almondz
the game changer
Almondz Global Infra-Consultant Limited
Head Office – F-33/3, Okhla Industrial Area, Phase II, New Delhi – 110020, Delhi, India

JV with

AYOLEEZA
Blue Print Of Engineering Dreams
Ayoleeza Consultants Private Limited
Head Office – B-901 | 9th Floor | Urbtech Trade Centre | Sector-132 | NOIDA-201304 (DELHI NCR) | India

Ref: AGICL/A.E/PKG-05/2024/473

Date: 14-08-2024

To,
The Authorized Signatory/ Project Manager
M/S KAMAC Engineers Pvt. Ltd.
F0201, City Centre Office Block,
Uttrayon Matigara, Siliguri,
Dist: Darjeeling, West Bengal.
PIN: 734010
E-Mail- **kamacengineers.ledobypass@gmail.com**

SUB: *Strengthening/Improvement to 2- Lane with Paved Shoulder from KM 27+150 (Golai Gaon) to KM 47+628 (Ledo) on existing Dibrugarh to Ledo section with proposed Digboi Bypass (Green Field and Brown Field) (2-Lane+PS) of NH-315 (Old NH-38) in Tinsukia District in the State of Assam on EPC mode.* ***(Pkg. 5)*****: Reg. Submission of Design & Drawing of Minor Bridges as Design chainage.:- 29+457, 30+112, 33+970, 37+460, 39+867, 43+198 & 45+729.**

Ref.:- KEPL/NHIDCL/D-L/2024/095 Dated 14.06.2024

Dear Sir,

With reference to above cited subject, you have submitted the Design & Drawing of 7 Minor Bridges as Design Chainage (29+457, 30+112, 33+970, 37+460, 39+867, 43+198 & 45+729) for our review and approval. The same has been reviewed and found in order.

You are advised to submit the 3 sets of Design & Drawing of all Minor Bridges for "GFC" with duly sealed/signed by Design Director, Safety & Proof Consultants.

You are also advised to submit Design & Drawings of Retaining Wall and Parapet Wall as shown in GADs of all Minor Bridges for review and approval at the earliest.

Thanking you and assuring our best services at all times.

With regards
For, Almondz Global Infra Consultant limited in JV with Ayoleeza consultant Private Limited.

Pramod Kumar
Team Leader
(Authority Engineer)

Copy to:

i) GM.(P) PMU, Dibrugarh(Assam) for kind information please.
ii) The Almondz Global Infra-Consultant Limited in JV with Ayoleeza Consultant Private Limited.

almondz
the infrastructure specialist

Almondz Global Infra-Consultant Limited
F-33/3 Okhla Industrial Area Phase-II, New Delhi - 110020
Board Line: 011-43520200 M. No. 7703832392, Extn-127
Website: www.almondz.com

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Ayoleeza Consultants Private Limited
Head Office – B-901 | 9th Floor | Urbtech Trade Centre | Sector-132 | NOIDA-201304 (DELHI NCR) | India

Ref: AGICL/A.E/PKG-05/2024/577

Date: 26-09-2024

To,
The Authorized Signatory/ Project Manager
M/S KAMAC Engineers Pvt. Ltd.
F0201, City Centre Office Block,
Uttrayon Matigara, Siliguri,
Dist: Darjeeling, West Bengal.
PIN: 734010
E-Mail- ledonh38@kamac.in; keplslg@gmail.com

SUB: *Strengthening/Improvement to 2- Lane with Paved Shoulder from KM 27+150 (Golai Gaon) to KM 47+628 (Ledo) on existing Dibrugarh to Ledo section with proposed Digboi Bypass (Green Field and Brown Field) (2-Lane+PS) of NH-315 (Old NH-38) in Tinsukia District in the State of Assam on EPC mode.* ***(Pkg. 5)*:**
Reg. Approval of Minor Bridge Ch. 46+956

Ref:- i) KEPL/NHIDCL/D-L/2024/124 Dated 26-09-2024
ii) AGICL/A.E/PKG-05/2024/208 Dated 26-04-2024
iii) KEPL/NHIDCL/D-L/2024/070 Dated 18-04-2024

Dear Sir,

With reference to above cited subject, you have submitted the Design & Drawing of Minor Bridge at Ch.46+956 for review and Approval. The Authority Engineer has reviewed and raised observations vide dated 26.04.2024.

After compliance of observation received Authority Engineer reviewed the same and found in order.

You are advised to submit 3 sets of Design and Drawing of all approved Minor Bridges duly sealed and Signed by Design director, safety and proof consultant for GFC.

You are also required to submit Design & Drawings of Retaining wall and parapet wall as shown in GAD's of all Minor Bridges for review and Approval at the earliest.

This is for your kind information and necessary action.

With regards

For, Almondz Global Infra Consultant limited in JV with Ayoleeza consultant Private Limited.

Received 26/09/2024

Pramod Kumar
Team Leader
(Authority Engineer)

Copy to:

1. GM. (P) PMU, Dibrugarh (Assam) for kind information please.
2. The Almondz Global Infra-Consultant Limited in JV with Ayoleeza Consultant Private Limited.

NATIONAL HIGHWAYS & INFRASTRUCTURE
DEVELOPMENT CORPORATION LTD.

WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-5)

STRUCTURE DRAWING

MINOR BRIDGE

CLIENT:

NATIONAL HIGHWAYS &
INFRASTRUCTURE DEVELOPMENT
CORPORATION LTD.

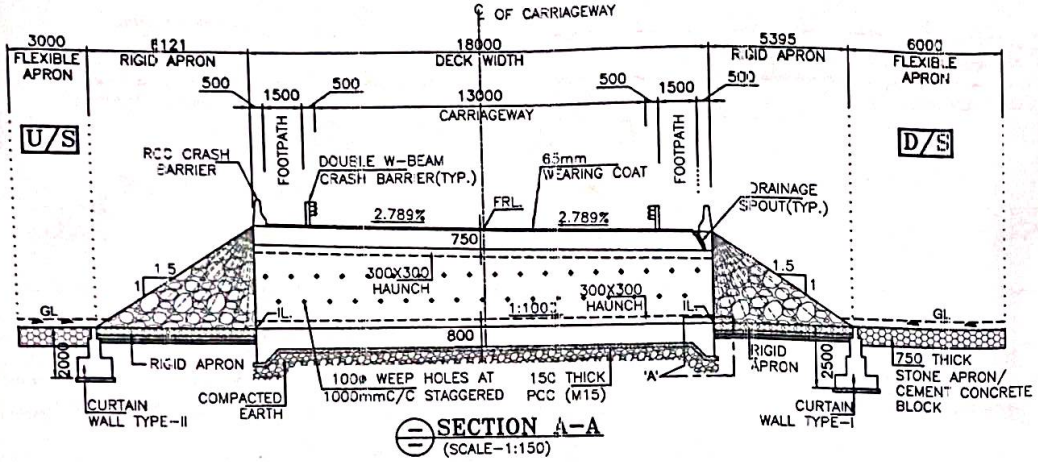
DESIGN CONSULTANT:

A.V. CONSTRUCTION

1ST FLOOR, WZ-1240, PALAM EXTENSION,
BOSCO ASHRAM WALI GALI,NEW DELHI 110045

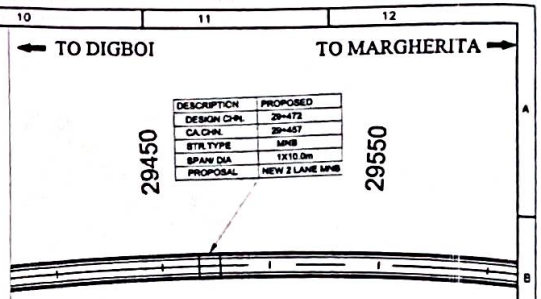
WINST INFRA SOLUTION
PVT. LTD.

OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13,
VASUNDHRA,GHAZIABAD, U.P-201012

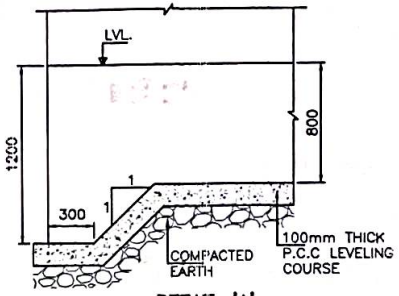


SECTION A-A
(SCALE-1:150)

LEVELS	
FINISHED ROAD LEVEL	153.618
LOWEST BED LEVEL	150.212
INVERT LEVEL U/S	149.730
INVERT LEVEL D/S	149.712
HEIGHT (MAXIMUM)	3.324m
EARTH FILL (MAXIMUM)	----
EARTH FILL (MINIMUM)	----



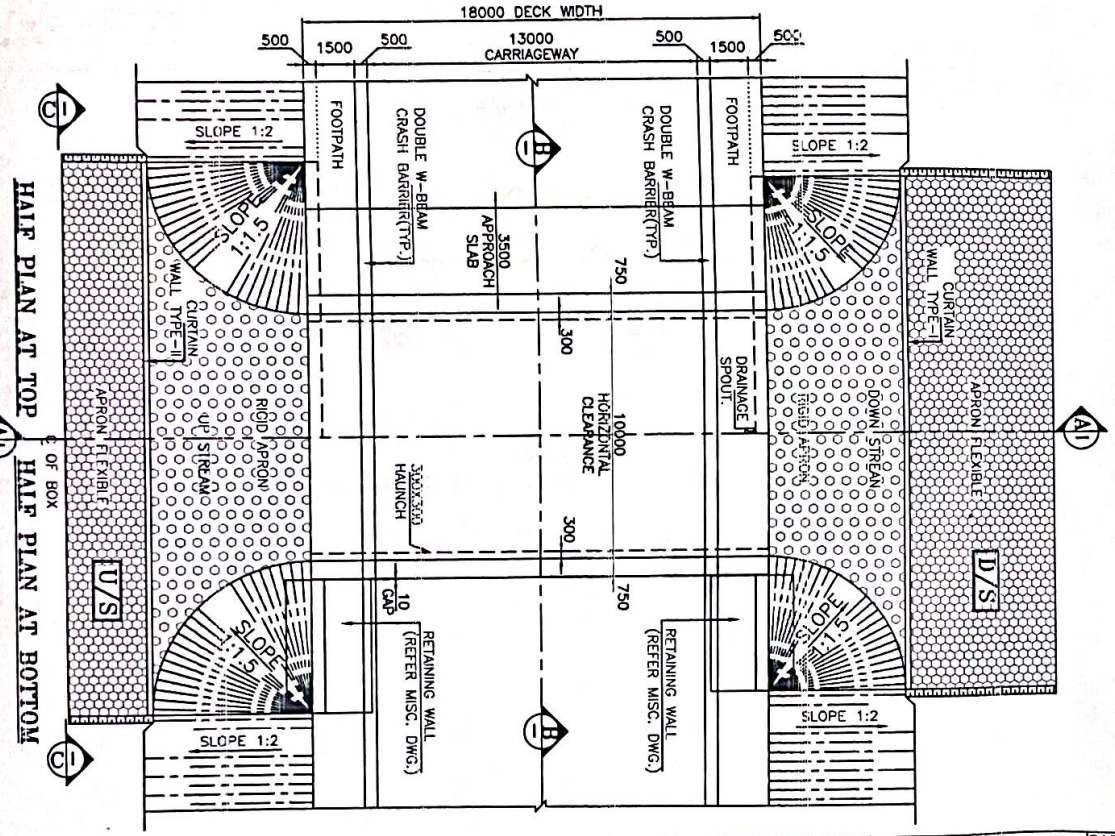
KEY PLAN



DETAIL-'A'
(SCALE 1:25)

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS AND CHAINAGES ARE IN KILOMETERS UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED AS PER IRC: 6-2017.
4. CONCRETE SHALL BE DESIGN MIX UNLESS OTHERWISE SPECIFIED IN DETAILED DRAWINGS, AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES FOR ALL ELEMENTS OF STRUCTURES AS INDICATED BELOW:
   a) RCC CRASH BARRIER M40
   b) RCC BOX CELL M35
   c) RCC APPROACH SLAB M30
5. REINFORCING STEEL SHALL BE HYSD (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO TABLE 18.1 OF IRC: 112-2020.
6. 65mm THICK CEMENT CONCRETE WEARING COAT SHALL BE PROVIDED OVER TOP SLAB.
7. MINIMUM CLEAR COVER TO ANY REINFORCEMENT SHALL BE AS BELOW:
   a) BOX CELL-
   i) TOP SLAB (BOTH FACE) 45mm
   ii) VERTICAL WALL (EARTH FACE) 75mm
   iii) VERTICAL WALL (REAR FACE) 45mm
   iv) BOTTOM SLAB (BOTH FACE) 75mm
   v) INTERMEDIATE WALL 45mm
   b) RCC CRASH BARRIER 45mm
   c) RCC APPROACH SLAB 50mm
8. 100ø WEEP HOLES SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN EARTH RETAINING VERTICAL WALLS ABOVE GROUND LEVEL.
9. 600 THICK FILTER MEDIA BEHIND EARTH RETAINING VERTICAL WALL SHALL BE PROVIDED AS PER "MoRT&H" SPECIFICATION.
10. BACKFILLING SHALL BE DONE IN LAYERS NOT EXCEEDING 200mm THK. EACH LAYERS SHALL BE COMPACTED TO THE OPTIMUM DENSITY.
11. BACK FILLING BEHIND EARTH RETAINING WALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC: 78-2020 HAVING PROPERTIES C=0, ϕ=30°, γ=2.0 T/m³.
12. SAFE BEARING CAPACITY AT FOUNDING LEVEL OF BRIDGE SHALL BE 7 T/m², WHICH SHALL BE ENSURED BEFORE EXECUTION.
13. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT APPROVED HIGHWAY DRAWINGS FOR STRUCTURE ORIENTATION, SKEW, FRL AND CAMBER/SUPER ELEVATION ETC.
14. BACK FILLING SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDE OF BOX.
15. AS PER SITE CONDITION OF S.B.C NOT ACHIEVED THEN PROVIDE MINIMUM 1000 THICK COMPACTED EARTH WITH GRANULAR MATERIAL.
16. SEISMIC ZONE - V (AS PER SP: 114-2020).



HALF PLAN AT TOP
HALF PLAN AT BOTTOM
PLAN

LEGEND:-
FRL FINISHED ROAD LEVEL
IL INVERT LEVEL
LVL. LEVEL
EGL. EXISTING GROUND LEVEL
EQ. EQUAL DISTANCE

FRL CAMBER & LOCATION IS TO BE MATCHED WITH HIGHWAY ALIGNMENT DRAWING.

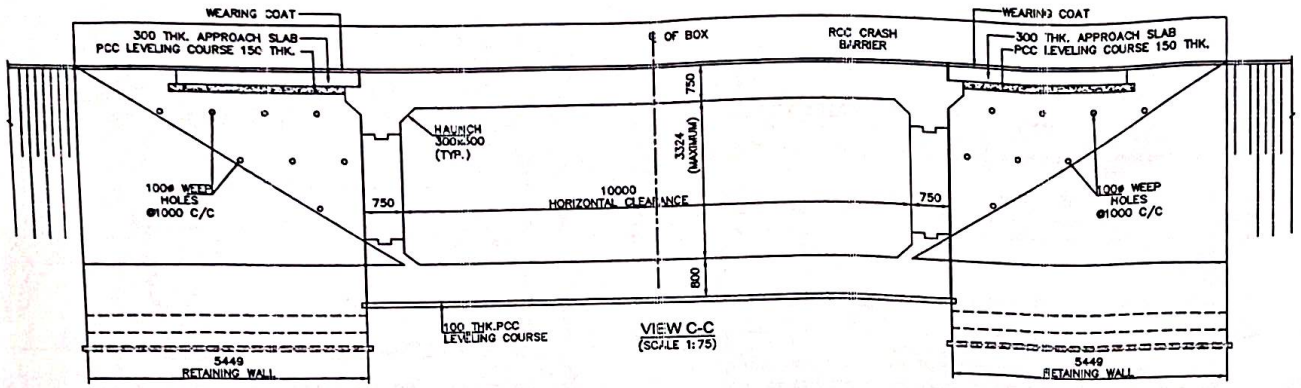
* AS PER SITE CONDITION TO ACHIEVE S.B.C.

CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CES CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	DESIGN DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wali Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA G-HAZIABAD, U.P-201012 WISPL

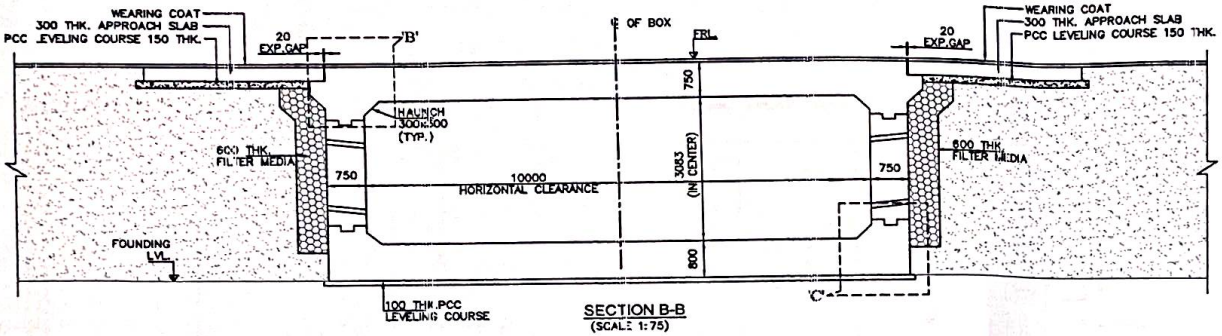
PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-5)

DRAWING TITLE:-
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 29+472

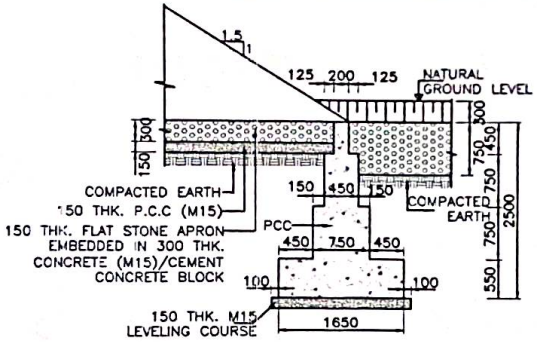
Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	
Project No.	Drawing No. AVC/NH-38/MNB/GAD/29+472/101				Sheet No. 1 OF 2	Rev. R0



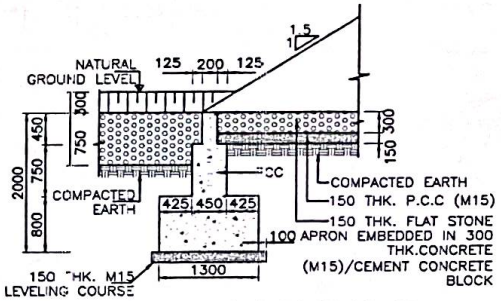
VIEW C-C
(SCALE 1:75)



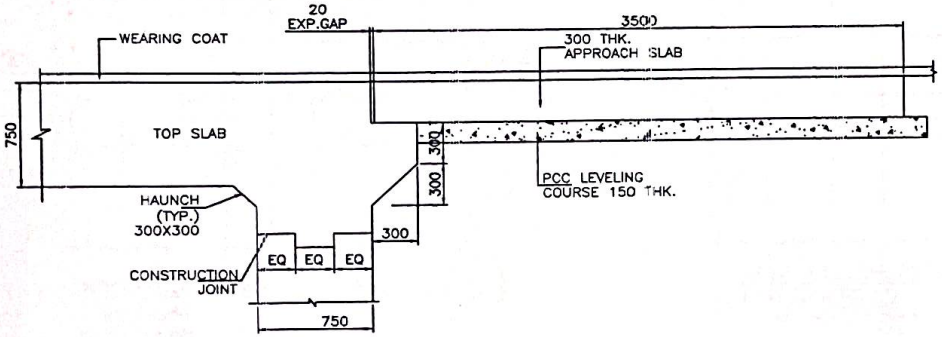
SECTION B-B
(SCALE 1:75)



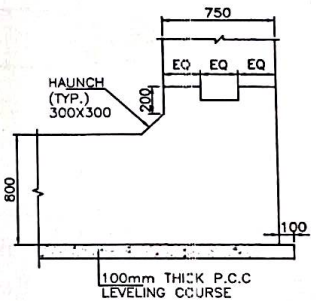
DETAIL OF CURTAIN WALL-I
(DOWN STREAM SIDE)
(SCALE 1:50)



DETAIL OF CURTAIN WALL-II
(UP STREAM SIDE)
(SCALE 1:50)



DETAIL-'B'
(SCALE 1:25)



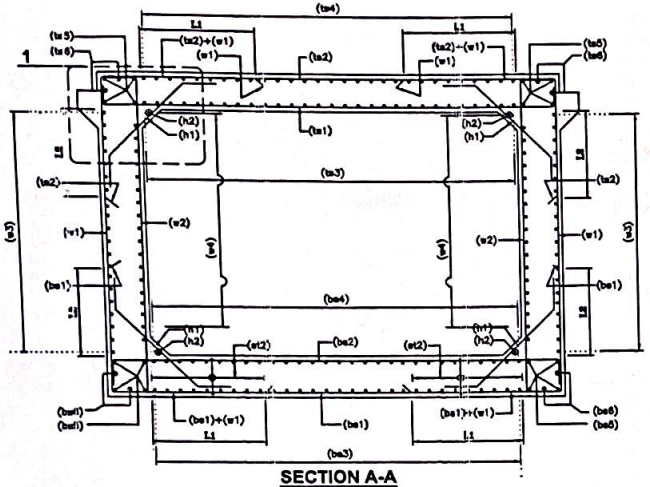
DETAIL-'C'
(SCALE 1:25)

LIENT:	EPC CONTRACTOR	AUTHORITY S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:
NATIONAL HIGHWAYS & NFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CES CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-5, VAISHALI, GHAZIABAD, U.P-201010	DESIGN DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045 WISPL Winst Infra Solution Pvt. Ltd. OFFICE: F-8, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA G-HZIABAD, U.P-201012

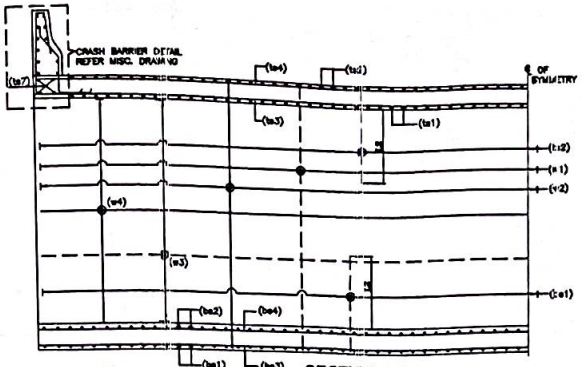
PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM IN EPC MODE.(PACKAGE-6)

DRAWING TITLE:-
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 29+472

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	
Project No.	Drawing No.				Sheet No.	Rev.
	AVC/NH-38/MNB/GAJ/29+472/101				2 OF 2	R0



SECTION A-A
(NTS)



SECTION B-B
(N.T.S.)

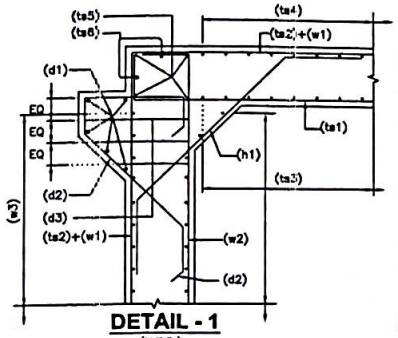
BAR CURTAILMENT SCHEDULE TYPE	
L1	8000
L2	1000

LEGEND:-

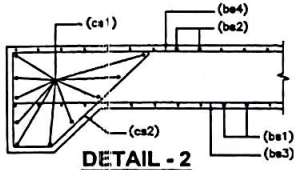
TOP FACE BAR	———
BOTTOM FACE BAR	- - - - -

BOX REINF. SCHEDULE

SL.NO.	BAR MARK	BAR SHAPE	DIAMETER	SPACING
1	ts1		16	150
2	ts2		16	150
3	ts3		10	150
4	ts4		12	150
5	ts5		12	2x4 Nos.
6	ts6		12	2x2Nos.
7	ts7		16	2x4Nos.
8	w1		16	150
9	w2		16	150
10	w3		12	150
11	w4		10	150
12	be1		20	150
13	be2		20	150
14	be3		12	150
15	be4		10	150
16	be5		12	2x4 Nos.
17	be6		12	2x2Nos.
18	h1		12	150
19	h2		10	4 Nos.
20	cs1		12	10 Nos.
21	cs2		12	150
22	d1		12	5 NO.
23	d2	200 300	12	150
24	d3		10ø 2 LEGGED STP @ 300 C/C WITH 200mm HORIZONTAL LOOP (3 LAYERS)	
25	st2		12ø 2 LEGGED STP @ 150c/c (in L-L direction) with 300c/c (in T-T direction).	



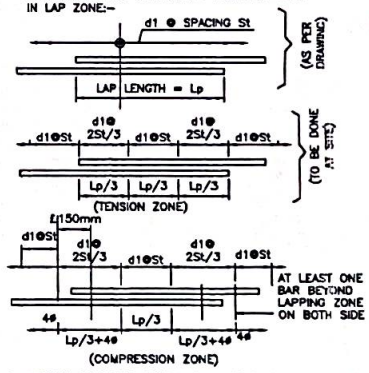
DETAIL - 1
(N.T.S.)



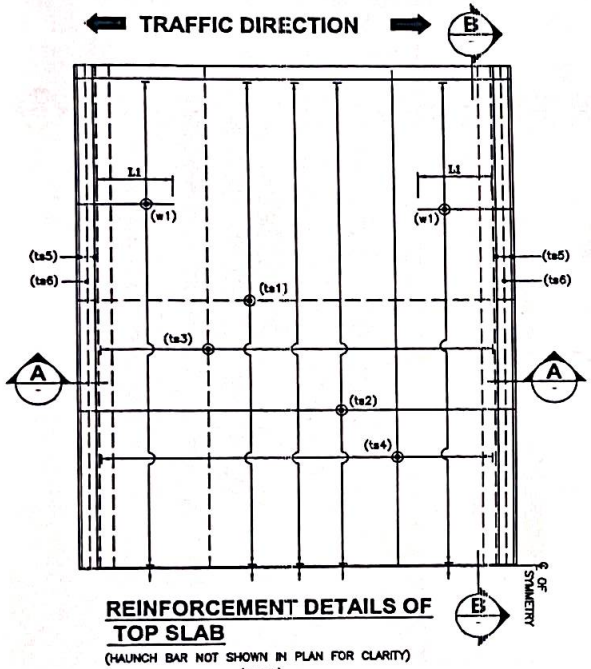
DETAIL - 2
(N.T.S.)

NOTES:-

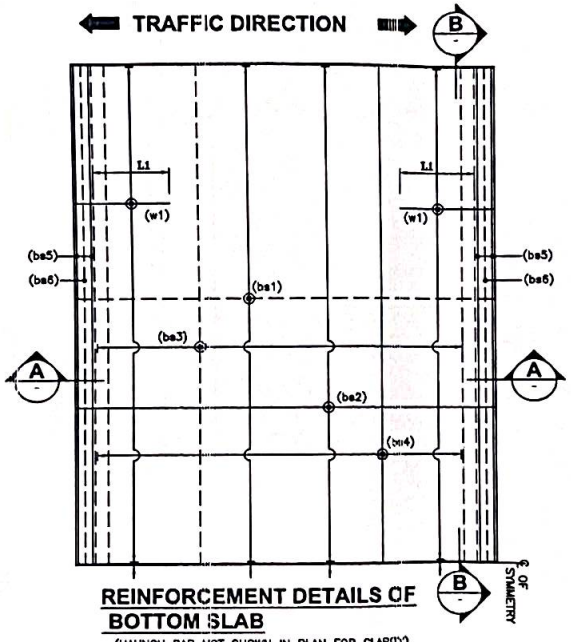
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. DRAWING SHOULD NOT BE SCALED ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. ALL REINFORCING BARS SHALL BE THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe-500E) CONFIRMING TO IS:1786 STANDARDS.
4. MINIMUM CLEAR COVER TO OUTERMOST REINFORCEMENT SHALL BE AS FOLLOWS:-
   a) TOP SLAB - 45mm
   b) BOTTOM SLAB - 75mm
   c) SIDE WALL (EARTH SIDE) - 75mm
   d) SIDE WALL (INNER SIDE) - 45mm
5. OVERLAPPING FOR SPLICING OF REINFORCEMENT SHALL BE AS PER CLAUSE NO.15.2.5.
   LAP LENGTH SHALL NOT BE LESS THAN 56ø.
   ARRANGEMENT OF TRANSVERSE REINFORCEMENT IN LAP ZONE:-



6. ANCHOURAGE LENGTH OF BOX SHALL BE TAKEN AS 40ø AS PER IRC:112.
7. FOR UNFAVORABLE BOND CONDITIONS THE FACTOR 40 SHOULD BE MULTIPLIED BY FACTOR OF 1.43 .
8. CENTER LINE OF OVERLAPPING BAR be1 & ts2 IN WALL & MID HEIGHT OF WALLS ARE AT SAME POINT.
9. ALL LAP SHALL BE SUITABLY STAGGERED AND MINIMUM C/C DISTANCE BETWEEN ADJACENT LAPS SHALL BE 1.3 TIMES OF LAP.



REINFORCEMENT DETAILS OF TOP SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)



REINFORCEMENT DETAILS OF BOTTOM SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)

REFERENCE DRAWING:-

1. GENERAL ARRANGEMENT DRAWING. AVC/NH-38/MNB/GAD/29+472/101

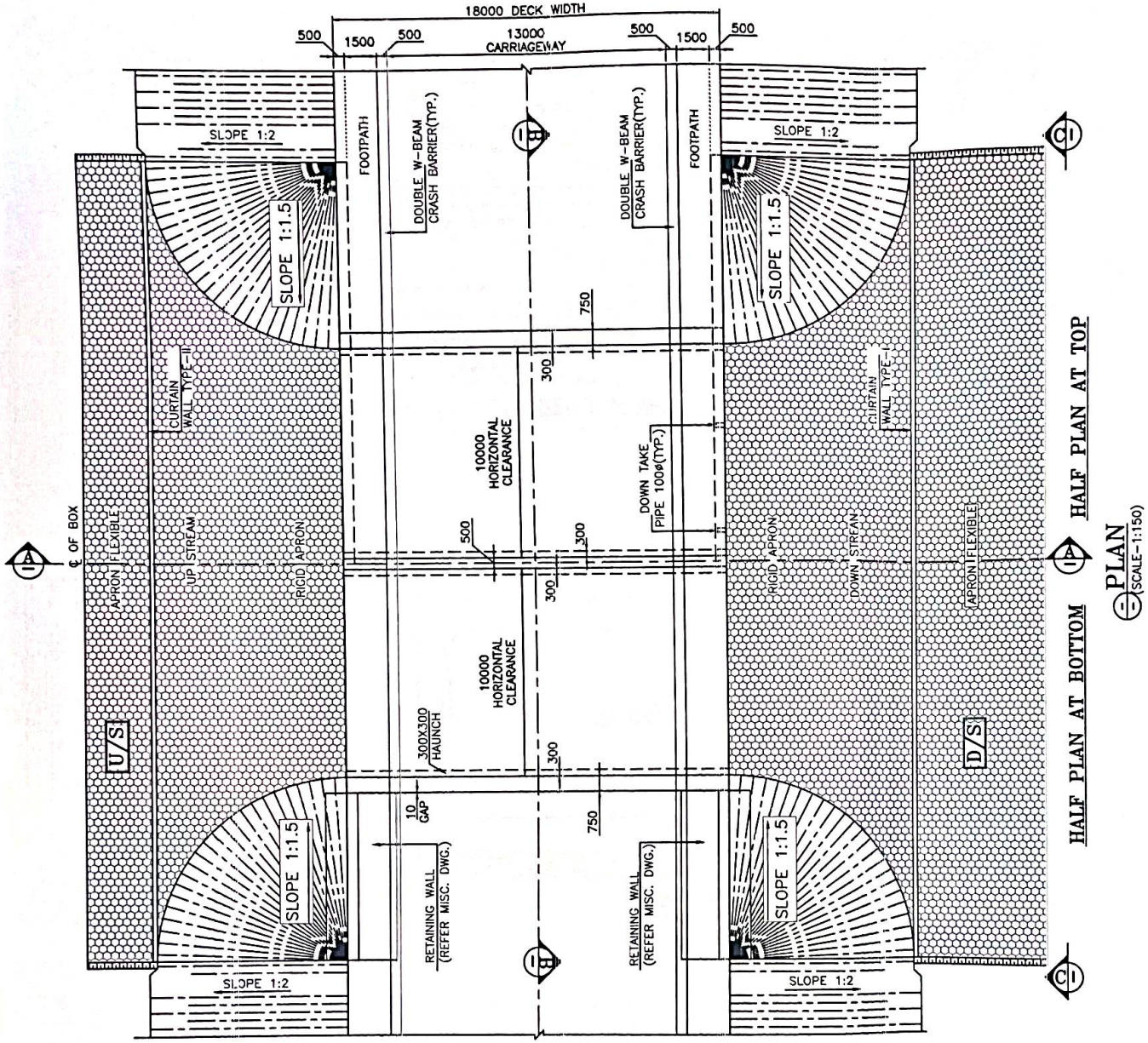
CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CES CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-8, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA G.H.ZIABAD, U.P-201012 WISPL

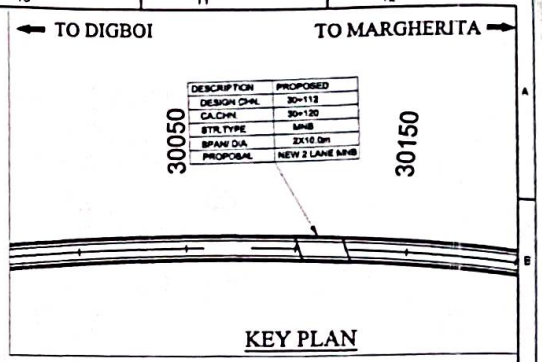
PROJECT: WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-6)

DRAWING TITLE:- REINFORCEMENT DETAIL FOR MINOR BRIDGE AT DESIGN CH. 29+472

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/RF/29+472/201	01 OF 01	R0





KEY PLAN

LEVELS	
FINISHED ROAD LEVEL	155.653
LOWEST BED LEVEL	150.143
INVERT LEVEL U/S	149.661
INVERT LEVEL D/S	149.643
HEIGHT (MAXIMUM)	4.518m
EARTH FILL (MAXIMUM)	0.993m
EARTH FILL (MINIMUM)	0.491m

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS AND CHAINAGES ARE IN KILOMETERS UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED AS PER IRC: 6–2017.
4. CONCRETE SHALL BE DESIGN MIX UNLESS OTHERWISE SPECIFIED IN DETAILED DRAWINGS, AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES FOR ALL ELEMENTS OF STRUCTURES AS INDICATED BELOW:
   a) RCC CRASH BARRIER M40
   b) RCC BOX CELL M35
5. REINFORCING STEEL SHALL BE HYSD (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO TABLE 18.1 OF IRC: 112–2020.
6. 75mm THICK CEMENT CONCRETE WEARING COAT SHALL BE PROVIDED OVER TOP SLAB.
7. MINIMUM CLEAR COVER TO ANY REINFORCEMENT SHALL BE AS BELOW:
   a) BOX CELL–
   i) TOP SLAB (BOTH FACE) 45mm
   ii) VERTICAL WALL (EARTH FACE) 75mm
   iii) VERTICAL WALL (REAR FACE) 45mm
   iv) BOTTOM SLAB (BOTH FACE) 75mm
   v) INTERMEDIATE WALL 45mm
   b) RCC CRASH BARRIER 45mm
8. 100ϕ WEEP HOLES SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN EARTH RETAINING VERTICAL WALLS ABOVE GROUND LEVEL.
9. 600 THICK FILTER MEDIA BEHIND EARTH RETAINING VERTICAL WALL SHALL BE PROVIDED AS PER "MoRT&H" SPECIFICATION.
10. BACKFILLING SHALL BE DONE IN LAYERS NOT EXCEEDING 200mm THK. EACH LAYERS SHALL BE COMPACTED TO THE OPTIMUM DENSITY.
11. BACK FILLING BEHIND EARTH RETAINING WALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC: 78–2020 HAVING PROPERTIES C=0, ϕ=30°, γ 2.0 T/m³.
12. SAFE BEARING CAPACITY AT FOUNDING LEVEL OF BRIDGE SHALL BE 8.5 T/m², WHICH SHALL BE ENSURED BEFORE EXECUTION.
13. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT APPROVED HIGHWAY DRAWINGS FOR STRUCTURE ORIENTATION, SKEW, FRL AND CAMBER/SUPER ELEVATION ETC.
14. BACK FILLING SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDE OF BOX.
15. AS PER SITE CONDITION OF S.B.C NOT ACHIEVED THEN PROVIDE MINIMUM 1000 THICK COMPACTED EARTH WITH GRANULAR MATERIAL.
16. SEISMIC ZONE – V (AS PER SP: 114–2020).

LEGEND:-

FRL FINISHED ROAD LEVEL
IL INVERT LEVEL
LVL. LEVEL
EGL. EXISTING GROUND LEVEL
EQ. EQUAL DISTANCE

FRL CAMBER & LOCATION IS TO BE MATCHED WITH HIGHWAY ALIGNMENT DRAWING.

* AS PER SITE CONDITION TO ACHIEVE S.B.C.

CLIENT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

EPC CONTRACTOR
KAMAC ENGINEERS Pvt.Ltd
KAMAC ENGINEERS PVT.LTD
F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010

AUTHORITY'S ENGINEER
ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED.
C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171

PROOF CONSULTANT:
CREATIVE ENGINEERING SERVICES
OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010

SAFETY CONSULTANT:
DESIGN AID
PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,

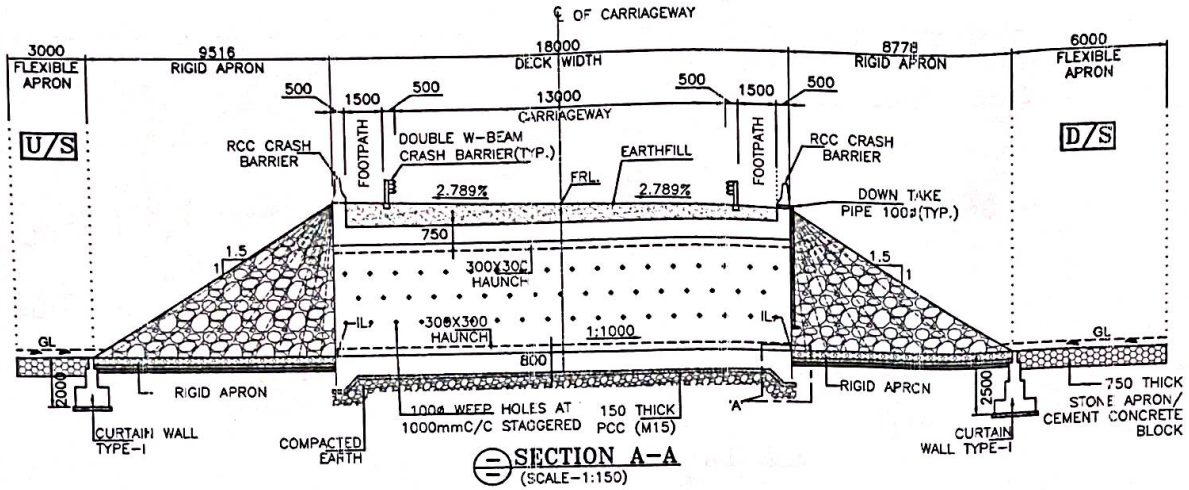
DESIGN CONSULTANT:
A.V. CONSTRUCTION
1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045
Winst Infra Solution Pvt. Ltd.
OFFICE: F-6,ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA,G-NOIDA, U.P-201012
WISPL

PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+652 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-6)

DRAWING TITLE:-
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 30+112

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/GAD/30+112/101	1 OF 3	R0



SECTION A-A
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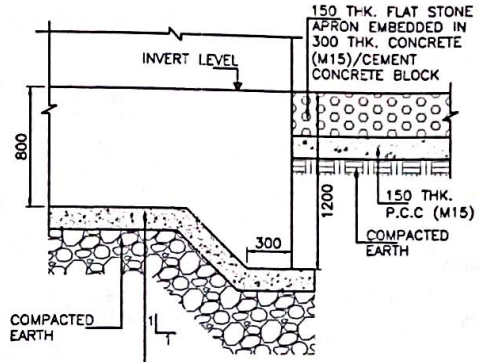
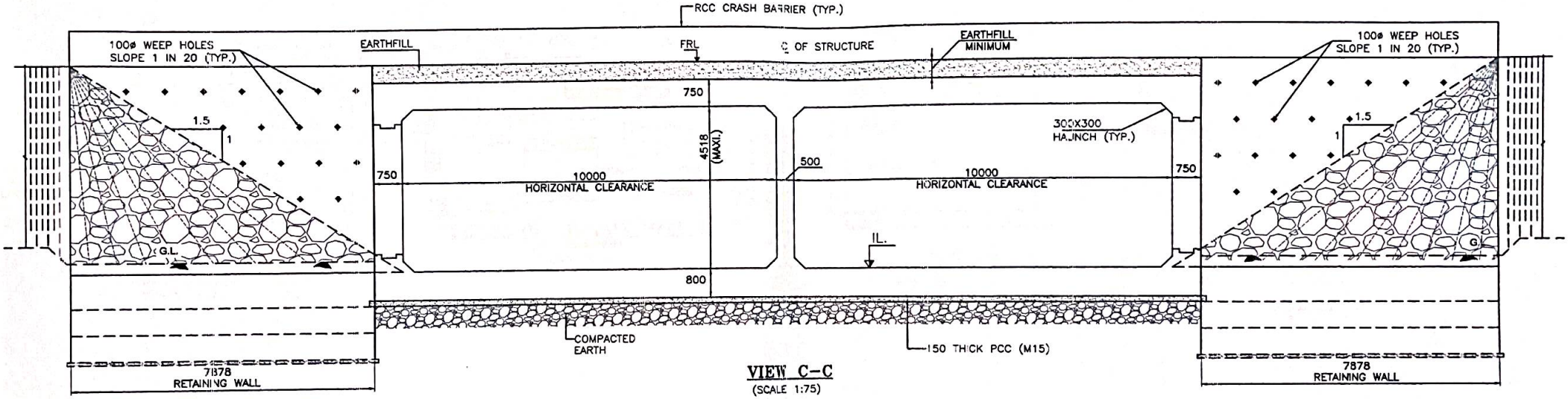


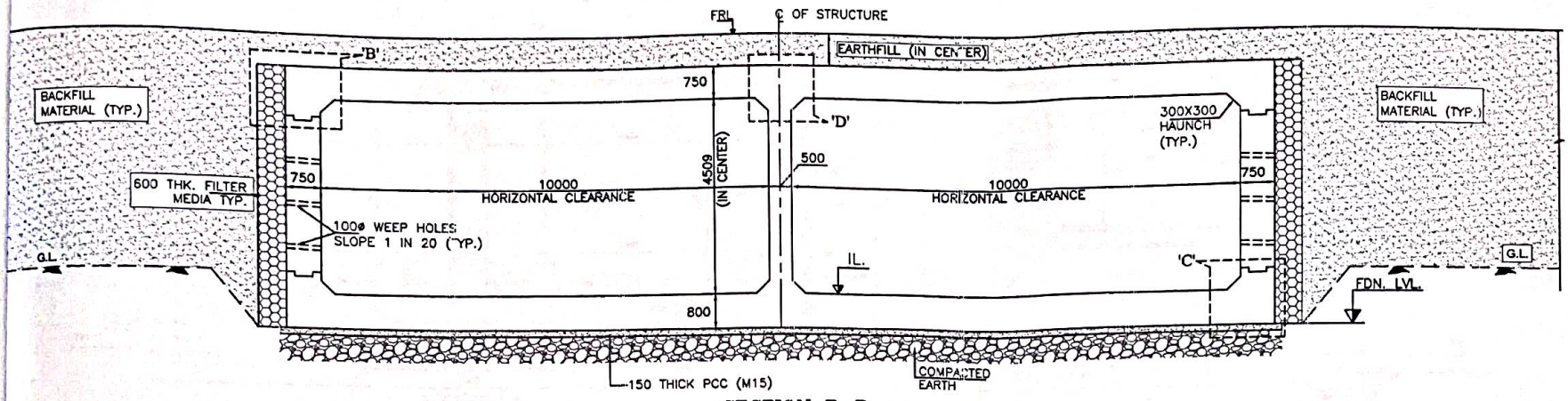
DETAIL-'A'
(SCALE 1:25)



VIEW C-C
(SCALE 1:75)

CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:	PROJECT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA GHAZIABAD, U.P-201012 WISPL	WIDENING/IMPROVEMENT TO 3-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+662 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-6)

DRAWING TITLE:-						
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 30+112						
Date JUNE.2024	Drw. W.P	Dsg. S.K	Chk. A.M	App.	Scale. AS SHOWN	Drawing Status.
Project No.	Drawing No. AVC/NH-38/MNB/GAD/30+112/101				Sheet No. 2 OF 3	Rev. R0



SECTION B-B
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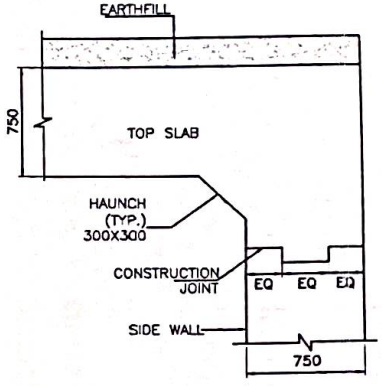
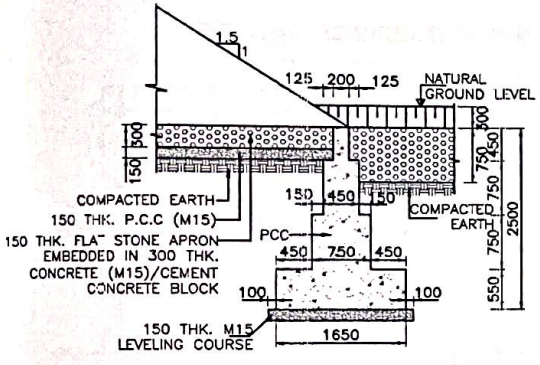
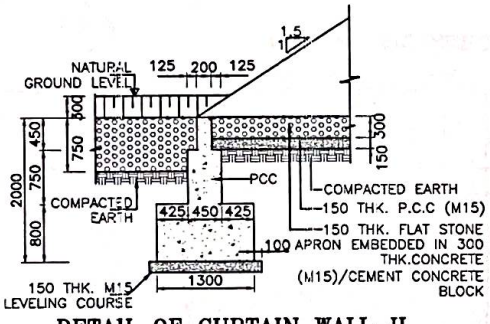


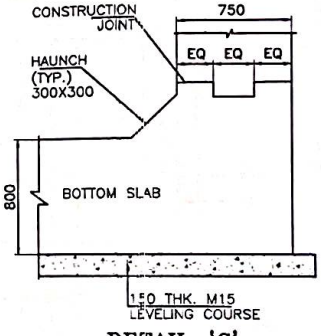
DETAIL-'B'
(SCALE 1:25)



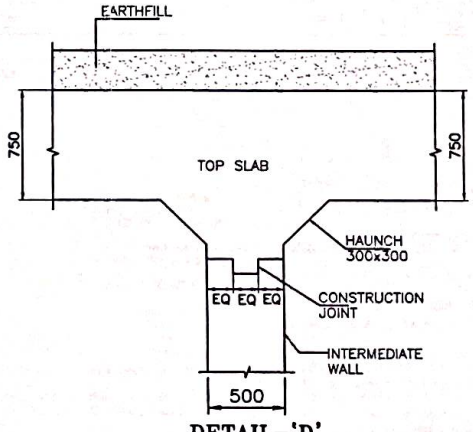
DETAIL OF CURTAIN WALL-I
(DOWN STREAM SIDE)
(SCALE 1:50)



DETAIL OF CURTAIN WALL-II
(UP STREAM SIDE)
(SCALE 1:50)



DETAIL-'C'



DETAIL-'D'
(SCALE 1:25)

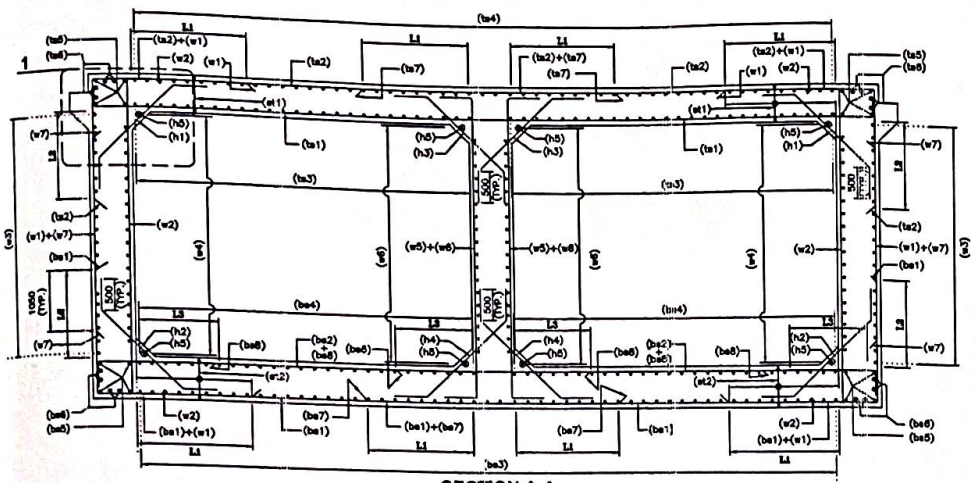
CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CES CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	DESIGN DESIGN AID PLOT NO.54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wali Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-8, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA G-VZIABAD, U.P-201012 WISPL

PROJECT: WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+662 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-6)

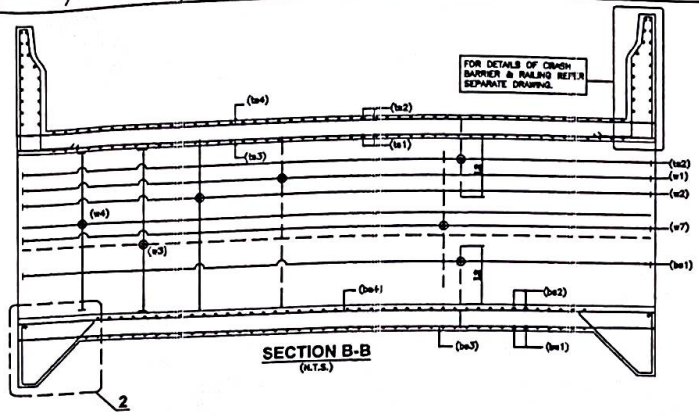
DRAWING TITLE:- GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 30+112

Date	Drw.	Des.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/GAD/30+112/101	3 OF 3	R0



SECTION A-A
(N.T.S.)



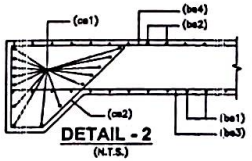
SECTION B-B
(N.T.S.)

BOX REINF. SCHEDULE

SL.NO.	BAR MARK	BAR SHAPE	DIAMETER	SPACING
1	ts1		20	130
2	ts2		20	130
3	ts3		12	130
4	ts4		12	130
5	ts5		12	2x4 Nos.
6	ts6		12	2x4 Nos.
7	ts7		16	130
8	w1		16	130
9	w2		16	130
10	w3		12	130
11	w4		12	130
12	w5		12	130
13	w6		10	130
14	w7		NOT IN USE	
15	w8		NOT IN USE	
16	bs1		20	130
17	bs2		20	130
18	bs3		12	130
19	bs4		16	130
20	bs5		12	2x4 Nos.
21	bs6		12	2x4 Nos.
22	bs7		16	130
23	bs8		10	130
24	h1		12	130
25	h2		12	130
26	h3		12	130
27	h4		12	130
28	h5		10	1x8 Nos.
29	cs1		12	14 Nos.
30	cs2		12	130
31	st1		12ø 2 legged @130c/c(in L-L direction) & @260c/c (in T-T direction)	
32	st2		12ø 2 legged @130c/c(in L-L direction) & @260c/c (in T-T direction)	

BAR CURTAILMENT SCHEDULE TYPE

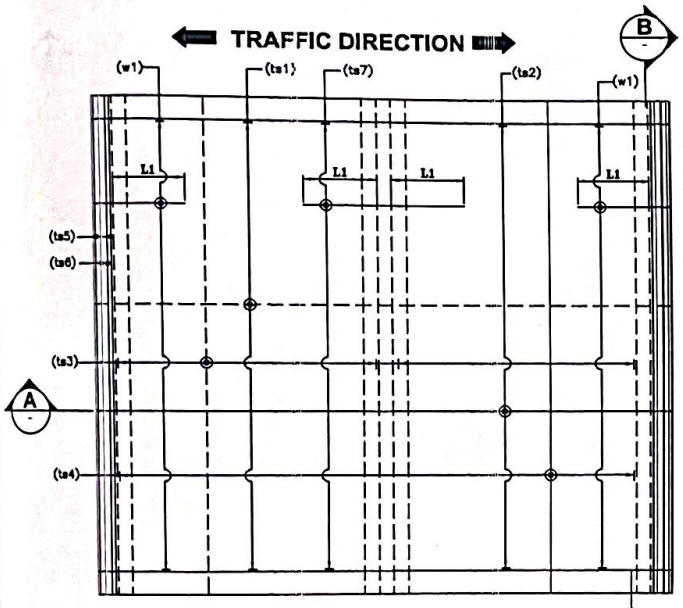
L1	3000
L2	1980
L3	1500



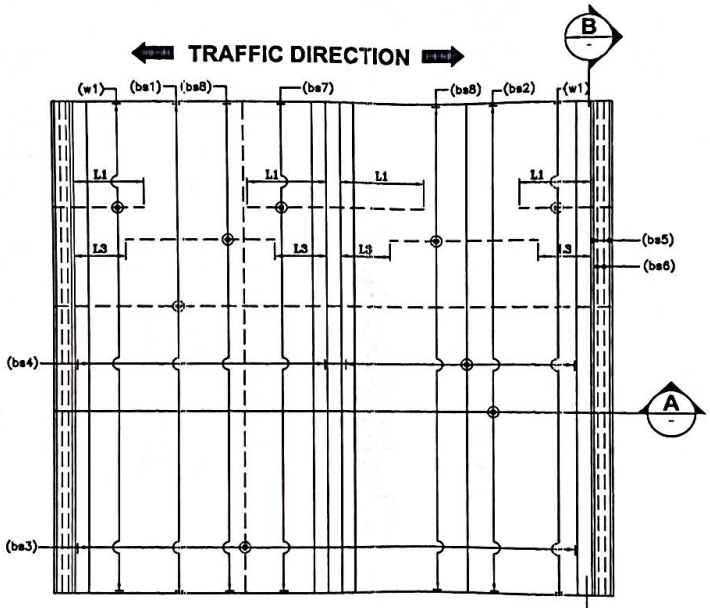
DETAIL - 2
(N.T.S.)

LEGEND:-

TOP FACE BAR	———
BOTTOM FACE BAR	- - - - -



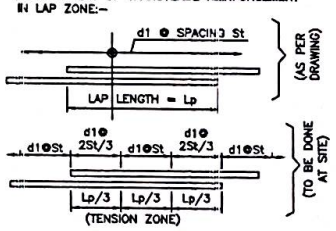
REINFORCEMENT DETAILS OF TOP SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)

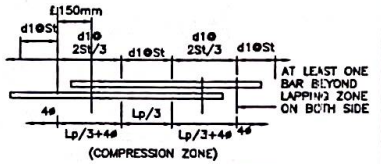


REINFORCEMENT DETAILS OF BOTTOM SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. DRAWING SHOULD NOT BE SCALED ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. ALL REINFORCING BARS SHALL BE THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe-500D) CONFIRMING TO IS:1786 STANDARDS.
4. MINIMUM CLEAR COVER TO OUTERMOST REINFORCEMENT SHALL BE AS FOLLOWS:-
   a) TOP SLAB - 40mm
   b) BOTTOM SLAB - 75mm
   c) SIDE WALL (EARTH SIDE) - 75mm
   d) SIDE WALL (INNER SIDE) - 50mm
5. OVERLAPPING FOR SPLICING OF REINFORCEMENT SHALL BE AS PER CLAUSE NO.15.2.5.
   LAP LENGTH SHALL NOT BE LESS THAN 56ø.
   ARRANGEMENT OF TRANSVERSE REINFORCEMENT IN LAP ZONE:-





6. ANCHOURAGE LENGTH OF BOX SHALL BE TAKEN AS 40ø AS PER IRC:112.
7. FOR UNFAVORABLE BOND CONDITIONS THE FACTOR 40 SHOULD BE MULTIPLIED BY FACTOR OF 1.43 .
8. CENTER LINE OF OVERLAPPING BAR bs1 & ts2 IN WALL & MID HEIGHT OF WALLS ARE AT SAME POINT.
9. ALL LAP SHALL BE SUITABLY STAGGERED AND MINIMUM C/C DISTANCE BETWEEN ADJACENT LAPS SHALL BE 1.3 TIMES OF LAP.

REFERENCE DRAWING:-

1. GENERAL ARRANGEMENT DRAWING.
   AVC/NH-38/MNB/30+112/101

CLIENT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

EPC CONTRACTOR
KAMAC ENGINEERS Pvt.Ltd
KAMAC ENGINEERS PVT.LTD
F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010

AUTHORITY'S ENGINEER
ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED.
C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171

PROOF CONSULTANT:
CREATIVE ENGINEERING SERVICES
OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-5, VAISHALI, GHAZIABAD, U.P-201010

SAFETY CONSULTANT:
DESIGN AID
PLOT NO.54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,

DESIGN CONSULTANT:
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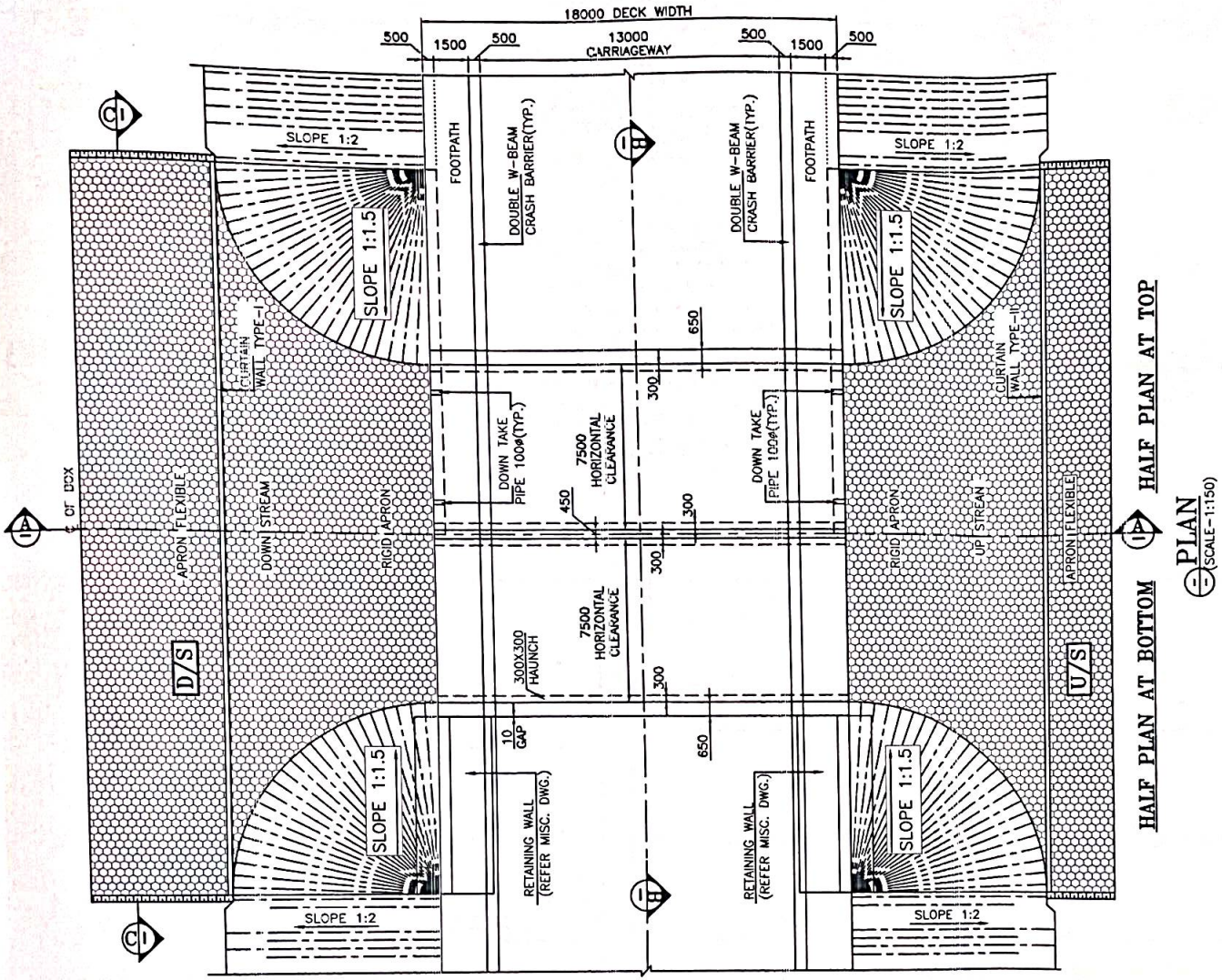
OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA G-NOIDA, U.P-201012
WISPL

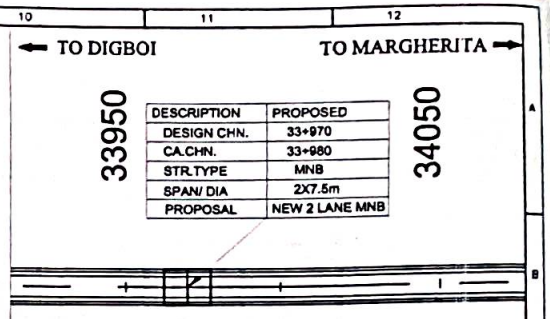
PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-5)

DRAWING TITLE:-
REINFORCEMENT DETAIL OF BOX FOR MINOR BRIDGE AT DESIGN CHAINAGE 30+112

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/RF/30+112/201	01 OF 01	R0





DESCRIPTION	PROPOSED
DESIGN CHN.	33+970
CA.CHN.	33+980
STR.TYPE	MNB
SPAN/ DIA	2X7.5m
PROPOSAL	NEW 2 LANE MNB

KEY PLAN

LEVELS	
FINISHED ROAD LEVEL	146.552
LOWEST BED LEVEL	138.213
INVERT LEVEL U/S	137.731
INVERT LEVEL D/S	137.713
HEIGHT (MAXIMUM)	5.018m
EARTH FILL (MAXIMUM)	3.171m
EARTH FILL (MINIMUM)	2.946m

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS AND CHAINAGES ARE IN KILOMETERS UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED AS PER IRC: 6–2017.
4. CONCRETE SHALL BE DESIGN MIX UNLESS OTHERWISE SPECIFIED IN DETAILED DRAWINGS, AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES FOR ALL ELEMENTS OF STRUCTURES AS INDICATED BELOW:
   a) RCC CRASH BARRIER M40
   b) RCC BOX CELL M35
5. REINFORCING STEEL SHALL BE HYSD (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO TABLE 18.1 OF IRC: 112–2020.
6. 75mm THICK CEMENT CONCRETE WEARING COAT SHALL BE PROVIDED OVER TOP SLAB.
7. MINIMUM CLEAR COVER TO ANY REINFORCEMENT SHALL BE AS BELOW:
   a) BOX CELL–
   i) TOP SLAB (BOTH FACE) 45mm
   ii) VERTICAL WALL (EARTH FACE) 75mm
   iii) VERTICAL WALL (REAR FACE) 45mm
   iv) BOTTOM SLAB (BOTH FACE) 75mm
   v) INTERMEDIATE WALL 45mm
   b) RCC CRASH BARRIER 45mm
8. 100ø WEEP HOLES SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN EARTH RETAINING VERTICAL WALLS ABOVE GROUND LEVEL.
9. 600 THICK FILTER MEDIA BEHIND EARTH RETAINING VERTICAL WALL SHALL BE PROVIDED AS PER "MoRT&H" SPECIFICATION.
10. BACKFILLING SHALL BE DONE IN LAYERS NOT EXCEEDING 200mm THK. EACH LAYERS SHALL BE COMPACTED TO THE OPTIMUM DENSITY.
11. BACK FILLING BEHIND EARTH RETAINING WALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC: 78–2020 HAVING PROPERTIES C=0, ø=30°, γ=2.0 T/m³.
12. SAFE BEARING CAPACITY AT FOUNDING LEVEL OF BRIDGE SHALL BE 13 T/m², WHICH SHALL BE ENSURED BEFORE EXECUTION.
13. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT APPROVED HIGHWAY DRAWINGS FOR STRUCTURE ORIENTATION, SKEW, FRL AND CAMBER/SUPER ELEVATION ETC.
14. BACK FILLING SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDE OF BOX.
15. AS PER SITE CONDITION OF S.B.C NOT ACHIEVED THEN PROVIDE MINIMUM 1000 THICK COMPACTED EARTH WITH GRANULAR MATERIAL.
16. SEISMIC ZONE – V (AS PER SP: 114–2020).

LEGEND:-

FRL FINISHED ROAD LEVEL
IL INVERT LEVEL
LVL. LEVEL
EGL. EXISTING GROUND LEVEL
EQ. EQUAL DISTANCE

FRL CAMBER & LOCATION IS TO BE MATCHED WITH HIGHWAY ALIGNMENT DRAWING.

* AS PER SITE CONDITION TO ACHIEVE S.B.C.

CLIENT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

EPC CONTRACTOR
KAMAC ENGINEERS Pvt.Ltd
KAMAC ENGINEERS PVT.LTD
F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010

AUTHORITY'S ENGINEER
ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED.
C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171

PROOF CONSULTANT:
CREATIVE ENGINEERING SERVICES
OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010

SAFETY CONSULTANT:
DESIGN AID
PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM, VASANT KUNJ, NEW DELHI-110070,

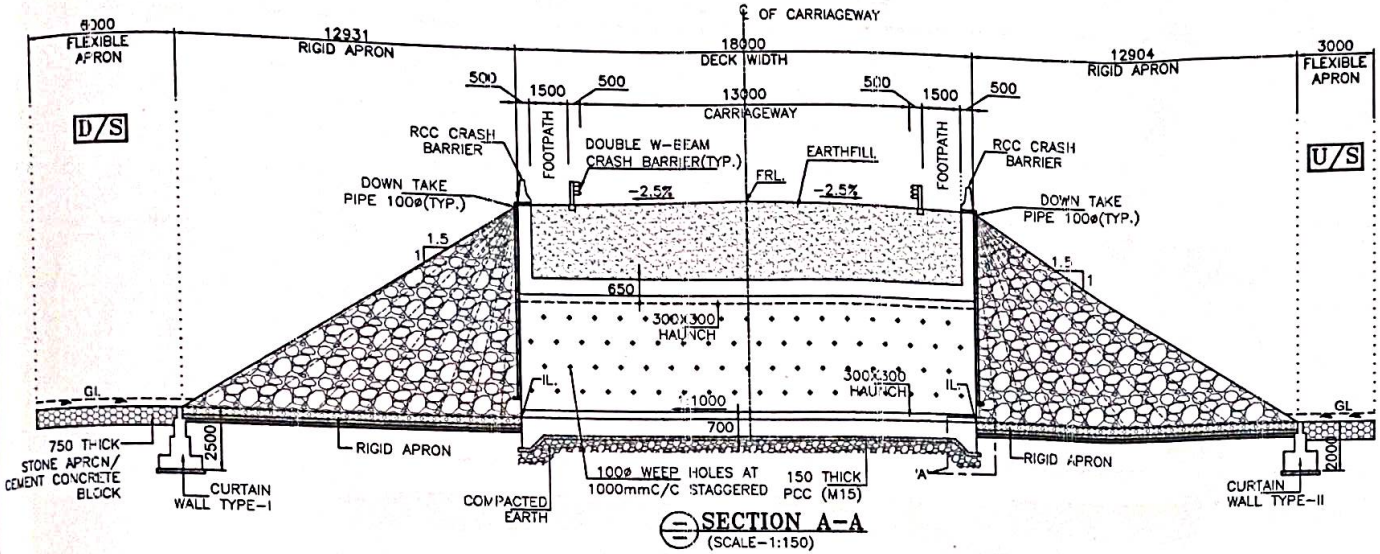
DESIGN CONSULTANT:
A.V. CONSTRUCTION
1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wali Gali, New Delhi 110045
Winst Infra Solution Pvt. Ltd.
OFFICE: F-8, ISHAN CORPORATE TOWER, PLOT NO-C-23, SECTOR-13, VASUNDHRA G-HZIABAD, U.P-201012
WISPL

PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE (PACKAGE-5)

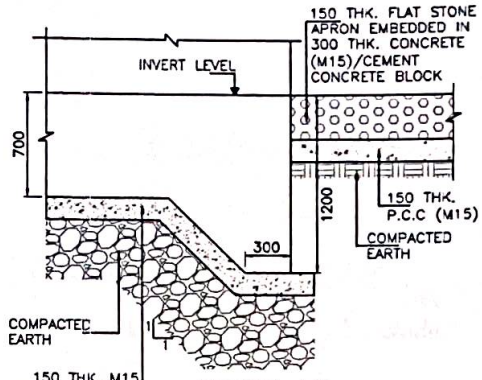
DRAWING TITLE:-
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 33+970

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

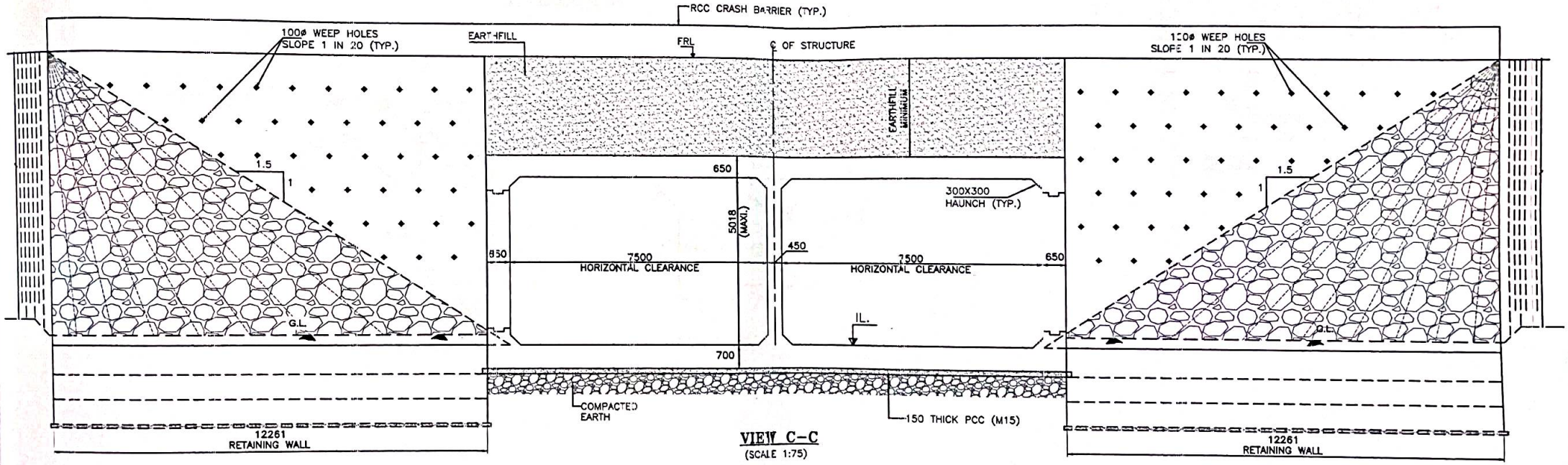
Project No. | Drawing No. AVC/NH-38/MNB/GAD/33+970/101 | Sheet No. 1 OF 3 | Rev. R0



SECTION A-A
(SCALE-1:150)



DETAIL-'A'
(SCALE 1:25)



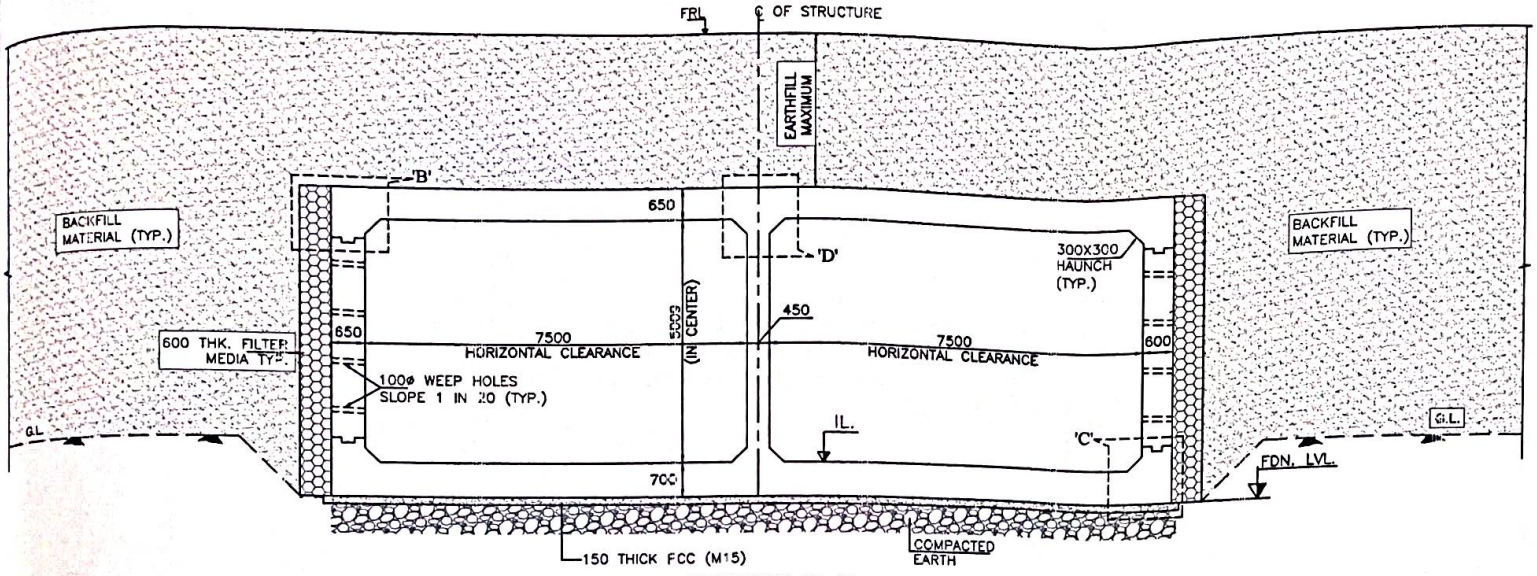
VIEW C-C
(SCALE 1:75)

CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CES CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-5, VAISHALI, GHAZIABAD, U.P-201010	DESIGN DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wali Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-6,ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA,G-HAZIABAD, U.P-201012 WISPL

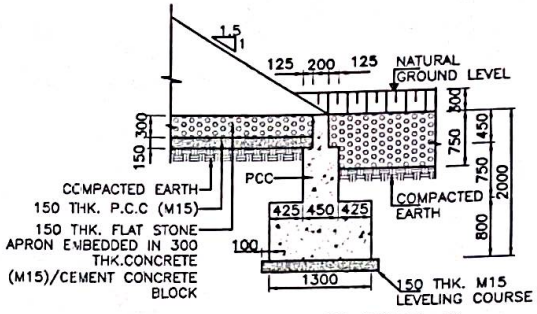
PROJECT: WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+662 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-6)

DRAWING TITLE:- GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 33+970

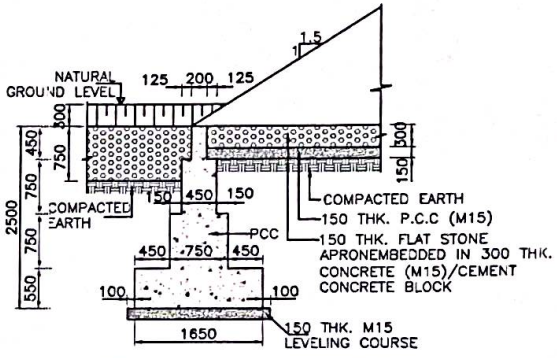
Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	
Project No.	Drawing No. AVC/NH-38/MNB/GAD/33+970/101				Sheet No. 2 OF 3	Rev. R0



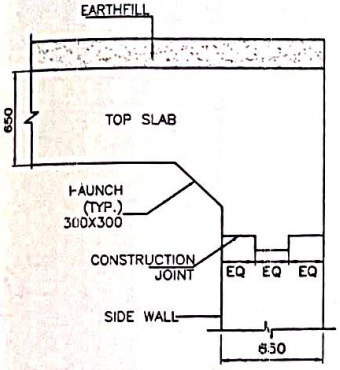
SECTION B–B
(SCALE 1:75)



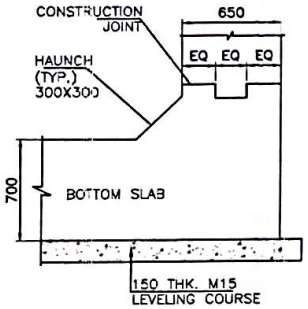
DETAIL OF CURTAIN WALL–II
(UP STREAM SIDE)
(SCALE 1:50)



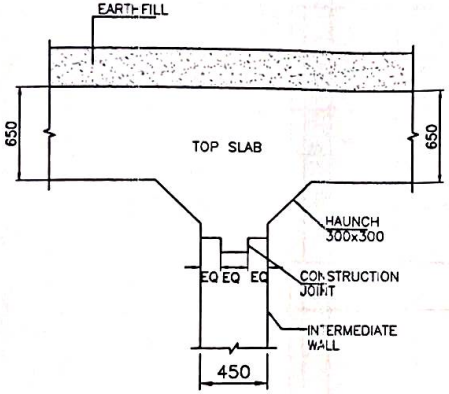
DETAIL OF CURTAIN WALL–I
(DOWN STREAM SIDE)
(SCALE 1:50)



DETAIL–'B'
(SCALE 1:25)



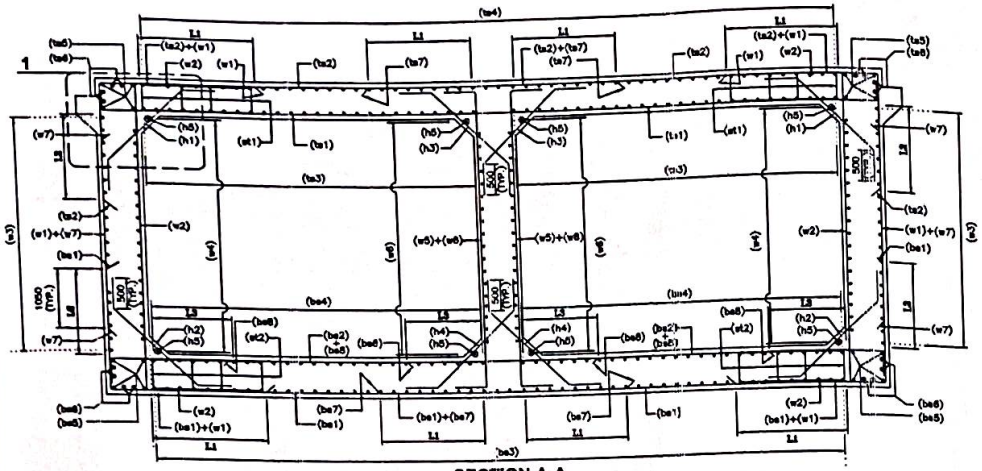
DETAIL–'C'
(SCALE 1:25)



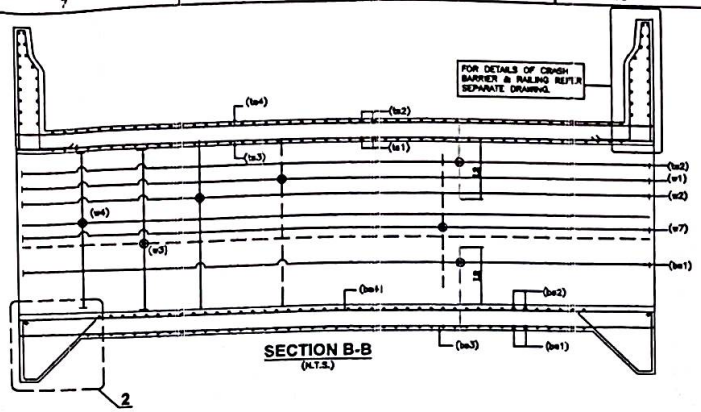
DETAIL–'D'
(SCALE 1:25)

CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:	PROJECT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-5, VAISHALI, GHAZIABAD, U.P-201010	DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-8, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA G-NOIDA, U.P-201012 WISPL	WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE (PACKAGE-5)

DRAWING TITLE:-						
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 33+970						
Date JUNE.2024	Drw. W.P	Dsg. S.K	Chk. A.M	App.	Scale. AS SHOWN	Drawing Status.
Project No.	Drawing No. AVC/NH-38/MNB/GAD/33+970/101				Sheet No. 3 OF 3	Rev. R0



SECTION A-A
(N.T.S.)



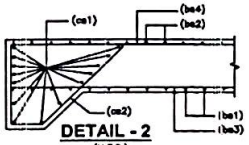
SECTION B-B
(N.T.S.)

BOX REINF. SCHEDULE

SL.NO	BAR MARK	BAR SHAPE	DIAMETER	SPACING
1	ts1		20	120
2	ts2		20	120
3	ts3		12	120
4	ts4		12	120
5	ts5		12	2x4 Nos.
6	ts6		12	2x4 Nos.
7	ts7		16	120
8	w1		16	120
9	w2		16	120
10	w3		12	120
11	w4		12	120
12	w5		16	120
13	w6		10	120
14	w7	NOT IN USE		
15	w8	NOT IN USE		
16	bs1		20	120
17	bs2		20	120
18	bs3		12	120
19	bs4		16	120
20	bs5		12	2x4 Nos.
21	bs6		12	2x4 Nos.
22	bs7		16	120
23	bs8		10	120
24	h1		12	120
25	h2		12	120
26	h3		12	120
27	h4		12	120
28	h5		10	1x8 Nos.
29	cs1		12	14 Nos.
30	cs2		12	120
31	st1		12ø 4 legged @120c/c(in T-T direction) UPTO 2.3m FROM FACE OF SUPPORT	
32	st2		12ø 4 legged @120c/c(in T-T direction) UPTO 2.3m FROM FACE OF SUPPORT	

BAR CURTAILMENT SCHEDULE TYPE

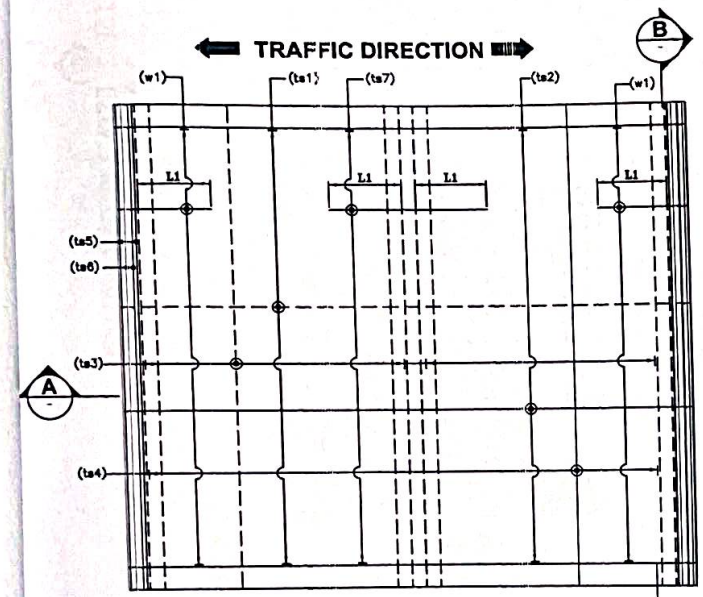
L1	2250
L2	1550
L3	1125



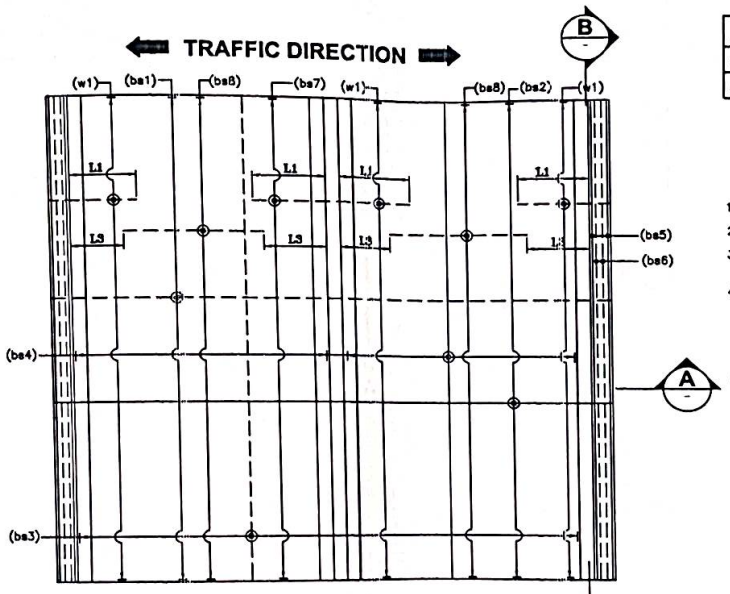
DETAIL - 2
(N.T.S.)

LEGEND:-

TOP FACE BAR	———
BOTTOM FACE BAR	- - - - -



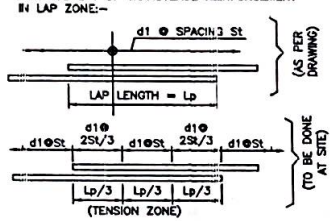
REINFORCEMENT DETAILS OF TOP SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)

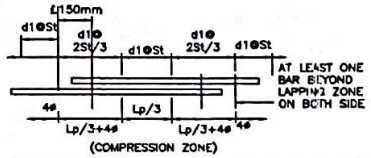


REINFORCEMENT DETAILS OF BOTTOM SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. DRAWING SHOULD NOT BE SCALED ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. ALL REINFORCING BARS SHALL BE THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe-500D) CONFIRMING TO IS:1786 STANDARDS.
4. MINIMUM CLEAR COVER TO OUTERMOST REINFORCEMENT SHALL BE AS FOLLOWS:-
   a) TOP SLAB - 40mm
   b) BOTTOM SLAB - 75mm
   c) SIDE WALL (EARTH SIDE) - 75mm
   d) SIDE WALL (INNER SIDE) - 50mm
5. OVERLAPPING FOR SPLICING OF REINFORCEMENT SHALL BE AS PER CLAUSE NO.15.2.5.
   LAP LENGTH SHALL NOT BE LESS THAN 56ø.
   ARRANGEMENT OF TRANSVERSE REINFORCEMENT IN LAP ZONE:-





6. ANCHOURAGE LENGTH OF BOX SHALL BE TAKEN AS 40ø AS PER IRC:112.
7. FOR UNFAVOURABLE BOND CONDITIONS THE FACTOR 40 SHOULD BE MULTIPLIED BY FACTOR OF 1.43 .
8. CENTER LINE OF OVERLAPPING BAR bs1 & ts2 IN WALL & MID HEIGHT OF WALLS ARE AT SAME POINT.
9. ALL LAP SHALL BE SUITABLY STAGGERED AND MINIMUM C/C DISTANCE BETWEEN ADJACENT LAPS SHALL BE 1.3 TIMES OF LAP.

REFERENCE DRAWING:-

1. GENERAL ARRANGEMENT DRAWING.
   AVC/NH-38/MNB/33+970/101

CLIENT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

EPC CONTRACTOR
KAMAC ENGINEERS Pvt.Ltd
KAMAC ENGINEERS PVT.LTD
F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010

AUTHORITY'S ENGINEER
ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED.
C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171

PROOF CONSULTANT:
CREATIVE ENGINEERING SERVICES
OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010

SAFETY CONSULTANT:
DESIGN AID
PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,

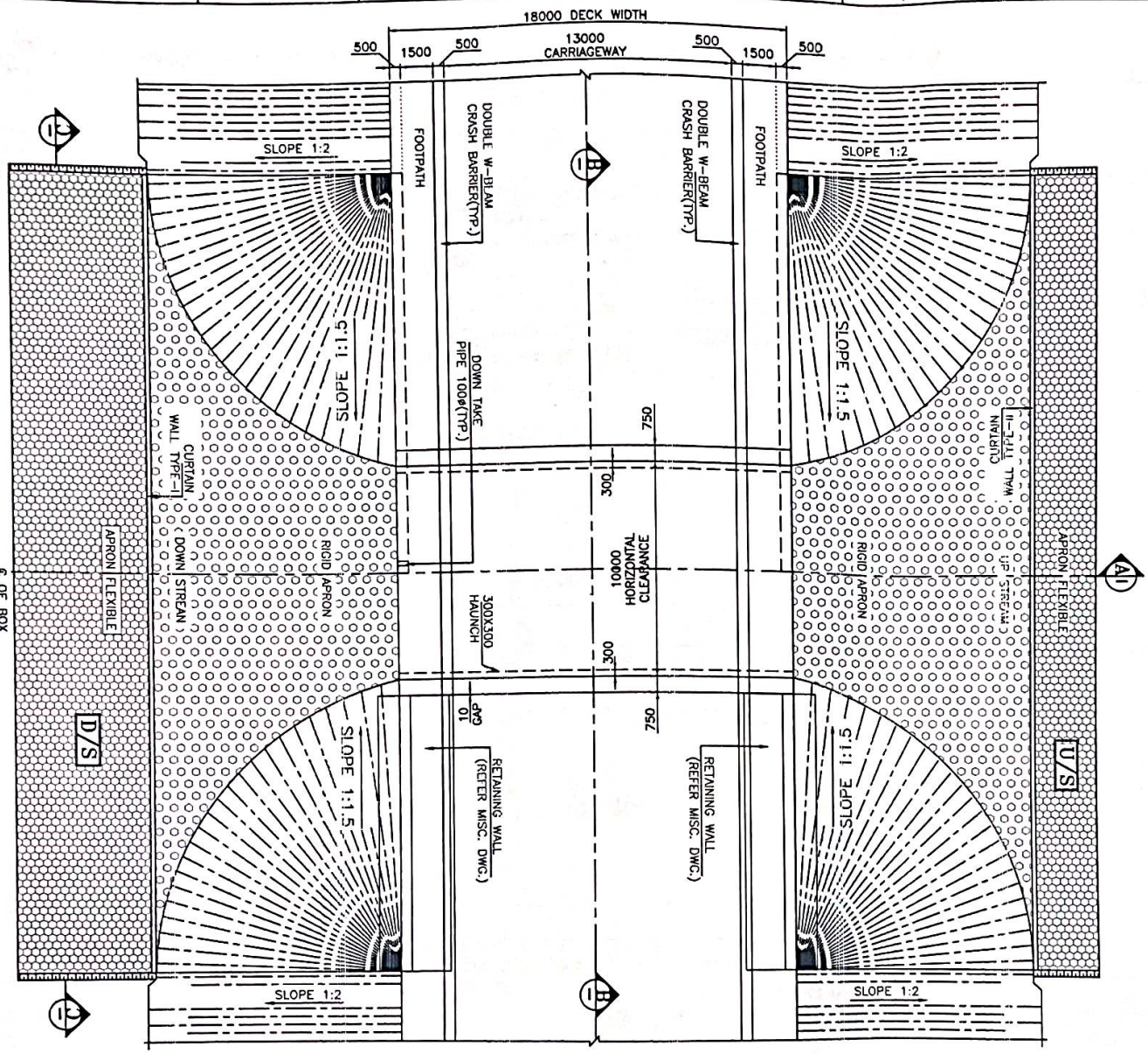
DESIGN CONSULTANT:
A.V. CONSTRUCTION
1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045
Winst Infra Solution Pvt. Ltd.
OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA G-HAZIABAD, U.P-201012
WISPL

PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-5)

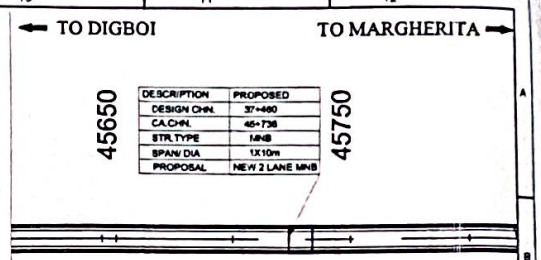
DRAWING TITLE:-
REINFORCEMENT DETAIL OF BOX FOR MINOR BRIDGE AT DESIGN CHAINAGE 33+970

Date	Drw.	Des.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/RF/33+970/201	01 OF 01	R0



PLAN
(SCALE-1:150)



DESCRIPTION	PROPOSED
DESIGN CHN.	37+460
CA.CHN.	46+736
STR.TYPE	MNB
SPAN/ DIA	1X10m
PROPOSAL	NEW 2 LANE MNB

KEY PLAN

LEVELS	
FINISHED ROAD LEVEL	144.597
LOWEST BED LEVEL	138.702
INVERT LEVEL U/S	138.220
INVERT LEVEL D/S	138.202
HEIGHT (MAXIMUM)	4.518m
EARTH FILL (MAXIMUM)	1.494m
EARTH FILL (MINIMUM)	0.760m

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS AND CHAINAGES ARE IN KILOMETERS UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED AS PER IRC: 6-2017.
4. CONCRETE SHALL BE DESIGN MIX UNLESS OTHERWISE SPECIFIED IN DETAILED DRAWINGS, AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES FOR ALL ELEMENTS OF STRUCTURES AS INDICATED BELOW:
   a) RCC CRASH BARRIER M40
   b) RCC BOX CELL M35
5. REINFORCING STEEL SHALL BE HYSD (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO TABLE 18.1 OF IRC: 112-2020.
6. 75mm THICK CEMENT CONCRETE WEARING COAT SHALL BE PROVIDED OVER TOP SLAB.
7. MINIMUM CLEAR COVER TO ANY REINFORCEMENT SHALL BE AS BELOW:
   a) BOX CELL-
   i) TOP SLAB (BOTH FACE) 45mm
   ii) VERTICAL WALL (EARTH FACE) 75mm
   iii) VERTICAL WALL (REAR FACE) 45mm
   iv) BOTTOM SLAB (BOTH FACE) 75mm
   v) INTERMEDIATE WALL 45mm
   b) RCC CRASH BARRIER 45mm
8. 100ϕ WEEP HOLES SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN EARTH RETAINING VERTICAL WALLS ABOVE GROUND LEVEL.
9. 600 THICK FILTER MEDIA BEHIND EARTH RETAINING VERTICAL WALL SHALL BE PROVIDED AS PER "MoRT&H" SPECIFICATION.
10. BACKFILLING SHALL BE DONE IN LAYERS NOT EXCEEDING 200mm THK. EACH LAYERS SHALL BE COMPACTED TO THE OPTIMUM DENSITY.
11. BACK FILLING BEHIND EARTH RETAINING WALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC: 78-2020 HAVING PROPERTIES C=0, ϕ=30°, γ=2.0 T/m³.
12. SAFE BEARING CAPACITY AT FOUNDING LEVEL OF BRIDGE SHALL BE 10 T/m², WHICH SHALL BE ENSURED BEFORE EXECUTION.
13. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT APPROVED HIGHWAY DRAWINGS FOR STRUCTURE ORIENTATION, SKEW, FRL AND CAMBER/SUPER ELEVATION ETC.
14. BACK FILLING SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDE OF BOX.
15. AS PER SITE CONDITION OF S.B.C NOT ACHIEVED THEN PROVIDE MINIMUM 1000 THICK COMPACTED EARTH WITH GRANULAR MATERIAL.
16. SEISMIC ZONE - V (AS PER SP: 114-2020).

* AS PER SITE CONDITION TO ACHIEVE S.B.C.

FRL CAMBER & LOCATION IS TO BE MATCHED WITH HIGHWAY ALIGNMENT DRAWING.

LEGEND:-

FRL FINISHED ROAD LEVEL
IL INVERT LEVEL
LVL. LEVEL
EGL. EXISTING GROUND LEVEL
EQ. EQUAL DISTANCE

CLIENT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

EPC CONTRACTOR
KAMAC ENGINEERS Pvt.Ltd
KAMAC ENGINEERS PVT.LTD
F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010

AUTHORITY'S ENGINEER
ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED.
C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171

PROOF CONSULTANT:
CREATIVE ENGINEERING SERVICES
OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010

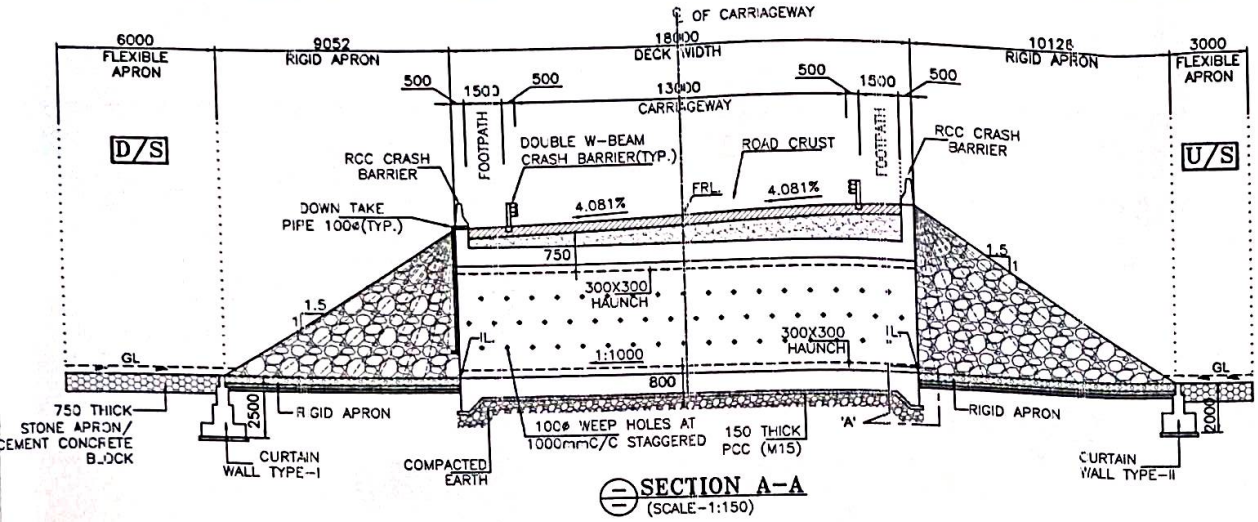
SAFETY CONSULTANT:
DESIGN AID
PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM, VASANT KUNJ, NEW DELHI-110070,

DESIGN CONSULTANT:
A.V. CONSTRUCTION
1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali, New Delhi 110045
Winst Infra Solution Pvt. Ltd.
OFFICE: F-8, ISHAAN CORPORATE TOWER, PLOT NO-C-23, SECTOR-13, VASUNDHRA G-HAZIABAD, U.P-201012
WISPL

PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+180 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM IN EPC MODE.(PACKAGE-5)

DRAWING TITLE:-
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 37+460

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	
Project No.	Drawing No.				Sheet No.	Rev.
	AVC/NH-38/MNB/GAD/37+460/101				1 OF 3	R0



SECTION A–A
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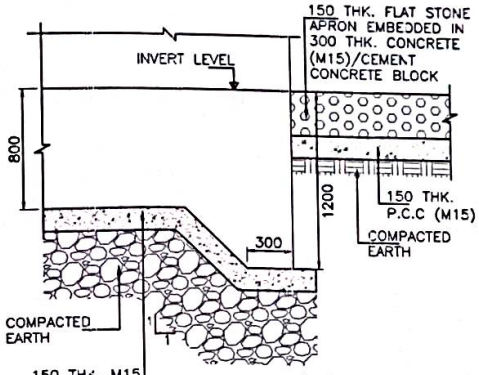
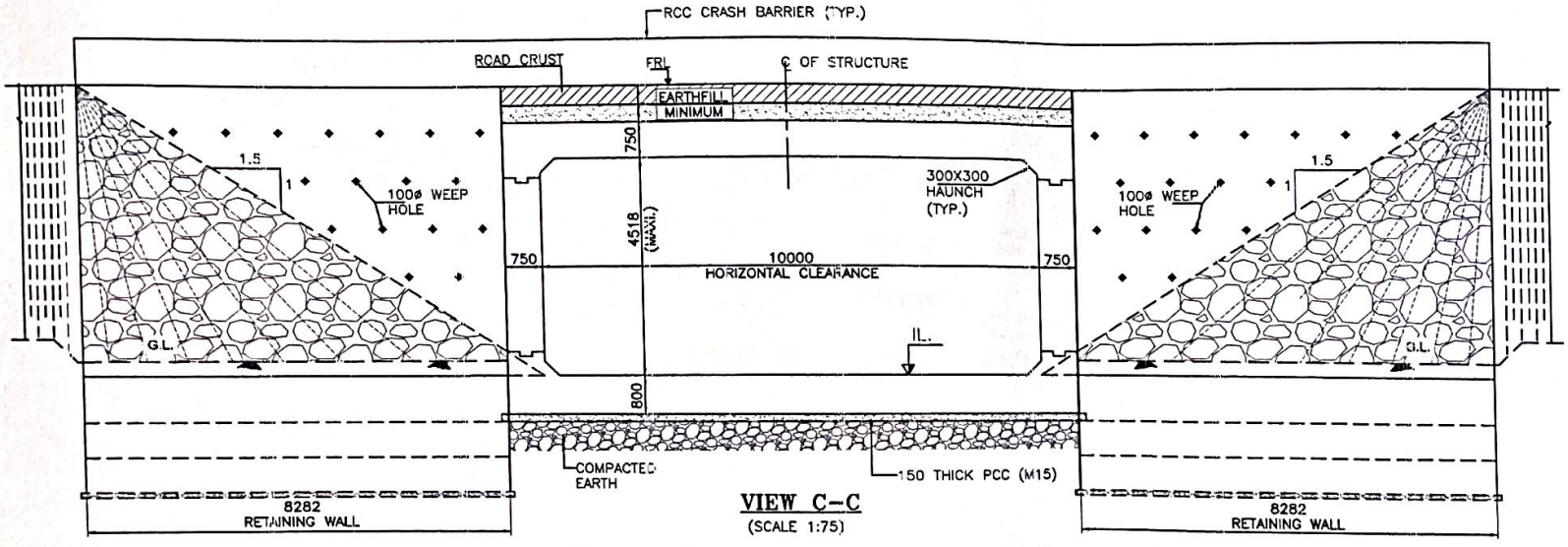


DETAIL–'A'
(SCALE 1:25)



VIEW C–C
(SCALE 1:75)

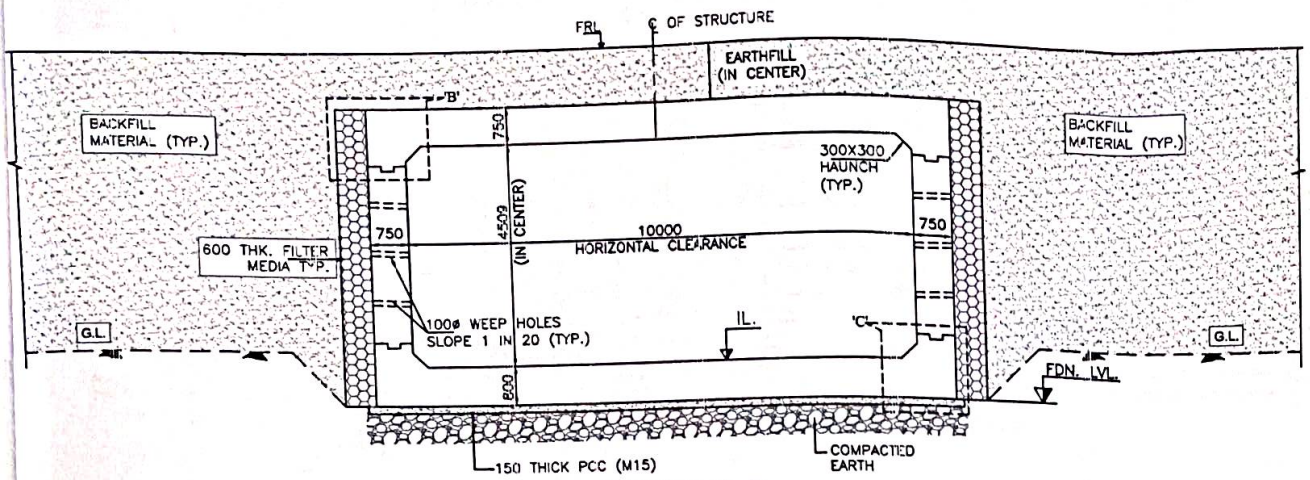
CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	DESIGN AID PLOT NO.54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA GHAZIABAD, U.P-201012

PROJECT: WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+652 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-5)

DRAWING TITLE:- GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 37+460

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/GAD/37+460/101	2 OF 3	R0



SECTION B–B
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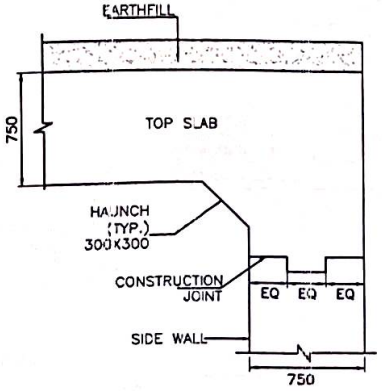
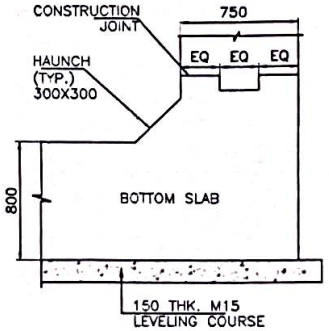
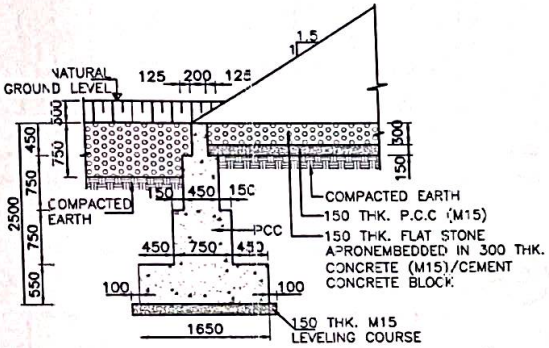


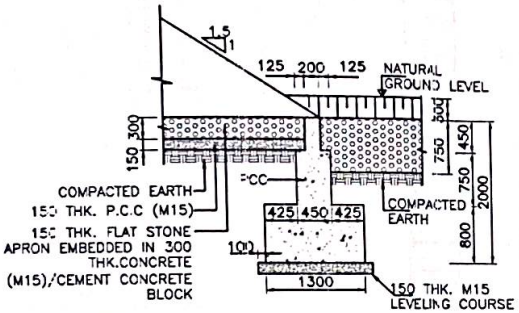
DETAIL–'B'
(SCALE 1:25)



DETAIL–'C'
(SCALE 1:25)



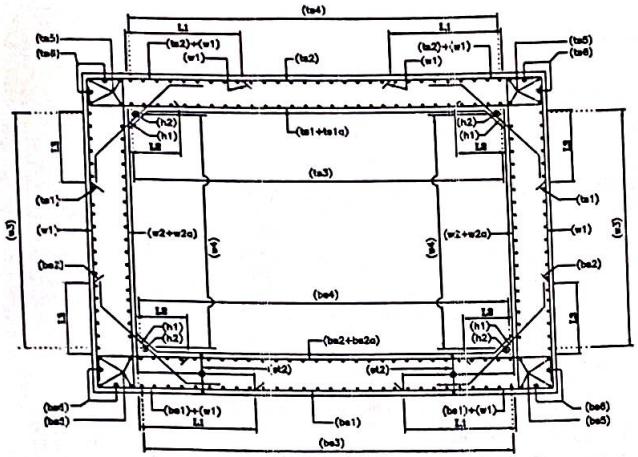
DETAIL OF CURTAIN WALL–I
(DOWN STREAM SIDE)
(SCALE 1:50)



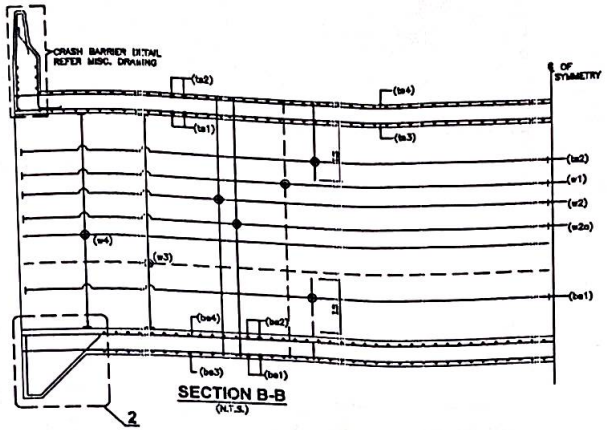
DETAIL OF CURTAIN WALL–II
(UP STREAM SIDE)
(SCALE 1:50)

CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:	PROJECT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-5, VAISHALI, GHAZIABAD, U.P-201010	DESIGN AID PLOT NO.54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gall,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-8, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA,G-NIZIABAD, U.P-201012 WISPL	WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+662 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM IN EPC MODE.(PACKAGE-6)

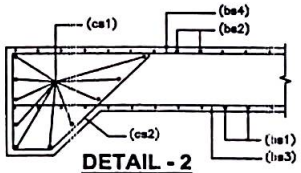
DRAWING TITLE:-							
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 37+460							
Date JUNE.2024	Drw. W.P	Dsg. S.K	Chk. A.M	App.	Scale. AS SHOWN	Drawing Status.	
Project No.	Drawing No. AVC/NH-38/MNB/GAD/37+460/101					Sheet No. 3 OF 3	Rev. R0



SECTION A-A
(N.T.S.)



SECTION B-B
(N.T.S.)



DETAIL - 2
(N.T.S.)

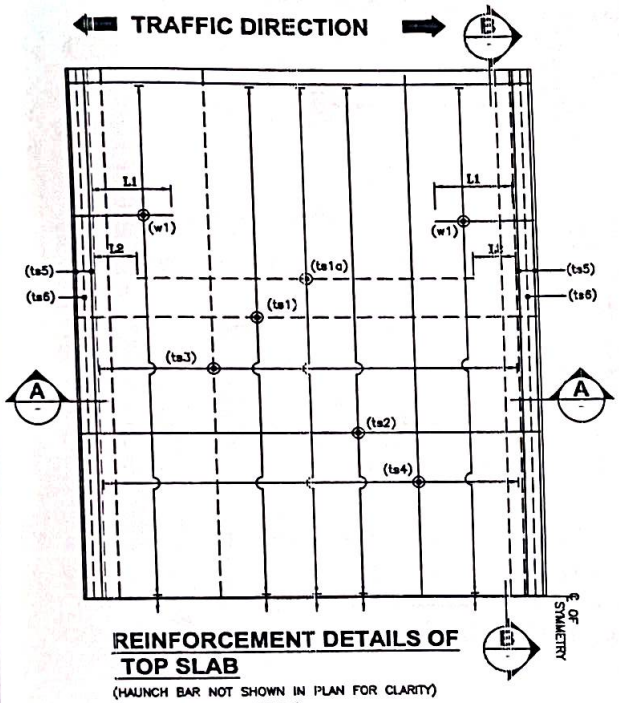
BAR CURTAILMENT SCHEDULE TYPE	
L1	3000
L2	1500
L3	1350

LEGEND:-	
TOP FACE BAR	———
BOTTOM FACE BAR	- - - - -

BOX REINF. SCHEDULE

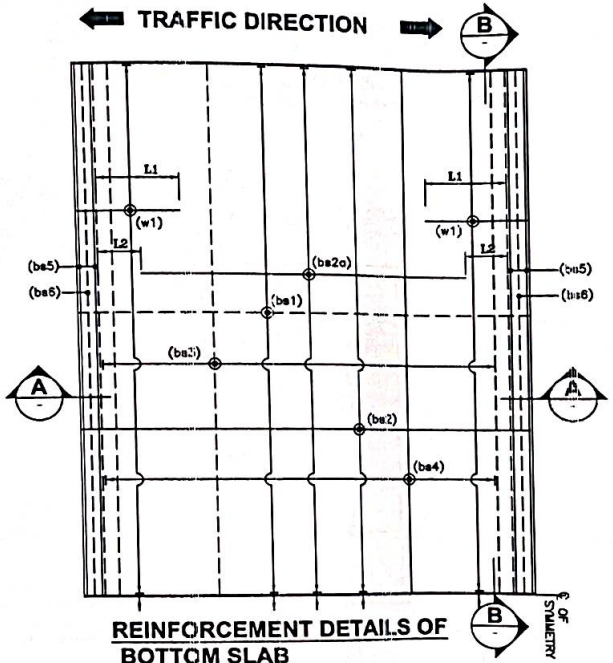
SL.NO	BAR MARK	BAR SHAPE	DIAMETER	SPACING
1	ts1		20	130
2	ts1a		NOT IN USE	
3	ts2		20	130
4	ts3		12	110
5	ts4		12	110
6	ts5		12	2x4Nos.
7	ts6		12	2x2Nos.
8	w1		20	130
9	w2		20	130
10	w2a		NOT IN USE	
11	w3		12	110
12	w4		12	110
13	bs1		20	130
14	bs2		20	130
15	bs2a		12	130
16	bs3		12	110
17	bs4		16	110
18	bs5		12	2x4Nos.
19	bs6		12	2x2Nos.
20	h1		12	130
21	h2		10	4x1NO.
22	cs1		12	10 Nos.
23	cs2		12	110
24	st2		12ø 2 legged @110c/c(in L-L direction) & @260c/c (in T-T direction)	

TRAFFIC DIRECTION



REINFORCEMENT DETAILS OF TOP SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)

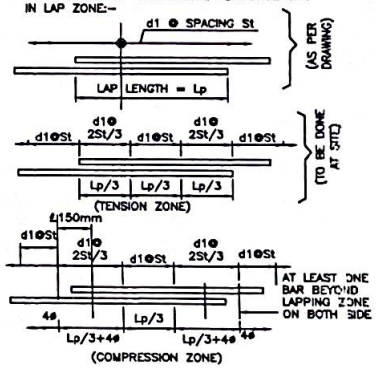
TRAFFIC DIRECTION



REINFORCEMENT DETAILS OF BOTTOM SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. DRAWING SHOULD NOT BE SCALED ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. ALL REINFORCING BARS SHALL BE THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe-500D) CONFIRMING TO IS:1786 STANDARDS.
4. MINIMUM CLEAR COVER TO OUTERMOST REINFORCEMENT SHALL BE AS FOLLOWS:-
   a) TOP SLAB - 45mm
   b) BOTTOM SLAB - 75mm
   c) SIDE WALL (EARTH SIDE) - 75mm
   d) SIDE WALL (INNER SIDE) - 45mm
5. OVERLAPPING FOR SPLICING OF REINFORCEMENT SHALL BE AS PER CLAUSE NO.15.2.5.
   LAP LENGTH SHALL NOT BE LESS THAN 56ø.
   ARRANGEMENT OF TRANSVERSE REINFORCEMENT IN LAP ZONE:-



6. ANCHOURAGE LENGTH OF BOX SHALL BE TAKEN AS 40ø AS PER IRC:112.
7. FOR UNFAVORABLE BOND CONDITIONS THE FACTOR 40 SHOULD BE MULTIPLIED BY FACTOR OF 1.43 .
8. CENTER LINE OF OVERLAPPING BAR bs1 & ts2 IN WALL & MID HEIGHT OF WALLS ARE AT SAME POINT.
9. ALL LAP SHALL BE SUITABLY STAGGERED AND MINIMUM C/C DISTANCE BETWEEN ADJACENT LAPS SHALL BE 1.3 TIMES OF LAP.

REFERENCE DRAWING:-

1. GENERAL ARRANGEMENT DRAWING. AVC/NH-38/MNB/GAD/37+460/101

CLIENT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

EPC CONTRACTOR
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PROOF CONSULTANT:
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PROJECT:
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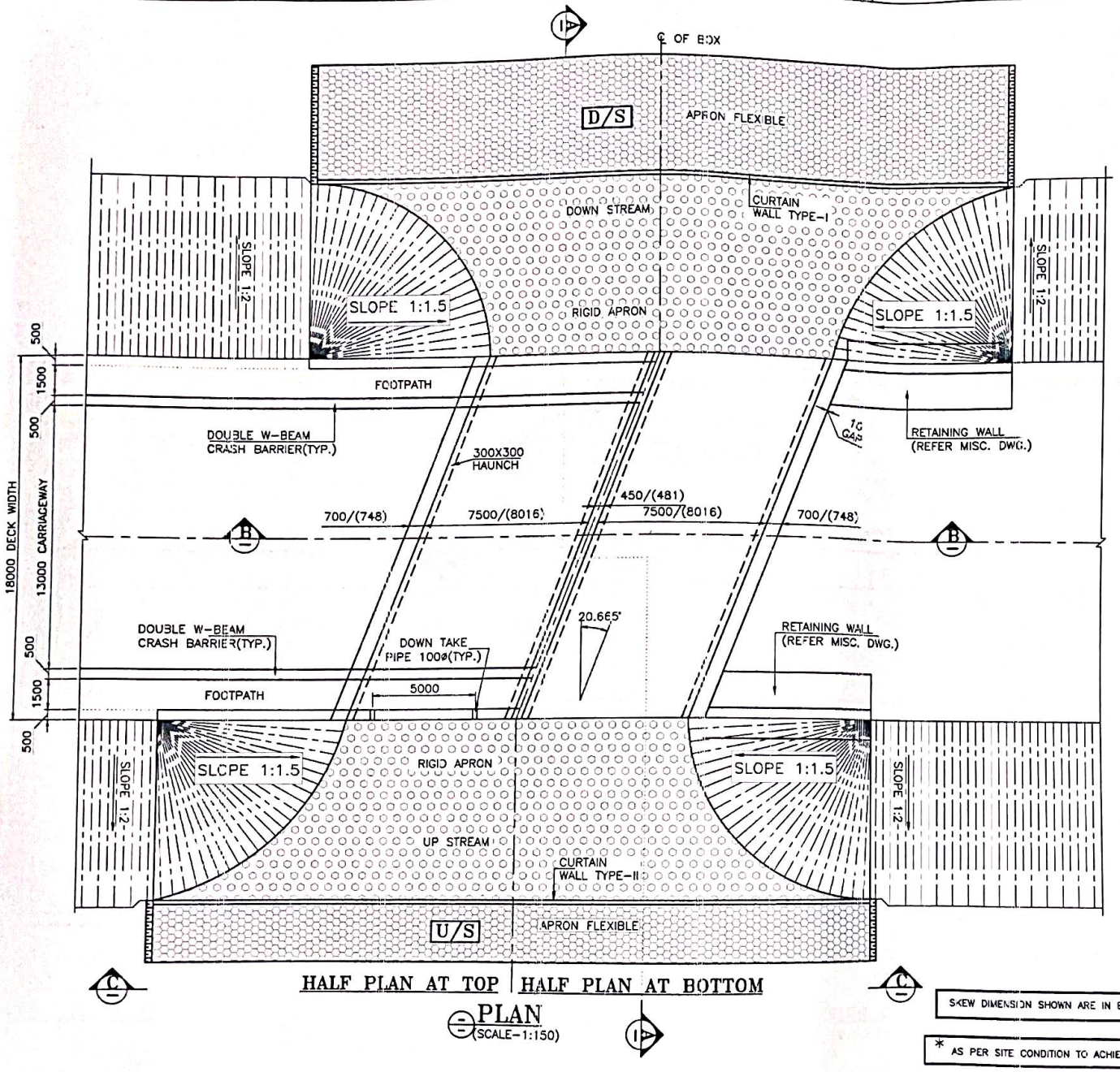
DRAWING TITLE:-
REINFORCEMENT DETAIL FOR MNB AT DESIGN CH. 37+460

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/RF/37+460/201	01 OF 01	R0

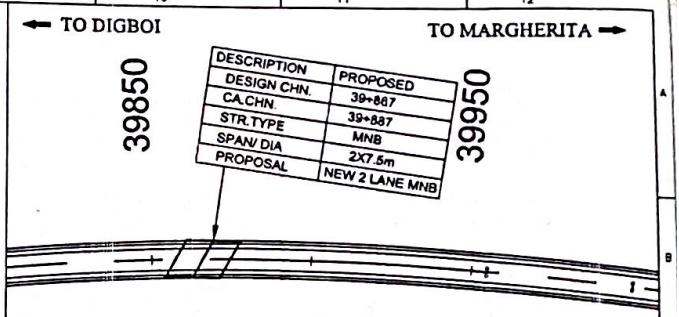


HALF PLAN AT TOP | HALF PLAN AT BOTTOM

PLAN
(SCALE-1:150)

SKEW DIMENSION SHOWN ARE IN BRACKET

* AS PER SITE CONDITION TO ACHIEVE S.B.C.



DESCRIPTION	PROPOSED
DESIGN CHN.	39+867
CA.CHN.	39+887
STR.TYPE	MNB
SPAN/ DIA.	2X7.5m
PROPOSAL	NEW 2 LANE MNB

KEY PLAN

LEVELS	
FINISHED ROAD LEVEL	148.567
LOWEST BED LEVEL	138.640
INVERT LEVEL U/S	138.140
INVERT LEVEL D/S	138.131
HEIGHT (MAXIMUM)	6.018m
EARTH FILL (MAXIMUM)	4.020m
EARTH FILL (MINIMUM)	3.416m

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FRL. FINISHED ROAD LEVEL
IL. INVERT LEVEL
LVL. LEVEL
EGL. EXISTING GROUND LEVEL
EQ. EQUAL DISTANCE

FRL CAMBER & LOCATION IS TO BE MATCHED WITH HIGHWAY ALIGNMENT DRAWING.

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AUTHORITY'S ENGINEER
ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED.
C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171

PROOF CONSULTANT:
CREATIVE ENGINEERING SERVICES
OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010

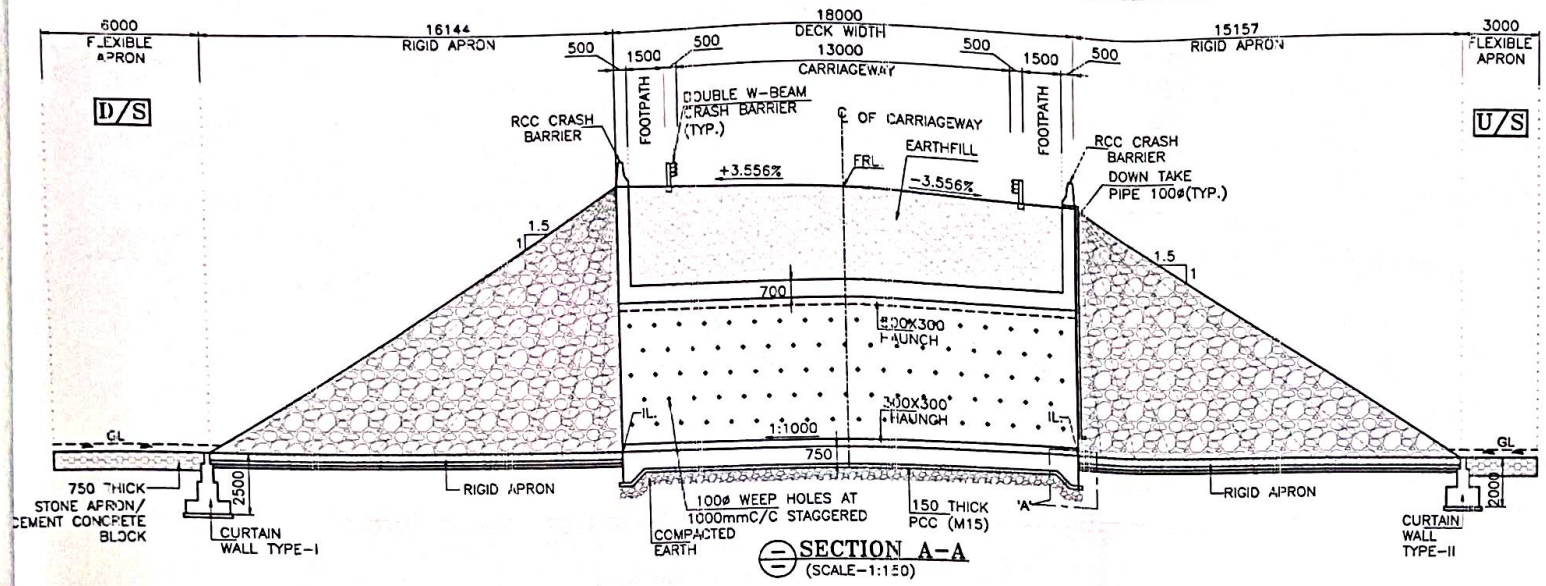
SAFETY CONSULTANT:
DESIGN AID
PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,

DESIGN CONSULTANT:
A.V. CONSTRUCTION
1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gall,New Delhi 110045
Winst Infra Solution Pvt. Ltd.
OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA,G-VAZIABAD, U.P-201012
WISPL

PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE (PACKAGE-5)

DRAWING TITLE:- GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 39+867

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE,2024	C.M.S	S.K	A.M		AS SHOWN	
Project No.	Drawing No. AVC/NH-38/MNB/GAD/39+867/101				Sheet No. 1 OF 3	Rev. R0



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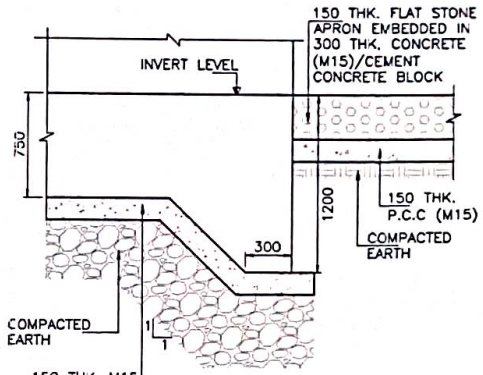
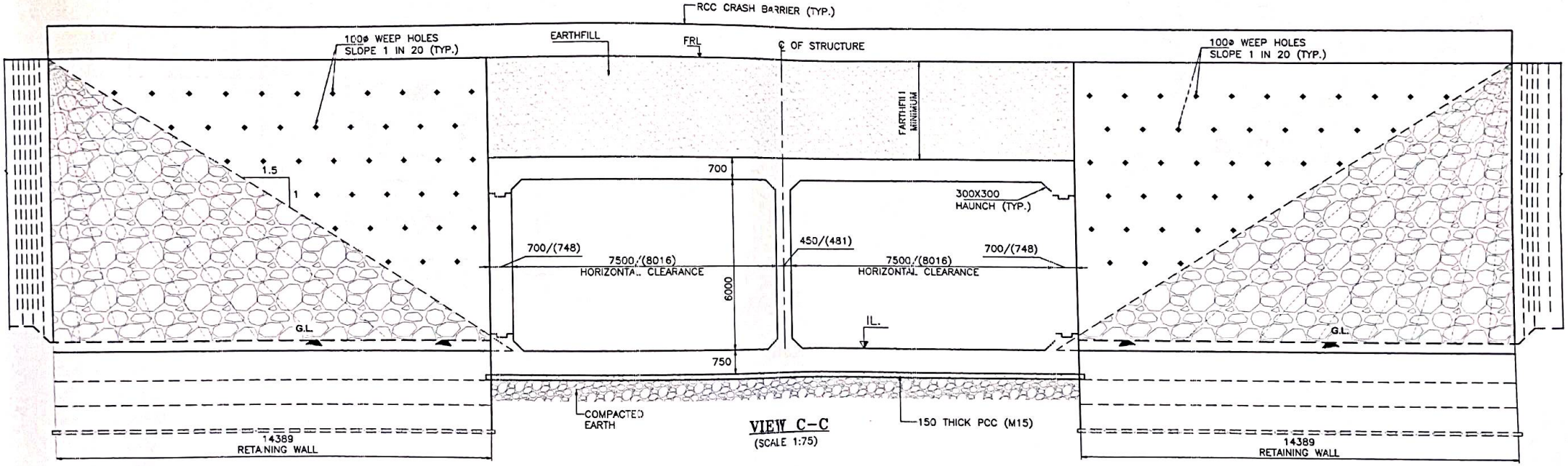


DETAIL-'A'
(SCALE 1:25)



VIEW C-C
(SCALE 1:75)

CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA GHAZIABAD, U.P-201012 WISPL

PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+982 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM IN EPC MODE.(PACKAGE-5)

DRAWING TITLE:- GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 39+867

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
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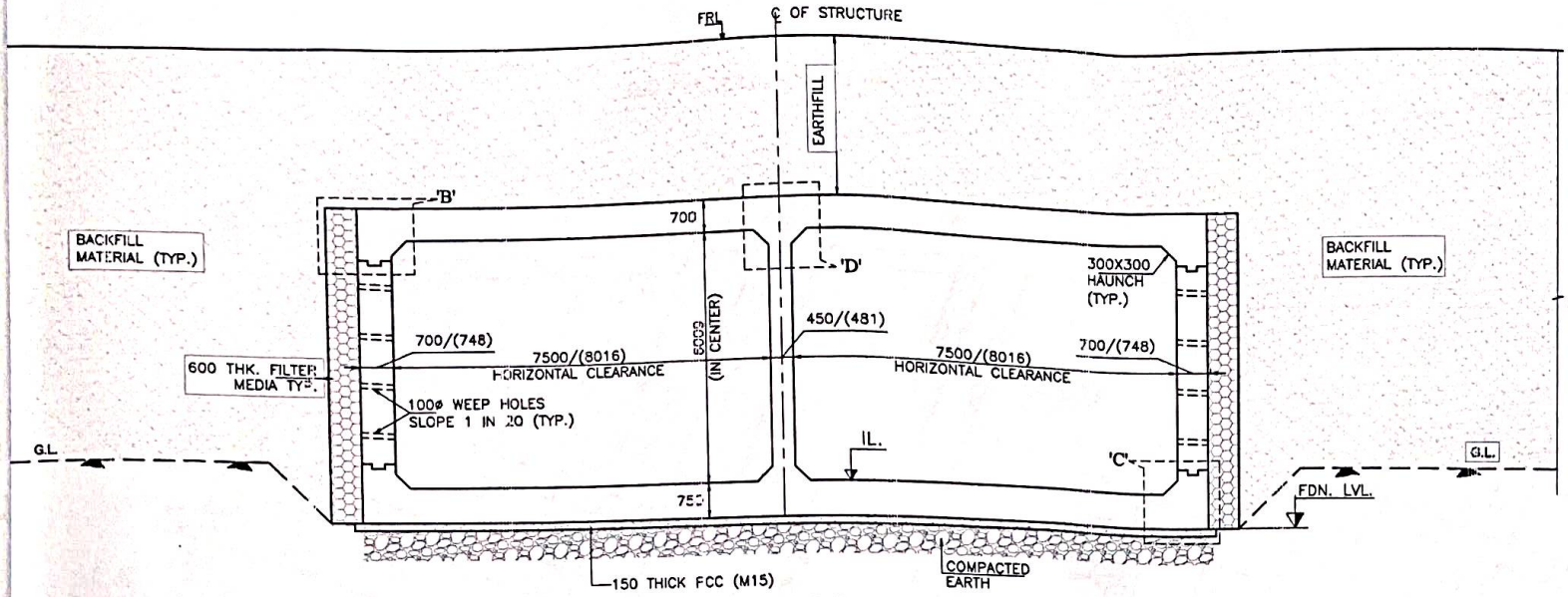
Project No.	Drawing No. AVC/NH-38/MNB/GAD/39+867/101				Sheet No. 2 OF 3	Rev. R0



SECTION B–B
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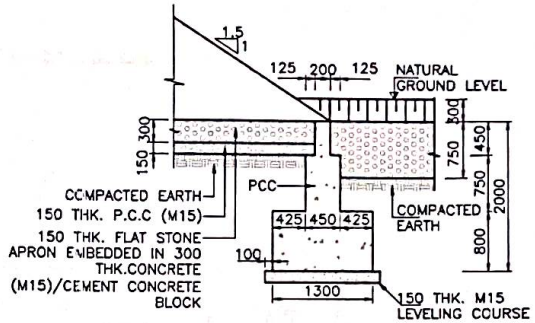
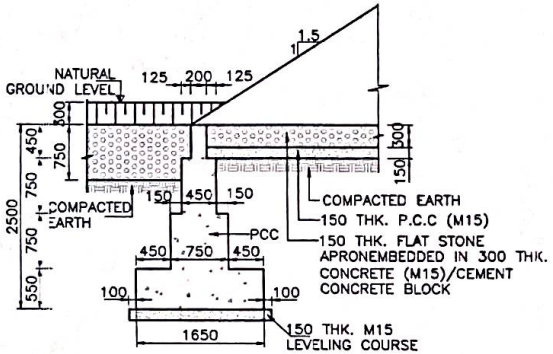
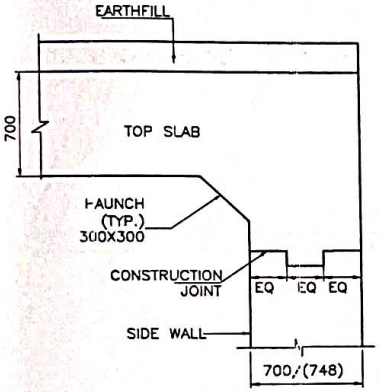


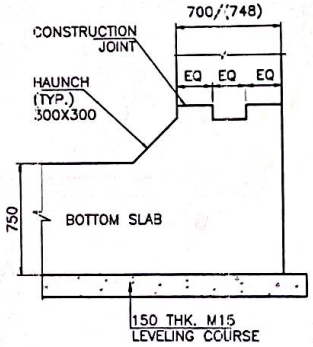
DETAIL OF CURTAIN WALL–II
(UP STREAM SIDE)
(SCALE 1:50)



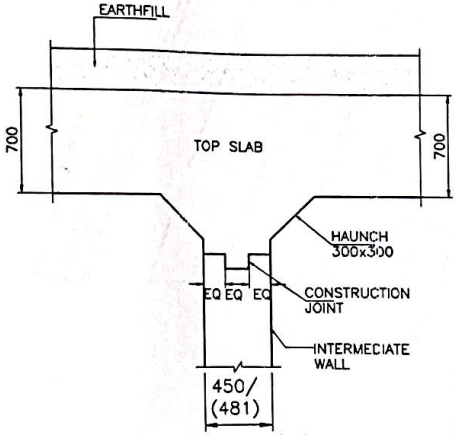
DETAIL OF CURTAIN WALL–I
(DOWN STREAM SIDE)
(SCALE 1:50)



DETAIL–'B'
(SCALE 1:25)



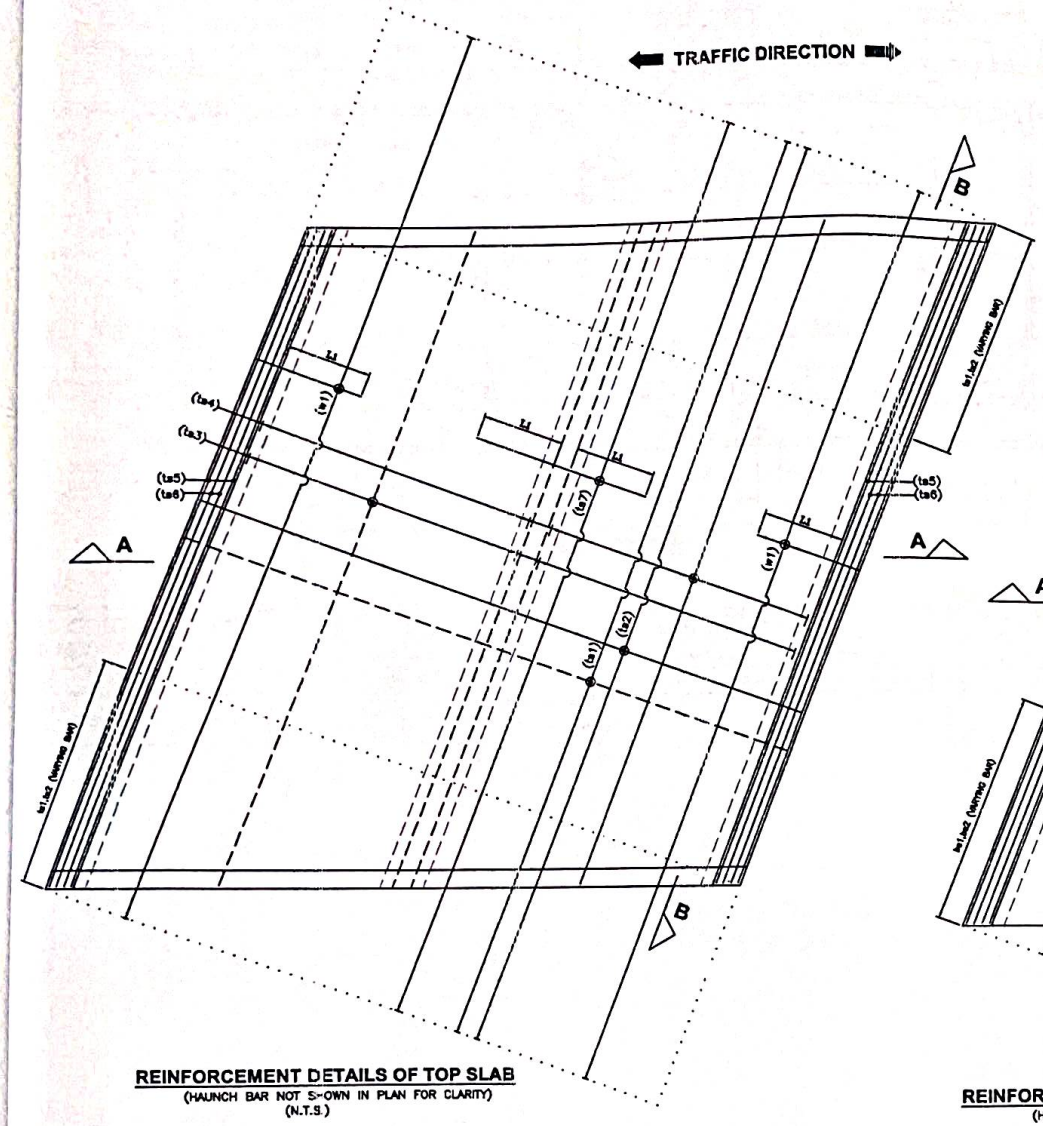
DETAIL–'C'
(SCALE 1:25)



DETAIL–'D'
(SCALE 1:25)

CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:	PROJECT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	DESIGN AID PLOT NO.54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wali Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-8, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA GHAZIABAD, U.P-201012 WISPL	WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+180 (GOLAI GOAN) TO KM 47+882 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-6)

DRAWING TITLE:-						
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 39+867						
Date JUNE,2024	Drw. C.M.S	Dsg. S.K	Chk. A.M	App.	Scale. AS SHOWN	Drawing Status.
Project No.	Drawing No. AVC/NH-38/MNB/GAD/39+867/101				Sheet No. 3 OF 3	Rev. R0


TRAFFIC DIRECTION
B
A
(ts1)
(ts2)
(ts3)
(ts4)
(ts5)
(ts6)
(ts7)
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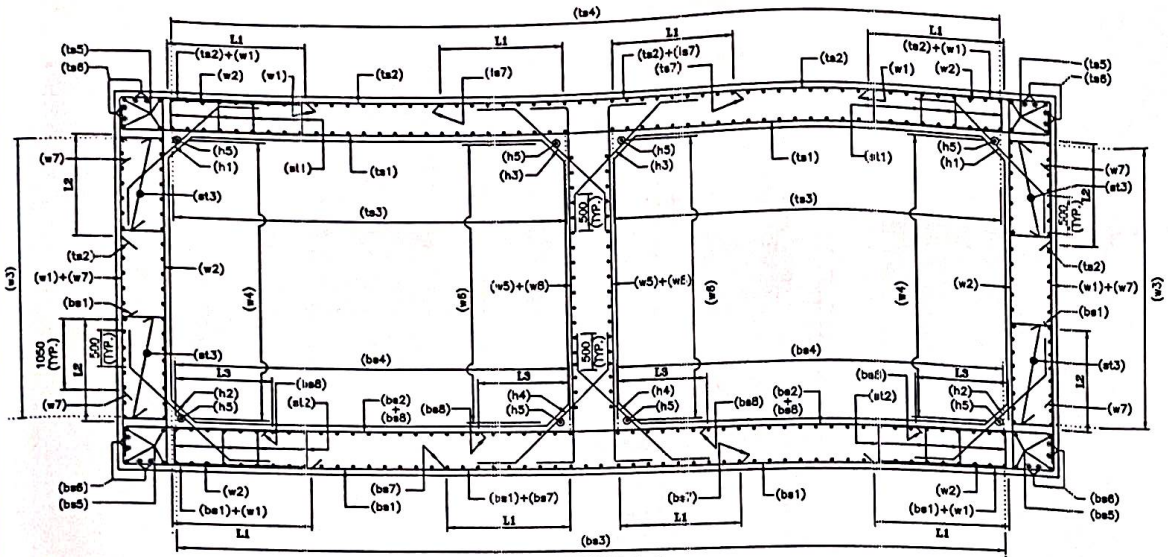
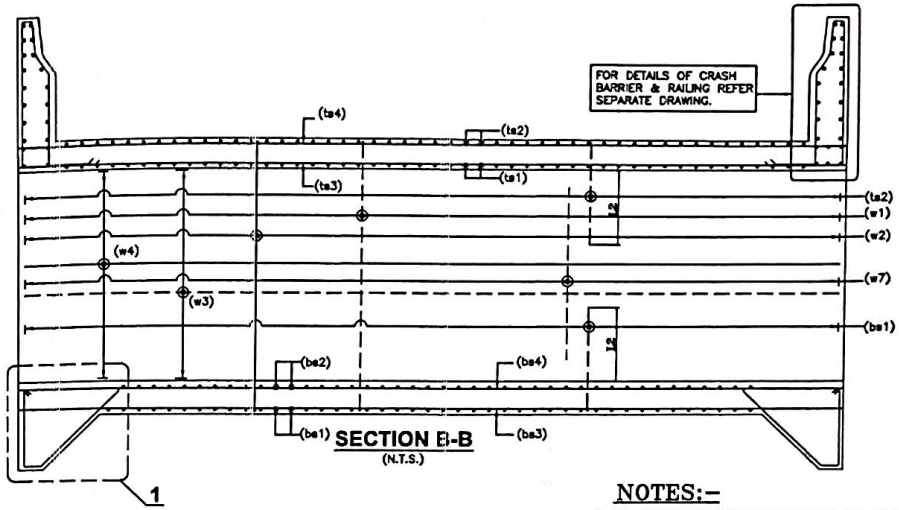
Ts
Ts
Ts

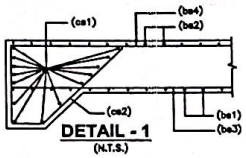


SECTION A-A
(NTS)



SECTION B-B
(N.T.S.)

BAR CURTAILMENT SCHEDULE TYPE	
L1	2250
L2	1810
L3	1125



DETAIL - 1
(N.T.S.)

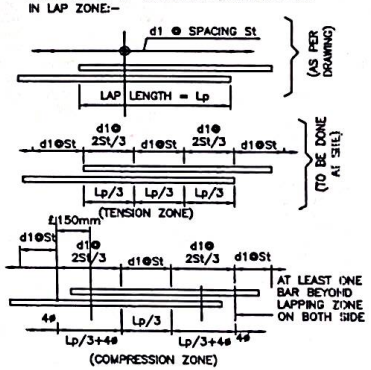
LEGEND:-	
TOP FACE BAR	———
BOTTOM FACE BAR	- - - - -

BOX REINF. SCHEDULE

SL.NO.	BAR MARK	BAR SHAPE	DIAMETER	SPACING
1	ts1		20	110
2	ts2		20	110
3	ts3		12	120
4	ts4		16	120
5	ts5		12	2x4 Nos.
6	ts6		12	2x4 Nos.
7	ts7		16	110
8	w1		20	110
9	w2		20	110
10	w3		16	120
11	w4		12	120
12	w5		16	110
13	w6		12	120
14	w7		NOT IN USE	
15	w8		NOT IN USE	
16	bs1		20	110
19	bs2		20	110
20	bs3		16	120
21	bs4		16	120
23	bs5		12	2x4 Nos.
24	bs6		12	2x4 Nos.
25	bs7		16	110
26	bs8		10	110
27	h1		12	110
28	h2		12	110
29	h3		12	110
30	h4		12	110
31	h5		10	1x8 Nos.
32	cs1		12	14 Nos.
33	cs2		12	120
34	st1		12ø 4 legged @220c/c(in T-T direction) UPTO 2.3m FROM FACE OF SUPPORT	
35	st2		12ø 4 legged @220c/c(in T-T direction) UPTO 2.3m FROM FACE OF SUPPORT	
36	st3		12ø 2 legged @220c/c(in T-T direction) UPTO 2.3m FROM FACE OF SUPPORT	

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. DRAWING SHOULD NOT BE SCALED ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. ALL REINFORCING BARS SHALL BE THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe-500D) CONFIRMING TO IS:1786 STANDARDS.
4. MINIMUM CLEAR COVER TO OUTERMOST REINFORCEMENT SHALL BE AS FOLLOWS:-
   a) TOP SLAB - 40mm
   b) BOTTOM SLAB - 75mm
   c) SIDE WALL (EARTH SIDE) - 75mm
   d) SIDE WALL (INNER SIDE) - 50mm
5. OVERLAPPING FOR SPLICING OF REINFORCEMENT SHALL BE AS PER CLAUSE NO.15.2.5.
   LAP LENGTH SHALL NOT BE LESS THAN 56ø.
   ARRANGEMENT OF TRANSVERSE REINFORCEMENT IN LAP ZONE:-



6. ANCHOURAGE LENGTH OF BOX SHALL BE TAKEN AS 40ø AS PER IRC:112.
7. FOR UNFAVORABLE BOND CONDITIONS THE FACTOR 40 SHOULD BE MULTIPLIED BY FACTOR OF 1.43 .
8. CENTER LINE OF OVERLAPPING BAR bs1 & ts2 IN WALL & MID HEIGHT OF WALLS ARE AT SAME POINT.
9. ALL LAP SHALL BE SUITABLY STAGGERED AND MINIMUM C/C DISTANCE BETWEEN ADJACENT LAPS SHALL BE 1.3 TIMES OF LAP.

REFERENCE DRAWING:-

1. GENERAL ARRANGEMENT DRAWING.
   AVC/NH-38/MNB/39+867/101

LIENT:
NATIONAL HIGHWAYS & NFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

EPC CONTRACTOR
KAMAC ENGINEERS Pvt.Ltd
KAMAC ENGINEERS PVT.LTD
F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010

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C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171

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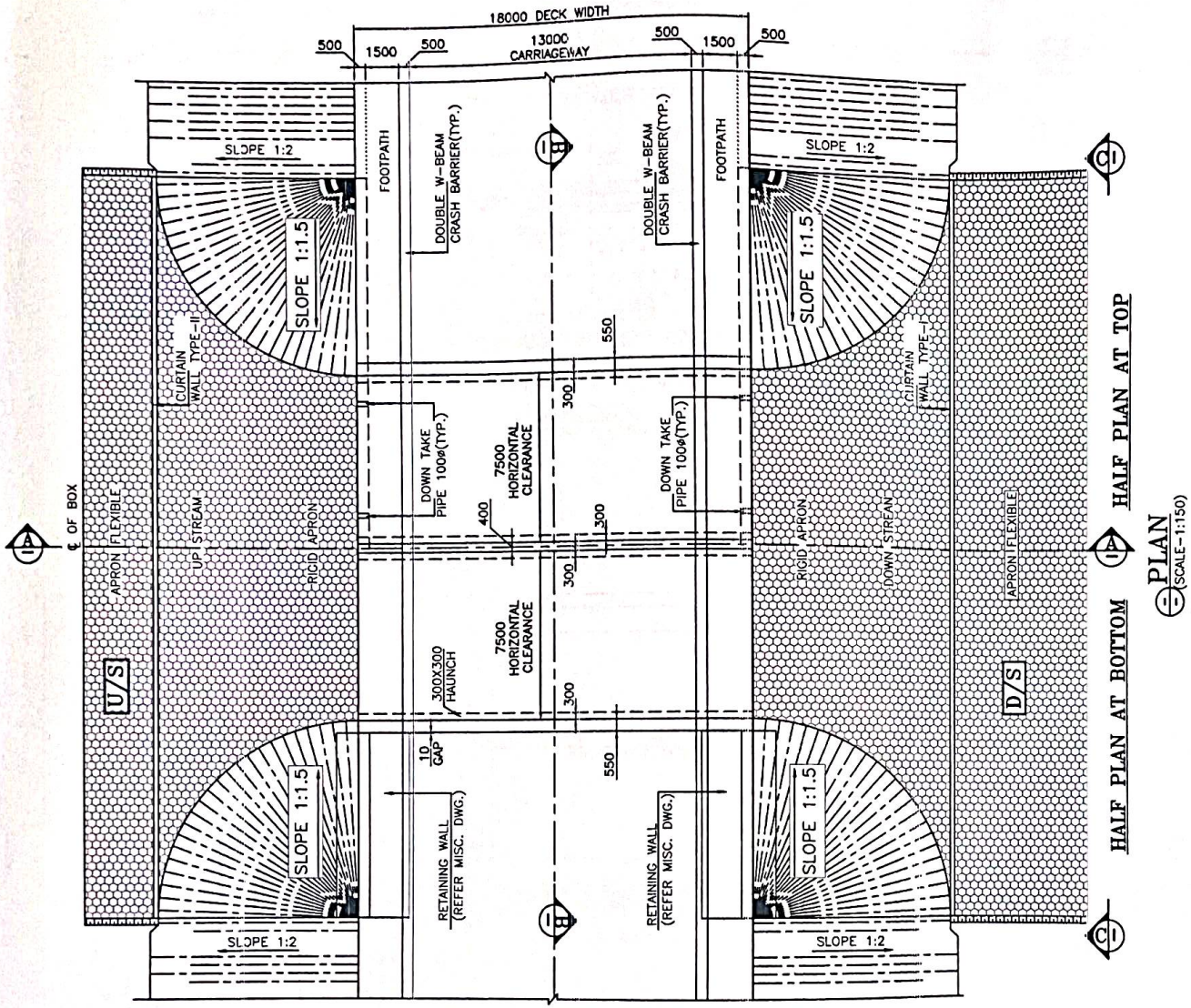
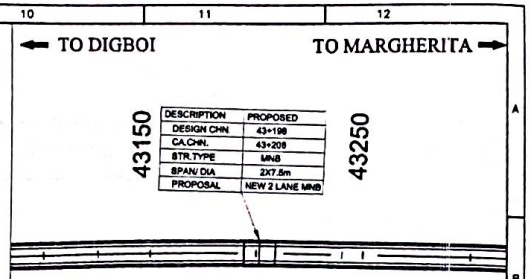
DRAWING TITLE:-
REINFORCEMENT DETAIL OF BOX FOR MINOR BRIDGE AT DESIGN CHAINAGE 39+867

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	
Project No.	Drawing No.				Sheet No.	Rev.
	AVC/NH-38/MNB/RF/39+867/201				02 OF 02	R0



PLAN
(SCALE-1:150)



KEY PLAN

LEVELS	
FINISHED ROAD LEVEL	145.364
LOWEST BED LEVEL	139.767
INVERT LEVEL U/S	139.285
INVERT LEVEL D/S	139.267
HEIGHT (MAXIMUM)	5.018m
EARTH FILL (MAXIMUM)	0.529m
EARTH FILL (MINIMUM)	0.304m

NOTES:-

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2. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED AS PER IRC: 6-2017.
4. CONCRETE SHALL BE DESIGN MIX UNLESS OTHERWISE SPECIFIED IN DETAILED DRAWINGS, AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES FOR ALL ELEMENTS OF STRUCTURES AS INDICATED BELOW:
   a) RCC CRASH BARRIER M40
   b) RCC BOX CELL M35
5. REINFORCING STEEL SHALL BE HYSD (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO TABLE 18.1 OF IRC: 112-2020.
6. 75mm THICK CEMENT CONCRETE WEARING COAT SHALL BE PROVIDED OVER TOP SLAB.
7. MINIMUM CLEAR COVER TO ANY REINFORCEMENT SHALL BE AS BELOW:
   a) BOX CELL-
   i) TOP SLAB (BOTH FACE) 45mm
   ii) VERTICAL WALL (EARTH FACE) 75mm
   iii) VERTICAL WALL (REAR FACE) 45mm
   iv) BOTTOM SLAB (BOTH FACE) 75mm
   v) INTERMEDIATE WALL 45mm
   b) RCC CRASH BARRIER 45mm
8. 100ø WEEP HOLES SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN EARTH RETAINING VERTICAL WALLS ABOVE GROUND LEVEL.
9. 600 THICK FILTER MEDIA BEHIND EARTH RETAINING VERTICAL WALL SHALL BE PROVIDED AS PER "MoRT&H" SPECIFICATION.
10. BACKFILLING SHALL BE DONE IN LAYERS NOT EXCEEDING 200mm THK. EACH LAYERS SHALL BE COMPACTED TO THE OPTIMUM DENSITY.
11. BACK FILLING BEHIND EARTH RETAINING WALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC: 78-2020 HAVING PROPERTIES C=0, ø=30°, γ=2.0 T/m³.
12. SAFE BEARING CAPACITY AT FOUNDING LEVEL OF BRIDGE SHALL BE 7 T/m², WHICH SHALL BE ENSURED BEFORE EXECUTION.
13. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT APPROVED HIGHWAY DRAWINGS FOR STRUCTURE ORIENTATION, SKEW, FRL AND CAMBER/SUPER ELEVATION ETC.
14. BACK FILLING SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDE OF BOX.
15. AS PER SITE CONDITION OF S.B.C NOT ACHIEVED THEN PROVIDE MINIMUM 1000 THICK COMPACTED EARTH WITH GRANULAR MATERIAL.
16. SEISMIC ZONE - V (AS PER SP: 114-2020).

LEGEND:-

FRL FINISHED ROAD LEVEL
IL INVERT LEVEL
LVL. LEVEL
EGL. EXISTING GROUND LEVEL
EQ. EQUAL DISTANCE

FRL CAMBER & LOCATION IS TO BE MATCHED WITH HIGHWAY ALIGNMENT DRAWING.

* AS PER SITE CONDITION TO ACHIEVE S.B.C.

CLIENT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

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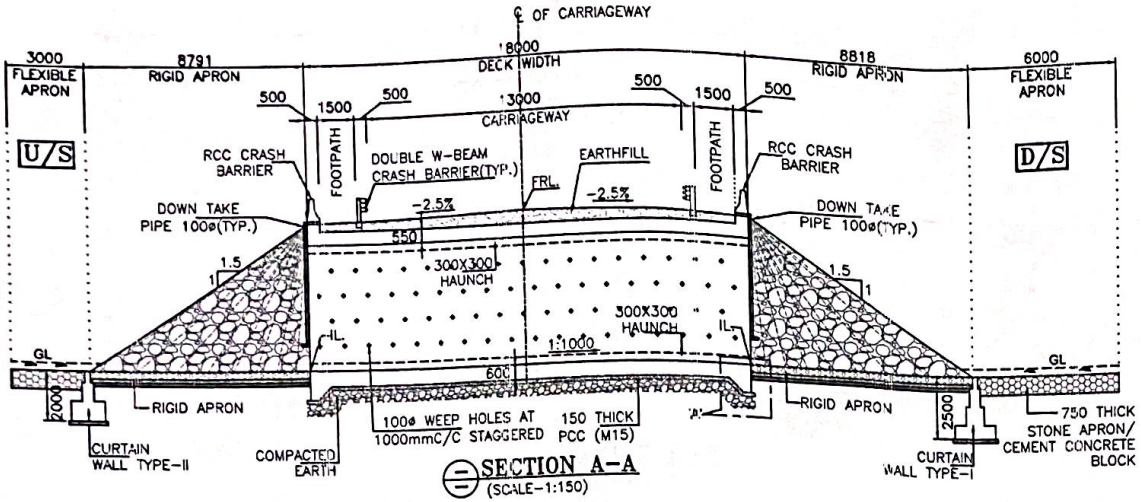
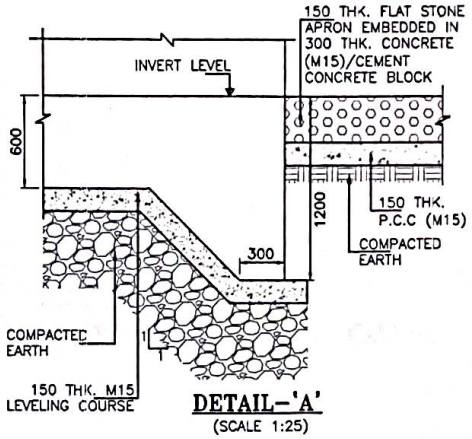
DRAWING TITLE:-
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 43+198

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

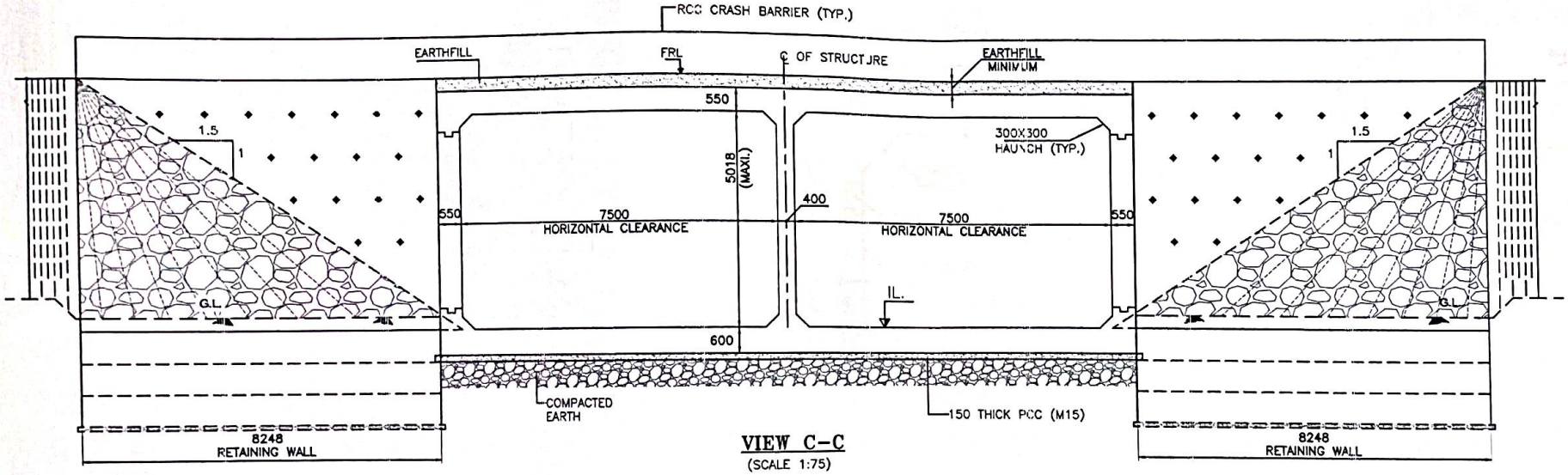
Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/GAD/43+198/101	1 OF 3	R0



SECTION A-A
(SCALE-1:150)



DETAIL-'A'
(SCALE 1:25)



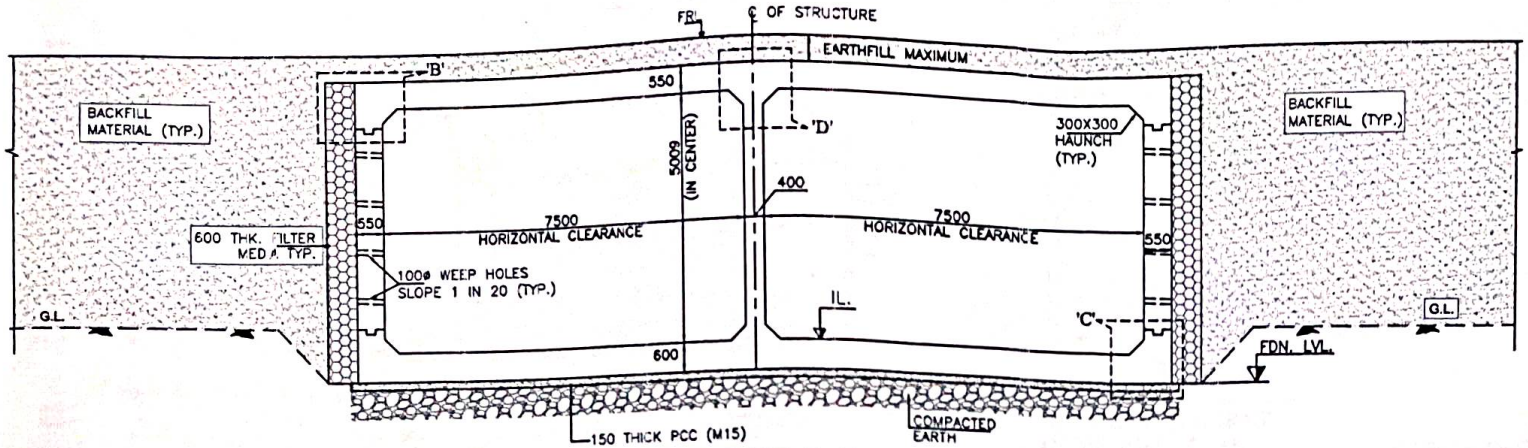
VIEW C-C
(SCALE 1:75)

CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:	PROJECT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	DESIGN AID PLOT NO.54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gall,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA G-HAZIABAD, U.P-201012	WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-5)

DRAWING TITLE:- GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 43+198

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/GAD/43+198/101	2 OF 3	R0



SECTION B-B
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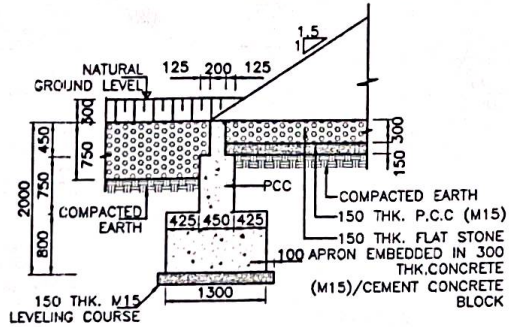
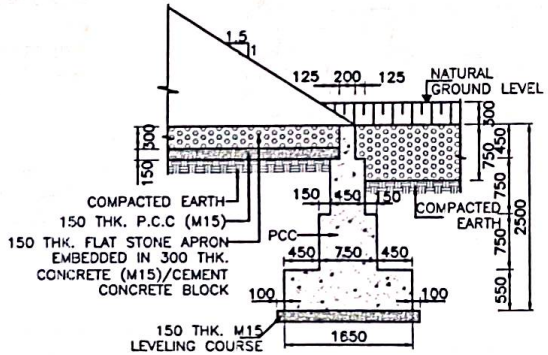
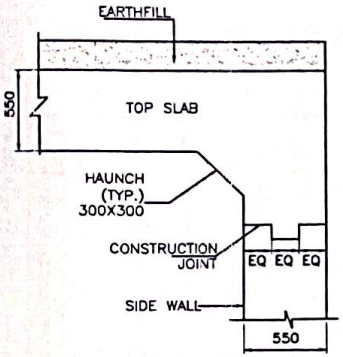


DETAIL OF CURTAIN WALL-II
(UP STREAM SIDE)
(SCALE 1:50)



DETAIL OF CURTAIN WALL-I
(DOWN STREAM SIDE)
(SCALE 1:50)



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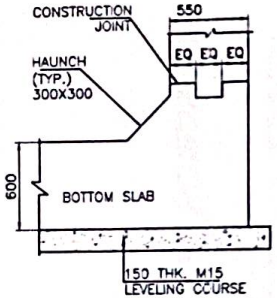

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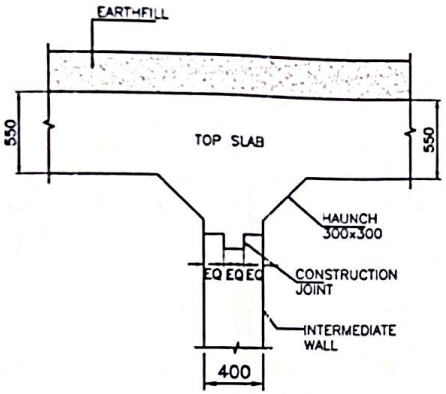
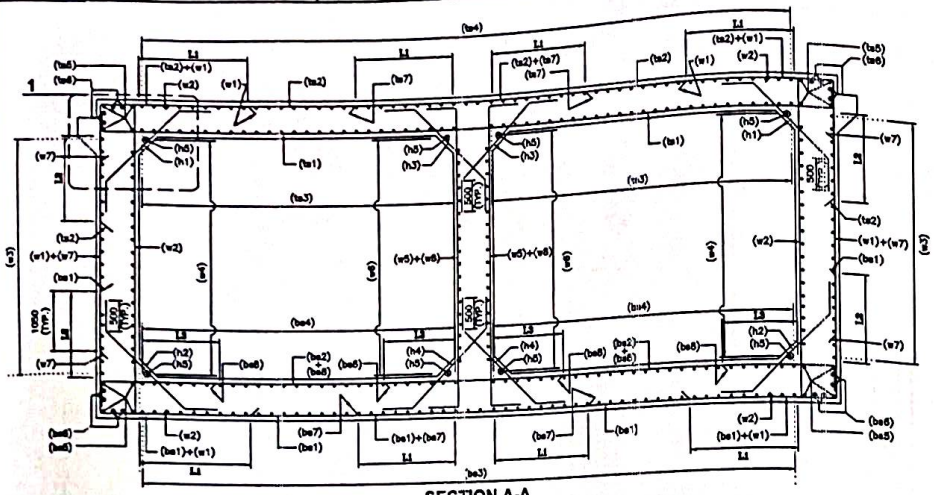


DETAIL-'D'
(SCALE 1:25)

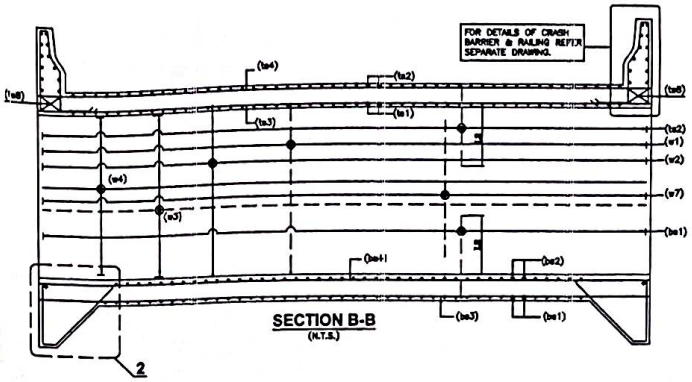
CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:	PROJECT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-8, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA G-H,GZIABAD, U.P-201012 WISPL	WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+189 (GOLAI GOAN) TO KM 47+582 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-6)

DRAWING TITLE:- GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 43+198

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE 2024	W.P	S.K	A.M		AS SHOWN	
Project No.	Drawing No. AVC/NH-38/MNB/GAD/43+198/101				Sheet No. 3 OF 3	Rev. R0



SECTION A-A
(N.T.S.)



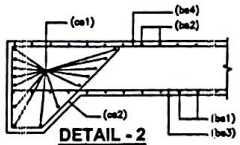
SECTION B-B
(N.T.S.)

BOX REINF. SCHEDULE

SL.NO.	BAR MARK	BAR SHAPE	DIAMETER	SPACING
1	ts1		16	130
2	ts2		16	130
3	ts3		12	150
4	ts4		12	150
5	ts5		12	2x4 Nos.
6	ts6		12	2x4 Nos.
7	ts7		12	130
8	ts8		NOT IN USE	
9	w1		16	130
10	w2		16	130
11	w3		12	150
12	w4		12	150
13	w5		12	130
14	w6		10	150
15	w7		NOT IN USE	
16	w8		NOT IN USE	
17	bs1		16	130
18	bs2		16	130
19	bs3		12	150
20	bs4		12	150
21	bs5		12	2x4 Nos.
22	bs6		12	2x4 Nos.
23	bs7		12	130
24	bs8		NOT IN USE	
25	h1		12	130
26	h2		12	130
27	h3		12	130
28	h4		12	130
29	h5		10	1x8 Nos.
30	cs1		12	14 Nos.
31	cs2		12	150

BAR CURTAILMENT SCHEDULE TYPE

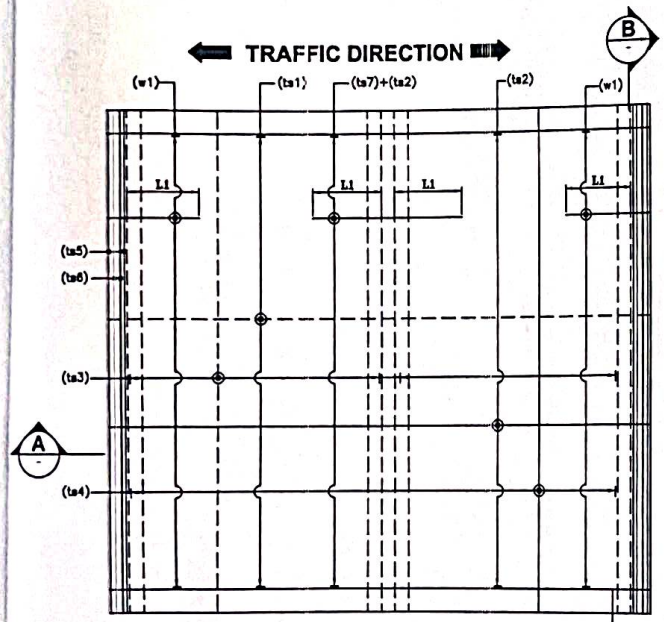
L1	2250
L2	1550
L3	1125



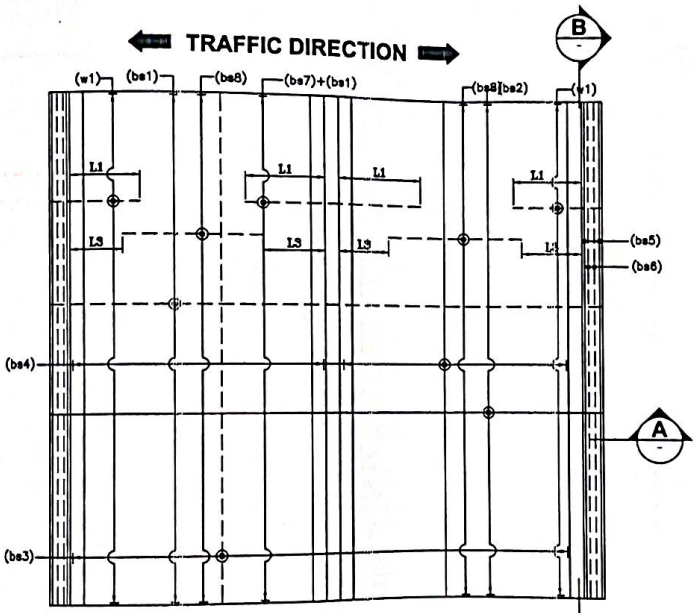
DETAIL - 2
(N.T.S.)

LEGEND:-

TOP FACE BAR	———
BOTTOM FACE BAR	- - - - -



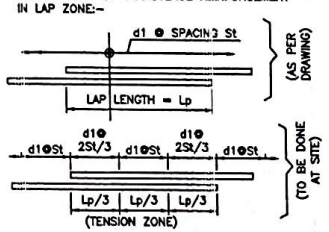
REINFORCEMENT DETAILS OF TOP SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)

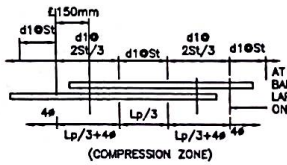


REINFORCEMENT DETAILS OF BOTTOM SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. DRAWING SHOULD NOT BE SCALED ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. ALL REINFORCING BARS SHALL BE THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe-500D) CONFIRMING TO IS:1786 STANDARDS.
4. MINIMUM CLEAR COVER TO OUTER MOST REINFORCEMENT SHALL BE AS FOLLOWS:-
   a) TOP SLAB - 40mm
   b) BOTTOM SLAB - 75mm
   c) SIDE WALL (EARTH SIDE) - 75mm
   d) SIDE WALL (INNER SIDE) - 50mm
5. OVERLAPPING FOR SPLICING OF REINFORCEMENT SHALL BE AS PER CLAUSE NO.15.2.5. LAP LENGTH SHALL NOT BE LESS THAN 56ø. ARRANGEMENT OF TRANSVERSE REINFORCEMENT IN LAP ZONE:-





6. ANCHOURAGE LENGTH OF BOX SHALL BE TAKEN AS 40ø AS PER IRC:112.
7. FOR UNFAVORABLE BOND CONDITIONS THE FACTOR 40 SHOULD BE MULTIPLIED BY FACTOR OF 1.43 .
8. CENTER LINE OF OVERLAPPING BAR bs1 & ts2 IN WALL & MID HEIGHT OF WALLS ARE AT SAME POINT.
9. ALL LAP SHALL BE SUITABLY STAGGERED AND MINIMUM C/C DISTANCE BETWEEN ADJACENT LAPS SHALL BE 1.3 TIMES OF LAP.

REFERENCE DRAWING:-

1. GENERAL ARRANGEMENT DRAWING. AVC/NH-38/MNB/43+198/101

CLIENT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

EPC CONTRACTOR
KAMAC ENGINEERS Pvt.Ltd
KAMAC ENGINEERS PVT.LTD
F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010

AUTHORITY'S ENGINEER
ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED.
C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171

PROOF CONSULTANT:
CREATIVE ENGINEERING SERVICES
OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010

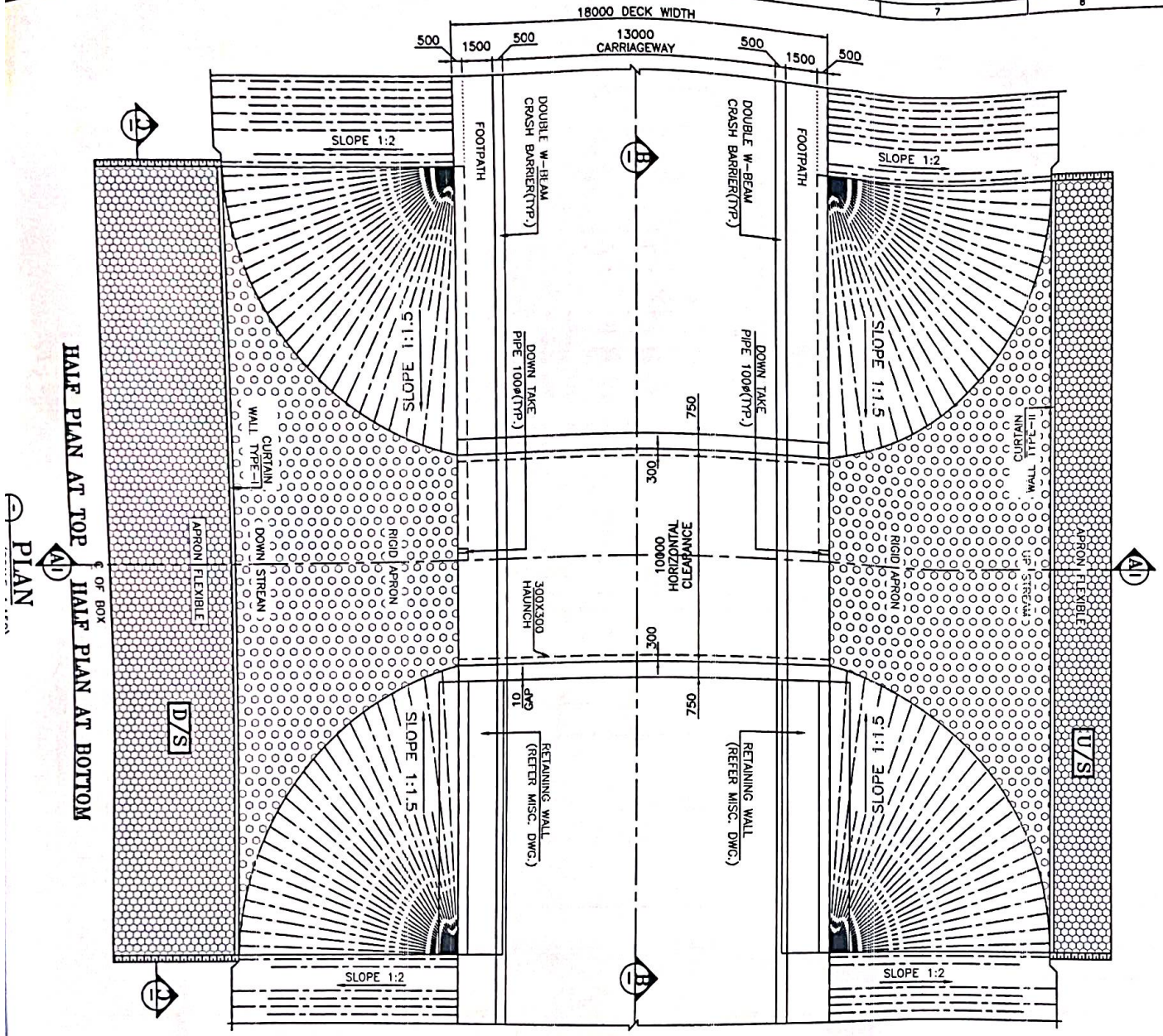
SAFETY CONSULTANT:
DESIGN AID
PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,

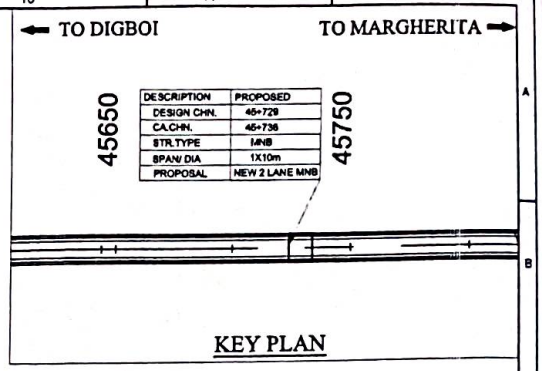
DESIGN CONSULTANT:
A.V. CONSTRUCTION
1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045
Winst Infra Solution Pvt. Ltd.
OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA GHAZIABAD, U.P-201012
WISPL

PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-5)

DRAWING TITLE:-
REINFORCEMENT DETAIL OF BOX FOR MINOR BRIDGE AT DESIGN CHAINAGE 43+198

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	
Project No.	Drawing No. AVC/NH-38/MNB/RF/43+198/201				Sheet No. 01 OF 01	Rev. R0





KEY PLAN

LEVELS	
FINISHED ROAD LEVEL	152.485
LOWEST BED LEVEL	145.406
INVERT LEVEL U/S	144.924
INVERT LEVEL D/S	144.906
HEIGHT (MAXIMUM)	4.018m
EARTH FILL (MAXIMUM)	2.811m
EARTH FILL (MINIMUM)	2.586m

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS AND CHAINAGES ARE IN KILOMETERS UNLESS OTHERWISE MENTIONED.
2. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED AS PER IRC: 6–2017.
4. CONCRETE SHALL BE DESIGN MIX UNLESS OTHERWISE SPECIFIED IN DETAILED DRAWINGS, AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES FOR ALL ELEMENTS OF STRUCTURES AS INDICATED BELOW:
   a) RCC CRASH BARRIER M40
   b) RCC BOX CELL M35
5. REINFORCING STEEL SHALL BE HYSD (TMT) BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO TABLE 18.1 OF IRC: 112–2020.
6. 75mm THICK CEMENT CONCRETE WEARING COAT SHALL BE PROVIDED OVER TOP SLAB.
7. MINIMUM CLEAR COVER TO ANY REINFORCEMENT SHALL BE AS BELOW:
   a) BOX CELL–
   I) TOP SLAB (BOTH FACE) 45mm
   II) VERTICAL WALL (EARTH FACE) 75mm
   III) VERTICAL WALL (REAR FACE) 45mm
   IV) BOTTOM SLAB (BOTH FACE) 75mm
   V) INTERMEDIATE WALL 45mm
   b) RCC CRASH BARRIER 45mm
8. 100ø WEEP HOLES SPACED AT 1000 C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN EARTH RETAINING VERTICAL WALLS ABOVE GROUND LEVEL.
9. 600 THICK FILTER MEDIA BEHIND EARTH RETAINING VERTICAL WALL SHALL BE PROVIDED AS PER "MoRT&H" SPECIFICATION.
10. BACKFILLING SHALL BE DONE IN LAYERS NOT EXCEEDING 200mm THK. EACH LAYERS SHALL BE COMPACTED TO THE OPTIMUM DENSITY.
11. BACK FILLING BEHIND EARTH RETAINING WALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC: 78–2020 HAVING PROPERTIES C=0, ø=30°, γ=2.0 T/m³.
12. SAFE BEARING CAPACITY AT FOUNDING LEVEL OF BRIDGE SHALL BE 12.5 T/m², WHICH SHALL BE ENSURED BEFORE EXECUTION.
13. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT APPROVED HIGHWAY DRAWINGS FOR STRUCTURE ORIENTATION, SKEW, FRL AND CAMBER/SUPER ELEVATION ETC.
14. BACK FILLING SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDE OF BOX.
15. AS PER SITE CONDITION OF S.B.C NOT ACHIEVED THEN PROVIDE MINIMUM 1000 THICK COMPACTED EARTH WITH GRANULAR MATERIAL.
16. SEISMIC ZONE – V (AS PER SP: 114–2020).

* AS PER SITE CONDITION TO ACHIEVE S.B.C.

FRL CAMBER & LOCATION IS TO BE MATCHED WITH HIGHWAY ALIGNMENT DRAWING.

LEGEND:-
FRL FINISHED ROAD LEVEL
IL INVERT LEVEL
LVL. LEVEL
EGL. EXISTING GROUND LEVEL
EQ. EQUAL DISTANCE

CLIENT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

EPC CONTRACTOR
KAMAC ENGINEERS PVT.LTD
F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010

AUTHORITY'S ENGINEER
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PROOF CONSULTANT:
CREATIVE ENGINEERING SERVICES
OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010

SAFETY CONSULTANT:
DESIGN AID
PLOT NO.54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,

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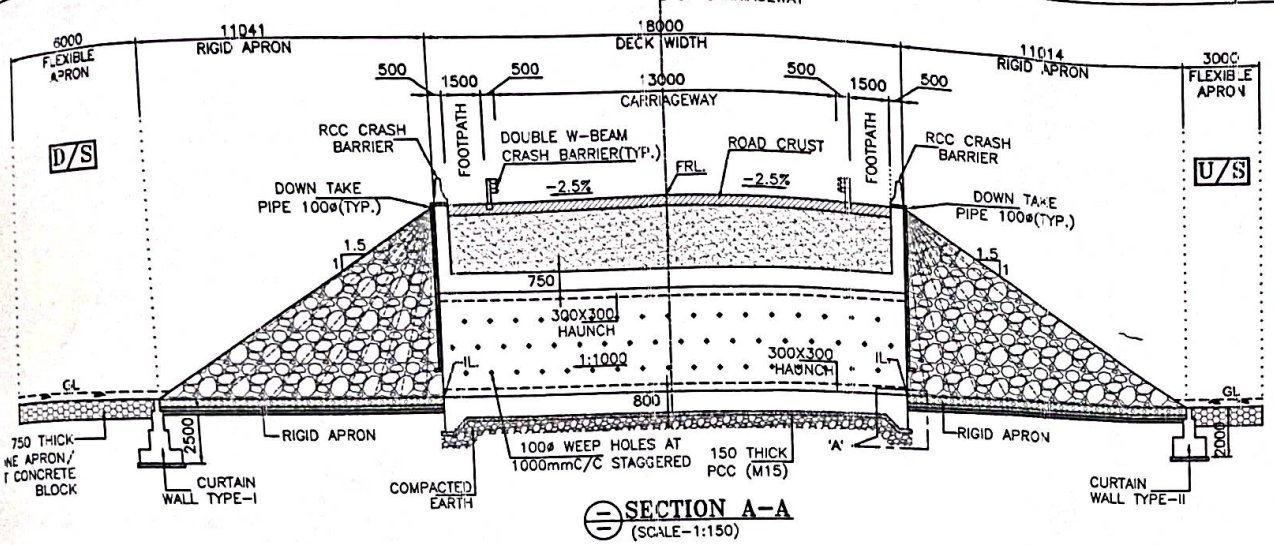
A.V. CONSTRUCTION
1st Floor. WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045
Winst Infra Solution Pvt. Ltd.
OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA,G-NOIDA,U.P-201012

PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-6)

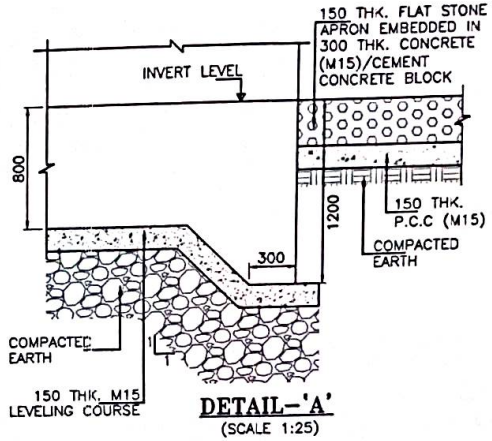
DRAWING TITLE:-
GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 45+720

Date	Drw.	Des.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

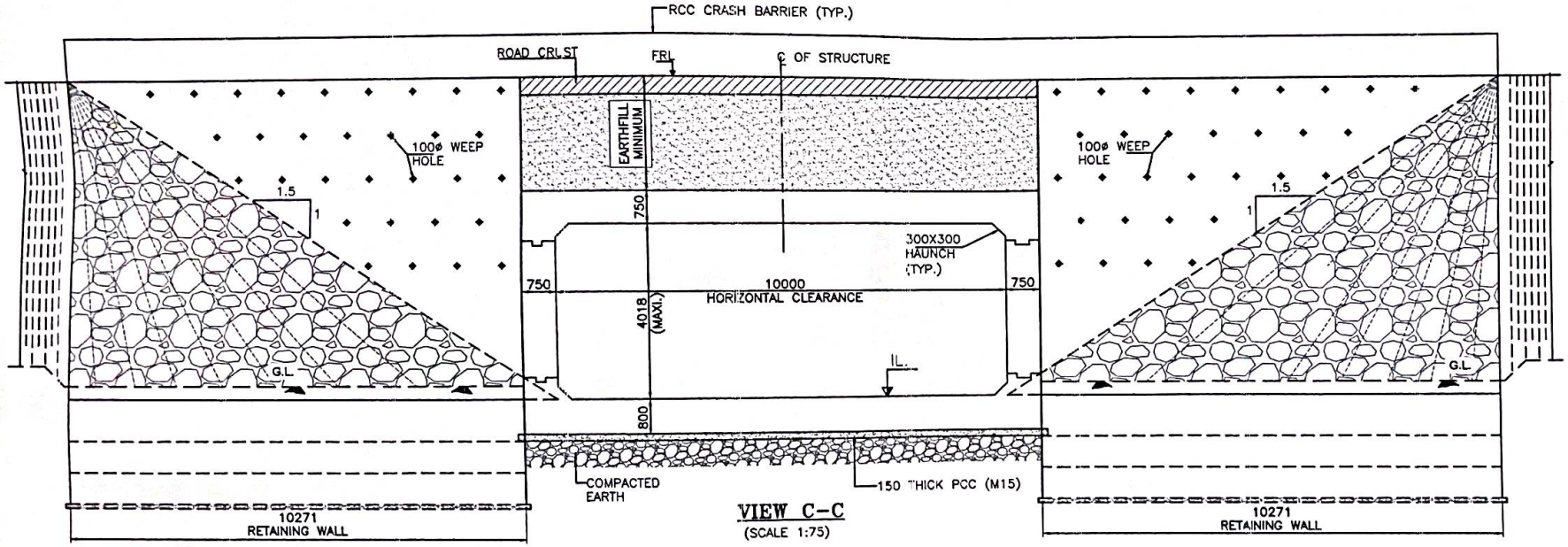
Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/GAD/45+729/101	1 OF 3	R0



SECTION A-A
(SCALE-1:150)



DETAIL-'A'
(SCALE 1:25)



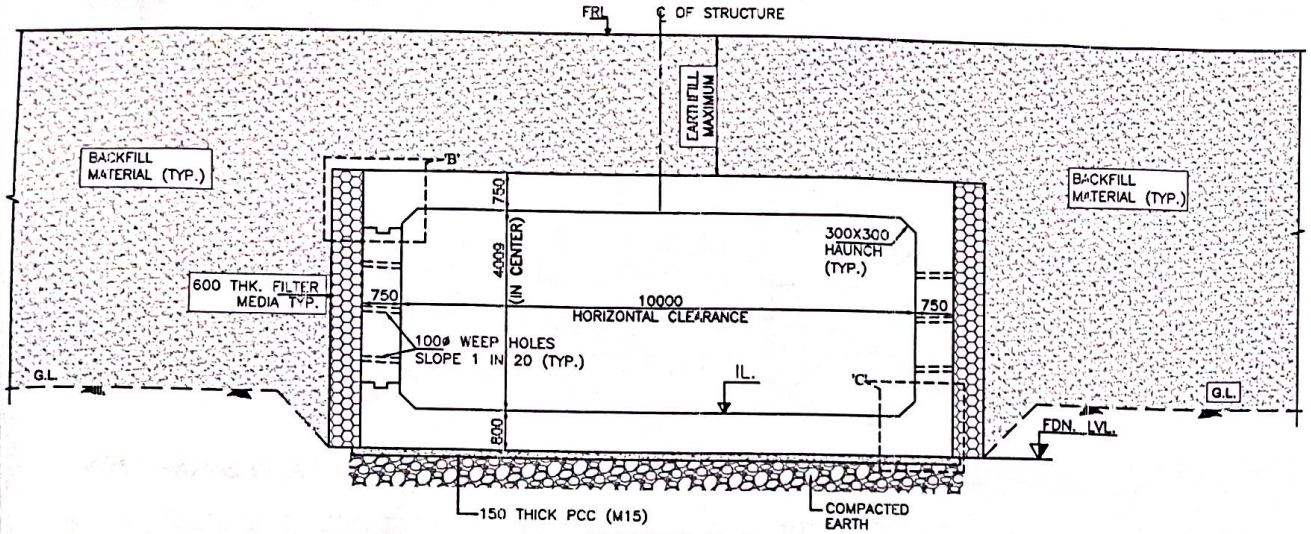
VIEW C-C
(SCALE 1:75)

ENT: NATIONAL HIGHWAYS & FRASTRUCTURE DEVELOPMENT CORPORATION LTD.	EPC CONTRACTOR: KAMAC ENGINEERS Pvt.Ltd. KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	AUTHORITY'S ENGINEER: ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	PROOF CONSULTANT: CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	SAFETY CONSULTANT: DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	DESIGN CONSULTANT: A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wali Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA GHAZIABAD, U.P-201012 WISPL	PROJECT: WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-5)

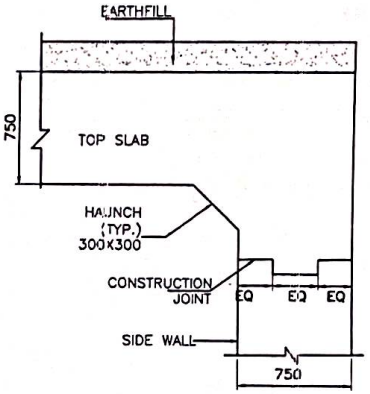
DRAWING TITLE:- GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 45+729

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

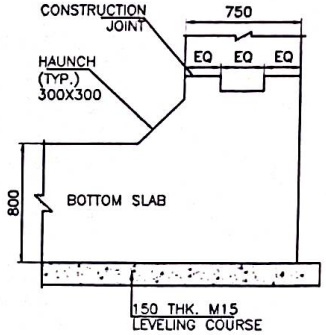
Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/GAD/45+729/101	2 OF 3	R0



SECTION B–B
(SCALE 1:75)



DETAIL–'B'
(SCALE 1:25)



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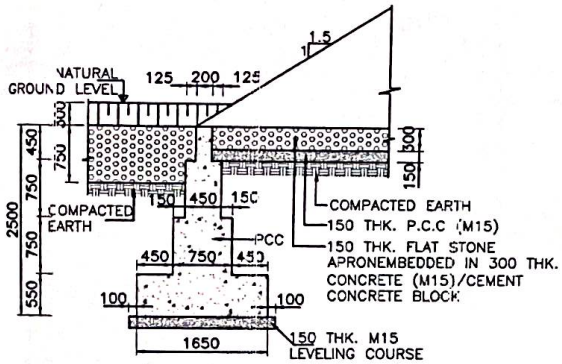
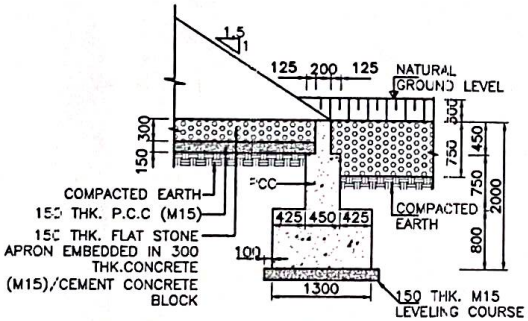
(SCALE 1:25)



DETAIL OF CURTAIN WALL–I
(DOWN STREAM SIDE)
(SCALE 1:50)

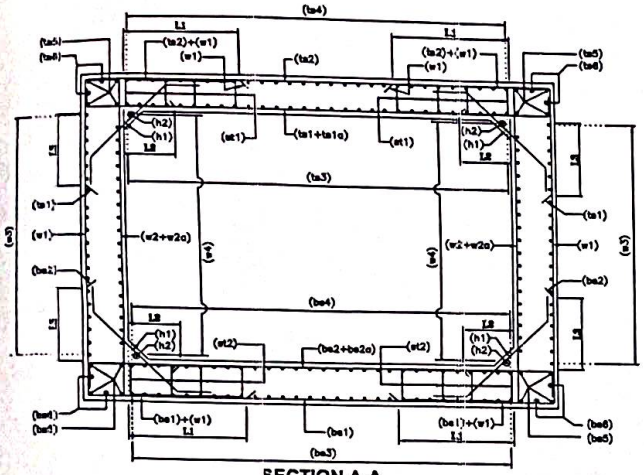


DETAIL OF CURTAIN WALL–II
(UP STREAM SIDE)
(SCALE 1:50)

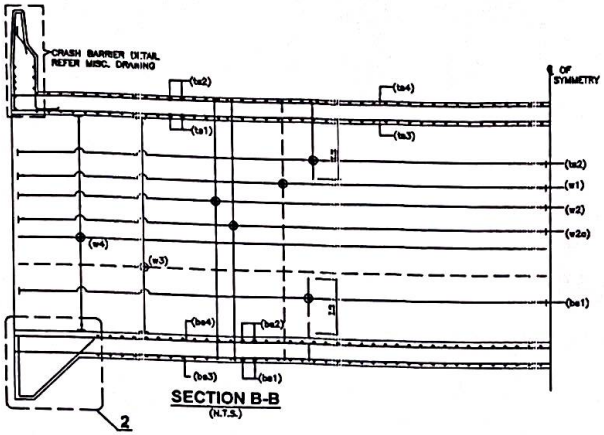
CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:	PROJECT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171	CREATIVE ENGINEERING SERVICES OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	DESIGN AID PLOT NO.54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor. WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE: F-8, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA G-H(GZIABAD, U.P-201012	WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+682 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-5)

DRAWING TITLE:- GENERAL ARRANGEMENT DRAWING FOR MINOR BRIDGE AT DESIGN CHAINAGE 45+726

Date JUNE.2024	Drw. W.P	Dsg. S.K	Chk. A.M	App.	Scale. AS SHOWN	Drawing Status.
Project No.	Drawing No. AVC/NH-38/MNB/GAD/45+729/101				Sheet No. 3 OF 3	Rev. R0



SECTION A-A
(N.T.S.)



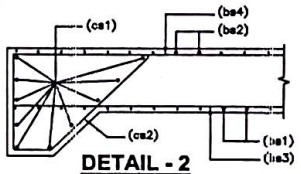
SECTION B-B
(N.T.S.)

BAR CURTAILMENT SCHEDULE TYPE	
L1	3000
L2	1500
L3	1210

LEGEND:-	
TOP FACE BAR	———
BOTTOM FACE BAR	- - - - -

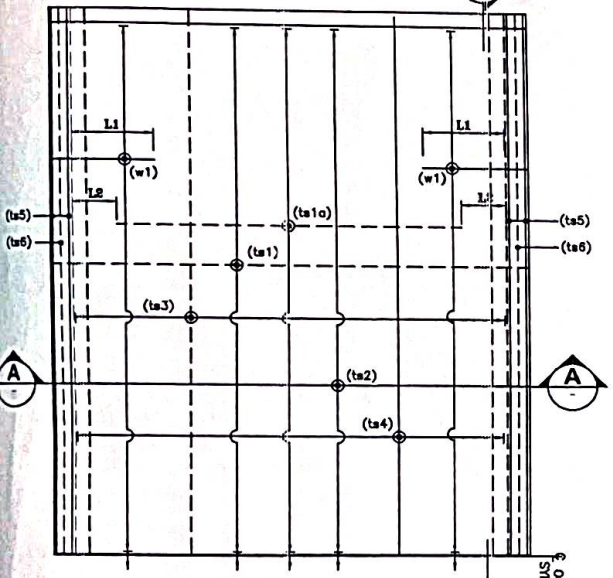
BOX REINF. SCHEDULE

SL.NO.	BAR MARK	BAR SHAPE	DIAMETER	SPACING
1	ts1		20	110
2	ts1a		12	110
3	ts2		20	110
4	ts3		16	140
5	ts4		16	140
6	ts5		12	2x4Nos.
7	ts6		12	2x2Nos.
8	w1		20	110
9	w2		20	110
10	w2a		10	110
11	w3		16	140
12	w4		16	140
13	ba1		20	110
14	ba2		20	110
15	ba2a		12	110
16	ba3		16	140
17	ba4		16	140
18	ba5		12	2x4Nos.
19	ba6		12	2x2Nos.
20	h1		12	110
21	h2		10	4x1NO.
22	cs1		12	10 Nos.
23	cs2		12	140
24	st1		12ø 4 legged @130c/c(In T-T direction) UPTO 3m FROM FACE OF SUPPORT	
25	st2		12ø 4 legged @130c/c(In T-T direction) UPTO 3m FROM FACE OF SUPPORT	



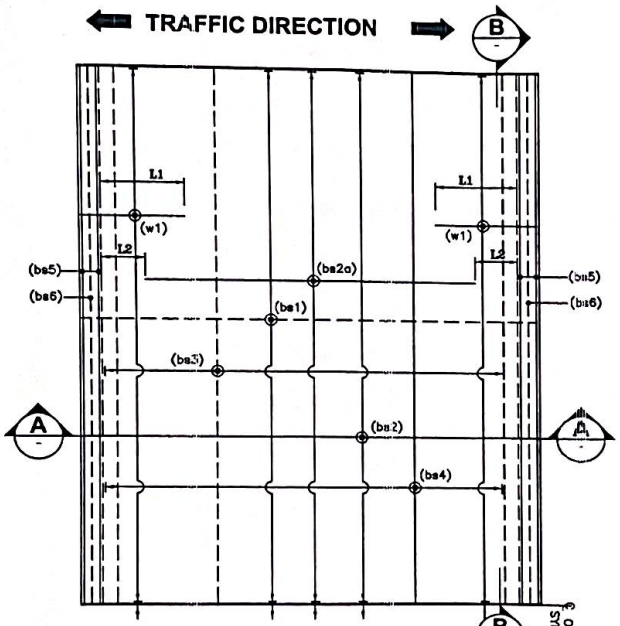
DETAIL - 2
(N.T.S.)

TRAFFIC DIRECTION



REINFORCEMENT DETAILS OF TOP SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)

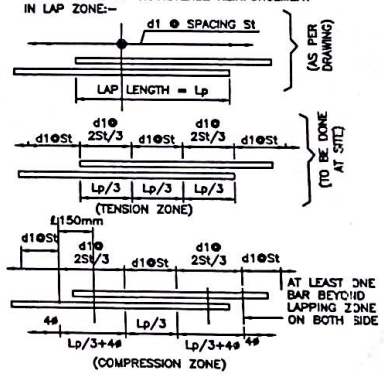
TRAFFIC DIRECTION



REINFORCEMENT DETAILS OF BOTTOM SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
(N.T.S.)

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
2. DRAWING SHOULD NOT BE SCALED ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. ALL REINFORCING BARS SHALL BE THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe-500D) CONFIRMING TO IS:1786 STANDARDS.
4. MINIMUM CLEAR COVER TO OUTERMOST REINFORCEMENT SHALL BE AS FOLLOWS:-
   a) TOP SLAB - 45mm
   b) BOTTOM SLAB - 75mm
   c) SIDE WALL (EARTH SIDE) - 75mm
   d) SIDE WALL (INNER SIDE) - 45mm
5. OVERLAPPING FOR SPLICING OF REINFORCEMENT SHALL BE AS PER CLAUSE NO.15.2.5.
   LAP LENGTH SHALL NOT BE LESS THAN 56ø.
   ARRANGEMENT OF TRANSVERSE REINFORCEMENT IN LAP ZONE:-



6. ANCHOURAGE LENGTH OF BOX SHALL BE TAKEN AS 40ø AS PER IRC:112.
7. FOR UNFAVORABLE BOND CONDITIONS THE FACTOR 40 SHOULD BE MULTIPLIED BY FACTOR OF 1.43 .
8. CENTER LINE OF OVERLAPPING BAR ba1 & ts2 IN WALL & MID HEIGHT OF WALLS ARE AT SAME POINT.
9. ALL LAP SHALL BE SUITABLY STAGGERED AND MINIMUM C/C DISTANCE BETWEEN ADJACENT LAPS SHALL BE 1.3 TIMES OF LAP.

REFERENCE DRAWING:-

1. GENERAL ARRANGEMENT DRAWING. AVC/NH-38/MNB/GAD/45+729/101

NT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

EPC CONTRACTOR
KAMAC ENGINEERS Pvt.Ltd
KAMAC ENGINEERS PVT.LTD
F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010

AUTHORITY'S ENGINEER
ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED.
C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO.2, DIGBOI, TINSUKIA, ASSAM-786171

PROOF CONSULTANT:
CES
CREATIVE ENGINEERING SERVICES
OFFICE NO: 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010

SAFETY CONSULTANT:
DESIGN AID
PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,

DESIGN CONSULTANT:
A.V. CONSTRUCTION
1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wall Gali,New Delhi 110045
Winst Infra Solution Pvt. Ltd.
WISPL
OFFICE: F-6, ISHAAN CORPORATE TOWER, PLOT NO-C-23,SECTOR-13, VASUNDHRA GHAZIABAD, U.P-201012

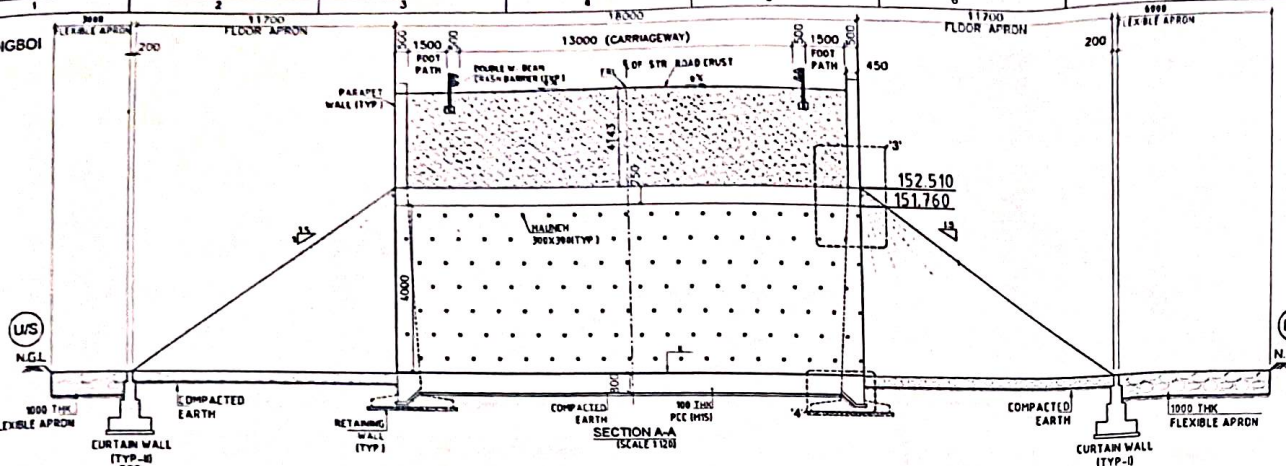
PROJECT:
WIDENING/IMPROVEMENT TO 2-LANE LANE WITH PAVED SHOULDER FROM KM 27+150 (GOLAI GOAN) TO KM 47+662 (LEDO) ON DIBRUGARH TO LEDO SECTION WITH PROPOSED MARGHERITA & LEDO BYPASS (BROWNFIELD AND GREEN FIELD) (2-LANE+PS) OF NH-38 IN TINSUKIA DISTRICT IN THE STATE OF ASSAM ON EPC MODE.(PACKAGE-6)

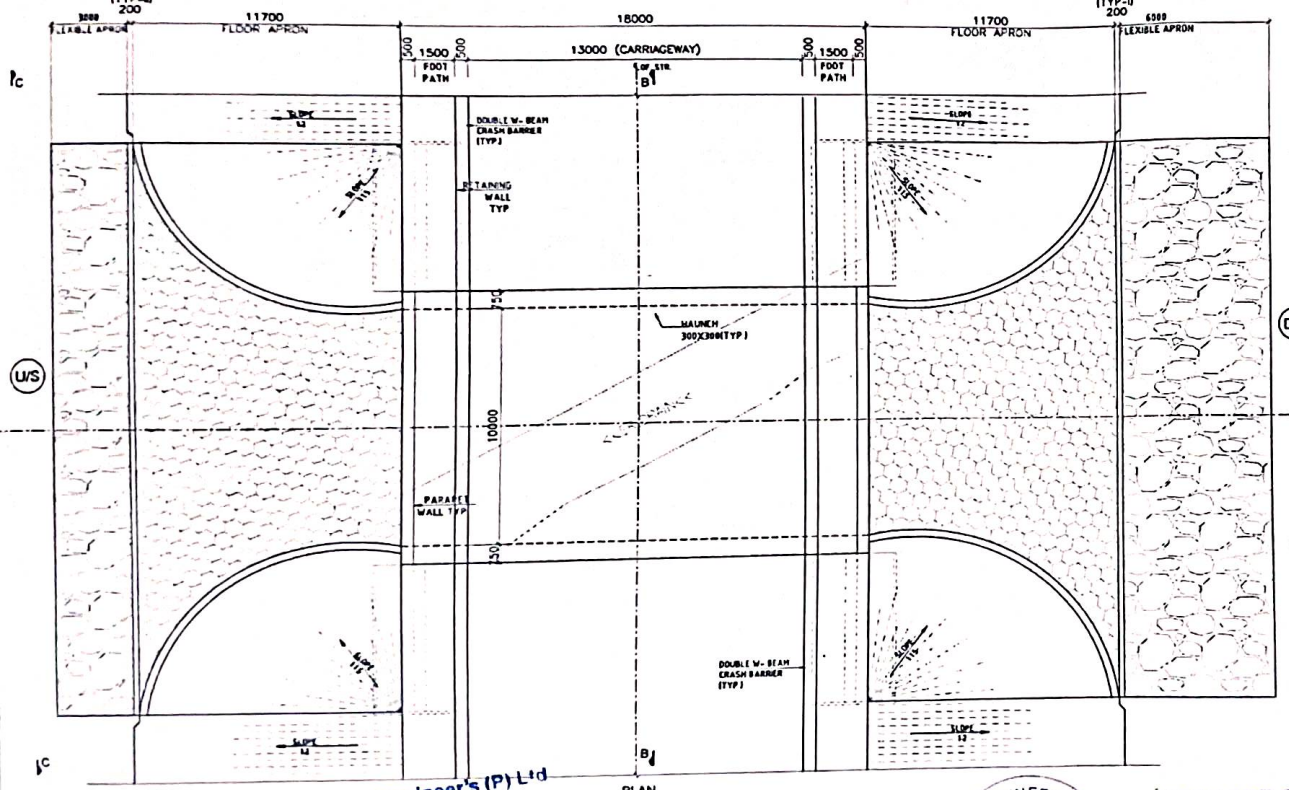
DRAWING TITLE:-
REINFORCEMENT DETAIL FOR MNB AT DESIGN CH. 45+729

Date	Drw.	Dsg.	Chk.	App.	Scale.	Drawing Status.
JUNE.2024	W.P	S.K	A.M		AS SHOWN	

Project No.	Drawing No.	Sheet No.	Rev.
	AVC/NH-38/MNB/RF/45+729/201	01 OF 01	R0

GENERAL ARRANGEMENT DRAWING
MINOR BRIDGE AT CH:46+956



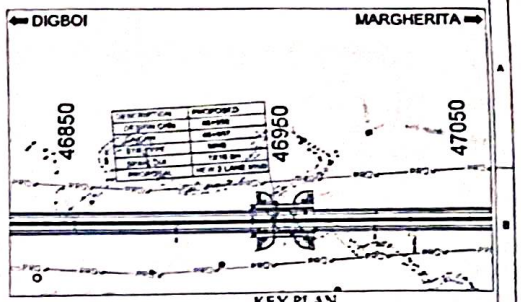


Kamac Engineer's (P) Ltd

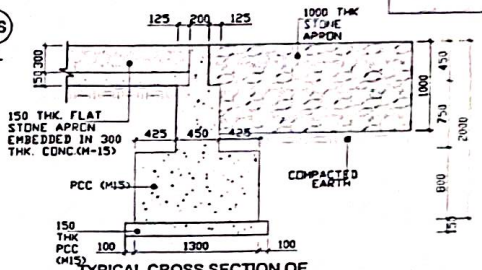
SAFETY AUDITOR

(As per Article 10.1 of EPC Agreement)

DESIGN AID, NEW DELHI

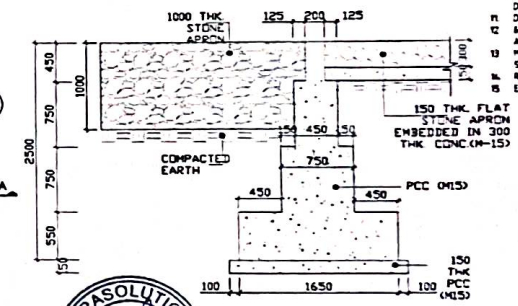


KEY PLAN (NTS)



TYPICAL CROSS SECTION OF CURTAIN WALL TYPE-I

(UP STREAM SIDE)
(SCALE 1:40)



TYPICAL CROSS SECTION OF CURTAIN WALL TYPE-II

(DOWN STREAM SIDE)
(SCALE 1:40)

WINST INFRASOLUTION PVT. LTD. GHAZIABAD

NOTES -

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS, UNLESS NOTED MENTIONED
2. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED NO DIMENSION IS TO BE SCALED
3. CONCRETE SHALL BE OF DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AS FOLLOWS
   a) RCC BOX - M35
   b) PCC LEVELING COURSE - M15
   c) PARAPET WALL - M20
4. GRADE OF UNTENSIONED STEEL SHALL BE FE500 CONFORMING TO IS 1786
5. 50mm THICK WEARING COAT IS PROVIDED AS PER MORTH SPECIFICATION & CLAUSE NO 2702 BITYPE - II
6. THE BACKFILL MATERIAL BEHIND RCC BOX SHALL HAVE FOLLOWING PROPERTIES $\phi = 30°$, $\gamma = 2.3 T/m^3$
7. SELECTED GRANULAR NON PLASTIC MATERIAL SHALL BE USED AS FILL MATERIAL UPTO THE ACTIVE WEDGE OF RAMMING SLOPE OF 1H:1V (45) FROM THE BASE OF BOTTOM SLAB VIBRATORY PLATE COMPACTOR SHALL BE USED FOR COMPACTION PARALLEL TO THE EXTERNAL WALL IN LAYER BY LAYER
8. THE RCC BOX SHOULD BE CONSTRUCTED FIRST AND THE SIDE FILLING & COMPACTION SHALL BE DONE AS PER MORTH SPECIFICATIONS
9. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT HIGHWAY DRAWING. FRL & CAMBER/SUPER ELEVATION AT PARTICULAR LOCATION SHALL BE VERIFIED WITH THE HIGHWAY DRAWING. DISCREPANCY IF ANY IS TO BE IMMEDIATELY BROUGHT TO THE NOTICE OF ENGINEER FOR NECESSARY MODIFICATIONS IN THE DRAWING.
10. 100mm DIA WEEP HOLES AT 1000mm C/C BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN VERTICAL DIRECTION AT A SLOPE OF 1:20 AS PER IRC-SP-13-2004 CLAUSE NO 13.5.10
11. DOWEL BAR SHALL BE PROVIDED TO ACCOMMODATE PARAPET WALL.
12. 600mm THK FILTER MEDIA SHALL BE PROVIDED BEHIND THE RCC BOX ABUTMENT WALL & RETURN WALL.
13. MISCELLANEOUS DRG. OF RETAINING WALL SHALL BE PROVIDE SEPARATELY
14. REQUIRED SBC SHALL BE VERIFIED AT SITE BEFORE EXECUTION OF WORK
15. EXPANSION GAP SHALL BE FILLED WITH COMPRESSIBLE FIBER BOARD

ABBREVIATIONS

- ℄ - CENTER LINE
- FRL - FINISHED ROAD LEVEL
- CRL - CROSS ROAD LEVEL
- NGL - NATURAL GROUND LEVEL
- LHS - LEFT HAND SIDE
- RHS - RIGHT HAND SIDE
- EXP - EXPANSION GAP
- PS - PAVED SHOULDER
- ES - EARTHEN SHOULDER
- PCC - PLAIN CEMENT CONCRETE
- THK - THICKNESS
- TYP - TYPICAL
- RTL - RAFT TOP LEVEL

LEGENDS:-

- -SELECTED FILL
- -PCC
- -COMPACTED EARTH

SCHEDULE:

SL NO	SCHEDULE CHAINAGE	DESIGN CHAINAGE AS PER STR.	FRL	CAMBER/SUPER ELEVATION (in%)		INVERT LEVEL (m)	LOWEST BED LEVEL (m)	CUSHION (m)	SBC REQ IN T/m²
				LHS	RHS				
1	46.957	46+956	156.653	-2.50%	-2.50%	147.768	147.268	6.143	15

GOOD FOR CONSTRUCTION

NT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:
NATIONAL HIGHWAYS & RASTRUCTURE DEVELOPMENT CORPORATION LTD	KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010 Authorised Signatory KAMAC ENGINEERS Pvt Ltd	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEKA CONSULTANT PRIVATE LIMITED. C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO 2, DIGBOI, TINSUKIA, ASSAM-786171	CREATIVE ENGINEERING SERVICES OFFICE NO 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U.P-201010	DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM, VASANT KUNJ, NEW DELHI-110070.	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wali Gali, New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE 3-6, PRIYAN CORPORATE TOWER, PLOT NO-4, SUSHANT LOK-II, VASUNDHRA GHAZIABAD U.P.201012

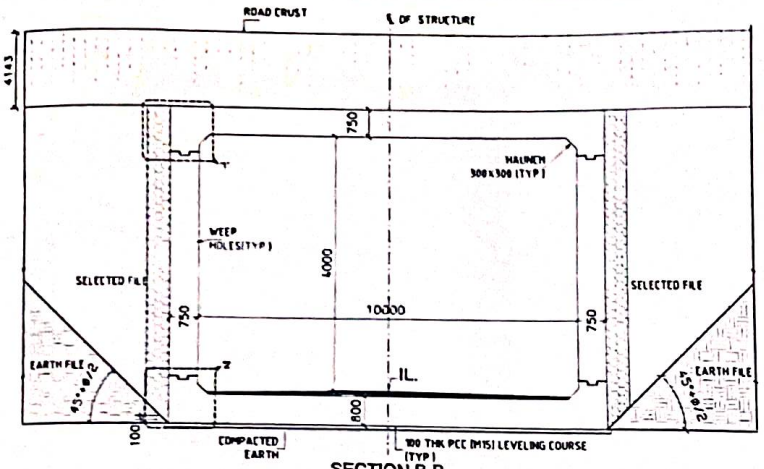
PROJECT: Widening Improvement to 2-Lane Lane with Paved Shoulder from km 27+150 (Golai Gaon) to km 47+682 (Ledo) on Dibrugarh to Ledo section with proposed Margherita & Ledo Bypass (Brownfield and Green Field) (2-Lane+PS) of NH-38 in Tinsukia District in the State of Assam on EPC mode (Package-5)

DRAWING TITLE: GENERAL ARRANGEMENT DRAWING OF MINOR BRIDGE AT CH 46+956

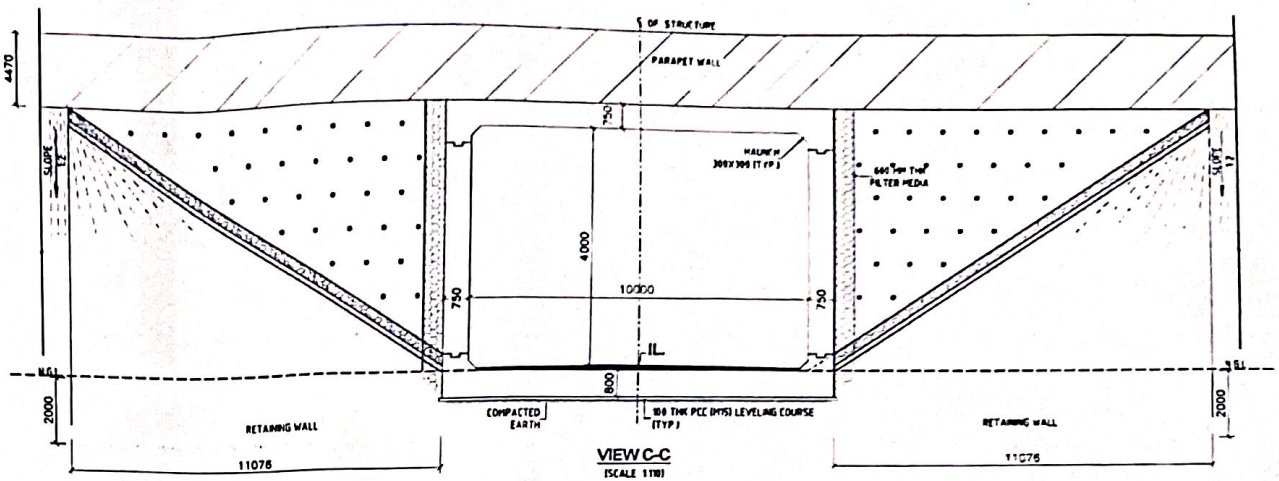
DETAILS:

Date	Drw.	Dsg	Chk.	App	Scale	Drawing Status
FEB 2024	A J	U Y	P S		AS SHOWN	FOR APPROVAL

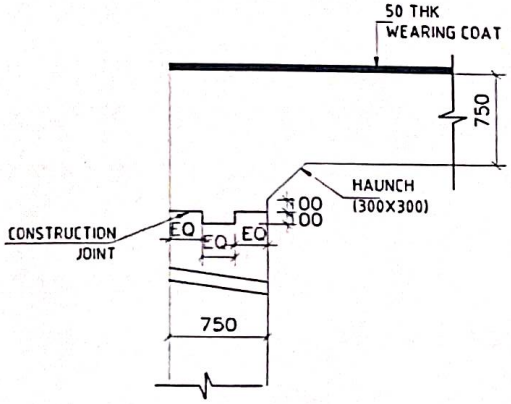
Project No. | Drawing No. AV/ST BC/MNB/CH 46+956/GAD-001 | Sheet No. 1 OF 1 | Rev R0



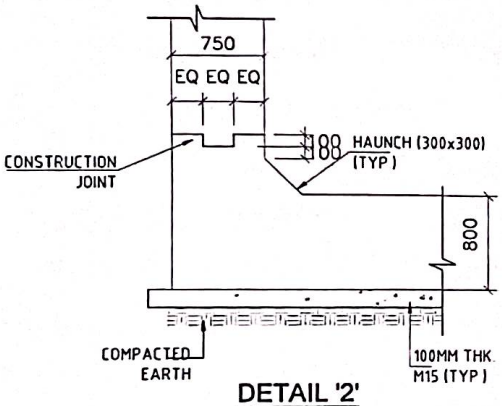
SECTION B-B
(SCALE 1:50)



VIEW C-C
(SCALE 1:100)



DETAIL '1'
(SCALE 150)



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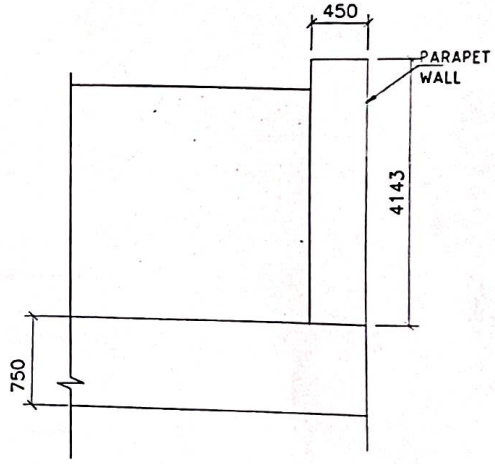
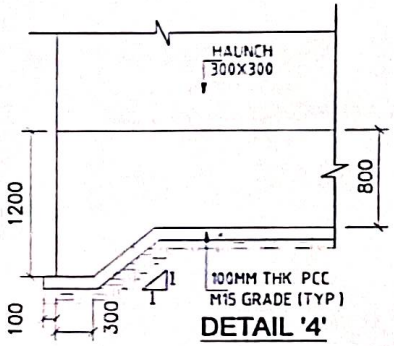


DETAIL '3'
(SCALE 150)



DETAIL '4'
(SCALE 150)

GOOD FOR CONSTRUCTION

Kamac Engineer's (P) Ltd

Authorised Signatory

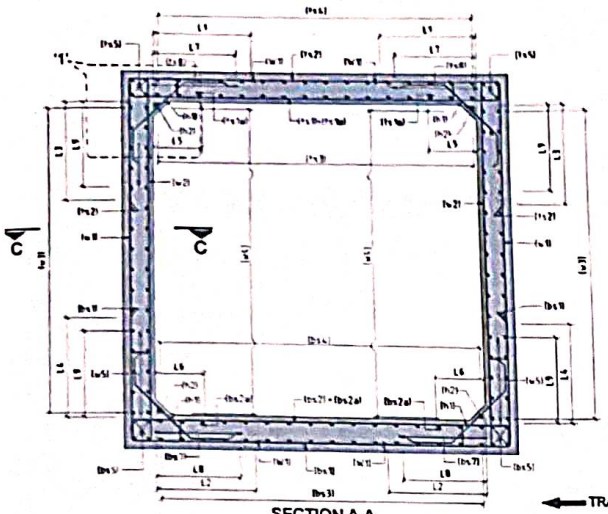
CREATIVE ENGINEERING SERVICES GHAZIABAD

SAFETY AUDITOR
(As per Article 10.1 of EPC Agreement)
DESIGN AID, NEW DELHI

WINST INFRASOLUTION PVT. LTD. GHAZIABAD

CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:	PROJECT: Widening Improvement to 2-Lane Lane with Paved Shoulder from km 27+150 (Golai Gaon) to km 47+682 (Ledo) on Dibrugarh to Ledo section with proposed Margherita & Ledo Bypass (Brownfield and Green Field) (2-Lane+PS) of NH-38 in Tinsukia District in the State of Assam on EPC mode (Package-3)
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD	KAMAC ENGINEERS Pvt.Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH ALLEEZA CONSULTANT PRIVATE LIMITED C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO 2, DIGBOI, TINSUKIA, ASSAM 786171	CREATIVE ENGINEERING SERVICES OFFICE NO 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U P-201010	DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wali Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. OFFICE F-4, BHAAN CORPORATE TOWER, PLOT NO C-23 SEC TOR-13 VASUNDHRA GHAZIABAD U P-201012	DRAWING TITLE - GENERAL ARRANGEMENT DRAWING OF MINOR BRIDGE AT CH 46+956

Date	Drw.	Dsg	Chk.	App.	Scale	Drawing Status
FEB.2024	A.J	U Y	P S		AS SHOWN	FOR APPROVAL
Project No.	Drawing No. AVC/ST/BC/MNB/CH 46+956/GAD-001				Sheet No. 2 OF 2	Rev. RD



SECTION A-A
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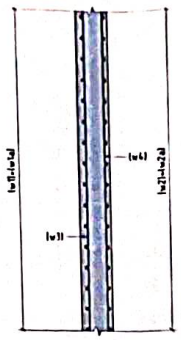

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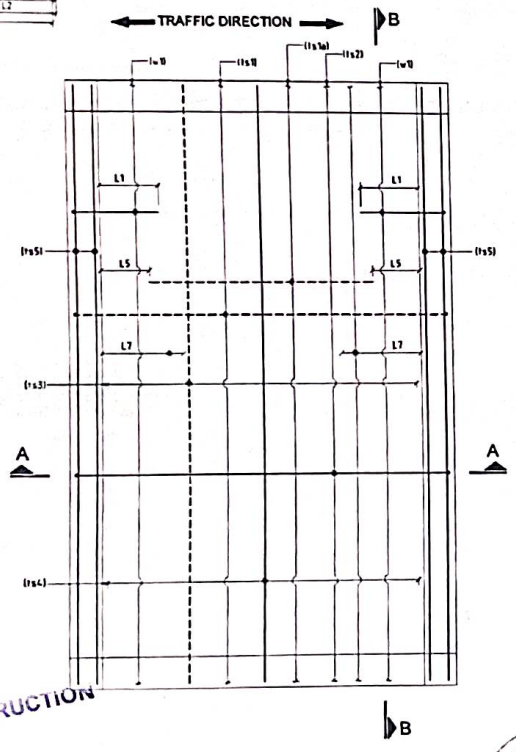
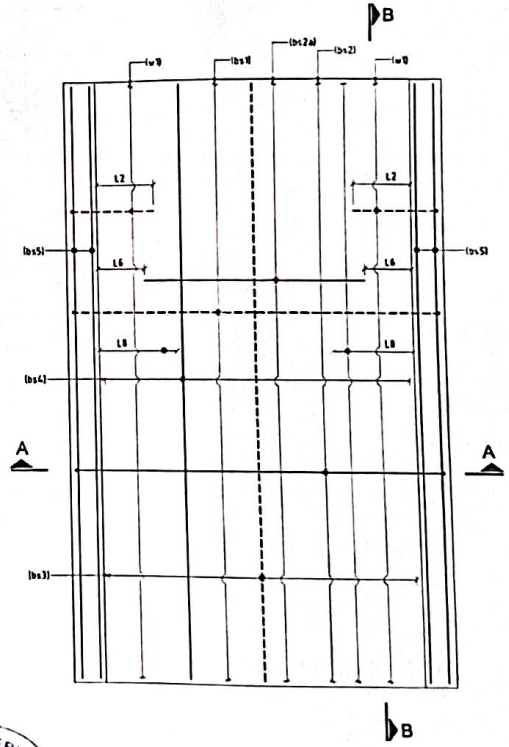


REINFORCEMENT DETAIL OF TOP SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
SCALE-1:30



REINFORCEMENT DETAIL OF BOTTOM SLAB
(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
SCALE-1:30

NOTES -

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED NO DIMENSION SHALL BE SCALED
2. CONCRETE SHALL BE DESIGNED WITH A MINIMUM CHARACTERISTIC STRENGTH OF M40 FOR RCC BOX STRUCTURE
3. CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS -
   EARTH FACE - 75mm
   OTHER FACE - 45mm
4. THE REINFORCING STEEL SHALL BE HYSD BARS (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786
5. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWING

SCHEDULE OF LAP LENGTH FOR REINFORCEMENT

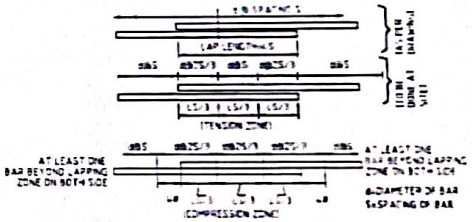
CONCRETE GRADE / % OF LAPPED BAR	FAVORABLE BOND				UNFAVORABLE BOND			
	M25	M30	M35	M40	M25	M30	M35	M40
<25%	52xø	44xø	40xø	37xø	75xø	63xø	56xø	53xø
25-33%	60xø	51xø	46xø	43xø	87xø	73xø	67xø	61xø
33-50%	73xø	62xø	56xø	52xø	105xø	89xø	82xø	75xø
>50%	NOT ALLOWED							

FOR DETAILS FAVORABLE BOND AND UNFAVORABLE BOND CONDITION REFER CLAUSE 15.2.3 OF IRC 112-2011
THIS TABLE IS USED FOR UP TO 32mm BAR
FOR ø>32mm ø SHOULD BE INCREASED BY MULTIPLYING FACTOR (ø/32)

SCHEDULE OF DEVELOPMENT LENGTH FOR REINFORCEMENT

DESCRIPTION	FAVORABLE BOND				UNFAVORABLE BOND			
CONCRETE GRADE	M25	M30	M35	M40	M25	M30	M35	M40
ANCHOR LENGTH	39xø	34xø	30xø	28xø	57xø	48xø	43xø	40xø

FOR DETAILS FAVORABLE BOND AND UNFAVORABLE BOND CONDITION REFER CLAUSE 15.2.3 OF IRC 112-2011



LEGEND:-

NEAR FACE BAR	———
FAR FACE BAR	— — —

GOOD FOR CONSTRUCTION

SAFETY AUDITOR
(As per Article 10.1 of EPC Agreement)
DESIGN AID, NEW DELHI

CLIENT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

EPC CONTRACTOR
KAMAC ENGINEERS Pvt Ltd
F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010

AUTHORITY'S ENGINEER
ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AYOLEEZA CONSULTANT PRIVATE LIMITED
C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO 2, DIGBOI, TINSUKIA, ASSAM-786171

PROOF CONSULTANT:
CREATIVE ENGINEERING SERVICES
OFFICE NO 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, U P-201010

SAFETY CONSULTANT:
DESIGN AID
PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,

DESIGN CONSULTANT:
A.V. CONSTRUCTION
1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wali Gali,New Delhi 110045
Winst Infra Solution Pvt. Ltd.
WISPL

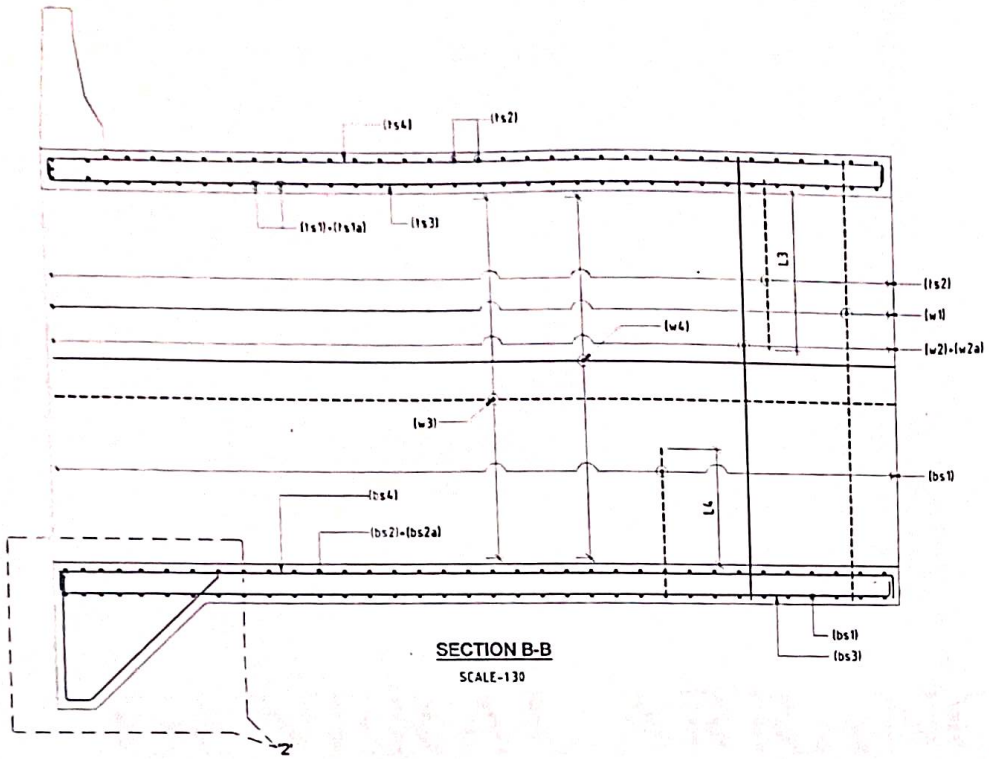
PROJECT: Widening Improvement to 2-Lane Lane with Paved Shoulder from km 27+150 (Galia Gaon) to km 47+682 (Leda) on Dibrugarh to Leda section with proposed Bingharam & Leda Bypass (Brownfield and Green Field) (2-Lane-PS) of NH-38 in Tinsukia District in the State of Assam on EPC mode (Package-1)

DRAWING TITLE - REINFORCEMENT DETAIL DRAWING OF MINOR BRIDGE AT CH 46+956

DETAILS -

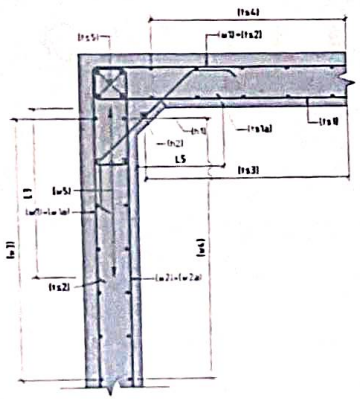
Date	Drw	Dsg	Chk	App	Scale	Drawing Status
FEB 2024	A J	U Y	P S		AS SHOWN	FOR APPROVAL

Project No.	Drawing No.	Sheet No.	Rev
	AVC/ST/BC/NH/46+956/REINF-001	1 OF 2	R0



SECTION B-B

SCALE-1:30



DETAIL-1

SCALE-1:20

REINFORCEMENT DETAIL

BAR MARK	BAR SHAPE	DIAMETER	SPACING NOS	REMARKS
ts1		25	150	
ts1a		16	150	
ts2		16	150	
ts3		12	110	
ts4		12	110	
ts5		25	94	82 LOCATIONS
ts6		N.A		
ts7		N.A		
ts8		16	(L=7) 110+150	
w1		25	150	
w1a		16	150	
w2		12	150	
w2a		N.A		
w3		16	140	
w4		16	300	
w5		8 @ 200 mm c/c VERT and 150 mm c/c in HORIZ (L= 5200)		
w6		N.A		
bs1		16	150	
bs2		25	150	
bs2a		16	150	
bs3		8	110	
bs4		12	110	
bs5		16	94	82 LOCATIONS
bs6		N.A		
bs7		8	(L=7) 110+150	
h1		10	150	
h2		10	150	
cs1		10	10	81 LOCATION
cs2		10	150	

BAR CURTAILMENT SCHEDULE TYPE

L1	1880mm
L2	570mm
L3	500mm
L4	1865mm
L5	1830mm
L6	1670mm
L7	2300mm
L8	3300mm
L9	540mm

GOOD FOR CONSTRUCTION

Kamac Engineer's (P) Ltd

SAFETY AUDITOR
(As per Article 10.1 of EPC Agreement)

DESIGN AID, NEW DELHI

CLIENT:	EPC CONTRACTOR	AUTHORITY'S ENGINEER	PROOF CONSULTANT:	SAFETY CONSULTANT:	DESIGN CONSULTANT:
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD	Authorised Signatory KAMAC ENGINEERS Pvt Ltd KAMAC ENGINEERS PVT.LTD F0201, CITY CENTER OFFICE BLOCK, 2ND FLOOR, MATIGARA 734010	ALMONDZ GLOBAL INFRA CONSULTANT LIMITED IN JV WITH AVOLEEZA CONSULTANT PRIVATE LIMITED C/O JAYANTA SAIKIA, SARBAJANIN NAMGHAR, BORBIL NO 2, DIGBOI, TINSUKIA, ASSAM-786171	CREATIVE ENGINEERING SERVICES OFFICE NO. 620, SIGNATURE GLOBAL MALL, SECTOR-3, VAISHALI, GHAZIABAD, UP-201010	DESIGN AID PLOT NO 54, 3rd FLOOR(FRONT), MASOODPUR DAIRY FARM,VASANT KUNJ, NEW DELHI-110070,	A.V. CONSTRUCTION 1st Floor, WZ-1240, Palam Extension, Bosco Ashram Wali Gali,New Delhi 110045 Winst Infra Solution Pvt. Ltd. (OFFICE OF INFRAMANAGEMENT TOWER PLOT NO. 25 SECTOR-11 VASUNDHARA GHAZIABAD UP-201012

PROJECT: Widening Improvement to 2-Lane Lane with Paved Shoulder from km 27+143 (Golin Gaon) to km 47+682 (Ledo) on Dibrugarh to Ledo section with proposed Margherita & Ledo Bypass (Brownfield and Green Field) (2-Lane - PS) of NH-15 in Tinsukia District in the State of Assam on EPC mode (Package-1)

DRAWING TITLE - REINFORCEMENT DETAIL DRAWING OF MINOR BRIDGE AT CH 46+456

DETAILS -

Date	Drw	Dsg	Chk	App	Scale	Drawing Status
FEB 2024	A.J	U Y	P S		AS SHOWN	FOR APPROVAL

Project No.	Drawing No.	Sheet No	Rev
	AVC/STRC/MNB/46+456/REINF/001	2 OF 2	R0