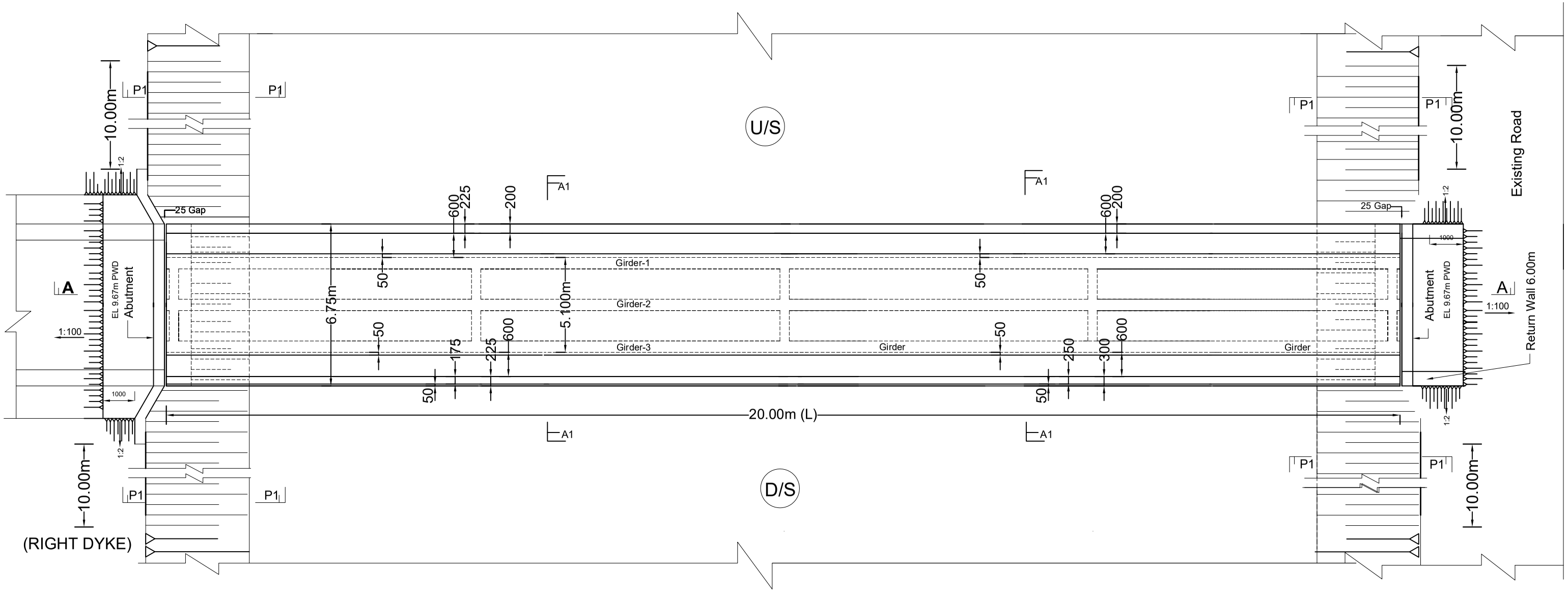
Bangladesh Water Development Board

Design of R.C.C Bridge Over Kalisankorpur khal at chainage 5.060km in C/W Rehahibiliation of Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabanga River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.

Narail O&M Division, BWDB Narail.

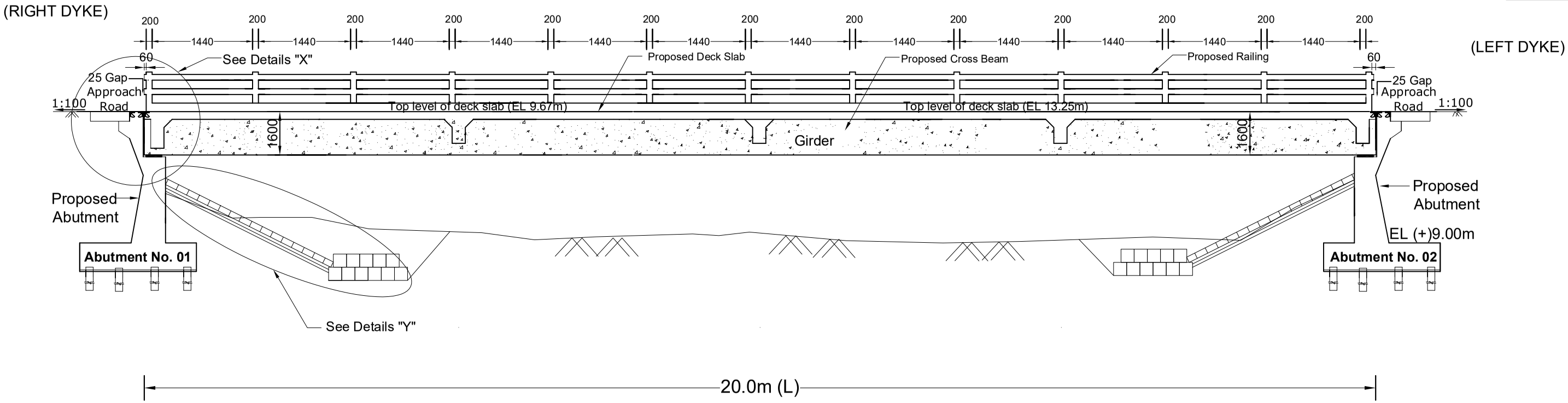
Design Circle-8, BWDB, Dhaka

November, 2020

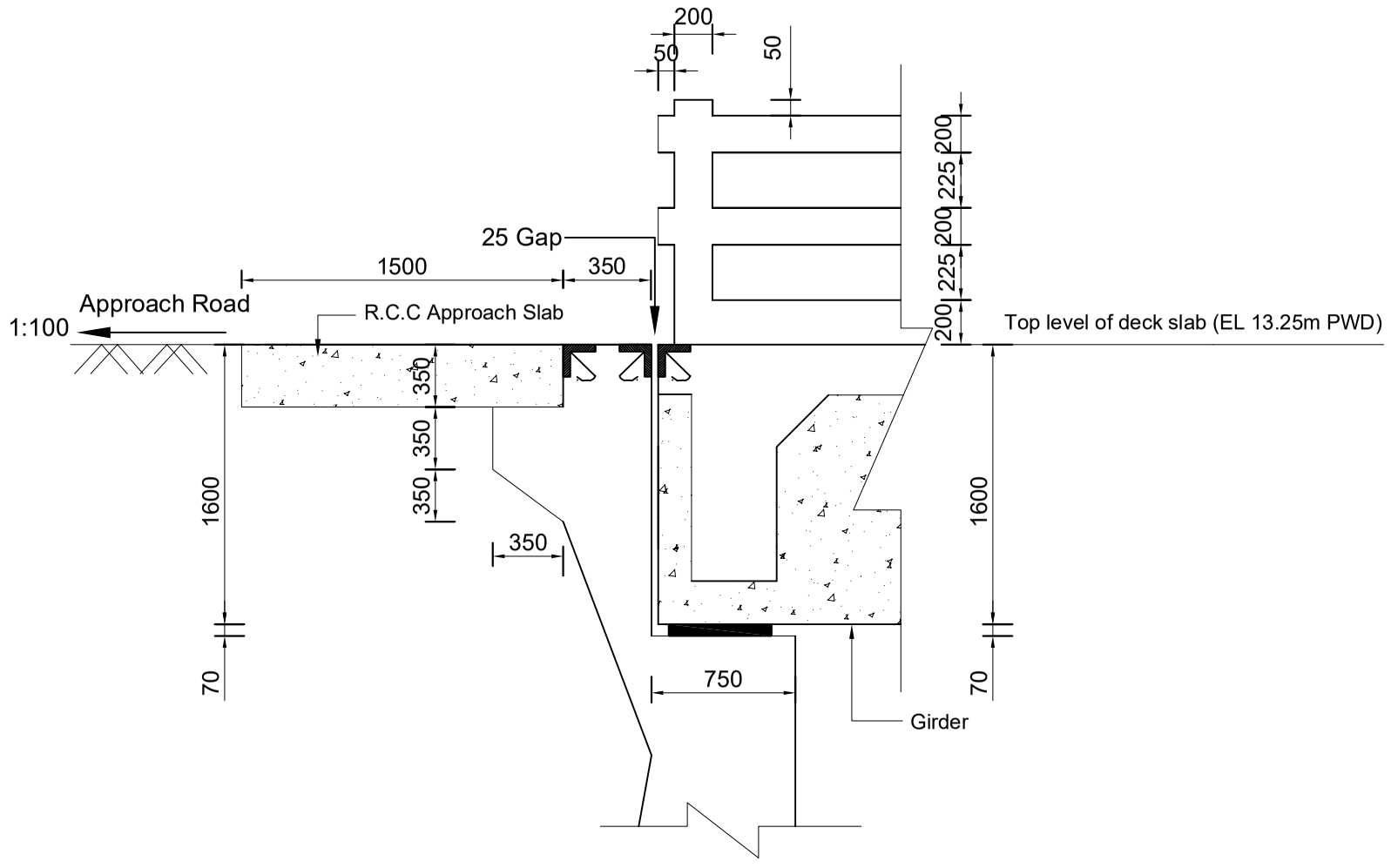


PLAN OF BRIDGE

BANGLADESH WATER DEVELOPMENT BOARD	
Office of the Superintending Engineer **Design Circle-8**	
Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation of Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabanga River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.	
Plan of Bridge	
DESIGNED BY : **(SAKIB BIN RAFI), AE**	**RECOMMENDED BY :**
CHECKED BY :	**APPROVED BY :**



SECTION A-A
(See Sheet No. 04 of 14)
SECTIONAL ELEVATION OF BRIDGE



DETAILS "X"
(See Section A-A)

Scale: Not To Scale

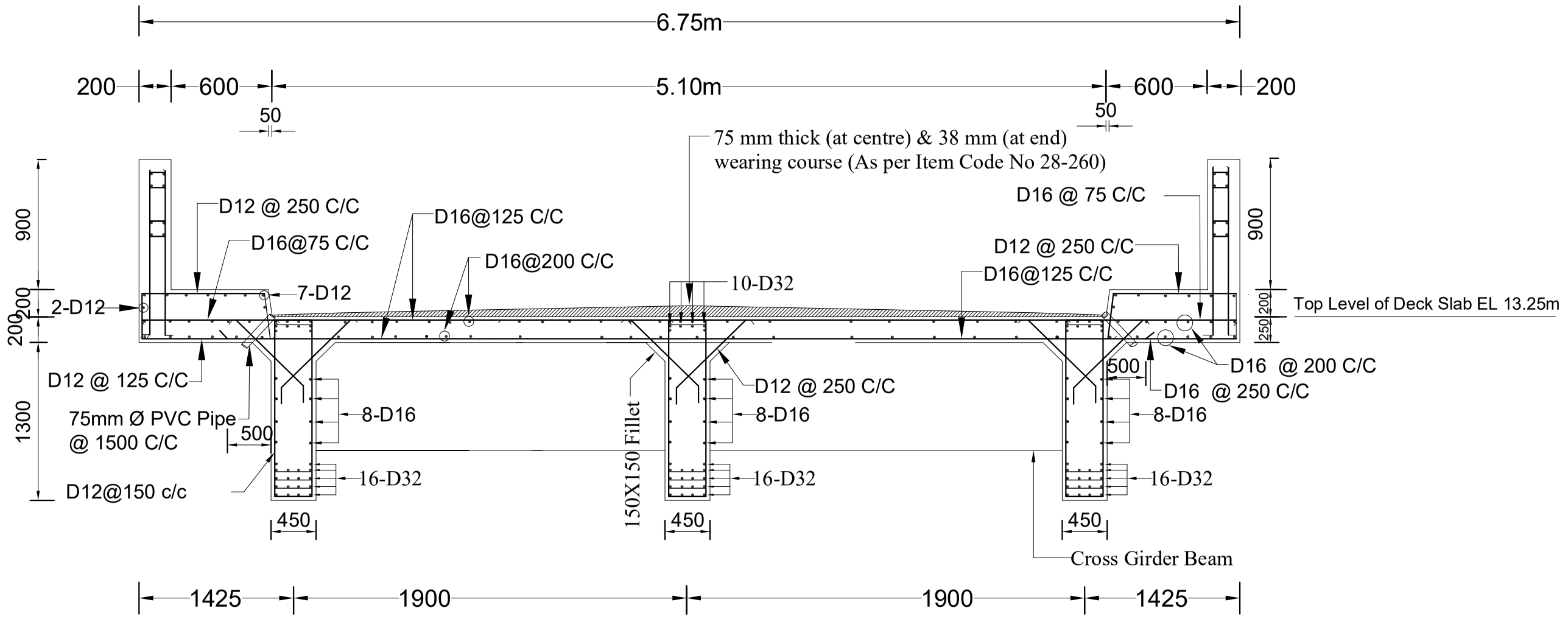
BANGLADESH WATER DEVELOPMENT BOARD

Office of the Superintending Engineer
Design Circle-8

Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation of Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabanga River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.

Sectional Elevation of Bridge (Section A-A) & Details

DESIGNED BY :	RECOMMENDED BY :
(SAKIB BIN RAFI), AE	
CHECKED BY :	APPROVED BY :

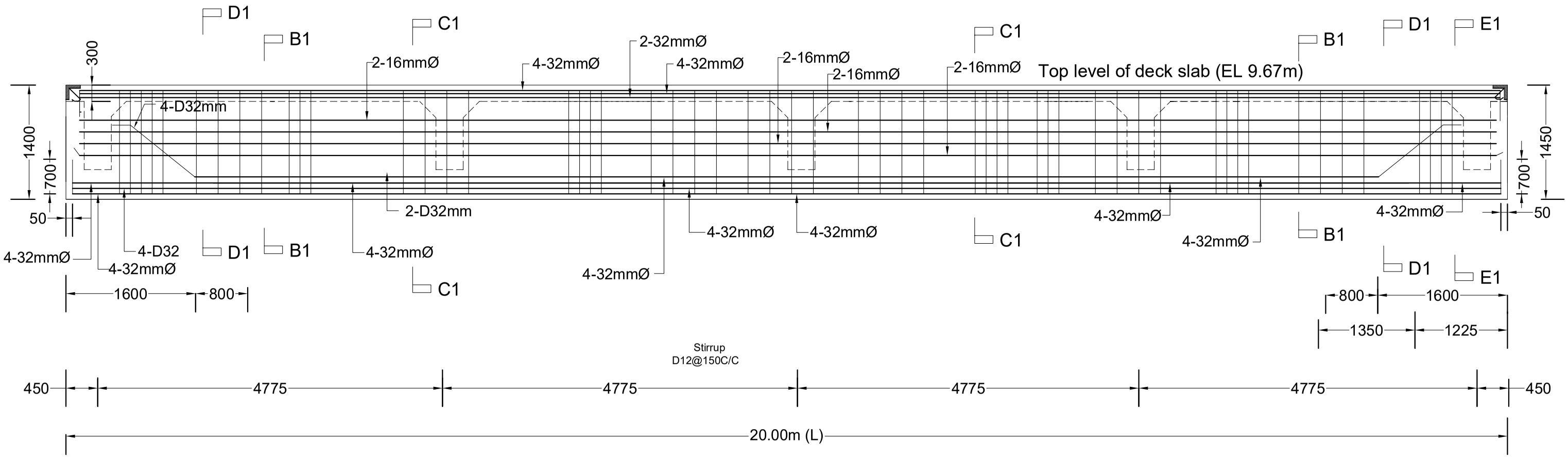


SECTION A1-A1

(See Sheet No. 04 of 14)

BANGLADESH WATER DEVELOPMENT BOARD	
Office of the Superintending Engineer **Design Circle-8**	
Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation of Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabanga River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.	
Reinforcement Details of Girder and Deck Slab	
DESIGNED BY : **(SAKIB BIN RAFI), AE**	**RECOMMENDED BY :**
CHECKED BY :	**APPROVED BY :**

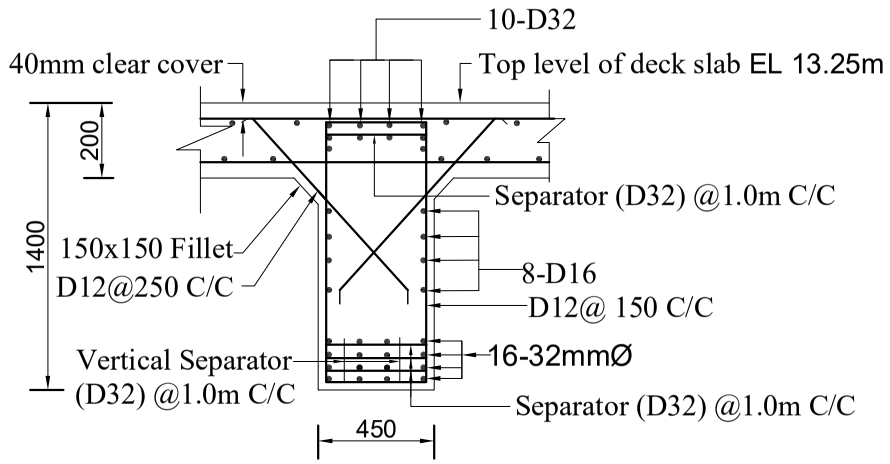
Scale: Not To Scale



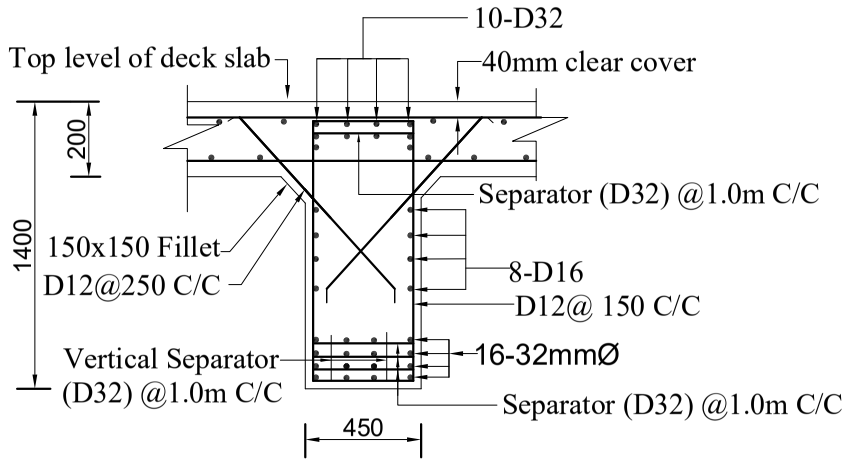
REINF. DETAIL OF LONG GIRDER

Scale: Not To Scale

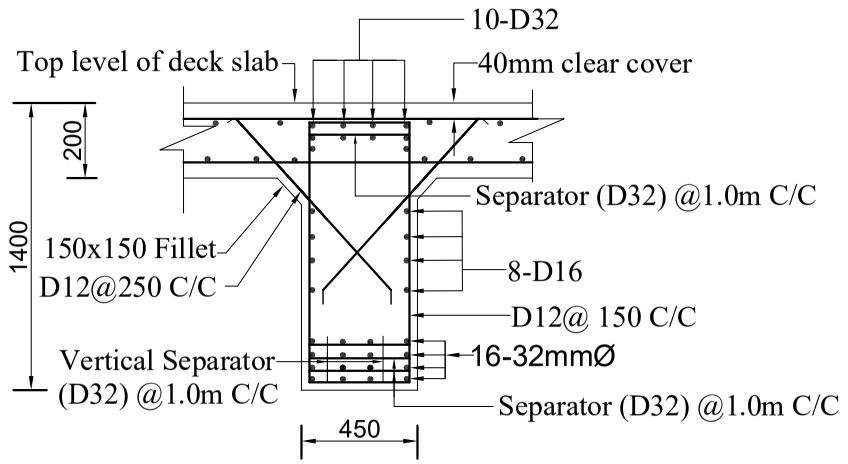
BANGLADESH WATER DEVELOPMENT BOARD	
Office of the Superintending Engineer **Design Circle-8**	
Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation of Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabanga River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.	
Reinforcement Details of Girders and Cross Beam	
DESIGNED BY : **(SAKIB BIN RAFI), AE**	**RECOMMENDED BY :**
CHECKED BY :	**APPROVED BY :**



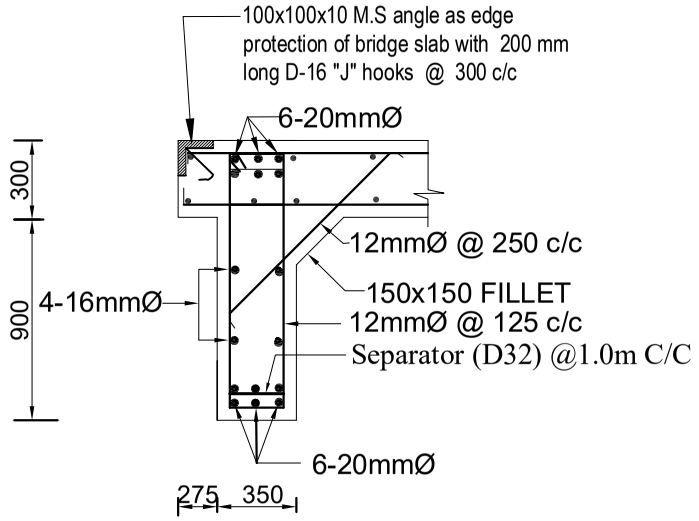
SECTION B1-B1



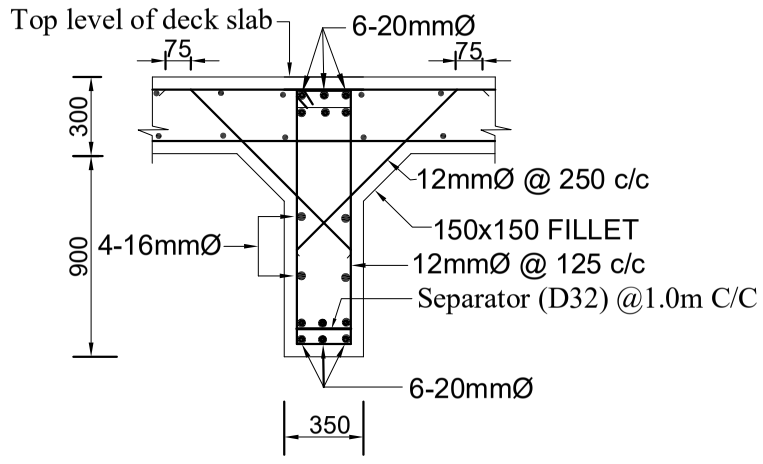
SECTION C1-C1



SECTION D1-D1

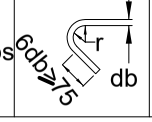


END CROSS BEAM



MIDDLE CROSS BEAM

STIRRUPS DETAILS:

Bar hook	Form and Extention	Bend Angle (degree)	Band Radius (r)	Used Bar
Tie/ stirrups		135	r = 1.25db	6mm to 12mm

Scale: Not To Scale

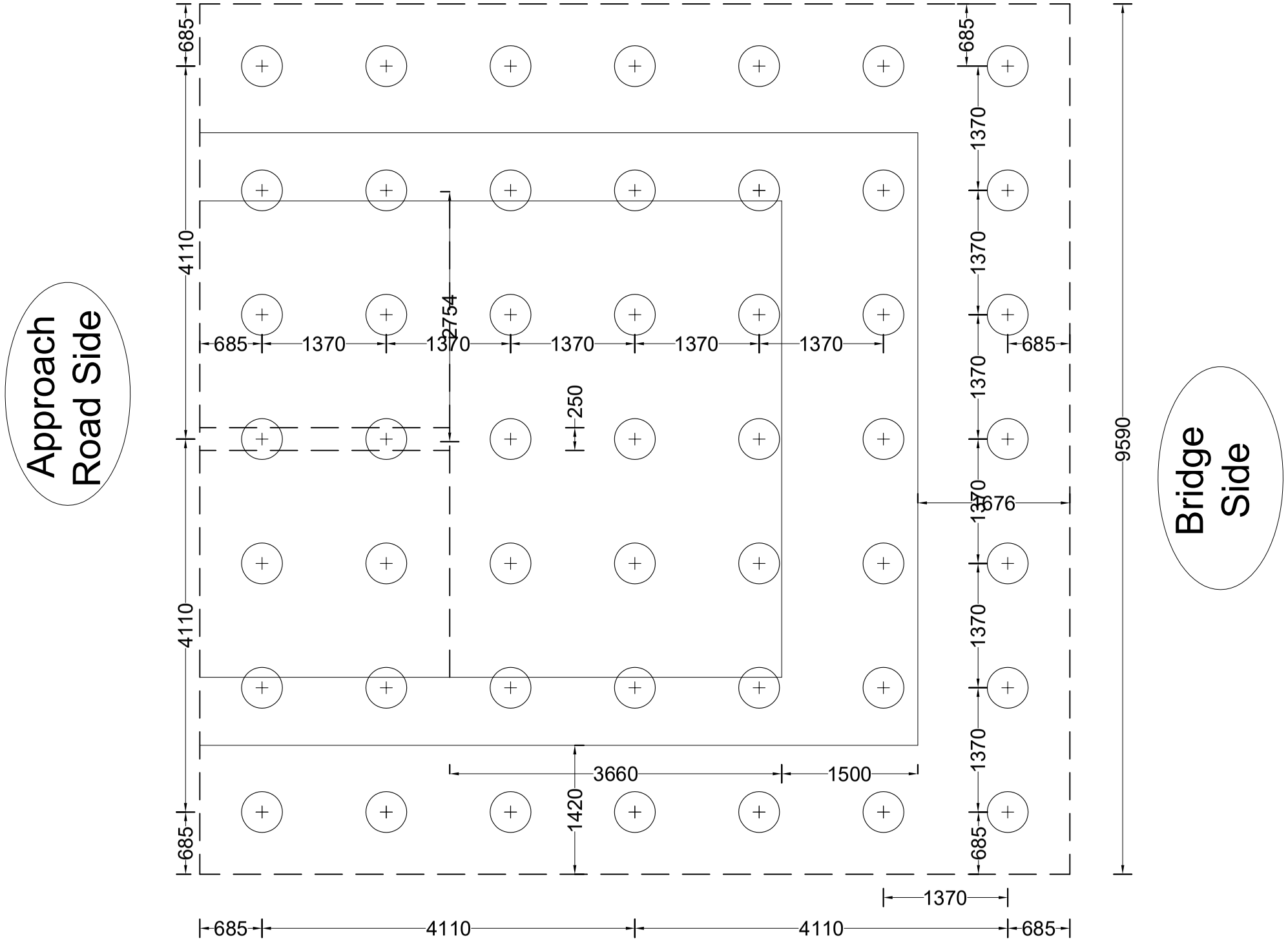
BANGLADESH WATER DEVELOPMENT BOARD

Office of the Superintending Engineer
Design Circle-8

Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation of Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabanga River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.

Reinforcement Details of Girders and Cross Beam

DESIGNED BY :	RECOMMENDED BY :
(SAKIB BIN RAFI), AE	
CHECKED BY :	APPROVED BY :



LAYOUT PLAN OF CAST IN SITU PILE FOR ABUTMENT & RETURN WALL

(Pile Length=20.00m, size = 450mm dia & Total No. of Pile under each abutment & return wall = 49)

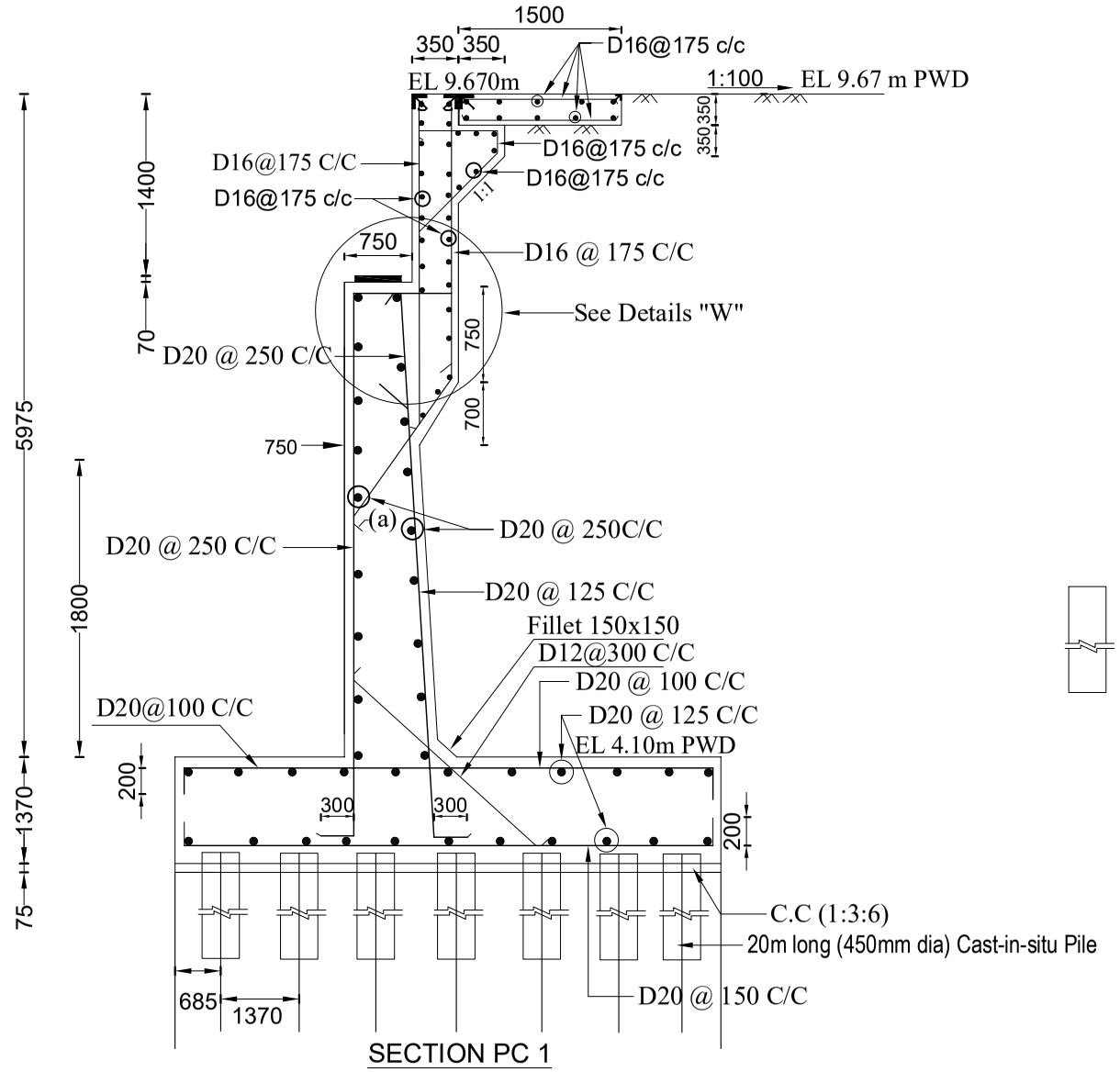
BANGLADESH WATER DEVELOPMENT BOARI

Office of the Superintending Engineer
Design Circle-8

Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation of Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabanga River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.

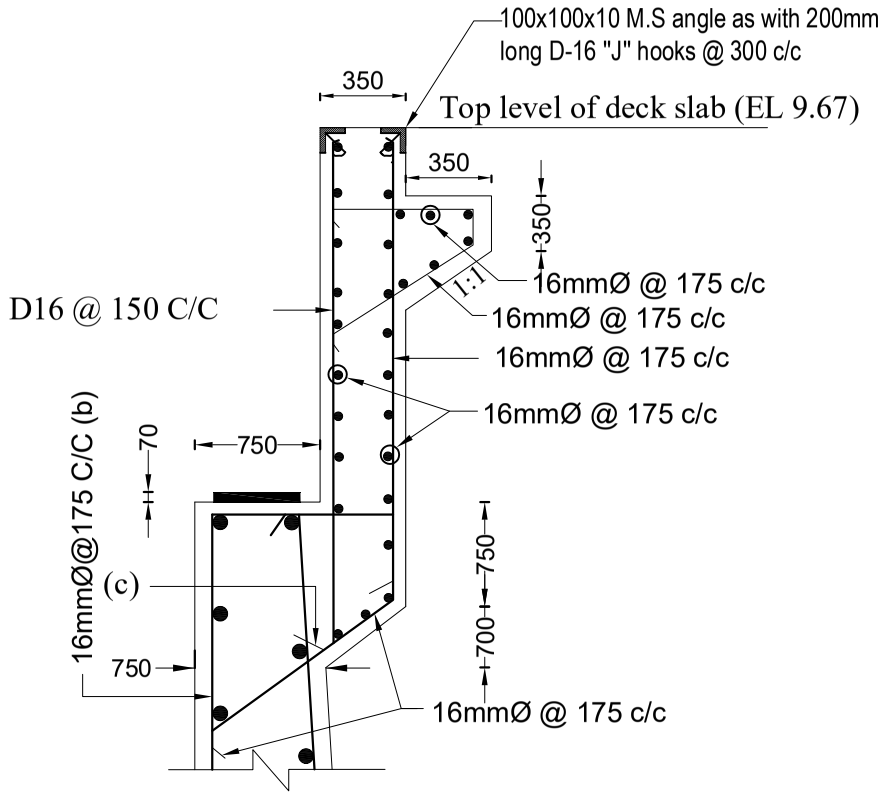
Layout Plan of Pile

DESIGNED BY :	RECOMMENDED BY :
(SAKIB BIN RAFI), AE	
CHECKED BY :	APPROVED BY :



SECTION PC 1

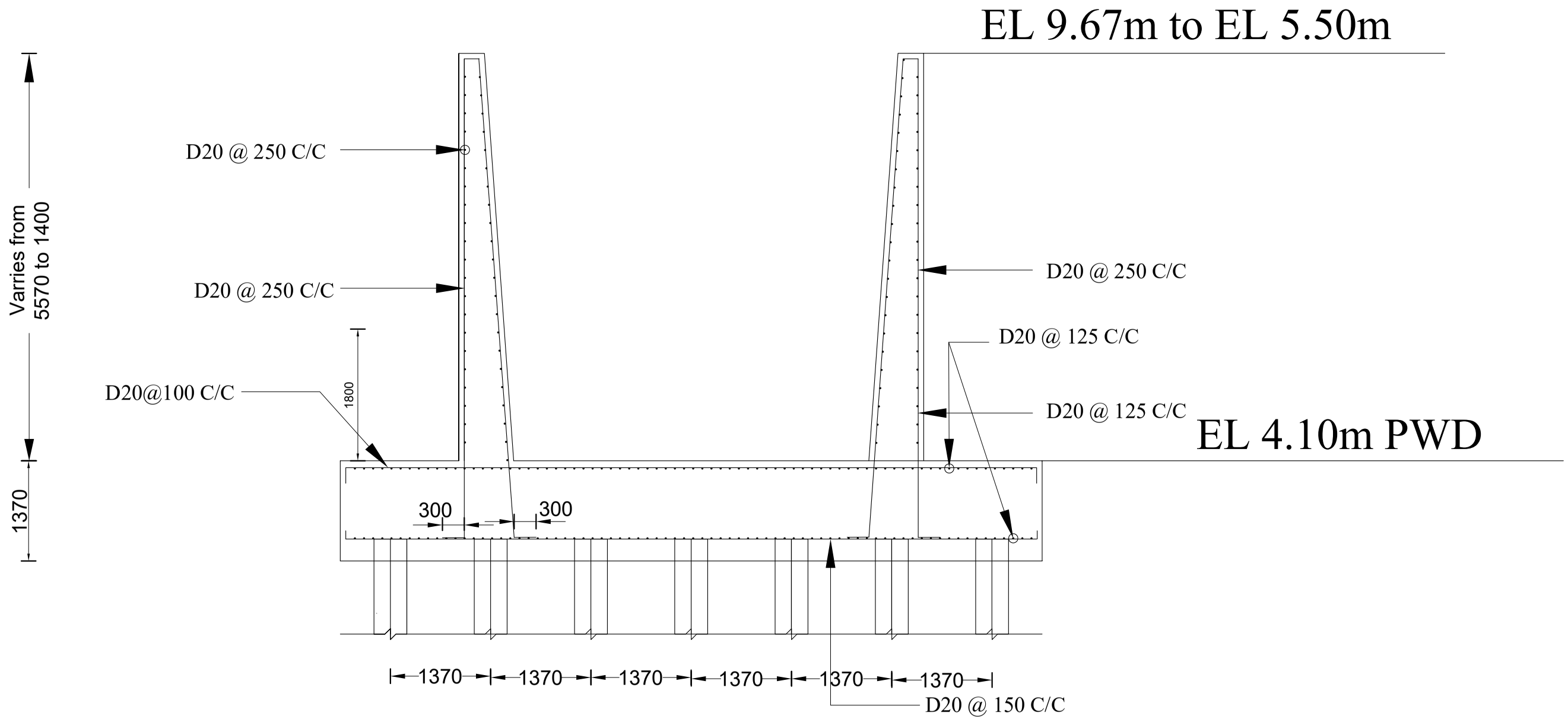
SECTION PC 2



DETAIL 'W'

Scale: Not To Scale

BANGLADESH WATER DEVELOPMENT BOARD	
Office of the Superintending Engineer **Design Circle-8**	
Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation of Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabanga River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.	
Reinforcement Details of Abutment, Wing Wall & Return Wall	
DESIGNED BY : **(SAKIB BIN RAFI), AE**	**RECOMMENDED BY :**
CHECKED BY :	**APPROVED BY :**



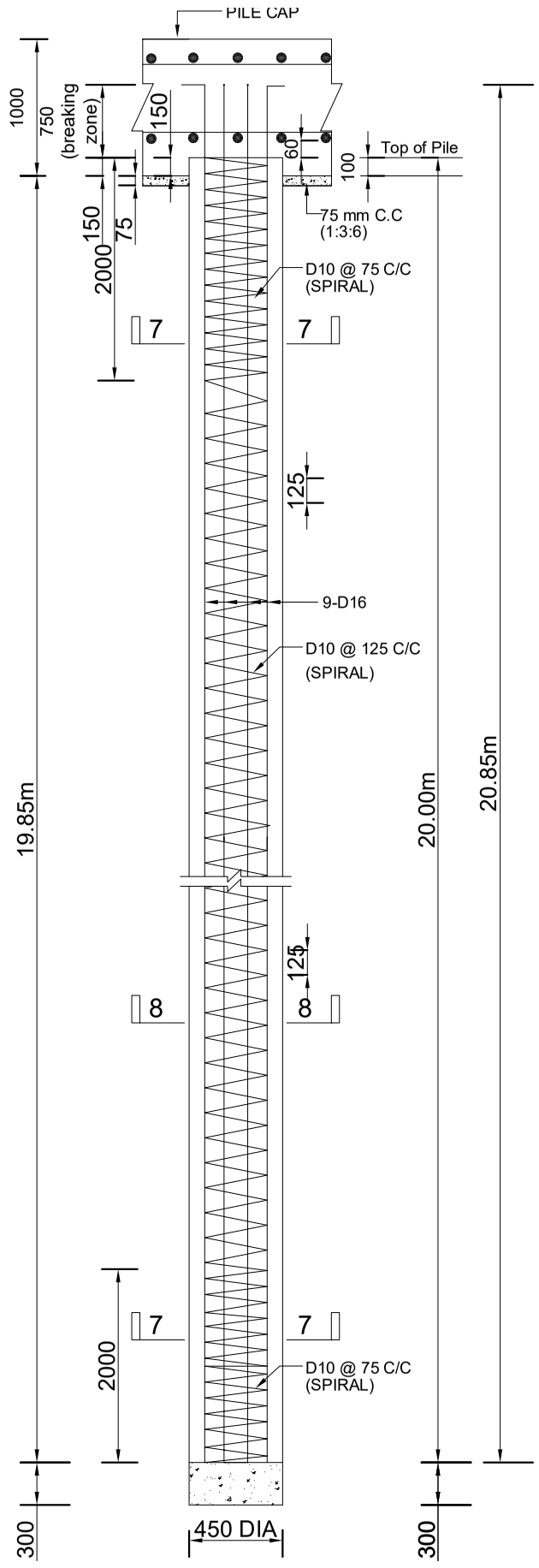
BANGLADESH WATER DEVELOPMENT BOARD

Office of the Superintending Engineer
Design Circle-8

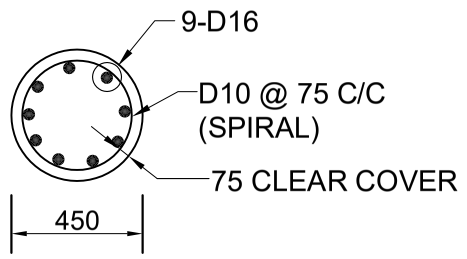
Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation of Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabanga River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.

Details of Return Wall

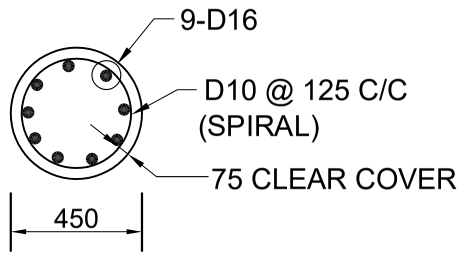
DESIGNED BY :	RECOMMENDED BY :
CHECKED BY :	APPROVED BY :



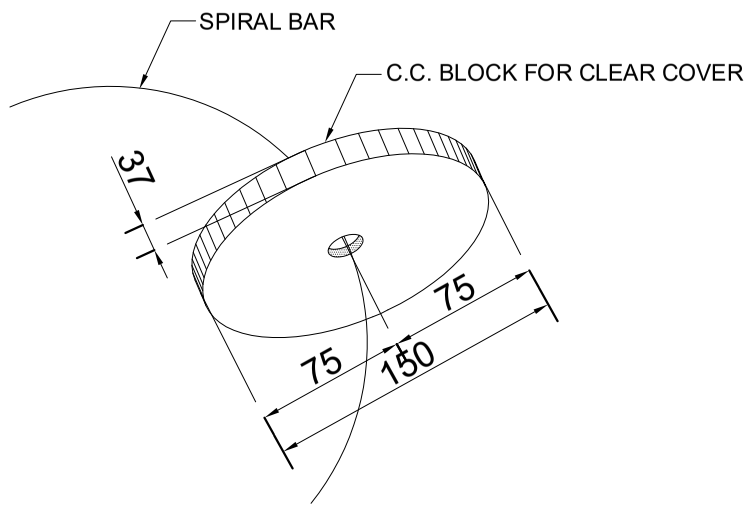
LONG SECTION OF CAST-IN-SITU PILE UNDER EACH ABUTMENT & WING WALL



SECTION 7-7



SECTION 8-8



C.C. BLOCK DETAIL FOR CLEAR COVER

NOTE FOR PILES ONLY :

1. ULTIMATE COMPRESSIVE STRENGHT OF CONCRETE , f 'c= 22 N/ sq. mm.
2. SUGGESTIVE MIXING RATIO SHALL BE 1:1.5:3 WITH SHINGLES (ITEM CODENO. 44-120-20).
3. ALL REINFORCEMENT FOR PILES SHALL BE DEFORMED BAR OF 400 N/ sq. mm.
4. THE MINIMUM LENGTH FOR BREAKING PILE HEAD IS 750 mm.
5. PILE HEAD SHALL BE BROKEN CAREFULLY SO THAT NO FRACTURE CAN BE DEVELOPED AT MAIN PORTION OF PILE. PILE HEAD BROKEN PERIOD AFTER 28 DAYS FROM CASTING.
6. CLEAR COVER TO STEEL REINFORCEMENT FOR PILE SHALL BE 75 mm.
7. ALL PILES SHALL BE CONSTRUCTED VERTICAL.
8. SPOT WELDING AT CONTACT POINT OF THE SPIRAL BINDERS MUST BE DONE AS PER ITEM CODE NO. 44-150.
9. LAPPING LENGTH OF VERTICAL REINFORCEMENT SHALL BE 40 TIMES THE BAR DIAMETERS FOR WELDING
10. DURING CASTING OF CONCRETE, TRIMEE PIPE SHOULD BE AT LEAST 0.6 m WITHIN THE CONCRETE. THE LENGTH OF TRIMEE PIPE SHOULD BE SAME AS LENGTH OF BORING PIPE.
11. NO PILE SHALL BE BORED WITHIN 3000 mm C/C DISTANCE BEFORE 24 HOURS OF CASTING OF A PARTICULAR PILE.
12. CONCERNED EXECUTIVE ENGINEER, SUB-DIVISIONAL ENGINEER AND OTHER CONCERNED OFFICERS SHALL STRICTLY SUPERVISE THE CAST-IN-SITU PILE CONSTRUCTION AND ENSURE THAT THE WORKS ARE CARRIED OUT AS PER SPECIFICATION INCLUDING DIAMETER AND LENGTH OF PILES.
13. STATIC LOAD TEST UPTO 450 KN OF TEST LOAD FOR ABUTMENT PORTION SHALL BE PERFORMED FOR AT LEAST 1 (ONE) PILE IN EACH ABUTMENT AND TEST RESULT SHALL BE SENT TO THE DESIGN CIRCLE.
14. STILL PICTURES OF LOAD TEST APPARTUS AND EACH LOAD EMPLACEMENT INCLUDING DIAL GAUGE READING WITH DATE TIME STAMP AS WELL AS VIDEO OF ACTUAL LOADING SEQUENCE WITH TIME STAMP SHALL BE SENT TO THE DESIGN CIRCLE.
15. REINFORCING BAR SHALL BE SUPPORTED IN ITS PROPER POSITION BY USE OF MORTER BLOCKS, SUPPORTS OR BY OTHER APPROVED MEANS.
16. THE TOP LEVEL OF PILE HEAD SHOULD BE PROJECTED INTO THE PILE CAP NOT LESS THAN 150MM AND ALL DAMAGED PILE MATERIAL ARE TO BE REMOVED.
17. AFTER BREAKING OF PILE HEADS, EXPOSED REINFORCEMENT SHALL BE PROVIDED INTO THE PILE CAP.
18. THE CONCRETE SHALL BE PLACED BY 200 mm DIA TREMIE PIPE FROM THE BOTTOM OF THE HOLE TO DISPLACE WATER. THE TREMIE DISCHARGE SHALL BE KEPT WELL INTO THE CONCRETE AND CAREFULLY WITHDRAWN AS THE CONCRETE IS PLACED.

BANGLADESH WATER DEVELOPMENT BOARD

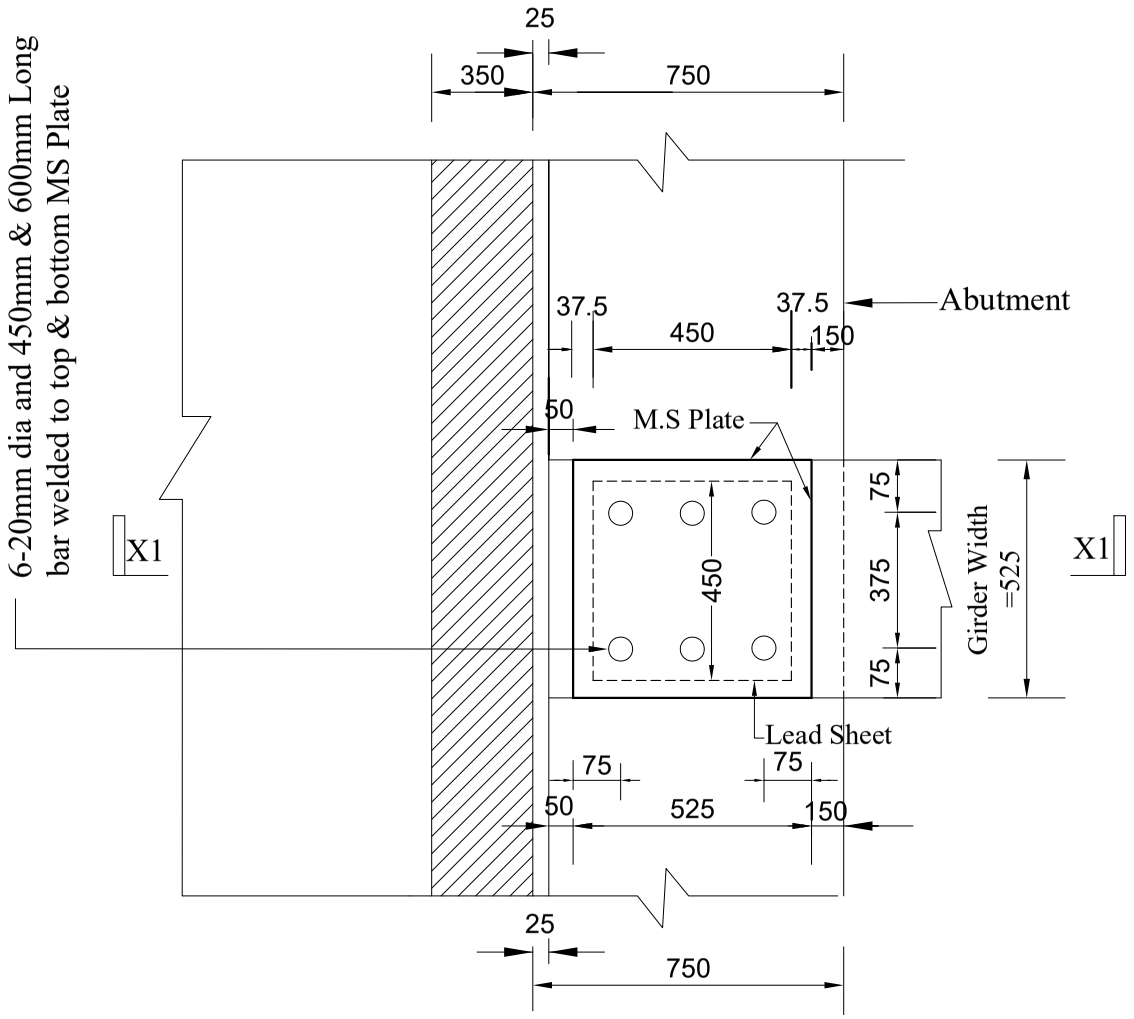
Office of the Superintending Engineer
Design Circle-8

Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehabilitation o Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabang River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.

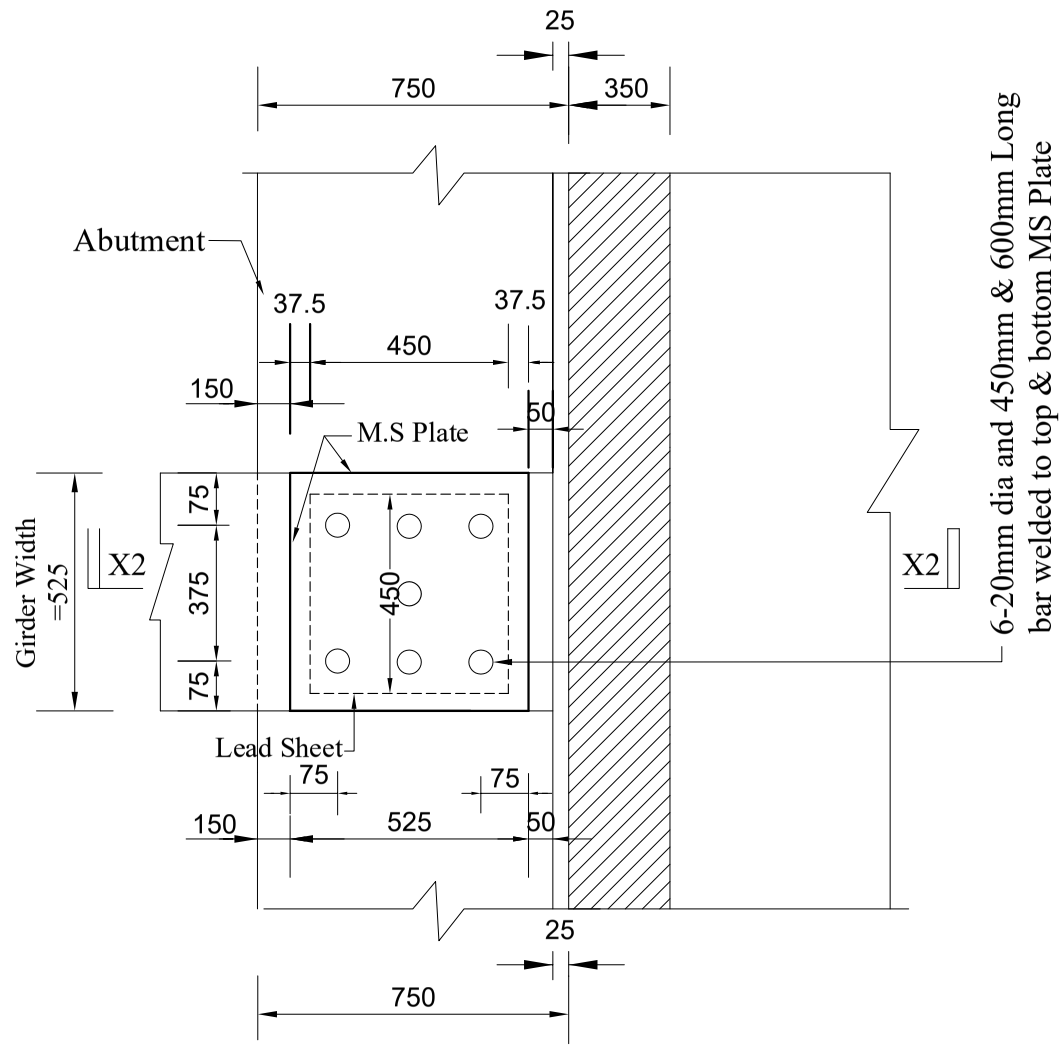
Details of Cast-in-situ Piles with reinforcement & Notes for Pile

DESIGNED BY :	RECOMMENDED BY :
CHECKED BY :	APPROVED BY :

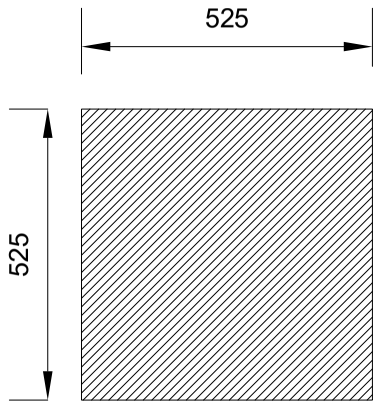
Scale: Not To Scale



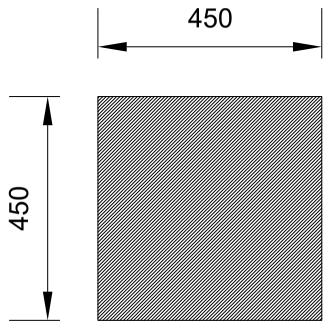
PLAN OF EXPANSION BEARING
(For Abutment No. 1)



PLAN OF EXPANSION BEARING
(For Abutment No. 2)



MS PLATE (525x525x25)
(Without Hole for Abutment No. 01)



LEAD SHEET (450X450X20)
(Without Hole for Abutment No. 01)

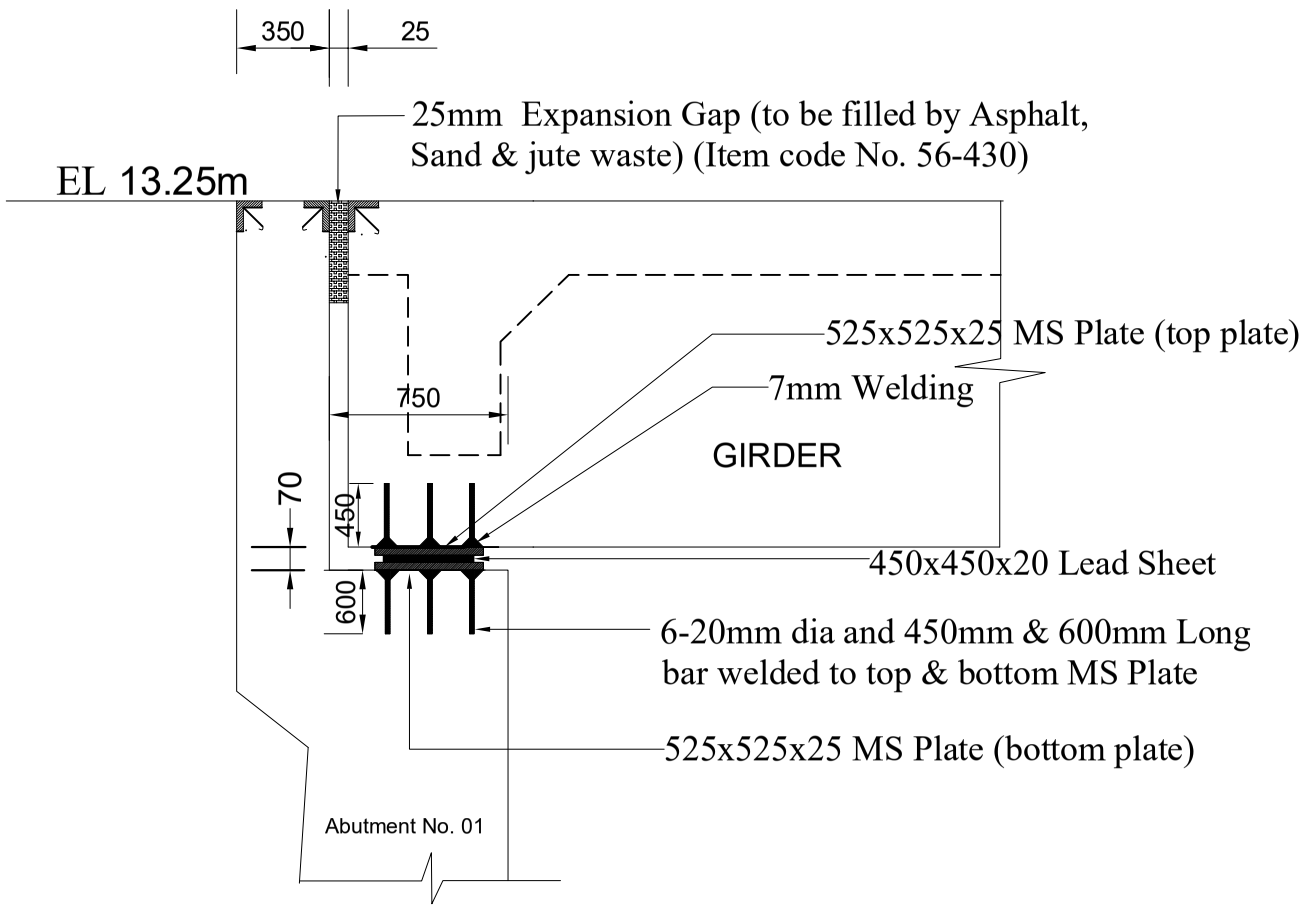
BANGLADESH WATER DEVELOPMENT BOARD

Office of the Superintending Engineer
Design Circle-8

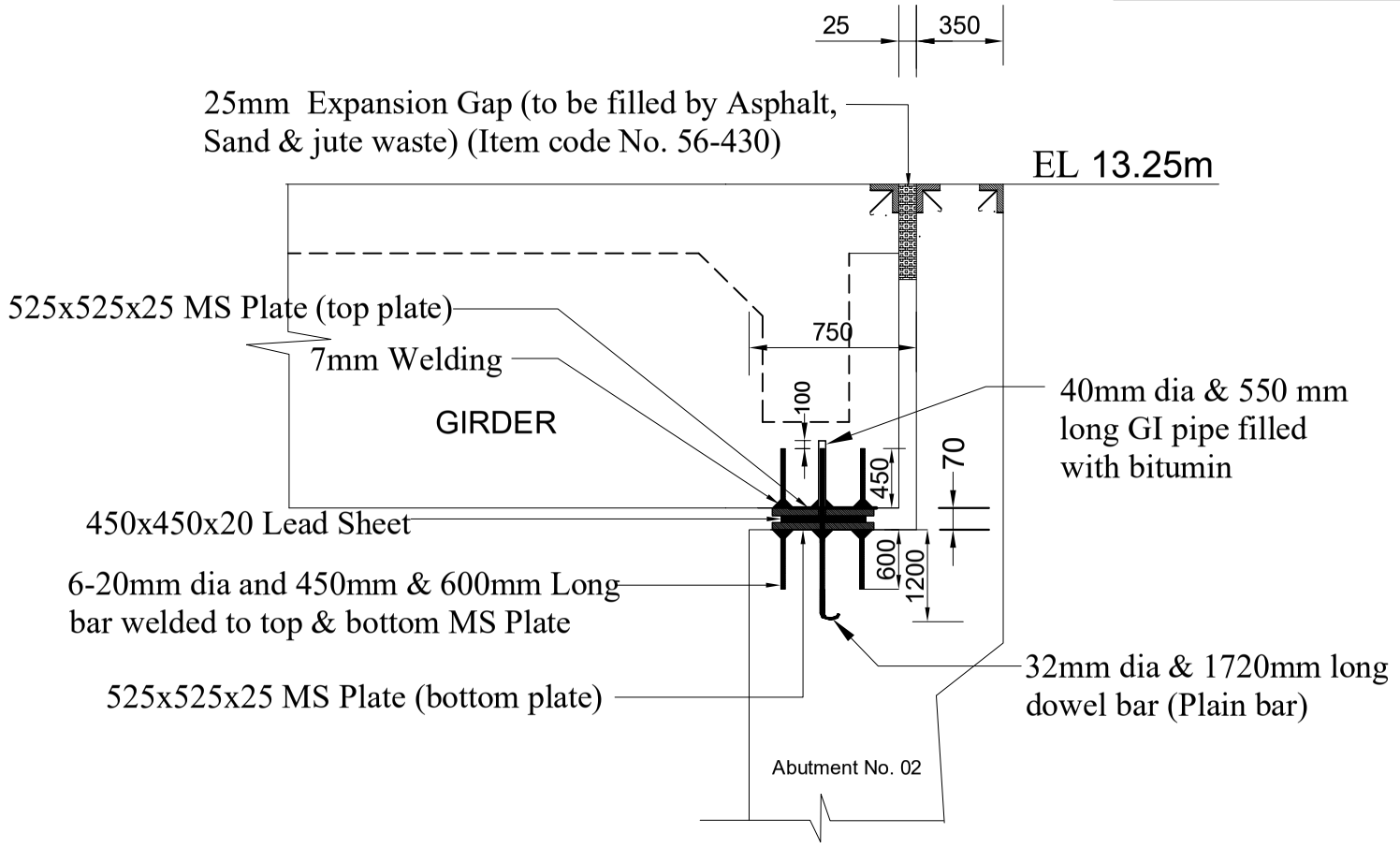
Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation (Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabang River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.

Details of Bearing (For Abutment)

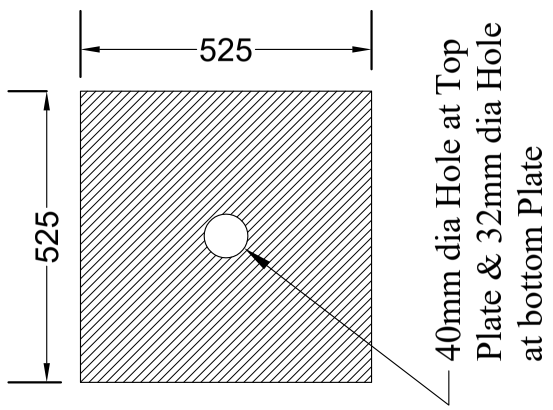
DESIGNED BY : (SAKIB BIN RAFI), AE	**RECOMMENDED BY :**
CHECKED BY :	**APPROVED BY :** CHIEF ENGINEER, DESIGN



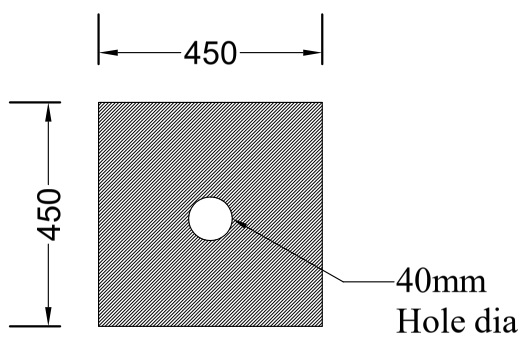
SECTION X1-X1
(See Plan of Eexpansion Bearing for Abutment No. 01 in Sheet No. 13 of 14)



SECTION X2-X2
(See Plan of Eexpansion Bearing for Abutment No. 02 in Sheet No. 13 of 14)



MS PLATE (525x525x25)
(With Hole for Abutment No. 02)



LEAD SHEET (450X450X20)
(With Hole for Abutment No. 02)

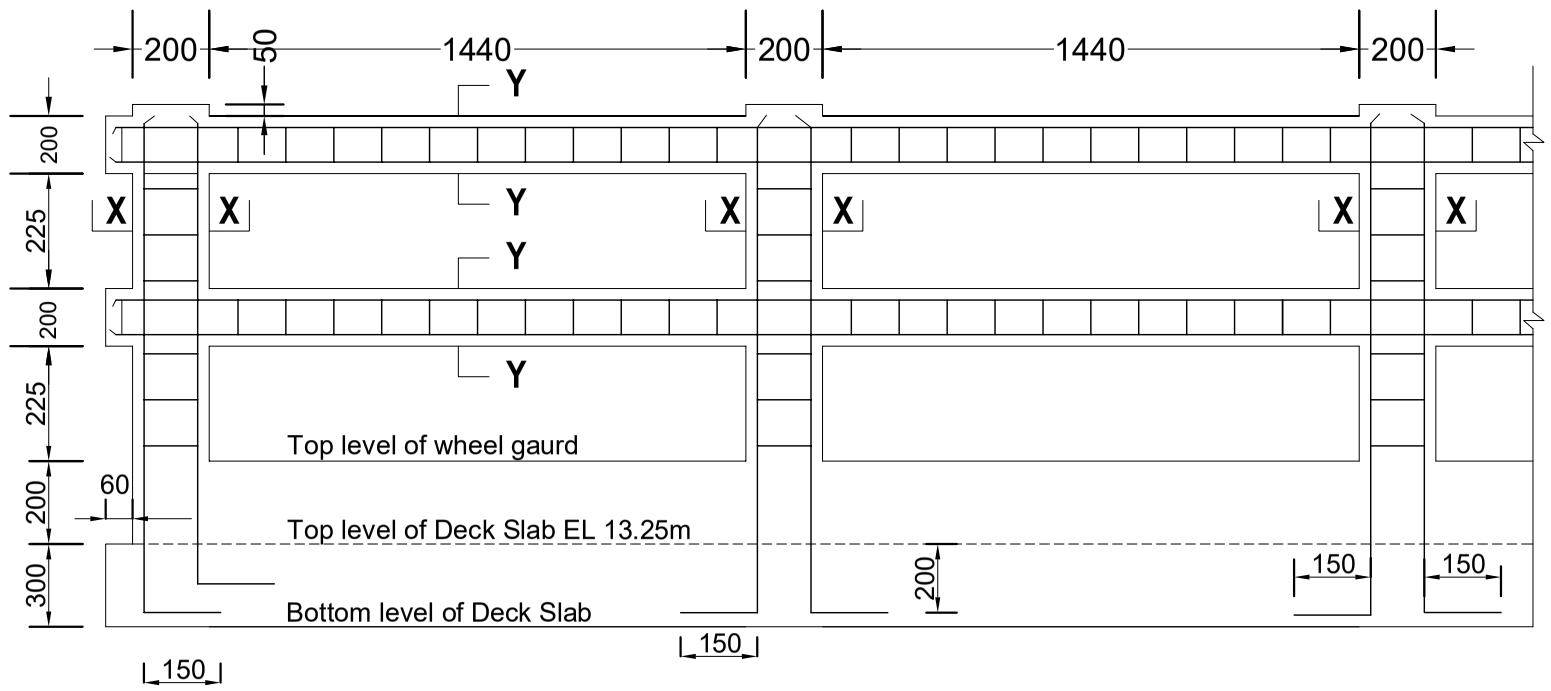
BANGLADESH WATER DEVELOPMENT BOARD

Office of the Superintending Engineer
Design Circle-8

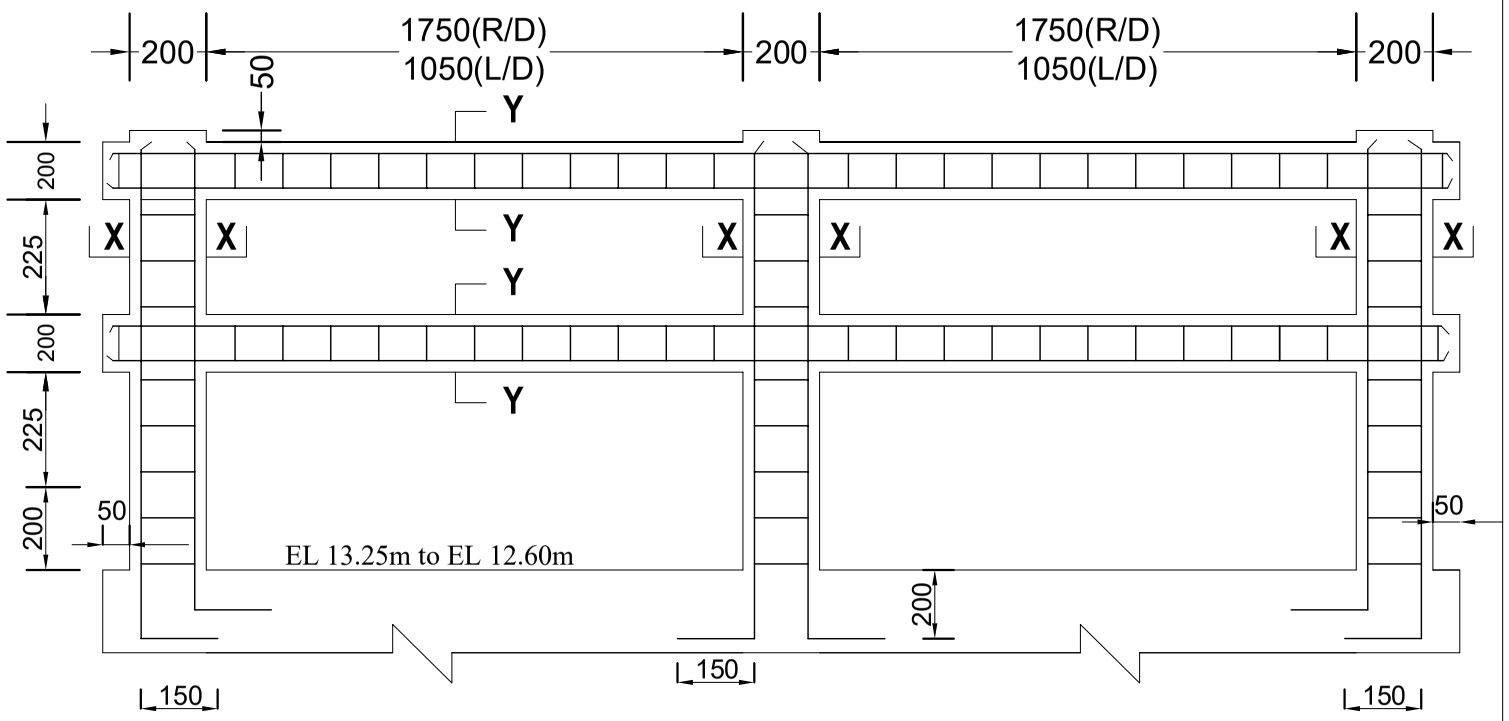
Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation (Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabang River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.

Details of Bearing (For Abutment)

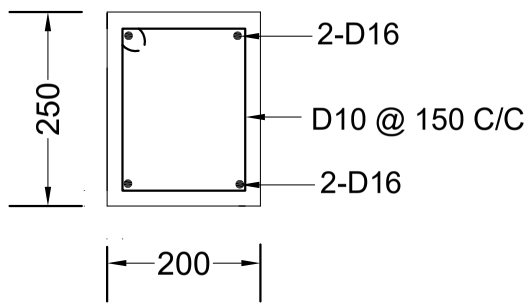
DESIGNED BY :	RECOMMENDED BY :
(SAKIB BIN RAFI), AE	
CHECKED BY :	APPROVED BY :



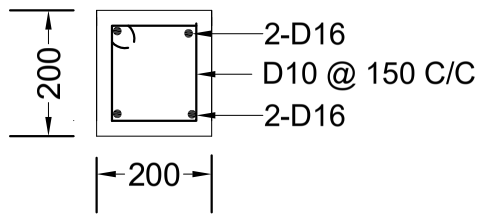
DETAILS OF RAILING (FOR DECK SLAB)
(All Railing & Railing Post Should be Painted)



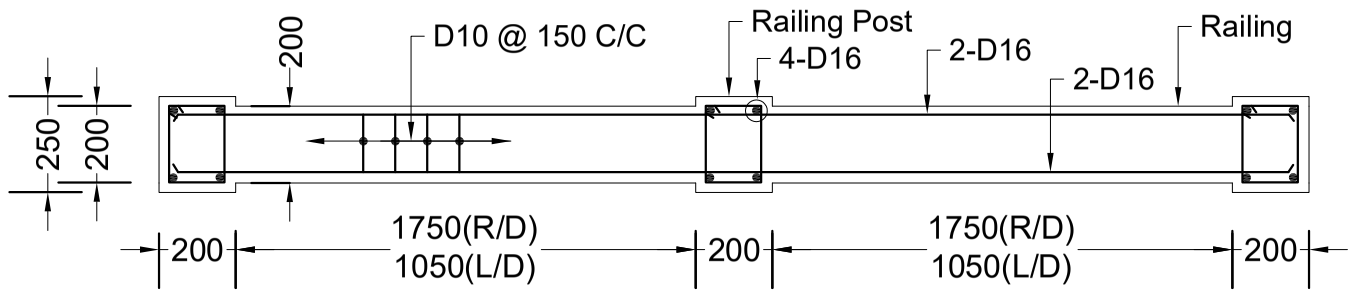
DETAILS OF RAILING (FOR WING WALL)
(All Railing & Railing Post Should be Painted)



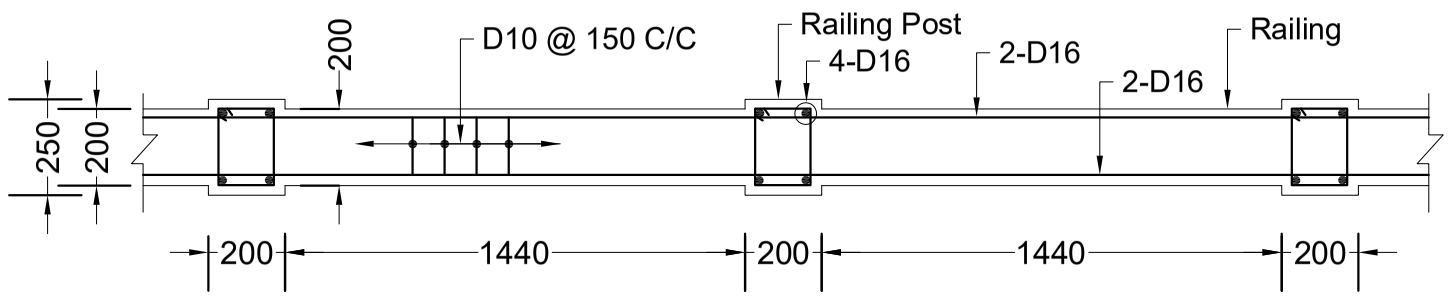
SECTION X-X
Railing Post



SECTION Y-Y
Railing



PLAN OF RAILING & RAILING POST (FOR WING WALL)



PLAN OF RAILING & RAILING POST (FOR DECK SLAB)

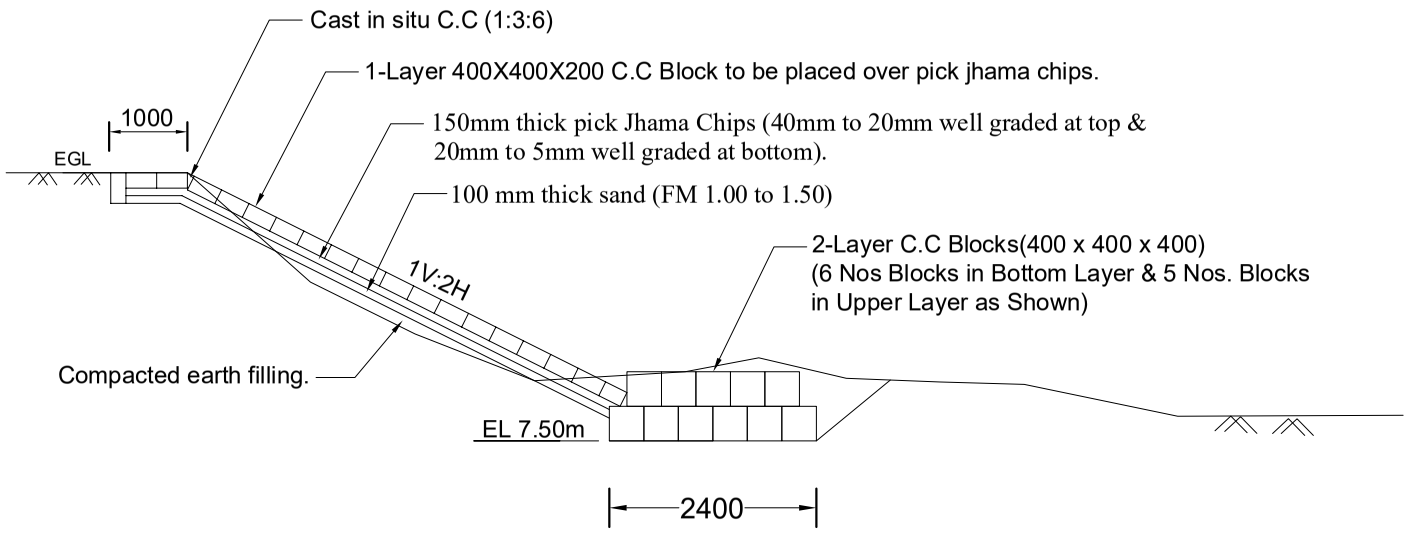
BANGLADESH WATER DEVELOPMENT BOARD

Office of the Superintending Engineer
Design Circle-8

Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehabilitation o Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabang River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.

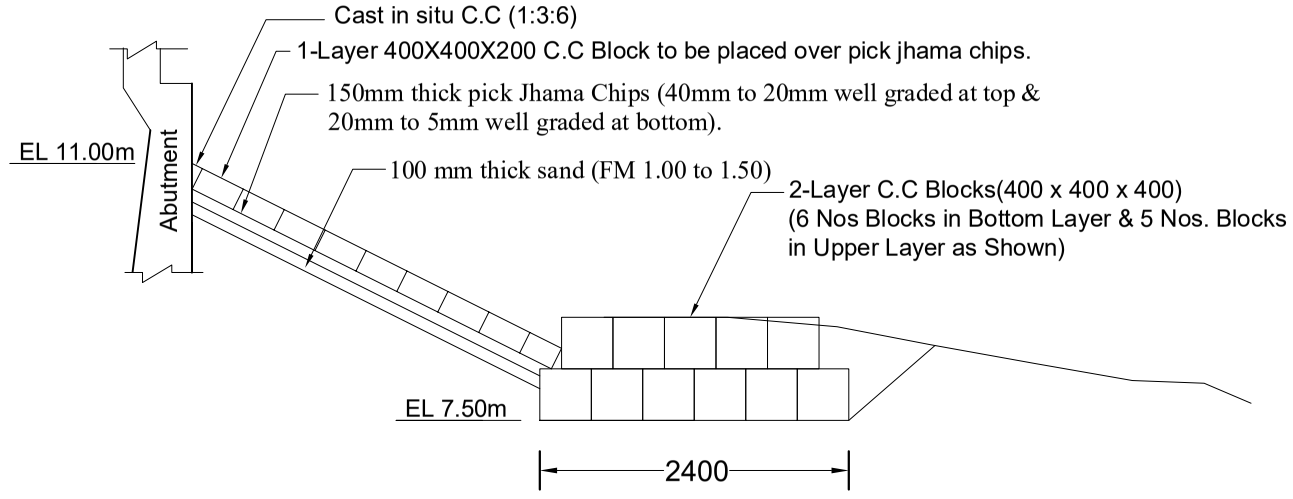
Details of Railing

DESIGNED BY :	RECOMMENDED BY :
(SAKIB BIN RAFI), AE	
CHECKED BY :	APPROVED BY :
(MST. TASMEM JAHAN), EE	



SECTION P-P

(Typical Section of Protective Work, See Plan of Bridge in Sheet No. 04 of 14)



DETAILS "Y"

(Typical Section of Protective Work along Abutment in Section A-A, See Sheet No. 05 of 14)

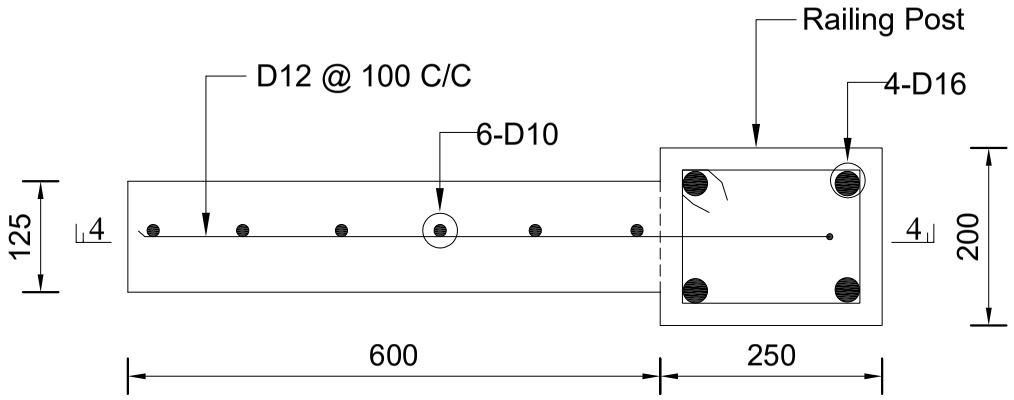
BANGLADESH WATER DEVELOPMENT BOARD

Office of the Superintending Engineer
Design Circle-5

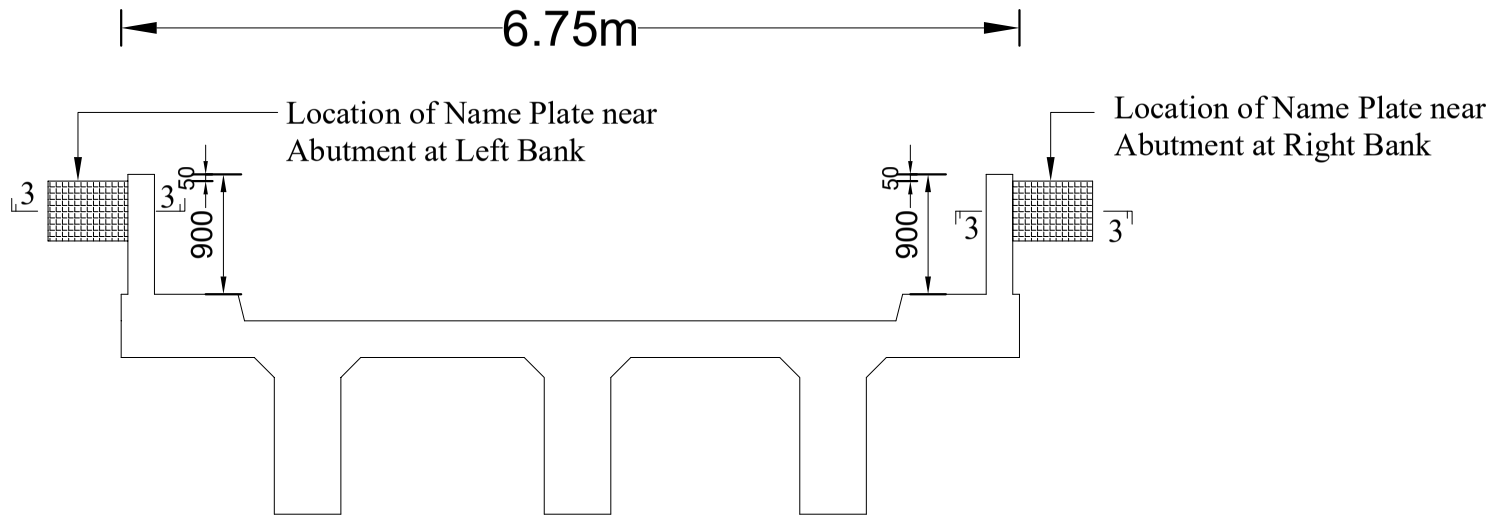
Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation of Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabanga River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.

Details of Protective Work

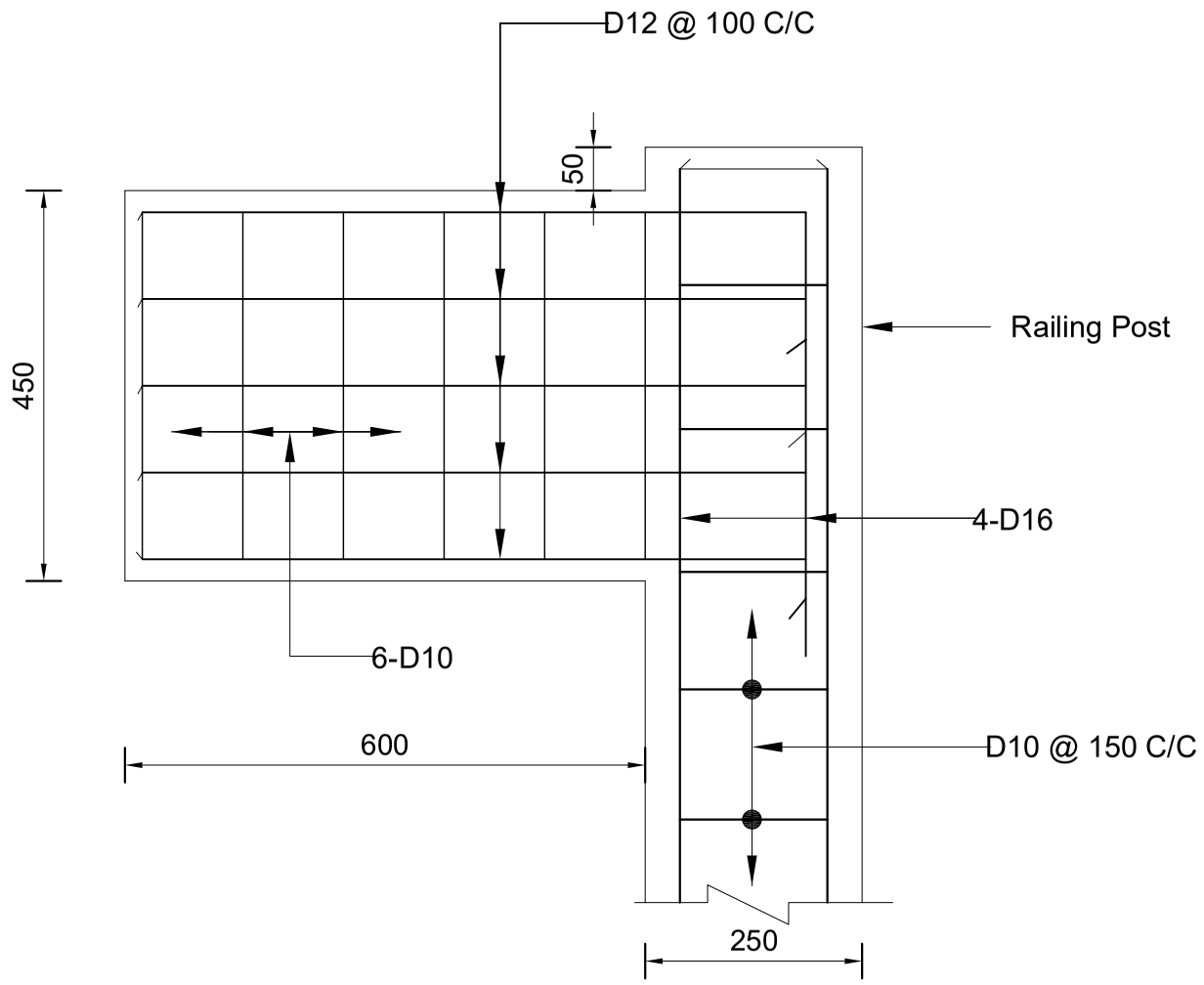
DESIGNED BY :	RECOMMENDED BY :
(SAKIB BIN RAFI), AE	
CHECKED BY :	APPROVED BY :



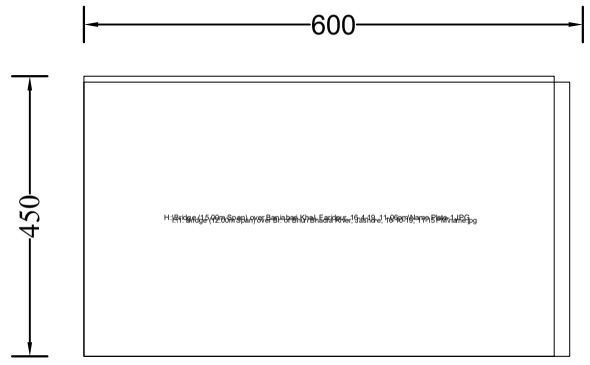
SECTION 3-3
(In Plan)



SECTIONAL ELEVATION FOR NAME PLATE



SECTION 4-4



TYPICAL NAME PLATE

BANGLADESH WATER DEVELOPMENT BOARD

Office of the Superintending Engineer
Design Circle-8

Design of R.C.C Bridge Over Kalisankorpur khal in C/W Rehahibiliation of Madhumoti-Nabaganga Sub-Projec and Re-excavation/Dredging of Nabanga River to Revival and Conservation of Environmental Balance in Lohagora Upazila of Narail District under Narail O&M Division, BWDB Narail.

Details of Name Plate

DESIGNED BY :	RECOMMENDED BY :
CHECKED BY :	APPROVED BY :