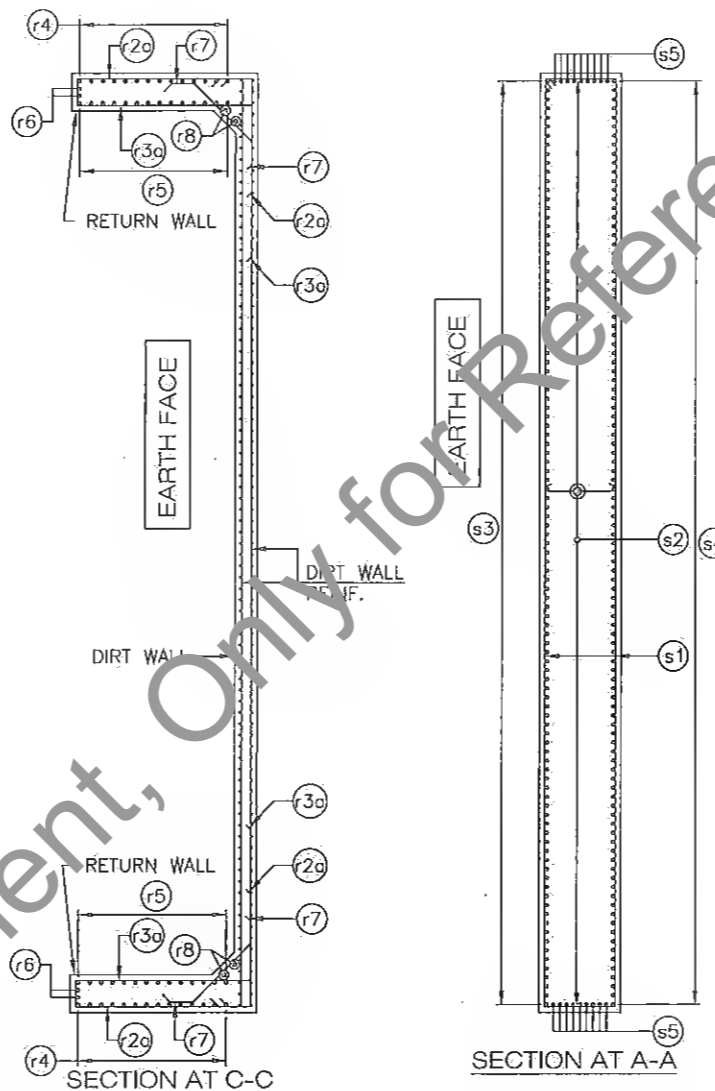


SECTIONAL ELEVATION OF ABUTMENT



SECTION AT C-C

SECTION AT A-A

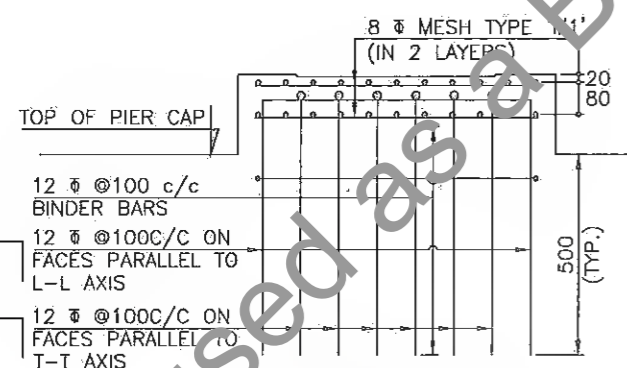
LEGEND:-

TOP BAR _____
 BOTTOM BAR _____

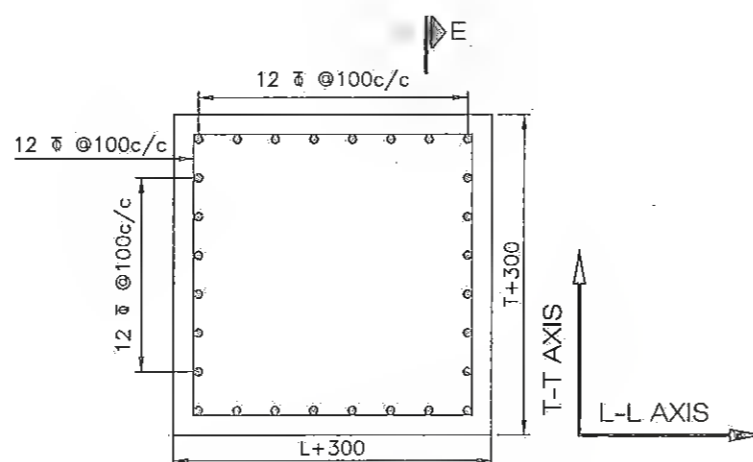
REINFORCEMENT DETAILS		
BAR MKD.	BAR DIA. & SPACING/NOS	BAR SHAPE
ABUTMENT SHAFT:-		
s1	16 $\bar{\Phi}$ @100c/c	500 500
s2	10 $\bar{\Phi}$ LINKS TIED TO ALTERNATE VERTICAL BARS @150c/c VERTICALLY IN STAGGERED MANNER	↔
s3	20 $\bar{\Phi}$ @100c/c	500 500
s4	16 $\bar{\Phi}$ @100c/c	500 500
s5	12 $\bar{\Phi}$ @100c/c	500 500
RETURN WALL:-		
r1	3 NOS. 16 $\bar{\Phi}$	300 1500
r2	3 NOS. 16 $\bar{\Phi}$	↘
r2a	12 $\bar{\Phi}$ @150c/c	300 1500
r3a	16 $\bar{\Phi}$ @150c/c	300 1500
r4	12 $\bar{\Phi}$ @150c/c	500 300
r5	16 $\bar{\Phi}$ @100c/c	300 500
r6	2 NOS. 16 $\bar{\Phi}$	300 500
r7	10 $\bar{\Phi}$ @200c/c	500 500
r8	2 NOS. 12 $\bar{\Phi}$	_____

NOTES:-

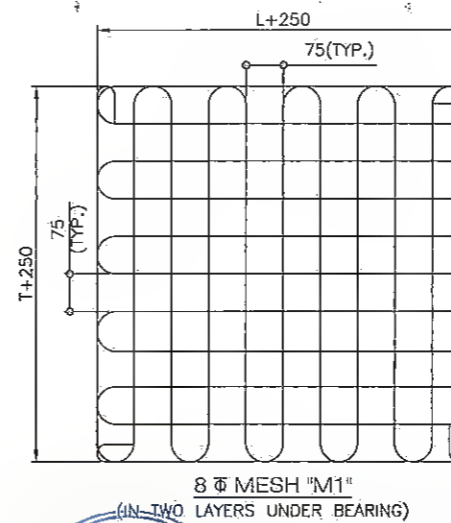
1. ALL DIMENSIONS ARE IN MM.
2. DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. GRADE OF CONCRETE = M35
4. THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
5. CLEAR COVER TO REINFORCEMENT SHALL BE 40mm.
6. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION AND LAPPING SHALL BE STAGGERED. MINIMUM LAP LENGTH SHALL BE 76 TIMES DIA. OF BAR.
7. LAP/ SPLICES SHALL BE AS PER IRC:112-2011(CLAUSE 15.2.5).
8. MESH REINFORCEMENT SHALL BE MS BARS (GRADE DESIGNATION S250) CONFORMING TO IS:432 PART-I MILD STEEL.
9. MESH TYPE 'M1' & 'M2' SHALL BE PROVIDED AT EACH BEARING PEDESTAL & JACK LOCATIONS IN TWO LAYER, AT 20mm AND AT 100mm FROM OUTER FACE OF CONCRETE.



SECTION AT E-E (MIN. PEDESTAL HEIGHT=350-BEARING)



PLAN SHOWING TYPICAL REINF. DETAILS OF BEARING PEDESTAL



8 $\bar{\Phi}$ MESH "M1" (IN TWO LAYERS UNDER BEARING)
 SIZE OF PEDESTAL SHALL BE (L+300) x (T+300) WHERE "L" IS LENGTH OF BEARING IN LONGITUDINAL DIRECTION AND "T" IS BREADTH OF BEARING IN TRANSVERSE DIRECTION

SPECIAL NOTE:-
 SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY, 2011	MODIFIED DPR
R4	JULY, 2013	DETAILED PROJECT REPORT
R3	MAY, 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG, 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
RO	MARCH 2018	FEASIBILITY

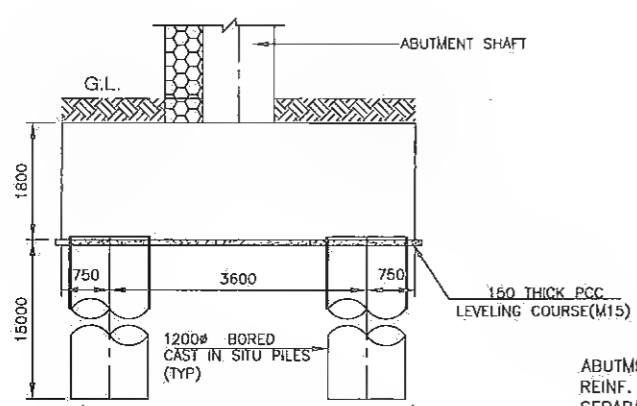
CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

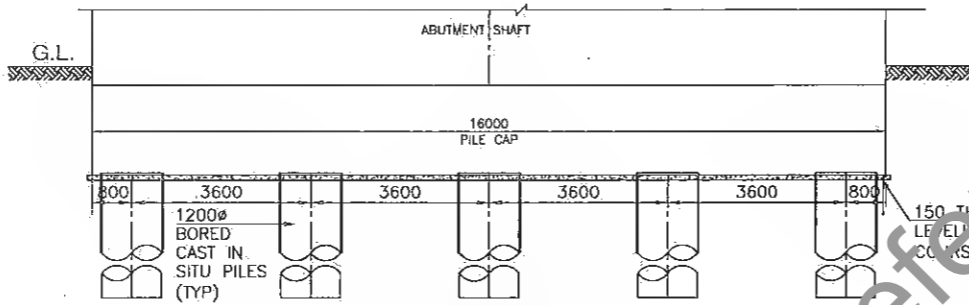
DPR CONSULTANTS:
570 Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indrapuram, Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:AS SHOWN	

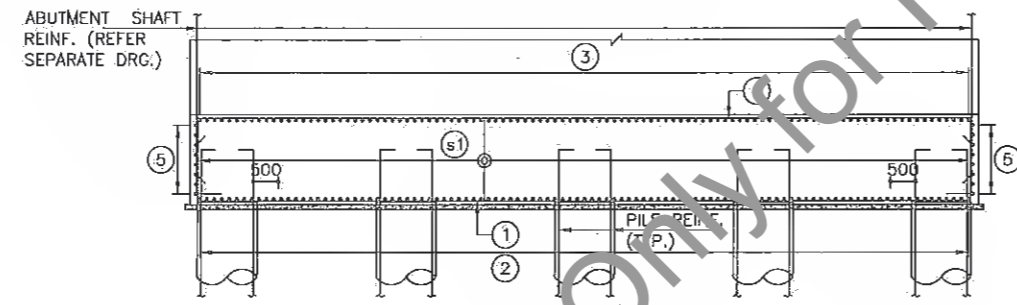
TITLE:
REINFORCEMENT & RETURN WALL OF MINOR BRIDGE AT CH: 2+725 (Span:1X20) (SHEET- 07 OF 08)
 DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB- A3



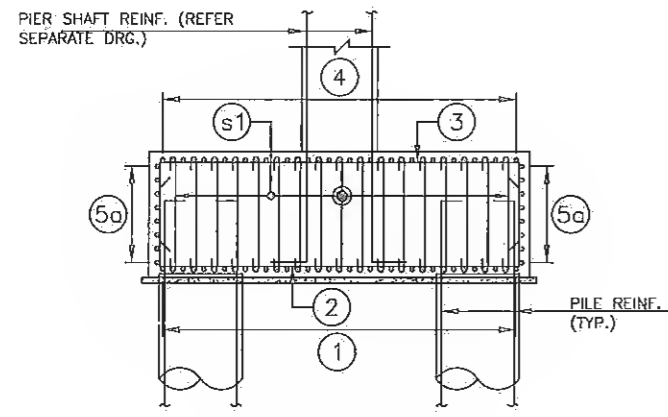
SECTION AT L-L AXIS (SHOWING DIMENSION ONLY)



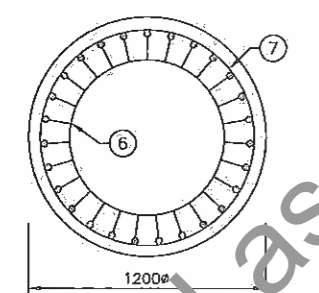
SECTION AT T-T AXIS (SHOWING DIMENSION ONLY) (SCALE-1:100)



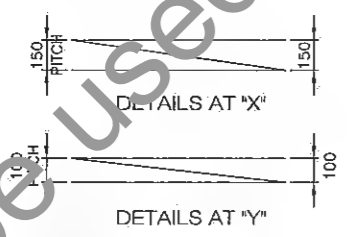
SECTION AT A-A (SHOWING REINFORCEMENT ONLY) (SCALE 1:100)



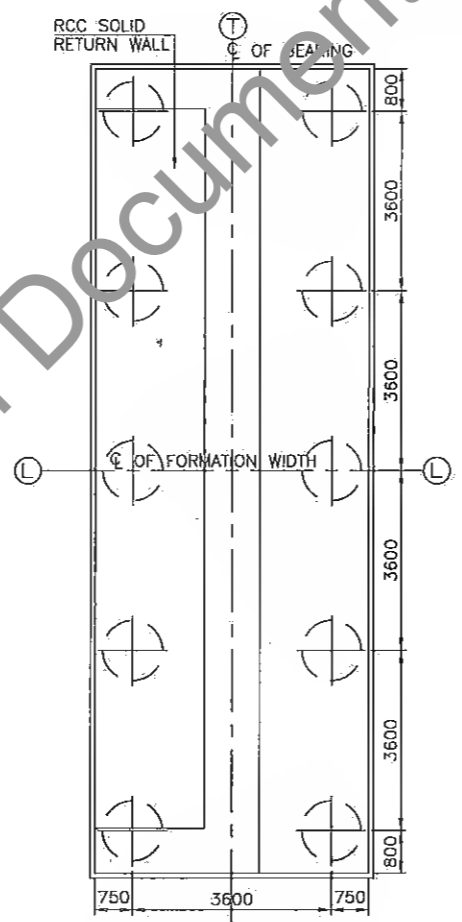
SECTION AT B-B (SHOWING REINFORCEMENT ONLY)



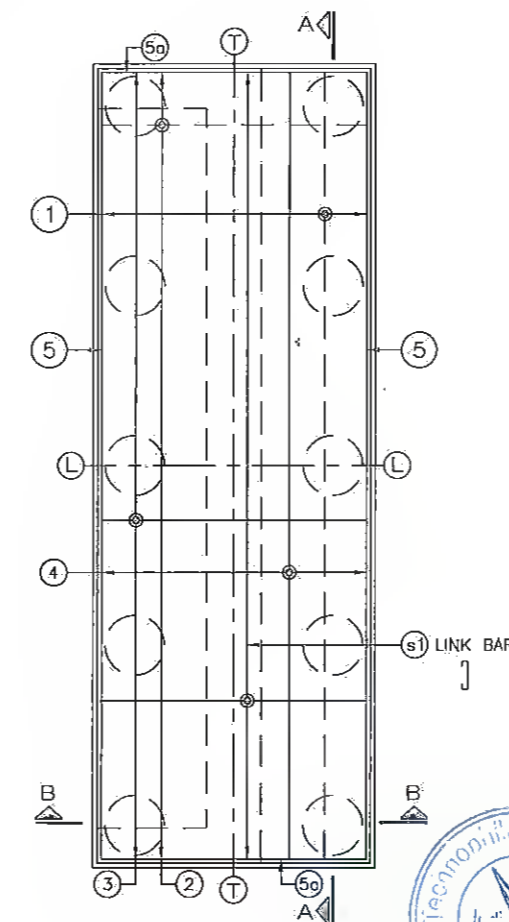
SECTION C-C



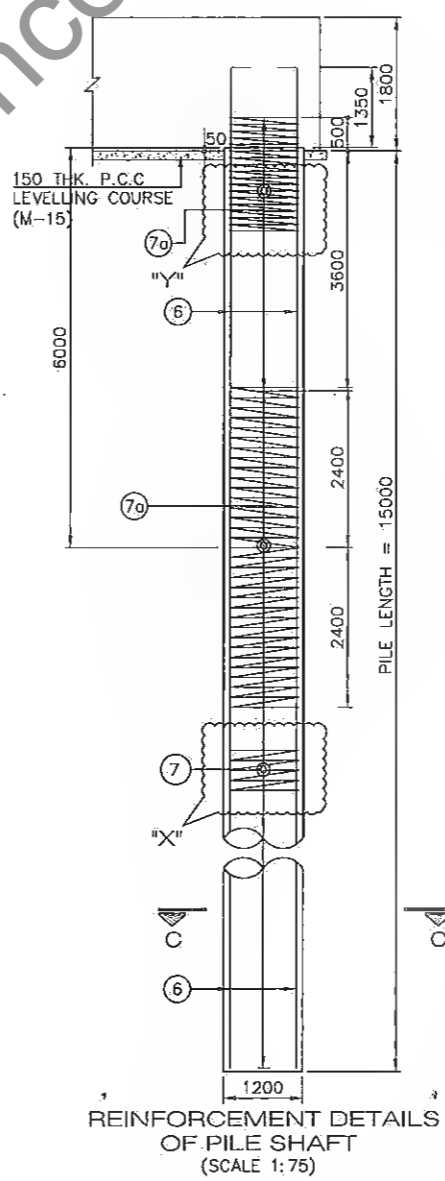
DETAILS AT 'Y'



FOUNDATION PLAN (SCALE 1:100)



PLAN (SHOWING REINFORCEMENT ONLY) (SCALE 1:100)



REINFORCEMENT DETAILS OF PILE SHAFT (SCALE 1:75)

LEGEND:-
TOP BAR _____
BOTTOM BAR - - - - -

SCHEDULE OF BARS.		
BAR MKD.	BAR DIA & SPACING/NOS	BAR SHAPE
PILE CAP:-		
1	25 $\bar{\phi}$ @150c/c	[1500 1500]
2	25 $\bar{\phi}$ @150c/c	[1500 1500]
3	16 $\bar{\phi}$ @150c/c	[1500 1500]
4	16 $\bar{\phi}$ @150c/c	[1500 1500]
5	12 $\bar{\phi}$ @150c/c	[BOTH FACES]
5c	12 $\bar{\phi}$ @150c/c	[BOTH FACES]
s1	12 $\bar{\phi}$ STIRRUPS @280c/c	[]
PILE:-		
6	24 NOS -25 $\bar{\phi}$	[300]
7	10 $\bar{\phi}$ @150c/c	[]
7c	16 $\bar{\phi}$ @100c/c	[]

- NOTES:-
- ALL DIMENSIONS ARE IN MM.
 - DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - GRADE OF CONCRETE = M35
 - CLEAR COVER TO ANY REINFORCEMENT -75mm
 - THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
 - NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION AND LAPPING SHALL BE STAGGERED. MINIMUM LAP LENGTH SHALL BE 76 TIMES DIA OF BAR.
 - PILE SHALL BE CAST ABOVE 250mm THE BOTTOM OF PILE CAP LEVEL. THE TOP OF CONCRETE SHALL BE BROKEN BEFORE CASTING OF PILE CAP, TAKING 50mm PILE EMBEDDED INTO THE PILE CAP.
 - LAP/ SPLICES SHALL BE AS PER IRC:112-2011 (CLAUSE 15.2.5).
 - L-L REPRESENTS LONGITUDINAL AXIS OF BRIDGE. T-T REPRESENTS TRANSVERSE AXIS OF BRIDGE.

Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Muzaffarpur

Dy. Genl. Manager
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Muzaffarpur

SPECIAL NOTE:
SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 2018	MODIFIED DPR
R4	JUN 2018	DETAILED PROJECT REPORT
R3	MAY 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

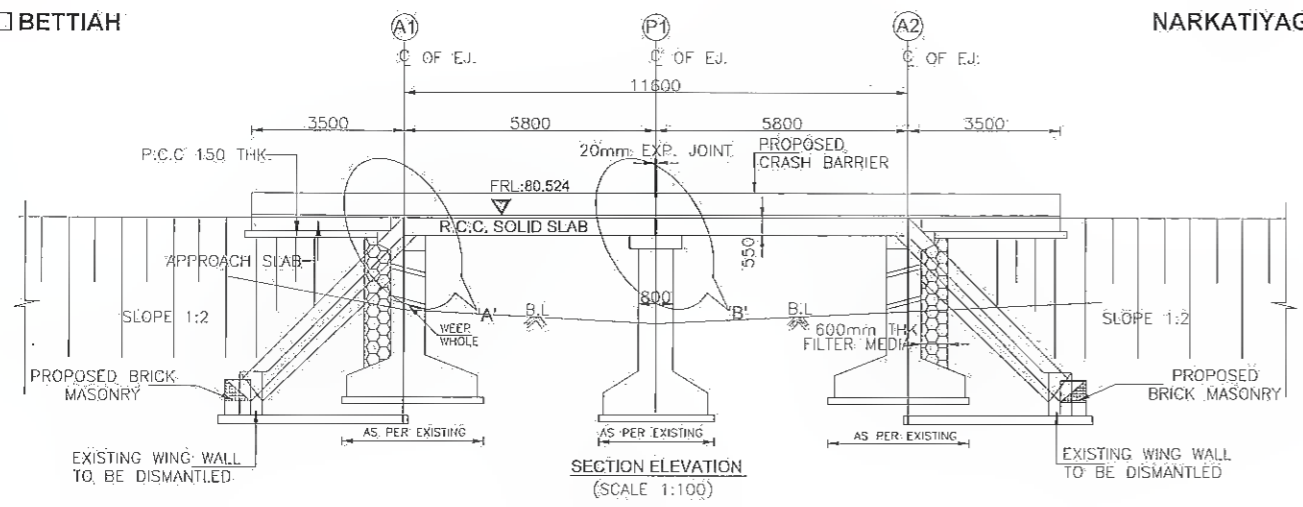
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
S70 Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza,
Ahinsa Khand-I, Indrapuram,
Ghaziabad-201014

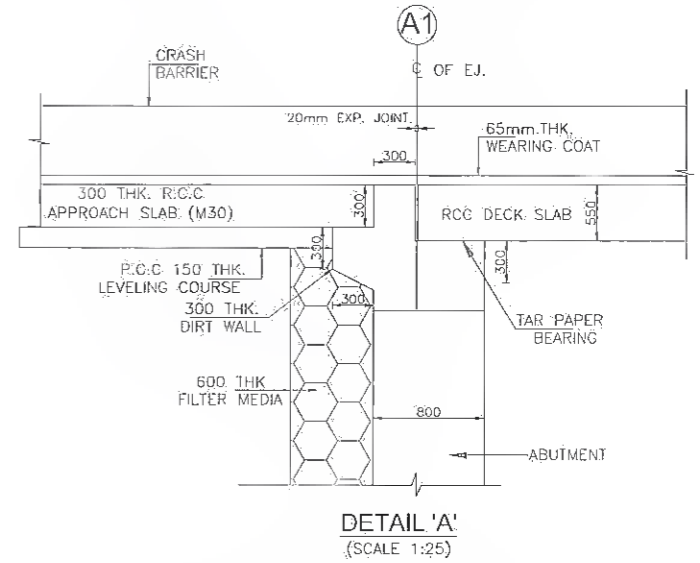
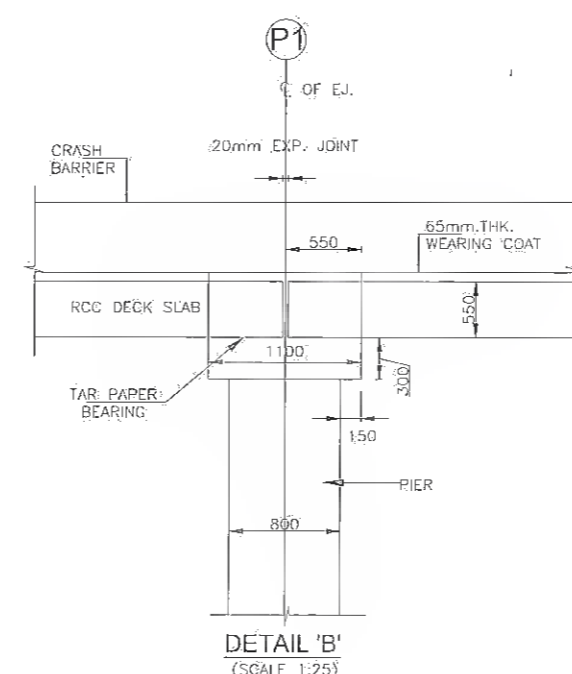
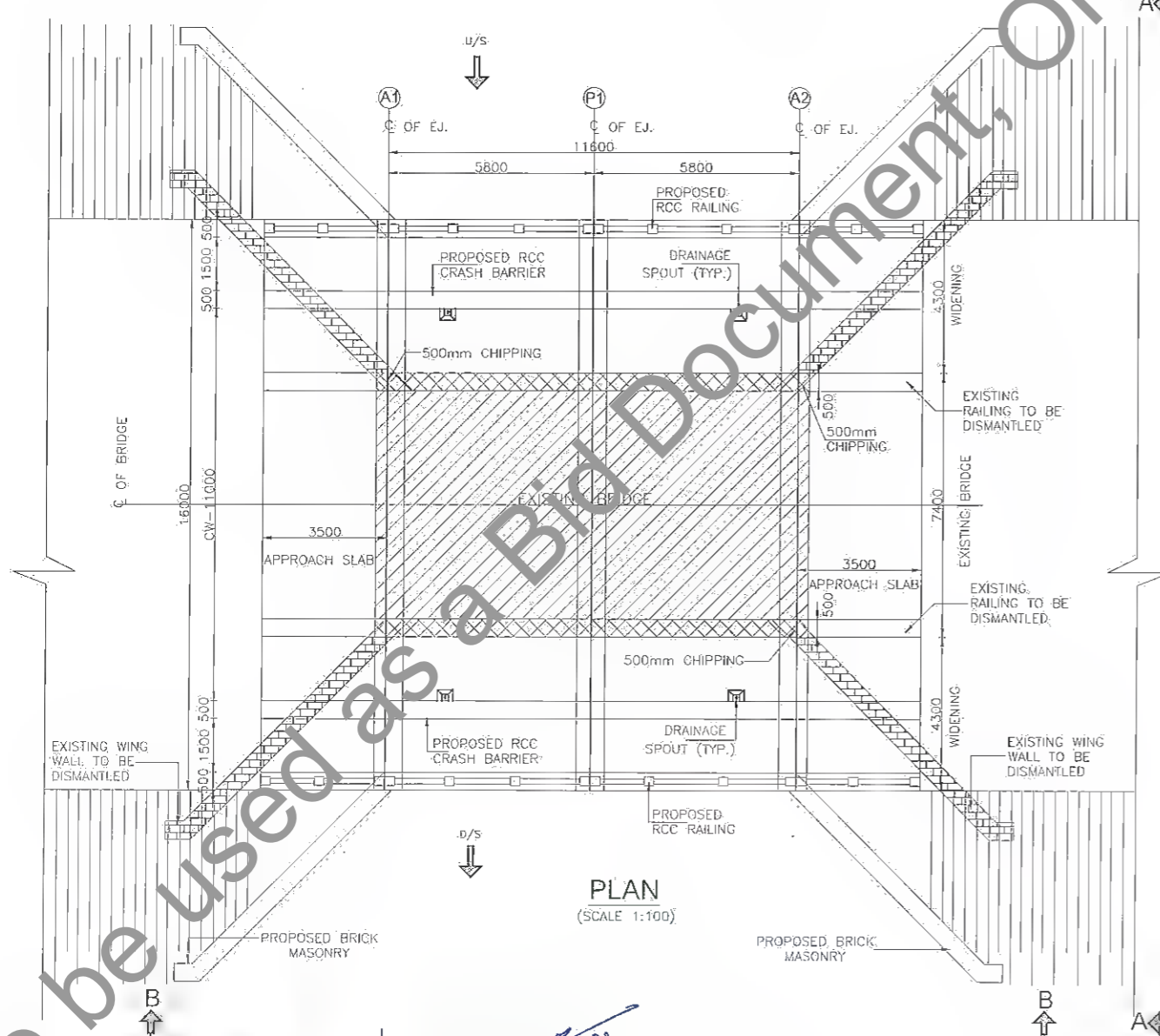
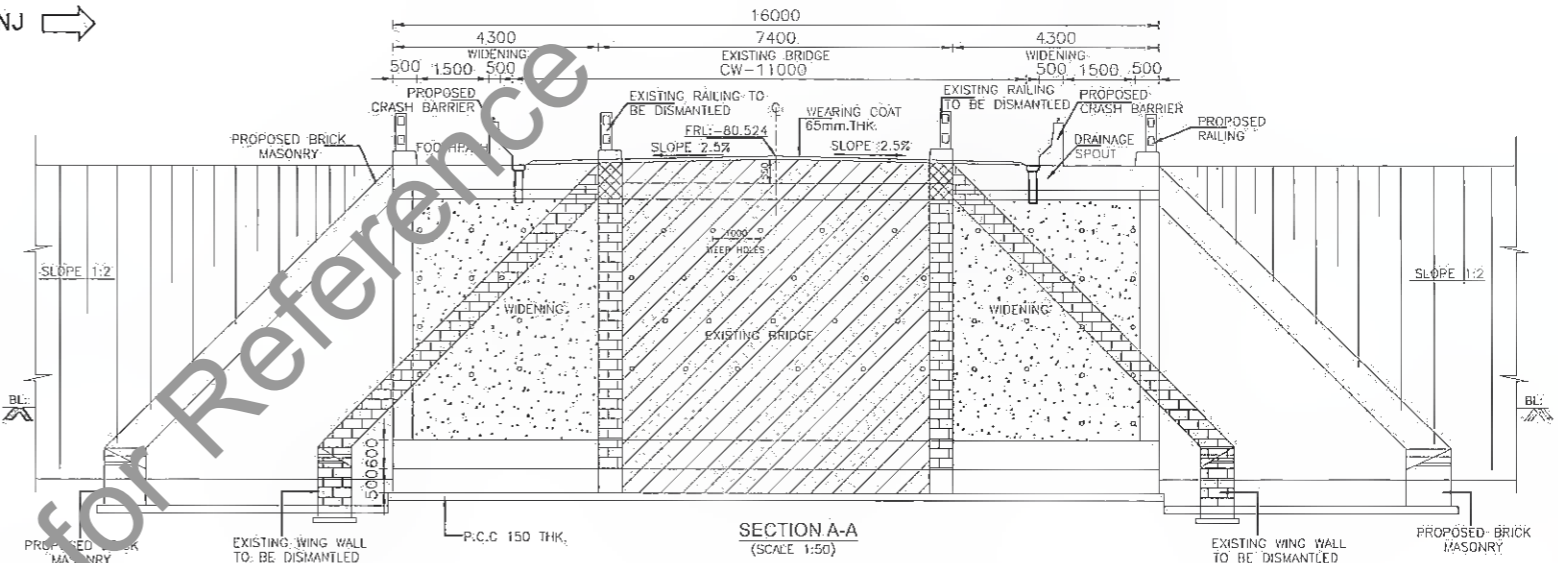
DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE:-AS SHOWN

TITLE:
REINFORCEMENT DETAIL FOR FOUNDATION OF MINOR BRIDGE AT CH: 2+725 (Span 1 X 20) (SHEET - 08 OF 08)

DRAWING NO.
STC/BR/BSRDC/BNB/STR/MNB-
A3



FRL IN m	80.524	80.524	80.524
BED LEVEL IN m	77.500	77.500	77.500
CHAINAGE IN km	7+836.2	7+842	7+847.8



NOTES:-

- ALL DIMENSIONS ARE IN mm, AND LEVELS IN METERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- EXTENDED WIDTH OF CARRIAGEWAY IS DESIGNED FOR IRC CLASS 70R / 1 LANE OF CLASS A
- CONCRETE DETAILS:
 EXTENDED SLAB - M30
 APPROACH SLAB - M30
 CRASH BARRIER - M40
- BRICK MASONRY ABUTMENT SHAFT SHALL BE WIDENED BY BRICK MASONRY AND R.C.C. STRUCTURE SHALL BE WIDENED BY R.C.C.
- SIZE OF ALL THE COMPONENTS FOR THE WIDENED PORTION SHALL BE IDENTICAL TO THE OLD STRUCTURE.
- FOUNDING LEVEL OF PROPOSED WIDENING PORTION SHALL BE SAME AS FOR THE RESPECTIVE EXISTING STRUCTURE.
- CLEAN & APPLY A COAT OF NEAT CEMENT SLURRY TO ALL THE OLD EXPOSED REINFORCEMENT.
- DECK SLAB OF EXISTING BRIDGE SHALL BE DISMANTLED CAREFULLY UPTO 300 mm IN SUCH A WAY THAT TRANSVERSE REINFORCEMENT OF EXISTING AND EXTENDED SLAB ARE WELDED IN A LENGTH OF 300mm OR SLEEVE COUPLES MAY BE USED.
- GRADE OF STEEL SHALL BE F6-500 CONFORMING TO IS: 1786.
- EXISTING WEARING COAT SHALL BE DISMANTLED. NEW WEARING COAT (65mm THK. WEARING COAT SHALL CONSIST OF MASTIC ASPHALT 25 THK. AND ONE LAYER OF BITUMENOUS CONG. 40mm; AS PER SEC-2709 OF MORT&H SPECIFICATION)
- BACK FILLING SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX : 6 OF IRC : 78-2000 HAVING PROPERTIES: C=0, φ=30°, S=20°, DRY DENSITY (d_f)=18 kN/Cum
- SEISMIC ZONE II
- TYPE OF BEARING - TAR PAPER

SPECIAL NOTE:-

- SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.
- ACTUAL SPAN TO BE VERIFIED AT SITE. MINOR ADJUSTMENT IN SPAN MAY BE DONE TO SUIT THE SITE CONDITION.
- RL AND DIMENSION DETAIL OF FOUNDATION AND SUBSTRUCTURE ARE INDICATIVE AND IT SHALL BE PROVIDED AS PER EXISTING STRUCTURE.

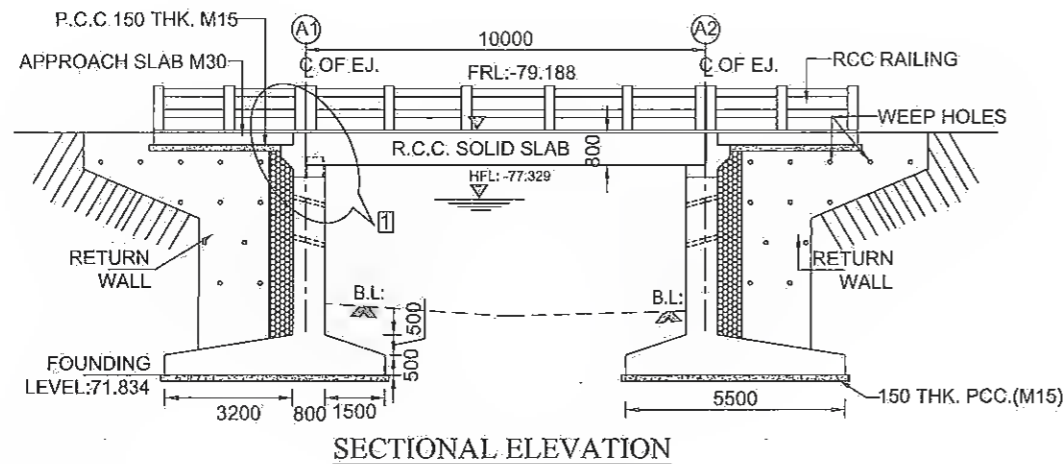
R5	JULY 2021	TAILED PROJECT REPORT
R4	JULY 2019	DETAILED PROJECT REPORT
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	MAY 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY
REV.	DATE	DESCRIPTION OF REVISIONS

CLIENT: **BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)**

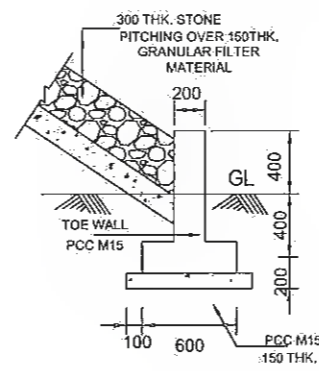
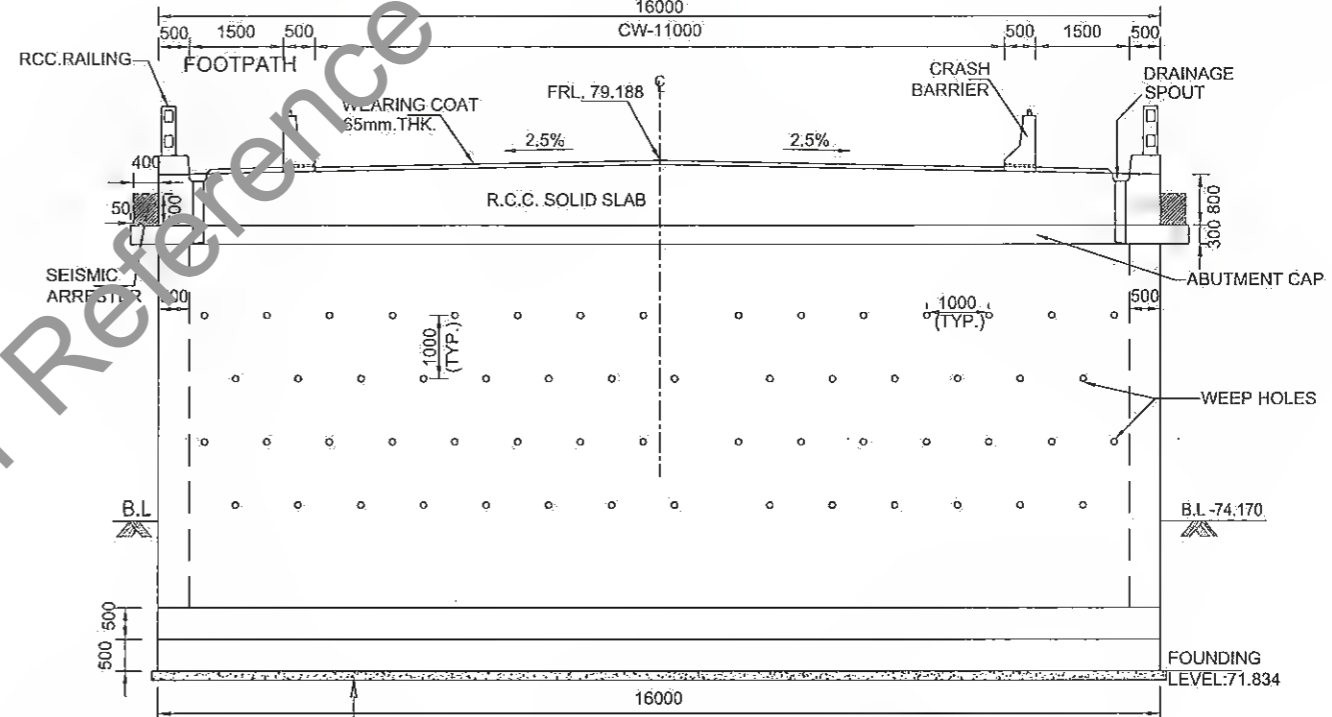
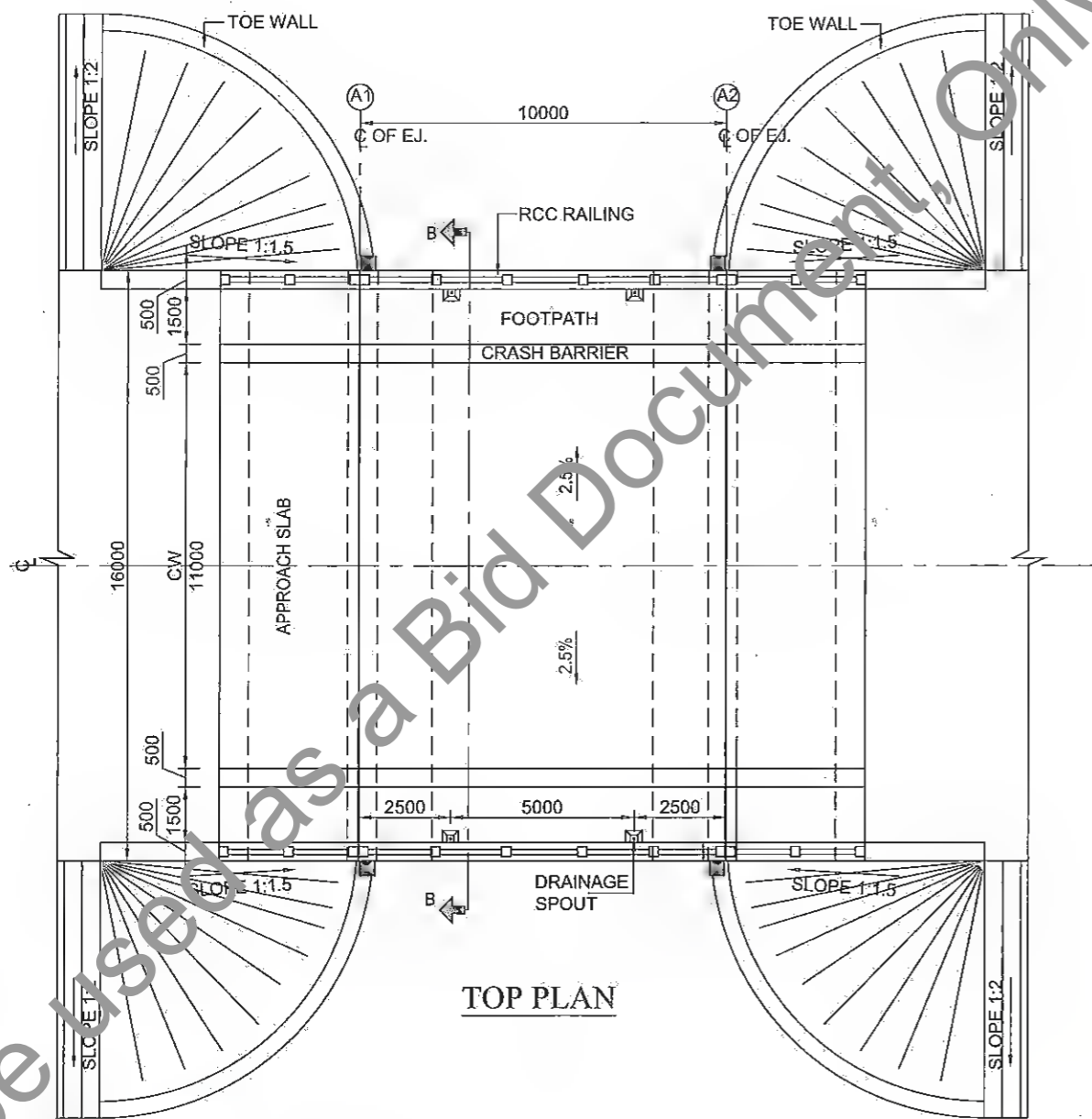
PROJECT: **Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah-Narkatiyaganj Road) in the state of bihar**

DPR CONSULTANTS:
Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indirapuram,
 Ghaziabad-201014

DRAWN BY	R.S RAWAT	TITLE: GENERAL ARRANGEMENT OF BRIDGE AT CH: Km 7+842 (SPAN 2x5.8m)
DESIGN BY	V.S.A	
CHECKED BY	P.S TIYAGI	
SCALE: AS SHOWN		DRAWING NO. STC/BR/BSR/00/BNE/STR/MNB- 01



FRL.(m)	79.188	79.188
BED LVL.(m)	74.170	74.170



SECTION B-B

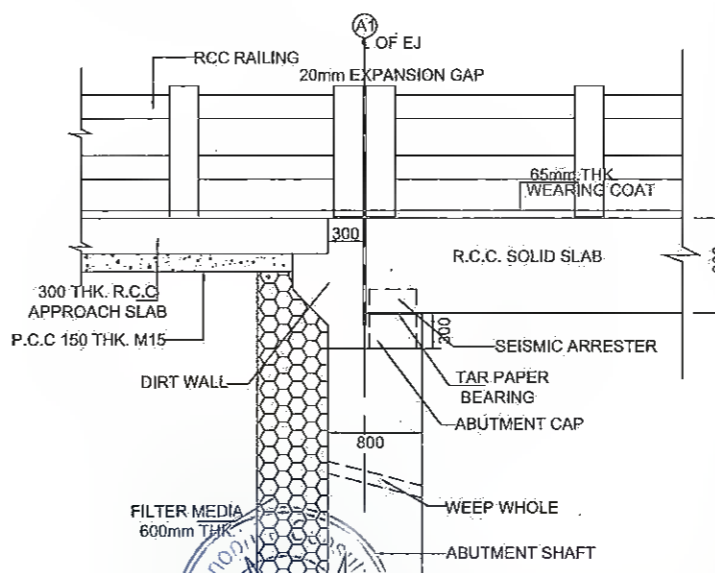
DEPTH (M)	LOG	DESCRIPTION	N
0.0			
1.5		DARK GREY CLAYEY SILT	5
3.0		DARK GREY CLAYEY SILT	7
6.0		DARK GREY CLAYEY SILT	10
9.0		DARK GREY CLAYEY SILT	14
12.0		DARK GREY CLAYEY SILT	19
15.0		GREYISH SILTY SAND	21

NOTES:-

- ALL DIMENSIONS ARE IN mm. AND LEVELS IN METERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR ONE LANE OF IRC CLASS 70R+ ONE LANES OF CLASS A OR 3 LANES OF IRC CLASS A.
- CONCRETE DETAILS:
CRASH BARRIER - M40
RCC. SOLID SLAB - M35
APPROACH SLAB - M30
SEISMIC ARRESTER - M40
RETURN WALL - M30
ABUTMENT SHAFT & DIRT WALL - M35
FOUNDATION - M35
- GRADE OF STEEL SHALL BE Fe-500 CONFORMING TO IS : 1786.
- 65 THK. WEARING COAT SHALL CONSIST OF MASTIC ASPHALT 25 THK. AND ONE LAYER OF BITUMINOUS CONC. 40mm. AS PER SEC-2700 OF MoRT&H STANDARD.
- BACK FILLING SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX : 6 OF IRC : 78-2000 HAVING PROPERTIES C=0, φ>30°, δ=20°, d=18 kn/m
- WEAP HOLES IN SLOPE 1:20, SPACED @ 1000mm. c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN ABUTMENT ABOVE GROUND LEVEL/LWL.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH FINAL HIGHWAY PLAN AND PROFILE DRAWINGS, ALL LEVELS GIVEN IN DRAWING SHALL BE VERIFIED BEFORE EXECUTION AT SITE.
- SEISMIC ZONE (IV) HAS BEEN CONSIDERED.
- TYPE OF BEARINGS- TAR PAPER
- NET SAFE BEARING CAPACITY AT FOUNDING LEVEL HAS BEEN CONSIDERED AS 25.00MN/M² AS PER REPORT. THE SAME SHALL BE VERIFIED AT SITE BEFORE EXECUTION.

SPECIAL NOTE:-

SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.



REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 2011	MODIFIED DPR
R4	JULY 2013	DETAILED PROJECT REPORT
R3	MAY 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG 2018	FINAL DDDR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

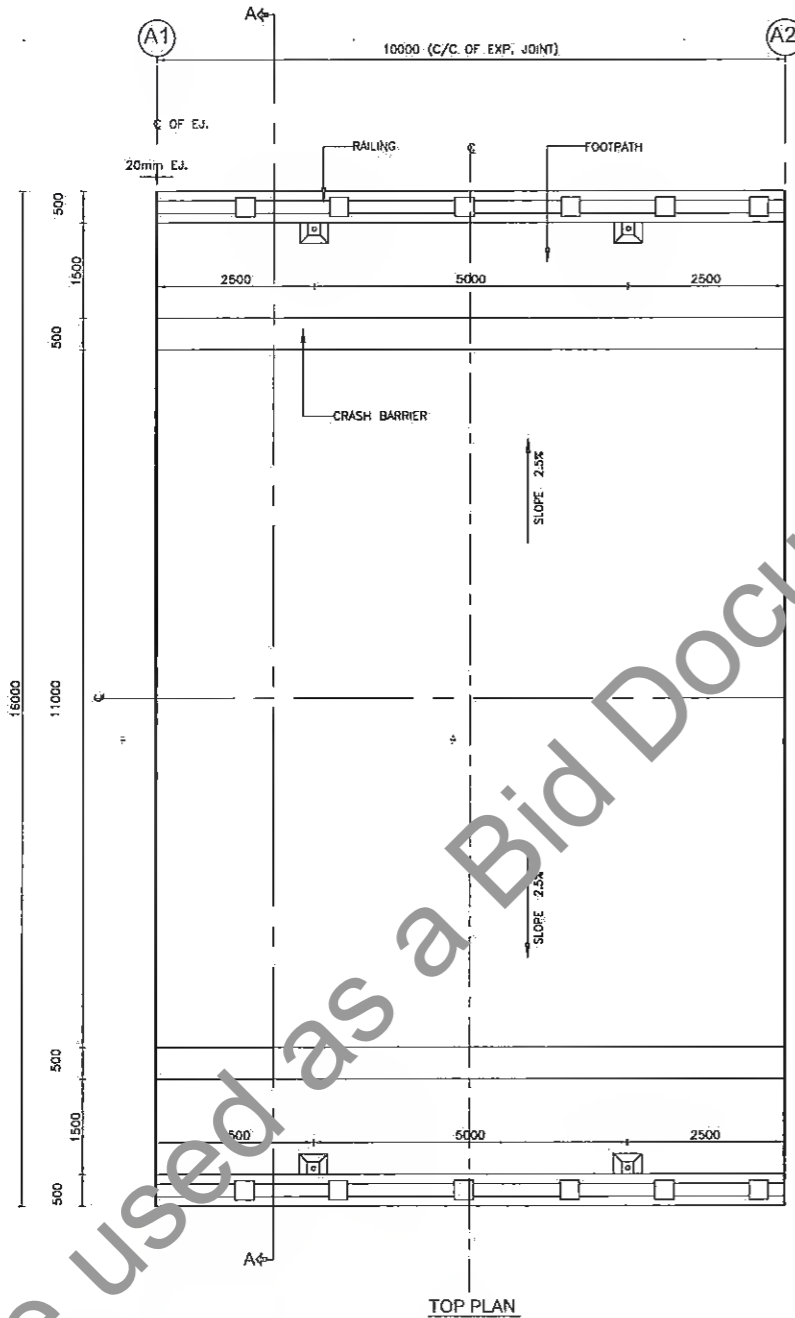
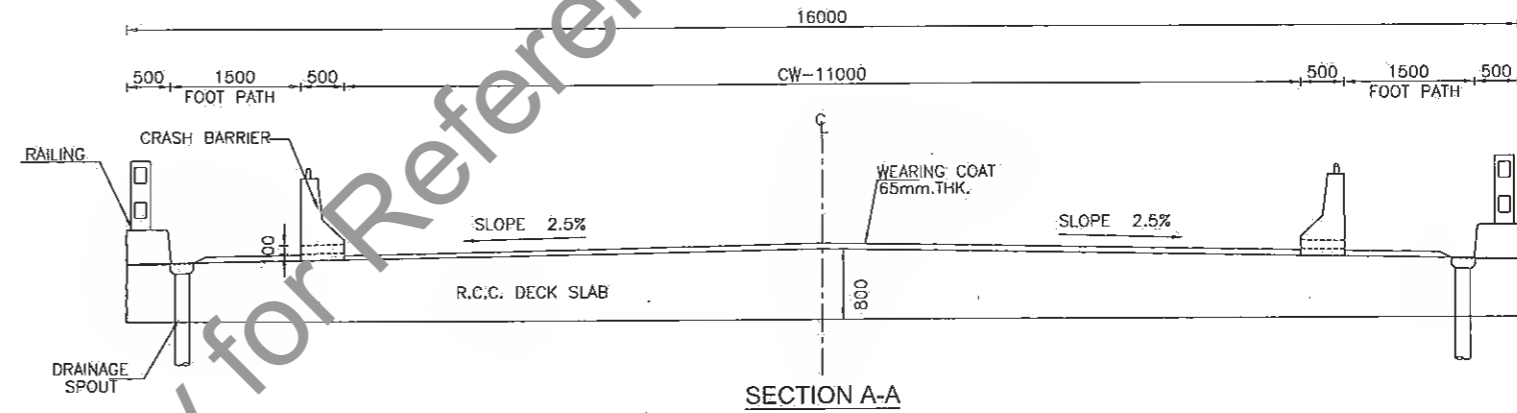
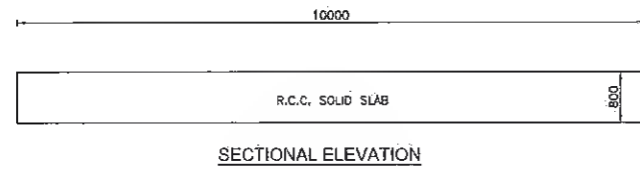
CLIENT: BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT: Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS: Shyeta Technophile Consultants Pvt. Ltd. 222-223, 313, Rajhans Plaza, Ahinsa Khand-I, Indrapuram, Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANIAN
SCALE	AS SHOWN

TITLE: GENERAL ARRANGEMENT DRAWING OF MINOR BRIDGE AT CH:10+455 (Span 1x10.0m) (SHEET-01 OF 05)
DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB- A3



Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd., Muzaffarpur

Dy. General Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur


NOTES:-

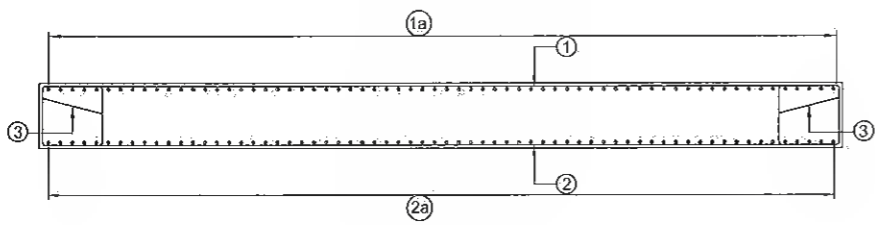
- ALL DIMENSIONS ARE IN mm.
- CONCRETE GRADES:
 CRASH BARRIER - M40
 RCC SOLID SLAB - M35
- 65 THK. WEARING COAT SHALL CONSIST OF MASTIC ASPHALT 25 THK. OVER 40MM LAYER OF BITUMENOUS CONC.

SPECIAL NOTE:-

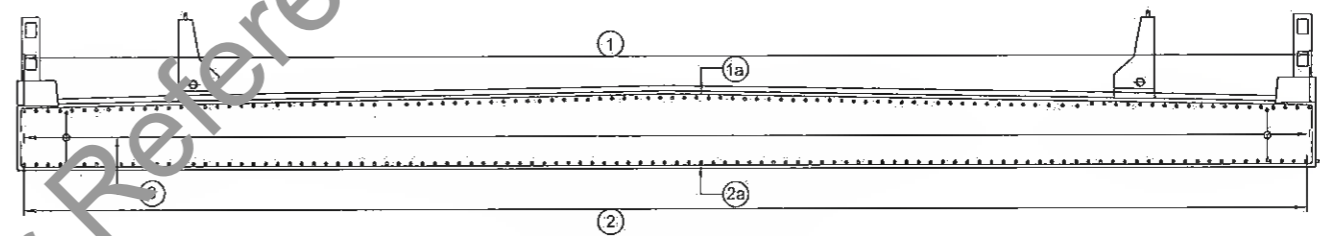
SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.



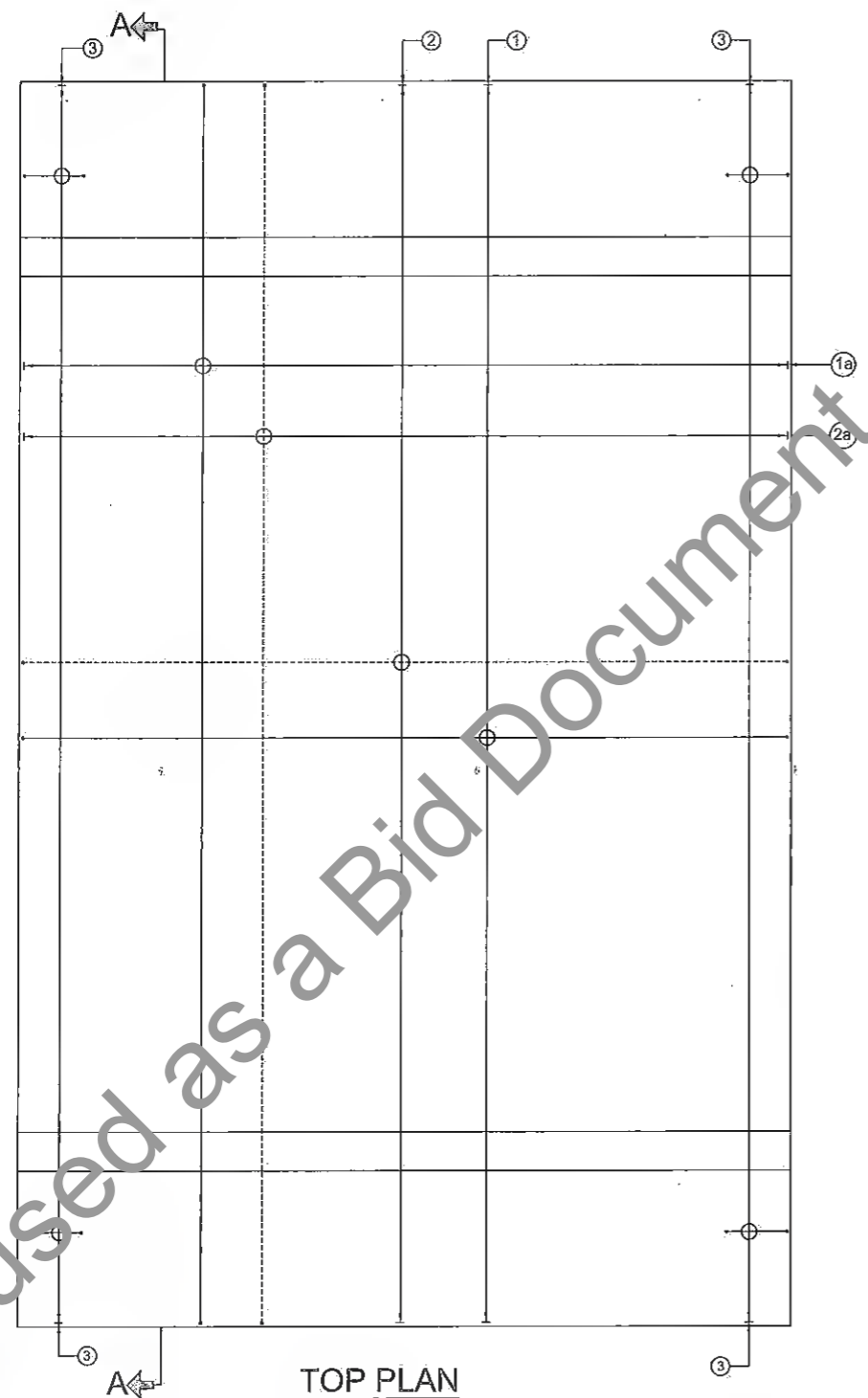
R5 JULY 2018 R4 JULY 2019 R3 DEC 2018 R2 AUG 2018 R1 MAY 2018 R0 MARCH 2018 REV. DATE DESCRIPTION OF REVISIONS	MODIFIED DPR	CLIENT:  BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)	PROJECT: Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)	DPR CONSULTANTS: S70 Shweta Technophile Consultants Pvt. Ltd. 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indrapuram, Ghaziabad-201014	DRAWN BY ANKIT NEGI	TITLE: DIMENSIONAL DRAWING OF SUPER STRUCTURE OF MINOR BRIDGE AT CH: 10+455 (Span 1x10m) (SHEET- 02 OF 05)
	DETAILED PROJECT REPORT				DESIGN BY NIKHIL	
	CLIENT SUGGESTION INCORPORATED				CHECKED BY RANJAN	
	FINAL DDDR				SCALE:-AS SHOWN	
	FINAL FEASIBILITY				DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB-	



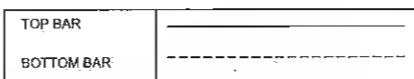
ELEVATION



SECTION - (A-A)



TOP PLAN



SCHEDULE OF REINFORCEMENT

BAR MKD.	BAR DIA.	NO./SPACING	SHAPE	REMARKS
1	16	150 C/C		
1a	10	150 C/C		
2	25	125 C/C		
2a	12	150 C/C		
3	10	150 C/C		

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. GRADE OF CONCRETE = M35
4. THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500 D CONFORMING TO IS:1786.
5. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 40mm.
6. BARS SHALL BE LAPPED IN SUCH A WAY THAT NOT MORE THAN 50% OF BARS ARE LAPPED AT ANY SECTION. LAP LENGTH SHALL BE 76 TIMES DIA OF BAR.

SPECIAL NOTE:-

SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.



Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Muzaffarpur

Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Muzaffarpur

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 2018	MODIFIED DPR
R4	JULY 2018	DETAILED PROJECT REPORT
R3	AUG. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

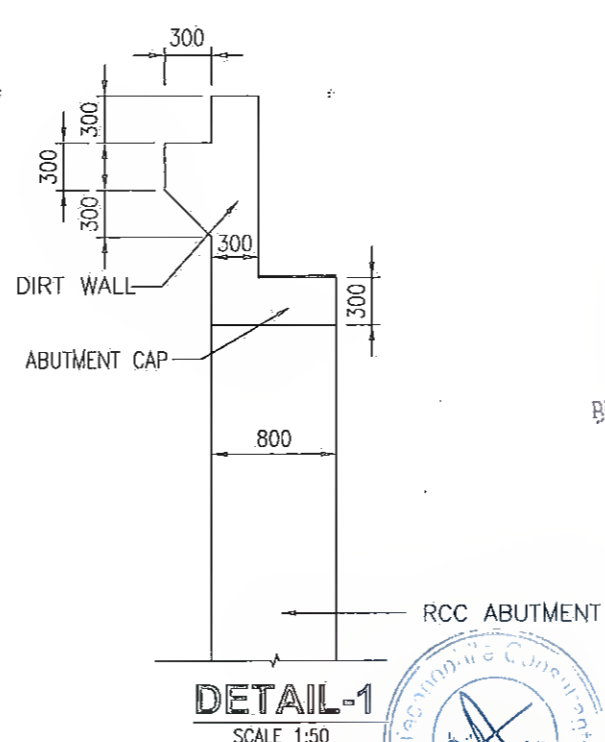
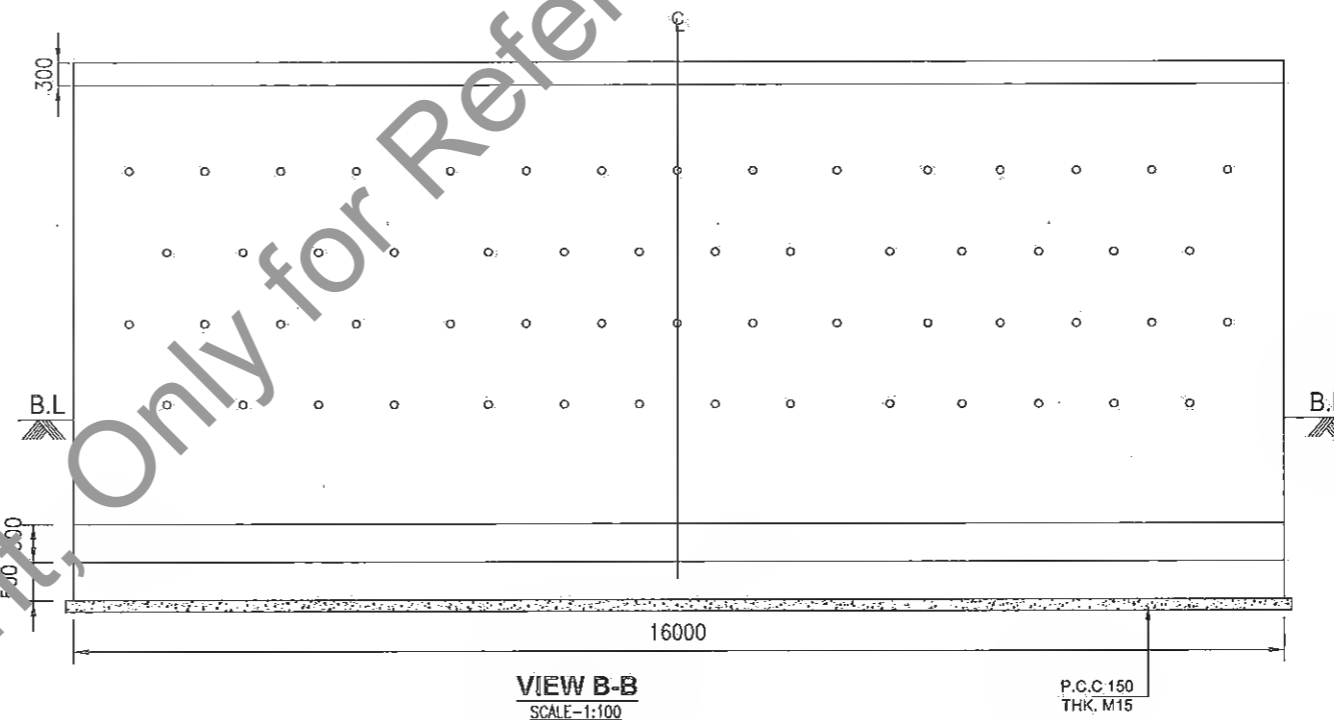
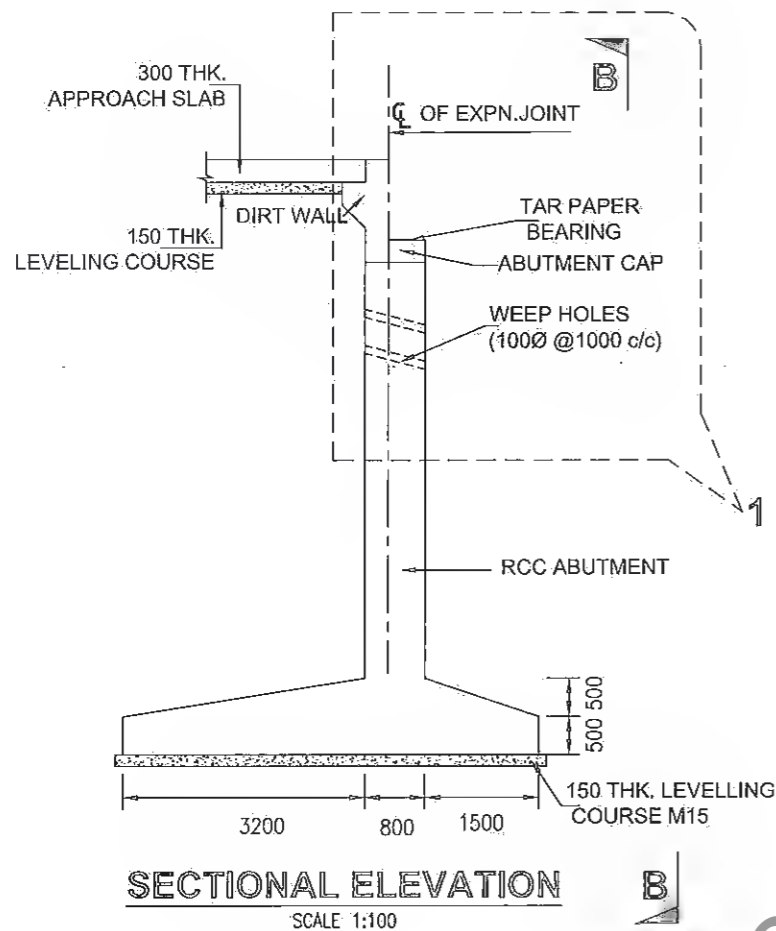
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
570 Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza,
Ahinsa Khand-1, Indrapuram,
Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:AS SHOWN	

TITLE:
REINF. DETAILS FOR SOLID SLAB OF MINOR BRIDGE AT CH: 10+455 (Span1X10m) (SHEET- 03 OF 05)

DRAWING NO.
STC/BR/BSRDC/RNB/STR/MNB-



Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Muzaffarpur

- NOTES:-
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - CONCRETE SHALL BE GRADE AS FOLLOWS:-
 - i) ABUTMENT - M35
 - ii) ABUTMENT CAP & DIRT WALL - M35
 - iii) APPROACH SLAB - M30

SPECIAL NOTE:-
SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.

RR
Dy. General Manager (Tech)
Project Implementation Unit
Bihar State Road Devp Corp. Ltd. Muzaffarpur

R5	JULY 2021	MODIFIED DPR
R4	JULY 2019	DETAILED PROJECT REPORT
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REV.	DATE	DESCRIPTION OF REVISIONS

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BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

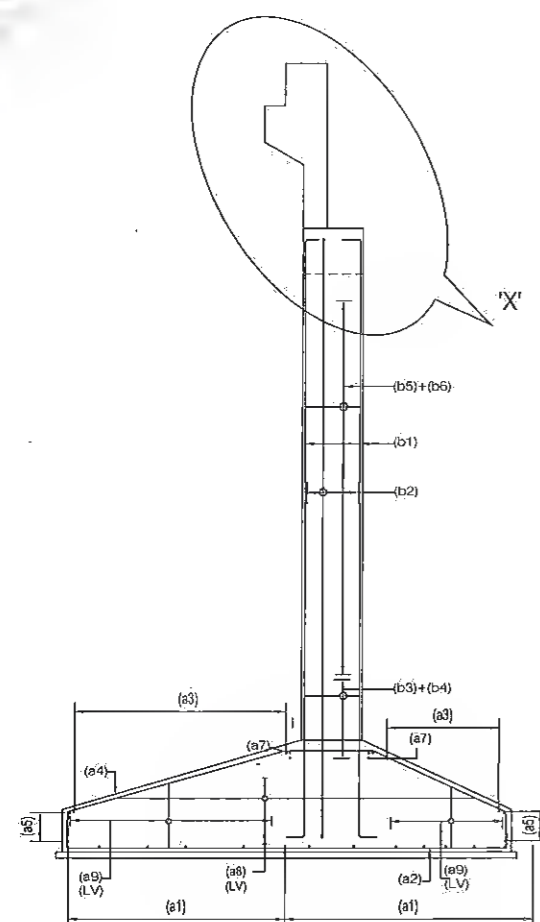
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
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222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indrapuram, Ghaziabad-201014

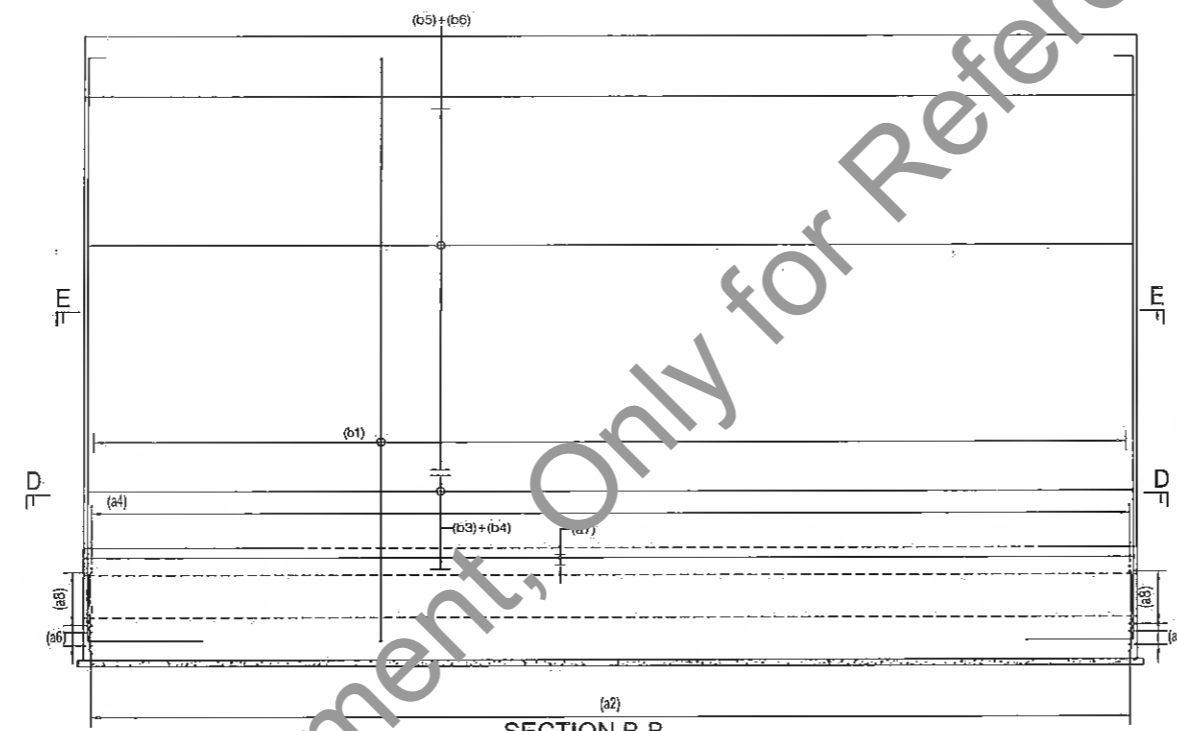
DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE: AS SHOWN

TITLE:
DIMENSIONAL DRAWING OF ABUTMENT OF MINOR BRIDGE AT CH:10+455 (Span 1x10m) (SHEET- 04 OF 05)

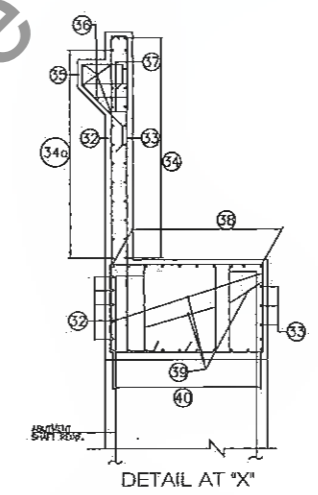
DRAWING NO. STC/BR/BSRDC/BNB/STR/MNS:
A3



SECTION A-A
SCALE 1:75



SECTION B-B
SCALE 1:75



DETAIL AT 'X'

REINFORCEMENT RETURN WALL TABLE :-

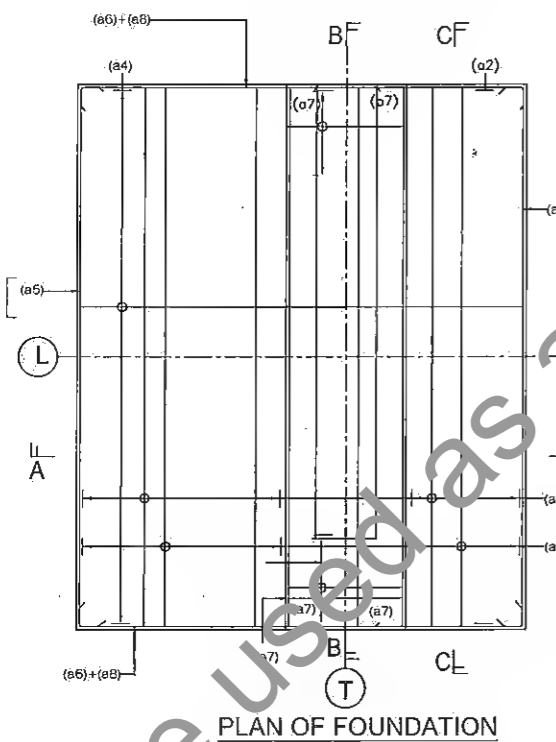
r1	3 NOS. 16	300
r2	3 NOS. 16	
r2a	12 @ 150c/c	
r3	16 @ 150c/c	
r3a	12 @ 150c/c	
r4	12 @ 150c/c	
r4a	20 @ 150c/c	
r5	16 @ 100c/c	
r6	12 @ 100c/c	
r6a	16 @ 100c/c	
r7	16 @ 100c/c	

- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
 - DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - L-L REPRESENTS THE LONGITUDINAL AXIS OF FOUNDATION AND T-T REPRESENTS THE TRANSVERSE AXIS OF FOUNDATION.
 - NET SAFE BEARING CAPACITY AT FOUNDING LEVEL HAS BEEN CONSIDERED AS 25.000T/M² AS PER REPORT. THE SAME SHALL BE VERIFIED AT SITE BEFORE EXECUTION.
 - GRADE OF CONCRETE SHALL BE AS FOLLOWS
(i) FOUNDATION ——— M35
(ii) ABUTMENT ——— M35
(iii) LEVELLING COURSE ——— M15
 - ALL REINFORCING BARS SHALL BE THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe-500) CONFORMING TO IS:1786 STANDARDS.
 - CLEAR COVER TO ANY REINFORCEMENT SHALL BE AS FOLLOWS
(i) FOUNDATION ——— 75mm
(ii) ABUTMENT ——— 50mm
 - MINIMUM BOND LENGTH SHALL BE 38 TIMES DIAMETER OF BARS.
 - NOT MORE THAN 50% OF THE BARS SHALL BE LAPPED AT ANY SECTION. LAP LENGTH FOR ALL BARS SHALL BE 51 TIMES OF BAR DIAMETER.

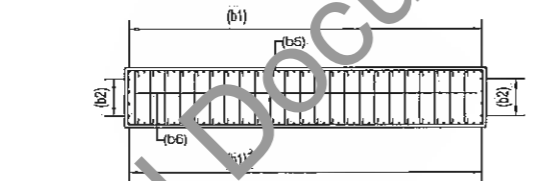
- LEGEND
- TOP BAR SHOWN ———
 - BOTTOM BAR SHOWN ———
 - LV ——— LENGTH VARIES
 - B.F ——— BOTH FACES
 - PLCD. ALT. ——— PLACED ALTERNATIVELY

REINFORCEMENT TABLE

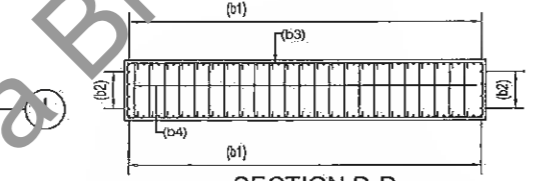
BAR MKD	BAR DESCRIPTION	BAR SHAPE
(a1)	12 @ 150c	
(a2)	20 @ 150c	
(a3)	12 @ 150c	
(a4)	20 @ 150c	
(a5)	20x12 @ 150c	
(a6)	20x12 @ 150c	
(a7)	20x12	
(a8)	12 @ 150c	
(a9)	12 @ 450c OPEN LEGS	
(b1)	16 @ 100c	
(b2)	12 @ 100c	
(b3)	12 @ 100c	
(b4)	12 @ 150c ON ALTERNATE BARS	
(b5)	12 @ 150c	
(b6)	12 @ 150c ON ALTERNATE BARS	
(b7)	16 @ 100c	
(b8)	12 @ 100c	
(b9)	10 @ 150c	
(b10)	25 @ 150c	
(b11)	12 @ 100c	
(b12)	12 @ 500c	
(b13)	16 @ 24-400 @ 3 LAYERS	
(b14)	16 @ 10 nos.	
(b15)	15 @ 7L @ 125c	
(b16)	12 @ 15 nos.	



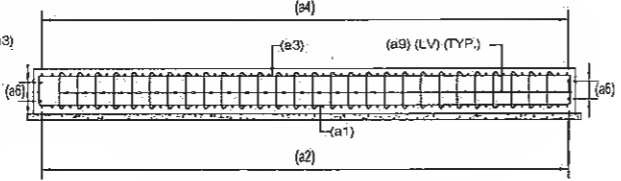
PLAN OF FOUNDATION
SCALE 1:75



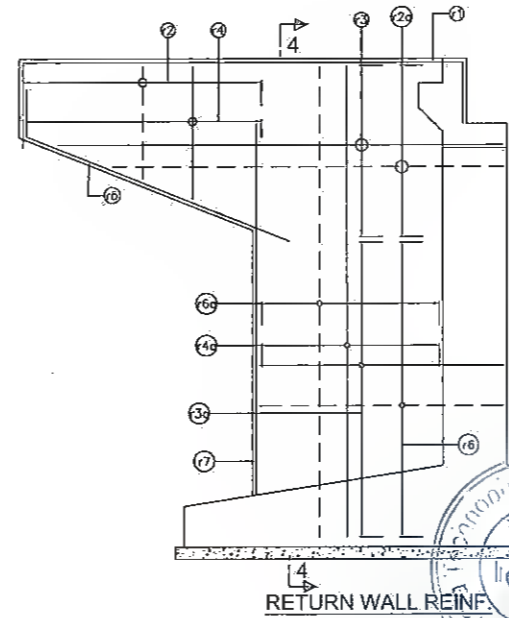
SECTION E-E
SCALE 1:75



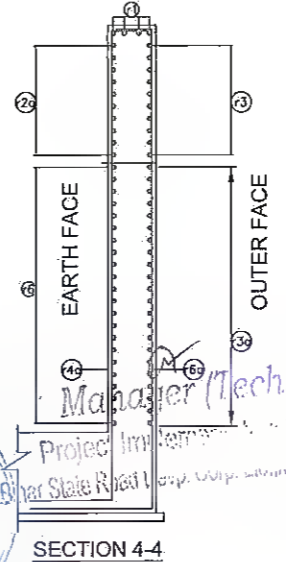
SECTION D-D
SCALE 1:75



SECTION C-C
SCALE 1:75



RETURN WALL REINF.



SECTION 4-4

REV.	DATE	DESCRIPTION OF REVISIONS.
R5	JULY 2018	MODIFIED DPR
R4	JULY 2019	DETAILED PROJECT REPORT
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

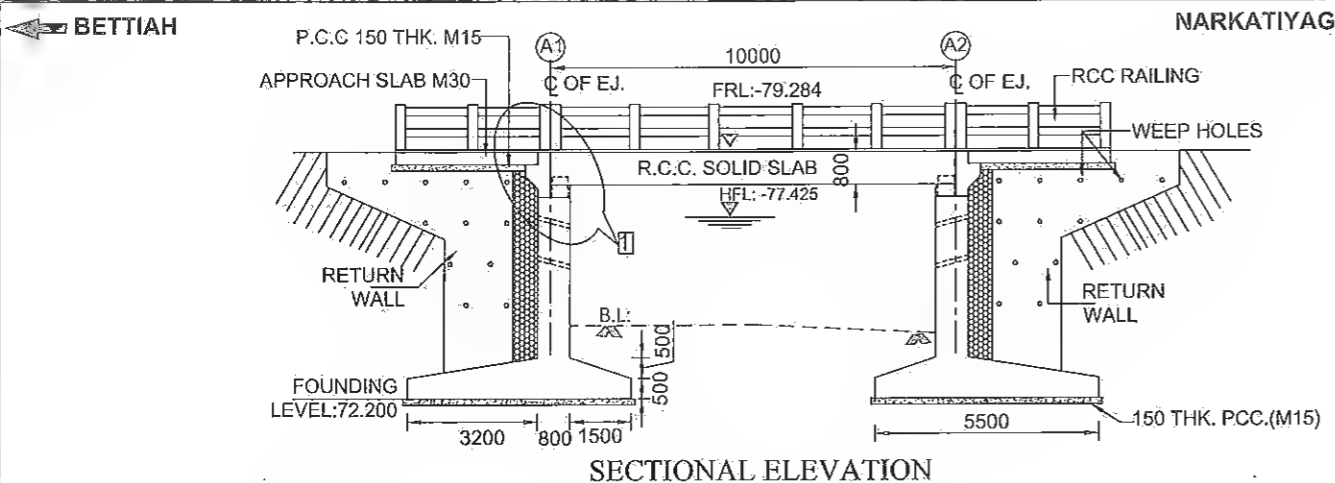
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
s7c Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indirapuram, Ghaziabad-201014

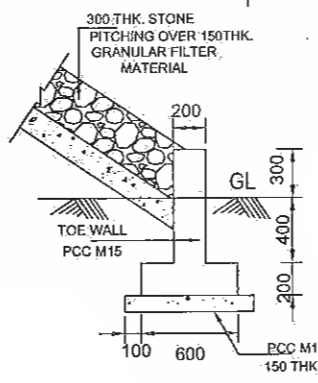
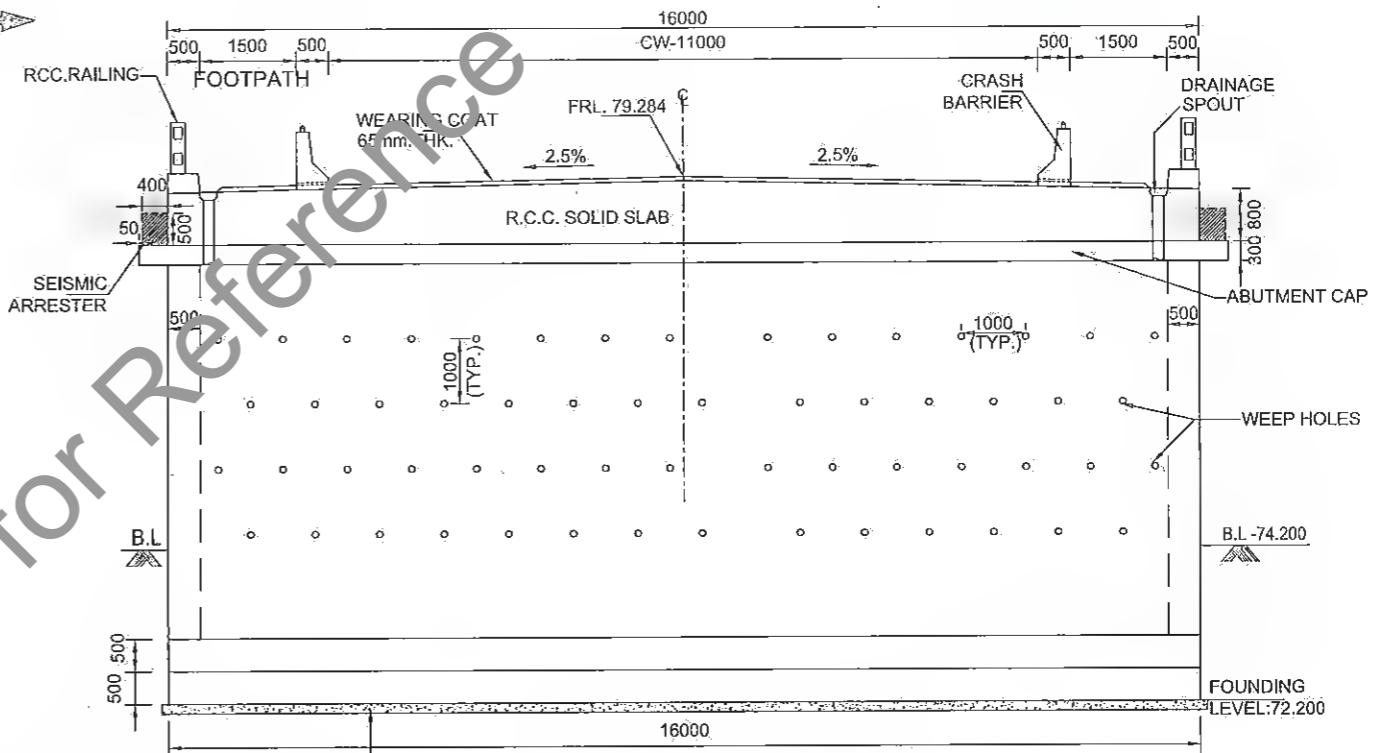
DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE: AS SHOWN

TITLE:
REINFORCEMENT DRAWING OF ABUTMENT OF MINOR BRIDGE AT CH:10+455 (Span 1x10m) (SHEET- 05 OF 05)

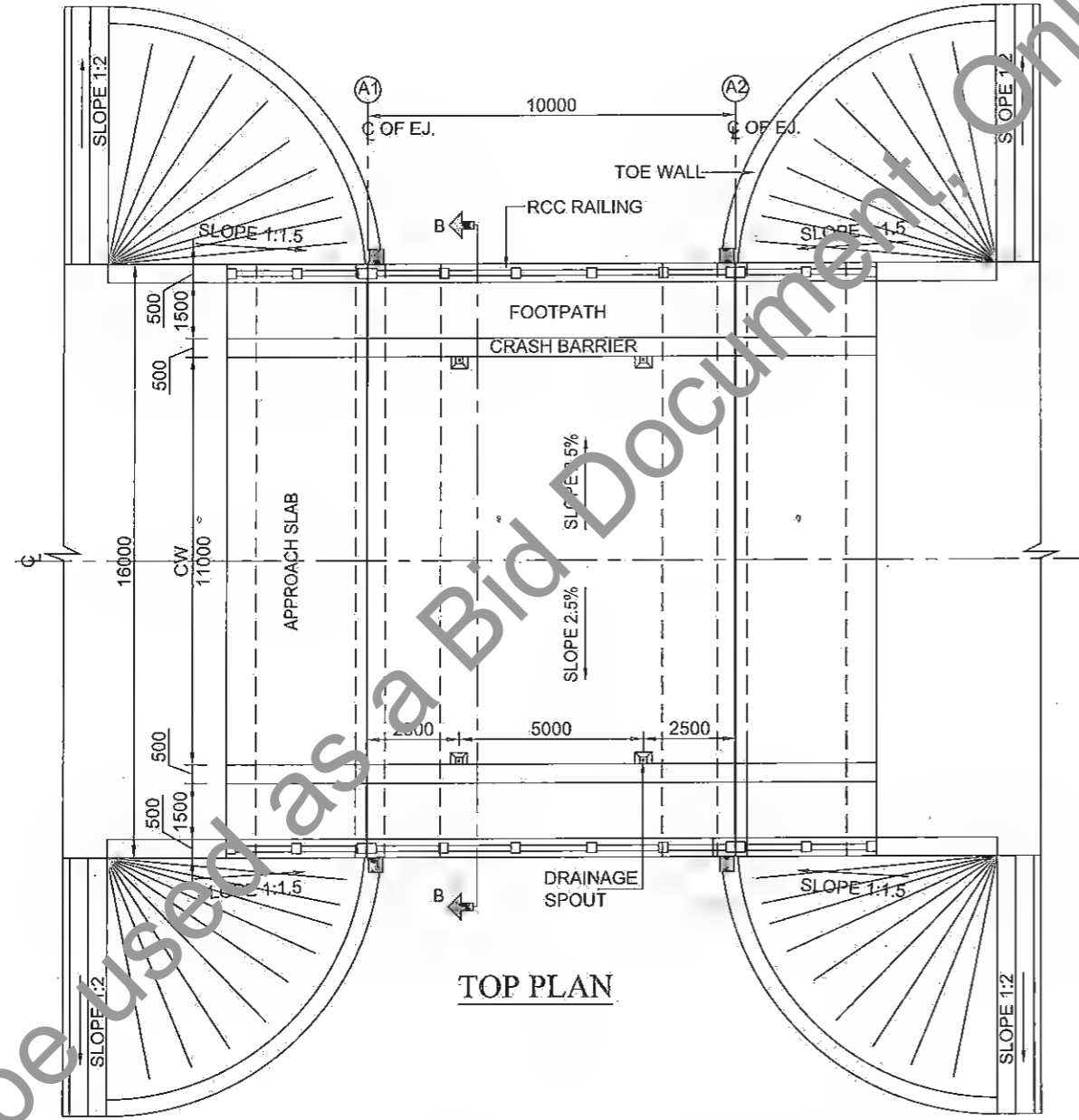
DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB-
A3



FRL.(m)	79.284	79.284
BED LVL.(m)	74.200	74.200



DETAIL OF TOE WALL



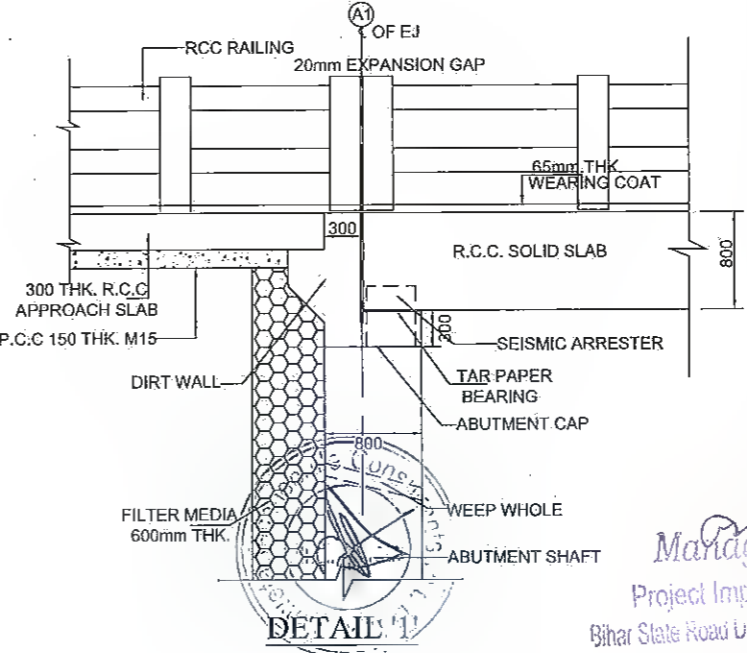
TOP PLAN

SECTION B-B

DEPTH (M)	LOG	DESCRIPTION	N
0.0			
1.5		DARK GREY CLAYEY SILT	4
3.0		DARK GREY SILTY SAND	6
6.0		DARK GREY SILTY SAND	10
9.0		DARK GREY SILTY SAND	13
12.0		DARK GREY SILTY SAND	19
15.0		DARK GREY SILTY SAND	24

NOTES:-

- ALL DIMENSIONS ARE IN mm. AND LEVELS IN METERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
 - THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR ONE LANE OF IRC CLASS 70R- ONE LANES OF CLASS A OR 3 LANES OF IRC CLASS A.
 - CONCRETE DETAILS:
 CRASH BARRIER - M40
 DECK SLAB - M35
 APPROACH SLAB - M30
 SEISMIC ARRESTER - M40
 RETURN WALL - M30
 ABUTMENT SHAFT & DIRT WALL - M35
 FOUNDATION - M35
 - GRADE OF STEEL SHALL BE Fe-500 CONFORMING TO IS : 1786.
 - 65 THK. WEARING COAT SHALL CONSIST OF MASTIC ASPHALT 25 THK. AND ONE LAYER OF BITUMINOUS CONC. 40mm. AS PER SEC-2700 OF MoRT&H STANDARD.
 - BACK FILLING SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX : 6 OF IRC : 78-2000 HAVING PROPERTIES C=0, φ>30°, S=20°, d=18 kn/m
 - WEEP HOLES IN SLOPE 1:20, SPACED @ 1000mm/c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN ABUTMENT ABOVE GROUND LEVEL/LWL.
 - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH FINAL HIGHWAY PLAN AND PROFILE DRAWINGS, ALL LEVELS GIVEN IN DRAWING SHALL BE VERIFIED BEFORE EXECUTION AT SITE.
 - SEISMIC ZONE (IV) HAS BEEN CONSIDERED.
 - TYPE OF BEARINGS- TAR PAPER
 - NET SAFE BEARING CAPACITY AT FOUNDING LEVEL HAS BEEN CONSIDERED AS 25.00kn/m² AS PER REPORT. THE SAME SHALL BE VERIFIED AT SITE BEFORE EXECUTION.
- SPECIAL NOTE:-**
 SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.



DETAIL 1

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 20 1	MODIFIED DPR
R4	JULY 19	DETAILED PROJECT REPORT
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

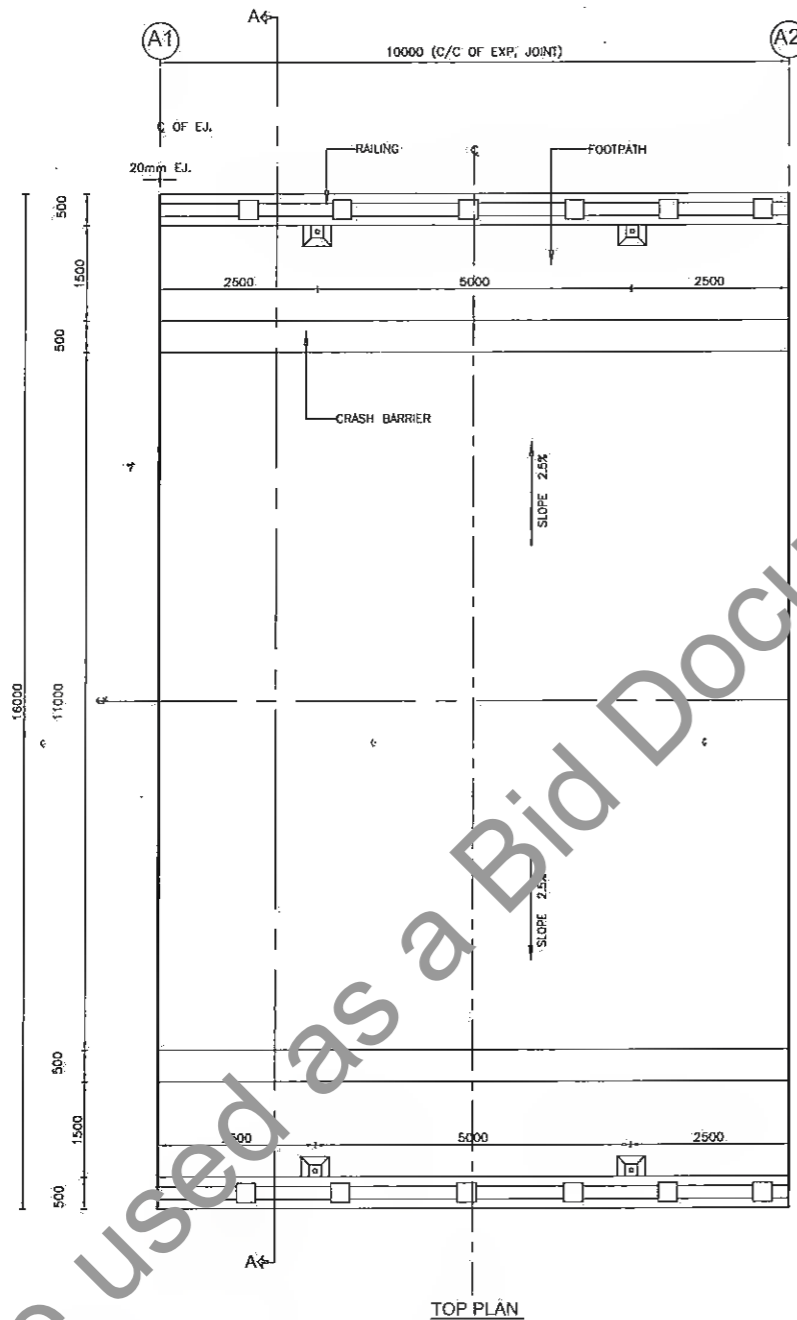
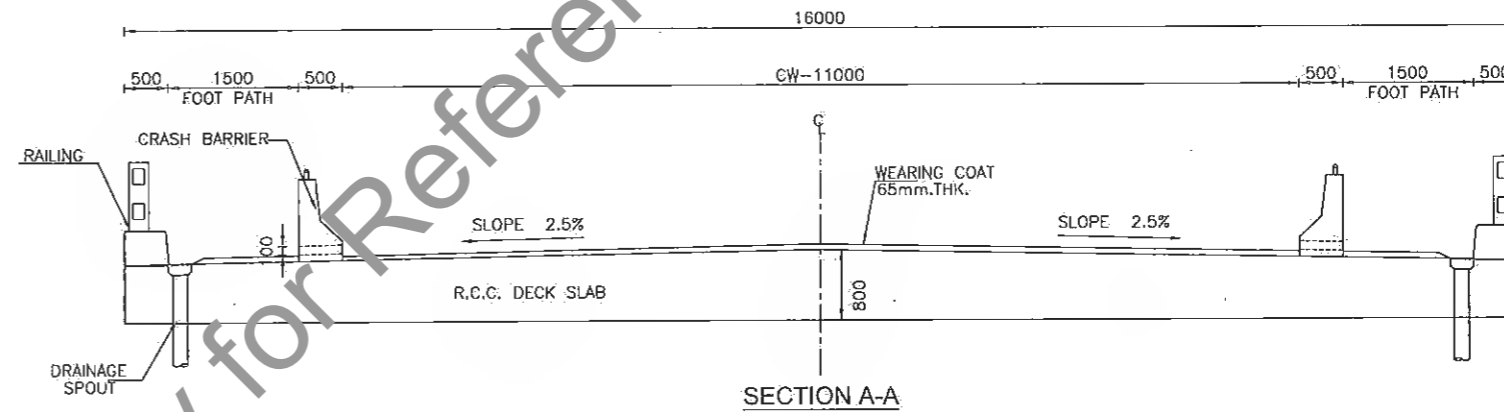
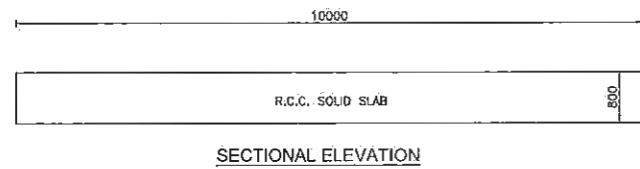
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
s7c Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indirapuram,
 Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

TITLE:
GENERAL ARRANGEMENT DRAWING OF MINOR BRIDGE AT CH:10+835 (Span 1x10.0m) (SHEET- 01 OF 05)

DRAWING NO.
 STC/BR/BSRDC/BNB/STR/MNB-



NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. CONCRETE GRADES:
 CRASH BARRIER - M40
 RCC SOLID SLAB - M35
3. 65 THK. WEARING COAT SHALL CONSIST OF MASTIC ASPHALT 25 THK. OVER 40MM LAYER OF BITUMENOUS CONC.


SPECIAL NOTE:-

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R.R.
 Dy. General Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp Corp. Ltd. Muzaffarpur

R5	JULY 2018	MODIFIED DPR
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REV.	DATE	DESCRIPTION OF REVISIONS

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PROJECT:
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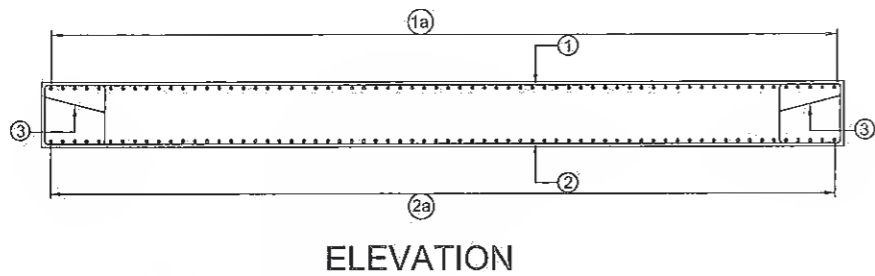
DPR CONSULTANTS:
S70 **Shweta Technophiles Consultants Pvt. Ltd.**
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indirapuram,
 Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

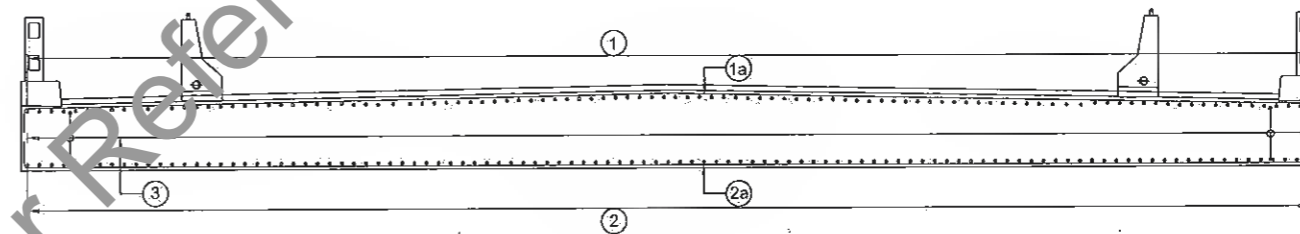
TITLE:
 DIMENSIONAL DRAWING OF SUPER STRUCTURE OF MINOR BRIDGE AT CH: 10+835 (Span 1x10m) (SHEET- 02 OF 05)

DRAWING NO.
 STC/BR/BSRDC/BNB/STR/MNB-

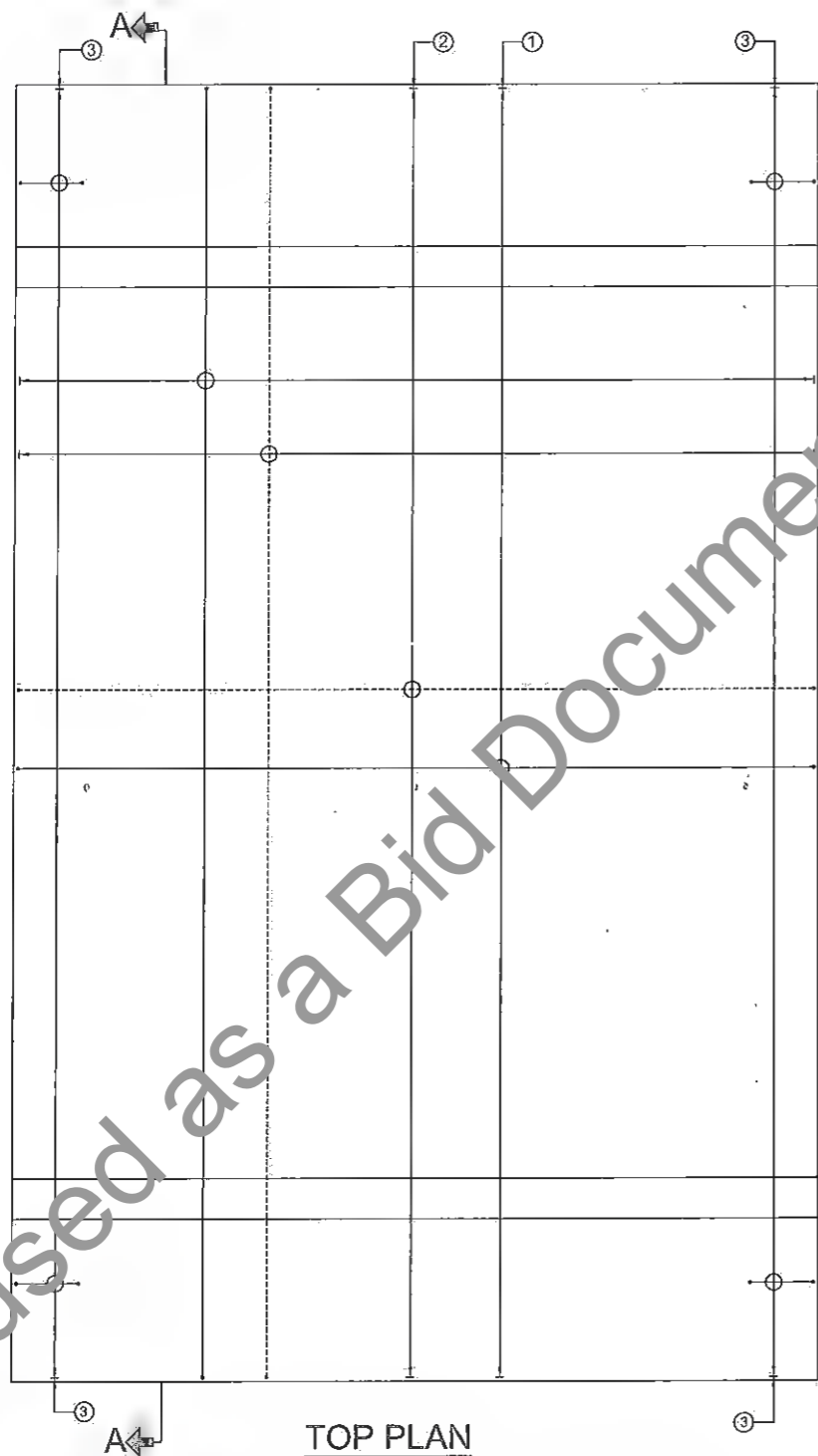
A3



ELEVATION



SECTION - (A-A)



TOP PLAN



SCHEDULE OF REINFORCEMENT

BAR MKD.	BAR DIA.	NO./SPACING	SHAPE	REMARKS
1	16	150 c/c	□	
1a	10	150 c/c	□	
2	25	125 c/c	□	
2a	12	150 c/c	□	
3	10	150 c/c	□	

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. GRADE OF CONCRETE = M35
4. THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500 D CONFORMING TO IS:1786.
5. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 40mm.
6. BARS SHALL BE LAPPED IN SUCH A WAY THAT NOT MORE THAN 50% OF BARS ARE LAPPED AT ANY SECTION. LAP LENGTH SHALL BE 76 TIMES DIA OF BAR.

SPECIAL NOTE:-


SPECIALY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.



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Project Implementation Unit
Bihar State Road Devp Corp. Ltd.

R.R.
Dy. General Manager (Tech.)
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CLIENT:

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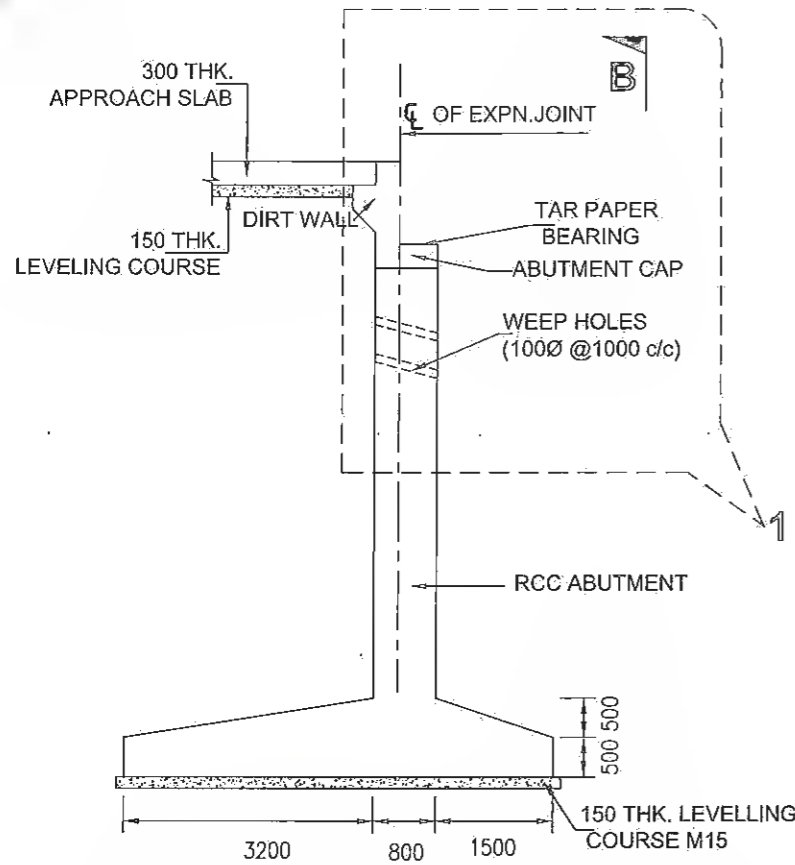
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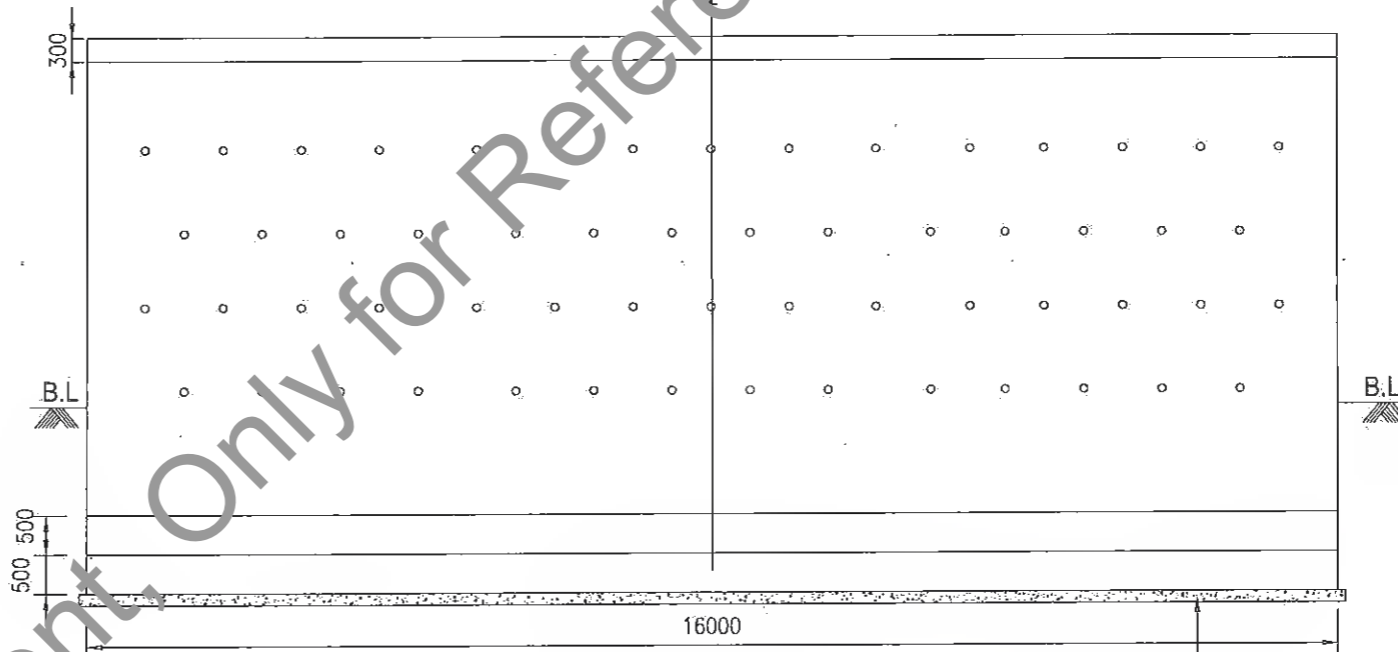
DRAWN BY:	ANKIT NEGI
DESIGN BY:	NIKHIL
CHECKED BY:	RANJAN
SCALE:-AS SHOWN	

TITLE:
REINF. DETAILS FOR SOLID SLAB OF MINOR BRIDGE AT CH: 10+835 (Span 1x10m). (SHEET- 03 OF 05)

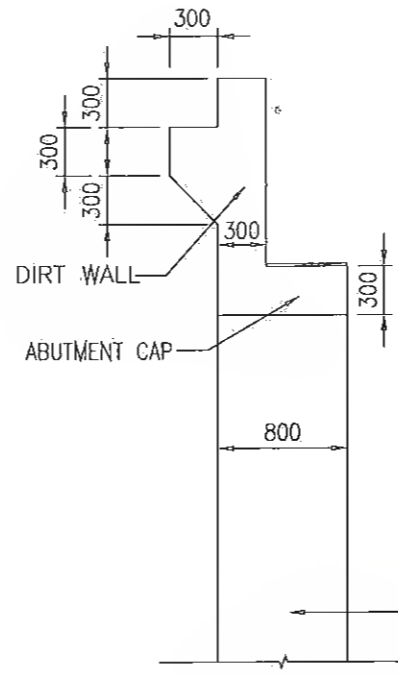
DRAWING NO.
STC/BR/BSRDC/BNB/STRAMB-
A3



SECTIONAL ELEVATION
SCALE 1:100



VIEW B-B
SCALE-1:100




DETAIL-1
SCALE 1:50

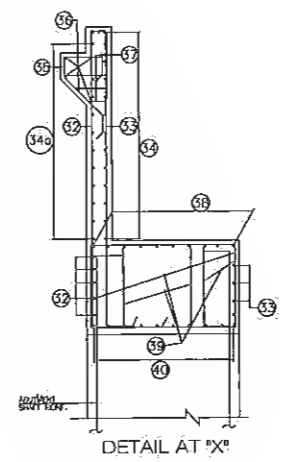
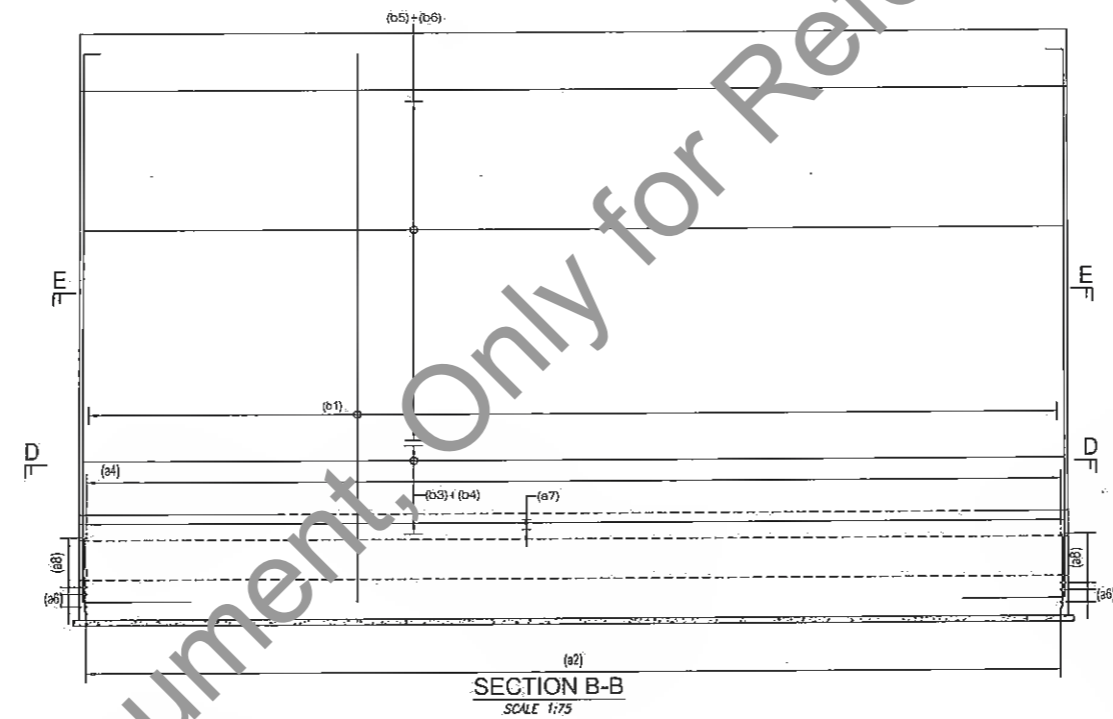
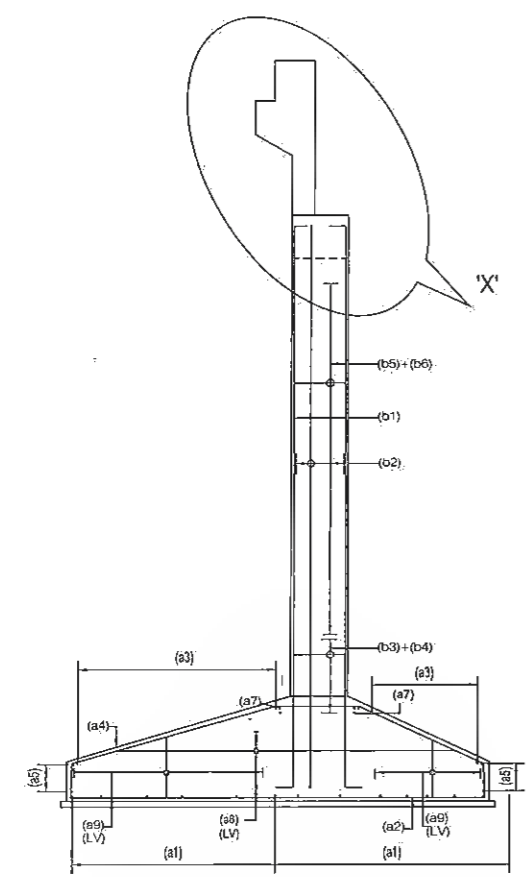
Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur

R.K.
Dy. General Manager (Tech)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur

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 2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 3. CONCRETE SHALL BE GRADE AS FOLLOWS:-
 - i) ABUTMENT - M35
 - ii) ABUTMENT CAP & DIRT WALL - M35
 - iii) APPROACH SLAB - M30

SPECIAL NOTE:-
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R5	JULY 2021	MODIFIED DPR	CLIENT:  BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)	PROJECT: Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)	DPR CONSULTANTS: Shweta Technophile Consultants Pvt. Ltd. 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indirapuram, Ghaziabad-201014	DRAWN BY	ANKIT NEGI	TITLE: DIMENSIONAL DRAWING OF ABUTMENT OF MINOR BRIDGE AT CH: 10+835 (Span 1x10m) (SHEET- 04 OF 05)	
R4	JULY 2019	DETAILED PROJECT REPORT				DESIGN BY	NIKHIL		
R3	DEC 2018	CLIENT SUGGESTION INCORPORATED				CHECKED BY	RANJAN		
R2	AUG. 2018	FINAL DDPR				SCALE:-AS SHOWN	DRAWING NO:		ATC/BR/BSRDC/BNB/STR/MNB-
R1	MAY 2018	FINAL FEASIBILITY							
R0	MARCH 2018	FEASIBILITY							
REV.	DATE	DESCRIPTION OF REVISIONS						A3	



REINFORCEMENT RETURN WALL TABLE :-

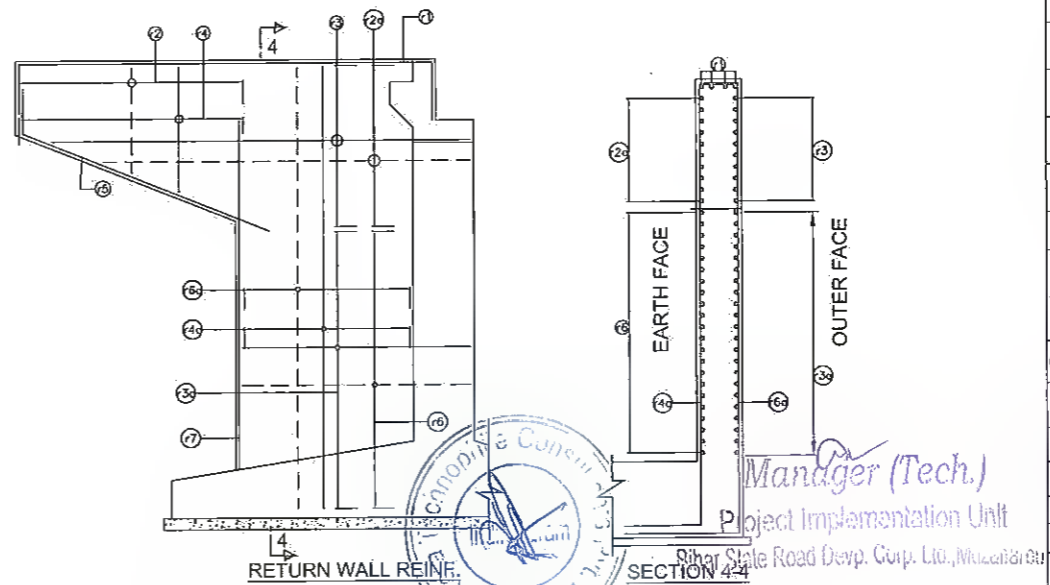
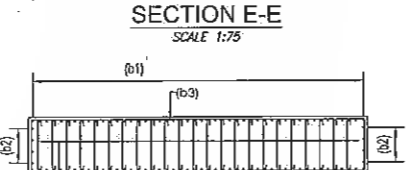
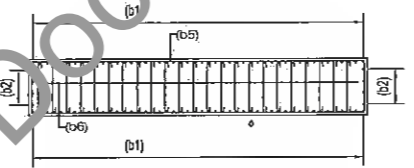
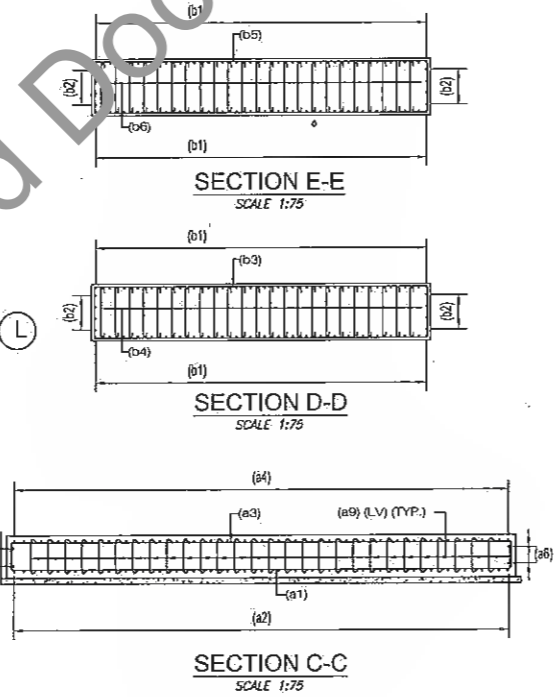
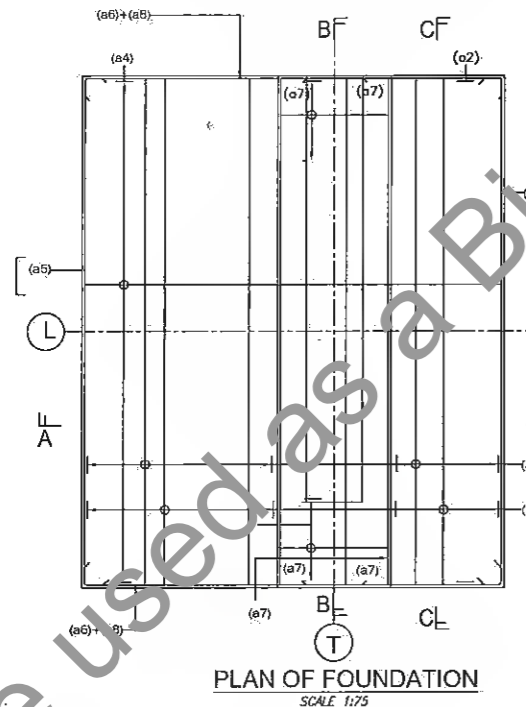
NO.	BAR DESCRIPTION	BAR SHAPE
r1	3 NOS. 16 $\bar{\phi}$ 300	[]
r2	3 NOS. 16 $\bar{\phi}$	[]
r2a	12 $\bar{\phi}$ @150c/c	[]
r3	16 $\bar{\phi}$ @150c/c	[]
r3a	12 $\bar{\phi}$ @150c/c	[]
r4	12 $\bar{\phi}$ @150c/c	[]
r4a	20 $\bar{\phi}$ @150c/c	[]
r5	16 $\bar{\phi}$ @100c/c	[]
r5	12 $\bar{\phi}$ @100c/c	[]
r6a	16 $\bar{\phi}$ @100c/c	[]
r7	16 $\bar{\phi}$ @100c/c	[]

- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
 - DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - L-L REPRESENTS THE LONGITUDINAL AXIS OF FOUNDATION AND T-T REPRESENTS THE TRANSVERSE AXIS OF FOUNDATION.
 - NET SAFE BEARING CAPACITY AT FOUNDING LEVEL HAS BEEN CONSIDERED AS 25.00N/m² AS PER REPORT. THE SAME SHALL BE VERIFIED AT SITE BEFORE EXECUTION.
 - GRADE OF CONCRETE SHALL BE AS FOLLOWS:
 - (a) FOUNDATION — M35
 - (b) ABUTMENT — M35
 - (c) LEVELLING COURSE — M15
 - ALL REINFORCING BARS SHALL BE THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe-500) CONFORMING TO IS:1786 STANDARDS.
 - CLEAR COVER TO ANY REINFORCEMENT SHALL BE AS FOLLOWS:
 - (a) FOUNDATION — 75mm
 - (b) ABUTMENT — 50mm
 - MINIMUM BOND LENGTH SHALL BE 36 TIMES DIAMETER OF BARS.
 - NOT MORE THAN 50% OF THE BARS SHALL BE LAPPED AT ANY SECTION. LAP LENGTH FOR ALL BARS SHALL BE 51 TIMES OF BAR DIAMETER.

- LEGEND
- TOP BAR SHOWN — []
 - BOTTOM BAR SHOWN — []
 - LV — LENGTH VARIES
 - B.F. — BOTH FACES
 - PLCD. ALT. — PLACED ALTERNATIVELY

REINFORCEMENT TABLE

BAR NO.	BAR DESCRIPTION	BAR SHAPE
(a1)	12 $\bar{\phi}$ @ 150c	[]
(a2)	20 $\bar{\phi}$ @ 150c	[]
(a3)	12 $\bar{\phi}$ @ 150c	[]
(a4)	20 $\bar{\phi}$ @ 150c	[]
(a5)	20x12 $\bar{\phi}$ @ 150CC	[]
(a6)	20x12 $\bar{\phi}$ @ 150CC	[]
(a7)	20x12	[]
(a8)	12 $\bar{\phi}$ @ 150c	[]
(a9)	12 $\bar{\phi}$ 450c OPEN ENDS	[]
(b1)	16 $\bar{\phi}$ @ 100c	[]
(b2)	12 $\bar{\phi}$ @ 100c	[]
(b3)	12 $\bar{\phi}$ @ 100c	[]
(b4)	12 $\bar{\phi}$ @ 100c	[]
(b5)	12 $\bar{\phi}$ @ 100c ALTERNATE BARS	[]
(b6)	12 $\bar{\phi}$ @ 100c ALTERNATE BARS	[]
(b7)	12 $\bar{\phi}$ @ 100c	[]
(b8)	12 $\bar{\phi}$ @ 100c	[]
(b9)	12 $\bar{\phi}$ @ 100c	[]
(c1)	12 $\bar{\phi}$ @ 150c	[]
(c2)	12 $\bar{\phi}$ @ 150c	[]
(c3)	12 $\bar{\phi}$ @ 150c	[]
(c4)	12 $\bar{\phi}$ @ 150c	[]
(c5)	12 $\bar{\phi}$ @ 150c	[]
(c6)	12 $\bar{\phi}$ @ 150c	[]
(c7)	12 $\bar{\phi}$ @ 150c	[]
(c8)	12 $\bar{\phi}$ @ 150c	[]
(c9)	12 $\bar{\phi}$ @ 150c	[]



Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Muzaffarpur

REV.	DATE	DESCRIPTION OF REVISIONS
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R4	JULY 2019	DETAILED PROJECT REPORT
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

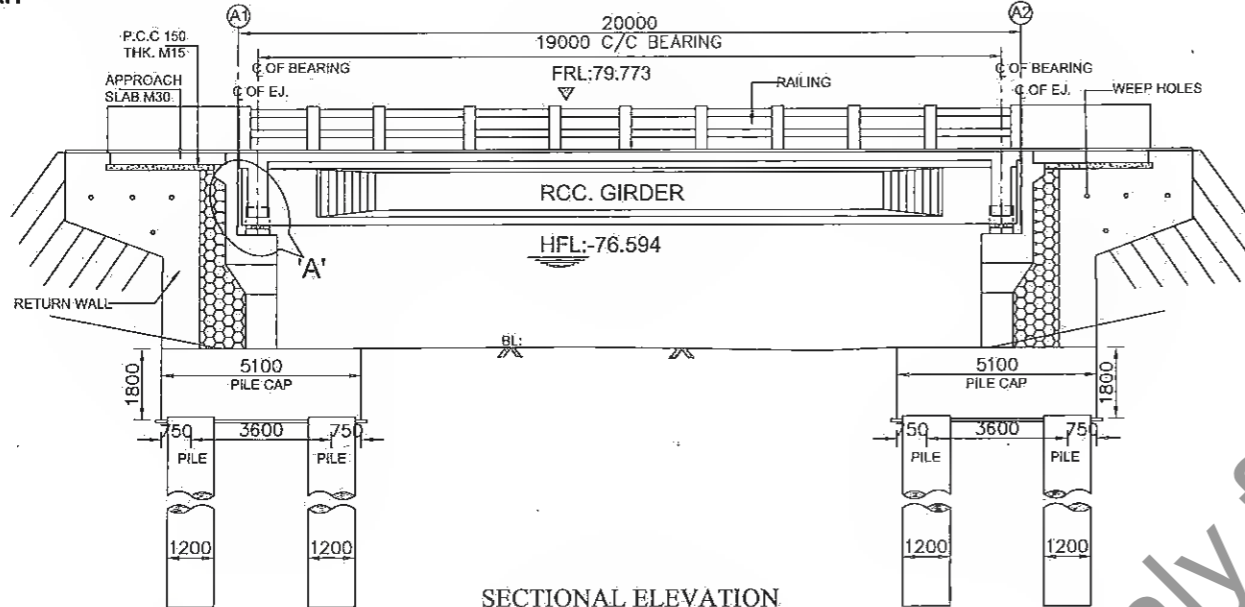
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
570 Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza,
Ahinsa Khand-I, Indrapuram,
Ghaziabad-201014

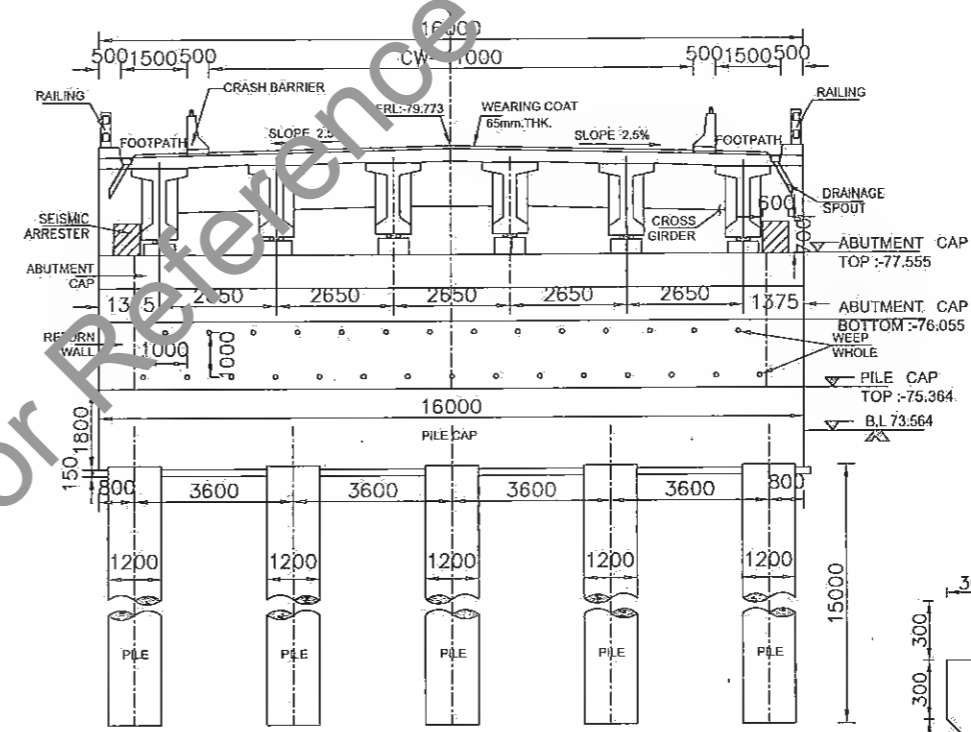
DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE: AS SHOWN

TITLE:
REINFORCEMENT DRAWING OF ABUTMENT OF MINOR BRIDGE AT CH:10+835 (Span 1x10m) (SHEET-05 OF 05)

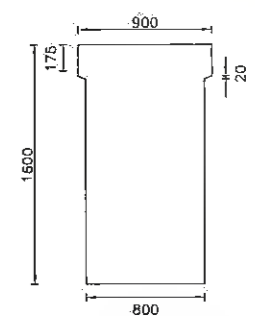
DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB- A3



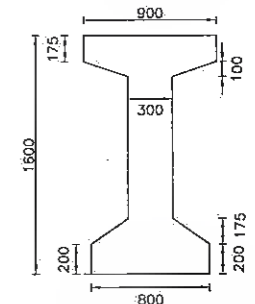
FRL IN m	79.773	79.773
BED LEVEL IN m	73.564	73.564



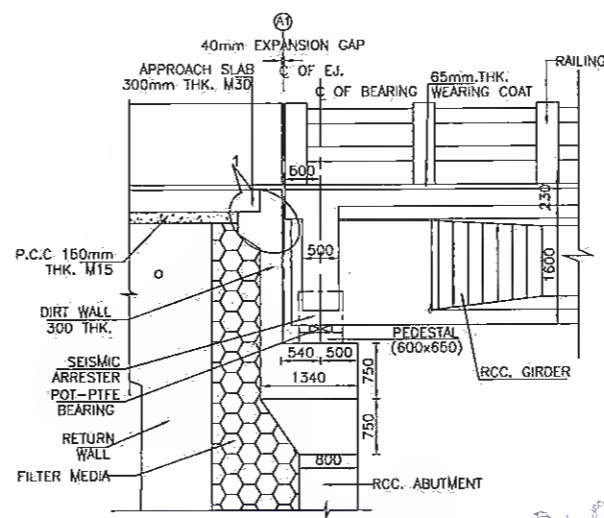
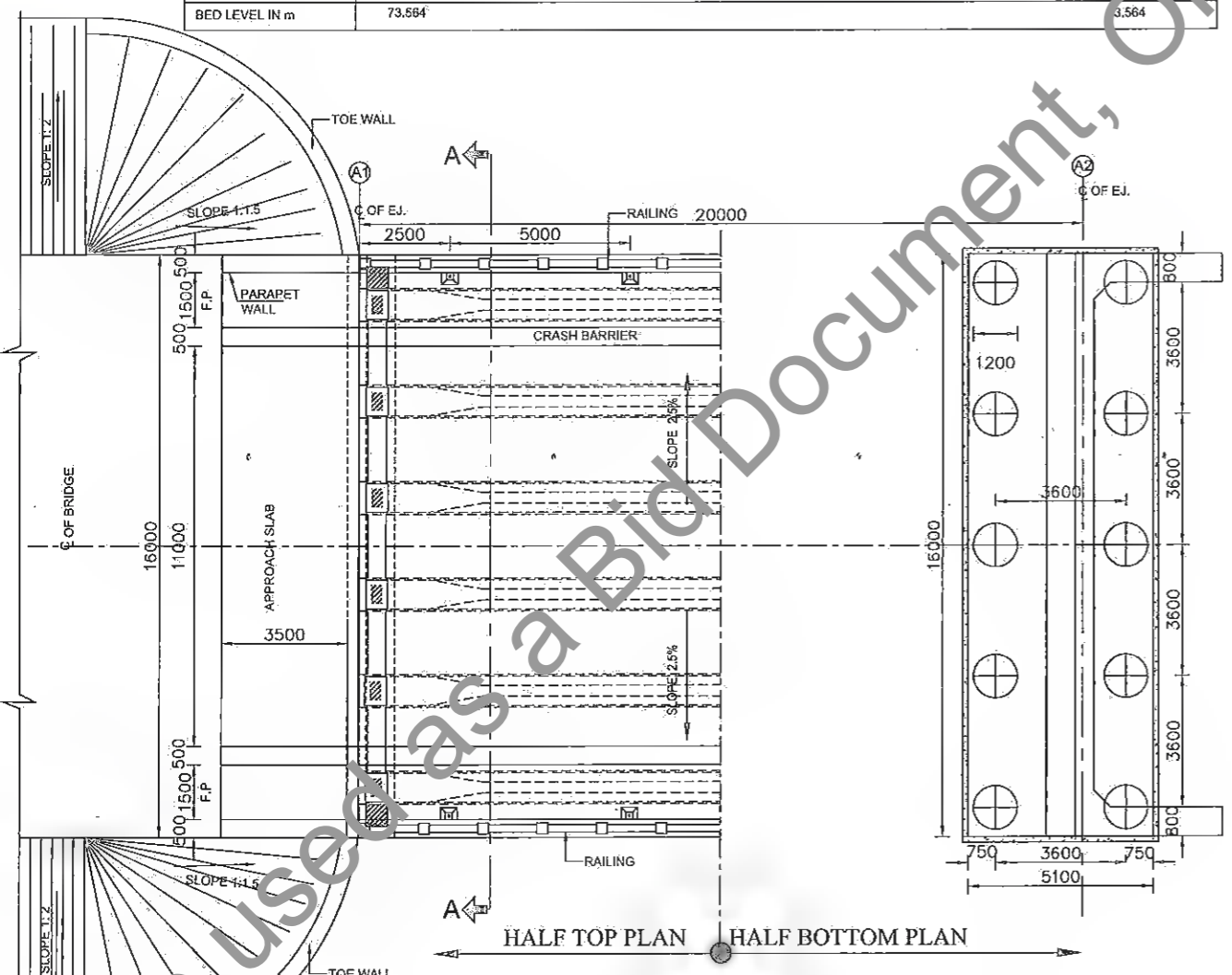
SECTION A-A



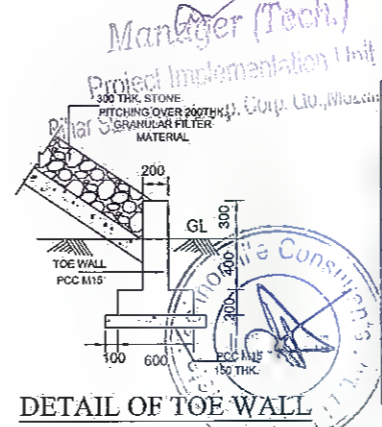
RCC GIRDER FOR 20M (AT SUPPORT)



RCC GIRDER FOR 20M (AT MID SPAN)



DETAIL 'A'



DETAIL OF TOE WALL

NOTES:-


- ALL DIMENSIONS ARE IN mm. AND LEVELS IN METERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- THE PROPOSED BRIDGE IS DESIGNED FOR ONE TRAIN OF IRC CLASS 70R WITH 1 LANE OF CLASS A/3 LANES OF IRC CLASS A.
- CONCRETE GRADES:
RCC SLAB & GIRDER - M35
APPROACH SLAB - M30
SEISMIC ARRESTER - M40
RETURN WALL - M30
CRASH BARRIER - M40
ABUTMENT SHAFT & DIRT WALL - M35
PEDESTAL UNDER BEARINGS - M40
PILE & PILE CAP - M35
PCC - M15
- GRADE OF STEEL SHALL BE Fe-500 CONFORMING TO IS : 1786.
- 65 THK WEARING COAT SHALL CONSIST OF MASTIC ASPHALT 25 THK OVER 40MM LAYER OF BITUMENOUS CONC.
- BACK FILLING SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX - 6 OF IRC : 78-2000 HAVING PROPERTIES C=0, Ø=30°, S=20°, DRY DENSITY (d)=18 kN/Cum
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH FINAL HIGHWAY PLAN AND PROFILE DRAWINGS, ALL LEVELS GIVEN IN DRAWING SHALL BE VERIFIED BEFORE EXECUTION
- SEISMIC ZONE IV HAS BEEN CONSIDERED.
- TYPE OF BEARING - POT-PTFE . VERTICAL LOAD - 150 T . HORIZONTAL LOAD - 20 T . ROTATION - 0.001 RADIAN .
- PILE CAPACITY FOR 1200mm DIA OF 200 T HAS BEEN CONSIDERED FOR 15M DEPTH
- INITIAL LOAD TEST SHALL BE CARRIED OUT TO CONFIRM THE PILE CAPACITY AS PER IS 2911.
- WORKING PILE SHALL BE TESTED AS PER IS 2911.
- STRIP SEAL EXPANSION JOINTS SHALL BE USED.

SPECIAL NOTE:-

SPECIALY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.

DEPTH (M)	LOG	DESCRIPTION	N
0.0			
1.5	SC	DARK GREY SILTY CLAYEY SAND	7
2.0		GREYISH SILTY SAND	7
6.0		GREYISH SILTY SAND	10
9.0		LIGHT GREY SILTY SAND	14
12.0		LIGHT GREY SILTY SAND	19
15.0		LIGHT GREY SILTY SAND	22
18.0		LIGHT GREY SILTY SAND	25
21.0		LIGHT GREY SILTY SAND	29
24.0		LIGHT GREY SILTY SAND	34

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 2018	MODIFIED DPR
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R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

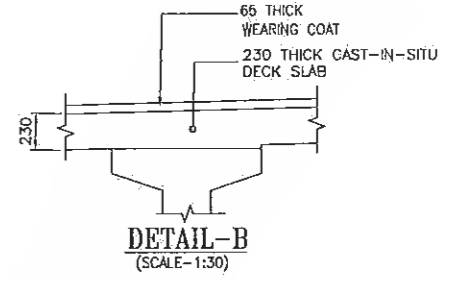
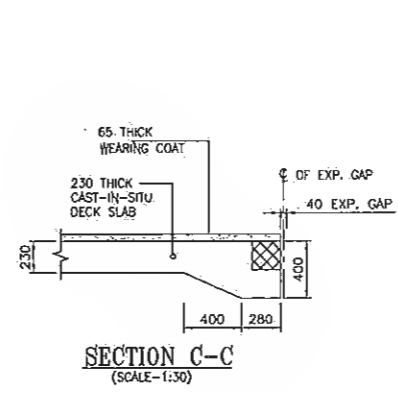
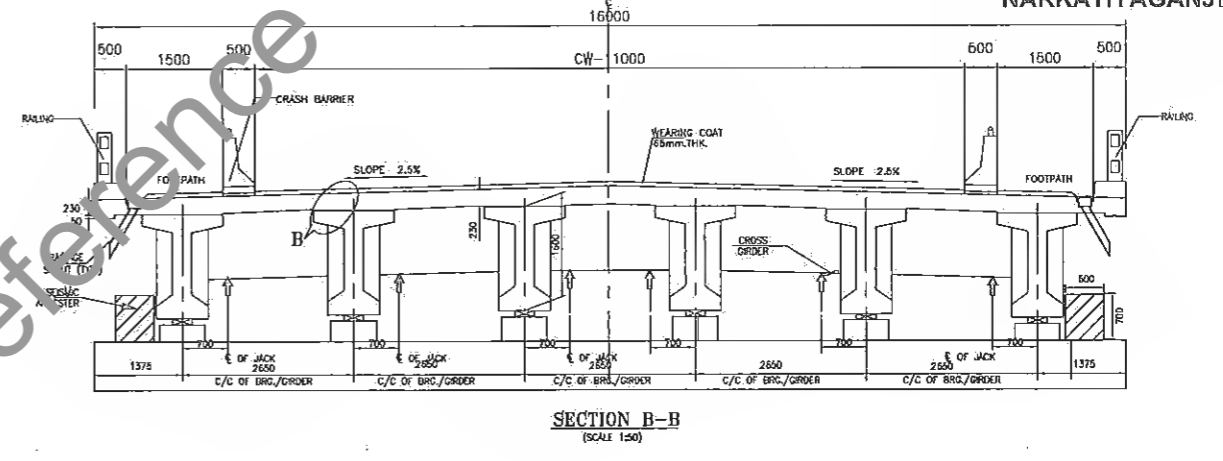
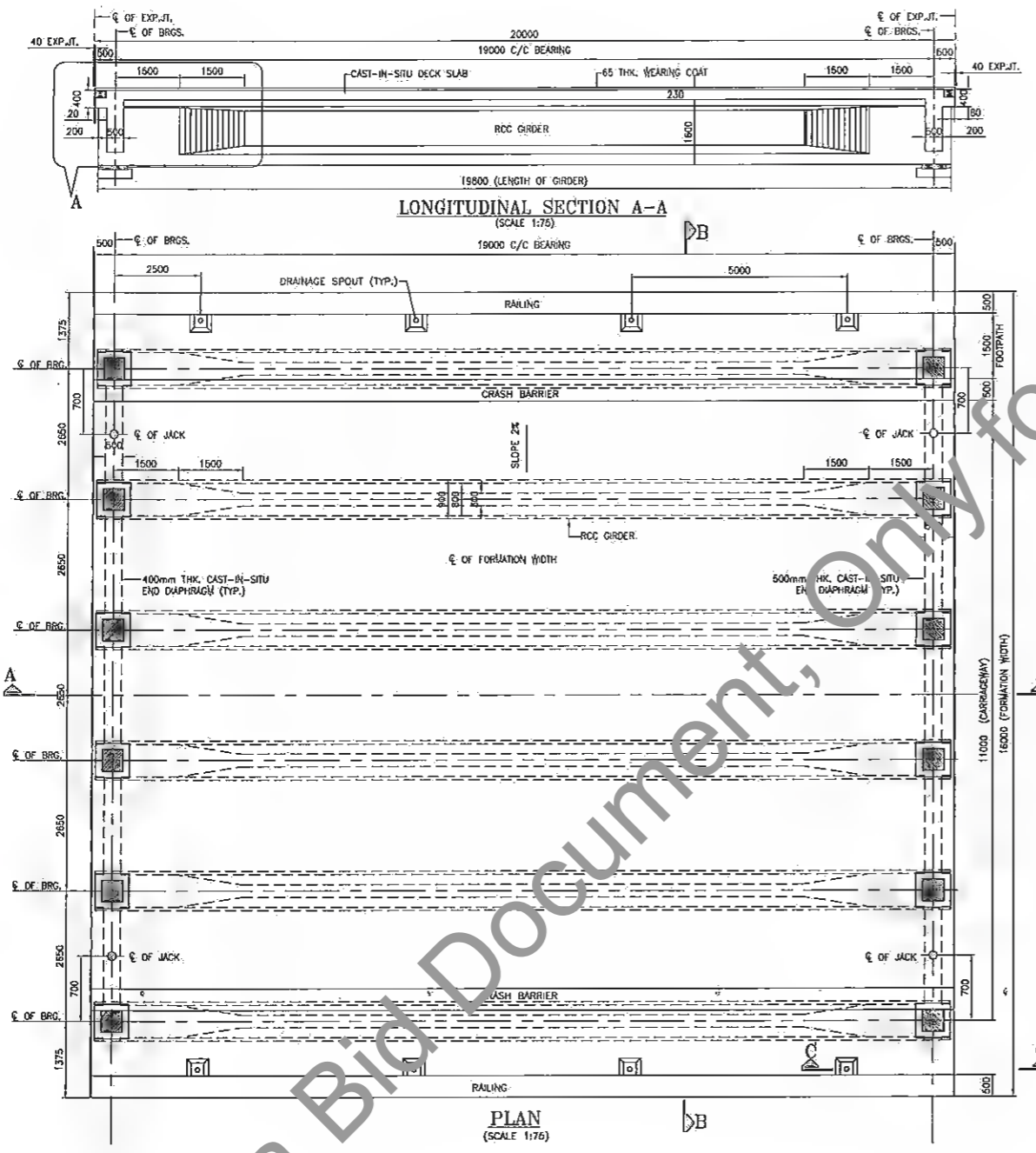
CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

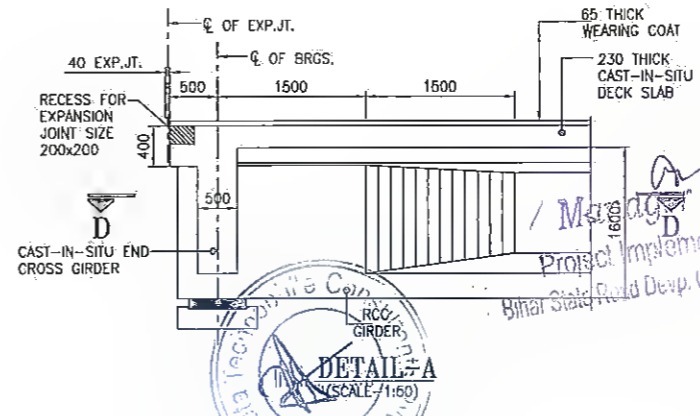
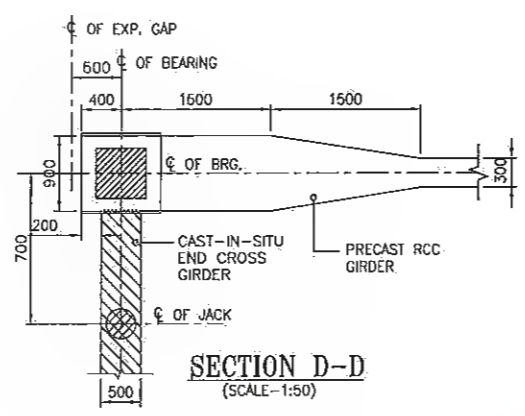
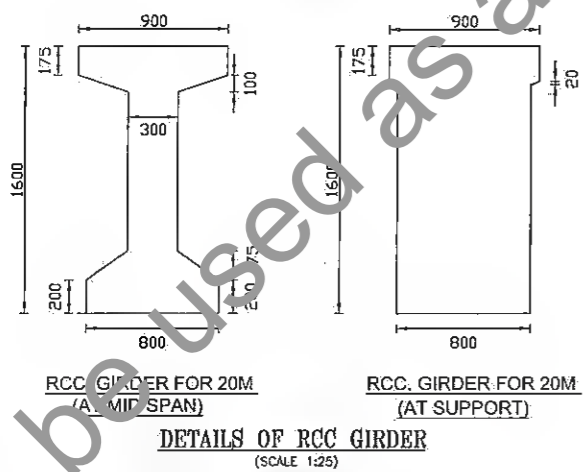
DPR CONSULTANTS:
Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza, Ahinsa Khand-1, Indirapuram, Ghaziabad-201014

DRAWN BY: ANKIT NEGI
 DESIGN BY: NIKHIL
 CHECKED BY: RANJAN
 SCALE: AS SHOWN

TITLE:
GENERAL ARRANGEMENT DRAWING OF MINOR BRIDGE AT CH:13+386(Span 1X20m) (SHEET- 01 OF 08)
 DRAWING NO. STC/BR/BSRDC/RNB/STR/MNB-
 A3




- NOTES:-**
1. ALL DIMENSIONS ARE IN mm, UNLESS OTHERWISE MENTIONED.
 2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED AND NO DIMENSION SHALL BE SCALED.
 3. THE PROPOSED FLYOVER IS DESIGNED FOR THE LIVE LOAD COMBINATIONS GIVEN IN IRC 6:2014. THE GOVERNING COMBINATION SHALL BE CONSIDERED FOR DESIGN.
 4. CONCRETE SHALL BE DESIGN MIX AND HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES:-
FOR PRECAST RCC GIRDER - 35MPa
FOR CAST-IN-SITU DECK SLAB - 35MPa
FOR END CROSS GIRDER - 36MPa
 5. THE REINFORCING STEEL SHALL BE OF HYSD BARS (GRADE DESIGNATION Fe-500D) CONFORMING TO IS:1786.
 6. CLEAR COVER TO OUTERMOST STEEL IS 40mm.
 7. DURING JACKING OPERATION, JACKS PLACED UNDER ONE END CROSS-GIRDERS SHALL BE OPERATED SIMULTANEOUSLY USING STRESS CONTROL SYSTEM SO AS TO ENSURE THAT THE REACTION ON ALL THE JACKS IS EQUAL AT ALL TIMES.
 8. BEAM SHALL BE KEPT UPRIGHT AT ALL TIMES AND TO BE CLEARLY MARKED INDICATING SPAN, LOCATION, AND RESPECTIVE ENDS BEFORE REMOVAL FROM THE CASTING BED.
 9. TOP SURFACE OF GIRDER SHALL BE ROUGHED FOR EFFECTIVE BONDING.
 10. ALL THE LENGTHS OF GIRDER & LAYOUT SHALL BE VERIFIED AT SITE BEFORE EXECUTION & ANY DISCREPANCIES MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.
 11. FOR LIFTING OF THE SUPERSTRUCTURE 2 Nos. JACKS AT EACH SIDE OF SPAN SHALL BE USED AS SHOWN IN PLAN. THE CAPACITY OF EACH JACK SHALL BE 200-TON.



SPECIAL NOTE:- SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY, 2018	MODIFIED DPR
R4	JUNE, 2018	DETAILED PROJECT REPORT
R3	MAY, 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018.	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

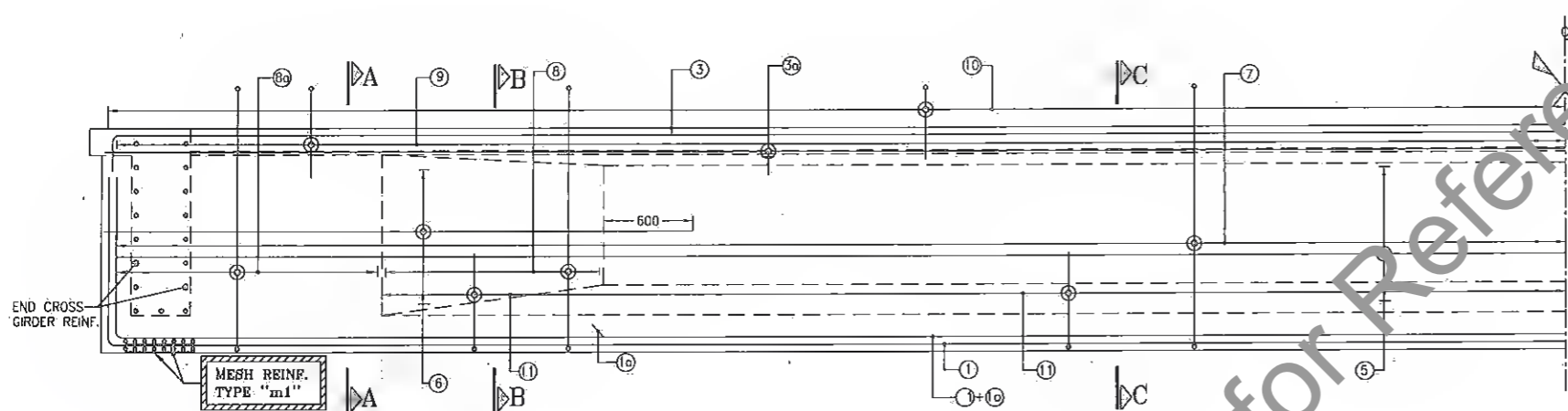
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
570 Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indrapuram,
 Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

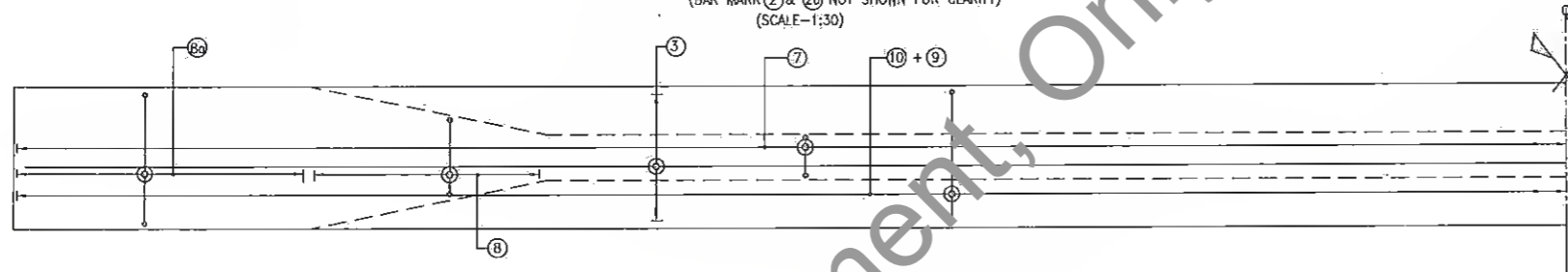
TITLE:
DIMENSIONAL DETAILS OF RCC GIRDER AT MINOR BRIDGE AT CH:13+386 (Span 1X20m) (SHEET- 02 OF 08)

DRAWING NO.
 STC/BR/BSRDC/BNB/STR/MNB-
 A3



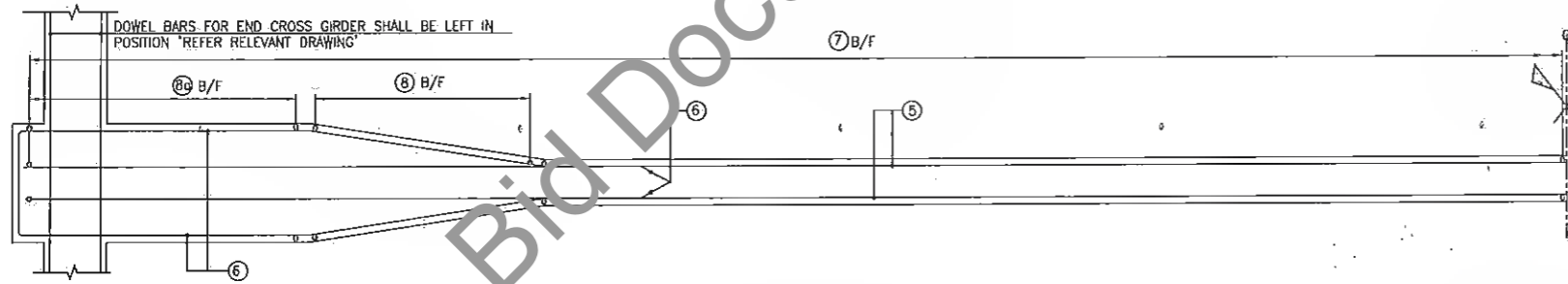
LONGITUDINAL REINFORCEMENT SECTION

(BAR MARK 2 & 2a NOT SHOWN FOR CLARITY)
(SCALE-1:30)



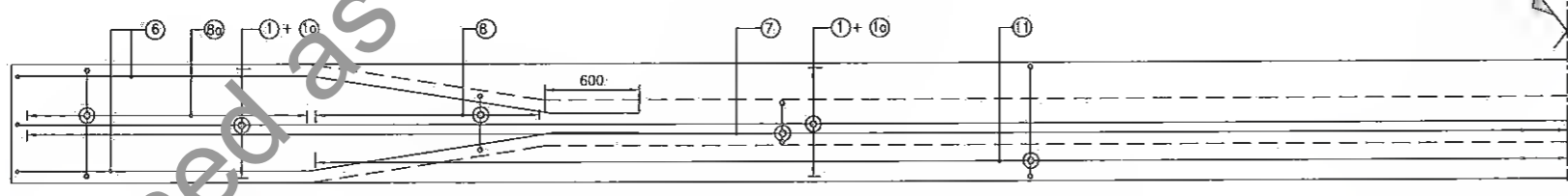
HALF PLAN SHOWING TOP FLANGE REINF. OF GIRDER

(SCALE-1:30)



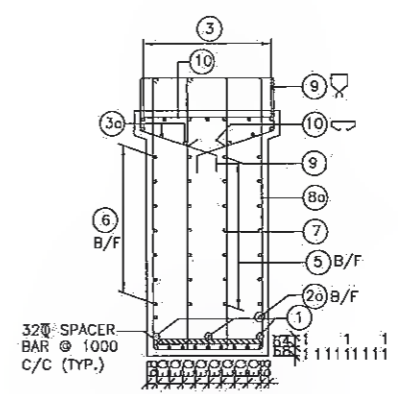
PLAN SHOWING WEB REINFORCEMENT

(SCALE-1:30)



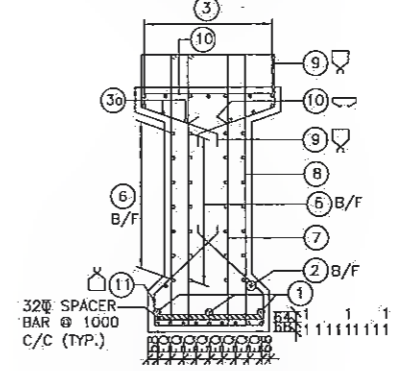
PLAN SHOWING BOTTOM FLANGE REINFORCEMENT

(SCALE-1:30)



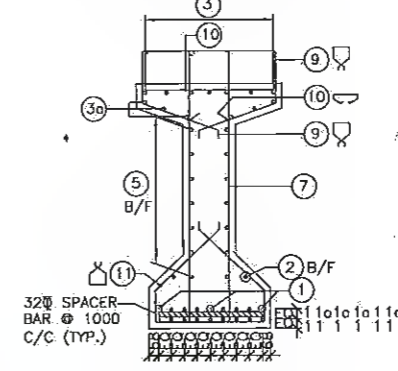
SECTION A-A

(SCALE 1:30)



SECTION B-B

(SCALE 1:30)

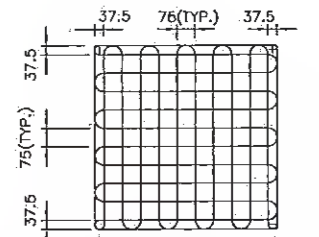


SECTION C-C

(SCALE 1:30)

REINF. SCHEDULE:-

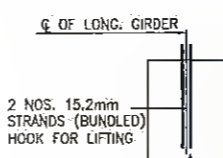
BAR MKD.	BAR DIA.	NO./SPACING	SHAPE
1	32	12 NOS.	┌───┐ 900
1a	32	6 NOS.	┌───┐ 900
2	10	1x2 NOS.	───
2a	10	1x2 NOS.	500 ───
3	10	7 NOS.	┌───┐ 1900
3a	10	7 NOS.	───
4		NOT USED	
5	10	2x7 NOS.	───
6	10	2x7 NOS.	450 ───
7	10	120 C/C	┌───┐ 2-LEGGED
8	10	120 C/C	┌───┐ 2-LEGGED VARIES
8a	12	120 C/C	┌───┐ 2-LEGGED
9	12	120 C/C	┌───┐ 50
10	10	120 C/C	┌───┐
11	10	120 C/C	┌───┐ 50



DETAIL OF 8# MESH

TYPE "m1"

(IN TWO LAYERS ABOVE BEARING)
(SCALE 1:20)



SECTION D-D

(SCALE 1:50)

Manager (Tech)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Patna

Dy. General Manager (Tech)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Patna

SPECIAL NOTE:-

SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 2018	MODIFIED DPR
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R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
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R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

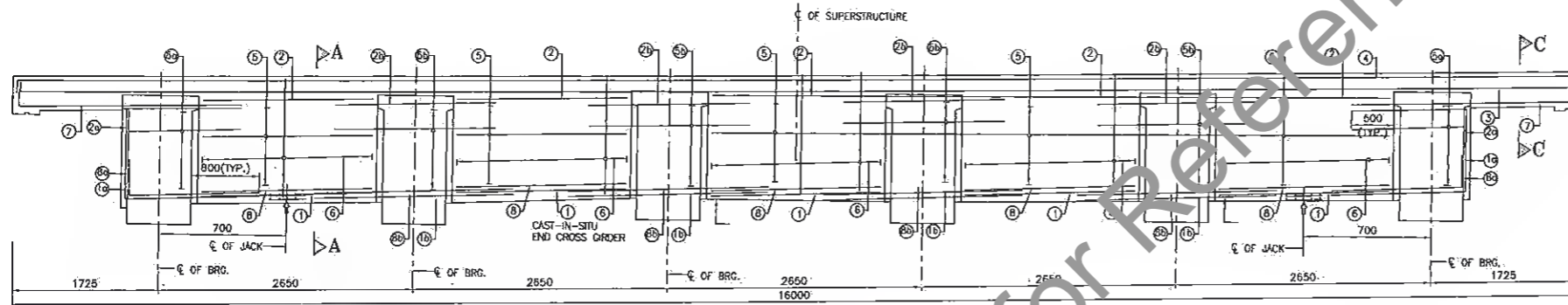
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza,
Ahinsa Khand-I, Indrapuram,
Ghaziabad-201014

DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE: AS SHOWN

TITLE:
REINFORCEMENT DETAILS OF RCC GIRDER OF MINOR BRIDGE AT CH: 13+386 (Span 1X20m) (SHEET-03 OF 08)

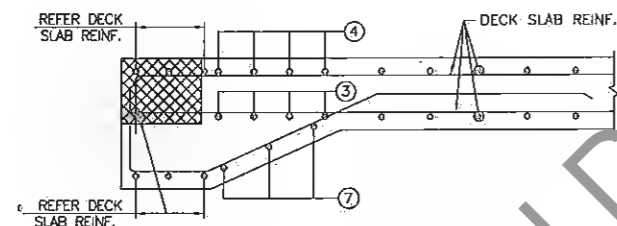
DRAWING NO.
STC/BR/BSRDC/BNB/STR/MNB-
A3



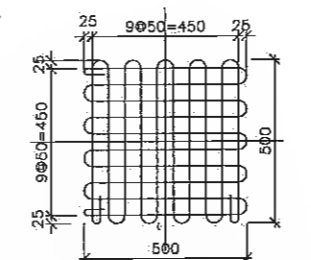
LONGITUDINAL SECTION OF END CROSS GIRDER (SCALE 1:40)

REINF. DETAILS

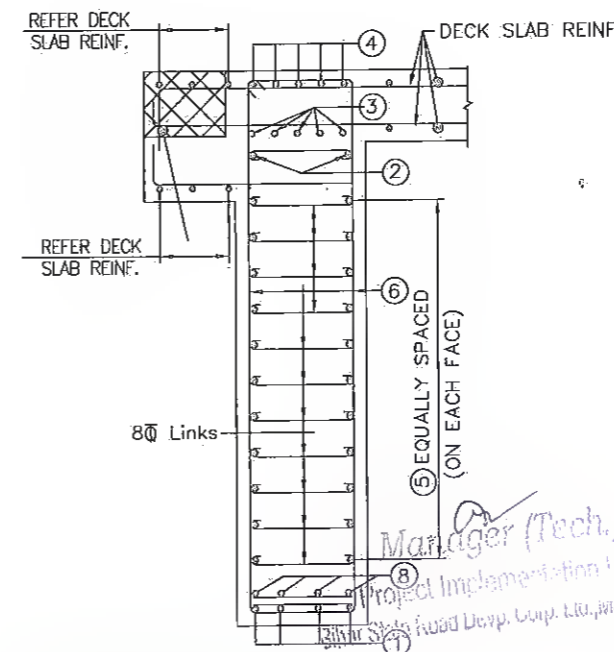
BAR MKD.	BAR DIA.	NO./SPACING	SHAPE
1	20	5X4 NOS.	—
1a	20	2X4 NOS.	650L
1b	20	4X4 NOS.	—
2	16	5X2 NOS.	—
2a	16	2X2 NOS.	650L
2b	16	2X2 NOS.	—
3	25	5 NOS.	150L
4	25	5 NOS.	160L
5	10	5X11 NOS.	—
5a	10	2X11 NOS.	—
5b	10	4X11 NOS.	—
6	12	200 C/C	2-LEGGED
7	16	2X3 NOS.	200L
8	20	5X4 NOS.	—
8a	20	2X4 NOS.	650L
8b	20	4X4 NOS.	—



SECTION C-C (SCALE 1:15)



MESH TYPE-A (88 MESH TO BE PLACED UNDER JACK) (SCALE 1:15)



SECTION A-A (SCALE 1:20)

NOTES:-

1. ALL DIMENSIONS ARE IN MM AND LEVELS IN METERS.
2. DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. GRADE OF CONC. FOR R.C.C. WORKS = M-35
4. THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500D) CONFORMING TO IS:1786.
5. CLEAR COVER TO REINFORCEMENT SHALL BE 40mm.
6. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION AND LAPPING SHALL BE STAGGERED. MINIMUM LAP LENGTH SHALL BE 76 TIMES DIA OF BAR.

R. Roy
 Dy. General Manager (Tech)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur

SPECIAL NOTE:-

SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY :

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 2019	MODIFIED DPR
R4	JULY 2019	DETAILED PROJECT REPORT
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

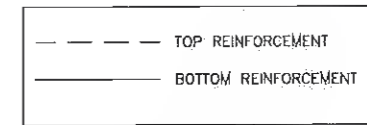
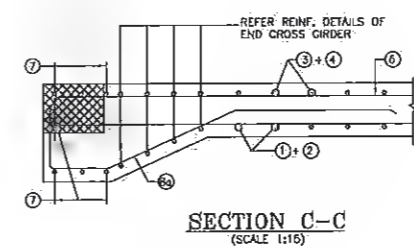
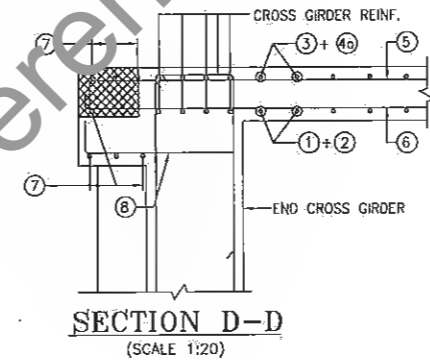
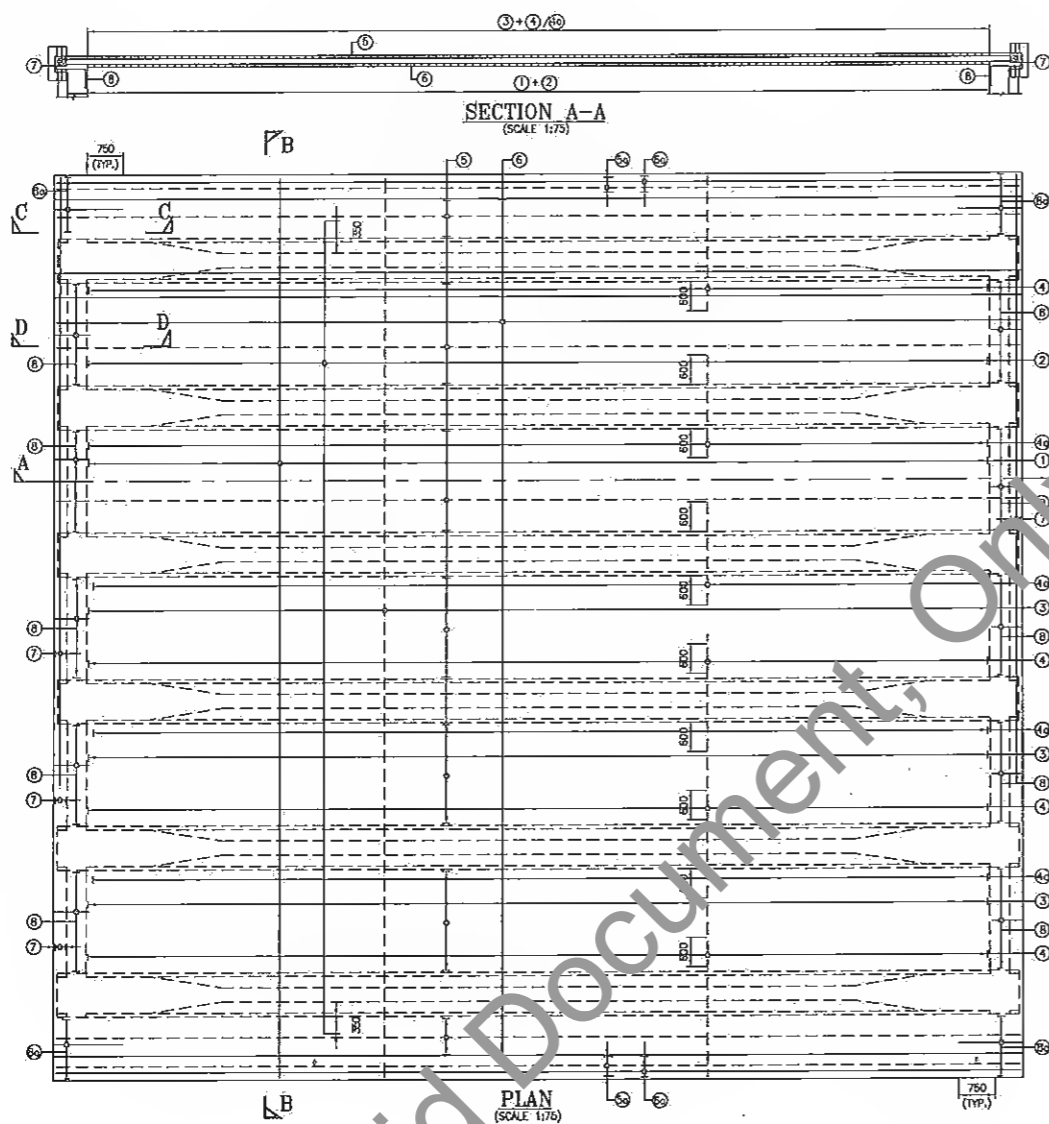
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
S70 Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indirapuram,
 Ghaziabad-201014

DRAWN BY: ANKIT NEGI
 DESIGN BY: NIKHIL
 CHECKED BY: RANJAN
 SCALE:-AS SHOWN

TITLE:
REINFORCEMENT DETAIL FOR END CROSS GIRDER OF MINOR BRIDGE AT CH:13+386 (Span 1X20m) (SHEET- 04 OF 08)
 DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB- A3



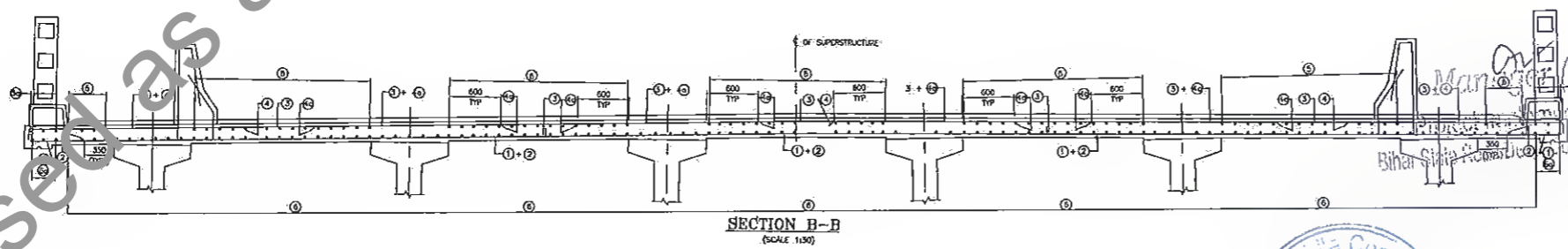


REINFORCEMENT DETAILS

BAR MKD.	BAR DIA.	NO./SPACING	SHAPE	REMARKS
1	12	150 C/C	┌┐ 120	BAR NOS. ① & ② ARE ALTERNATE BARS
2	12	150 C/C	—	
3	12	150 C/C	┌┐ 120	BAR NOS. ③ & ④ ARE ALTERNATE BARS
4	12	150 C/C	┌┐ 120	
4a	12	150 C/C	—	
5	10	150 C/C	—	
5a	16	2x3 NOS.	—	
6	10	150 C/C	—	
6a	16	2x3 NOS.	—	
7	12	2x7 NOS.	—	
8	12	100 C/C	┌┐ 400	
8a	10	100 C/C	200L	

NOTES:-

1. ALL DIMENSIONS ARE IN MM AND LEVELS IN METERS.
2. DO NOT SCALE THE DIMENSIONS, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. GRADE OF CONCRETE = M35
4. THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
5. CLEAR COVER TO REINFORCEMENT SHALL BE 40mm.
6. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION AND LAPPING SHALL BE STAGGERED. MINIMUM LAP LENGTH SHALL BE 76 TIMES DIA OF BAR.




R.Kas
 Dy. General Manager (Tech)
 Project Implementation Unit
 Bihar State Road Devp Corp. Ltd. Muzaffarpur

SPECIAL NOTE:-

SPECIALY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.



REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 2019	MODIFIED DPR
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R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

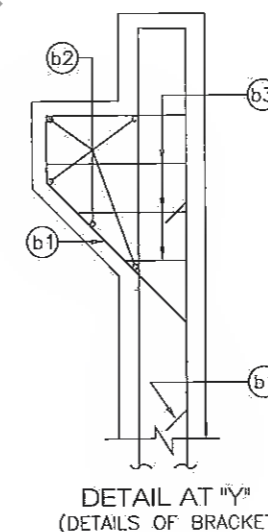
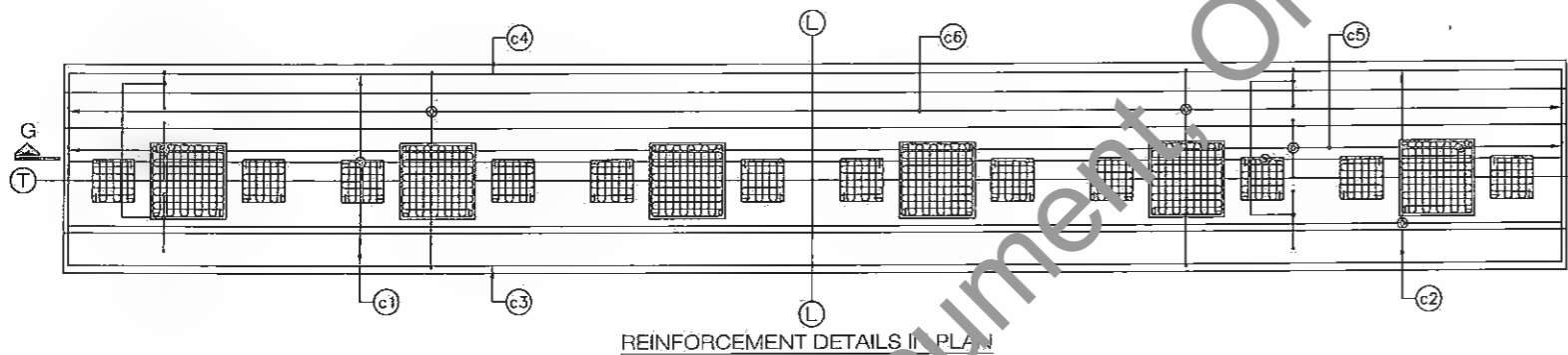
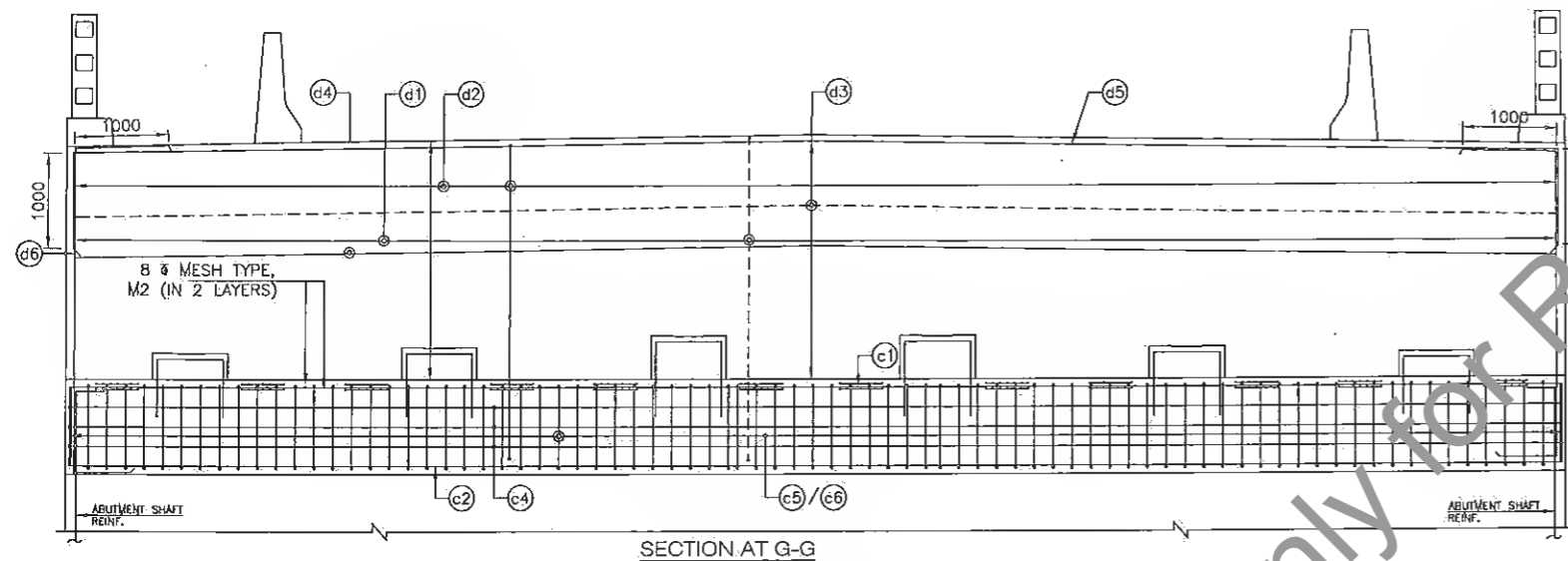
DPR CONSULTANTS:
Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indirapuram,
 Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE: AS SHOWN	

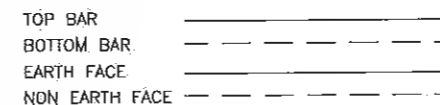
TITLE:
REINFORCEMENT DETAIL FOR DECK SLAB OF MINOR BRIDGE AT CH:13+386 (Span 1X20m) (SHEET-05 OF 08)

DRAWING NO.
 STC/BR/BSRDC/BNB/STR/MB-

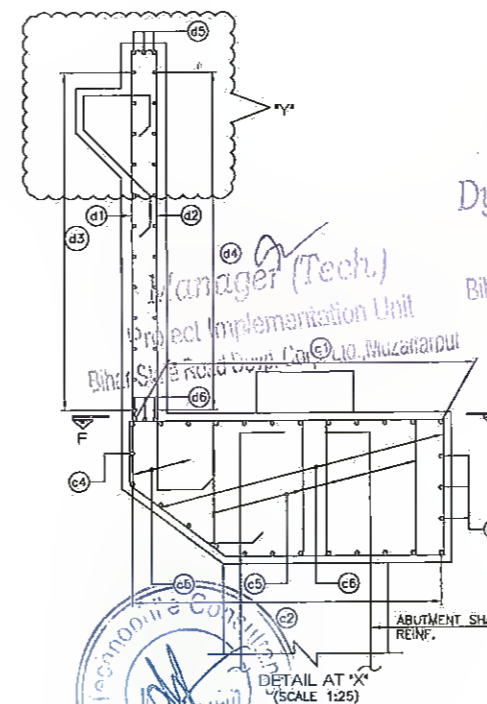
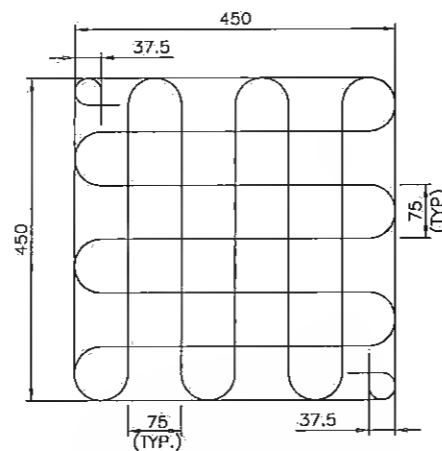
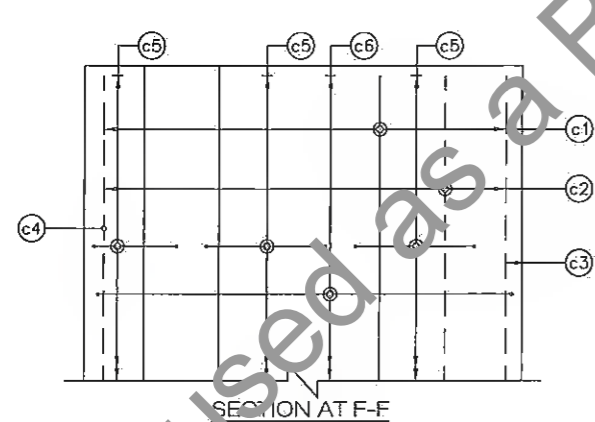
A3



LEGEND:-



REINFORCEMENT DETAILS		
BAR MKD.	BAR DIA & SPACING/NOS	BAR SHAPE
ABUTMENT CAP:-		
c1	10 NOS. 12 Ø	200 200
c2	10 NOS. 12 Ø	200 200
c3	3 NOS. 12 Ø	200 200
c4	7 NOS. 12 Ø	200 200
c5	2 LEGGED 10 Ø @200 C/C	
c6	2 LEGGED STIRRUPS 16 Ø @200 C/C	
DIRT WALL:-		
d1	16 Ø @150c/c	
d2	10 Ø @150c/c	
d3	10 Ø @200c/c	200 200
d4	10 Ø @200c/c	200 200
d5	3 NOS. 16 Ø	300 300
d6	3 NOS. 16 Ø	
APPROACH SLAB BRACKET:-		
b1	12 Ø @100c/c	
b2	5 NOS. 12 Ø	
b3	3 LAYERS 2 LEGGED 12 Ø STIRRUPS @400c/c HORIZONTAL.	



R.R
Dy. General Manager (Tech)
Project Implementation Unit
Bihar State Road Devp Corp Ltd, Patna

NOTES:-

- ALL DIMENSIONS ARE IN MM.
- DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- GRADE OF CONCRETE = M35
- THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
- CLEAR COVER TO REINFORCEMENT SHALL BE 40mm.
- NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION AND LAPPING SHALL BE STAGGERED. MINIMUM LAP LENGTH SHALL BE 76 TIMES DIA OF BAR.
- LAP/ SPLICES SHALL BE AS PER IRC:112-2011 (CLAUSE 15.2.5).
- MESH REINFORCEMENT SHALL BE MS BARS (GRADE DESIGNATION S250) CONFORMING TO IS:432 PART-1 MILD STEEL.
- MESH TYPE 'M1' & 'M2' SHALL BE PROVIDED AT EACH BEARING PEDESTAL & JACK LOCATIONS IN TWO LAYER, AT 20mm AND AT 100mm FROM OUTER FACE OF CONCRETE.

SPECIAL NOTE:-

SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 2022	MODIFIED DPR
R4	JULY 2019	DETAILED PROJECT REPORT
R3	DEC 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:



BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:

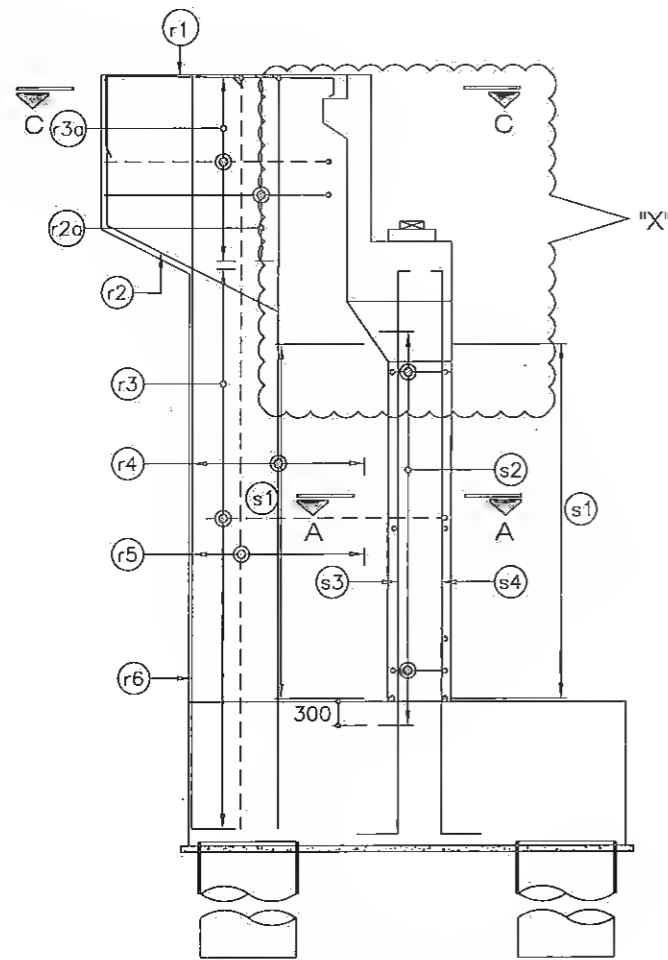
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:

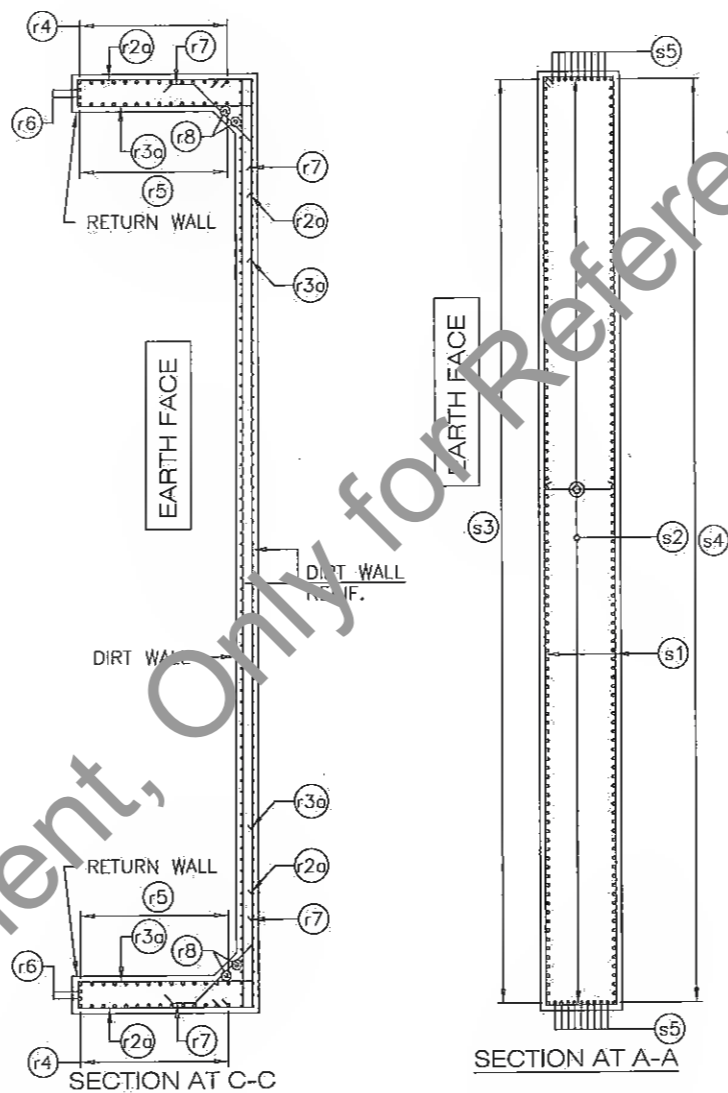
570 Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza,
Ahinsa Khand-I, Indrapuram,
Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

TITLE:	REINFORCEMENT DETAIL FOR MESH & DIRT WALL & ABUTMENT CAP OF MINOR BRIDGE AT CH:13+386 (Span 1X20m) (SHEET- 06 OF 08)
DRAWING NO.	STC/BR/BSRDC/BNB/STR/MNB-



SECTIONAL ELEVATION OF ABUTMENT



SECTION AT C-C

SECTION AT A-A

LEGEND:-
TOP BAR _____
BOTTOM BAR _____

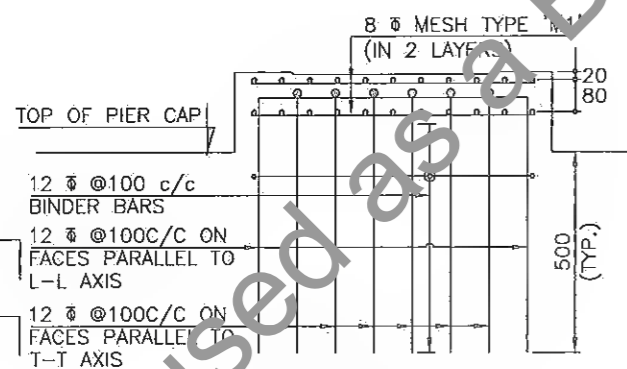
REINFORCEMENT DETAILS		
BAR MKD.	BAR DIA & SPACING/NOS	BAR SHAPE
ABUTMENT SHAFT:-		
s1	16 $\bar{\phi}$ @100c/c	500 500
s2	10 $\bar{\phi}$ LINKS TIED TO ALTERNATE VERTICAL BARS @150c/c VERTICALLY IN STAGGERED MANNER	
s3	20 $\bar{\phi}$ @100c/c	500 500
s4	16 $\bar{\phi}$ @100c/c	500 500
s5	12 $\bar{\phi}$ @100c/c	500 500
RETURN WALL:-		
r1	3 NOS. 16 $\bar{\phi}$	300 1500
r2	3 NOS. 16 $\bar{\phi}$	
r2o	12 $\bar{\phi}$ @150c/c	300 1500
r3o	16 $\bar{\phi}$ @150c/c	300 1500
r4	12 $\bar{\phi}$ @150c/c	500 300
r5	16 $\bar{\phi}$ @100c/c	300 500
r6	2 NOS. 16 $\bar{\phi}$	300 500
r7	10 $\bar{\phi}$ @200c/c	500 500
r8	2 NOS. 12 $\bar{\phi}$	

NOTES:-

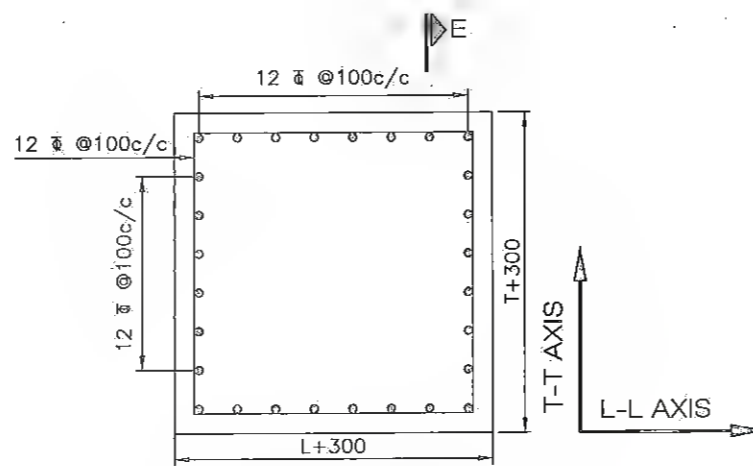
- ALL DIMENSIONS ARE IN MM.
- DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- GRADE OF CONCRETE = M35
- THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
- CLEAR COVER TO REINFORCEMENT SHALL BE 40mm.
- NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION AND LAPPING SHALL BE STAGGERED. MINIMUM LAP LENGTH SHALL BE 76 TIMES DIA OF BAR.
- LAP/ SPLICES SHALL BE AS PER IRC:112-2011 (CLAUSE 15.2.5).
- MESH REINFORCEMENT SHALL BE MS BARS (GRADE DESIGNATION S250) CONFORMING TO IS:432 PART MILD STEEL.
- MESH TYPE 'M1' & 'M2' SHALL BE PROVIDED AT EACH BEARING PEDESTAL & JACK LOCATIONS IN TWO LAYER, AT 20mm AND AT 100mm FROM OUTER FACE OF CONCRETE.

SPECIAL NOTE:-

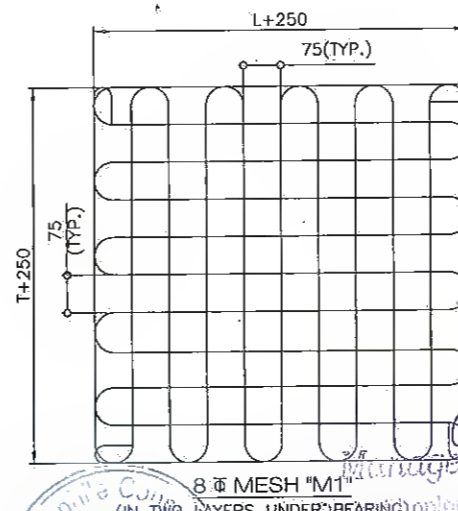
SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.



SECTION AT E-E
(MIN. PEDESTAL HEIGHT=350-BEARING)



PLAN SHOWING TYPICAL REINF. DETAILS OF BEARING PEDESTAL



8 $\bar{\phi}$ MESH "M1" (IN TWO LAYERS UNDER BEARING)
SIZE OF PEDESTAL SHALL BE (L+300) x (T+300) WHERE "L" IS LENGTH OF BEARING IN LONGITUDINAL DIRECTION AND "T" IS BREADTH OF BEARING IN TRANSVERSE DIRECTION

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R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:

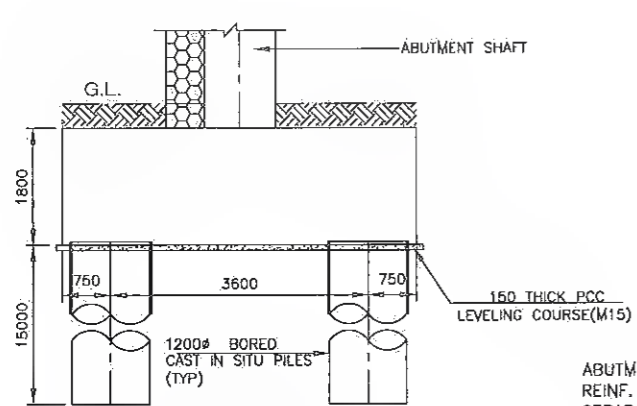
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:

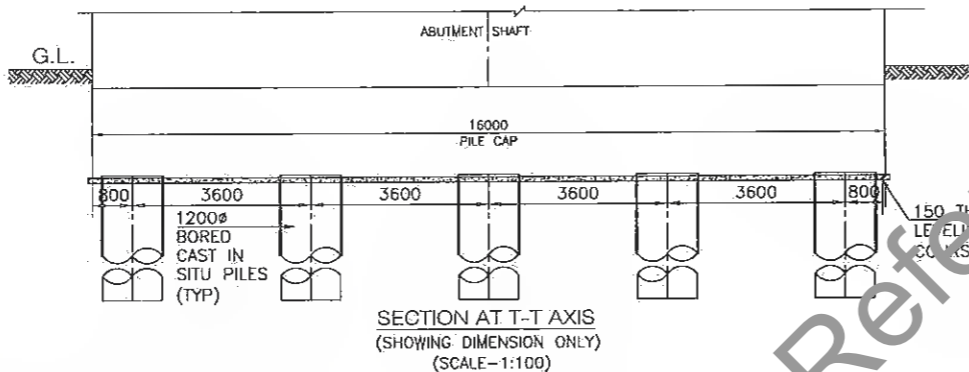
Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza,
Ahinsa Khand-1, Indirapuram,
Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

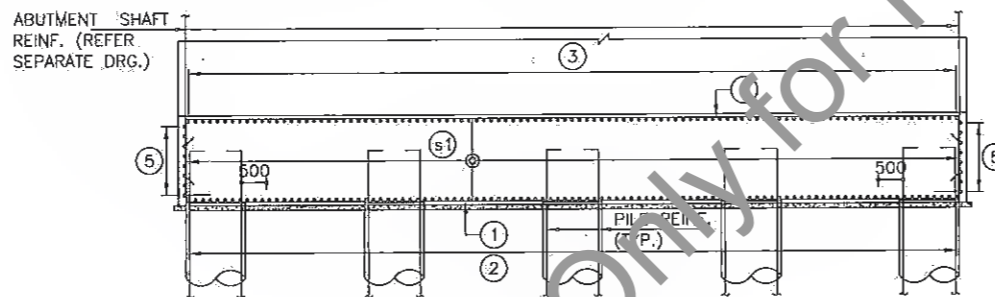
TITLE:	REINFORCEMENT DETAIL FOR ABUTMENT & RETURN WALL OF MINOR BRIDGE AT CH:13+386 (Span 1X20m) (SHEET- 07 OF 08)
DRAWING NO.	STC/BR/BRDC/BNB/STR/MNB-



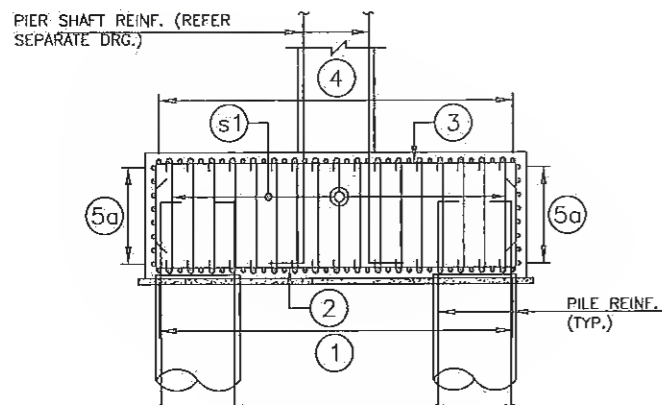
SECTION AT L-L AXIS (SHOWING DIMENSION ONLY)



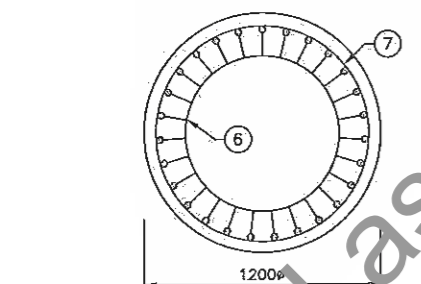
SECTION AT T-T AXIS (SHOWING DIMENSION ONLY) (SCALE-1:100)



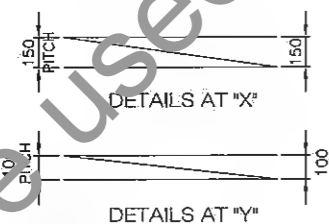
SECTION AT A-A (SHOWING REINFORCEMENT ONLY) (SCALE 1:100)



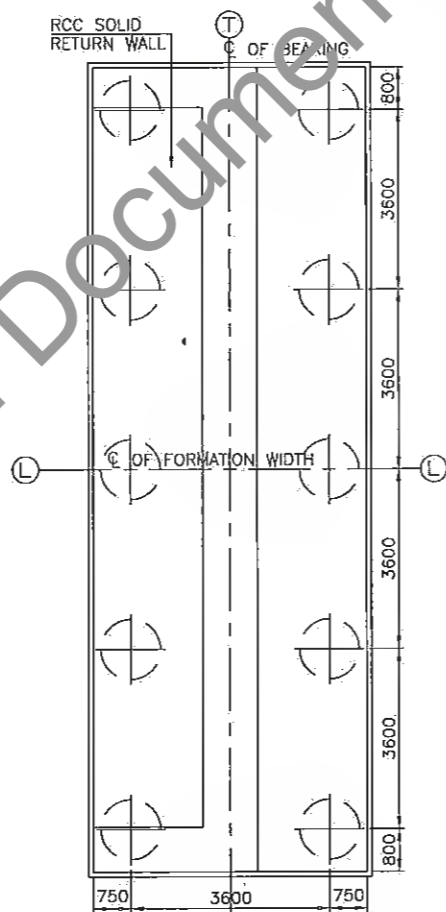
SECTION AT B-B (SHOWING REINFORCEMENT ONLY)



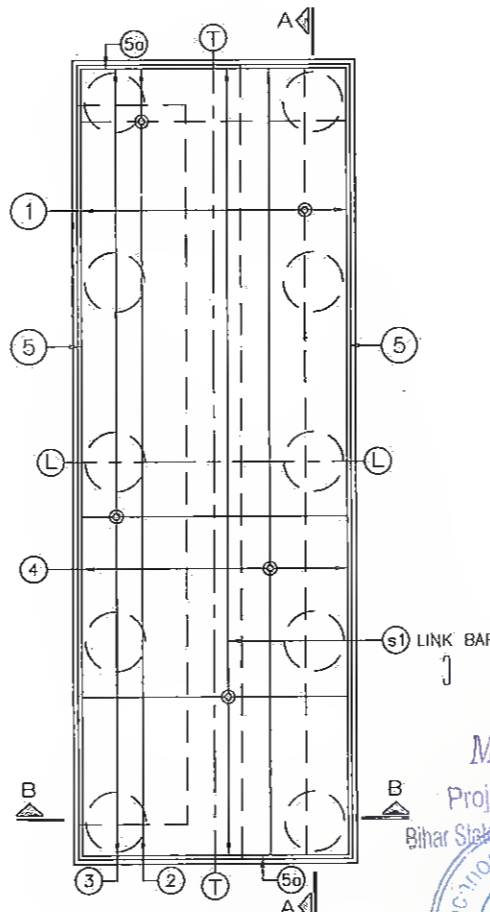
SECTION C-C



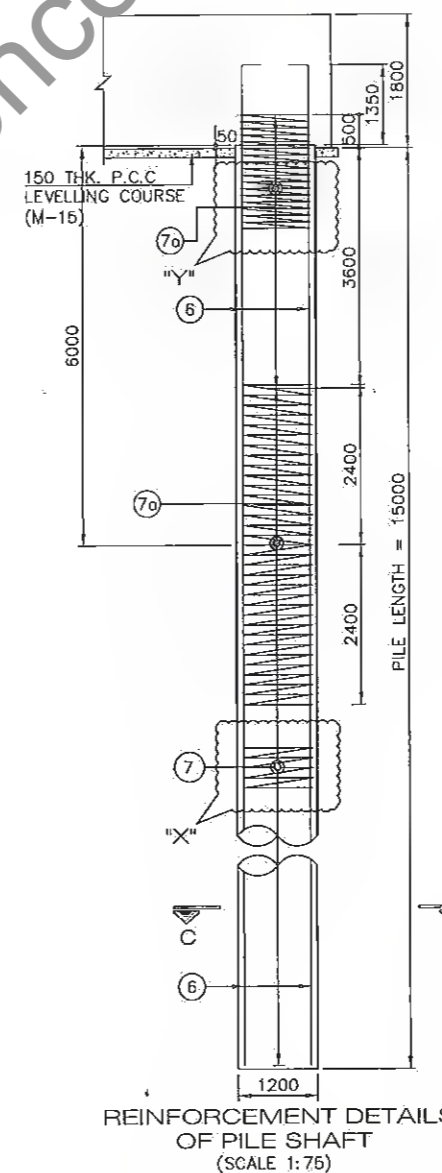
DETAILS AT 'Y'



FOUNDATION PLAN (SCALE 1:100)



PLAN (SHOWING REINFORCEMENT ONLY) (SCALE 1:100)



REINFORCEMENT DETAILS OF PILE SHAFT (SCALE 1:75)

LEGEND:-

- TOP BAR
- BOTTOM BAR

SCHEDULE OF BARS.

BAR MKD.	BAR DIA & SPACING/NOS	BAR SHAPE
PILE CAP:-		
1	25 @ 150c/c	[1500 1500]
2	25 @ 150c/c	[1500 1500]
3	16 @ 150c/c	[1500 1500]
4	16 @ 150c/c	[1500 1500]
5	12 @ 150c/c	BOTH FACES
5a	12 @ 150c/c	BOTH FACES
s1	12 @ STIRRUPS @ 280c/c	[]
PILE:-		
6	24 NOS - 25 @	300
7	10 @ 150c/c	[]
7a	16 @ 100c/c	[]

NOTES:-

- ALL DIMENSIONS ARE IN MM.
- DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- GRADE OF CONCRETE = M35
- CLEAR COVER TO ANY REINFORCEMENT > 75mm
- THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
- NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION AND LAPPING SHALL BE STAGGERED. MINIMUM LAP LENGTH SHALL BE 76 TIMES DIA OF BAR.
- PILE SHALL BE CAST ABOVE 250mm THE BOTTOM OF PILE CAP LEVEL. THE TOP OF CONCRETE SHALL BE BROKEN BEFORE CASTING OF PILE CAP, TAKING 50mm PILE EMBEDDED INTO THE PILE CAP.
- LAP/ SPLICES SHALL BE AS PER IRC:112-2011 (CLAUSE 15.2.5).
- L-L REPRESENTS LONGITUDINAL AXIS OF BRIDGE. T-T REPRESENTS TRANSVERSE AXIS OF BRIDGE.

Manager (Tech.)
Project Implementation Unit
Bihar State Road Devt. Corp. Ltd., Muzaffarpur

Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devt. Corp. Ltd., Muzaffarpur

SPECIAL NOTE:-
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R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

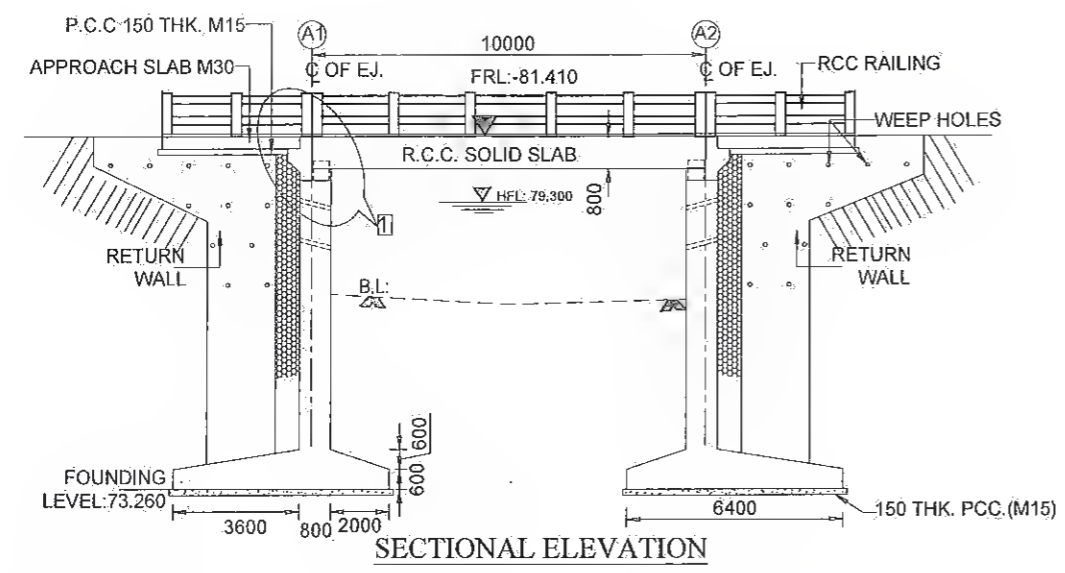
CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

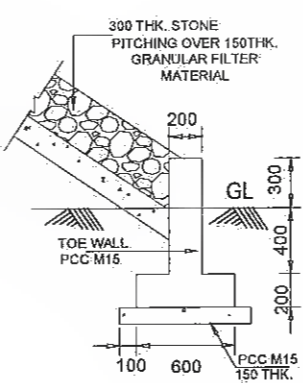
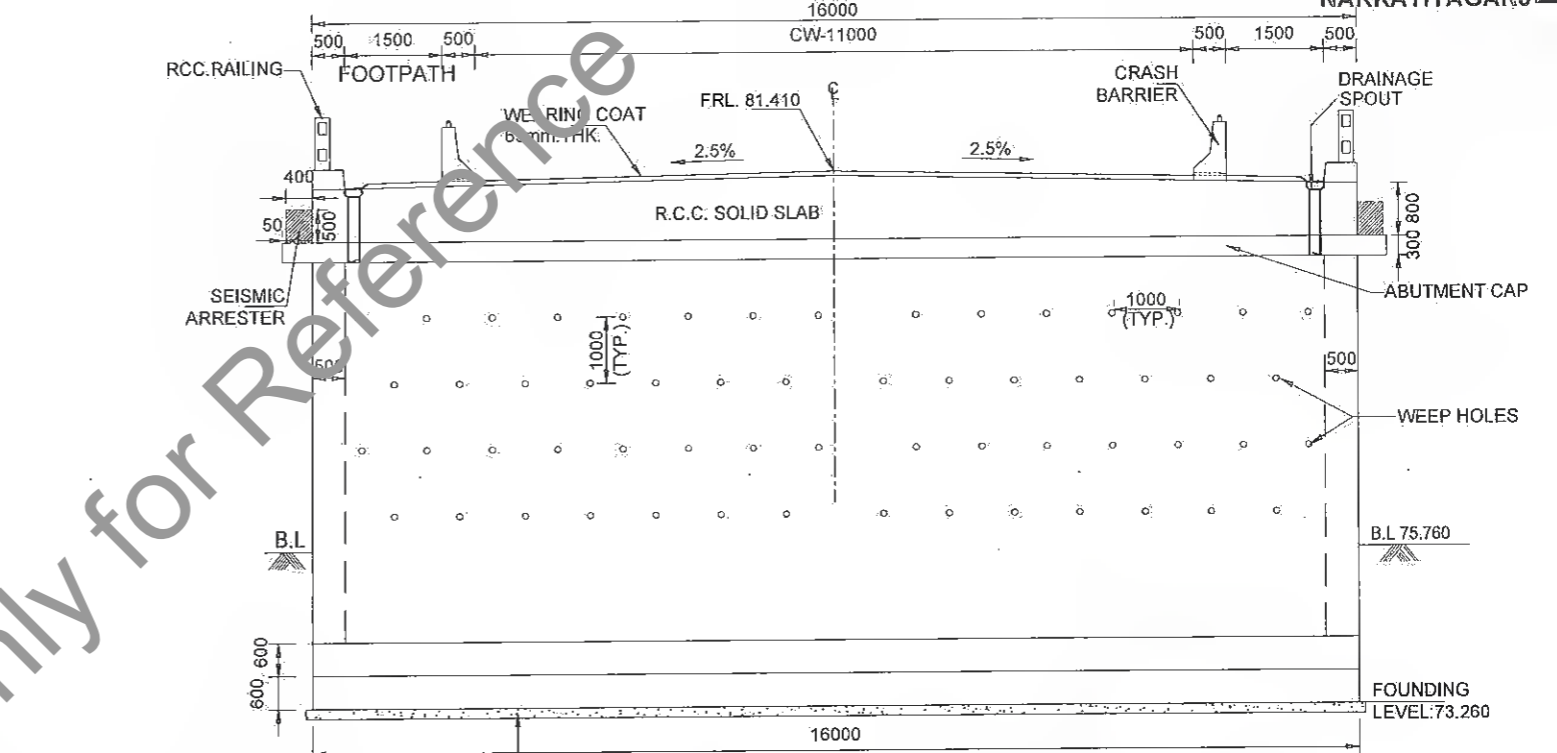
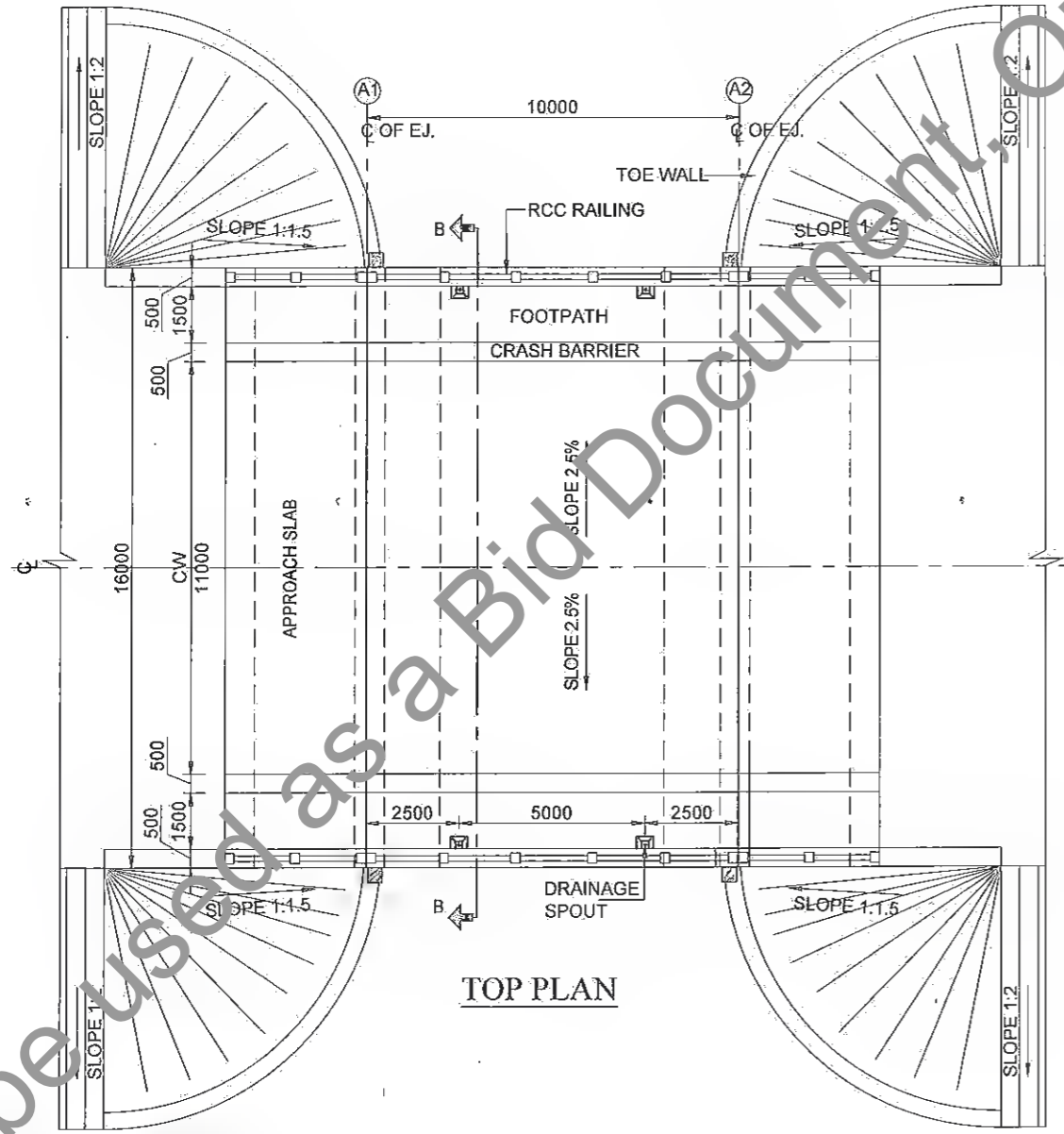
DPR CONSULTANTS:
Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza, Ahinsa Khand-1, Indirapuram, Ghaziabad-201014

DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE: AS SHOWN

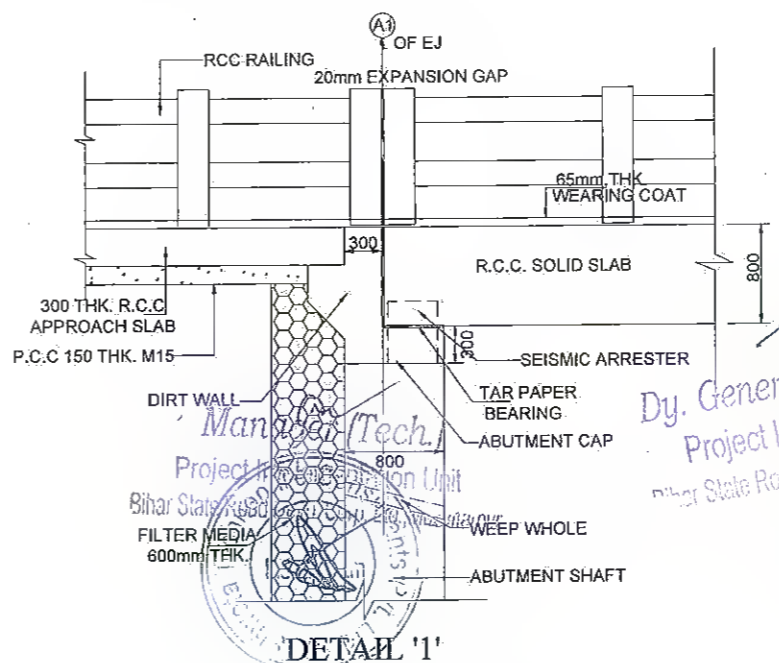
TITLE:
REINFORCEMENT DETAIL FOR FOUNDATION OF MINOR BRIDGE AT CH:13+386 (Span 1X20m) (SHEET - 08 OF 08)
DRAWING NO. STC/BR/BSRDC/BNB/STRMNB-
A3



FRL.(m)	81.410	81.410
BED LVL.(m)	75.760	75.760



DETAIL OF TOE WALL



DETAIL '1'

DEPTH (M)	LOG	DESCRIPTION	N
0.0			
1.5	M1	DARK GREY CLAYEY SILT	5
3.0	M1	DARK GREY CLAYEY SILT	7
6.0		DARK GREY CLAYEY SILT	10
9.0		DARK GREY CLAYEY SILT	14
12.0		DARK GREY CLAYEY SILT	19
15.0		GREYISH SILTY SAND	21

NOTES:-

- ALL DIMENSIONS ARE IN mm. AND LEVELS IN METERS UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
- THE CARRIAGEWAY OF PROPOSED BRIDGE IS DESIGNED FOR ONE LANE OF IRC CLASS TOR OR ONE LANES OF CLASS A OR 3 LANES OF IRC CLASS A.
- CONCRETE DETAILS:
 CRASH BARRIER - M40
 R.C.C SOLID SLAB - M35
 APPROACH SLAB - M30
 SEISMIC ARRESTER - M40
 RETURN WALL - M30
 ABUTMENT SHAFT & DIRT WALL - M35
 FOUNDATION - M35
- GRADE OF STEEL SHALL BE Fe-500 CONFORMING TO IS : 1786.
- 65 THK. WEARING COAT SHALL CONSIST OF MASTIC ASPHALT 25 THK. AND ONE LAYER OF BITUMINOUS CONC. 40mm. AS PER SEC-2700 OF MORTH STANDARD.
- BACK FILLING SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX : 6 OF IRC : 78-2000 HAVING PROPERTIES C=0, $\phi > 30^\circ$, $s < 20$, $d_{10} \leq 0.075$ mm
- WEAP HOLES IN SLOPE 1:20 SPACED @ 1000mm.c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN STAGGERED MANNER IN ABUTMENT ABOVE GROUND LEVEL/LWL.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH FINAL HIGHWAY PLAN AND PROFILE DRAWINGS ALL LEVELS GIVEN IN DRAWING SHALL BE VERIFIED BEFORE EXECUTION AT SITE.
- SEISMIC ZONE (IV) HAS BEEN CONSIDERED.
- TYPE OF BEARINGS- TAR PAPER
- NET SAFE BEARING CAPACITY AT FOUNDING LEVEL HAS BEEN CONSIDERED AS 25.00 t/m² AS PER REPORT. THE SAME SHALL BE VERIFIED AT SITE BEFORE EXECUTION.

SPECIAL NOTE:-

SPECIALY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.

R5	JULY 2019	MODIFIED DPR
R4	JULY 2019	DETAILED PROJECT REPORT
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY
REV.	DATE	DESCRIPTION OF REVISIONS

CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah- Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

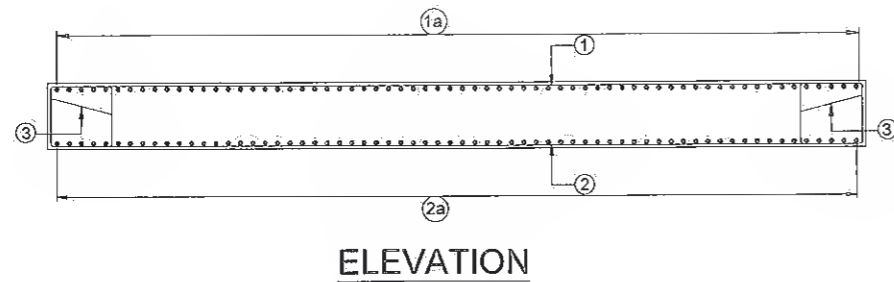
DPR CONSULTANTS:
570 Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indrapuram,
 Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RAJAN
SCALE	AS SHOWN

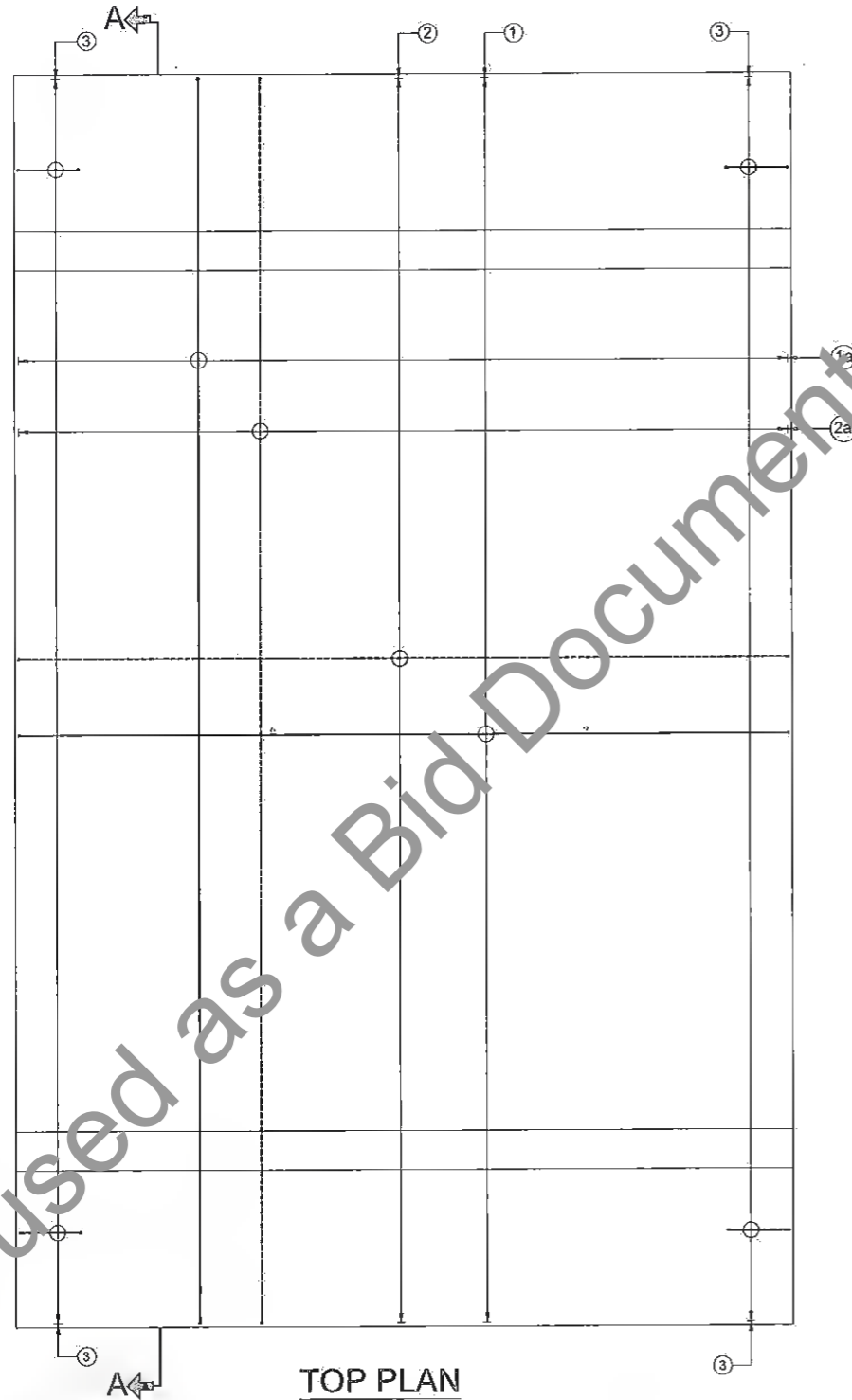
TITLE:
GENERAL ARRANGEMENT DRAWING OF MINOR BRIDGE AT CH:18+914 (Span 1x10.0m) (SHEET- 01 OF 05)

DRAWING NO.
 STC/BR/BSRDC/BNB/STR/MNB-05

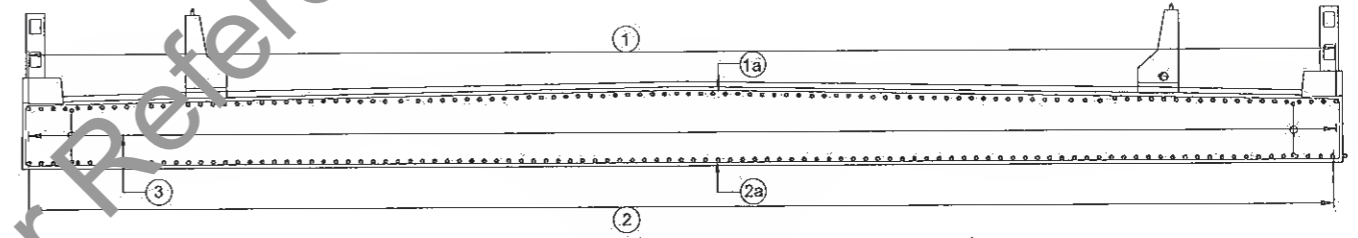
A3



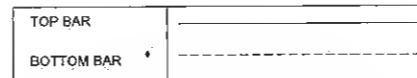
ELEVATION



TOP PLAN



SECTION - (A-A)



SCHEDULE OF REINFORCEMENT

BAR MKD.	BAR DIA.	NO./SPACING	SHAPE	REMARKS
1	16	150 c/c		
1a	10	150 c/c		
2	25	125 c/c		
2a	12	150 c/c		
3	10	150 c/c		

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. GRADE OF CONCRETE M35
4. THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500 D CONFORMING TO IS:1786.
5. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 40mm.
6. BARS SHALL BE LAPPED IN SUCH A WAY THAT NOT MORE THAN 50% OF BARS ARE LAPPED AT ANY SECTION. LAP LENGTH SHALL BE 76 TIMES DIA OF BAR.

SPECIAL NOTE:-

SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORKS SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.



Mandger (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Patna

Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Patna

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 2021	MODIFIED DPR
R4	JULY 2019	DETAILED PROJECT REPORT
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
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R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah- Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

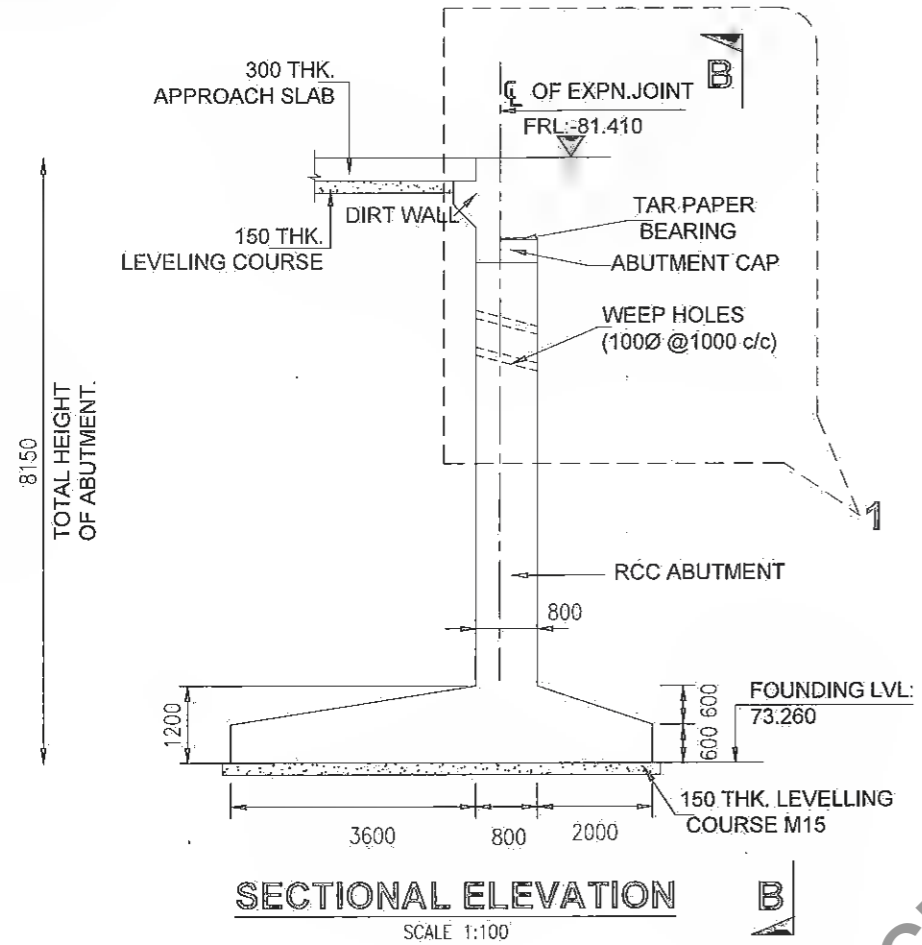
DPR CONSULTANTS:
Shweta Technophilé Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza,
Ahinsa Khand-I, Indrapuram,
Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

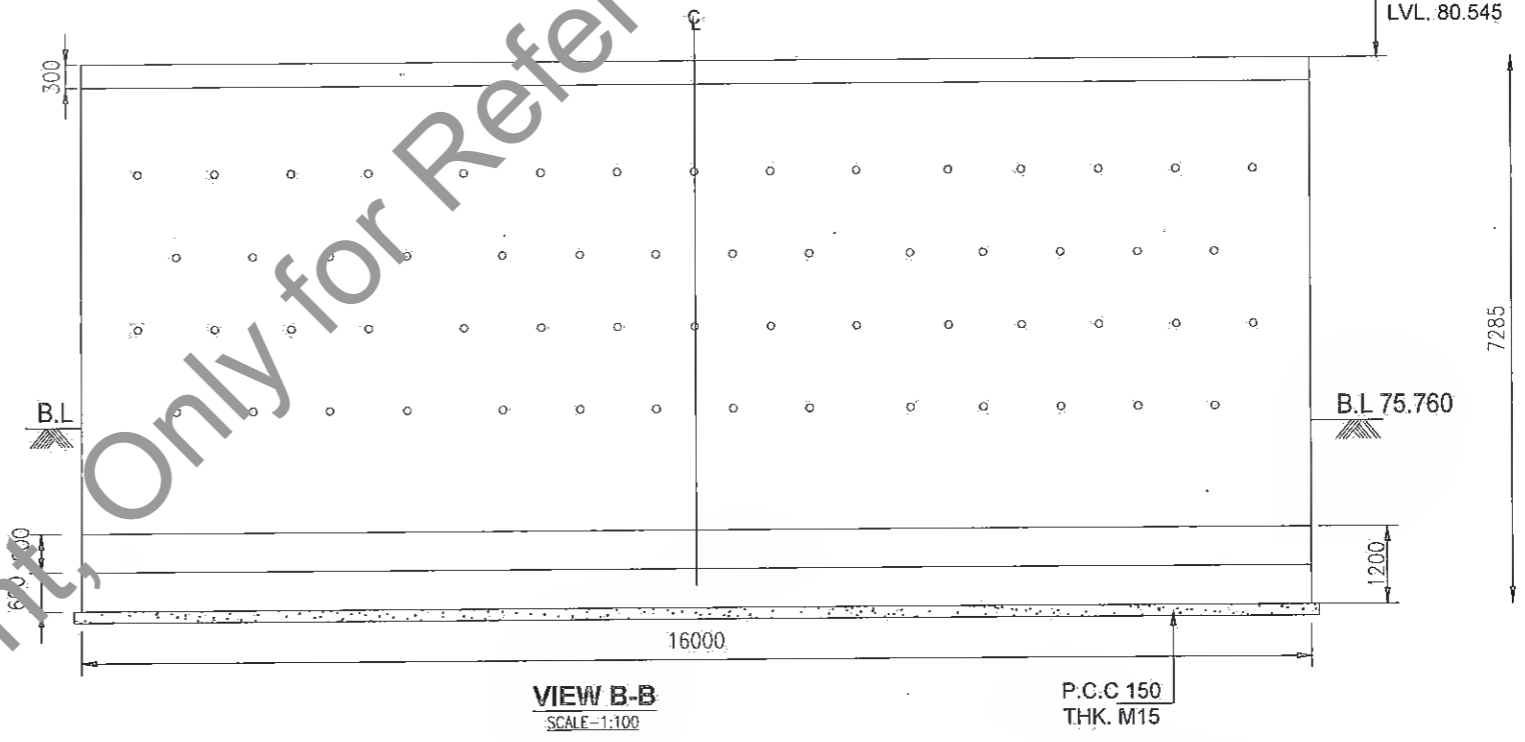
TITLE:
REINFORCEMENT DRAWING OF SUPERSTRUCTURE OF MINOR BRIDGE AT CH:18+914 (Span 1x10.0m) (SHEET- 03 OF 05)

DRAWING NO.
STC/BR/BSRDC/BNB/STR/MNB-

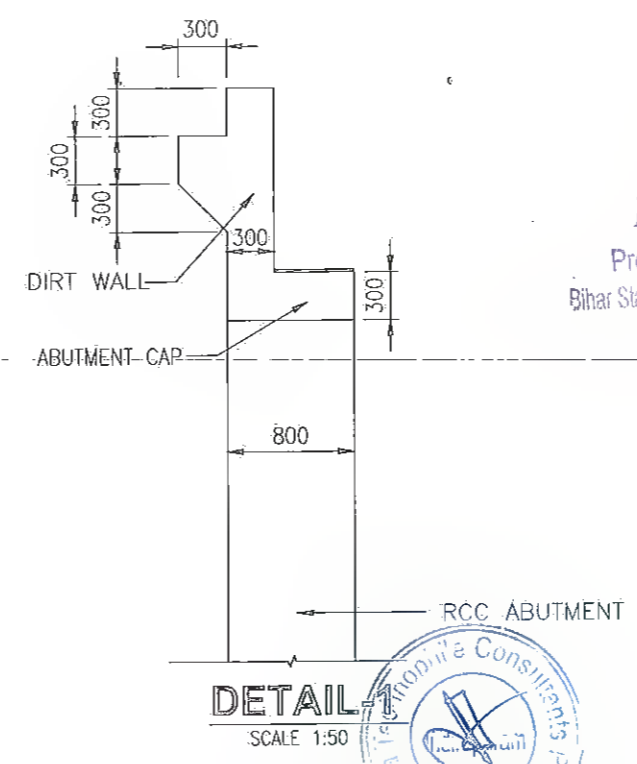
A3



SECTIONAL ELEVATION
SCALE 1:100



VIEW B-B
SCALE 1:100



DETAIL-1
SCALE 1:50

R.Ka
Dy. General Manager (Tech)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur

An
Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur


NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. CONCRETE SHALL BE GRADE AS FOLLOWS:-
 - I) ABUTMENT - M35
 - II) ABUTMENT CAP & DIRT WALL - M35
 - III) APPROACH SLAB - M30

SPECIAL NOTE:-

SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.

R5	JULY 2019	MODIFIED DPR
R4	JULY 2019	DETAILED PROJECT REPORT
R3	FEB 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY
REV.	DATE	DESCRIPTION OF REVISIONS

CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA
 (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
 Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah- Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:

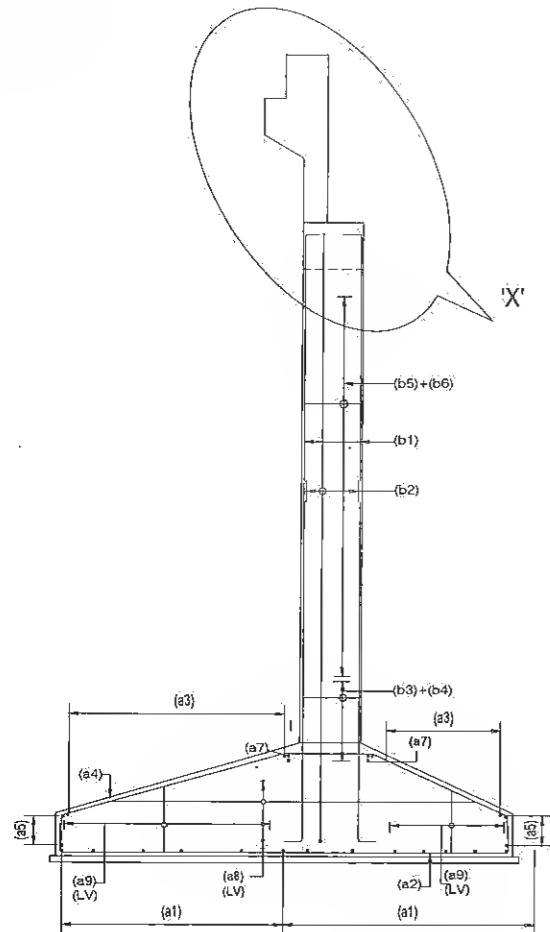
Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indrapuram,
 Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE: AS SHOWN	

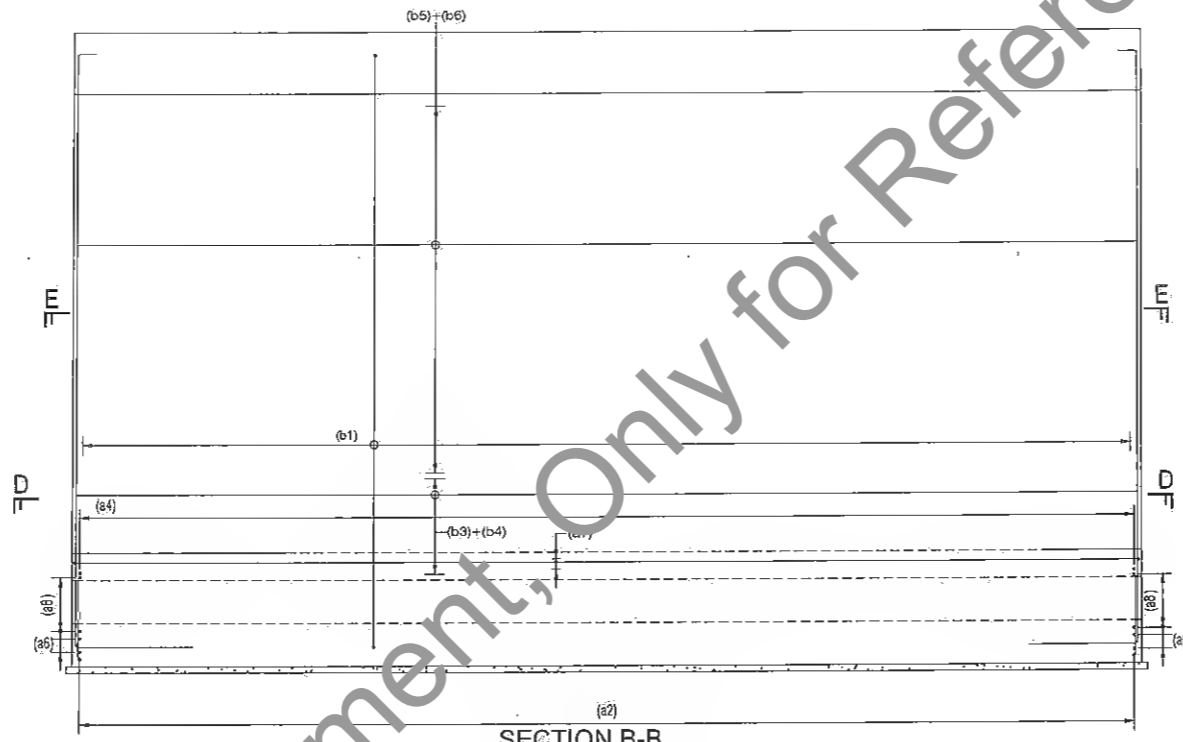
TITLE:
 DIMENSIONAL DRAWING OF ABUTMENT OF MINOR BRIDGE AT CH:18+914 (Span 1x10.0m) (SHEET- 04 OF 05)

DRAWING NO.
 STC/BR/BSRDC/BNB/STR/MNB-

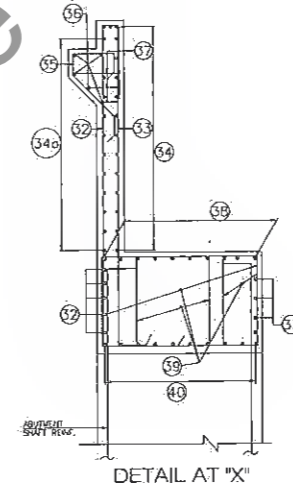
A3



SECTION A-A
SCALE 1:75



SECTION B-B
SCALE 1:75



DETAIL AT "X"

REINFORCEMENT RETURN WALL TABLE :-

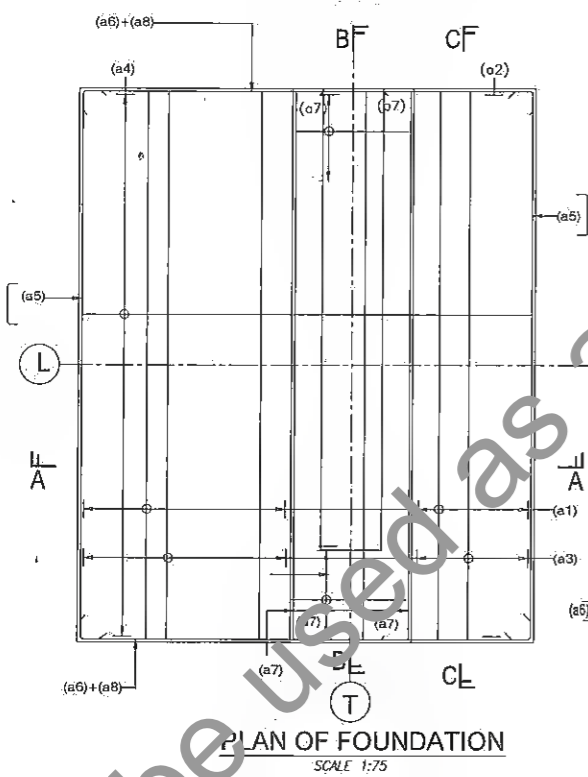
r1	3 NOS. 16 Φ	300
r2	3 NOS. 16 Φ	
r2a	12 Φ @ 150c/c	
r3	16 Φ @ 150c/c	
r3a	12 Φ @ 150c/c	
r4	12 Φ @ 150c/c	
r4a	20 Φ @ 150c/c	
r5	16 Φ @ 100c/c	
r6	12 Φ @ 100c/c	
r6a	16 Φ @ 100c/c	
r7	16 Φ @ 100c/c	

- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
 - DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - L-L REPRESENTS THE LONGITUDINAL AXIS OF FOUNDATION AND T-T REPRESENTS THE TRANSVERSE AXIS OF FOUNDATION.
 - NET SAFE BEARING CAPACITY AT FOUNDING LEVEL HAS BEEN CONSIDERED AS 25.00MPA PER REPORT. THE SAME SHALL BE VERIFIED AT SITE BEFORE EXECUTION.
 - GRADE OF CONCRETE SHALL BE AS FOLLOWS
 (i) FOUNDATION — M35
 (ii) ABUTMENT — M35
 (iii) LEVELLING COURSE — M15
 - ALL REINFORCING BARS SHALL BE THERMO MECHANICALLY TREATED (TMT) BARS (GRADE DESIGNATION Fe-500) CONFORMING TO IS:1786 STANDARDS.
 - CLEAR COVER TO ANY REINFORCEMENT SHALL BE AS FOLLOWS
 (i) FOUNDATION — 75mm
 (ii) ABUTMENT — 50mm
 - MINIMUM BOND LENGTH SHALL BE 36 TIMES DIAMETER OF BARS.
 - NOT MORE THAN 50% OF THE BARS SHALL BE LAPPED AT ANY SECTION. LAP LENGTH FOR ALL BARS SHALL BE 51 TIMES OF BAR DIAMETER.

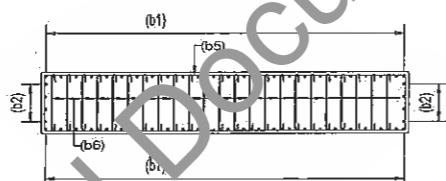
- LEGEND
- TOP BAR SHOWN ————
 - BOTTOM BAR SHOWN ————
 - LV ———— LENGTH VARIES
 - B.F ———— BOTH FACES
 - PLCD, ALT. ———— PLACED ALTERNATIVELY

REINFORCEMENT TABLE

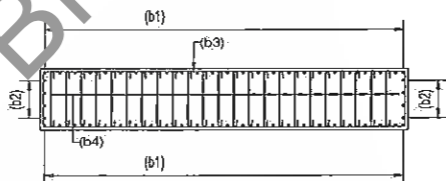
BAR MKO	BAR DESCRIPTION	BAR SHAPE
(a1)	12 Φ @ 150c/c	
(a2)	20 Φ @ 150c/c	
(a3)	12 Φ @ 150c/c	
(a4)	20 Φ @ 150c/c	
(a5)	2X1-12 Φ @ 150C/C	
(a6)	2X1-12 Φ @ 150C/C	
(a7)	2X1- Φ 12	
(a8)	12 Φ @ 150c/c	
(a9)	12- Φ 400c/c OPEN LINKS	
(a10)	16 Φ @ 100c/c	
(a11)	12 Φ @ 100c/c	
(a12)	12 Φ @ 100c/c	
(a13)	12 Φ @ 100c/c	
(a14)	12 Φ LESS ON ALTERNATE BARS	
(a15)	Φ 12- 150c/c	
(a16)	12 Φ LESS ON ALTERNATE BARS	
(a17)	16 Φ @ 100c/c	
(a18)	12 Φ @ 100c/c	
(a19)	10 Φ @ 150c/c	
(a20)	25- Φ @ 150c/c	
(a21)	12 Φ @ 100c/c	
(a22)	10 Φ @ 150c/c	
(a23)	16 Φ @ 100c/c	
(a24)	16 Φ @ 100c/c	
(a25)	12 Φ @ 150c/c	



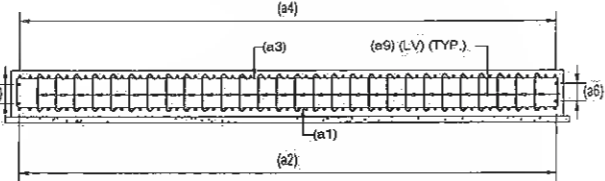
PLAN OF FOUNDATION
SCALE 1:75



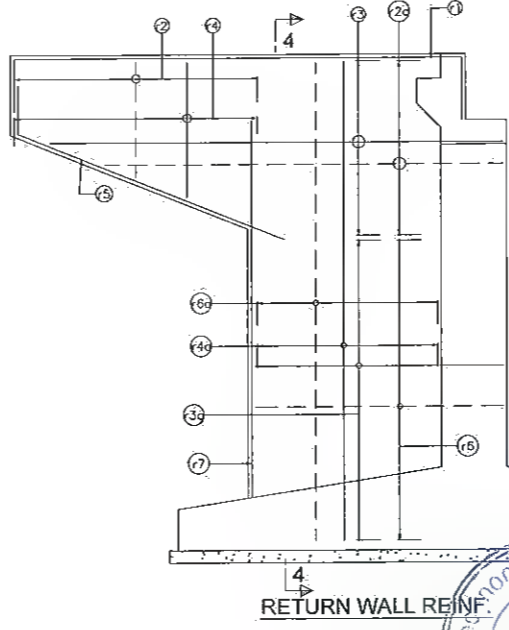
SECTION E-E
SCALE 1:75



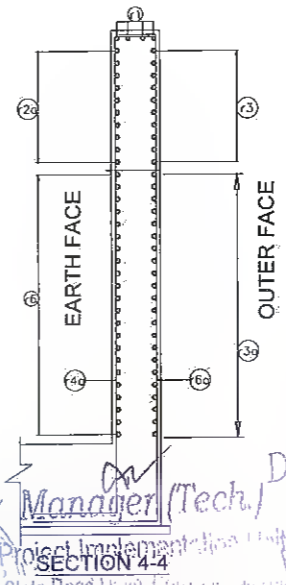
SECTION D-D
SCALE 1:75



SECTION C-C
SCALE 1:75

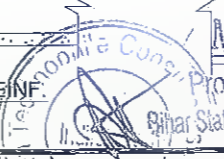


RETURN WALL REINF.



SECTION 4-4

K. Ran
Dy. General Manager
Project Implementation
Bihar State Road Devp



REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY, 2019	MODIFIED DPR
R4	JULY, 2019	DETAILED PROJECT REPORT
R3	AUG, 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG, 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA
(A GOVERNMENT OF BIHAR UNDERTAKING)

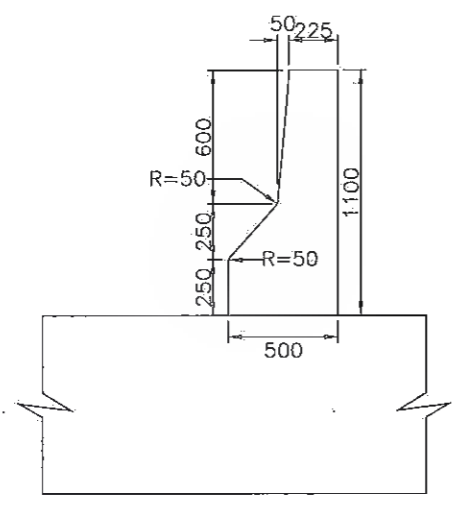
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah- Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
570 Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indrapuram, Ghaziabad-201014

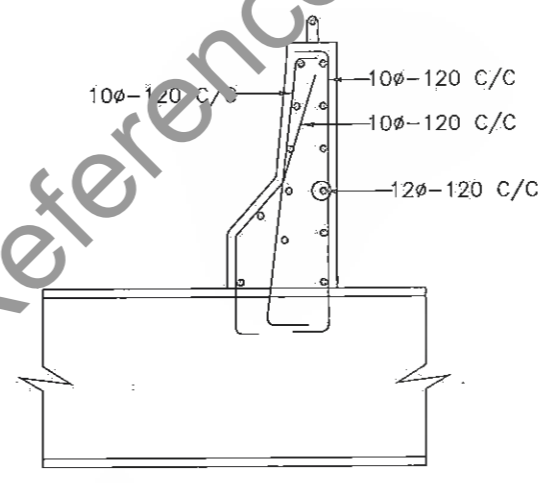
DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN

TITLE:
REINFORCEMENT DRAWING OF ABUTMENT OF MINOR BRIDGE AT CH:18+914 (Span:1x10.0m) (SHEET- 05 OF 05)

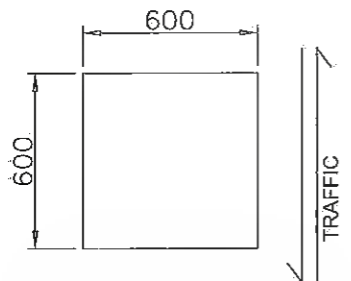
DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB-
SCALE:-AS SHOWN
A3



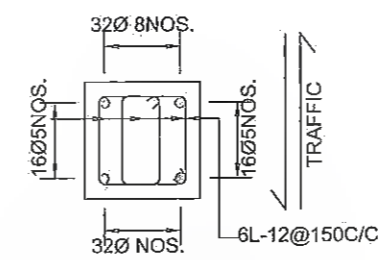
DETAIL OF CRASH BARRIER



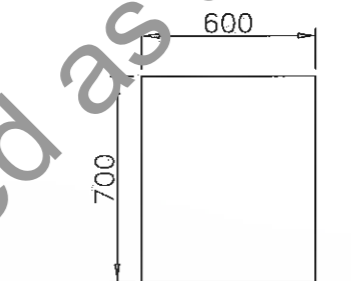
REINFORCEMENT OF CRASH BARRIER



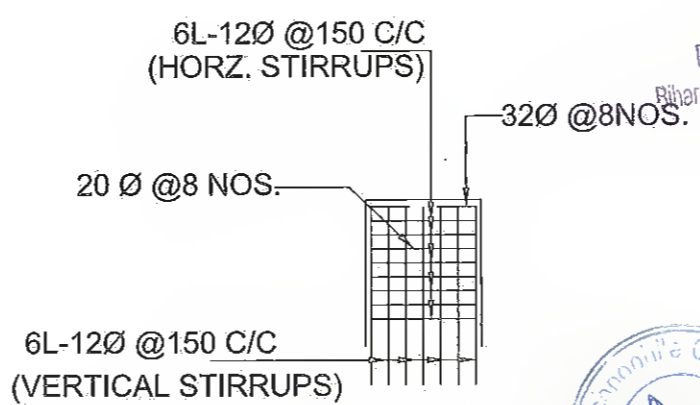
R.C DETAILS OF SEISMIC ARRESTOR(LONG.) PLAN



R.C DETAILS OF SEISMIC ARRESTOR(LONG.) PLAN



R.C DETAILS OF SEISMIC ARRESTOR(LONG.) ELEVATION



R.C DETAIL OF SEISMIC ARRESTOR (TRANS)


R.R.
 Dy. General Manager (Tech)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur

M.
 Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd., Muzaffarpur

- NOTES:**
1. All dimensions are in millimetres unless otherwise mentioned.
 2. Grade of Concrete M40.
 CRASH BARRIER -M40
 SEISMIC ARRESTER -M40
 3. Dimensions are not to be scaled. Only written dimensions

SPECIAL NOTE:-
 SPECIALLY QUALIFIED ENGINEERS WITH ADEQUATE EXPERIENCE OF BRIDGE ENGINEERING CAPABLE OF ENSURING CAREFUL EXECUTION OF WORK, SHALL BE DEPLOYED BY CONSTRUCTION AGENCY.

REV.	DATE	DESCRIPTION OF REVISIONS
R1	JUN 2019	DETAILED PROJECT REPORT
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R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
570 Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indirapuram,
 Ghaziabad-201014.

DRAWN BY	GOPAL SINGH
DESIGN BY	M. USMAN
CHECKED BY	AMIT
SCALE:AS SHOWN	

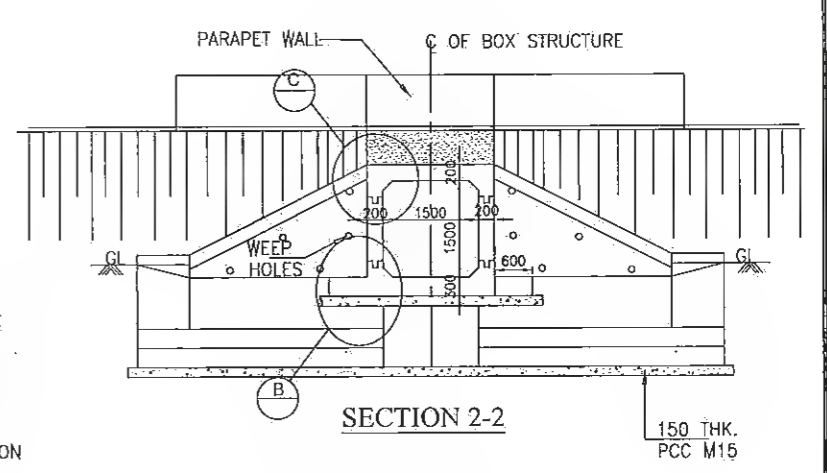
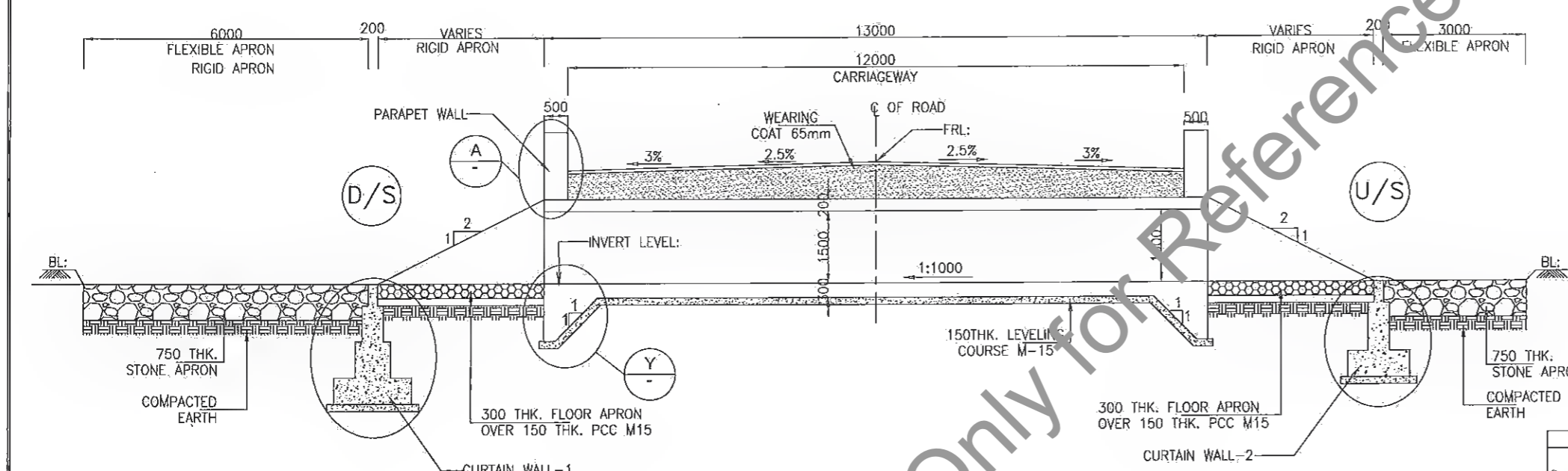
TITLE:
 DIMENSIONAL & REINFORCEMENT DETAILS DRAWING OF MISCLANIOUS ITEMS

DRAWING NO.
 STC/BR/BSRDC/BNB/STR/MNB- A3

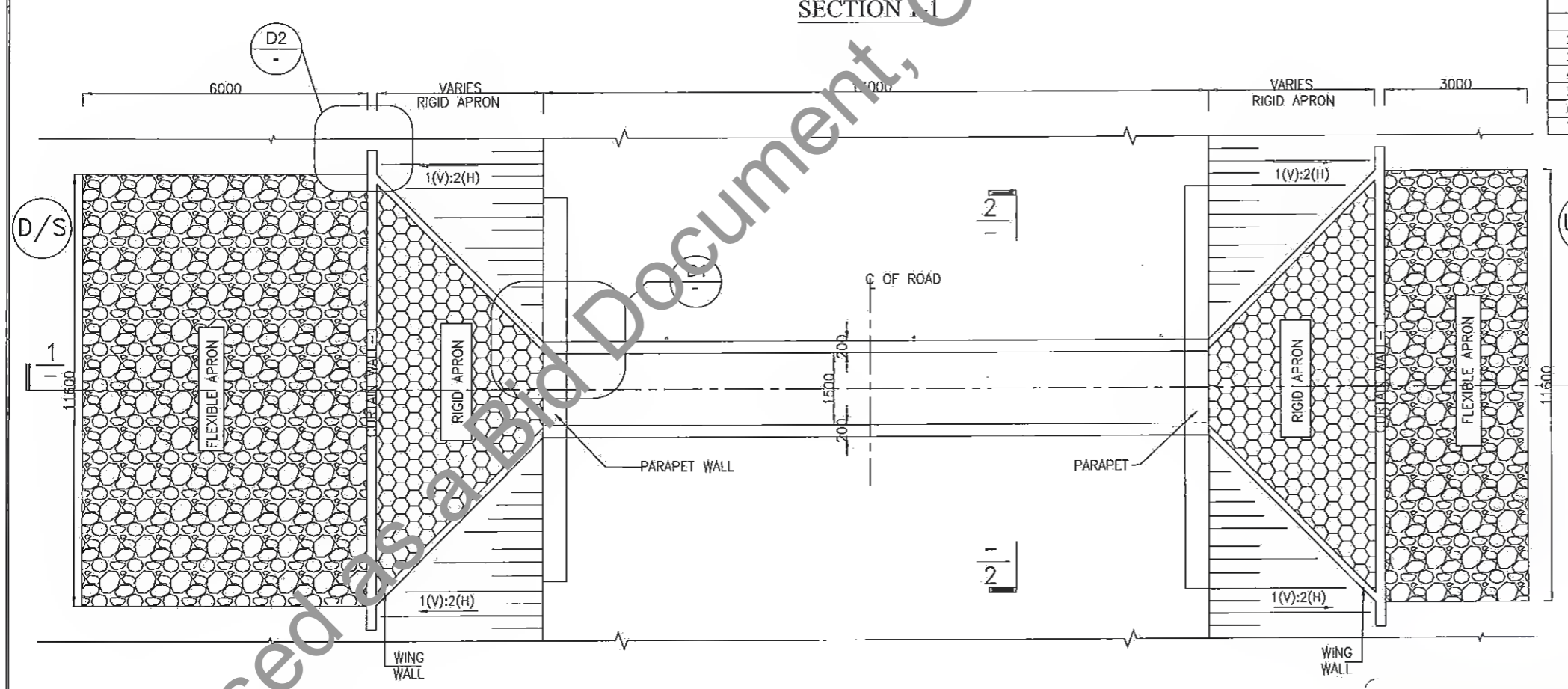
Not to be used as a Bid Document, Only for Reference

BOX CULVERT





BOX CULVERT WITH CUSHION (1'X 1.5 X 1.5)								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL(M)	Proposed Width (m)	Cushion
1	1.760	NEW	BOX	1X1.5X1.5	76.694	74.288	13	1.831
2	3.750	RECONSTRUCTION	BOX	1X1.5X1.5	77.467	75.769	13	1.123
3	5.200	RECONSTRUCTION	BOX	1X1.5X1.5	78.132	76.032	13	1.525
4	6.120	NEW	BOX	1X1.5X1.5	79.133	77.026	13	1.532
5	8.153	RECONSTRUCTION	BOX	1X1.5X1.5	78.991	77.246	13	1.170
6	11.792	RECONSTRUCTION	BOX	1X1.5X1.5	79.194	77.437	13	1.182
7	12.046	RECONSTRUCTION	BOX	1X1.5X1.5	79.059	76.665	13	1.819




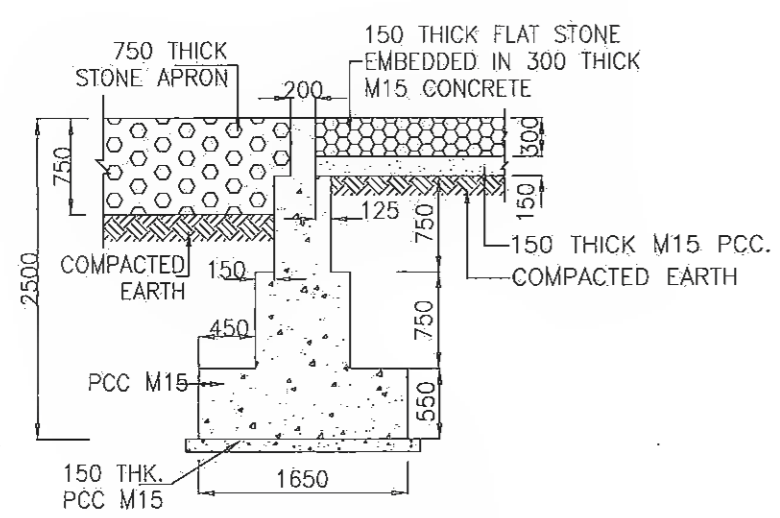
- NOTES:-**
- ALL DIMENSIONS ARE IN MM AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
 - REINFORCING STEEL SHALL BE H.Y.S.D. BARS (GRADE DESIGNATION Fe -500) CONFORMING TO IS:1786.
 - GRADE OF CONCRETE FOR RCC. BOX (M 25), APPROACH SLAB SHALL BE (M30).
 - BOX CULVERT SHALL BE CAST-IN-SITU BOX TYPE STRUCTURE.
 - CHAINAGE, FRL AND INVERT LEVEL GIVEN IN THE DRAWING SHALL BE VERIFIED AS PER SITE CONDITIONS AND HIGHWAY DRAWING.
 - BACK FILLING BEHIND BOX SHALL BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES. THE DIFFERENCE IN LEVEL SHALL NOT BE MORE THAN 300mm
 - PROPERTIES OF SELECTED BACKFILL BEHIND BOX SHALL BE AS FOLLOWS:-C=0, $\phi > 30^\circ$, SOIL DENSITY = 1.80 t/m³.
 - SAFE BEARING CAPACITY OF SOIL SHALL NOT BE LESS THAN 15.0 t/m².

Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur

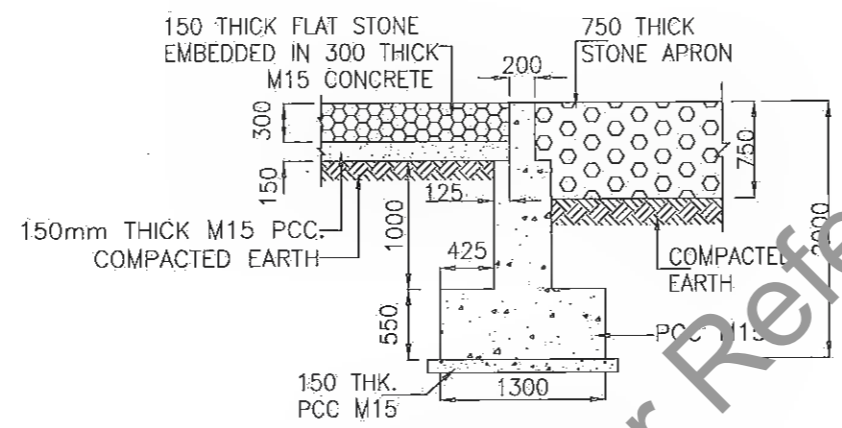
Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur



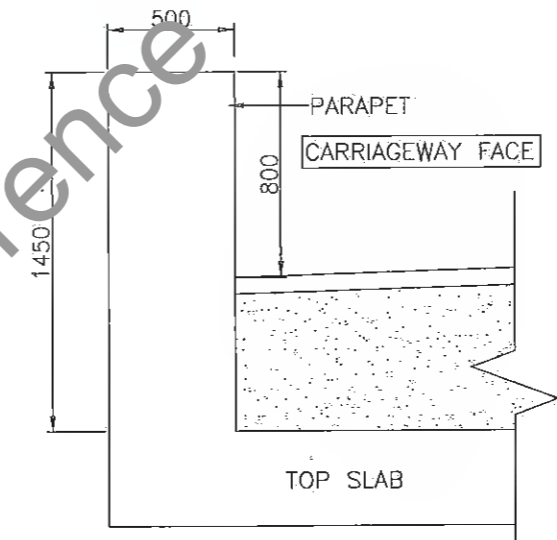
<table border="1"> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION OF REVISIONS</th> </tr> <tr> <td>R5</td> <td>JULY 2018</td> <td>MODIFIED DPR</td> </tr> <tr> <td>R4</td> <td>JULY 2018</td> <td>DETAILED PROJECT REPORT</td> </tr> <tr> <td>R3</td> <td>MAY 2018</td> <td>CLIENT SUGGESTION INCORPORATED</td> </tr> <tr> <td>R2</td> <td>AUG. 2018</td> <td>FINAL DDPR</td> </tr> <tr> <td>R1</td> <td>MAY 2018</td> <td>FINAL FEASIBILITY</td> </tr> <tr> <td>R0</td> <td>MARCH 2018</td> <td>FEASIBILITY</td> </tr> </table>	REV.	DATE	DESCRIPTION OF REVISIONS	R5	JULY 2018	MODIFIED DPR	R4	JULY 2018	DETAILED PROJECT REPORT	R3	MAY 2018	CLIENT SUGGESTION INCORPORATED	R2	AUG. 2018	FINAL DDPR	R1	MAY 2018	FINAL FEASIBILITY	R0	MARCH 2018	FEASIBILITY	<p>CLIENT:  BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)</p>	<p>PROJECT: Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)</p>	<p>DPR CONSULTANTS: Shweta Technophile Consultants Pvt. Ltd. 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indrapuram, Ghaziabad-201014</p>	<table border="1"> <tr> <td>DRAWN BY:</td> <td>ANKIT NEGI</td> </tr> <tr> <td>DESIGN BY:</td> <td>NIKHIL</td> </tr> <tr> <td>CHECKED BY:</td> <td>RANJAN</td> </tr> <tr> <td colspan="2">SCALE:-AS SHOWN</td> </tr> </table>	DRAWN BY:	ANKIT NEGI	DESIGN BY:	NIKHIL	CHECKED BY:	RANJAN	SCALE:-AS SHOWN		<p>TITLE: GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1.5m x 1.5m) (SHEET - 1 OF 3)</p> <p>DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB-</p>
REV.	DATE	DESCRIPTION OF REVISIONS																																
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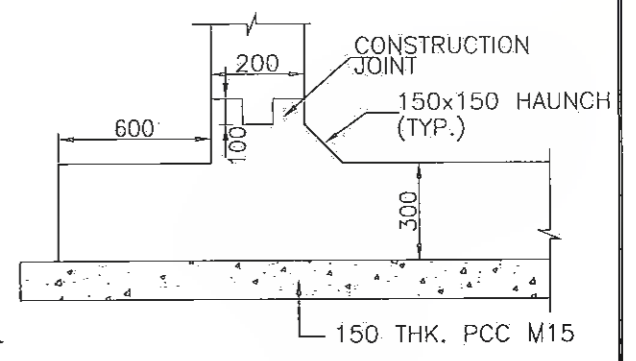
TYPICAL CROSS SECTION OF CURTAIN WALL -1
DOWN STREAM SIDE.



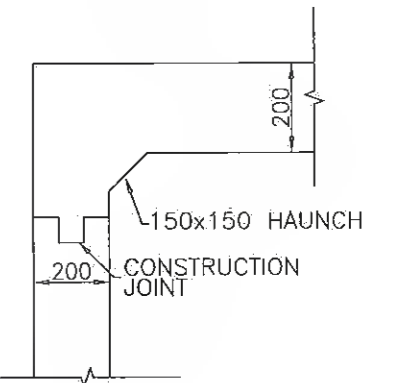
TYPICAL CROSS SECTION OF CURTAIN WALL -2
UP STREAM SIDE



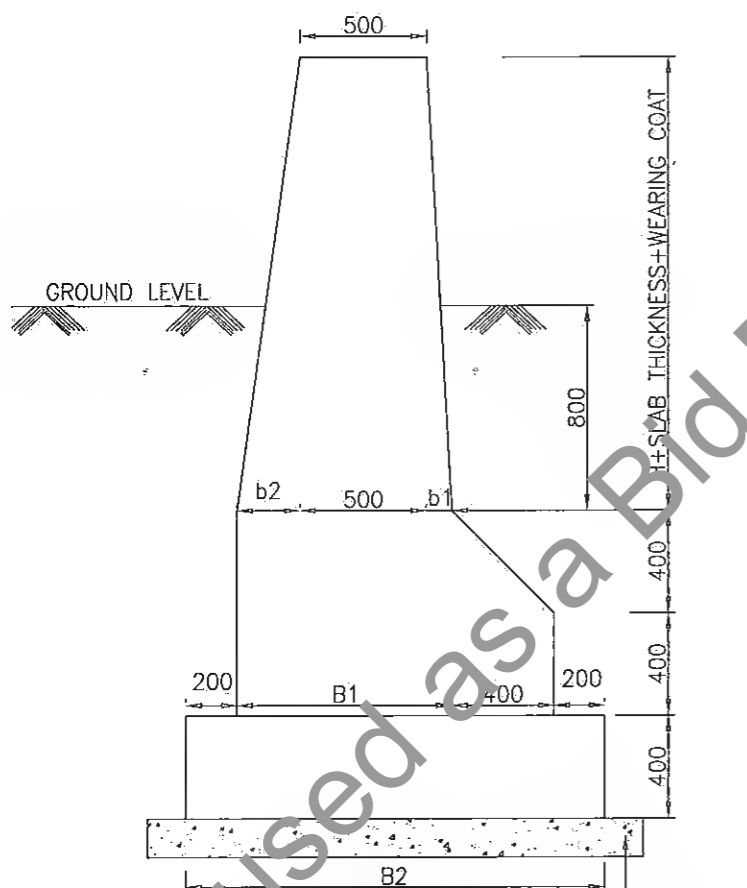
DETAIL-A



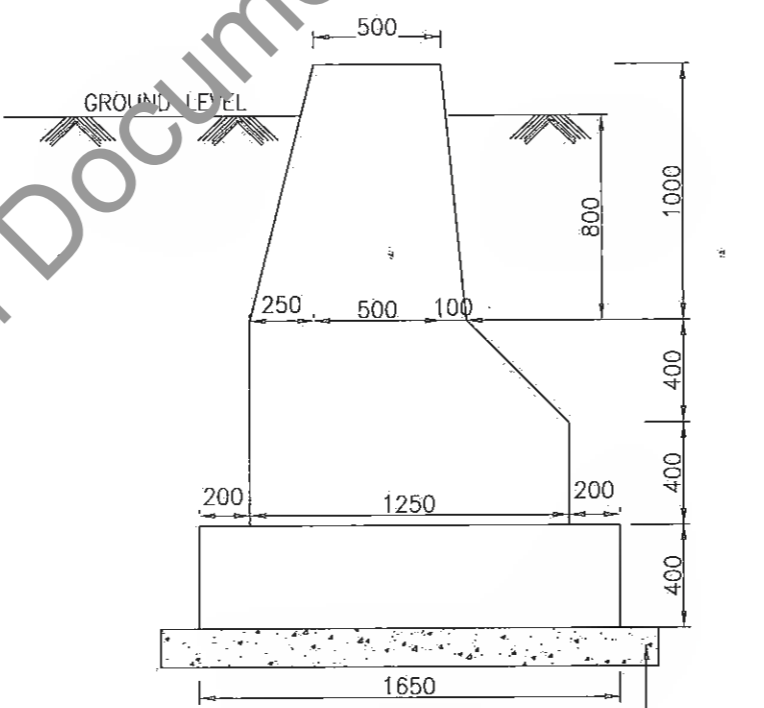
DETAIL-B



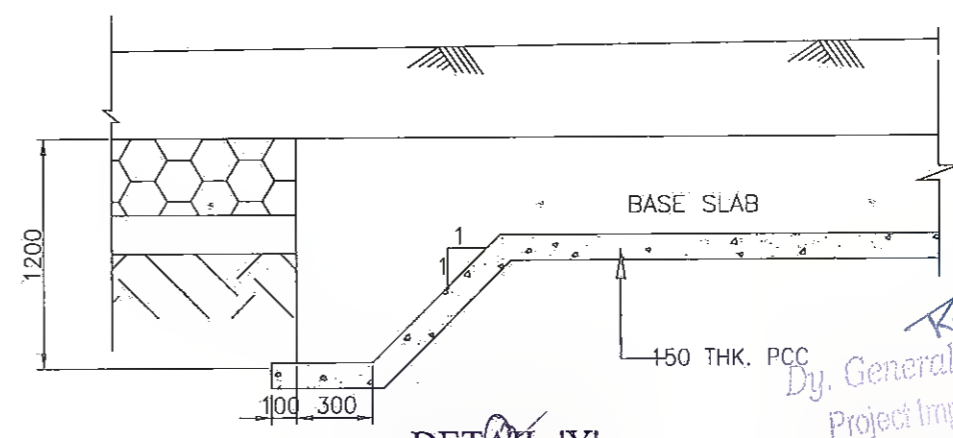
DETAIL-C



WING WALL SECTION AT HIGH END
DETAIL - D1



WING WALL SECTION AT LOW END (FOR ALL SPANS)
DETAIL - D2



DETAIL-Y

TABLE OF DIMENSIONS FOR WINGWAL (HIGH END) (FROM IRC: SP13-2004)	
SPAN	UPTO 1500 mm
H	1500
b1	180
b2	450
B1	1130
B2	1930

R.R.
Dy. General Manager (Tech)
Project Implementation Unit
Bihar State Road Devp Corp. Ltd. Muzaffarpur



REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY. 2011	MODIFIED DPR
R4	JUN. 2019	DETAILED PROJECT REPORT
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DPR
R1	MAY 2018	FINAL FEASIBILITY
RD	MARCH 2018	FEASIBILITY

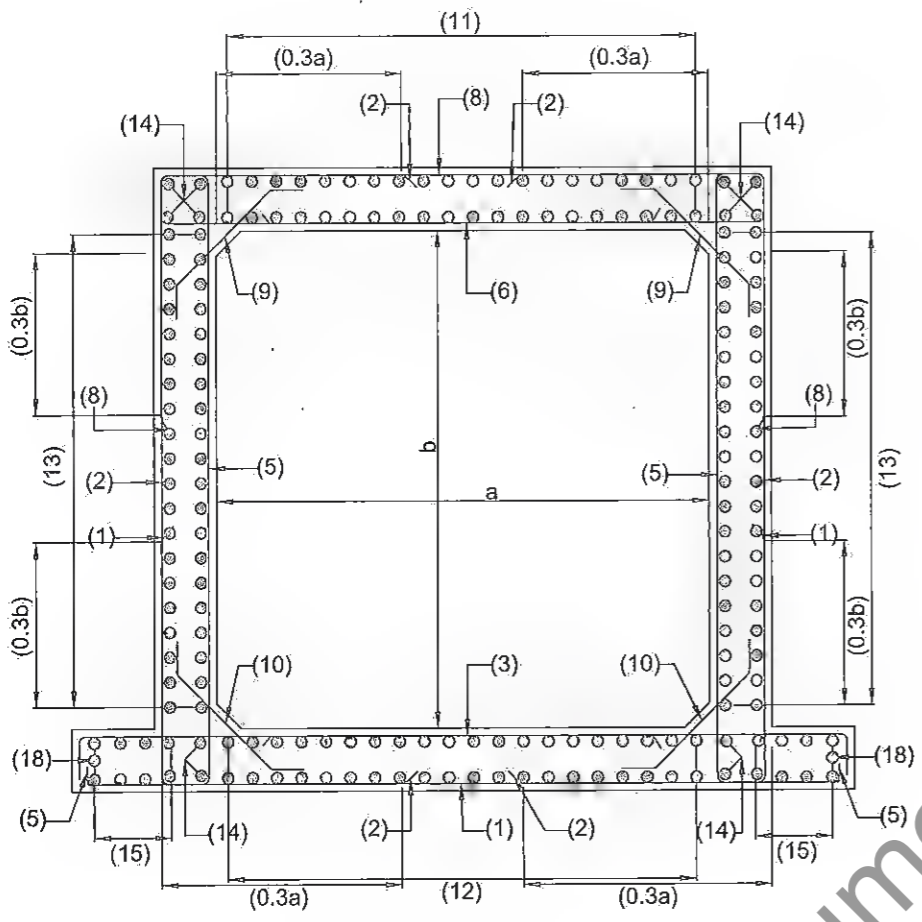
CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR-CONSULTANTS:
Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza,
Ahinsa Khand-I, Indrapuram,
Ghaziabad-201014

DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE: AS SHOWN

TITLE:
GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1.5m x 1.5m) (SHEET - 2 OF 3)
DRAWING NO.
STC/BR/BSRDC/BNB/STRMMNB-
A3

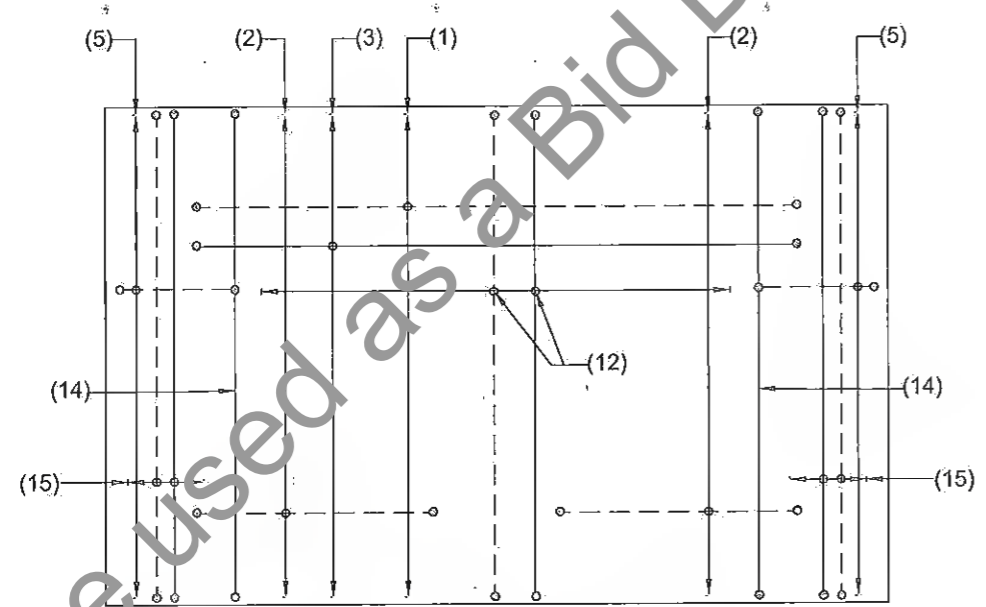


REINFORCEMENT DETAILS OF RCC BOX

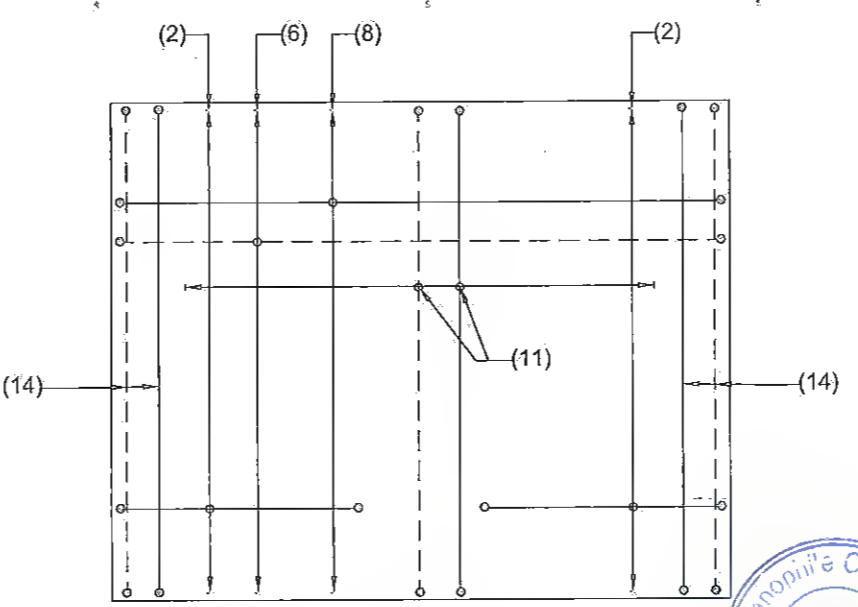
REINFORCEMENT DETAIL FOR BOX STRUCTURE			
BAR MKD.	SHAPE	BAR DIA	SPACING/Nos.
1	[Symbol]	10	200 C/C
2	[Symbol]	10	200 C/C
3	[Symbol]	12	175 C/C
5	[Symbol]	10	200 C/C
6	[Symbol]	10	100 C/C
8	[Symbol]	10	200 C/C
9	[Symbol]	10	200 C/C
10	[Symbol]	10	200 C/C
11	[Symbol]	10	250 C/C
12	[Symbol]	10	250 C/C
13	[Symbol]	10	250 C/C
14	[Symbol]	10	12 Nos.
15	[Symbol]	10	250 C/C
18	[Symbol]	10	2 Nos.

NOTES:

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
- ONLY WRITTEN DIMENSION SHALL BE FOLLOWED
- CONCRETE DETAILS
 - i) RCC BOX CELL ---M25
 - ii) PCC LEVELING COURSE ---M15
- CLEAR COVER SHALL BE AS FLOW: 75mm. NEAR EARTH FACE & 40mm. IN OTHER FACE
- ALL LAPS SHALL BE SUITABLY STAGGERED AND MINIMUM c/c DISTANCE BETWEEN TWO THE ADJACENT LAPS SHALL BE 1.30 TIMES LAP LENGTH. NOT MORE THAN 50% OF REINFORCEMENT SHALL BE LAPPED AT ANY LOCATION.
- SOIL DENSITY ON THE BACKFILL SHOULD CONFORM TO CLAUSE 305.2.1.5 OF MOST SPECIFICATION.
- SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
- GRADE OF CONCRETE FOR RCC BOX SHALL BE M25.
- REINFORCEMENT STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS.(GRADE DESIGNATION Fe500) CONFORMING TO IS:1786.



BOTTOM SLAB REINFORCEMENT PLAN



TOP SLAB REINFORCEMENT PLAN

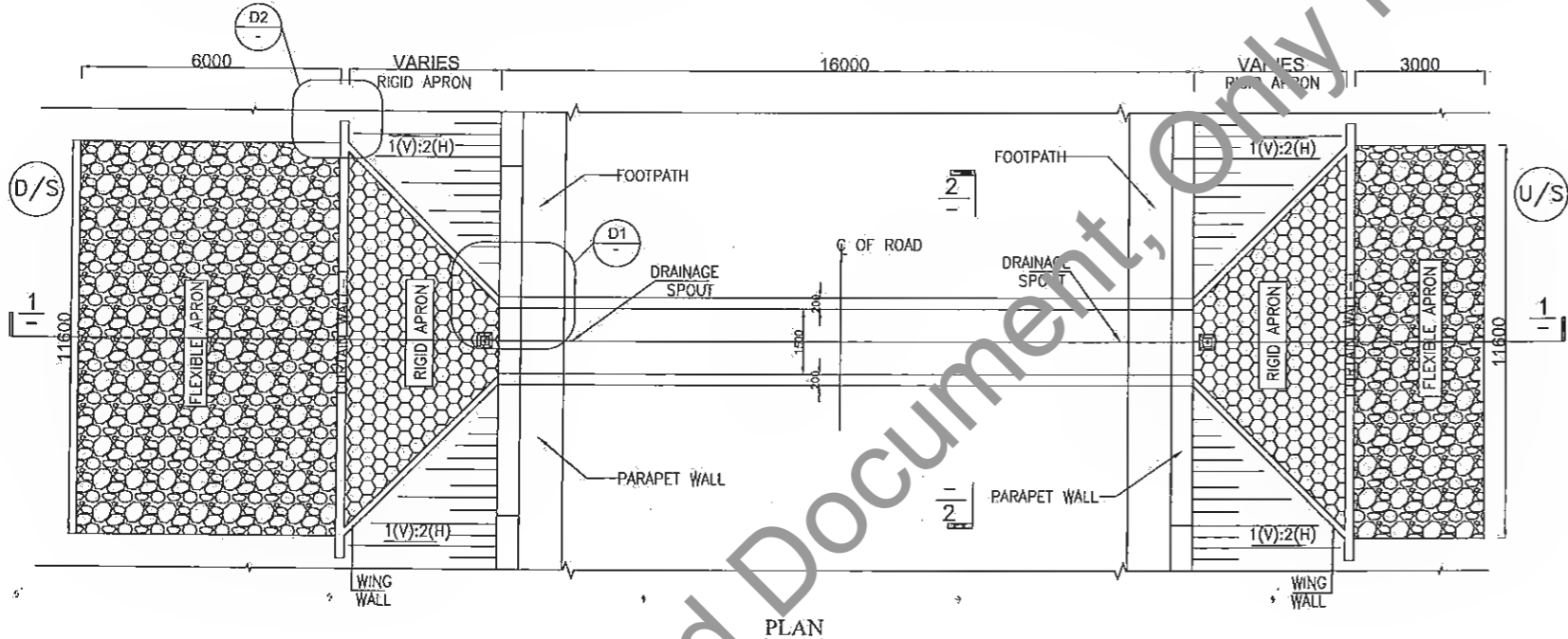
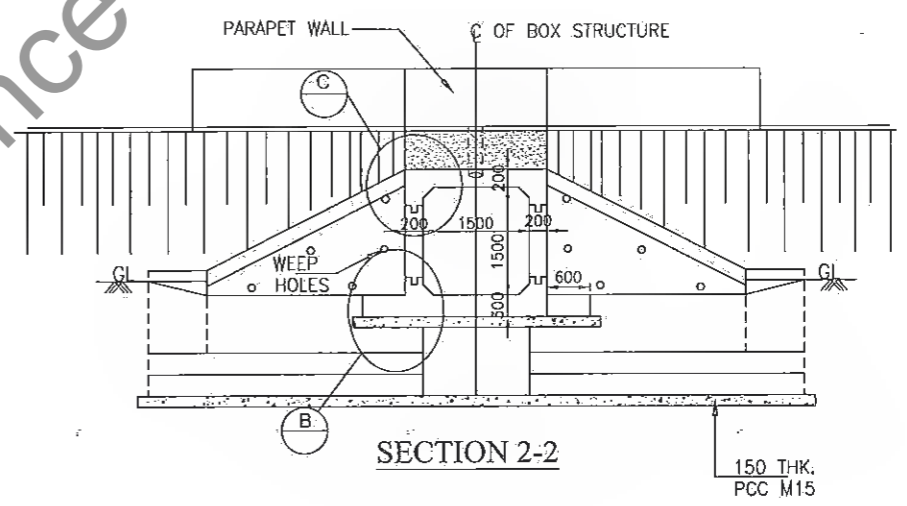
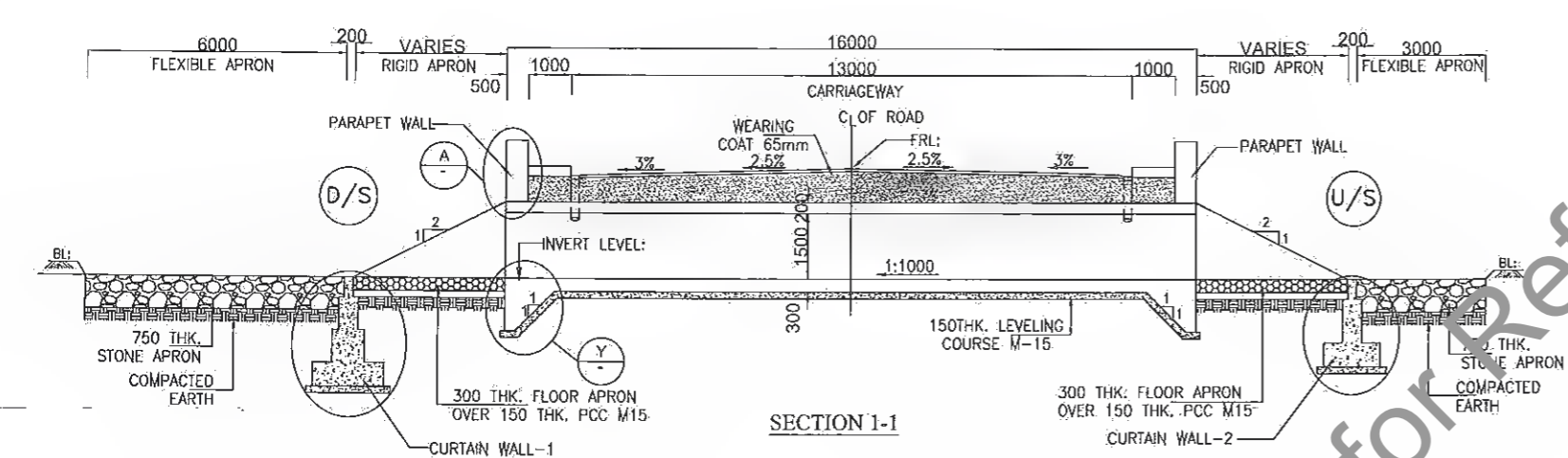
Legends:

- BAR ON TOP/OTHER FACE [Symbol]
- BAR ON BOTTOM/EARTH FACE [Symbol]

Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd., Muzaffarpur



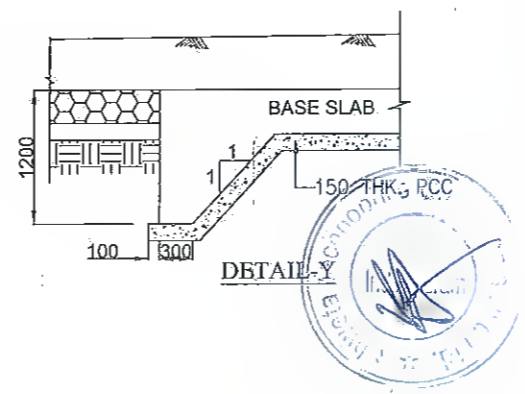
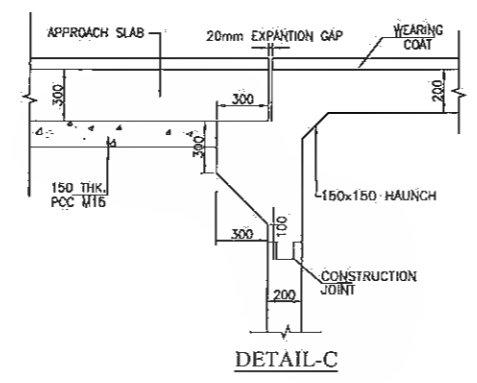
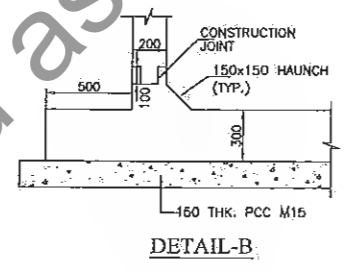
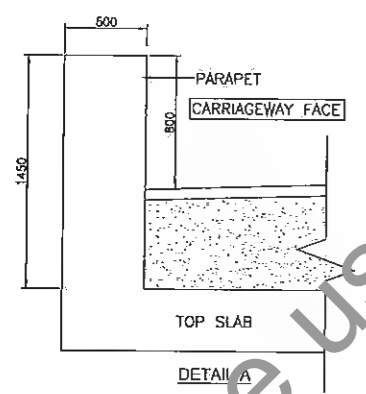
R5 JULY 2019 MODIFIED DPR R4 JUNE 2019 DETAILED PROJECT REPORT R3 DEC. 2018 CLIENT SUGGESTION INCORPORATED R2 AUG. 2018 FINAL DDPR R1 MAY 2018 FINAL FEASIBILITY R0 MARCH 2018 FEASIBILITY REV. DATE DESCRIPTION OF REVISIONS	CLIENT: BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)	PROJECT: Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)	DPR CONSULTANTS: Shweta Technophile Consultants Pvt. Ltd. 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indirapuram, Ghaziabad-201014	DRAWN BY: ANKIT NEGI DESIGN BY: NIKHIL CHECKED BY: RANJAN SCALE:-AS SHOWN	TITLE: REINFORCEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x1.5mx1.5m) (SHEET - 3 OF 3) DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB- A3
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BOX CULVERT WITH CUSHION (1 X 1.5 X 1.5) IN BUILTUP								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL(M)	Proposed Width (m)	Cushion
1	15.032	RECONSTRUCTION	BOX	1X1.5X1.5	79.324	77.087	16	1.647
2	15.182	RECONSTRUCTION	BOX	1X1.5X1.5	79.48	77.387	16	1.518

NOTES:-

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
- REINFORCING STEEL SHALL BE H.Y.S.D. BARS (GRADE DESIGNATION Fe-500) CONFORMING TO IS:1786.
- GRADE OF CONCRETE FOR RCC. BOX (M 25), APPROACH SLAB SHALL BE (M30).
- BOX CULVERT SHALL BE CAST-IN-SITU BOX TYPE STRUCTURE.
- CHAINAGE, FRL AND INVERT LEVEL GIVEN IN THE DRAWING SHALL BE VERIFIED AS PER SITE CONDITIONS AND HIGHWAY DRAWING.
- BACK FILLING BEHIND BOX SHALL BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES. THE DIFFERENCE IN LEVEL SHALL NOT BE MORE THAN 300mm
- PROPERTIES OF SELECTED BACKFILL BEHIND BOX SHALL BE AS FOLLOWS:-C=0, $\phi > 30^\circ$, SOIL DENSITY = 1.80 t/m³.
- SAFE BEARING CAPACITY OF SOIL SHALL NOT BE LESS THAN 15.0 t/m².



Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp Corp. Ltd. Muzaffarpur

Sl. No.	DATE	DESCRIPTION OF REVISIONS
R4	JULY, 2019	FINAL PROJECT REPORT
R3	DEC, 2018	REVISION SUGGESTION INCORPORATED.
R2	AUG, 2018	FINAL DPR
R1	MAY 20, 2018	FINAL FEASIBILITY
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DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	P.S TIYAGI
SCALE:-AS SHOWN	

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GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1.5m x 1.5m) (SHEET - 1 OF 3)

DRAWING NO.
STC/BR/SRDC/BNB/STR/BC-

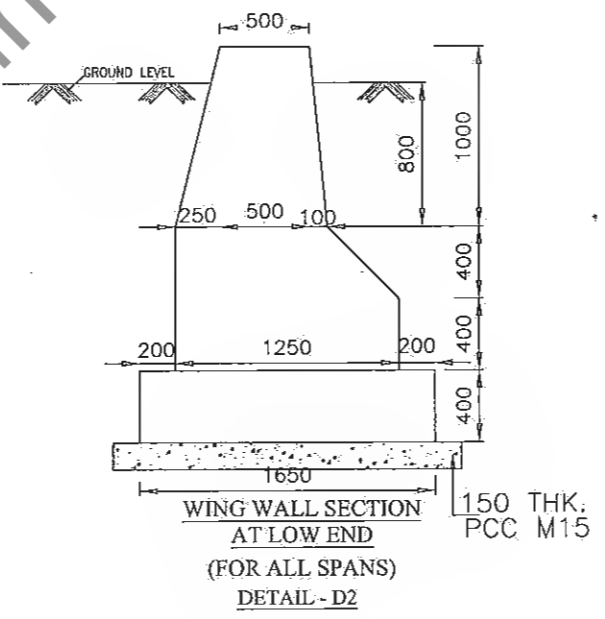
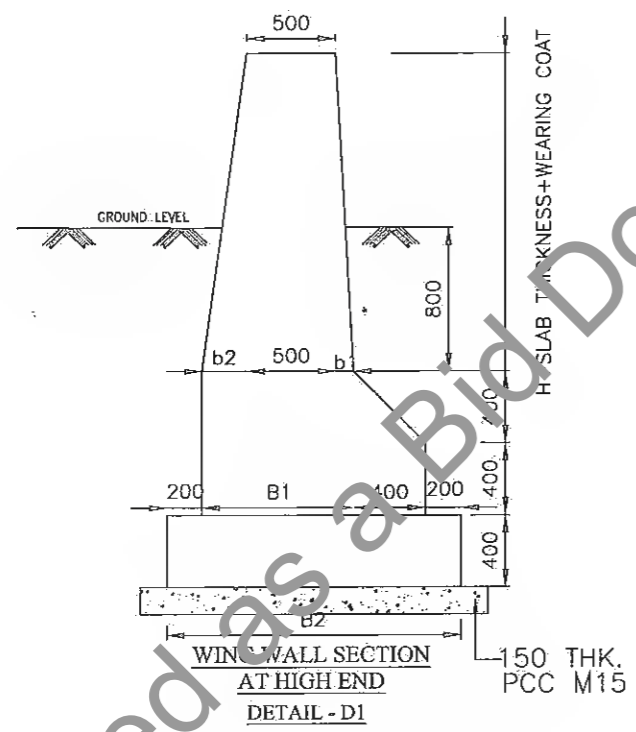
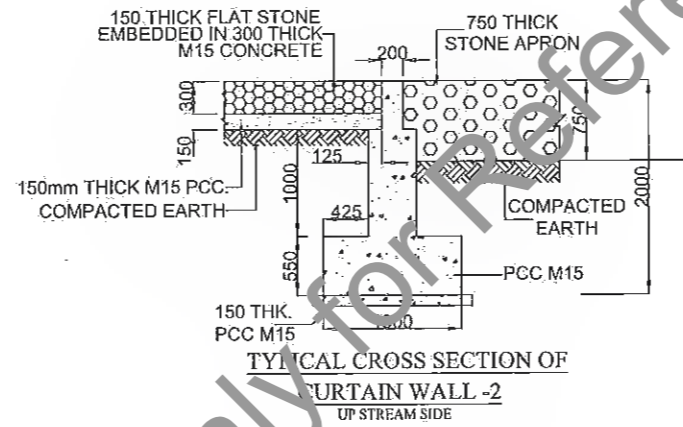
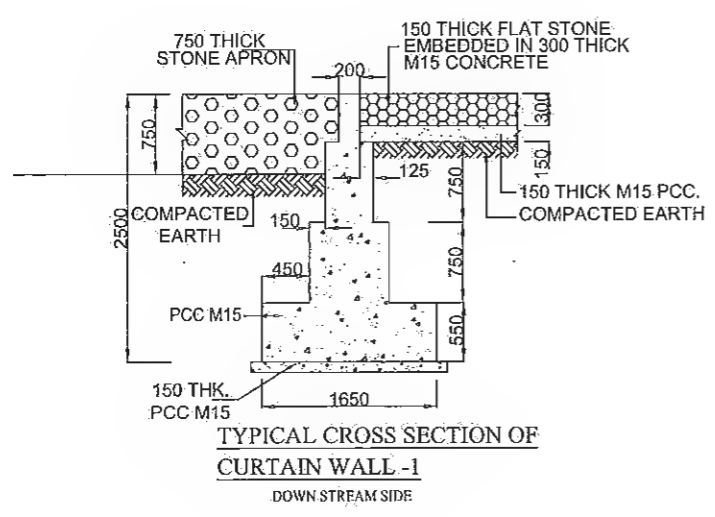



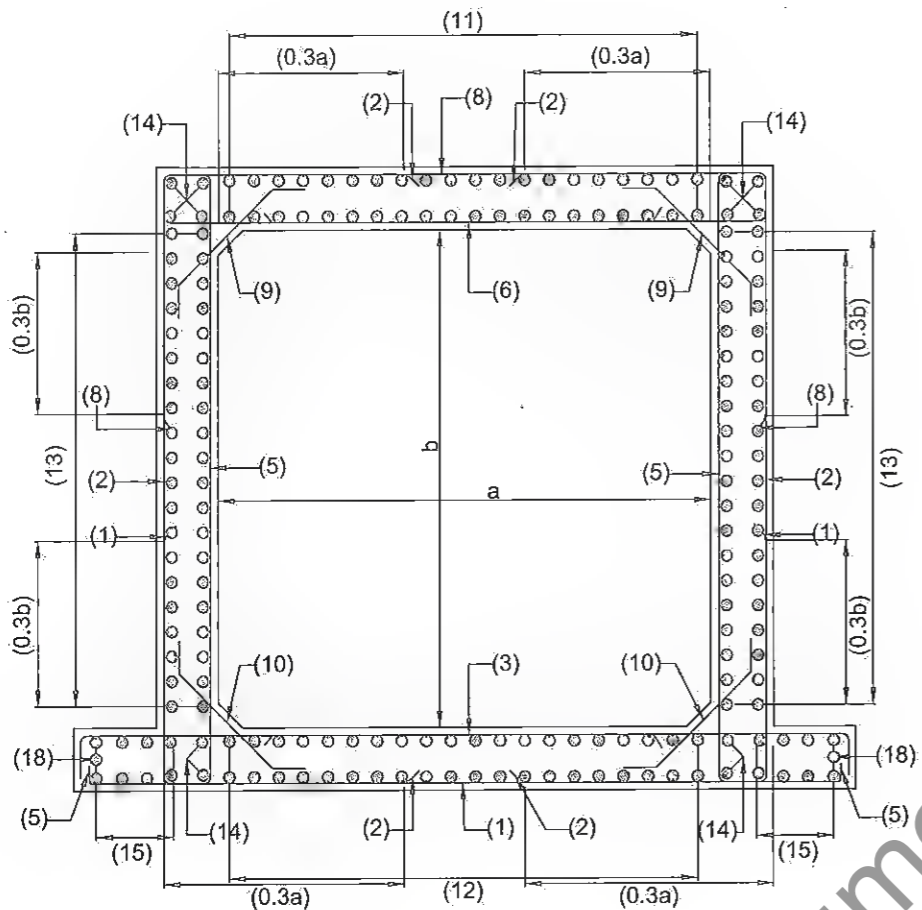
TABLE OF DIMENSIONS FOR WINGWAL (HIGH END) (FROM IRC: SP13-2004)	
SPAN	UPTO 1500 mm
H	1500
b1	180
b2	450
B1	1130
B2	1930

Manager (Tech.)
Project Implementation Unit
Bihar State Road Devpt. Corp. Ltd., Muzaffarpur

R. K.
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Project Implementation Unit
Bihar State Road Devpt. Corp. Ltd. Muzaffarpur



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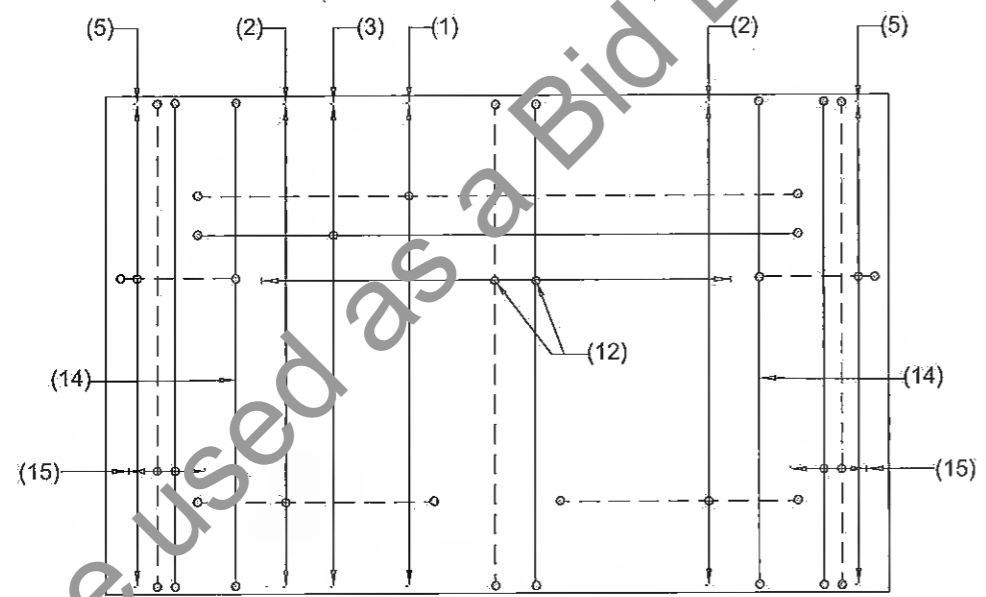


REINFORCEMENT DETAILS OF RCC BOX

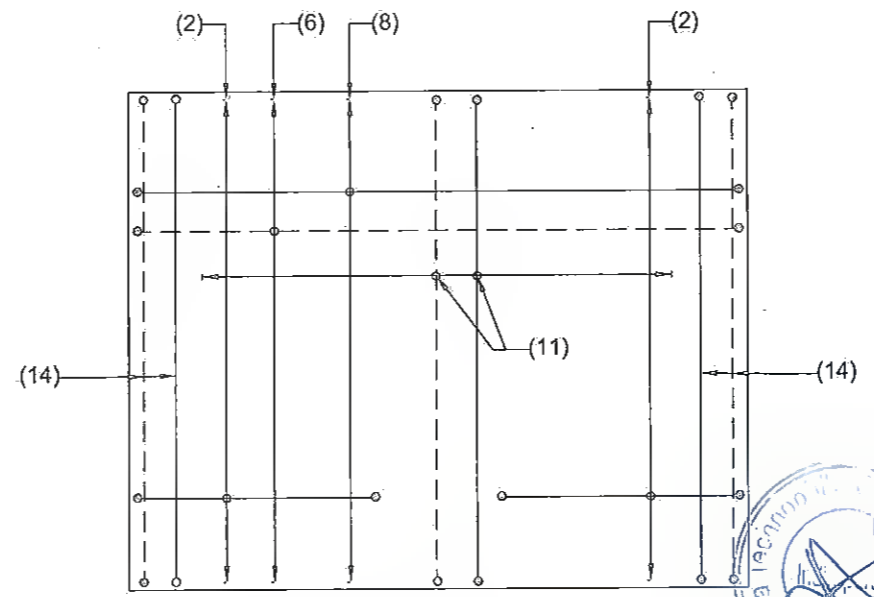
REINFORCEMENT DETAIL FOR BOX STRUCTURE			
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1	[Symbol]	10	200 C/C
2	[Symbol]	10	200 C/C
3	[Symbol]	12	175 C/C
5	[Symbol]	10	200 C/C
6	[Symbol]	10	100 C/C
8	[Symbol]	10	200 C/C
9	[Symbol]	10	200 C/C
10	[Symbol]	10	200 C/C
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- ONLY WRITTEN DIMENSION SHALL BE FOLLOWED
- CONCRETE DETAILS
 - i) RCC BOX CELL ---M25
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BOTTOM SLAB REINFORCEMENT PLAN



TOP SLAB REINFORCEMENT PLAN


Legends:

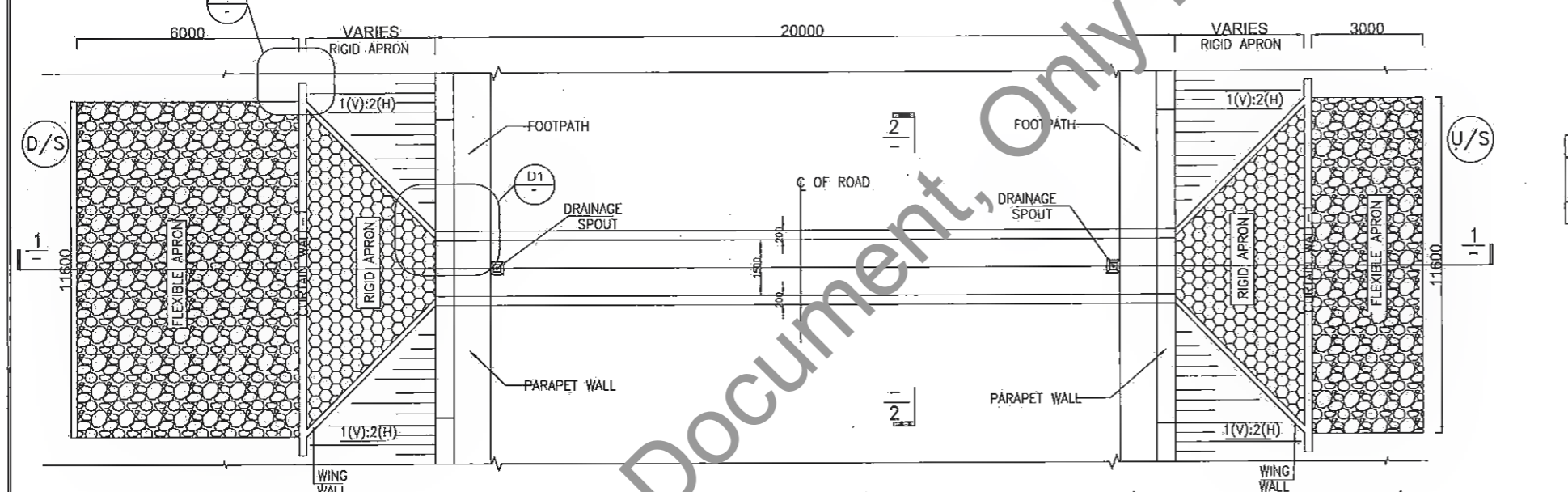
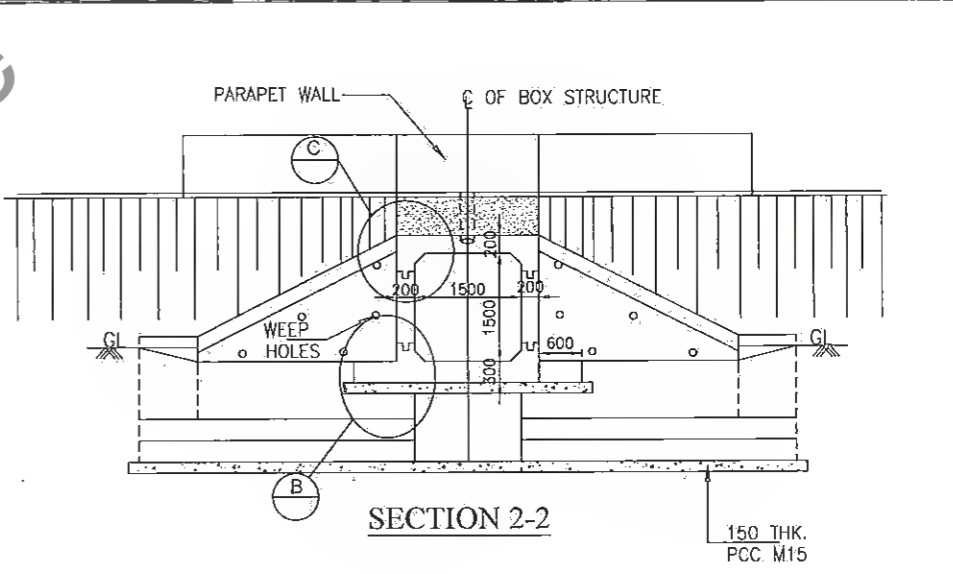
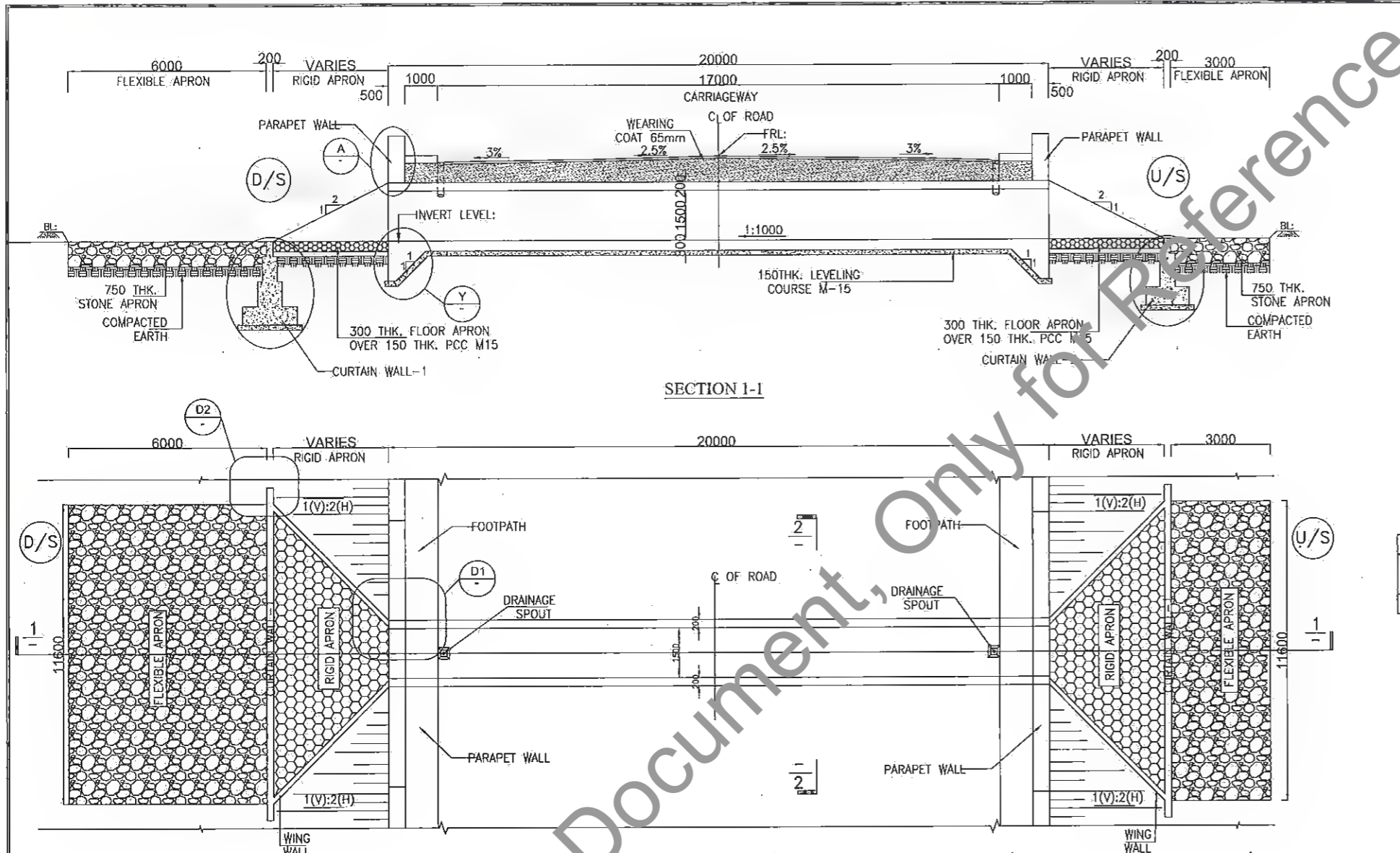
- BAR ON TOP/OTHER FACE [Symbol]
- BAR ON BOTTOM/EARTH FACE [Symbol]



Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Muzaffarpur

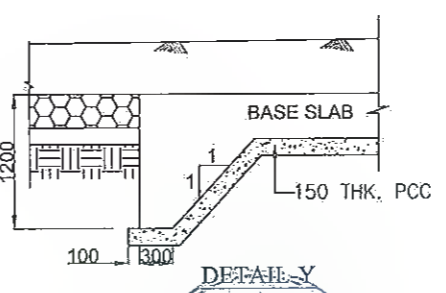
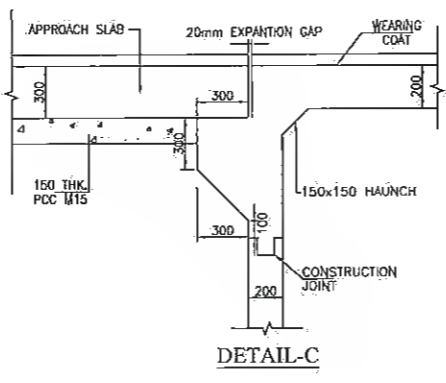
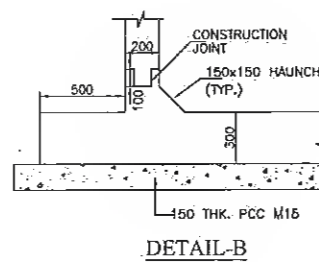
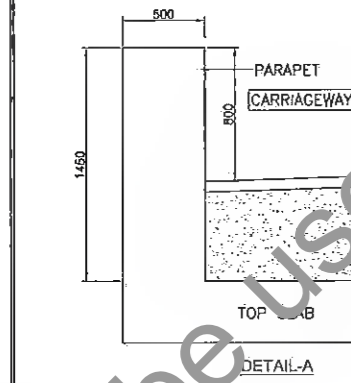
K. Ras
Dy. General Manager (Tech)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur

REV. DATE DESCRIPTION OF REVISIONS R3 JULY 2019 DETAILED PROJECT REPORT R2 DEC. 2018 CLIENT SUGGESTION INCORPORATED R1 AUG. 2018 FINAL DPR R0 MAY 2018 FINAL FEASIBILITY R0 MARCH 2018 FEASIBILITY	CLIENT:  BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)	PROJECT: Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)	DPR CONSULTANTS: Shweta Technophile Consultants Pvt. Ltd. 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indirapuram, Ghaziabad-201014	DRAWN BY ANKIT NEGI DESIGN BY NIKHIL CHECKED BY P.S TIYAGI	TITLE: REINFORCEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x1.5mx1.5m) (SHEET - 3 OF 3)	
	SCALE:-AS SHOWN				DRAWING NO. STC/BR/BSRDC/BNB/STR/BC-	A3




BOX CULVERT WITH CUSHION (1 X 1.5 X 1.5) IN BUILTUP								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL(M)	Proposed Width (m)	Cushion
1	0.380	RECONSTRUCTION	BOX	1X1.5X1.5	76.164	74.392	20	1:197

- NOTES:-**
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 - REINFORCING STEEL SHALL BE H.Y.S.D. BARS (GRADE DESIGNATION Fe -500) CONFORMING TO IS:1786.
 - GRADE OF CONCRETE FOR RCC, BOX (M 25), APPROACH SLAB SHALL BE (M30).
 - BOX CULVERT SHALL BE CAST-IN-SITU BOX TYPE STRUCTURE.
 - CHAINAGE, FRL AND INVERT LEVEL GIVEN IN THE DRAWING SHALL BE VERIFIED AS PER SITE CONDITIONS AND HIGHWAY DRAWING.
 - BACK FILLING BEHIND BOX SHALL BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES. THE DIFFERENCE IN LEVEL SHALL NOT BE MORE THAN 300mm
 - PROPERTIES OF SELECTED BACKFILL BEHIND BOX SHALL BE AS FOLLOWS:-C=0, $\phi > 30^\circ$, SOIL DENSITY = 1.80 t/m³.
 - SAFE BEARING CAPACITY OF SOIL SHALL NOT BE LESS THAN 15.0 t/m².



R. Kam
 Dy. General Manager (Tech)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur

REV.	DATE	DESCRIPTION OF REVISIONS
R0	MARCH 2018	FEASIBILITY
R1	MAY 2018	FINAL FEASIBILITY
R2	AUG. 2018	FINAL DPR
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R4	JUNY 2019	DETAILED PROJECT REPORT

CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
Shweta Technophilé Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-1, Indrapuram,
 Ghaziabad-201014

DRAWN BY	G.S
DESIGN BY	A.C
CHECKED BY	A.G
SCALE:-AS SHOWN	

TITLE:
 GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1.5m x 1.5m) (SHEET -1 OF 3)
 DRAWING NO. STC/BR/BSRDC/BNB/STR/BC-
 A3

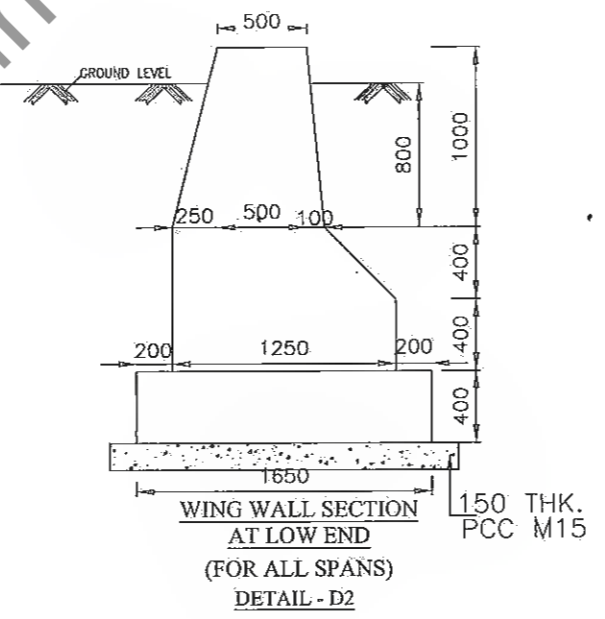
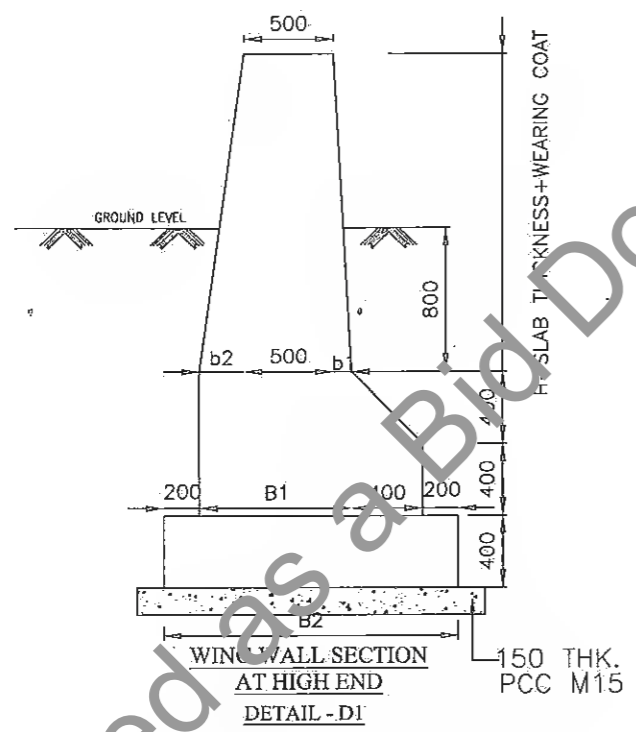
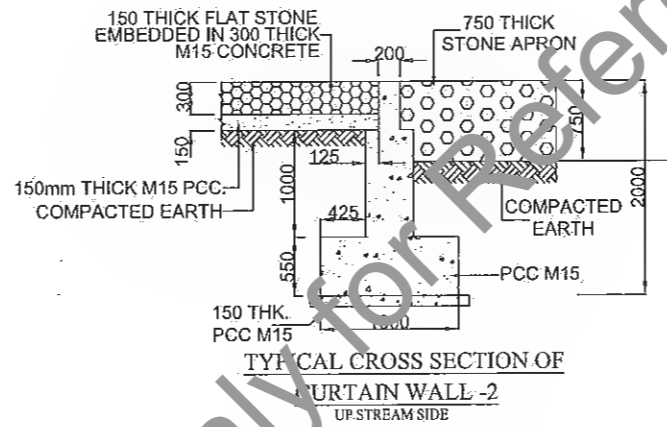
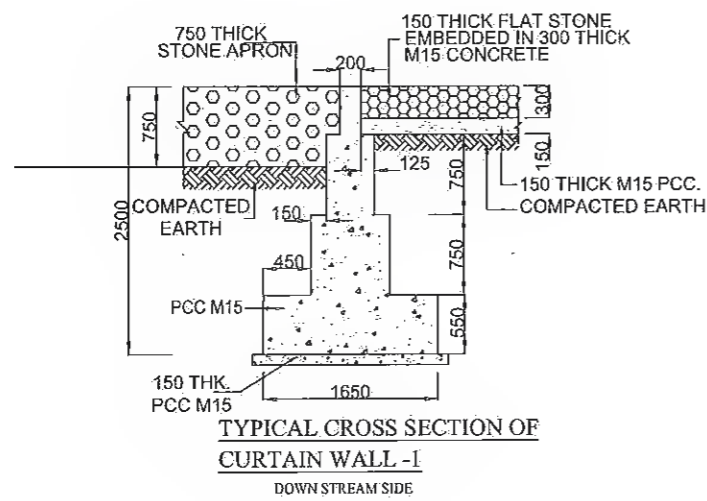


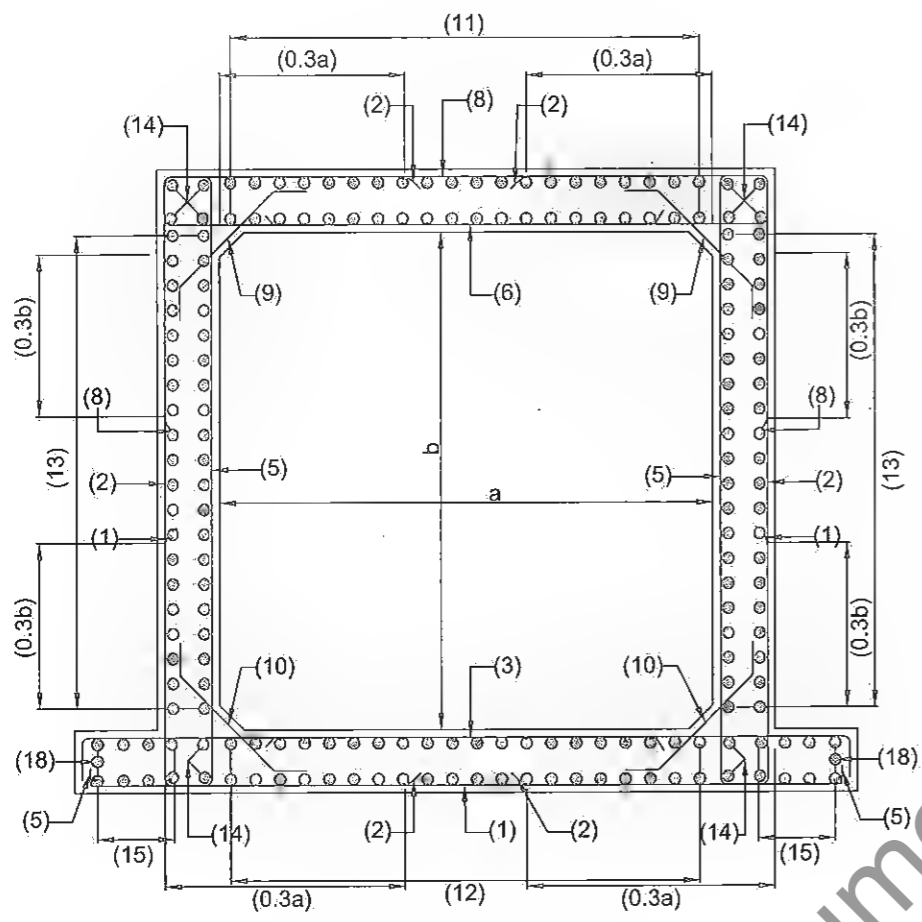
TABLE OF DIMENSIONS FOR WINGWAL (HIGH END) (FROM IRC: SP13-2004)	
SPAN	UPTO 1500 mm
H	1500
b1	180
b2	450
B1	1130
B2	1930

Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur

Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur



<table border="1"> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION OF REVISIONS</th> </tr> <tr> <td>R0</td> <td>MARCH 2018</td> <td>FEASIBILITY</td> </tr> <tr> <td>R1</td> <td>MAY 2018</td> <td>FINAL FEASIBILITY</td> </tr> <tr> <td>R2</td> <td>AUG. 2018</td> <td>FINAL DDPR</td> </tr> <tr> <td>R3</td> <td>FEB. 2018</td> <td>CLIENT SUGGESTION INCORPORATED</td> </tr> <tr> <td>R4</td> <td>JUNY 2019</td> <td>DETAILED PROJECT REPORT</td> </tr> </table>	REV.	DATE	DESCRIPTION OF REVISIONS	R0	MARCH 2018	FEASIBILITY	R1	MAY 2018	FINAL FEASIBILITY	R2	AUG. 2018	FINAL DDPR	R3	FEB. 2018	CLIENT SUGGESTION INCORPORATED	R4	JUNY 2019	DETAILED PROJECT REPORT	<p>CLIENT: BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)</p>	<p>PROJECT: Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)</p>	<p>DPR CONSULTANTS: Shweta Technophile Consultants Pvt. Ltd. 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indirapuram, Ghaziabad-201014</p>	<table border="1"> <tr> <td>DRAWN BY</td> <td>G.S</td> </tr> <tr> <td>DESIGN BY</td> <td>A.C</td> </tr> <tr> <td>CHECKED BY</td> <td>A.G</td> </tr> <tr> <td colspan="2">SCALE:-AS SHOWN</td> </tr> </table>	DRAWN BY	G.S	DESIGN BY	A.C	CHECKED BY	A.G	SCALE:-AS SHOWN		<p>TITLE: GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1.5m x 1.5m) (SHEET - 2 OF 3)</p> <p>DRAWING NO. STC/BR/BSRDC/BNB/STR/BC-</p>
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DRAWN BY	G.S																														
DESIGN BY	A.C																														
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SCALE:-AS SHOWN																															



REINFORCEMENT DETAILS OF RCC BOX

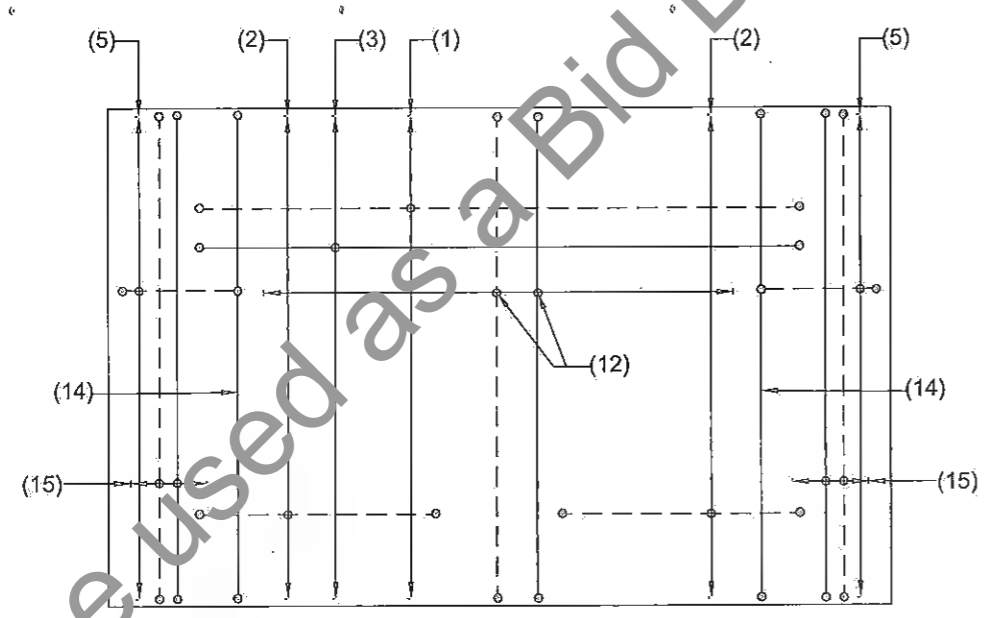
REINFORCEMENT DETAIL FOR BOX STRUCTURE			
BAR MKD.	SHAPE	BAR DIA	SPACING/Nos.
1	[Symbol]	10	200 C/C
2	[Symbol]	10	200 C/C
3	[Symbol]	12	125 C/C
5	[Symbol]	10	200 C/C
6	[Symbol]	10	100 C/C
8	[Symbol]	10	200 C/C
9	[Symbol]	10	200 C/C
10	[Symbol]	10	200 C/C
11	[Symbol]	10	250 C/C
12	[Symbol]	10	250 C/C
13	[Symbol]	10	250 C/C
14	[Symbol]	10	12 Nos.
15	[Symbol]	10	250 C/C
18	[Symbol]	10	2 Nos.

NOTES:

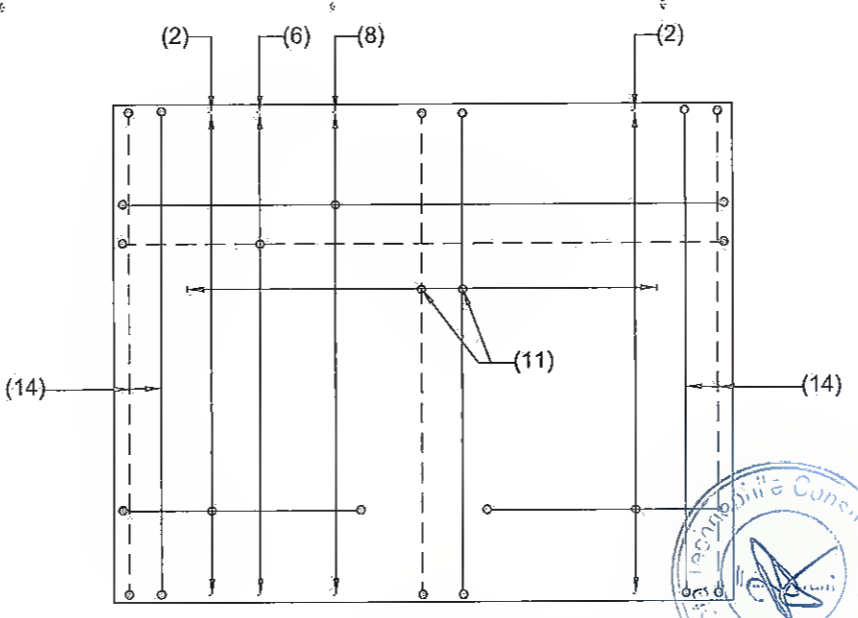
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
- ONLY WRITTEN DIMENSION SHALL BE FOLLOWED
- CONCRETE DETAILS
 - i) RCC BOX CELL ---M25
 - ii) PCC LEVELING COURSE ---M15
- CLEAR COVER SHALL BE AS FLOW:
75mm. NEAR EARTH FACE & 40mm. IN OTHER FACE
- ALL LAPS SHALL BE SUITABLY STAGGERED AND MINIMUM c/c DISTANCE BETWEEN TWO THE ADJACENT LAPS SHALL BE 1.30 TIMES LAP LENGTH. NOT MORE THAN 50% OF REINFORCEMENT SHALL BE LAPPED AT ANY LOCATION.
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- REINFORCEMENT STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS.(GRADE DESIGNATION Fe500) CONFORMING TO IS:1786.

Legends:


- BAR ON TOP/OTHER FACE ————
- BAR ON BOTTOM/EARTH FACE - - - - -




BOTTOM SLAB REINFORCEMENT PLAN




TOP SLAB REINFORCEMENT PLAN


 Dy. General Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur


 Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur

REV.	DATE	DESCRIPTION OF REVISIONS
R0	MARCH 2018	FEASIBILITY
R1	MAY 2018	FINAL FEASIBILITY.
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CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA
 (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

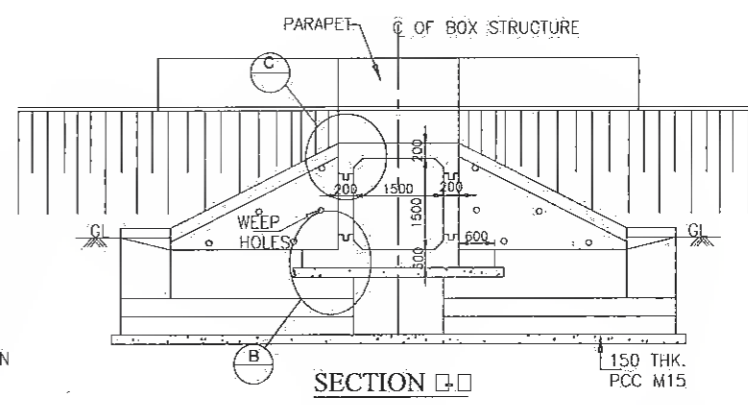
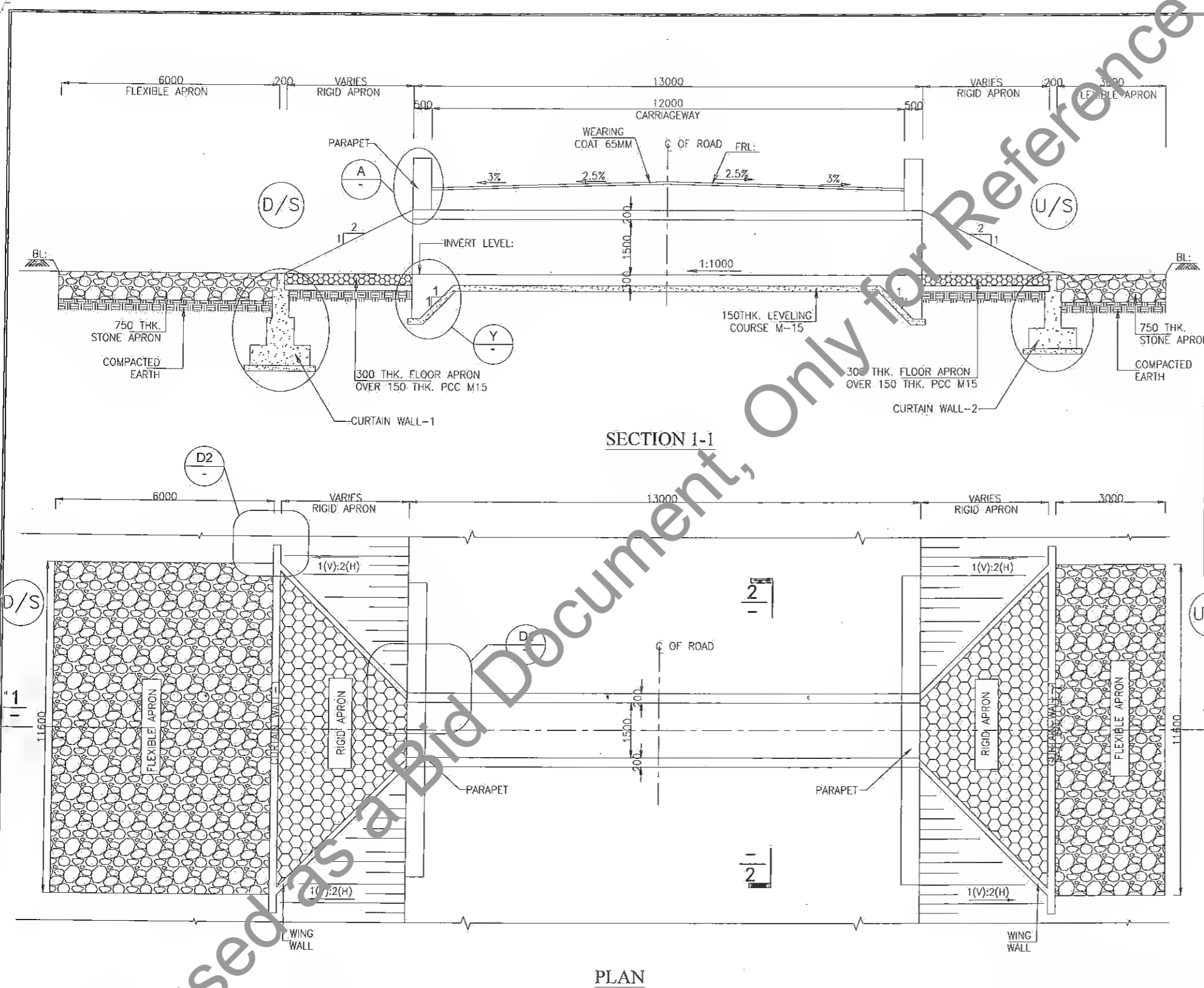
DPR CONSULTANTS:
S7C Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indirapuram,
 Ghaziabad-201014

DRAWN BY	G.S.
DESIGN BY	A.C.
CHECKED BY	A.G.
SCALE:-AS SHOWN	

TITLE:
REINFORCEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x1.5mx1.5m) (SHEET - 3 OF 3)

DRAWING NO.
 STC/BR/BSRDC/BNB/STR/BC-

A3



BOX CULVERT WITH CUSHION (1.5x1.5x1.5)								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL(M)	Proposed Width (m)	Cushion
1	17.140	NEW CONSTRUCTION	BOX	1X1.5X1.5	80.733	77.359	13	2.799
2	17.899	RECONSTRUCTION	BOX	1X1.5X1.5	79.241	76.439	13	2.227
3	20.579	RECONSTRUCTION	BOX	1X1.5X1.5	82.528	78.677	13	3.276
4	22.006	RECONSTRUCTION	BOX	1X1.5X1.5	82.840	79.784	13	2.481
5	22.370	RECONSTRUCTION	BOX	1X1.5X1.5	82.922	79.992	13	2.355
6	24.220	NEW CONSTRUCTION	BOX	1X1.5X1.5	83.328	79.37	13	3.383
7	24.660	NEW CONSTRUCTION	BOX	1X1.5X1.5	83.425	80.187	13	2.663
8	26.040	NEW CONSTRUCTION	BOX	1X1.5X1.5	83.729	81.426	13	1.728
9	27.080	NEW CONSTRUCTION	BOX	1X1.5X1.5	84.034	82.27	13	1.189
10	30.511	RECONSTRUCTION	BOX	1X1.5X1.5	85.994	83.374	13	2.045
11	30.780	RECONSTRUCTION	BOX	1X1.5X1.5	85.907	83.134	13	2.198

- NOTES:-**
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Manager (Tech.)
Project Implementation Unit
Bihar State Road Dev. Corp. Ltd. Patna

Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Dev. Corp. Ltd. Patna

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Project Implementation Unit
Bihar State Road Dev. Corp. Ltd. Patna

Sl. No.	DATE	DESCRIPTION OF REVISIONS
R5	JULY, 2021	MODIFIED DPR
R4	JULY, 2021	DETAILED PROJECT REPORT
R3	DEC, 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG, 2018	FINAL ODPR
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CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

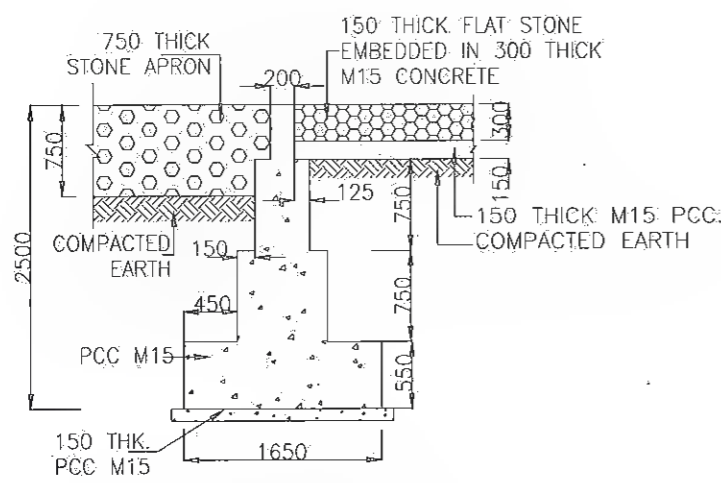
PROJECT:
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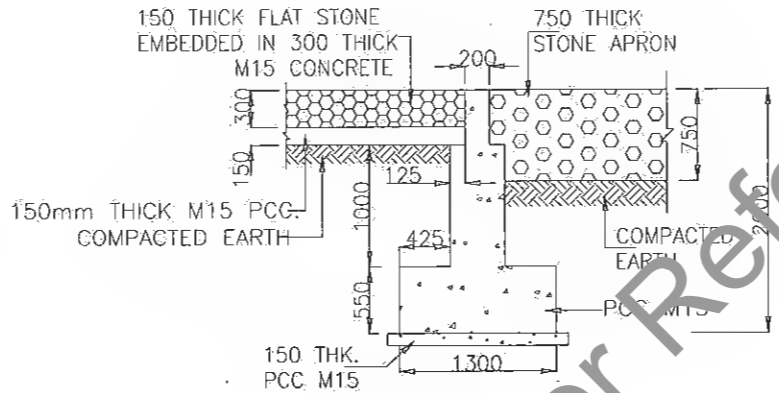
DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN

TITLE:
 GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1.5m x 1.5m) (SHEET -1 OF 3)

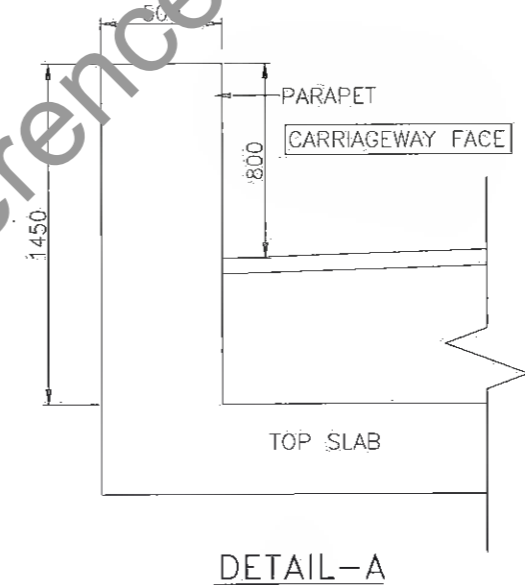
DRAWING NO.
 STC/BR/BSRDC/BN/STR/BC-01



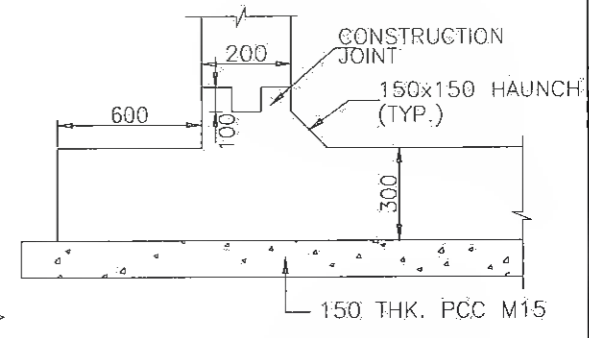
TYPICAL CROSS SECTION OF CURTAIN WALL -1
DOWN STREAM SIDE



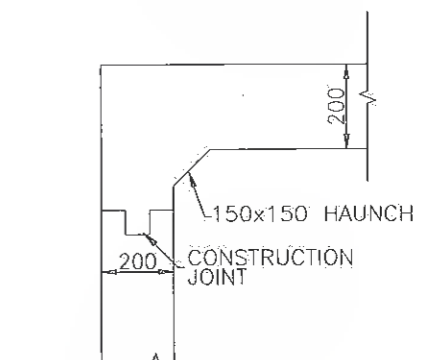
TYPICAL CROSS SECTION OF CURTAIN WALL -1
UP STREAM SIDE



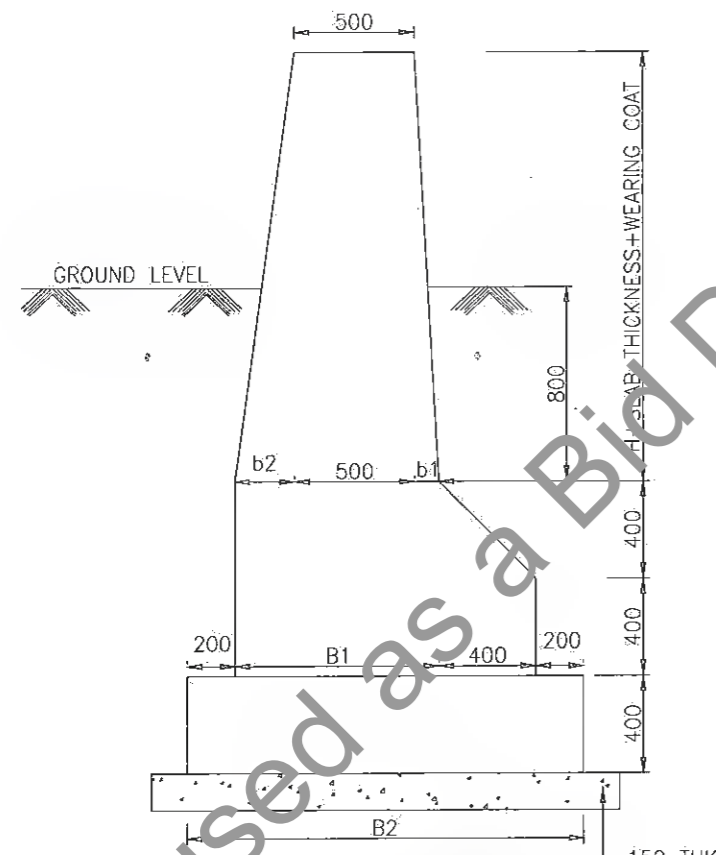
DETAIL-A



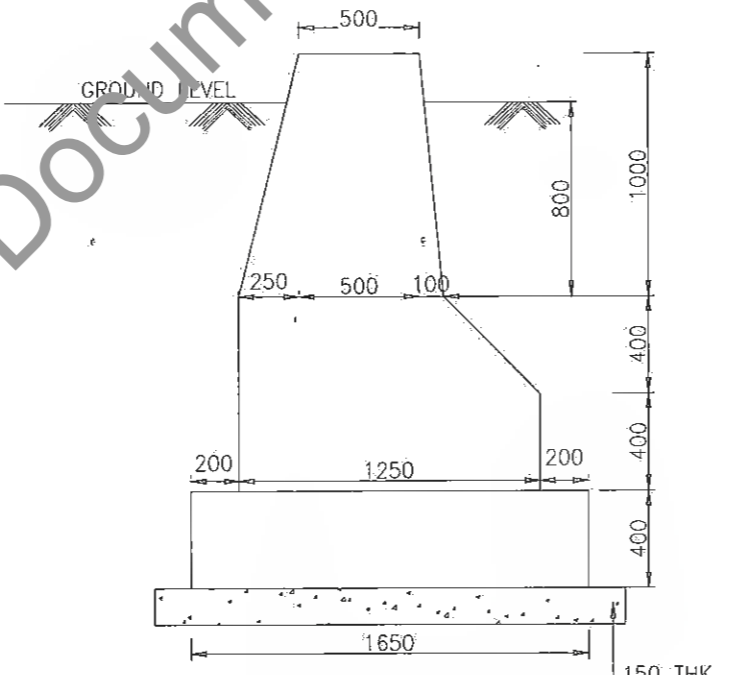
DETAIL-B



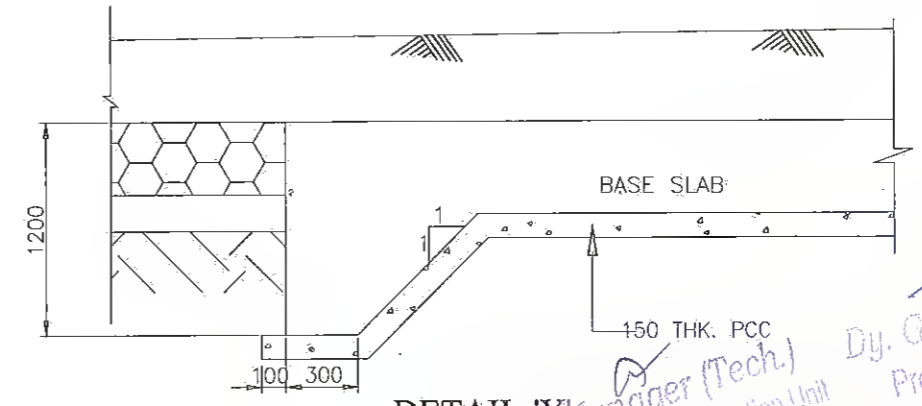
DETAIL-C



WING WALL SECTION AT HIGH END
DETAIL - D1



WING WALL SECTION AT LOW END (FOR ALL SPANS)
DETAIL - D



DETAIL-Y

TABLE OF DIMENSIONS FOR WINGWAL (HIGH END) (FROM IRC: SP13-2004)	
SPAN	UPTO 1500 mm
H	1500
b1	180
b2	450
B1	1130
B2	1930

K. Kumar
Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur



R5	JULY 2019	MODIFIED DPR
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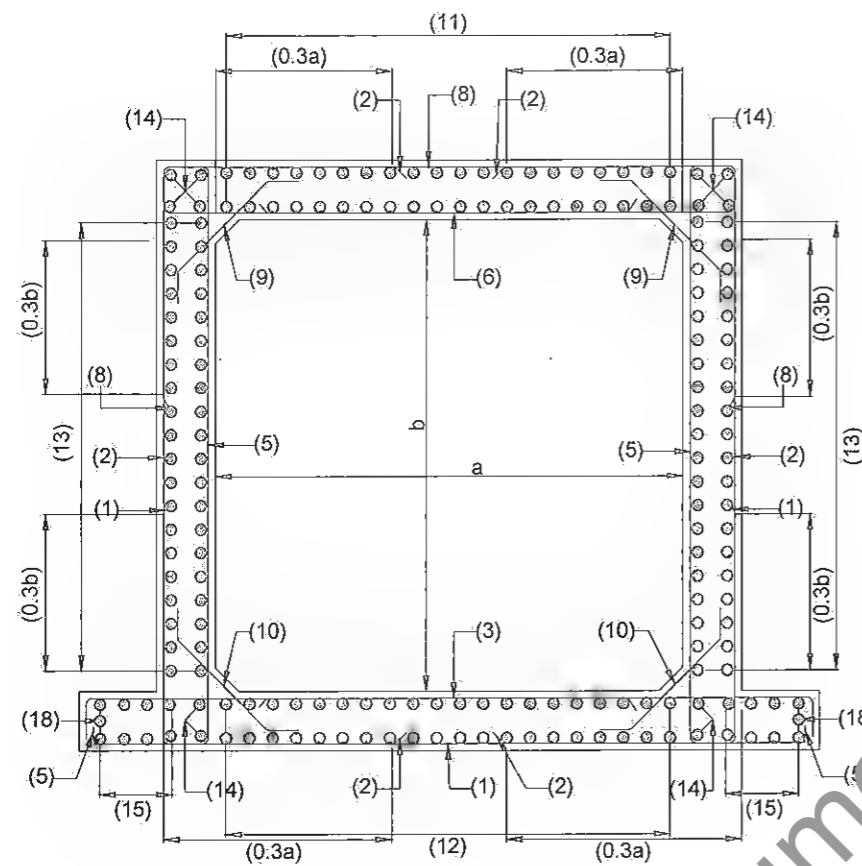
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DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE: AS SHOWN

TITLE:
GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1.5m x 1.5m) (SHEET - D/OF 3)
DRAWING NO.: STC/BR/BRDC/BNB/STR/BC-01
A3



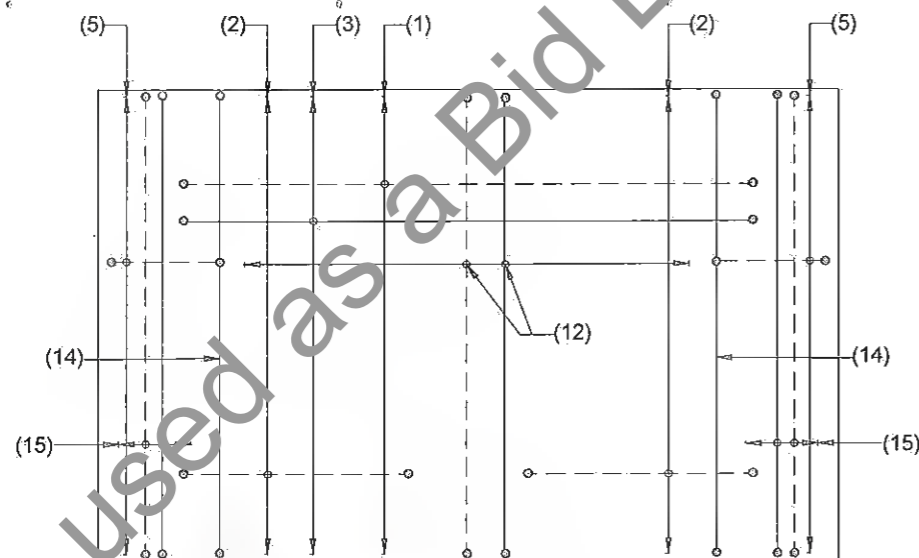
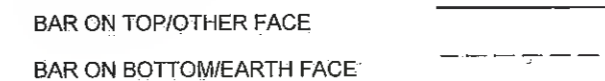
REINFORCEMENT DETAILS OF RCC BOX

REINFORCEMENT DETAIL FOR BOX STRUCTURE			
BAR MKD.	SHAPE	BAR DIA	SPACING/ Nos.
1	[Shape]	10	200 C/C
2	[Shape]	10	200 C/C
3	[Shape]	12	125 C/C
5	[Shape]	10	200 C/C
6	[Shape]	10	100 C/C
8	[Shape]	10	200 C/C
9	[Shape]	10	200 C/C
10	[Shape]	10	200 C/C
11	[Shape]	10	250 C/C
12	[Shape]	10	250 C/C
13	[Shape]	10	250 C/C
14	[Shape]	10	12 Nos.
15	[Shape]	10	250 C/C
18	[Shape]	10	2 Nos.

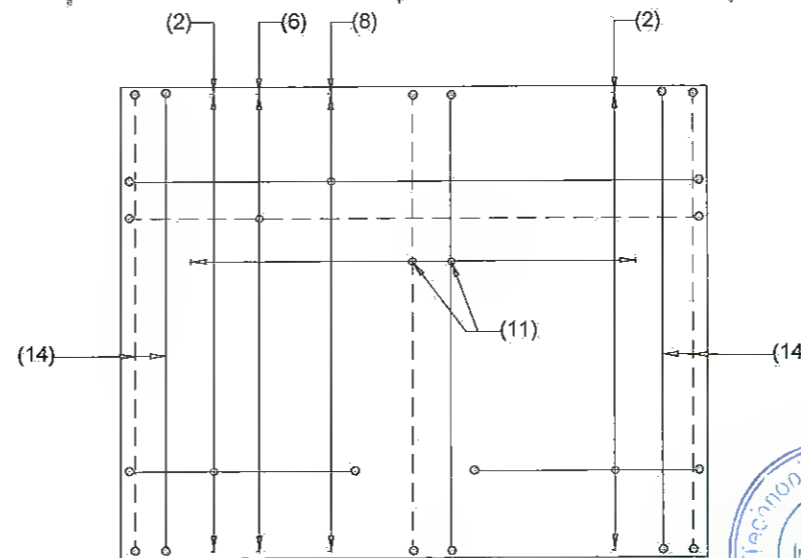
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Legends:



BOTTOM SLAB REINFORCEMENT PLAN





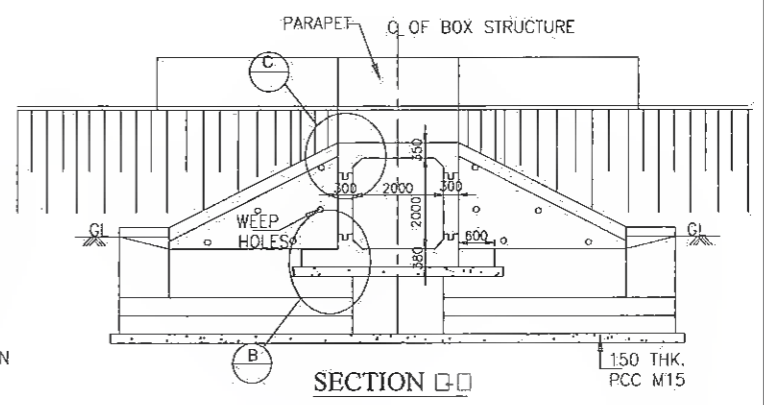
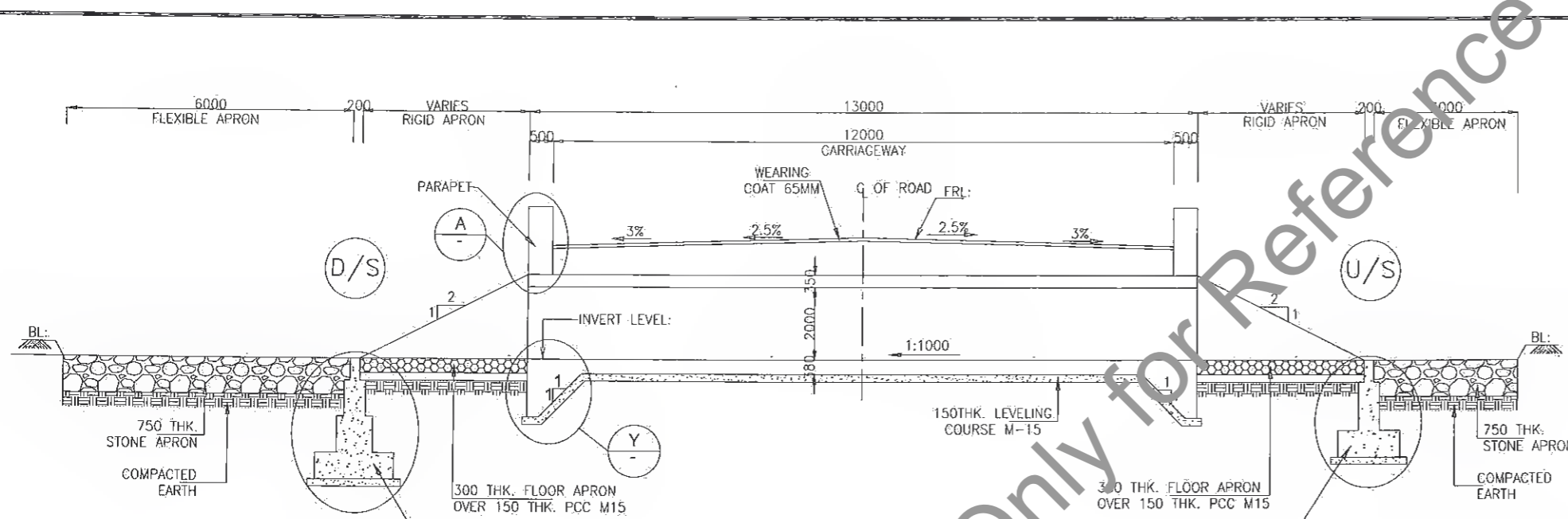
TOP SLAB REINFORCEMENT PLAN


 Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd., Muzaffarpur

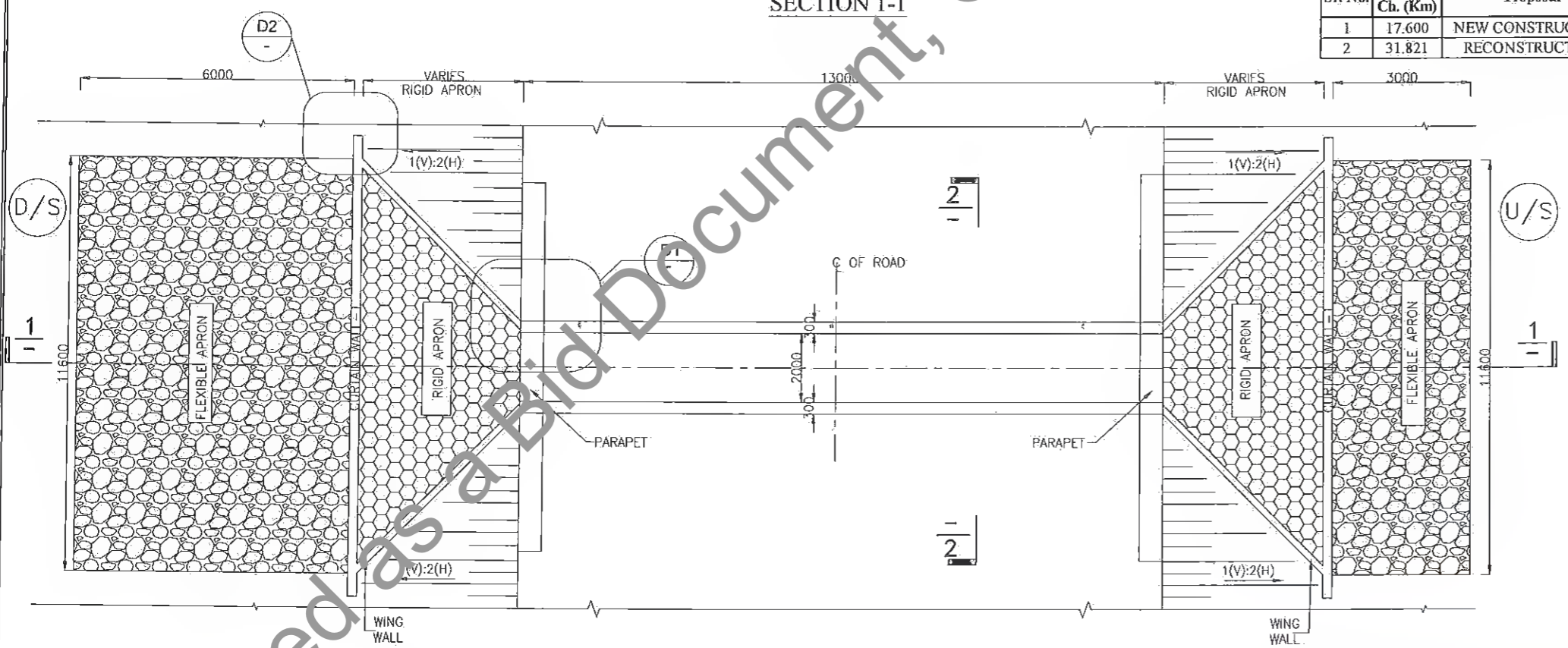

 Dy. General Manager (Tech)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur



R5 JULY 2019 MODIFIED DPR R4 JULY 2019 DETAILED PROJECT REPORT R3 DEC. 2018 CLIENT SUGGESTION INCORPORATED R2 AUG. 2018 FINAL DDPR R1 MAY 2018 FINAL FEASIBILITY R0 MARCH 2018 FEASIBILITY REV. DATE DESCRIPTION OF REVISIONS	CLIENT:  BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)	PROJECT: Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)	DPR CONSULTANTS:  Shweta Technophile Consultants Pvt. Ltd. 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indrapuram, Ghaziabad-201014	DRAWN BY: ANKIT NEGI DESIGN BY: NIKHIL CHECKED BY: RANJAN SCALE: AS SHOWN	TITLE: REINFORCEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x1.5mx1.5m) (SHEET - 3 OF 3) DRAWING NO. STC/BR/BSRDC/BN/STR/BC- 03	A3
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BOX CULVERT WITH CUSHION (1 X 2.0 X 2.0)								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL (M)	Proposed Width (m)	Cushion
1	17.600	NEW CONSTRUCTION	BOX	1X2.0x2.0	79.270	77.359	13	0.766
2	31.821	RECONSTRUCTION	BOX	1X2.0x2.0	86.491	83.824	13	1.522



PLAN

NOTES:-

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- GRADE OF CONCRETE FOR RCC. BOX (M 25), APPROACH SCAB SHALL BE (M30).
- BOX CULVERT SHALL BE CAST-IN-SITU BOX TYPE STRUCTURE.
- CHAINAGE, FRL AND INVERT LEVEL GIVEN IN THE DRAWING SHALL BE VERIFIED AS PER SITE CONDITIONS AND HIGHWAY DRAWING.
- BACK FILLING BEHIND BOX SHALL BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES. THE DIFFERENCE IN LEVEL SHALL NOT BE MORE THAN 300mm.
- PROPERTIES OF SELECTED BACKFILL BEHIND BOX SHALL BE AS FOLLOWS:-C=0, $\phi > 30^\circ$, SOIL DENSITY = 1800 kg/m³.
- SAFE BEARING CAPACITY OF SOIL SHALL NOT BE LESS THAN 150 t/m².



Manager (Tech) Dy. General Manager (Tech),
 Project Implementation Unit Project Implementation Unit
 Bihar State Road Dev. Corp. Ltd. Muzaffarpur Bihar State Road Dev. Corp. Ltd. Muzaffarpur

Sl. No.	DATE	DESCRIPTION OF REVISIONS
R5	JULY, 2021	MODIFIED DPR
R4	JULY, 2021	DETAILED PROJECT REPORT
R3	DEC, 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG, 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

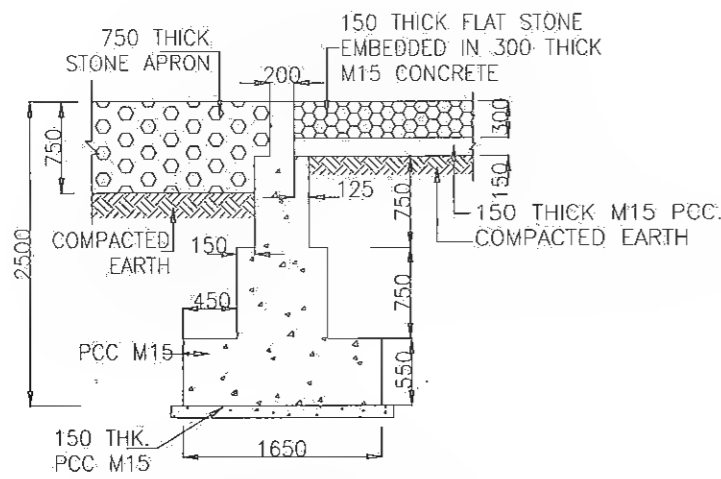
CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

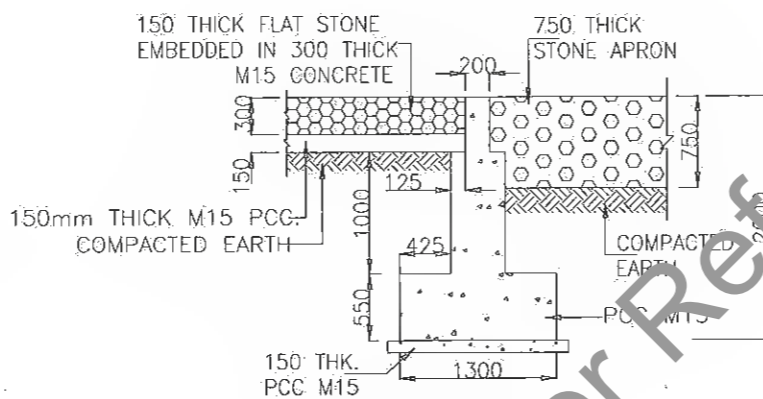
DPR CONSULTANTS:
S70 Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indirapuram, Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

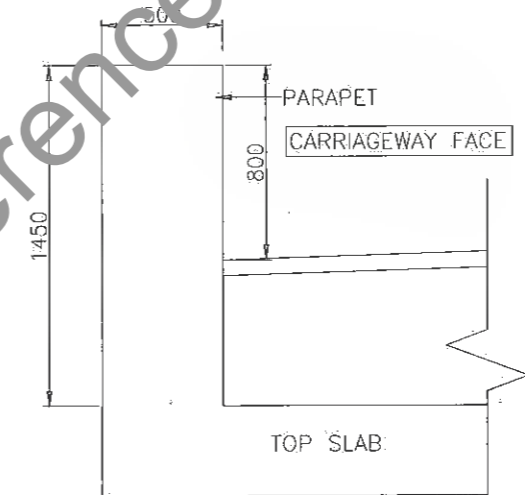
TITLE:
 GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (20m x 20m). (SHEET - 1 OF 3)
 DRAWING NO. STC/BR/BSRDC/BNB/STR/BC- 01



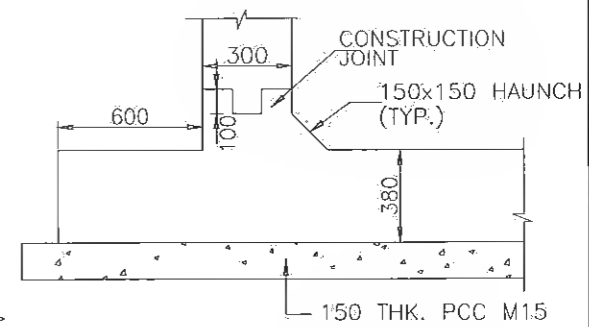
TYPICAL CROSS SECTION OF CURTAIN WALL -1
DOWN STREAM SIDE



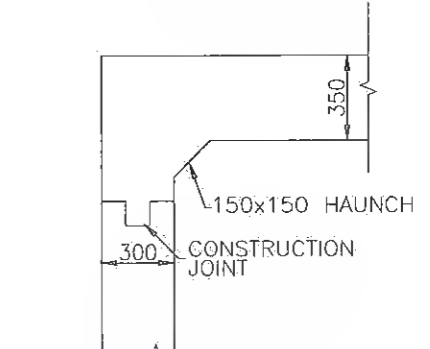
TYPICAL CROSS SECTION OF CURTAIN WALL -□
UP STREAM SIDE



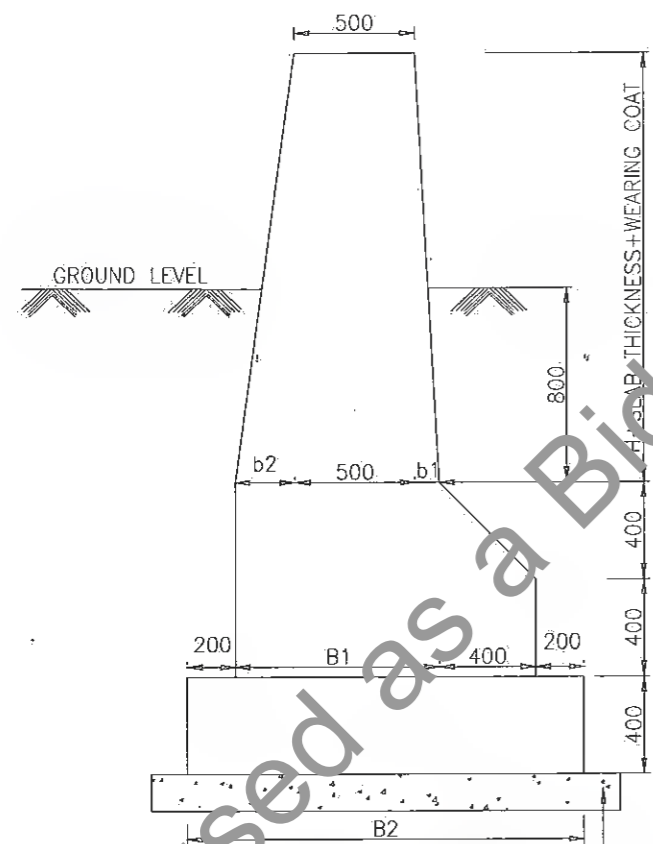
DETAIL-A



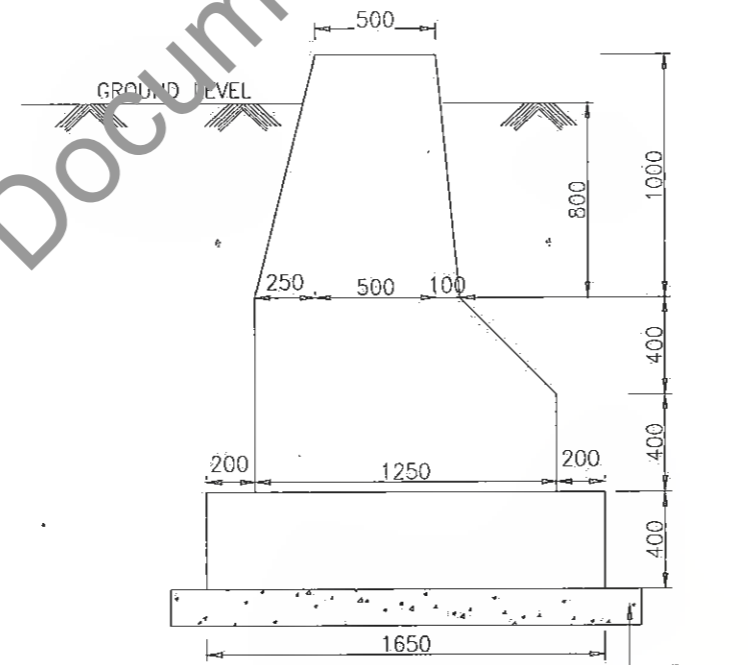
DETAIL-B



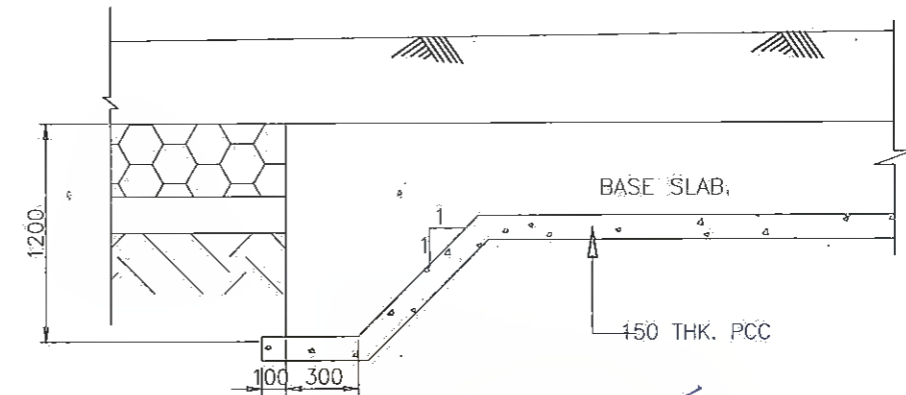
DETAIL-C



WING WALL SECTION AT HIGH END
DETAIL - D1



WING WALL SECTION AT LOW END (FOR ALL SPANS)
DETAIL - D□



DETAIL-Y

TABLE OF DIMENSIONS FOR WINGWAL (HIGH END) (FROM IRC: SP13-2004)	
SPAN	UPTO 1500 mm
H	1500
b1	180
b2	450
B1	1130
B2	1930

Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Patna, Bihar

Dy. General Manager
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Patna, Bihar



REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 2021	MODIFIED DPR
R4	JULY 2019	DETAILED PROJECT REPORT
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R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

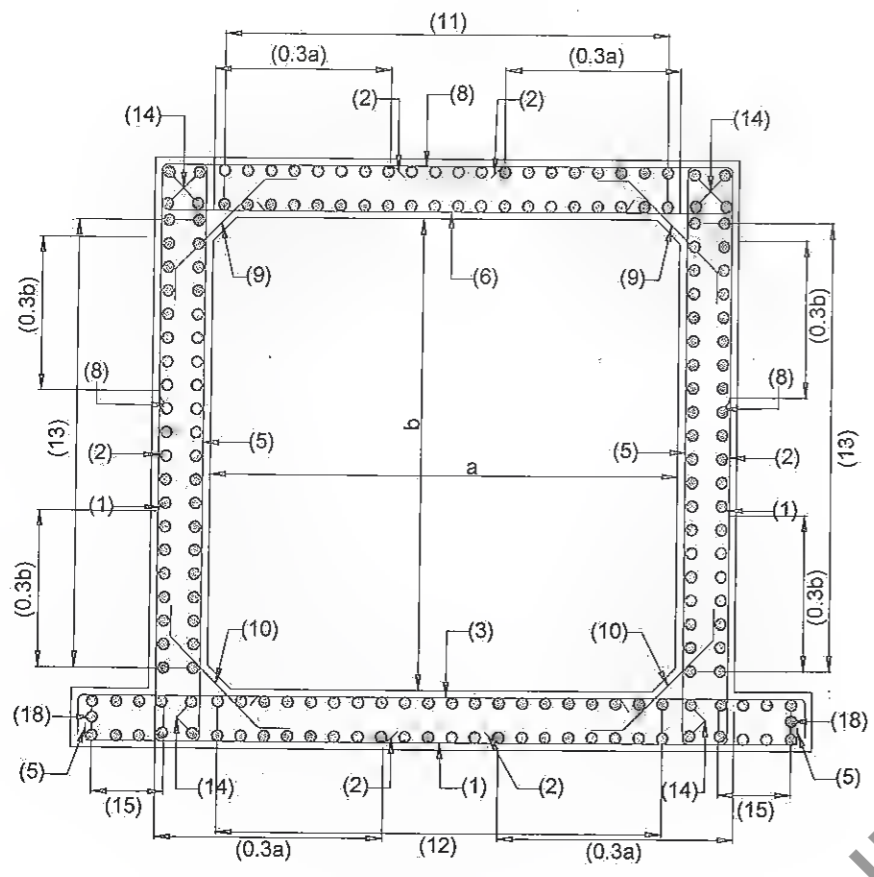
CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Betliah - Narkatiaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indrapuram, Ghaziabad-201014

DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE: AS SHOWN

TITLE:
GENERAL ARRANGEMENT DRAWING OF TYP. BOD CULVERT WITH CUSHION (□0m x □0m) - (SHEET - □OF 3)
DRAWING NO.
STC/BR/BRDC/BNB/STR/BC-□□



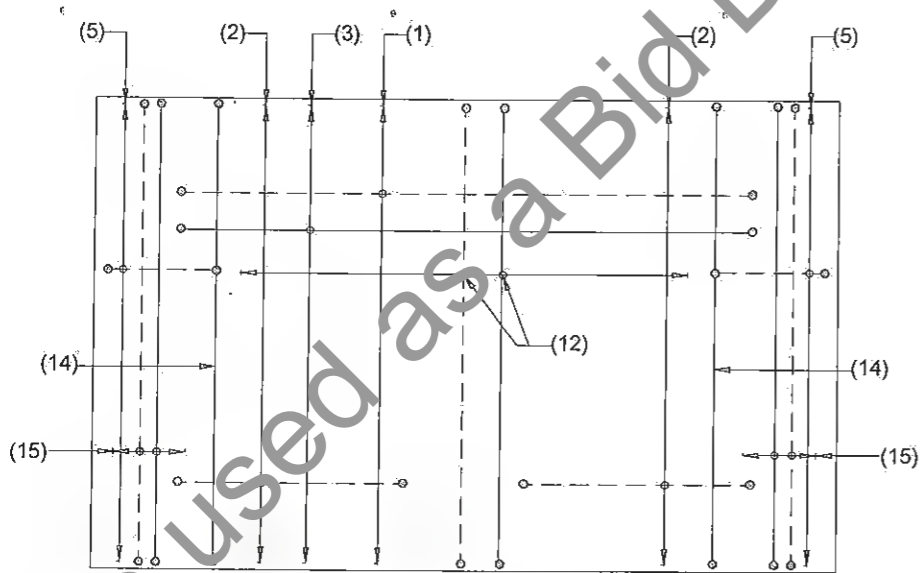
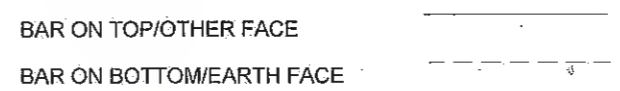
REINFORCEMENT DETAILS OF RCC BOX

REINFORCEMENT DETAIL FOR BOX STRUCTURE			
BAR MKD.	SHAPE	BAR DIA	SPACING/Nos.
1	[Symbol]	12	150 C/C
2	[Symbol]	12	150 C/C
3	[Symbol]	10	150 C/C
5	[Symbol]	12	150 C/C
6	[Symbol]	12	150 C/C
8	[Symbol]	12	150 C/C
9	[Symbol]	10	150 C/C
10	[Symbol]	10	150 C/C
11	[Symbol]	10	150 C/C
12	[Symbol]	10	150 C/C
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14	[Symbol]	10	12 Nos.
15	[Symbol]	12	150 C/C
18	[Symbol]	12	2 Nos.

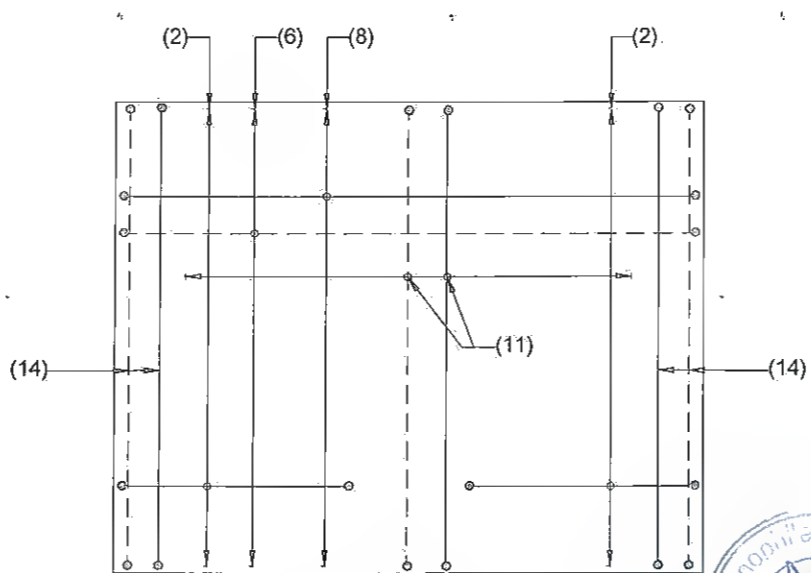
NOTES:

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS UNLESS OTHERWISE MENTIONED.
- ONLY WRITTEN DIMENSION SHALL BE FOLLOWED
- CONCRETE DETAILS
 - i) RCC BOX CELL ---M25
 - ii) PCC LEVELING COURSE ---M15
- CLEAR COVER SHALL BE AS FLOW:
75mm. NEAR EARTH FACE □ 40mm. IN OTHER FACE
- ALL LAPS SHALL BE SUITABLY STAGGERED AND MINIMUM c/c DISTANCE BETWEEN TWO THE ADJACENT LAPS SHALL BE 1.30 TIMES LAP LENGTH. NOT MORE THAN 50% OF REINFORCEMENT SHALL BE LAPPED AT ANY LOCATION.
- SOIL DENSITY ON THE BACKFILL SHOULD CONFORM TO CLAUSE 305.2.1.5 OF MOST SPECIFICATION.
- SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
- GRADE OF CONCRETE FOR RCC BOX SHALL BE M25.
- REINFORCEMENT STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS, (GRADE DESIGNATION Fe500) CONFORMING TO IS:1786.

Legends:



BOTTOM SLAB REINFORCEMENT PLAN



TOP SLAB REINFORCEMENT PLAN

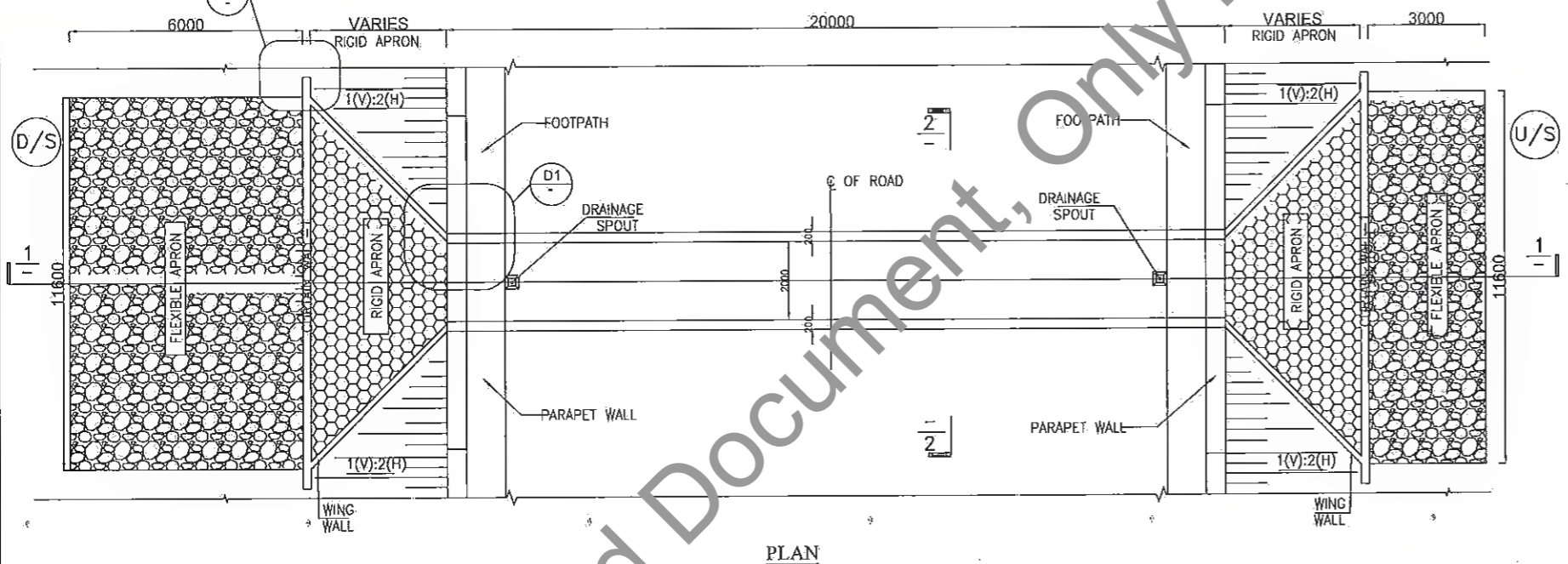
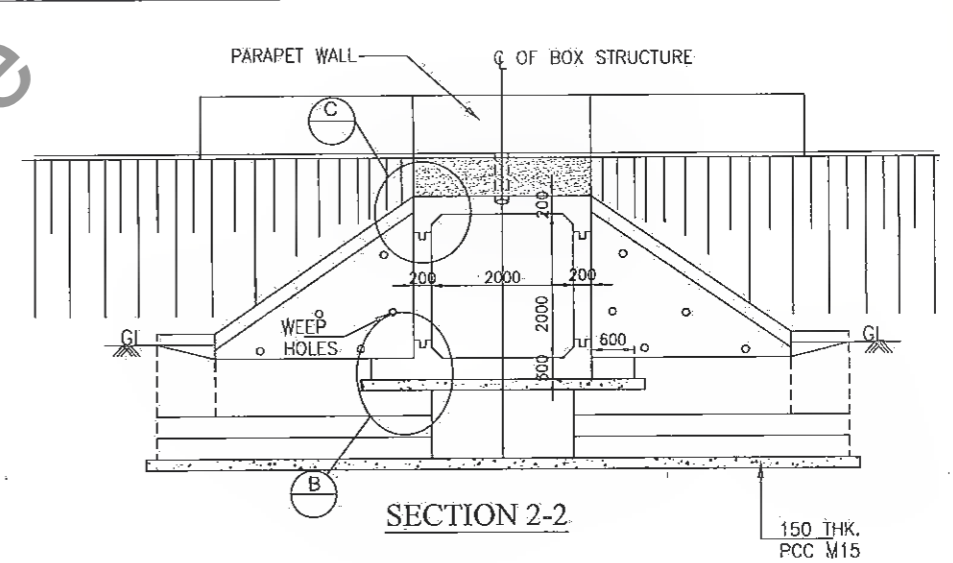
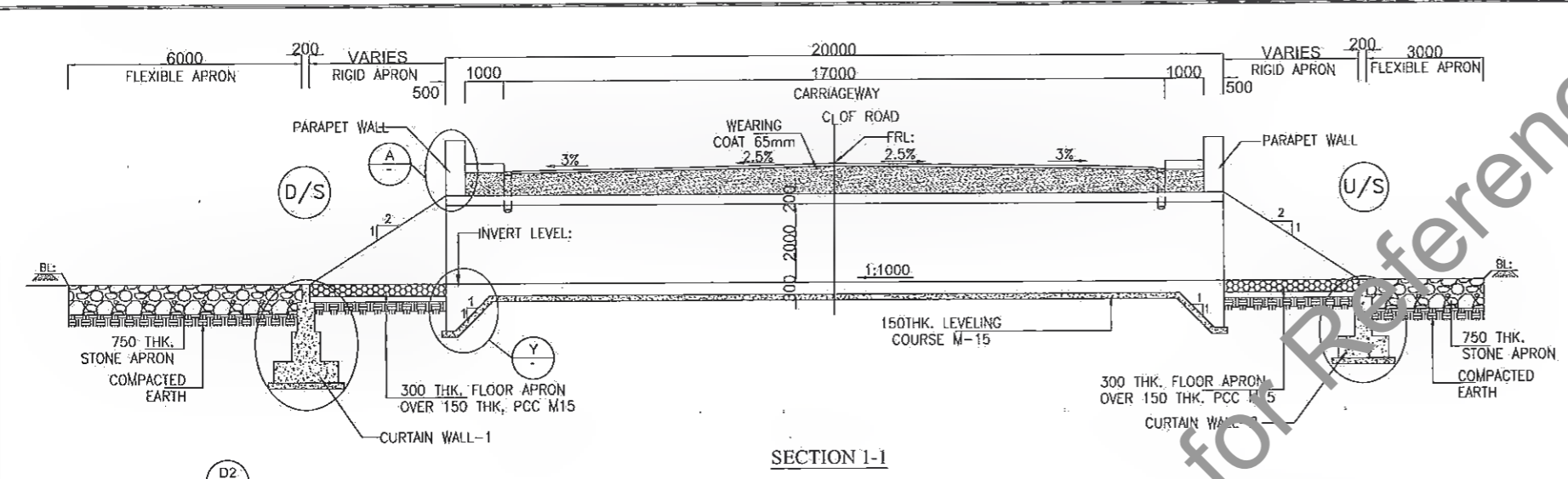
Manager (Tech.)

 Project Implementation Unit

 Bihar State Road Devp Corp. Ltd. Muzaffarpur



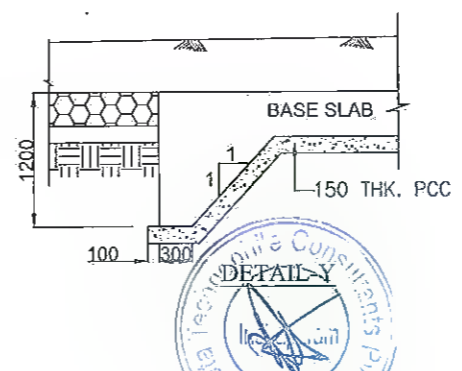
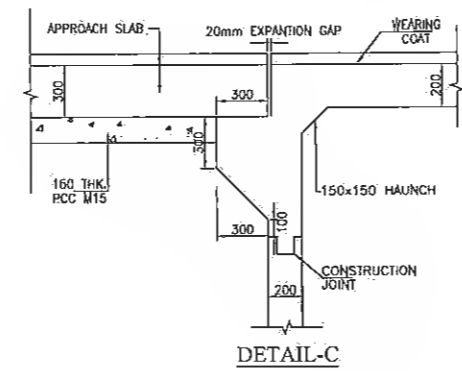
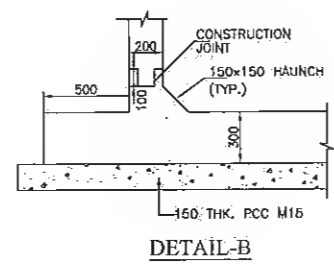
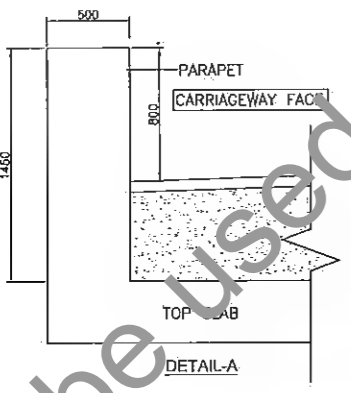
R5 JULY 2021 MODIFIED DPR R4 JULY 2021 DETAILED PROJECT REPORT R3 DEC 2018 CLIENT SUGGESTION INCORPORATED R2 AUG. 2018 FINAL DDPR R1 MAY 2018 FINAL FEASIBILITY R0 MARCH 2018 FEASIBILITY R- DATE DESCRIPTION OF REVISIONS	CLIENT: BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)	PROJECT: Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)	DPR CONSULTANTS: S70 Shweta Technophile Consultants Pvt. Ltd. 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indrapuram, Ghaziabad-201014.	DRAWN BY ANKIT NEGI DESIGN BY NIKHIL CHECKED BY RANJAN SCALE:-AS SHOWN	TITLE: REINFORCEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x□0mx□0m) (SHEET - 3 OF 3) DRAWING NO. STC/BR/BSRDC/BN/STR/BC- 03	A3
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BOX CULVERT WITH CUSHION (1 X 2.0 X 2.0) IN BUILTUP								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL(M)	Proposed Width (m)	Cushion
1	35.205	RECONSTRUCTION	BOX	1X2.0X2.0	89.797	87.864	20	0.788


NOTES :-

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
- REINFORCING STEEL SHALL BE H.Y.S.D. BARS (GRADE DESIGNATION Fe -500) CONFORMING TO IS:1786.
- GRADE OF CONCRETE FOR RCC, BOX (M 25), APPROACH SLAB SHALL BE (M30).
- BOX CULVERT SHALL BE CAST-IN-SITU BOX TYPE STRUCTURE.
- CHAINAGE, FRL AND INVERT LEVEL GIVEN IN THE DRAWING SHALL BE VERIFIED AS PER SITE CONDITIONS AND HIGHWAY DRAWING.
- BACK FILLING BEHIND BOX SHALL BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES. THE DIFFERENCE IN LEVEL SHALL NOT BE MORE THAN 300mm
- PROPERTIES OF SELECTED BACKFILL BEHIND BOX SHALL BE AS FOLLOWS:-C=0, $\phi > 30^\circ$, SOIL DENSITY = 1.80 t/m³.
- SAFE BEARING CAPACITY OF SOIL SHALL NOT BE LESS THAN 15.0 t/m².



Manager (Tech.) Dy. General Manager (Tech.)
 Project Implementation Unit Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Bihar State Road Devp. Corp. Ltd. Muzaffarpur

REV.	DATE	DESCRIPTION OF REVISIONS
R0	MARCH 2018	FEASIBILITY
R1	MAY 2018	FINAL FEASIBILITY
R2	AUG. 2018	FINAL DDPR
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R4	JULY 2019	DETAILED PROJECT REPORT

CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indirapuram, Ghaziabad-201014

DRAWN BY	ANKIT
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

TITLE:
GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (2m x 2m) (SHEET - 1 OF 3)
 DRAWING NO. STC/BR/BSRDC/BNB/STR/BC-
 A3

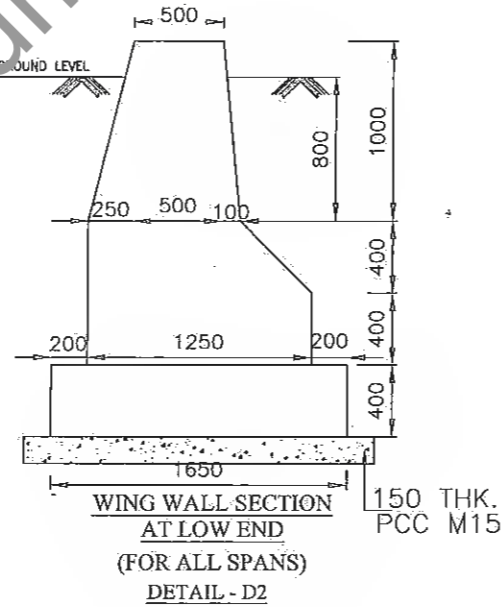
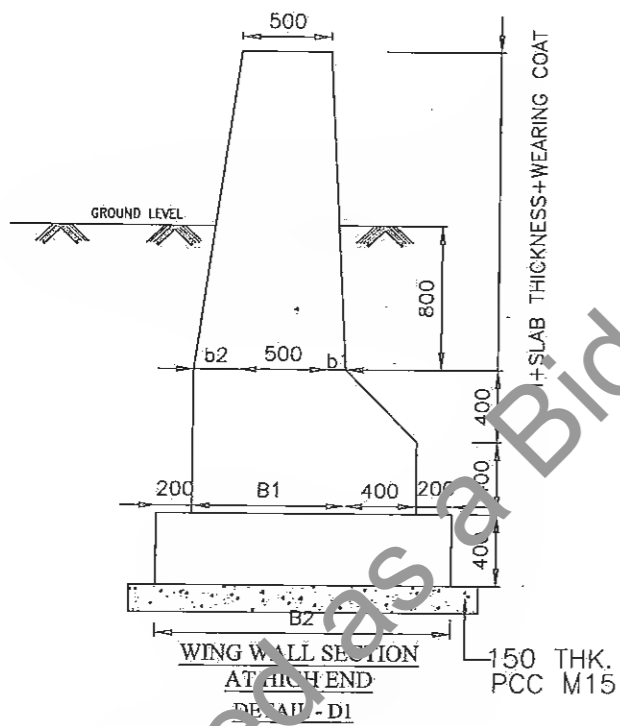
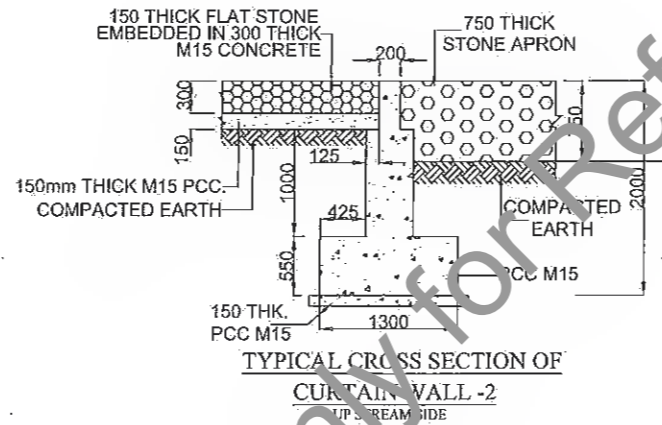
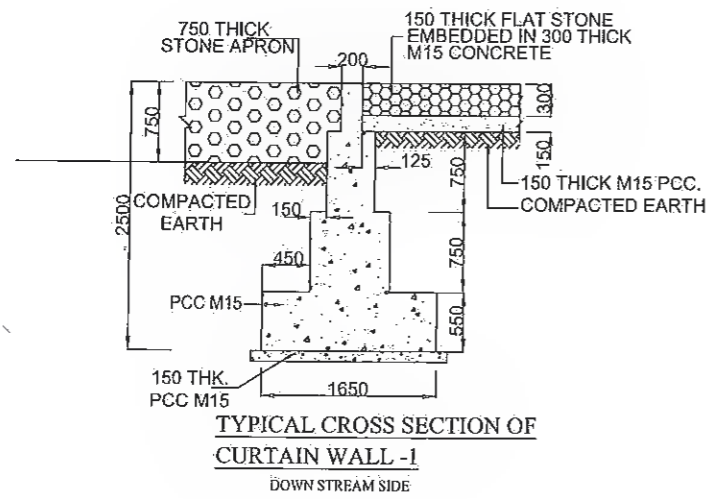





TABLE OF DIMENSIONS FOR WINGWAL (HIGH END) (FROM IRC: SP13-2004)	
SPAN	UPTO 1500 mm
H	1500
b1	180
b2	450
B1	1130
B2	1930


 Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd., Muzaffarpur


 Dy. General Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur



DPR CONSULTANTS:
570 Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indrapuram,
 Ghaziabad-201014

CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

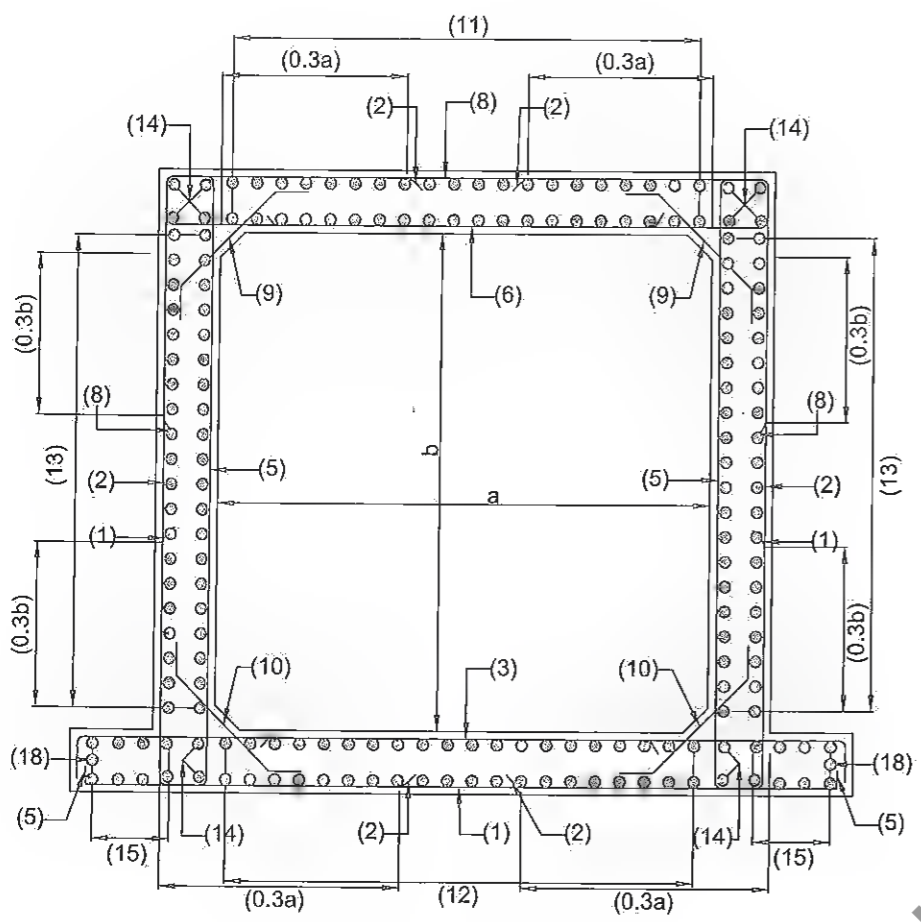
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DRAWN BY	ANKIT
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

TITLE:
 GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (2m x 2m) (SHEET - 2 OF 3)

DRAWING NO.
 STC/BR/BSRDC/BNB/STR/BC-

NO.	DATE	DESCRIPTION OF REVISIONS
R4	JULY, 2019	FINAL PROJECT REPORT
R3	DEC, 2018	COMMENT SUGGESTION INCORPORATED
R2	AUG, 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY



REINFORCEMENT DETAILS OF RCC BOX

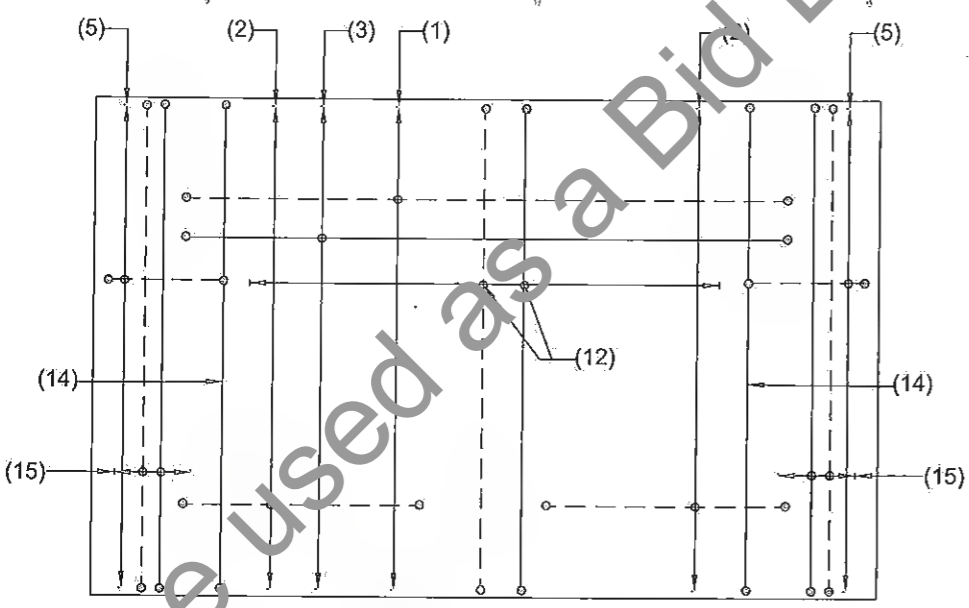
REINFORCEMENT DETAIL FOR BOX STRUCTURE			
BAR MKD.	SHAPE	BAR DIA	SPACING/Nos.
1		10	200 C/C
2		10	200 C/C
3		12	125 C/C
5		10	200 C/C
6		10	100 C/C
8		10	200 C/C
9		10	200 C/C
10		10	200 C/C
11		10	250 C/C
12		10	250 C/C
13		10	250 C/C
14		10	12 Nos.
15		10	250 C/C
18		10	2 Nos.

NOTES:

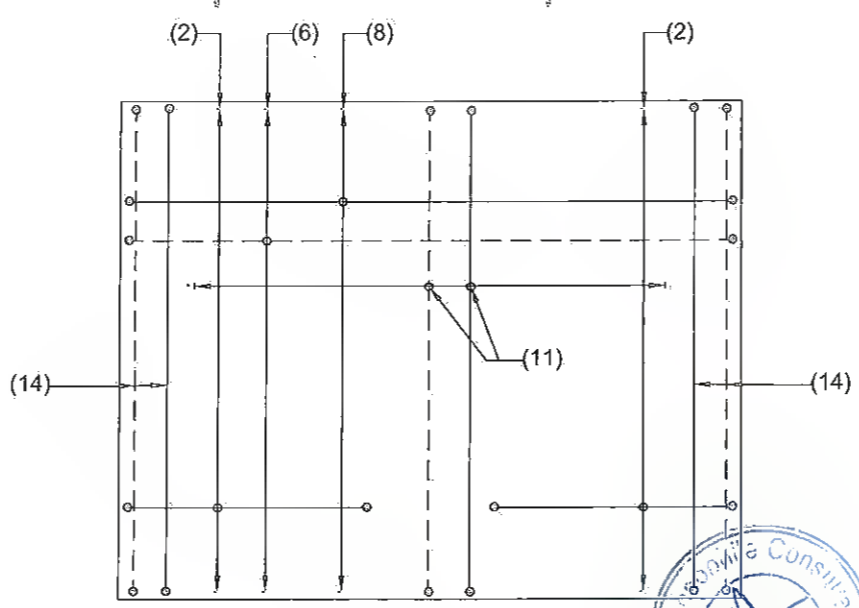
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
- ONLY WRITTEN DIMENSION SHALL BE FOLLOWED
- CONCRETE DETAILS
 - i) RCC BOX CELL ---M25
 - ii) PCC LEVELING COURSE ---M15
- CLEAR COVER SHALL BE AS FLOW: 75mm. NEAR EARTH FACE & 40mm. IN OTHER FACE
- ALL LAPS SHALL BE SUITABLY STAGGERED AND MINIMUM c/c DISTANCE BETWEEN TWO THE ADJACENT LAPS SHALL BE 1.30 TIMES LAP LENGTH. NOT MORE THAN 50% OF REINFORCEMENT SHALL BE LAPPED AT ANY LOCATION.
- SOIL DENSITY ON THE BACKFILL SHOULD CONFORM TO CLAUSE 305.2.1.5 OF MOST SPECIFICATION.
- SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
- GRADE OF CONCRETE FOR RCC BOX SHALL BE M25.
- REINFORCEMENT STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS.(GRADE DESIGNATION Fe500) CONFORMING TO IS:1786.

Legends:

- BAR ON TOP/OTHER FACE
- BAR ON BOTTOM/EARTH FACE



BOTTOM SLAB REINFORCEMENT PLAN



TOP SLAB REINFORCEMENT PLAN

Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd., Muzaffarpur

 Dy. General Manager
 Project Implementation Unit
 Bihar State Road Devp Corp. Ltd. Muzaffarpur



REV.	DATE	DESCRIPTION OF REVISIONS
R4	JULY. 2019	DETAILED PROJECT REPORT
R3	DEC. 2018	COMMENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:

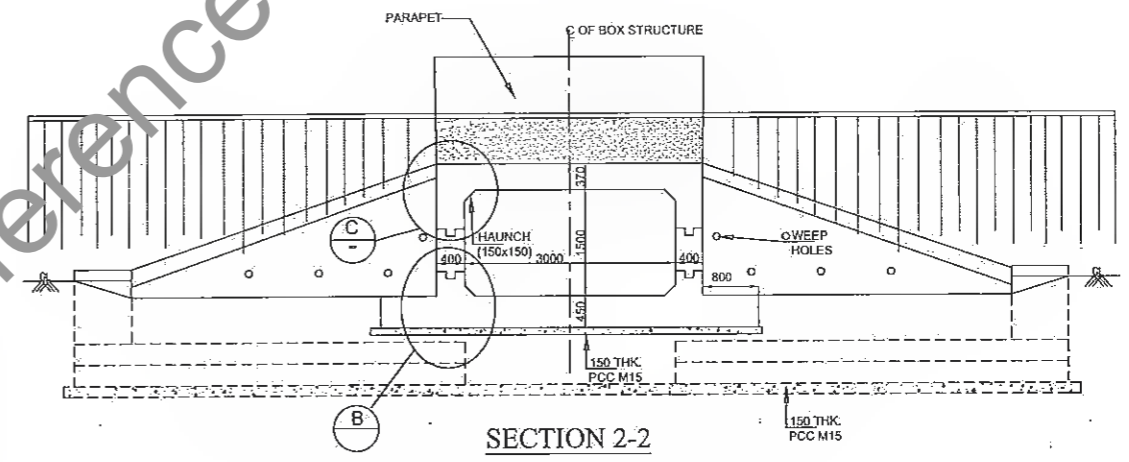
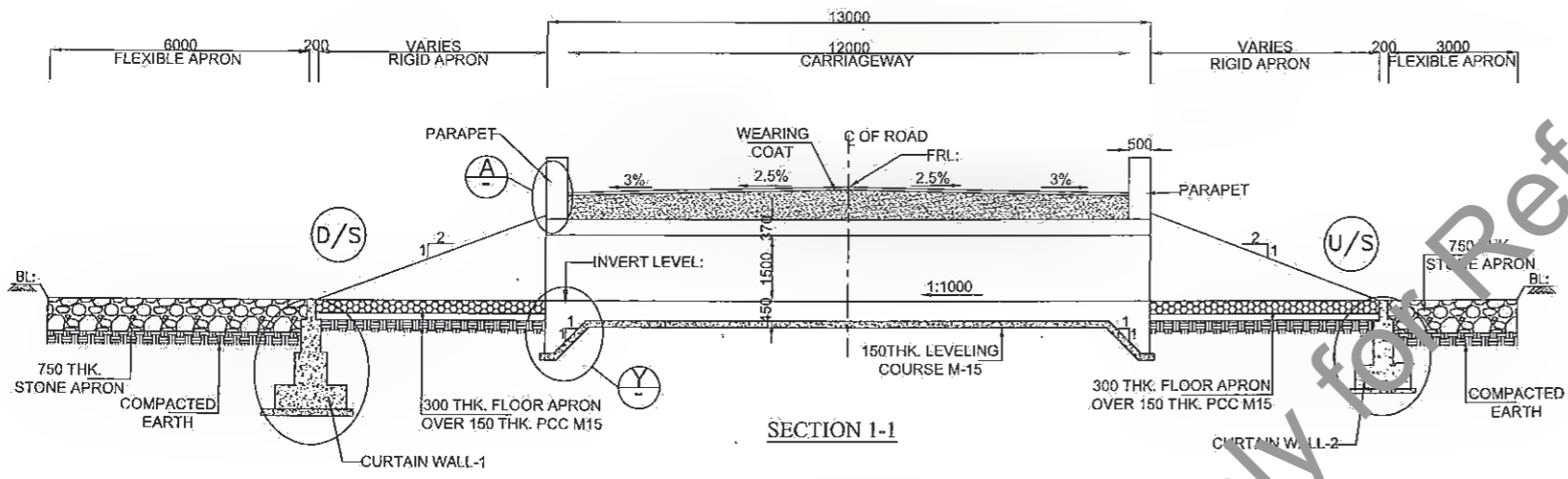
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA
 (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

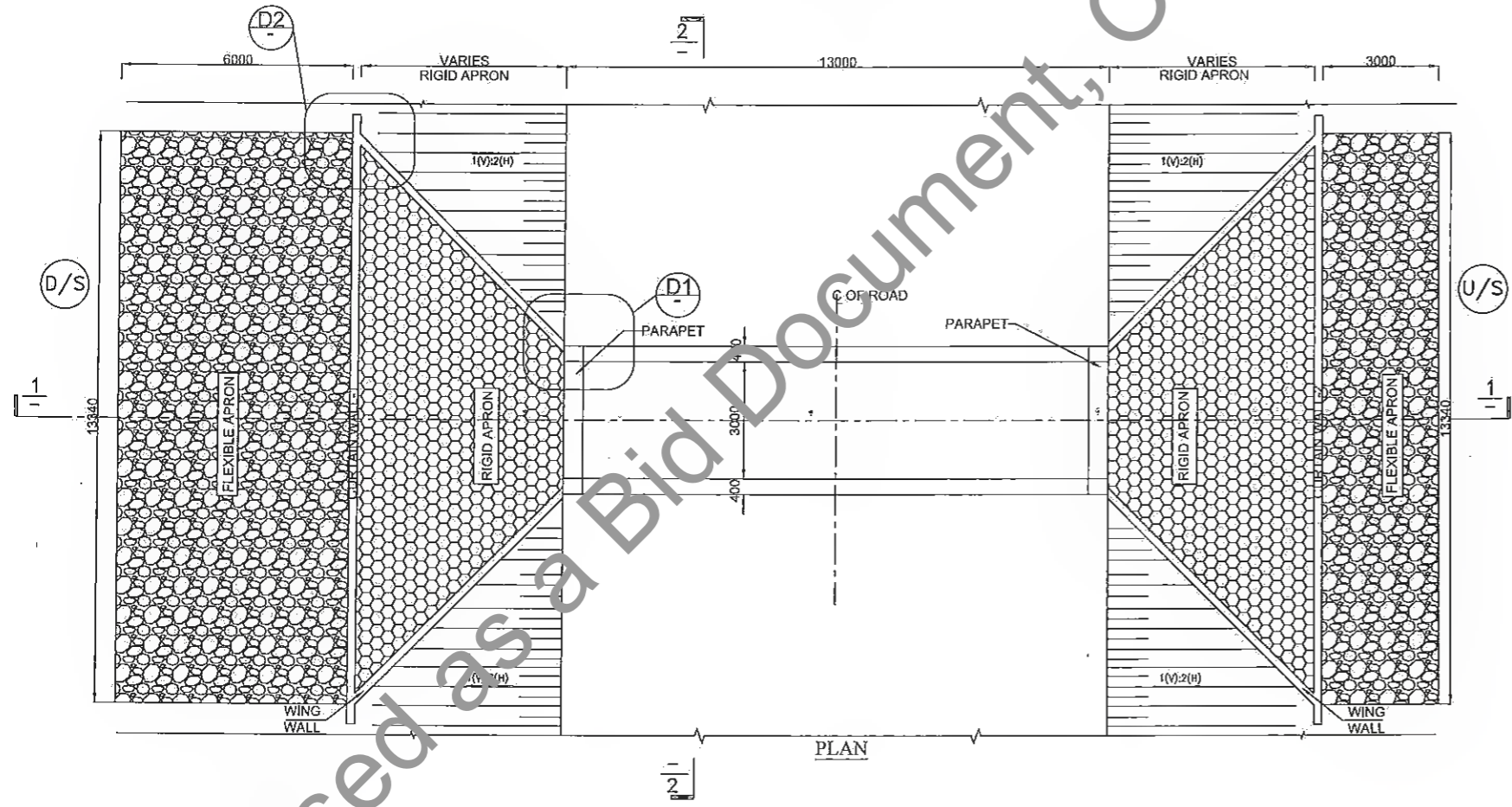
DPR CONSULTANTS:
S70 Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indrapuram,
 Ghazilabad-201014

DRAWN BY	ANKIT
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

TITLE:
REINFORCEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x2mx2m) (SHEET - 3 OF 3)
 DRAWING NO.
 STC/BR/BSRDC/BNB/STR/BC-



BOX CULVERT WITH CUSHION (1 X 3.0 X 1.5)								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL(M)	Proposed Width (m)	Cushion
1	8.462	RECONSTRUCTION	BOX	1X3.0x1.5	78.693	76.939	13	1.159
2	12.936	RECONSTRUCTION	BOX	1X3.0x1.5	78.66	75.677	13	2.388



NOTES: -

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
- REINFORCING STEEL SHALL BE H.Y.S.D. BARS (GRADE DESIGNATION Fe-500) CONFORMING TO IS:1786.
- GRADE OF CONCRETE FOR RCC. BOX (M 25).
- BOX CULVERT SHALL BE CAST-IN-SITU BOX TYPE STRUCTURE.
- CHAINAGE, FRL AND INVERT LEVEL GIVEN IN THE DRAWING SHALL BE VERIFIED AS PER SITE CONDITIONS AND HIGHWAY DRAWING...
- BACK FILLING BEHIND BOX SHALL BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES. THE DIFFERENCE IN LEVEL SHALL NOT BE MORE THAN 300mm
- PROPERTIES OF SELECTED BACKFILL BEHIND BOX SHALL BE AS FOLLOWS:-C=0, $\phi > 30^\circ$, SOIL DENSITY = 1.80 t/m³.
- SAFE BEARING CAPACITY OF SOIL SHALL NOT BE LESS THAN 15.0 t/m².

An
 Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur

K. Ra
 Dy. General Manager
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur



DPR CONSULTANTS:
570 Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indirapuram,
 Ghaziabad-201014

REV.	DATE	DESCRIPTION OF REVISIONS
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CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

TITLE:
 GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x3mx1.5m) (SHEET - 1 OF 3)

DRAWING NO.
 STC/BR/BSRDC/BNB/STR/MNB-

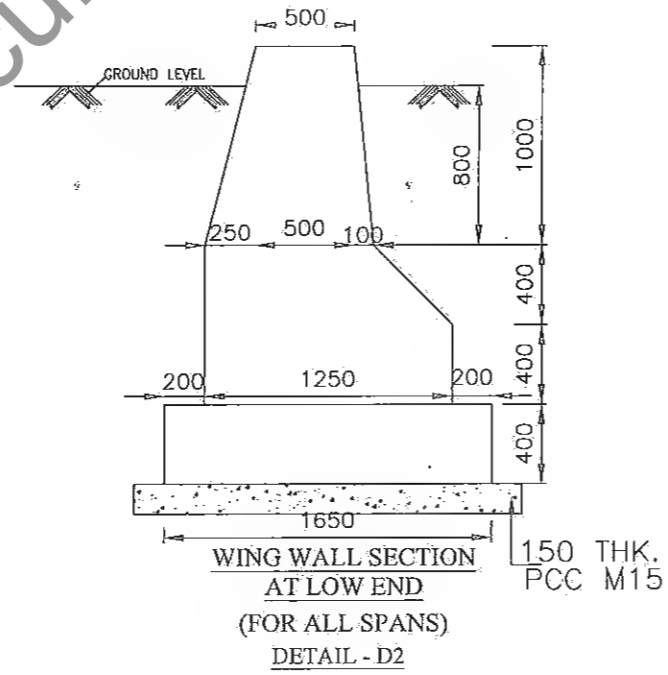
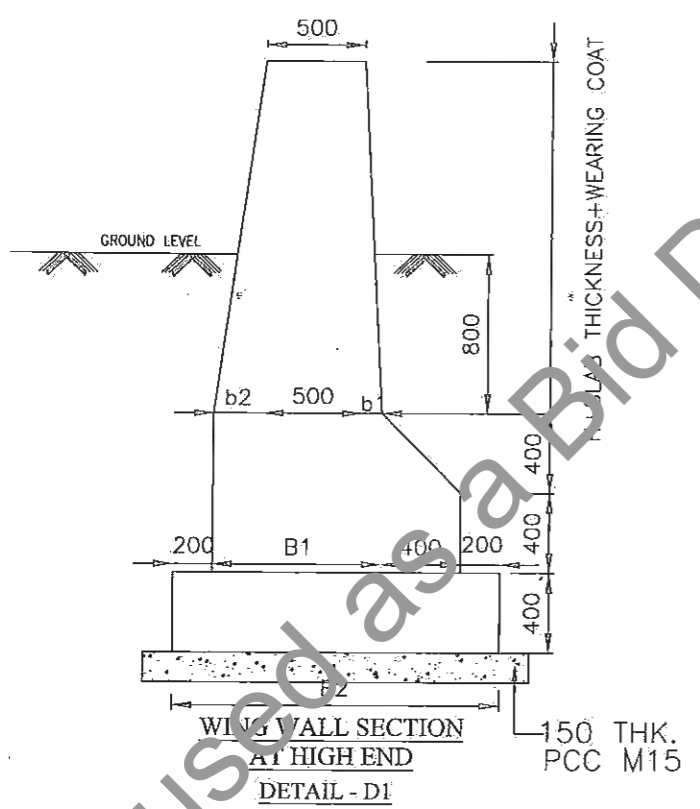
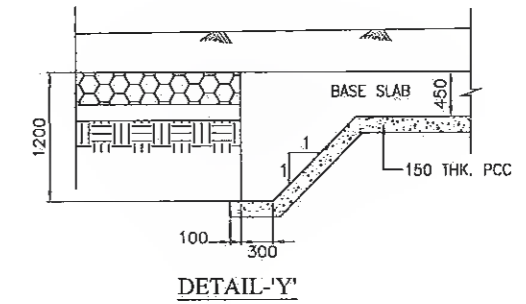
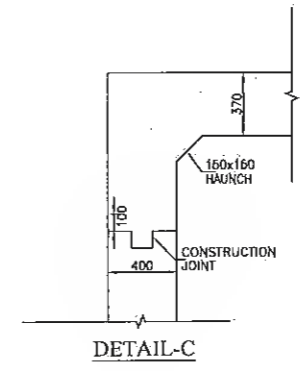
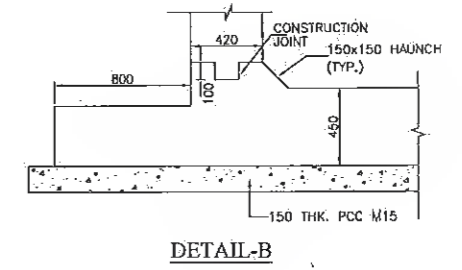
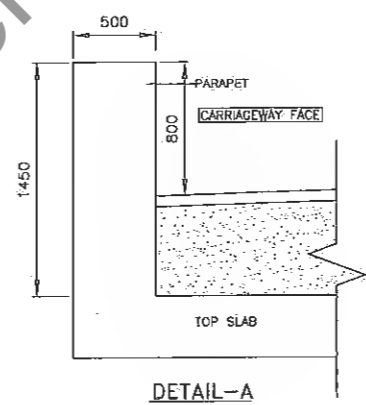
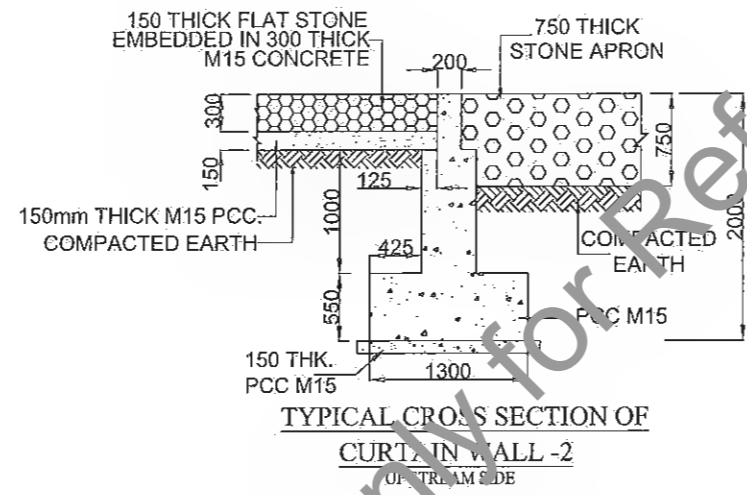
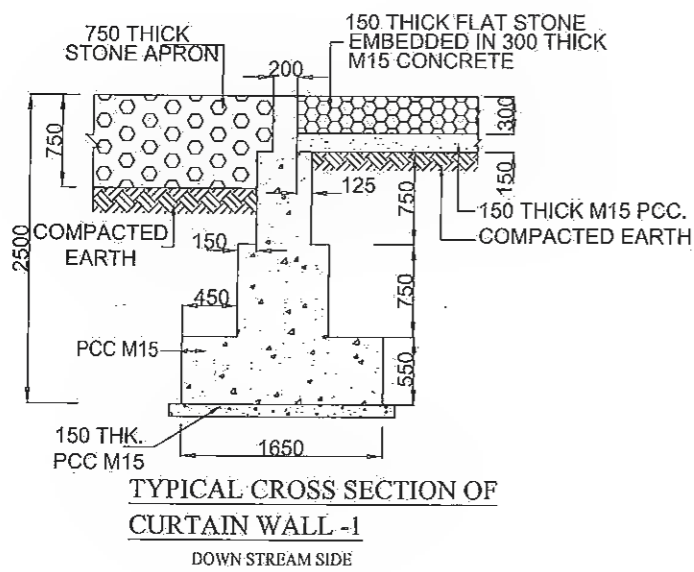


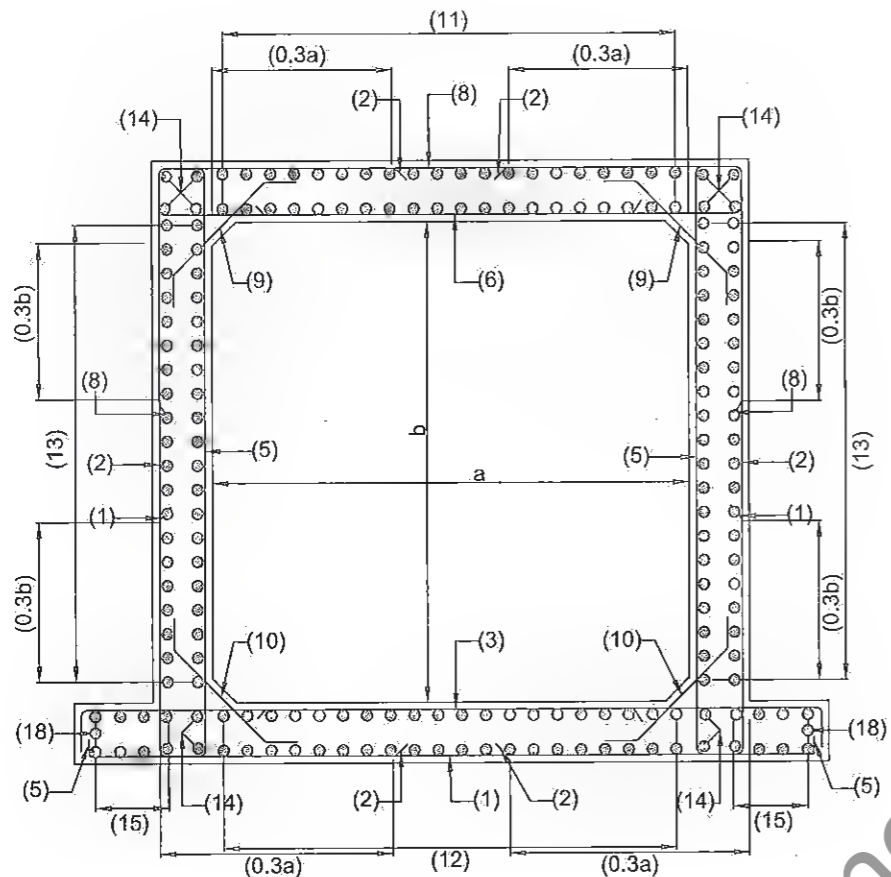
TABLE OF DIMENSIONS FOR WINGWAL (HIGH END) (FROM IRC: SP13-2004)	
SPAN	3000 mm
H	3000
b1	340
b2	840
B1	1680
B2	2480



Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp Corp. Ltd., Muzaffarpur

Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp Corp. Ltd. Muzaffarpur

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REINFORCEMENT DETAILS OF RCC BOX

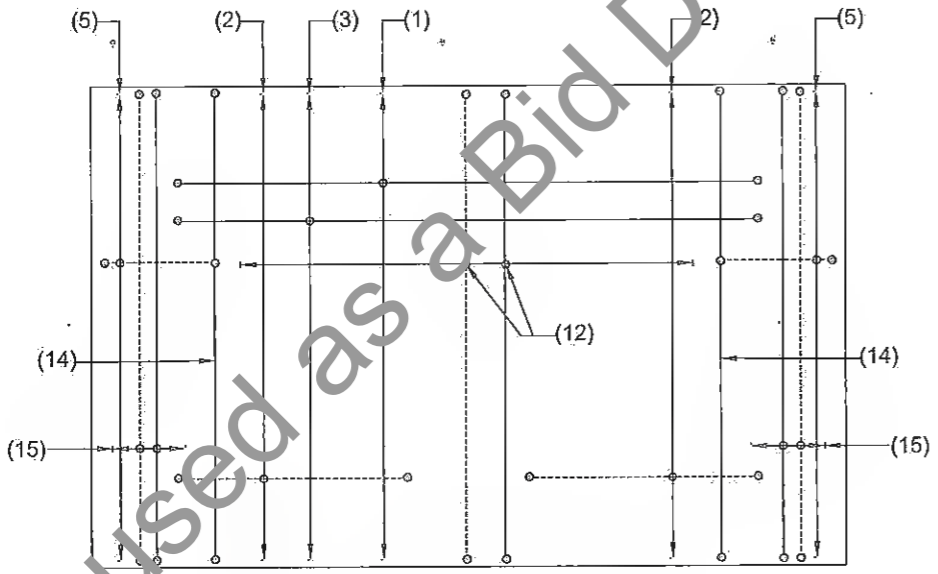
REINFORCEMENT DETAIL FOR BOX STRUCTURE			
BAR MKD.	SHAPE	BAR DIA	SPACING/Nos.
1	[Shape]	12	200 C/C
2	[Shape]	12	200 C/C
3	[Shape]	16	150 C/C
5	[Shape]	10	250 C/C
6	[Shape]	16	180 C/C
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10	[Shape]	10	200 C/C
11	[Shape]	10	250 C/C
12	[Shape]	10	250 C/C
13	[Shape]	10	250 C/C
14	[Shape]	10	12 Nos.
15	[Shape]	10	250 C/C
18	[Shape]	10	2 Nos.

NOTES:

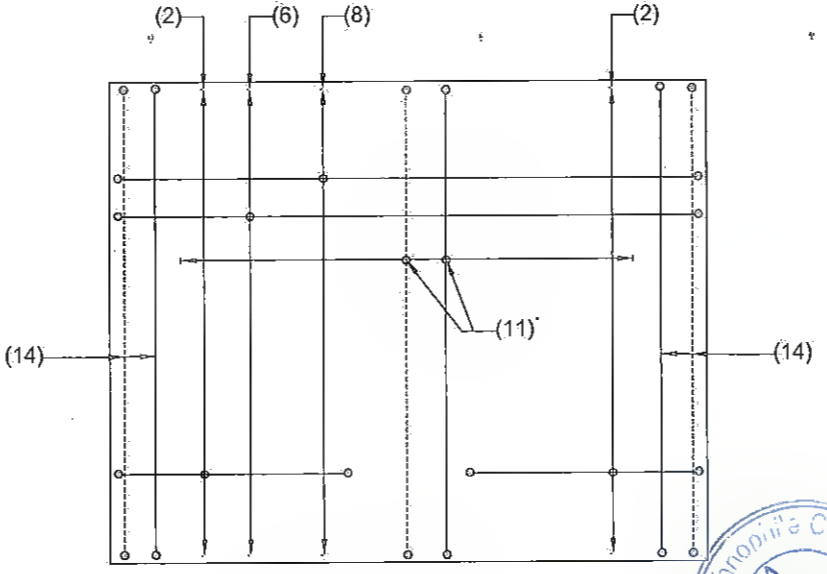
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- ONLY WRITTEN DIMENSION SHALL BE FOLLOWED
- CONCRETE DETAILS
 - i) RCC BOX CELL ---M25
 - ii) PCC LEVELING COURSE ---M15
- CLEAR COVER SHALL BE AS FLOW: 75mm. NEAR EARTH FACE & 40mm. IN OTHER FACE
- ALL LAPS SHALL BE SUITABLY STAGGERED AND MINIMUM c/c DISTANCE BETWEEN TWO THE ADJACENT LAPS SHALL BE 1.30 TIMES LAP LENGTH. NOT MORE THAN 50% OF REINFORCEMENT SHALL BE LAPPED AT ANY LOCATION.
- SOIL DENSITY ON THE BACKFILL SHOULD CONFORM TO CLAUSE 305.2.1.5 OF MOST SPECIFICATION.
- SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
- GRADE OF CONCRETE FOR RCC BOX SHALL BE M25.
- REINFORCEMENT STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS.(GRADE DESIGNATION Fe500) CONFORMING TO IS:1786.

Legends:

- BAR ON TOP/OTHER FACE [Symbol]
- BAR ON BOTTOM/EARTH FACE [Symbol]



BOTTOM SLAB REINFORCEMENT PLAN



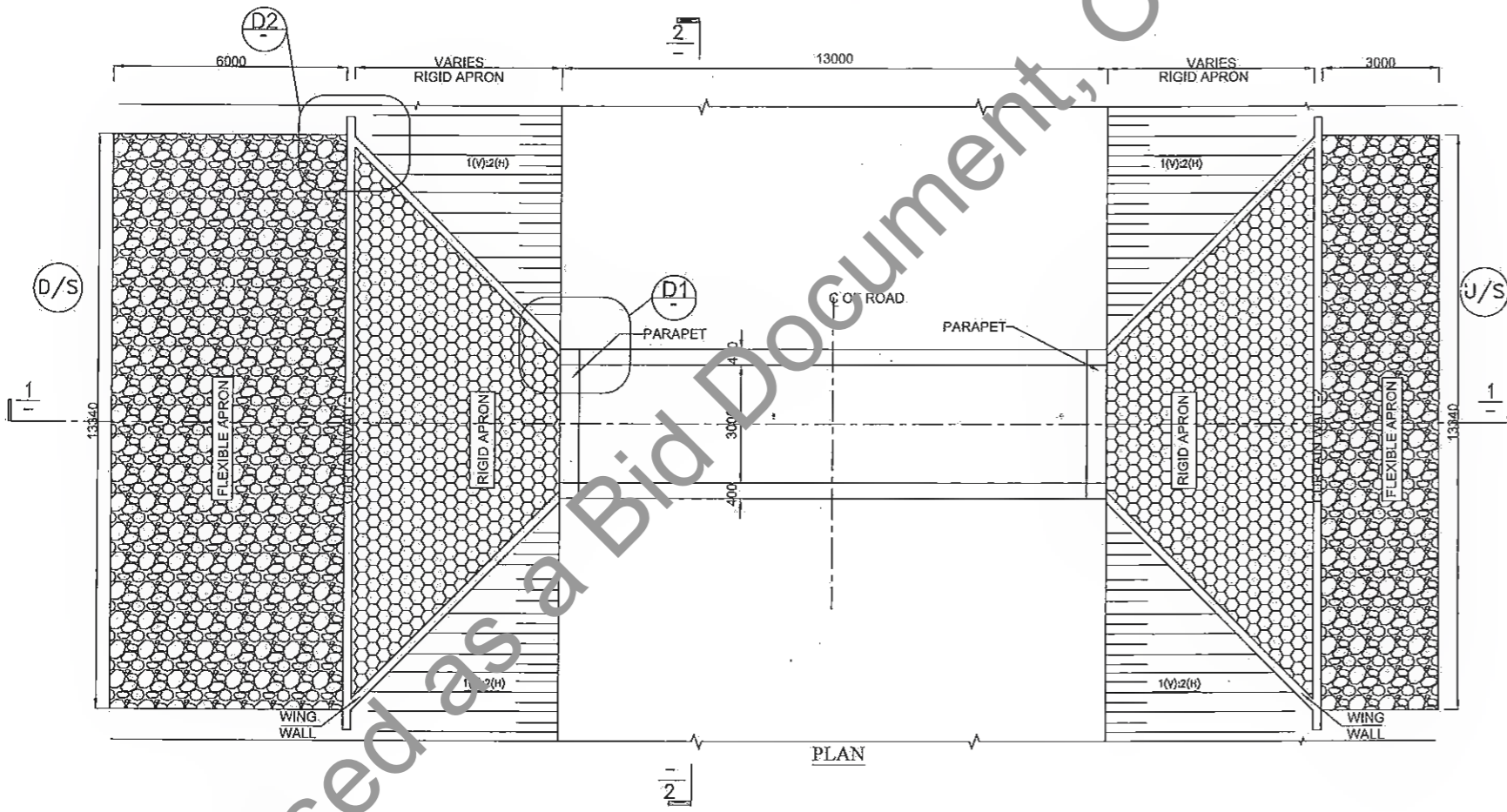
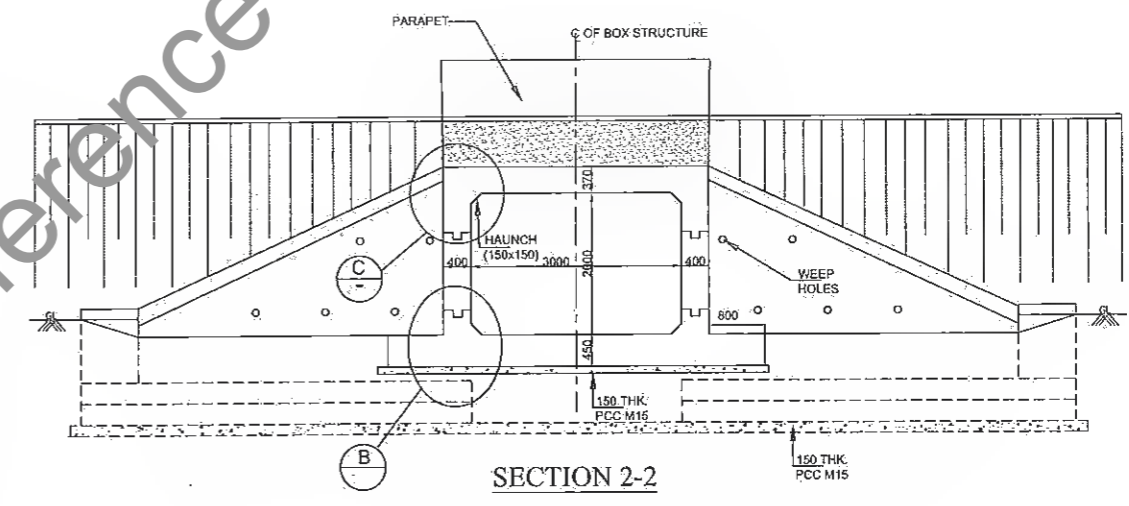
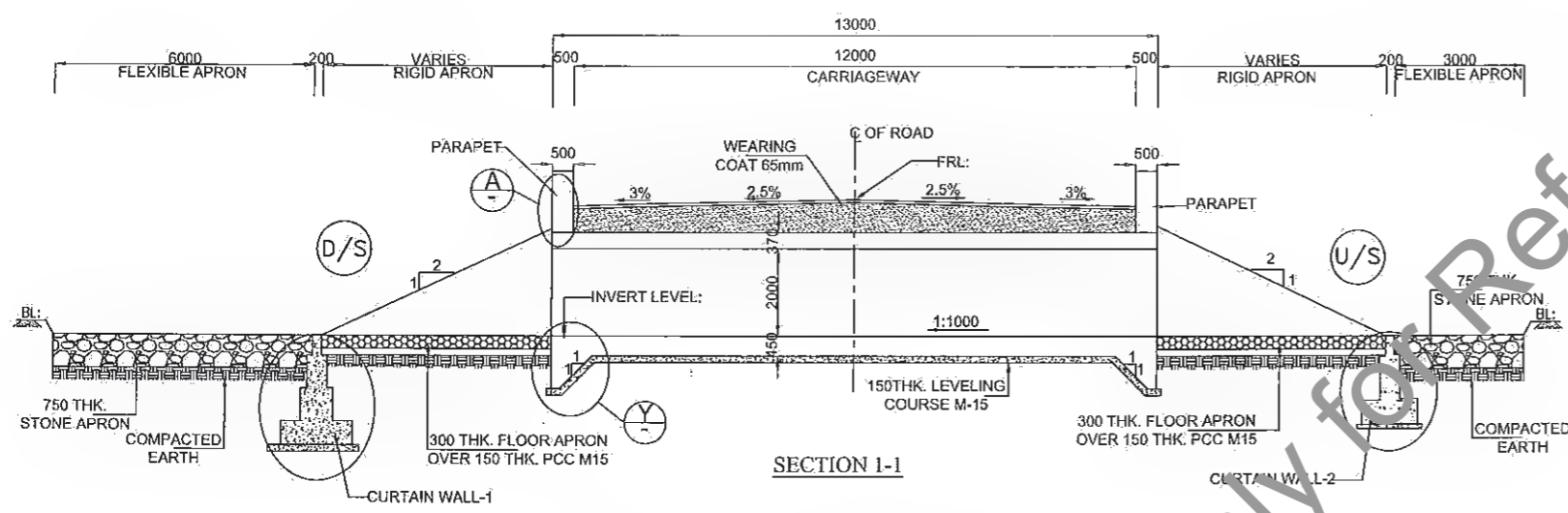
TOP SLAB REINFORCEMENT PLAN

Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Muzaffarpur

K. Ranu
Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur



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BOX CULVERT WITH CUSHION (1 X 3.0 X 2.0)								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL(M)	Proposed Width (m)	Cushion
1	12.376	RECONSTRUCTION	BOX	1X3.0x2.0	79.62	77.192	13	1.333

NOTES: -


- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS; UNLESS OTHERWISE MENTIONED.
- REINFORCING STEEL SHALL BE H.Y.S.D. BARS (GRADE DESIGNATION Fe-500) CONFORMING TO IS:1786.
- GRADE OF CONCRETE FOR RCC. BOX (M 25).
- BOX CULVERT SHALL BE CAST-IN-SITU BOX TYPE STRUCTURE.
- CHAINAGE, FRL AND INVERT LEVEL GIVEN IN THE DRAWING SHALL BE VERIFIED AS PER SITE CONDITIONS AND HIGHWAY DRAWING...
- BACK FILLING BEHIND BOX SHALL BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES. THE DIFFERENCE IN LEVEL SHALL NOT BE MORE THAN 300mm
- PROPERTIES OF SELECTED BACKFILL BEHIND BOX SHALL BE AS FOLLOWS:-C=0, $\phi > 30^\circ$, SOIL DENSITY = 1.80 t/m^3 .
- SAFE BEARING CAPACITY OF SOIL SHALL NOT BE LESS THAN 15.0 t/m^2 .



An
Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur

K. Kar
General Manager (Tech)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur

REV.	DATE	DESCRIPTION OF REVISIONS
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R4	JULY, 2018	DETAILED PROJECT REPORT
R3	DIC, 2018	CLIENT SUGGESTION INCORPORATED
R2	MAY, 2018	FINAL DDPR
R1	MAY, 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

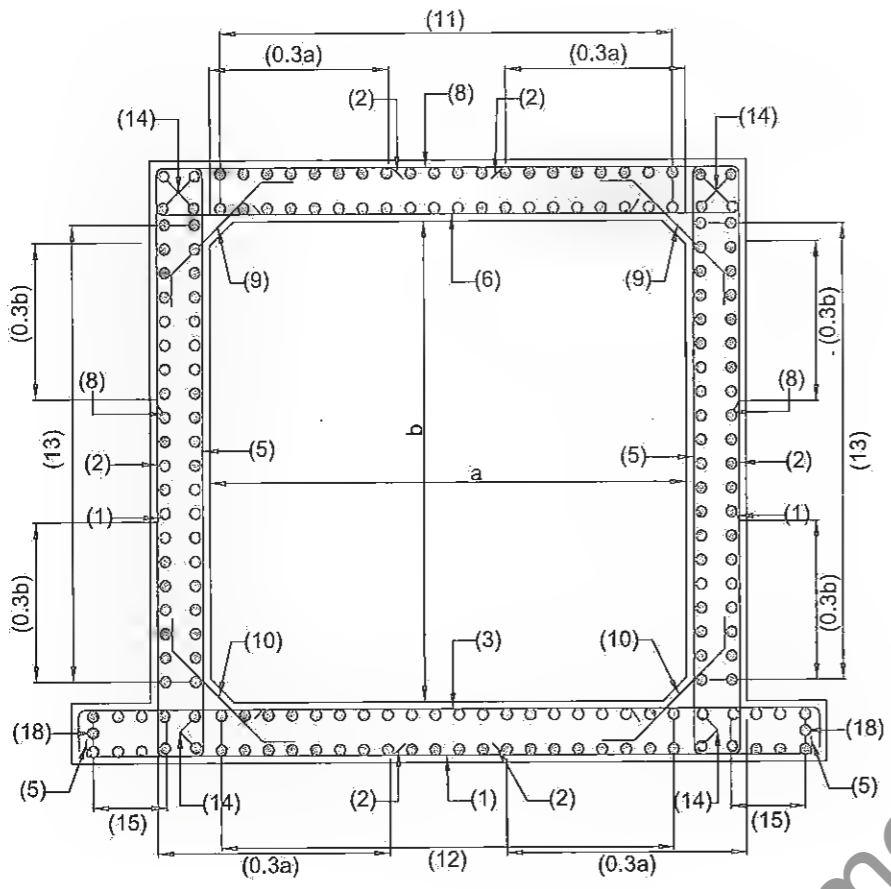
CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
S7C Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indrapuram,
 Ghaziabad-201014

DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
 SCALE: AS SHOWN

TITLE:
 GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x3mx2m) (SHEET - 1 OF 3)
DRAWING NO.
 STC/BR/BSRDC/BNB/STR/BC-
A3



REINFORCEMENT DETAILS OF RCC BOX

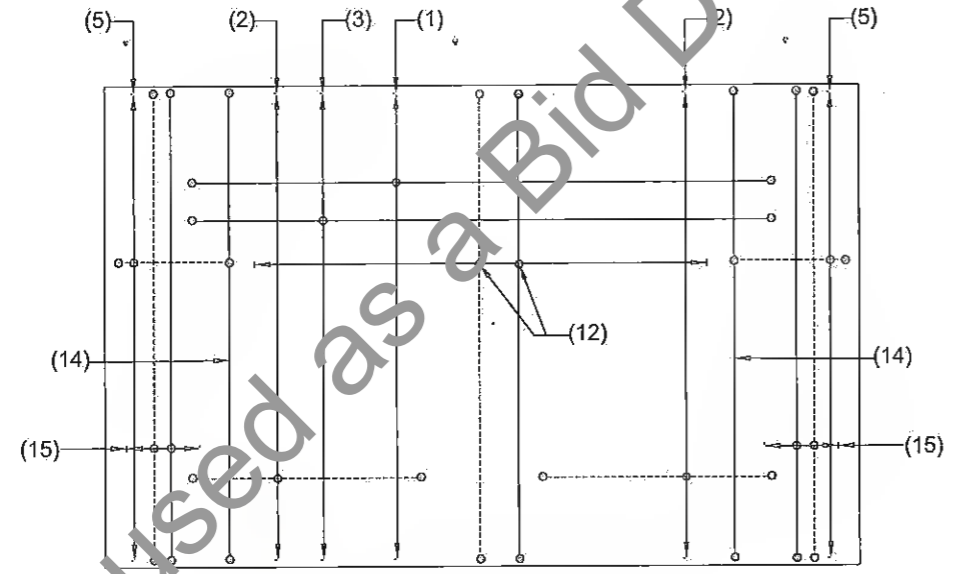
REINFORCEMENT DETAIL FOR BOX STRUCTURE			
BAR MKD.	SHAPE	BAR DIA	SPACING/Nos.
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2	[Shape]	12	200 C/C
3	[Shape]	16	150 C/C
5	[Shape]	10	250 C/C
6	[Shape]	16	180 C/C
8	[Shape]	12	200 C/C
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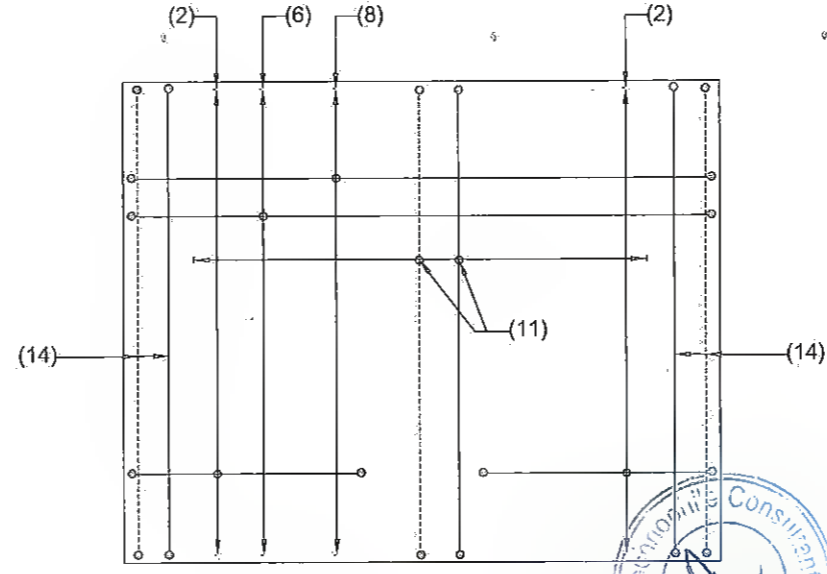
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Legends:

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BOTTOM SLAB REINFORCEMENT PLAN

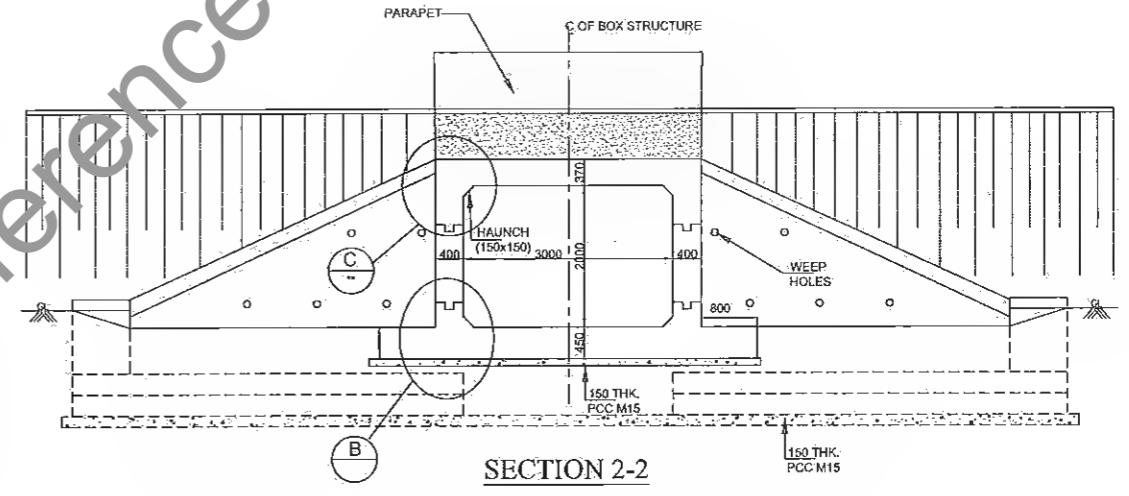
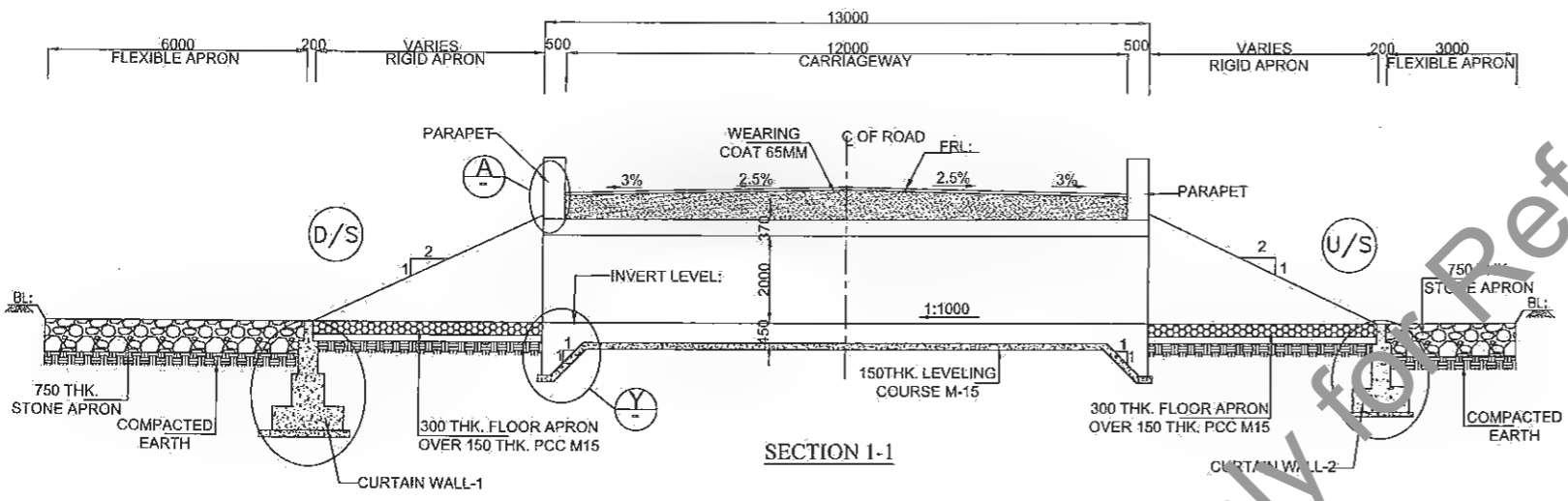


TOP SLAB REINFORCEMENT PLAN

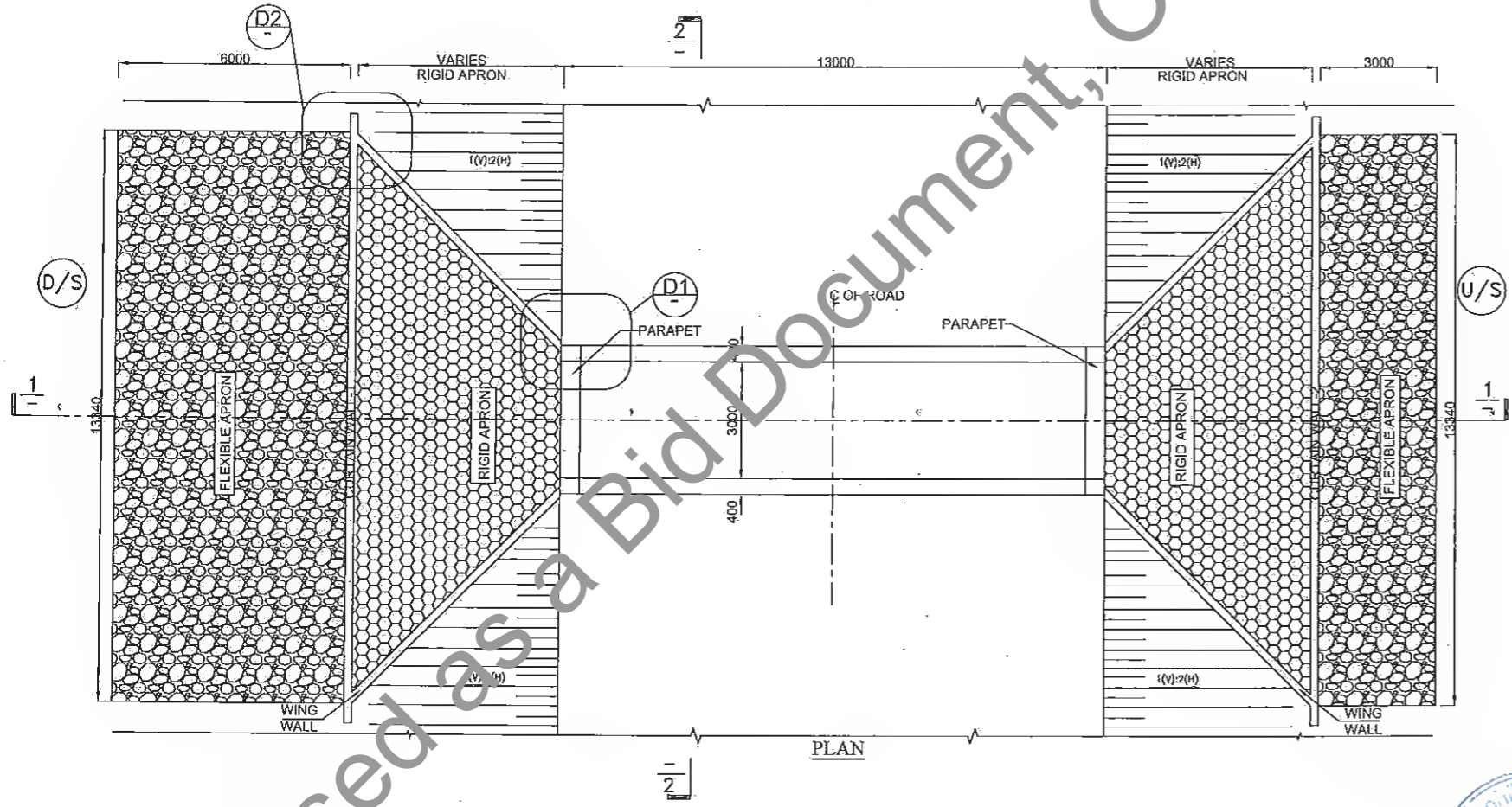


K. Kar
 Dy. General Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Muzaffarpur

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BOX CULVERT WITH CUSHION (1 X 3.0 X 2.0)								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL(M)	Proposed Width (m)	Cushion
1	22.172	RECONSTRUCTION	Box	1X3.0x2.0	82.878	79.574	13	2.209
2	23.127	RECONSTRUCTION	Box	1X3.0x2.0	83.088	80.109	13	1.884
3	25.982	RECONSTRUCTION	Box	1X3.0x2.0	83.716	81.051	13	1.57
4	28.240	RECONSTRUCTION	Box	1X3.0x2.0	84.106	81.324	13	1.687
5	28.747	RECONSTRUCTION	Box	1X3.0x2.0	84.344	81.309	13	1.94
6	28.980	RECONSTRUCTION	Box	1X3.0x2.0	84.454	80.851	13	2.508
7	32.082	RECONSTRUCTION	Box	1X3.0x2.0	86.562	83.799	13	1.668




NOTES: -

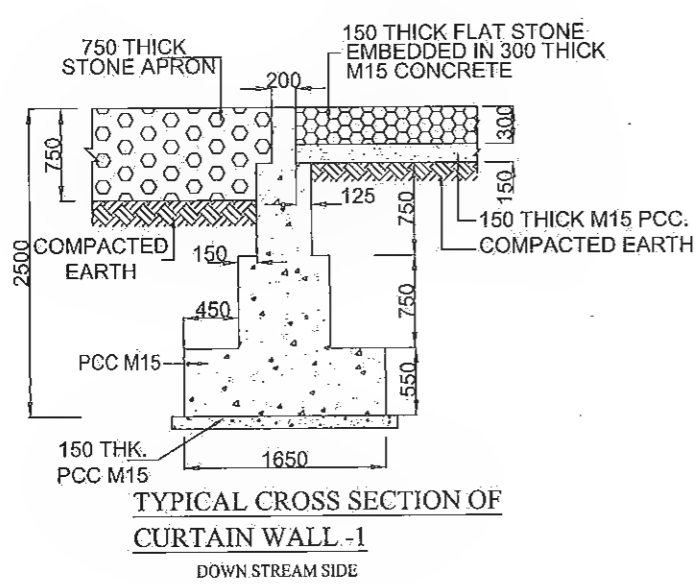
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- PROPERTIES OF SELECTED BACKFILL BEHIND BOX SHALL BE AS FOLLOWS:-C=0, $\phi > 30^\circ$, SOIL DENSITY = 1.80 t/m³.
- SAFE BEARING CAPACITY OF SOIL SHALL NOT BE LESS THAN 15.0 t/m².



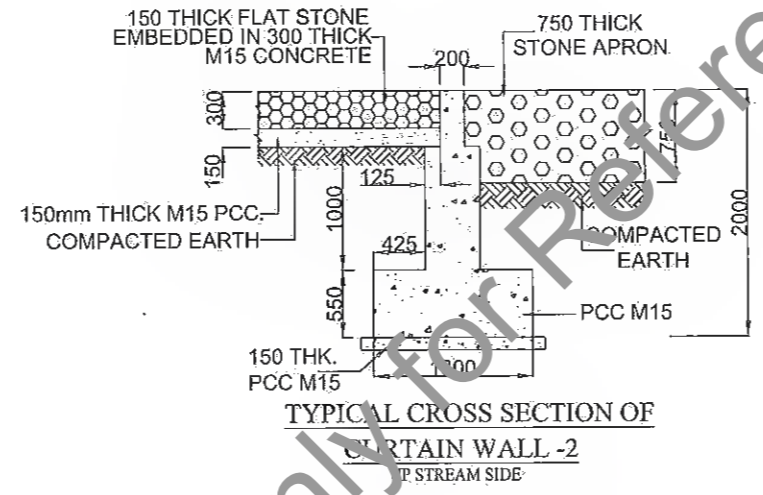
Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Patna

K. K. K.
Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd. Muzaffarpur

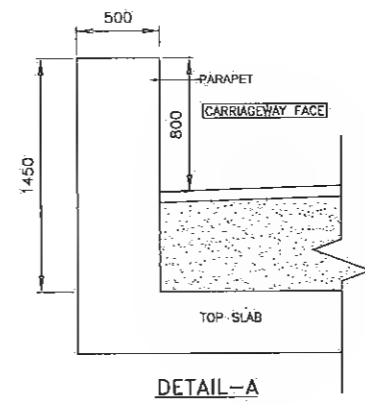
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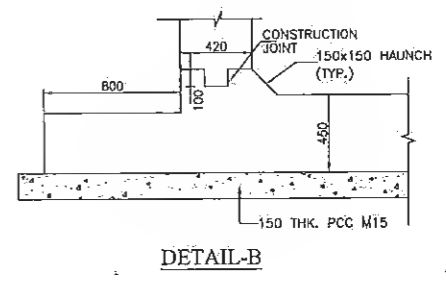
TYPICAL CROSS SECTION OF CURTAIN WALL -1 DOWN STREAM SIDE



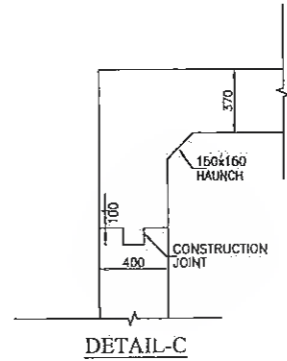
TYPICAL CROSS SECTION OF CURTAIN WALL -2 UP STREAM SIDE



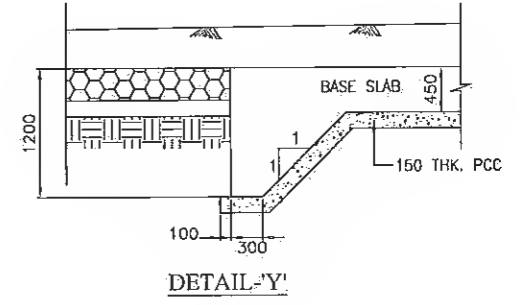
DETAIL-A



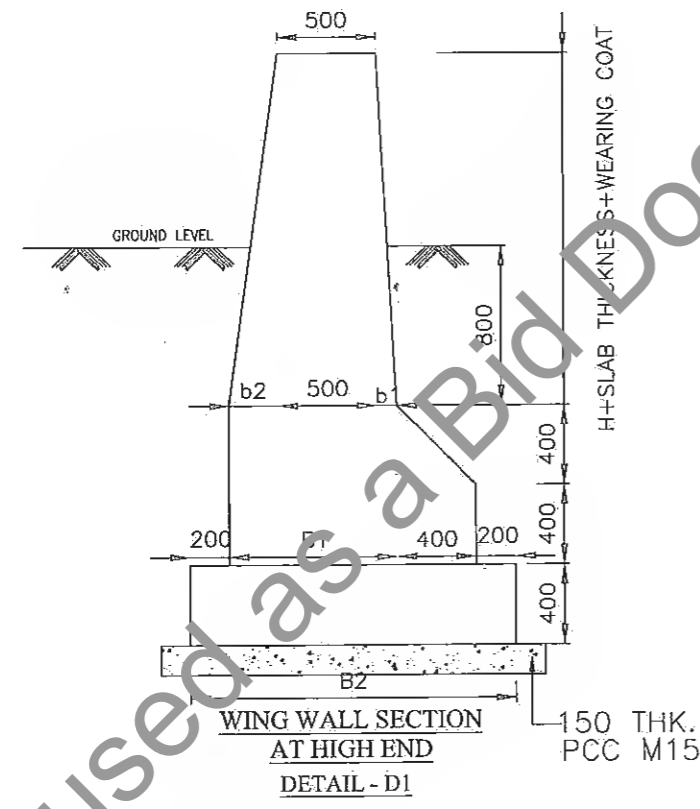
DETAIL-B



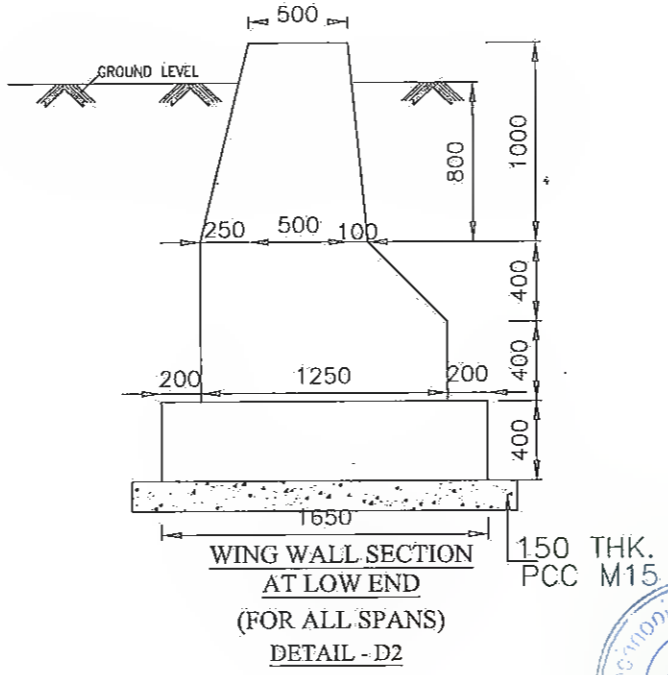
DETAIL-C



DETAIL-Y



WING WALL SECTION AT HIGH END (DETAIL - D1)



WING WALL SECTION AT LOW END (FOR ALL SPANS) (DETAIL - D2)

TABLE OF DIMENSIONS FOR WINGWAL (HIGH END) (FROM IRC: SP13-2004)	
SPAN	3000 mm
H	3000
b1	340
b2	840
B1	1680
B2	2480



Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Muzaffarpur

Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp. Corp. Ltd., Muzaffarpur

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY 2021	MODIFIED DPR
R4	JULY 2019	DETAILED PROJECT REPORT
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

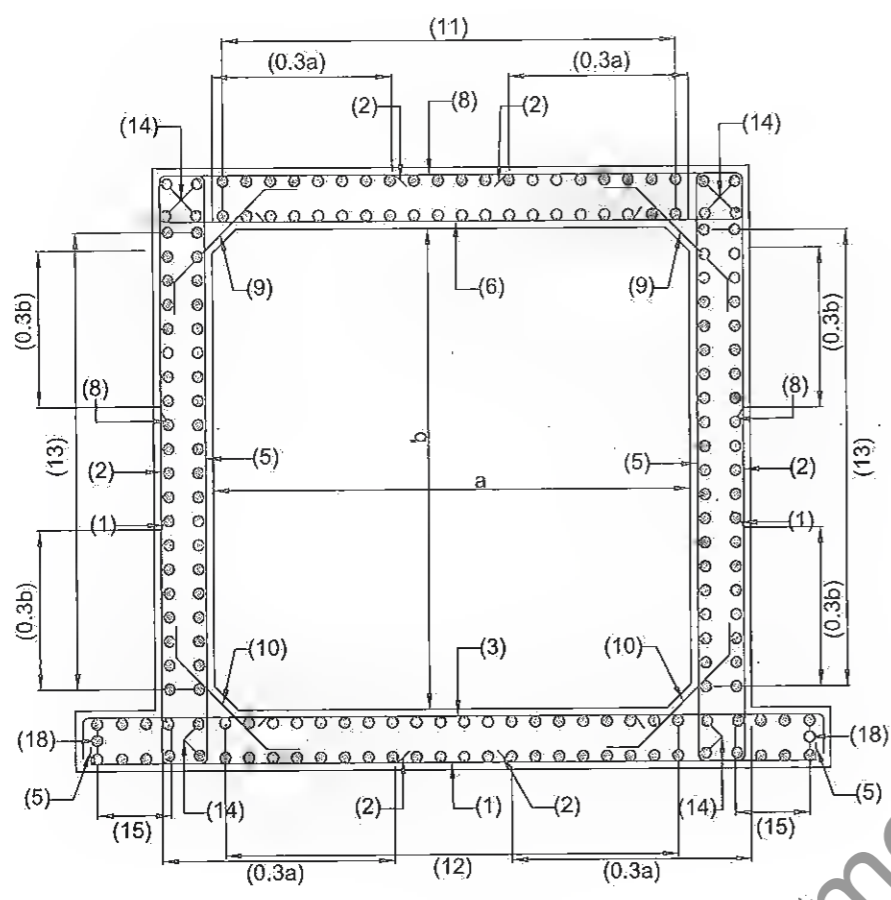
CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indirapuram, Ghaziabad-201014

DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE: AS SHOWN

TITLE:
GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x3mx2m) (SHEET - 2 OF 3)
DRAWING NO. STC/BR/BSRDC/BNB/STR/BC-
A3



REINFORCEMENT DETAILS OF RCC BOX

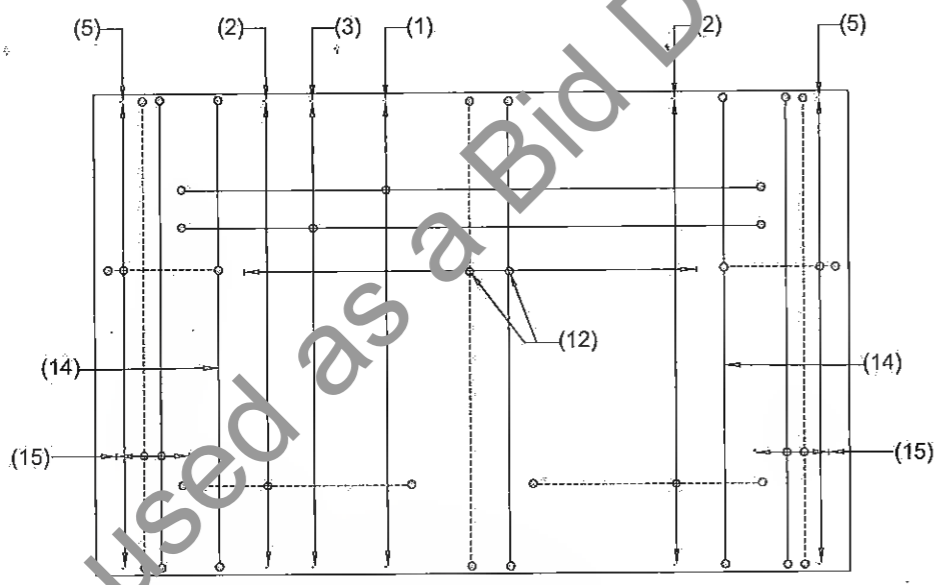
BAR MKD.	SHAPE	BAR DIA	SPACING/Nos.
1	[Symbol]	12	200 C/C
2	[Symbol]	12	200 C/C
3	[Symbol]	16	150 C/C
5	[Symbol]	10	250 C/C
6	[Symbol]	16	180 C/C
8	[Symbol]	12	200 C/C
9	[Symbol]	10	200 C/C
10	[Symbol]	10	200 C/C
11	[Symbol]	10	250 C/C
12	[Symbol]	10	250 C/C
13	[Symbol]	10	250 C/C
14	[Symbol]	10	12 Nos.
15	[Symbol]	10	250 C/C
18	[Symbol]	10	2 Nos.

NOTES:

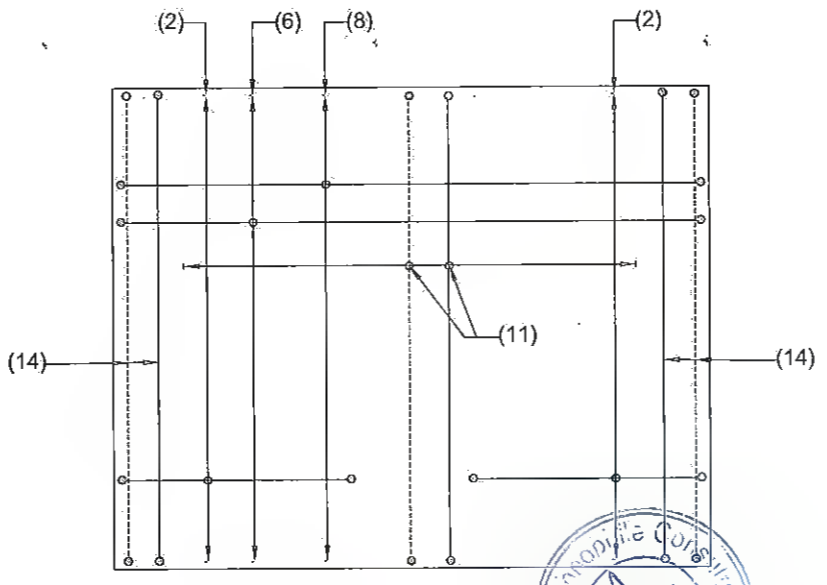
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
- ONLY WRITTEN DIMENSION SHALL BE FOLLOWED
- CONCRETE DETAILS
 - i) RCC BOX CELL —M25
 - ii) PCC LEVELING COURSE —M15
- CLEAR COVER SHALL BE AS FLOW: 75mm. NEAR EARTH FACE & 40mm. IN OTHER FACE
- ALL LAPS SHALL BE SUITABLY STAGGERED AND MINIMUM c/c DISTANCE BETWEEN TWO THE ADJACENT LAPS SHALL BE 1.30 TIMES LAP LENGTH. NOT MORE THAN 50% OF REINFORCEMENT SHALL BE LAPPED AT ANY LOCATION.
- SOIL DENSITY ON THE BACKFILL SHOULD CONFORM TO CLAUSE 305.2.1.5 OF MOST SPECIFICATION.
- SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
- GRADE OF CONCRETE FOR RCC BOX SHALL BE M25.
- REINFORCEMENT STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS.(GRADE DESIGNATION Fe500) CONFORMING TO IS:1786.

Legends:

- BAR ON TOP/OTHER FACE ————
- BAR ON BOTTOM/EARTH FACE - - - - -



BOTTOM SLAB REINFORCEMENT PLAN

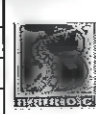


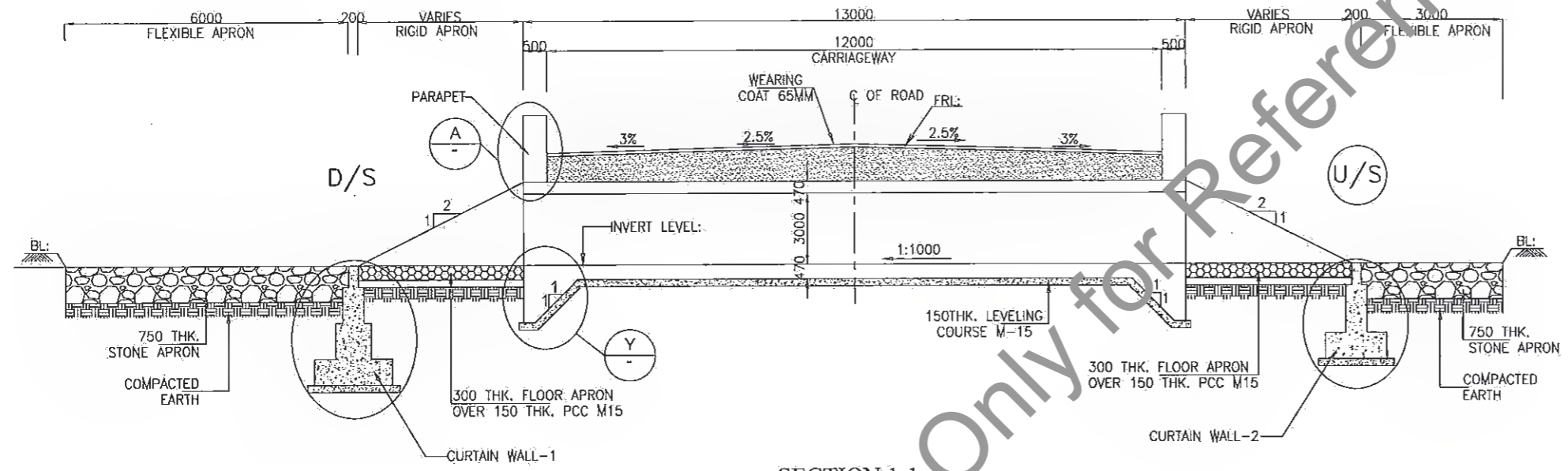
TOP SLAB REINFORCEMENT PLAN


 Ankit Negi
 Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd., Muzaffarpur

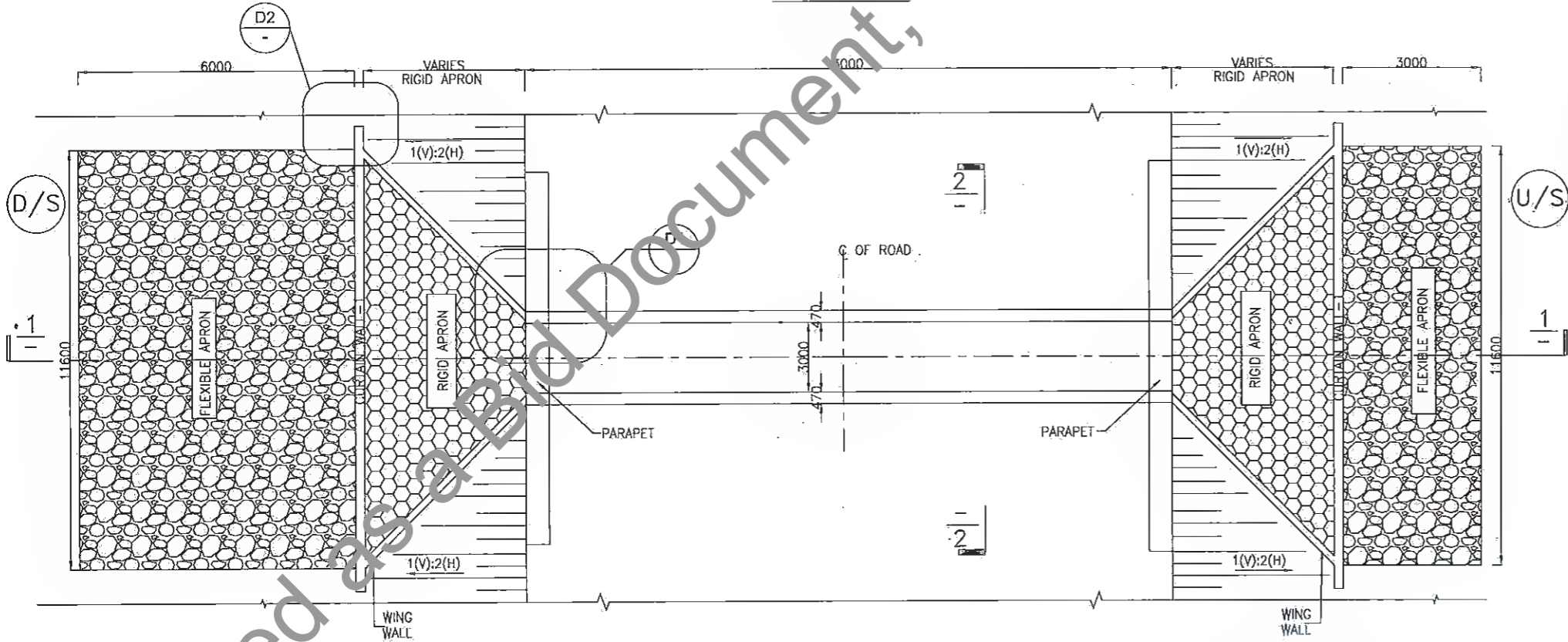

 Dy. General Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd., Muzaffarpur



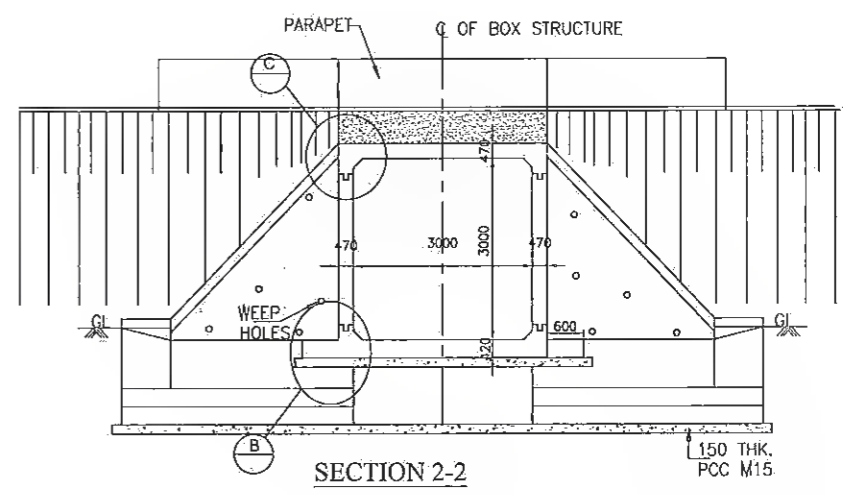
RS	JULY 2021	MODIFIED DPR	CLIENT:  BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)	PROJECT: Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)	DPR CONSULTANTS: 570 Shweta Technophile Consultants Pvt. Ltd. 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indirapuram, Ghaziabad-201014	DRAWN BY	ANKIT NEGI	TITLE: REINFORCEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x3mx2m) (SHEET - 3 OF 3)
R4	JUNE 2019	DETAILED PROJECT REPORT						
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED						
R2	AUG. 2018	FINAL DDPR						
R1	MAY 2018	FINAL FEASIBILITY						
R0	MARCH 2018	FEASIBILITY						
REV.	DATE	DESCRIPTION OF REVISIONS				CHECKED BY	RAJAN	DRAWING NO. STC/BR/BSRDC/BNB/STR/BC-
							SCALE:AS SHOWN	A3



SECTION 1-1



PLAN



SECTION 2-2

BOX CULVERT WITH CUSHION (1 X 3.0 X 3.0)								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL (M)	Proposed Width (m)	Cushion
1	18.100	NEW CONSTRUCTION	Box	1X3.0x3.0	79.686	76.201	13	1.260
2	18.460	NEW CONSTRUCTION	Box	1X3.0x3.0	80.449	76.964	13	1.260
3	18.700	NEW CONSTRUCTION	Box	1X3.0x3.0	80.958	77.473	13	1.260
4	19.180	NEW CONSTRUCTION	Box	1X3.0x3.0	81.974	77.490	13	2.259
5	19.537	RECONSTRUCTION	Box	1X3.0x3.0	82.297	76.400	13	3.672
6	19.900	NEW CONSTRUCTION	Box	1X3.0x3.0	82.378	78.554	13	1.599
7	20.220	NEW CONSTRUCTION	Box	1X3.0x3.0	82.448	78.801	13	1.422
8	23.841	RECONSTRUCTION	Box	1X3.0x3.0	83.245	78.394	13	2.626
9	29.180	NEW CONSTRUCTION	Box	1X3.0x3.0	84.547	79.312	13	3.010
10	29.600	NEW CONSTRUCTION	Box	1X3.0x3.0	84.665	81.130	13	1.310

NOTES:-

1. ALL DIMENSIONS ARE IN MM AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
2. REINFORCING STEEL SHALL BE H.Y.S.D. BARS (GRADE DESIGNATION Fe -500) CONFORMING TO IS:1786.
3. GRADE OF CONCRETE FOR RCC. BOX (M 25), APPROACH SLAB SHALL BE (M30).
4. BOX CULVERT SHALL BE CAST-IN-SITU BOX TYPE STRUCTURE.
5. CHAINAGE, FRL AND INVERT LEVEL GIVEN IN THE DRAWING SHALL BE VERIFIED AS PER SITE CONDITIONS AND HIGHWAY DRAWING.
6. BACK FILLING BEHIND BOX SHALL BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES. THE DIFFERENCE IN LEVEL SHALL NOT BE MORE THAN 300mm
7. PROPERTIES OF SELECTED BACKFILL BEHIND BOX SHALL BE AS FOLLOWS:-C=0, $\phi > 30^\circ$, SOIL DENSITY = 1.80 t/m³
8. SAFE BEARING CAPACITY OF SOIL SHALL NOT BE LESS THAN 150 t/m².



Mandger (Tech.)
Project Implementation Unit
Bihar State Road Devp Corp. Ltd. Muzaffarpur

Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp Corp. Ltd. Muzaffarpur

REV.	DATE	DESCRIPTION OF REVISIONS
P5	JULY 2011	MODIFIED DPR
R4	JULY 2019	DETAILED PROJECT REPORT
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

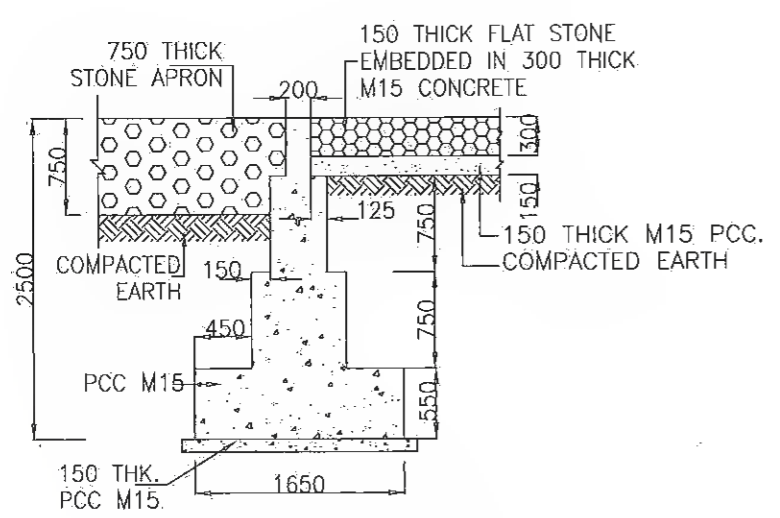
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
570 Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indrapuram, Ghaziabad-201014

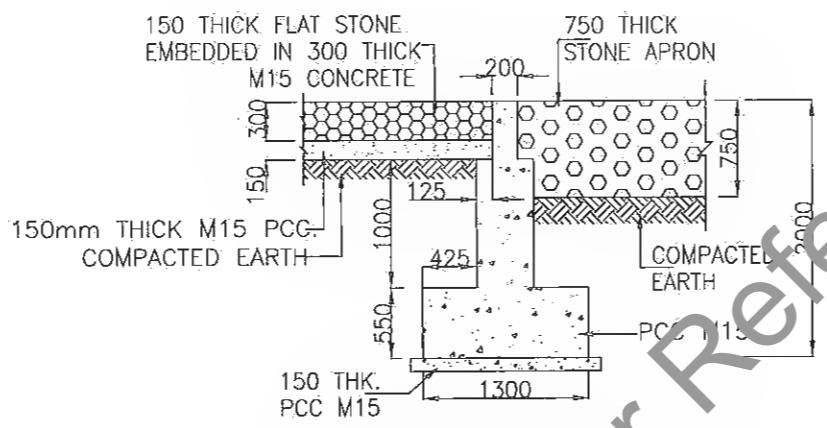
DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

TITLE:
GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (3.0m x 3.0m) (SHEET - 1 OF 3)

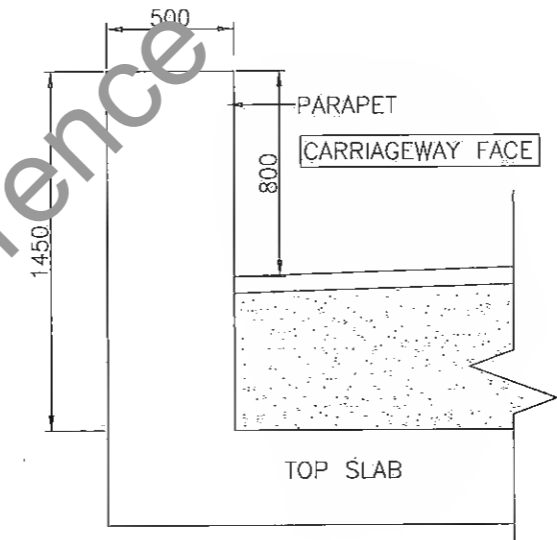
DRAWING NO.
STC/BR/BSRDC/BNB/STR/BC-



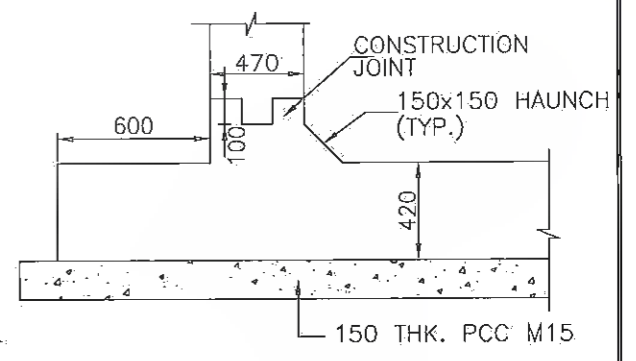
TYPICAL CROSS SECTION OF CURTAIN WALL -1
DOWN STREAM SIDE



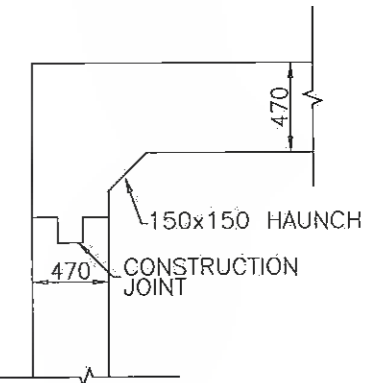
TYPICAL CROSS SECTION OF CURTAIN WALL -2
UP STREAM SIDE



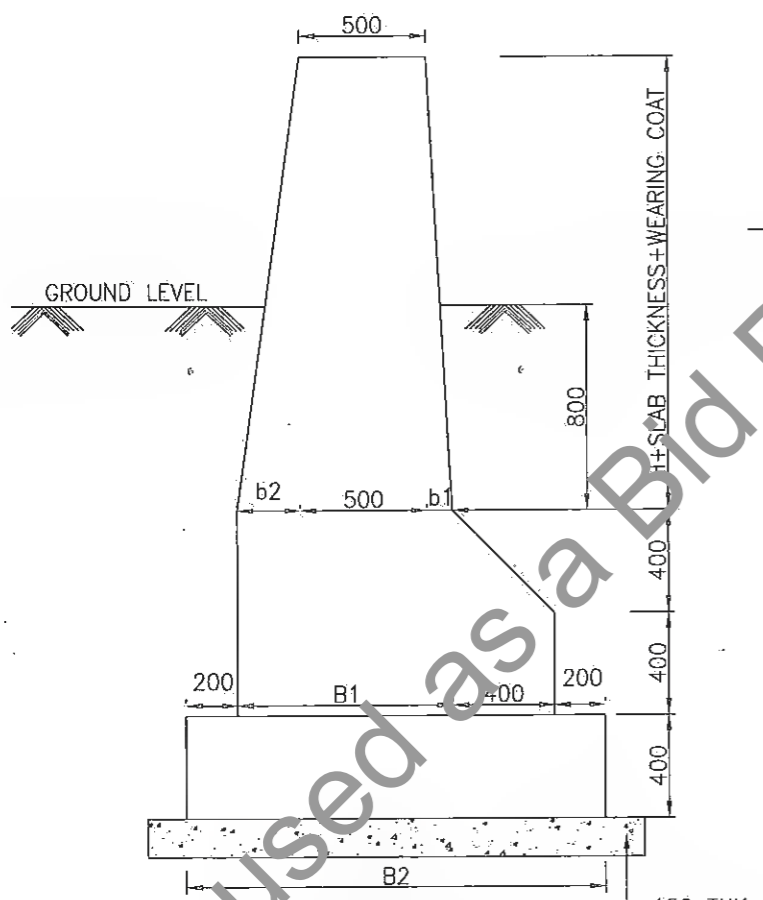
DETAIL-A



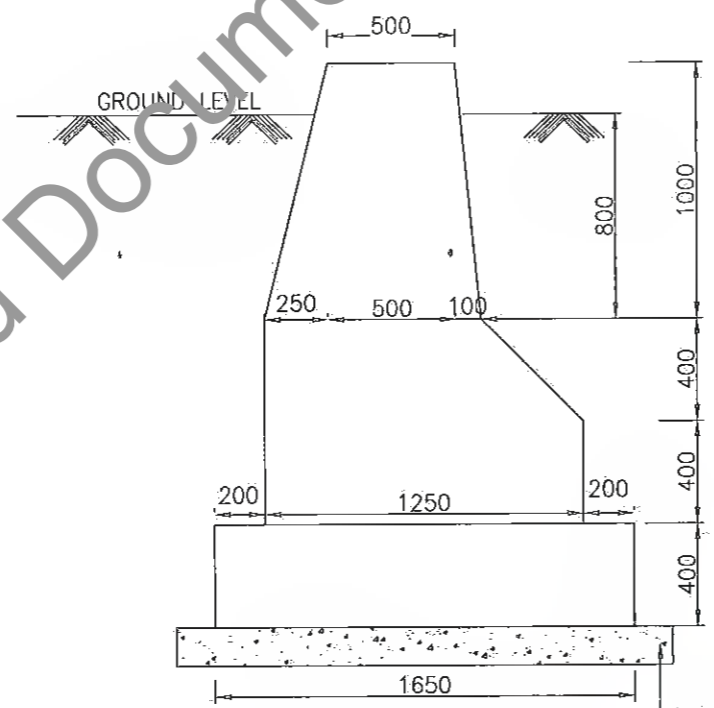
DETAIL-B



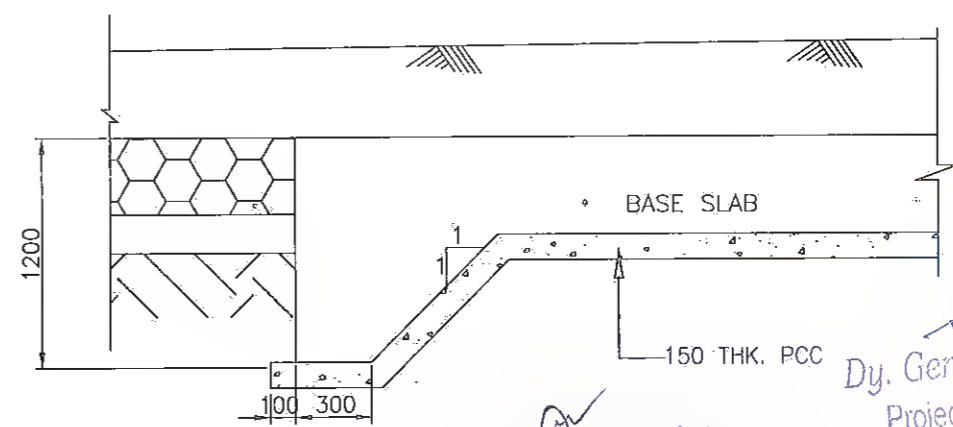
DETAIL-C



WING WALL SECTION AT HIGH END
DETAIL - D1



WING WALL SECTION AT LOW END (FOR ALL SPANS)
DETAIL - D2



DETAIL-D

TABLE OF DIMENSIONS FOR WINGWAL (HIGH END) (FROM IRC: SP13-2004)

SPAN	UPTO 1500 mm
H	1500
b1	180
b2	450
B1	1130
B2	1930

K. Ram
Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Devp Corp. Ltd. Patna



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R4	JUN 2019	DETAILED PROJECT REPORT
R3	DEC. 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG. 2018	FINAL DPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

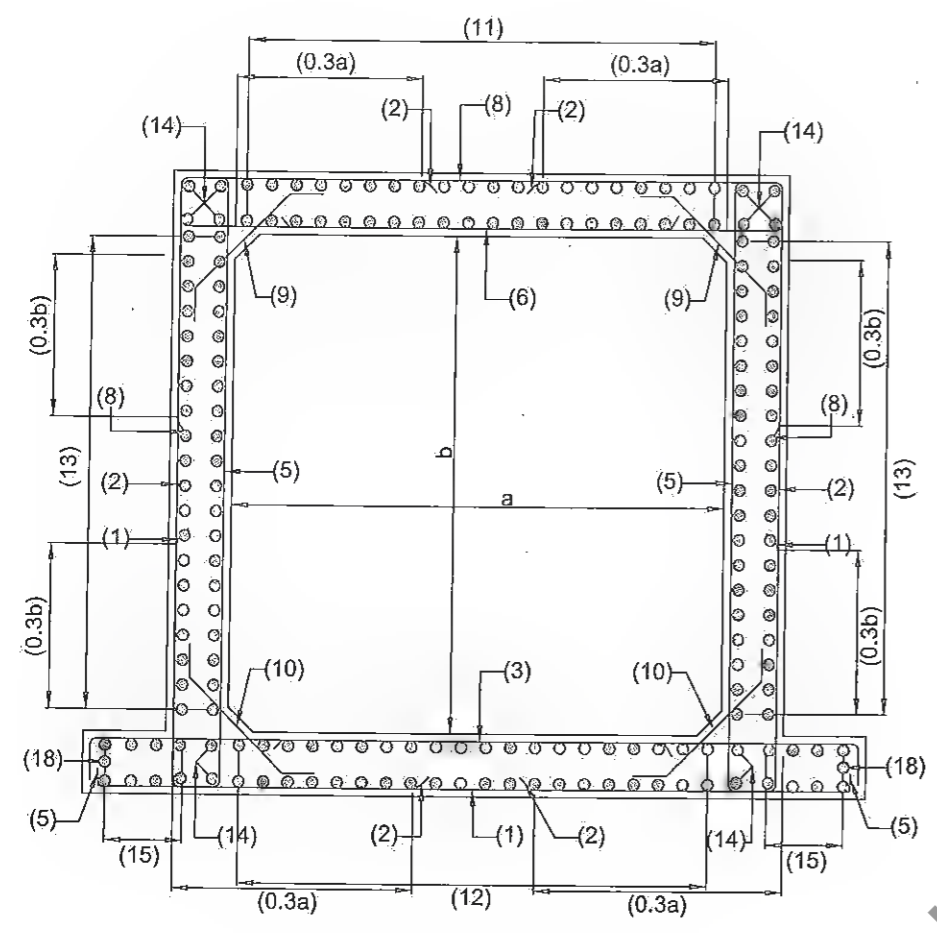
CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza,
Ahinsa Khand-I, Indirapuram,
Ghaziabad-201014

DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE: AS SHOWN

TITLE:
GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (3.0m x 3.0m) (SHEET - 2 OF 3)
DRAWING NO.: STC/BR/BSRDC/BNB/STR/BC-
A3



REINFORCEMENT DETAILS OF RCC BOX

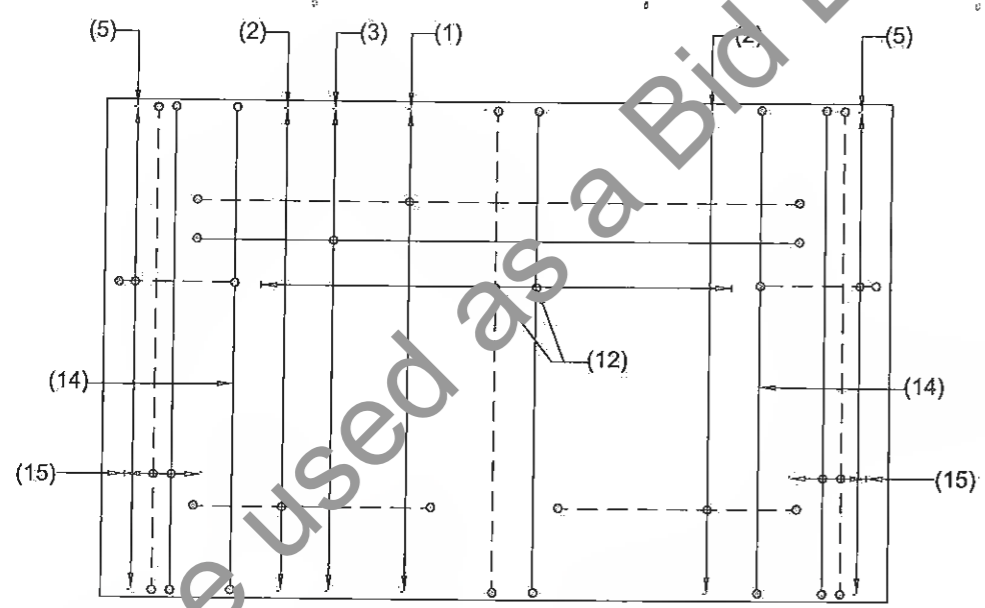
REINFORCEMENT DETAIL FOR BOX STRUCTURE			
BAR MKD.	SHAPE	BAR DIA.	SPACING/Nos.
1		16	150 C/C
2		16	150 C/C
3		16	150 C/C
5		10	150 C/C
6		16	150 C/C
8		12	150 C/C
9		10	150 C/C
10		10	150 C/C
11		10	150 C/C
12		10	150 C/C
13		10	150 C/C
14		12	12 Nos.
15		10	150 C/C
18		12	2 Nos.

NOTES:

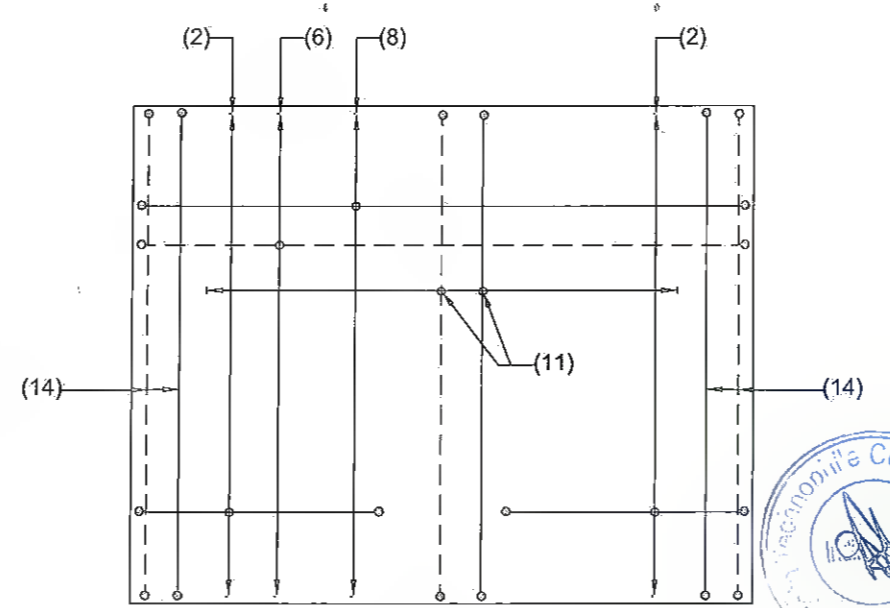
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
- ONLY WRITTEN DIMENSION SHALL BE FOLLOWED
- CONCRETE DETAILS
 - i) RCC BOX CELL —M25
 - ii) PCC LEVELING COURSE —M15
- CLEAR COVER SHALL BE AS FLOW: 75mm. NEAR EARTH FACE & 40mm. IN OTHER FACE
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- SOIL DENSITY ON THE BACKFILL SHOULD CONFORM TO CLAUSE 305.2.1.5 OF MOST SPECIFICATION.
- SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
- GRADE OF CONCRETE FOR RCC BOX SHALL BE M25.
- REINFORCEMENT STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS.(GRADE DESIGNATION Fe500) CONFORMING TO IS:1786.

Legends:

- BAR ON TOP/OTHER FACE
- BAR ON BOTTOM/EARTH FACE



BOTTOM SLAB REINFORCEMENT PLAN



TOP SLAB REINFORCEMENT PLAN



R. Ram
 Manager (Tech.) Dy. General Manager (Tech.)
 Project Implementation Unit Project Implementation Unit
 Bihar State Road Devp. Corp. Ltd. Bihar State Road Devp. Corp. Ltd. Muzaffarpur

REV.	DATE	DESCRIPTION OF REVISIONS
R5	JULY, 2021	MODIFIED DPR
R4	JULY, 2019	FINAL PROJECT REPORT
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R2	AUG, 2018	FINAL DDPR
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R0	MARCH 2018	FEASIBILITY

CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

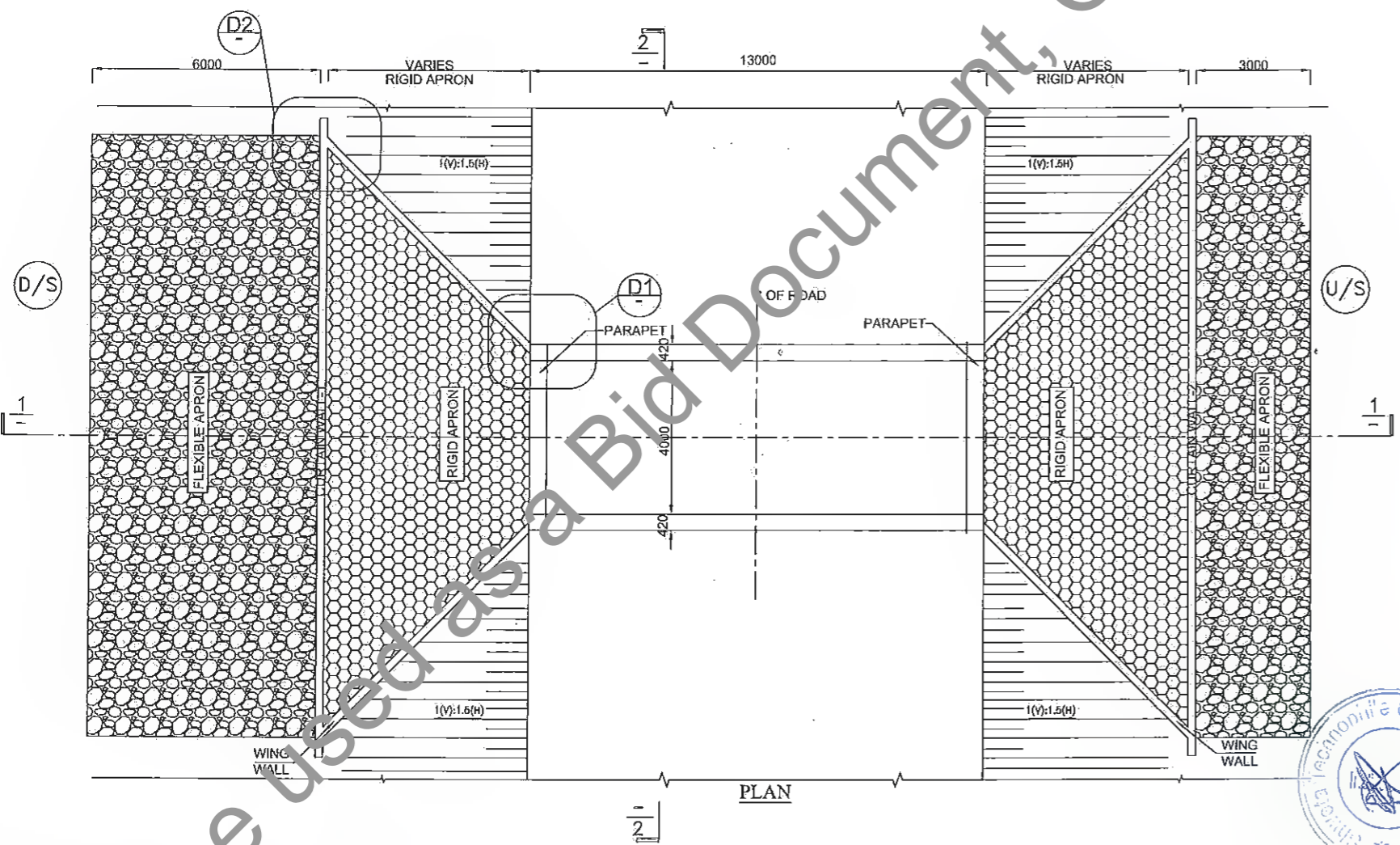
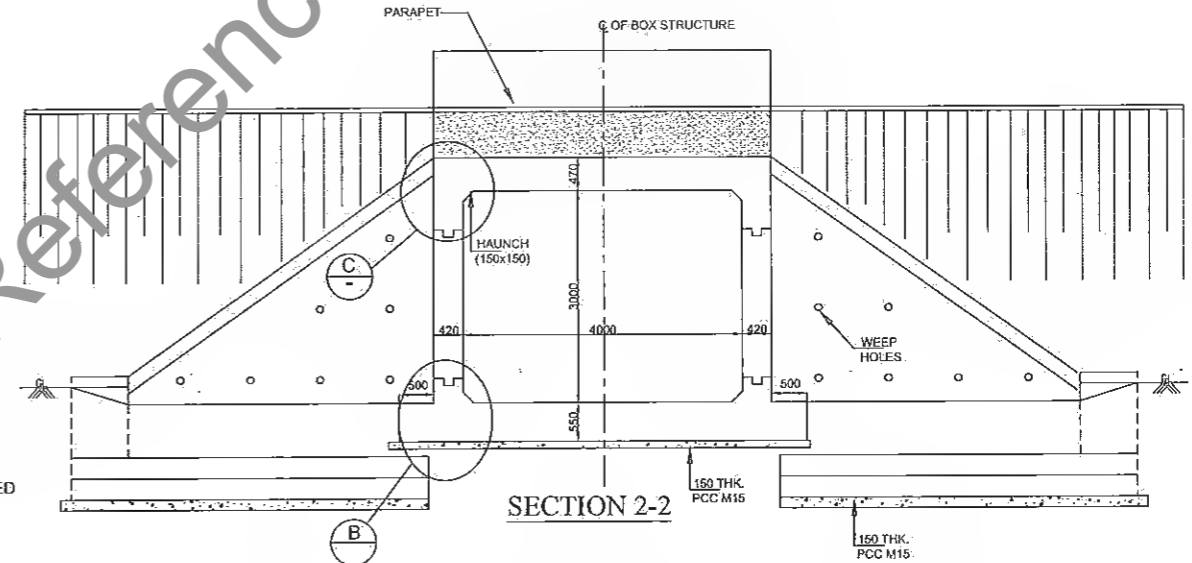
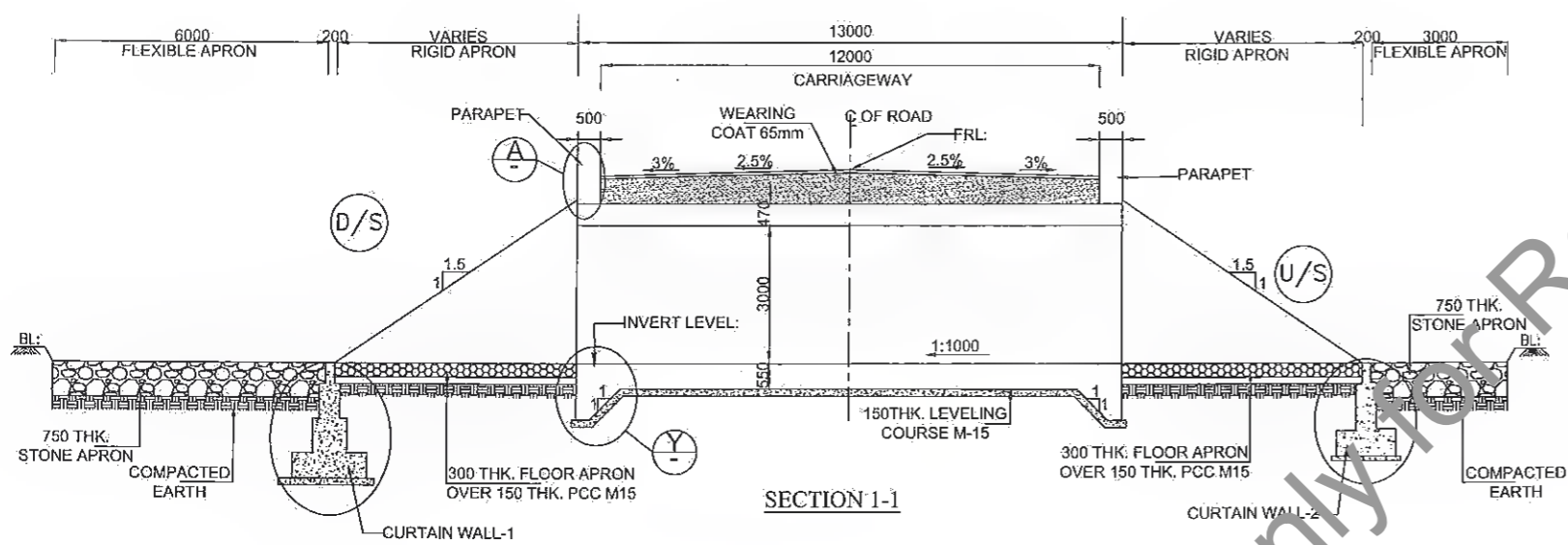
PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
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 222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indrapuram, Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

TITLE:
REINFORCEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x3.0mx3.0m) (SHEET - 3 OF 3)

DRAWING NO.
 STC/BR/BSRDC/BNB/STR/BC-



BOX CULVERT WITH CUSHION (1 X 4.0 X 3.0)								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL(M)	Proposed Width (m)	Cushion
1	2.875	RECONSTRUCTION	BOX	1X4.0x3.0	77.143	72.903	13	2.145


- NOTES:-**
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
 - REINFORCING STEEL SHALL BE H.Y.S.D. BARS (GRADE DESIGNATION Fe-500) CONFORMING TO IS:1786.
 - GRADE OF CONCRETE FOR RCC. BOX (M 30).
 - BOX CULVERT SHALL BE CAST-IN-SITU BOX TYPE STRUCTURE.
 - CHAINAGE, FRL AND INVERT LEVEL GIVEN IN THE DRAWING SHALL BE VERIFIED AS PER SITE CONDITIONS AND HIGHWAY DRAWING...
 - BACK FILLING BEHIND BOX SHALL BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES. THE DIFFERENCE IN LEVEL SHALL NOT BE MORE THAN 300mm
 - PROPERTIES OF SELECTED BACKFILL BEHIND BOX SHALL BE AS FOLLOWS:-C=0, $\phi > 30^\circ$, SOIL DENSITY = 1.80 t/m^3 .
 - SAFE BEARING CAPACITY OF SOIL SHALL NOT BE LESS THAN 15.0 t/m^2 .



Manager (Tech.)
Project Implementation Unit
Bihar State Road Dev. Corp. Ltd. Muzaffarpur

Dy. General Manager (Tech.)
Project Implementation Unit
Bihar State Road Dev. Corp. Ltd. Muzaffarpur

REV.	DATE	DESCRIPTION OF REVISIONS
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R3	DEC 2018	CLIENT SUGGESTION INCORPORATED
R2	AUG 2018	FINAL DDPR
R1	MAY 2018	FINAL FEASIBILITY
R0	MARCH 2018	FEASIBILITY

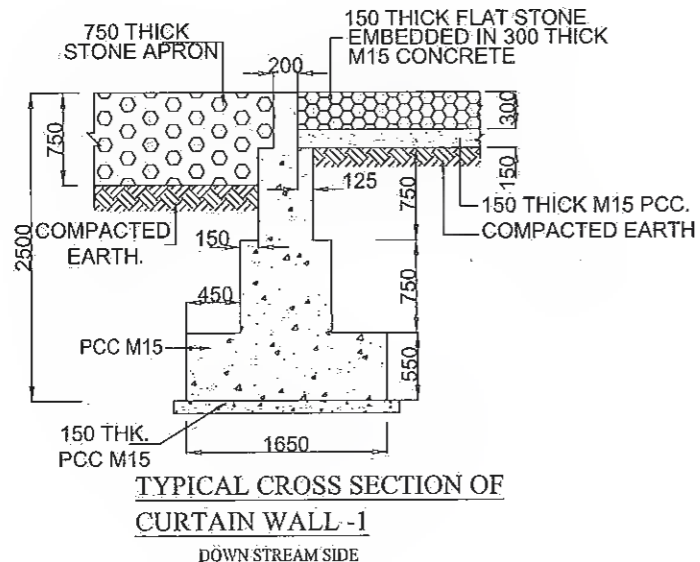
CLIENT:

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Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

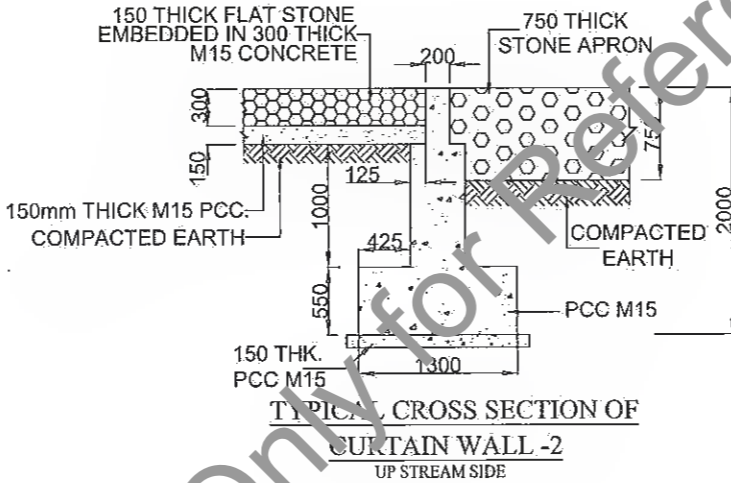
DPR CONSULTANTS:
570 Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza,
Ahinsa Khand-I, Indirapuram,
Ghaziabad-201014

DRAWN BY	ANKIT NEGI
DESIGN BY	NIKHIL
CHECKED BY	RANJAN
SCALE:-AS SHOWN	

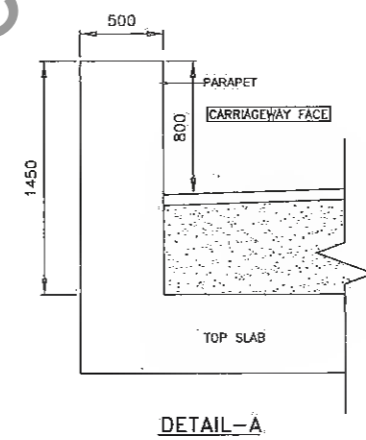
TITLE:
GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH COUSHION (1x4mx3m) (SHEET - 1 OF 3)
DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB-
A3



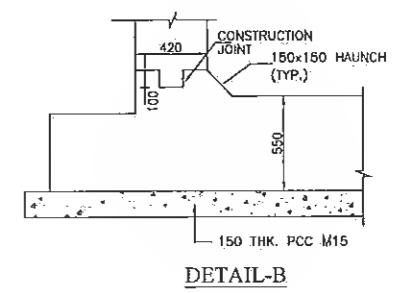
TYPICAL CROSS SECTION OF CURTAIN WALL -1 DOWN STREAM SIDE



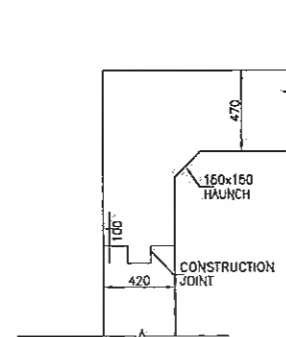
TYPICAL CROSS SECTION OF CURTAIN WALL -2 UP STREAM SIDE



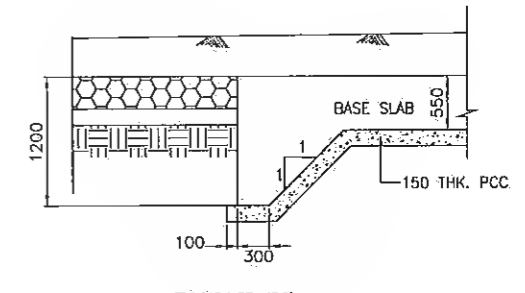
DETAIL-A



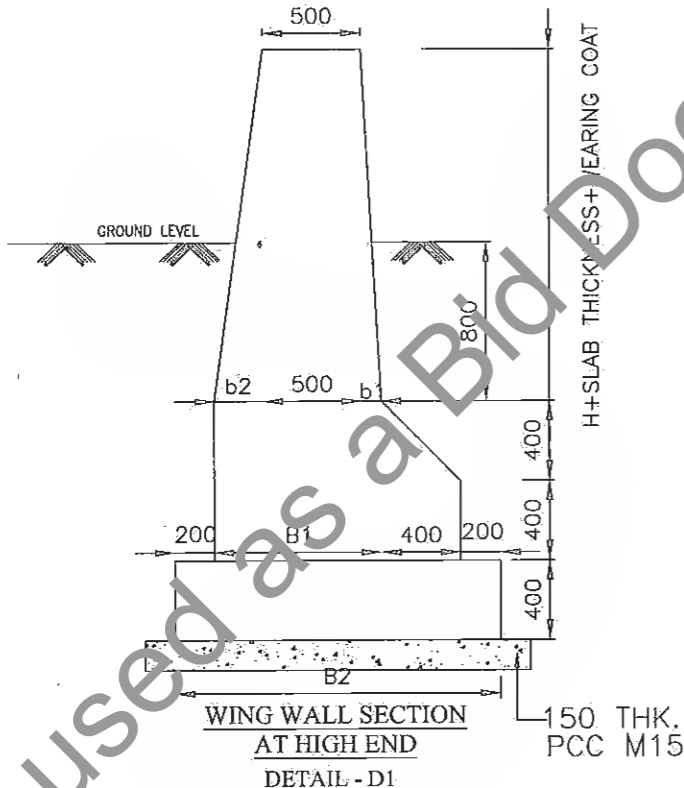
DETAIL-B



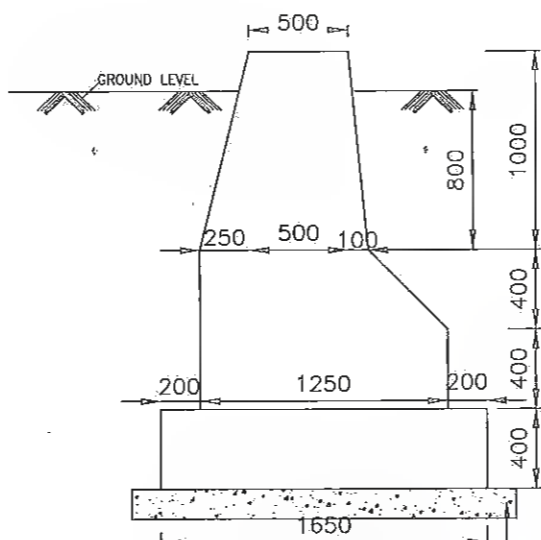
DETAIL-C



DETAIL-Y



WING WALL SECTION AT HIGH END DETAIL - D1



WING WALL SECTION AT LOW END (FOR ALL SPANS) DETAIL - D2

TABLE OF DIMENSIONS FOR WINGWALL (HIGH END) (FROM IRC: SP13-2004)	
SPAN	4000 mm
H	3000
b1	340
b2	850
B1	1690
B2	2490



T.K. Ram
Dy. General Manager (Tech)
Project Implementation Unit
Bihar State Road Development Corporation Ltd. Patna

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R0	MARCH 2018	FEASIBILITY

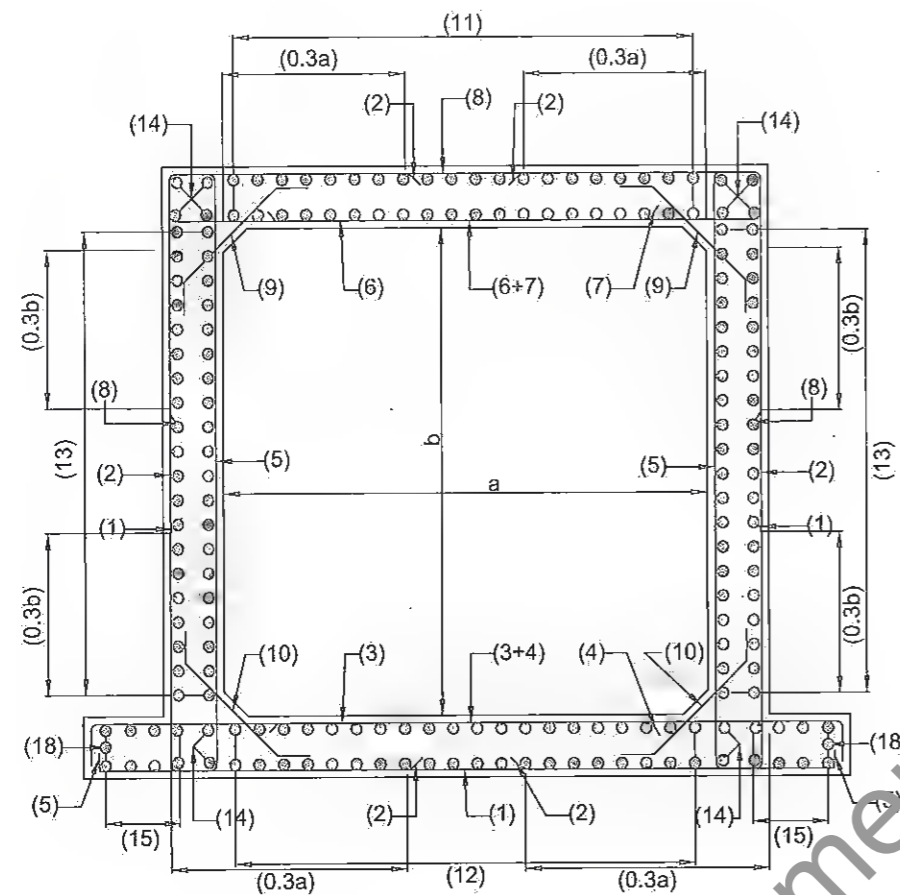
CLIENT:
BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

PROJECT:
Consultancy Services for Preparation of Detailed Project Report (DPR) for Improvement /Upgradation of SH-105 (Bettiah - Narkatiyaganj Road) in the state of Bihar. (Km 0+000 TO Km 35+700)

DPR CONSULTANTS:
Shweta Technophile Consultants Pvt. Ltd.
222-223,313, Rajhans Plaza, Ahinsa Khand-I, Indirapuram, Ghaziabad-201014

DRAWN BY: ANKIT NEGI
DESIGN BY: NIKHIL
CHECKED BY: RANJAN
SCALE: AS SHOWN

TITLE:
GENERAL ARRANGEMENT DRAWING OF TYP. BOX CULVERT WITH COUSHION (1x4mx3m) (SHEET - 2 OF 3)
DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB-
A3



REINFORCEMENT DETAILS OF RCC BOX

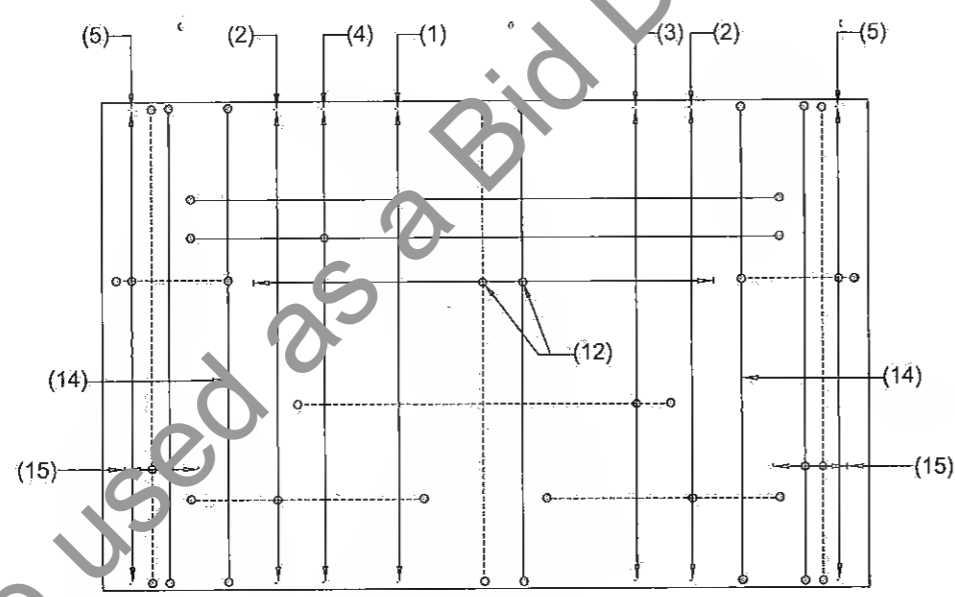
REINFORCEMENT DETAIL FOR BOX STRUCTURE			
BAR MKD.	SHAPE	BAR DIA	SPACING/Nos.
1	[Symbol]	12	240 C/C
2	[Symbol]	16	240 C/C
3	[Symbol]	20	200 C/C
4	[Symbol]	10	200 C/C
5	[Symbol]	10	200 C/C
6	[Symbol]	20	220 C/C
7	[Symbol]	10	220 C/C
8	[Symbol]	12	240 C/C
9	[Symbol]	10	240 C/C
10	[Symbol]	10	240 C/C
11	[Symbol]	10	200 C/C
12	[Symbol]	10	200 C/C
13	[Symbol]	10	250 C/C
14	[Symbol]	10	12 Nos.
15	[Symbol]	10	200 C/C
18	[Symbol]	10	2 Nos.

NOTES:

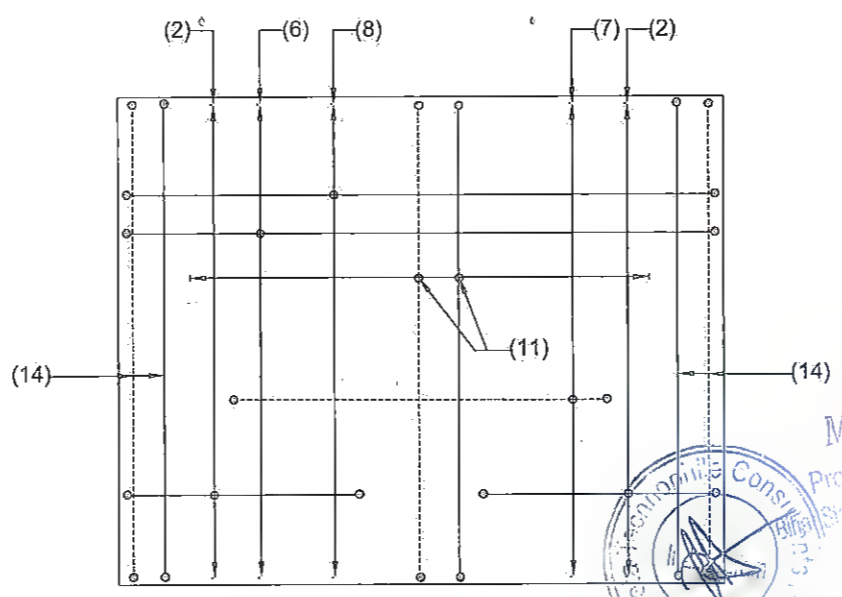
- ALL DIMENSIONS ARE IN mm AND LEVELS IN METERS, UNLESS OTHERWISE MENTIONED.
- ONLY WRITTEN DIMENSION SHALL BE FOLLOWED
- CONCRETE DETAILS
 - i) RCC BOX CELL ----M30
 - ii) PCC LEVELING COURSE ----M15
- CLEAR COVER SHALL BE AS FLOW:
75mm. NEAR EARTH FACE & 40mm. IN OTHER FACE
- ALL LAPS SHALL BE SUITABLY STAGGERED AND MINIMUM c/c DISTANCE BETWEEN TWO THE ADJACENT LAPS SHALL BE 1.30 TIMES LAP LENGTH. NOT MORE THAN 50% OF REINFORCEMENT SHALL BE LAPPED AT ANY LOCATION.
- SOIL DENSITY ON THE BACKFILL SHOULD CONFORM TO CLAUSE 305.2.1.5 OF MOST SPECIFICATION.
- SOFT AND LOOSE PATCHES IN THE BEARING AREA ARE TO BE REPLACED BY COMPACTED GRANULAR FILLS WITH LAYERS NOT EXCEEDING 300mm.
- GRADE OF CONCRETE FOR RCC BOX SHALL BE M30.
- REINFORCEMENT STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS.(GRADE DESIGNATION Fe500) CONFORMING TO IS:1786.

Legends:

- BAR ON TOP/OTHER FACE [Symbol]
- BAR ON BOTTOM/EARTH FACE [Symbol]




BOTTOM SLAB REINFORCEMENT PLAN



TOP SLAB REINFORCEMENT PLAN

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CLIENT:

BIHAR STATE ROAD DEVELOPMENT CORPORATION LTD. PATNA (A GOVERNMENT OF BIHAR UNDERTAKING)

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DPR CONSULTANTS:
S70 Shweta Technophile Consultants Pvt. Ltd.
 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indrapuram,
 Ghaziabad-201014

DRAWN BY: ANKIT NEGI
 DESIGN BY: NIKHIL
 CHECKED BY: RANJAN
 SCALE:-AS SHOWN

TITLE:
REINFORCEMENT DRAWING OF TYP. BOX CULVERT WITH CUSHION (1x4mx3m) (SHEET -3 OF 3)
 DRAWING NO. STC/BR/BSRDC/BNB/STR/MNB-
 A3

[Signature]
 Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp Corp. Ltd. Patna

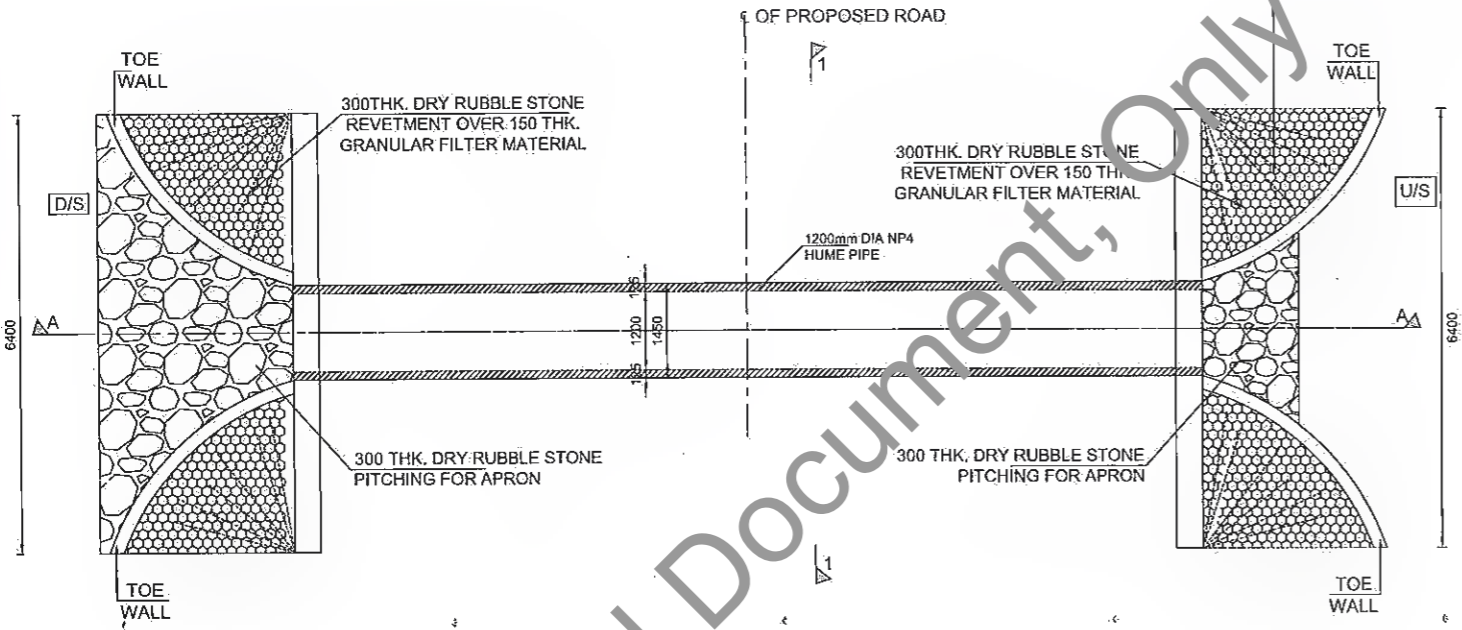
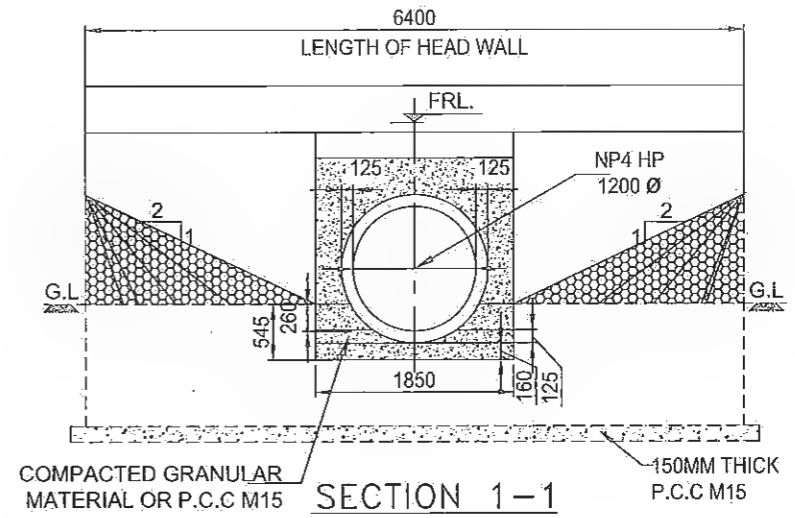
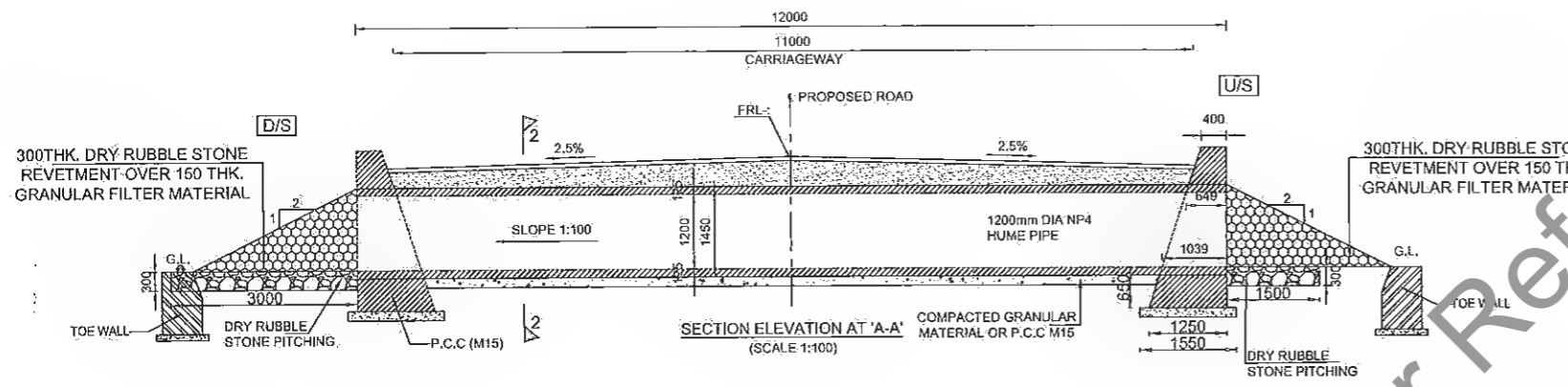
[Signature]
 Dy. General Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devp Corp. Ltd. Patna



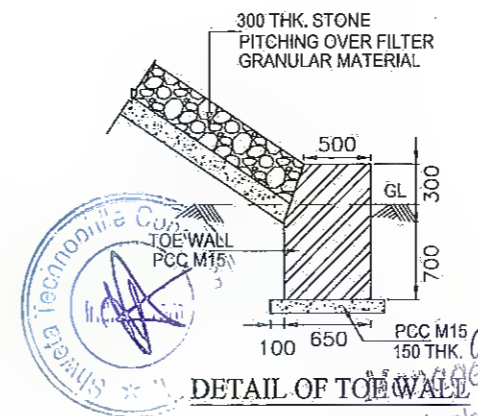
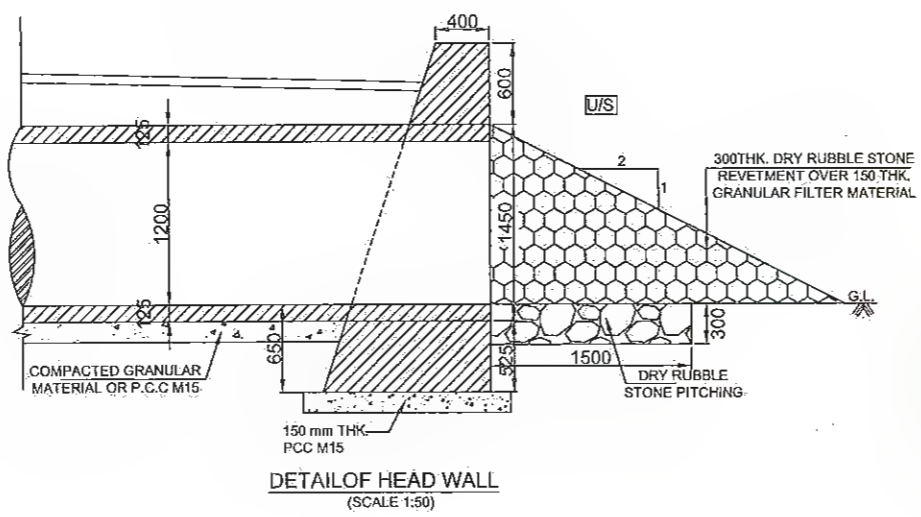
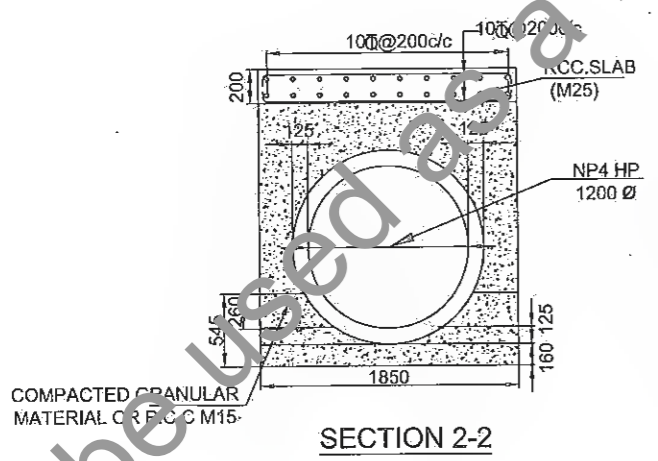
Not to be used as a Bid Document, Only for Reference

PIPE CULVERT



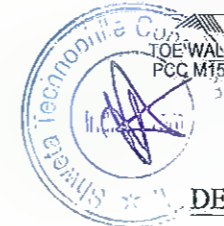


Sr. No.	Design Ch. (Km)	Proposed						Proposed Width (m)	
		Proposal	Type	Span Arrangement (m)	FRL (m)	IL(M)			
1	7.662	RECONSTRUCTION	PIPE	1x1.2	79.593	76.032	12	Encasing	
2	9.543	RECONSTRUCTION	PIPE	1x1.2	78.623	77.067	12	Encasing	
3	13.686	RECONSTRUCTION	PIPE	1x1.2	78.668		12	Encasing	
4	30.233	RECONSTRUCTION	PIPE	1x1.2	85.906		12	Encasing	



NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. LONGITUDINAL SLOPE OF PIPE SHALL NOT BE LESS THAN 1:1000.
4. ALL PIPES FOR NEW CONSTRUCTION SHALL BE OF NP4 CLASS.
5. MINIMUM HEIGHT OF FILL ABOVE THE PIPE CULVERT SHOULD NOT BE LESS THAN 600 MM.
6. THE LENGTH OF PIPE IS MENTIONED 2500 (TYP.) BUT IN CASE IF LENGTH REQUIRED IS LESS THAN 2500 THEN LENGTH OF PIPE SHALL BE ADJUSTED ACCORDINGLY.
7. AFTER INSTALLATION OF THE PIPES, THE GAPS IN BETWEEN THE PIPES SHALL BE FILLED WITH CEMENT SAND MORTAR.
8. THE THICKNESS OF COMPACTED GRANULAR MATERIAL SHALL BE AS PER IRC:SP:13-2004.
9. HEIGHT OF RETAINING WALL VALUE OF FRL, IRL AND DEPTH OF CUSHION SHALL VARY FOR DIFFERENT LOCATION AND SHALL BE VERIFIED AS PER PLAN PROFILE.
10. IN ABADI PORTION WIDTH OF CULVERT SHALL BE END TO END BY ADJUSTING WIDTH OF EARTHEN SHOULDER.



Project Implementation Unit
 Dy. General Manager (Tech.)
 Project Implementation Unit
 Bihar State Road Devn Corp. Ltd. Patna

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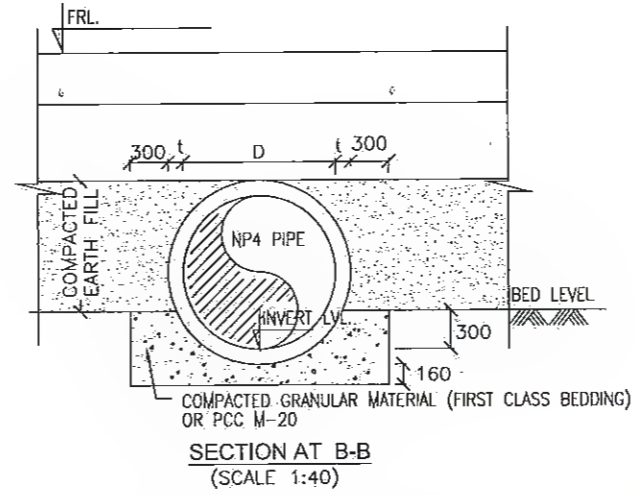
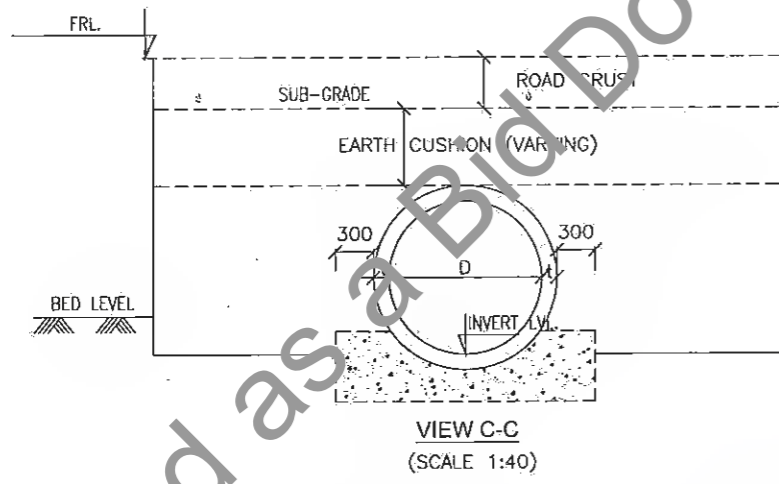
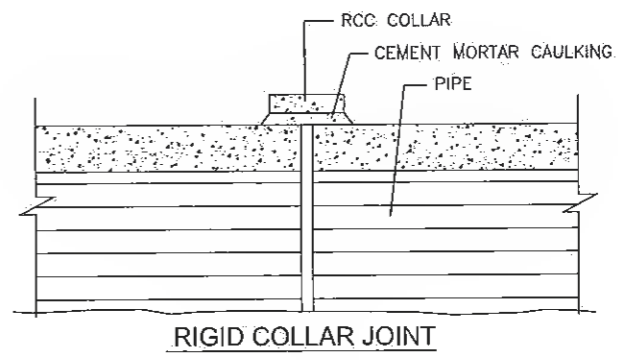
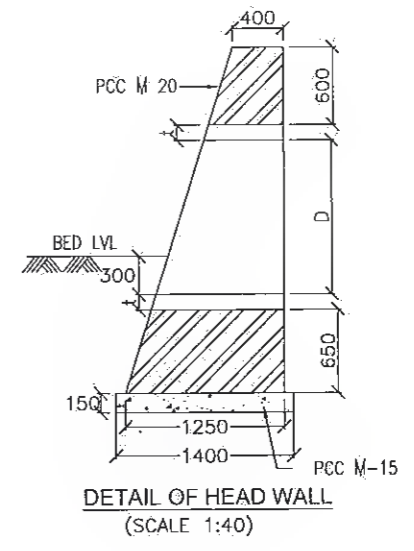
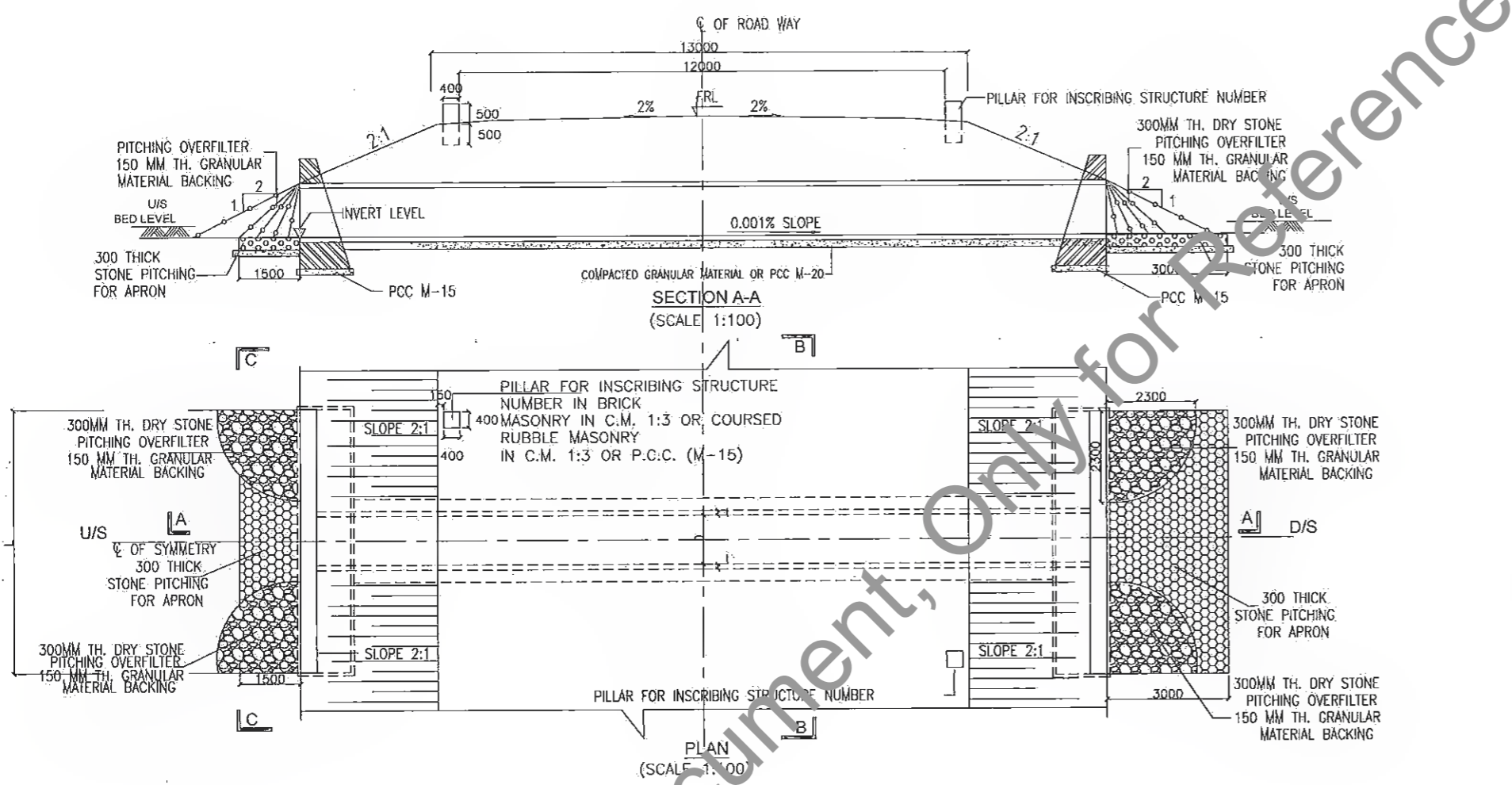
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 222-223,313, Rajhans Plaza,
 Ahinsa Khand-I, Indrapuram,
 Ghaziabad-201014

DRAWN BY: ANKIT NEGI
 DESIGN BY: NIKHIL
 CHECKED BY: RANJAN
 SCALE:-AS SHOWN

TITLE:
 GENERAL ARRANGEMENT DRAWING OF TYP. PIPE CULVERT RECONSTRUCTION AT SIZE(1x1.2)
 DRAWING NO. STC/BR/BSRDC/BNB/STR/PC-
 A3



- NOTES:**
1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN MILLIMETER.
 2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED, DO NOT SCALE THE DIMENSIONS.
 3. LOOSE / UNSUITABLE SOIL BELOW CULVERTS IS REPLACED WITH SUITABLE GRANULAR MATERIAL.
 4. CHAINAGE / FORMATION LEVEL IS PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING.
 5. FOR CULVERTS SKEW TO THE TRAFFIC DIRECTION LENGTH OF CULVERT SHALL BE ADJUSTED AS PER SITE CONDITION.
 6. THE JOINTING SPACE SHALL BE FILLED WITH CEMENT MORTAR 1 CEMENT TO 2 SAND, MIXED SUFFICIENTLY DRY TO REMAIN IN POSITION WHEN FORCED WITH A TROWEL OR RAMMER, / AS PER THE DIRECTION OF THE ENGINEER.
 7. FIRST CLASS BEDDING MAY BE USED FOR MAXIMUM HEIGHT OF FILL OF 4 METERS. BEYOND 4m HEIGHT OF FILL PCC BEDDING SHALL BE USED.
 8. LONGITUDINAL SLOPE SHALL BE 1 IN 1000 (MINIMUM).
 9. IN CASE EARTH CUSHION BETWEEN THE TOP OF THE PIPE IS LESS THAN EXCLUDING ROAD CRUST, THEN THE ENCASING SHALL BE DONE WITH M-20 GRADE CONCRETE.
 10. EXISTING HEADWALL SHALL BE DISMANTLED.
 11. TOTAL LENGTH OF PIPE SHALL BE CALCULATED IN ACCORDANCE WITH THE 2.5M LENGTH PER PIPE UNIT.

PIPE CULVERT (1 ROW)								
Sr. No.	Design Ch. (Km)	Proposal	Type	Span Arrangement (m)	FRL (m)	IL(M)	Proposed Width (m)	Cushion
1	30.233	RECONSTRUCTION	PIPE	1x1.2	85.876	83.900	13	1.451
2	7.662	RECONSTRUCTION	PIPE	1x1.2	79.595	76.900	13	2.170
3	13.686	RECONSTRUCTION	PIPE	1x1.2	79.773	77.000	13	2.248

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DESIGN BY	CHECKED BY	SCALE	TITLE
ANKIT NEGI	NIKHIL	AS SHOWN	GENERAL ARRANGEMENT DRAWING OF TYP. PIPE CULVERT RECONSTRUCTION AT SIZE(1x1.2)
	RANJAN		DRAWING NO. STC/BR/BSROC/BNB/STR/PC-



Manager (Tech.)
 Dy. General Manager (Tech)
 Project Implementation Unit