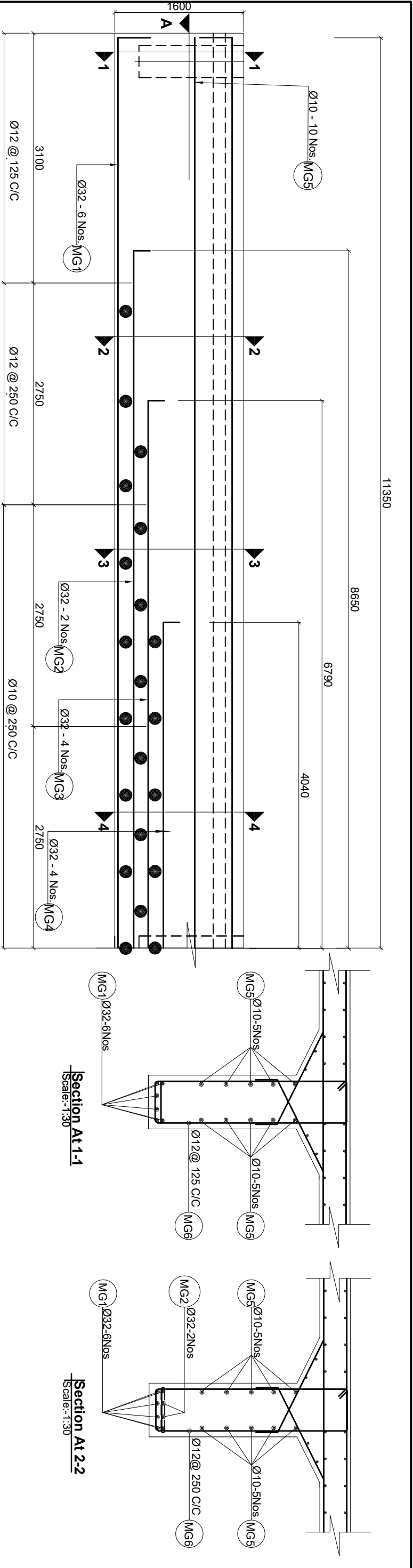
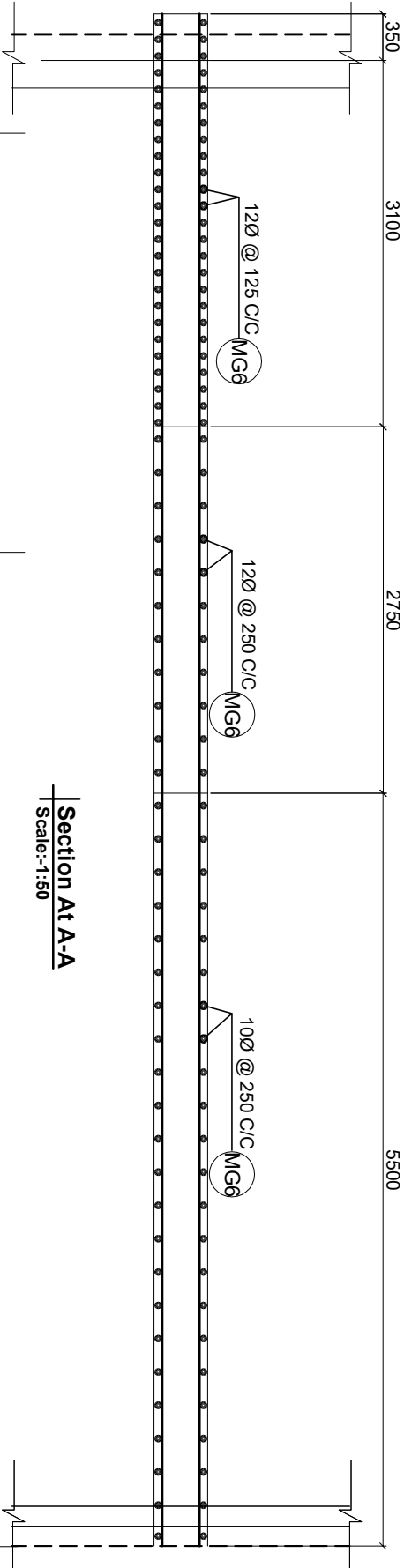




Reinforcement Details At Sectional Elevation Of Main Girder
Scale:-1:50
2750



Section At A-A
Scale:-1:50

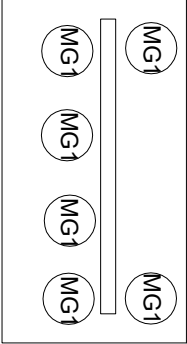


Diagram of Bar Position
Section at 1-1

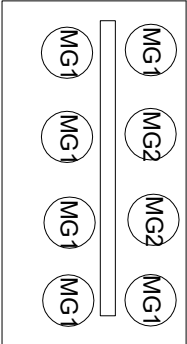
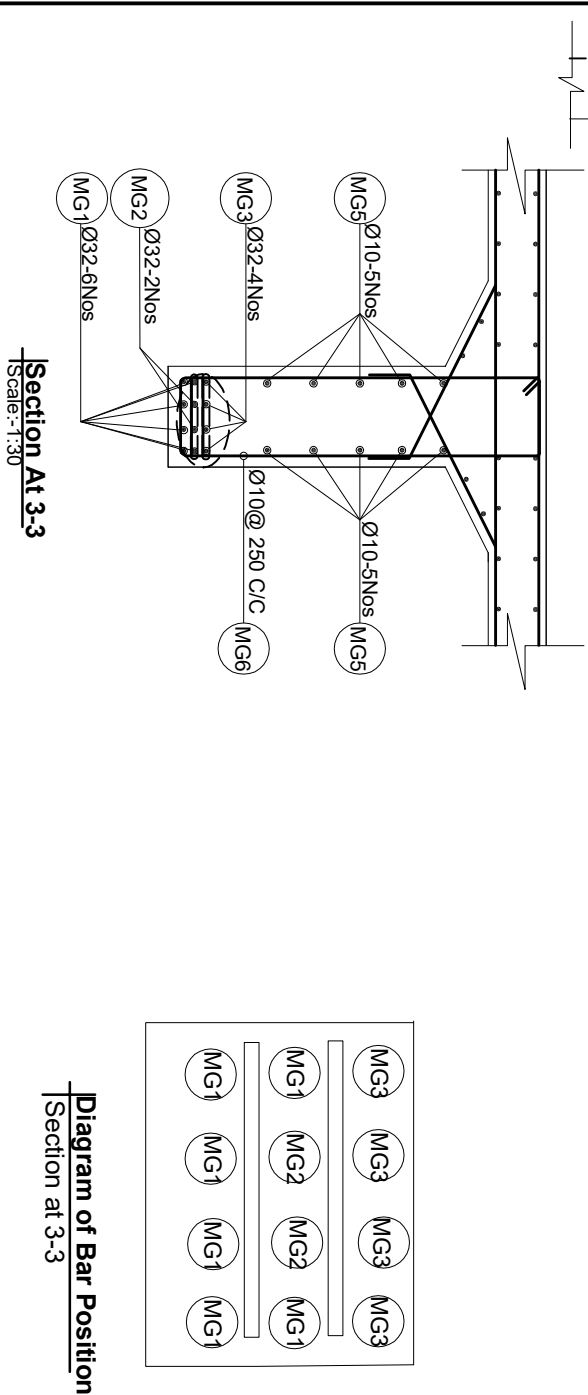


Diagram of Bar Position
Section at 2-2



Section At 3-3
Scale:-1:30

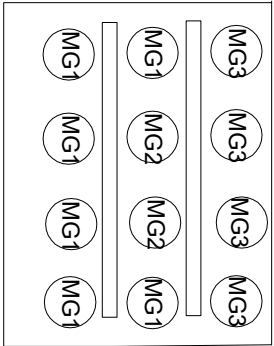
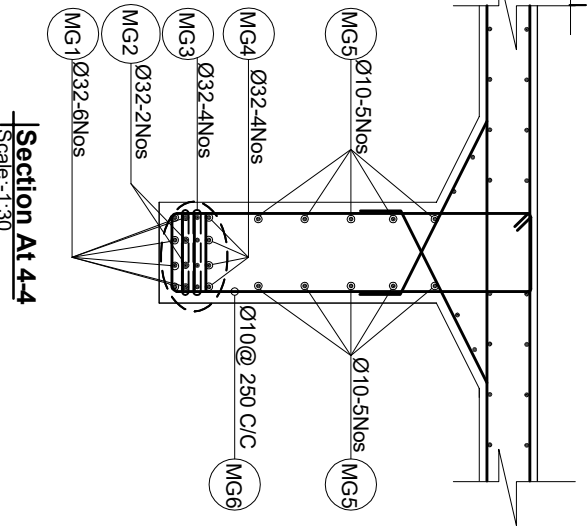


Diagram of Bar Position
Section at 3-3



Section At 4-4
Scale:-1:30

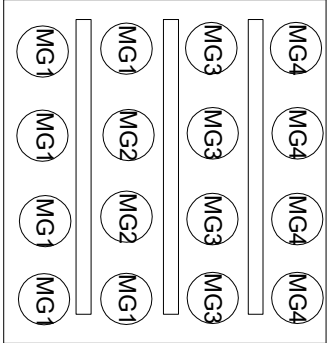
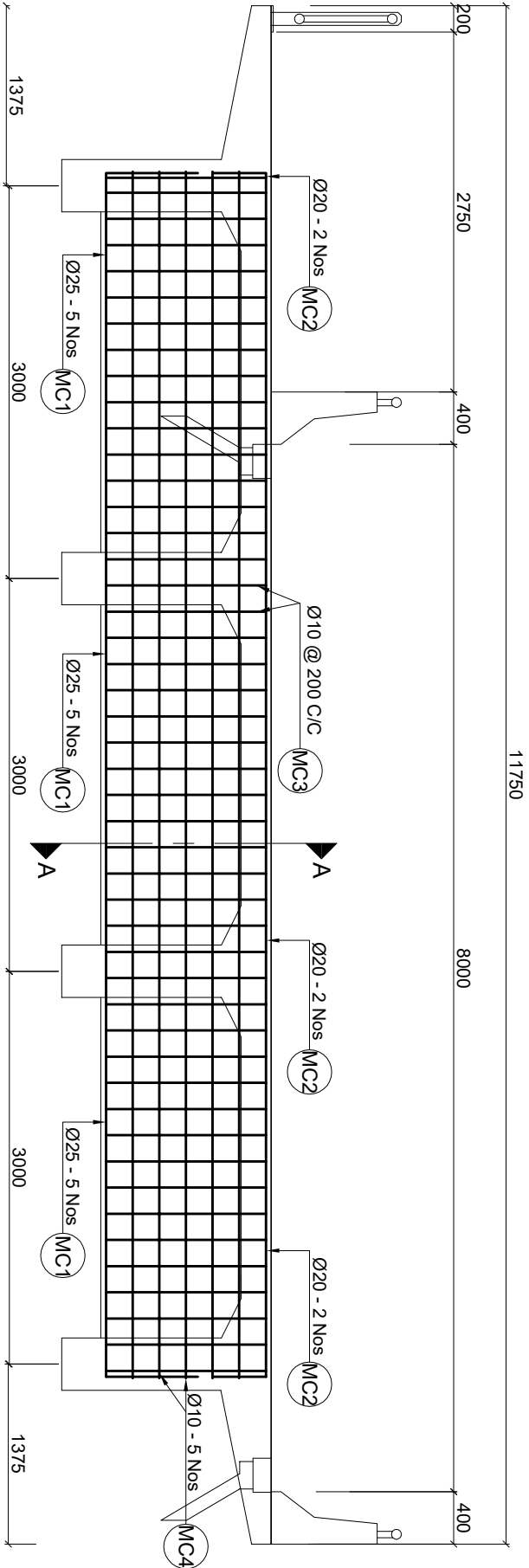
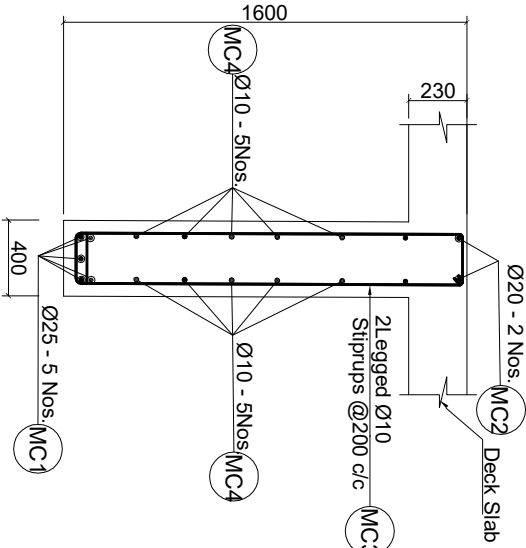


Diagram of Bar Position
Section at 4-4

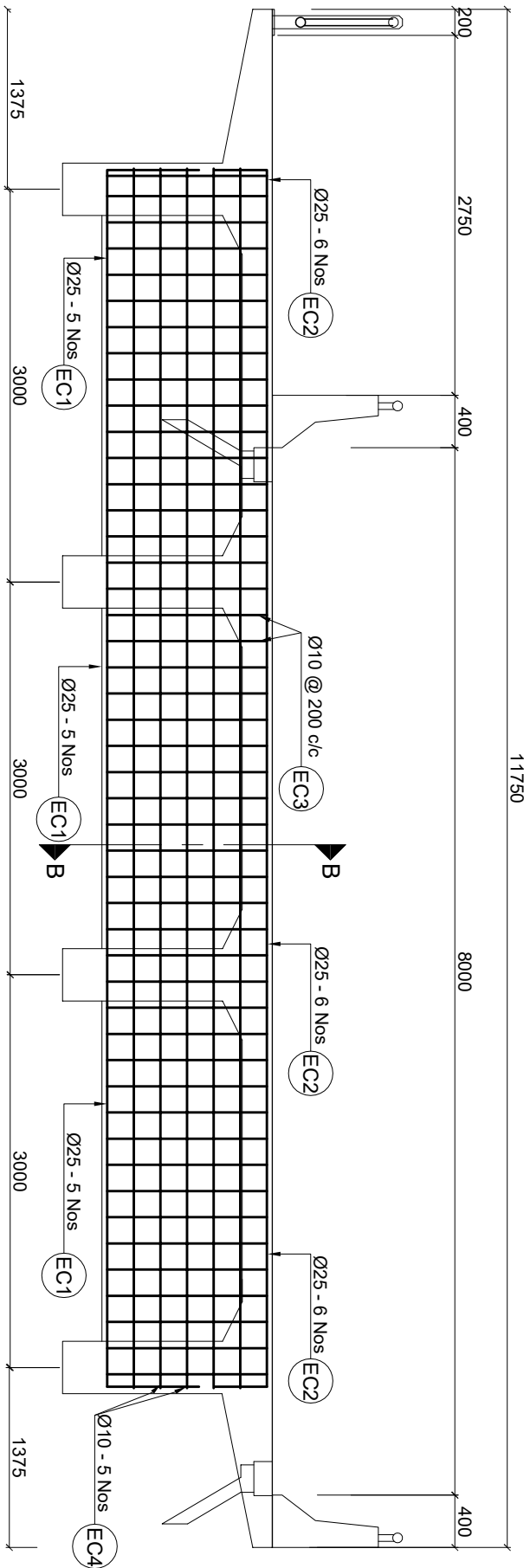
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NFP	 Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd), Nepal and JYV® - Tech Studio of Engineering	CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE:	
		DOR, DCID		ROAD NAME:		Reinforcement Details of Main Girder of		As Shown		DESIGNED BY:		CHECKED BY:		APPROVED BY:		DWG.NO.:		November, 2022	
		East West Highway (H01)		Butwal - Goringhinge Section		Herkur Bridge		(47/H001/312_A)		P. Upadhyaya		Dr. T.H.Choi				312_Herkur			
																SHEET NO.:		8/21	



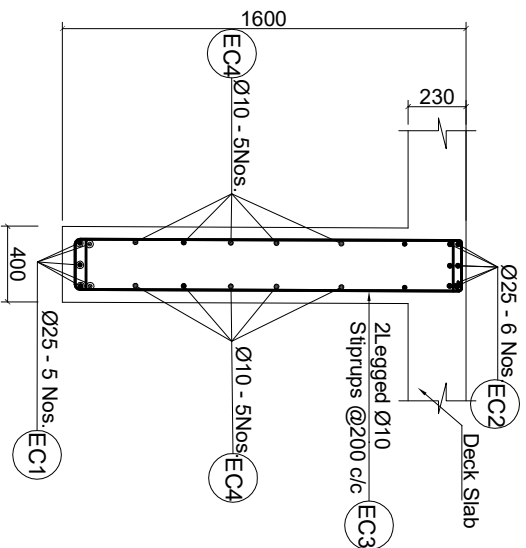
Intermediate Cross Girders
Scale:- 1:50



Section at A-A
Scale:- 1:30

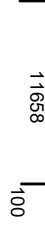
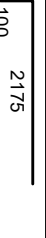
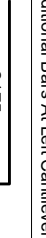
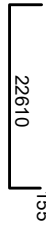
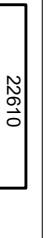
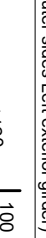


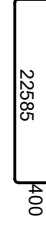
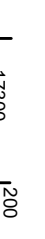
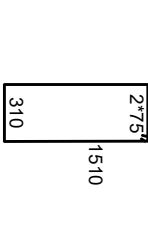
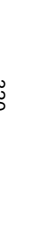
End Cross Girders
Scale:- 1:50

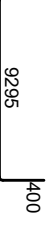
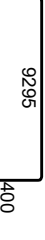
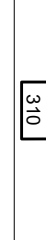


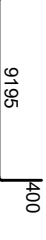
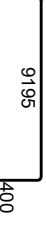
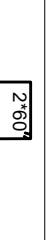
Section at B-B
Scale:- 1:30

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd), Nepal and JYV® - Tech Studio of Engineering	IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		NAME		SIGNATURE	REV NO.	DESCRIPTION	DATE:
		DOR, DCID		Reinforcement Details of Cross Girder		As Shown		Saroj Bhattacharai					November, 2022
		ROAD NAME:		of									DWG.NO.:
		East West Highway (H01)		HerKur Bridge				P. Upadhyaya					312_HerKur
		Butwal - Goringthe Section		(47/H001/312_A)				Dr. T.H.Choi					SHEET NO.: 9/21

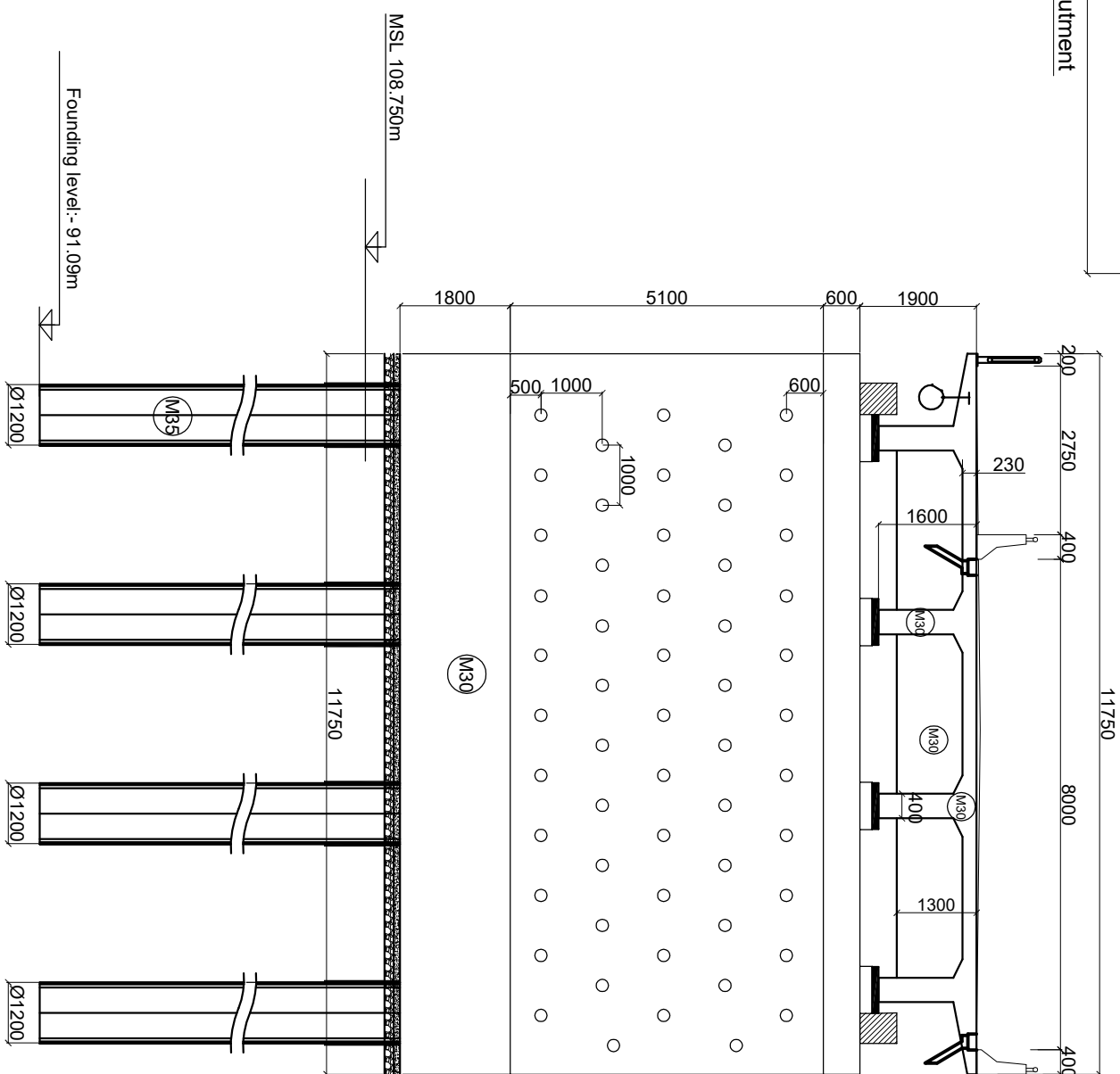
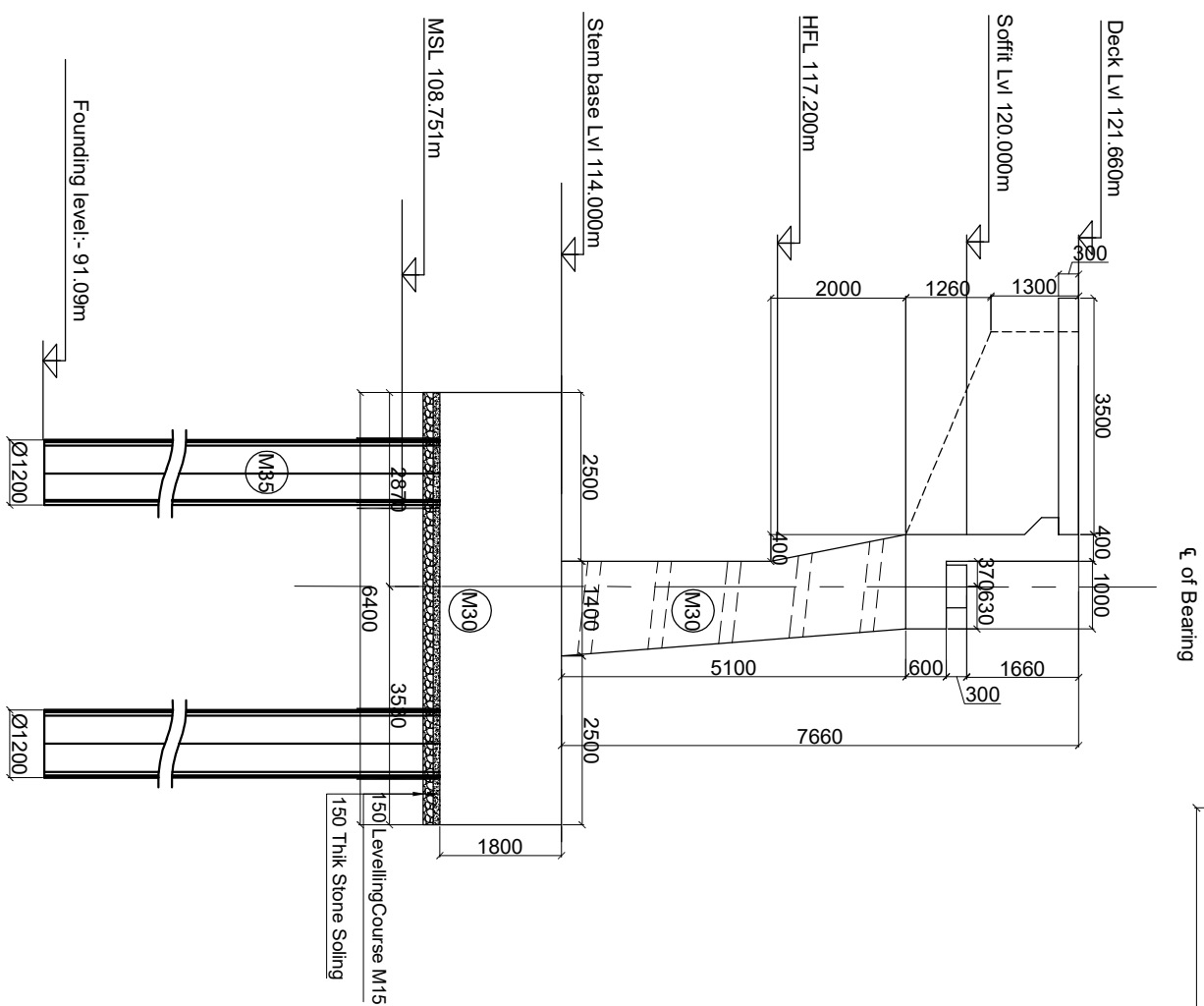
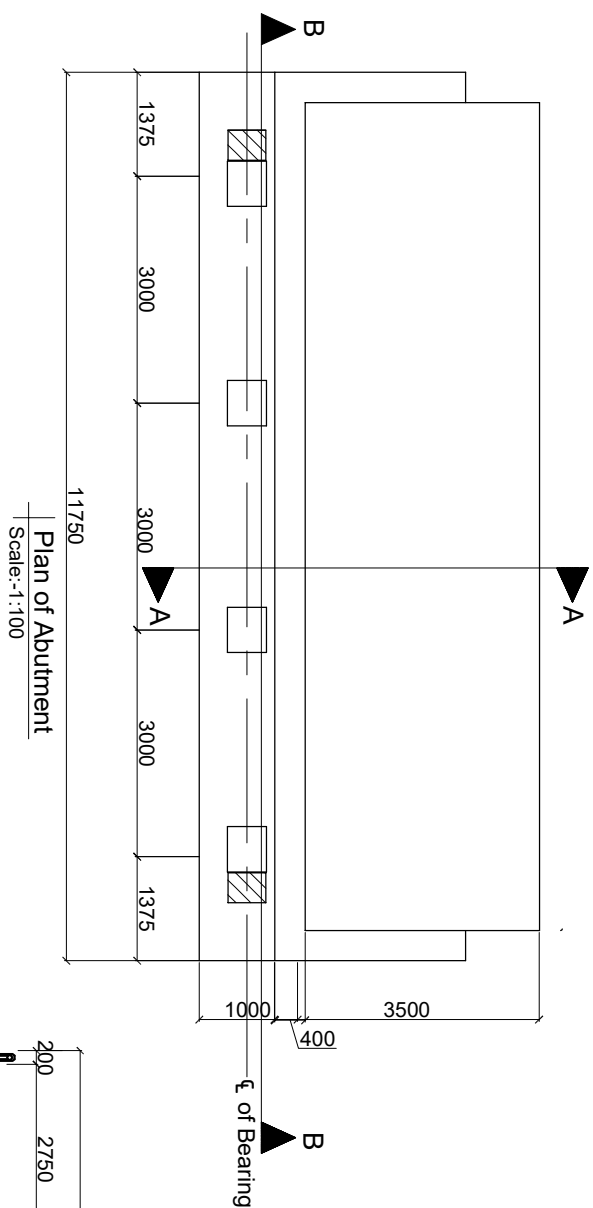
BAR BENDING SCHEDULE OF DECK SLAB							
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
S1		125 8Nos meter	12	182	10.200	0.888	1648.142
S2		125 8Nos meter	12	182	11.860	0.888	1916.369
S2a	 Additional Bars At Left Cantilever	125 In Between S2	10	182	2.280	0.617	255.839
S2b	 Additional Bars At Right Cantilever	125 In Between S2	10	182	2.280	0.617	255.839
S3		Med Deck 150	10	68	22.920	0.617	960.913
		Left Cantilever 150	10	10	22.920	0.617	141.311
		Left Cantilever 150	10	10	22.920	0.617	141.311
S4		150 7Nos Per Meter	10	79	22.920	0.617	1116.355
S4a	 Additional Bars At DeckEnd,Left	150 In Between S4	10	79	2.755	0.617	134.187
S4b	 Additional Bars At DeckEnd,Right	150 In Between S4	10	79	2.755	0.617	134.187
S6a		125	10	1014	1.380	0.617	862.735
S7a	 (Outer sides Left exterior girder)	125 8Nos Per Meter	10	366	1.420	0.617	320.428
S7b	 (Outer sides Right exterior girder)	125 8Nos Per Meter	10	366	1.420	0.617	320.428
TOTAL KG							8208.042
TOTAL WEIGHT (IN METRIC TON)							8.208

BAR BENDING SCHEDULE FOR RCC MAIN GIRDER						
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
MG1		32	6	23.390	6.313	886.017
MG2		32	2	17.700	6.313	223.493
MG3		32	4	13.980	6.313	353.043
MG4		32	4	8.480	6.313	214.149
MG5		10	10	22.620	0.617	139.461
MG6		10	22	3.790	0.617	51.407
		12	94	3.790	0.888	316.293
MG7	 Spacer Bar	32	38	0.320	6.313	76.770
TOTAL WEIGHT IN 1GIRDER						2260.634
TOTAL NUMBER OF GIRDERS AND TOTAL WEIGHT (IN METRIC TON)						2.261

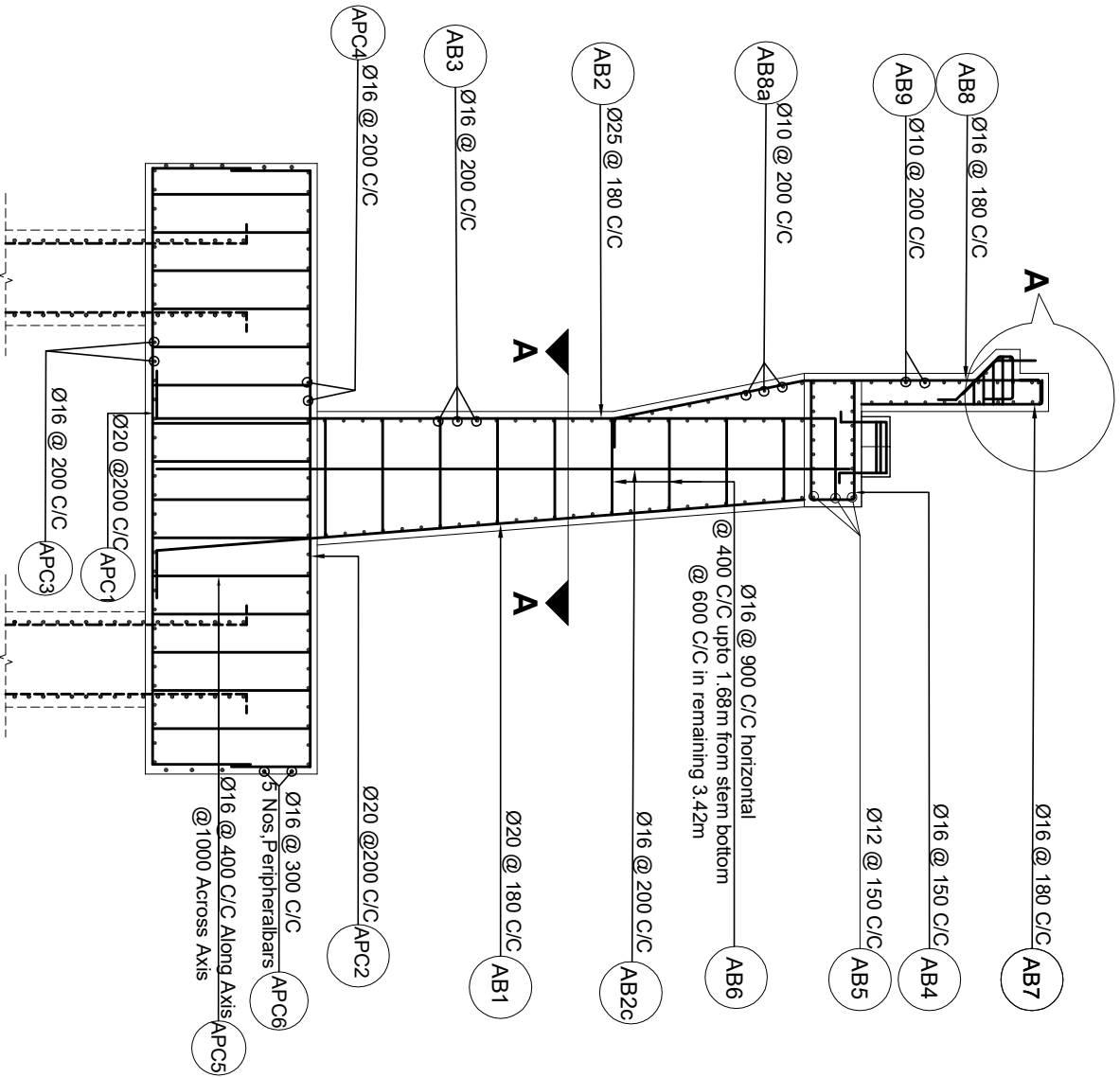
BAR BENDING SCHEDULE FOR END CROSS GIRDERS							
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACIN G (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
EC1		0	25	5	10.095	3.853	194.499
EC2		0	25	6	10.095	3.853	233.399
EC3		200	10	48	3.160	0.617	93.517
EC4	 2X5 Nos each Face	300	10	10	9.320	0.617	57.461
TOTAL WEIGHT IN 1GIRDER							578.875
TOTAL NUMBER OF GIRDERS AND TOTAL WEIGHT 2 (IN METRIC TON)							1.158

BAR BENDING SCHEDULE FOR INTERMEDIATE CROSS GIRDERS							
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACIN G (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
MC1		0	25	5	9.995	3.853	192.572
MC2		0	20	2	9.995	2.466	49.298
MC3		200	10	45	2.960	0.617	82.123
MC4	 2X5 Nos each Face	300	10	10	9.220	0.617	56.845
TOTAL WEIGHT IN 1GIRDER							380.838
TOTAL NUMBER OF GIRDERS AND TOTAL WEIGHT (IN METRIC TON)							0.381

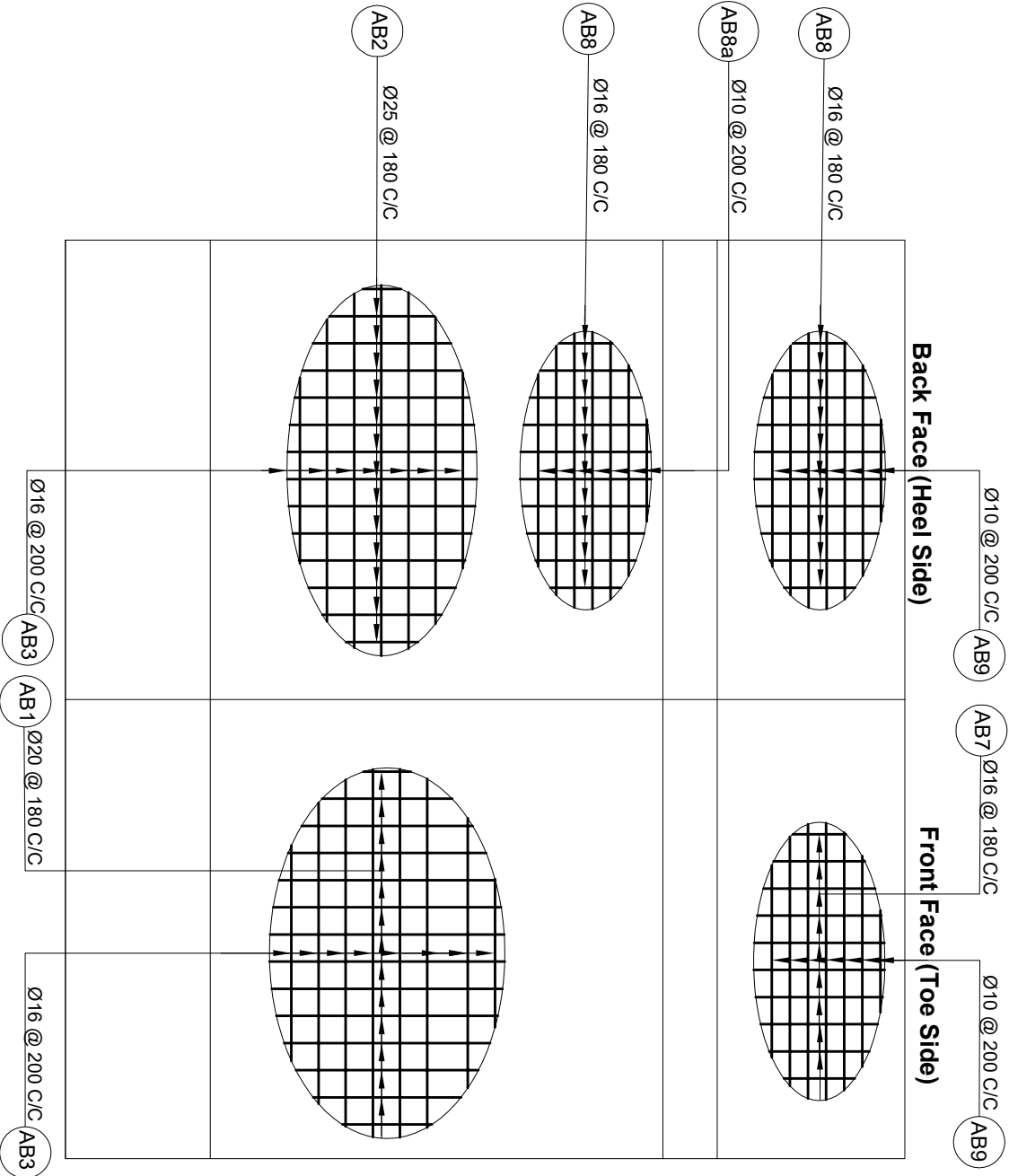
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NP		CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd), Nepal and  JYR - Tech Studio of Engineering		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Goringhla Section		SHEET TITLE: B.B.S of Slab & Main Girder of Herkur Bridge (47/H001/312_A)		SCALE: As Shown		DATE: November, 2022 DWG.NO.: 312_Herkur		APPROVED BY: Dr. T.H.Choi  SHEET NO.: 10/21	
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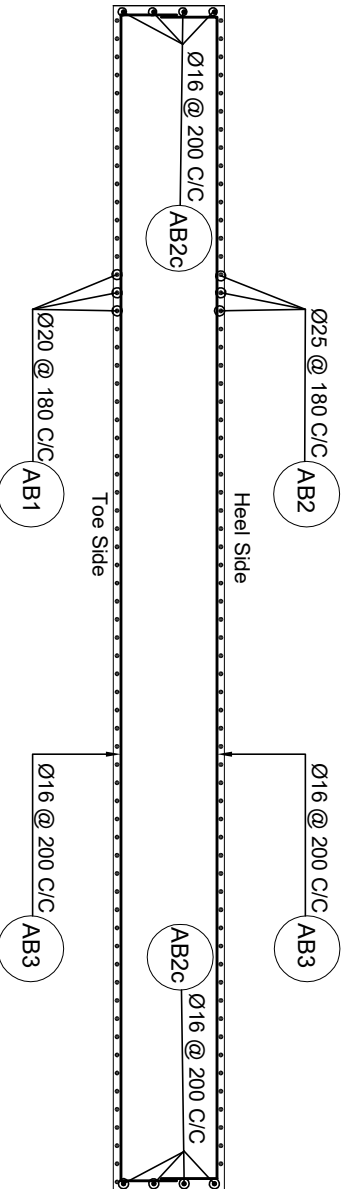
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:				NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE:	
 Soosung Engineering Co. Ltd, Korea in association with ERMCM P (Ltd), Nepal and <i>398E</i> -Tech Studio of Engineering				DOR, DCID		Abutment Details of Herkur Bridge (47/H001/312_A)		As Shown		DESIGNED BY:		Saroj Bhattacharai								August, 2022	
				ROAD NAME:						CHECKED BY:		P. Upadhyaya								DWG.NO.: 312_Herkur	
				Butwal - Gorusinghe Section						APPROVED BY:		Dr. T.H.Choi								SHEET NO.: (11/21)	



Reinforcement Details Of Abutment
Scale:-1:75

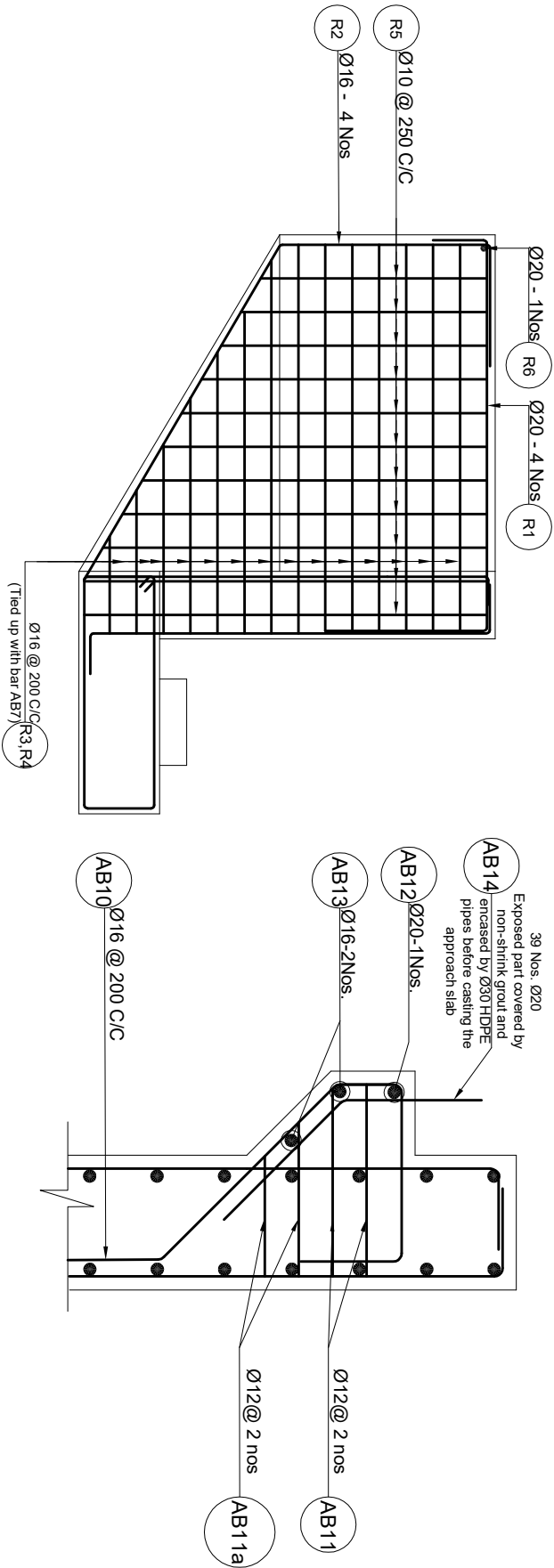


Reinforcement Details Of Abutment
Scale:-1:75



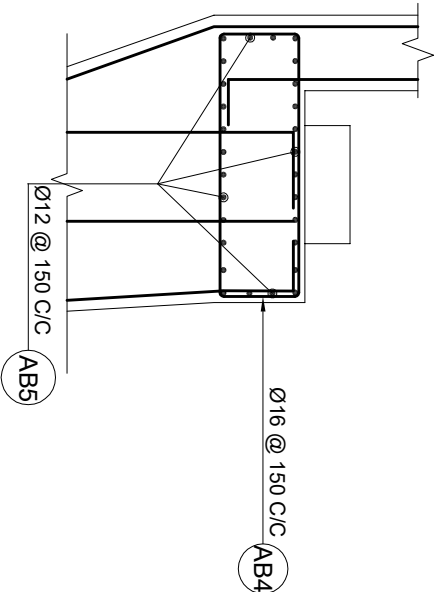
Section at A-A
Scale:-1:75

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with  ERM P (Ltd), Nepal and  JYV - Tech Studio of Engineering	IMPLEMENTING AGENCY:	SHEET TITLE:	SCALE:		NAME	SIGNATURE	REV NO.	DESCRIPTION	DATE: August, 2022
		DOR, DCID	Reinforcement Details Of Abutment of Herkur Bridge (47/H001/312_A)	As Shown	DESIGNED BY:	Saroj Bhattacharai				
		ROAD NAME:			CHECKED BY:					
		East West Highway (H01)			P. Upadhyaya					
Butwal - Gorusinghe Section			APPROVED BY:	Dr. T.H. Choi					SHEET NO.: 12/21	



Reinforcement Details Of Wingwall

Detail At A

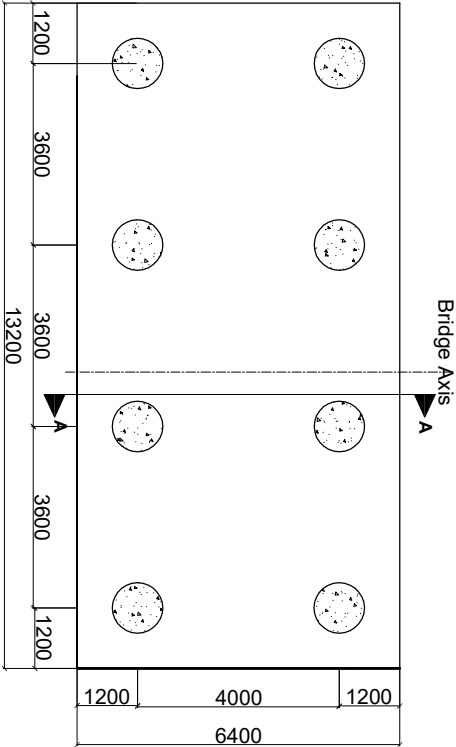


Reinforcement Details Of Abutment

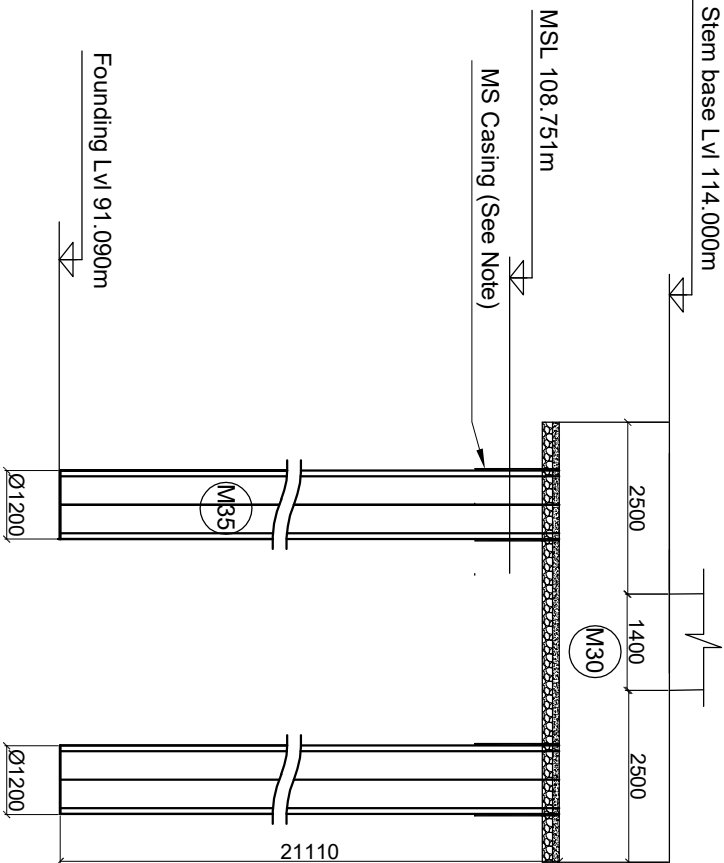
BAR BENDING SCHEDULE FOR WINGWALL						
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACIN G (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	TOTAL WEIGHT (kg)
R1		0	20	8	4.407	2.466
R2		0	16	8	4.307	1.578
R3		200	16	14	6.156	1.578
R4		200	16	14	3.428	1.578
R5		250	10	22	4.520	0.617
R6		0	20	2	0.307	2.466
R7		0	10	0	2.800	0.617
R8		0	10	0	1.320	0.617
TOTAL IN 2 WINGWALL IN ONE ABUTMENT						415.928
TOTAL WEIGHT (IN METRIC TON)						0.416

BAR BENDING SCHEDULE OF ABUTMENT						
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (kg/m)
AB1		180 mm c/c Approx	20	66	8.090	2.466
AB1a		-	-	-	-	-
AB2		180 mm c/c Approx	25	66	8.290	3.853
AB2c		At sideface 200 mm c/c	16	14	7.790	1.578
AB3		200 mm c/c Approx	16	54	24.970	1.578
AB4		150 mm c/c Approx	16	80	3.700	1.578
AB5		150 mm c/c Approx	12	24	11.600	0.888
AB6		900 mm C/C horizontal 400 mm C/C vertical upto 1.68m from stem bottom 600 mm C/C vertical at remaining 3.42 m	16	144	1.483	1.578
AB7		180 mm c/c Approx	16	66	3.110	1.578
AB8		180 mm c/c Approx	16	66	5.075	1.578
AB8a		200 mm c/c Approx	10	12	11.600	0.617
AB9		200mm c/c Approx	10	11	23.716	0.617
AB10		200 mm c/c Approx	16	55	1.747	1.578
AB11			12	110	0.900	0.888
AB11a			12	110	0.650	0.888
AB12			20	1	11.600	2.466
AB13			16	2	11.600	1.578
AB14			20	39	0.900	2.466
TOTAL WEIGHT ABUTMENT KG						8330.973
TOTAL WEIGHT (IN METRIC TON)						8.331

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NFP		CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERMCo P (Ltd), Nepal and JYV - Tech Studio of Engineering		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorusinghe Section		SHEET TITLE: BBS & Reinforcement Details of Herkur Bridge (47/H001/312_A)		SCALE: As Shown		DATE: November,2022 DWG.NO.: 312_Herkur SHEET NO.: 13/21	
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Plan Of Abutment Piles
Scale:-1:150



Piles Section At A-A
Scale:-1:110

BAR BENDING SCHEDULE OF ABUTMENT PILECAP						
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)
APC1	1080 6230	150	20	67	8.390	2.466
APC2	1080 6230	150	20	67	8.390	2.466
APC3	1080 13034	200	16	33	15.194	1.578
APC4	1080 13034	200	16	33	15.194	1.578
APC5	1570 1570 251 Curve radius 40 Hook length 80	@400 along axis @1000 across axis	16	272	2.232	1.578
APC6	13050 6750	@300 approx	16	5	38.600	1.578
TOTAL IN PILE CAP OF ONE ABUTMENT					5618.202	
TOTAL WEIGHT IN METRIC TON					5.618	

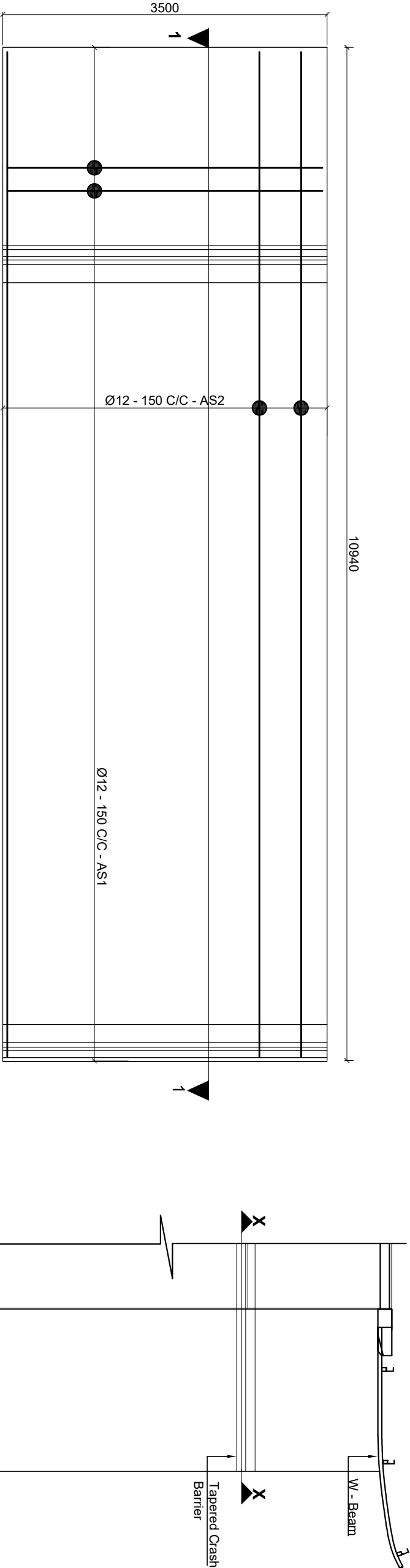
BAR BENDING SCHEDULE FOR ABUTMENT PILES					
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING G (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)
AP1a	200 22170 Full Length Bars	0	32	10	22.910
AP1b	200 15200 Curtailed Bars	0	32	9	15.400
AP2	200 295.420 Dia=1034, Pitch=150 13.5m From Bottom of pile cap	16	1	295.420	1.578
AP3	200 203.730 Dia=1034, Pitch=150 inside pilecap, 150 below critical zone	12	1	203.730	0.888
TOTAL IN ONE PILE					2968.570
TOTAL (IN METRIC TON)					2.969
TOTAL IN EIGHT PILES OF ONE ABUTMENT (IN METRIC TON)					23.749

Location	Design Pile Length m	Design Working load on pile (non - seismic case) kn	Allowable Bearing Capacity on pile (Scour case) kn	Allowable Bearing Capacity of the Pile (Non Scour case) kn
Abutment	21.0	1763	2711	4330
Pier	0	0	0	0

Note On MS permanent casing on piles: In case piling works are done without temporary casing, the piles shall be lined with 6mm thick MS steel permanent casing up to 1.5 m or 0.5m below MSL whichever is larger (Subject to instruction and approval by the Engineer)

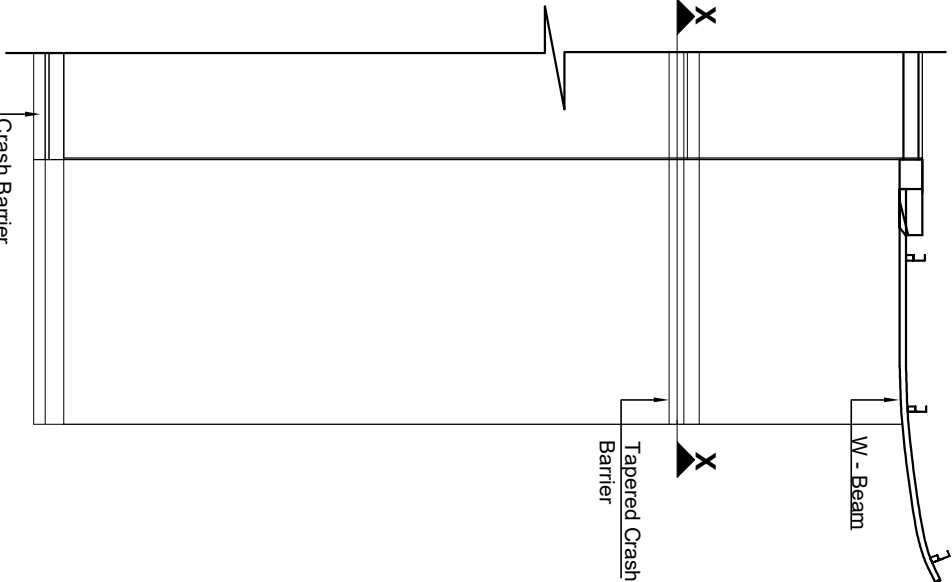
For Construction Methodology and Sequence Please See General Notes.

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERM P (Ltd), Nepal and JYR - Tech Studio of Engineering		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorusinghe Section		SHEET TITLE: Reinforcement Details of Abutment Piles of Heikur Bridge (47/H001/312_A)		SCALE: As Shown		NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE:	
										Saroj Bhattacharai								November, 2022	
										P. Upadhyaya								DWG.NO.: 312_Heikur	
										Dr. T.H.Choi								SHEET NO.: 14/21	



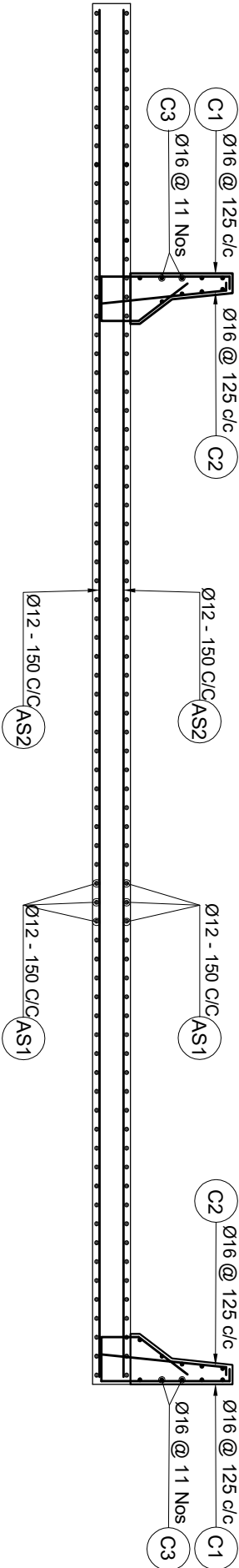
Plan of Reinforcement Details of Approach Slab

Scale:-1:50



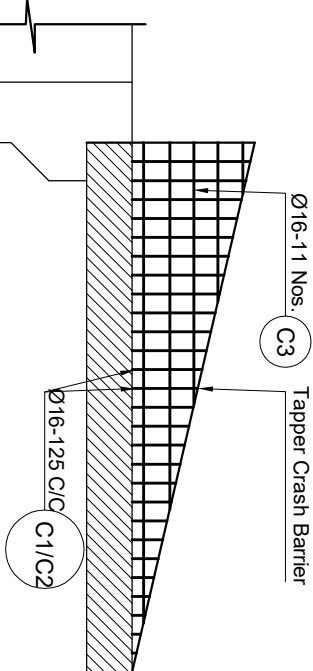
Plan of Approach Slab

Not to Scale



Section at 1-1

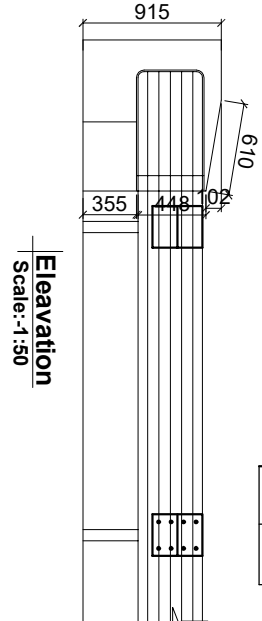
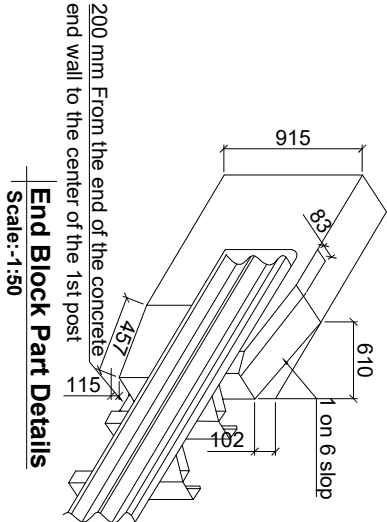
Scale:-1:50



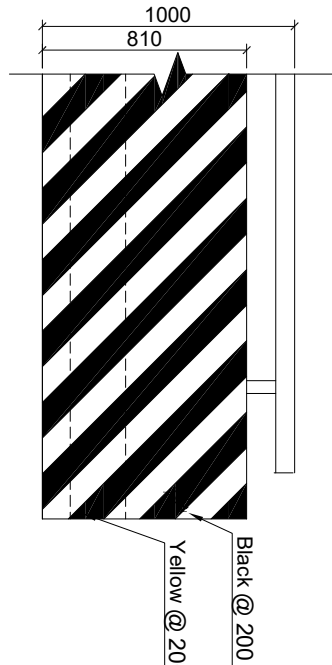
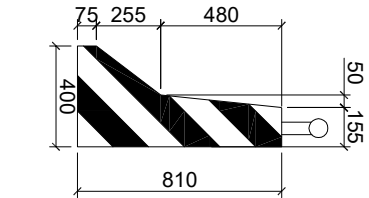
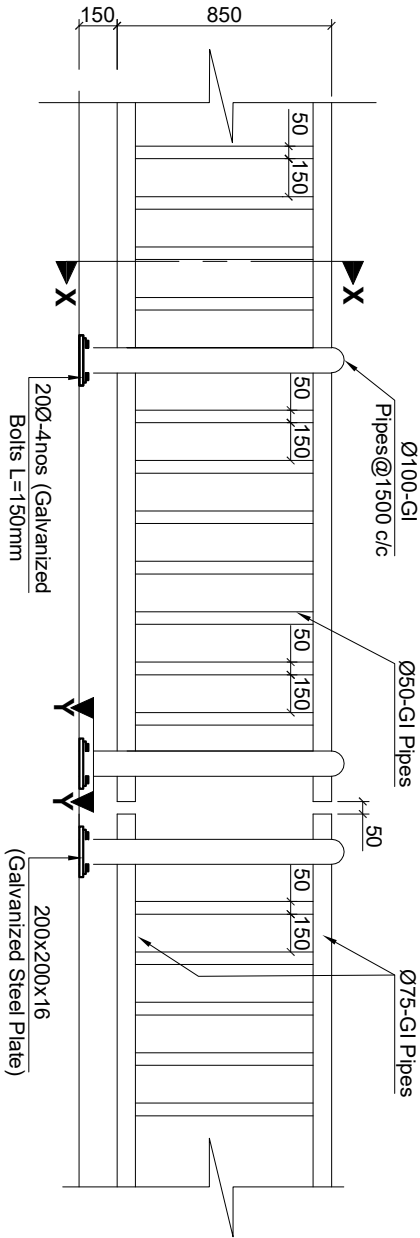
Section at X-X

Not to Scale

BAR BENDING SCHEDULE OF APPROACH SLAB						
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (kg/m)	TOTAL WEIGHT (kg)
AS1	<u>3400</u>	12	148	3.400	0.888	446.749
AS2	<u>10850</u>	12	48	10.850	0.888	462.375
TOTAL IN ONE APPROACH SLAB						909.124
TOTAL WEIGHT IN METRIC TON						0.909



Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NFP		CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERM/C P (Ltd), Nepal and JYR - Tech Studio of Engineering		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorusinghe Section		SHEET TITLE: Reinforcement Details of Approach Slab of Herkur Bridge (47/H001/312_A)		SCALE: As Shown		NAME	SIGNATURE	REV NO.	DESCRIPTION	DATE: November,2022
										Saroj Bhattacharai				DWG.NO.: 312_Herkur
										P. Upadhyaya				SHEET NO.: (15/21)
										Dr. T.H.Choi				



Railing Post Details

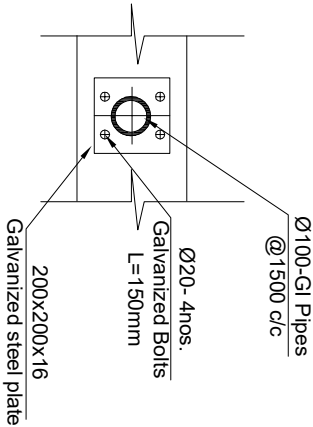
Scale:-1:30

Painting Work on Crash Barrier

Scale:-1:30

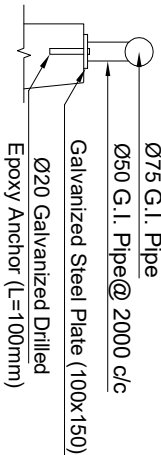
Painting Work on Crash Barrier on The Surface Facing Towards Carriageway

Scale:-1:30



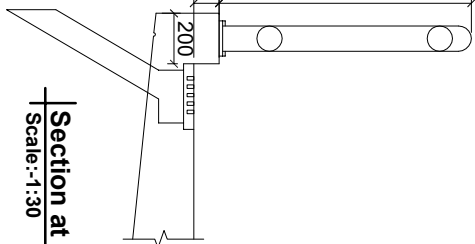
Section at Y-Y

Scale:-1:20



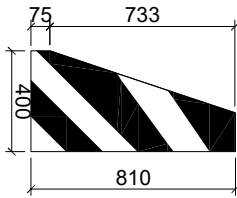
Details at A-A

Scale:-1:20



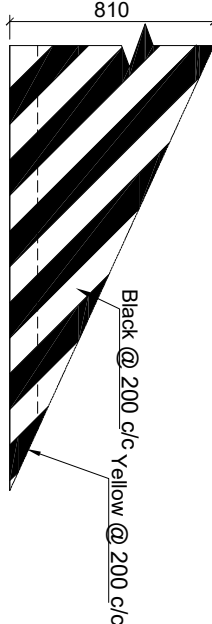
Section at X-X

Scale:-1:30



Painting Work on Tapper Crash Barrier

Scale:-1:30

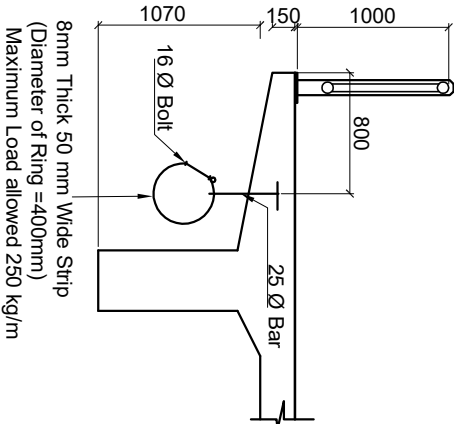


Painting Work on Crash Barrier on The Surface Facing Towards Carriageway

Scale:-1:30

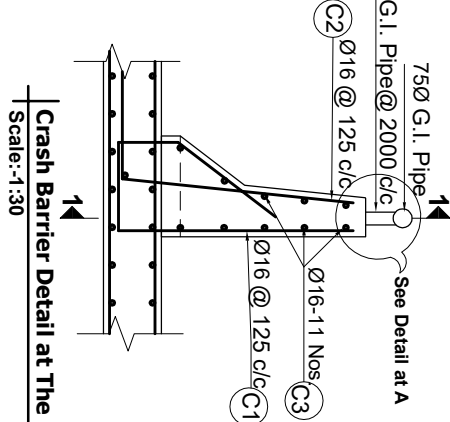
NOTES:
The crash barrier shall be sloped at both ends of the bridge as shown and the reinforcement shall be adjusted according to the slope.

BAR BENDING SCHEDULE OF CRASH BARRIER (For each 1m)					
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)
C1		125 Approximate	16	8	2.030
C2		125 Approximate	16	8	2.030
C3		125 Approximate	16	8	2.030
TOTAL FOR 1 M					60.166
TOTAL FOR 1.0M (IN METRIC TON)					0.006



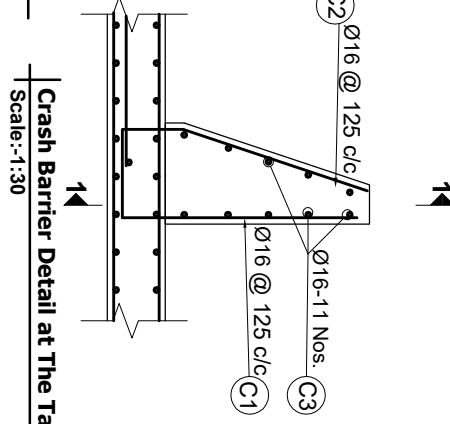
Utility hanger Detail

Scale:-1:50



Crash Barrier Detail at The Bridge Deck

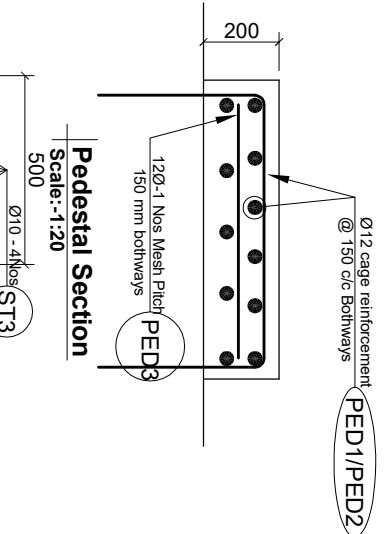
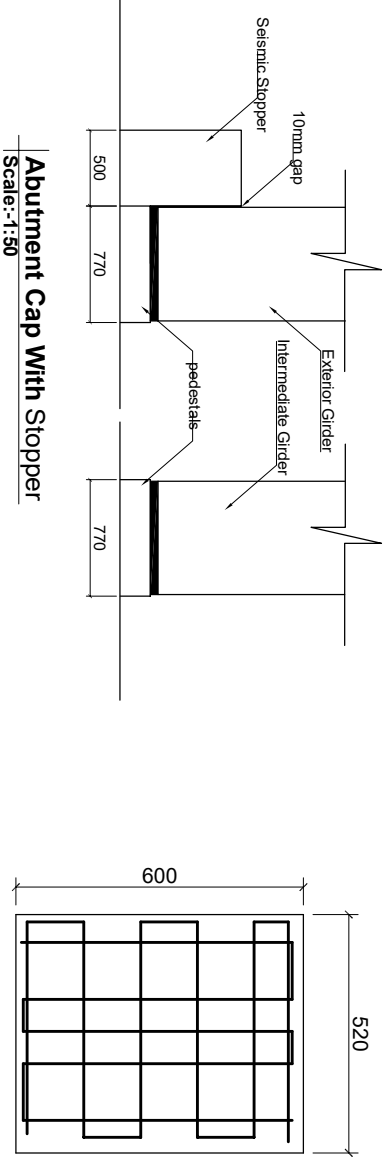
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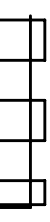


Crash Barrier Detail at The Tapered End

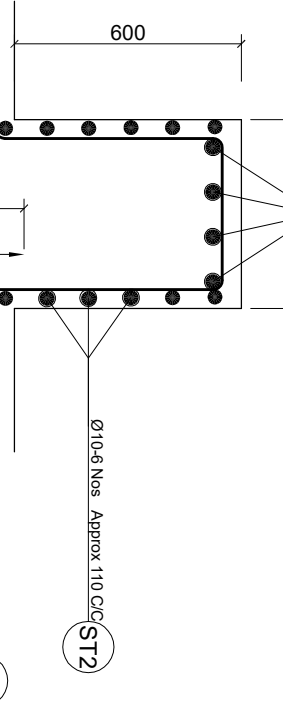
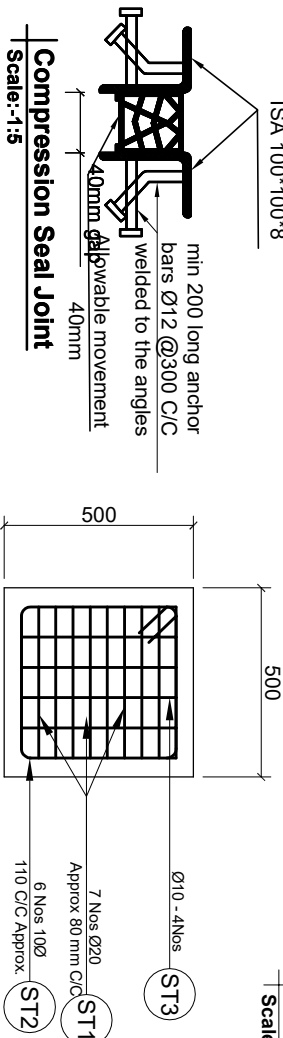
Scale:-1:30

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd), Nepal and JYR - Tech Studio of Engineering	IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE:	
		DOR, DCID		Miscellaneous Details-1 of		As Shown		Saroj Bhattacharai								November, 2022	
		ROAD NAME:		Heikur Bridge (47/H001/312_A)				P. Upadhyaya								312_Heikur	
		Buwal - Gorusinghe Section						Dr. T.H.Choi								SHEET NO.: 16/21	



BAR BENDING SCHEDULE OF PEDESTAL							
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACIN G (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
PED1			12	4	2.280	0.888	8.097
PED2			12	5	2.200	0.888	9.766
			12	1	4.600	0.888	4.084

TOTAL BAR BENDING SCHEDULE OF PEDESTAL						21.947
TOTAL WEIGHT (IN METRIC TON)						0.022

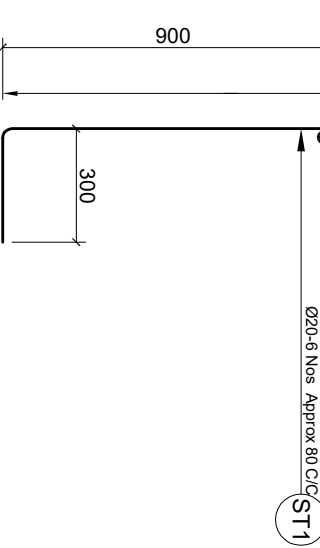


BAR BENDING SCHEDULE OF STOPPER						
SHAPE OF BAR IN mm	SPACIN	Ø OF	NO OF	LENGTH	WEIGHT/ LENGTH	TOTAL WEIGHT

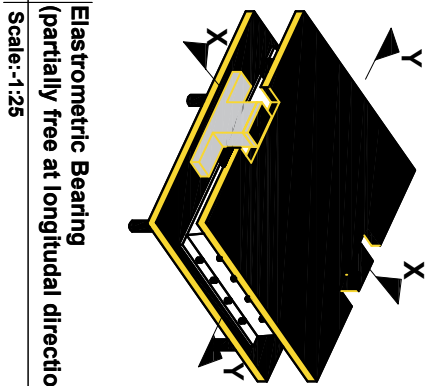
Notes on Elastomeric Bearings

The dimensions and properties of the bearings shown are tentative, based on IRC:83-2018, Part II, Table B2. The actual design shall be carried out by the manufacturer on the basis of provided load & deformation data. The effective stiffness shall not exceed the shown value.

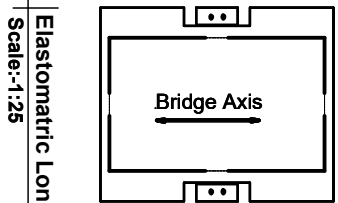
To match the height of ballast wall, the pedestal thickness shall be suitably modified.



Design Data for Bearing(Elastomeric Bearing)	All Loads Unfactored
1. Maximum permanent and superimposed dead loads	450.4 kN
2. Maximum load from surfacing (wearing course)	33.8 kN
3. Non urban superstructure	RCC 22m / Info / 61
4. Maximum live load reaction (including impact)	598.2 kN
5. Maximum horizontal seismic force	81 kN
6. Maximum braking force	89.7 kN
7. Total Maximum elongation of the deck	8 mm
8. Maximum Rotation due to dead load	0.0022 rad
9. Maximum Rotation due to live load	0.0016 rad
10. Maximum rotation due to dead load + live load	0.0038 rad
11. Concrete for superstructure	M 30
12. Concrete for substructure	M25/M30
13. Width of girder at bearings	400 mm
14. Length of bearing (along bridge axis) assumed	320 mm



Elastomeric Bearing (partially free at longitudinal direction Fixed at Transverse direction)



Elastomeric Longitudinal Bearing

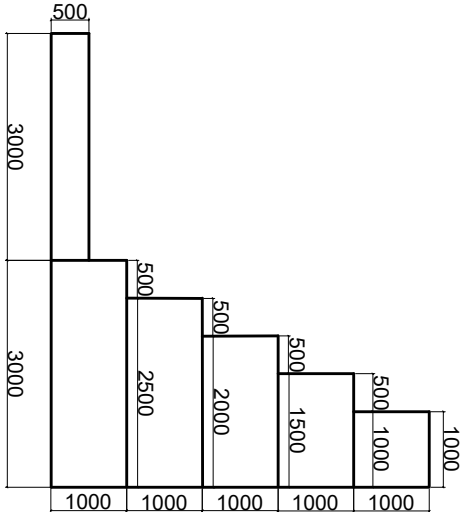
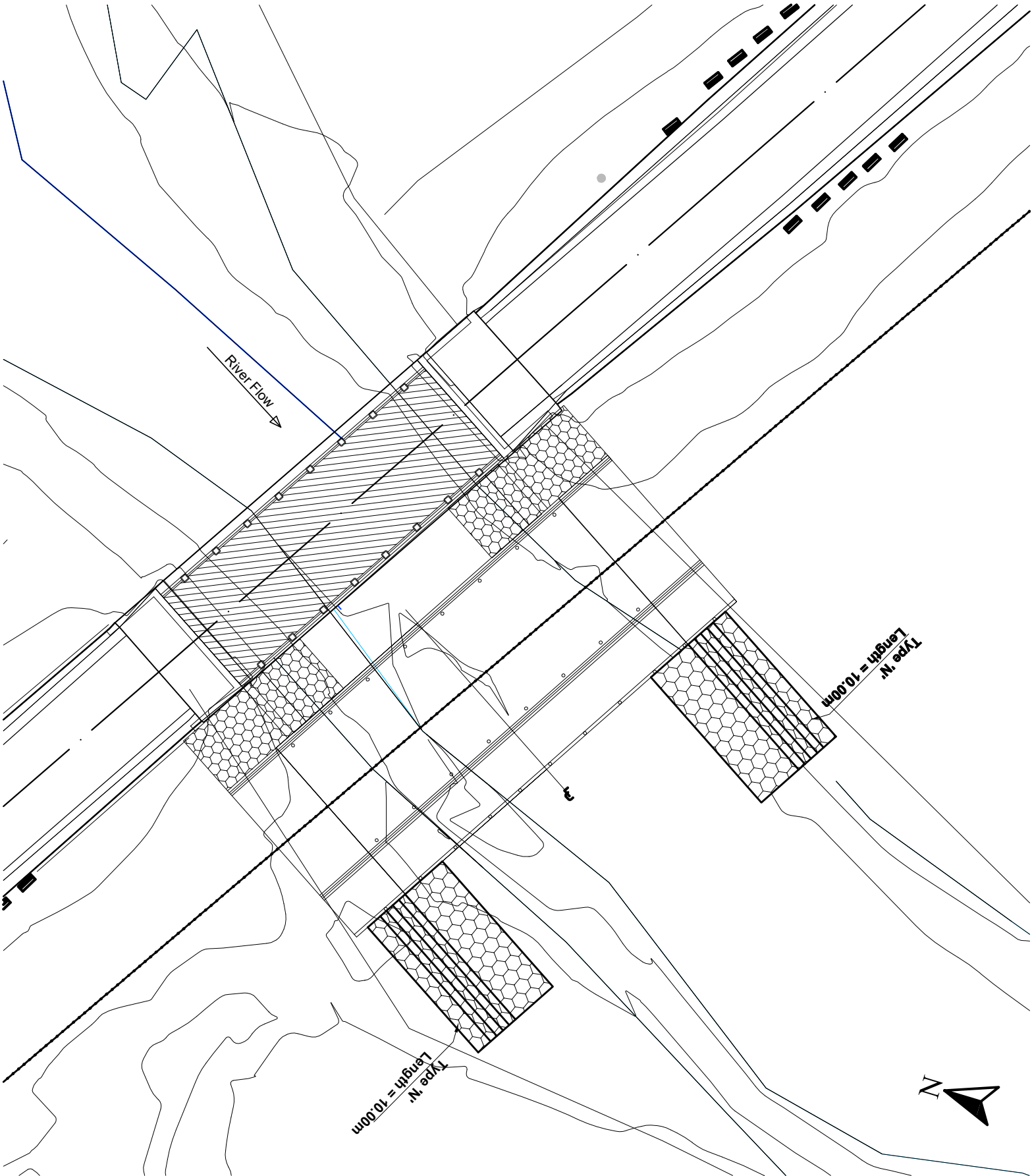
Section Y-Y

Scale:-1:25

Section X-X

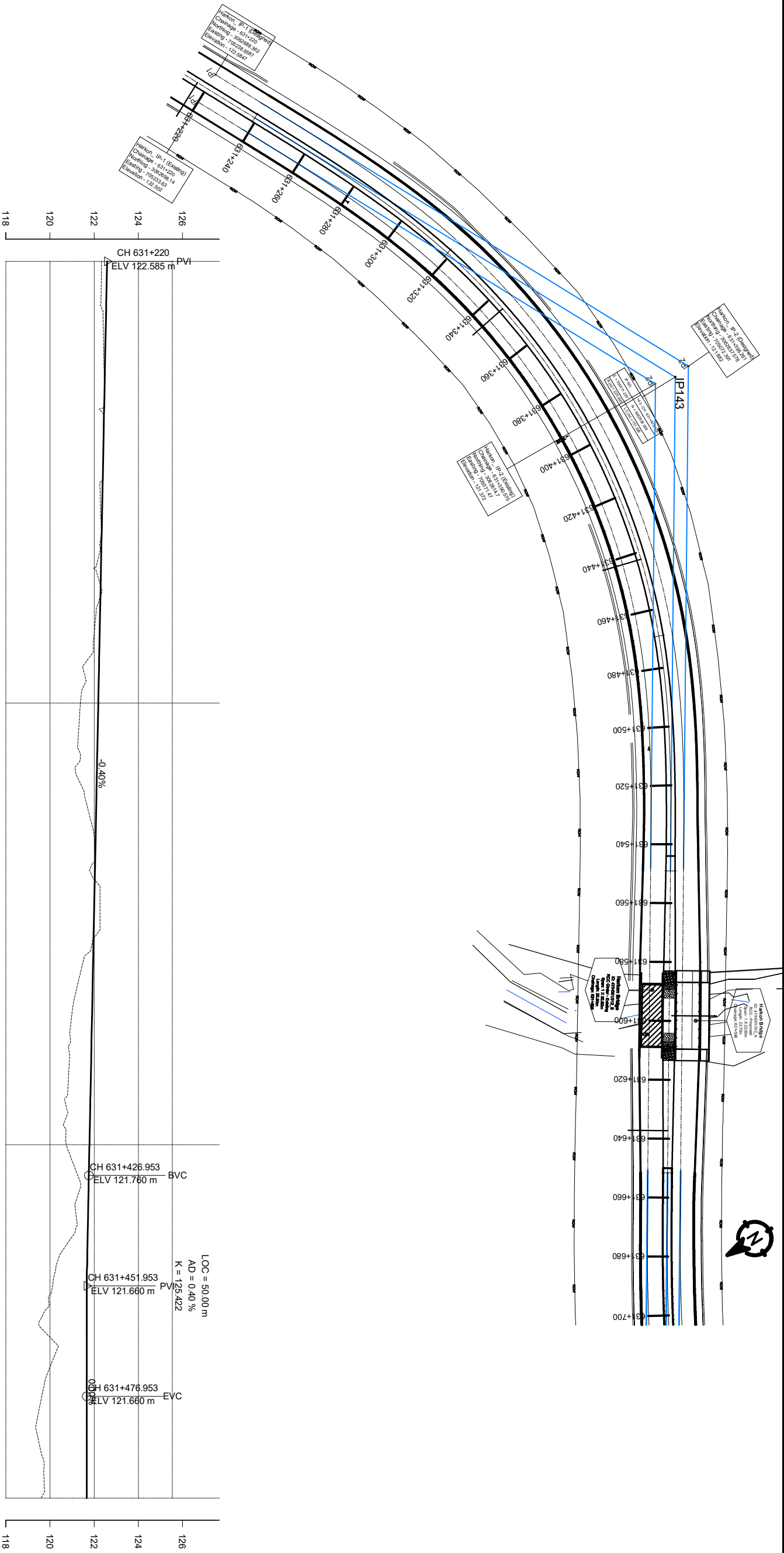
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Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NP		CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERM P (Ltd), Nepal and JYOTI - Tech Studio of Engineering		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Goringhale Section		SHEET TITLE: Miscellaneous Details-2 of Herkur Bridge (47/H001/312_A)		SCALE: As Shown		DESIGNED BY: Saroj Bhattacharai		SIGNATURE		REV NO.		DESCRIPTION		DATE: November, 2022		DWG. NO.: 312_Herkur		SHEET NO.: (17/21)	
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"N" Type River Training Structure
Scale:-1:100

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERMCo P (Ltd), Nepal and  JYR - Tech Studio of Engineering		IMPLEMENTING AGENCY: DOR, DCID		SHEET TITLE: River Training Work of Herkur Bridge (47/H001/312_A)		SCALE: As Shown		NAME		SIGNATURE	REV NO.	DESCRIPTION	DATE: November,2022
ROAD NAME: East West Highway (H01)										DESIGNED BY:	Saroj Bhattacharai				DWG.NO.: 312_Herkur
Butwal - Goringhthe Section										CHECKED BY:	P. Upadhyaya				SHEET NO.: (17/12)
										APPROVED BY:	Dr. T.H.Choi				



DESIGN LEVEL(m)	EXISTING LEVEL(m)	HORIZONTAL ALIGNMENT		SUPER ELEVATION	CHAINAGE(Km)
		RIGHT	LEFT		
122.585	122.336	IP-1	R=0.00	631+220	631+220
122.545	122.288			631+226.358	631+230
122.505	122.433				631+240
122.465	122.467				631+250
122.425	122.422				631+260
122.385	122.281				631+270
122.345	122.318				631+280
122.306	122.088				631+290
122.266	122.078				631+300
122.226	121.730				631+310
122.186	121.377				631+320
122.146	121.247				631+330
122.106	121.545				631+340
122.066	121.999				631+350
122.027	122.020				631+360
121.987	122.266				631+370
121.947	121.431				631+380
121.907	121.003				631+390
121.867	120.896				631+400
121.827	120.666				631+410
121.787	120.740				631+420
121.748	121.358				631+430
121.714	121.116				631+440
121.689	120.174				631+450
121.671	119.519				631+460
121.662	120.027				631+470
121.660	119.504				631+480
121.660	119.613				631+490
121.660	119.603				631+500

Government of Nepal

Ministry of Physical Infrastructure and Transport

Department of Roads

Project Directorate Office (ADB)

SASEC Highway Improvement Project-

Project Preparatory Consultant (SHIP-PPC)

ADB Loan No: 3722-NEP

CONSULTANT:

Soosung Engineering Co. Ltd,

Korea in association with

ERM P (Ltd), Nepal

and

TSE-Tech Studio of Engineering

IMPLEMENTING AGENCY:

DOR, DCID

ROAD NAME:

East West Highway (H01)

Butwal - Gorusinghe Section

SHEET TITLE:

Plan & Profile

OF

Herkur Bridge

631+220-631+500

SCALE:

Vertical Scale

Horizontal Scale

DESIGNED BY:

Saroj Bhattacharai

CHECKED BY:

P. Upadhyaya

APPROVED BY:

Dr. T.H.Choi

NAME

SIGNATURE

REV NO.

DESCRIPTION

DATE:

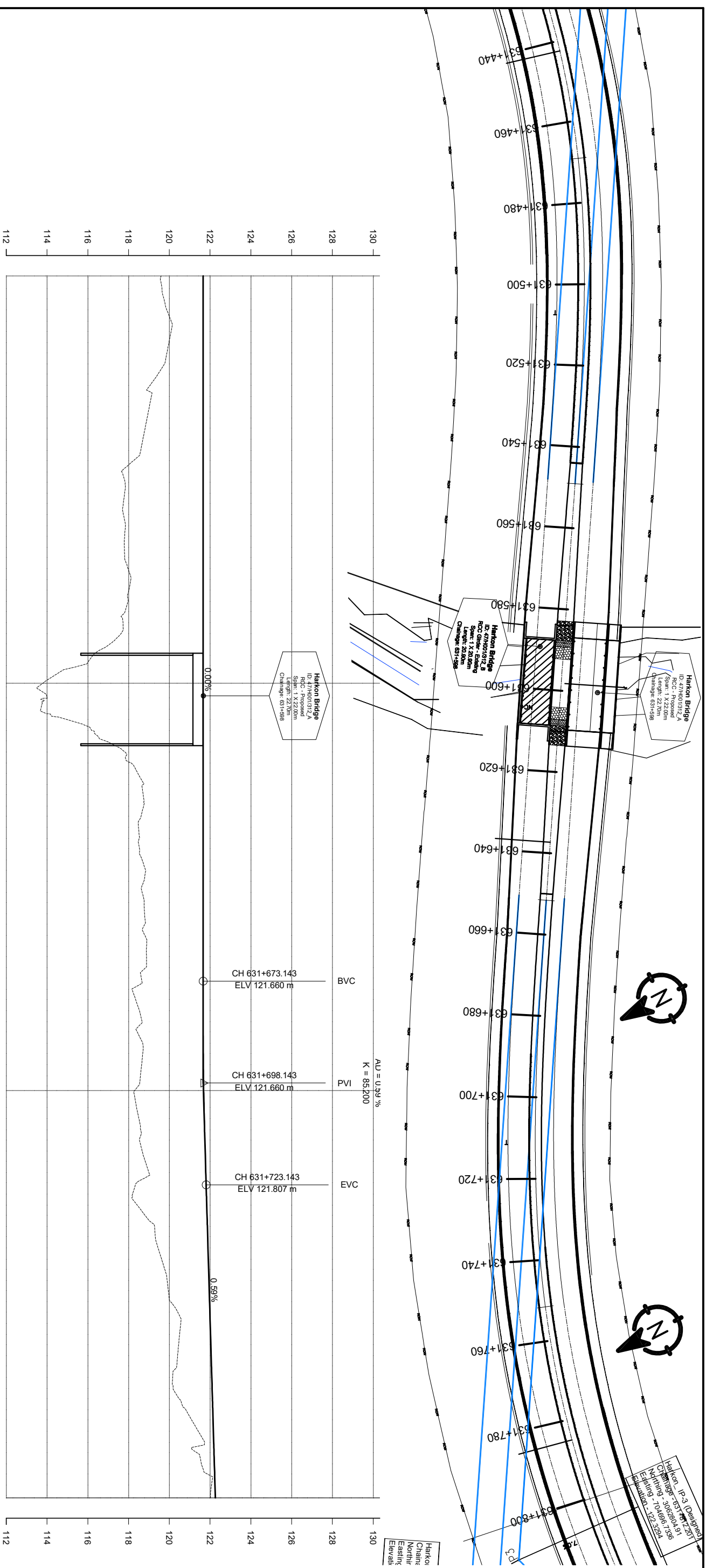
November, 2022

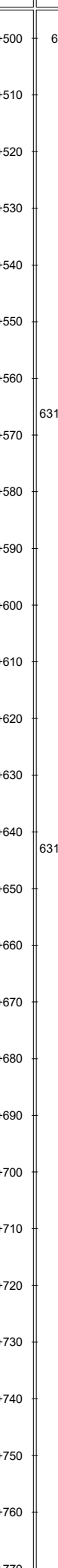
DWG. NO.:

312_Herkur

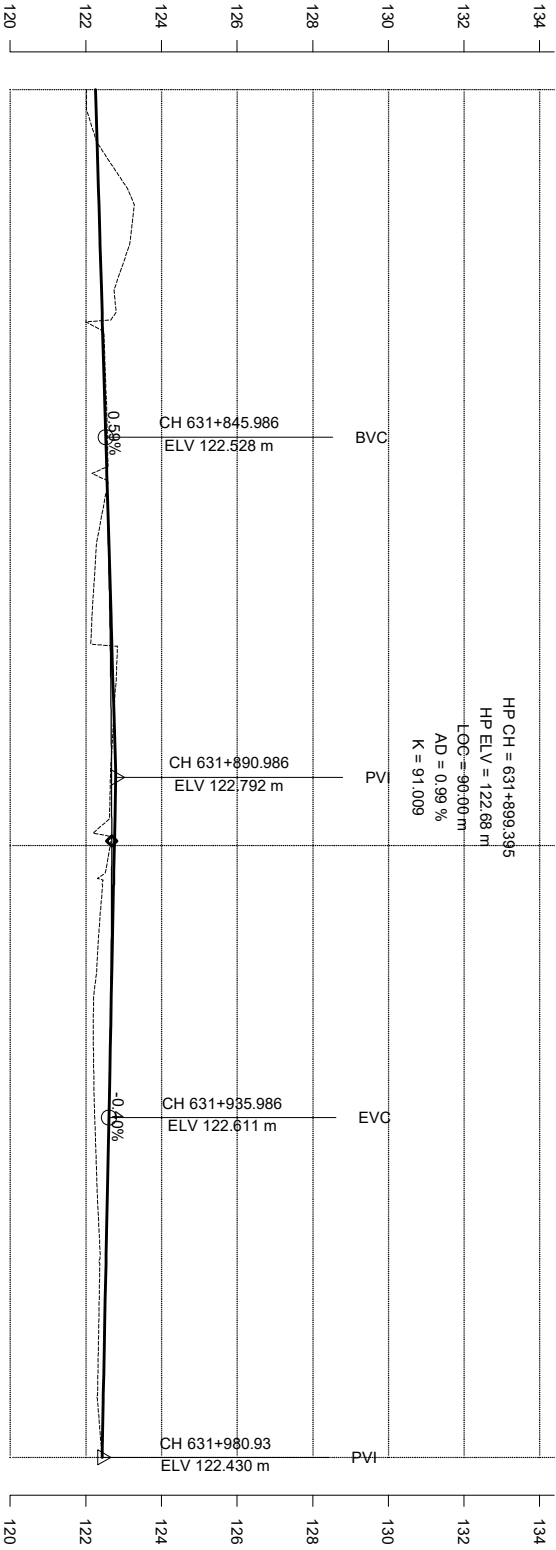
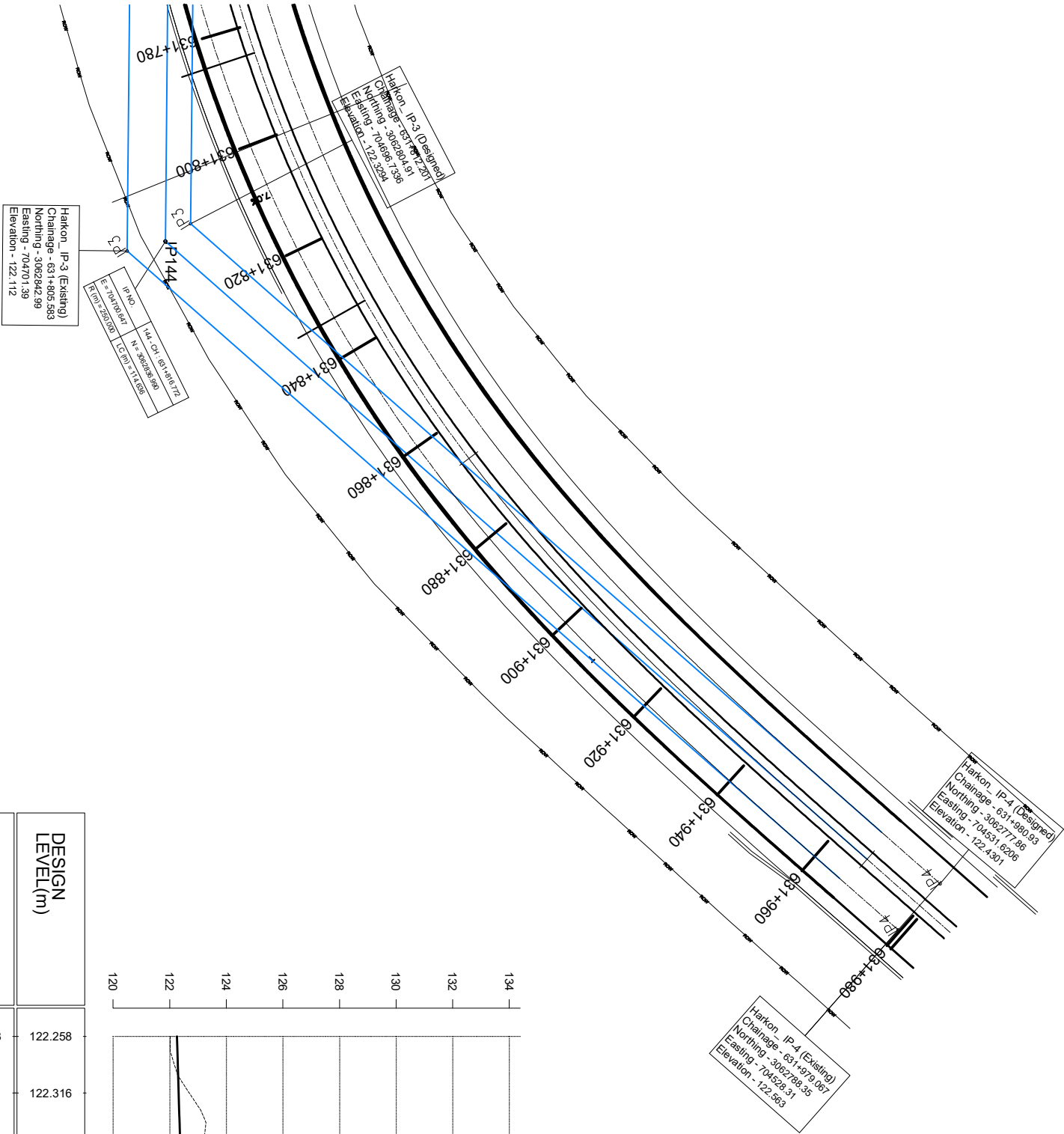
SHEET NO.:

18/121



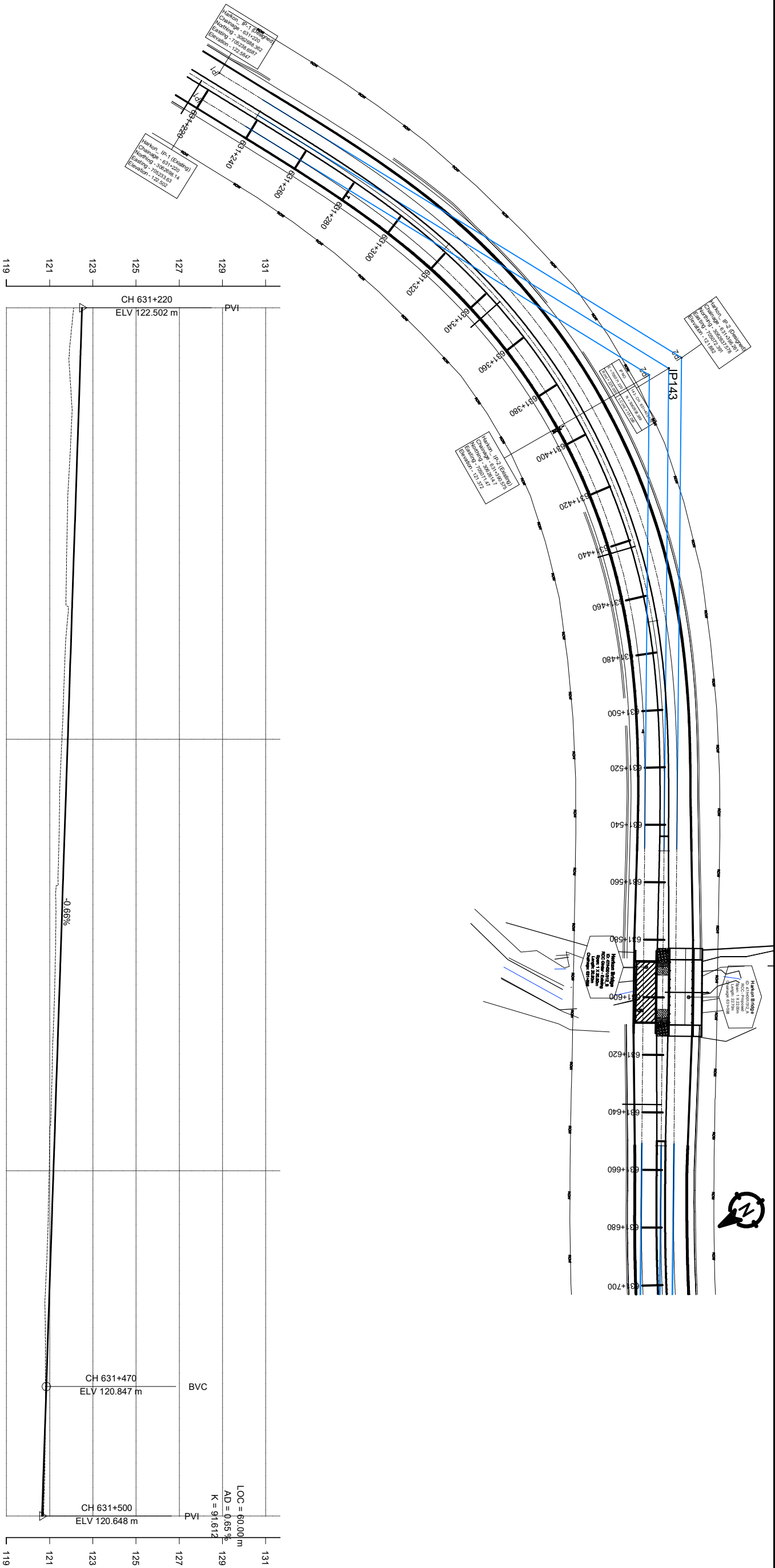
DESIGN LEVEL(m)	EXISTING LEVEL(m)	HORIZONTAL ALIGNMENT		SUPER ELEVATION	CHAINAGE(km)
		RIGHT	LEFT		
631+500	121.660	IP-2 R=230.50		631+500	
631+510	121.660				
631+520	121.660				
631+530	121.660				
631+540	121.660				
631+550	121.660				
631+560	121.660				
631+570	121.660			631+566.164	
631+580	121.660				
631+590	121.660				
631+600	121.660				
631+610	121.660				
631+620	121.660				
631+630	121.660				
631+640	121.660				
631+650	121.660			631+642.958	
631+660	121.660				
631+670	121.660				
631+680	121.663				
631+690	121.677				
631+700	121.702				
631+710	121.740				
631+720	121.789				
631+730	121.847				
631+740	121.906				
631+750	121.964				
631+760	122.023				
631+770	122.082				
631+780	122.140				
631+790	122.199			631+790.577	
631+800	122.258	IP-3 R=244.50	7	631+800	

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHP-PPC) ADB Loan No.: 3722-NEP		CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE:	
 Soosung Engineering Co. Ltd, Korea In association with  ERMC P (Ltd), Nepal and TSE-Tech Studio of Engineering 		ROAD NAME: East West Highway (H01)		Plan & Profile OF Herkur Bridge 631+500-631+800		 Vertical Scale  Horizontal Scale		DESIGNED BY:		Saroj Bhattacharai								November, 2022	
								CHECKED BY:		P. Upadhyaya								DWG.NO.: 312_Herkur	
								APPROVED BY:		Dr. T.H.Choi								SHEET NO.: (18.2/21)	



DESIGN LEVEL(m)	EXISTING LEVEL(m)	HORIZONTAL ALIGNMENT	
		RIGHT	LEFT
122.258	122.018	IP-3 R=244.50	
122.316	122.691		
122.375	123.174	7	
122.434	122.725		
122.492	122.533	631+833.825	
122.550	122.515		
122.599	122.284	T	
122.637	122.158		
122.664	122.772	IP-4 R=0.00	
122.679	122.655		
122.684	122.643	631+980.93	
122.678	122.365		
122.633	122.210	631+980.93	
122.595	122.263		
122.554	122.341	631+980.93	
122.514	122.354		
122.474	122.319	631+980.93	
122.434	122.415		

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERM Co P (Ltd), Nepal and TSE-Tech Studio of Engineering		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorusinghe Section		SHEET TITLE: Plan & Profile OF Herkur Bridge 631+800-631+980		SCALE: Vertical Scale Horizontal Scale		DESIGNED BY: Saroj Bhattacharai	SIGNATURE	REV NO.	DESCRIPTION	DATE: November, 2022	DWG. NO.: 312_Herkur	SHEET NO.: 18/3/21
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DESIGN LEVEL(m)	EXISTING LEVEL(m)	HORIZONTAL ALIGNMENT		SUPER ELEVATION	CHAINAGE(Km)
		RIGHT	LEFT		
122.502	122.114	IP-1 R=0.00	NC	631+220	631+220
122.435	121.920				631+230
122.369	121.996				631+240
122.303	121.986				631+250
122.237	121.881			631+260.61	631+260
122.171	121.818				631+270
122.104	121.781				631+280
122.038	121.868				631+290
121.972	121.719		T		631+300
121.906	121.645				631+310
121.840	121.568				631+320
121.773	121.478				631+330
121.707	121.450			631+344.42	631+340
121.641	121.402				631+350
121.575	121.295				631+360
121.509	121.272				631+370
121.442	121.224				631+380
121.376	121.147		-7		631+390
121.310	121.103				631+400
121.244	121.012				631+410
121.178	120.981				631+420
121.111	120.937				631+430
121.045	120.875			631+436.728	631+440
120.979	120.786				631+450
120.913	120.805				631+460
120.847	120.811		T		631+470
120.786	120.800				631+480
120.736	120.776	IP-2 R=219.50			631+490
120.697	120.718				631+500

Government of Nepal

Ministry of Physical Infrastructure and Transport

Department of Roads

Project Directorate Office (ADB)

SASEC Highway Improvement Project-

Project Preparatory Consultant (SHIP-PPC)

ADB Loan No: 3722-NEP

CONSULTANT:

Soosung Engineering Co. Ltd,

Korea in association with

ERM P (Ltd), Nepal

and

TSE-Tech Studio of Engineering

IMPLEMENTING AGENCY:

DOR, DCID

ROAD NAME:

East West Highway (H01)

Butwal - Gorusinghe Section

SHEET TITLE:

Plan & Profile

OF

Existing Herkur Bridge

631+220-631+500

SCALE:

Vertical Scale

Horizontal Scale

DESIGNED BY:

Sanoj Bhattacharai

CHECKED BY:

P. Upadhyaya

APPROVED BY:

Dr. T.H.Choi

NAME

SIGNATURE

REV NO.

DESCRIPTION

DATE:

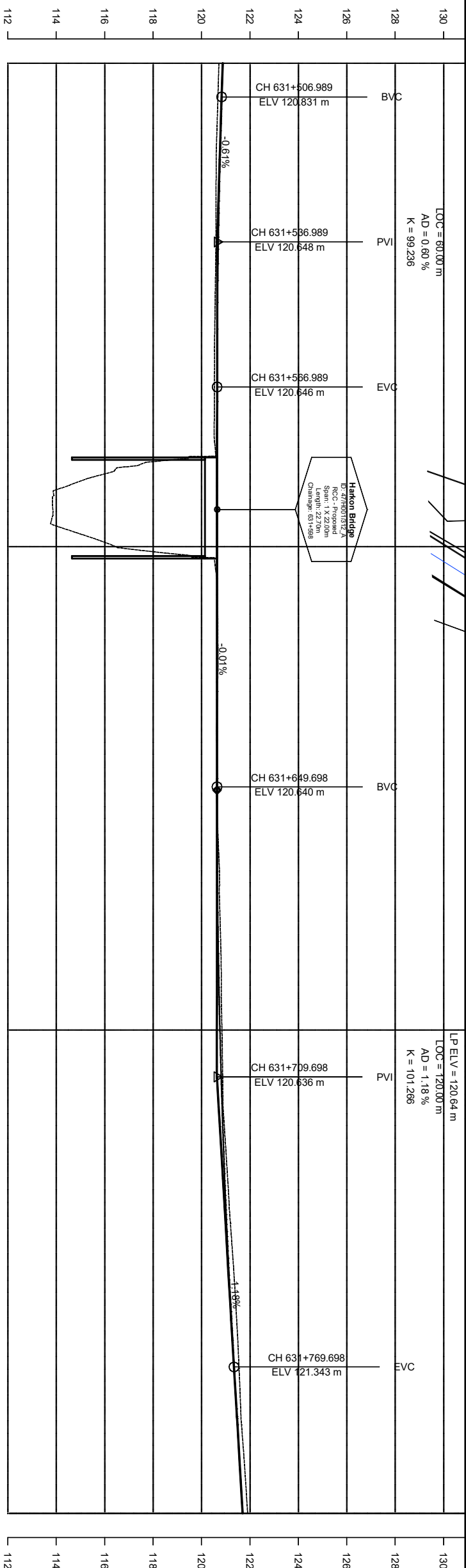
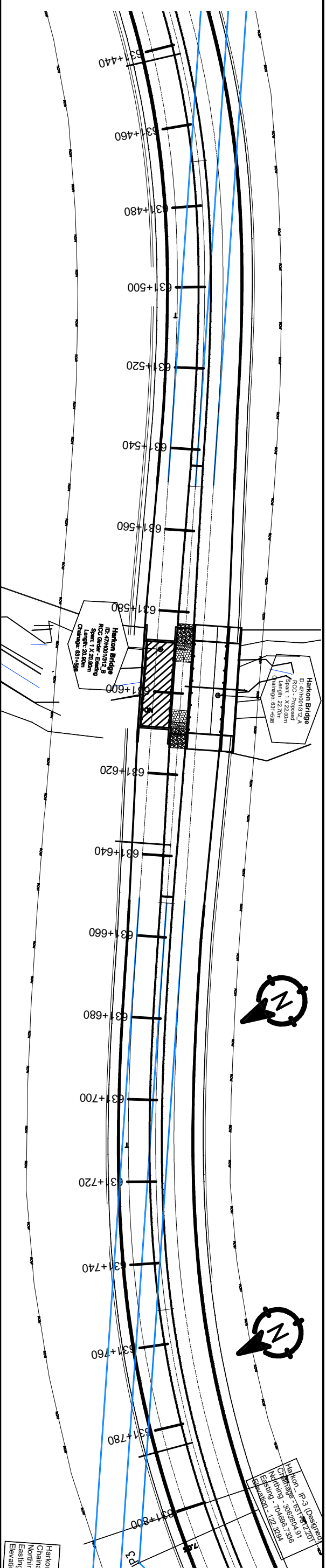
November, 2022

DWG. NO.:

312_Herkur

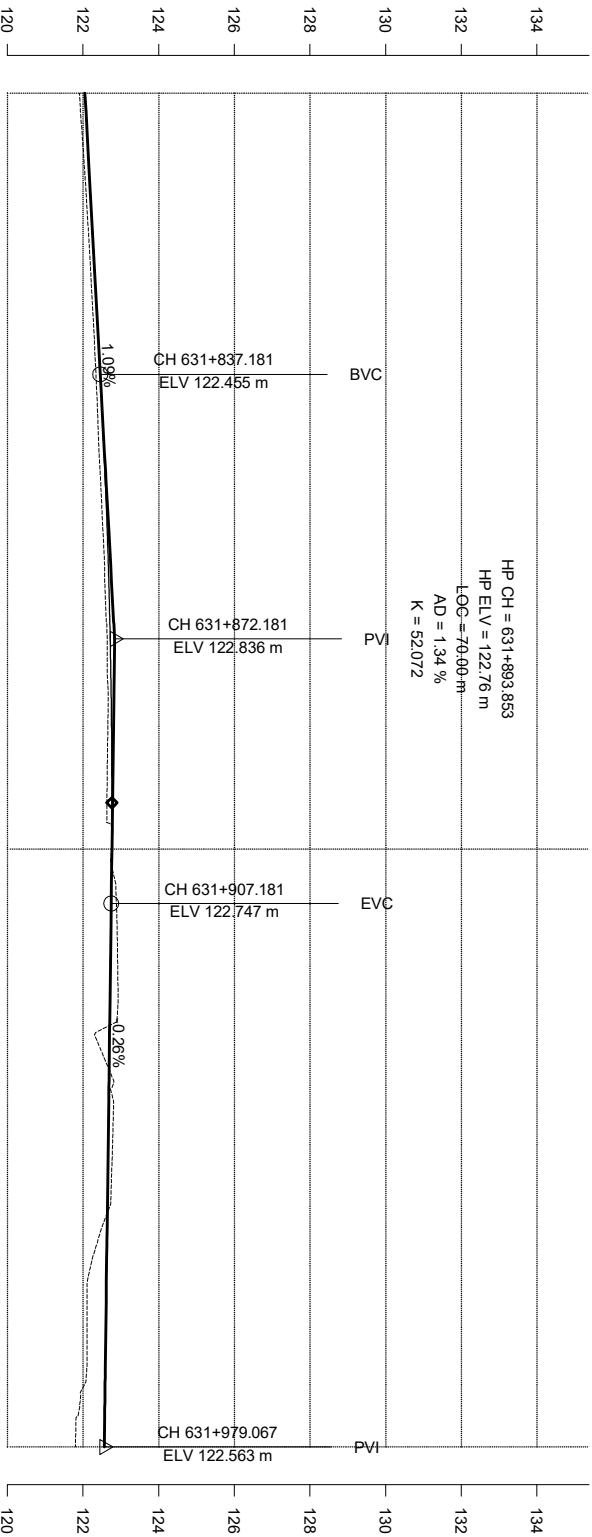
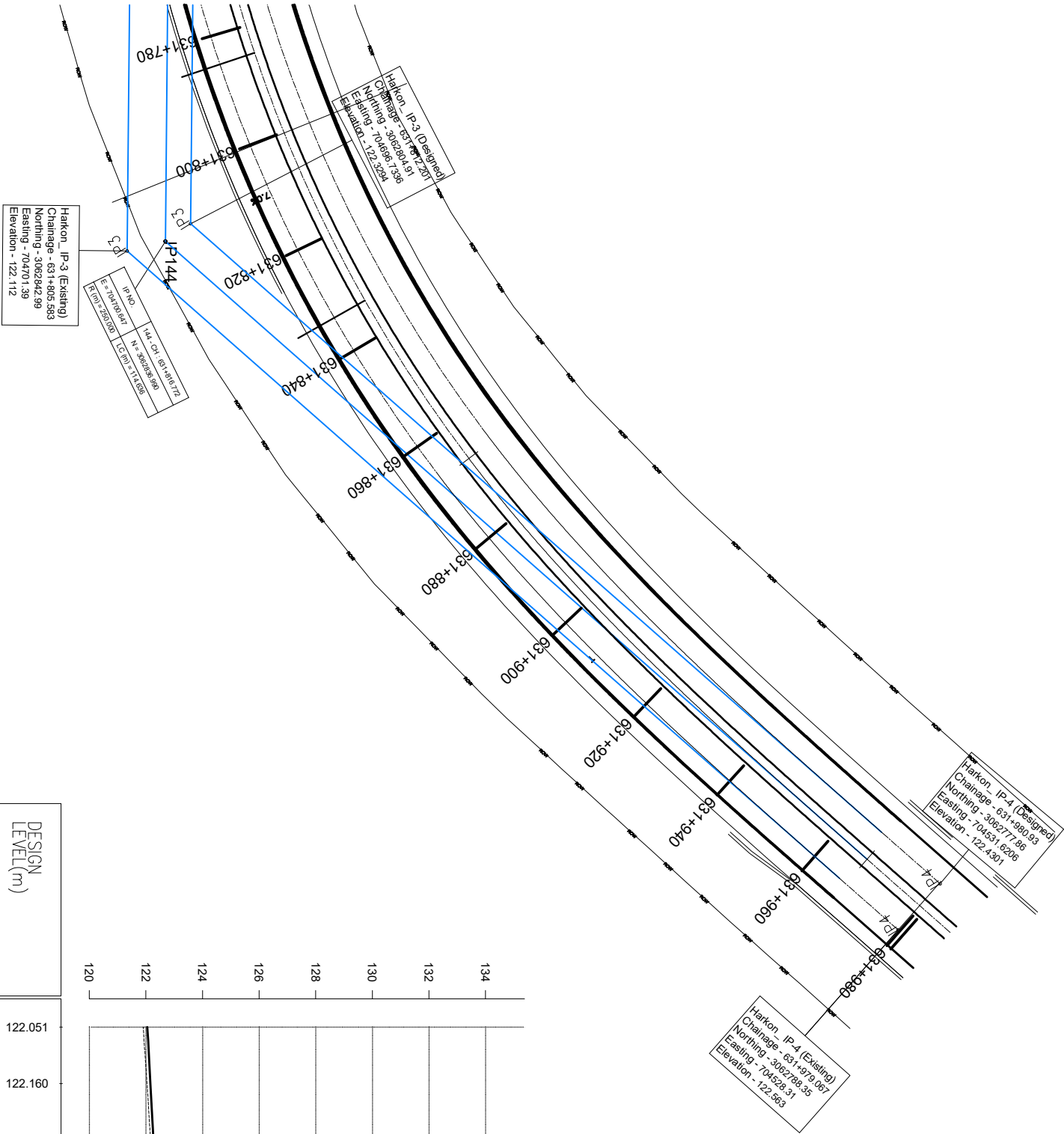
SHEET NO.:

18/4/21



CHAINAGE(km)	SUPER ELEVATION	HORIZONTAL ALIGNMENT		EXISTING LEVEL(m)	DESIGN LEVEL(m)
		LEFT	RIGHT		
631+500	631+500		IP-2 R=219.50	120.718	120.874
631+510				120.661	120.814
631+520				120.605	120.760
631+530		T		120.600	120.717
631+540				120.590	120.684
631+550				120.561	120.662
631+560	631+554.824			120.536	120.649
631+570				120.530	120.646
631+580				120.570	120.645
631+590				113.844	120.644
631+600		NC		116.439	120.644
631+610				120.665	120.643
631+620				120.679	120.642
631+630	631+631.618			120.663	120.642
631+640				120.627	120.641
631+650				120.635	120.640
631+660				120.684	120.645
631+670				120.739	120.659
631+680				120.783	120.683
631+690				120.816	120.718
631+700		T		120.846	120.762
631+710				120.876	120.815
631+720				120.946	120.879
631+730				121.072	120.953
631+740				121.196	121.036
631+750				121.337	121.130
631+760				121.453	121.233
631+770				121.552	121.346
631+780	631+779.237			121.630	121.464
631+790		7	IP-3 R=255.50	121.778	121.582
631+800	631+800			121.906	121.700

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No.: 3722-NEP						CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:				NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE: November, 2022	
 Soo Sung Engineering Co. Ltd, Korea In association with  ERMC P (Ltd), Nepal and TSE-Tech Studio of Engineeering						DOR, DCID		ROAD NAME: East West Highway (H01)		Plan & Profile OF Existing Herkur Bridge 631+500 - 631+800		 Vertical Scale  Horizontal Scale		DESIGNED BY:		Saroj Bhattacharai								DWG.NO.: 312_Herkur	
														CHECKED BY:		P. Upadhyaya								SHEET NO.: (18.5/21)	
														APPROVED BY:		Dr. T.H.Choi									



DESIGN LEVEL(m)	EXISTING LEVEL(m)	HORIZONTAL ALIGNMENT	
		RIGHT	LEFT
122.051	121.906	IP-3 R=255.50	
122.160	122.041		
122.268	122.165	7	
122.377	122.274		
122.485	122.368	631+831.929	
122.579	122.452		
122.654	122.548	T	
122.709	122.616		
122.745	122.667	NC	
122.762	122.640		
122.760	122.753	631+936.691	
122.740	122.902		
122.714	122.927	631+979.067	
122.688	122.760		
122.663	122.776	631+979.067	
122.637	122.500		
122.612	122.105	631+979.067	
122.586	122.083		

Government of Nepal

Ministry of Physical Infrastructure and Transport

Department of Roads

Project Directorate Office (ADB)

SASEC Highway Improvement Project-

Project Preparatory Consultant (SHIP-PPC)

ADB Loan No: 3722-NEP

CONSULTANT:

Soosung Engineering Co. Ltd,

Korea in association with

ERM P (Ltd), Nepal

and

TSE-Tech Studio of Engineering

IMPLEMENTING AGENCY:

DOR, DCID

ROAD NAME:

East West Highway (H01)

Butwal - Gorusinghe Section

SHEET TITLE:

Plan & Profile OF Existing Herkur Bridge 631+800 - 631+970

SCALE:

0 2 4 6m

Vertical Scale

0 10 20 30m

Horizontal Scale

DESIGNED BY:

Saroj Bhattacharai

CHECKED BY:

P. Upadhyaya

APPROVED BY:

Dr. T.H.Choi

SIGNATURE

REV NO.

DESCRIPTION

DATE:

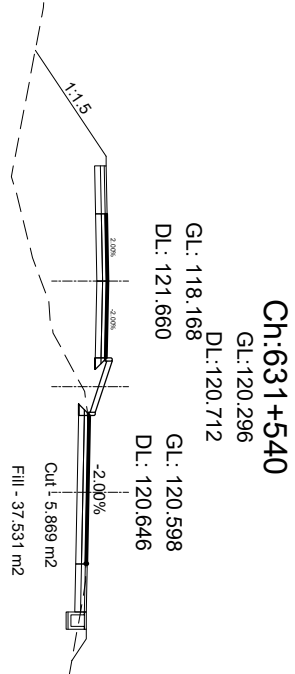
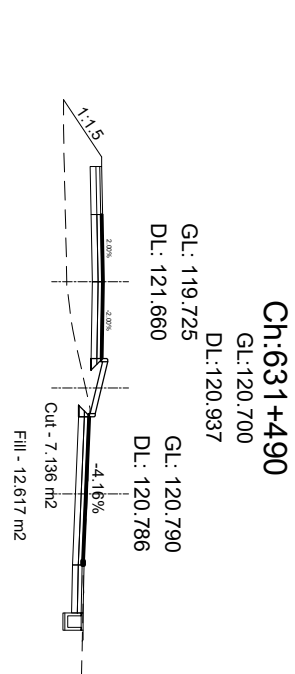
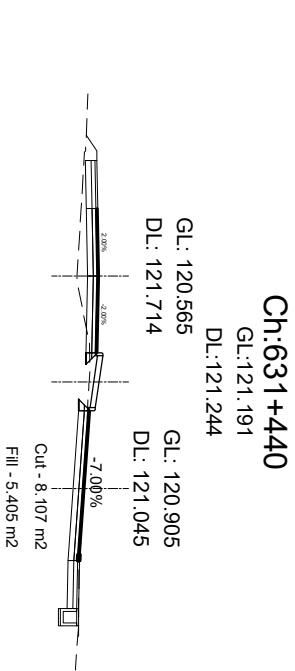
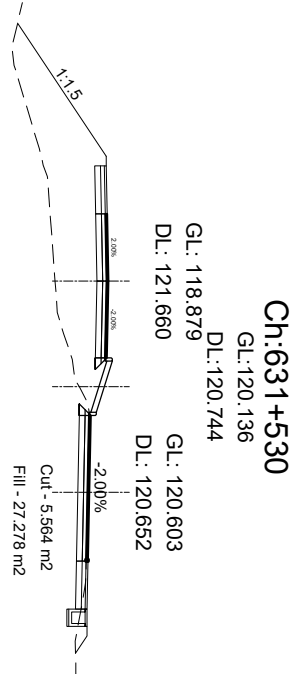
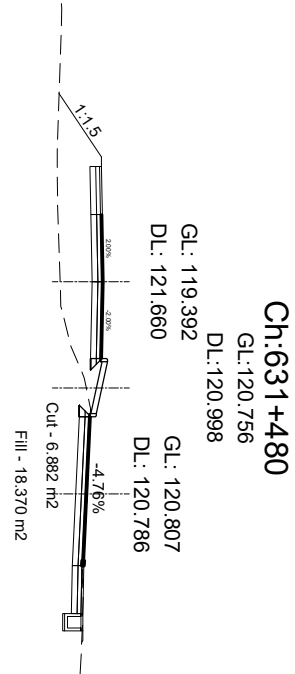
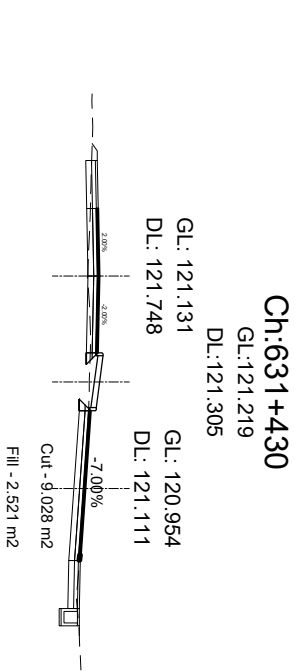
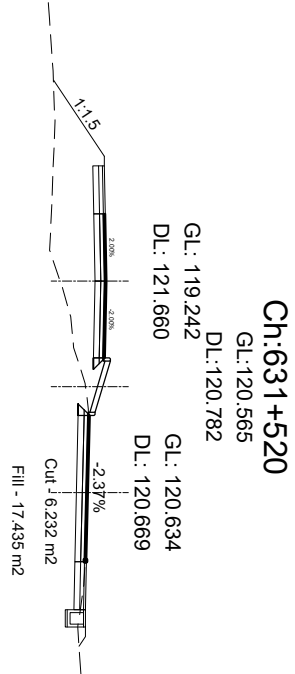
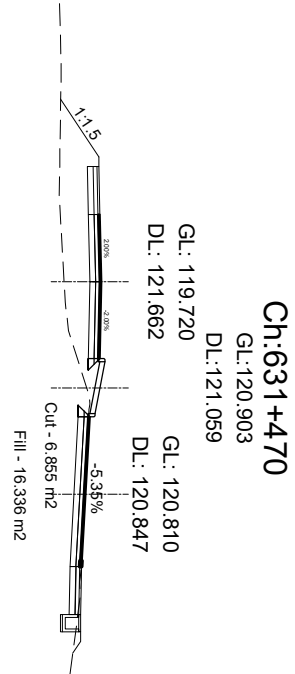
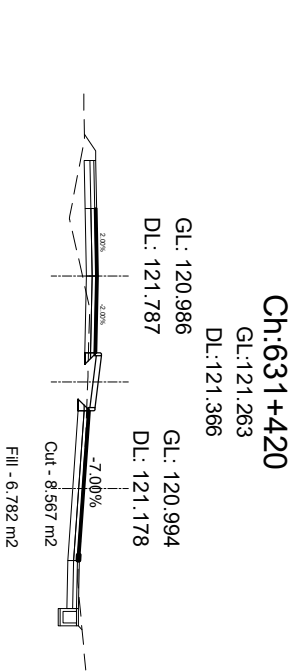
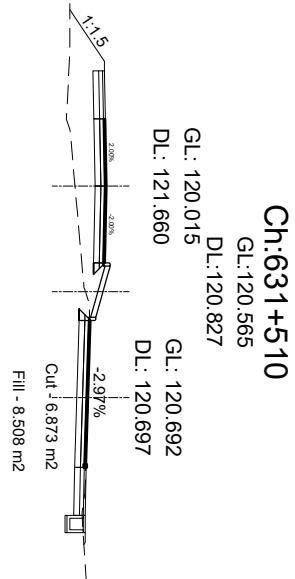
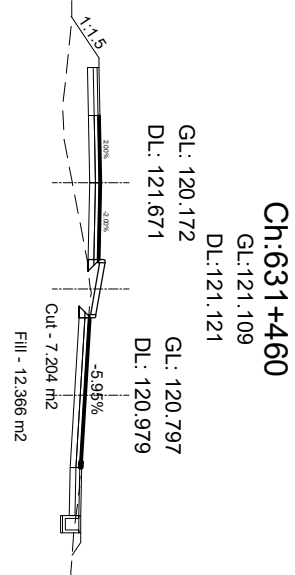
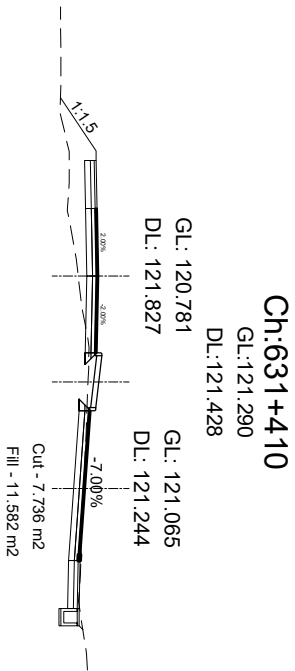
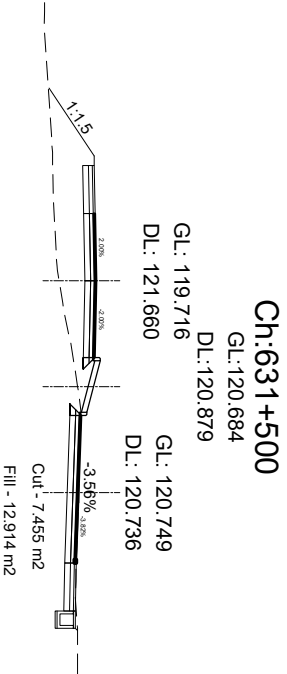
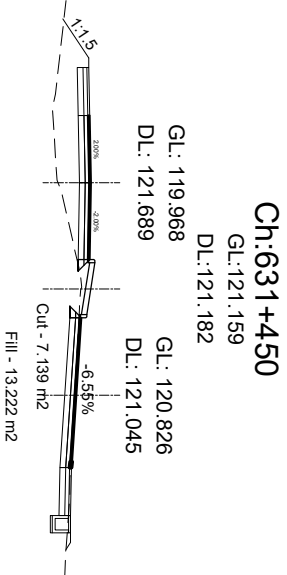
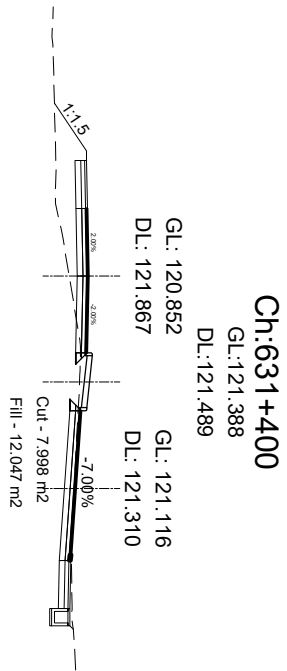
November,2022

DWG.NO.:

312_Herkur

SHEET NO.:

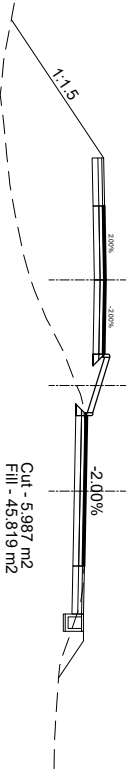
18.6/21



Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with  ERM C P (Ltd), Nepal and  TSE-Tech Studio of Engineering	IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorusinghe Section	SHEET TITLE: Cross Section of Ch:631+400 - 631+540	SCALE:  Vertical Scale  Horizontal Scale							DATE: November, 2022 DWG.NO.: 312_HerKur SHEET NO.: 19.1/21

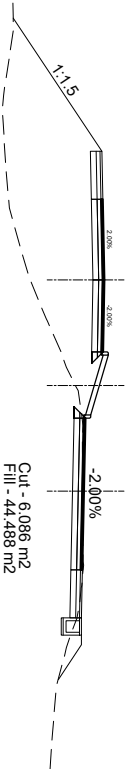
Ch:631+550

GL:120.132
DL:120.686
GL: 117.745
DL: 121.660
GL: 120.577
DL: 120.645



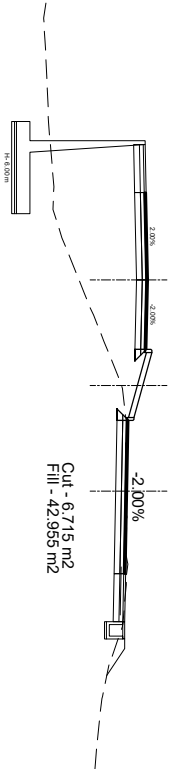
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DL:120.667
GL: 117.788
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DL: 120.644



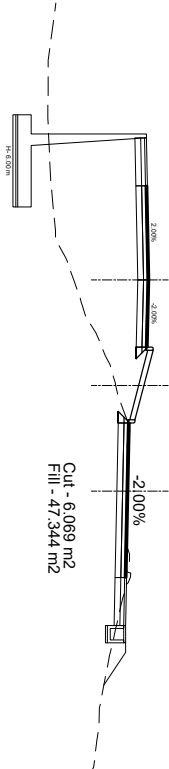
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DL: 121.660
GL: 120.535
DL: 120.644



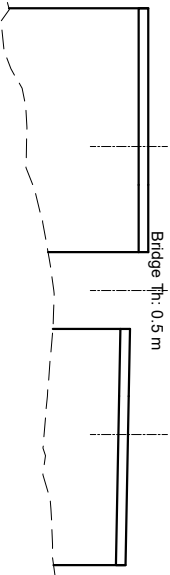
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GL:119.925
DL:120.649
GL: 117.731
DL: 121.660
GL: 120.527
DL: 120.643



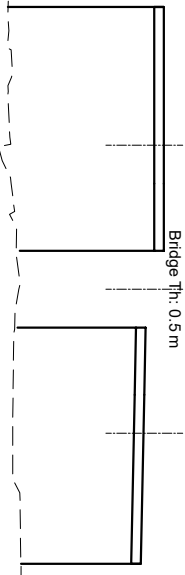
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DL: 120.648



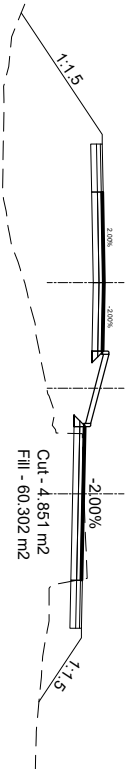
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GL:114.122
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GL: 113.724
DL: 121.660
GL: 113.811
DL: 120.648



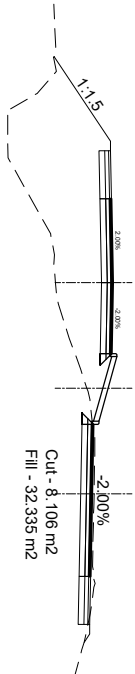
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GL:118.633
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GL: 117.481
DL: 121.660
GL: 120.574
DL: 120.641



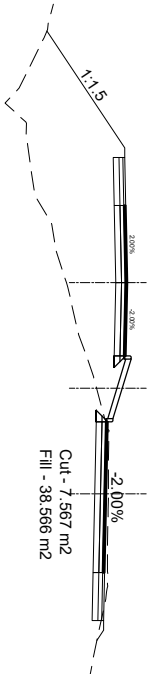
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DL: 121.660
GL: 120.671
DL: 120.640



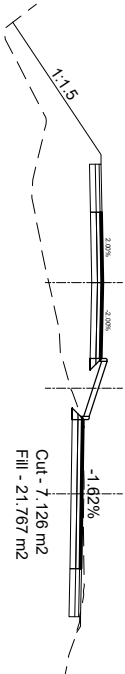
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DL: 120.644



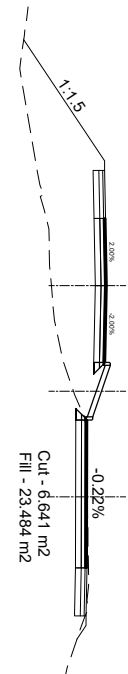
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GL: 120.646
DL: 120.657



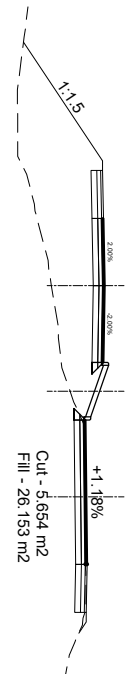
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GL:119.926
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GL: 118.775
DL: 121.660
GL: 120.650
DL: 120.679



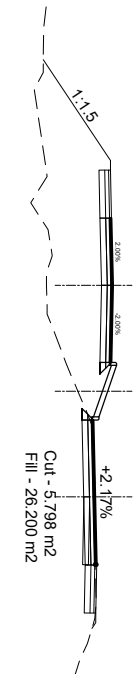
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DL: 121.660
GL: 120.640
DL: 120.710



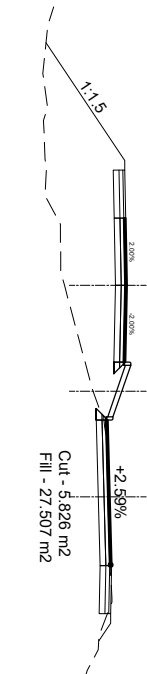
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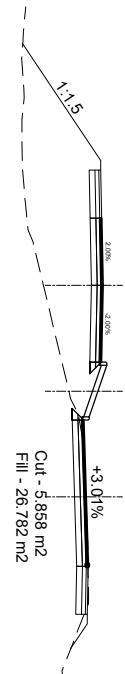
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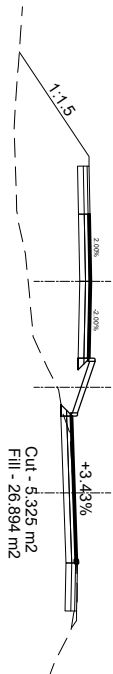
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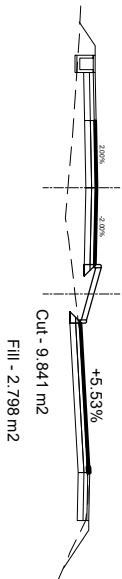


Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERM P (Ltd), Nepal and TSE-Tech Studio of Engineering	IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		NAME	SIGNATURE	REV NO.	DESCRIPTION	DATE:
		DOR, DCID		Cross Section of Ch:631+550 - 631+690		 		Saroj Bhattacharai				November, 2022
		ROAD NAME:						P. Upadhyaya				DWG.NO.: 312_HerKur
		Butwal - Gorusinghe Section						Dr. T.H.Choi				SHEET NO.: 19.2/21

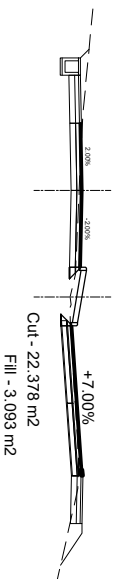
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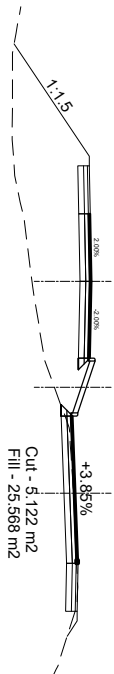
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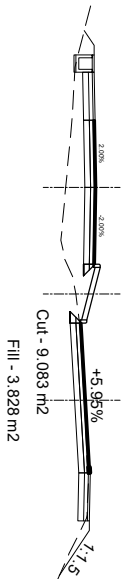
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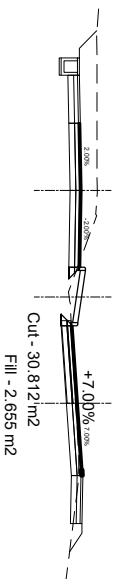
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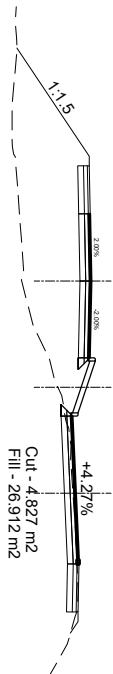
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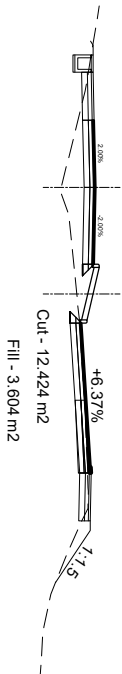
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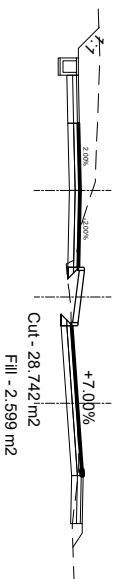
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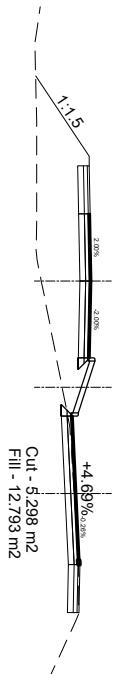
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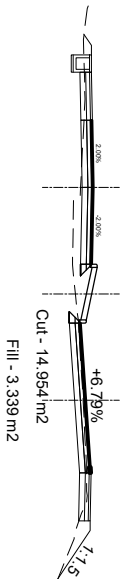
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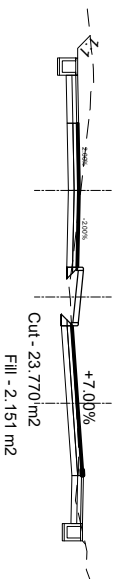
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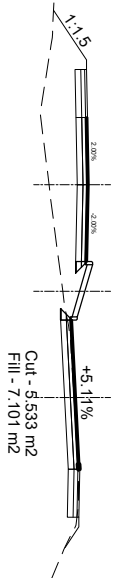
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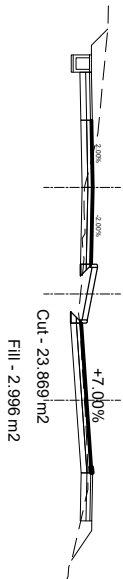
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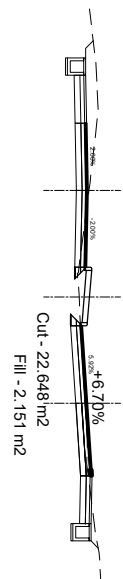
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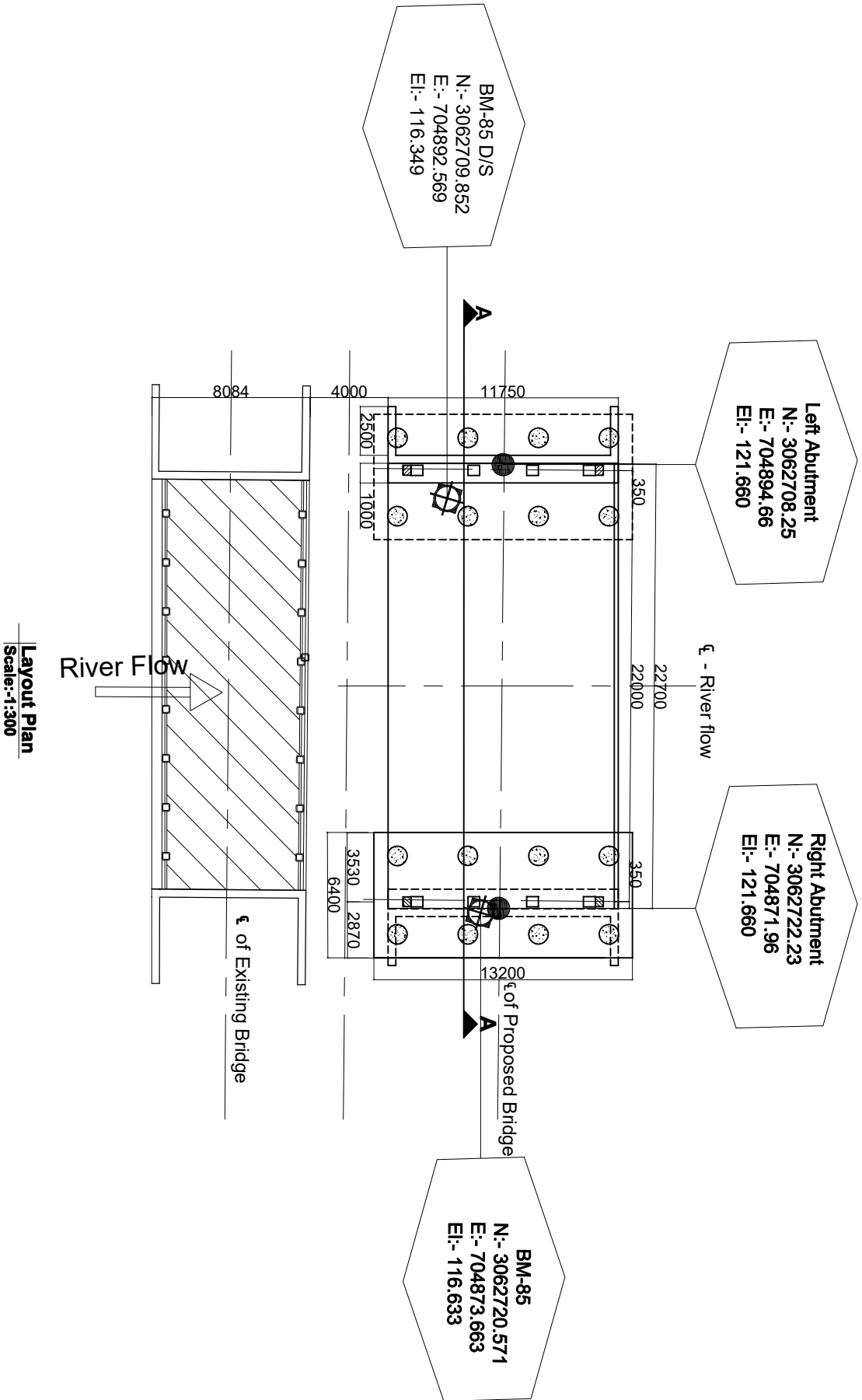
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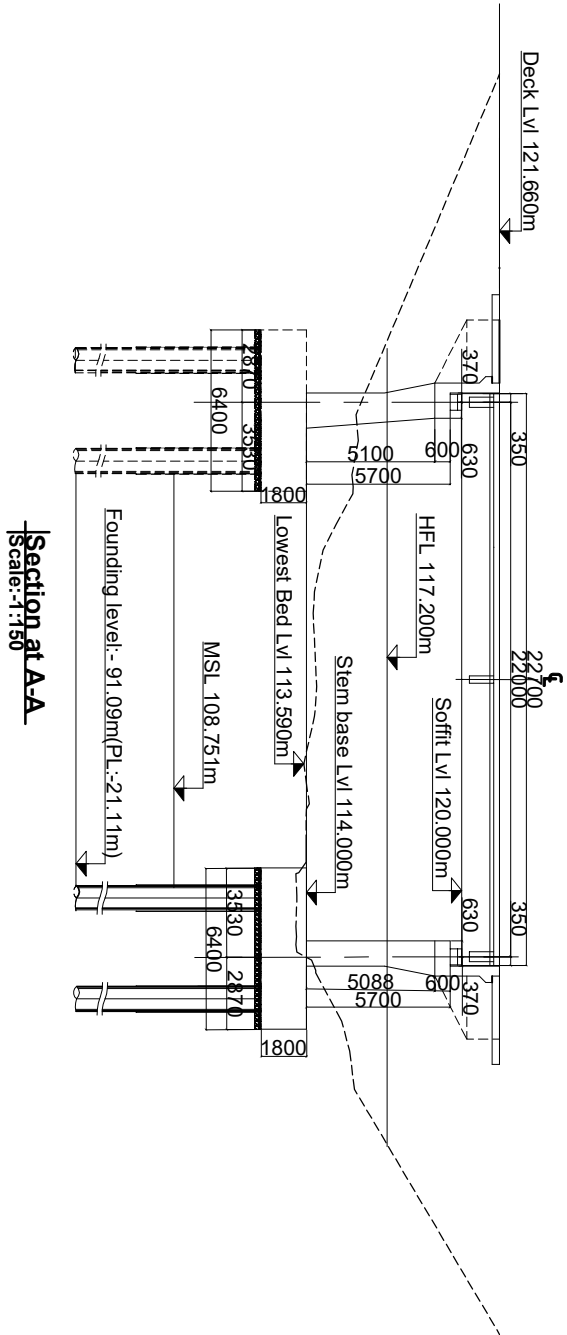
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Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	 Soosung Engineering Co. Ltd, Korea in association with ERM P (Ltd), Nepal and TSE-Tech Studio of Engineering	CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		NAME	SIGNATURE	REV NO.	DESCRIPTION	DATE:	DWG.NO.:	SHEET NO.:
		DOR, DCID		ROAD NAME:		Cross Section of Ch:631+700 - 631+840		Vertical Scale 0 2 4 6m Horizontal Scale 0 10 20 30m		Saroj Bhartarai				November, 2022	312_HerKur	19/3/21
				East West Highway (H01)						P. Upadhyaya						
		Butwal - Gorusinghe Section								Dr. T.H.Choi						

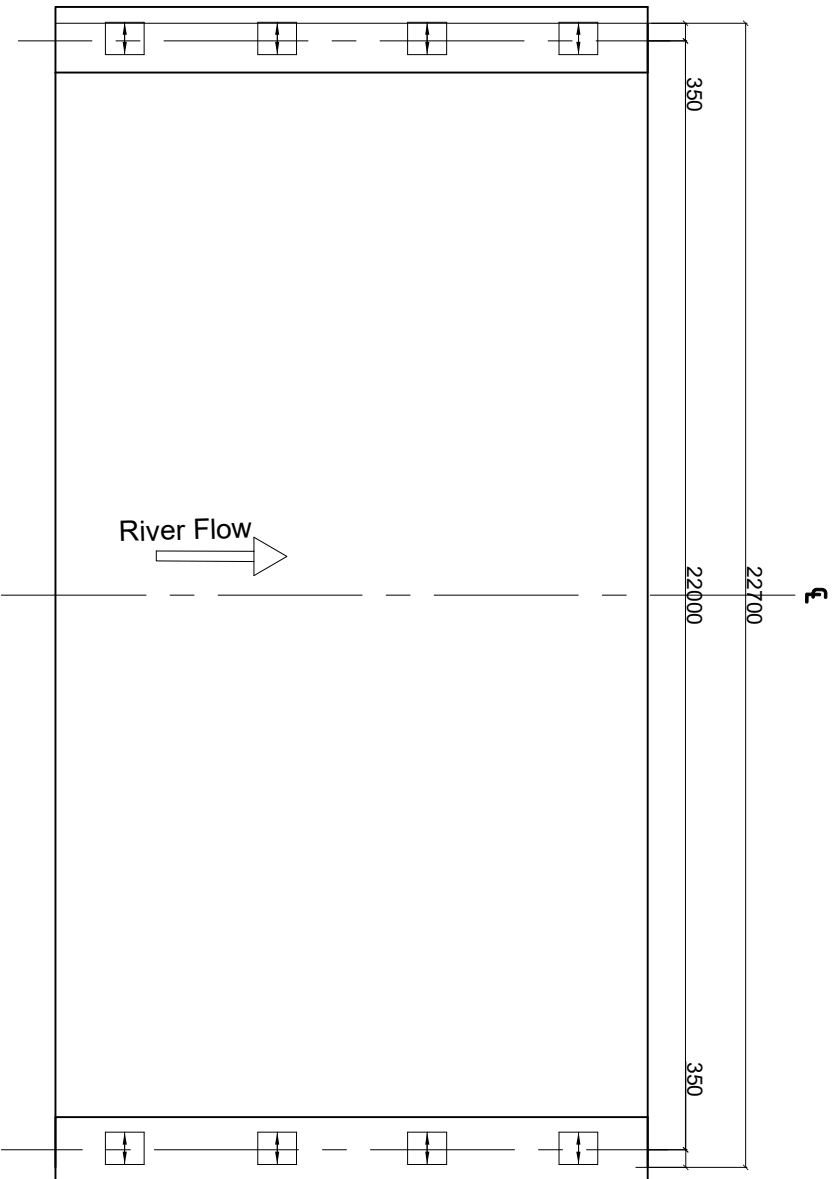


Layout Plan
Scale:-1:300



Section at A-A
Scale:-1:150

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and  JWC Tech Studio of Engineering Nepal		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Goursinghe Section		SHEET TITLE: Layout Plan of Herkur Bridge (47/H001/312_A)		SCALE: 1:300		 Designed by: Saroj Bhattacharai 		 Checked by: P. Upadhyaya 		 Approved by: Dr. T.H.Choi 		DATE: November,2022	
														DWG.NO.: 312_Herkur			
														SHEET NO.: 20/21			



Layout of Bearing
Scale :- 1:150

Legend

-  Elastomeric bearing.
Partial movement allowed in longitudinal direction.
Restrained to transverse movement.
-  Fixed Pot-bearing.
Restrained to lateral movement.
-  Free Pot-bearing.
Partial movement allowed in longitudinal direction.
Restrained to transverse movement.

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and JYV - Tech Studio of Engineering Nepal		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Goursinghe Section		SHEET TITLE: Layout Plan of Herkur Bridge (47/H001/312_A)		SCALE: 1:300		NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE: November, 2022	
										Designed by:									
										Checked by:									
										Approved by:									
																		SHEET NO.: 312_Herkur (21/21)	

Government of Nepal
Ministry of Physical Infrastructure and Transport
Department of Roads

Project Directorate (ADB)
Implementing Agency : DOR, DCID

Project Preparatory Consultants
Under

SASEC Highway Improvement Project (SHIP-PPC)

(ADB Loan No: 3722 Nep)
Contract No. SHIP/PPC/2020/02

Dry Nala Bridge(47-H001-313_A)

St. Ch : 633+322.65 ~ End Ch : 633+345.35

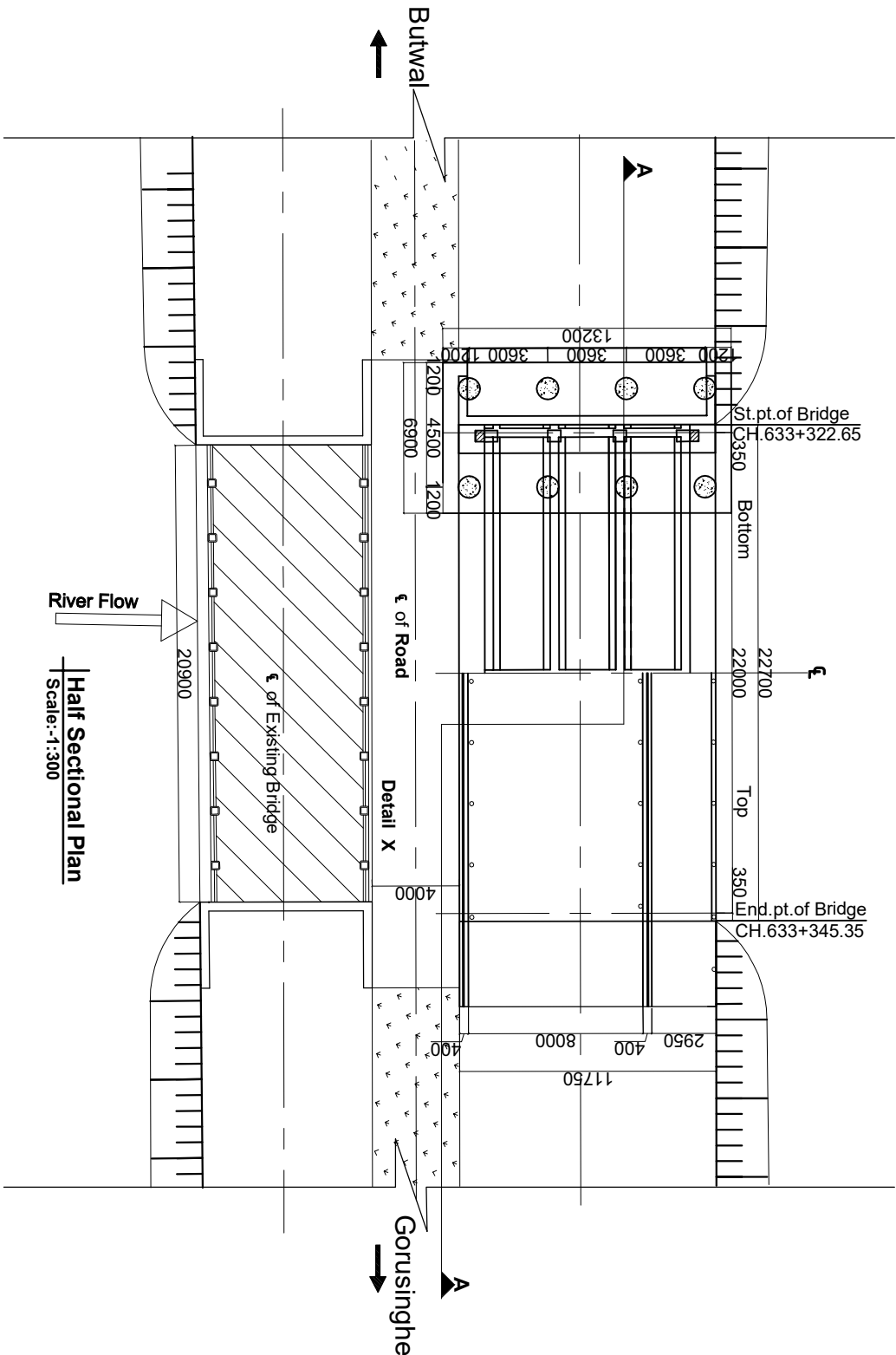
Detailed Drawing

Butwal - Gorusinghe Sector

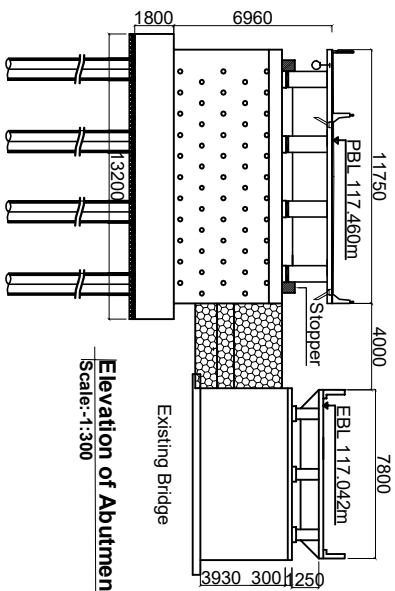
November, 2022

CONTENTS

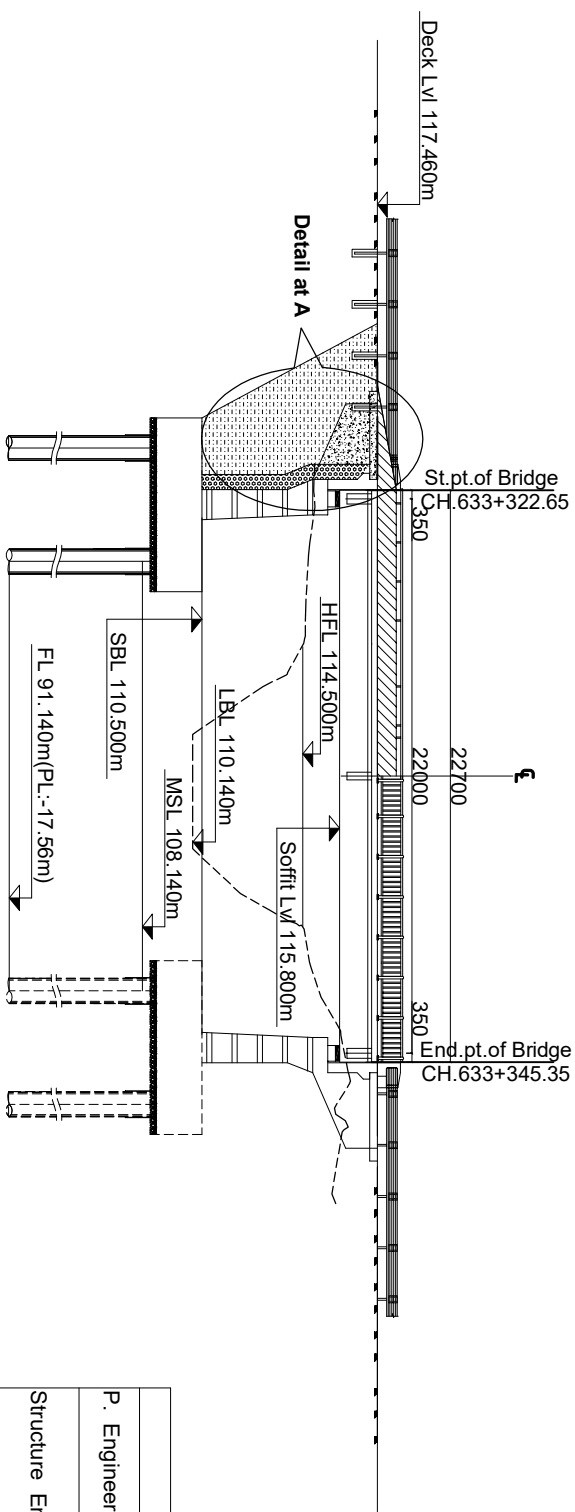
S.No.	DESCRIPTION	DWG. NO	NO. OF SHEETS
1.	General Notes.	1 - 2	2
2.	Topographic Map.	2.1	1
3.	General Arrangement.	3-4	2
4	Bore Logs.	5	1
5.	Detail of Superstructure.	6	1
6.	Reinforcement Details of Slab.	7	1
7.	Reinforcement Details of Main Girder.	8	1
8.	Reinforcement Details of Cross Girder.	9	1
9.	Bar Bending Schedule of Slab & Main Girder.	10	1
10.	Abutment Details.	11	1
11.	Reinforcement Details of Abutment.	12	1
12.	BBS & Reinforcement .	13	1
13.	Reinforcement Details of Abutment Piles.	14	1
14.	Reinforcement Details of Approach Slab.	15	1
15.	Miscellaneous Detail.	16-17	2
16.	River Training Work.	17.1	1
17.	Plan & Profile.	18-19	2
18.	Cross Section.	19a-19b	2
19.	Layout Plan.	20	1



Half Sectional Plan
Scale:-1:300



Elevation of Abutment
Scale:-1:300

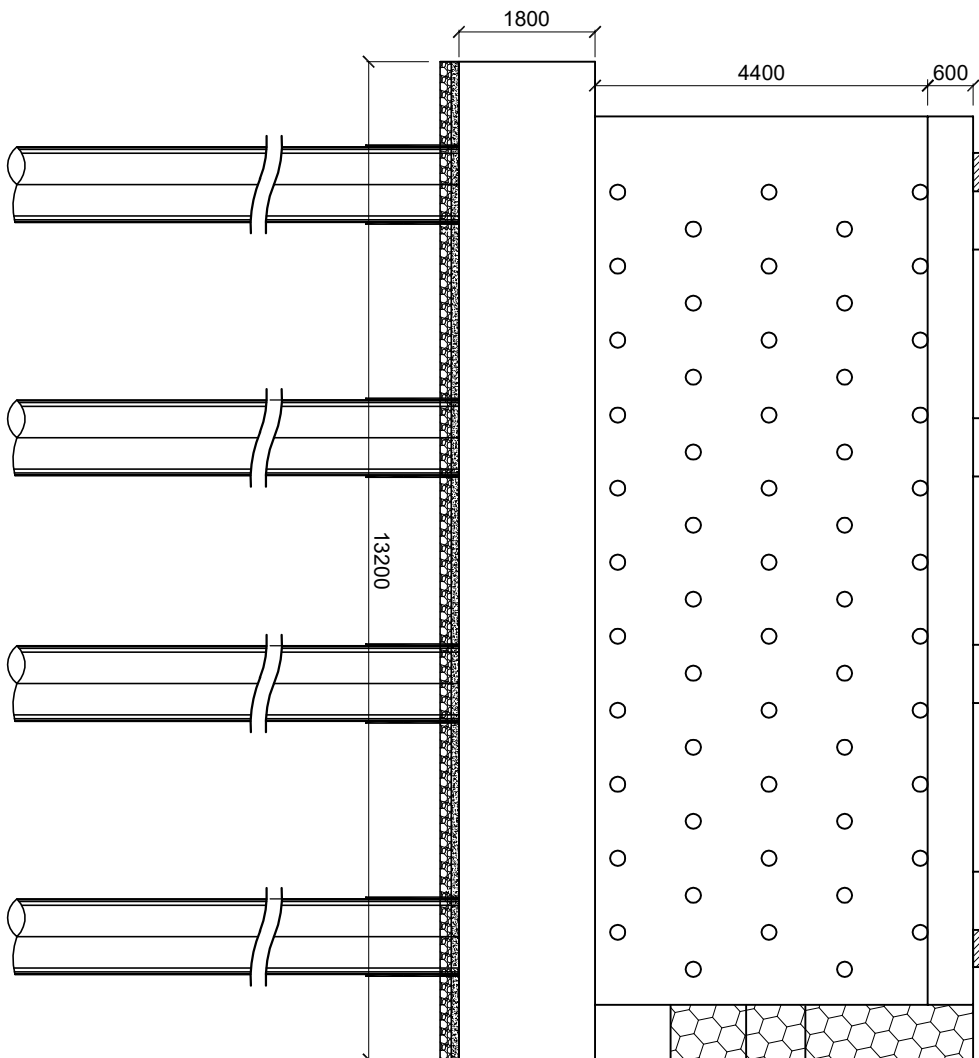
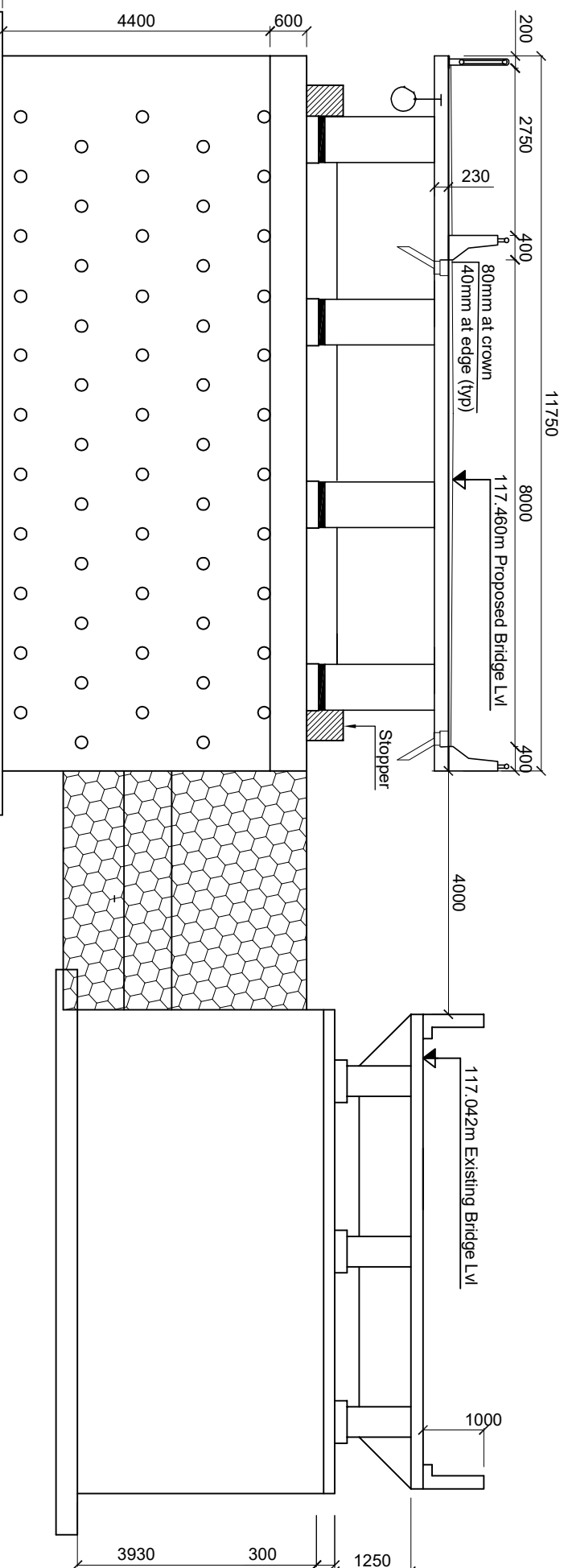


Half Sectional Elevation
Scale:-1:300

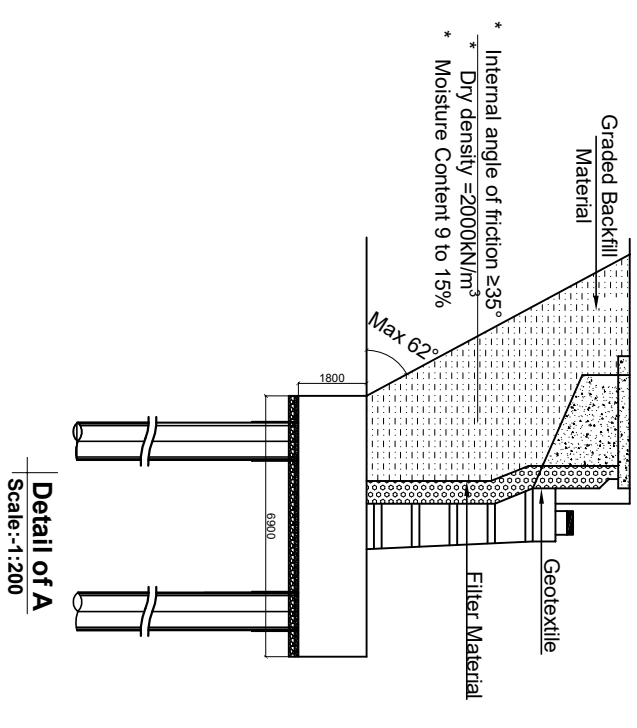
Notes:-
PBL=Proposed Bridge Level
EBL=Existing Bridge Level
LBL=Lowest Bed Level
SBL=Stem Base Level
MSL=Maximum Scour Level
FL=Footing Level
PL=Pile Length

Name(NEC Number)		Signature
P. Engineer	P. Upadhyaya (Civil A 675)	
Structure Engineer	K.P. Wagle(Civil A 127) / P.Shrestha(Civil A 676) / S.Bhattarai (Civil A 904)	
Hydrologist	Dr. P. C. Jha(Civil A 166) / S. Adhikari (Civil A 408)	
Geotechnical Engineer	A. Adhikari(ka 199) / Dr. V. R. S. Shahi	

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NFP		CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERM/C P (Ltd) and  JWC - Tech Studio of Engineering Nepal		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		NAME		SIGNATURE		REV. NO.		DESCRIPTION		DATE: November,2022	
DOR, DCID		ROAD NAME: East West Highway (H01)		General Arrangement of Dry Nala Bridge (47/H001/313_A)		1:300		Designed by:		Saroj Bhattarai								DWG.NO.: 313_Dry Nala	
Checked by:								P. Upadhyaya											
Butwal - Gorusinghe Section								Approved by:		Dr. T.H.Choi									
																		SHEET NO.: 03/20	



Section of Abutment At (B-B)

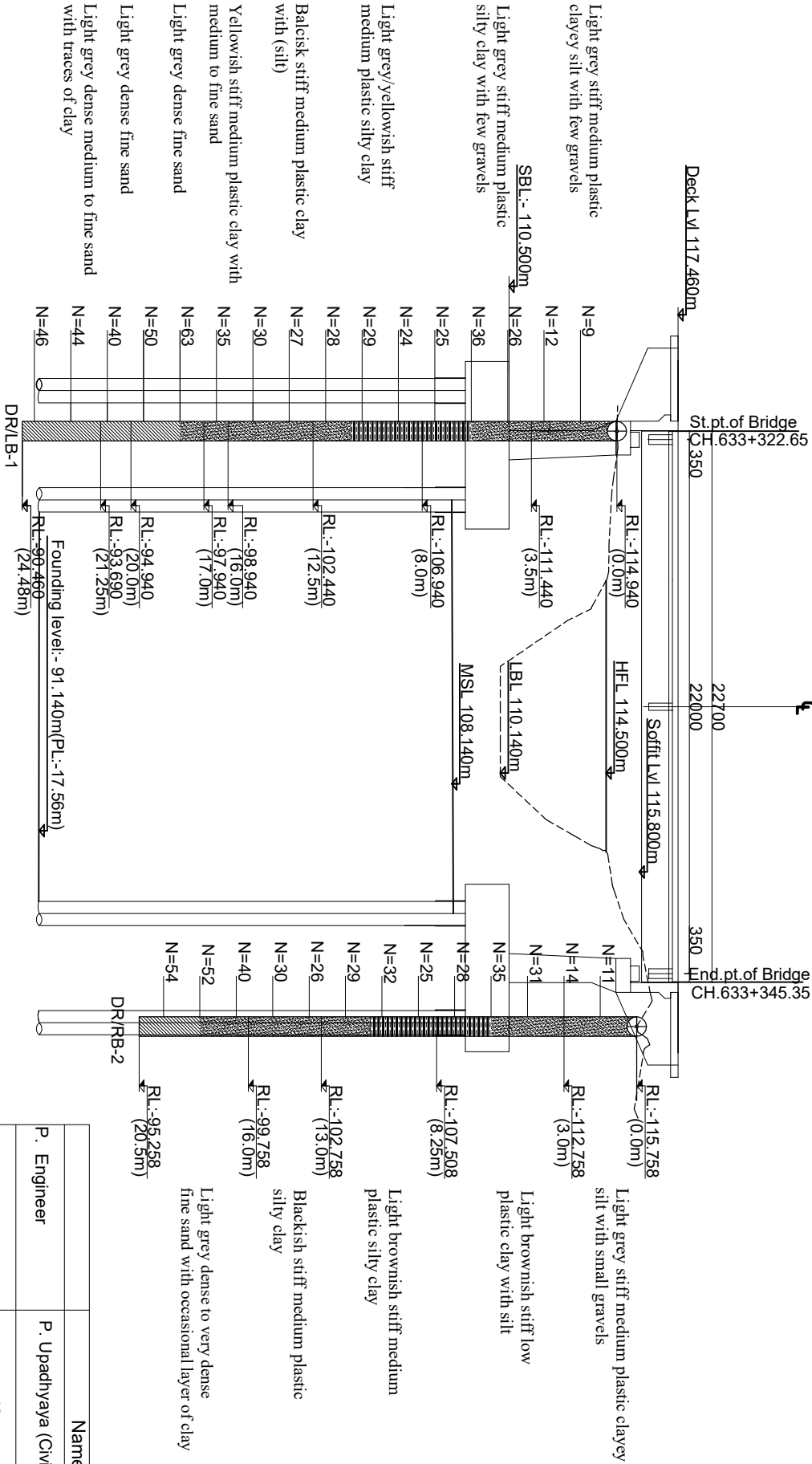
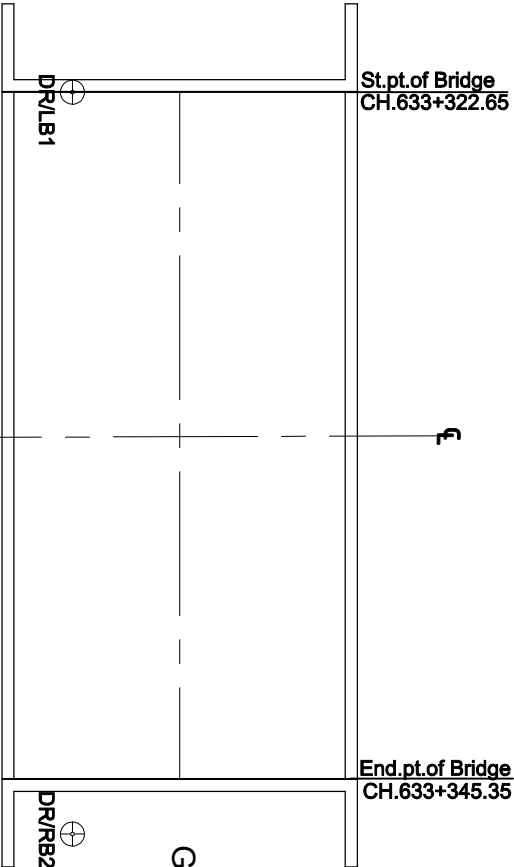
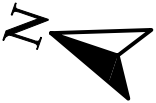


Detail of A
Scale:-1:200

	Name(NEC Number)	Signature
P. Engineer	P. Upadhyaya (Civil A 675)	
Structure Engineer	K.P.Wagle(Civil A 127) / P.Shrestha(Civil A 676) / S.Bhatnarai (Civil A 904)	 
Hydrologist	Dr. P.C. Jha(Civil A 166) / S. Adhikari (Civil A 408)	 
Geotechnical Engineer	A. Adhikari(ka 199) / Dr. V. R. S. Shahi	 

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASAC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:				NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE:	
Soosung Engineering Co. Ltd, Korea in association with ERMCP P (Ltd) and JSC-Tech Studio of Engineering Nepal		  		DOR, DCID		General Arrangement of Dry Nala Bridge (47/H001/313_A)		As Shown		Designed by:		Saroj Bhattacharai								November, 2022	
										ROAD NAME:											
										East West Highway (H01)											
										Butwal - Gorusinghe Section											
										Checked by:		P. Upadhyaya								DWG NO.: 313_Dry Nala	
										Approved by:		Dr. T.H. Choi								SHEET NO.: (04/20)	

Borehole No : DR/LB-1
Easting : 83° 3' 39.69 "
Northing : 27° 40' 11.48"
Elevation, m : 114.940
Borehole No : DR/RB-2
Easting : 83° 03' 39.35"
Northing : 27° 40' 35.10.70"
Elevation, m : 115.758



Notes:-
HFL = High Flood Level
MSL =Maximum Scour Level
RL =Reduced Level
LBL =Lowest Bed Level

Notes:-
PBL=Proposed Bridge Level
EBL =Existing Bridge Level
LBL =Lowest Bed Level
SBL =Stem Base Level
MSL =Maximum Scour Level
FL =Founding Level
PL =Pile Length

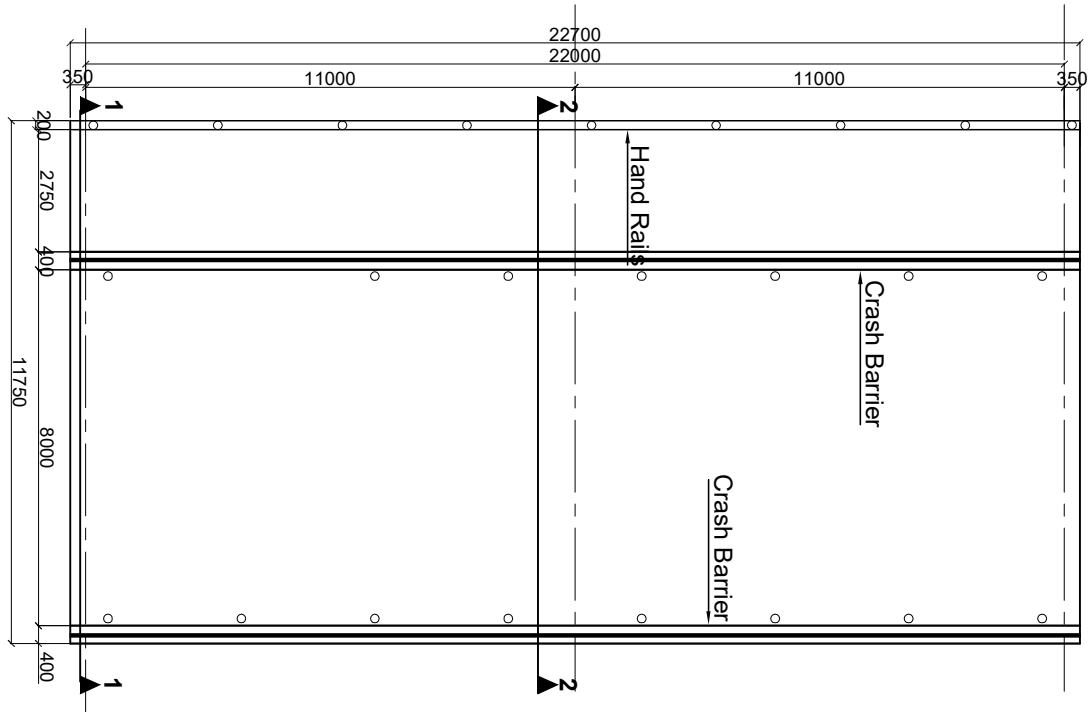
NOTE ON SUB-SOIL PROFILE
The sub-soil profile shown here is based on information obtained from the investigation bore-holes at the locations as shown. The actual soil type away from the vicinity of the boreholes may differ .

Bore Log Detail
Scale:-1:250

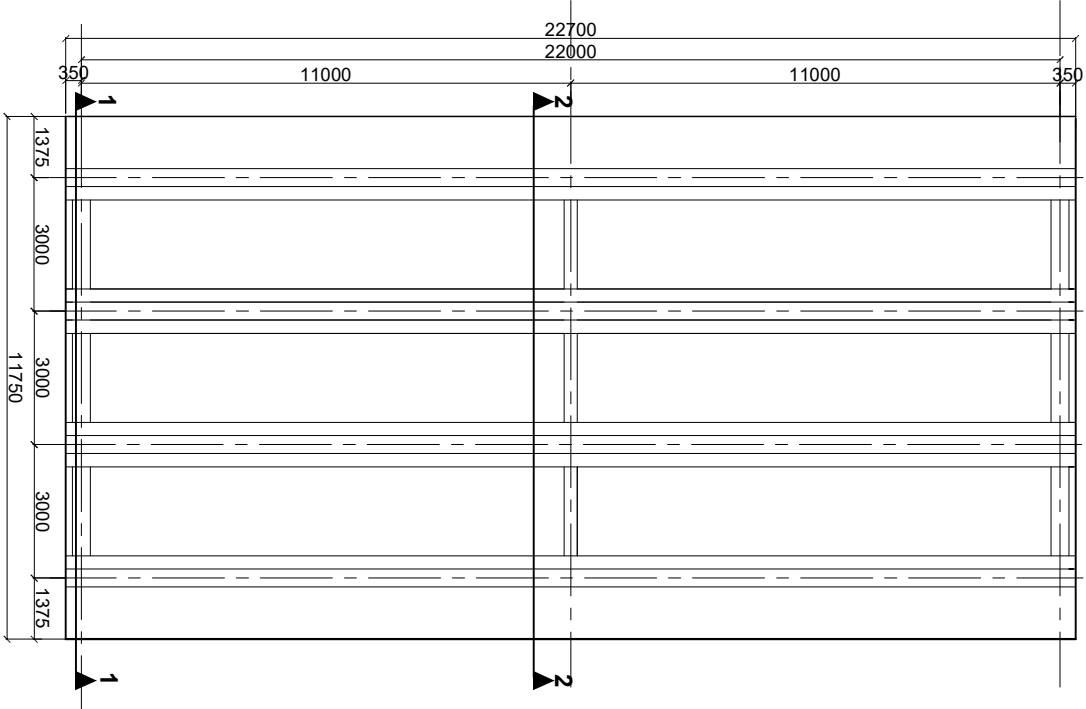
Location	Design Pile Length m	Design Working load on pile (non - seismic case)kn	Allowable Bearing Capacity on pile (Scour case) kn	Allowable Bearing Capacity of the Pile (Non Scour case)kn
Abutment	17.56	1890	2339	2407
Pier	0.00	000	0.000	0000

	Name(NEC Number)	Signature
P. Engineer	P. Upadhyaya (Civil A 675)	
Structure Engineer	K.P. Wagle(Civil A 127) / P. Shrestha(Civil A 676) / S. Bhattarai (Civil A 904)	
Hydrologist	Dr. P. C. Jha(Civil A 166) / S. Adhikari (Civil A 408)	
Geotechnical Engineer	A. Adhikari(Ka 199) / Dr. V. R. S. Shahi	

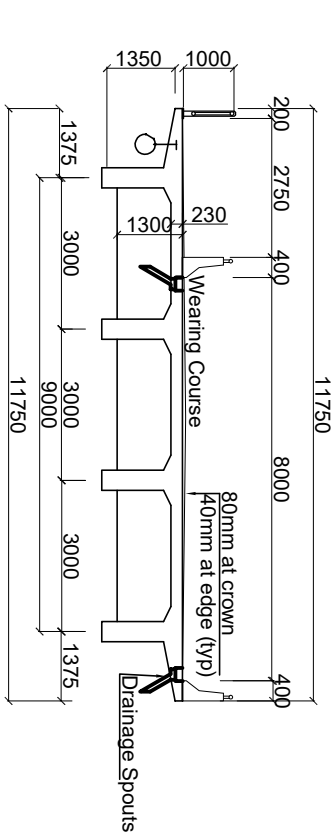
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	 Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and  JYK -Tech Studio of Engineering Nepal	CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:			NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE:		
		DOR, DCID				Bore Log of Dry Nala Bridge (47/H001/313_A)		1:250				Saroj Bhattarai								November, 2022	
		ROAD NAME:								Designed by:										DWG.NO.:	
		East West Highway (H01)								Checked by:		P. Upadhyaya								313_Dry Nala	
		Butwal - Gorusinghe Section								Approved by:		Dr. T.H. Choi								SHEET NO.:	
																				05/20	



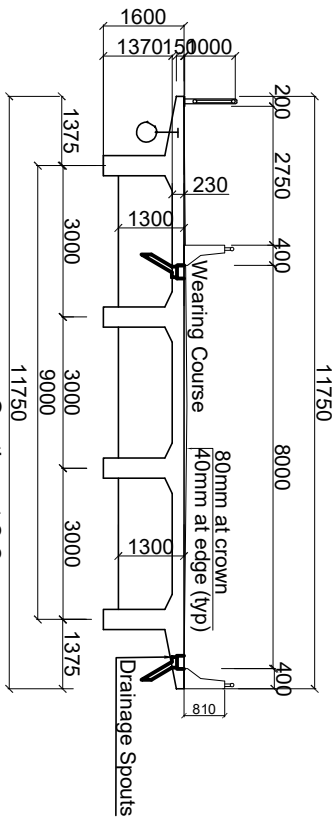
Plan Of Deck
Scale:-1:150



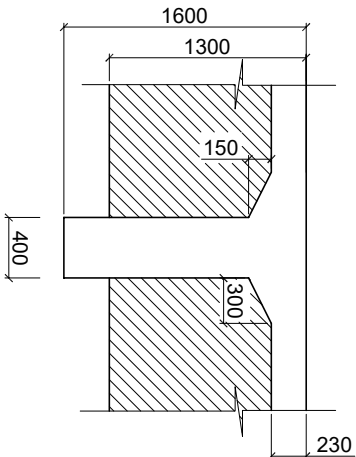
Plan Of Girder
Scale:-1:150



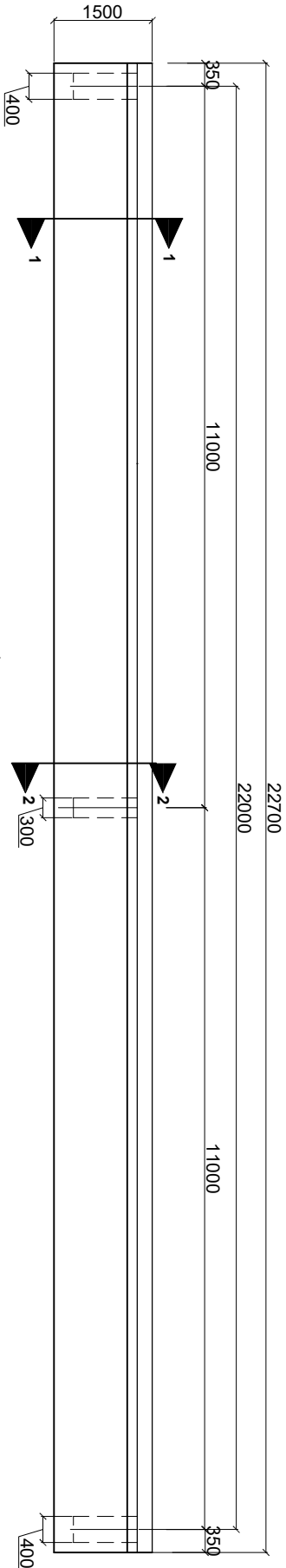
Section at 1-1
Scale:-1:150



Section at 2-2
Scale:-1:150



Section 1-1 Main Girder
Scale:-1:50



Longitudinal Sectional Elevation
Scale:-1:100

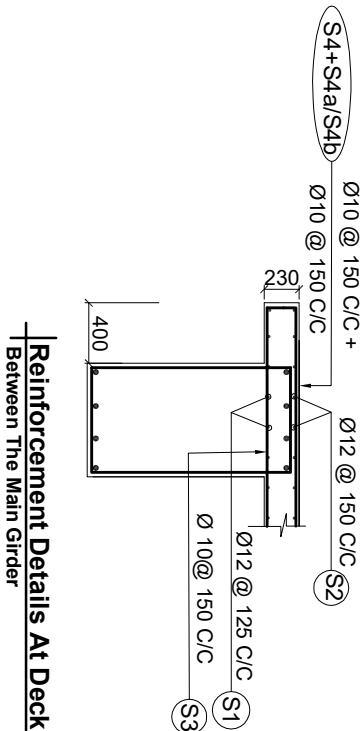
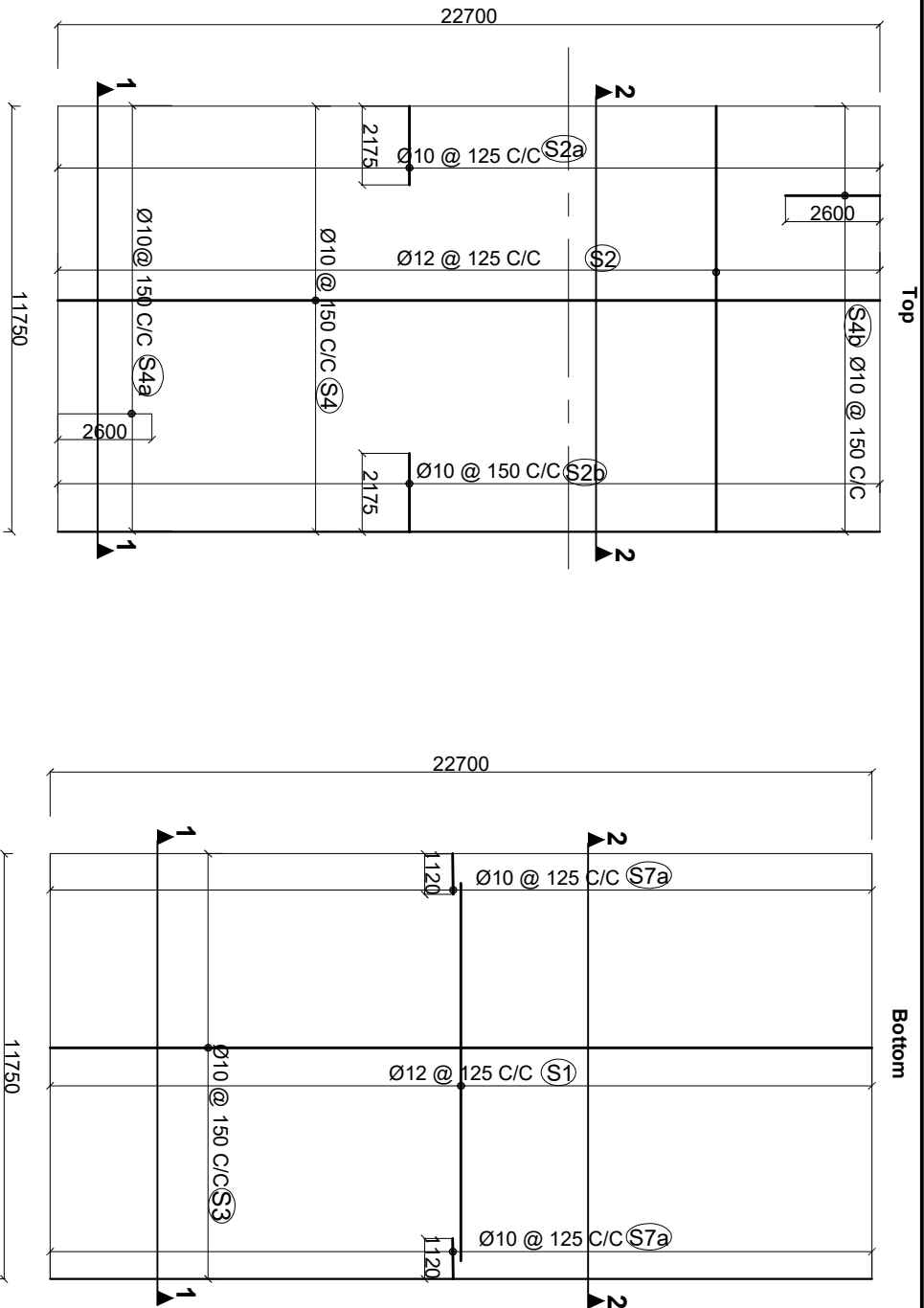
NOTES:

Dowel bars similar to the longitudinal bars of the cross section girders shall be placed in the precast main girder before casting. The longitudinal bars of the cross girder shall be lapped to the dowel bers, which shall have a lap length of 60 dia. of the corresponding bars.

NOTES:

To lift the deck for maintenance, the jacks shall be placed under the positions marked "J".

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and  JWC - Tech Studio of Engineering Nepal		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorusinghe Section		SHEET TITLE: Detaill of Superstructure of Dry Nala Bridge (47/H001/313_A)	SCALE: As Shown	NAME	SIGNATURE	REV NO.	DESCRIPTION	DATE: November,2022
						Designed by:	Saroj Bhartarai					DWG.NO.: 313_Dry Nala
						Checked by:	P. Upadhyaya					SHEET NO.: 06/20
						Approved by:	Dr. T.H.Choi					

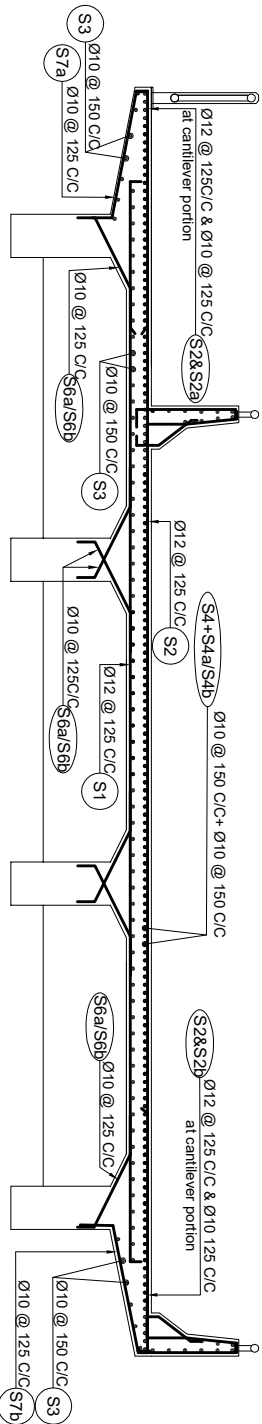


Reinforcement Details Of Deck Slab(Top Face)

Scale:-1:200

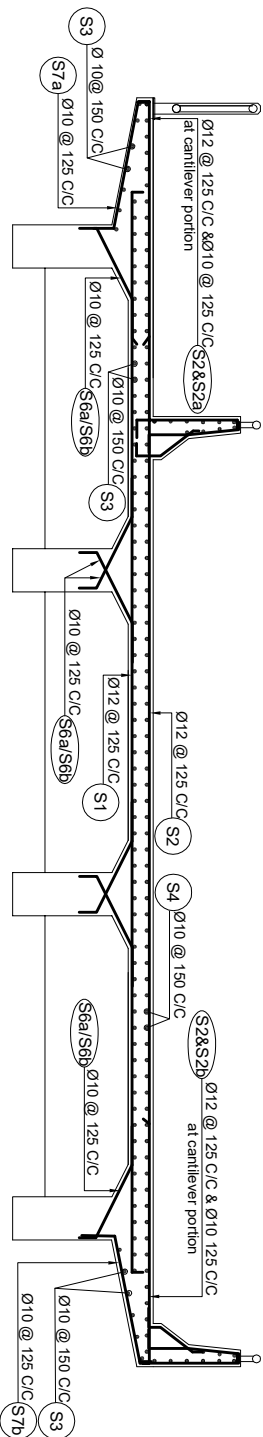
Reinforcement Details Of Deck Slab(Bottom Face)

Scale:-1:200



Section at 1-1

Scale:-1:50



Section at 2-2

Scale:-1:50

NOTES:

1.ON SHEAR CONNECTION:

The transverse bars of the deck slab(S2) shall be tied to vertical stirrups of the longitudinal girders.

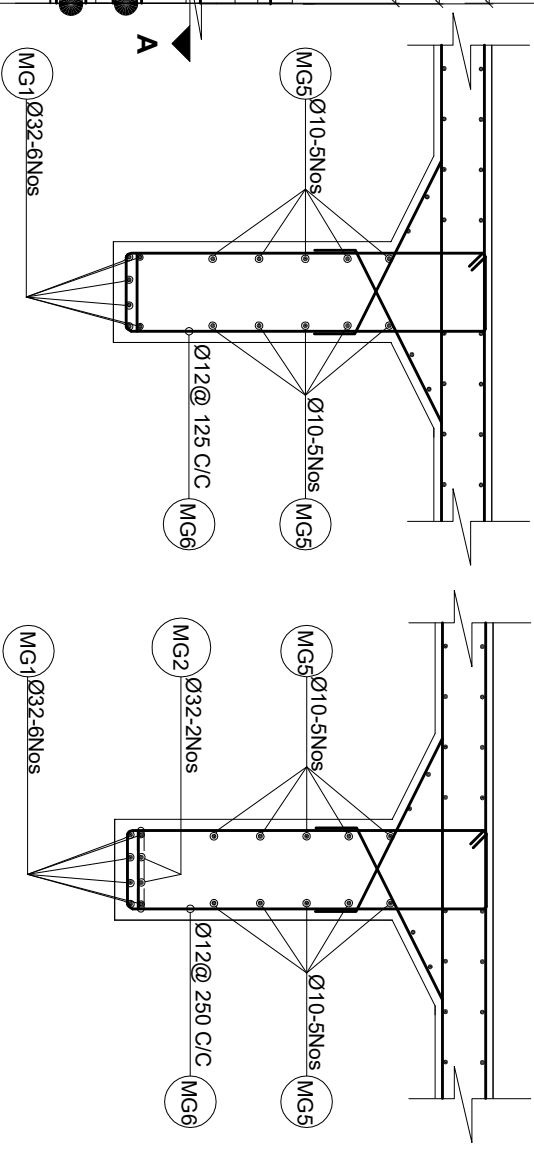
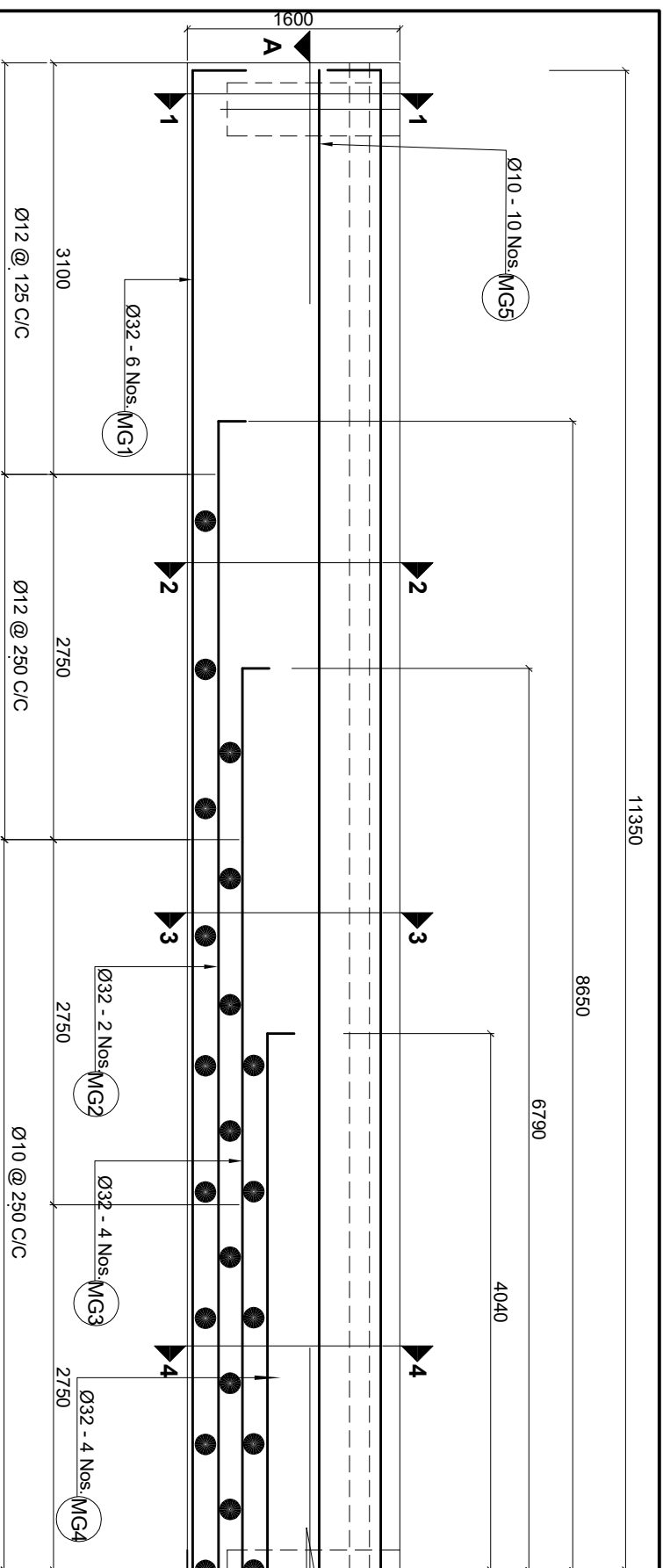
2.TOP SURFACE OF THE MAIN GIRDER:

Surface to be roughened by wire brush immediately after initial setting. The surface shall be properly cleaned by pressure blower prior to casting of the deck concrete

3.ON WEARING COURSE:

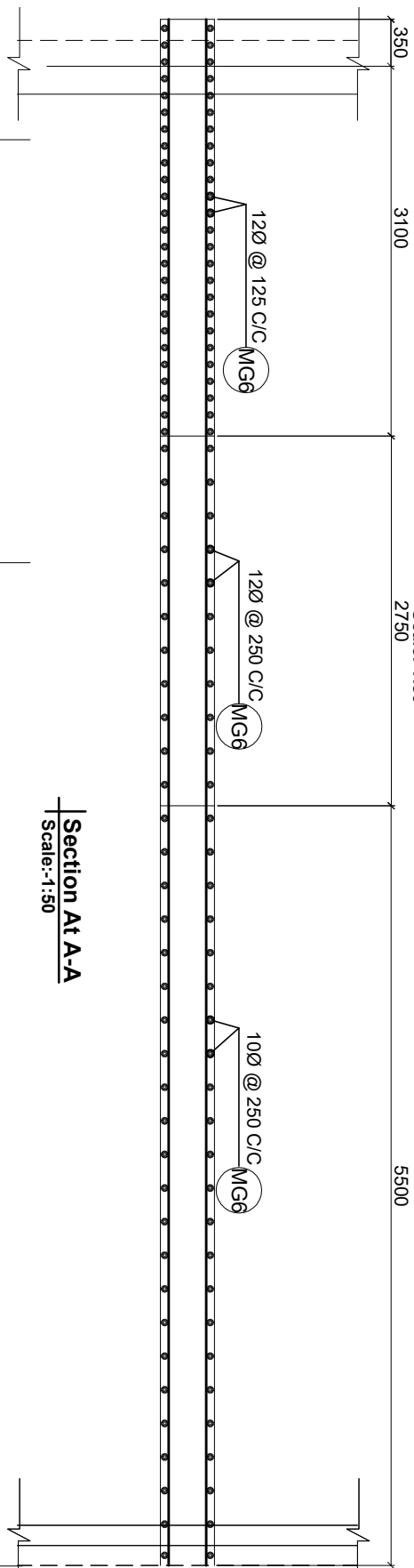
The level of wearing course along the longitudinal direction shall be kept horizontal throughout the length of the deck. The thickness of wearing course towards the ends along the deck shall be increased suitably to compensate for the slope due to hogging of the girder by pre stress.

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NFP	CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE:	
	Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and JWC - Tech Studio of Engineering Nepal		DOR, DCID		Reinforcement Details of Slab of		As Shown		Designed by:		Saroj Bhartarai						November,2022	
			ROAD NAME:						Checked by:		P. Upadhyaya						DWG.NO.: 313_Dry Nala	
			Butwal - Gorusinghe Section		Dry Nala Bridge (47/H001/313_A)				Approved by:		Dr. T.H.Choi						SHEET NO.: 07/20	



Section At 1-1
Scale: 1:30

Section At 2-2
Scale: 1:30



Reinforcement Details At Sectional Elevation Of Main Girder	
Scale:-1:50	
2750	5500

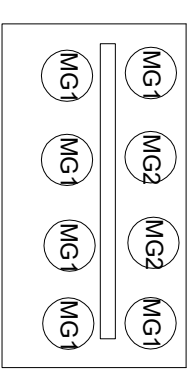
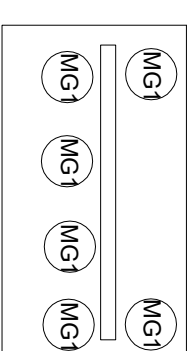
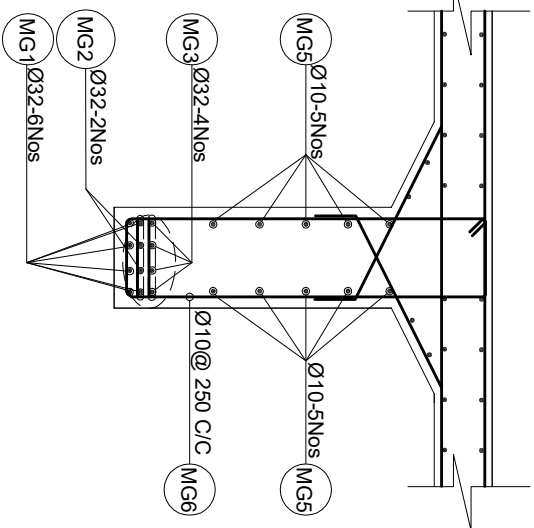


Diagram of Bar Position
Section at 1-1

Diagram of Bar Position



Section At A-A
Scale: 1:50

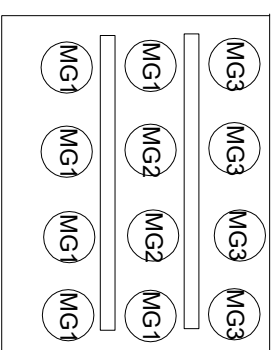
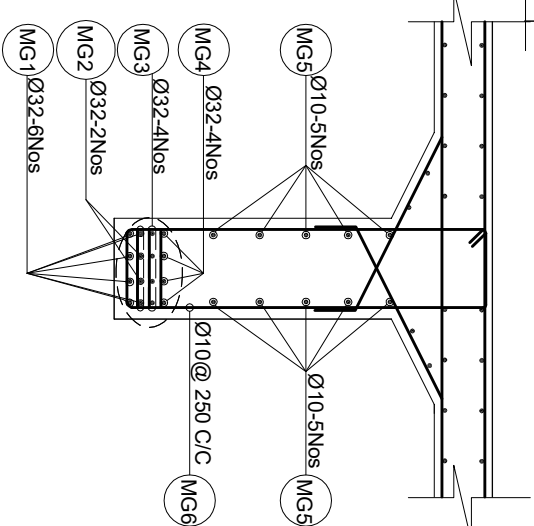


Diagram of Bar Position
Section at 3-3



Section At 4-4
Scale: 1:30

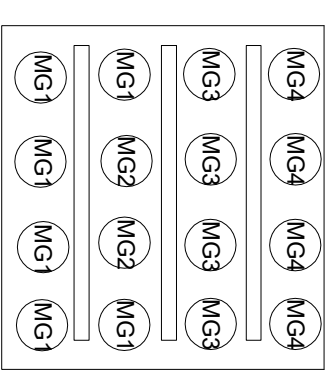
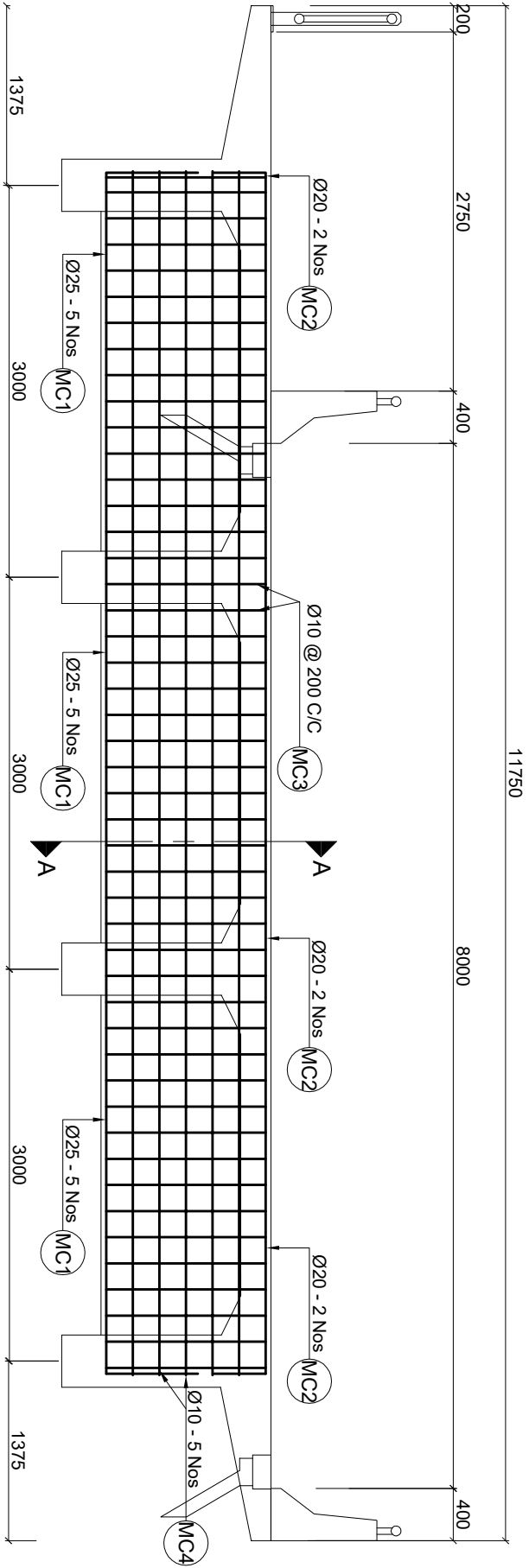
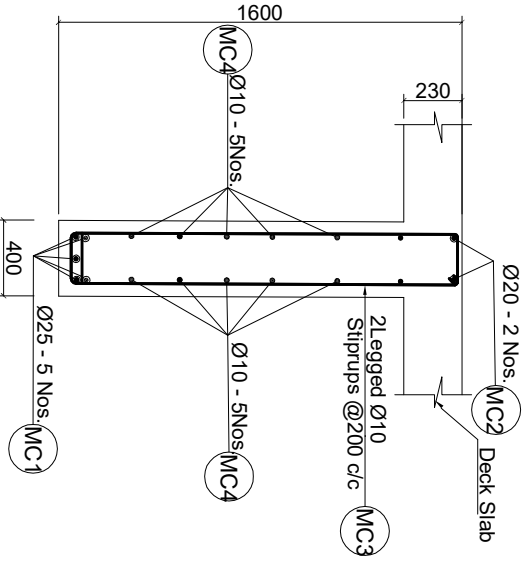


Diagram of Bar Position

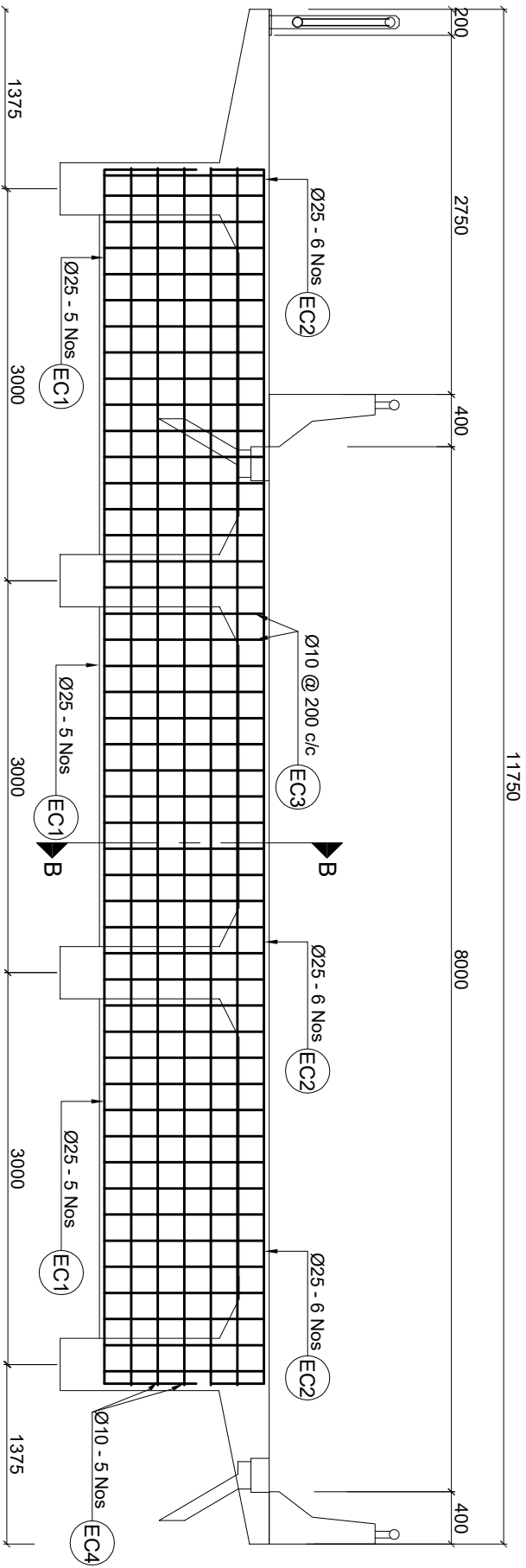
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP			CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERMCo P (Ltd) and JYEC-Tech Studio of Engineering Nepal		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorgungha Section		SHEET TITLE: Reinforcement Details of Main Girder of Dry Nala Bridge (47/H001/313_A)		SCALE: As Shown		DESIGNED BY: Saroj Bhattarai		SIGNATURE 		REV NO.		DESCRIPTION		DATE: November, 2022	
										CHECKED BY: P. Upadhyaya								DWG. NO.: 313_Dry Nala		
										APPROVED BY: Dr. T.H. Choi								SHEET NO.: (08/20)		



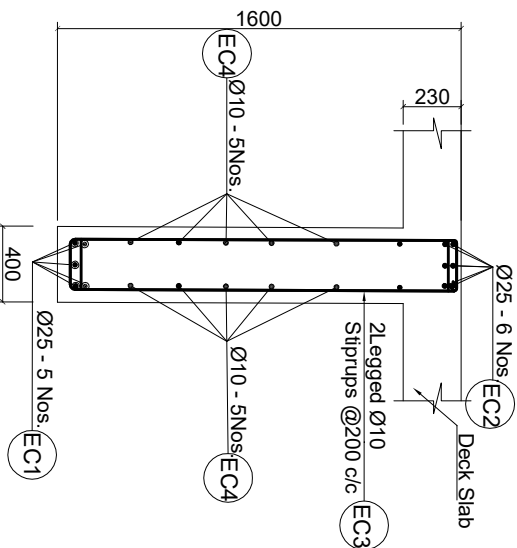
Intermediate Cross Girders
Scale:-1:50



Section at A-A
Scale:-1:30

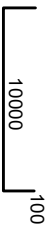
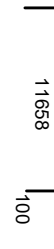
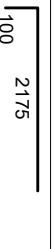
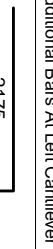
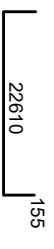
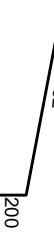
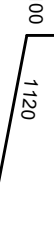
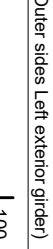


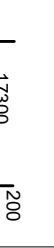
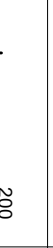
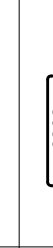
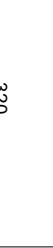
End Cross Girders
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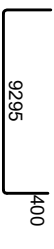
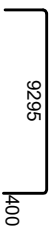
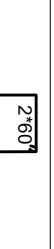
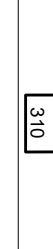


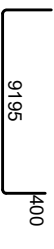
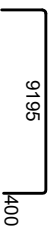
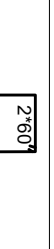
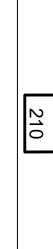
Section at B-B
Scale:-1:30

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	CONSULTANT: Soosung Engineering Co., Ltd, Korea in association with ERM C P (Ltd) and JYK - Tech Studio of Engineering Nepal	IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		NAME		SIGNATURE	REV NO.	DESCRIPTION	DATE:
		DOR, DCID		Reinforcement Details of Girder of		As Shown		Saroj Bhartarai					November, 2022
		ROAD NAME:		Dry Nala Bridge (47/H001/313_A)				P. Upadhyaya					DWG.NO.: 313_Dry Nala
		Butwal - Gorusinghe Section						Dr. T.H.Choi					SHEET NO.: 09/20

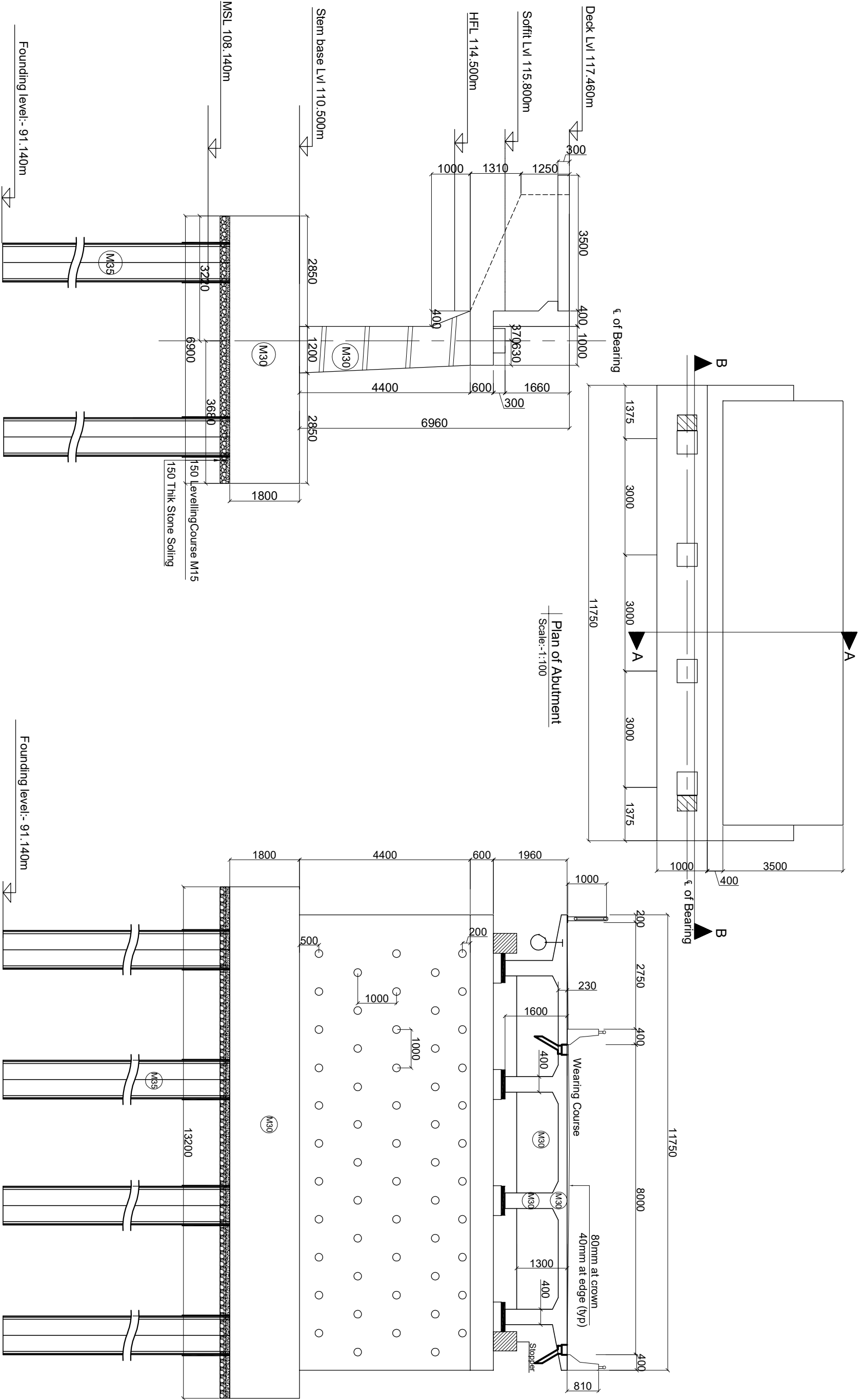
BAR BENDING SCHEDULE OF DECK SLAB							
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
S1		125 8Nos meter	12	182	10.200	0.888	1648.142
S2		125 8Nos meter	12	182	11.860	0.888	1916.369
S2a	 Additional Bars At Left Cantilever	125 In Between S2	10	182	2.280	0.617	255.839
S2b	 Additional Bars At Right Cantilever	125 In Between S2	10	182	2.280	0.617	255.839
S3		Med Deck 150	10	68	22.920	0.617	960.913
		Left Cantilever 150	10	10	22.920	0.617	141.311
S4		150 7Nos Per Meter	10	79	22.920	0.617	1116.355
S4a	 Additional Bars At DeckEnd,Left	150 In Between S4	10	79	2.755	0.617	134.187
S4b	 Additional Bars At DeckEnd,Right	150 In Between S4	10	79	2.755	0.617	134.187
S6a		125	10	1014	1.380	0.617	862.735
S7a	 (Outer sides Left exterior girder)	125 8Nos Per Meter	10	366	1.420	0.617	320.428
S7b	 (Outer sides Right exterior girder)	125 8Nos Per Meter	10	366	1.420	0.617	320.428
TOTAL KG							8208.042
TOTAL WEIGHT (IN METRIC TON)							8.208

BAR BENDING SCHEDULE FOR RCC MAIN GIRDER						
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (kg/m)	TOTAL WEIGHT (kg)
MG1		32	6	23.390	6.313	886.017
MG2		32	2	17.700	6.313	223.493
MG3		32	4	13.980	6.313	353.043
MG4		32	4	8.480	6.313	214.149
MG5		10	10	22.620	0.617	139.461
MG6		10	22	3.790	0.617	51.407
		12	94	3.790	0.888	316.293
MG7		32	38	0.320	6.313	76.770
TOTAL WEIGHT IN 1GIRDER						2260.634
TOTAL NUMBER OF GIRDERS AND TOTAL WEIGHT (IN METRIC TON)						2.261

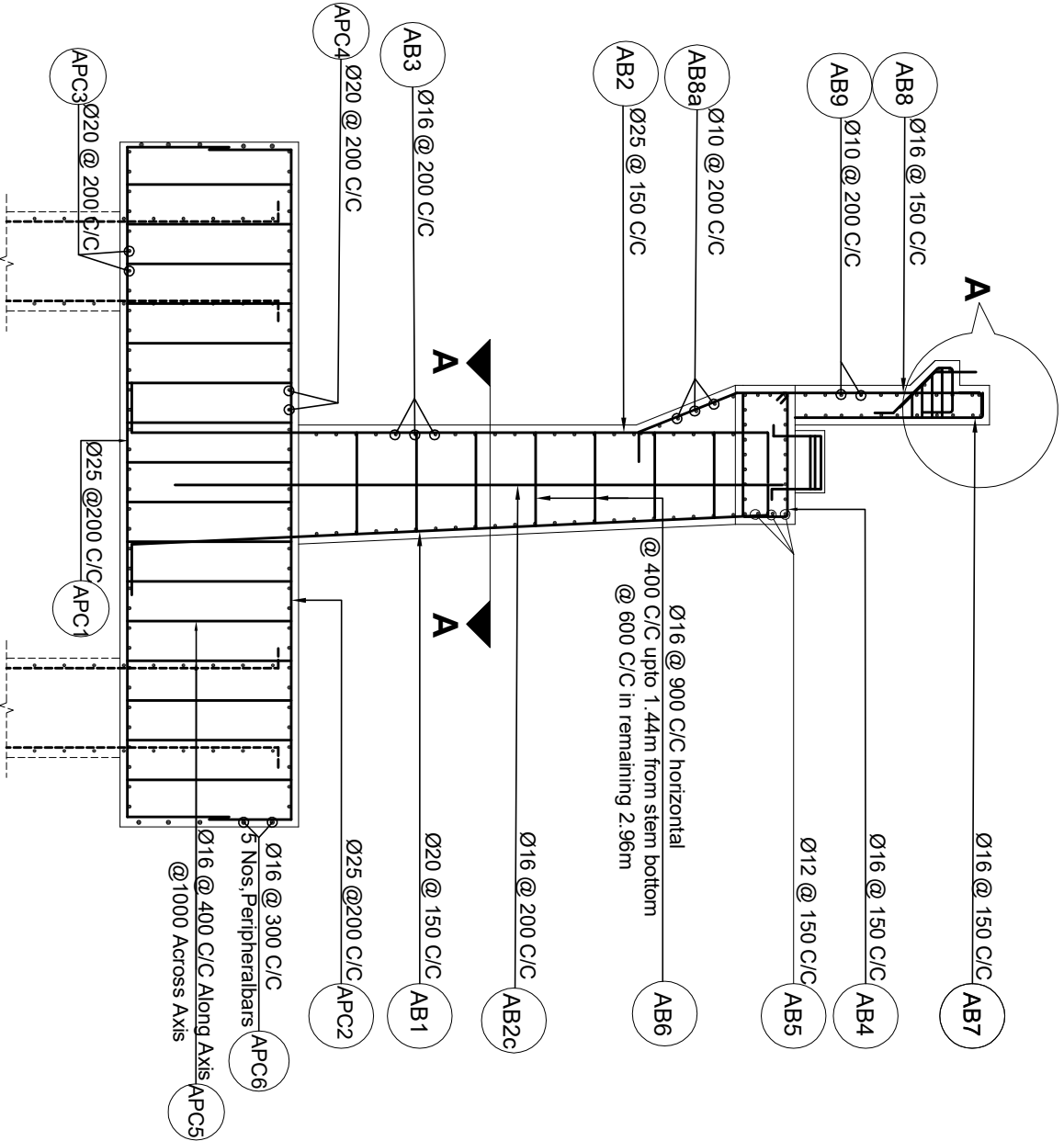
BAR BENDING SCHEDULE FOR END CROSS GIRDERS							
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACIN G (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
EC1		0	25	5	10.095	3.853	194.499
EC2		0	25	6	10.095	3.853	233.399
EC3		200	10	48	3.160	0.617	93.517
EC4		300	10	10	9.320	0.617	57.461
TOTAL WEIGHT IN 1GIRDER							578.875
TOTAL NUMBER OF GIRDERS AND TOTAL WEIGHT 2 (IN METRIC TON)							1.158

BAR BENDING SCHEDULE FOR INTERMEDIATE CROSS GIRDERS							
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACIN G (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
MC1		0	25	5	9.995	3.853	192.572
MC2		0	20	2	9.995	2.466	49.298
MC3		200	10	45	2.960	0.617	82.123
MC4		300	10	10	9.220	0.617	56.845
TOTAL WEIGHT IN 1GIRDER							380.838
TOTAL NUMBER OF GIRDERS AND TOTAL WEIGHT (IN METRIC TON)							0.381

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NFP		CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and  JWC - Tech Studio of Engineering Nepal		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorusinghe Section		SHEET TITLE: B.B.S of Slab & Main Girder of Dry Nala Bridge (47/H001/313_A)		SCALE: As Shown		DATE: November,2022 DWG.NO.: 313_Dry Nala	
										DESIGNED BY: Saroj Bhattacharai 	
										CHECKED BY: P. Upadhyaya 	
										APPROVED BY: Dr. T.H.Choi 	
										SHEET NO.: 10/20	

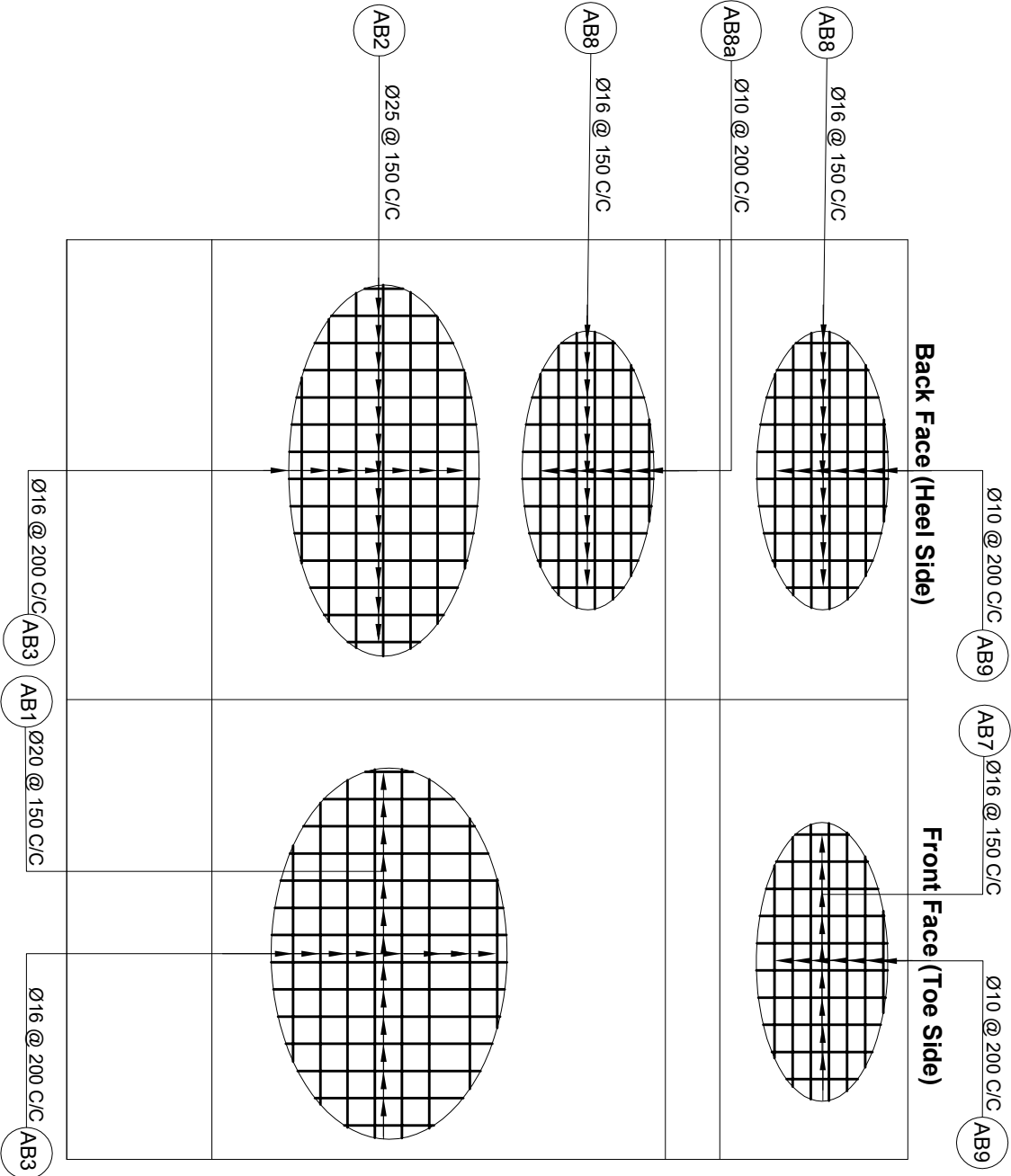


Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and JWC - Tech Studio of Engineering Nepal		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorusinghe Section		SHEET TITLE: Plan of Abutment of Dry Nala Bridge (47/H001/313_A)		SCALE: As Shown		NAME		SIGNATURE	REV NO.	DESCRIPTION	DATE: November,2022
										Designed by: Saroj Bhattacharai					DWG.NO.: 313_Dry Nala SHEET NO.:
										Checked by: P. Upadhyaya					
										Approved by: Dr. T.H.Choi					



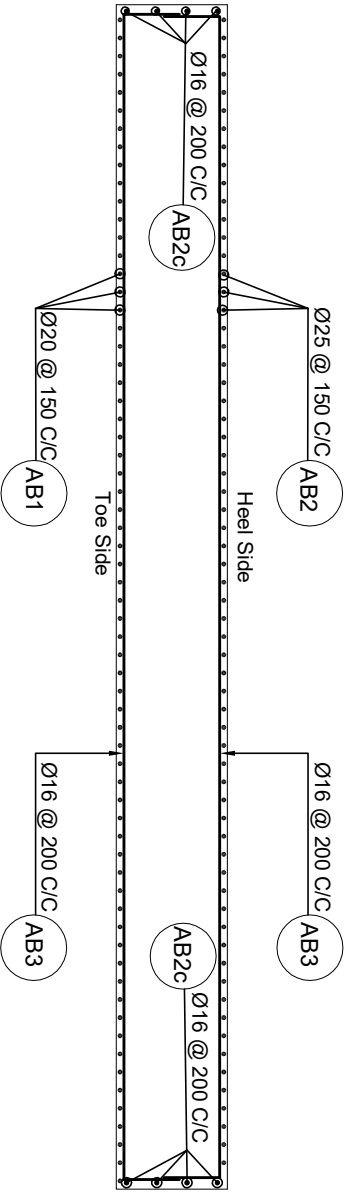
Reinforcement Details Of Abutment

Scale:-1:75



Reinforcement Details Of Abutment

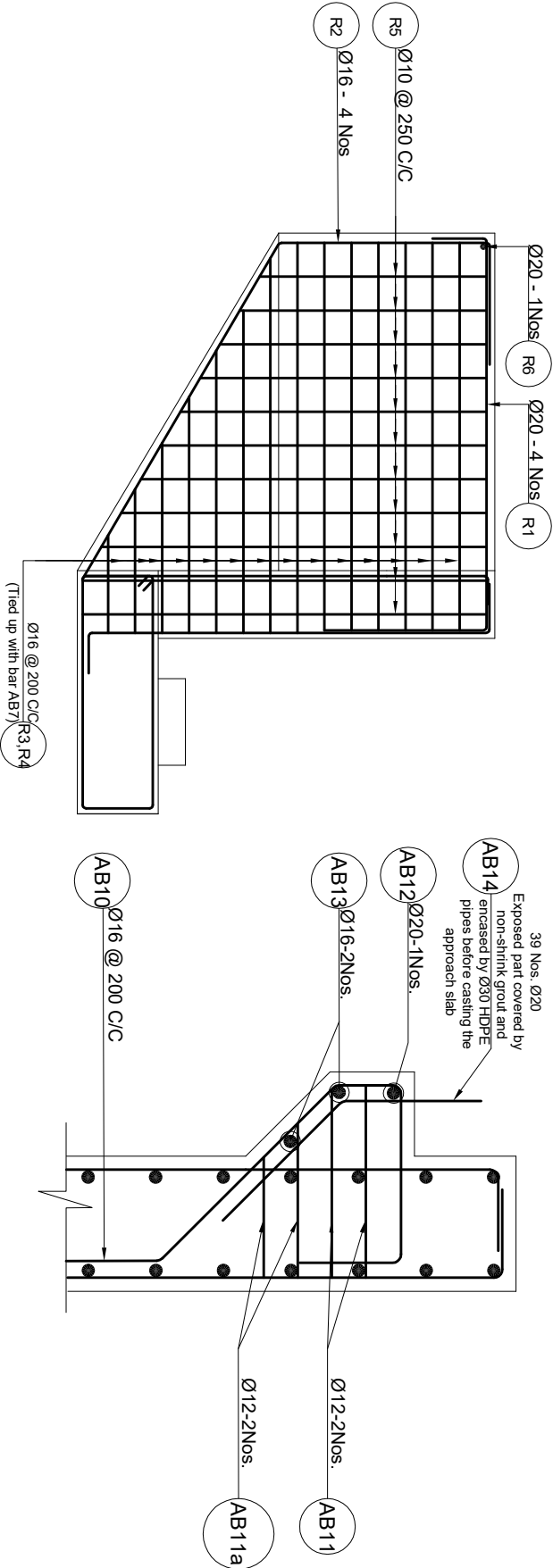
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Section at A-A

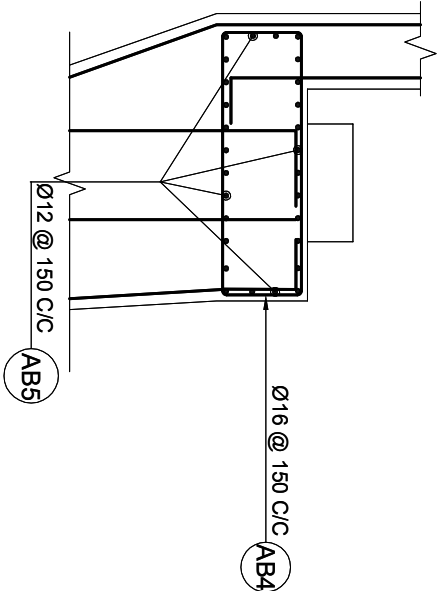
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Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NFP				CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and  JYV Tech Studio of Engineering Nepal		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:				NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE: November,2022	
						DOR, DCID		Reinforcement Details of Abutment of		As Shown		Designed by:		Saroj Bhattacharai								DWG.NO.: 313_Dry Nala	
						ROAD NAME:						Checked by:		P. Upadhyaya								SHEET NO.: 12220	
						Butwal - Gorusinghe Section						Approved by:		Dr. T.H.Choi									



Reinforcement Details Of Wingwall

Detail At A

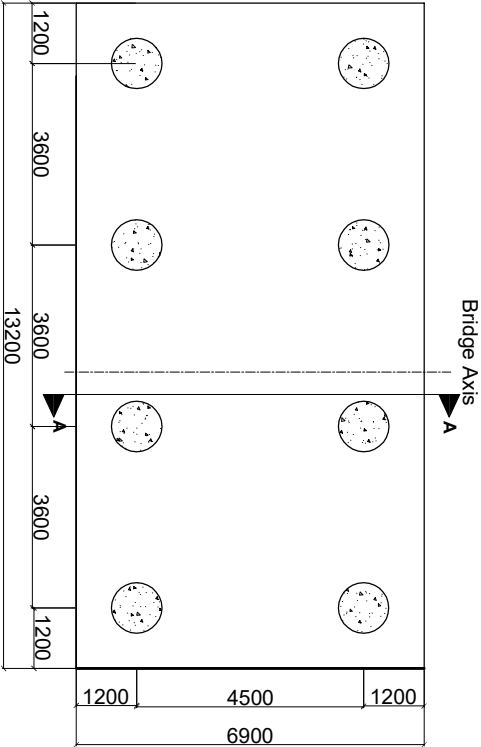


Reinforcement Details Of Abutment Cap

BAR BENDING SCHEDULE FOR WINGWALL							
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACIN G (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
R1		0	20	8	4.407	2.466	86.947
R2		0	16	8	4.282	1.578	54.068
R3		200	16	14	6.156	1.578	136.028
R4		200	16	14	3.428	1.578	75.748
R5		250	10	22	4.470	0.617	60.630
R6		0	20	2	0.307	2.466	1.514
R7		0	10	0	2.800	0.617	0.000
R8		0	10	0	1.320	0.617	0.000
TOTAL IN 2 WINGWALL IN ONE ABUTMENT							414.934
TOTAL WEIGHT (IN METRIC TON)							0.415

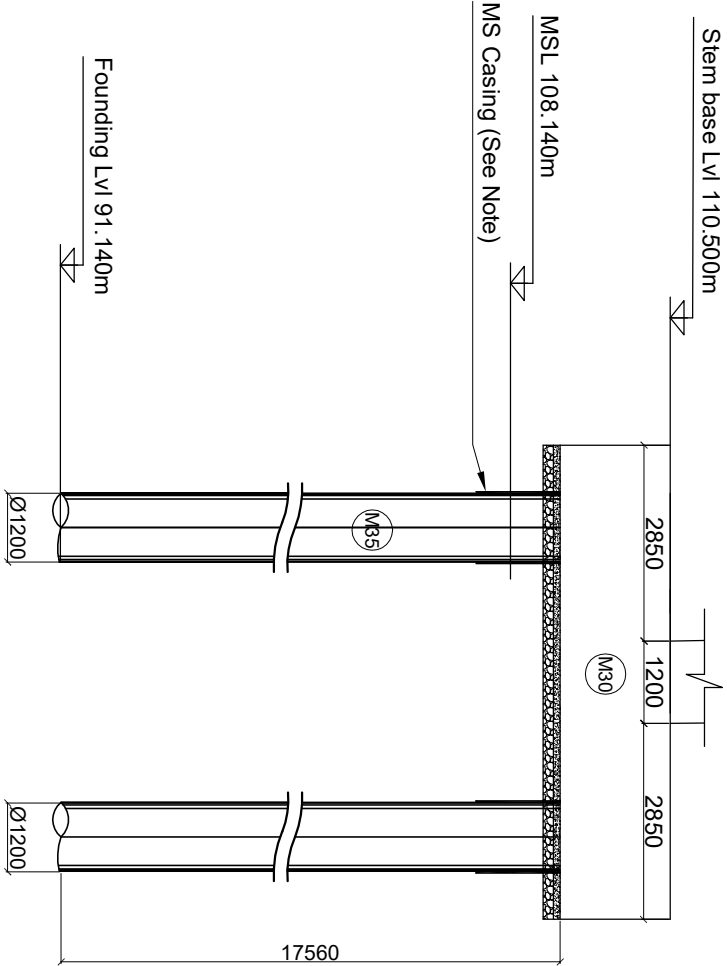
BAR BENDING SCHEDULE OF ABUTMENT							
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (kg/m)	TOTAL WEIGHT (kg)
AB1		150 mm c/c Approx	20	78	7.380	2.466	1419.618
AB1a		-	-	-	-	-	-
AB2		150 mm c/c Approx	25	78	7.580	3.853	2278.286
AB2c		At sideface 200 mm c/c	16	12	7.080	1.578	134.096
AB3		200 mm c/c Approx	16	46	24.770	1.578	1798.392
AB4		150 mm c/c Approx	16	80	3.700	1.578	467.189
AB5		150 mm c/c Approx	12	24	11.600	0.888	247.168
AB6		150 mm c/c Approx	16	118	1.383	1.578	257.576
AB7		150 mm c/c Approx	16	79	3.110	1.578	387.782
AB8		150 mm c/c Approx	16	79	4.112	1.578	512.721
AB8a		200 mm c/c Approx	10	7	11.600	0.617	50.063
AB9		200mm c/c Approx	10	11	23.716	0.617	160.840
AB10		200 mm c/c Approx	16	55	1.747	1.578	151.655
AB11		150 mm c/c Approx	12	110	0.900	0.888	87.894
AB11a		150 mm c/c Approx	12	110	0.650	0.888	63.479
AB12		150 mm c/c Approx	20	1	11.600	2.466	28.607
AB13		150 mm c/c Approx	16	2	11.600	1.578	36.617
AB14		150 mm c/c Approx	20	39	0.900	2.466	86.562
TOTAL WEIGHT ABUTMENT KG							8168.524
TOTAL WEIGHT (IN METRIC TON)							8.169

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	CONSULTANT:		Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and JWC - Tech Studio of Engineering Nepal	
	IMPLEMENTING AGENCY:		DOR, DCID	
	ROAD NAME:		East West Highway (H01)	
	Butwal - Gorusinghe Section			
SHEET TITLE:		BBS & Reinforcement Details of Dry Nala Bridge (47/H001/313_A)		
SCALE:		As Shown		
NAME		SIGNATURE	REV NO.	DESCRIPTION
Designed by:		Saroj Bhatarai		
Checked by:		P. Upadhyaya		
Approved by:		Dr. T.H.Choi		
DATE:		November, 2022		
DWG.NO.:		313_Dry Nala		
SHEET NO.:		13/20		



Plan Of Abutment Piles

Scale:-1:150



Piles Section At A-A

Scale:-1:150

BAR BENDING SCHEDULE OF ABUTMENT PILECAP

BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
APC1	1080 6725	150	25	67	8.885	3.853	2293.891
APC2	1080 6725	150	25	67	8.885	3.853	2293.891
APC3	1080 13030	200	20	35	15.190	2.466	1311.132
APC4	960 13030	200	20	35	15.190	2.466	1311.132
APC5	1570 1570 Curve length 251 Curve radius 40 Hook length 80	@600 along axis @500 across axis	16	272	2.232	1.578	958.216
APC6	13050 6750	@300 approx	16	5	39.600	1.578	312.511

TOTAL IN PILE CAP OF ONE ABUTMENT							8480.774
TOTAL WEIGHT IN METRIC TON							8.481

BAR BENDING SCHEDULE FOR ABUTMENT PILES

BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACIN G (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
AP1a	200 19155 Vertical bars provided bundle of 2 bar	0	25	36	19.360	3.853	2685.644
AP1b	Bundled Bars	0	0	0	0.000	0.000	0.000
AP2	1034 1700 Dia-1034, Pitch-200 17.0m From Bottom of pile cap	200	16	1	281.230	1.578	443.877
AP3	1034 200 Dia=1034, Pitch=200 inside pilecap, 200 below critical zone	200	12	1	37.390	0.888	33.195
TOTAL IN ONE PILE							3162.716
TOTAL (IN METRIC TON)							3.163
TOTAL IN EIGHT PILES OF ONE ABUTMENT (IN METRIC TON)							25.302

Note On MS permanent casing on piles: In case piling works are done without temporary casing, the piles shall be lined with 6mm thick MS steel permanent casing up to 1.5 m or 0.5m below MSL whichever is larger (Subject to instruction and approval by the Engineer)

Location	Design Pile Length m	Design Working load on pile (non - seismic case)kn	Allowable Bearing Capacity on pile (Scour case) kn	Allowable Bearing Capacity of the Pile (Non Scour case)kn
Abutment	18.00	1890	2339	2407
Pier	0.000	0.000	0.000	0.000

Government of Nepal

Ministry of Physical Infrastructure and Transport

Department of Roads

Project Directorate Office (ADB)

SASEC Highway Improvement Project-
Project Preparatory Consultant (SHIP-PPC)

ADB Loan No: 3722-NFP

Soosung Engineering Co. Ltd,

Korea

in association with

ERM C P (Ltd)

and

JWC - Tech Studio of Engineering
Nepal

IMPLEMENTING AGENCY:

DOR, DCID

ROAD NAME:

East West Highway (H01)

Butwal - Gorusinghe Section

SHEET TITLE:

SCALE:

Reinforcement Details of

Abutment Piles of

Dry Nala Bridge

(47/H001/313_A)

As Shown

Designed by:

Saroj Bhartarai

Checked by:

P. Upadhyaya

Approved by:

Dr. T.H.Choi

SIGNATURE

REV NO.

DESCRIPTION

DATE:

November,2022

DWG.NO.:

313_Dry Nala

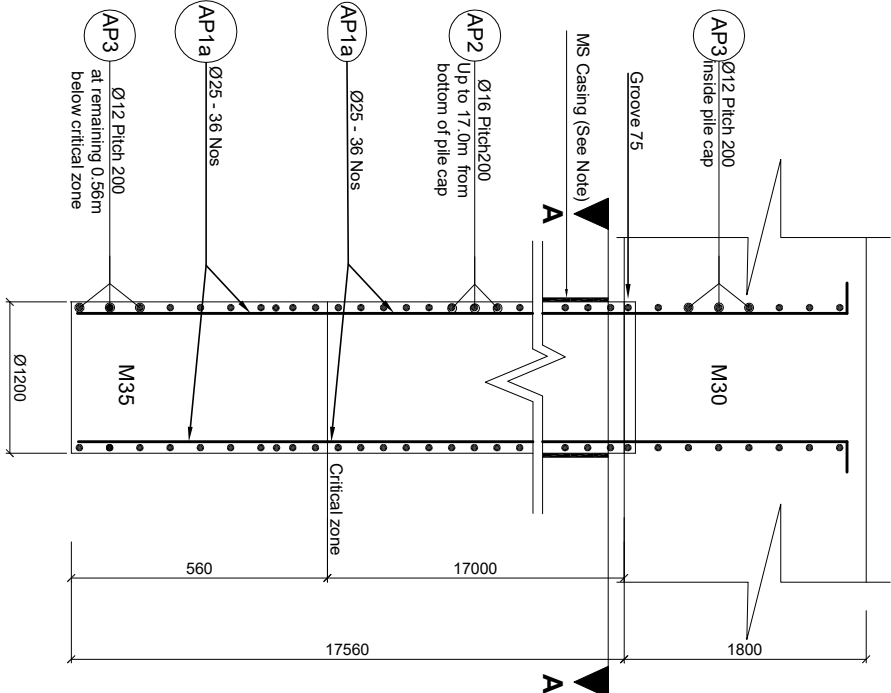
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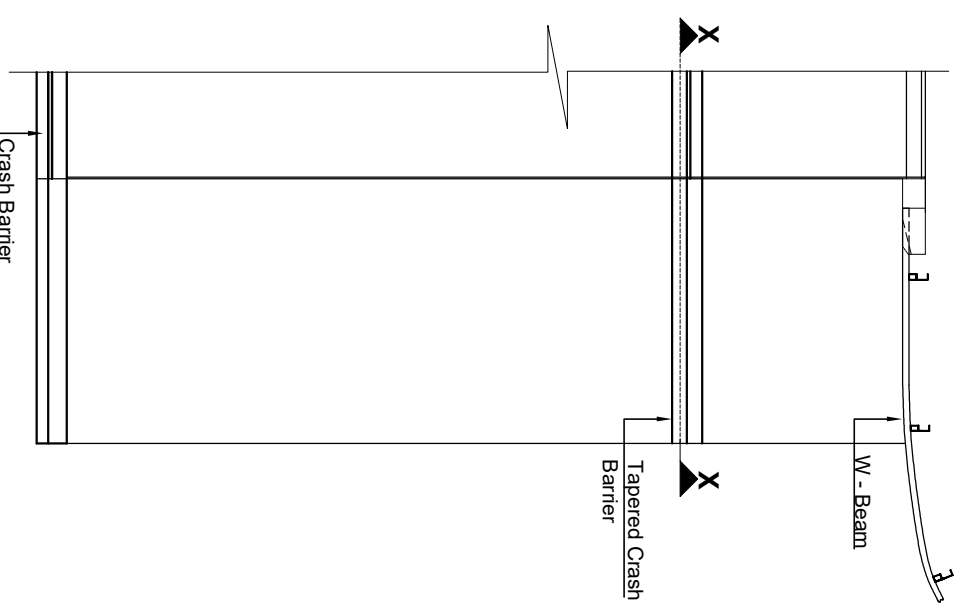
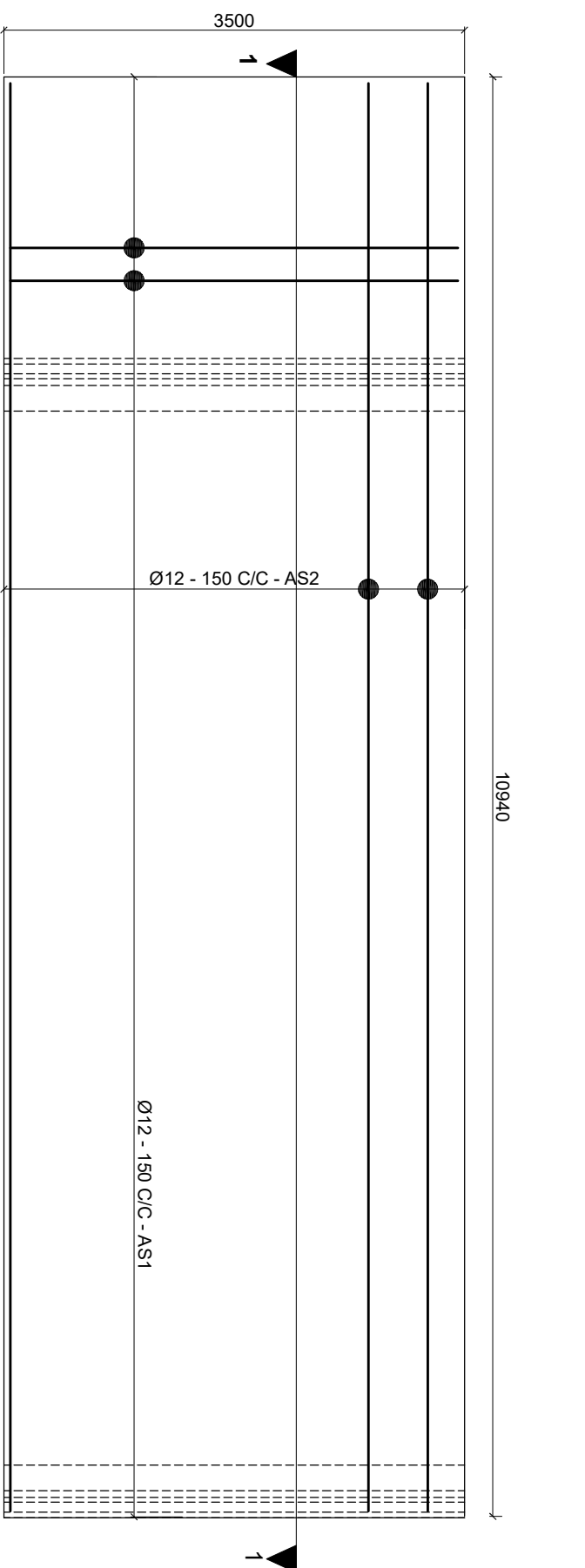
14/20

For Construction Methodology and Sequence Please See General Notes.

Reinforcement Details Of Pile

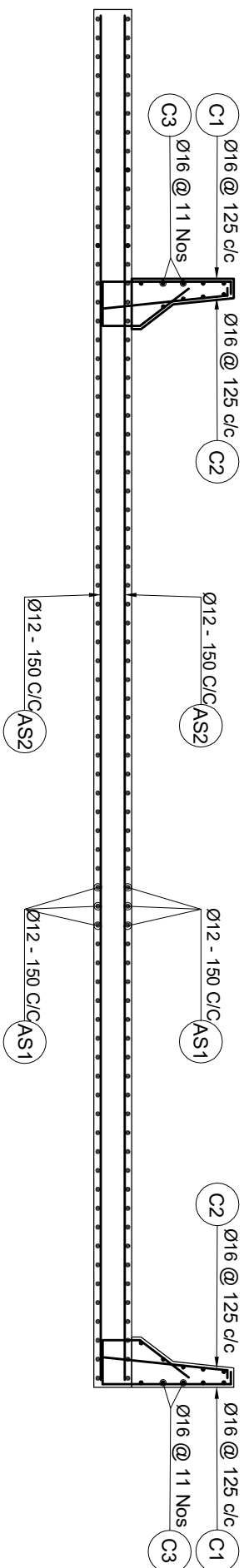
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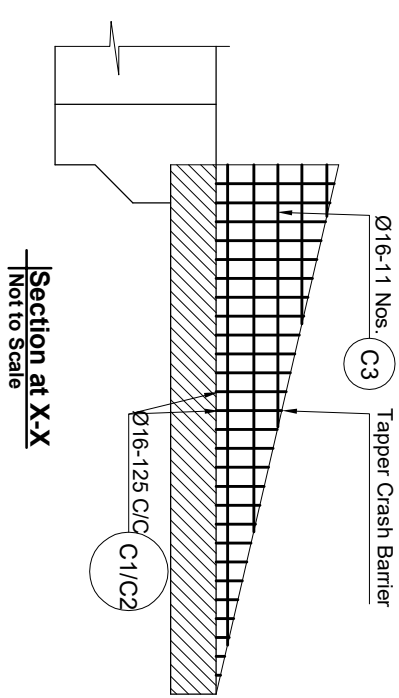
Plan of Reinforcement Details of Approach Slab

Scale:-1:50



Plan of Approach Slab

Not to Scale

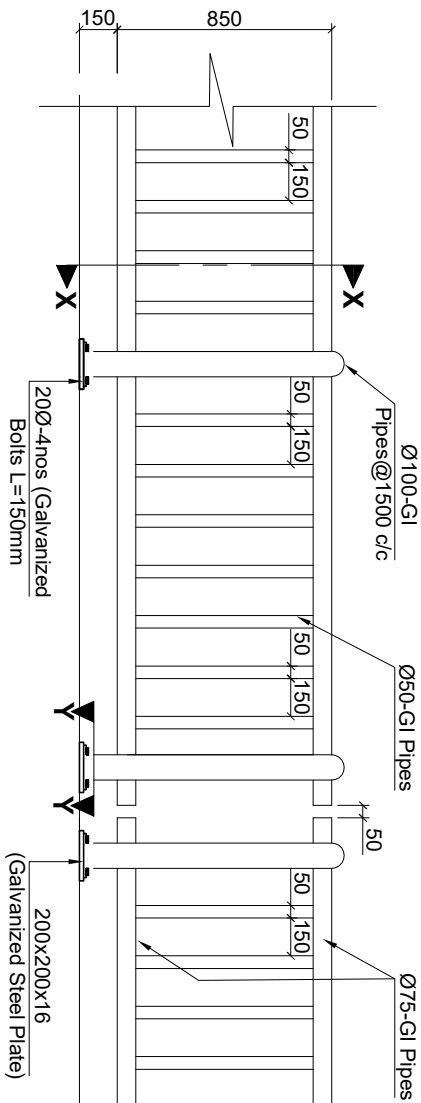


Section at X-X
Not to Scale

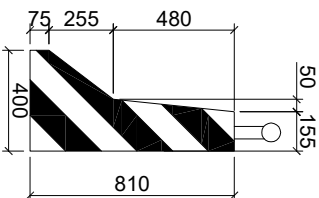
Not to Scale

BAR BENDING SCHEDULE OF APPROACH SLAB						
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
AS1	3400	12	148	3.400	0.888	446.749
AS2	10850	12	48	10.850	0.888	462.375
TOTAL IN ONE APPROACH SLAB						909.124
TOTAL WEIGHT IN METRIC TON						0.909

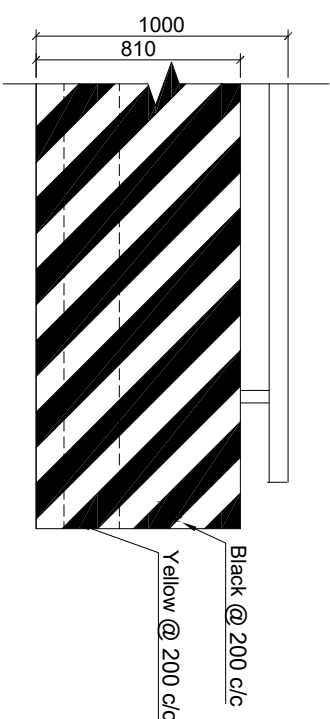
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP			CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:				NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE:	
 Soosung Engineering Co. Ltd, Korea in association with ERMCO P (Ltd) and  JSC-Tech Studio of Engineering Nepal			 Soosung Engineering Co. Ltd, Korea in association with ERMCO P (Ltd) and  JSC-Tech Studio of Engineering Nepal		DOR, DCID		Reinforcement Details of Approach Slab of Dry Nala Bridge (47/H001/313_A)		As Shown		Designed by:		Saroj Bhartari								November, 2022	
											ROAD NAME:								DWG. NO.:			
											East West Highway (H01)								313_Dry Nala			
											Butwal - Gorusinghe Section								SHEET NO.:			
										Checked by:		P. Upadhyaya								(15/20)		
										Approved by:		Dr. T.H. Choi										



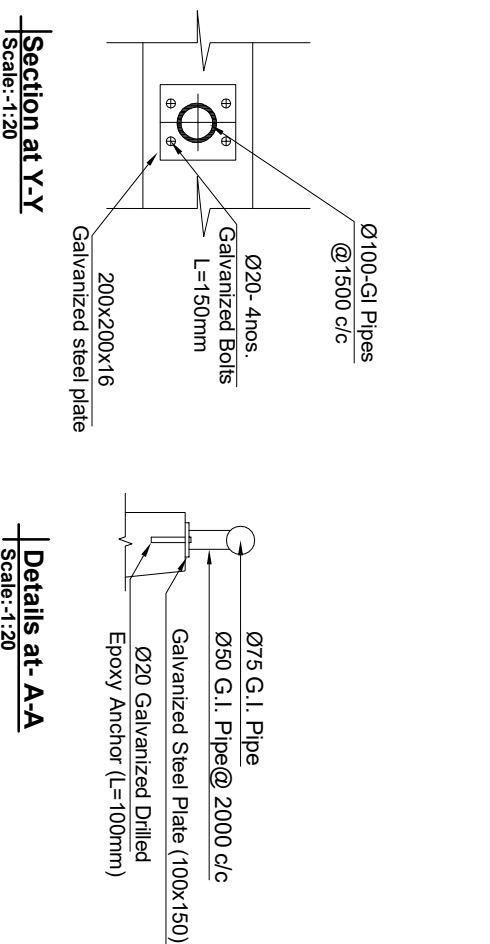
Railing Post Details
Scale:-1:30



Painting Work on Crash Barrier
Scale:-1:30

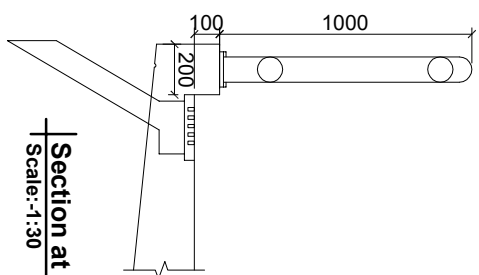


**Painting Work on Crash Barrier
on The Surface Facing Towards Carriageway**
Scale:-1:30

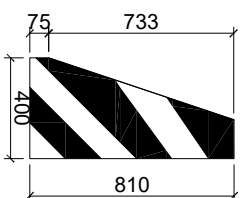


Section at Y-Y
Scale:-1:20

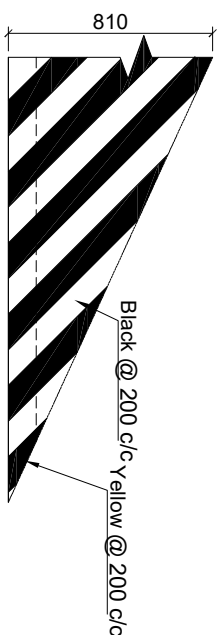
Details at A-A
Scale:-1:20



Section at X-X
Scale:-1:30



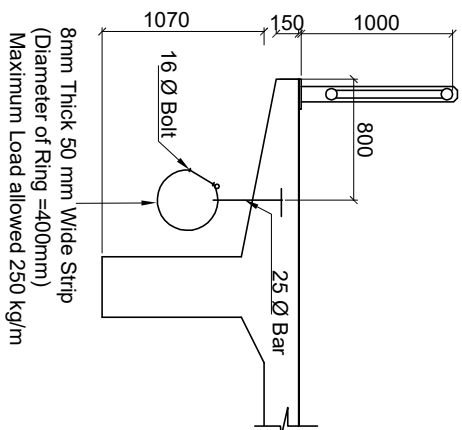
Painting Work on Tapper Crash Barrier
Scale:-1:30



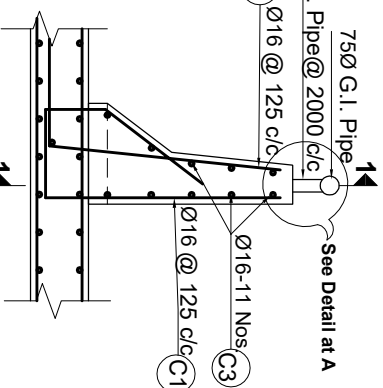
**Painting Work on Crash Barrier
on The Surface Facing Towards Carriageway**
Scale:-1:30

BAR BENDING SCHEDULE OF CRASH BARRIER (For each 1m)

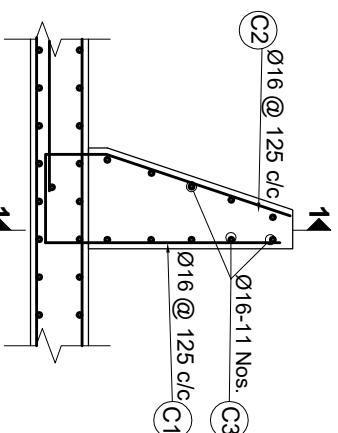
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING (mm)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (Kg/m)	TOTAL WEIGHT (Kg)
C1		125 Approximate	16	8	2.030	1.578	25.632
C2		125 Approximate	16	8	1.415	1.578	17.867
C3			16	11	0.960	1.578	16.667
TOTAL FOR 1 M							60.166
TOTAL FOR 1.0M (IN METRIC TON)							0.006



Utility hanger Detail
Scale:-1:50



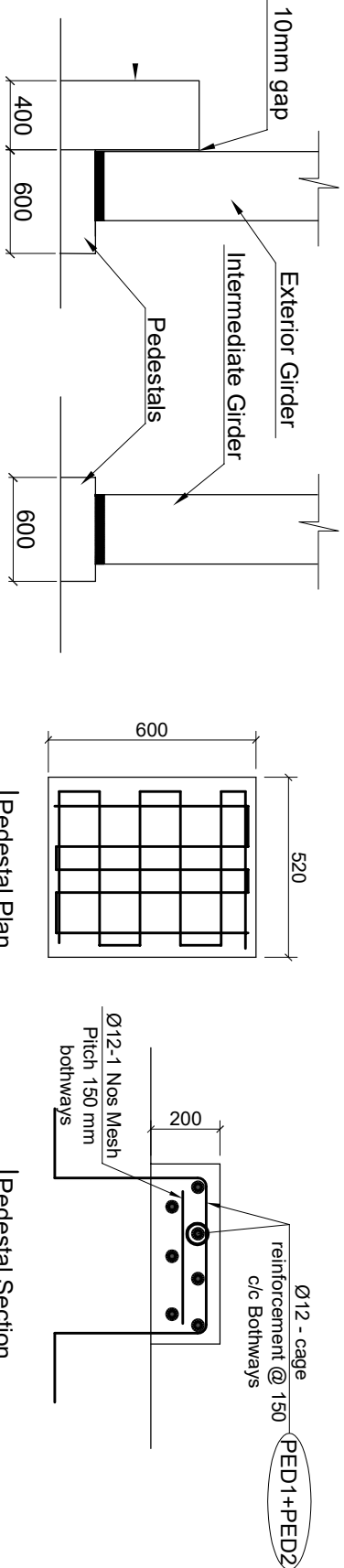
Crash Barrier Detail at The Bridge Deck
Scale:-1:30



Crash Barrier Detail at The Tapered End
Scale:-1:30

NOTES:
The crash barrier shall be sloped at both ends of the bridge as shown and the reinforcement shall be adjusted according to the slope.

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NFP		CONSULTANT:  Soosung Engineering Co. Ltd, Korea In association with ERMWC P (Ltd) and  JWC-Tech Studio of Engineering Nepal		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorusinghe Section		SHEET TITLE: Miscellaneous Details - 1 of Dry Nala Bridge (47/H001/313_A)		SCALE: As Shown		NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE: November, 2022	
										Saroj Bhattacharai								DWG.NO.: 313_Dry Nala	
										Checked by: P. Upadhyaya								SHEET NO.: 16/20	
										Approved by: Dr. T.H. Choi									



Pedestal Plan
Scale:-1:20

Pedestal Section
Scale:-1:20

Abutment Cap With Stopper

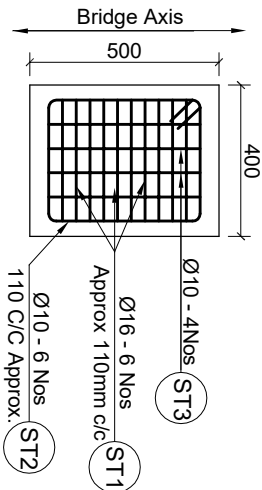
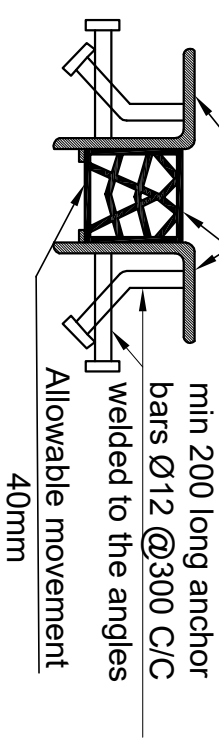
Scale:-1:50

NOTE:
To match the height of ballast wall, the pedestal thickness shall be suitably modified.

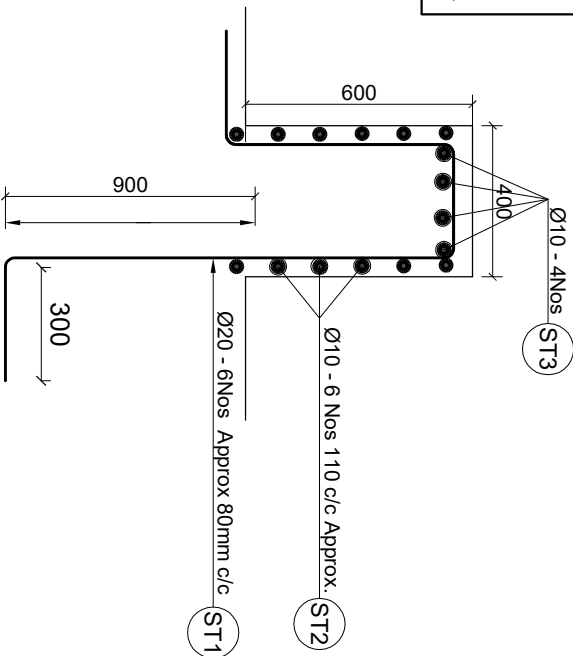
ISA 100*100*8

Compression Seal as

specified in IRC:SP-69-2011



Stoppers Plan
Scale:-1:20



Compression seal type Expansion joints

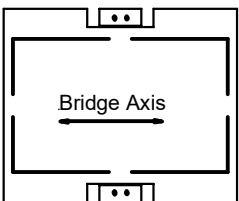
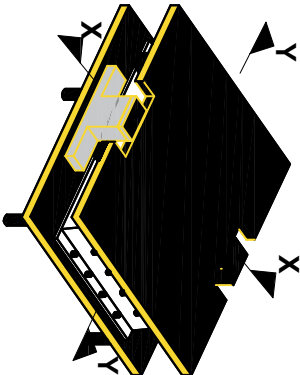
Scale:-1:5

Design Data For Bearing(Elastomeric Bearing)

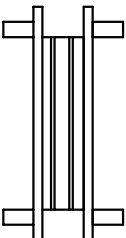
All Loads Unfactored

- Maximum permanent and superimposed dead loads 450.4 K
- Maximum load from surfacing (wearing course) 33.8 KI
- Non urban superstructure RCC 22m / lntfo /
- Maximum live load reaction (including impact) 598.2 KN
- Maximum horizontal seismic force 81 KN
- Maximum braking force 89.7 KN
- Total Maximum elongation of the deck 8 mm
- Maximum Rotation due to dead load 0.0022 ra
- Maximum Rotation due to live load 0.0016 ra
- Maximum rotation due to dead load + live load 0.0038 ra
- Concrete for superstructure M 30
- Concrete for substructure M25/M3C
- Width of girder at bearings 400 mm
- Length of bearing (along bridge axis) assumed 320 m
- Maximum ultimate compressive stress in concrete 13.4 N/mi

Lateral stiffness corresponding to overall area and total thickness of elastomer = 2909 N/mm



Section X-X
Scale:-1:25



Section Y-Y
Scale:-1:25

Elastomeric Bearing
(partially free at longitudinal direction
Fixed at Transverse direction)

BAR BENDING SCHEDULE OF PEDESTAL

BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (kg/m)	TOTAL WEIGHT (kg)
PED1		12	4	2.280	0.888	8.097

PED2		12	5	2.200	0.888	9.766
------	--	----	---	-------	-------	-------

PED3		12	1	4.620	0.888	4.102
------	--	----	---	-------	-------	-------

TOTAL BAR BENDING SCHEDULE OF PEDESTAL

TOTAL WEIGHT (IN METRIC TON)

21.965

0.022

BAR BENDING SCHEDULE OF STOPPER

BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (kg/m)	TOTAL WEIGHT (kg)
ST1		20	6	3.100	2.466	45.871
ST2		10	6	1.640	0.617	6.067
ST3		10	4	0.400	0.617	0.986

TOTAL BAR BENDING SCHEDULE OF STOPPER

TOTAL WEIGHT (IN METRIC TON)

52.924

0.053

Government of Nepal

Ministry of Physical Infrastructure and Transport

Department of Roads

Project Directorate Office (ADB)

SASEC Highway Improvement Project-
Project Preparatory Consultant (SHIP-PPC)

ADB Loan No: 3722-NFP

CONSULTANT:
Soosung Engineering Co. Ltd,
Korea



in association with
ERMC P (Ltd)

and
JIVE - Tech Studio of Engineering
Nepal

IMPLEMENTING AGENCY:
DOR, DCID

ROAD NAME:

East West Highway (H01)

Butwal - Gorusinghe Section

SHEET TITLE:

Miscellaneous Details - 2
of

Dry Nala Bridge
(47/H001/313_A)

SCALE:

As Shown

NAME

Saroj Bhartarai

SIGNATURE

REV NO.

DESIGNED BY:

CHECKED BY:

APPROVED BY:

P. Upadhyaya

Dr. T.H.Choi

DATE:

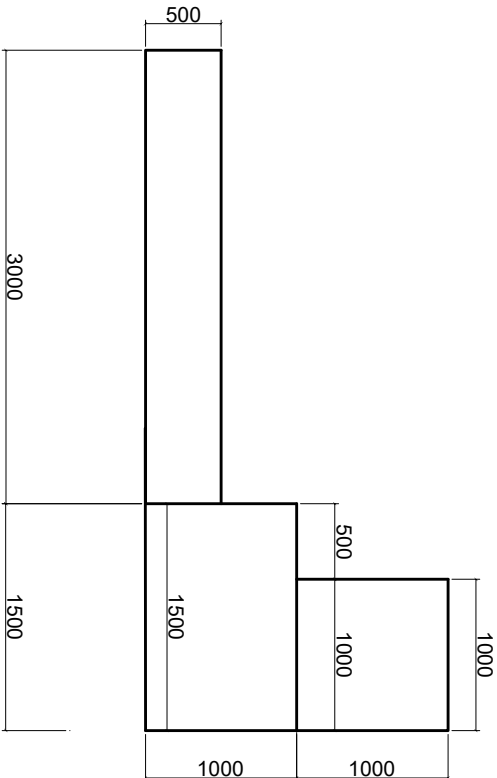
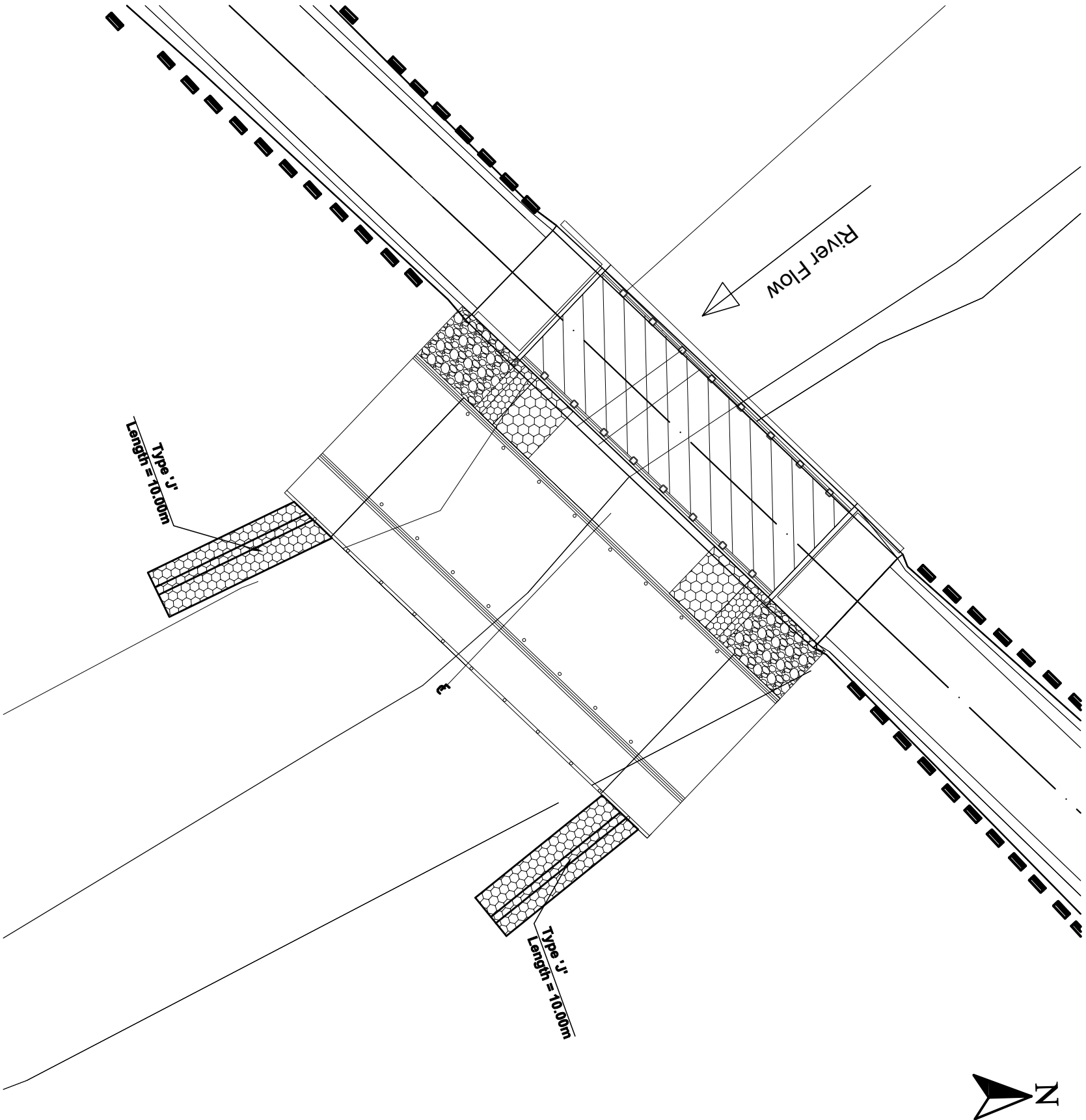
November,2022

DWG.NO.:

313_Dry Nala

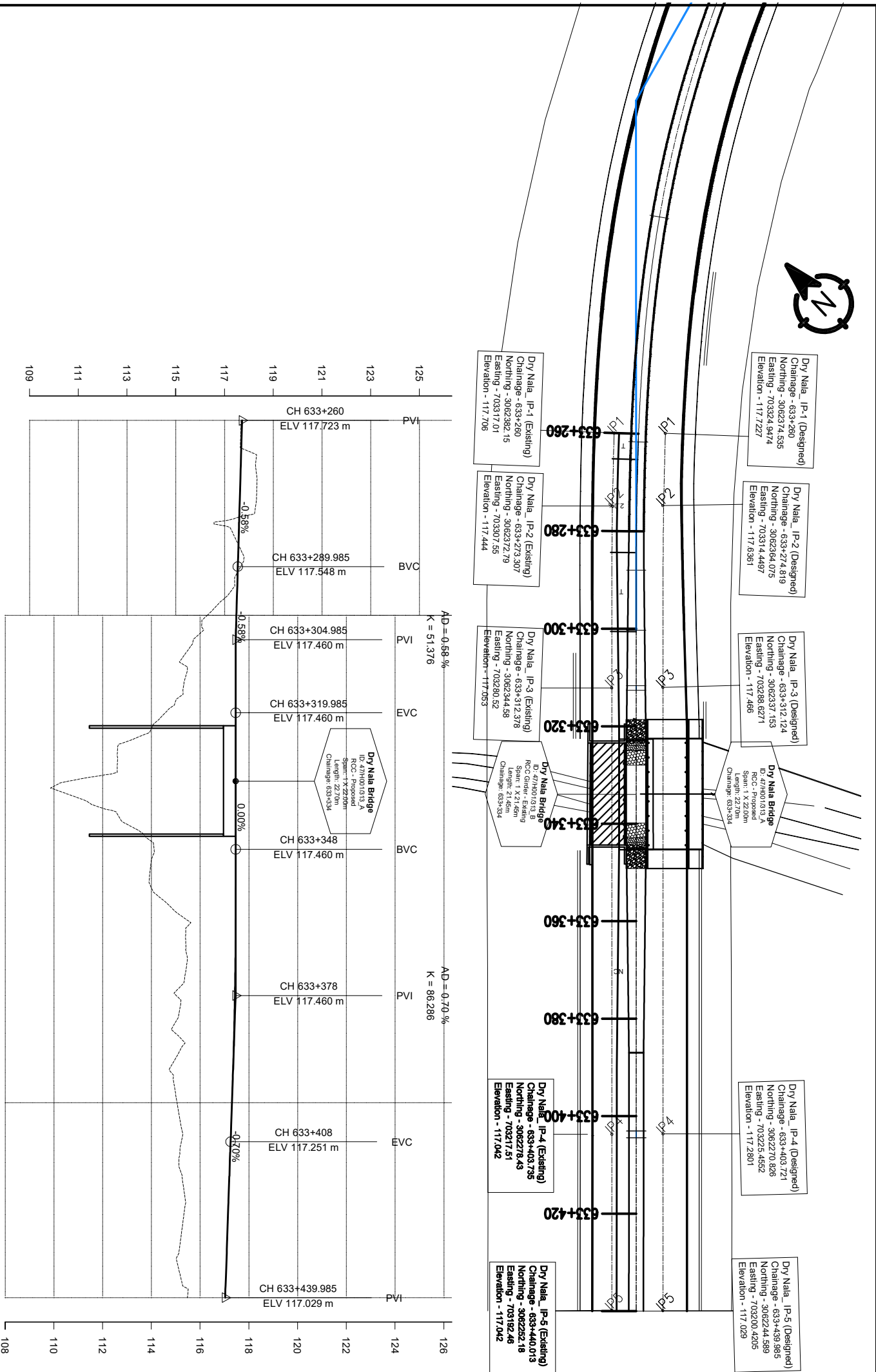
SHEET NO.:

17/20



"J" Type River Training Structure
Scale:-1:50

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERMCo P (Ltd) and JYV - Tech Studio of Engineering Nepal	IMPLEMENTING AGENCY: DOR, DCID		SHEET TITLE: River Training Work of Dry Nala Bridge (47/H001313_A)	SCALE: As Shown		NAME Saroj Bhattacharai	SIGNATURE 	REV NO.	DESCRIPTION	DATE: November,2022
			ROAD NAME: East West Highway (H01)					Designed by:	P. Upadhyaya			DWG.NO.: 313_Dry Nala
			Butwal - Gorusinghe Section					Checked by:				SHEET NO.: 
								Approved by:	Dr. T.H.Choi			



DESIGN LEVEL(m)	117.723	117.664	117.606	117.548	117.499	117.470	117.460	117.460	117.460	117.460	117.452	117.432	117.401	117.358	117.303	117.237	117.168	117.098
EXISTING LEVEL(m)	117.682	118.291	117.461	117.666	116.291	115.281	114.567	112.612	112.364	114.014	114.830	115.468	115.196	115.099	115.056	115.170	115.398	115.151
HORIZONTAL ALIGNMENT	RIGHT		LEFT		RIGHT		LEFT		RIGHT		LEFT		RIGHT		LEFT		RIGHT	
SUPER ELEVATION	633+260		633+270		633+280		633+290		633+300		633+310		633+320		633+330		633+340	
CHAINAGE(Km)	633+260		633+270		633+280		633+290		633+300		633+310		633+320		633+330		633+340	

Government of Nepal

Ministry of Physical Infrastructure and Transport

Department of Roads

Project Directorate Office (ADB)

SASEC Highway Improvement Project-

Project Preparatory Consultant (SHIP-PPC)

ADB Loan No: 3722-NEP

CONSULTANT:

Soosung Engineering Co. Ltd,

Korea in association with

ERM C P (Ltd), Nepal

and

TSE-Tech Studio of Engineering

IMPLEMENTING AGENCY:

DOR, DCID

ROAD NAME:

East West Highway (H01)

Butwal - Gorusinghe Section

SHEET TITLE:

Plan & Profile

OF

Dry Nala Bridge

633+260-633+430

SCALE:

Vertical Scale

Horizontal Scale

DESIGNED BY:

Saroj Bhattacharai

CHECKED BY:

P. Upadhyaya

APPROVED BY:

Dr. T.H.Choi

NAME

SIGNATURE

REV NO.

DESCRIPTION

DATE:

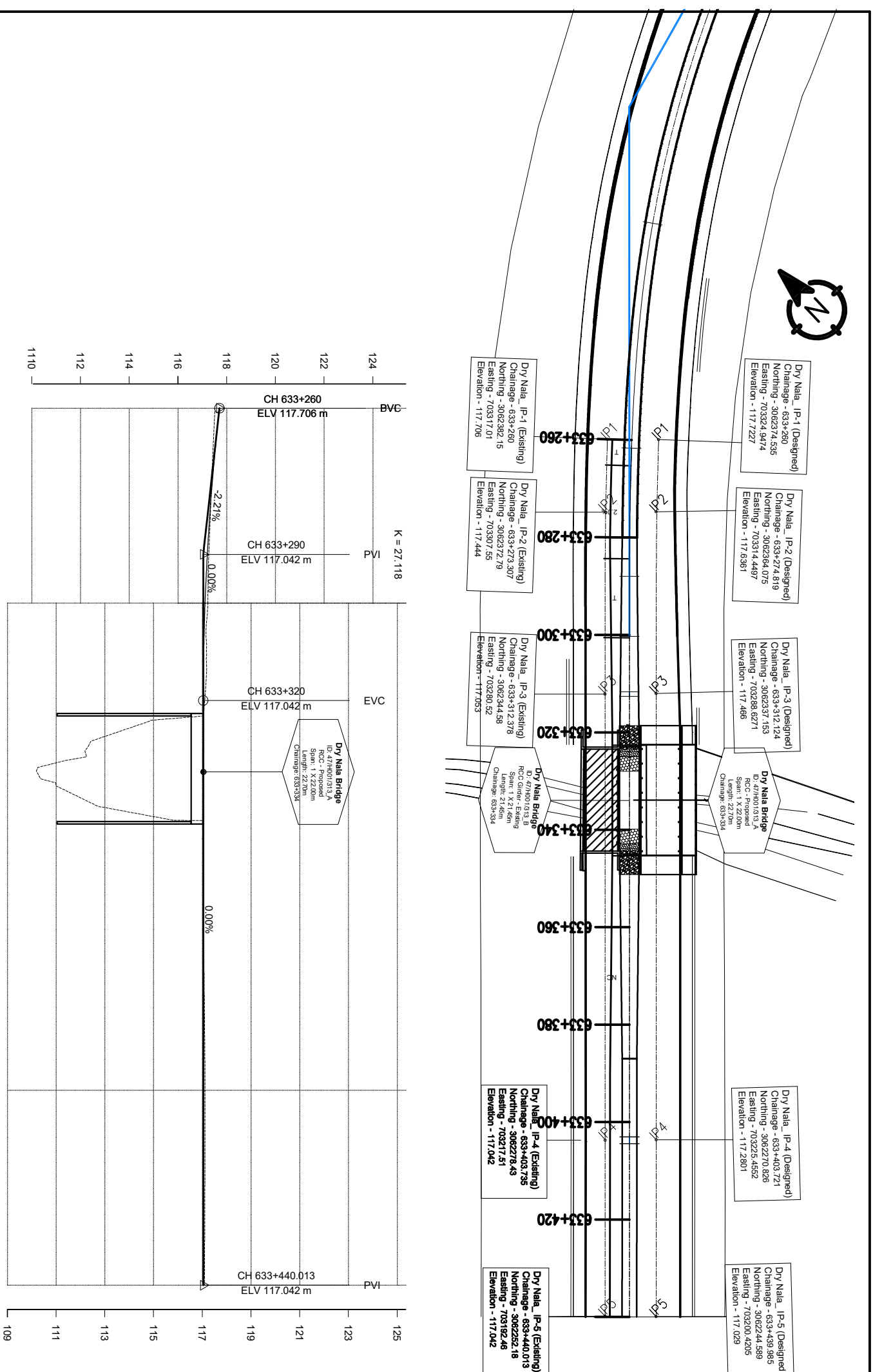
November, 2022

DWG. NO.:

313_Dry Nala

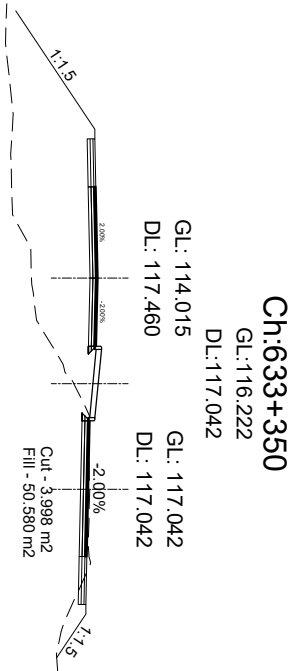
SHEET NO.:

18/20

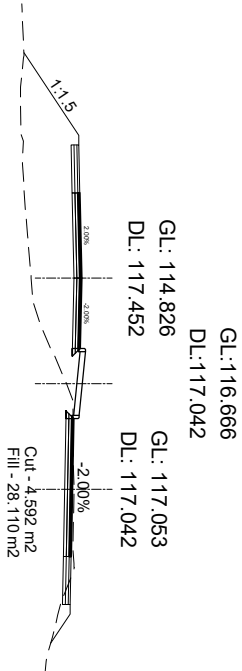


CHAINAGE(km)	SUPER ELEVATION	HORIZONTAL ALIGNMENT		EXISTING LEVEL(m)	DESIGN LEVEL(m)
		LEFT	RIGHT		
633+260	633+260.00 633+265.91	NC T 4.5	IP-1 R=200.00 IP-2 R=800.00	117.522	117.706
633+270				117.428	117.503
633+280	633+280.703 633+285.953	T NC		117.348	117.337
633+290				117.269	117.208
633+300	633+300			117.234	117.116
633+310			IP-3 R=1500.00	117.176	117.060
633+320				117.100	117.042
633+330				112.235	117.042
633+340				112.018	117.042
633+350				117.042	117.042
633+360				117.053	117.042
633+370		NC		117.064	117.042
633+380				117.083	117.042
633+390				117.102	117.042
633+400			IP-4 R=1500.00	117.110	117.042
633+410				117.112	117.042
633+420				117.108	117.042
633+430				117.101	117.042
633+440	633+440.013			117.089	117.042

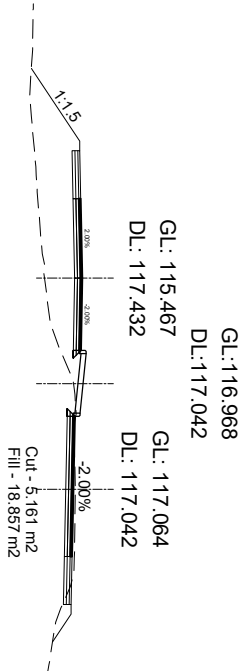
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	CONSULTANT:	Soosung Engineering Co. Ltd, Korea in association with ERMCM P (Ltd), Nepal and TSE-Tech Studio of Engineering	
	IMPLEMENTING AGENCY:	DOR, DCID	
		ROAD NAME:	
		East West Highway (H01)	
	Butwal - Gorusinghe Section		
SHEET TITLE:	Plan & Profile OF Existing Dry Nala Bridge 633+260 - 633+440		
SCALE:	0 2 4 6m Vertical Scale 0 10 20 30m Horizontal Scale		
DESIGNED BY:	Saroj Bhattacharai		
CHECKED BY:	P. Upadhyaya		
APPROVED BY:	D. T. H. Choi		
SIGNATURE			
REV NO.			
DESCRIPTION			
DATE:	November, 2022		
DWG. NO.:	313_Dry Nala		
SHEET NO.	19/20		



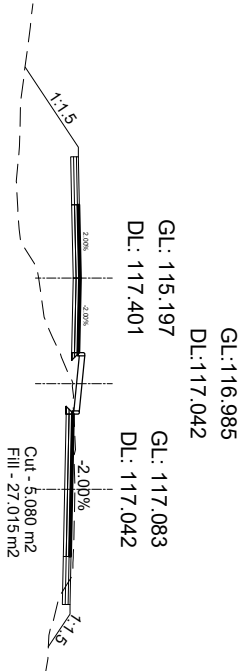
Ch:633+360



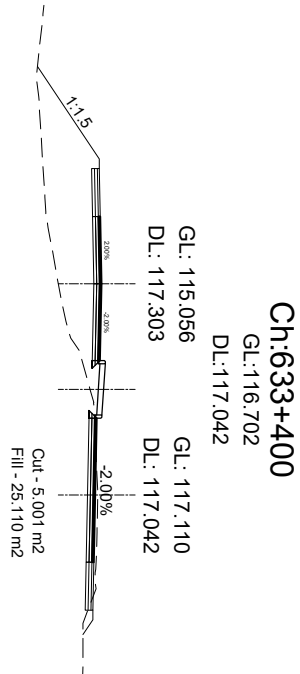
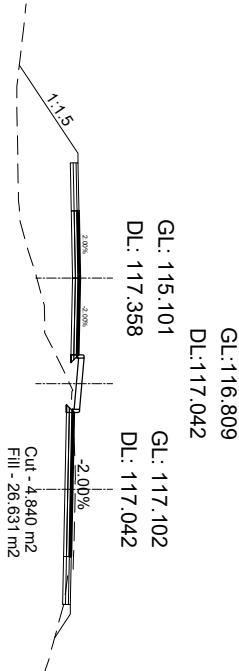
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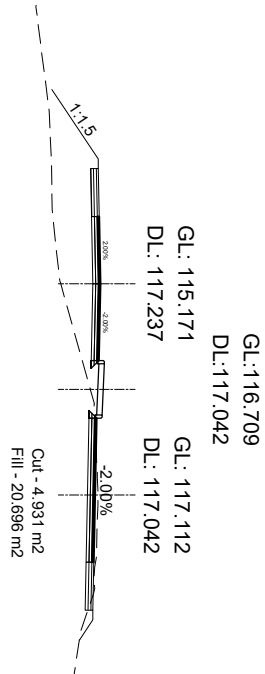
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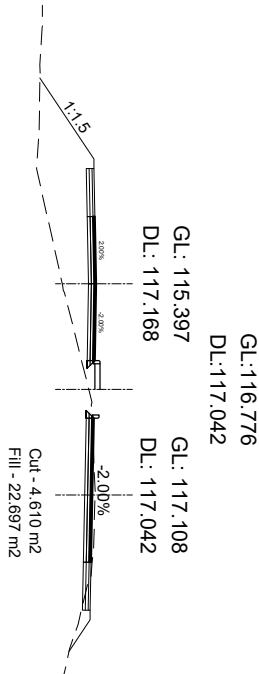
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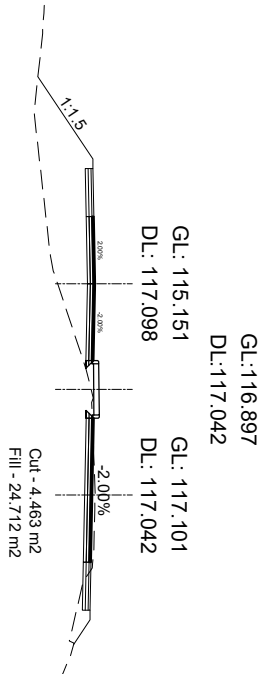
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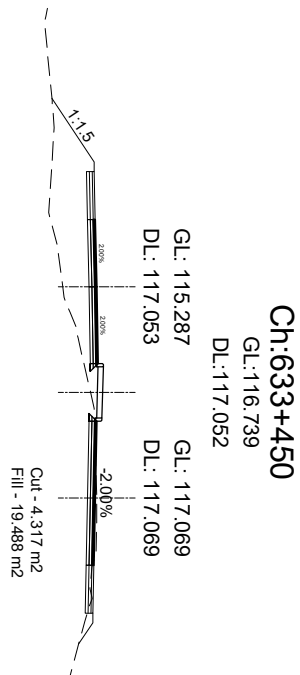
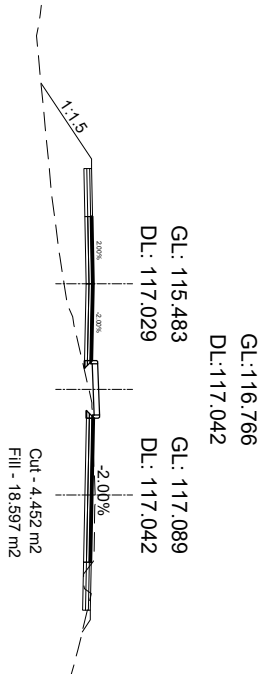
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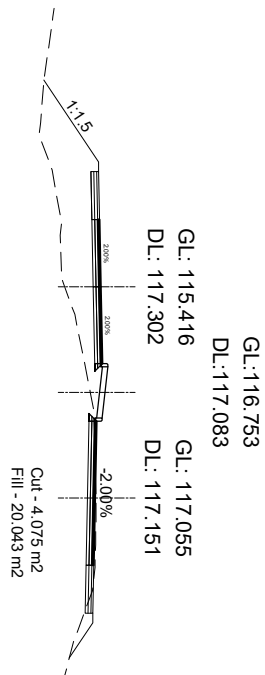
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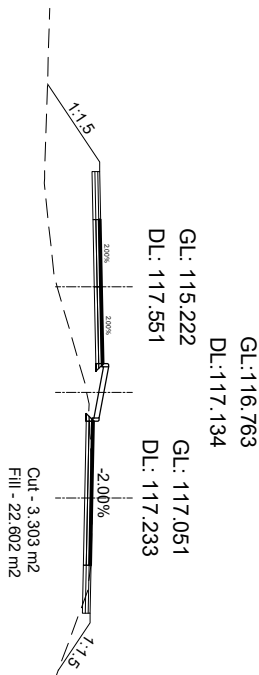
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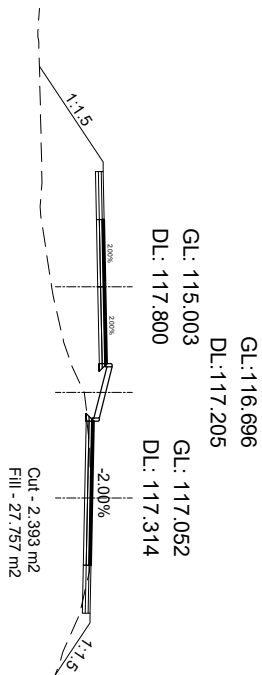
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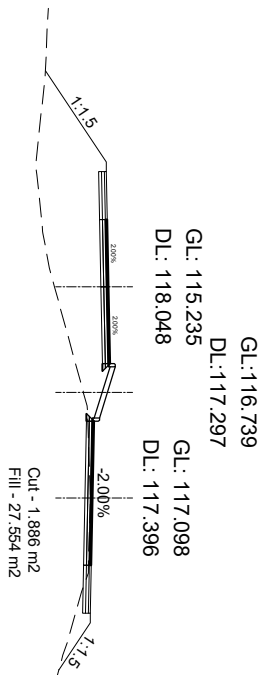
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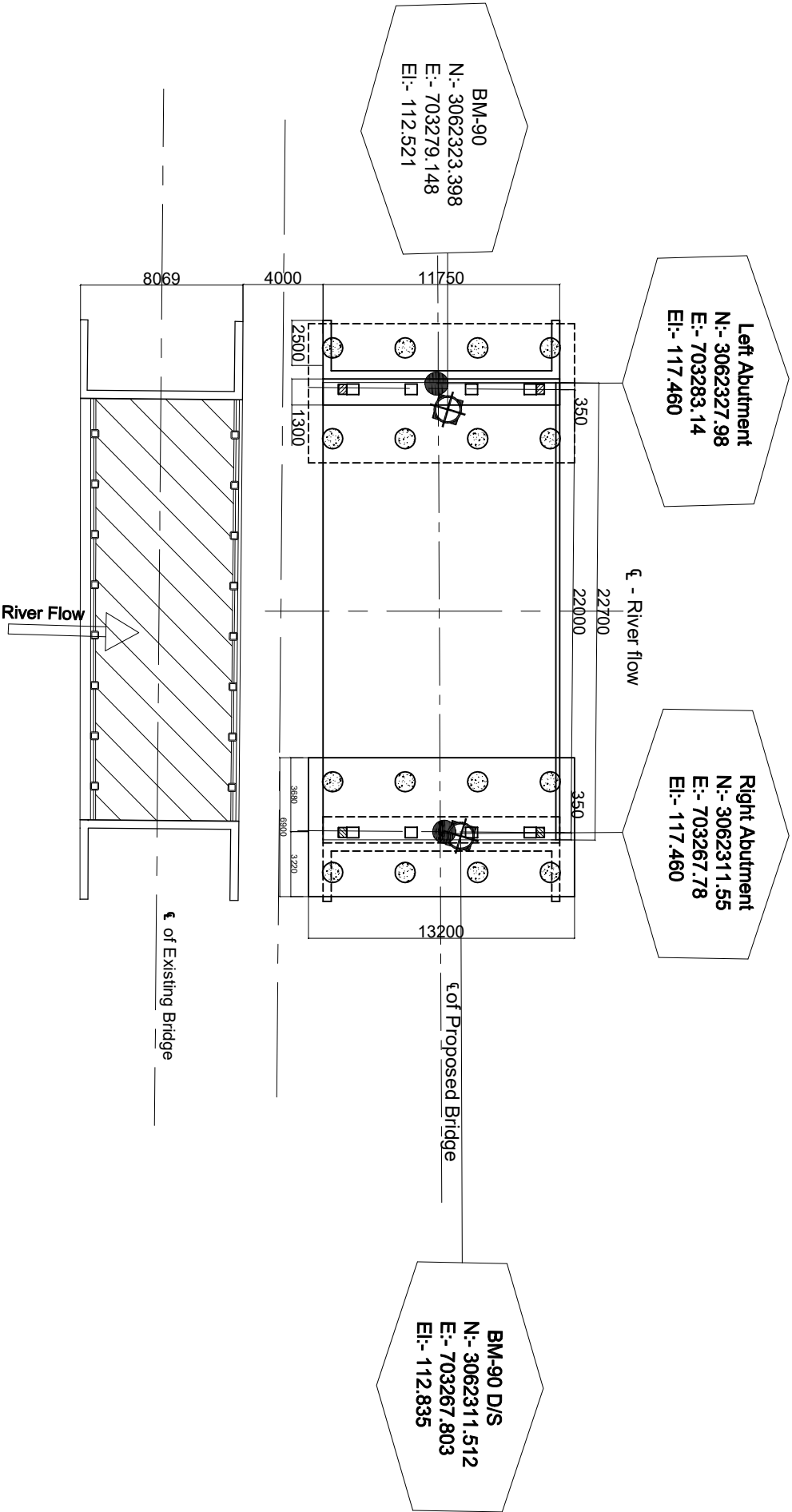
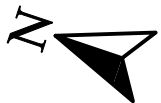
Ch:633+480



Ch:633+490

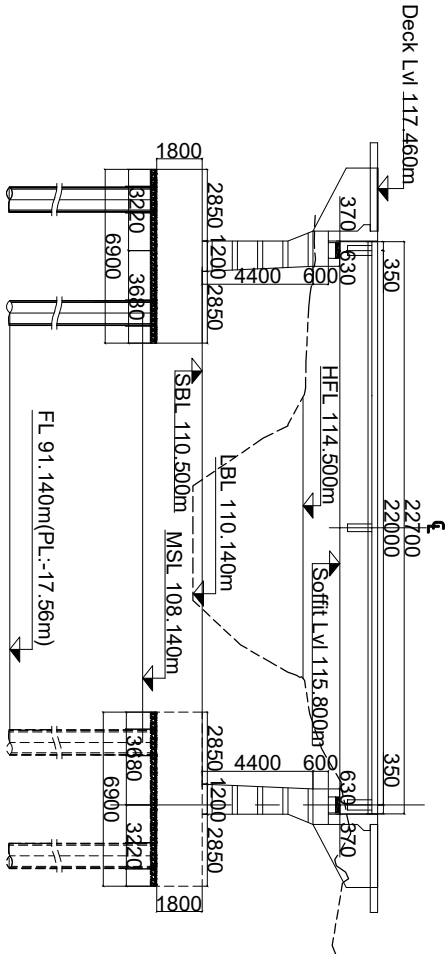


Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		NAME		SIGNATURE	REV NO.	DESCRIPTION	DATE:	DWG.NO.: 313_Dry Nala SHEET NO.: (19b/20)
	Soosung Engineering Co. Ltd,		DOR, DCID		Cross Section of Ch:633+350 - 633+490		Vertical Scale 0 2 4 6m Horizontal Scale 0 10 20 30m		Saroj Bhattacharai					November,2022	
	Korea in association with		ROAD NAME:						P. Upadhyaya						
	ERM C P (Ltd), Nepal		East West Highway (H01)						Dr. T.H.Choi						
	TSE-Tech Studio of Engineering		Butwal - Gorusinghe Section												



Layout Plan

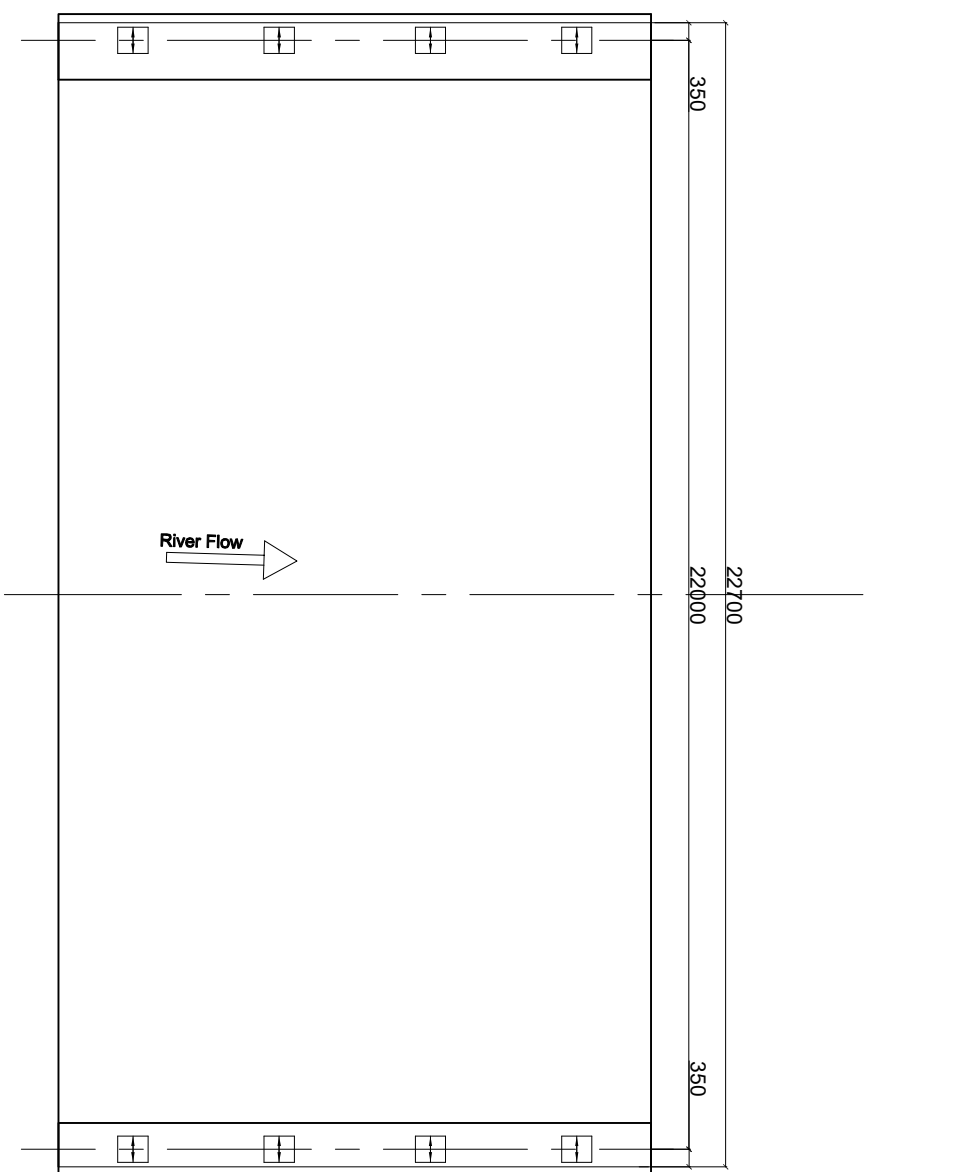
Scale:-1:300



Half Sectional Elevation

Scale:-1:300

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and JWC - Tech Studio of Engineering Nepal		IMPLEMENTING AGENCY: DOR, DCID		ROAD NAME: East West Highway (H01)		Butwal - Gorusinghe Section		SHEET TITLE: Layout Plan of Dry Nala Bridge (47/H001/313_A)		SCALE:		As Shown		NAME		SIGNATURE		REV NO.		DESCRIPTION		DATE: November, 2022		DWG.NO.: 313_Dry Nala		SHEET NO.: 20/20	
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Layout of Bearing

Scale:-1:150

Legend

Elastomeric bearing.
Partial movement allowed in longitudinal direction.
Restrained to transverse movement. Free to rotate in any direction.

Fixed Pot-bearing.
Restrained to lateral movement, Free to rotate in any direction.

Free Pot-bearing.
Partial movement allowed in longitudinal direction.
Restrained to transverse movement. Free to rotate in any direction.

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP										CONSULTANT:										IMPLEMENTING AGENCY:										SHEET TITLE:										SCALE:										NAME										SIGNATURE										REV NO.										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Government of Nepal
Ministry of Physical Infrastructure and Transport
Department of Roads

Project Directorate (ADB)
Implementing Agency : DOR, DCID

Project Preparatory Consultants
Under

SASEC Highway Improvement Project (SHIP-PPC)

(ADB Loan No: 3722 Nep)
Contract No. SHIP/PPC/2020/02

Kundra Bridge(47-H001-314_A)

St. Ch : 633+670.40 ~ End Ch : 633+713.60

Detailed Drawing

Butwal - Gorusinghe Sector

November, 2022

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GENERAL NOTES

General

- Metric system of measurement is used in all drawings. Elevation and Stations are shown in Meter and all other dimensions are in Millimeters, except indicated otherwise.
- In case of contradictions, specific notes on respective sheet shall supersede the General Notes
- No dimensions shall be scaled from the drawings. Only written dimensions shall be followed. Any doubtful matter in the drawings shall be brought to the attention of the engineer-in-charge for any corrections before the execution of the works.

Design Notes

The design codes followed:

For RCC and PSC concrete - IRC:112-2020

For loads and stresses - IRC:6-2017

For substructure and foundations - IRC:78-2014

For seismic design - IRC:SP:114-2018. Seismic zone V. Importance factor 1.2

Design live loads:

For urban area bridges

Case 1 - 3 lanes of class A + pedestrians; 1 lane of class A + 1 lane of class 70R + pedestrians

Case 2 - 4 lanes or class A; 2 lanes of class A + 1 lane of class 70R. No pedestrians

For non-urban area bridges

Case 1 - 2 lanes of class A + pedestrians; 1 lane of class 70R + pedestrians

Case 2 - 3 lanes of class A; 1 lane of class A + 1 lane of class 70R. No pedestrians.

Notes on Concrete

In General the grade of concrete to be used shall be as follows:

(unless otherwise specified in the respective drawing sheets)

For superstructure deck slab, wearing course, crash barriers:

For raised footpaths:

For main girders and cross girders of superstructure with PSC girders:

For main girders and cross girders of superstructure with RCC girders:

For substructure: Abutment stem, ballast wall, stoppers, bearing pedestals,

pier cap, pier stem and pile caps:

For bored and cast in situ piles:

For leveling course:

The maximum size of aggregate shall be as per IRC:112-2020, clause 18.4.4.2

Admixture to the concrete

To improve workability and/or increase initial setting time of concrete and cement grout, admixture conforming to IS:9103 and ASTM C-494, (Type F - High Range Water Reducing admixture) can be added in appropriate dosage, subject to their satisfactory proven use.

Clear Cover to reinforcement (unless otherwise specified in the respective drawing sheets)

Reinforcement bars of all components of the superstructure:

Prestressing ducts or strands in superstructure:

All components of abutment, pier, pile caps and piles (except stoppers and bearing pedestals):

Bearing pedestals and Stoppers:

Cover shall be ensured with the use of properly sized cement concrete blocks which can be secured to the re-bars or other devices approved by the engineer-in-charge. Use of loose stones or wooden pieces is not permitted.

Notes on Reinforcement

- All reinforcing steel bars shall be High Strength Deformed bars with grade Fe500 conforming to IS:1786
- Laps and Splices shall conform to IRC:112-2020, Clause 15.2.5. Use of mechanical coupler is permitted upon approval by the engineer.

Notes on Prestressing

- Prestressing strands shall be Class-2, uncoated 7 ply, low relaxation type with ultimate tensile stress 1862 N/mm², conforming to IS:14268.
- The diameter of strands, their number in a tendon and the total jacking force to be applied is specified in the respective drawing sheet. All the initial and long term losses are already incorporated in design.
- Corrugated HDPE Sheathing ducts shall be used with the minimum internal diameter not less than three times the cross sectional area of the tendon. The wall thickness and other properties of the sheathing shall be as per IRC:112-2020, clause 13.4.3
- The specified profile and the alignment of the ducts shall be strictly maintained by properly securing the ducts to the re-bars. If required, pieces of re-bars can be added or the re-bars slightly repositioned or bent to maintain the profile and alignment, with approval of the engineer-in-charge.
- The jacking equipment shall be fitted with appropriate force measuring device and shall be regularly checked and calibrated as prescribed by the manufacturer.
- Jacking shall be done from both ends simultaneously and gradually, recording the elongation both sides. The expected final elongation mentioned in the respective drawings sheet is based on modulus of elasticity of the strands (Es) equal to 1.95x10⁵ MPa. If the Es of supplied strands is different then the elongation values shall be recalculated by multiplying the Design values of elongation by the ratio of Design Es / Actual Es.
- In case the total elongation is not achieved at the prescribed jacking force, the jacking operation can be continued until the force reaches the maximum allowable value. If the required elongation is achieved at jacking force lower than the prescribed value, the jacking operation shall continue until the prescribed force is reached, provided the Sum of the additional elongations thus achieved is not more than 5% of the sum of the prescribed elongations.
- In adverse condition to any of the cases above, the jacking operation shall be stopped, the tendons removed and this matter reported to the engineer-in-charge for further instruction. The jacking force should NEVER exceed the Maximum allowable value.

GROUTING

- The tendons which satisfy the above conditions shall be grouted properly, ensuring the duct is free of any foreign material and there is no leak or damage around the joints between the anchors and the ducts. Grouting can be normally done immediately after successful completion of tensioning operations and shall not be delayed by more than 5 days of tensioning of the cables.
- The grout shall be prepared with Ordinary Portland cement with suitable expansive admixture approved by the engineer. Admixture containing chloride and nitrate are not permitted. The water/cement ratio shall not be more than 0.48. Retempering of the grout shall not be permitted. The grout shall be mixed with mechanical mixers and shall be continuously kept agitated until pumped in.

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				DOR, DCID				General Notes of Kundra Bridge ((47/H001/314_A))		As Shown		DESIGNED BY:		Saroj Bhattacharai								November , 2022	
				ROAD NAME:								CHECKED BY:		P. Upadhyaya								DWG.NO.: 314_Kundra	
				Butwal - Gorusinghe Section								APPROVED BY:		Dr. T.H.Choi								SHEET NO.: (1/32)	

Stages and sequence of Prestressing

- The Precast composite girders shall be prestressed in two stages. The specified number of the tendons shall be tensioned in the prescribed sequence shown in the respective drawing sheet.
- The remaining tendons shall be tensioned after specified days after casting of the deck slab, in the sequence shown in the respective drawing sheet.
- The prestressing of the precast girder shall be started only after confirming that the cube specimen has achieved 100% of the prescribed compressive strength. No early prestressing allowed.

Construction methodology and sequence for Precast Prestressed Composite superstructure

- The main girders are be precast near the bridge site at suitable location (approach road or dry river bed, if available) on well prepared casting yard. The choice of location also depends upon the equipment available for lifting or launching the girders. After completion of the prestressing works the girders are either lifted by suitable cranes or pushed/launched with the help of rails and jacks or launching girders and placed carefully over the already completed substructure. Care shall be taken that all the preparatory works for the bearings are done properly before the launching/placing of the girders.
- Lifting shall be done only by the hooks provided at both ends. In case of jacking the jacking points shall be only just under the location of the hooks. No support, lifting or jacking is allowed at any other section of the girder
- After placing all the main girders and finishing the works on the bearings, the formwork for deck slab and cross girders are prepared. All the formwork for deck slab and cross girders shall be supported by the main girders. The main girders shall remain un-propped during casting of the deck slab. Similarly there shall be no false-work or props from the ground or part of substructure during casting of the deck slab.
- The Contractor shall ensure stability of the girders during all stages of construction.
- Dimensional tolerances for the precast girders shall be as per IRC:SP-71-2018, Clause 4.10. If not prescribed otherwise, transportation and handling operation shall follow the guidelines in Clause 4.9 of the same documents.
- The prescribed time-line for construction of the superstructure is as follows

Prestressing of Precast Girder only (Stage 1)	After 28 days of casting or confirming 100% compressive strength of concrete
Lifting/Launching of the Girder	Within 14 days of first stage prestressing
Casting of the Deck Slab	Within 14 days of placing of girder over substructure
Prestressing of Girder (Stage 2)	After 14 days of casting of deck slab
Casting of Footpath, Crash Barrier, Wearing Course etc	Preferably within 7 days but not later than 14 days of Second stage prestressing

Deviation from the above time-line is subject to approval by the engineer. No other vehicle except the concreting apparatus are allowed on the deck until the deck slab has attained its full specified strength.

Construction methodology for Cast-in-situ RCC superstructure

- Construction of Monolithic cast in situ RCC superstructure shall follow the standard practices. The falsework for the girders and deck slab are supported on the ground and removed after specified time period.

Notes on Bearings

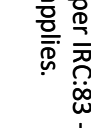
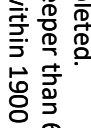
- The contractor shall supply, provide and install the bearings designed according to the loadings and other relevant information provided in the drawings or BOQ.
- The dimension and number of layers of the Elastomeric bearings shown in the drawings are tentative. The bearings shall be designed, fabricated, tested and installed as per IRC:83 - 2018, Part-2 for elastomeric bearing and Part-3 for Pot-PTFE bearings, as the case applies.

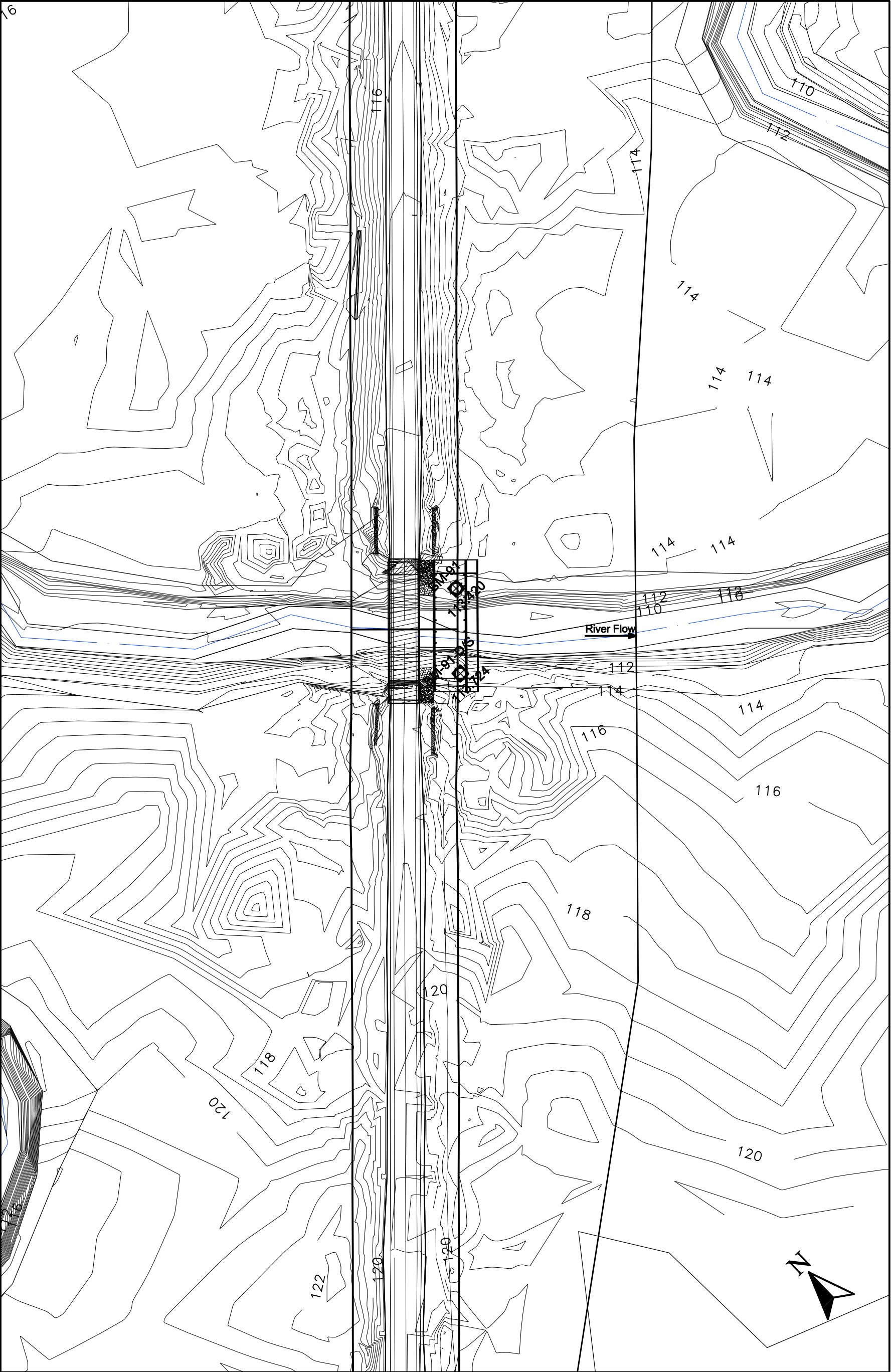
Notes on Foundation and Substructure

- Standard Specifications and Special provisions to the Standard Specifications (if any) and specific notes on the drawings shall be followed for the construction of the abutments, piers and foundations.
- Backfill behind the abutment shall be places only after the concrete has achieved full 28 days strength. Heavy compaction equipment weighing more than 10 Ton shall not be used within 2.0 meters from the back of the abutment until all the works on superstructure is completed.
- The graded backfill behind the abutment shall be at a slope not steeper than 62 degrees, starting from the back of the footing. The back fill material dry density shall be within 1900 to 2200 kN/m³ and moisture content between 9 to 15%
- In case of new bridge adjacent to the existing bridge, care shall be taken not to render any damage to the elements of the existing bridge. Particular attention shall be paid to the foundation of the existing bridge. The contractor shall ensure that excavation for the foundation of the new bridge does not cause instability or settlement of the foundation of the existing bridge.
- If the existing bridge has a shallow foundation, the contractor shall protect the existing foundation by sheet piling or any other suitable means to the satisfaction of the engineer, before excavating for the foundation of the new bridge.

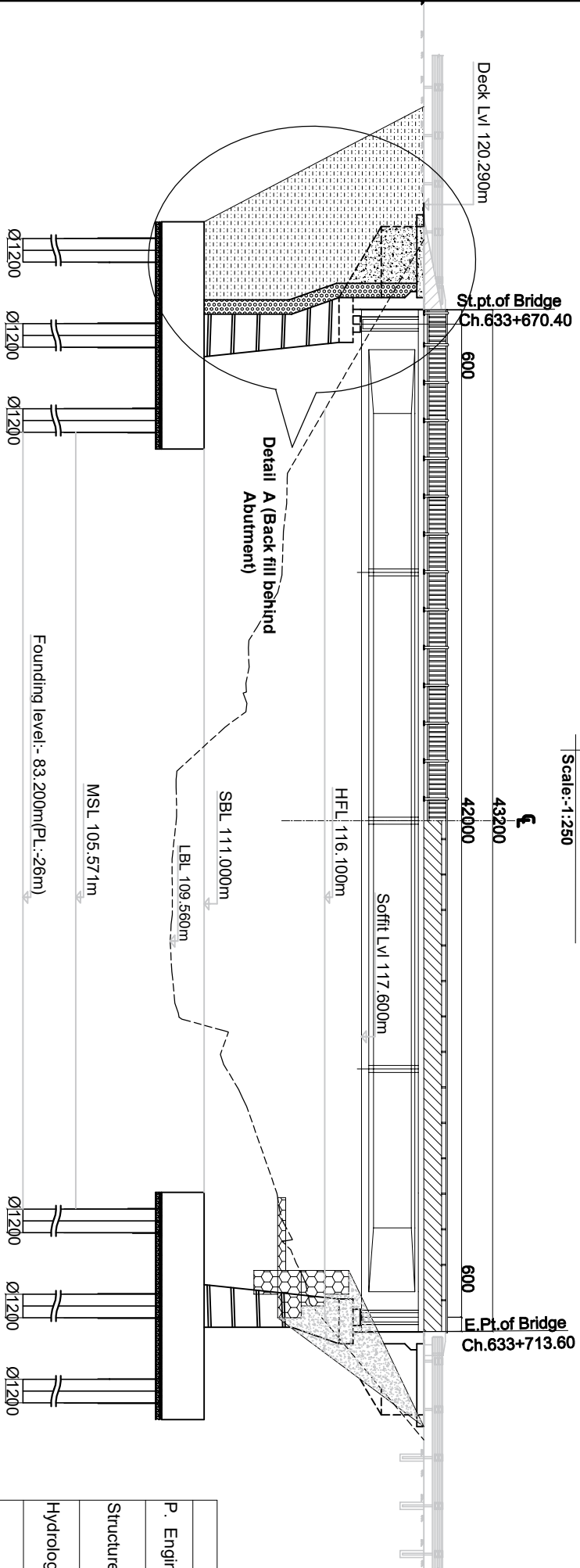
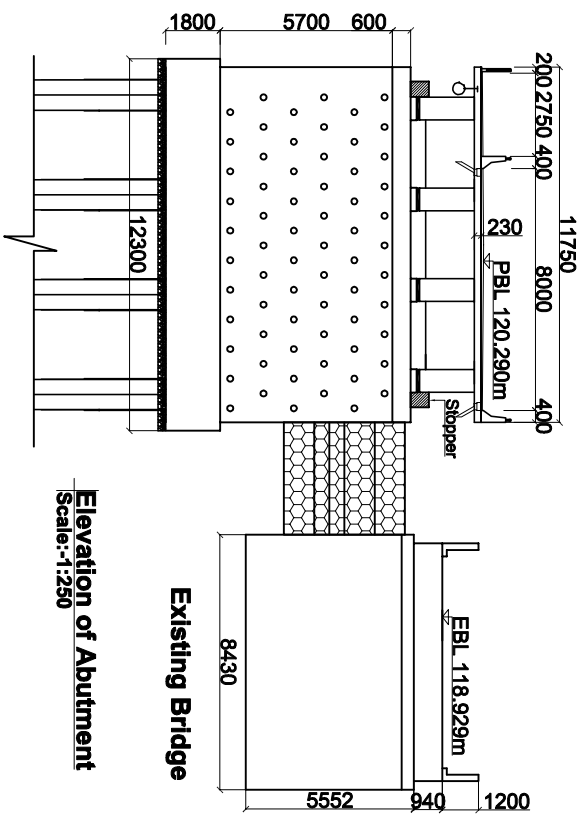
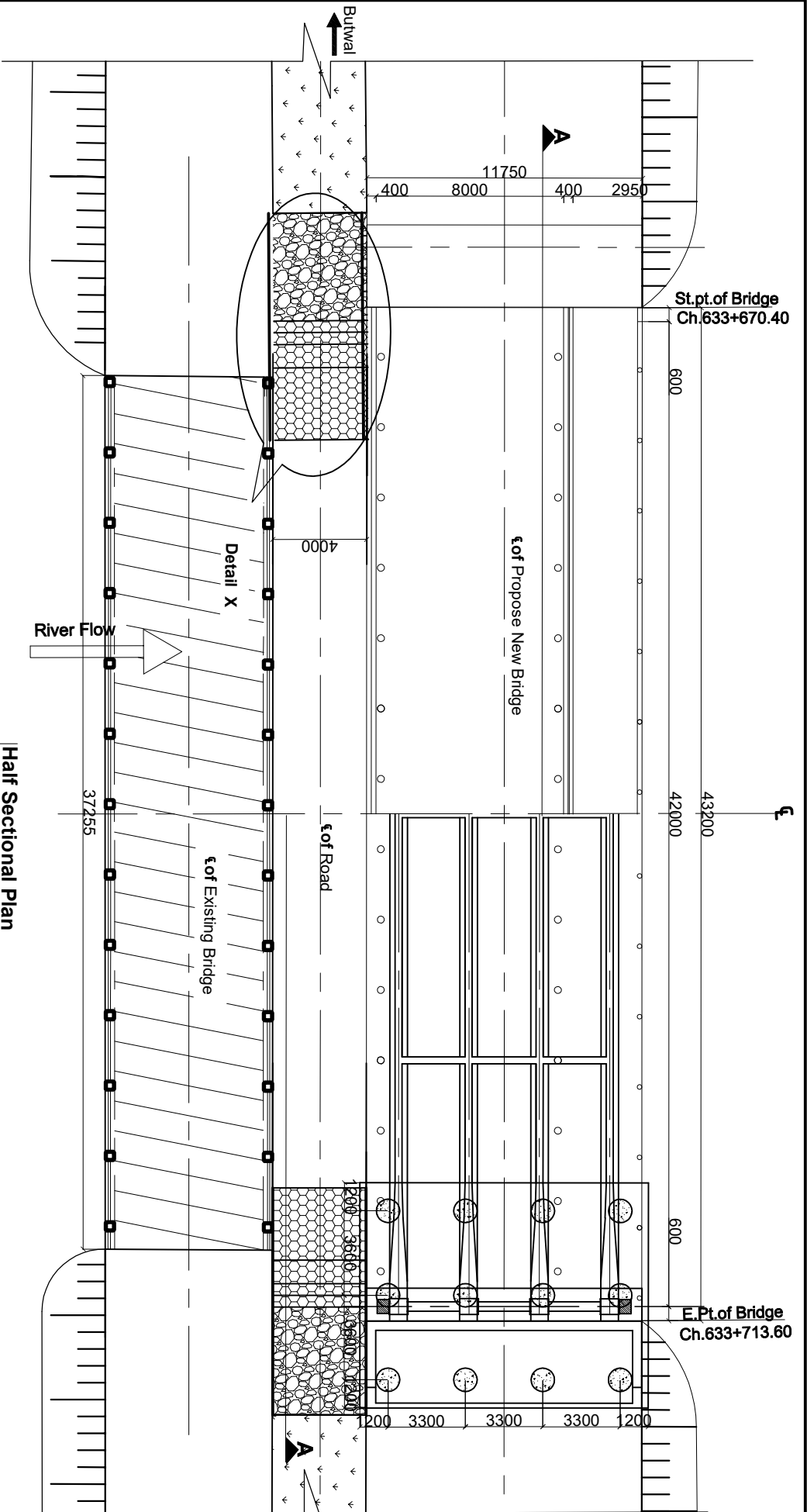
General Note: (For all Pile Foundation)

- Drilling/Boring works for pile is allowed only with rotary or oscillator type drilling equipment.No percussion method is allowed .Stability of borehole shall be ensured by the use of temporary casing.Use of other methods of borehole stability is subject to approval by the engineer, but in such case use of water/air/chemical jetting for boring process shall not be allowed.
- In case of drilling/boring without temporary casing,the contractor should ensure the stability and uniformity of the borehole before lowering the reinforcement cage and during concreting.
- Boring/Drilling of the piles is preferred in a staggered pattern.Boring/Drilling for any pile shall not commence before 24 hours of completion of concreting of any pile within a radius of 6 meters from its center.
- In case of drilling/boring without temporary casing , the pile shall be lined with 6mm thick permanent casing from the bottom of the pile cap down to 0.5 m below the maximum scour depth or 1.5 m whichever is larger.

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		DOR, DCID		ROAD NAME:		General Notes of Kundra Bridge ((47/H001/314_A))		As Shown		DESIGNED BY:					November , 2022	
				East West Highway (H01)						CHECKED BY:					DWG.NO.: 314_Kundra	
		Butwal - Gorusinghe Section								APPROVED BY:					SHEET NO.: 2/32	



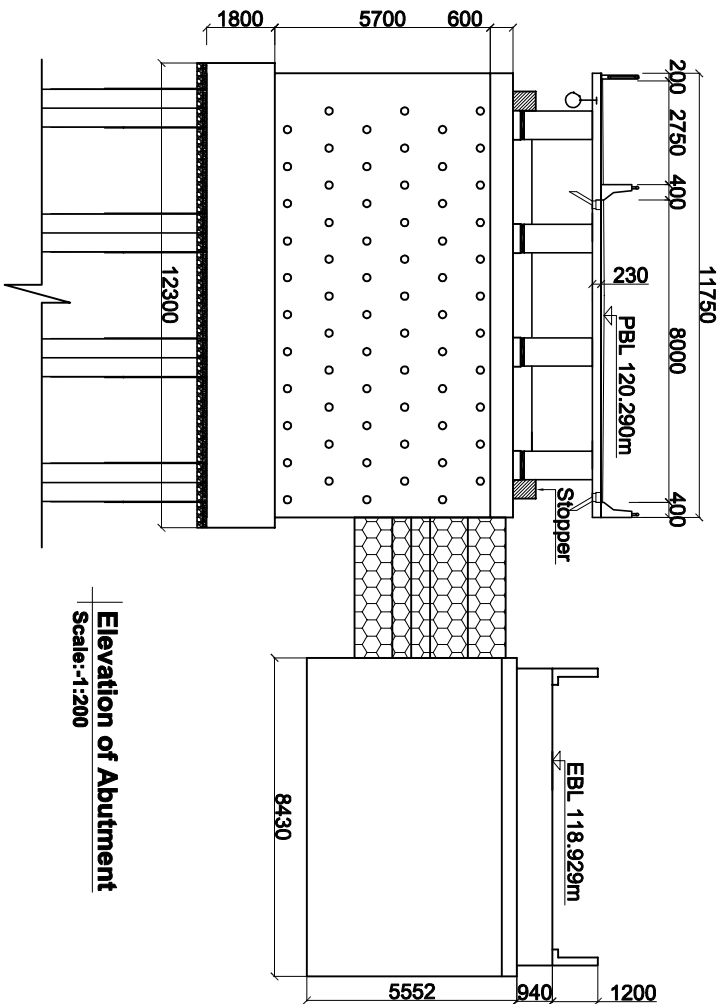
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ROAD NAME: East West Highway (H01)		DOR, DCID		Topographic Map of Kundra Bridge (47/H001/314_A)		1:1		Designed by:		Saroj Bhattacharai								DWG.NO.: 314_Kundra	
								Checked by:		P. Upadhyaya									
								Approved by:		Dr. T.H.Choi								SHEET NO.: 03/32	



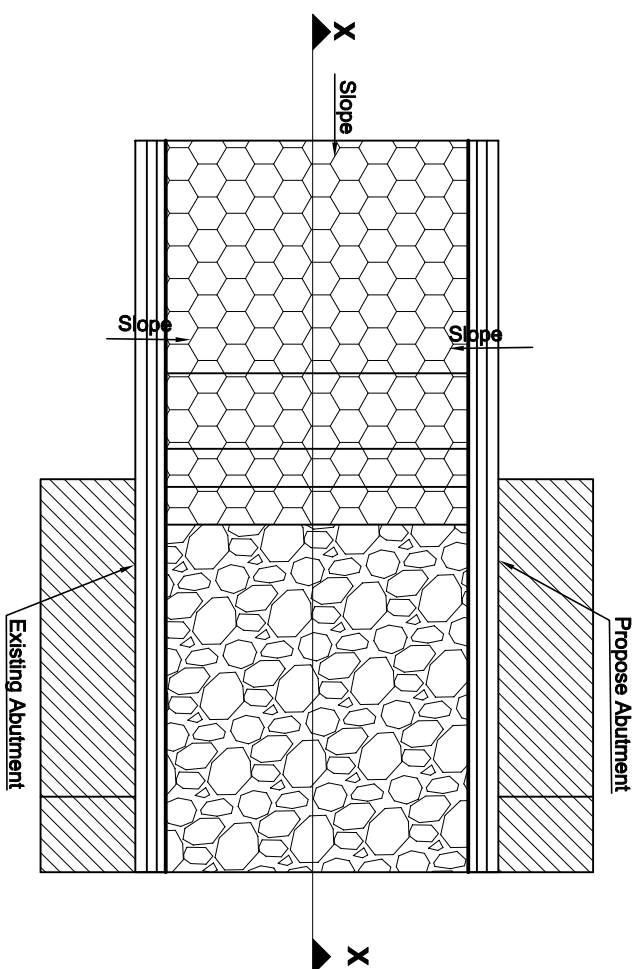
Notes:-
PBL=Proposed Bridge Level
EBL =Existing Bridge Level
LBL =Lowest Bed Level
SBL =Stem Base Level
MSL =Maximum Scour Level
FL =Founding Level
PL =Pile Length

Name(NEC Number)		Signature
P. Engineer	P. Upadhyaya (Civil A 675)	
Structure Engineer	K.P. Wagle(Civil A 127) / P. Shreshtha(Civil A 676) / S. Bhattacharai (Civil A 904)	
Hydrologist	Dr. P. C. Jha(Civil A 166) / S. Adhikari (Civil A 408)	
Geotechnical Engineer	A. Adhikari(ka 199) / Dr. V. R. S. Shahi	

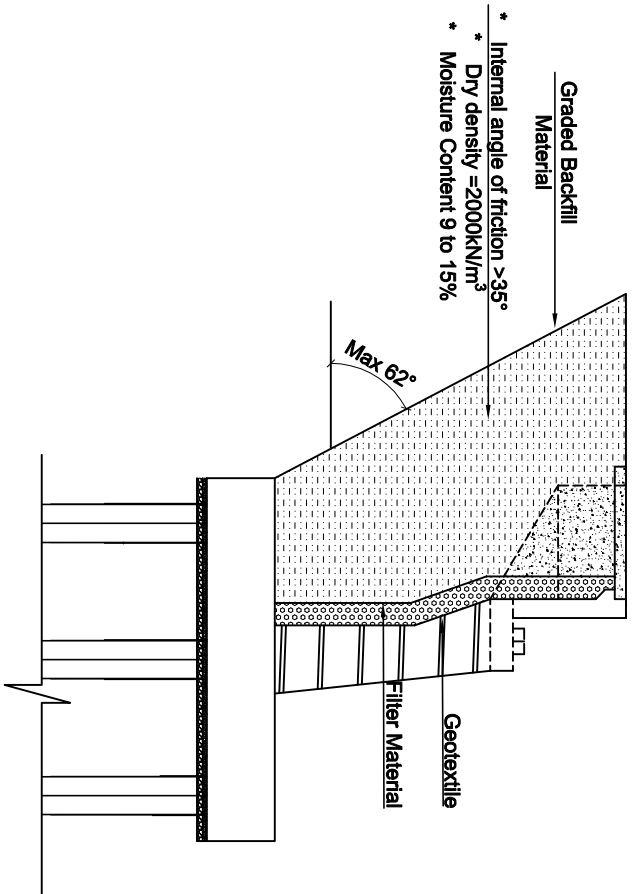
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NFP		CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and JWC - Tech Studio of Engineering Nepal		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorusinghe Section		SHEET TITLE: General Arrangement of Kundra Bridge (47/H001/314_A)		SCALE: As Shown		Designed by: Saroj Bhattacharai	Checked by: P. Upadhyaya	Approved by: Dr. T.H. Choi	DATE: November, 2022	DWG. NO.: 314_Kundra	SHEET NO.: (04/32)
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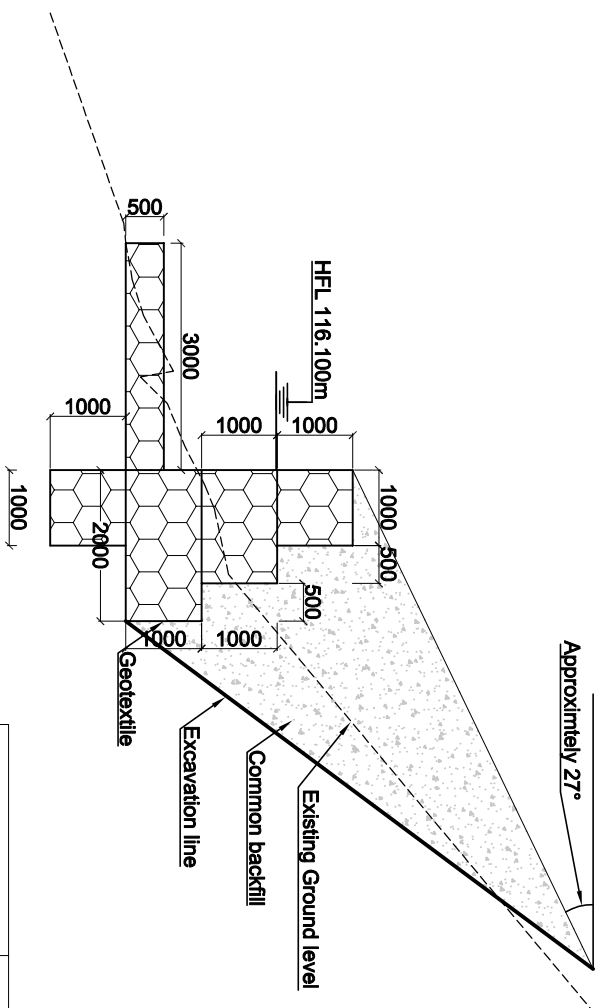
Elevation of Abutment
Scale:-1:200



Detail Plan of X
(Transition Between Approach Embankment)
Scale:-1:100



Detail of A
Scale:-1:200



Section at X-X
Scale:-1:100

Name(NEC Number)		Signature
P. Engineer	P. Upadhyaya (Civil A 675)	
Structure Engineer	K.P.Wagle(Civil A 127) / P. Shrestha(Civil A 676) / S.Bhattarai (Civil A 904)	
Hydrologist	Dr. P. C. Jha(Civil A 166) / S. Adhikari (Civil A 408)	
Geotechnical Engineer	A. Adhikari(ka 199) / Dr. V. R. S. Shahi	

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	 Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd) and JIVE - Tech Studio of Engineering Nepal	CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		DATE:	
		DOR, DCID		ROAD NAME:		General Arrangement of Kundra Bridge (47/H001/314_A)		As Shown		November, 2022	
		East West Highway (H01)		Butwal - Gorusinghe Section		Designed by:		Saroj Bhattarai		DWG.NO.: 314_Kundra	
						Checked by:		P. Upadhyaya		SHEET NO.: (05/32)	

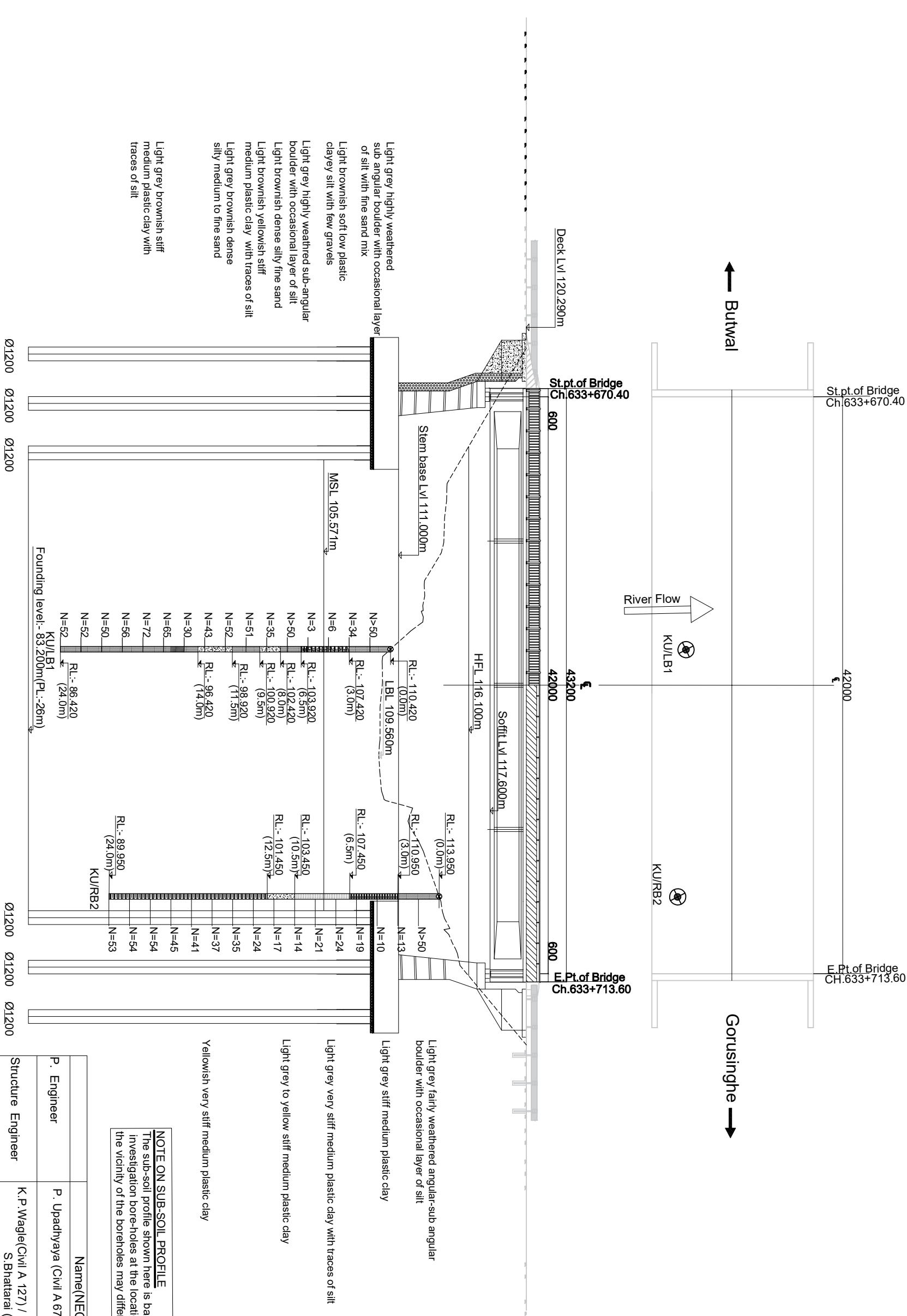


Borehole No : KU/LB-1
Easting : 83° 3' 3.31 "
Northing : 27° 40' 3.36"
Elevation, m : 110.420
Borehole No : KU/RB-2
Easting : 83° 03' 29.76"
Northing : 27° 40' 2.70"
Elevation, m : 113.950

Notes:-
HFL = High Flood Level
MSL =Maximum Scour Level
RL =Reduced Level
LBL =Lowest Bed Level
PL =Pile Length

Gorusinghe →

← Butwal



Borelog Detail

Scale:-1:300

Location	Design Pile Length m	Design Working load on pile (non - seismic casse)kn	Allowable Bearing Capacity on pile (Scour case) kn	Allowable Bearing Capacity on pile (Non Scour case) kn
Abutment	26	2304	2814	3303

Government of Nepal

Ministry of Physical Infrastructure and Transport

Department of Roads

Project Directorate Office (ADB)

SASEC Highway Improvement Project-
Project Preparatory Consultant (SHIP-PPC)

ADB Loan No: 3722-NEP



Soosung Engineering Co. Ltd,

Korea

in association with

ERM C P (Ltd)

and

JYK - Tech Studio of Engineering

Nepal

IMPLEMENTING AGENCY:

DOR, DCID

ROAD NAME:

East West Highway (H01)

Butwal - Gorusinghe Section

SHEET TITLE:

General Arrangement
of

Kundra Bridge

(47/H001/314_A)

SCALE:

As Shown: 1:250

	NAME	SIGNATURE	REV NO.	DESCRIPTION	DATE:
P. Engineer	P. Upadhyaya (Civil A 675)				November, 2022
Structure Engineer	K.P.Wagle(Civil A 127) / P.Shrastha(Civil A 676) / S.Bhattarai (Civil A 904)				
Hydrologist	Dr. P.C. Jha(Civil A 166) / S. Adhikari (Civil A 408)				
Geotechnical Engineer	A. Adhikari(ka 199) / Dr. V. R. S. Shahi				

NOTE ON SUB-SOIL PROFILE

The sub-soil profile shown here is based on extrapolation of information obtained from the investigation bore-holes at the locations as shown. The actual soil type away from the vicinity of the boreholes may differ .

Yellowish very stiff medium plastic clay

Light grey to yellow stiff medium plastic clay

Light grey very stiff medium plastic clay with traces of silt

Light grey fairly weathered angular-sub angular boulder with occasional layer of silt

Light grey stiff medium plastic clay

Light grey brownish stiff medium plastic clay with traces of silt

Light grey brownish dense silty medium to fine sand

Light brownish yellowish stiff medium plastic clay with traces of silt

Light brownish dense silty fine sand

Light brownish soft low plastic clayey silt with few gravels

Light grey highly weathered sub-angular boulder with occasional layer of silt

sub angular boulder with occasional layer of silt with fine sand mix

Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

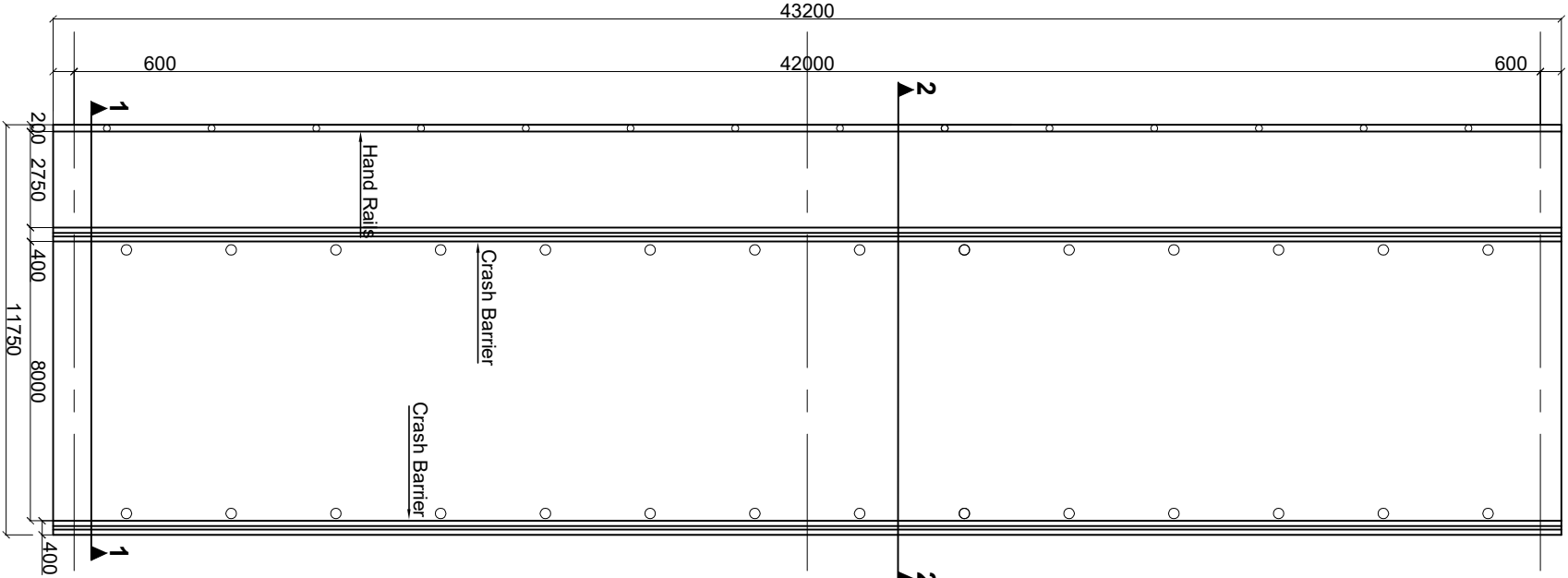
Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

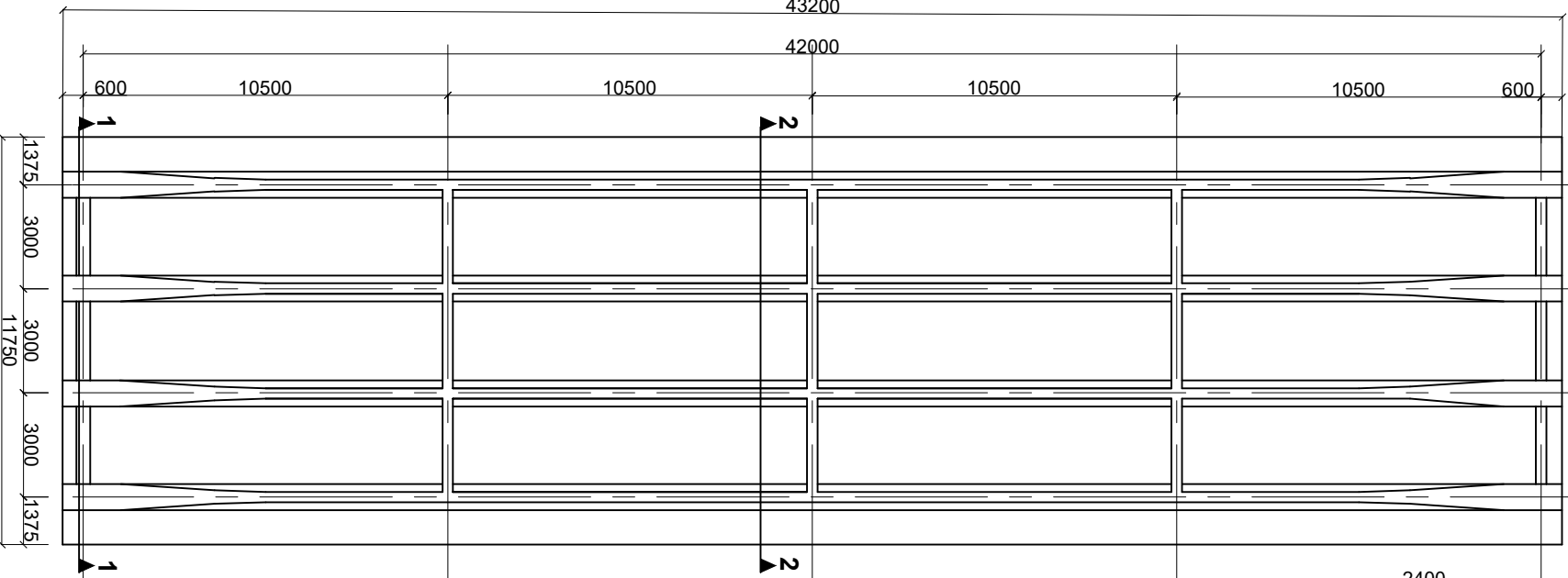
Light grey highly weathered sub-angular boulder with occasional layer of silt

Light grey highly weathered sub-angular boulder with occasional layer of silt

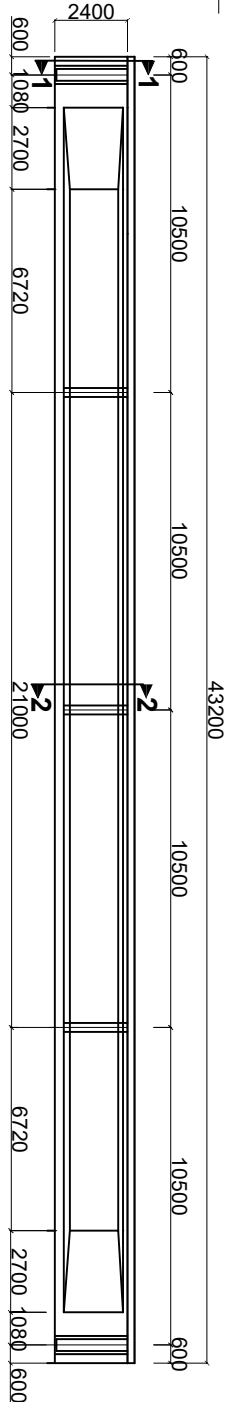
Light grey highly weathered sub-angular boulder with occasional layer of silt



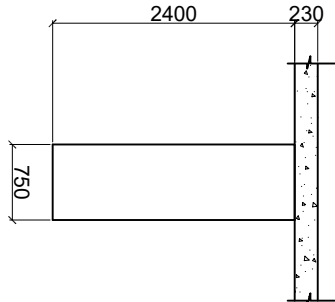
Plan Of Deck(Top Face)
Scale:-1:200



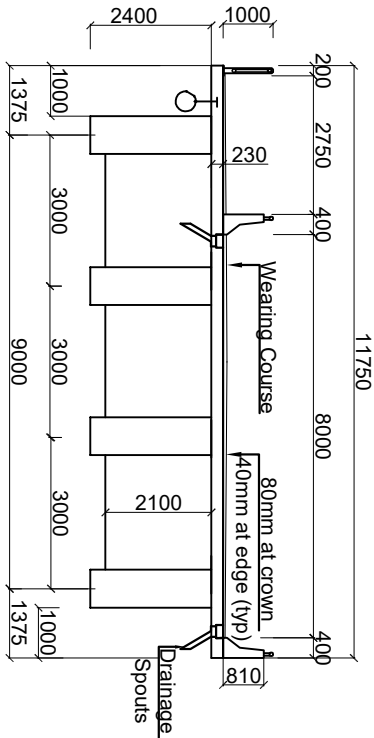
Plan Of Girder(Bottom Face)
Scale:-1:200



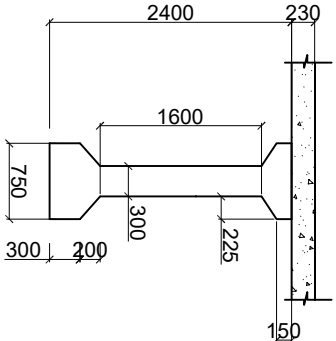
Longitudinal Sectional Elevation
Scale:-1:200



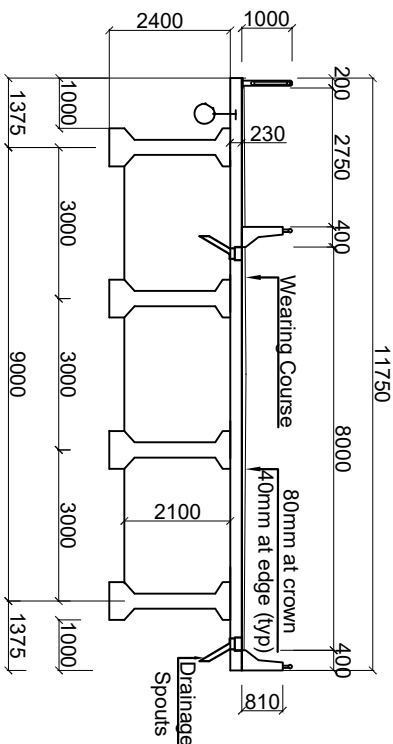
Section 1-1 Main Girder
Scale:-1:75



Section At 1-1
Scale:-1:150



Section 2-2 Main Girder
Scale:-1:75

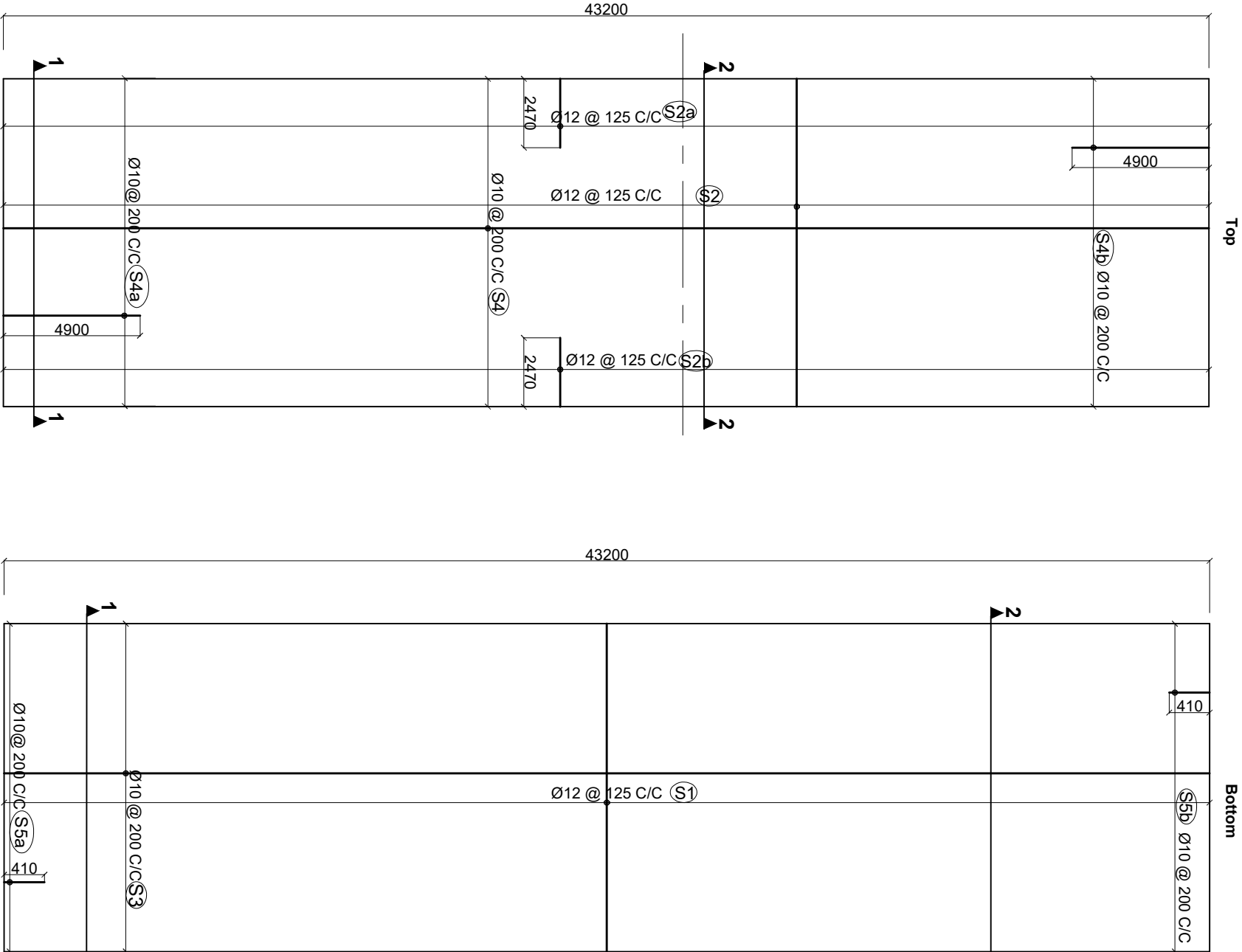


Section At 2-2
Scale:-1:150

NOTE:
For maintenance, the deck shall be simultaneously jacked up at the locations marked "y"

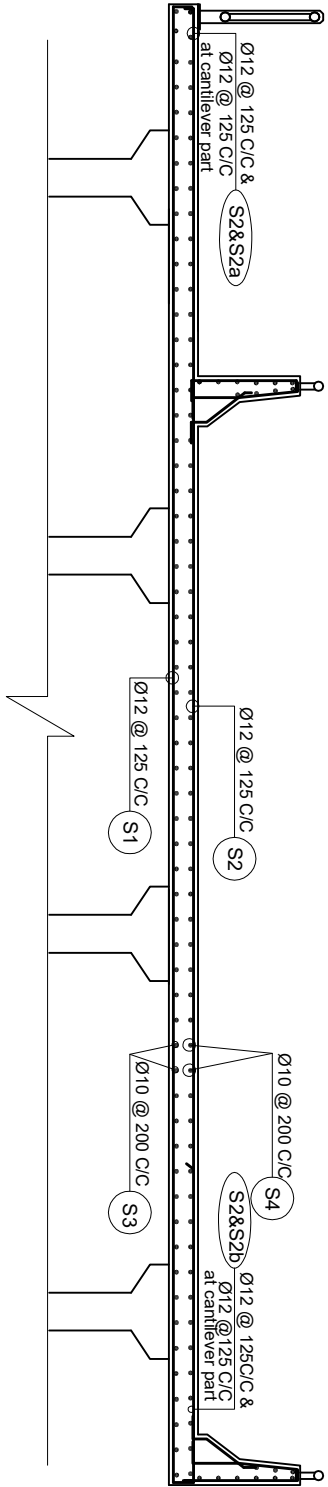
NOTE:
The bridge has been designed to safely carry three driving lanes. If required in future the footpath can be used as driving lane, moving the crash barrier to the location of the hand-rails.

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with  ERMCo P (Ltd), Nepal and  JYR - Tech Studio of Engineering															
IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:													
DOR, DCID		ROAD NAME: East West Highway (H01)		Detail of Superstructure of Kundra Bridge ((47/H001/314_A))		As Shown		DESIGNED BY: Saroj Bhattacharai		SIGNATURE 		REV NO.		DESCRIPTION		DATE: November , 2022	
Butwal - Gorusinghe Section								CHECKED BY: P. Upadhyaya								DWG.NO.: 314_Kundra	
								APPROVED BY: Dr. T.H.Choi								SHEET NO.: 7/32	



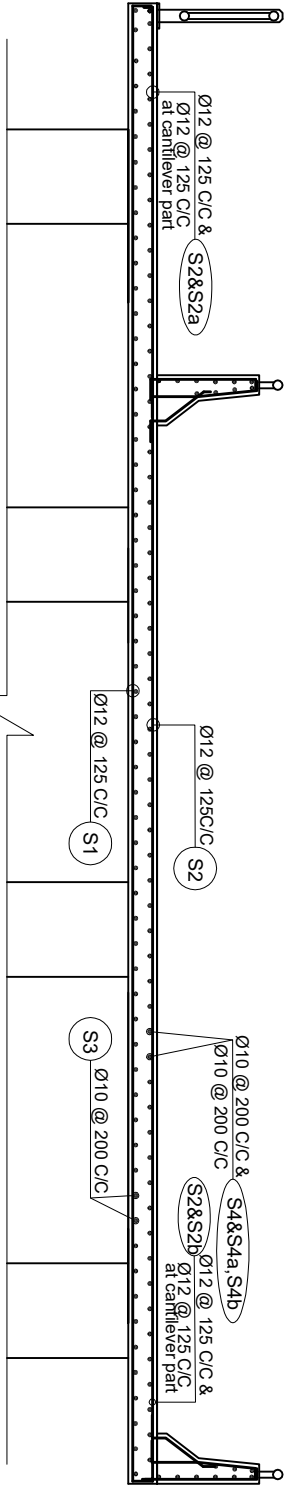
Reinforcement Details Of Deck Slab(Top Face)

Reinforcement Details Of Deck Slab(Bottom Face)



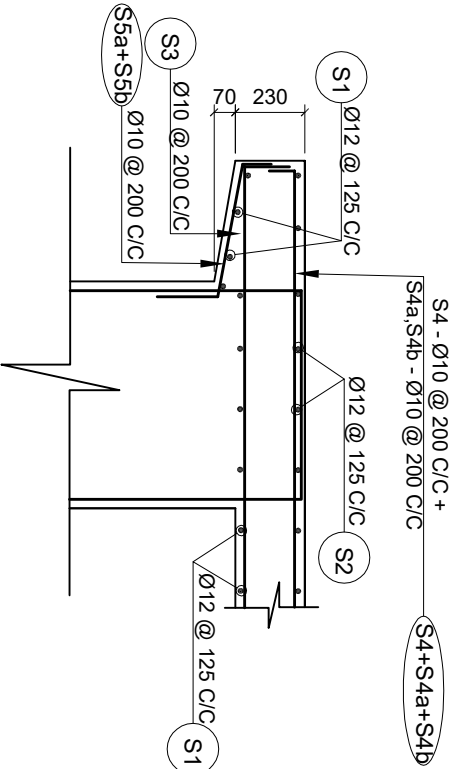
Section At 2-2

Scale:-1:50



Section At 1-1

Scale:-1:50



Reinforcement Details At Deck Extension
Between The Main Girder

NOTE:
1.On Shear Connection:
The transverse bars of the deck slab(S2) shall be tied to vertical stirrups of the longitudinal girders.
2.Top Surface of the Main Girder:
Surface to be roughened by wire brush immediately after initial setting. The surface shall be properly cleaned by pressure blower prior to casting of the deck concrete
3.On Wearing Course:
The level of wearing course along the longitudinal direction shall be kept horizontal throughout the length of the deck. The thickness of wearing course towards the ends along the deck shall be increased suitably to compensate for the slope due to hogging of the girder by pre stress.

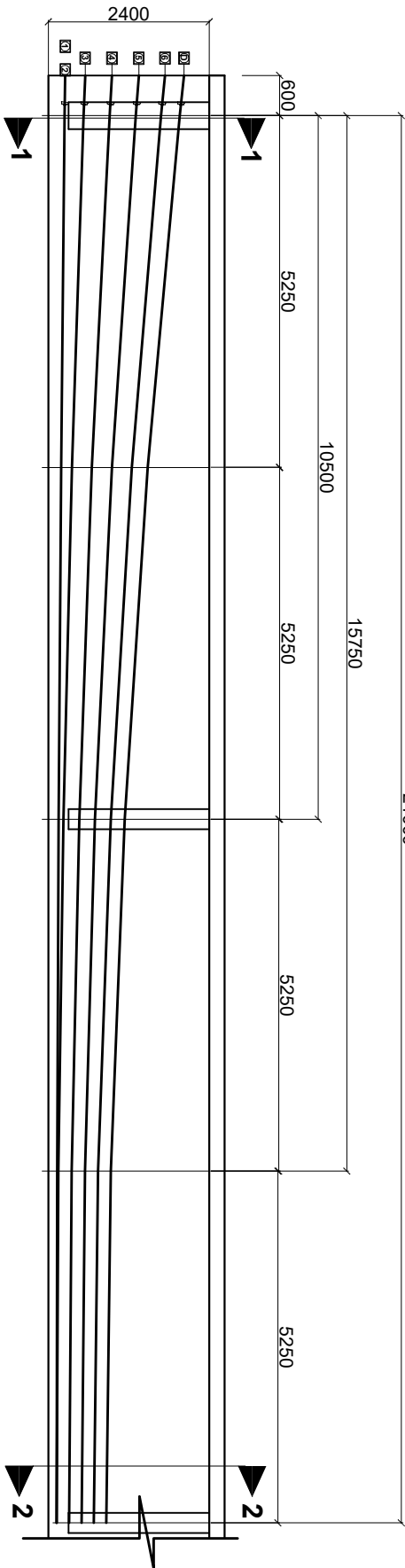
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	CONSULTANT:		IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:								DATE:			
	Soosung Engineering Co. Ltd, Korea in association with		DOR, DCID		Reinforcement Details of Slab of		As Shown		DESIGNED BY:		NAME		SIGNATURE		REV NO.		DESCRIPTION	
	ERMCM P (Ltd), Nepal and		ROAD NAME:		Kundra Bridge ((47/H001/314_A))				CHECKED BY:		P. Upadhyaya						DWG.NO.: 314_Kundra	
			East West Highway (H01)						APPROVED BY:		Dr. T.H.Choi						SHEET NO.:	
			Butwal - Gorusinghe Section														8/32	
	Jyoti-Tech Studio of Engineering																	

Tendon Layout Data

	Anchor face		Bearing centerline		Intermediate sections						Mid span	
	-600		0		5250		10500		15750		21000	
TENDON	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z
1	250	-175	243	-176	191	-180	155	-183	132	-185	125	-185
2	250	175	243	176	191	180	155	183	132	185	125	185
3	550	0	527	0	351	0	226	0	150	0	125	0
4	950	0	915	0	650	0	461	0	348	0	310	0
5	1350	0	1303	0	950	0	697	0	546	0	495	0
6	1740	0	1682	0	1244	0	931	0	743	0	680	0
Dummy	2025	0	1962	0	1482	0	1139	0	934	0	865	0

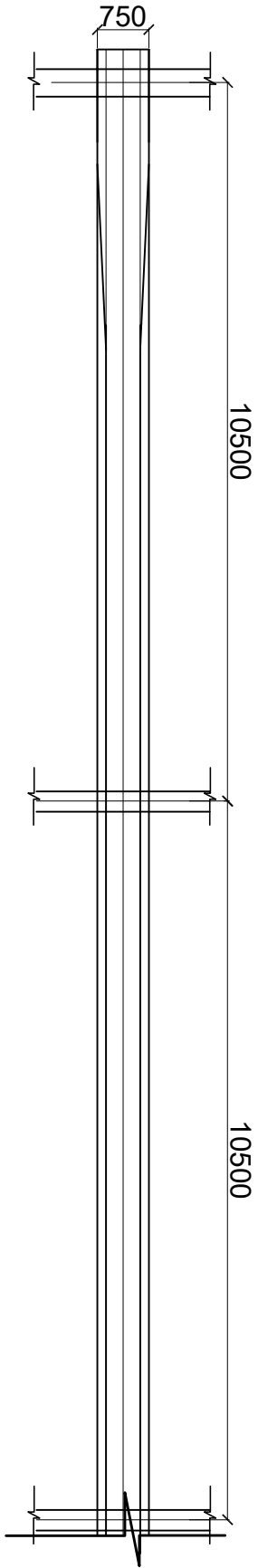
Y = Elevation of the tendon center from the girder soffit

Z = Horizontal distance of the tendon center from the centerline of the girder



Longitudinal Section Of Main Girder

Scale:-1:100



Plan Of Main Girder

Scale:-1:100

NOTES ON PRE STRESSING:

- All the prestressing operation shall commence after 28 days of casting confirming that the cube specimen has achieved 100% of the prescribed compressive strength(M45) No Early Prestressingallowed.
- Each prestressing Tendon shall be multistrand cable comprising of 19 strands each strand of 12.7mm diameter (19K13),7 ply low relaxation,Class-II,High Tensile Steel conforming IS:14268-2017,Maximum allowed total jacking force 27.33KN
- Prestressings tendon shall be done in 2 stages as follows:

Stage1

Precast girder only. After 28days of Casting.

Tendons to be stressed in stage 1 shall be in the following Sequence:

6	5	4	3	-	-	-	-
---	---	---	---	---	---	---	---

Total Jacking Force to each tendon in stage 1= 2600KN

Stage2

After 14 days of Casting of desk slab.

Tendons to be stressed in stage 2 shall be in the following Sequence:

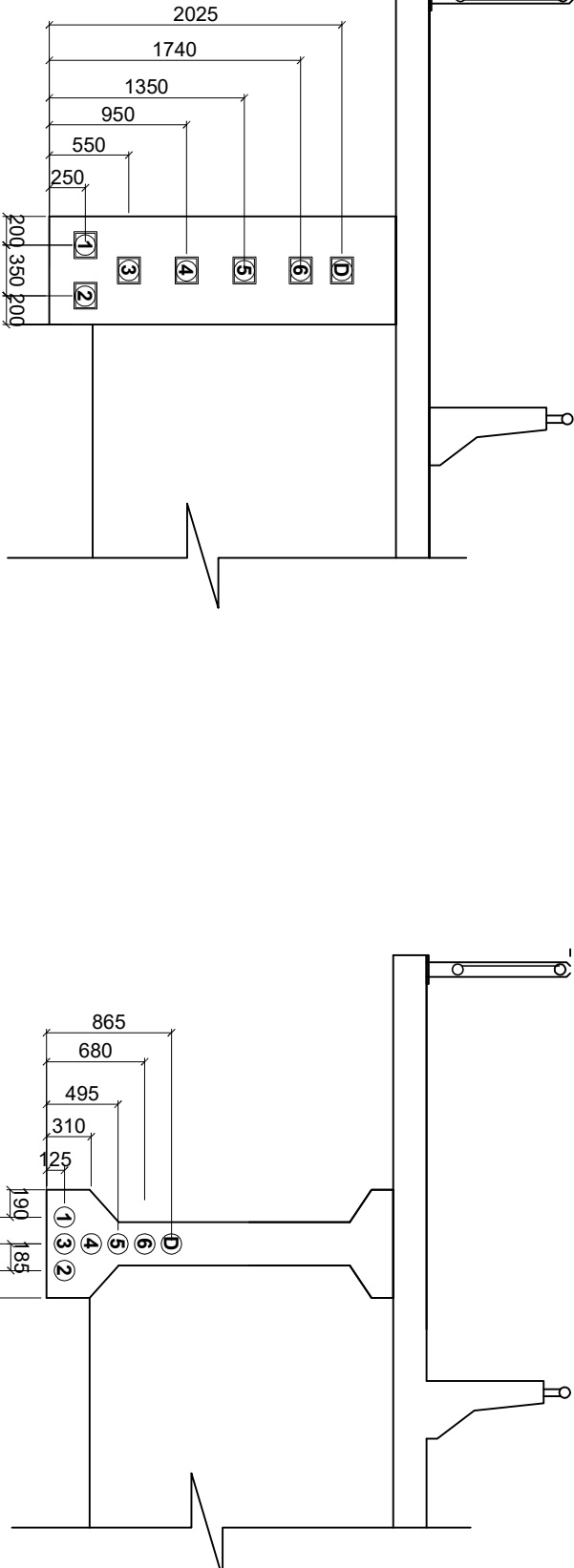
2	1	-	-	-	-	-	-
---	---	---	---	---	---	---	---

Total Jacking Force to each tendon in stage 2= 2600KN

- Casting of footpath,crash barriers and wearing course will done only after second stage prestressing.
- Jacking of tendons shall be done from both ends. All the prestress losses(instant and long term) have been already considered in the design.
- The composite action is considered only for live loads. There shall be no false-work or props to the girder during 2nd stage of prestressing. The formwork for deck slab can be supported on the main precast girders.
- The cable elongation at their jacking ends,mentioned are based on the assumption that the Modulus of Elasticity of the cable steel is 1.95x10⁵Mpa.The manufacturers specification shallbe followed if provided.
- The tendon ducts shall be properly secured to the rebars to maintain the profile throughout concreting process.
- The specified profile and alignments of the tendon shall be strictly maintained.If required,the reinforcement bars can be suitably respositioned or slightly bent to accommodate the tendons as per the engineers instruction.

NOTES ON DUMMY CABLE

The cable marked "D" is for future tensioning or in case of emergency or excessive prestress loss. No tendon shall be provided during construction but the sheathing,anchorage block, brusing reinforcement similar to the other tendons shall be properly installed.
The duct shall be left hollow ensuring it is free of debris inside.
The anchorage should be capped suitably to keep it free from ingress of foreign material and marked "D" to identify in future.



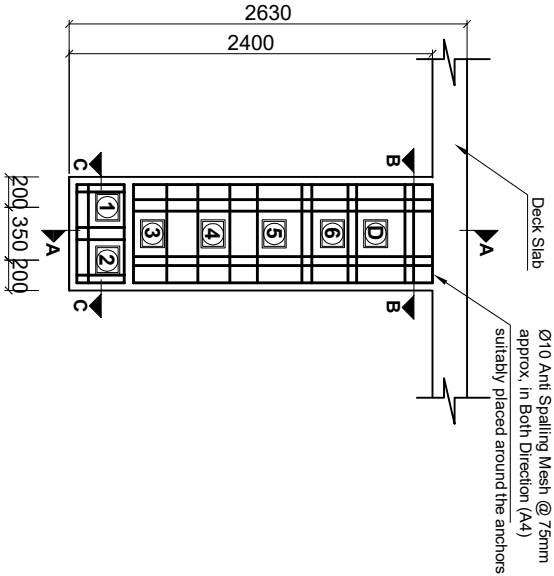
View 1-1

Scale:-1:150

View 2-2

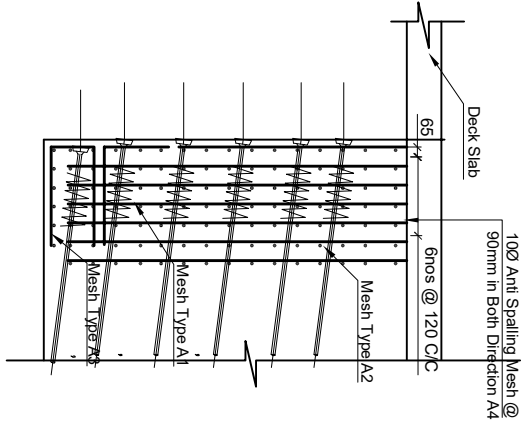
Scale:-1:50

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT:  Soosung Engineering Co. Ltd, Korea in association with ERM C P (Ltd), Nepal and  JYR® - Tech Studio of Engineering		IMPLEMENTING AGENCY: DOR, DCID		SHEET TITLE: Prestressing Details of Main Girder of Kundra Bridge ((47/H001/314_A))		SCALE: As Shown		DATE: November , 2022	
ROAD NAME: East West Highway (H01)		Butwal - Gorusinghe Section		DESIGNED BY: Saroj Bhattacharai		SIGNATURE 		REV NO.		DESCRIPTION	
DWG.NO.: 314_Kundra		APPROVED BY: Dr. T.H.Choi		SIGNATURE 		REV NO.		DESCRIPTION		SHEET NO.: 9/32	



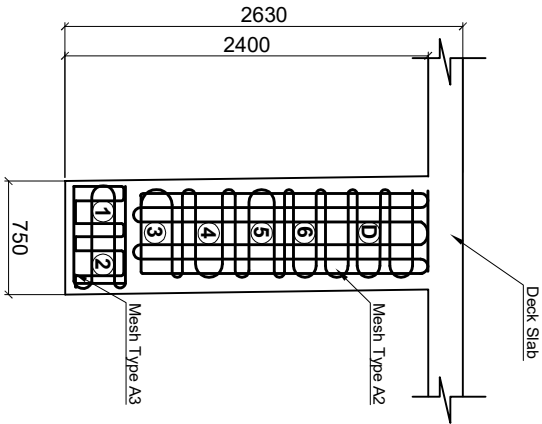
Anti Spalling Reinforcement

Scale:-1:50



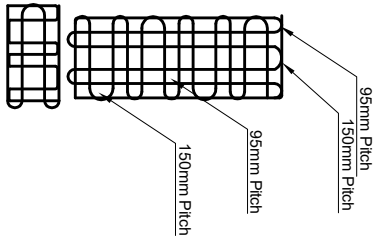
Section At A-A

Scale:-1:50



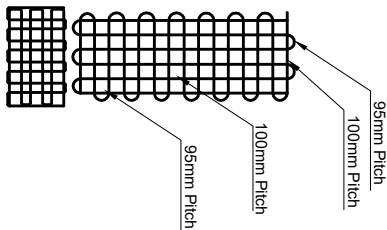
Section At D-D

Scale:-1:50



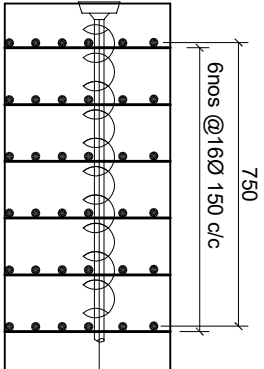
Mesh Type A2a

Scale:-1:50 (Near the Anchor Plate)



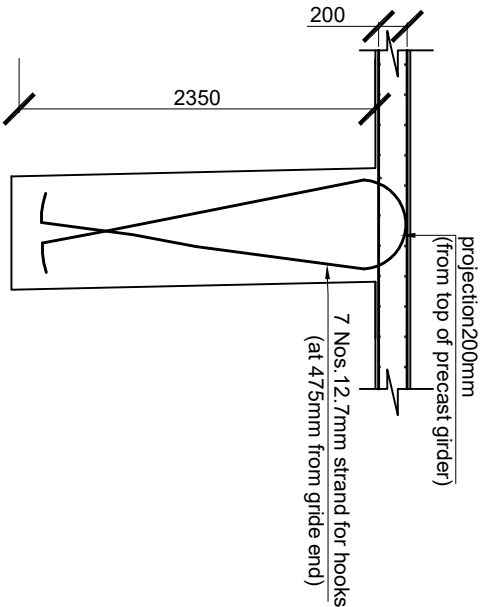
Mesh Type A2b

Scale:-1:50(Away From Anchor Plate)



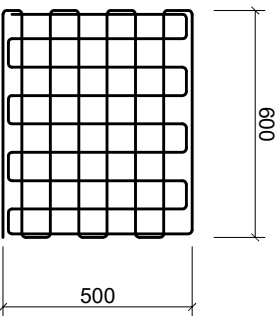
Section At B-B

Scale:-1:20



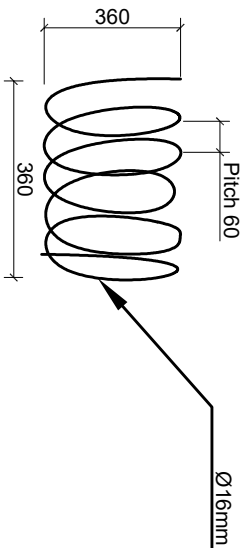
Hook Details At Both Ends Of Gride

Scale:-1:50



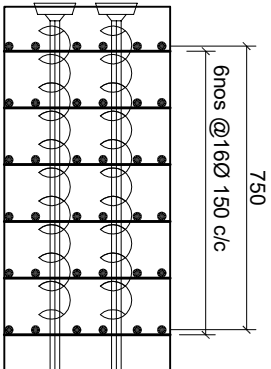
Mesh Type A3

Scale:-1:20



Typical Detail Of Spiral reinforcement A1

Scale:-1:20

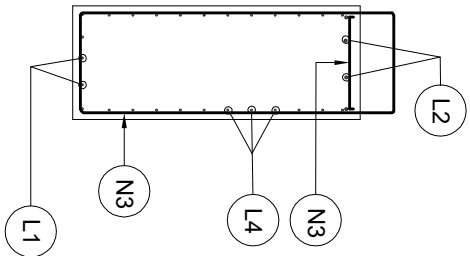
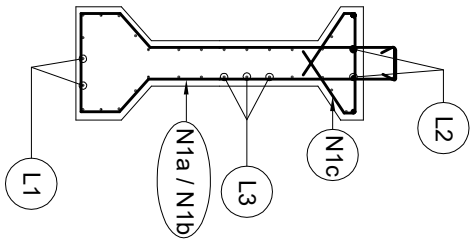
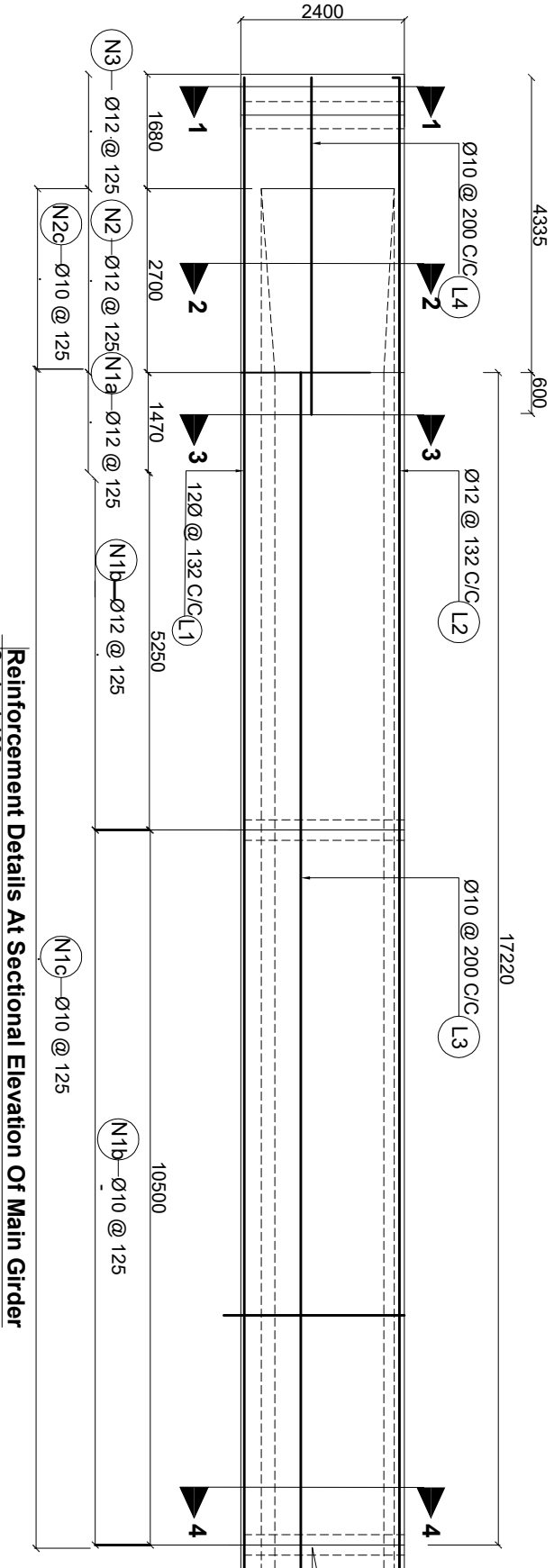


Section At C-C

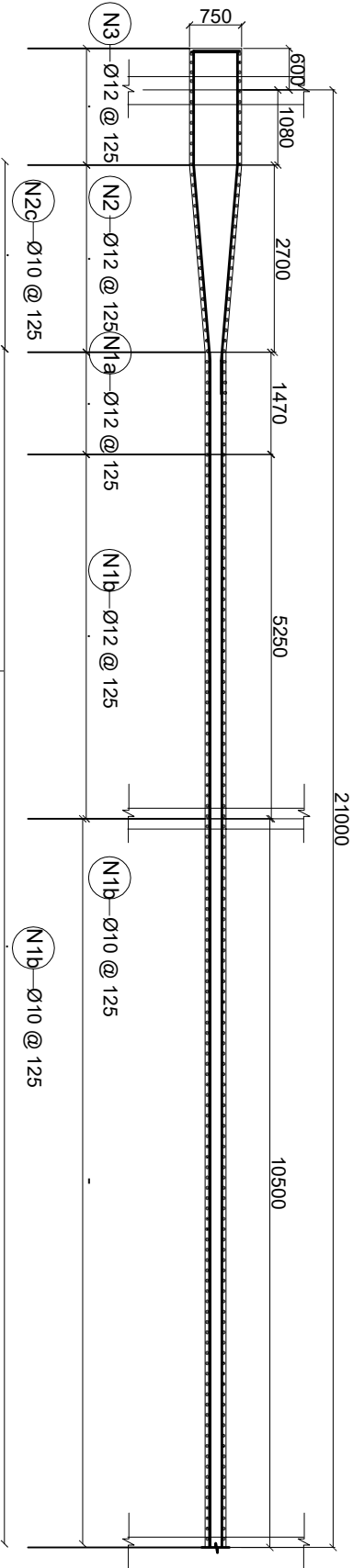
Scale:-1:20

- NOTE:
- The pitch of the mesh should be adjusted to accommodate the anchors and to maintain the duct profile.
 - The spiral and mesh reinforcement shown is indicative, use the anchorage manufacturer's specification if provided.

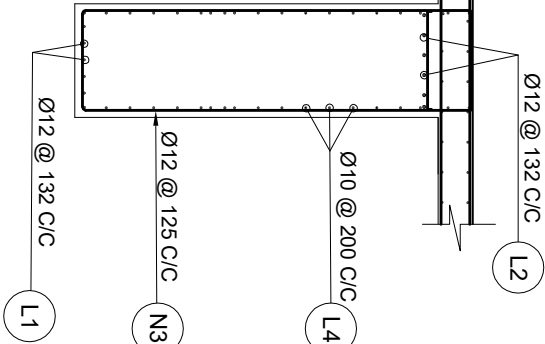
Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP	CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERMCo P (Ltd), Nepal and JYV® - Tech Studio of Engineering	IMPLEMENTING AGENCY:		SHEET TITLE:		SCALE:		NAME		SIGNATURE	REV NO.	DESCRIPTION	DATE: November , 2022 DWG.NO.: 314_Kundra SHEET NO.: 10/32
		DOR, DCID		Anchorage Details of Kundra Bridge ((47/H001/314_A))		As Shown		Saroj Bhattacharai					
		ROAD NAME:						P. Upadhyaya					
		Butwal - Gorusinghe Section						Dr. T.H.Choi					



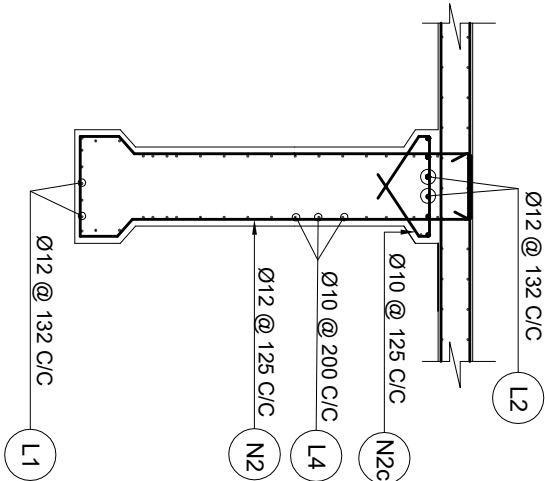
Reinforcement Details At Sectional Elevation Of Main Girder
Scale:-1:100



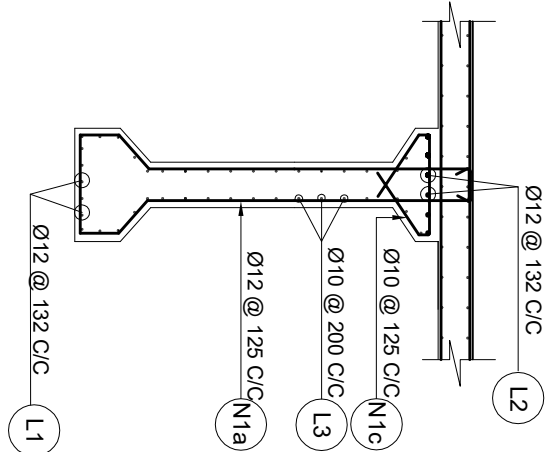
Section At A-A
Scale:-1:100



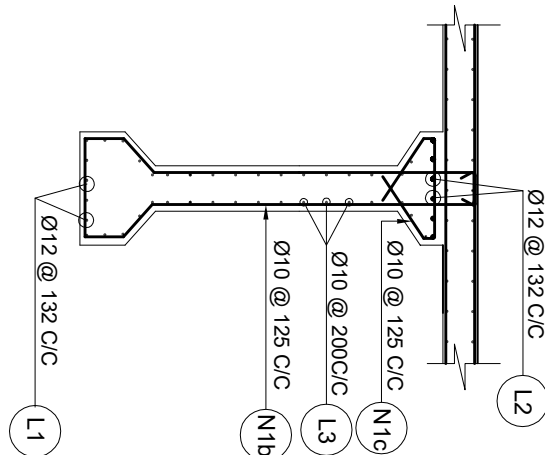
Section At 1-1
Scale:-1:50



Section At 2-2
Scale:-1:50



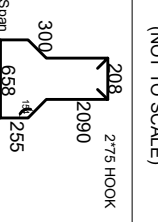
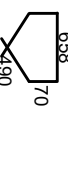
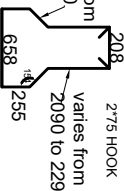
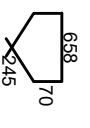
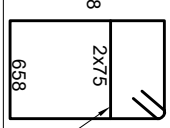
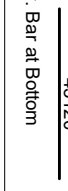
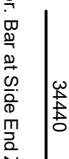
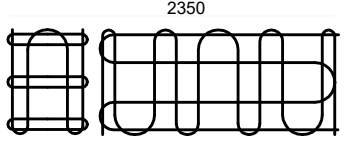
Section At 3-3
Scale:-1:50

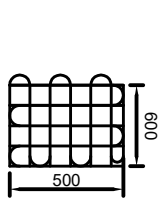


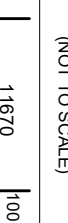
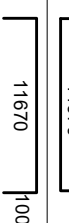
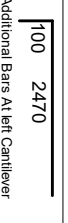
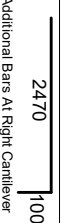
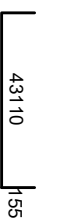
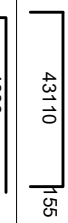
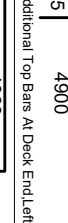
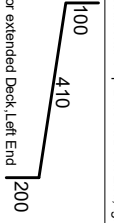
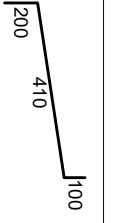
Section At 4-4
Scale:-1:50

NOTE:
The vertical stirrups of the main girder to be tied to the transverse reinforcement of the slab.

Government of Nepal Ministry of Physical Infrastructure and Transport Department of Roads Project Directorate Office (ADB) SASEC Highway Improvement Project- Project Preparatory Consultant (SHIP-PPC) ADB Loan No: 3722-NEP		CONSULTANT: Soosung Engineering Co. Ltd, Korea in association with ERMCo P (Ltd), Nepal and JYV&C - Tech Studio of Engineering		IMPLEMENTING AGENCY: DOR, DCID ROAD NAME: East West Highway (H01) Butwal - Gorusinghe Section		SHEET TITLE: Untensioned Reinforcement Details of Girder of Kundra Bridge ((47/H001/314_A))		SCALE: As Shown		NAME		SIGNATURE	REV NO.	DESCRIPTION	DATE: November , 2022
										DESIGNED BY: Saroj Bhattacharai					DWG.NO.: 314_Kundra
										CHECKED BY: P. Upadhyaya					
										APPROVED BY: Dr. T.H.Choi					SHEET NO.: 11/32

BAR BENDING SCHEDULE OF MAIN GIRDER						
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING (MM)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (kg/m) TOTAL WEIGHT (kg)
N1a		VARIES	12	108	6.510	0.888 624.206
N1b		VARIES	10	168	6.510	0.617 674.296
N1c		VARIES AS PER N1	10	276	1.780	0.617 302.893
N2		125	12	44	6.860	0.888 267.978
N2c		125	10	44	1.290	0.617 34.995
N3		125	12	28	6.540	0.888 162.577
		125	10	28	0.778	0.617 13.431
L 1		132	12	6	43.120	0.888 229.696
L 2		132	12	6	43.320	0.888 230.761
L 3		200	10	28	34.440	0.617 594.541
L 4		200	10	56	5.600	0.617 193.347
A1		VARIES	16	14	7.930	1.578 175.227
		(Use Manufacturer's specifications if available)				
A2		150	16	12	26.130	1.578 494.904
		(Use Manufacturer's specifications if available) The Sketch shown here is indicative, for The purpose of estimate only. The pitch of the bars to be adjusted as per the tendon's size and positions				

BAR BENDING SCHEDULE OF MAIN GIRDER					
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING (MM)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m) WEIGHT/LENGTH (kg/m) TOTAL WEIGHT (kg)
A3		VARIES	10	4	10.200 0.617 25.155
TOTAL IN ONE GIRDER					4024.007
TOTAL IN ONE GIRDER (IN METRIC TON)					4.024

BAR BENDING SCHEDULE OF DECK SLAB						
BAR ID	SHAPE OF BAR IN mm (NOT TO SCALE)	SPACING (MM)	Ø OF BARS (mm)	NO. OF BARS	LENGTH (m)	WEIGHT/LENGTH (kg/m) TOTAL WEIGHT (kg)
S1		125	12	346	11.870	0.888 3646.279
S2		125	12	346	11.870	0.888 3646.279
S2a		125	12	346	2.570	0.888 789.464
S2b		125	12	346	2.570	0.888 789.464
S3		MID DECK 200	10	60	43.420	0.617 1606.207
		LEFT CANT. 200	10	6	43.420	0.617 160.621
S4		RIGHT CANT. 200	10	6	43.420	0.617 160.621
		200	10	60	43.420	0.617 1606.207
S4a		200	10	60	5.055	0.617 186.996
S4b		200	10	60	5.055	0.617 186.996
S5a		200	10	50	0.710	0.617 21.887
S5b		200	10	50	0.710	0.617 21.887
TOTAL EXCLUDING FOOTPATHS KG						12822.908
TOTAL WEIGHT IN METRIC TON						12.823

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IMPLEMENTING AGENCY:			SHEET TITLE:		
DOR, DCID			B.B.S of Slab & Main Girder of Kundra Bridge ((47/H001/314_A))		
ROAD NAME:					
East West Highway (H01)					
Butwal - Gorusinghe Section			SCALE:		
			As Shown		
			DESIGNED BY:		
			Saroj Bhattacharai		
			CHECKED BY:		
			P. Upadhyaya		
			APPROVED BY:		
			Dr. T.H.Choi		
			SIGNATURE		
			REV NO.		
			DESCRIPTION		
			DATE:		
			November , 2022		
			DWG.NO.:		
			314_Kundra		
			SHEET NO.:		
			12/32		