

Form-1

For

Terms of Reference

For

Environmental Impact Assessment (EIA)

For

**Proposed Construction of four/six lane Greenfield Highway
from Palakkad to Kozhikode in the State of Kerala**

By

National Highways Authority of India (NHAI)



Environmental Consultants

ULTRA TECH®

**Environmental Consultancy And
Laboratory**

*A QCI-NABET Accredited Environmental
Consulting Organization*

DPR Consultants

*M/s TPF GetinsaEuroestudios S.L
in J.V with
TPF Engineering Pvt. Ltd.*

Appendix – I
(As per paragraph – 6 of EIA Notification 2006)
Form 1

(I) BASIC INFORMATION

S No	Item	Details																
1	Name of the project	Proposed Construction of four/six lane Greenfield Highway from Palakkad to Kozhikode in the State of Kerala																
	Serial number in the Schedule	7(f)																
3	Proposed capacity/ area/ tonnage	<table border="1"> <tr> <td>Flexible/Rigid Pavement Road Length</td> <td>121.006 km</td> </tr> <tr> <td>Proposed RoW</td> <td>45.00 m</td> </tr> <tr> <td>Width of carriageway</td> <td>Four/six lane</td> </tr> <tr> <td>Design speed</td> <td>100 km/h</td> </tr> <tr> <td>Total land requirement</td> <td>547.407 ha</td> </tr> <tr> <td>Total Forest area</td> <td>0 ha</td> </tr> <tr> <td>No. of Tunnels</td> <td>Nil</td> </tr> <tr> <td>Total Capital Cost of Project including land acquisition</td> <td>INR 7937.96 Crores*</td> </tr> </table> <p>*Approximate</p>	Flexible/Rigid Pavement Road Length	121.006 km	Proposed RoW	45.00 m	Width of carriageway	Four/six lane	Design speed	100 km/h	Total land requirement	547.407 ha	Total Forest area	0 ha	No. of Tunnels	Nil	Total Capital Cost of Project including land acquisition	INR 7937.96 Crores*
Flexible/Rigid Pavement Road Length	121.006 km																	
Proposed RoW	45.00 m																	
Width of carriageway	Four/six lane																	
Design speed	100 km/h																	
Total land requirement	547.407 ha																	
Total Forest area	0 ha																	
No. of Tunnels	Nil																	
Total Capital Cost of Project including land acquisition	INR 7937.96 Crores*																	
4	New/Expansion/modernization	New																
5	Existing capacity/ area etc.	0 ha																
6	Category of project. “A” or “B”	A																
7	Does it attract the general conditions? If yes please specify	<p>Yes</p> <ul style="list-style-type: none"> • The nearest Eco-Sensitive Area (ESA) of Western Ghats is at 1.0 km from the proposed alignment, at Ch 8+630 in Palakkad District (Kerala State Biodiversity Board) • The boundary of Silent Valley National Park is at distance of 5.5 km from the proposed alignment (No.5462/FSA.3/82/AD dated 15th November, 1984). • The proposed alignment crosses the Chaliyar River between Vazhayur and Perumanna Villages 																

S No	Item	Details
8	Does it attract the specific conditions? If yes, please specify	No
9	Location	The proposed highway starts from Marutharode village at Ch 0+000 (10°46'30.53"N, 76°42'6.25"E) of NH-544 in Palakkad District and ends at Ch 121+006 (11°14'16.19"N, 75°50'30.19"E) of NH-66 at Olavanna Village in Kozhikode district of Kerala State
	Plot/ survey/ khasra no.	Alignment on Toposheet in 1:50000 scale and kml file is enclosed
	Villages	39 Villages
	Tehsil	Palakkad, Mannarkad, Perinthalmanna, Nilambur, Ernad, Kondotty, Kozhikode
	District	Palakkad, Malappuram, Kozhikode
	State	Kerala State
10	Nearest railway station.	<ul style="list-style-type: none"> • Palakkad Junction Railway Station: 2.9 km • Tuvvur Railway Station : 0.34 km • Kozhikode Railway Station : 6.6 km
	Nearest airport	<ul style="list-style-type: none"> • Calicut International Airport : 9.8 km
11	Nearest town, city, district head quarters along with distance in km	<u>Town/City</u>
		<ul style="list-style-type: none"> • Palakkad town: 3.8 km • Mannarkkad: 2.9 km • Manjeri: 5.9 km • Kozhikode: 7.0 km
12	Village Panchayat, Zilla Parishad, municipal Corporation, Local Body. (Complete postal address with telephone nos. to be given)	<u>District Head Quarters</u>
		<ul style="list-style-type: none"> • Palakkad: 4.4 km • Malappuram: 16.0 km • Kozhikode: 7.4 km
12	Village Panchayat, Zilla Parishad, municipal Corporation, Local Body. (Complete postal address with telephone nos. to be given)	<u>Village</u>
		<ol style="list-style-type: none"> 1. Marutharode Village, Marutha Road, Salem-Kochi Highway, Palakkad, Kerala 678007, Ph: 085476 14908 2. Malampuzha –II Village, Kottekkad - Padalikkad Road, Chithra Nagar, Palakkad, Kerala 678005, Ph: 8547614907

S No	Item	Details
		<p>3. Palakkad-II Village, Parakkunnam, Palakkad, Kerala 678001, Ph: 8547614903</p> <p>4. Malampuzha-I Village, Manthakkad, Malampuzha, near Canara Bank - Malampuzha, Palakkad, Kerala 678651, Ph: 085476 14906</p> <p>5. Akathethara Village, Olavakode Malampuzha Road, Chepilamury, Akathethara, Palakkad, Kerala 678002, Ph: 085476 14905</p> <p>6. Pudhuppariyaram-I village, Palakkad, Kerala- 678731</p> <p>7. Puthuppariyaram-II Village, Kozhikod-Palakkad Highway, Kerala- 678009, Ph:8547614923</p> <p>8. Mundur-I Village, Mundur, Kerala- 678592, Ph: 085476 14920</p> <p>9. Mundur-II Village, Palakkad Block Panchayath, Palakkad, Kerala- 678592, Ph: +918547614921</p> <p>10. Karimba-II Village, Karimba Grama Panchayath, Mannarkad Block panchayath, Palakkad, Kerala 678597, Ph: 8547615216</p> <p>11. Karimba, Karimba-I Village, Karimba, Mannarkad Block, Kerala 678597, Ph: 8547615215.</p> <p>12. Thachampara Village, Thachampara, Kerala 678593, Ph: 04924 244 695</p> <p>13. Karakurissi Village, Karakurissi, Kerala 678595, Ph: +918547615217</p> <p>14. Palakkayam Village, Palakkayam, Kerala 678591, Ph: 8547615219</p> <p>15. Pottassery, Pottassery-I Village, Kanhirapuzha Road, Changalapadi, Pottassery- I, Kerala 678598, Ph: 8547615213</p> <p>16. Tenkara, Mannarkkad-II Village, Mezhukampara Road, Mannarkkad - Anakkatti Rd, Mannarkad-II,</p>

S No	Item	Details
		<p>Kerala 678582, Ph: 085476 15212</p> <p>17. Arukurussi, Mannarkkad I, Palakkad district, Kerala, 678582. Ph: 085476 15212</p> <p>18. Payyanadam Village, Payyanadam PO, Mylampadam Road, Kerala 678583, Ph: 08547 615218</p> <p>19. Bheemanad, Kottopadam-III Village, Kottopadam, Kerala 678583, Ph: 8547615209</p> <p>20. Puttanikkad, Kottopadam-II Village, Kottopadam, Kerala 678583, Ph: 8547615208</p> <p>21. Kottopadam, Kottopadam-I Village, Kottopadam, Kerala 678601, Ph: 8547615207</p> <p>22. Edathanattukara, Alanallur-III Village, XCH3+7P5, Arayabhavu, Kerala 678583, Ph: 8547615204</p> <p>23. Edappatta, Edappatta Village, Epikad, Kerala 679326, Ph: 04933 277343.</p> <p>24. Karuvarakund Village office, Malappuram, Kerala 676523, Ph: 04931 231147, 04931 281150</p> <p>25. Thuvvur Village office, Tuvvur, Nilambur Taluk, Malappuram, Kerala 679327, Ph: 04931 285456</p> <p>26. Porur Village, Cherucode, Nilambur Taluk, Malappuram, Kerala 679328, Ph: 04931 245 300</p> <p>27. Chembrasserri Village, Wandoor Block Panchayath, Malappuram, Kerala 676521, Ph: 08547 615815</p> <p>28. Vettikkattiri Village, Manjeri-Melattur Road, Pandikkad, Kerala 676521, Ph: 0483 2780107</p> <p>29. Elankur Village, Malappuram, Kerala 676122, Ph: 085476 15812</p> <p>30. Kavanoor Village, Areekode - Manjeri Road, Kavanoor, Kerala 673639, Ph: 0483 286 2899</p> <p>31. Karakunnu Village, Manjeri Elankur Wandoor Road, Edakkad, Porur, Kerala 676123, Ph: 08547 615806</p> <p>32. Perakamanna Village, Malappuram, Kerala</p>

S No	Item	Details
		<p>676541, Ph: 0483 2216060</p> <p>33. Areekode Village, Camp Road, Areekode, Kerala 673639, Ph: 8547615813</p> <p>34. Muthuvallur Village, Malappuram, Kerala, 673638, Ph: 0483 2760415</p> <p>35. Cheekode Village, Pothuvettippara, Omanoor, Kerala 673645, Ph: 85476 15830</p> <p>36. Vazhakkad Village, Panikkarapuraya, Vattappara Road, Kerala 673640, Ph: 0483 272 7513</p> <p>37. Vazhayoor Village, Vazhayur, Kerala 673633, Ph: 0483 283 2510</p> <p>38. Perumanna Village, Perumanna, Kerala 673008, Ph: 0494 249 6160</p> <p>39. Olavanna Village, Mathara, Kozhikode, Kerala 673019, Ph: 0495 2433979</p> <p><u>Grama Panchayat</u></p> <ul style="list-style-type: none"> • Marutharoad Grama Panchayat, Ramanathapuram Gramam, Kalepully, Palakkad, Kerala 678005, Ph: 0491 253 4003 • Malampuzha Grama Panchayat, Malampuzha - Kava - Anakkallu Road, Kava, Kerala 678651, Ph: 0491 281 5148 • Akathethara Grama Panchayat, Olavakode Malampuzha Road, Akathethara, Kerala 678008, Ph: 0491 255 5171 • Puthuppariyaram Grama Panchayath, NH 213, Puthuppariyaram, Palakkad, Kerala 678009 • Mundur Grama Panchayat, Mundur, Kerala 678592, Ph: 0491 283 2238 • Kanjirapuzha Grama Panchayat, Pottassery PO, Kanhirapuzha Road, Kanjirapuzha, Kerala 678598, Ph: 04924 238 265 • Thachampara Grama Panchayat, Kozhikode - Palakkad Hwy, Thachampara, Kerala 678593, Ph: 04924 243 259 • Karimba, Grama Panchayat, Karimba, Kerala 678597, Ph: 04924 246 236

S No	Item	Details
		<ul style="list-style-type: none"> • Thachanattukara Grama Panchayat, X946+MGX, Thachanattukara-I, Kerala 678583, Ph: 04924 236 236 • Thenkara Grama Panchayat, Mezhukampara Road, Post Thenkara, Mannarkad-II, Kerala 678582, Ph: 04924 226 810 • Karakurussi Grama Panchayat, Vazhampuram, Kerala 678595, Ph: 0492 424 3238 • Kumaramputhur Grama Panchayat, Kozhikode - Palakkad Hwy, Kumaramputhur, Kerala 678583, Ph: 04933 229339 • Kottopadam Grama Panchayat, Kottopadam-III, Kerala 678601, Ph: 04924 262 223 • Alanallur Grama Panchayat, Alanallur, Kerala 678601, Ph: 04924 262 235 • Edappatta Grama Panchayat, Karuvarakundu - Perinthalmanna Road, Epikad, Kerala 679326, Ph: 04933 278 279 • Karuvarakund Grama Panchayat, SH 39, Nilmabur -Perumpilavu, road, Karuvarakundu, Kerala 676523, Ph: 04931 280 228 • Vettathur Grama Panchayat, Vettathur Road, Thelakkad, Vettathur, Kerala 679325, Ph: 04933 245 128 • Tuvvur Grama Panchayat, Tuvvur, Malappuram – 679327, Ph: 04931 284 128 • Porur Grama Panchayat, Cherucode-Kottakkunnu Road, Cherucode, Kerala 679336, Ph: 04931 247071 • Pandikkad Grama Panchayat, Manjeri Olipuzha Road, Pandikkad, Kerala 676521, Ph: 0483 278 3221 • Trikkalangode Grama Panchayat, SH28, Trikkalangode, Kerala 676127, Ph: 0483 284 0292 • Edavanna Grama Panchayat, Company Parambu Road, Edavanna, Kerala 676541, Ph: 0483 2700243 • Kavanur Grama Panchayat, Areekode - Manjeri

S No	Item	Details
		<p>Road, Kavanur, Kerala 673639, Ph: 0483 2862531</p> <ul style="list-style-type: none"> • Areekode Grama Panchayat, Puthalam, Areekode, Kerala 673639, Ph: 0483 2850221 • Muthuvallur Grama Panchayat, Pothattippara, Peedikakkandi, Kerala 673638, Ph: 0483 2754817 • Cheekode Grama Panchayat, Malapuram, Mundakkal, Cheekode, Kerala 673645, Ph: 0483 272 5235 • Vazhakkad Grama Panchayat, Vazhakkad, Kerala 673640, Ph: 0483 272 6166 • Vazhayoor Grama Panchayat, Karad, Azhinjilam Karad Road, Vazhayur, Kerala 673633, Ph: 0483 283 0097 • Cherukavu Grama Panchayat, SH28, Periambalam, Pulikkal, Kerala 673637, Ph: 0483 279 1052 • Perumanna Grama Panchayat, Perumanna Road, Perumanna, Kerala 673026, 0495 2431880 <p><u>Municipality</u></p> <ul style="list-style-type: none"> • Palakkad Municipality, Santhi Nagar, Kunnathurmedu, Palakkad, Kerala-678001, Tel: 0491 253 4158 <p><u>Block Panchayat</u></p> <ul style="list-style-type: none"> • Malampuzha Block Panchayat, NH 47, Koottupaatha, Palakkad, Kerala 678007, Ph: 04912 572014 • Palakkad Block Panchayat, Block bus stop, Palakkad - Ponnani Road, Kallekkad, Palakkad, Kerala 678006, Ph: 04912 543310 • Mannarkkad Block Panchayat, NH966, Mannarkkad, Kerala 678582, Ph: 04924 222 371 • Sreekrishnapuram Block Panchayat, WC35+86F, Sreekrishnapuram, Kerala 679513, Ph: 04662-261221 • Kalikavu Block Panchayat, 58CF+3J6, Kalikavu, Kerala 676525, Ph: 04931 257242 • Perinthalmanna Block Panchayat, Perinthalmanna,, Shanti Nagar, Perinthalmanna, Kerala 679322, Ph: 04933 227 402

S No	Item	Details
		<ul style="list-style-type: none"> • Wandoor Block Panchayat, Wandoor, Kerala 679328, Ph: 04931 247074 • Ponnani Block Panchayat, Edappal Hospital Rd, Edappal, Kerala 679576, Ph: 0494 268 0271 • Areekode Block Panchayat, Camp Road, Puthalam, Areekode, Kerala 673639, Ph: 04832 850047 • Kondotty Block Panchayat, Government Hospital Road, Kondotty, Kerala 673638, Ph: 04832 712084 • Kunnamangalam Block Panchayat, Kunnamangalam Block office Road, Kunnamangalam, Kerala 673571, Ph: 0495 280 0276 • Koduvally Block Panchayat, 9W66+2M8, Koduvally, Kerala 673572, Ph: 0495 221 0289 • Kozhikode Block Panchayat, Mathara, Kozhikode, Kerala 673014, Ph: 0495 2430799 <p><u>District Panchayat</u></p> <ul style="list-style-type: none"> • Palakkad District Panchayat, Durga Nagar, Kenathuparambu, Kunathurmedu Palakkad, Kerala 678001, Ph: 0491 250 5638 • Malappuram District Panchayat, Up Hill, Malappuram, Kerala 676505, Ph: 8281040020 • Kozhikode District Panchayat, Civil Station Juma Masjid, SH29, Civil Station, Eranhippalam, Kozhikode, Kerala 673020, Ph: 0495 237 0050
13	Name of the applicant	National Highways Authority of India, PIU, Palakkad
14	Registered address	Office of Project Director, NHAI, No.310-A, Chandranagar Extension, Chandranagar PO, Palakkad
15	Address for correspondence	
	Name	J Balachander
	Designation (Owner/ partner/ CEO)	General Manager (Tech) & Project Director
	Address	Office of Project Director, NHAI No.310-A, Chandranagar Extension, Chandranagar PO, Palakkad

S No	Item	Details
	Pin Code	678007
	E-mail	palak@nhai.org
	Telephone no.	+91 88152 15511
	Fax no.	-
	Copy of documents in support of the competence/authority of the person making this application, to make application on behalf of the User Agency	Uploaded.
16	Details of alternative sites examined, if any. Location of these sites should be shown on topo sheet.	<p>Yes, a total of 3 options were analyzed. The alignment comparison matrix is uploaded.</p> <p>Option- 1 alignment was approved by Competent Authorities of Central and State Governments and NHAI HQ.</p> <p>Approved alignment is having optimum economic impact, maximum ERR & IRR, most feasible engineering aspects and minimum impact on forest, flora and fauna, water bodies and human settlement.</p>
17	Interlinked projects	No
18	Whether separate application of interlinked project has been submitted?	Not applicable
19	If yes date of submission	Not applicable
20	If no, reason	Not applicable
21	<p>Whether the proposal involves approval/ clearance under: If yes, details of the same and their status to be given.</p> <p>(a) The Forest (Conservation) Act, 1980</p> <p>(b) The Wildlife (Protection) Act, 1972</p>	<p>(a) Not applicable</p> <p>(b) The boundary of Silent Valley National Park is at distance of 5.5 km North of the proposed alignment (No.5462/FSA.3/82/AD dated 15th November, 1984).</p>

S No	Item	Details
	(c) The CRZ Notification, 1991.	Application for NBWL Clearance will be submitted. (c) The CRZ Notification, 1991: Yes, the proposed alignment crosses the Chaliyar river. Application for CRZ Clearance will be submitted.
22	Whether there is any Government Order / Policy Relevant/ relating to the site?	The proposed project comes under the Bharatmala Pariyojana and is proposed to be developed as an Inter-Corridor. It has got the following approvals <ol style="list-style-type: none"> 1. MoRTH vide its office Memorandum dated 03.11.2017 conveyed that Cabinet Committee on Economic affairs has considered the proposal for investment approval of Phase-1 of Bharatmala Pariyojana in its meeting dated 24.10.2017, where, in Annexure II b of the MoM, the route Palakkad to Kozhikode is listed out as Sl. No 33 of Inter Corridors. 2. Special Secretary (Revenue), Government of Kerala, on 07.10.2020 vide letter no. REV-B1/392/2020-REV 3. Land Acquisition Committee letter No LA/11013 / LAC Minutes/2020 (Computer No.5369) dated 02.11.2020. The LAC comprises of the Chairman and members of NHAI. The various alignment approvals obtained from the competent authority of Central and State Governments and NHAI HQ is attached as Annexure 1.
23	Forest land involved (hectares)	None
24	Whether there is any litigation pending against the project and/or land in which the project is proposed to be set up? (a) Name of the Court (b) Case No. (c) Order/ directions of the	Not applicable

S No	Item	Details
	Court, if any and its relevance with the proposed project.	

- *Capacity corresponding to Sectoral activity (such as production capacity for manufacturing, mining lease area and production capacity for mineral production, area for mineral exploration, length for linear transport infrastructure, generation capacity for power generation etc.,)*

(II) ACTIVITY

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

S. NO.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)	Yes	The land-use within the proposed RoW is restricted to 45m instead of 60m and that will undergo a permanent change due to proposed Greenfield Highway. Mitigation measures will be taken in order to reduce the impacts on land use.
1.2	Clearance of existing land, vegetation and buildings?	Yes	The proposed alignment avoids forest. It passes through minimum built-up areas (approximate built-up area of 91.472 ha, that is 16.71 % of total land required), as compared to the other possible alternative alignments. The agricultural land involved is 455.935 ha, that is 83.29% of total land required. No barren land is involved. Accordingly, vegetation, including plantations and existing structures within the proposed RoW will be removed in order to construct the road.
1.3	Creation of new land uses?	Yes	Existing land use of the project will be changed due to road construction.
1.4	Pre -construction investigations e.g. bore houses, soil testing?	Yes	Preconstruction investigations viz., topographical surveys, traffic survey, sub grade soil investigation, subsurface investigation using bore logs for structures, Geophysical investigation, existing pavement composition, existing road strength and roughness surveys, Groundwater investigations, Laboratory testing of material etc will be carried out during preconstruction stage.

S. NO.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.5	Construction works?	Yes	547.407ha of land will be required for construction of 4/6 lane Greenfield Highway of length 121.006 km with structures like Major /Minor Bridges, Culverts, VUP, LVUP, SVUP and ROB. Details of the proposed structures will be quantified in the EIA report.
1.6	Demolition works?	Yes	Approximately around 2300 nos of structures in the proposed 45m RoW will be demolished. Extent of demolition will be given in the EIA report. Greenfield alignment is proposed to minimize destruction of habitats.
1.7	Temporary sites used for construction works or housing of construction workers?	Yes	Temporary construction camps will be provided near to the construction sites. The construction workers will be provided with all the supporting infrastructure such as toilet facilities, medical facilities etc
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	Yes	Highway Structures such as Minor/Major Bridges, Culverts, ROB, VUPs, LVUPs, SVUPs etc as per standard specification of IRC SP:84:2019 will be adopted. Other structures such as toll plaza, administrative buildings, parking areas & wayside amenities will be provided. The exact quantification of cut & fill material will be done during EIA Stage.
1.9	Underground works including mining or tunneling?	No	Not applicable
1.10	Reclamation works?	Yes	The excavation of borrow area shall form pits which shall be rehabilitated as per the borrow area management plan.
1.11	Dredging?	No	Not applicable
1.12	Off shore structures?	No	Not applicable
1.13	Production and manufacturing processes?	No	Not applicable

S. NO.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.14	Facilities for storage of goods or materials?	Yes	The construction materials required are inert. Storage will be only at designated places and will be covered and storage will be done after taking consent from KSPCB and district administrations.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	<p>1) <u>Solid Waste:</u> Construction wastes will be managed as per Construction and Demolition Wastes Management Rules, 2016 and other Solid Wastes will be managed as per the Solid Waste Management Rules, 2016 by Concessionaire/Contractor.</p> <p>2) <u>Liquid effluents:</u> During construction phase sewage will be generated from labor camps. However, these will be provided with septic tank and soak pit. Other effluents from site will be collected in sedimentation tank and proposed to be reused after checking parameters.</p> <p>In the operation phase, soak pits shall be provided at project facilities such as wayside amenities, Toll Plaza etc where toilet and washrooms facilities are provided</p> <p>Any wastage will be controlled, and details will be incorporated in the EIA report.</p>
1.16	Facilities for long term housing of operational workers?	No	Not applicable
1.17	New road, rail or sea traffic during construction or operation?	No	Not applicable
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports, etc.?	Yes	Helipad construction is proposed along the Greenfield Highway.

S. NO.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	This is Greenfield project.
1.20	New or diverted transmission lines or pipelines?	Yes	Shifting of utility such as HT/LT transmission lines, Substations, Communication cables, Water Authority lines etc to the Utility corridor within RoW. Details will be furnished in the EIA report.
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	Yes	Provision of cross drainage structures such as Major/Minor Bridges and culverts to maintain the natural course of water. The details of the cross-drainage structures will be furnished in the EIA report.
1.22	Stream crossings?	Yes	The proposed alignment will be crossing Chaliyar river, some tributaries, and streams. Provision of cross drainage structures such as Major/Minor Bridges and culverts will be made to maintain the natural course of water. The details of the cross-drainage structures will be furnished in the EIA report.
1.23	Abstraction or transfers of water from ground or surface waters?	Yes	In this project, we adopt best construction practices to minimize the water consumption of approximately 5300 kLD, which will be sourced from surface water bodies through water tankers after obtaining necessary approvals. The drinking water required for the construction workers will be sourced from nearby drinking water suppliers. If ground water needs to be extracted, necessary approvals shall be taken before groundwater extraction. Drinking water facilities will be provided at Toll Plaza and way side amenities during the operation phase.

S. NO.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	Yes	Changes in existing drainage pattern are expected due to activities like cutting, filling, construction activities. However, natural drainage pattern shall be maintained throughout the project by providing necessary cross drainage structures. The details of the cross-drainage structures will be furnished in the EIA report.
1.25	Transport of personnel or materials for construction, operation or decommissioning?	Yes	Demand of personnel and construction material will be fulfilled from sources/ areas through public and private transport.
1.26	Long-term dismantling or decommissioning or restoration works?	No	Not applicable
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	No	Not envisaged
1.28	Influx of people to an area in either temporarily or permanently?	Yes	There will be temporary influx of people including labours, construction staff and engineers during the construction phase. Local people will be given priority.
1.29	Introduction of alien species?	No	Not envisaged
1.30	Loss of native species or genetic diversity?	Yes	Approximately 1,22,470 number of trees within proposed RoW, will be felled for construction of the Greenfield Highway. However, compensatory and avenue plantation will be done using native plant species to enhance the genetic diversity. Exact quantification will be given in the EIA report
1.31	Any other actions?	No	Not applicable

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

S. NO.	Information/checklist confirmation	Yes/No	Details thereof (with approximate
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			quantities /rates, wherever possible) with source of information data										
2.1	Land especially undeveloped or agricultural land (ha)	Yes	<p>The total land area requirement for this proposed Greenfield alignment is 547.407 ha, out of which agricultural land makes up the maximum area of 455.935 ha. The existing land use pattern along the proposed alignment is as follows.</p> <ul style="list-style-type: none"> • Total land area requirement: 547.407 ha • Agricultural land: 455.935 ha (83.29%) • Built-up land: 91.472 ha (16.71%) • Barren land: 0 ha (0%) • Forest land: 0 ha (0%) 										
2.2	Water (expected source & competing users) unit: kLD	Yes	<p>In this project, we adopt best construction practices to minimize the water consumption of approximately 5300 kLD from surface water bodies through water tankers after obtaining necessary approvals.</p> <p>The drinking water required for the construction workers will be sourced from nearby drinking water suppliers. Drinking water facilities will be provided at Toll Plaza and way side amenities during the operation phase. Ground water will not be extracted.</p>										
2.3	Minerals (MT)	Yes	<p>The project will require minor minerals:</p> <table border="1" data-bbox="938 1529 1458 1827"> <thead> <tr> <th>Item</th> <th>Quantity*</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>Earth/Soil</td> <td>58400 MT</td> <td rowspan="3">From operational licensed borrow areas and quarry sites</td> </tr> <tr> <td>Fine Aggregates</td> <td>750 MT</td> </tr> <tr> <td>Coarse Aggregates</td> <td>2130MT</td> </tr> </tbody> </table> <p>*The quantities indicated here are approximate. Detailed quantification will be given in the EIA report</p>	Item	Quantity*	Source	Earth/Soil	58400 MT	From operational licensed borrow areas and quarry sites	Fine Aggregates	750 MT	Coarse Aggregates	2130MT
Item	Quantity*	Source											
Earth/Soil	58400 MT	From operational licensed borrow areas and quarry sites											
Fine Aggregates	750 MT												
Coarse Aggregates	2130MT												

2.4	Construction material - stone, aggregates, and / soil (expected source - MT)	Yes	All the construction material will be sourced from the nearest local sources		
			Item	Quantity*	Source
			Earth/Soil	58400 MT	From operational licensed borrow areas and quarry sites
			Fine Aggregates	750 MT	
			Coarse Aggregate	2130 MT	
			Water	5300kLD	Nearby areas after permission
			Bitumen	21,500 MT	Authorized local vendors
			Cement	1400 MT [#]	
			Sand	10,60,610 MT	
			Structural Steel	37,130 MT	
			Emulsion	1600 MT	
*The quantities indicated here are approximate. Detailed quantification will be given in the EIA report					
#1 bag cement = 43 kg					
2.5	Forests and timber (source - MT)	No	Not applicable		
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)	Yes	<ul style="list-style-type: none"> • D.G. sets and temporary electric connections from Kerala State Electricity Board (KSEB) • Power requirement at labour camps will be arranged by respective contractor/concessionaire. • Fuels (Diesel) for vehicles will be obtained from local fuel Depots 		
2.7	Any other natural resources (use appropriate standard units)	No	Not required		

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

S. NO.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate
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			quantities/ rates, wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	Yes	Construction equipment such as DG set and other construction equipment shall require oil, for the storage of which necessary safety and environment protection practices shall be followed. This will be included in the scope of the Construction Contractor/Concessionaire.
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	Not envisaged
3.3	Affect the welfare of people e.g. by changing living conditions?	Yes	The proposed project will reduce the travel time between Palakkad and Kozhikode from 4.0 hours to 2.0 hours Proposed road will improve the economic and social welfare of the people.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,	No	Highway is a social infrastructure which provides seamless movement and save the time in golden hour for the patients to reach hospitals.
3.5	Any other causes	No	---

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

S. NO.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
4.1	Spoil, overburden, or mine wastes	No	Not envisaged
4.2	Municipal waste (domestic and or commercial wastes)	Yes	Solid waste will be generated from the labour camps during construction phase which will be managed as per the Solid Waste Management Rules,

			2016 by Concessionaire/Contractor
4.3	Hazardous wastes (as per Hazardous Waste Management Rules).	Yes	The waste oil from construction equipment such as DG set will be stored at designated places following necessary safety and environment protection practices. This will be included in the scope of the Construction Contractor/Concessionaire.
4.4	Other industrial process wastes	No	Not applicable
4.5	Surplus product	No	Not applicable
4.6	Sewage sludge or other sludge from effluent treatment	No	Not applicable
4.7	Construction or demolition wastes	Yes	Demolition wastes will be generated from the demolition of the structures (in the construction phase only). Quantum of these waste is very less and recyclable. The details will be furnished in the EIA report.
4.8	Redundant machinery or equipment	No	Such machinery will be removed from site, when work is completed.
4.9	Contaminated soils or other materials	No	Not applicable
4.10	Agricultural wastes	No	Not applicable
4.11	Other solid wastes	No	Not applicable

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

S. NO.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources	Yes	Emissions from DG, hot mix plants, construction machineries / vehicles are expected. Relevant emission norms shall be followed. This will be included in the scope of the Construction Contractor/Concessionaire. Details will be

			furnished in the EIA report
5.2	Emissions from production processes	No	Not applicable
5.3	Emissions from materials handling including storage or transport	No	Not applicable
5.4	Emissions from construction activities including plant and equipment	Yes	Emissions are expected from concrete mixing plants, Hot Mixing plant and vehicle during construction phase. Relevant emission norms will be followed. Details will be furnished in the EIA report
5.5	Dust or odours from handling of materials including construction materials, sewage and waste	Yes	Dust emission is envisaged during handling, transport, loading and unloading of construction materials which will be managed by regular sprinkling of water. Odours from handling of sewage or waste will be avoided by adopting best management practices.
5.6	Emissions from incineration of waste	No	Not applicable
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	Not applicable
5.8	Emissions from any other sources	No	Not applicable

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

S. NO.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	Yes	Noise will be generated from operation of construction equipment. Use of best industrial protective equipment, scheduling of activities, maintenance and isolation of equipment will be practiced. Quantification will be done in EIA stage

6.2	From industrial or similar processes	No	Not applicable
6.3	From construction or demolition	Yes	Noise will be generated during construction and demolition activities
6.4	From blasting or piling	Yes	During construction phase, cutting of rocks will be done using best latest practice and piling will done for laying foundation of structures.
6.5	From construction or operational traffic	Yes	Noise will be generated by construction vehicles. However, during operation, site specific plantation program including median plantations and avenue plantations will reduce the impact of noise pollution.
6.6	From lighting or cooling systems	No	Not applicable
6.7	From any other sources	No	Not applicable

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

S. NO.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials	Yes	Oil, grease, and some lubricants shall be stored at construction site. Due care shall be taken to ensure that these materials do not contaminate water or soil. This will be included in the scope of the Construction Contractor/Concessionaire.
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	No	During construction phase sewage will be generated from labor camps. However, these will be provided with septic tank and soak pit. Other effluents from site will be collected in sedimentation tank and proposed to be reused after checking parameters. In the operation phase, soak pits shall

			be provided at project facilities such as wayside amenities, Toll Plaza etc where toilet and washrooms facilities are provided
7.3	By deposition of pollutants emitted to air into the land or into water	Yes	Emission due to construction equipment/vehicle will be taken care through water sprinkling methodology in construction phase. Emission due to traffic movement will be taken care by avenue plantation in operational phase.
7.4	From any other sources	No	Not applicable
7.5	Is there a risk of longterm buildup of pollutants in the environment from these sources?	No	Not applicable

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

S. NO.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances	Yes	<ul style="list-style-type: none"> • Flammable and hazardous substances such as bitumen, diesel, emulsion/paints etc will be handled with care as per the SOPs and stored at designated places. Adequate safety measures will be incorporated in the SOPs • Portable fire extinguishers will be provided in the labor camps.
8.2	From any other causes	No	Not applicable
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	Yes	<p>Flood:</p> <p>The proposed alignment is passing through some of the possible flood prone areas (as per the SDMA, 2016). However, highway will be designed based on the HFLs.</p>

		<p>Earthquake: The project is not likely to be affected by earthquakes as the proposed alignment passes through Seismic Zone III (moderate seismicity), as per the Seismic Zoning map of India.</p> <p>Landslide: As per the SDMA, 2016, the proposed alignment passes through Medium Hazard Zone at Ch 108+640. The nearest High Hazard Zone at an aerial distance of 0.65km, NE from Ch 32+750.</p> <p>However necessary precautionary measures such as providing rock bolting, Gabion wall, Wire mesh etc, will be adopted wherever necessary.</p>
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9. Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality

Sr. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
9.1	<p>Lead to development of supporting, facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.:</p> <ul style="list-style-type: none"> • Supporting infrastructure (roads, power supply, waste, or wastewater treatment, etc.) • housing development • extractive industries • supply industries • other 	Yes	Proposed project will lead to development of supporting infrastructure (roads, power supply, waste, or wastewater treatment, etc.), housing development and can improve the welfare of the people near the alignment as it opens the chance of avenues for economic activities and employment like development of industries and housing.
9.2	Lead to after-use of the site, which could have an impact on the environment	No	Not applicable

9.3	Set a precedent for later developments	Yes	BMP shall set a precedent for development of country. In the context of state of Kerala, Highway infrastructure is undeveloped. The proposed highway will reduce the travel time from 4.0 hours to 2.0 hours in between Palakkad and Kozhikode and interconnects two important NHs of Kerala (i.e, NH-544 and NH-66). This highway will enable social and economic development.
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	No	This is road construction project hence no cumulative effects are anticipated. This road construction project is linear in nature; hence no cumulative effects are anticipated. However, this project will play a key role to give better connectivity to the upcoming proposed National Industrial Corridor under NICDC

(III) ENVIRONMENTAL SENSITIVITY

S. No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	ESA of Western Ghats	The nearest Eco-Sensitive Area (ESA) of Western Ghats is at approximately 1.0 km North-East of the proposed alignment, from Ch 8+630, in Palakkad District

S. No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
		Silent Valley National Park	The boundary of Silent Valley National Park is at distance of 5.5 km North of the proposed alignment
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	<p>Chaliyar River</p> <p>ESA of Western Ghats</p> <p>Attappadi Reserve Forest</p> <p>Forest area near Malampuzha</p> <p>Forest area near AlanallurIII</p> <p>Vellarimala Forest near Urangattiri</p>	<p>Proposed alignment will be crossing the Chaliyar River between Vazhayur and Perumanna Villages (CRZ applicable).</p> <p>1.0 km NE of Ch 8+630</p> <p>1.3 km, NE</p> <p>0.52 km, E</p> <p>0.42 km, E</p> <p>3.8 km, N</p>
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	<p>ESA of Western Ghats</p> <p>Silent Valley National Park</p>	<p>The nearest Eco-Sensitive Area (ESA) of Western Ghats is at 1.0 km Northeast of the proposed alignment, from Ch 8+630, in Palakkad District</p> <p>The boundary of Silent Valley National Park is at distance of 5.5 km North of the proposed alignment</p>

S. No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
4	Inland, coastal, marine or underground waters	<ol style="list-style-type: none"> 1. Malampuzha Canal 2. Bharathapuzha 3. Kanjirappuzha Canal 4. Thenkara Canal 5. Nellippuzha 6. Kunthippuzha 7. Poonkudi puzha 8. Mampuzha 9. Chaliyar River Arabian Sea	<p style="text-align: center;">at Ch 1+820</p> <p style="text-align: center;">at Ch 15+290</p> <p style="text-align: center;">at Ch 34+860</p> <p style="text-align: center;">at Ch 37+870</p> <p style="text-align: center;">at Ch 38+740</p> <p style="text-align: center;">at Ch 45+280</p> <p style="text-align: center;">at Ch 100+630</p> <p style="text-align: center;">at Ch 120+530</p> <p>Proposed alignment will be crossing the Chaliyar River between Vazhayur and Perumanna Villages (CRZ applicable).</p> <p>6.9 km W from the proposed alignment end at Kozhikode</p>
5	State, National boundaries	Kerala – Tamil Nadu interstate boundary	9.4 km E
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	<ul style="list-style-type: none"> • NH 544 (Salem-Kochi Highway) • NH 66 (Panvel - Kochi - Kanyakumari Highway) 	Proposed alignment starts from NH 544 (Salem-Kochi Highway) at Marutharode Village and ends at NH 66 (Panvel – Kochi - Kanyakumari Highway)

S. No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
			at Olavanna Village
7	Defence installations	Pre-Military Recruitment Training Centre	5.9 km, NW
		Air Force Association	6.9 km NW
		Indian Coast Guard office	7.2 km, NW
8	Densely populated or built-up area	<ul style="list-style-type: none"> • Palakkad 3.8km • Mannarkad 2.9km • Perinthalmanna 16.9 km • Malappuram 15.2 km • Manjeri 5.9km • Kondotty 9.2 km • Kozhikode 7.0km 	
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Palakkad to Kozhikode	<p>Approximate no.s of man-made facilities is given below.</p> <p>Hospitals: 195 Nos.</p> <p>Schools/ Colleges: 470 Nos.</p> <p>Temples: 210 Nos.</p> <p>Church: 180 Nos.</p> <p>Mosque: 260 Nos.</p> <p>The details will be quantified in the EIA report.</p>
10	Areas containing important, high quality	Proposed alignment	

S. No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
	or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	<p>passing through Waterbodies and Agriculture lands.</p> <p><u>Forests</u></p> <ol style="list-style-type: none"> 1. Attappadi Reserve Forest 2. Forest area near Malampuzha 3. Forest area near AlanallurIII 4. Vellarimala Forest near Urangattiri <p><u>Tourism</u></p> <ol style="list-style-type: none"> 1. Malampuzha Dam <p><u>Surface</u></p> <p><u>Waterbodies</u></p> <ol style="list-style-type: none"> 1. Malampuzha Canal 2. Bharathapuzha 3. Kanjirappuzha Canal 4. Thenkara Canal 5. Nellippuzha 6. Kunthippuzha 7. Poonkudi puzha 8. Mampuzha 	<p>1.3km NE</p> <p>0.52 km E</p> <p>0.42 km E</p> <p>3.8 km N</p> <p>2.5 km</p> <p>at Ch 1+820</p> <p>at 15+290</p> <p>at Ch 34+860</p> <p>at Ch 37+870</p> <p>at Ch 38+740</p> <p>at Ch 45+280</p> <p>at 100+630</p> <p>at Ch 120+530</p>

S. No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
11	Areas already subjected to pollution or environmental damage, (those where existing legal environmental standards are exceeded)	None	
12	Areas susceptible to natural hazard which could cause the project to present environmental) problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	<p>Earthquake</p> <p>Land Slide</p> <p>Flood</p>	<p>Zone III (moderate seismicity)</p> <ul style="list-style-type: none"> • Medium Hazard Zone at Ch 108+640 • Nearest High Hazard Zone at an aerial distance of 0.65km,E from Ch 32+750 <p>The proposed alignment will be passing through some of the possible flood prone areas (as per the SDMA, 2016). However, the highway will be designed based on the HFLs.</p>

(IV). Proposed Terms of Reference For EIA Studies

EIA studies will be carried out as per the guidelines stipulated by MoEF&CC.

S.NO	EIA STRUCTURE
1.	Introduction
2.	Project Description
3.	Description of the Environment
4.	Anticipated Environmental Impacts & Mitigation Measures
5.	Analysis of Alternatives (Technology & Site)
6.	Environmental Monitoring Program
7.	Additional Studies
8.	Project Benefits
9.	Environmental Cost Benefit Analysis
10.	EMP
11	Summary & Conclusion (This will constitute the summary of the EIA Report)
12.	Disclosure of Consultants engaged

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

Date: 15.03.2022

Place: Palakkad

Signature of the applicant

(Authorized signatory)

J Balachander
General Manager (Tech) & Project Director,
National Highways Authority of India (NHAI)
Office of Project Director, No.310-A,
Chandranagar Extension,
Chandranagar PO, Palakkad
palak@nhai.org, +91 88152 15511

Annexure 1: Final Approval of the Proposed Alignment



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
(सड़क परिवहन और राजमार्ग मंत्रालय)
National Highways Authority of India

(Ministry of Road Transport and Highways)
जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075
G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200
फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/Bharatmala/DPR/LOT-5/Package-4/2017/153164

Date: 08.06.2020

To,

Regional Officer - Kerala,
National Highways Authority of India,
TC 86/1036-1, Ambly Arcade,
SNNRA-9, Pettah (PO) Thiruvananthapuram-695 008
Kerala

Sub: Consultancy services for preparation of DPR for development of Economic Corridors, Inter Corridors, Feeder Routes and National Corridors (GQ and NS-EW Corridors) to improve the efficiency of freight movement in India under Bharatmala Pariyojana - (Lot-5/Package-4) - **Minutes of Meeting- reg.**

Sir,

In reference to the subject project a presentation was held on 01.05.2020 under chairmanship of Member (P) through video conferencing with the DPR Consultant for the subject stretches i.e. (a) "Palakkad- Kozhikode" route (ICR-34), (b) "Kochi-Munnar-Theni" route (EC-21) & (c) "Hassan - Hiriyyur" route (EC-20). The copy of approved Minutes is attached herewith for further necessary action in the matter.

Yours faithfully,

(Rajneesh Kapoor)

General Manager (T) Kerala

Encl. As Above

Copy to:

- (i) General Manager (T)-Karnataka - for information and necessary action
- (ii) Project Director, PIU Palakkad
- (iii) M/s TPF Getinsa Euroestudios SL in J V with TPF Engineering Pvt. Ltd

Sub: Consultancy Services for preparation DPR work of Development of Economic Corridors, Inter Corridors, Feeder Routes, to Improve the efficiency of freight movement in India under Bharatmala Pariyojana (Lot -5/ Package -4) –Minutes of Meeting held on 01/05/20 at NHAI HQ through video conferencing

List of participants is attached at Annexure-1

A meeting was held at NHAI, HQ on 01.05.2020 through video conferencing wherein the consultant submitted the details and progress of the DPR of three routes viz. Hassan - Hiriya (EC-20) in Karnataka, Palakkad Kozikode (ICR-34) & Theni– Kochi (EC-21) in Kerala. The Team Leader (TL) gave a brief of the routes and details of the individual routes were discussed and are brought out in following paragraphs:-

(A) Hassan - Hiriya (EC-20) in Karnataka:

(i) The Consultant submitted that they have carried out all ground surveys and investigations for green field alignment which was in-principally approved during the meeting held on 07.08.2018 in NHAI HQ. The final feasibility study is also submitted in the month of December, 2019. It was stated that the proposed greenfield alignment is 114.239 Kms long and passes through Hassan, Tumkur & Chitradurga districts. The civil cost assessed by Consultant is Rs. 1770.86 cr and LA & Pre construction cost is 342.660 cr for 633.65 Ha of land. It was submitted that the project IRR for EPC mode is 0.54% (1.69% without Land cost). Even though the project is not economically viable as per the criteria, the consultant submitted that the project is technically sound, socially feasible and necessary. Consultant requested for approval of alignment and feasibility reports and associated payments.

(ii) Member (P) directed to place the project in the LA Committee for approval of alignment.

(Action: To be taken by Karnataka Division)

(B) Palakkad Kozikode (ICR-34) in Kerala:

(i) At the outset the consultant presented the proposed green field alignment along with compliance of minutes of meeting dated 01.06.2019. It was intimated that OD, CVC and TMC traffic surveys have been carried out on the stretch. The Expected diverted traffic on proposed corridor from Pantheeramkavu to Kandalapatta (34.046 km) is 21214 PCUs in year 2019 and for section Kandalapatta to Pallakkad (89.200 km) is 10015 PCUs in 2019. The approximate total project cost including centages for Greenfield Highway is 2230.24 cr (Rs. 18.08 Cr/Km).

(ii) In the last meeting held on 01.06.2019, the green-field alignment option was in principally agreed since the existing alignment's geometry is poor and suffer from lack of ROW having habitations all along. The consultant was directed to modify the proposal for 45 m ROW instead of 70m ROW and review the high number of LVUPs.

(iii) The consultant submitted that for 45m ROW the total land area required is 554.61 Ha which as per Kerala Govt. website for calculating fair value will cost tentatively Rs. 973.216 cr (7.89 cr/km). The Green Field Alignment option-I is having 24.44% built-up land, 74.96% agricultural land and 0.6% barren land. The locations of LVUPs provided by the consultant were also perused.



(iv) Since, the traffic from Pantheeramkavu to Kandalapatta (34.046 km) is considerably more than the traffic from Kandalapatta to Pallakad (89.200 km), the consultant has recommended for 6 lane divided carriageway for Pantheeramkavu to Kandalapatta and 4 lane divided carriageway for Kandalapatta to Pallakad stretch. The details of stretches are illustrated below:

S.No	Location	Chainage	Proposed Carriageway Configuration	IRR for 60m ROW/ without LA cost		IRR for 45m ROW/ without LA cost	
				HAM	EPC	HAM	EPC
HS 1	Pantheeramkavu to Kandalappatta	89+200 to 123+246 (34.046 km)	6 lane divided carriageway (Warrants Eight Lane configuration in 2025)	4.62% / 9.43%	6.95% / 11.44%	5.45% / 9.48%	7.77% / 11.47%
HS 2	Kandalapatta to Palakkad	0+000 89+200 (89.200 km)	4 lane divided carriageway (Warrants Six Lane configuration in 2030)	-4.21% / -1.87%	0.72% / 4.03%	-3.72% / -1.82%	1.36% / 4.07%

(v) In-principally the alignments submitted by the consultant were agreed. It was directed that the consultant shall proceed with the Feasibility Study of the alternate alignments thus explored. Also, RO- Thiruvananthapuram was directed to examine the "Alignment Options Report" and recommend most suitable option to NHAI, HQ based on feasibility report of consultant. Further, RO may also examine the release of due payment to consultant and release the payment after verifying the deliverables as per Contract Agreement, if due.

(Action: To be taken by Consultant and RO-Thiruvananthapuram)

(B) Kochi-Munnar-Theni route (EC-21):

(i) In the last meeting held on 01.06.2019 the consultant was directed to examine the alignment's start point near Theni so that the route takes off from where the bypass ends avoiding habitations. It was also directed that the cost of the proposal shall be optimized as far as possible so as to make it viable.

(ii) Consultant submitted that the existing road alignment starts at Ch 0+000 Bodimat (KL/ TN Border) & ends at Ch 160+000 at Kundanoor Junction, Kochi. Existing project corridor passes through different Land use like residential, commercial, Tea, Coffee Cardamom plantation, religious structures, etc. Since the existing alignment has dense land use land acquisition along the existing route is not economically, financially & socially feasible. Consultant therefore proposed a greenfield alignment which is having least disturbance to habitations, ecology and forest. The consultant submitted that they have complied with the suggestions of Member (P) and now the proposed alignment starts at Ch. 0+000 of NH 183

Reginald K. K. K.

(Kollam - Theni Highway) near Muthuthevanpatty village near Theni district & ends at Ch. 143+251, on NH 85 (old NH 49) near Kolenchery village.

(iii) The ROW proposed is 45m in non-forest portion & 30m in forest portion. The lane configurations for the proposed alignment is 4 lane divided carriageway & pavement proposed is flexible. The design speed is kept 100 km/h in plain terrain & 65 km/h for approximate 500m length, 80 km/hr in hilly/ ghat portion, except for approximate 5km length where the design speed is reduced to 40 km/hr to optimize the cost.

(iv) Around 44% length of the alignment passes through plain terrain & 55 % passes through hilly/mountainous terrain. The alignment also passes through 22.2 km Reserve Forest and has 3 tunnels of total length 8.83 km.

(v) Consultant also intimated that they have worked out tentative cost of the project based on normative cost circular of MoRTH. For cost optimization the consultant presented two options. In option I, four lane divided highway in plain terrain, two lane single tube tunnel for both direction traffic in ghat portion & Two lane road with two lane viaduct width in ghat portion/ hilly terrain is proposed having estimated civil cost of Rs. 3884.84 Crores i.e 27.12 crores/km. In option II, structures & road are proposed four lane in plain as well as hilly terrain having estimated civil cost as Rs. 7588.84 cr, i.e. 52.98 cr/km. The preliminary IRR calculation for EPC mode are as below:

a. For Option I (45m ROW)

i) IRR = 4.22%

ii) IRR (without land acquisition cost) = 6.56%

b. For Option II (60m ROW)

i) IRR = 0.89%

ii) IRR (without land acquisition cost) = 2.6%

(vi) The alignment submitted by the consultant were perused. It was directed to the consultant to carryout detailed traffic study and proceed with the Feasibility Study of the alignments. Also, RO- Thiruvananthapuram was directed to examine the "Alignment Options Report" and recommend most suitable option to NHAI, HQ based on feasibility report of consultant. Further, RO may also examine the release of due payment to consultant and release the payment after verifying the deliverables as per Contract Agreement, if due. Further, RO- Thiruvananthapuram was directed to expedite the preparation of DPR and submit the same latest by Sept 2020 since project stretch is already entrusted to NHAI and included in BharatMala Pariyojana.

(Action: To be taken by Consultant and RO-Thiruvananthapuram)

Raymond K. Sabal

List of Participants

NHAI

1. Shri R.K Pandey, Member (Projects),
2. Shri Alok Deepankar, CGM (Tech)
3. Shri Rajneesh Kapoor, GM (Tech)-Kerala
4. Shri Akil Ahmad, GM (Tech)-Karnataka
5. Shri R.K Suryavanshi, RO- Bangalore & Thiruvananthapuram (through VC)
6. Shri Prakhar Srivastava, Dy. Manager (T)-Kerala (through VC)

Consultant M/S TPF Getinsa – Eurostudios. SL in (JV) with M/S TPF Engineering Pvt. Ltd.

1. Shri B N Ohol, Team Leader (through VC)
2. Shri Pradip Shinkar, Project Coordinator (through VC)
3. Shri Omkar Deshpande, Assistant Highway Engineer (through VC)
4. Shri Ranjan Behera, Assistant Bridge Engineer (through VC)



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय)

National Highways Authority of India

(Ministry of Road Transport & Highways)

परियोजना कार्यान्वयन इकाई - कोचीन

Project Implementation Unit Cochin

VII/511-बी, नेयतेली - मावेलीपुरम सड़क,

VII/511-B, Neytheli- Mavelipuram Road

मावेलीपुरम, काक्कनाड - 682030, एरणाकुलम जिल्ला (केरल)

Mavelipuram, Kakkanad - 682030, Ernakulam District (Kerala)

टेलिफोन / फैक्स : 0484 - 4864616

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BHARATMALA
ROAD TO PROSPERITY

NHAI/PIU-Cochin/11154/Bharatmala/TPF/2020/916

20th November, 2020

To

M/s.TPF Getinsa Euroestudios S.L.
in JV with TPF Engineering Pvt. Ltd.,
4th floor, Pudhari Bhavan, Sector-30A,
Near Sanpada Railway Station, Vashi, Navi Mumbai - 400705
e-mail - pune@tpfepl.com

Kind Attn: Sri.B.N.Ohol -Team Leader (Mob: 8605981565)

Sub: Consultancy services for preparation of DPR for development of economic corridors, inter corridors and feeder routes to improve the efficiency of freight movement in India under Bharatmala Pariyojana (Lot-5/Package-4)- **-Approval of alignment and LA cost by LA Committee for Stage - 1- Intimation - Reg**

Ref: MOM No. LA/11013/LACMinutes/2020 (Computer No.5369) dt. 02.11.2020

Gentleman,

Please find enclosed herewith the approval for the proposed Greenfield alignment at Option -3 (Option 4 of Consultant) with 45m ROW at an estimated LA Cost f Rs.1489.65 Crores as per reference (1). In view of the above it is requested you to kindly expedite the LA activities like 3(a) & 3A and forest clearance proposal at the earliest please.

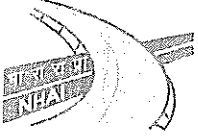
Yours sincerely,

Encl: As above

(J. Balachander)

GM (T) & Project Director

Copy : RO-Kerala - for kind information



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
(राइक परिवहन और राजमार्ग मंत्रालय)
National Highways Authority of India
(Ministry of Road Transport and Highways)
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अति तत्काल
दस्ती

No. LA/11013/LACMinutes/2020(computer no. 5369)

02.11.2020

विषय: भू अर्जन समिति की अठारहवीं बैठक दिनांक 23.10.2020 बाबत।

भू अर्जन समिति की अठारहवीं बैठक दिनांक 23.10.2020 को भाराराप्रा मुख्यालय में आयोजित की गई थी।

2. बैठक के कार्यवृत्त इस परिपत्र के साथ परिचालित किए जाते हैं।
3. यह कार्यवृत्त सक्षम अधिकारी के अनुमोदन से जारी किए गए हैं।

(विजय श्रीवास्तव)
महाप्रबंधक (भू-अर्जन)

सेवा में,

सभी संबन्धित अधिकारी

प्रतिलिपि:-

1. अध्यक्ष महोदय के निजी सचिव
2. सदस्य (प्रशासन) के निजी सचिव
3. सदस्य (परियोजना) के निजी सचिव

Minutes of meeting of LA committee held on 23.10.2020

Following were present:

- i. Shri S.S. Sandhu, Chairman
- ii. Shri Alok, Member (Admin)
- iii. Shri R.K. Pandey, Member (Project)
- iv. Shri Mahabir Singh, Member (Tech)
- v. Shri Manoj Kumar, Member (Project)

2. The Committee considered the proposals submitted by technical divisions and following decisions were taken:

Sr. No.	Project Name / Decision
18.01	MYSORE-Kushalanagara to near Paschima Vahini in the state of Karnataka. (Pkg-I) Unique Project Code: N/08029/01001/KA
Decision	Since 3D notification is already done, the LAC noted and approved the proposal with 45m ROW for Highway and 60m at structures location at an approximate LA cost of Rs. 1113 Crs.
18.02	MYSORE-Kushalanagara to near Paschima Vahini in the state of Karnataka. (Pkg-II) Unique Project Code: N/08029/01001/KA
Decision	LA Committee approved the proposal alignment option 1 as 3D has already been done.
18.03	4-Laning of Greenfield alignment of Malout Bypass and Mandi Dabwali Bypass in the state of Punjab. Unique Project Code: N/05025/02001/PB
Decision	The proposal alignment at Option 1 is approved with 45m ROW and approximately LA cost of Rs. 203 Crs.
18.04	4 laning of Ujjain to Badnawar in the state of Madhya Pradesh. Unique Project Code: N/05042/02001/MP
Decision	The proposed LA plan has been approved with 60m ROW at an estimated LA cost of Rs. 340 Crs.
18.05	<u>4/6-laning of Theni – Munnar – Kochi stretch of NH-85 in the state of Kerala.</u> Unique Project Code: N/14001/03002/KL
Decision	The proposed greenfield alignment at Option –3 (Option 4 of consultant) is approved with 45m ROW at an estimated LA Cost of Rs. 1489.65 Crs.

[Signature]

18.06	6-laning of Walayar – Vadakkanchery section of NH-544 in the state of Kerala. Unique Project Code: N/02013/09001/KL
Decision	The proposed brownfield alignment is approved with 45m ROW at an estimated LA cost of Rs. 159 Crs.
18.07	6-laning of Thrissur – Edapally section of NH-544 in the state of Kerala. Unique Project Code: N/02013/12001/KL
Decision	The proposed brownfield alignment from Thrissur to Angamaly with proposed greenfield alignment of Ernakulam Eastern Bypass is approved with 45m ROW at an estimated LA cost of 2899 Crs.
18.08	4-laning of Kozhikode – Mallapuram – Palakkad stretch in the state of Kerala. Unique Project Code: BP/01401/03/02/D/U
Decision	The proposed greenfield alignment at option 01 is approved with 45m ROW at an estimated LA cost of Rs. 762.37 Crs.

3. The Meeting ended with a vote of thanks to the Chair.

f/h



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय)

National Highways Authority of India

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अति तत्काल
दस्ती

No. LA/11013/LAC Minutes/2020(computer no. 77470)

27.01.2022

विषय: भू अर्जन समिति की चौसठवीं बैठक दिनांक 18.01.2022 बाबत।

भू अर्जन समिति की चौसठवीं बैठक दिनांक 18.01.2022 को भाराराप्रा मुख्यालय में आयोजित की गई थी।

2. बैठक के कार्यवृत्त इस परिपत्र के साथ परिचालित किए जाते हैं।
3. यह कार्यवृत्त सक्षम अधिकारी के अनुमोदन से जारी किए गए हैं।

एम एस कुमार

(एम एस कुमार)

उपमहाप्रबंधक (भू-अर्जन)

सेवा में,

सभी संबन्धित अधिकारी

प्रतिलिपि:-

1. अध्यक्ष महोदय के निजी सचिव
2. सभी सदस्य के निजी सचिव

Minutes of 64th Meeting of LA Committee held on 18.01.2022

Following were present:

- i. Ms. Alka Upadhyaya, Chairperson, NHAI
- ii. Shri R.K. Pandey, Member (Project)
- iii. Shri Mahabir Singh, Member (Tech)
- iv. Shri Manoj Kumar, Member (Project)

2. The Committee considered the proposals submitted by Technical Divisions and following decisions were taken:

Sr. No.	Project Name / Decision
64.01	Madanpalle - Kalur (Pkg-1&2) (On HAM Mode) in the State of Andhra Pradesh. UPC Code - N/12004/01003/AP
Decision	LAC accorded approval for change in alignment with 45m ROW in built up section, 30m ROW in Forest section and 60m ROW in open areas. LAC also accorded 2 nd stage approval to proposed LA Plan for acquisition of 396 Ha. at an approximate LA cost of Rs. 352 Cr.
64.02	Hoshiarpur to Una Section in the State of Punjab. UPC Code - N/08059/01004/PB
Decision	LAC accorded 2 nd stage approval to the proposed LA Plan for acquisition of 85 Ha. Additional land at an approximate cost of Rs. 139 Cr, with 45m ROW in Greenfield stretch (15.20 Km) and 26.8m ROW in Brownfield stretch.
64.03	6 lane of Sirhind-Sehna, Greenfield (On HAM Mode) in the State of Punjab. UPC Code - N/05058/02001/PB
Decision	LAC accorded 2 nd stage approval to proposed LA Plan for acquisition of 712 Ha at an approximate cost of Rs. 756 Cr, with 60m ROW.
64.04	Construction of Varanasi - Ranchi - Kolkata (with spur to Kharagpur) in the State of Uttar Pradesh, Bihar, Jharkhand and West Bengal. UPC Code - N/14001/01046/UP
Decision	LAC accorded approval to the proposed alignment at Option-01 having a length of 612.05 Km with 90m ROW. LAC directed the Technical Division to ensure the consent of State of West Bengal on alignment before publication of 3A notification for the project stretch falling in the State.

64.05	Tabled Item: Deferred Agenda No. 63.03. 4-laning of Kozhikode-Mallapuram-Palakkad stretch in the State of Kerala. UPC Code - BP/01401/03/02/D/U
Decision	Discussed in LAC meeting dt 06.01.2022 & LAC directed to defer the Agenda to re-examine proposed deviation -2 (Km 10.8 - Km 15.85). Technical Division submitted that due to existence of canals, the proposed deviation-2 (Km 10.8 to Km 15.85) is justified. Accordingly, LAC accorded 2 nd stage approval to proposed LA Plan deviation with 45m ROW, for acquisition of 547 Ha. additional land at an approximate cost or Rs. 4014 Cr.

3. The Meeting ended with a vote of thanks to the Chair.

