

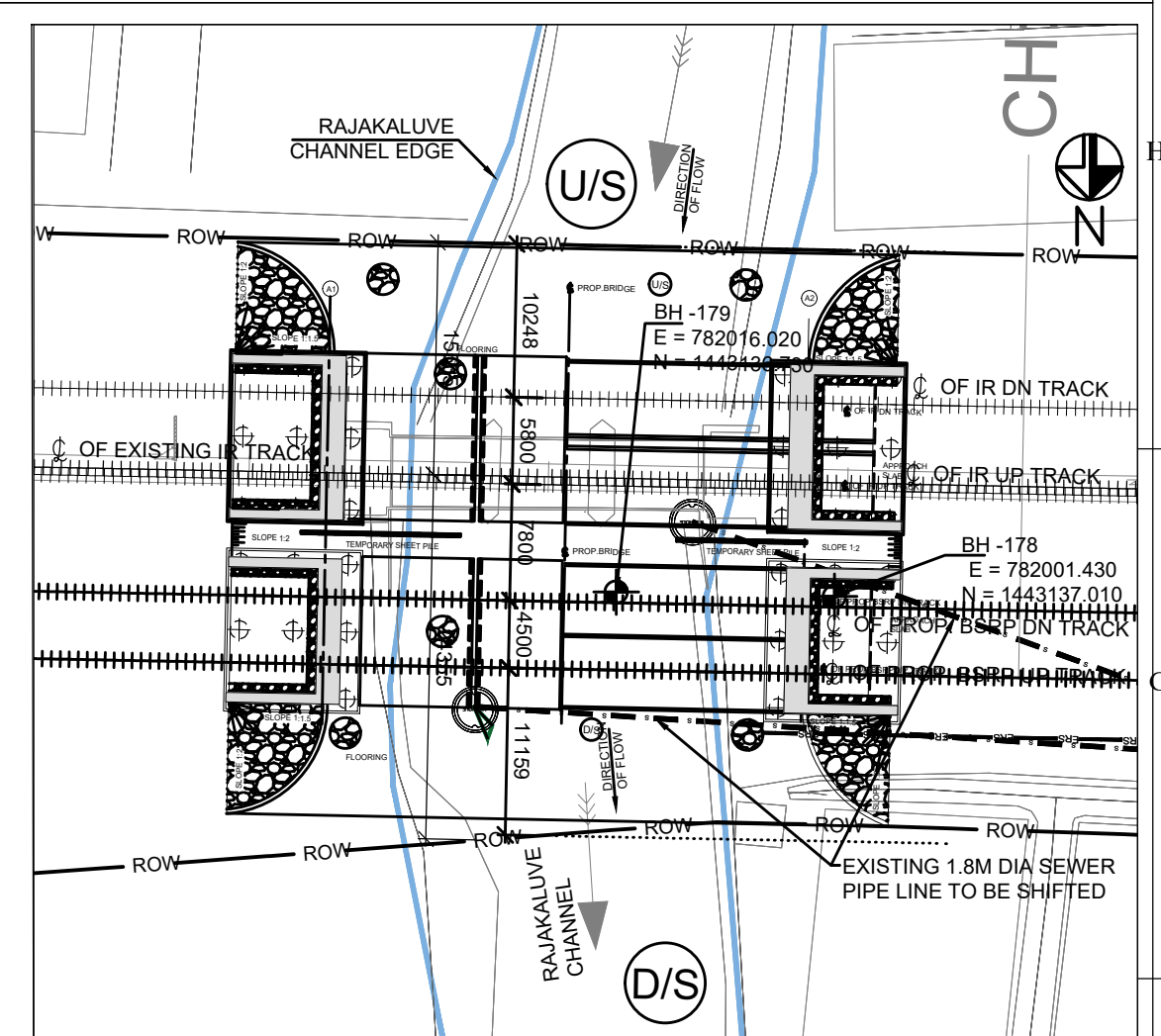
FOR ABUTMENT LHS A1/A2
SECTION B-B
(SCALE 1:100)

FOR ABUTMENT LHS A1/A2

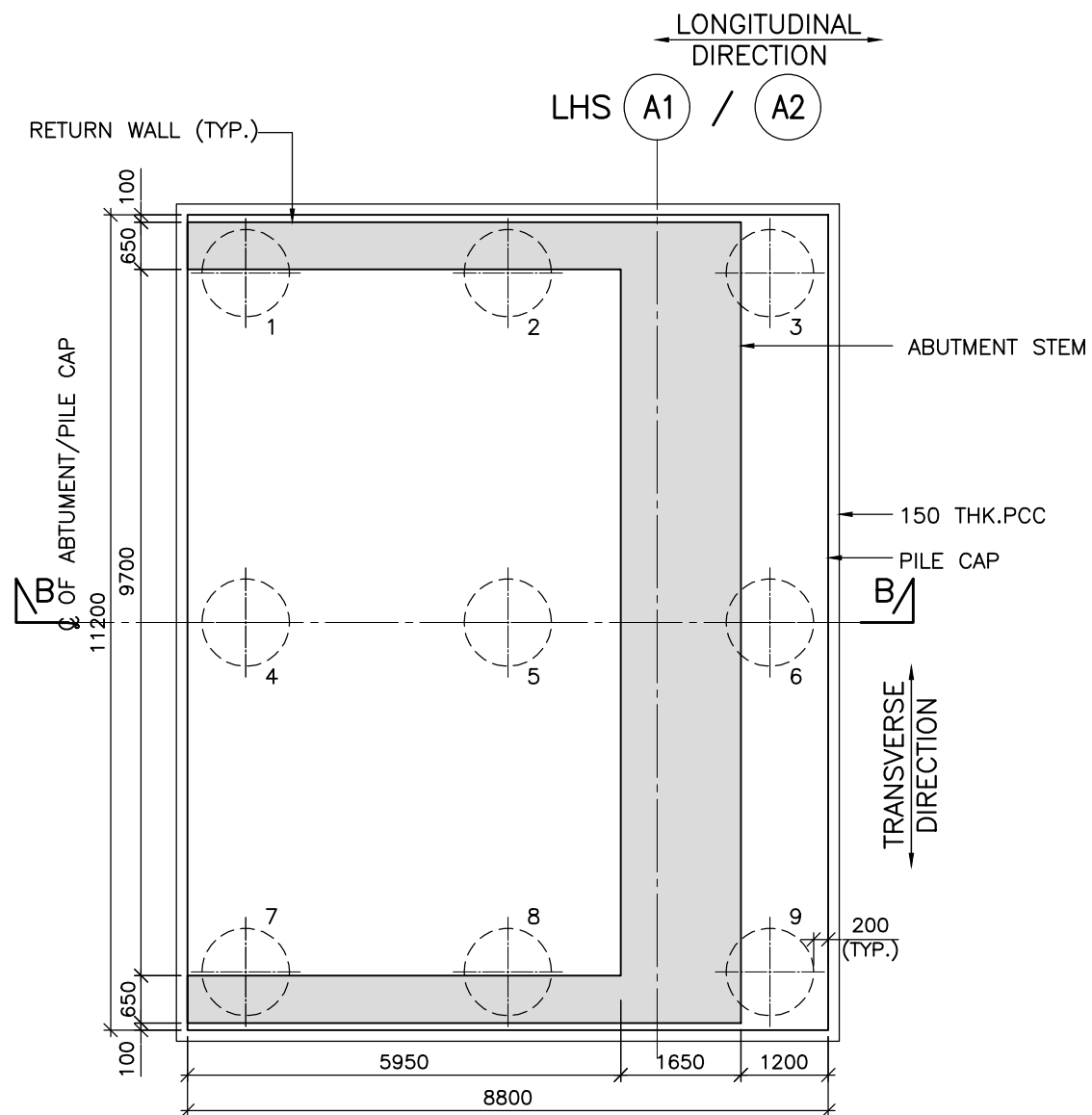
VIEW 'X'
(SCALE 1:100)

FOR ABUTMENT RHS A1/A2

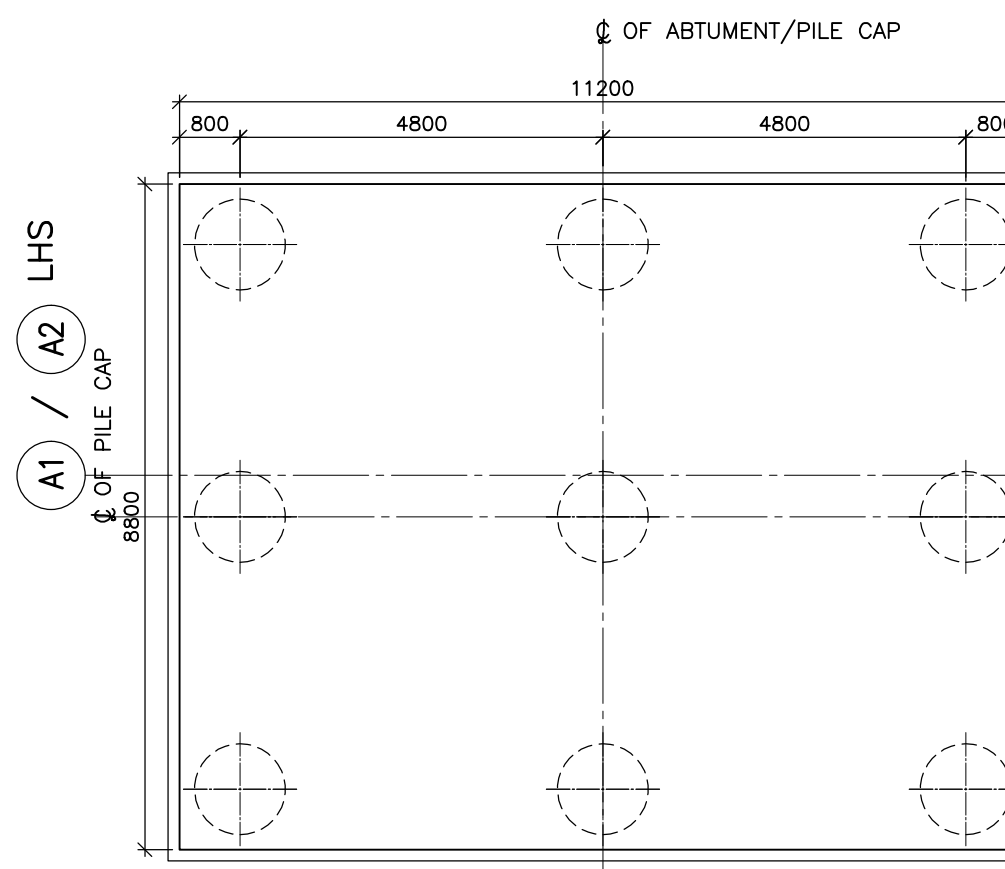
FOR ABUTMENT RHS A1/A2
SECTION B-B
(SCALE 1:100)



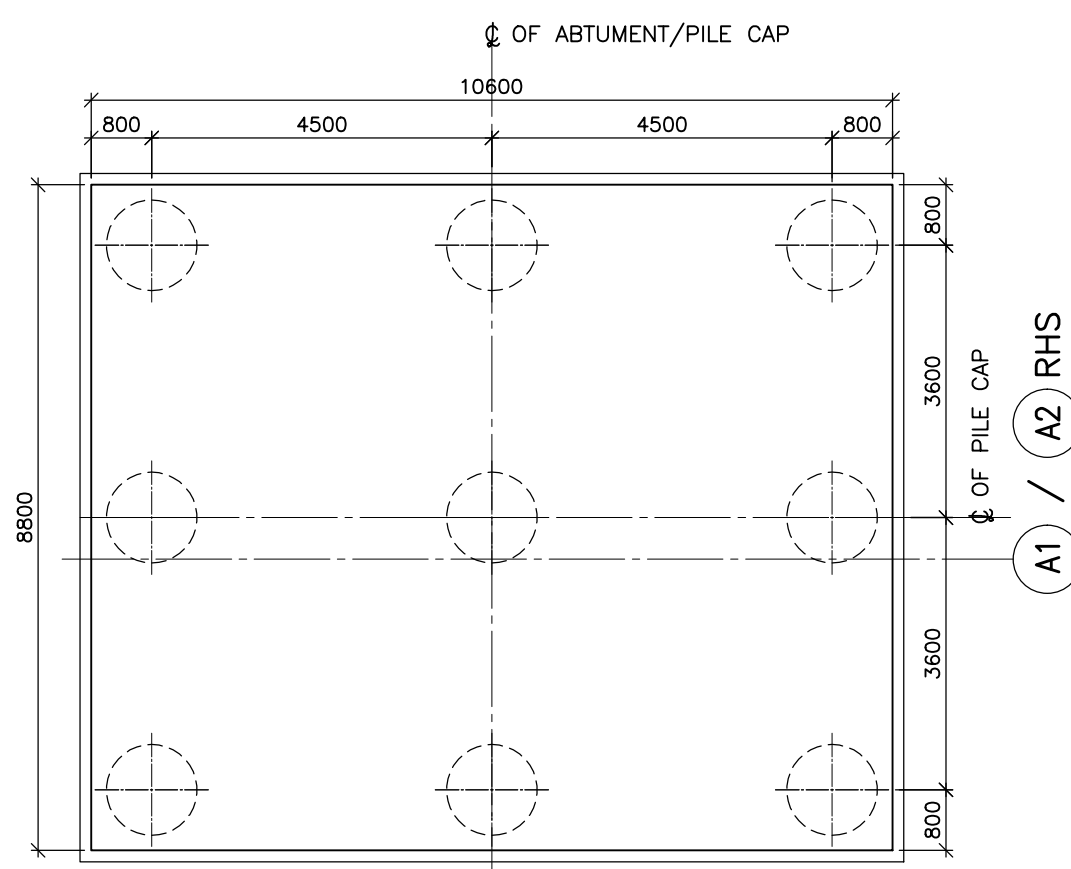
KEY PLAN
Scale: 1:500



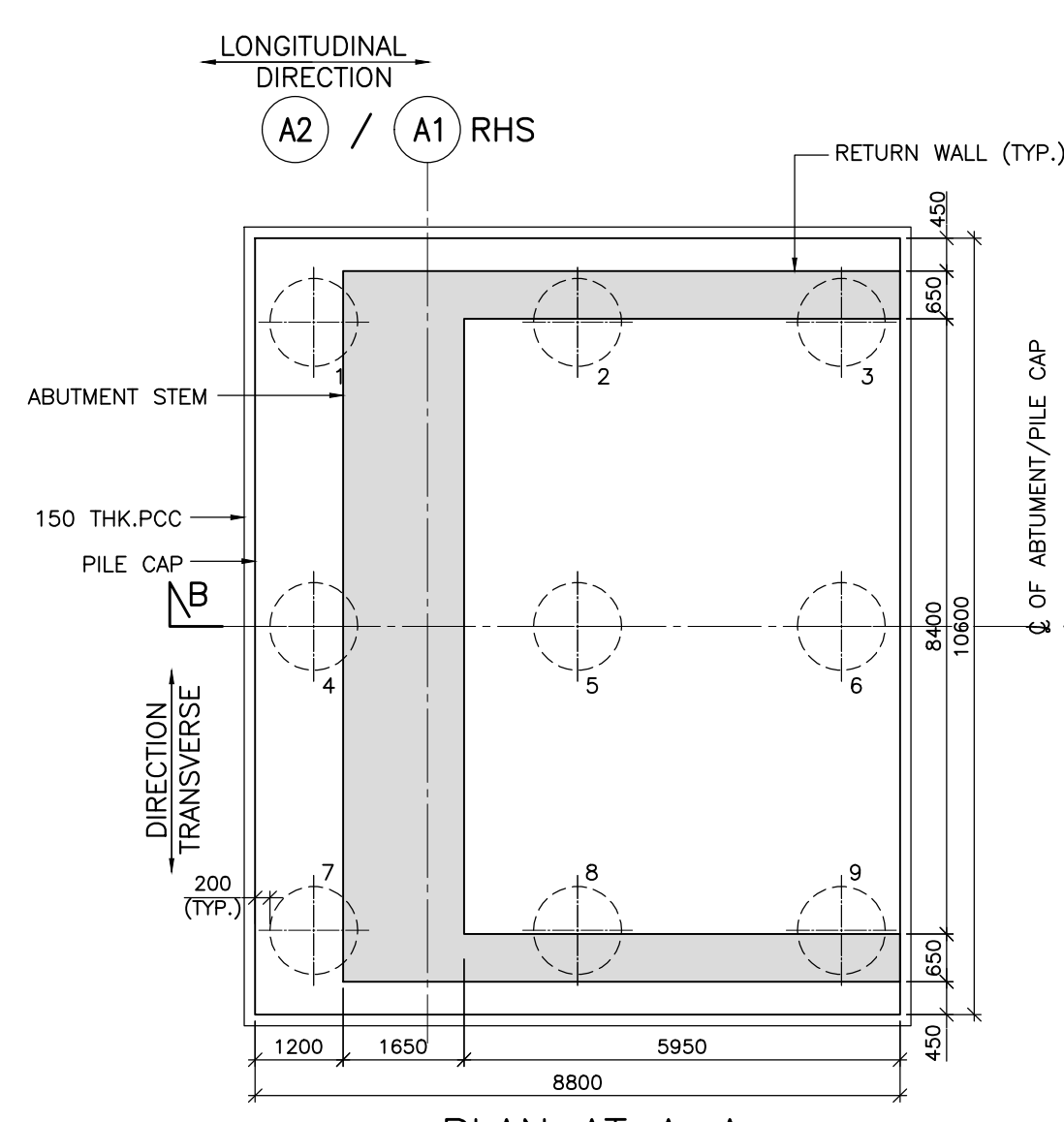
PLAN AT A-A
(SCALE 1:100)



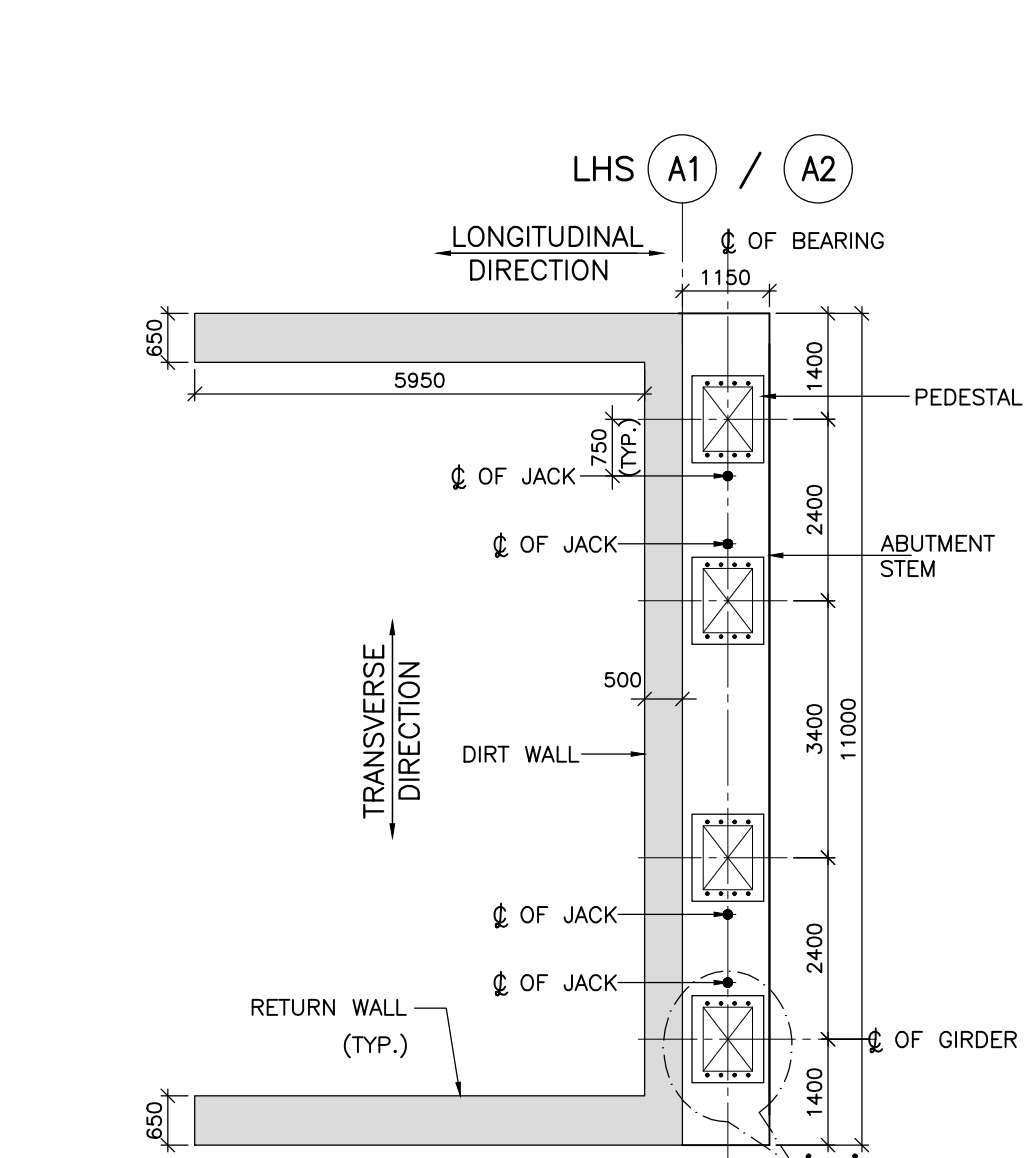
PLAN OF PILE CAP AT IR SIDE
(SCALE 1:100)



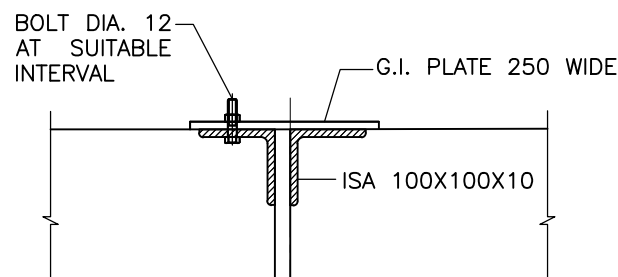
PLAN OF PILE CAP AT BSRP SIDE
(SCALE 1:100)



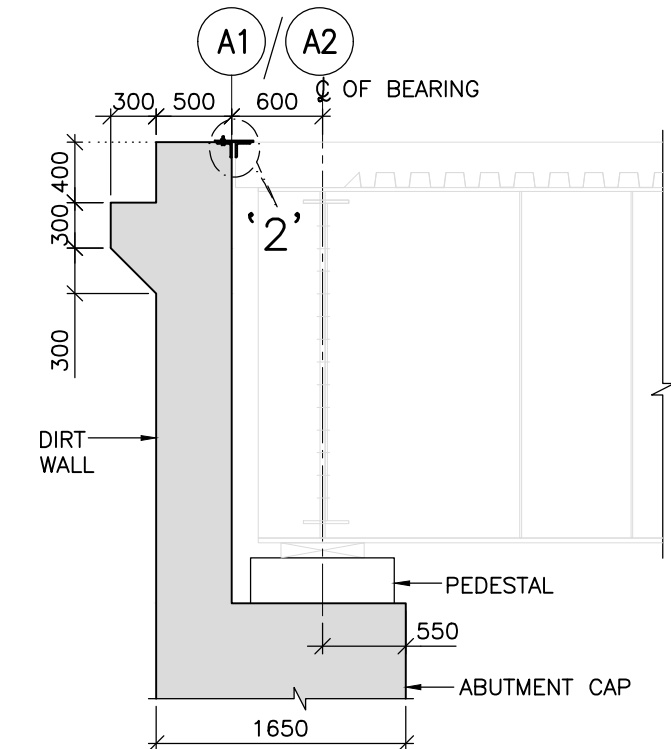
PLAN AT A-A
(SCALE 1:100)



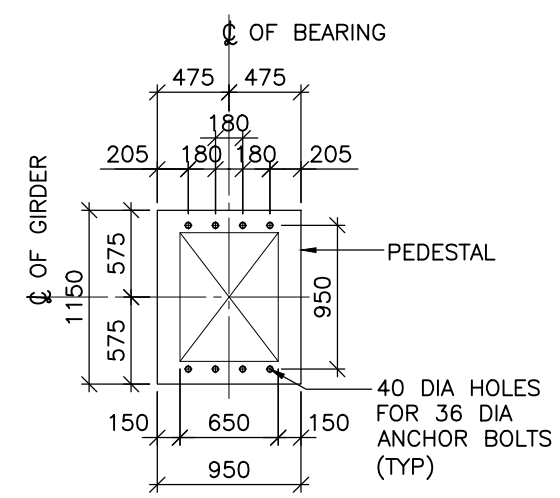
PLAN AT E-E
(SCALE 1:100)



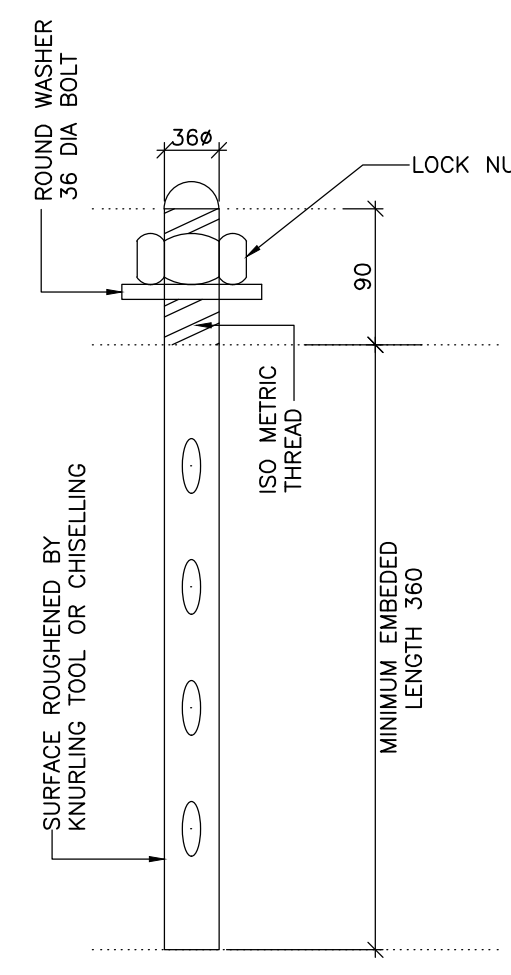
DETAIL-2
(SCALE 1:10)



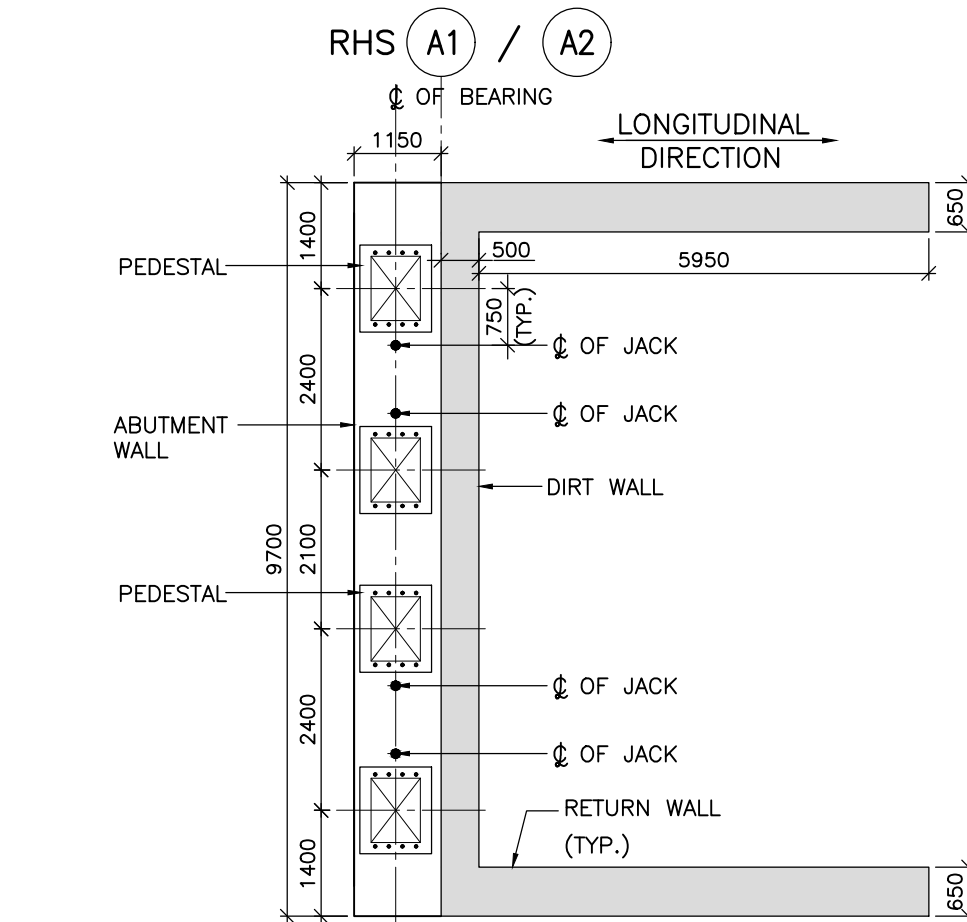
DETAIL '1'
(AT RAILWAY TRACK)
(SCALE 1:50)



DETAIL '3'
(SCALE 1:50)



ANCHOR BOLT
(SCALE 1:10)
(SCHEMATIC)



PLAN AT E-E
(SCALE 1:100)

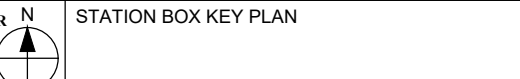






NOTES:-

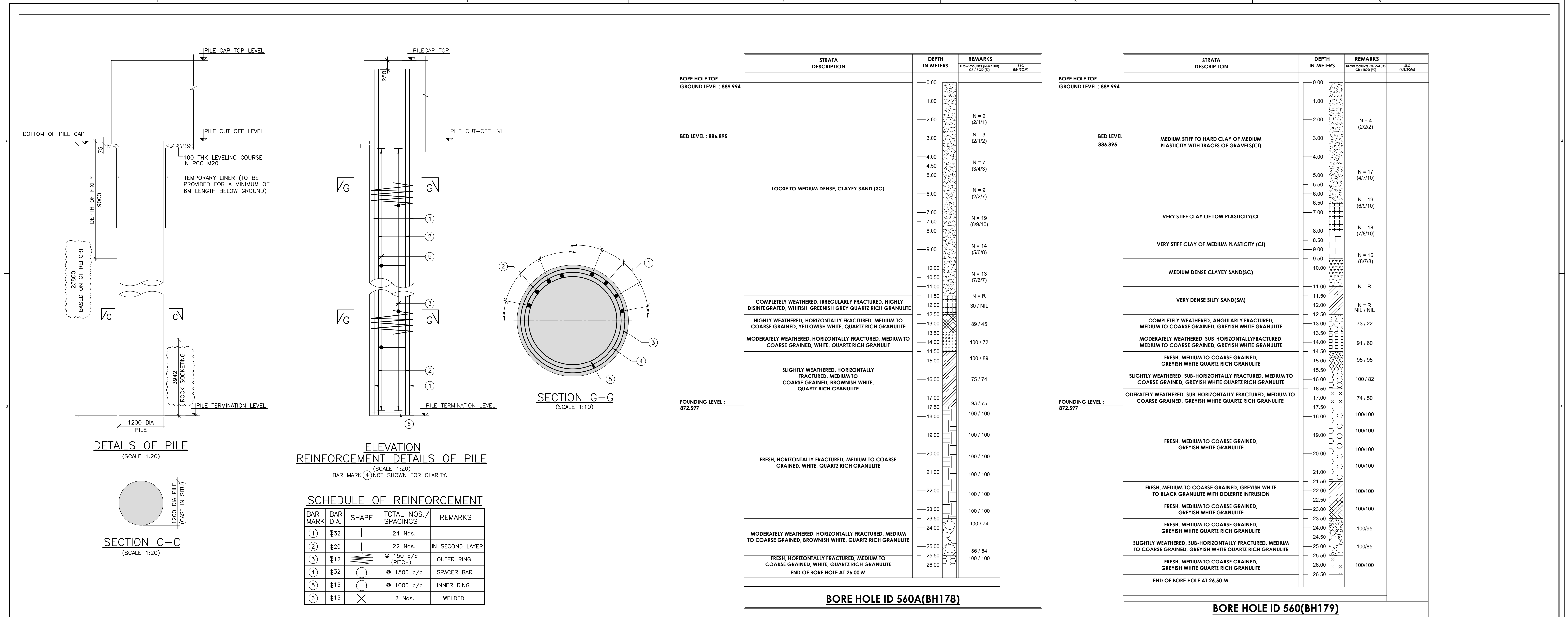
- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE MENTIONED.
- DIMENSIONS SHALL NOT BE SCALED OFF FROM THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- CONCRETE GRADE FOR ABUTMENT CAP, ABUTMENT STEM, PILE, PILE CAP :- M35, PEDESTAL :- M40, RCC RETAINING WALL :- M35
- REINFORCEMENT:- Fe-500 BARS CONFORMING TO IS:1786-2008.
- MINIMUM CLEAR COVER OF REINFORCEMENT SHALL BE 75MM TO EARTH FACE FOR ABUTMENT STEM, DIRT WALL, 75MM TO PILE, PILE CAP & 50MM TO OTHER FACE FOR ABUTMENT STEM, DIRT WALL.
- DEVELOPMENT/LAP LENGTH SHALL BE 41d WHERE 'd' IS DIA. OF LAPPING BARS. EXCEPT FOR RETAINING WALL DEVELOPMENT / LAP LENGTH IS 51d. NOT MORE THAN 50% BARS SHALL BE LAPPED AT ANY LOCATION. THE LAPS SHALL BE STAGGERED BY MINIMUM 1.3 TIMES LAP LENGTH.
- MAXIMUM COARSE AGGREGATE SIZE SHALL BE 20mm.
- THE DESIGN IS SUITABLE FOR MODERATE ENVIRONMENT EXPOSURE CONDITIONS (i.e. DESIGN CRACK WIDTH NOT TO EXCEED 0.25mm AS PER CLAUSE NO. 10.2.1(a) OF IRS CONCRETE BRIDGE CODE).
- CLEAR COVER TO ANY REINFORCEMENT SHALL BE 50mm.
- PARAMETERS CONSIDERED FOR DESIGN:-
 - ANGLE OF INTERNAL BACKFILL - $\phi = 30^\circ$
 - COHESION OF BACKFILL - $c = 0$
 - WALL FRICTION ANGLE - $\delta = 10^\circ$
 - SATURATED DENSITY OF BACKFILL - $\gamma = 20 \text{ kN/m}^3$
- DEVELOPMENT LENGTH $L_d = 41 \text{ TIMES DIA OF BAR}$.
- LAP LENGTH SHALL BE 64 TIMES DIA OF BAR. NOT MORE THAN 50% OF BARS ARE LAPPED IN SAME PLACE.
- SAFE BEARING CAPACITY AT BOTTOM OF BASE SLAB SHALL BE CONFIRMED BY DOING PLATE LOAD TEST & SBC CONFIRMED SHALL BE GREATER THAN THE BEARING PRESSURE SBC SHOULD BE 251 t/m^2 .
- IN CASE OF ANY EXCAVATION TO BE CARRIED OUT IN THE FRONT SIDE OF RETAINING WALL AT/NEAR TOE SLAB, PRIOR APPROVAL/CONSENT SHALL BE OBTAINED FROM RELEVANT AUTHORITY AND WALL STABILITY NEED TO BE RECHECKED.
- HEIGHT 'h2' NEED TO BE MAINTAINED IN FRONT OF RETAINING WALL FOR ITS INTENDED LIFE AND FOR CONSIDERATION OF PASSIVE PRESSURE.
- SOIL WITH INTERNAL FRICTION $\phi 30^\circ$ IS CONSIDERED IN DESIGN.
- BACKFILL MATERIAL SHALL CONSIST OF GRANULAR MATERIAL OF GW, GP, SW, GROUPS AS PER IS:1498-1970.
- IF REQUIRED, DURING CONSTRUCTION ADDITIONAL LINKS TO BE PROVIDED TO PLACE THE VERTICAL BARS IN POSITION.
- THE COMPACTION FACTOR OF 0.95 OR ABOVE HAS TO BE ENSURED AT THE BASE OF PCC.
- STRICTLY, FOR THE FULL DEVELOPMENT OF PASSIVE EARTH PRESSURE, IT IS NECESSARY THAT DURING THE CONSTRUCTION OF THE WALL, THERE SHOULD BE NO DISTURBANCE TO THE SOIL AGAINST WHICH THE CONCRETE IN THE TOE SLAB IS PLACED.
- ALL RCC SURFACES COMING IN CONTACT WITH SOIL SHOULD BE PAINTED WITH BITUMEN OR COAL TAR OF APPROVED QUALITY @ 1.46 kg/sqm
- THE ANCHOR BOLTS AND THEIR NUTS SHALL BE HOT DIP GALVANIZED 100 MICRON THICK AS PER IS 4759
- LEVELS AND CO-ORDINATES MENTIONED IN THE DRAWINGS NEED TO BE VERIFIED AT SITE BEFORE CONSTRUCTION. IF FOUND ANY VARIATION IN LEVELS, SAME SHOULD BE BROUGHT TO DESIGNER'S ENGINEER NOTICE BEFORE EXECUTION.
- IF ANY AMBIGUITY IS FOUND IN DRAWING OR AT SITE, THE SAME SHALL BE BROUGHT TO DESIGNER'S ENGINEER NOTICE BEFORE EXECUTION.
- TILL HARD ROCK REACHES PILE LENGTH TO BE VERIFIED BY SITE ENGINEER IN CONSULTATION WITH GEOTECH ENGINEER.

TABLE OF LEVEL

LOCATION	RAIL LEVEL	AT GROUND LEVEL	PILE CAP TOP LEVEL	PILE CUT OFF LEVEL	PILE TERMINATION LEVEL	ABUTMENT CAP TOP LEVEL	LENGTH OF PILE	DESIGN PILE LOAD (VERTICAL)	SEISMIC WIND LOAD (VERTICAL)	WORKING LOAD (LATERAL)	CAPACITY LOAD (LATERAL)
A1	893.779	890.324	888.968	887.243	863.368**	889.689*	23.80	360 T	355 T	35 T	78 T
A2	893.779	889.948	888.968	887.243	863.368**	889.689*	23.80	360 T	355 T	35 T	78 T

* ABUTMENT CAP TOP LEVEL TO BE ADJUSTED AS PER THICKNESS OF PEDESTAL.
** READ NOTE NO. 25.

NOTES:		LEGEND:		REFERENCE DRAWINGS :		REFERENCE DOCUMENTS:		KEY PLAN		STATION BOX KEY PLAN			
		--- BOTTOM REINFORCEMENT / BACK FACE		022077-BSRP-CR2-C-MB-0-20-1118 ...GENERAL ARRANGEMENT DRAWING		DOC-BSRP-CR2-AG-DDN-BR-1541....		DESIGN OF ABUTMENT A1 & A2 FOR MAJOR BRIDGE NO 560					
		--- TOP REINFORCEMENT / FRONT FACE		022077-BSRP-CR2-C-MB-0-20-1135 ...REINFORCEMENT DETAILS OF ABUTMENT A1 & A2									
		 JACK LOCATION IN CROSS SECTION		A1 & A2 AND RCC RETAINING WALL OF MAJOR BRIDGE NO.560 AT BSRP CH-9.989									
		 JACK LOCATION IN PLAN											
REV/	DATE	BRIEF DESCRIPTION		CONTRACTOR :		QUALITY ASSURANCE		GENERAL CONSULTANTS		EMPLOYER :		PROJECT :	
		 TRANSPORTATION INFRASTRUCTURE IC EDCR-SPECIAL BRIDGES		 STUP Consultants Pvt. Ltd. 2/1200, Gandhi Nagar, Madras 600 036 INDIA		The responsibility of control, check and verification of accuracy, correctness, completeness, integration and full compliance of Contract provisions in respect of design analysis and drawing rests with Design & Build Contractor.		 CIVIL GAD		 RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED		BENGALURU SUBURBAN RAILWAY PROJECT (BSRP)	
				DETAILED DESIGN CONSULTANT (DDC) :		PROOF CONSULTANT (PC) :		CHECKED & APPROVED		COUNTER SIGN		K-RIDE CORRIDOR - 2	
H	23.10.24	MODIFIED AS PER GCL'S LATTER NO. 2509						PROJECT DIRECTOR		K RIDE		DRAWING TITLE :	
G	18.06.24	MODIFIED AS PER GCL'S LATTER NO. 2315						SIGN		DESIGNATION		DIMENSION DETAILS OF SUBSTRUCTURE, FOUNDATION & RCC RETAINING WALL AND REINFORCEMENT DETAILS OF A1 & A2	
F	31.05.24	REVISED AS PER SITE FEASIBILITY						NAME		SIGN		DRAWING NO. :	
E	25.05.24	MODIFIED AS PER GCL'S LATTER NO. 2031						DATE		DATE		O22077-BSRP-CR2-C-MB-0-20-1134	
D	15.03.24	MODIFIED AS PER GCL'S LATTER NO. 1708						CIVIL/STRUCTURAL		CIVIL/ALIGNMENT		(SHEET 1 OF 2)	
C	08.09.24	MODIFIED AS PER GCL'S LATTER NO. 1363						CIVIL/GEOTECH		GM/CIVIL/DESIGN		REVISION	
B	08.12.23	MODIFIED AS PER GCL'S LATTER NO. 1114						PREPARED BY		AECOM-EGIS-WSP		DWG STATUS	
A	00.00.00	FOR APPROVAL						CHECKED BY				H	
								APPROVED BY				D	
								ISSUED BY				A	



PILE CO-ORDINATES:

LOCATION	PILE CO-ORDINATES ***																	
	1		2		3		4		5		6		7		8		9	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
A1 LEFT	782040.855	1443121.495	782037.255	1443121.566	782033.656	1443121.637	782040.949	1443126.294	782037.350	1443126.365	782033.751	1443126.436	782041.044	1443131.093	782037.445	1443131.164	782033.845	1443131.235
A1 RIGHT	782041.116	1443134.742	782037.517	1443134.813	782033.917	1443134.884	782041.205	1443139.241	782037.606	1443139.312	782034.006	1443139.383	782041.194	1443143.740	782037.694	1443143.809	782034.095	1443143.880
A2 LEFT	782004.762	1443122.207	782001.162	1443122.278	781997.563	1443122.349	782004.856	1443127.006	782001.257	1443127.077	781997.658	1443127.148	782004.951	1443131.805	782001.352	1443131.876	781997.753	1443131.947
A2 RIGHT	782005.023	1443135.454	782001.424	1443135.525	781997.825	1443135.597	782005.112	1443139.954	782001.513	1443140.025	781997.913	1443140.096	782005.201	1443144.450	782001.601	1443144.521	781998.102	1443144.590

*** ALL COORDINATE TO BE VERIFIED AT SITE.

NOTES:

1. FOR NOTES REFER SHEET 1 OF 2.

LEGEND:

--- BOTTOM REINFORCEMENT / BACK FACE

--- TOP REINFORCEMENT / FRONT FACE

REFERENCE DRAWINGS:

022077-BSRP-CR2-C-MB-0-20-1118 ...GENERAL ARRANGEMENT DRAWING

022077-BSRP-CR2-C-MB-0-20-1134 ...MAJOR BRIDGE NO.560 AT BSRP CH-9.989 DIMENSION DETAILS OF SUBSTRUCTURE, FOUNDATION & RCC RETAINING WALL AND REINFORCEMENT DETAILS OF A1 & A2 SHEET 1 OF 2

REFERENCE DOCUMENTS:

DOC-BSRP-CR2-AG-DGN-BR-1541... DESIGN OF ABUTMENT A1 & A2 FOR MAJOR BRIDGE NO 560

KEY PLAN

JALAHALLI STATION

MATHIKERE STATION

YESHWANTPUR STATION

KANAKANAGAR STATION

BENNEKANAHALLI STATION

STATION BOX KEY PLAN

REV DATE BRIEF DESCRIPTION

H	05.07.24	MODIFIED AS PER GC'S LATTER NO. 2509
G	18.06.24	MODIFIED AS PER GC'S LATTER NO. 2315
F	31.05.24	REVISED AS PER SITE FEASIBILITY
E	25.05.24	MODIFIED AS PER GC'S LATTER NO. 2031
D	15.03.24	MODIFIED AS PER GC'S LATTER NO. 1708
C	08.02.24	MODIFIED AS PER GC'S LATTER NO. 1363
B	08.12.23	MODIFIED AS PER GC'S LATTER NO. 1114
A	00.00.00	FOR APPROVAL

CONTRACTOR:

TRANSPORTATION INFRASTRUCTURE IC

EDRC-SPECIAL BRIDGES

QUALITY ASSURANCE

The responsibility of control, check and verification of accuracy, correctness, completeness, integration and full compliance of Contract provisions in respect of design analysis and drawing rests with Design & Build Contractor.

GENERAL CONSULTANTS

CHECKED & APPROVED	COUNTER SIGN
NAME SIGN	SIGN PROJECT DIRECTOR
CIVIL/GAD	SIGN
CIVIL/ALIGNMENT	NAME
CIVIL/STRUCTURAL	DATE
CIVIL/GEOTECH	CIVIL/ALIGNMENT
	GAD/CIVIL/DESIGN

EMPLOYER:

RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED

PROJECT:

BENGALURU SUBURBAN RAILWAY PROJECT (BSRP)

K-RIDE CORRIDOR - 2

DRAWING TITLE:

MAJOR BRIDGE NO.560 AT BSRP CH-9.989 DIMENSION DETAILS OF SUBSTRUCTURE, FOUNDATION & RCC RETAINING WALL AND REINFORCEMENT DETAILS OF A1 & A2 (SHEET 2 OF 2)

DRAWING NO.:

022077-BSRP-CR2-C-MB-0-20-1134

REVISION

H	D
---	---

DWG STATUS

H	D
---	---

SCALE: AS SHOWN

DATE: 27.07.2023

PRELIMINARY DWG (P), DEFINITIVE DWG (D), CONSTRUCTION DWG (C), AS BUILT DWG (B), SHOP DWG (S), MANUFACTURED DWG (M)

SHEET SIZE - A1