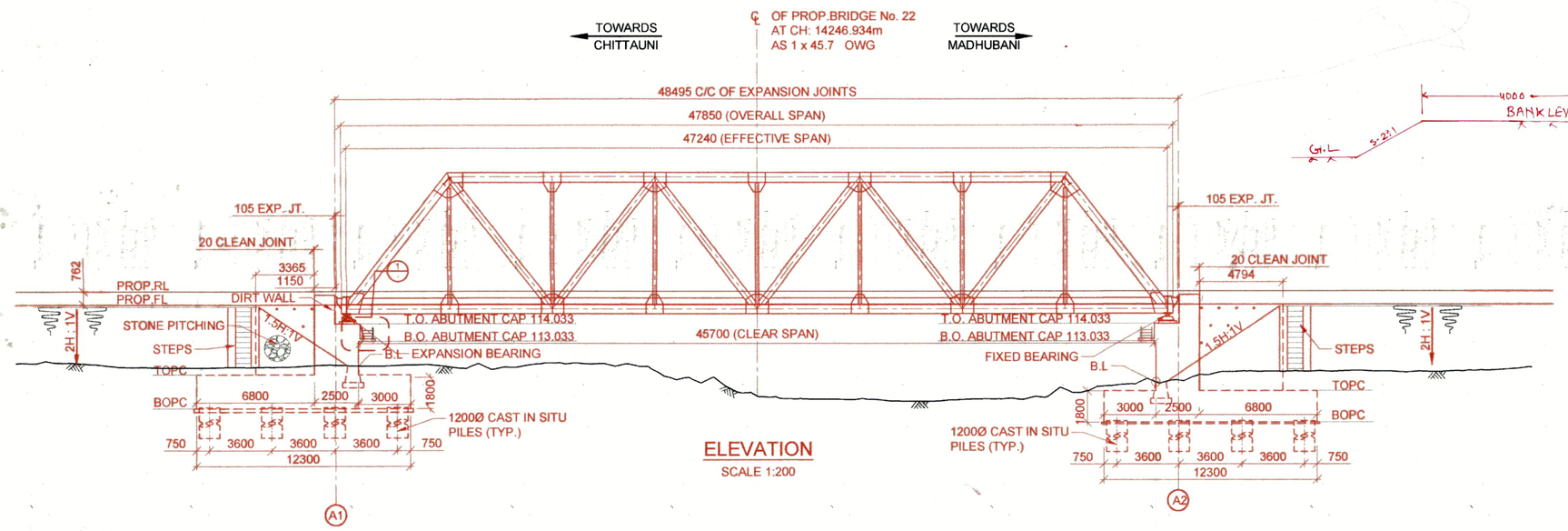
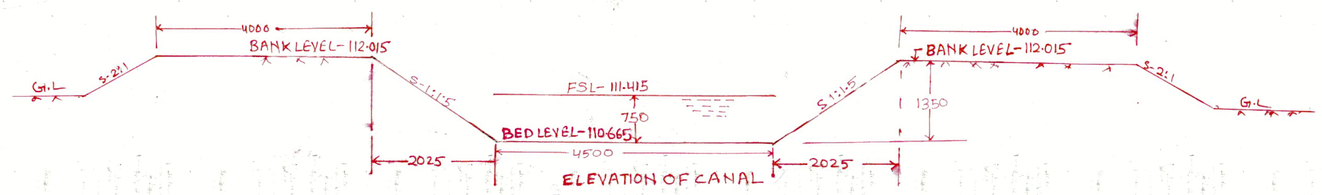
AUTHORITY OF WORK
PINK BOOK- 2024-25
PAGE NO.-4:2:1
ITEM NO. - 24



ELEVATION
SCALE 1:200



	A1	A2
CHAINAGE (m)	14222.687	14271.182
PROP. RAIL LEVEL (m)	115.900	115.900
PROP. FORMATION LEVEL (m)	115.138	115.138
BED LEVEL (m)	111.615	110.665
PILE CAP TOP LEVEL (m)	111.115	110.165
PILE CAP BOTTOM LEVEL (m)	109.315	108.365

BOREHOLE PROFILE
SECTION: CHITAUNI TO MADHUBANI
Bore Hole Terminated at : 40.45M.

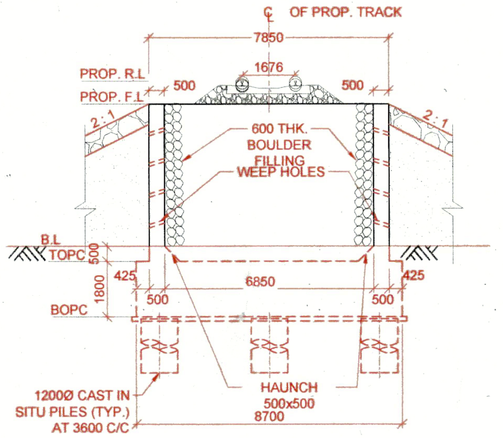
DEPTH (M)		SPT N-VALUE	DESCRIPTION OF SOIL	IS CLASSIFICATION
0.00	1.5	–	SM	MEDIUM DENSE LITE GRAY, SILTY SAND (SM)
1.50	1.95	6		
3.00	3.45	9		
4.50	4.95	11		
6.00	6.45	13		
7.50	7.95	15		
9.00	9.45	19		
10.50	10.95	23		
12.00	12.45	22		
13.50	13.95	26		
15.00	15.45	29		
16.50	16.95	33		
18.00	18.45	39		
19.50	19.95	34		
21.00	21.45	39		
22.50	22.95	45		
24.00	24.45	42		
25.50	25.95	48		
27.00	27.45	55		
28.50	28.95	60		
30.00	30.45	56		
31.50	31.95	65		
33.00	33.45	70		
34.50	34.95	74		
36.00	36.45	79		
37.50	37.95	86		
39.00	39.45	100		
40.00	40.45	100		

BRIDGE NO.: 22
BOREHOLE NO.: 01

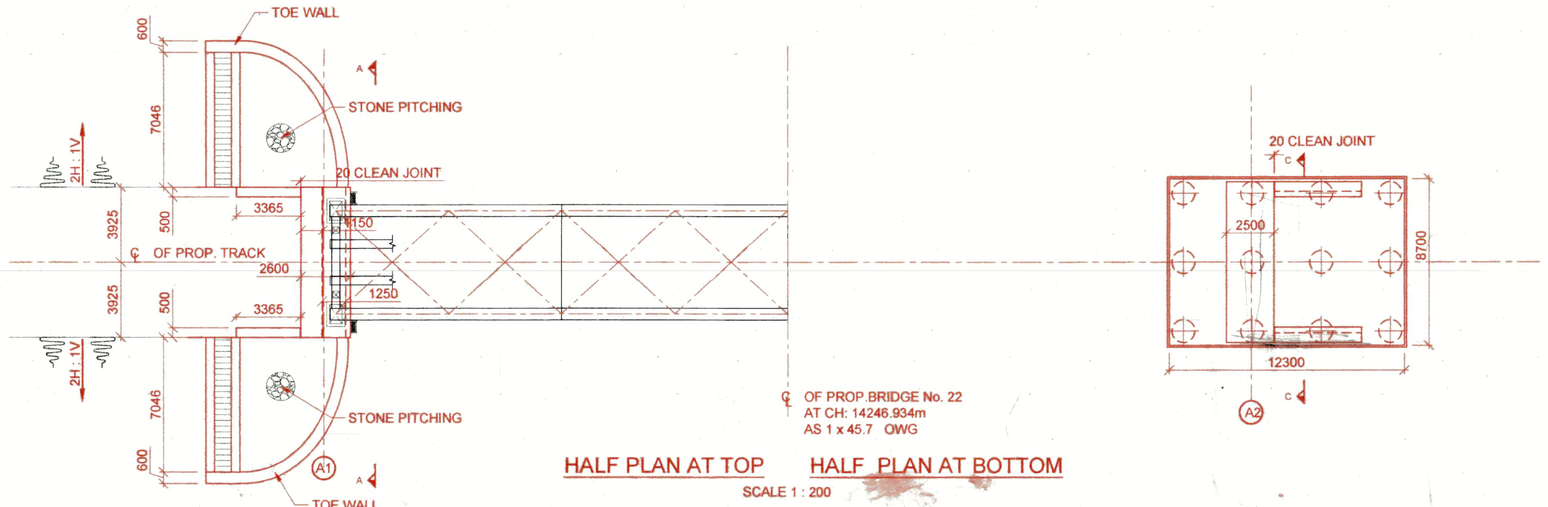
BOREHOLE PROFILE
SECTION: CHITAUNI TO MADHUBANI
Bore Hole Terminated at : 40.45M.

DEPTH (M)		SPT N-VALUE	DESCRIPTION OF SOIL	IS CLASSIFICATION
0.00	1.5	–	SM	MEDIUM DENSE LITE GRAY, SILTY SAND (SM)
1.50	1.95	4		
3.00	3.45	7		
4.50	4.95	13		
6.00	6.45	10		
7.50	7.95	14		
9.00	9.45	17		
10.50	10.95	21		
12.00	12.45	18		
13.50	13.95	23		
15.00	15.45	26		
16.50	16.95	30		
18.00	18.45	35		
19.50	19.95	39		
21.00	21.45	43		
22.50	22.95	36		
24.00	24.45	46		
25.50	25.95	53		
27.00	27.45	59		
28.50	28.95	66		
30.00	30.45	70		
31.50	31.95	65		
33.00	33.45	71		
34.50	34.95	75		
36.00	36.45	100		
37.50	37.95	85		
39.00	39.45	100		
40.00	40.45	100		

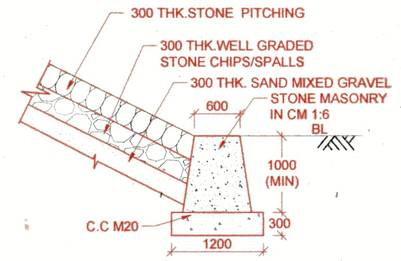
BRIDGE NO.: 22
BOREHOLE NO.: 02



SECTION C-C
SCALE 1 : 125



HALF PLAN AT TOP HALF PLAN AT BOTTOM
SCALE 1 : 200



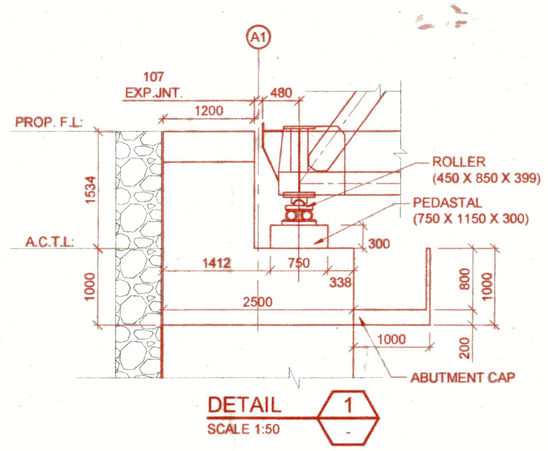
TOE WALL AND PITCHING
SCALE 1:50

3 ALL LEVELS DETAILS

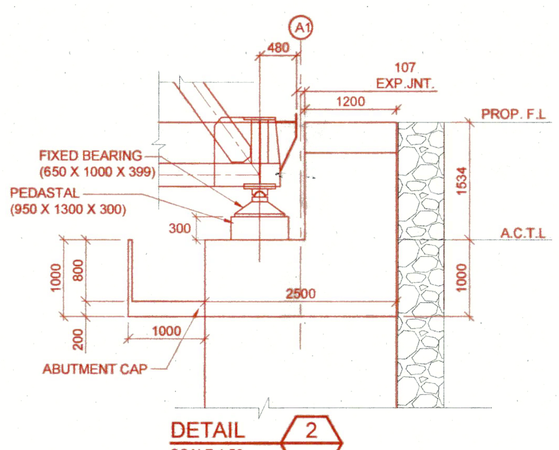
S.NO.	DESCRIPTION	LEVEL (IN METERS)
1.	PROP. RAIL LEVEL	115.900
2.	PRO. FORMATION LEVEL	115.138
3.	EXIS RAIL LEVEL	–
4.	EXIS. FORMATION LEVEL	–
5.	HFL	–

LEGEND

R.L	RAIL LEVEL
F.L	FORMATION LEVEL
VC	VERTICAL CLEARANCE
FB	FREE BOARD
HFL	HIGH FLOOD LEVEL
B.L	BED LEVEL
TOPC	TOP OF PILE CAP
BOPC	BOTTOM OF PILE CAP
PROP.	PROPOSED
THK.	THICKNESS
EXP. JT.	EXPANSION JOINT
C.C	CEMENT CONCRETE
TYP.	TYPICAL



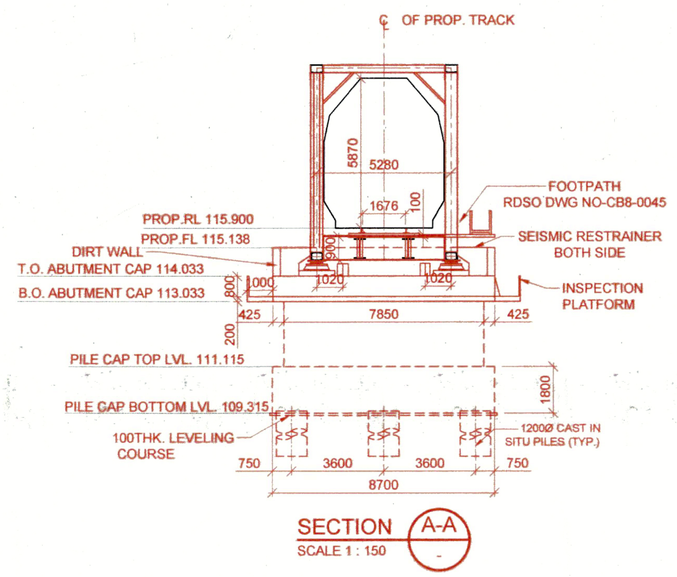
DETAIL 1
SCALE 1:50



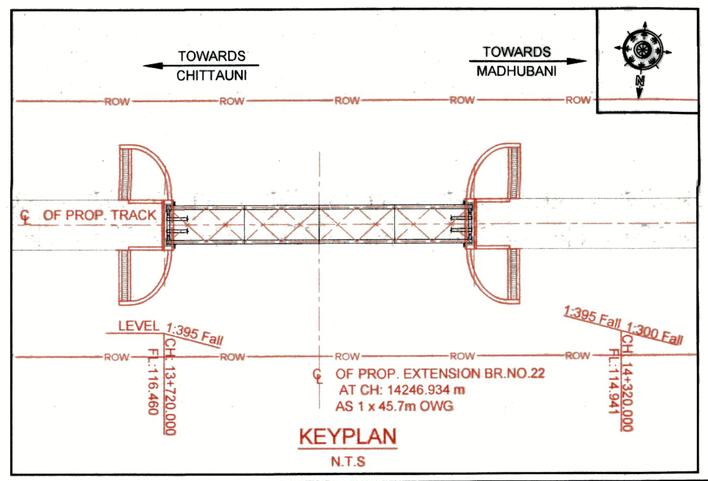
DETAIL 2
SCALE 1:50

CONSTRUCTION DEPTH

	PROP. LINE
1) RAIL	172 mm
2) RUBBER PAD	10 mm
3) PSC SLEEPER	230 mm
4) BALLAST	350 mm
TOTAL	762 mm



SECTION A-A
SCALE 1 : 150



KEYPLAN
N.T.S

2 SPECIFICATION MATERIALS & MAKES

S.NO.	STRUCTURE	SPECIFICATION	MATERIALS
1.	PILE	H.Y.S.D. BARS AS PER I.S.:1786-1990 & THE CEMENT WILL BE OF 43 GRADE AS PER RELEVANT I.S. CODE.	C C M -35
2.	PILE CAP	H.Y.S.D. BARS AS PER I.S.:1786-1990 & THE CEMENT WILL BE OF 43 GRADE AS PER RELEVANT I.S. CODE.	CC/R C C M -35
3.	ABUTMENT	H.Y.S.D. BARS AS PER I.S.:1786-1990 & THE CEMENT WILL BE OF 43 GRADE AS PER RELEVANT I.S. CODE.	R C CM -35

PROPOSED BRIDGE DETAILS

PROPOSED BRIDGE DETAILS	BR. NO.	PROPOSED BRIDGE SPAN	RAIL LEVEL(m)	FL (m)	BED LEVEL (m)	FSL (m)	HT. OF BANK (m)	VERTICAL CLEARANCE AVAIL(m)	WATER DEPTH (M)	FREE BOARD REQ. (m)	FREE BOARD AVAIL (m)	DISCHARGE (CUM)
	22	1x45.7m OPEN WEB GIRDER	115.900	115.138	110.665	111.415	4.473	2.618	0.750	1.00	3.723	38.87

REFERENCE :
1. FOR 30.5 MTR. OPEN WEB GIRDER, AS PER RDSO DRAWING NO.RDSO/ B-17161

REFERENCE RDSO DRAWINGS
1. RDSO/B-17164 FOR BEARING DETAILS.
2. SIDE PATHWAY AS PER DRAWING NO. CBS-0046.
3. INSPECTION PLATFORM AS PER DRAWING NO. CBS-0016.

NOTE:
1. PROPOSED WORKS SHOWN RED.
2. ALL DIMENSIONS ARE IN mm & ALL LEVELS ARE IN METER'S UNLESS OTHERWISE SPECIFIED.
3. MINIMUM GRADE OF CONCRETE TO BE FOLLOWED :
(a) BED BLOCK - M35
(b) ABUTMENT/PIER - M30
(c) PILE CAP - M35c
(d) PILE - M35
(e) PEDESTAL - M35
4. THE DESIGN BASED ON FOLLOWING CODE WITH LATEST CORRECTION SLIPS.
(a) IRS BRIDGE SUBSTRUCTURE AND FOUNDATION CODE.
(b) IRS BRIDGE RULES.
(c) IRS CONCRETE BRIDGE CODE.
(d) IS: 456-2000.
(e) IS 2911-2010 PART-1-SECTION-2.
5. ALL THE CONCRETE SHALL BE DESIGNED MIXED CONTROLLED CONCRETE AS PER I.R.S CONCRETE BRIDGE AND IS 456-200.
THE CRUSHING STRENGTH OF CONCRETE SHALL BE AS PER CRITERIA SPECIFIED IN I.R.S CONCRETE BRIDGE CODE AND IS 456-2000.
6. FOR A SPAN OF 45.7M OF 25 T LOADING STANDARD SHALL BE PROVIDED AS PER RDSO DRG NO. B-17181/R/ TO 17181/19.
7. INSPECTION LADDERS AREA TO PROVIDED ON PIERS/ABUTMENTS AS PER SPECIFICATION ,FOR ACCESS TO BED BLOCKS FOR INSPECTION.
8. REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS CONFORMING TO IS:1786.
9. ONLY ONE TYPE OF CEMENT&STEEL WILL BE USED ON A PARTICULAR BRIDGES AND BRAND OF CEMENT AND STEEL SHOULD BE APPROVED BY DY. CE /CON OF THE PROJECT.
10. DIMENSIONS GIVEN IN THIS DRAWING MUST BE RECONCILED AT SITE BEFORE START OF THE WORK FOR FEASIBILITY.
11. CONTROLLED CONCRETE/DESIGN MIX CONCRETE WITH WEIGHT BATCHING OR AUTOMATIC WEIGHT BATCHING WITH PAN MIXTURE IF APPLICABLE SHALL BE USED.
12. THE BACKFILL BEHIND ABUTMENT, WING WALL AND RETURN WALL SHOULD BE AS PER CLAUSE 7.5 OF I.R.S BRIDGE SUB-STRUCTURE AND FOUNDATION CODE WITH UP TO DATE ALL CORRECTION SLIPS.
13. 600MM FILTER MEDIA SHALL BE PROVIDED WITH HAND PACKED BOULDERS ON THE EARTH FACE OF ABUTMENT /TREPANNING WALL VOIDS BETWEEN BOULDERS SHALL BE FIELD WITH SMALLER SIZED STONES TO PREVENT OUT FLOW OF BACK FILLED MATERIALS.
14. WEEP HOLES SHALL BE 75/100 DIA PVC PIPES STAGGERED 1000MM C/C HORIZONTALLY AND VERTICALLY ABOVE L.W.L OR F.S.L IN CASE OF CANAL BRIDGE IN BOTH WING/RETURN WALL AND EARTH RETAINER/ABUTMENT OF BRIDGE SHOULD BE AS PER CLAUSE 7.6 OF I.R.S BRIDGE SUB-STRUCTURE AND FOUNDATION CODE.
15. THE BANK SLOPES BEYOND THE BOULDERS PITCHING SHALL BE PROTECTED FROM RAIN CUTS BY PROVIDING TURFING.
16. ALL WORK SHALL BE CARRIED OUT AS PER THE INSTRUCTIONS & SUPERVISION OF ENGINEER -IN -CHARGE.
17. SHARP EDGES OF CONCRETE SHALL BE CHAMPHERED.
18. BRIDGES COMES UNDER SEISMIC ZONE IV AREA.
19. EXPOSURE CONDITION OF BRIDGES IS MODERATE.
20 . PITCHING WORK SHALL BE DONE IN ACCORDANCE WITH ANNEXURE-1 AS PER W/CON/29/O/AW-1/PART-III DATED 11-11-2009.
21. SEPARATE DRAWING WILL BE ISSUED FOR RETURN TOE WALL.
22. DIMENSION SHOWN IN SUBSTRUCTURE ARE TENTATIVE IN NATURE.DETAILED DESIGN CALCULATION AND SOIL REPORT WILL BE SUBMITTED ALONG WITH STRUCTURAL DRAWINGS.
23. THE DEPTH OF PILES SHOWN IN DRAWING MAY VARIES AT THE TIME OF DESIGNING OF THE SUB STRUCTURE OF BRIDGES.
24. THE EXECUTION OF BRIDGES WILL START AFTER APPROVAL OF DESIGN FROM RAILWAYS.
25. DUCTILE DETAILING OF REINFORCEMENT CONCRETE SHALL BE AS PER IRS SEISMIC CODE -2020.
26. INITIAL PILE TEST REPORT MUST BE APPROVED BY CE/CON BEFORE EXECUTION OF WORKING PILE.
27. TRANSITION SYSTEM SHOULD BE PROVIDED AT BOTH END OF ABUTMENT AS PER RDSO DRG. NO. GE/SK/GL/912A/REV.0/2024.
28. MINIMUM 150 MM PROJECTION IN BEARING PEDESTAL IS REQUIRED.
29. PILE ARRANGEMENT AS PER DESIGN.
30. LIQUEFACTION ANALYSIS TO BE SUBMITTED WITH DESIGN.
31. SUB-STRUCTURE PROPOSED IS FOR SINGLE LINE TRACK ONLY.
32. FIELD UNIT MUST PRE VALIDATE ALL DATA AND LEVELS BEFORE EXECUTION OF WORK COMMENCES.
33. LATEST RAILWAY BOARD GUIDELINES REGARDING RSI ANALYSIS MUST BE FOLLOWED.
34. ALL REINFORCEMENT DETAILS WILL BE ISSUED SEPARATELY.
35. CRS MINOR SECTION IS REQUIRED TO BE TAKEN BEFORE EXECUTION OF WORK STARTS.

COLOR CODE LEGEND:

RED	-	PROPOSED
BLACK	-	EXISTING
CONTINUOUS	-	VISIBLE
DOTTED	-	INVISIBLE

LOADING STANDARD
25T-AXLE LOAD-2008

		CE / CON / I/GKP	(SANJAY KANOJIA)
DY. CE / CON /BSB	PANKAJ PANDEY (PANKAJ PANDEY) Digitally signed by PANKAJ PANDEY Date: 2025.06.28 14:06:42 +05'30'	DY. CE / CON. / P&D	(SHAILENDRA SINGH)
AXEN / CON / B&D	VIJAY PRATAP SINGH (V.P. SINGH) Digitally signed by VIJAY PRATAP SINGH Date: 2025.06.28 13:54:01 +05'30'	XEN / C / DESIGN	(R.K.SINGH)

CONST. & HQ. OFFICER'S SIGNATURE

CLIENT : NORTH EASTERN RAILWAY

PROJECT : CHITAUNI-TAMKUHI ROAD NEW LINE PART-1

TITLE : GENERAL ARRANGEMENT DRAWING FOR PROPOSED BR. NO. 22 (1X45.7M) (OWG) AT CANAL.

BETWEEN STATION :-CHITAUNI-MADHUBANI | KM : 14/2-3CH:- 14246.934M

TYPE OF MAP : GENERAL ARRANGEMENT DRAWING

FILE NO. AA / 2644 / STR / BR. NO.: 22 / GAD / 001

CONSULTANT aarvee associates architects engineers & consultants pvt. ltd.

CE Plan No. GCTE-TDI/236/09-2025 | SCALE AS SHOWN

Date: 25/09/2025 | SHEET : 1 OF 1

FOR EPC TENDER ONLY

(G.K.MISHRA) SSE/W/CON/GKP	(R.K.SINGH) SSE/DRG./CON/CPR	JE/DES/CON/GKP	(BILAL AHMAD) SSE/DESI/CON/GKP	DRAWN	CHK. BY