TENDER DOCUMENT

FOR

Lining, Repair and Construction of Balance Works of Right Main Canal & its Structures of Package-1 (RD 0 to 17.16 km) under North Koel Reservoir Project, Jharkhand

Estimated Cost (Rs. 50.40 Crores)

TENDER NO: WAP/NK/JHK/RMC-PKG-1/BALANCE/2026

TENDER DRAWINGS

WAPCOS

(भारत सरकार का उपक्रम–जल शक्ति मंत्रालय)

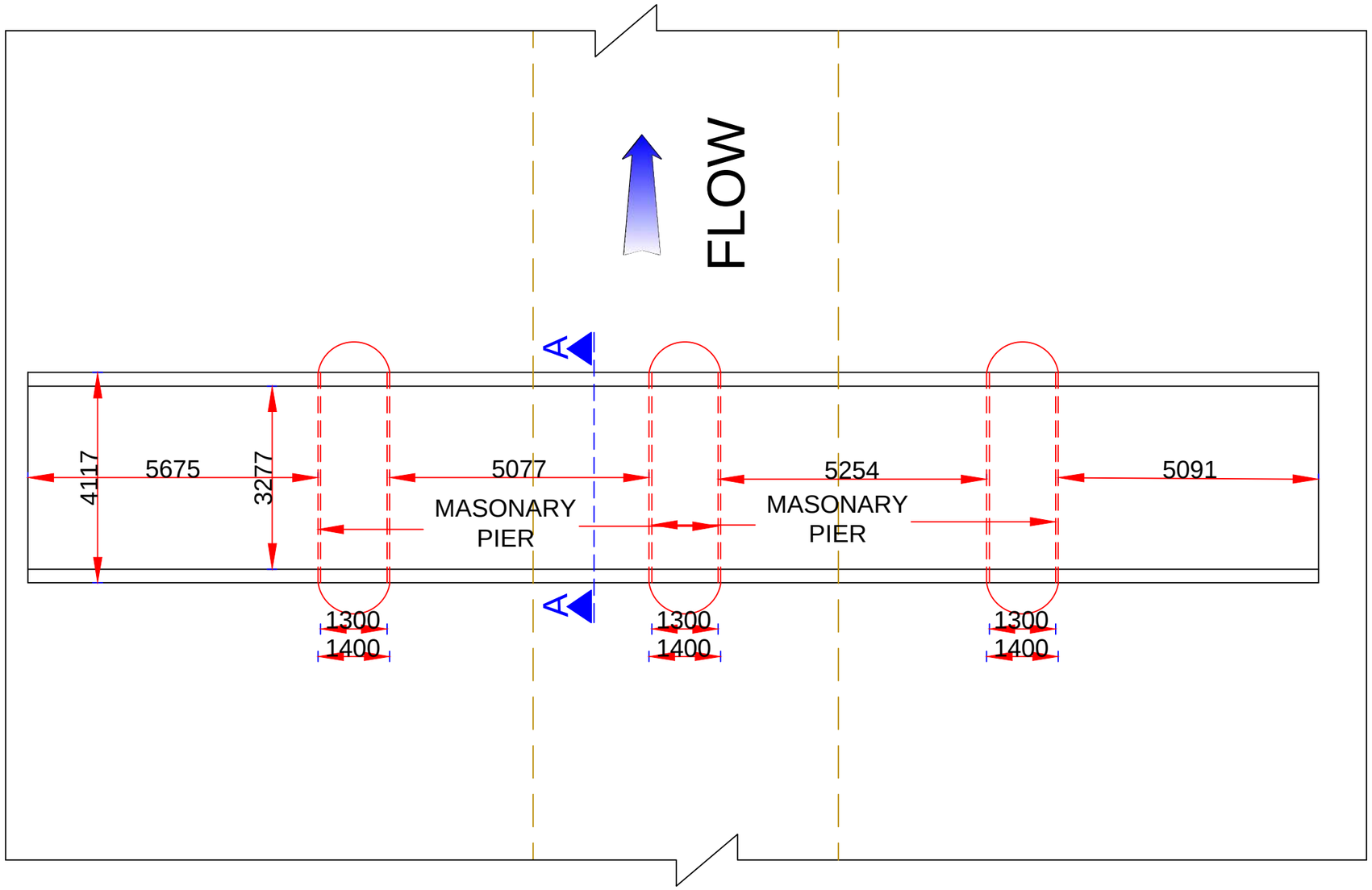
(A Government of India Undertaking-Ministry of Jal Shakti)



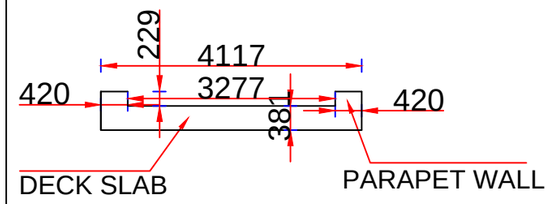
S.L.R. BRIDGE

AT

CH. 1.807 KM



PLAN



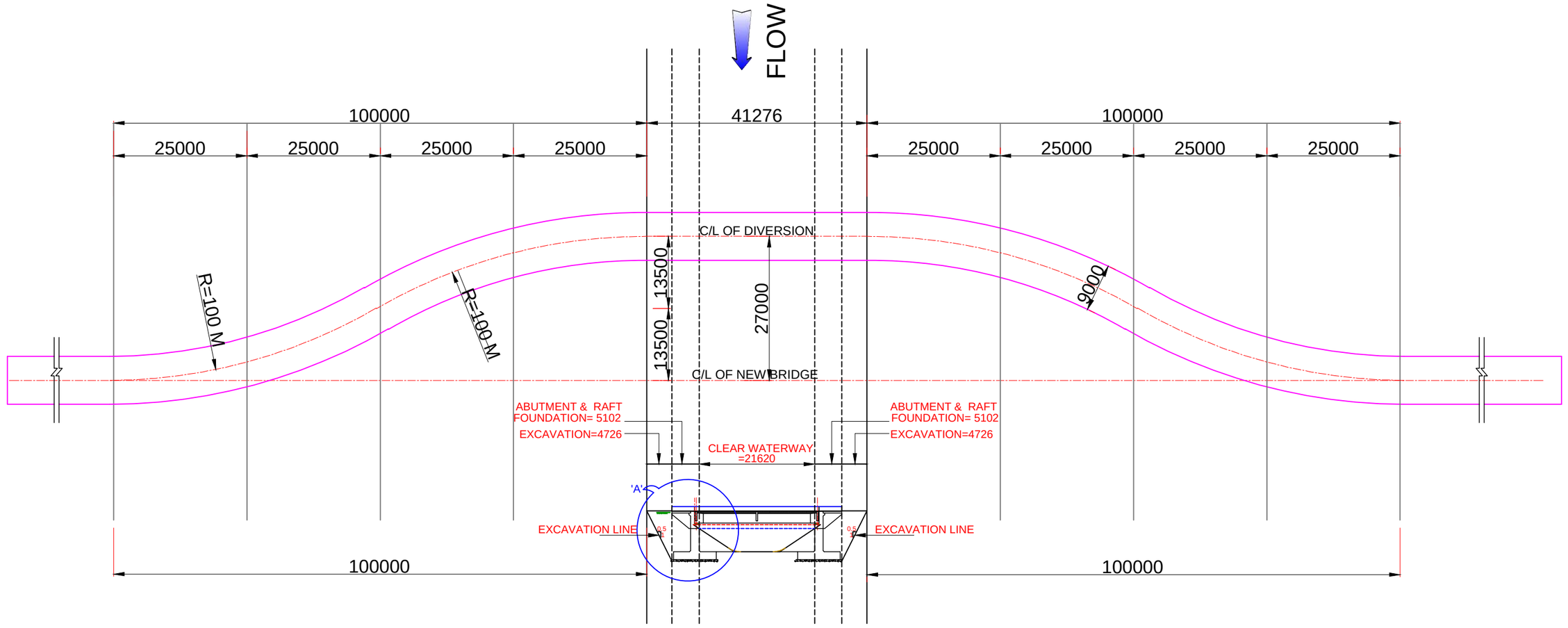
SECTION A-A

NOTES:

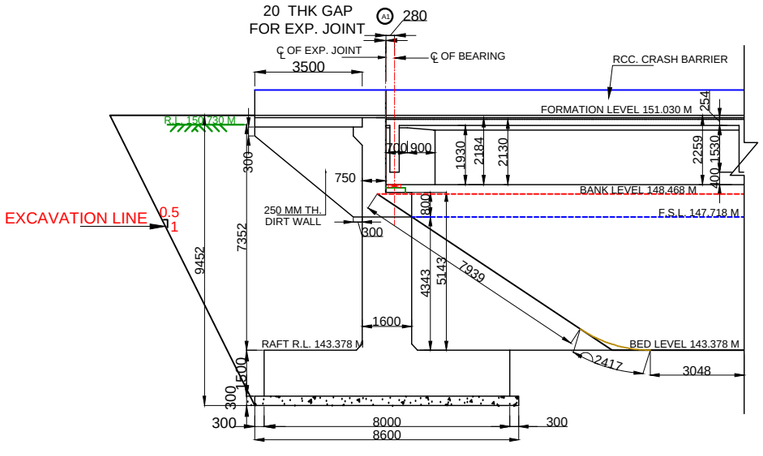
1 ALL DIMENSIONS ARE IN mm.
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	EXISTING PLAN OF SINGLE LANE ROAD BRIDGE AT CH. 1.807 KM	
	Drawing No. :-	WAP/PKS/NORTH KOEL/SLRB-01	01 of 12
	Drawn by:-	Checked by:-	Approved by:-



SKETCH OF DIVERSION PLAN AT KM 1.807 FOR S.L.R. BRIDGE



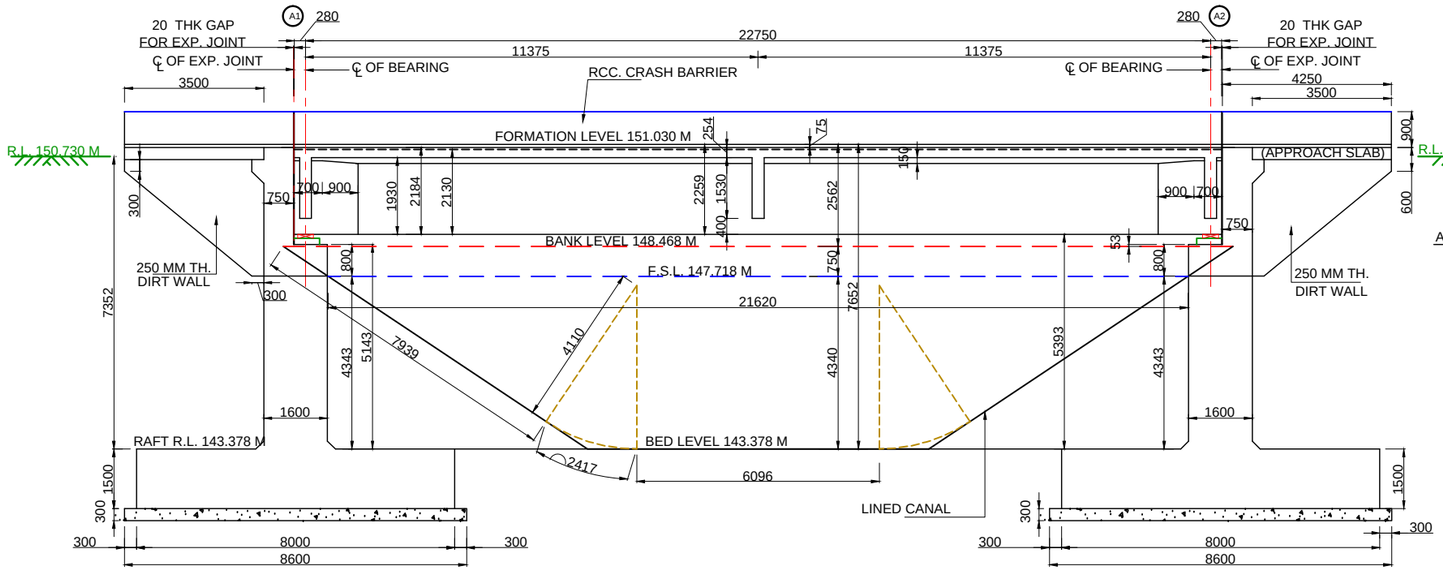
DETAIL SECTION AT 'A'

NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS

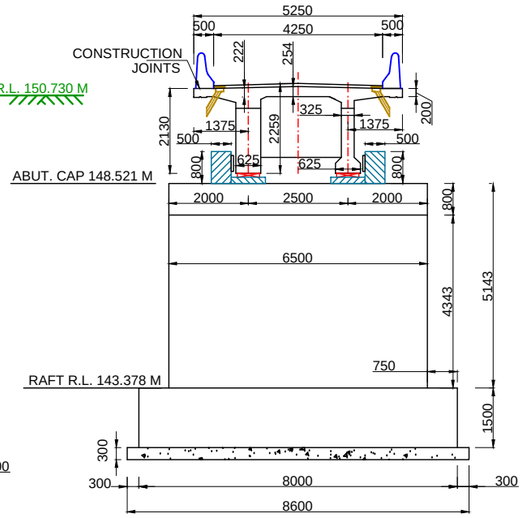
TENDER DRAWING

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 1.807 FOR S.L.R. BRIDGE
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 01 02 of 12
	Drawn by:-	Checked by:- / Approved by:-



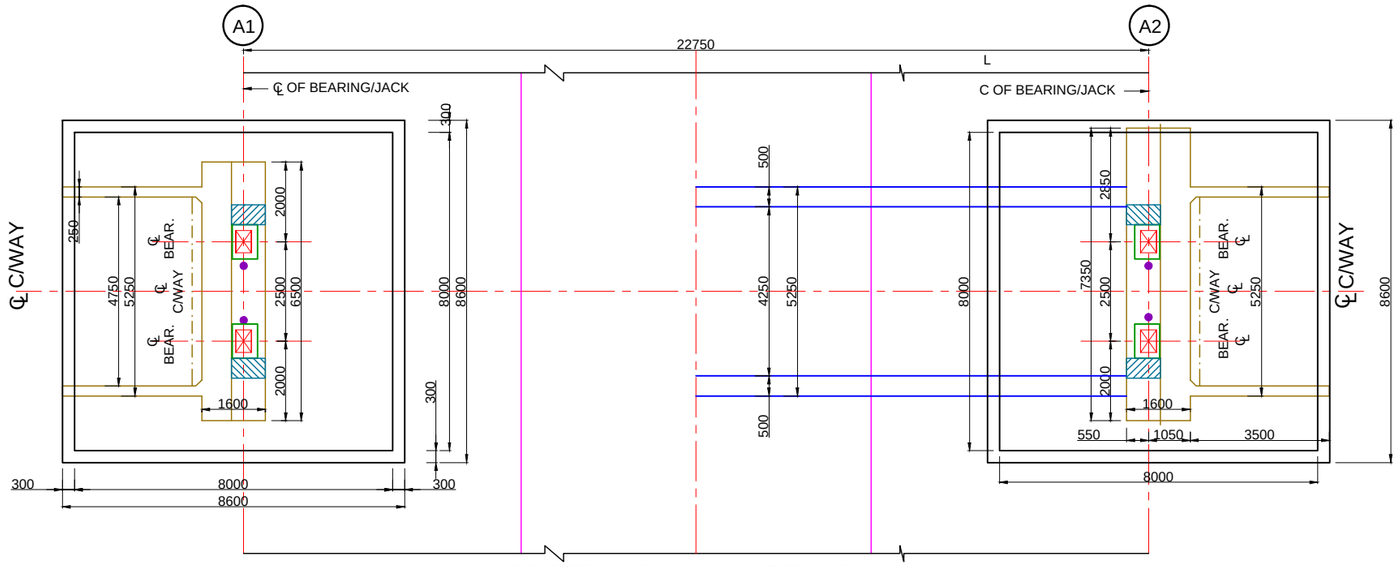
SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN

(SCALE A)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	84.15 CUMEC
BED LEVEL	143.378 M
WATER DEPTH	4.340 M
F.S.L.	147.718 M
FREE BOARD	0.75 M

7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a)	RAFT	M35
b)	ABUTMENT	M25
c)	SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d)	CRASH BARRIER	M30
e)	PEDESTAL (SEISMIC)	M35
f)	WEARING COAT	M30

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0Á
ROAD LEVEL	151.030 M
EX. ROAD LEVEL	150.730 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M

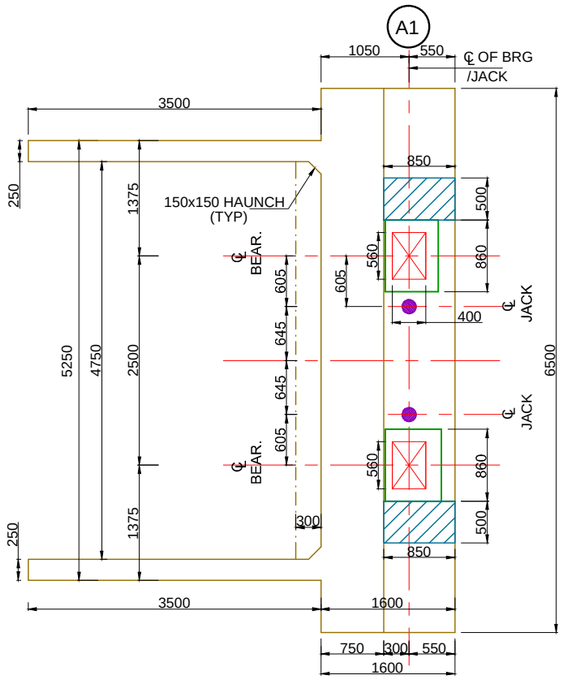
9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

SCALE A:-

2000 0 2000 4000 6000

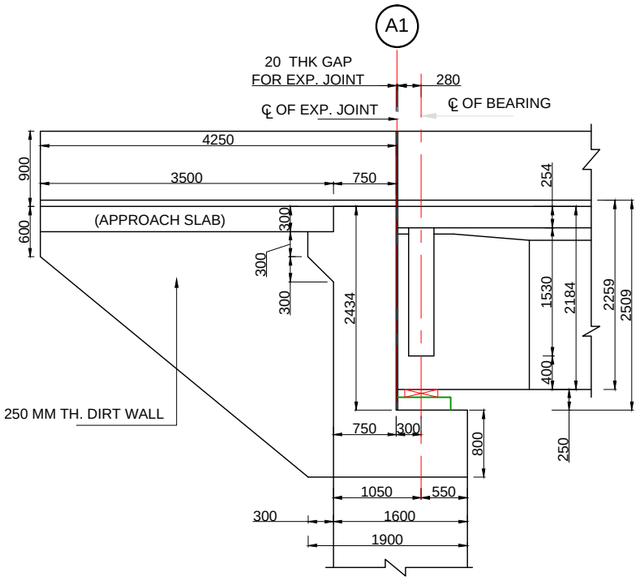
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 1.807 WITH TWO BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-01 03 of 12
	Drawn by:-	Checked by:- / Approved by:-



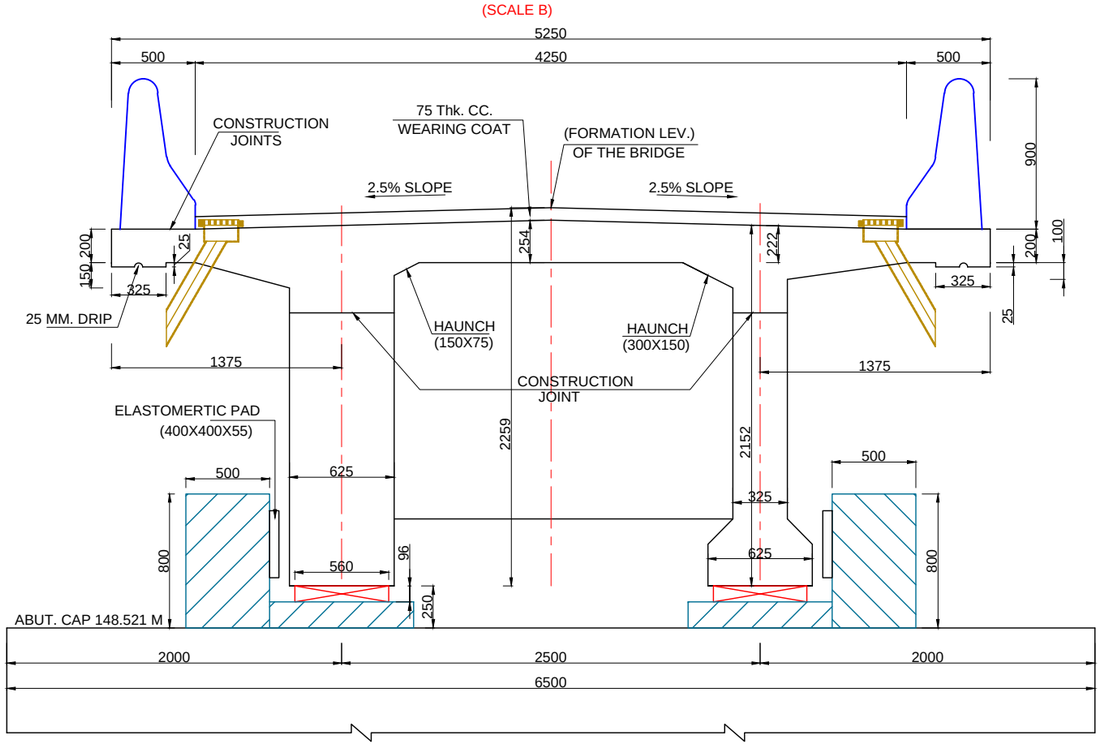
PLAN OF ABUTMENT AT BEARING LEVEL

(SCALE B)



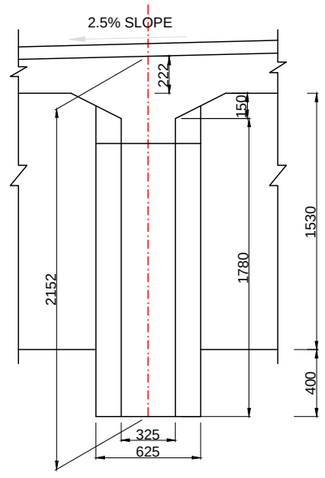
DETAIL - `D1'

(SCALE B)



CROSS SECTION OF GIRDERS

(SCALE C)



CROSS SECTION OF RCC 'I' GIRDER

(SCALE C)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.

SCALE B:-

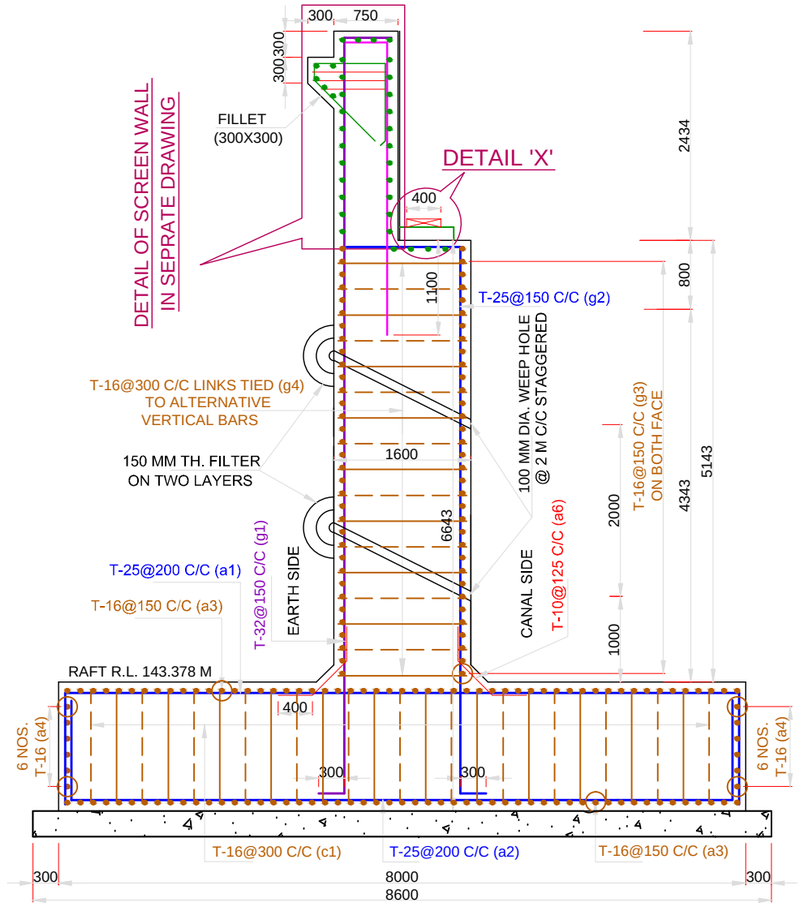
1000 0 1000 2000 3000

SCALE C:-

500 0 500 1000 1500

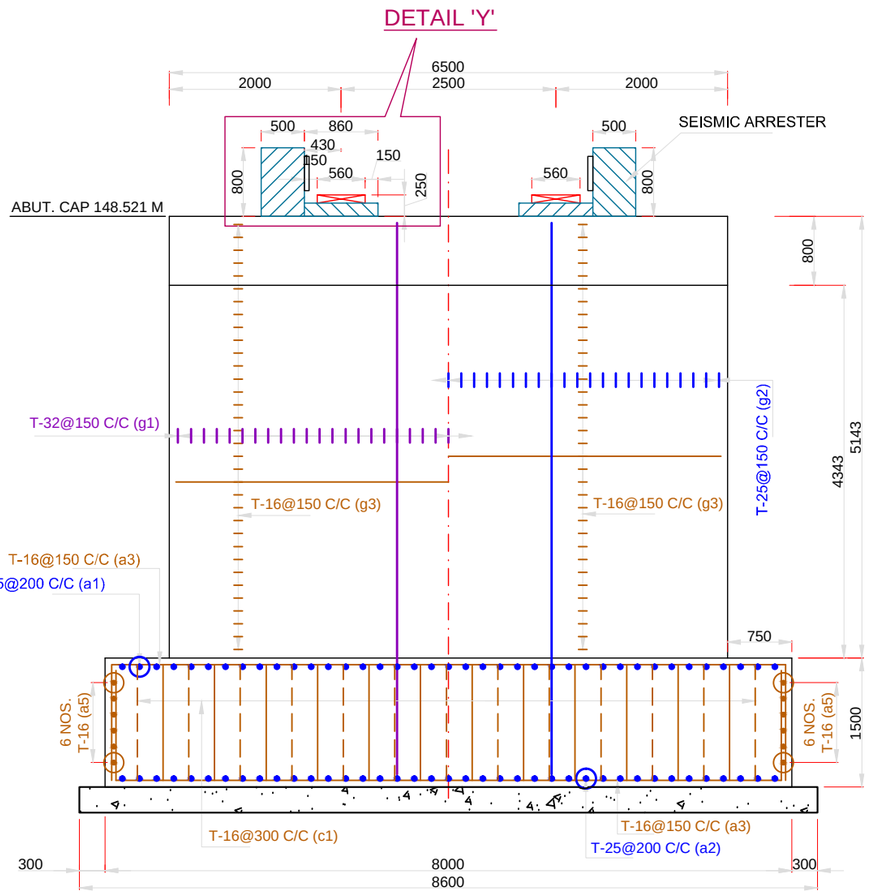
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR BRIDGE AT KM 1.807 WITH TWO BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-01	04 of 12
	Drawn by:-	Checked by:-	Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	600, 8852, 300	32	150	42X2
	2	g2	1325, 6418, 300	25	150	42X2
	3	g3	708, 6350, 708	16	150	33X2X2
	4	g4	150, VERTICAL LINK BARS 1450, 150	16	300	9X11X2
IN RAFT FOR ABUTMENT	5	a1	1000, 7850, 1000	25	200	39X2
	6	a2	1000, 7850, 1000	25	200	39X2
	7	a3	700, 700, 7850, 7850, 700, 700	16	150	52X2X2
	8	a4	700, 7850, 700	16	-	6X2X2
	9	a5	700, 7850, 700	16	-	6X2X2
	10	a6	400, 560, 400, 400, 560, 400	10	125	52X2X2
	11	c1	150, 1350, 150	16	300	13X13X2

NOTES

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2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:- 500 0 500 1000 1500

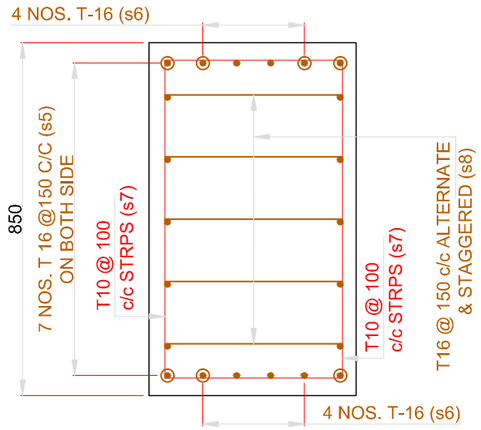
TENDER DRAWING

Prepared by :-

WAPCOS LTD.

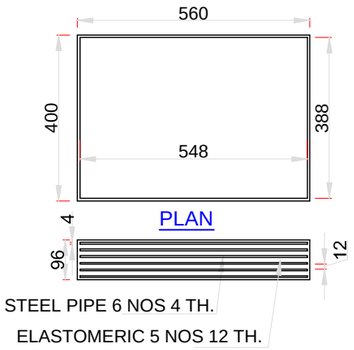
वाप्कोस लिमिटेड
WAPCOS LIMITED
(A Government of India Undertaking - Ministry of Water Resources)

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SLR BRIDGE AT KM 1.807 WITH TWO BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-01 05 of 12
Drawn by:-	Checked by:- / Approved by:-



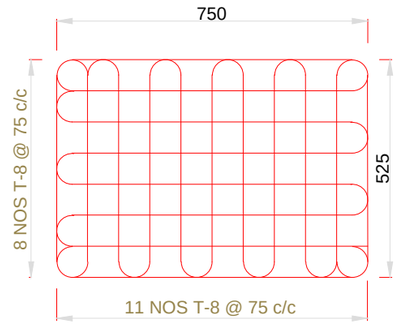
SECTION H-H

SCALE A



DETAILS OF ELASTOMERIC BEARINGS

SCALE A

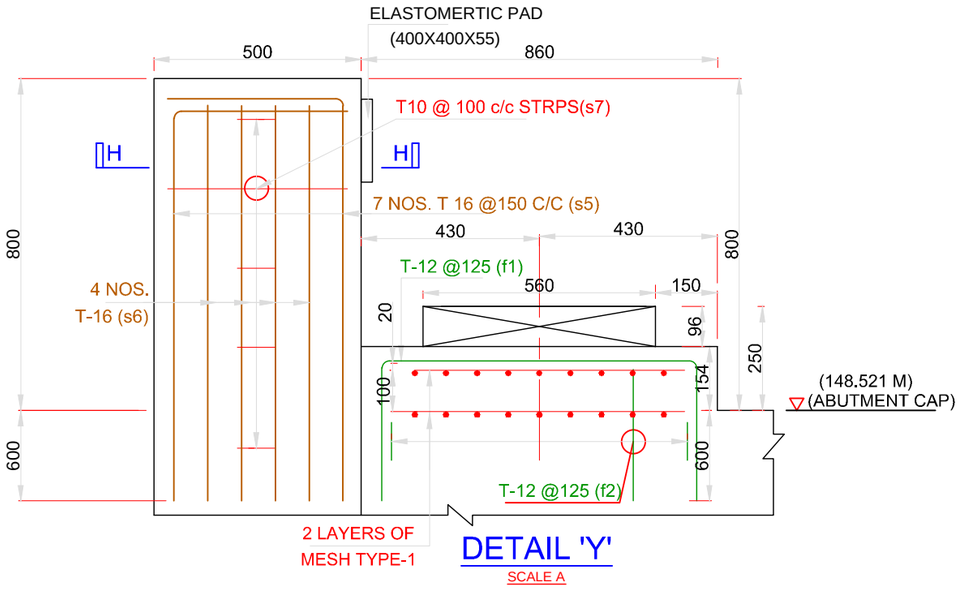


DETAIL OF MESH M1 (MESH BELOW BEARING LOCATION)

SCALE A

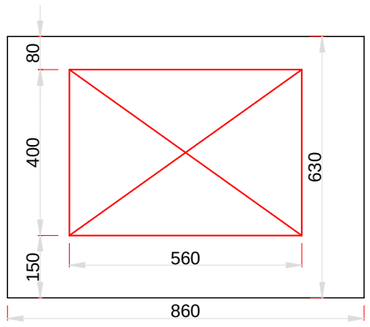
BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5	400, 1350	16	150	14X2X2
	2	s6	150, 1350, 150	16	-	8X2X2
	3	s7	700, 400, 400, 700	10	100	5X2X2
	4	s8	150, 400, 150	16	150	5x2x2
PEDESTAL FOR ABUTMENT	5	f1	633, 730, 633	12	125	5X2X2
	6	f2	633, 530, 633	12	125	5X2X2



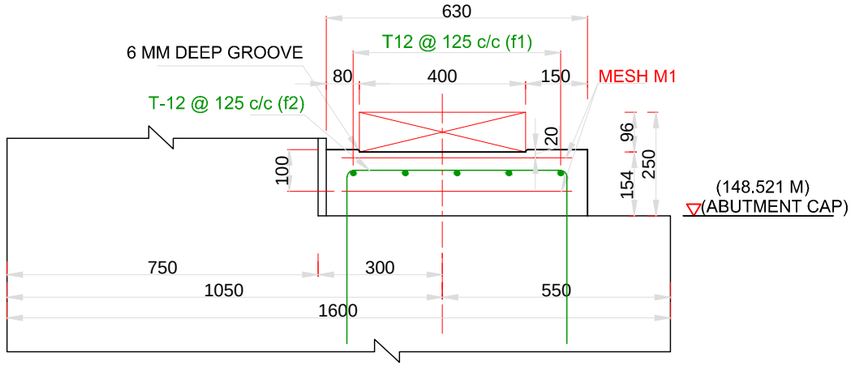
DETAIL 'Y'

SCALE A



PLAN

SCALE A



DETAIL 'X'

SCALE A

SCALE A:-



NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

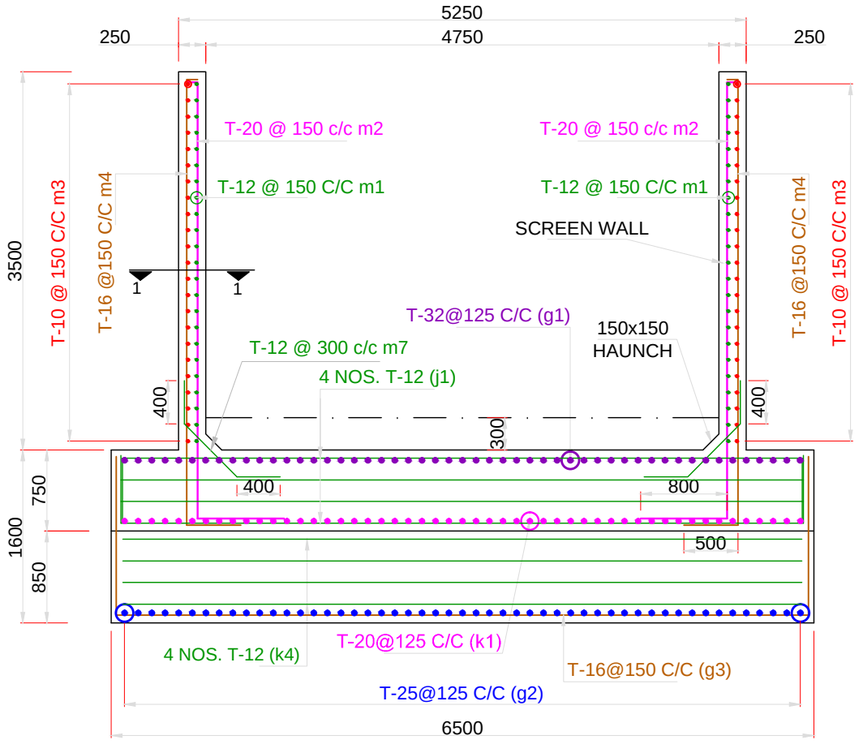
TENDER DRAWING

Prepared by :-

WAPCOS LTD.

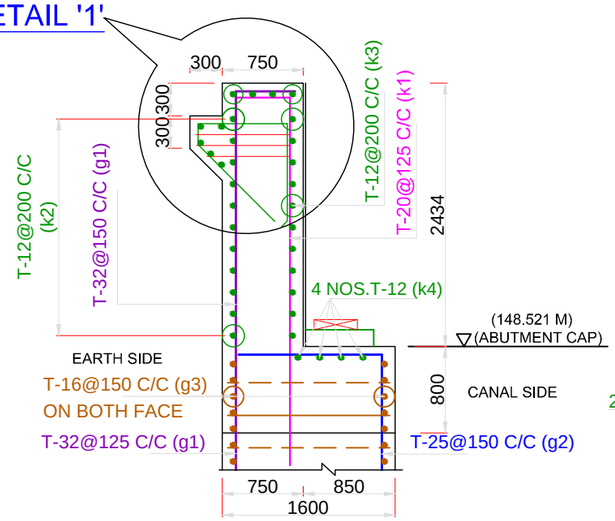
वाप्कोस लिमिटेड WAPCOS LIMITED

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 1.807 WITH TWO BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-01 06 of 12
Drawn by:-	Checked by:- Approved by:-



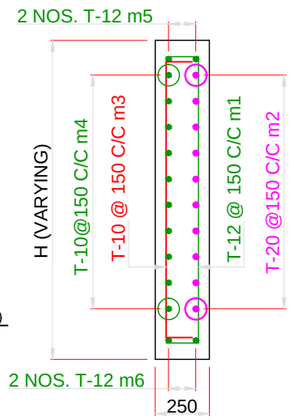
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL

SCALE A



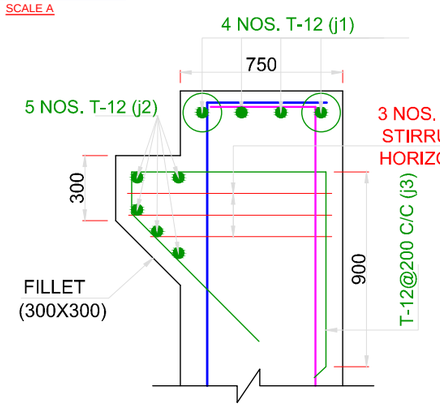
REINFORCEMENT DETAILS IN SECTION OF DIRT

SCALE A



SECTION AT 1-1

SCALE B



DETAIL '1'

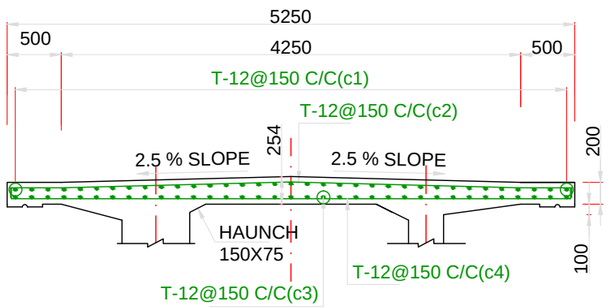
SCALE B

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
DIRT WALL	1	k1	700, 3459	20	125	51X2
	2	k2	150, 6350, 150	12	200	11X2
	3	k3	150, 6350, 150	12	200	11X2
	4	k4	150, 6350, 150	12	200	4X2
	5	j1	150, 6350, 150	12	-	4X2
	6	j2	150, 6350, 150	12	-	5X2
	7	j3	950, 195, 850, 900	12	-	24X2
	8	j4	LV= 790, 6350, 6350, 790	10	300	3X2
SCREEN WALL	9	m1	150, 1718, 150	12	150	44x2
	10	m2	150, 4025, 800, 4025, 800, 150	20	150	40x2
	11	m3	150, 1718, 150	10	150	44x2
	12	m4	150, 4025, 500, 150, 4025, 500	16	150	40x2
	13	m5	500, 3350, 500	12	-	4X2
	14	m6	400, 4085, 400	12	-	4X2
	15	m7	400, 600, 400	12	300	8X2X2
APPROACH SLAB	16	c1	150, 3350, 150	12	150	34X2
	17	c2	150, 450, 2125, 2125, 450, 150	12	150	23X2
	18	c3	150, 3350, 150	12	150	34X2
	19	c4	150, 5150, 150	12	150	23X2

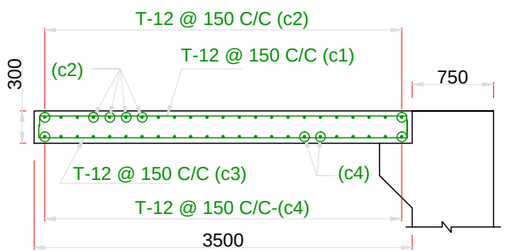
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS 70R OR TWO LANES OF CLASS-A LOADING WHICHEVER IS CRITICAL HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF PIER AND PIER CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.



REINFORCEMENT IN APPROACH SLAB

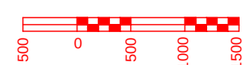
SCALE A



SECTION OF APPROACH SLAB

SCALE A

SCALE A:-



SCALE B:-

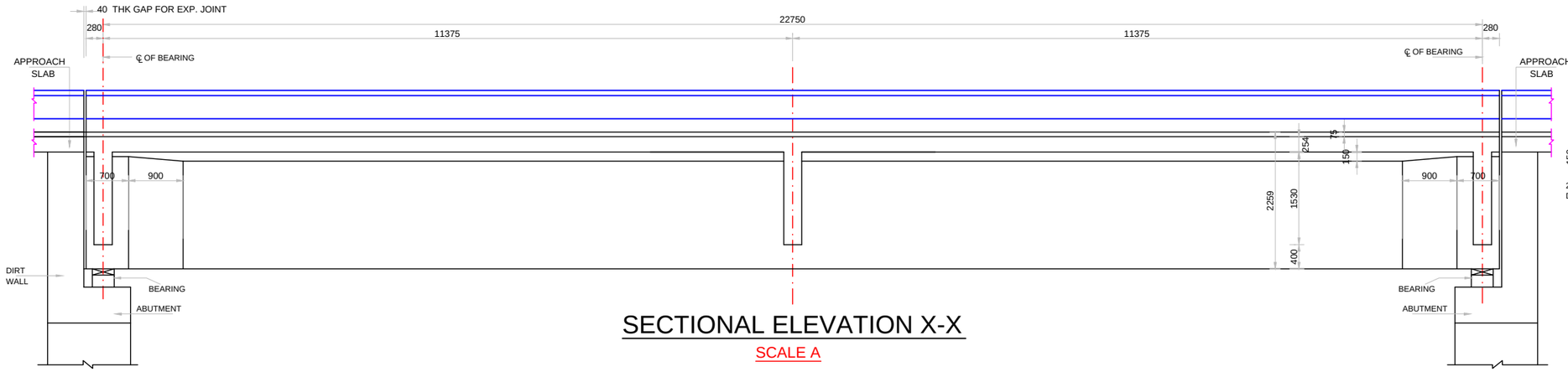


TENDER DRAWING

Prepared by :-

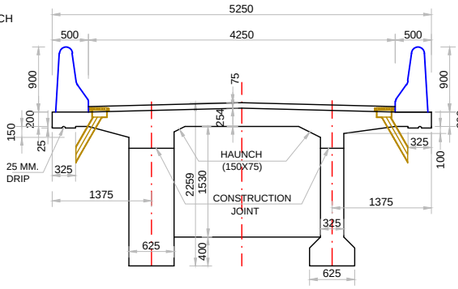
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 1.807 WITH TWO BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-01 07 of 12
Drawn by:-	Checked by:- / Approved by:-



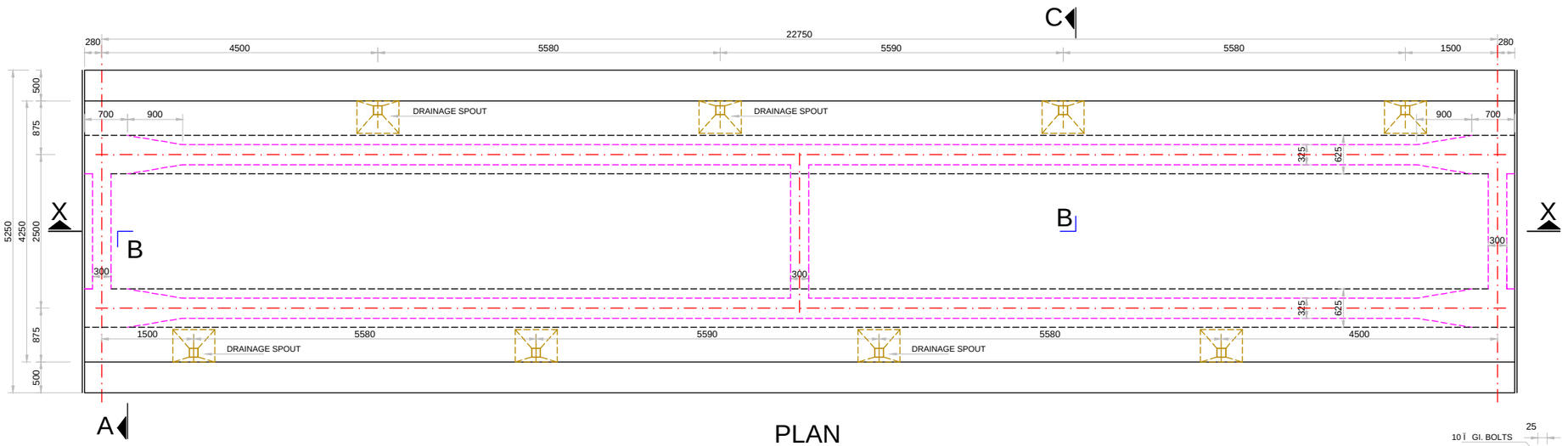
SECTIONAL ELEVATION X-X

SCALE A



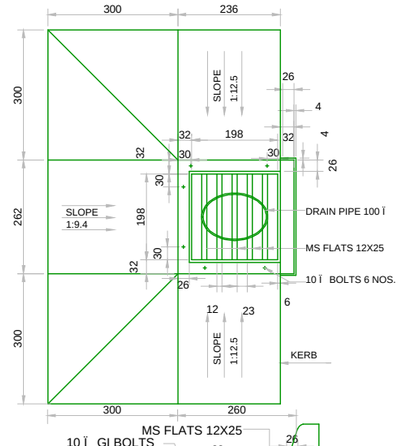
SECTION ABC

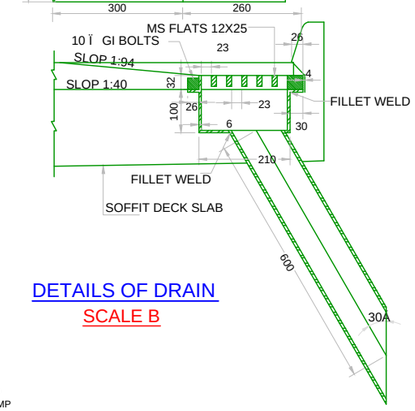
SCALE A



PLAN

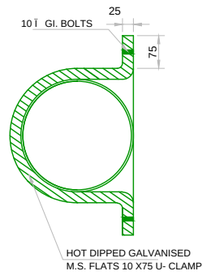
SCALE A





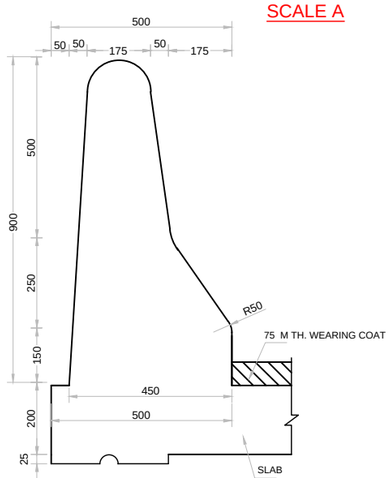
DETAILS OF DRAIN

SCALE B



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
7. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
8. REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.



DETAILS OF CRASH BARRIER

SCALE B

REFERENCES:-

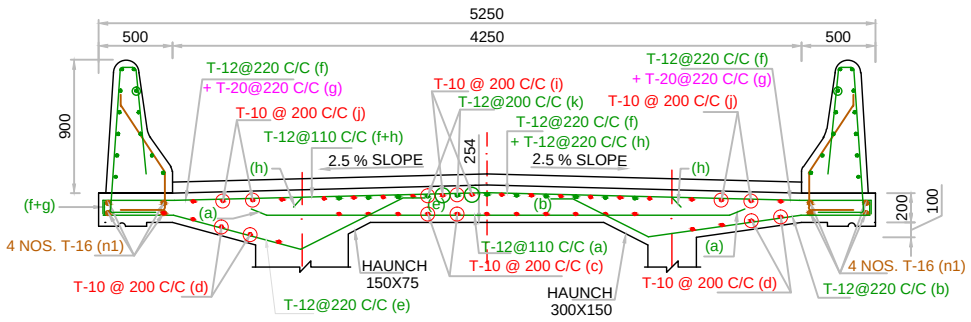
1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.

SCALE A:- 600 0 600 1200 1800

SCALE B:- 100 0 100 200 300

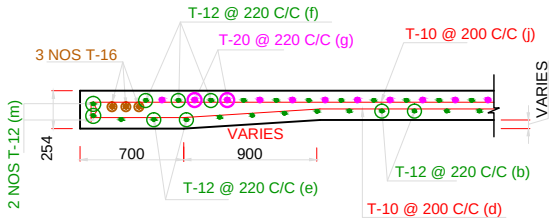
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 1.807 WITH TWO BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-01 08 of 12
	Drawn by:-	Checked by:- / Approved by:-



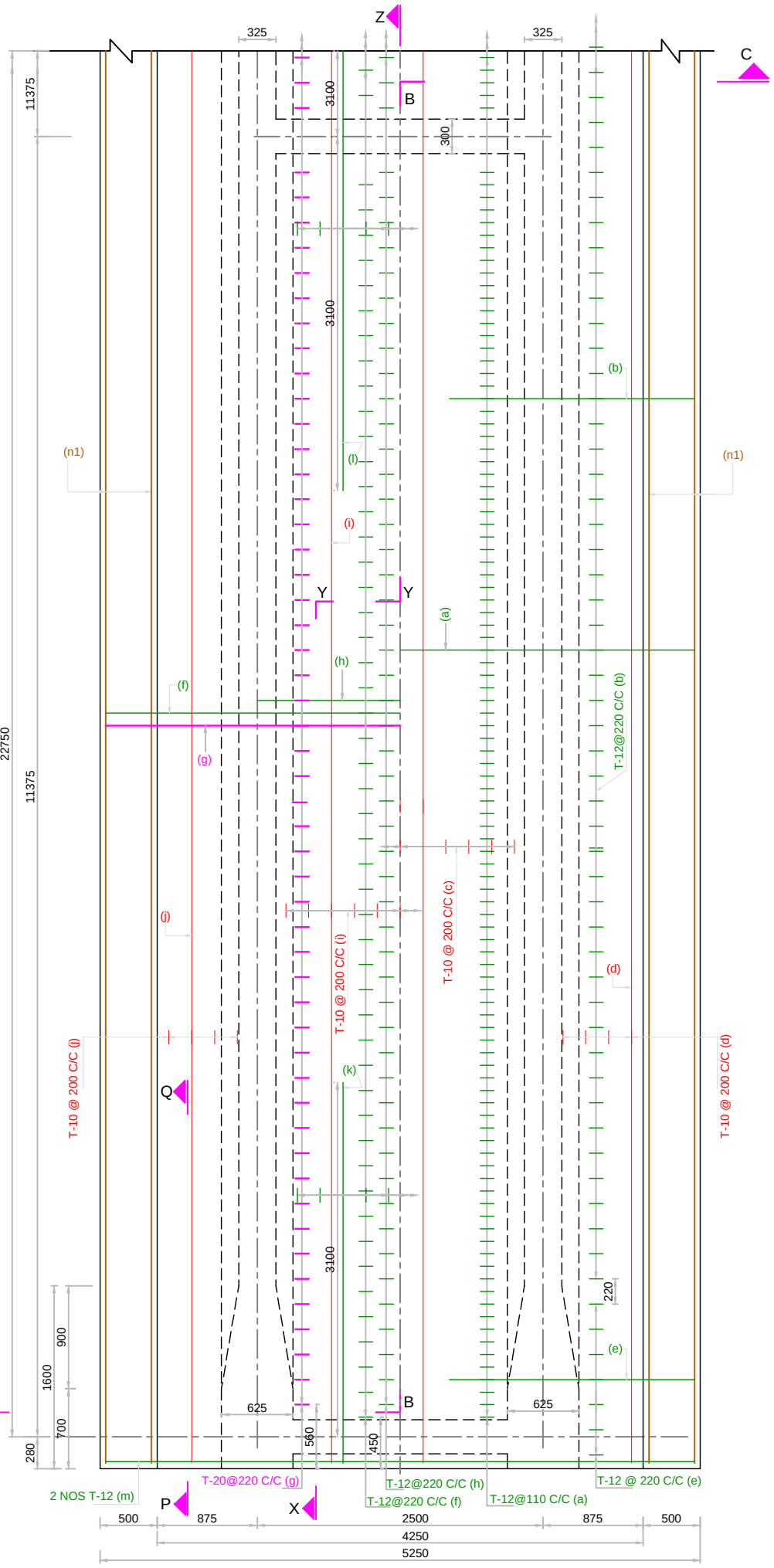
CROSS SECTION ABC

SCALE A



SECTION P.Q.

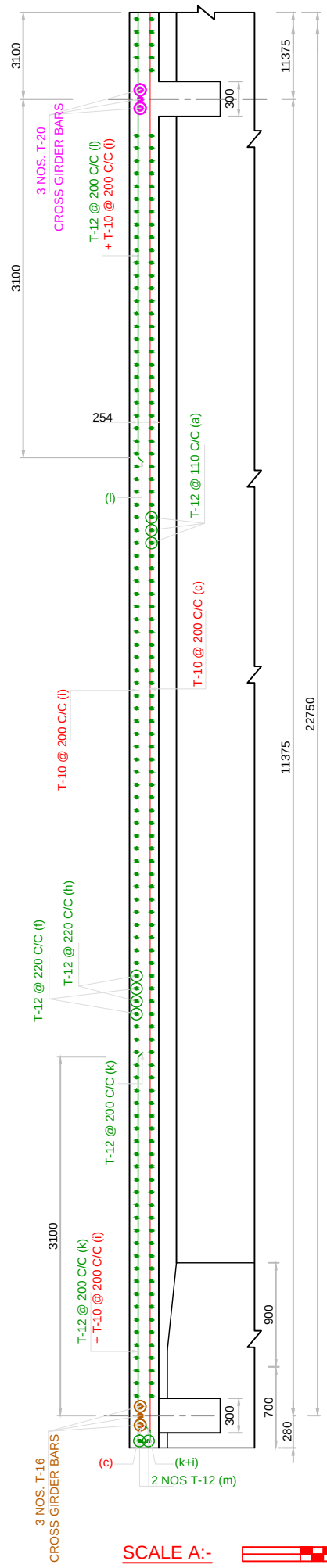
SCALE A



HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

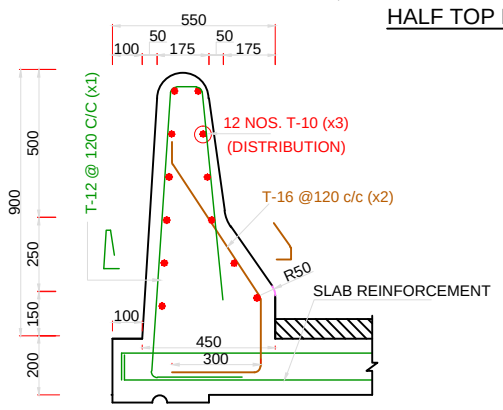
PLAN

SCALE A



SECTION X Y Z

SCALE A



REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B

SCALE A:- 500 0 500 1000 1500

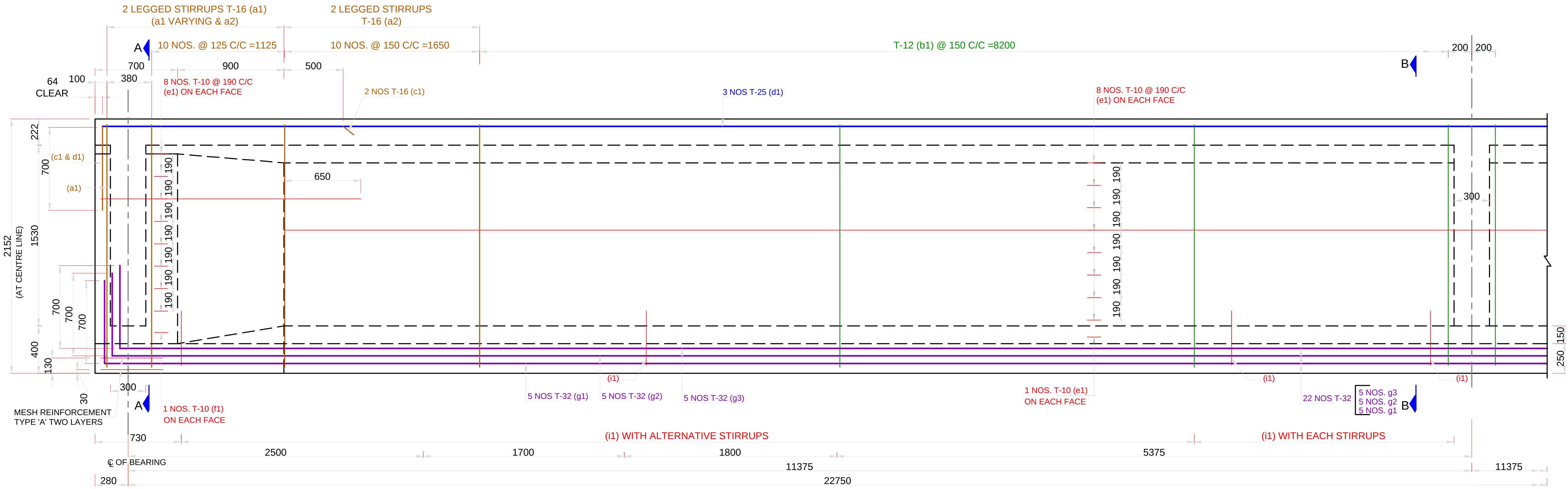
SCALE B:- 250 0 250 500 750

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

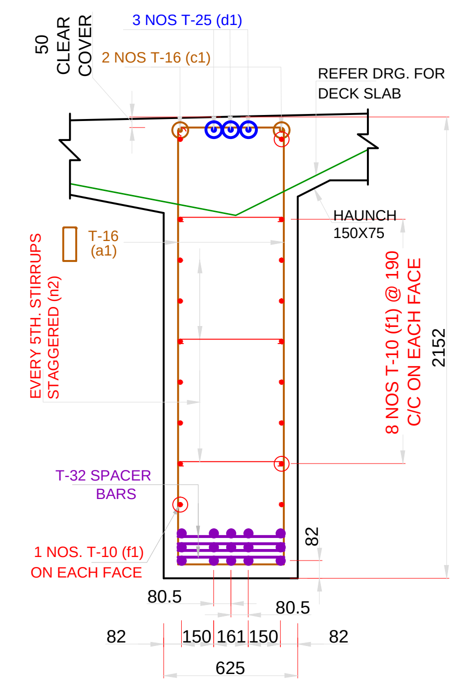
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF DLR BRIDGE AT KM 1.807 WITH TWO BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-01 09 of 12
	Drawn by:-	Checked by:- / Approved by:-



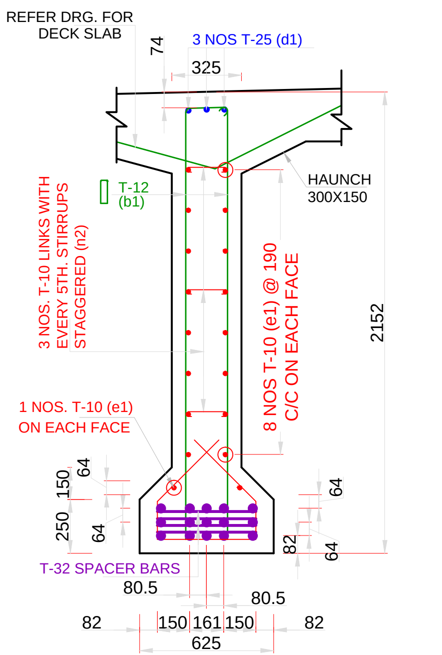
LONGITUDINAL SECTION OF OUTER GIRDER

SCALE A



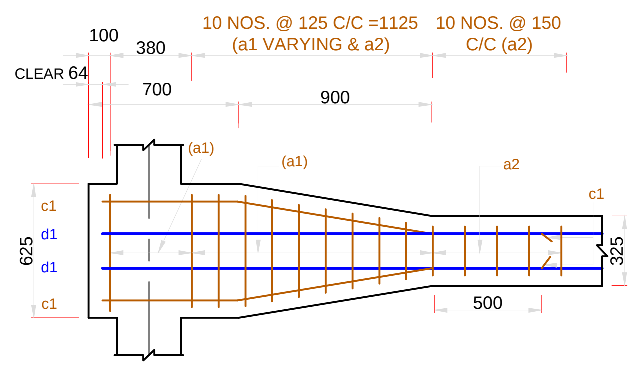
SECTION A-A

g3 g3 g3 g3 g3
g2 g2 g2 g2 g2
g1 g1 g1 g1 g1
15 NOS T-32



SECTION B-B

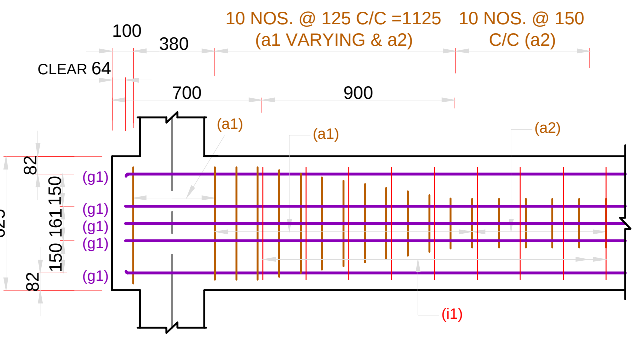
g3 g3 g3 g3 g3
g2 g2 g2 g2 g2
g1 g1 g1 g1 g1
15 NOS T-32



OUTER GIRDER

PLAN SHOWING TOP REINF. AT THE END

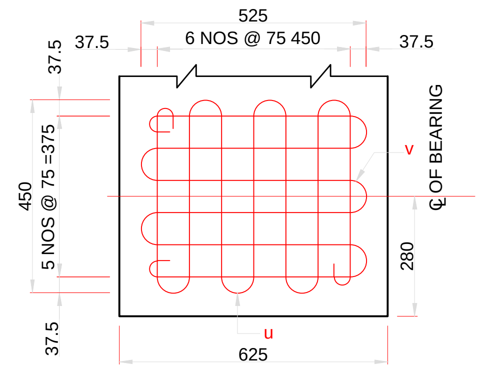
SCALE A



OUTER GIRDER

PLAN SHOWING BOTTOM REINF. AT THE END

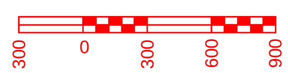
SCALE A



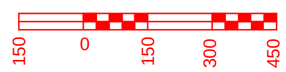
T-8 MESH REINFORCEMENT TYPE - 'A'

SCALE B

SCALE A:-



SCALE B:-

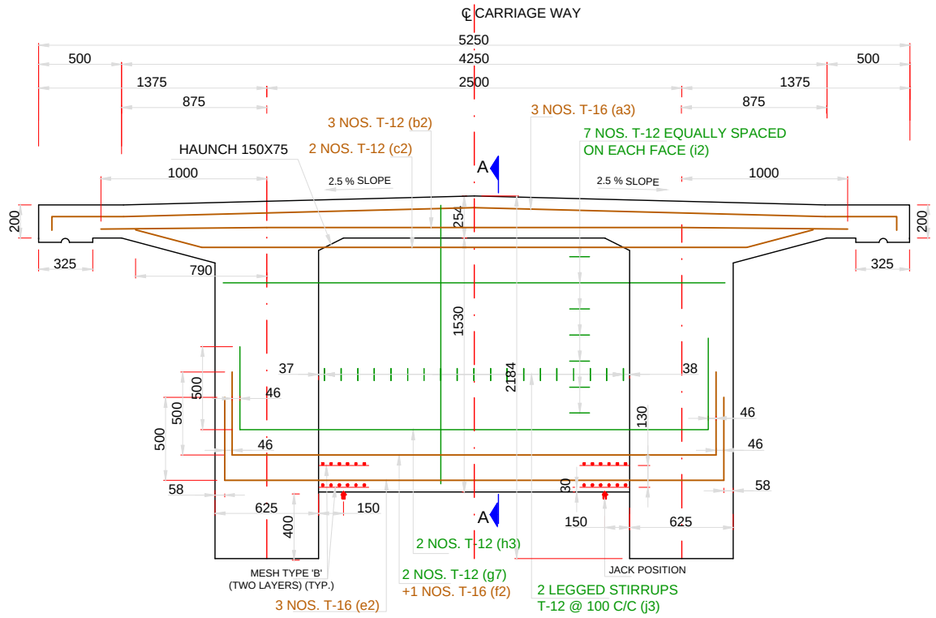


REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/214.

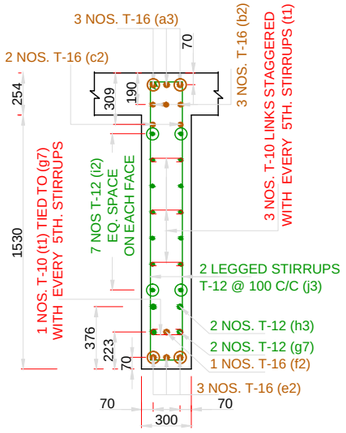
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 1.807 WITH TWO BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-01	10 of 12
	Drawn by:-	Checked by:-	Approved by:-



LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A

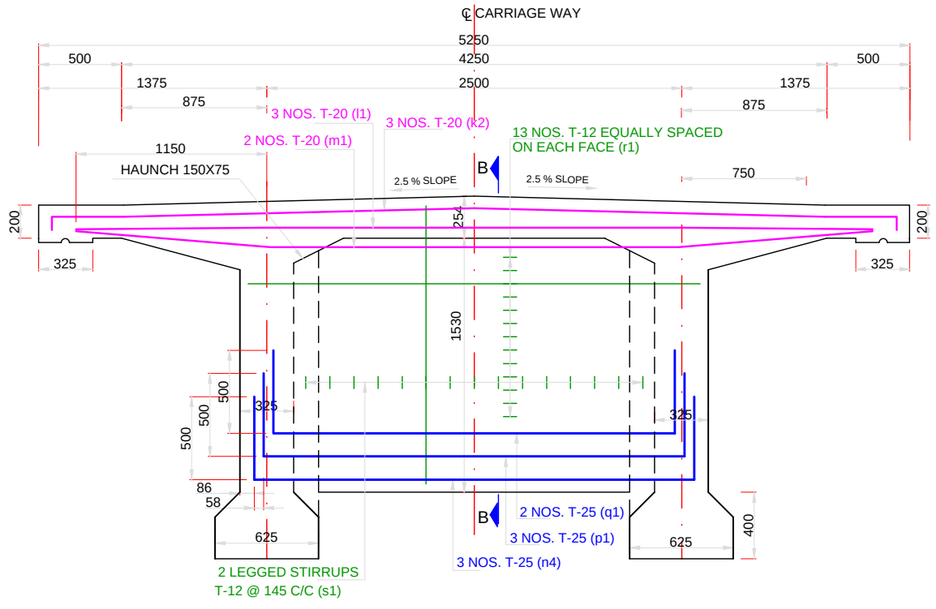


SECTION A-A

SCALE A

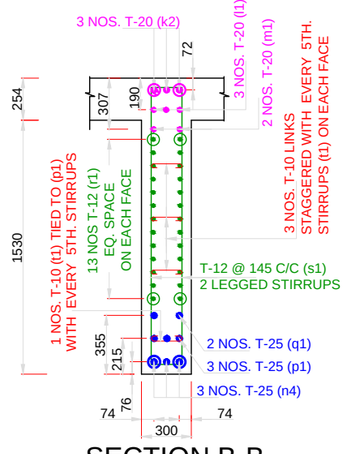
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



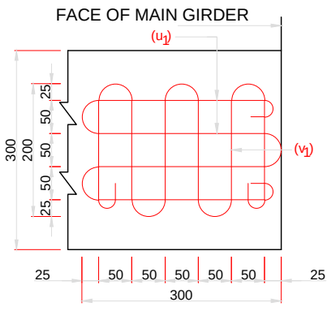
LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A



SECTION B-B

SCALE A



T-8 MESH REINFS. TYPE - 'B'

SCALE B

SCALE A:-

300 0 300 600 900

SCALE B:-

75 0 75 150 225

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/215.

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE AT KM 1.807 WITH TWO BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-01 11 of 12
	Drawn by:-	Checked by:- / Approved by:-

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a	3125	12	110	3125	202
2	b	249, 150, 530, R-120, 1542, R-120, 500, 140, 137	12	220	2976	184
3	c	L, 150, 23210, 150, L; L VARYING FROM 109 TO 212	10	200	23710	11
4	d	L, 140, 650, 901, R-100, 20110, VARYING FROM 0 TO 70, R-100, 901, 140, L, 650; L VARYING FROM 68 TO 270	10	200	23710	8
5	e	VARYING FROM 530 TO 700; 150, R-120, VARYING FROM 1443 TO 1592, 500, 140; VARYING FROM 249 TO 313; R-120; VARYING FROM 137 TO 198	12	220	2987	32
6	f	75, 2576, R-120, 2576, 75	12	220	5304	100
7	g	75, 2576, R-120, 2576, 75	20	220	5182	100
8	h	31, 1251, R-120, 1251, 31	12	220	2502	100
9	i	L, 150, 23210, 150, L; L VARYING FROM 109 TO 212	10	200	23710	12
10	j	L, 75, 23210, 75, L; L VARYING FROM 68 TO 270	10	200	23638	8
11	k	L, 170, 3330; L VARYING FROM 109 TO 212	12	200	3588	20
12	l	6200	12	200	6200	10
13	m	5150	12	-	5150	4
14	n_1	23210	16	-	23210	8
CRASH BARRIER PER M						
1	x1	75, 1000, 750, 300	12	120	2125	9
2	x2	75, 540, 300, 250	16	120	1165	9
3	x3	9350	10		1000	12

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)					
19	u_1	30, 50, 50, 30, 50, 25, 250, 37.5	10	-	8
20	v_1	50 50 50 50 50, 30, 37.5, 30, 150, 25	10	-	8

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a_1	L1=VARYING FROM 2022 TO 2026; L1, L2; L2 = VARYING FROM 2014 TO 2018 VARYING FROM 193 TO 493	16	125	5146	11X2X2
2	a_2	193, 2018, 2022, 193	16	150	4746	11X2X2
3	b_1	193, 2018, 2022, 193	12	150	4666	108X2
4	c_1	708, R=96, ELEVATION; 636, 166, 913, 500	16	-	2693	2X2X2
5	d_1	23182, 708, R=96, 708	25	-	24398	3X2
6	e_1	20110	10	-	20110	9X2X2
7	f_1	636, 913, 650, 160	10	-	2199	18X2X2
8	g_1	716, R=192, 716, 23182	32	-	24358	5X2
9	g_2	716, R=192, 716, 23054	32	-	24230	5X2
10	g_3	716, R=192, 716, 22926	32	-	24102	5X2
11	i_1	450, 450, 485, 493, 315	10	-	1733	101X2
12	n_2	L, 140, 140; L = VARYING FROM 213 TO 513	10	-	583	18X2
13	n_3	213, 140, 140	10	-	433	90X2

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u	25, 30, 37.5, 375, 75 75 75 75 75 75, 375, 37.5, 30, 25	10	-	3550	8
2	v	75, 75, 75, 75, 75, 30, 30, 450, 37.5, 25	10	-	3506	8

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a_3	95, 2576, R-160, 2576, 95	16	-	5248	3X2
2	b_2	1000, 2500, 1000	16	-	4500	2X2
3	c_2	412, R=160, 412, 3283	16	-	4107	2X2
4	e_2	508, R=64, 508, 3025	16	-	3945	3X2
5	f_2	508, R=64, 508, 2983	16	-	3903	1X2
6	g_7	506, R=48, 506, 2979	12	-	3919	2X2
7	h_3	506, R=48, 506, 2887	12	-	2815	2X2
8	i_2	233, R=48, 233, 2793	12	-	3187	7X2X2
9	j_3	176, B, 176; VARYING FROM 1661 to 1684	12	100	3797	19X2
10	t_1	140, 196, 140	10	-	416	20X2
MIDDLE CROSS GIRDERS						
1	k_2	95, 2576, R-160, 2576, 95	20	-	5222	3
2	l_1	1150, 2500, 1150	20	-	4800	2
3	m_1	1175, R=160, 1175, 2460	20	-	4810	2
4	n_4	508, R=64, 508, 2653	25	-	3470	3
5	p_1	508, R=64, 508, 2537	25	-	3353	3
6	q_1	508, R=64, 508, 2421	25	-	3237	2
7	r_1	529, 2725, 529	12	-	3711	13X2
8	s_1	L, 176; VARYING FROM 1658 to 1684	12	145	3794	15
9	t_1	140, 196, 140	10	-	416	16

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

TENDER DRAWING

Prepared by :-

WAPCOS LTD.

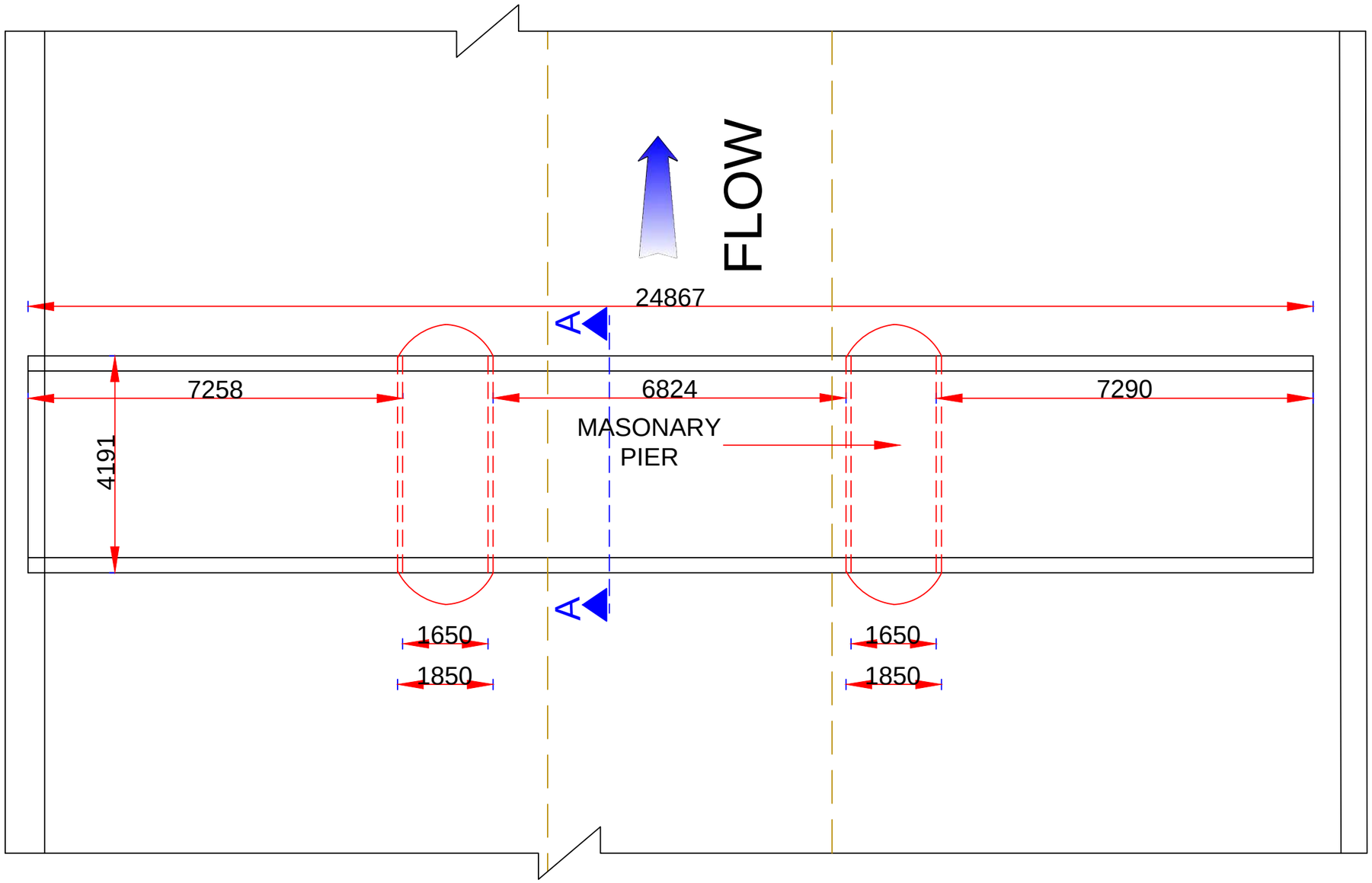
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR BRIDGE AT KM 1.807 WITH TWO BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-01 12 of 12
Drawn by:-	Checked by:- Approved by:-



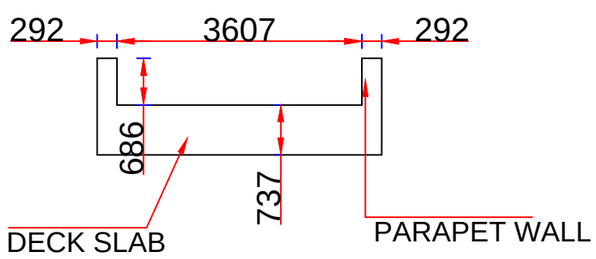
S.L.R. BRIDGE

AT

CH. 2.560 KM



PLAN



SECTION A-A

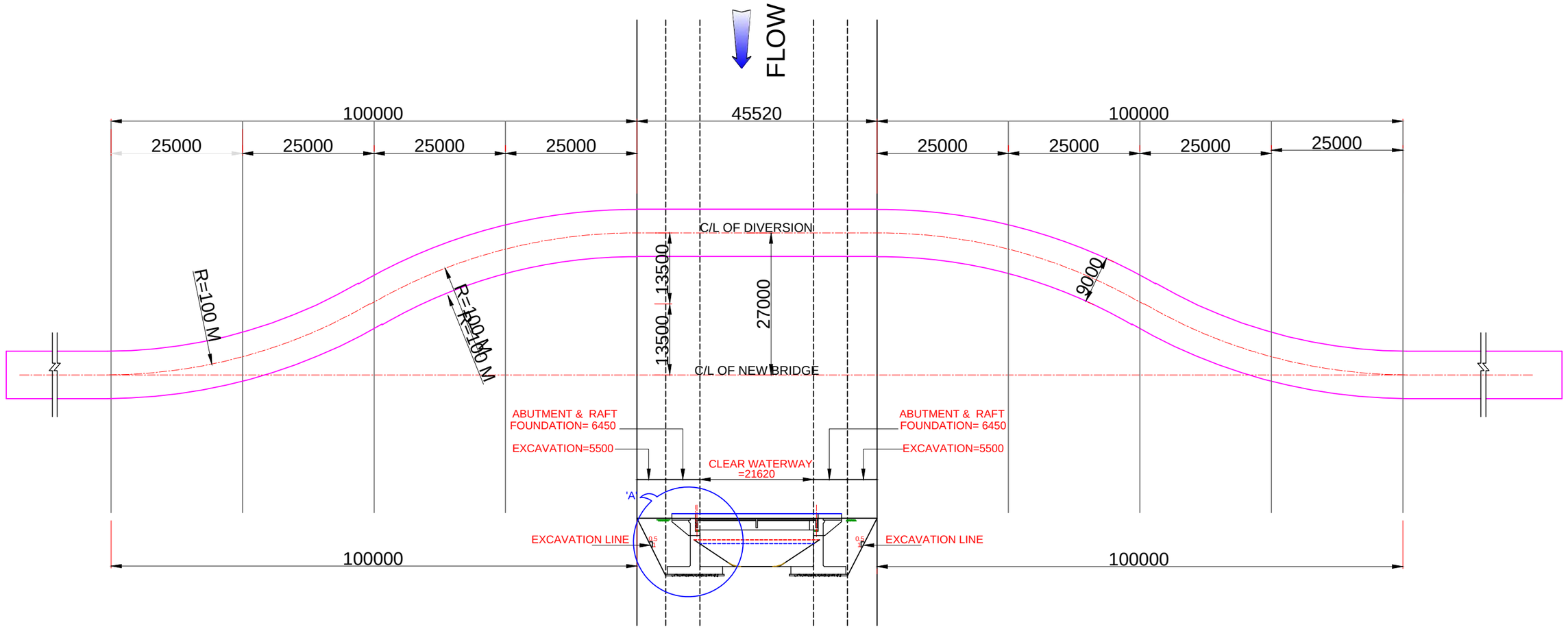
NOTES:

1 ALL DIMENSIONS ARE IN mm.

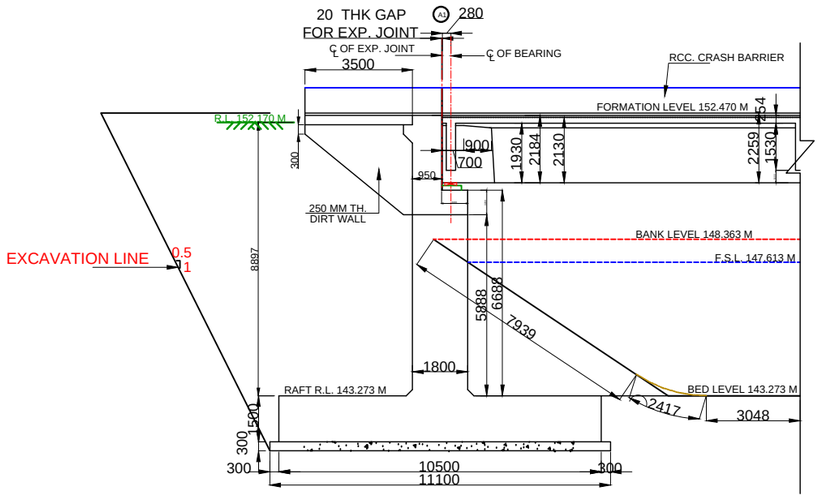
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	EXISTING PLAN OF SINGLE LANE ROAD BRIDGE AT CH. 2.560 KM
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-02 01 of 13
	Drawn by:-	Checked by:- / Approved by:-



SKETCH OF DIVERSION PLAN AT KM 2.560 FOR S.L.R. BRIDGE



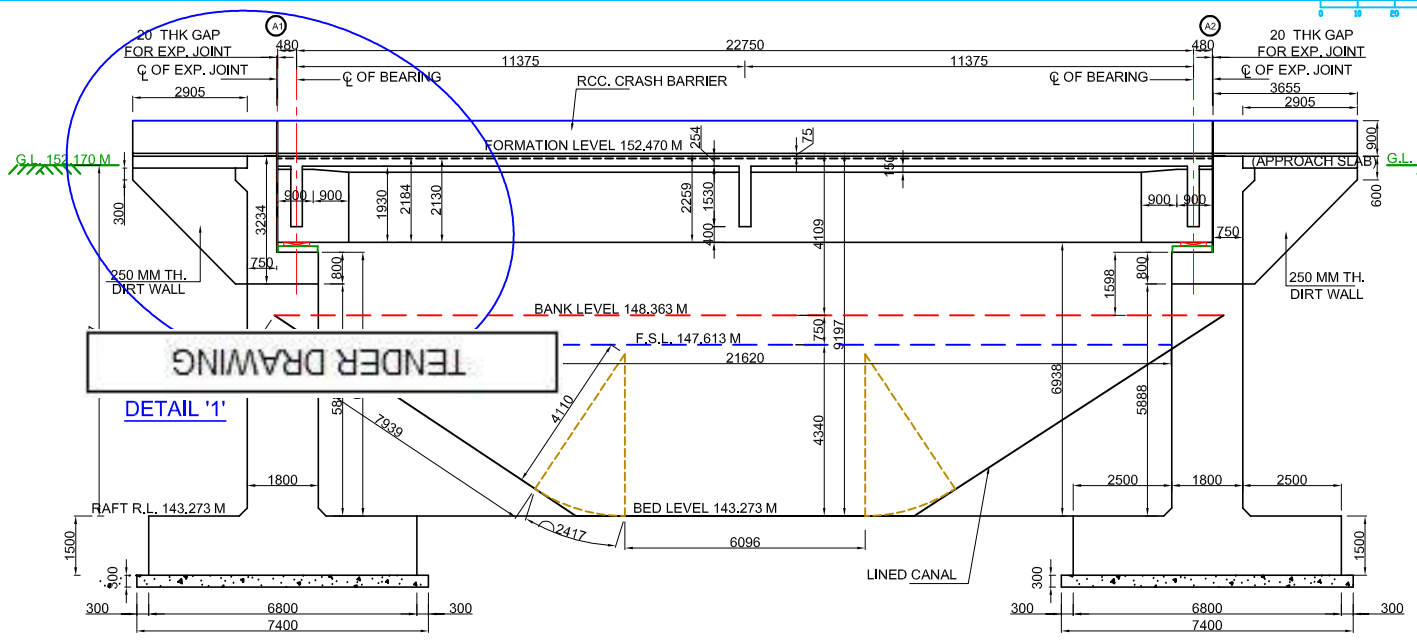
DETAIL SECTION AT 'A'

NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

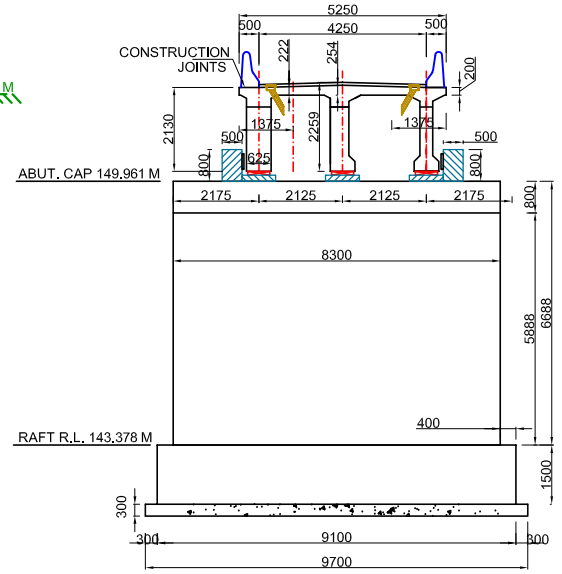
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 2.560 FOR S.L.R. BRIDGE
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 02 — 02 of 13
	Drawn by:-	Checked by:- / Approved by:-



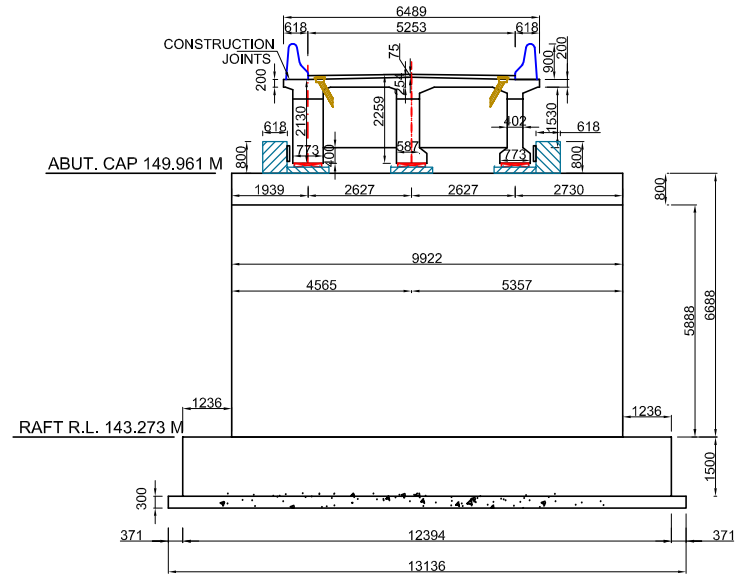
SECTION 1-1

(SCALE A)



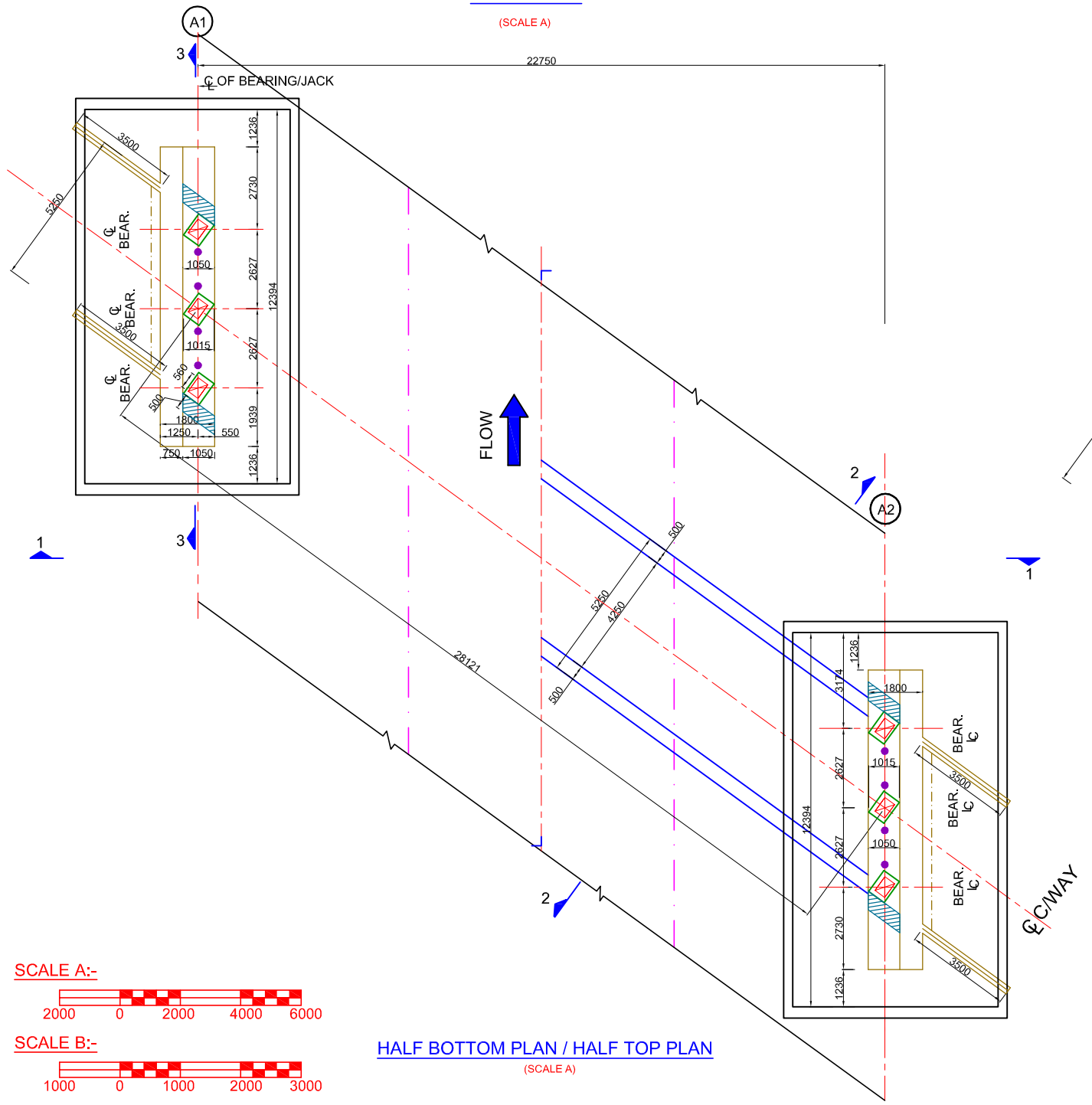
SECTION 2-2
ACROSS THE ROAD AT C/L OF BEARING

(SCALE A)



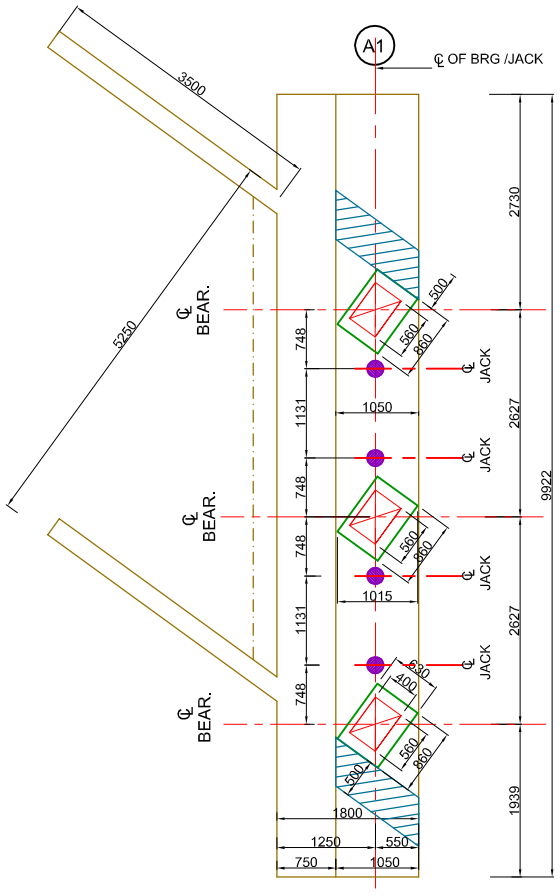
SECTION 3-3
ALONG THE CANAL AT C/L OF BEARING

(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN

(SCALE A)



PLAN OF ABUTMENT AT BEARING LEVEL

(SCALE B)

SCALE A:-

2000 0 2000 4000 6000

SCALE B:-

1000 0 1000 2000 3000

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	84.15 CUMEC
BED LEVEL	143.273 M
WATER DEPTH	4.340 M
F.S.L.	147.613 M
FREE BOARD	0.75 M

7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a)	RAFT	M35
b)	ABUTMENT	M25
c)	SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d)	CRASH BARRIER	M30
e)	PEDESTAL (SEISMIC)	M35
f)	WEARING COAT	M30

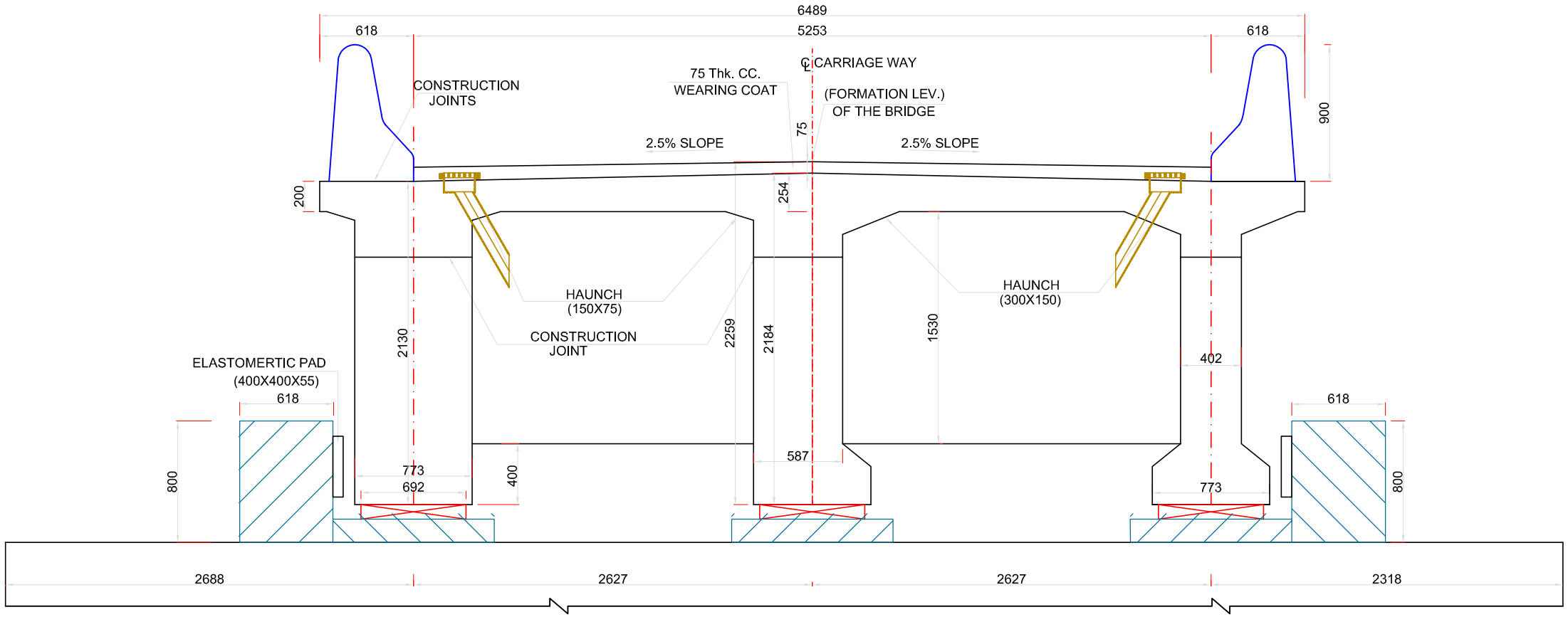
8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0°
ROAD LEVEL	152.470 M
GROUND LEVEL	152.170 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M

9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

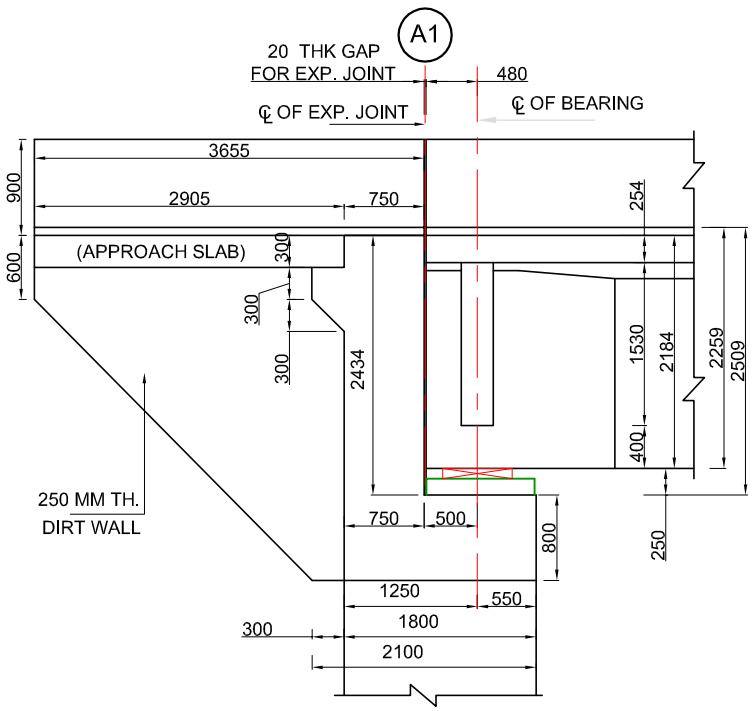
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR SKEW BRIDGE AT KM 2.560 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-02	03 of 13
	Drawn by:-	Checked by:-	Approved by:-



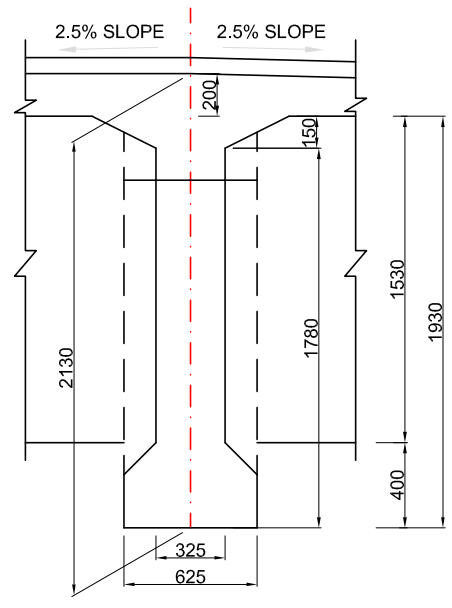
SECTION 3-3
ALONG THE CANAL AT C/L OF BEARING

(SCALE C)



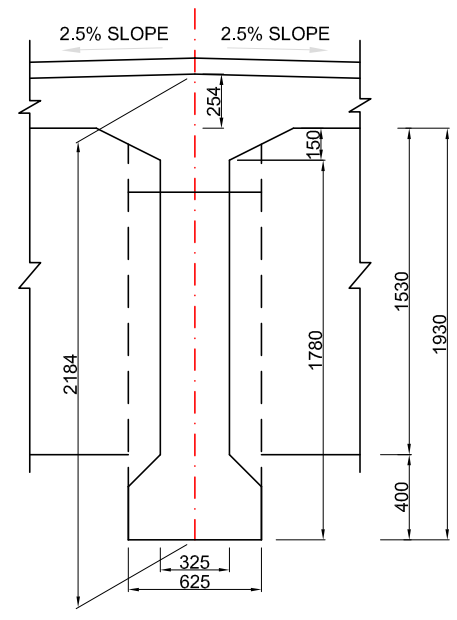
DETAIL - `D1'

(SCALE B)



CROSS SECTION OF RCC 'I' OUTER GIRDER

(SCALE C)



CROSS SECTION OF RCC 'I' INTERMEDIATE GIRDER

(SCALE C)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe550 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.

SCALE B:-

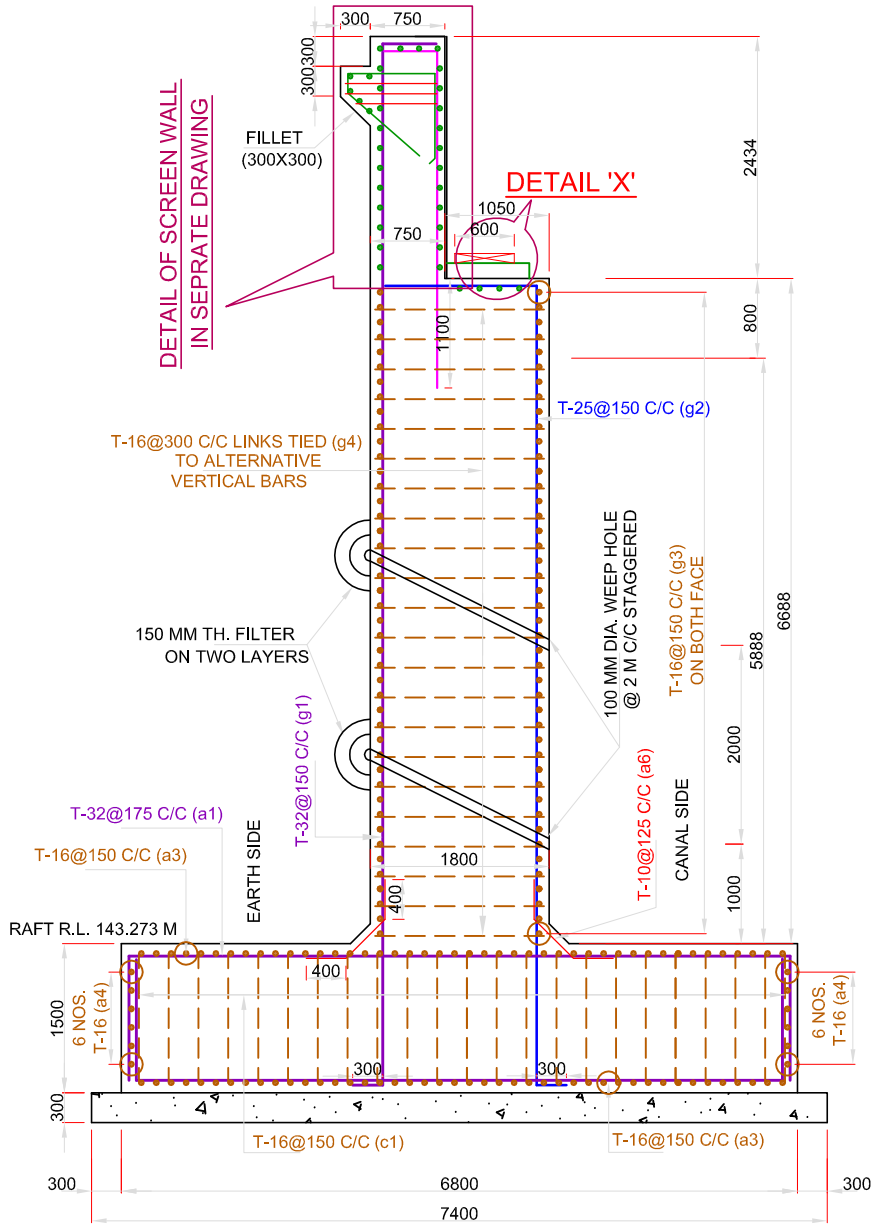
1000 0 1000 2000 3000

SCALE C:-

500 0 500 1000 1500

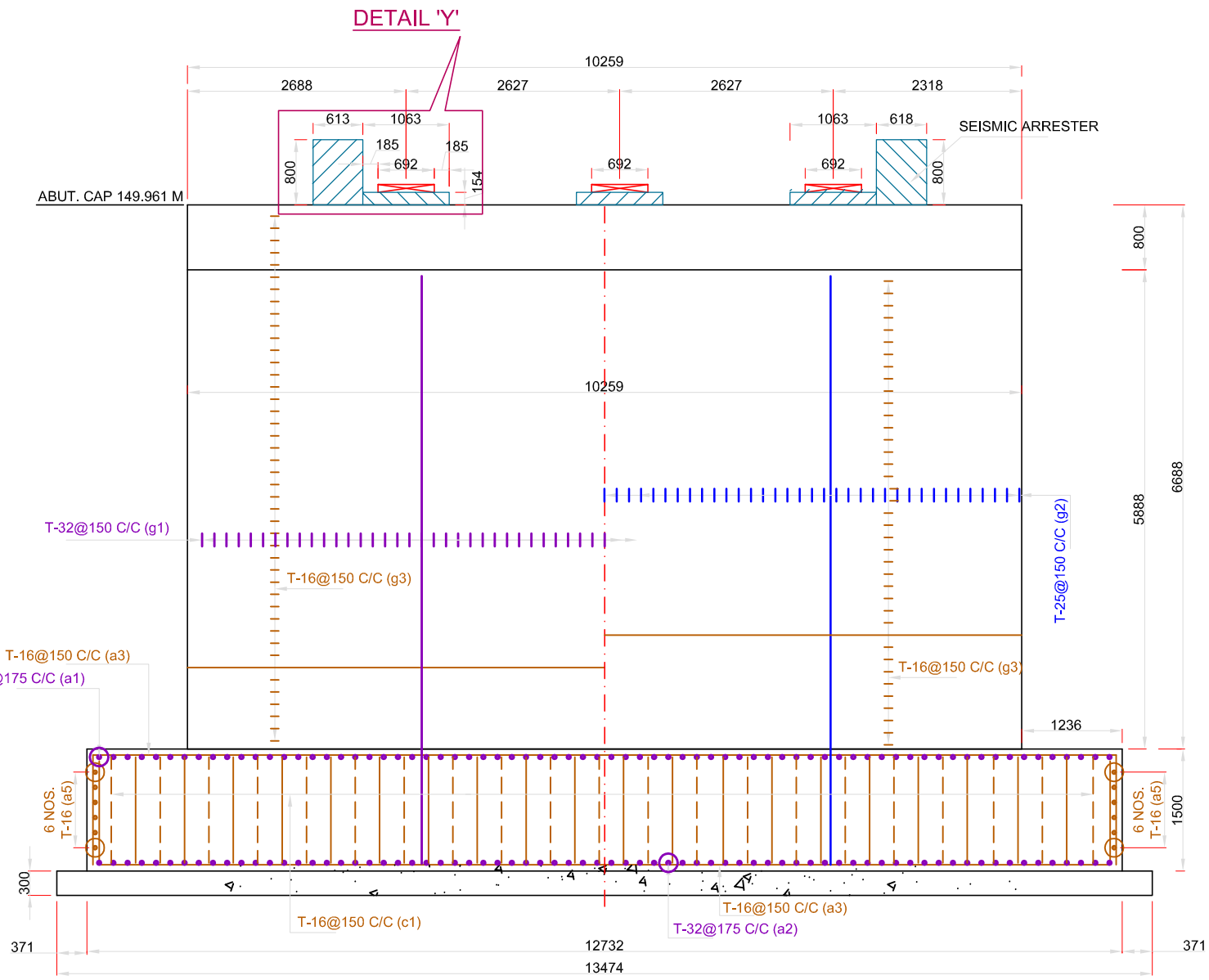
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR SKEW BRIDGE AT KM 2.560 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-02 04 of 13
	Drawn by:-	Checked by:- / Approved by:-



SIDE VIEW OF ABUTMENT

(SCALE A)



CROSS SECTION OF ABUTMENT
HALF EARTH SIDE / HALF CANAL SIDE

(SCALE A)

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	600, 10397, 300	32	150	67X2
	2	g2	1325, 7963, 300	25	150	67X2
	3	g3	708, 10109, 708	16	150	44X2X2
	4	g4	150, VERTICAL LINK BARS 1650, 150	16	300	11X17X2
IN RAFT FOR ABUTMENT	5	a1	1000, 6650, 1000	32	175	72X2
	6	a2	1000, 6650, 1000	32	175	72X2
	7	a3	700, 700, 12580, 12580, 700, 700	16	150	45X2X2
	8	a4	700, 12580, 700	16	-	6X2X2
	9	a5	700, 6650, 700	16	-	6X2X2
	10	a6	400, 560, 400, 400, 560, 400	10	125	81X2X2
	11	c1	150, 1350, 150	16	300	11X21x2

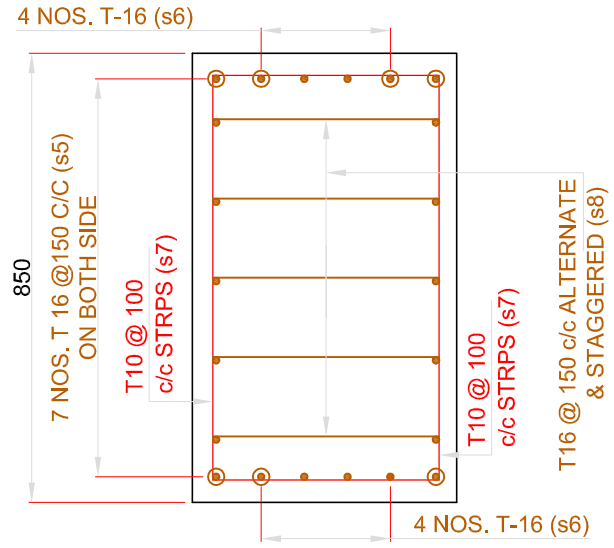
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

TENDER DRAWING

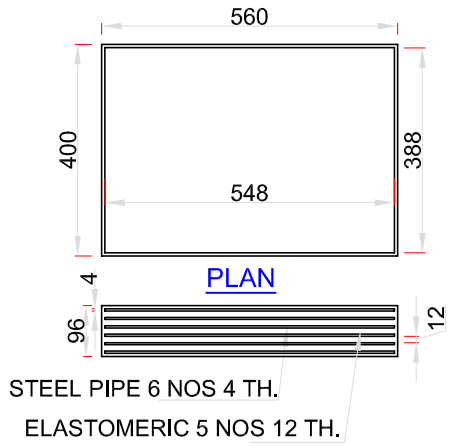
SCALE A:- 500 0 500 1000 1500

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SLR SKEW BRIDGE AT KM 2.560 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-02 05 of 13
	Drawn by:-	Checked by:- / Approved by:-



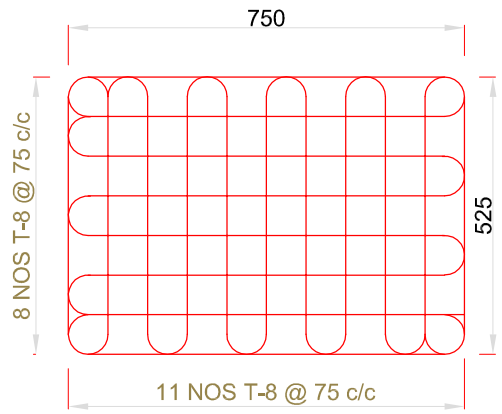
SECTION H-H

SCALE A



DETAILS OF ELASTOMERIC BEARINGS

SCALE A

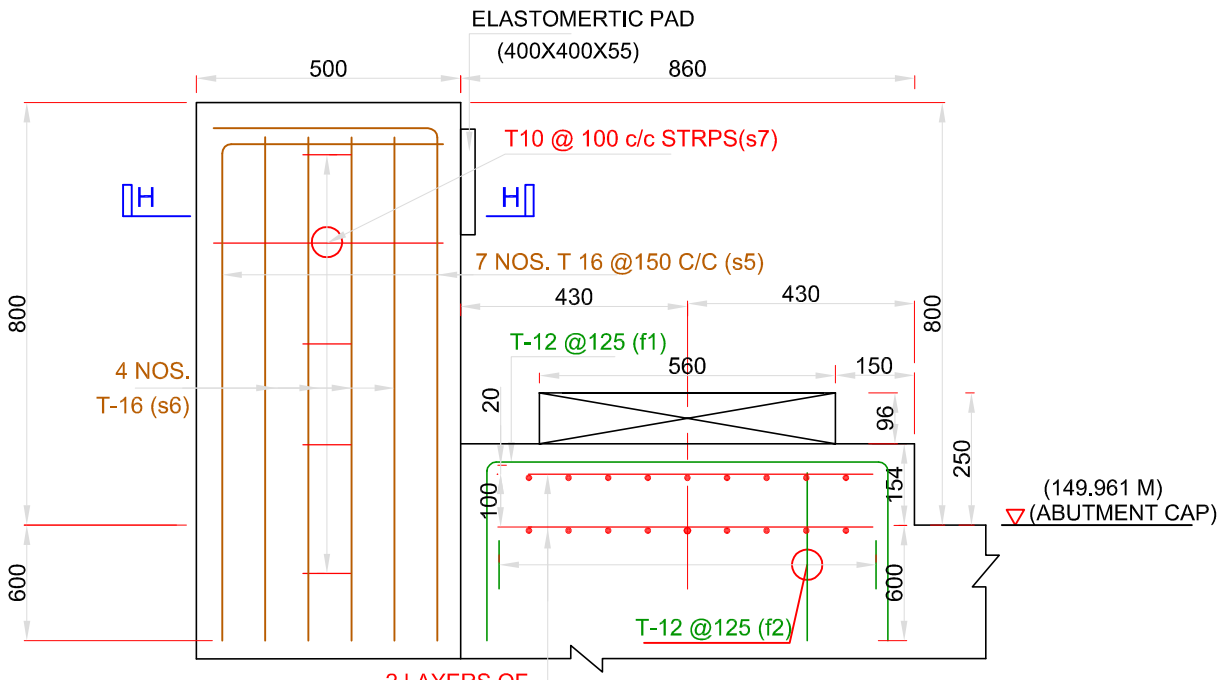


DETAIL OF MESH M1 (MESH BELOW BEARING LOCATION)

SCALE A

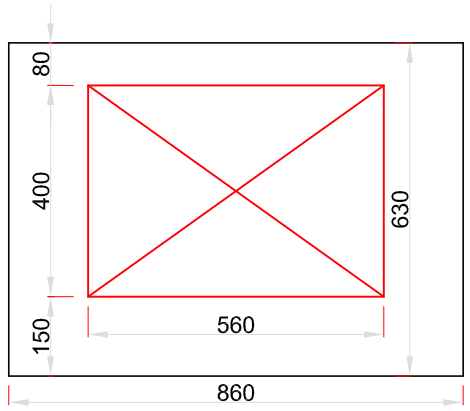
BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5	400 1350	16	150	14X2X2
	2	s6	150 1350 150	16	-	8X2X2
	3	s7	750 400 400 750	10	100	5X2X2
	4	s8	150 400 150	16	150	5x2x2
PEDESTAL FOR ABUTMENT	5	f1	633 730 633	12	125	5X2X2
	6	f2	633 530 633	12	125	5X2X2



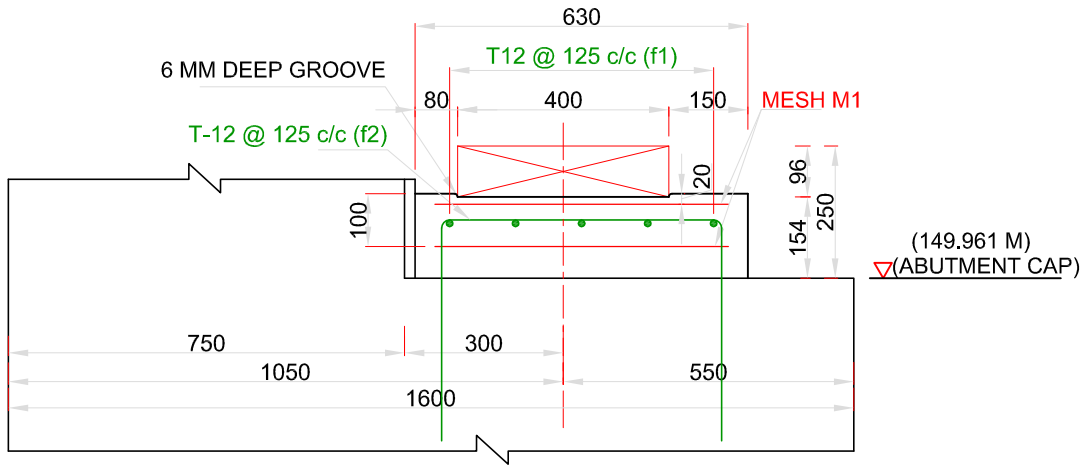
DETAIL 'Y'

SCALE A



PLAN

SCALE A



DETAIL 'X'

SCALE A

SCALE A:-

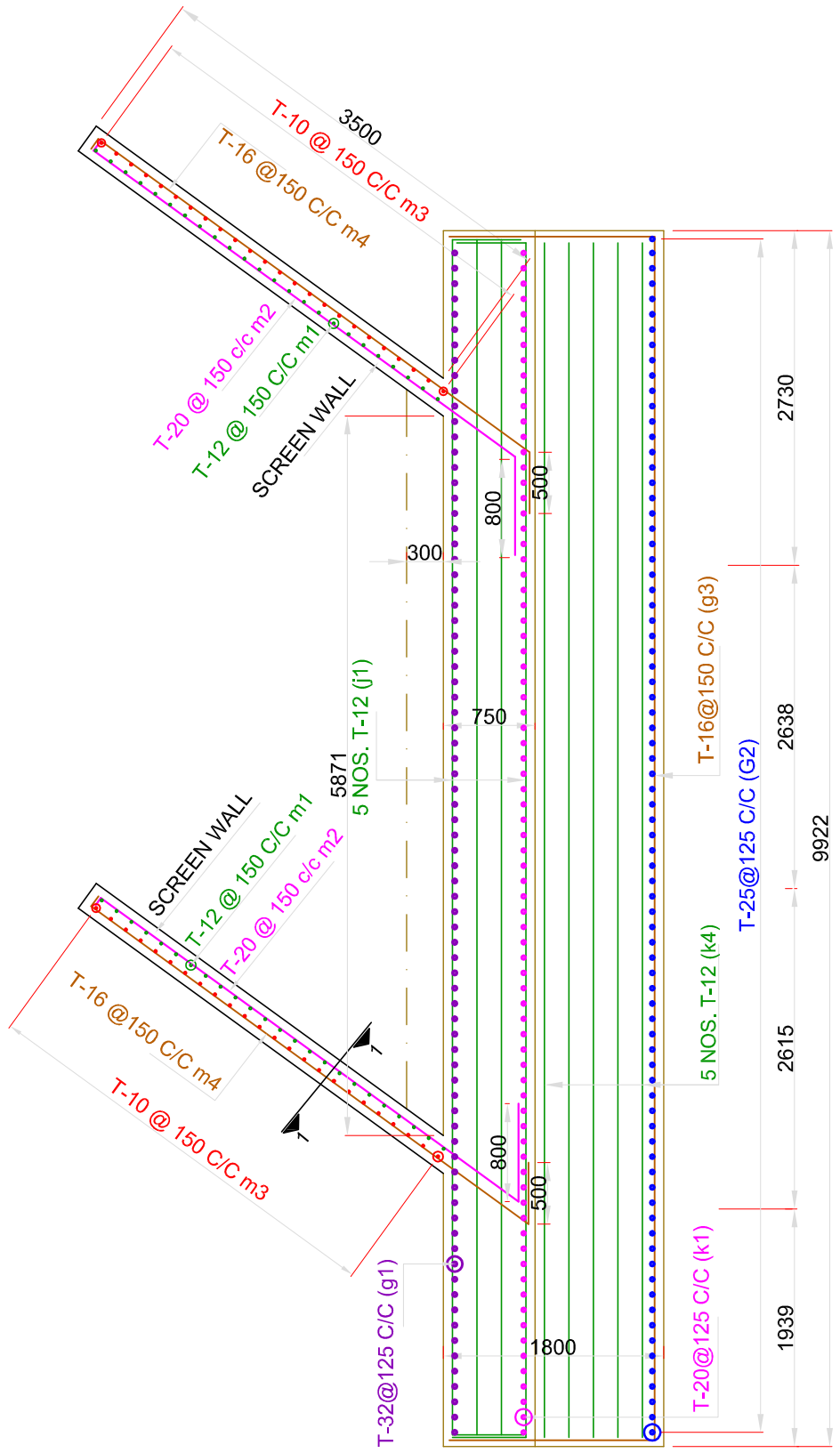
125 0 125 250 375

NOTES

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2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

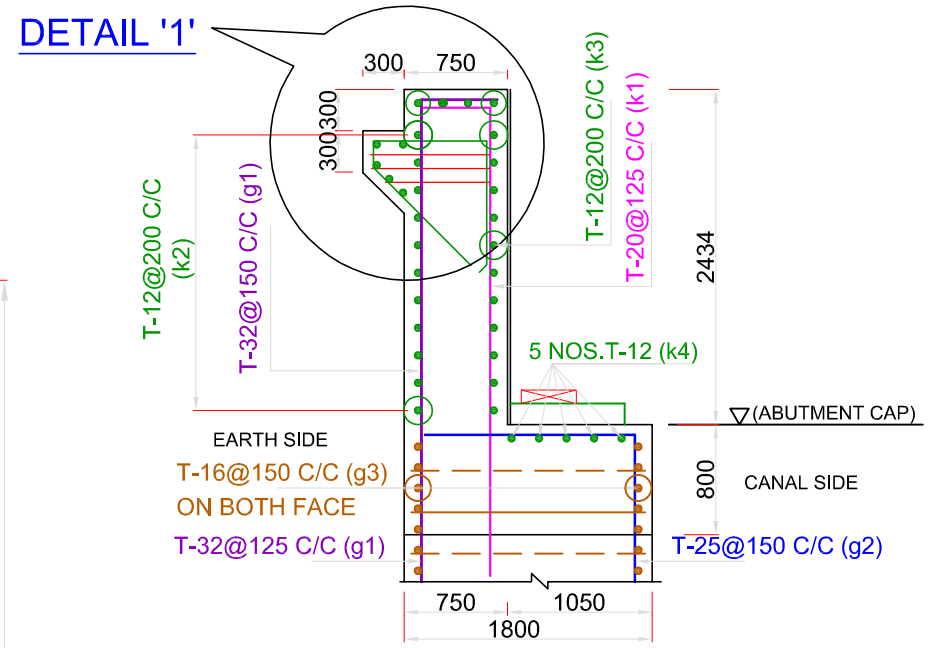
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL OF SLR SKEW BRIDGE AT KM 2.560 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-02 06 of 13
	Drawn by:-	Checked by:- / Approved by:-



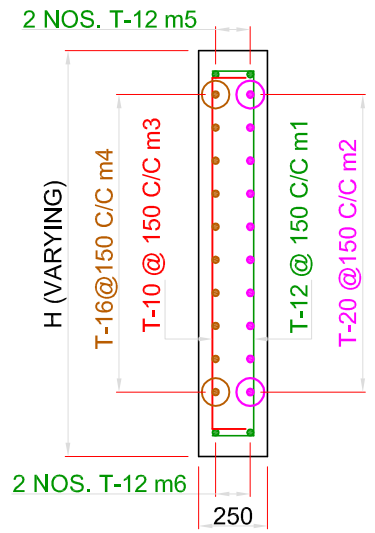
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL

SCALE A



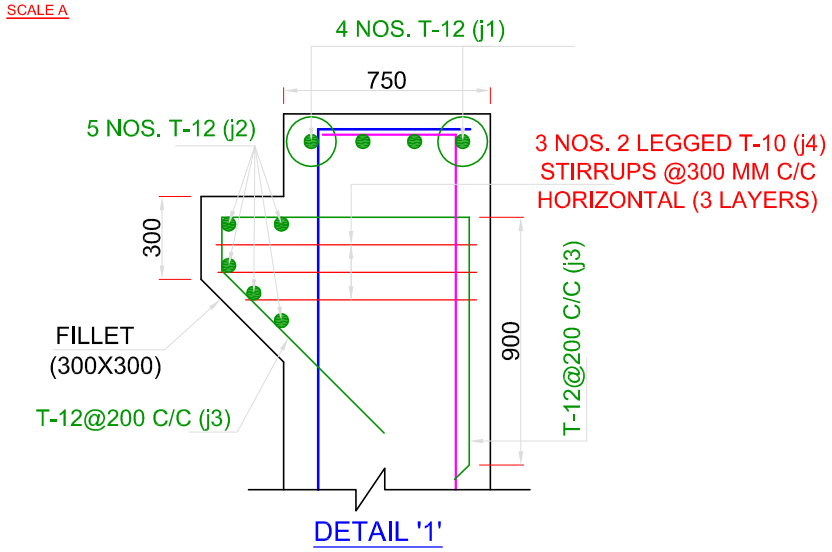
REINFORCEMENT DETAILS IN SECTION OF DIRT

SCALE A



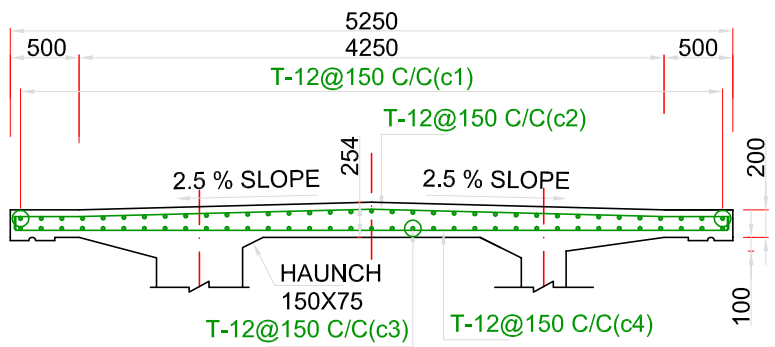
SECTION AT 1-1

SCALE B



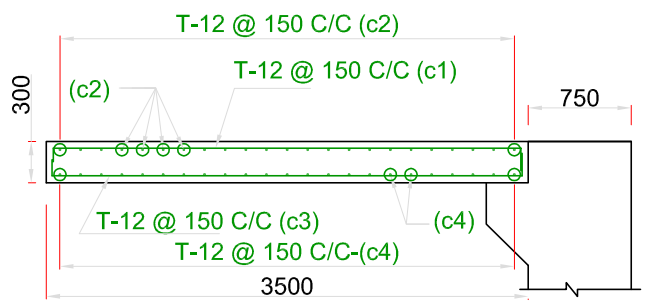
DETAIL '1'

SCALE B



REINFORCEMENT IN APPROACH SLAB

SCALE A



SECTION OF APPROACH SLAB

SCALE A

BARS BENDING SCHEDULE

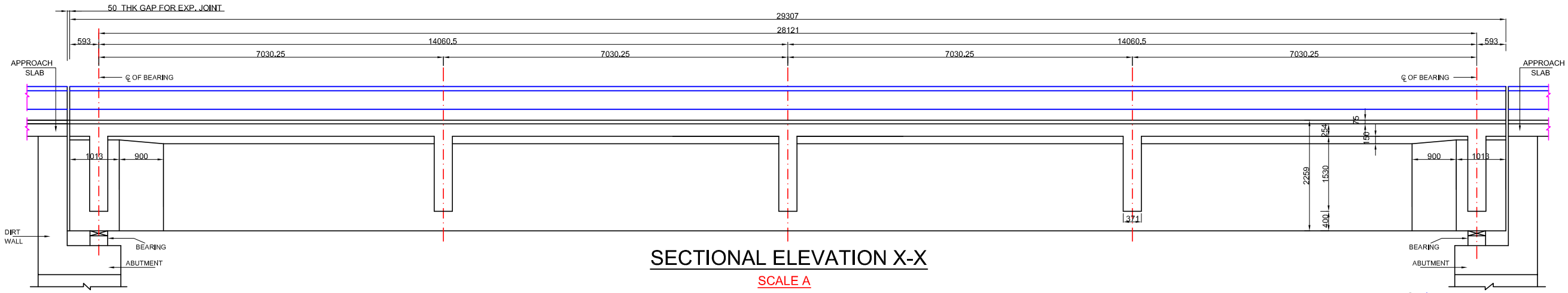
	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
DIRT WALL	1	k1	700, 3459	20	125	79X2
	2	k2	150, 9772, 150	12	200	11X2
	3	k3	150, 9772, 150	12	200	11X2
	4	k4	150, 9772, 150	12	200	5X2
	5	j1	150, 9772, 150	12	-	4X2
	6	j2	150, 5721, 150	12	-	5X2
	7	j3	900, 195, 850, 900	12	-	27X2
	8	j4	LV= 890, 5721, 5721, 890	10	300	3X2
SCREEN WALL	9	m1	150, 305 TO 2834 VARYING, 150	12	150	23X2X2
	10	m2	150, 823 TO 4050 VARYING, 800, 150, 800	20	150	19X2X2
	11	m3	150, 305 TO 2834 VARYING, 150	10	150	23X2X2
	12	m4	150, 823 TO 4050 VARYING, 500, 150, 500	16	150	19X2X2
	13	m5	230, 4050, 230	12	-	2X2X2
	14	m6	230, 4262, 730	12	-	2X2X2
APPROACH SLAB	15	c1	150, 3350, 150	12	150	34X2
	16	c2	150, 450, 2125, 2125, 450, 150	12	150	23X2
	17	c3	150, 3350, 150	12	150	34X2
	18	c4	150, 5150, 150	12	150	23X2

SCALE A:- 500 0 500 1000 1500

SCALE B:- 250 0 250 500 750

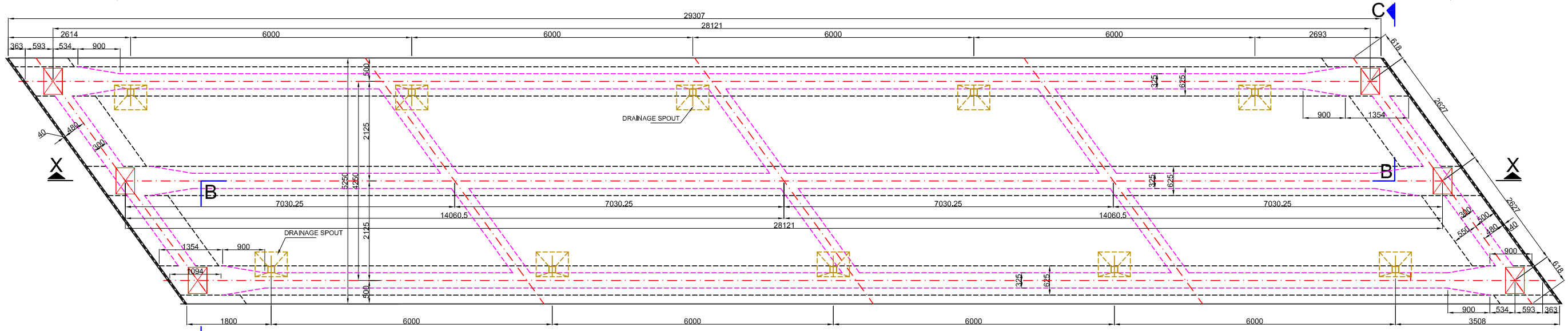
TENDER DRAWING

Prepared by :- WAPCOS LTD. (वाप्कोस लिमिटेड WAPCOS LIMITED)	
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 2.560 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-02 07 of 13
Drawn by:-	Checked by:- / Approved by:-



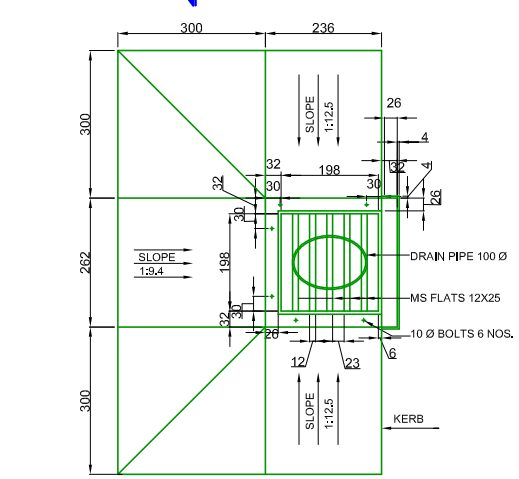
SECTIONAL ELEVATION X-X

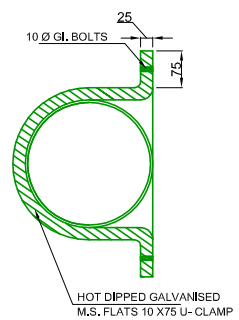
SCALE A

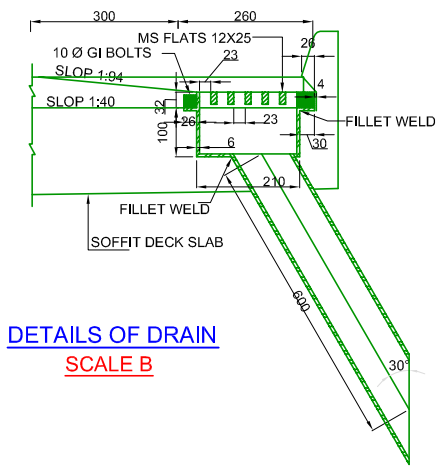


PLAN

SCALE A

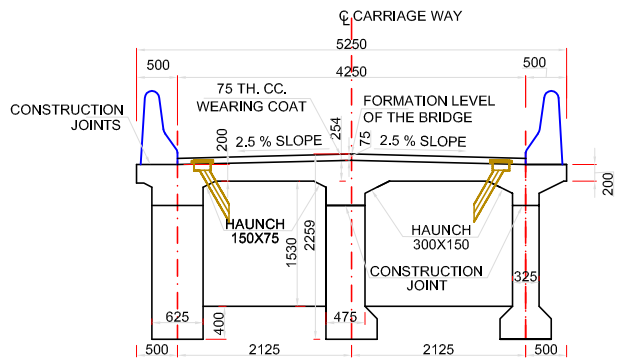






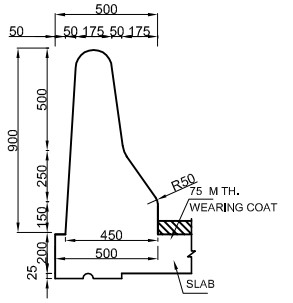
DETAILS OF DRAIN

SCALE B



SECTION ABC

SCALE A



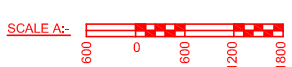
DETAILS OF CRASH BARRIER

SCALE B

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.

SCALE A:-



SCALE B:-

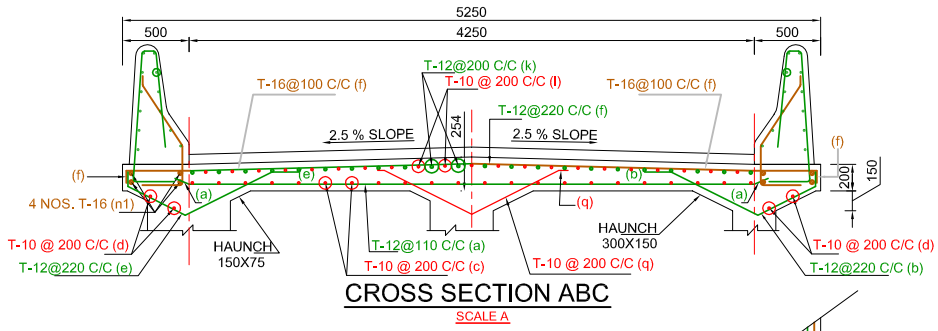


NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
7. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
8. REINFORCED OF CRASH BARIER SHOULD BE SUITABLY EMBEDDED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.

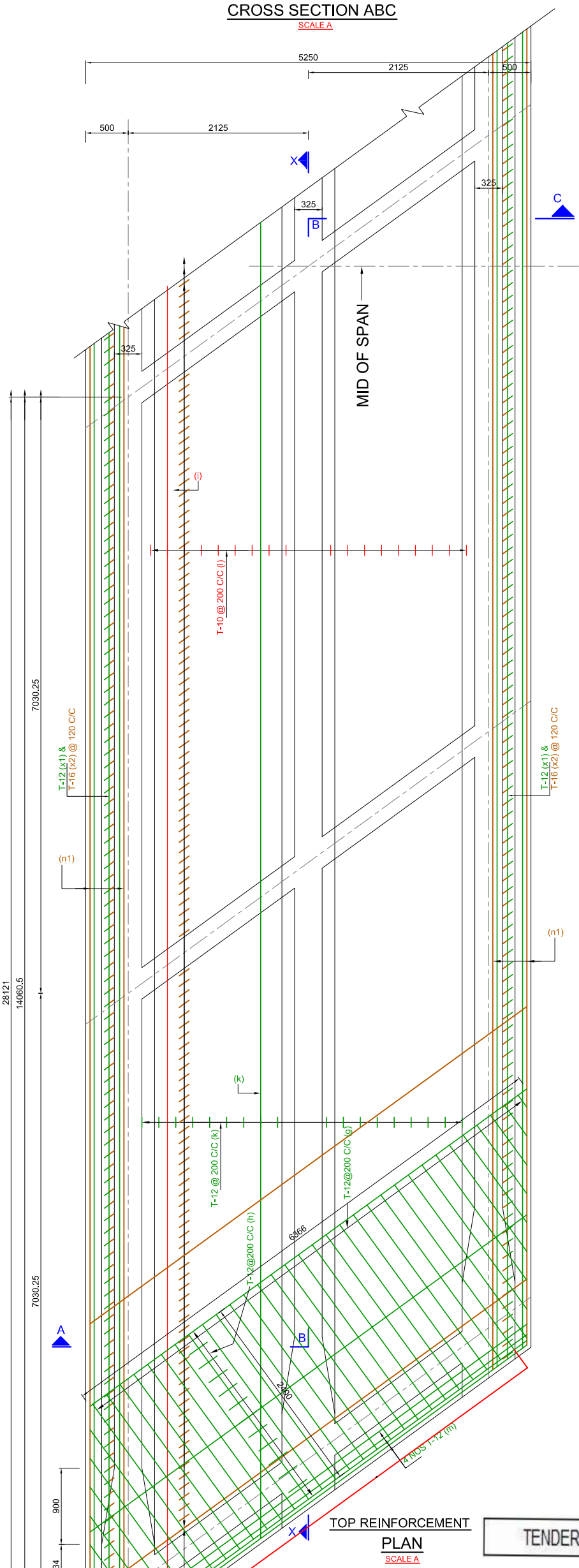
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	DETAIL DRAWING OF DECK SLAB OF SLR SKEW BRIDGE AT KM 2.560 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-02	08 of 13
	Drawn by:-	Checked by:-	Approved by:-



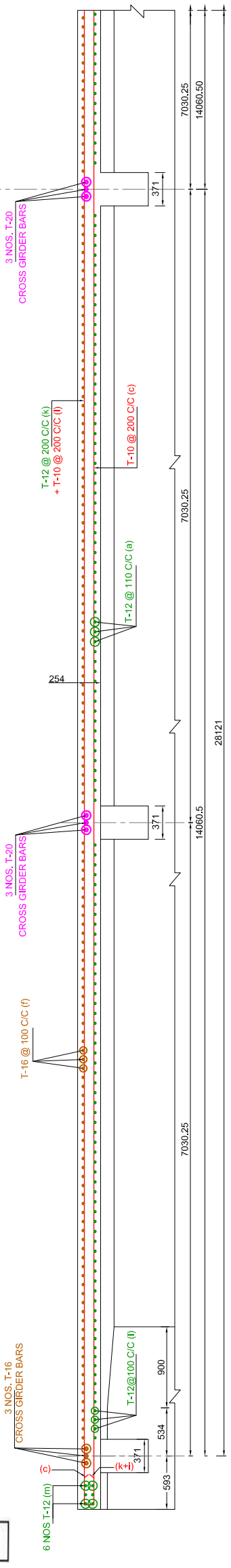
CROSS SECTION ABC

SCALE A



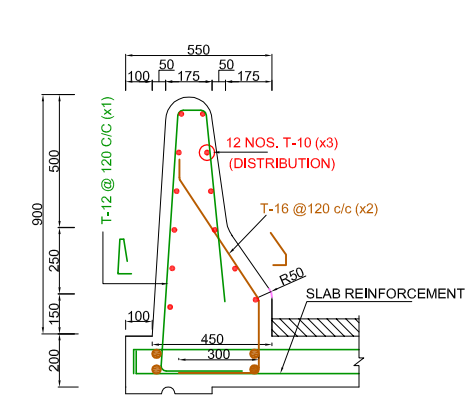
TOP REINFORCEMENT PLAN

SCALE A



SECTIONAL ELEVATION X-X

SCALE A



REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

SCALE A:-

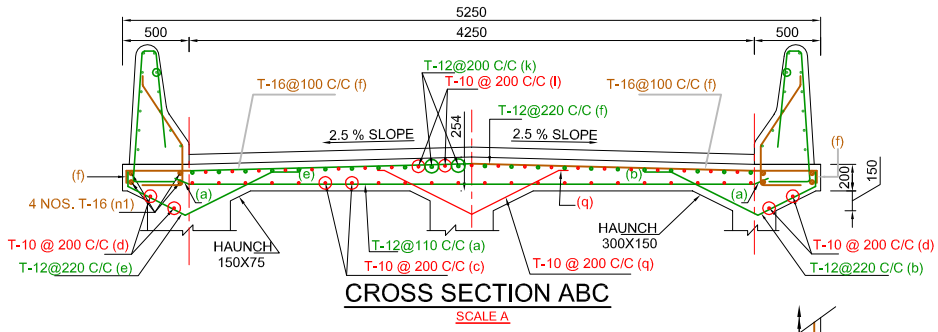


SCALE B:-



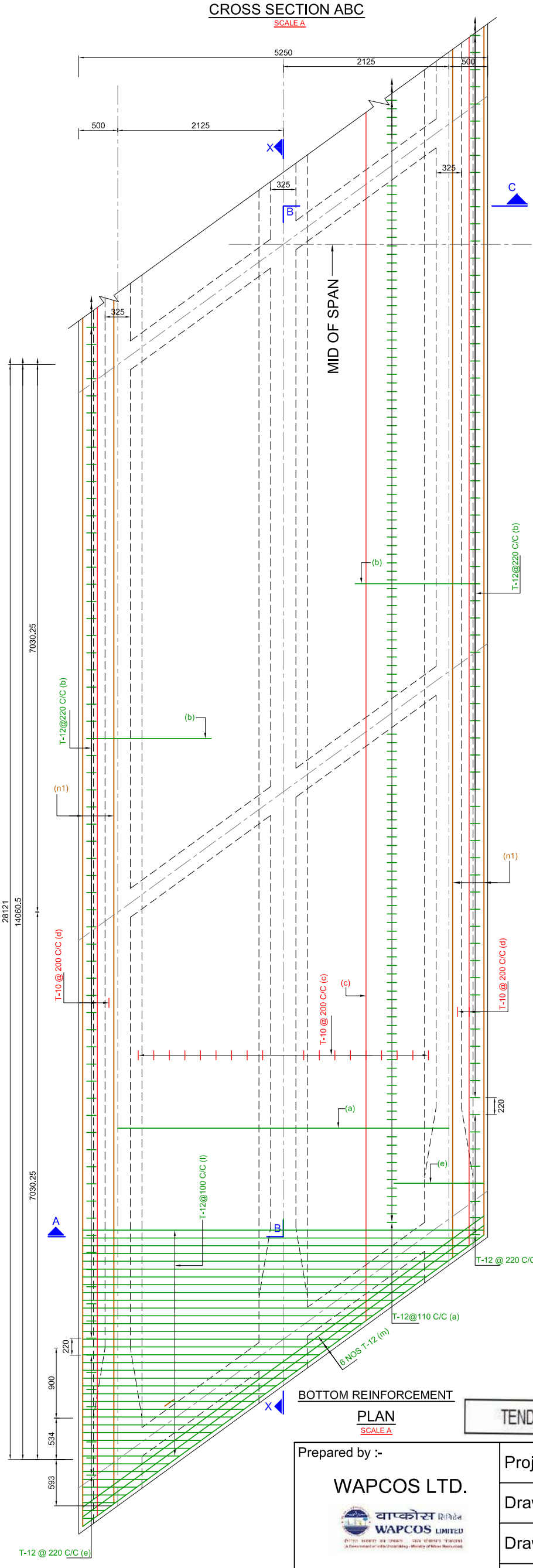
TENDER DRAWING

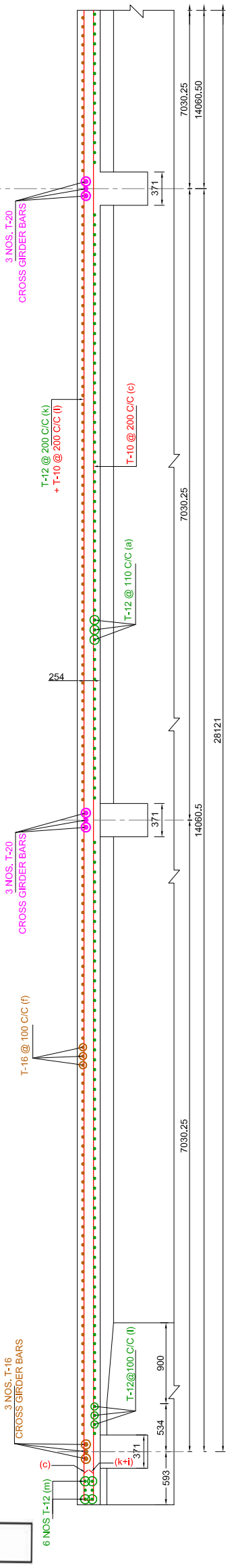
Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	TOP REINFORCEMENT DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 2.560 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-02 09 of 13
	Drawn by:-	Checked by:- / Approved by:-



CROSS SECTION ABC

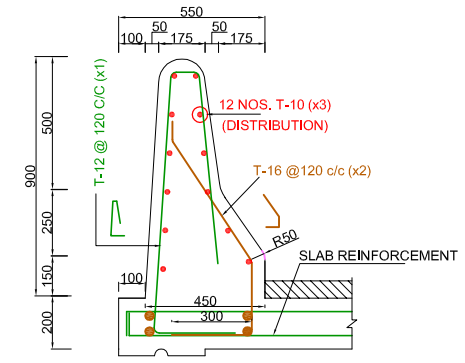
SCALE A





SECTIONAL ELEVATION X-X

SCALE A



REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B

REFERENCES:-

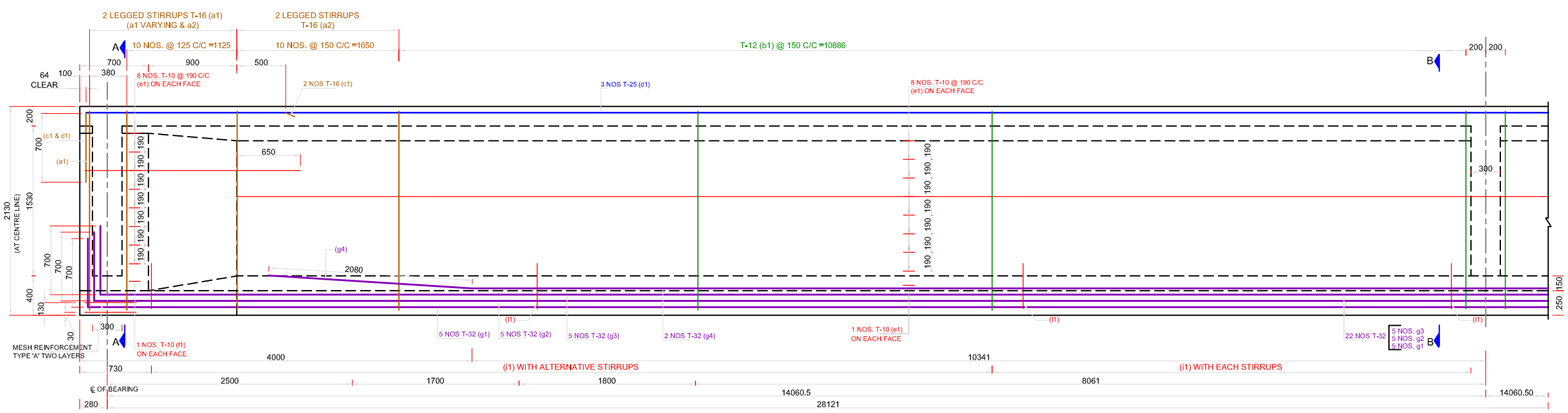
1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

SCALE A:- 500 0 500 1000 1500

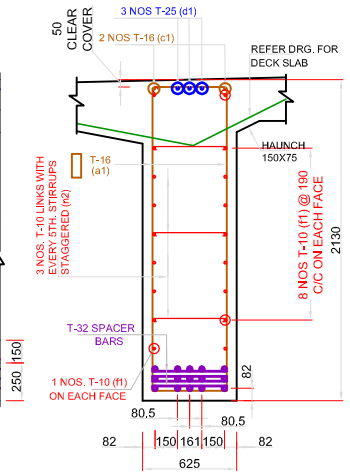
SCALE B:- 250 0 250 500 750

TENDER DRAWING

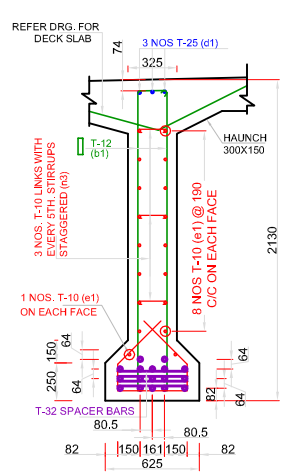
Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	BOTTOM REINFORCEMENT DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 2.560 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-02 10 of 13
	Drawn by:-	Checked by:- Approved by:-



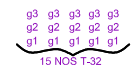
LONGITUDINAL SECTION OF OUTER GIRDER



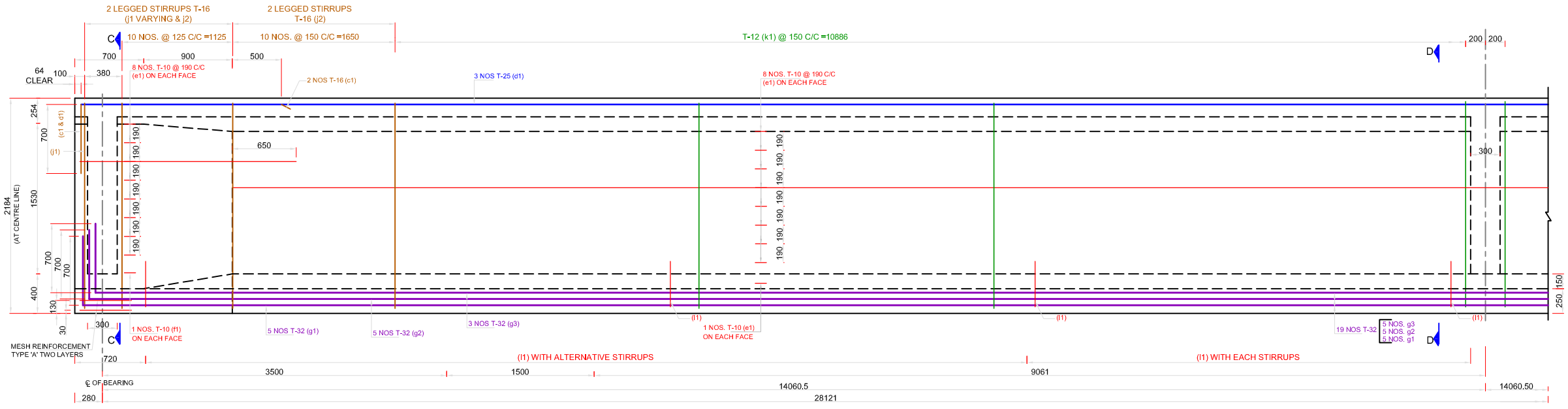
SECTION A-A



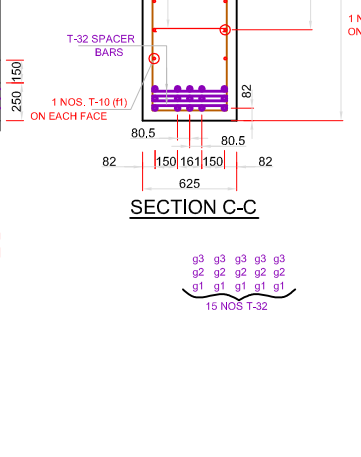
SECTION B-B



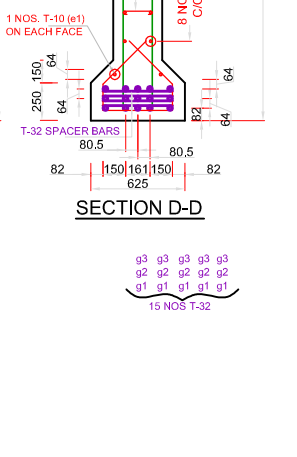




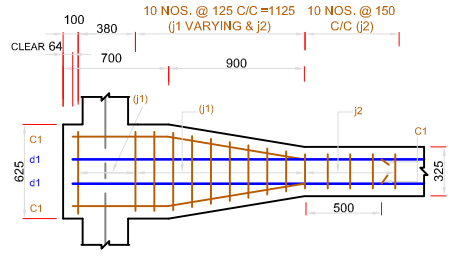
LONGITUDINAL SECTION OF INNER GIRDER



SECTION C-C

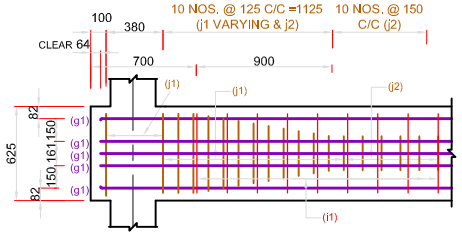


SECTION D-D



INNER GIRDER

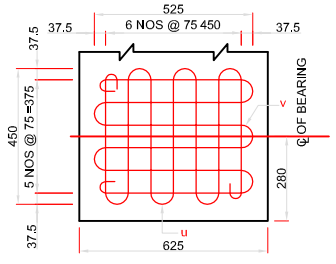
PLAN SHOWING TOP REINFORCEMENT AT THE END



INNER GIRDER

PLAN SHOWING BOTTOM REINFORCEMENT AT THE END

(SIMILAR DETAILING WILL BE FOLLOWED FOR OUTER GIRDERS)

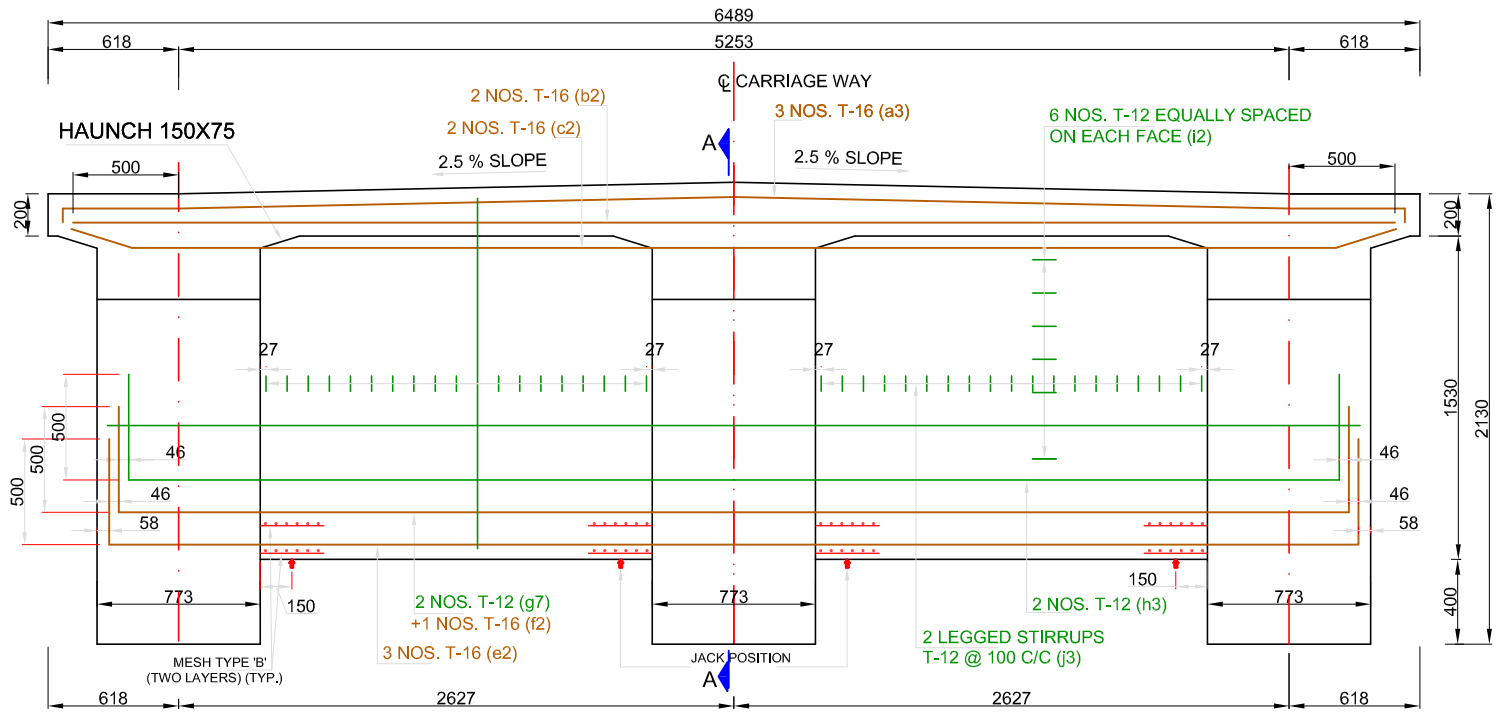


T-8 MESH REINFORCEMENT

TYPE - 'A'

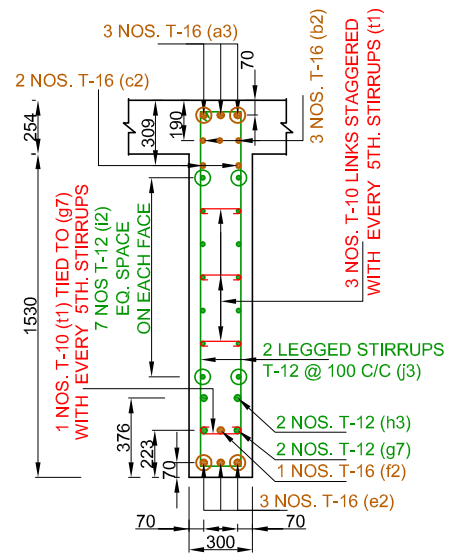
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR SKEW BRIDGE AT KM 2.560 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-02	11 of 13
	Drawn by:-	Checked by:-	Approved by:-



LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A

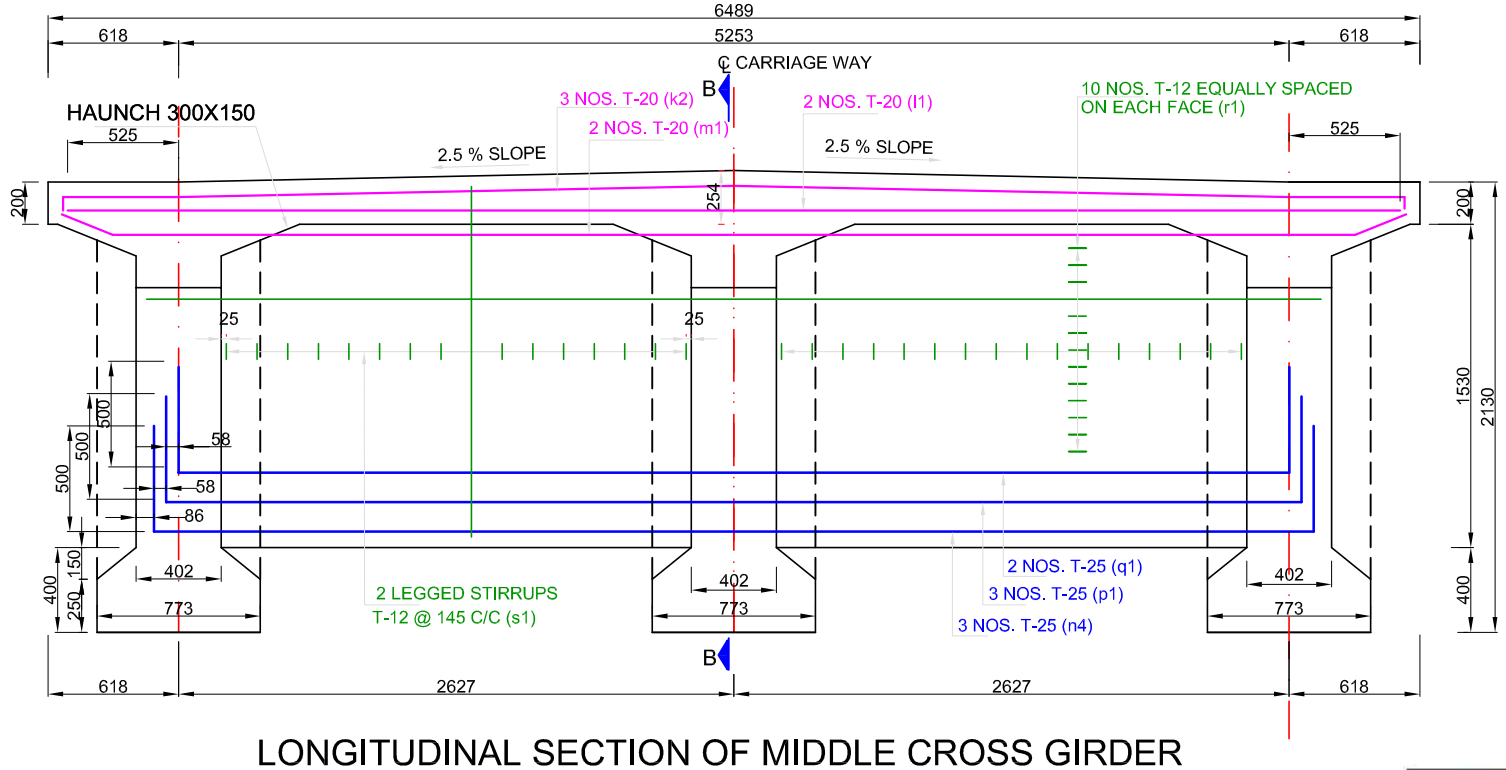


SECTION A-A

SCALE A

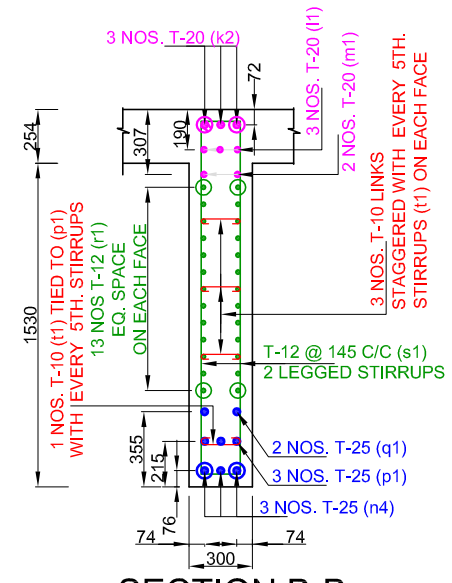
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



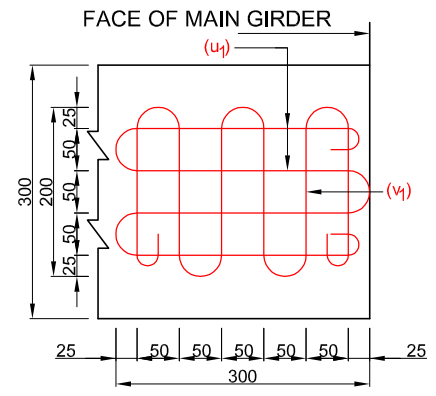
LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A



SECTION B-B

SCALE A

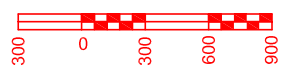


T-8 MESH REINFS. TYPE - 'B'

SCALE B

TENDER DRAWING

SCALE A:-



SCALE B:-



REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/215.

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF SLR SKEW BRIDGE AT KM 2.560 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-02 12 of 13
	Drawn by:-	Checked by:- / Approved by:-

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a	4875	12	110	4875	196
2	b	110, 484, 726, 150	12	220	1470	190
3	c	150, 150, 29207, L VARYING FROM 109 TO 212	10	200	29707	22
4	d	140, 901, 24147, R-100, 140, L VARYING FROM 68 TO 270, 1490, R-100, VARYING FROM 0 TO 70	10	200	29207	4
5	e	VARYING FROM 420 TO 484, 150, VARYING FROM 726 TO 577, 110	12	220	1470	32
6	f	3183, 75, 75	12	100	6516	128
7	g	2400, 150	12	200	2550	23X2 + 18X2
8	h	6366	12	200	6366	13X2
9	i	29207, 150, 150, VARYING FROM 109 TO 212	10	200	29707	9X2
10	k	29207, 150, 150, VARYING FROM 109 TO 212	12	200	29707	9X2
11	l	VARYING FROM (144 TO 5150)	12	100	2647	38X2
12	m	6366	12	-	6366	3X2
13	n_1	29207	16	-	29207	4X2
14	q	150, 733, 733, 150	10	200	1766	146X2

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u	25, 30, 37.5, 375, 75 75 75 75 75 75, 375, 37.5, 30, 25	10	-	3550	8
2	v	75, 75, 75, 75, 75, 30, 30, 37.5, 450, 25	10	-	3506	8
CRASH BARRIER PER M						
1	x_1	75, 1000, 750, 300	12	120	2125	9
2	x_2	75, 540, 300, 250	16	120	1165	9
3	x_3	9350	10		1000	12

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a_1	L1=VARYING FROM 2028 TO 2032, L2 = VARYING FROM 2020 TO 2024, VARYING FROM 193 TO 493	16	125	5158	15X2X2
2	a_2	193, 2028, 2024, 193	16	150	4758	11X2X2
3	b_1	193, 2028, 2024, 193	12	150	4678	170X2
4	c_1	708, R=96, ELEVATION, 636, 166, 913, 500	16	-	2693	2X2X2
5	d_1	28517, R=96, 708, 708	25	-	29733	3X2
6	e_1	25480	10	-	2199	9X2X2
7	f_1	913, 650, 636, 160	10	-	25480	18X2X2
8	g_1	716, R=192, 716, 28517	32	-	29690	5X2
9	g_2	716, R=192, 716, 28389	32	-	29565	5X2
10	g_3	716, R=192, 716, 28261	32	-	29797	5X2
11	g_4	20680, 20680, 20680	32	-	24840	2X2
12	i_1	450, 450, 485, 315, 493	10	-	1733	126X2
12	n_2	140, L, 140, L = VARYING FROM 213 TO 513	10	-	583	18X2
14	n_3	140, 213, 140	10	-	433	132X2
LONGITUDINAL INNER GIRDER						
1	j_1	L1=VARYING FROM 2094 TO 2098, L2 = VARYING FROM 2086 TO 2090, VARYING FROM 193 TO 493	16	125	5290	15X2X1
2	j_2	193, 2090, 2094, 193	16	150	4890	11X2X1
3	k_1	193, 2090, 2094, 193	12	150	4810	170X1
4	c_1	708, R=96, ELEVATION, 636, 166, 913, 500	16	-	2693	2X2X1
5	d_1	28517, R=96, 708, 708	25	-	29733	3X1
6	e_1	25480	10	-	25480	9X2X1
7	f_1	913, 650, 636, 160	10	-	2199	18X2X1
8	g_1	716, R=192, 716, 28517	32	-	29690	5X1
9	g_2	716, R=192, 716, 28389	32	-	29565	5X1
10	g_3	716, R=192, 716, 28261	32	-	29797	5X1
11	i_1	450, 450, 485, 315, 493	10	-	1733	126X1
12	n_2	140, L, 140, L = VARYING FROM 213 TO 513	10	-	583	18X1
13	n_3	140, 213, 140	10	-	433	132X2

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a_3	3195, 95, 3195, 95	16	-	6484	3X2
2	b_2	1000, 6250, 1000	16	-	6253	2X2
3	c_2	300, 5693, 300	16	-	6197	2X2
4	e_2	508, 5911, 508	16	-	6831	3X2
5	f_2	508, 5819, 508	16	-	6637	1X2
6	g_7	506, 5819, 506	12	-	6637	2X2
7	h_3	506, 5727, 506	12	-	6565	2X2
8	i_2	233, 5825, 233	12	-	6219	6X2X2
9	j_3	176, L, 176, VARYING FROM 1665 to 1716	12	100	3833	19X2X2
10	t_1	140, 196, 140	10	-	416	30X2
MIDDLE CROSS GIRDERS						
1	k_2	3195, 95, 3195, 95	20	-	6460	3X3
2	l_1	1150, 6304, 1150	20	-	7600	2X3
3	m_1	280, 5878, 280	20	-	7600	2X3
4	n_4	500, 5486, 500	25	-	6281	3X3
5	p_1	514, 5370, 514	25	-	6165	3X3
6	q_1	512, 5254, 512	25	-	6045	2X3
7	r_1	529, 5525, 529	12	-	6487	10X2X3
8	s_1	L, 176, VARYING FROM 1617 to 1672	12	145	3742	16X2X3
9	t_1	140, 196, 140	10	-	416	24X3

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
1	u_1	30, 50, 50, 30, 50, 25, 250, 37.5	10	-	1453	16
2	v_1	50 50 50 50 50, 30, 37.5, 30, 150, 25	10	-	1510	16

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.

WAPCOS LIMITED

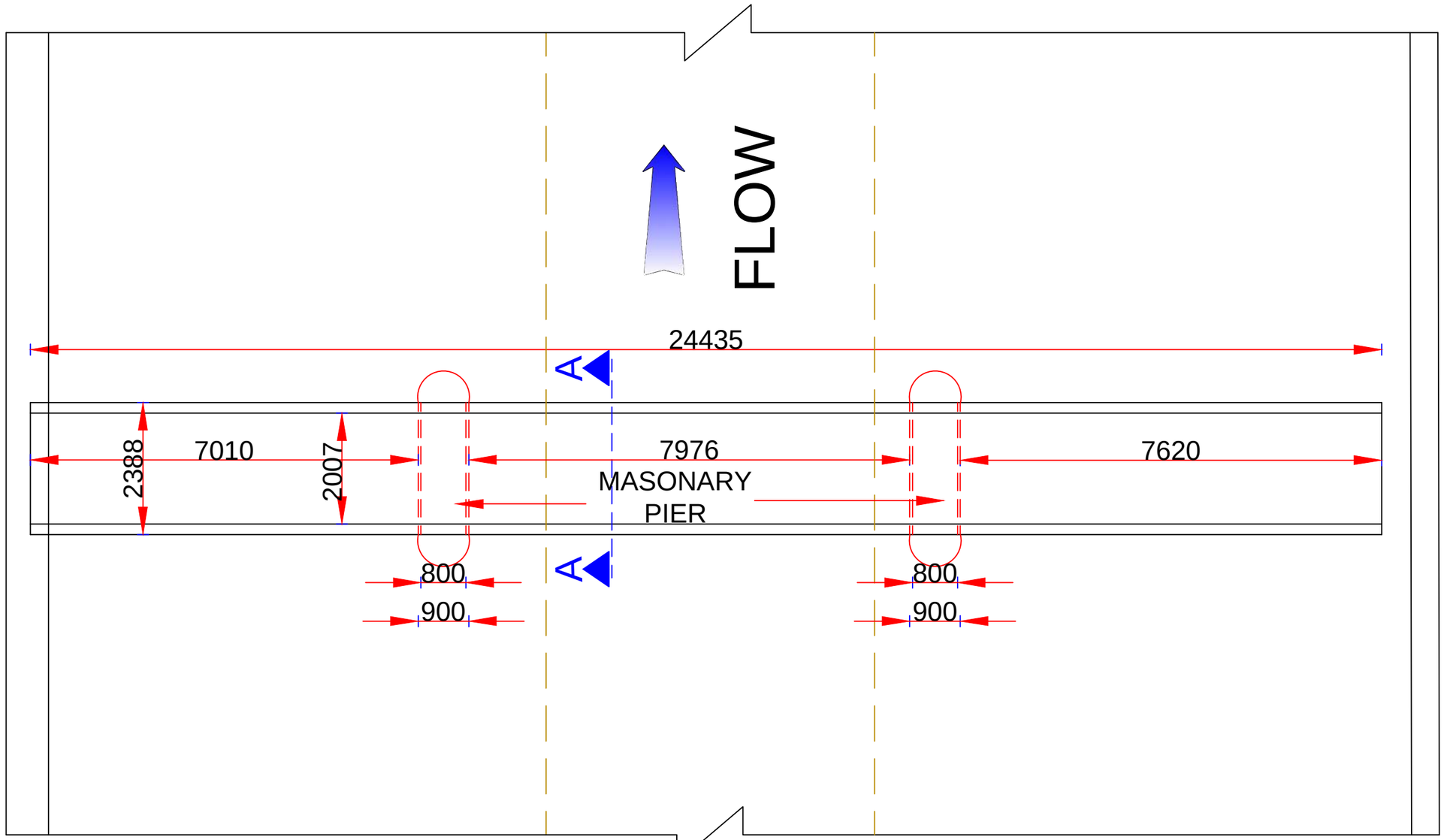
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR SKEW BRIDGE AT KM 2.560 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04 13 of 13
Drawn by:-	Checked by:- Approved by:-



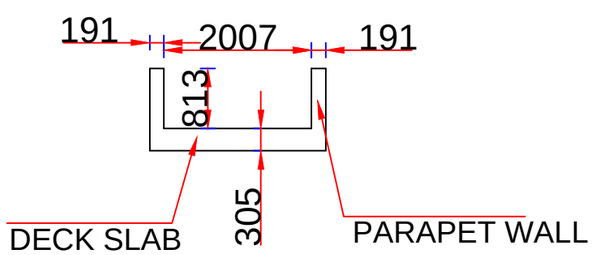
FOOT BRIDGE

AT

CH. 2.960 KM



PLAN



SECTION A-A

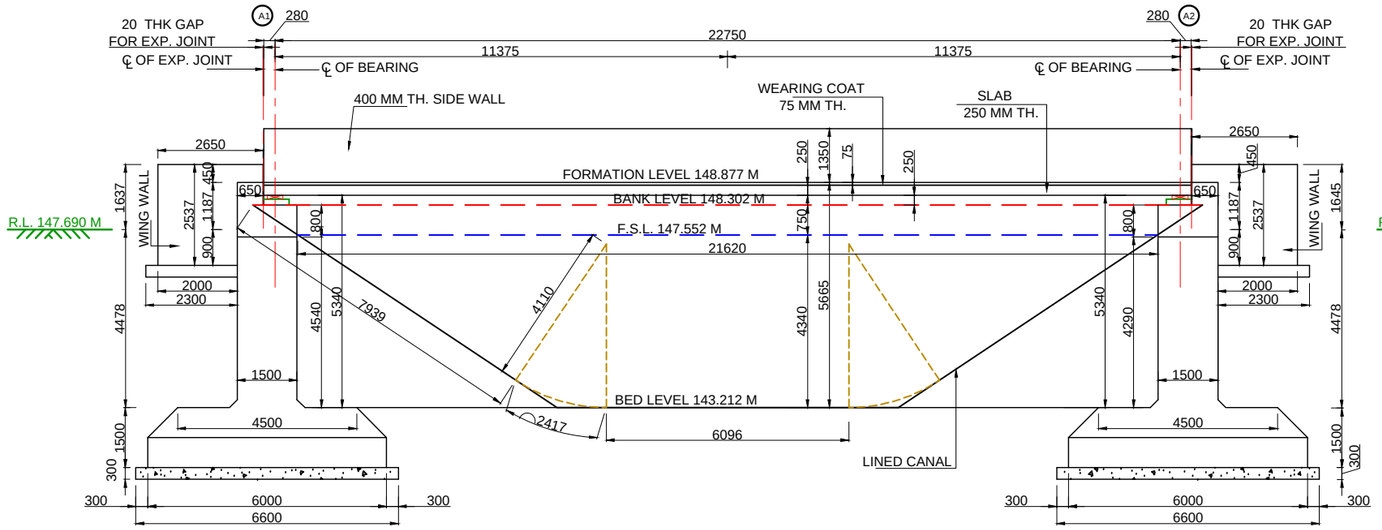
NOTES:

1 ALL DIMENSIONS ARE IN mm.

2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

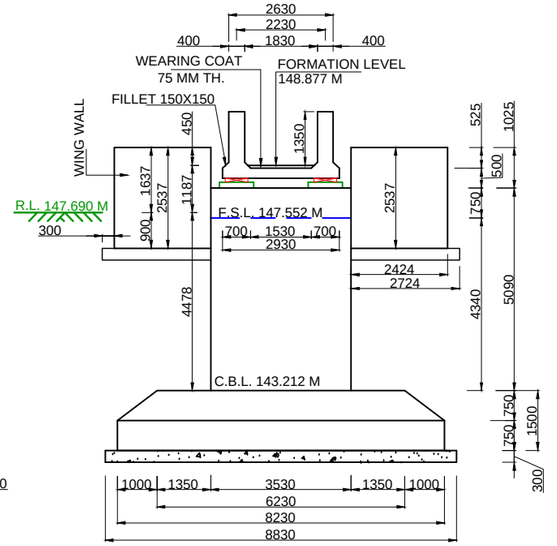
TENDER DRAWING

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	EXISTING PLAN OF FOOT BRIDGE AT CH. 2.960 KM	
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-03	01 of 05
	Drawn by:-	Checked by:-	Approved by:-



SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. LOAD HAS BEEN TAKEN AS PER IRC: 6 :2016 CLAUSE 206.1.
6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	84.15 CUMEC
BED LEVEL	143.212 M
WATER DEPTH	4.340 M
F.S.L.	147.552 M
FREE BOARD	0.75 M

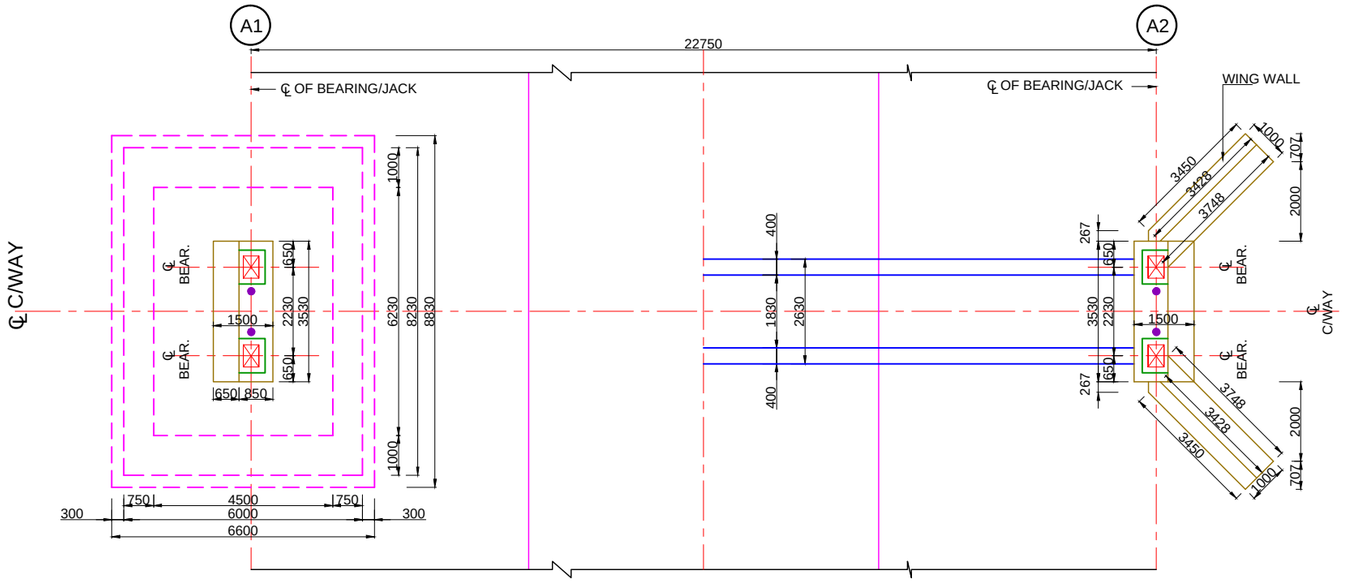
7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a)	RAFT	M35
b)	ABUTMENT	M25
c)	SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d)	CRASH BARRIER	M30
e)	PEDESTAL (SEISMIC)	M35
f)	WEARING COAT	M30

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

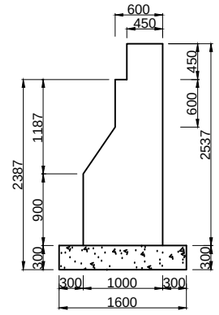
SKEWNESS ANGLE	0Á
ROAD LEVEL	148.877 M
LEVEL CARRIAGE WAY	147.690 M
WIDTH	1.830 M
ALLOWABLE B/C	28 T/SQ M

9. SIZE OF ELASTOMERIC BEARING SHALL BE 200X320X40 MM



HALF BOTTOM PLAN / HALF TOP PLAN

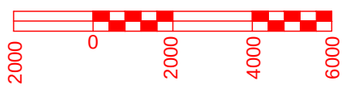
(SCALE A)



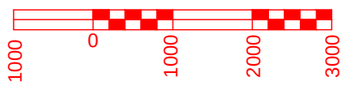
SECTION OF WING WALL

(SCALE B)

SCALE A:-

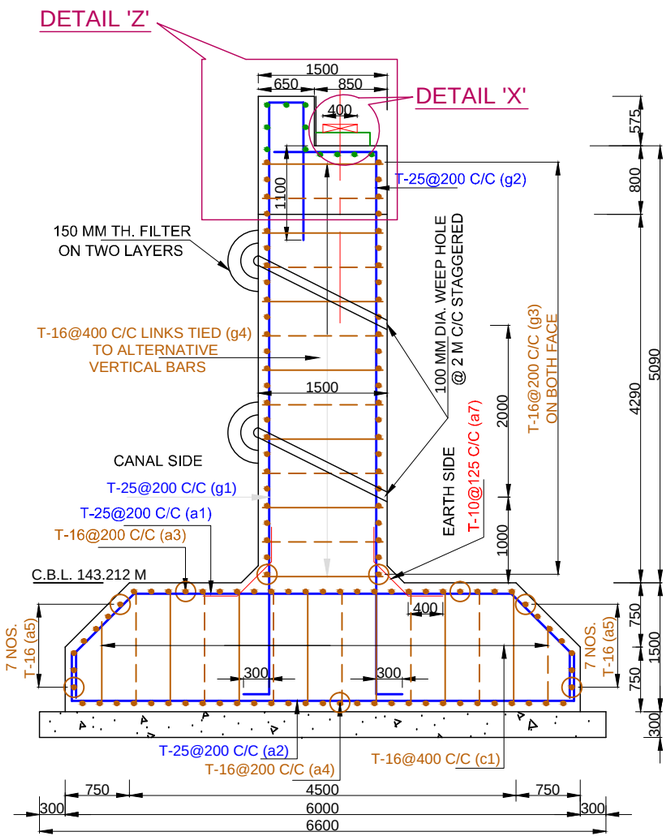


SCALE B:-



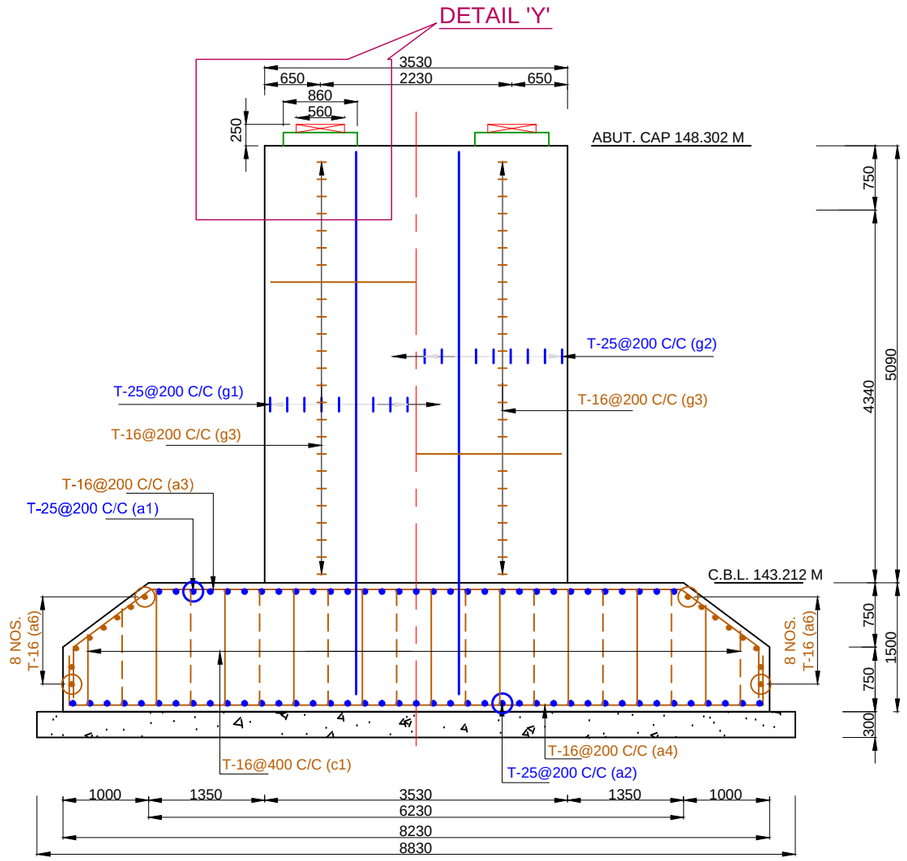
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF FOOT BRIDGE AT KM 2.960	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-03	02 of 05
	Drawn by:-	Checked by:-	Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



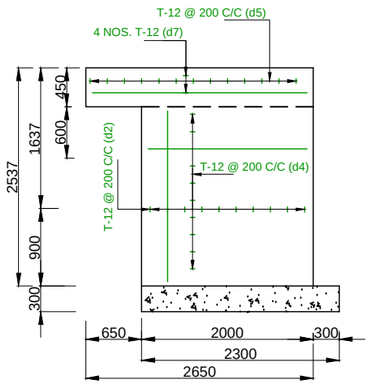
CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

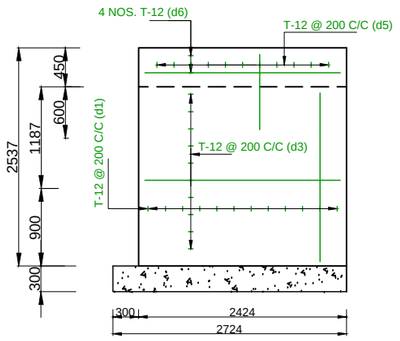
SCALE A

NOTES

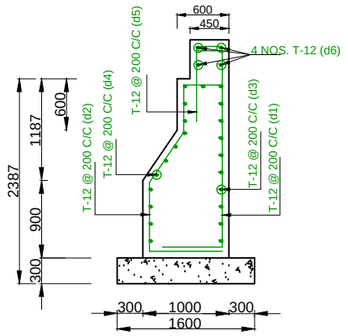
1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5. LOAD HAS BEEN TAKEN AS PER IRC: 6 :2016 CLAUSE 206.1.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT..



FRONT VIEW



SIDE VIEW



SECTION OF WING WALL

REINFORCEMENT DETAILS OF WING WALL

BARS BENDING SCHEDULE H.Y.S.D. Fe 550

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	1600, 400, 6940, 300	25	200	18X2
	2	g2	6418, 1200, 300	25	200	18X2
	3	g3	708, 3380, 708	16	150	25X2X2
	4	g4	VERTICAL LINK BARS, 150, 1350, 150	16	300	7X5X2
IN RAFT FOR ABUTMENT	5	a1	4400, 970, 970, 715, 715	25	200	31X2
	6	a2	715, 5850, 715	25	200	41X2
	7	a3	6180, 1126, 1126, 715, 715	16	200	24X2
	8	a4	715, 8080, 715	16	200	30X2
	9	a5	700, 7850, 700	16	-	7X2X2
	10	a6	700, 7850, 700	16	-	8X2X2
	11	a7	400, 560, 400, 400, 400, 560	10	125	28X2X2
	12	c1	150, 1350, 150	16	300	7X10X2
WING WALL	13	d1	350, 1937, 700	12	200	12X2
	14	d2	450, 548, 710, 802, 850	12	200	10X2
	15	d3	400, 1937, 400	12	200	10X2
	16	d4	400, 1937, 400	12	200	10X2
	17	d5	300, 875	12	200	13X11X2
	18	d6	150, 2274, 150	12	-	4X2
	19	d7	150, 2500, 150	12	-	4X2

SCALE A:-

500 0 500 1000 1500

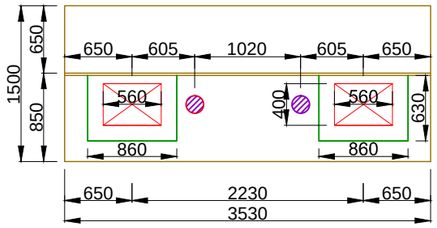
TENDER DRAWING

Prepared by :-

WAPCOS LTD.

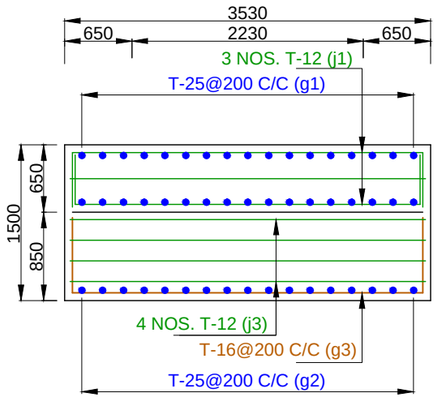
वाप्कोस लिमिटेड
WAPCOS LIMITED

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT AND WING WALL OF FOOT BRIDGE AT KM 2.960
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-03 03 of 05
Drawn by:-	Checked by:- Approved by:-



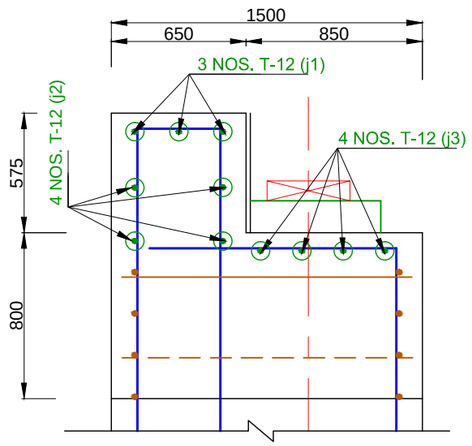
PLAN OF ABUTMENT

SCALE A



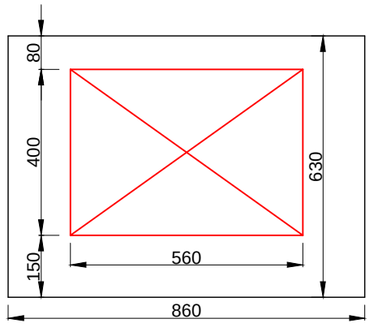
REINFORCEMENT IN DIRT WALL

SCALE A



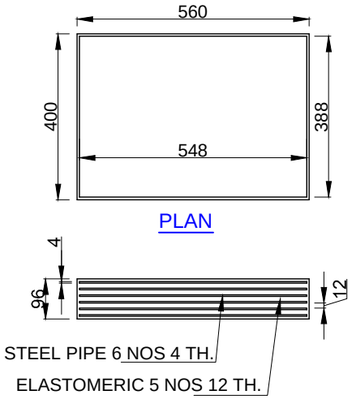
DETAIL 'Z'

SCALE B



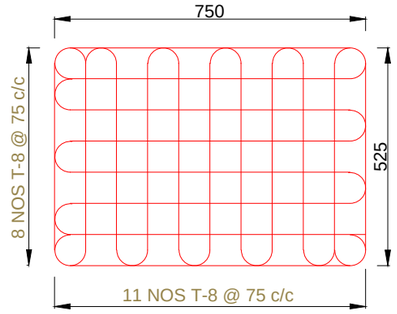
PLAN

SCALE C



DETAILS OF
ELASTOMERIC BEARINGS

SCALE C



DETAIL OF MESH M1
(MESH BELOW BEARING LOCATION)

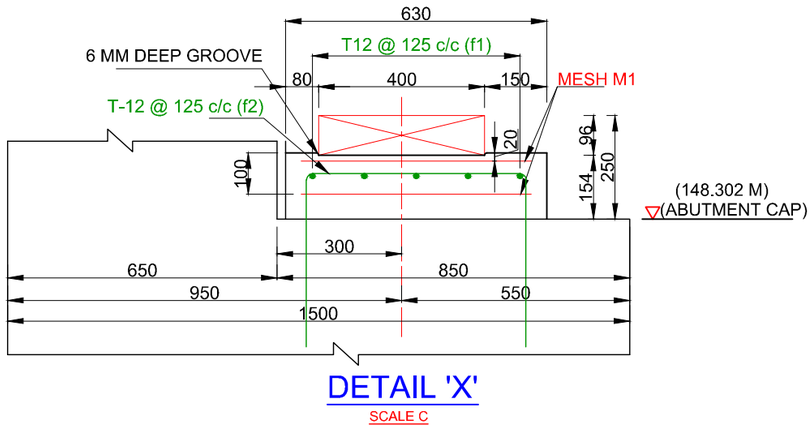
SCALE C

BARS BENDING SCHEDULE H.Y.S.D. Fe 550

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
PEDESTAL FOR ABUTMENT	1	f1	633 — 730 — 633	12	150	5X2X2
	2	f2	633 — 530 — 633	12	-	5X2X2
DIRT WALL FOR ABUTMENT	3	j1	150 — 3380 — 150	12	-	3X2
	4	j2	150 — 3380 — 150	12	-	4X2
	5	j3	150 — 3380 — 150	12	-	4X2

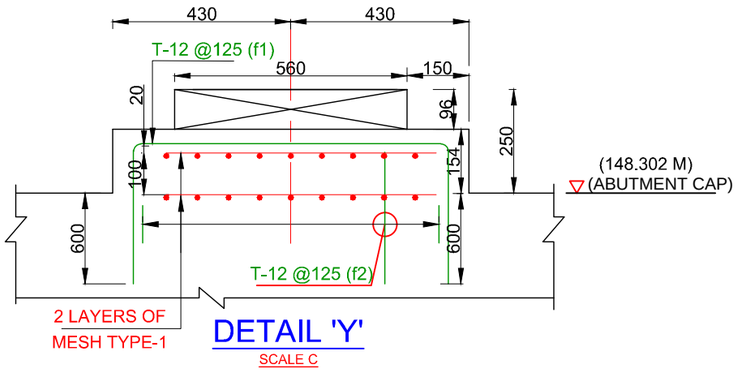
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.



DETAIL 'X'

SCALE C



DETAIL 'Y'

SCALE C

SCALE A:-
500 0 500 1000 1500

SCALE B:-
250 0 250 500 750

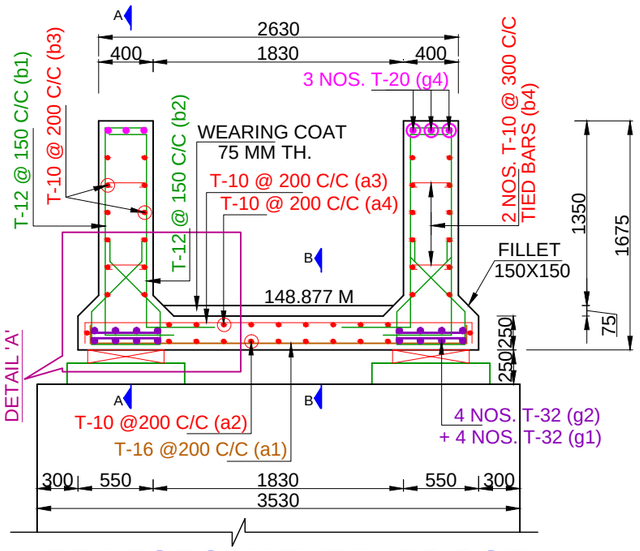
SCALE C:-
125 0 125 250 375

TENDER DRAWING

Prepared by :-

WAPCOS LTD.

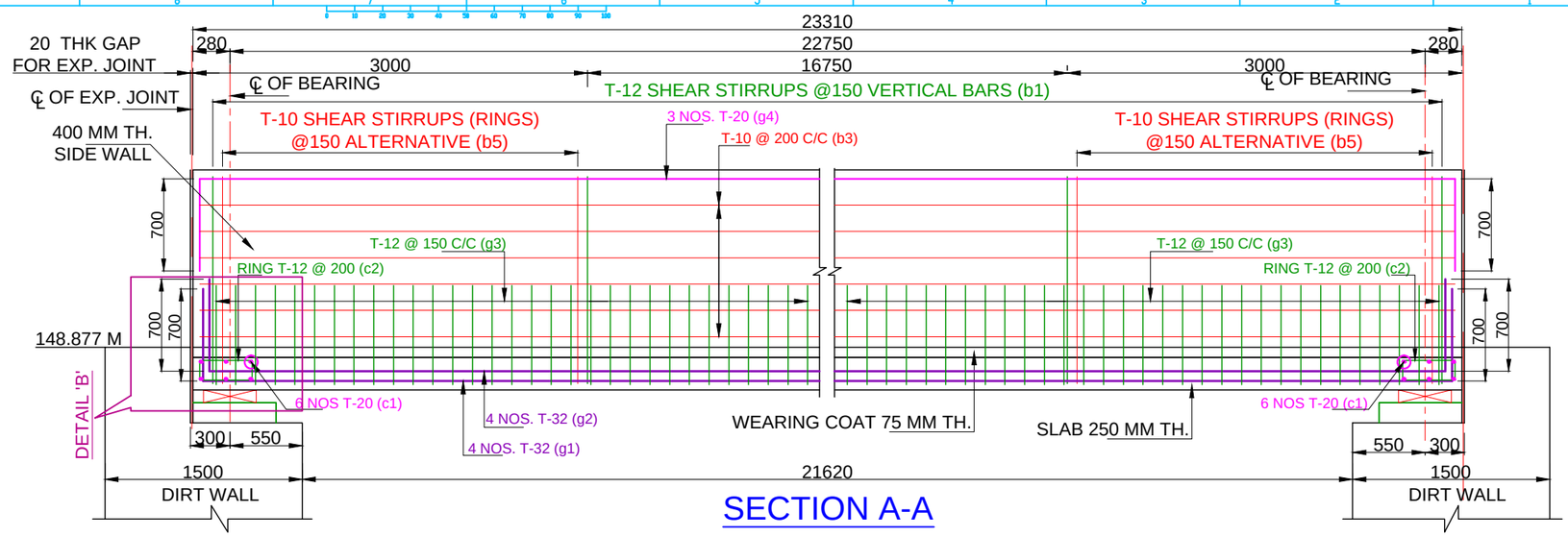
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF PEDESTAL AND BEARING AT KM 2.960
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-03 04 of 05
Drawn by:-	Checked by:- / Approved by:-



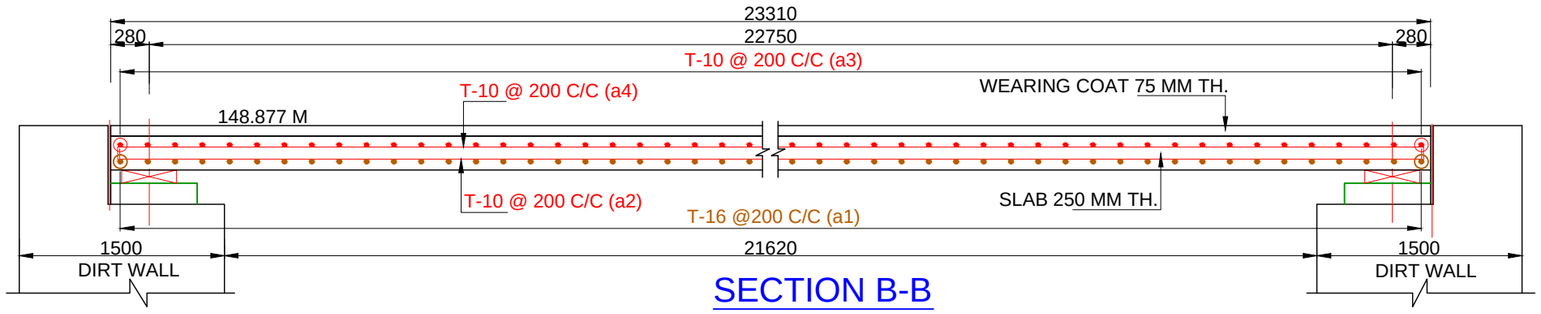
REINFORCEMENT IN BRIDGE

BARS BENDING SCHEDULE H.Y.S.D. Fe 550

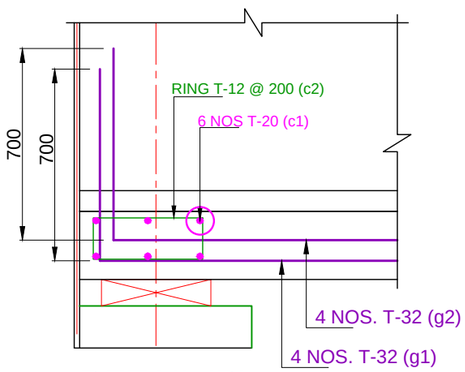
	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SLAB	1	a1	150 — 2780 — 150	16	200	116
SLAB	2	a2	150 — 23160 — 150	10	200	9
SLAB	3	a3	150 — 2780 — 150	10	200	116
SLAB	4	a4	150 — 23160 — 150	10	200	9
SLAB	5	a5	150 — 23160 — 150	10	-	2
GIRDER	6	b1	300 — 1450 — 500	12	150	156X2
GIRDER	7	b2	300 — 1450 — 500	12	150	156X2
GIRDER	8	b3	150 — 23160 — 150	10	200	6X2X2
GIRDER	9	b4	75 — 300 — 75	10	300	4X78
GIRDER	10	b5	250 — 1450 — 250 (1450)	10	150	20X2X2
GIRDER	11	c1	75 — 2780 — 75	20	-	6X2X2
GIRDER	12	c2	150 — 400 — 150	12	200	3X2X2
GIRDER	13	g1	700 — 23160 — 700	32	-	4X2
GIRDER	14	g2	700 — 23160 — 700	32	-	4X2
GIRDER	15	g3	150 — 520 — 240 — 500 — 240	12	150	156X2
GIRDER	16	g4	75 — 23160 — 75	20	-	3X2



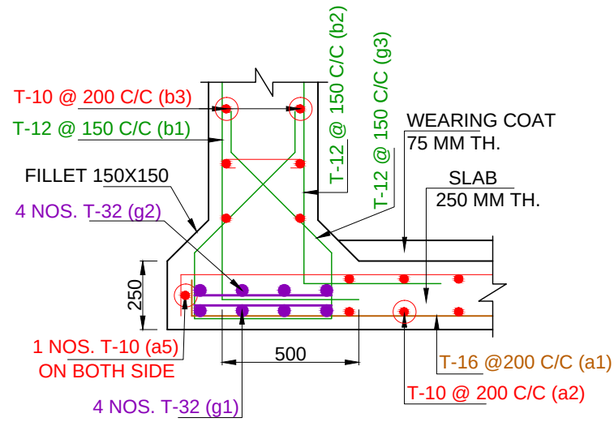
SECTION A-A



SECTION B-B



DETAIL 'B'



DETAIL 'A'

TENDER DRAWING

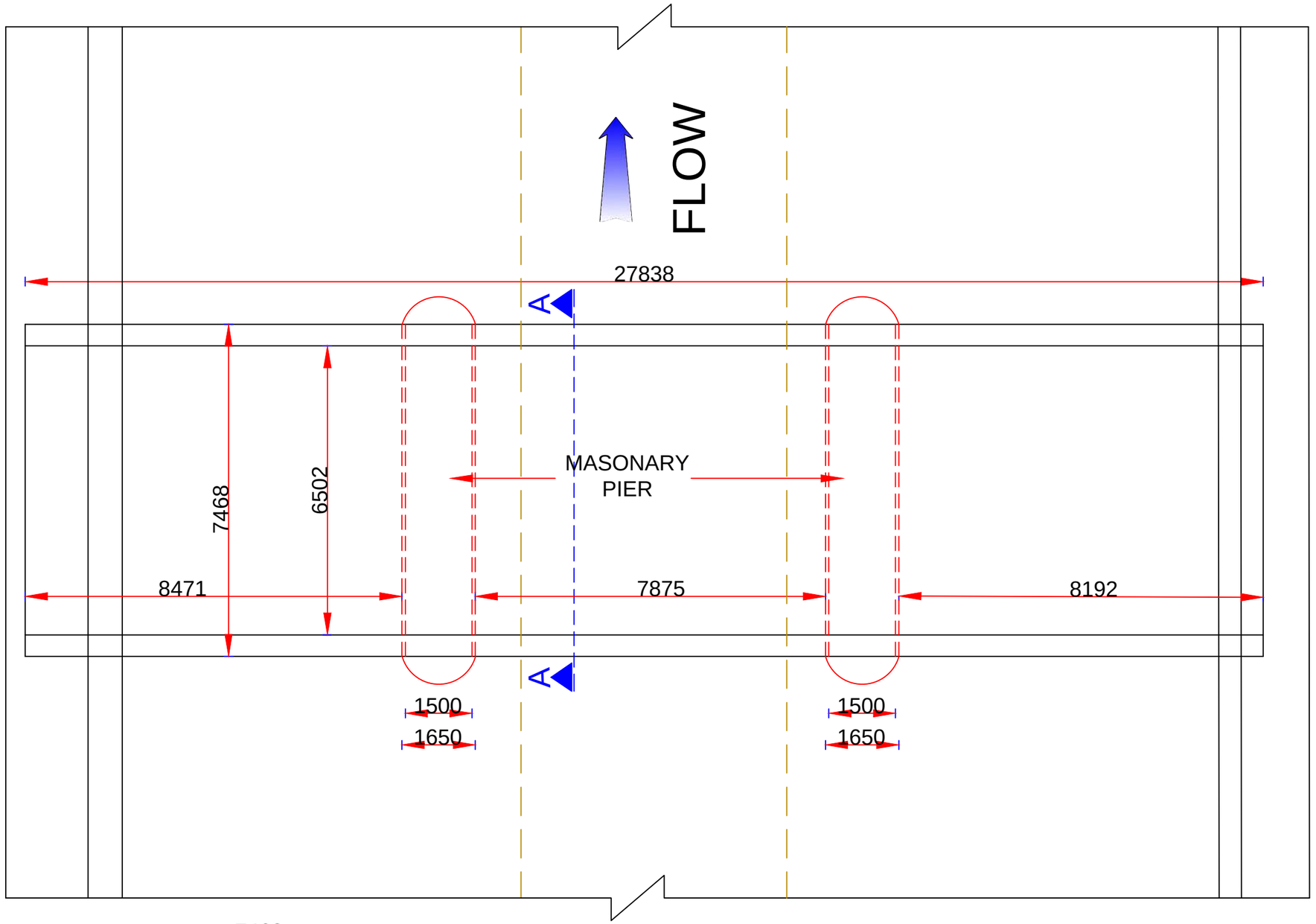
Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SLAB AND GIRDERS OF FOOT BRIDGE AT KM 2.960
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-03 05 of 05
	Drawn by:-	Checked by:- / Approved by:-



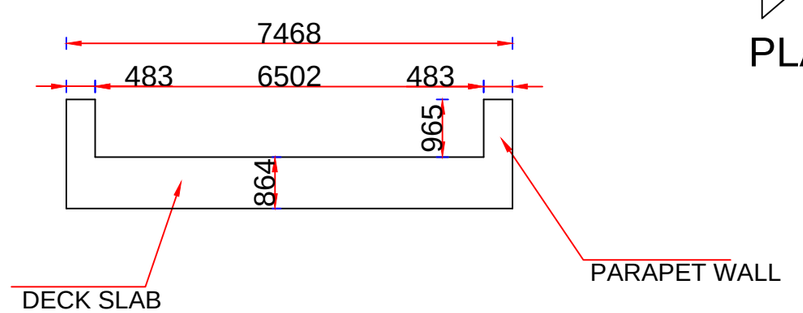
D.L.R. BRIDGE

AT

CH. 3.597 KM



PLAN



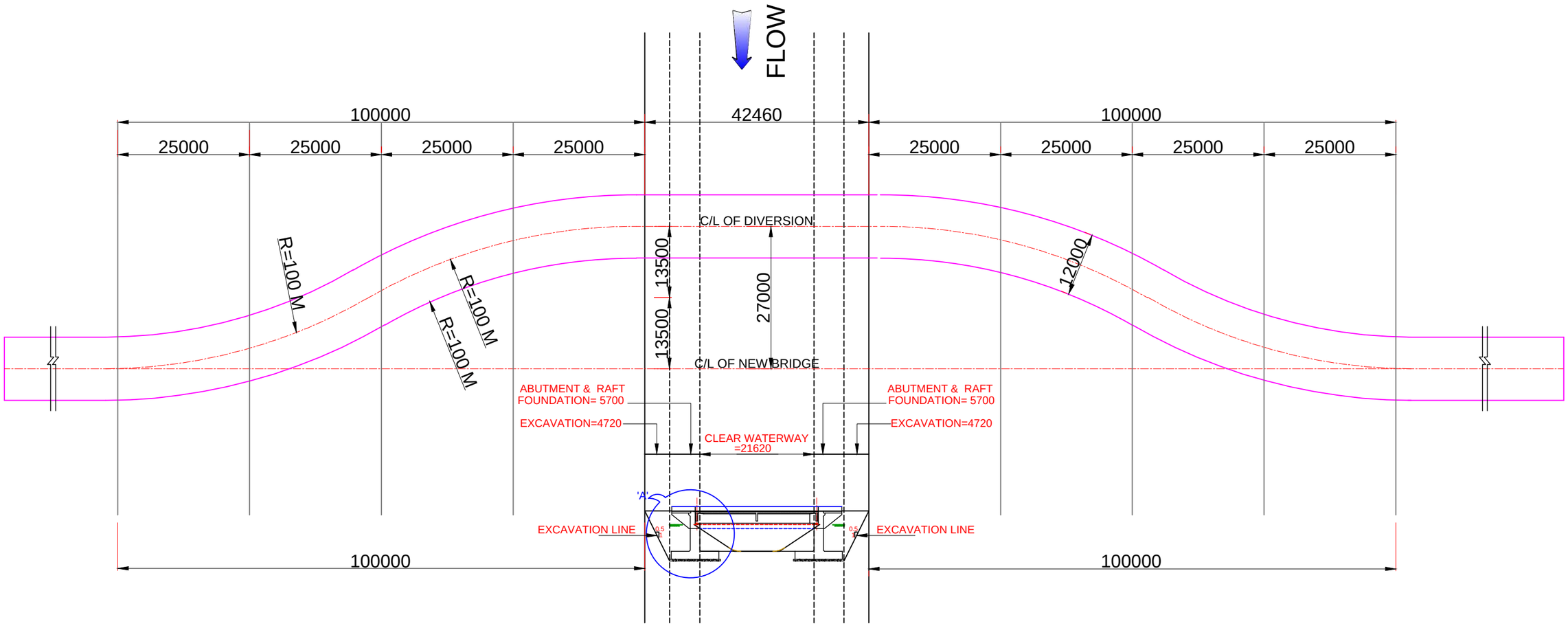
SECTION A-A

NOTES:

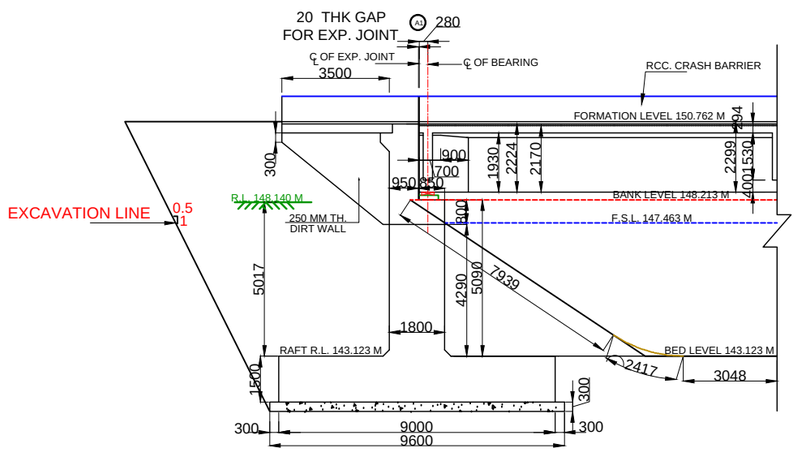
1 ALL DIMENSIONS ARE IN mm.
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	EXISTING PLAN OF DOUBLE LANE ROAD BRIDGE AT CH. 3.597 KM	
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-04	01 of 13
	Drawn by:-	Checked by:-	Approved by:-



SKETCH OF DIVERSION PLAN AT KM 3.597 FOR D.L.R. BRIDGE



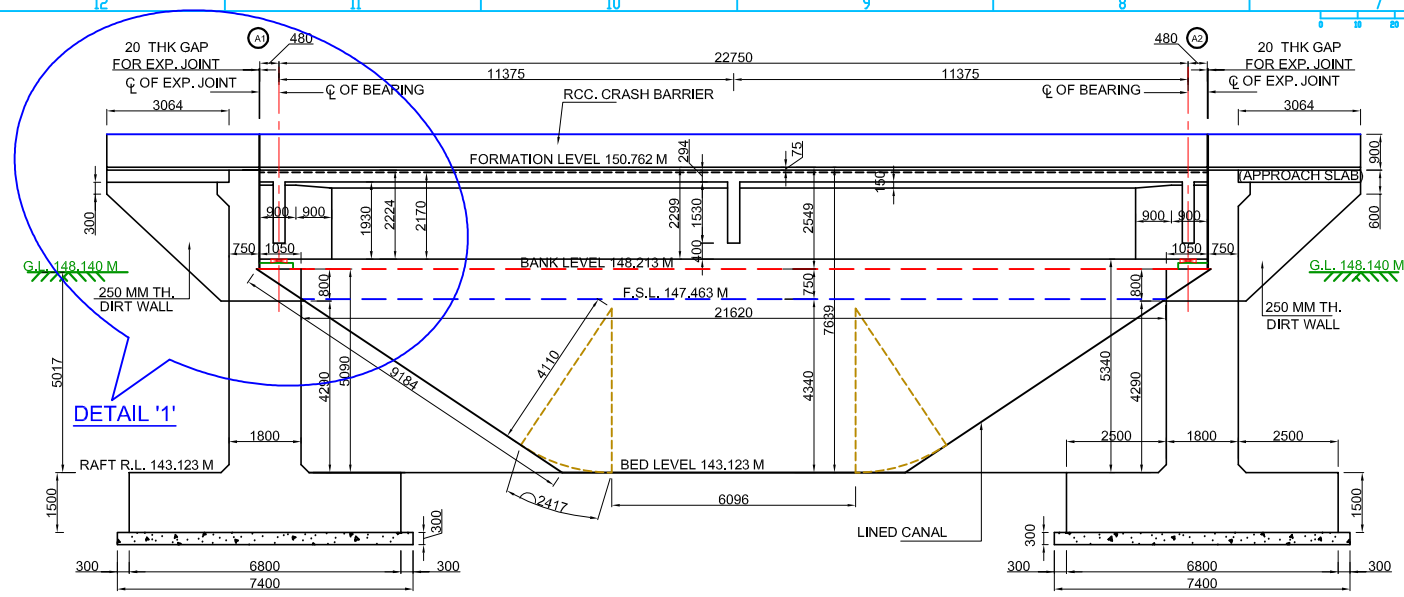
DETAIL SECTION AT 'A'

NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

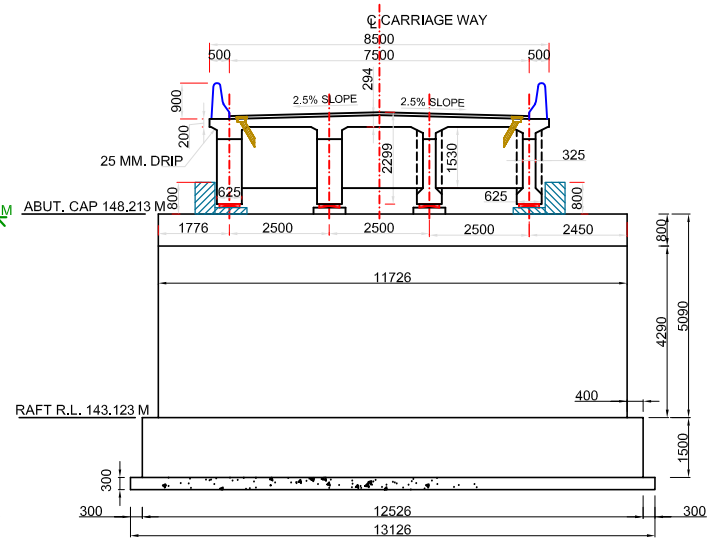
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 3.597 FOR D.L.R. BRIDGE
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 04 02 of 13
	Drawn by:-	Checked by:- / Approved by:-



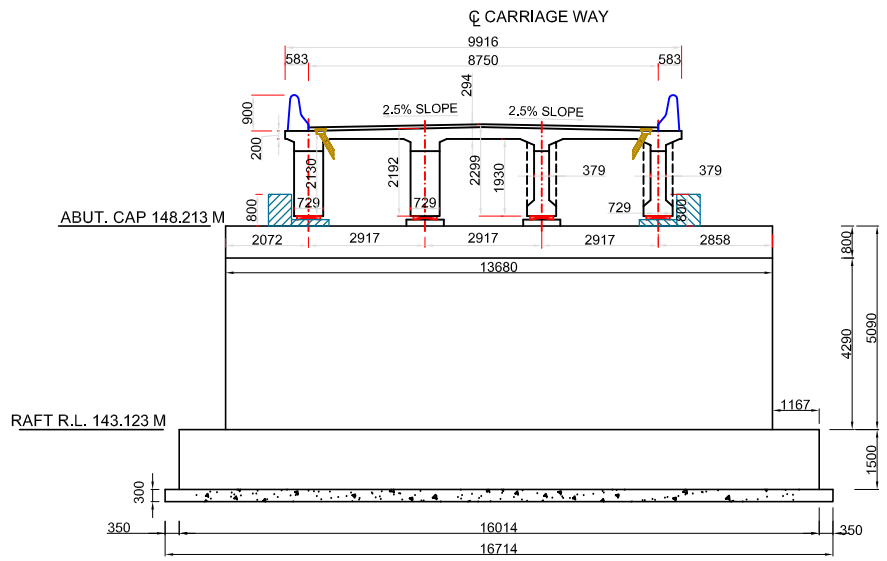
SECTION 1-1

(SCALE A)



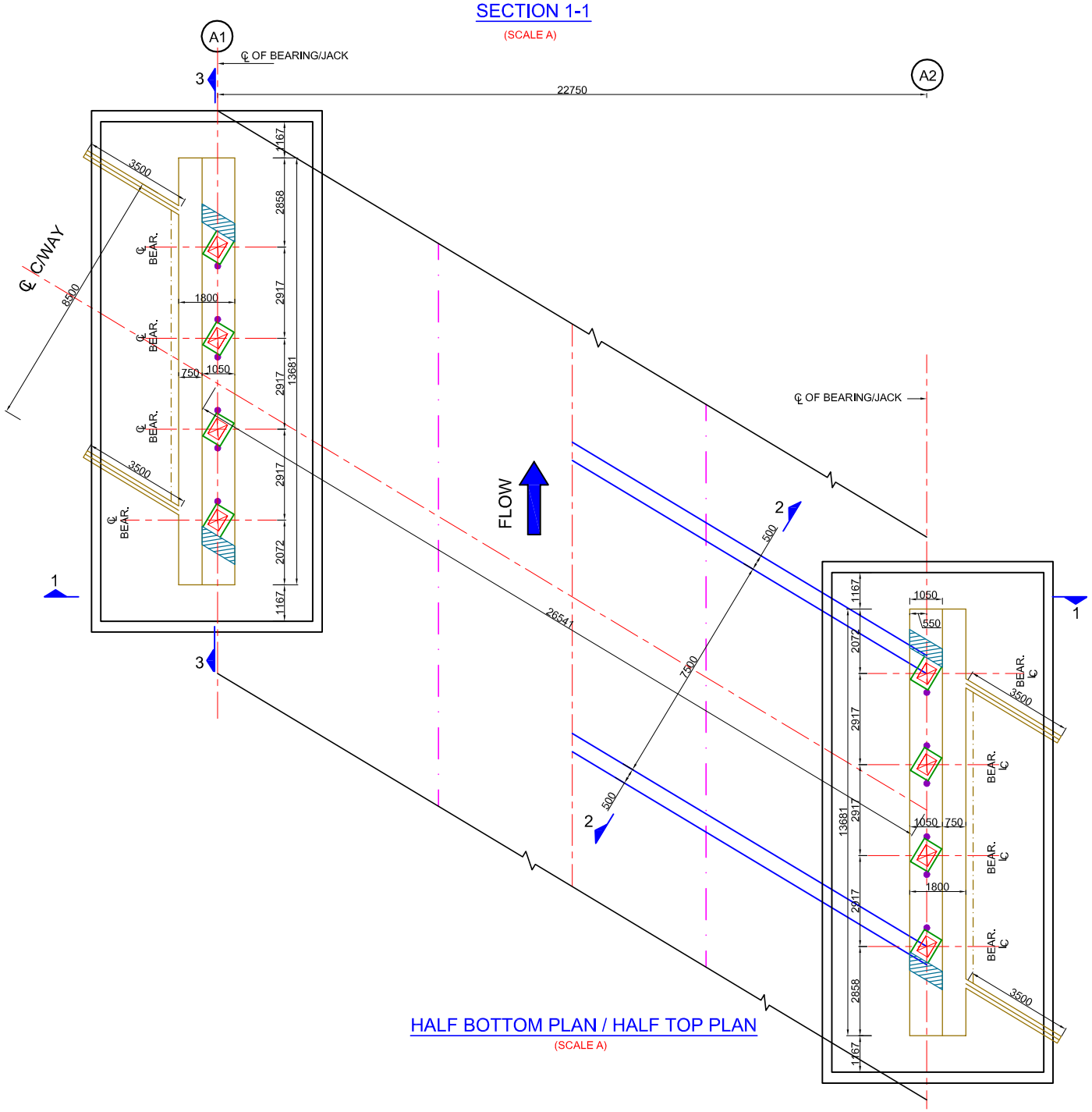
SECTION 2-2
ACROSS THE ROAD AT C/L OF BEARING

(SCALE A)



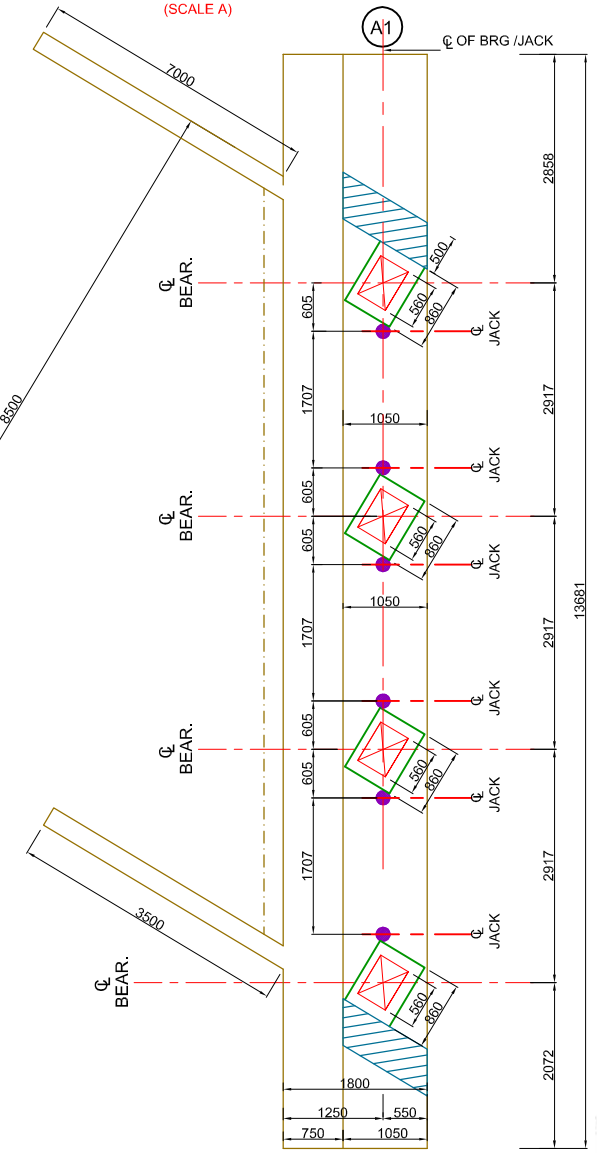
SECTION 3-3
ALONG THE CANAL AT C/L OF BEARING

(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN

(SCALE A)



PLAN OF ABUTMENT AT BEARING LEVEL

(SCALE B)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. TWO LANES OF CLASS-A LOADING HAVE BEEN CONSIDERED IN DESIGN.
6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	84.15 CUMEC
BED LEVEL	143.123 M
WATER DEPTH	4.340 M
F.S.L.	147.463 M
FREE BOARD	0.75 M

7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a)	RAFT	M35
b)	ABUTMENT	M25
c)	SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d)	CRASH BARRIER	M30
e)	PEDESTAL (SEISMIC)	M35
f)	WEARING COAT	M30

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0°
ROAD LEVEL	150.762 M
GROUND LEVEL	148.140 M
CARRIAGE WAY WIDTH	7.500 M
ALLOWABLE B/C	28 T/SQ M

9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

SCALE A:-

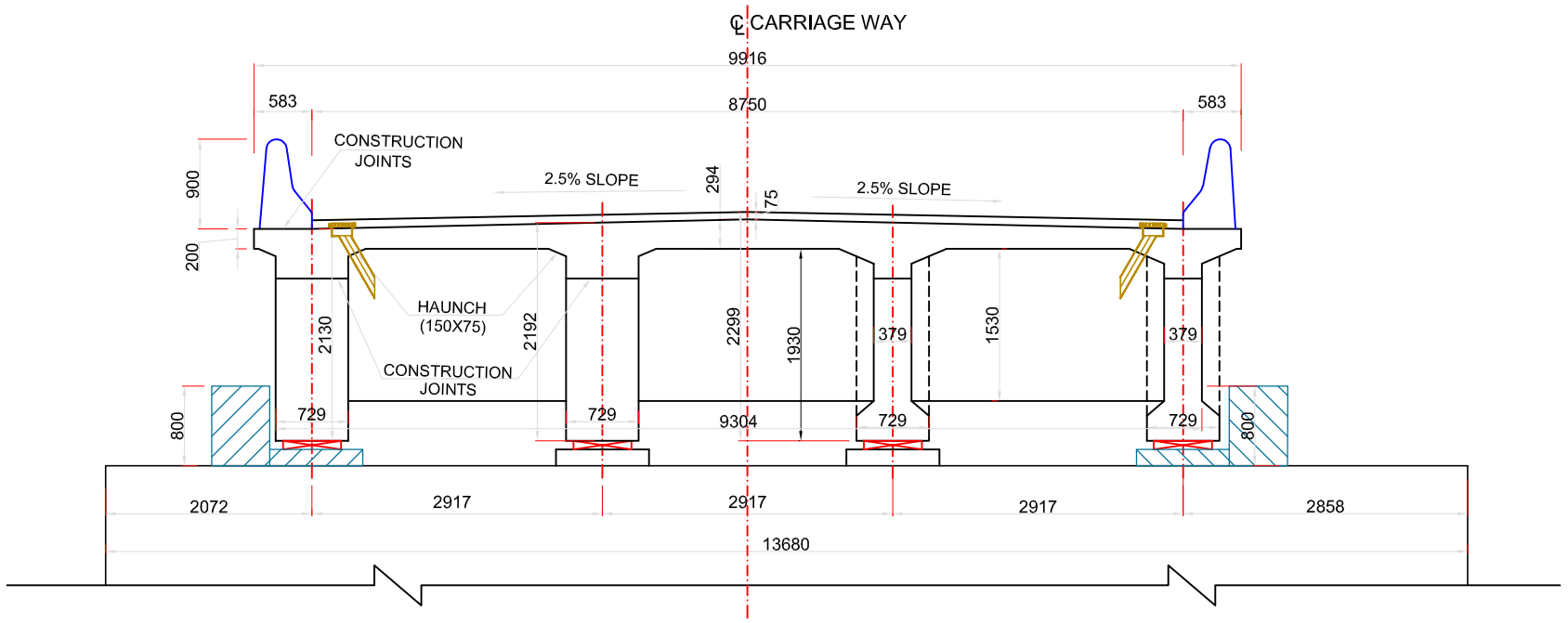
2000 0 2000 4000 6000

SCALE B:-

1000 0 1000 2000 3000

TENDER DRAWING

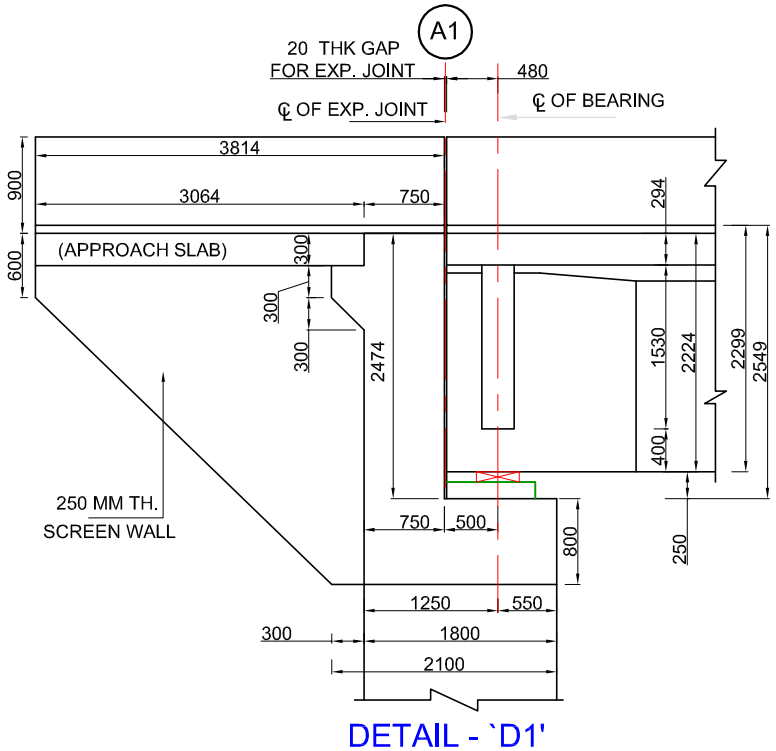
Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF DLR SKEW BRIDGE AT KM 3.597 WITH FOUR BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04 03 of 13
	Drawn by:-	Checked by:- / Approved by:-



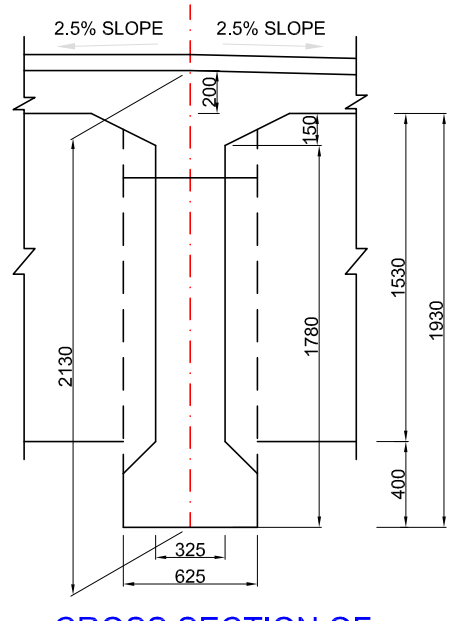
SECTION 3-3
ALONG THE CANAL AT C/L OF BEARING
(SCALE B)

NOTES

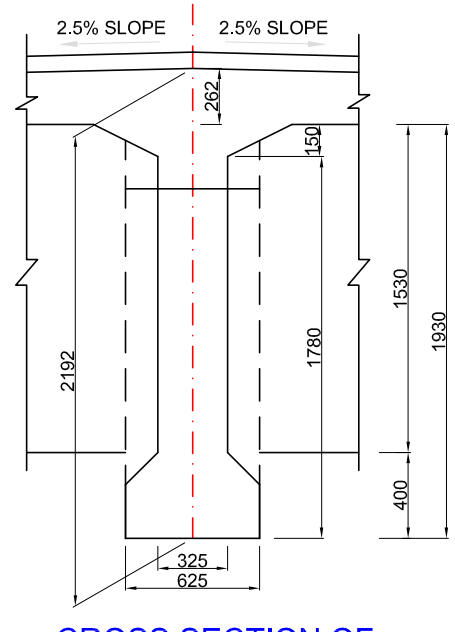
1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe550 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



DETAIL - `D1'
(SCALE B)



CROSS SECTION OF RCC 'I' OUTER GIRDER
(SCALE C)



CROSS SECTION OF RCC 'I' INTERMEDIATE GIRDER
(SCALE C)

TENDER DRAWING

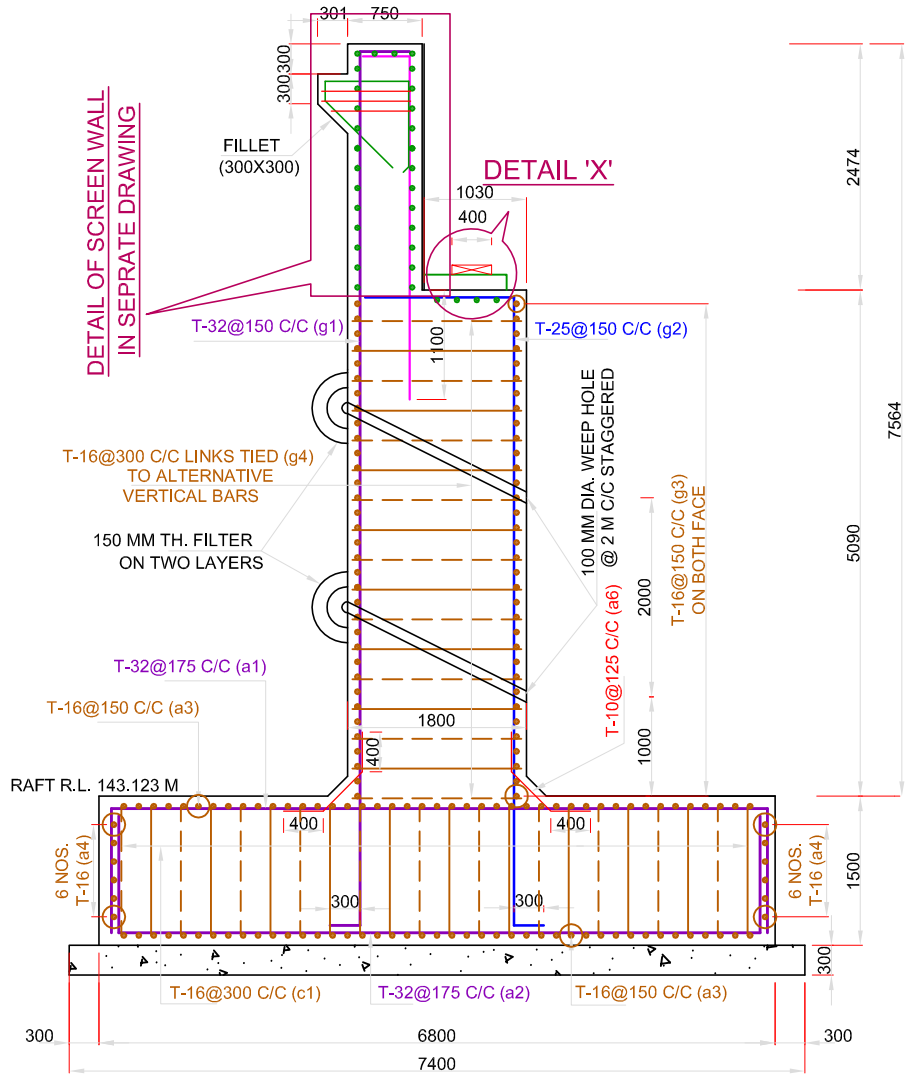
SCALE B:-

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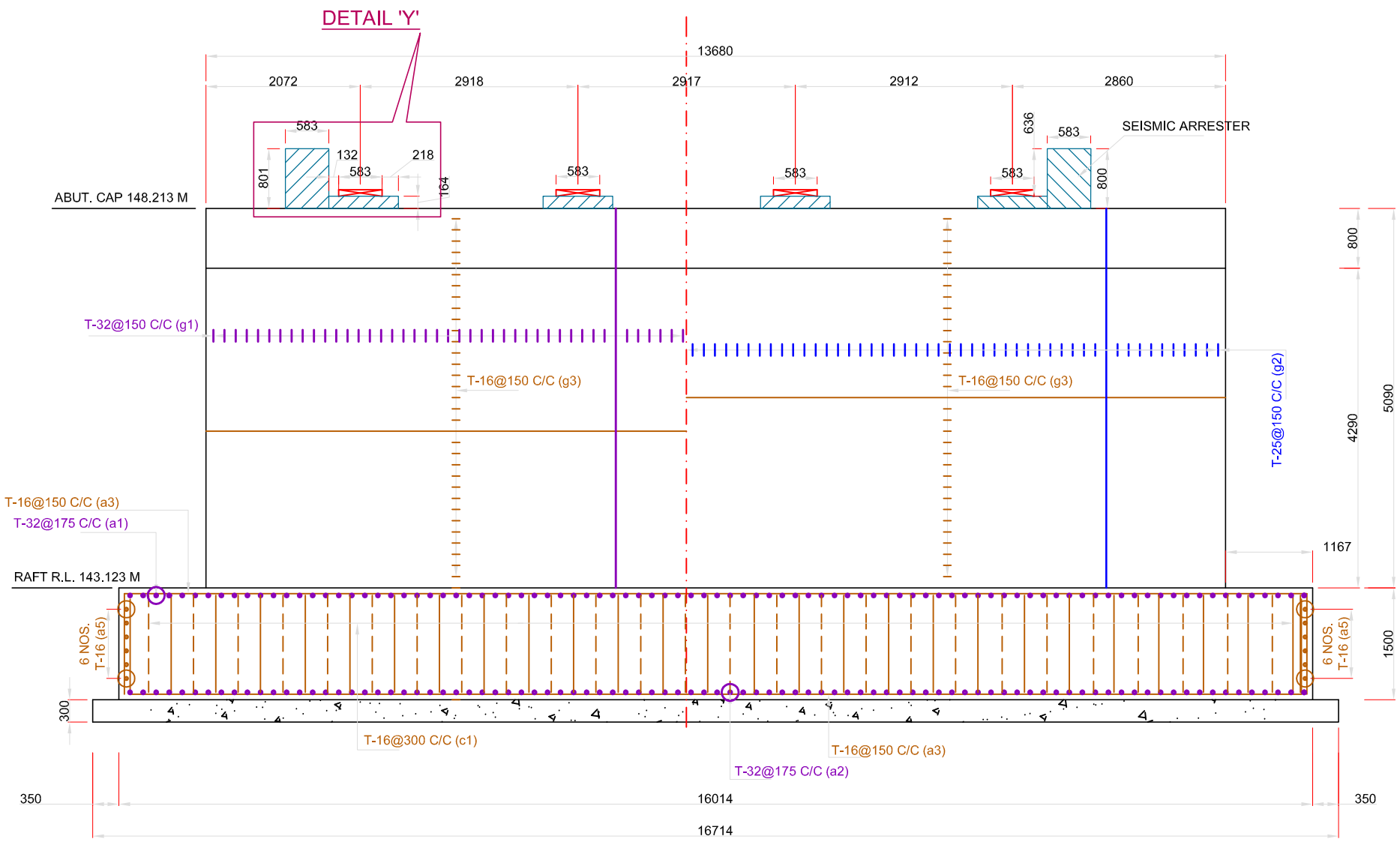
SCALE C:-

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Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF DLR SKEW BRIDGE AT KM 3.597 WITH FOUR BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04 04 of 13
	Drawn by:-	Checked by:- / Approved by:-



SIDE VIEW OF ABUTMENT



SIDE VIEW OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

(SCALE A)

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	600, 8839, 300	32	150	91X2
	2	g2	1325, 6365, 300	25	150	91X2
	3	g3	708, 13530, 708	16	150	33X2X2
	4	g4	150, VERTICAL LINK BARS 1650, 150	16	300	8X23X2
IN RAFT FOR ABUTMENT	5	a1	1000, 6650, 1000	32	175	92X2
	6	a2	1000, 6650, 1000	32	175	92X2
	7	a3	700, 700, 15864, 15864, 700, 700	16	150	45X2X2
	8	a4	700, 15864, 700	16	-	6X2X2
	9	a5	700, 6650, 700	16	-	6X2X2
	10	a6	400, 400, 560, 400, 400, 560	10	150	109X2X2
	11	c1	150, 1350, 150	16	300	11X28X2

NOTES

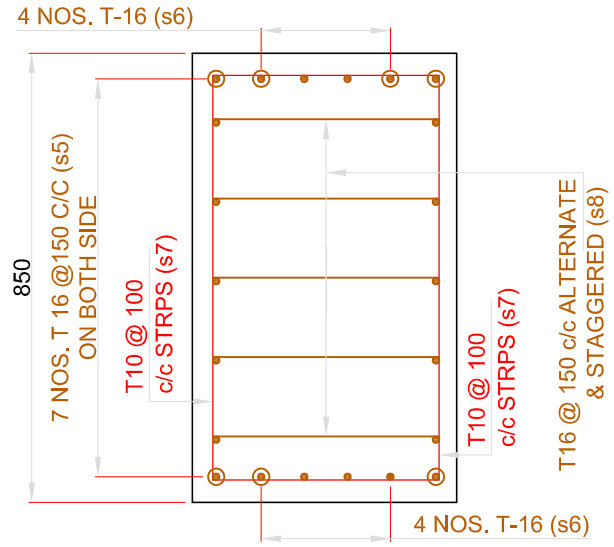
1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 TWO LANES OF CLASS-A LOADING HAVE BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304,6,6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

TENDER DRAWING

Prepared by :-

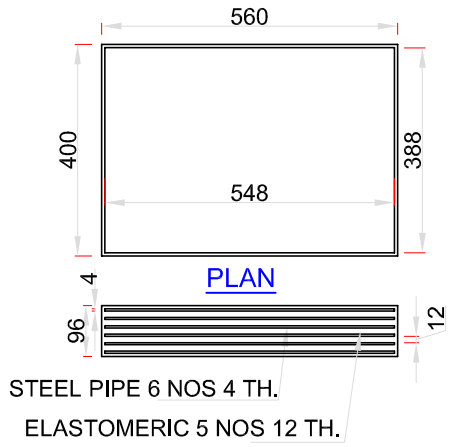
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF DLR SKEW BRIDGE AT KM 3.597 WITH FOUR BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04 05 of 13
Drawn by:-	Checked by:- Approved by:-



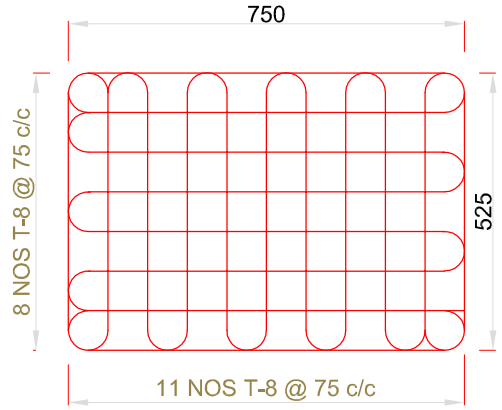
SECTION H-H

SCALE A



DETAILS OF ELASTOMERIC BEARINGS

SCALE A

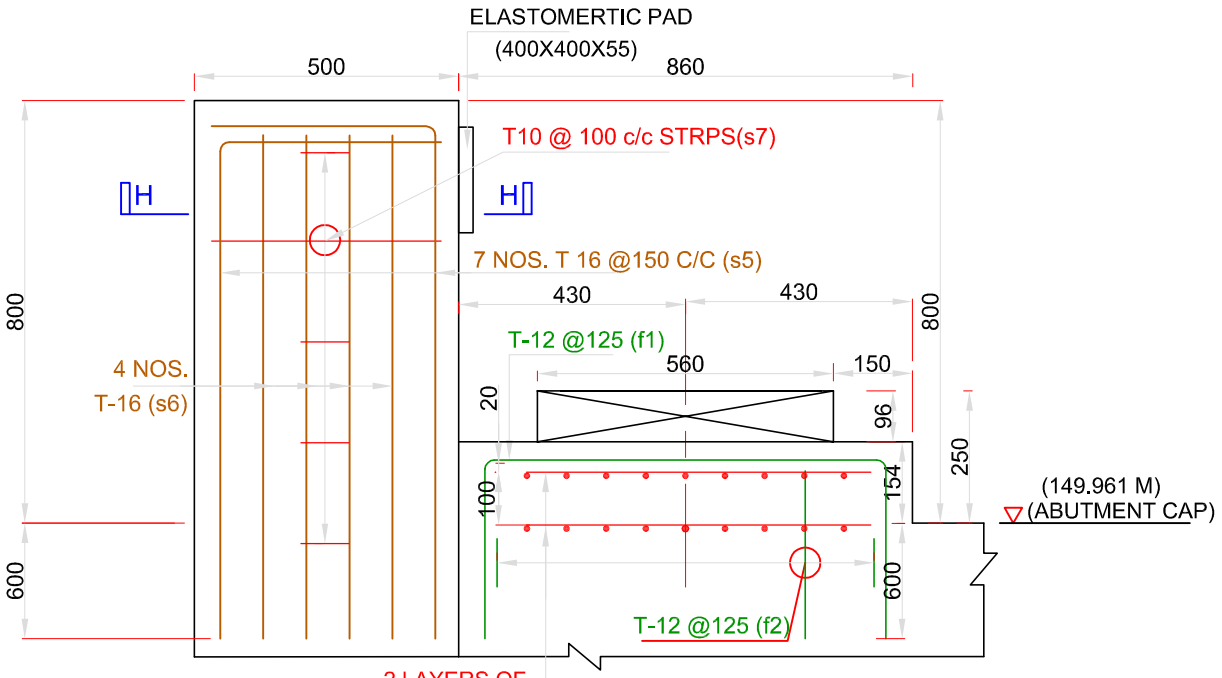


DETAIL OF MESH M1 (MESH BELOW BEARING LOCATION)

SCALE A

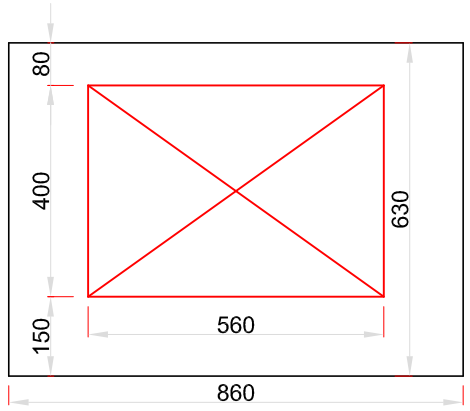
BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5	400, 1350	16	150	14X2X2
	2	s6	150, 1350, 150	16	-	8X2X2
	3	s7	750, 400, 400, 750	10	100	5X2X2
	4	s8	150, 400, 150	16	150	5X2X2
PEDESTAL FOR ABUTMENT	5	f1	633, 730, 633	12	125	5X2X2
	6	f2	633, 530, 633	12	125	5X2X2



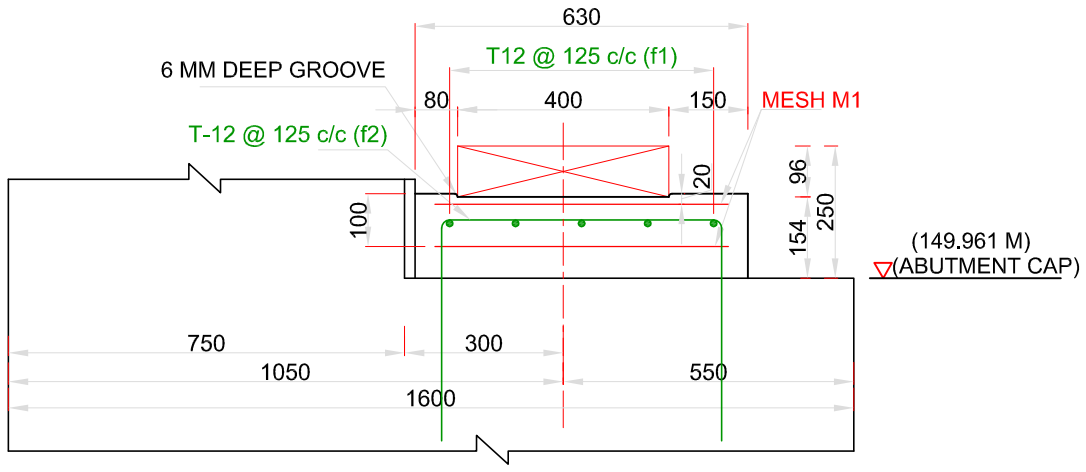
DETAIL 'Y'

SCALE A



PLAN

SCALE A



DETAIL 'X'

SCALE A

SCALE A:-

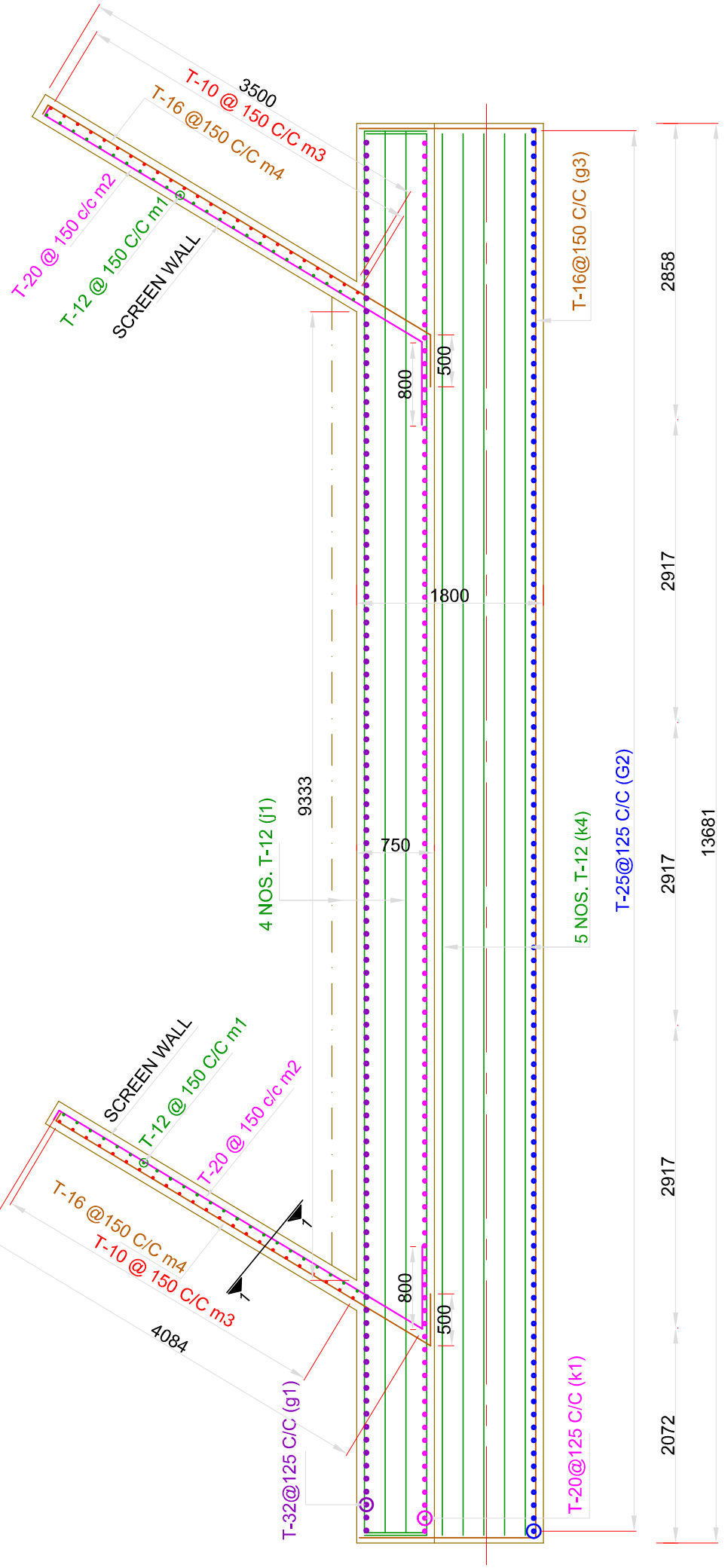


NOTES

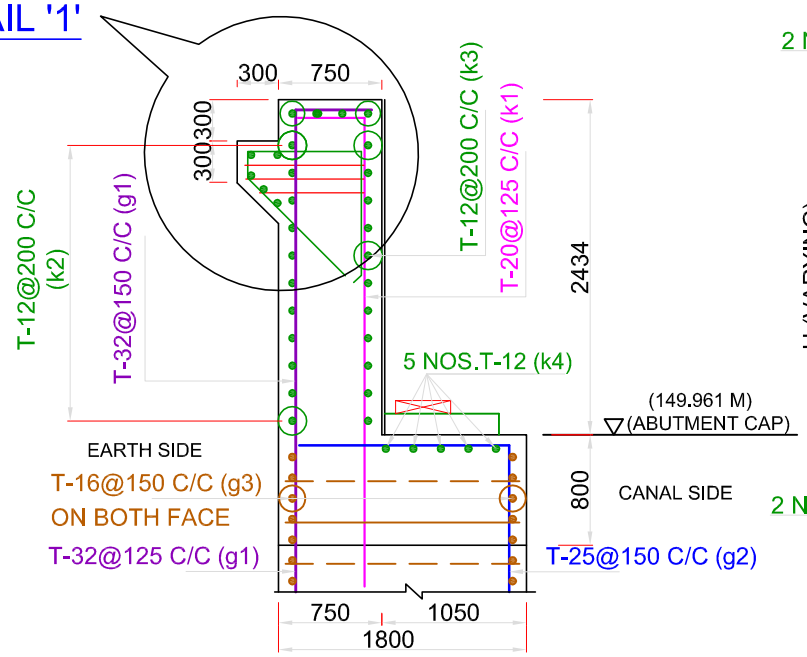
1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 TWO LANES OF CLASS-A LOADING HAVE BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL OF DLR SKEW BRIDGE AT KM 3.597 WITH FOUR BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04 06 of 13
	Drawn by:-	Checked by:- / Approved by:-

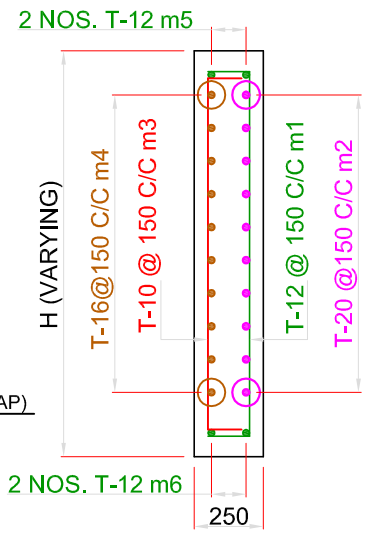


DETAIL '1'



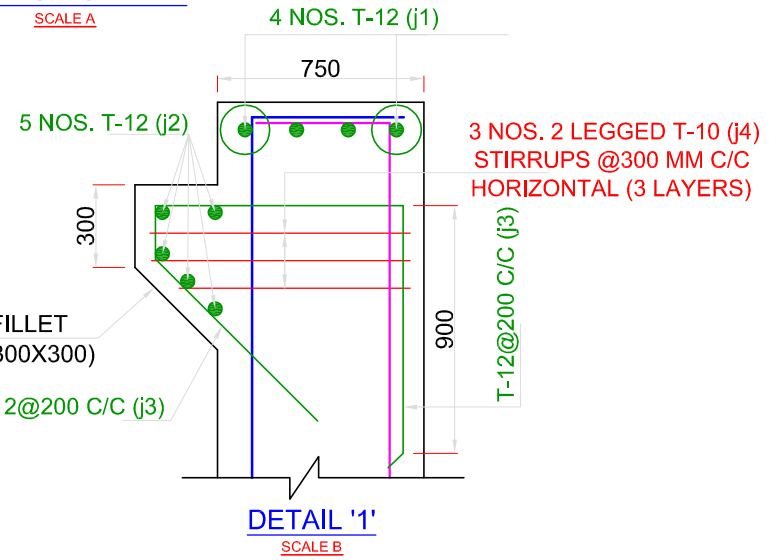
REINFORCEMENT DETAILS IN SECTION OF DIRT

SCALE A



SECTION AT 1-1

SCALE B

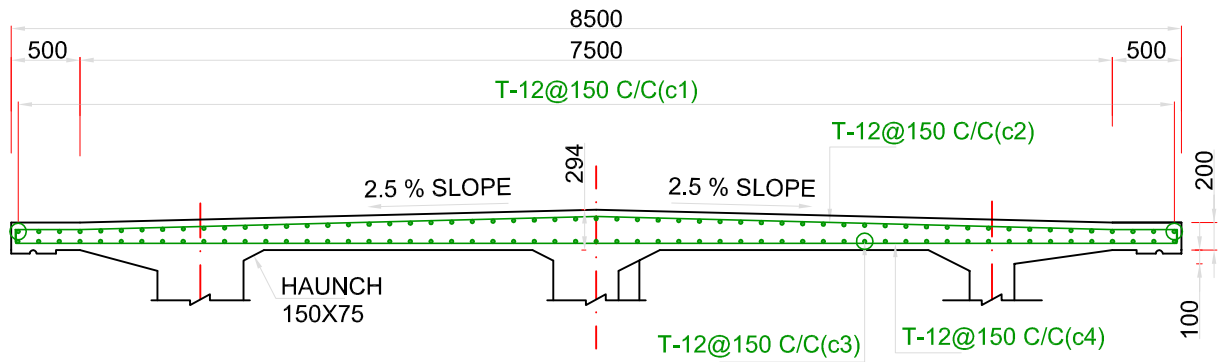


DETAIL '1'

SCALE B

BARS BENDING SCHEDULE

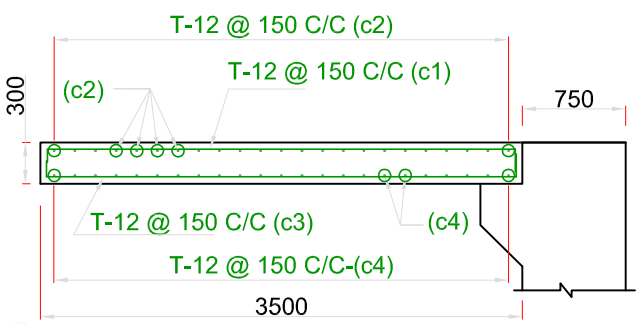
	S. no.	Type of bars	Shape of bars (not to scale Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
DIRT WALL	1	k1	600 / 3459	20	125	109X2
	2	k2	150 / 13531 / 150	12	200	11X2
	3	k3	150 / 13531 / 150	12	200	11X2
	4	k4	150 / 13531 / 150	12	200	5X2
	5	j1	150 / 13531 / 150	12	-	4X2
	6	j2	150 / 9183 / 150	12	-	5X2
	7	j3	900 / 195 / 850 / 900	12	39	46X2
	8	j4	LV= 890 / 9183 / 9183 / 890	10	300	3X2
SCREEN WALL	9	m1	150 / 305 TO 2874 VARYING / 150	12	150	23X2X2
	10	m2	150 / 823 TO 4050 VARYING / 800 / 800 / 150	20	150	19X2X2
	11	m3	150 / 305 TO 2874 VARYING / 150	10	150	23X2X2
	12	m4	150 / 823 TO 4050 VARYING / 500 / 500 / 150	16	150	19X2X2
	13	m5	230 / 4050 / 230	12	-	2X2X2
	14	m6	230 / 4245 / 730	12	-	2X2X2
APPROACH SLAB	15	c1	150 / 3350 / 150	12	150	56X2
	16	c2	150 / 450 / 3752 / 3752 / 450 / 150	12	150	23X2
	17	c3	150 / 3350 / 150	12	150	56X2
	18	c4	150 / 8350 / 150	12	150	23X2



REINFORCEMENT IN APPROACH SLAB

SCALE A

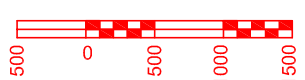
TENDER DRAWING



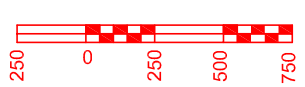
SECTION OF APPROACH SLAB

SCALE A

SCALE A:-



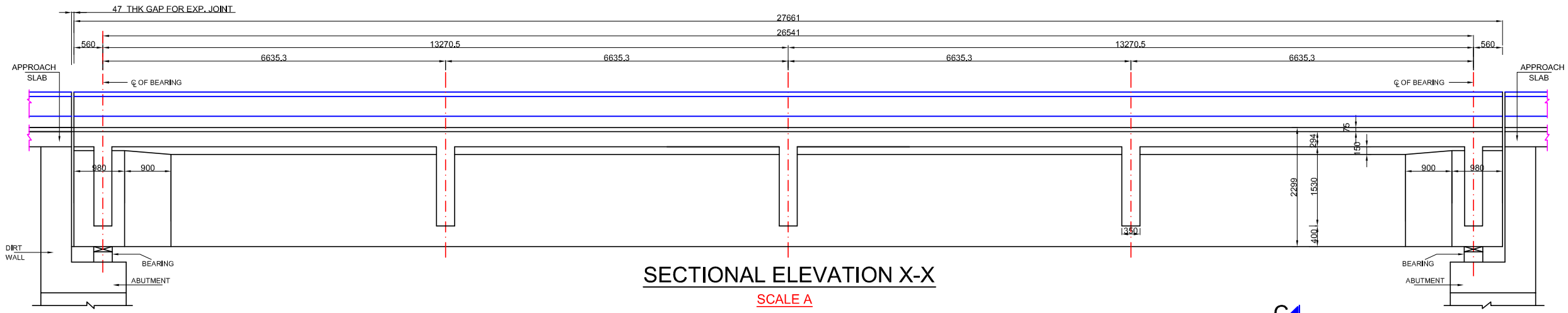
SCALE B:-



Prepared by :-

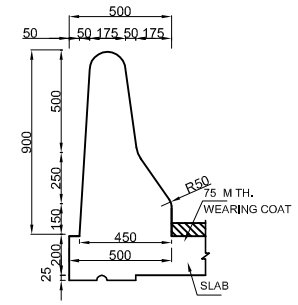
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF SCREEN WALL OF DLR SKEW BRIDGE AT KM 3.597 WITH FOUR BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04 07 of 13
Drawn by:-	Checked by:- / Approved by:-



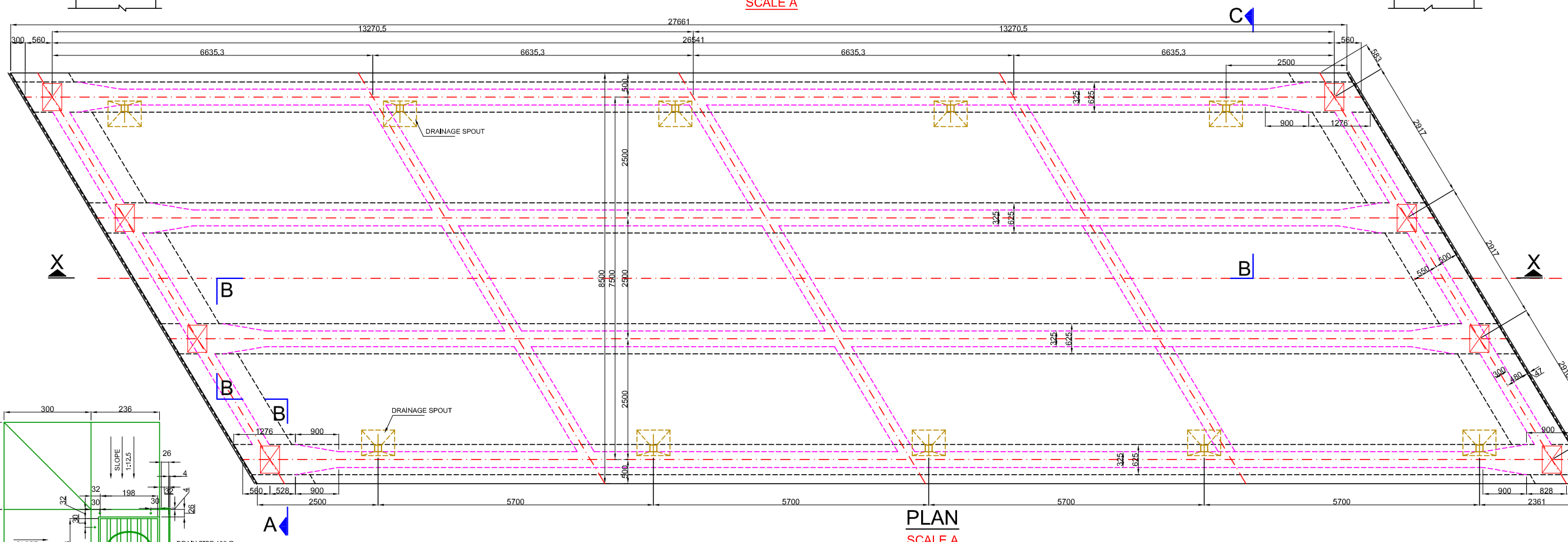
SECTIONAL ELEVATION X-X

SCALE A



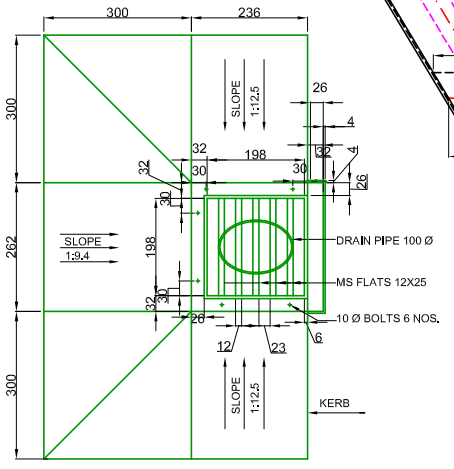
DETAILS OF CRASH BARRIER

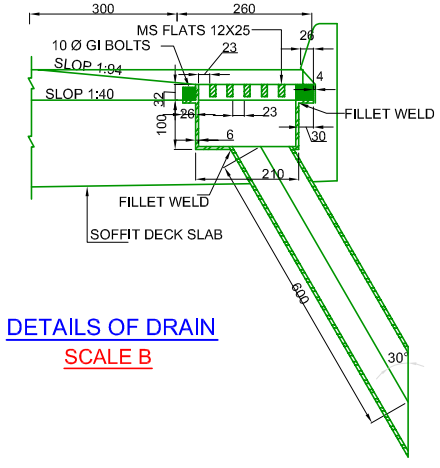
SCALE B



PLAN

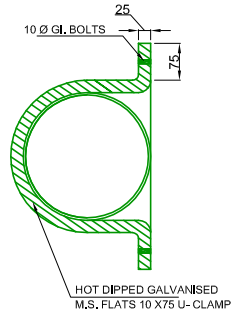
SCALE A

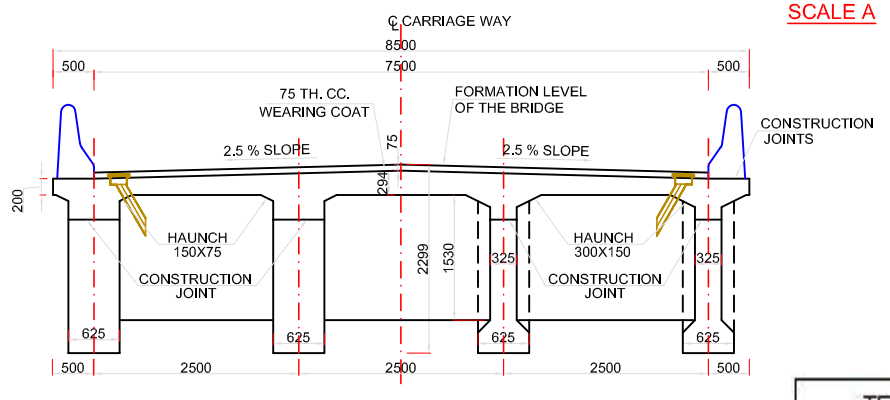




DETAILS OF DRAIN

SCALE B





SECTION ABC

SCALE A

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.

SCALE A:-

SCALE B:-

NOTES

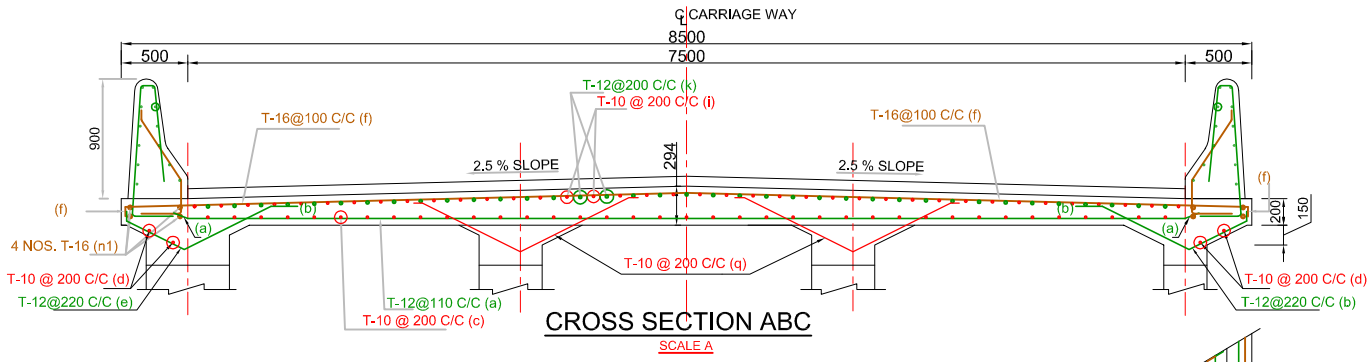
1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
7. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
8. REINFORCED OF CRASH BARIER SHOULD BE SUITABLY EMBEDDED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.

TENDER DRAWING

Prepared by :-

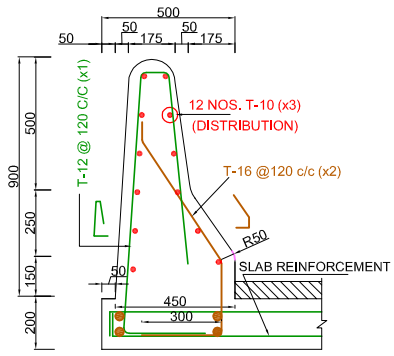
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	DETAIL DRAWING OF DECK SLAB OF DLR SKEW BRIDGE AT KM 3.597 WITH FOUR BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04 08 of 13
Drawn by:-	Checked by:- Approved by:-



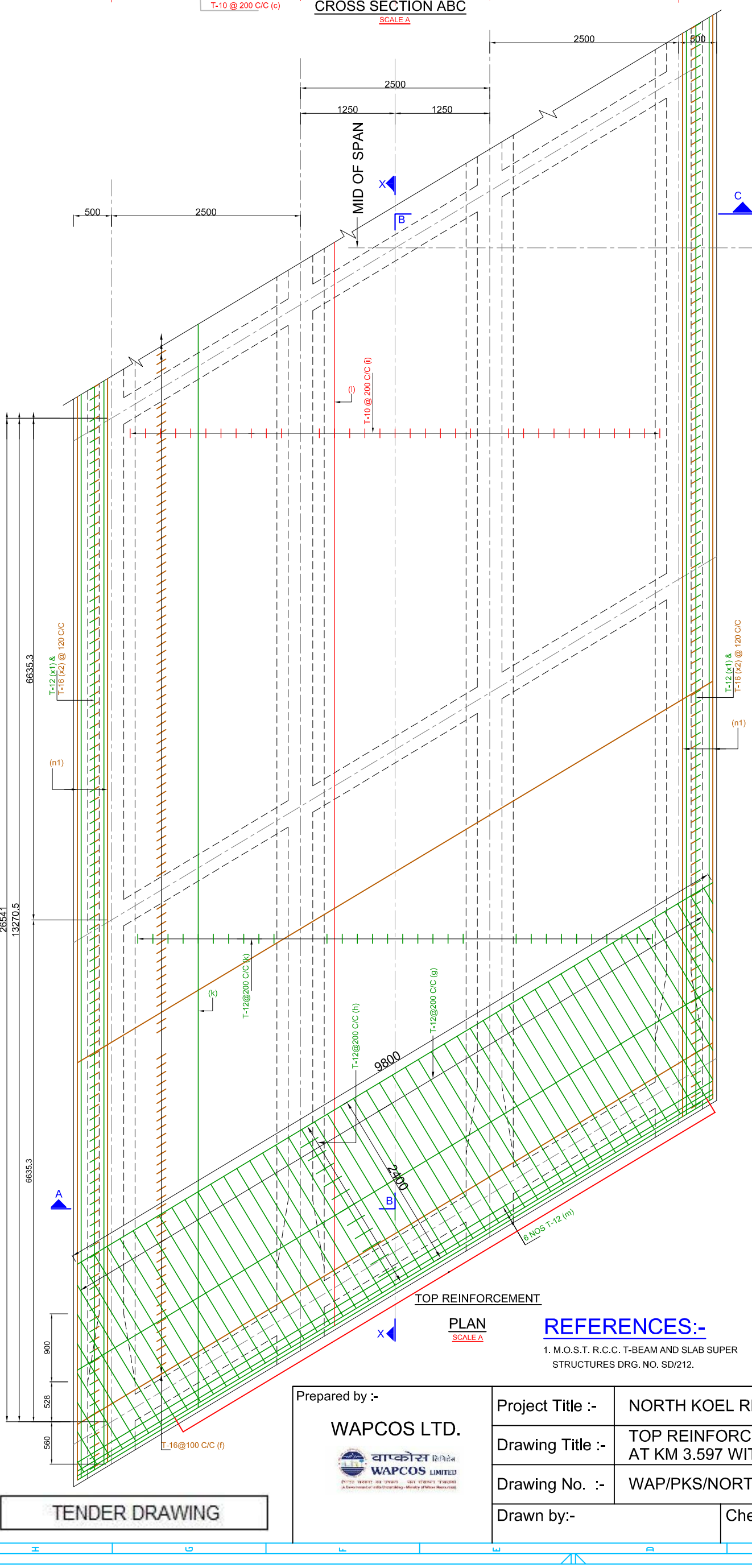
CROSS SECTION ABC

SCALE A



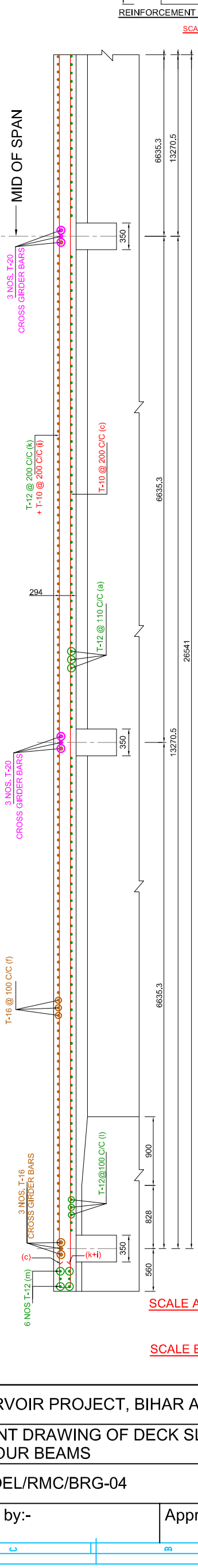
REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B



TOP REINFORCEMENT PLAN

SCALE A



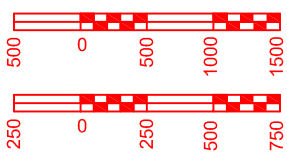
SECTIONAL ELEVATION X-X

SCALE A

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

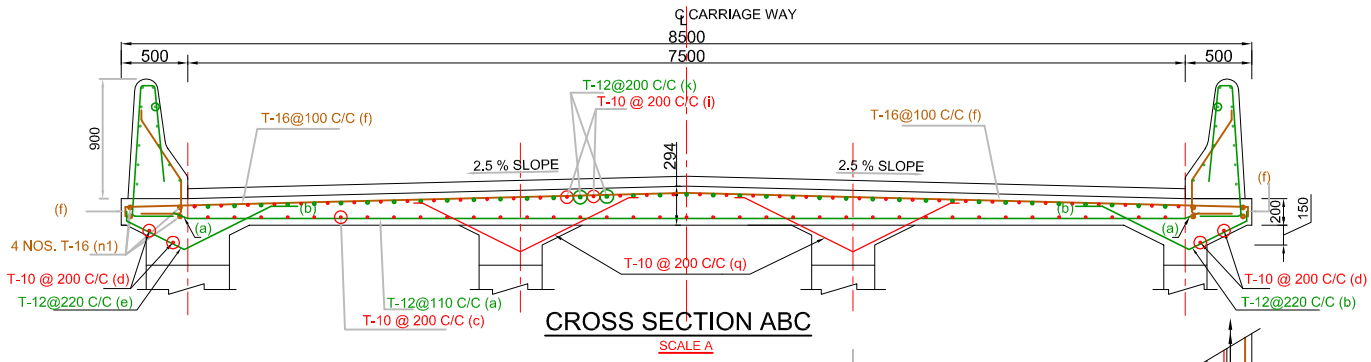
SCALE A:-



SCALE B:-

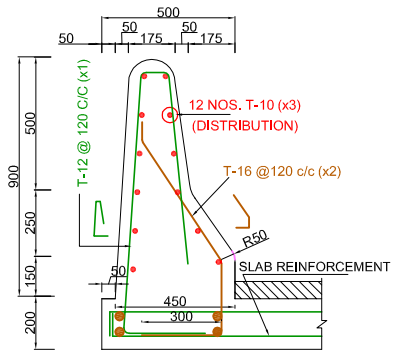
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	TOP REINFORCEMENT DRAWING OF DECK SLAB OF DLR BRIDGE AT KM 3.597 WITH FOUR BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04 09 of 13
	Drawn by:-	Checked by:- / Approved by:-



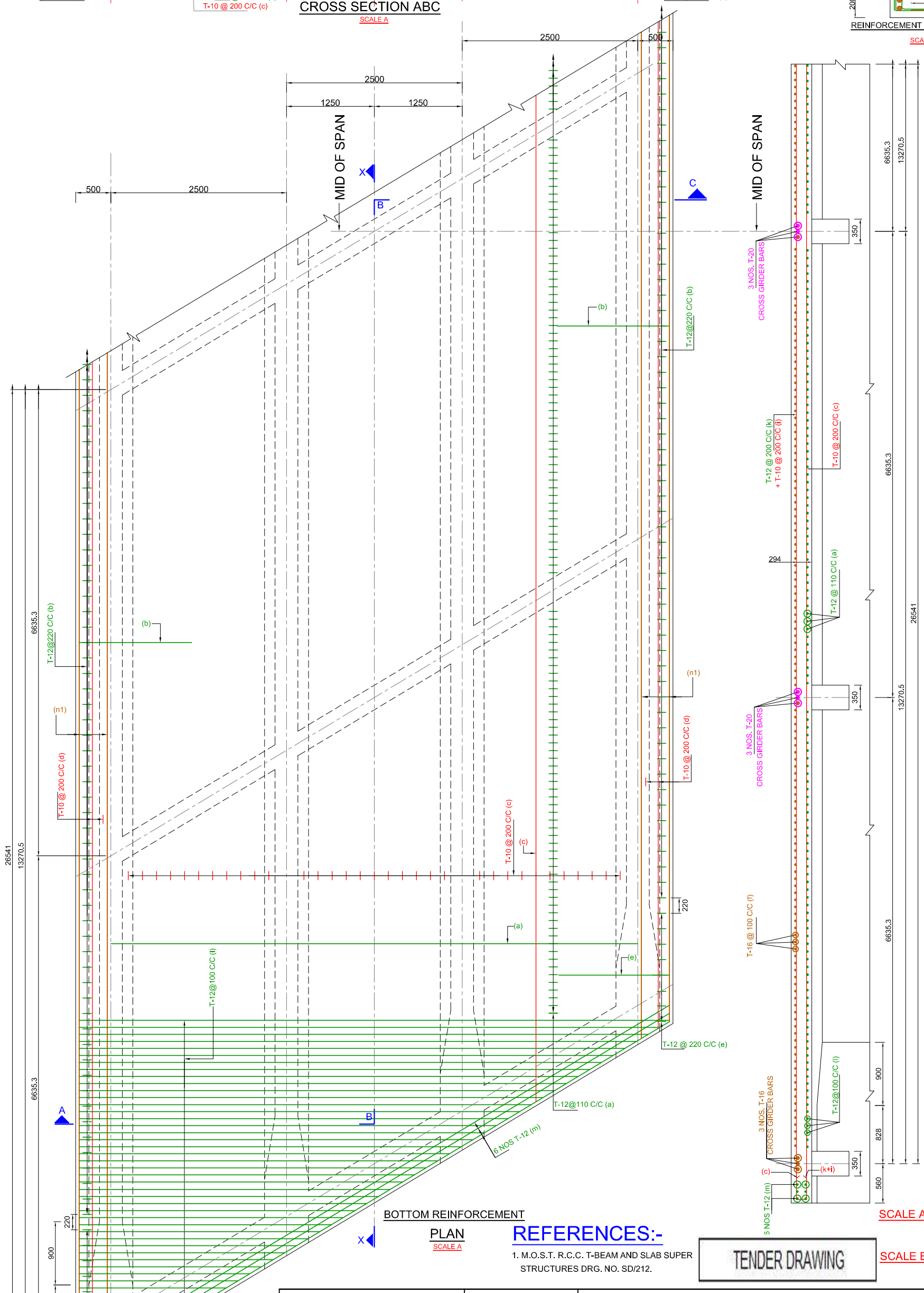
CROSS SECTION ABC

SCALE A



REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B



SECTIONAL ELEVATION X-X

SCALE A

BOTTOM REINFORCEMENT

PLAN

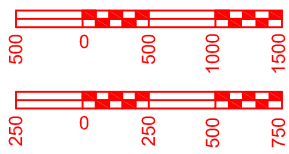
SCALE A

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

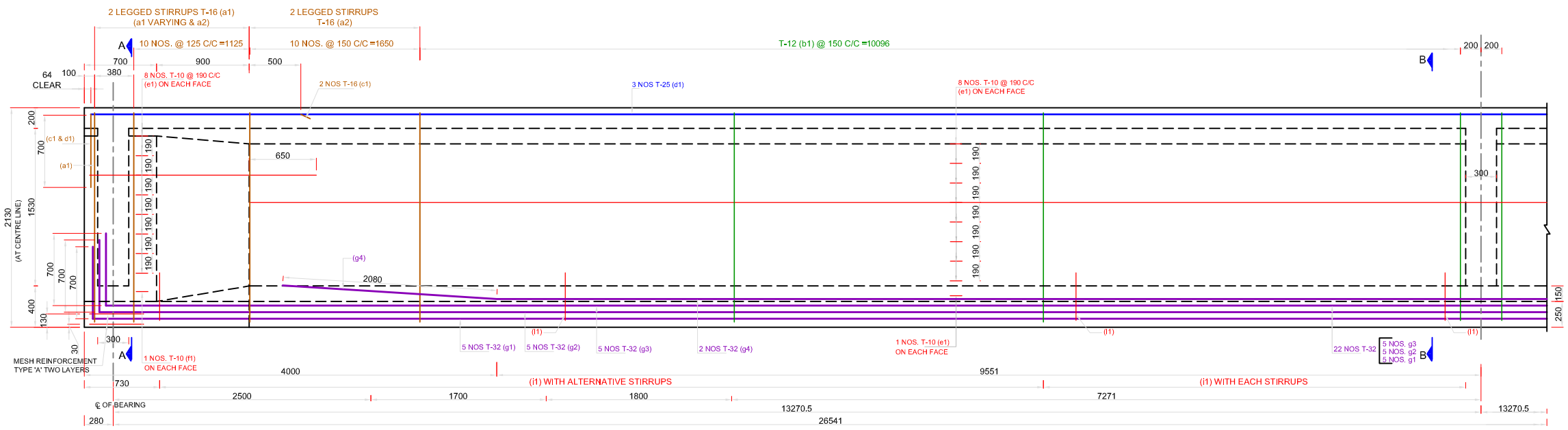
TENDER DRAWING

SCALE A:-

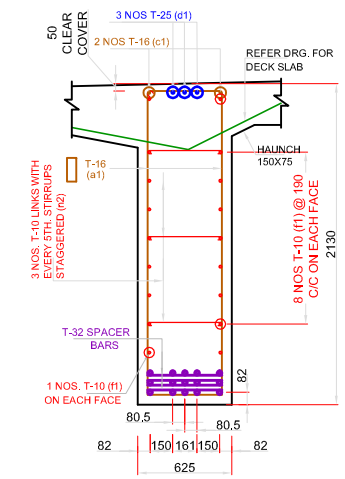


SCALE B:-

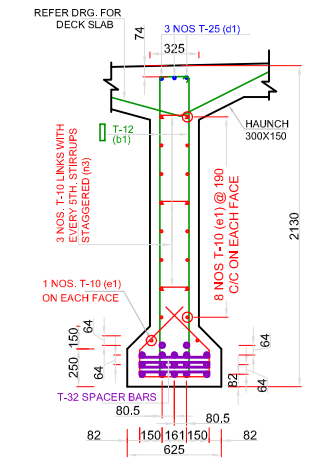
Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	BOTTOM REINFORCEMENT DRAWING OF DECK SLAB OF DLR BRIDGE AT KM 3.597 WITH FOUR BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04 10 of 13
	Drawn by:-	Checked by:- Approved by:-



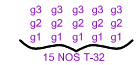
LONGITUDINAL SECTION OF OUTER GIRDER



SECTION A-A



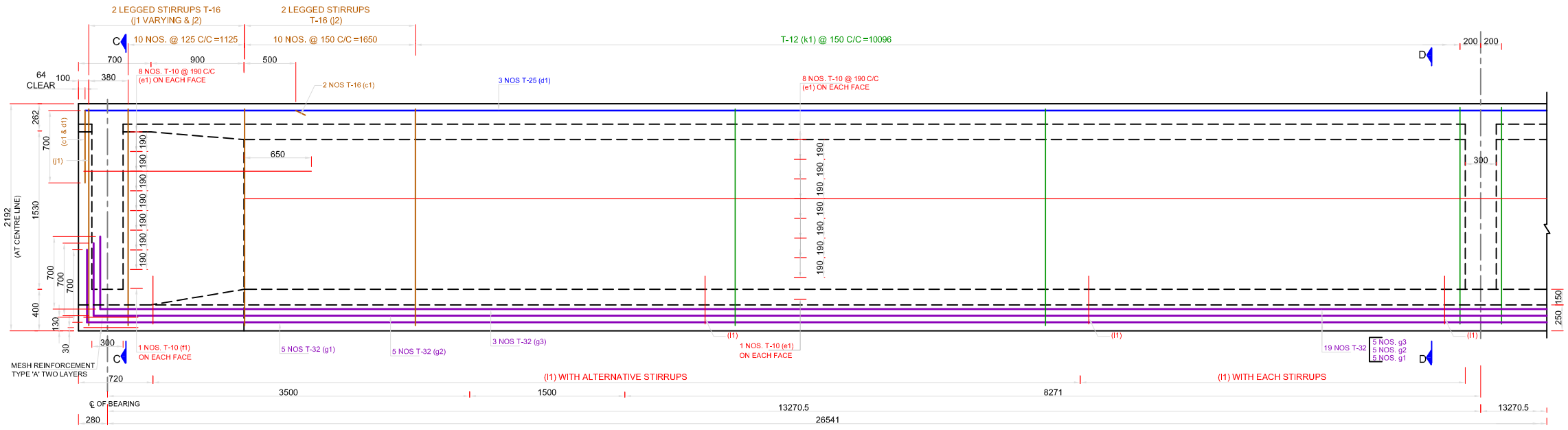
SECTION B-B



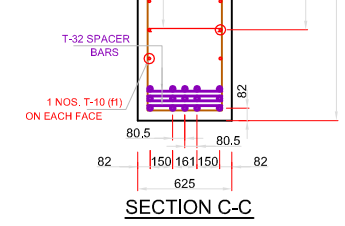
15 NOS T-32



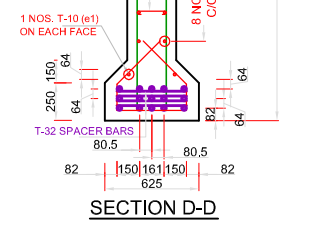
17 NOS T-32



LONGITUDINAL SECTION OF INNER GIRDER



SECTION C-C



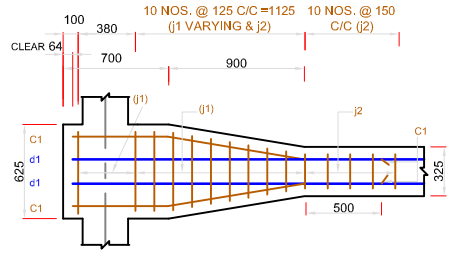
SECTION D-D



15 NOS T-32

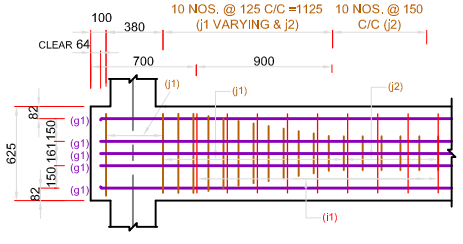


15 NOS T-32



INNER GIRDER

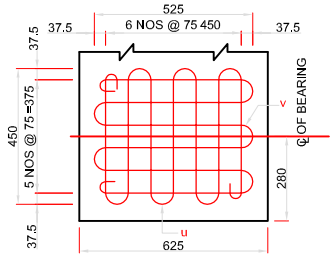
PLAN SHOWING TOP REINFORCEMENT AT THE END



INNER GIRDER

PLAN SHOWING BOTTOM REINFORCEMENT AT THE END

(SIMILAR DETAILING WILL BE FOLLOWED FOR OUTER GIRDERS)

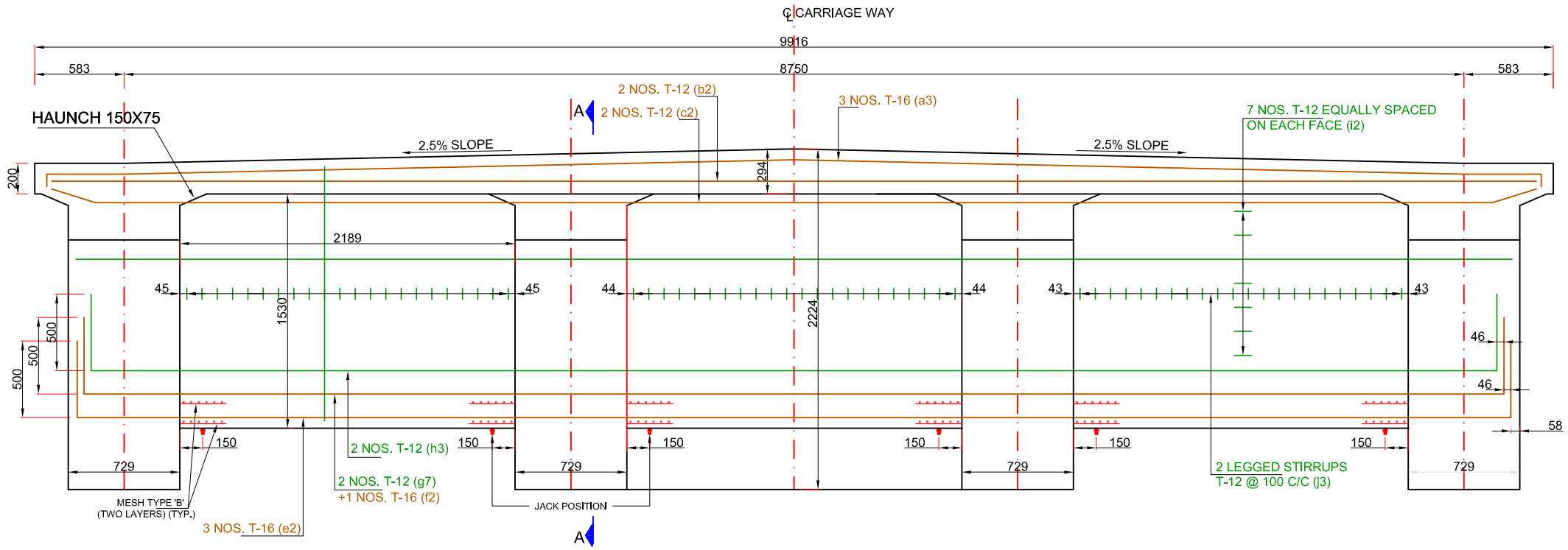


T-8 MESH REINFORCEMENT

TYPE - 'A'

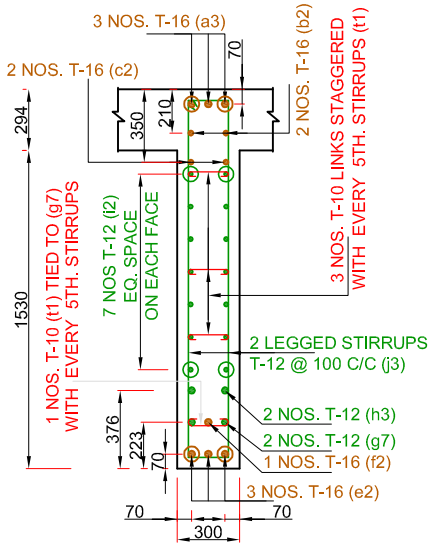
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	REINFORCEMENT OF LONGITUDINAL GIRDER OF DLR SKEW BRIDGE AT KM 3.597 WITH FOUR BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04	11 of 13
	Drawn by:-	Checked by:-	Approved by:-



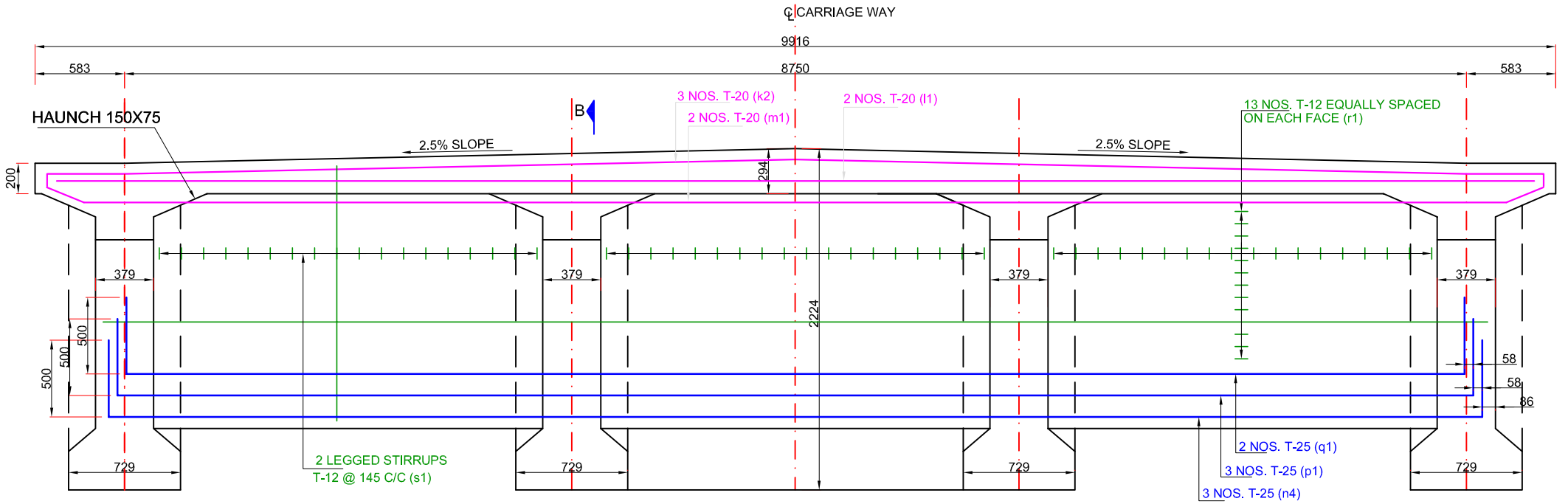
LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A



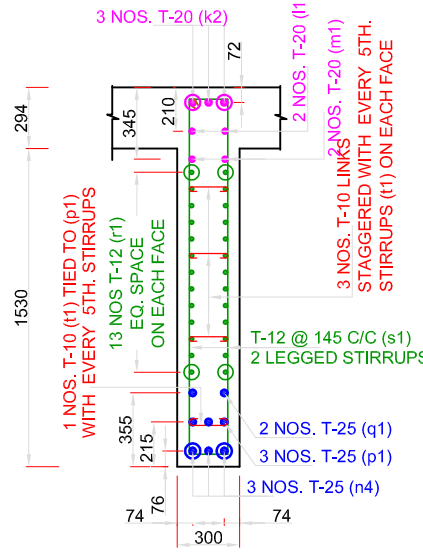
SECTION A-A

SCALE A



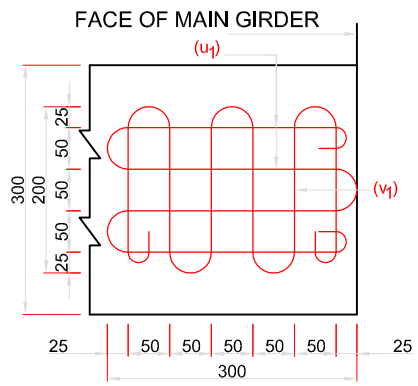
LONGITUDINAL SECTION OF INTERMEDIATE CROSS GIRDER

SCALE A



SECTION B-B

SCALE A



T-8 MESH REINFS. TYPE - 'B'

SCALE B

SCALE A:-

SCALE B:-

TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF DLR SKEW BRIDGE AT KM 3.597 WITH FOUR BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04 12 of 13
	Drawn by:-	Checked by:- / Approved by:-

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a	8125	12	110	8125	205
2	b	150, 484, 729, 140	12	220	1503	186
3	c	L 150, 27561, 150 L; L VARYING FROM 109 TO 212	10	200	28079	37
4	d	140, 900, 901, 24059, 901, 900, 140; L VARYING FROM 68 TO 270	10	200	27905	4
5	e	VARYING FROM 314 TO 484; VARYING FROM 580 TO 729; 150, 140	12	220	1503	32
6	f	75, 4202, 4202, 75	16	100	8554	252
7	g	150, 2400	12	200	2550	42X2 + 14X2
8	h	9800	12	200	9800	13X2
9	i	L 150, 27561, 150 L; VARYING FROM 109 TO 212	10	200	28061	33
10	k	L 150, 27561, 150 L; VARYING FROM 109 TO 212	12	200	28061	30
11	l	VARYING FROM 8400 TO 217	12	100	4308	50X2
12	m	9800	12	-	9800	3X2
13	n_1	27561	16	-	27561	4X2
14	q	150, 822, 912, 150	10	200	2034	139X2

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u	25, 30, 37.5, 375, 75 75 75 75 75 75, 375, 37.5, 30, 25	10	-	3550	16
2	v	75, 75, 75, 75, 75, 30, 30, 450, 37.5, 25	10	-	3506	16
CRASH BARRIER PER M						
1	x_1	75, 1000, 750, 300	12	120	2125	9
2	x_2	75, 540, 300, 250	16	120	1165	9
3	x_3	1000	10		1000	12

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
LONGITUDINAL OUTER GIRDERS (2 NOS.)						
1	a_1	L1=VARYING FROM 2056 TO 2060; L2 = VARYING FROM 2048 TO 2024; VARYING FROM 193 TO 493	16	125	5158	15X2X2
2	a_2	193, 2028, 2024, 193	16	150	4758	11X2X2
3	b_1	193, 2028, 2024, 193	12	150	4678	160X2
4	c_1	708, R=96, ELEVATION, 636, 166, 913, 500	16	-	2693	2X2X2
5	d_1	26973, 708, R=96, 708	25	-	28189	3X2
6	e_1	23901	10	-	23901	9X2X2
7	f_1	913, 650, 636, 160	10	-	2199	18X2X2
8	g_1	716, R=192, 716, 26973	32	-	28149	5X2
9	g_2	716, R=192, 716, 26845	32	-	28021	5X2
10	g_3	716, R=192, 716, 26717	32	-	27893	5X2
11	g_4	4080, 4080, 20541	32	-	24701	2X2
12	i_1	450, 450, 485, 315, 493	10	-	1733	106X2
12	n_2	140, L, 140; L = VARYING FROM 213 TO 513	10	-	583	18X2
14	n_3	140, 213, 140	10	-	433	120X2
LONGITUDINAL INNER GIRDER (2 NOS.)						
1	j_1	L1=VARYING FROM 2094 TO 2098; L2 = VARYING FROM 2086 TO 2090; VARYING FROM 193 TO 493	16	125	5290	15X2X2
2	j_2	193, 2090, 2094, 193	16	150	4890	11X2X2
3	k_1	193, 2090, 2094, 193	12	150	4810	160X2
4	c_1	708, R=96, ELEVATION, 636, 166, 913, 500	16	-	2693	2X2X2
5	d_1	26973, 708, R=96, 708	25	-	28189	3X2
6	e_1	23901	10	-	23901	9X2X2
7	f_1	913, 650, 636, 160	10	-	2199	18X2X2
8	g_1	716, R=192, 716, 26973	32	-	28149	5X2
9	g_2	716, R=192, 716, 26845	32	-	28021	5X2
10	g_3	716, R=192, 716, 26717	32	-	27893	5X2
11	i_1	450, 450, 485, 315, 493	10	-	1733	106X2
12	n_2	140, L, 140; L = VARYING FROM 213 TO 513	10	-	583	18X2
13	n_3	140, 213, 140	10	-	433	120X2

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a_3	95, 4910, 4910, 95	16	-	9914	3X2
2	b_2	95, 9634, 95	16	-	9728	2X2
3	c_2	450, 8751, 450	16	-	9651	2X2
4	e_2	508, 9375, 508	16	-	10295	3X2
5	f_2	508, 9259, 508	16	-	10179	1X2
6	g_7	506, 9282, 506	12	-	10222	2X2
7	h_3	506, 9190, 506	12	-	10130	2X2
8	i_2	176, 9378, 176	12	-	9658	7X2X2
9	j_3	L 200 L 200; VARYING FROM 1665 to 1716	12	100	3881	66X2
10	t_1	140, 196, 140	10	-	416	15x3x2
MIDDLE CROSS GIRDERS						
1	k_2	95, 4910, 4910, 95	20	-	9890	3X3
2	l_1	95, 9634, 95	20	-	9824	2X3
3	m_1	450, 8751, 450	20	-	9651	2X3
4	n_4	514, 8957, 514	25	-	9785	3X3
5	p_1	514, 8841, 514	25	-	9669	3X3
6	q_1	512, 8738, 512	25	-	9562	2X3
7	r_1	176, 9028, 176	12	-	9990	13X2X3
8	s_1	L 200; VARYING FROM 1617 to 1672	12	145	3881	54X3
9	t_1	140, 196, 140	10	-	416	12X3X3

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
1	u_1	30, 50, 50, 30, 50, 25, 250, 37.5	10	-	1453	24
2	v_1	50 50 50 50 50, 37.5, 30, 50, 150, 25	10	-	1510	24

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.

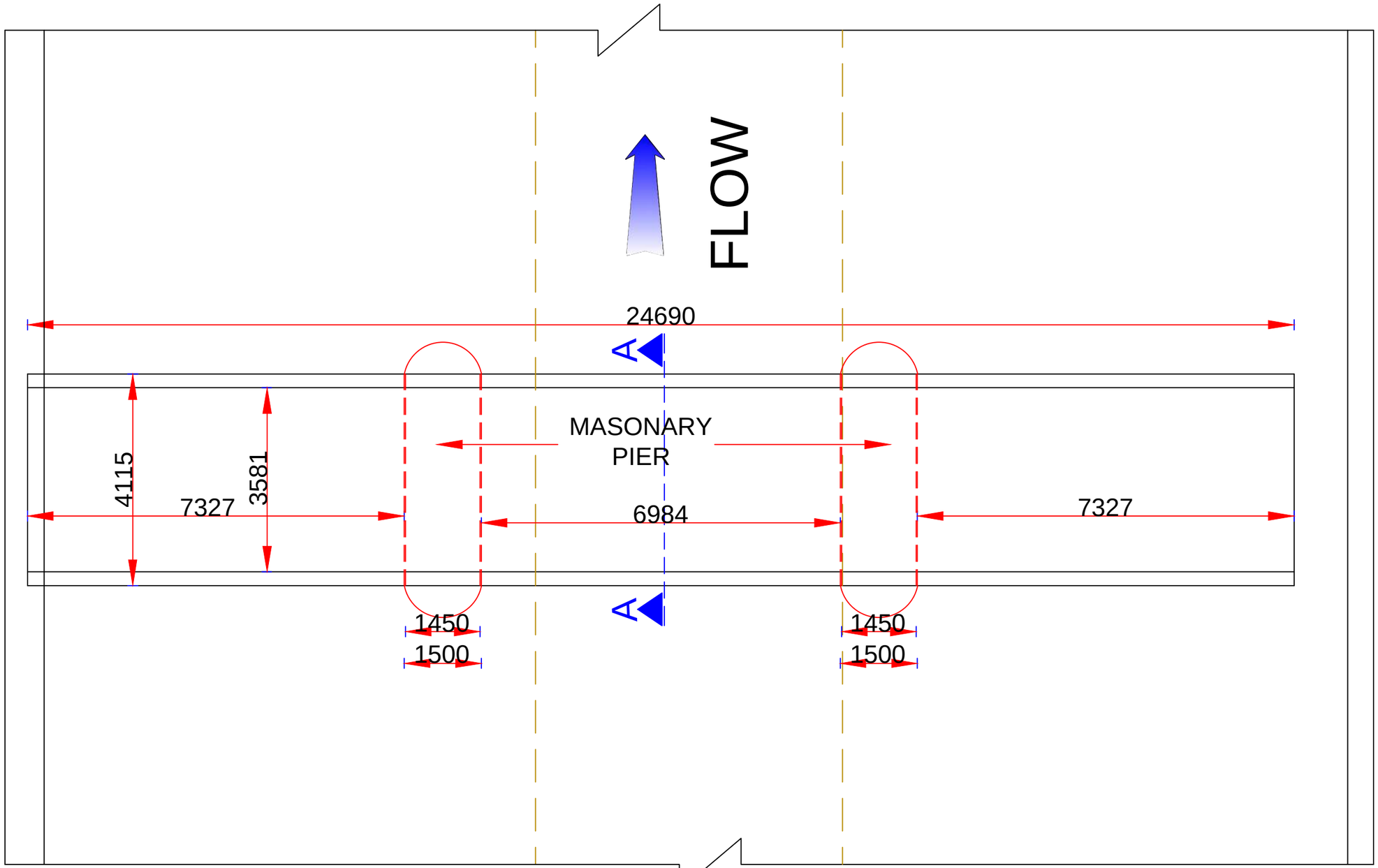
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	BAR BENDING SCHEDULE OF SUPER STRUCTURE OF DLR SKEW BRIDGE AT KM 3.597 WITH FOUR BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-04 13 of 13
Drawn by:-	Checked by:- Approved by:-



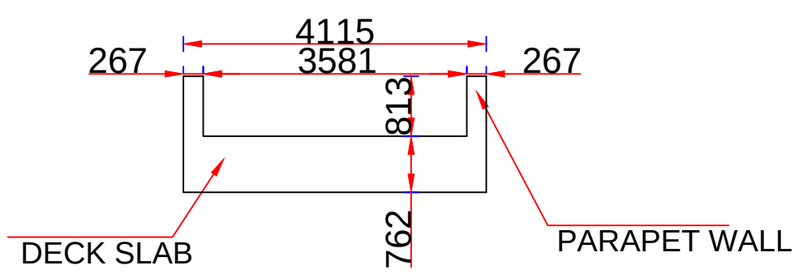
S.L.R. BRIDGE

AT

CH. 5.950 KM



PLAN



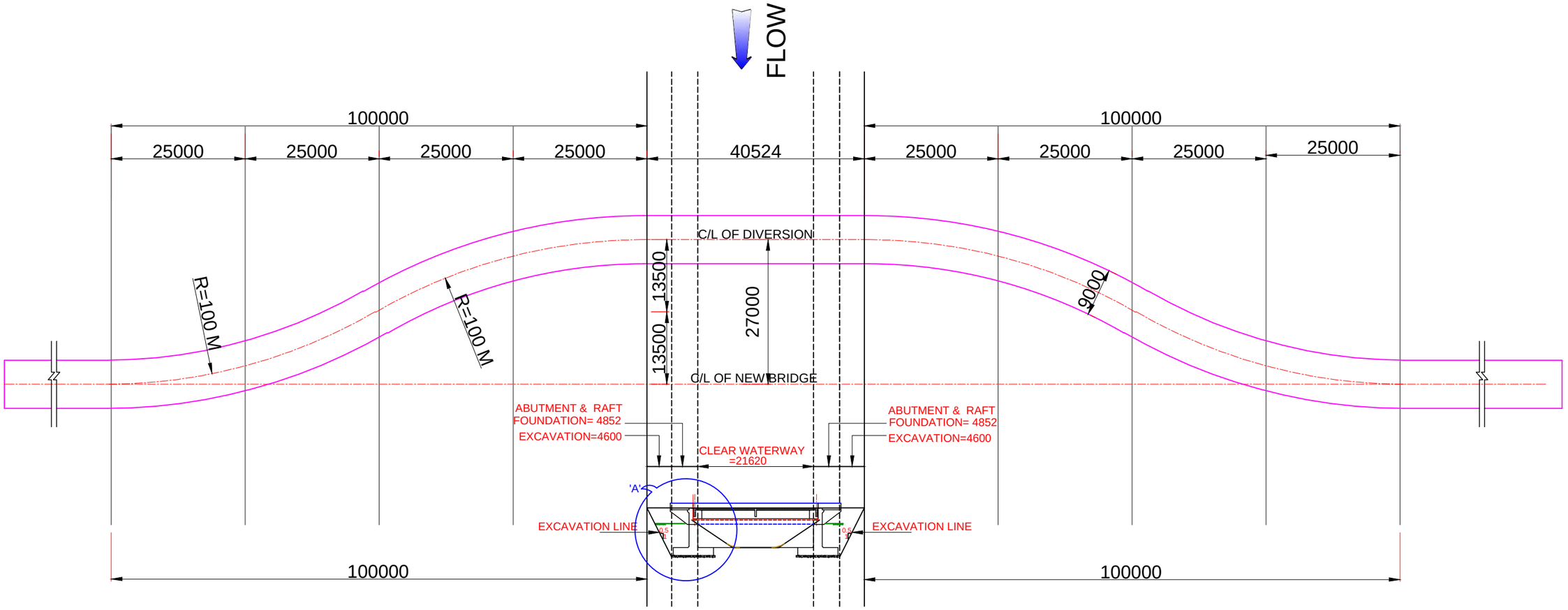
SECTION A-A

NOTES:

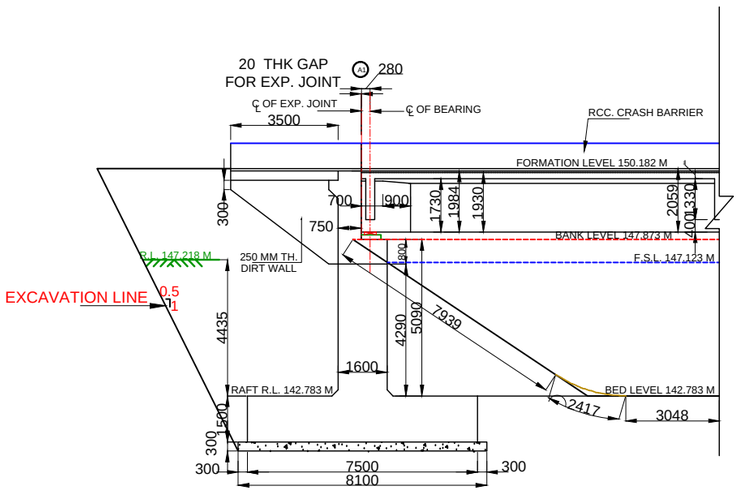
1 ALL DIMENSIONS ARE IN mm.
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	EXISTING PLAN OF SINGLE LANE ROAD BRIDGE AT CH. 5.95 KM
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-05 01 of 12
	Drawn by:-	Checked by:- / Approved by:-



SKETCH OF DIVERSION PLAN AT KM 5.950 FOR S.L.R. BRIDGE



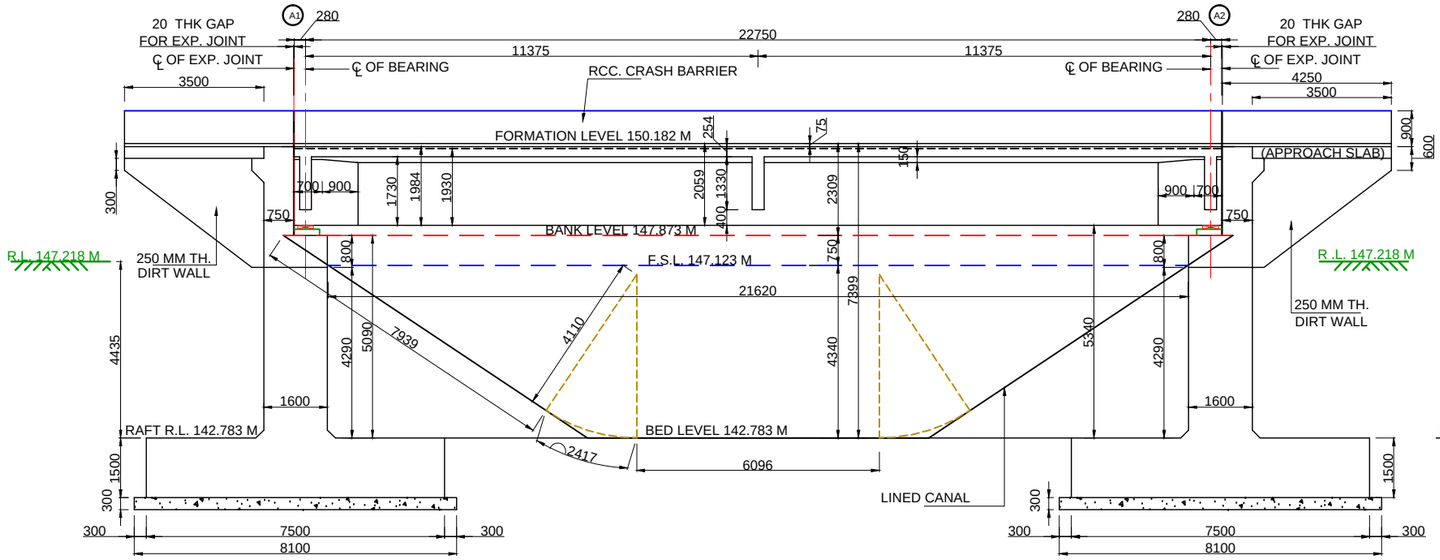
DETAIL SECTION AT 'A'

NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

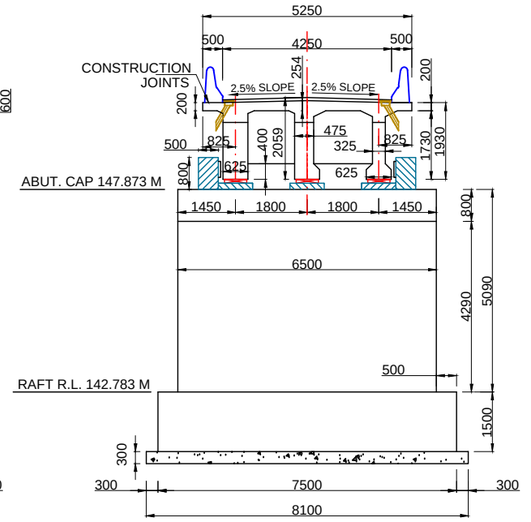
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 5.950 FOR S.L.R. BRIDGE
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 05 02 of 12
	Drawn by:-	Checked by:- / Approved by:-



SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	84.15 CUMEC
BED LEVEL	142.783 M
WATER DEPTH	4.340 M
F.S.L.	147.123 M
FREE BOARD	0.75 M

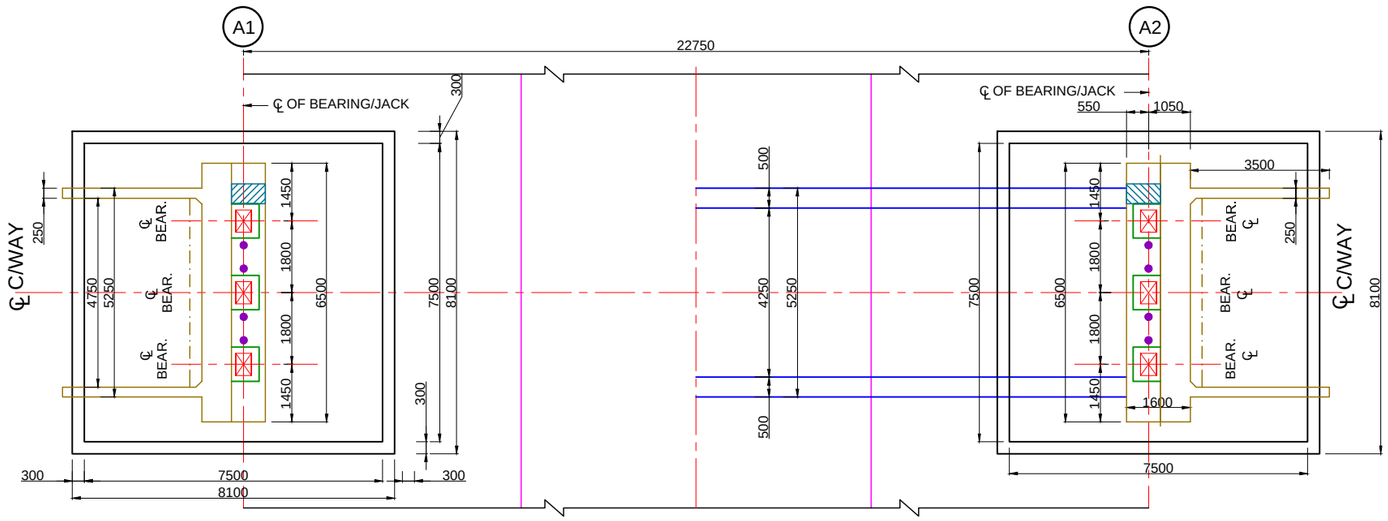
7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a)	RAFT	M35
b)	ABUTMENT	M25
c)	SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d)	CRASH BARRIER	M30
e)	PEDESTAL (SEISMIC)	M35
f)	WEARING COAT	M30

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0Á
ROAD LEVEL	150.182 M
EX. ROAD LEVEL	147.218 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M

9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM



HALF BOTTOM PLAN / HALF TOP PLAN

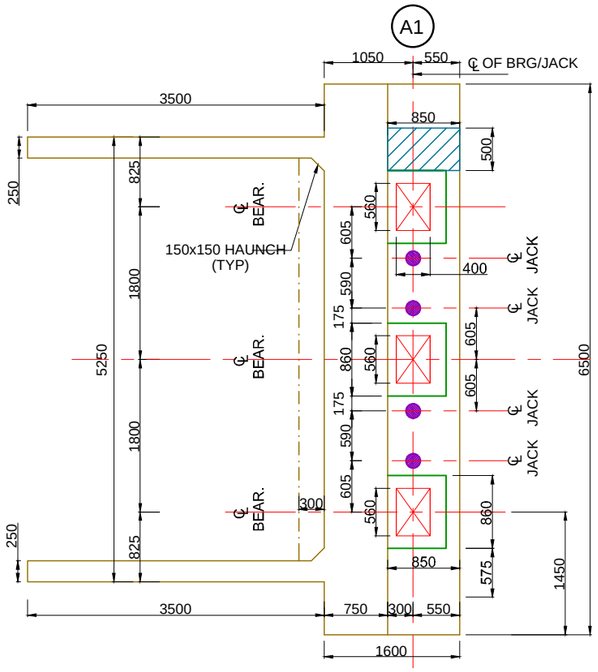
(SCALE A)

SCALE A:-

2000 0 2000 4000 6000

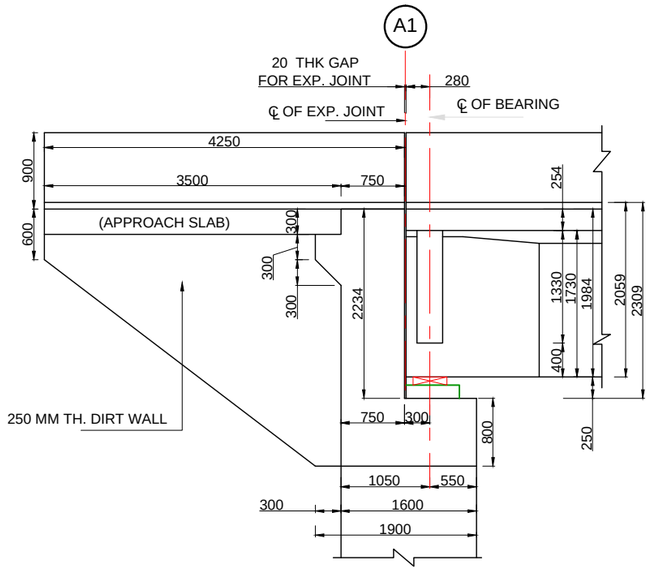
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 5.950 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-05	03 of 12
	Drawn by:-	Checked by:-	Approved by:-



PLAN OF ABUTMENT AT BEARING LEVEL

(SCALE B)

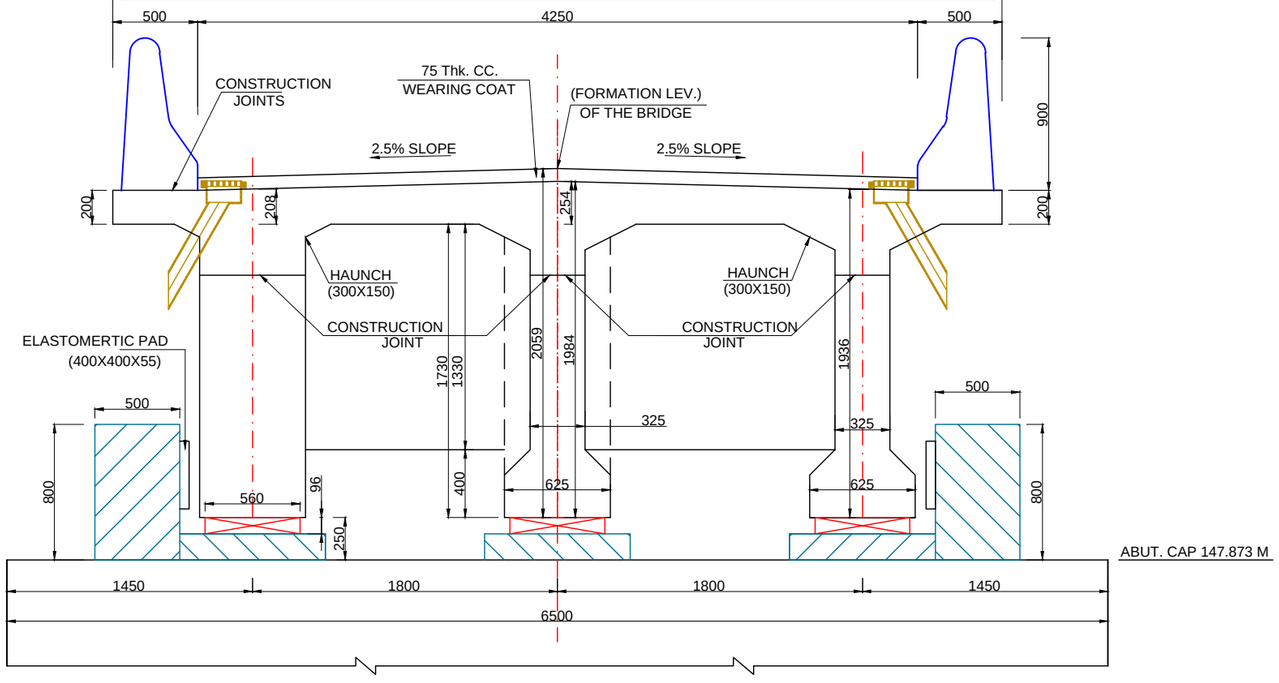


DETAIL - `D1'

(SCALE B)

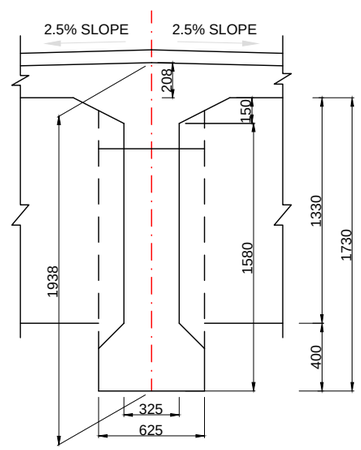
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



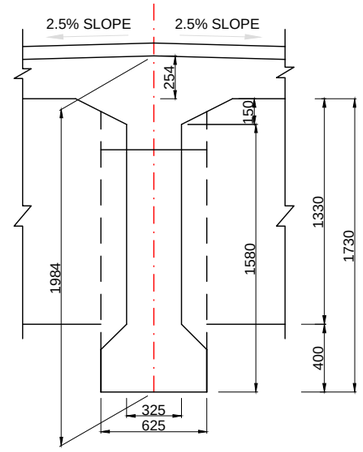
CROSS SECTION OF GIRDERS

(SCALE C)



CROSS SECTION OF RCC 'I' OUTER GIRDER

(SCALE C)



CROSS SECTION OF RCC 'I' INTERMEDIATE GIRDER

(SCALE C)

TENDER DRAWING

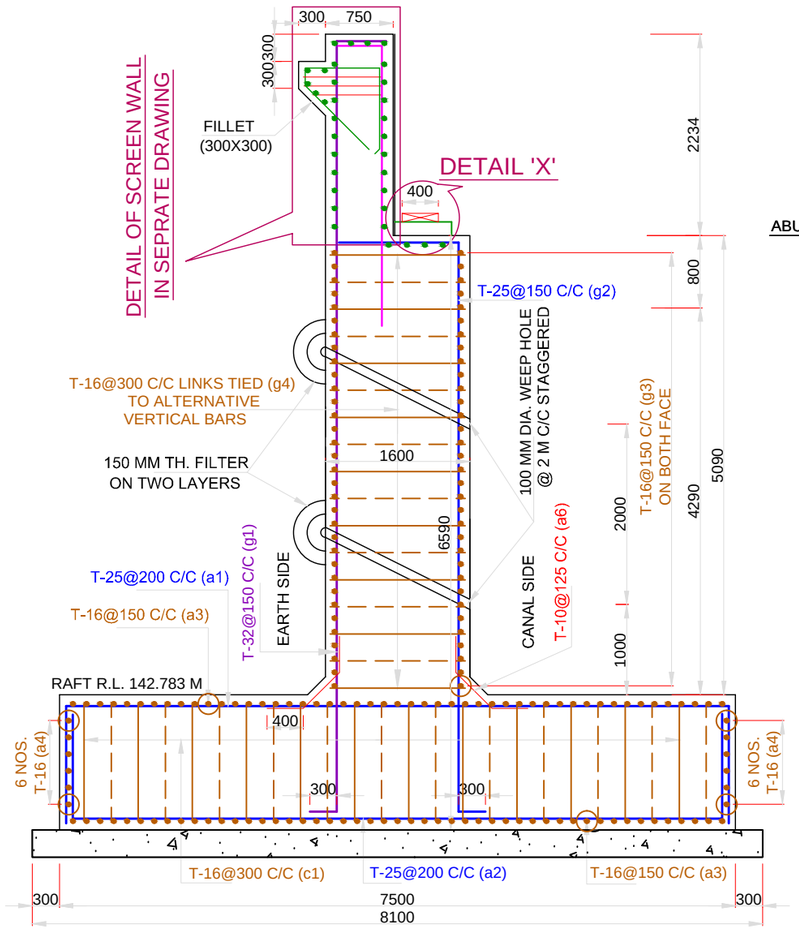
SCALE B:-



SCALE C:-

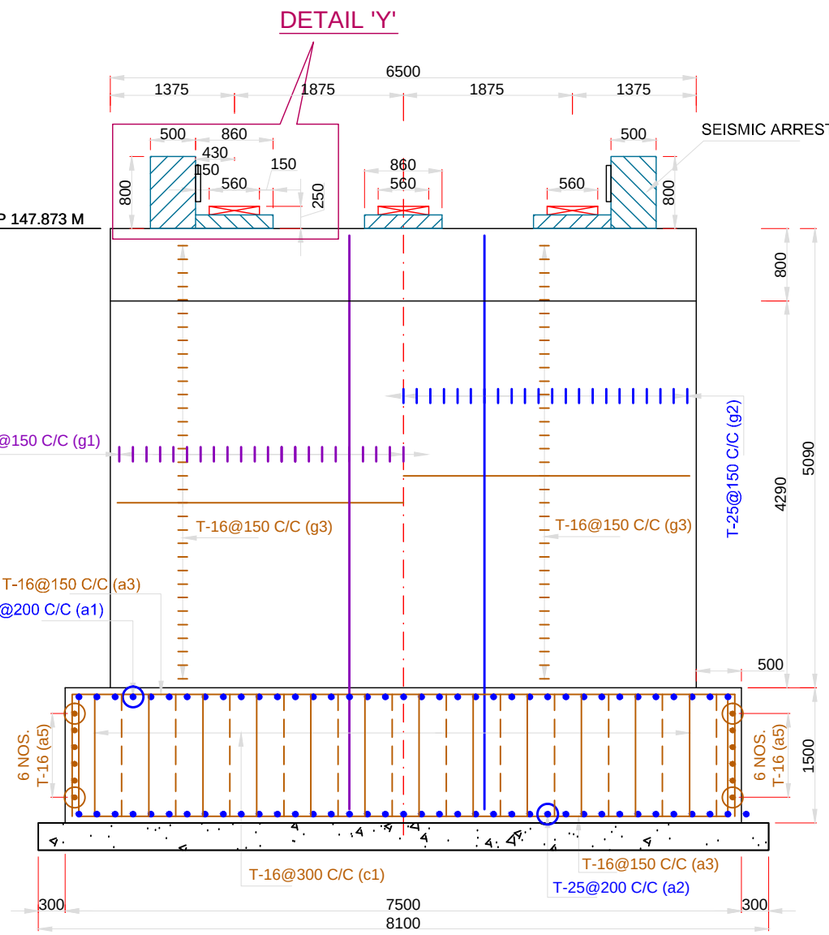


Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR BRIDGE AT KM 5.950 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-05 04 of 12
	Drawn by:-	Checked by:- / Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	600, 8598, 300	32	150	42X2
	2	g2	1325, 6365, 300	25	150	42X2
	3	g3	708, 6350, 708	16	150	33X2X2
	4	g4	150, VERTICAL LINK BARS 1450, 150	16	300	9X11X2
IN RAFT FOR ABUTMENT	5	a1	1000, 7350, 1000	25	200	37X2
	6	a2	1000, 7350, 1000	25	200	37X2
	7	a3	700, 700, 7350, 7350, 700, 700	16	150	49X2X2
	8	a4	700, 7350, 700	16	-	6X2X2
	9	a5	700, 7350, 700	16	-	6X2X2
	10	a6	400, 560, 400, 400, 400, 560	10	125	59X2X2
	11	c1	150, 1350, 150	16	300	13X13X2

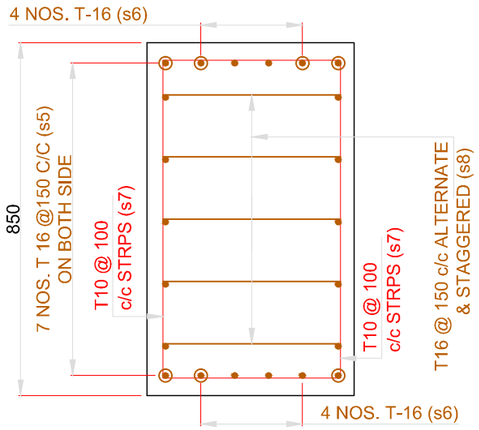
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:- 500 0 500 1000 1500

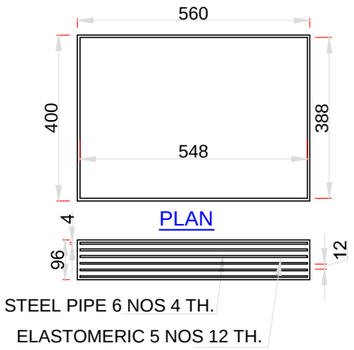
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SLR BRIDGE AT KM 5.950 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-05 05 of 12
	Drawn by:-	Checked by:- / Approved by:-



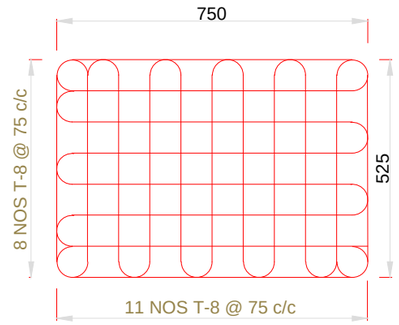
SECTION H-H

SCALE A



DETAILS OF ELASTOMERIC BEARINGS

SCALE A

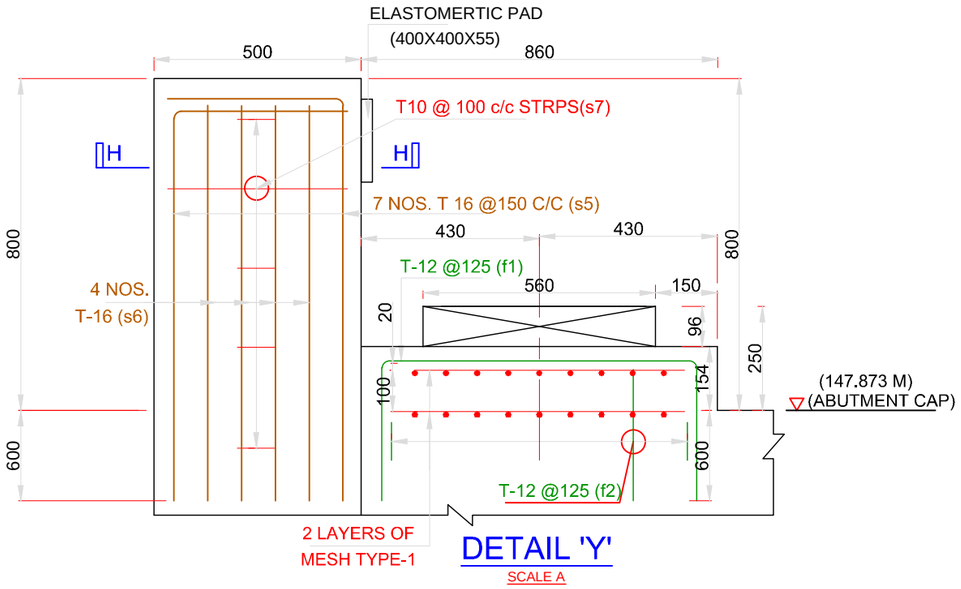


DETAIL OF MESH M1 (MESH BELOW BEARING LOCATION)

SCALE A

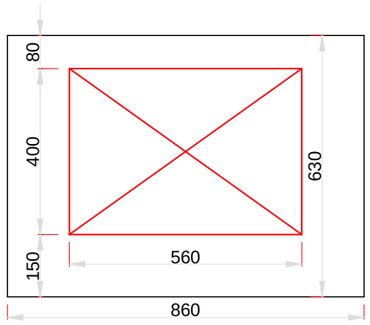
BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5	400, 1350	16	150	14X2X2
	2	s6	1350	16	-	8X2X2
	3	s7	700, 400, 400, 700	10	100	5X2X2
	4	s8	400	16	150	5X2X2
PEDESTAL FOR ABUTMENT	5	f1	633, 730, 633	12	125	5X3X3
	6	f2	633, 530, 633	12	125	5X3X3



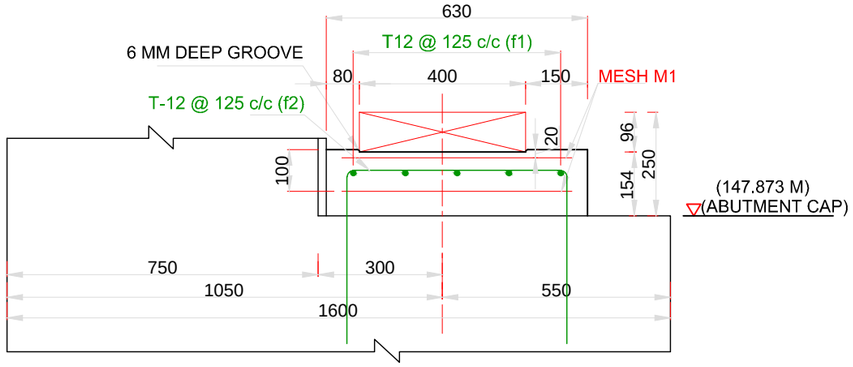
DETAIL 'Y'

SCALE A



PLAN

SCALE A



DETAIL 'X'

SCALE A

SCALE A:-



NOTES

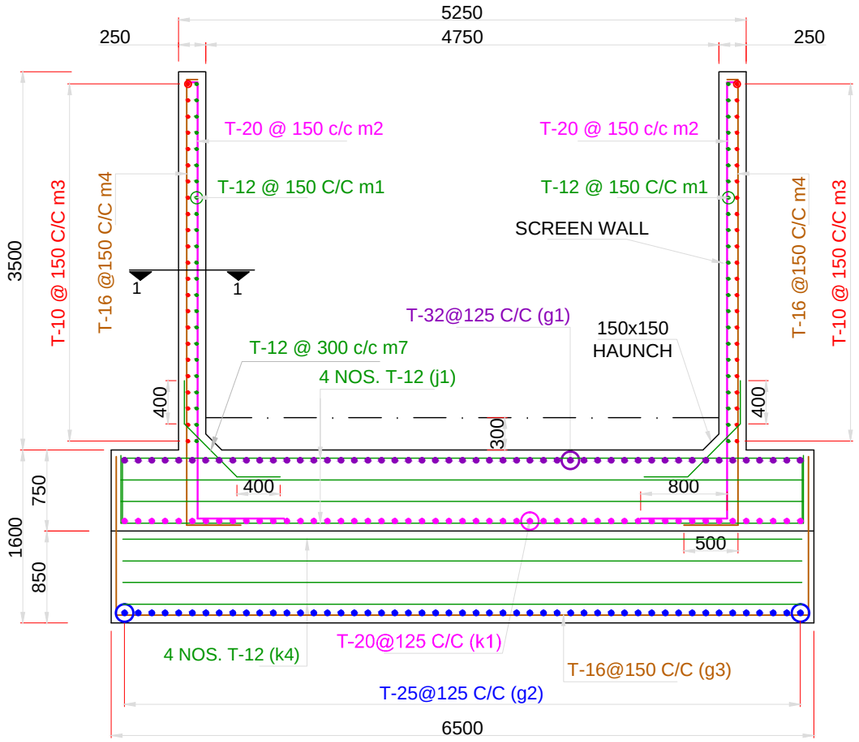
1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

TENDER DRAWING

Prepared by :-

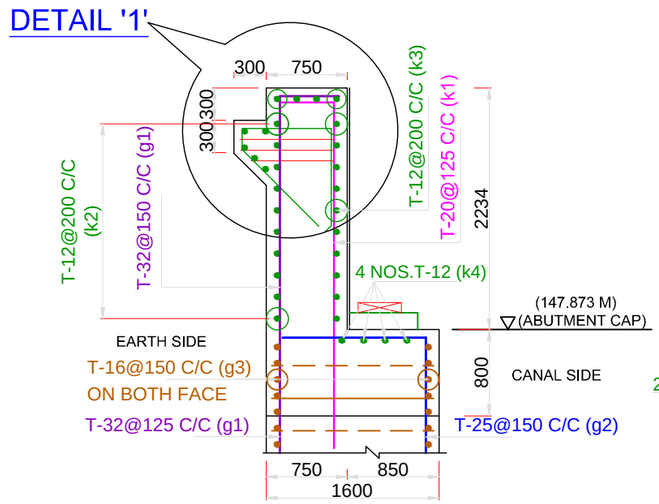
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 5.950 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-05 06 of 12
Drawn by:-	Checked by:- Approved by:-



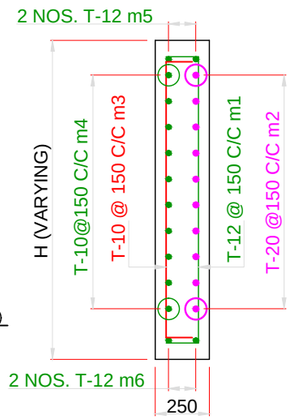
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL

SCALE A



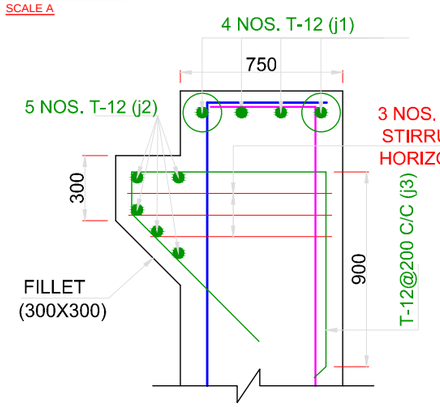
REINFORCEMENT DETAILS IN SECTION OF DIRT

SCALE A



SECTION AT 1-1

SCALE B



DETAIL '1'

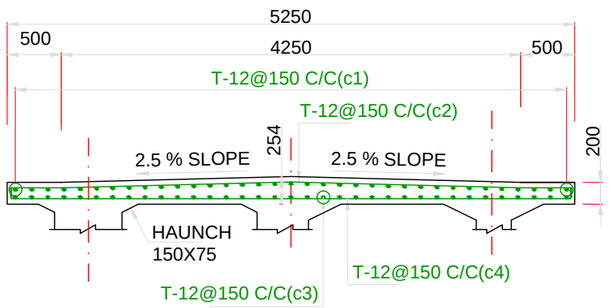
SCALE B

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
DIRT WALL	1	k1	700 — 3459	20	125	51X2
	2	k2	150 — 6350 — 150	12	200	10X2
	3	k3	150 — 6350 — 150	12	200	10X2
	4	k4	150 — 6350 — 150	12	200	4X2
	5	j1	150 — 6350 — 150	12	-	4X2
	6	j2	150 — 6350 — 150	12	-	5X2
	7	j3	950; 195; 850; 900	12	-	24X2
	8	j4	LV= 790 — 6350 6350 — 790	10	300	3X2
SCREEN WALL	9	m1	150 — 1718 — 150	12	150	44x2
	10	m2	150; 4025; 800; 4025; 800; 150	20	150	40x2
	11	m3	150 — 1718 — 150	10	150	44x2
	12	m4	150; 4025; 500; 4025; 500; 150	16	150	40x2
	13	m5	500 — 3350 — 500	12	-	4X2
	14	m6	400 — 4085 — 400	12	-	4X2
	15	m7	400; 800; 400	12	300	8X2X2
APPROACH SLAB	16	c1	150 — 3350 — 150	12	150	34X2
	17	c2	150; 450; 2125; 2125; 450; 150	12	150	23X2
	18	c3	150 — 3350 — 150	12	150	34X2
	19	c4	150 — 5150 — 150	12	150	23X2

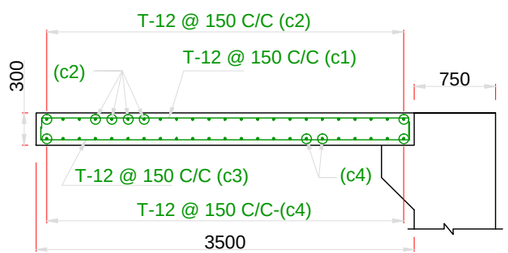
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS 70R OR TWO LANES OF CLASS-A LOADING WHICHEVER IS CRITICAL HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF PIER AND PIER CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.



REINFORCEMENT IN APPROACH SLAB

SCALE A



SECTION OF APPROACH SLAB

SCALE A

SCALE A:-
500 0 500 1000 1500

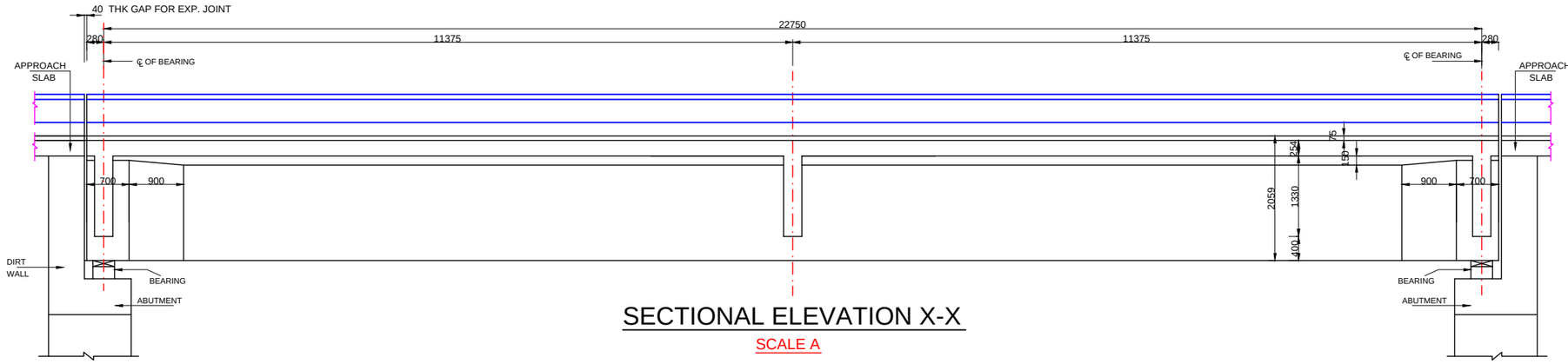
SCALE B:-
250 0 250 500 750

TENDER DRAWING

Prepared by :-

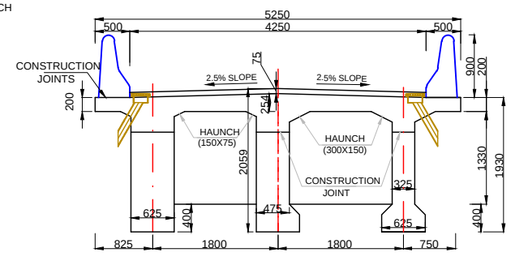
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 5.950 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-05 07 of 12
Drawn by:-	Checked by:- / Approved by:-



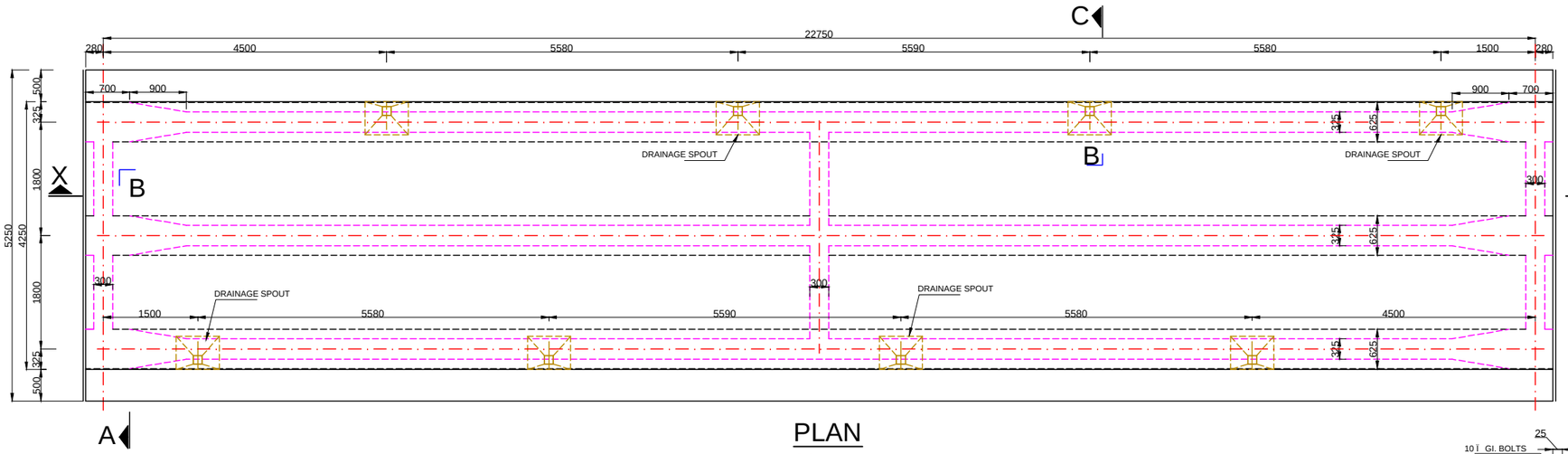
SECTIONAL ELEVATION X-X

SCALE A



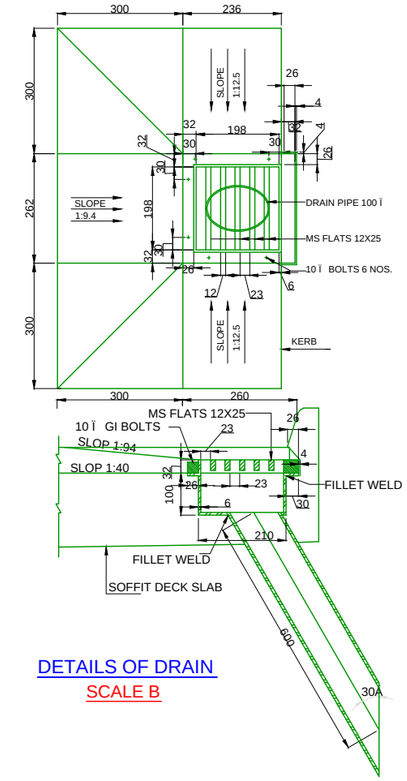
SECTION ABC

SCALE A



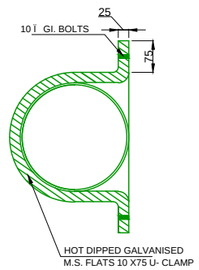
PLAN

SCALE A



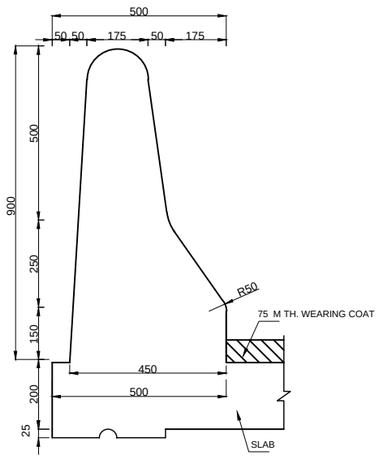
DETAILS OF DRAIN

SCALE B



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
7. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
8. REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.



DETAILS OF CRASH BARRIER

SCALE B

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.

SCALE A:-

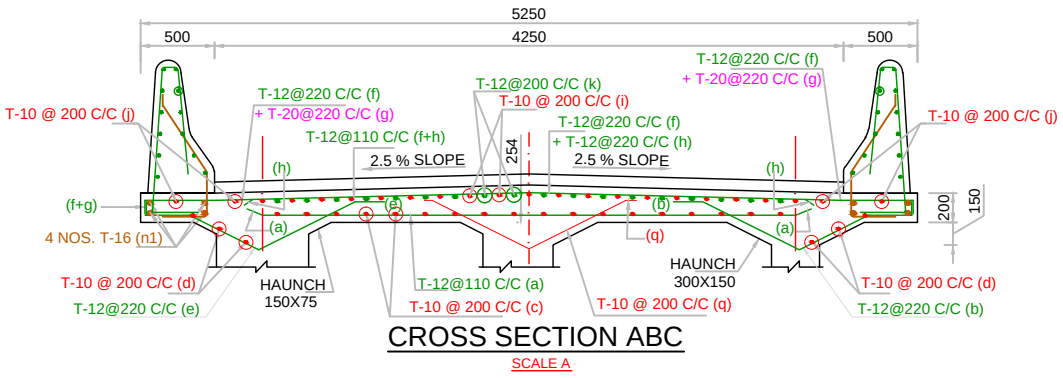


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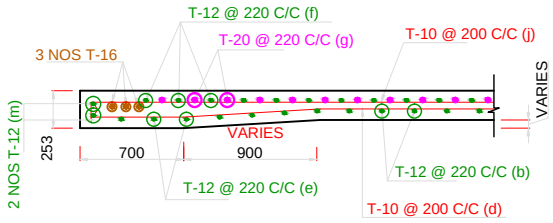
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 5.950 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-05	08 of 12
	Drawn by:-	Checked by:-	Approved by:-



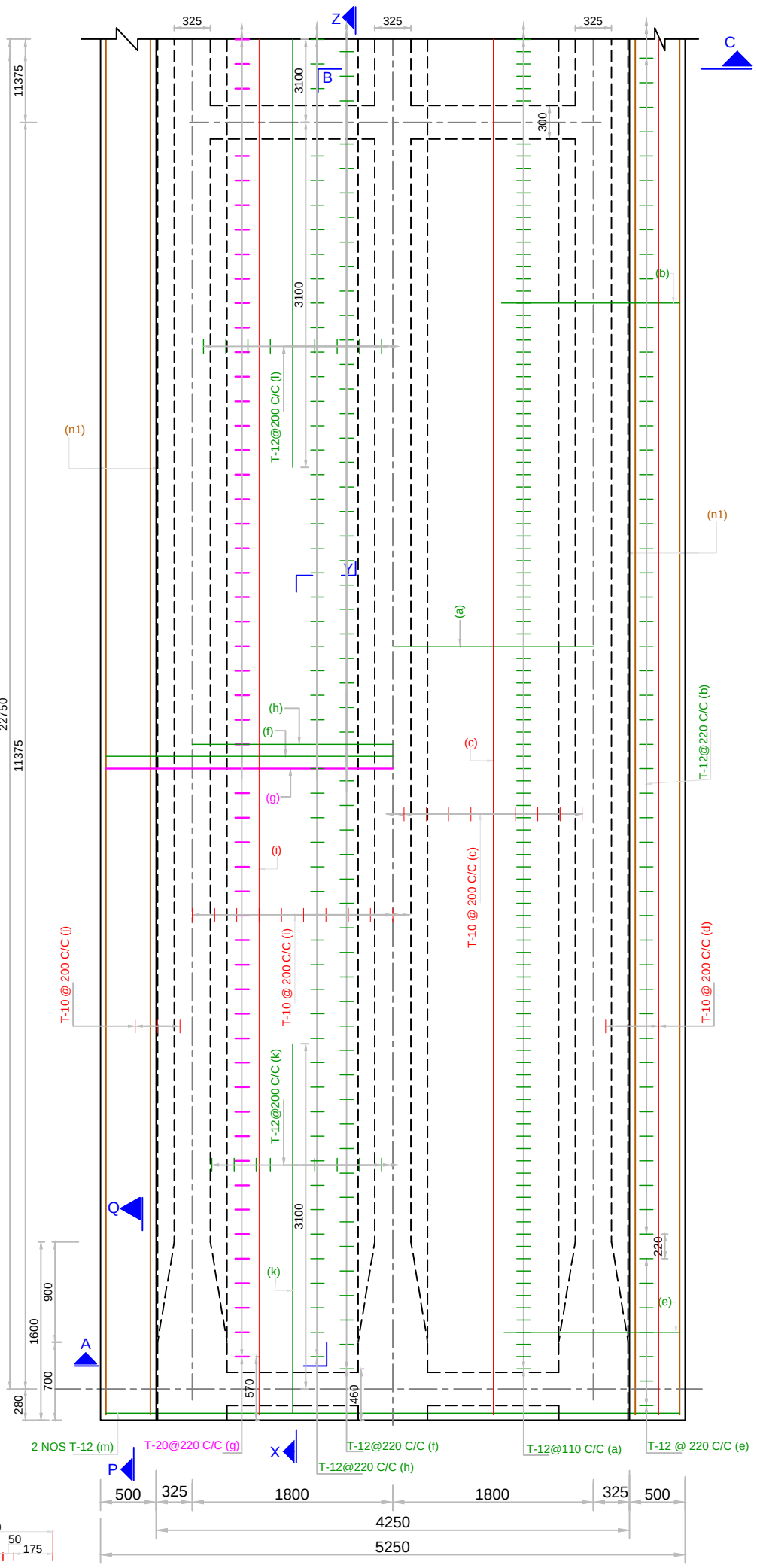
CROSS SECTION ABC

SCALE A



SECTION P.Q.

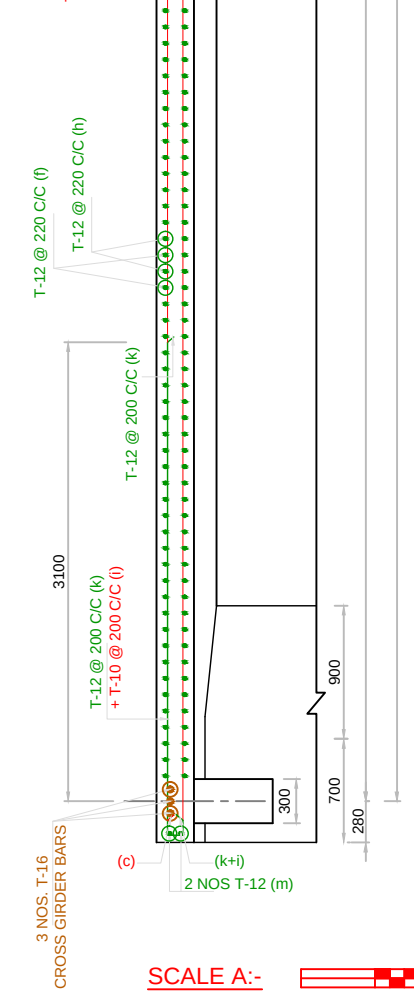
SCALE A



HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

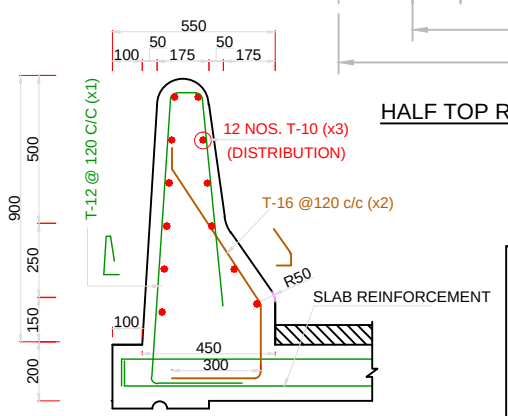
PLAN

SCALE A



SECTION X Y Z

SCALE A



REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

SCALE A:-

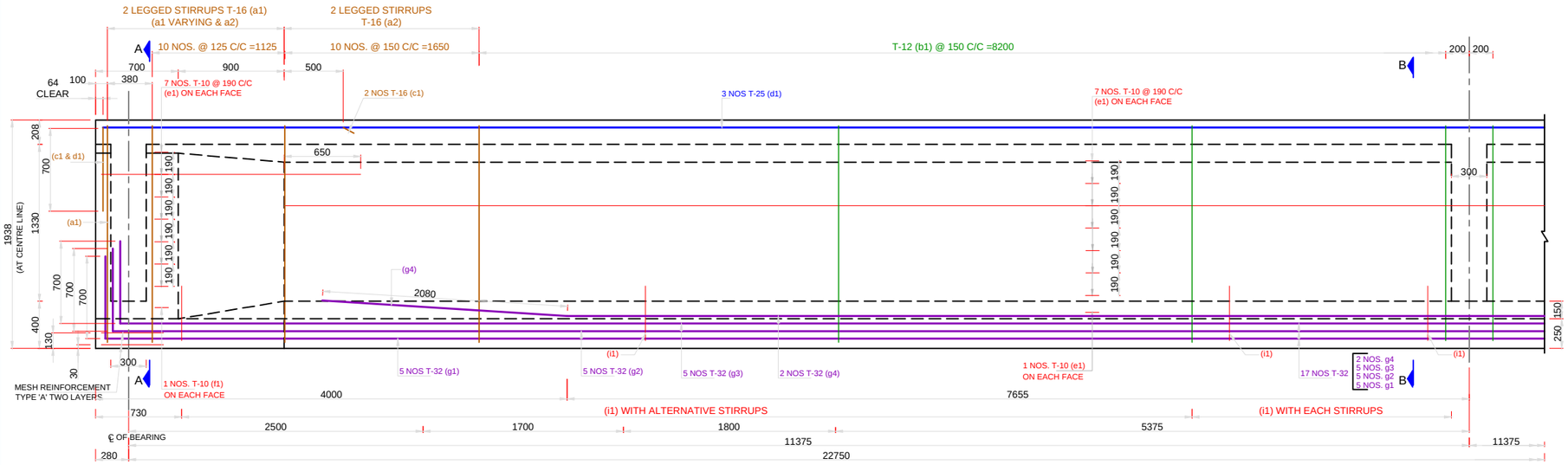


SCALE B:-



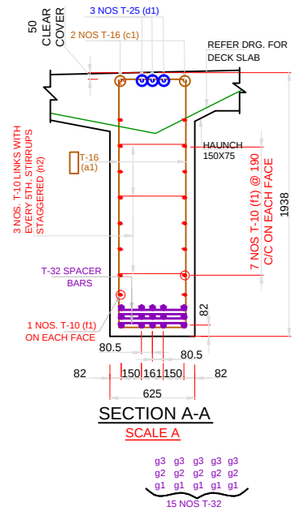
TENDER DRAWING

Prepared by :- WAPCOS LTD.	
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 5.950 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-05 09 of 12
Drawn by:-	Checked by:- / Approved by:-



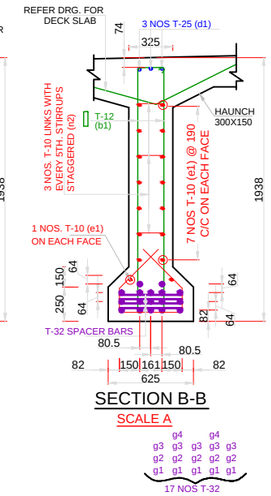
LONGITUDINAL SECTION OF OUTER GIRDER

SCALE A



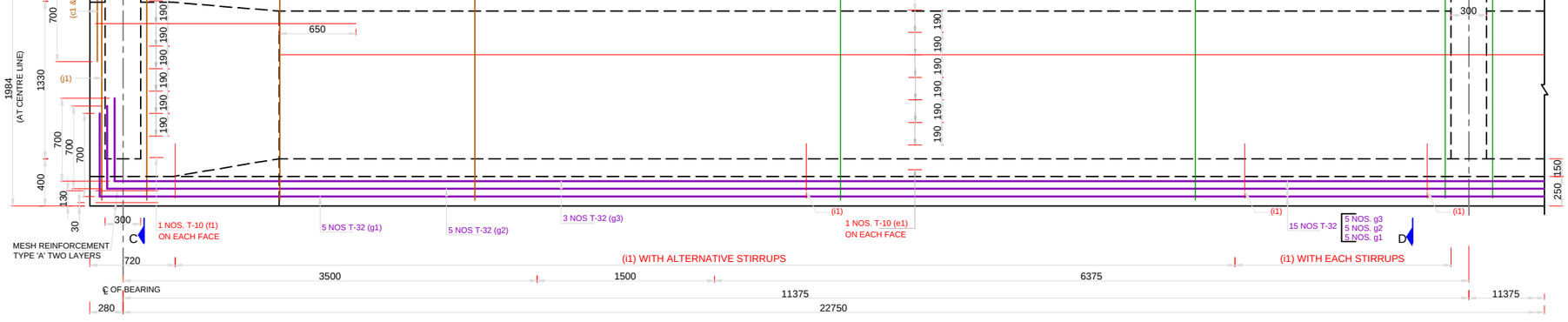
SECTION A-A

SCALE A



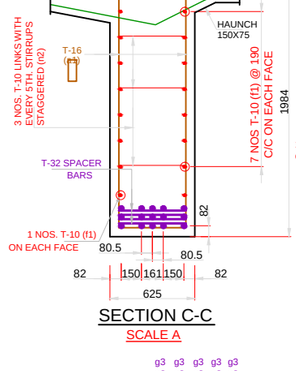
SECTION B-B

SCALE A



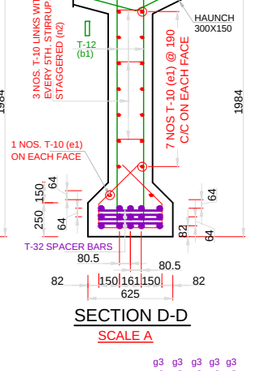
LONGITUDINAL SECTION OF INNER GIRDER

SCALE A



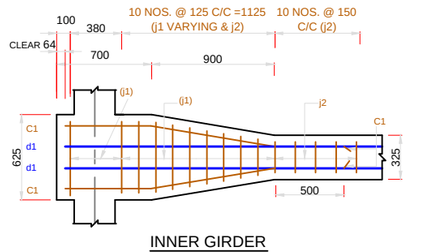
SECTION C-C

SCALE A



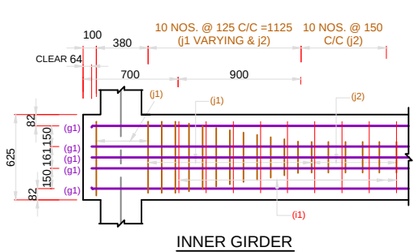
SECTION D-D

SCALE A



INNER GIRDER

PLAN SHOWING TOP REINFORCEMENT AT THE END

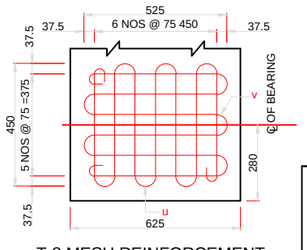


INNER GIRDER

PLAN SHOWING BOTTOM REINFORCEMENT AT THE END

(SIMILAR DETAILING WILL BE FOLLOWED FOR OUTER GIRDERS)

SCALE A



T-8 MESH REINFORCEMENT

TYPE - 'A'

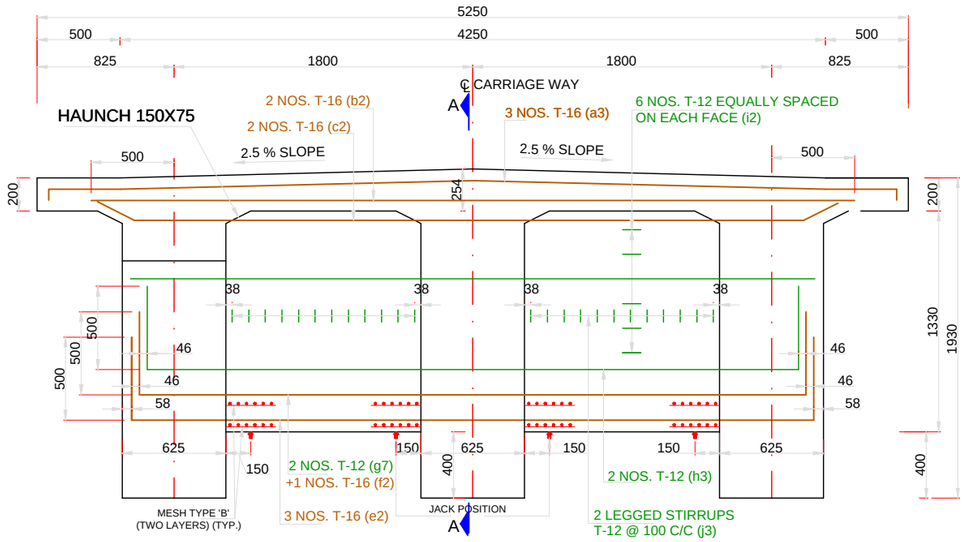
SCALE B

SCALE A:-

SCALE B:-

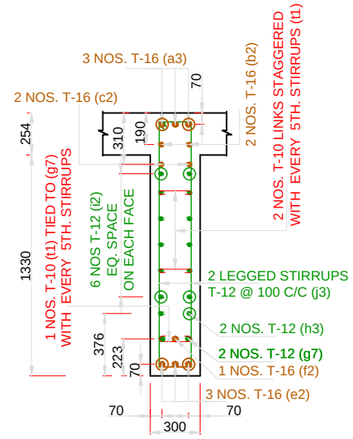
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :- REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 5.950 WITH THREE BEAMS
	Drawing No. :- WAP/PKS/NORTH KOEL/RMC/BRG-05 10 of 12
	Drawn by:- / Checked by:- / Approved by:-



LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A

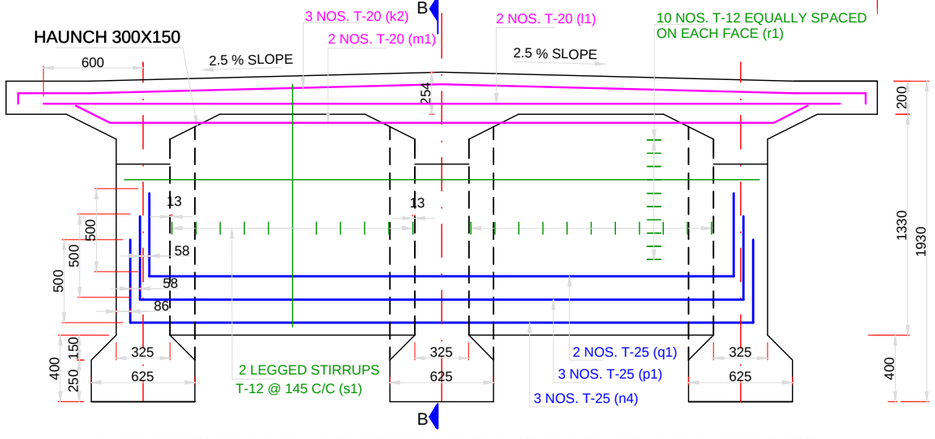


SECTION A-A

SCALE A

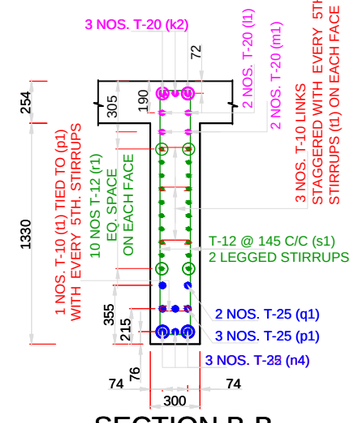
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



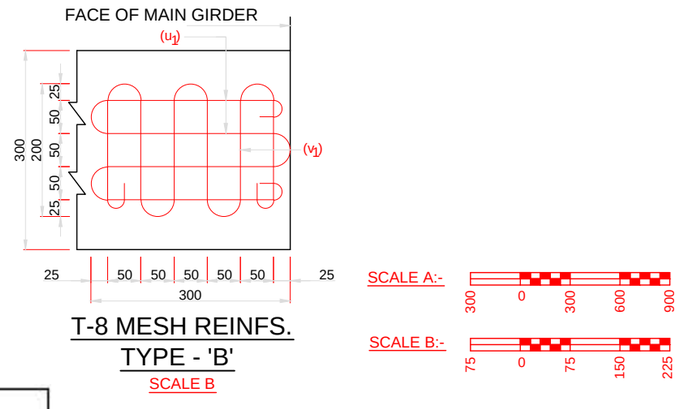
LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A



SECTION B-B

SCALE A



T-8 MESH REINFS.
TYPE - 'B'

SCALE B

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/215.

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE AT KM 5.950 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-05 11 of 12
	Drawn by:-	Checked by:- / Approved by:-

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a	3600	12	110	3600	200
2	b	275, 523, R-120, 729, 500, 100, R-120	12	220	1927	184
3	c	150, L, 150, L, 23210, L VARYING FROM 109 TO 212	10	200	23710	19
4	d	140, L, 650, 901, 20110, R-100, R-100, 901, 140, L, 650, L VARYING FROM 68 TO 270	10	200	23710	6
5	e	VARYING FROM 523 TO 693, 150, R-120, VARYING FROM 729 TO 878, 575, 100, R-120	12	220	1927	32
6	f	2576, 75, R-120, 2576, 75	12	220	5304	100
7	g	2576, 75, R-120, 2576, 75	20	220	5182	100
8	h	1866, R-120, 1866	12	220	3732	100
9	i	L, 23210, 150, L, 150, VARYING FROM 109 TO 212	10	200	23710	19
10	j	L, 23210, 75, L, 75, VARYING FROM 68 TO 270	10	200	23638	6
11	k	L, 3330, 170, VARYING FROM 109 TO 212	12	200	3588	36
12	l	6200	12	200	6200	18
13	m	5150	12	-	5150	4
14	n_1	23210	16	-	23210	8
15	q	150, R=80, 150, 393, 860, 955, 433, R=80	10	200	2110	116

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u	25, 30, 37.5, 375, 75 75 75 75 75, 375, 37.5, 30, 25	10	-	3550	8
2	v	75, 75, 75, 75, 75, 30, 30, 450, 37.5, 25	10	-	3506	8
CRASH BARRIER PER M						
1	x_1	75, 1000, 750, 300	12	120	2125	9
2	x_2	75, 540, 300, 250	16	120	1165	9
3	x_3	9350	10		1000	12

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	**Length of each bar (mm)**	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a_1	L1=VARYING FROM 1808 TO 1812, L1, L2, L2 = VARYING FROM 1800 TO 1804, VARYING FROM 193 TO 493	16	125	5158	11X2X2
2	a_2	193, 1804, 1808, 193	16	150	4758	11X2X2
3	b_1	193, 1804, 1808, 193	12	150	4678	108X2
4	c_1	708, R=96, ELEVATION, 636, 913, 166, 500	16	-	2693	2X2X2
5	d_1	23182, 708, R=96, 708	25	-	24398	3X2
6	e_1	20110	10	-	20110	8X2X2
7	f_1	913, 650, 636, 160	10	-	2199	16X2X2
8	g_1	716, R=192, 716, 23182	32	-	24358	5X2
9	g_2	716, R=192, 716, 23054	32	-	24230	5X2
10	g_3	716, R=192, 716, 22926	32	-	24102	5X2
11	g_4	2080, 15310, 2080	32	-	19470	2X2
12	i_1	450, 450, 493, 315, 485	10	-	1733	101X2
12	n_2	L, 140, 140, L = VARYING FROM 213 TO 513	10	-	583	18X2
14	n_3	213, 140, 140	10	-	433	90X2
LONGITUDINAL INNER GIRDER						
1	j_1	L1=VARYING FROM 1856 TO 1860, L1, L2, L2 = VARYING FROM 1848 TO 1852, VARYING FROM 193 TO 493	16	125	5290	11X2X1
2	j_2	193, 1852, 1856, 193	16	150	4890	11X2X1
3	k_1	193, 1852, 1856, 193	12	150	4810	108X1
4	c_1	708, R=96, ELEVATION, 636, 913, 166, 500	16	-	2693	2X2X1
5	d_1	23182, 708, R=96, 708	25	-	24398	3X1
6	e_1	20110	10	-	20110	8X2X1
7	f_1	913, 650, 636, 160	10	-	2199	16X2X1
8	g_1	716, R=192, 716, 23182	32	-	24358	5X1
9	g_2	716, R=192, 716, 23054	32	-	24230	5X1
10	g_3	716, R=192, 716, 22926	32	-	24102	5X1
11	i_1	450, 450, 493, 315, 485	10	-	1733	101X1
12	n_2	L, 140, 140, L = VARYING FROM 213 TO 513	10	-	583	18X1
13	n_3	213, 140, 140	10	-	433	90X1

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a_3	95, 2576, R-160, 2576, 95	16	-	5248	3X2
2	b_2	500, 3600, 500	16	-	4750	2X2
3	c_2	230, R=160, 230, 4030	16	-	4490	2X2
4	e_2	508, R=64, 508, 4109	16	-	5029	3X2
5	f_2	508, R=64, 508, 4063	16	-	4983	1X2
6	g_7	506, R=48, 506, 4063	12	-	5003	2X2
7	h_3	506, R=48, 506, 3925	12	-	4865	2X2
8	i_2	233, R=48, 233, 4125	12	-	4519	6X2X2
9	j_3	176, B, 176, VARYING FROM 1447 to 1475	12	100	3402	26X2
10	t_1	140, 196, 140	10	-	416	20X2
MIDDLE CROSS GIRDERS						
1	k_2	95, 2576, R-160, 2576, 95	20	-	5222	3
2	l_1	600, 3600, 600	20	-	4800	2
3	m_1	230, R=160, 230, 4000	20	-	4310	2
4	n_4	508, R=64, 508, 3754	25	-	4570	3
5	p_1	508, R=64, 508, 3638	25	-	4454	3
6	q_1	508, R=64, 508, 3520	25	-	4336	2
7	r_1	529, 529, 3925	12	-	4911	10X2
8	s_1	L, 176, VARYING FROM 1444 to 1478	12	145	3202	22
9	t_1	140, 196, 140	10	-	416	16

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
19	u_1	30, 50, 50, 50, 30, 25, 250, 37.5	10	-	1453	16
20	v_1	50 50 50 50 50, 30, 90, 37.5, 150, 25	10	-	1510	16

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.

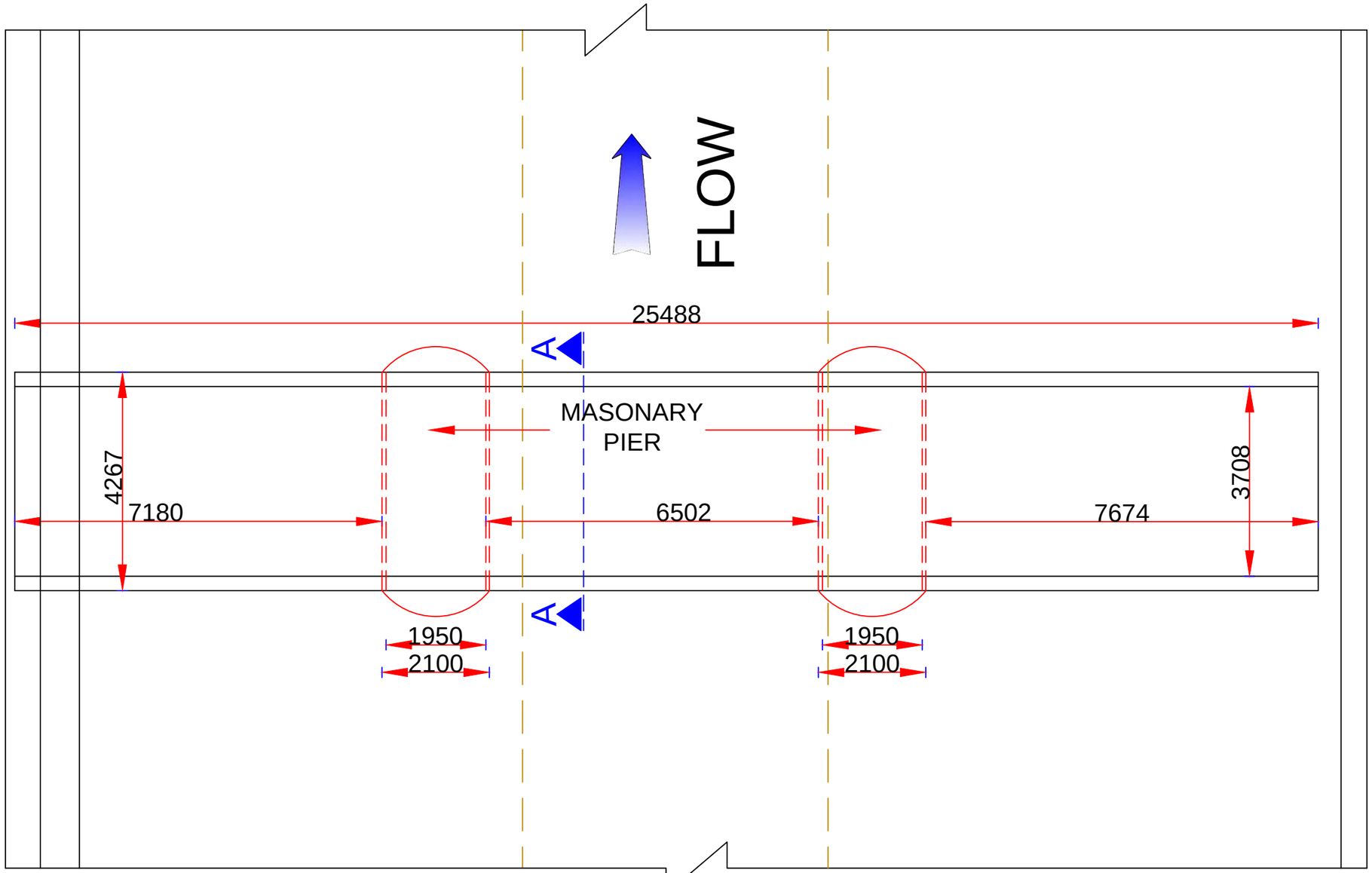
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR BRIDGE AT KM 5.950 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-05 12 of 12
Drawn by:-	Checked by:- Approved by:-



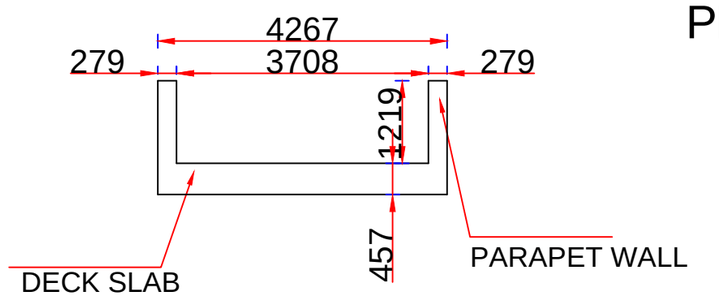
FOOT BRIDGE

AT

CH. 7.108 KM



PLAN



SECTION A-A

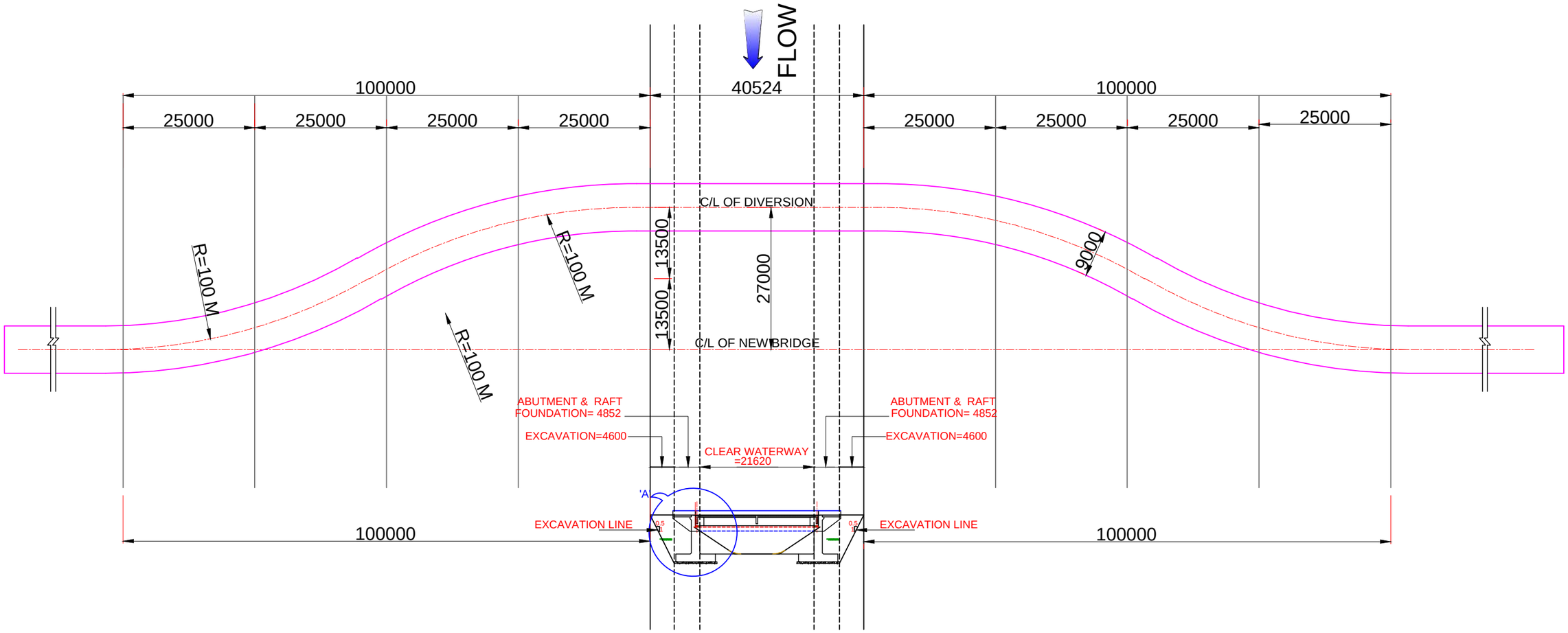
NOTES:

1 ALL DIMENSIONS ARE IN mm.

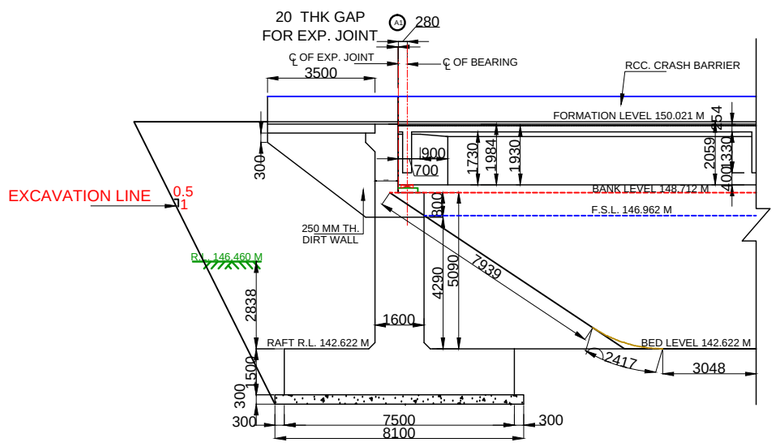
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	EXISTING PLAN OF FOOT BRIDGE AT CH. 7.108 KM	
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-06	01 of 12
	Drawn by:-	Checked by:-	Approved by:-



SKETCH OF DIVERSION PLAN AT KM 7.108 FOR S.L.R. BRIDGE



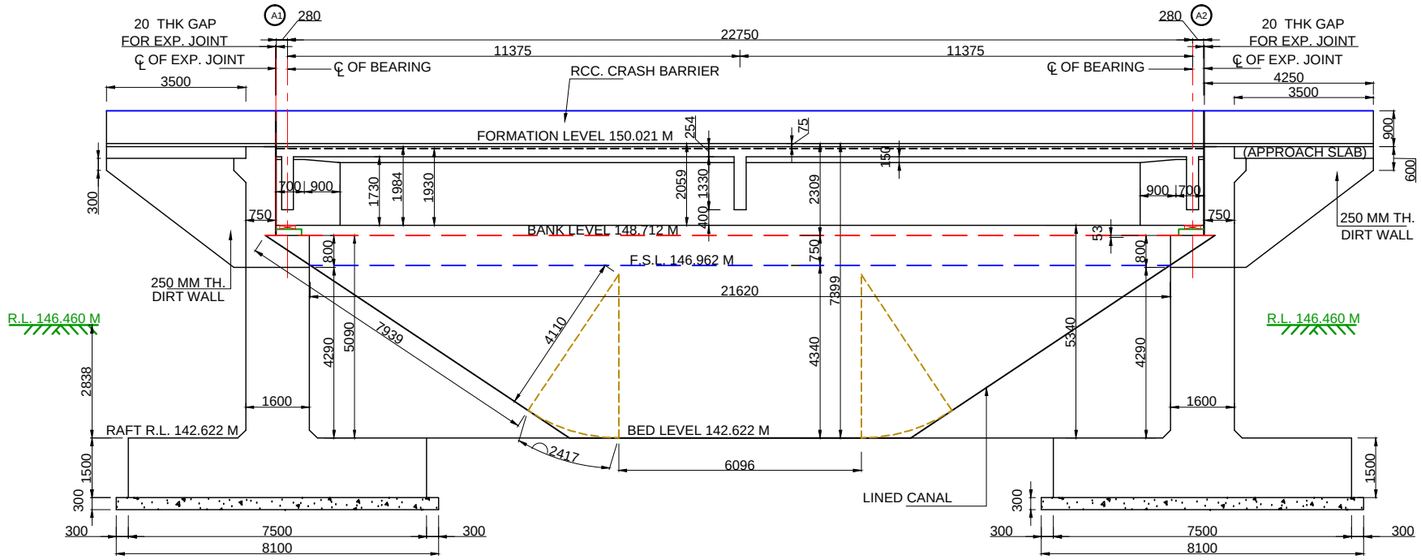
DETAIL SECTION AT 'A'

NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

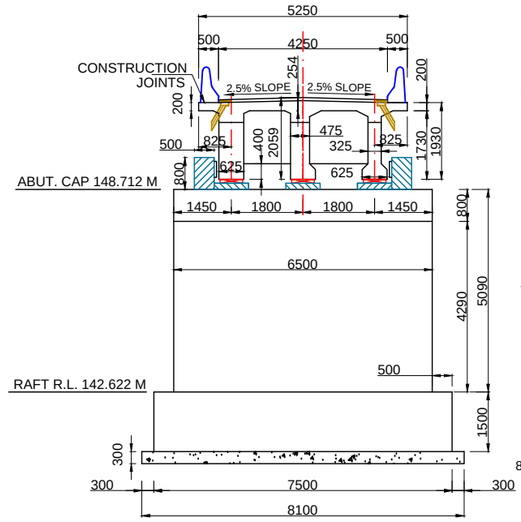
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 7.108 FOR S.L.R. BRIDGE	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 06	02 of 12
	Drawn by:-	Checked by:-	Approved by:-



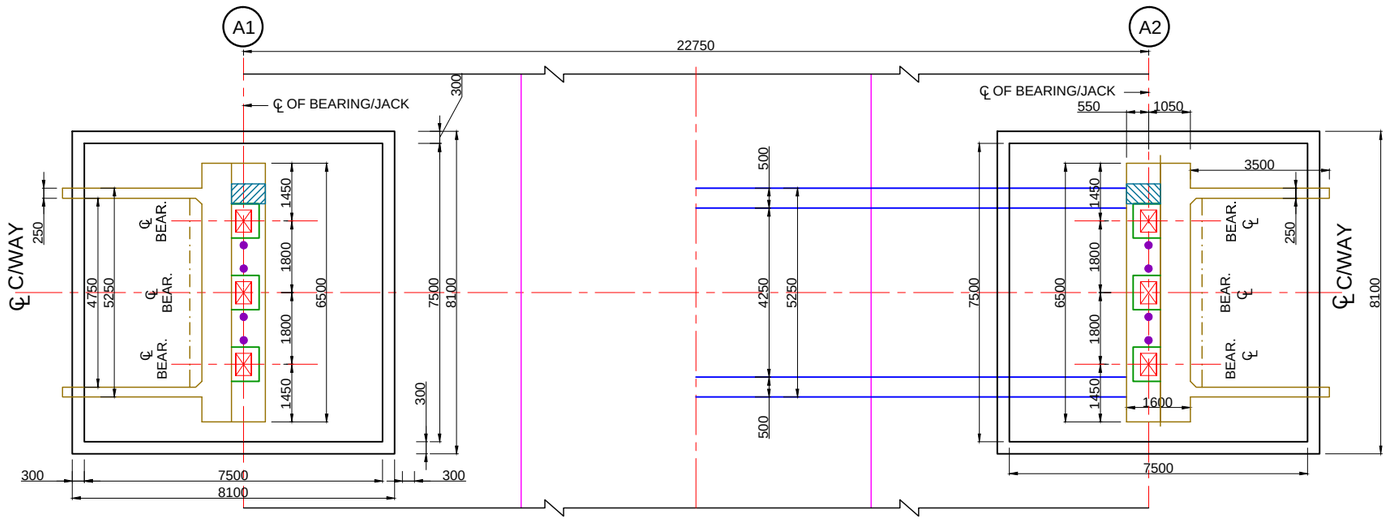
SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN

(SCALE A)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	84.15 CUMEC
BED LEVEL	143.622 M
WATER DEPTH	4.340 M
F.S.L.	147.962 M
FREE BOARD	0.75 M

7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a)	RAFT	M35
b)	ABUTMENT	M25
c)	SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d)	CRASH BARRIER	M30
e)	PEDESTAL (SEISMIC)	M35
f)	WEARING COAT	M30

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0Â
ROAD LEVEL	150.021 M
EX. ROAD LEVEL	146.460 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M

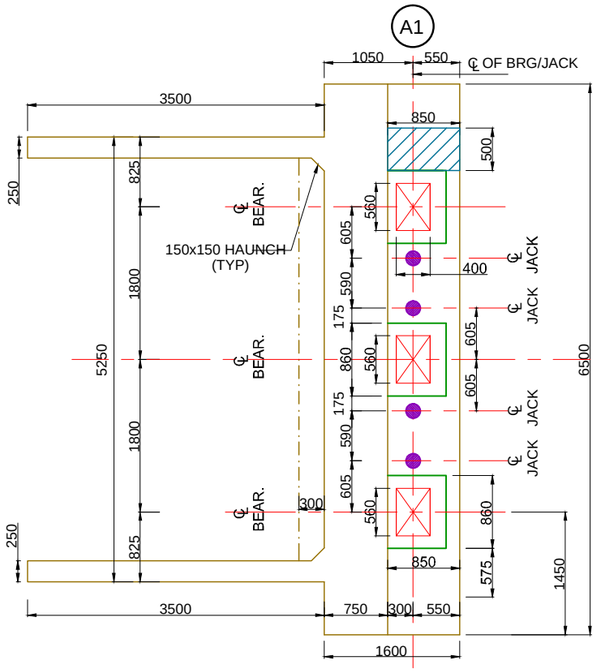
9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

SCALE A:-

2000 0 2000 4000 6000

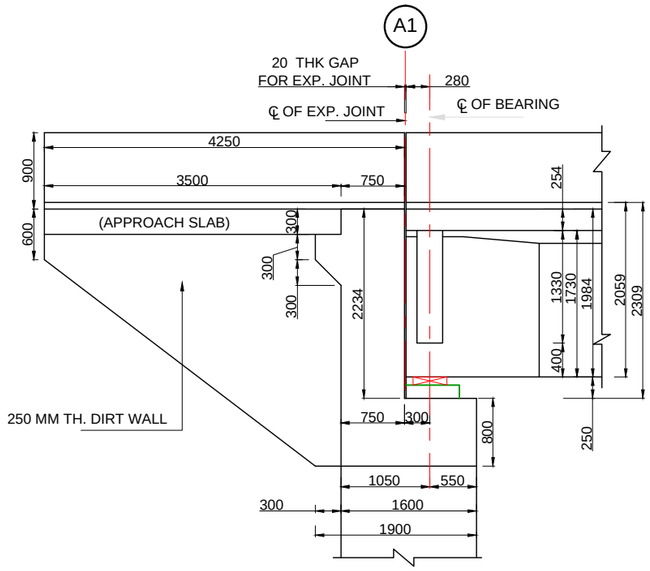
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 7.108 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-06	03 of 12
	Drawn by:-	Checked by:-	Approved by:-



PLAN OF ABUTMENT AT BEARING LEVEL

(SCALE B)

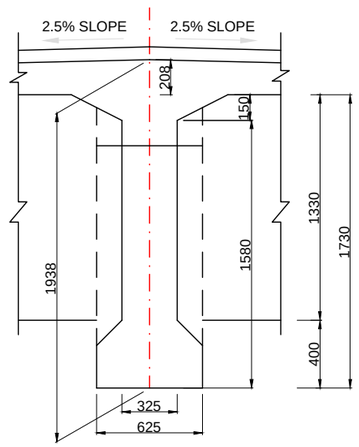


DETAIL - `D1'

(SCALE B)

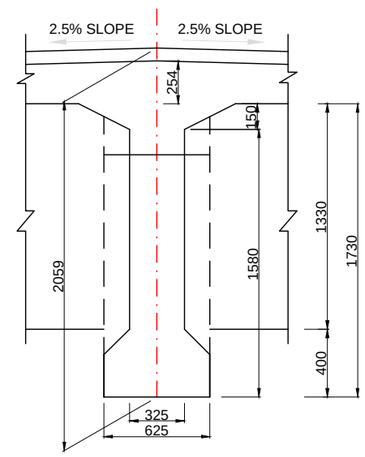
CROSS SECTION OF GIRDERS

(SCALE C)



CROSS SECTION OF RCC 'I' OUTER GIRDER

(SCALE C)



CROSS SECTION OF RCC 'I' INTERMEDIATE GIRDER

(SCALE C)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.

SCALE B:-

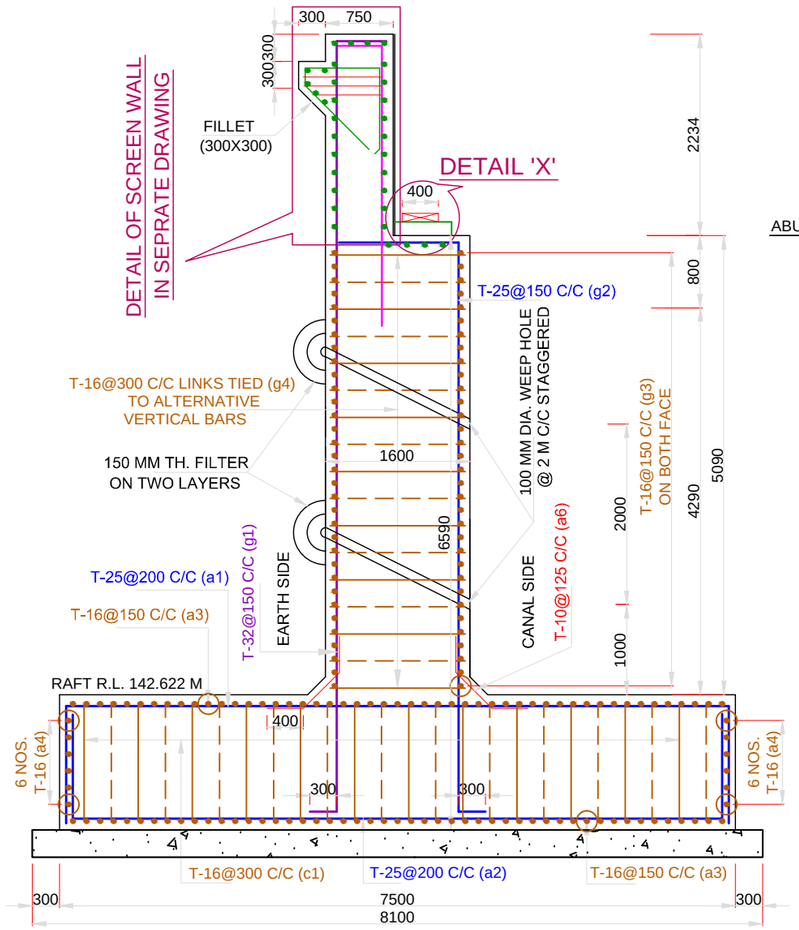


SCALE C:-



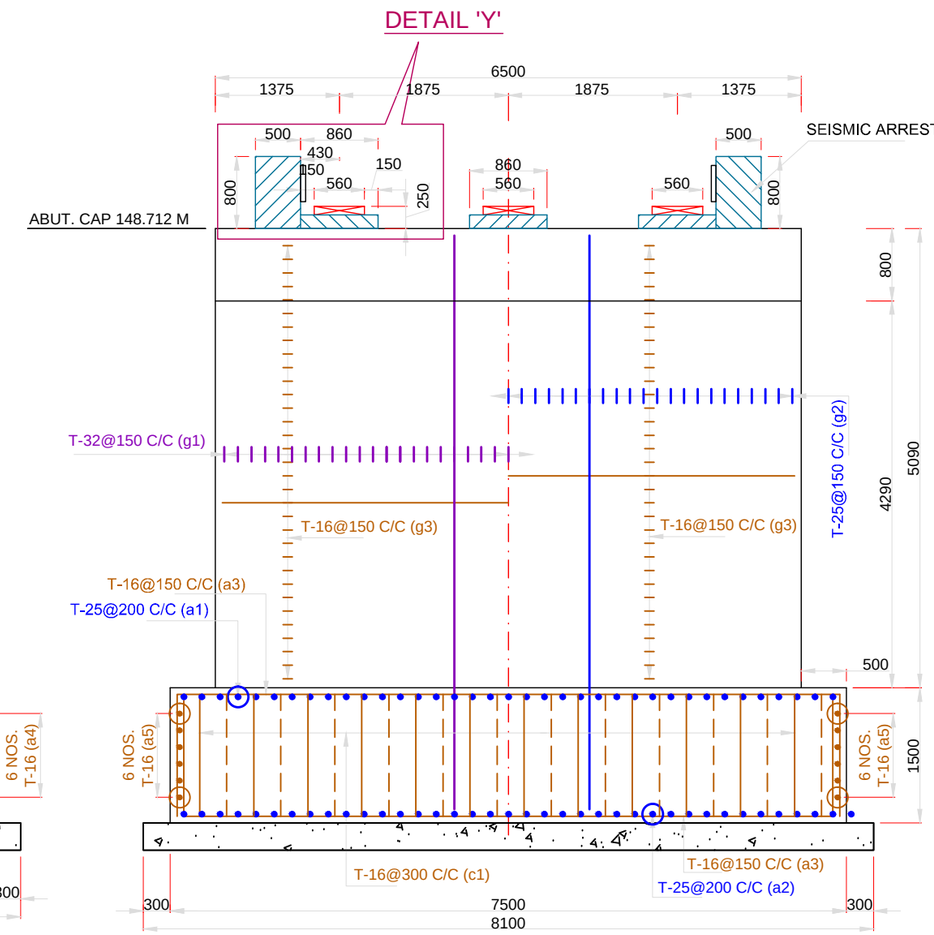
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR BRIDGE AT KM 7.108 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-06 04 of 12
	Drawn by:-	Checked by:- / Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	600, 8598, 300	32	150	42X2
	2	g2	1325, 6365, 300	25	150	42X2
	3	g3	708, 6350, 708	16	150	33X2X2
	4	g4	150, VERTICAL LINK BARS 1450, 150	16	300	9X11X2
IN RAFT FOR ABUTMENT	5	a1	1000, 7350, 1000	25	200	37X2
	6	a2	1000, 7350, 1000	25	200	37X2
	7	a3	700, 700, 7350, 7350, 700, 700	16	150	49X2X2
	8	a4	700, 7350, 700	16	-	6X2X2
	9	a5	700, 7350, 700	16	-	6X2X2
	10	a6	400, 560, 400, 400, 400, 560	10	125	59X2X2
	11	c1	150, 1350, 150	16	300	13X13X2

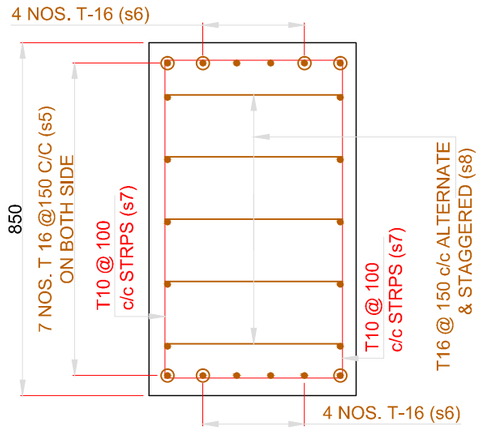
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:- 500 0 500 1000 1500

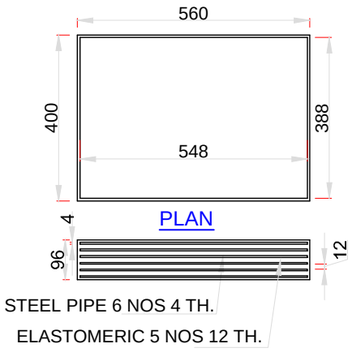
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SLR BRIDGE AT KM 7.108 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-06 05 of 12
	Drawn by:-	Checked by:- / Approved by:-



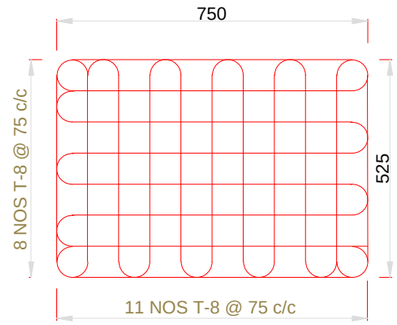
SECTION H-H

SCALE A



DETAILS OF ELASTOMERIC BEARINGS

SCALE A

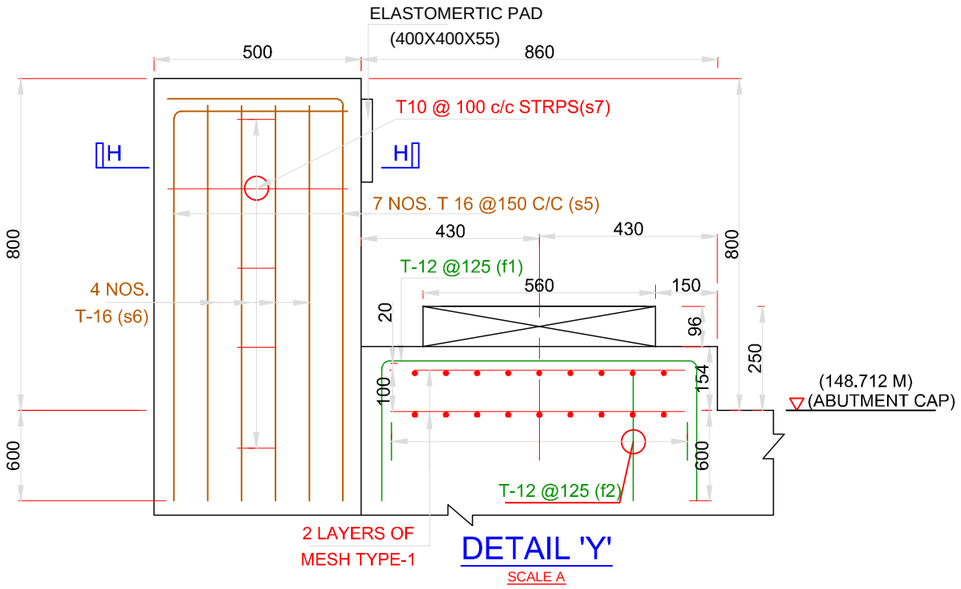


DETAIL OF MESH M1 (MESH BELOW BEARING LOCATION)

SCALE A

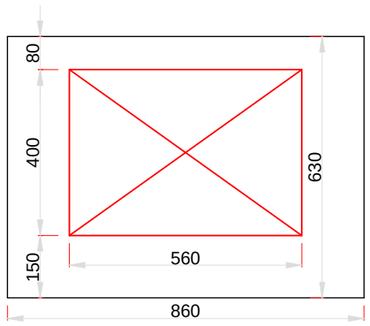
BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5	400 1350	16	150	14X2X2
	2	s6	1350	16	-	8X2X2
	3	s7	700 (400, 400) 700	10	100	5X2X2
	4	s8	400	16	150	5X2X2
PEDESTAL FOR ABUTMENT	5	f1	633 730 633	12	125	5X3X3
	6	f2	633 530 633	12	125	5X3X3



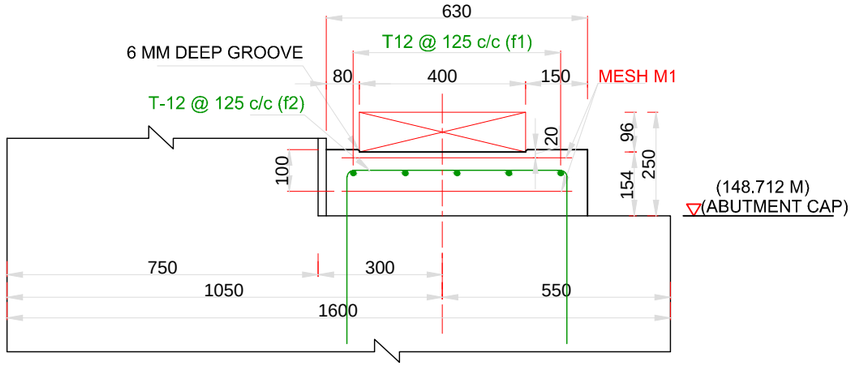
DETAIL 'Y'

SCALE A



PLAN

SCALE A



DETAIL 'X'

SCALE A

SCALE A:-

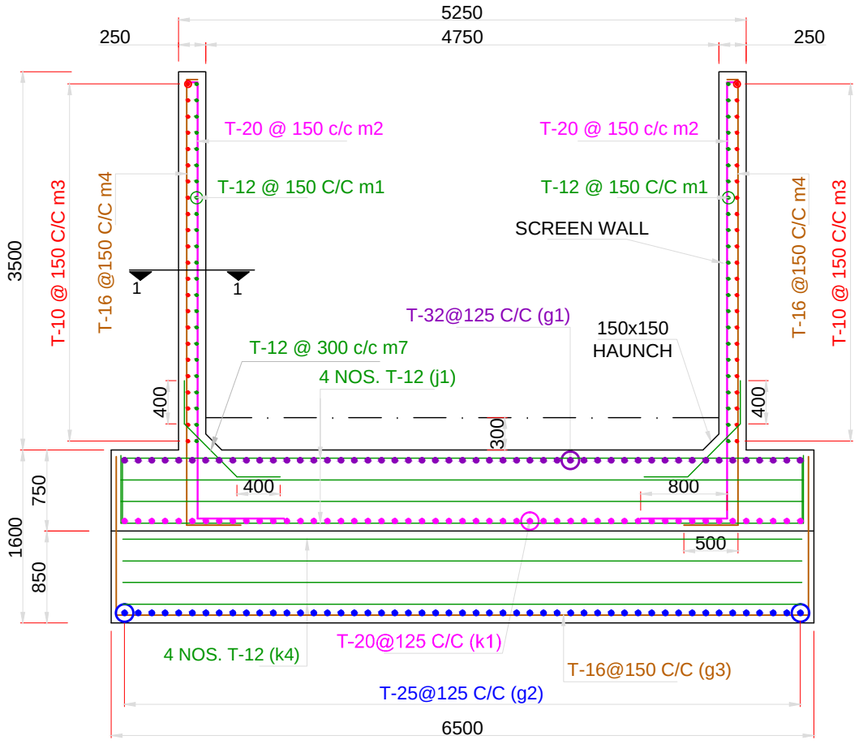


NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

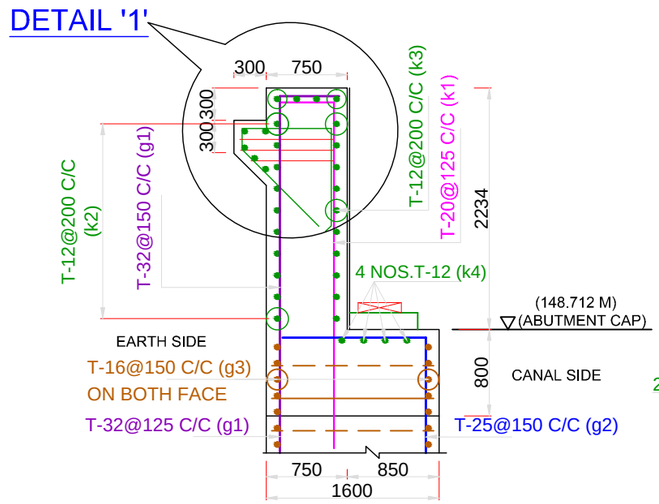
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 7.108 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-06 06 of 12
	Drawn by:-	Checked by:- / Approved by:-



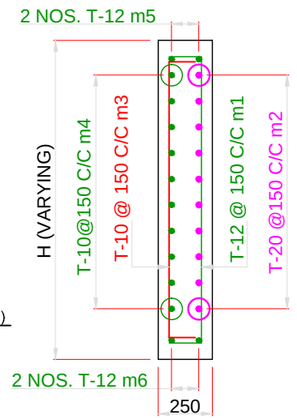
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL

SCALE A



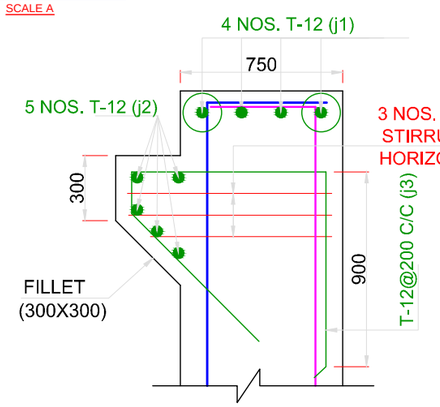
REINFORCEMENT DETAILS IN SECTION OF DIRT

SCALE A



SECTION AT 1-1

SCALE B



DETAIL '1'

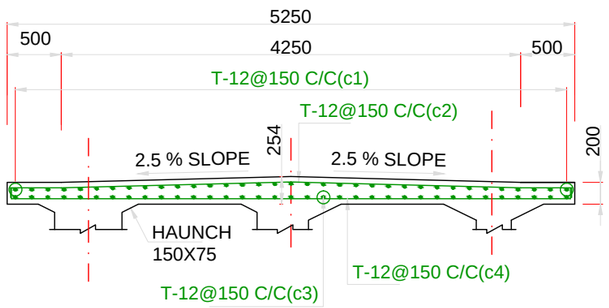
SCALE B

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
DIRT WALL	1	k1	700, 3459	20	125	51X2
	2	k2	150, 6350, 150	12	200	10X2
	3	k3	150, 6350, 150	12	200	10X2
	4	k4	150, 6350, 150	12	200	4X2
	5	j1	150, 6350, 150	12	-	4X2
	6	j2	150, 6350, 150	12	-	5X2
	7	j3	950, 195, 850, 900	12	-	24X2
	8	j4	LV=, 790, 6350, 6350, 790	10	300	3X2
SCREEN WALL	9	m1	150, 1718, 150	12	150	44x2
	10	m2	150, 4025, 800, 150, 4025, 800	20	150	40x2
	11	m3	150, 1718, 150	10	150	44x2
	12	m4	150, 4025, 500, 150, 4025, 500	16	150	40x2
	13	m5	500, 3350, 500	12	-	4X2
	14	m6	400, 4085, 400	12	-	4X2
	15	m7	400, 800, 400	12	300	8X2X2
APPROACH SLAB	16	c1	150, 3350, 150	12	150	34X2
	17	c2	150, 450, 2125, 2125, 450, 150	12	150	23X2
	18	c3	150, 3350, 150	12	150	34X2
	19	c4	150, 5150, 150	12	150	23X2

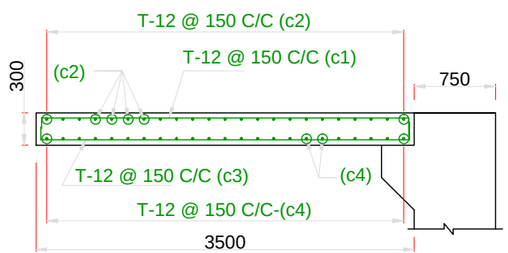
NOTES

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2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS 70R OR TWO LANES OF CLASS-A LOADING WHICHEVER IS CRITICAL HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF PIER AND PIER CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.



REINFORCEMENT IN APPROACH SLAB

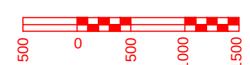
SCALE A



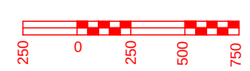
SECTION OF APPROACH SLAB

SCALE A

SCALE A:-

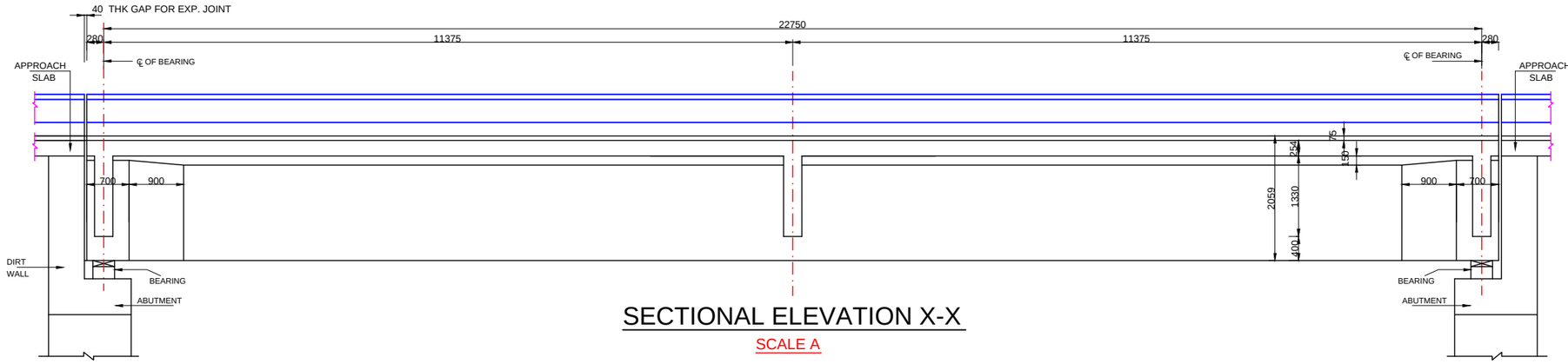


SCALE B:-



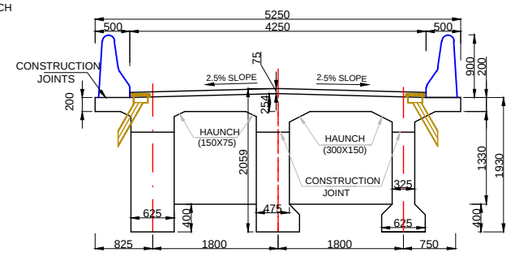
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 7.108 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-06 07 of 12
	Drawn by:-	Checked by:- / Approved by:-



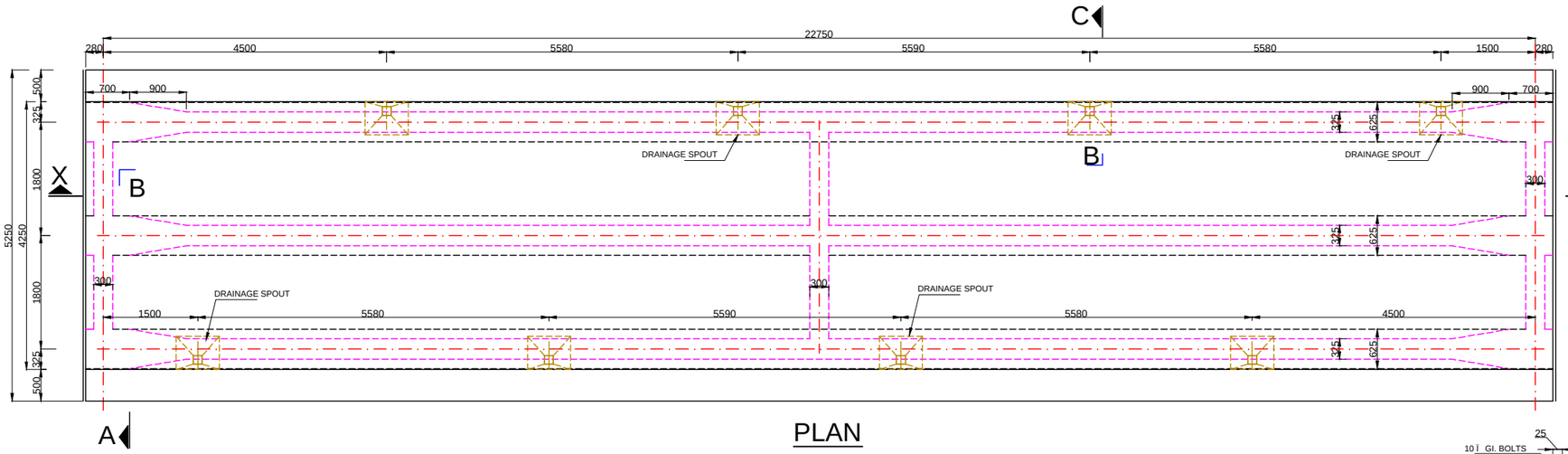
SECTIONAL ELEVATION X-X

SCALE A



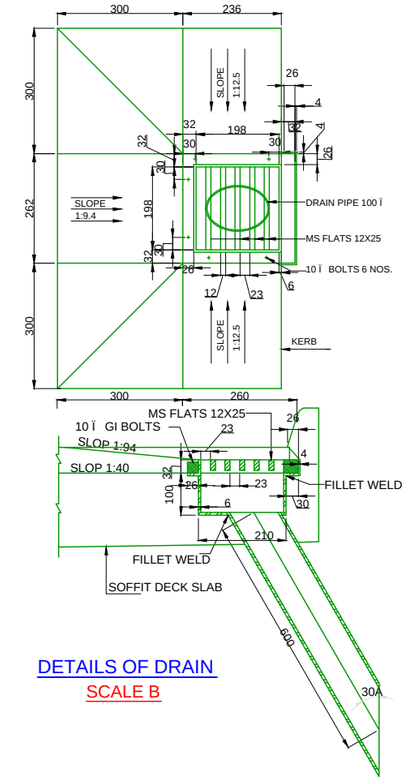
SECTION ABC

SCALE A



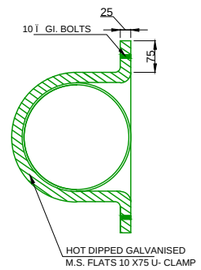
PLAN

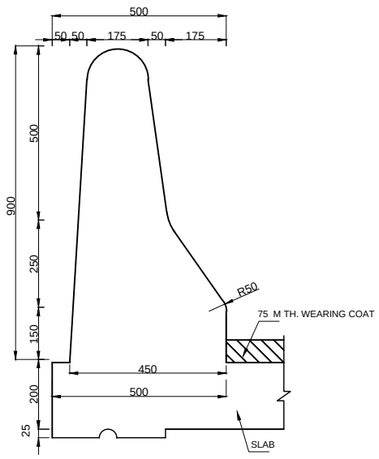
SCALE A



DETAILS OF DRAIN

SCALE B





DETAILS OF CRASH BARRIER

SCALE B

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
7. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
8. REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.

REFERENCES:-

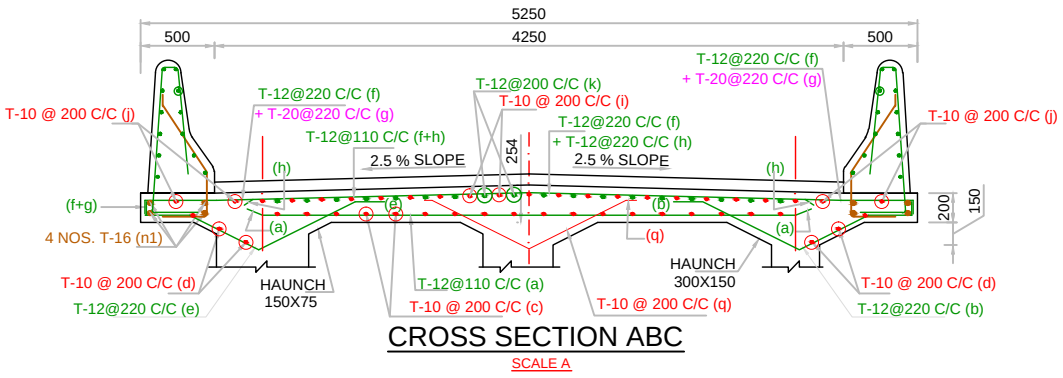
1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.

SCALE A:-

SCALE B:-

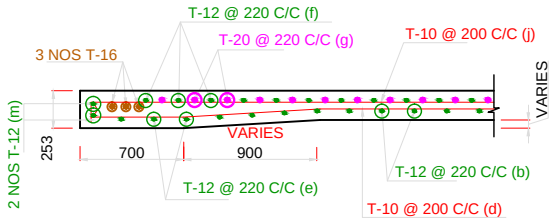
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 7.108 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-06	08 of 12
	Drawn by:-	Checked by:-	Approved by:-



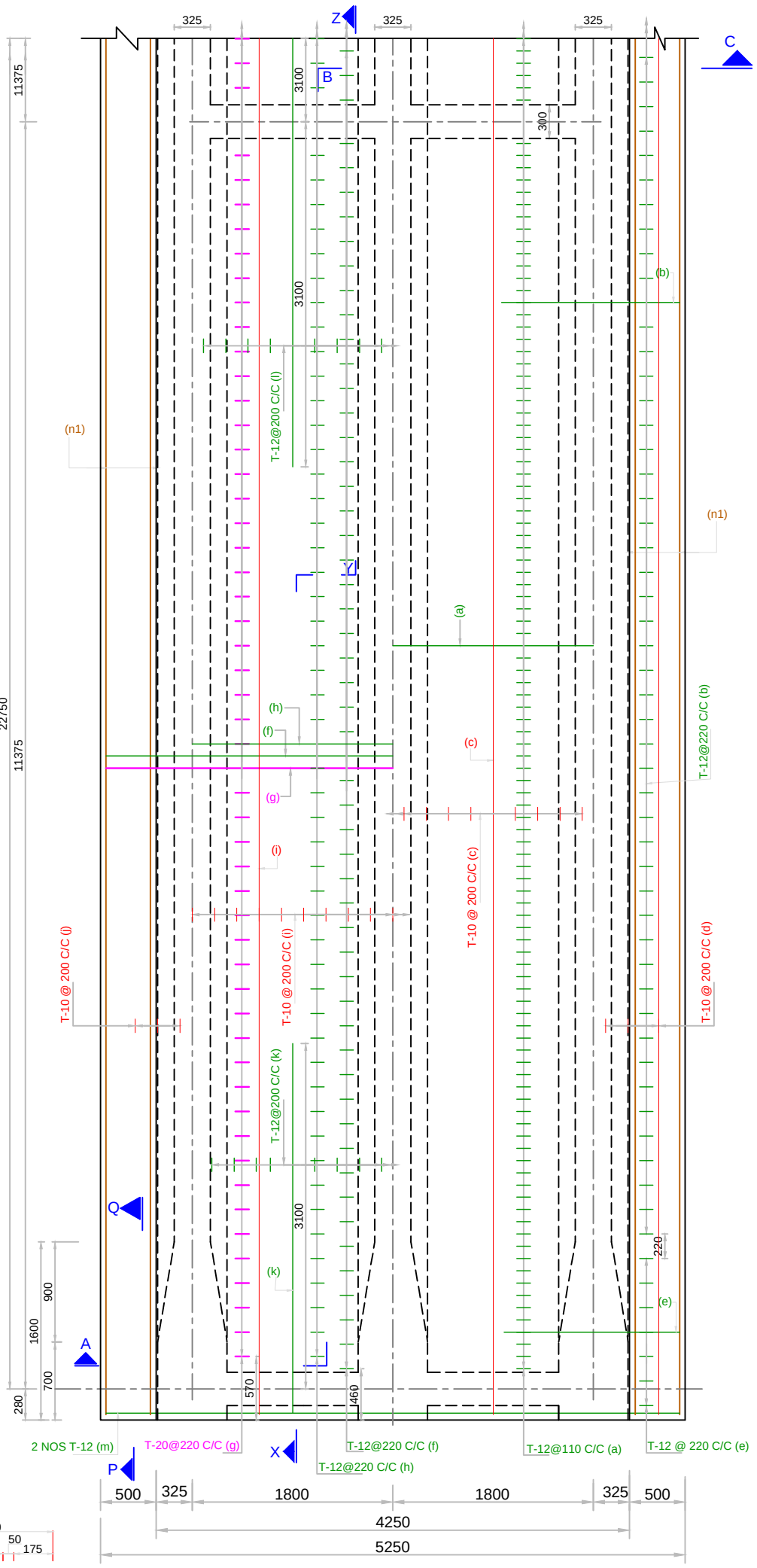
CROSS SECTION ABC

SCALE A



SECTION P.Q.

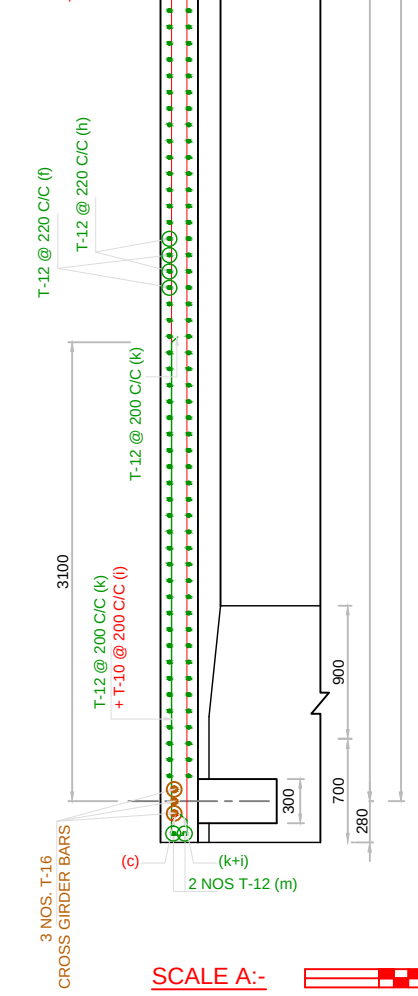
SCALE A



HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

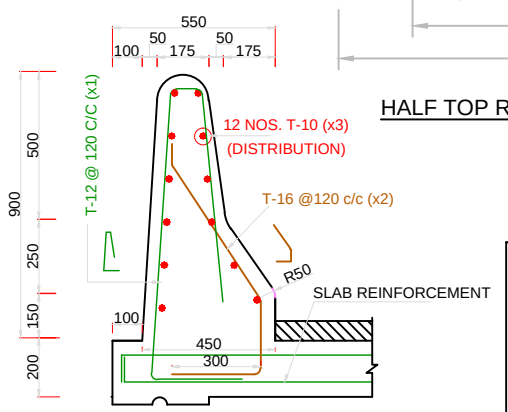
PLAN

SCALE A



SECTION X Y Z

SCALE A



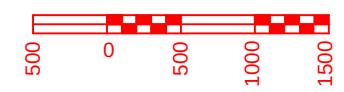
REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

SCALE A:-



SCALE B:-



TENDER DRAWING

Prepared by :-

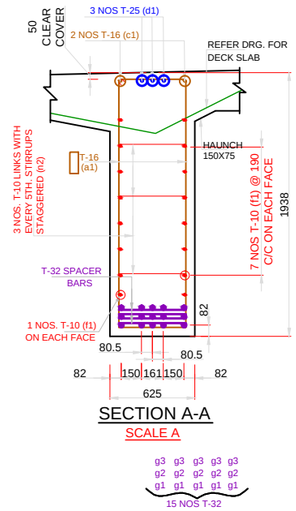
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 7.108 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-06 09 of 12
Drawn by:-	Checked by:- Approved by:-



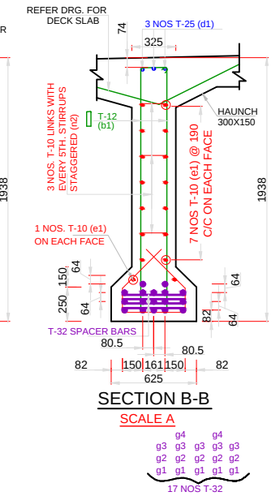
LONGITUDINAL SECTION OF OUTER GIRDER

SCALE A



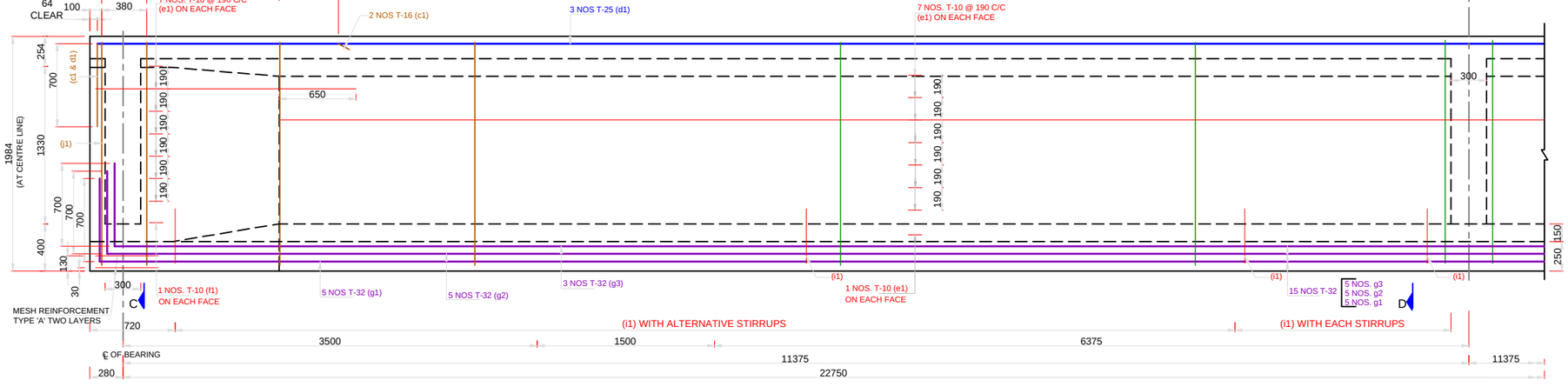
SECTION A-A

SCALE A



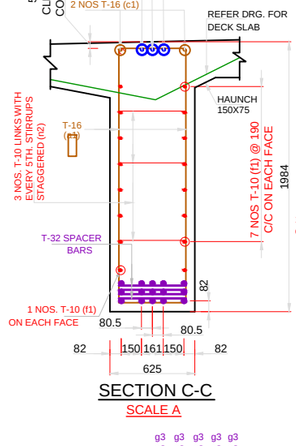
SECTION B-B

SCALE A



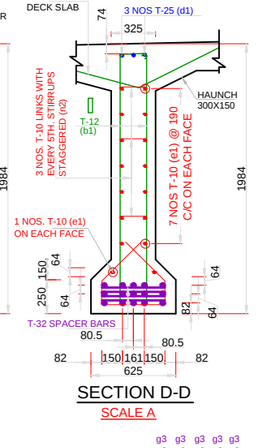
LONGITUDINAL SECTION OF INNER GIRDER

SCALE A



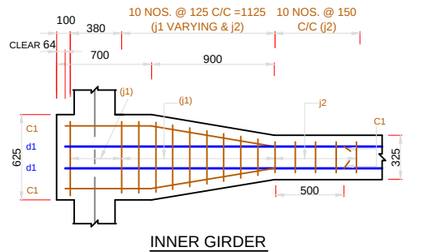
SECTION C-C

SCALE A



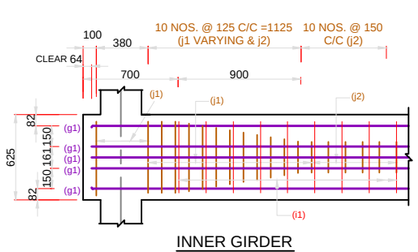
SECTION D-D

SCALE A



INNER GIRDER

PLAN SHOWING TOP REINFORCEMENT AT THE END

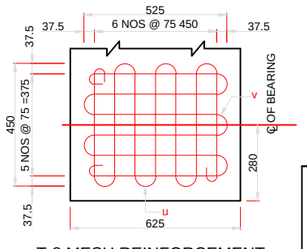


INNER GIRDER

PLAN SHOWING BOTTOM REINFORCEMENT AT THE END

(SIMILAR DETAILING WILL BE FOLLOWED FOR OUTER GIRDERS)

SCALE A



T-8 MESH REINFORCEMENT

TYPE - 'A'

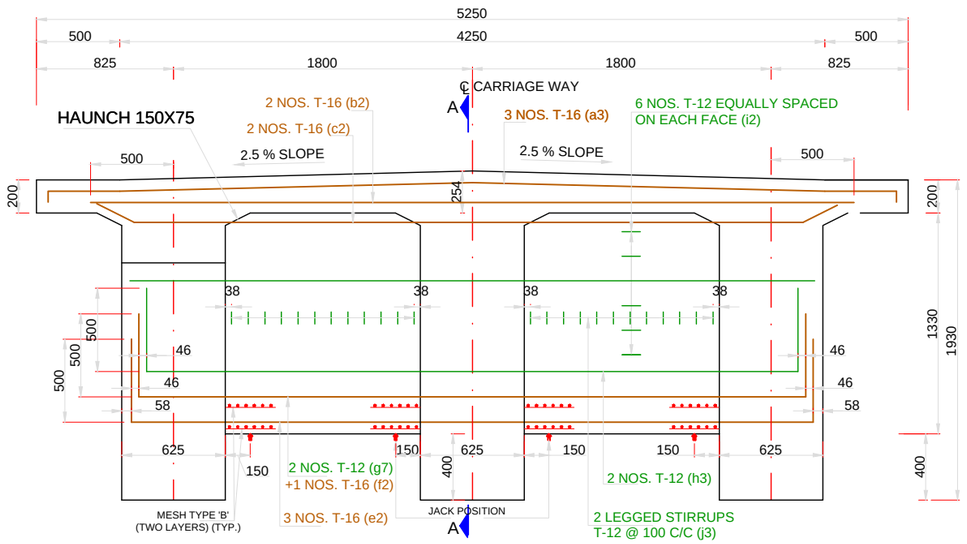
SCALE B

SCALE A:-

SCALE B:-

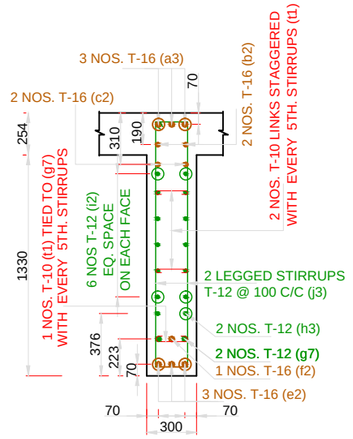
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :- REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 7.108 WITH THREE BEAMS
	Drawing No. :- WAP/PKS/NORTH KOEL/RMC/BRG-06 10 of 12
	Drawn by:- / Checked by:- / Approved by:-



LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A

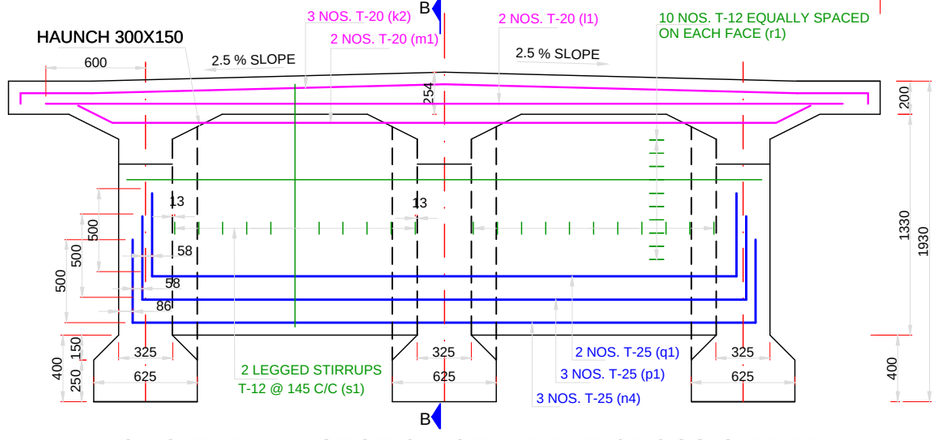


SECTION A-A

SCALE A

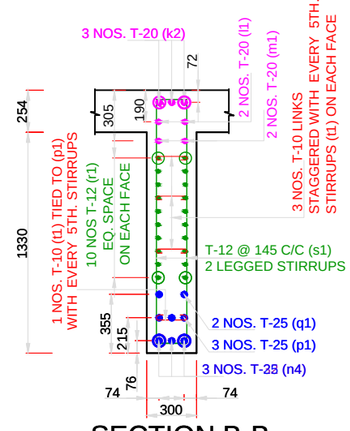
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



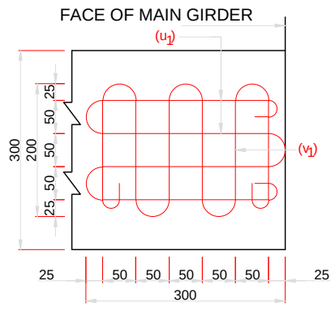
LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A



SECTION B-B

SCALE A



T-8 MESH REINFS. TYPE - 'B'

SCALE B

SCALE A:-



SCALE B:-



TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/215.

Prepared by :-

WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE AT KM 7.108 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-06 11 of 12
Drawn by:-	Checked by:- / Approved by:-

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a	3600	12	110	3600	200
2	b	275, 523, R-120, 729, 500, 100, R-120	12	220	1927	184
3	c	150, L, 23210, 150, L, L VARYING FROM 109 TO 212	10	200	23710	19
4	d	140, L, 650, 901, R-100, 20110, R-100, 901, 650, 140, L VARYING FROM 68 TO 270	10	200	23710	6
5	e	VARYING FROM 523 TO 693, 150, R-120, VARYING FROM 729 TO 878, 575, 100, R-120	12	220	1927	32
6	f	2576, 75, R-120, 2576, 75	12	220	5304	100
7	g	2576, 75, R-120, 2576, 75	20	220	5182	100
8	h	1866, R-120, 1866	12	220	3732	100
9	i	L, 23210, 150, L, 150, VARYING FROM 109 TO 212	10	200	23710	19
10	j	L, 23210, 75, L, 75, VARYING FROM 68 TO 270	10	200	23638	6
11	k	L, 3330, 170, VARYING FROM 109 TO 212	12	200	3588	36
12	l	6200	12	200	6200	18
13	m	5150	12	-	5150	4
14	n_1	23210	16	-	23210	8
15	q	150, R=80, 150, 393, 860, 955, 433, R=80	10	200	2110	116

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u	25, 30, 37.5, 375, 75 75 75 75 75, 375, 37.5, 30, 25	10	-	3550	8
2	v	75, 75, 75, 75, 75, 30, 30, 450, 37.5, 25	10	-	3506	8
CRASH BARRIER PER M						
1	x_1	75, 1000, 750, 300	12	120	2125	9
2	x_2	75, 540, 300, 250	16	120	1165	9
3	x_3	9350	10		1000	12

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	**Length of each bar (mm)**	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a_1	L1=VARYING FROM 1808 TO 1812, L1, L2, L2 = VARYING FROM 1800 TO 1804, VARYING FROM 193 TO 493	16	125	5158	11X2X2
2	a_2	193, 1804, 1808, 193	16	150	4758	11X2X2
3	b_1	193, 1804, 1808, 193	12	150	4678	108X2
4	c_1	708, R=96, ELEVATION, 636, 913, 166, 500	16	-	2693	2X2X2
5	d_1	23182, 708, R=96, 708	25	-	24398	3X2
6	e_1	20110	10	-	20110	8X2X2
7	f_1	913, 650, 636, 160	10	-	2199	16X2X2
8	g_1	716, R=192, 716, 23182	32	-	24358	5X2
9	g_2	716, R=192, 716, 23054	32	-	24230	5X2
10	g_3	716, R=192, 716, 22926	32	-	24102	5X2
11	g_4	2080, 15310, 2080	32	-	19470	2X2
12	i_1	450, 450, 493, 315, 485	10	-	1733	101X2
12	n_2	L, 140, 140, L = VARYING FROM 213 TO 513	10	-	583	18X2
14	n_3	213, 140, 140	10	-	433	90X2
LONGITUDINAL INNER GIRDER						
1	j_1	L1=VARYING FROM 1856 TO 1860, L1, L2, L2 = VARYING FROM 1848 TO 1852, VARYING FROM 193 TO 493	16	125	5290	11X2X1
2	j_2	193, 1852, 1856, 193	16	150	4890	11X2X1
3	k_1	193, 1852, 1856, 193	12	150	4810	108X1
4	c_1	708, R=96, ELEVATION, 636, 913, 166, 500	16	-	2693	2X2X1
5	d_1	23182, 708, R=96, 708	25	-	24398	3X1
6	e_1	20110	10	-	20110	8X2X1
7	f_1	913, 650, 636, 160	10	-	2199	16X2X1
8	g_1	716, R=192, 716, 23182	32	-	24358	5X1
9	g_2	716, R=192, 716, 23054	32	-	24230	5X1
10	g_3	716, R=192, 716, 22926	32	-	24102	5X1
11	i_1	450, 450, 493, 315, 485	10	-	1733	101X1
12	n_2	L, 140, 140, L = VARYING FROM 213 TO 513	10	-	583	18X1
13	n_3	213, 140, 140	10	-	433	90X1

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a_3	95, 2576, R-160, 2576, 95	16	-	5248	3X2
2	b_2	500, 3600, 500	16	-	4750	2X2
3	c_2	230, R=160, 4030, 230	16	-	4490	2X2
4	e_2	508, R=64, 4109, 508	16	-	5029	3X2
5	f_2	508, R=64, 4063, 508	16	-	4983	1X2
6	g_7	506, R=48, 4063, 506	12	-	5003	2X2
7	h_3	506, R=48, 3925, 506	12	-	4865	2X2
8	i_2	233, R=48, 4125, 233	12	-	4519	6X2X2
9	j_3	176, B, 176, VARYING FROM 1447 to 1475	12	100	3402	26X2
10	t_1	140, 196, 140	10	-	416	20X2
MIDDLE CROSS GIRDERS						
1	k_2	95, 2576, R-160, 2576, 95	20	-	5222	3
2	l_1	600, 3600, 600	20	-	4800	2
3	m_1	230, R=160, 4000, 230	20	-	4310	2
4	n_4	508, R=64, 3754, 508	25	-	4570	3
5	p_1	508, R=64, 3638, 508	25	-	4454	3
6	q_1	508, R=64, 3520, 508	25	-	4336	2
7	r_1	529, 3925, 529	12	-	4911	10X2
8	s_1	L, 176, VARYING FROM 1444 to 1478	12	145	3202	22
9	t_1	140, 196, 140	10	-	416	16

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
19	u_1	30, 50, 50, 50, 30, 25, 250, 37.5	10	-	1453	16
20	v_1	50 50 50 50 50, 30, 90, 37.5, 150, 25	10	-	1510	16

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.

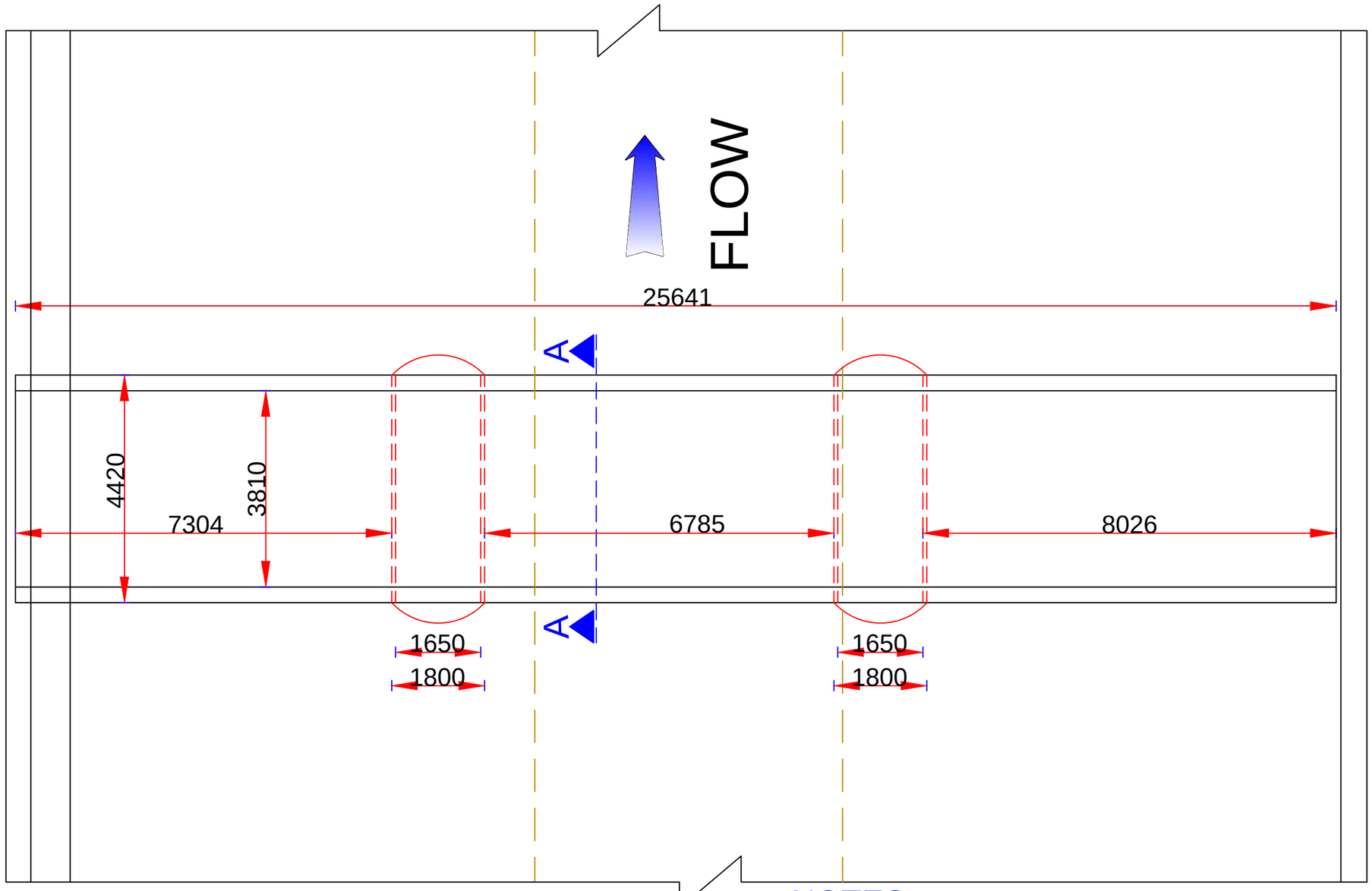
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR BRIDGE AT KM 7.108 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-06 12 of 12
Drawn by:-	Checked by:- Approved by:-



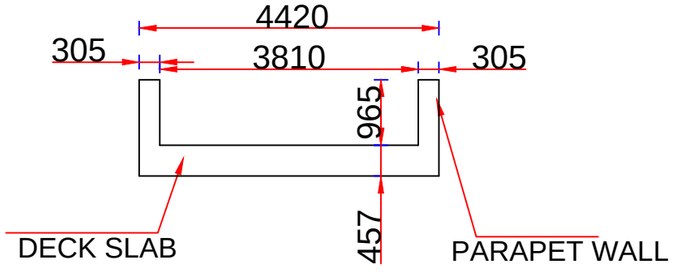
S.L.R. BRIDGE

AT

CH. 8.400 KM



PLAN



SECTION A-A

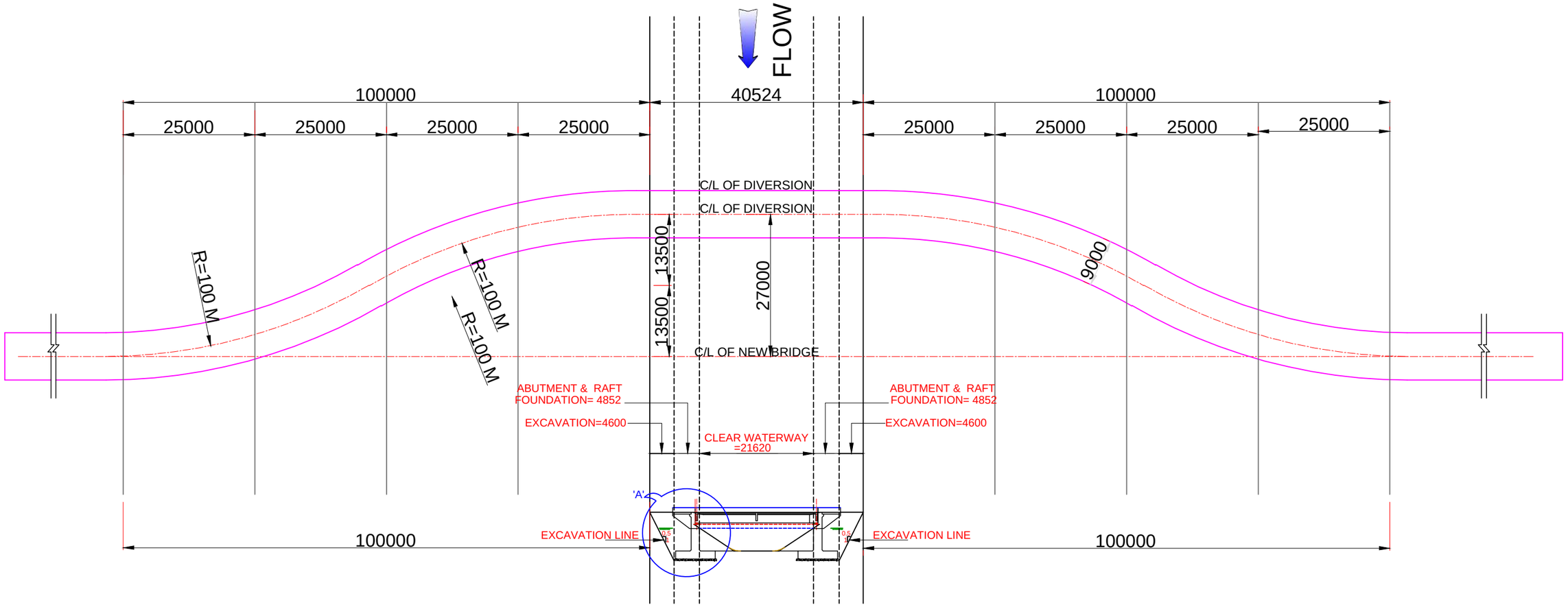
TENDER DRAWING

NOTES:

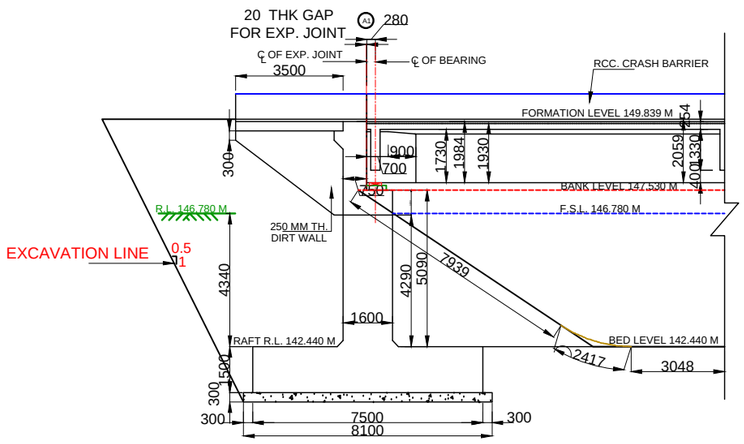
1 ALL DIMENSIONS ARE IN mm.

2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	EXISTING PLAN OF SINGLE LANE ROAD BRIDGE AT CH. 8.400 KM
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-07 01 of 12
	Drawn by:-	Checked by:- / Approved by:-



SKETCH OF DIVERSION PLAN AT KM 8.400 FOR S.L.R. BRIDGE



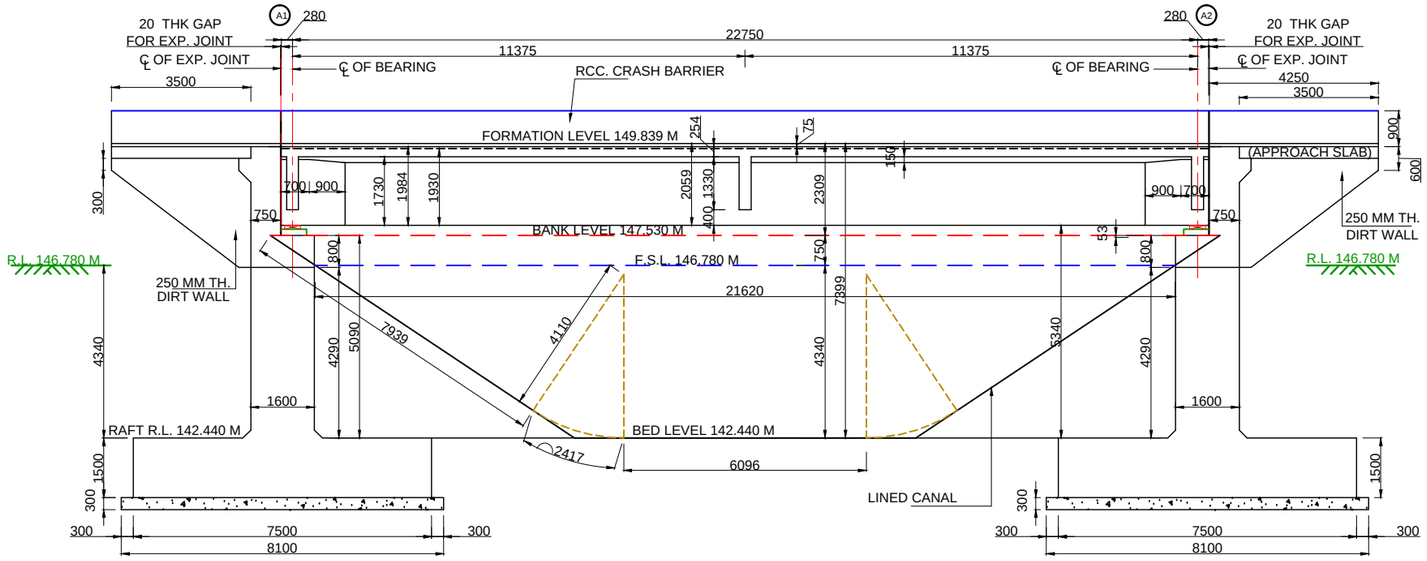
DETAIL SECTION AT 'A'

NOTES:-

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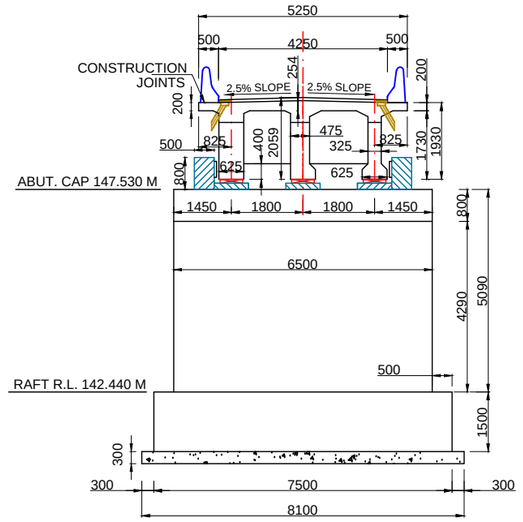
TENDER DRAWING

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 8.400 FOR S.L.R. BRIDGE
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 07 02 of 12
	Drawn by:-	Checked by:- / Approved by:-



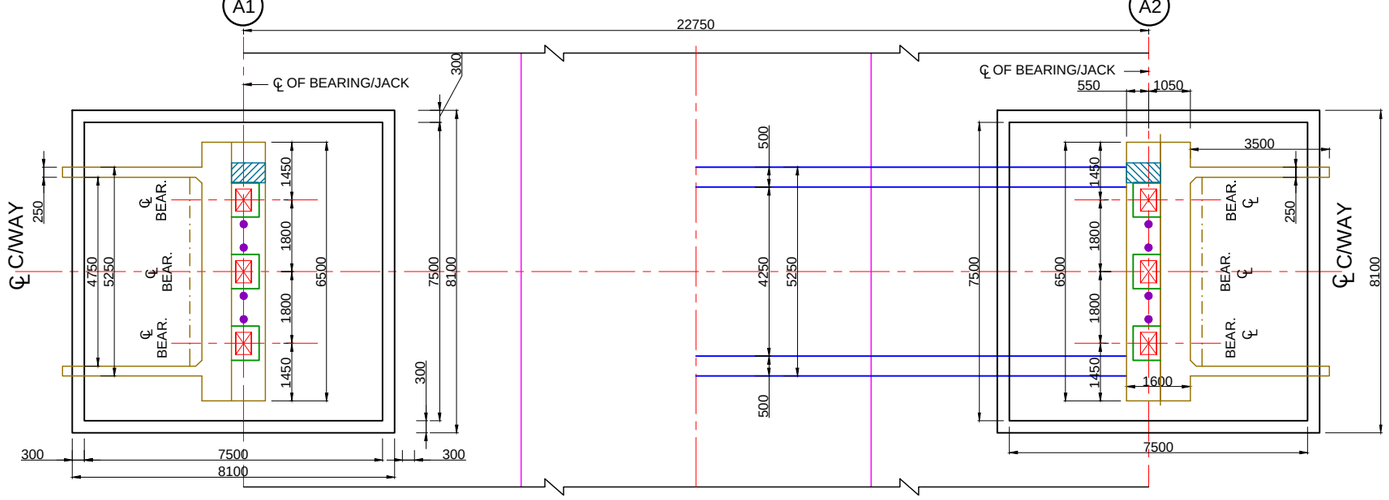
SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN

(SCALE A)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	84.15 CUMEC
BED LEVEL	142.440 M
WATER DEPTH	4.340 M
F.S.L.	146.780 M
FREE BOARD	0.75 M

7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a)	RAFT	M35
b)	ABUTMENT	M25
c)	SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d)	CRASH BARRIER	M30
e)	PEDESTAL (SEISMIC)	M35
f)	WEARING COAT	M30

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0Á
ROAD LEVEL	149.839 M
EX. ROAD LEVEL	146.780 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M

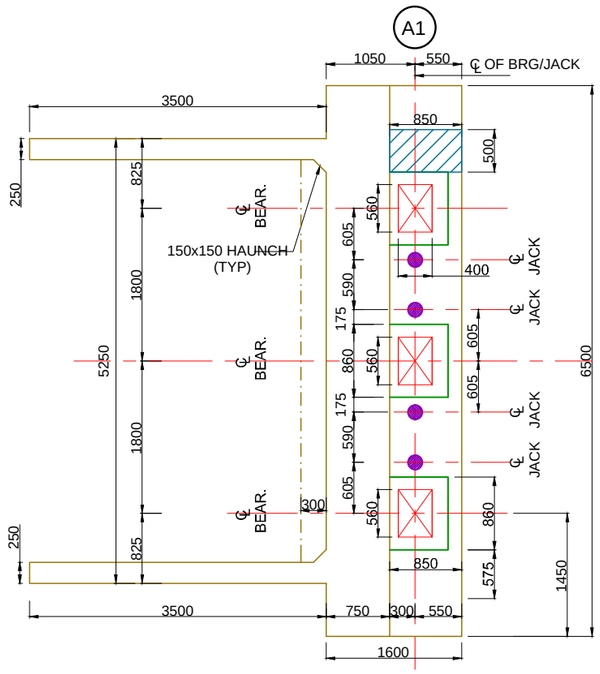
9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

SCALE A:-

2000 0 2000 4000 6000

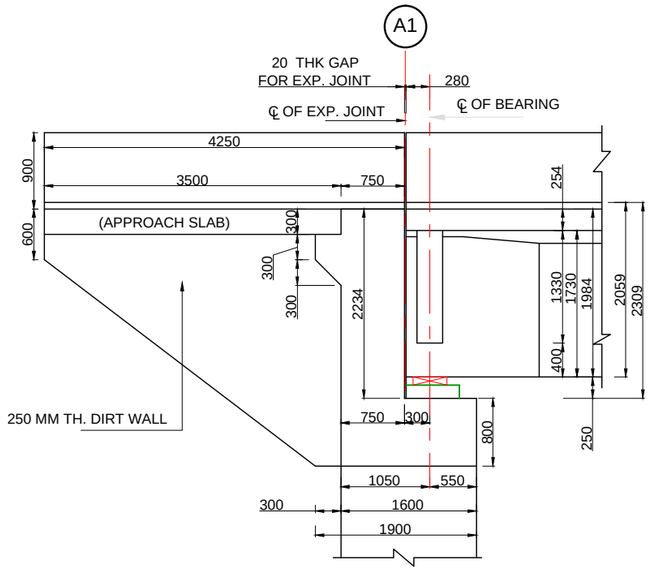
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 8.400 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-07 03 of 12
	Drawn by:-	Checked by:- / Approved by:-



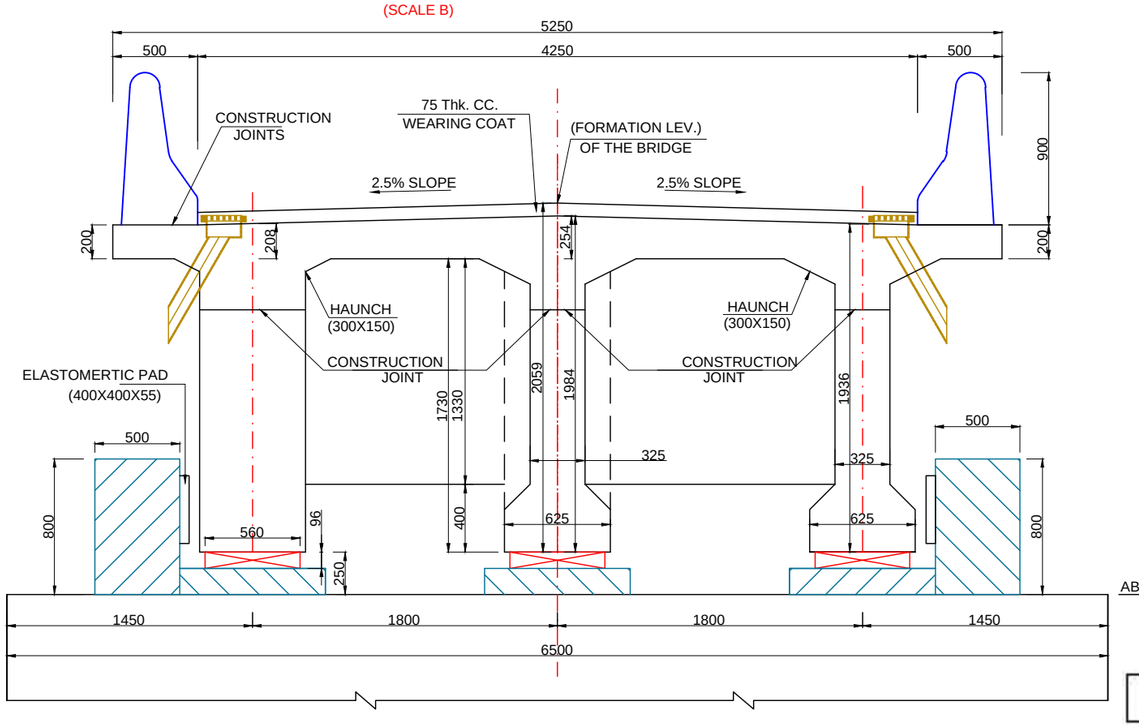
PLAN OF ABUTMENT AT BEARING LEVEL

(SCALE B)



DETAIL - `D1'

(SCALE B)



ABUT. CAP 147.530 M

CROSS SECTION OF GIRDERS

(SCALE C)

(SCALE C)

SCALE B:-

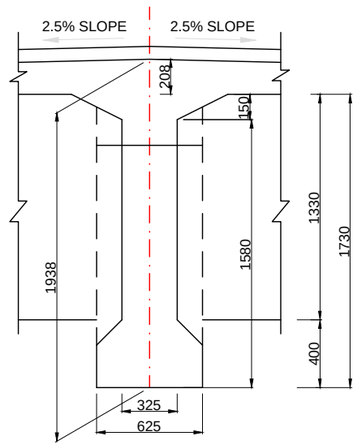
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SCALE C:-

500 0 500 1000 1500

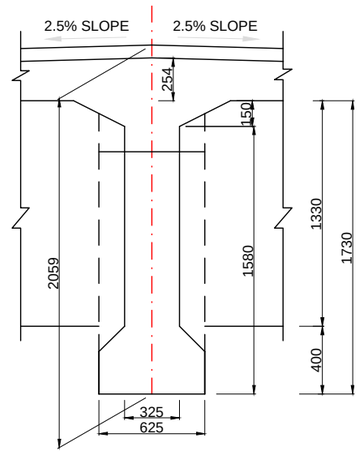
NOTES

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3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



CROSS SECTION OF RCC 'I' OUTER GIRDER

(SCALE C)

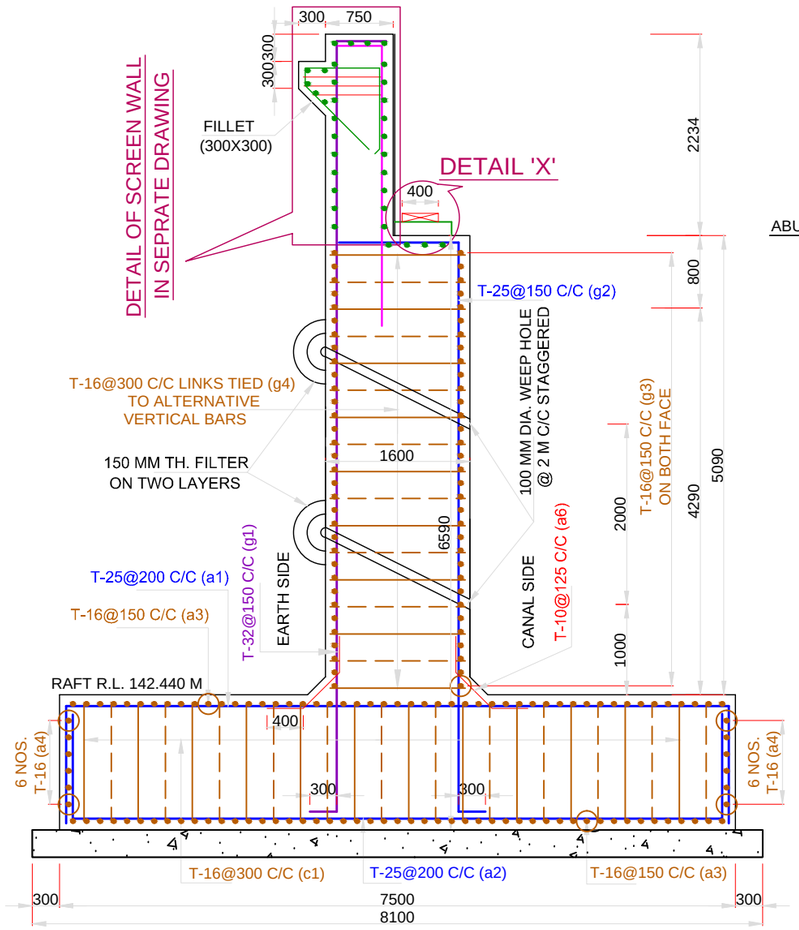


CROSS SECTION OF RCC 'I' INTERMEDIATE GIRDER

(SCALE C)

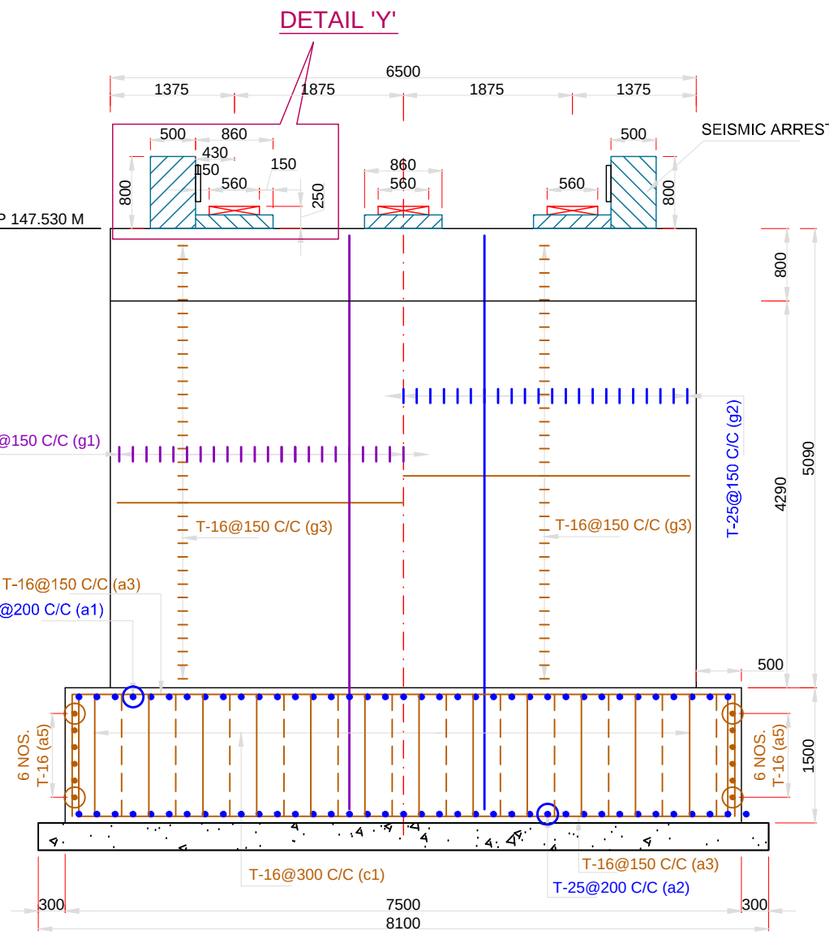
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR BRIDGE AT KM 8.400 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-07 04 of 12
	Drawn by:-	Checked by:- / Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	600, 8598, 300	32	150	42X2
	2	g2	1325, 6365, 300	25	150	42X2
	3	g3	708, 6350, 708	16	150	33X2X2
	4	g4	150, VERTICAL LINK BARS 1450, 150	16	300	9X11X2
IN RAFT FOR ABUTMENT	5	a1	1000, 7350, 1000	25	200	37X2
	6	a2	1000, 7350, 1000	25	200	37X2
	7	a3	700, 700, 7350, 7350, 700, 700	16	150	49X2X2
	8	a4	700, 7350, 700	16	-	6X2X2
	9	a5	700, 7350, 700	16	-	6X2X2
	10	a6	400, 560, 400, 400, 400, 560	10	125	59X2X2
	11	c1	150, 1350, 150	16	300	13X13X2

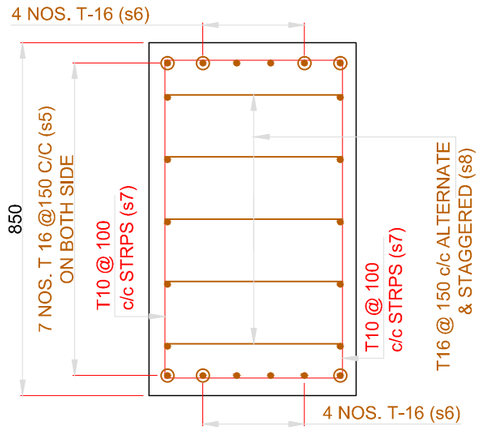
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:- 500 0 500 1000 1500

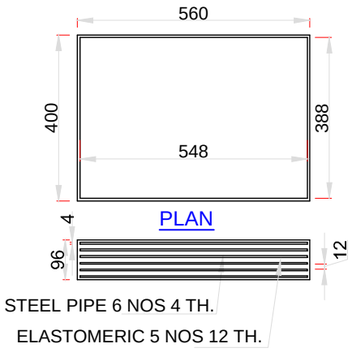
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SLR BRIDGE AT KM 8.400 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-07 05 of 12
	Drawn by:-	Checked by:- / Approved by:-



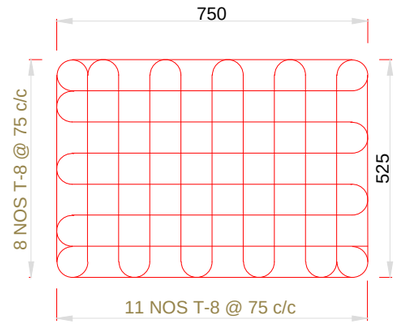
SECTION H-H

SCALE A



DETAILS OF ELASTOMERIC BEARINGS

SCALE A

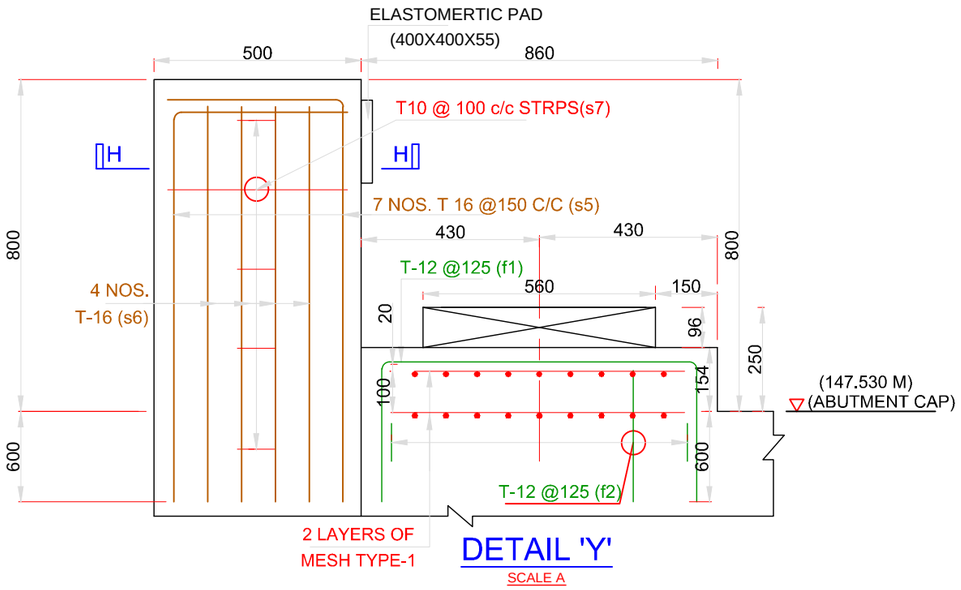


DETAIL OF MESH M1 (MESH BELOW BEARING LOCATION)

SCALE A

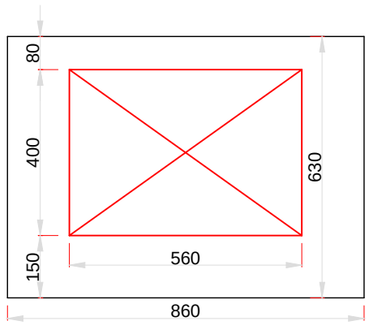
BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5	400, 1350	16	150	14X2X2
	2	s6	1350	16	-	8X2X2
	3	s7	700; 400, 400; 700	10	100	5X2X2
	4	s8	400	16	150	5X2X2
PEDESTAL FOR ABUTMENT	5	f1	633, 730, 633	12	125	5X3X3
	6	f2	633, 530, 633	12	125	5X3X3



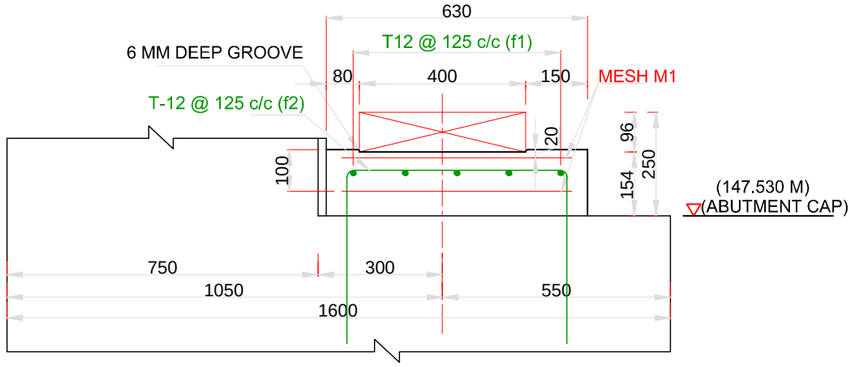
DETAIL 'Y'

SCALE A



PLAN

SCALE A



DETAIL 'X'

SCALE A

SCALE A:-



NOTES

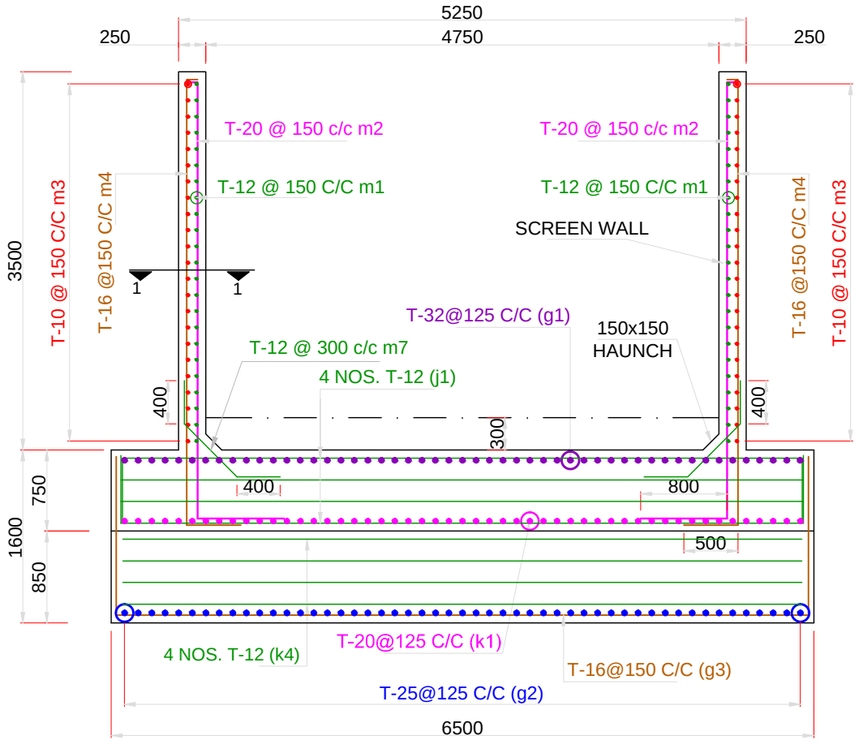
1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
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3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

TENDER DRAWING

Prepared by :-

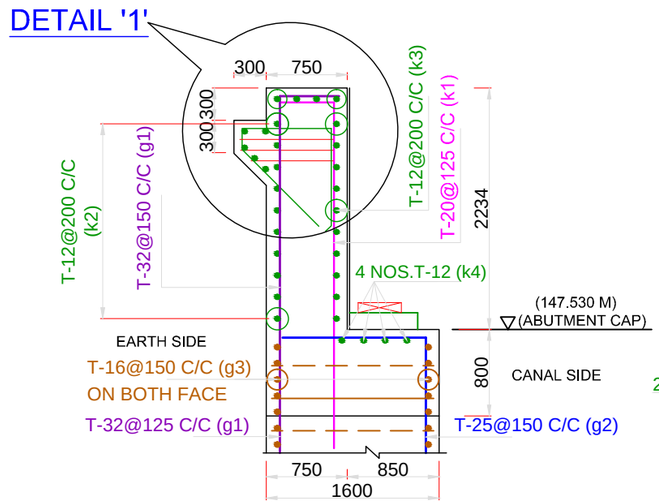
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 8.400 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-07 06 of 12
Drawn by:-	Checked by:- Approved by:-



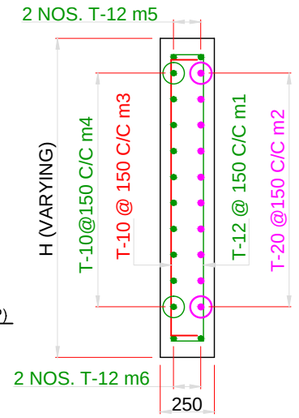
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL

SCALE A



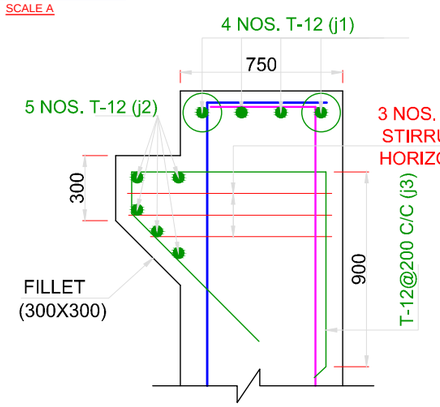
REINFORCEMENT DETAILS IN SECTION OF DIRT

SCALE A



SECTION AT 1-1

SCALE B



DETAIL '1'

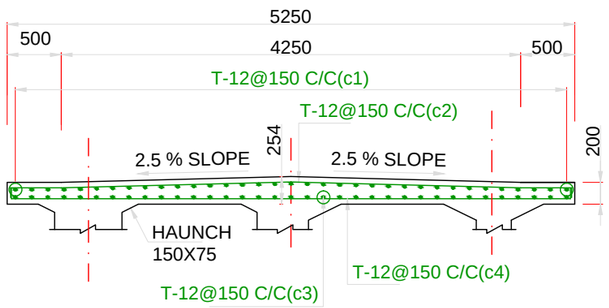
SCALE B

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
DIRT WALL	1	k1	700, 3459	20	125	51X2
	2	k2	150, 6350, 150	12	200	10X2
	3	k3	150, 6350, 150	12	200	10X2
	4	k4	150, 6350, 150	12	200	4X2
	5	j1	150, 6350, 150	12	-	4X2
	6	j2	150, 6350, 150	12	-	5X2
	7	j3	950, 195, 850, 900	12	-	24X2
	8	j4	LV= 790, 6350, 6350, 790	10	300	3X2
SCREEN WALL	9	m1	150, 1718, 150	12	150	44x2
	10	m2	150, 4025, 800, 4025, 800, 150	20	150	40x2
	11	m3	150, 1718, 150	10	150	44x2
	12	m4	150, 4025, 500, 150, 4025, 500	16	150	40x2
	13	m5	500, 3350, 500	12	-	4X2
	14	m6	400, 4085, 400	12	-	4X2
	15	m7	400, 800, 400	12	300	8X2X2
APPROACH SLAB	16	c1	150, 3350, 150	12	150	34X2
	17	c2	150, 450, 2125, 2125, 450, 150	12	150	23X2
	18	c3	150, 3350, 150	12	150	34X2
	19	c4	150, 5150, 150	12	150	23X2

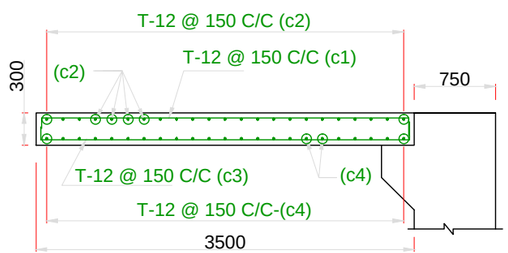
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS 70R OR TWO LANES OF CLASS-A LOADING WHICHEVER IS CRITICAL HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF PIER AND PIER CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.



REINFORCEMENT IN APPROACH SLAB

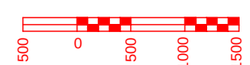
SCALE A



SECTION OF APPROACH SLAB

SCALE A

SCALE A:-

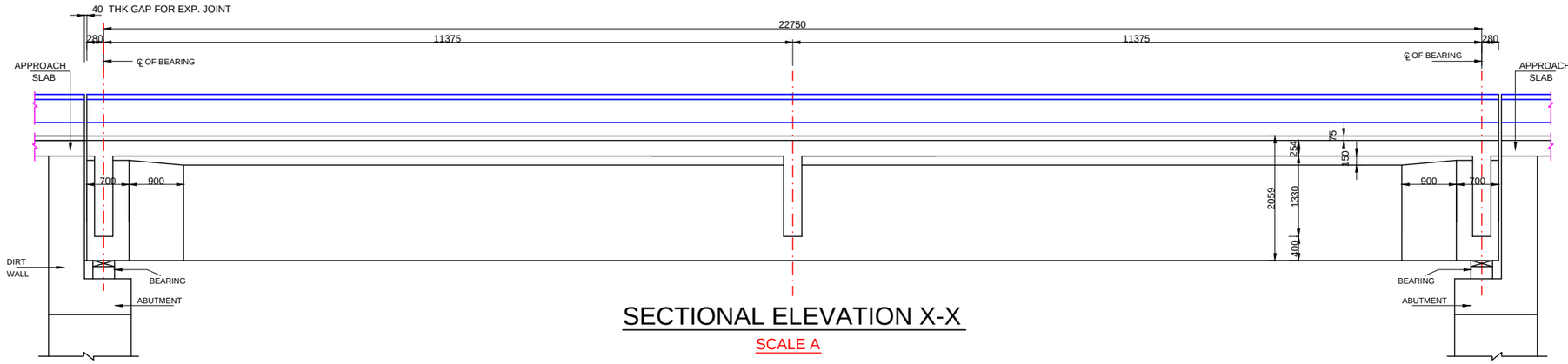


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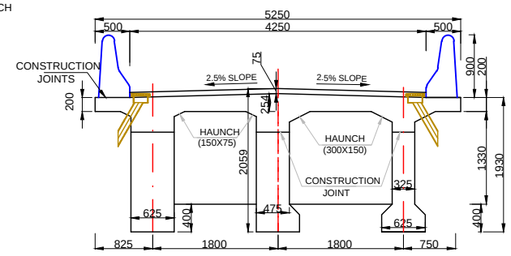
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 8.400 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-07 07 of 12
	Drawn by:-	Checked by:- / Approved by:-



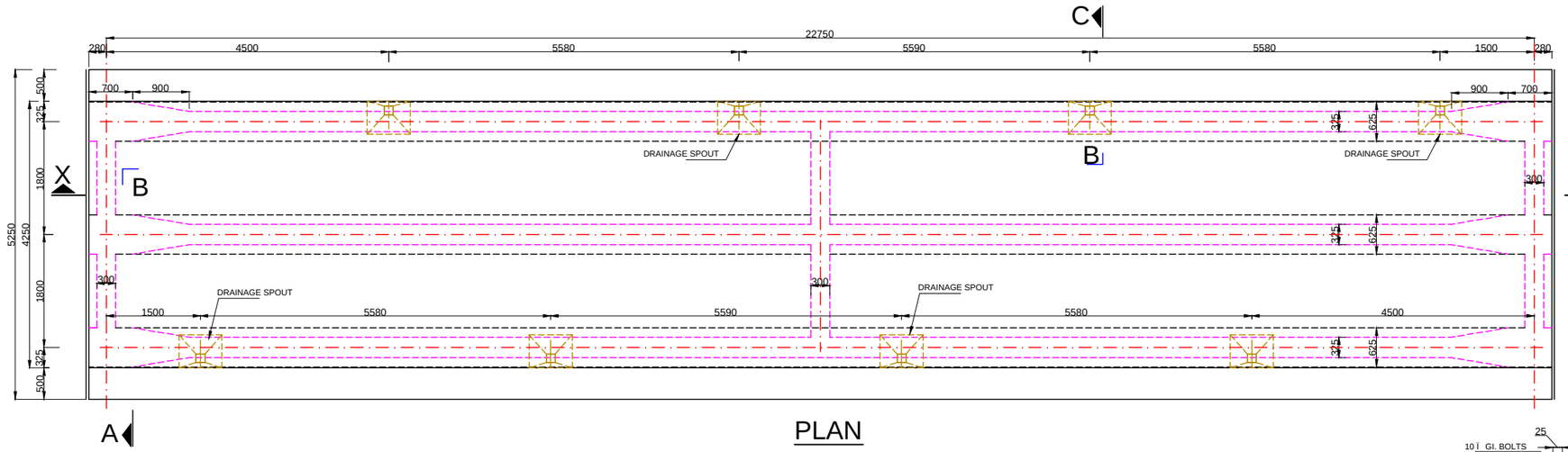
SECTIONAL ELEVATION X-X

SCALE A



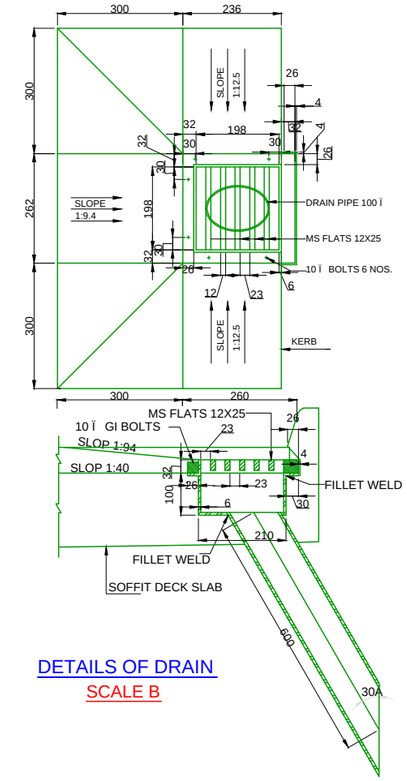
SECTION ABC

SCALE A



PLAN

SCALE A

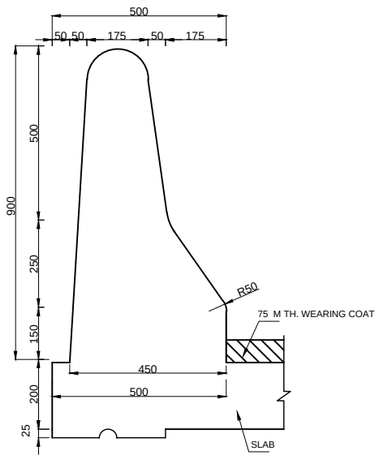


DETAILS OF DRAIN

SCALE B

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
7. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
8. REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.

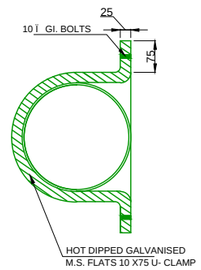


DETAILS OF CRASH BARRIER

SCALE B

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.



SCALE A:-

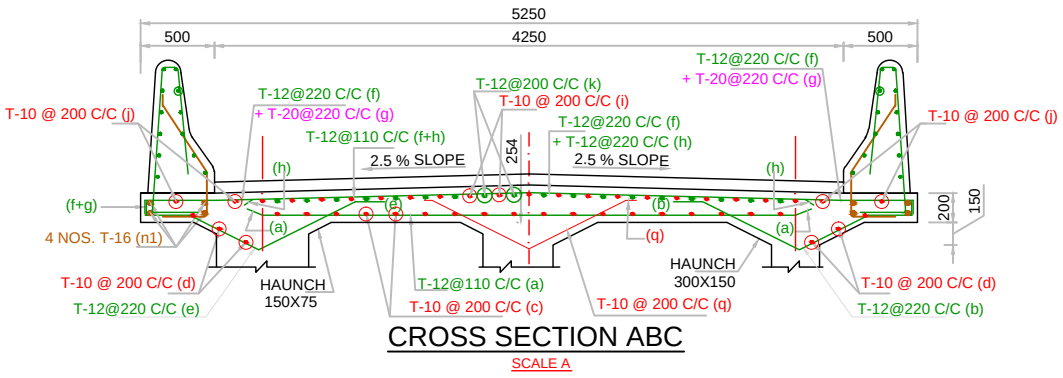
600 0 600 1200 1800

SCALE B:-

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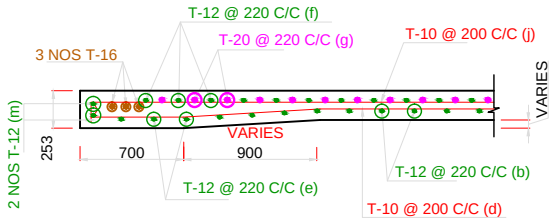
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 8.400 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-07	08 of 12
	Drawn by:-	Checked by:-	Approved by:-



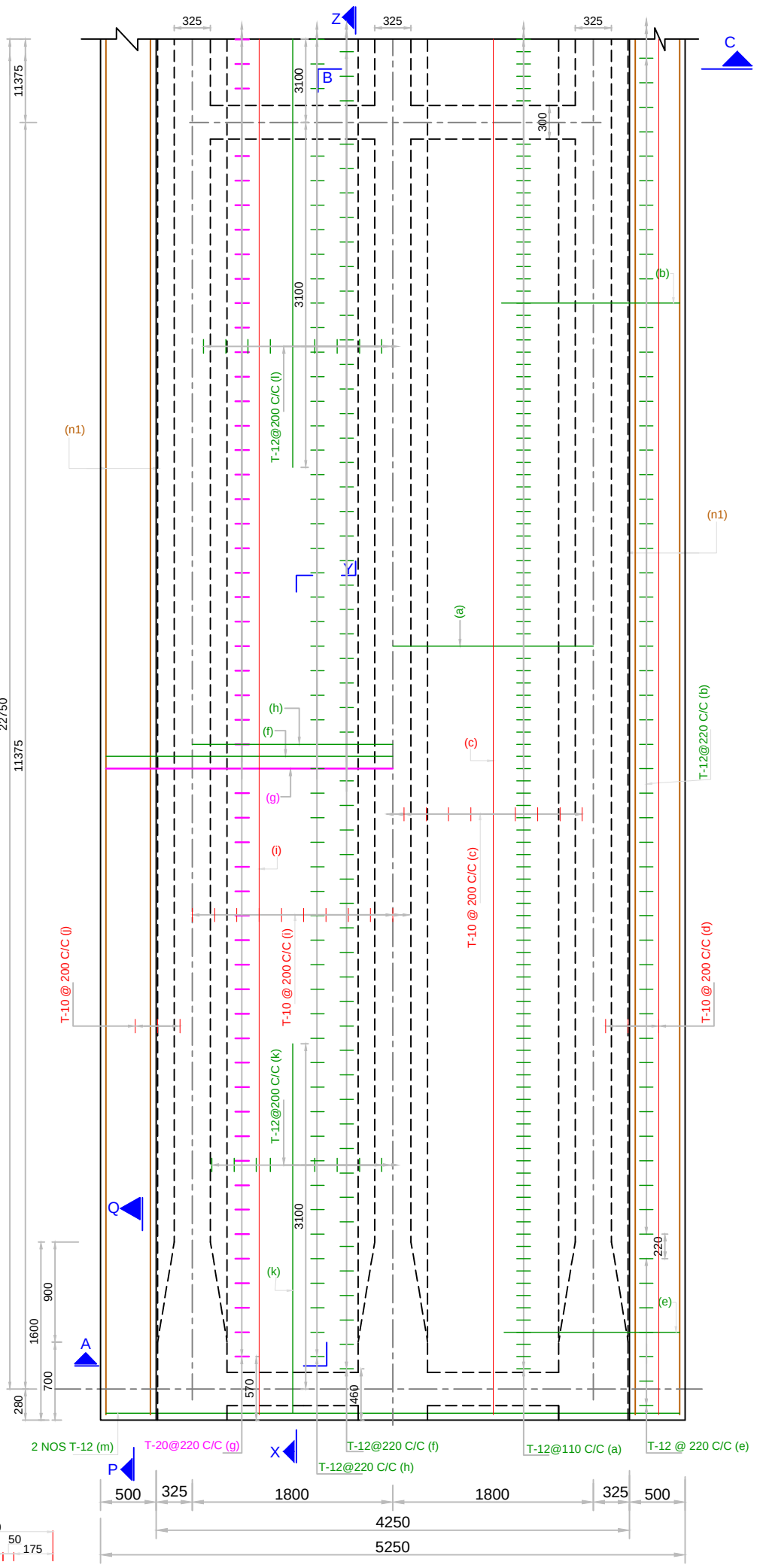
CROSS SECTION ABC

SCALE A



SECTION P.Q.

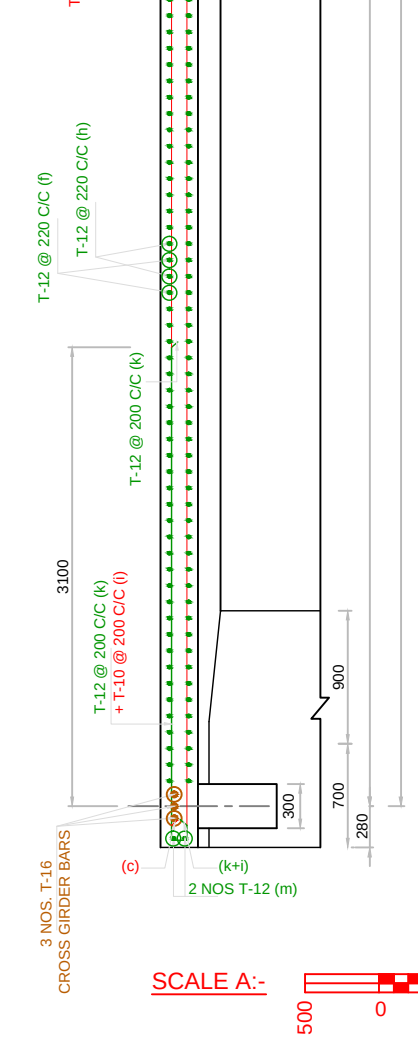
SCALE A



HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

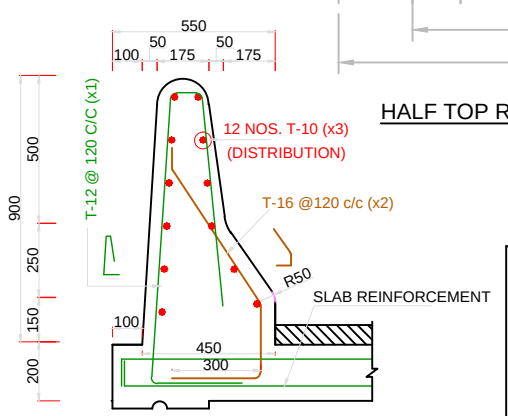
PLAN

SCALE A



SECTION X Y Z

SCALE A



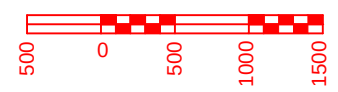
REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B

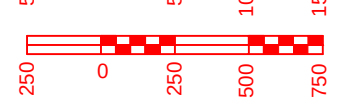
REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

SCALE A:-

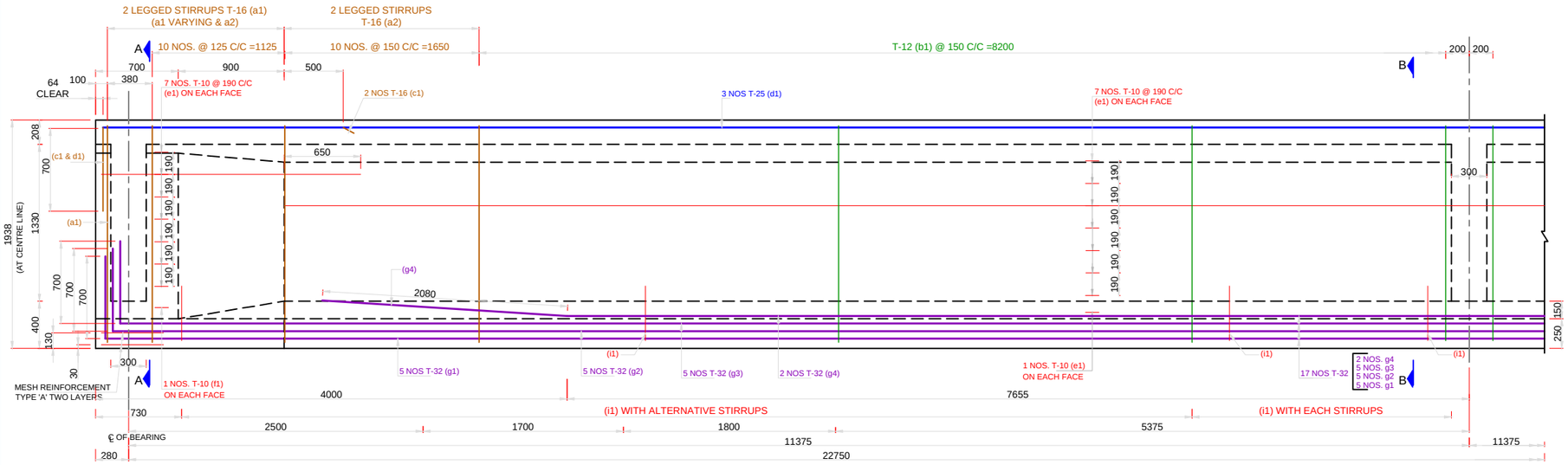


SCALE B:-



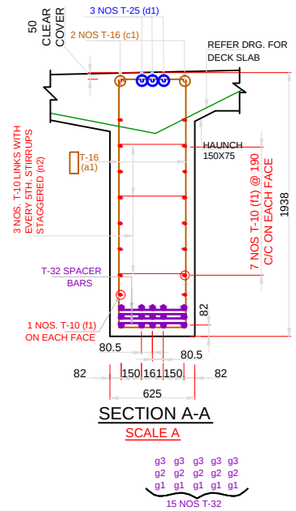
TENDER DRAWING

Prepared by :- WAPCOS LTD.	
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 8.400 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-07 09 of 12
Drawn by:-	Checked by:- / Approved by:-



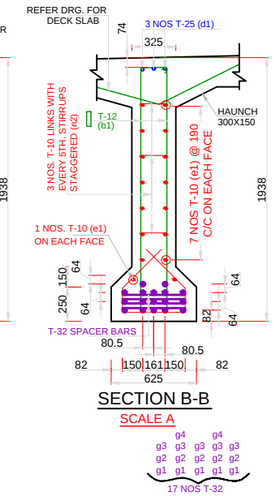
LONGITUDINAL SECTION OF OUTER GIRDER

SCALE A



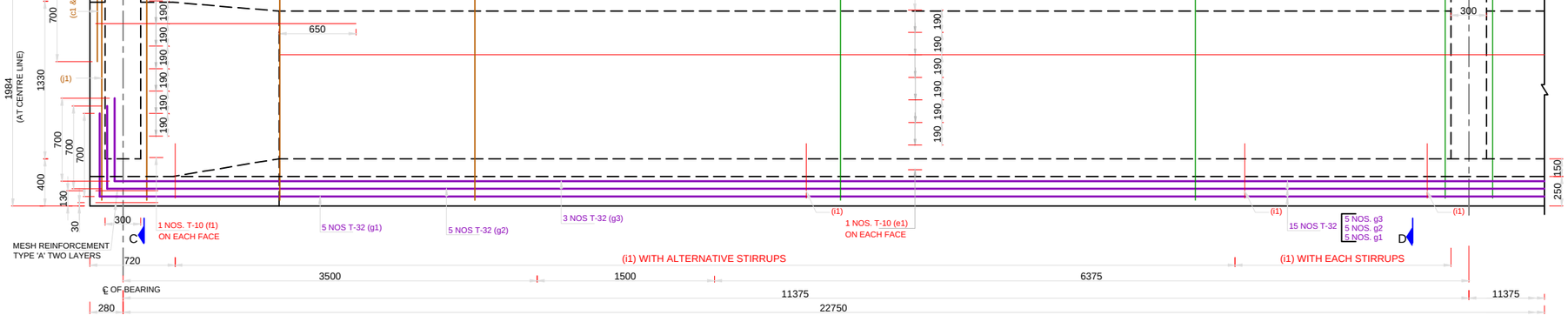
SECTION A-A

SCALE A



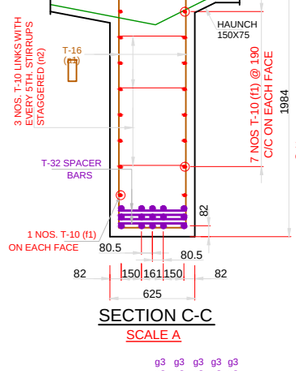
SECTION B-B

SCALE A



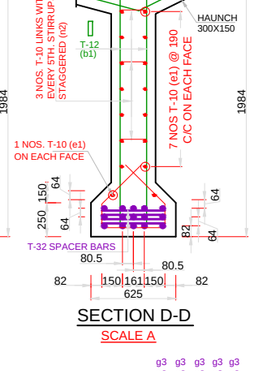
LONGITUDINAL SECTION OF INNER GIRDER

SCALE A



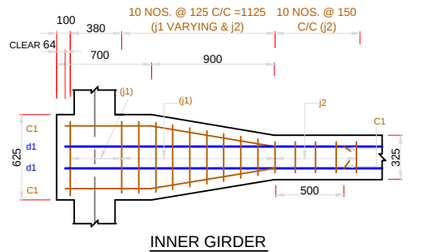
SECTION C-C

SCALE A



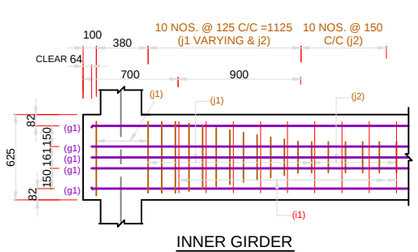
SECTION D-D

SCALE A



INNER GIRDER

PLAN SHOWING TOP REINFORCEMENT AT THE END

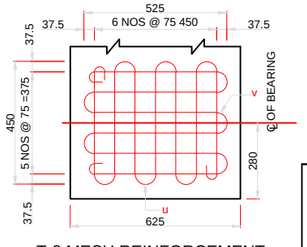


INNER GIRDER

PLAN SHOWING BOTTOM REINFORCEMENT AT THE END

(SIMILAR DETAILING WILL BE FOLLOWED FOR OUTER GIRDERS)

SCALE A



T-8 MESH REINFORCEMENT

TYPE - 'A'

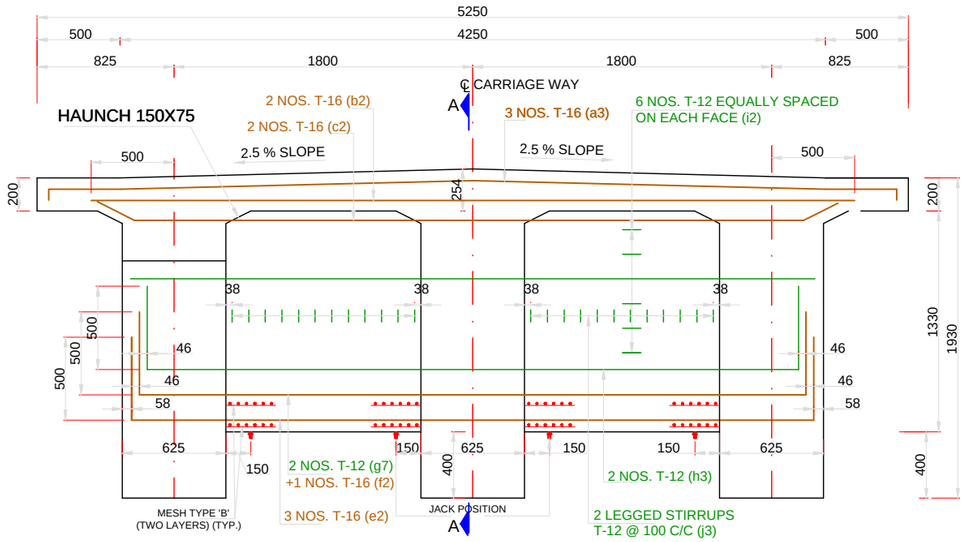
SCALE B

SCALE A:-

SCALE B:-

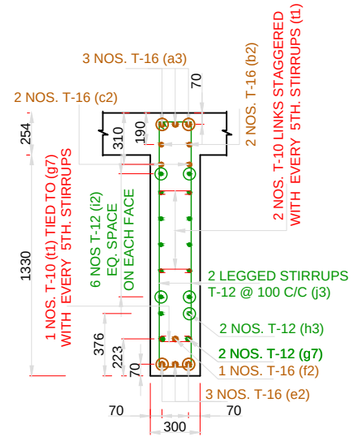
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :- NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :- REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 8.400 WITH THREE BEAMS
	Drawing No. :- WAP/PKS/NORTH KOEL/RMC/BRG-07 10 of 12
	Drawn by:- / Checked by:- / Approved by:-



LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A

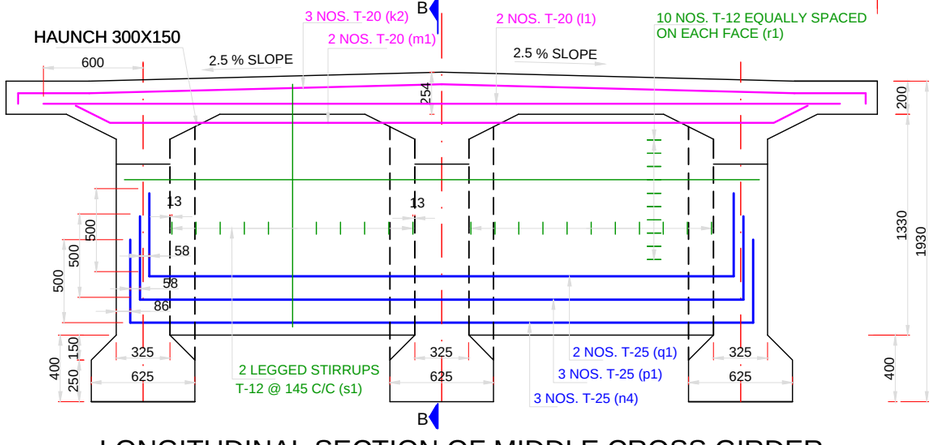


SECTION A-A

SCALE A

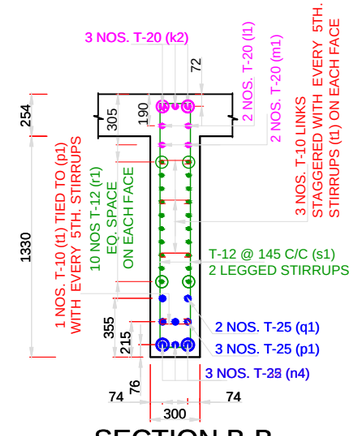
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



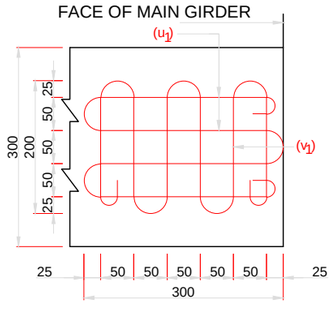
LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A



SECTION B-B

SCALE A



T-8 MESH REINFS. TYPE - 'B'

SCALE B

SCALE A:-



SCALE B:-



TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/215.

Prepared by :-

WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE AT KM 8.400 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-07 11 of 12
Drawn by:-	Checked by:- Approved by:-

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a	3600	12	110	3600	200
2	b	275, 523, R-120, 729, 500, 100, R-120	12	220	1927	184
3	c	150, L, 23210, 150, L, L VARYING FROM 109 TO 212	10	200	23710	19
4	d	140, L, 650, 901, R-100, 20110, R-100, 901, 650, 140, L, L VARYING FROM 68 TO 270	10	200	23710	6
5	e	VARYING FROM 523 TO 693, 150, R-120, VARYING FROM 729 TO 878, 575, 100, R-120	12	220	1927	32
6	f	2576, 75, R-120, 2576, 75	12	220	5304	100
7	g	2576, 75, R-120, 2576, 75	20	220	5182	100
8	h	1866, R-120, 1866	12	220	3732	100
9	i	L, 23210, 150, 150, L, VARYING FROM 109 TO 212	10	200	23710	19
10	j	L, 23210, 75, 75, L, VARYING FROM 68 TO 270	10	200	23638	6
11	k	L, 3330, 170, VARYING FROM 109 TO 212	12	200	3588	36
12	l	6200	12	200	6200	18
13	m	5150	12	-	5150	4
14	n_1	23210	16	-	23210	8
15	q	150, R=80, 150, 393, 860, 650, 433, R=80	10	200	2110	116

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u	25, 30, 37.5, 375, 75 75 75 75 75, 375, 37.5, 30, 25	10	-	3550	8
2	v	75, 75, 75, 75, 75, 30, 30, 450, 37.5, 25	10	-	3506	8
CRASH BARRIER PER M						
1	x_1	75, 1000, 750, 300	12	120	2125	9
2	x_2	75, 540, 300, 250	16	120	1165	9
3	x_3	9350	10		1000	12

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	**Length of each bar (mm)**	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a_1	L1=VARYING FROM 1808 TO 1812, L1, L2, L2 = VARYING FROM 1800 TO 1804, VARYING FROM 193 TO 493	16	125	5158	11X2X2
2	a_2	193, 1804, 1808, 193	16	150	4758	11X2X2
3	b_1	193, 1804, 1808, 193	12	150	4678	108X2
4	c_1	708, R=96, ELEVATION, 636, 913, 166, 500	16	-	2693	2X2X2
5	d_1	23182, 708, R=96, 708	25	-	24398	3X2
6	e_1	20110	10	-	20110	8X2X2
7	f_1	913, 650, 636, 160	10	-	2199	16X2X2
8	g_1	716, R=192, 716, 23182	32	-	24358	5X2
9	g_2	716, R=192, 716, 23054	32	-	24230	5X2
10	g_3	716, R=192, 716, 22926	32	-	24102	5X2
11	g_4	2080, 15310, 2080	32	-	19470	2X2
12	i_1	450, 450, 493, 315, 485	10	-	1733	101X2
12	n_2	L, 140, 140, L = VARYING FROM 213 TO 513	10	-	583	18X2
14	n_3	213, 140, 140	10	-	433	90X2
LONGITUDINAL INNER GIRDER						
1	j_1	L1=VARYING FROM 1856 TO 1860, L1, L2, L2 = VARYING FROM 1848 TO 1852, VARYING FROM 193 TO 493	16	125	5290	11X2X1
2	j_2	193, 1852, 1856, 193	16	150	4890	11X2X1
3	k_1	193, 1852, 1856, 193	12	150	4810	108X1
4	c_1	708, R=96, ELEVATION, 636, 913, 166, 500	16	-	2693	2X2X1
5	d_1	23182, 708, R=96, 708	25	-	24398	3X1
6	e_1	20110	10	-	20110	8X2X1
7	f_1	913, 650, 636, 160	10	-	2199	16X2X1
8	g_1	716, R=192, 716, 23182	32	-	24358	5X1
9	g_2	716, R=192, 716, 23054	32	-	24230	5X1
10	g_3	716, R=192, 716, 22926	32	-	24102	5X1
11	i_1	450, 450, 493, 315, 485	10	-	1733	101X1
12	n_2	L, 140, 140, L = VARYING FROM 213 TO 513	10	-	583	18X1
13	n_3	213, 140, 140	10	-	433	90X1

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a_3	95, 2576, R-160, 2576, 95	16	-	5248	3X2
2	b_2	500, 3600, 500	16	-	4750	2X2
3	c_2	230, R=160, 4030, 230	16	-	4490	2X2
4	e_2	508, R=64, 4109, 508	16	-	5029	3X2
5	f_2	508, R=64, 4063, 508	16	-	4983	1X2
6	g_7	506, R=48, 4063, 506	12	-	5003	2X2
7	h_3	506, R=48, 3925, 506	12	-	4865	2X2
8	i_2	233, R=48, 4125, 233	12	-	4519	6X2X2
9	j_3	176, B, 176, VARYING FROM 1447 to 1475	12	100	3402	26X2
10	t_1	140, 196, 140	10	-	416	20X2
MIDDLE CROSS GIRDERS						
1	k_2	95, 2576, R-160, 2576, 95	20	-	5222	3
2	l_1	600, 3600, 600	20	-	4800	2
3	m_1	230, R=160, 4000, 230	20	-	4310	2
4	n_4	508, R=64, 3754, 508	25	-	4570	3
5	p_1	508, R=64, 3638, 508	25	-	4454	3
6	q_1	508, R=64, 3520, 508	25	-	4336	2
7	r_1	529, 3925, 529	12	-	4911	10X2
8	s_1	L, 176, VARYING FROM 1444 to 1478	12	145	3202	22
9	t_1	140, 196, 140	10	-	416	16

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
19	u_1	30, 50, 50, 50, 30, 25, 250, 37.5	10	-	1453	16
20	v_1	50 50 50 50 50, 30, 90, 37.5, 150, 25	10	-	1510	16

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.

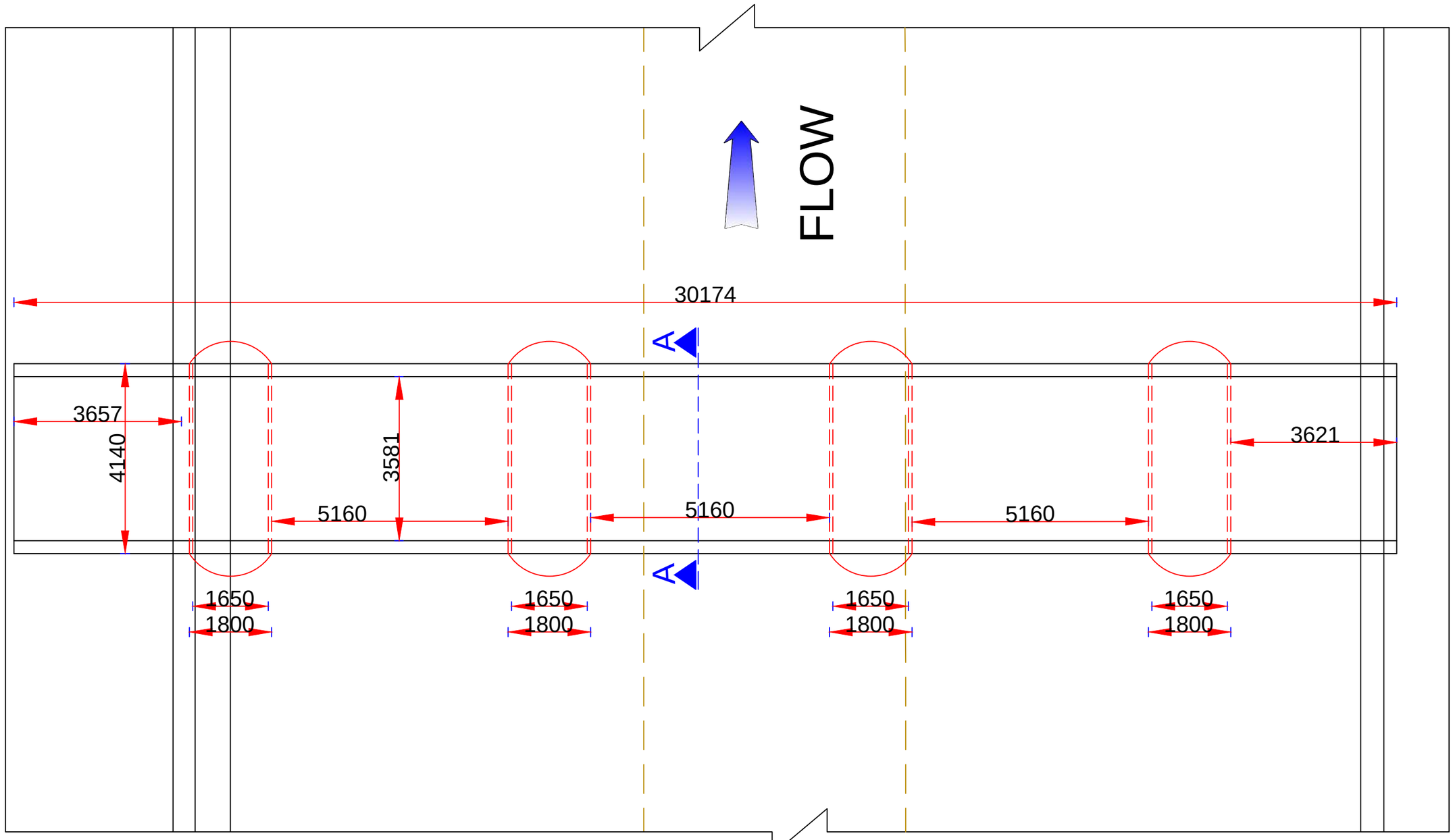
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR BRIDGE AT KM 8.400 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-07 12 of 12
Drawn by:-	Checked by:- Approved by:-



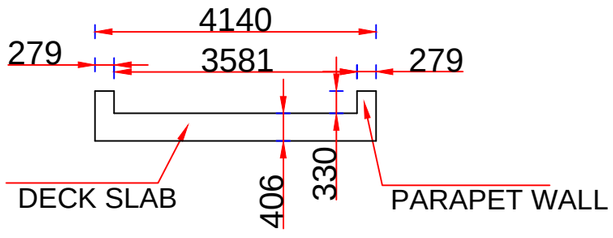
S.L.R. BRIDGE

AT

CH. 10.394 KM



PLAN



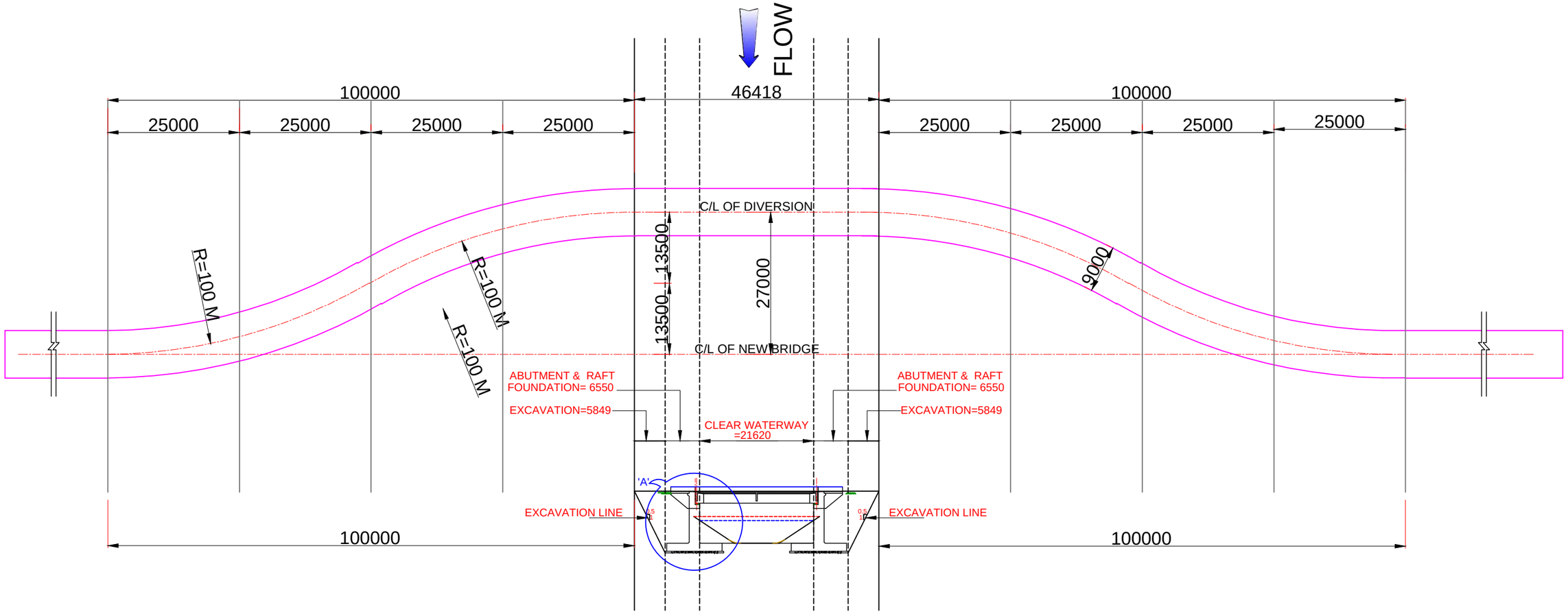
SECTION A-A

TENDER DRAWING

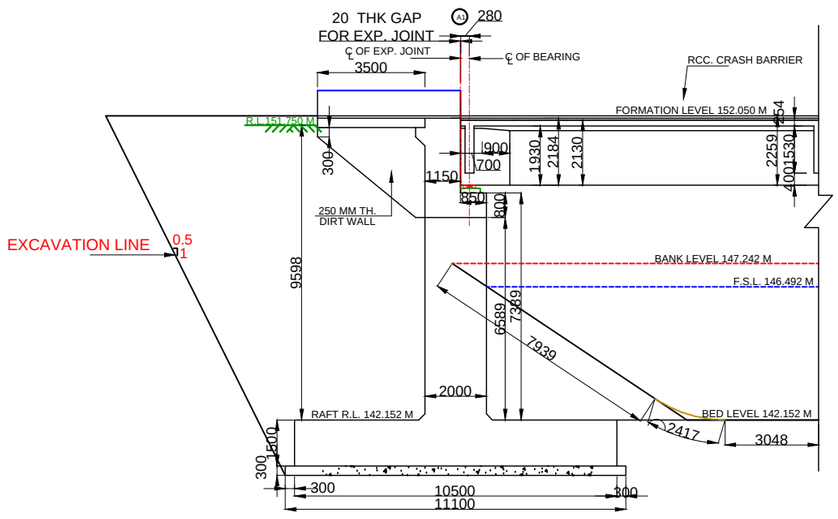
NOTES:

1 ALL DIMENSIONS ARE IN mm.
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	EXISTING PLAN OF SINGLE LANE ROAD BRIDGE AT CH. 10.394 KM	
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-08	01 of 12
	Drawn by:-	Checked by:-	Approved by:-



SKETCH OF DIVERSION PLAN AT KM 10.394 FOR S.L.R. BRIDGE



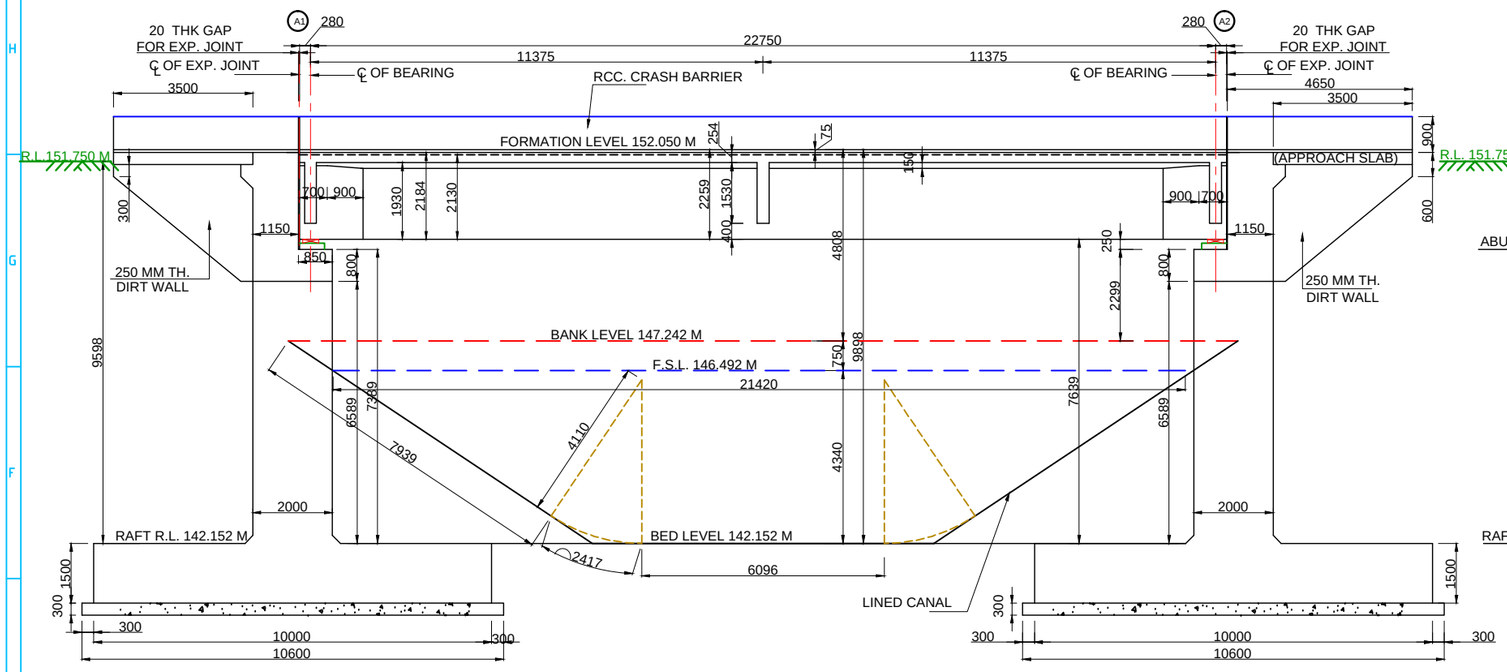
DETAIL SECTION AT 'A'

NOTES:-

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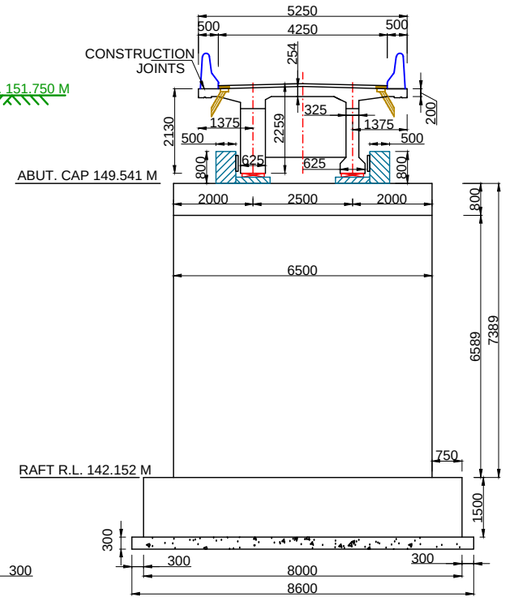
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 10.394 FOR S.L.R. BRIDGE
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 08 02 of 12
	Drawn by:-	Checked by:- / Approved by:-



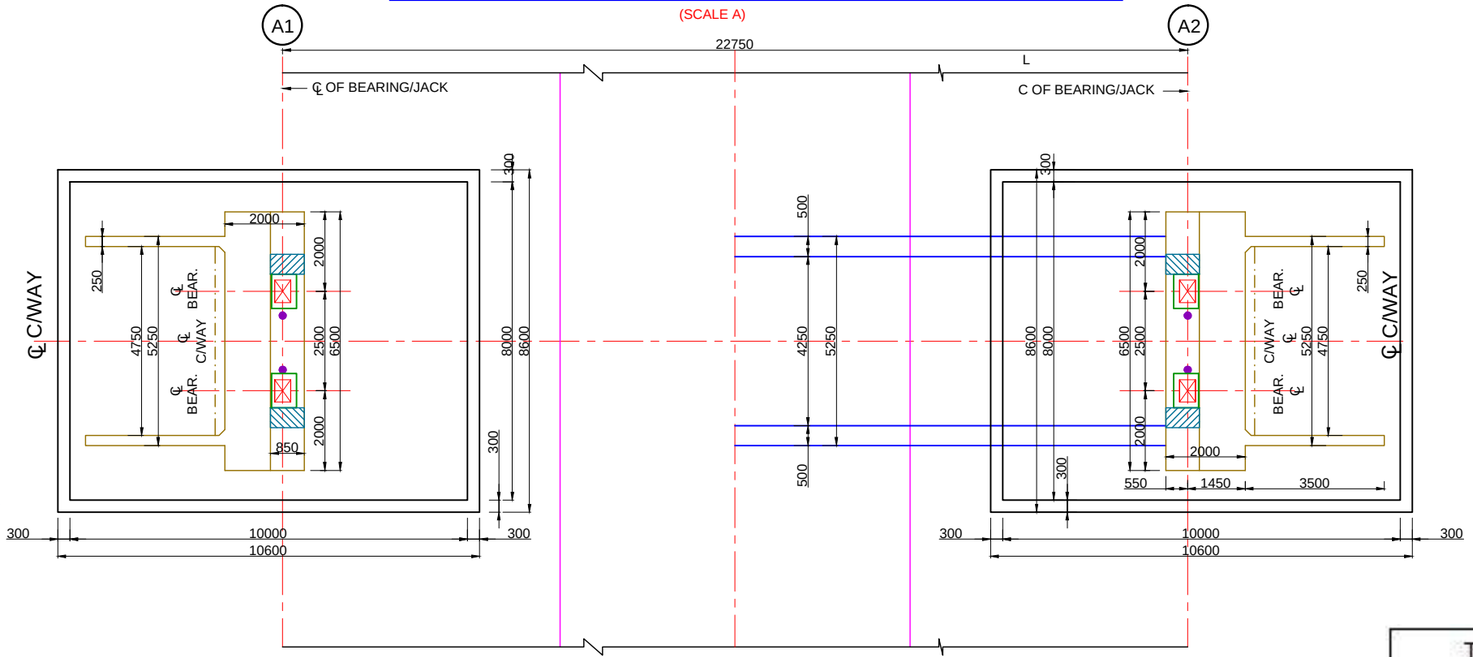
SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN

(SCALE A)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	84.15 CUMEC
BED LEVEL	142.152 M
WATER DEPTH	4.340 M
F.S.L.	146.492 M
FREE BOARD	0.75 M

7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a)	RAFT	M35
b)	ABUTMENT	M25
c)	SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d)	CRASH BARRIER	M30
e)	PEDESTAL (SEISMIC)	M35
f)	WEARING COAT	M30

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0Á
ROAD LEVEL	151.750 M
EX. ROAD LEVEL	152.050M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M

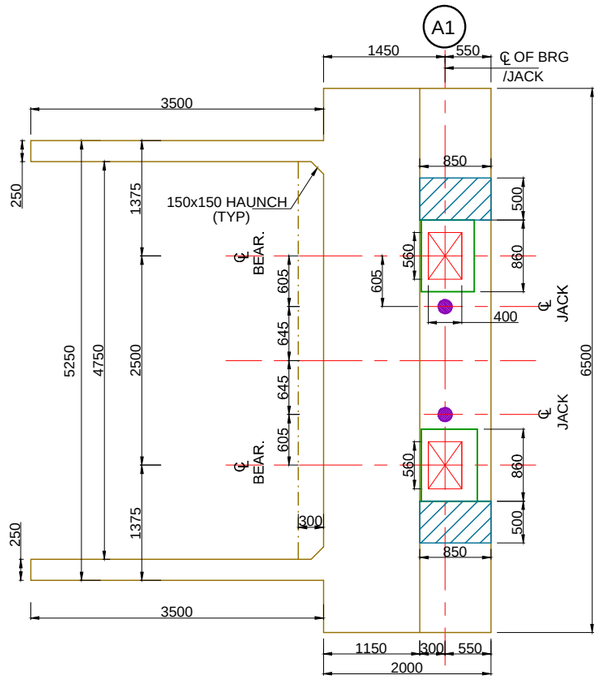
9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

SCALE A:-

2000 0 2000 4000 6000

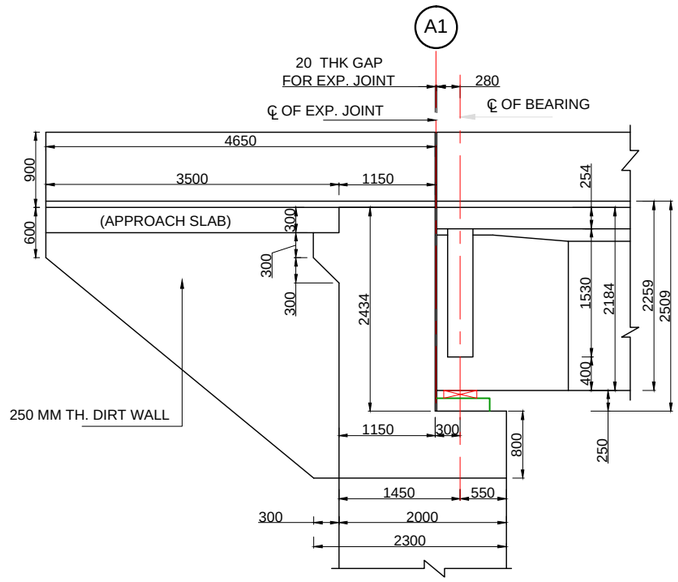
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 10.394 WITH TWO BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-08	03 of 12
	Drawn by:-	Checked by:-	Approved by:-



PLAN OF ABUTMENT AT BEARING LEVEL

(SCALE B)

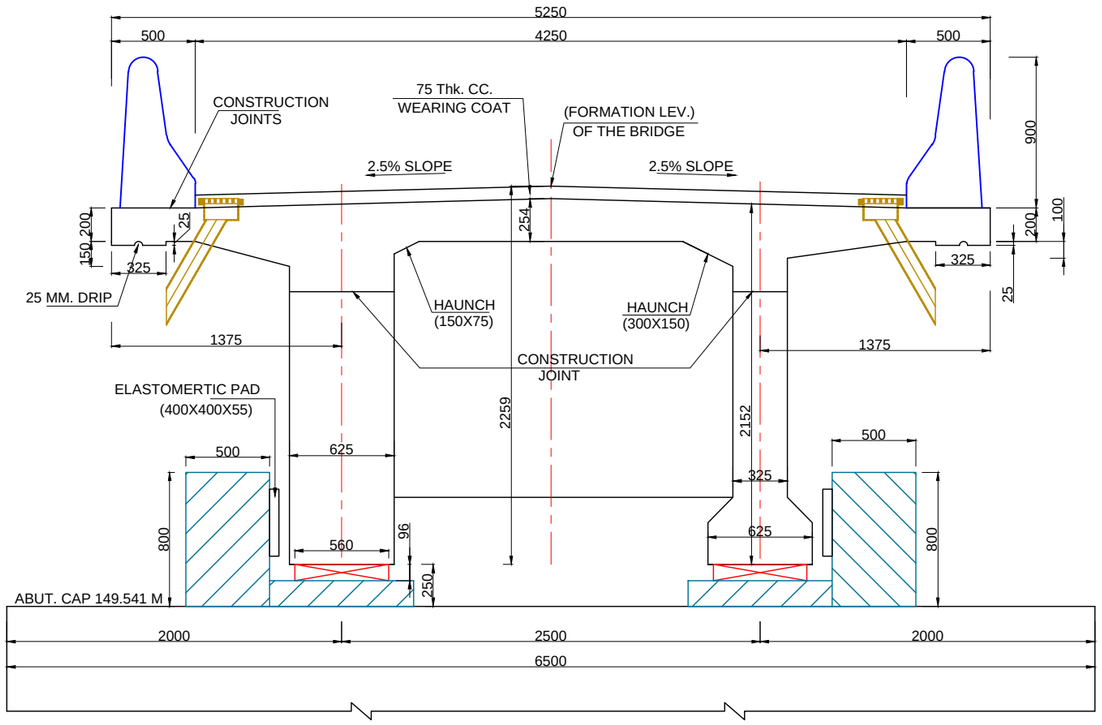


DETAIL - `D1'

(SCALE B)

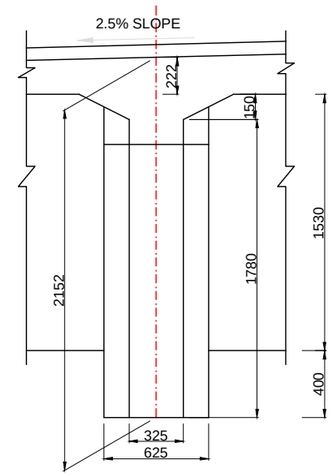
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3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



CROSS SECTION OF GIRDERS

(SCALE C)



CROSS SECTION OF RCC 'I' GIRDER

(SCALE C)

TENDER DRAWING

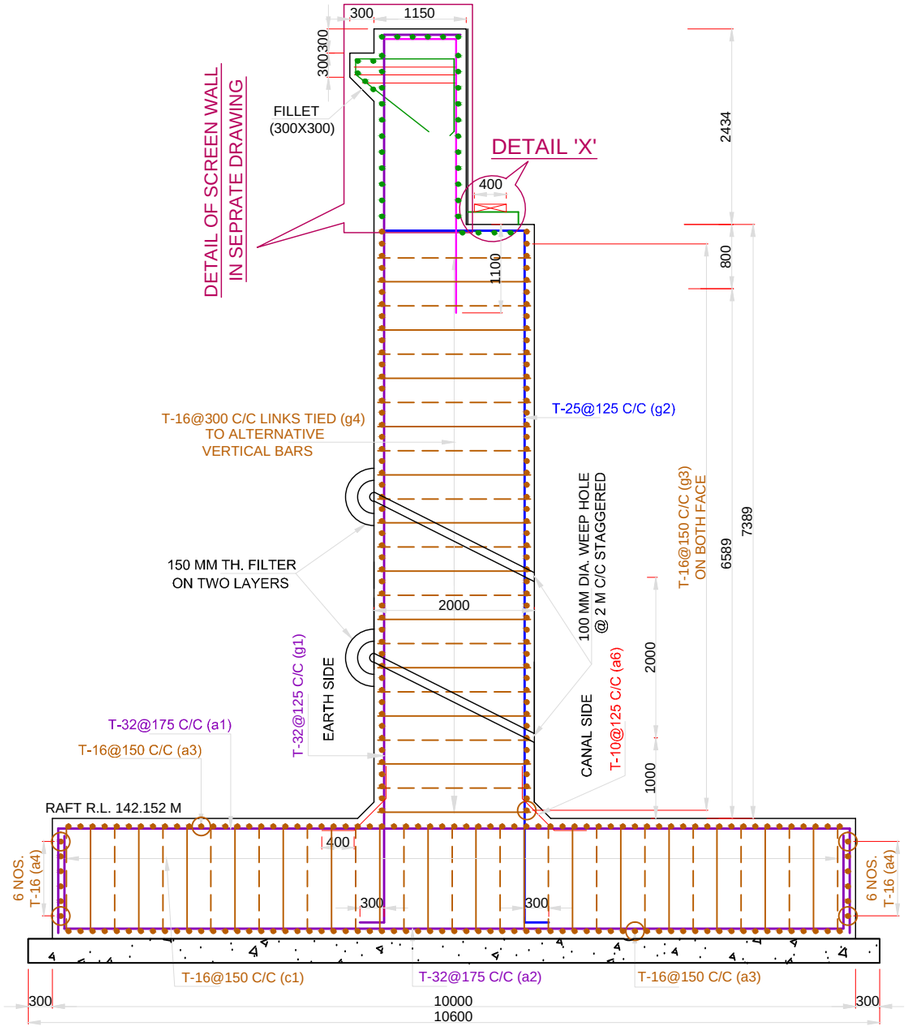
SCALE B:-

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SCALE C:-

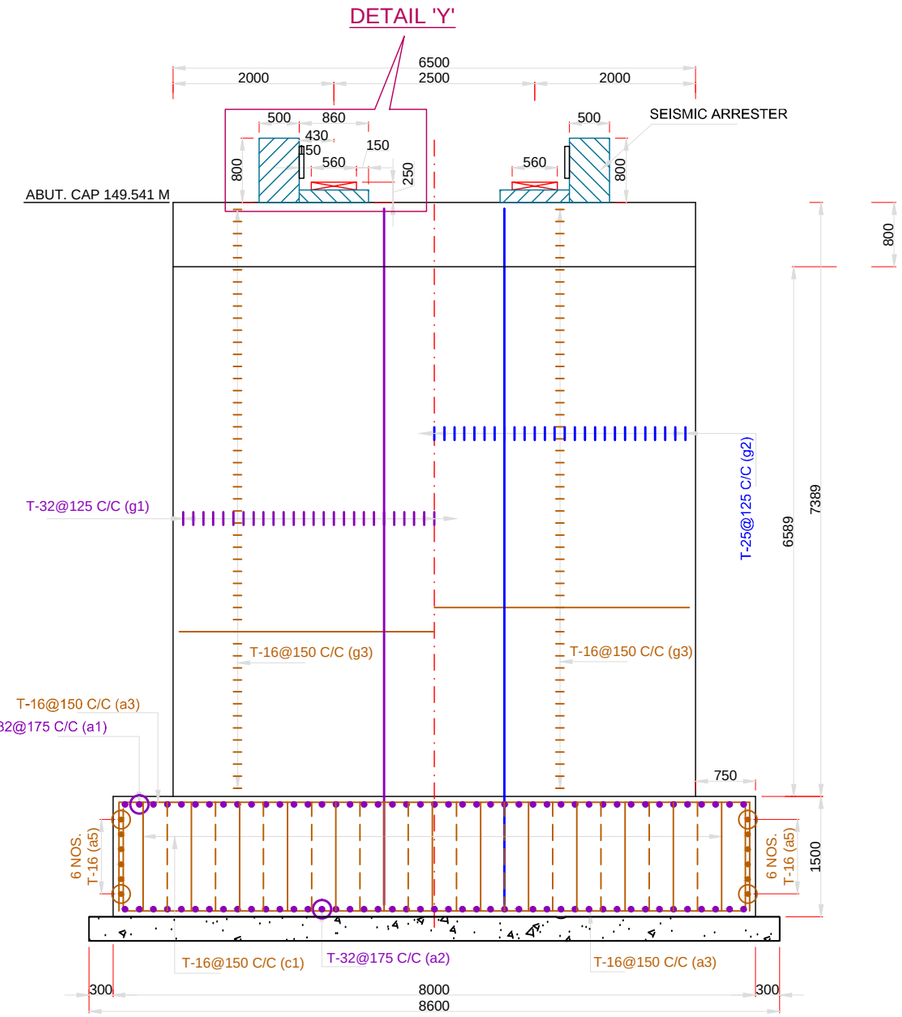
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Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR BRIDGE AT KM 10.394 WITH TWO BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-08 04 of 12
	Drawn by:-	Checked by:- / Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	600, 11323, 300	32	125	51X2
	2	g2	1325, 8889, 300	25	125	51X2
	3	g3	708, 6350, 708	16	150	48X2X2
	4	g4	150, VERTICAL LINK BARS 1850, 150	16	300	12X11X2
IN RAFT FOR ABUTMENT	5	a1	1000, 9850, 1000	32	175	45X2
	6	a2	1000, 9850, 1000	32	175	45X2
	7	a3	700, 700, 7850, 7850, 700, 700	16	150	66X2X2
	8	a4	700, 7850, 700	16	-	6X2X2
	9	a5	700, 9850, 700	16	-	6X2X2
	10	a6	400, 400, 560, 400, 400, 560	10	125	52x2X2
	11	c1	150, 1350, 150	16	300	17X14x2

NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:- 500 0 500 1000 1500

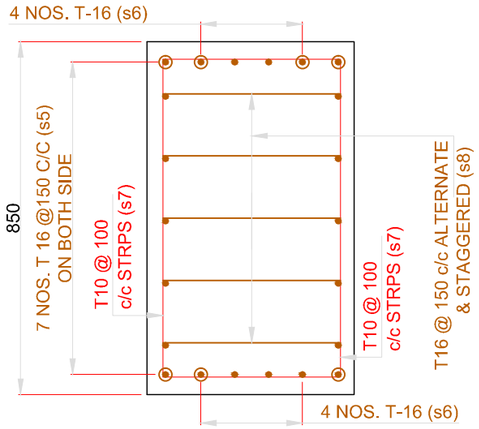
TENDER DRAWING

Prepared by :-

WAPCOS LTD.

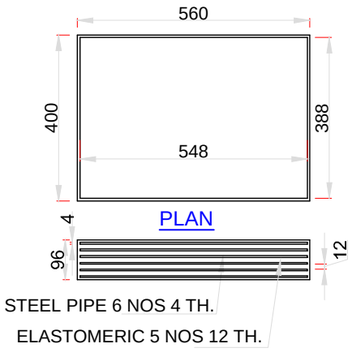
वाप्कोस लिमिटेड WAPCOS LIMITED

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SLR BRIDGE AT KM 10.394 WITH TWO BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-08 05 of 12
Drawn by:-	Checked by:- Approved by:-



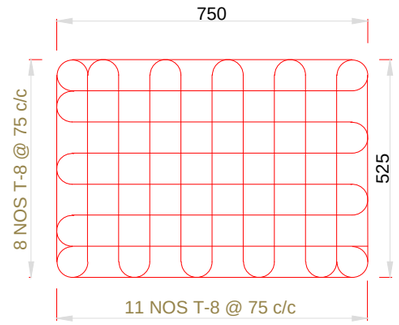
SECTION H-H

SCALE A



DETAILS OF ELASTOMERIC BEARINGS

SCALE A

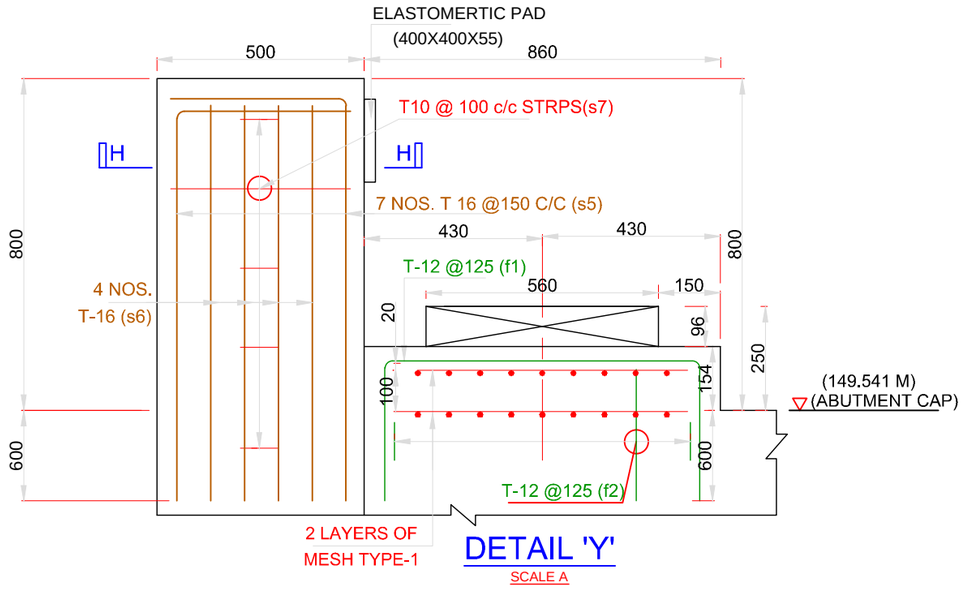


DETAIL OF MESH M1 (MESH BELOW BEARING LOCATION)

SCALE A

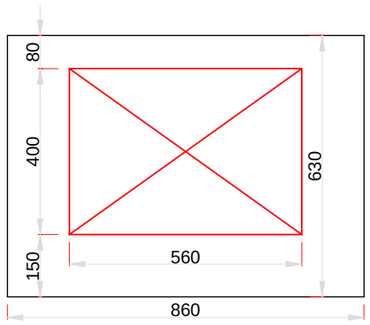
BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5	400, 1350	16	150	14X2X2
	2	s6	150, 1350, 150	16	-	8X2X2
	3	s7	700, 400, 400, 700	10	100	5X2X2
	4	s8	150, 400, 150	16	150	5x2x2
PEDESTAL FOR ABUTMENT	5	f1	633, 730, 633	12	125	5X2X2
	6	f2	633, 530, 633	12	125	5X2X2



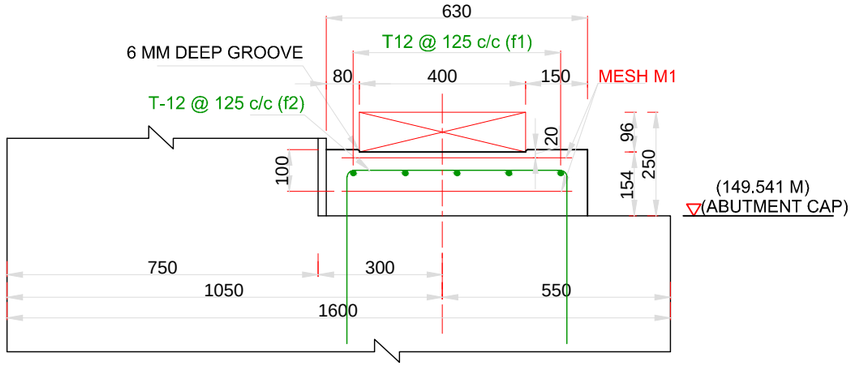
DETAIL 'Y'

SCALE A



PLAN

SCALE A



DETAIL 'X'

SCALE A

SCALE A:-



NOTES

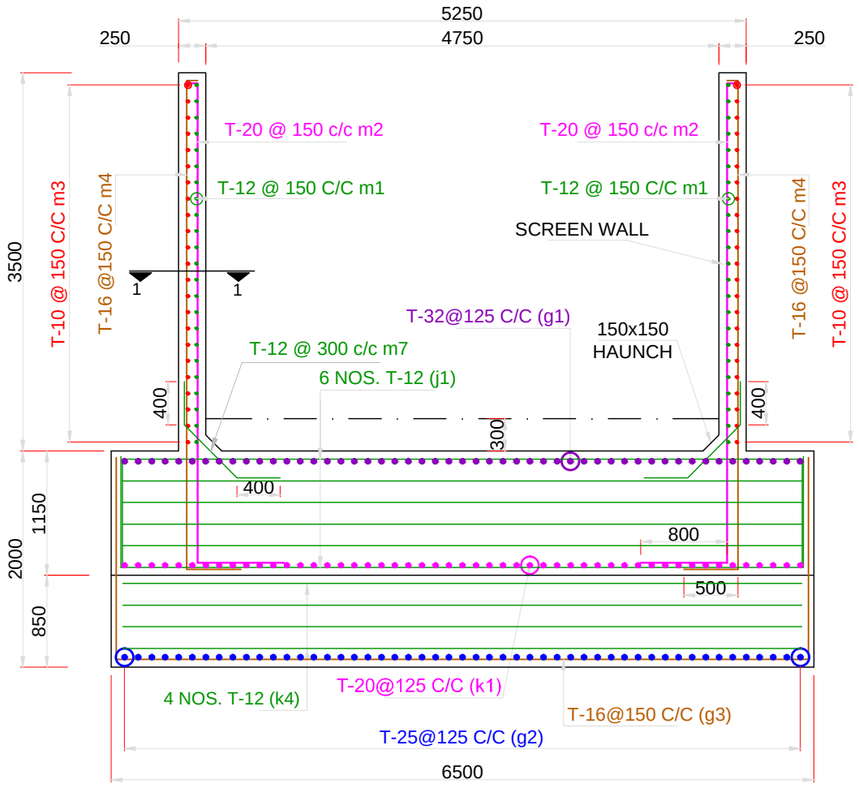
1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

TENDER DRAWING

Prepared by :-

WAPCOS LTD.

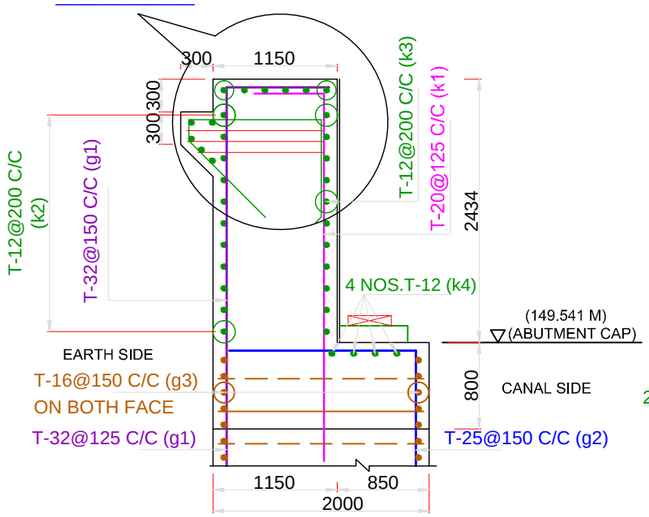
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 10.394 WITH TWO BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-08 06 of 12
Drawn by:-	Checked by:- Approved by:-



REINFORCEMENT DETAILS IN PLAN OF DIRT WALL

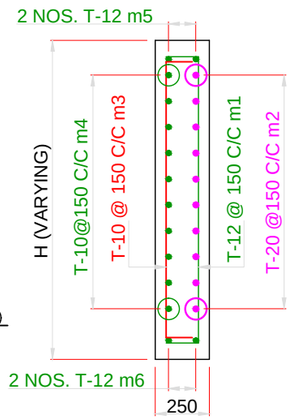
SCALE A

DETAIL '1'



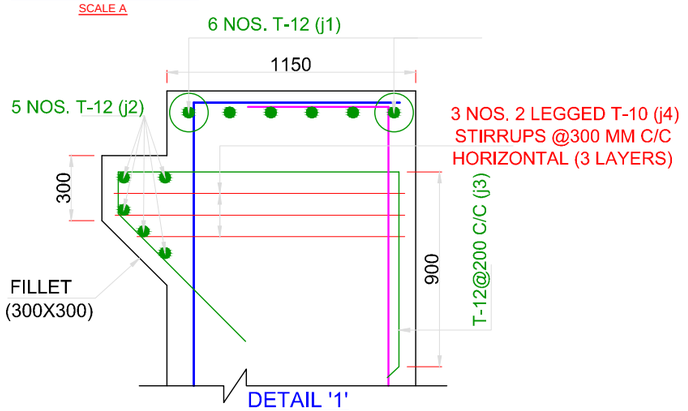
REINFORCEMENT DETAILS IN SECTION OF DIRT

SCALE A



SECTION AT 1-1

SCALE B



DETAIL '1'

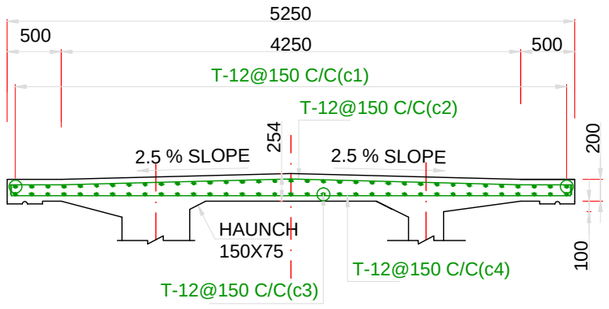
SCALE B

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
DIRT WALL	1	k1	700, 3459	20	125	51X2
	2	k2	150, 6350, 150	12	200	11X2
	3	k3	150, 6350, 150	12	200	11X2
	4	k4	150, 6350, 150	12	200	4X2
	5	j1	150, 6350, 150	12	-	6X2
	6	j2	150, 6350, 150	12	-	5X2
	7	j3	1350, 195, 850, 900	12	-	24X2
	8	j4	LV=, 1190, 6350, 6350, 1190	10	300	3X2
SCREEN WALL	9	m1	150, 1718, 150	12	150	44x2
	10	m2	150, 4425, 4425, 150, 800, 800	20	150	40x2
	11	m3	150, 1718, 150	10	150	44x2
	12	m4	150, 4425, 4425, 150, 500, 500	16	150	40x2
	13	m5	500, 3350, 500	12	-	4X2
	14	m6	400, 4085, 400	12	-	4X2
	15	m7	400, 900, 400	12	300	8X2X2
APPROACH SLAB	16	c1	150, 3350, 150	12	150	34X2
	17	c2	150, 450, 2125, 2125, 450, 150	12	150	23X2
	18	c3	150, 3350, 150	12	150	34X2
	19	c4	150, 5150, 150	12	150	23X2

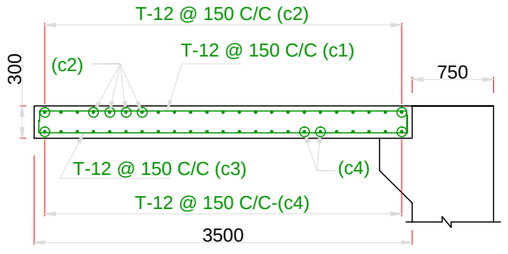
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS 70R OR TWO LANES OF CLASS-A LOADING WHICHEVER IS CRITICAL HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF PIER AND PIER CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.



REINFORCEMENT IN APPROACH SLAB

SCALE A



SECTION OF APPROACH SLAB

SCALE A

SCALE A:-



SCALE B:-

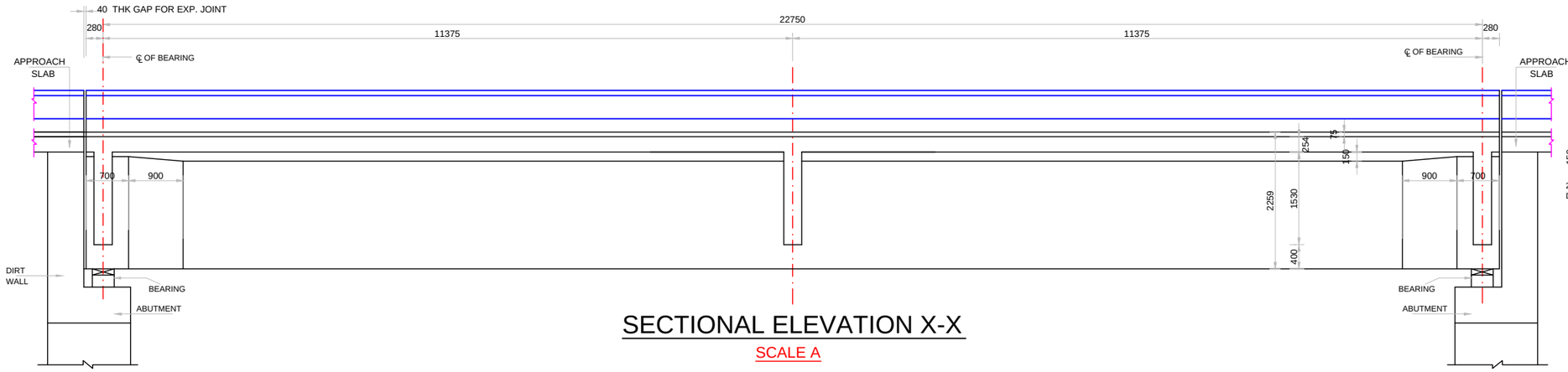


TENDER DRAWING

Prepared by :-

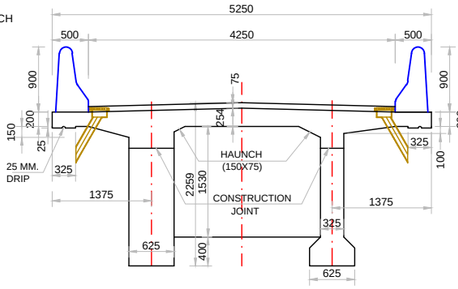
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 10.394 WITH TWO BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-08 07 of 12
Drawn by:-	Checked by:- / Approved by:-



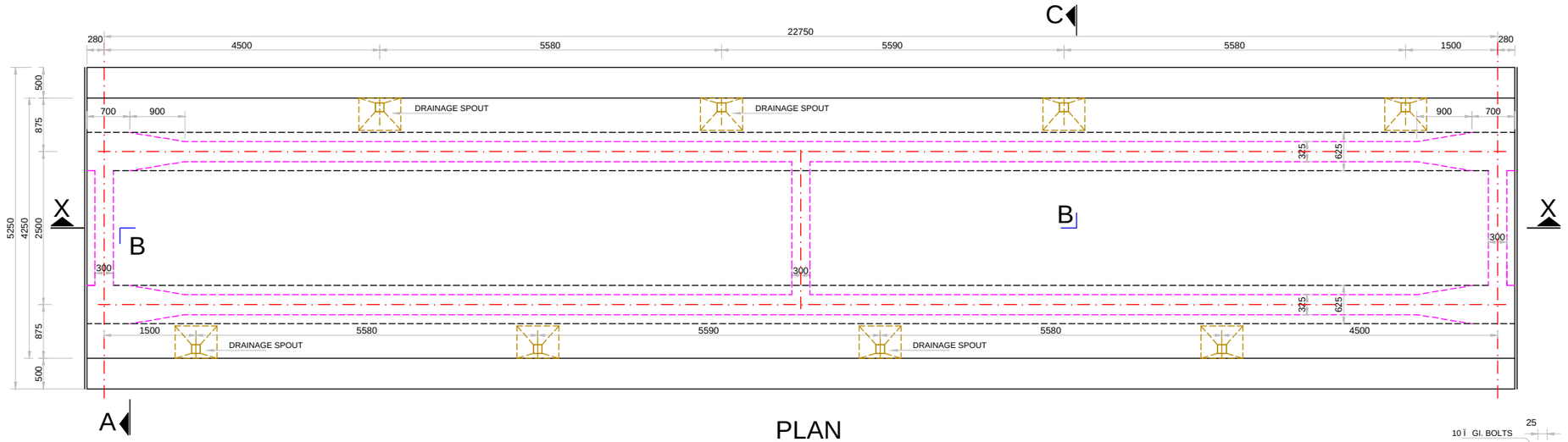
SECTIONAL ELEVATION X-X

SCALE A



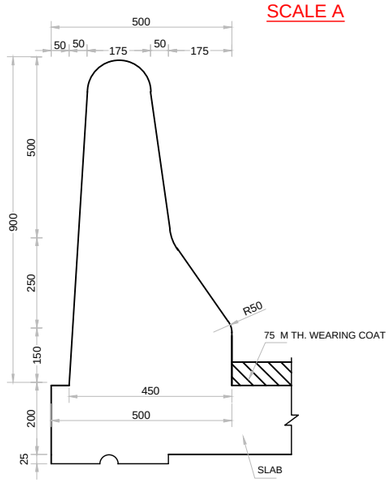
SECTION ABC

SCALE A



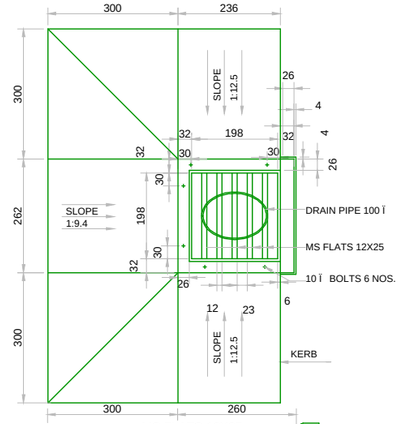
PLAN

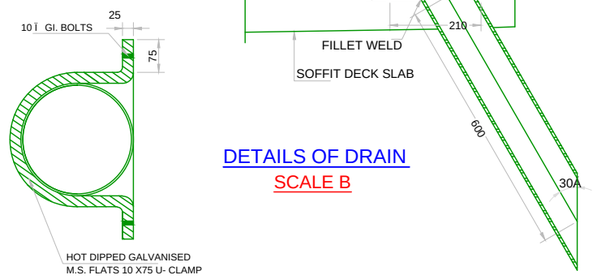
SCALE A



DETAILS OF CRASH BARRIER

SCALE B





DETAILS OF DRAIN

SCALE B

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
7. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
8. REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.

REFERENCES:-

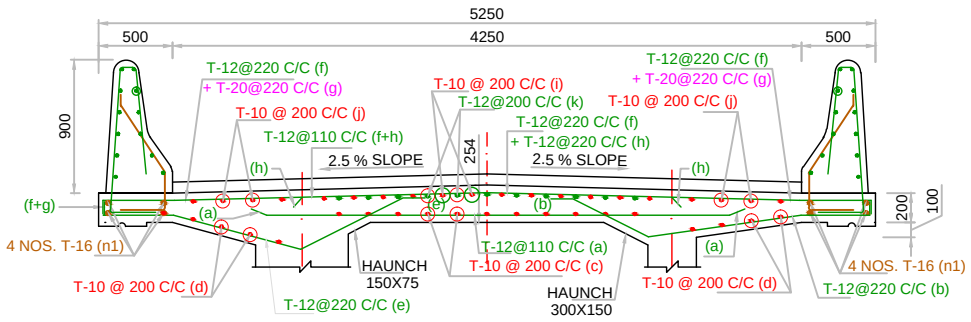
1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.

SCALE A:- 600 0 600 1200 1800

SCALE B:- 100 0 100 200 300

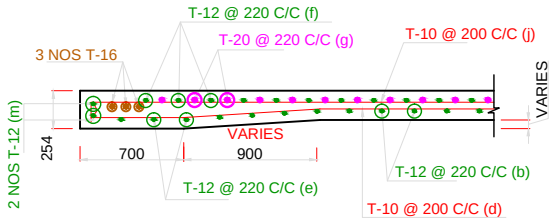
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 10.394 WITH TWO BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-08 08 of 12
	Drawn by:-	Checked by:- / Approved by:-



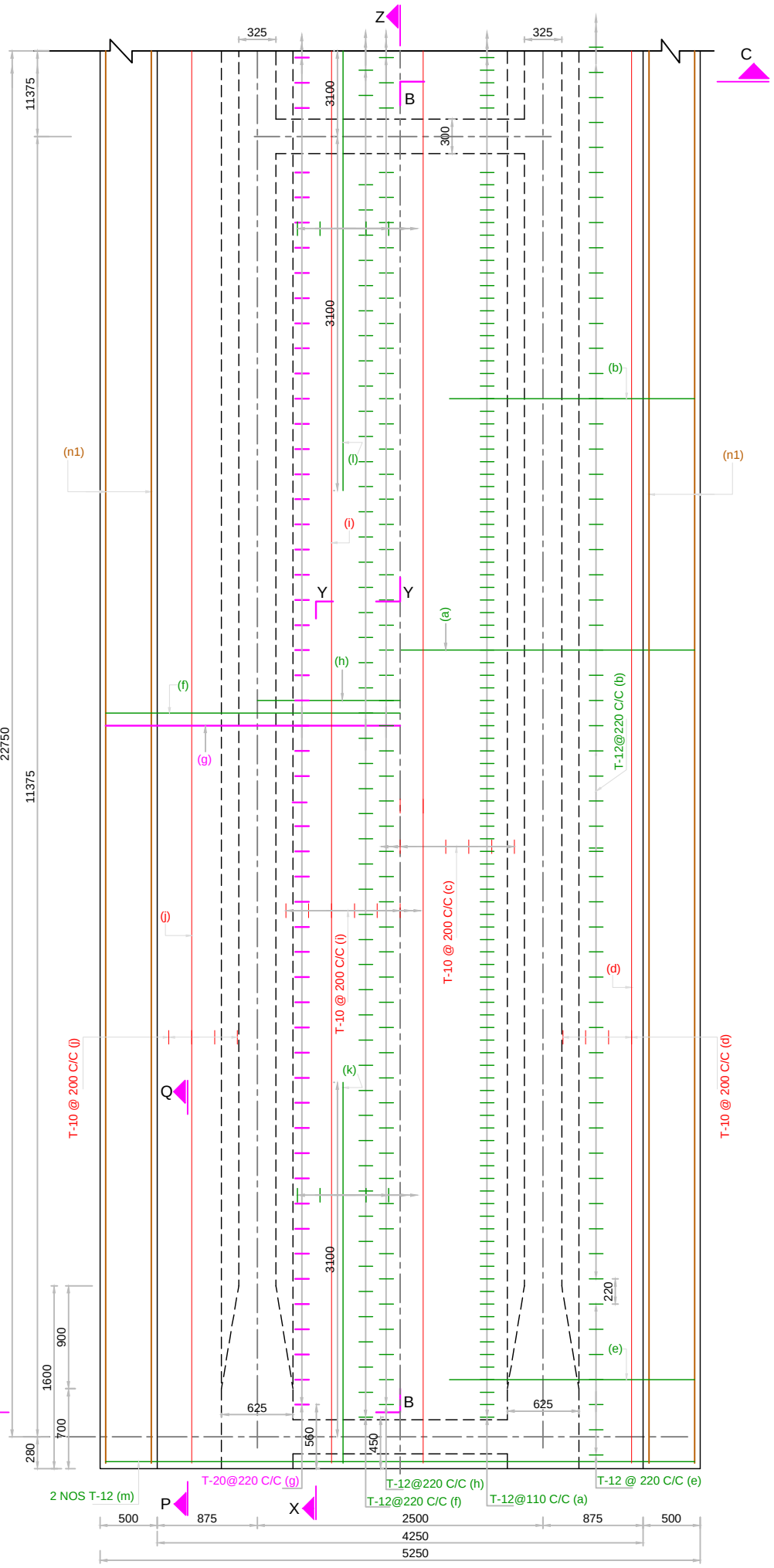
CROSS SECTION ABC

SCALE A



SECTION P.Q.

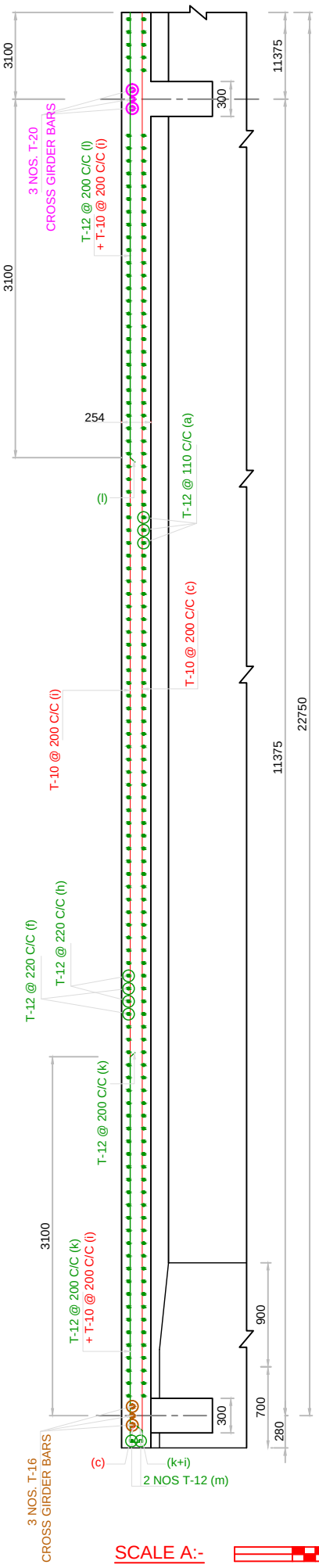
SCALE A



HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

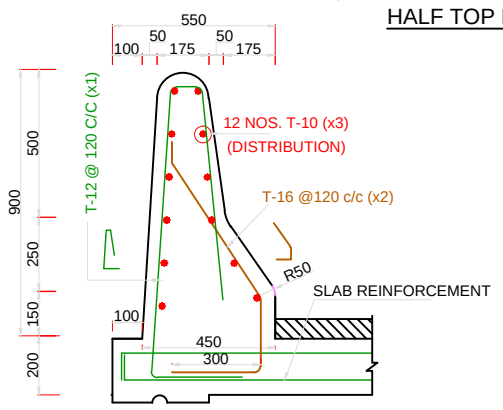
PLAN

SCALE A



SECTION X Y Z

SCALE A



REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

SCALE A:-

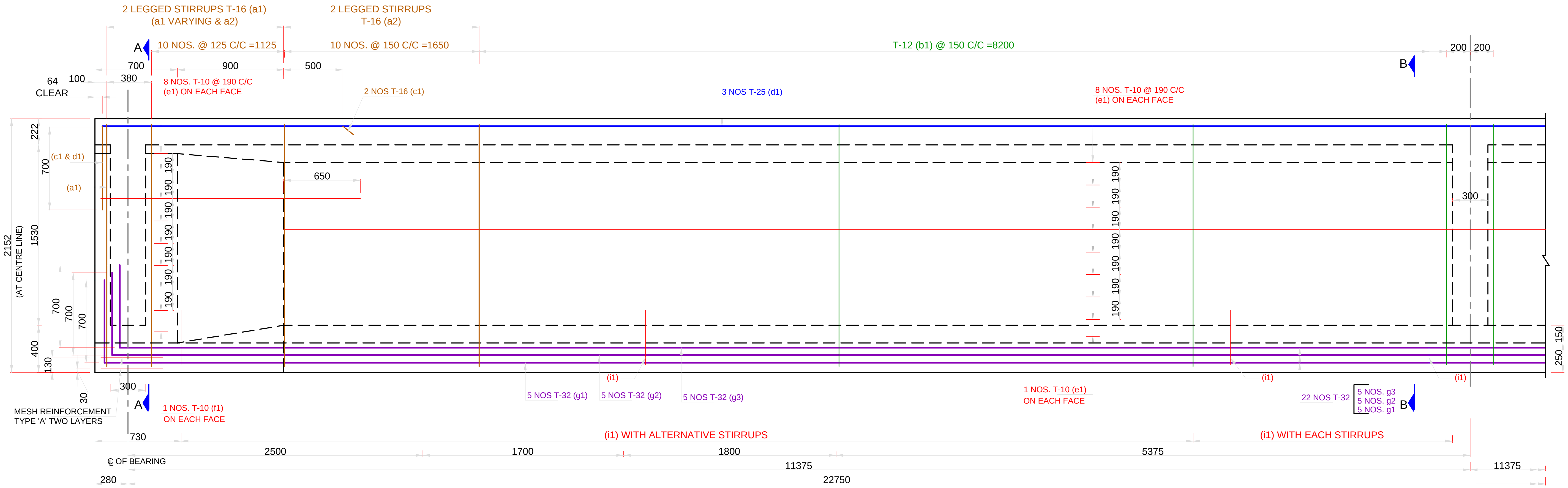
500 0 500 1000 1500

SCALE B:-

250 0 250 500 750

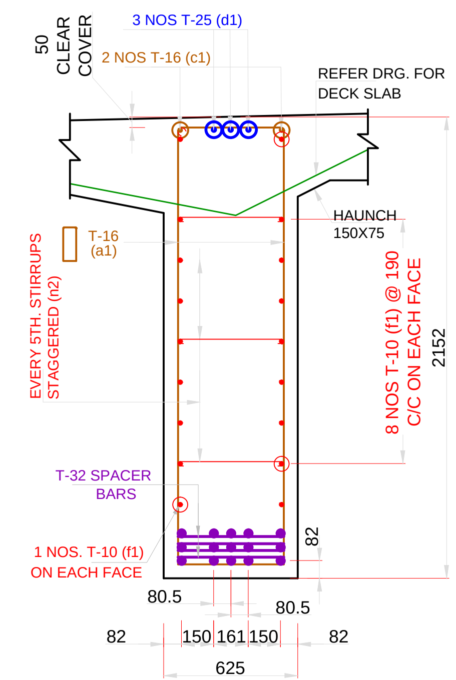
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF DLR BRIDGE AT KM 10.394 WITH TWO BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-08 09 of 12
	Drawn by:-	Checked by:- / Approved by:-

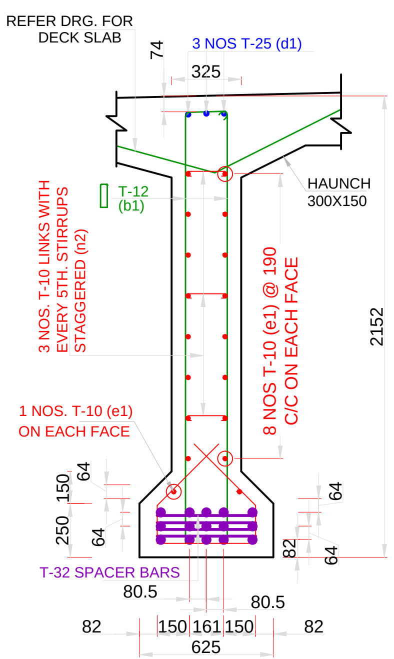


LONGITUDINAL SECTION OF OUTER GIRDER

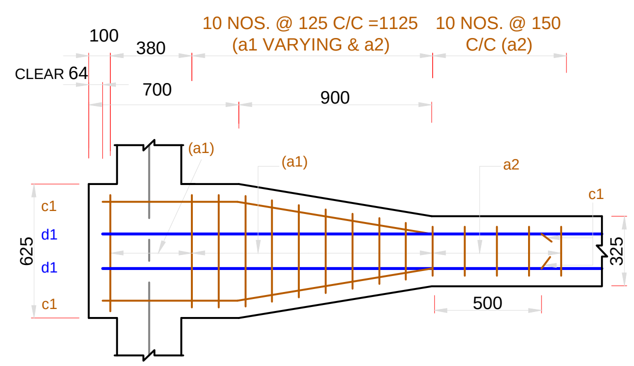
SCALE A



SECTION A-A



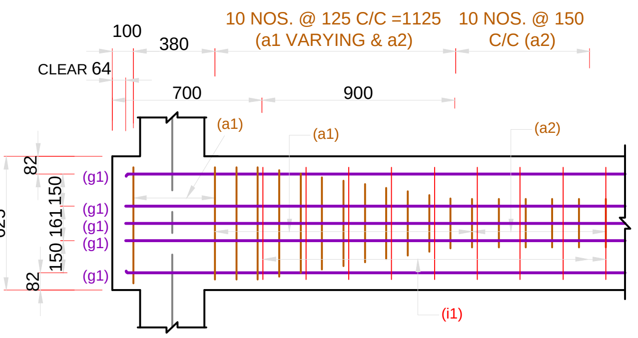
SECTION B-B



OUTER GIRDER

PLAN SHOWING TOP REINF. AT THE END

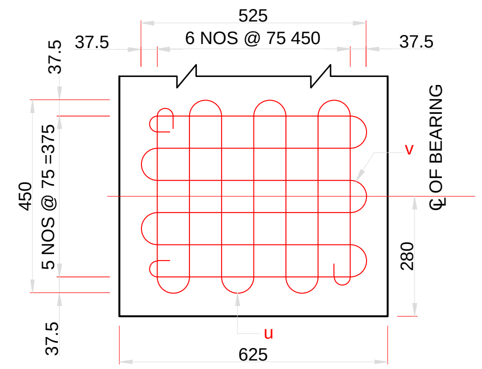
SCALE A



OUTER GIRDER

PLAN SHOWING BOTTOM REINF. AT THE END

SCALE A



T-8 MESH REINFORCEMENT TYPE - 'A'

SCALE B

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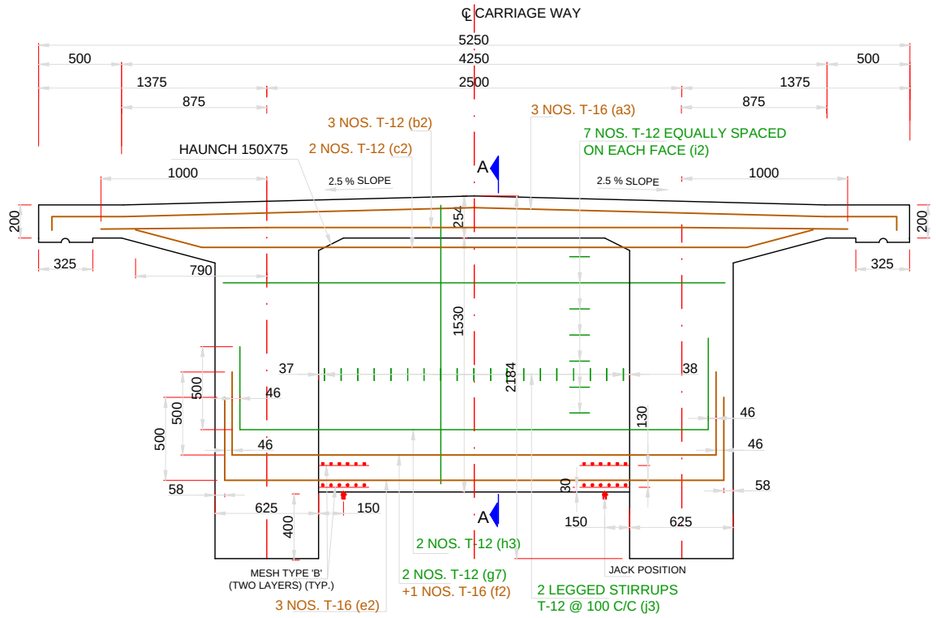
SCALE B:- 150 0 150 300 450

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER
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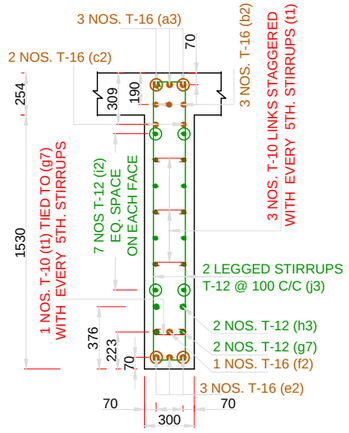
TENDER DRAWING

Prepared by :- WAPCOS LTD. (वाप्कोस लिमिटेड WAPCOS LIMITED)	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 10.394 WITH TWO BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-08 10 of 12
	Drawn by:-	Checked by:- Approved by:-



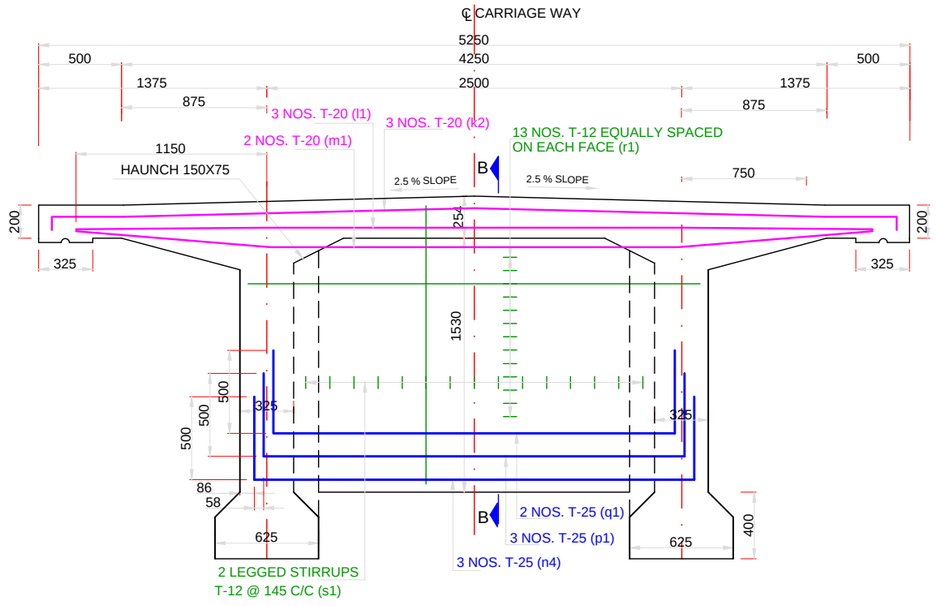
LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A



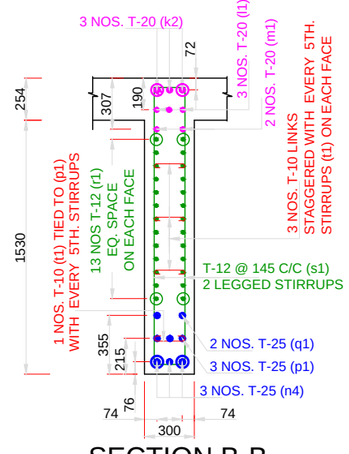
SECTION A-A

SCALE A



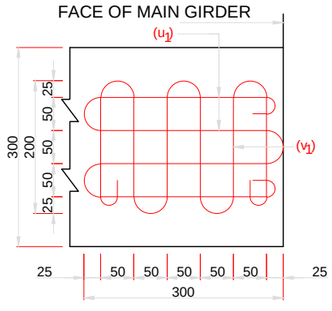
LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A



SECTION B-B

SCALE A



T-8 MESH REINFS.
TYPE - 'B'

SCALE B

SCALE A:-



SCALE B:-



TENDER DRAWING

NOTES

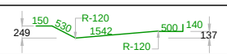
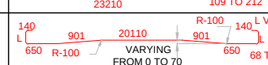
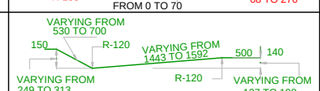
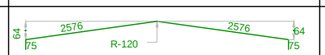
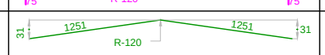
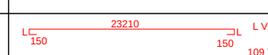
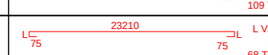
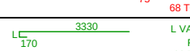
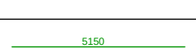
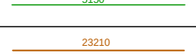
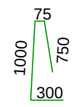
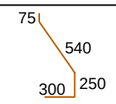
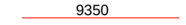
1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.

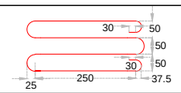
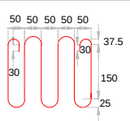
REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/215.

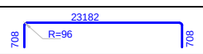
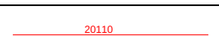
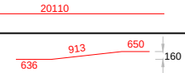
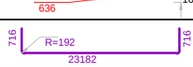
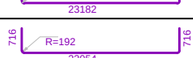
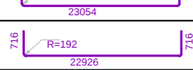
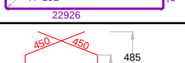
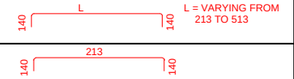
Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE AT KM 10.394 WITH TWO BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-08 11 of 12
	Drawn by:-	Checked by:- / Approved by:-

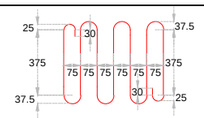
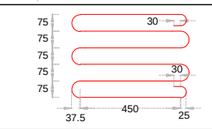
A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a		12	110	3125	202
2	b		12	220	2976	184
3	c		10	200	23710	11
4	d		10	200	23710	8
5	e		12	220	2987	32
6	f		12	220	5304	100
7	g		20	220	5182	100
8	h		12	220	2502	100
9	i		10	200	23710	12
10	j		10	200	23638	8
11	k		12	200	3588	20
12	l		12	200	6200	10
13	m		12	-	5150	4
14	n_1		16	-	23210	8
CRASH BARRIER PER M						
1	x1		12	120	2125	9
2	x2		16	120	1165	9
3	x3		10		1000	12

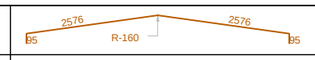
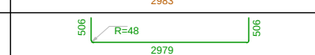
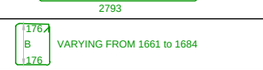
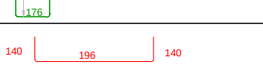
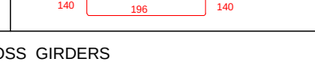
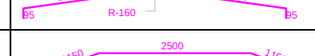
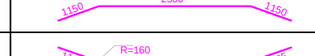
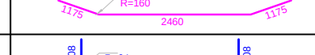
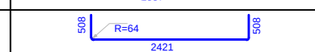
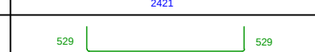
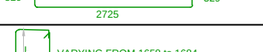
S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
19	u_1		10	-	1453	8
20	v_1		10	-	1510	8

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a_1		16	125	5146	11X2X2
2	a_2		16	150	4746	11X2X2
3	b_1		12	150	4666	108X2
4	c_1		16	-	2693	2X2X2
5	d_1		25	-	24398	3X2
6	e_1		10	-	20110	9X2X2
7	f_1		10	-	2199	18X2X2
8	g_1		32	-	24358	5X2
9	g_2		32	-	24230	5X2
10	g_3		32	-	24102	5X2
11	i_1		10	-	1733	101X2
12	n_2		10	-	583	18X2
13	n_3		10	-	433	90X2

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u		10	-	3550	8
2	v		10	-	3506	8

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a_3		16	-	5248	3X2
2	b_2		16	-	4500	2X2
3	c_2		16	-	4107	2X2
4	e_2		16	-	3945	3X2
5	f_2		16	-	3903	1X2
6	g_7		12	-	3919	2X2
7	h_3		12	-	2815	2X2
8	i_2		12	-	3187	7X2X2
9	j_3		12	100	3797	19X2
10	t_1		10	-	416	20X2
MIDDLE CROSS GIRDERS						
1	k_2		20	-	5222	3
2	l_1		20	-	4800	2
3	m_1		20	-	4810	2
4	n_4		25	-	3470	3
5	p_1		25	-	3353	3
6	q_1		25	-	3237	2
7	r_1		12	-	3711	13X2
8	s_1		12	145	3794	15
9	t_1		10	-	416	16

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

TENDER DRAWING

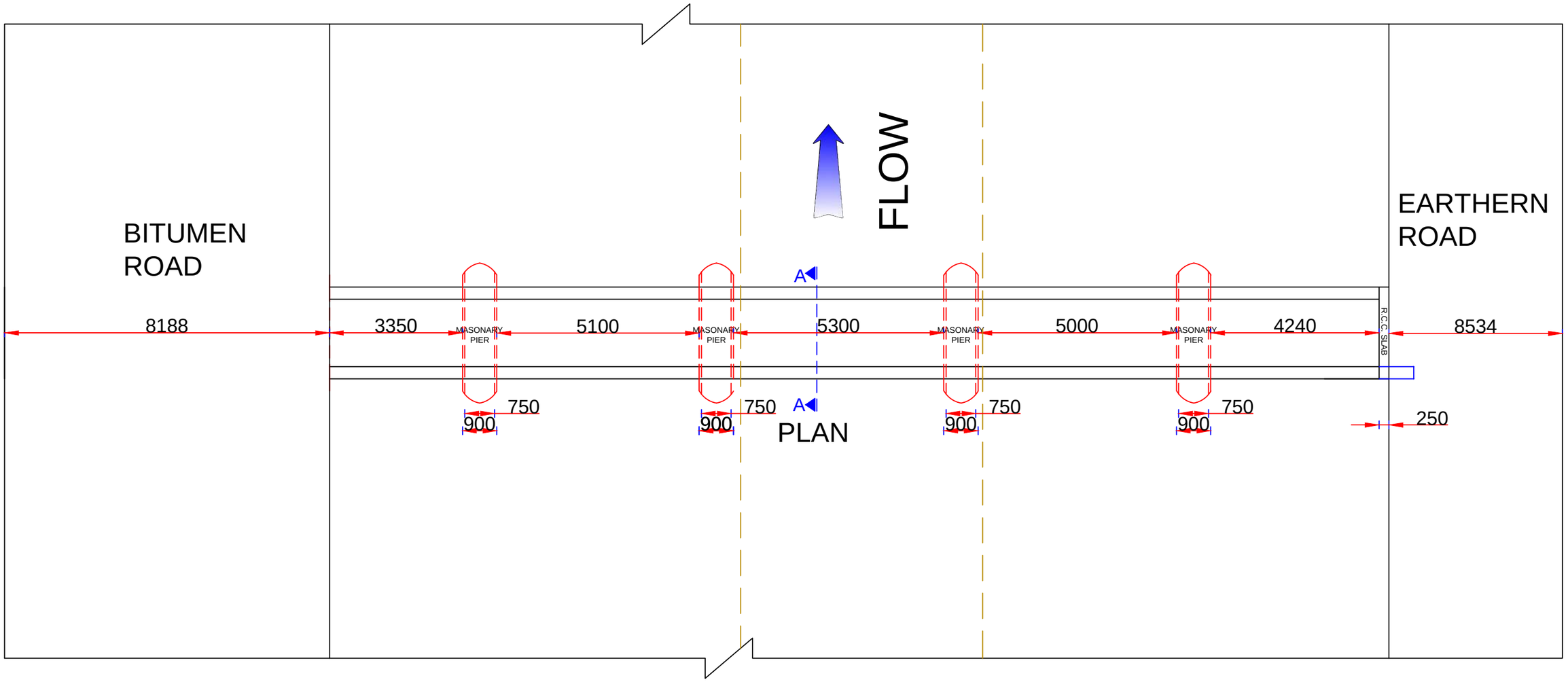
Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR BRIDGE AT KM 10.394 WITH TWO BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-08 12 of 12
	Drawn by:-	Checked by:- / Approved by:-

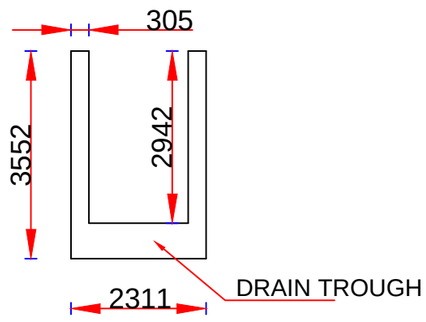


SUPER PASSAGE

AT

CH. 10.500 KM





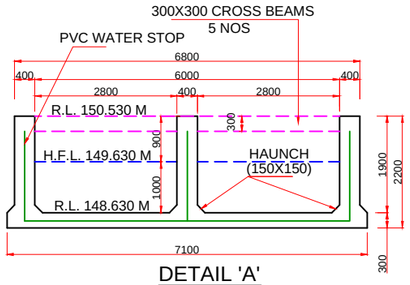
SECTION A-A

NOTES:

1 ALL DIMENSIONS ARE IN mm.
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

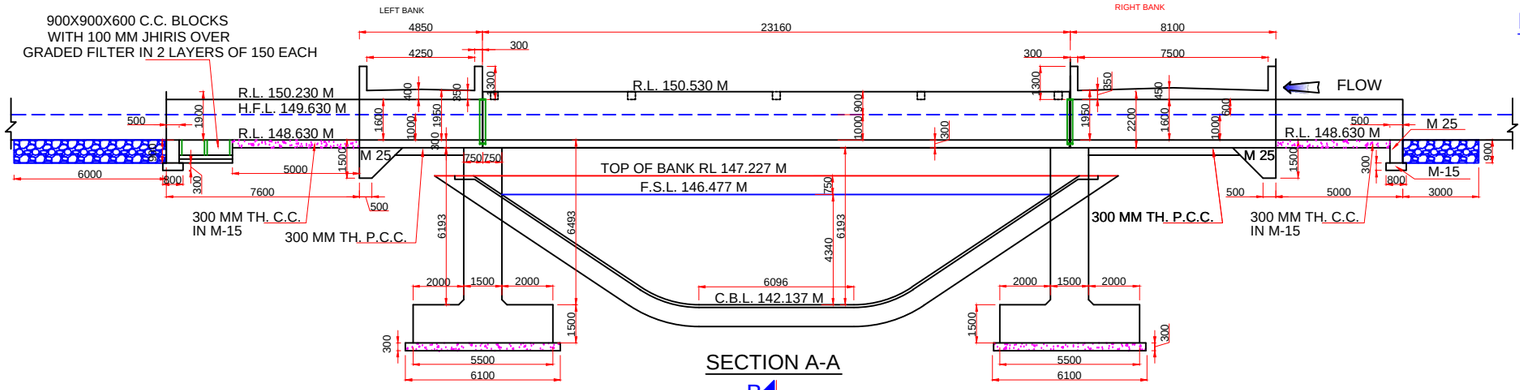
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	EXISTING PLAN OF SUPER PASSAGE AT CH. 10.500 KM
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-01 01 of 06
	Drawn by:-	Checked by:- / Approved by:-



DETAIL 'A'

SCALE B



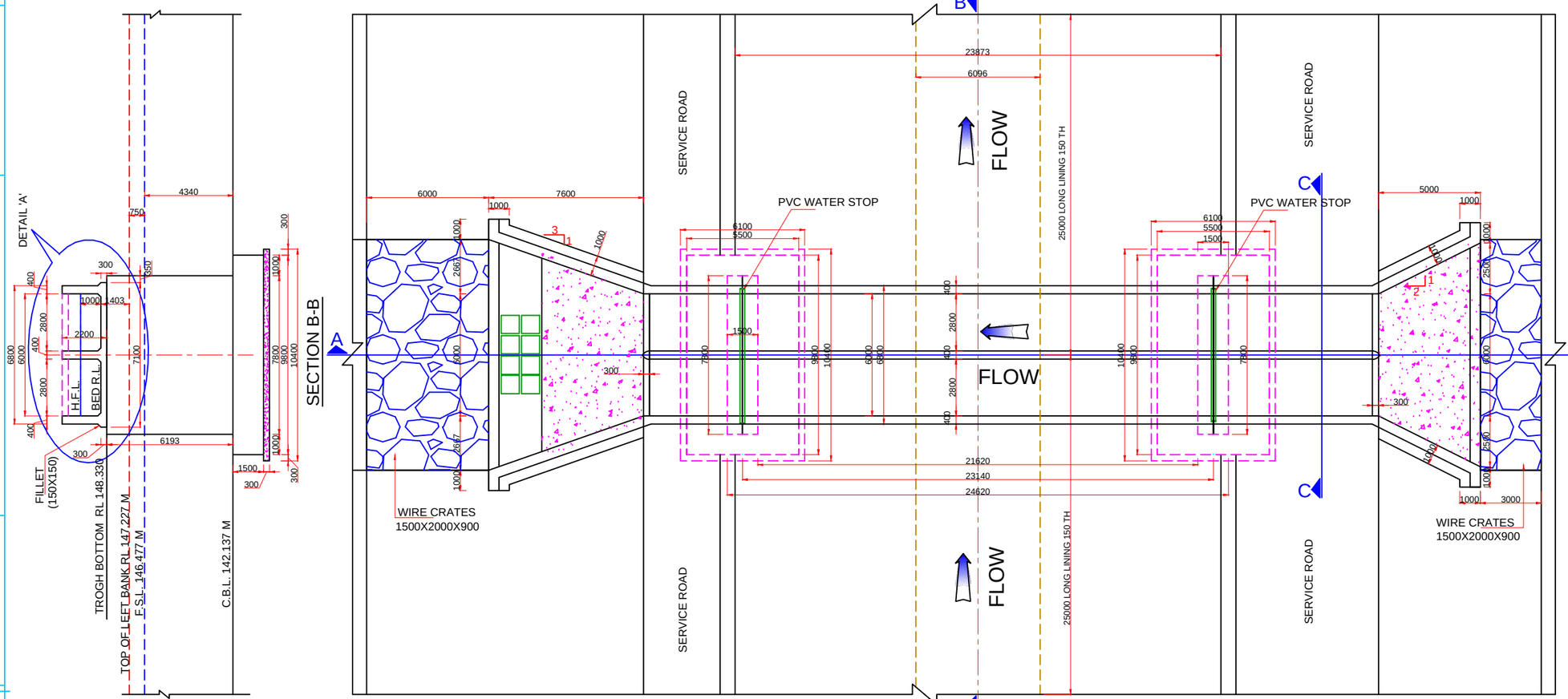
SECTION A-A

DESIGN DATA

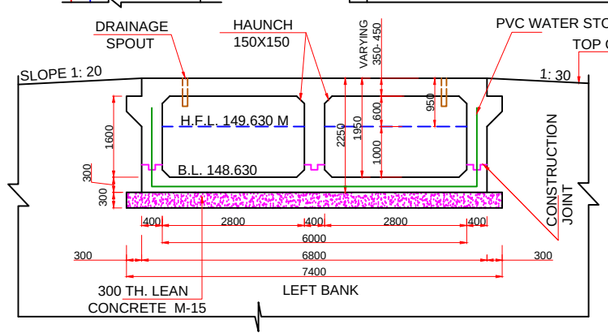
	RMC	DRAIN
DISCHARGE	84.15 CUMEC	7.2 CUMEC
BED WIDTH	6.096M	6 M
WATER DEPTH	4.34 M	0.6 M
BED LEVEL	142.137	148.630M
BED SLOPE	1/7000	1/935

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT LOCATIONS INDICATED IN DRAWING.
4. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF SUPER PASSAGE :-
   a) TROUGH M35
   b) ABUTMENT M25
   c) SUPER STRUCTURE OF BRIDGE UNDER S/ROAD.... M35
5. HYSD STEEL BARS OF FE 550D SHALL BE USEDAS PER IS . 1786 :2008.
6. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN ALLOWABLE BEARING CAPACITY FOR ABUTMENT 28 T/SQ M
7. TEFLON COATED SS PLATE SIZE 400X400X5 MM BE USED AS BEARING UNDER GIRDERS AND OVER ABUTMENT.

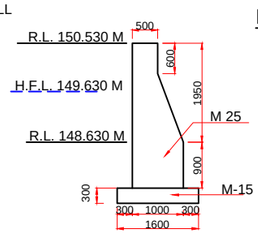


PLAN OF SUPER PASSAGE



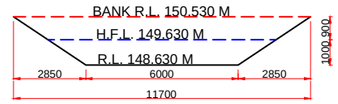
SECTION C-C (BOX TYPE SECTION UNDER ROAD)

SCALE B



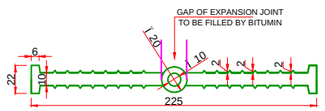
SECTION OF TRANSITION WALL

SCALE B

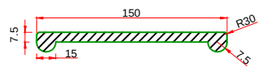


CROSS SECTION OF DRAIN

SCALE A



DETAILS OF TYPICAL PVC WATER STOP FOR EXPANSION/CONTRACTION JOINTS



DETAILS OF TYPICAL WATER STOP FOR CONSTRUCTION JOINT

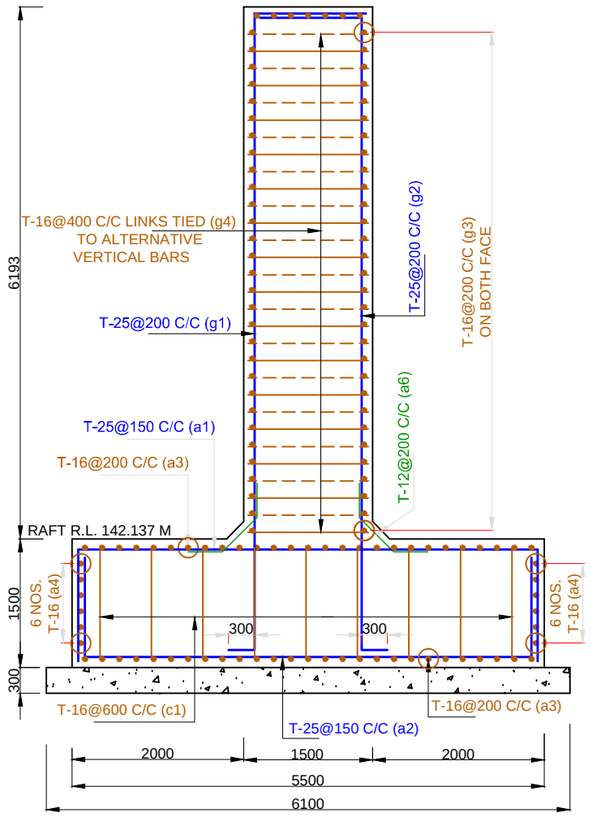
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SCALE B:- 1000 0 1000 2000 3000

SCALE C:- 400 0 400 800 1200

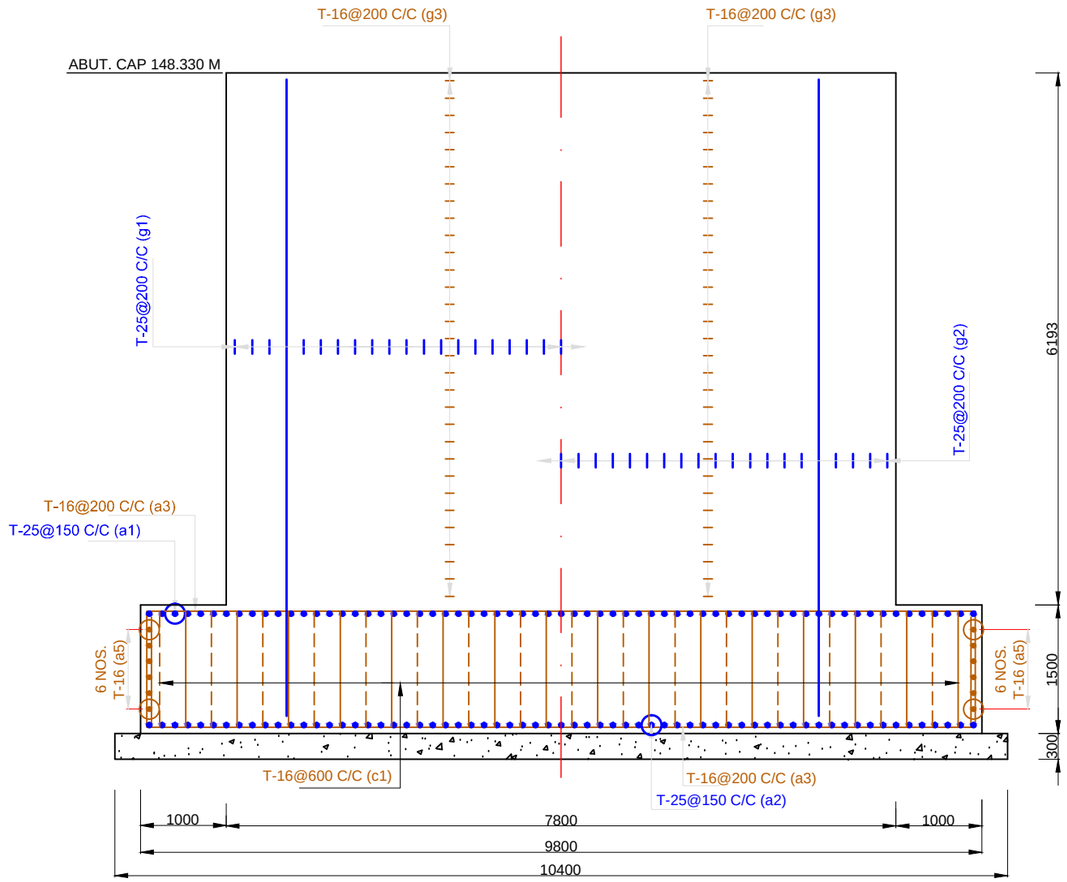
TENDER DRAWING

Prepared by :- WAPCOS LTD.	
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SUPER PASSAGE KM 10.500
Drawing No. :-	WAP/PKS/NORTH KOEL/SP-01 02 of 06
Drawn by:-	Checked by:- / Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	1300, 7468, 300	25	200	39X2
	2	g2	1200, 7468, 300	25	200	39X2
	3	g3	708, 7650, 708	16	200	32X2X2
	4	g4	150, VERTICAL LINK BARS 1350, 150	16	400	15X19X2
IN RAFT FOR ABUTMENT	5	a1	1000, 5350, 1000	25	150	39X2
	6	a2	1000, 5350, 1000	25	150	39X2
	7	a3	700, 700, 9650, 9650, 700, 700	16	200	49X2X2
	8	a4	700, 9650, 700	16	-	6X2X2
	9	a5	700, 5350, 700	16	-	6X2X2
	10	a6	400, 560, 400, 400, 560, 400	12	200	39X2X2
	11	c1	150, 1350, 150	16	600	8X17X2

NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:- 500 0 500 1000 1500

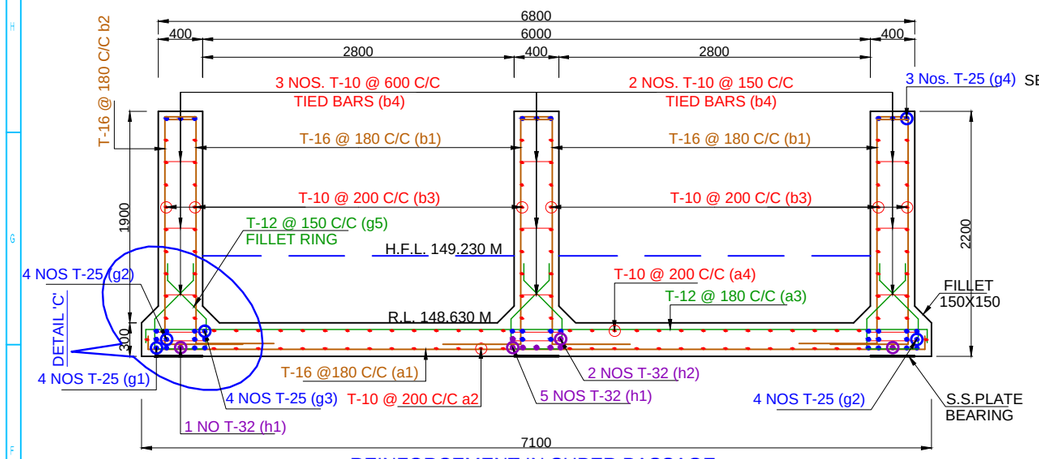
TENDER DRAWING

Prepared by :-

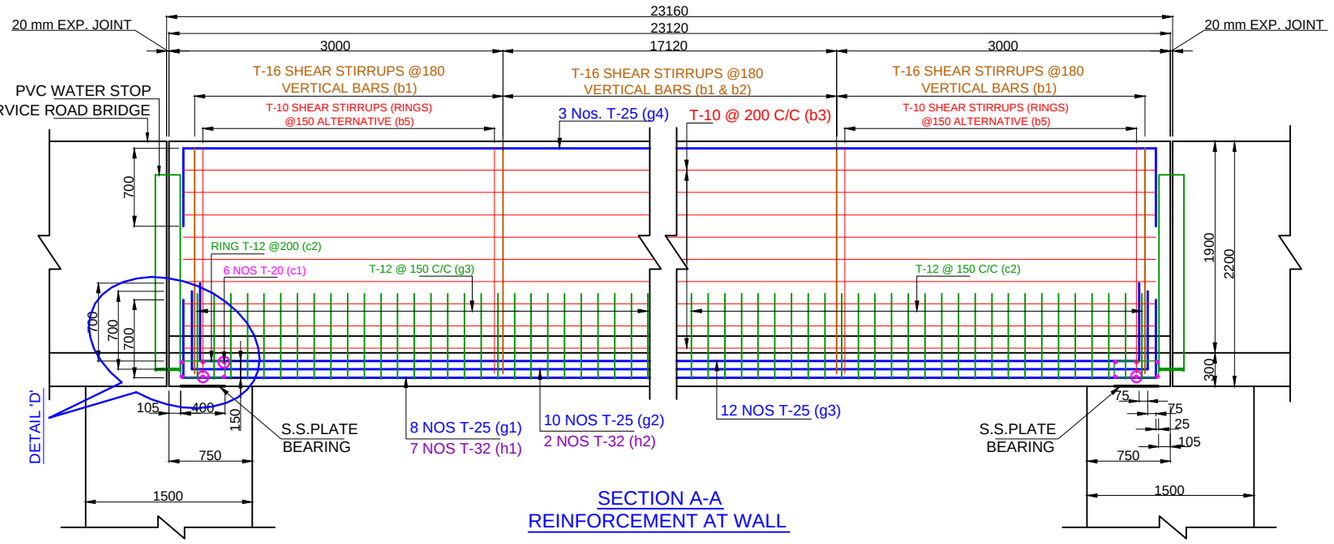
WAPCOS LTD.

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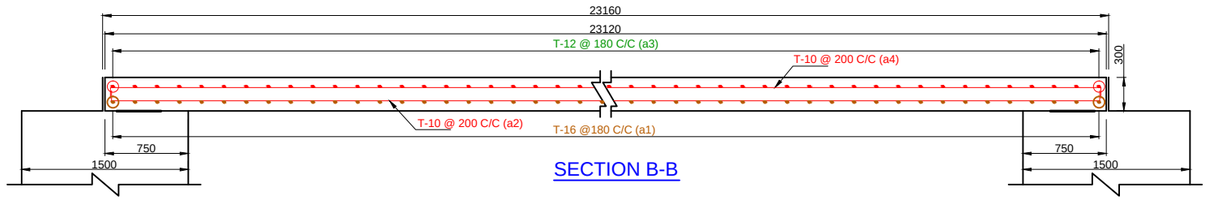
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SUPER PASSAGE AT KM 10.500
Drawing No. :-	WAP/PKS/NORTH KOEL/SP-01 03 of 06
Drawn by:-	Checked by:- Approved by:-



REINFORCEMENT IN SUPER PASSAGE



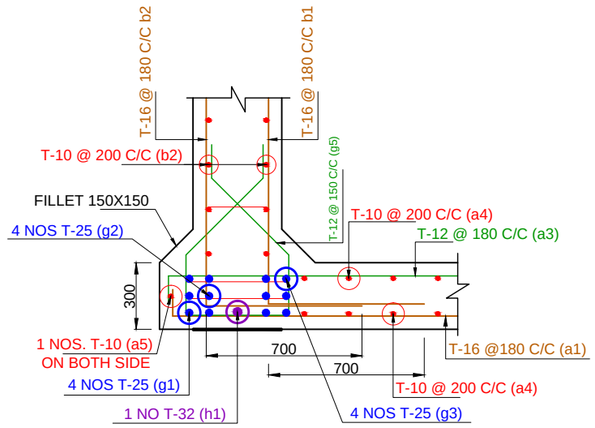
SECTION A-A
REINFORCEMENT AT WALL



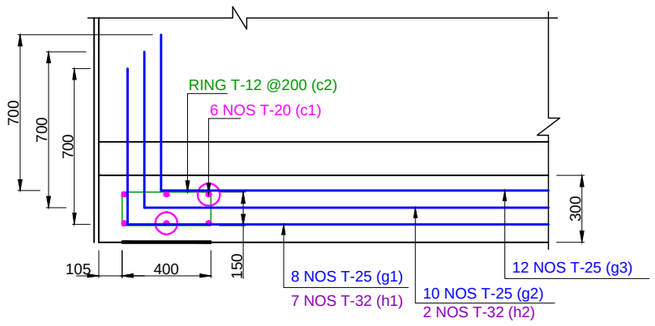
SECTION B-B

BARS BENDING SCHEDULE H.Y.S.D. Fe 550

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SLAB	1	a1	150, 6980, 150	16	180	129
	2	a2	150, 23010, 150	10	200	28
	3	a3	150, 6980, 150	12	180	129
	4	a4	150, 23010, 150	10	200	28
	5	a5	150, 23010, 150	10	-	2
GIRDER	6	b1	280, 1975, 700, 700, 1975, 280	16	180	129X4
	7	b2	280, 1975, 700, 700, 1975, 280	16	160	129X2
	8	b3	150, 23010, 150	10	200	9X2X3
	9	b4	75, 280, 75	10	200	39X9
	10	b5	75, 1975, 75	10	200	40X3
	11	c1	75, 6980, 75	20	-	3X3X2
	12	c2	150, 400, 150	12	200	3X3X2
	13	g1	700, 23010, 700	25	-	4X2
	14	g2	700, 22918, 700	25	-	4X2+2
	15	g3	700, 22826, 700	25	-	4X3
	16	g4	700, 23010, 700	25	-	3X3
	17	g5	FILLET RING, 150, 188, 270, 460	12	150	155X3
	18	h1	1000, 23010, 1000	32	-	7
	19	h2	700, 23010, 700	32	-	2



DETAIL 'C'



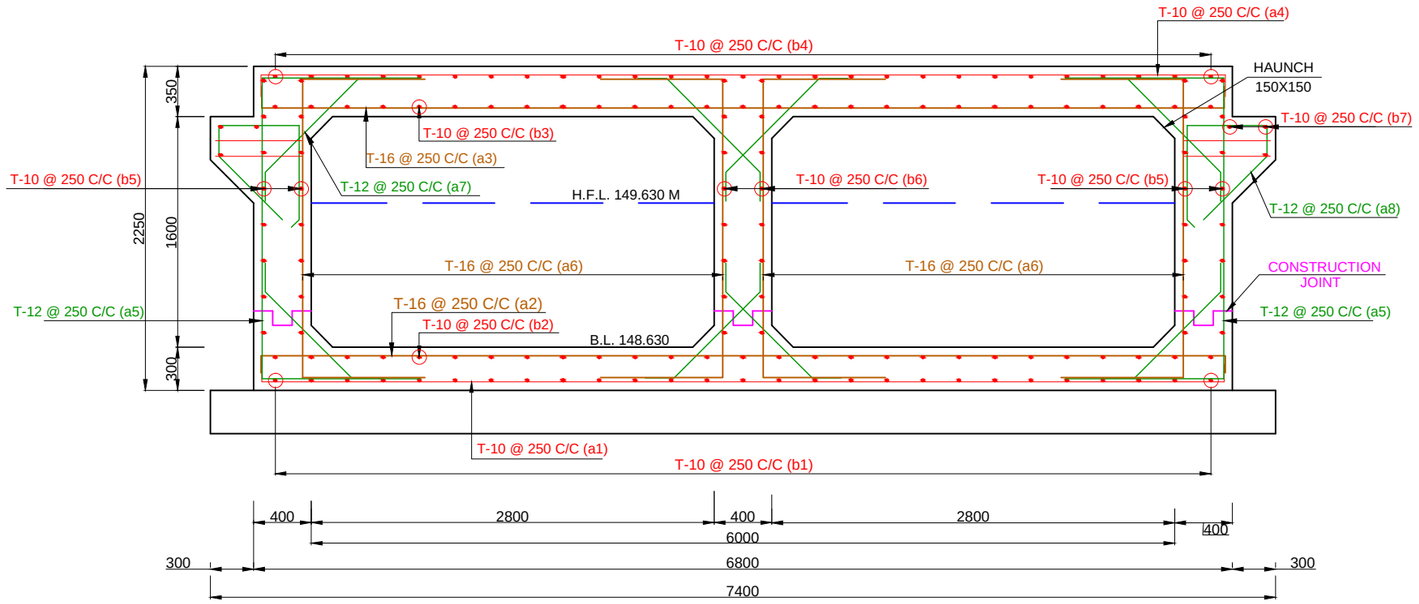
DETAIL 'D'

TENDER DRAWING

SCALE A:-

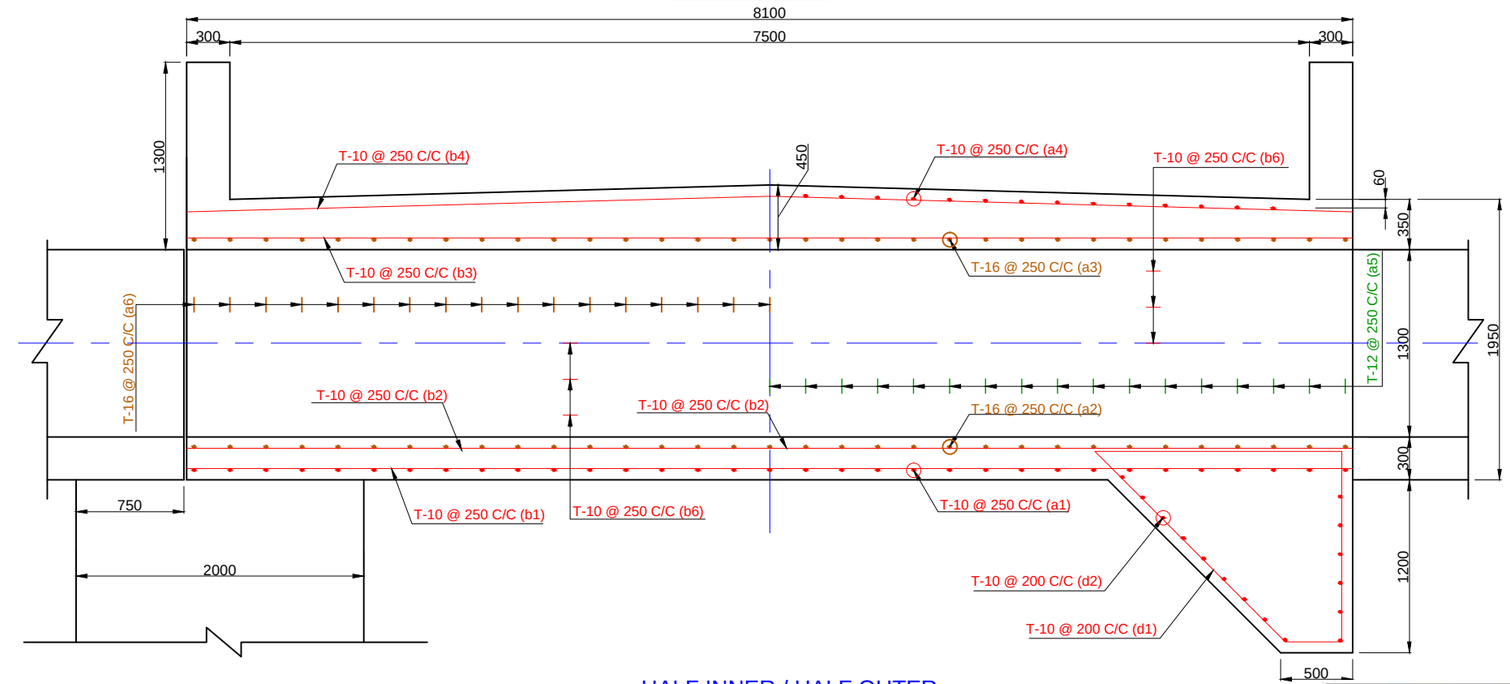
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Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SUPER PASSAGE KM 10.500
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-01 04 of 06
	Drawn by:-	Checked by:- / Approved by:-

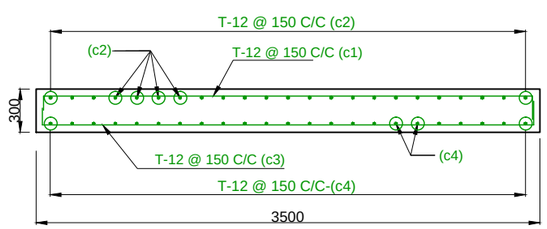


REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)

SECTION C-C



HALF INNER / HALF OUTER
RIGHT BANK



SECTION OF APPROACH SLAB

SCALE A:-



REINFORCEMENT SCHEDULE

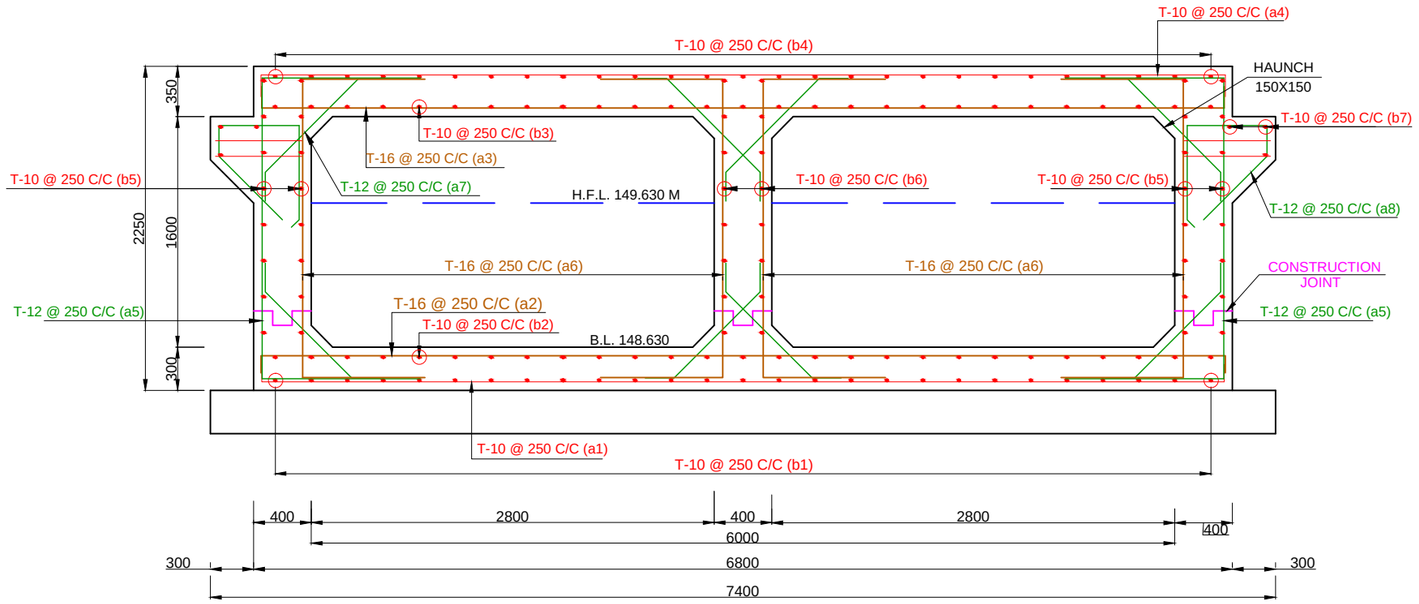
S. NO.	TYPE OF BARS	SHAPE OF BARS DIMENSIONS NOT TO SCALE IN MM	DIA OF BARS (MM)	SPACING (MM)	NO. OF BARS (MM)
1	a1	150 — 6680 — 150	10	250	33X1
2	a2	150 — 6680 — 150	16	250	33X1
3	a3	150 — 6680 — 150	16	250	33X1
4	a4	150 — 6680 — 150	10	250	33X1
5	a5	1100 × 2130	12	250	33X2
6	a6	850 × 2130	16	250	33X2
7	a7	200 / 200 / 200 / 200	12	250	33X4
8	a8	555, 215, 655, 620	12	250	33X2
9	b1	150 — 7980 — 150	10	250	27X1
10	b2	150 — 7980 — 150	10	250	27X1
11	b3	150 — 7980 — 150	10	250	27X1
12	b4	150 — 7980 — 150	10	250	27X1
13	b5	7980 — 7980	10	250	8X4
14	b6	7980 — 7980	10	250	8X2
15	b7	150 — 7980 — 150	10	250	4X2
16	d1	1716, 1870, 1322, 393	10	200	34X1
17	d2	150 — 6680 — 150	10	200	16X1
18	c1	150 — 3350 — 150	12	150	23
19	c2	150 — 450, 3750, 3750, 450 — 150	12	150	23
20	c3	150 — 3350 — 150	12	150	23
21	c4	150 — 8400 — 150	12	150	23

TENDER DRAWING

Prepared by :-

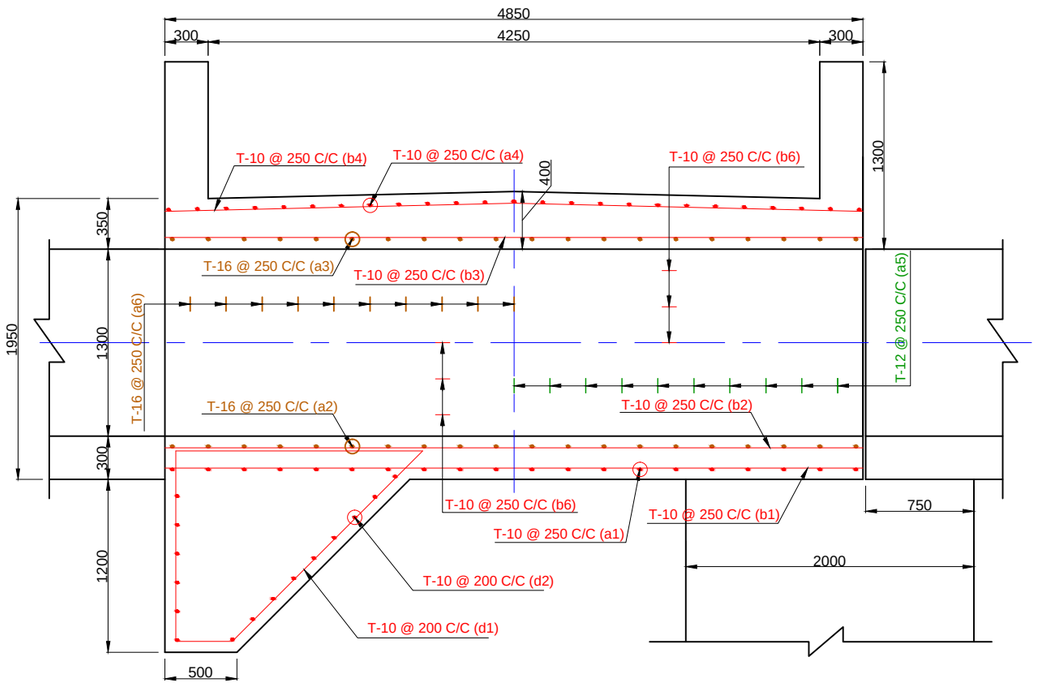
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF BOX BRIDGE (RIGHT BANK) SUPER PASSAGE AT KM 10.500
Drawing No. :-	WAP/PKS/NORTH KOEL/SP-01 05 of 06
Drawn by:-	Checked by:- Approved by:-

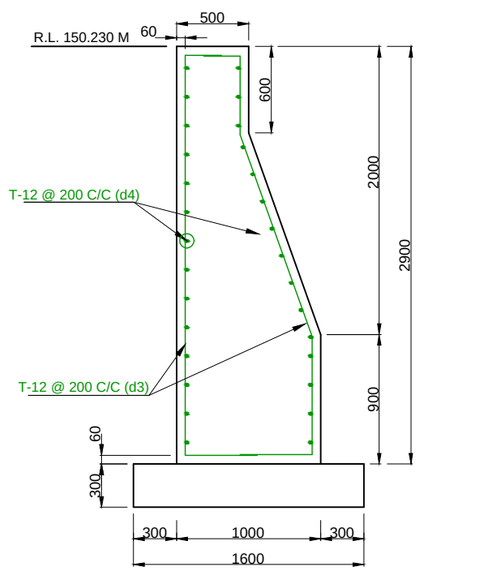


REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)

SECTION C-C



HALF INNER / HALF OUTER
LEFT BANK



REINFORCEMENT IN TRANSITION WALL

SCALE A:-



REINFORCEMENT SCHEDULE

S. NO.	TYPE OF BARS	SHAPE OF BARS DIMENSIONS NOT TO SCALE IN MM	DIA OF BARS (MM)	SPACING (MM)	NO. OF BARS (MM)
1	a1	150 — 6680 — 150	10	250	20X1
2	a2	150 — 6680 — 150	16	250	20X1
3	a3	150 — 6680 — 150	16	250	20X1
4	a4	150 — 6680 — 150	10	250	20X1
5	a5	1100 × 2130	12	250	20X2
6	a6	850 × 2130	16	250	20X4
7	a7	200 × 200 × 200	12	250	20X8
8	a8	555, 655, 215, 620	12	250	20X2
9	b1	150 — 4730 — 150	10	250	27X1
10	b2	150 — 4730 — 150	10	250	27X1
11	b3	150 — 4730 — 150	10	250	27X1
12	b4	150 — 4730 — 150	10	250	27X1
13	b5	4730 × 4730	10	250	8X4
14	b6	4730 × 4730	10	250	8X2
15	b7	150 — 4730 — 150	10	250	4X2
16	d1	1716, 1322, 1870, 393	10	200	34X1
17	d2	150 — 6680 — 150	10	200	16X1
18	d3	250, 555, 1118, 2380, 500, 500, 819	12	200	30X2X2
19	d4	150 — 5850 — 150	12	200	29X2X2

TENDER DRAWING

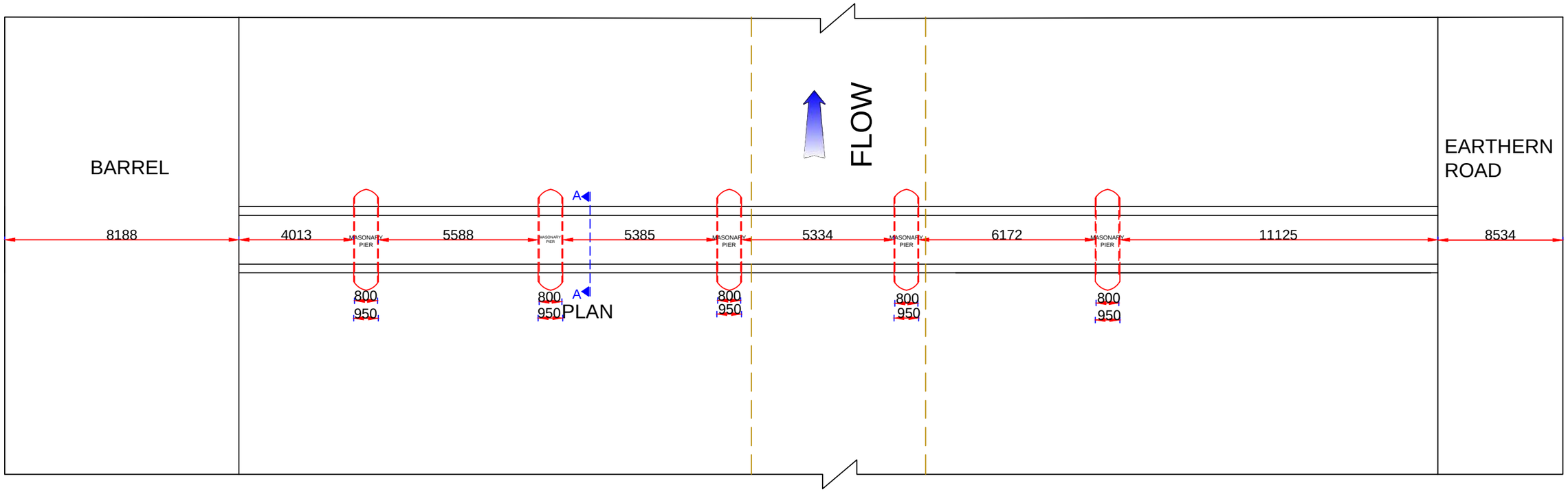
Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF BOX BRIDGE (LEFT BANK) SUPER PASSAGE AT KM 10.500
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-01 06 of 06
	Drawn by:-	Checked by:- / Approved by:-

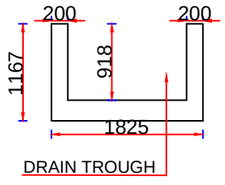


SUPER PASSAGE

AT

CH. 10.970 KM





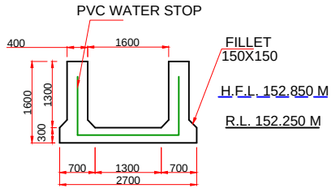
SECTION A-A

NOTES:

1 ALL DIMENSIONS ARE IN mm.
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

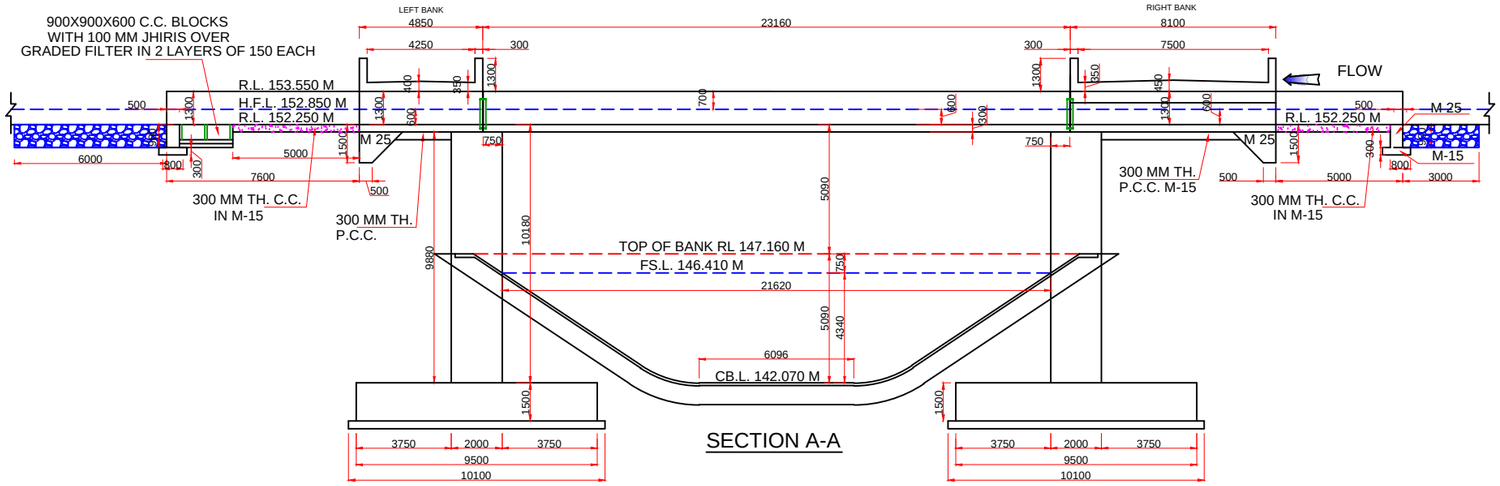
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	EXISTING PLAN OF SUPER PASSAGE AT CH. 10.970 KM	
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-02	01 of 06
	Drawn by:-	Checked by:-	Approved by:-



DETAIL 'A'

SCALE B



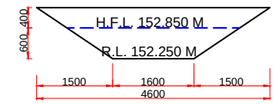
SECTION A-A

DESIGN DATA

	RMC	DRAIN
DISCHARGE	84.15 CUMEC	1.920 CUMEC
BED WIDTH	6.096 M	1.600 M
WATER DEPTH	4.340 M	0.600 M
BED LEVEL	142.070 M	152.250 M
BED SLOPE	1/7000	1/935

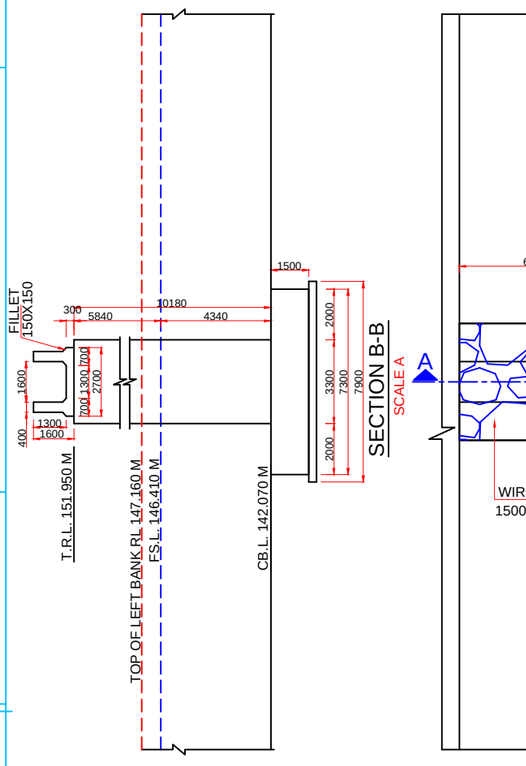
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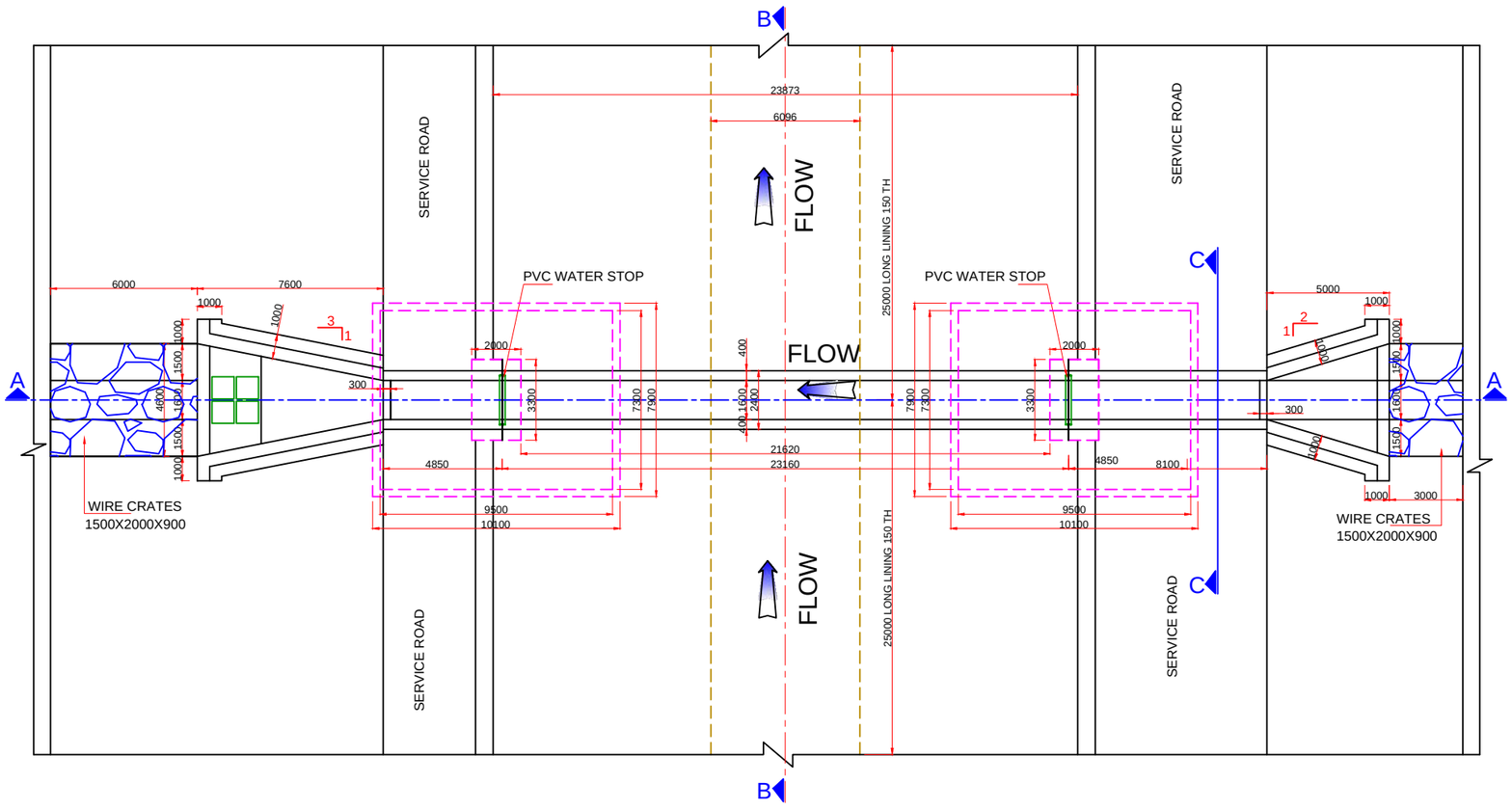
1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT LOCATIONS INDICATED IN DRAWING.
4. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF SUPER PASSAGE :-
   a) TROUGH M35
   b) ABUTMENT M25
   c) SUPER STRUCTURE OF BRIDGE UNDER S/ROAD.... M35
5. HYSD STEEL BARS OF FE 550D SHALL BE USEDAS PER IS . 1786 :2008.
6. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN ALLOWABLE BEARING CAPACITY FOR ABUTMENT 28 T/SQ M
7. TEFLON COATED SS PLATE SIZE 400X400X5 MM BE USED AS BEARING UNDER GIRDERS AND OVER ABUTMENT.



CROSS SECTION OF DRAIN

SCALE B

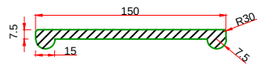




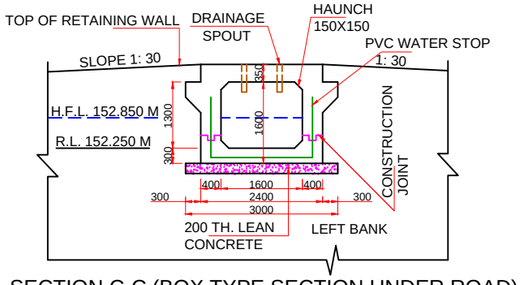
PLAN OF SUPER PASSAGE



DETAILS OF TYPICAL PVC WATER STOP FOR EXPANSION/CONTRACTION JOINTS

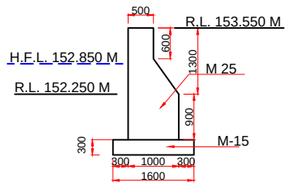


DETAILS OF TYPICAL WATER STOP FOR CONSTRUCTION JOINT



SECTION C-C (BOX TYPE SECTION UNDER ROAD)

SCALE B



SECTION OF TRANSITION WALL

SCALE B

SCALE A:- 2000 0 2000 4000 6000

SCALE B:- 1000 0 1000 2000 3000

SCALE C:- 400 0 400 800 1200

TENDER DRAWING

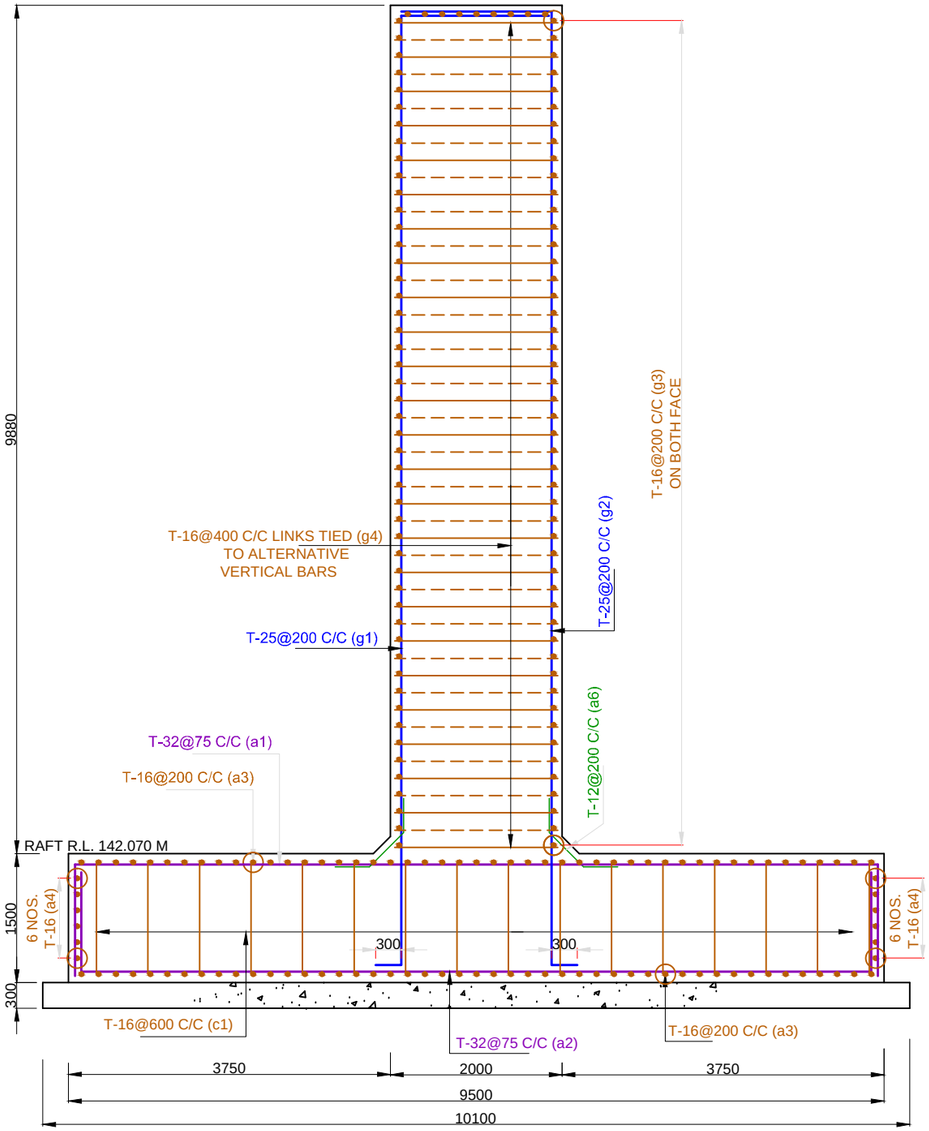
Prepared by :-

WAPCOS LTD.

वाप्कोस लिमिटेड WAPCOS LIMITED

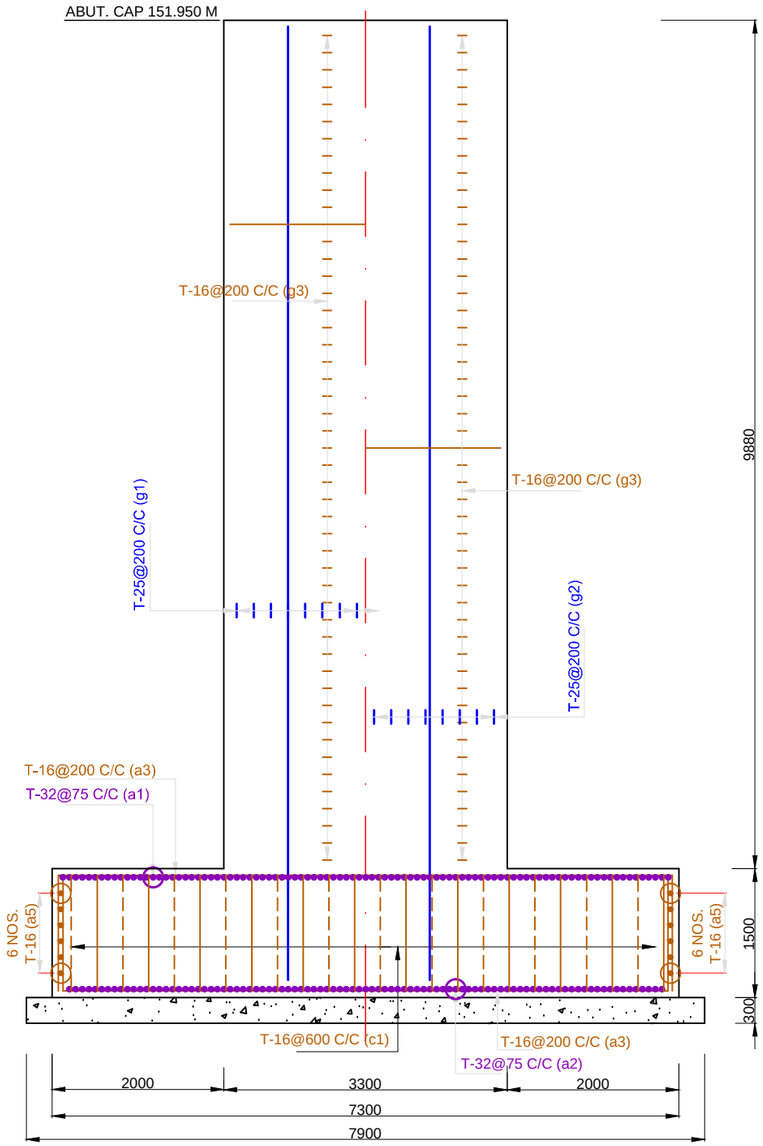
(A Government of India Undertaking - Ministry of Water Resources)

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SUPER PASSAGE KM 10.970
Drawing No. :-	WAP/PKS/NORTH KOEL/SP-02 02 of 06
Drawn by:-	Checked by:- Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	1300, 11155, 300	25	200	16X2
	2	g2	1200, 11155, 300	25	200	16X2
	3	g3	708, 3150, 708	16	200	39X2X2
	4	g4	150, VERTICAL LINK BARS 1850, 150	16	400	24X8X2
IN RAFT FOR ABUTMENT	5	a1	1000, 9350, 1000	32	75	96X2
	6	a2	1000, 9350, 1000	32	75	96X2
	7	a3	700, 7150, 7150, 700, 700	16	200	47X2X2
	8	a4	700, 7150, 700	16	-	6X2X2
	9	a5	700, 9350, 700	16	-	6X2X2
	10	a6	400, 560, 400, 400, 560, 400	12	200	16X2X2
	11	c1	150, 1350, 150	16	600	16X12X2

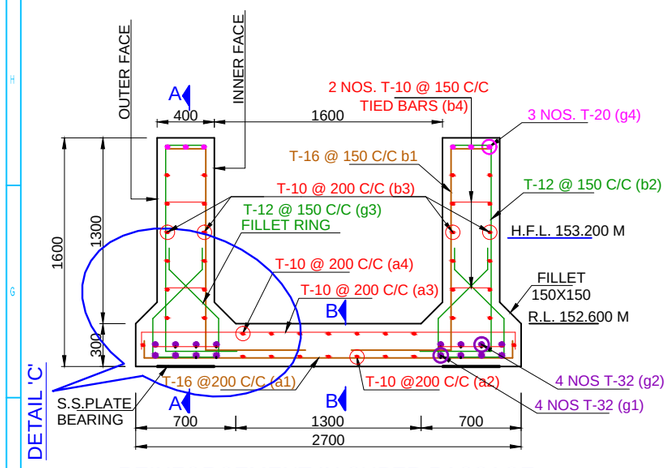
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

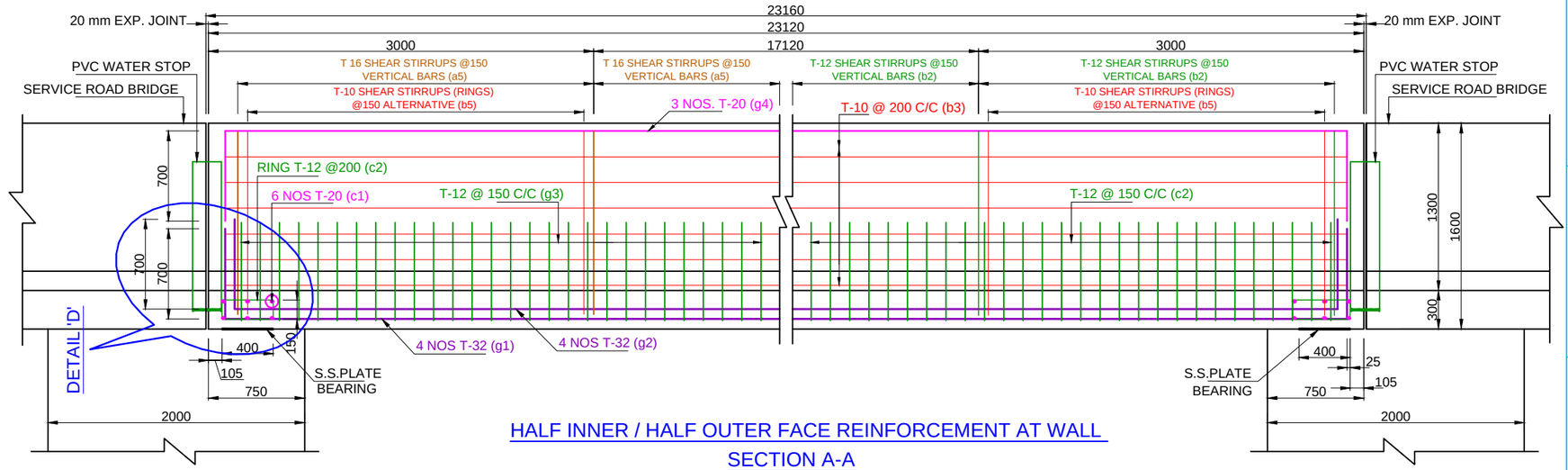
SCALE A:- 500 0 500 1000 1500

TENDER DRAWING

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED (A Government of India Undertaking - Ministry of Water Resources)	
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SUPER PASSAGE AT KM 10.970
Drawing No. :-	WAP/PKS/NORTH KOEL/SP-02 03 of 06
Drawn by:-	Checked by:- Approved by:-



REINFORCEMENT IN SUPER PASSAGE

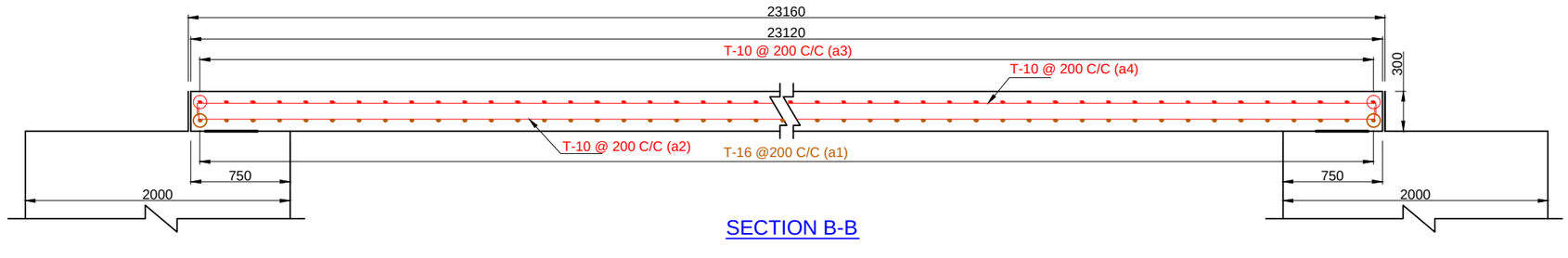


HALF INNER / HALF OUTER FACE REINFORCEMENT AT WALL

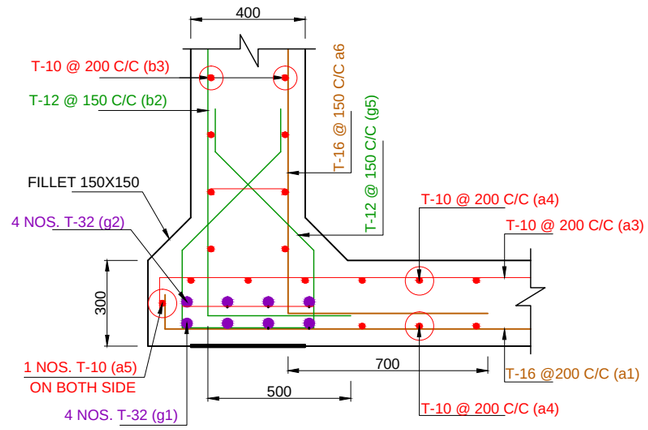
SECTION A-A

BARS BENDING SCHEDULE H.Y.S.D. Fe 550

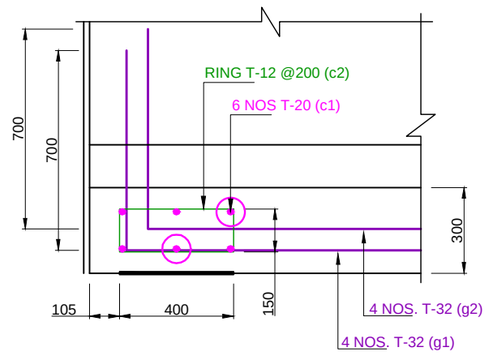
	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SLAB	1	a1	150 — 2580 — 150	16	200	115
	2	a2	150 — 23010 — 150	10	200	7
	3	a3	150 — 2580 — 150	10	200	115
	4	a4	150 — 23010 — 150	10	200	7
	5	a5	150 — 23010 — 150	10	-	2
GIRDER	6	b1	280, 1375, 700, 700, 1375, 280	16	150	155X2
	7	b2	280, 280, 1375, 1375, 500, 500	12	150	155X2
	8	b3	150 — 23010 — 150	10	200	6X2X2
	9	b4	75 — 280 — 75	10	200	39X2X2
	10	b5	75 — 1375 — 75	10	200	40X2
	11	c1	75 — 2580 — 75	20	-	6X2X2
	12	c2	150 — 400 — 150	12	200	3X2X2
	13	g1	700 — 23010 — 700	32	-	4X2
	14	g2	700 — 22918 — 700	32	-	4X2
	15	g3	FILLET RING: 150, 498, 270, 460	12	150	155X2
	16	g4	75 — 23010 — 75	20	-	3X2



SECTION B-B



DETAIL 'C'



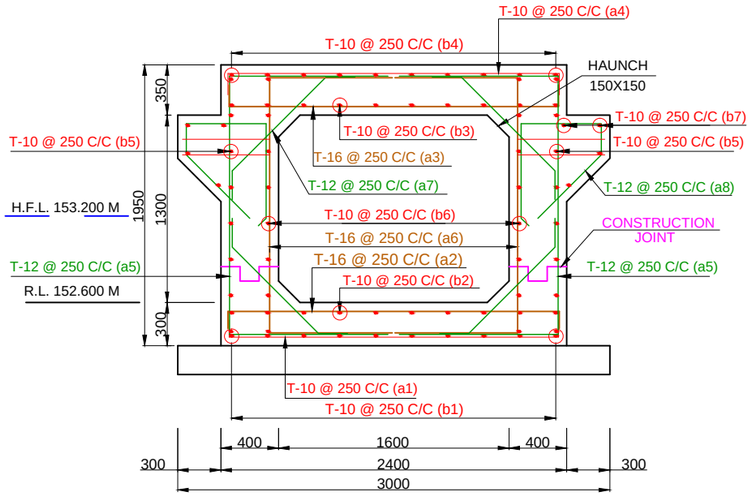
DETAIL 'D'

SCALE A:-



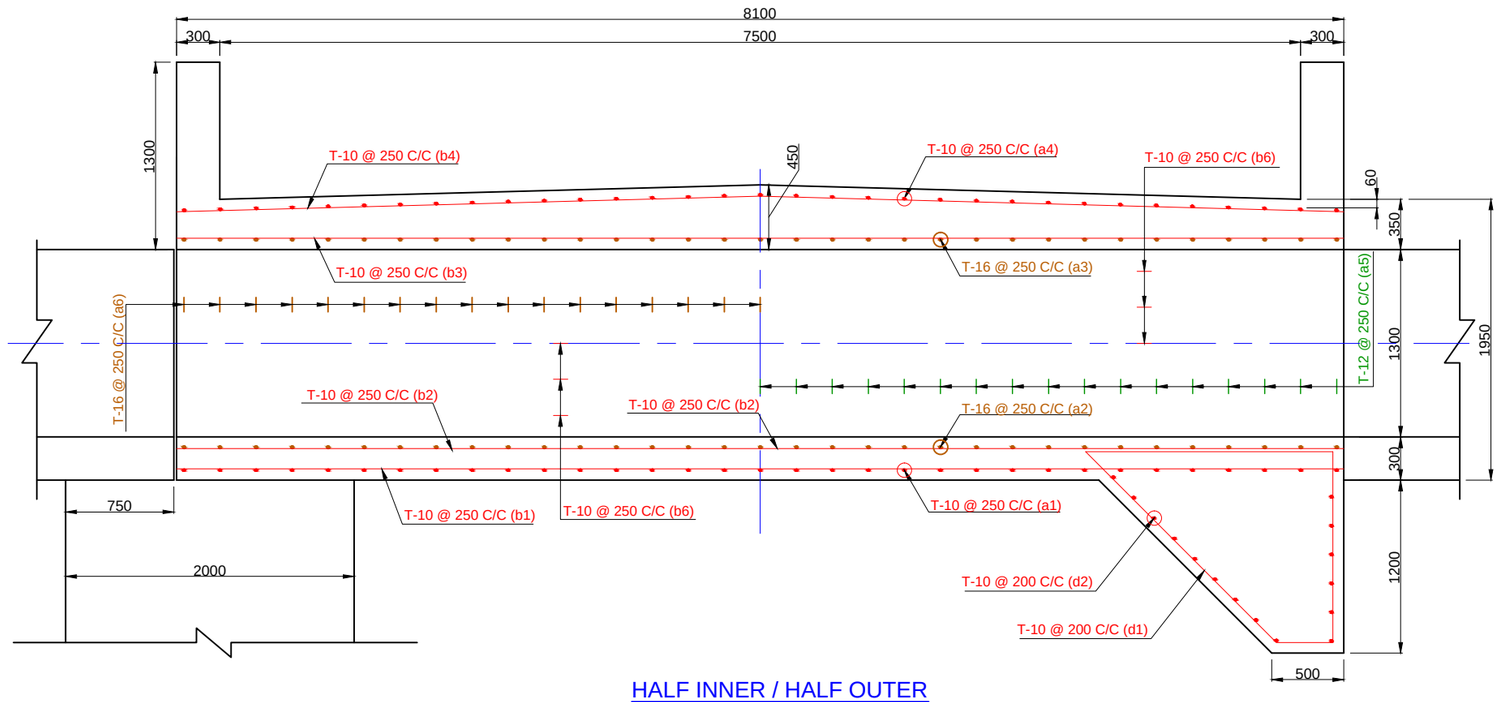
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SUPER PASSAGE KM 10.970
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-02 04 of 06
	Drawn by:-	Checked by:- / Approved by:-

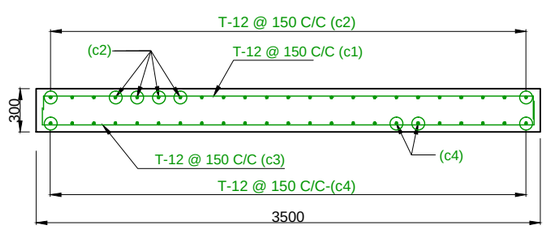


REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)

SECTION C-C



HALF INNER / HALF OUTER
RIGHT BANK



SECTION OF APPROACH SLAB

SCALE A:-

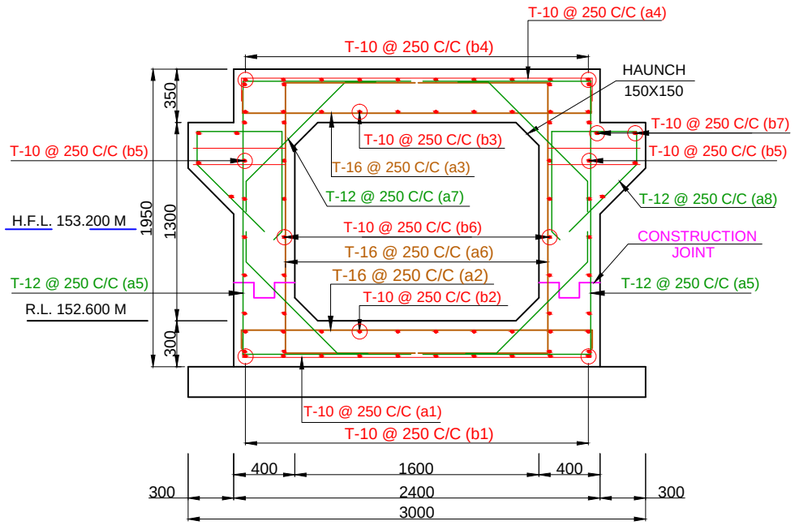


REINFORCEMENT SCHEDULE

S. NO.	TYPE OF BARS	SHAPE OF BARS DIMENSIONS NOT TO SCALE IN MM	DIA OF BARS (MM)	SPACING (MM)	NO. OF BARS (MM)
1	a1	150 — 2280 — 150	10	250	33X1
2	a2	150 — 2280 — 150	16	250	33X1
3	a3	150 — 2280 — 150	16	250	33X1
4	a4	150 — 2280 — 150	10	250	33X1
5	a5	1100, 1100, 1830, 1830, 1100, 1100	12	250	33X2
6	a6	850, 850, 1830, 1830, 850, 850	16	250	33X2
7	a7	200, 850, 200, 200, 850, 200	12	250	33X4
8	a8	655, 555, 215, 620	12	250	33X2
9	b1	150 — 7980 — 150	10	250	10X1
10	b2	150 — 7980 — 150	10	250	10X1
11	b3	150 — 7980 — 150	10	250	10X1
12	b4	150 — 7980 — 150	10	250	10X1
13	b5	7980, 7980	10	250	7X2
14	b6	7980, 7980	10	250	7X2
15	b7	150 — 7980 — 150	10	250	4X2
16	d1	1716, 1910, 1322, 393	10	200	11X1
17	d2	150 — 2280 — 150	10	200	16X1
18	c1	150, 3500, 150	12	150	23
19	c2	150, 450, 3750, 3750, 450, 150	12	150	23
20	c3	150, 3500, 150	12	150	23
21	c4	150, 8400, 150	12	150	23

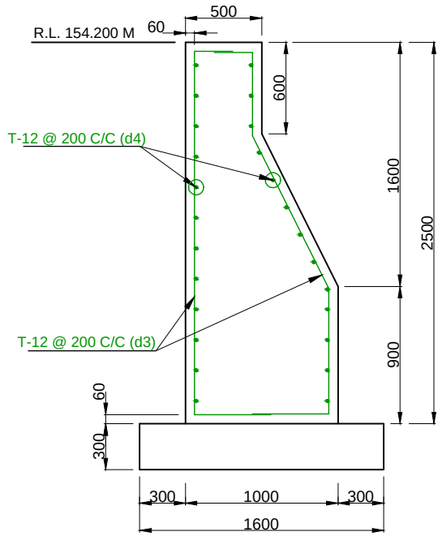
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF BOX BRIDGE (RIGHT BANK) SUPER PASSAGE AT KM 10.970
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-02 05 of 06
	Drawn by:-	Checked by:- / Approved by:-

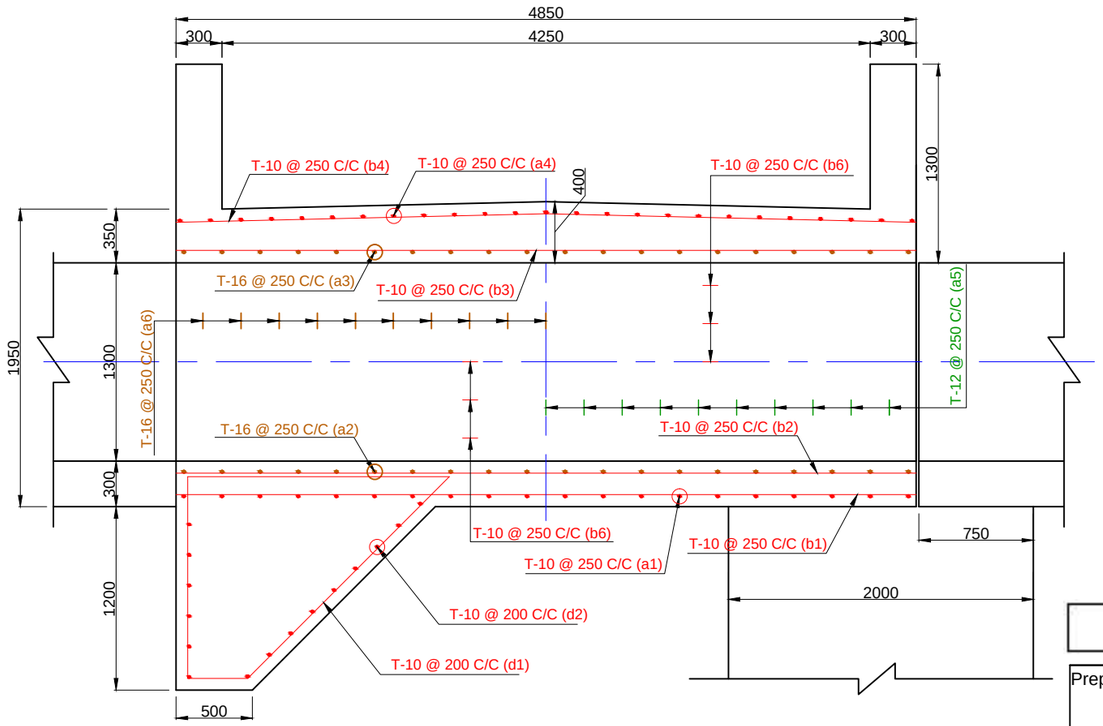


REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)

SECTION C-C



REINFORCEMENT IN TRANSITION WALL



HALF INNER / HALF OUTER

LEFT BANK

SCALE A:-

500 0 500 1000 1500

REINFORCEMENT SCHEDULE

S. NO.	TYPE OF BARS	SHAPE OF BARS DIMENSIONS NOT TO SCALE IN MM	DIA OF BARS (MM)	SPACING (MM)	NO. OF BARS (MM)
1	a1	150 — 2280 — 150	10	250	20X1
2	a2	150 — 2280 — 150	16	250	20X1
3	a3	150 — 2280 — 150	16	250	20X1
4	a4	150 — 2280 — 150	10	250	20X1
5	a5	1100 × 1830	12	250	20X2
6	a6	850 × 1830	16	250	20X2
7	a7	200, 850, 200, 200, 850, 200	12	250	20X2
8	a8	555, 655, 215, 620	12	250	20X2
9	b1	150 — 4730 — 150	10	250	10X1
10	b2	150 — 4730 — 150	10	250	10X1
11	b3	150 — 4730 — 150	10	250	10X1
12	b4	150 — 4730 — 150	10	250	10X1
13	b5	4730 + 4730	10	250	8X2
14	b6	4730 + 4730	10	250	8X2
15	b7	150 — 4730 — 150	10	250	4X2
16	d1	1716, 1322, 1870, 393	10	200	11X1
17	d2	150 — 2280 — 150	10	200	16X1
18	d3	250, 2380, 555, 1118, 819, 500, 500	12	200	30X2X2
19	d4	150 — 150	12	200	29X2X2

TENDER DRAWING

Prepared by :-

WAPCOS LTD.

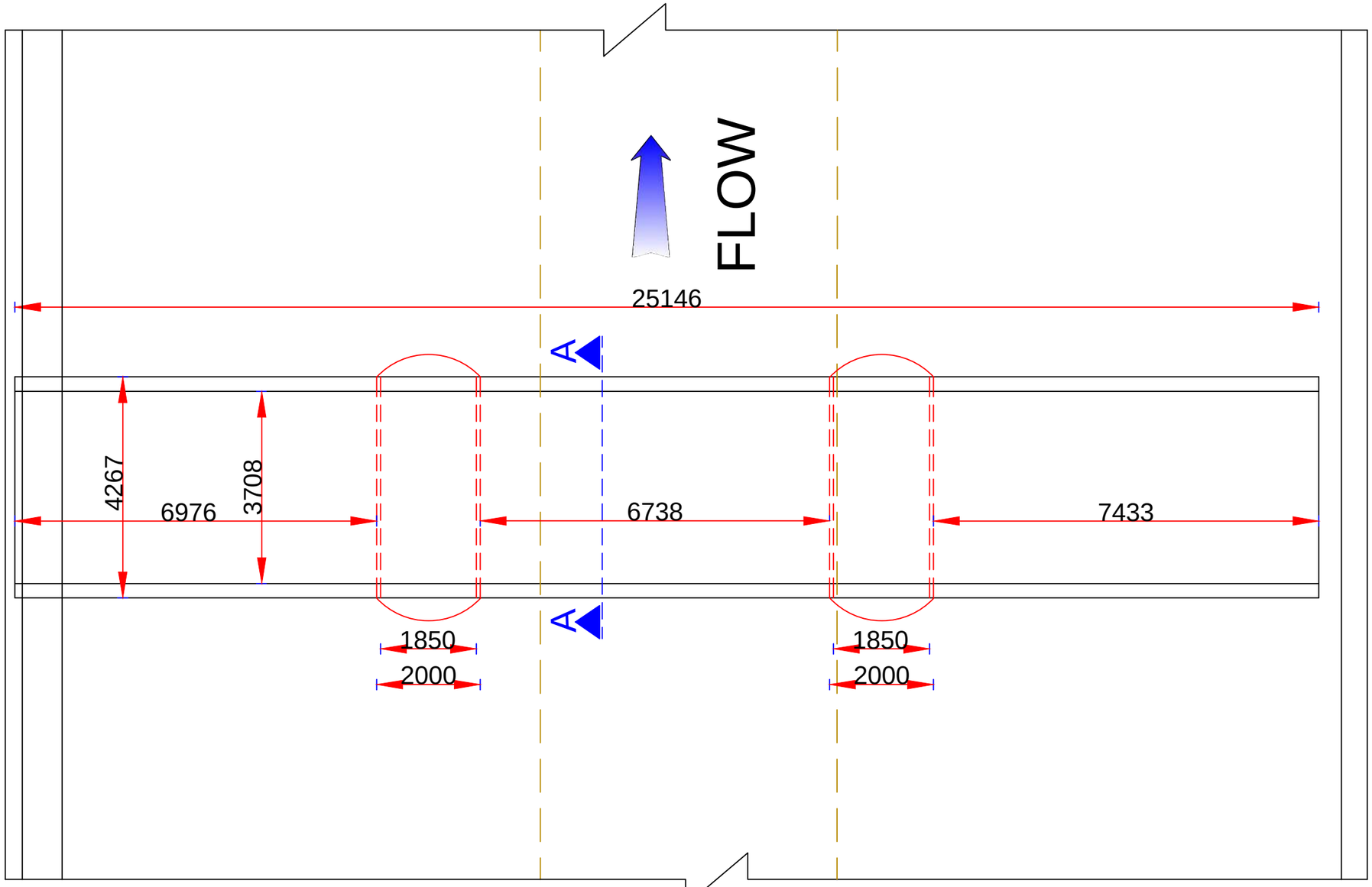
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF BOX BRIDGE (LEFT BANK) SUPER PASSAGE AT KM 10.970
Drawing No. :-	WAP/PKS/NORTH KOEL/SP-02 06 of 06
Drawn by:-	Checked by:- Approved by:-



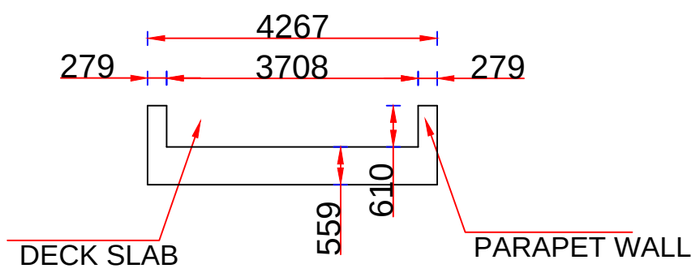
CART BRIDGE

AT

CH. 12.058 KM



PLAN



SECTION A-A

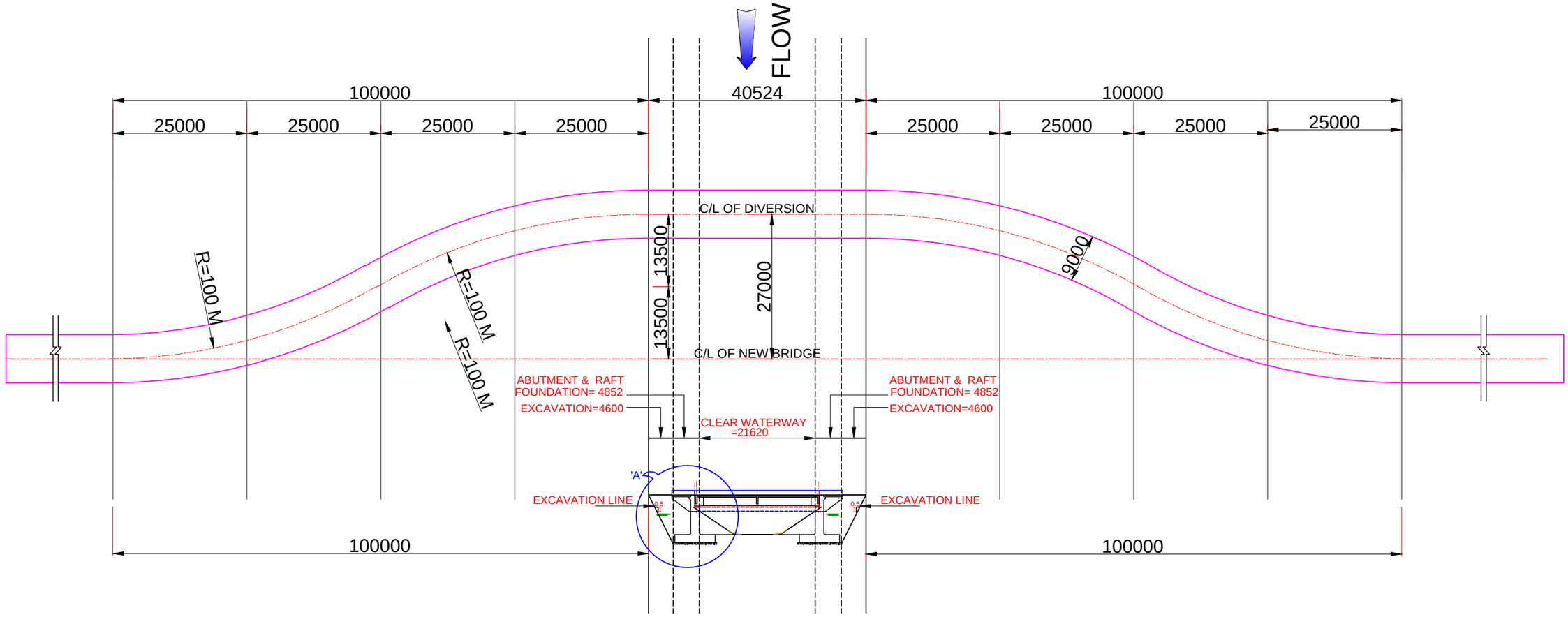
NOTES:

1 ALL DIMENSIONS ARE IN mm.

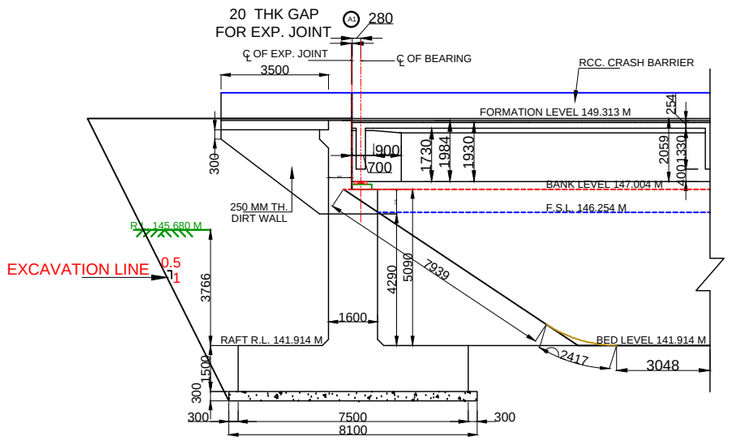
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	EXISTING PLAN OF CART BRIDGE AT CH. 12.058 KM	
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-09	01 of 12
	Drawn by:-	Checked by:-	Approved by:-



SKETCH OF DIVERSION PLAN AT KM 12.058 FOR S.L.R. BRIDGE



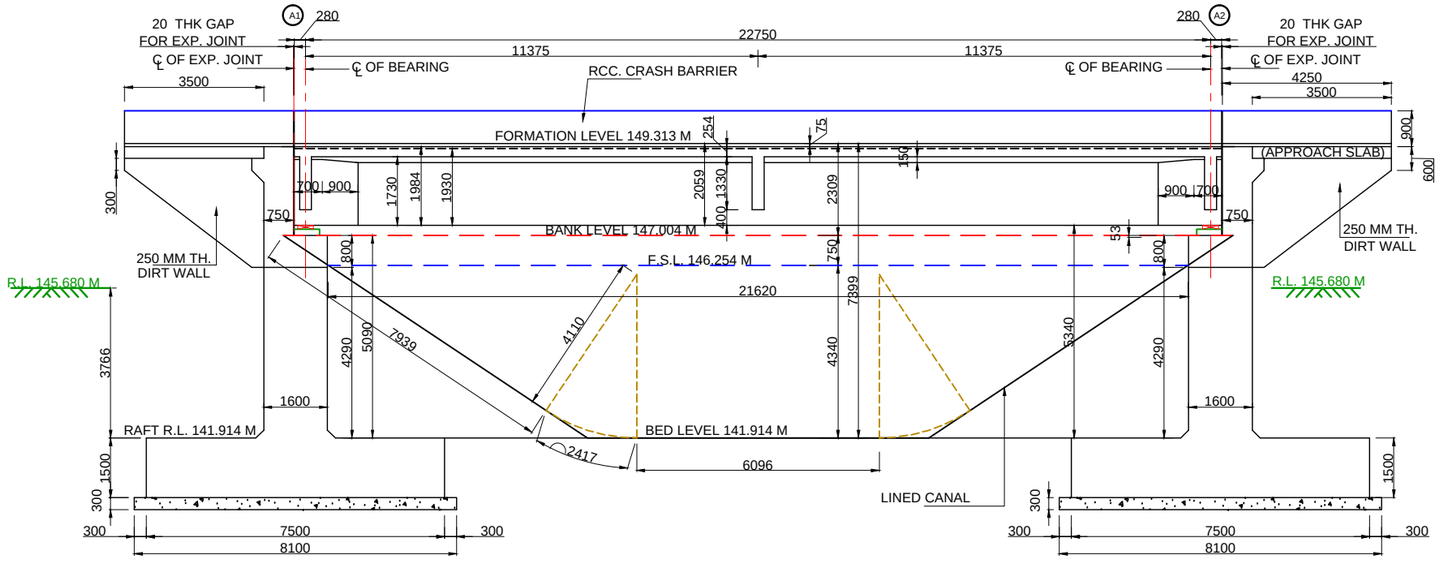
DETAIL SECTION AT 'A'

NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

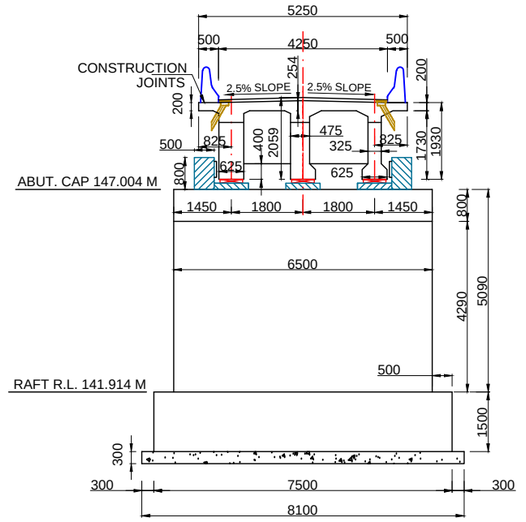
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 12.058 FOR S.L.R. BRIDGE
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 09 02 of 12
	Drawn by:-	Checked by:- / Approved by:-



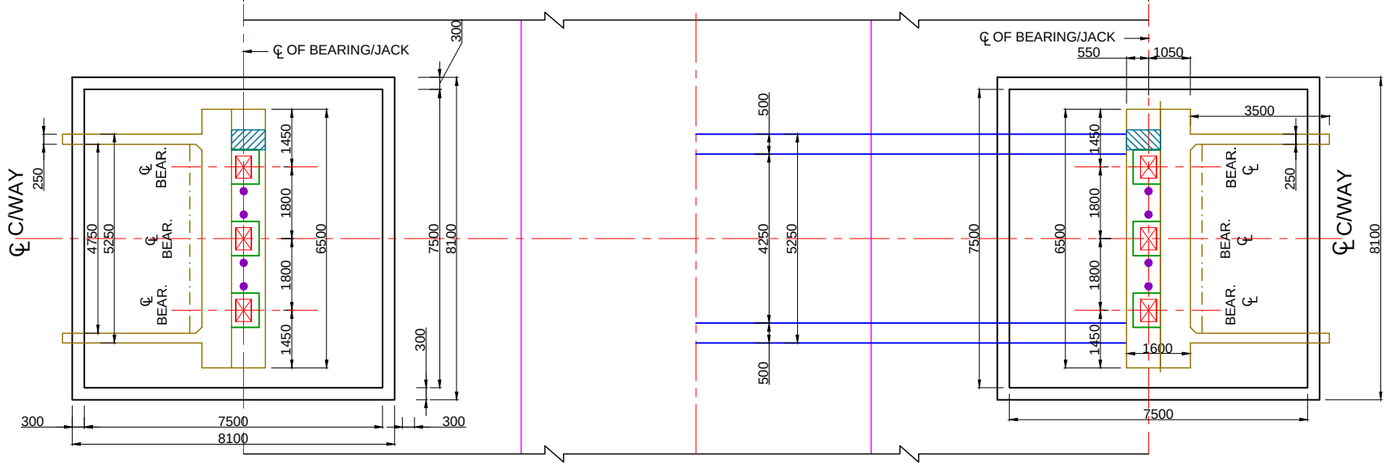
SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN

(SCALE A)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	84.15 CUMEC
BED LEVEL	141.914 M
WATER DEPTH	4.340 M
F.S.L.	146.254 M
FREE BOARD	0.75 M

7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a)	RAFT	M35
b)	ABUTMENT	M25
c)	SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d)	CRASH BARRIER	M30
e)	PEDESTAL (SEISMIC)	M35
f)	WEARING COAT	M30

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0Á
ROAD LEVEL	149.313 M
EX. ROAD LEVEL	145.680 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M

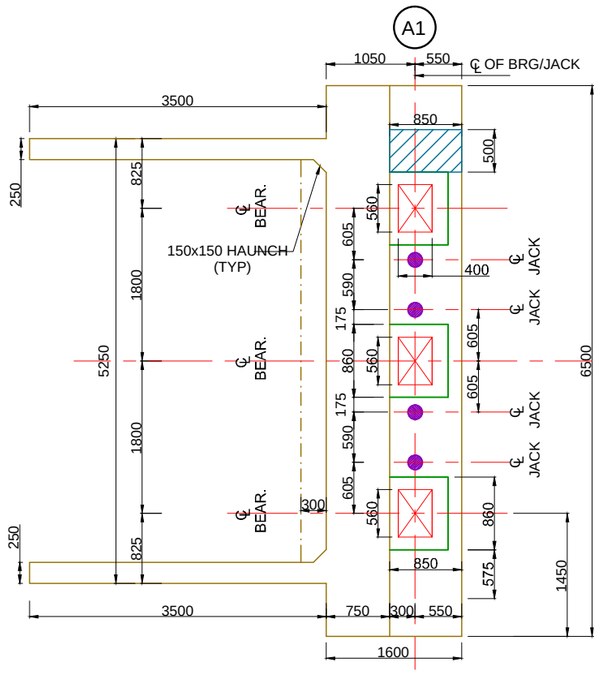
9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

SCALE A:-

2000 0 2000 4000 6000

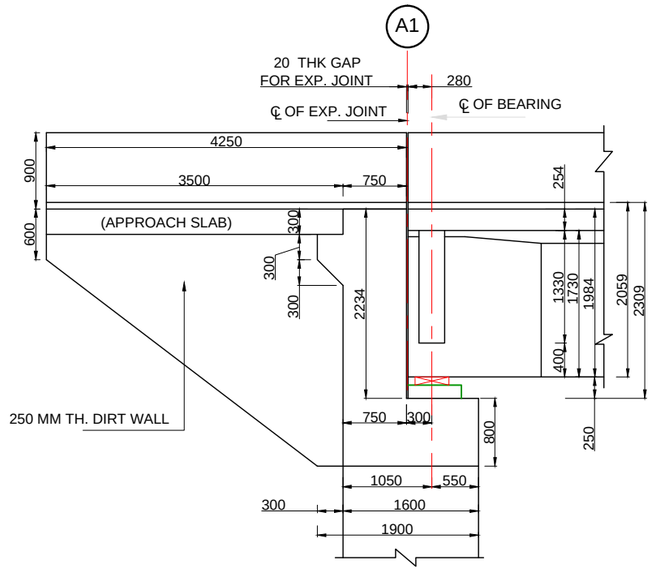
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 12.058 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-09	03 of 12
	Drawn by:-	Checked by:-	Approved by:-



PLAN OF ABUTMENT AT BEARING LEVEL

(SCALE B)

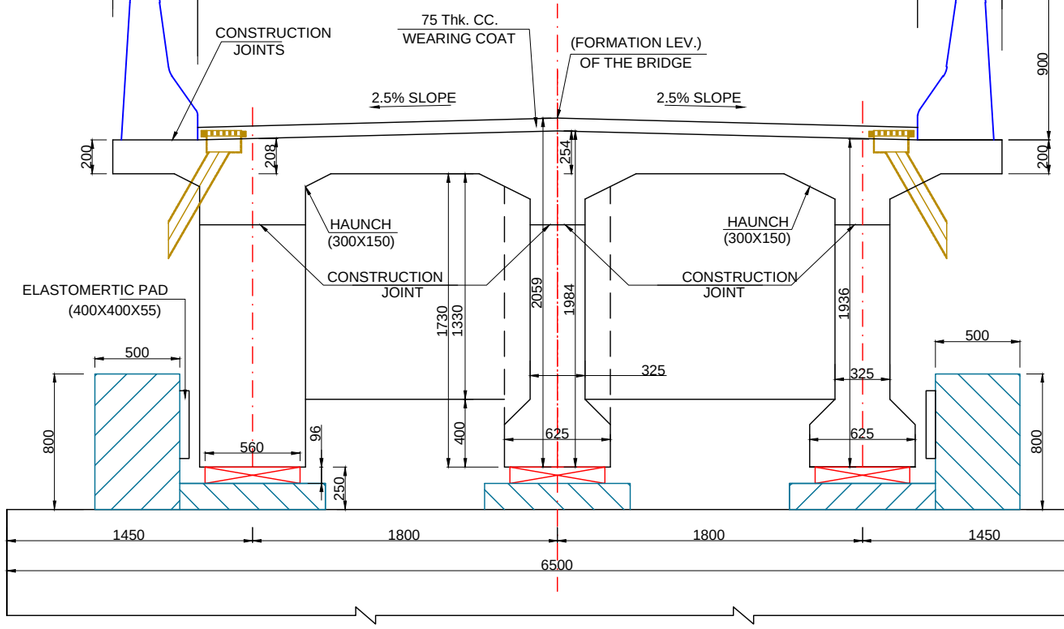


DETAIL - `D1'

(SCALE B)

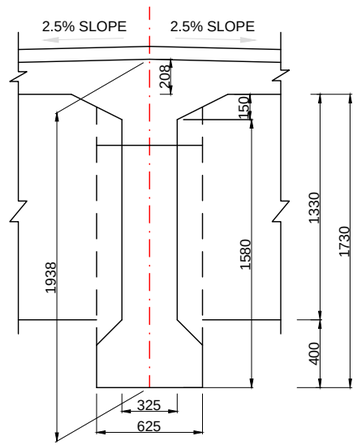
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



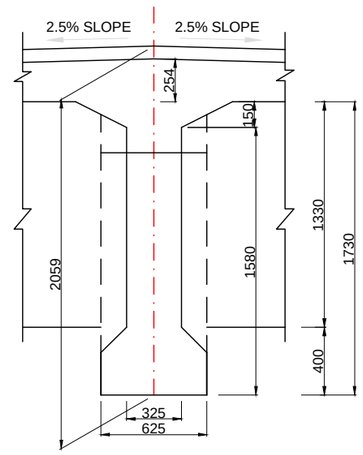
CROSS SECTION OF GIRDERS

(SCALE C)



CROSS SECTION OF RCC 'I' OUTER GIRDER

(SCALE C)



CROSS SECTION OF RCC 'I' INTERMEDIATE GIRDER

(SCALE C)

TENDER DRAWING

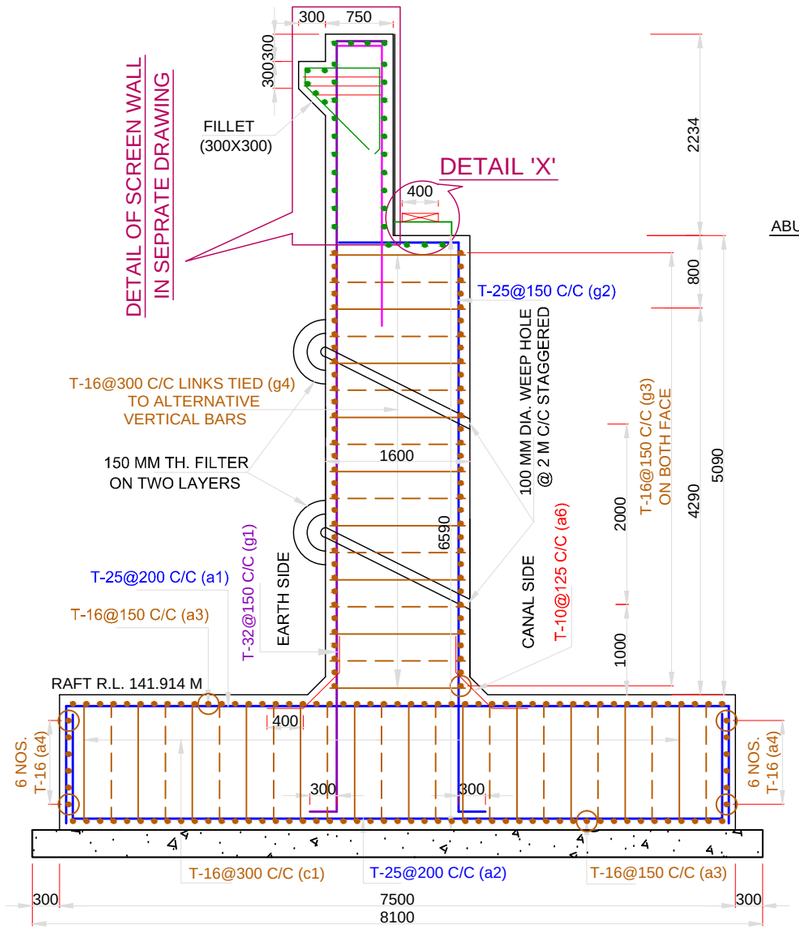
SCALE B:-



SCALE C:-

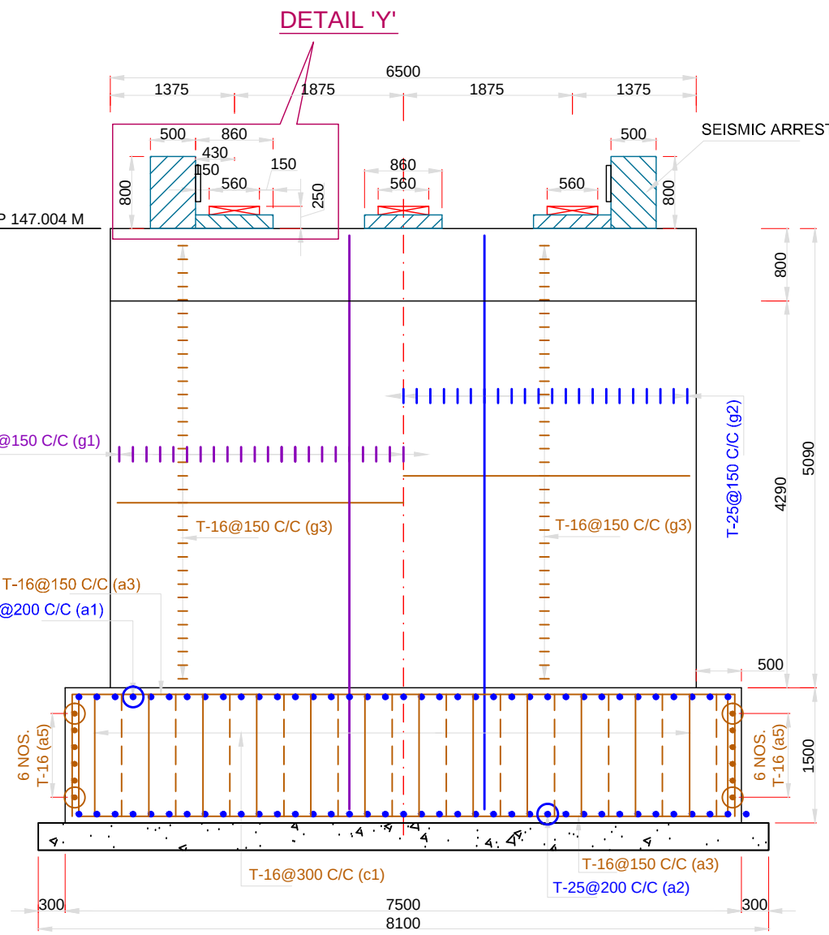


Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR BRIDGE AT KM 12.058 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-09 04 of 12
	Drawn by:-	Checked by:- / Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	600, 8598, 300	32	150	42X2
	2	g2	1325, 6365, 300	25	150	42X2
	3	g3	708, 6350, 708	16	150	33X2X2
	4	g4	150, VERTICAL LINK BARS 1450, 150	16	300	9X11X2
IN RAFT FOR ABUTMENT	5	a1	1000, 7350, 1000	25	200	37X2
	6	a2	1000, 7350, 1000	25	200	37X2
	7	a3	700, 700, 7350, 7350, 700, 700	16	150	49X2X2
	8	a4	700, 7350, 700	16	-	6X2X2
	9	a5	700, 7350, 700	16	-	6X2X2
	10	a6	400, 560, 400, 400, 400, 560	10	125	59X2X2
	11	c1	150, 1350, 150	16	300	13X13X2

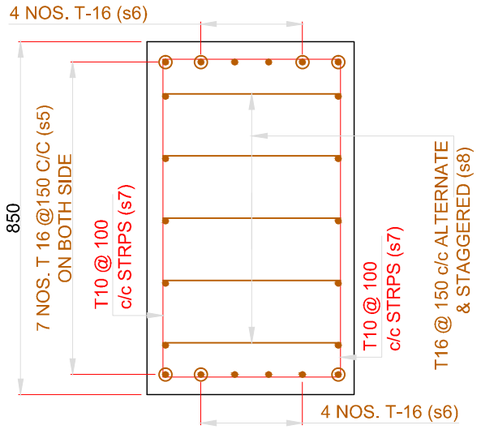
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:- 500 0 500 1000 1500

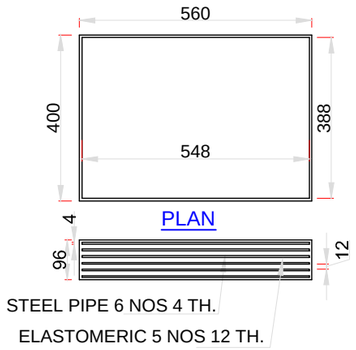
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SLR BRIDGE AT KM 12.058 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-09 05 of 12
	Drawn by:-	Checked by:- / Approved by:-



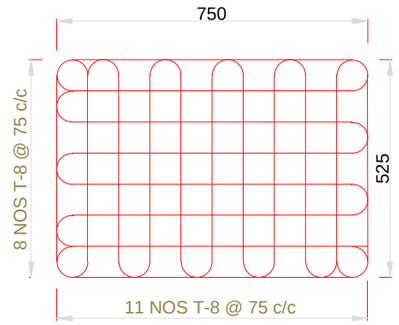
SECTION H-H

SCALE A



DETAILS OF ELASTOMERIC BEARINGS

SCALE A

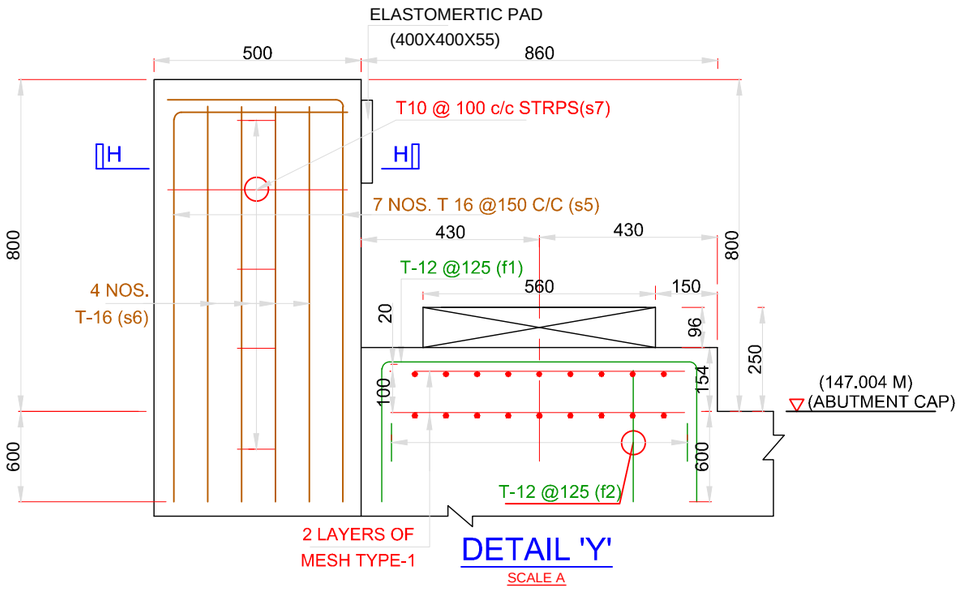


DETAIL OF MESH M1 (MESH BELOW BEARING LOCATION)

SCALE A

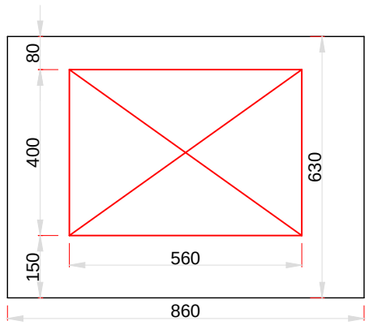
BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5	400, 1350	16	150	14X2X2
	2	s6	1350	16	-	8X2X2
	3	s7	700; 400, 400; 700	10	100	5X2X2
	4	s8	400	16	150	5X2X2
PEDESTAL FOR ABUTMENT	5	f1	633, 730, 633	12	125	5X3X3
	6	f2	633, 530, 633	12	125	5X3X3



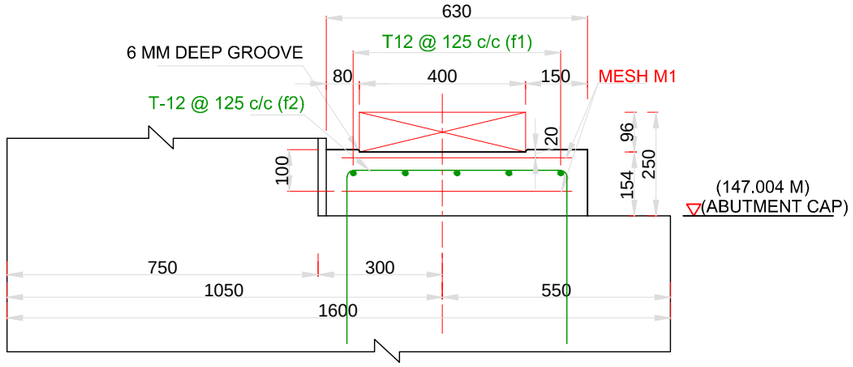
DETAIL 'Y'

SCALE A



PLAN

SCALE A



DETAIL 'X'

SCALE A

SCALE A:-

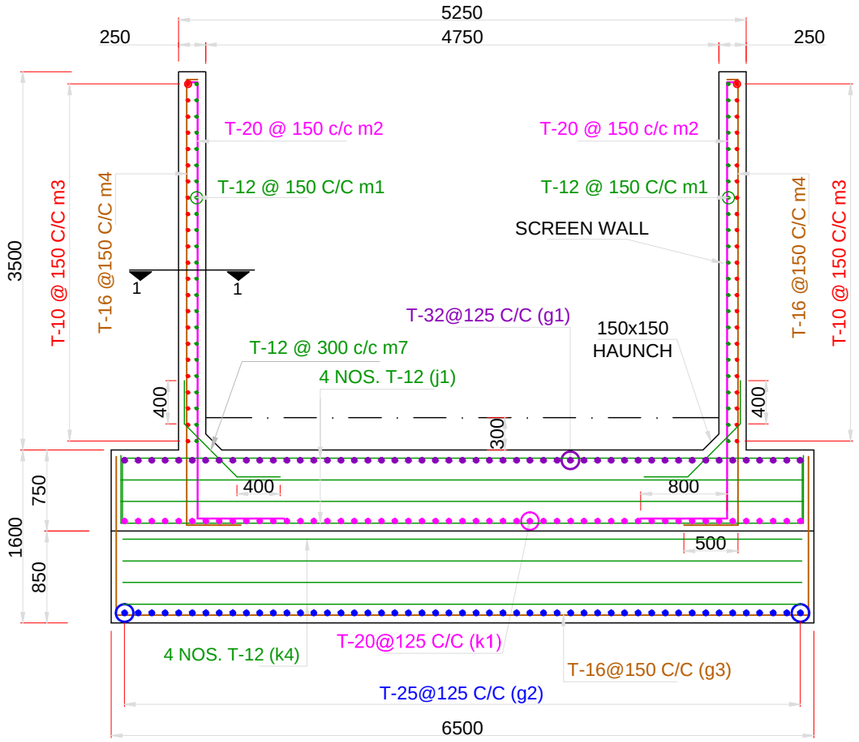
125 0 125 250 375

NOTES

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3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

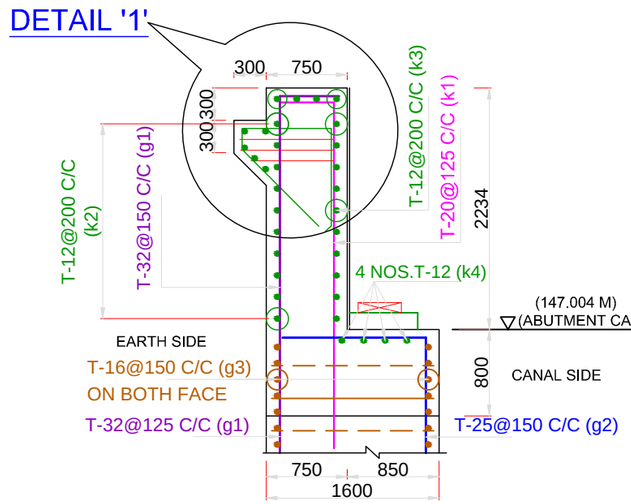
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 12.058 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-09 06 of 12
	Drawn by:-	Checked by:- / Approved by:-



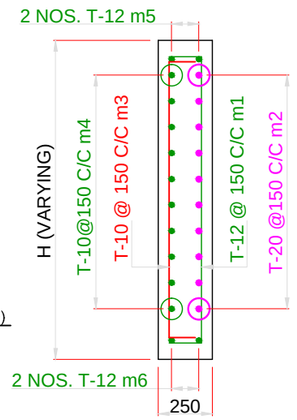
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL

SCALE A



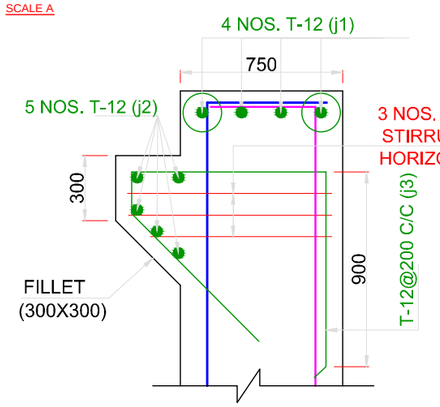
REINFORCEMENT DETAILS IN SECTION OF DIRT

SCALE A



SECTION AT 1-1

SCALE B



DETAIL '1'

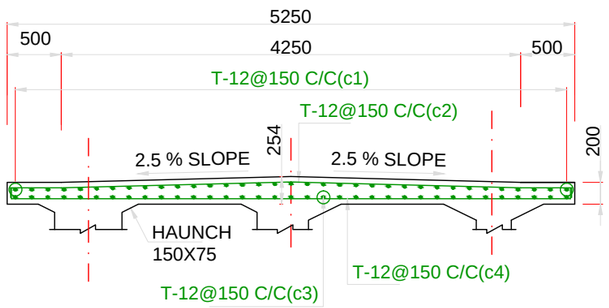
SCALE B

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
DIRT WALL	1	k1	700, 3459	20	125	51X2
	2	k2	150, 6350, 150	12	200	10X2
	3	k3	150, 6350, 150	12	200	10X2
	4	k4	150, 6350, 150	12	200	4X2
	5	j1	150, 6350, 150	12	-	4X2
	6	j2	150, 6350, 150	12	-	5X2
	7	j3	950, 195, 850, 900	12	-	24X2
	8	j4	LV= 790, 6350, 6350, 790	10	300	3X2
SCREEN WALL	9	m1	150, 1718, 150	12	150	44x2
	10	m2	150, 4025, 800, 150, 4025, 800	20	150	40x2
	11	m3	150, 1718, 150	10	150	44x2
	12	m4	150, 4025, 500, 150, 4025, 500	16	150	40x2
	13	m5	500, 3350, 500	12	-	4X2
	14	m6	400, 4085, 400	12	-	4X2
	15	m7	400, 800, 400	12	300	8X2X2
APPROACH SLAB	16	c1	150, 3350, 150	12	150	34X2
	17	c2	150, 450, 2125, 2125, 450, 150	12	150	23X2
	18	c3	150, 3350, 150	12	150	34X2
	19	c4	150, 5150, 150	12	150	23X2

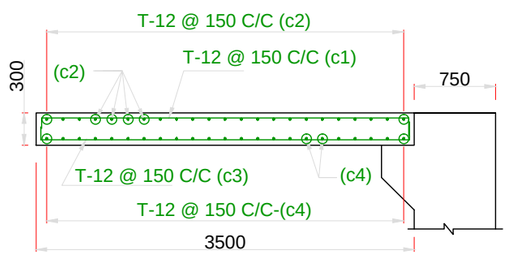
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS 70R OR TWO LANES OF CLASS-A LOADING WHICHEVER IS CRITICAL HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF PIER AND PIER CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.



REINFORCEMENT IN APPROACH SLAB

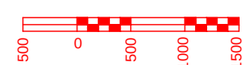
SCALE A



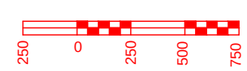
SECTION OF APPROACH SLAB

SCALE A

SCALE A:-



SCALE B:-

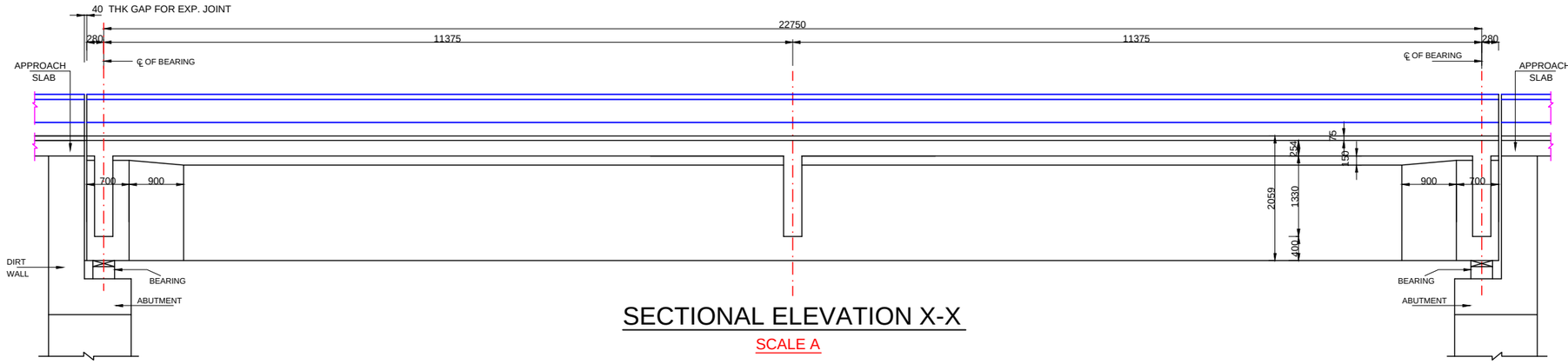


TENDER DRAWING

Prepared by :-

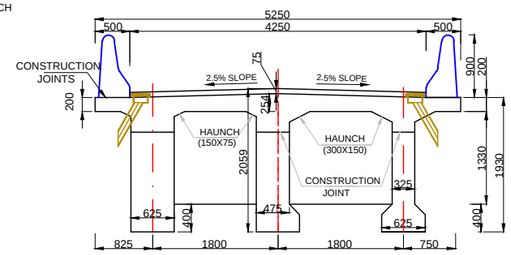
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 12.058 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-09 07 of 12
Drawn by:-	Checked by:- Approved by:-



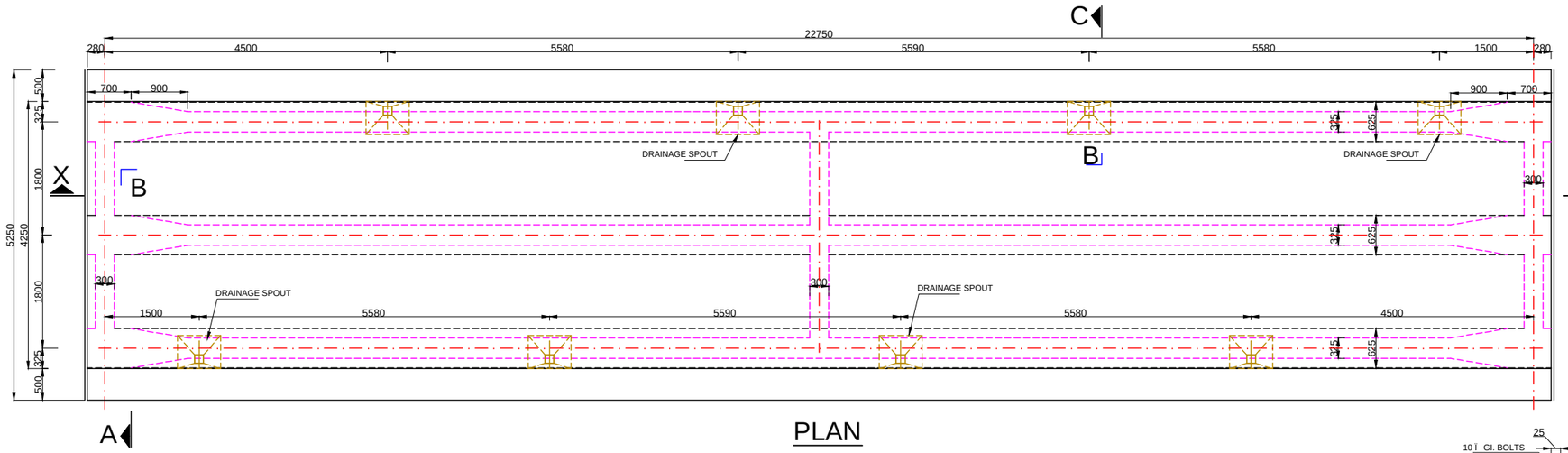
SECTIONAL ELEVATION X-X

SCALE A



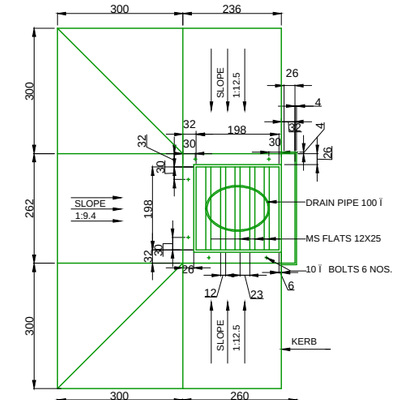
SECTION ABC

SCALE A



PLAN

SCALE A

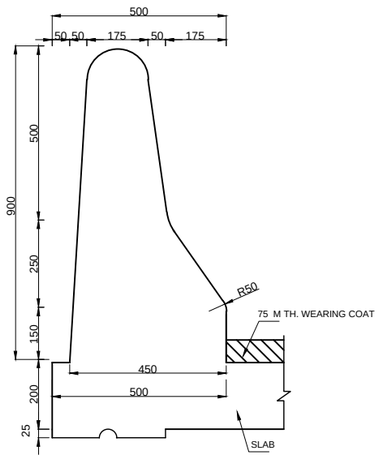


DETAILS OF DRAIN

SCALE B

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
7. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
8. REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.

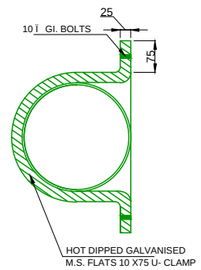


DETAILS OF CRASH BARRIER

SCALE B

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.



SCALE A:-

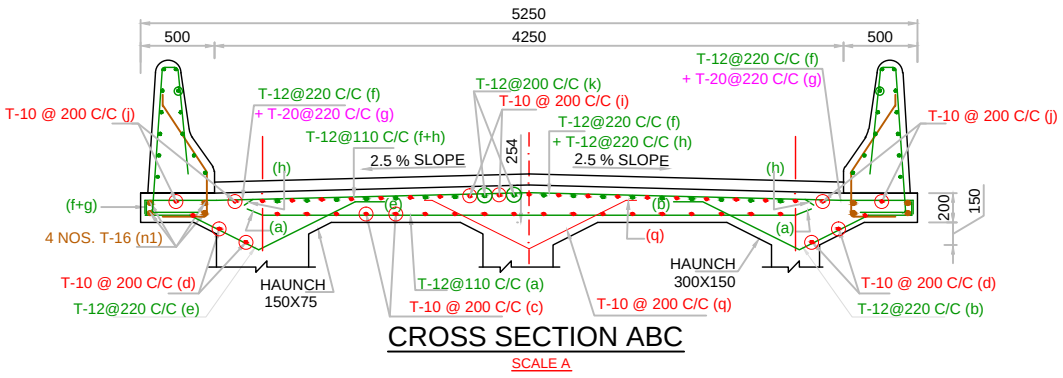
600 0 600 1200 1800

SCALE B:-

100 0 100 200 300

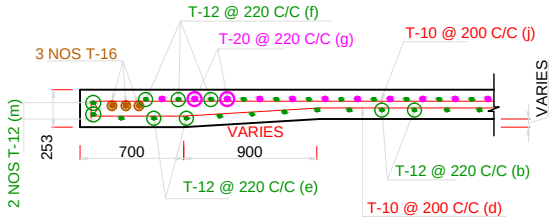
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 12.058 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-09	08 of 12
	Drawn by:-	Checked by:-	Approved by:-



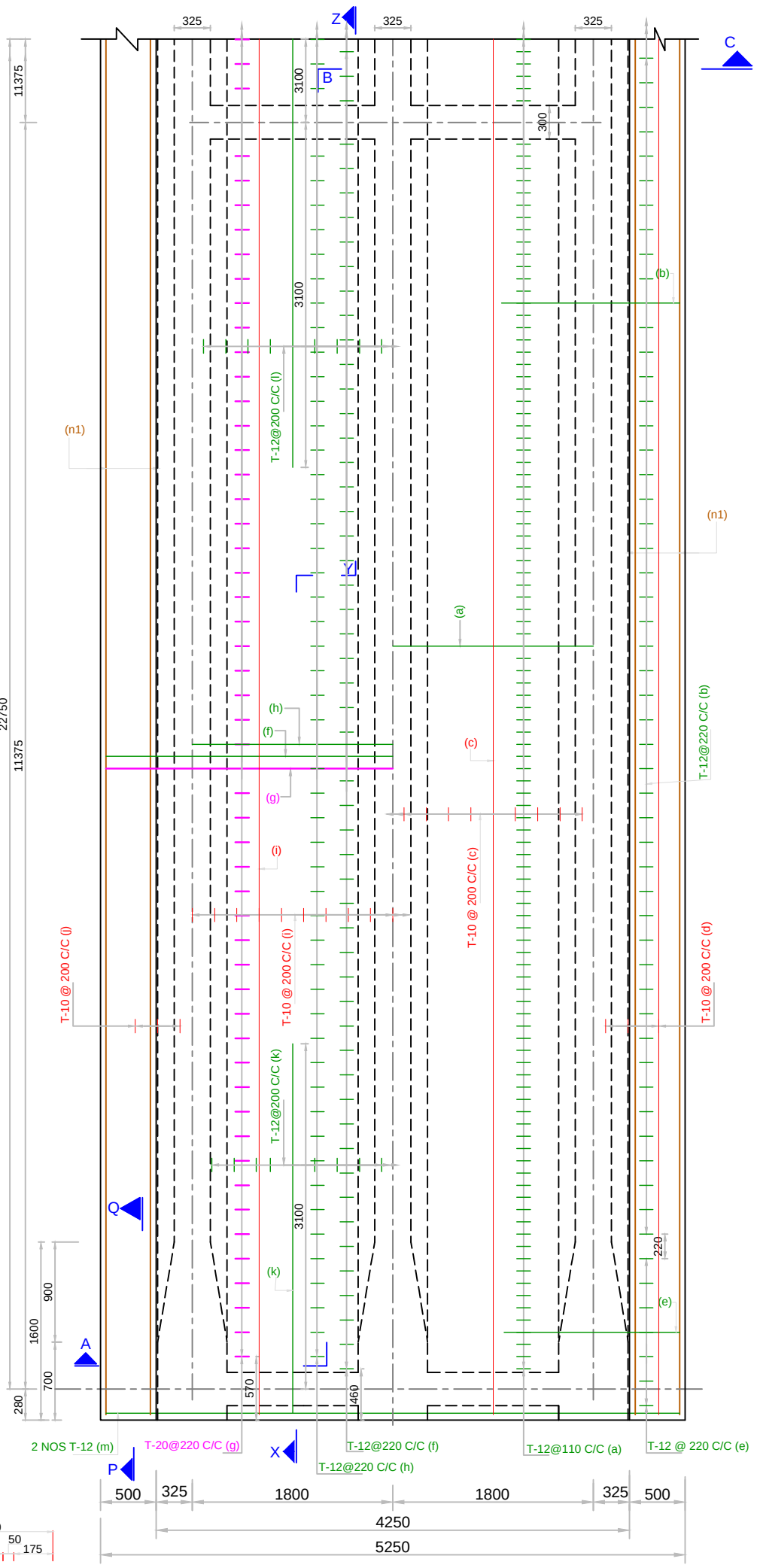
CROSS SECTION ABC

SCALE A



SECTION P.Q.

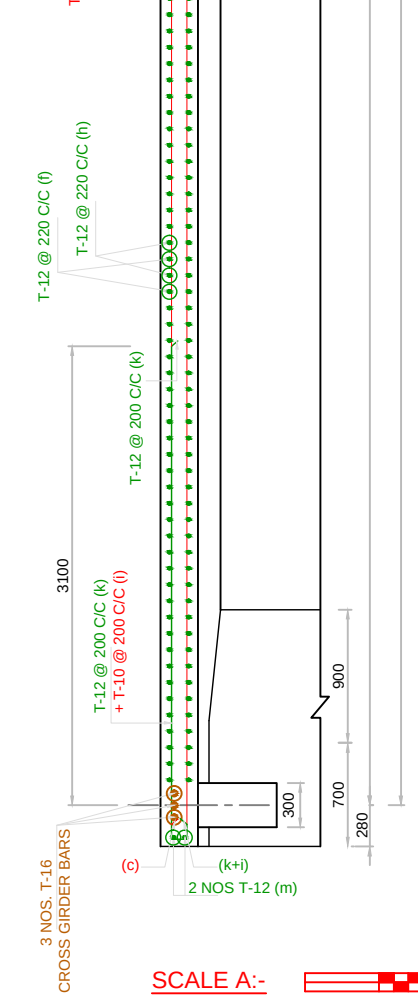
SCALE A



HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

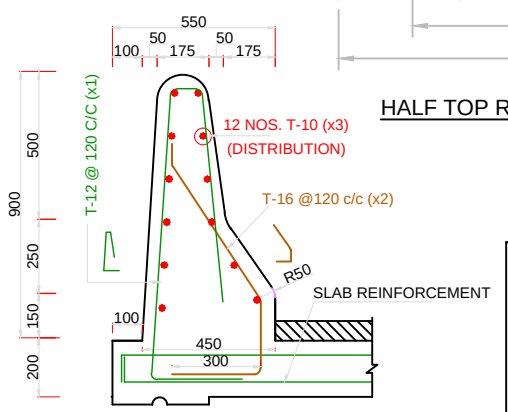
PLAN

SCALE A



SECTION X Y Z

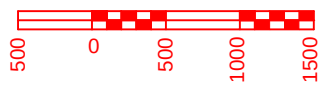
SCALE A



REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B

SCALE A:-



SCALE B:-



REFERENCES:-

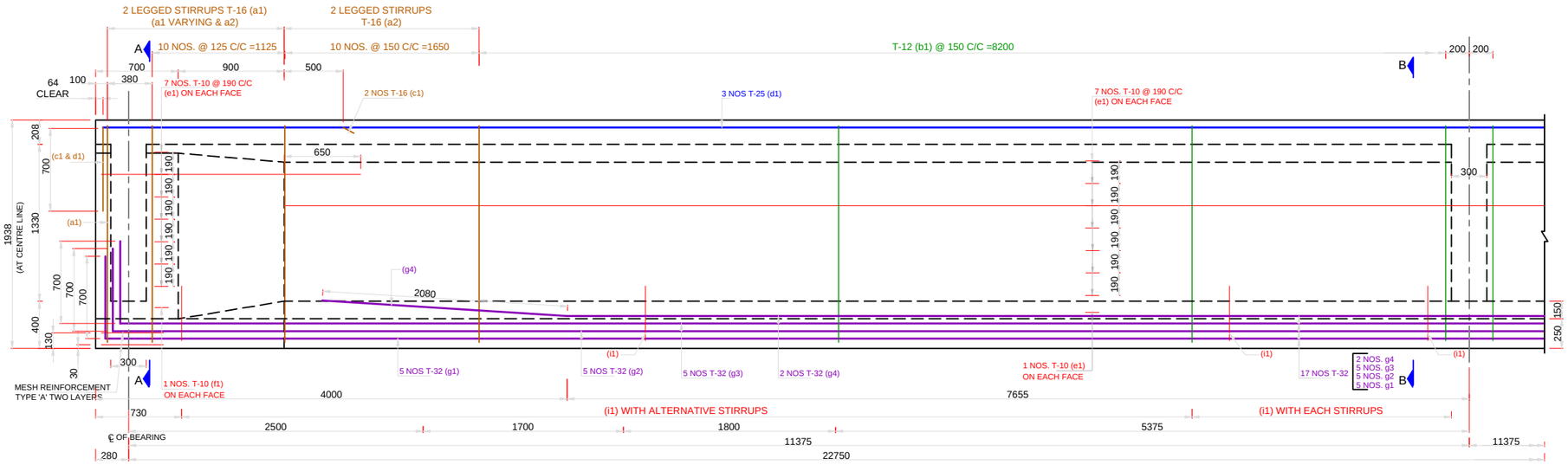
1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

TENDER DRAWING

Prepared by :-

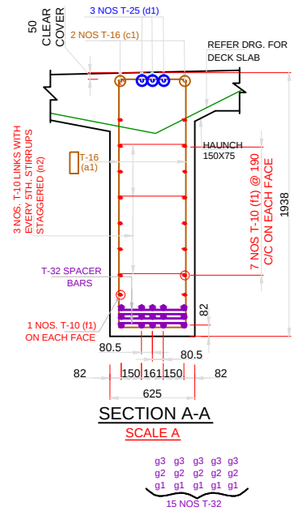
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 12.058 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-09 09 of 12
Drawn by:-	Checked by:- Approved by:-



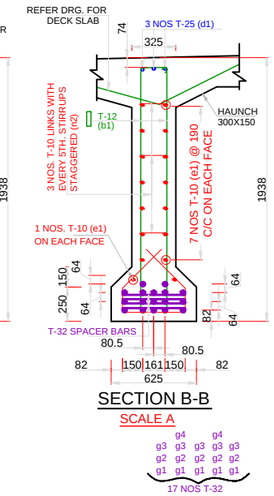
LONGITUDINAL SECTION OF OUTER GIRDER

SCALE A



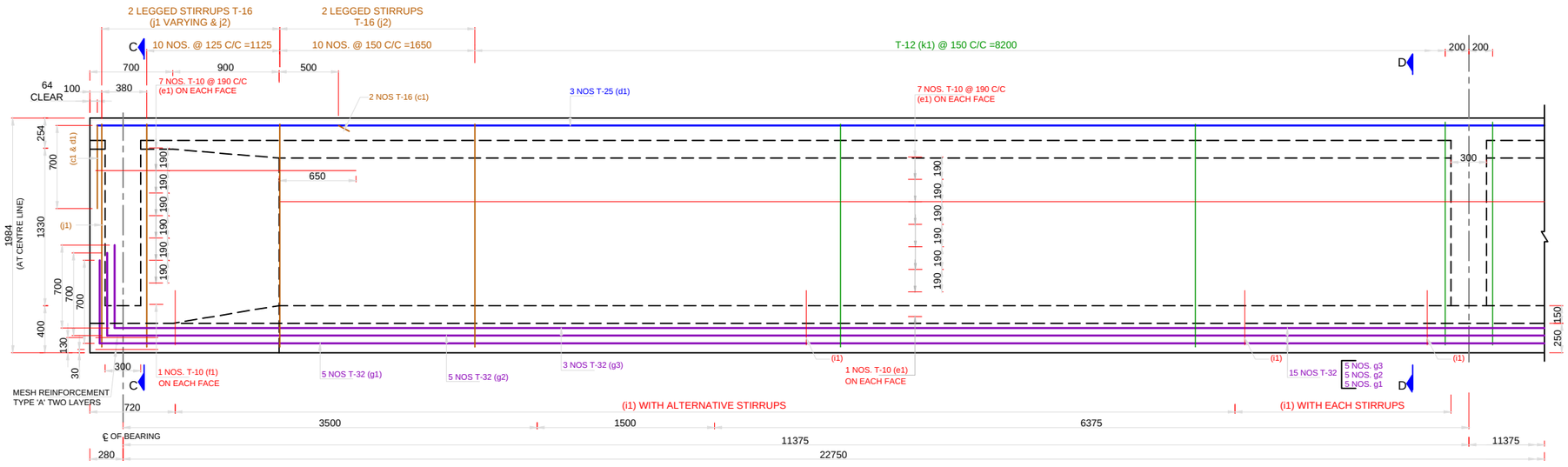
SECTION A-A

SCALE A



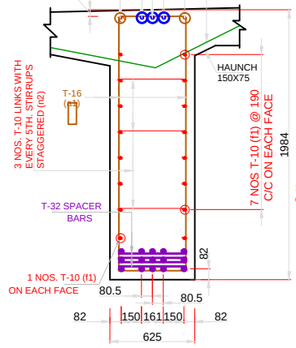
SECTION B-B

SCALE A



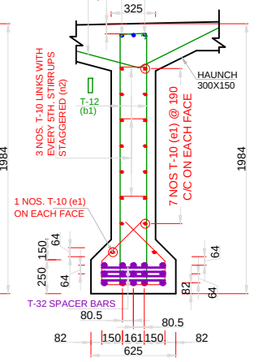
LONGITUDINAL SECTION OF INNER GIRDER

SCALE A



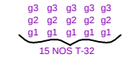
SECTION C-C

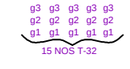
SCALE A

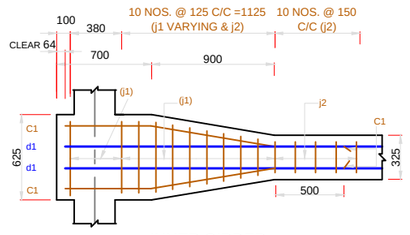


SECTION D-D

SCALE A

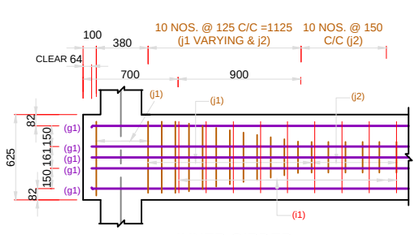






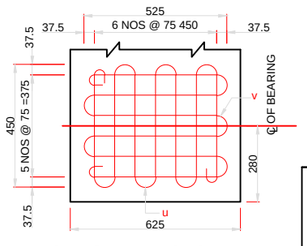
INNER GIRDER

PLAN SHOWING TOP REINFORCEMENT AT THE END



INNER GIRDER

PLAN SHOWING BOTTOM REINFORCEMENT AT THE END



T-8 MESH REINFORCEMENT

TYPE - 'A'

SCALE B

(SIMILAR DETAILING WILL BE FOLLOWED FOR OUTER GIRDERS)

SCALE A

SCALE A:-



SCALE B:-

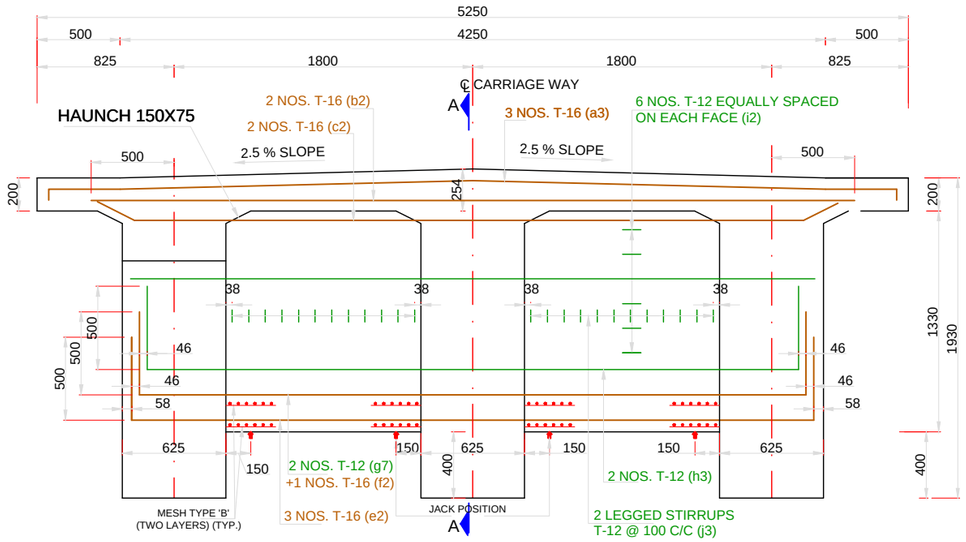


TENDER DRAWING

Prepared by :-

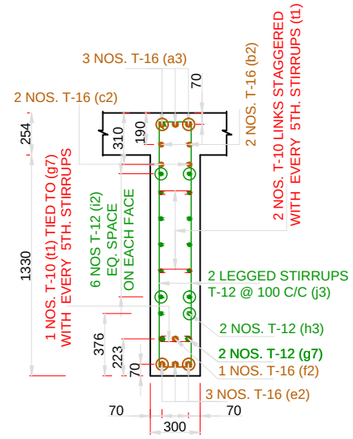
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 12.058 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-09 10 of 12
Drawn by:-	Checked by:- Approved by:-



LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A

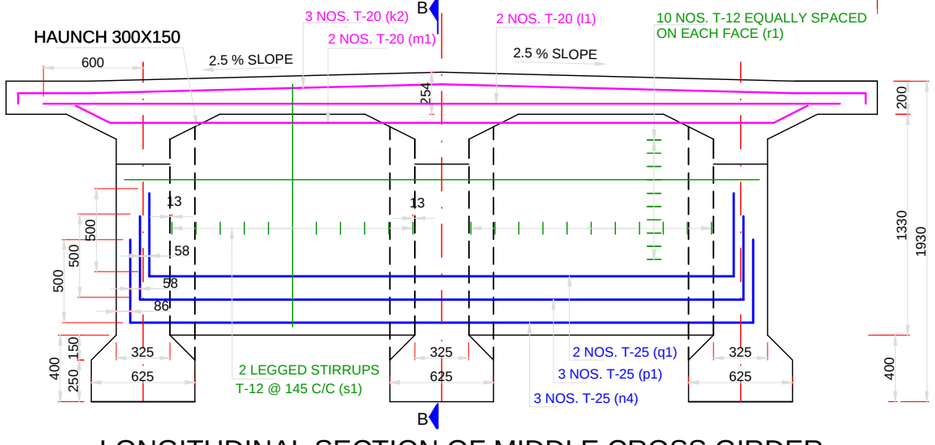


SECTION A-A

SCALE A

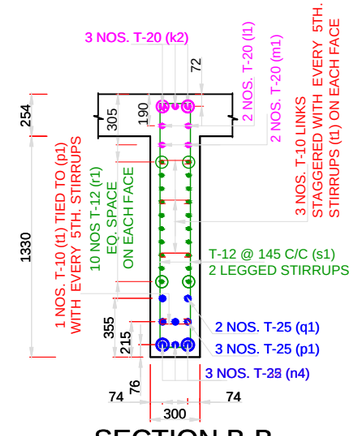
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



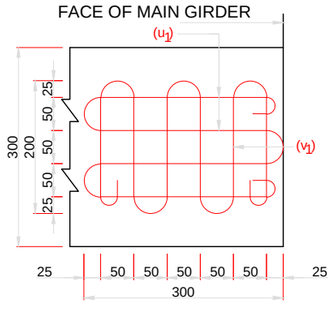
LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A



SECTION B-B

SCALE A



T-8 MESH REINFS.
TYPE - 'B'

SCALE B

SCALE A:-



SCALE B:-



TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/215.

Prepared by :-

WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE AT KM 12.058 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-09 11 of 12
Drawn by:-	Checked by:- Approved by:-

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a	3600	12	110	3600	200
2	b	275, 523, R-120, 729, 500, 100, R-120	12	220	1927	184
3	c	150, L, 23210, 150, L, L VARYING FROM 109 TO 212	10	200	23710	19
4	d	140, L, 650, 901, R-100, 20110, R-100, 901, 650, 140, L VARYING FROM 68 TO 270	10	200	23710	6
5	e	VARYING FROM 523 TO 693, 150, R-120, VARYING FROM 729 TO 878, 575, 100, R-120	12	220	1927	32
6	f	2576, 75, R-120, 2576, 75	12	220	5304	100
7	g	2576, 75, R-120, 2576, 75	20	220	5182	100
8	h	1866, R-120, 1866	12	220	3732	100
9	i	L, 23210, 150, L, 150, VARYING FROM 109 TO 212	10	200	23710	19
10	j	L, 23210, 75, L, 75, VARYING FROM 68 TO 270	10	200	23638	6
11	k	L, 3330, 170, VARYING FROM 109 TO 212	12	200	3588	36
12	l	6200	12	200	6200	18
13	m	5150	12	-	5150	4
14	n_1	23210	16	-	23210	8
15	q	150, R=80, 150, 393, 860, 650, 433, R=80	10	200	2110	116

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u	25, 30, 37.5, 375, 75 75 75 75 75, 375, 37.5, 30, 25	10	-	3550	8
2	v	75, 75, 75, 75, 75, 30, 30, 450, 37.5, 25	10	-	3506	8
CRASH BARRIER PER M						
1	x_1	75, 1000, 750, 300	12	120	2125	9
2	x_2	75, 540, 300, 250	16	120	1165	9
3	x_3	9350	10		1000	12

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	**Length of each bar (mm)**	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a_1	L1=VARYING FROM 1808 TO 1812, L1, L2, L2 = VARYING FROM 1800 TO 1804, VARYING FROM 193 TO 493	16	125	5158	11X2X2
2	a_2	193, 1804, 1808, 193	16	150	4758	11X2X2
3	b_1	193, 1804, 1808, 193	12	150	4678	108X2
4	c_1	708, R=96, ELEVATION, 636, 913, 166, 500	16	-	2693	2X2X2
5	d_1	23182, 708, R=96, 708	25	-	24398	3X2
6	e_1	20110	10	-	20110	8X2X2
7	f_1	913, 650, 636, 160	10	-	2199	16X2X2
8	g_1	716, R=192, 716, 23182	32	-	24358	5X2
9	g_2	716, R=192, 716, 23054	32	-	24230	5X2
10	g_3	716, R=192, 716, 22926	32	-	24102	5X2
11	g_4	2080, 15310, 2080	32	-	19470	2X2
12	i_1	450, 450, 493, 315, 485	10	-	1733	101X2
12	n_2	L, 140, 140, L = VARYING FROM 213 TO 513	10	-	583	18X2
14	n_3	213, 140, 140	10	-	433	90X2
LONGITUDINAL INNER GIRDER						
1	j_1	L1=VARYING FROM 1856 TO 1860, L1, L2, L2 = VARYING FROM 1848 TO 1852, VARYING FROM 193 TO 493	16	125	5290	11X2X1
2	j_2	193, 1852, 1856, 193	16	150	4890	11X2X1
3	k_1	193, 1852, 1856, 193	12	150	4810	108X1
4	c_1	708, R=96, ELEVATION, 636, 913, 166, 500	16	-	2693	2X2X1
5	d_1	23182, 708, R=96, 708	25	-	24398	3X1
6	e_1	20110	10	-	20110	8X2X1
7	f_1	913, 650, 636, 160	10	-	2199	16X2X1
8	g_1	716, R=192, 716, 23182	32	-	24358	5X1
9	g_2	716, R=192, 716, 23054	32	-	24230	5X1
10	g_3	716, R=192, 716, 22926	32	-	24102	5X1
11	i_1	450, 450, 493, 315, 485	10	-	1733	101X1
12	n_2	L, 140, 140, L = VARYING FROM 213 TO 513	10	-	583	18X1
13	n_3	213, 140, 140	10	-	433	90X1

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a_3	95, 2576, R-160, 2576, 95	16	-	5248	3X2
2	b_2	500, 3600, 500	16	-	4750	2X2
3	c_2	230, R=160, 4030, 230	16	-	4490	2X2
4	e_2	508, R=64, 4109, 508	16	-	5029	3X2
5	f_2	508, R=64, 4063, 508	16	-	4983	1X2
6	g_7	506, R=48, 4063, 506	12	-	5003	2X2
7	h_3	506, R=48, 3925, 506	12	-	4865	2X2
8	i_2	233, R=48, 4125, 233	12	-	4519	6X2X2
9	j_3	176, B, 176, VARYING FROM 1447 to 1475	12	100	3402	26X2
10	t_1	140, 196, 140	10	-	416	20X2
MIDDLE CROSS GIRDERS						
1	k_2	95, 2576, R-160, 2576, 95	20	-	5222	3
2	l_1	600, 3600, 600	20	-	4800	2
3	m_1	230, R=160, 4000, 230	20	-	4310	2
4	n_4	508, R=64, 3754, 508	25	-	4570	3
5	p_1	508, R=64, 3638, 508	25	-	4454	3
6	q_1	508, R=64, 3520, 508	25	-	4336	2
7	r_1	529, 3925, 529	12	-	4911	10X2
8	s_1	L, 176, VARYING FROM 1444 to 1478	12	145	3202	22
9	t_1	140, 196, 140	10	-	416	16

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
19	u_1	30, 50, 50, 50, 30, 25, 250, 37.5	10	-	1453	16
20	v_1	50 50 50 50 50, 30, 90, 37.5, 150, 25	10	-	1510	16

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.

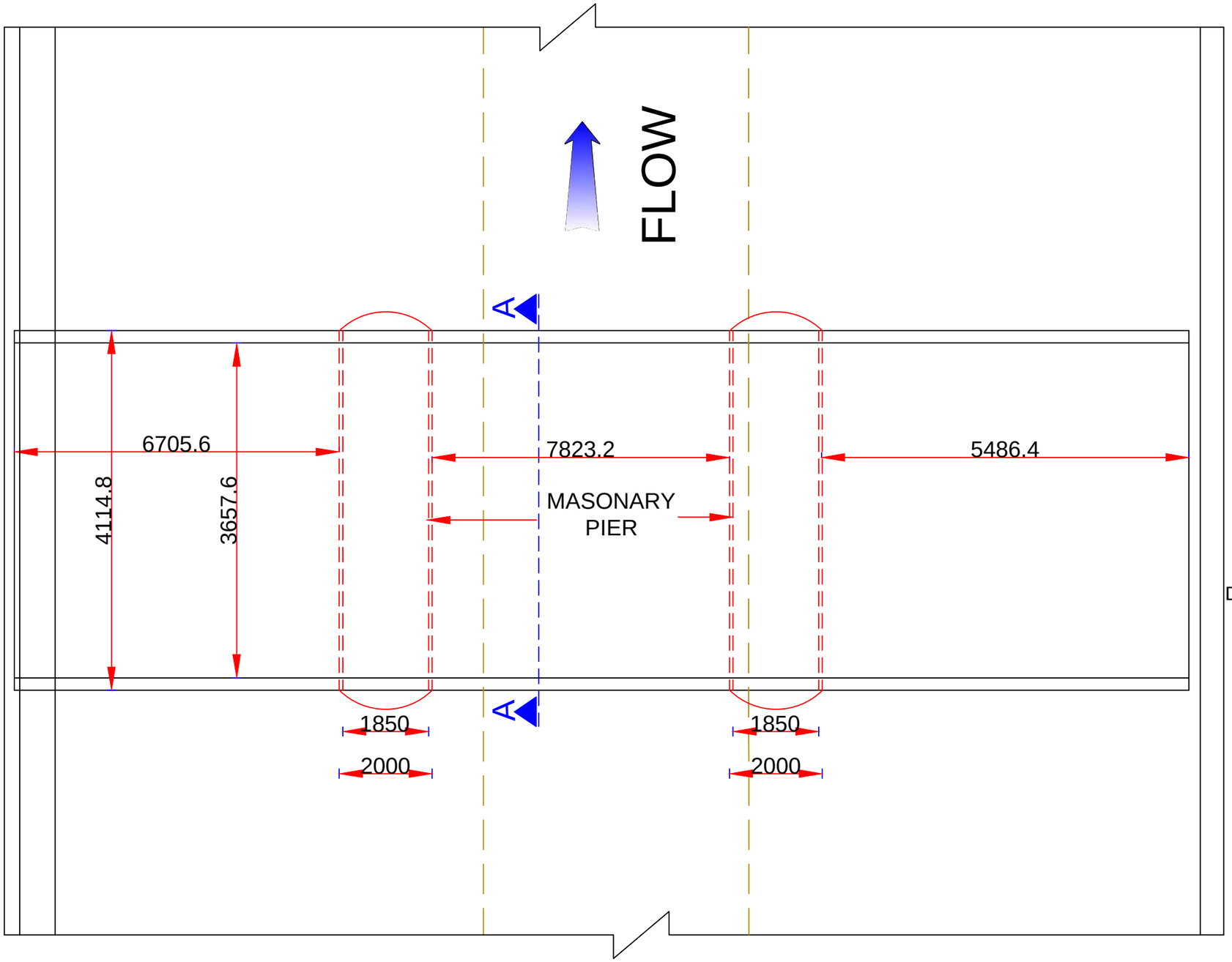
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR BRIDGE AT KM 12.058 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-09 12 of 12
Drawn by:-	Checked by:- Approved by:-



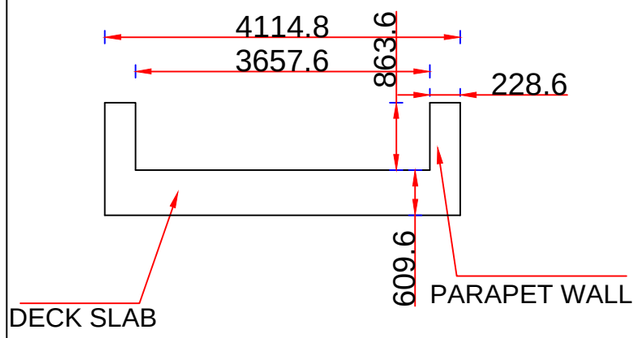
S.L.R. BRIDGE

AT

CH. 12.580 KM



PLAN



SECTION A-A

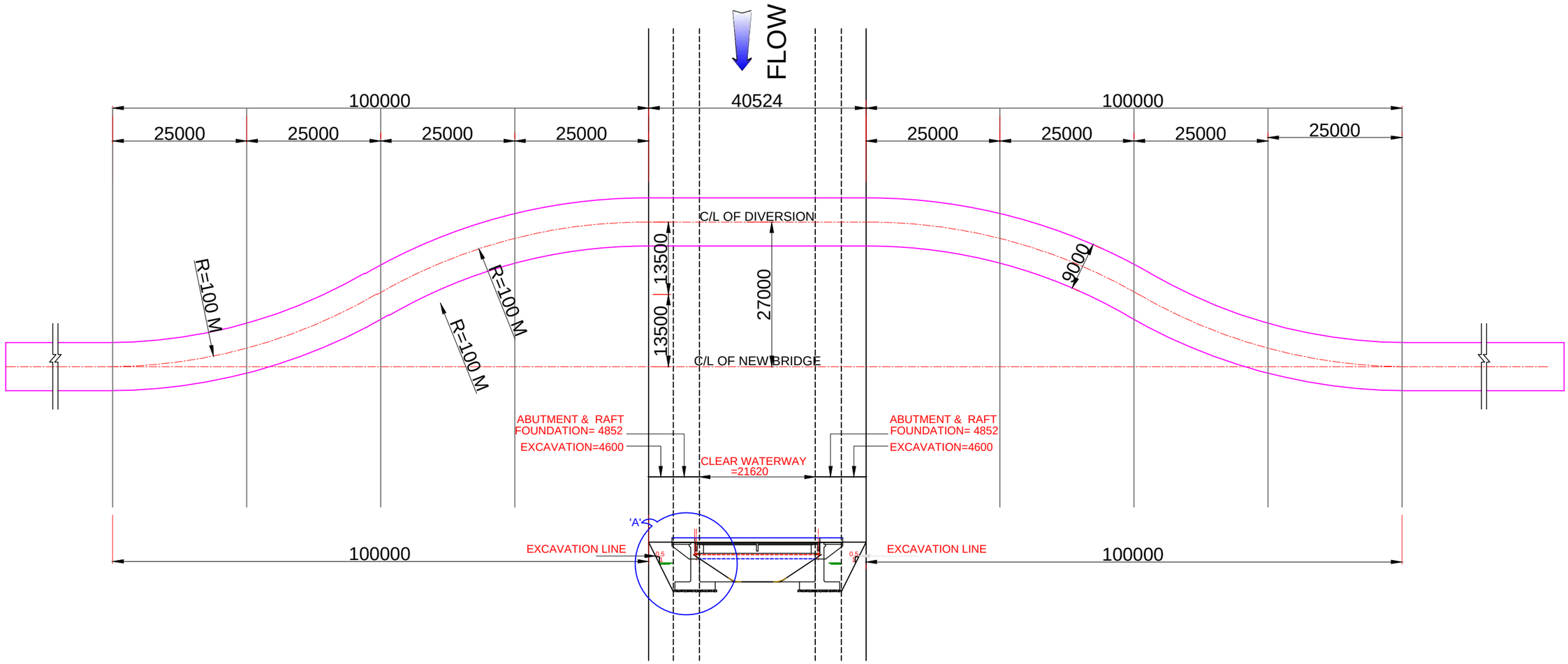
NOTES:

1 ALL DIMENSIONS ARE IN mm.

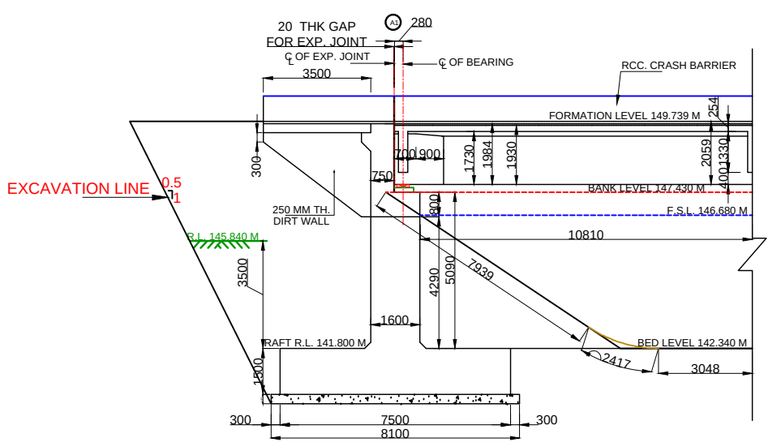
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	EXISTING PLAN OF SINGLE LANE ROAD BRIDGE AT CH. 12.580 KM
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-10 01 of 12
	Drawn by:-	Checked by:- / Approved by:-



SKETCH OF DIVERSION PLAN AT KM 12.580 FOR S.L.R. BRIDGE



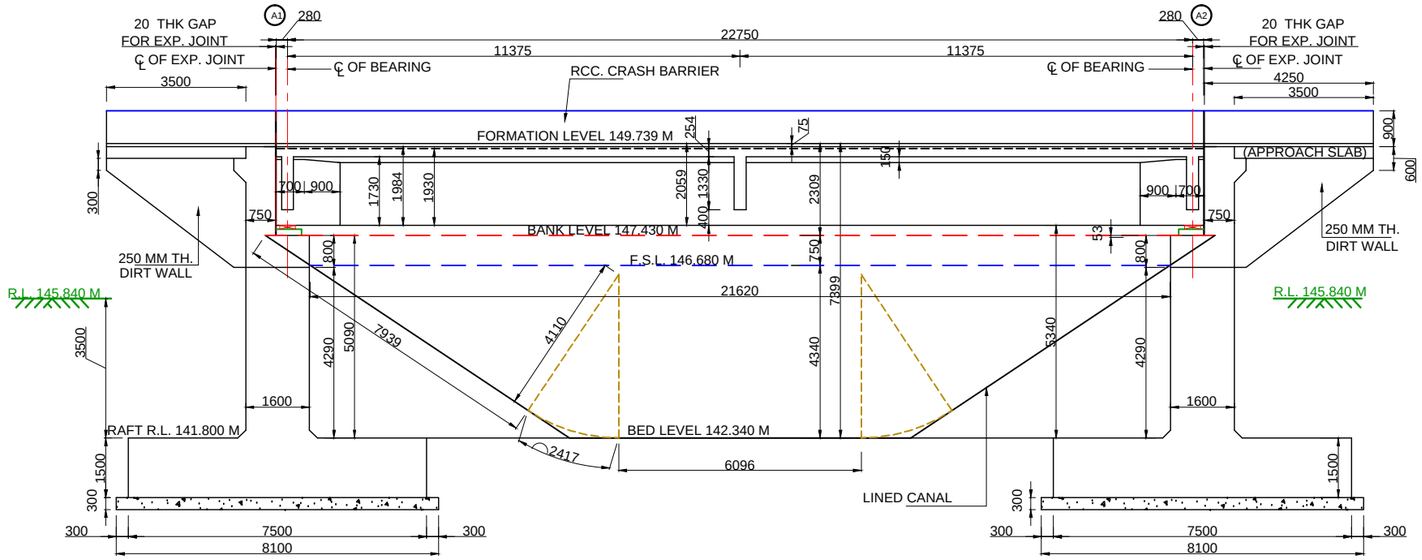
DETAIL SECTION AT 'A'

NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

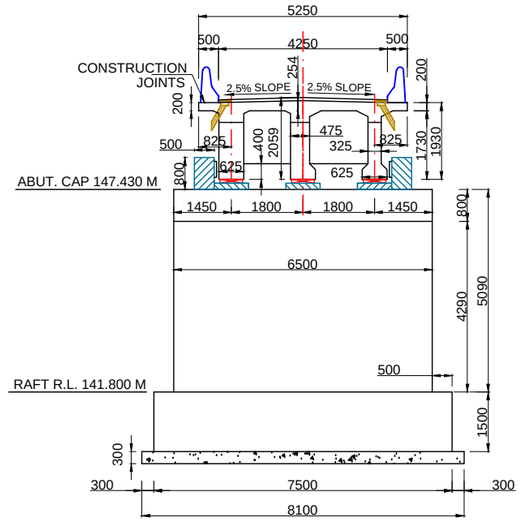
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 12.580 FOR S.L.R. BRIDGE
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 10 02 of 12
	Drawn by:-	Checked by:- / Approved by:-



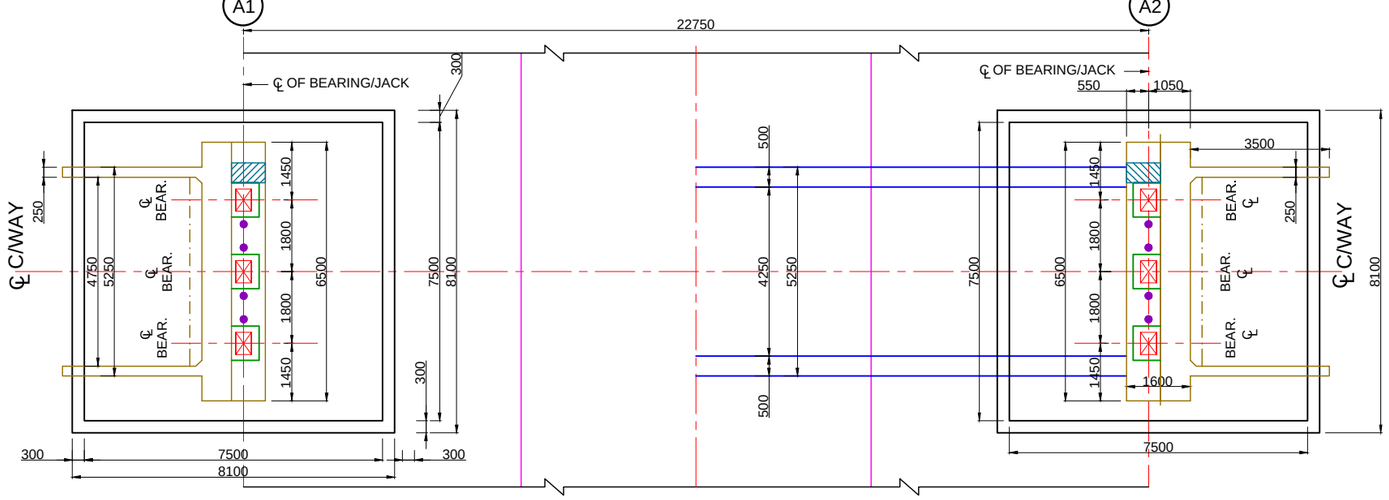
SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN

(SCALE A)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	84.15 CUMEC
BED LEVEL	142.340 M
WATER DEPTH	4.340 M
F.S.L.	146.680 M
FREE BOARD	0.75 M

7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a)	RAFT	M35
b)	ABUTMENT	M25
c)	SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d)	CRASH BARRIER	M30
e)	PEDESTAL (SEISMIC)	M35
f)	WEARING COAT	M30

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0Á
ROAD LEVEL	149.739 M
EX. ROAD LEVEL	145.840 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M

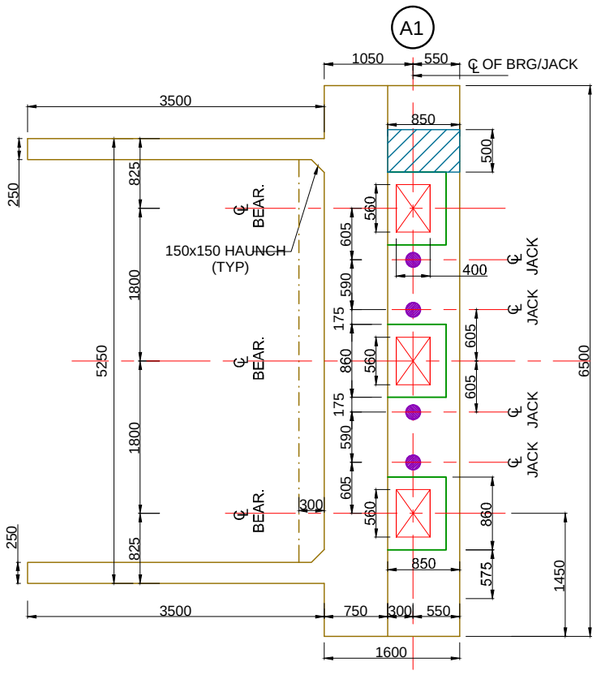
9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

SCALE A:-

2000 0 2000 4000 6000

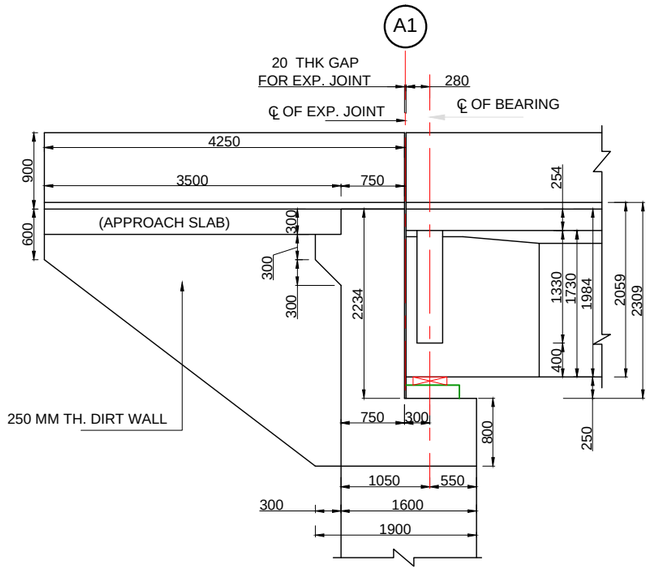
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 12.580 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-10	03 of 12
	Drawn by:-	Checked by:-	Approved by:-



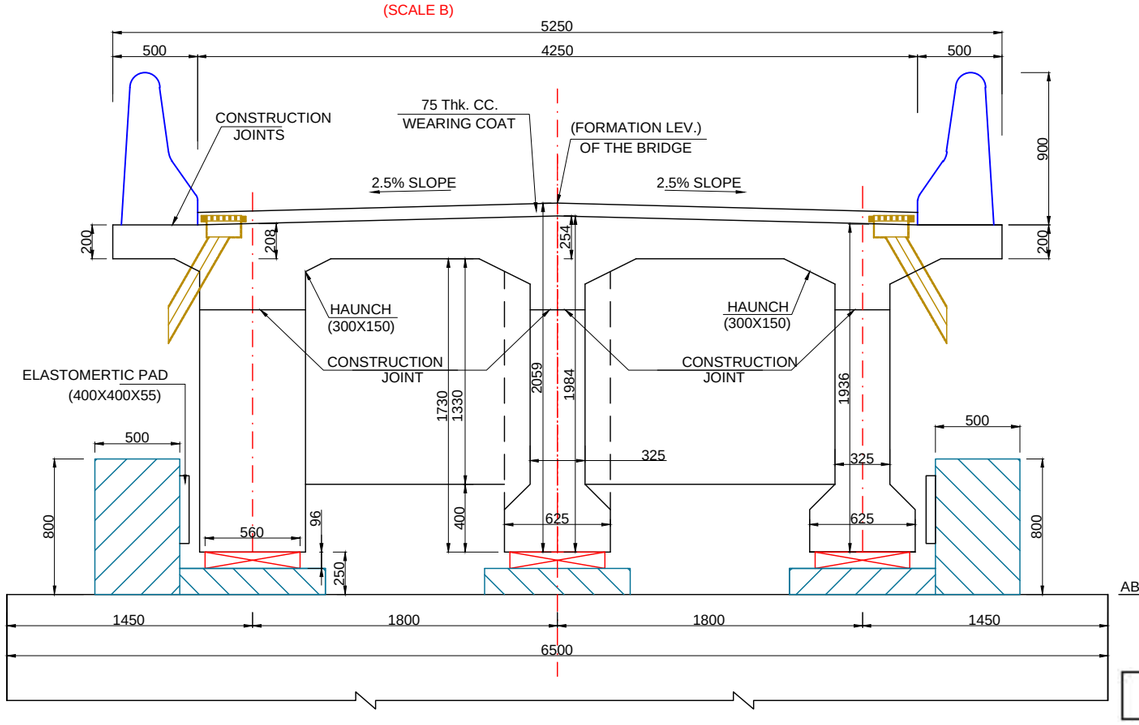
PLAN OF ABUTMENT AT BEARING LEVEL

(SCALE B)



DETAIL - `D1'

(SCALE B)



ABUT. CAP 147.430 M

CROSS SECTION OF GIRDERS

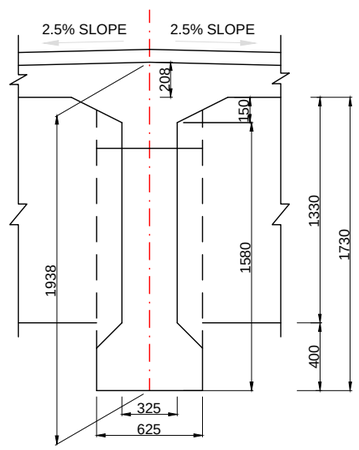
(SCALE C)

SCALE B:-

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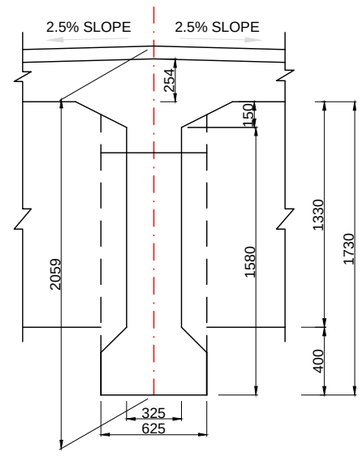
SCALE C:-

500 0 500 1000 1500



CROSS SECTION OF RCC 'I' OUTER GIRDER

(SCALE C)



CROSS SECTION OF RCC 'I' INTERMEDIATE GIRDER

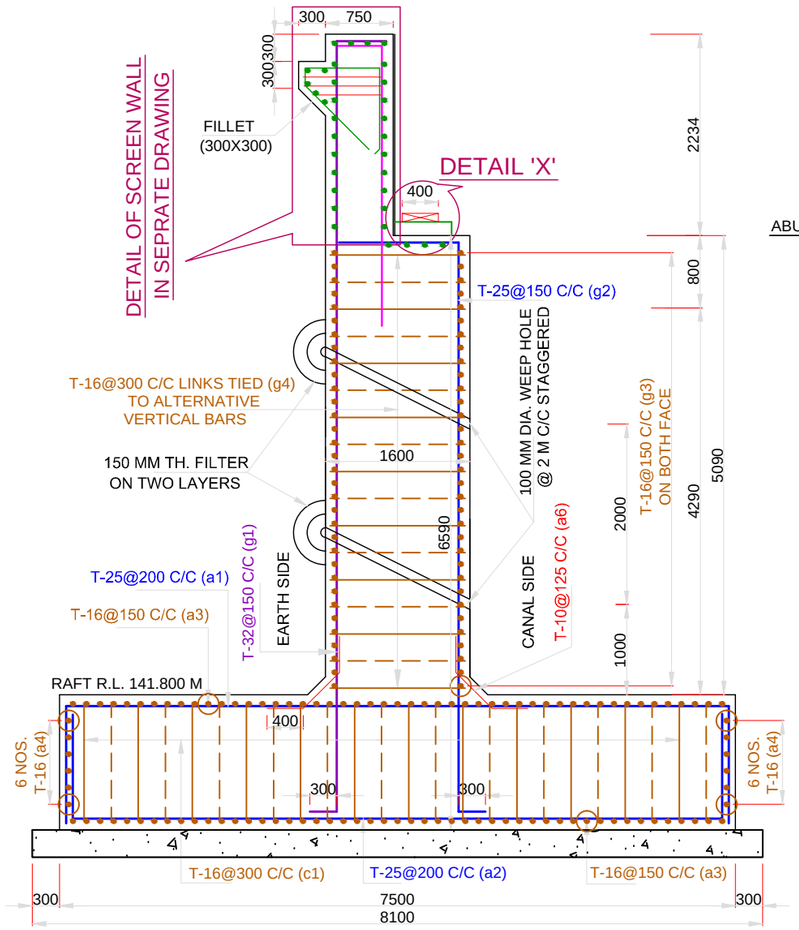
(SCALE C)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.

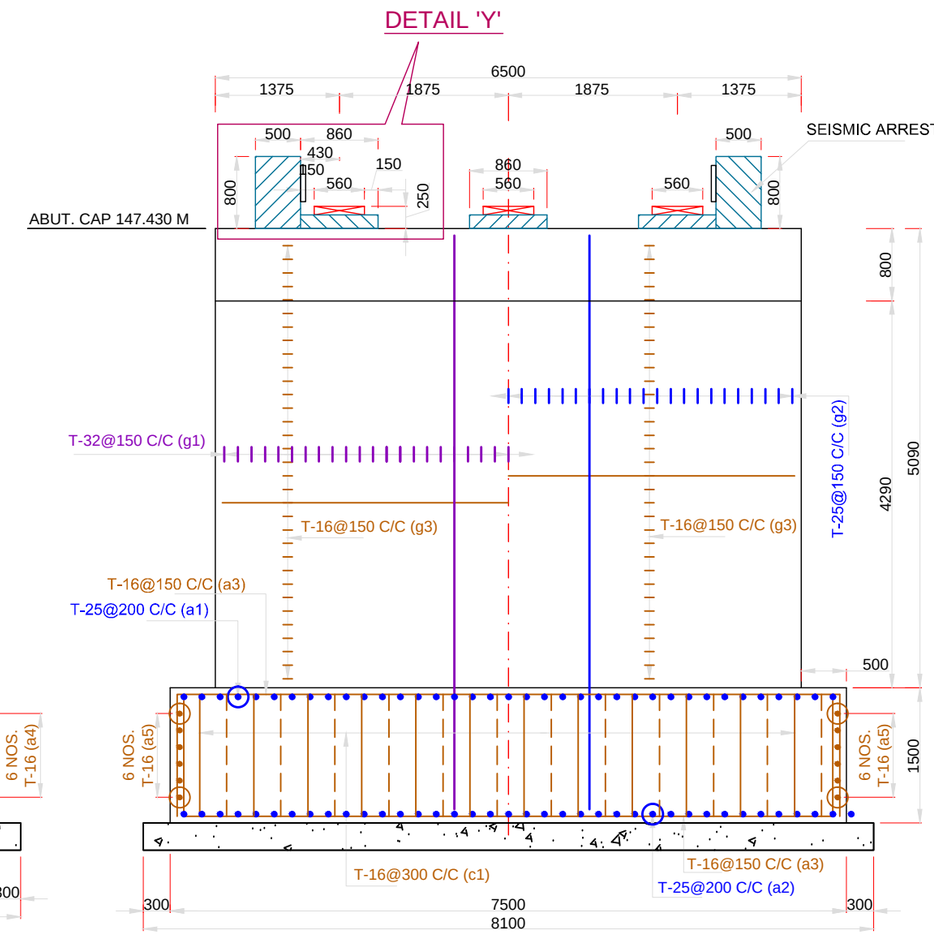
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR BRIDGE AT KM 12.580 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-10 04 of 12
	Drawn by:-	Checked by:- / Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	600, 8598, 300	32	150	42X2
	2	g2	1325, 6365, 300	25	150	42X2
	3	g3	708, 6350, 708	16	150	33X2X2
	4	g4	150, VERTICAL LINK BARS 1450, 150	16	300	9X11X2
IN RAFT FOR ABUTMENT	5	a1	1000, 7350, 1000	25	200	37X2
	6	a2	1000, 7350, 1000	25	200	37X2
	7	a3	700, 700, 7350, 7350, 700, 700	16	150	49X2X2
	8	a4	700, 7350, 700	16	-	6X2X2
	9	a5	700, 7350, 700	16	-	6X2X2
	10	a6	400, 560, 400, 400, 400, 560	10	125	59X2X2
	11	c1	150, 1350, 150	16	300	13X13X2

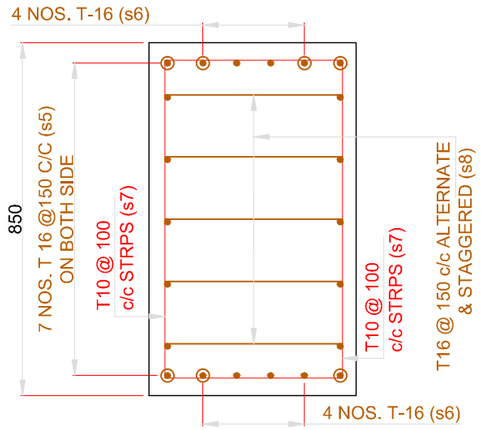
NOTES

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2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:- 500 0 500 1000 1500

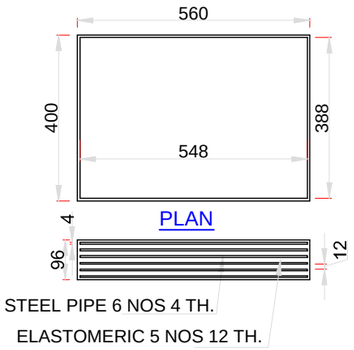
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SLR BRIDGE AT KM 12.580 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-10 05 of 12
	Drawn by:-	Checked by:- / Approved by:-



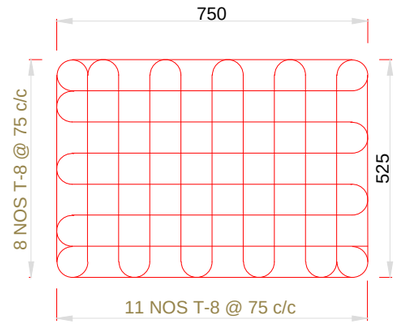
SECTION H-H

SCALE A



DETAILS OF ELASTOMERIC BEARINGS

SCALE A

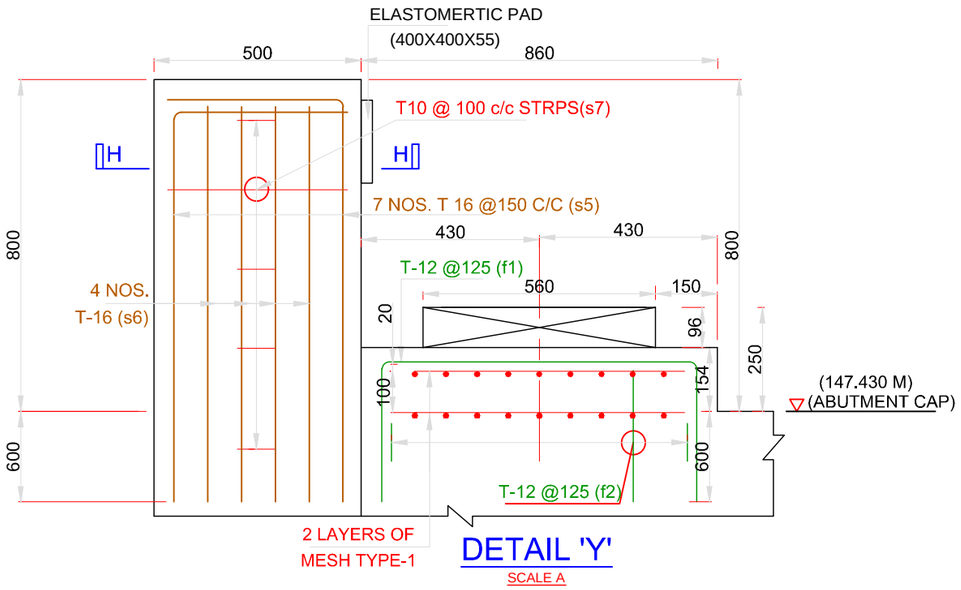


DETAIL OF MESH M1 (MESH BELOW BEARING LOCATION)

SCALE A

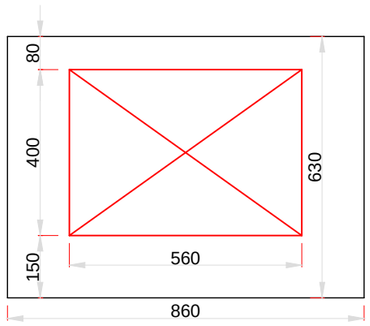
BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5	400, 1350	16	150	14X2X2
	2	s6	1350	16	-	8X2X2
	3	s7	700, 400, 400, 700	10	100	5X2X2
	4	s8	400	16	150	5X2X2
PEDESTAL FOR ABUTMENT	5	f1	633, 730, 633	12	125	5X3X3
	6	f2	633, 530, 633	12	125	5X3X3



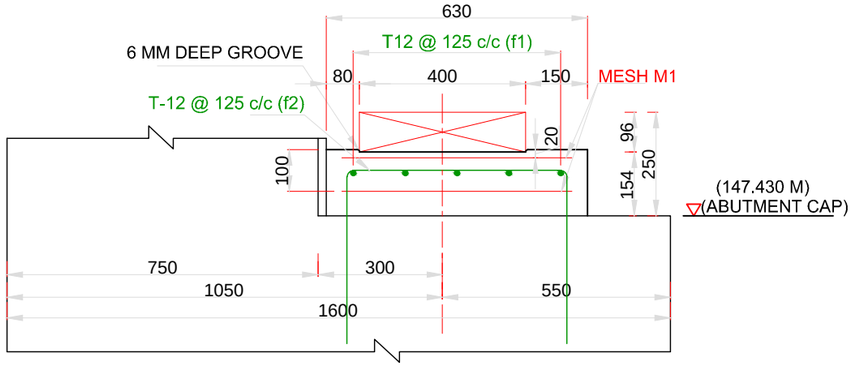
DETAIL 'Y'

SCALE A



PLAN

SCALE A



DETAIL 'X'

SCALE A

SCALE A:-

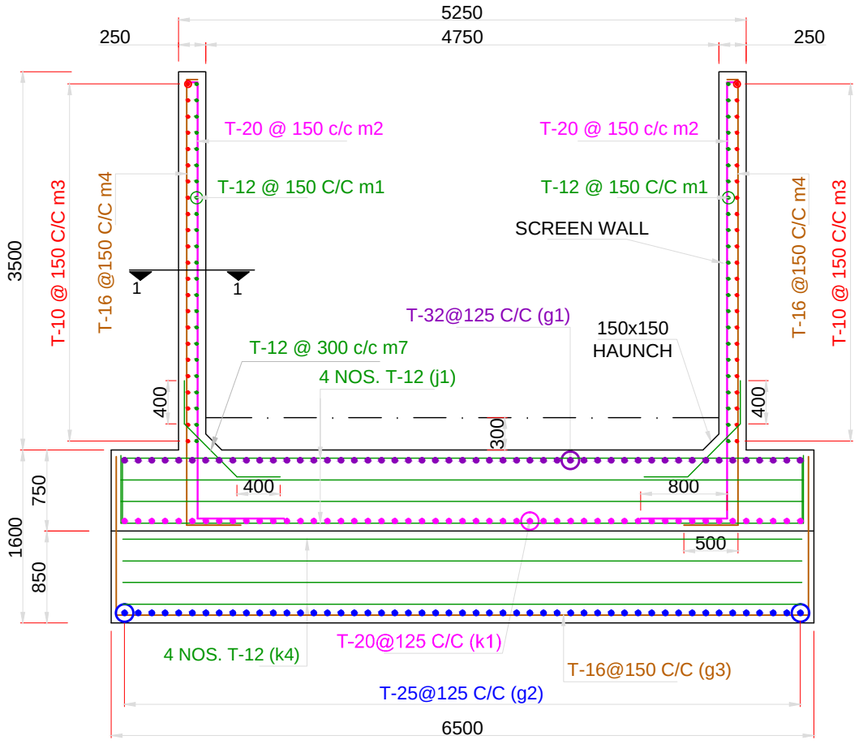


NOTES

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3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

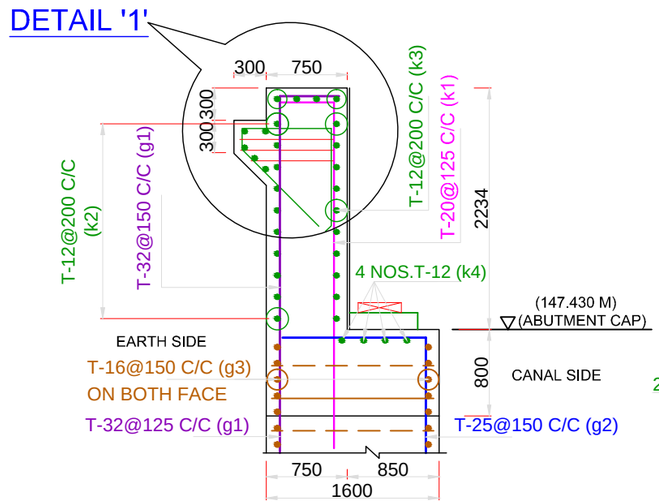
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 12.580 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-10 06 of 12
	Drawn by:-	Checked by:- / Approved by:-



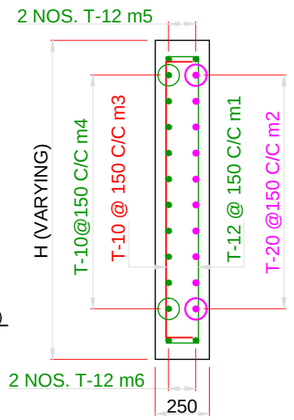
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL

SCALE A



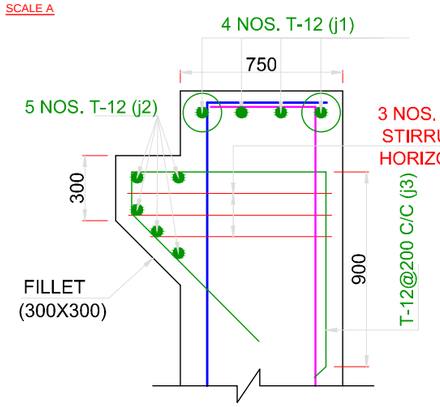
REINFORCEMENT DETAILS IN SECTION OF DIRT

SCALE A



SECTION AT 1-1

SCALE B



DETAIL '1'

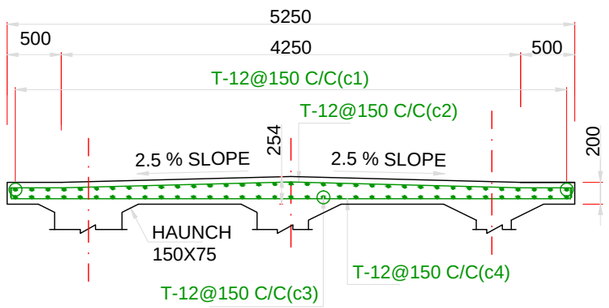
SCALE B

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
DIRT WALL	1	k1	700, 3459	20	125	51X2
	2	k2	150, 6350, 150	12	200	10X2
	3	k3	150, 6350, 150	12	200	10X2
	4	k4	150, 6350, 150	12	200	4X2
	5	j1	150, 6350, 150	12	-	4X2
	6	j2	150, 6350, 150	12	-	5X2
	7	j3	950, 195, 850, 900	12	-	24X2
	8	j4	LV= 790, 6350, 6350, 790	10	300	3X2
SCREEN WALL	9	m1	150, 1718, 150	12	150	44x2
	10	m2	150, 4025, 800, 150, 4025, 800	20	150	40x2
	11	m3	150, 1718, 150	10	150	44x2
	12	m4	150, 4025, 500, 150, 4025, 500	16	150	40x2
	13	m5	500, 3350, 500	12	-	4X2
	14	m6	400, 4085, 400	12	-	4X2
	15	m7	400, 800, 400	12	300	8X2X2
APPROACH SLAB	16	c1	150, 3350, 150	12	150	34X2
	17	c2	150, 450, 2125, 2125, 450, 150	12	150	23X2
	18	c3	150, 3350, 150	12	150	34X2
	19	c4	150, 5150, 150	12	150	23X2

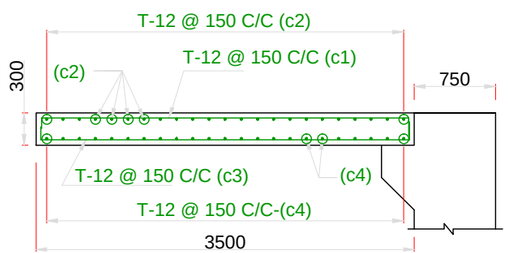
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS 70R OR TWO LANES OF CLASS-A LOADING WHICHEVER IS CRITICAL HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF PIER AND PIER CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.



REINFORCEMENT IN APPROACH SLAB

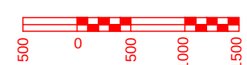
SCALE A



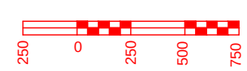
SECTION OF APPROACH SLAB

SCALE A

SCALE A:-



SCALE B:-

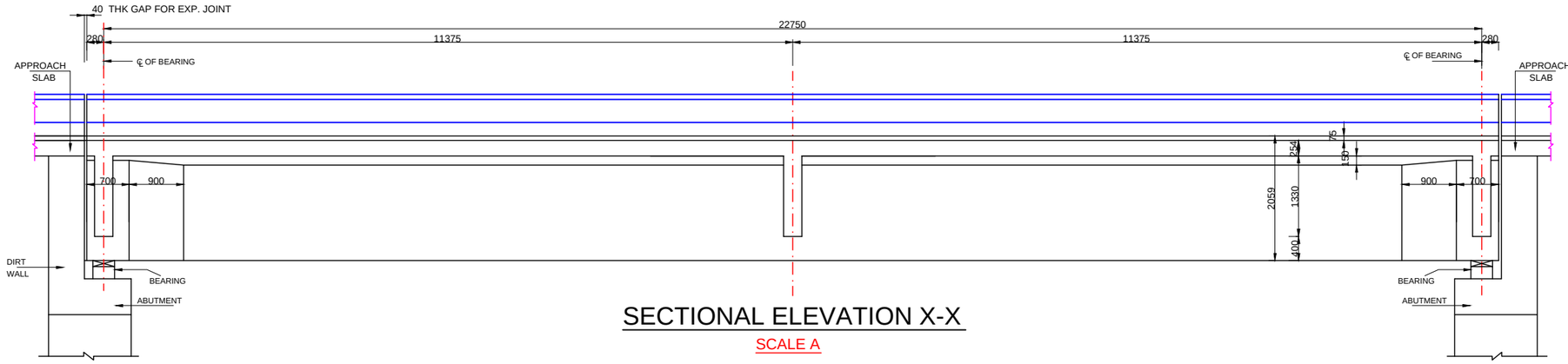


TENDER DRAWING

Prepared by :-

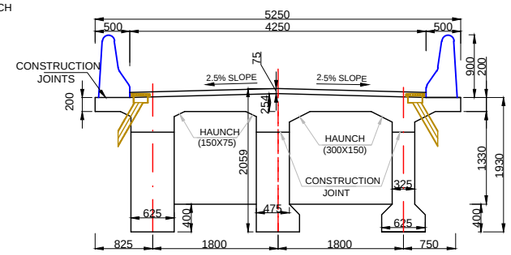
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 12.580 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-10 07 of 12
Drawn by:-	Checked by:- / Approved by:-



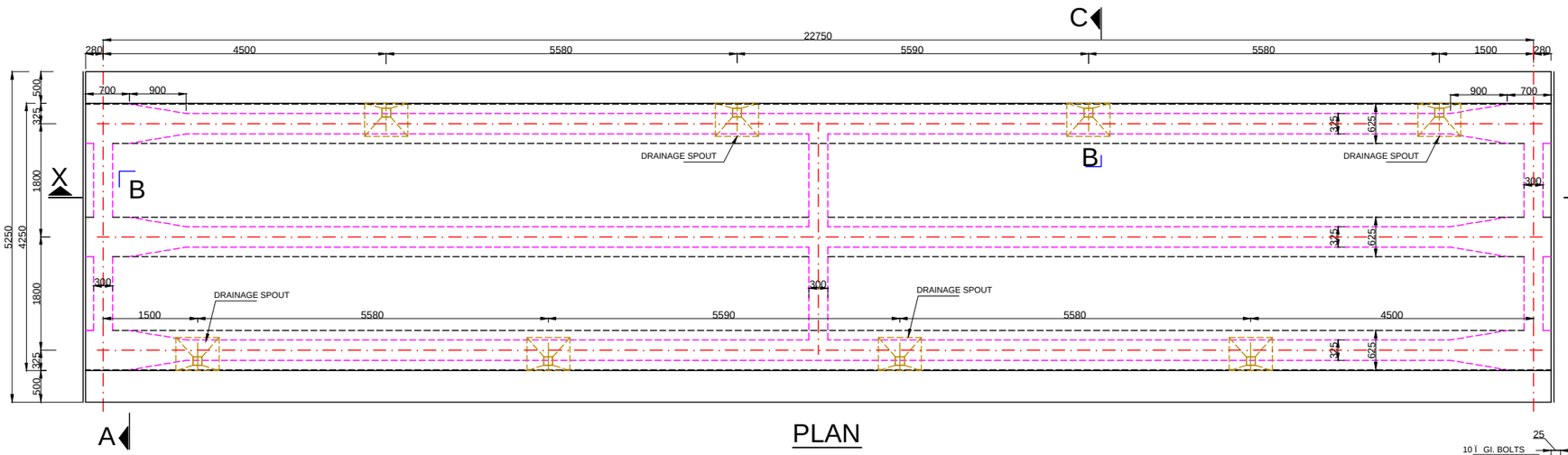
SECTIONAL ELEVATION X-X

SCALE A



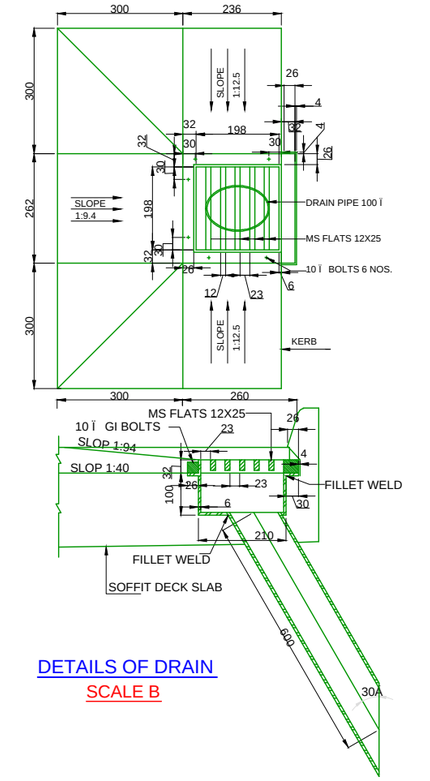
SECTION ABC

SCALE A



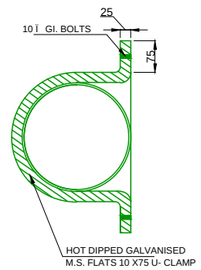
PLAN

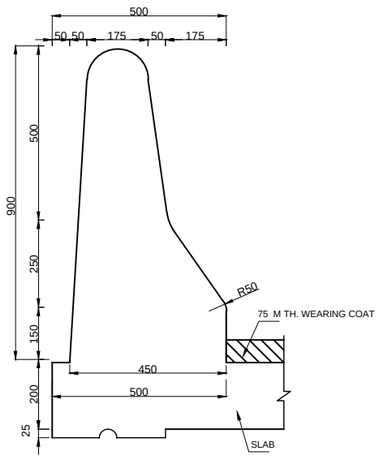
SCALE A



DETAILS OF DRAIN

SCALE B





DETAILS OF CRASH BARRIER

SCALE B

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
7. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
8. REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.

REFERENCES:-

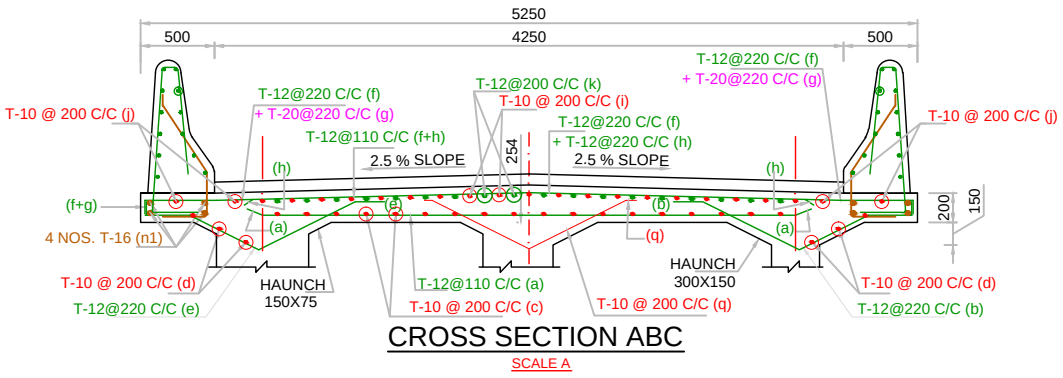
1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.

SCALE A:-

SCALE B:-

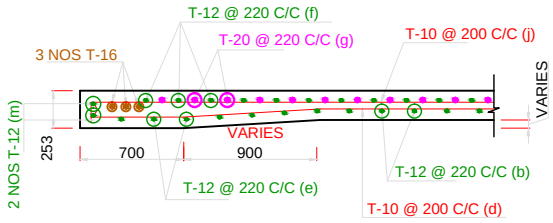
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 12.580 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-10	08 of 12
	Drawn by:-	Checked by:-	Approved by:-



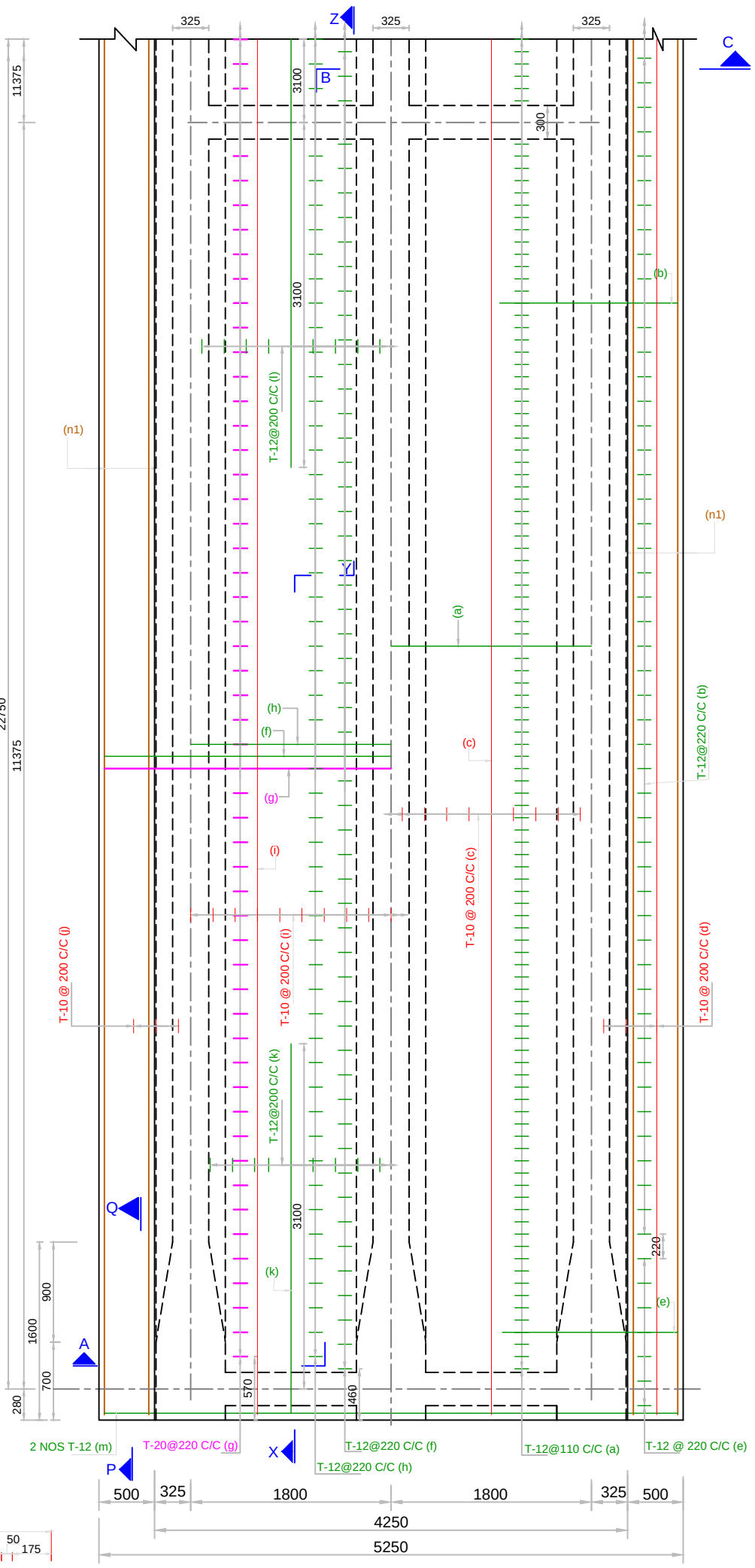
CROSS SECTION ABC

SCALE A



SECTION P.Q.

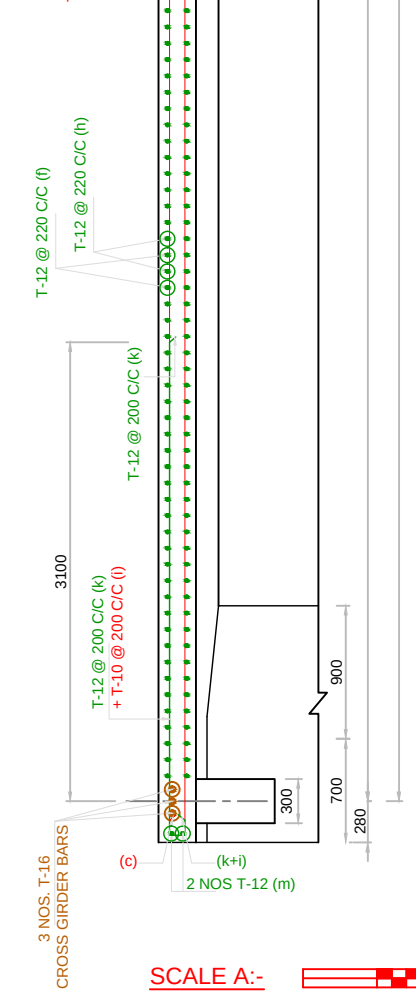
SCALE A



HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

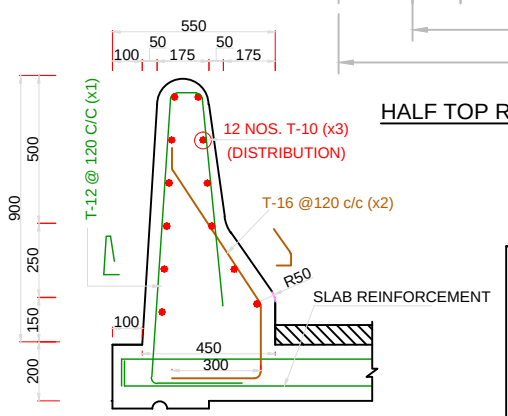
PLAN

SCALE A



SECTION X Y Z

SCALE A



REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B

SCALE A:-



SCALE B:-



REFERENCES:-

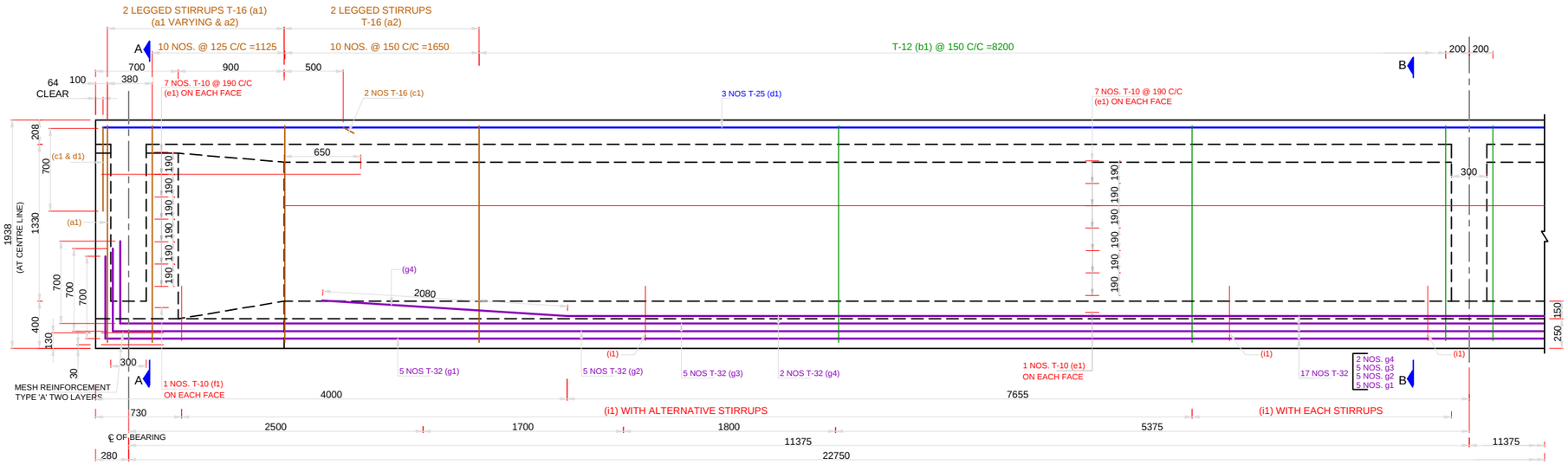
1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

TENDER DRAWING

Prepared by :-

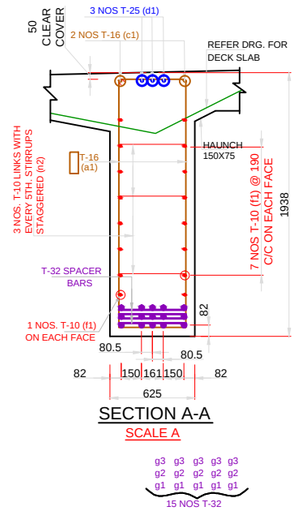
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 12.580 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-10 09 of 12
Drawn by:-	Checked by:- / Approved by:-



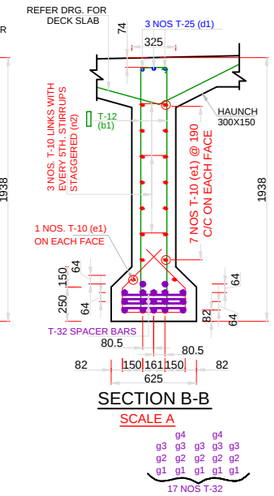
LONGITUDINAL SECTION OF OUTER GIRDER

SCALE A



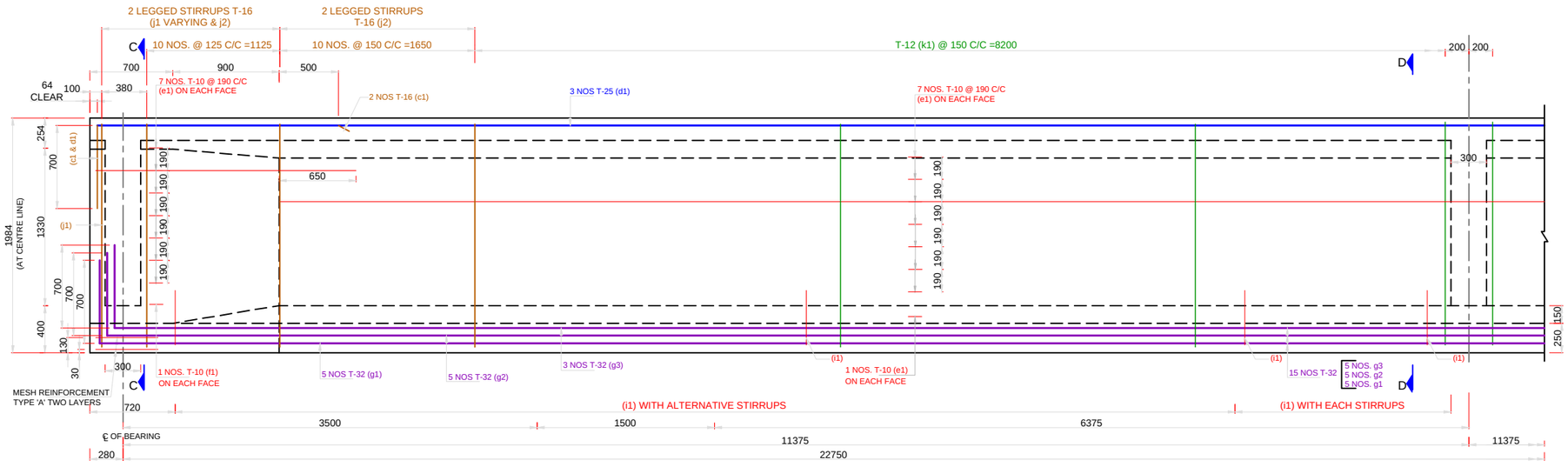
SECTION A-A

SCALE A



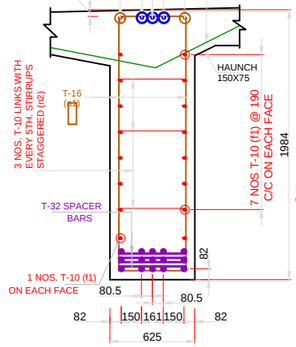
SECTION B-B

SCALE A



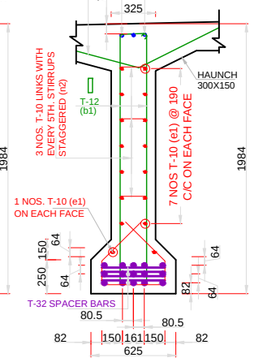
LONGITUDINAL SECTION OF INNER GIRDER

SCALE A



SECTION C-C

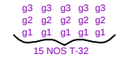
SCALE A

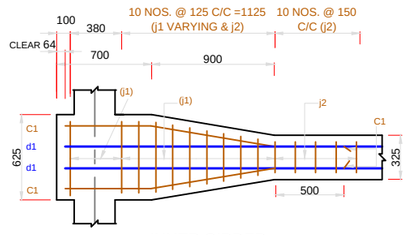


SECTION D-D

SCALE A

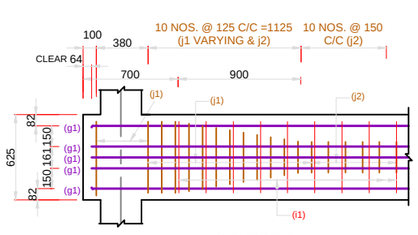






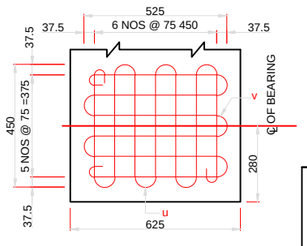
INNER GIRDER

PLAN SHOWING TOP REINFORCEMENT AT THE END



INNER GIRDER

PLAN SHOWING BOTTOM REINFORCEMENT AT THE END



T-8 MESH REINFORCEMENT

TYPE - 'A'

SCALE B

(SIMILAR DETAILING WILL BE FOLLOWED FOR OUTER GIRDERS)

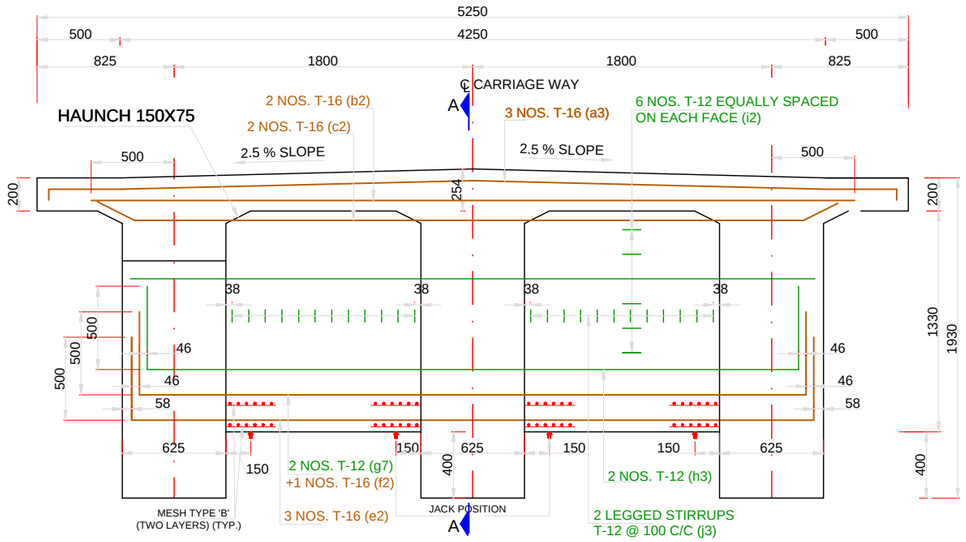
SCALE A

SCALE A:-

SCALE B:-

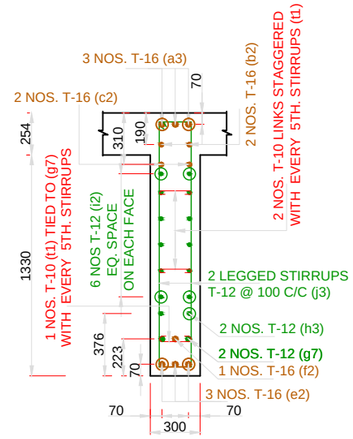
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 12.580 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-10 10 of 12
	Drawn by:-	Checked by:- / Approved by:-



LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A

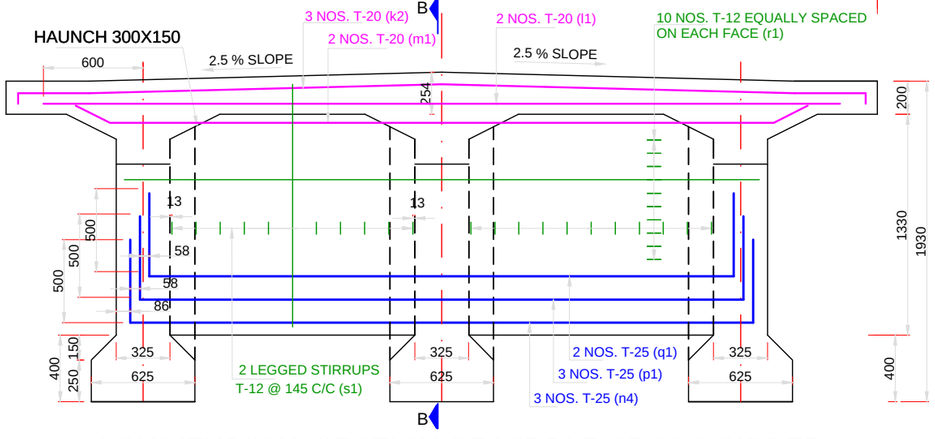


SECTION A-A

SCALE A

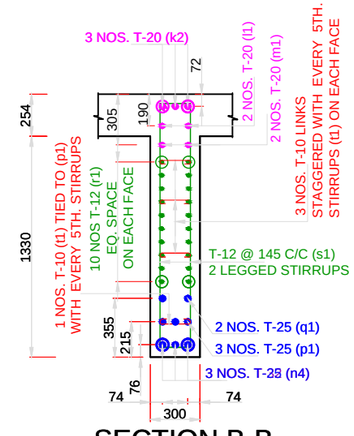
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



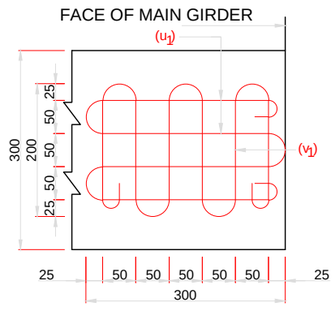
LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A



SECTION B-B

SCALE A



T-8 MESH REINFS. TYPE - 'B'

SCALE B

SCALE A:-



SCALE B:-



TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/215.

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE AT KM 12.580 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-10 11 of 12
	Drawn by:-	Checked by:- / Approved by:-

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a	3600	12	110	3600	200
2	b	275, 523, R-120, 729, 500, 100, R-120	12	220	1927	184
3	c	150, L, 23210, 150, L, L VARYING FROM 109 TO 212	10	200	23710	19
4	d	140, L, 650, 901, R-100, 20110, R-100, 901, 650, 140, L VARYING FROM 68 TO 270	10	200	23710	6
5	e	VARYING FROM 523 TO 693, 150, R-120, VARYING FROM 729 TO 878, 575, 100, R-120	12	220	1927	32
6	f	2576, 75, R-120, 2576, 75	12	220	5304	100
7	g	2576, 75, R-120, 2576, 75	20	220	5182	100
8	h	1866, R-120, 1866	12	220	3732	100
9	i	L, 23210, 150, L, 150, VARYING FROM 109 TO 212	10	200	23710	19
10	j	L, 23210, 75, L, 75, VARYING FROM 68 TO 270	10	200	23638	6
11	k	L, 3330, 170, VARYING FROM 109 TO 212	12	200	3588	36
12	l	6200	12	200	6200	18
13	m	5150	12	-	5150	4
14	n_1	23210	16	-	23210	8
15	q	150, R=80, 150, 393, 860, 650, 433, R=80	10	200	2110	116

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u	25, 30, 37.5, 375, 75 75 75 75 75, 375, 37.5, 30, 25	10	-	3550	8
2	v	75, 75, 75, 75, 75, 30, 30, 450, 37.5, 25	10	-	3506	8
CRASH BARRIER PER M						
1	x_1	75, 1000, 750, 300	12	120	2125	9
2	x_2	75, 540, 300, 250	16	120	1165	9
3	x_3	9350	10		1000	12

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	**Length of each bar (mm)**	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a_1	L1=VARYING FROM 1808 TO 1812, L1, L2, L2 = VARYING FROM 1800 TO 1804, VARYING FROM 193 TO 493	16	125	5158	11X2X2
2	a_2	193, 1804, 1808, 193	16	150	4758	11X2X2
3	b_1	193, 1804, 1808, 193	12	150	4678	108X2
4	c_1	708, R=96, ELEVATION, 636, 913, 166, 500	16	-	2693	2X2X2
5	d_1	23182, 708, R=96, 708	25	-	24398	3X2
6	e_1	20110	10	-	20110	8X2X2
7	f_1	913, 650, 636, 160	10	-	2199	16X2X2
8	g_1	716, R=192, 716, 23182	32	-	24358	5X2
9	g_2	716, R=192, 716, 23054	32	-	24230	5X2
10	g_3	716, R=192, 716, 22926	32	-	24102	5X2
11	g_4	2080, 15310, 2080	32	-	19470	2X2
12	i_1	450, 450, 493, 315, 485	10	-	1733	101X2
12	n_2	L, 140, 140, L = VARYING FROM 213 TO 513	10	-	583	18X2
14	n_3	213, 140, 140	10	-	433	90X2
LONGITUDINAL INNER GIRDER						
1	j_1	L1=VARYING FROM 1856 TO 1860, L1, L2, L2 = VARYING FROM 1848 TO 1852, VARYING FROM 193 TO 493	16	125	5290	11X2X1
2	j_2	193, 1852, 1856, 193	16	150	4890	11X2X1
3	k_1	193, 1852, 1856, 193	12	150	4810	108X1
4	c_1	708, R=96, ELEVATION, 636, 913, 166, 500	16	-	2693	2X2X1
5	d_1	23182, 708, R=96, 708	25	-	24398	3X1
6	e_1	20110	10	-	20110	8X2X1
7	f_1	913, 650, 636, 160	10	-	2199	16X2X1
8	g_1	716, R=192, 716, 23182	32	-	24358	5X1
9	g_2	716, R=192, 716, 23054	32	-	24230	5X1
10	g_3	716, R=192, 716, 22926	32	-	24102	5X1
11	i_1	450, 450, 493, 315, 485	10	-	1733	101X1
12	n_2	L, 140, 140, L = VARYING FROM 213 TO 513	10	-	583	18X1
13	n_3	213, 140, 140	10	-	433	90X1

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a_3	95, 2576, R-160, 2576, 95	16	-	5248	3X2
2	b_2	500, 3600, 500	16	-	4750	2X2
3	c_2	230, R=160, 4030, 230	16	-	4490	2X2
4	e_2	508, R=64, 4109, 508	16	-	5029	3X2
5	f_2	508, R=64, 4063, 508	16	-	4983	1X2
6	g_7	506, R=48, 4063, 506	12	-	5003	2X2
7	h_3	506, R=48, 3925, 506	12	-	4865	2X2
8	i_2	233, R=48, 4125, 233	12	-	4519	6X2X2
9	j_3	176, B, 176, VARYING FROM 1447 to 1475	12	100	3402	26X2
10	t_1	140, 196, 140	10	-	416	20X2
MIDDLE CROSS GIRDERS						
1	k_2	95, 2576, R-160, 2576, 95	20	-	5222	3
2	l_1	600, 3600, 600	20	-	4800	2
3	m_1	230, R=160, 4000, 230	20	-	4310	2
4	n_4	508, R=64, 3754, 508	25	-	4570	3
5	p_1	508, R=64, 3638, 508	25	-	4454	3
6	q_1	508, R=64, 3520, 508	25	-	4336	2
7	r_1	529, 3925, 529	12	-	4911	10X2
8	s_1	L, 176, VARYING FROM 1444 to 1478	12	145	3202	22
9	t_1	140, 196, 140	10	-	416	16

S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
19	u_1	30, 50, 50, 50, 30, 25, 250, 37.5	10	-	1453	16
20	v_1	50 50 50 50 50, 30, 90, 37.5, 150, 25	10	-	1510	16

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.

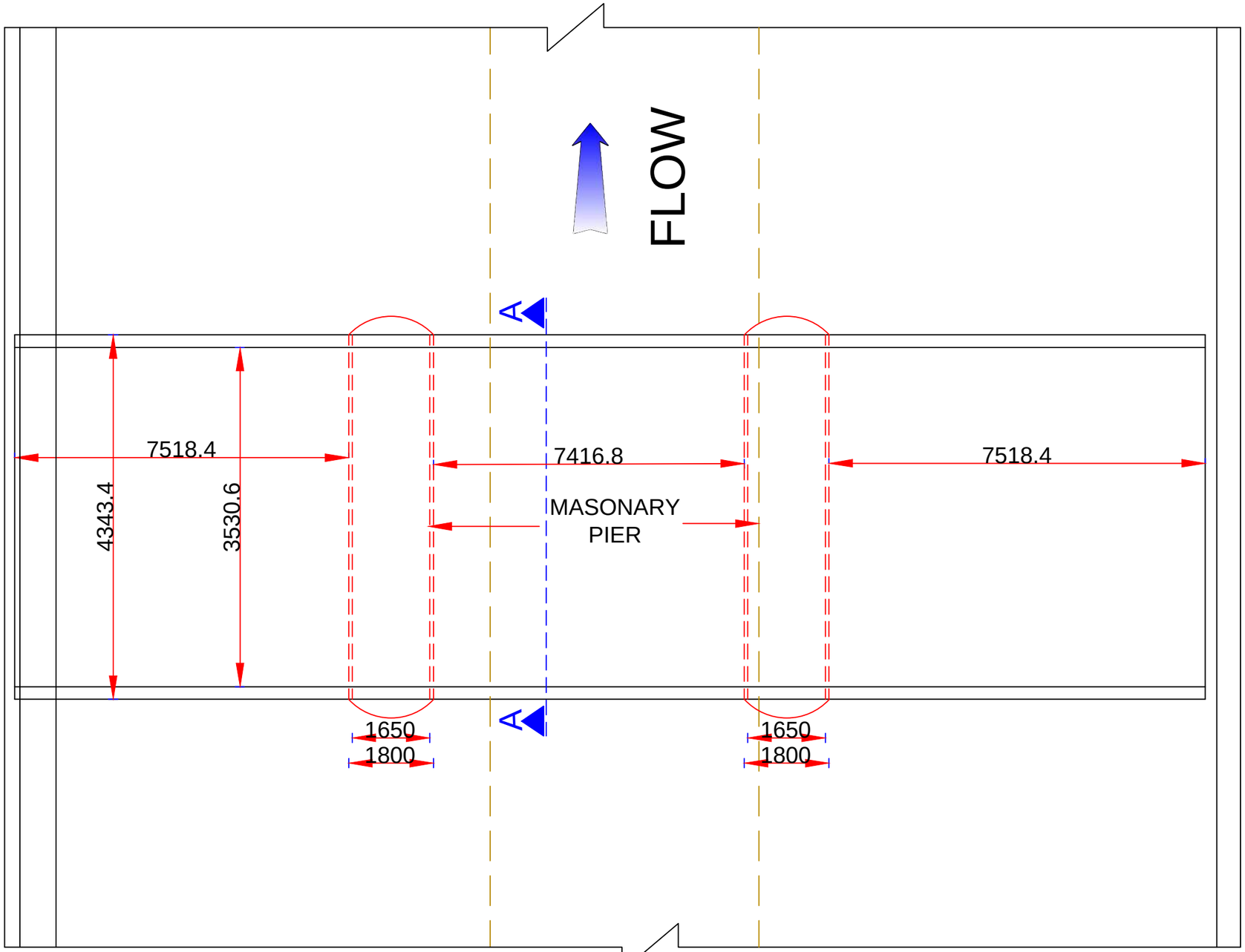
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR BRIDGE AT KM 12.580 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-10 12 of 12
Drawn by:-	Checked by:- Approved by:-



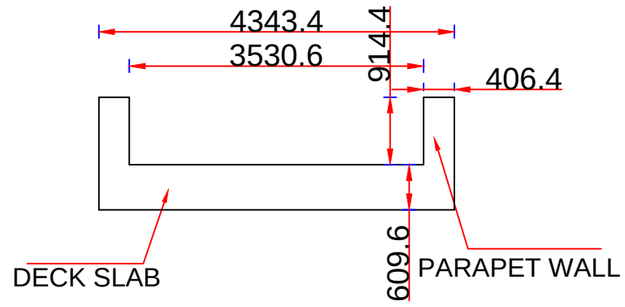
S.L.R. BRIDGE

AT

CH. 14.889 KM



PLAN



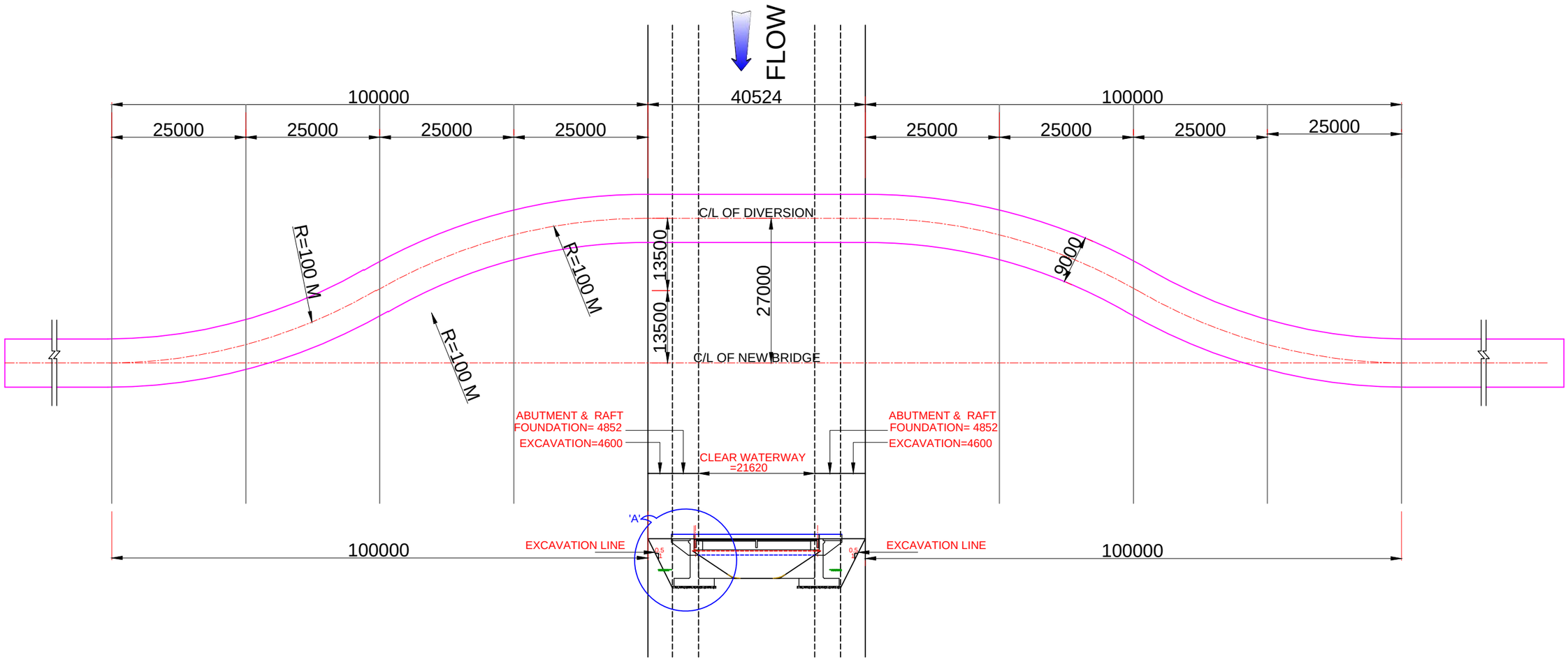
SECTION A-A

NOTES:

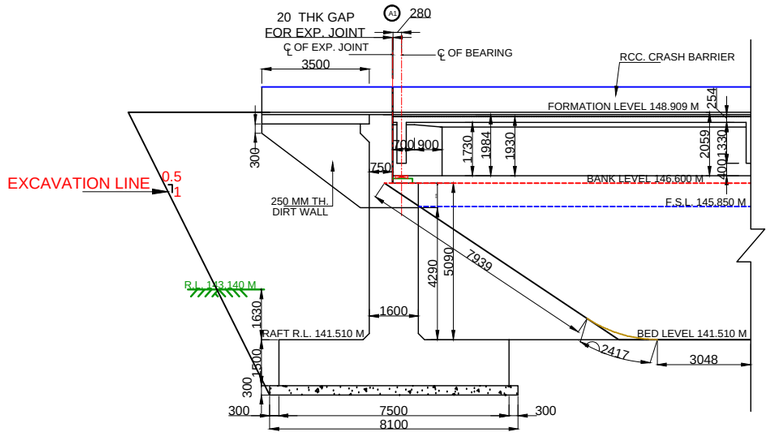
1 ALL DIMENSIONS ARE IN mm.
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

TENDER DRAWING

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	EXISTING PLAN OF SINGLE LANE ROAD BRIDGE AT CH. 14.889 KM	
	Drawing No. :-	WAP/PKS/NORTH KOEL/BRG-11	01 of 12
	Drawn by:-	Checked by:-	Approved by:-



SKETCH OF DIVERSION PLAN AT KM 14.889 FOR S.L.R. BRIDGE



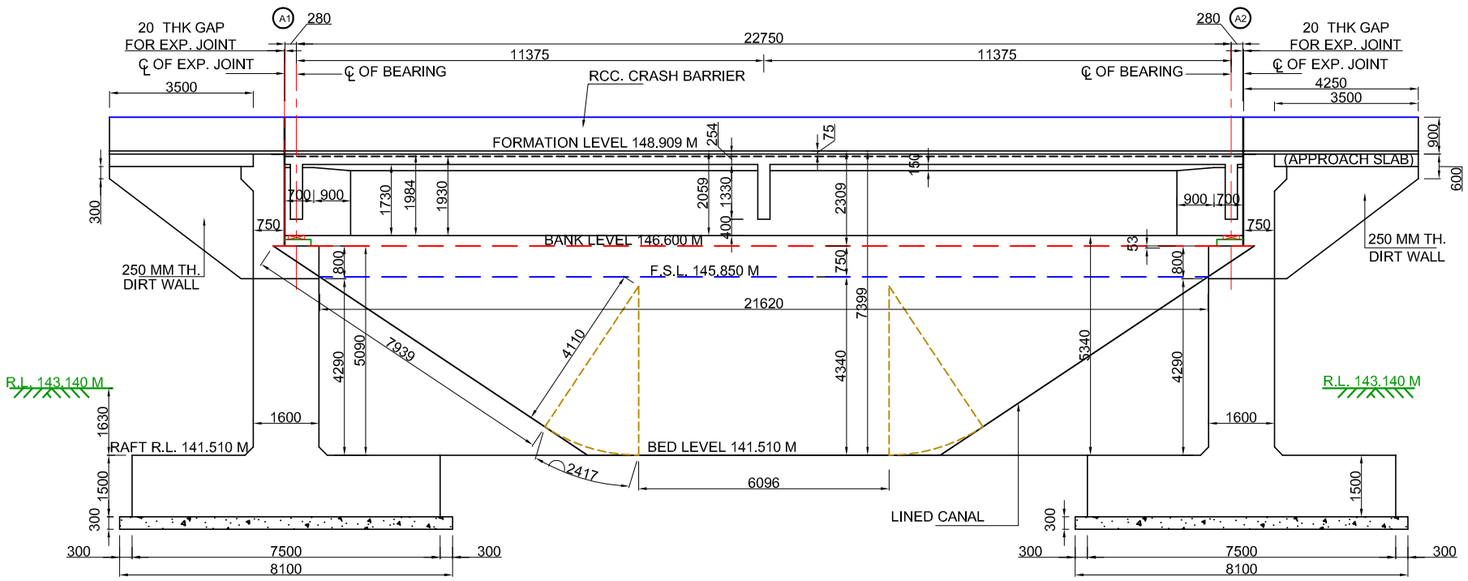
DETAIL SECTION AT 'A'

NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

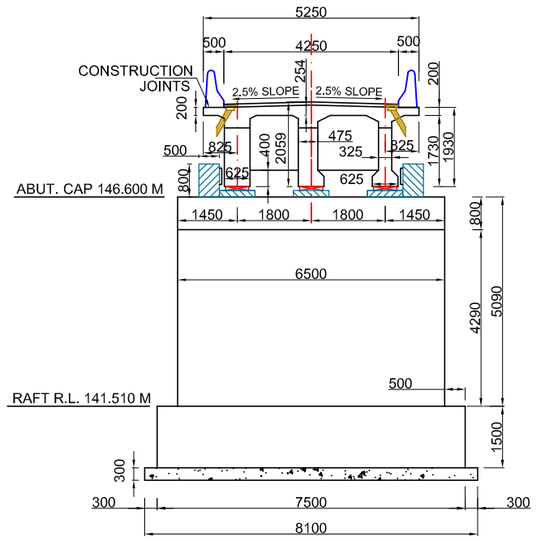
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	SKETCH OF DIVERSION PLAN AT KM 14.889 FOR S.L.R. BRIDGE
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG 11 — 02 of 12
	Drawn by:-	Checked by:- / Approved by:-



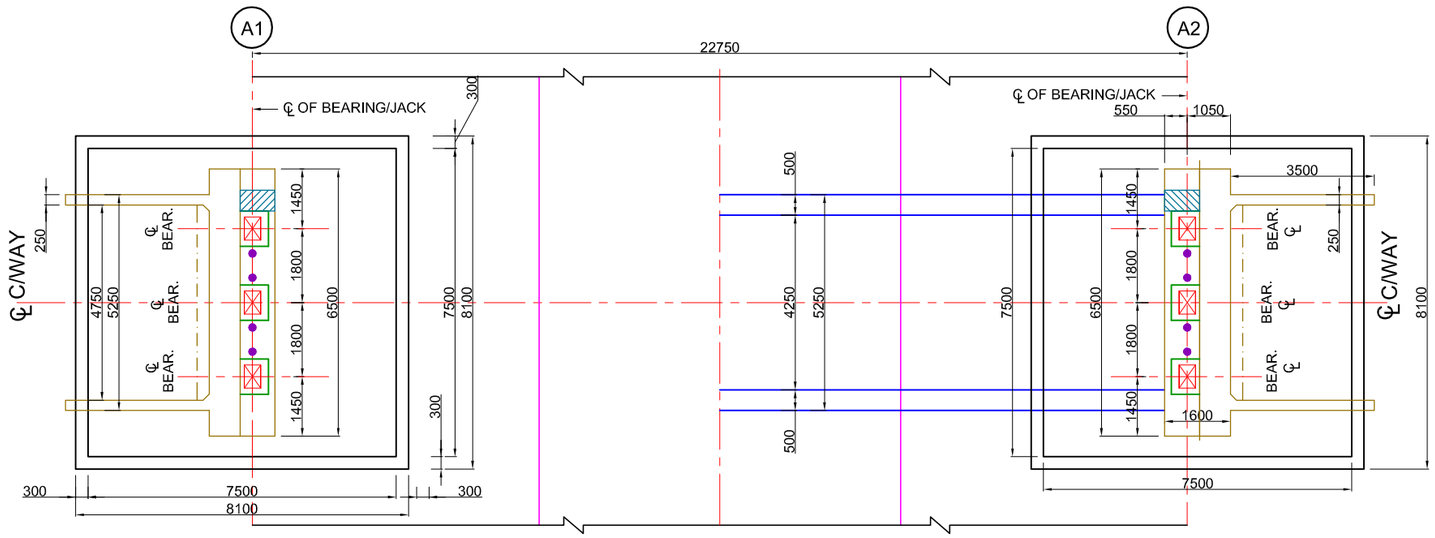
SECTION ACROSS NORTH KOEL RMC AT BRIDGE CENTRE LINE

(SCALE A)



SIDE VIEW OF ABUTMENT

(SCALE A)



HALF BOTTOM PLAN / HALF TOP PLAN

(SCALE A)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT EVERY ABUTMENT AND ABUTMENT LOCATIONS.
4. ROAD LEVEL REFER TO CARRIAGEWAY CENTER.
5. ONE LANES OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6. FOLLOWING DATA HAS BEEN CONSIDERED IN DESIGN:-

CANAL DISCHARGE	84.15 CUMEC
BED LEVEL	141.510 M
WATER DEPTH	4.340 M
F.S.L.	145.850 M
FREE BOARD	0.75 M

7. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE :-

a)	RAFT	M35
b)	ABUTMENT	M25
c)	SUPER STRUCTURE	M35 (TABLE -5 OF IRC21)
d)	CRASH BARRIER	M30
e)	PEDESTAL (SEISMIC)	M35
f)	WEARING COAT	M30

8. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN

SKEWNESS ANGLE	0°
ROAD LEVEL	148.909 M
EX. ROAD LEVEL	143.140 M
CARRIAGE WAY WIDTH	4.250 M
ALLOWABLE B/C	28 T/SQ M

9. SIZE OF ELASTOMERIC BEARING SHALL BE 400X560X96 MM

SCALE A:-

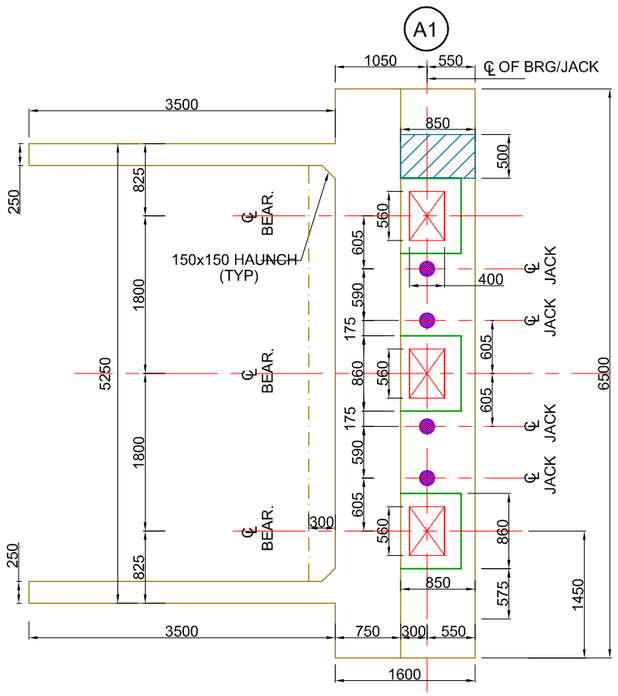
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TENDER DRAWING

Prepared by :-

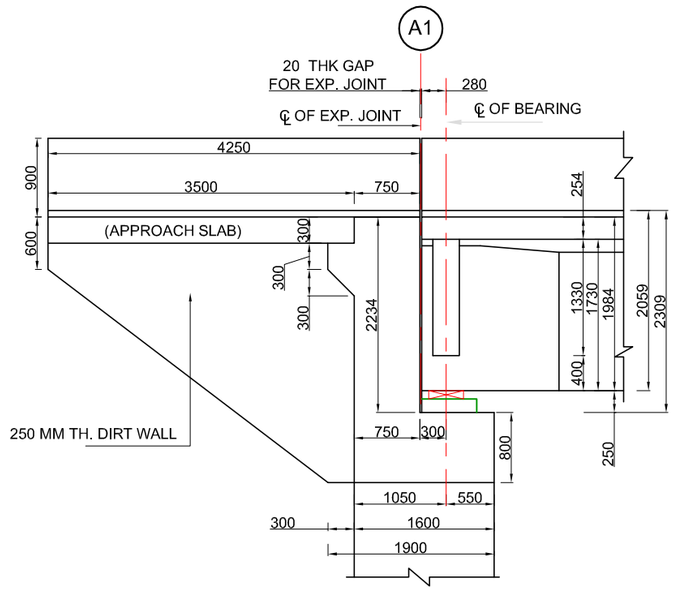
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SLR BRIDGE AT KM 14.889 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-11 03 of 12
Drawn by:-	Checked by:- Approved by:-



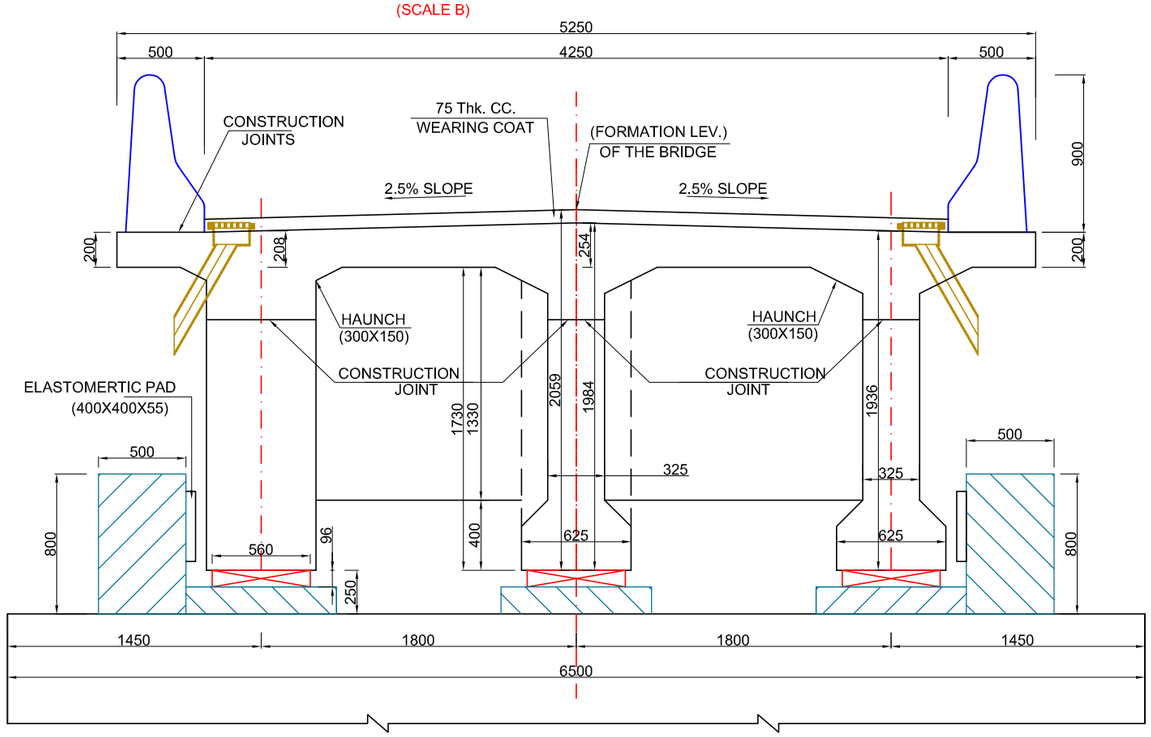
PLAN OF ABUTMENT AT BEARING LEVEL

(SCALE B)



DETAIL - `D1'

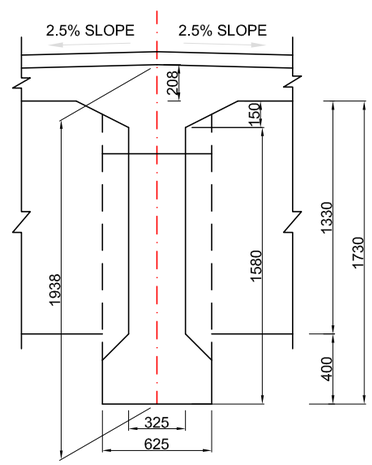
(SCALE B)



CROSS SECTION OF GIRDERS

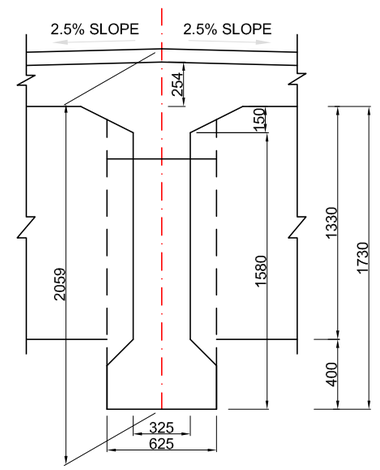
(SCALE C)

ABUT. CAP 146.600 M



CROSS SECTION OF
RCC 'I' OUTER GIRDER

(SCALE C)



CROSS SECTION OF
RCC 'I' INTERMEDIATE GIRDER

(SCALE C)

SCALE B:-

1000 0 1000 2000 3000

SCALE C:-

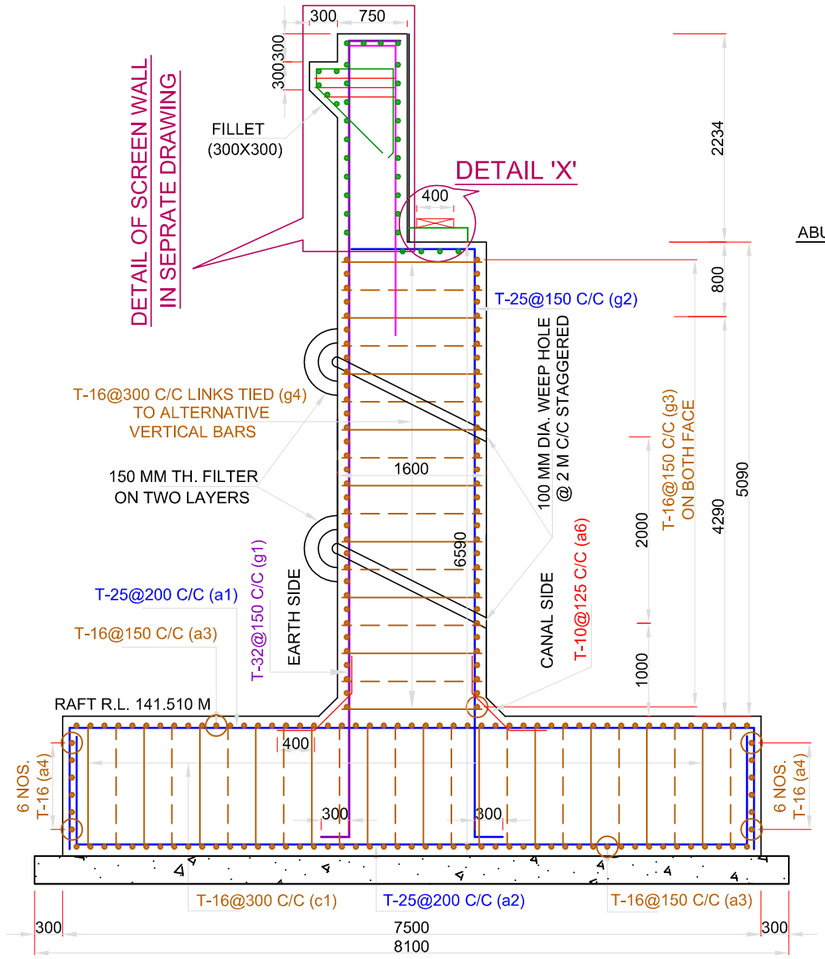
500 0 500 1000 1500

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.

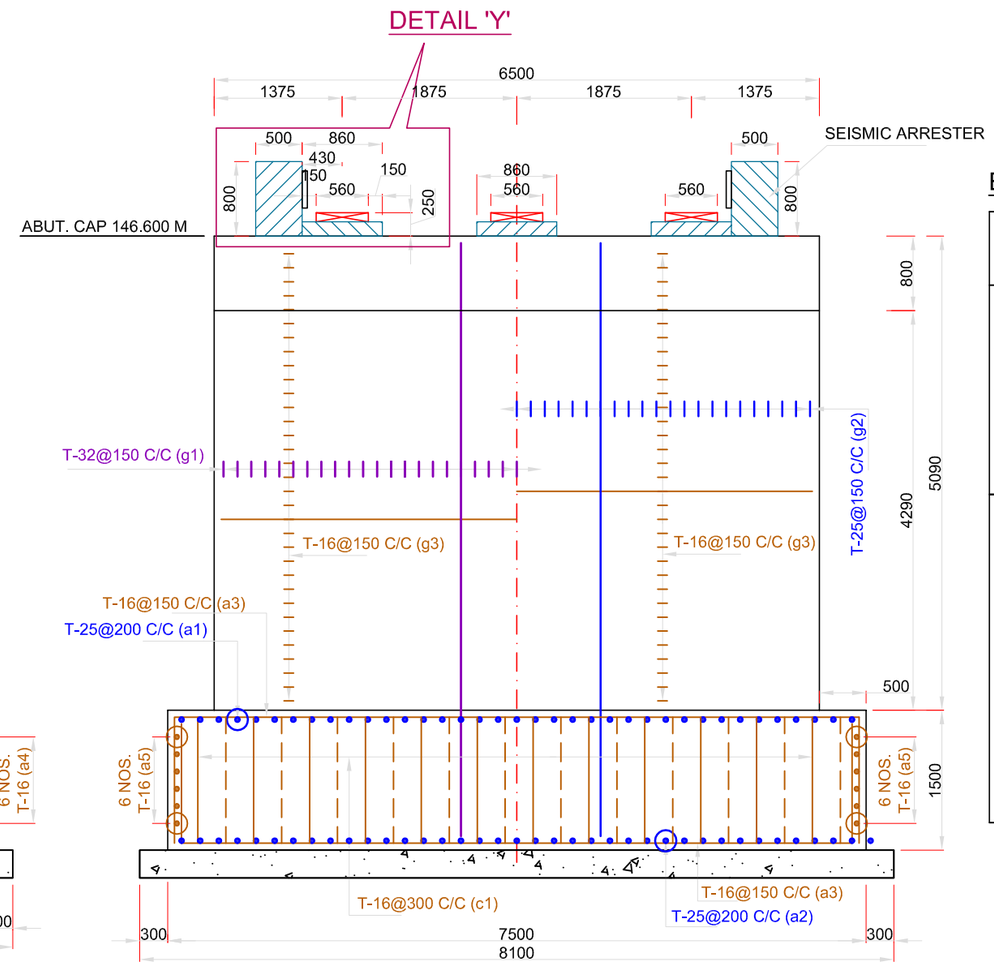
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	SECTION DETAILS OF G.A.D. OF SLR BRIDGE AT KM 14.889 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-11	04 of 12
	Drawn by:-	Checked by:-	Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	600, 8598, 300	32	150	42X2
	2	g2	1325, 6365, 300	25	150	42X2
	3	g3	708, 6350, 708	16	150	33X2X2
	4	g4	150, VERTICAL LINK BARS 1450, 150	16	300	9X11X2
IN RAFT FOR ABUTMENT	5	a1	1000, 7350, 1000	25	200	37X2
	6	a2	1000, 7350, 1000	25	200	37X2
	7	a3	700, 700, 7350, 700, 700	16	150	49X2X2
	8	a4	700, 7350, 700	16	-	6X2X2
	9	a5	700, 7350, 700	16	-	6X2X2
	10	a6	400, 560, 400, 400, 560, 400	10	125	59X2X2
	11	c1	150, 1350, 150	16	300	13X13X2

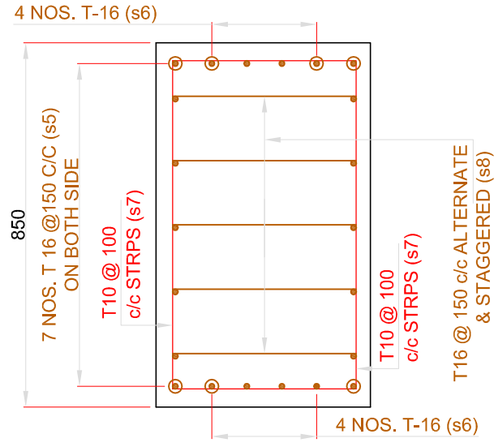
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

SCALE A:- 500 0 500 1000 1500

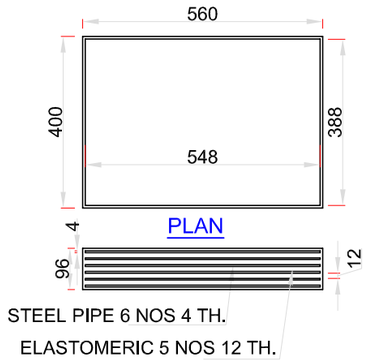
TENDER DRAWING

Prepared by :- WAPCOS LTD.	
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SLR BRIDGE AT KM 14.889 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-11 05 of 12
Drawn by:-	Checked by:- / Approved by:-



SECTION H-H

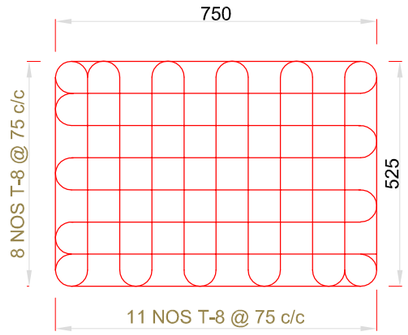
SCALE A



PLAN

DETAILS OF ELASTOMERIC BEARINGS

SCALE A

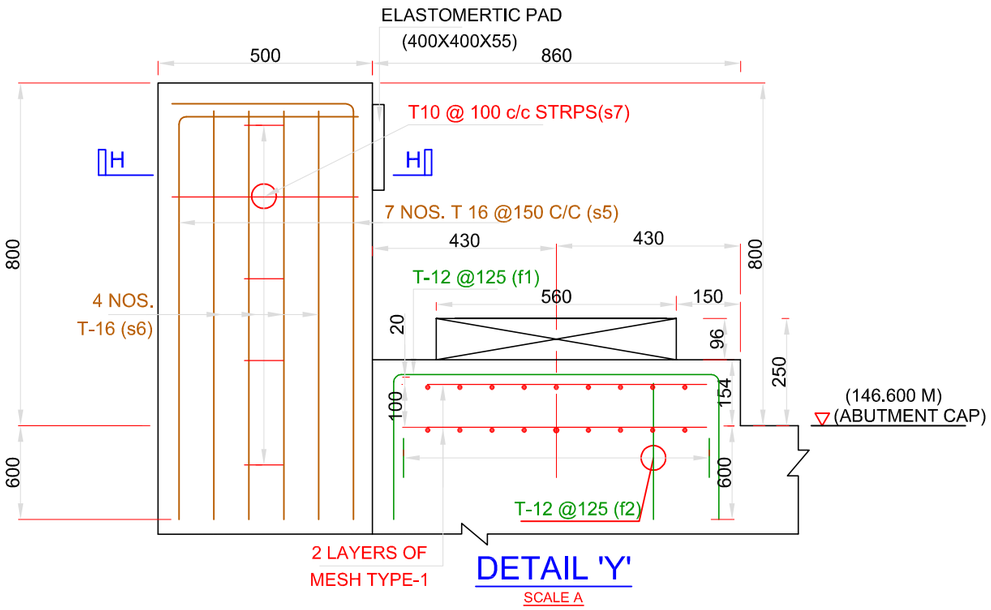


DETAIL OF MESH M1 (MESH BELOW BEARING LOCATION)

SCALE A

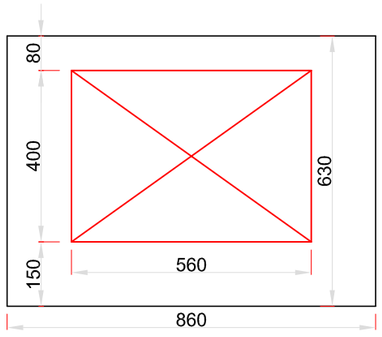
BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SEISMIC ARRESTER FOR ABUTMENT	1	s5	400, 1350	16	150	14X2X2
	2	s6	1350	16	-	8X2X2
	3	s7	700, 400, 400, 700	10	100	5X2X2
	4	s8	400	16	150	5X2X2
PEDESTAL FOR ABUTMENT	5	f1	633, 730, 633	12	125	5X3X3
	6	f2	633, 530, 633	12	125	5X3X3



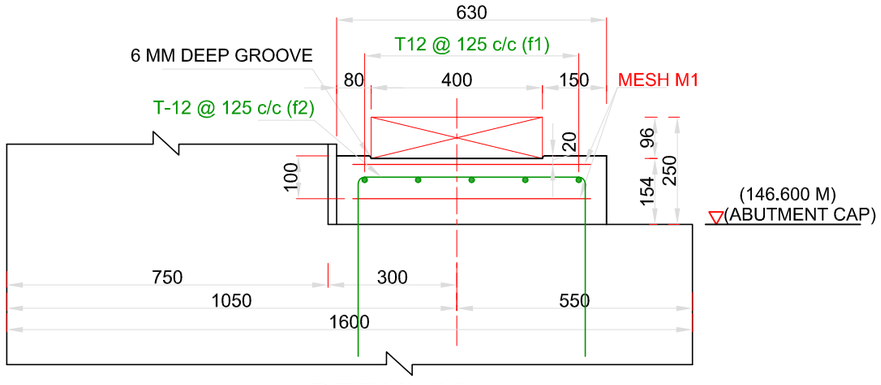
DETAIL 'Y'

SCALE A



PLAN

SCALE A



DETAIL 'X'

SCALE A

SCALE A:-

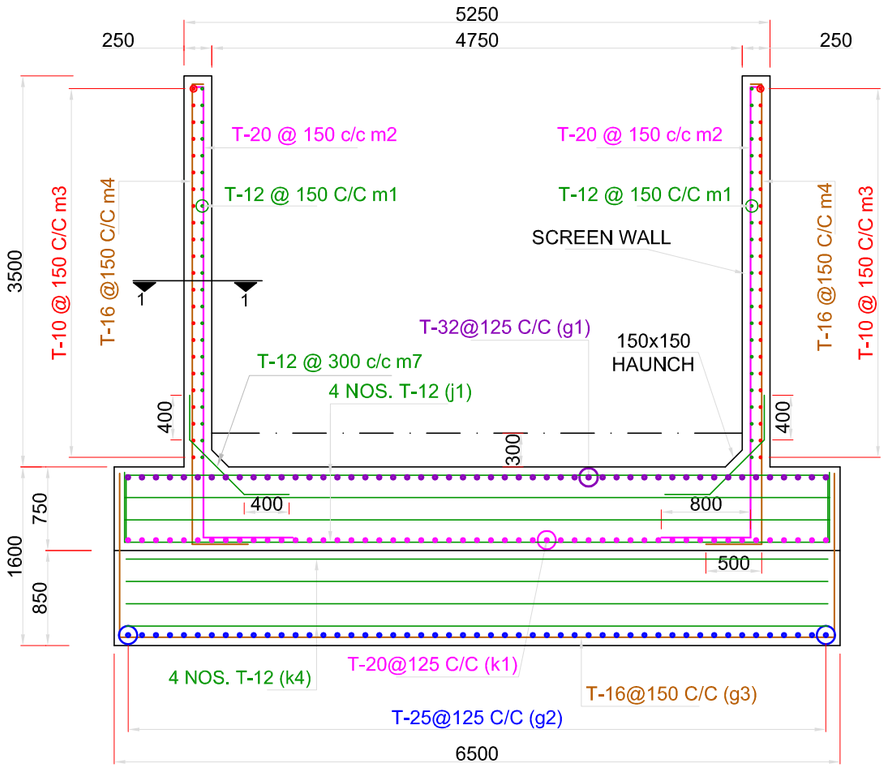


NOTES

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2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

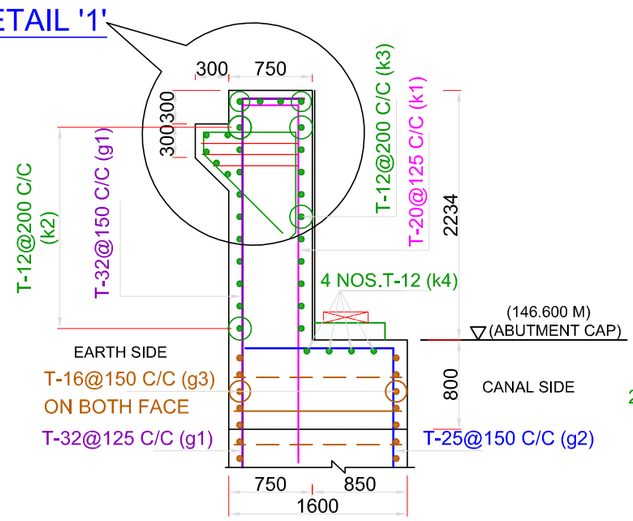
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SEISMIC ARRESTERS AND PEDESTAL AT KM 14.889 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-11 06 of 12
	Drawn by:-	Checked by:- / Approved by:-



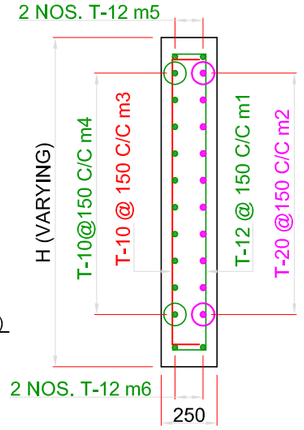
REINFORCEMENT DETAILS IN PLAN OF DIRT WALL

SCALE A



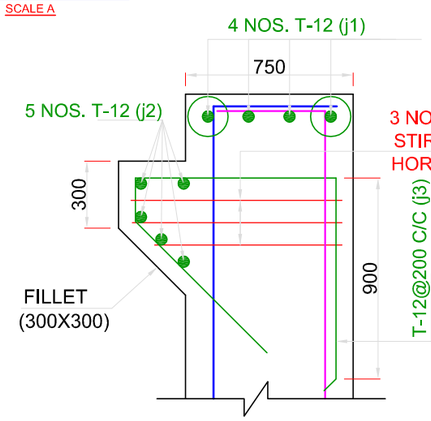
REINFORCEMENT DETAILS IN SECTION OF DIRT

SCALE A



SECTION AT 1-1

SCALE B



DETAIL '1'

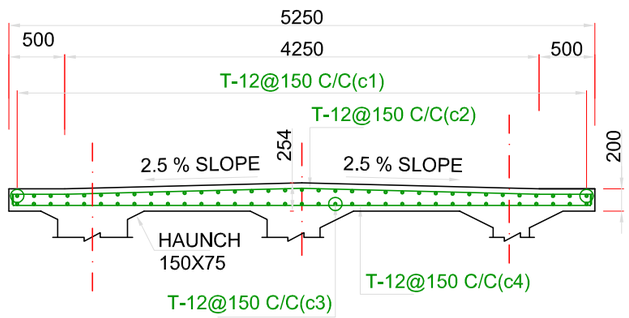
SCALE B

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
DIRT WALL	1	k1	700, 3459	20	125	51X2
	2	k2	150, 6350, 150	12	200	10X2
	3	k3	150, 6350, 150	12	200	10X2
	4	k4	150, 6350, 150	12	200	4X2
	5	j1	150, 6350, 150	12	-	4X2
	6	j2	150, 6350, 150	12	-	5X2
	7	j3	195, 950, 850, 900	12	-	24X2
	8	j4	LV=, 790, 6350, 6350, 790	10	300	3X2
SCREEN WALL	9	m1	150, 1718, 150	12	150	44x2
	10	m2	150, 4025, 800, 4025, 800, 150	20	150	40x2
	11	m3	150, 1718, 150	10	150	44x2
	12	m4	150, 4025, 500, 4025, 500, 150	16	150	40x2
	13	m5	500, 3350, 500	12	-	4X2
	14	m6	400, 4088, 400	12	-	4X2
	15	m7	400, 600, 400	12	300	8X2X2
APPROACH SLAB	16	c1	150, 3350, 150	12	150	34X2
	17	c2	150, 450, 2125, 2125, 450, 150	12	150	23X2
	18	c3	150, 3350, 150	12	150	34X2
	19	c4	150, 5150, 150	12	150	23X2

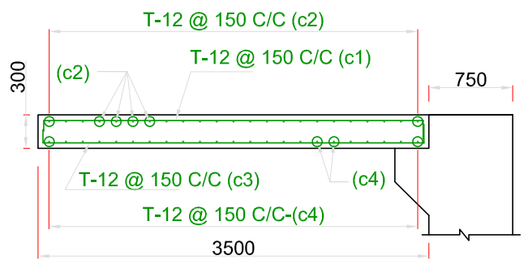
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS 70R OR TWO LANES OF CLASS-A LOADING WHICHEVER IS CRITICAL HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
   a) RAFT M35
   b) SUBSTRUCTURE M25
   c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF PIER AND PIER CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.



REINFORCEMENT IN APPROACH SLAB

SCALE A



SECTION OF APPROACH SLAB

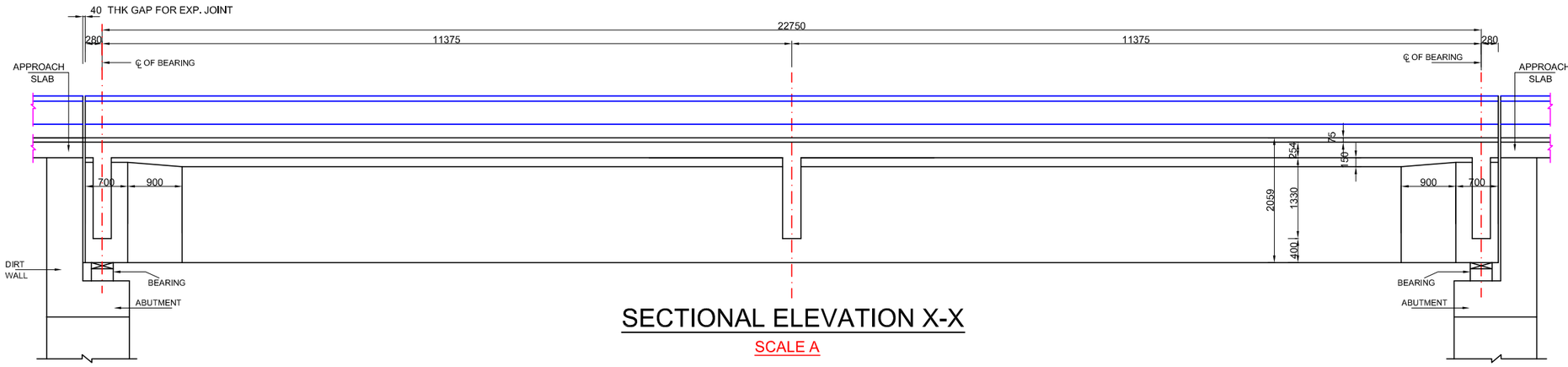
SCALE A

SCALE A:- 500 0 500 1000 1500

SCALE B:- 250 0 250 500 750

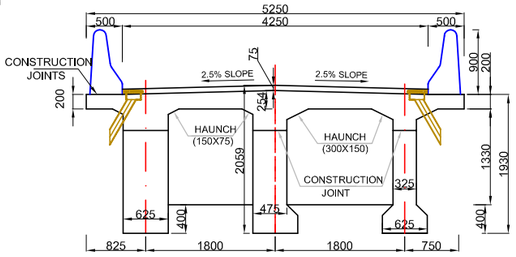
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SCREEN WALL OF SLR BRIDGE AT KM 14.889 WITH THREE BEAMS
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-11 07 of 12
	Drawn by:-	Checked by:- / Approved by:-



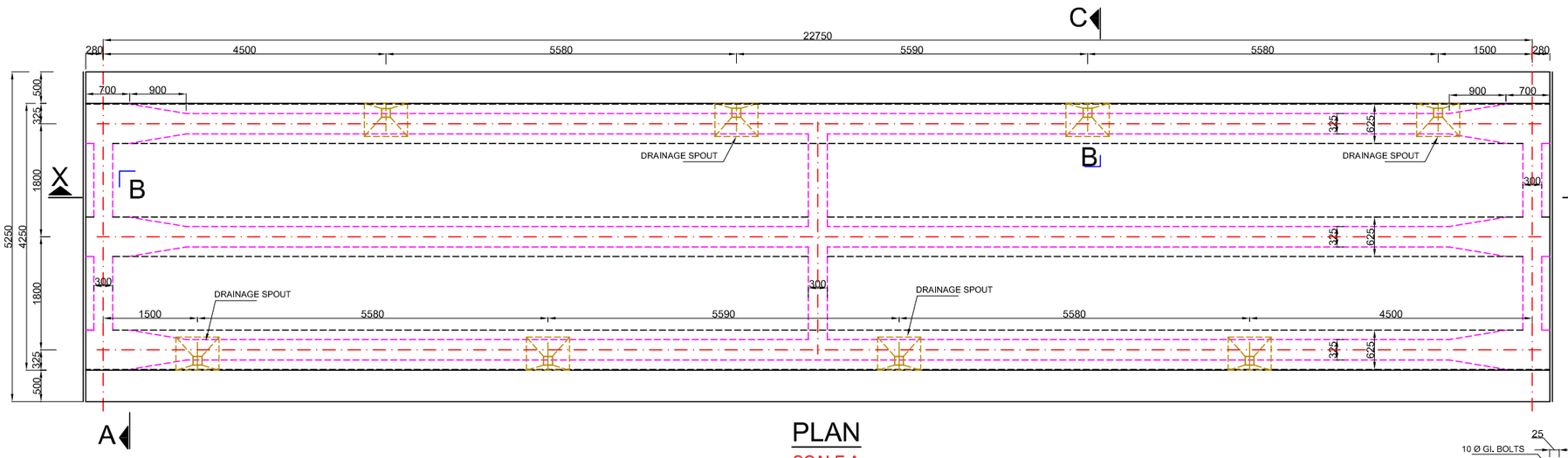
SECTIONAL ELEVATION X-X

SCALE A



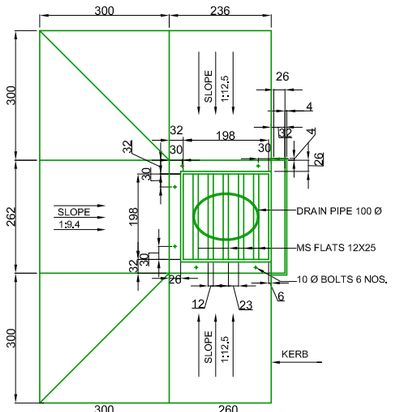
SECTION ABC

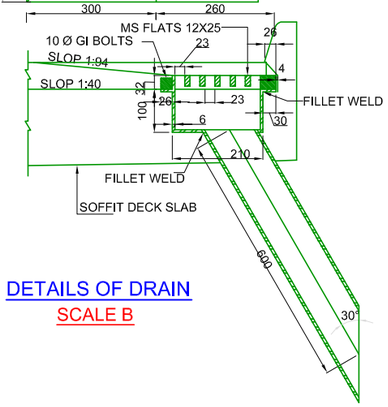
SCALE A



PLAN

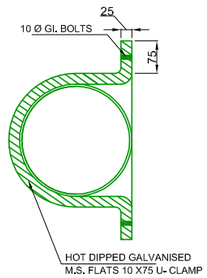
SCALE A





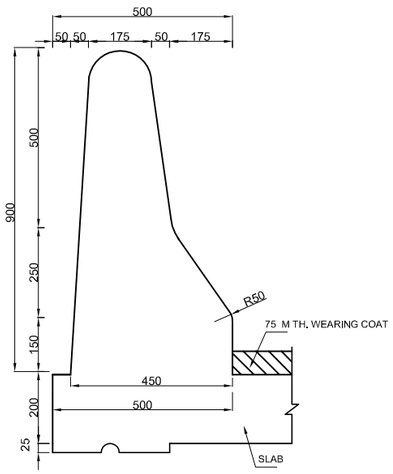
DETAILS OF DRAIN

SCALE B



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO IS 456.
5. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA BAR MESH @ 200 C/C ..
6. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
7. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
8. REINFORCED RAILING POST SHOULD BE SUITABLY ANCHORED IN DECK SLAB.
9. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
10. CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50 MM.



DETAILS OF CRASH BARRIER

SCALE B

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/210.

SCALE A:-

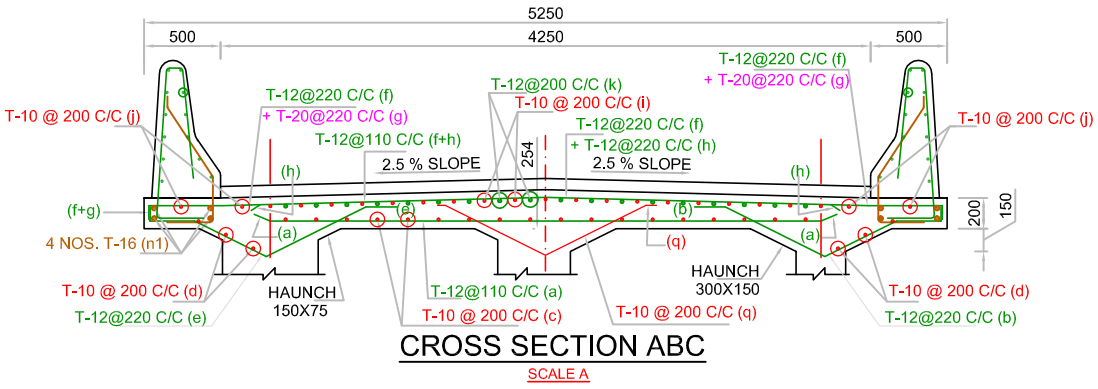


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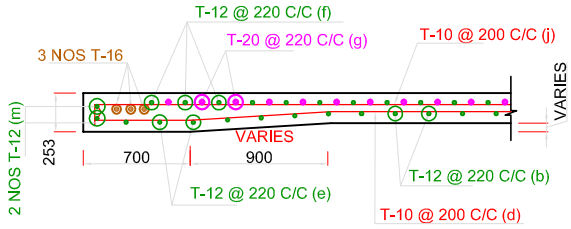
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 14.889 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-11	08 of 12
	Drawn by:-	Checked by:-	Approved by:-



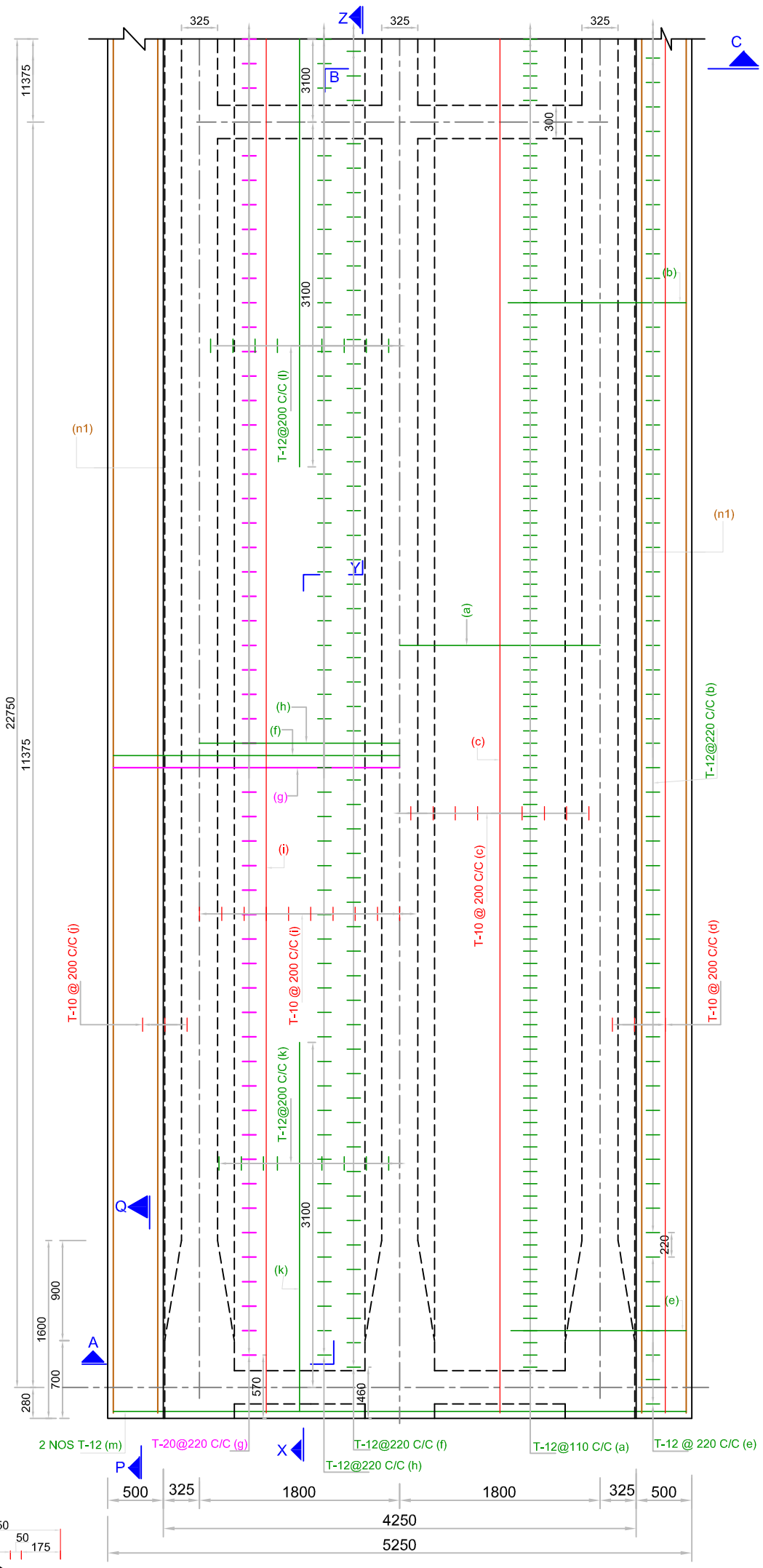
CROSS SECTION ABC

SCALE A



SECTION P.Q.

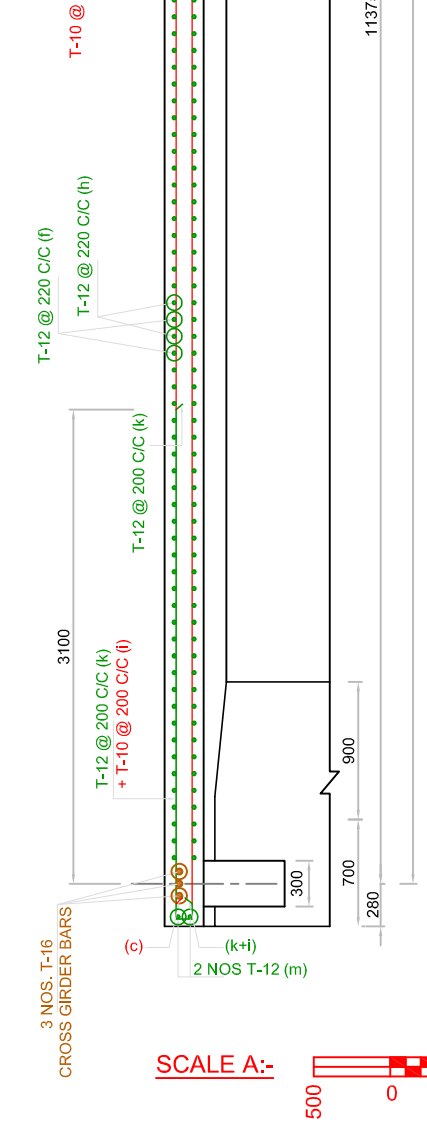
SCALE A



HALF TOP REINFORCEMENT HALF BOTTOM REINFORCEMENT

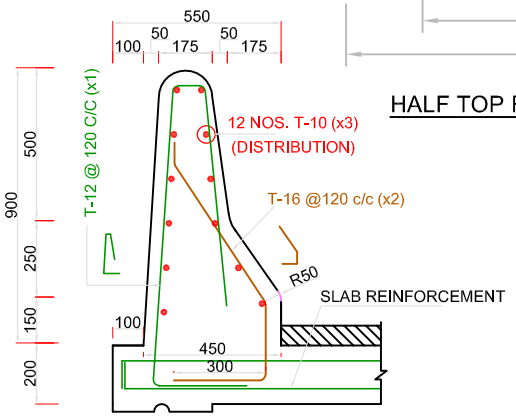
PLAN

SCALE A



SECTION X Y Z

SCALE A



REINFORCEMENT DETAIL OF CRASH BARRIER

SCALE B

SCALE A:-

500 0 500 1000 1500

SCALE B:-

250 0 250 500 750

REFERENCES:-

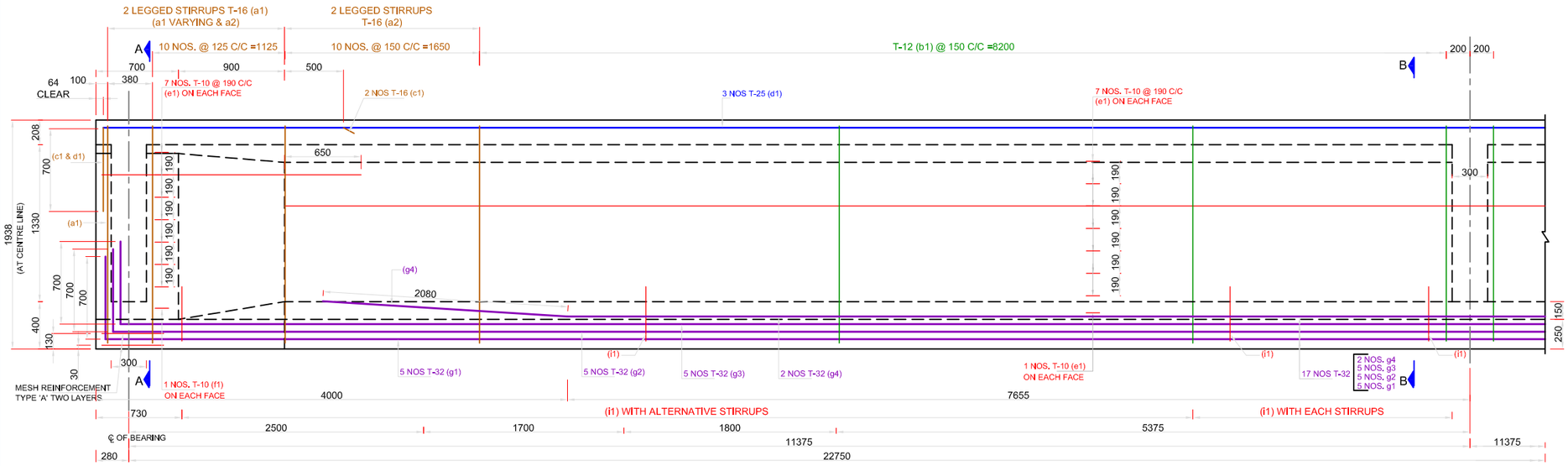
1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/212.

TENDER DRAWING

Prepared by :-

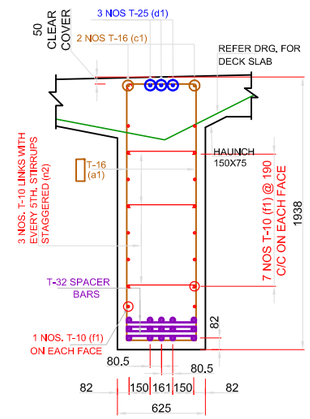
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAIL DRAWING OF DECK SLAB OF SLR BRIDGE AT KM 14.889 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-11 09 of 12
Drawn by:-	Checked by:- Approved by:-



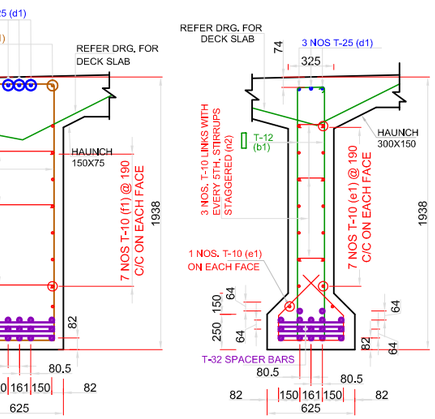
LONGITUDINAL SECTION OF OUTER GIRDER

SCALE A



SECTION A-A

SCALE A

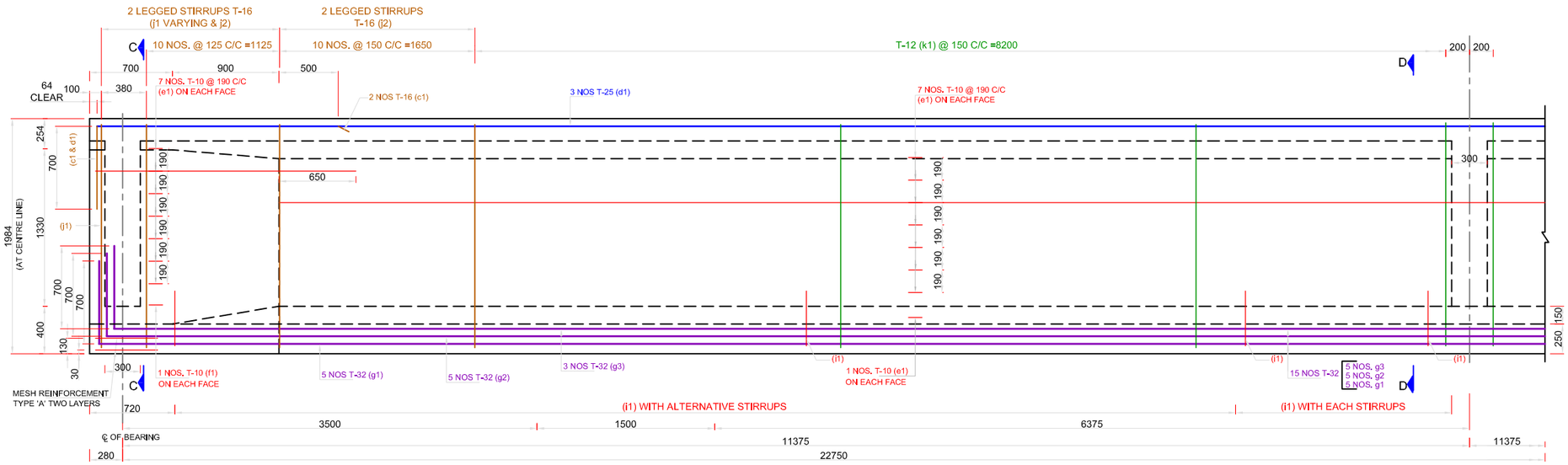


SECTION B-B

SCALE A

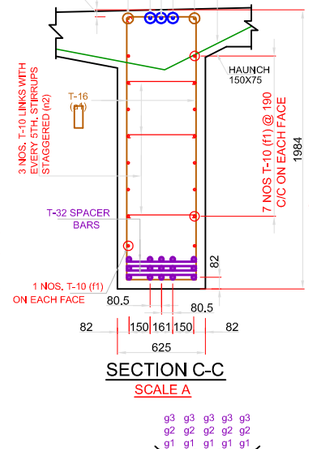






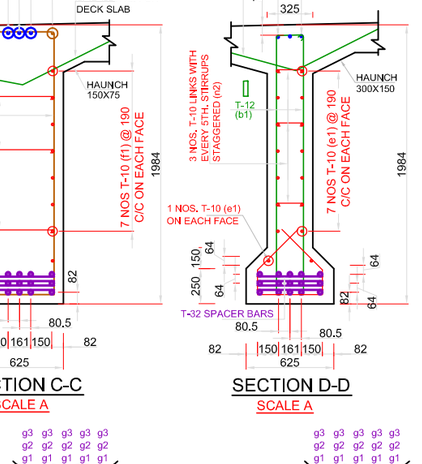
LONGITUDINAL SECTION OF INNER GIRDER

SCALE A



SECTION C-C

SCALE A

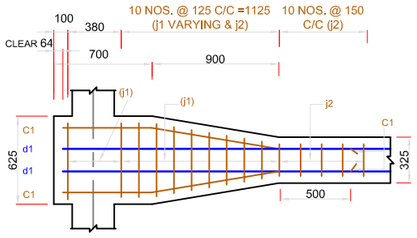


SECTION D-D

SCALE A

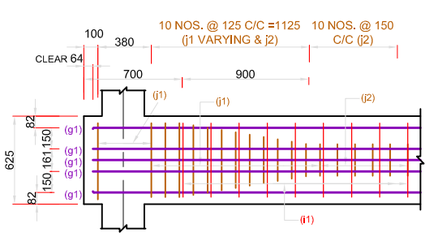






INNER GIRDER

PLAN SHOWING TOP REINFORCEMENT AT THE END

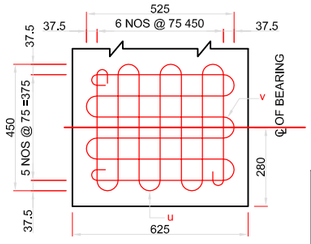


INNER GIRDER

PLAN SHOWING BOTTOM REINFORCEMENT AT THE END

(SIMILAR DETAILING WILL BE FOLLOWED FOR OUTER GIRDERS)

SCALE A



T-8 MESH REINFORCEMENT

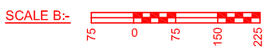
TYPE - 'A'

SCALE B

SCALE A:-



SCALE B:-

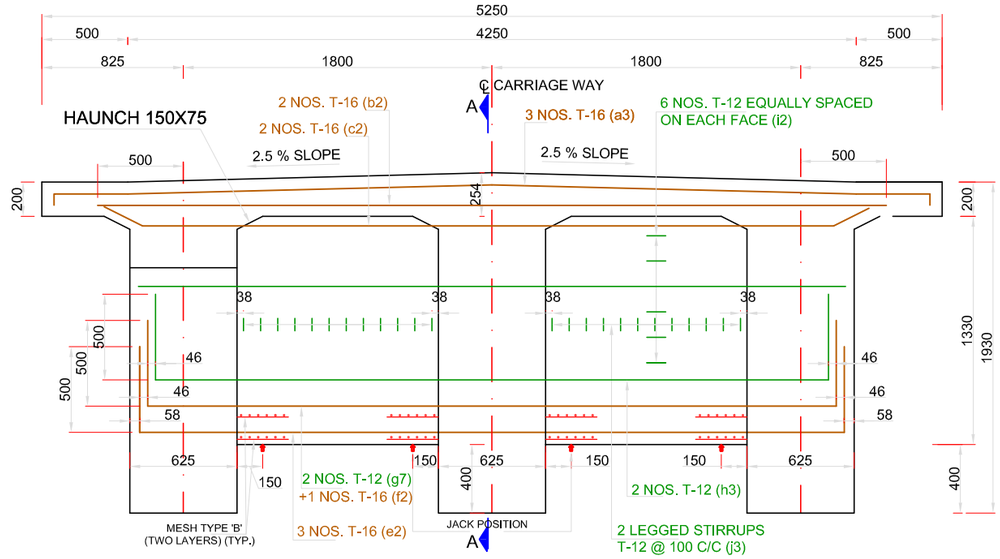


TENDER DRAWING

Prepared by :-

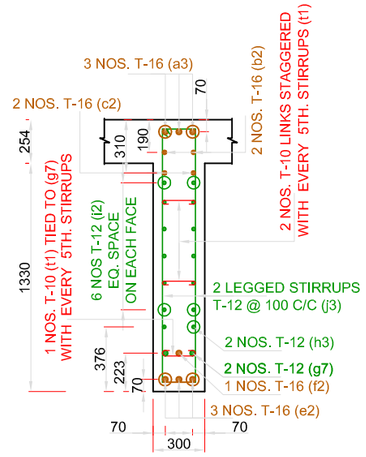
WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT OF LONGITUDINAL GIRDER OF SLR BRIDGE AT KM 14.889 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-11 10 of 12
Drawn by:-	Checked by:- / Approved by:-



LONGITUDINAL SECTION OF END CROSS GIRDER

SCALE A

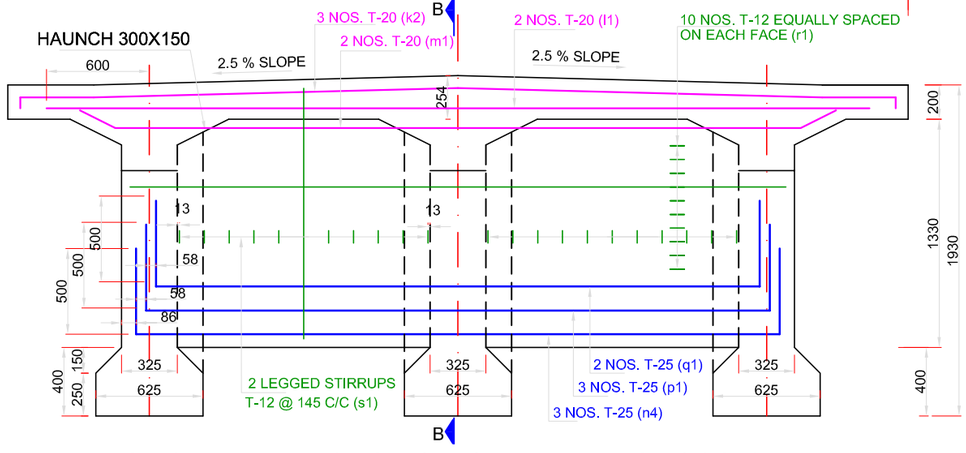


SECTION A-A

SCALE A

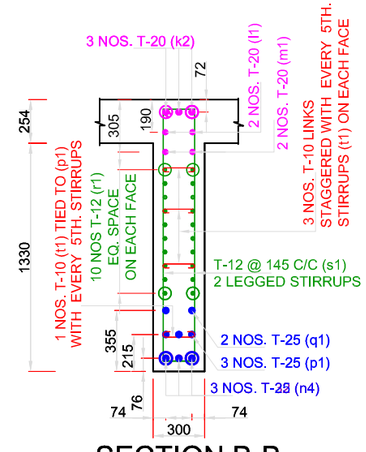
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DIMENSION SHALL BE SCALED OFF.
2. THE DETAILS SHOWN IN THIS DRAWING ARE APPLICABLE FOR R.C.C. T- BEAM SLAB SUPERSTRUCTURE WITHOUT FOOTPATHS.
3. THE DESIGN IS APPLICABLE FOR MODERATE CONDITION OF EXPOSURE.
4. GRADE OF CONCTRETE FOR T-BEAM AND SLAB SHALL BE M- 35. CONFORMING TO I.S. 456
5. PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCEMENT.
6. H.Y.S.D Fe415 BARS CONFORMING TO I.S.-1786 SHALL BE PROVIDED AS REINFORCEMENT.
7. THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
8. CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50 mm.
9. BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
10. OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
11. 75 MM THICK CEMENT CONCRETE WEARING COAT IN M-30 GRADE CONCRETE SHALL BE LAID WITH 8 MM DIA MESH @200 MM.
12. DRAINAGE SPOUT AND COLLECTION PIT ASSEMBLY SHALL BE FABRICATED FROM MILD STEEL AND AFTER FABRICATION THE COMPLETE ASSEMBLY EXCEPT GRATING SHALL BE GIVEN A HOT DIPPED GALVANISED COATING.
13. THE FIXING CLAMPS WILL BE OF HOT DIPPED GALVANISED MS FLAT. MINIMUM NUMBER OF CLAMPS TO BE PROVIDED WITH VERTICAL DRAIN- - AGE SPOUT FOR FIXING TO LONGITUDINAL GIRDERS SHALL BE TWO.
14. CRASH BARRIER TYPE RAILING SHALL BE USED.
15. THE DESIGN OF VARIOUS COMPONENTS OF BRIDGE IS BASED ON THE PROVISIONS MADE IN THE M.O.S.T. DESIGN HANDBOOK.
16. ALL CONCRETE WORKS SHALL CONFORM TO IS; 456- 2000.



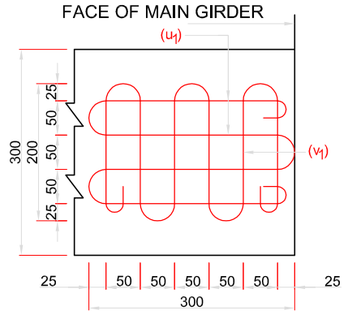
LONGITUDINAL SECTION OF MIDDLE CROSS GIRDER

SCALE A



SECTION B-B

SCALE A



T-8 MESH REINFS. TYPE - 'B'

SCALE B

SCALE A:-



SCALE B:-



TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/215.

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND	
	Drawing Title :-	REINFORCEMENT OF CROSS GIRDER OF SLR BRIDGE AT KM 14.889 WITH THREE BEAMS	
	Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-11	11 of 12
	Drawn by:-	Checked by:-	Approved by:-

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
SLAB						
1	a	3600	12	110	3600	200
2	b	275, 523, R-120, 728, 500, 100, R-120	12	220	1927	184
3	c	150, L, 23210, L, 150, L VARYING FROM 109 TO 212	10	200	23710	19
4	d	140, L, 650, 901, R-100, 20110, R-100, 901, 140, L, 650, L VARYING FROM 68 TO 270	10	200	23710	6
5	e	VARYING FROM 523 TO 693, 150, R-120, VARYING FROM 729 TO 878, 575, 100, R-120	12	220	1927	32
6	f	2576, 75, R-120, 2576, 75	12	220	5304	100
7	g	2576, 75, R-120, 2576, 75	20	220	5182	100
8	h	1866, R-120, 1866	12	220	3732	100
9	I	L, 150, 23210, L, 150, VARYING FROM 109 TO 212	10	200	23710	19
10	j	L, 75, 23210, L, 75, VARYING FROM 68 TO 270	10	200	23638	6
11	k	L, 170, 3330, VARYING FROM 109 TO 212	12	200	3588	36
12	l	6200	12	200	6200	18
13	m	5150	12	-	5150	4
14	n_1	23210	16	-	23210	8
15	q	150, 393, 880, R=80, 950, 150, 433, R=80	10	200	2110	116

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT LONGITUDINAL GIRDERS)						
1	u	25, 30, 37.5, 375, 75 75 75 75 75 75, 375, 37.5, 30, 25	10	-	3550	8
2	v	75, 75, 75, 75, 75, 30, 30, 37.5, 450, 25	10	-	3506	8
CRASH BARRIER PER M						
1	x_1	75, 1000, 750, 300	12	120	2125	9
2	x_2	75, 540, 300, 250	16	120	1165	9
3	x_3	9350	10		1000	12

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
LONGITUDINAL OUTER GIRDERS						
1	a_1	L1=VARYING FROM 1808 TO 1812, L1, L2, L2 = VARYING FROM 1800 TO 1804, VARYING FROM 193 TO 493	16	125	5158	11X2X2
2	a_2	193, 1804, 1808, 193	16	150	4758	11X2X2
3	b_1	193, 1804, 1808, 193	12	150	4678	108X2
4	c_1	708, R=96, ELEVATION, 636, 166, 913, 500	16	-	2693	2X2X2
5	d_1	23182, 708, R=96, 708	25	-	24398	3X2
6	e_1	20110	10	-	20110	8X2X2
7	f_1	913, 650, 636, 160	10	-	2199	16X2X2
8	g_1	716, R=192, 716, 23182	32	-	24358	5X2
9	g_2	716, R=192, 716, 23054	32	-	24230	5X2
10	g_3	716, R=192, 716, 22926	32	-	24102	5X2
11	g_4	4080, 15310, 4080	32	-	19470	2X2
12	i_1	450, 450, 485, 315, 493	10	-	1733	101X2
12	n_2	140, L, 140, L = VARYING FROM 213 TO 513	10	-	583	18X2
14	n_3	140, 213, 140	10	-	433	90X2
LONGITUDINAL INNER GIRDER						
1	j_1	L1=VARYING FROM 1856 TO 1860, L1, L2, L2 = VARYING FROM 1848 TO 1852, VARYING FROM 193 TO 493	16	125	5290	11X2X1
2	j_2	193, 1852, 1856, 193	16	150	4890	11X2X1
3	k_1	193, 1852, 1856, 193	12	150	4810	108X1
4	c_1	708, R=96, ELEVATION, 636, 166, 913, 500	16	-	2693	2X2X1
5	d_1	23182, 708, R=96, 708	25	-	24398	3X1
6	e_1	20110	10	-	20110	8X2X1
7	f_1	913, 650, 636, 160	10	-	2199	16X2X1
8	g_1	716, R=192, 716, 23182	32	-	24358	5X1
9	g_2	716, R=192, 716, 23054	32	-	24230	5X1
10	g_3	716, R=192, 716, 22926	32	-	24102	5X1
11	i_1	450, 450, 485, 315, 493	10	-	1733	101X1
12	n_2	140, L, 140, L = VARYING FROM 213 TO 513	10	-	583	18X1
13	n_3	140, 213, 140	10	-	433	90X1

A) H.Y.S.D. BARS

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	No. of bars
END CROSS GIRDERS						
1	a_3	95, 2576, R-160, 2576, 95	16	-	5248	3X2
2	b_2	500, 3600, 500	16	-	4750	2X2
3	c_2	230, R=160, 4030, 230	16	-	4490	2X2
4	e_2	508, R=64, 4109, 508	16	-	5029	3X2
5	f_2	508, R=64, 4063, 508	16	-	4983	1X2
6	g_7	506, R=48, 4063, 506	12	-	5003	2X2
7	h_3	506, R=48, 3925, 506	12	-	4865	2X2
8	i_2	233, R=48, 4125, 233	12	-	4519	6X2X2
9	j_3	176, B, 176, VARYING FROM 1447 to 1475	12	100	3402	26X2
10	t_1	140, 196, 140	10	-	416	20X2
MIDDLE CROSS GIRDERS						
1	k_2	95, 2576, R-160, 2576, 95	20	-	5222	3
2	l_1	600, 3600, 600	20	-	4800	2
3	m_1	230, R=160, 4000, 230	20	-	4310	2
4	n_4	508, R=64, 3754, 508	25	-	4570	3
5	p_1	508, R=64, 3638, 508	25	-	4454	3
6	q_1	508, R=64, 3520, 508	25	-	4336	2
7	r_1	529, 3925, 529	12	-	4911	10X2
8	s_1	L, 176, VARYING FROM 1444 to 1478	12	145	3202	22
9	t_1	140, 196, 140	10	-	416	16

S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing	Length of each bar (mm)	no. of bars
B)M.S. BARS (MESH REINFORCEMENT IN CROSS GIRDERS)						
19	u_1	30, 50, 50, 30, 50, 25, 250, 37.5	10	-	1453	16
20	v_1	50 50 50 50 50, 30, 30, 37.5, 150, 25	10	-	1510	16

TENDER DRAWING

REFERENCES:-

1. M.O.S.T. R.C.C. T-BEAM AND SLAB SUPER STRUCTURES DRG. NO. SD/216 SH1 & SH2

Prepared by :-

WAPCOS LTD.

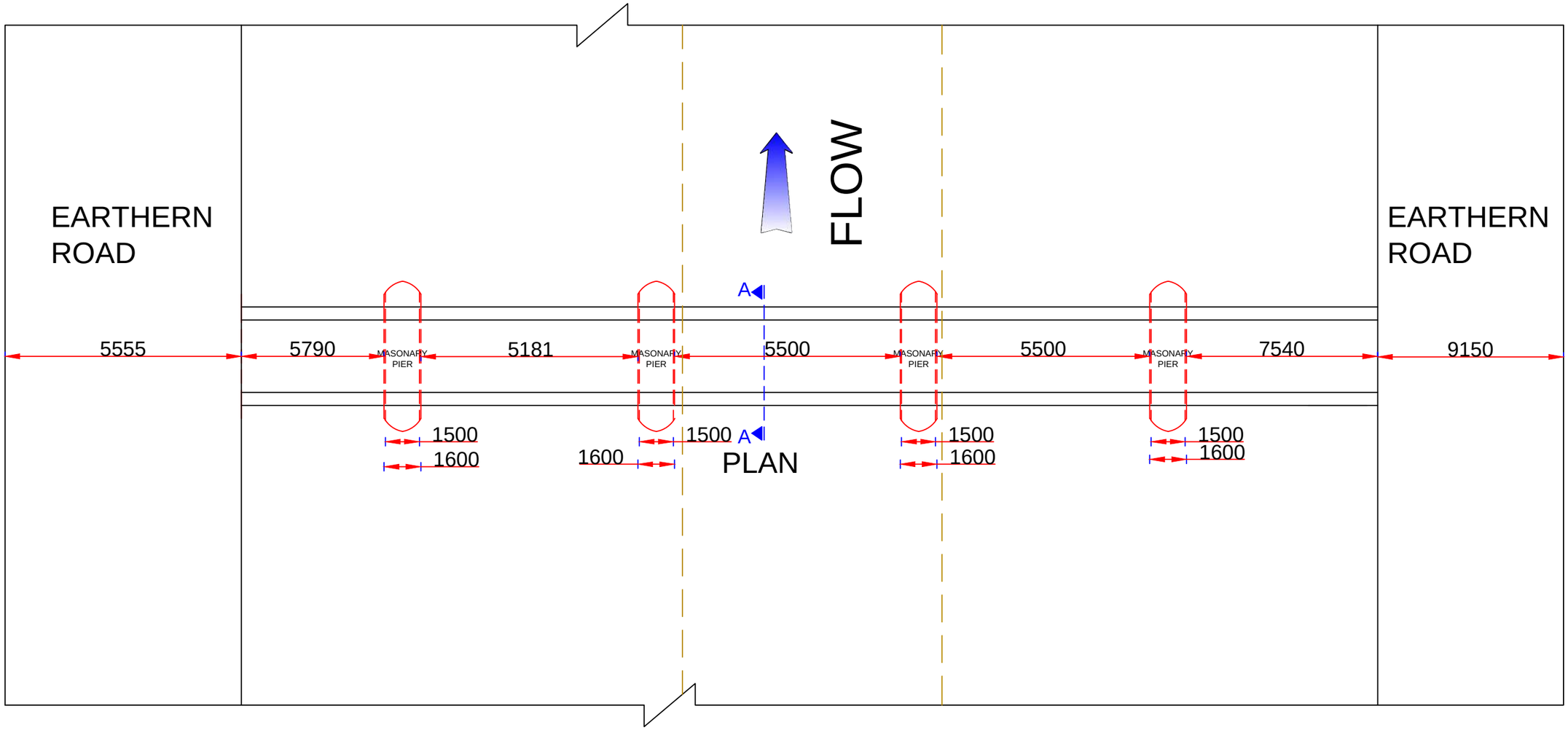
Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	BAR BENDING SCHEDULE OF SUPER STRUCTURE OF SLR BRIDGE AT KM 14.889 WITH THREE BEAMS
Drawing No. :-	WAP/PKS/NORTH KOEL/RMC/BRG-11 12 of 12
Drawn by:-	Checked by:- Approved by:-



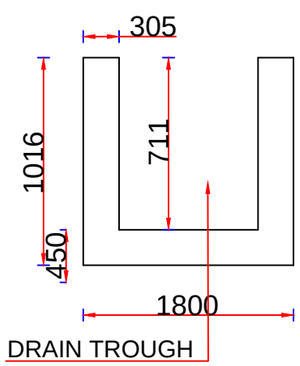
SUPER PASSAGE

AT

CH. 17.130 KM



PLAN



SECTION A-A

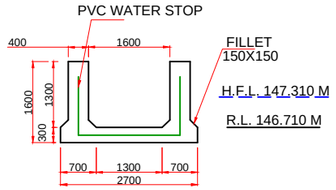
NOTES:

1 ALL DIMENSIONS ARE IN mm.

2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

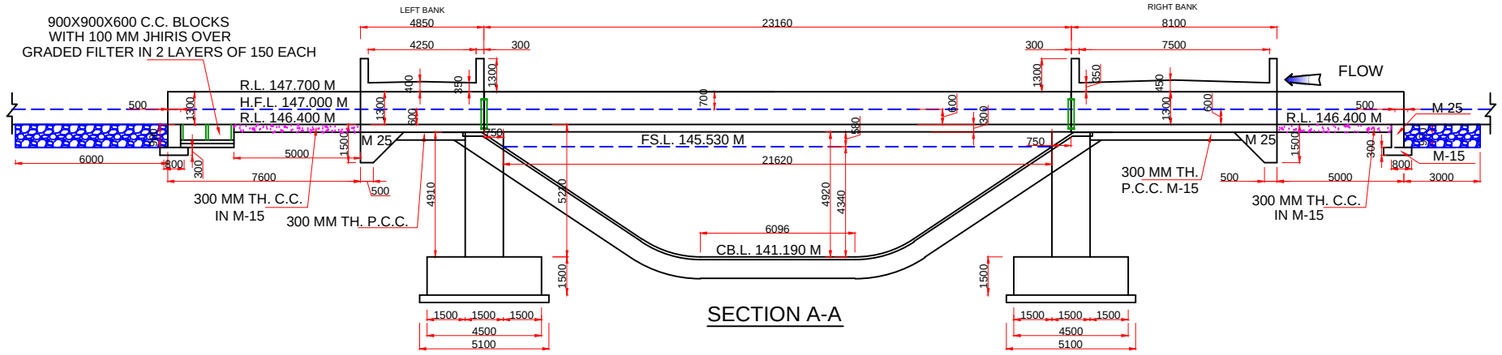
TENDER DRAWING

Prepared by :- WAPCOS LTD. वाप्कोस लिमिटेड WAPCOS LIMITED	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	EXISTING PLAN OF SUPER PASSAGE AT CH. 17.130 KM
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-03 01 of 06
	Drawn by:-	Checked by:- / Approved by:-



DETAIL 'A'

SCALE B



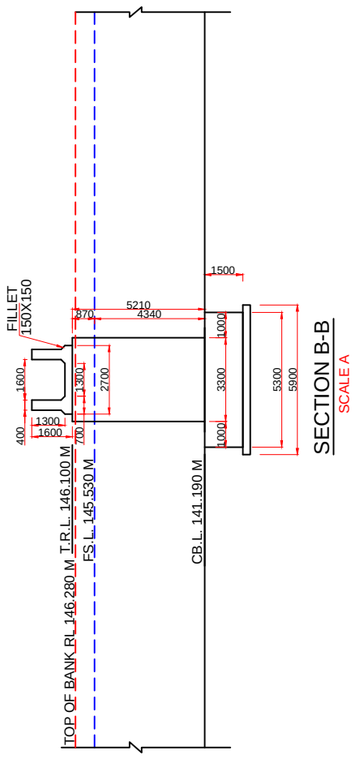
SECTION A-A

DESIGN DATA

	RMC	DRAIN
DISCHARGE	84.15 CUMEC	1.920 CUMEC
BED WIDTH	6.096 M	1.600 M
WATER DEPTH	4.340 M	0.600 M
BED LEVEL	141.190 M	146.400 M
BED SLOPE	1/7000	1/935

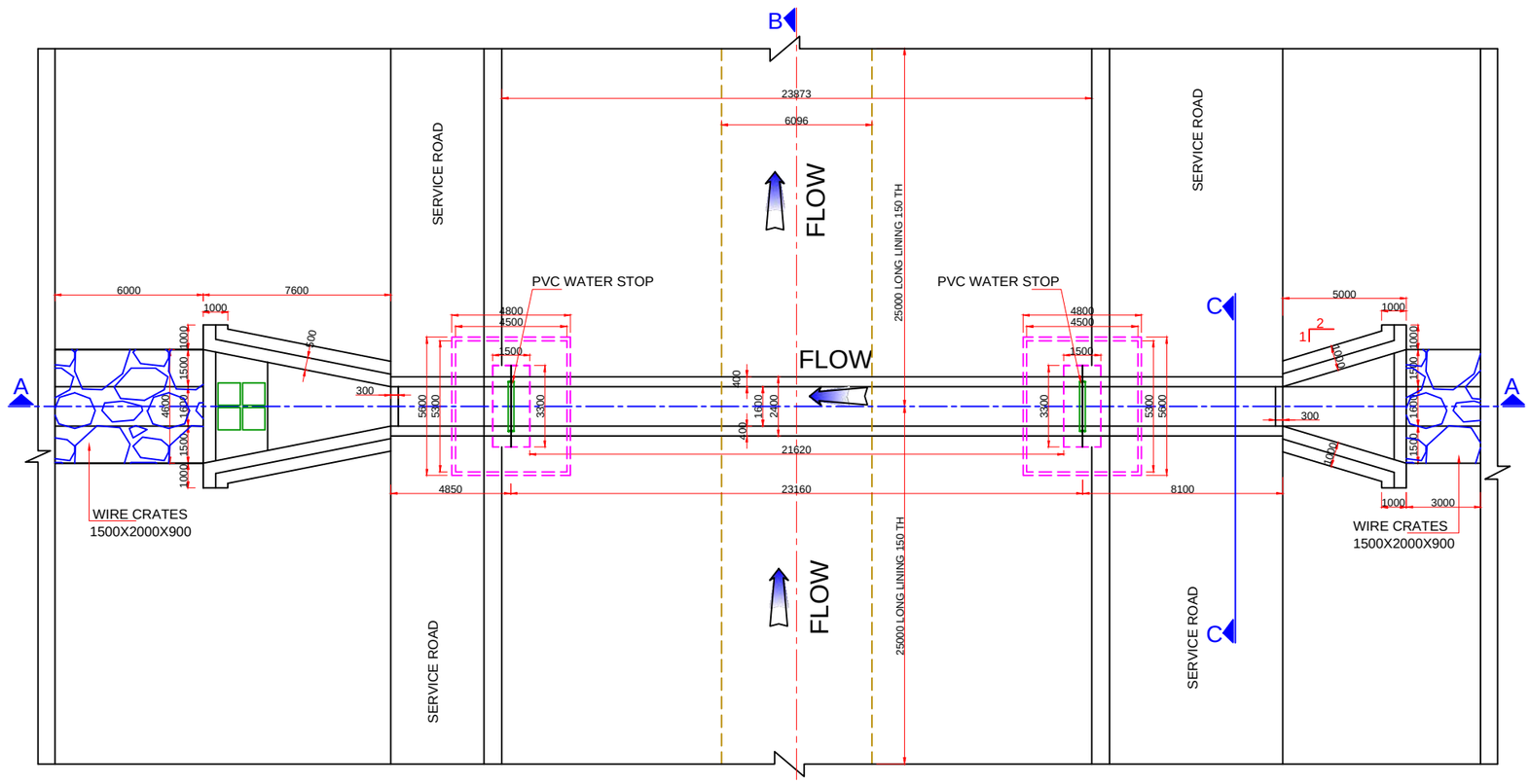
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE NOT TO BE SCALED OFF. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
3. EXPANSION JOINTS ARE PROVIDED AT LOCATIONS INDICATED IN DRAWING.
4. FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF SUPER PASSAGE :-
   a) TROUGH M35
   b) ABUTMENT M25
   c) SUPER STRUCTURE OF BRIDGE UNDER S/ROAD.... M35
5. HYSD STEEL BARS OF FE 550D SHALL BE USEDAS PER IS . 1786 :2008.
6. TYPE OF SOIL AT FOUNDING LEVEL IS GRAYISH CLAY. FOLLOWING PARAMETERS ARE USED IN DESIGN ALLOWABLE BEARING CAPACITY FOR ABUTMENT 28 T/SQ M
7. TEFLON COATED SS PLATE SIZE 400X400X5 MM BE USED AS BEARING UNDER GIRDERS AND OVER ABUTMENT.

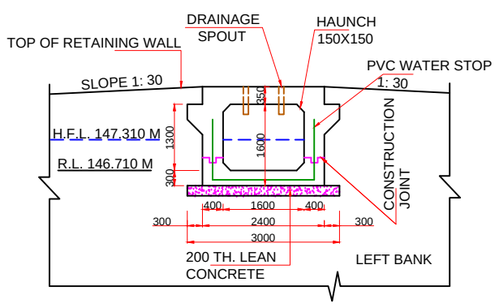


SECTION B-B

SCALE A

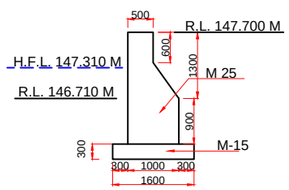


PLAN OF SUPER PASSAGE



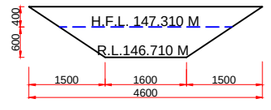
SECTION C-C (BOX TYPE SECTION UNDER ROAD)

SCALE B



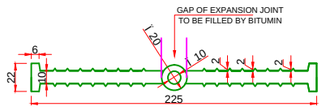
SECTION OF TRANSITION WALL

SCALE B

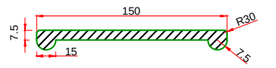


CROSS SECTION OF DRAIN

SCALE B



DETAILS OF TYPICAL PVC WATER STOP FOR EXPANSION/CONTRACTION JOINTS



DETAILS OF TYPICAL WATER STOP FOR CONSTRUCTION JOINT

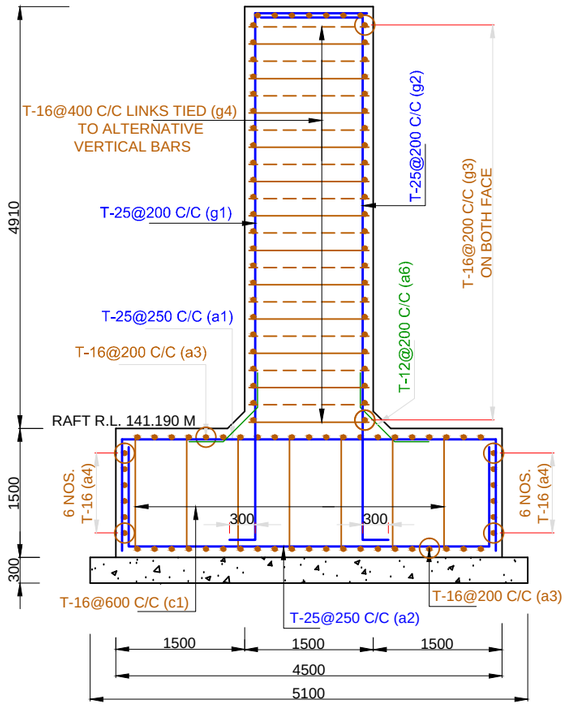
SCALE A:- 2000 0 2000 4000 6000

SCALE B:- 1000 0 1000 2000 3000

SCALE C:- 400 0 400 800 1200

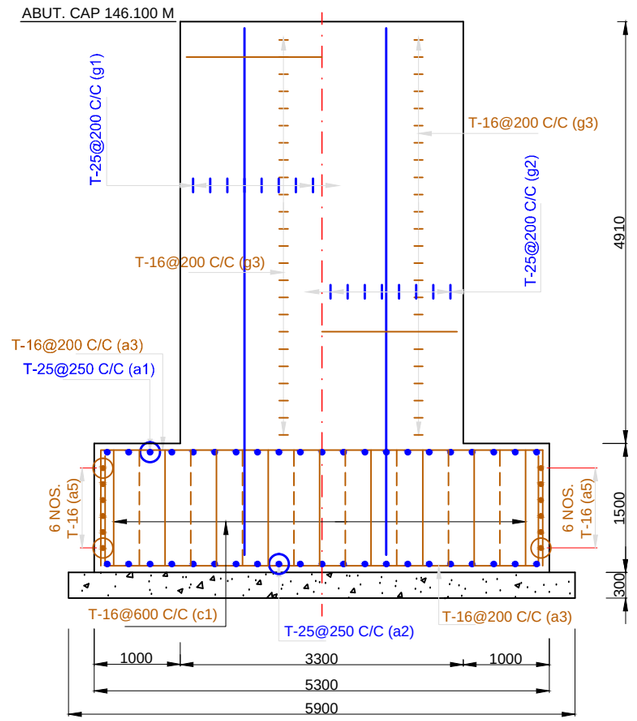
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	GENERAL ARRANGEMENT DRAWING OF SUPER PASSAGE KM 17.130
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-03 02 of 06
	Drawn by:-	Checked by:- / Approved by:-



SIDE VIEW OF ABUTMENT

SCALE A



CROSS SECTION OF ABUTMENT

HALF EARTH SIDE / HALF CANAL SIDE

SCALE A

BARS BENDING SCHEDULE

	S. no.	Type of bars	Shape of bars (not to scale (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
ABUTMENT COLUMN WITH CAP	1	g1	1300, 6185, 300	25	200	16X2
	2	g2	1200, 6185, 300	25	200	16X2
	3	g3	708, 3150, 708	16	200	24X2X2
	4	g4	150, VERTICAL LINK BARS 1350, 150	16	400	8X4X2
IN RAFT FOR ABUTMENT	5	a1	1000, 4350, 1000	25	250	21X2
	6	a2	1000, 4350, 1000	25	250	21X2
	7	a3	700, 5150, 5150, 700, 700	16	200	22X2X2
	8	a4	700, 5150, 700	16	-	6X2X2
	9	a5	700, 4350, 700	16	-	6X2X2
	10	a6	400, 560, 400, 400, 400, 560	12	200	16X2X2
	11	c1	150, 1350, 150	16	600	8X9X2

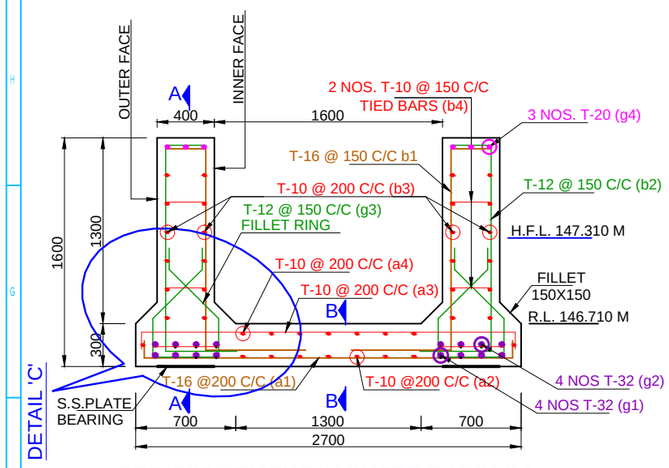
NOTES

1 ALL DIMENSIONS ARE IN mm AND LEVELS IN METRE
2 THE DRAWING SHALL NOT BE SCALED OFF, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3 EXPANSION JOINTS ARE PROVIDED AT EVERY PIER AND ABUTMENT LOCATIONS.
4 ROAD LEVEL REFERS TO CARRIAGEWAY CENTRE.
5 ONE LANE OF CLASS-A LOADING HAS BEEN CONSIDERED IN DESIGN.
6 FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR DIFFERENT COMPONENTS OF BRIDGE:-
  a) RAFT M35
  b) SUBSTRUCTURE M25
  c) PEDESTAL M35
7 ELASTOMERIC BEARINGS WILL BE PROVIDED AS PER IRC: 83(PARTII)-1987.
8 THIS DRAWING SHOWS DETAILS OF ABUTMENT AND ABUTMENT CAP.
9 OVERLAPS IF NECESSARY SHALL BE STAGGERED AND PROVIDED AS PER CL. 304.6.6.3 OF IRC 21-2000
10 PRECAST MORTAR BLOCKS OF THE SAME STRENGTH AS THAT OF THE CONCRETE OF THE COMPONENT SHALL BE USED TO ENSURE THE REQUIRED COVER TO REINFORCENT.
11 CLEAR COVER TO ANY REINF. INCLUDING STIRRUPS SHALL BE 50mm
12 BENDING OF REINF. BAR SHALL BE AS PER IS. 2502
13 THE COVER INDICATED IN THIS DRAWINGS IS CLEAR COVER TO MAIN REINFORCEMENT BARS NEAREST TO THE CONCRETE SURFACE INCLUDING STIRRUPS AND BINDERS UNLESS MENTIONED TO THE CONTRARY.
14 ALL HOOKS AND OVERLAPS TO BE OF STANDARD DIMENSION.
15 H.Y.S.D Fe550 BARS SHALL CONFORM TO I.S.-1786
16 MAIN VERTICAL REINFORCEMENT OF ABUTMENT WILL BE EMBEDDED IN RAFT.

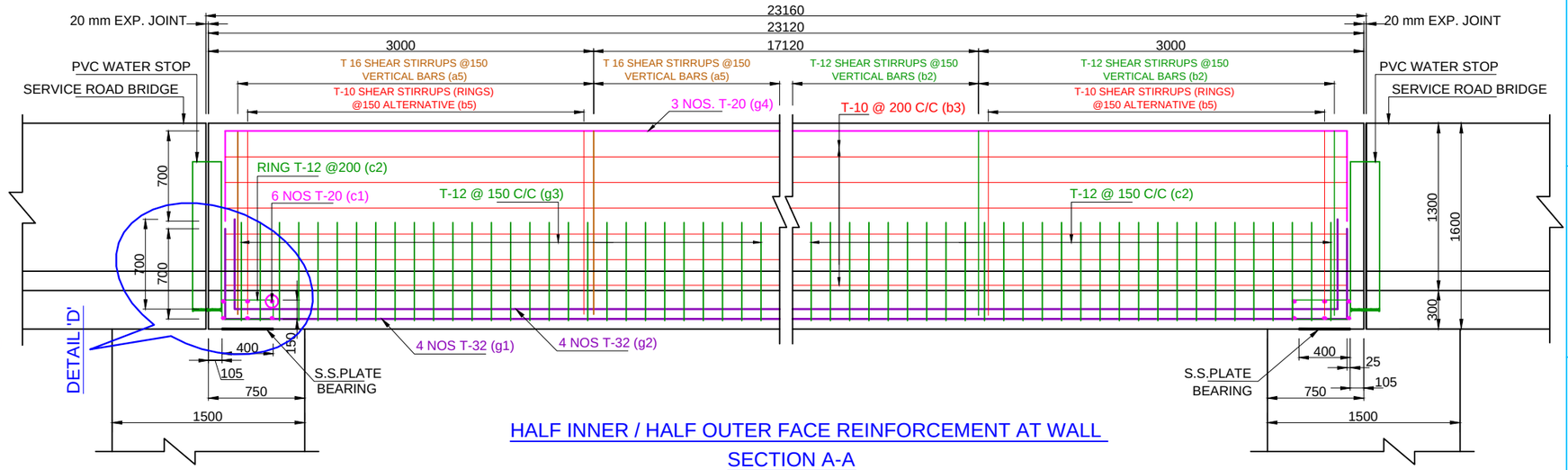
SCALE A:- 500 0 500 1000 1500

TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF ABUTMENT OF SUPER PASSAGE AT KM 17.130
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-03 03 of 06
	Drawn by:-	Checked by:- / Approved by:-

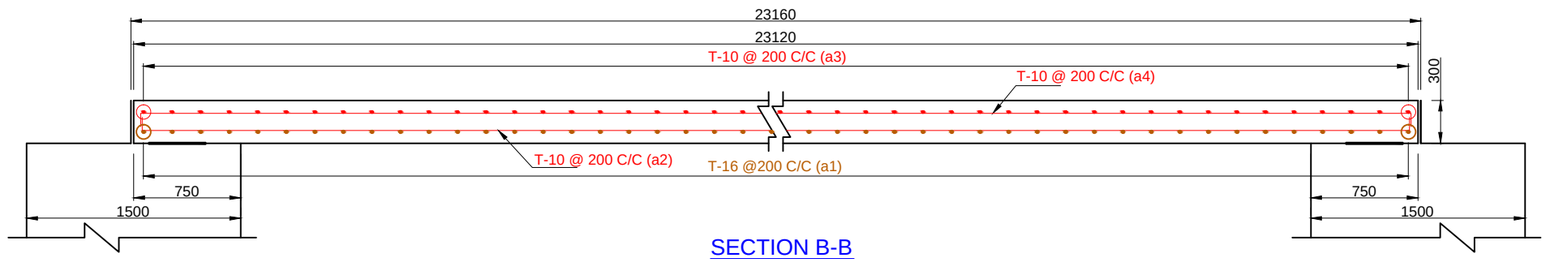


REINFORCEMENT IN SUPER PASSAGE



HALF INNER / HALF OUTER FACE REINFORCEMENT AT WALL

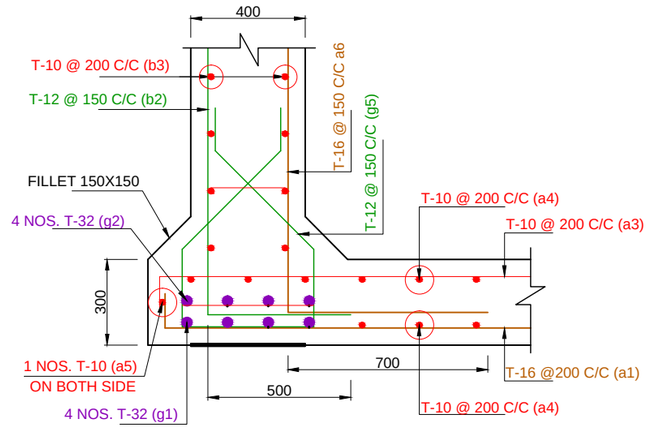
SECTION A-A



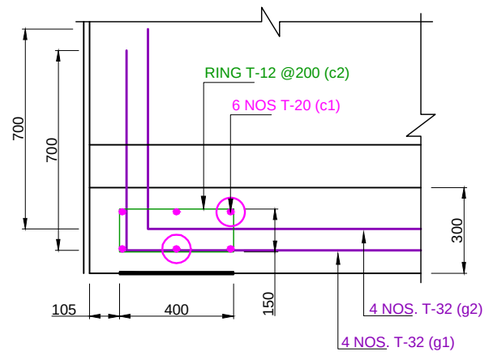
SECTION B-B

BARS BENDING SCHEDULE H.Y.S.D. Fe 550

	S. no.	Type of bars	Shape of bars (not to scale) (Dimensions are in millimetres)	Dia of bars (mm)	Spacing (mm)	No. of bars (mm)
SLAB	1	a1	150 — 2580 — 150	16	200	115
	2	a2	150 — 23010 — 150	10	200	7
	3	a3	150 — 2580 — 150	10	200	115
	4	a4	150 — 23010 — 150	10	200	7
	5	a5	150 — 23010 — 150	10	-	2
GIRDER	6	b1	280, 1375, 700, 700, 1375, 280	16	150	155X2
	7	b2	280, 280, 1375, 1375, 500, 500	12	150	155X2
	8	b3	150 — 23010 — 150	10	200	6X2X2
	9	b4	75 — 280 — 75	10	200	39X2X2
	10	b5	75 — 1375 — 75	10	200	40X4
	11	c1	75 — 2580 — 75	20	-	6X2X2
	12	c2	150 — 400 — 150	12	200	3X2X2
	13	g1	700 — 23010 — 700	32	-	4X2
	14	g2	700 — 22918 — 700	32	-	4X2
	15	g3	FILLET RING: 150, 488, 270, 460	12	150	155X2
	16	g4	75 — 23010 — 75	20	-	3X2



DETAIL 'C'



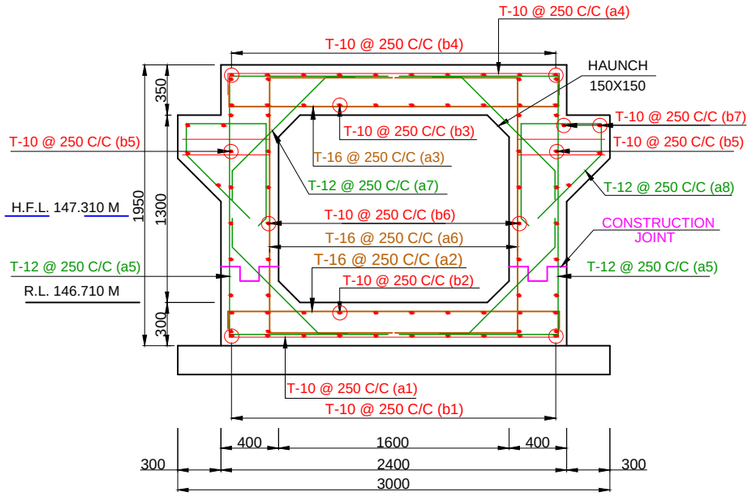
DETAIL 'D'

SCALE A:-

500 0 500 1000 1500

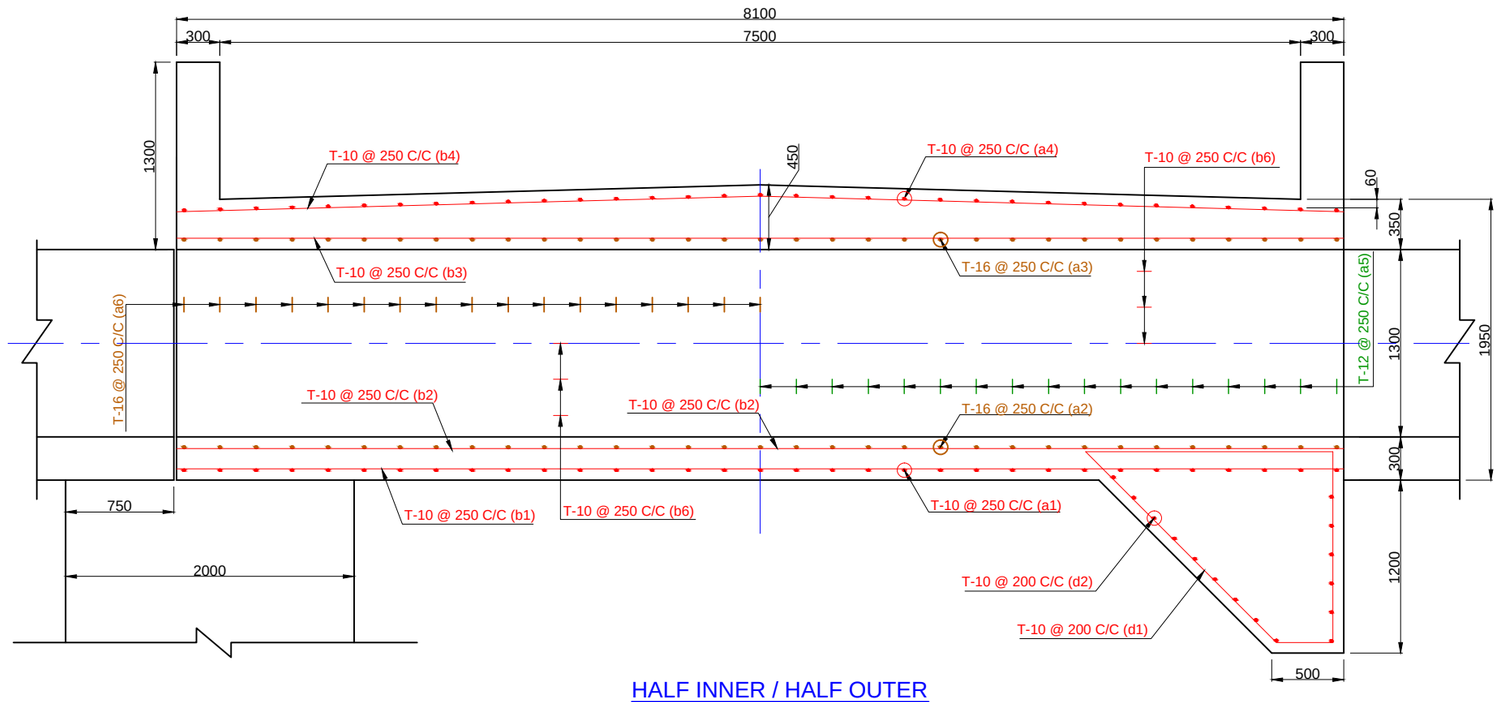
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF SUPER PASSAGE KM 17.130
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-03 04 of 06
	Drawn by:-	Checked by:- / Approved by:-

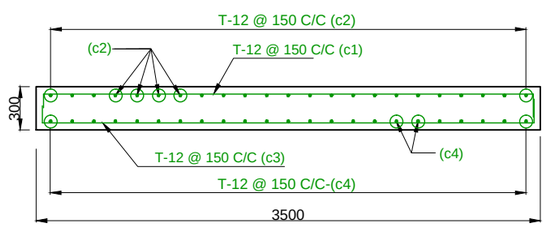


REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)

SECTION C-C



HALF INNER / HALF OUTER
RIGHT BANK



SECTION OF APPROACH SLAB

SCALE A:-

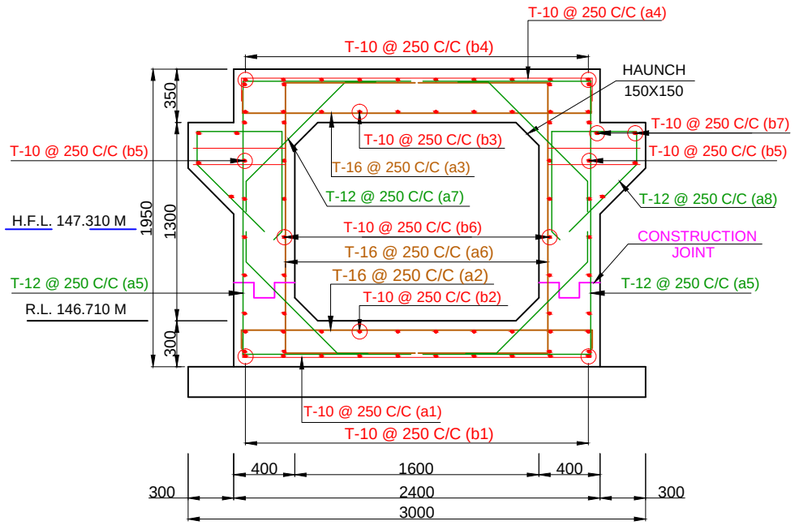


REINFORCEMENT SCHEDULE

S. NO.	TYPE OF BARS	SHAPE OF BARS DIMENSIONS NOT TO SCALE IN MM	DIA OF BARS (MM)	SPACING (MM)	NO. OF BARS (MM)
1	a1	150 — 2280 — 150	10	250	33X1
2	a2	150 — 2280 — 150	16	250	33X1
3	a3	150 — 2280 — 150	16	250	33X1
4	a4	150 — 2280 — 150	10	250	33X1
5	a5	1100, 1100, 1830, 1830, 1100, 1100	12	250	33X2
6	a6	850, 850, 1830, 1830, 850, 850	16	250	33X2
7	a7	200, 850, 200, 200, 850, 200	12	250	33X4
8	a8	655, 555, 215, 620	12	250	33X2
9	b1	150 — 7980 — 150	10	250	10X1
10	b2	150 — 7980 — 150	10	250	10X1
11	b3	150 — 7980 — 150	10	250	10X1
12	b4	150 — 7980 — 150	10	250	10X1
13	b5	7980, 7980	10	250	7X2
14	b6	7980, 7980	10	250	7X2
15	b7	150 — 7980 — 150	10	250	4X2
16	d1	1716, 1910, 1322, 393	10	200	11X1
17	d2	150 — 2280 — 150	10	200	16X1
18	c1	150, 3500, 150	12	150	23
19	c2	150, 450, 3750, 3750, 450, 150	12	150	23
20	c3	150, 3500, 150	12	150	23
21	c4	150, 8400, 150	12	150	23

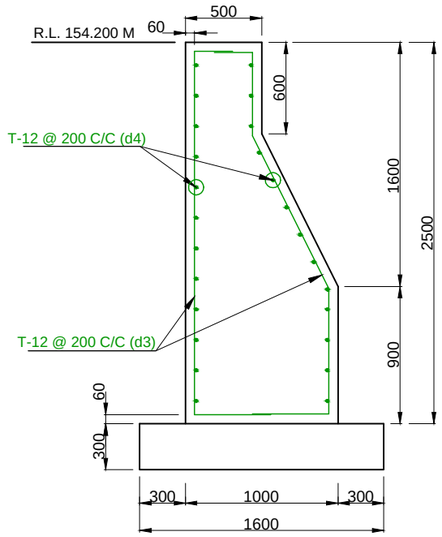
TENDER DRAWING

Prepared by :- WAPCOS LTD.	Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
	Drawing Title :-	REINFORCEMENT DETAILS OF BOX BRIDGE (RIGHT BANK) SUPER PASSAGE AT KM 17.130
	Drawing No. :-	WAP/PKS/NORTH KOEL/SP-03 — 05 of 06
	Drawn by:-	Checked by:- — Approved by:-

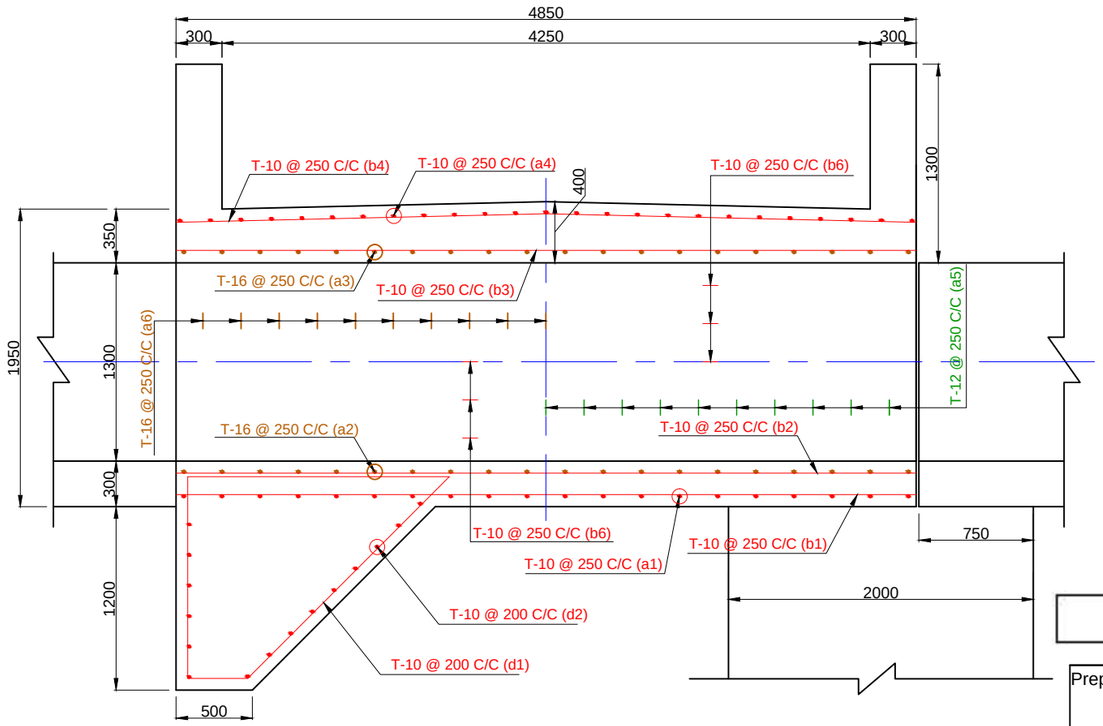


REINFORCEMENT (BOX TYPE SECTION UNDER ROAD)

SECTION C-C



REINFORCEMENT IN TRANSITION WALL



HALF INNER / HALF OUTER

LEFT BANK

SCALE A:-

500 0 500 1000 1500

TENDER DRAWING

REINFORCEMENT SCHEDULE

S. NO.	TYPE OF BARS	SHAPE OF BARS DIMENSIONS NOT TO SCALE IN MM	DIA OF BARS (MM)	SPACING (MM)	NO. OF BARS (MM)
1	a1	150 — 2280 — 150	10	250	20X1
2	a2	150 — 2280 — 150	16	250	20X1
3	a3	150 — 2280 — 150	16	250	20X1
4	a4	150 — 2280 — 150	10	250	20X1
5	a5	1100 × 1830	12	250	20X2
6	a6	850 × 1830	16	250	20X2
7	a7	200, 850, 200, 200, 850, 200	12	250	20X2
8	a8	555, 655, 215, 620	12	250	20X2
9	b1	150 — 4730 — 150	10	250	10X1
10	b2	150 — 4730 — 150	10	250	10X1
11	b3	150 — 4730 — 150	10	250	10X1
12	b4	150 — 4730 — 150	10	250	10X1
13	b5	4730 + 4730	10	250	8X2
14	b6	4730 + 4730	10	250	8X2
15	b7	150 — 4730 — 150	10	250	4X2
16	d1	1716, 1322, 1870, 393	10	200	11X1
17	d2	150 — 2280 — 150	10	200	16X1
18	d3	250, 2380, 555, 1118, 819, 500, 500	12	200	30X2X2
19	d4	150 — 150	12	200	29X2X2

Prepared by :-

WAPCOS LTD.

Project Title :-	NORTH KOEL RESERVOIR PROJECT, BIHAR AND JHARKHAND
Drawing Title :-	REINFORCEMENT DETAILS OF BOX BRIDGE (LEFT BANK) SUPER PASSAGE AT KM 17.130
Drawing No. :-	WAP/PKS/NORTH KOEL/SP-03 06 of 06
Drawn by:-	Checked by:- Approved by:-