



सत्यमेव जयते

भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
(सड़क परिवहन और राजमार्ग मंत्रालय)
National Highways Authority of India
(Ministry of Road Transport & Highways)

पता - प्लॉट नं. 66-67, सिद्धि विनायक कॉलोनी, दादाजी कॉलेज के पास, इन्दौर रोड,
Add. - Plot No. 66-67, Siddhi Vinayak Colony, Near Dadaji College, Indore Road,
खण्डवा (म.प्र.) Khandwa (M.P.) 450001
e-mail : piukhandwa@nhai.org, nhaikhandwa@gmail.com



NHAI/PIU-KNW/MP/BO-SH/1204/Corr./2023-24/२२५५

DATE: 23.11.2023

To,

Sh. H.S. Mohanta,
The APCCF (LM) & Nodal officer (FCA)
Govt. of Madhya Pradesh
Satpura Bhawan, Bhopal (M.P.)

Sub: Diversion of 87.5709 Ha. reserved & Protected Forest land for 4 laning of Indore-Muktainagar section of NH-753L from Boregaon Buzurg, Khandwa District in MP Design Ch. 139+000 to Muktainagar Ch. 216+278 (length 77.278 Km) under Bharatmala Pariyojana in Khandwa and Burhanpur District of Madhya Pradesh- Proposal no. (FP/MP/ROAD/156438/2022)-**Compliance of observations raised by REC Committee-Reg.**

Ref.: (i) Technical Officer (Forestry) letter dated 22.11.2023.
(ii) MOM of 13th Meeting of 2023 dated 23.10.2023.

This is in reference to letter under ref. (i) vide which observations in respect of subject forest proposal has been raised by REC during meeting dated 23.10.2023.

2. In this regard, the compliance/reply of the observations raised during REC meeting dated 23.10.2023 in respect of subject forest proposal is as below:

| Sr. no | Observation raised by REC | Reply of NHAI |
|--------|--|---|
| 1 | After construction of road in Khandwa Forest Division at proposal alignment, some patches of forest land are going to be isolated. The user Agency shall rectify the alignment and avoid aberrant fragmentation of forest patches. | <ul style="list-style-type: none"> This office vide letter dated 01.11.2023 has directed the DPR Consultant to submit the compliance report in respect of observations raised by REC Committee. The DPR Consultant vide letter dated 10.11.2023 has submitted a report(enclosed) clearly stating that the shifting or change in alignment is not feasible as the same would make the alignment unsafe for road users as technical requirements necessary for development of safe 4-lane highway section will be compromised while doing so. Further, on shifting of alignment the subject work is bound to become un-economical as cost of work and length of stretch is increasing on account of increased nos. of structures. Further, this office vide letter dated 16.11.2023 has requested the Head of Department, Civil Engineering Department, MANIT, Bhopal to vet and verify the compliance report submitted by the DPR Consultant. In this regard, a site visit was carried out by the team consisting of Dr. P. K Agarwal, Head of Department, Civil Engineering, MANIT and representatives of NHAI, PIU Khandwa and DPR Consultant of NHAI. During the site visit, in line with the observation of REC committee, options were explored for changes in alignment in such a manner |

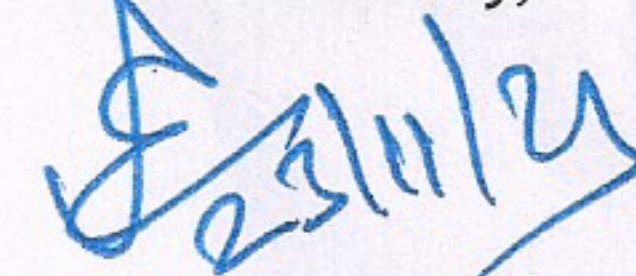
23/11/23

| | | |
|---|---|--|
| | | <p>that the safety requirement and technical specifications are met as per IRC norms for Construction of 4-lane highway section.</p> <ul style="list-style-type: none"> • Thereafter, HOD, Civil Engineering Dept., MANIT vide letter dated 23.11.2023 has submitted their report (detailed report enclosed) vide which they have recommended following: <ul style="list-style-type: none"> i. Based on the site condition and after thorough examination of alternative options, alignment may be shifted to the RHS side of the approved alignment to avoid fragmentation of forest land, however, the same may bear no fruit as the ultimate goal of meeting all the safety parameters and technical requirements shall not be achieved as both explored options are not fulfilling the required IRC norms and if considered for making the construction would lead to development of black spots rendering the highway unsafe for users making the entire expenditure infructuous. ii. Whereas, the approved alignment placed before R.E.C earlier may be considered the best Possible alignment keeping the consideration the safety of road users and the technical specifications. iii. Hence, it is recommended that the already approved alignment may be considered by the REC committee keeping in consideration the long-term safety of road users. |
| 2 | Correct KML file of proposed diversion land (i.e. 87.5709 ha.) shall be uploaded. | <p>Correct KML is enclosed.</p> <p>Further, it is pertinent to mention that the correct KML file was also physically submitted before REC committee and same was also discussed during the meeting and was OK.</p> |

3. It is pertinent to mention that the subject work is a prestigious work of Government of India and currently, the work could not be commenced at site on account of pending Stage-01 Forest clearance.
4. Accordingly, it is requested to expedite the grant of Stage-01 clearance in respect of subject forest clearance so that any further delay in commencement of the subject work can be avoided and interest of Gol can be protected as any further delay is bound to generate financial liabilities on Gol on account of claims by the Concessionaire.
5. This is for your information and further necessary action at your end.

Encl.: KML & MOM.

Your faithfully,



(Ashutosh Soni)

Project Director
NHAI, PIU-KHANDWA

Copy To:

- (i) Dy. Director General of Forest, MOEFCC, IRO-Bhopal for kind information
- (ii) CCF, Forest Department, Khandwa for kind information please.
- (iii) DFO, Forest Department, Khandwa/Burhanpur for information please.
- (iv) Technical officer, MOEFCC, IRO-Bhopal for kind information please.
- (v) The Regional Officer, RO-Bhopal for kind information please.
- (vi) Team Leader, M/s RITES LIMITED for information.



मौलाना आज़ाद
राष्ट्रीय प्रौद्योगिकी संस्थान भोपाल (म.प्र.) भारत
MAULANA AZAD
NATIONAL INSTITUTE OF TECHNOLOGY BHOPAL (M. P.) INDIA

CE/PKA/2023/C-350

Date:23/11/2023

To,
The Project Director,
NHAI PIU Khandwa.
Madhya Pradesh

SUB: -- REPORT ON VETTING AND VERIFICATION OF THE COMPLIANCE REPORT SUBMITTED BY NHAI DPR CONSULTANT I.E. M/S RITES IN RESPECT OF OBSERVATIONS RAISED BY REGIONAL EMPOWERED COMMITTEE DURING MEETING DATED 23.10.2023 REGARDING RECTIFICATION IN THE ALIGNMENT TO AVOID FRAGMENTATION OF FOREST PATCHES FOR THE WORK OF 4-LANNING OF BOREGAON BUZURG TO MUKTAINAGAR SECTION OF NH-753L IN THE STATE OF MADHYA PRADESH.

YOUR REFERENCE NO:NHAI/PIU-KNW/BO-MU/FOREST/2204 DATED 16.11.2023

DEAR SIR,

This in ref. to your letter under ref. vide which this office of Head of Department of Civil Engineering, was requested to carry out vetting and verification of the Compliance report submitted by your DPR Consultant i.e. M/s RITES in respect of observations raised by Regional Empowered Committee during meeting dated 23.10.2023 regarding rectification in the alignment to avoid fragmentation of forest patches for the work of 4-lanning of BoregaonBuzurg to Muktainagar Section of NH-753L in the state of Madhya Pradesh.

2. In this regard, the report submitted by DPR Consultant was examined by this office (report enclosed as **Annexure-A**) and subsequently a site visit was carried out by the team consisting of Dr. P. K Agarwal, Head of Department, Civil Engineering, Maulana Azad National Institute of Technology and representatives of NHAI, PIU Khandwa and DPR Consultant of NHAI (Site Visit Photographs attached as **Annexure-B**).
3. During the site visit, in line with the observation of REC committee, options were explored for changes in alignment in such a manner that the safety requirement and

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technical specifications are met as per IRC norms for Construction of 4-lane highway section. The details of site observations are as below:

3.1 **Site observations in respect of Explored option no. 01: Widening of the already existing road in Khandwa Forest division.**

| Sr. No | Features/ technical specifications observed on basis of site visit | Comments on the technical specifications as per IRC Norms and safety requirement |
|--------|--|--|
| 1 | <ul style="list-style-type: none"> The existing road consists of approx. 21 sharp curves with radius varying from 20m to 100m and the riding speed of 20-40 km/hr. There are already existing 3. Nos of accident blackspot on existing road. Vertical gradient of the existing road is more than permissible limit of 2.5%. | <ul style="list-style-type: none"> The existing road consists of approx. 21 sharp curves with radius varying from 20m to 100m and the riding speed of 20-40 km/hr. The same does not meet the safety requirement as curve with at-least minimum radius of 400m needs to be provided in order to achieve the design speed of 100km/hr and ensure the safety of road users. There are already existing 3. Nos of accident black spot-on existing road and following the the existing road alignment shall render the alignment unsafe for movement of traffic as the sole purpose of safe traffic movement shall not be achieved. Vertical gradient of the existing road is more than permissible limit of 2.5% resulting in more traction effort by the heavy loaded vehicles to climb the road thereby causing accidents. |

Final recommendation on adopting explored option no. 01 i.e Widening of the already existing road in Khandwa Forest division: It is pertinent to mention that this option does not meet the required norms for development of 4-lane highway section as it does not meet the safety requirement as curve with at-least minimum radius of 400m needs to be provided in order to achieve the design speed of 100km/hr, which is not available and designing the alignment in with radius <400m and design speed <100km/hr defeats the entire purpose of development of 4-lane highway section as the section shall remain prone to accident and would render the highway unsafe making the entire expenditure infructuous in future.


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Also, the existing blackspots on account of sharp curves and vertical gradient shall continue to exist rendering the highway unsafe.

Accordingly, thus alignment option cannot be adopted as it fails to meet the safety requirement and technical specification for development of 4-lane highway in consonance with IRC norms i.e. IRC SP:84, 2019. Hence, the same is **not recommended**.

3.2 Site observations in respect of Explored option no. 02: Shifting the proposed alignment towards RHS of Existing Road.

| Sr. No | Features/ technical specifications observed on basis of site visit | Comments on the technical specifications as per IRC Norms and safety requirement |
|--------|---|--|
| 1 | <ul style="list-style-type: none"> The previous road section till chainage 139+000 has been already constructed any changes in it cannot be made. Therefore, for shifting the alignment to the right-hand side, it shall require sudden sharp transition curve to avoid habitation area from Ch. 139+300 to 139+400 which is on RHS of existing road. <ul style="list-style-type: none"> On account of sudden transition, it is not possible to provide minimum curve radius of 400m. On shifting of alignment to the RHS of existing road, alignment moves near to the catchment area of the Bhagwant sagar dam and into a valley portion. The shifting of alignment shall require the alignment to traverse through a developed construction camp to avoid disruption to habitation area due to which minimum horizontal radius will decrease to 200m and in addition to same it shall require huge cutting and filling. | <ul style="list-style-type: none"> The same does not meet the safety requirement as curve with at-least minimum radius of 400m needs to be provided in order to achieve the design speed of 100km/hr and ensure the safety of road users. Since, the previous road section has been already built, due to shifting of alignment to RHS, vertical geometry of the section that shall be followed will make the road construction uneconomical and un-safe. Shifting of alignment to the RHS side will require huge cutting and filling which will in turn lead to the disruption of natural ridge line, drainage and catchment areas of Bhagwant Sagar dam causing impact on environment. If alternate alignment behind the habitation & mining area is adopted from chainage 140.300 onwards, the minimum horizontal radius will decrease to 200 m and vertical grade within the permissible safe limit of 2.5% as specified in IRC:SP: 84 which may result in deficient road geometry of the proposed highway thereby |


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 GATEWAY CAMPUS, GATEWAY CAMPUS
 GATEWAY CAMPUS, GATEWAY CAMPUS (M.P.)

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| | | <p>compromising with the safety of the road users.</p> <ul style="list-style-type: none"> • Further, the shifted alignment follows the existing stream for which the long height retaining wall need to be constructed throughout the stream line resulting in extra cost of to the project. • There are lot of small streams passes across the alignment which may result in construction of 11 culverts and 02-Major bridge (200m & 270m in length) making the project uneconomical. • As per the above conditions, the shifting of approved alignment to the right side of the existing road is not economical & easy. |
|--|--|--|

Recommendation on adopting explored option no. 02 i.e Shifting the proposed alignment towards RHS of Existing Road.: It is pertinent to mention that this option does not meet the required norms for development of 4-lane highway section as it does not meet the safety requirement as curve with at-least minimum radius of 400m needs to be provided in order to achieve the design speed of 100km/hr, which is not available and designing the alignment in with radius <400m and design speed <100km/hr defeats the entire purpose of development of 4-lane highway section as the section shall remain prone to accident and would render the highway unsafe making the entire expenditure infructuous in future.

Further, the topography is not fit for development of proper vertical profile as it would require huge cutting and filling which would in turn lead to the disruption of natural ridge line, drainage and catchment areas of Bhagwant Sagar dam causing impact on environment.

Also, from economic point of view, on account of increase of no. of structures i.e 11 culverts and 02-Major bridge (200m & 270m in length), the cost of construction is increasing, making the project uneconomical. Apart from this, shifting of alignment to the RHS shall increase the length of highway by 400m and also abandonment of already acquired revenue areas for which compensation has been paid by the Government of India leading to infructuous expenditure.

Accordingly, thus alignment option maynot be adopted as it fails to meet the safety requirement and technical specification for development of 4-lane highway in


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consonance with IRC norms i.e. IRC SP:84, 2019. Also, it is uneconomic, unsafe and has also more ecological impact on surrounding area. Hence, the same may **not be recommended**.

4. Thereafter, thereport submitted by the DPR Consultant of NHAI was examined in light of IRC norms and the same was found justified. Also, the approved alignment was examined and the comments regarding same are as follows:

- i. The proposed Highway has been designed with a speed of 100 km/Hr and follow IRC SP 84 adopting the minimum horizontal curve radius of 400m with a transition of 120m and a ruling vertical grade of maximum 2.5%.
- ii. By following the proposed level, the start grade has been provided with a maximum grade of 2.5% for economical design of project Road.
- iii. A curve of a radius of 1500m has been given on the proposed alignment to avoid habitation area whereas the existing RoW have been taken into consideration.
- iv. Existing road has been utilized from Ch. 139.150 to 139.400, Ch. 139.400 to 139.500 and 139.900 to 140.000.
- v. The stretch from Ch. 139.400 to 140.000 is barren and rocky where only some hedges/bushes are grown up. Hence, the designed alignment has not impacted the environment.
- vi. All the accident Black Spot locations have been eliminated by the proposed alignment.
- vii. The proposed alignment passes to the west of existing habitation.
- viii. Vertical curve has been designed for a length of 1400m for smooth traffic flow and down gradient of maximum permissible limit of 2.5%.
- ix. The alignment has been designed avoiding the habitation and mining area in order to avoid the resettlement & rehabilitation of people thereby neutralizing the social impact.

Recommendation on adopting already approved alignment: As per the above date, the approved alignment fulfils all the technical and safety requirement and is also the most economic alignment. Therefore, the approved alignment may be considered the best possible alignment for implementation.

5. **Recommendations:** Based on the site condition and after thorough examination of alternative options, alignment may be shifted to the RHS side of the approved alignment to avoid fragmentation of forest land, however, the same may bear no fruit as the ultimate goal of meeting all the safety parameters and technical requirements shall not be achieved as both explored options are not fulfilling the required IRC norms and if considered for making the construction would lead to development of black spots rendering the highway unsafe for users making the entire expenditure infructuous (all explored and examined options enclosed as **Annexure-C**).

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Whereas, the **approved alignment** placed before R.E.C earlier may be considered the **best Possible alignment** keeping the consideration the safety of road users and the technical specifications.

Hence, it is **recommended** that the already approved alignment may be considered by the REC committee keeping in consideration the long term safety of road users.

This report is for information for clients and bears no legal liability.

Thanking you



Dr. P. K. Agarwal
(Professor & HOD)

Department of Civil Engineering

MANIT, Bhopal-462003

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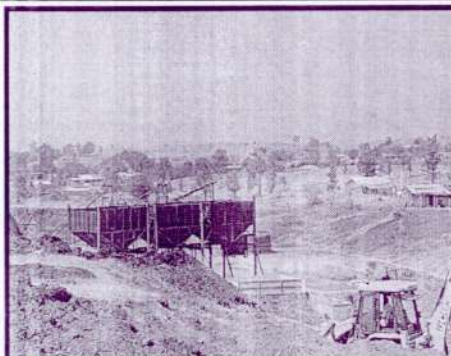
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Maulana Azad National Institute of Technology

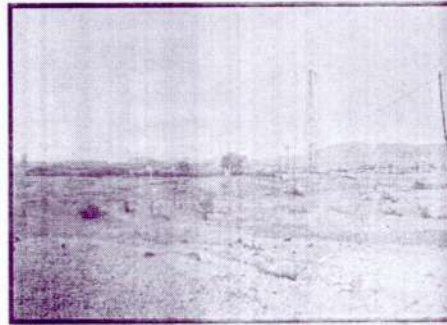
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Annexure-B

Site Visit Dated 19.11.2023



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राइट्स लिमिटेड
(भारत सरकार का प्रतिष्ठान)
RITES LIMITED
(Schedule 'A' Enterprise of Govt. of India)

RITES/HW/NHAI/BM (Lot 8)/RT300-00045/2311010

Dated: 10.11.2023

The Project Director

PIU-Khandwa, National Highways Authority of India,
Plot no. 66 & 67, Sidhivinayak Colony
Near Dadaji College, Indore Road
Khandwa (M.P.) - 450001

Subject: Consultancy Services for preparation of DPR for Development of Green field Stretches for improving direct connectivity in Indian Cities (Lot-8/Package 2) [Gadchiroli – Karimnagar (215 km) and Khandwa – Akola (140 km)] – **Compliance of Observation raised by R.E.C committee for Forest Diversion proposal no. FP/MP/ROAD/156438/2022-reg.**

Ref.: Your office letter no. NHAI/PIU-KNW/1204/BO-MU/FOREST/2157 dated 01.11.2023.

Sir,

With reference to your office letter under reference above, a team of DPR Consultant consisting of Forest Expert and Highway Design Engineer has visited the site on 03-05 November 2023 along with NHAI, PIU-Khandwa representative.

As discussed with you, the detailed observations & justification of the DPR Consultant on designed alignment are enclosed in **Annexure-A**.

Thanking you and assuring best of our services at all times.

Yours faithfully,

(Sanjeev Gupta)

Traffic & Safety Expert cum Team Leader
RITES Ltd.


Encl: As above

Transforming to GREEN

कॉर्पोरेट कार्यालय: शिखर, प्लॉट नं. 1, सेक्टर-29, गुरुग्राम-122 001 (भारत), **Corporate Office:** Shikhar, Plot No.1, Sector-29, Gurugram-122 001 (INDIA)
पंजीकृत कार्यालय: स्कोप मीनार, लक्ष्मी नगर, दिल्ली-110 092 (भारत), **Registered Office:** SCOPE Minar, Laxmi Nagar, Delhi- 110 092 (INDIA)
दूरभाष (Tel.): (0124) 2571666, फैक्स (Fax): (0124) 2571660, ई.मेल (E-mail) info@rites.com वेबसाइट (Website): www.rites.com

CIN: L74899DL1974GOI007227

ANNEXURE-A

| Photos | Existing Road Alignment | Comments on Proposed Alignment | Reasons for not shifting the proposed alignment towards RHS of Existing Road |
|--------------------------------|---|--|--|
| A. 139.000 to 139.400 | B.  | C. <ul style="list-style-type: none"> The Project Road starts from Chainage 139+000 and ends at 216+000 in Muktainagar (Maharashtra) The under-construction alignment ends after a minor bridge (60m before the start of proposed Alignment) which is already constructed. There is a sharp S-curve on existing road due to which the location is accident prone zone. Scheduled Tribe habitation area on RHS from Chainage 139+300 to 139+400. Forest area starts at 139+350 on LHS. The existing road from 139.000 to 139.400 having 04-curves (radius of curve varies from 60m-80m approx.) and with a riding speed of 20-30 Km/Hr. | E. <ul style="list-style-type: none"> The first tangent of the proposed alignment at Chainage 139+000 follows the exact line bearing and co-ordinate of the previous road section under construction to avoid the kink formation and thereby compromising with the safety of the road users and to avoid habitation area from Ch. 139+300 to 139+400 which is on RHS of existing road. Similarly, vertical geometry of the previous section has been followed to make the road construction economical and safe. Hence Shifting of the alignment to the right side of the existing road is not possible. |
| | | D. <ul style="list-style-type: none"> The proposed Highway has been designed with a speed of 100 km/Hr and follow IRC SP 84 adopting the minimum horizontal curve radius of 400m with a transition of 120m and a ruling vertical grade of maximum 2.5%. By following the proposed level, the start grade has been provided with a maximum grade of 2.5% for economical design of project Road. A curve of a radius of 1500m has been given on the proposed alignment to avoid habitation area whereas the existing RoW have been taken into consideration. Existing road has been utilized from Ch. 139.150 to 139.400 As per the above circumstances the approved alignment is the best Possible alignment. | |

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प्राध्यापक एवं प्रमुख

Professor & Head



नागरिक अभियंत्रिकी विभाग

Department of Civil Engineering

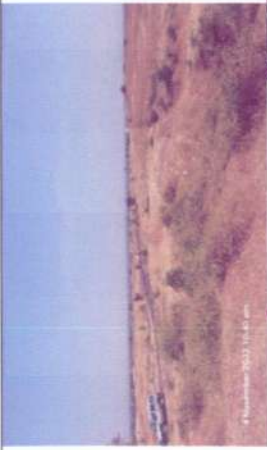


मौलाना आज़ाद राष्ट्रीय प्रौद्योगिकी संस्थान

Maulana Azad National Institute of Technology

भुवनेश्वर (भ. प्र.)/BHOPAL-462007 (M.P.)



| Photos | Existing Road Alignment | Comments on Proposed Alignment | Reasons for not shifting the proposed alignment towards RHS of Existing Road |
|--------------------|---|---|---|
| A. | C. | D. | E. |
| B. |  | | |
| 139.400 to 140.000 |  <ul style="list-style-type: none">The existing road from 139.400 to 140.000 having 05-curves (radius of curve varying from 20m-50m approx.) with a riding speed of 20-30 Km/Hr which has been realigned only to improve the road geometry of the existing road as per IRC: SP: 84. The proposed alignment again meets the at chainage 139+900.Apart from the 05nos existing curves, 02-locations are the accident black spot near chainage 139.500 and 139.900.The vertical gradient of the existing road exceeds 2.5%, which results in more traction | <ul style="list-style-type: none">A horizontal curve has been provided from chainage 139.400 to 139.800 adopting a minimum radius of 400 m with a transition of 120m to shift the proposed alignment to right side of the existing road to the extent possible as per IRC: SP: 84.The shifting of alignment tangent is also not possible as the minimum runoff length of runoff length 37.788m to change the superelevation from +2.96% to -5.0% between the two curves has already been provided.Adoption of lesser runoff length than prescribed by IRC | <ul style="list-style-type: none">The tangent of previous curve has been followed to provide a minimum horizontal radius of 400 with a transition of 120m from chainage 139.400 to 139.800 as per IRC:SP: 84 to shift the proposed alignment to the RHS of the existing road to the maximum possible extent without compromising the safety of the road users and to avoid any environmental impact |


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| Photos | Existing Road Alignment | Comments on Proposed Alignment | Reasons for not shifting the proposed alignment towards RHS of Existing Road |
|--------|--|---|---|
| A. | | | E. on Bhagwant Sagar Pariyojna dam. • Hence Shifting of the alignment to the right side of the existing road is not possible. |
| B. |    | <p>C.</p> <p>effort by the heavy loaded trucks to climb the exiting road and thereby resulting in road accidents.</p> <ul style="list-style-type: none"> The Bhagwant Sagar Pariyojna Dam on the right side of the existing road at chainage 139,800. <p>D.</p> <p>specifications will make the road unsafe.</p> <ul style="list-style-type: none"> Existing road has been utilized from Ch. 139,400 to 139,500 and 139,900 to 140,000. The stretch from Ch. 139,400 to 140,000 is barren and rocky where only some hedges/bushes are grown up. Hence, the designed alignment has not impacted the environment. All the accident Black Spot locations have been eliminated by the proposed alignment. Hence the Approved alignment is the best possible Alignment. | |

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| Photos | Existing Road Alignment | Comments on Proposed Alignment | Reasons for not shifting the proposed alignment towards RHS of Existing Road |
|--------------------|--|--|---|
| A. | B. | C. | E. |
| |  | <ul style="list-style-type: none"> At this section, two horizontal curves have been provided with minimum horizontal radius of 400m with a transition of 120m for a design speed of 100 Km/Hr avoiding the habitation & mining area. The shifting of alignment tangent is also not possible as the minimum runoff length of 37.788m to change the superelevation from +2.96% to -5.0% between the two curves has already been provided. Adoption of lesser runoff length than prescribed by IRC specifications will make the road unsafe. Vertical curve has been designed | <ul style="list-style-type: none"> At this section, two horizontal curves have been provided with minimum horizontal radius of 400m with a transition of 120m for a design speed of 100 Km/Hr as per IRC:SP: 84 avoiding the habitation & mining area. The shifted road has been designed following the ridgeline to avoid deep cutting & filling, least disturbance to natural drainage of the area thereby causing least impact on the environment. |
| 140.300 to 142.000 |  | <ul style="list-style-type: none"> The is a village and mining area on RHS side of the existing road from Ch. 140.500 to 141.200. There is a large telecom tower in the habitation area. Existing road from 140.300 to 142.000 having 09-curves (radius of curve varying from 20m-100m approx) and with a riding speed of 20-40 Km/Hr. Apart from the 09-existing curves, 02-locations are accident black spot near chainage 140.900 and 141.900. Vertical gradient of the existing road is more than permissible limit of 2.5% resulting in more traction effort by the heavy loaded vehicles to climb the road | |


| Photos | Existing Road Alignment | Comments on Proposed Alignment | Reasons for not shifting the proposed alignment towards RHS of Existing Road |
|--|---|---|---|
| <p>A.</p> <p>B.</p>  | <p>C.</p> <p>thereby causing accidents.</p> | <p>D.</p> <p>for a length of 1400m for smooth traffic flow and down gradient of maximum permissible limit of 2.5%. Adoption of vertical gradient greater than maximum permissible limit will make the road unsafe for road users.</p> <ul style="list-style-type: none"> The alignment has been designed avoiding the habitation and mining area in order to avoid the resettlement & rehabilitation of people thereby neutralizing the social impact. The proposed highway has 08-culverts and 01-Minor bridge. Existing road has been utilized from Ch. 140.300 to 140.450 and 140.850 to 141.030. | <p>E.</p> <p>environment.</p> <ul style="list-style-type: none"> If alternate alignment behind the habitation & mining area is adopted (refer-Fig-1) from chainage, 140.300 onwards, the minimum horizontal radius will decrease to 200 m and vertical grade within the permissible safe limit of 2.5% as specified in IRC:SP: 84 otherwise it may result in deficient road geometry of the proposed highway thereby compromising with the safety of the road users. Moreover, the length of the project road will get increased by 400m and 05-08 nos of houses and the mining area will get affected resulting in increased cost of the project and displacement of the people. Further, the alternate alignment follows the existing stream for which the long height retaining wall need to |

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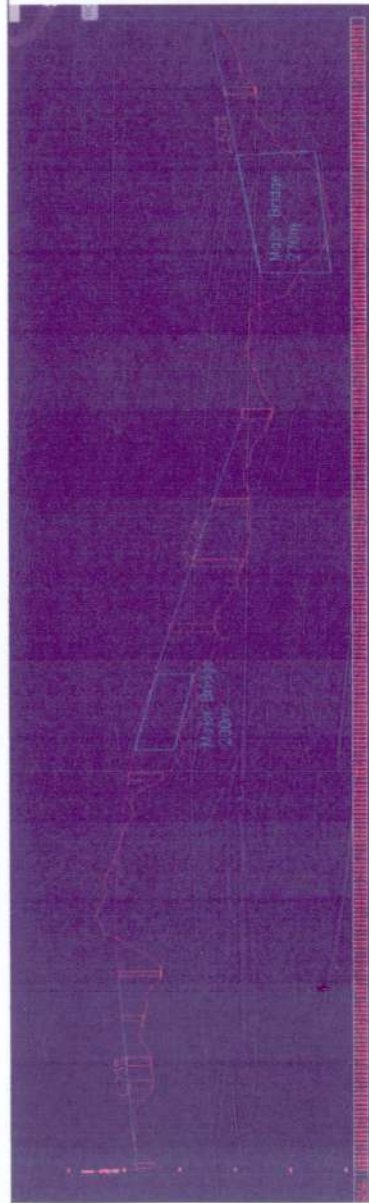
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| Photos | Existing Road Alignment | Comments on Proposed Alignment | Reasons for not shifting the proposed alignment towards RHS of Existing Road | |
|--------|--|--------------------------------|---|----|
| A. | B. | C. | D. | E. |
| |  | | <p>be constructed throughout the stream line resulting in extra cost of to the project.</p> <ul style="list-style-type: none">There are lot of small streams passes across the alignment which may result in construction of 11 culverts and 02-Major bridge (200m & 270m in length) making the project uneconomical.As per the above conditions, the shifting of approved alignment to the right side of the existing road is not feasible. | |


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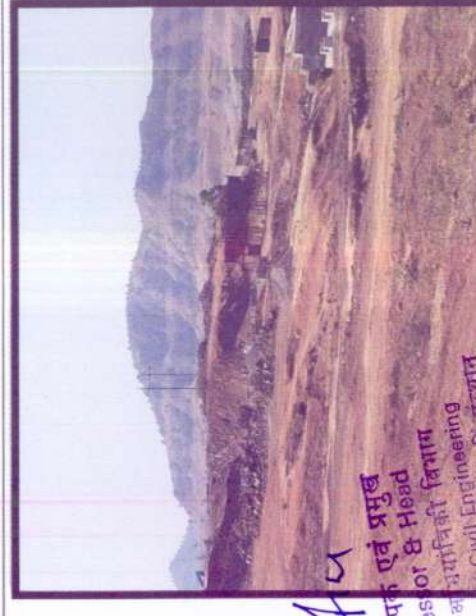
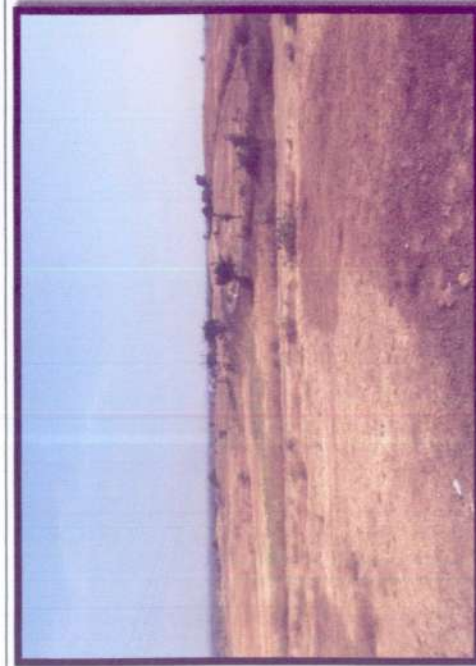
The tentative vertical schematic is presented below, if we shift the alignment to the right side of the existing road




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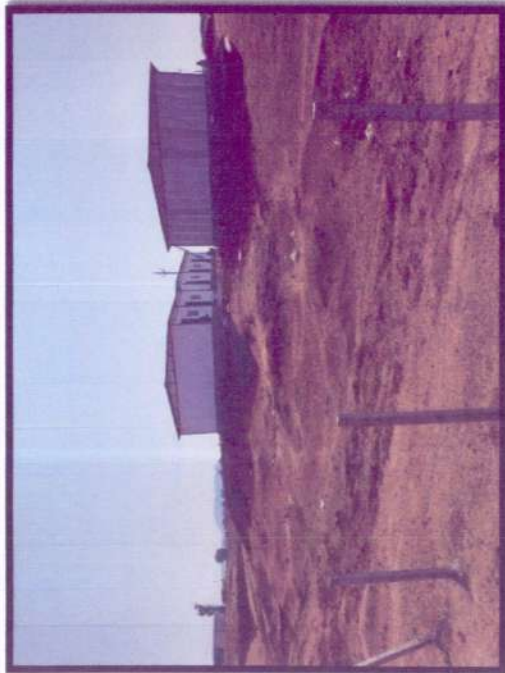
Annexure-B

Site Visit Dated 19.11.2023



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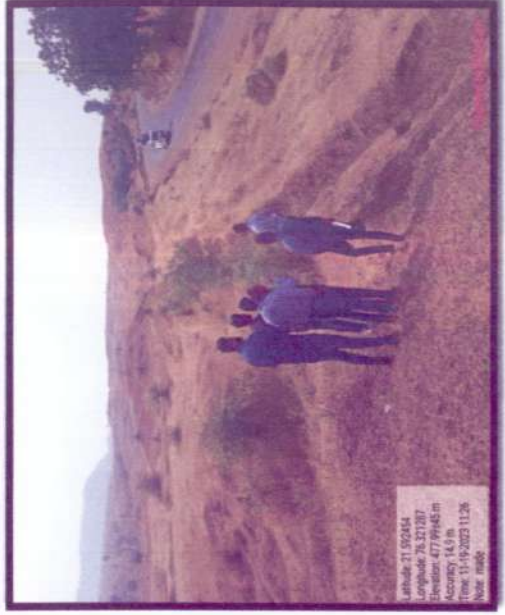
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मोहम्मद (म.प्र.)



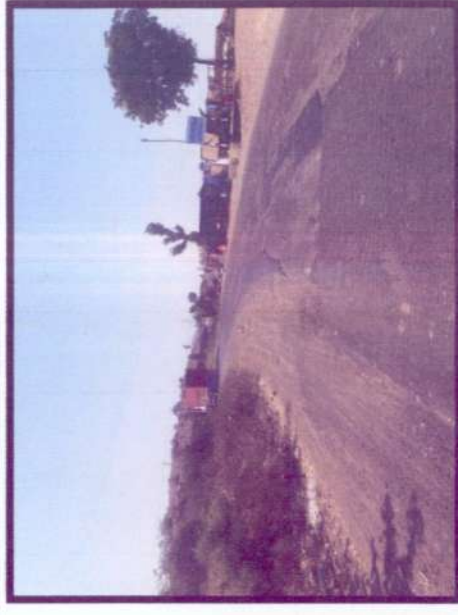
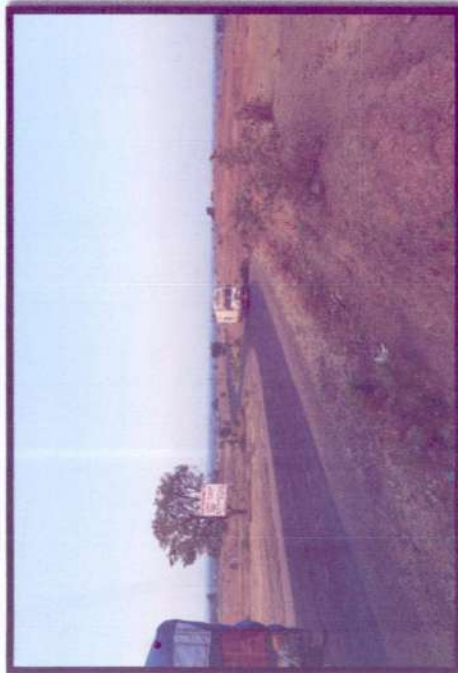
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Longitude: 78.321716
Elevation: 478.18271 m
Accuracy: 10.8 m
Time: 11-10-2023 11:22
Note: made



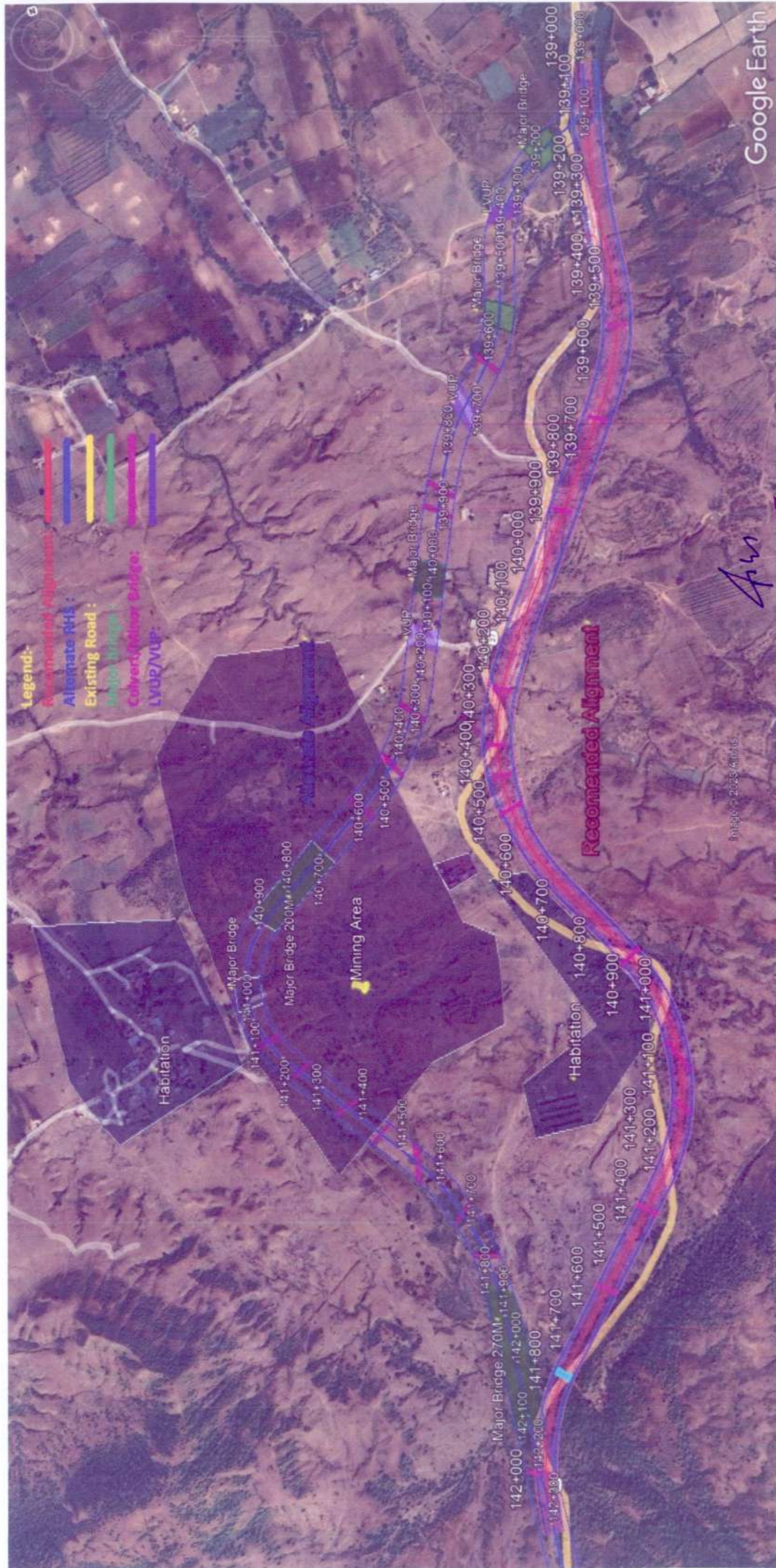
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Longitude: 78.321716
Elevation: 478.18271 m
Accuracy: 10.8 m
Time: 11-10-2023 11:22
Note: made



Latitude: 21.514845
Longitude: 78.321716
Elevation: 478.18271 m
Accuracy: 10.8 m
Time: 11-10-2023 11:26
Note: made



for
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