F. No. 10-33/2018-IA.III
Government of India
Ministry of Environment, Forest and Climate Change
(IA-III Section)

Indira Paryavaran Bhawan,
Jor Bagh Road, Aliganj
New Delhi - 110 003

Dated: 23rd January, 2019

To

The General Manager (Environment)-II,
National Highways Authority of India,
G - 5 & 6, Sector - 10, Dwarka
New Delhi - 110 075

Subject: Development of Satellite Town Ring Road (STRR) Phase-I of NH-948A from Dobbaspete (km 0.000) to Ramanagara (km 82.200) in Ramanagara District (Karnataka) under Bharatmala Pariyojana by M/s National Highways Authority of India - Terms of Reference - reg.

Sir,

This has reference to your letter No. 1013/1/2k/Env./529 dated 6th June, 2018 submitting online above mentioned proposal for seeking Terms of Reference (TOR) as per the provisions of the Environment Impact Assessment (EIA) Notification, 2006 and subsequent amendments under the Environment (Protection) Act, 1986.

2. The proposal for 'Development of Satellite Town Ring Road (STRR) Phase-I newly declared National Highway NH-948A from Dobbaspete to Ramanagara (km 0.000 to km 82.200) 82.20 km in Ramanagara District, Karnataka' by M/s National Highways Authority of India was considered by the Expert Appraisal Committee (EAC) for Industrial Estate/Area, SEZ and Highways projects in its 191st meeting held on 25th June, 2018 and 195th meeting held on 30th - 31st August, 2018 in the Ministry of Environment, Forest and Climate Change, New Delhi.

3. During the above meetings, the project proponent along with EIA Consultant M/s Louis Berger Consulting Private Limited made a presentation and provided following information to the Committee:

(i) The Satellite Town Ring Road (STRR) of Bangalore (Newly declared NH-948A) is proposed 6 lane highway having a total length of 179.969 km in the states Karnataka and Tamil Nadu. The Project will be taken in 3 Phases viz;

- Phase-I (From Ch. 0+00 to Ch. 82+200) in the state of Karnataka.
- Phase-II (From Ch. 82+200 to Ch. 140+000), in the states of Karnataka and Tamil Nadu.

[Proposal No. IA/TN/MIS/**75227**/2018]

- Phase-III (From Ch. 140+000 to Ch. 179+969) in the state of Tamil Nadu.

(ii) This application is for the proposed Phase-I of STRR. The total length of the Phase I is 82.200 km. The project stretch falls in the state of Karnataka.

(iii) The Proposed Phase-I start at design Ch. 0+00 near Oblapura village at Neelmangala Taluk of Bangalore Rural district and ends at Ch. 82+200 at cross point of SH-3, Km 52.700 near Kailancha village at Ramanagara taluk in Ramanagara district.

(iv) It passes through two districts of Karnataka viz. Bangalore Rural (From Design Ch. 0+00 to 19+500) and Ramanagara (From Design Ch. 19+500 to 82+200). The proposed road starts at Ch.0.000 (Km 121.225 of NH-207) and intersects at Ch.9+500 (NH4/48 – existing Km 50.550), Ch. 30+364 (NH-75/48 – existing Km 42.230), Ch. 44+500 (SH-85 Existing Km 47.112) and Ch.70+250 (NH-275 Existing Km. 318.130) and Ch. 82+200 (SH-3 existing Km 52.700). The proposed road near Ramanagara shall integrate with the proposed bypasses envisaged by NHAI on NH-275/948 for seamless traffic flow.

(v) There are 22 Major Settlements along the alignment, namely, Manne, Tattekere, Nijagal, Kempohalli, Maddenahalli, Lakkuru, Agalakuppa, Hosapalya, Banawadi, Goruru, Gudemaranahalli, Handpost, Gudemaranahalli, Byalakere, Magadi, Hanchikuppe, Atimgere, Gungarahalli, Melahalli, Basavanapura, RampuraDoddi, Ramanagara, Kunagal.

(vi) The ending point of STRR Phase-I will further be integrated with STRR Phase-II.

(vii) The original STRR of the Government of Karnataka was taken and modified by NHAI under Bharatmala program, which was concurred by the State Government vide their letter No. PWD-518/CNH/2017 dated 27th October, 2017.

(viii) The proposed road will have 2 major bridges, 5 minor bridges, 144 culverts, 3 ROB's, 27 vehicular underpasses, 4 interchanges 1 flyover.

(ix) Safety measures will be provided as per NHAI Safety Manual and IRC: SP 88, safety measures and MoRTH guidelines in this regard.

(x) Material requirement are aggregate (27.19 Lakh Cum), Bitumen (0.44 Lakh Ton.), Earth (124.99 Lakh Cum.), Sand (9.30 Lakh Cum), Steel (0.57 Tonnes), Cement (2.30 Lakh Ton.).

(xi) Fly ash will be used in the project depending upon their availability as per existing fly ash notification.

(xii) **Land Acquisition:** The proposed land acquisition for the alignment is approx. total 785.5 ha.

(xiii) **Proposed RoW:** 70m.

(xiv) **Land use of the site and around the site up to 10 km radius:** Proposed project is a Greenfield project. Agricultural (84%), Barren (14%), and other revenue/forestland (2%) around the site up to 10Km. The major land use of STRR Phase-I includes cultivation (agricultural) land and rest includes barren land.

(xv) **Whether the project is in Critically Polluted area:** Not Applicable.

(xvi) **If the project involves diversion of forest land, extend of the forest land:** No.

(xvii) **If the project falls within 10 km of eco- sensitive area, Name of eco-sensitive area and distance from the project site:** The proposed road location falls approximately 1.2km away from Ramadevarabetta Vulture Sanctuary and approximately 200m away from its ESZ notified by MoEFCC vide its notification no. S.O.2993(E) dated 11th Sep, 2017.

(xviii) **Water requirement, source, status of clearance:** Water will be required mainly during construction period. About 250 Kl/day, water will be consumed during peak construction period for the project. Surface Water (Approx. 70%) and Ground Water (30%) shall be utilized for construction works.

Source: The detail shall be provided during the detailed Environmental Impact Assessment (EIA).

Status of Clearance: NoC will be obtained Prior to Construction works.

(xix) **Connectivity to the site:** The proposed road starts at Km 0+000 (NH-207– Km 131.255) and intersects at 9+500 (NH4/48– Km 50.550), 30+364 (NH-75/48–Km 42.230), 44+500 (SH-85 –Km 47.112) and 70+250 (NH-275 Ch. 318.130) and 82+200 (SH-3–Km 52+700). The proposed road near Ramanagara shall integrate with the proposed bypasses envisaged by NHAI on NH-275 to ease the traffic congestion.

(xx) **Terrain, level with respect to MSL, requirement of filling if any:** Terrain is Plain/Rolling with elevation ranges from 665 to 951m amsl. Overburden will be generated during excavation for alignment and at borrow areas. It is proposed to reuse these materials for constructions of embankment, rehabilitation of borrow areas, other allied sites and or filling of low lying/ disfigured wasteland.

(xxi) **Tree cutting, types, numbers, girth size etc.:** As per initial assessment, it is anticipated that on an average about 150 to 200 trees are likely to be affected per km. The detailed assessment of actual trees to be affected (tree inventories) on the finalized alignment will be undertaken during detailed EIA Study. Common trees include Eucalyptus, Azadirachta indica, Acacia catechu, Ficus and Tamarindus indica.

Efforts will be made to minimize the trees loss by restricting tree cutting within formation width. Avenue plantation shall be carried out as per IRC SP: 21:2009 on available ROW apart from statutory requirements. Total 17,661

number of trees will be cut in this project. In order to minimize the impact of tree cutting, compensatory plantation shall be undertaken.

(xxii) **Rehabilitation involved, if any:** All the temporary sites used for construction activities will be rehabilitated properly before handing over back to the land owner. The solid waste generated due to construction and allied activities will be reused for rehabilitation of borrow area / quarries sites, campsite and in temporary diversions and slopes.

(xxiii) **Water bodies, diversion if any:** River Arkavathy crossing the alignment at 2 locations (at Design Ch. 64+480 and Ch. 78+380) and few minor streams crossing alignment.

(xxiv) **Court cases if any:** No.

(xxv) **Investment/Cost of the project (in cr.):** INR 2600 Crore (Approx.)

(xxvi) **Employment potential:** This Road project will improve the economic and social welfare of those using the road or served by it. Ultimately it will create jobs by increasing access to markets, education and health services etc.

(xxvii) **Benefits of the project:** This project aims to improve connectivity particularly on economic corridors, border areas and to remote areas with an aim of rapid and safe movement of cargo to boost exports.

4. Based on the deliberations in the meeting and information provided by the proponent in support of the project, the EAC recommended for grant of TOR. As per the recommendation of the EAC, the Ministry of Environment, Forest and Climate Change hereby accords Terms of Reference for **'Development of Satellite Town Ring Road (STRR) Phase-I newly declared National Highway NH-948A from Dobbaspete to Ramanagara (km 0.000 to km 82.200) in Ramanagara, Karnataka'** by M/s National Highway Authority of India, and for preparation of EIA/EMP report with public consultations subject to compliance of all conditions as notified in the standard ToR applicable for highways and specific conditions, as mentioned below:

A. Project Specific Conditions:

(i) Cumulative Impact Assessment to be carried out along entire STRR project including Phases I, II and III.

(ii) Water bodies along proposed alignment needs to be surveyed for their conservation and sustainability. Each water body should be clearly identified with its size, any important and threatened species associated with it, its usage by local community along with shape file of each of water body. Impact of proposed project on these water bodies to be identified along with mitigation measures. Emphasis should be given to avoid alignment passing through/over water bodies.

(iii) Source of water availability to be ascertained for construction and domestic need. Prior permissions shall be obtained for extraction of water from State Authority/CGWA, as applicable.

(iv) In consultation and agreement with Chief Wildlife warden the passages of Elephants along Phase-I and Phase-II shall be identified'

(v) NHAI to develop a comprehensive Environmental Management Plan (EMP) with specific focus on elephants in consultation with Chief Wildlife Warden. The EMP should identify the cross over areas and suggest proper mitigation including but not limited to structures (overpasses, underpasses etc.) that needs to be designed and constructed for free movement of Elephants along the passages. EMP should also focus on elephant-human conflict that may arise due to the new green field alignment and mitigation strategy. Adequate fund provision be made in consultation with PCCF & HoFF Karnataka for the proposed alignment and the same be provided to forest department through the mechanism as suggested by the PCCF & HoFF or through existing mechanism adopted by the forest department and depositing the funds for this special purpose.

(vi) Provide dimension and location structures for conservation of the wildlife as well as safe movement of the animals in consultation with Chief Wildlife Warden.

(vii) Adequate fund provision shall be made under CER to support strengthening of vulture conservation in and around the Ramadeverbetta Vulture Sanctuary, which is very near to Phase-I alignment. Also the fund provision be made in consultation with PCCF & HoFF for conservation of vultures and creating vulture safe zone. BNHS Vulture Safe Zone policy may be referred for this purpose.

(viii) Provide compilation of road kill data on existing roads (national and state highways) in the vicinity of the proposed project.

(ix) The proposed alignment should be such that the cutting of trees shall be kept at bare minimum and for this the proponent shall obtain necessary permission from the competent authorities.

B. General Conditions

(i) A brief description of the project, project name, nature, size, its importance to the region/state and the country shall be submitted.

(ii) In case the project involves diversion of forests land, guidelines under OM dated 20.03.2013 shall be followed and necessary action be taken accordingly.

(iii) Details of any litigation(s) pending against the project and/or any directions or orders passed by any court of law/any statutory authority against the project to be detailed out.

(iv) Detailed alignment plan, with details such as nature of terrain (plain, rolling, hilly), land use pattern, habitation, cropping pattern, forest area, environmentally sensitive areas, mangroves, notified industrial areas, sand dunes, sea, rivers, lakes, details of villages, teshils, districts and states, latitude and longitude for important locations falling on the alignment by

employing remote sensing techniques followed by "ground truthing" and also through secondary data sources shall be submitted.

(v) Describe various alternatives considered, procedures and criteria adopted for selection of the final alternative with reasons.

(vi) Land use map of the study area to a scale of 1: 25,000 based on recent satellite imagery delineating the crop lands (both single and double crop), agricultural plantations, fallow lands, waste lands, water bodies, built-up areas, forest area and other surface features such as railway tracks, ports, airports, roads, and major industries etc. along with detailed ground survey map on 1:2000 scale showing the existing features falling within the right of way namely trees, structures including archaeological & religious, monuments etc. if any, shall be submitted.

(vii) If the proposed route is passing through any hilly area, the measures for ensuring stability of slopes and proposed measures to control soil erosion from embankment shall be examined and submitted.

(viii) If the proposed route involves tunneling, the details of the tunnel and locations of tunneling with geological structural fraction should be provided. In case the road passes through a flood plain of a river, the details of micro-drainage, flood passages and information on flood periodicity at least of the last 50 years in the area shall be examined and submitted.

(ix) If the project is passing through/located within the notified ecologically sensitive zone (ESZ) around a notified National Park/Wildlife Sanctuary or in the absence of notified ESZ, within 10 km from the boundary of notified National Park/Wildlife Sanctuary, the project proponent may simultaneously apply for the clearance for the standing committee of NBWL. The EC for such project would be subject to obtaining the clearance from the standing committee of NBWL.

(x) Study regarding the animal bypasses/underpasses etc. across the habitation areas shall be carried out. Adequate cattle passes for the movement of agriculture material shall be provided at the stretches passing through habitation areas. Underpasses shall be provided for the movement of Wild animals.

(xi) Study regarding in line with the recent guidelines prepared by Wildlife Institute of India for linear infrastructure with strong emphasis on animal movement and identifying crossing areas and mitigation measures to avoid wildlife mortality.

(xii) The information shall be provided about the details of the trees to be cut including their species and whether it also involves any protected or endangered species. Measures taken to reduce the number of the trees to be removed should be explained in detail. The details of compensatory plantation

shall be submitted. The possibilities of relocating the existing trees shall be explored.

(xiii) Necessary green belt shall be provided on both sides of the highway with proper central verge and cost provision should be made for regular maintenance.

(xiv) If the proposed route is passing through a city or town, with houses and human habitation on either side of the road, the necessity for provision of bypasses/diversions/under passes shall be examined and submitted. The proposal should also indicate the location of wayside amenities, which should include petrol stations/service centres, rest areas including public conveyance, etc.

(xv) Details about measures taken for the pedestrian safety and construction of underpasses and foot-over bridges along with flyovers and interchanges shall be submitted.

(xvi) The possibility that the proposed project will adversely affect road traffic in the surrounding areas (e.g. by causing increases in traffic congestion and traffic accidents) shall be addressed.

(xvii) The details of use of fly ash in the road construction, if the project road is located within the 100 km from the Thermal Power Plant shall be examined and submitted.

(xviii) The possibilities of utilizing debris/waste materials available in and around the project area shall be explored.

(xix) The details on compliance with respect to Research Track Notification of Ministry of Road, Transport and Highways shall be submitted.

(xx) The details of sand quarry and borrow area as per OM No. 2-30/2012-IA-III dated 18.12.2012 on 'Rationalization of procedure for Environmental Clearance for Highway Projects involving borrow areas for soil and earth" as modified vide OM of even No. dated March 19, 2013, shall be examined and submitted.

(xxi) Climate and meteorology (max and min temperature, relative humidity, rainfall, frequency of tropical cyclones and snow fall); the nearest IMD meteorological station from which climatological data have been obtained to be indicated.

(xxii) The air quality monitoring shall be carried out as per the notification issued on 16th November, 2009. Input data used for Noise and Air quality modelling shall be clearly delineated.

(xxiii) The project activities during construction and operation phases, which will affect the noise levels and the potential for increased noise resulting from this project shall be identified. Discuss the effect of noise levels on nearby

habitations during the construction and operational phases of the proposed highway. Identify noise reduction measures and traffic management strategies to be deployed for reducing the negative impact if any. Prediction of noise levels shall be done by using mathematical modelling at different representative locations.

(xxiv) The impact during construction activities due to generation of fugitive dust from crusher units, air emissions from hot mix plants and vehicles used for transportation of materials and prediction of impact on ambient air quality using appropriate mathematical model, description of model, input requirement and reference of derivation, distribution of major pollutants and presentation in tabular form for easy interpretation shall be examined and carried out.

(xxv) The details about the protection to existing habitations from dust, noise, odour etc. during construction stage shall be examined and submitted.

(xxvi) If the proposed route involves cutting of earth, the details of area to be cut, depth of cut, locations, soil type, volume and quantity of earth and other materials to be removed with location of disposal/ dump sites along with necessary permission.

(xxvii) If the proposed route is passing through low lying areas, details of filling materials and initial and final levels after filling above MSL, shall be examined and submitted.

(xxviii) The water bodies including the seasonal ones within the corridor of impacts along with their status, volumetric capacity, quality and likely impacts on them due to the project along with the mitigation measures, shall be examined and submitted.

(xxix) The details of water quantity required and source of water including water requirement during the construction stage with supporting data and also classification of ground water based on the CGWA classification, shall be examined and submitted.

(xxx) The details of measures taken during constructions of bridges across rivers/ canals/major or minor drains keeping in view the flooding of the rivers and the life span of the existing bridges shall be examined and submitted. Provision of speed breakers, safety signals, service lanes and foot paths shall be examined at appropriate locations throughout the proposed road to avoid accidents.

(xxxi) If there will be any change in the drainage pattern after the proposed activity, details of changes shall be examined and submitted.

(xxxii) Rain water harvesting pit shall be at least 3 - 5 m above the highest ground water table. Provisions shall be made for oil and grease removal from surface runoff.

(xxxiii) If there is a possibility that the construction/widening of road may cause an impact such as destruction of forest, poaching or reduction in wetland areas, examine the impact and submit details.

(xxxiv) The details of road safety, signage, service roads, vehicular under passes, accident prone zones and the mitigation measures, shall be submitted.

(xxxv) IRC guidelines shall be followed for widening & upgradation of roads.

(xxxvi) The details of social impact assessment due to the proposed construction of the road, shall be submitted.

(xxxvii) Examine the road design standards, safety equipment specifications and Management System training to ensure that design details take account of safety concerns and submit the traffic management plan.

(xxxviii) Accident data and geographic distribution shall be reviewed and analyzed to predict and identify trends - in case of expansion of the existing highway and provide Post accident emergency assistance and medical care to accident victims.

(xxxix) If the proposed project involves any land reclamation, details shall be provided of the activity for which land is to be reclaimed and the area of land to be reclaimed.

(xl) Details of the properties, houses, business activities etc likely to be effected by land acquisition and an estimation of their financial losses, shall be submitted.

(xli) Detailed R&R plan with data on the existing socio-economic status of the population in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternative livelihood concerns/employment and rehabilitation of the displaced people, civil and housing amenities being offered, etc and the schedule of the implementation of the specific project, shall be submitted.

(xlii) The environment management and monitoring plan for construction and operation phases of the project shall be submitted. A copy of your corporate policy on environment management and sustainable development, shall also be submitted.

(xliii) Estimated cost of the project including that of environment management plan (both capital and recurring) and source of funding. Also, the mode of execution of the project, viz, EPC, BOT, etc, shall be submitted.

(xliv) A copy of your CSR policy and plan for meeting the expenditure to address the issues raised during Public Hearing, shall be submitted.

(xlv) Details of blasting if any, methodology/technique adopted, applicable regulations/permissions, timing of blasting, mitigation measures proposed keeping in view mating season of wildlife.

(xlvi) In case of river/ creek crossing, details of the proposed bridges connecting on either banks, the design and traffic circulation at this junction with simulation studies.

(xlvii) Details to ensure free flow of water in case the alignment passes through water bodies/river/streams etc.

(xlviii) In case of bye passes, the details of access control from the nearby habitation/habitation which may come up after the establishment of road.

(xlix) Bridge design in eco sensitive area /mountains be examined keeping in view the rock classification hydrology etc.

(l) Details of litigation pending against the project, if any, with direction/order passed by any Court of Law against the Project should be given.

(li) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

(lii) In case of alignment passing through coastal zones

a. HTL/LTL map prepared by authorized agencies superimposed with alignment and recommendation of Coastal Zone Management Authority

b. Details of CRZ-I (I) areas, mangroves required to be removed for the project along with the compensatory afforestation, area and location with budget

c. Details of road on stilt in CRZ-I areas, design details to ensure free tidal flow

d. Details of Labour camps, machinery location

(liii) Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measure, project proponent can refer to the model ToR available on Ministry website "http://moef.nic.in/Manual/Highways".

5. Following general guidelines shall be strictly adhered:

(i) The EIA document shall be printed on both sides, as for as possible.

(ii) All documents should be properly indexed, page numbered.

(iii) Period/date of data collection should be clearly indicated.

(iv) Authenticated English translation of all material provided in Regional languages.

(v) The letter/application for EC should quote the MoEF&CC File No. and also attach a copy of the letter prescribing the TOR.

(vi) The copy of the letter received from the Ministry on the TOR prescribed for the project should be attached as an annexure to the final EIA-EMP Report.

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(vii) The final EIA-EMP report submitted to the Ministry must incorporate the issues in TOR and that raised in Public Hearing. The index of the final EIA-EMP report, must indicate the specific chapter and page no. of the EIA-EMP Report where the specific TOR prescribed by Ministry and the issue raised in the P.H. have been incorporated. Questionnaire related to the project (posted on MoEF&CC website) with all sections duly filled in shall also be submitted at the time of applying for EC.

(viii) Grant of TOR does not mean grant of EC.

(ix) Grant of TOR/EC to the present project does not mean grant of approvals in other regulations such as the Forest (Conservation) Act 1980 or the Wildlife (Protection) Act, 1972.

(x) Grant of EC is also subject to Circulars and Office Memorandum issued under the EIA Notification 2006 and subsequent amendments, which are available on the MoEF&CC website: www.envfor.nic.in.

(xi) The status of accreditation of the EIA consultant with NABET/QCI shall be specifically mentioned. The consultant shall certify that his accreditation is for the sector for which this EIA is prepared.

(xii) On the front page of EIA/EMP reports, the name of the consultant/consultancy firm along with their complete details including their accreditation, if any shall be indicated. The consultant while submitting the EIA/EMP report shall give an undertaking to the effect that the prescribed TOR (TOR proposed by the project proponent and additional TOR given by the MoEF) have been complied with and the data submitted is factually correct (Refer MoEF office memorandum dated 4th August, 2009).

(xiii) While submitting the EIA/EMP reports, the name of the experts associated with/involved in the preparation of these reports and the laboratories through which the samples have been got analysed should be stated in the report. It shall clearly be indicated whether these laboratories are approved under the Environment (Protection) Act, 1986 and the rules made there under (Please refer MoEF office memorandum dated 4th August, 2009). The project Coordinator of the EIA study shall also be mentioned.

(xiv) All the TOR points as presented before EAC shall be covered.

6. A detailed draft EIA/EMP report shall be prepared in terms of the above additional TOR and should be submitted to the State Pollution Control Board for Public Hearing. Public Hearing to be conducted for the project in accordance with the provisions of Environmental Impact Assessment Notification, 2006 and the issues raised by the public should be addressed in the Environmental Management Plan. The Public Hearing shall be conducted based on the TOR letter issued by the Ministry and not on the basis of Minutes of the Meeting available on the website.

7. The project proponent shall submit the detailed final EIA/EMP report prepared as per TOR including issues raised during Public Hearing to the Ministry for considering the proposal for environmental clearance within 3 years as per the MoEF&CC OM No J-11013/41/2006-IA-II(I) (Part) dated 29th August, 2017.

8. The consultants involved in preparation of EIA/EMP report after accreditation with Quality Council of India/National Accreditation Board of Education and Training (QCI/NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other Organization(s)/Laboratories including their status of approvals etc. vide notification of the MoEF dated 19th July, 2013.

9. The prescribed TOR would be valid for a period of three years for submission of the EIA/EMP Reports.

23/01/2019

(Raghu Kumar Kodali)
Director/Scientist F

Copy to: The Member Secretary, Karnataka State Pollution Control Board, "Parisara Bhavan", #49, 4th & 5th Floor, Church Street, Bangaluru - 560 001

23/01/2019.

(Raghu Kumar Kodali)
Director/Scientist F