

**FOUR LANING OF JHANJHI TO DEMOW SECTION OF NH-37 FROM EXISTING CH. KM 491+050
TO KM 535+250 (DESIGN CH. KM 490+800 TO KM 534+800) IN THE STATE OF ASSAM UNDER
EPC MODE**

DRAWING OF PUP CH. 502+550

GOOD FOR CONSTRUCTION

CLIENT:



**National Highways and Infrastructure
Development Corporation Ltd.**

AUTHORITY ENGINEER



Voyants Solutions Private Limited
BPTP Park Centra, 403, 4th, Block A,
Jal Vayu Vihar, Sector 30, Gurugram,
Haryana 122001



DESIGN CONSULTANT:



M/S ECSTATIC ENGINEERING CONSULTANTS PRIVATE LIMITED
Corp. Off.: SCO.-103, 2ND FLOOR,
Huda Shopping Center, Sector-55, Gurugram
Haryana-122002.

SAFETY CONSULTANT:



G-ENG ADVISORY SERVICES PVT.LTD
SCO 102 HUDA SHOPPING CENTRE, GURGOAN,
Sector 55, Gurugram, Haryana 122003.

EPC CONTRACTOR:



GANNON DUNKERLEY & CO. LTD.
86A, TOPSIA ROAD (SOUTH) HAUTE
STREET, 7TH FLOOR KOLKATA-700046

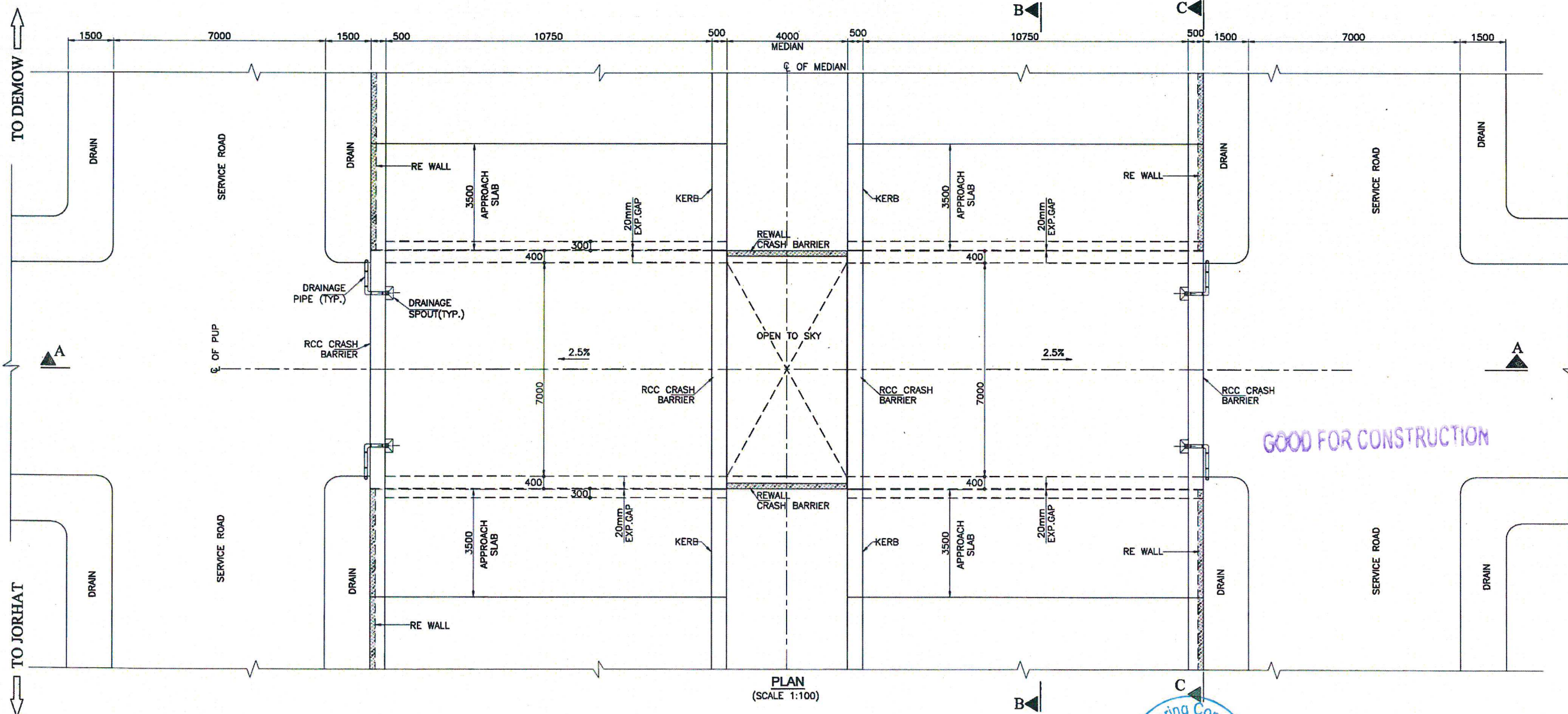
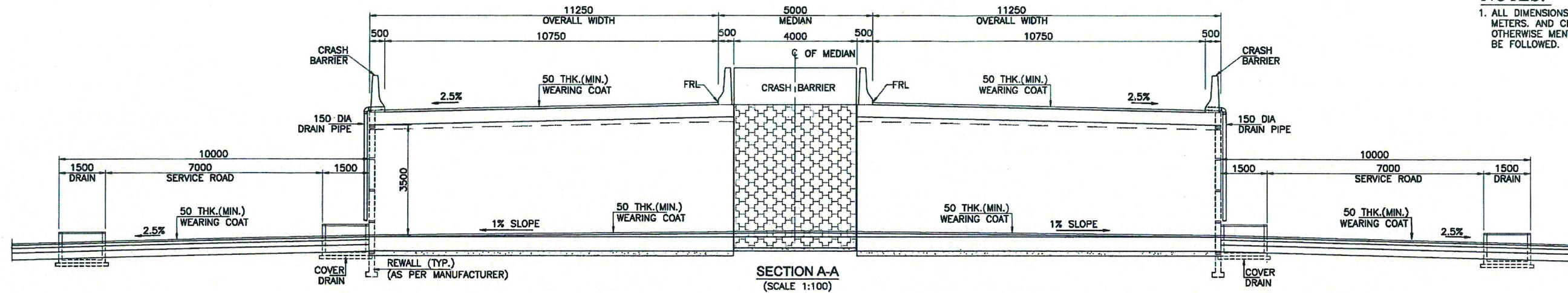
PROOF CONSULTANT:



MARC TECHNOCRATS PVT. LTD.
Marc House, Sector-6-7 (Dividing Road)
, opposite Devi Lal Park,
Bahadurgarh, Haryana 124507

NOTES:-

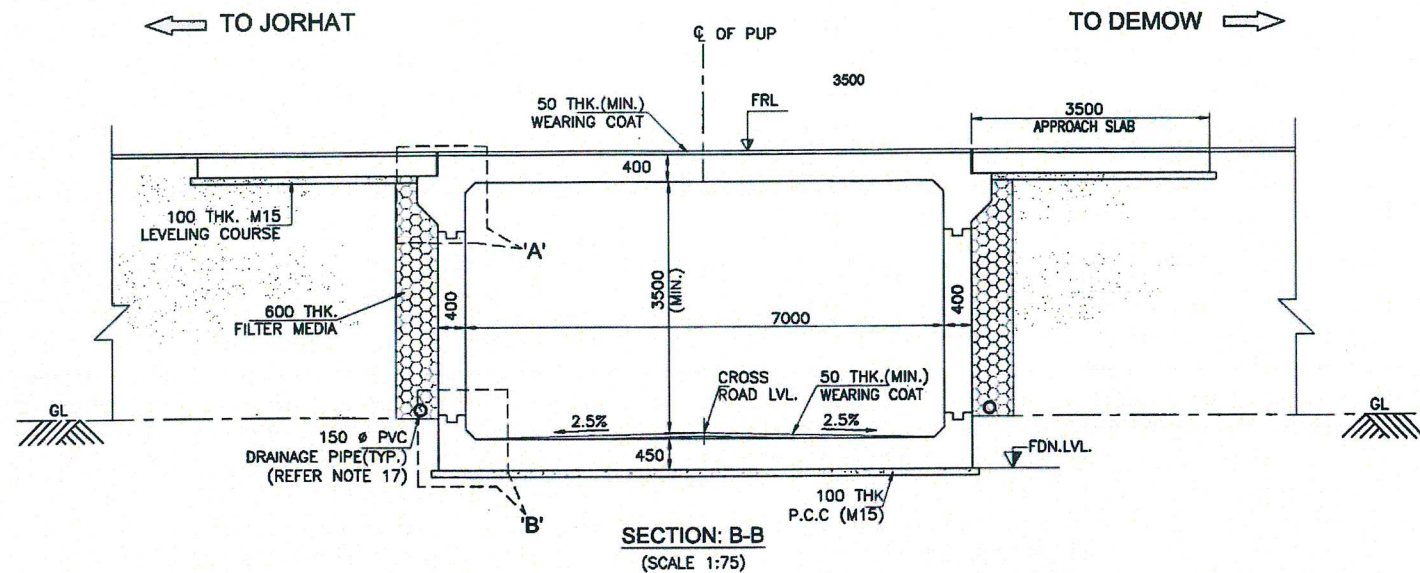
1. ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS, AND CHAINAGE ARE IN KILOMETERS, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.



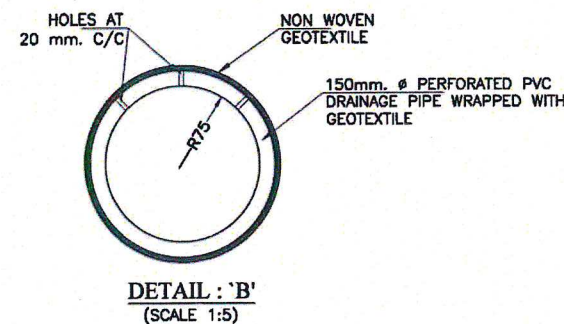
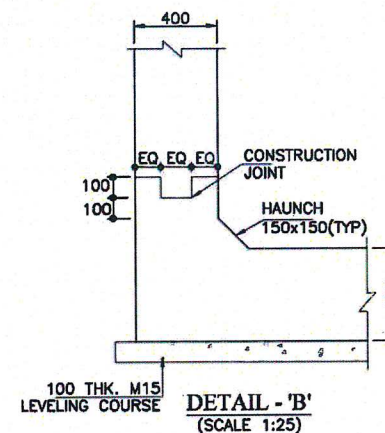
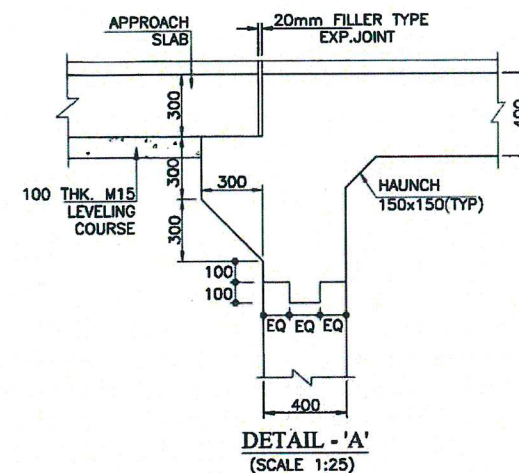
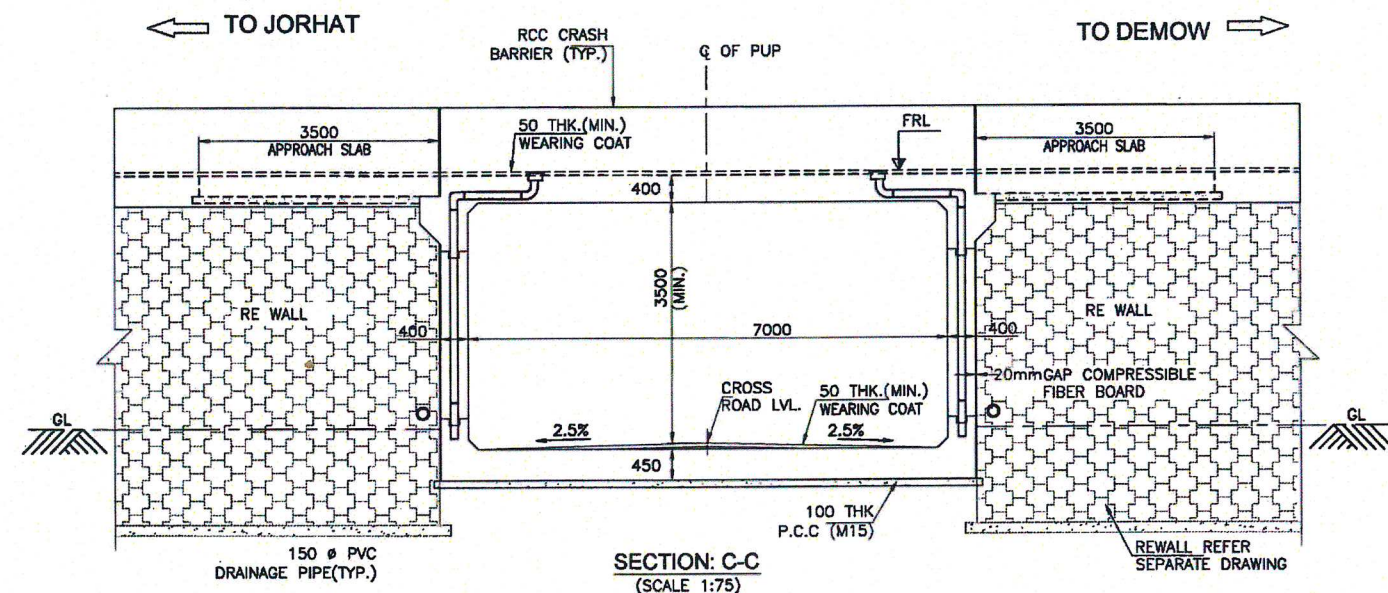
GOOD FOR CONSTRUCTION

LEGEND:-	
FRL	FINISHED ROAD LEVEL
FDN.	FOUNDATION LEVEL
LVL.	LEVEL
GL	GROUND LEVEL

CLIENT:		CONTRACTOR:		DESIGN CONSULTANT:		APPROVED BY:		PROJECT:	
NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.		GANNON DUNKERLEY & CO. LTD		ECSTATIC ENGINEERING CONSULTANTS PRIVATE LIMITED		US		FOUR LANE OF JHANJHI TO DEMOW SECTION OF NH-37 FROM EXISTING CH. K 491+050 TO KM 535+250	
3RD FLOOR, PTL BUILDING, 4 PARLIAMENT STREET, NEW DELHI-110001		86A, TOPSIA ROAD (SOUTH) HAUTE STREET, 7th FLOOR KOLKATA-700048		SCO 103 HUDA SHOPPING CENTRE, GURGOAN SECTOR 55, GURUGRAM, HARYANA 122003		NS		(DESIGN CH. KM 490+800 TO KM 534+800) IN THE STATE OF ASSAM UNDER EPC MODE.	
AUTHORITY ENGINEER:		SAFTY CONSULTANT:		PROOF CONSULTANT:		DESIGNED BY:		TITLE:	
VOYANTS SOLUTIONS PVT. LTD.		G-ENG ADVISORY SERVICES PVT. LTD.		MARC TECHNOCRATS PVT. LTD.		KP		GENERAL ARRANGEMENT DRAWING FOR PEDESTRIAN UNDERPASS AT DESIGN CH-502+550	
403, 4TH FLOOR, BPTP PARK CENTRA, BLOCK A, JAL VAYU VIHAR SECTOR 30 GURGOAN, HARYANA 122001		SCO-102, HUDA SHOPPING CENTER, SECTOR-56 GURGOAN-122002, HARYANA. TEL:-+91-124-4296892, 4296893 EMAIL:INFO@G-ENG.IN WEB:WWW.G-ENG.IN		Maro House, Sector-67, Diding Road, opposite Devi Lal Park, Bahadurgarh, Haryana 124507		SR		DRG NO.:	
04.01.2020		ISSUED FOR APPROVAL		SCALE:		DATE:		EEC-NH-37-JD-PUP-CH-502.550-GAD-101	
REV		DESCRIPTION OF REVISIONS		AS SHOWN		JAN-2020		SHEET NO.	
		BY						(01 OF 02)	
								REV.	
								RO	



FINISH ROAD LEVEL	93.603	93.603	93.603
CROSSING ROAD LEVEL	89.385	89.385	89.385
PROPOSED CHAINAGE	502+546.5	502+550	502+553.5



NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS, AND CHAINAGE ARE IN KILOMETERS, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- CONCRETE GRADE
 - FOR OF RCC BOX-----M30
 - FOR LEVELING COURSE-----M15
 - CRASH BARRIER-----M40
 - APPROACH SLAB-----M30
- MINIMUM CLEAR COVER TO ALL REINFORCEMENT SHALL BE
 - BOTTOM SLAB-----75MM.
 - TOP SLAB-----40MM.
 - SIDE WALL-----40MM NON EARTH FACE.
 - SIDE WALL-----75MM EARTH FACE.
- REINFORCEMENT GRADE-Fe:500D CONFORMING TO IS:1786.
- THE REQUIRED SBC OF -10t/m². SHOULD BE ASCERTAINED AT SITE.
- THE FOLLOWING LOADS HAVE BEEN CONSIDERED IN THE DESIGN:-
 - THREE LANE OF CLASS A
 - ONE LANE OF CLASS A IN ADDITION OF ONE LANE OF CLASS 70R WHEEL OR ONE LANE OF 70R TRACKED & CHECK FOR SV LOADING WHICHEVER GOVERNS.
- BACKFILL MATERIAL BEHIND END WALL SHALL BE SELECTED GRANULAR SOIL HAVING PROPERTIES C=0, MINIMUM Ø>30' AND DRY DENSITY $\gamma=2T/m^3$
- IN CASE ANY LOOSE / UNSUITABLE MATERIAL BELOW BOX STRUCTURE IF FOUND DURING EXECUTION SHALL BE REPLACED BY SUITABLE MATERIAL AND COMPACTED UPTO 2m DEPTH
- 600MM THICK. FILTER MATERIAL BEHIND BOX SHALL BE LAID AS PER APPENDIX 6 OF IRC 78-2014.
- PERFORATED P.V.C. PIPE 150Ø TO BE PROVIDED OF GROUND LEVEL BEHIND WALL FOR DRAINAGE.
- 50mm WEARING COAT - BITUMINOUS CONCRETE THICK LAID IN SINGLE LAYER.
- FOR CRASH BARRIER MISCELLANEOUS DRAWING TO BE FOLLOWED.
- BACK FILLING BEHIND BOX SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX :6 OF IRC:78-2014.
- FORMATION LEVEL, BED LEVEL, CAMBER/SUPER ELEVATION AND LAYOUT SHALL BE VERIFIED AT SITE AND SHALL BE PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING. IN CASE OF ANY DEVIATION, SAME NEED TO BE BROUGHT INTO NOTICE OF ENGINEER IN-CHARGE/DESIGN CONSULTANT.
- MODERATE EXPOSURE CONDITION SHALL BE ENSURED AS PER IRC:112-2011.
- PAVEMENT LAYER SHALL BE LAID OVER THE TOP AS PER HIGHWAY DRAWINGS.
- DRAINAGE PIPE OUT FALL MAY BE DECIDED AS PER SITE CONDITION IN CONSULTATION WITH AUTHORITY ENGINEER.
- DOWELS FOR CRASH BARRIER TO BE LEFT BEFORE CASTING DECK SLAB.

REFERENCE DRAWING:-

- REINFORCEMENT DETAIL DRAWING OF PUP FOR SPAN (1X7.0m)
EEC-NH-37-JD-PUP-CH-502.550-REINF.-201(SHEET- 1)

GOOD FOR CONSTRUCTION

CLIENT:
NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.
(3RD FLOOR, PTI BUILDING, 4 PARLIAMENT STREET, NEW DELHI-110001)

AUTHORITY ENGINEER:
VOYANTS SOLUTIONS PVT. LTD.
403, 4TH FLOOR, BPTP PARK CENTRA, BLOCK A, JAL VAYU VIHAR SECTOR 30 GURGOAN, HARYANA 122001

CONTRACTOR
GANNON DUNKERLEY & CO. LTD
86A, TOPSIA ROAD (SOUTH) HAUTE STREET, 7th FLOOR KOLKATA-700048

SAFTY CONSULTANT:
G-ENG ADVISORY SERVICES PVT. LTD.
SCO-102, HUDA SHOPPING CENTRE, SECTOR-58 GURGOAN-122002, HARYANA
TEL:- +91-121-4295802/4295803
EMAIL:INFO@G-ENG.IN WEB:WWW.G-ENG.IN

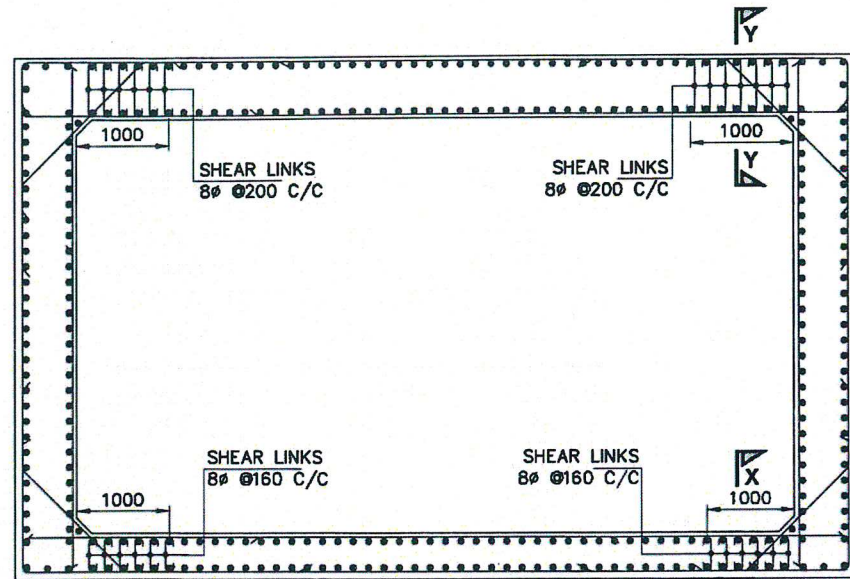
DESIGN CONSULTANT: New Delhi
ECSTATIC ENGINEERING CONSULTANTS PRIVATE LIMITED
SCO 103 HUDA SHOPPING CENTRE, GURGOAN, SECTOR 58, GURUGRAM, HARYANA 122003

PROOF CONSULTANT:
MARC TECHNOCRATS PVT. LTD.
Mara House, Sector-67 Diding Road, opposite Devi Lal Park, Bahadurgarh, Haryana 124507

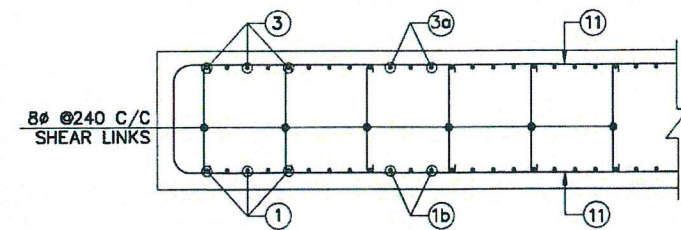
APPROVED BY: US
CHECKED BY: NS
DESIGNED BY: AR
DRAWN BY: SR
SCALE: AS SHOWN
DATE: JAN-2020

PROJECT:
FOUR LANING OF JHANIHI TO DEMOW SECTION OF NH-37 FROM EXISTING CH. K 491+050 TO KM 535+250 (DESIGN CH. KM 490+800 TO KM 534+800) IN THE STATE OF ASSAM UNDER EPC MODE.
TITLE: GENERAL ARRANGEMENT DRAWING FOR PEDESTRIAN UNDERPASS AT DESIGN CH-502+550
DRG NO.: EEC-NH-37-JD-PUP-CH-502.550-GAD-101
SHEET NO. (02 OF 02)
REV. R0

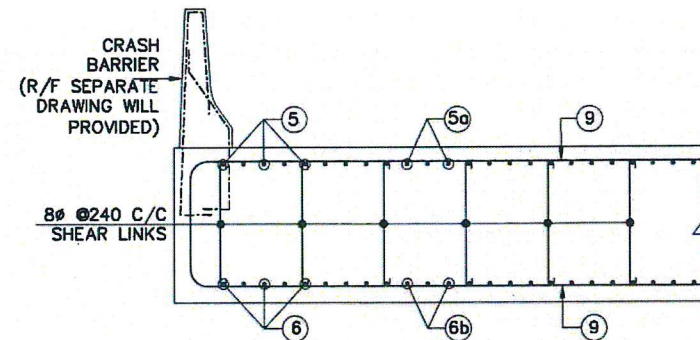
DATE	REV	DESCRIPTION OF REVISIONS	BY
04.01.2020	R0	ISSUED FOR APPROVAL	



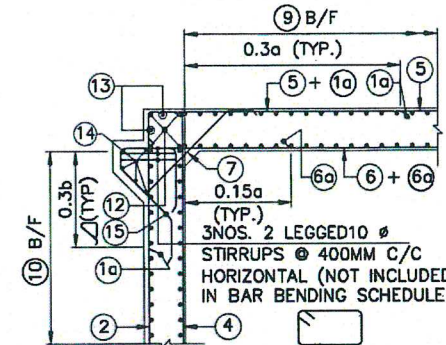
REINFORCEMENT DETAIL SHOWING SHEAR LINKS ONLY
(OTHER BARS NOT SHOWN FOR CLARITY)
(SCALE 1:50)



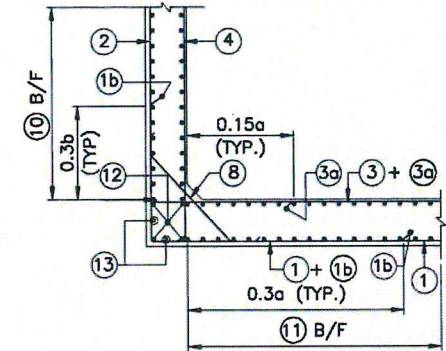
SHEAR REINF. DETAIL AT SECTION X-X
(SCALE 1:15)



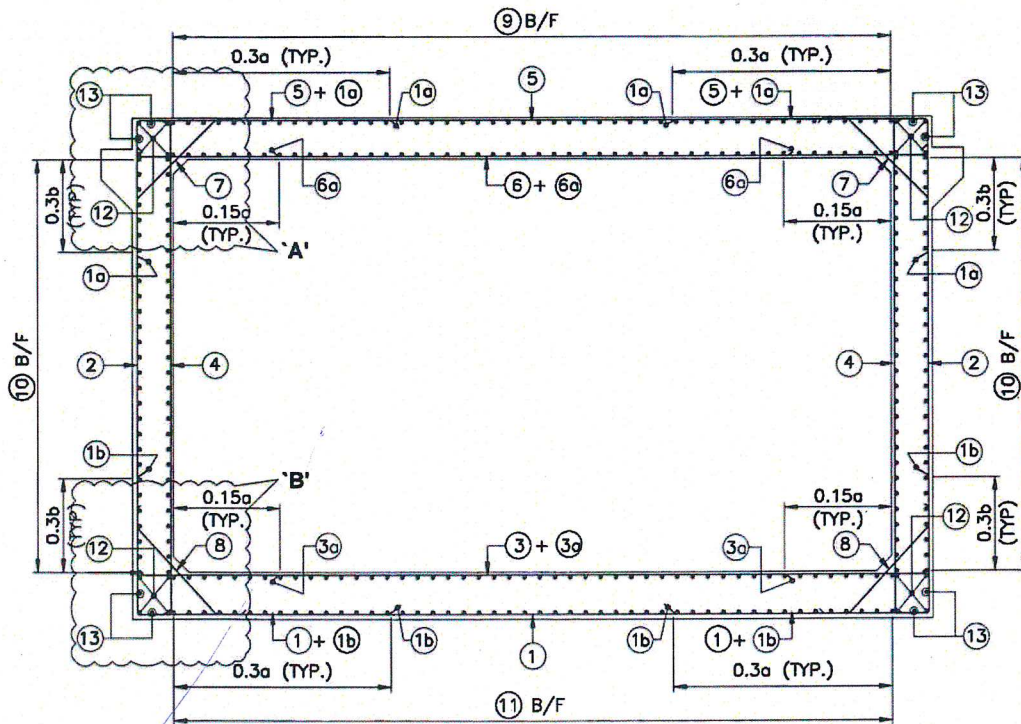
SHEAR REINF. DETAIL AT SECTION Y-Y
(SCALE 1:15)



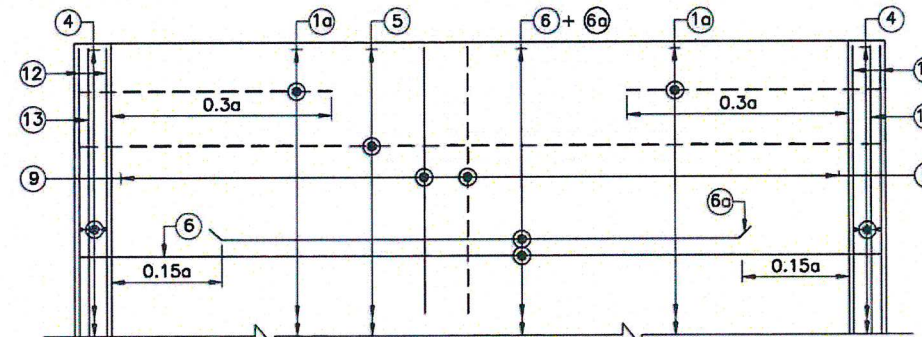
DETAIL AT 'A'
(SCALE 1:50)



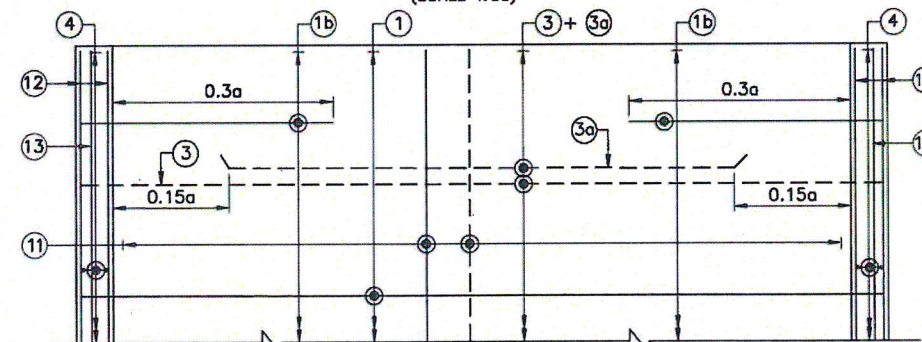
DETAIL AT 'B'
(SCALE 1:50)



REINFORCEMENT DETAILS OF SINGLE CELL BOX
(SHEAR REINFORCEMENT NOT SHOWN FOR CLARITY)
(SCALE 1:50)



REINFORCEMENT DETAILS OF TOP SLAB
(SHEAR REINFORCEMENT NOT SHOWN FOR CLARITY)
(SCALE 1:50)



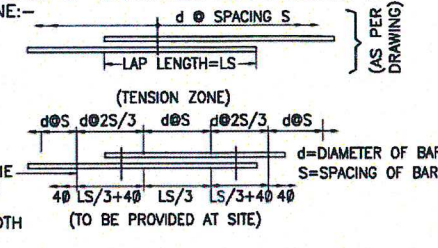
REINFORCEMENT DETAILS OF BOTTOM SLAB
(SHEAR REINFORCEMENT NOT SHOWN FOR CLARITY)
(SCALE 1:50)

LEGENDS:

- BAR ON TOP/EARTH FACE
- BAR ON BOTTOM/OUTER FACE
- B/F BAR ON BOTH FACES
- STP STIRRUPS
- VRS VARIES
- LINKS

NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED. LEVELS ARE IN METERS.
- DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- GRADE OF CONCRETE :
PCC LEVELING COURSE ----- M10
RCC BOX ----- M30
- REINFORCEMENT H.Y.S.D. BARS SHALL CONFORM TO IS:1786 GRADE Fe-500D.
- CLEAR COVER TO OUTER MOST REINFORCEMENT FOR TOP SLAB ----- 40mm
SIDE WALL (EARTH FACE) ----- 75mm
SIDE WALL (INNER FACE) ----- 40mm
BOTTOM SLAB ----- 75mm
- LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% BAR. SHALL BE LAPPED AT ANY LOCATION. * 73 x DIA OF BAR.
- THE LEVELS SHALL BE IDENTIFIED AT SITE AND IN CASE OF ANY DISCREPANCY, IT SHALL BE BROUGHT INTO THE NOTICE OF CONSULTANT.
- ANCHORAGE LENGTH SHALL BE PROVIDED AS PER CL. NO. 15.2.4 OF IRC 112-2011 * 52 x DIA OF BAR.
- SAFE BEARING CAPACITY AT FOUNDING LEVEL CONSIDERED IN DESIGN IS 10t/m².
- BACK FILLING SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDES AFTER THE CASTING OF TOP SLAB OF BOX AND THE DIFFERENCE IN LEVELS ON BOTH SIDES SHALL NOT BE MORE THAN 1.0m.
- ALL SIDE FACES SHALL BE PROVIDED WITH 10DIA OF BAR AT 200c/c UNLESS OTHERWISE SPECIFIED.
- CONCRETE COVER BLOCK SHALL BE PROVIDED TO MAINTAIN THE COVER OF BAR FROM OUTER FACE OF CONCRETE.
- ARRANGEMENT OF TRANSVERSE REINFORCEMENT IN LAP ZONE:-



REFERENCE DRAWING:-

- GENERAL ARRANGEMENT DRAWING OF PUP FOR SPAN (1X7.0m)
EEC-NH-37-JD-PUP-CH-502.550-GAD-101 (2-SHEETS)

REINFORCEMENT DETAILS:-

BAR MKD.	DIA (mm)	SPACING/ Nos.	SHAPE	M1
1	10	120 C/C	M1	450
1a	12	120 C/C	0.3a+f	-
1b	12	120 C/C	0.3b+e	-
2	16	120 C/C	M1	400
3	16	120 C/C	M1	375
3a	10	120 C/C	M1	0.7a
4	10	120 C/C	M1	325
5	10	120 C/C	M1	400
6	12	120 C/C	M1	325
6a	12	120 C/C	-	0.7a
7	10	120 C/C	M1	200
8	10	120 C/C	M1	200
9	10	200 C/C	M1	400
10	10	160 C/C	M1	400
11	10	160 C/C	M1	450
12	10	4 NOS.	M1	400
13	10	2 NOS.	M1	400
14	10	5 NOS.	M1	-
15	10	120 C/C	M1	400

CLIENT: NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (3RD FLOOR, PTL BUILDING, 4 PARLIAMENT STREET, NEW DELHI-110001)				CONTRACTOR: GANNON DUNKERLEY & CO. LTD 88A, TOPSIA ROAD (SOUTH) HAUTE STREET, 7th FLOOR KOLKATA-700046				DESIGN CONSULTANT: ECSTATIC ENGINEERING CONSULTANTS PRIVATE LIMITED SCO-103 BUDA SHOPPING CENTRE, GURGOAN, SECTOR 55, GURUGRAM, HARYANA 122003				APPROVED BY: US CHECKED BY: NS DESIGNED BY: KP DRAWN BY: SR				PROJECT: FOUR LANING OF JHANJHI TO DEMOW SECTION OF NH-37 FROM EXISTING CH. K 491+050 TO KM 535+250 (DESIGN CH. KM 490+800 TO KM 534+800) IN THE STATE OF ASSAM UNDER EPC MODE.			
AUTHORITY ENGINEER: VOYANTS SOLUTIONS PVT. LTD. 403, 4TH FLOOR, BPTP PARK CENTRA, BLOCK A, JAL VAYU MHAR SECTOR 30 GURGOAN, HARYANA 122001				SAFTY CONSULTANT: G-ENG ADVISORY SERVICES PVT. LTD. SCO-102, BUDA SHOPPING CENTRE, SECTOR-55 GURGOAN, 122003, HARYANA. TEL:- +91-124-4295802, 4295803 EMAIL:INFO@G-ENG.IN WEB:WWW.G-ENG.IN				PROOF CONSULTANT: MARC TECHNOCRATS PVT. LTD. Maro House, Sector-67 (Dividing Road) opposite Devi Lal Park, Bahadurgarh, Haryana 124607				SCALE: AS SHOWN DATE: JAN-2020				TITLE: REINFORCEMENT DETAIL DRAWING FOR PEDESTRIAN UNDERPASS OF SPAN (1X7.0m) AT DESIGN CH-502+550			
04.01.2020 R0 ISSUED FOR APPROVAL DATE REV DESCRIPTION OF REVISIONS BY																DRG NO.: EEC-NH-37-JD-PUP-CH-502.550-REINF.-201 SHEET NO. (01 OF 01) REV. R0			

GOOD FOR CONSTRUCTION