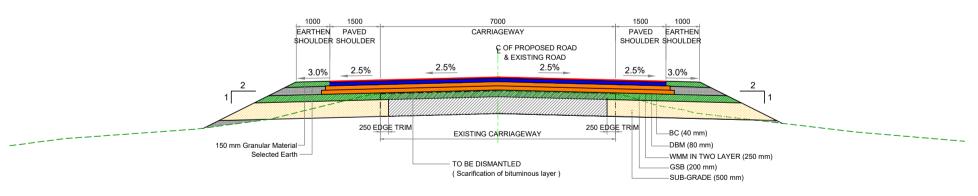
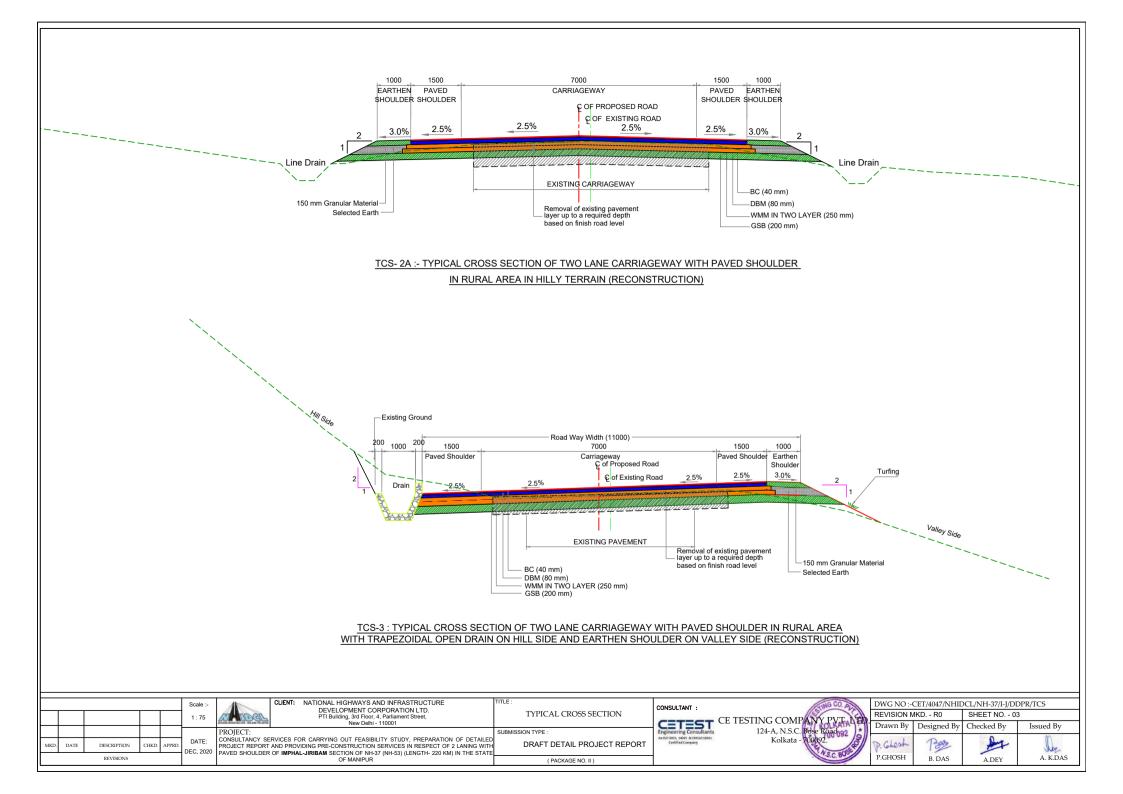


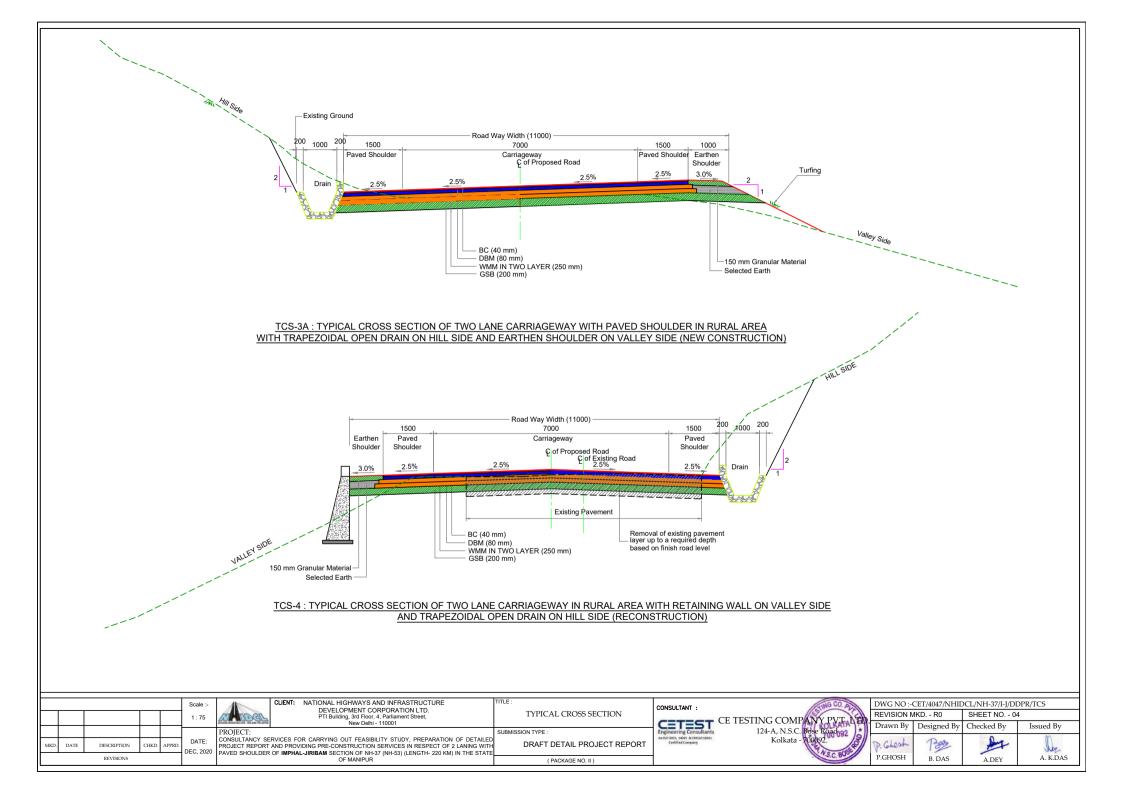
TCS- 1 :- TYPICAL CROSS SECTION OF TWO LANE CARRIAGEWAY WITH PAVED SHOULDER IN BUILT UP AREA WITH BOTH SIDE COVERED DRAIN CUM FOOTPATH IN PLAIN TERRAIN

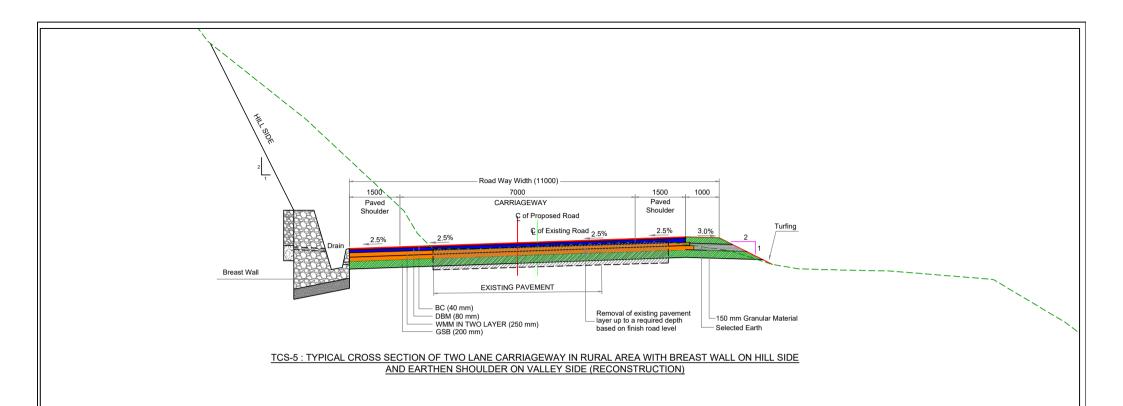


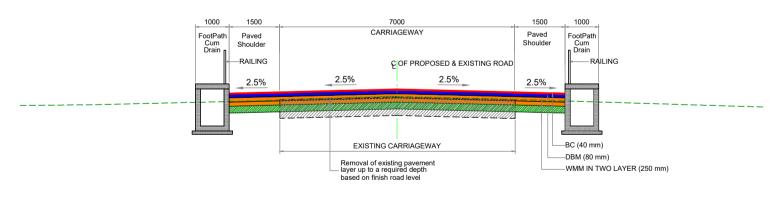
TCS- 2:- TYPICAL CROSS SECTION OF TWO LANE CARRIAGEWAY WITH PAVED SHOULDER RURAL AREA IN PLAIN TERRAIN (RECONSTRUCTION)

и⊢													
l				Scale :-	1	CLIENT: NATIONAL HIGHWAYS AND INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	TITLE:	CONSULTANT :	TING CO. AL	DWG NO :-	CET/4047/NHIL	OCL/NH-37/I-J/DI	OPR/TCS
				1:75	ADOCA	PTI Building, 3rd Floor, 4, Parliament Street, New Delhi - 110001	TYPICAL CROSS SECTION	CETEST	CE TESTING COMPANY PVT. LED	REVISION N	MKD R0 Designed By	SHEET NO 02	Issued By
ΙГ					PROJECT:		SUBMISSION TYPE :	Engineering Consultants	124-A, N.S.C. Bose Road 92	Drawn By	Designed by	Спескеа ву	issued by
	MKD. DATE	DESCRIPTION	CHKD. APPRD.	DATE: DEC 2020	PROJECT REPORT	ERVICES FOR CARRYING OUT FEASIBILITY STUDY, PREPARATION OF DETAILET AND PROVIDING PRE-CONSTRUCTION SERVICES IN RESPECT OF 2 LANING WITH ROF IMPHAL-JIRIBAM SECTION OF NH-37 (NH-53) (LENGTH-220 KM) IN THE STATE	DRAFT DETAIL PROJECT REPORT	Author 9001, 19085 & CHSASSMIRE Certified Company	Kolkata - 700092.	P. Ghesh	Page	But	Sec.
IL		REVISIONS			PAVED SHOOLDEN	OF MANIPUR	(PACKAGE NO. II)			P.GHOSH	B. DAS	A.DEY	A. K.DAS



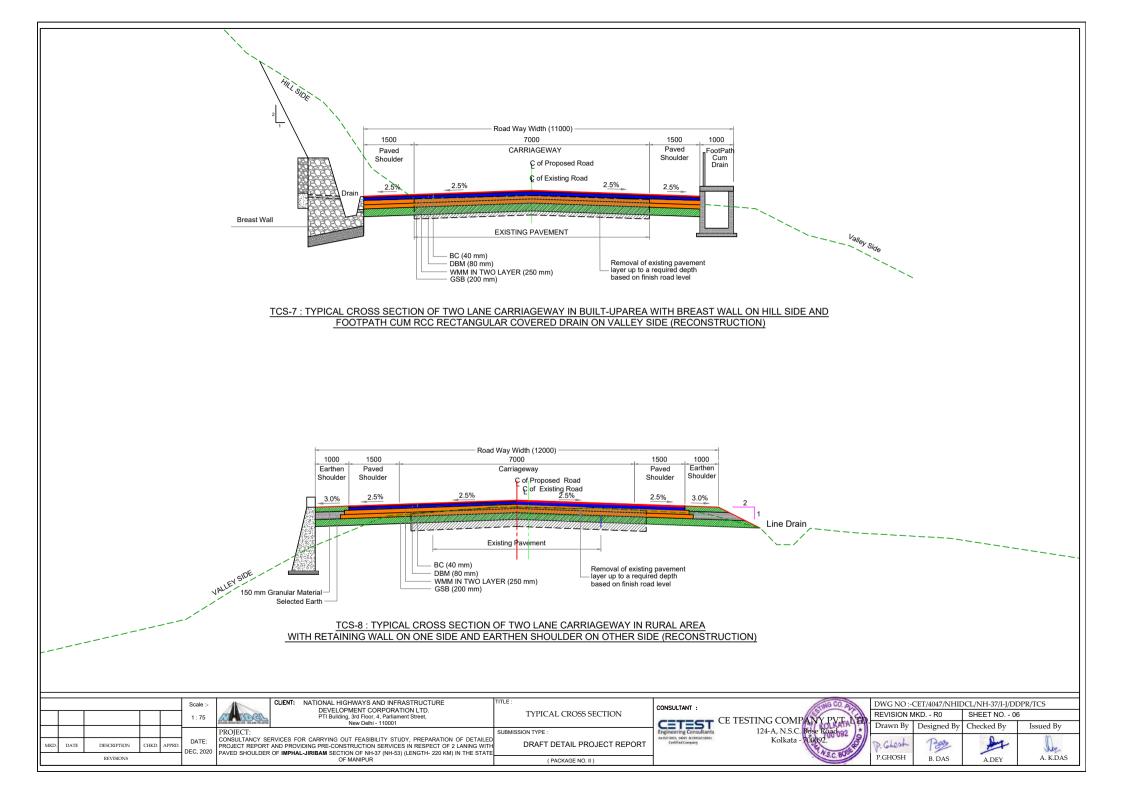






TCS-6 :TYPICAL CROSS SECTION OF TWO LANE CARRIAGEWAY IN BUILT UP AREA WITH BOTH SIDE FOOTPATH CUM RCC RECTANGULAR COVERED DRAIN IN HILLY TERRAIN (RECONSTRUCTION)

				Scale :-	4	CLIENT: NATIONAL HIGHWAYS AND INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	TITLE:	CONSULTANT :	TING CO. AL	DWG NO :-	CET/4047/NHII	OCL/NH-37/I-J/DD	PR/TCS
				1:75	ADDEID KIN	PTI Building, 3rd Floor, 4, Parliament Street,	TYPICAL CROSS SECTION		CE TESTING COMPANY PVT. NO	REVISION	ИKD R0	SHEET NO 05	
-					SHOPE SHIPPINGS THE PERSONS	New Delhi - 110001		CETEST	CE LESTING COMITATIVE OF KATALDE	Drawn By	Designed By	Checked By	Issued By
Ш					PROJECT:		SUBMISSION TYPE :	Engineering Consultants	124-A, N.S.C. Bose Road 122		Designed by	Checked by	Isouted by
MK	D. DATE	DESCRIPTION	CHKD. APPRD		PROJECT REPORT	ERVICES FOR CARRYING OUT FEASIBILITY STUDY, PREPARATION OF DETAILED I AND PROVIDING PRE-CONSTRUCTION SERVICES IN RESPECT OF 2 LANING WITH R OF IMPHAL-JIRIBAM SECTION OF NH-37 (NH-53) (LENGTH-220 KM) IN THE STATE	DRAFT DETAIL PROJECT REPORT	Aprilio 9001, 14065 & CASASSMIRE Certified Company	Kolkata - 700092.	P. Ghesh	Page	By	De
		REVISIONS		.,,	TAVED SHOOLDER	OF MANIPUR	(PACKAGE NO. II)	1	13.0.803	P.GHOSH	B. DAS	A.DEY	A. K.DAS



STRUCTURE DRAWING FOR MINOR BRIDGE AT CH. 25+348

CLIENT



NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



AUTHORITY ENGINEER

PROOF CONSULTANT



Hindia Engineers Pvt. Ltd.

Address: 33/7, H-Block, DLF Phase-1, Gurgaon-Faridabad Road Haryana, INDIA-122002, Phone No.-0124-4028681

SAFETY CONSULTANT



Antique Buildtech Pvt. Ltd.

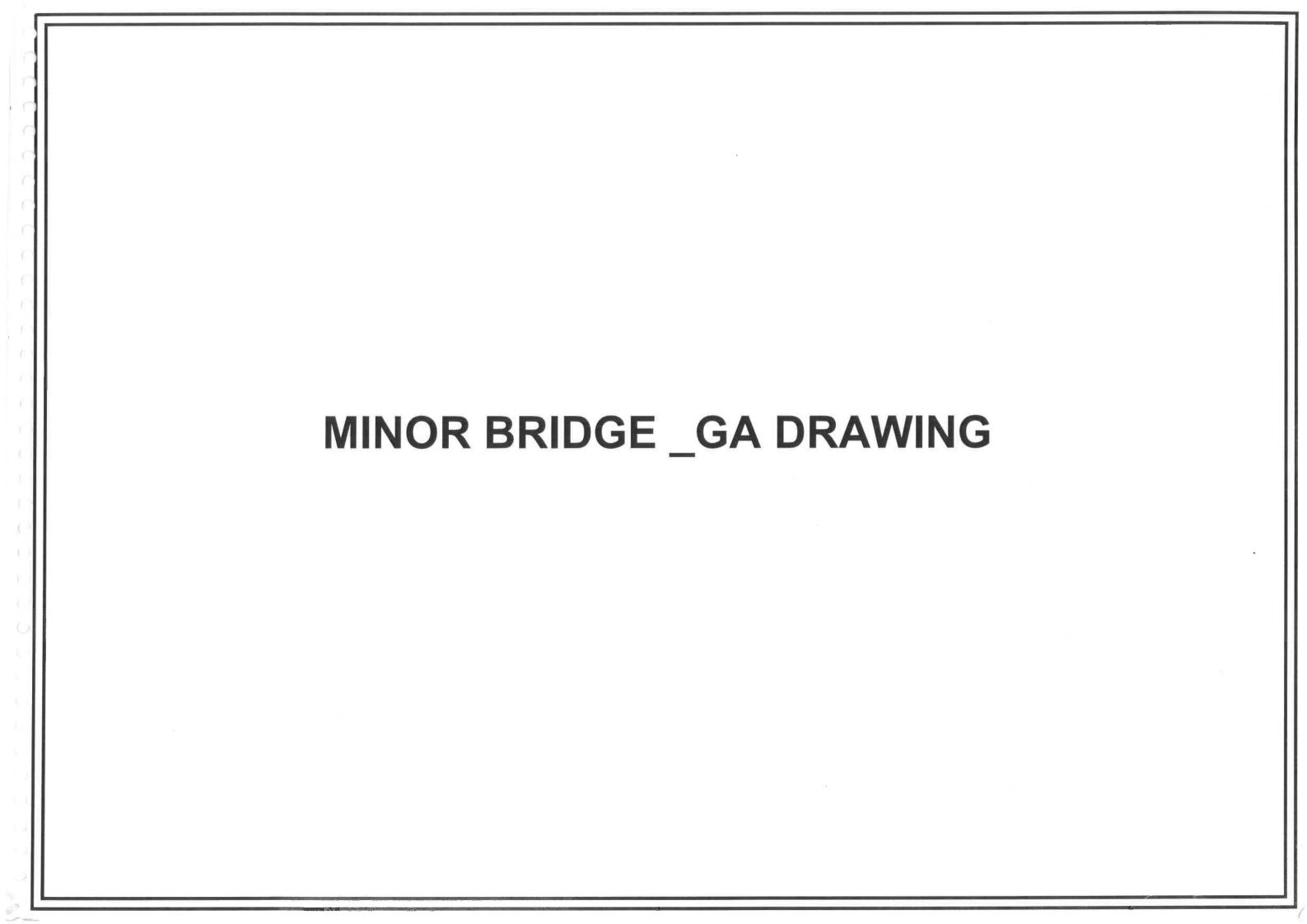
Address: 191, Mohan Nagar, Gopalpura Byepass, Jaipur-302018 (Rajasthan) Phone No. 0141-2760303 Email: info@antiquebuildtech.com

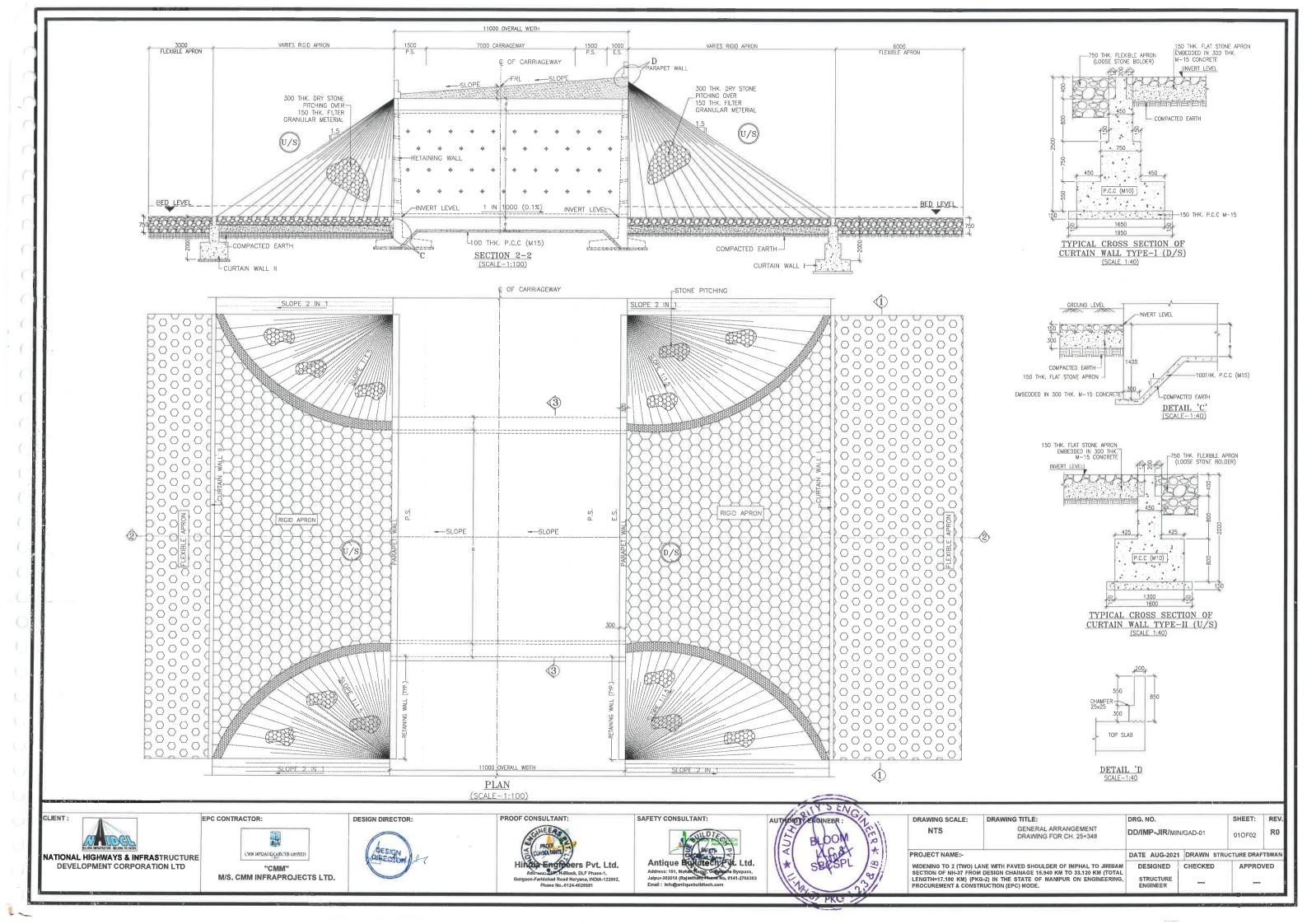


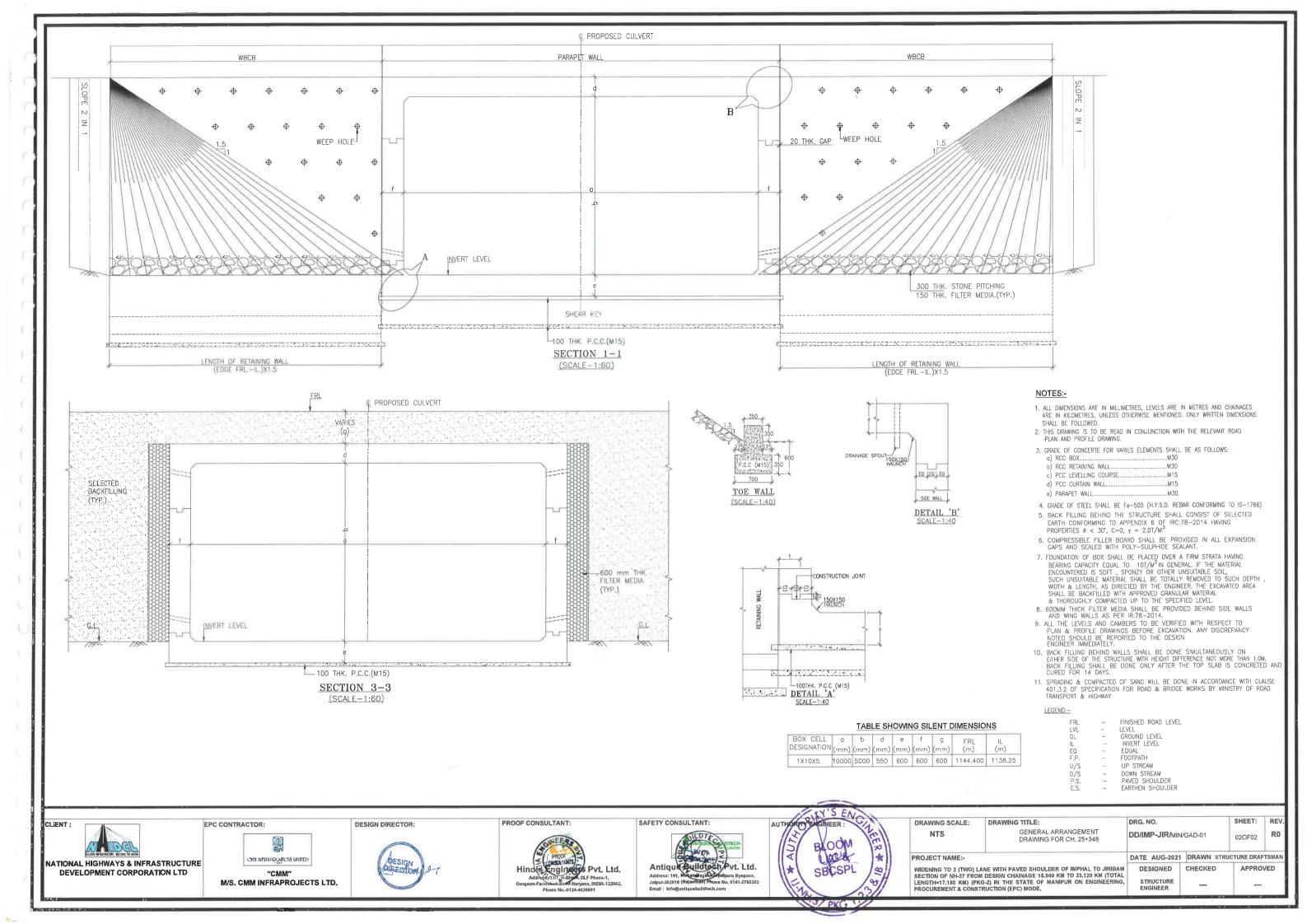
WIDENING OF TWO LANE WITH PAVESHOULDER OF IMPHAL TO JIRIBAM SECTIOM OF NH-37 FROM CHAINAGE 15+940 TO CHAINAGE 33+120 TOTAL LENGTH 17+180 PACKAGE-II IN THE STATE OF MANIPUR UNDER EPC MODE.

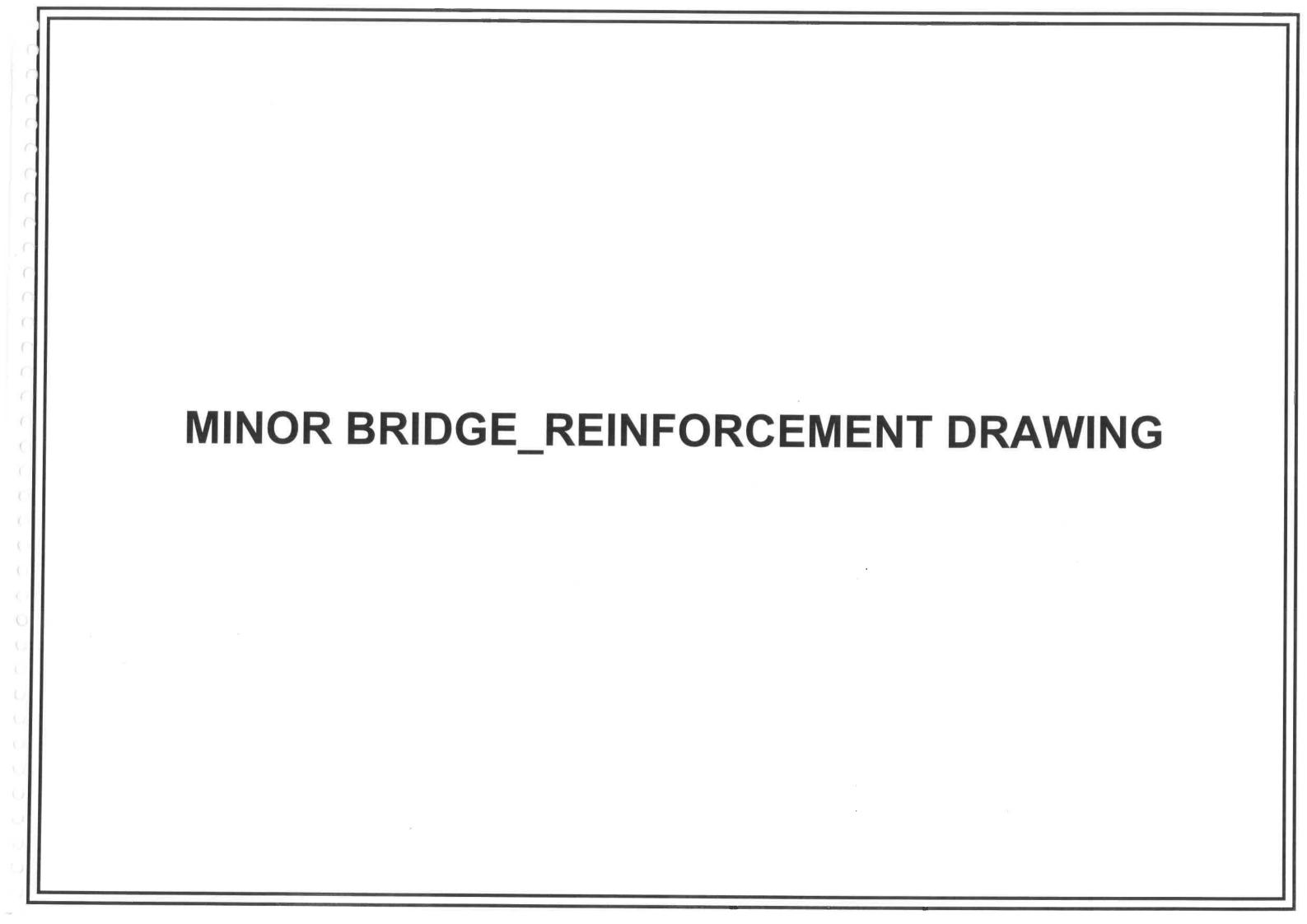


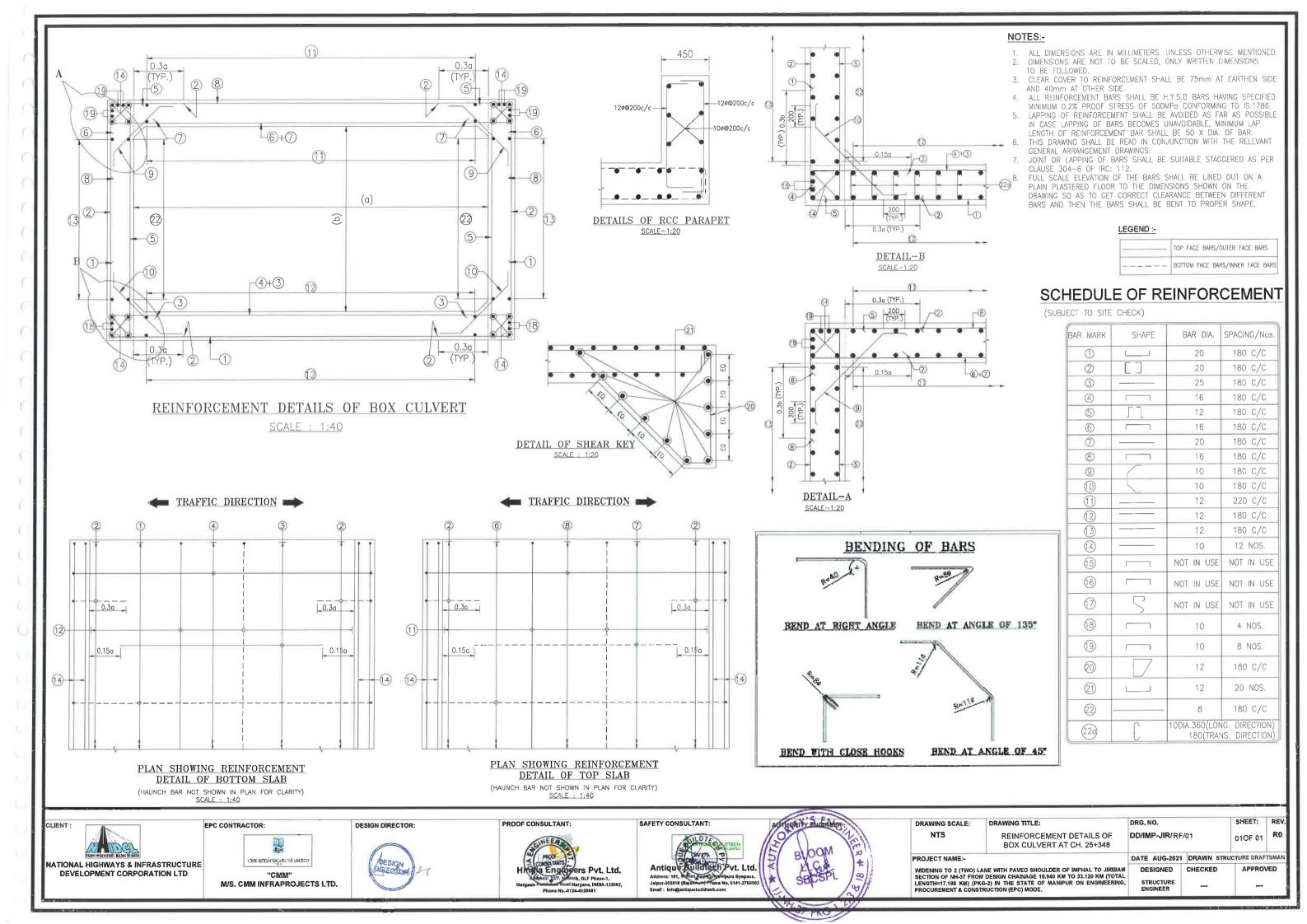


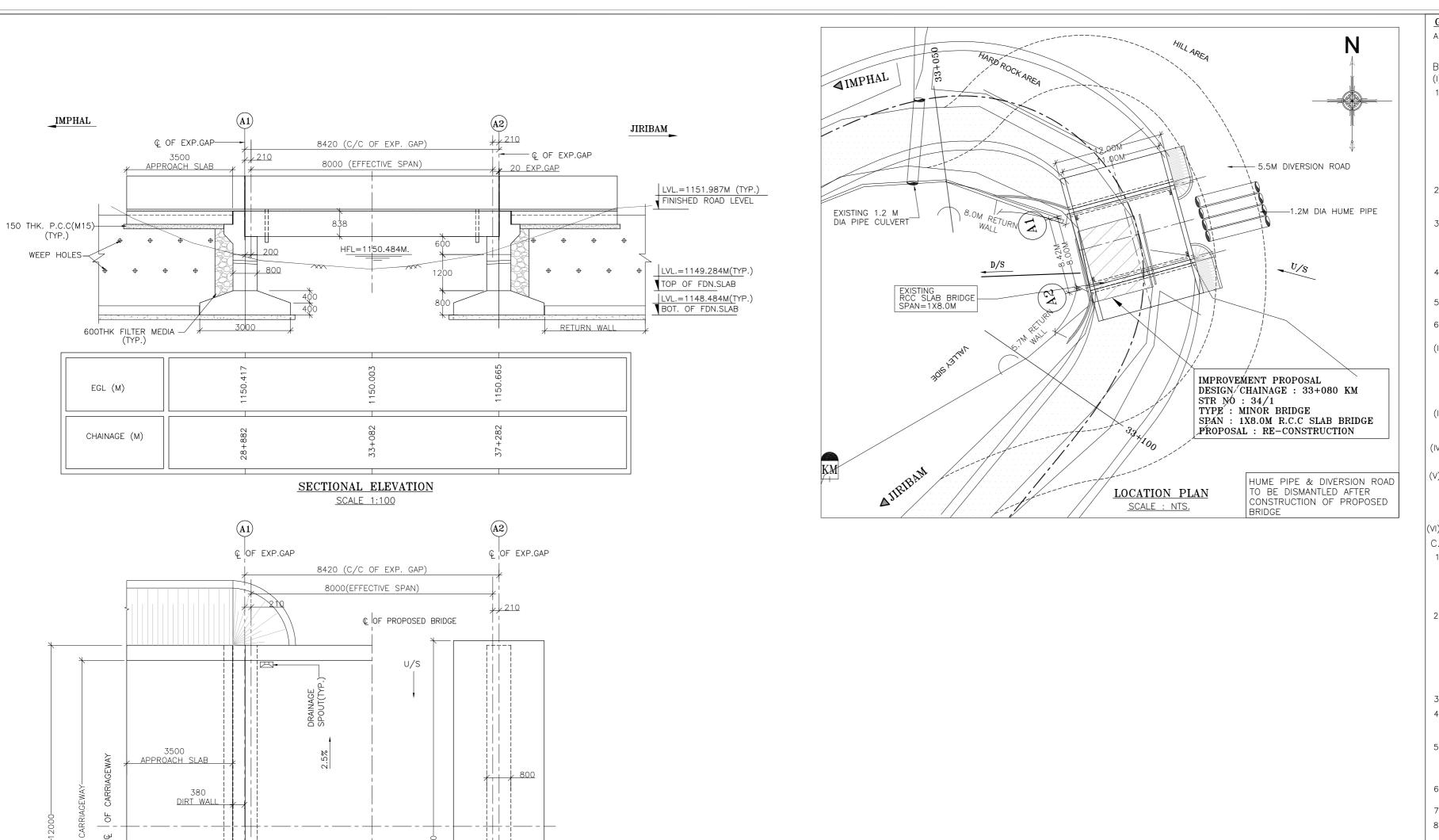


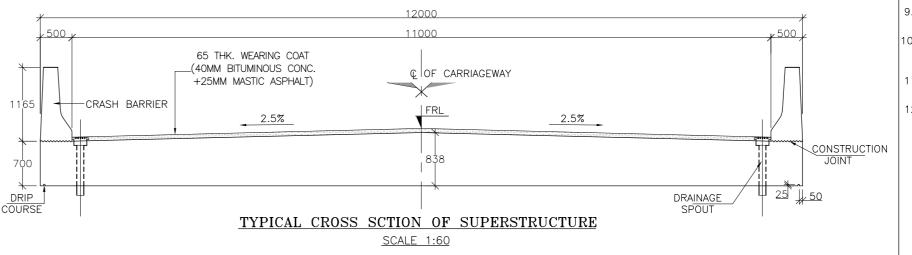












GENERAL NOTES:

- A. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN M UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS
- B. MATERIALS SPECIFICATIONS:

(I) <u>CONCRETE</u>:

- 1. GRADE OF CONCRETE USED :-
- a) SUPERSTRUCTURE = M30,
- b) SUB STRUCTURE & FOUNDATION = M30,
- c) RETURN WALL = M30,
- d) APPROACH SLAB = M30,
- e) P.C.C. BELOW APPROACH SLAB = M15,
- f) R.C.C. RAILING & KERB = M30, g) CRASH BARRIER = M40
- 2. CONCRETE SHALL BE OF DESIGN MIX AND SHALL HAVE TO ACHIEVE MINIMUM 28 DAYS CHARACTERISTICS STRENGTH ON 150MM CUBES FOR MODERATE EXPOSURE.
- 3. 43/53 GRADE ORDINARY PORTLAND CEMENT CONFORMING TO IS: 8112 OR 33 GRADE ORDINARY PORTLAND CEMENT CONFORMING TO IS: 269 OR PORTLAND SLAG CEMENT CONFORMING TO IS. 455 CAPABLE OF ACHIEVING THE REQUIRED DESIGN CONCRETE STRENGTH SHALL ONLY BE USED.
- 4. TO IMPROVE WORKABILITY OF CONCRETE, ADMIXTURES CONFORMING TO IS:9103 MAY BE USED SUBJECT TO SATISFACTORY PROVEN USE.
- 5. THE MINIMUM CEMENT CONTENT IN CONCRETE SHALL BE AS PER TABLE 14.2, IRC -112-2011
- 6. MAX. WATER CEMENT RATIO SHALL BE AS PER TABLE-14.2, IRC:112-2011.
- ALL REINFORCING STEEL SHALL BE OF HIGH YIELD STRENGTH DEFORMED BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS: 1786 (EXCEPT FOR MESH REINFORCEMENT WHICH SHALL BE MS BARS GRADE. DESIGNATION Fe 250 CONFORMING TO IS:432 PART-I MILD STEEL)
- (III) WATER :
- WATER TO BE USED IN CONCRETING AND CURING SHALL CONFORM TO IRC : 112 2011.
- (IV) EXPANSION JOINTS :
- THE EXPANSION JOINTS SHOULD BE STRIP SEAL TYPE.
- (V) FILTER MATERIAL BEHIND ABUTMENT AND FIN WALL SHALL CONFORM TO CLAUSE 2504.2.2 OF MoRTH SPECIFICATIONS TO A THICKNESS OF NOT LESS THAN 600mm. WITH SMALLER SIZE TOWARDS THE SOIL AND BIGGER SIZE TOWARDS THE WALL TO THE FULL HEIGHT.
- (VI) PROPERTIES OF BACKFILL SOIL $\gamma=2.0t/m^3$, $\emptyset=30^\circ$.
- C. WORKMANSHIP/DETAILING
- 1. MINIMUM CLEAR COVER
- a) SUPERSTRUCTURE = 40MM
- b) ABUTMENT, ABUTMENT CAP = 50MM c) RETURN WALL = 50MM
- d) FOUNDATION SLAB = 75MM
- 2. DESIGN LOAD
- a) CLASS A THREE LANES OR CLASS A ONE LANE + CLASS 70R TRACKED/WHEELED OR IRC CLASS SV LOADING WHICHEVER PRODUCÉS WORST EFFECT IS CONSIDERED FOR DESIGN.
- b) THE BRIDGE IS IN SEISMIC ZONE-V.
- c) SEISMIC LOADING: AS PER CL. NO. 219 OF IRC:6-2017.
- d) FOOTPATH LOADING :- AS PER CL.NO. 206.1 OF IRC:6-2017
- 3. BENDING OF REINFORCEMENT BARS SHALL BE AS PER IS:2502.
- 4. LAP LENGTH & DEVELOPMENT LENGTH (Ld) OF REINFORCING BARS SHALL BE DONE IN ACCORDANCE WITH RELEVANT CLAUSE 15.2.5.1 & 15.2.3.3 OF IRC : 112-2011.
- 5. PROPER COMPACTION OF CONCRETE SHALL BE ENSURED BY USE OF FORM VIBRATOR OR NEEDLE VIBRATORS. USE OF FULL WIDTH SCREED VIBRATORS FOR COMPACTION OF CONCRETE IN DECK SLAB SHALL BE ENSURED.
- 6. SHUTTERING PLATES SHALL SUITABLY BE STIFFENED TO ENABLE THE COMPACTION BY FORM VIBRATORS.
- 7. SHARP EDGES OF CONCRETE SHALL BE CHAMFERED.
- 8. THE WEEP HOLES SHALL BE WITH 100MM DIA AC PIPE IN 1:20 SLOPE @ 1M C/C STAGGERED HORIZONTALLY & VERTICALLY
- AT ABUTMENT & FIN WALLS. . CONSTRUCTION JOINT SHOULD BE PROVIDED WHERE MOMENT

LEVEL, THEN THE SAME SHOULD BE EXCAVATED OUT AND THE

- EQUAL TO ZERO. 10. IN CASE ANY LOOSE POCKET IS OBSERVED AT THE FOUNDING
- SAME SHALL BE FILLED UP WITH PCC UPTO THE FOUNDING LEVEL 11. MAXIMUM SCOUR LEVEL :-
- a) AT ABUTMENT = 1150.003 M12. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DWG. NO.: CET/BDG/2017/4047/NH-37/IMPHAL-JIRIBAM/FDPR/MN/(STR-34/1)/GA (SHEET NO. 02)
- CET/BDG/2017/4047/NH-37/IMPHAL-JIRIBAM/FDPR/MN/(STR-34/1)/MISC (SHEET NO. 02)

					SCALE: AS SHOWN
MKD.	DATE	DESCRIPTION	CHKD.	APPRD.	DATE: JANUARY, 2021

REVISIONS

20 GAP

HALF SUPERSTRUCTURE PLAN

SCALE 1:100

CLIENT:

D/S

-CRASH BARRIER

NATIONAL HIGHWAYS AND INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. 4. PARLIAMENT STREET. NEW DELHI - 110001

<u> 1100 | | 1100 | </u>

HALF FOUNDATION PLAN

SCALE 1:100

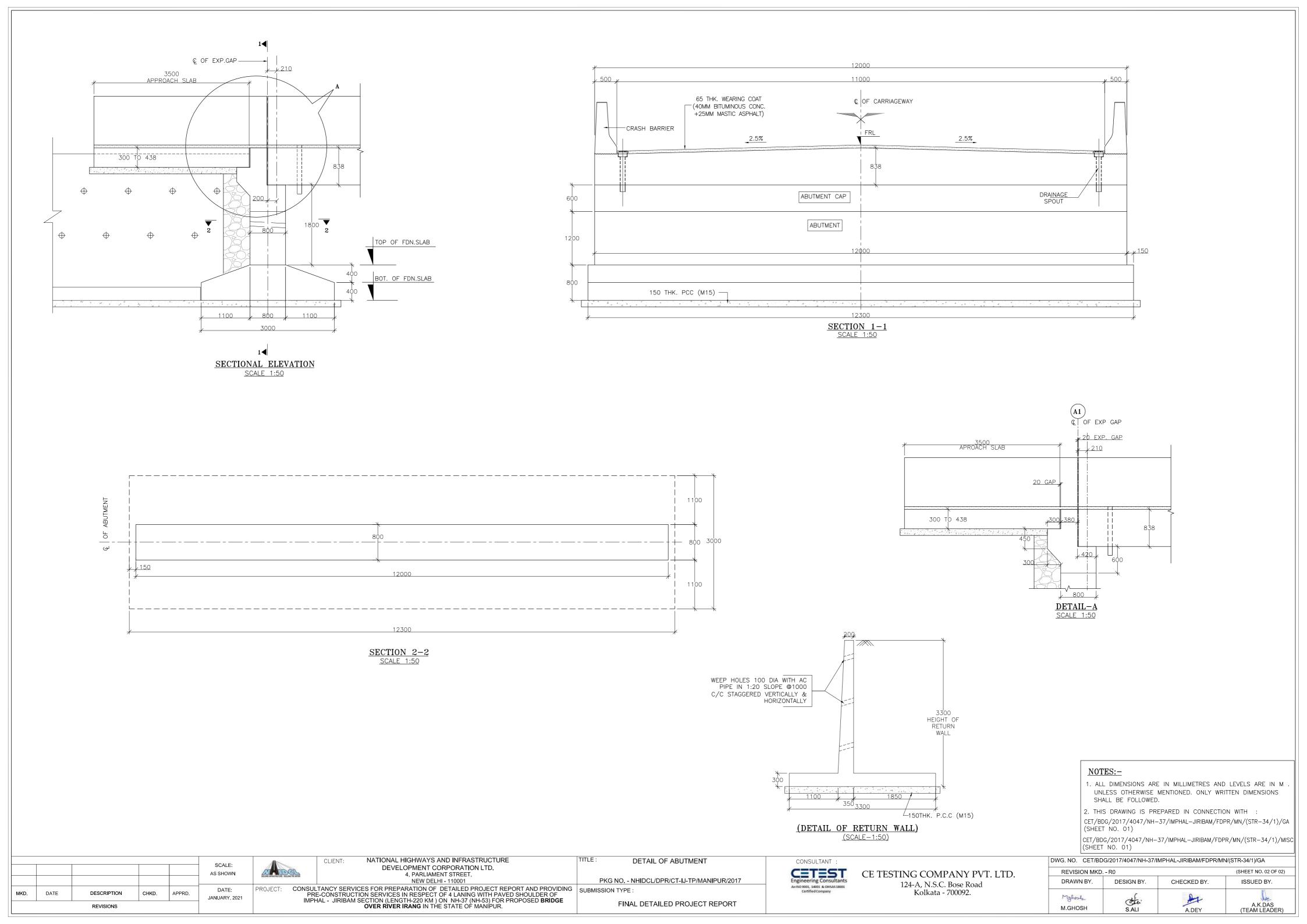
GENERAL ARRANGEMENT OF 1 X 8.0M RCC SLAB BRIDGE (AT CHAINAGE 33.080KM) PKG NO. - NHIDCL/DPR/CT-IJ-TP/MANIPUR/2017 CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT AND PROVIDING PRE-CONSTRUCTION SERVICES IN RESPECT OF 4 LANING WITH PAVED SHOULDER OF IMPHAL - JIRIBAM SECTION (LENGTH-220 KM) ON NH-37 (NH-53) FOR PROPOSED **BRIDGE OVER RIVER IRANG** IN THE STATE OF MANIPUR.

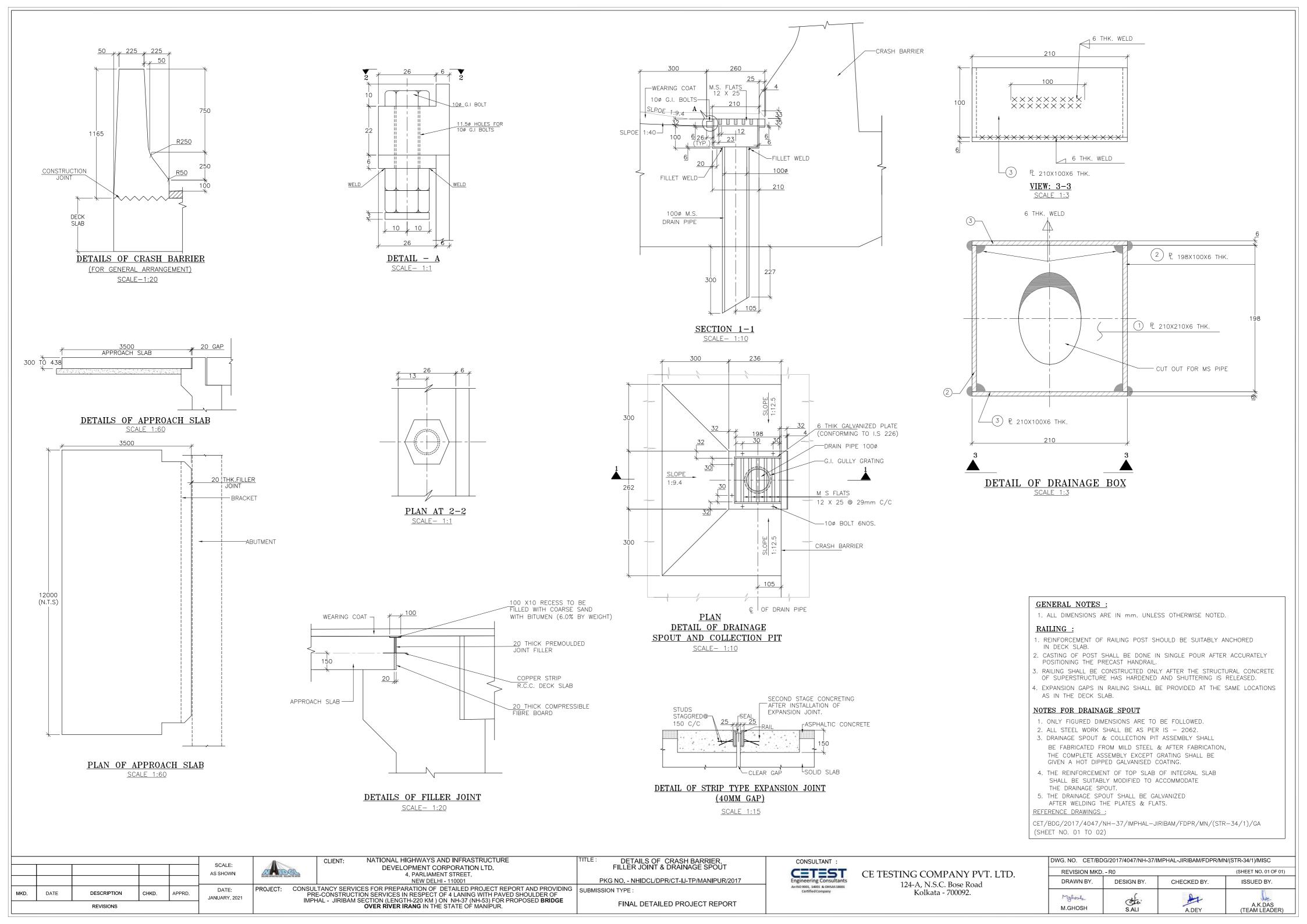
FINAL DETAILED PROJECT REPORT

CONSULTANT CETEST

CE TESTING COMPANY PVT. LTD. 124-A, N.S.C. Bose Road Kolkata - 700092.

DWG. NO. CET/BDG/2017/4047/NH-37/IMPHAL-JIRIBAM/FDPR/MN/(STR-34/1)/GA						
REVISION MKD R0 (SHEET NO. 01 OF 02)						
DRAWN BY.	DESIGN BY.	CHECKED BY.	ISSUED BY.			
Mghosh M.GHOSH	Offic S.ALI	A.DEY	A.K.DAS (TEAM LEADER)			









CMM INFRAPROJECTS LTD.

CIN - L45201MP2006PLC018506

108, Shalimar Corporate Centre, 8-B, South Tukoganj, Indore - 452 001

Phone : +91-731-2516386 Fax : +91-731-2527955

E-mail: cmm.kmundra@gmail.com

Letter No: CMM/IJ/NH-37/21-22/171

Dated: 09-12-2022

To,
The Team Leader
M/s Bloom Companies LLC in association with
Shri Bhavani consultancy services Pvt Ltd

Sub: "Widening of two Lane with Pave shoulder of Imphal to Jiribam section of NH-37 from chainage 15+940 to chainage 33+120 total length 17.180 Km package-ii in the state of Manipur under EPC mode". Submission of Drawing of CC Retaining wall (20% Plum asper IS 456:2000) for approval-Reg

Dear Sir,

With reference to the above cited subject, the undersign hereby enclosed the Drawing of *CC Retaining wall (20% Plum asper IS 456:2000)* for the work mentioned above for your early approval please. Requesting you to kindly approve as early as possible.

This is for your kind information and necessary action please.

Thanking you.

Yours faithfully,

Copy to:

1. PMU-Noney, NHIDCL





1H 4V ()**OGL**

Retaining Wall All Dimension in Metre

NOTES:

- 1. All dimensions are in "Metre" unless specified.
- 2. Weep holes of 100 mm dia. opening shall be provided at 1000 m interval and should be staggered both horizontally and vertically.
- 3. 600mm width of filter media composed of good quality stones (50-100mm) shall be provided.
- 4. A separation gap of 50-100mm shall be provided at maximum of 8m length of wall. Also gaps shall be provided at bends and junctions.
- 5. The wall shall be properly cured for a minimum of two weeks to attain good bonding strength.
- 6. The size of stone Plums may be from 150-300 mm. The maximum dimension of these stones or Plums shall not exceed 1/3RD the least dimension of the member.
- 7. Plum Concrete 1:2:4 (1 cement: 2 Sand : 4 Graded stone aggregate 20 mm nominal size) with 20% Plums as per IS 456.2000
- 8. Retaining wall design as per IRC 48:1998 and IS 14458 :1998 (Table-01)



STRUCTURE DRAWINGS

CLIENT



NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



AUTHORITY ENGINEER

PROOF CONSULTANT



Hindia Engineers Pvt. Ltd.

Address: 33/7, H-Block, DLF Phase-1, Gurgaon-Faridabad Road Haryana, INDIA-122002, Phone No.-0124-4028681

SAFETY CONSULTANT



Antique Buildtech Pvt. Ltd.

Address: 191, Mohan Nagar, Gopalpura Byepass, Jaipur-302018 (Rajasthan) Phone No. 0141-2760303 Email: info@antiquebuildtech.com



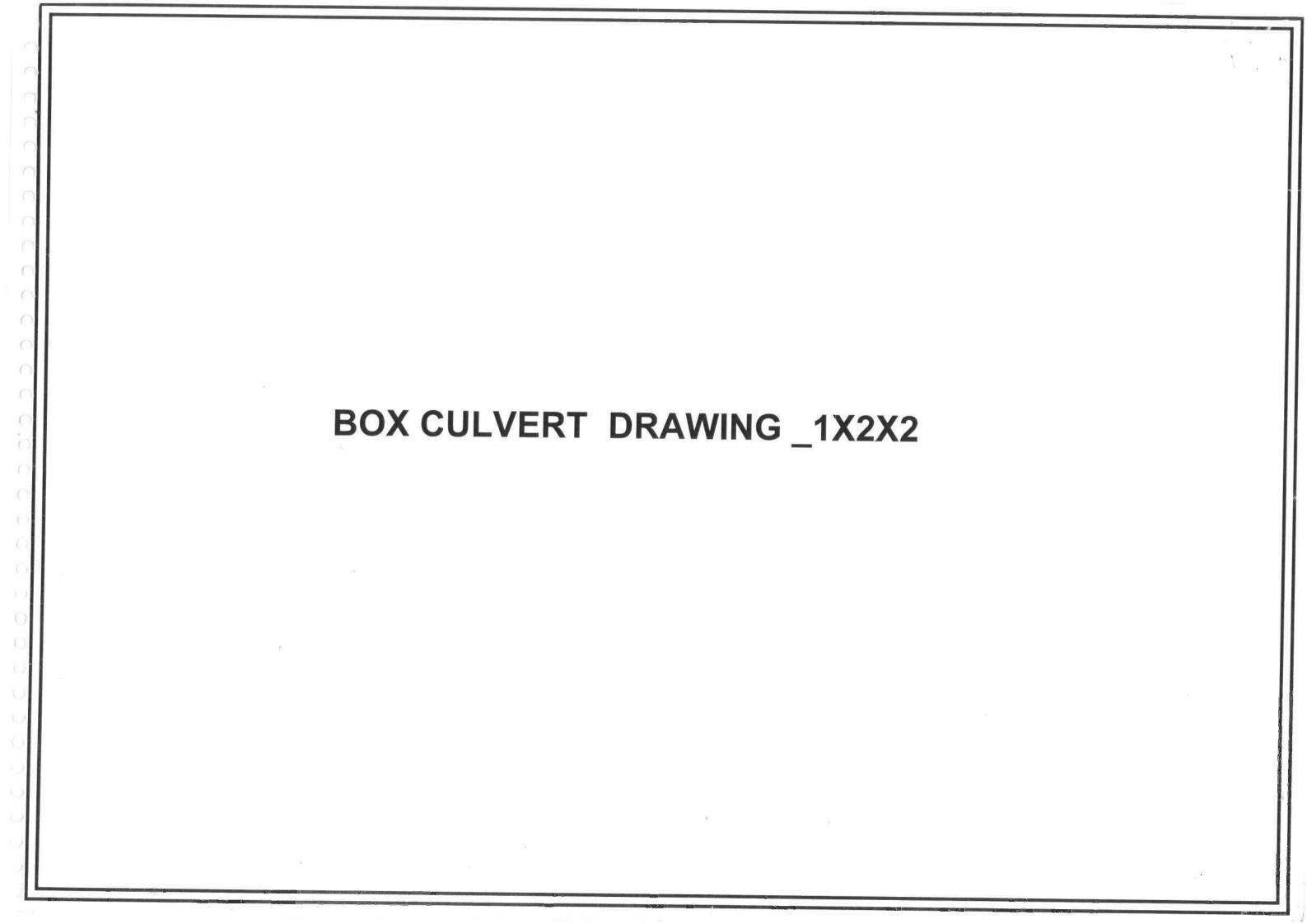
PROJECT

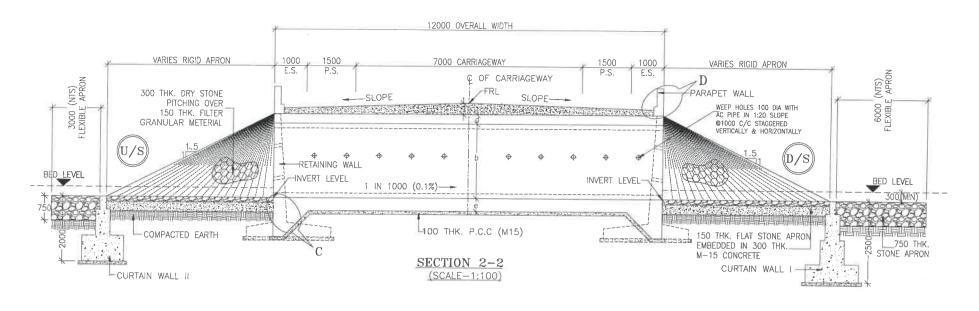
WIDENING OF TWO LANE WITH PAVESHOULDER OF IMPHAL TO JIRIBAM SECTIOM OF NH-37 FROM CHAINAGE 15+940 TO CHAINAGE 33+120 TOTAL LENGTH 17+180 PACKAGE-II IN THE STATE OF MANIPUR UNDER EPC MODE.

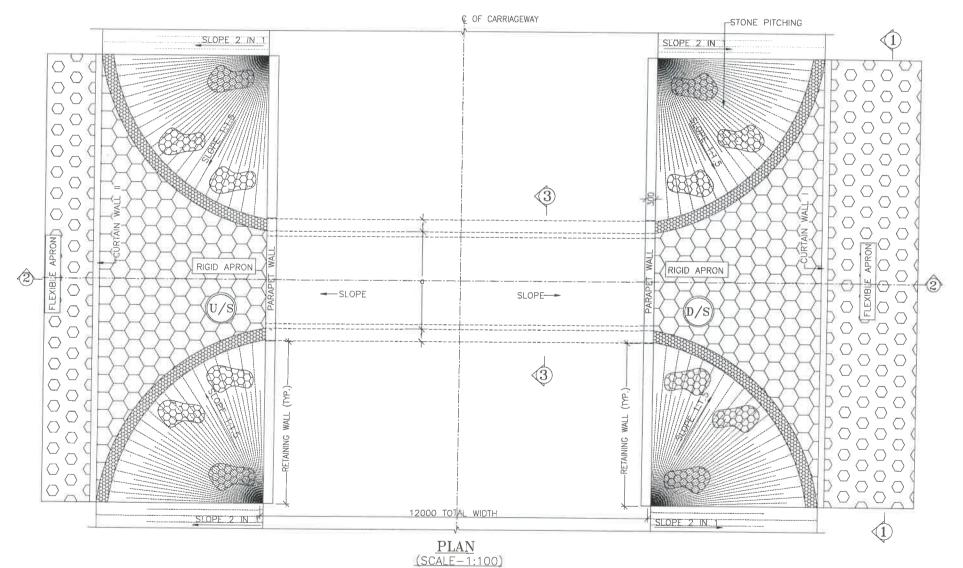


TABLE OF CONTENTS

SR.NO.	TITLE OF DRAWINGS		
REINFOR	RCEMENT DRAWING OF BOX CULVERT	DRAWING NO GAD	DRAWING NO REINF.
	SIZE _1X2X2 AT CH.		
1	17+532,18+141,18+393,19+010,20+106,21+755,22+728, 22+874,23+870,24+510,25+130,27+096,27+284,27+481, 27+684,28+002,28+167,28+655,28+879,29+220,30+033,30+415	DD/IMP-JIR/BOX/GAD	DD/IMP-JIR/RF
	SIZE _1X2X3 AT CH.		
2	17+016,18+029,18+762,19+267,21+260,21+648,22+299,23+376,24+164, 25+643,26+430,26+666,26+840,27+529,29+610,30+775,30+982,32+060,32+460	DD/IMP-JIR/BOX/GAD	DD/IMP-JIR/RF
	SIZE _1X3X3 AT CH.		
(3)	28+949,31+450,32+832	DD/IMP-JIR/BOX/GAD	DD/IMP-JIR/RF
	SIZE _1X3X4 AT CH.		
4	16+530,17+248,18+564,19+955,20+254,21+562,22+039,22+257,22+516, 23+195,23+410,24+836,25+381,26+074,27+150,27+893,29+501,29+501	DD/IMP-JIR/BOX/GAD	DD/IMP-JIR/RF
	SIZE _1X5X3 AT CH.		
(5)	16+119	DD/IMP-JIR/BOX/GAD	DD/IMP-JIR/RF







- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.

3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX.....

b) RCC RETAINING WALL. M30 c) PCC LEVELLING COURSE.. ..M15 d) PCC CURTAIN WALL...... ...M15 e) PARAPET WALL.....M30

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES ϕ < 30°, C=0, γ = 2.0T/M
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 101/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILED WITH APPROVED GRANULAR MATERIAL. & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.

 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.

- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL LVL EQ F.P. U/S D/S P.S. E.S. EQUAL FOOTPATH UP STREAM DOWN STREAM
PAVED SHOULDER
EARTHEN SHOULDER



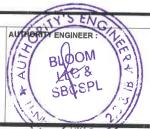




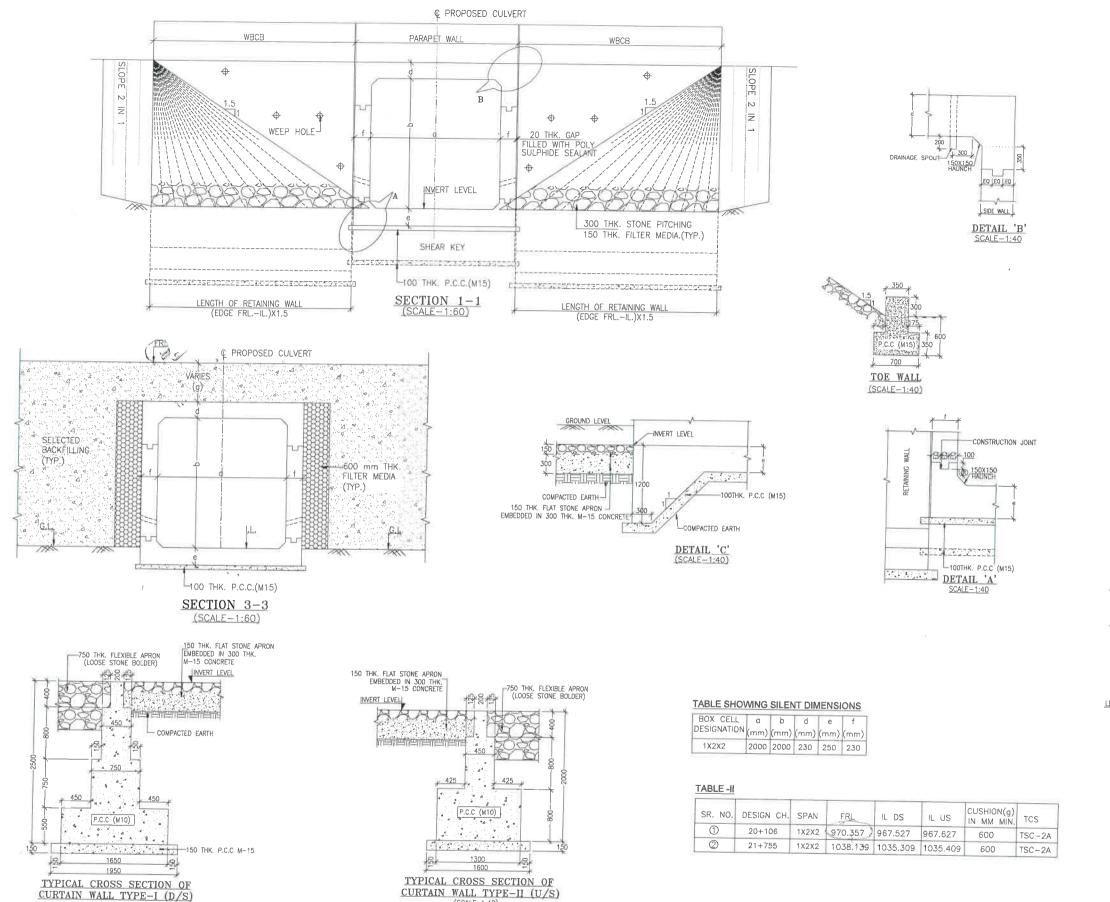


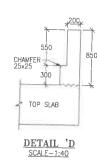






DRAWING SCALE: NTS	DRAWING TITLE: TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DRG. NO. DD/IMP-JIR/ BO	DX/GAD/01	SHEET: 01 OF 02	RE RO
PROJECT NAME:-				RUCTURE DRAFT	rsma
WIDENING TO 2 (TWO) I SECTION OF NH-37 FRO	d distance		APPROVED		
LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE,		STRUCTURE ENGINEER	no.		





- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX.

b)	RCC RETA	INING	WALL	M30
c)	PCC LEVEL	LING	COURSE	M15
d)	PCC CURT	AIN W	ALL	M15
e)	PARAPET V	VALL	.,,	M30

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED PROPERTIES $\phi < 30^\circ$, C=0, $\gamma = 2.0T/M^3$
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M² IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- A FINAUCOSELY COMPACTED OF TO THE SPECIFIED LEVEL.

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- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

LINE	_	LINISHED KOAD LE
LVL	-	LEVEL
GL	_	GROUND LEVEL
IL.	-	INVERT LEVEL
EQ	-	EQUAL
F.P.	_	FOOTPATH
U/S	_	UP STREAM
D/S	-	DOWN STREAM
P.S.	_	PAVED SHOULDER
E.S.	-	EARTHEN SHOULDE

CLIENT :



NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

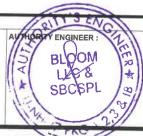


(SCALE 1:40)

DESIGN DIRECTOR:







DRAWING SCALE:	DRAWING TITLE:
NTS	TYPICAL GENERAL ARR
	DRAWING FOR BOY

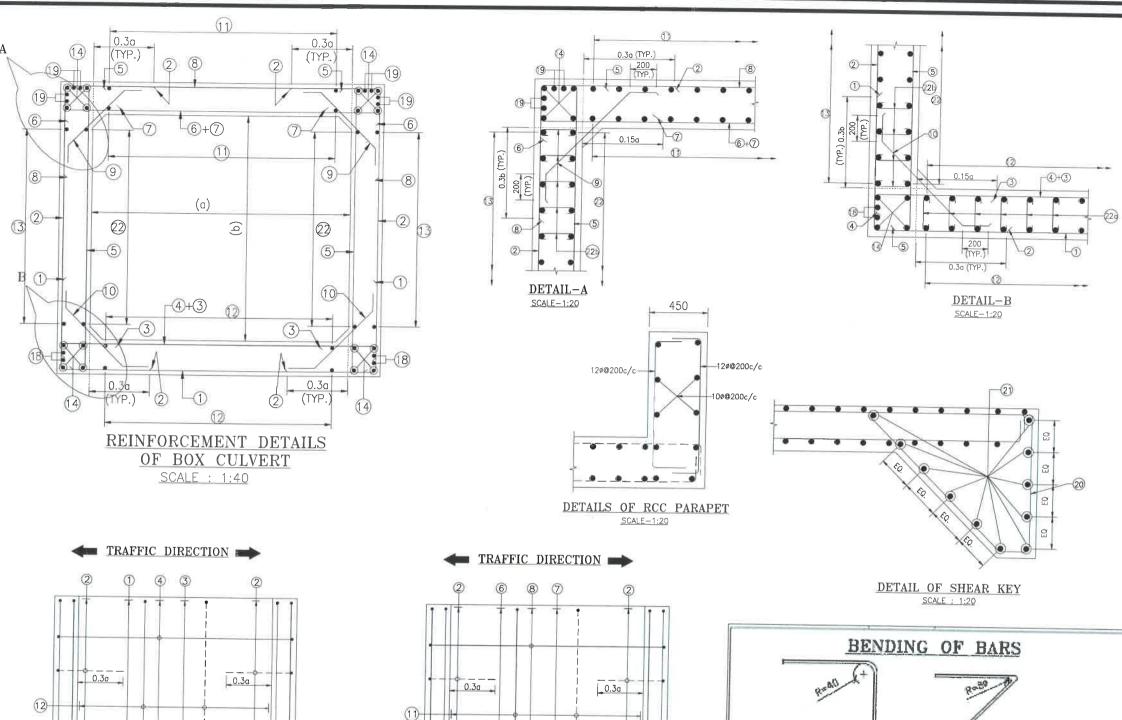
DRAWING FOR BOX CULVERT PROJECT NAME:

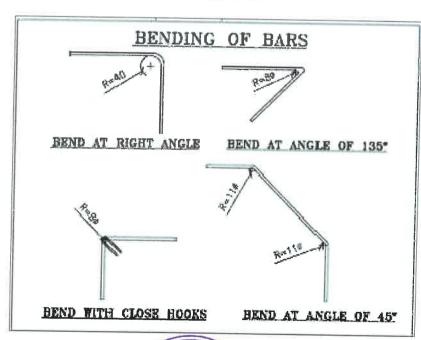
DRG, NO. SHEET: RANGEMENT DD/IMP-JIR/ BOX/GAD/01 02 OF 02 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN DESIGNED CHECKED APPROVED

-

STRUCTURE ENGINEER

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE
- AND 40mm AT OTHER SIDE.

 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPA CONFORMING TO IS:1786.
- MINIMUM U.2% PROUF STRESS OF DUDMPD CONFORMING TO IS: 1700.

 LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.

 THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT
- GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

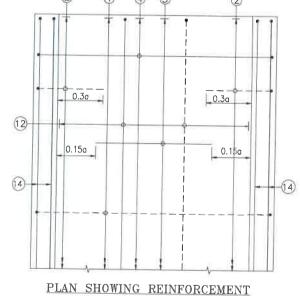
LEGEND :-

TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos
1		12	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
5		12	250 C/C
6		12	250 C/C
7		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11)		10	220 C/C
12		10	220 C/C
13		10	220 C/C
14		10	12 NOS.
15		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	220 C/C
21		12	20 NOS.
22 -		10	220 C/C
220	C	8DIA-220(LONG	. DIRECTION) S. DIRECTION)
(22b)	Č	8DIA.220(LONG	DIRECTION) DIRECTION)



DETAIL OF BOTTOM SLAB (HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

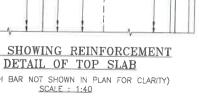
SCALE : 1:40

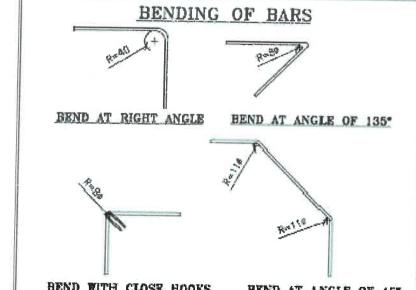
PLAN SHOWING REINFORCEMENT

0.15a

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
SCALE: 1:40

PROOF CONSULTANT:





Y'S FA SAFETY CONSULTANT: BLOOM

DRAWING SCALE: DRAWING TITLE:

PROJECT NAME:-

TYPICAL REINFORCEMENT DETAILS | DD/IMP-JIR/ RF/01 OF BOX CULVERT FOR 1X2X2

DRG. NO. SHEET: 01OF 01 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAI

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17.180 KM) (FMG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. DESIGNED APPROVED



NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



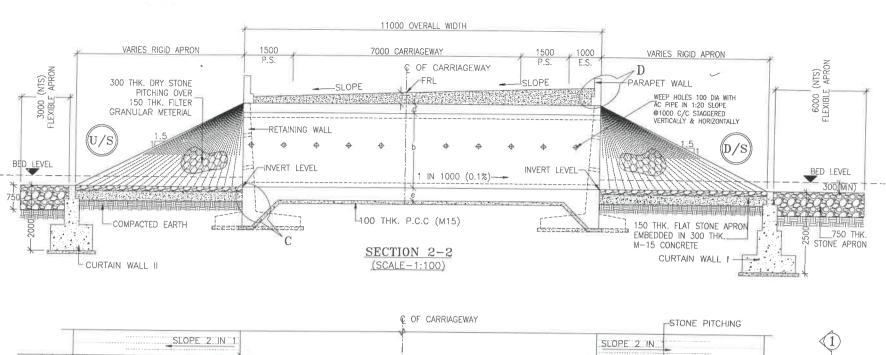
DESIGN DIRECTOR:

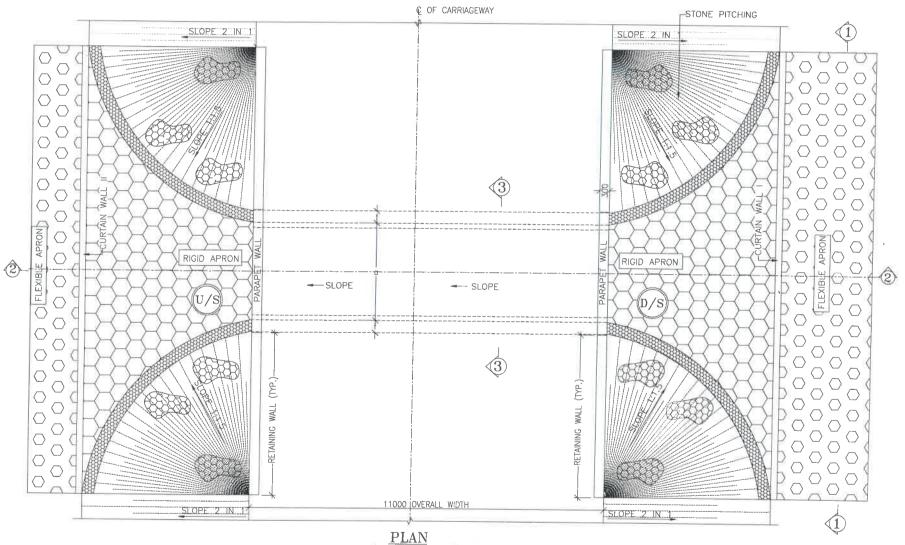
(14)



Hindia Engi

Antique Black P. Ltd.
Address: 191, Mobaritation, 1901, Janier Pass,
Jalpur-302018 (Rules and Engage of Mail - 2760303





(SCALE-1:100)

NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX..... b) RCC RETAINING WALL. M30

c) PCC LEVELLING COURSE... ...M15 d) PCC CURTAIN WALLM15 e) PARAPET WALLM30

- 4. GRADE OF STEEL SHALL BE Fe~500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES \emptyset < 30°, C=0, γ = 2.07/M³
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M² IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BOKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.

- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON ETHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL LVL EQ F.P. U/S D/S P.S. E.S. FOUAL FOOTPATH UP STREAM DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER

CLIENT :



NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

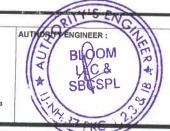


DESIGN DIRECTOR:

PROOF CONSULTANT Hindia Engine Address: 33/7, H-Bro N.F Phasa Gurgaon-Faridabad Road Array NAMA Phone No. 4124-1438819

Antique Buret St. Ltd.
Address: 191, Mohan Lean Garagin Aleyseass,
Jalpur-302018 (Rejesting Loon 19141-2760303
Email: Info@antiquebuildtech.com

SAFETY CONSULTANT:



DRAWING SCALE: DRAWING TITLE:

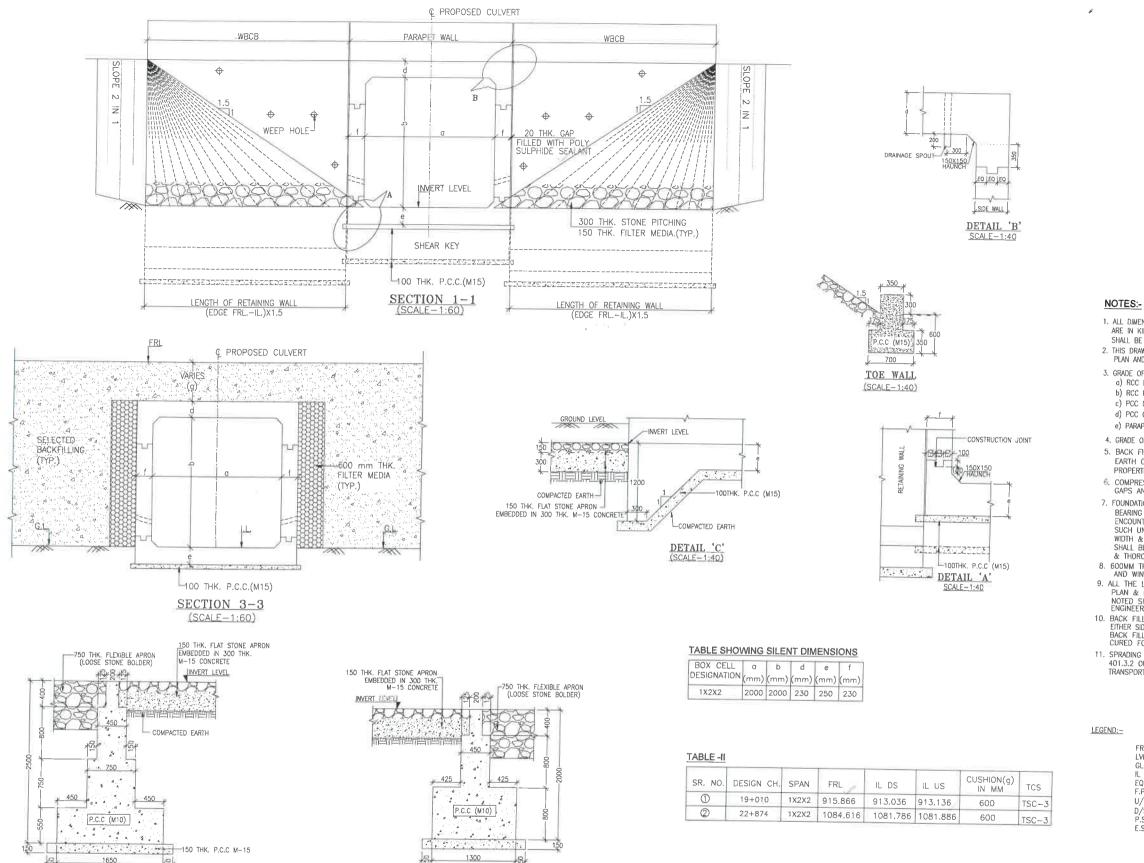
TYPICAL GENERAL ARRANGEMENT DD/IMP-JIR/ BOX/GAD/01 DRAWING FOR BOX CULVERT

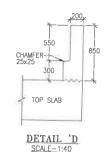
DRG. NO. SHEET: REV 01 OF 02 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN DESIGNED APPROVED

STRUCTURE ENGINEER

PROJECT NAME:

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.





- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX..... ..M30 b) RCC RETAINING WALL ..M30 c) PCC LEVELLING COURSE. ..M15 d) PCC CURTAIN WALL. ..M15 e) PARAPET WALL...M30
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS~1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES $\emptyset < 30^\circ$, C=0, $\gamma = 2.01/\text{M}^3$
- © COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M³ IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR-78—2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.

 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERNCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.

- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQUAL FOOTPATH UP STREAM U/S D/S P.S. E.S.

DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER

CLIENT :

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



TYPICAL CROSS SECTION OF

CURTAIN WALL TYPE-I (D/S)





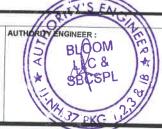
1600 TYPICAL CROSS SECTION OF

CURTAIN WALL TYPE-II (U/S)

(SCALE 1:40)







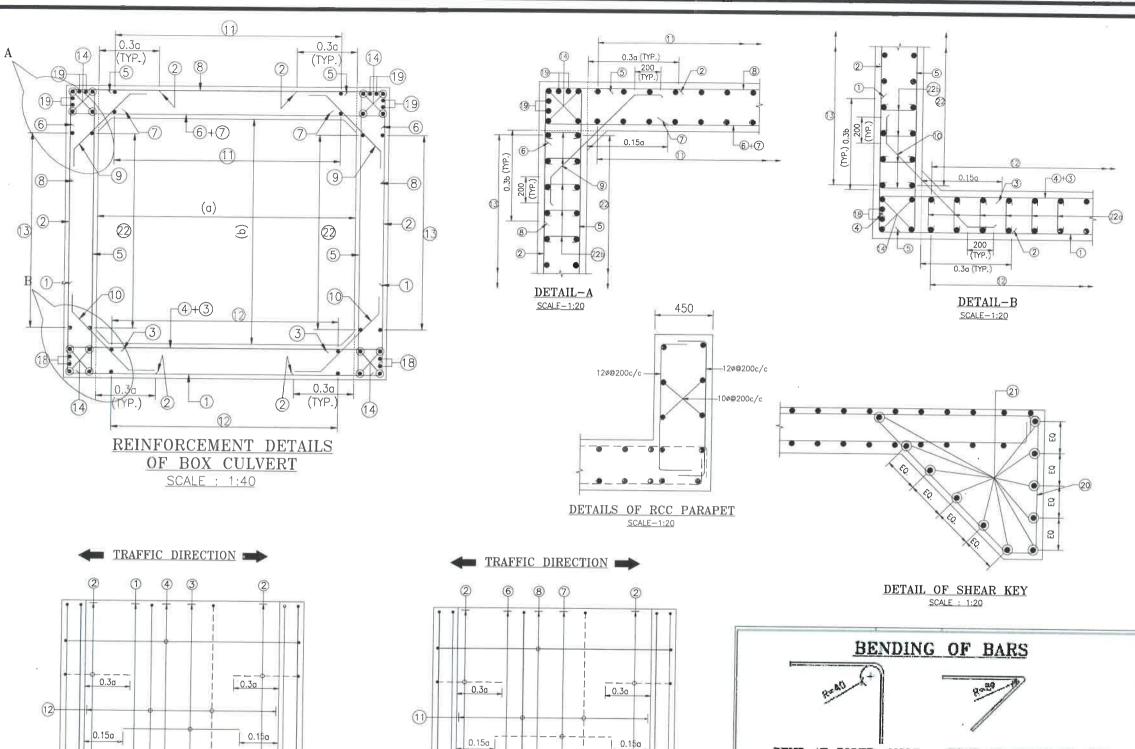
DRAWING SCALE: NTS	DRAWING TITLE: TYPICAL GENERAL A DRAWING FOR BO		
PROJECT NAME:-	ANE WITH PAVED SHOULDER OF		

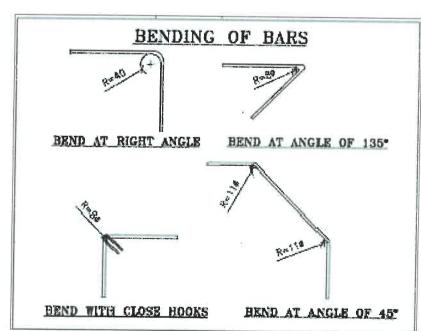
ARRANGEMENT DD/IMP-JIR/ BOX/GAD/01 02 OF 02 OX CULVERT DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE, DESIGNED STRUCTURE ENGINEER

DRG. NO.

SHEET:

APPROVED





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
- TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.

 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPG CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

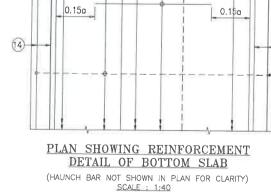
LEGEND :-

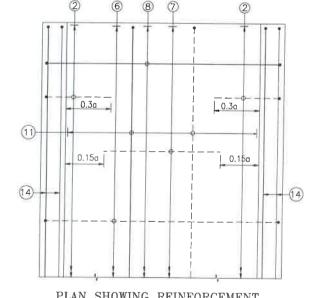
 TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos
1		12	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
(5)		12	250 C/C
6		12	250 C/C
7		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11		10	220 C/C
12		10	220 C/C
13		10	220 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	220 C/C
2)		12	20 NOS.
22		10	220 · C/C
220	C	8DIA.220(LONG 500(TRAN	S. DIRECTION) S. DIRECTION)
(22b)		8DIA.220(LONG 500(TRAN	. DIRECTION)





PLAN SHOWING REINFORCEMENT DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY) SCALE : 1:40

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



DESIGN DIRECTOR:



PROOF CONSULTANT:



SAFETY CONSULTANT Antique Vt. Ltd.
Address: 191, Moham Agus Opalpura Byepass,
Jalpur-302018 (Rajasthan) Phone No. 0141-2760303
Email: Info@antiquebulldtech.com

AUTHORIT ENGINEER :

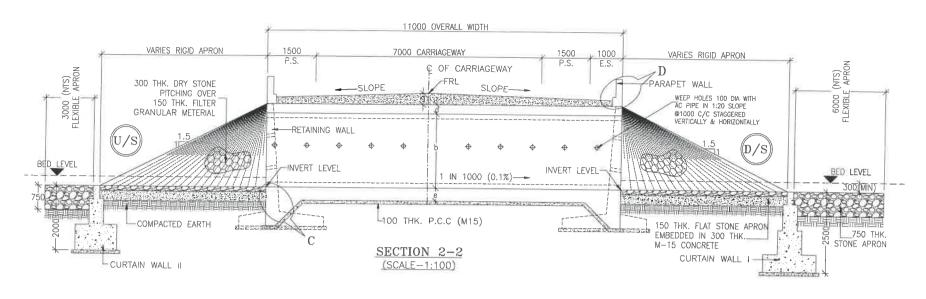
DR

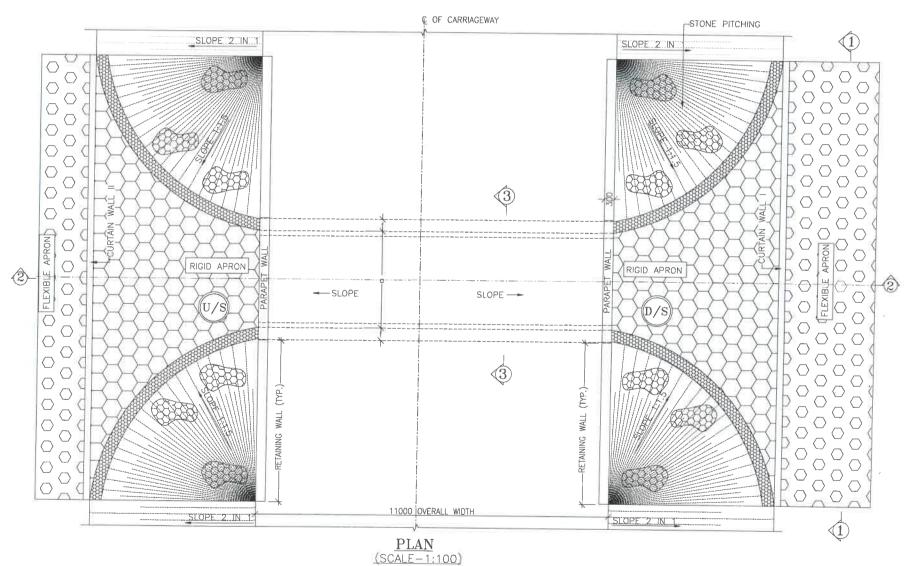
RAWING SCALE:	DRAWING TITLE:	Ţ
NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X2X2	1

DRG. NO. SHEET: REV DD/IMP-JIR/ RF/01 01OF 01 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17,180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DESIGNED APPROVED STRUCTURE ENGINEER





- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: M30

b) RCC RETAINING WALL. .M30 c) PCC LEVELLING COURSE. d) PCC CURTAIN WALLM15 e) PARAPET WALL...

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.01/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M² IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.
- ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
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LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL LVL IL EQ F.P. EQUAL FOOTPATH U/S D/S P.S. E.S. UP STREAM DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER

CLIENT:



ATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



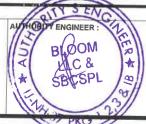
DESIGN DIRECTOR:



Hindia Englosers Po Ltd.
Address: 337, Halack & Phase-1,
Gurgaon-Faridabad Road Haryana, INDIA-122002,
Phone No.-0124-4028681

PROOF CONSULTANT:





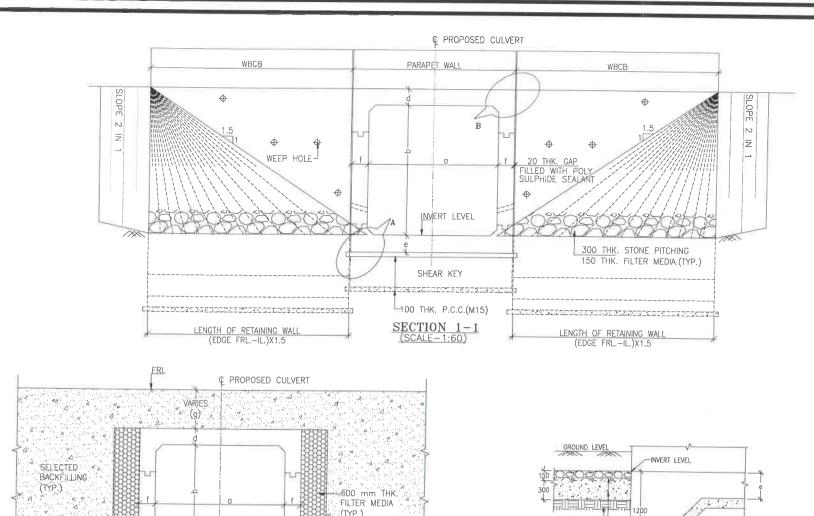
DRAWING SCALE: DRAWING TITLE: DRG. NO. TYPICAL GENERAL ARRANGEMENT DD/IMP-JIR/BOX/GAD/01 01 OF 02 DRAWING FOR BOX CULVERT PROJECT NAME:

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (FMC-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

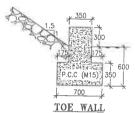
DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN DESIGNED APPROVED STRUCTURE ENGINEER

SHEET:

REV







(SCALE-1:40)

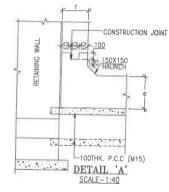




TABLE SHOWING SILENT DIMENSIONS

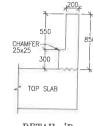
BOX CELL	a	b	d	e	f
DESIGNATION	(mm)	(mm)	(mm)	(mm)	(mm)
1X2X2					230

TABLE -II

-COMPACTED FARTH

DETAIL 'C' (SCALE-1:40)

SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	17+532	1X2X2	853.813	850.983	851.083	600	TSC-3
2	18+141	1X2X2	877.779	874.949	875.049	600	TSC-3
3	22+728	1X2X2	1081.464	1078.634	1078.734	600	TSC-3
4	24+510	1X2X2	1136.648	1133.818	1133.918	600	TSC~3
5	25+130	1X2X2	1140.313	1137,483	1137.583	600	TSC-3
6	27+096	1X2X2	1217.779	1214.949	1215.049	600	TSC-3
0	27+284	1X2X2	1227.117	1224,287	1224.387	600	TSC3
8	27+481	1X2X2	1234,928	1232.098	1232.198	600	TSC-3
9	27+684	1X2X2	1243.938	1241,108	1241.208	600	TSC-3
10	28+002	1X2X2	1259,467	1256.637	1256.737	600	
(11)	28+167	1X2X2	1268.268	1265.438	1265.538		TSC-3
12	28+879	1X2X2	1271.742	1268.912	1269.012	600	TSC-3



DETAIL 'D

NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: g) RCC BOX
- b) RCC RETAINING WALL ...M30 c) PCC LEVELLING COURSE... ..M15 d) PCC CURTAIN WALLM15 (e) PARAPET WALL.... ...M30
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES $\emptyset < 30^\circ$, C=0, $\gamma = 2.0T/M^3$
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M² IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FRL	_	FINISHED ROAD LEV
LVL	-	LEVEL
GL	-	GROUND LEVEL
IL	_	INVERT LEVEL
EQ	_	EQUAL
F.P.	_	FOOTPATH
U/S	-	UP STREAM
D/S	_	DOWN STREAM
P.S.	-	PAVED SHOULDER
E.S.	_	EARTHEN SHOULDER

- COMPACTED FARTH P.C.C (M10)

150 THK. P.C.C M-15

TYPICAL CROSS SECTION OF CURTAIN WALL TYPE-I (D/S)

1650

-750 THK. FLEXIBLE APRON (LOOSE STONE BOLDER)

EMBEDDED IN 300 THK M-15 CONCRETI (LOOSE STONE BOLDER) INVERT LEVEL TYPICAL CROSS SECTION OF CURTAIN WALL TYPE-II (U/S)

(SCALE 1:40)

NATIONAL HIGHWAYS & INFRASTRUCTURE

DEVELOPMENT CORPORATION LTD

CLIENT :



100 THK. P.C.C.(M15)

SECTION 3-3

(SCALE-1:60)

150 THK. FLAT STONE APRON EMBEDDED IN 300 THK. M-15 CONCRETE

INVERT LEVEL

DESIGN DIRECTOR:



150 THK FLAT STONE APROL

PROOF CONSULTANT



COMPACTED EARTH 150 THK. FLAT STONE APRON 300 EMBEDDED IN 300 THK. M-15 CONCRETE

Antique Brutteck Pt. Ltd. Address: 191, Mehar Maner, Gardon Byspass, Jaipur-30218 (Rajasthan) Priñe No. 0141-2760303 Email : info@antiquebuildtech.com

SAFETY CONSULTANT



DRAWING SCALE: DRAWING TITLE: NTS

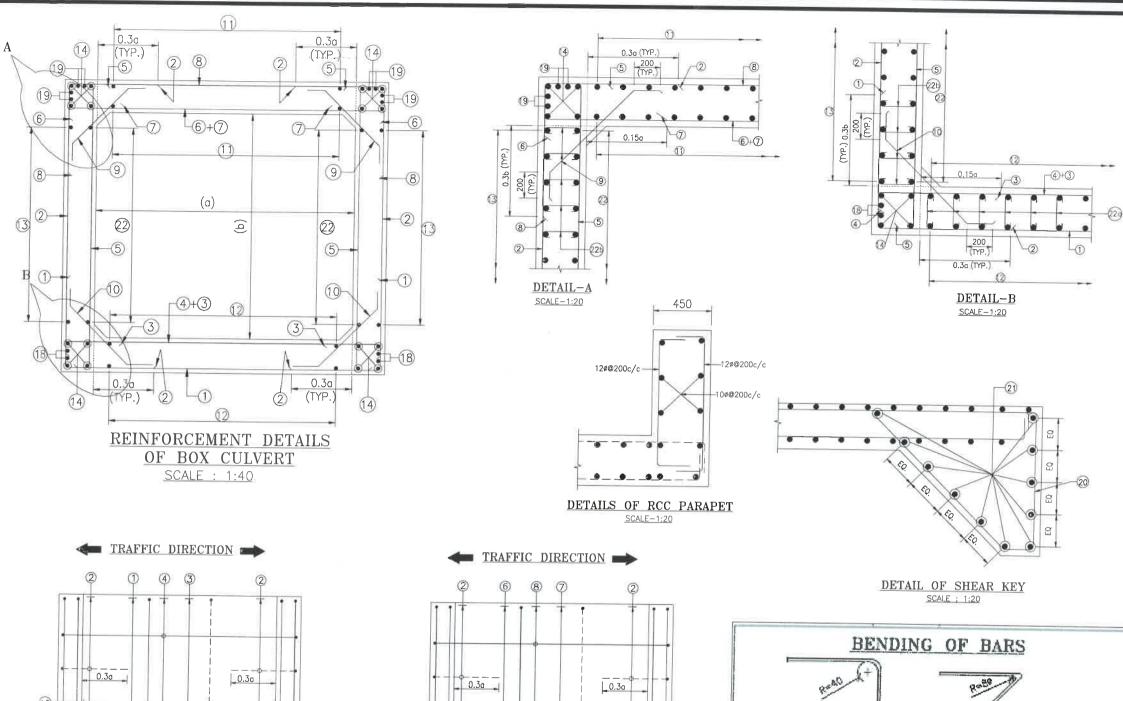
PROJECT NAME:

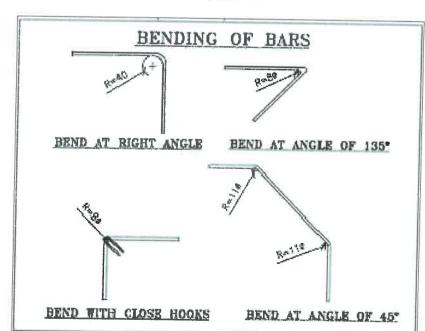
DRG. NO. TYPICAL GENERAL ARRANGEMENT DD/IMP-JIR/ BOX/GAD/01 DRAWING FOR BOX CULVERT

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. DESIGNED CHECKED APPROVED STRUCTURE ENGINEER

SHEET:

02 OF 02





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.

- TO BE FOLLOWED.

 CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.

 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPc CONFORMING TO 15:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE REI FVANT
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

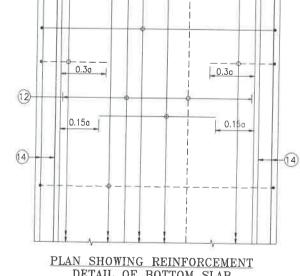
LEGEND :-

 TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

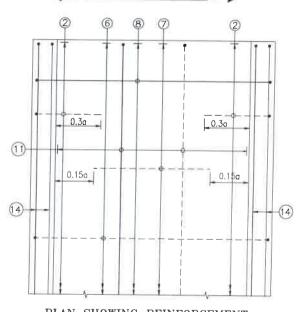
(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos
1		12	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
5	I]	12	250 C/C
6		12	250 C/C
Ø		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11)		10	220 C/C
12		10	220 C/C
(3)		10	220 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	220 C/C
21)		12	20 NOS.
22 -		10	220 C/C
(220)		8DIA.220(LONG	G. DIRECTION) S. DIRECTION)
(22b)	C	8DIA.220(LONG	G. DIRECTION) S. DIRECTION)



DETAIL OF BOTTOM SLAB (HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

SCALE : 1:40



PLAN SHOWING REINFORCEMENT DETAIL OF TOP SLAB (HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY) SCALE : 1:40

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



DESIGN DIRECTOR:

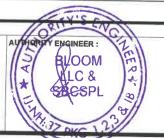


PROOF CONSULTANT:



SAFETY CONSULTANT:

Antique Education St. Ltd.
Address: 191, Nohal Lagar Special Byepass,
Jaipur-302016 (Rajastina 1900 No. 0141-2760382
Email: Info@antiquebuildtech.com



DRAWING SCALE: DRAWING TITLE:

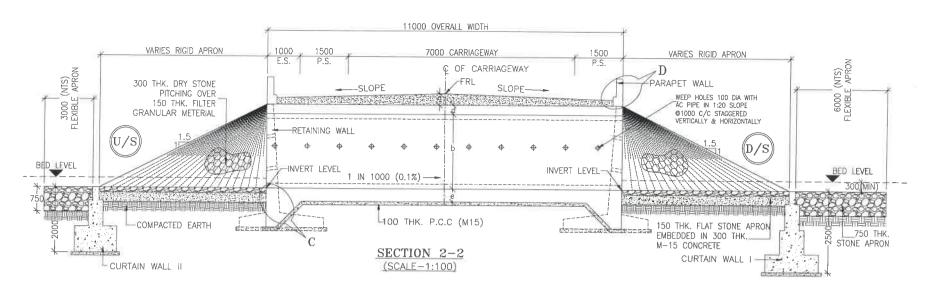
TYPICAL REINFORCEMENT DETAILS | DD/IMP-JIR/ RF/01 OF BOX CULVERT FOR 1X2X2

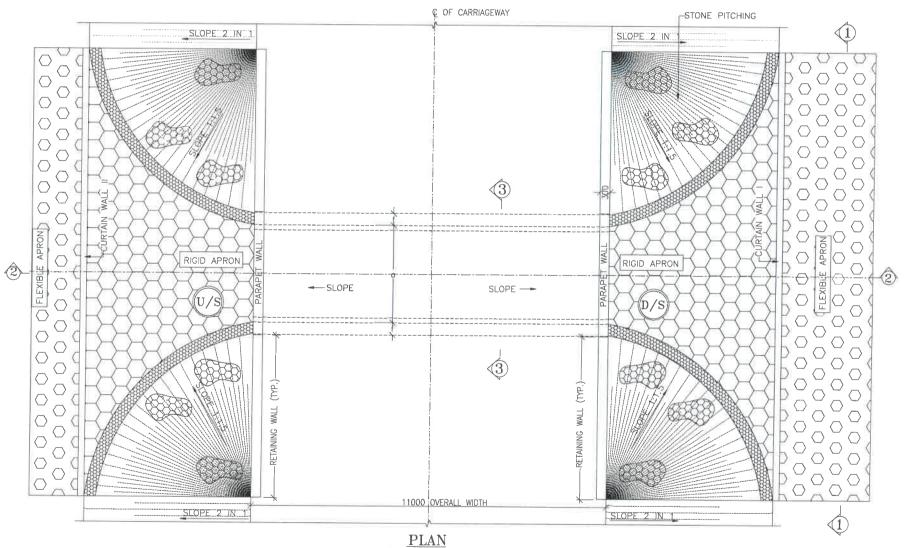
DRG. NO. SHEET: 01OF 01

PROJECT NAME:-

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN DESIGNED APPROVED





- ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX.... b) RCC RETAINING WALL. M30 c) PCC LEVELLING COURSE ... M15

d) PCC CURTAIN WALL.....

e) PARAPET WALL.....

4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)

M15

...M30

- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES \emptyset < 30°, C=0, γ = 2.0T/M³
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING Foundation of Box Shall be placed over a firm Strata Having Bearing Capacity Equal to $10^{1}/\mathrm{M}^2$ in general. If the material encountered is soft , sponzy or other unsuitable soil, such unsuitable material shall be totally removed to such depth , width & length, as directed by the engineer. The excavated area shall be backfilled with approved granular material & thoroughly compacted up to the specified level.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78–2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQUAL FOOTPATH U/S D/S P.S. UP STREAM DOWN STREAM PAVED SHOULDER





NATIONAL HIGHWAYS & INFRASTRUCTURE **DEVELOPMENT CORPORATION LTD**



DESIGN DIRECTOR:



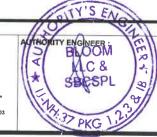
PROOF CONSULTANT:

(SCALE-1:100)



SAFETY CONSULTANT:





		*
DRAWING SCALE:	DRAWING TITLE:	DRG. NO.
NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DD/IMP-JIR/ BOX/GAD/01
PROJECT NAME:-		DATE AUG 2024 DRAWN CT

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH=17.180 KM) (FMC-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

SHEET:

01 OF 02

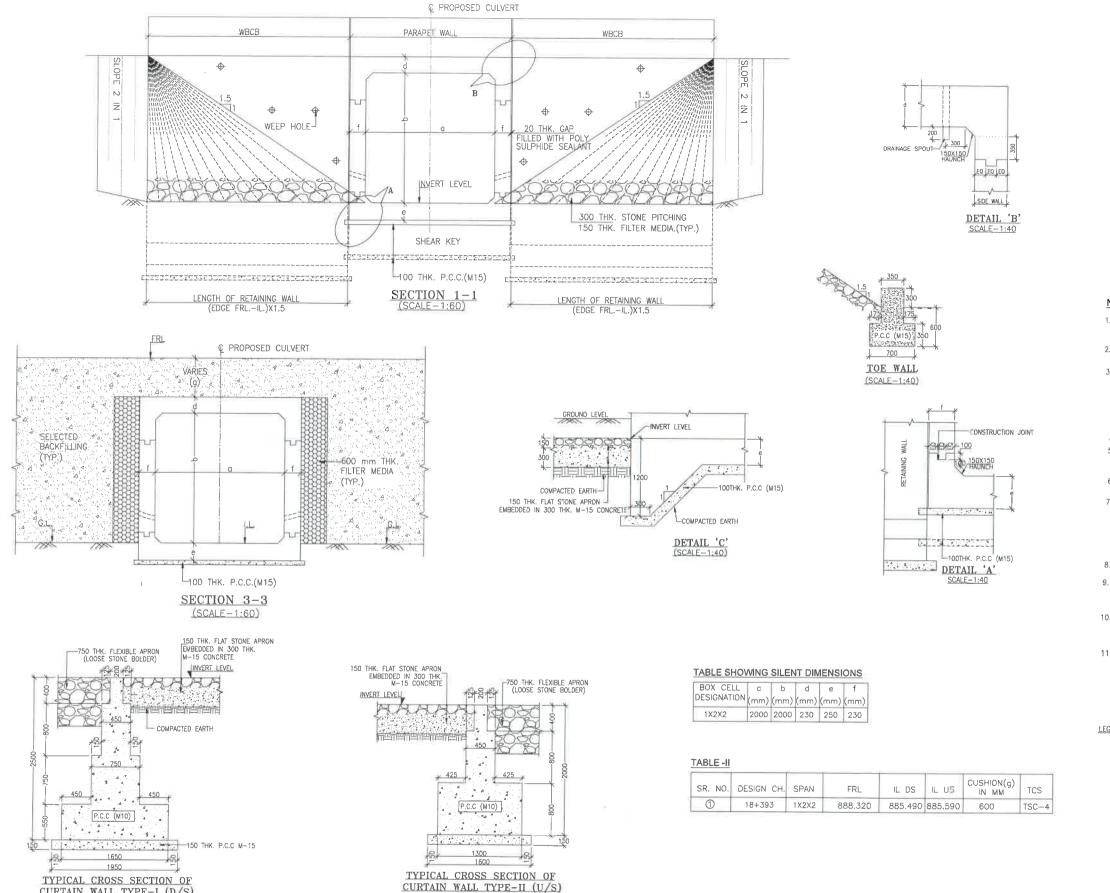
APPROVED

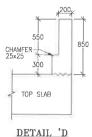
DESIGNED

STRUCTURE ENGINEER

CHECKED

RE\ RO





- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:

(a)	RCC	BOX	
1	ь)	RCC	RETAINING WALLM30	
(c)	PCC	LEVELLING COURSEM15	
(d)	PCC	CURTAIN WALLM15	
6	e)	PARA	PET WALLM30	

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES $\emptyset < 30^\circ, C=0, \ y=2.0T/M^3$
- COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLT-SULPHIDE SEALANI.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. SOOMM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FRL	_	FINISHED ROAD LEVEL
LVL	_	LEVEL
GL	_	GROUND LEVEL
IL	_	INVERT LEVEL
EQ		EQUAL
F.P.	_	FOOTPATH
U/S	-	UP STREAM
D/S	-	DOWN STREAM
P.S.	-	PAVED SHOULDER
E.S.	-	EARTHEN SHOULDER

CURTAIN WALL TYPE-I (D/S)

EPC CONTRACTOR: NATIONAL HIGHWAYS & INFRASTRUCTURE M/S. CMM NERAPROJECTS LTD.

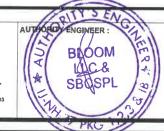
DESIGN DIRECTOR:



(SCALE 1:40)



SAFETY CONSULTANT:



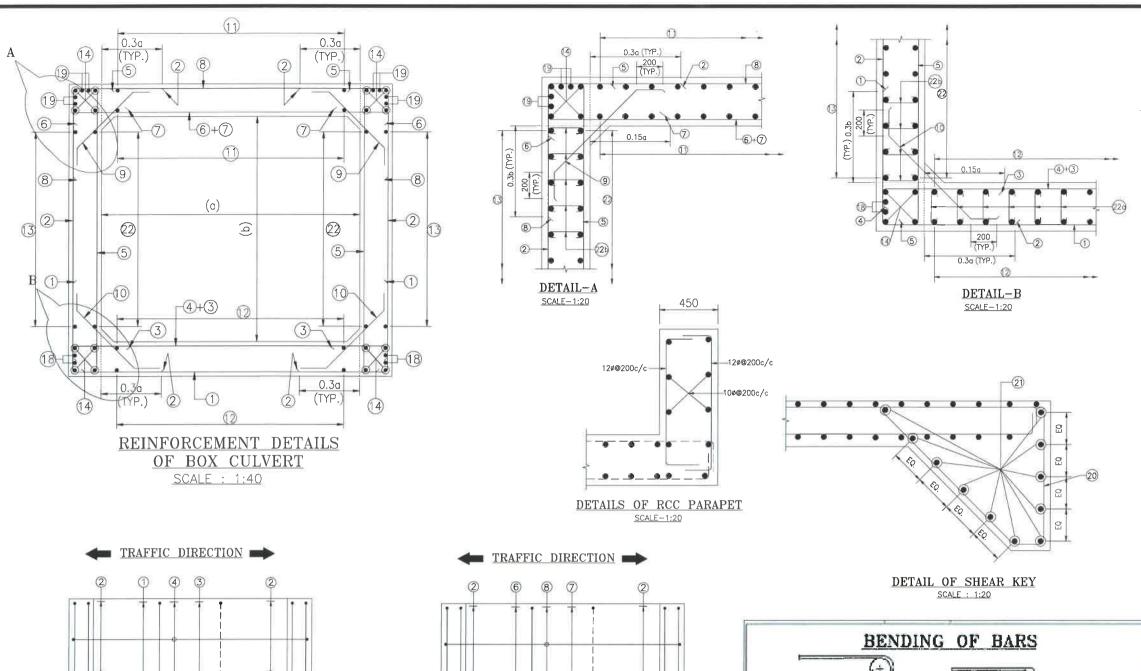
DRAWING SCALE:	DRAWING TITLE:	DRG. NO.		SHEET:	REV.
NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DD/IMP-JIR/ BO	X/GAD/01	02 OF 02	R0
PROJECT NAME:-	·	DATE AUG-2021	DRAWN STRU	JCTURE DRAFT	SMAN

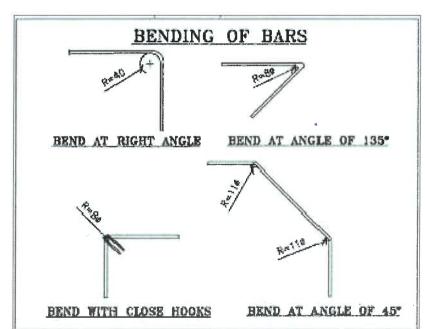
APPROVED

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM DESIGNED CHECKED SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING PROCUREMENT & CONSTRUCTION (EPC) MODE. STRUCTURE ENGINEER

DEVELOPMENT CORPORATION LTD

CLIENT:





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
- ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT
- GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

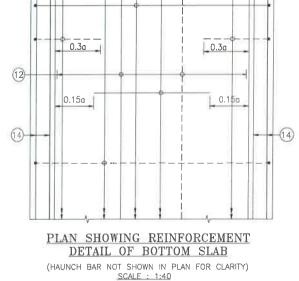
LEGEND :-

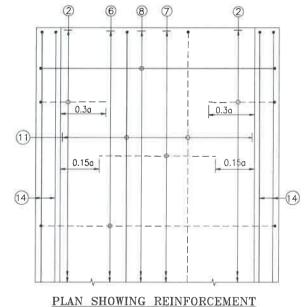
TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA. SPACING/Nos.		
1		12 250 C/C		
2	[]	12	250 C/C	
3		12	250 C/C	
4		12	250 C/C	
(5)		12	250 C/C	
6		12	250 C/C	
7		12	250 C/C	
8	[12	250 C/C	
9		10	250 C/C	
10		10	250 C/C	
11)		10	220 C/C	
12		10	220 C/C	
13		10	220 C/C	
14		10	12 NOS.	
15)		NOT IN USE	NOT IN USE	
16)		NOT IN USE	NOT IN USE	
17	5	NOT IN USE	NOT IN USE	
18)		10	4 NOS.	
19		10	8 NOS.	
20		12	220 C/C	
21)		12	20 NOS.	
22		10	220 C/C	
220	C		G. DIRECTION) IS. DIRECTION)	
(22b)	C	8DIA.220(LONG. DIRECTION). 500(TRANS. DIRECTION)		





DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY) SCALE : 1:40

CLIENT : NATIONAL HIGHWAYS & INFRASTRUCTURE

DEVELOPMENT CORPORATION LTD



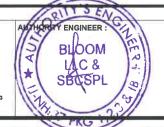
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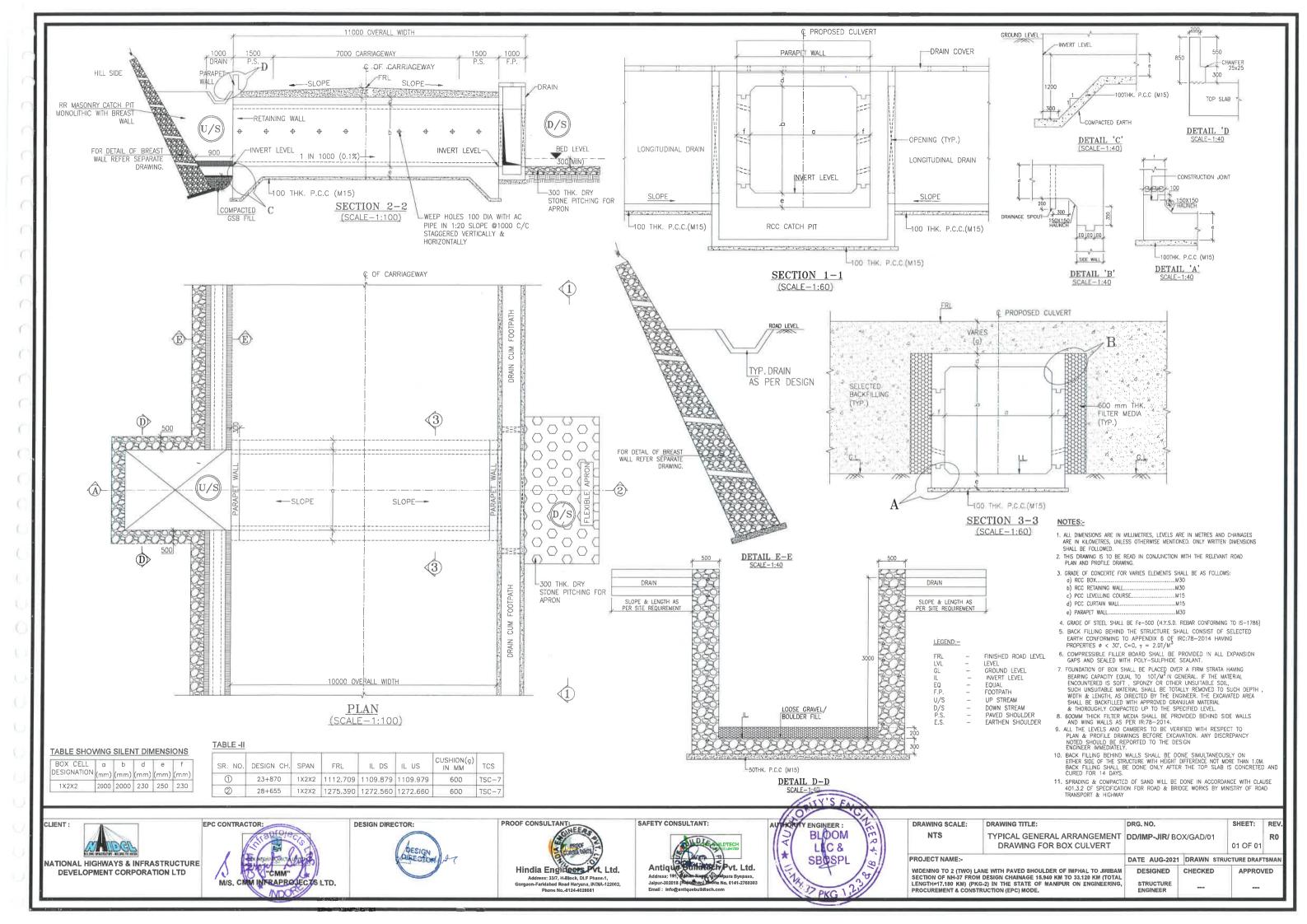
SAFETY CONSULTANT

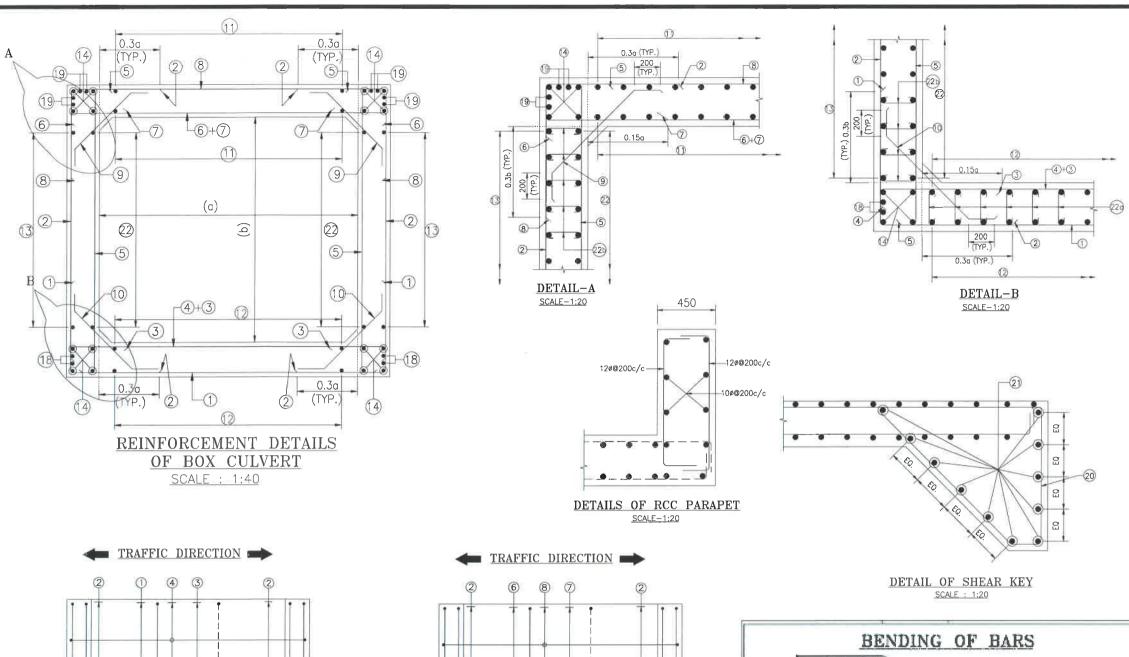


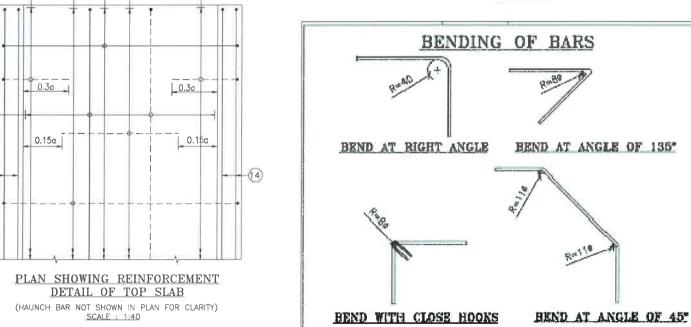
DRAWING SCALE:	DRAWING TITLE:		
NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X2X2		
PROJECT NAME:- WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAN SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING PROCUR			

:-		DATE AUG-2021	DRAWN STRU	CTURE DRAF	TSMAN
	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X2X2	DD/IMP-JIR/ R	F/01	01OF 01	R0
LE:	DRAWING TITLE:	DRG. NO.		SHEET:	REV

STRUCTURE ENGINEER







- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.

 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

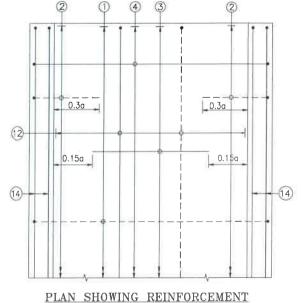
LEGEND :-

TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

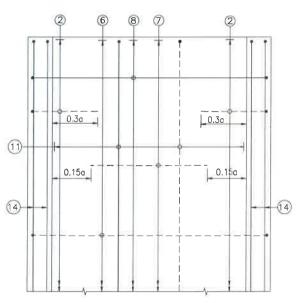
SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.	
1		12	250 C/C	
2		12	250 C/C	
3		12	250 C/C	
4		12	250 C/C	
(5)		12	250 C/C	
6		12	250 C/C	
0		12	250 C/C	
8		12	250 C/C	
9		10	250 C/C	
		10	250 C/C	
11)		10	220 C/C	
(12)		10	220 C/C	
(13)		10	220 C/C	
14		10	12 NOS.	
(15)		NOT IN USE	NOT IN USE	
16		NOT IN USE	NOT IN USE	
17	5	NOT IN USE	NOT IN USE	
18)		10	4 NOS.	
19		10	8 NOS.	
20		12	220 C/C	
21		12	20 NOS.	
22		10	220 C/C	
220	C	8DIA.220(LON 500(TRAN	IS. DIRECTION)	
(22b)	C	8DIA.220(LONG. DIRECTION) 500(TRANS. DIRECTION)		



DETAIL OF BOTTOM SLAB



PLAN SHOWING REINFORCEMENT (HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY) SCALE : 1:40

PROOF CONSULTANT

SAFETY CONSULTANT:

Antique British Evt. Ltd.
Address: 191, Addr

PIT PENGINEER: LIC & SBESPL

DRAWING SCALE: NTS PROJECT NAME:

SHEET: TYPICAL REINFORCEMENT DETAILS | DD/IMP-JIR/ RF/01 01OF 01 OF BOX CULVERT FOR 1X2X2 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAI WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,949 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. DESIGNED

STRUCTURE

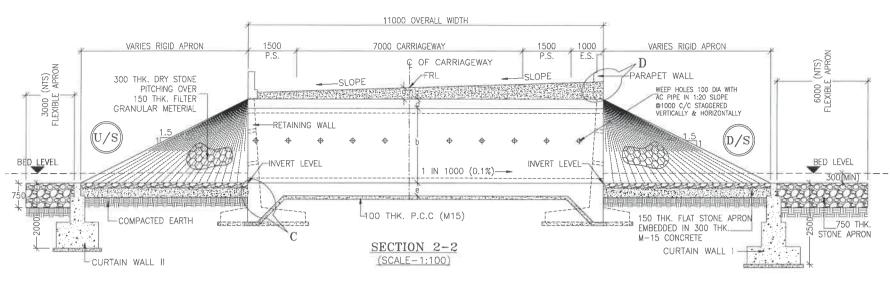
ENGINEER

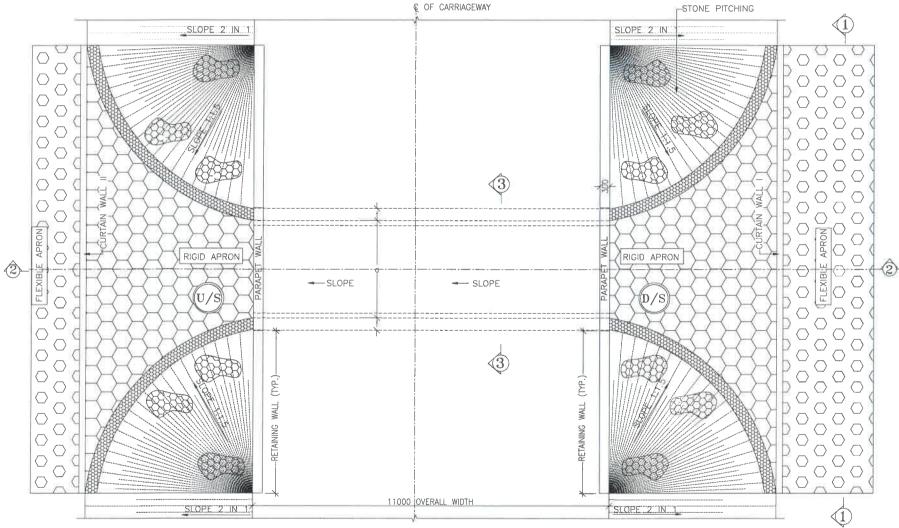
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

LIENT:

M/S OMM-INFRAPROJECTS LTD. INDO

DESIGN DIRECTOR





PLAN (SCALE-1:100)

NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX..... M30
 - b) RCC RETAINING WALL ...M30 c) PCC LEVELLING COURSE... ...M15 d) PCC CURTAIN WALL..... ...M15

e) PARAPET WALL.....

4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)

....M30

- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.0T/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M² IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- A FIGUROSCIE COMPACTED OF THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS
 AND WING WALLS AS PER IR:78–2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO
 PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY
 NOTED SHOULD BE REPORTED TO THE DESIGN
 ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQ F.P. U/S D/S P.S. E.S. EQUAL FOOTPATH UP STREAM DOWN STREAM
PAVED SHOULDER EARTHEN SHOULDER

CLIENT :

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

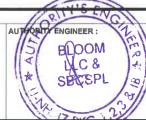


DESIGN DIRECTOR:



Hindia Engineers Vt. Ltd.

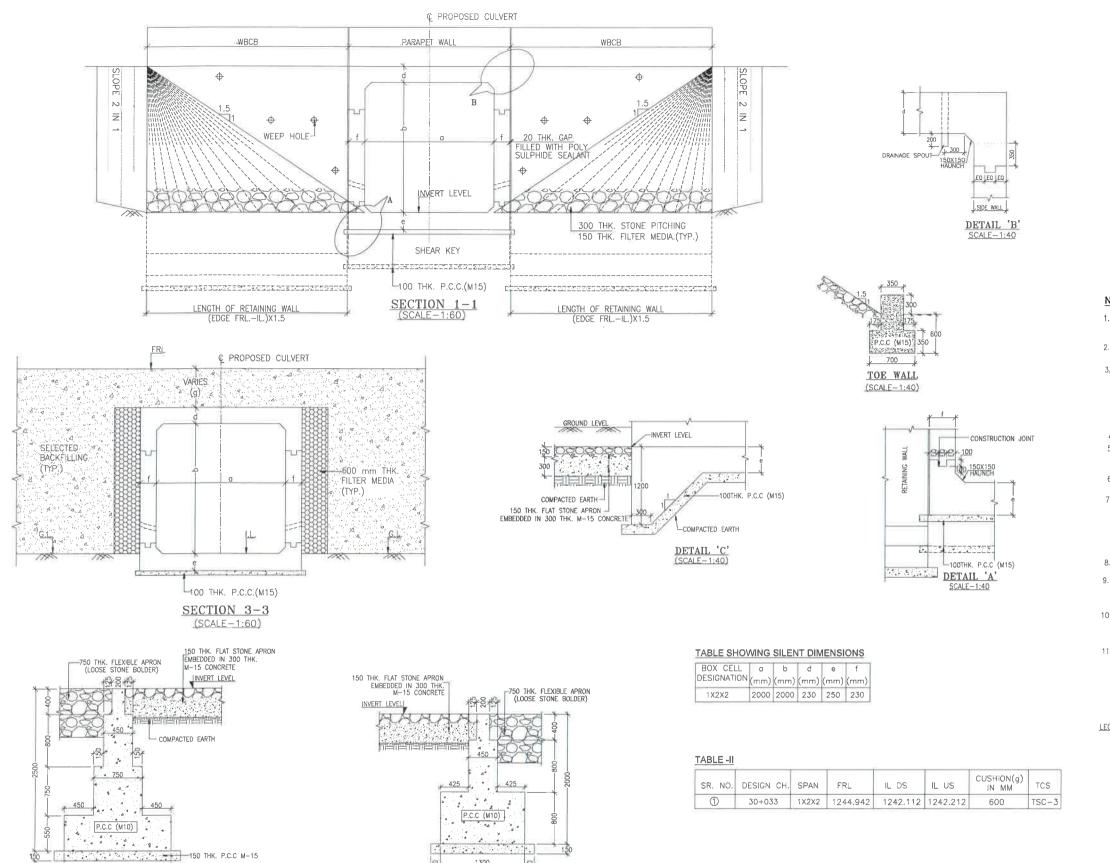


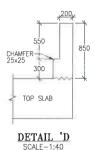


DRAWING SCALE:	DRAWING TITLE:	DRG. NO.		SHEET:	REV.
NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DD/IMP-JIR/ BO	X/GAD/01	01 OF 02	R0
PROJECT NAME:-		DATE AUG-2021	DRAWN STRU	CTURE DRAF	TSMAN

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DESIGNED CHECKED APPROVED STRUCTURE -ENGINEER





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- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX..... ...M30 b) RCC RETAINING WALL. .M30 c) PCC LEVELLING COURSE. .M15 d) PCC CURTAIN WALL .. M15
- e) PARAPET WALL..... M30 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.01/ M^3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY-SULPHIDE SEALANI.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M* IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH . WIDTH & LENGTH, AS DIRECTED BY THE ENCINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL. & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER 18:78-2014.
- ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY
- PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY
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 ENGINEER IMMEDIATELY.

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 EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M.
 BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND
 CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FRL	-	FINISHED ROAD LEVEL
LVL	_	LEVEL
GL	_	GROUND LEVEL
IL.	-	INVERT LEVEL
EQ	-	EQUAL
F.P.	771	FOOTPATH
U/S	-	UP STREAM
D/S	_	DOWN STREAM
P.S.	-	PAVED SHOULDER
E.S.	-	EARTHEN SHOULDER



1650 1950

TYPICAL CROSS SECTION OF

CURTAIN WALL TYPE-I (D/S) (SCALE 1:40)

> "CMM M/S. CMM INFRAPROJECTS LTD. INDOX







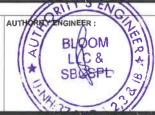
PROOF CONSULTANT Hindia Pvt. Ltd.
Address: 337 Hallow, DLF Phase-1,
Gurgaon-Faridabad Road Haryana, INDIA-122002,
Phone No.-0124-4028681

1300

TYPICAL CROSS SECTION OF

CURTAIN WALL TYPE-II (U/S)





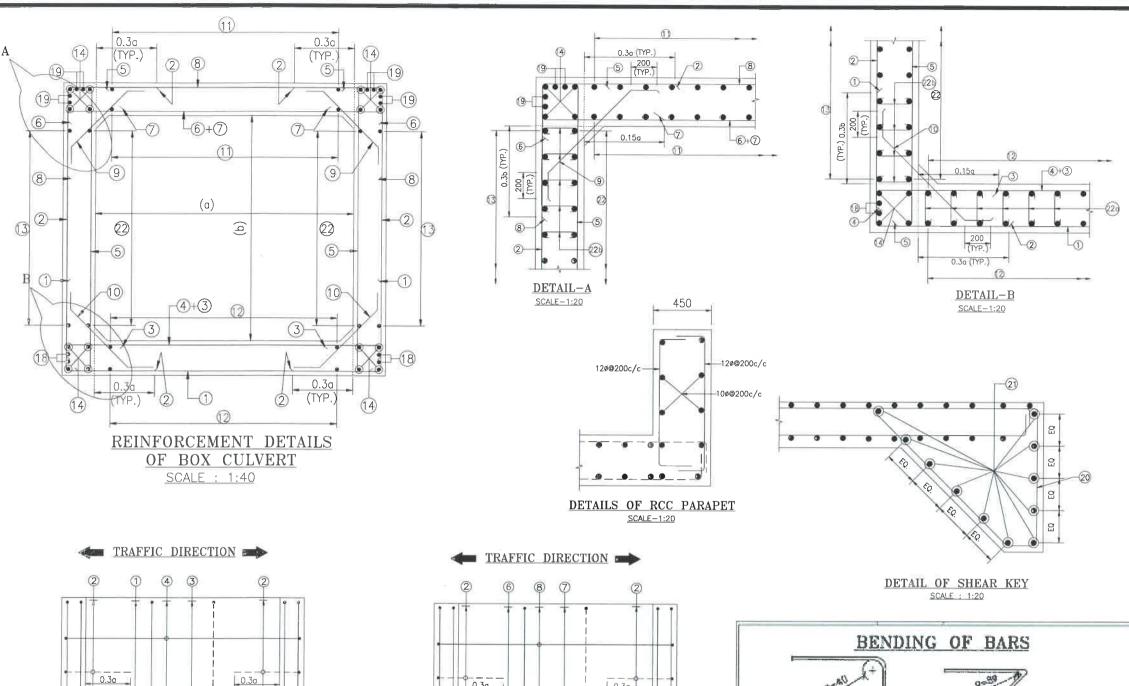
111	
37	DRAV
10011	
Ia	
	PROJE
100/	WIDEN
last	SECTION
/ 3//	LENGT

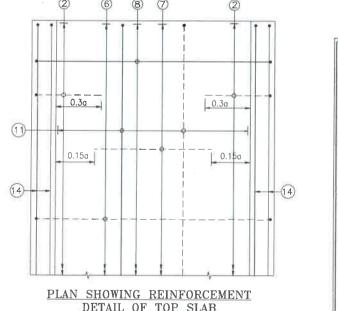
DRAWING SCALE:	DRAWING TITLE:	DRG. NO.	SHEET:	REV.
NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DD/IMP-JIR/ BOX/GAD/01	02 OF 02	R0

ECT NAME:-

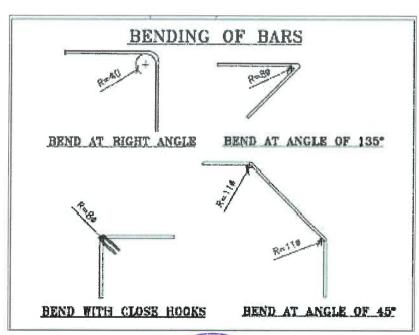
WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17,180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN DESIGNED CHECKED STRUCTURE ENGINEER





PROOF CONSULTANT:



- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE
- AND 40mm AT OTHER SIDE.

 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE
- IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

LEGEND :-

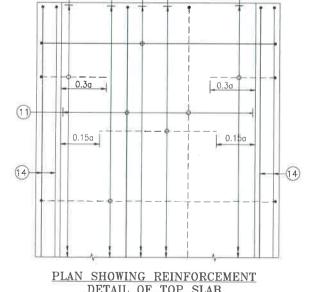
 TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

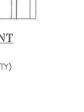
BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1		12	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
(5)	J	12	250 C/C
6	(12	250 C/C
0		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11)		10	220 C/C
12		10	220 C/C
(3)		10	220 C/C
14		10	12 NOS.
15		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
①	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	220 C/C
2)		12	20 NOS.
22		10	220 C/C
220	C	8DIA.220(LONG 500(TRAN	G. DIRECTION) IS. DIRECTION)
(22b)		8DIA.220(LONG	G. DIRECTION) IS. DIRECTION)





SCALE : 1:40

DETAIL OF TOP SLAB (HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY) SCALE : 1:40





deline and the second	
10:11	
101	DR
N Im	//
17	11
1 /0	PRO
195/	WID
1311	LEN
1	PRO

DRAWING SCALE:	DRAWING TITLE:	DRG. NO.		SHEET:	REV.
NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X2X2	DD/IMP-JIR/ R	F/01	01OF 01	R0
PROJECT NAME:- WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17,180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.		DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN			
		DESIGNED	CHECKED	CHECKED APPROVE	
		STRUCTURE ENGINEER			

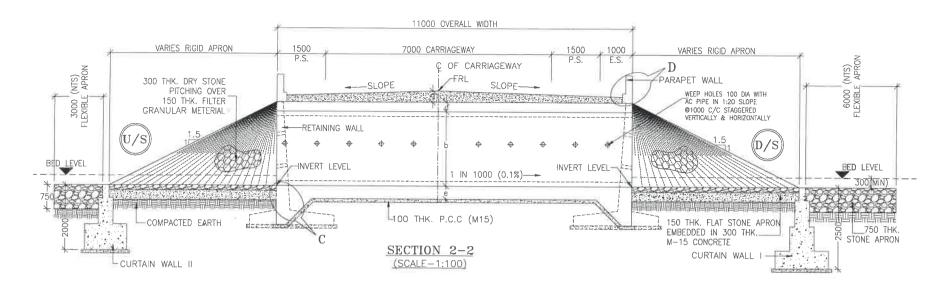
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

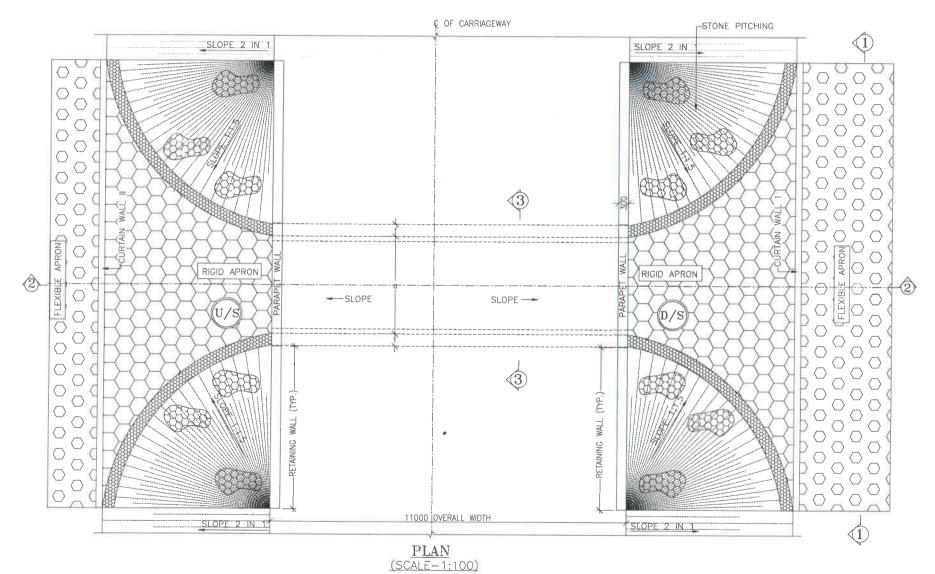
CLIENT:



DESIGN DIRECTOR

Hind Figure Pvt. Ltd.
Addreg/33/7_4-8ips, DLF Phase-1,
Gurgaon-Faridates-Fee: Haryana, NDIA-122002,
Phone No.-0124-4028881





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e) PARAPET WALL...

4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)

...M30

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- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
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LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQUAL[©] EQ F.P. FOOTPATH U/S D/S P.S. E.S. UP STREAM DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER

CLIENT:



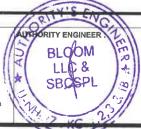
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD









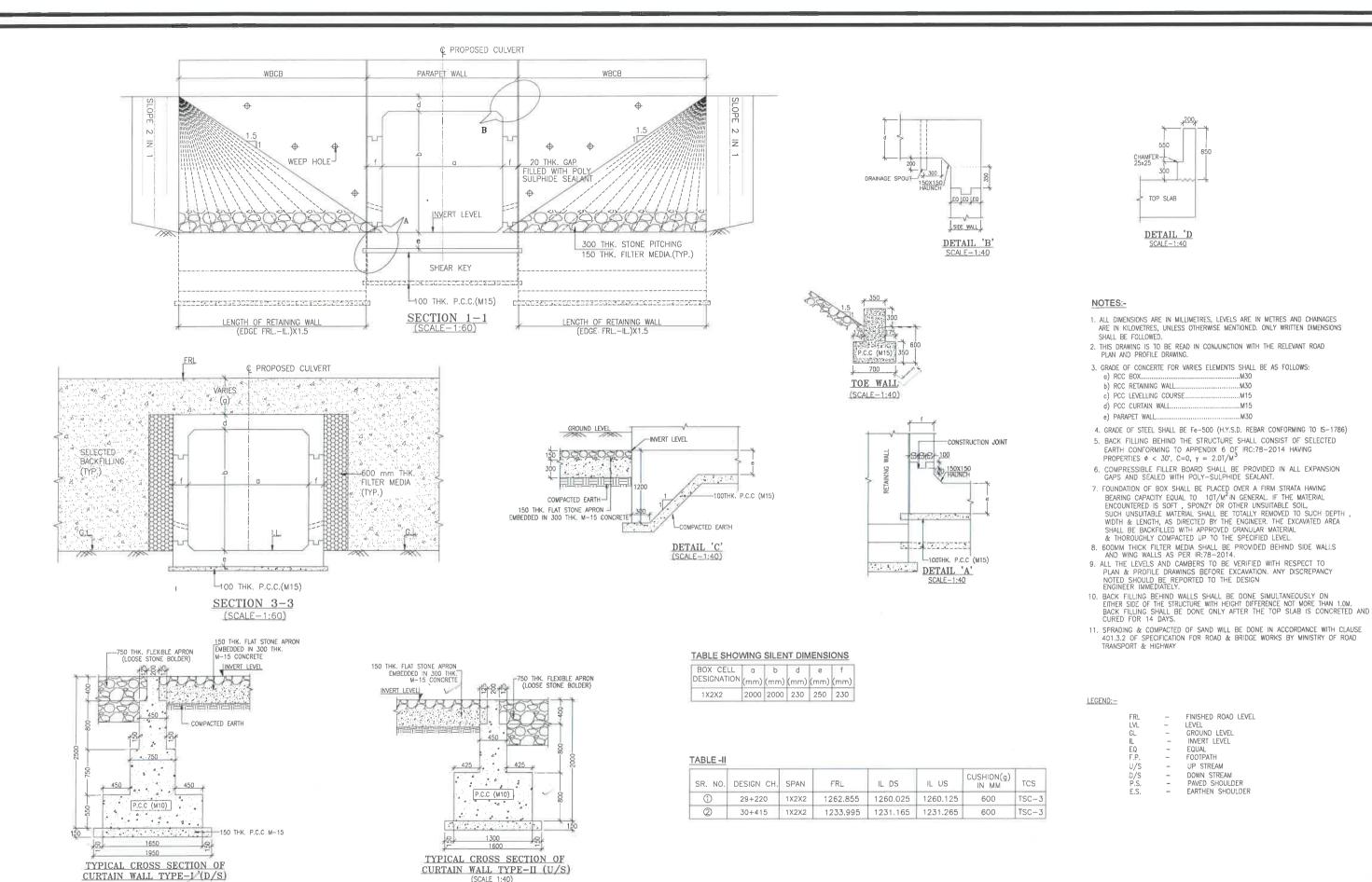


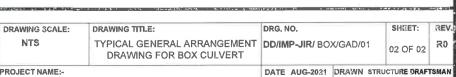
DRAWING SCALE: NTS	DRAWING TITLE: TYPICAL GENERAL ARRAN DRAWING FOR BOX CUI		DRG. NO. DD/IMP-JIR/ BC	X/GAD/01	SHEET: 01 OF 02	REV.
PROJECT NAME:-			DATE AUG-2021	DRAWN STR	UCTURE DRAF	TSMAN
	ANE WITH PAVED SHOULDER OF IMPHAI	TO JIRIBAM	DESIGNED	CHECKED	APPROV	'ED

SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING,

PROCUREMENT & CONSTRUCTION (EPC) MODE

STRUCTURE





LILIC &







DRAWING SCALE:	DRAWING TITLE:	DRG. NO.	SHEET:	REV.
NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DD/IMP-JIR/ BOX/GAD/01	02 OF 02	R0

EQ F.P.

U/S D/S P.S. E.S.

TOP SLAB

DETAIL 'D SCALE-1:40

M30

...M15

....M15

....M30

FINISHED ROAD LEVEL

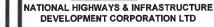
INVERT LEVEL

EQUAL FOOTPATH

UP STREAM DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.140 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DESIGNED CHECKED APPROVED STRUCTURE ENGINEER



CLIENT:



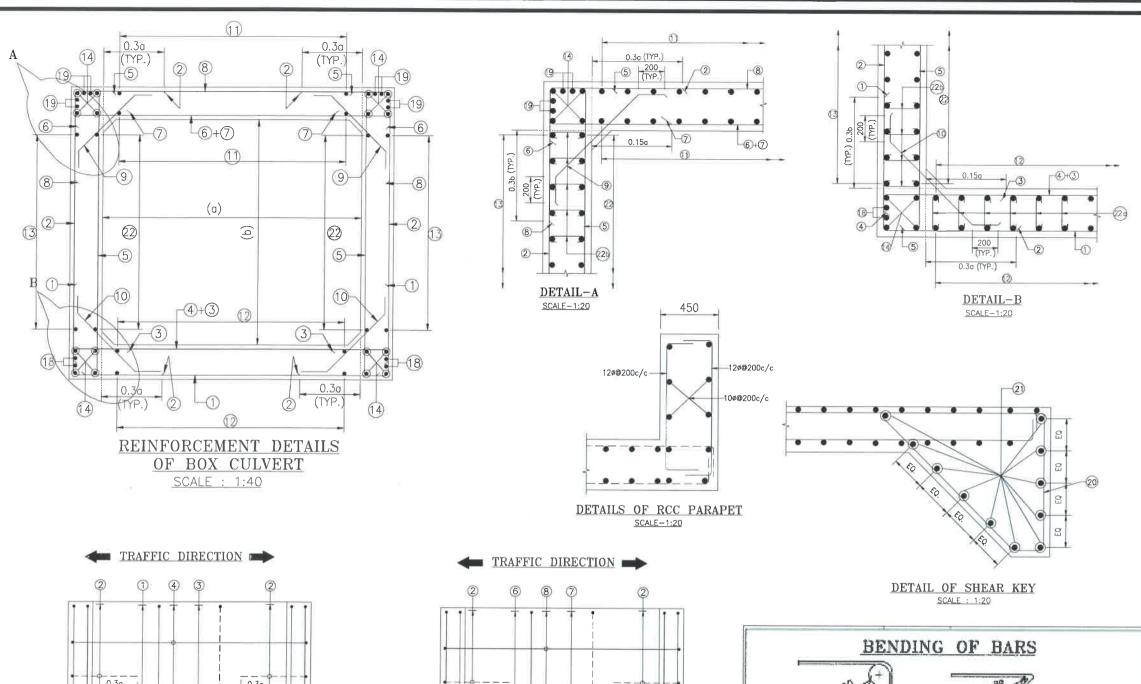
(SCALE 1:40)

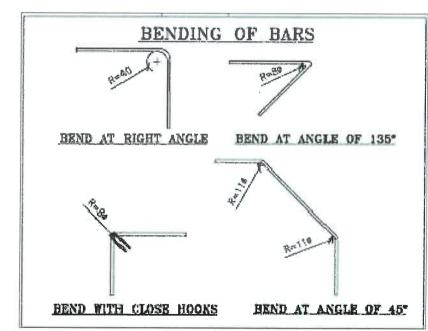
DESIGN DIRECTOR:

PROOF CONSULTANT:

(SCALE 1:40)

Antique Ltd.
Address: 191, Medichaus, Generule Byepars,
Jaipur-302013 (Rajantan-Phob S. 0141-2760303





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- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.

 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPo CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE
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- CLAUSE 304-6 OF IRC: 112.

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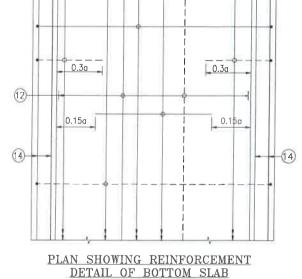
LEGEND :-

 TOP FACE BARS/OUTER FACE BARS				
 BOTTOM FACE BARS/INNER FACE BARS				

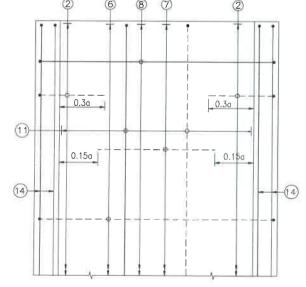
SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1		12	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
5		12	250 C/C
6		12	250 C/C
0		12	250 C/C
8		12	250 C/C
9		.10	250 C/C
10		10	250 C/C
11		10	220 C/C
12		10	220 C/C
(13)		10	220 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	220 C/C
2)	 J	12	20 NOS.
22		10	220 C/C
220	C	8DIA.220(LONG 500(TRAN	G. DIRECTION) IS. DIRECTION)
(22b)	C	8DIA.220(LON	



(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
SCALE : 1:40



PLAN SHOWING REINFORCEMENT

DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



DESIGN DIRECTOR:



PROOF CONSULTANT:







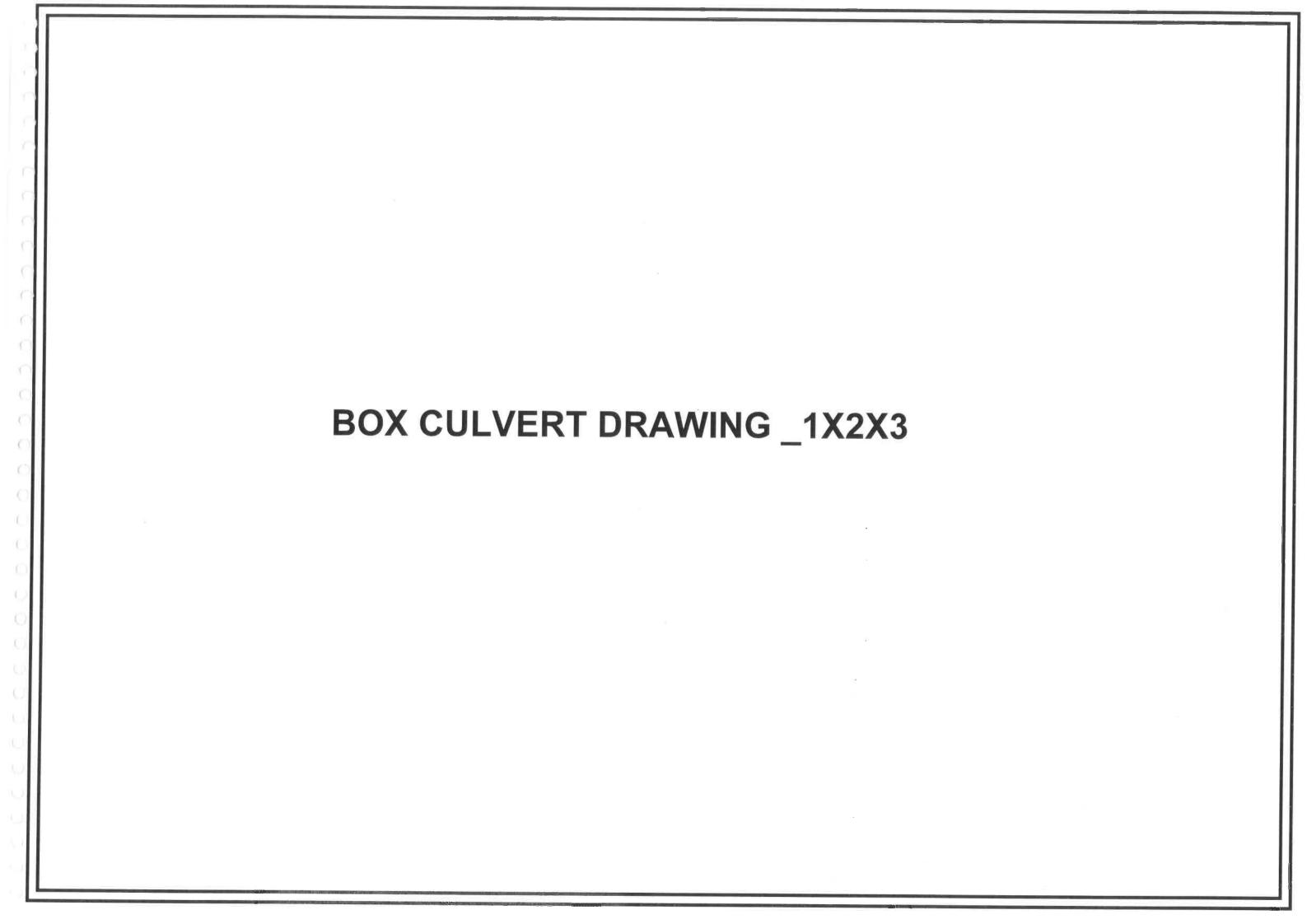
2	DRAWING SCALE:	DRAWING TITLE:
ICE	NTS	TYPICAL REINFORCEMENT DE OF BOX CULVERT FOR 1X2)
	SECTION OF NH-37 FRO	ANE WITH PAVED SHOULDER OF IMPHAL TO M DESIGN CHAINAGE 15,940 KM TO 33.120 KM (G-2) IN THE STATE OF MANIPUR ON ENGIN REUCTION (EPC) MODE.

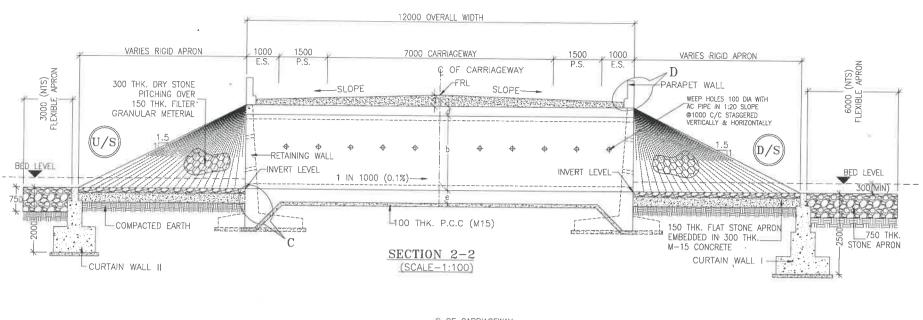
RAWING SCALE:	DRAWING TITLE:	DRG. NO.
NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X2X2	DD/IMP-JIR/ RF/01
O IECT NAME.		

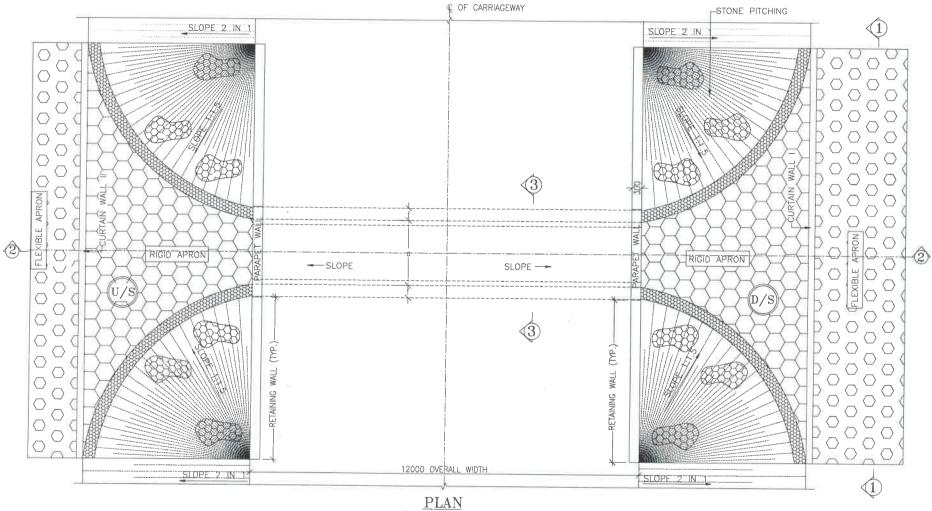
2/2			
	DATE AUG-2021	DRAWN STRUC	TURE DRAFTSMAI
O JIRIBAM	DESIGNED	CHECKED	APPROVED
INEERING,	STRUCTURE ENGINEER	and the same of th	

SHEET:

01OF 01







(SCALE-1:100)

NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:
 - a) RCC BOX..... b) RCC RETAINING WALL. ..M30
- c) PCC LEVELLING COURSE... ..M15
- d) PCC CURTAIN WALL..... ..M15 e) PARAPET WALL..... ...M30
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES $\emptyset < 30^\circ, C=0, \ \gamma = 2.0T/M^3$
- COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- APS AND SEALED WITH POLY-SULPHIDE SEALANI.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M² IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- A HONOUGHT COMPACTED OF TO THE SPECIFIED LEVEL.

 5. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION, ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

EARTHEN SHOULDER

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQ F.P. U/S D/S P.S. E.S. EQUAL FOOTPATH UP STREAM DOWN STREAM PAVED SHOULDER

CLIENT:

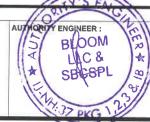


EPC CONTRACTOR: MIS. CMM INFRAPROJECTS LTD. INDO

DESIGN DIRECTOR:





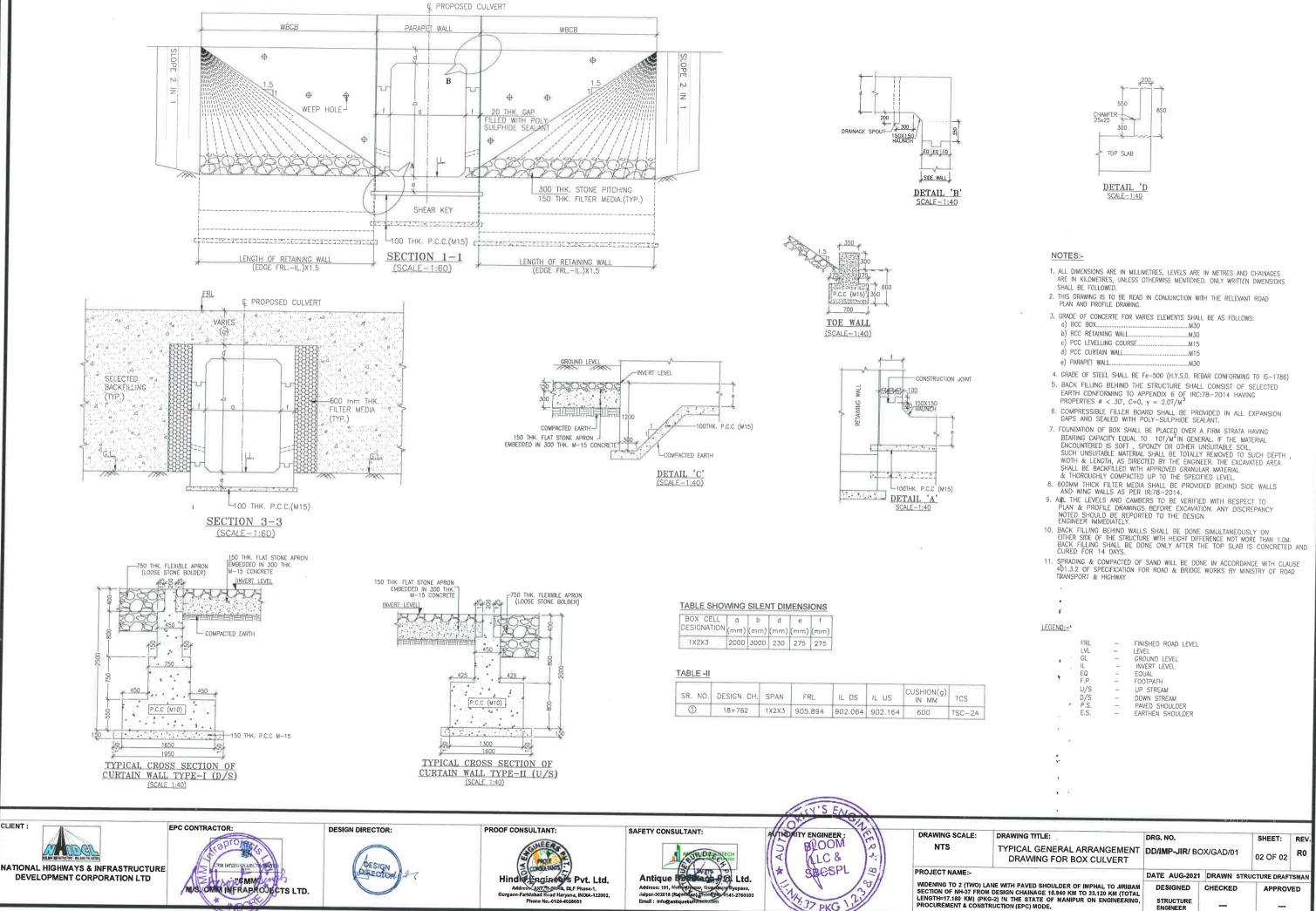


DRAWING SCALE:	DRAWING
NTS	TYPICA DRA
PROJECT NAME:-	

IG TITLE: DRG. NO. SHEET: AL GENERAL ARRANGEMENT DD/IMP-JIR/ BOX/GAD/01 01 OF 02 AWING FOR BOX CULVERT DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (FMC-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DESIGNED CHECKED APPROVED STRUCTURE ENGINEER



DEVELOPMENT CORPORATION LTD

CLIENT



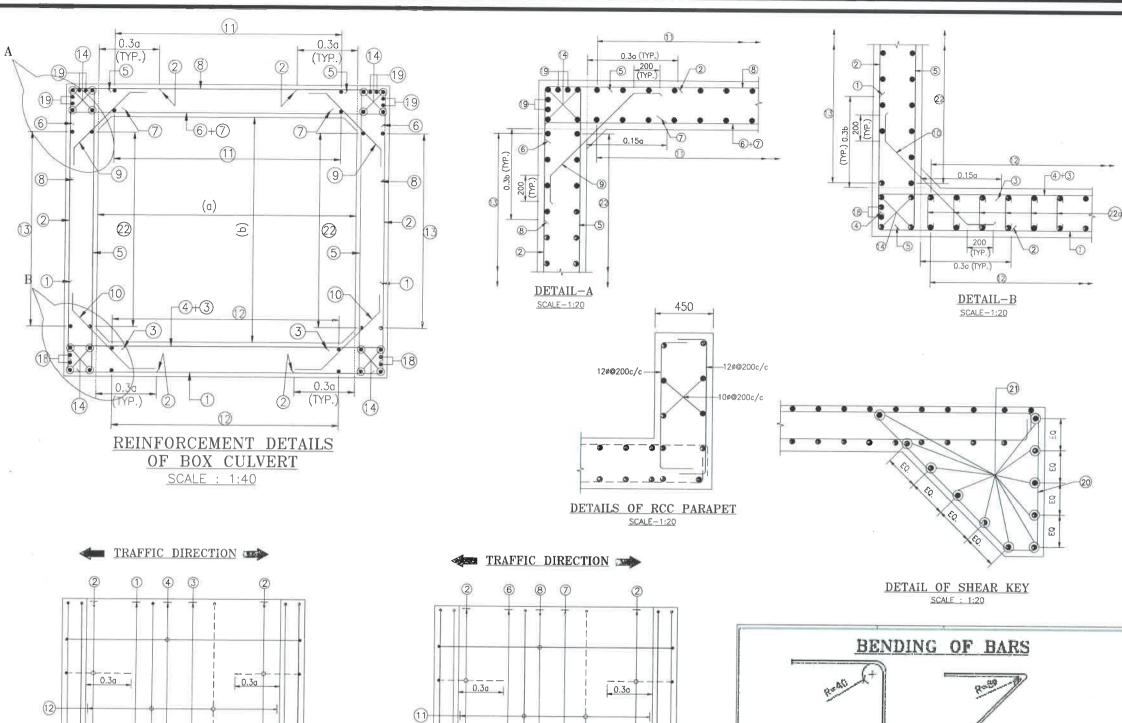


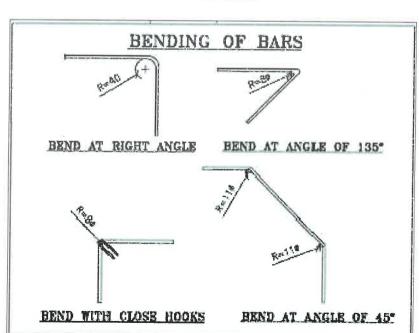


Antique Description Ltd.
Address: 191, Monte Page, Gendent propens,
Jaipur-302016 (Rajankan), Toor Up 141-276020Email: Info@antiquebullouser



DESIGNED CHECKED APPROVED STRUCTURE ENGINEER ---





- . ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED.
 DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
 TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
- ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO 1S:1786.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304–6 OF IRC: 112.
- 8. FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

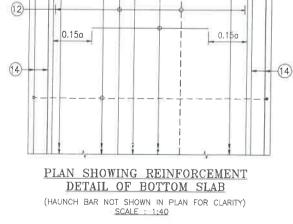
LEGEND :-

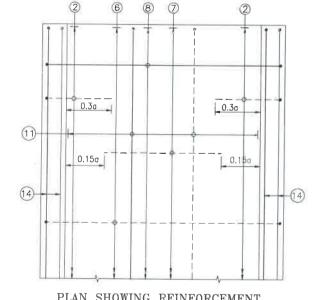
 TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos
1	<u></u>	16	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
(5)		12	250 C/C
6		12	250 C/C
7		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11)		10	300 C/C
(12)		10	300 C/C
13		10	300 C/C
14)		10	12 NOS.
(15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18	<u> </u>	10	4 NOS.
19		10	8 NOS.
20		12	300 C/C
21		12	20 NOS.
22		10	300 C/C
220	C	8DIA.300(LONG 500(TRAN	G. DIRECTION) S. DIRECTION)
(22b)	C	NOT IN	





PLAN SHOWING REINFORCEMENT
DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

CLIENT:



NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



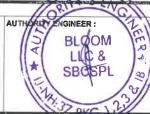
DESIGN DIRECTOR:



PROOF CONSULTANT:



SAFETY CONSULTANT:



DRAWING SCALE:

NTS

TYPICAL REIN

OF BOX CL

PROJECT NAME:-

TYPICAL REINFORCEMENT DETAILS DD/IMP-JIR/ RF/01 OF BOX CULVERT FOR 1X2X3

DRG. NO. SHEET: RE

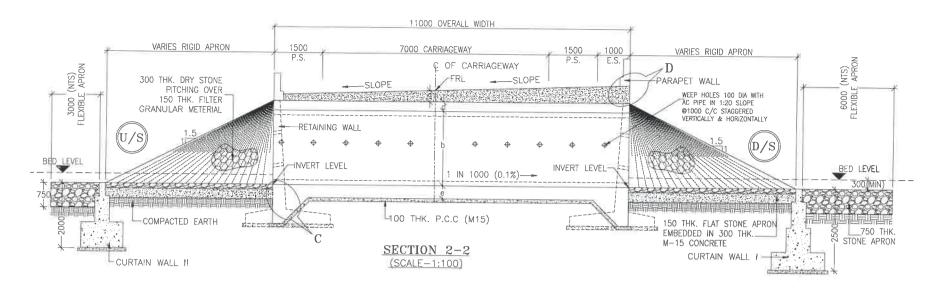
DD/IMP-JIR/ RF/01 010F 01 RG

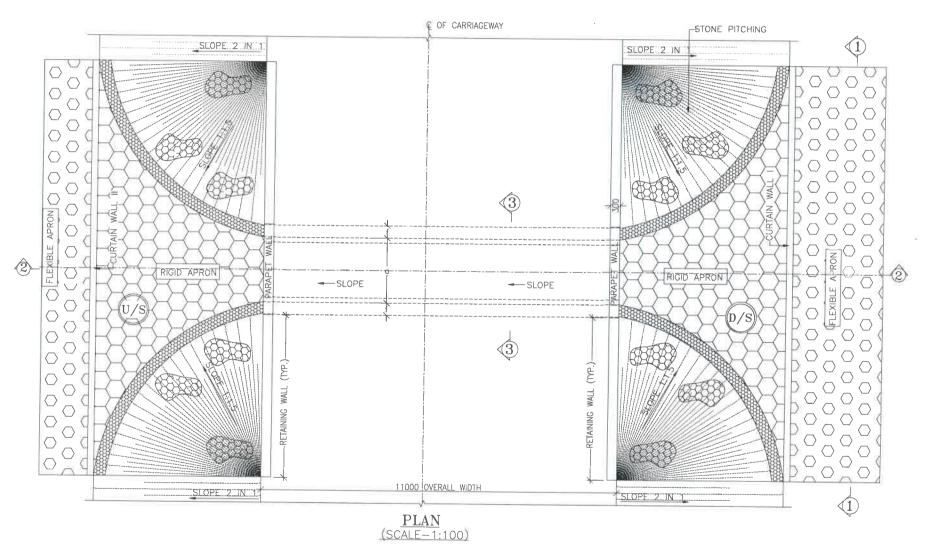
WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA

DESIGNED CHECKED APPROVED

STRUCTURE ENGINEER --- ---





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- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: n) RCC BOX

b) RCC RETAINING WALL. .M30 c) PCC LEVELLING COURSE... ..M15 d) PCC CURTAIN WALL..... ..M15 e) PARAPET WALL..... ...M30

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES $\emptyset < 30^\circ$, C=0, $\gamma = 2.0T/\text{M}^3$
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY FOUAL TO 10T/M² IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78–2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
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LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQ F.P. EQUAL FOOTPATH U/S D/S P.S. E.S. UP STREAM DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER





DEVELOPMENT CORPORATION LTD

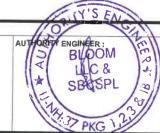


DESIGN DIRECTOR:









DRAWING SCALE: NTS	DRAWING TITLE: TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DRG. NO. DD/IMP-JIR/ BO	OX/GAD/01	SHEET: 01 OF 02	REV R0
PROJECT NAME:-	ANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM	DATE AUG-2021	DRAWN STR	APPROV	

SECTION OF NH-37 FROM DESIGN CHAINAGE 15.340 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

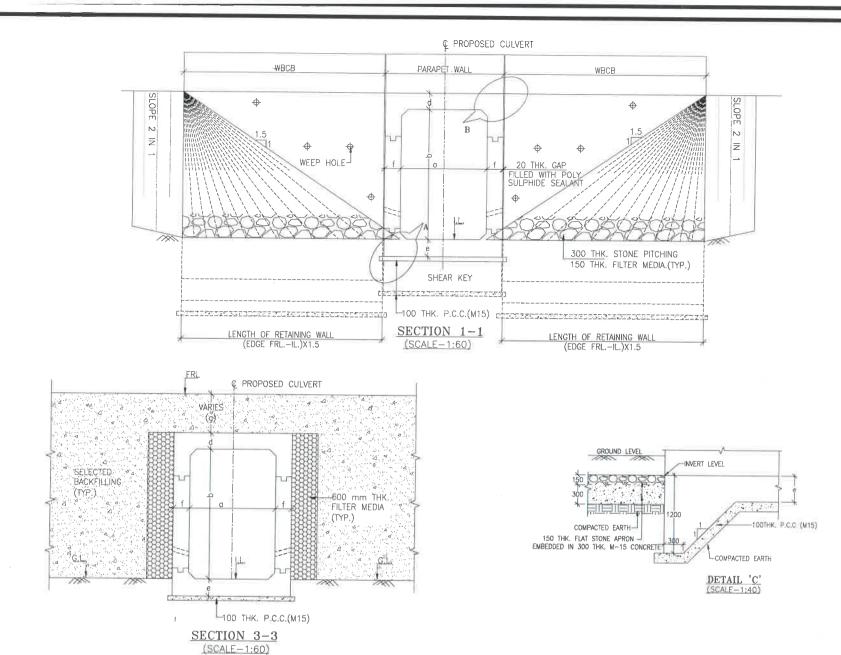
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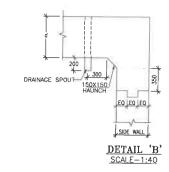
STRUCTURE

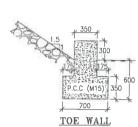
ENGINEER

CHECKED

APPROVED











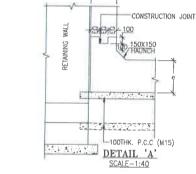


TABLE SHOWING SILENT DIMENSIONS

BOX CELL	а	b	d	е	f
DESIGNATION	(mm)	(mm)	(mm)	(mm)	(mm)
1X2X3		3000			

TARLE II

TABLE -II							
SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	18+004	1X2X3	874.283	870.453	870.553	600	TSC-3
2	24+164	1X2X3	1112.904	1109.074	1109.174	600	TSC-3
3	26+430	1X2X3	1187.169	1183.339	1183.439	600	TSC-3
4	26+666	1X2X3	1199.360	1195.530	1195.630	600	TSC-3
5	26+840	1X2X3	1208.976	1208.146	1208.246	600	TSC-3
6	27+529	1X2X3	1236.780	1232.950	1233.050	600	TSC-3

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b)	RCC	RETAININ	G WALL	M30
c)	PCC	LEVELLIN	G COURSE	M15
d)	PCC	CURTAIN	WALL	M15
e)	PARA	PET WALL		M30

TOP SLAB

DETAIL 'D

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
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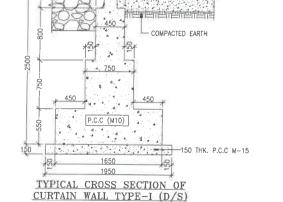
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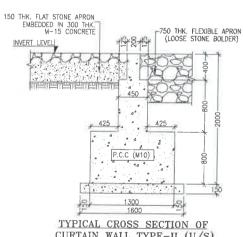
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LEGEND:-

· ·	FRL LVL GL IL EQ	14 34 34 14	FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQUAL
	F.P. U/S D/S P.S. E.S.		FOOTPATH UP STREAM DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER



-750 THK. FLEXIBLE APRON (LOOSE STONE BOLDER)



CURTAIN WALL TYPE-II (U/S)

CLIENT :

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



150 THK, FLAT STONE APRON EMBEDDED IN 300 THK. M-15 CONCRETE

INVERT LEVEL

DESIGN DIRECTOR:



PROOF CONSULTANT:







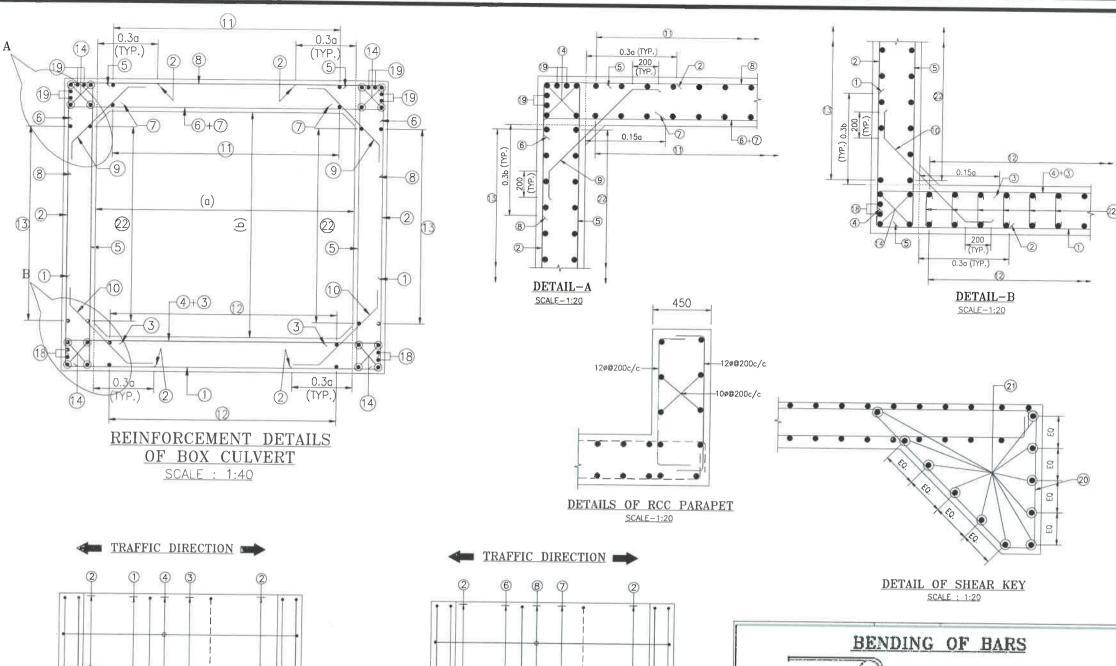
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	10	DRAWIN
M)	20	וא
& PL		PROJECT
PL /	2//	WIDENING
100	3//	LENGTH=

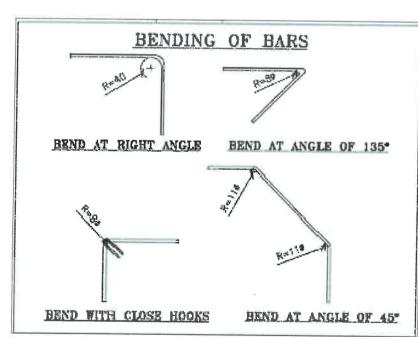
ľ	DRAWING SCALE:	DRAWING TITLE:	DRG, NO.	SHEET:	
	NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DD/IMP-JIR/ BOX/GAD/01	02 OF 02	

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN DESIGNED CHECKED APPROVED STRUCTURE

REV RO





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- CLAUSE 304-6 OF IRC: 112. FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

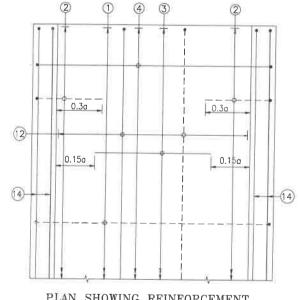
LEGEND :-

TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

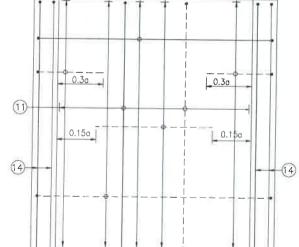
(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos
1	i	16	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
5	[]	12	250 C/C
6		12	250 C/C
O		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11)		10	300 C/C
12		10	300 C/C
13		10	300 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16)		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	300 C/C
21		12	20 NOS.
22 -		10	300 C/C
220	C	8DIA.300(LONG 500(TRAN	S. DIRECTION) S. DIRECTION)
(22b)	C	NOT IN	

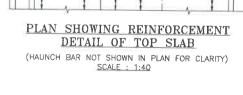


DETAIL OF BOTTOM SLAB

PLAN SHOWING REINFORCEMENT



DETAIL OF TOP SLAB







DESIGN DIRECTOR:

PROOF CONSULTANT: SAFETY CONSULTANT: Hind Pulpes Pvt. Ltd. Address: 317, 8-Bjrs. DLF Phase-1, Gurgaon-Faridabad Road Haryana, INDIA-122002, Phone No.-0124-4028681



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Ten	D
(8)	PR
	WI SE LE
VY /	np.

DRAWING SCALE:		DRAWING TITLE:	DRG. NO.
	NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X2X3	DD/IMP-JIR/ RF/01
	PROJECT NAME:-		DATE AUG SON DESIGN

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBS SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOT LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERIN PROCUREMENT & CONSTRUCTION (EPC) MODE.

BAM DTAL RING,	DATE AUG-2021	DRAWN STRUCTURE DRAFTS			
	DESIGNED	CHECKED	APPROVED		
	STRUCTURE ENGINEER	***			

SHEET:

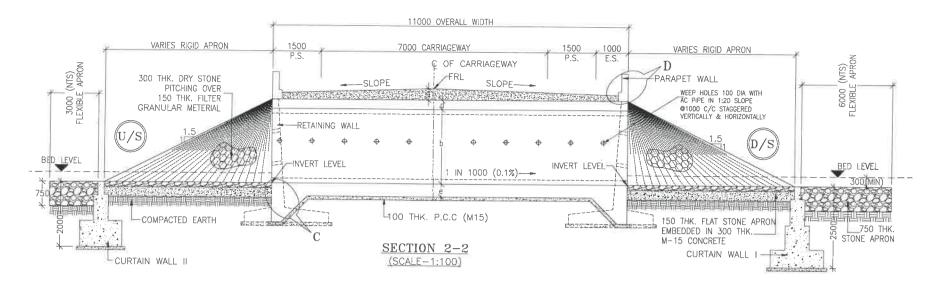
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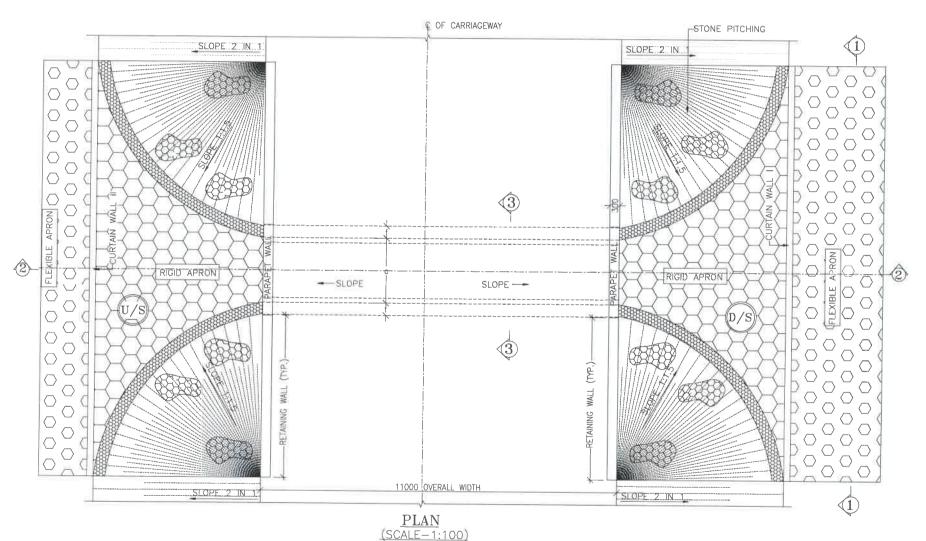


CLIENT :

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD







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- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M² N GENERAL IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78–2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQ F.P. EQUAL FOOTPATH U/S D/S P.S. E.S. UP STREAM DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF INI-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17,180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

CLIENT :

NATIONAL HIGHWAYS & INFRASTRUCTURE **DEVELOPMENT CORPORATION LTD**













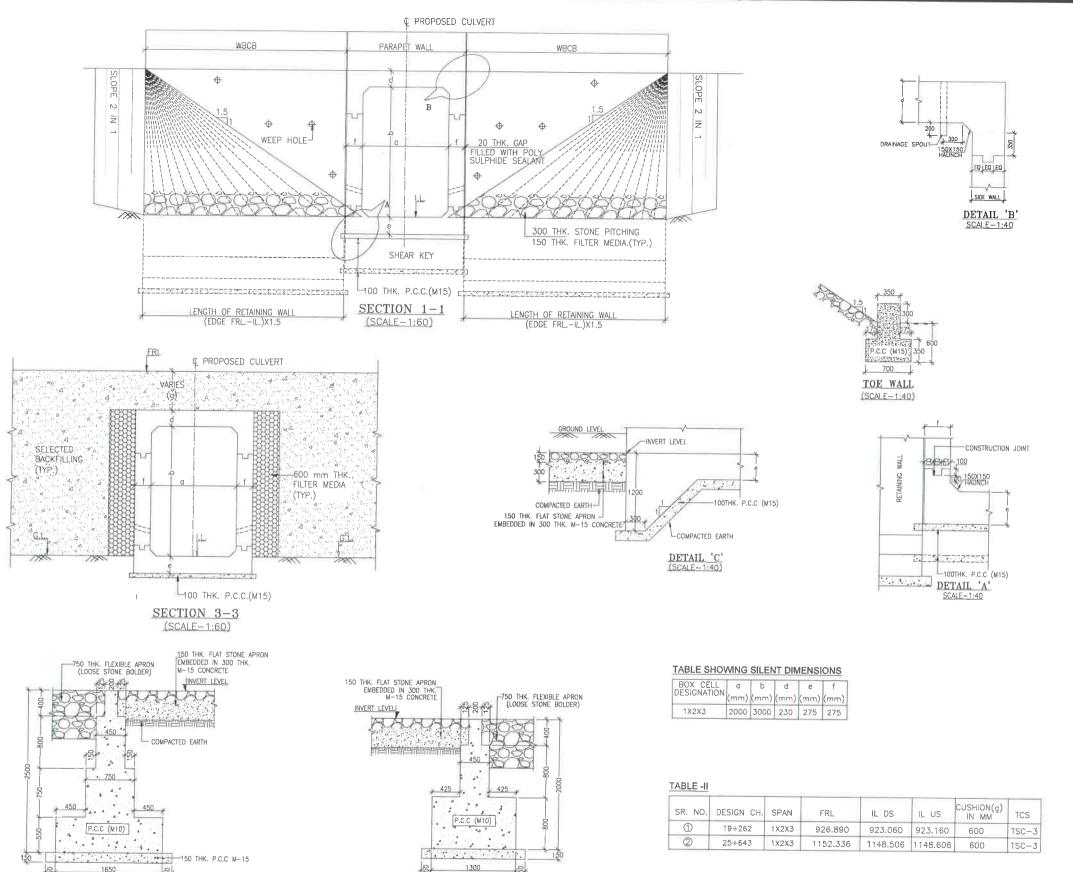
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NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DD/IMP-JIR/ BOX/GAD/01	01 OF 02	R0

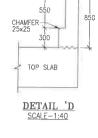
DESIGNED

STRUCTURE

CHECKED

APPROVED





- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX..... ...M30
- b) RCC RETAINING WALL..M30 c) PCC LEVELLING COURSE.M15 d) PCC CURTAIN WALL......
-M15 e) PARAPET WALL.....M30
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES ϕ < 30°, C=0, γ = 2.0T/M³
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY~SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL. SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL. & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78—2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN
 ENGINEER IMMEDIATELY.

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- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD

LEGEND:-

FRL	_	FINISHED ROAD LEVEL
LVL	-	LEVEL
GL	_	GROUND LEVEL
IL	-	INVERT LEVEL
EQ		EQUAL
F.P.	-	FOOTPATH
U/S	_	UP STREAM
D/S	_	DOWN STREAM
P.S.	_	PAVED SHOULDER
E.S.	_	EARTHEN SHOULDER

1117		TIMISTILD ROAD LEVE
LVL	-	LEVEL
GL	-	GROUND LEVEL
IL	-	INVERT LEVEL
EQ		EQUAL
F.P.	-	FOOTPATH
U/S	_	UP STREAM
D/S	-	DOWN STREAM
P.S.	-	PAVED SHOULDER
E.S.	-	EARTHEN SHOULDER

CLIENT :

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD





TYPICAL CROSS SECTION OF

CURTAIN WALL TYPE-I (D/S)

(SCALE 1:40)





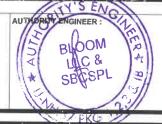
TYPICAL CROSS SECTION OF

CURTAIN WALL TYPE-II (U/S)

(SCALE 1:40)



SAFETY CONSULTANT



	DRAWING SCALE:	DRAWING TITLE:
CER# 917	NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT
	PROJECT NAME:- WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.	

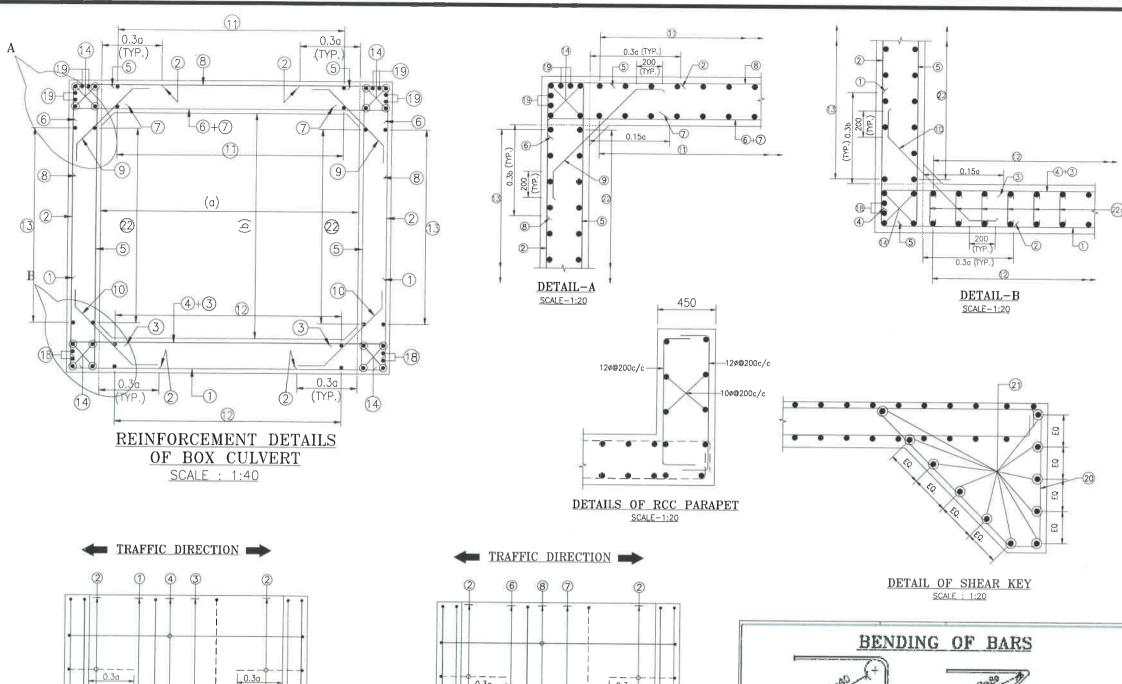
DRAWING SCALE: NTS	DRAWING TITLE: TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DRG. NO. DD/IMP-JIR/ BOX/GAD/01
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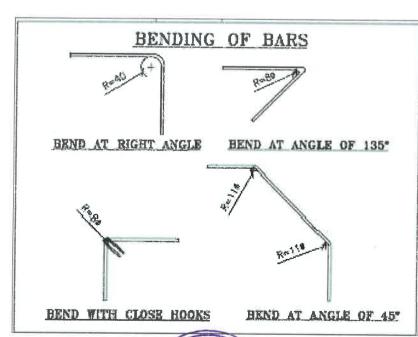
DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA APPROVED DESIGNED CHECKED STRUCTURE

SMEET:

02 OF 02

RE\





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER: SIDE.
- ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

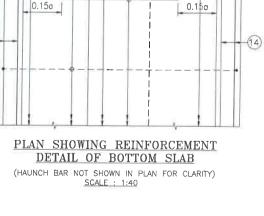
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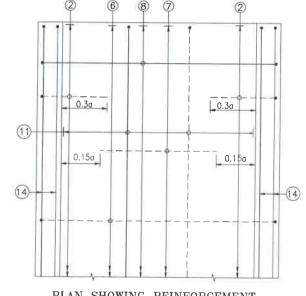
 TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1		16	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
5		12	250 C/C
6		12	250 C/C
7		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11)		10	300 C/C
12		10	300 C/C
13		10	300 C/C
(14)		10	12 NOS.
15		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	_5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	300 C/C
21		12	20 NOS.
22		10	300 C/C
220	C	8DIA.300(LONG 500(TRAN	S. DIRECTION) S. DIRECTION)
. (22b)	C	NOT IN	





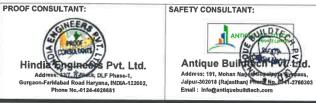
PLAN SHOWING REINFORCEMENT DETAIL OF TOP SLAB (HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY) SCALE : 1:40

CLIENT: EPC CONTRACTO NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD M/S. CMM INPRAPROJECTS LTD.

(14)



Hindia anglines Pvt. Ltd.
Address 17 Ebets, DLF Phase-1,
Gurgson-Faridabad Road Haryana, INDIA-122002,
Phone No.-0124-4028681





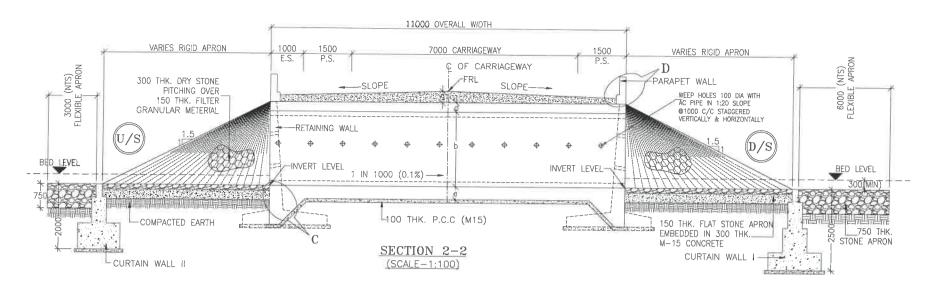
	11211
DRAWIN	1101
NT	1211
	12
PROJECT	/5//
WIDENING	10/
SECTION	Ty/

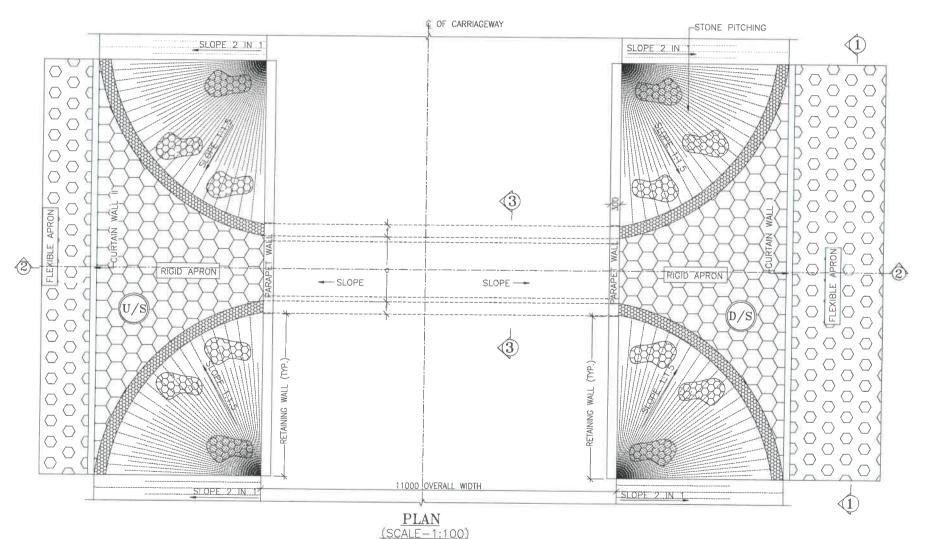
DRAWING SCALE:	DRAWING TITLE:	DRG. NO.
NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X2X3	DD/IMP-JIR/ RF/01

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

01OF 01 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAI CHECKED APPROVED STRUCTURE ENGINEER

SHEET:





- ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES
 ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX..... ...M30 b) RCC RETAINING WALL. ...M30
- c) PCC LEVELLING COURSE. d) PCC CURTAIN WALL. ..M15 e) PARAPET WALL...
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES $\emptyset < 30^\circ$, C=0, $\gamma = 2.0T/\text{M}^3$
- COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M² IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFLIELD WITH APPROVED GRANULAR MATERIAL. & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78—2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.

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 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE

- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL EQ F.P. U/S D/S P.S. E.S. EQUAL FOOTPATH UP STREAM DOWN STREAM PAVED SHOULDER

EARTHEN SHOULDER

CLIENT :

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

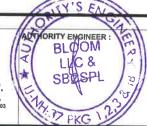


DESIGN DIRECTOR:



PROOF CONSULTANT Adores: 336, Harock, DLF Phase-1,

SAFETY CONSULTANT: Antique Banteer Pu Ltd.
Address: 191, Mohan Mary, combany byepass,
Jalpur-302016 (Rujastham) Phone Mr. 6141-2760303
Emall : Info@antiquebulldtech.com



DRAWING SCALE: NTS PROJECT NAME:-

DRG. NO. TYPICAL GENERAL ARRANGEMENT DD/IMP-JIR/ BOX/GAD/01 DRAWING FOR BOX CULVERT

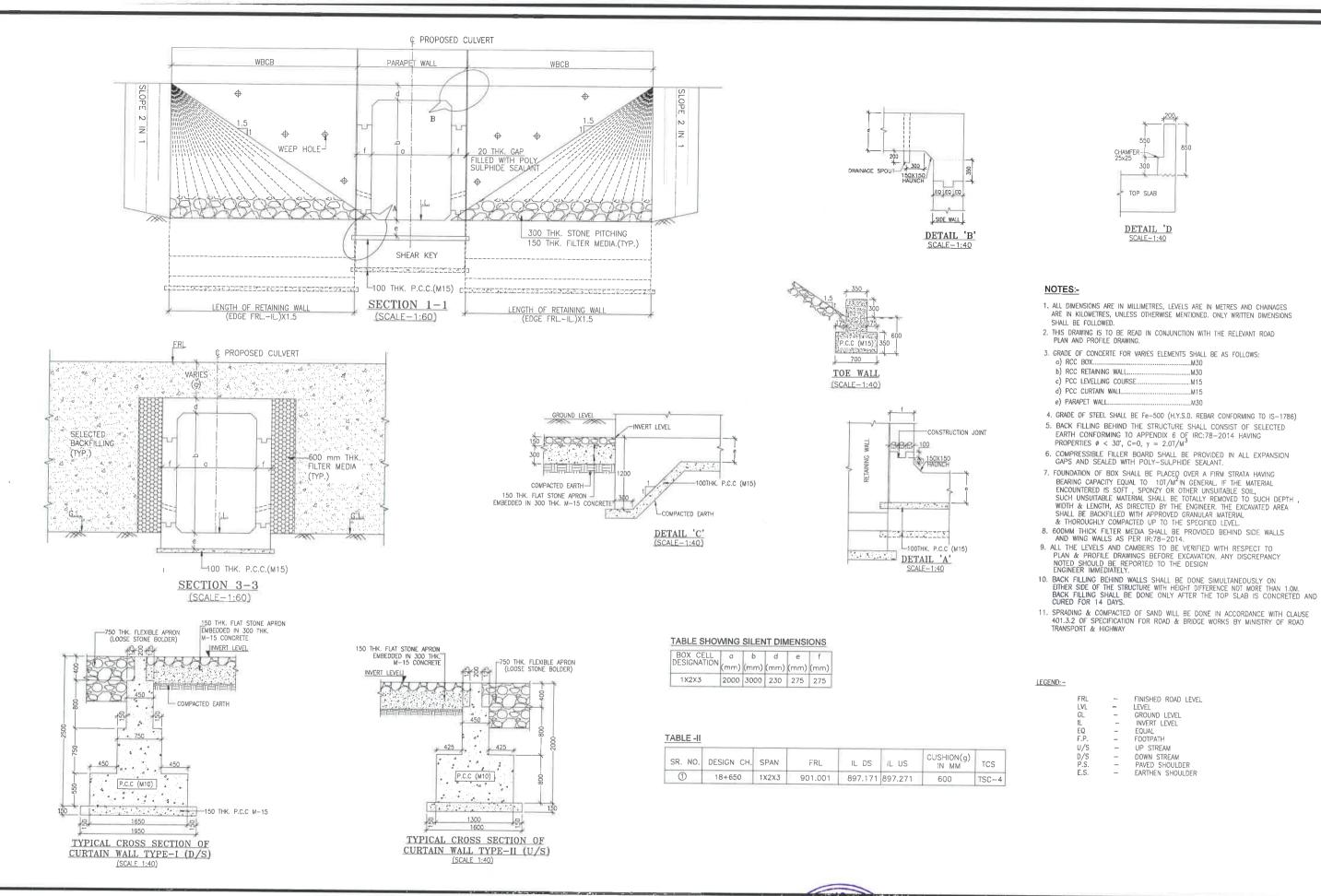
R0 01 OF 02 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN DESIGNED CHECKED APPROVED

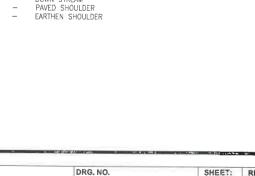
STRUCTURE ENGINEER

SHEET:

REV

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.





NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

CLIENT :















DRAWING SCALE: DRAWING TITLE: DRG. NO. SHEET: NTS TYPICAL GENERAL ARRANGEMENT $|\mathbf{DD/IMP-JIR}/$ BOX/GAD/01 RO 02 OF 02 DRAWING FOR BOX CULVERT PROJECT NAME:-DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN

FINISHED ROAD LEVEL GROUND LEVEL INVERT LEVEL EQUAL FOOTPATH

UP STREAM

DOWN STREAM

TOP SLAB

DETAIL 'D

SCALE-1:40

..M30

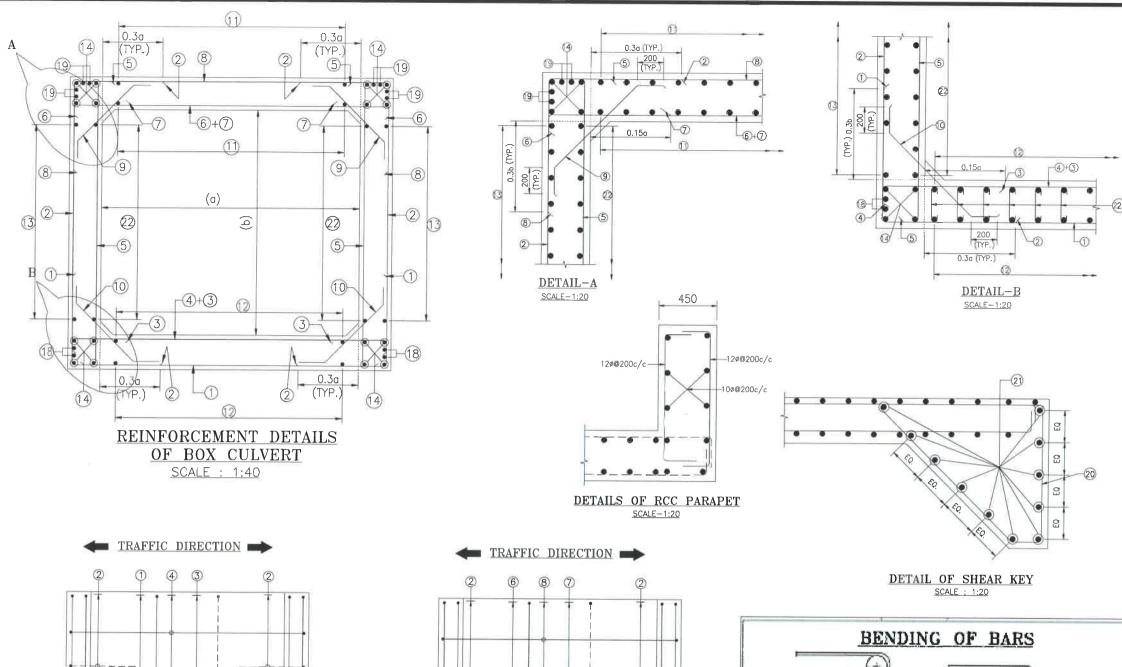
.M15

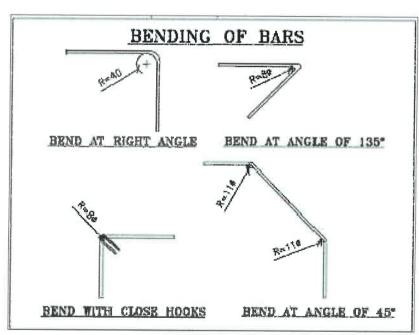
M15

..M30

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (FMC-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DESIGNED CHECKED APPROVED STRUCTURE ENGINEER





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.

 - AND 40mm AT OTHER SIDE.

 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPg CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT
- GENERAL ARRANGEMENT DRAWINGS. JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER
- CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

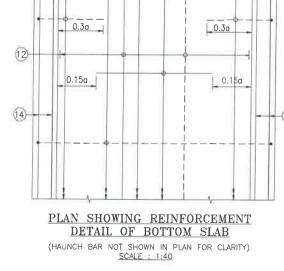
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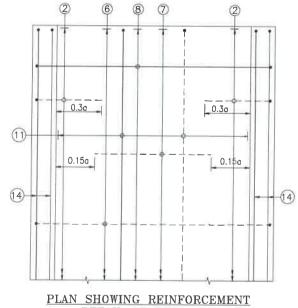
TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos
1	LJ	16	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
5		12	250 C/C
6		12	250 C/C
		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11)		10	300 C/C
12		10	300 C/C
13		10	300 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16)		NOT IN USE	NOT IN USE
17)	5	NOT IN USE	NOT IN USE
18)		10	4 NOS.
19		10	8 NOS.
20		12	300 C/C
21		12	20 NOS.
22 -		10	300 C/C
220	C	8DIA.300(LONG 500(TRAN	S. DIRECTION) S. DIRECTION)
(22b)	C	NOT IN	



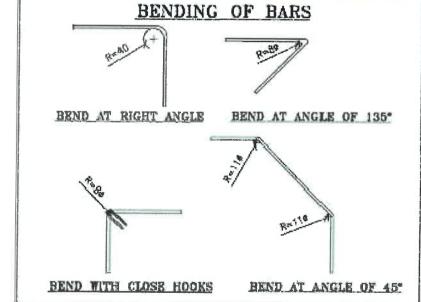


DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

PROOF CONSULTANT:

SCALE : 1:40



CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



DESIGN DIRECTOR



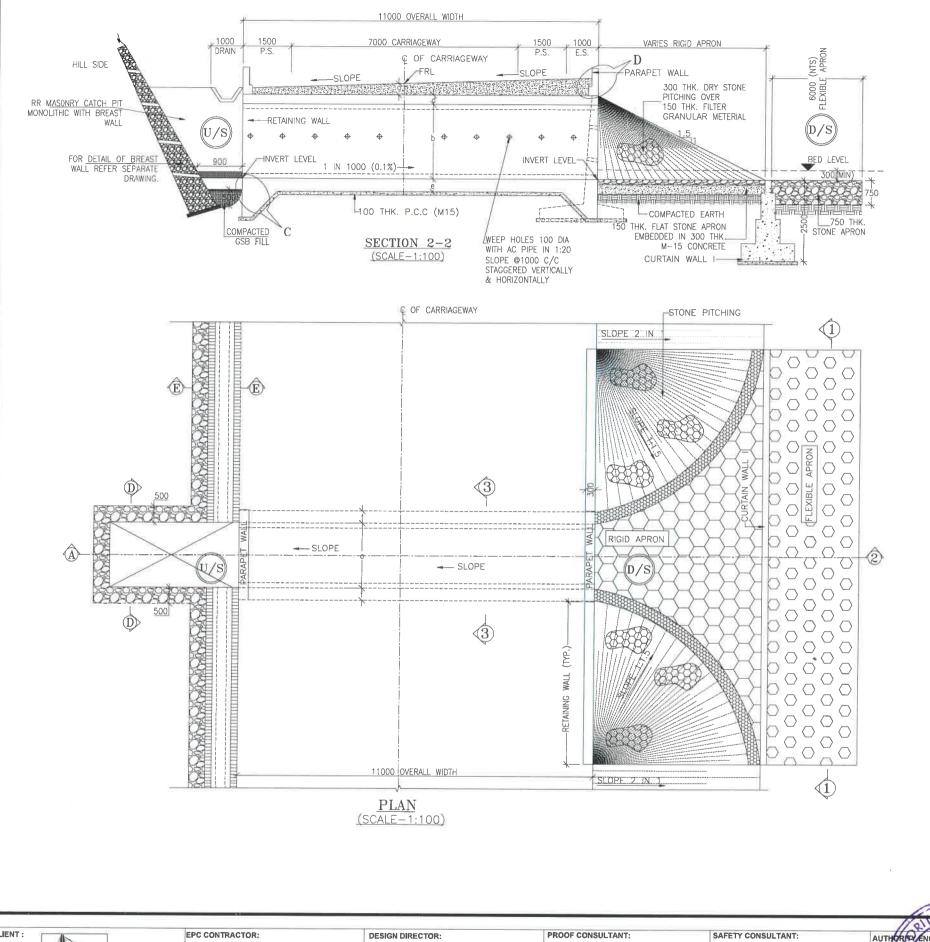


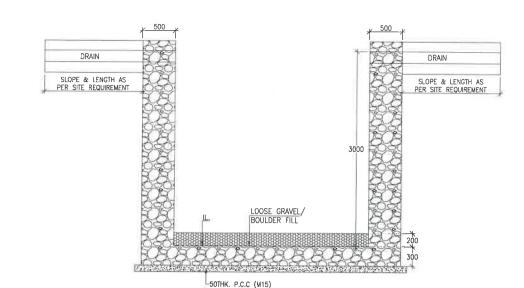


Ì	DRAWING SCALE:	DRAWING TITLE:
	NTS	TYPICAL REINFORCEMENT DETAIL OF BOX CULVERT FOR 1X2X3
i	PROJECT NAME:	

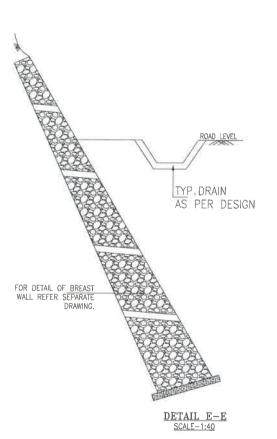
SHEET: REV DETAILS | DD/IMP-JIR/ RF/01 01OF 01 R0 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA APPROVED

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. DESIGNED CHECKED STRUCTURE ENGINEER





DETAIL D-D SCALE-1:40



NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD







11	811	24
AUTHORNA	ENGINEER:	100
15	000	12
1/*/	SBESPL	- [2]
1/2		/3//
	37 PKG	1

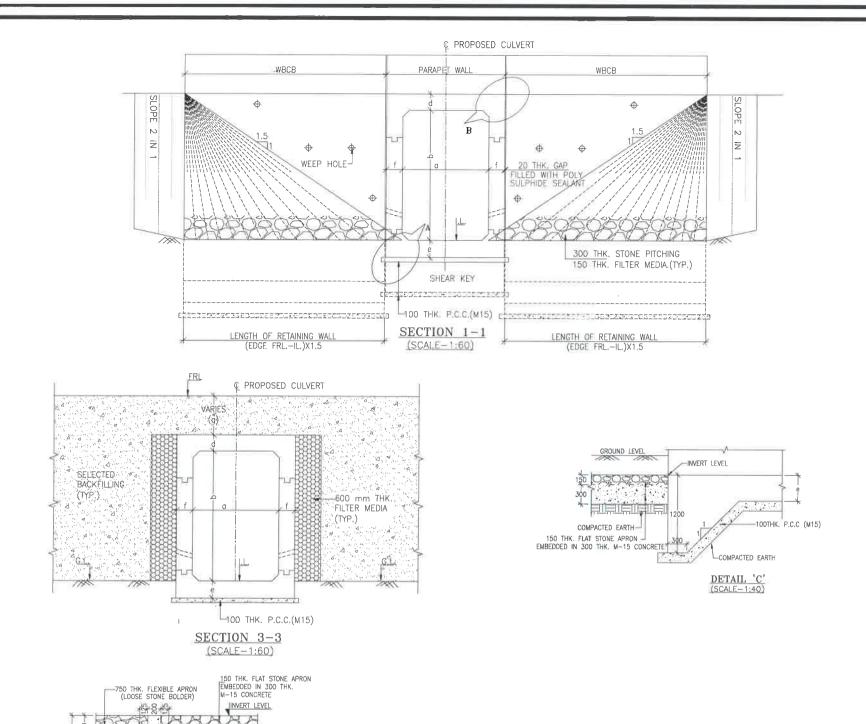
DRAWING SCALE:	DRAWING TITLE:
NTS	TYPICAL GENERAL
	DRAWING FOR

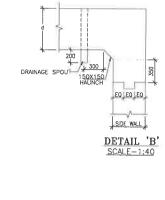
DRG. NO. SHEET: REV AL ARRANGEMENT DD/IMP-JIR/ BOX/GAD/01 R BOX CULVERT

PROJECT NAME:-

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-91-1780 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

01 OF 02 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA DESIGNED CHECKED APPROVED STRUCTURE ENGINEER

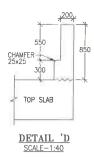




CONSTRUCTION JOINT

L100THK. P.C.C (M15)

DETAIL 'A' SCALE-1:40



NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: ...M30
- a) RCC BOX..... b) RCC RETAINING WALL. ...M30 c) PCC LEVELLING COURSE... ...M15 d) PCC CURTAIN WALL.....
- e) PARAPET WALL.....M30
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO iS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.0T/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M² IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGITH, AS DIRECTED BY THE FENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78—2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.

- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

TABLE SHOWING SILENT DIMENSIONS

BOX CELL DESIGNATION	a	Ь	d	е	f
	(mm)	(mm)	(mm)	(mm)	(mr
1X2X3	2000	3000	230	275	27

TAE

SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	22+299	1X2X3	1067.703	1063.873	1063.973	600	TSC-5

BLE -II				
			CUSHION(a)	

LEGEND:-

FRL	-	FINISHED ROAD LEVEL
LVL	-	LEVEL
GL.	-	GROUND LEVEL
IL	-	INVERT LEVEL
EQ	-	EQUAL
F.P.	-	FOOTPATH
U/S	-	UP STREAM
D/S	-	DOWN STREAM
P.S.	-	PAVED SHOULDER
E.S.	-	EARTHEN SHOULDER

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



150 THK. P.C.C M-15

COMPACTED EARTH

P.C.C (M10)

TYPICAL CROSS SECTION OF CURTAIN WALL TYPE-I (D/S) (SCALE 1:40)

4 4 4 4

DESIGN DIRECTOR:



Enginee's Pvt. Ltd. 1: 137, H. Bleck, DLF Phase-1, 14 abad Bar & Haryana, INDIA-122002,

PROOF CONSULTANT:

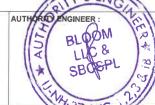
.C.C (M15) 35

700

TOE WALL

(SCALE-1:40)





3/1	
12	DRA
14	
(a)	PRO.
1911	WIDE SEC1
15/1	LENG

AWING SCALE: NTS TYPICAL GENERAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01

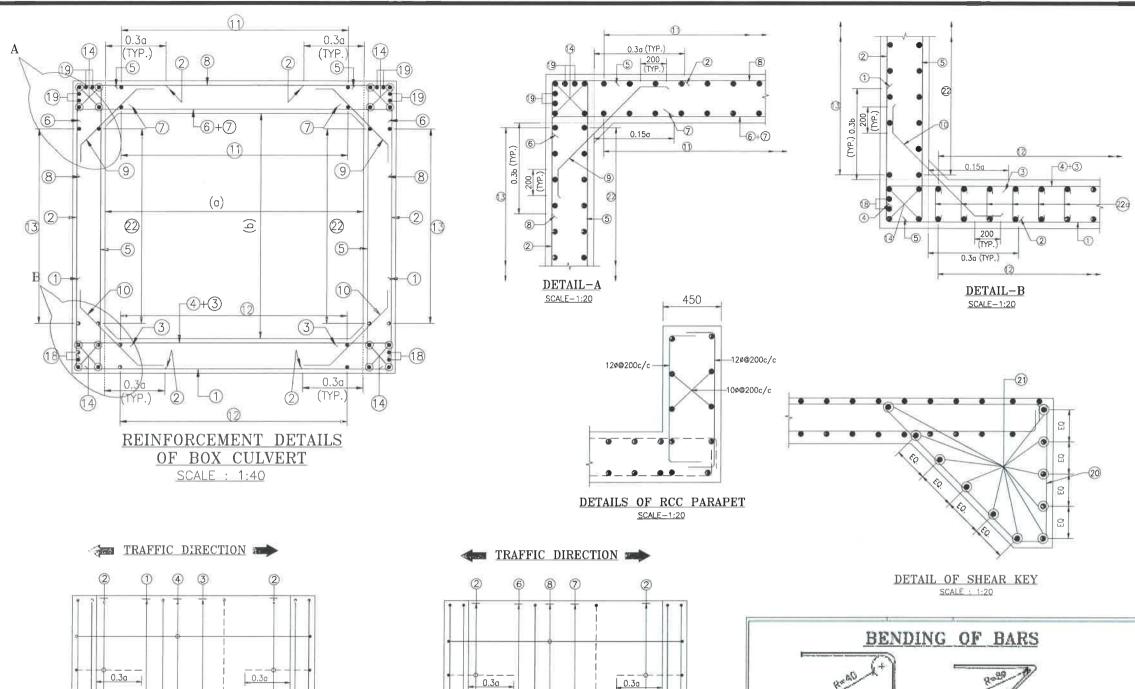
DRAWING FOR BOX CULVERT

SHEET: 02 OF 02

JECT NAME:-

ENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN DESIGNED CHECKED **APPROVED** STRUCTURE ENGINEER



- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
- 4. ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED
- MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE
- IN CASE LAPPING OF BARS BECOMES UNAVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER
- CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

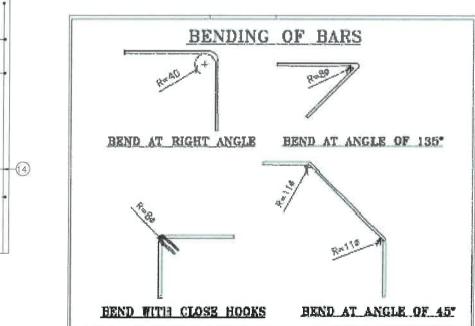
LEGEND :-

TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.	
1		1,6	250 C/C	
2		12	250 C/C	
3		12	250 C/C	
4		12	250 C/C	
5		12	250 C/C	
6		12	250 C/C	
0		12	250 C/C	
8		12	250 C/C	
9		10	250 C/C	
10		10	250 C/C	
11)		10	300 C/C	
12		10	300 C/C	
13		10	300 C/C	
14)		10	12 NOS.	
15)		NOT IN USE	NOT IN USE	
16		NOT IN USE	NOT IN USE	
17	5	NOT IN USE	NOT IN USE	
18		10	4 NOS.	
19		10	8 NOS.	
20		12	300 C/C	
2)		12	20 NOS.	
22		10	300 C/C	
220	C	8DIA.300(LONG. DIRECTION) 500(TRANS. DIRECTION)		
(22b)		NOT IN USE		



CLIENT :



(14)

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

0.15a

PLAN SHOWING REINFORCEMENT

DETAIL OF BOTTOM SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

SCALE : 1:40



DESIGN DIRECTOR:

(1)

(14)-

0.15a



PROOF CONSULTANT:

PLAN SHOWING REINFORCEMENT

DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)



0.3a

0.150

Antique Brute Toy Ltd.
Address: 191, Mohan Maria Cally Dyepass,
Jaipur-302018 (Rajasthan Lines 0141-2760303

SAFETY CONSULTANT:

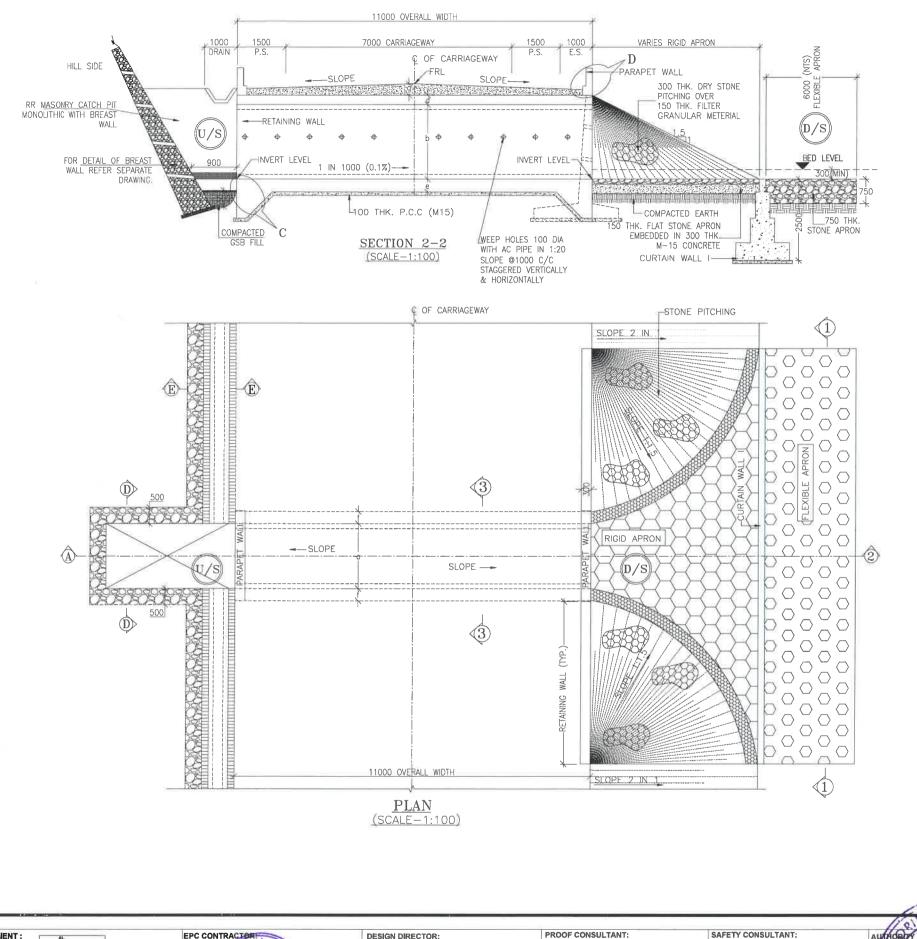


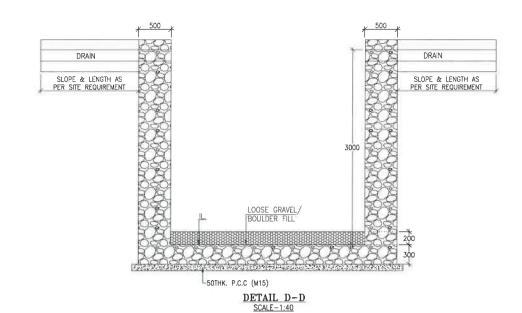
DRAWING SCALE: DRAWING TITLE: NTS OF BOX CULVERT FOR 1X2X3 PROJECT NAME:-

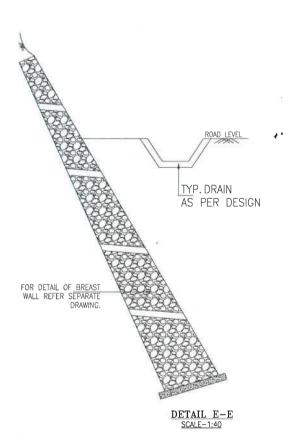
SHEET: DRG. NO. TYPICAL REINFORCEMENT DETAILS | DD/IMP-JIR/ RF/01 01OF 01 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

STRUCTURE ENGINEER









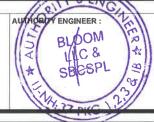




DESIGN DIRECTOR:



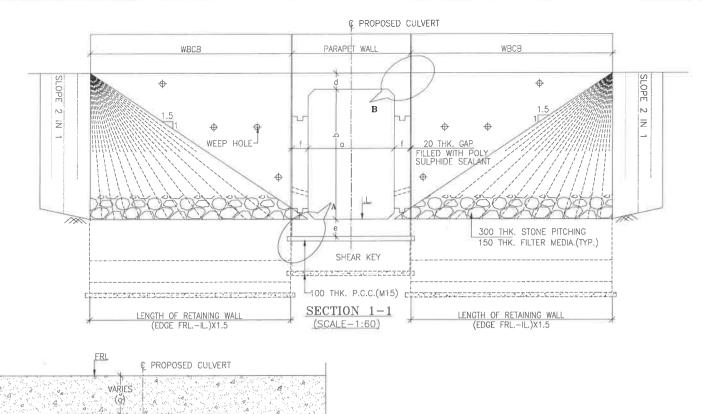


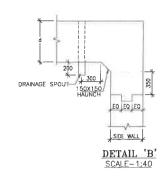


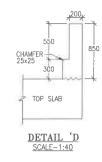
DRAWING SCALE:	DRAWING TITLE:	DRG. NO.
NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DD/IMP-JIR/
DDO IECT NAME.		DATE AUG O

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NIH-37 FROM DESIGN CHAINAGE 15.949 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

	DRG. NO.	SHEET:	REV.		
ENT T	DD/IMP-JIR/ BO	01 OF 02	R0		
	DATE AUG-2021	DRAWN STRU	JCTURE DRAFTSMAN		
RIBAM TOTAL ERING,	DESIGNED	CHECKED	APPROV	/ED	
	STRUCTURE ENGINEER				









- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.



- c) PCC LEVELLING COURSE. d) PCC CURTAIN WALL ... М15 e) PARAPET WALL.... M30 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES \emptyset < 30°, C=0, γ = 2.01/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.

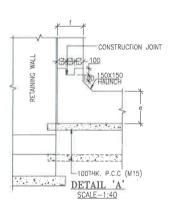
 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

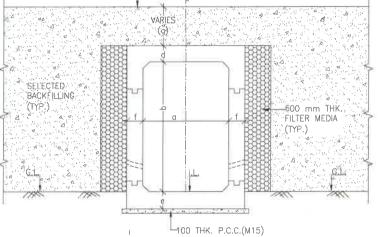
 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER 18:78—2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN.

- NOTED SHOULD BE REPORTED TO THE DESIGN
 ENGINEER IMMEDIATELY.

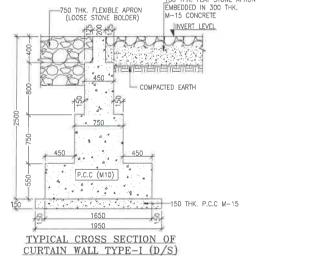
 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON
 EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M.
 BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AN
 CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY







150 THK, FLAT STONE APRON



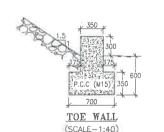


TABLE SHOWING SILENT DIMENSIONS

BOX CELL DESIGNATION	а	ь	d	е	f
525/014/11014	(mm)	(mm)	(mm)	(mm)	(mm)
1X2X3	2000	3000	230	275	275

TABLE -II

OMPACTED FARTH

DETAIL 'C' (SCALE-1:40)

SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	21+260	1X2X3	1013.783	1009.953	1010.053	600	TSC-5
2	21+648	1X2X3	1033.418	1029.588	1029.688	600	TSC-5
3	22+376	1X2X3	1069.500	1065.670	1065.770	600	TSC-5

LEGEND:-

FRL	_	FINISHED ROAD LEVEL
LVL	-	LEVËL
GL	_	GROUND LEVEL
IL	_	INVERT LEVEL
EQ	-	EQUAL
F.P.	_	FOOTPATH
U/S	-	UP STREAM
D/S	_	DOWN STREAM
P.S.	-	PAVED SHOULDER
E.S.	-	EARTHEN SHOULDER

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



DESIGN DIRECTOR:



PROOF CONSULTANT



GROUND LEVEL

COMPACTED EARTH 150 THK, FLAT STONE APRON 300 EMBEDDED IN 300 THK, M-15 CONCRETE

-INVERT | FVFI

Antique and the Ltd.
Address: 191, Mont laber to spin Byepas,
Jaipur-302019 (Rajashan) Hone Ms. 0141-2760303
Email: Info@antiquebulidtech.com

SAFETY CONSULTANT



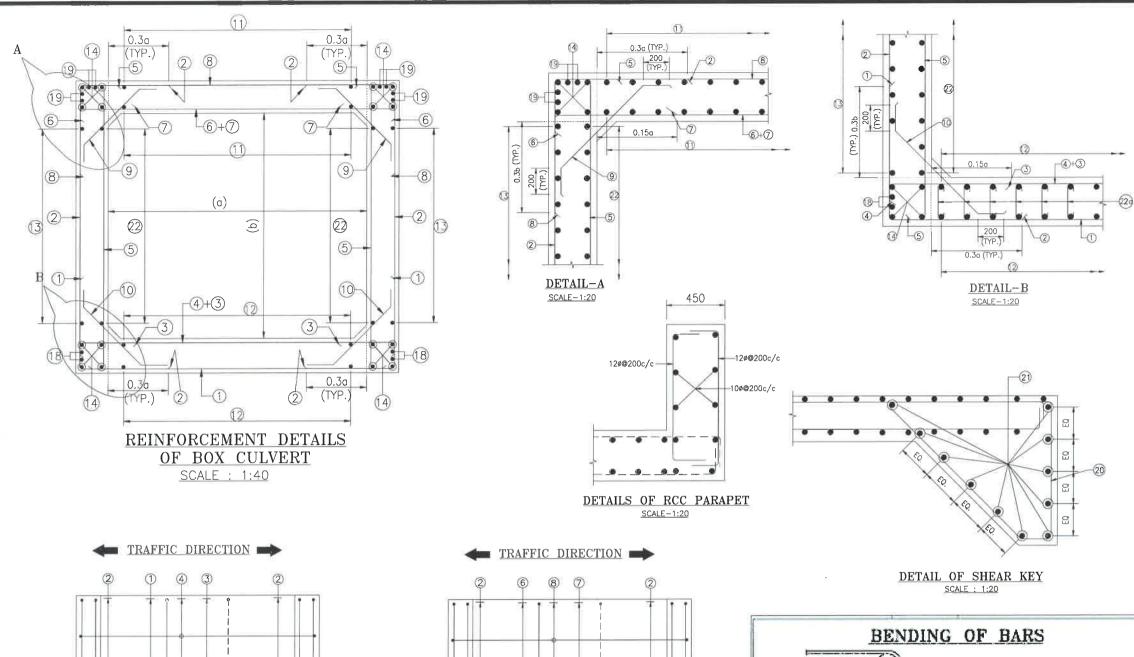
NTS
PROJECT NAME

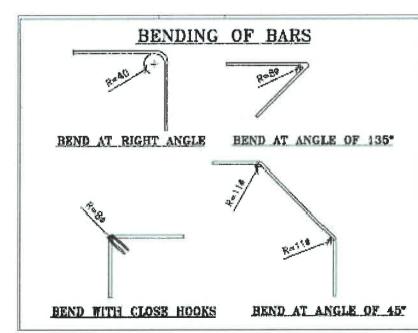
TYPICAL GENERAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01 DRAWING FOR BOX CULVERT

SHEET: 02 OF 02 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN DESIGNED CHECKED APPROVED

> STRUCTURE ENGINEER

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-H1,180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
- ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPG CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

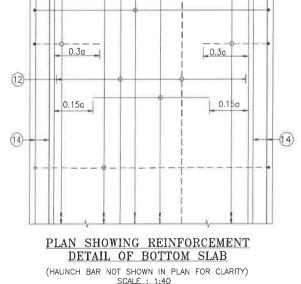
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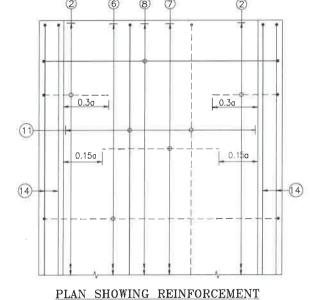
-	TOP FACE BARS/OUTER FACE BARS
	BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1		16	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
5		12	250 C/C
6		12	250 C/C
0		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11)		10	300 C/C
12		10	300 C/C
13		10	300 C/C
14		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16)		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18)		10	4 NOS.
19		10	8 NOS.
20		12	300 C/C
21)		12	20 NOS.
22		10	300 C/C
220	C		G. DIRECTION) IS. DIRECTION)
(22b)	C	NOT II	



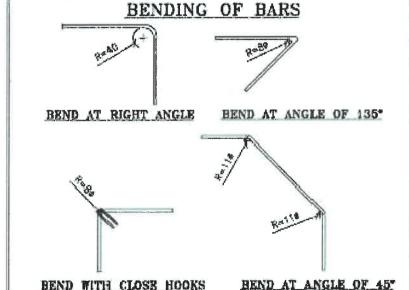


DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

PROOF CONSULTANT:

SCALE: 1:40



CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE **DEVELOPMENT CORPORATION LTD**



DESIGN DIRECTOR:



Hints Engineers Pvt. Ltd.
Admost: 33g, H. Brock, DLF Phase-1,
Gurgaon-Faridatus Road Haryana, INDIA-122002,
Phone No.-6124-4028681







	DRAWIN
Toll	N
القرا	PROJECT
18	WIDENING SECTION LENGTH=

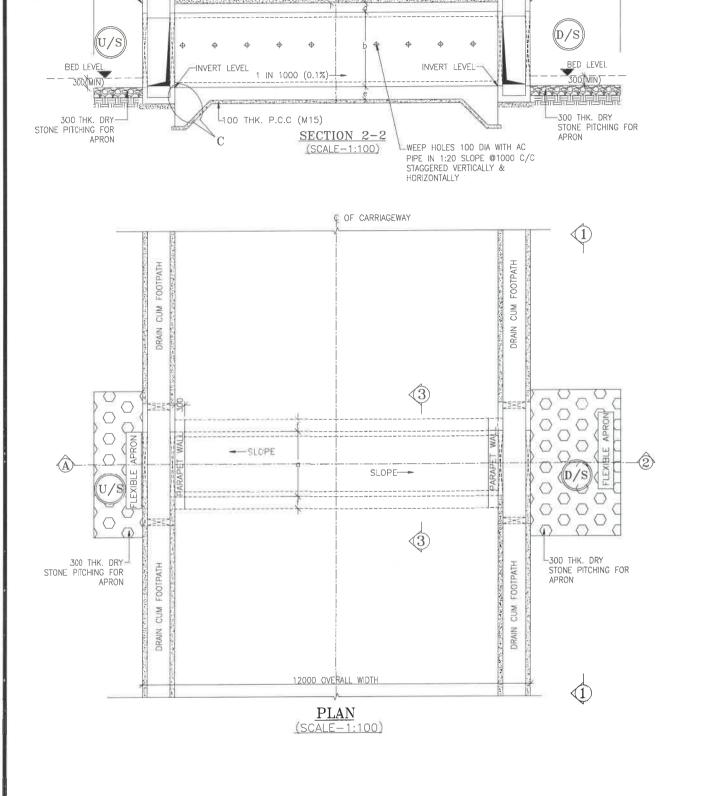
DRAWING SCALE:	DRAWING TITLE:	DRG. NO.
NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X2X3	DD/IMP-JIR/ RF/01

NAME:-IG TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRI OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TO =17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEER EMENT & CONSTRUCTION (EPC) MODE.

	DATE AUG-2021	DRAWN STRUCTURE DRAFTS		
MABIS	DESIGNED	CHECKED	APPROVED	
OTAL RING,	STRUCTURE ENGINEER	***	dhu	

SHEET:

01OF 01 R0



12000 OVERALL WIDTH

7000 CARRIAGEWAY

C OF CARRIAGEWAY

SLOPE-

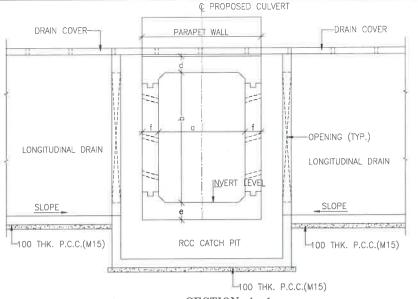
DRAIN

-DRAIN

1000 F.P. CUM

DRAIN

DRAIN-



SECTION 1-1 (SCALE-1:60)

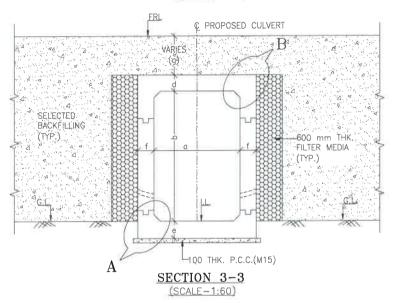
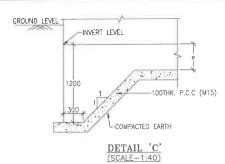


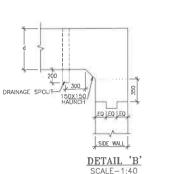
TABLE SHOWING SILENT DIMENSIONS

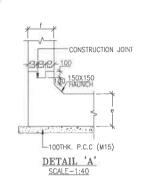
BOX CELL	a	b	d	e	f
DESIGNATION	(mm)	(mm)	(mm)	(mm)	(mm)
1X2X3	2000	3000	230	275	275

TABLE -II

SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	17+016	1X2X3	830.076	826.246	826.346	600	TSC-







NOTES:-

- 1 ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: ..M30

b) RCC RETAINING WALL ...M30 c) PCC LEVELLING COURSE... d) PCC CURTAIN WALL.....M30 e) PARAPET WALL.....

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES \emptyset < 30', C=0, γ = 2.0T/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLT-SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M² IN GENERAL. IF THE MATERIAL, ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- A CHOROGERIC COMPACIES OF THE SPECIFIC LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78–2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & POFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL

LEVEL GROUND LEVEL INVERT LEVEL

EQUAL FOOTPATH UP STREAM DOWN STREAM

EQ F.P. U/S D/S P.S. E.S. PAVED SHOULDER

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

CLIENT:



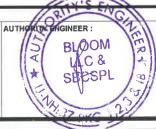
DESIGN DIRECTOR:

DESIGN



PROOF CONSULTANT:





DRAWING SCALE: NTS PROJECT NAME:-

DRAWING TITLE: DRAWING FOR BOX CULVERT

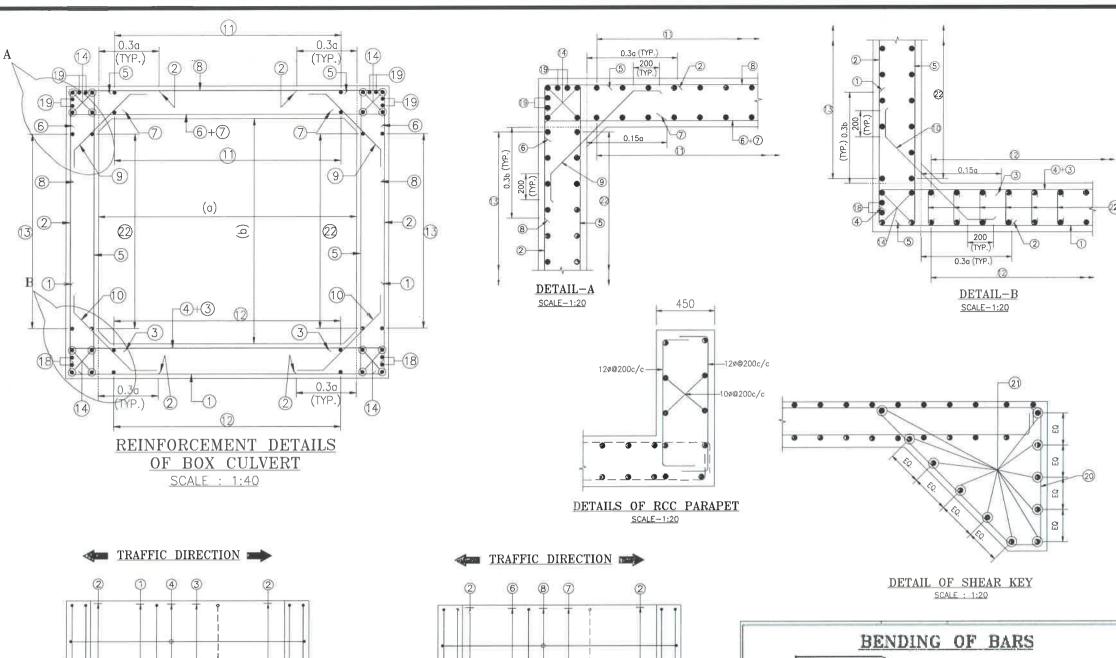
DRG. NO. TYPICAL GENERAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01

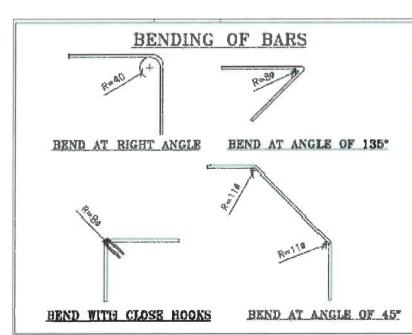
01 OF 01

SHEET:

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NIH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA DESIGNED CHECKED APPROVED ENGINEER





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE
 - AND 40mm AT OTHER SIDE.

 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE
- IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER
- CLAUSE 304-6 OF IRC: 112. FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

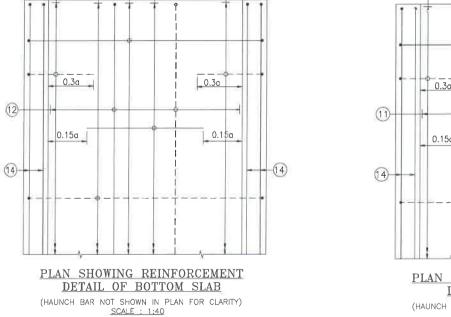
LEGEND :-

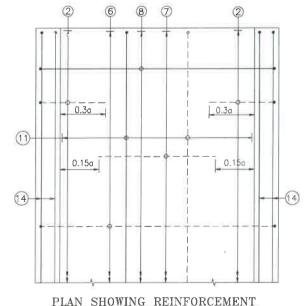
-	TOP FACE BARS/OUTER FACE BARS
	BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

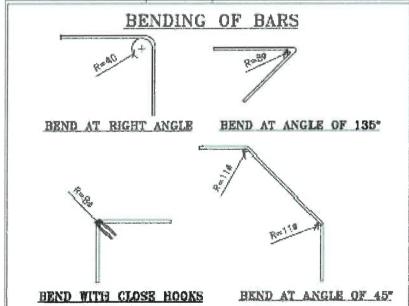
(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos
①		16	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
5	[]	12	250 C/C
6		12	250 C/C
Ø		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11		10	300 C/C
12		10	300 C/C
13		10	300 C/C
14		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16)		NOT IN USE	NOT IN USE
17)	5	NOT IN USE	NOT IN USE
18)		10	4 NOS.
19		10	8 NOS.
20		12	300 C/C
21)	L	12	20 NOS.
22		10	300 C/C
(220)	C	8DIA.300(LON 500(TRAN	G. DIRECTION) IS, DIRECTION
(22b)	C	NOT IN	N USE





PLAN SHOWING REINFORCEMENT DETAIL OF TOP SLAB (HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY) SCALE : 1:40



CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



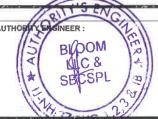
DESIGN DIRECTOR:



PROOF CONSULTANT: Hindia Engineers Patida.
Address: 33/7, H-Block, DLP PMse-1,
Gurgson-Faridabad Road Haryana, INDIA-122002,
Phone No.-0124-4026881







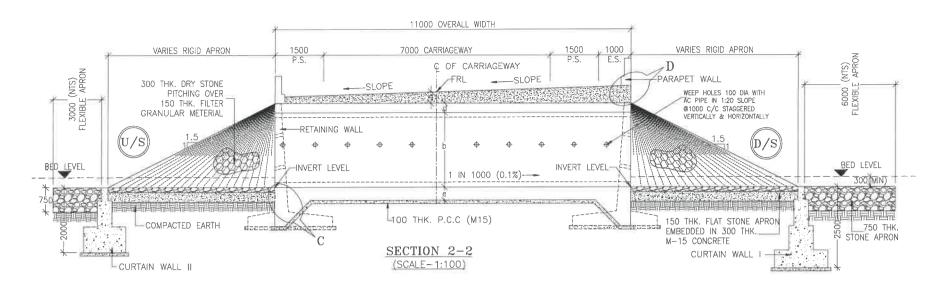
DRAWING SCALE:	DRAWING TITLE:
NTS	TYPICAL REIN OF BOX CU

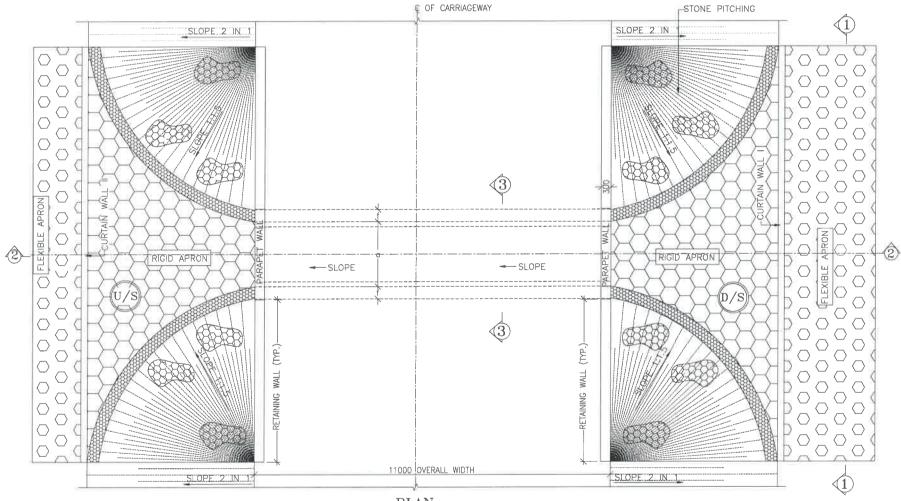
PROJECT NAME:-

PICAL REINFORCEMENT DETAILS | DD/IMP-JIR/ RF/01 OF BOX CULVERT FOR 1X2X3

01OF 01 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN DESIGNED CHECKED

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM APPROVED SECTION OF NH-37 FROM DESIGN CHAINAGE 15.349 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. STRUCTURE ENGINEER





PLAN (SCALE-1:100)

NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:
- a) RCC BOX..... b) RCC RETAINING WALL c) PCC LEVELLING COURSE. M15
- d) PCC CURTAIN WALL M15 e) PARAPET WALL.. М3Ω
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78—2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.0T/M³
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT , SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH , WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER MIMEDIATELY.

- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON ETHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FRL	-	FINISHED ROAD LEVE
LVL	~	LEVEL
GL	-	GROUND LEVEL
IL	_	INVERT LEVÉL
EQ	-	EQUAL
F.P.	-	FOOTPATH
U/S	-	UP STREAM
D/S		DOWN STREAM
P.S.	-	PAVED SHOULDER
E.S.	_	EARTHEN SHOULDER





DESIGN DIRECTOR:



Hindia Engine To Pyt. 1 Address: 33/7, H-Block, 2 F Fin. 7 Gurgaon-Faridabad Road Haryana, (INDIA-1220 Phone No.-0124-4028681





AWING SCALE:	DRAWING TITLE:
NTS	TYPICAL GENER
	DRAWING FOI

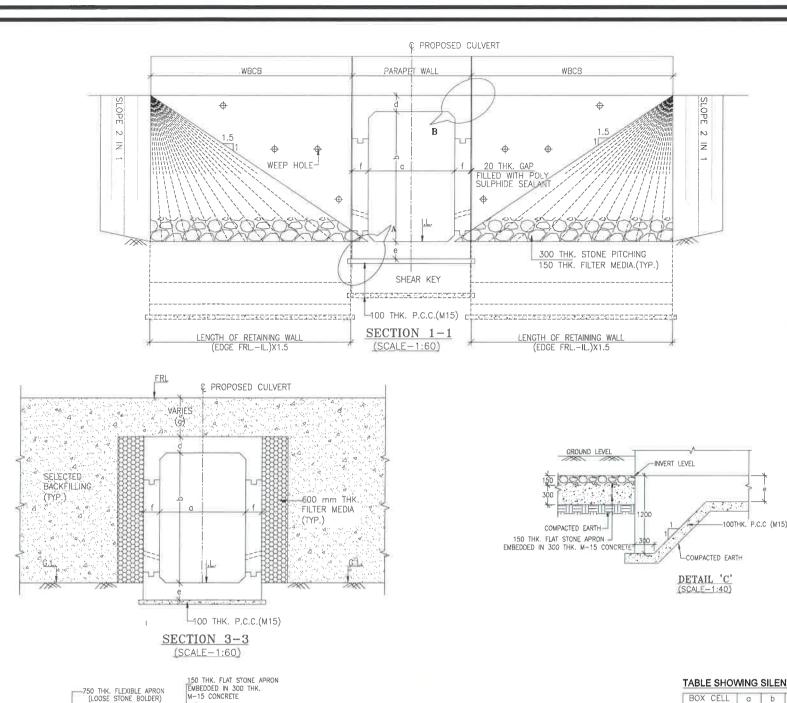
DRG. NO. RAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01

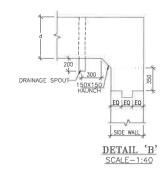
R BOX CULVERT PROJECT NAME:-WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAI DESIGNED CHECKED STRUCTURE ENGINEER

SHEET:

01 OF 02





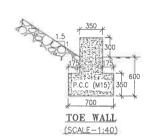




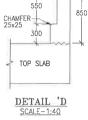


TABLE SHOWING SILENT DIMENSIONS

BOX CELL	а	Ь	d	е	f
DESIGNATION	(mm)	(mm)	(mm)	(mm)	(mm)
1X2X3	2000	3000	230	275	275

TABLE -II

SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	30+775	1X2X3	1222.152	1218.322	1218.422	600	TSC-3
2	32+060	1X2X3	1186.075	1182.245	1182.345	600	TSC-3
3	32+460	1X2X3	1171.203	1167.373	1167.473	600	TSC-3



NOTES:-

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- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:

u)	NCC	DUA	VISU
		RETAINING WALL	
c)	PCC	LEVELLING COURSE	V15
d)	PCC	CURTAIN WALL	M15
e)	PARA	APET WALL	M30

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES Ø < 30', C=0, γ = 2.0T/M 3
- COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLT-SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78–2014.
 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED A CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL FOOTPATH UP STREAM U/S D/S P.S. DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER

-750 THK. FLEXIBLE APRON (LOOSE STONE BOLDER)

	-
450	
425	7000
* 4 4	
P.C.C (M10)	-800

TYPICAL CROSS SECTION OF CURTAIN WALL TYPE-II (U/S)

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



150 THK. P.C.C M-15

P.C.C (M10)

1650 1950

TYPICAL CROSS SECTION OF

CURTAIN WALL TYPE-I (D/S)

INVERT LEVEL



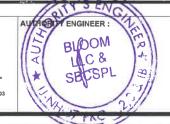
150 THK. FLAT STONE APRON EMBEDDED IN 300 THK. M-15 CONCRETE

PROOF CONSULTANT:



Antique soute Cr. Ltd.
Address: 191, Mond. Nagar, 41, June 180, 0141-2760303
Email: Info@antiquebulldtech.com

SAFETY CONSULTANT



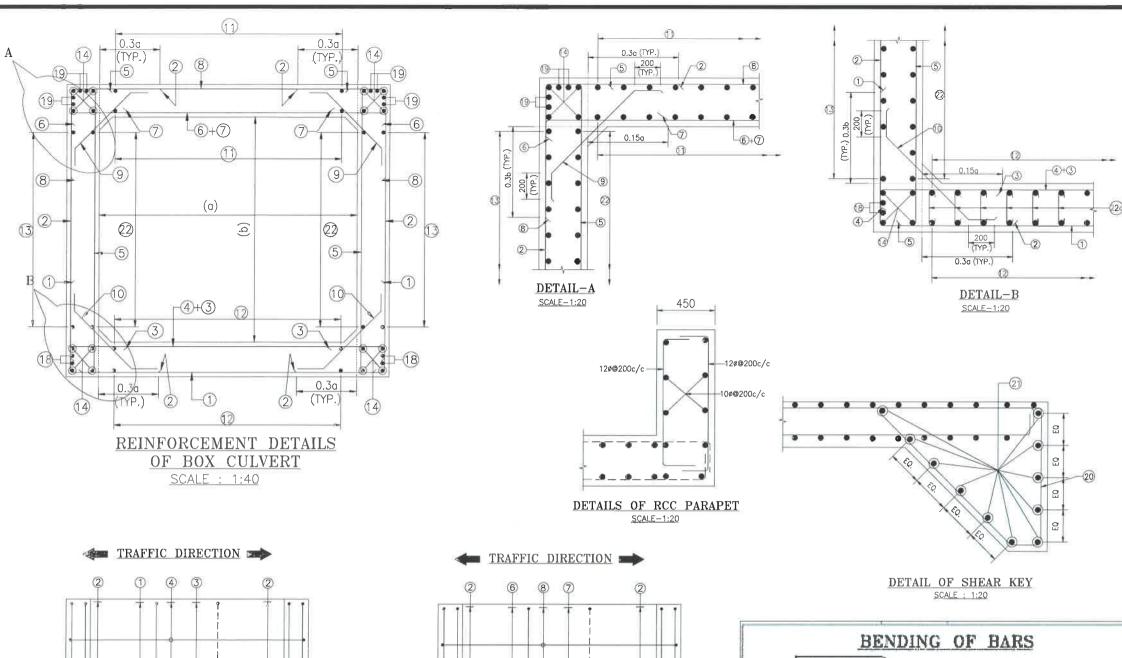
DRAWING SC	ALE:
NTS	

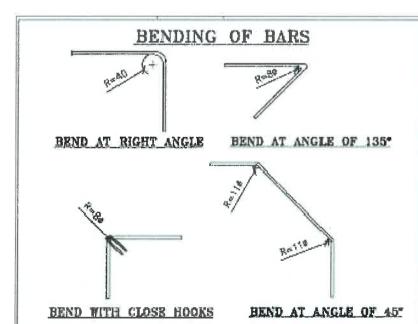
DRAWING TITLE: TYPICAL GENERAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01 DRAWING FOR BOX CULVERT

SHEET: DRG, NO. 02 OF 02

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (FMC-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAI DESIGNED STRUCTURE ENGINEER





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.

 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP
- LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT
- GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

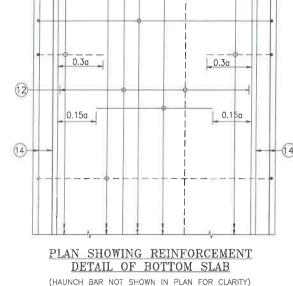
LEGEND :-

TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

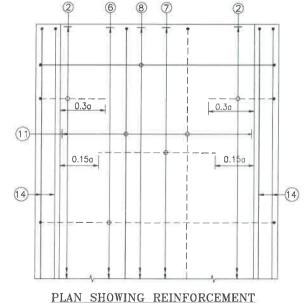
SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1	<u></u>	16	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
5		12	250 C/C
6		12	250 C/C
7		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11)		10	300 C/C
12		10	300 C/C
(3)		10	300 C/C
14		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	300 C/C
21	L	12	20 NOS.
22		10	300 C/C
220		8DIA.300(LON 500(TRAN	G. DIRECTION) IS. DIRECTION)
(22b)	C	11 TOM	USE



SCALE : 1:40



DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

SCALE : 1:40



NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD





PROOF CONSULTANT

Hindia Engineers Pvt.
Address: 33/7, H-Block, N-E Prins Gurgaon-Faridabad Road Haryana, INDIA-122002, Phone No.-0124-4028681

Antique Put. Ltd.
Address: 191, Maria Magnar, a Ditura Byepass,
Jalpur-302018 (Rajantha) Pilipa No. 0141-2760303
Email: Info@antiquebulkdech.com

SAFETY CONSULTANT:



DRAWING SCALE: NTS

TYPICAL REINFORCEMENT DETAILS | DD/IMP-JIR/ RF/01 OF BOX CULVERT FOR 1X2X3

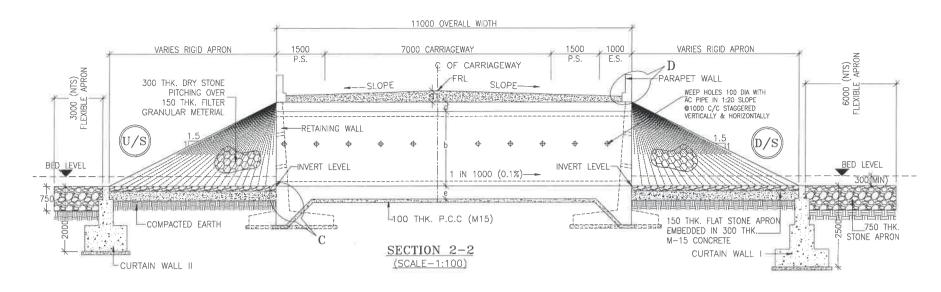
ENGINEER

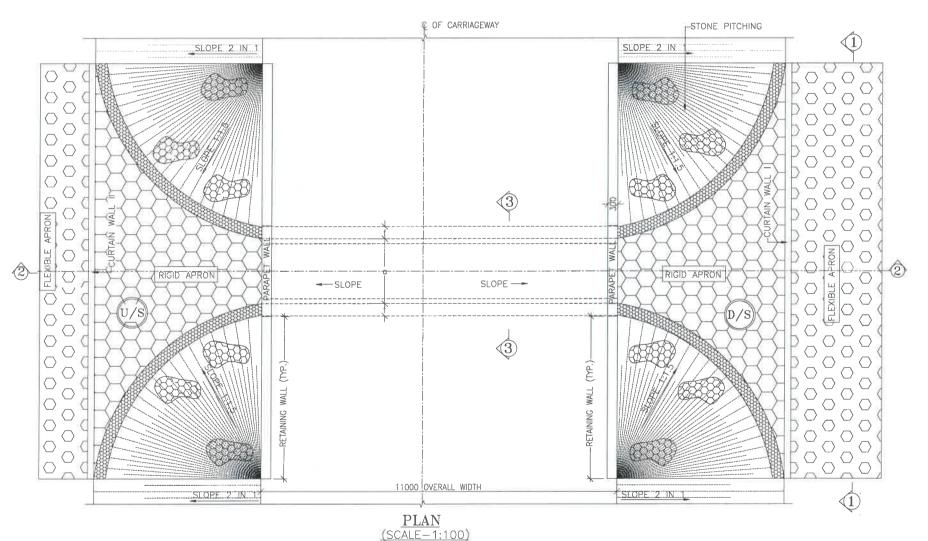
DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA DESIGNED STRUCTURE

SHEET:

01OF 01

PROJECT NAME:-WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-11,180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.





- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
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- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:
 - a) RCC BOX... b) RCC RETAINING WALL ..M30
 - c) PCC LEVELLING COURSE ..M15
 - d) PCC CURTAIN WALLM15 e) PARAPET WALL.... ...M30
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES $\emptyset < 30^\circ$, C=0, $\gamma = 2.0T/\text{M}^3$
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M² IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL. SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGIH, AS DIRECTED BY THE TREGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

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FINISHED ROAD LEVEL

LEGEND:-

E

INVERT LEVEL FOUAL t. U/S D/S P.S. LIP STREAM DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER



EPC CONTRACTOR **DEVELOPMENT CORPORATION LTD** M/S, CMM INFRAPROJECTS LTD. DESIGN DIRECTOR:



PROOF CONSULTANT

Jaipur-302018 (Raja: Email : info@antiqu





DRAWING TITLE: DRAWING SCALE: NTS

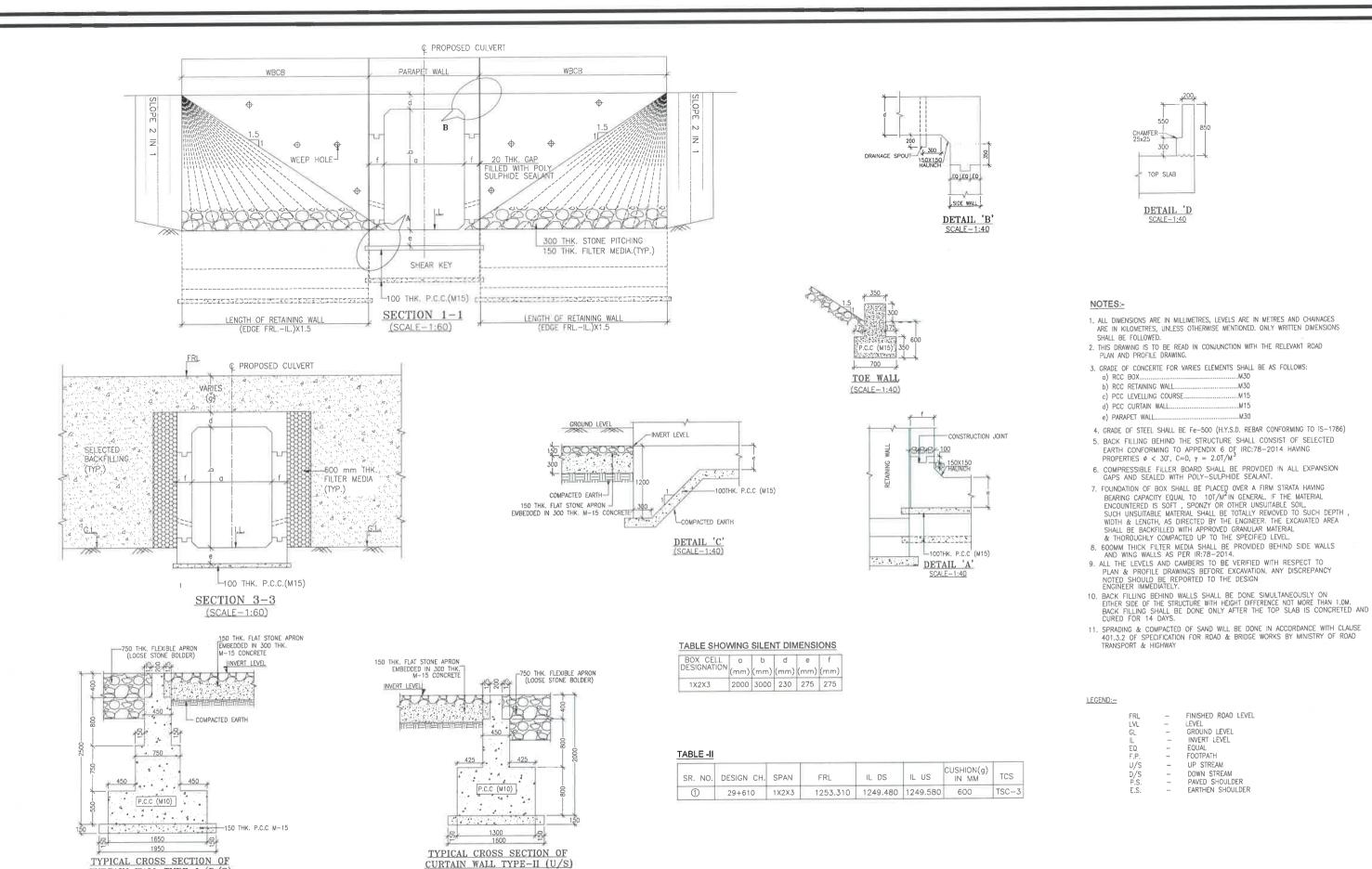
TYPICAL GENERAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01 DRAWING FOR BOX CULVERT

01 OF 02

PROJECT NAME:-

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.40 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA DESIGNED CHECKED APPROVED STRUCTURE ENGINEER



(SCALE 1:40)

CURTAIN WALL TYPE-I (D/S)

DRG. NO. SHEET: PROOF CONSULTANT SAFETY CONSULTANT DRAWING SCALE: DRAWING TITLE: EPC CONTRACTOR DESIGN DIRECTOR CLIENT: BLOOM TYPICAL GENERAL ARRANGEMENT DD/IMP-JIR/ BOX/GAD/01 NTS 02 OF 02 Antique Editor de Ltd.
Address: 191, Mohammar, Gus norr byepass,
Jalpur-302018 (Rajashan) anois de 1141-2750**
Email: info@antiquebuildtech.co. DRAWING FOR BOX CULVERT NC & Hindia Engles St. Ltd.

Address: 337 Addlock DLE hase-1,
Gurgaon-Farddaba Roll Heyeria IUPN PROJECT NAME:-DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA NATIONAL HIGHWAYS & INFRASTRUCTURE DESIGNED CHECKED WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.40 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. DEVELOPMENT CORPORATION LTD STRUCTURE M/S. CMM INFRABROJECTS LTD. ENGINEER 77 PKC

TOP SLAB

DETAIL 'D

SCALE-1:40

...M30

...M15

...M15

...M30

FINISHED ROAD LEVEL

DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER

LEVEL GROUND LEVEL INVERT LEVEL

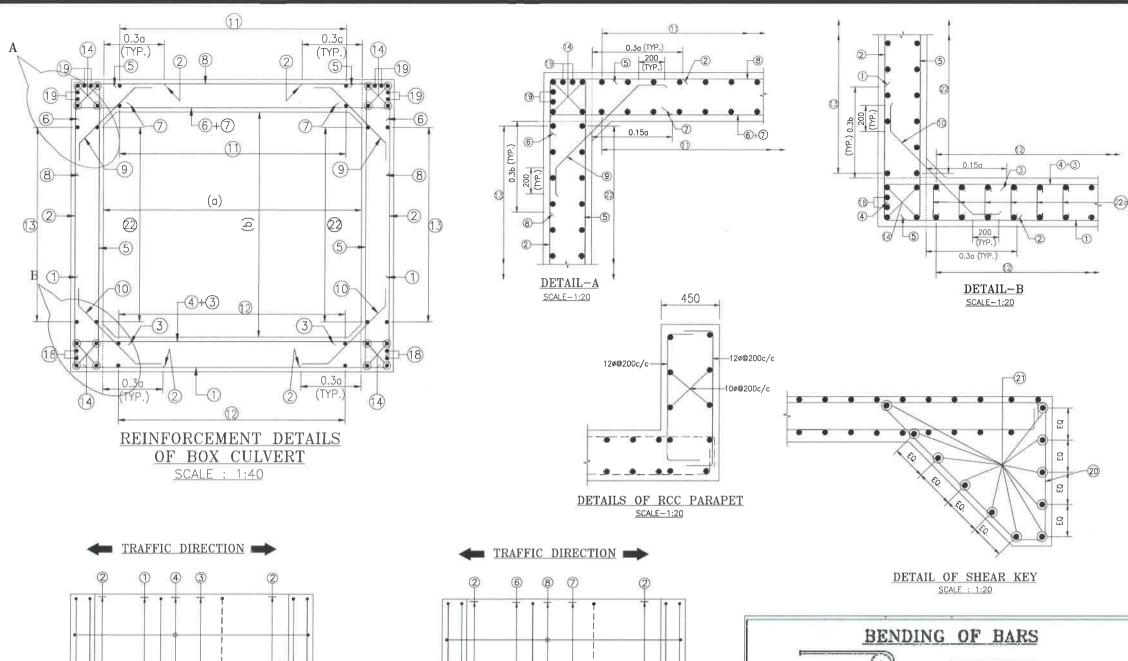
EQUAL

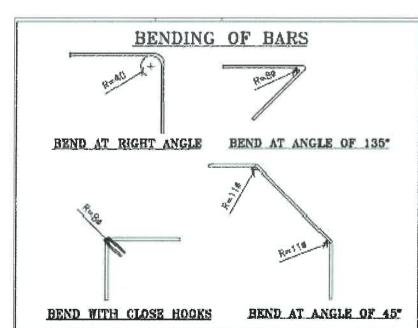
FOOTPATH

UP STREAM

EQ F.P.

U/S D/S P.S. E.S.





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
- ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP
- LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT
- GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304—6 OF IRC: 112.
 FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A
- PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

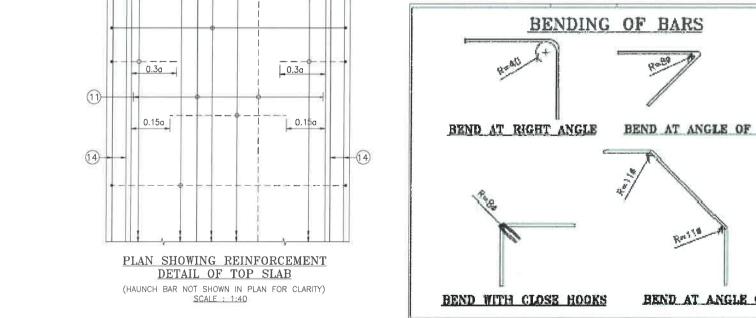
LEGEND :-

 TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos
1	ليا	16	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
5		12	250 C/C
6		12	250 C/C
7		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
1		10	300 C/C
12		10	300 C/C
13		10	300 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16)		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18)		10	4 NOS.
19		10	8 NOS.
20		12	300 C/C
21)	-	12	20 NOS.
22		10	300 C/C
(220)	C	8DIA.300(LONG 500(TRAN	G. DIRECTION) IS. DIRECTION
6 (22b)	<u> </u>	NOT IN	









0.3a

0.15a

PLAN SHOWING REINFORCEMENT

DETAIL OF BOTTOM SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

SCALE : 1:40

(12)

(14)



_0.3a

DESIGN DIRECTOR:

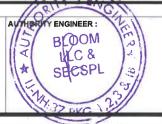


PROOF CONSULTANT



Antique Broute Ltd.
Address: 191, Moha Language Control Syspass,
Jaipur-302018 (Rajasthan Longuage Control Con

SAFETY CONSULTANT:



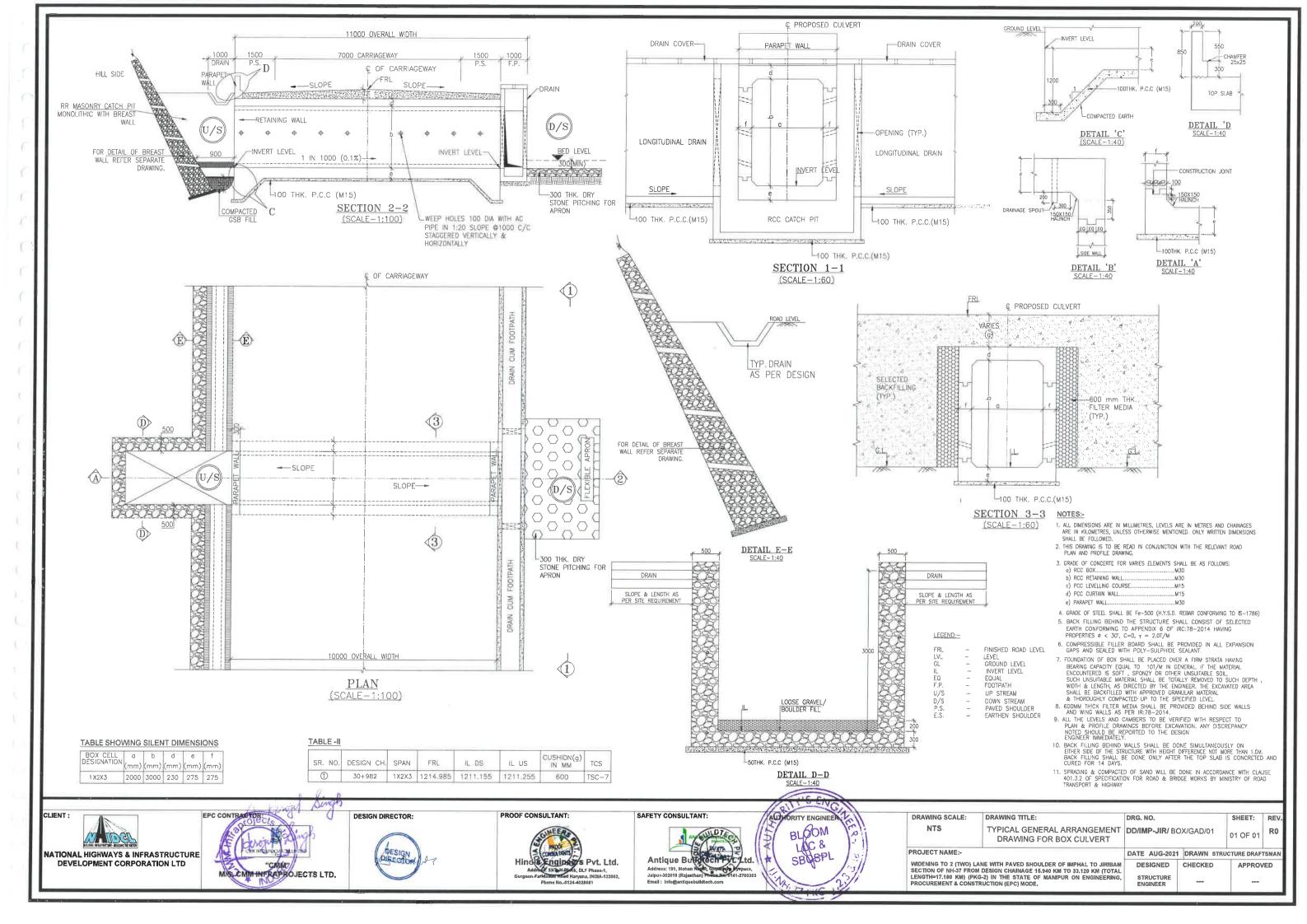
DRAWING SCALE:	DRAWING TITLE:
NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X2X3

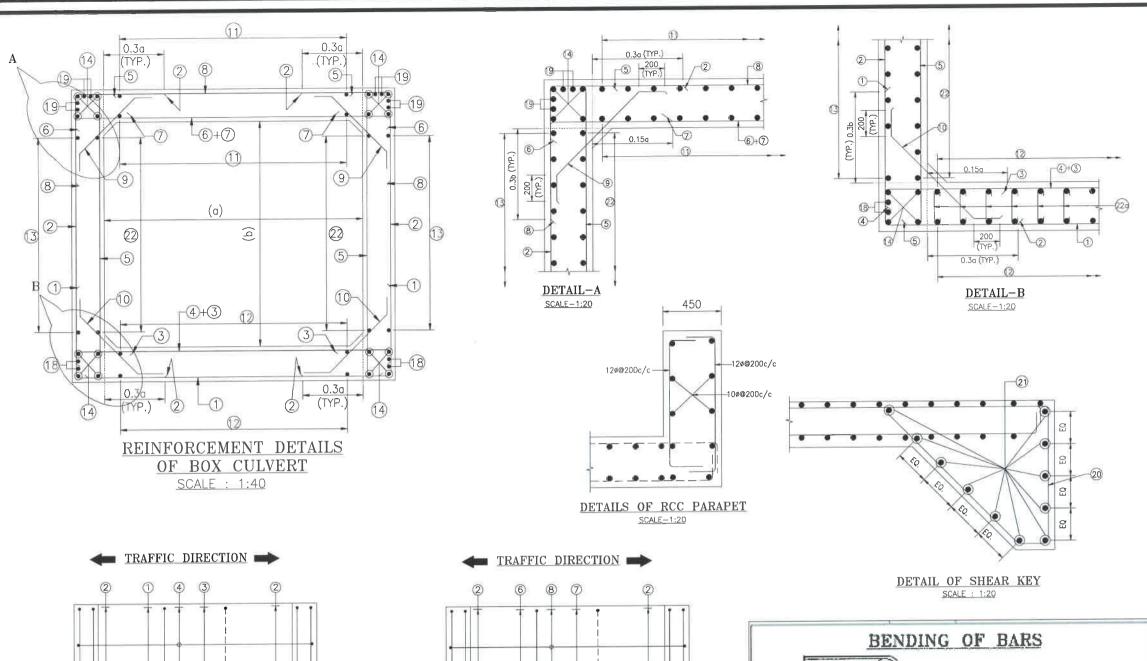
DRG. NO. SHEET: LS DD/IMP-JIR/ RF/01 01OF 01

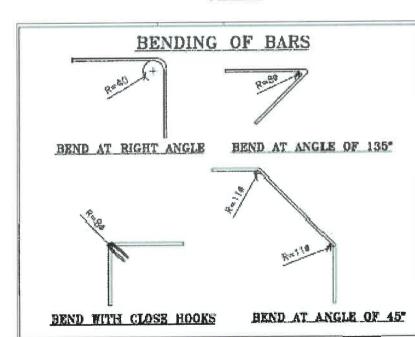
PROJECT NAME:-

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NI-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (FMC-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA STRUCTURE ENGINEER







- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
- TO BE FOLLOWED. CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE
- AND 40mm AT OTHER SIDE.
- AND 40mm AT OTHER SIDE.

 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT
- GENERAL ARRANGEMENT DRAWINGS JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER
- CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

LEGEND :-

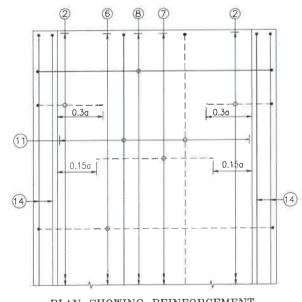
TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1		16	250 C/C
2		12	250 C/C
3		12	250 C/C
4		12	250 C/C
5		12	250 C/C
6		12	250 C/C
7		12	250 C/C
8		12	250 C/C
9		10	250 C/C
10		10	250 C/C
11)		10	300 C/C
12		10	300 C/C
13		10	300 C/C
14		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20	7	12	300 C/C
21	L	12	20 NOS.
22		10	300 C/C
220	C	8DIA.300(LON 500(TRA	G. DIRECTION) NS. DIRECTION)
(22b)		NOT I	N USE





PLAN SHOWING REINFORCEMENT DETAIL OF TOP SLAB (HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

PROOF CONSULTANT:

SCALE : 1:40



CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

0.3a



0.30

DESIGN DIRECTOR:



Inche Engineers Pvt. Ltd.
And Less: 1817 Holock, DLF Phase-1,
urgaon-Faridabad Road Haryana, INDIA-122002,
Phone No.-0124-4026681





DRAWING SCALE:	D
NTS	1

RAWING TITLE: TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X2X3

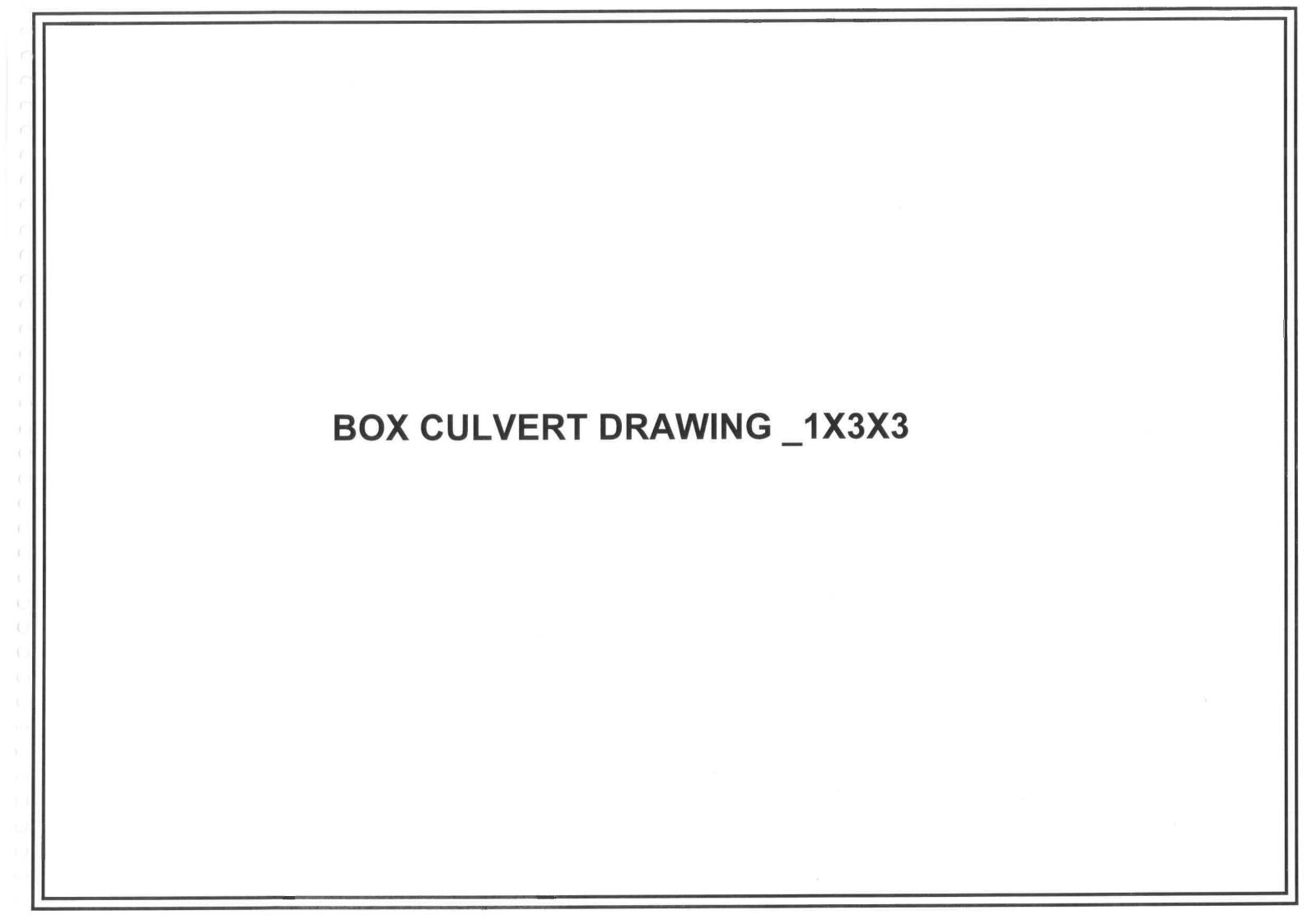
DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAI DESIGNED CHECKED

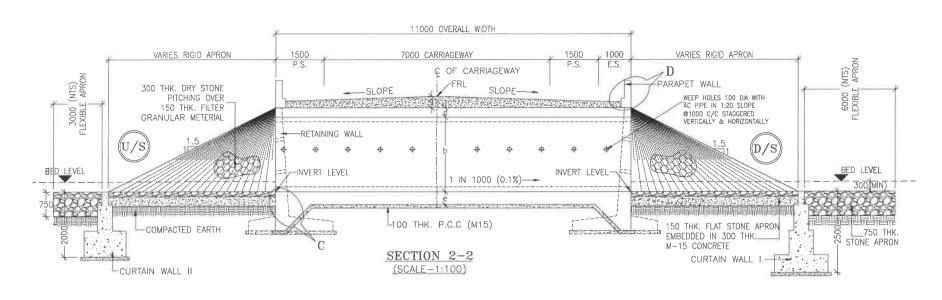
WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF INH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

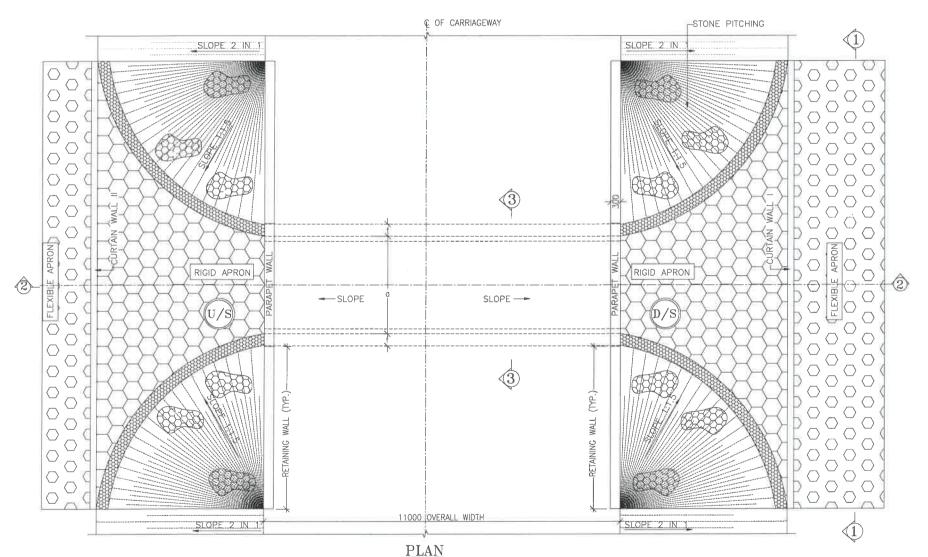
STRUCTURE ENGINEER

SHEET: REV

01OF 01







(SCALE-1:100)

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX.... b) RCC RETAINING WALL. M30

c) PCC LEVELLING COURSE. ...M15 d) PCC CURTAIN WALL..... ...M15 e) PARAPET WALL M30

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786) 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED
- EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.0T/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M²N GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- & THOROUGHLY COMPACTED UP 10 THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS
 AND WING WALLS AS PER IR:78—2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO
 PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY
 NOTED SHOULD BE REPORTED TO THE DESIGN
 ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQUAL FOOTPATH EQ F.P. U/S D/S P.S. E.S. UP STREAM DOWN STREAM PAVED SHOULDER

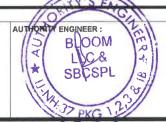












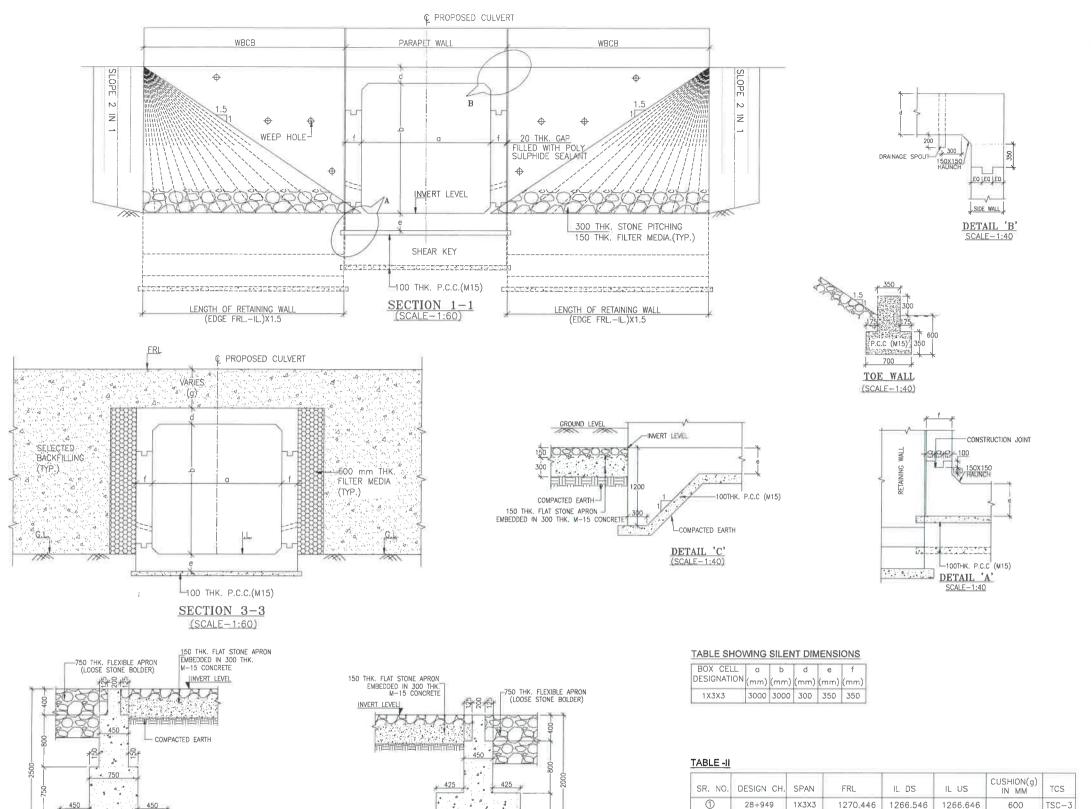
DRAWING SCALE:	DRAWING TITLE:	DRG. NO.
NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DD/IMP-JIR/ BOX/GAD/01

PROJECT NAME:

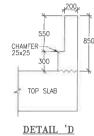
WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

01 OF 02 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMA APPROVED DESIGNED CHECKED STRUCTURE

SHEET:



SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	28+949	1X3X3	1270.446	1266.546	1266.646	600	TSC-3
2	31+450	1X3X3	1201.418	1197.518	1197.618	600	TSC-3



SCALE-1:40

NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:

a)	RUU	BOX	
b)	RCC	RETAINING	WALLM30
			COURSEM15

- d) PCC CURTAIN WALL e) PARAPET WALL.....
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786) 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES \emptyset < 30°, C=0, γ = 2.0T/M³
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGITH, AS DIRECTED BY THE RECINERER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78—2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AN CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

* .		
FRL	-	FINISHED ROAD LEVEL
LVL	_	LEVEL
GL	-	GROUND LEVEL
IL	-	INVERT LEVEL
EQ		EQUAL
F.P.	-tho	FOOTPATH
U/S		UP STREAM
D/S	_	DOWN STREAM
P.S.	-	PAVED SHOULDER
E.S.	-	EARTHEN SHOULDER

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



-150 THK. P.C.C M-15

P.C.C (M10)

> 1650 1950

TYPICAL CROSS SECTION OF

CURTAIN WALL TYPE-I (D/S) (SCALE 1:40)

DESIGN DIRECTOR





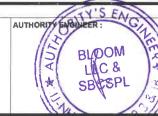
P.C.C (M10)

TYPICAL CROSS SECTION OF

CURTAIN WALL TYPE-II (U/S)

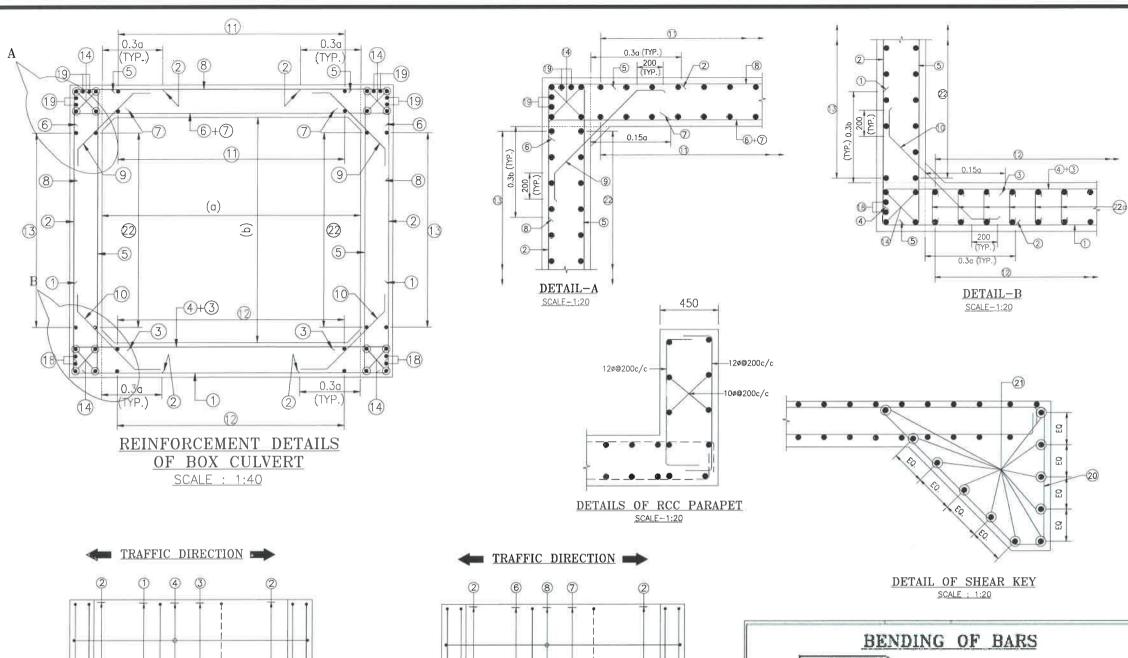


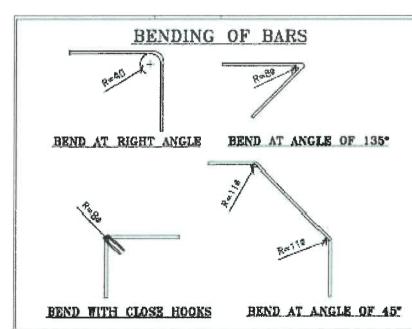
SAFETY CONSULTANT:



CI	DRAW
12011	l N
1 10	
14:11	PROJEC
L /off	WIDENII
103/	PROCU

DRAWING SCALE:	DRAWING TITLE:	DRG. NO.		SHEET:	REV
NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DD/IMP-JIR/ BO	DX/GAD/01	02 OF 02	R0
PROJECT NAME:-		DATE AUG-2021	DRAWN STRU	CTURE DRAFT	SMAN
	NE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL	DESIGNED	CHECKED	APPROV	ED
	-2) IN THE STATE OF MANIPUR ON ENGINEERING,	STRUCTURE ENGINEER			





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.

 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER
- CLAUSE 304—6 OF IRC: 112.
 FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A
 PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE
 DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

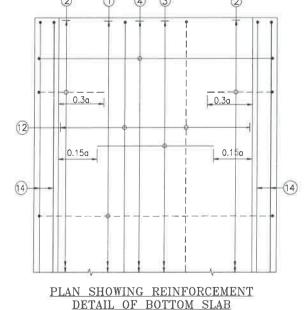
LEGEND :-

 TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

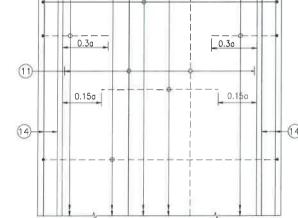
(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1		16	200 C/C
2		12	200 C/C
3		12	200 C/C
4		12	200 C/C
5		12	225 C/C
6		_12	200 C/C
0		12	200 C/C
8		12	200 C/C
9		10	200 C/C
10		10	200 C/C
11)		8	250 C/C
12		8	275 C/C
(3)		8	275 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	275 C/C
21)		12	20 NOS.
22		8	250 C/C
220	C	8DIA.275(LONG 400(TRAN	G. DIRECTION) IS. DIRECTION)
(22b)	C	NOT IN	N USE



(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

SCALE : 1:40



PLAN SHOWING REINFORCEMENT DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

PROOF CONSULTANT

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



DESIGN DIRECTOR:



ndia Engineers Pvt. Ltd.

Antique State Stat

SAFETY CONSULTANT

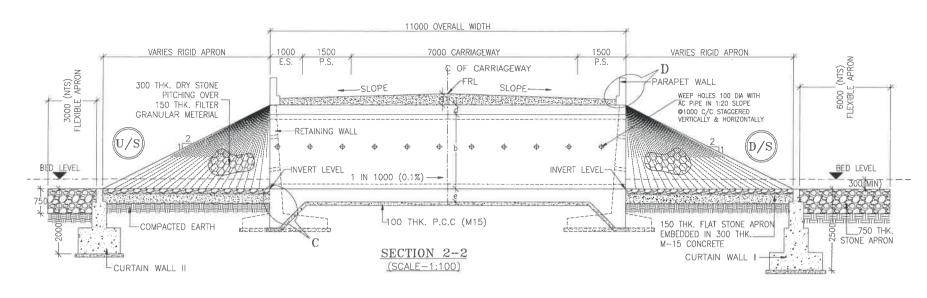


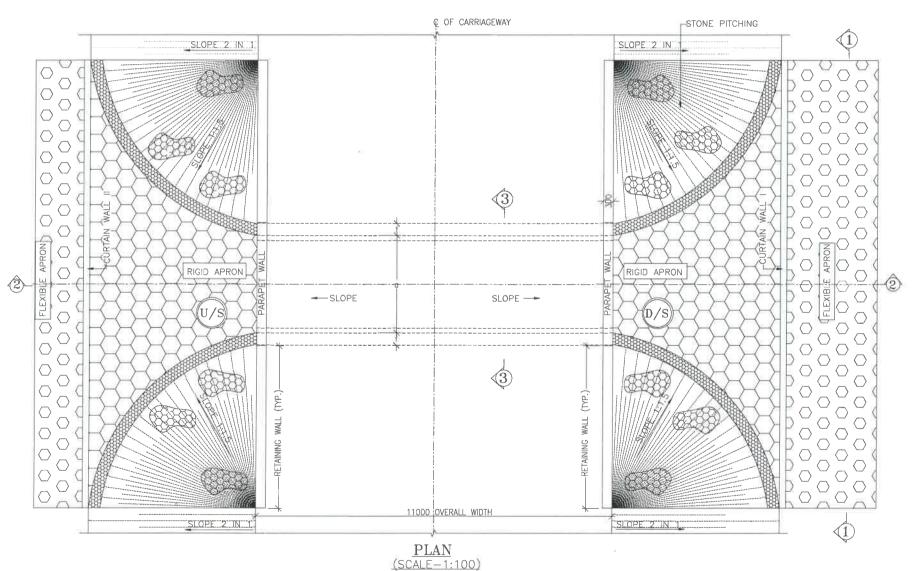
11	DRAWING SCALE:	DRAWING TITLE:
	NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X3X3
9	SECTION OF NH-37 FRO	ANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM M DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL (G-2) IN THE STATE OF MANIPUR ON ENGINEERING, TRUCTION (EPC) MODE.

TYPICAL REINFORCEMENT DETAILS | DD/IMP-JIR/ RF/01

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN DESIGNED APPROVED CHECKED STRUCTURE

01OF 01





- ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES
 ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS
 SHALL BE FOLLOWED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:
- d) PCC CURTAIN WALL.....M15
 e) PARAPET WALL......M30
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.0T/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M² N GENERAL IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.
- AND WING WALLS AS PER IR:78-2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FRL – FINISHED ROAD LEVEL

LVL – LEVEL

SL – GROUND LEVEL

L – INVERT LEVEL

EQ – EQUAL

F.P. – FOOTPATH

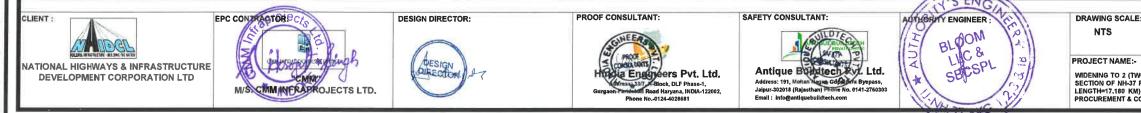
F.P. – FOOTPAIR

U/S – UP STREAM

D/S – DOWN STREAM

P.S. – PAVED SHOULDER

E.S. – EARTHEN SHOULDER



DRAWING SCALE: DRAWING TITLE: DRG. NO. SHEET: REV

NTS TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT DD/IMP-JIR/ BOX/GAD/01

01 OF 02

PROJECT NAME:
WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG

DESIGN

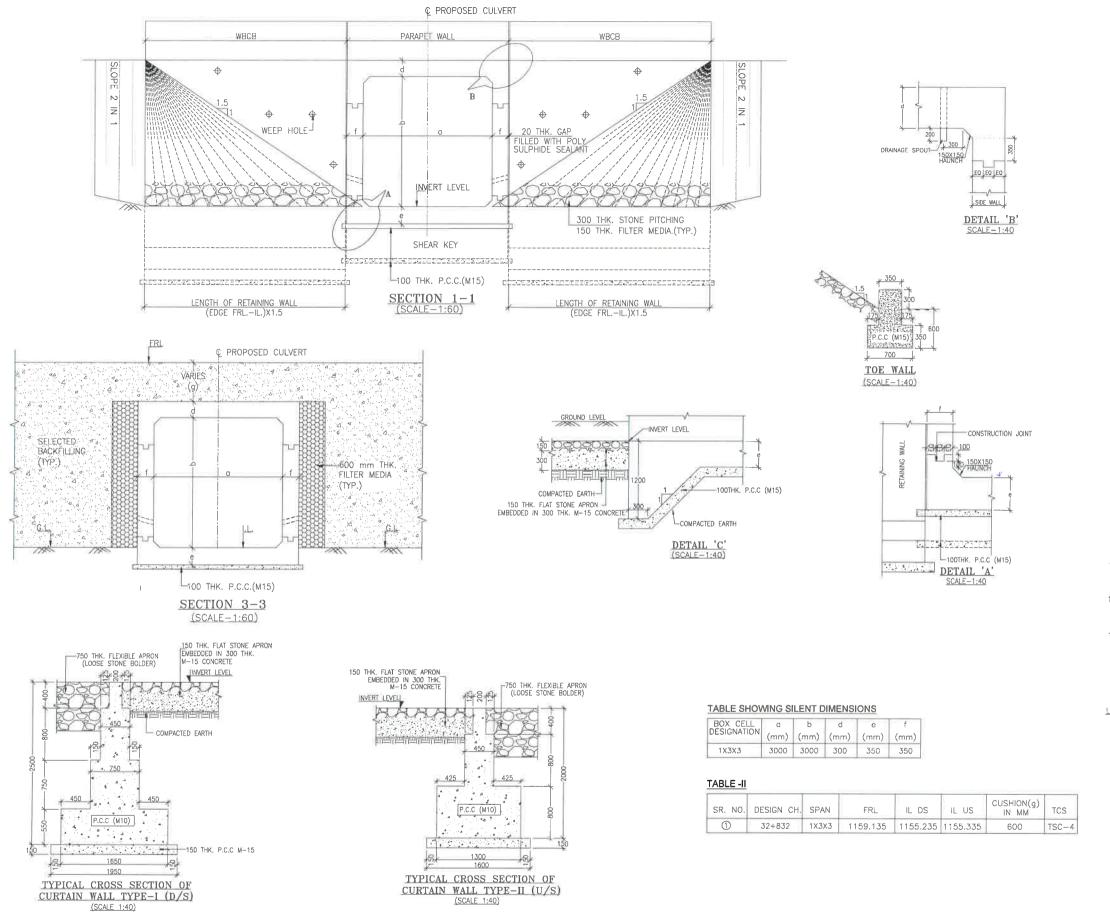
STRUCT
ENGINE

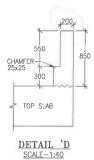
DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAI

BAM DESIGNED CHECKED APPROVED

TAL

NG, STRUCTURE ENGINEER





- ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES
 ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:

a)	RCC	BOX	.MJ
ь)	RCC	RETAINING WALL	.M3
c)	PCC	LEVELLING COURSE	.M1
d)	PCC	CURTAIN WALL	.M1
e)	PARA	PET WALL	.M3

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.0T/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M²IN GENERAL IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78–2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL

EQUAL FOOTPATH UP STREAM U/S D/S P.S. E.S. DOWN STREAM PAVED SHOULDER

EARTHEN SHOULDER

CLIENT :



NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



DESIGN DIRECTOR:



PROOF CONSULTANT:







DRAWING SCALE:	DRAWING TITLE:
NTS	TYPICAL GENERAL
	DRAWING FOR

PROJECT NAME:-

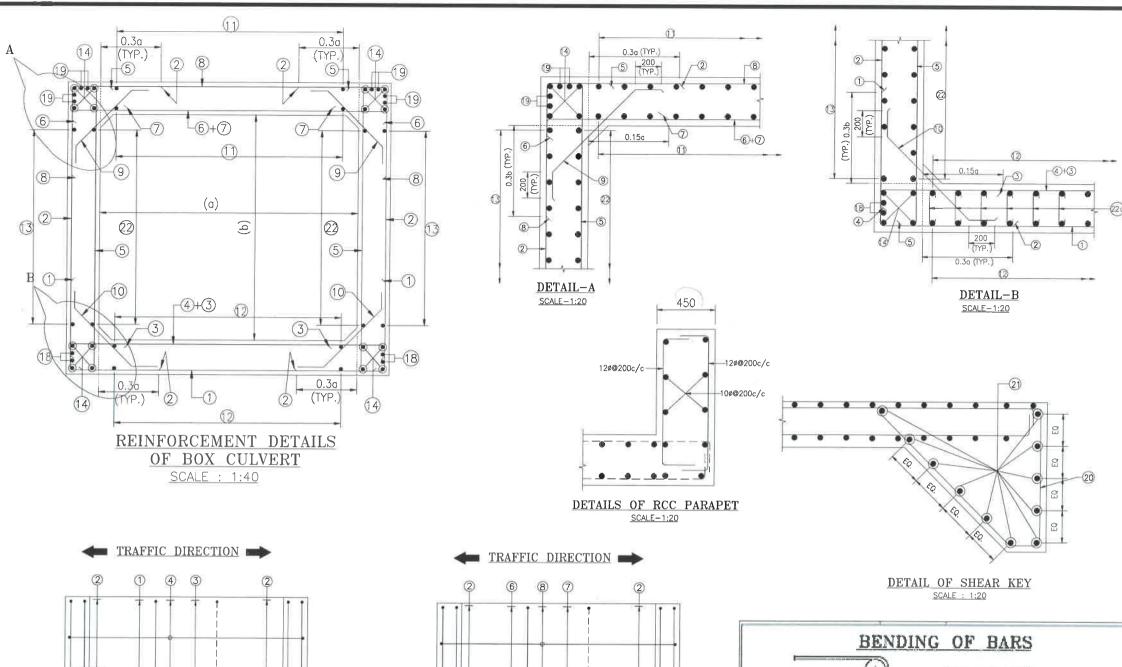
DRG. NO. ARRANGEMENT DD/IMP-JIR/ BOX/GAD/01 **BOX CULVERT**

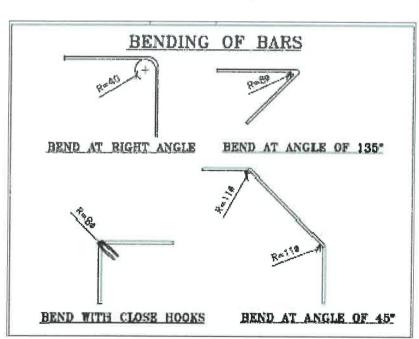
02 OF 02 DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN

SHEET:

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DESIGNED CHECKED APPROVED STRUCTURE ENGINEER





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
- TO BE FOLLOWED. CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
- ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE
- IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- GENERAL ARRANGEMENT DRAWINGS.
 JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER
 CLAUSE 304-6 OF IRC: 112.
 FULL SCALE LEVATION OF THE BARS SHALL BE LINED OUT ON A
 PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE
 DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

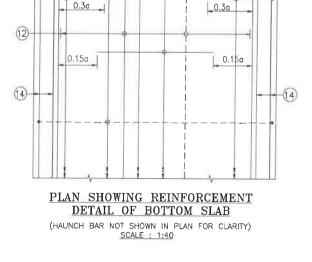
LEGEND :-

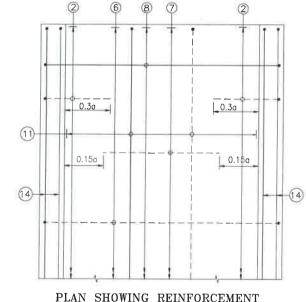
TOP FACE BARS/OUTER FACE BARS		
 BOTTOM FACE BARS/INNER FACE BARS		

SCHEDULE OF REINFORCEMENT

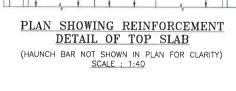
(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1		16	200 C/C
2		12	200 C/C
3		12	200 C/C
4		12	200 C/C
5		12	225 C/C
6		12	200 C/C
7		12	200 C/C
8		12	200 C/C
9		10	200 C/C
10		10	200 C/C
11		8	250 C/C
12		8	275 C/C
13		8	275 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17)	5	NOT IN USE	NOT IN USE
18)		10	4 NOS.
19		10	8 NOS.
20		12	275 C/C
21		12	20 NOS.
22		8	250 C/C
220	C	8DIA.275(LONG. DIRECTION) 400(TRANS. DIRECTION	
(22b)	C	NOT IN USE	





DETAIL OF TOP SLAB SCALE : 1:40







4.1	DRAWING S
12	NTS
121	PROJECT NA
13/	WIDENING TO SECTION OF I LENGTH=17.18
77/1	PROCUREMEN

DRAWING SCALE: NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X3X3	DRG. NO. DD/IMP-JIR/ RI	-/01	SHEET: 01OF 01	REV R0
PROJECT NAME:- WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL		DATE AUG-2021	DRAWN STRU	CTURE DRAFT	TSMAN
			CHECKED	APPROV	/ED
	(G-2) IN THE STATE OF MANIPUR ON ENGINEERING,				



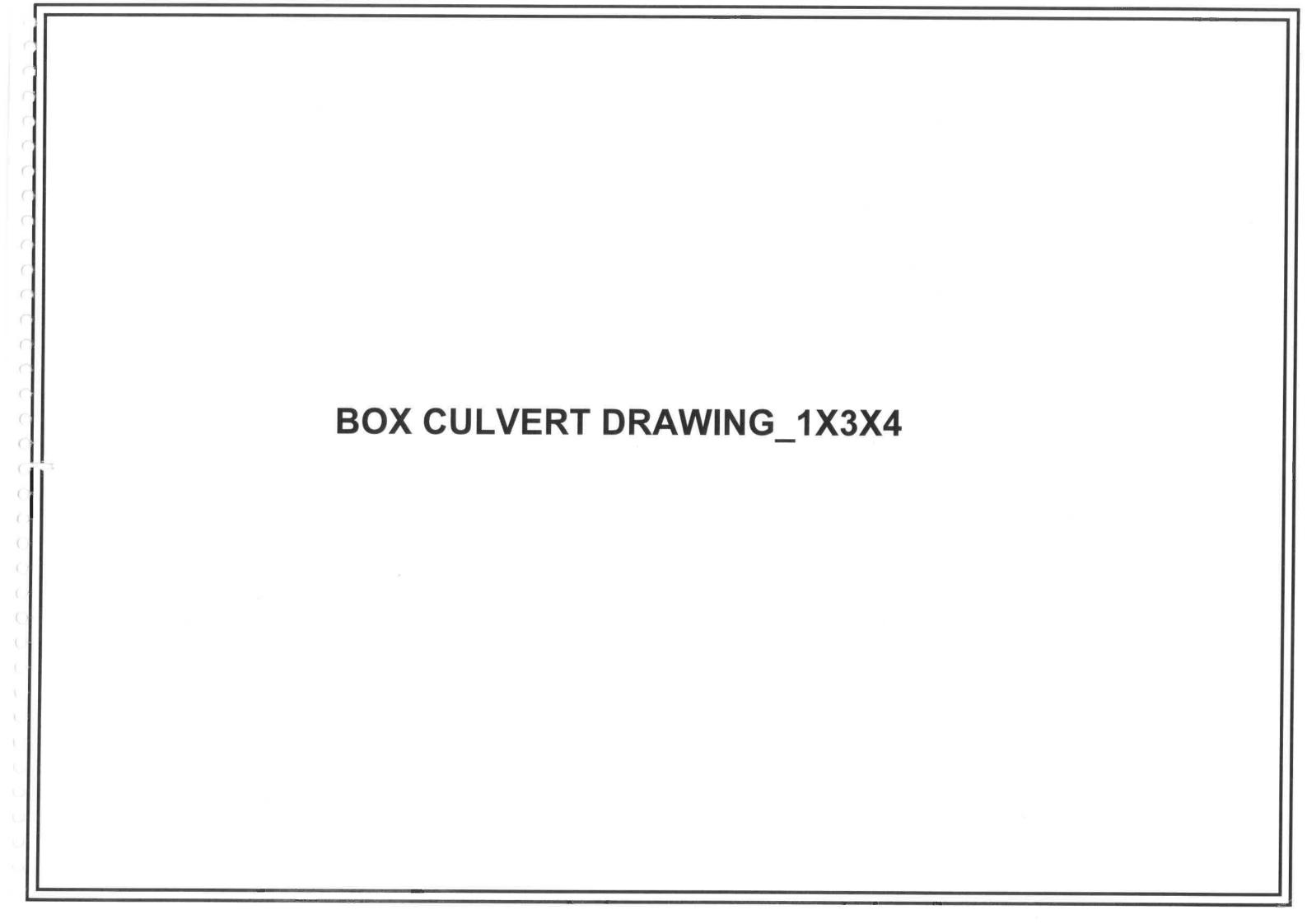
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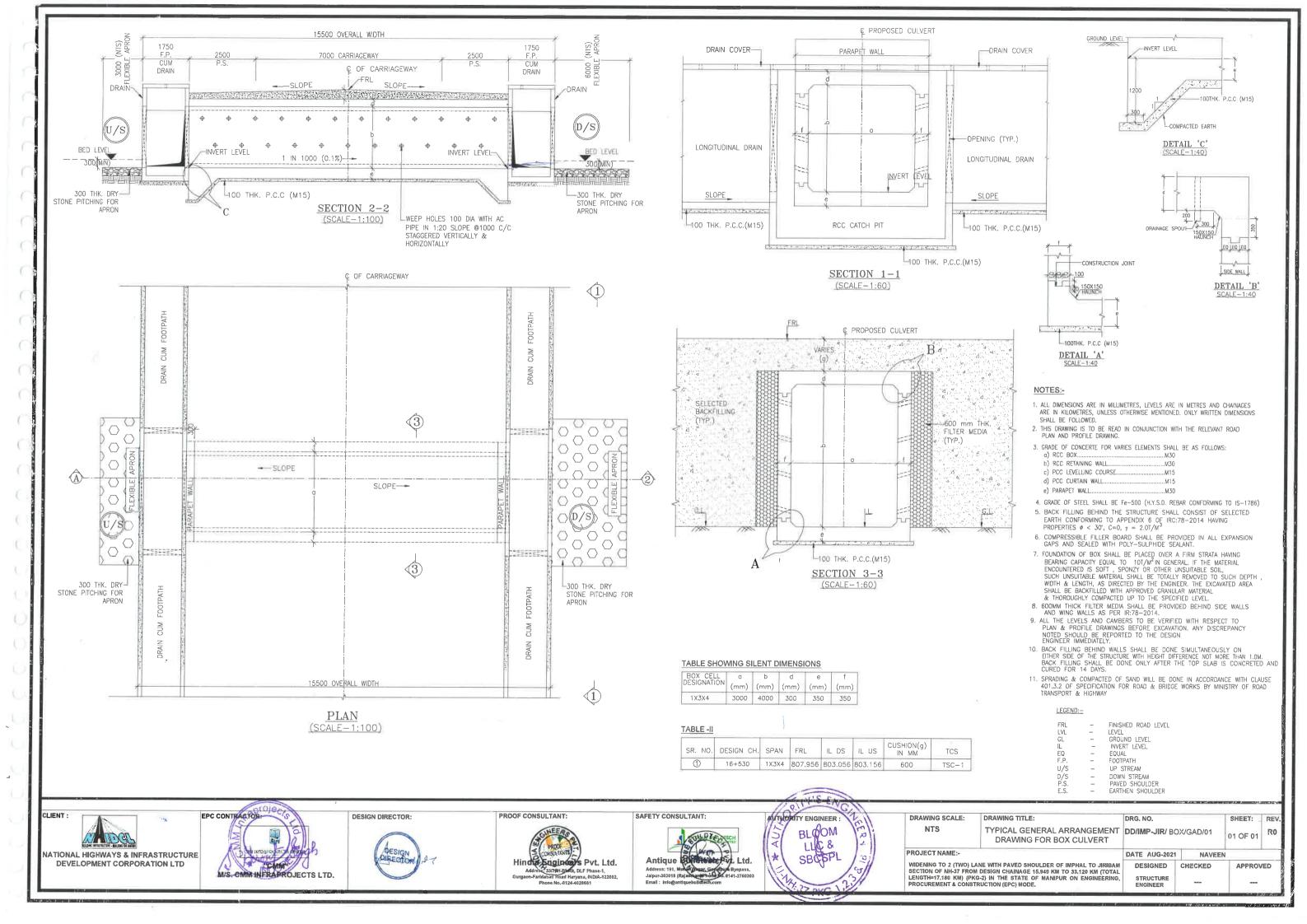


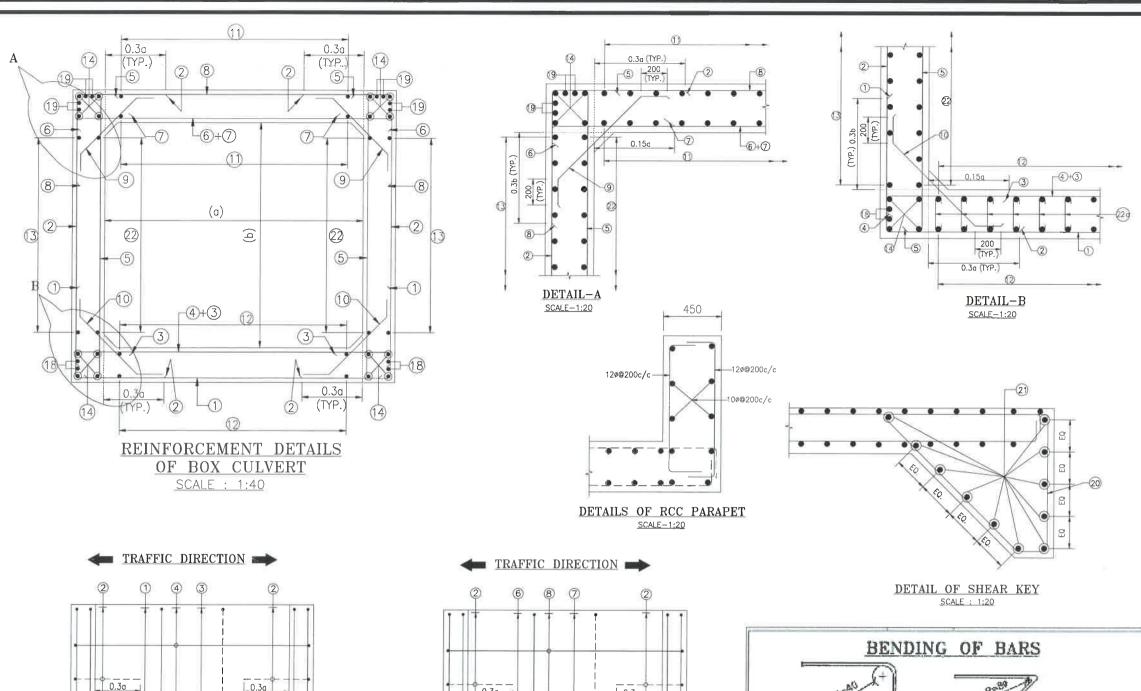
DESIGN DIRECTOR:

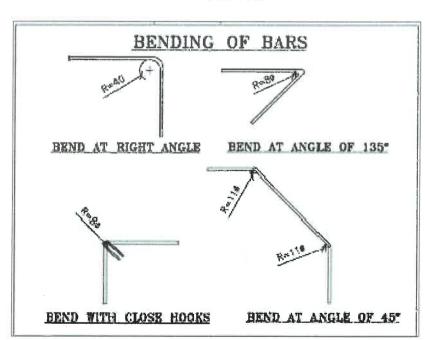
PROOF CONSULTANT Hinda Engineers Pvt. Ltd.
Address: Jun-Block, DLF Phase-1,
Gurgaon-Faridabad Road Haryana, INDA-122002,
Phone No.-0124-402881

Antique Duters Ltd.
Address: 191, Montage Byepass,
Jalpur-302018 (Raisshau 1907) 90 0141-2760303
Email: Info@antiquebulktech.com









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- TO BE FOLLOWED. CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
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- MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786.
 LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
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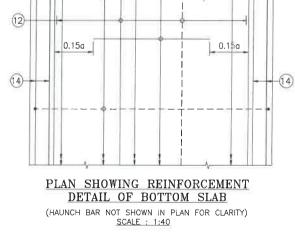
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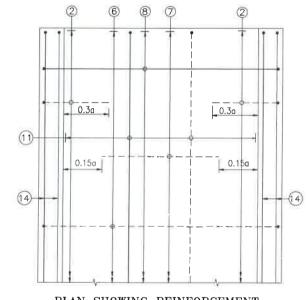
TOP FACE BARS/OUTER FACE BARS			
 BOTTOM FACE BARS/INNER FACE BARS			

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1		16	200 C/C
2		12	180 C/C
3		12	200 C/C
4		12	200 C/C
5	ſΊ	12	180 C/C
6		12	180 C/C
7		12	180 C/C
8		12	180 C/C
9		10	180 C/C
10		10	180 C/C
11)		8	225 C/C
12		8	200 C/C
13		8	200 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16)		NOT IN USE	NOT IN USE
17)	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	200 C/C
21		12	20 NOS.
22	=	8	270 C/C
(220)		8DIA.200(LONG: DIRECTION) 400(TRANS: DIRECTION)	
(22b)	C	NOT IN USE	





PLAN SHOWING REINFORCEMENT DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

EPC CONTRACTOR CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE

DEVELOPMENT CORPORATION LTD



_0.3a

DESIGN DIRECTOR:

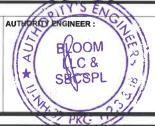


PROOF CONSULTANT:



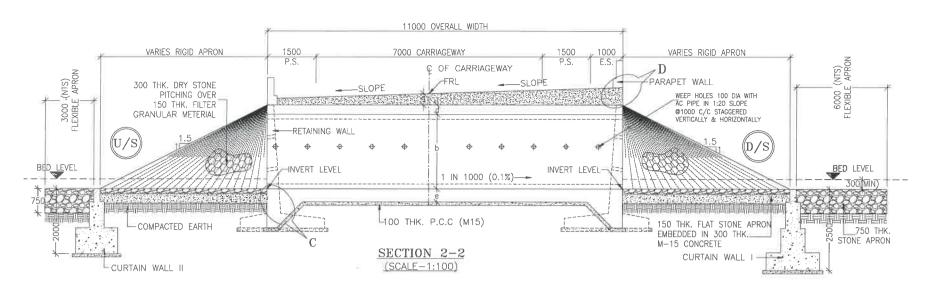
SAFETY CONSULTANT:

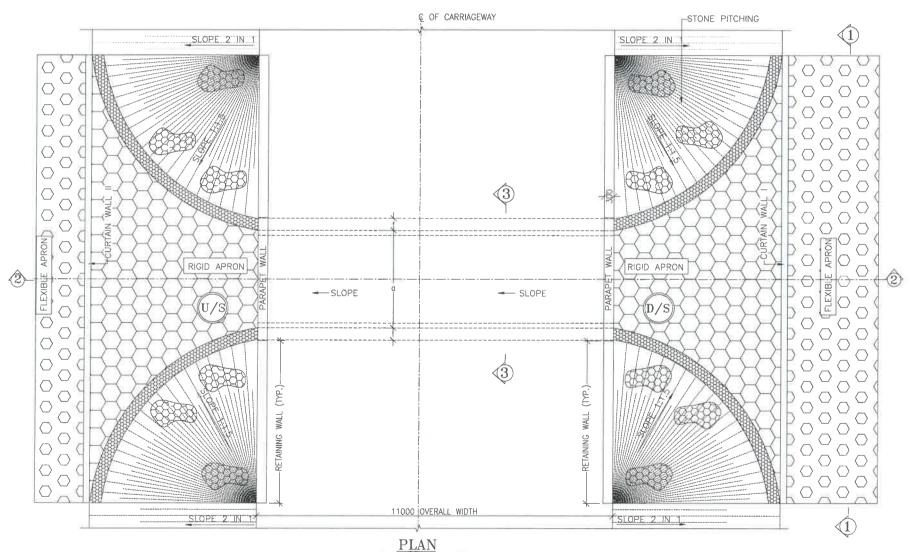
Antique Routeck Prt. Ltd.
Address: 191, Moha Lagar, Dalbura Byepass,
Jaipur-302018 (Rajasthan Phone No. 0141-2760303



DRAWING SCALE:	DRAWING TITLE
NTS	TYPICAL REII OF BOX C
PROJECT NAME:-	
WIDENING TO 2 (TWO) L	ANE WITH PAVED SH

DRAWING SCALE:	DRAWING TITLE:	DRG. NO.		SHEET:	RE
NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X3X4	DD/IMP-JIR/ RI	F/01	01OF 01	RO
PROJECT NAME:-	1	DATE AUG-2021	NAVEEN		
	NE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL	DESIGNED	CHECKED	APPRO\	/ED
	-2) IN THE STATE OF MANIPUR ON ENGINEERING,	STRUCTURE ENGINEER			





(SCALE-1:100)

NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX....M30

b) RCC RETAINING WALL ..M30 c) PCC LEVELLING COURSE. .M15 d) PCC CURTAIN WALL ... M15 e) PARAPET WALL... ...M30

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES $\emptyset < 30^\circ$, C=0, $\gamma = 2.0T/\text{M}^3$
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY-SULPHIDE SEALANI.

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 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.

- AND WING WALLS AS PER IR:78—2014.

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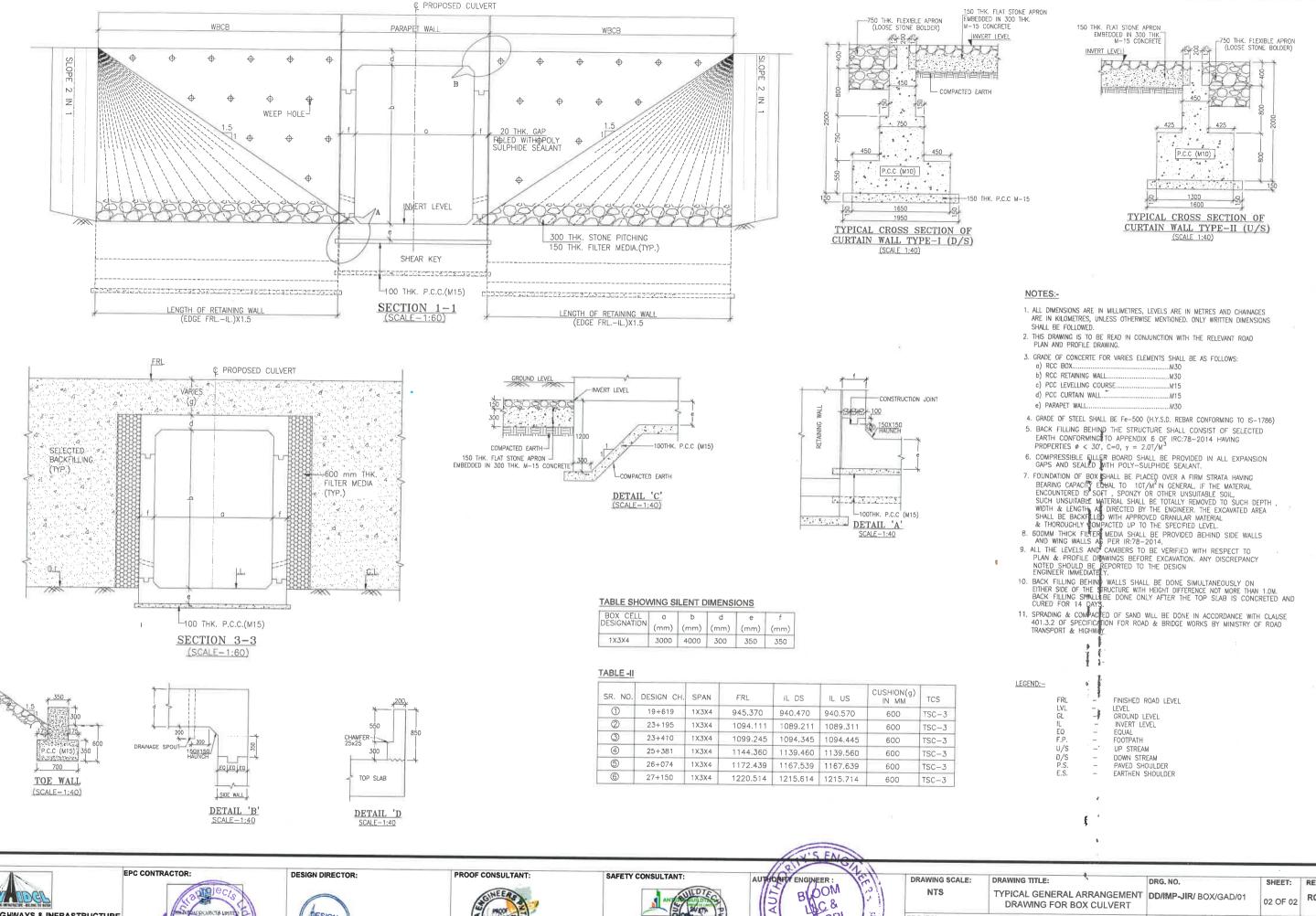
ENGINEER

11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL ŁVL LEVEL GROUND LEVEL INVERT LEVEL EQ F.P. FOOTPATH U/S D/S P.S. E.S. UP STREAM DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER

CLIENT : EPC CONTRACTOR DESIGN DIRECTOR: PROOF CONSULTANT SAFETY CONSULTANT: AUTHORITY ENGINEER : DRAWING SCALE: DRG. NO. SHEET: BYOOM NTS TYPICAL GENERAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01 01 OF 02 Antique Busselland Antique Busselland Address: 191, Mohamman, Goppin Appeass, Jalpur-302018 (Rajesthan Atlane Bo 1141-2760302 Email: Info@antiquebuildtech.com DRAWING FOR BOX CULVERT AC& PROJECT NAME: DATE AUG-2021 NAVEEN NATIONAL HIGHWAYS & INFRASTRUCTURE SBCSPL WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NIN-37 FROM DESIGN CHAINAGE 15,940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. Hindia Engineers DESIGNED CHECKED APPROVED **DEVELOPMENT CORPORATION LTD** CMM Address: 33/7, H-Block, DLF Phassi Gurgaon-Faridabad Road Haryana, NDIA-1 Phone No.-0124-4028881 M/S CMM INFRAPROJECTS LTD. STRUCTURE



NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

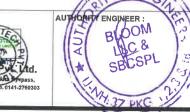
CLIENT:





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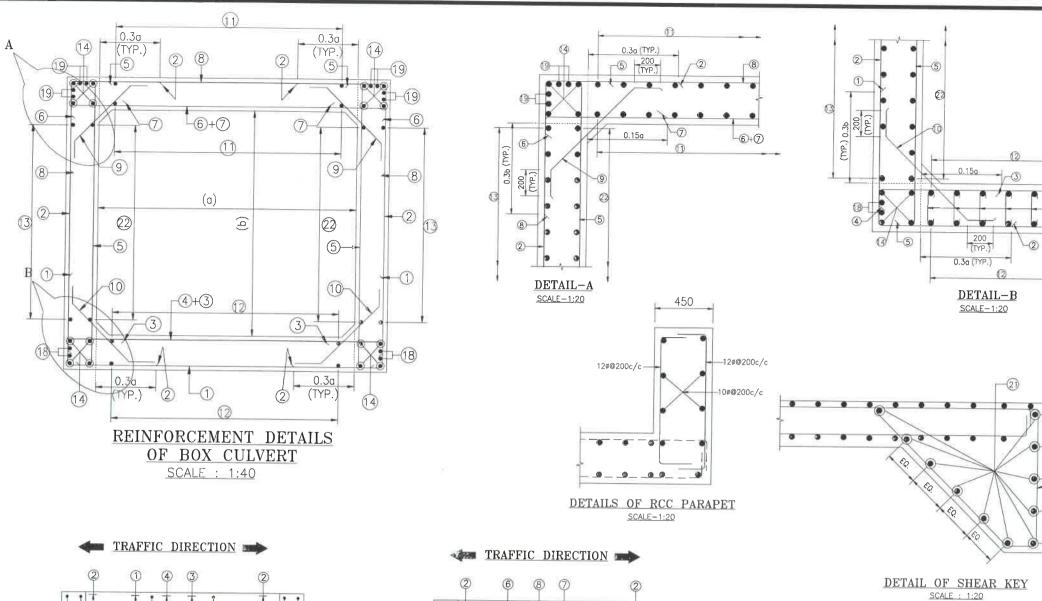


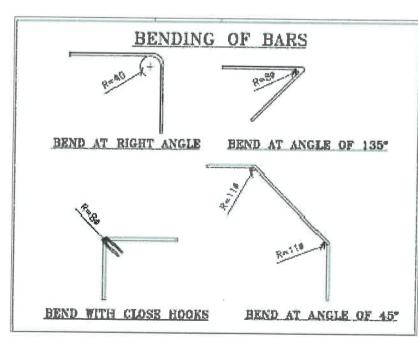
PROJECT NAME:-WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

R0 DATE AUG-2021 NAVEEN DESIGNED CHECKED APPROVED

STRUCTURE

ENGINEER





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- IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
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 JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
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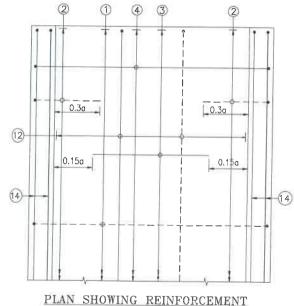
LEGEND :-

TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

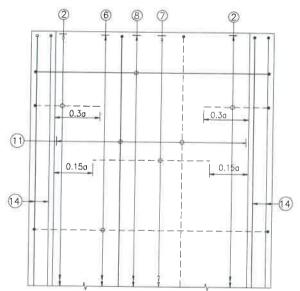
BAR MARK	SHAPE	BAR DIA.	SPACING/Nos
1		16	200 C/C
2		12	180 C/C
3		12	200 C/C
4		12	200 C/C
5		12	180 C/C
6		12	180 C/C
		12	180 C/C
8		12	180 C/C
9		10	180 C/C
10		10	180 C/C
11)		8	225 C/C
12		8	200 C/C
(13)		8	200 C/C
(4)		10	12 NOS.
(15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	200 C/C
21		12	20 NOS.
22 -		8	270 C/C
220	C	8DIA.200(LONG. DIRECTION) 400(TRANS. DIRECTION	
(22b)	C	NOT IN USE -	



PLAN SHOWING REINFORCEMENT DETAIL OF BOTTOM SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

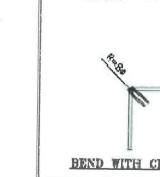
CLIENT:



PLAN SHOWING REINFORCEMENT DETAIL OF TOP SLAB (HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

SCALE : 1:40





GINEER BLOOM

DRAWING SCALE: DRAWING TITLE: TYPICAL REINFORCEMENT DETAILS | DD/IMP-JIR/ RF/01 OF BOX CULVERT FOR 1X3X4

SHEET: 01OF 01

DATE AUG-2021 NAVEEN DESIGNED CHECKED APPROVED STRUCTURE ENGINEER

RO

CLIENT:	EPC CONTRACTOR:
mo dia	2010100
BUILDING THE REACH	
NATIONAL HIGHWAYS & INFRASTRUCTURE	E ACIEN INTERACECULA CARACTERISTE
DEVELOPMENT CORPORATION LTD	1) Server commission of the
	M/S, CMMINFRAPROJECTS LTD.

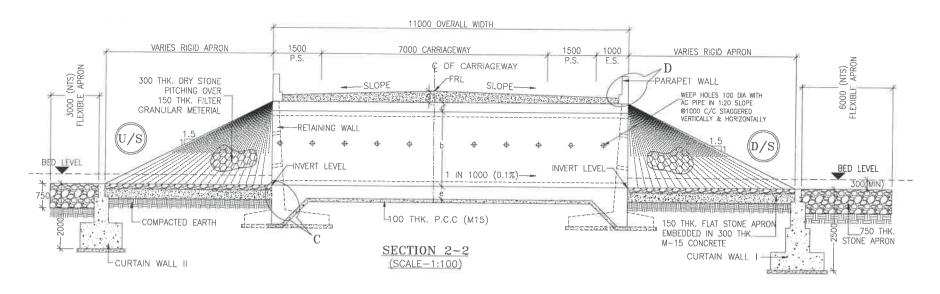


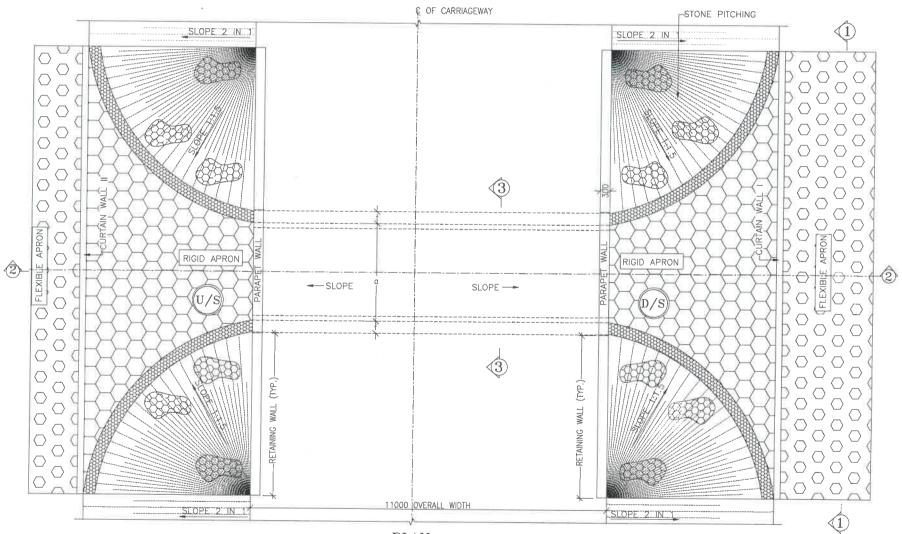


Antique

SAFETY CONSULTANT:

E STORE OF THE PERSON OF THE P	II and opt	PROJECT NAME:-	ľ
le Buildech Dut Ltd.		WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NIH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL	
18 (Rajasthan) Phone No. 0141-2760303 @antiquebuildtech.com	23/	LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.	





<u>PLAN</u> (SCALE-1:100) NOTES:-

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- b) RCC RETAINING WALL ... M30 c) PCC LEVELLING COURSE.... ...M15 d) PCC CURTAIN WALL..... ..M15 e) PARAPET WALL.....
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)

.....M30

- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES \emptyset < 30°, C=0, γ = 2.0T/M 3
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 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAM & PROFILE DRAWINGS BEFORE EXCAVATION. AND DISCREPANCY.
- PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL LVL GL EQ F.P. U/S D/S P.S. E.S. FOLIAL FOOTPATH UP STREAM DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER



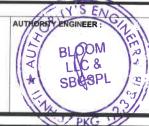


DEVELOPMENT CORPORATION LTD TCMM' M/S. CMMUNERAPROVECTS LTD.

EPC CONTRACTOR **DESIGN DIRECTOR**

PROOF CONSULTANT:





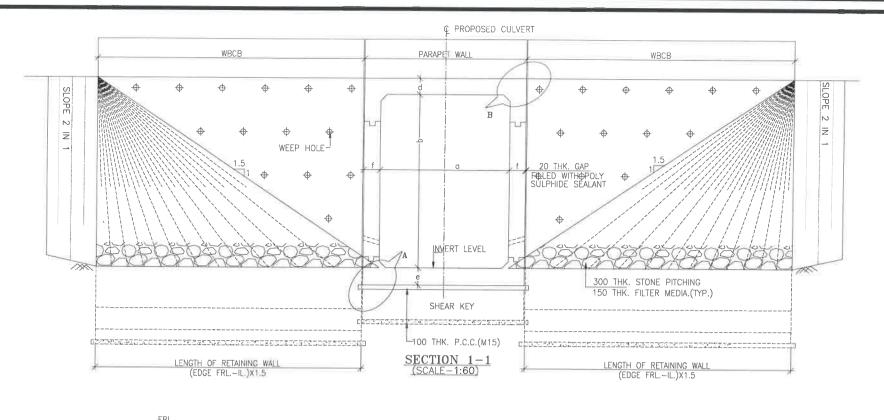
DRAWING SCALE:	DRAWING TITLE:
NTS	TYPICAL GENERAL ARRANGEME DRAWING FOR BOX CULVERT

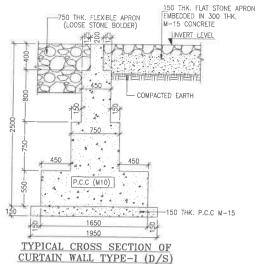
DRG. NO. SHEET: RE\ IENT DD/IMP-JIR/ BOX/GAD/01 01 OF 02 NAVEEN

APPROVED

PROJECT NAME:-

DATE AUG-2021 WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM DESIGNED SECTION OF NH-37 FROM DESIGN CHAINAGE 15.340 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. STRUCTURE ENGINEER



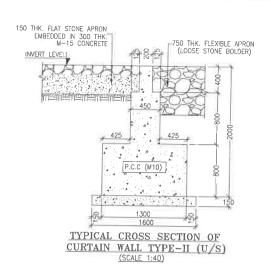


(SCALE 1:40)

CONSTRUCTION JOINT

-100THK. P.C.C (M15)

DETAIL 'A'



NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:
- a) RCC BOX.... b) RCC RETAINING WALL... ..M30 c) PCC LEVELLING COURSE... ...M15 d) PCC CURTAIN WALL..... ...M15 e) PARAPET WALL..... ...M30
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES $\emptyset < 30^{\circ}$, C=0, $\gamma = 2.0T/\text{M}^3$
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 101/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED CRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

FINISHED ROAD LEVEL

INVERT | EVE

EQUAL FOOTPATH UP STREAM DOWN STREAM PAVED SHOULDER

TABLE SHOWING SILENT DIMENSIONS

BOX CELL	0	Ь	d	е	f
DESIGNATION	(mm)	(mm)	(mm)	(mm)	(mm)
1X3X4	3000	4000	300	350	350

TABLE -II

COMPACTED FARTH

DETAIL 'C (SCALE-1:40)

SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	18+564	1X3X4	896.748	891.848	891.948	600	TSC-3
2	19+955	1X3X4	962.299	957.399	957.499	600	TSC-3
3	20+254	1X3X4	978.255	973.355	973.455	600	TSC-3
4	24+836	1X3X4	1143.142	1138.242	1138.342	600	TSC-3
(5)	27+893	1X3X4	1254.061	1249.161	1249,261	600	TSC-3

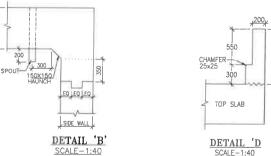
THE CHATTING OFFERT PHATEMONIONS								
BOX CELL	а	b	ď	е	f			
DESIGNATION	(mm)	(mm)	(mm)	(mm)	(mm)			
1X3X4	3000	4000	300	350	350			

SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	18+564	1X3X4	896.748	891.848	891.948	600	TSC-3
2	19+955	1X3X4	962.299	957.399	957.499	600	TSC-3
3	20+254	1X3X4	978.255	973.355	973.455	600	TSC-3
4	24+836	1X3X4	1143.142	1138.242	1138.342	600	TSC-3
(5)	27+893	1X3X4	1254.061	1249.161	1249.261	600	TSC-3

700 TOE WALL (SCALE-1:40)

SELEÇTED

BACKFILLING. (TYP.)



C PROPOSED CULVERT

VARIES

100 THK. P.C.C.(M15)

SECTION 3-3 (SCALE-1:60)

CLIENT:



DESIGN DIRECTOR



-600 mm THK

FILTER MEDIA (TYP.)

PROOF CONSULTANT:



GROUND LEVEL

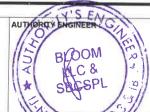
COMPACTED FARTH-

150 THK. FLAT STONE APRON EMBEDDED IN 300 THK. M-15 CONCRETE

-INVERT LEVEL

SAFETY CONSULTANT





177 m/C

AWING SCALE:	DRAWING TITLE:
NTS	TYPICAL GENI

YPICAL GENERAL ARRANGEMENT DD/IMP-JIR/ BOX/GAD/01 DRAWING FOR BOX CULVERT

LEGEND:-

EQ F.P. U/S D/S P.S. E.S.

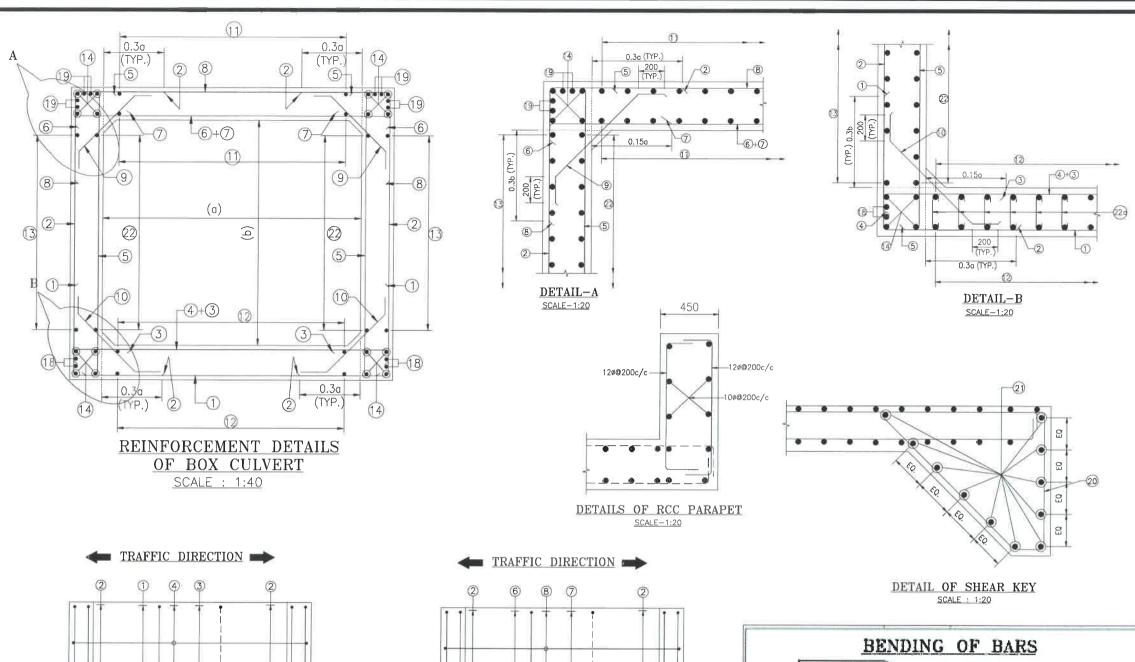
DRG, NO. SHEET: RO 02 OF 02

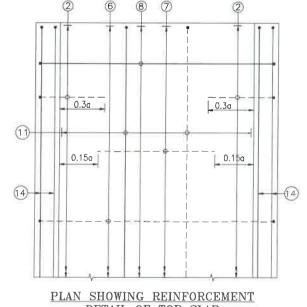
PROJECT NAME:-

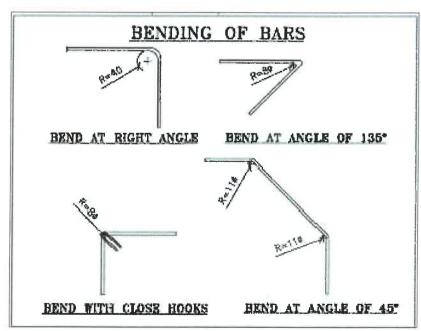
DR

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 NAVEEN DESIGNED CHECKED APPROVED STRUCTURE ENGINEER -







- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
- ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED
- MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786.
 LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

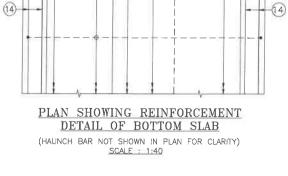
LEGEND :-

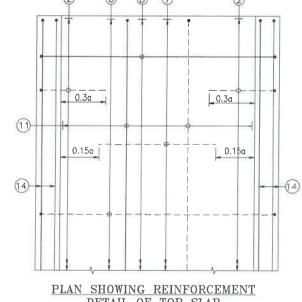
-	TOP FACE BARS/OUTER FACE BARS
	BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos	
1		16	200 C/C	
2		12	180 C/C	
3		12	200 C/C	
4		12	200 C/C	
5		12	180 C/C	
6		12	180 C/C	
0		12	180 C/C	
8		12	180 C/C	
9		10	180 C/C	
10		10	180 C/C	
11)		8	225 C/C	
12		8	200 C/C	
13		8	200 C/C	
14)		10	12 NOS.	
15)		NOT IN USE	NOT IN USE	
16)		NOT IN USE	NOT IN USE	
17	5	NOT IN USE	NOT IN USE	
18		10	4 NOS.	
19		10	8 NOS.	
20		12	200 C/C	
21)		12	20 NOS.	
22	-	8	270 C/C	
220		8DIA.200(LONG 400(TRAN	G. DIRECTION) IS. DIRECTION)	
(22b)	C	NOT IN USE		





PROOF CONSULTANT:









DRAWII

RAWING SCALE:	DRAWING TITLE:	DRG. NO.		SHEET:	
NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X3X4	DD/IMP-JIR/ RF/0	1	01OF 01	
DIECT NAME:		DATE AUG 2024	MANAGERAL		

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17,180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. DESIGNED APPROVED STRUCTURE

RO

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

CLIENT:

0.3a

0.15a



_0.3a

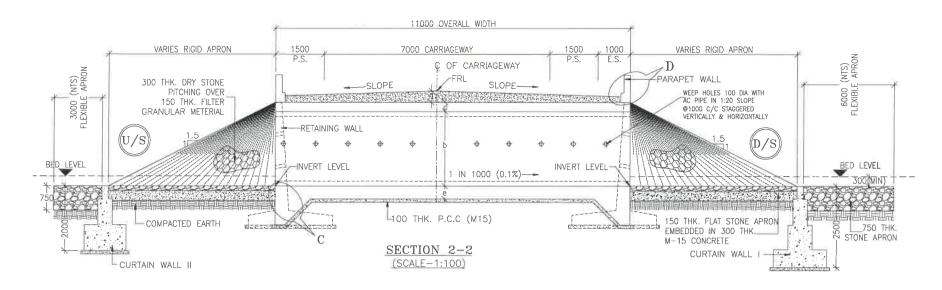
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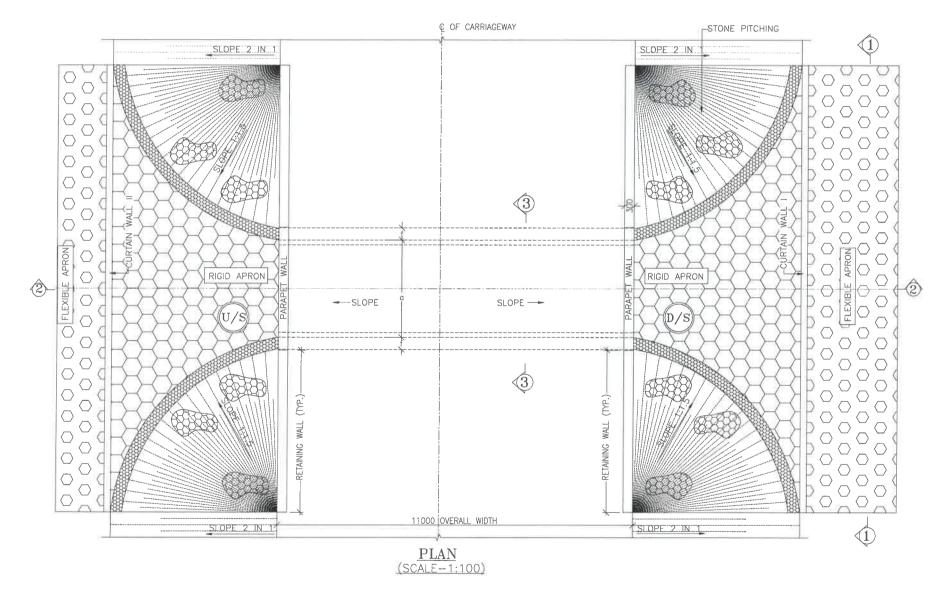
DESIGN DIRECTOR



Hindie Engineers Pvt. Ltd.
Adviss: 332 H-90 kb, DLF Phase-1,
Gurgaon-Fa² Data-1003 H Aryana, INDIA-122002,
Phone No.-0124-4028681

Antique Quildtee Pvt. Ltd.
Address: 191, Motambaji Dopulpura Byepass,
Jaipur-302018 (Rajasthani) Phone No. 0141-2760303
Email: Info@antiquebuildtech.com





- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.

3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX...... b) RCC RETAINING WALL c) PCC LEVELLING COURSE M15 d) PCC CURTAIN WALL ... M15

e) PARAPET WALL. 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)

...M30

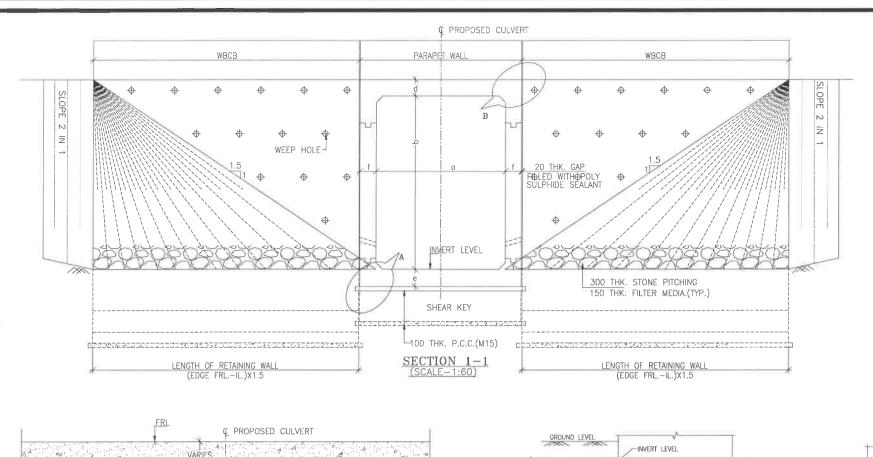
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.0T/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

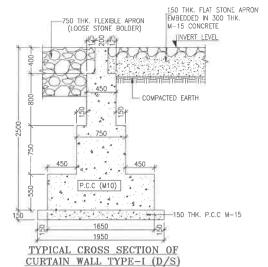
 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78—2014.
- ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
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- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQUAL FOOTPATH U/S D/S P.S. E.S. UP STREAM DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER







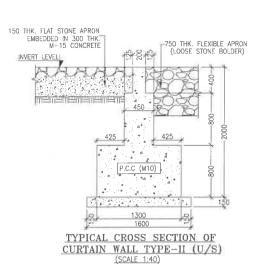
(SCALE_1:40)

CONSTRUCTION JOINT

SUCJE 100

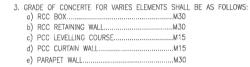
-100THK. P.C.C (M15)

DETAIL 'A' SCALE-1:40



NOTES:-

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- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.



- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES \emptyset < 30°, C=0, γ = 2.0T/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M²IN GENERAL IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.
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- PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.

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- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

TABLE SHOWING SILENT DIMENSIONS

BOX CELL	а	Ь	d	е	f
DESIGNATION	(mm)	(mm)	(mm)	(mm)	(mm)
1X3X4	3000	4000	300	350	350

TARLE -II

DETAIL 'C' (SCALE-1:40)

TADEL -II							
SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	21+562	1X3X4	1029,202	1024.302	1024,402	600	TSC-3A

DEGLOSIATION			-	_		н
DESIGNATION	(mm)	(mm)	(mm)	(mm)	(mm)	
1X3X4			300			

SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g)	TCS
1	21+562	1X3X4	1029.202	1024.302	1024.402	600	TSC-3A

LEGEND:-

FRL	-	FINISHED ROAD LEVEL
LVL	_	LEVEL
GL	-	GROUND LEVEL
IL	_	INVERT LEVEL
EQ	_	EQUAL
F.P.	-	FOOTPATH
U/S	-	UP STREAM
D/S	_	DOWN STREAM
P.S.	_	PAVED SHOULDER
E.S.	_	EARTHEN SHOULDER

CLIENT:



SELECTED BACKFILLING

(TYP.)

700

TOE WALL (SCALE-1:40)



100 THK. P.C.C.(M15) SECTION 3-3 (SCALE-1:60)

SIDE WALL

DETAIL 'B' SCALE-1:40





TOP SLAB

DETAIL 'D SCALE-1:40

FILTER MEDIA

(TYP.)



PROOF CONSULTANT

COMPACTED EARTH-

150 THK. FLAT STONE APRON EMBEDDED IN 300 THK. M-15 CONCRETE





DO ISOTALANS.	
	DRAWING FOR
NTS	TYPICAL GENERA
DIGHTHIG GOALL.	DIOWING HILL.

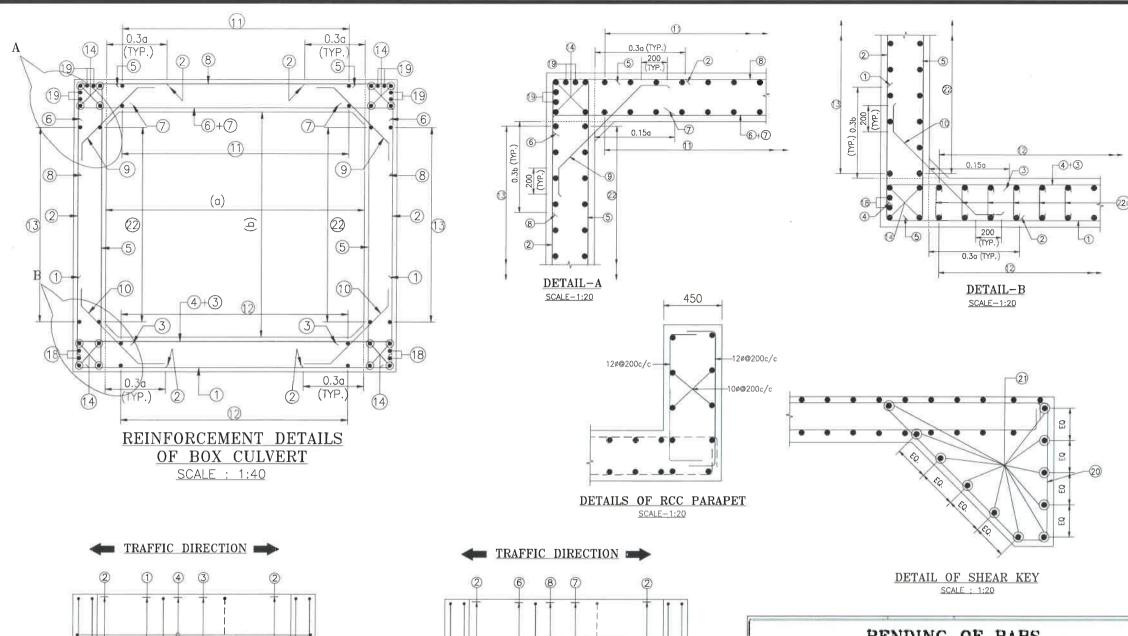
SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

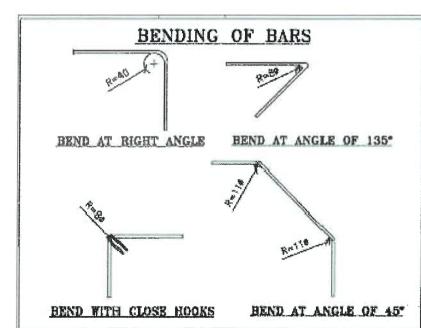
DRAWING SCALE: DRAWING TITLE

NTS	TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	C		
PROJECT NAME:-				
WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM				

DKG. NO.	SHEET.	KEV.	
DD/IMP-JIR/ BO	02 OF 02	R0	
DATE AUG-2021	NAVEEN		"
DESIGNED	CHECKED	APPROV	/ED

STRUCTURE ENGINEER





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
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- 4. ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE. MINIMUM LAP
- LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT
- GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER
- CLAUSE 304-6 OF IRC: 112.

 FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

LEGEND :-

-	TOP FACE BARS/OUTER FACE BARS
	BOTTOM FACE BARS/INNER FACE BARS

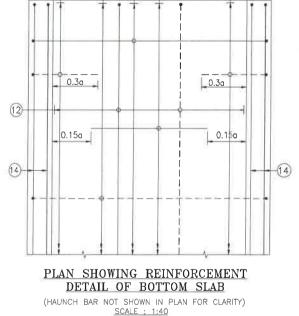
SCHEDULE OF REINFORCEMENT

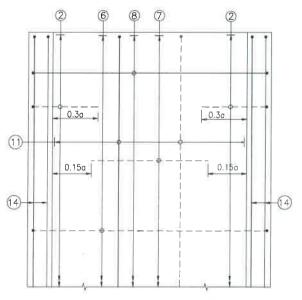
(SUBJECT TO SITE CHECK)

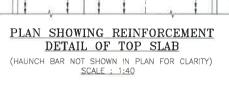
BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1		16	200 C/C
2		12	180 C/C
3		12	200 C/C
4		12	200 C/C
5		12	180 C/C
6		12	180 C/C
7		12	180 C/C
8		12	180 C/C
9		10	180 C/C
10		10	180 C/C
11)		8	225 C/C
12		8	200 C/C
(13)		8	200 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
(18)		10	4 NOS.
19		10	8 NOS.
20		12	200 C/C
21)		12	20 NOS.
22		8	270 C/C
(220)	C	8DIA.200(LONG 400(TRAN	S. DIRECTION) S. DIRECTION)
(22b) NOT IN USE			

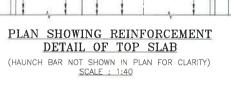
SHEET: 01OF 01

APPROVED













	14,2 ENC
	AUTHORITY ENGINEER :
	IE a bom Isli
	BLOOM LUC & SBESPL
	COREPL 2
3	Sedo.
	23/
	CON PRO

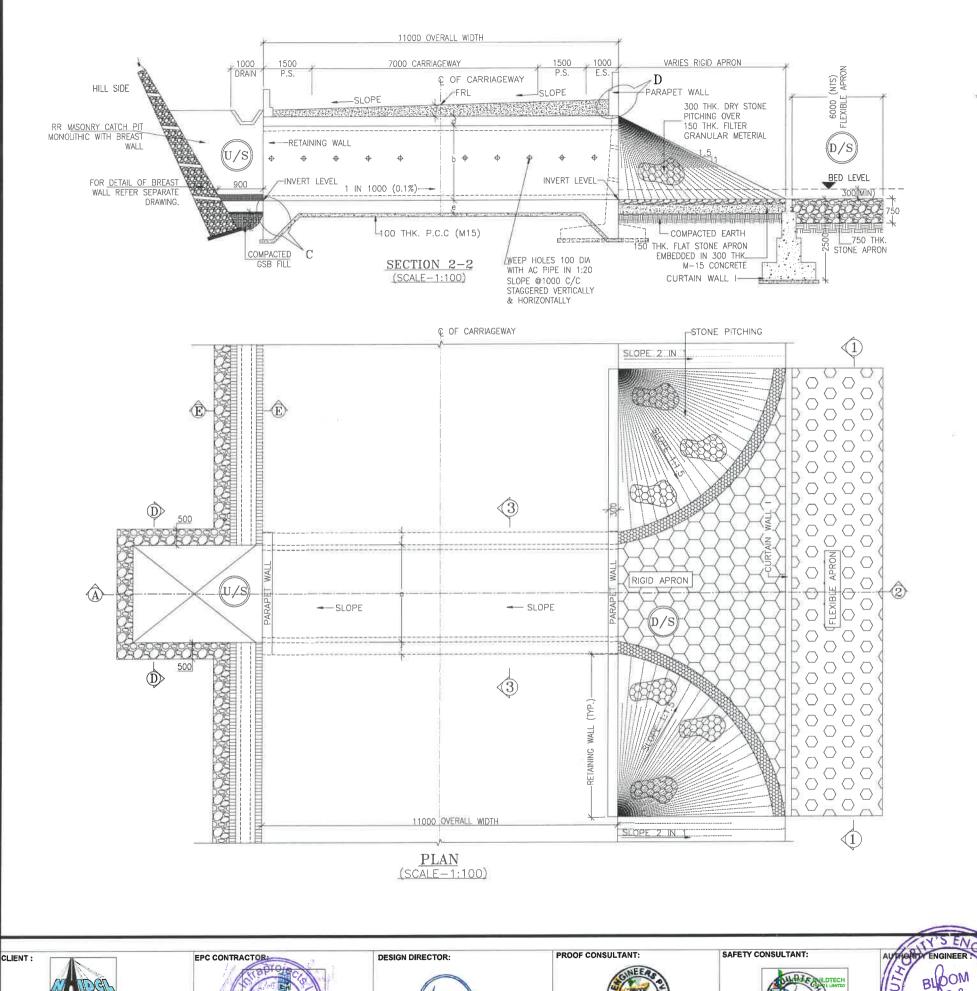
Ī	DRAWING SCALE:	DRAWING TITLE:	DRG. NO.		Г
	NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X3X4	DD/IMP-JIR/ R	F/01	,
	PROJECT NAME:-		DATE AUG-2021	NAVEEN	
	WIDENING TO 2 (TWO) LAN SECTION OF NH-37 FROM	DESIGNED	CHECKED		
	LENGTH=17.180 KM) (PKG PROCUREMENT & CONSTR	STRUCTURE ENGINEER			

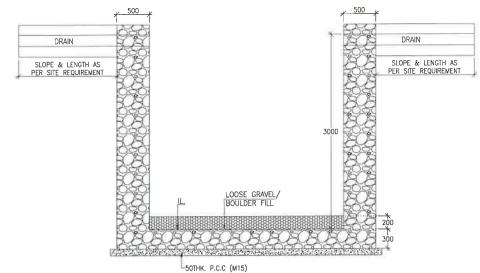
NATIONAL HIGHWAYS & INFRASTRUCTURE **DEVELOPMENT CORPORATION LTD**

CLIENT:

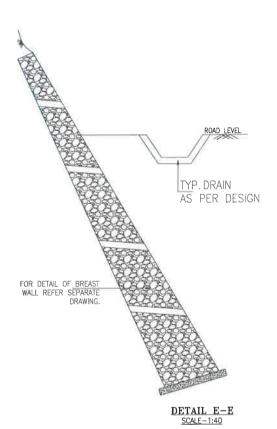








DETAIL D-D SCALE-1:40



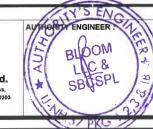


NATIONAL HIGHWAYS & INFRASTRUCTURE **DEVELOPMENT CORPORATION LTD**









DRAWING SCALE:
NTS

DRAWING TITLE: TYPICAL GENERAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01 DRAWING FOR BOX CULVERT

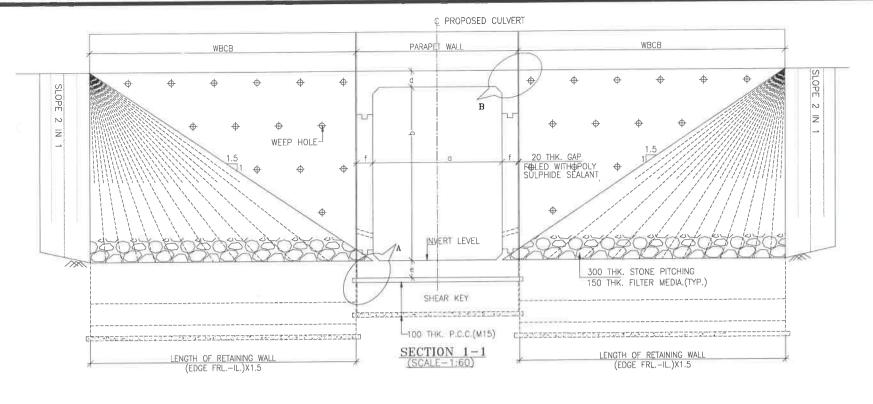
STRUCTURE ENGINEER

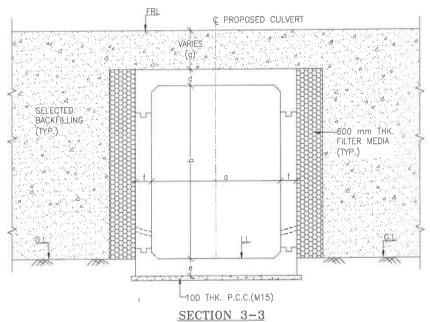
PROJECT NAME:-

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NIN-37 FROM DESIGN CHAINAGE 15,940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

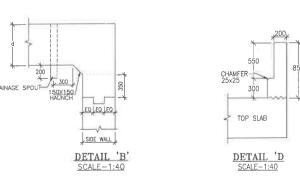
01 OF 02 DATE AUG-2021 NAVEEN DESIGNED CHECKED APPROVED

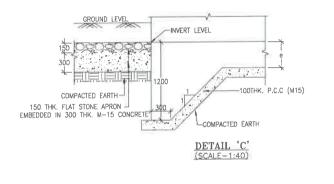
SHEET:





(SCALE-1:60)



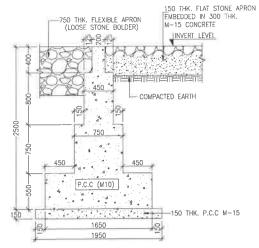


TARLE SHOWING SHENT DIMENSIONS

BOX CELL	0	b	d	е	f
DECIGNIATION	(mm)	(mm)	(mm)	(mm)	(mm)
1X3X4	3000	4000	300	350	350

TABLE -II

SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g)	TCS
1	22+045	1X3X4	1054.157	1049.257	1049.357	600	TSC-5
2	22+257	1X3X4	1065.843	1060.943	1061.043	600	TSC-5
3	22+516	1X3X4	1074.564	1069.664	1069.764	600	TSC-5



TYPICAL CROSS SECTION OF CURTAIN WALL TYPE-I (D/S) (SCALE_1:40)

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX.... ...M30 b) RCC RETAINING WALL.M30 c) PCC LEVELLING COURSE...M15 d) PCC CURTAIN WALL......M30 e) PARAPET WALL....
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES $\emptyset < 30^\circ$, C=0, $\gamma = 2.0T/M^3$
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLT-SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- A INDRODUCTION OF TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS
 AND WING WALLS AS PER IR:78-2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO
 PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY
 NOTED SHOULD BE REPORTED TO THE DESIGN
 ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FRL	-	FINISHED ROAD LEVEL
LVL	-	LEVEL
GL	-	GROUND LEVEL
IL.	-	INVERT LEVEL
EQ		EQUAL
F.P.		FOOTPATH
U/S	-	UP STREAM
D/S		DOWN STREAM
P.S.	-	PAVED SHOULDER
F.S.	-	EARTHEN SHOULDER

CLIENT: NATIONAL HIGHWAYS & INFRASTRUCTURE **DEVELOPMENT CORPORATION LTD**

.C (M15) 350 700

TOE WALL (SCALE-1:40)











	DRAWING SCALI
1	NTS
7	
	PROJECT NAME:-
4	WIDENING TO 2 (T)

CONSTRUCTION JOINT

300-100

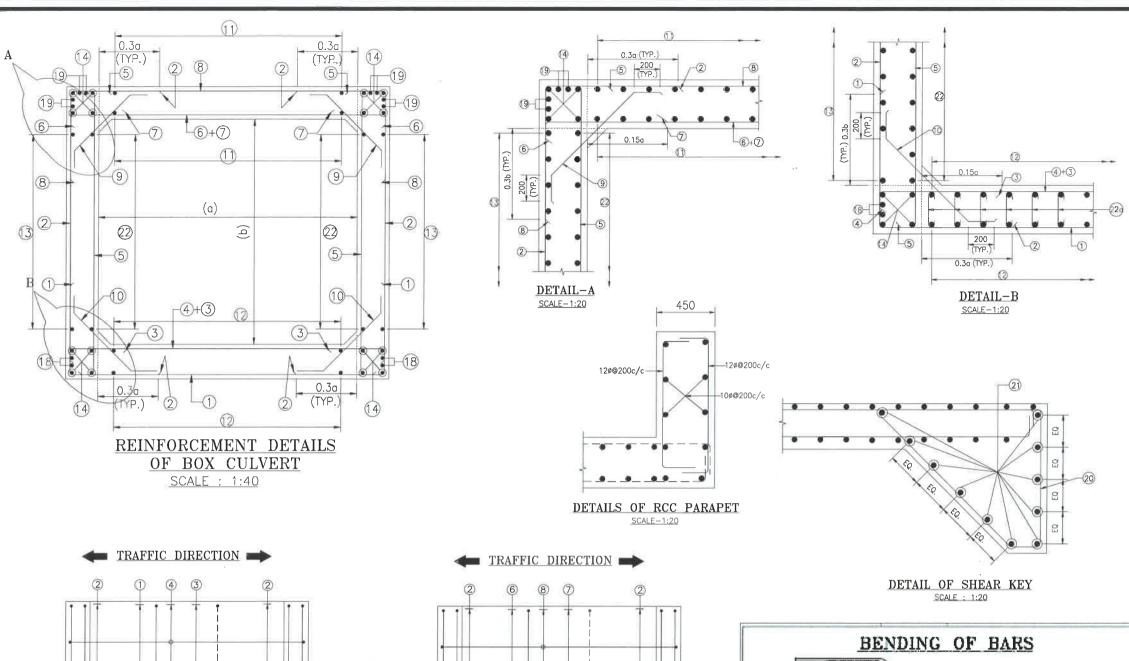
DETAIL 'A' SCALE-1:40

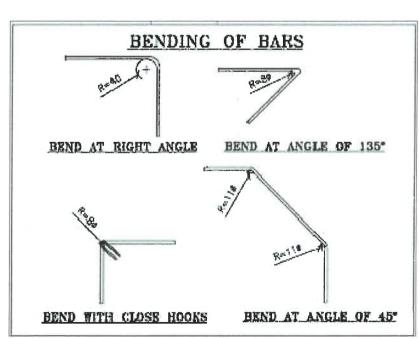
_100THK. P.C.C (M15)

DRAWING TITLE: DRG. NO. TYPICAL GENERAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01 R0 02 OF 02 DRAWING FOR BOX CULVERT DATE AUG-2021 NAVEEN

APPROVED

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17,180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. DESIGNED CHECKED STRUCTURE ENGINEER





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
- ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

LEGEND :-

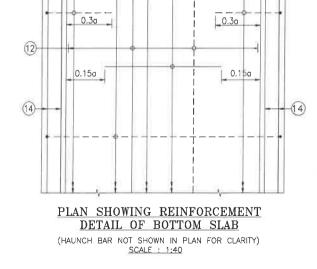
 TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

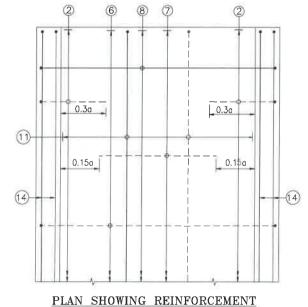
SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1	لــــا	16	200 C/C
2		12	180 C/C
3		12	200 C/C
4		12	200 C/C
5	ſΊ	12	180 C/C
6		12	180 C/C
7		12	180 C/C
8		12	180 C/C
9		10	180 C/C
10		10	180 C/C
11)		8	225 C/C
12		8	200 C/C
13		8	200 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17	5	NOT IN USE	NOT IN USE
18		10	4 NOS.
19		10	8 NOS.
20		12	200 C/C
21		12	20 NOS.
22	-	8	270 C/C
220	C	8DIA.200(LON 400(TRAN	G. DIRECTION) IS. DIRECTION)
(22b)	C	NOT IN	N USE

DRG. NO.





DETAIL OF TOP SLAB (HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY) SCALE : 1:40

CLIENT:



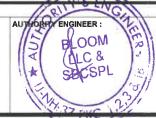
DESIGN DIRECTOR:



PROOF CONSULTANT:



SAFETY CONSULTANT: Antique Brudteck Prt. Ltd.
Address: 191, Morth Nagar, 49-Mura Byepass,
Jalpur-302016 (Rajastham) Profile No. 0141-2760303
Email : Info@antiquebuildtech.com

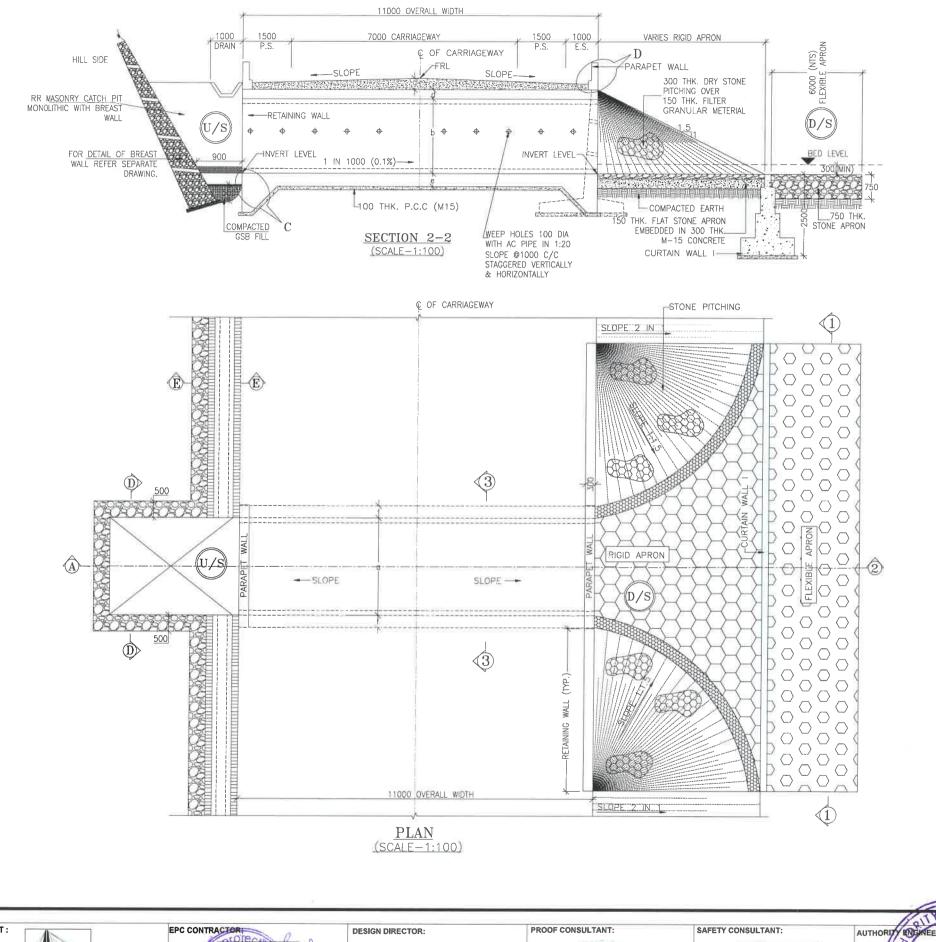


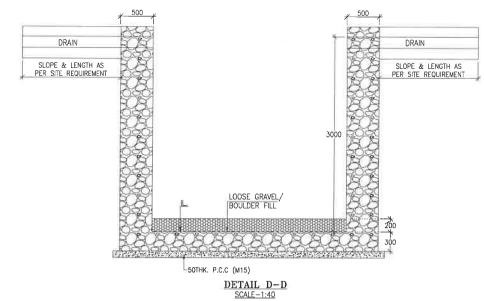
DRAWING SCALE: NTS	DRAWING TITLE:
	OF BOX CU
PROJECT NAME:-	

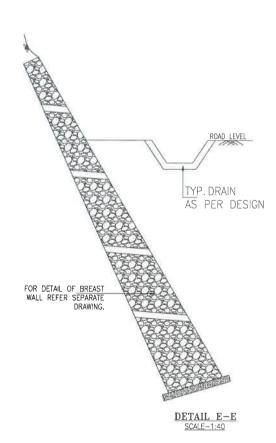
NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X3X4	DD
PROJECT NAME:-		DA
SECTION OF NH-37 FROM	NE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL 22) IN THE STATE OF MANIPUR ON ENGINEERING, UCTION (EPC) MODE.	

D/IMP-JIR/ RF/01 01OF 01 ATE AUG-2021 NAVEEN STRUCTURE ENGINEER

SHEET: REV







CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

CHIN DETRADEQUE S LI MS CMM INCRAFFICUECTS LTD.







AUTHORITY ENGINEER

ENC		_
1	16	DR
DM)	Coli	
. &	4	PRO
SPL)	13	WID
10		SEC
72	//	PRO

DRAWING SCALE:	DRAWING TITLE:
NTS	TYPICAL GENERAL ARRA
	DRAWING FOR BOX CL

DJECT NAME:-

DENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM CTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL NGTH-17.186 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, OCUREMENT & CONSTRUCTION (EPC) MODE,

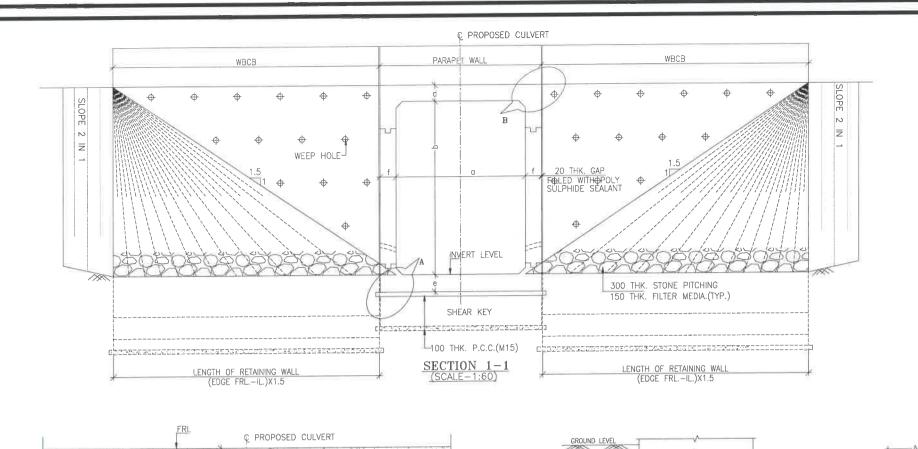
	DRG. NO.	SHEET:	REV.	
ANGEMENT CULVERT	DD/IMP-JIR/ BOX/	'GAD/01	01 OF 02	R0
	DATE AUG-2021	NAVEEN		

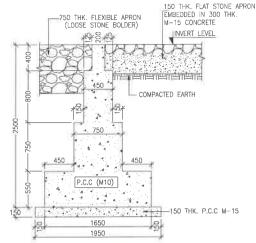
CHECKED

APPROVED

DESIGNED

STRUCTURE ENGINEER





TYPICAL CROSS SECTION OF CURTAIN WALL TYPE-I (D/S) (SCALE 1:40)

CONSTRUCTION JOINT

-100THK, P.C.C (M15)

DETAIL 'A'

NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: ...M30
- a) RCC BOX b) RCC RETAINING WALL. c) PCC LEVELLING COURSE... ..M15
- d) PCC CURTAIN WALL..... ..M15 e) PARAPET WALL..... ...M30
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.01/ M^3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78—2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN

- NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY. 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE
 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD
 TRANSPORT & HIGHWAY

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL

DOWN STREAM PAVED SHOULDER EARTHEN SHOULDER

EQUAL FOOTPATH UP STREAM

TABLE SHOWING SILENT DIMENSIONS

BOX CELL DESIGNATION	а	Ь	d	е	f
DESIGNATION	(mm)	(mm)	(mm)	(mm)	(mm)
1X3X4	3000	4000	300	350	350

TABLE -II

-INVERT LEVEL

-COMPACTED FARTH

DETAIL 'C' (SCALE-1:40)

SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1)	21+562	1X3X4	1029.202	1024.302	1024.402	600	TSC-5

SELECTED

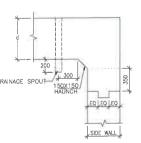
BACKFILLING (TYP.)

TOE WALL

NATIONAL HIGHWAYS & INFRASTRUCTURE

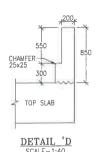
DEVELOPMENT CORPORATION LTD

CLIENT:



100 THK. P.C.C.(M15) SECTION 3-3 (SCALE-1:60)

> DETAIL 'B' SCALE-1:40



SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	21+562	1X3X4	1029.202	1024.302	1024.402	600	TSC-5



DESIGN DIRECTOR:

-600 mm THK FILTER MEDIA

(TYP.)



PROOF CONSULTANT:

150 THK. FLAT STONE APRON ______ EMBEDDED IN 300 THK. M-15 CONCRETE?



Antique Buttech Ltd.
Address: 191, Mohan Est, Torton Byepass,
Jaipur-302018 (Rajasthan) 10141-2760303
Email: info@antiquebuildtech.com

SAFETY CONSULTANT:



C Y PKC V

	DRA
101	
أاهرا	
14	PROJI
1501	WIDE
1. 11	SECTI

RAWING SCALE:	DRAWING TITLE:
NTS	TYPICAL GENERAL ARRANGE
	DRAWING FOR BOX CULVE

SHEET: DRG. NO. EMENT DD/IMP-JIR/ BOX/GAD/01 02 OF 02

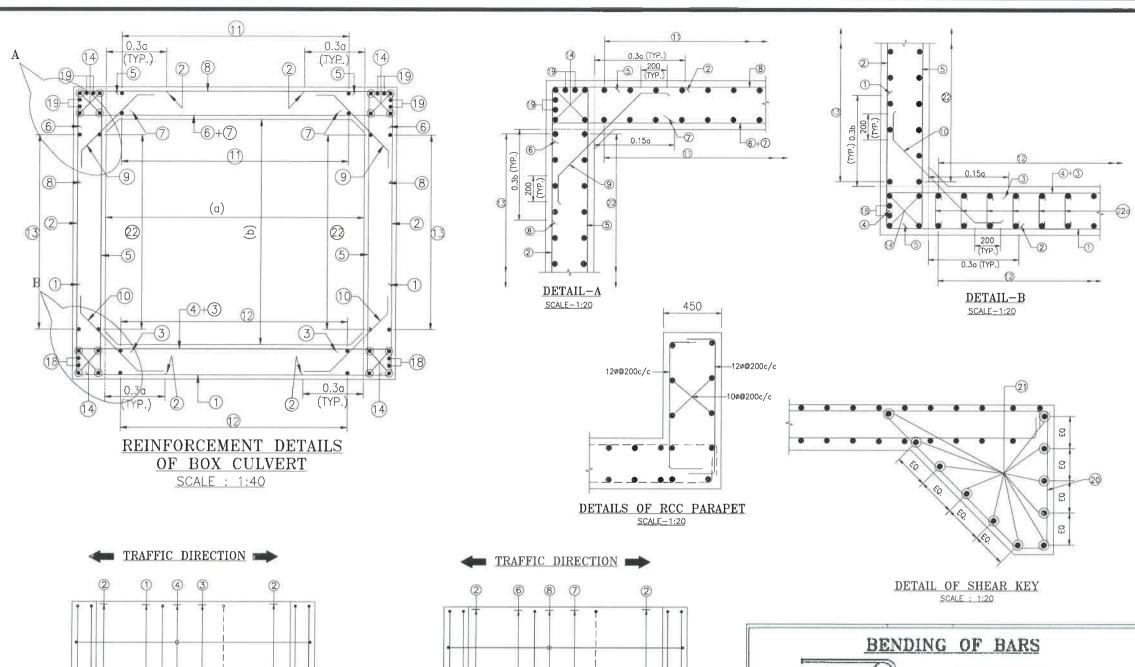
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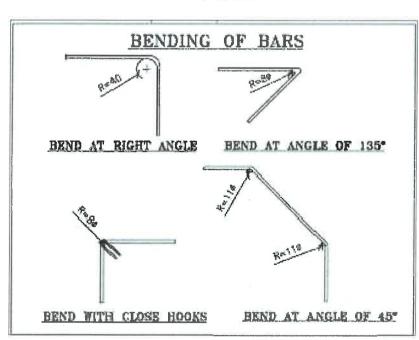
APPROVED

ECT NAME:-DATE AUG-2021 MING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM DESIGNED CHECKED WIDENING TO 2 (TWO) LANE WITH PAVEL SHOULDER OF IMPHAL OF JINDAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. STRUCTURE

LEGEND:-

EQ F.P. U/S D/S P.S. E.S.





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
- ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

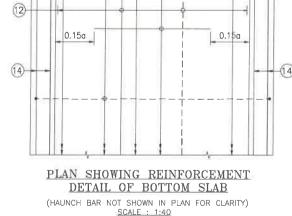
LEGEND :-

TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.
1		16	200 C/C
2		12	180 C/C
3		12	200 C/C
4		12	200 C/C
5		12	180 C/C
6		12	180 C/C
7		12	180 C/C
8		12	180 C/C
9		10	180 C/C
10		10	180 C/C
11)		8	225 C/C
12		8	200 C/C
13		8	200 C/C
14)		10	12 NOS.
15)		NOT IN USE	NOT IN USE
16		NOT IN USE	NOT IN USE
17)	5	NOT IN USE	NOT IN USE
18)		10	4 NOS.
19		10	8 NOS.
20		12	200 C/C
21)		12	20 NOS.
22		8	270 C/C
220	C	8DIA.200(LONG. DIRECTION) 400(TRANS. DIRECTION)	
(22b)	C	NOT IN	N USE



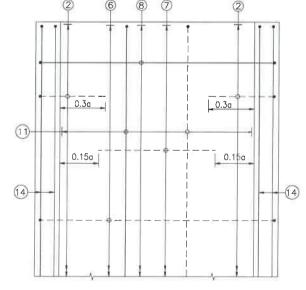
EPC CONTRACTOR

0.3a

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE

DEVELOPMENT CORPORATION LTD



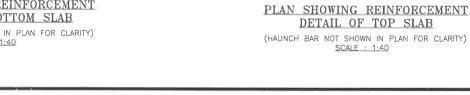
DETAIL OF TOP SLAB

SCALE : 1:40



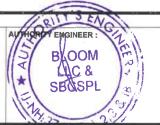
"CMM M/S. CMMINERAPROJECTS LTD.

_0.3o



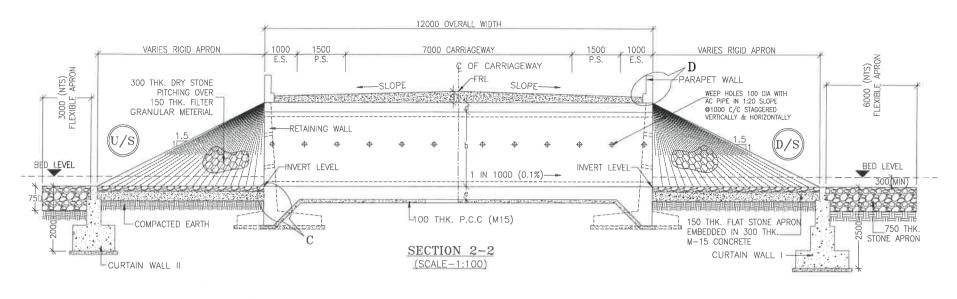
DESIGN DIRECTOR:

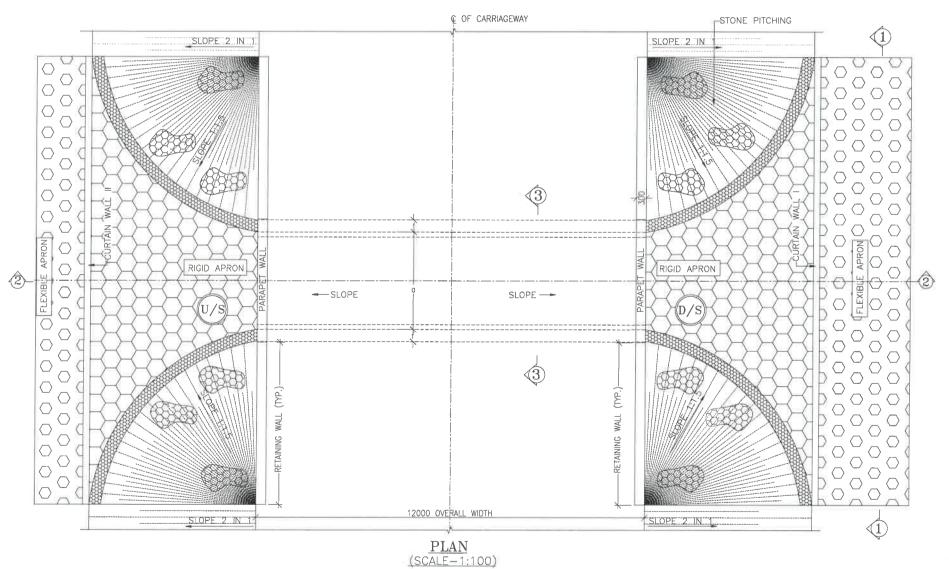




DRAWING SCALE:	DRAWING TITLE:	DRG. NO.		SHEET:	REV.
NTS	NTS TYPICAL REINFORCEMENT DETAILS DD/IMP-JIR/ RF/01 OF BOX CULVERT FOR 1X3X4		01	01OF 01	R0
DPO IECT NAME:		DATE AUG 2024	NAMES		

NAVEEN WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17.180 KM) (FRG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE. DESIGNED CHECKED APPROVED STRUCTURE ENGINEER





- ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES
 ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS
 SHALL BE FOLLOWED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.0T/M 3
- COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.
- 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

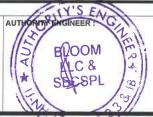


DESIGN DIRECTOR









	DRAWING SCALE:	DRAWING TITLE:
100	NTS	TYPICAL GENI DRAWING F
18/18/19	PROJECT NAME:- WIDENING TO 2 (TWO) L SECTION OF NH-37 FRO LENGTH=17.180 KM) (PI PROCUREMENT & CONS	M DESIGN CHAINAGE 15 (G-2) IN THE STATE OF

DRAWING SCALE: NTS TYPICAL GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT	DRG. NO. DD/IMP-JIR/ BOX/GAD/01
--	---------------------------------

JECT NAME:
DAWING FOR BOX CULVERT

DATE AUG-2021

DAVEEN

DATE AUG-2021

NAVEEN

DATE AUG-2021

NAVEEN

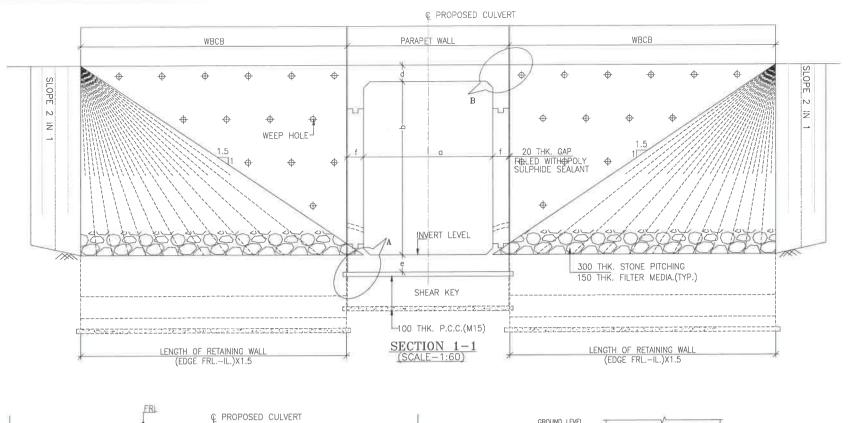
DATE AUG-2021

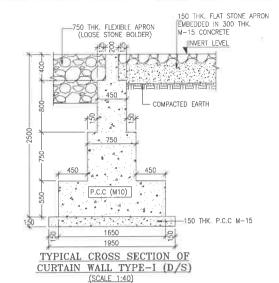
NAVEEN

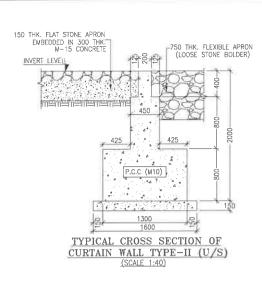
TON OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33.120 KM (TOTAL GTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING,

STRUCTURE

SHEET:

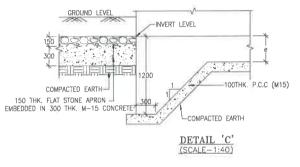






۵۲. (g) SELEÇTED * BACKFILLING (TYP.) -600 mm THK. FILTER MEDIA (TYP.) 100 THK. P.C.C.(M15)

SECTION 3-3 (SCALE-1:60)



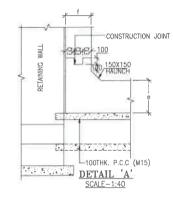


TABLE SHOWING SILENT DIMENSIONS

BOX CELL	0	b	d	е	f	
DESIGNATION	(mm)	(mm)	(mm)	(mm)	(mm)	
1X3X4	3000	4000	300	350	350	

TABLE -II

								ò
SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS	
1	17+248	1X3X4	840.920	836.020	836.120	600	TSC-8	

NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS: a) RCC BOX..... ...M30
- b) RCC RETAINING WALL. c) PCC LEVELLING COURSE. ..M15 d) PCC CURTAIN WALL M15
- e) PARAPET WALL.... ...M30
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES \emptyset < 30°, C=0, γ = 2.0T/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY--SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT , SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH , WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78—2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.

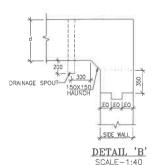
 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.

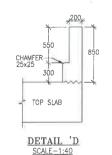
 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAISE
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

		ENHANCE DOLD IN
FRL	_	FINISHED ROAD LEV
LVL	-	LEVEL
GL	-	GROUND LEVEL
IL	-	INVERT LEVEL
EQ	-	EQUAL
F.P.	-	FOOTPATH
U/S	-	UP STREAM
D/S	-	DOWN STREAM
P.S.	_	PAVED SHOULDER
FS	_	FARTHEN SHOULDE

700 TOE WALL (SCALE-1:40)





CLIENT: EPC CONTRACTOR NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD











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11	DRA
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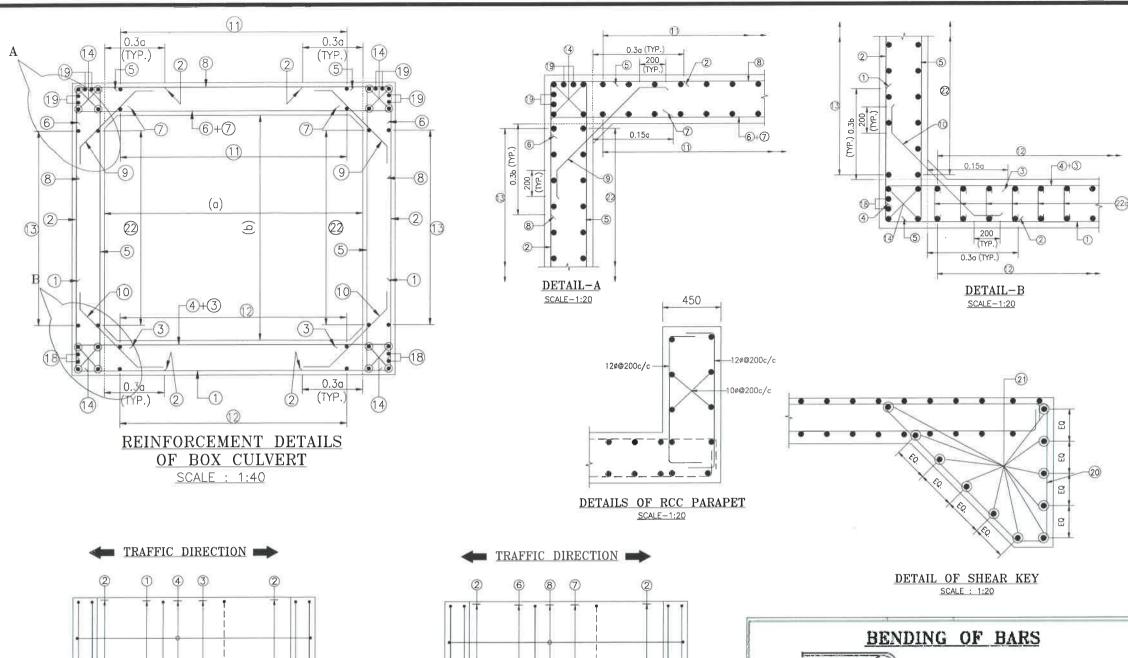
RAWING SCALE:	DRAWING TITLE:
NTS	TYPICAL GENERA
	DRAWING FOR

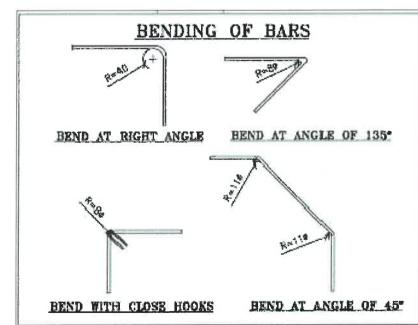
SHEET: DRG. NO. AL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01 02 OF 02 BOX CULVERT

JECT NAME:-

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33.120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 NAVEEN DESIGNED CHECKED APPROVED STRUCTURE **ENGINEER**





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE
- AND 40mm AT OTHER SIDE.
 ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE
- IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

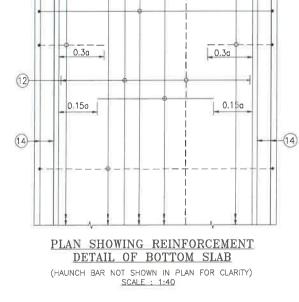
LEGEND :-

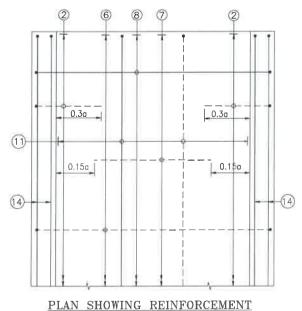
 TOP FACE BARS/OUTER FACE BARS				
 BOTTOM FACE BARS/INNER FACE BARS				

SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.	
0	16		200 C/C	
2		12	180 C/C	
3		12	200 C/C	
4		12	200 C/C	
5		12	180 C/C	
6		12	180 C/C	
7		12	180 C/C	
8		12	180 C/C	
9		10	180 C/C	
10		10	180 C/C	
11		8	225 C/C	
12		8	200 C/C	
13)		8	200 C/C	
14		10	12 NOS.	
15)		NOT IN USE	NOT IN USE	
16)		NOT IN USE	NOT IN USE	
17	5	NOT IN USE	NOT IN USE	
18)		10	4 NOS.	
19		10	8 NOS.	
20		12	200 C/C	
21)		12	20 NOS.	
22		8	270 C/C	
(220)		8DIA.200(LONG 400(TRAN	G. DIRECTION) IS. DIRECTION)	
(22b)	C	NOT IN USE		





DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)
SCALE : 1:40

PROOF CONSULTANT:

AUTHORITY ENGINEER SAFETY CONSULTANT: SBUSPL

DRAWING SCALE: PROJECT NAME:-

DRAWING TITLE: TYPICAL REINFORCEMENT DETAILS | DD/IMP-JIR/ RF/01 OF BOX CULVERT FOR 1X3X4

01OF 01 R0

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH=17,180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE,

DATE AUG-2021 NAVEEN CHECKED APPROVED DESIGNED STRUCTURE ENGINEER



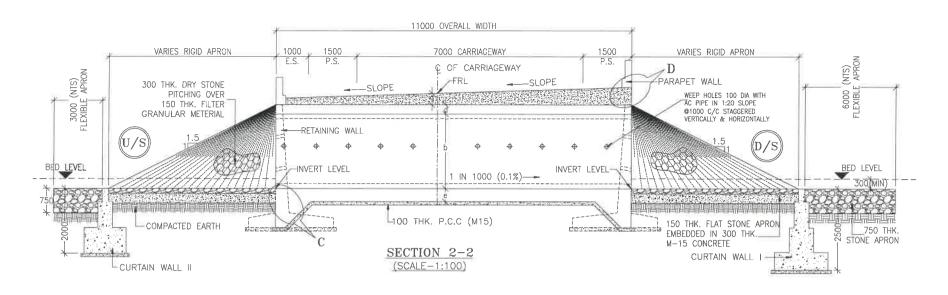
NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

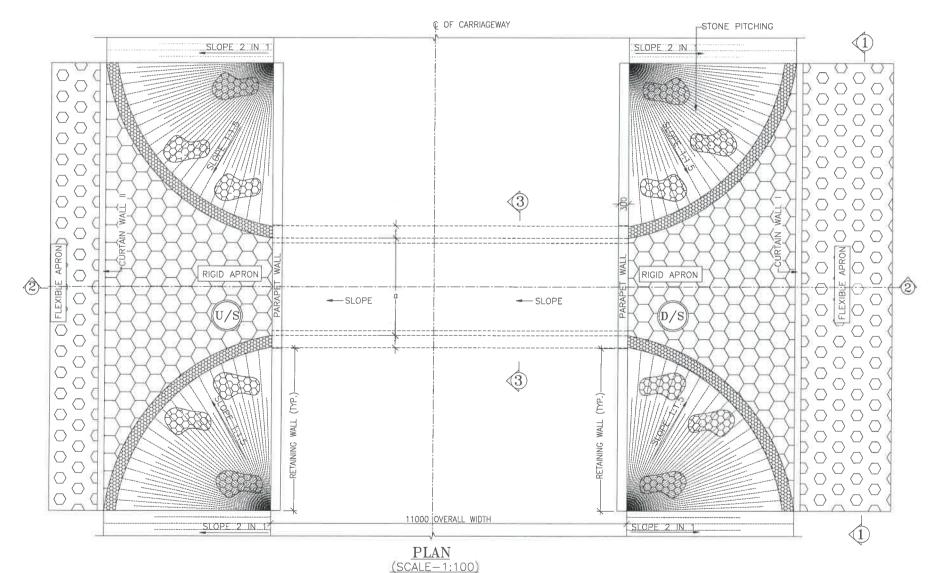


DESIGN DIRECTOR:

Hindia Engineers 61. Ltd.
Address: 33/1 Flook, 51 Phase-1,
Gurgaon-Faridabad Road Haryana, INDIA-122002,

Antique Company Ltd.
Address: 191, No. No. of Continue Byepass,
Jajur-302018 (No. 1911) No. 0741-2760303
Ernal: info@antique Evaluation Long.





- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:
- a) RCC BOX..... b) RCC RETAINING WALL
- c) PCC LEVELLING COURSE.. d) PCC CURTAIN WALL M15

e) PARAPET WALL...

4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)

..M30

- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78–2014 HAVING PROPERTIES \emptyset < 30°, C=0, γ = 2.0T/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.

 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78—2014.

 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY NOTED SHOULD BE REPORTED TO THE DESIGN
- NOTED SHOULD BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY.
- ENGINEER IMMEDIALELY.

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- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQ F.P. U/S D/S P.S. E.S. EQUAL FOOTPATH UP STREAM DOWN STREAM
PAVED SHOULDER
EARTHEN SHOULDER



DEVELOPMENT CORPORATION LTD

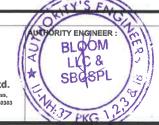












DRAWING	SCALE
NTS	

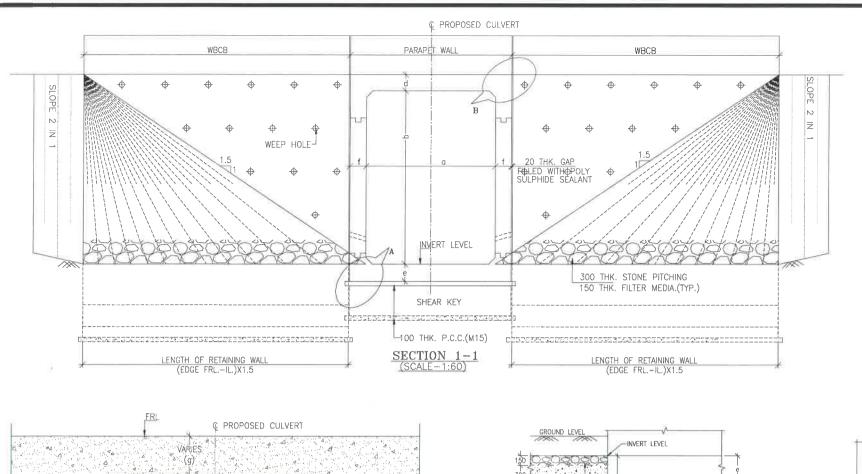
DRAWING TITLE: TYPICAL GENERAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01 DRAWING FOR BOX CULVERT

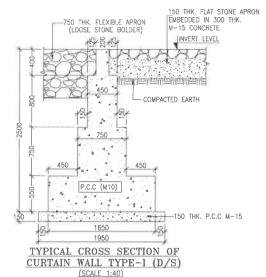
01 OF 02

PROJECT NAME:-

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NIH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33.120 KM (TOTAL LENGTH-17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 NAVEEN APPROVED DESIGNED CHECKED STRUCTURE ENGINEER



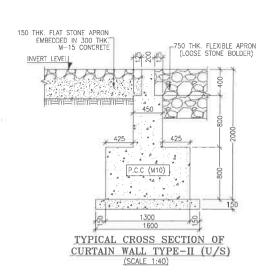


CONSTRUCTION JOINT

-100THK, P.C.C (M15)

SCALE-1:40

DETAIL 'A'



NOTES:-

- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:

a)	RCC	BOXM	30
b)	RCC	RETAINING WALLM	30
c)	PCC	LEVELLING COURSEM	15
(d)	PCC	CURTAIN WALL	15
e)	PARA	PET WALLM	30

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.0T/M 3
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.

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 AND WING WALLS AS PER IR:78–2014.

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 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD

EARTHEN SHOULDER

TABLE SHOWING SILENT DIMENSIONS

	BOX CELL	a	b	d	e	f
	DESIGNATION	(mm)	(mm)	(mm)	(mm)	(mm)
1	1X3X4	3000	4000	300	350	350

TABLE -II

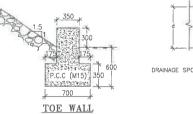
DETAIL 'C' (SCALE-1:40)

SR. NO.	DESIGN CH.	SPAN	FRL	IL DS	IL US	CUSHION(g) IN MM	TCS
1	29+501	1X3X4	1255.323	1250.423	1250.523	600	TSC-4

SECTION 3-3

SCALE-1:40

100 THK. P.C.C.(M15)



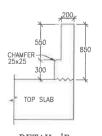
(SCALE-1:40)

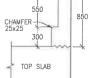
SELECTED

(TYP.)

BACKFILLING

EQ EQ EQ SIDE WALL DETAIL 'B





DETAIL 'D SCALE-1:40

-600 mm THK. FILTER MEDIA

·(TYP.)

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVERT LEVEL EQ F.P. U/S D/S P.S. E.S. FOLIAL FOOTPATH UP STREAM DOWN STREAM PAVED SHOULDER

CLIENT :



NATIONAL HIGHWAYS & INFRASTRUCTURE **DEVELOPMENT CORPORATION LTD**



DESIGN DIRECTOR:



PROOF CONSULTANT:

COMPACTED EARTH-

150 THK. FLAT STONE APRON EMBEDDED IN 300 THK. M-15 CONCRETE





SAFETY CONSULTANT



DRAWING SCALE: NTS PROJECT NAME:-

DRAWING TITLE: TYPICAL GENERAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01 DRAWING FOR BOX CULVERT

DRG. NO.

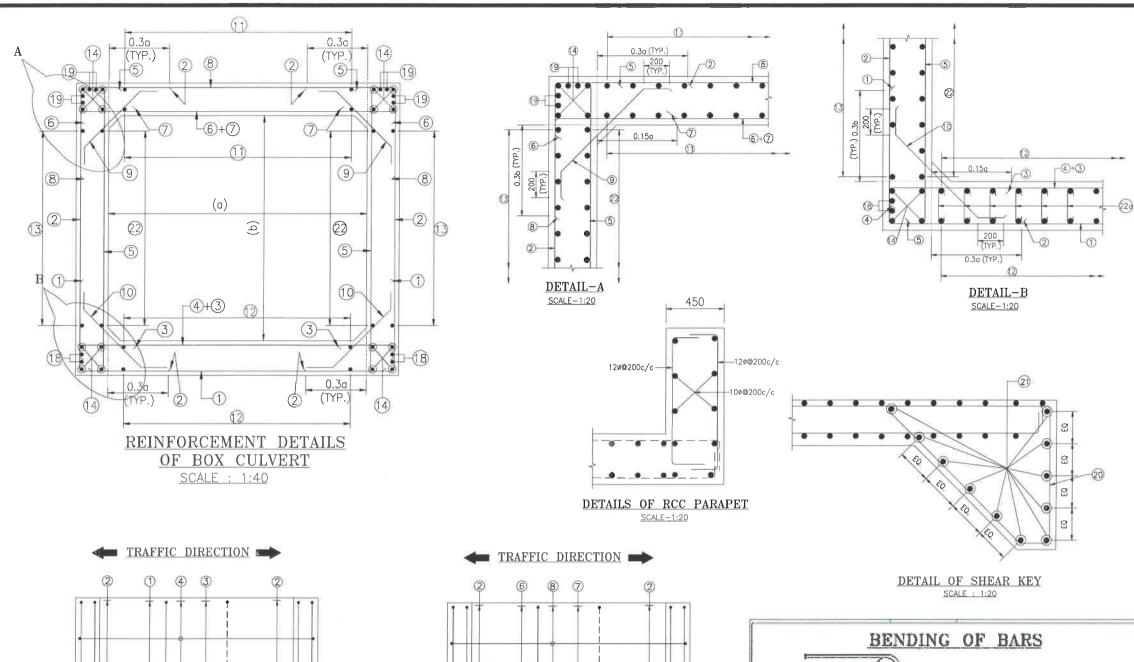
WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM DESIGNED VIDENING 10 21 (190) LINE WITH PAVES SHOULDER OF IMPRAIL OF SINDAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH=17.180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

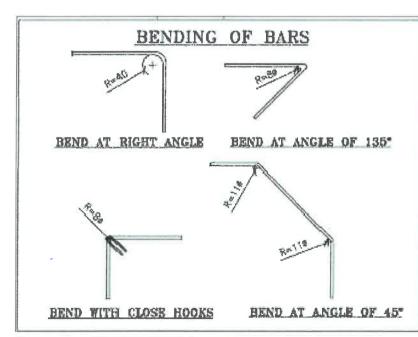
DATE AUG-2021 NAVEEN CHECKED **APPROVED** STRUCTURE ENGINEER

SHEET:

02 OF 02

R0





- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED.
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- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
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- GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

LEGEND :-

TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

SCHEDULE OF REINFORCEMENT

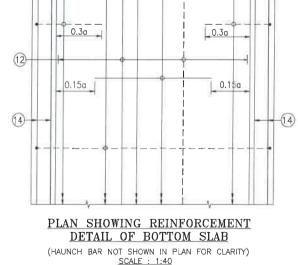
(SUBJECT TO SITE CHECK)

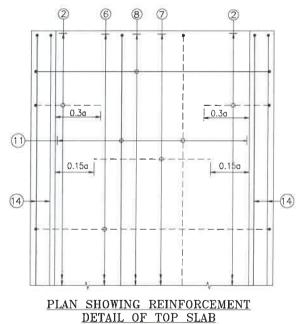
BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.	
16		200 C/C		
2		12	180 C/C	
3		12	200 C/C	
4		12	200 C/C	
(5)	Γl	12	180 C/C	
6		12	180 C/C	
0		12	180 C/C	
8		12	180 C/C	
9		10	180 C/C	
10		10	180 C/C	
11)		8	225 C/C	
12		8	200 C/C	
(13)		8	200 C/C	
(14)		10	12 NOS.	
(15)		NOT IN USE	NOT IN USE	
16		NOT IN USE	NOT IN USE	
17	5	NOT IN USE	NOT IN USE	
18		10	4 NOS.	
19		10	8 NOS.	
20		12	200 C/C	
21		12	20 NOS.	
22		8	270 C/C	
220	C	8DIA.200(LONG 400(TRAN	G. DIRECTION) S. DIRECTION)	
(22b)	C	NOT IN USE		

SHEET:

01OF 01

APPROVED





(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY)

SCALE : 1:40

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



DESIGN DIRECTOR

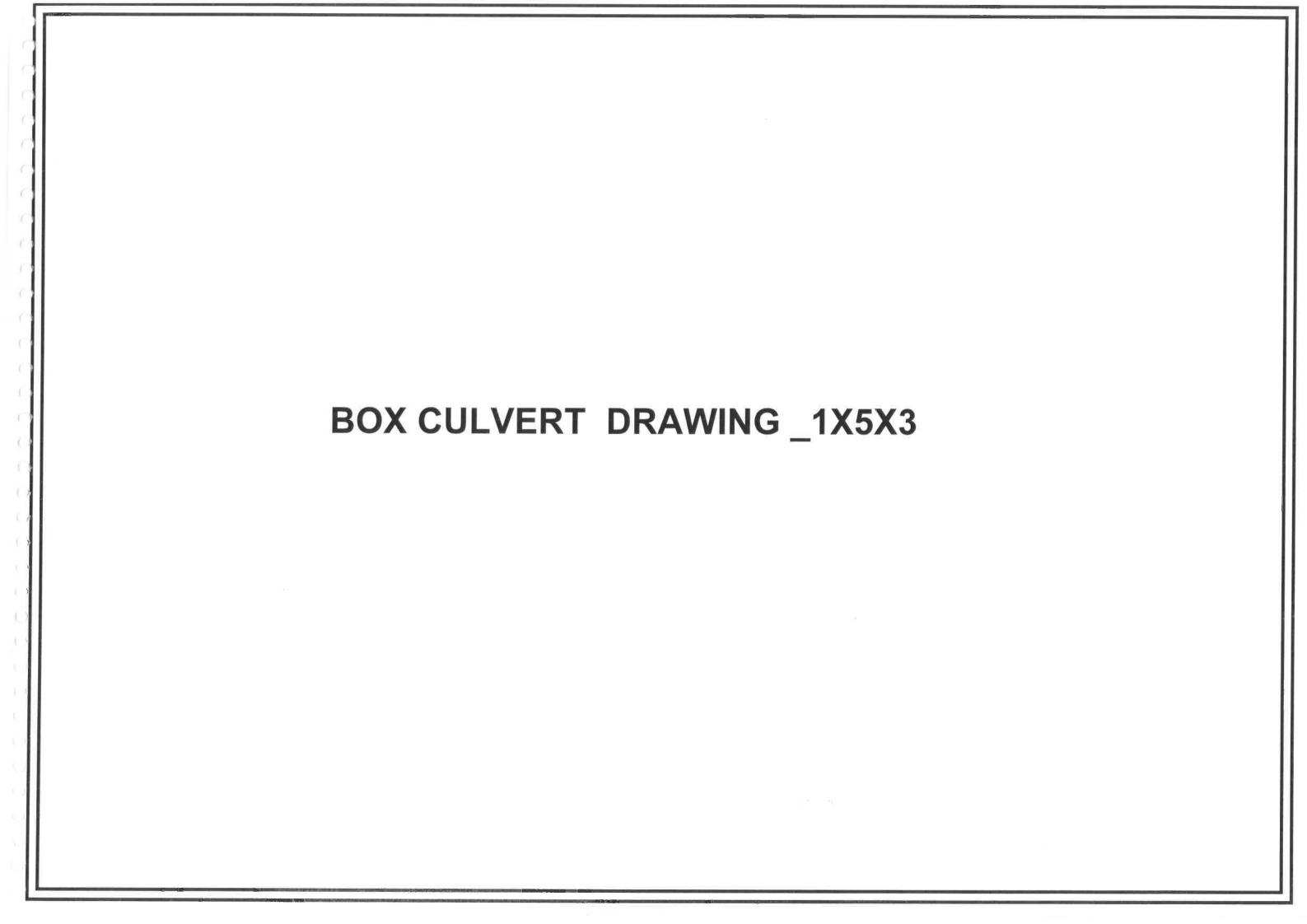


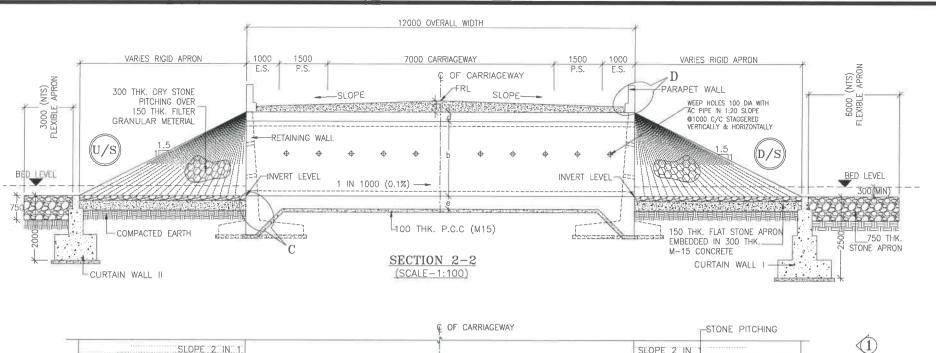


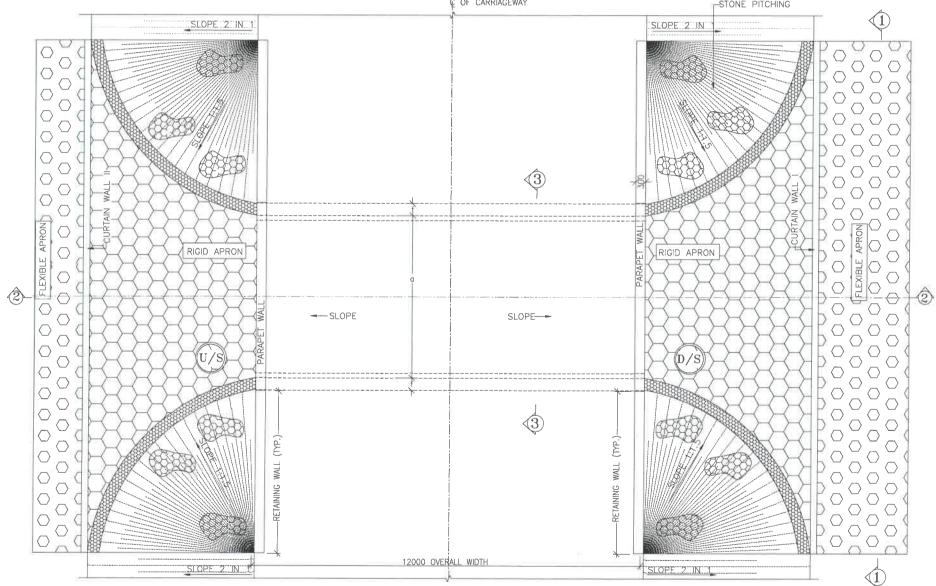


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2011	PROC

-	2115	·		/	_
	DRAWING SCALE: NTS	DRAWING TITLE: TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X3X4	DRG. NO. DD/IMP-JIR/ R	F/01	0
PROJECT NAME:-		DATE AUG-2021	NAVEEN		
	WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17,180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.		DESIGNED STRUCTURE ENGINEER	CHECKED	







- ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES
 ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS
 SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING.

3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:

- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786) 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES Ø < 30°, C=0, γ = 2.0T/M³
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 10T/M²IN GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT , SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH , WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78–2014.
- 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO
 PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY
 NOTED SHOULD BE REPORTED TO THE DESIGN
 ENGINEER IMMEDIATELY.
- BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

 FRL
 FINISHED ROAD LEVEL

 LVL
 LEVEL

 GL
 GROUND LEVEL

 IL
 INVERT LEVEL

 EQ
 EQUAL

 F.P.
 FOOTPATH

EQ — EQUAL
F.P. — FOOTPATH
U/S — UP STREAM
D/S — DOWN STREAM
P.S. — PAVED SHOULDER
E.S. — EARTHEN SHOULDER

PLAN (SCALE-1:100)

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



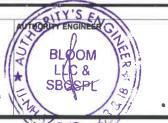
DESIGN DIRECTOR:



PROOF CONSULTANT:



Antique Builderh Pvt. Ltd.
Address: 1 Materia Dof, Gopalpura Byepass,
Jaipur-302018 (Rajatihan) Phone No. 0141-2760303
Email: Info@antiquebuildtech.com



DRAWING SCALE:	DRAWING TITLE
NTS	TYPICAL GEN
	DRAWING

WING TITLE:

DRG. NO.

DRG. NO.

DD/IMP-JIR/ BOX/GAD/01

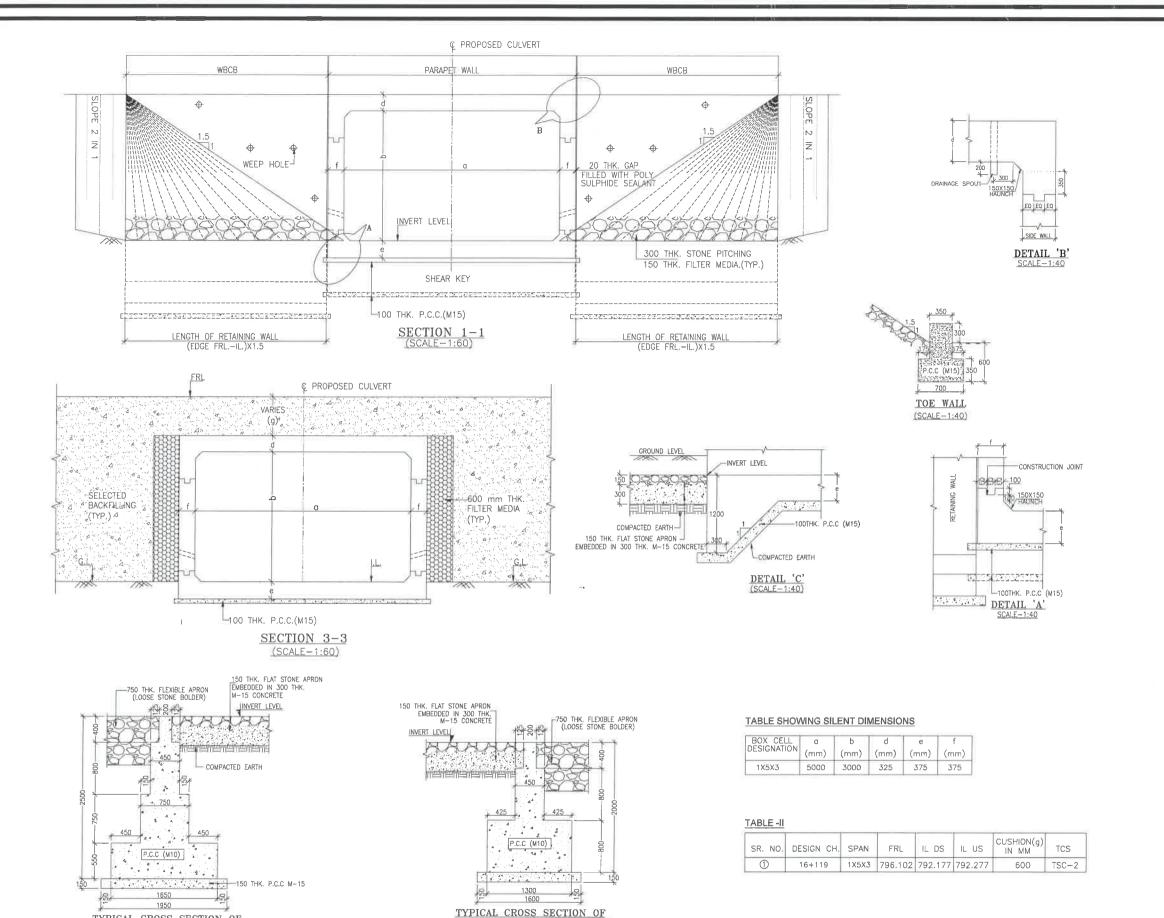
01 OF 02

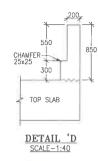
PROJECT NAME:-

WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15,940 KM TO 33,120 KM (TOTAL LENGTH-17,180 KM) (PKG-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAN

D JIRIBAM M (TOTAL INEERING, STRUCTURE ENGINEER ENGINEER ---





- 1. ALL DIMENSIONS ARE IN MILLIMETRES, LEVELS ARE IN METRES AND CHAINAGES ARE IN KILOMETRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ROAD PLAN AND PROFILE DRAWING
- 3. GRADE OF CONCERTE FOR VARIES ELEMENTS SHALL BE AS FOLLOWS:
- a) RCC BOX.. b) RCC RETAINING WALL ..M30
- c) PCC LEVELLING COURSE. ..M15
- d) PCC CURTAIN WALLM15
- e) PARAPET WALL M30
- 4. GRADE OF STEEL SHALL BE Fe-500 (H.Y.S.D. REBAR CONFORMING TO IS-1786)
- 5. BACK FILLING BEHIND THE STRUCTURE SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014 HAVING PROPERTIES Ø < 30°, C=0, y = 2.0T/M³
- 6. COMPRESSIBLE FILLER BOARD SHALL BE PROVIDED IN ALL EXPANSION GAPS AND SEALED WITH POLY—SULPHIDE SEALANT.
- GAPS AND SEALED WITH POLY-SULPHIDE SEALANT.

 7. FOUNDATION OF BOX SHALL BE PLACED OVER A FIRM STRATA HAVING BEARING CAPACITY EQUAL TO 107/M2 N GENERAL. IF THE MATERIAL ENCOUNTERED IS SOFT, SPONZY OR OTHER UNSUITABLE SOIL, SUCH UNSUITABLE MATERIAL SHALL BE TOTALLY REMOVED TO SUCH DEPTH, WIDTH & LENGTH, AS DIRECTED BY THE ENGINEER. THE EXCAVATED AREA SHALL BE BACKFULED WITH APPROVED GRANULAR MATERIAL & THOROUGHLY COMPACTED UP TO THE SPECIFIED LEVEL.
- 8. 600MM THICK FILTER MEDIA SHALL BE PROVIDED BEHIND SIDE WALLS AND WING WALLS AS PER IR:78-2014.
- 9. ALL THE LEVELS AND CAMBERS TO BE VERIFIED WITH RESPECT TO
 PLAN & PROFILE DRAWINGS BEFORE EXCAVATION. ANY DISCREPANCY
 NOTED SHOULD BE REPORTED TO THE DESIGN
 ENGINEER IMMEDIATELY.
- 10. BACK FILLING BEHIND WALLS SHALL BE DONE SIMULTANEOUSLY ON EITHER SIDE OF THE STRUCTURE WITH HEIGHT DIFFERENCE NOT MORE THAN 1.0M. BACK FILLING SHALL BE DONE ONLY AFTER THE TOP SLAB IS CONCRETED AND CURED FOR 14 DAYS.
- 11. SPRADING & COMPACTED OF SAND WILL BE DONE IN ACCORDANCE WITH CLAUSE 401.3.2 OF SPECIFICATION FOR ROAD & BRIDGE WORKS BY MINISTRY OF ROAD TRANSPORT & HIGHWAY

LEGEND:-

FINISHED ROAD LEVEL LEVEL GROUND LEVEL INVÉRT LEVEL EQUAL FOOTPATH U/S D/S P.S. E.S. UP STREAM DOWN STREAM PAVED SHOULDER

EARTHEN SHOULDER

CLIENT :

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD



TYPICAL CROSS SECTION OF

CURTAIN WALL TYPE-I (D/S) (SCALE 1:40)

DESIGN DIRECTOR



PROOF CONSULTANT: Hindia Siness Pvt. Ltd.
Address: M7. History DLF Phase-1,
Gurgaon-Faridabad Road Haryana, INDIA-122002,
Phone No.-0124-4028681

CURTAIN WALL TYPE-II (U/S)







DRAWING SCALE:	DRAW
NTS	TYPI
	D.

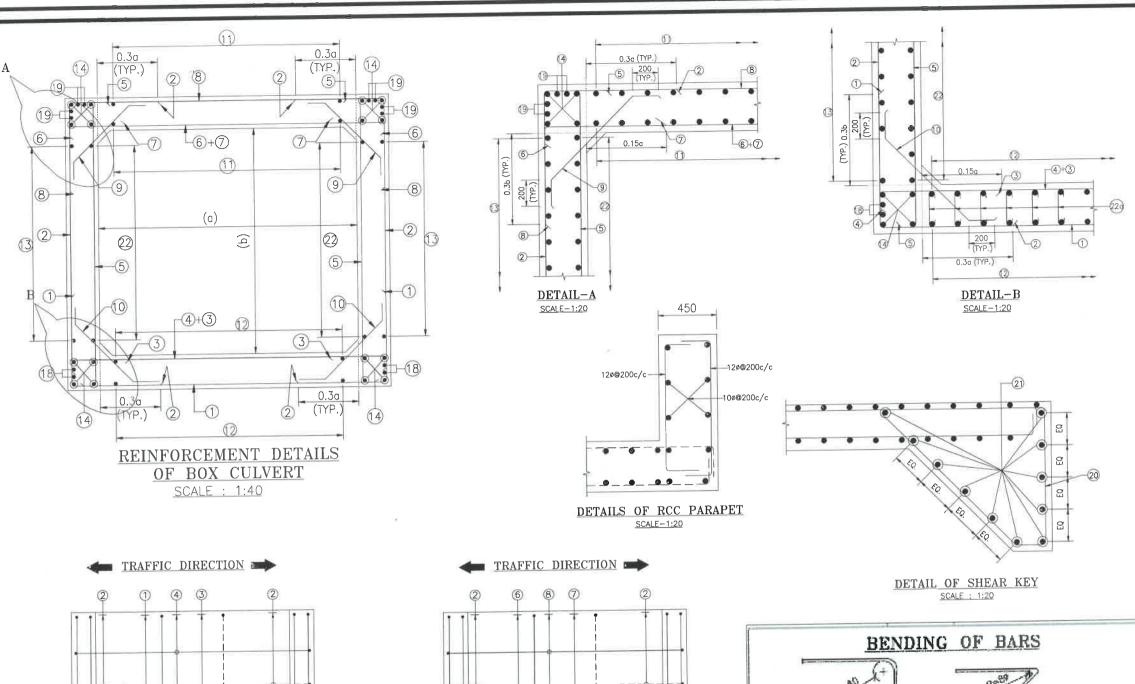
VING TITLE: DRG. NO. ICAL GENERAL ARRANGEMENT | DD/IMP-JIR/ BOX/GAD/01 RAWING FOR BOX CULVERT

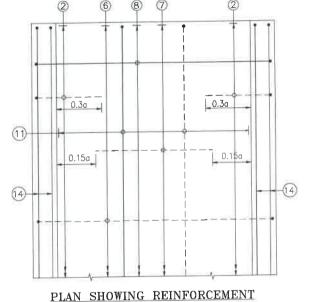
DATE AUG-2021 DRAWN STRUCTURE DRAFTSMAI WIDENING TO 2 (TWO) LANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM SECTION OF NH-37 FROM DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL LENGTH-H7.180 KM) (FMC-2) IN THE STATE OF MANIPUR ON ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) MODE.

DESIGNED CHECKED APPROVED **ENGINEER**

SHEET:

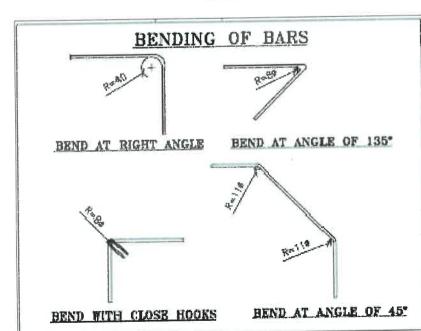
02 OF 02





DETAIL OF TOP SLAB

(HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY) SCALE : 1:40



NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETERS. UNLESS OTHERWISE MENTIONED. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS
- TO BE FOLLOWED.
- CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT EARTHEN SIDE AND 40mm AT OTHER SIDE.
- ALL REINFORCEMENT BARS SHALL BE H.Y.S.D BARS HAVING SPECIFIED MINIMUM 0.2% PROOF STRESS OF 500MPa CONFORMING TO IS:1786.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BAR SHALL BE 50 X DIA. OF BAR.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT DRAWINGS.
- JOINT OR LAPPING OF BARS SHALL BE SUITABLE STAGGERED AS PER CLAUSE 304-6 OF IRC: 112.
- FULL SCALE ELEVATION OF THE BARS SHALL BE LINED OUT ON A PLAIN PLASTERED FLOOR TO THE DIMENSIONS SHOWN ON THE DRAWING SO AS TO GET CORRECT CLEARANCE BETWEEN DIFFERENT BARS AND THEN THE BARS SHALL BE BENT TO PROPER SHAPE.

LEGEND :-

TOP FACE BARS/OUTER FACE BARS
 BOTTOM FACE BARS/INNER FACE BARS

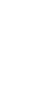
SCHEDULE OF REINFORCEMENT

(SUBJECT TO SITE CHECK)

BAR MARK	SHAPE	BAR DIA.	SPACING/Nos.	
1		16	200 C/C	
2		16	200 C/C	
3		16	200 C/C	
4		16	200 C/C	
5		12	200 C/C	
6		12	200 C/C	
7		16	200 C/C	
8	[]	12	200 C/C	
9		10	200 C/C	
10		10	200 C/C	
11)		10	200 C/C	
12		10	200 C/C	
13)		10	200 C/C	
14)		10	12 NOS.	
15)		NOT IN USE	NOT IN USE	
16)		NOT IN USE	NOT IN USE	
17	5	NOT IN USE	NOT IN USE	
18		10	4 NOS.	
19		10	8 NOS.	
20		1,2	200 C/C	
21)		12	20 NOS.	
22		- 8	200 C/C	
220	C	10DIA.400(LONG. DIRECTION 200(TRANS. DIRECTION		



0.3a













DRAWING SCALE:	DRAWING TITLE:
NTS	TYPICAL REINFORCEMENT DETAILS OF BOX CULVERT FOR 1X5X3
ACCRON OF NU 27 EPO	ANE WITH PAVED SHOULDER OF IMPHAL TO JIRIBAM M DESIGN CHAINAGE 15.940 KM TO 33.120 KM (TOTAL (G-2) IN THE STATE OF MANIPUR ON ENGINEERING TRUCTION (EPC) MODE.

!LS	DD/IMP-JIR/ RF/01		01OF 01	
BAM OTAL RING,	DATE AUG-2021 DRAWN STRUCTURE DRA		C'TURE DRAF	TSM/
	DESIGNED	CHECKED	APPROV	/ED
	STRUCTURE ENGINEER		water	

DD/IMP-JIR/ RF/01

SHEET:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

CLIENT:

"CMM" M/S. CMM INFRAPROJECTS LTD.

EPC CONTRACTOR

0.3a

0.150

PROOF CONSULTANT:



In Association with



Plot No. 235/B Longmai (Noney)
Bazar, Noney, Imphal - 795159

☑ imphal-jiribam@sbcspl.com
☑ aenh37pkg123ib@gmail.com

Date: 03.09.2022

Bloom-SBCSPL/2106/538

To, M/s CMM Infra projects Ltd. 108, Shalimar Corporate Centre, 8-B, South Tukoganj, Indore (M/P) – 452001 Email: cmm manipur@gmail.com

Email: cmm.manipur@gmail.com Ph: +918459523681, 8415902349



Sub: Consultancy services for Authority's Engineer for Supervision of:

Widening to 2 (Two) Lane with Paved shoulder of Imphal to Jiribam section of NH-37 from Design Chainage 15.940 km to 33.120 Km (Total length=17.180 Km) (PKG-2) in the State of Manipur on Engineering, Procurement & Construction (EPC) mode. Reg: Approval of CC drain (M15 Grade)

Dear Sir,

With ref. to the above cited matter, Authority Engineer gone through the submitted drawing of CC drain the observations as below:

- (1) In the contract agreement of schedule-B, Road side drain you have to construct R.R. masonry Trapezoidal Drain of Length-11453 mtr.
- (2) Instead of R.R. masonry Trapezoidal drain, Typical section of CC drain to be constructed in this project highway.
- (3) Authority Engineer reviewed the typical section of CC drain are found generally in order as per IRC: SP:84-1998.

In the view of all Authority Engineer recommended for change R.R. masonry to CC drain with M15 Grade of concrete with undertaking given from your end such that in future you are not calming any COS as per Contract agreement Article-13.

This is for your information and record please.

With Best Regards,

For, Bloom Companies LLC(Bloom) in Association With Shree Bhawani Consultancy Services Pvt. Ltd.

L.N. Ranjan

(Team Lagader)der

Authority's Engineer I J-NH:37 Pkg. 1,2,3 & IB

Copy to:

- 1. General Manager PMU-Noney, Manipur for kind information.
- 2. SBCSPL H.O. Bhopal (M.P) for kind information.





In Association with



Plot No. 235/B Longmai (Noney)
Bazar, Noney, Imphal - 795159

☑ imphal-jiribam@sbcspl.com
☑ aenh37pkg123ib@gmail.com

BLOOM LCC &

Date: 05th May. 2022

Bloom-SBCSPL/2106/327

To,
CMM Infraproject Ltd,
108, Salimar Corporate Centre,
8-B South Tukoganj,
Indore-452001
Madhya Pradesh
E-mail: cmm.kmundra@gmail.com

Sub: Consultancy services for Authority's Engineer for Supervision of:

Widening to 2 (Two) Lane with Paved shoulder of Imphal to Jiribam section of NH-37 from Design Chainage 3.275 km to 15.940 Km (Total length=12.665 Km) (PKG-1) in the State of Manipur on Engineering, Procurement & Construction (EPC) mode. Widening to 2 (Two) Lane with Paved shoulder of Imphal to Jiribam section of NH-37 from Design Chainage 15.940 km to 33.120 Km (Total length=17.180 Km) (PKG-2) in the State of Manipur on Engineering, Procurement & Construction (EPC) mode. Widening to 2 (Two) Lane with Paved shoulder of Imphal to Jiribam section of NH-37 from Design Chainage 33.000 km to 66.390 Km (Existing Chainage from km 33.395 to km 67.496) (PKG-III) in the State of Manipur on Engineering, Procurement & Construction (EPC) mode. Construction of 4-Lane Bridge over Irang River on Imphal- Jiribam road section (95.500Km) NH- 37 (Old NH-53) in the State of Manipur on EPC mode

Reg: Approval Drawing of Breast wall (Plum concrete)

Ref: CMM/IJ/NH-37/21-22/90 on dated: 27.04.2022

Dear Sir,

This is in reference to your letter cited above requesting drawing approval of Breast wall for Plum concrete. The submitted Breast wall drawing checked and reviewed as per IRC SP :48-1998 specification found satisfactory and approved.

Precaution required during production of concrete at site.

- conducted jointly trail of Plum mix design at site laboratory in presence of Authority's Engineer representative at site Laboratory.
- 2. The specified Stone size shall be always kept as per mention drawing.
- The specified water/cement ratio shall be always kept constant as per mentioned value suitable adjustment shall also be apply due to variation in moisture content.
- 4. The gradation of Coarse and Fine aggregate should be checked as per frequency to ensure that the specified gradation is maintained as per MoRT&H specification.
- 5. Plum Concrete mix should be uniform and homogeneous during preparation, transportation and placing.

This is for your kind information and favorable action as early as possible.

Assuring you the best of our Services at all the times.

In Association with



With Best Regards, For, Bloom Companies LLC(Bloom) in Association With Shree Bhawani Consultancy Services Pvt. Ltd.

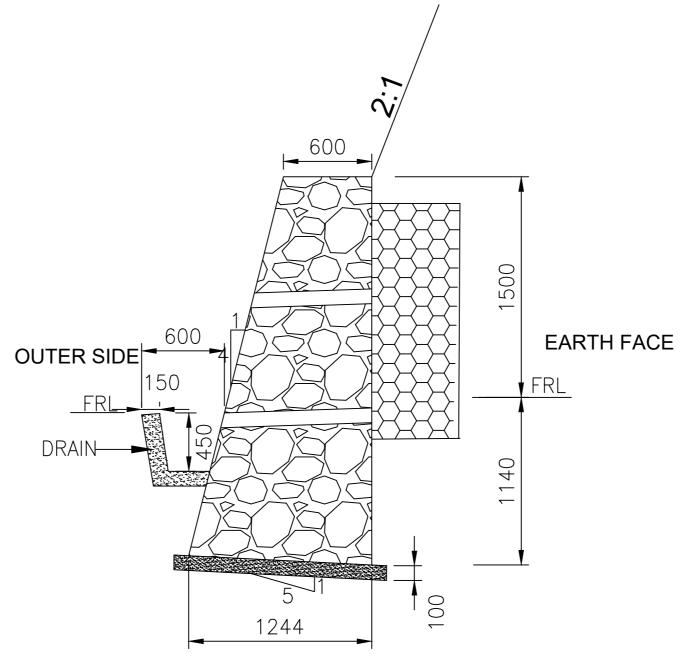
Authorized Signatory, Jagadish Rajkhowa

Acting Team Leader Acting Team Leader Authority's Engineer IJ-NH: 37 Pkg 1 2,3& Ib BLOOM LCC & SBCSPL #

Encl: Breast wall Drawing (Plum concrete)

Copy:

1- Deputy General Manager PMU-Noney Imphal for Kind Information.



Plum Concrecte 1.5m hight All dimension in 'mm'

NOTES:

- 1. All dimensions are in mm unless specified.
- Weep holes of 100 mm dia. opening shall be provided at 1000 m interval and should be staggered both horizontally and vertically.
- 600mm width of filter media composed of good quality stones (50-100mm) shall be provided.
- A separation gap of 50-100mm shall be provided at maximum of 8m length of wall. Also gaps shall be provided at bends and junctions.
- 5. The wall shall be properly cured for a minimum of two weeks to attain good bonding strength.
- 6. The size of stone Plums may be from 150-300 mm. The maximum dimension of these stones or Plums shall not exceed 1/3RD the least dimension of the member.
- 7. Plum Concrete 1:2:4 (1 cement: 2 Sand : 4 Graded stone aggregate 40mm nominal size) with 50% Plums.
- 8. Breast wall design as per IRC SP 48:1998.





M/S. CMM INFRAPROJECTS LTD.





SAFETY CONSULTANT:
Antique Strictech Pvt. Ltd. Address: 19 Mohan Nagar Gobaloura Byepass, Jaipur-302018 (Rajashan) Mohe No. 0141-2760303 Email: info@antiquebuildtech.com

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M/ B/ 0 : 110
M/s Bloom Companies LLC
In Association With
Shri Bhavani Consultancy
Serivce Pvt. Ltd

AUTHORITY ENGINEER :

	DRAWING SCALE:	DRAWING TITLE:	DRG. NO.		SHEET:	REV.
	NTS	TYPICAL DETAIL OF BREAST WALL (PLUM CONCRETE)	HEPL/STR/RRM/001		01OF 01	R0
PROJECT NAME:-		DATE - JUL202	1 NAVEEN			
	Widening to 2 (Two) Lane with Paved shoulder of Imphal to Jiribam section of					

NH-37 from Design Chainage 13.940 km sa 33.120 Km (Total length-17.180 Km) (PKG-2) in the State of Manipur on Engineering, Procurement & Construction (EPC)

DESIGNED

Highway Engineering CHECKED

APPROVED