

# Form-1

For

## Terms of Reference

For

## Environmental Impact Assessment (EIA)

For

*Development of **Kharagpur - Bardhaman - Morgram Section (NH116A)** of Kharagpur – Siliguri Economic Corridor in the state of West Bengal under Bharatmala Pariyojana*

Proposal no. IA/WB/NCP/274724/2022

File no. 10/25/2022-IA.III

Agenda No. 3.2 of 300th EAC meeting

By

**National Highways Authority of India (NHAI)**



*Prepared by*

**CETEST**  
Engineering Consultants

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*Environmental Consultants*

**ULTRA TECH**

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A **QCI-NABET Accredited Environmental**  
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**Appendix – I**  
**(As per paragraph – 6 of EIA Notification 2006)**  
**Form 1**

**(I) BASIC INFORMATION**

S No	Item	Details
1	Name of the project	Development of Kharagpur - Bardhaman - Morgram Section (NH116A) of Kharagpur – Siliguri Economic Corridor in the state of West Bengal under Bharatmala Pariyojana
2	Serial number in the Schedule	7(f)
3	Proposed capacity/ area	As this is green field alignment, the design and existing length is same. <b>Total Length = 230.983 km</b> The proposed alignment is totally green field alignment, starts from chainage 124.5 km of NH-6 and connecting another 4 major national highway like NH-2, NH-60, NH-2B and terminating at chainage 229.4 of NH-34. The major portion of the proposed alignment passes through agricultural land connecting some industrial area like Kharagpur and Bardhaman. The proposed alignment has been finalized as a high-speed economic corridor with design speed of 120kmph
4	New/Expansion/modernization	New
5	Existing capacity/ area/tonnage etc.	0 Ha
6	Category of project. “A” or “B”	A
7	Does it attract the general conditions? If yes please specify	No.
8	Does it attract the specific conditions? If yes, please specify	No
9	Location	Starts from NH – 16 (at Ch. 124.500 km of old NH-6) near Kharagpur (Around 5Km from Khargpur i.e., NH 60- NH 6 Junction towards Kolkata on NH-6) Ends near Morgram (Junction of NH60, NH34 and SH-7) of the state of West Bengal.
	Plot/ survey/ khasra no.	Alignment on Toposheet in 1:50000 scale and kml file is enclosed
	Villages	Samudrapur, Ramchandrapur, Basudebpur, Khirish Mul, Ranga Dighi, Gaighata, Khagra Gerya, Agrapara, Jagannathpur, Chandrakona, Rejna, Basulia, Thakurhati, Laskarpur, Purba Narayanpur, Haldi, Jayrambati, Chakchil, Gotai, Laugram, Palashi, Chhota Gobindapur, Bowaichandi, Enayetnagar, Napara, Bardhaman, Khana Junction, Mangalkot, Khargram, Nagar, Nakpur, Telangal
	Taluk	Kharagpur-II, Medinipur, Keshpur, Chandrakona-II,

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S No	Item	Details
		<ul style="list-style-type: none"> <li>• Khana Junction: 1.0 km from Proposed Road</li> <li>• Mangalkot: very close on Proposed Alignment</li> <li>• Khargram: very close on Proposed Alignment</li> <li>• Nagar: very close on Proposed Alignment</li> <li>• Nakpur: very close on Proposed Alignment</li> <li>• Morgram: at the end of project road.</li> </ul> <p><u>District Head Quarters</u></p> <ul style="list-style-type: none"> <li>• Paschim Medinipur: Medinipur</li> <li>• Hooghly: Chinsurah</li> <li>• Bankura: Bankura</li> <li>• Purba Bardhaman: Bardhaman</li> <li>• Birbhum: Suri</li> <li>• Murshidabad: Baharampur</li> </ul>
13	Village Panchayat, Zilla Parishad, municipal Corporation, Local Body. (Complete postal address with telephone nos. to be given)	<p><u>Gram Panchayat</u></p> <p>Samudrapur, Ramchandrapur, Basudebpur, Khirish Mul, Ranga Dighi, Keshpur, Gaighata, Khagra Gerya, Agrapara, Jagannathpur, Chandrakona, Rejna, Basulia, Thakurhati, Laskarpur, Purba Narayanpur, Haldi, Jayrambati, Chakchil, Gotai, Laugram, Palashi, Chhota Gobindapur, Bowaichandi, Enayetnagar, Napara, Bardhaman, Khana Junction, Mangalkot, Khargram, Nagar, Nakpur, Telangal</p> <p><u>Block Panchayat</u></p> <ul style="list-style-type: none"> <li>• Kharagpur-II, Madpur, Baragere, West Bengal 721149</li> <li>• Goghat-II, Block Development Office, SH 7, Madhubati, West Bengal 712612</li> <li>• Kotulpur, Shiromanipur, West Bengal 722141</li> <li>• Khandaghosh, Sagrai, West Bengal 713423</li> <li>• Nanoor, Nanoor Chandidas Rd, Chandidas Nanur, West Bengal 731301</li> <li>• Khargram, SH 7, Nagar, West Bengal 742159</li> </ul> <p><u>District Magistrate Office</u></p> <ul style="list-style-type: none"> <li>• <b>Paschim Medinipur</b>-Office of the District Magistrate, Collectorate Administrative Building, PO: Paschim Medinipur, West Bengal 721101, Ph: 03222275571</li> <li>• <b>Hooghly</b>-Ghatakpara, Chinsurah R S, Chinsurah, West Bengal 712101, Ph: 03326802044</li> <li>• <b>Bankura</b>-Administrative Building, Bankura Collectorate, Bankura, West Bengal 722101, Ph: 03242250304</li> <li>• <b>Purba Bardhaman</b>-Kachhari Road, Kalibazar Para, Burdwan, West Bengal 713101, Ph: 03422662428</li> </ul>

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S No	Item	Details
		<ul style="list-style-type: none"> <li>• <b>Birbhum</b>-Administrative Building, Suri Main Road, Suri, Birbhum, West Bengal 731101, Ph: 03462255222</li> <li>• <b>Murshidabad</b>-Old Police Line Rd, Barrack Sqaure, Gora Bazar, Berhampore, West Bengal 742101, Ph: 03482251650</li> </ul>
14	Name of the applicant	National Highways Authority of India
15	Registered address	Ministry of Road Transport and Highways G-5 & 6, Sector-10, Dwarka, New Delhi-110075
16	Address for correspondence	
	Name	Mr. Subrata Nag
	Designation (Owner/ partner/ CEO)	General Manager (Tech) & Project Director, PIU Kharagpur
	Address	PIU-Kharagpur, NHAI Complex Near Chowrangee, Inda, Kharagpur
	Pin Code	721305
	E-mail	<a href="mailto:kha@nhai.org">kha@nhai.org</a> piukgp2010@gmail.com
	Telephone no.	8450888186
	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.
17	Details of alternative sites examined, if any. Location of these sites should be shown on topo sheet.	<p>Yes, as submitted, a total of 3 options were analyzed. The toposheet showing the 3 alignment options is given as Annexure 1.</p> <p>Considering all aspects, the Option was chosen and it (Green field new Alignment) is strongly Recommended as,</p> <p>i. Civil cost is less compared to other options and also the length of the chosen option- is less.</p> <p>ii. The other options pass through many town and dense locality areas, and forest land also so widening as well as geometric improvement is quite difficult without disturbing or dismantling structures.</p> <p>iii. The chosen option follows the green field alignment, so land acquisition processes are comparatively easier than other options.</p> <p>iv. The chosen option is green field new alignment and thus, there is no existing traffic. Hence, during construction traffic diversion is not required.</p>
18	Interlinked projects	No
19	Whether separate application of interlinked project has been	Not applicable

S No	Item	Details
	submitted?	
20	If yes date of submission	Not applicable
21	If no, reason	Not applicable
22	Whether the proposal involves approval/ clearance under: If yes, details of the same and their status to be given. (a) The Forest (Conservation) Act, 1980 (b) The Wildlife (Protection) Act, 1972 (c) The CRZ Notification, 1991.	(a) Not applicable (b) Not Applicable. (c) Not Applicable
23	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 Economic-Corridor. It has got the following approvals 1. Govt of West Bengal approval vide Joint Secretary (P&C) Public Works department, Government of West Bengal, on 24.02.2021 vide letter no. IM-13/2020(Pt.)/8-R/W(N) 2. Land Acquisition Committee NHAI approval vide letter No LA/ 11013 / LAC Minutes/2020 (Computer No.5369) dated 18.08.2021. The LAC comprises of the Chairman and members of NHAI. The various approvals on alignment obtained from the Competent Authority of Central and State Governments and NHAI HQ is attached as Annexure 2.
24	Forest land involved (hectares)	None
25	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 Court, if any and its relevance with the proposed project.	Not applicable

- 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.,)

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(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.)

Sl. 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	There is no Existing Road and the total stretch from Kharagpur to Morgram is a new Greenfield Alignment. 60m ROW is required for 4-Lane carriageway. The project road passes through plain terrain. The topography is mostly rural in nature. Some portion of the existing alignment passes through the agricultural land. 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 land use pattern of the road stretch is mainly agricultural and open area. Though it is a Greenfield alignment, however, some of the stretches are passing through semi built up areas where some residential and commercial activities are found. Accordingly, vegetation, including plantations and few existing structures within the proposed RoW will required to be removed in order to construct the road. Details to be given in the EIA report.
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	Pre-construction 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.

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Sl. No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.5	Construction works?	Yes	Construction of 4-lane Greenfield Highway of <b>Total Length = 230.983 km</b> 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 362 nos of structures in the proposed 60m RoW will be demolished. Pucca –100 Semi-Pucca – 205 Hut – 57 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 including Structures such as Minor/Major Bridges, Culverts, ROBs, VUPs, LVUPs, SVUPs etc as per standard specification of IRC SP:84:2019 will be adopted. Other structures such as toll plaza, wayside amenities, rest area etc. 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

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Sl. 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 WBSPCB and district administrations.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	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.  2) <u>Liquid effluents:</u> During construction stages waste will be generated from labor camps. However, septic tank and soak pit will be provided for their treatment. Other effluents from site will be collected in sedimentation tank and proposed to be reused after checking parameters. Any wastage will be controlled and details will be incorporated in the EIA report.
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.?	No	Not Applicable.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	This is Greenfield project. However, small diversion of traffic may be required for construction of structures / highway at junctions of proposed highway with existing highway/road.
1.20	New or diverted transmission lines or pipelines?	Yes	Shifting of existing Utilities such as HT/LT transmission lines / EHV Towers, Water pipe lines, Gas Pipe Lines etc to be done in the Utility corridor at the edge within NH RoW. Details will be furnished in the EIA report.
1.21	Impoundment, damming,	Yes	The proposed road section being green-field there

Sl. No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
	culverting, realignment or other changes to the hydrology of watercourses or aquifers?		<p>are no existing structures. As per road inventory about 19 nos. Major &amp; 67 nos. Minor bridges are required to be constructed along the project road section.</p> <p>Important Rivers crossings are</p> <ul style="list-style-type: none"> <li>• 2.344 Km: Kangshabati River</li> <li>• 44.200Km: Silabati River</li> <li>• 79.720 Km: Dwarkeswar River</li> <li>• 104.490 Km: Damodar River</li> <li>• 145.460 Km: Ajay River</li> <li>• 182.210 Km: Mayurakshi River</li> <li>• 173.638 Km: Bakreswar River</li> </ul> <p>Apart from above there are several canals and small streams on the alignment which require cross drainage structures</p> <p>Provision of cross drainage structures such as Major/Minor Bridges and culverts to maintain the natural course of water have been considered. The details of the cross-drainage structures will be furnished in the EIA report.</p>
1.22	Stream crossings?	Yes	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	<p>In this project, we adopt best construction practices to minimize the water consumption of tentative 5450 kLD, which will be sourced 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. 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.</p>

Sl. 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 labourers, 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	Tentative 800 numbers of trees within proposed RoW will required to 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 quantities /rates, wherever possible) with source of information data
2.1	Land especially undeveloped or agricultural	Yes	The total land area requirement for this

	land (ha)		proposed Greenfield alignment is 1572 Ha The land use pattern of the road stretch is mainly agricultural and open area. However, some of the stretches are passing through semi built up areas where some residential and commercial activities are found. Accordingly, vegetation, including plantations and existing structures within the proposed RoW will be removed in order to construct the road. Details to be given in the EIA report.										
2.2	Water (expected source & competing users) unit: kLD	Yes	In this project, we adopt best construction practices to minimize the water consumption of tentative 5450 kLD 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. Drinking water facilities will be provided at Toll Plaza and way side amenities during the operation phase. Ground water will not be extracted.										
2.3	Minerals (MT)	Yes	The project will require minor minerals: <table border="1" data-bbox="927 1213 1430 1575"> <thead> <tr> <th>Item</th> <th>Quantity*</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>Fly Ash/Soil</td> <td>3,24,40,000 cum</td> <td rowspan="3">From operational licensed borrow areas and quarry sites</td> </tr> <tr> <td>Fine Aggregates</td> <td>3,50,000 cum</td> </tr> <tr> <td>Coarse Aggregates</td> <td>7,50,000 Cum</td> </tr> </tbody> </table> <p>*The quantities indicated here are approximate. Detailed quantification will be given in the EIA report</p>	Item	Quantity*	Source	Fly Ash/Soil	3,24,40,000 cum	From operational licensed borrow areas and quarry sites	Fine Aggregates	3,50,000 cum	Coarse Aggregates	7,50,000 Cum
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2.4	Construction material - stone, aggregates, and / soil (expected source - MT)	Yes	All the construction material will be sourced from the nearest local sources <table border="1" data-bbox="927 1776 1430 1892"> <thead> <tr> <th>Item</th> <th>Quantity*</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>Fly Ash/Soil</td> <td>3,24,40,000 cum</td> <td>From operational</td> </tr> </tbody> </table>	Item	Quantity*	Source	Fly Ash/Soil	3,24,40,000 cum	From operational				
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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"> <li>• D.G. sets will be used and temporary electric connections will be taken from West Bengal State Electricity Board (WBSEB)</li> <li>• Power requirement at labour camps will be arranged by respective contractor/Concessionaire.</li> <li>• Fuels (Diesel) for vehicles will be obtained from local fuel Depots</li> </ul>																			
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 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	Yes	Construction equipment such as DG set and other construction equipment shall require oil, for the storage of

	water supplies)		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	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 saves 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 (if any) will be done using best latest practice and piling will done with latest driving equipment / technique to avoid noise/vibration pollution 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
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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.
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 long-term 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"> <li>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</li> <li>Portable fire extinguishers will be provided in the labor camps.</li> </ul>

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: The proposed road section is Green field new alignment. The maximum stretches are agricultural area and also flood prone in some sections. The embankment height will be proposed considering the HFL criteria</p> <p>Earthquake: The proposed highway including bridges and culverts fall in seismic Zone III, as per the classification specified in IRC: 6-2017. All bridges will be designed for seismic forces for Zone III as per said Code.</p>

**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"> <li>• Supporting infrastructure (roads, power supply, waste, or wastewater treatment, etc.)</li> <li>• housing development</li> <li>• extractive industries</li> <li>• supply industries</li> <li>• other</li> </ul>	Yes	Proposed project will lead to development of supporting infrastructure (roads, power supply, waste, or wastewater treatment, etc.), 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	The main objective of the project is for development of Kharagpur – Moregram section of Kharagpur - Siliguri Economic Corridor to improve the efficiency of freight

			<p>movement in India. This highway will enable social and economic development.</p> <p>The Project Road is an economic corridor between Kharagpur – Siliguri. So the whole North-East India will be benefitted on this project as the Siliguri is the gate way of North-East India</p>
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	No	<p>This is road construction project hence no cumulative effects are anticipated.</p> <p>This road construction project is linear in nature; hence no cumulative effects are anticipated.</p>

### **(III) ENVIRONMENTAL SENSITIVITY**

<b>S. No.</b>	<b>Areas</b>	<b>Name/ Identity</b>	<b>Aerial distance (within 15 km.) Proposed project location boundary</b>
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Nil	Not Applicable
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Nil	Not Applicable
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	Nil	Not Applicable

4	Inland, coastal, marine or underground waters	1. Darkeswar River 2. Ajay River 3. Mayurakshi River	at Ch 79+720 at Ch 145+460 at Ch 182+210
5	State, National boundaries	<ul style="list-style-type: none"> <li>▪ West Bengal – Jharkhand interstate boundary</li> <li>▪ West Bengal – Jharkhand interstate boundary</li> <li>▪ India-Bangladesh International Border</li> </ul>	30 km West  50km South  25 km North-East
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	<ul style="list-style-type: none"> <li>• NH-16 (Kolkata-Chennai Highway)</li> <li>• NH-19 (Kolkata-Delhi Highway)</li> <li>• NH-34 (Kolkata- Siliguri Highway)</li> </ul>	Proposed alignment starts from NH 16 (Kolkata-Chennai Highway) Near Kharagpur and ends at NH 34 (Kolkata- Siliguri Highway) Near Morgram
7	Defense installations	Panagarh Air Force Station	43 km, W
		Kalaikunda Air Force Station	20 km SW
		BSF Campus Roshanbagh	42 km, E
		Indian Coast Guard Haldia	105 km, SE
8	Densely populated or built-up area	<ul style="list-style-type: none"> <li>• Keshpur</li> <li>• Chandrakona</li> <li>• Jayrambati</li> <li>• Bowaichandi</li> <li>• Bardhaman</li> <li>• Khana Junction</li> <li>• Mangalkot</li> <li>• Khargram</li> <li>• Nakpur</li> </ul>	1.5 km 2.5 km 1.0 km 0.5 km 18 km 1.0 km 0.7 km 0.8 km 0.6 km
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Kharagpur to Morgram	These are not falling within ROW. However tentative nos. of man-made facilities are given below (with 15km). Hospitals: 5 Nos. Schools/ Colleges: 144 Nos. Temples: 573 Nos. Church: Nil. Mosque: 151 Nos.

			The details will be quantified in the EIA report.
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	None. The entire Proposed alignment passing through Agriculture lands.	
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)	Flood	From Chainage 171.00 km to 177.00 km the proposed alignment passes through Low land area. However, the highway will be designed based on the HFLs and necessary protection work.