cm	3,465.00	--
8	Fluoride as F	APHA 23rd Edition 4500 - F, D	mg/L	1.00	1.5
9	Iron as Fe	IS: 3025 (Part - 53)	mg/L	1.00	0.3
10	Magnesium as Mg	APHA 23rd Edition 3500 - Mg, B	mg/L	126.00	100
11	Nitrate Nitrogen as NO ₃ -N	APHA 23rd Edition 4500 - NO ₃ , E	mg/L	9.00	20
12	Odour	IS: 3025 (Part - 5)	mg/L	Agreeable	Unobjectionable
13	Oil & Grease	IS: 3025 (Part - 39)	mg/L	Nil	---
14	pH (@ 25° C)	IS: 3025 (Part - 11)	---	8.00	6.5 to 8.5
15	Color	APHA 23rd Edition 2120 B	Hazen	6.00	10
16	Taste	APHA 23rd Edition 2160 B	---	Agreeable	Agreeable
17	Suplhate as (SO ₄)	APHA 23rd Edition 4500 - SO ₄ , E	mg/L	129.00	400
18	Total Dissolved Solids	IS: 3025 (Part - 16)	mg/L	2,148.00	500
19	Total Hardness	IS: 3025 (Part - 21)	mg/L	1,115.00	300
20	Total Suspended Solids	IS: 3025 (Part - 17)	mg/L	22.00	---
21	Turbidity in NTU	IS 3025 (Part 10)	mg/L	5.00	---
22	Total Coliform Organism	IS - 1622:1981, RA - 2019	MPN/100 ml	21.00	50

Note: 1. The Results listed above pertain only to the tested sample and applicable parameters.
2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.
3. Subjected to Hubli - Jurisdiction.

Verified By

Sumidha M.

Authorized Signatory
Mrs. Radha M Bengeri

085

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 1|09

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF SOIL

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Soil Sample @ Near Crusher Ankola Hichgadh Plant CH 142+800
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per IS Standards - Grab Sampling
5	Discipline	:	Chemical
6	Group	:	Pollution and Environment
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/46
11	Environmental condition during sampling	:	Ambient Temperature : 33 °C Relative Humidity : 43%

Sr. No	Parameters	Protocol	Unit	Result
1	pH (@ 25 ^o C)	IS:2720 (Part - 26) - 1987	---	7.75
2	Electrical Conductivity (@ 25 ^o C)	IS: 14767: 2000	µS/cm	0.99
3	Organic Carbon	SKAEW / SOP / 06	%	0.91
4	Available Nitrogen	SKAEW / SOP / 03	Kg/ha	92.25
5	Available Phosphorous	SKAEW/SOP/04	Kg/ha	46.67
6	Available Potassium	SKAEW/SOP/05	Kg/ha	35.80
7	Sodium as Na	IS - 9497 - 1980 RA: 1998	Meq/100g	0.95
8	Chlorine	SKAEW / SOP / 07	ppm	41.96

- Note
1. The Results listed above pertain only to the tested sample and applicable parameters,
 2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,


 Verified By
 Sumith M


 Authorized Signatory
 Mr. Radha M Bengeri

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabenger@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 2|09

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF SOIL

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Soil Sample @ Near Crusher Bengere village CH-225+000 LHS S-2
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per IS Standards - Grab Sampling
5	Discipline	:	Chemical
6	Group	:	Pollution and Environment
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/47
11	Environmental condition during sampling	:	Ambient Temperature : 31 °C Relative Humidity : 55%

Sr. No	Parameters	Protocol	Unit	Result
1	pH (@ 25 ^o C)	IS:2720 (Part - 26) - 1987	---	7.32
2	Electrical Conductivity (@ 25 ^o C)	IS: 14767: 2000	μS/cm	1.25
3	Organic Carbon	SKAEW / SOP / 06	%	0.74
4	Available Nitrogen	SKAEW / SOP / 03	Kg/ha	113.31
5	Available Phosphorous	SKAEW/SOP/04	Kg/ha	46.01
6	Available Potassium	SKAEW/SOP/05	Kg/ha	55.84
7	Sodium as Na	IS - 9497 - 1980 RA: 1998	Meq/100g	1.31
8	Chlorine	SKAEW / SOP / 07	ppm	37.85

- Note
1. The Results listed above pertain only to the tested sample and applicable parameters.
 2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.


 Verified By
 Sumith M


 Authorized Signatory
 Mr. Radha M Bengeri

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,
Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E mail mdhahangnd@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 3109

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF SOIL

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Soil Sample @ Hemareddi Bridge CH-279+800
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per IS Standards - Grab Sampling
5	Discipline	:	Chemical
6	Group	:	Pollution and Environment
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/48
11	Environmental condition during sampling	:	Ambient Temperature : 32 °C Relative Humidity : 50%

Sr. No	Parameters	Protocol	Unit	Result
1	pH (@ 25 ^o C)	IS:2720 (Part - 26) - 1987	---	7.48
2	Electrical Conductivity (@ 25 ^o C)	IS: 14767: 2000	μS/cm	1.51
3	Organic Carbon	SKAEW / SOP / 06	%	0.76
4	Available Nitrogen	SKAEW / SOP / 03	Kg/ha	116.29
5	Available Phosphorous	SKAEW/SOP/04	Kg/ha	45.65
6	Available Potassium	SKAEW/SOP/05	Kg/ha	73.93
7	Sodium as Na	IS - 9497 - 1980 RA: 1998	Meq/100g	1.28
8	Chlorine	SKAEW / SOP / 07	ppm	38.31

- Note
1. The Results listed above pertain only to the tested sample and applicable parameters,
 2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,

Verified By
Sumith M

Authorized Signatory
Mr. Radha M Bengeri

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 4109

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF SOIL

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Soil Sample @ Near Aganasini River CH-169+515
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per IS Standards - Grab Sampling
5	Discipline	:	Chemical
6	Group	:	Pollution and Environment
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/49
11	Environmental condition during sampling	:	Ambient Temperature : 34 °C Relative Humidity : 40%

Sr. No	Parameters	Protocol	Unit	Result
1	pH (@ 25° C)	IS:2720 (Part - 26) - 1987	---	6.95
2	Electrical Conductivity (@ 25° C)	IS: 14767: 2000	μS/cm	0.87
3	Organic Carbon	SKAEW / SOP / 06	%	0.78
4	Available Nitrogen	SKAEW / SOP / 03	Kg/ha	79.03
5	Available Phosphorous	SKAEW/SOP/04	Kg/ha	43.85
6	Available Potassium	SKAEW/SOP/05	Kg/ha	51.41
7	Sodium as Na	IS - 9497 - 1980 RA: 1998	Meq/100g	2.60
8	Chlorine	SKAEW / SOP / 07	ppm	29.85

- Note
1. The Results listed above pertain only to the tested sample and applicable parameters.
 2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.


 Verified By
 Sumith M


 Authorized Signatory
 Mr. Radha M Bengeri

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabenger@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 5|09

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF SOIL

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDPP phase IV.
2	Sample Description	:	Soil Sample @ Halfidi Bridge CH 278+396
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per IS Standards - Grab Sampling
5	Discipline	:	Chemical
6	Group	:	Pollution and Environment
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/50
11	Environmental condition during sampling	:	Ambient Temperature : 31 °C Relative Humidity : 54%

Sr. No	Parameters	Protocol	Unit	Result
1	pH (@ 25 ^o C)	IS:2720 (Part - 26) - 1987	---	6.55
2	Electrical Conductivity (@ 25 ^o C)	IS: 14767: 2000	μS/cm	1.34
3	Organic Carbon	SKAEW / SOP / 06	%	0.53
4	Available Nitrogen	SKAEW / SOP / 03	Kg/ha	68.69
5	Available Phosphorous	SKAEW/SOP/04	Kg/ha	46.66
6	Available Potassium	SKAEW/SOP/05	Kg/ha	37.35
7	Sodium as Na	IS - 9497 - 1980 RA: 1998	Meq/100g	6.16
8	Chlorine	SKAEW / SOP / 07	ppm	21.00

- Note
1. The Results listed above pertain only to the tested sample and applicable parameters.
 2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.


 Verified By
 Sumith M


 Authorized Signatory
 Mr. Radha M Bengeri

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 6|09

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF SOIL

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Soil Sample @ Near HMP Naunda Plant
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per IS Standards - Grab Sampling
5	Discipline	:	Chemical
6	Group	:	Pollution and Environment
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/51
11	Environmental condition during sampling	:	Ambient Temperature : 28 °C Relative Humidity : 47%

Sr. No	Parameters	Protocol	Unit	Result
1	pH (@ 25 ^o C)	IS:2720 (Part - 26) - 1987	---	6.95
2	Electrical Conductivity (@ 25 ^o C)	IS: 14767: 2000	μS/cm	1.03
3	Organic Carbon	SKAEW / SOP / 06	%	0.60
4	Available Nitrogen	SKAEW / SOP / 03	Kg/ha	92.73
5	Available Phosphorous	SKAEW/SOP/04	Kg/ha	38.22
6	Available Potassium	SKAEW/SOP/05	Kg/ha	40.09
7	Sodium as Na	IS - 9497 - 1980 RA: 1998	Meq/100g	3.50
8	Chlorine	SKAEW / SOP / 07	ppm	118.39

- Note
1. The Results listed above pertain only to the tested sample and applicable parameters.
 2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.


 Verified By
 Sumith M


 Authorized Signatory
 Mr. Radha M Bengeri

END OF REPORT

091

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabeheri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 7/09

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF SOIL

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Soil Sample @ Madanagere Plant CH 153+000
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per IS Standards - Grab Sampling
5	Discipline	:	Chemical
6	Group	:	Pollution and Environment
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/52
11	Environmental condition during sampling	:	Ambient Temperature : 30 ° C Relative Humidity : 51%

Sr. No	Parameters	Protocol	Unit	Result
1	pH (@ 25 ^o C)	IS:2720 (Part - 26) - 1987	---	6.76
2	Electrical Conductivity (@ 25 ^o C)	IS: 14767: 2000	μS/cm	0.91
3	Organic Carbon	SKAEW / SOP / 06	%	0.72
4	Available Nitrogen	SKAEW / SOP / 03	Kg/ha	85.96
5	Available Phosphorous	SKAEW/SOP/04	Kg/ha	37.50
6	Available Potassium	SKAEW/SOP/05	Kg/ha	37.69
7	Sodium as Na	IS - 9497 - 1980 RA: 1998	Meq/100g	3.10
8	Chlorine	SKAEW / SOP / 07	ppm	21.68

- Note
1. The Results listed above pertain only to the tested sample and applicable parameters.
 2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.


 Verified By
 Sumith M


 Authorized Signatory
 Mr. Radha M Bengeri

END OF REPORT

1092

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhari@gmail.com



SKAEW/7.8/F/01

Page. No 8109

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF SOIL

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Soil Sample @ Near Crusher Bengere Batching Plant CH-133+874 LHS S-1
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per IS Standards - Grab Sampling
5	Discipline	:	Chemical
6	Group	:	Pollution and Environment
7	Date of Collection	:	07-01-2023
8	Date of Sample Receipt	:	08-01-2023
9	Date of Analysis Started	:	08-01-2023
10	Sample Code	:	400A/53
11	Environmental condition during sampling	:	Ambient Temperature : 31 °C Relative Humidity : 55%

Sr. No	Parameters	Protocol	Unit	Result
1	pH (@ 25 ^o C)	IS:2720 (Part - 26) - 1987	---	7.47
2	Electrical Conductivity (@ 25 ^o C)	IS: 14767: 2000	μS/cm	0.86
3	Organic Carbon	SKAEW / SOP / 06	%	0.69
4	Available Nitrogen	SKAEW / SOP / 03	Kg/ha	76.90
5	Available Phosphorous	SKAEW/SOP/04	Kg/ha	37.75
6	Available Potassium	SKAEW/SOP/05	Kg/ha	42.02
7	Sodium as Na	IS - 9497 - 1980 RA: 1998	Meq/100g	2.46
8	Chlorine	SKAEW / SOP / 07	ppm	116.51

- Note
1. The Results listed above pertain only to the tested sample and applicable parameters.
 2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory.


 Verified By
Sumith M


 Authorized Signatory
 Mr. Radha M Bengeri

END OF REPORT

SHRI KRISHNA AQUA ENGINEERING WORKS

ISO 9001:2015, ISO 45001:2018

MoEFCC Recognized, NABL Accredited Laboratory.

Environmental Lab, Pollution Control Consultants"Shri Krishna" Building, 1st Cross, Pragati Colony,

Vidyanagar, HUBLI - 580 021. Tel. : (Lab) 0836-2375678,

Mobile : +91 94480 51534, +91 94800 28018,

E-mail - radhabengeri@gmail.com, krishnapandhark@gmail.com



SKAEW/7.8/F/01

Page. No 9109

Report No. : SKAEW/ANAL/305A/22-23

Report Issue Date: 12-01-2023

ANALYSIS REPORT OF SOIL

1	Name of Client	:	IRB West Coast Toll ways Pvt.Ltd., Karwar Four Laning of Goa/Karnataka Border to Kundapur Section of NH-17 from Km 93.700 to Km 283.00 in the State of Karnataka under NHDP phase IV.
2	Sample Description	:	Soil Sample @ Major Bridge CH-272 +850
3	Sample Collected By	:	SKAEW Representative
4	Method Adopted	:	As per IS Standards - Grab Sampling
5	Discipline	:	Chemical
6	Group	:	Pollution and Environment
7	Date of Collection	:	
8	Date of Sample Receipt	:	01-01-1900
9	Date of Analysis Started	:	01-01-1900
10	Sample Code	:	400A/54
11	Environmental condition during sampling	:	Ambient Temperature : 32 °C Relative Humidity : 55%

Sr. No	Parameters	Protocol	Unit	Result
1	pH (@ 25° C)	IS:2720 (Part - 26) - 1987	---	7.47
2	Electrical Conductivity (@ 25° C)	IS: 14767: 2000	µS/cm	1.04
3	Organic Carbon	SKAEW / SOP / 06	%	0.62
4	Available Nitrogen	SKAEW / SOP / 03	Kg/ha	90.89
5	Available Phosphorous	SKAEW/SOP/04	Kg/ha	37.44
6	Available Potassium	SKAEW/SOP/05	Kg/ha	47.73
7	Sodium as Na	IS - 9497 - 1980 RA: 1998	Meq/100g	2.94
8	Chlorine	SKAEW / SOP / 07	ppm	127.85

- Note**
1. The Results listed above pertain only to the tested sample and applicable parameters,
 2. This report is not to be reproduced either wholly or in part and cannot be used as an evidence in the court of Law and should not be used in any advertising media without written approval of the laboratory,


 Verified By
 Sumith M


 Authorized Signatory
 Mr. Radha M Bengeri

END OF REPORT

1094

Photographs to be attached



AAQ & Noise @ Karwar Junction Ch.106+100 (LHS)



AAQ at Baleguli Crusher plant ,Ch. 133+800



Noise at Baleguli Crusher plant,Ch. 135+000



AAQ& Noise Data Kumta Junction,Ch. 174+000 (RHS)



Noise Data @ on Road Side Shivamoga Circle, Ch. 194+580 (LHS).



AAQ& Noise Data on roadside Murdeshwara Junction, Ch. 219+250

MONITORING PROFORMA
MONITORING OF THE ACTION ON STIPULATED CONDITIONS IN CASE OF PROPOSALS
APPROVED BY THE GOVERNMENT OF INDIA UNDER SECTION-2 OF THE FOREST
(CONSERVATION) ACT, 1980.

MONITORING REPORT BY: Smt Praneetha Paul, IFS, DIGF(Central)

On: 19th & 22nd November, 2024.

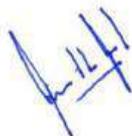
PART-I (General Particulars)

1	Name/purpose of the proposal	Diversion of 163.283 ha of forest land in Karwar, Honnavar and Kundapura Divisions for laying of Goa-Karnataka border-Kundapura section of NH 66 (formerly NH-17) from Km 93.700 to km 283.300 in favour of the Project Director, NHAI, Project Implementation Unit, Mangalore.
2	Number and date of the Government of India's letter according permission	Government of India's letter No. F.No.4-KRA973/2013-BAN/1660 dated 6/3/2020.
3	Area permitted to be diverted (in Ha)	163.283 ha
4	District and Forest Division	Karwar, Honnavar and Kundapura Divisions Uttara Kannada District and Udupi District.
5	Area actually diverted (in Ha)	163.283 ha

PART-II

(Details of Compensatory Afforestation)

1	Location of the area	Tumkur Division (320 ha) Honnavar Division (50 ha)
	Extent	320 ha+ 50 ha
	District	Tumkur District and Uttara Kannada District
	Division	Karwar, Honnavar.
	Khasra No./Survey No.	As per Plantation journal (copy of plantation journal attached as annexure) 1. Tumkur a) F.Sy. No 100, 101, 104 Chikkanayakanhalli Taluk, Huliyyur Hobli, Dasudi RF: 70 ha. b) F.Sy.No.1, Sira Taluk, Chikkasandra Kaval Block RF, Kasaba Hobli: 50 ha. c) F.Sy.No. 22,23,24,30,31 Thippana halli village, F.sy.No. 184,185,186,187 Seebi Village, F.Sy.No. 12,14,15,16 Srivallehalli Village, Sy.no.7 and 8 Petekurbara halli village, Ankasandra, RF, Sira Taluk and Gubbi Taluk: 150 ha. d)F.Sy.No 1,2,4,12,13,14,15,16,17,18 Ranganathapura RF, Madanahalli village, Sira Taluk, Bukkapatna Hobli: 50 ha. 2. Honnavar (Mangrove plantation) Honnavara Range: a) Sharavati Estuary patch No.7, 6,4,5,3,2 and 1: 25 ha Kumta Range: a) Aghanashini Estuary, Kalbhag-II: 25 ha
2	Whether Afforestation is made on forest or non-forest area	Tumkur: Degraded Forest Land Honnavar: in Estuaries
3	If on non-forest land, the land has been declared as protected/Reserve Forest (endorsement copy of the notification)	=



4	If no, the steps taken to declare it protected forest	-
5	Whether the afforestation cost was paid by the user agency	Yes
6	If yes, the amount paid	Rs. 9,58,76,920/-
7	Whether the amount paid was deposited in separate fund and was utilized in addition to the normal funds for forestry operation (give details)	-
8	Details of plantation raised:	In Tumkur miscellaneous plantation have been raised, in Honnavara mangrove plantations have been raised
a)	Species planted	Tumkur: <i>Pongamia pinata</i> , <i>Pterocarpus marsupium</i> , <i>Hardwickia binata</i> , <i>Terminalia paniculata</i> , <i>Pterocarpus santalinus</i> , <i>Terminalia bellerica</i> , <i>Syzigium jambos</i> , <i>Nainerale</i> , <i>Ficus sps</i> , <i>Azadirachta indica</i> . Honnavara: <i>Rhizophora sps</i> , <i>Avicennia sps</i> , <i>Kandelia candel</i> , <i>Sonneratia sps</i>
	Area in Ha.	370 ha
	Year	Tumkur: 2021-22. Honnavar: 2022-23.
	Expenditure	Honnavar: Rs. 64,82,711/-, Tumkur : 3,24,30,363/- (as per plantation journal)
b)	If compensatory plantation not made, the reasons for the lapse	Done
c)	Condition of plantation	Tumkur: The plantation raised in Ankasandra SF and Ranganathapura SF was found to be very good. The growth of <i>Pongamia pinata</i> and <i>Pterocarpus marsupium</i> , <i>Terminalia paniculata</i> , <i>Terminalia bellerica</i> , <i>Syzigium jambos</i> and <i>Nainerale</i> were found to be excellent. <i>Hardwickia binata</i> and <i>Pongamia pinata</i> showed slow growth. The plantation raised in Dasudi RF was not good. Chikkasandra RF plantation was found to be moderately good. Honnavar: The mangrove plantation in Honnavar range was found to be good. <i>Rhizophora sps</i> and <i>Avicennia sps</i> were found to grow well. The plantation in Kumta range was unsatisfactory. (photographs attached as annexure)
9	Remarks: It should be mentioned that the plantations are identifiable as specifically related to the project.	Plantation boards specific to the project were found in Tumkur. The GPS details have been provided No plantation boards were found in Honnavar, however the GPS locations have been provided.

PART-III

(Planting of dwarf trees in case of transmission line)

- 1 Number of trees planted: NA
- 2 Species
- 3 Year of planting
- 4 Expenditure paid by

5 Present condition of plantation

PART-IV(Reclamation of the area worked under mining/quarrying)

1 Mining/quarrying work completed:

2 Reclamation work done

NA

3 Present condition of the area worked/reclaimed.

PART-V(Conditions stipulated by the Government of India other than mentioned above)

Sl.No	Nature of the terms/conditions	Actions taken by the State Government
1	The legal status of the diverted forest land shall remain unchanged.	Remain unchanged (as per field authorities)
2	Demarcation of the proposed forest area shall be carried out by erecting cement concrete pillars duly numbered at an interval of 20 mts at the cost of the user agency.	Cement concrete pillars found in some locations (photographs attached)
3	Compensatory Afforestation (CA) over 320 ha of degraded forest land in Tumkur Division shall be raised and maintained by the State Forest Department at the cost of the user agency. 50 ha of mangrove forest in Honnavar Forest Division shall also be taken up. The state Government shall obtain prior permission of the Central government for change of location and schedule of compensatory afforestation if any.	Complied. The details mentioned in Part II
4	The additional amount of the Net Present Value (NPV) of the diverted forest land if any becoming due after revision of the same by the Hon'ble Supreme Court of India in future, shall be charge by the State Government from User Agency and the same shall be transferred to the designated Adhoc CAMPA Account.	-
5	The User agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required.	Environment Clearance has been obtained vide. Letter No.5-26/2008-IA.III dated 10/8/2009.
6	The User agency shall arrange to raise strip plantation on either side of the road and central verge at project cost, as per IRC specification, with maintenance of 7-10 years. The User Agency shall also submit design of providing at least 2-3 rows of long rotation indigenous trees, as per the provision of IRC-SP-21-2009 (Guidelines on landscaping & tree plantation) on either side of the road.	Not complied. The User Agency has not submitted any design for raising plantations on either sides of the road and on the central verges. Site inspection revealed that, but for one or two stretches in Kundapura Division, where single row of plantation has been raised on road sides, most of the area does not have road side plantations. The central verge has been planted with ornamental plants and not long rotation indigenous trees as stipulated. (photographs attached).
7	Wherever possible and technically feasible, the User Agency shall	Not complied

	undertake afforestation measures along the road within the area diverted under this approval, in consultation with the State Forest Department at the project cost.	
8	Overburden shall not be dumped outside the width of the road. The muck generated in the earth cuttings will be disposed of at the designated dumping sites and in no cases the muck/debris will be allowed to roll down the hill slopes.	At some points along the road, especially near Shiroor Taluk, overburden and muck generated was found dumped on either side of the road. (Photographs attached as annexure)
9	The construction of the road in the mangrove areas shall be on stilts, so as to minimize damage to the mangrove ecosystem.	All the mangrove areas have bridges that were a part of the previously existing road.
10	The User Agency shall provide retaining walls, breast walls and drainage as per requirements to make the slope erosion free.	Not complied. Site Inspection revealed that slope stabilization works were not carried out while the road was constructed. The road was cut through hills without due regards to maintaining the necessary gradient, thus resulting in steep vertical hill slopes on either side of the road, that has led to landslides at a number of locations. Discussion with the User Agency revealed that, along the entire stretch of NH 66, there are a total of 13 high risk locations, where landslides could occur again. No major soil conservation measures have been undertaken. Retaining walls constructed at few locations were found to be completely damaged. In addition to the major landslide that has occurred in Shiroor Taluk, a number of other landslides were noticed especially on the road stretches in Kundapura, Honnavar and Karwar District. School, houses, waiting stands etc were found in the immediate vicinity of these high-risk zones, thus posing danger to life and limb. (Photographs attached)
11	The User Agency shall undertake comprehensive soil conservation measures at the project cost in consultation with the state forest department.	No comprehensive soil conservation measures have been undertaken and as per the field authorities, no consultation has been carried out with the State Forest Department.
12	The designing of culverts/ bridges, if any, over the natural streams/ rivers/canals should be done in such a manner that it does not hamper the natural course of water, does not give rise to water logging and also does not hamper the movement of wild animals.	Rain harvesting structures in the form of drains were found in the central verge of the road at regular intervals which are in turn connected to the side drains and natural nallas. However, all the drains were found to be clogged with mud and vegetation which could lead to water logging on the roads during rainy seasons. (Photographs attached). Discussion with the forest authorities also revealed that a number of wildlife kills have been recorded on the NH66 including that of leopard. Neither any wild life related sign boards nor humps to slow down vehicles in wildlife crossing areas were found.

13	No labour camps shall be established on the forest land.	No labour camps found during inspection.
14	The User Agency shall provide fuels preferably alternate fuels to the labourers and the staff working at project area, so as to avoid any damage and pressure on the nearby forest areas.	-
15	No damage of the flora and fauna of the adjoining areas shall be caused	Severe damage to flora of adjoining areas was found. The road has also hampered the movement of wild animals in the area.
16	Any tree felling shall be done only when it is unavoidable and that too under strict supervision of the state Forest Department.	-
17	The User Agency in consultation with the state government shall create and maintain alternate habitat/home for the avifauna, whose nesting trees are to be cleared in this project. Bird's nest artificially made out of eco-friendly material shall be used in the area, including forest area and human settlements, adjoining the forest area being diverted for the project.	Not complied
18	The User agency shall submit the annual self-compliance report in respect of the above conditions to the state government and to this Regional Office of the Ministry, regularly	Not complied
19	The forest area shall be used for the purpose for which it is granted. The total forest area utilized for the project shall not exceed 163.283 ha.	-
20	The lay out of the proposal shall not be changed without prior approval of Central Government	-
21	No additional or new path will be constructed inside the forest area for transportation of construction materials for execution of the project work.	-
22	The forest land proposed to be diverted shall under no circumstances be transferred to any other agencies, department or person without prior approval of the Government of India.	-
23	The period of diversion under this approval shall be co-terminus with the period of lease to be granted in favour of the user agency or the project life, which ever is less	-
24	Any other condition that the MOEF & CC may stipulate from time to time in the interest of conservation, protection and development of forest and wild life.	-
25	Violation of any of these conditions will amount to violation of Forest (Conservation) Act, 1980 and action would be taken as per the MOEF & CC Guideline F.No.11-42/2017-FC dated 29/01/2018.	-

11/11

26	The state government and user agency shall comply the provisions of all acts, rules, regulations, guidelines, NGT order and Hon'ble Court order(s), pertaining to this project, if any, for the time being in force, as applicable to the project.	-
----	--	---

PART-VI

(Conditions informed by the State Government in addition to the Government of India's conditions and other steps taken to preserve forest, wildlife and prevent soil erosion, etc)

Conditions/purposesAction takenPART-VII

- | | | |
|---|--|----|
| 1 | Whether any Committee has been formed for monitoring of the action on the conditions stipulated. | No |
| 2 | If no, give reasons. If yes, give details of the Committee. | - |
| 3 | Reports of the monitoring committee, if any. | - |

PART-VIII

- | | |
|---|---|
| 1 | <p>Abstract reports of inspection of forest officers, if any -</p> <ul style="list-style-type: none"> • Monitoring pertains to Diversion of 163.283 ha of forest land in Karwar, Honnavar and Kundapura Divisions for laying of Goa-Karnataka border-Kundapura section of NH 66 by NHAI. The work is in its final stages of completion. • A number of non-compliances were observed. The User Agency has not submitted any design for raising plantations on either sides of the road and on the central verge. But for one or two stretches in Kundapura Division, where single row of plantation has been raised on road sides, most of the area does not have road side plantations. The central verge has been planted with ornamental plants and not long rotation indigenous trees as stipulated. • Site Inspection revealed that slope stabilization works were not carried out while the road was constructed. The road was cut through hills without due regards to maintaining the necessary gradient, thus resulting in steep vertical hill slopes on either side of the road, that has led to landslides at a number of locations. Discussion with the User Agency revealed that, along the entire stretch of NH 66, there are a total of 13 high risk locations, where landslides could occur again. No major soil conservation measures have been undertaken. Retaining walls constructed at few locations were found to be completely damaged. In addition to the major landslide that has occurred in Shiroor Taluk, a number of other landslides were noticed especially on the road stretches in Kundapura, Honnavar and Karwar District. School, houses, waiting stands etc were found in the immediate vicinity of these high-risk zones, thus posing danger to life and limb At some points along the |
|---|---|

road, especially near Shiroor, overburden and muck generated was found dumped on either side of the road.

- No comprehensive soil conservation measures have been undertaken and as per the field authorities, no consultation has been carried out with the State Forest Department for preparation of an action plan.
- Rain harvesting structures in the form of drains were found in the central verge of the road at regular intervals which are in turn connected to the side drains and natural nallas. However, all the drains were found to be clogged with mud and vegetation which may lead to water logging on the roads during rainy seasons.
- Discussion with the forest authorities revealed that a number of wildlife kills have been recorded on the NH66 including that of leopard. Neither any wild life related sign boards nor humps to slow down vehicles in wildlife crossing areas were found. Severe damage to flora of adjoining areas especially in Honnavar, Kundapura and Karwar districts were found. The road has also hampered the movement of wild animals in the area.
- The User Agency has not created and maintained alternate habitat for the avifauna, whose nesting trees were cleared in this project.
- Mixed plantation of miscellaneous sps has been raised in 320 ha of degraded forest lands in Tumkur Division and mangrove plantation in 50 ha of estuaries of Honnavar Division, as a part of the Compensatory Afforestation scheme. The plantation raised in Ankasandra SF and Ranganathapura SF of Tumkur Division was found to be very good. The plantation raised in Dasudi RF of Tumkur was not good. The mangrove plantation in Honnavar range was found to be good. The plantation in Kumta range was unsatisfactory

2 Remarks of the CCF in regard to progress of the action on the stipulated conditions. -

3 Effect of the project on forests and wildlife-

- The project has negatively impacted the forest and wild life of Kundapura, Honnavara and Karwar Divisions. No mitigation measures as stipulated have been carried out.

Name and Designation
of Inspecting Officer:

Date of Inspection:

Date of submission of report:

Signature
PRANEETHA PAUL, IFS
DIGF(Central)

14th and 22nd November, 2024

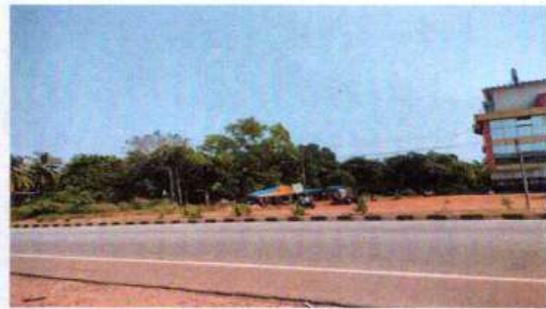
5/12/24

Diverted Forest Land

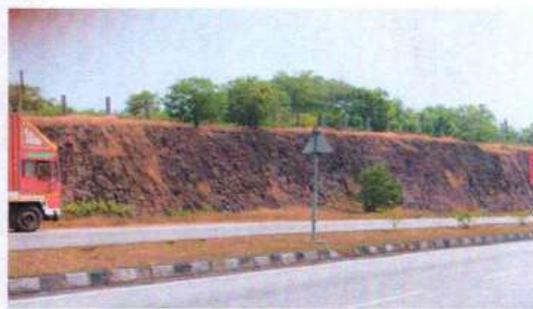
Boundary Pillar Demarcation of diverted area



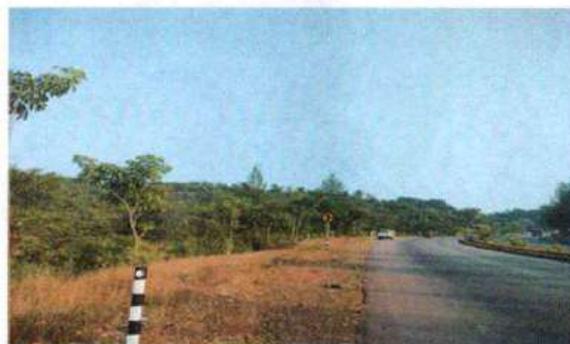
Road Side plantation not carried out



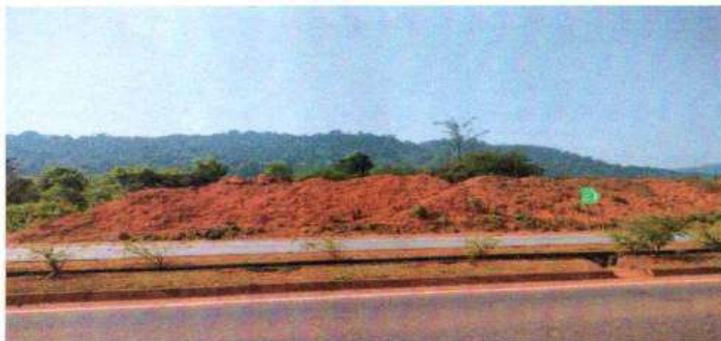
Plantation not carried out in the central verge of the road



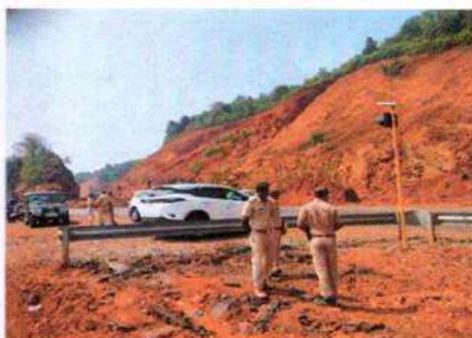
Tree planting only in one stretch of Kundapura Division



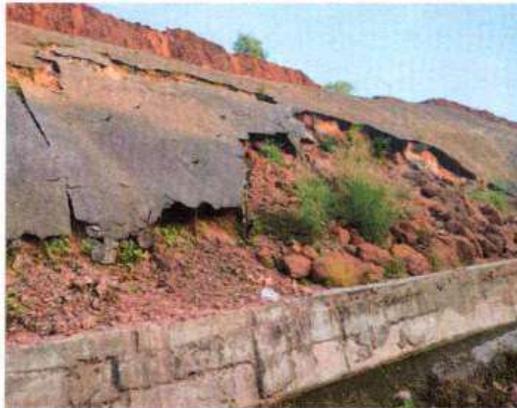
Muck disposed on the road side



Landslides along the road



Lack of proper soil conservation measures and water drainage systems

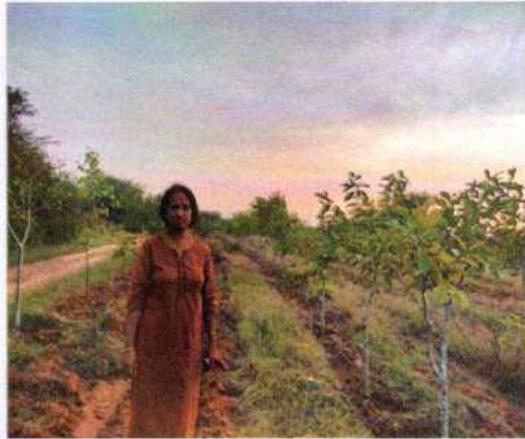


Steep cuts made on hill sides during road construction



Compensatory Afforestation works carried out

Tumkur



Compensatory Afforestation works carried out

Honnavar



F. No. IA-L-11011/57/2024-IA-I

Annexure-R3/6

Government of India

Ministry of Environment, Forest and Climate Change
(Compliance & Monitoring Division-IA Division)

Indira Paryavaran Bhavan

Jor Bogh Road, Aliganj

New Delhi-110 003

Email: moefcc-monitoring@gov.in

Dated: 5th May, 2025

Sub: Show Cause Notice under Section 5 of Environment (Protection) Act, 1986 for Non-Compliances observed with respect to the project "Environmental and CRZ Clearance for widening and upgradation of existing carriageway to 4/6 laning in Goa- Karnataka Border (Km 93.700) to Kundapur (KM 283.300) Section of NH- 17 in the State of Karnataka by M/s NHAI" - reg.

Ref. i. Ministry's EC letter No. 10-107/2011-IA.III dated 19.02.2014 and EC No. 5-26/2008-IA.III dated 10.08.2009

ii. Monitoring report submitted by RO Bengaluru letter No. F(C)A/12.7/732/NGT/KAR /760 dated 05.03.2025

WHEREAS, Environmental Clearance (EC) Clearance was granted to M/s NHAI for the above mentioned project vide letter No - 10-107/2011-IA.III dated 19.02.2014 and EC No. 5-26/2008-IA.III dated 10.08.2009, subject to implementation of various conditions and environmental safeguards contained therein, and

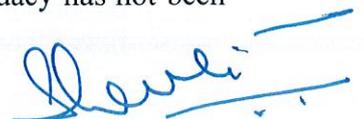
2. WHEREAS, the project was monitored for ascertaining compliance to the conditions stipulated in the aforesaid environmental clearance by RO Bangalore on 07.11.2024. The report was submitted to the Ministry vide letter no. F(C)A/12.7/732/NGT/KAR /760 dated 05.03.2025. **(Copy enclosed).**

3. WHEREAS, the inspection report dated 05.03.2025 was examined in the Ministry and following condition has been reported as partly complied/not complied:

1. PP has cut more trees than the stipulated condition, further, permission letter from the concerned authority has also not been submitted. (Specific Condition-iv of EC dated 19.02.2014)
2. PP has not submitted the details intimation of the blasting to the local authority. (Specific Condition-v of EC dated 19.02.2014)
3. Copy of the license for blasting has not been submitted. (Specific Condition-vi of EC dated 19.02.2014 & Specific Condition- i of EC dated 10.08.2009)
4. Details of the technique adopted for controlled blasting and timing of blasting has not been submitted. (Specific Condition-vii,viii of EC dated 19.02.2014)
5. Document related to cold mix technology and permission for ground water withdrawal has not been submitted. (Specific Condition-ix,x of EC dated 19.02.2014)
6. Drainage channels has not been adequately desilted/ maintained. Oil grease traps has not bee installed. (Specific Condition-xi of EC dated 19.02.2014, Specific Condition-ii, iv,vii of EC dated 10.08.2009)



7. Details of R&R has not been submitted. (Specific Condition-xii, xxix of EC dated 19.02.2014, Specific Condition- xxiii of EC dated 10.08.2009)
8. Details regarding compliance of IRC guidelines has not been submitted. (Specific Condition-xiii, xxxi, General Condition-xvi of EC dated 19.02.2014, Specific Condition- xi,xxvi, General Condition-xiv of EC dated 10.08.2009)
9. Details of the compliance wrt commitments made during public hearing has not been submitted. (Specific Condition-xiv of EC dated 19.02.2014)
10. Compliance of the recommendations of the EIA/EMP and Greenbelt development has not been submitted. (Specific Condition-xv,xvi of EC dated 19.02.2014)
11. Information regarding the requirement/ source of water has not been furnished. (Specific Condition-xviii, Specific Condition- viii of EC dated 19.02.2014)
12. Details of the drain constructed at least 1m away as per the IRC guidelines has not been submitted. (Specific Condition-xx of EC dated 19.02.2014)
13. PP has not submitted the details of the solid waste generated and disposed. (Specific Condition-xxii of EC dated 19.02.2014, Specific Condition- xiii of EC dated 10.08.2009)
14. PP has not provided adequate safety provisions and signages hording to avoid road accident of animals. (Specific Condition-xxiii xxvi of EC dated 19.02.2014, Specific Condition- xiv, xx of EC dated 10.08.2009)
15. PP has not furnished any plan/ design for raising plantations on either side of the road. (Specific Condition-xxiv of EC dated 19.02.2014, Specific Condition- xv,xvi of EC dated 10.08.2009)
16. PP has not submitted clearance from the State Government for extraction of sand from the rivers. (Specific Condition-xxv of EC dated 19.02.2014, Specific Condition- xix of EC dated 10.08.2009)
17. Adequate embankments have not been provided further, vegetation have not been developed on the slopes. (Specific Condition-xxvii of EC dated 19.02.2014, Specific Condition- xxi of EC dated 10.08.2009)
18. Hot mix plant has not been installed. (Specific Condition-xxviii of EC dated 19.02.2014, Specific Condition- xxii of EC dated 10.08.2009)
19. Noise barriers has not been provided at appropriate locations. (Specific Condition-xxx of EC dated 19.02.2014, Specific Condition- xxiv of EC dated 10.08.2009)
20. Details of compliance with respect to the Borrow sites for each quarry sites for road construction material and dump sites has not been submitted. (General Condition-iii of EC dated 19.02.2014, General Condition: iii of EC dated 10.08.2009)
21. Supporting documents with respect to the source of construction material has not been furnished as per the EC condition. (General Condition-iv of EC dated 19.02.2014, General Condition: iv of EC dated 10.08.2009)
22. Covered truck has not been used and adequate water sprinkler has not been installed. (General Condition-v of EC dated 19.02.2014, General Condition: v of EC dated 10.08.2009)
23. Details of the financial allocation for safeguard has not been furnished. (General Condition-vii of EC dated 19.02.2014, General Condition-vii of EC dated 10.08.2009)
24. Separate environmental management cell has not been setup. (General Condition-viii of EC dated 19.02.2014, General Condition-viii of EC dated 10.08.2009)
25. Relevant project related information/details, sought by the RO, have not been furnished by the PP. (General Condition-ix of EC dated 19.02.2014, General Condition-ix of EC dated 10.08.2009)
26. Six-monthly monitoring report has not been regularly submitted by PP. (General Condition-x, of EC dated 19.02.2014)
27. Details of the clearance letter marked to concerned Panchayat/local NGO has not been furnished. (General Condition-xv, of EC dated 19.02.2014)
28. Details of the mitigative measures against adverse impact to the water bodies/ back waters has not been provided. (Specific Condition- iii of EC dated 10.08.2009).
29. Details of the passess provided in the habituated areas and its adequacy has not been submitted. (Specific Condition- vi, xviii of EC dated 10.08.2009).



30. PP has not provided the details of the rain water used. (Specific Condition- ix of EC dated 10.08.2009).
31. Details of the use of flyash in the project has not been provided. (Specific Condition- xxv of EC dated 10.08.2009).

4. In the above context, your attention is drawn to provision of Section 5 of the Environment (Protection) Act, 1986 which is as reproduced below:

"For the avoidance of doubts, it is hereby declared that the power to issue directions under this section includes power to direct-

a. The closure, prohibition or regulation of any industry, operation or process:

or

b. Stoppage or regulation of the supply of electricity or water or any other service."

5. **Now, therefore, you are directed to submit your response to the aforesaid non-compliance and explain as to why this Ministry should not take action against you under the provisions of Environment (Protection) Act, 1986 for the non-compliance and violation of the environmental conditions mentioned above.**

6. **You are also advised to submit your reply within 30 (thirty) days of the receipt of this Notice falling which the ministry will be constrained to initiate action, as deemed fit and appropriate under the provision of section 5 of the Environment (protection) Act, 1986 and the circumstances of the case, with or without any further notice to the project. In your response, it may also be clearly stated whether a hearing is required by the project proponent before a final order is passed by this ministry. Further, this Show Cause is without prejudice to any other legal action which may be taken against you.**

This issues with the approval of the Competent Authority.

To,

**The Executive Director,
M/s NHAI,
G-5&6, Sector-10, Dwarka,
New Delhi-110075**

**(Dr. Shruti Rai Bhardwaj)
Director/Scientist 'F'**

Copy to:

1. The Deputy Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Regional Office, Kendriya Sadan, 4th Floor, E&F Wings, 17th Main Road, Koramangala II Block, Bangalore-560034.
2. The Member Secretary, Karnataka State Pollution Control Board, Parisara Bhavan, #49, 4th & 5th Floor, Church Street, Bangalore -1.
3. The Member Secretary, Infra-I, Ministry of Environment, Forest & Climate Change, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi-110003.
4. The Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032.

**(Dr. Shruti Rai Bhardwaj)
Director/Scientist 'F'**