



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
(सड़क परिवहन एवं राजमार्ग मंत्रालय, भारत सरकार)
NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport and Highways, Govt. of India)



क्षेत्रीय कार्यालय/REGIONAL OFFICE

ई-2/167, अरेश कॉलोनी, रानी कमलापती रेलवे स्टेशन के पास, भोपाल-462 016 (म.प्र.)
E-2/167, Aresh Colony, Near Rani Kamlapati Railway Station, Bhopal-462 016 (M.P.)
दूरभाष/Phone : 0755-2426638, फैक्स/Fax : 0755-2426698, ई-मेल/E-mail : robhopal@nhai.org

भा.रा.रा.प्र./क्षे.का-म.प्र./भोपाल/रा.रा.-69/पैकेज-2/2023/48609

दिनांक: 13/02/2023

प्रति,

मुख्य वन्य प्राणी अभिरक्षक एवं प्रधान मुख्य वन संरक्षक (व.प्रा.) म.प्र.

प्रगति भवन, भोपाल विकास प्राधिकरण, तृतीय तल, एम.पी.नगर,

भोपाल (म.प्र.)

ई-मेल :- pccfwl@mp.gov.in

विषय:- मध्यप्रदेश राज्य में राष्ट्रीय राजमार्ग क्रमांक -69 (इटारसी-बैतूल खण्ड) के कि.मी. 63.000 से कि.मी. 137.000 (डिजाइन लम्बाई 73.995 कि.मी.) का चार लेन निर्माण कार्य I -(GAD) एवं Animal Passage Plan की स्वीकृति के संबंध में।

संदर्भ :- आपका पत्र क्रमांक/ व.प्रा./माचि./NH-69/1103 भोपाल, दिनांक 08.02.2023

महोदय,

उपरोक्त विषयान्तर्गत लेख है, कि राष्ट्रीय राजमार्ग क्रमांक -69 (नवीन राष्ट्रीय राजमार्ग क्रमांक -44) इटारसी-बैतूल खंड अंतर्गत बरेठा घाट, केसला घाट एवं भौरा परिक्षेत्र के वन्य प्राणी कॉरिडोर में वन्यजीव शमन उपाय पूर्व में परियोजना निदेशक, भारतीय राष्ट्रीय राजमार्ग प्राधिकरण, भोपाल द्वारा दिनांक 09.01.2023 को भेजे गए थे। जिसका संदर्भ आपके अग्रेषित पत्र में दिया गया है।

2. परिक्षण दौरान इंगित की गई कमियों के संबंध में स्थिति निम्नानुसार है :-

- 1) केसला घाट में वन्य जीव शमन उपाय अंतर्गत 70मी. की टनल प्रस्तावित की गई है, जिसकी स्पष्ट लोकेशन एवं डिजाइन के संबंध में रेलवे विभाग से लगातार संपर्क किया जा रहा है। डिजाइन फाइनल होते ही आपके विचारण हेतु भेजा जा रहा है।
- 2) केसला घाट के चैनैज 64.052 किमी पर 12 मी. शमन उपाय के स्थान पर 30 मी. पुल, नाले पर आपके सुझाव के अनुसार प्रस्तावित किया जा रहा है।
- 3) भौरा परिक्षेत्र अंतर्गत वन्यप्राणी कॉरिडोर में 200मी. की WildLife under pass feasibility सम्मिलित की जा रही है।

अनुरोध है कि भारतीय राष्ट्रीय राजमार्ग प्राधिकरण वन्यप्राणी संरक्षण के उपायों हेतु कृत संकल्पित है एवं उपरोक्त सभी कमियों को दूर कर सुझायी गई संरचनाओं को DPR में शामिल कर अग्रिम कार्यवाही करेगा।

(श्रवण कुमार सिंह)

क्षेत्रीय अधिकारी

प्रतिलिपि:-

- परियोजना निदेशक, परियोजना क्रियान्वयन इकाई- भोपाल की ओर संदर्भित पत्र के तारतम्य में आवश्यक कार्यवाही हेतु अग्रेषित।

श्री ज.ए.सी.

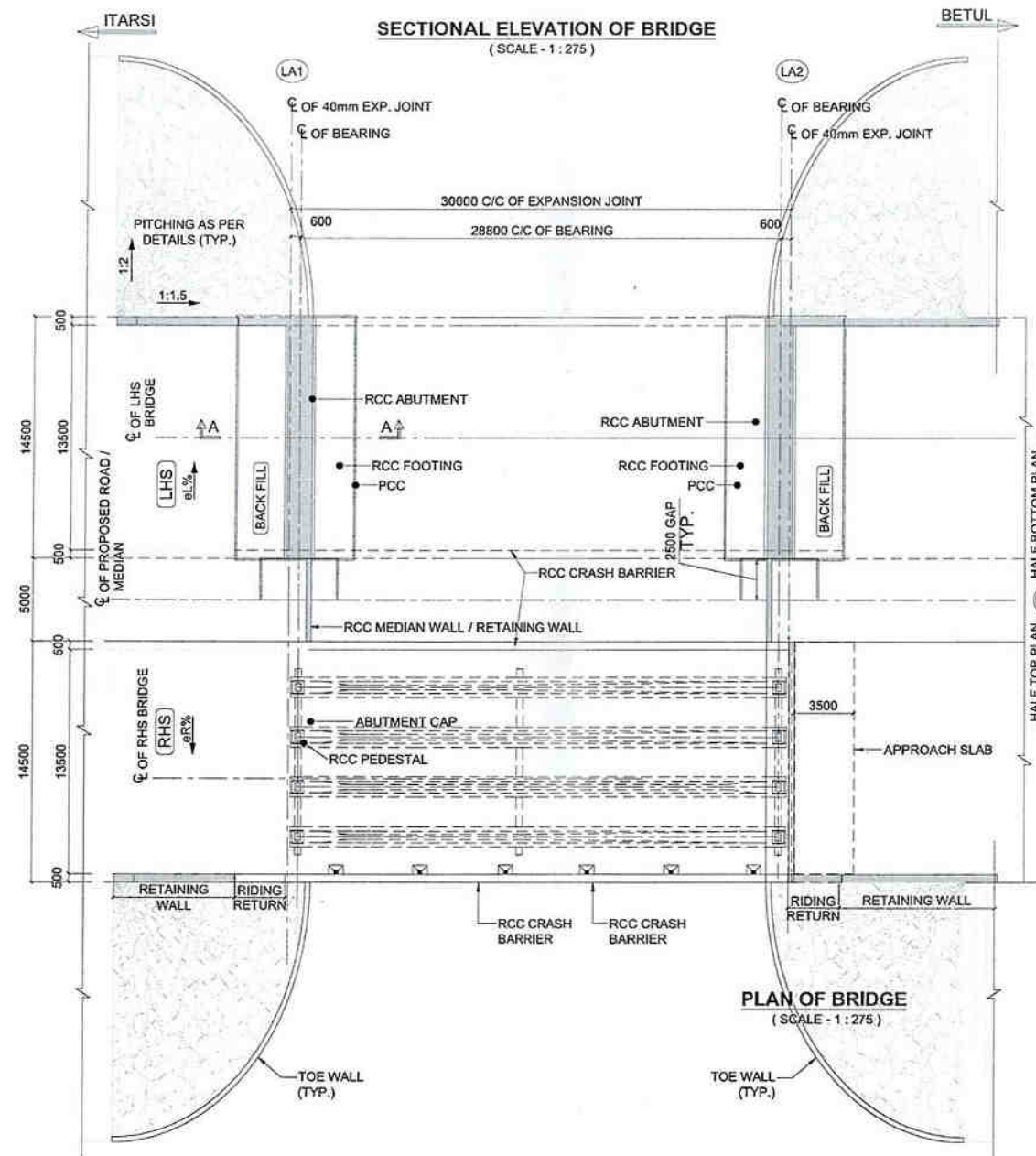
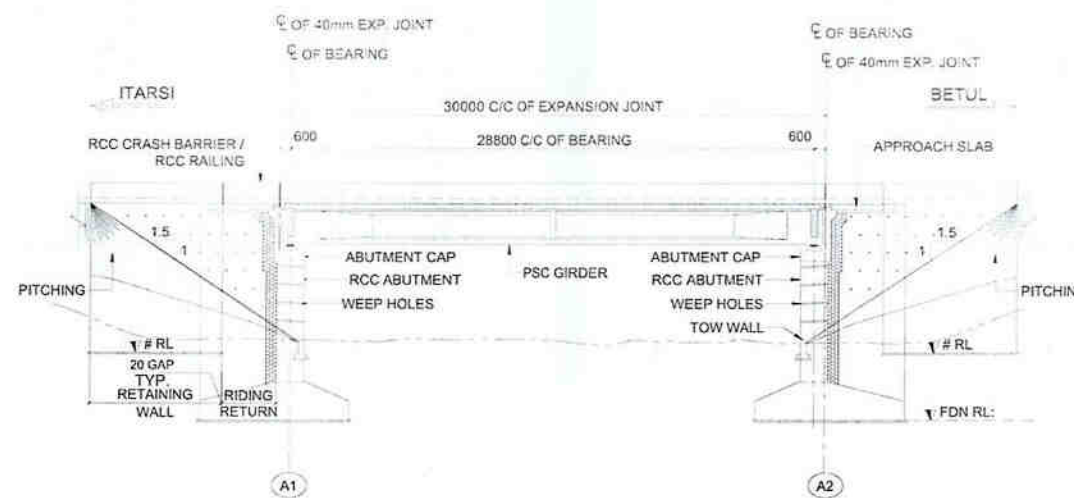
कार्यालय प.नि. भा.रा.रा., प.ई.-भोपाल

प्र.क्र./दि. 13/2

सम्बन्धित प्रबंधक (त)-11/11/1

उप प्रबंधक (त)-11/11/1

36896/14-223



[Signature]
प्रबंधक (तकनीकी)
 Manager (Technical)
 भा. रा. प्रा. परि. क्रिया इकाई भोपाल
 NHAI PIU-BHOPAL

THIS DRAWING MUST BE READ IN CONJUNCTION
 WITH OTHER SHEETS OF THIS DRAWING.

:- CONSULTANTS :-

:- CLIENT :-

:- PROJECT TITLE :-

TITLE : GENERAL ARRANGEMENT DRAWING AT CHAINAGE 64+052 (SPAN 1X30)

SCALE : AS SHOWN

SHEET : 1 OF 2

DRG.NO :



NATIONAL HIGHWAYS AUTHORITY OF INDIA
 (Ministry of Road Transport & Highways, Govt. of India)
 G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

DRG. NO. :

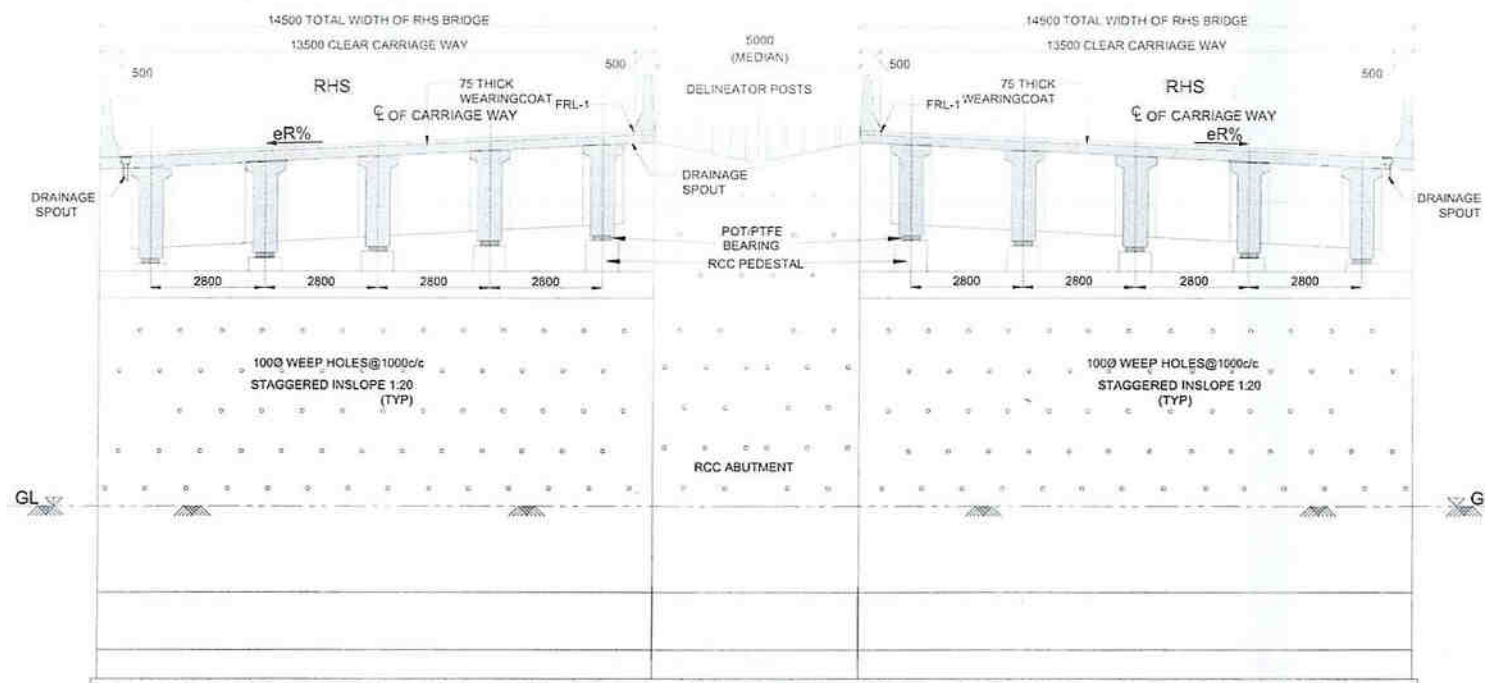
DESIGNED BY:

APPROVED BY:

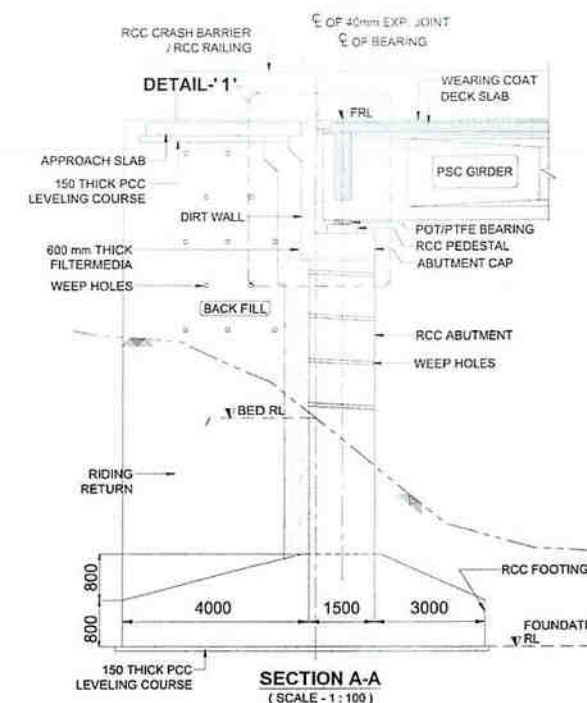
BALANCE WORK FOR FOUR LANING OF
 ITARSI TO BETUL SECTION OF NH-69
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 EPC MODE



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 E-mail:- lnm_bhopal@rediffmail.com



TYPICAL CROSS SECTION OF ABUTMENT
(SCALE - 1:110)

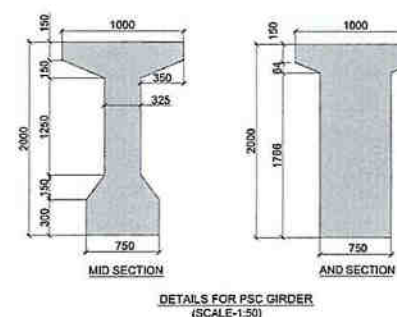
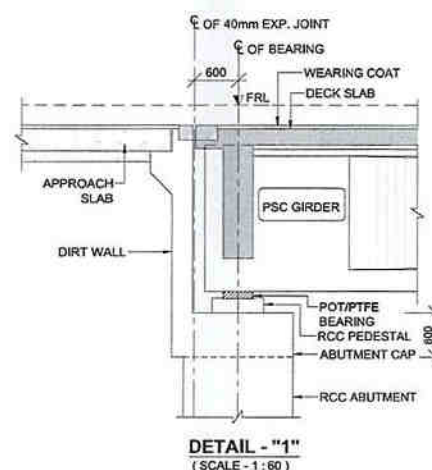
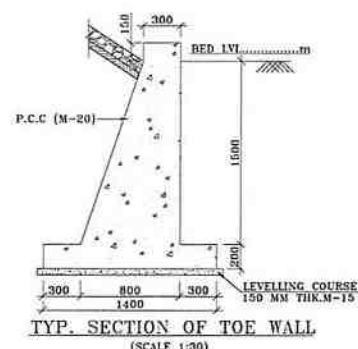
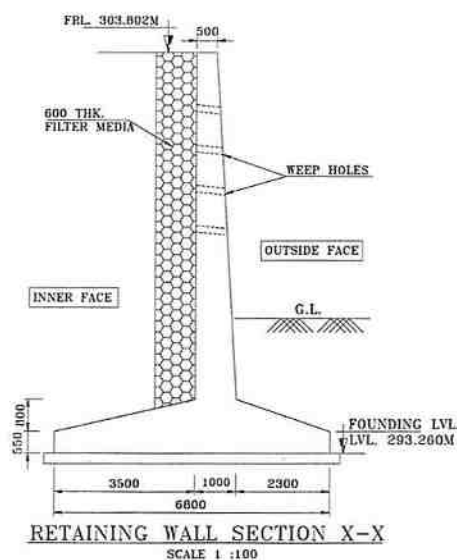


SECTION A-A
(SCALE - 1:100)

NOTES :-

1. TYPE OF BRIDGES
2. TOTAL LENGTH OF BRIDGE
3. SPAN ARRANGEMENT OF BRIDGE
4. OVER ALL WIDTH OF BRIDGE
5. CLEAR CARRIAGEWAY WIDTH
6. FORMATION LEVEL
7. SOFFIT LEVEL
8. HIGH FLOOD LEVEL (H.F.L.)
9. AFFLUX
10. DESIGN DISCHARGE
11. DESIGN VELOCITY
12. SCOUR LEVEL
13. ROAD LEVEL
14. TYPE OF FOUNDATION
15. FOUNDATION LEVEL
16. SBC OF FOUNDATION STRATA
17. TYPE OF BEARINGS
18. TYPE OF EXPANSION JOINT
19. TYPE OF RAILING/CRASH BARRIER
20. APPROACH SLAB
21. GRADE OF CONCRETE :-
 - ABUTMENT - RCC M-35
 - WEARING COAT - RCC M-30
 - CAP & DIRT WALL - RCC M-35
 - PIER - RCC M-35
 - SUPERSTRUCTURE - RCC M-45
 - RCC CRASH BARRIER - RCC M-40
 - APPROACH SLAB - RCC M-30
22. THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED (TMT) HYSD BARS (GRADE DESIGNATION Fe-500). CONFIRMING TO IS:1786 STANDARDS.
23. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR TWO LANE OF IRC CLASS 70 R + TWO LANE OF IRC CLASS A LOADING OR FOUR LANES OF IRC CLASS A LOADING WHICHEVER GOVERNS.
24. WEEP HOLES 1000 SPACED AT 1000 C/C IN BOTH HORIZONTAL & VERTICAL DIRECTIONS SHALL BE PROVIDED IN A STAGGERED MANNER BRHIND ABUTMENTS/RETURN WALLS/RETAINING WALLS IN ONE OR TWO LAYERS ABOVE LBL/LWL.
25. 75mm THK. CONCRETE WEARING COAT SHALL BE PROVIDED AS PER MOSRTH SPECIFICATION SECTION 500.
26. LAYING OF FILTER MEDIA FOR DRAINAGE AND BACK FILLING BEHIND ABUTMENT/RETURN WALLS SHALL BE DONE IN ACCORDANCE WITH APPENDIX 6 OF IRC:78:2014.
27. BACK FILLING BEHIND ABUTMENTS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78:2014 HAVING PROPERTIES $C=0.0>30^\circ$, $\phi=20.0^\circ$ & $\gamma_d=20 \text{ KN/m}^3$.
28. THE DIMENSIONS ARE TENTATIVE. MAY CHANGE SLIGHTLY IN DETAIL DESIGN.

प्रबंधक (तकनीकी)
Manager (Technical)
भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-BHOPAL



CONSULTANTS :-



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CLIENT :-



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G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

DRG. NO. :

DESIGNED BY.

APPROVED BY.

PROJECT TITLE :-

BALANCE WORK FOR FOUR LANING OF
ITARS TO BETUL SECTION OF NH-69
FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-II/NH-69) ON
EPC MODE

TITLE :

GENERAL ARRANGEMENT DRAWING AT CHAINAGE 64+052 (SPAN 1X30)

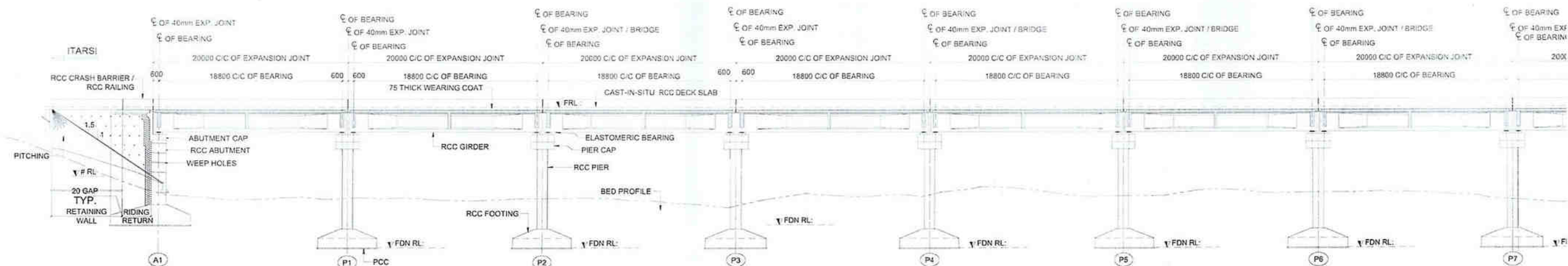
SCALE :

AS SHOWN

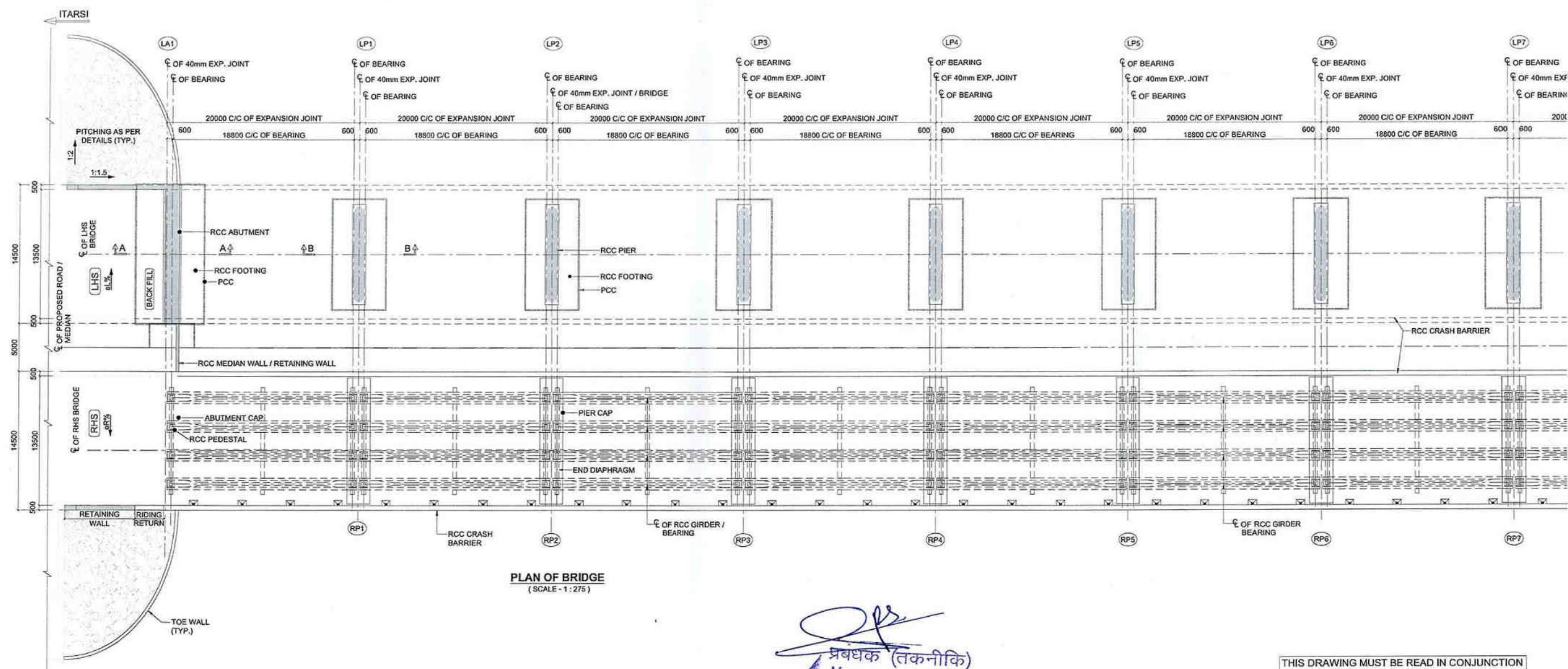
DRG.NO :

SHEET :

2 OF 2



SECTIONAL ELEVATION OF
(SCALE - 1:275)



PLAN OF BRIDGE
(SCALE - 1:275)

[Signature]
प्रबंधक (तकनीकी)
Manager (Technical)
भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-BHOPAL
- PROJECT TITLE -

THIS DRAWING MUST BE READ IN CONJUNCTION
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-: CONSULTANTS :-

-: CLIENT :-



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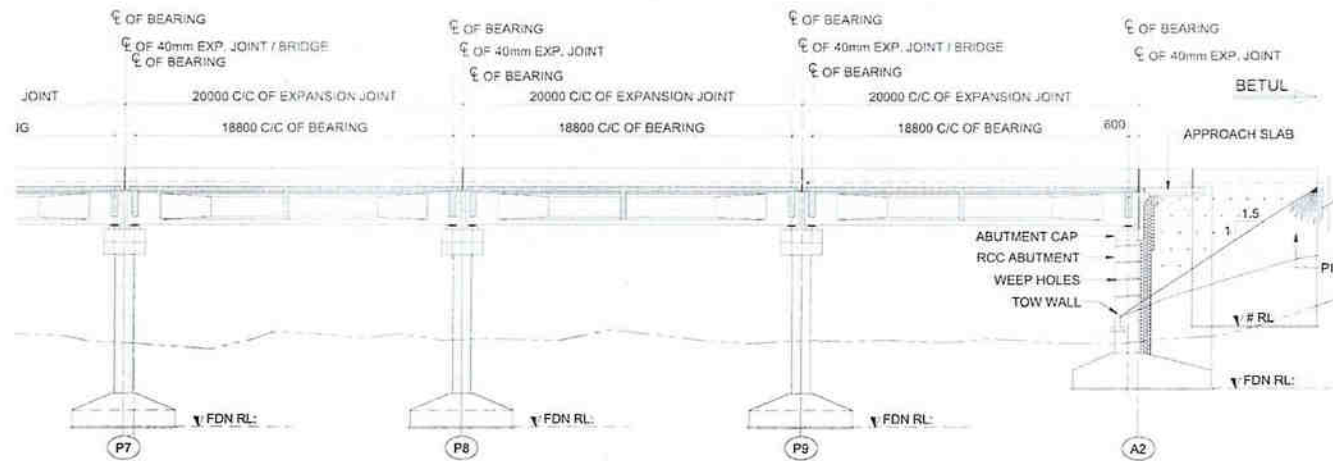
TITLE : GENERAL ARRANGEMENT DRAWING AT CHAINAGE

86+050 (SPAN 10X20)

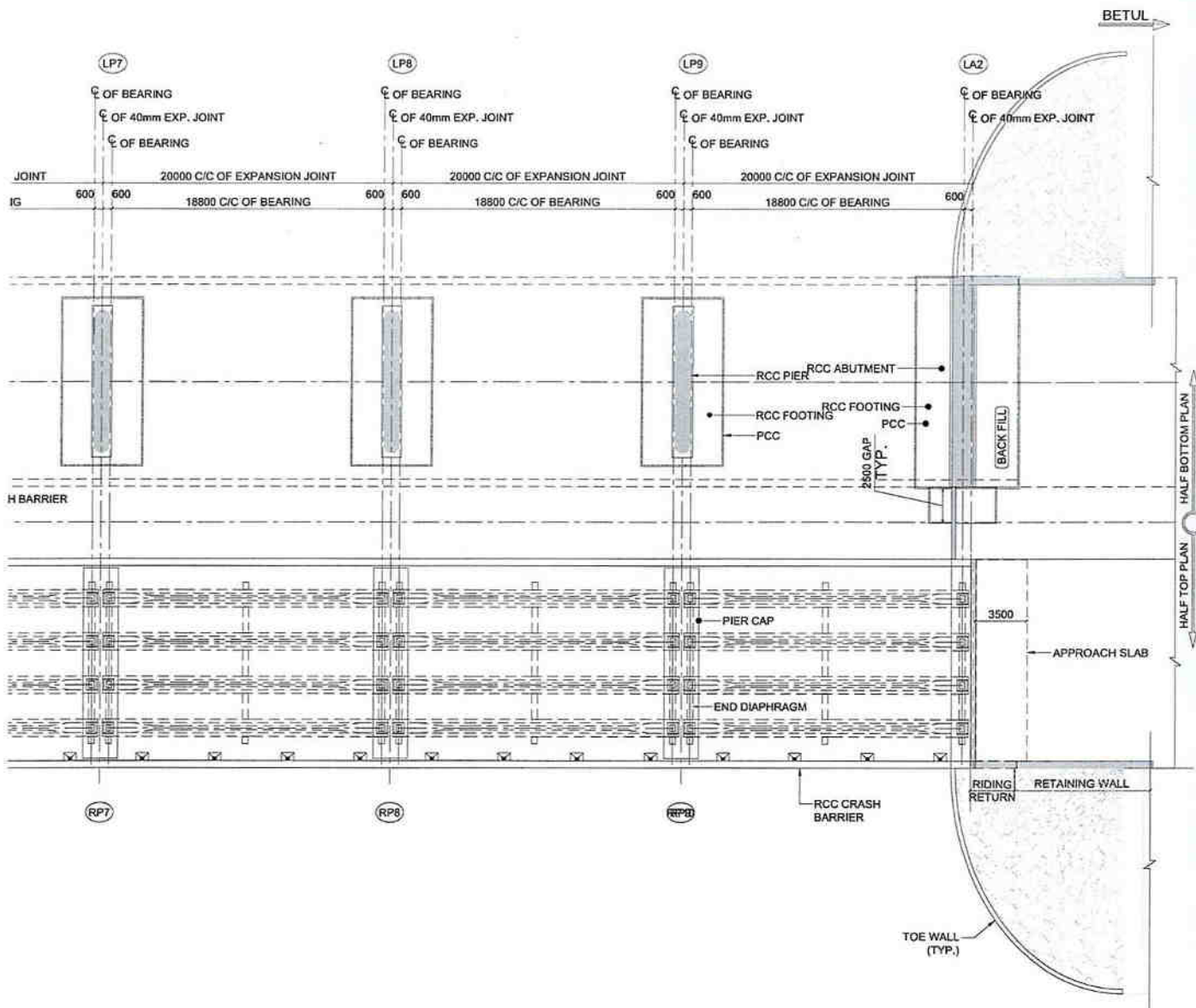
SCALE : AS SHOWN

SHEET : 1 OF 3

DRG.NO :



CROSS SECTIONAL ELEVATION OF BRIDGE
(SCALE - 1 : 275)



(Signature)
प्रबंधक (तकनीकी)
Manager (Technical)
मा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
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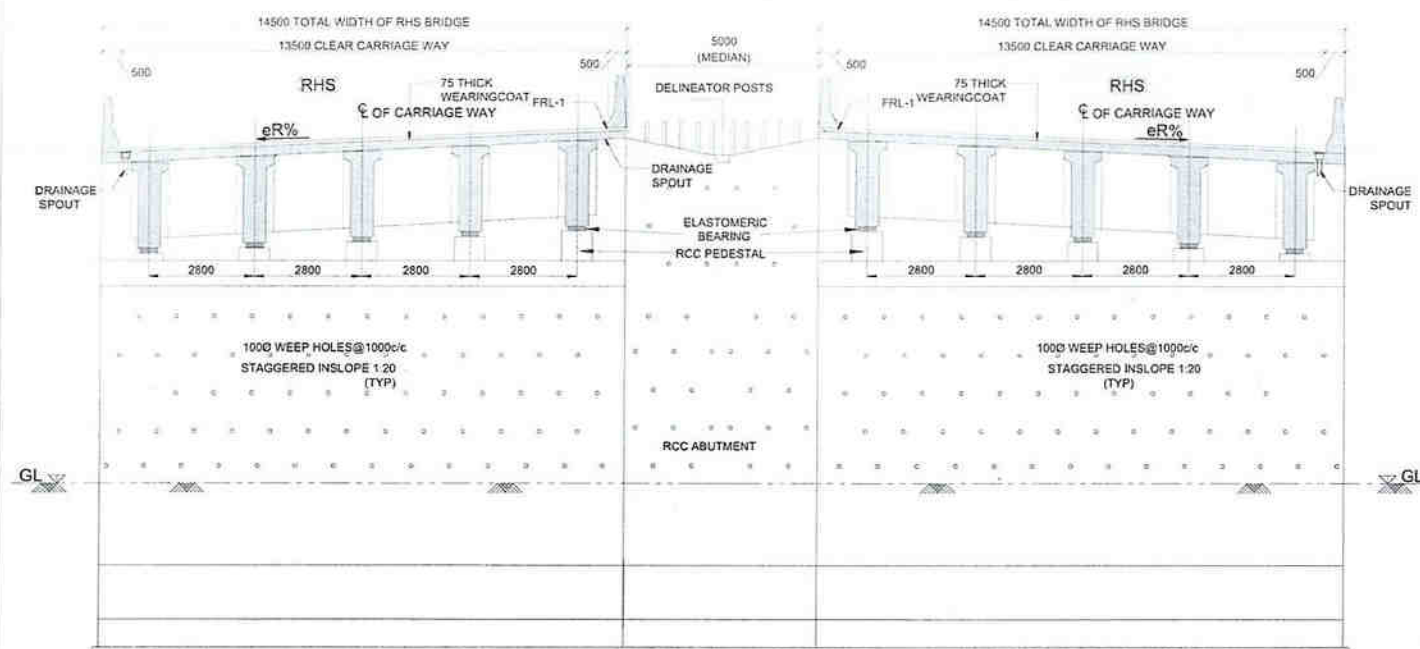
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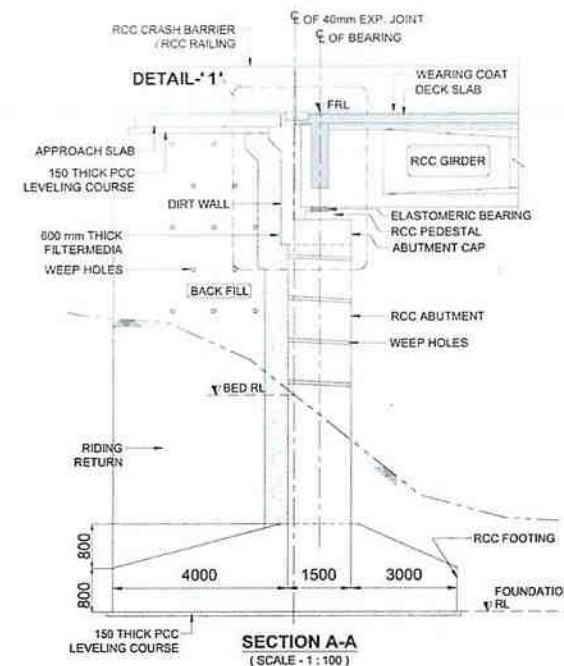
SCALE : AS SHOWN

SHEET : 02 OF 03

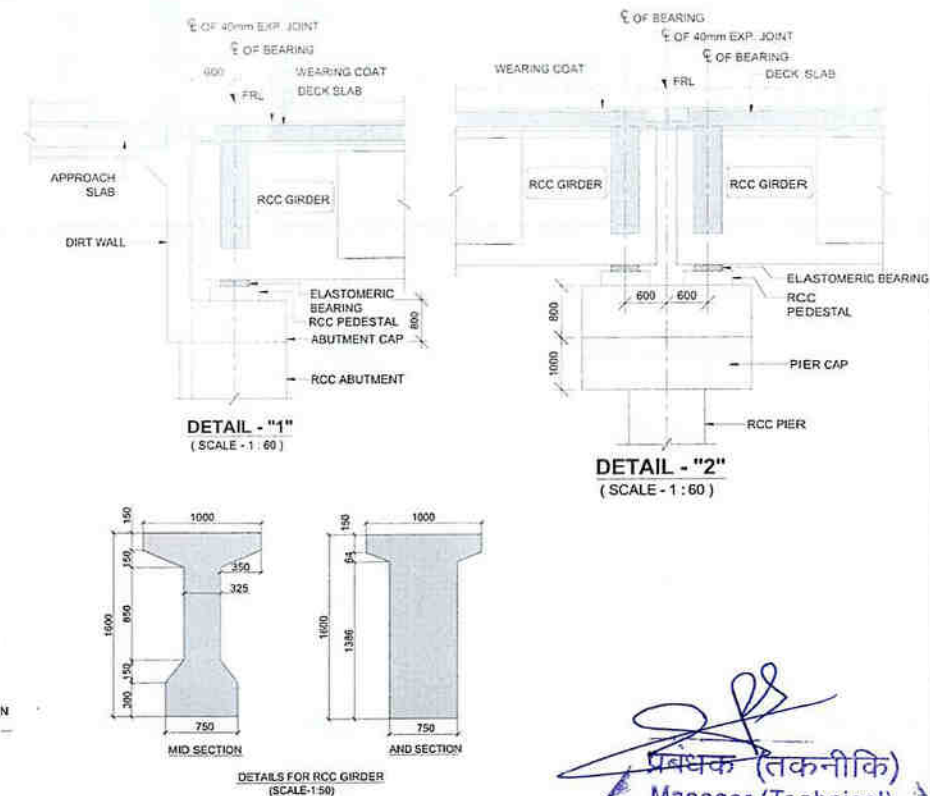
DRG.NO :



TYPICAL CROSS SECTION OF ABUTMENT
(SCALE - 1 : 110)



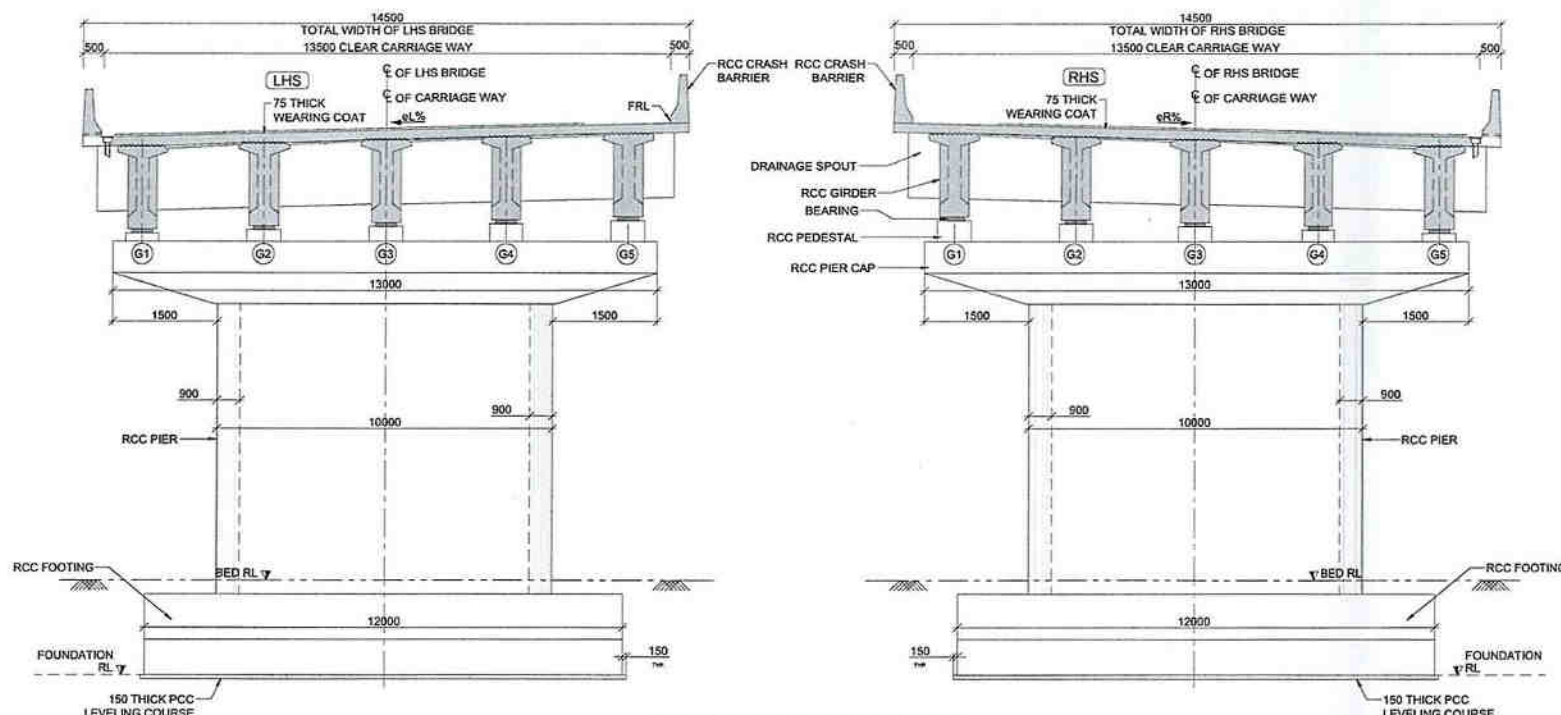
SECTION A-A
(SCALE - 1 : 100)



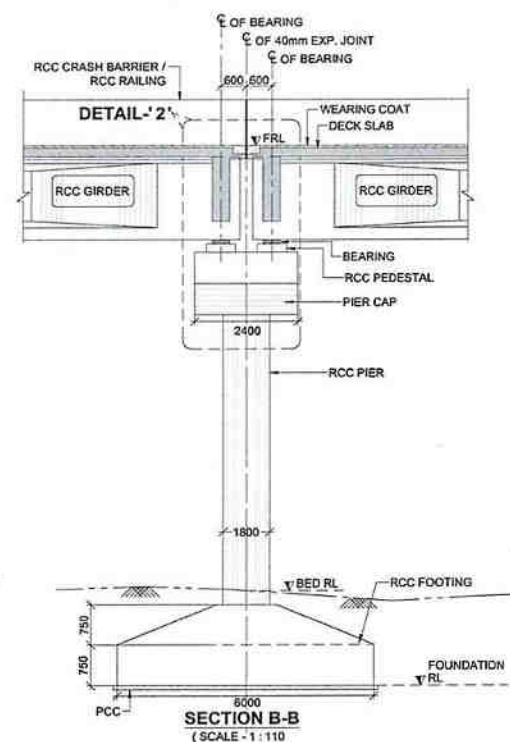
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प्रबंधक (तकनीकी)
Manager (Technical)
म. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-BHOPAL



TYPICAL CROSS SECTION OF PIER
(SCALE - 1 : 110)



SECTION B-B
(SCALE - 1 : 110)

CONSULTANTS :-



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EPC MODE

TITLE : GENERAL ARRANGEMENT DRAWING AT CHAINAGE

86+050 (SPAN 10X20)

SCALE : AS SHOWN

SHEET : 03 OF 03

DRG.NO :



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार)

NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India)

परियोजना क्रियान्वयन इकाई - एच.आई.जी.-5/ई-3, अरेरा कॉलोनी, गणेश मंदिर के पास, पुराना हबीबगंज नाका, भोपाल (म.प्र.) - 462016
Project Implementation Unit - HIG-5/E-3, Arera Colony, Near Ganesh Mandir, Old Habibganj Naka, Bhopal (M.P.) - 462016

दूरभाष/Phone : 0755-2465604 & 05, ई-मेल/E-mail: bhopal@nhai.org, वेबसाइट/Website: www.nhai.gov.in



भा.रा.रा.प्रा./प.का.इ./भोपाल/रा.रा.-69/वन-अनुमति/2022/22283

दिनांक 13/02/2023

प्रति,

श्रीमान क्षेत्रीय अधिकारी,
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण,
क्षेत्रीय कार्यालय, मध्यप्रदेश,
ई-2/167, अरेरा कॉलोनी,
रानी कमलापति रेलवे स्टेशन के पास भोपाल, (म0प्र0)

विषय:- मध्य प्रदेश राज्य में राष्ट्रीय राजमार्ग संख्या 69 (इटारसी - बैतूल खण्ड) के कि.मी. 63.000 से कि.मी. 137.000 (डिजाइन लम्बाई 73.955 कि.मी.) का चार लेन निर्माण कार्य। - टाईगर कॉरीडोर में प्रस्तावित मिटिगेशन मेजर्स के अनुमोदन हेतु।

- संदर्भ:-**
- (1) प्रधान मुख्य वन संरक्षक कार्यालय का पत्र क्रमांक 1103 दिनांक 08/02/2023।
 - (2) इस कार्यालय का पत्र क्रमांक 22026 दिनांक 09/01/2023।
 - (3) अपर प्रधान मुख्य वन संरक्षक कार्यालय का पत्र क्रमांक 42 दिनांक 02/01/2023।
 - (4) अपर प्रधान मुख्य वन संरक्षक कार्यालय का पत्र दिनांक 9567 दिनांक 28/12/2022।
 - (5) आपके कार्यालय का पत्र क्रमांक 48209 दिनांक 17/12/2022।
 - (6) इस कार्यालय का पत्र क्रमांक 21850 दिनांक 16/12/2022।

महोदय,

उपरोक्त विषयान्तर्गत लेख है, कि इस कार्यालय के उपरोक्त संदर्भित पत्र दिनांक 16/12/2022 के माध्यम से टाईगर कॉरीडोर मार्ग में स्थित मिटिगेशन मेजर्स के अनुमोदन हेतु अपर प्रधान मुख्य वन संरक्षक कार्यालय की स्वीकृती प्राप्त करने हेतु लेख किया गया था। जिसके उपरांत आपके कार्यालय के संदर्भित पत्र दिनांक 17/12/2022 को वनविभाग के अधिकारियों के साथ हुई चर्चा दिनांक 15/12/2022 के दौरान मिटिगेशन मेजर्स का निर्णय लिया गया एवं संशोधित मिटिगेशन मेजर्स की स्वीकृती हेतु अपर प्रधान मुख्य वन संरक्षक कार्यालय को भेजा गया।

2. इस संबंध में, अपर प्रधान मुख्य वन संरक्षक कार्यालय के उपरोक्त संदर्भित पत्र दिनांक 02/01/2023 के माध्यम से उक्त अनुमोदित मिटिगेशन मेजर्स को मार्ग में स्थित कॉरीडोर में सम्मिलित कर तदनुसार प्रस्ताव परिवेश पोर्टल पर दर्ज करने के पूर्व हार्ड कॉपी में जमा किये जाने हेतु लेख किया गया है और साथ ही इसका अनुमोदन अपर प्रधान मुख्य वन संरक्षक कार्यालय के पत्र दिनांक 28/12/2022 प्रदाय किया गया।

3. तदनुसार, इस कार्यालय के उपरोक्त संदर्भित पत्र दिनांक 09/01/2023 के माध्यम से उक्त मिटिगेशन मेजर्स की ड्राइंग (GAD) एवं "Animal Passage Plan" के अनुमोदन हेतु अपर प्रधान मुख्य वन संरक्षक कार्यालय को लेख किया गया। जिसमें अपर प्रधान मुख्य वन संरक्षक कार्यालय द्वारा उक्त मिटिगेशन मेजर्स के परीक्षण दौरान निम्नलिखित टिप्पणी प्रस्तुत की गयी, जिसकी जानकारी इस कार्यालय द्वारा पालन प्रतिवेदन के साथ निम्नानुसार प्रस्तुत है।

क्रमांक	अपर प्रधान मुख्य वन संरक्षक द्वारा उठाई गयी टिप्पणियां	इस कार्यालय द्वारा प्रस्तुत उत्तर
1.	कैसला घाट में वन्यजीव शमन उपाय अंतर्गत चैनेज 62.400 कि.मी. (Lat. 22.542642 N Long. 77.814906E) पर 70 मीटर की टनल प्रस्तावित करने पर सहमति व्यक्त की गई थी। उक्त टनल को सम्मिलित कर स्पष्ट लोकेशन एवं विस्तृत डिजाइन के साथ प्रस्ताव प्रस्तुत किया जावे।	उक्त संबंध में अवगत कराना है, कि उक्त स्थान पर 70 मीटर की टनल इस कार्यालय के पत्र दिनांक 16/12/2022 के माध्यम से प्रस्तावित की जा चुकी है।
2.	कैसला घाट के चैनेज 64.052 कि.मी. (Lat. 22.529724 N Long. 77.824986E) पर 12 मीटर का शमन उपाय प्रस्तावित किया गया है। उक्त स्थल पर 12 मीटर के स्थान पर 30 मीटर का पुल प्रस्तावित किया जावे।	उक्त चैनेज क्रमांक 64.052 कि.मी. पर 12 मीटर के शमन उपाय टनल इस कार्यालय के पत्र दिनांक 16/12/2022 के माध्यम से प्रस्तावित किया गया था। किन्तु साईट निरीक्षण पश्चात उक्त स्थान पर वन विभाग द्वारा सुझाये गये 30 मीटर का पुल प्रस्तावित किया जा सकता है।

3. भौंरा परिक्षेत्र अंतर्गत वन्यप्राणी कॉरीडोर क्षेत्र कोई भी वन्यजीव शमन उपाय अनुमोदित नहीं किये गये हैं। उक्त खण्ड में 200 मीटर की वाइल्ड लाइफ अण्डरपास प्रस्तावित करने की अनुशंसा की गई थी। उक्त संरचना वाइल्ड लाइफ अण्डरपास को भी सम्मिलित किया जावे।	वन विभाग के कार्यालय में दिनांक 15/12/2022 को हुई चर्चा अनुसार भौंरा परिक्षेत्र में चैनेज क्रमांक 86.050 कि. मी. पर 140 मीटर की वाइल्ड लाइफ अण्डरपास इस कार्यालय के पत्र दिनांक 16/12/2022 के माध्यम से प्रस्तावित किया गया था। किन्तु वन क्षेत्र स्थान होने पर वन विभाग द्वारा सुझाये गये 200 मीटर की वाइल्ड लाइफ अण्डरपास को प्रस्तावित किया जा सकता है।
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अतः आपसे अनुरोध है, कि उक्त मिटिगेशन मेजर्स की स्वीकृती हेतु अपर प्रधान मुख्य वन संरक्षक कार्यालय को स्वीकृती प्रदान करने हेतु अनुरोध किया जा सकता है।




(आर.के. गुप्ता)

परियोजना निदेशक

भा.रा.रा.प्रा., प.क्रि.इ., भोपाल

प्रतिलिपि :

(1) टीम लीडर, मे0 एल.एन. मालवीय इन्फ्रा प्रा0ली0, इटारसी की ओर सूचनार्थ एवं आवश्यक समन्वय हेतु।

कार्यालय प्रधान मुख्य वन संरक्षक (वन्यप्राणी), मध्य प्रदेश

प्रगति भवन, भोपाल विकास प्राधिकरण, तृतीय तल, एम.पी.नगर, भोपाल

दूरभाष : 0755-2674318, 2674337, फ़ैक्स : 0755-2766315

E-mail : pccfwl@mp.gov.in

क्रमांक/व.प्रा./माचि./NH-69/ 1103
प्रति,

भोपाल, दिनांक 8-2-2023

क्षेत्रीय अधिकारी,
(मध्यप्रदेश पूर्व)
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
प्लॉट नं.-109 आदर्श नगर, नर्मदा रोड,
जबलपुर, मध्यप्रदेश-482008

कार्यालय प.नि. भा.रा.रा., प.ई.-भोपाल

प्र.क्र./दि. 8/2

सम्बन्धित प्रबन्धक (त)-1/1/1/

उप प्रबन्धक (त)-1/1/

36760/08-02-23

सहायक,

विषय :- मध्यप्रदेश राज्य में राष्ट्रीय राजमार्ग क्रमांक-69 (इटारसी-बैतूल-खण्ड) के कि.मी. 63.000 से कि.मी. 137.000 (डिजाइन लम्बाई 73.955 कि.मी.) का चार लेन निर्माण कार्य। - (GAD) एवं Animal Passage Plan की स्वीकृति के संबंध में।

संदर्भ :- आपका पत्र क्रमांक/भा.रा.रा.प्रा./प.का.इ./भोपाल/रा.रा.-69/वन-अनुमति/2022/22026 दिनांक 09.01.2023

उपरोक्त विषयांकित एवं संदर्भित पत्र का अवलोकन करने का कष्ट करें। राष्ट्रीय राजमार्ग क्रमांक-69 (इटारसी-बैतूल खण्ड) अंतर्गत बरेठा घाट, केसला घाट एवं भौरा परिक्षेत्र के वन्यप्राणी कॉरीडोर में वन्यजीव शमन उपाय हेतु ड्राईंग एवं डिजाइन मानचित्र के प्रेषित की गई है। उक्त मिटिगेशन प्लान स्थल निरीक्षण दिनांक दिनांक 28.12.2018, 15.07.2020 एवं 29.09.2022 की अनुशंसा के संदर्भ में परीक्षण करने पर निम्न कमियां परिलक्षित हुई हैं:-

1. केसला घाट में वन्यजीव शमन उपाय अंतर्गत चैनेज 62.400 कि.मी. (Lat. 22.542642N Long. 77.814906E) पर 70 मीटर की टनल प्रस्तावित करने पर सहमति व्यक्त की गई थी। उक्त टनल को सम्मिलित कर स्पष्ट लोकेशन एवं विस्तृत डिजाइन के साथ प्रस्ताव प्रस्तुत किया जावे।
2. केसला घाट के चैनेज 64.052 कि.मी. (Lat. 22.529724N Long. 77.824986E) पर 12 मीटर का शमन उपाय प्रस्तावित किया गया है। उक्त स्थल पर 12 मीटर के स्थान पर कम से कम 30 मीटर का पुल नाले पर प्रस्तावित करने पर सहमति दी गई थी। अतः 12 मीटर के स्थान पर 30 मीटर का पुल प्रस्तावित किया जावे।
3. भौरा परिक्षेत्र अंतर्गत वन्यप्राणी कॉरीडोर क्षेत्र कोई भी वन्यजीव शमन उपाय अनुमोदित नहीं किये गये हैं। उक्त खण्ड में 200 मीटर की वाइल्ड लाइफ अण्डरपास प्रस्तावित करने की अनुशंसा की गई थी। उक्त संरचना वाइल्ड लाइफ अण्डरपास को भी सम्मिलित किया जावे।

उपरोक्त परिलक्षित कमियों की पूर्ति कर संशोधित वन्यजीव शमन उपाय का प्लान रंगीन डिजाइन सहित शीघ्र प्रेषित करने का कष्ट करें।

(जसबीर सिंह चौहान)

मुख्य वन्यप्राणी अभिरक्षक एवं

प्रधान मुख्य वन संरक्षक (व.प्रा.), म.प्र.

भोपाल, दिनांक 8-2-2023

पृ0 क्रमांक/व.प्रा./माचि./NH-69/ 1104
प्रतिलिपि :-

1. मुख्य वन संरक्षक, नर्मदापुरम्/बैतूल की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
2. क्षेत्र संचालक, सतपुड़ा टाइगर रिजर्व, नर्मदापुरम् की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
3. वनमण्डलाधिकारी, नर्मदापुरम्/उत्तर बैतूल सामान्य वनमण्डल ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
4. क्षेत्रीय अधिकारी, भारतीय राष्ट्रीय राजमार्ग प्राधिकरण, ई-2/167 अरेरा कॉलोनी, रानी कमलापति रेल्वे स्टेशन के पास, भोपाल-462016 की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

मुख्य वन्यप्राणी अभिरक्षक एवं
प्रधान मुख्य वन संरक्षक (व.प्रा.), म.प्र.



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार)

NATIONAL HIGHWAYS AUTHORITY OF INDIA

(Ministry of Road Transport & Highways, Govt. of India)



परियोजना क्रियान्वयन इकाई - एच.आई.जी.-5/ई-3, अररा कॉलोनी, गणेश मंदिर के पास, पुराना हबीबगंज नाका, भोपाल (म.प्र.) - 462016

Project Implementation Unit - HIG-5/E-3, Arera Colony, Near Ganesh Mandir, Old Habibganj Naka, Bhopal (M.P.) - 462016

दूरभाष/Phone : 0755-2465604 & 05, ई-मेल /E-mail: bhopal@nhai.org, वेबसाइट/Website: www.nhai.gov.in

भा.रा.रा.प्रा./प.का.इ./भोपाल/रा.रा.-69/वन-अनुमति/2022/2026

दिनांक 09/01/2023

प्रति,

अपर प्रधान मुख्य वनसंरक्षक महोदय,
प्रगति भवन, भोपाल विकास प्राधिकरण,
तृतीय तल, एम.पी. नगर भोपाल
जिला - भा.रा.प्रा.

विषय:- मध्य प्रदेश राज्य में राष्ट्रीय राजमार्ग संख्या 69 (इटारसी - बैतूल खण्ड) के कि.मी. 63.000 से कि.मी. 137.000 (डिजाइन लम्बाई 73.955 कि.मी.) का चार लेन निर्माण कार्य। - (GAD) एवं "Animal Passage Plan" की स्वीकृती के संबंध में।

- संदर्भ:-
- (1) आपके कार्यालय का पत्र क्रमांक 42 दिनांक 02/01/2023।
 - (2) आपके कार्यालय का पत्र दिनांक 9567 दिनांक 28/12/2022।
 - (2) क्षेत्रीय कार्यालय, क्षेत्रीय अधिकारी कार्यालय का पत्र क्रमांक 48209 दिनांक 17/12/2022।
 - (2) इस कार्यालय का पत्र क्रमांक 21850 दिनांक 16/12/2022।
 - (3) इस कार्यालय का पत्र क्रमांक 21305 दिनांक 03/09/2022।
 - (4) इस कार्यालय का पत्र क्रमांक 21304 दिनांक 03/09/2022।

महोदय,

उपरोक्त विषयान्तर्गत लेख है, कि आपके कार्यालय के उपरोक्त संदर्भित पत्र दिनांक 02/01/2023 के माध्यम से उक्त अनुमादित मिटिगेशन मेजर्स को मार्ग में स्थित कॉरीडोर में सम्मिलित कर तदनुसार प्रस्ताव परिवेश पोर्टल पर दर्ज करने के पूर्व हार्ड कॉपी में जमा किये जाने हेतु लेख किया गया है।

2. इसके पूर्व क्षेत्रीय कार्यालय भा.रा.रा.प्रा के संदर्भित पत्र दिनांक 17/12/2022 को वनविभाग के अधिकारियों के साथ हुयी चर्चा दिनांक 15/12/2022 के दौरान मिटिगेशन मेजर्स का निणर्य लिया गया जिसके उपरान्त संशोधित मिटिगेशन मेजर्स आपकी और पत्र-ए के माध्यम से प्रेषित किये गये। जिसका अनुमोदन आपके कार्यालय के पत्र दिनांक 28/12/2022 प्रदाय किया।

3. आपके द्वारा अनुमोदित मिटिगेशन मेजर्स की ड्राइंग (GAD) तैयार कर संलग्न है, इसके साथ ही, "Animal Passage Plan" भी तैयार कर संलग्न है।

अतः आपसे अनुरोध है, कि उक्त मिटिगेशन मेजर्स की ड्राइंग (GAD) एवं "Animal Passage Plan" भी का अनुमोदन करने का कष्ट करें, जिससे इन्हे परिवेश पोर्टल पर दर्ज कराया जाकर अगामी कार्यवाही हो सके।

संलग्नक : GAD एवं "Animal Passage Plan"

(आर.के. गुप्ता)

परियोजना निदेशक

भा.रा.रा.प्रा., प.का.इ., भोपाल

प्रतिलिपि :

- (1) मुख्य वन संरक्षक बैतूल जिला - बैतूल की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु।
- (2) क्षेत्रीय अधिकारी, क्षेत्रीय कार्यालय, भा.रा.रा.प्रा., भोपाल की ओर सूचनार्थ प्रेषित।
- (3) वन मंडलाधिकारी, नर्मदापुरम की ओर उक्त संलग्न भेजकर आवश्यक अग्रिम कार्यवाही का अनुरोध है।
- (4) वन मंडलाधिकारी, उत्तर बैतूल की ओर उक्त संलग्न भेजकर आवश्यक अग्रिम कार्यवाही का अनुरोध है।
- (5) टीम लीडर, मे 0 सी.ई.जी., होशंगाबाद की ओर सूचनार्थ एवं आवश्यक समन्वय हेतु।

कार्यालय प्रधान मुख्य वन संरक्षक (वन्यप्राणी), मध्य प्रदेश

प्रगति भवन, भोपाल विकास प्राधिकरण, तृतीय तल, एमपी नगर, भोपाल

दूरभाष 0755 2674310 2674311 फैक्स 0755 2766315

E-mail: pccfcha.mp.gov.in

क्रमांक व प्रा माचि NH-69 /
दि

भोपाल, दिनांक २१/१२/२२

- 1 क्षेत्रीय अधिकारी
(मध्यप्रदेश पूर्व)
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
प्लॉट नं. 109 आदर्श नगर नर्मदा रोड, जबलपुर, मध्यप्रदेश-482008
- 2 वनमण्डलाधिकारी
नर्मदापुरम / उत्तर बैतूल सामान्य वनमण्डल।

विषय :- Balance work four laning of Itarsi-Betul section of NH-69 form km. 63.000 to km. 137.000 (Designs length 73.955) in the state of Madhya Pradesh (Package-II/NH-69) on EPC MODE-Wildlife mitigation measures of Tiger corridor-reg

संदर्भ :- इस कार्यालय का पत्र क्रमांक / व प्रा / माचि / NH-69 / 9567 दिनांक 28.12.2022

उपरोक्त विषयातर्गत इस कार्यालय के सदरित पत्र का अवलोकन करने का कष्ट करें। उक्त पत्र से इटारसी-बैतूल मार्ग के अतर्गत बरेठा घाट, केसला घाट एवं भौरा के वन्यप्राणी कॉरीडोर में संयुक्त स्थल निरीक्षण के उपरांत निर्धारित मिटिगेशन मेजर्स की सूची संलग्न प्रेषित की गई थी।

उक्त सदरित पत्र में उल्लेखित मिटिगेशन मेजर्स की विस्तृत ड्राइंग एवं डिजाइन इस कार्यालय को प्रेषित करने का कष्ट करें। साथ ही कॉरीडोर क्षेत्र में प्रस्तावित मार्ग का पैसेज प्लान भी संलग्न किया जावे। उक्त अनुमोदित मिटिगेशन मेजर्स के ड्राइंग एवं डिजाइन का इस कार्यालय से अनुमोदन उपरांत पूर्ण प्रस्ताव परिवेश पोर्टल पर एवं हार्ड कापी में 03 प्रतियाँ में उचित माध्यम से इस कार्यालय को प्रेषित किया जाना सुनिश्चित किया जावे, ताकि प्रस्ताव पर आगामी कार्यवाही की जा सके।

(सत्यानंद)

अपर प्रधान मुख्य वन संरक्षक (व.प्रा.)

मध्यप्रदेश, भोपाल

भोपाल, दिनांक २१/१२/२२

पृ० क्रमांक / व प्रा / माचि. / NH-69 / 4/2-
प्रतिलिपि :-

1. मुख्य वन संरक्षक, नर्मदापुरम / बैतूल की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
2. क्षेत्रीय अधिकारी, भारतीय राष्ट्रीय राजमार्ग प्राधिकरण, ई-2/167 अरेरा कॉलोनी, रानी कमलापति रेल्वे स्टेशन के पास, भोपाल-462016 की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

अपर प्रधान मुख्य वन संरक्षक (व.प्रा.)

मध्यप्रदेश, भोपाल

कार्यालय प्रधान मुख्य वन संरक्षक (वन्यप्राणी), मध्य प्रदेश

प्रगति भवन, भोपाल विकास प्राधिकरण, तृतीय तल, एम.पी.नगर, भोपाल

दूरभाष : 0755-2674318, 2674337, फैक्स : 0755-2766315

E-mail : pccfw@mp.gov.in

क्रमांक/व.प्रा./माचि./NH-69/ 9567
प्रति,

भोपाल, दिनांक 28-12-2022

1. क्षेत्रीय अधिकारी,
ई-2/167 अरेरा कॉलोनी,
रानी कमलापति रेल्वे स्टेशन के पास, भोपाल-462016
2. वनमण्डलाधिकारी,
नर्मदापुरम/उत्तर बैतूल सामान्य वनमण्डल।

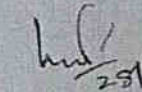
विषय :- Blance work four laning of Itarsi-Betul section of NH-69 form km. 63.000 to km. 137.000 (Design length 73.955) in the state of Madhya Pradesh (Package-II/NH-69) on EPC MODE-Wildlife mitigation measures of Tiger corridor-reg.

संदर्भ :- Regional Officer, NHAI, Bhopal /NHAI/PIU/BPL/NH-69/Itarsi-Betul/P-II/2022/48209 dated 17.12.2022

उपरोक्त विषयांतर्गत संलग्न संदर्भित पत्र का अवलोकन करने का कष्ट करें। उक्त पत्र से इटारसी-बैतूल मार्ग के अतर्गत बरेठा घाट, केसला घाट एवं भौरा के वन्यप्राणी कॉरीडोर में संयुक्त स्थल निरीक्षण के उपरान्त निर्धारित मिटिगेशन मेजर्स की सूची संलग्न प्रेषित की गई है।

उक्त संदर्भित पत्र में उल्लेखित मिटिगेशन मेजर्स का अनुमोदन किया जाता है। उक्त अनुमोदित मिटिगेशन मेजर्स को मार्ग में स्थित कॉरीडोर क्षेत्र में सम्मिलित कर तदानुसार प्रस्ताव परिवेश पोर्टल पर एवं हार्ड कापी में इस कार्यालय को प्रेषित किया जाना सुनिश्चित किया जावे, ताकि प्रस्ताव पर आगामी कार्यवाही की जा सके।

संलग्न :- उपरोक्तानुसार।


(सत्यानंद)

अपर प्रधान मुख्य वन संरक्षक (व.प्रा.)
मध्यप्रदेश, भोपाल

भोपाल, दिनांक 28-12-2022

पृ० क्रमांक/व.प्रा./माचि./NH-69/ 9568

प्रतिलिपि :-

मुख्य वन संरक्षक, नर्मदापुरम/बैतूल की ओर संदर्भित पत्र की छायाप्रति सहित सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

संलग्न:- उपरोक्तानुसार।



अपर प्रधान मुख्य वन संरक्षक (व.प्रा.)
मध्यप्रदेश, भोपाल



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार)

NATIONAL HIGHWAYS AUTHORITY OF INDIA

(Ministry of Road Transport and Highways, Govt. of India)

क्षेत्रीय कार्यालय/REGIONAL OFFICE

ई-2/167, अरेर कॉलोनी, रानी कमलापती रेलवे स्टेशन के पास, भोपाल-462 016 (म.प्र.)

E-2/167, Arear Colony, Near Rani Kamlapati Railway Station, Bhopal-462 016 (M.P.)

दूरभाष/Phone : 0755-2426638, फैक्स/Fax : 0755-2426698, ई-मेल/E-mail : robhopal@nhai.org



सत्यमेव जयते



भारतमाला
प्रगति के पथ पर अग्रसर
BHARATMALA
ROAD TO PROSPERITY

NHAI/PIU/BPL/NH-69/Itarsi-Betul/P-II/2022/48209

Dated 17.12.2022

To,

APCCF (Wildlife)

Office of Chief Wild Warden, M. P.

3rd floor, BDA Building,

Maida Mill Road,

Madhya Pradesh (Bhopal)

Sub: Balance work for four laning of Itarsi-Betul section of NH-69 from Km. 63.000 to Km. 137.000 (Design length 73.955 Km.) in the state of Madhya Pradesh (Package-II) on EPC Mode – **Submission of Revised Mitigation measures of Tiger Corridor - reg**

Ref: (i) PD, PIU-Bhopal letter no 21850 dated 16.12.2022.
(ii) This office letter no 47823 dated 21.10.2022.
(iii) PD, PIU-Bhopal letter no 21498 dated 07.10.2022.
(iv) Field Director, STR, Narmadapuram letter no. 8115 dated 26.09.2022
(v) DFO, Narmadapuram letter no. 10489 dated 23.09.2022
(vi) Superintendent, Bori sanctuary Itarsi letter dated 20.09.2022

Sir,

With reference to subject cited above, please refer this office letter dated 21.10.2022 vide which draft mitigation measures for approval was submitted to your office.

2. PD, PIU-Bhopal vide letter dated 16.12.2022 informed that a discussion was carried out at your office on 15.12.2022 during which the mitigation measures proposed was deliberated and following modification were desired –

(i) It was observed that no mitigation structure was proposed in Bhoura range. Your office suggested to add animal underpass at km 86.050 in Bhoura range with proposed length as 150 m. Since, the span arrangement of other animal underpass was taken with 20m span, accordingly, the length of $7 \times 20m = 140m$ can be considered.

(ii) It was observed that mitigation structure proposed in Baretha Ghat at Km 115.988 range with proposed length of 60m is very less as per the terrain at site. Your office suggested to increase the length of animal underpass to 150 m. Since, the span arrangement of other animal underpass was taken with 20m span, accordingly, the length of $7 \times 20m = 140m$ can be considered.

Accordingly, the revised draft wildlife mitigation measures at Kesla Ghat, Baretha Ghat and Bhoura range of Tiger Corridor attached as Annexure-B is forwarded for Concurrence of Forest department.

Encl.: Annexure - A

(Vivek Jaiswal)
Regional Officer

Copy to: for information and necessary action please

1. CGM (Tech)-MP, NHAI HQ
2. GM (Env), NHAI HQ
3. PD, PIU Bhopal

प्र.क्र. / दि. 2012/12/22
सम्बन्धित प्रकरण (नं)-11.11
उप प्रबंधक (स)

35770/2012/22
तज्ञ/JAO



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार)

NATIONAL HIGHWAYS AUTHORITY OF INDIA

(Ministry of Road Transport & Highways, Govt. of India)

परियोजना क्रियान्वयन इकाई - एच.आई.जी.-5/ई-3, असेरा कॉलोनी, गणेश मंदिर के पास, पुराना हबीबगंज नाका, भोपाल (म.प्र.) - 462016

Project Implementation Unit - HIG-5/E-3, Arera Colony, Near Ganesh Mandir, Old Habibganj Naka, Bhopal (M.P.) - 462016

दूरभाष/Phone : 0755-2465604 & 05, ई-मेल /E-mail: bhopal@nhai.org, वेबसाइट/Website: www.nhai.gov.in



NHA/PIU/BPL/Wildlife/NH-69/2022/ 21850

Dated 16.12.2022 P. prces

To,

The Regional Officer,
National Highways Authority of India,
Regional Office-MP,
E-2/167, Arera Colony,
Near Rani Kamlapati Railway Station,
Bhopal - 462016

JA

Dy Cm

17/12/22

Sub: Balance work for four laning of Itarsi-Betul section of NH-69 from Km. 63.000 to Km. 137.000 (Desgin length 73.955 Km.) in the state of Madhya Pradesh (Package-II) on EPC Mode - Submission of Revised Mitigation measures of Tiger Corridor - reg

References:

- (i) RO-MP, Bhopal office letter no 47823 dated 21.10.2022.
- (ii) This office letter no 21498 dated 07.10.2022.
- (iii) Field Director, STR, Narmadapuram letter no. 8115 dated 26.09.2022
- (iv) DFO, Narmadapuram letter no. 10489 dated 23.09.2022
- (v) Superintendent, Bori sanctuary Itarsi letter dated 20.09.2022
- (vi) This office letter no. 21305 dated 03.09.2022.
- (vii) This office letter no. 21304 dated 03.09.2022.

Sir,

With reference to subject cited above, please refer this office letter dated 07.10.2022 vide which draft mitigation measures for approval of forest department was submitted to your office. Accordingly, your office vide letter dated 21.10.2022 has submitted the proposal to APPCF regarding draft wildlife mitigation measures at Kesla Ghat, Baretha Ghat and Bhoura range falling in Tiger Corridor for concurrence of Forest Department.

2. Accordingly, a discussion was carried out at forest department office on 15.12.2022 during which the mitigation measures proposed was deliberated and following modification were desired by forest officials-

- a) It was observed that no mitigation structure was proposed in Bhoura range. APPCF suggested to add animal underpass at km 86.050 in Bhoura range with proposed length as 150 m. Since, the span arrangement of other animal underpass was taken with 20m span, accordingly, the length of 7x20m=140m can be considered.
- b) It was observed that mitigation structure proposed in Baretha Ghat at Km 115.988 range with proposed length of 60m is very less as per the terrain at

[Signature]

site. APCCF suggested to increase the length of animal underpass to 150 m. Since, the span arrangement of other animal underpass was taken with 20m span, accordingly, the length of 7x20m=140m can be considered.

In view of above, the revised draft mitigation measures are enclosed herewith which may be submitted to APPCF for kind pursuance and approval.

Encl.: Annexure - A



(R. K. Gupta)
Project Director
NHAI-PIU, Bhopal

Copy to:

1. Team Leader, M/s L.N. Malviya Infra Projects Pvt. Ltd. Itarsi for information.

Comparison of Mitigation Plan with Earlier Proposed Plan at the Location Visited by Forest Officials						
Tiger Corridor	Km.	Location Indicated by Forest Department	Previous length	Proposed Length (Min. Ht 5m) as per site visit dated 29.09.2022	As per Meeting at forest office dated 15.12.2022	Remarks
Kesla Ghat 61.500 to 67.380	62.300	22.536850, 77.8199407 (Overpass)	-	65m (20+20+20)	65m (20+20+20)	 प्रबंधक (तकनीकी) Manager (Technical) भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल NHAI PIU-BHOPAL
	62.400	22.542642, 77.814906 (Tunnel)	3 m	70m	70m	
	63.400	22.534971, 77.822672	-	35.8 m (15+5.8+15)	35.8 m (15+5.8+15)	
	64.052	22.529724, 77.824986	-	12	12	
	66.080	22.514617, 77.824677	-	185 (6x20+25+2x20)	185 (6x20+25+2x20)	
Bhoura Range 80-940 to 88.640	86.050	22.340032, 77.862747	-	-	140 m (7x20)	As per Terrain & Forest Range at the locations
Baretha Ghat 108.933 to 116.263	109.893	22.146312, 77.892730	140 m (7x20)	140 m (7x20)	140 m (7x20)	 परियोजना निदेशक Project Director भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल NHAI PIU-Bhopal (M.P.)
	111.758	22.129139, 77.889635	240 m (12x20)	280 m (14x20)	280 m (14x20)	
	112.317	22.125719, 77.887307	60 m (3x20)	80 m (4x20)	80 m (4x20)	
	112.700	22.123123, 77.884437	-	40 m (2x20)	40 m (2x20)	
	115.005	22.110493, 77.882229	60 m (3x20)	10 m (1x10)	10 m (1x10)	
	115.988	22.102044, 77.879450	100 m (5x20)	60 m (3x20)	140 m (7x20)	As per Terrain & Forest Range at the locations

Animal Passage Plan

For

**Construction of Itarsi Betul Road (NH- 46) from Km-
63.000 (Existing Ch. 61.500) and ends at Km 137.000
(Existing Ch. 135.455)**

Tiger Corridor (Satpura - Melghat Tiger Corridor)

Table of Content

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3.	Project Location & Technical Details	1
4.	Justification for Proposed route & alternative examined	1-2
5.	Area Details Falling in Tiger Corridor	2
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8.	Safeguard for Animal / Wildlife Passage	4-12

1. Introduction to the Project:

1. National Highways Authority of India (NHAI) has been entrusted to develop the Itarsi – Betul Road (NH- 46). The project road starts from Km- 63.000 (Existing Ch. 61.500) and ends at Km 137.000 (Existing Ch. 135.455). This road connects two districts of Madhya Pradesh i.e. Hoshangabad and Betul.
2. Present project is for the construction and infrastructure development. During the construction of this project road, two locations were identified by the Wildlife Department as Satpura – Melghat Tiger Corridor area and one location of Bhoura Area, where Tigers move from one National Park to another. All these locations area not notified as Wildlife Sanctuary or National Park. Hence, the wildlife clearance or permission is required for these three locations under Wildlife Protection Act, 1972.
3. The Tiger Corridor area required for non-forest use i.e. Road development is **101.47 ha**. The total capital cost of the project is **Rs.- 177.62 /- Crores only** (Rs.- One Hundred Seventy Seven Crore Sixty Two Lac only)

2. Objective of Animal Passage Plan Study:

The objectives of animal passage plan are:

- ❖ To incorporate the needs of wildlife into transportation projects.
- ❖ To maintain the habitat connectivity.
- ❖ To aid in the reduction of human wildlife conflict, improving awareness, safety and reducing collisions.

3. Project Location and Technical Details:

Project Name:	Construction of Itarsi – Betul Road (NH- 46) (Km- 63.000 (Existing Ch. 61.500) and ends at Km 137.000 (Existing Ch. 135.455))
Proposal No.	FP/MP/ROAD/6492/2022 (Wild Life)
Project Proponent:	National Highway Authority of India
Project Cost:	Rs- 177.62 /- Crores only (Rs- One Hundred Seventy Seven Crore Sixty Two Lac only)
Details of Protected Area involved:	Kesla, Bhoura, Baretha
Project Area Inside Protected Area:	101.47 Ha.

4. **Justification for Proposed route & alternative examined:** National Highways Authority of India (NHAI) has entrusted to develop the Itarsi - Betul Road (NH-46). The

project road Starts from 63.000 (existing Ch. 61.500) and ends at 137.000 (existing Ch.135.455).During the construction of this project road, two locations were identified by the Wildlife Department as Satpura-Melghat Tiger Corridor area & one location of Bhoura Area, where Tiger move from one National Park to another, which is not notified as Wildlife Sanctuary or National Park. The forest compartments which are found affected at these locations had already been diverted under the Forest Conservation Act, 1980. Now, the wildlife clearance or permission is required for these three locations under Wildlife Protection Act, 1972. Hence, the proposal for wildlife clearance or permission is required for this Project.

5. Area Details Falling in Tiger Corridor:

S. No	Location Name	Length (In meter)	Width (In meter)	Area (In ha.)
1	Tiger Corridor -1 (Kesla Ghat) Hoshangabad (T)	6330	45	28.485
2	Bhoura Part-1 Hoshangabad (T)	1649	45	7.421
3	Bhoura Part -2 Betul North (T)	5351	45	24.08
4	Bhoura Part-3 Hoshangabad Part-1	958	45	4.311
5	Bhoura Part-3 Hoshangabad Part-2	788	60	4.728
6	Tiger Corridor-2 (Baretha Ghat) Betul North(T)	7210	45	32.445
	Total	22.286 (km)		101.47

Total Area involved of Road within Tiger Corridor:

Total Forest Land involved in the Project including Protected Area: Nil

Total Non-Forest Land involved under the Project: 101.47 Ha.

6. Major Activities involved in the execution of Project:

S. No.	Activity Involved
A	Road Works
1	Site-Clearance
(a)	Clearing & Grubbing work in Construction Area
(b)	Dismantling/Scarification of Existing Pavement
(c)	Dismantling/Removal of km Stones, hectometer stones, boundary pillars etc.
2	Earthwork (Plain/Hilly Area)

S. No.	Activity Involved
(a)	Earthwork in Cutting
(b)	Earthwork in Filling
(c)	Construction of Subgrade
3	Sub-base, Base Courses & Shoulders
(a)	Construction of GSB Layer
(b)	Construction of WMM Layer
(c)	Construction of Earthen & Granular Shoulders
(d)	Construction of Median
4	Bases & Surface Courses (Bituminous)
(a)	Construction of DBM Layer
(b)	Construction of BC Layer
B	Structure Works
1	Construction of Culverts
(a)	Construction of Hume Pipe Culverts of 1/2/3 Rows
(b)	Construction of PCC/RCC culverts of Span length upto 6.0 m.
2	Construction of Bridges (Minor/Major), if any
(a)	Construction of Foundation including excavation, PCC, RCC & Reinforcement work in Foundation
(b)	Construction of Sub Structure including construction of PCC/RCC Piers & Abutments
(c)	Construction of Super Structure including provision of bearing & construction of RCC Slab, RCC/PSC Girder with Deck Slab
(d)	Protection & Miscellaneous works including construction of Return/Retaining Wall, Toe Wall, Pitching, Approaches, Railing, Crash Barrier, wearing coat and painting of structures etc.
3	Construction of Grade Separated Structures (Underpasses/ Overpasses/ ROBs/ Flyovers etc.)
(a)	Construction of Foundation including excavation, PCC, RCC & Reinforcement work in Foundation
(b)	Construction of Sub Structure including construction of PCC/RCC Piers & Abutments
(c)	Construction of Super Structure including provision of bearing & construction of RCC Slab, RCC/PSC Girder with Deck Slab
(d)	Construction of Approaches including RE Wall/Retaining Wall construction, if provided. Back filling work & construction of approach road.
(e)	Protection & Miscellaneous works including construction of Return/Retaining Wall, Toe Wall, Pitching, Approach Slab, Railing, Crash Barrier, wearing coat and painting of structures etc.
C	Other Works
(a)	Junction Improvement works
(b)	Construction of Road Side Drains (Earthen/PCC/RCC/Chutes)
(c)	Construction of Toll Plaza, if any.

S. No.	Activity Involved
(d)	Construction of Highway Protection Works like Retaining Wall, Toe Wall, Pitching on Slopes, Turfing etc., if required.
(e)	Construction/Installation of project facilities like Bus Bays, Bus Shelters, Truck Lay Bays, Rest Areas, Lighting, Traffic Aid Post, Medical Aid Post, Pedestrian facilities etc.
(f)	Provision/Installation of Road Signages, Road Furnitures, Road Markings, km Stones, Hectometre Stones, Boundary Stones, safety devices etc.
(g)	Tree/Avenue Tree Plantation as per guidelines

7. Likely impact of the Project on Tiger Corridor (Satpura Melghat Tiger Corridor):

The project will be helpful to connect from Itarsi to Betul and further to the State of Maharashtra. There are two locations which are notified as Satpura Melghat Tiger Corridor and one location at Bhoura where Tiger movement was noticed. To minimize the impact mitigation structures are proposed. The project road shall give major benefits to Agro-industries, local people and interstate connectivity. In this project no major adverse impacts are associated and for avoiding any kind of impacts animal passages are introduced in the project.

8. Safeguard for Animal/Wildlife Passage:

8.1. Passage Plan: Animals moves between habitats in order to survive by finding food, mates and areas of refuge. As rural areas continue to expand and road network and traffic increase there is a threat to animals while crossing the roads. All proposals for roads, railway tracks, canals and power lines will now have to include a plan to provide for safe movement of wildlife and allocate budget for animal passages as per NBWL proceedings dated 25th January 2018.

8.2. Project Corridor: The present project corridor is a linear project and has very negligible impact on the Wildlife. The details of area required for wildlife clearance is mentioned below:

S. No	Location Name	Length (In meter)	Width (In meter)	Area (In ha.)
1	Tiger Corridor -1 (Kesla Ghat) Hoshangabad (T)	6330	45	28.485
2	Bhoura Part-1 Hoshangabad (T)	1649	45	7.421
3	Bhoura Part -2 Betul North (T)	5351	45	24.08
4	Bhoura Part-3 Hoshangabad Part-1	958	45	4.311

5	Bhoura Part-3 Hoshangabad Part-2	788	60	4.728
6	Tiger Corridor-2 (Baretha Ghat) Betul North(T)	7210	45	32.445
	Total	22.286 (km)		101.47

Total Area involved of Road within Tiger Corridor:

Total Forest Land involved in the Project including Protected Area: Nil

Total Non-Forest Land involved under the Project: 101.47 Ha.

The problem of human wildlife conflict, depriving free flow of habitats will be avoided by the provision of under passages in the form of RCC box and Girder Type Bridge. Passage to the wildlife habitats will be provided in the form of under passages by means of RCC boxes and Girder Type Bridges have been proposed after observation of Wildlife and Forest department. The details are mentioned below:

Table- 1: Showing locations of Mitigation Structures

Comparison of Mitigation Plan with Earlier Proposed Plan at the Location Visited by Forest Officials						
Tiger Corridor	Km.	Location Indicated by Forest Department	Previous length	Proposed Length (Min. Ht 5m) as per site visit dated 29.09.2022	As per Meeting at forest office dated 15.12.2022	Remarks
Kesla Ghat 61.500 to 67.380	62.300	22.536850, 77.8199407 (Overpass)	-	65m (20+20+20)	65m (20+20+20)	
	62.400	22.542642, 77.814906 (Tunnel)	3 m	70m	70m	
	63.400	22.534971, 77.822672	-	35.8 m (15+5.8+15)	35.8 m (15+5.8+15)	
	64.052	22.529724, 77.824986	-	12	12	
	66.080	22.514617, 77.824677	-	185 (6x20+25+2x 20)	185 (6x20+25+2x 20)	
Bhoura Range80-940 to 88.640	86.05	22.340032, 77.862747			140 m (7x20)	As per Terrain & Forest Range at the locations
Baretha Ghat	109.893	22.146312, 77.892730	140 m (7x20)	140 m (7x20)	140 m (7x20)	

108.933 to 116.263	111.758	22.129139, 77.889635	240 m (12x20)	280 m (14x20)	280 m (14x20)	
	112.317	22.125719, 77.887307	60 m (3x20)	80 m (4x20)	80 m (4x20)	
	112.700	22.123123, 77.884437	-	40 m (2x20)	40 m (2x20)	
	115.005	22.110493, 77.882229	60 m (3x20)	10 m (1x10)	10 m (1x10)	
	115.988	22.102044, 77.879450	100 m (5x20)	60 m (3x20)	140 m (7x20)	As per Terrain & Forest Range at the locations

The land use of the project area and the adjacent lands will play a large role in determining the type and extent of mitigation required. As the area surrounding the project is slated for high density residential/commercial development, the facilitating wildlife movement through this area is desired. As per observation made in the site visits and during different survey proceedings, Tiger crossings were found in the project stretch. Common land uses in the project road include the following:

- ❖ Residential
- ❖ Commercial
- ❖ Natural Area
- ❖ Drainage Channels

It is important to not only consider present development, but also consider future development. The present road is in hilly terrain. So, the land pattern is mostly open section with few stretches of built-up section and semi built-up sections.

8.3. Conflict with Habitats: Generally, there may be conflicts between local wildlife and the transportation projects. But as per observations and information collected from the forest department Tigers are seen to cross the project road as the project corridor is full with patches of built-up sections and human interference.

The project has high traffic volume and/or speed or large vehicles. Different species will be less affected by the traffic volume and /or speed in different ways depending on their mobility.

8.4. Conflict with road characteristics: Traffic volume and speed play an important role in determining whether a road will impact wildlife movement. Because vehicle traffic behaves as a filter to movement rather than absolute barrier, the number of species both attempting and successfully crossing the road will be reduced at greater traffic

volume and speeds. The majority of wildlife-vehicle collisions occur on the roads with immediate traffic volume while low traffic volume roads have essentially no incidents.

8.5. Conflicts with Existing Infrastructure: Many existing structures are not designed for wildlife and were installed with human function as the major goal. In order to avoid hindrance for wildlife, the followings are need to be kept in mind:

- Removal of physical barriers
- Structures that incorporate both pedestrian and wildlife into the same structures
No perched culverts
- Structures with insufficient water depth for aquatic passage Structures with excessive water velocities
- During the construction phase, the excavated pits shall be properly barricaded and fenced, so as to prevent accidental falling of mammals in the vicinity of the construction sites.
- Noise levels during the construction phase shall be monitored properly to avoid disturbance, if any to the animals.
- No construction activity shall be undertaken after sunset and during the night.
- No harm to wildlife habitat including fauna and flora of the sanctuary shall be ensured.
- The WLS area shall not be used for any other work other than the work permitted.
- No establishment of any temporary or permanent labour camp inside the sanctuary area.
- Alternate Fuel (LPG) shall be provided to Laborer's for cooking purpose.
- No vehicular movement inside sanctuary area shall be allowed from sunset to sunrise except emergency vehicle.
- Awareness-raising will be done to mitigate this risk. The contractor and his workers shall be informed on the Forest and Nature Conservation Act, Rules and Regulations and copies of these shall be made available to them. Workers shall be made aware of the fines and penalties as well as the risk of job loss for poaching/hunting to avoid such illegal activities.
- In addition to above mitigation measures, any other measures as envisaged by the CWLW/State Board of Wildlife/National Board of Wildlife and as per provisions

of wildlife (Protection) Act, 1972 shall be implemented by the company during execution of the project.

8.6. Design Guidelines: The design of the roadway can help to reduce the effects of transportation infrastructure on wildlife. Some simple principles that should be considered in the road design include:

- ❖ Consider the slope of the roadside
- ❖ Consider potential/known areas of higher wildlife activity
- ❖ Consider impact of drainage ditches
- ❖ Consider the implications of the roadway design for emergency response access and maintenance access.

8.7. Identify Ecological Design Group: The vast biodiversity in nature provides a challenge when attempting to maintain connectivity and reduce genetic isolation. Each species within an area will have slightly different habitat requirements and behavior making it difficult to design a corridor that will satisfy the requirements of all the species. In addition, there is insufficient data for many species which provides a challenge when attempting to understand their life history strategy and to design a corridor that will satisfy the requirements. The category of species which special attention are as follows:

- ❖ Species that require dispersal for survival
- ❖ Species that are integral to ecological processes
- ❖ Species that are dominant but could become less important if connectivity is lost
- ❖ Species that need connectivity to prevent genetic divergence
- ❖ Species experiencing high vehicle associated mortality in or near the study area
- ❖ Rare, endangered or vulnerable species

8.8. Identify Mitigation: Mitigation for the purpose of this passage plan, is intended to be site specific and practical. The details of the crossings provided are as under:

Figure- 1: Location of Tiger Corridor- 1 (Kesla Ghat)

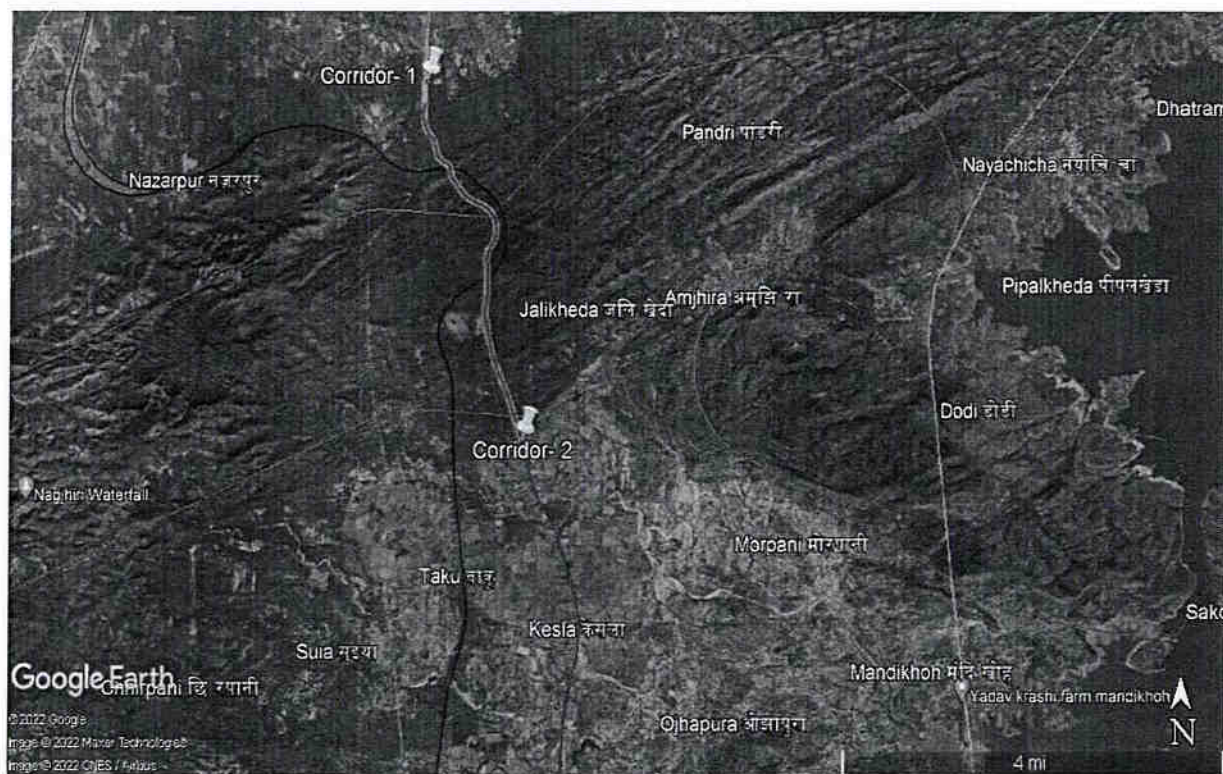


Figure- 2: Location at Bhoura Part- 1



Figure- 3: Location at Bhoura Part- 2

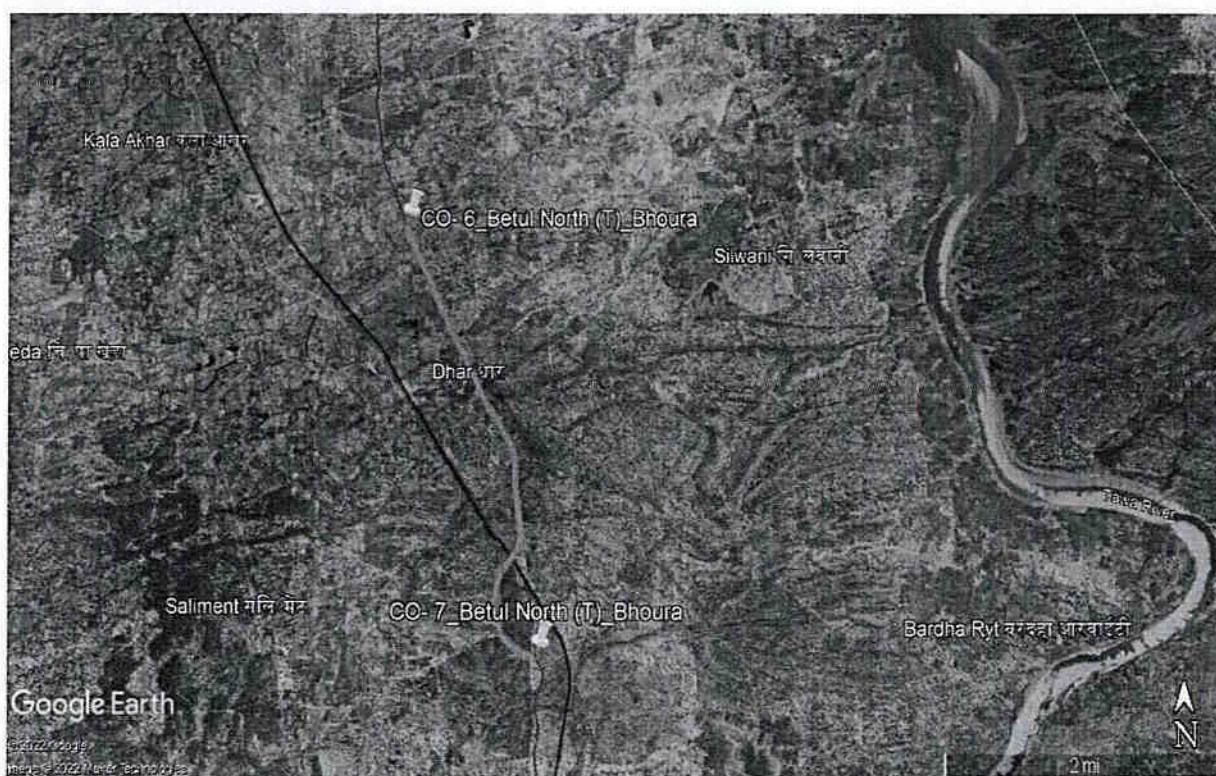


Figure- 4: Location at Bhoura Part- 3

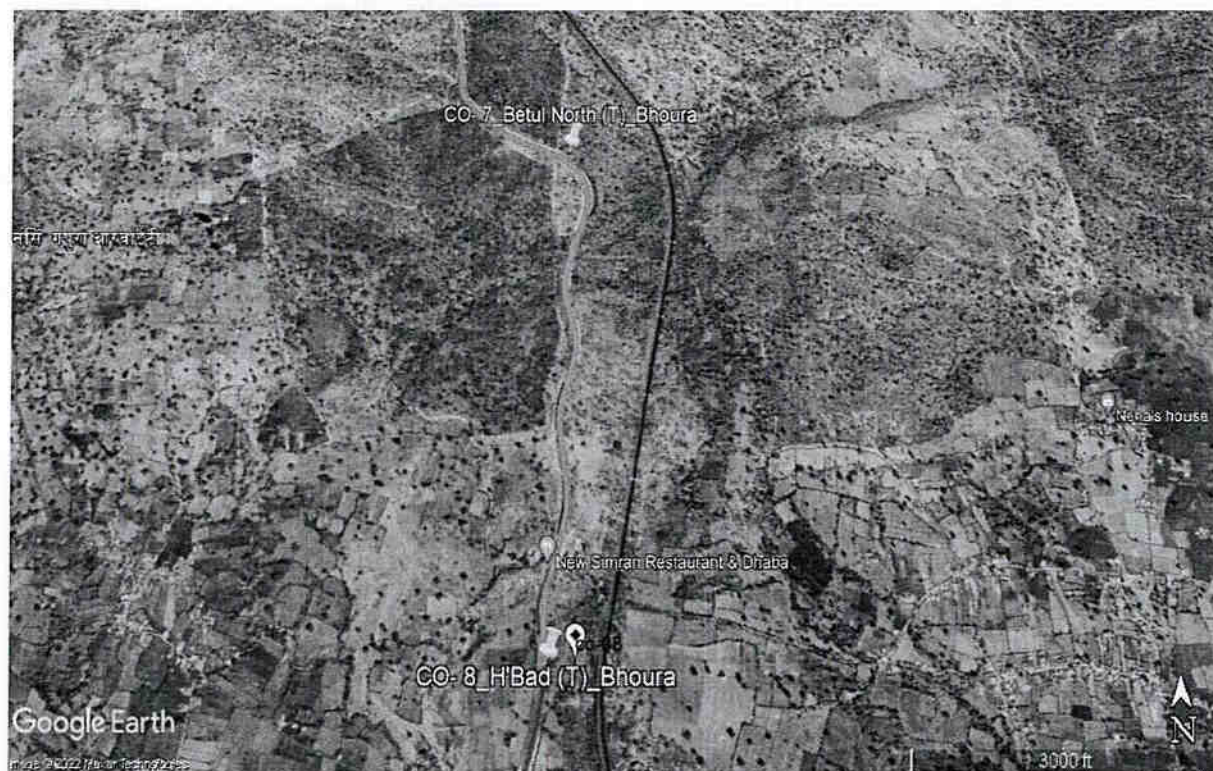
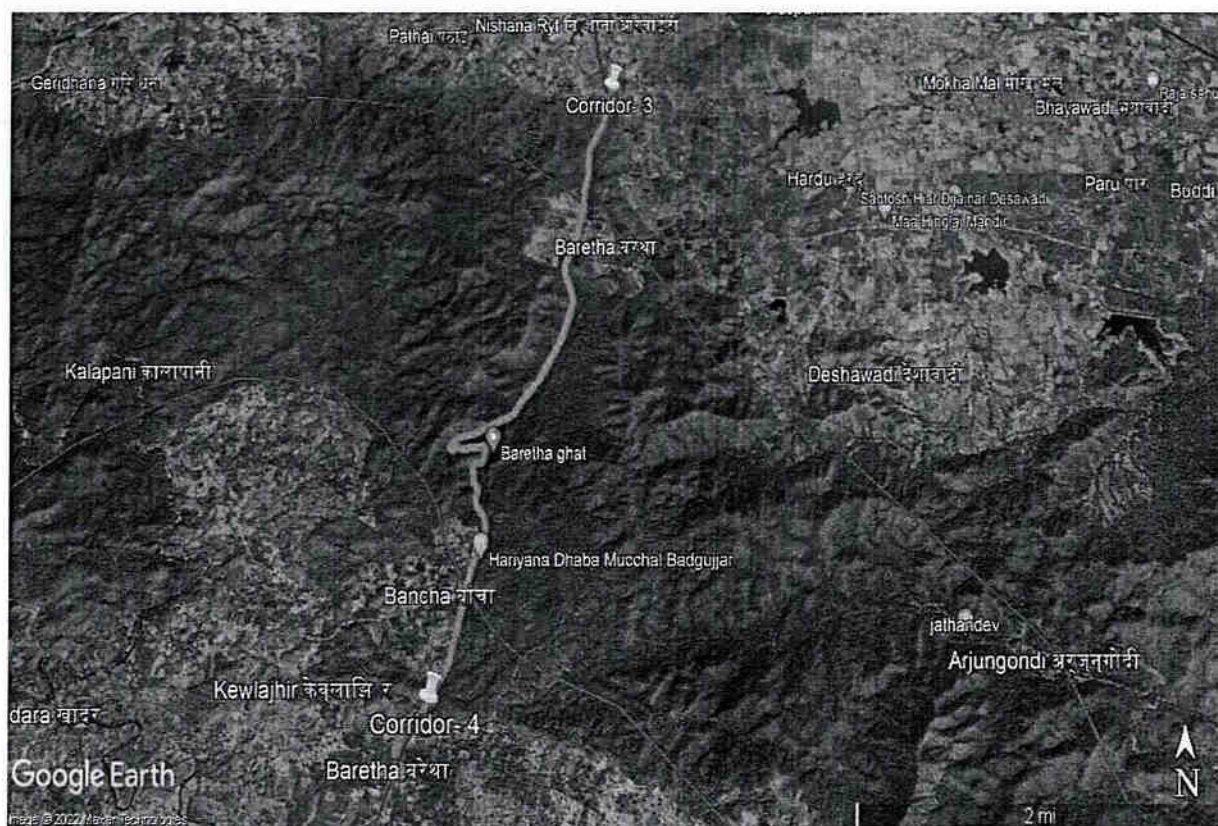


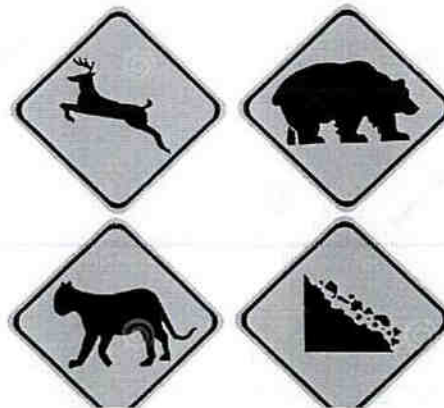
Figure- 5: Location of Tiger Corridor- 2 (Baretha Ghat)



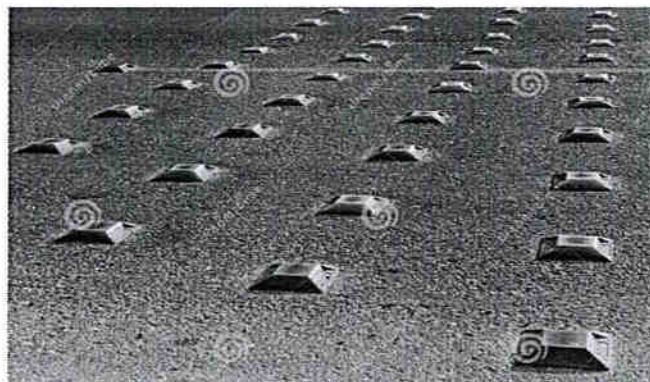
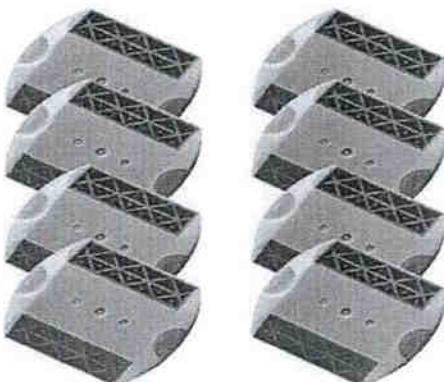
Details of structure, plan and profile (P&P) proposed for mitigation measures at identified location of Tiger movements are given in Annexure 1 and Key Plan.

Provision of Safety Features

- Cautionary / Warning Sign Boards such as Over Hanging Signage will be provided at at start and at the end of each stretch of Wildlife area / Forest area.



- Road Studs / Speed Breakers will be provided at the start and at the end of each stretch of Wildlife Area / Forest Area.



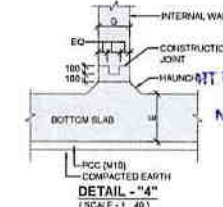
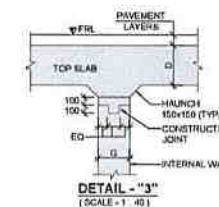
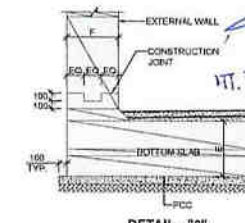
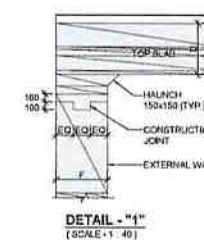
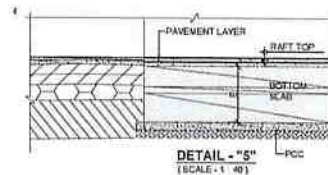
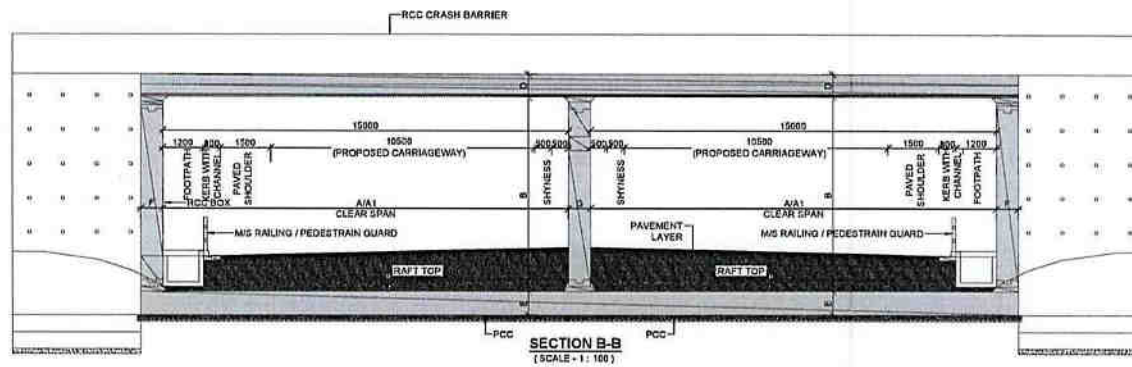
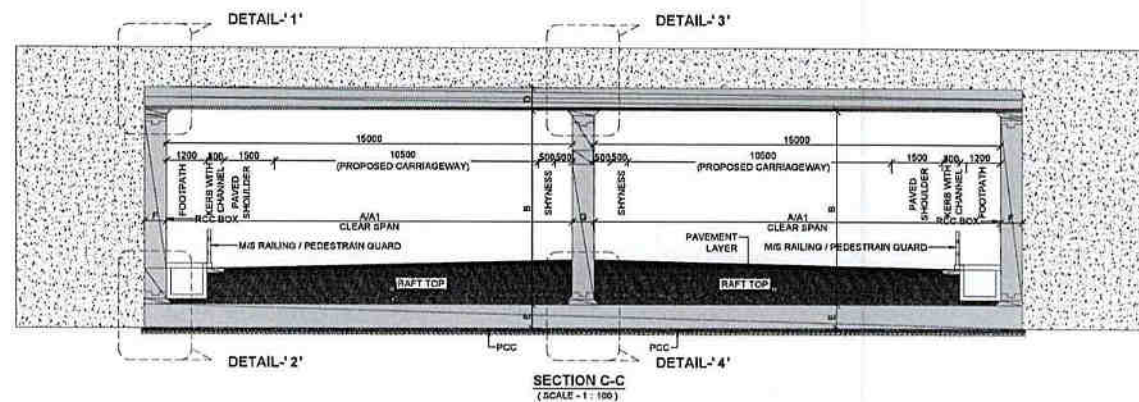
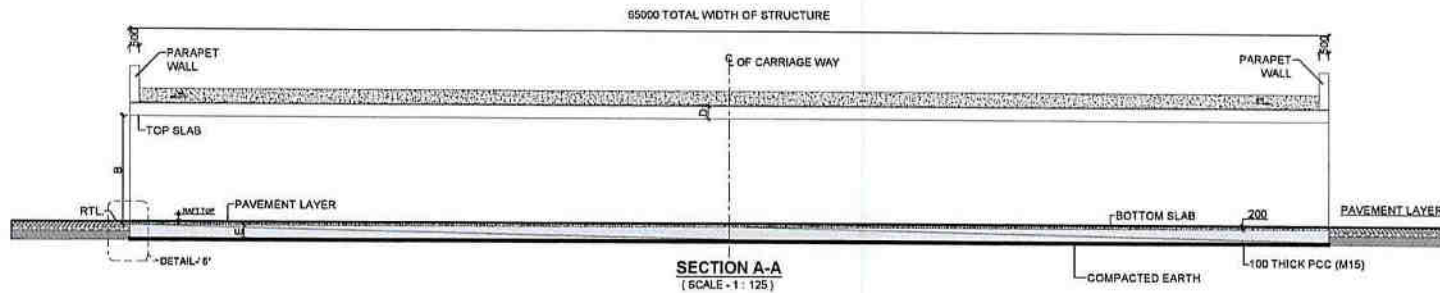
Animal Passage Plan For Construction of Itarsi Betul Road (NH- 46) from Km- 63.000
(Existing Ch. 61.500) and ends at Km 137.000 (Existing Ch. 135.455)

- Fencing (Crash Barrier, Noise Barrier), Parapet wall will be proposed as Wildlife Protection measures along the proposed locations of Tiger corridor.


प्रबंधक (तकनीकी)
Manager (Technical)
भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
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(R. K. Gupta)
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भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-Bhopal (M.P.)

GENERAL ARRANGEMENT DRAWING

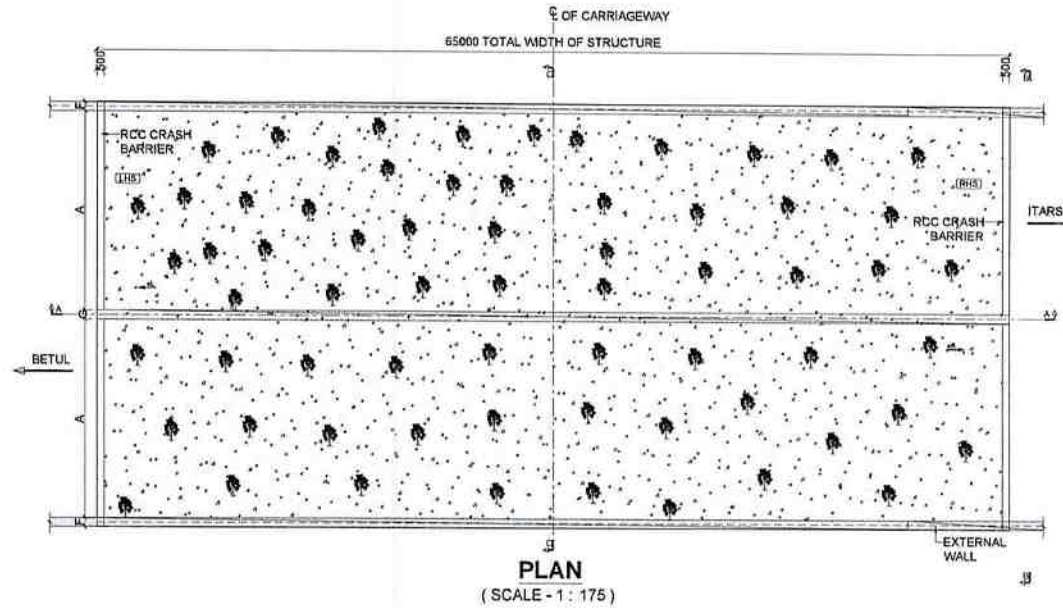


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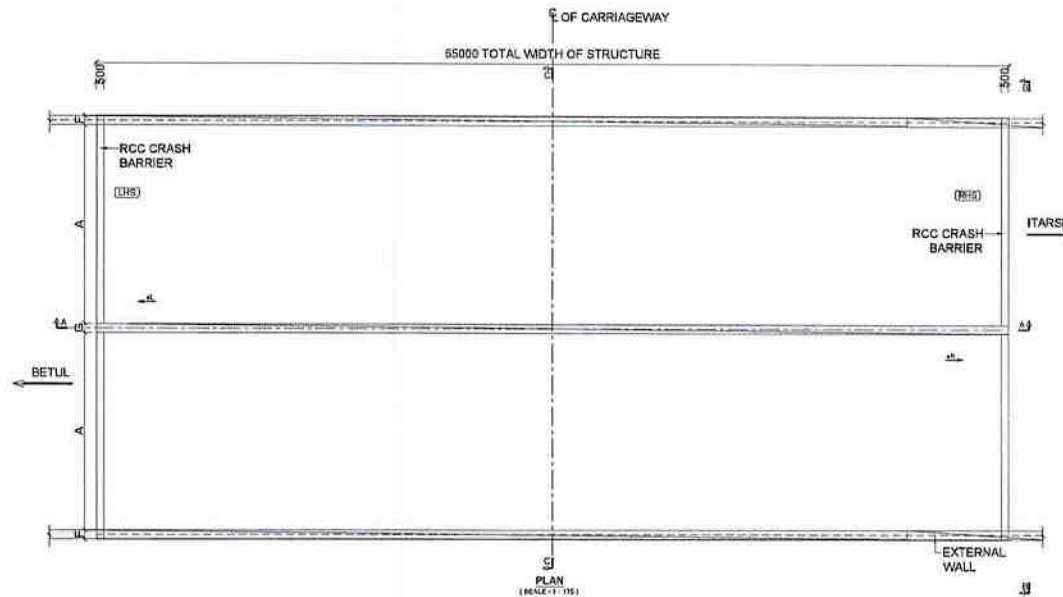
प्रबंधक (तकनीकी)
Manager (Technical)
भा. रा. रा. परि. क्रिया इकाई भो
NHAI PIU-BHOPAL

परिचालन निदेशक
Project Director
भा. रा. रा. परि. क्रिया इकाई भो
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CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. Regional Office :- T-10 3rd Floor city center zone 1, M.P Nagar Bhopal 462011 Ph. 0755 - 4205421, Fax : 0755 - 4205421, E-mail:- lnn_bhopal@rediffmail.com		CLIENT :- NATIONAL HIGHWAYS AUTHORITY OF INDIA (Ministry of Road Transport & Highways, Govt. of India) G-5 & 6, Sector-10, Dwarka, New Delhi, 110075		PROJECT TITLE :- BALANCE WORK FOR FOUR LANE OF ITARSI TO BETUL SECTION OF NH-69 FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.) IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON EPC MCDE		TITLE :- GENERAL ARRANGEMENT DRAWING AT CHAINAGE 62+300 (SPAN 2X15 BOX 65 METER LENGTH)	
DRG. NO. :		DESIGNED BY:		APPROVED BY:		SCALE : AS SHOWN	
SHEET: 1 OF 2		DRG. NO:		DRG. NO:		DRG. NO:	



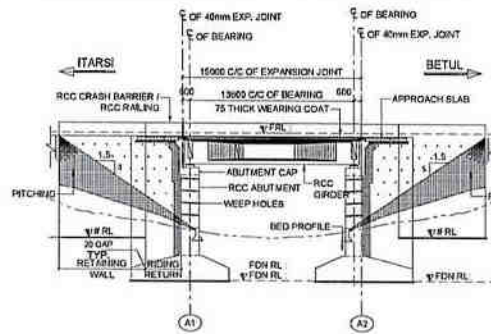
प्रबंधक (तकनीकी)
 Manager (Technical)
 भा.रा.रा.प्रा.परि.क्रिया इकाई भोपाल
 NHAI PIU-BHOPAL



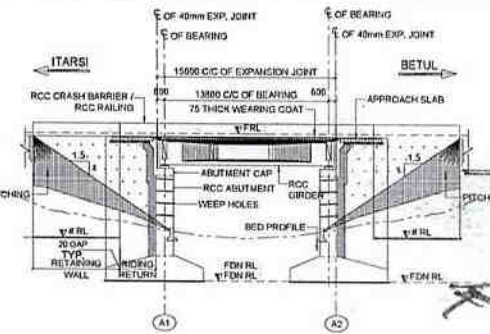
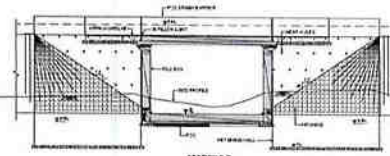
परियोजना निदेशक
 Project Director
 भा.रा.रा.प्रा.परि.क्रिया इकाई भोपाल
 NHAI PIU-Bhopal (M.P.)

THIS DRAWING MUST BE READ IN CONJUNCTION
WITH OTHER SHEETS OF THIS DRAWING.

:- CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. Regional Office > T-10 3rd Floor city center zone 1, M.P. Nagar Bhopal 462011 Ph. 0755 - 4295421, Fax : 0755 - 4295421, E-mail - lnm_bhopal@rediffmail.com	:- CLIENT :- NATIONAL HIGHWAYS AUTHORITY OF INDIA (Ministry of Road Transport & Highways, Govt. of India) G-5 & 6, Sector-10, Dwarka, New Delhi, 110075	:- PROJECT TITLE :- BALANCE WORK FOR FOUR LANEING OF ITARSI TO BETUL SECTION OF NH-69 FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.) IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON EPC MODE	TITLE : GENERAL ARRANGEMENT DRAWING AT CHAINAGE 62+300 (SPAN 2X15 BOX 65 METER LENGTH) SCALE : AS SHOWN DRG.NO : SHEET : 1 OF 2
	DRG. NO. : DESIGNED BY. : APPROVED BY.		



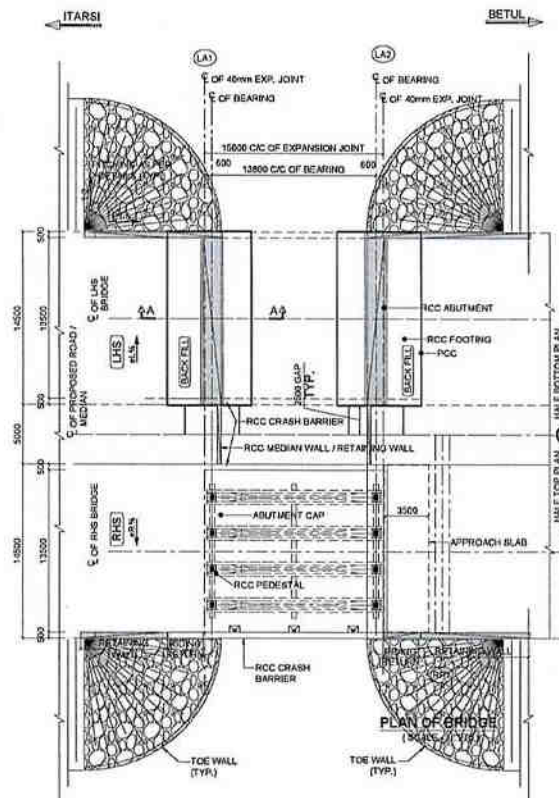
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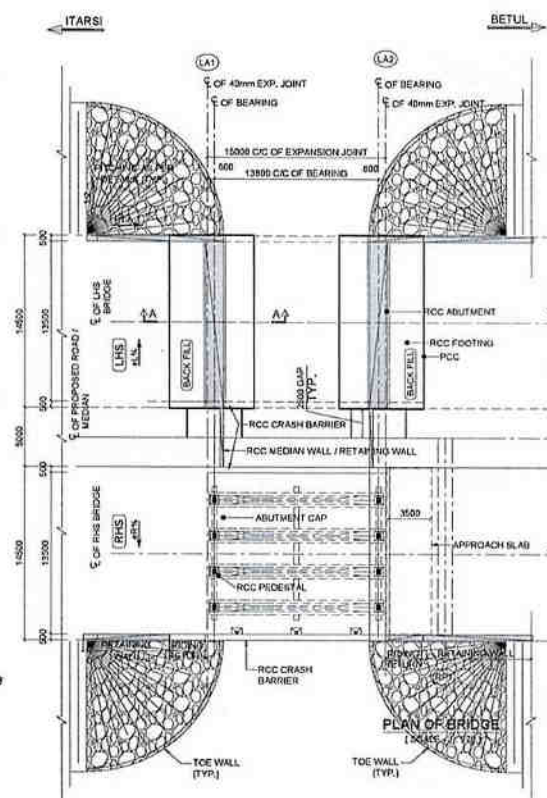
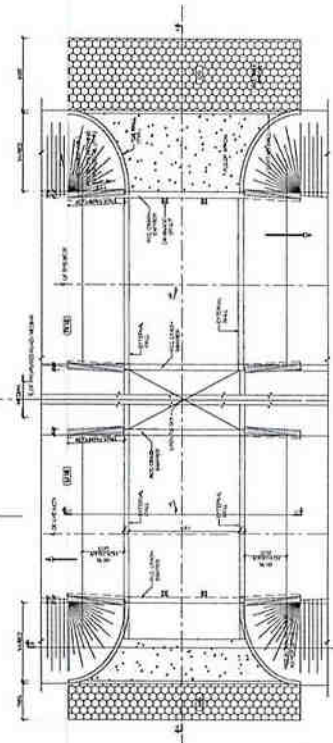
SECTIONAL ELEVATION OF BRIDGE
(SCALE - 1:275)

← 15.0 M → 5.80 M ← 15.0 M →

Already Constructed



PLAN OF BRIDGE
(SCALE - 1:275)



PLAN OF BRIDGE
(SCALE - 1:275)

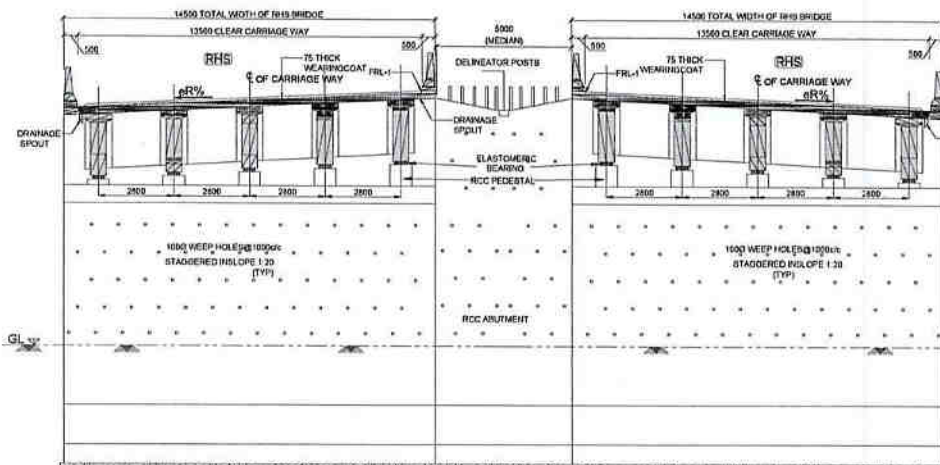
प्रबंधक (तकनीकी)
Manager (Technical)
भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-BHOPAL

प्रियंका जिंदराम
Project Director

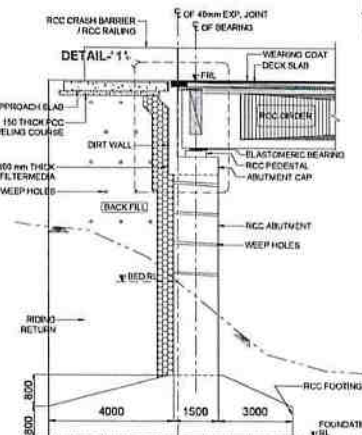
भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-Bhopal (M.P.)

THIS DRAWING MUST BE READ IN CONJUNCTION
WITH OTHER SHEETS OF THIS DRAWING

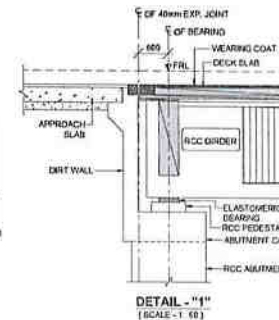
CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. Regional Office :- T-10 2nd Floor city center zone 1, M.P. Nagar Bhopal 462011 Ph. 0755 - 4295421, Fax : 0755 - 4295421, E-mail: lnm_bhopal@rediffmail.com	CLIENT :- NATIONAL HIGHWAYS AUTHORITY OF INDIA (Ministry of Road Transport & Highways, Govt. of India) G-5 & 6, Sector-10, Dwarka, New Delhi, 110075	PROJECT TITLE :- BALANCE WORK FOR FOUR LANE OF ITARSI TO BETUL SECTION OF NH-69 FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.) IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON EPC MODE	TITLE : GENERAL ARRANGEMENT DRAWING AT CHAINAGE 63+400 (SPAN 1X15) SCALE : AS SHOWN SHEET : 1 OF 2 DRG. NO. : Total 35-80 M
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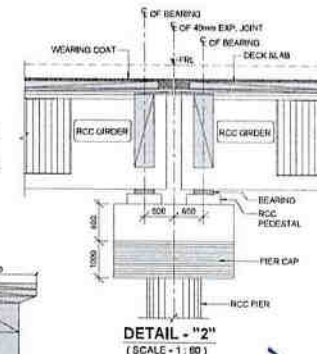
TYPICAL CROSS SECTION OF ABUTMENT
(SCALE - 1:100)



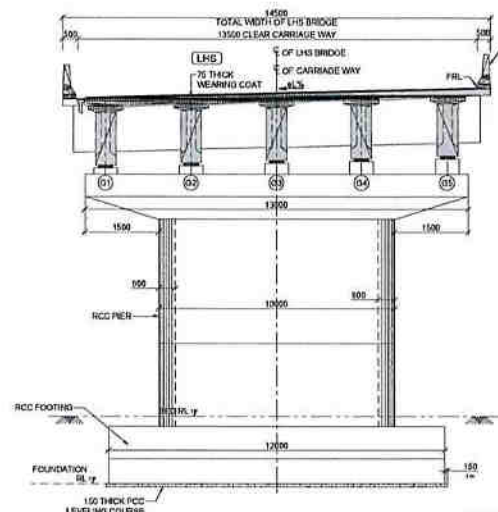
SECTION A-A
(SCALE - 1:100)



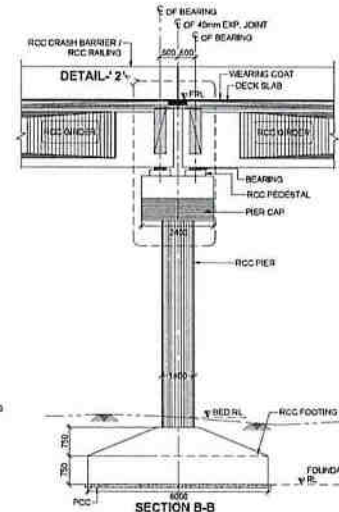
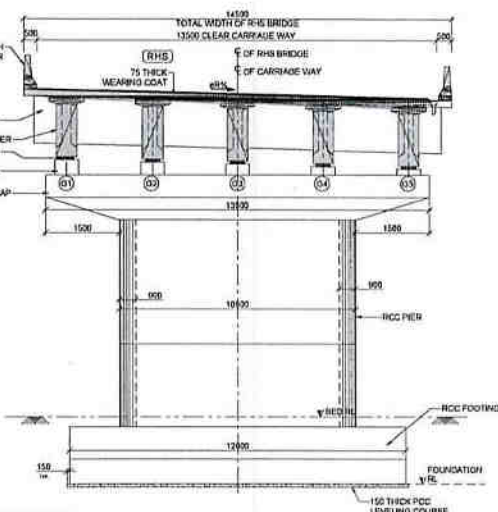
DETAIL - 1
(SCALE - 1:50)



DETAIL - 2
(SCALE - 1:50)



TYPICAL CROSS SECTION OF PIER
(SCALE - 1:100)



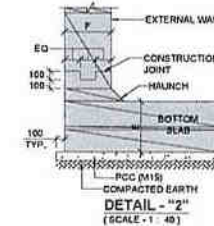
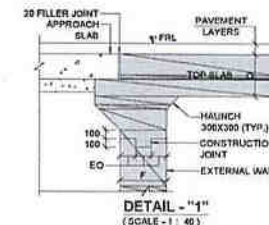
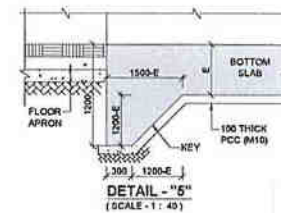
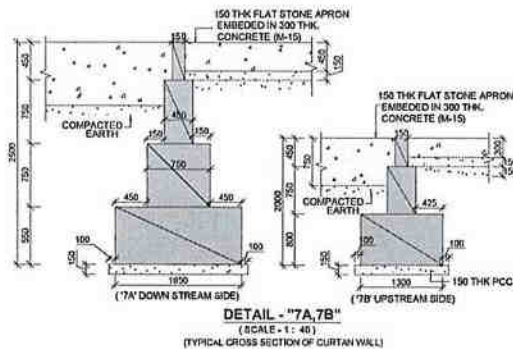
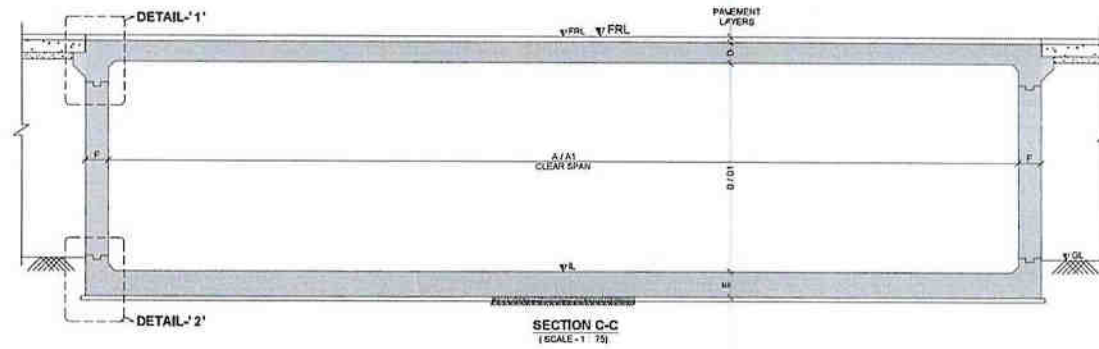
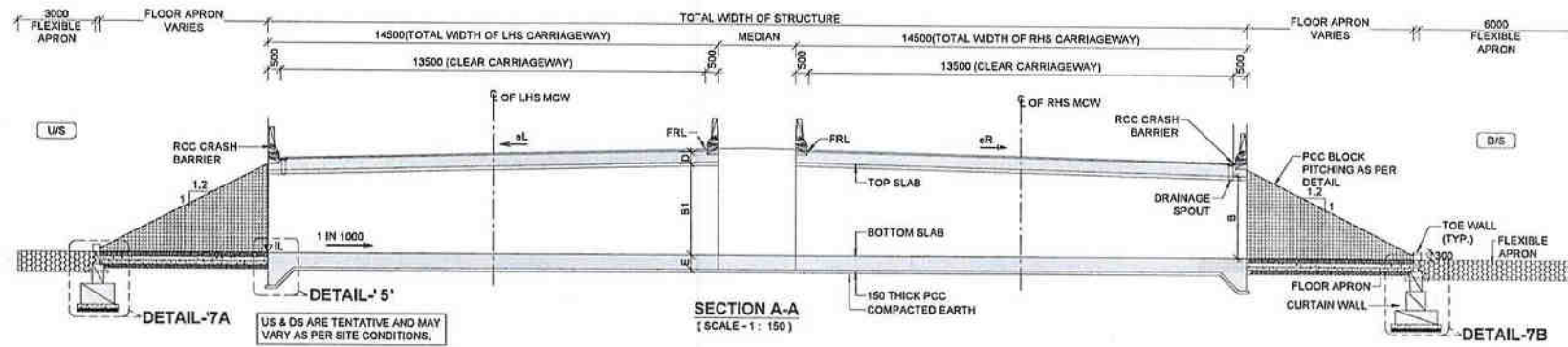
SECTION B-B
(SCALE - 1:100)

- NOTES :-
1. TYPE OF BRIDGES
 2. TOTAL LENGTH OF BRIDGE
 3. SPAN ARRANGEMENT OF BRIDGE
 4. OVER ALL WIDTH OF BRIDGE
 5. CLEAR CARRIAGEWAY WIDTH
 6. FORMATION LEVEL
 7. SOFT LEVEL
 8. HIGH FLOOD LEVEL (H.F.L.)
 9. AFFLUX
 10. DESIGN DISCHARGE
 11. DESIGN VELOCITY
 12. SCOUR LEVEL LIMITED UP TO ROCK LEVEL
 13. ROAD LEVEL
 14. TYPE OF FOUNDATION
 15. FOUNDATION LEVEL
 16. TYPE OF BEARINGS
 17. TYPE OF EXPANSION JOINT
 18. TYPE OF RAILING/CRASH BARRIER
 19. APPROACH SLAB
 20. GRADE OF CONCRETE :-
 21. THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED (TMT) HYSD BARS (GRADE DESIGNATION Fe-500), CONFIRMING TO IS-1786 STANDARDS.
 22. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR TWO LANE OF IRC CLASS 70 R + TWO LANE OF IRC CLASS A LOADING OR FOUR LANES OF IRC CLASS A LOADING VARIOUS GOVERNMENTS.
 23. WEAR HOLES 1000 SPACED AT 1000 C/C IN BOTH HORIZONTAL & VERTICAL DIRECTIONS SHALL BE PROVIDED IN A STAGGERED MANNER BEHIND ABUTMENT/RETAINING WALLS IN ONE OR TWO LAYERS ABOVE L.B.L.M.L.
 24. 75mm THK. CONCRETE WEARING COAT SHALL BE PROVIDED AS PER MOSRTH SPECIFICATION SECTION 500.
 25. LAYING OF FILTER MEDIA FOR DRAINAGE AND BACK FILLING BEHIND ABUTMENT/RETAINING WALLS SHALL BE DONE IN ACCORDANCE WITH APPENDIX 5 OF IRC-78-2014.
 26. BACK FILLING BEHIND ABUTMENTS SHALL CONSIST OF SELECTED EARTH MATERIALS CONFORMING TO APPENDIX-5 OF IRC-78-2014 HAVING PROPERTIES C=0.30, S=20.0 & y=20 K/m³.
 27. THE DIMENSIONS ARE TENTATIVE, MAY CHANGE SLIGHTLY IN DETAIL DESIGN.

प्रमुख (Technical)
Manager (Technical)
परि किया इकाई भोपाल
N.H.A.I.U.-BHOPAL

Project Director

CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. Regional Office :- T-10 3rd Floor city center zone 1, M.P Nagar Bhopal 462011 Ph. 0755 - 4295421 Fax : 0755 - 4295421 E-mail :- lnm_bhopal@gmail.com	CLIENT :- NATIONAL HIGHWAYS AUTHORITY OF INDIA (Ministry of Road Transport & Highways, Govt. of India) G-5 & 6, Sector-10, Dwarka, New Delhi, 110075	PROJECT TITLE :- BALANCE WORK FOR FOUR LANE OF ITARI TO BETUL SECTION OF NH-69 FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.) IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON EPC MODE	TITLE :- GENERAL ARRANGEMENT DRAWING AT CHAINAGE 63+400 (RANJAN JI) SCALE :- AS SHOWN SHEET :- 2 OF 2 DRG.NO :-
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प्रबंधक (तकनीकी)
Manager (Technical)
भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-BHOPAL

परियोजना निदेशक
Project Director
भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-Bhopal (M.P.)

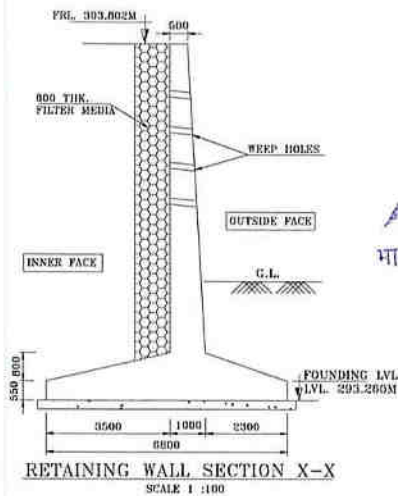
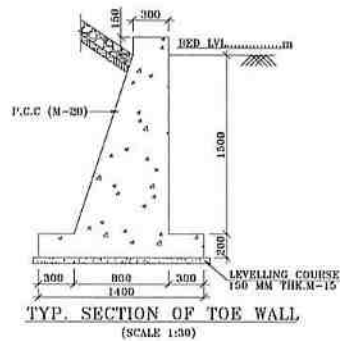
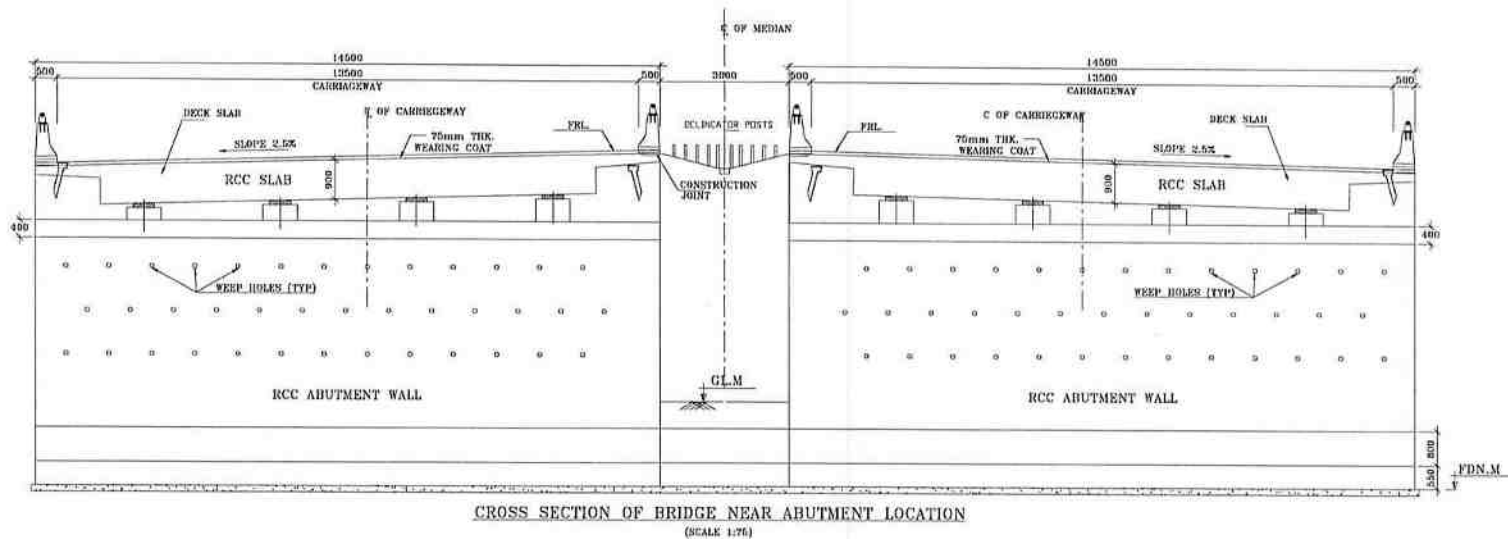
S No.	Chainage	A	B	D	E	F
1	63+400	5800.000	5000.000	550.000	650.000	650.000

CONSULTANTS :-
L.N. MALVIYA INFRA PROJECTS PVT. LTD.
Regional Office :-
Y-10 2nd Floor city center zone 1, M.P. Nagar Bhopal 462011
Ph. 0755 - 4295421,
Fax : 0755 - 4295421,
E-mail :- lam_bhopal@rediffmail.com

CLIENT :-
NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India,
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075)

PROJECT TITLE :-
BALANCE WORK FOR FOUR LANE OF
ITARI TO BETUL SECTION OF NH-69
FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON
EPC MODE

TITLE :-
GENERAL ARRANGEMENT DRAWING AT CHAINAGE 63+400 (SPAN 1X15)
SCALE : AS SHOWN
SHEET 35-804
DRG. NO. 1 OF 1



NOTES :-

1. TYPE OF BRIDGES - HIGH LEVEL BRIDGE.
2. LENGTH OF BRIDGE - 12.000.0M
3. SPANS ARRANGEMENT OF BRIDGE - 1 NOS. @ 12.00 M. C/C
4. OVERALL WIDTH - 14.500M
5. CLEAR ROADWAY - 13.500M
6. PROPOSED FORMATION LEVEL - RL- M
7. PROPOSED SOFFIT LEVEL - RL- M
8. H.F.L. - RL- m
9. PROPOSED (L.H.L) - RL- M
10. AFFLUX - M.
11. CATCHMENT AREA - SQ.KM.
12. DESIGN DISCHARGE - Cumec
13. DESIGN VELOCITY - M/SEC.
14. TYPE OF FOUNDATION - OPEN
15. FOUNDATION LEVEL ABUTMENT - M.
16. TYPE OF BEARINGS - TAR PAPER
17. TYPE OF EXPANSION JOINT - FILLER TYPE
18. TYPE OF RAILING - RCC RAILING
19. APPROACH SLAB - RCC APPROACH SLAB
20. GRADE OF CONCRETE :-
ABUTMENT - RCC M-30
WEARING COAT - RCC M-30
CAP & DIRT WALL - RCC M-30
PIER - RCC M-30
SUPERSTRUCTURE - RCC M-30
21. BACK FILLING BEHIND ABUTMENTS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES $C=0.3$ & $\phi=30^\circ$. $\sigma=29.0$ & $d=20$ KN/m. FILTER TYPE EXPANSION JOINTS SHALL BE PROVIDED.
22. 75mm THK. CONCRETE WEARING COAT SHALL BE PROVIDED, AS PER NORTH SPECIFICATION SECTION 506. 24. TAR PAPER BEARINGSSHALL BE PROVIDED.
23. WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 10.4.5 OF IRC : 112:2011.
24. LAYING OF FILTER MEDIA FOR DRAINAGE AND BACK FILLING BEHIND ABUTMENT/RETURN WALLS SHALL BE DONE IN ACCORDANCE WITH APPENDIX 6 OF IRC:78-2014. 27. WEAP HOLES 1000 SPACED AT 1000 C/C IN BOTH HORIZONTAL & VERTICAL DIRECTIONS SHALL BE PROVIDED IN A STAGGERED MANNER BEHIND ABUTMENTS/RETURN WALLS/RETAINING WALLS IN ONE OR TWO LAYERS ABOVE H/L/LWL.

THIS DRAWING MUST BE READ IN CONJUNCTION WITH OTHER SHEETS OF THIS DRAWING.


 Project Director
 भारा रा. प्रा. परि. क्रिया इकाई भोपाल
 NHAI PIU-Bhopal (M.P.)


 प्रबंधक (तकनीकी)
 Manager (Technical)
 भारा रा. प्रा. परि. क्रिया इकाई भोपाल
 NHAI PIU-BHOPAL

CONSULTANTS :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.
 Regional Office :-
 1-10 3rd Floor city center zone 1, M.P Nagar Bhopal 462011
 Ph. 0755 - 4295421,
 Fax : 0755 - 4295421,
 E-mail:- lnm_bhopal@rediffmail.com

CLIENT :-


NATIONAL HIGHWAYS AUTHORITY OF INDIA
 (Ministry of Road Transport & Highways, Govt. of India)
 G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

PROJECT TITLE :-

BALANCE WORK FOR FOUR LANE OF
 ITARSI TO BETUL SECTION OF NH-09
 FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.)
 IN THE STATE OF MADHYA PRADESH (PACKAGE LENGTH-11NH-09) ON
 EPC MODE

TITLE : GENERAL ARRANGEMENT DRAWING AT CHAINAGE 64+052 (SPAN IX12)

SCALE : AS SHOWN

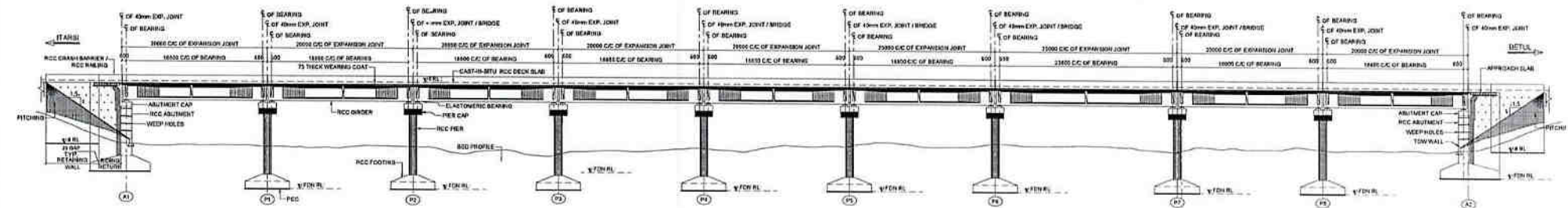
SHEET : 1 OF 2

DRG NO :

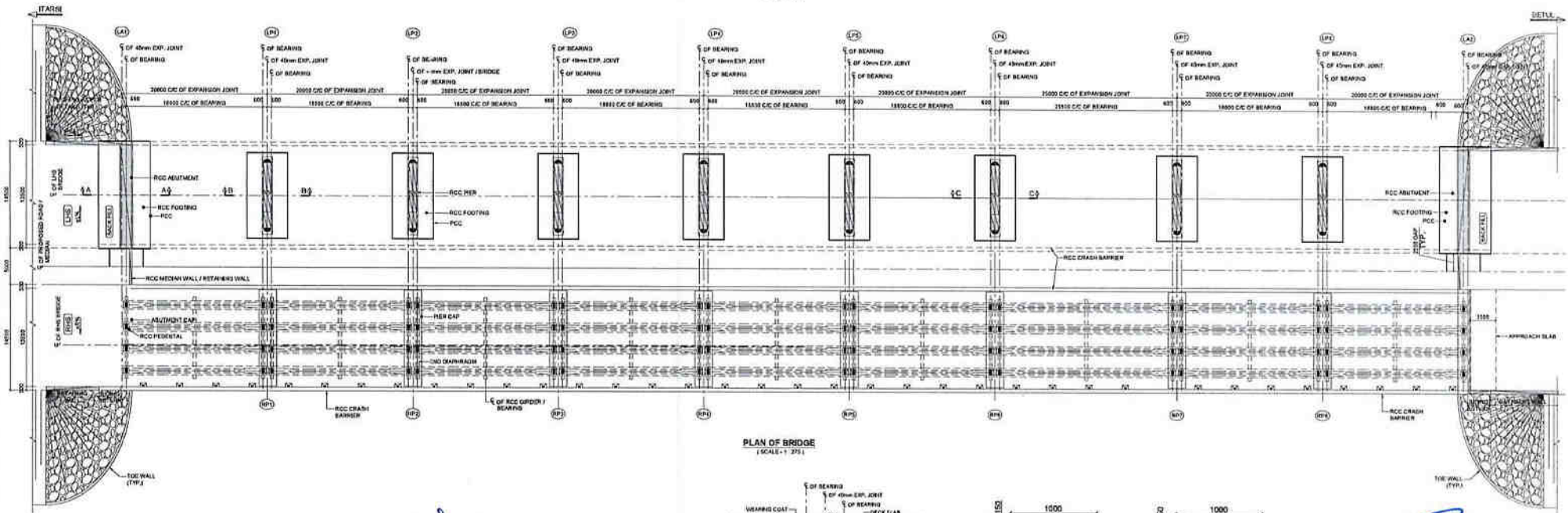
DRG NO.

DESIGNED BY.

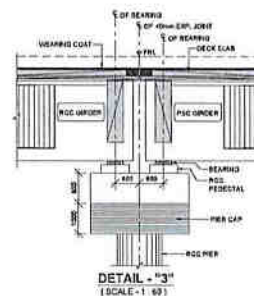
APPROVED BY.



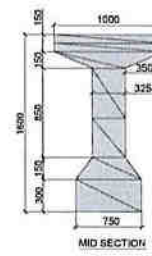
SECTIONAL ELEVATION OF BRIDGE
(SCALE - 1/25)



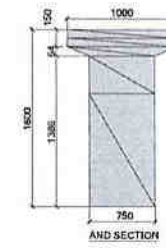
PLAN OF BRIDGE
(SCALE - 1/25)



DETAIL - "3"
(SCALE - 1/60)



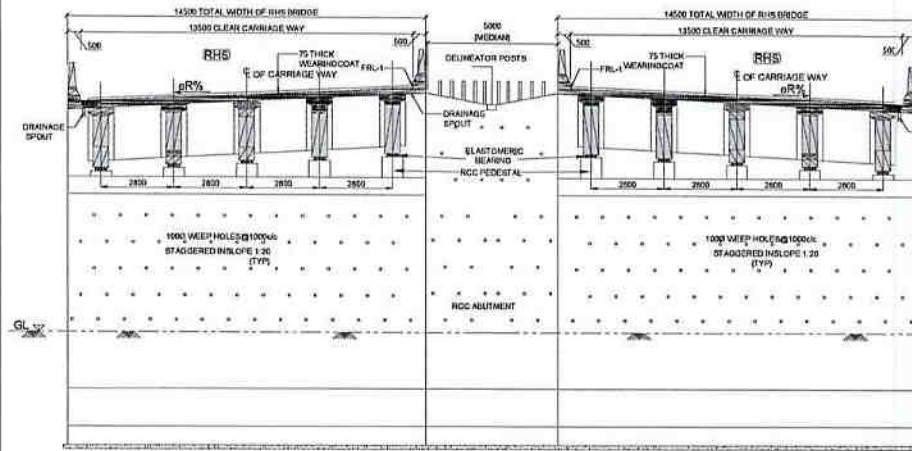
DETAILS FOR PSC GIRDER
(SCALE - 1/50)



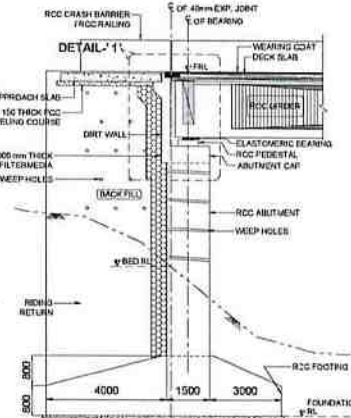
प्रबंधक (तकनीकी)
Manager (Technical)
भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-BHOPAL

परिचालन निदेशक
Project Director
भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-Bhopal (M.P.)
THIS DRAWING MUST BE READ IN CONJUNCTION
WITH OTHER SHEETS OF THIS DRAWING.

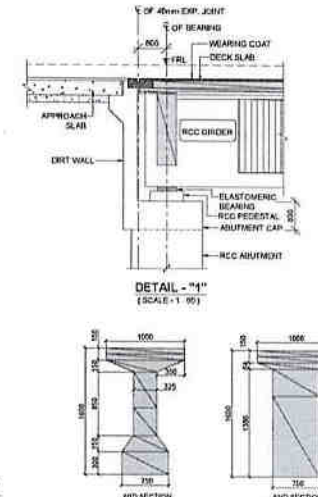
CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. Regional Office :- T-10 3rd Floor city center zone 1, M.P Nagar Bhopal 462011 Ph: 0755 - 4295421, Fax: 0755 - 4295421, E-mail: lnm_bhopal@gmail.com	CLIENT :- NATIONAL HIGHWAYS AUTHORITY OF INDIA (Ministry of Road Transport & Highways, Govt. of India) G-5 & 6, Sector-10, Dwarka, New Delhi, 110075	PROJECT TITLE :- BALANCE WORK FOR FOUR LANE OF ITARI TO BETUL SECTION OF NH-69 FROM KM. 61.580 TO KM. 135.455 (DESIGN LENGTH 73.855 KM.) IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON EPC MODE	TITLE : GENERAL ARRANGEMENT DRAWING AT CHAINAGE 66+000 (SPAN 6X20+1X25+2X20) SCALE : AS SHOWN SHEET : 1 OF 1 DRG.NO : Tol 165M
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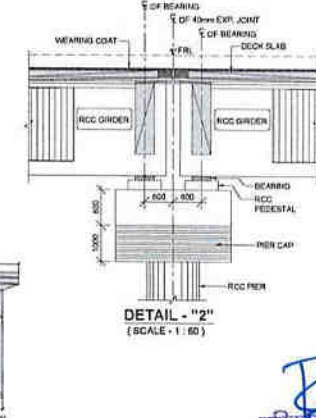
TYPICAL CROSS SECTION OF ABUTMENT
(SCALE: 1:10)



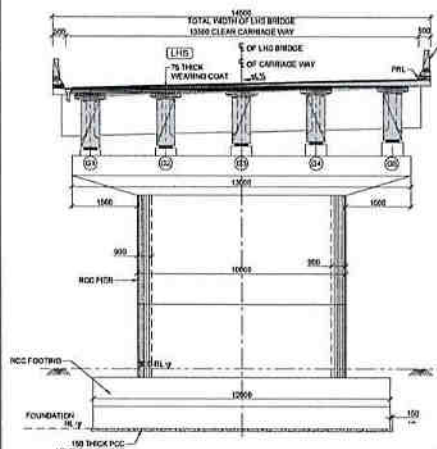
SECTION A-A
(SCALE: 1:100)



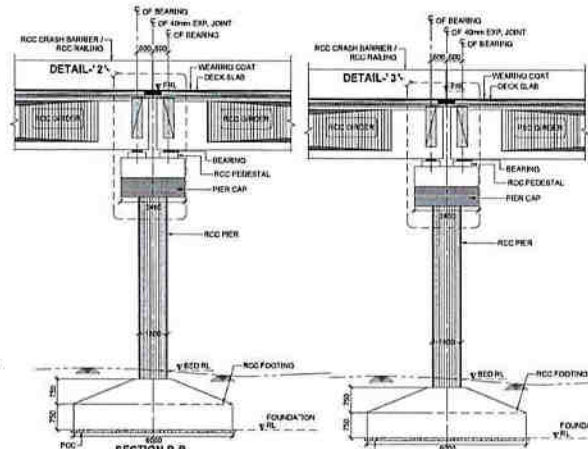
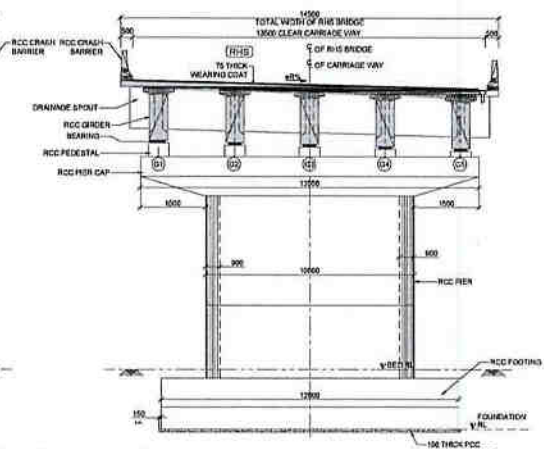
DETAIL - 1
(SCALE: 1:50)



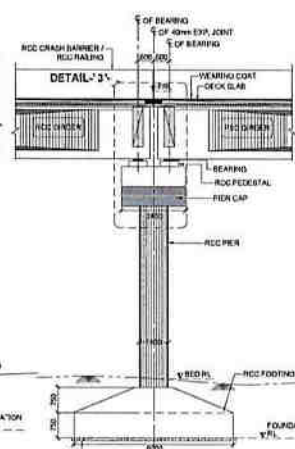
DETAIL - 2
(SCALE: 1:50)



TYPICAL CROSS SECTION OF PIER
(SCALE: 1:10)



SECTION B-B
(SCALE: 1:100)



SECTION C-C
(SCALE: 1:100)

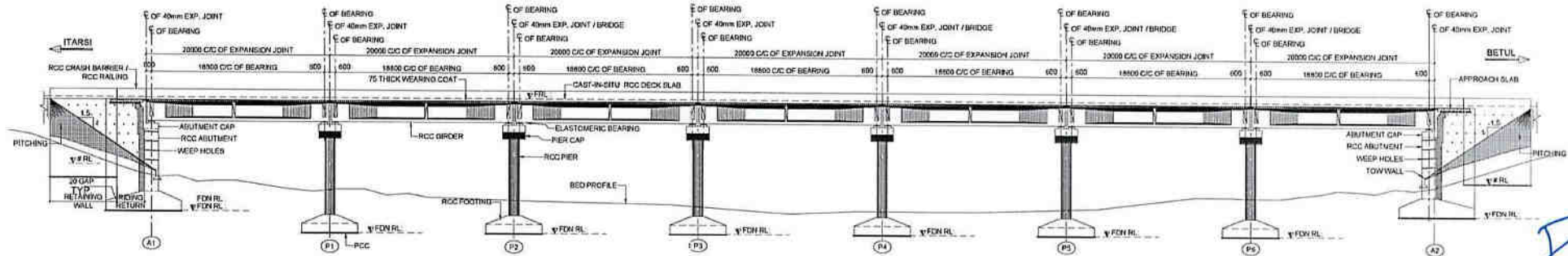
- NOTES**
1. TYPE OF BRIDGES
 2. TOTAL LENGTH OF BRIDGE
 3. SPAN ARRANGEMENT OF BRIDGE
 4. OVER ALL WIDTH OF BRIDGE
 5. CLEAR CARRIAGEWAY WIDTH
 6. FORMATION LEVEL
 7. SOFFIT LEVEL
 8. HIGH FLOOD LEVEL (H.F.L.)
 9. AFFLUX
 10. DESIGN DISCHARGE
 11. DESIGN VELOCITY
 12. SCOUR LEVEL
 13. ROAD LEVEL
 14. TYPE OF FOUNDATION
 15. FOUNDATION LEVEL
 16. PIER
 17. TYPE OF BEARINGS
 18. TYPE OF EXPANSION JOINT
 19. TYPE OF RAILING/CRASH BARRIER
 20. APPROACH SLAB
 21. GRADE OF CONCRETE
 22. THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED (TMT) HYSD BARS (GRADE DESIGNATION Fe-500). CONFORMING TO IS 1786 STANDARDS.
 23. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR TWO LANE OF IRC CLASS A LOADING WHICHEVER GOVERNS.
 24. WEAR HOLES 1000 SPACED AT 1000 CC IN BOTH HORIZONTAL & VERTICAL DIRECTIONS SHALL BE PROVIDED IN A STAGGERED MANNER BEHIND ABUTMENTS/RETAIN WALLS/RETAINING WALLS IN ONE OR TWO LAYERS ABOVE D.B.L.
 25. 75mm THK. CONCRETE WEARING COAT SHALL BE PROVIDED AS PER MORTH SPECIFICATION SECTION 500.
 26. LAYING OF FILTER MEDIA FOR DRAINAGE AND BACK FILLING BEHIND ABUTMENT/RETURN WALLS SHALL BE DONE IN ACCORDANCE WITH APPENDIX B OF IRC 78:2014.
 27. BACK FILLING BEHIND ABUTMENTS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX B OF IRC 78:2014 HAVING PROPERTIES C=0.2-0.3, & 20.0 & $\gamma_d = 20 \text{ KN/m}^3$.
 28. THE DIMENSIONS ARE TENTATIVE, MAY CHANGE SLIGHTLY IN DETAIL DESIGN.

परिचालन निदेशक
Project Director

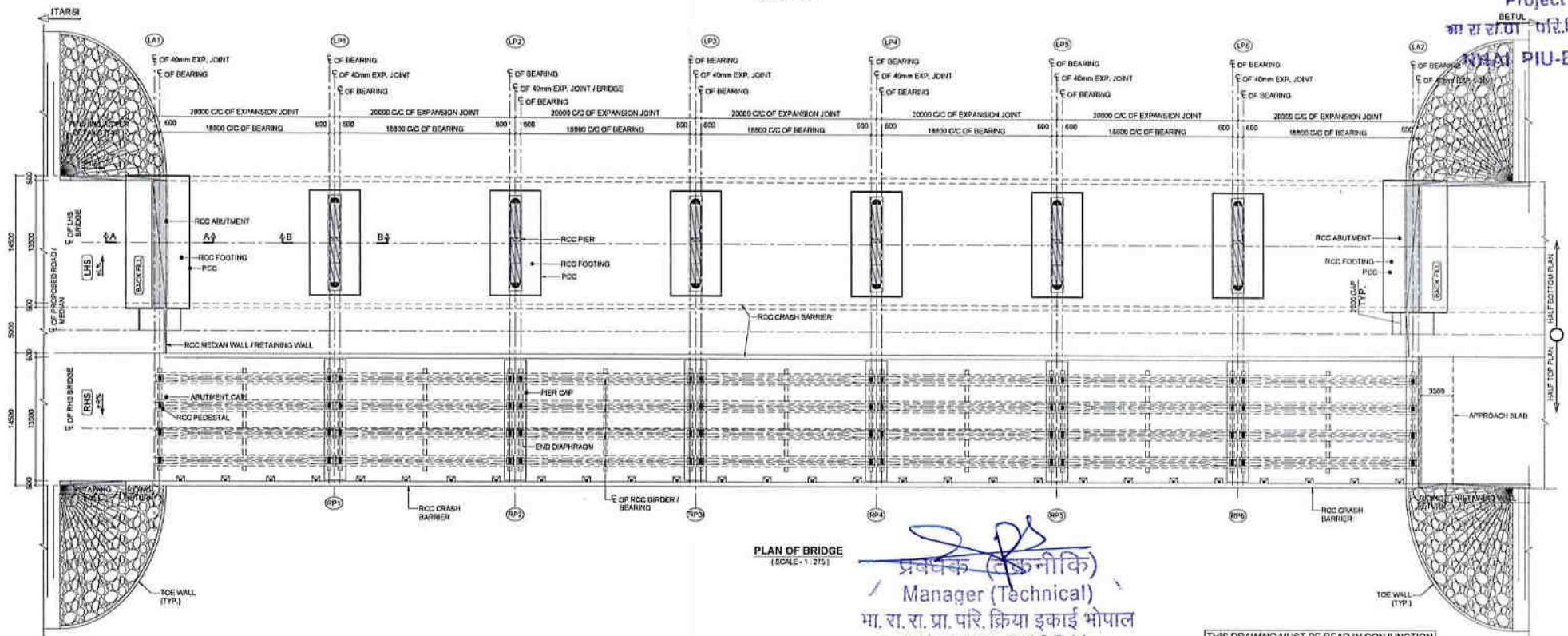
भा.स.रा.प्रा. परि.क्रिया इकाई भोपाल
NHA PIU-Bhopal (M.P.)

सह-निदेशक (तकनीकी)
Manager (Technical)
भा.स.रा.प्रा. परि.क्रिया इकाई भोपाल
NHA PIU-Bhopal

CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. Regional Office :- T-10 3rd Floor city center zone 1, MLP Nagar Bhopal 462011 Ph. 0755 - 4295421 Fax : 0755 - 4295421 E-mail - lnn_bhopal@rediffmail.com	CLIENT :- NATIONAL HIGHWAYS AUTHORITY OF INDIA (Ministry of Road Transport & Highways, Govt. of India) G-5 & 6, Sector-10, Dwarka, New Delhi, 110075	PROJECT TITLE :- BALANCE WORK FOR FOUR LANING OF ITARSI TO BETUL SECTION OF NH-69 FROM KM. 51.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.) IN THE STATE OF MADHYA PRADESH (PACKAGE I-VIII-69) ON EPC MODE	TITLE :- GENERAL ARRANGEMENT DRAWING AT CHAINAGE 66+000 (SPAN 4X20+1X25+2X20) SCALE :- AS SHOWN SHEET :- 2 OF 2 <i>Total 185 M</i> DRG. NO. :-
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SECTIONAL ELEVATION OF BRIDGE
(SCALE - 1:275)



PLAN OF BRIDGE
(SCALE - 1:275)

प्रबंधक (तकनीकी)
Manager (Technical)
भा. रा. रा. परि. क्रिया इकाई भोपाल
NHAI PIU-BHOPAL

THIS DRAWING MUST BE READ IN CONJUNCTION
WITH OTHER SHEETS OF THIS DRAWING.

CONSULTANTS :-



L.N. MALVIYA INFRA PROJECTS PVT. LTD.
Regional Office :-
1-10 3rd Floor city center zone 1, M.P Nagar Bhopal 462011
Ph. 0755 - 4205421,
Fax : 0755 - 4205421,
E-mail - lnm_bhopal@rediffmail.com

CLIENT :-



NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India)
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

DRG. NO. :-

DESIGNED BY :-

APPROVED BY :-

PROJECT TITLE :-

BALANCE WORK FOR FOUR LANE OF
ITARSI TO BETUL SECTION OF NH-69
FROM KM. 61.600 TO KM. 135.455 (DESIGN LENGTH 73.855 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-II/NH-69) ON
EPC MODE

TITLE :-

GENERAL ARRANGEMENT DRAWING AT CHAINAGE 86+050 (SPAN 7X20)

SCALE :-

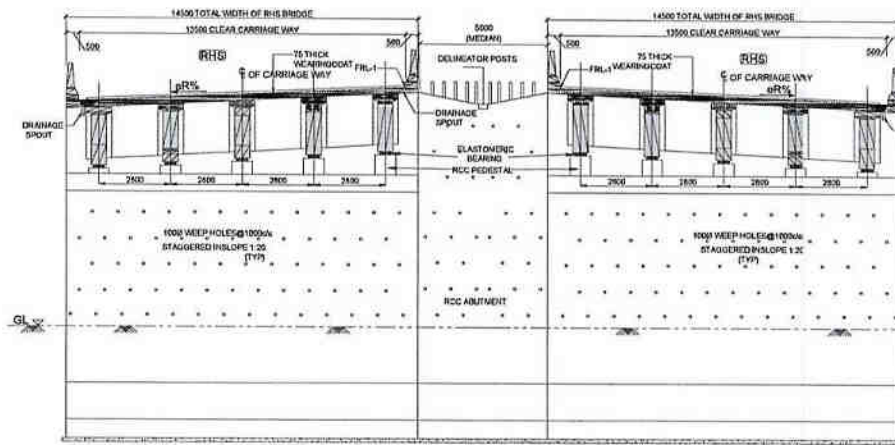
AS SHOWN

SHEET :-

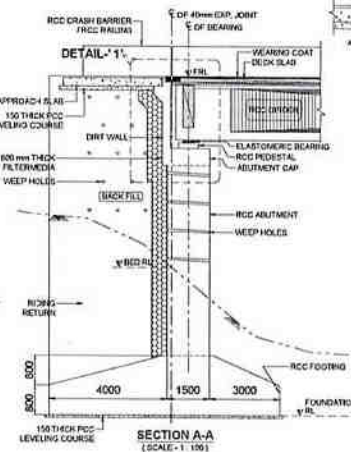
1 OF 2

DRG. NO. :-

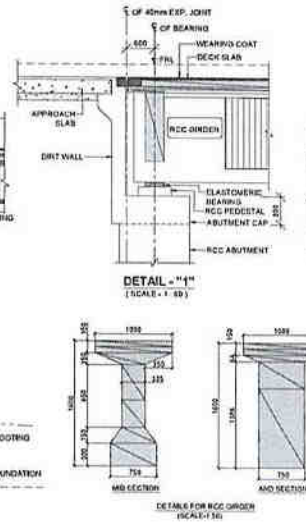
Tot 140 m



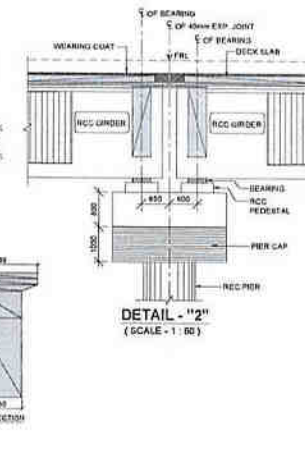
TYPICAL CROSS SECTION OF ABUTMENT
(SCALE - 1:118)



SECTION A-A
(SCALE - 1:100)



DETAIL - "1"
(SCALE - 1:60)



DETAIL - "2"
(SCALE - 1:60)

NOTES -

1. TYPE OF BRIDGES
2. TOTAL LENGTH OF BRIDGE
3. SPAN ARRANGEMENT OF BRIDGE
4. OVER ALL WIDTH OF BRIDGE
5. CLEAR CARRIAGEWAY WIDTH
6. FORMATION LEVEL
7. SOFFIT LEVEL
8. HIGH FLOOD LEVEL (H.F.L.)
9. AFFLUX
10. DESIGN DISCHARGE
11. DESIGN VELOCITY
12. SCOUR LEVEL
13. ROAD LEVEL
14. TYPE OF FOUNDATION
15. FOUNDATION LEVEL
16. SBC OF FOUNDATION STRATA
17. TYPE OF BEARINGS
18. TYPE OF EXPANSION JOINT
19. TYPE OF RAILING/CRAH BARRIER
20. APPROACH SLAB
21. GRADE OF CONCRETE
22. THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED (TMT) HYSD BARS (GRADE DESIGNATION Fy-500) CONFORMING TO IS:1786 STANDARDS.
23. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR TWO LANE OF IRC CLASS 70 R + TWO LANE OF IRC CLASS ALLOWING ONE FOUR LANE OF IRC CLASS A LOADING WHICHEVER GOVERN. (1.00 M. WIDE CRASH BARRIER - BHOPAL)
24. WEAP HOLES 1000 SPACED AT 1000 C/C IN BOTH HORIZONTAL & VERTICAL DIRECTIONS SHALL BE PROVIDED IN A STAGGERED MANNER BEHIND ABUTMENTS/RETAIN WALLS/RETAINING WALLS IN ONE OR TWO LAYERS ABOVE L.B.L.W.
25. 75mm THK. CONCRETE WEARING COAT SHALL BE PROVIDED AS PER MOSRTH SPECIFICATION SECTION 503.
26. LAYING OF FILTER MEDIA FOR DRAINAGE AND BACK FILLING BEHIND ABUTMENT/RETAIN WALLS SHALL BE DONE IN ACCORDANCE WITH APPENDIX 6 OF IRC 78:2014.
27. BACK FILLING BEHIND ABUTMENTS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC 78:2014 HAVING PROPERTIES C=0.5-30%, 20.0% & y = 20 KN/m.
28. THE DIMENSIONS ARE TENTATIVE, MAY CHANGE SLIGHTLY IN DETAIL DESIGN.

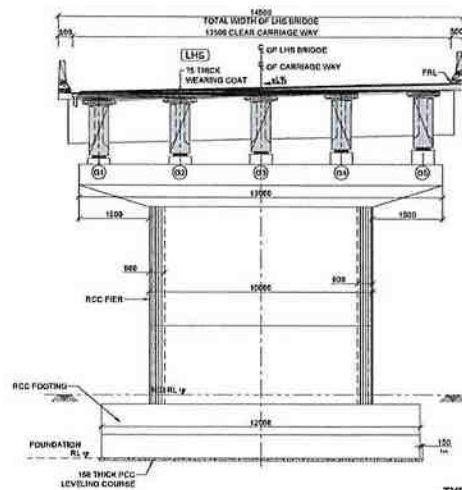
ANIMAL UNDERPASS

- 140.00 M.
- 7 NOS. @ 20.0 M. C/C
- 14.50 M.
- 13.50 M.
- NA
- NA
- NA
- ABUTMENT NA
- PIER - NA
- OPEN
- NA
- NA
- ELASTOMERIC BEARING
- STRIP SEAL
- CRAH BARRIER
- RCC APPROACH SLAB

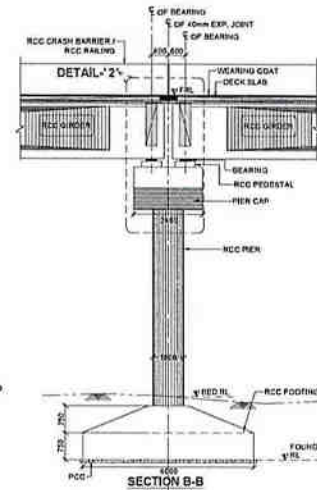
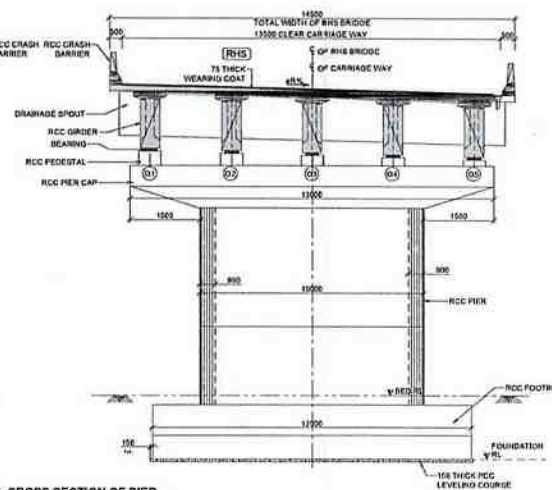
परियोजना निदेशक
Project Director

भारत रा.प. परि. किरा इकाई भो
NHAI PIU-Bhopal (M.P.)

सह-निर्देशक (सि.क.नी.कि.)
Manager (Technical)



TYPICAL CROSS SECTION OF PIER
(SCALE - 1:118)



SECTION B-B
(SCALE - 1:118)

CONSULTANTS

L.N. MALVIYA INFRA PROJECTS PVT. LTD.
Regional Office -
T-10 3rd Floor city center zone 1, M.P. Nagar Bhopal 462011
Ph. 0755 - 4295421,
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CLIENT



NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India)
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

DWG. NO.:

DESIGNED BY:

APPROVED BY:

PROJECT TITLE

BALANCE WORK FOR FOUR LANE OF
ITARSI TO BETUL SECTION OF NH-69
FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-I/HH-69) ON
EPC MODE

TITLE

GENERAL ARRANGEMENT DRAWING AT CHAINAGE 86+050 (SPAN 7X20)

SCALE

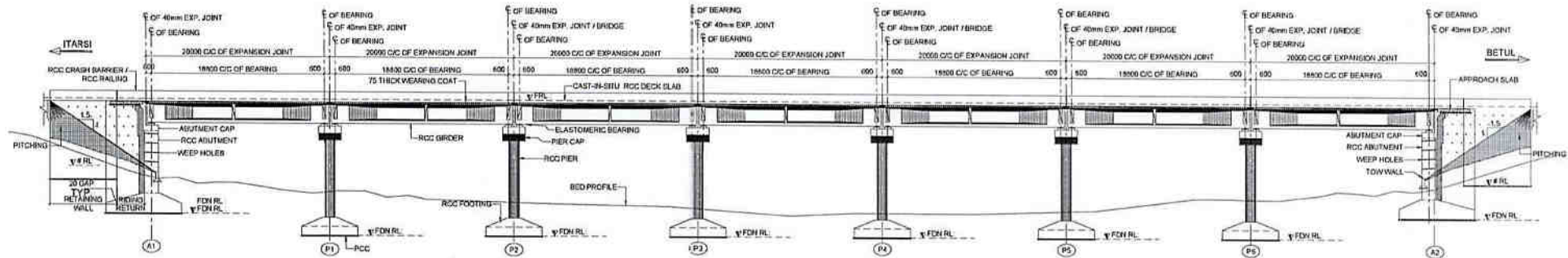
AS SHOWN

DRG.NO.

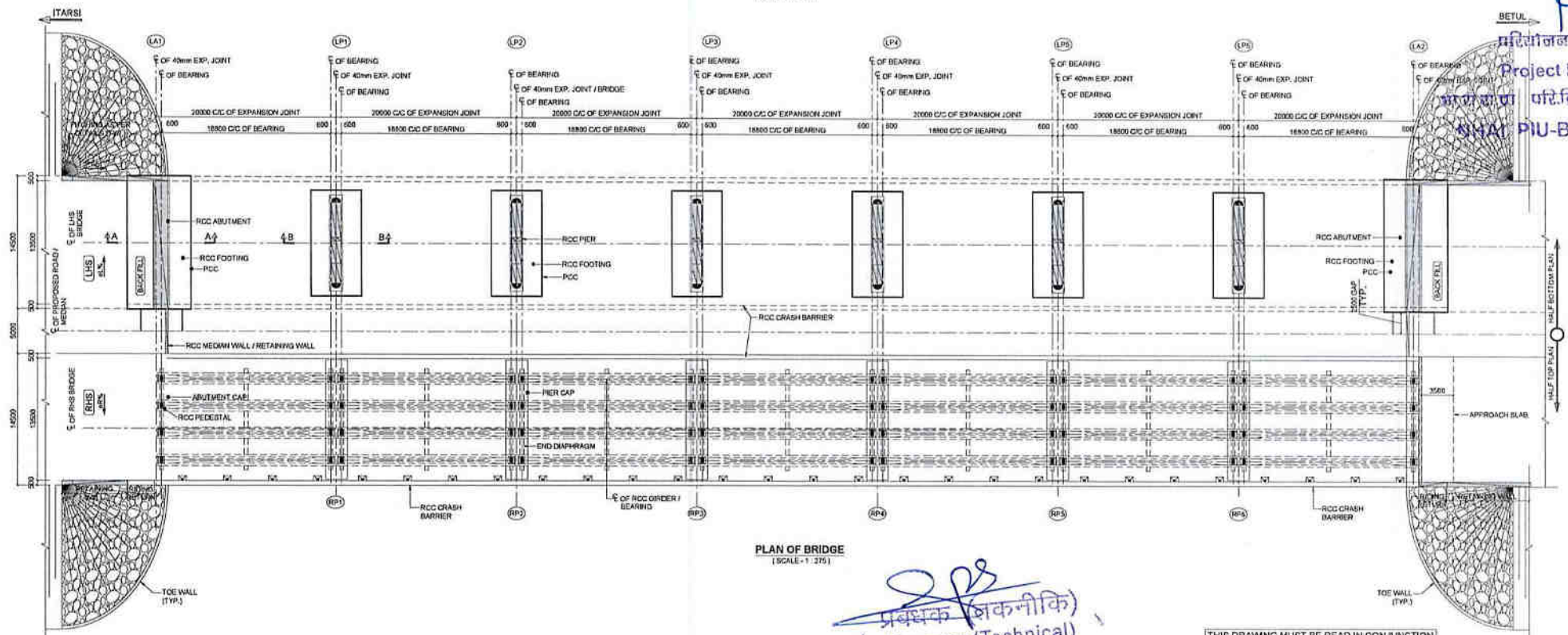
SHEET

2 OF 2

Total 140m



SECTIONAL ELEVATION OF BRIDGE
(SCALE - 1:275)



PLAN OF BRIDGE
(SCALE - 1:375)

महोदय
Project Director
भारत रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-Bhopal (M.P.)

प्रबंधक (तकनीकी)
Manager (Technical)
भारत रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-Bhopal

THIS DRAWING MUST BE READ IN CONJUNCTION
WITH OTHER SHEETS OF THIS DRAWING.

CONSULTANTS :-

CLIENT :-



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NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India)
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

DWG NO.:

DESIGNED BY:

APPROVED BY:

TITLE: GENERAL ARRANGEMENT DRAWING AT CHAINAGE 109+893 (SPAN 7X20)

SCALE: AS SHOWN SHEET: 1 OF 2

DRG. NO.:

PROJECT TITLE:
BALANCE WORK FOR FOUR LANE OF
ITARSI TO BETUL SECTION OF NH-69
FROM KM. 61.000 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-I/IIH-08) ON
EPC MODE



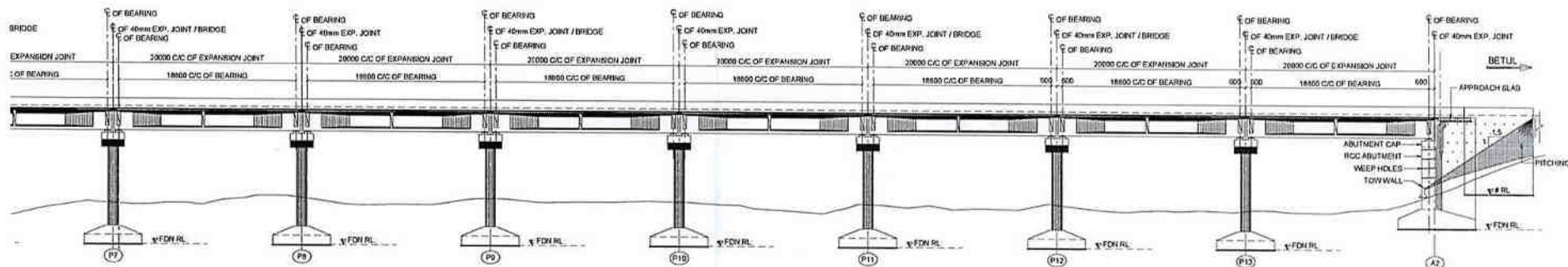
- NOTES :-
- | | |
|--|-----------------------|
| 1. TYPE OF BRIDGES | - ANIMAL UNDERPASS |
| 2. TOTAL LENGTH OF BRIDGE | - 145.00 M. |
| 3. SPAN ARRANGEMENT OF BRIDGE | - 7 NOS @ 20.0 M C/C |
| 4. OVER ALL WIDTH OF BRIDGE | - 14.50 M. |
| 5. CLEAR CARRIAGEWAY WIDTH | - 13.50 M. |
| 6. FORMATION LEVEL | - |
| 7. SOFFIT LEVEL | - |
| 8. HIGH FLOOD LEVEL (H.F.L.) | - NA |
| 9. AFFLUX | - NA |
| 10. DESIGN DISCHARGE | - NA |
| 11. DESIGN VELOCITY | - NA |
| 12. SCOUR LEVEL | - ABUTMENT NA |
| 13. LIMITED UP TO ROCK LEVEL | - PIER - NA |
| 14. ROAD LEVEL | - |
| 15. TYPE OF FOUNDATION | - OPEN |
| 16. FOUNDATION LEVEL | - |
| A. PIER | - NA |
| B. ABUTMENT | - |
| C. RETAINING WALL | - |
| D. SBC OF FOUNDATION STRATA | - |
| 17. TYPE OF BEARINGS | - ELASTOMERIC BEARING |
| 18. TYPE OF EXPANSION JOINT | - STRIP SEAL |
| 19. TYPE OF RAILING/CRASSH BARRIER | - CRASSH BARRIER |
| 20. APPROACH SLAB | - RCC APPROACH SLAB |
| 21. GRADE OF CONCRETE > | - |
| ABUTMENT | - RCC M-35 |
| WEARING COAT | - RCC M-30 |
| CAP & DIRT WALL | - RCC M-35 |
| PIER | - RCC M-35 |
| SUPERSTRUCTURE | - RCC M-45 |
| RCC CRASH BARRIER | - RCC M-40 |
| APPROACH SLAB | - RCC M-30 |
| 22. THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED (TM) HYSD BARS (GRADE DESIGNATION Fe-550), CONFORMING TO IS 17868 STANDARDS. | - |
| 23. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR TWO LANE (GR. 70) & TWO LANE OF IRC CLASS A LOADING OR TWO LANE OF IRC CLASS A LOADING WHICHEVER GOVERN THE DESIGN. | - |
| 24. VEEPE HOPS 100G SPACED AT 1000 CM IN BOTH HORIZONTAL & VERTICAL DIRECTIONS SHALL BE PROVIDED IN A STAGGERED MANNER BEHIND ABUTMENT/RETURNN WALLS.RETAINING WALLS IN ONE OR TWO LAYERS ABOVE L.B.L.L.V. | - |
| 25. 75mm THK. CONCRETE WEARING COAT SHALL BE PROVIDED AS PER MONTH SPECIFICATION SECTION 500. | - |
| 26. BACK FILL FILTER MEDIA FOR DRAINAGE AND BACK FILLING BEHIND ABUTMENT/RETURNN WALLS SHALL BE DONE IN ACCORDANCE WITH APPENDIX B OF IRC 78/2014. | - |
| 27. BACK FILLING BEHIND ABUTMENTS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX B OF IRC 78/2014 HAVING PROPERTIES $100 < I_p < 200$ & $d < 40$ MM. | - |
| 28. THE DIMENSIONS ARE TENTATIVE, MAY CHANGE SLIGHTLY IN DETAIL DESIGN. | - |

- ANIMAL UNDERPASS
 - 140.00 M.
 - 7 NOS. @ 20.0 M. C/C
 - 145.0 M.
 - 13.50 M.
 -
 - NA
 - NA
 - NA
 - NA
 - ABUTMENT NA
 - PIER - NA
 -

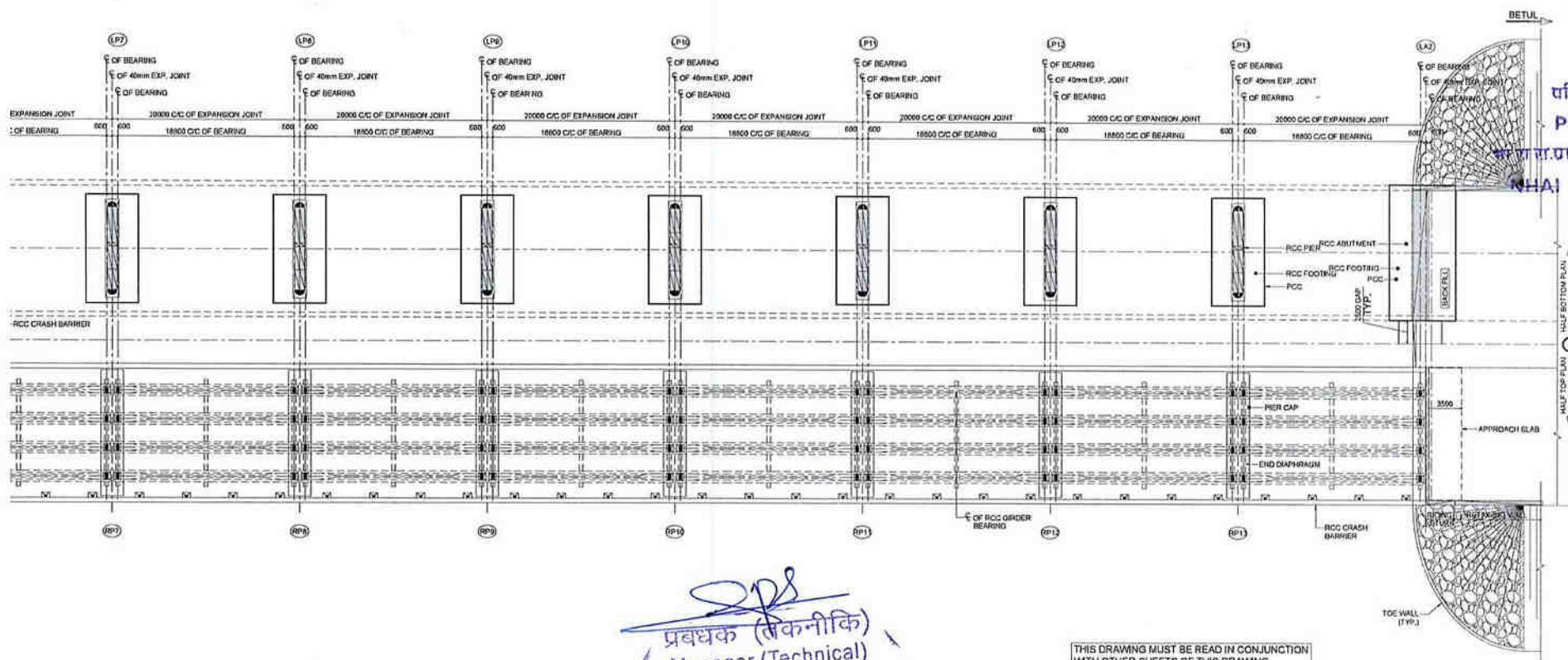
परियोजना निदेशक
 Project Director
 भारतीय परिक्रिया इकाई गीता
 NHAI PIU-Bhopal (M.P.)

पुनर्धक (तकनीकि)
Manager (Technical)
SIGNED FOR TWO - JUNE 19
HORIZONTAL - BHOPAL

-< CONSULTANTS -> L.N. MALVIYA INFRA PROJECTS PVT. LTD. Regional Office :- T-10 3rd Floor city center zone 1, M.P Nagar Bhopal 462011 Ph. 0755 - 4205421, Fax : 0755 - 4205421, E-mail - lnr_bhopal@rediffmail.com		-< CLIENT -> NATIONAL HIGHWAYS AUTHORITY OF INDIA (Ministry of Road Transport & Highways, Govt. of India) G-5 & 6, Sector-10, Dwarka, New Delhi, 110075		-< PROJECT TITLE -> BALANCE WORK FOR FOUR LANING OF ITARSI TO BETUL SECTION OF NH-69 FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.) IN THE STATE OF MADHYA PRADESH (PACKAGE-I/II/III-69) ON EPC MODE		TITLE : GENERAL ARRANGEMENT DRAWING AT CHAINAGE 109+903 (SPAN 7X20) SCALE : AS SHOWN DRG. NO :		SHEET : 2 OF 2 <i>Total 1404</i>	
									
DRG. NO. :		DESIGNED BY :		APPROVED BY :					



SECTIONAL ELEVATION OF BRIDGE
(SCALE - 1:275)

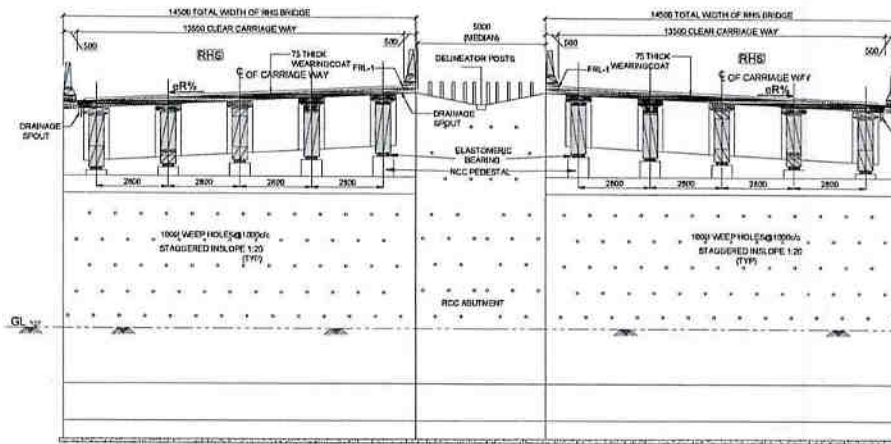


परियोजना निदेशक
Project Director
भारत सरकार, परियोजना इकाई भोपाल
NHAI PIU-Bhopal (M.P.)

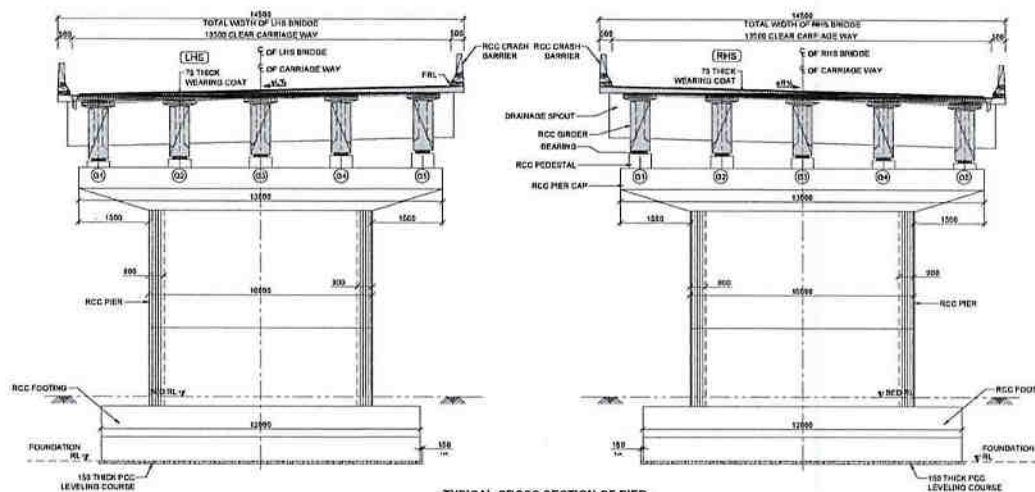
प्रबंधक (सिक्कीक)
Manager (Technical)
भा. रा. स. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-BHOPAL

THIS DRAWING MUST BE READ IN CONJUNCTION
WITH OTHER SHEETS OF THIS DRAWING.

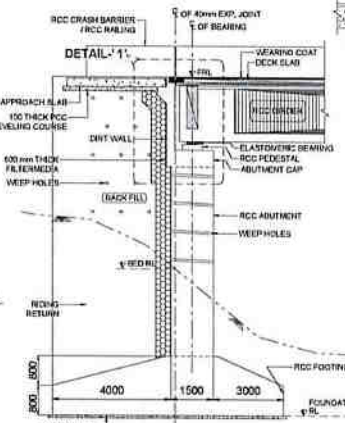
CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. Regional Office > 1-10 3rd Floor city center zone 1, M.P Nager Bhopal 462011 Ph: 0755 - 4295421, Fax : 0755 - 4295421, E-mail:- lnm_bhopal@rediffmail.com	CLIENT :- NATIONAL HIGHWAYS AUTHORITY OF INDIA (Ministry of Road Transport & Highways, Govt. of India) G-5 & 6, Sector-10, Dwarka, New Delhi, 110075	PROJECT TITLE :- BALANCE WORK FOR FOUR LANE OF ITARSI TO BETUL SECTION OF NH-69 FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.) IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON EPC MODE	TITLE : GENERAL ARRANGEMENT DRAWING AT CHAINAGE 111+758 (SPAN 14X20) SCALE : AS SHOWN SHEET : 1 OF 2 DRG.NO : Tot 2804
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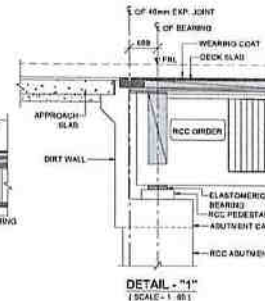
TYPICAL CROSS SECTION OF ABUTMENT
(SCALE - 1:10)



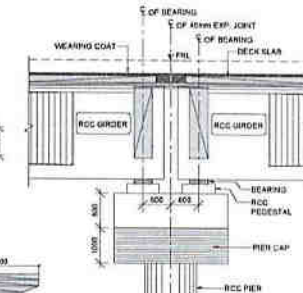
TYPICAL CROSS SECTION OF PIER
(SCALE - 1:10)



SECTION A-A
(SCALE - 1:100)



DETAIL - "1"
(SCALE - 1:60)



DETAIL - "2"
(SCALE - 1:60)

NOTES

1. TYPE OF BRIDGES
2. TOTAL LENGTH OF BRIDGE
3. SPAN ARRANGEMENT OF BRIDGE
4. OVER ALL WIDTH OF BRIDGE
5. CLEAR CARRIAGEWAY WIDTH
6. FORMATION LEVEL
7. SOFFIT LEVEL
8. HIGH FLOOD LEVEL (H.F.L.)
9. AFFLUX
10. DESIGN DISCHARGE
11. DESIGN VELOCITY
12. SCOUR LEVEL
13. ROAD LEVEL
14. TYPE OF FOUNDATION
15. FOUNDATION LEVEL
16. ABUTMENT
17. RETAINING WALL
18. SBC OF FOUNDATION STRATA
19. TYPE OF BEARINGS
20. TYPE OF EXPANSION JOINT
21. TYPE OF RAILING/CRASH BARRIER
22. APPROACH SLAB
23. GRADE OF CONCRETE
24. THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED (TMT) HYSD BARS (GRADE DESIGNATION IS-500) AS PER IS 1786 STANDARDS
25. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR TWO LANE OF IRC CLASS 70 R + TWO LANE OF IRC CLASS A LOADING ON BOTH SIDES OF THE CARRIAGEWAY
26. WEIR HOLES 1000 SPACED AT 1000 CM IN BOTH HORIZONTAL & VERTICAL DIRECTIONS SHALL BE PROVIDED IN A STAGGERED MANNER BEHIND ABUTMENT/RETAIN WALLS/RETAINING WALLS IN ONE OR TWO LAYERS ABOVE L.B.L.V.L.
27. 15mm THK. CONCRETE WEARING COAT SHALL BE PROVIDED AS PER MONTH SPECIFICATION SECTION 500.
28. LAYING OF FILTER MEDIA FOR DRAINAGE AND BACK FILLING BEHIND ABUTMENT/RETAIN WALLS SHALL BE DONE IN ACCORDANCE WITH APPENDIX 6 OF IRC 78:2014.
29. BACK FILLING BEHIND ABUTMENTS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC 78:2014 HAVING PROPERTIES $C=0.3-0.30$, $\phi=20.0^\circ$ & $\gamma=20 \text{ KN/m}^3$.
30. THE DIMENSIONS ARE TENTATIVE, MAY CHANGE SLIGHTLY IN DETAIL DESIGN.

- ANIMAL UNDERPASS
- 280.00 M
- 14 NOS. @ 20.0 M C/C
- 14.50 M
- 13.50 M

परिचालन निदेशक
Project Director
भारत रा.प. परि.क्रिया इकाई भोपाल
NHAI PIU-Bhopal (M.P.)

प्रबंधक (तकनीकी)
Manager (Technical)
भारत रा.प. परि.क्रिया इकाई भोपाल
NHAI PIU-Bhopal

CONSULTANTS

L.N. MALVIYA INFRA PROJECTS PVT. LTD.
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CLIENT



NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India)
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

DRG NO.:

DESIGNED BY

APPROVED BY

PROJECT TITLE

BALANCE WORK FOR FOUR LANE OF
ITARS TO BETUL SECTION OF NH-69
FROM KM. 61.600 TO KM. 135.465 (DESIGN LENGTH 73.865 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON
EPC MODE

TITLE: GENERAL ARRANGEMENT DRAWING AT CHAINAGE

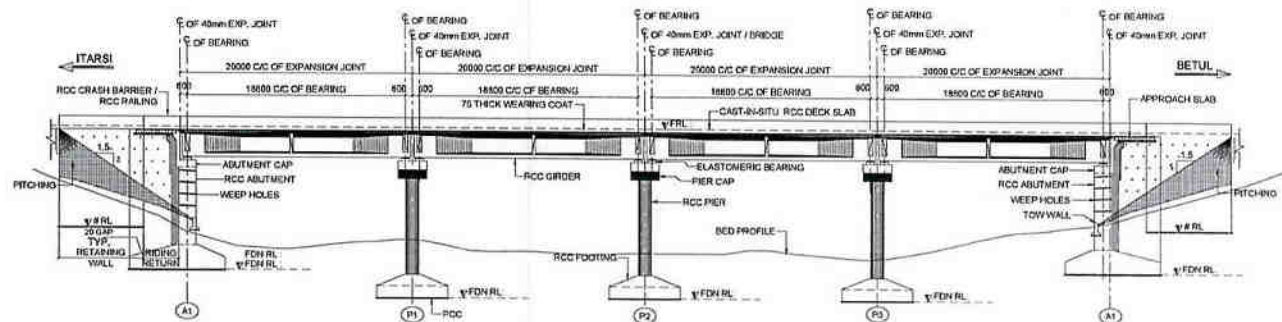
111+758 (SPAN 14X20)

SCALE: AS SHOWN

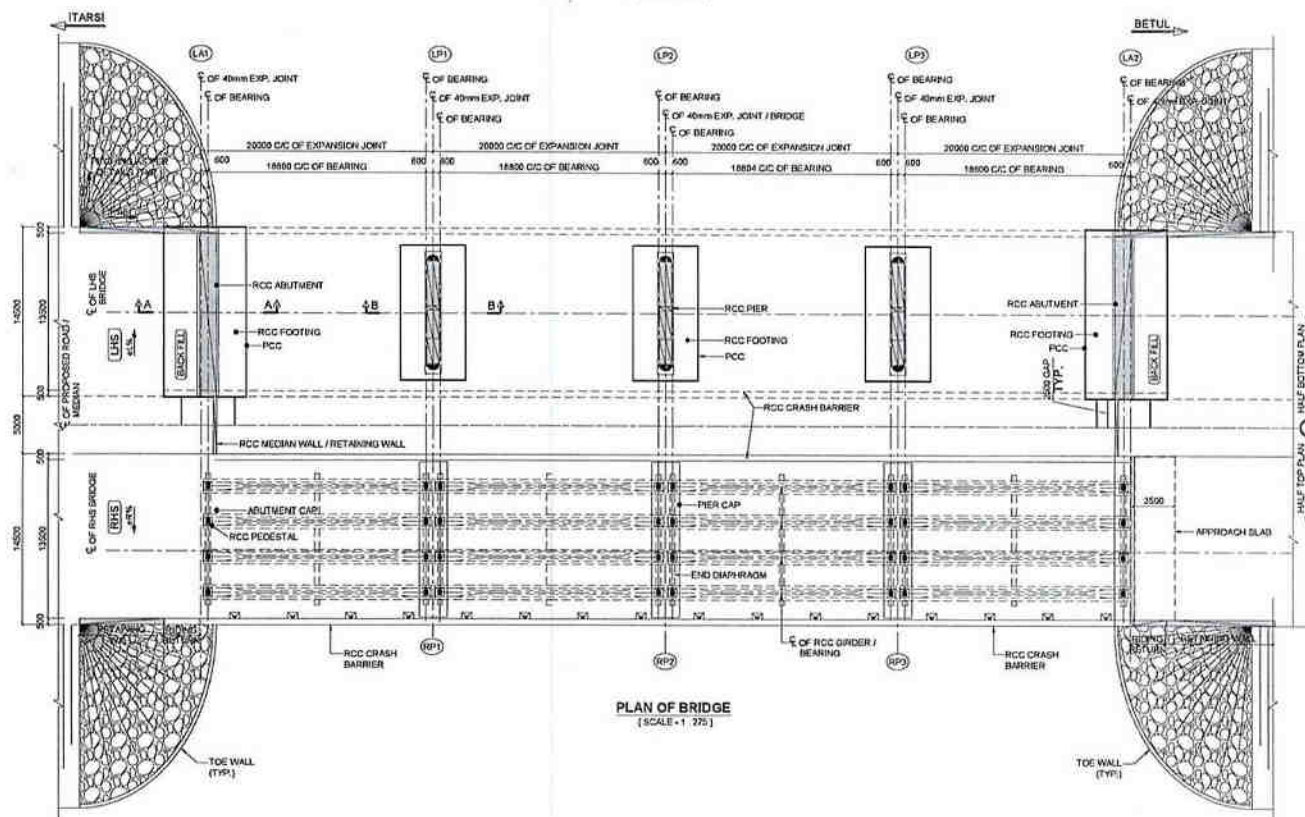
SHEET: 2 OF 2

DRG NO.:

280M



SECTIONAL ELEVATION OF BRIDGE
(SCALE - 1:25)



PLAN OF BRIDGE
(SCALE - 1:25)

प्रबंधक (सिक्कीकि)
Manager (Technical)
भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-BHOPAL

परियोजना निदेशक
Project Director
भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-Bhopal (M.P.)

THIS DRAWING MUST BE READ IN CONJUNCTION
WITH OTHER SHEETS OF THIS DRAWING.

CONSULTANTS :-



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CLIENT :-



NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India)
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

DRG. NO. :-

DESIGNED BY :-

APPROVED BY :-

PROJECT TITLE :-

BALANCE WORK FOR FOUR LANE OF
ITARSI TO BETUL SECTION OF NH-69
FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON
EPC MODE

TITLE :-

GENERAL ARRANGEMENT DRAWING AT CHAINAGE 112+317 (SPAN 4X20)

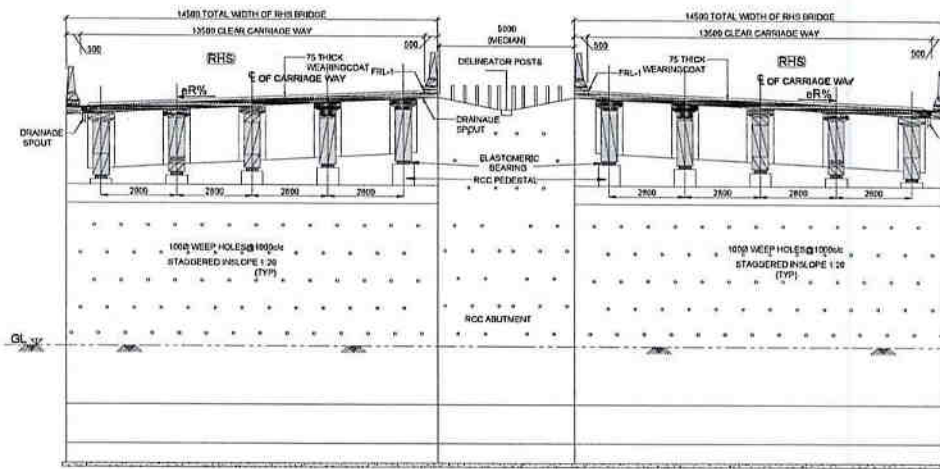
SCALE :-

AS SHOWN

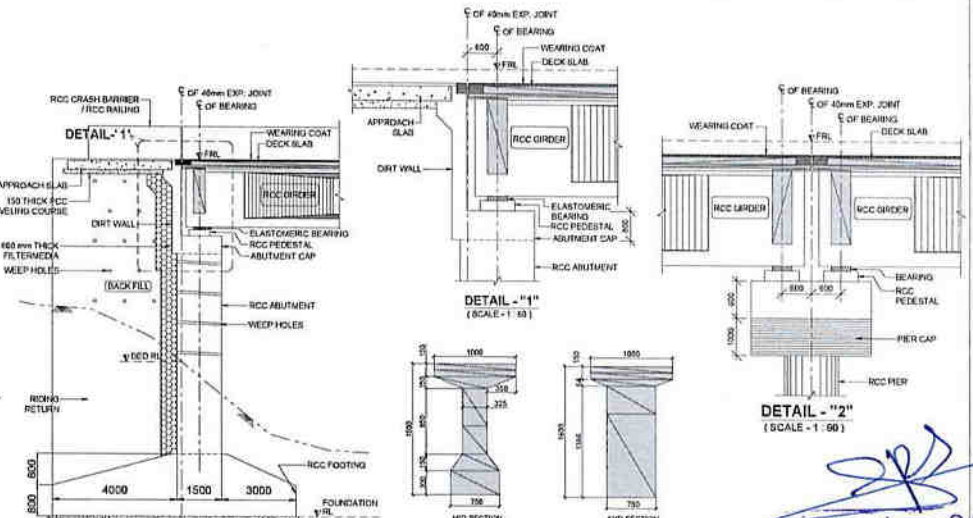
SHEET :-

1 OF 2

DRG.NO. :-



TYPICAL CROSS SECTION OF ABUTMENT
(SCALE - 1:100)



SECTION A-A
(SCALE - 1:100)

DETAILS FOR RCC BRIDGE
(SCALE - 1:50)

प्रबंधक (तकनीकी)
Manager (Technical)

भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
BHA. RA. RA. PRA. PARI. KRYA IKAI BHOPAL

NOTES

1. TYPE OF BRIDGES
2. TOTAL LENGTH OF BRIDGE
3. SPAN ARRANGEMENT OF BRIDGE
4. OVER ALL WIDTH OF BRIDGE
5. CLEAR CARRIAGEWAY WIDTH
6. FORMATION LEVEL
7. SLOPE LEVEL
8. HIGH FLOOD LEVEL (H.F.L.)
9. AFFLUX
10. DESIGN DISCHARGE
11. DESIGN VELOCITY
12. SCOUR LEVEL
13. ROAD LEVEL
14. TYPE OF FOUNDATION
15. FOUNDATION LEVEL
16. TYPE OF ABUTMENT
17. TYPE OF BEARINGS
18. TYPE OF EXPANSION JOINT
19. TYPE OF RAILING/CRAH BARRIER
20. APPROACH SLAB
21. GRADE OF CONCRETE :-
ABUTMENT - RCC M-35
WEARING COAT - RCC M-30
CAP & DIRT WALL - RCC M-35
PIER - RCC M-35
SUPERSTRUCTURE - RCC M-45
RCC CRASH BARRIER - RCC M-40
APPROACH SLAB - RCC M-30
22. THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED (TMT) HYSD BARS (GRADE DESIGNATION F-55) AS PER IS-1786 STANDARDS.
23. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR TWO LANE OF IRC CLASS 70 R + TWO LANE OF IRC CLASS A LOADING OR FOUR LANES OF IRC CLASS A LOADING WHICHEVER GOVERNS.
24. WEAP HOLES 1000 SPACED AT 1000 C/C IN BOTH HORIZONTAL & VERTICAL DIRECTIONS SHALL BE PROVIDED IN A STAGGERED MANNER BEHIND ABUTMENTS/RETAINING WALLS/RETAINING WALLS IN ONE OR TWO LAYERS ABOVE L.S.L.W.
25. 75mm THK. CONCRETE WEARING COAT SHALL BE PROVIDED, AS PER MOSRTH SPECIFICATION SECTION 500.
26. LAYING OF FILTER MEDIA FOR DRAINAGE AND BACK FILLING BEHIND ABUTMENT/RETAINING WALLS SHALL BE DONE IN ACCORDANCE WITH APPENDIX 6 OF IRC-78-2014.
27. BACK FILLING BEHIND ABUTMENTS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC-78-2014 HAVING PROPERTIES $C=0.3^{\circ}$ & 20.3° & $\phi = 20^{\circ}$ & $d = 20$ KNm.
28. THE DIMENSIONS ARE TENTATIVE, MAY CHANGE SLIGHTLY IN DETAIL DESIGN.

परियोजना निदेशक

Project Director

भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल

BHA. RA. RA. PRA. PARI. KRYA IKAI BHOPAL (M.F.)

CONSULTANTS :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.
Regional Office :-
T-10 3rd Floor city center zone 1, M.P Nagar Bhopal 462011
Ph : 0755 - 4205421
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E-mail : lnm_bhopal@rediffmail.com

CLIENT :-

NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India)
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

DRG. NO. : DESIGNED BY : APPROVED BY :

PROJECT TITLE :-

BALANCE WORK FOR FOUR LANING OF
ITARI TO BETUL SECTION OF NH-69
FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON
EPC MODE

TITLE :

GENERAL ARRANGEMENT DRAWING AT CHAINAGE 112+317 (SPAN 4X20)

SCALE :

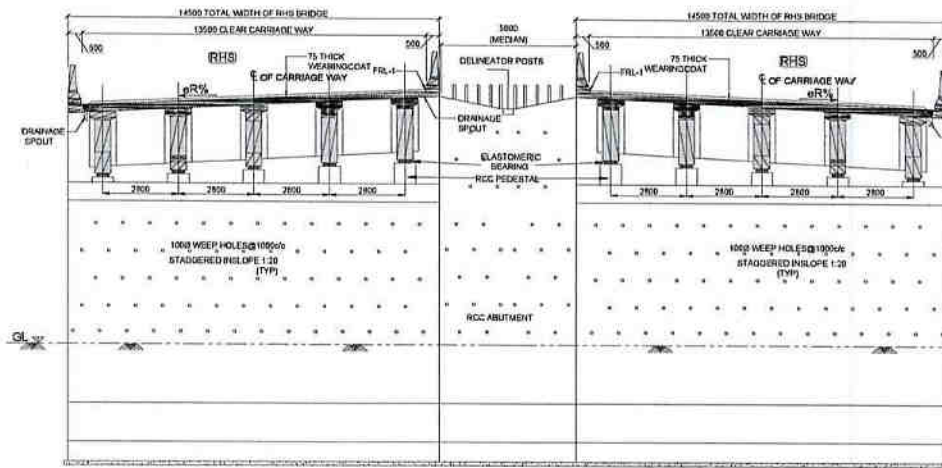
AS SHOWN

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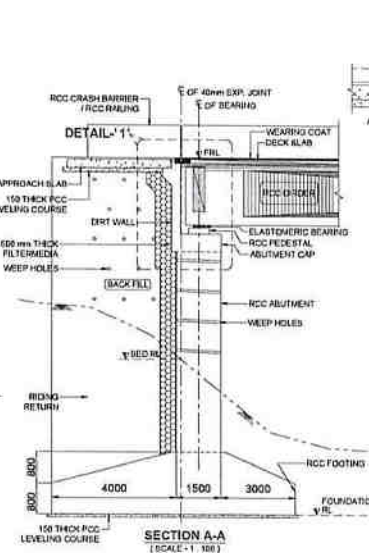
SHEET :

2 OF 2

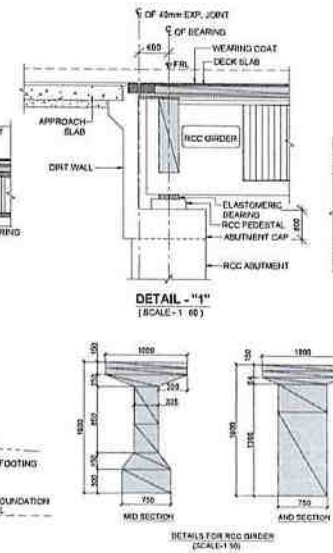
7/1/2014



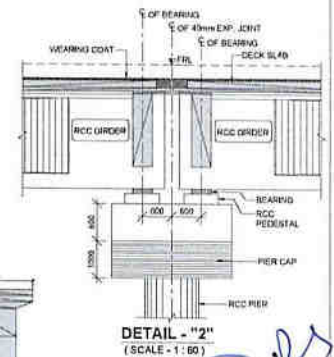
TYPICAL CROSS SECTION OF ABUTMENT
(SCALE: 1:118)



SECTION A-A
(SCALE: 1:100)



DETAIL 1
(SCALE: 1:60)



DETAIL 2
(SCALE: 1:60)

NOTES :-

1. TYPE OF BRIDGES
2. TOTAL LENGTH OF BRIDGE
3. SPAN ARRANGEMENT OF BRIDGE
4. OVER ALL WIDTH OF BRIDGE
5. CLEAR CARRIAGEWAY WIDTH
6. FORMATION LEVEL
7. SOFFIT LEVEL
8. HIGH FLOOD LEVEL (H.F.L.)
9. AFFLUX
10. DESIGN DISCHARGE
11. DESIGN VELOCITY
12. SCOUR LEVEL
13. ROAD LEVEL
14. TYPE OF FOUNDATION
15. FOUNDATION LEVEL
16. SBC OF FOUNDATION STRATA
17. TYPE OF BEARINGS
18. TYPE OF EXPANSION JOINT
19. TYPE OF RAILING/CRASH BARRIER
20. APPROACH SLAB
21. GRADE OF CONCRETE :-
ABUTMENT - RCC M-35
WEARING COAT - RCC M-30
CAP & DIRT WALL - RCC M-35
PIER - RCC M-45
SUPERSTRUCTURE - RCC M-40
RCC CRASH BARRIER - RCC M-30
APPROACH SLAB - RCC M-30
22. THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED (TMT) HYSD BARS (GRADE DESIGNATION Fe-500), CONFIRMING TO IS:1786 STANDARDS.
23. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR TWO LANE OF IRC CLASS TO R + TWO LANE OF IRC CLASS A LOADING OR FOUR LANES OF IRC CLASS A LOADING WHICHEVER GOVERNS.
24. WEAP HOLES 1000 SPACED AT 1500 C/C IN BOTH HORIZONTAL & VERTICAL DIRECTIONS SHALL BE PROVIDED IN A STAGGERED MANNER BEHIND ABUTMENT/RETAINING WALLS/RETAINING WALLS IN ONE OR TWO LAYERS ABOVE D.L.L.W.
25. 75mm THK. CONCRETE WEARING COAT SHALL BE PROVIDED AS PER MOSRTH SPECIFICATION SECTION 500.
26. LAYING OF FILTER MEDIA FOR DRAINAGE AND BACK FILLING BEHIND ABUTMENT/RETAINING WALLS SHALL BE DONE IN ACCORDANCE WITH APPENDIX 8 OF IRC:78:2014.
27. BACK FILLING BEHIND ABUTMENTS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 5 OF IRC:78:2014 HAVING PROPERTIES C=0.3-0.30, $\phi = 20.0^\circ$ & $\gamma_d = 20 \text{ KN/m}^3$.
28. THE DIMENSIONS ARE TENTATIVE, MAY CHANGE SLIGHTLY IN DETAIL DESIGN.

प्रबंधक (तकनीकी)
Manager (Technical)

भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-BHOPAL

परियोजना निदेशक
Project Director

भा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-Bhopal (M.P.)

CONSULTANTS :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.
Regional Office :-
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Ph. 0755 - 4255421,
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E-mail :- lnm_bhopal@gmail.com

CLIENT :-

NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India)
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

PROJECT TITLE :-

BALANCE WORK FOR FOUR LANE OF
ITARSI TO BETUL SECTION OF NH-49
FROM KM. 81.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-49) ON
EPC MODE

TITLE :-

GENERAL ARRANGEMENT DRAWING AT CHAINAGE 1124700 (SPAN 2X20)

SCALE :-

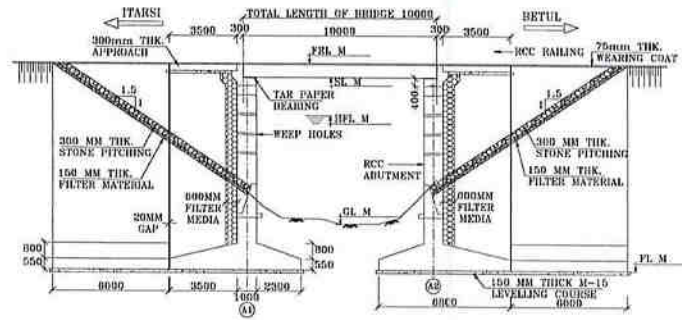
AS SHOWN

DRG. NO. :-

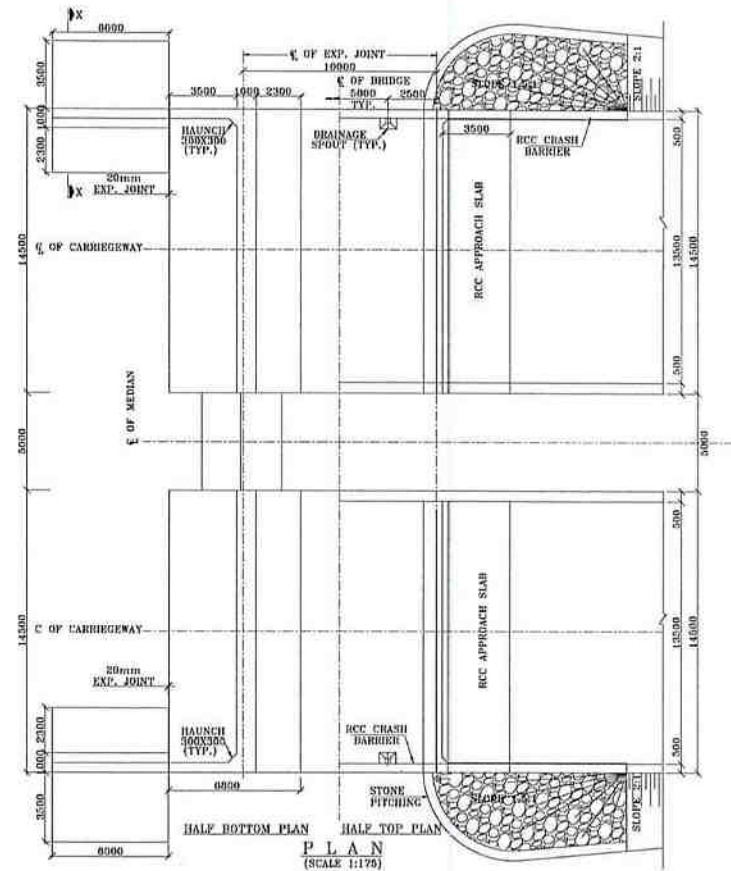
SHEET :-

1 OF 1

Tot 40m



ELEVATION
(SCALE 1:175)



PLAN
(SCALE 1:175)

प्रबंधक (तकनीकी)
Manager (Technical)
भा.रा.रा.प्रा.परि.क्रिया इकाई भोपाल
NHAI PIU-BHOPAL

परियोजना निदेशक
Project Director
भा.रा.रा.प्रा.परि.क्रिया इकाई भोपाल
NHAI PIU-Bhopal (M.P.)

THIS DRAWING MUST BE READ IN CONJUNCTION
WITH OTHER SHEETS OF THIS DRAWING.

CONSULTANTS :-



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(Ministry of Road Transport & Highways, Govt. of India)
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

DRG. NO.:

DESIGNED BY:

APPROVED BY:

PROJECT TITLE :-

BALANCE WORK FOR FOUR LANING OF
ITARSI TO BETUL SECTION OF NH-69
FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON
EPC MODE

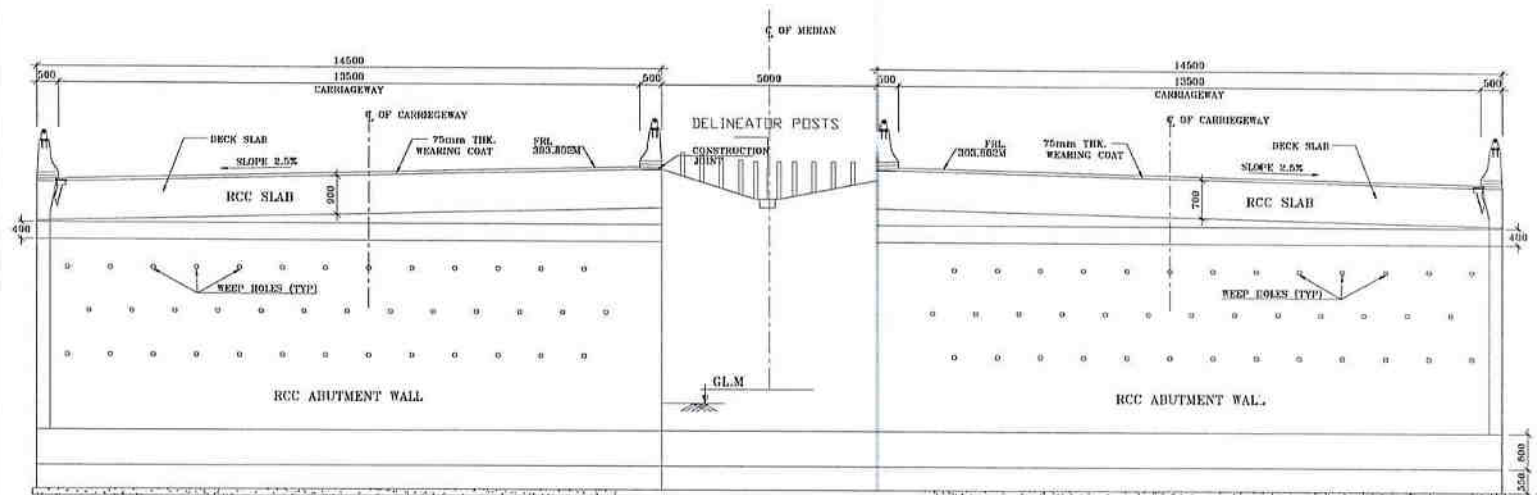
TITLE : GENERAL ARRANGEMENT DRAWING AT CHAINAGE 115+005 (SPAN 1X10)

SCALE : AS SHOWN

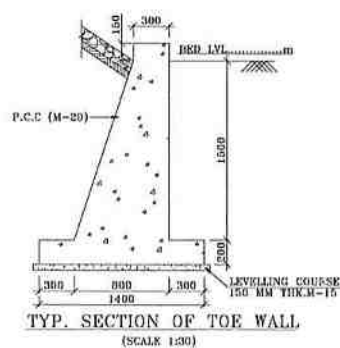
SHEET : 1 OF 2

DRG.NO :

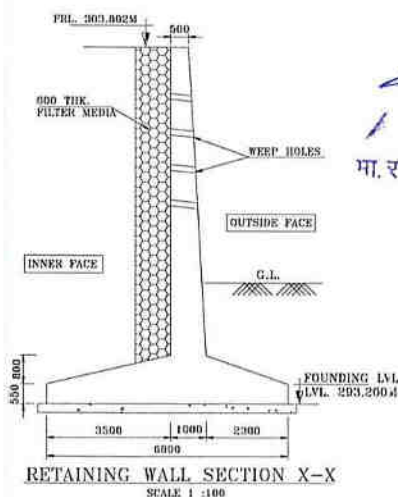
7.4.104



CROSS SECTION OF BRIDGE NEAR ABUTMENT LOCATION
(SCALE 1:75)



TYP. SECTION OF TOE WALL
(SCALE 1:30)



RETAINING WALL SECTION X-X
SCALE 1:100

NOTES :-

1. TYPE OF BRIDGES - HIGH LEVEL BRIDGE.
2. LENGTH OF BRIDGE - 12.900.0M
3. SPANS ARRANGEMENT OF BRIDGE - 1 NOS. @ 12.00 M. C/C
4. OVERALL WIDTH - 14.500M
5. CLEAR ROADWAY - 13.500M
6. PROPOSED FORMATION LEVEL - RL - M
7. PROPOSED SOFFIT LEVEL - RL - M
8. I.F.L. - RL - m
9. PROPOSED (L.B.L.) - RL - M
10. AFFLUX - M.
11. CATCHMENT AREA - SQ.KM.
12. DESIGN DISCHARGE - Cumec
13. DESIGN VELOCITY - M/SEC.
14. TYPE OF FOUNDATION - OPEN
15. FOUNDATION LEVEL - M.
16. TYPE OF BEARINGS - TAR PAPER
17. TYPE OF EXPANSION JOINT - FILLER TYPE
18. TYPE OF RAILING - RCC RAILING
19. APPROACH SLAB - RCC APPROACH SLAB
20. GRADE OF CONCRETE :-
ABUTMENT - RCC M-30
WEARING COAT - RCC M-30
CAP & BENT WALL - RCC M-30
PIER - RCC M-30
SUPERSTRUCTURE - RCC M-30
21. BACK FILLING BEHIND ABUTMENTS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX OF IRC:78-2014 HAVING PROPERTIES $C=0$, $\phi=30^\circ$, $\sigma_{vc}=20.0$ & $d=20$ KN/m. FILTER TYPE EXPANSION JOINTS SHALL BE PROVIDED.
22. 75mm THK. CONCRETE WEARING COAT SHALL BE PROVIDED. AS PER MORTH SPECIFICATION SECTION 560. 24. TAR PAPER BEARINGS SHALL BE PROVIDED.
23. WATER TO BE USED IN CONCRETING & CURING SHALL CONFORM TO CLAUSE 10.4.5 OF IRC : 112:2011.
24. LAYING OF FILTER MEDIA FOR DRAINAGE AND BACK FILLING BEHIND ABUTMENT/RETURN WALLS SHALL BE DONE IN ACCORDANCE WITH APPENDIX G OF IRC:78:2014. 27. WEED HOLES 1000 SPACED AT 1000 C/C IN BOTH HORIZONTAL & VERTICAL DIRECTIONS SHALL BE PROVIDED IN A STAGGERED MANNER BEHIND ABUTMENTS/RETURN WALLS/RETAINING WALLS IN ONE OR TWO LAYERS ABOVE LHL/LWL.

THIS DRAWING MUST BE READ IN CONJUNCTION WITH OTHER SHEETS OF THIS DRAWING.

परियोजना निदेशक
Project Director
मा.रा.रा. प्रा. परि. क्रिया इकाई भोपाल
NHA/ PIU-Bhopal (M.P.)

प्रबंधक (तकनीकी)
Manager (Technical)
मा. रा. रा. प्रा. परि. क्रिया इकाई भोपाल
NHA/ PIU-BHOPAL

CONSULTANTS :-

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CLIENT :-



NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India)
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

DRG NO.:

DESIGNED BY:

APPROVED BY:

PROJECT TITLE :-

BALANCE WORK FOR FOUR LANE OF
ITARI TO BETUL SECTION OF NH-69
FROM KM. 61.500 TO KM. 135.455 DESIGN LENGTH 73.955 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON
EPC MCDE

TITLE :-

GENERAL ARRANGEMENT DRAWING AT CHAINAGE 115+005 (SPAN 1X10)

SCALE :

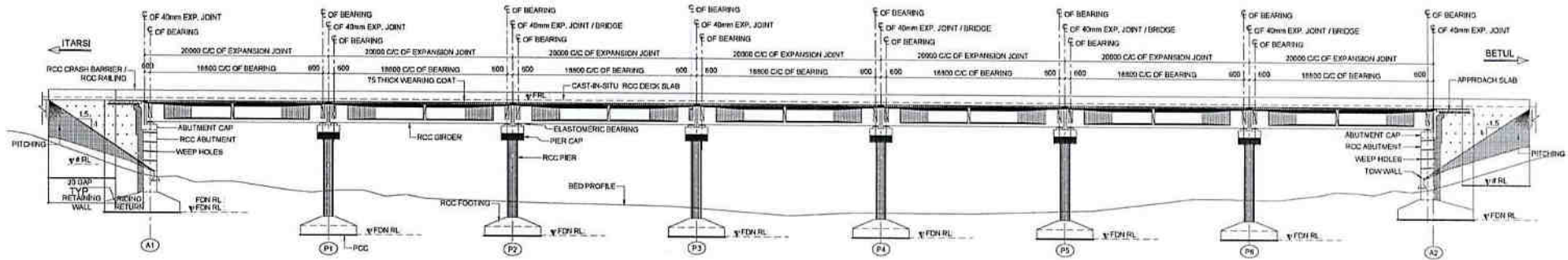
AS SHOWN

DRG. NO.:

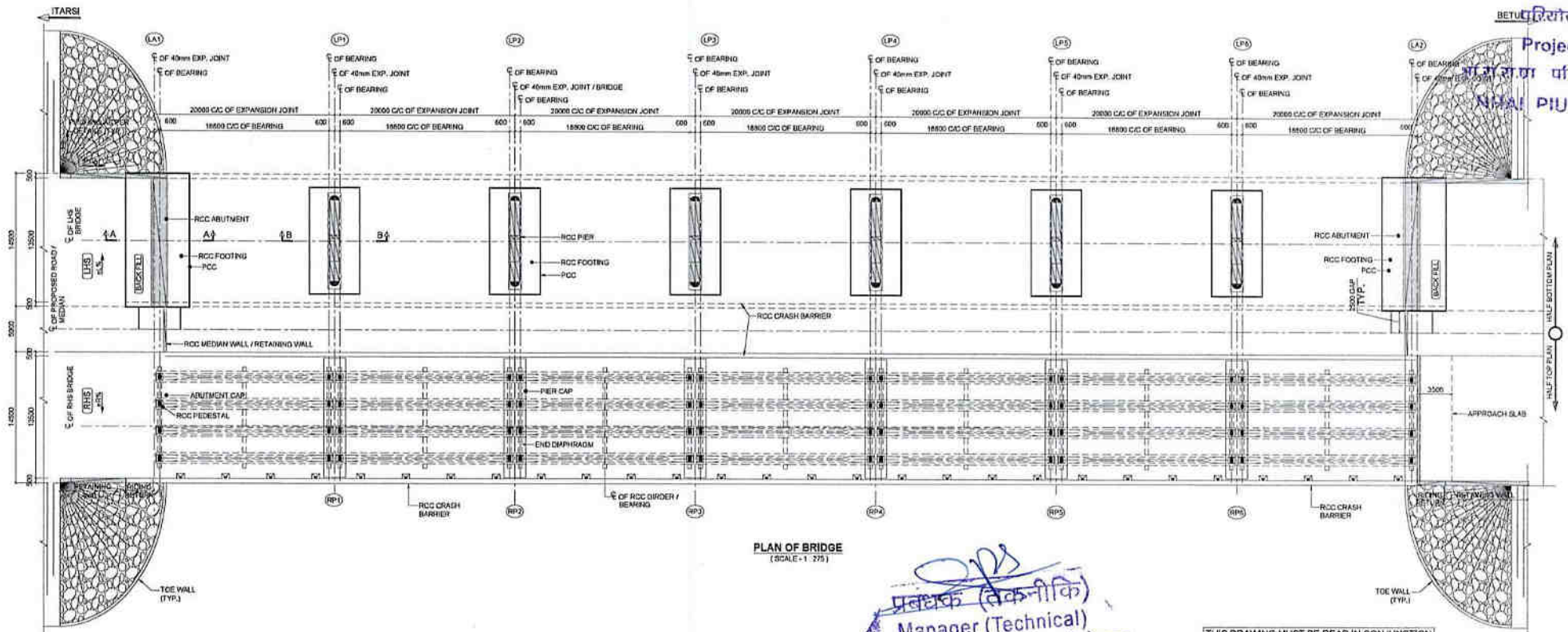
SHEET :

1 OF 2

Tal 10/04



SECTIONAL ELEVATION OF BRIDGE
(SCALE - 1:275)



PLAN OF BRIDGE
(SCALE - 1:275)

BETUL
Project Director
भारत रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-Bhopal (M.P.)

प्रबंधक (तकनीकी)
Manager (Technical)
भारत रा. प्रा. परि. क्रिया इकाई भोपाल
NHAI PIU-Bhopal

THIS DRAWING MUST BE READ IN CONJUNCTION
WITH OTHER SHEETS OF THIS DRAWING.

CONSULTANTS :-

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NATIONAL HIGHWAYS AUTHORITY OF INDIA
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G-5 & 6, Sector-10, Dwarka, New Delhi, 110075)

DRG NO.:

DESIGNED BY:

APPROVED BY:

TITLE:

GENERAL ARRANGEMENT DRAWING AT CHAINAGE 115+288 (SPAN 7X28)

SCALE:

AS SHOWN

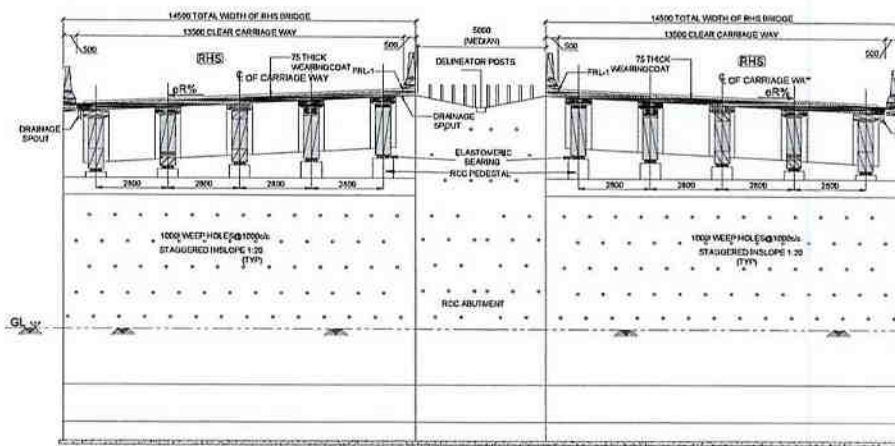
SHEET:

1 OF 2

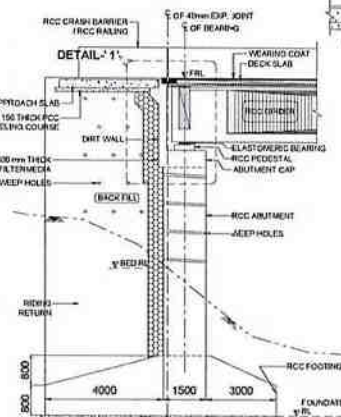
DRG NO.:

BALANCE WORK FOR FOUR LANE OF
ITARSI TO BETUL SECTION OF NH-68
FROM KM. 11.500 TO KM. 135.455 (DESIGN LENGTH 123.955 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-68) ON
EPC MODE

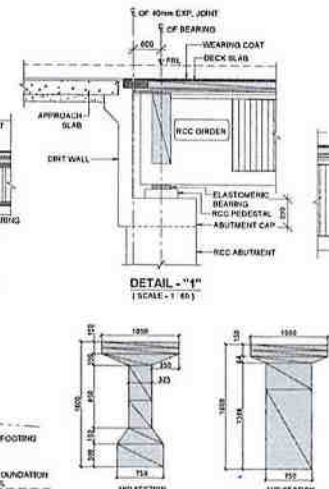
TOD 1404



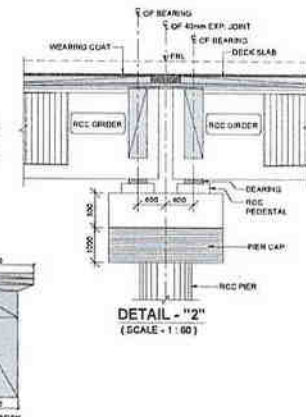
TYPICAL CROSS SECTION OF ABUTMENT
(SCALE: 1:10)



SECTION A-A
(SCALE: 1:100)



DETAIL - "1"
(SCALE: 1:40)

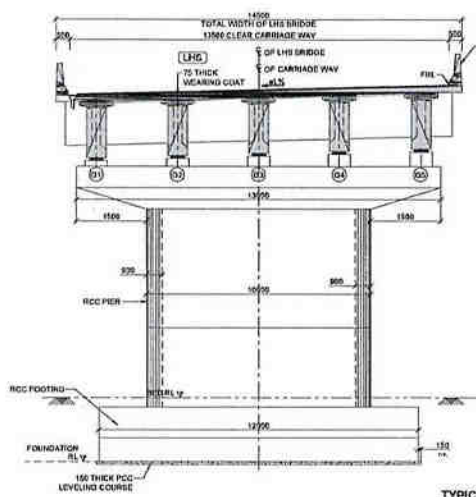


DETAIL - "2"
(SCALE: 1:100)

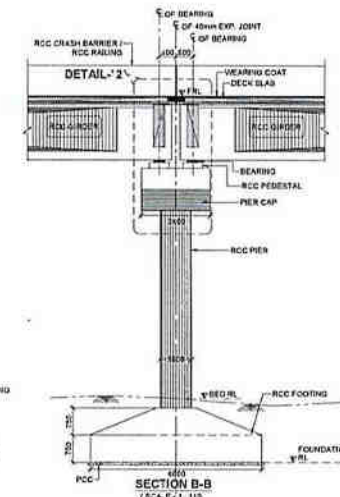
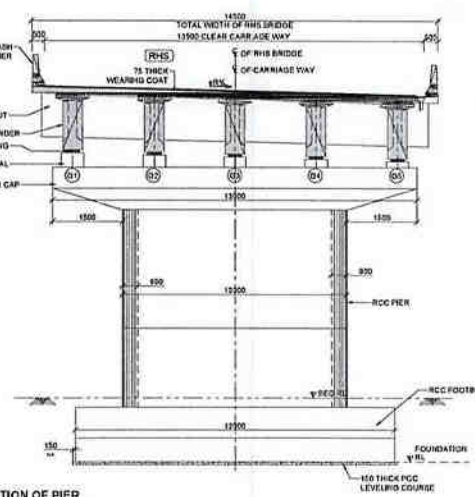
- NOTES**
1. TYPE OF BRIDGES
 2. TOTAL LENGTH OF BRIDGE
 3. SPAN ARRANGEMENT OF BRIDGE
 4. OVER ALL WIDTH OF BRIDGE
 5. CLEAR CARRIAGEWAY WIDTH
 6. FORMATION LEVEL
 7. SOFFIT LEVEL
 8. HIGH FLOOD LEVEL (H.F.L.)
 9. AFFLUX
 10. DESIGN DISCHARGE
 11. DESIGN VELOCITY
 12. SCOUR LEVEL
 13. ROAD LEVEL
 14. TYPE OF FOUNDATION
 15. FOUNDATION LEVEL
 16. SBC OF FOUNDATION STRATA
 17. TYPE OF BEARINGS
 18. TYPE OF EXPANSION JOINT
 19. TYPE OF RAILING/CRAH BARRIER
 20. APPROACH SLAB
 21. GRADE OF CONCRETE
 22. THE REINFORCING BARS SHALL BE OF THERMO MECHANICALLY TREATED (TMT) HYSD BARS (GRADE DESIGNATION IS-1786 STANDARDS).
 23. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR TWO LANE IRC CLASS 70 R + TWO LANE OF IRC CLASS A LOADING WHICH EVER GOVERNS.
 24. WEAP HOLES 1000 SPACED AT 1000 C/C IN BOTH HORIZONTAL & VERTICAL DIRECTIONS SHALL BE PROVIDED IN A STAGGERED MANNER BEHIND ABUTMENTS/RETAIN WALLS/RETAINING WALLS IN ONE OR TWO LAYERS ABOVE L.B.L./U.L.
 25. 75mm THK. CONCRETE WEARING COAT SHALL BE PROVIDED AS PER MORTH SPECIFICATION SECTION 500.
 26. LAYING OF FILTER MEDIA FOR DRAINAGE AND BACK FILLING BEHIND ABUTMENT/RETURN WALLS SHALL BE DONE IN ACCORDANCE WITH APPENDIX 5 OF IRC-78:2014.
 27. BACK FILLING BEHIND ABUTMENTS SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 5 OF IRC-78:2014 HAVING PROPERTIES $C=0.8-3.0^{\circ}$, $\phi=20.0^{\circ}$ & $y_d=20$ KN/m.
 28. THE DIMENSIONS ARE TENTATIVE, MAY CHANGE SLIGHTLY IN DETAIL DESIGN.

परिचालन निदेशक
Project Director
भारत राण परिक्रिया इवर्स शो
NHAI PIU-Bhopal (M.F.)

प्रबंधक (तकनीकी)
Manager (Technical)
भारत राण परिक्रिया इकाई भोपाल
NHAI PIU-BHOPAL



TYPICAL CROSS SECTION OF PIER
(SCALE: 1:10)



SECTION B-B
(SCALE: 1:100)

CONSULTANTS :-

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Regional Office :-
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Ph: 0755 - 4205421,
Fax : 0755 - 4205421,
E-mail: lnm_bhopal@rediffmail.com

CLIENT :-

NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India;
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

DRG. NO. : DESIGNED BY : APPROVED BY :

PROJECT TITLE :-

BALANCE WORK FOR FOUR LANE OF
ITARI TO BETUL SECTION OF NH-69
FROM KM. 61.500 TO KM. 135.455 DESIGN LENGTH 73.955 KM.)
IN THE STATE OF MADHYA PRADESH (PACKAGE-I/NH-69) ON
EPC MCDE

TITLE :-

GENERAL ARRANGEMENT DRAWING AT CHAINAGE 1151+98M (SPAN 7X30)

SCALE :-

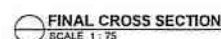
AS SHOWN

DRG. NO. :-

SHEET :-

2 OF 2

140M




परियोजना निदेशक
Project Director
कारागार परिक्रिया इकाई भोपाल
NHAI PIU-Bhopal (M.P.)

- (A) THE ATTACHED TYPICAL CROSS SECTION IS FOR REFERENCE PURPOSE ONLY.
- (B) 2 NOS. OF TUNNELS SHALL BE CONSTRUCTED SEPARATELY FOR UP & DOWN DIRECTIONS.
- (C) CROSS-SECTIONS & TYPE OF TUNNEL SHALL BE FINALIZED ONLY AFTER COMPLETION OF DETAILED STUDY & GEOTECHNICAL INVESTIGATIONS OF THE SITE.



- NOTES :**
- GENERAL**
1. ALL DIMENSIONS ARE IN MILLIMETER AND LEVELS ARE IN METER, UNLESS OTHERWISE SPECIFIED.
 2. NO DIMENSION SHALL BE MEASURED FROM THE DRAWING, ONLY WRITTEN DIMENSIONS SHOULD BE FOLLOWED.
 3. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH HIGHWAYS' PLAN & PROFILE AND OTHER RELATED DRAWINGS.
 4. SHOTCRETING SHALL BE DONE TRUE TO THE THICKNESS AS SHOWN IN THE DRAWING.
 5. THE LENGTH AND DIRECTION OF ROCK BOLTS MAY BE ALTERED IN CONSULTATION WITH SITE GEOLOGIST & ENGINEER IN CHARGE WHEREVER REQUIRED. ADDITIONAL SPOT BOLTING SHALL BE DONE IN LOCALIZED AREA OF POTENTIAL INSTABILITY OR WEARNESS AS DETERMINED DURING EXCAVATION.
 6. ROCK BOLTING SHALL BE DONE AS PER TECHNICAL SPECIFICATION.
 7. BEFORE COMMENCING EXCAVATION WORK, PULL OUT TEST SHALL BE CARRIED OUT TO CHECK THE SUITABILITY OF DESIGNED ROCK BOLT.
 8. FOR DRAINAGE ARRANGEMENT DETAILS REFER SEPARATE DRAWINGS.
- MATERIALS :**
9. ROCK BOLTS
GRADE : Fe500
INCLINATION : 10 DOWNWARDS
 10. SHOTCRETE :
GRADE : C30/37
FCR : 20 MPa
E : 10,000 MPa
FCFK : 2.0 MPa
 11. CONCRETE LINING :
GRADE : C40/45
FCR : 40 MPa
E : 35,000 MPa
FCFK : 2.5 MPa
 12. FRICTION COEFFICIENT BETWEEN GROUND & GROUND INTERFACE > 1.0 MPa.
- CONSTRUCTION :**
13. MINIMUM EXCAVATION STEP SHALL BE LIMITED TO 2.00m.
 14. FIRST LAYER OF 30mm THICK SHOTCRETE SHALL BE APPLIED AGAINST THE WALLS.
 15. SHOTCRETE SHALL BE DONE IN 1000MM X 1000MM SQUARE PANELS.
 16. THE CONSTRUCTION AGENCY SHOULD ENSURE THAT THE NECESSARY PERMISSIONS HAS BEEN OBTAINED FROM CONCERNING AUTHORITY.
 17. ANY AMBIGUITY FOUND IN DRAWINGS OR AT SITE BRING IT TO DESIGNER'S NOTICE BEFORE EXECUTION.

DETAILS OF EXCAVATION FOR PROFILE S3

**PROVISION OF 6 LANE TUNNEL AT KM 62+400
(70 m LENGTH)**



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NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Govt. of India)
G-5 & 6, Sector-10, Dwarka, New Delhi, 110075

APPROVED BY _____

**BALANCE WORK FOR FOUR LANING OF ITARSI TO BETUL SECTION OF NH-69
FROM KM. 61.500 TO KM. 135.455 (DESIGN LENGTH 73.955 KM.) IN THE STATE OF
MADHYA PRADESH (PACKAGE-II/NH-69) ON EPC MODE
(TIGER CORRIDOR BALANCE WORKS)**
