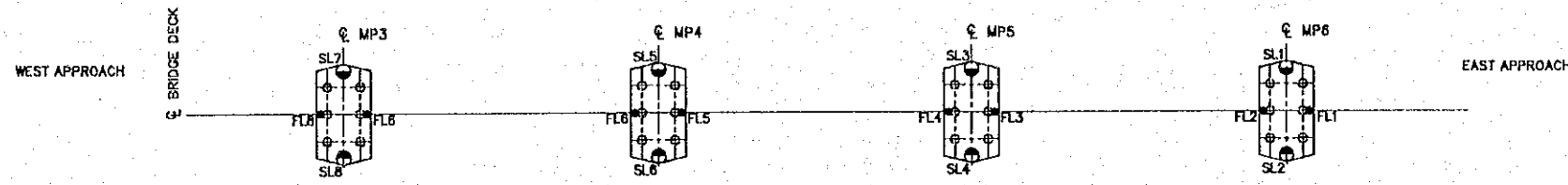


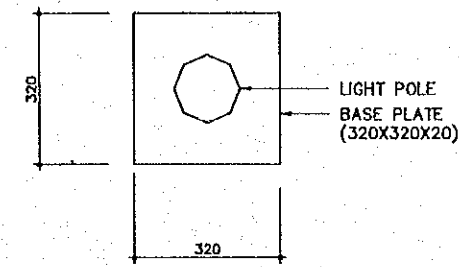
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

DETAILS OF LIGHTING (SHEET 2 OF 3)

SCALE	SHEET NO.
AS SHOWN	J-43



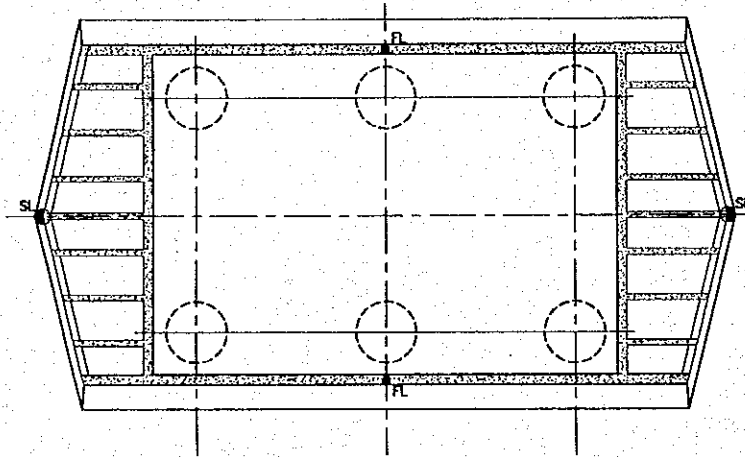
1 LAYOUT PLAN OF PIER LIGHTING
J-43 SCALE NOT OT SCALE



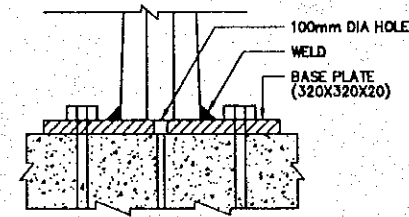
10 PLAN AT LEVEL-C
J-43 SCALE NOT TO SCALE

LEGEND

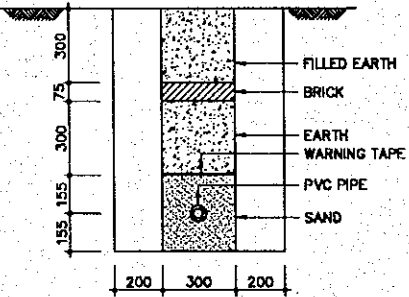
- FL - FLOOD LIGHT FITTING FOR PIER ILLUMINATION WITH HIGH PRESSURE SODIUM 400W PHILLIPS MODEL SVF 607 OR EQUIVALENT
- SL - NAVIGATION WARRING LIGHT FITTING



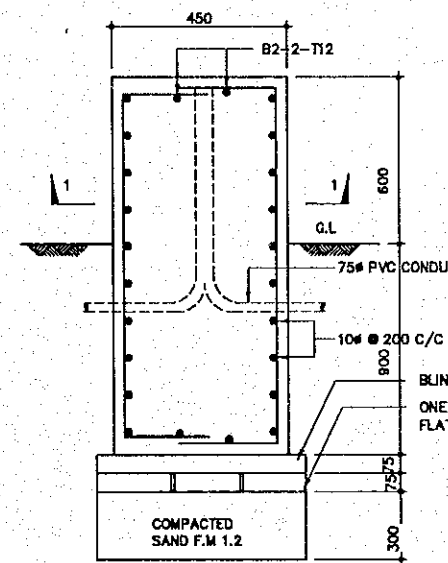
2 LAYOUT PLAN OF PIER LIGHTING
J-43 SCALE 1:200



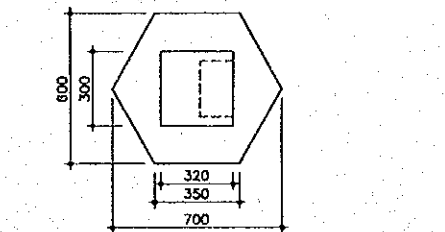
5 DETAIL - A
J-43 SCALE NOT TO SCALE



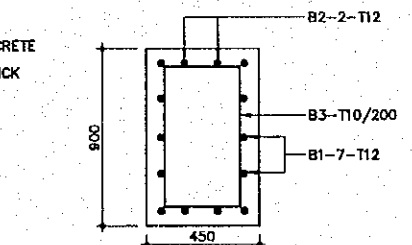
4 UNDER GROUND LT CABLE DETAIL
J-43 SCALE NOT TO SCALE



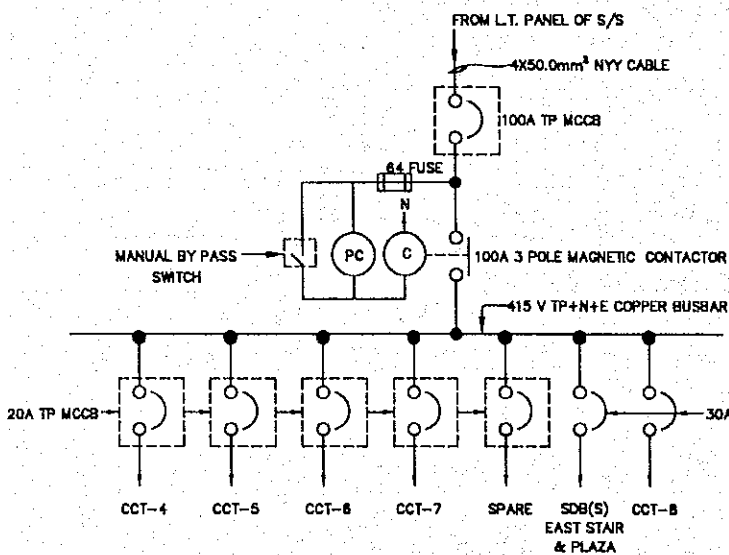
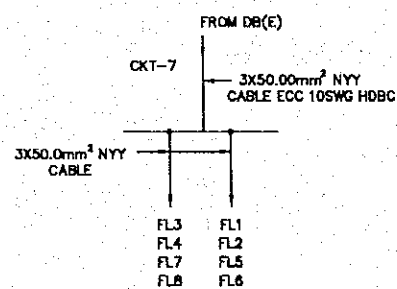
8 REINF. DETAIL OF DB BASE
J-43 SCALE NOT TO SCALE



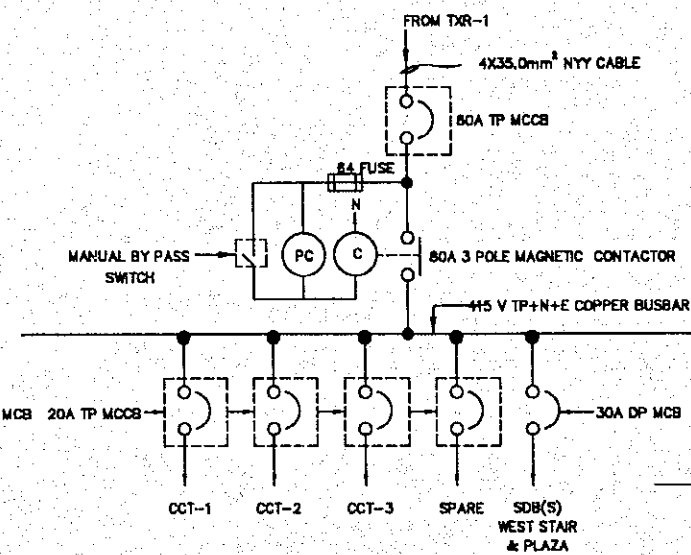
6 PLAN AT LEVEL-B
J-43 SCALE NOT TO SCALE



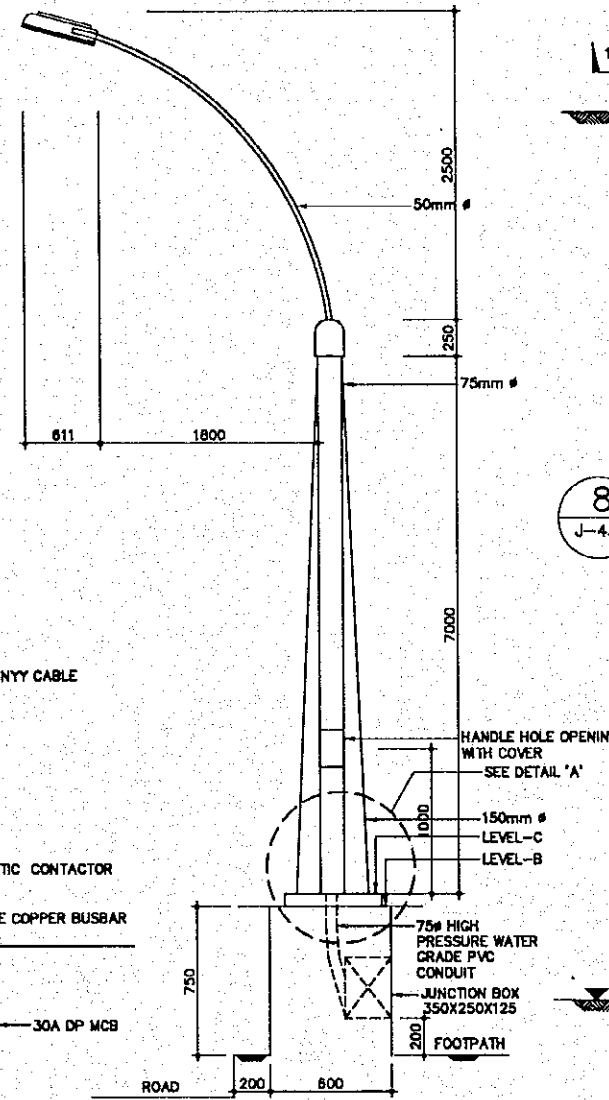
9 SECTION 1-1
J-43 SCALE NOT TO SCALE



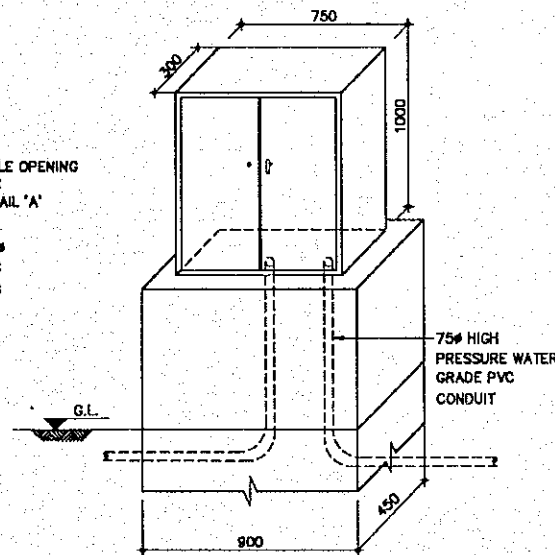
DB(E) DETAIL



DB(W) DETAIL



3 LIGHT COLUMN DETAIL (TYPE-2)
J-43 SCALE NOT TO SCALE

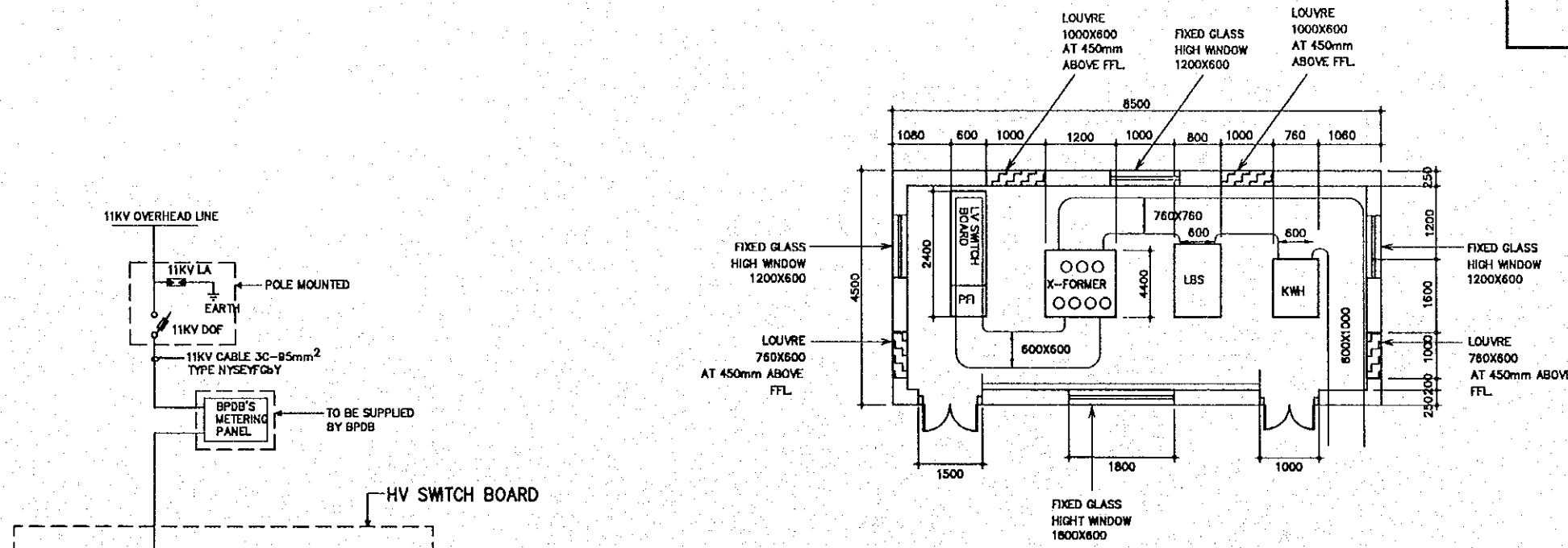


7 TYPICAL LV DISTRIBUTION BOARD FOR LIGHT CONTROL
J-43 SCALE NOT TO SCALE

THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

DETAILS OF SUB-STATION

SCALE	SHEET NO.
AS SHOWN	J-43A

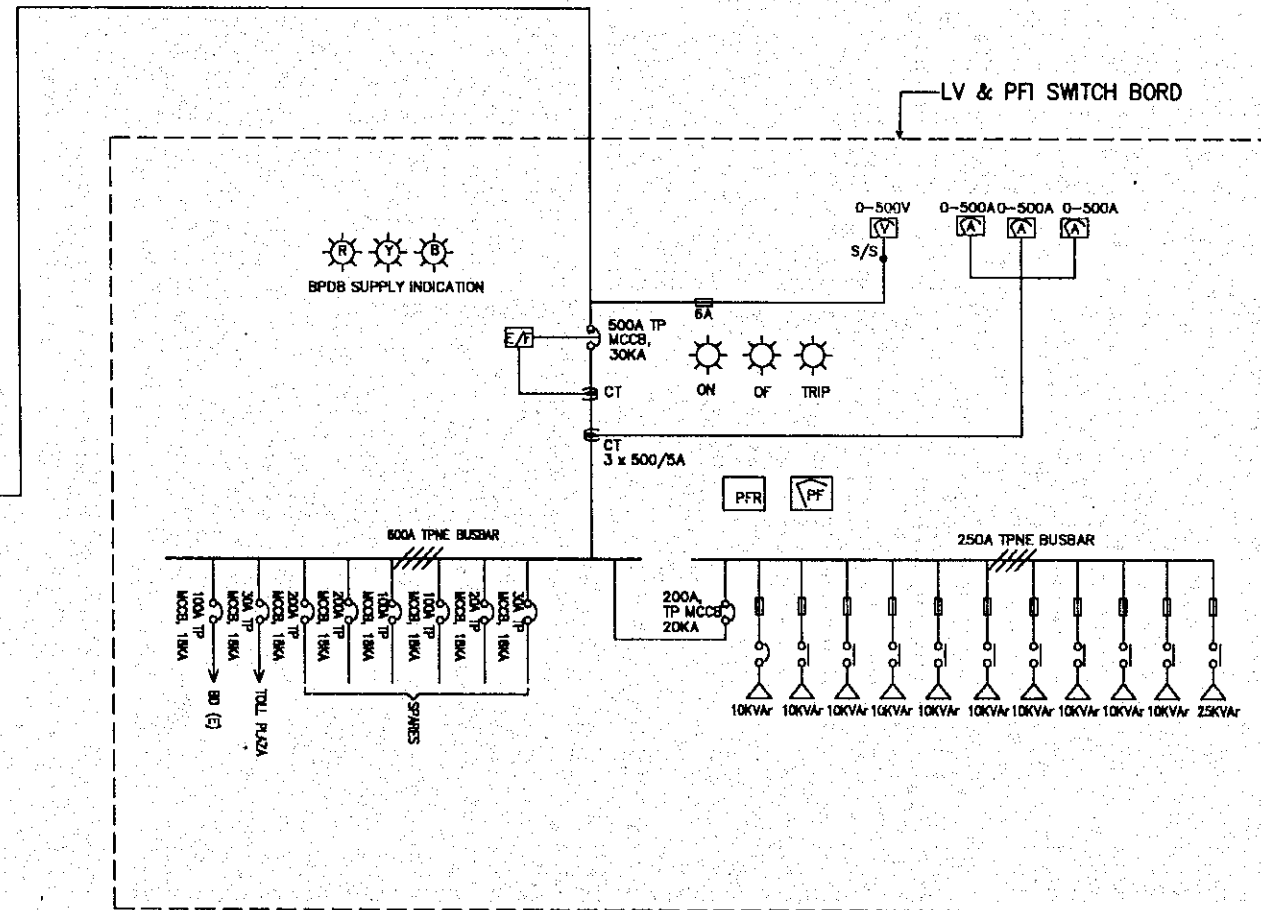
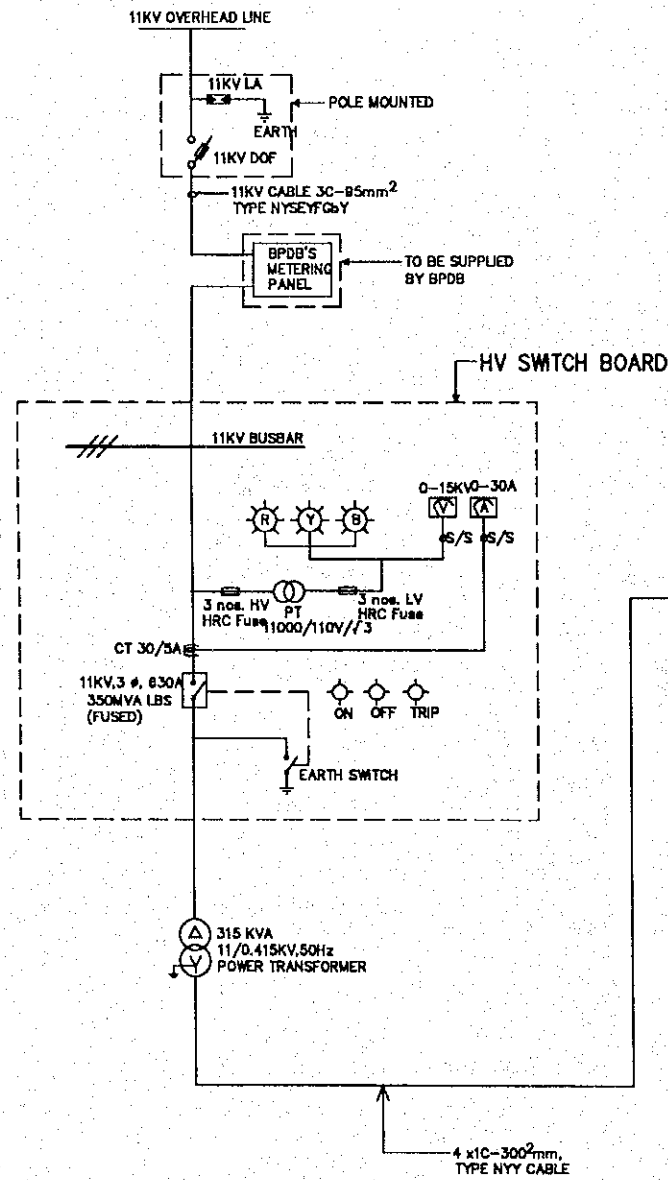


SUB STATION LAYOUT PLAN

SCALE: NTS

LEGEND:

- FUSE
- INDICATOR LAMP
- PT POTENTIAL TRANSFORMER
- CT CURRENT TRANSFORMER
- EARTH FAULT RELAY
- VOLT METER
- AMMETER
- POWER FACTOR METER
- POWER FACTOR REGULATOR
- MOLDED CASE CIRCUIT BREAKER
- POWER CONTACTOR
- S/S SELECTOR SWITCH

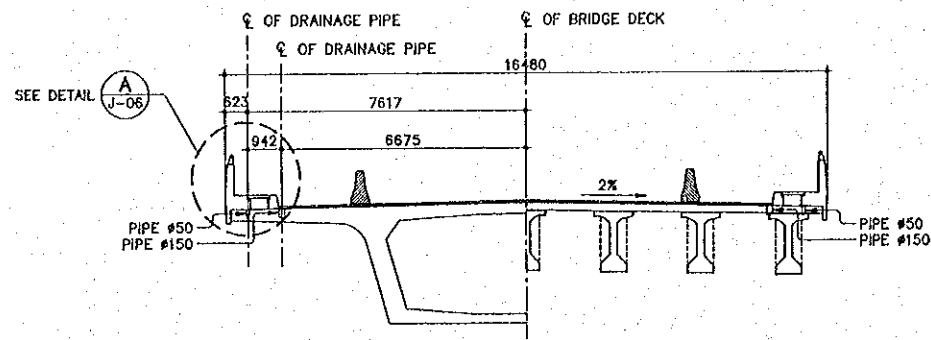


SINGLE LINE DIAGRAM OF 315KVA , 11/0.415KV, 50 Hz INDOOR SUB-STATION

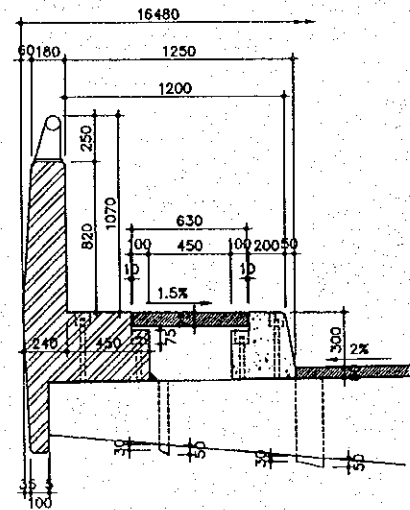
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

DRAINAGE DETAILS (SHEET 1 OF 2)

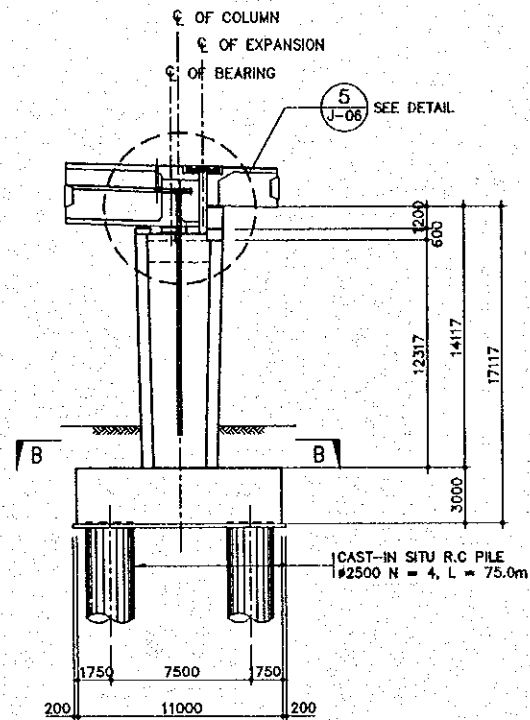
SCALE	SHEET NO.
AS SHOWN	J-44



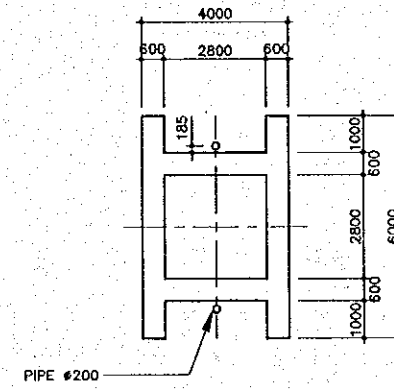
1 MAIN BRIDGE
J-44 SCALE 1:100



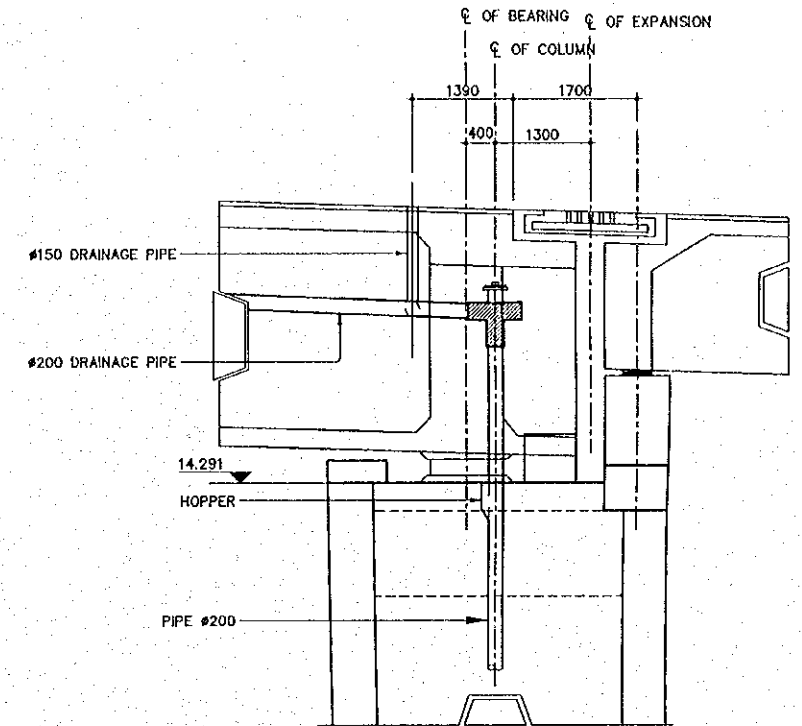
2 DETAIL A-A
J-44 SCALE 1:20



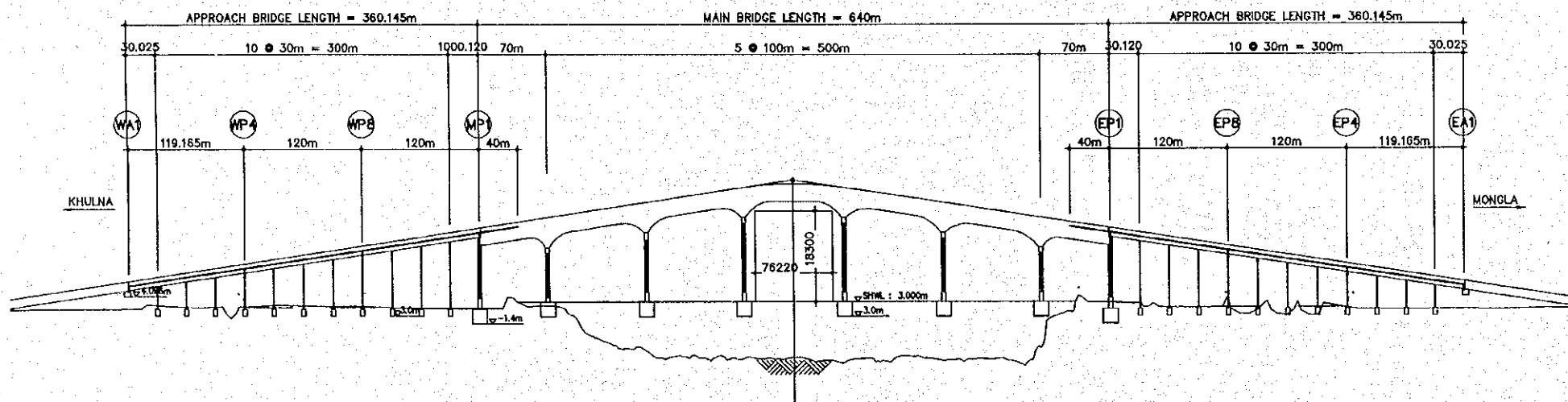
3 LONGITUDINAL
J-05 SCALE 1:200



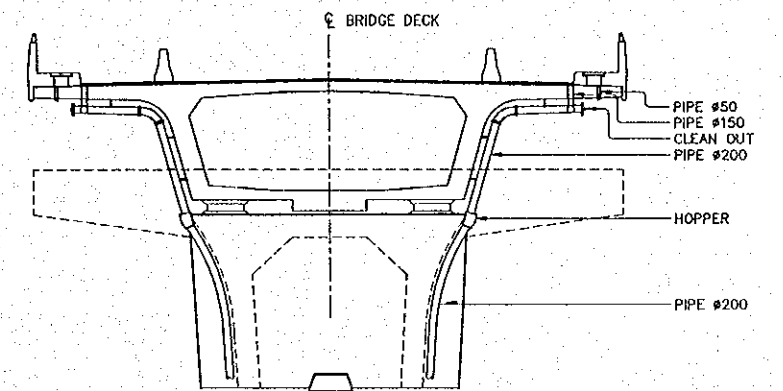
4 SECTION B-B
J-05 SCALE 1:100



5 DETAIL
J-05 SCALE 1:50



A GENERAL ELEVATION
J-44 SCALE 1:3000

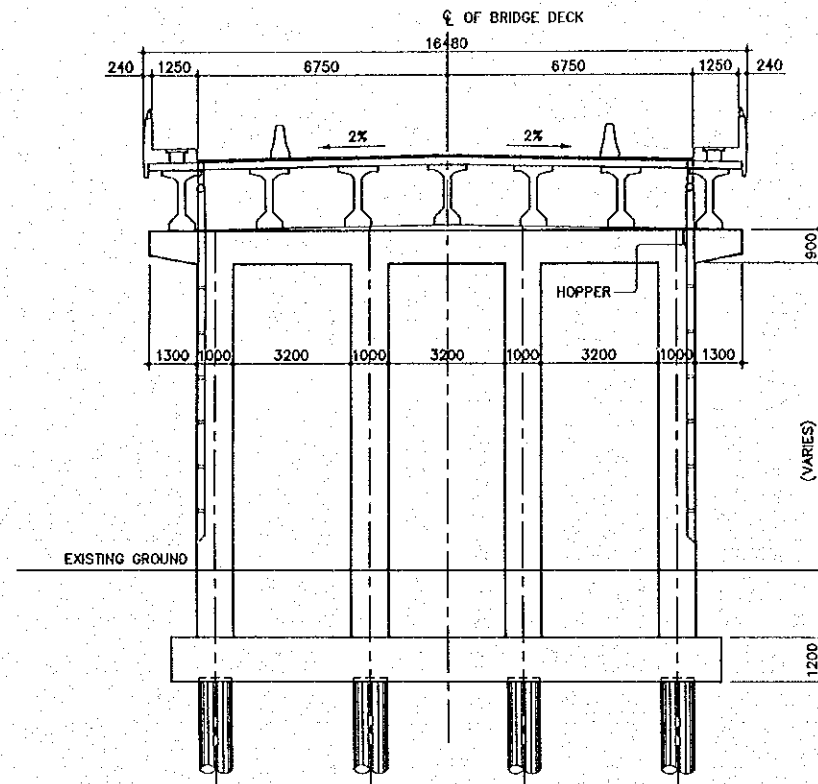


6 ELEVATION ON PIER
J-44 SCALE 1:100

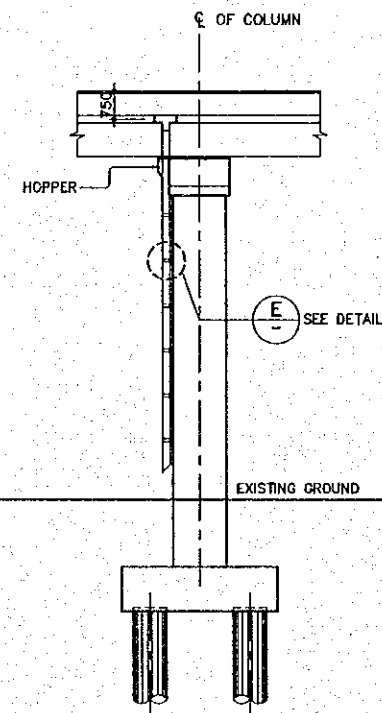
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

DRAINAGE DETAILS (SHEET 2 OF 2)

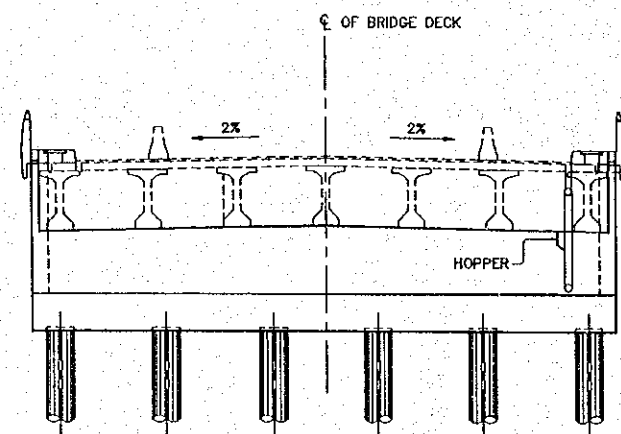
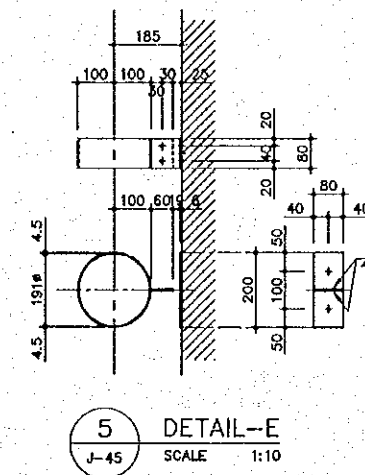
SCALE	SHEET NO.
AS SHOWN	J-45



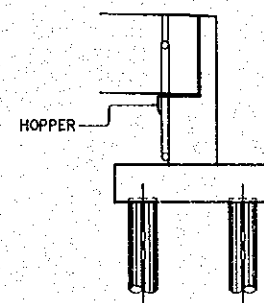
1 ELEVATION OF TYPICAL PIER
J-45 (WP4, WP8, EP4, EP8) SCALE 1:100



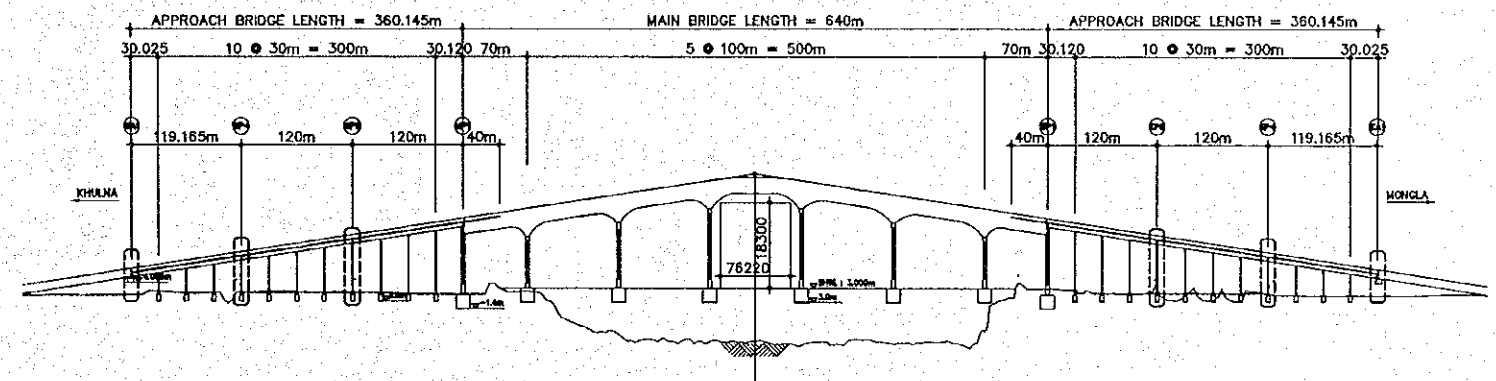
2 SIDE ELEVATION OF TYPICAL PIER
J-45 (WP4, WP8, EP4, EP8) SCALE 1:100



3 ELEVATION OF ABUTMENT
J-45 (WP1, EA1) SCALE 1:100



4 SIDE ELEVATION OF ABUTMENT
J-45 (WP1, EA1) SCALE 1:100

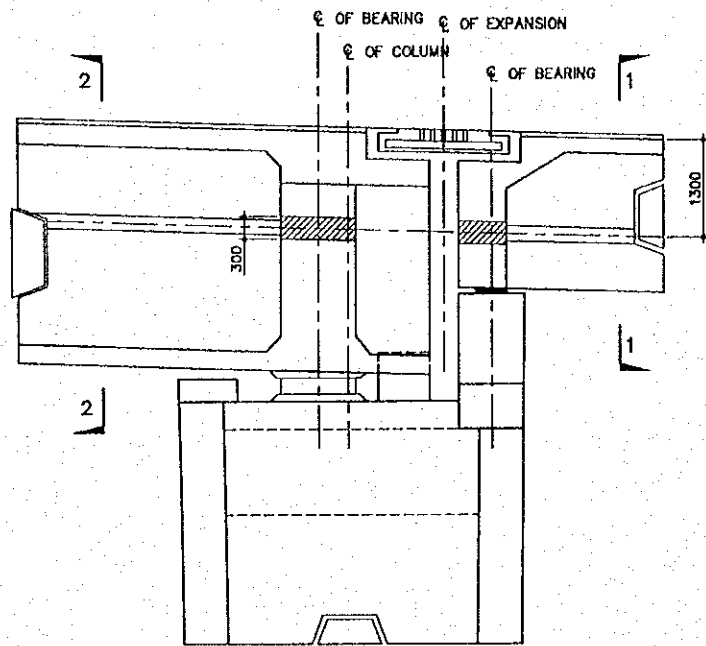


A GENERAL ELEVATION
J-45 SCALE 1:4

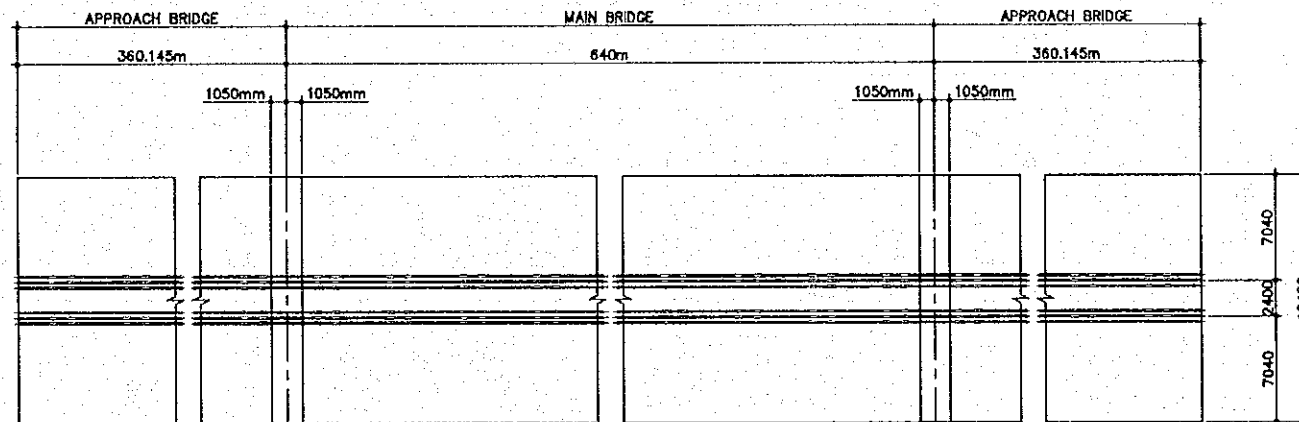
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

FUTURE UTILITIES FIXING DETAILS

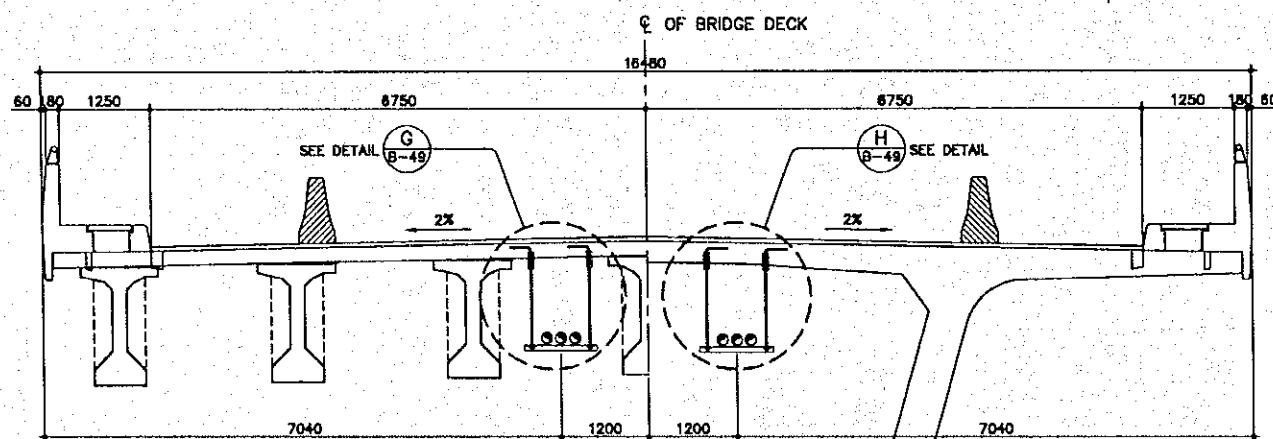
SCALE	SHEET NO.
AS SHOWN	J-46



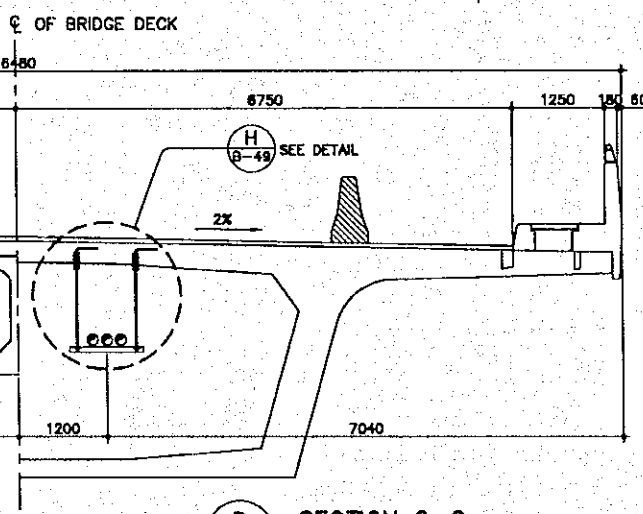
A SIDE ELEVATION ON MP1, MP8 PIER
J-46 SCALE 1:50



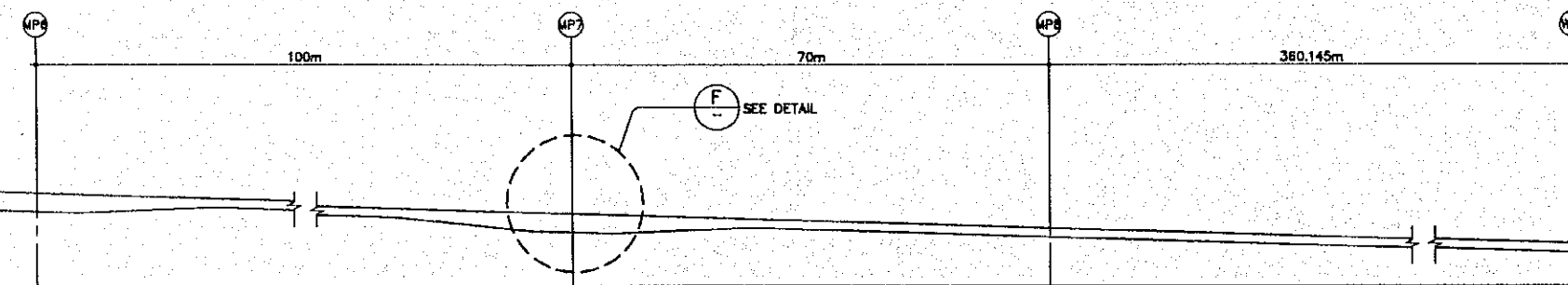
B PLAN
J-46 SCALE 1:250



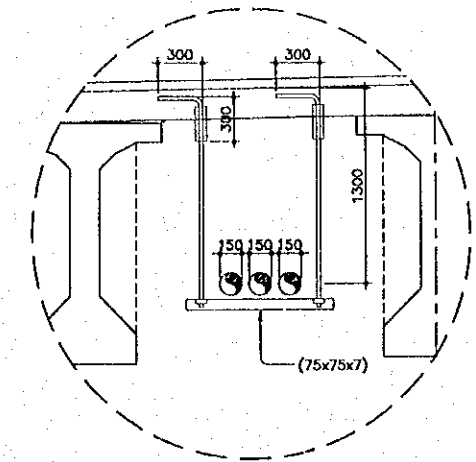
C SECTION 1-1
J-46 SCALE 1:50



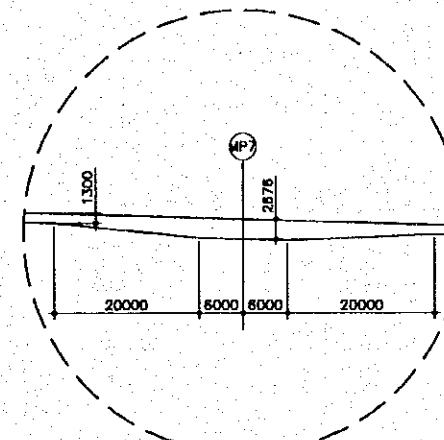
D SECTION 2-2
J-46 SCALE 1:50



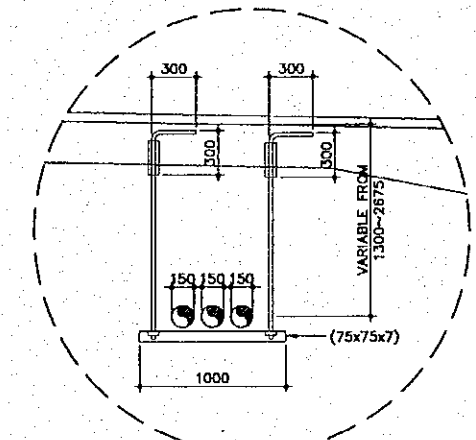
E SECTION 3-3
J-46 SCALE 1:500



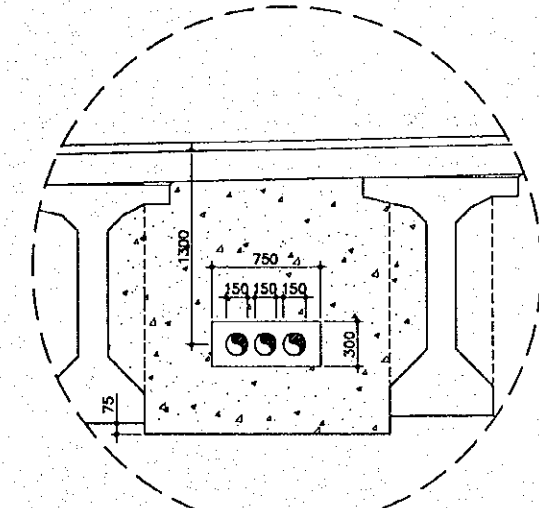
G DETAIL
J-46 SCALE 1:25



F DETAIL
J-46 SCALE 1:500



H DETAIL
J-46 SCALE 1:25

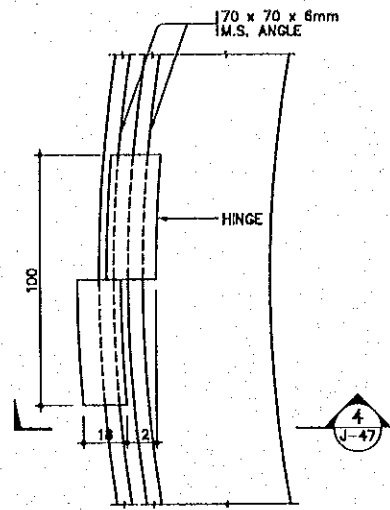


J DETAILS FOR APPROACH DIAPHRAGM
J-46 SCALE 1:25

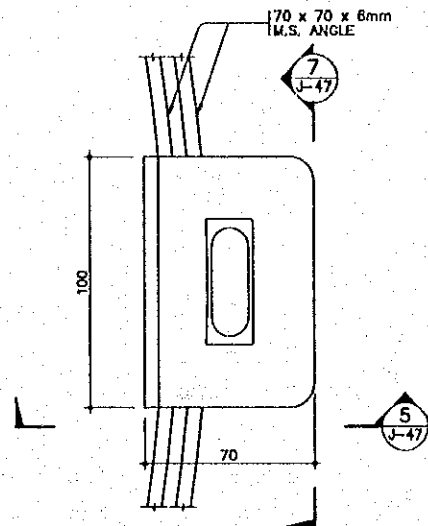
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

MISCELLANEOUS STEEL WORKS

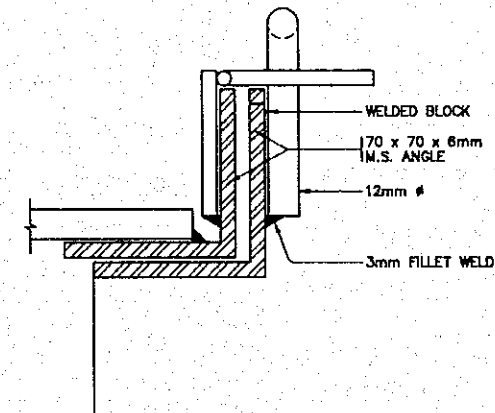
SCALE	SHEET NO.
AS SHOWN	J-47



1 DETAIL
J-47 SCALE 1:3



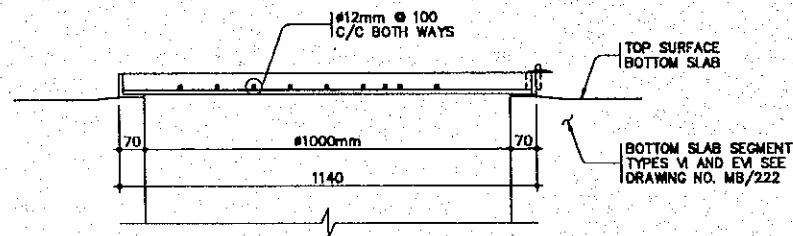
2 DETAIL
J-47 SCALE 1:3



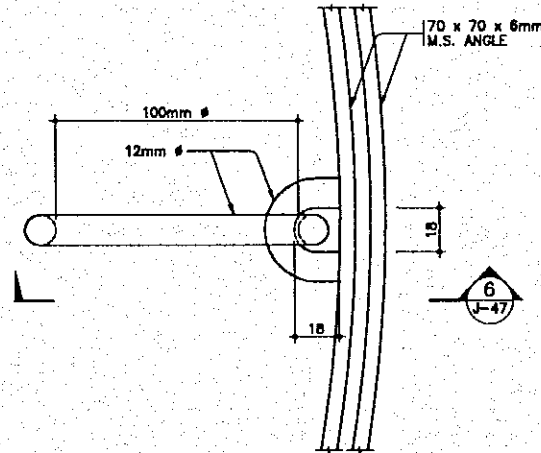
5 SECTION
J-47 SCALE 1:3

NOTES:

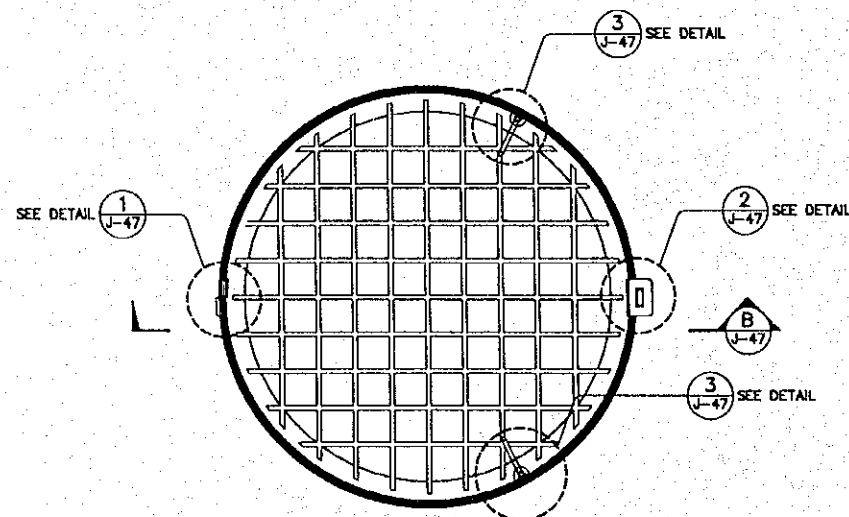
1. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO DESIGNATION M 270 (GRADE 36).
2. ALL WELDING TO STRUCTURAL STEEL SHALL BE 3mm FILLET WELD.
3. WELD METAL SHALL CONFORM TO AASHTO BRIDGE WELDING CODE.



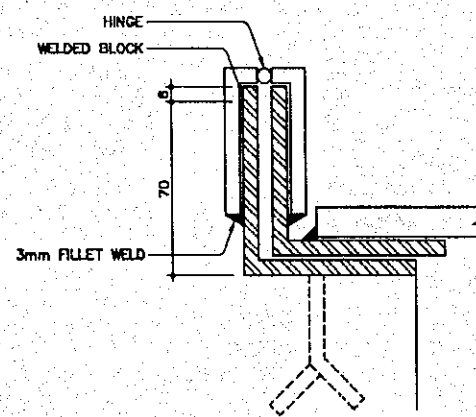
B SECTION B-B
J-47 SCALE 1:20



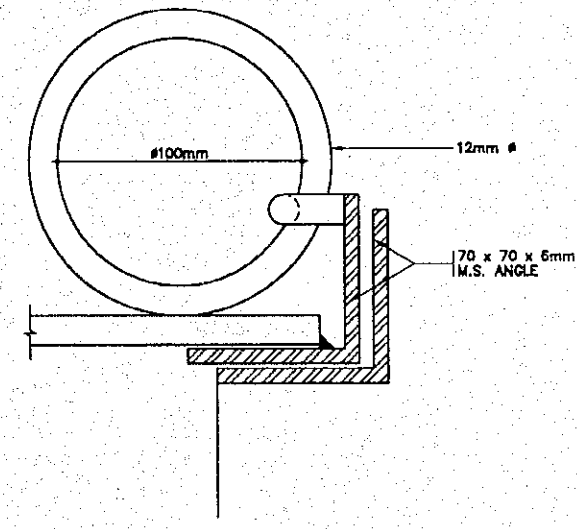
3 DETAIL
J-47 SCALE 1:3



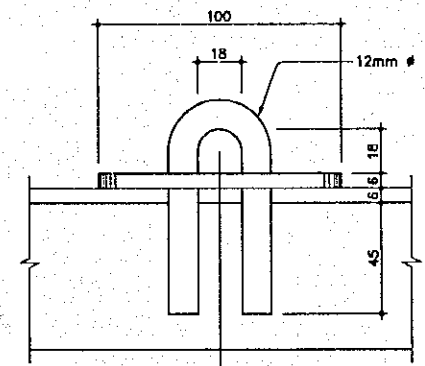
A PLAN ON ACCESS HOLE GRATING
J-47 SCALE 1:20



4 SECTION
J-47 SCALE 1:3



6 SECTION
J-47 SCALE 1:3

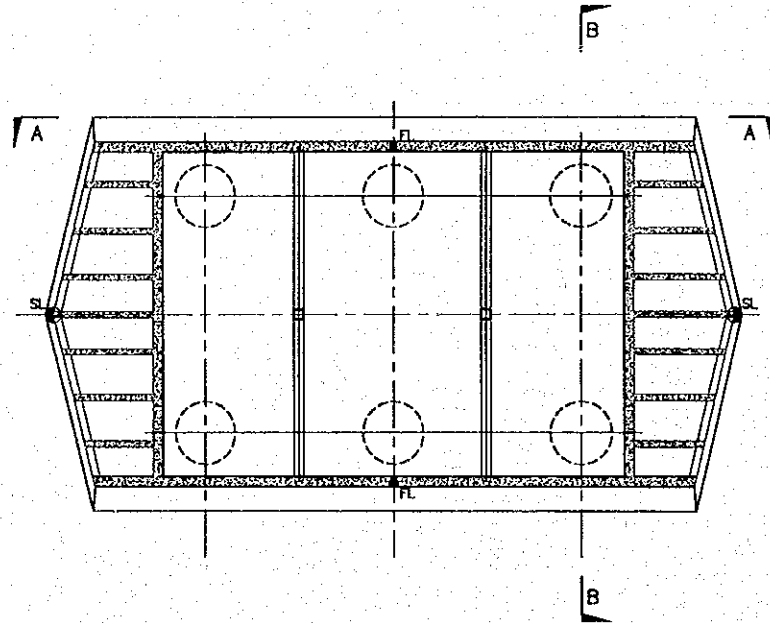


7 ELEVATION
J-47 SCALE 1:3

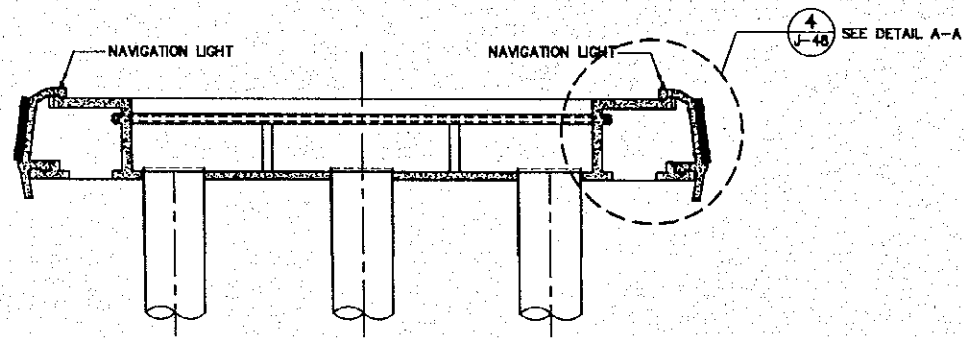
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

FENDER DETAILS

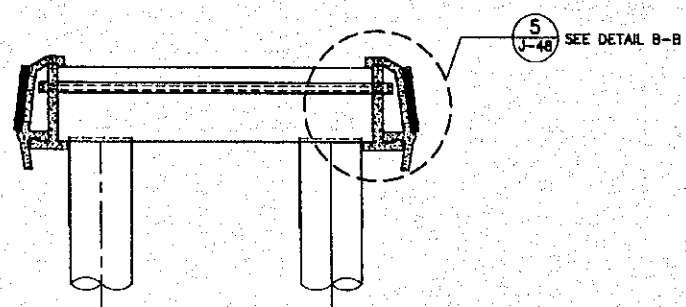
SCALE	SHEET NO.
AS SHOWN	J-48



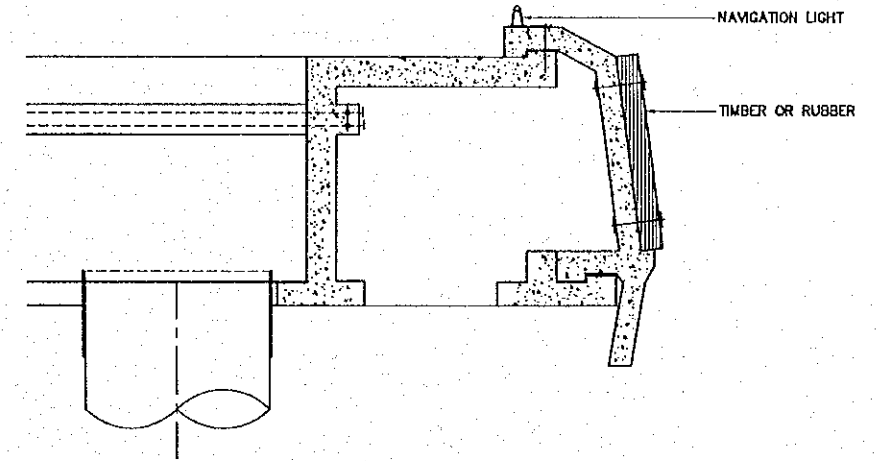
1 FOUNDATION PLAN
J-48 SCALE 1:150



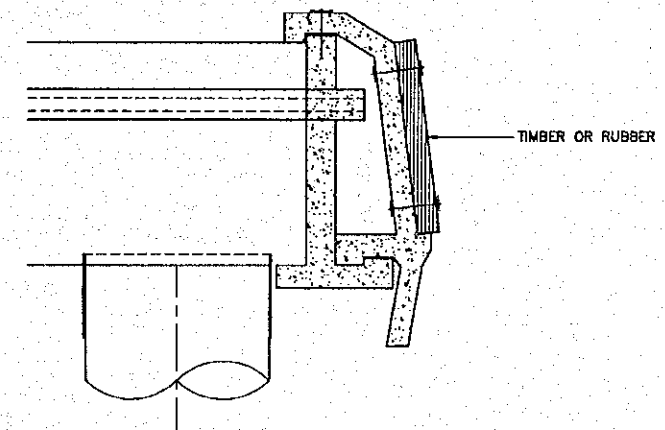
2 SECTION A-A
J-48 SCALE 1:150



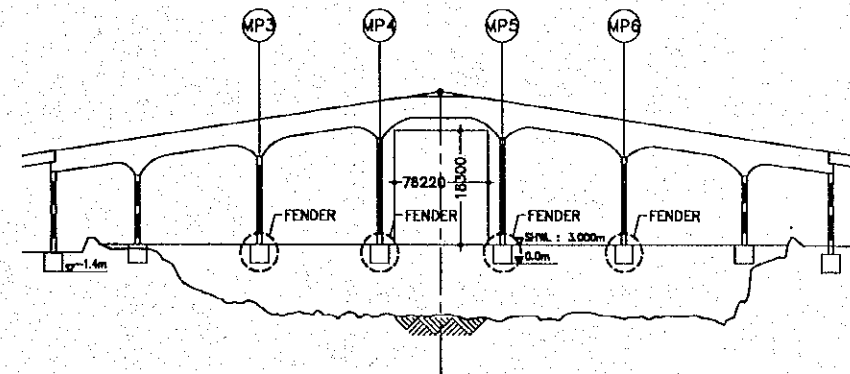
3 SECTION B-B
J-48 SCALE 1:150



4 DETAIL A-A
J-48 SCALE 1:50



5 DETAIL B-B
J-48 SCALE 1:50

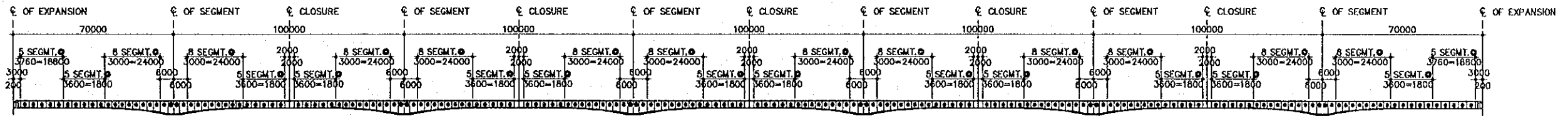


6 LOCATION OF FENDER
J-48 SCALE 1:3000

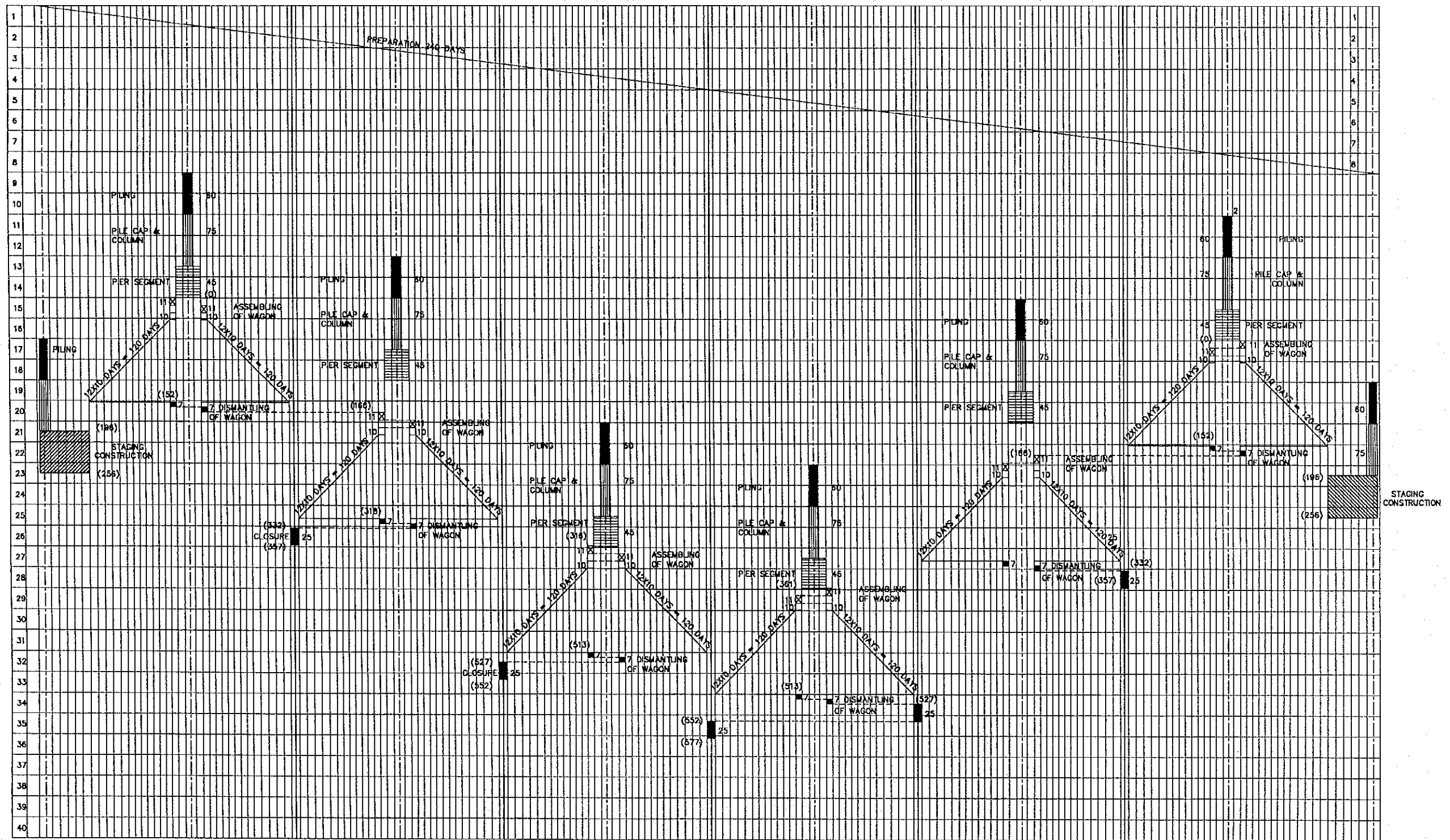
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

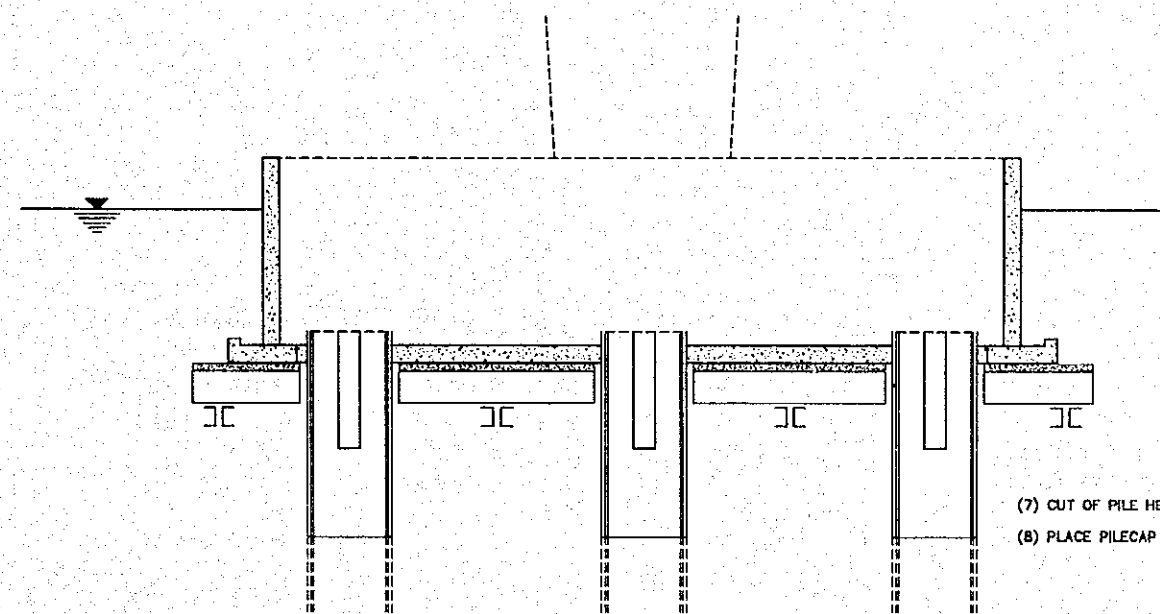
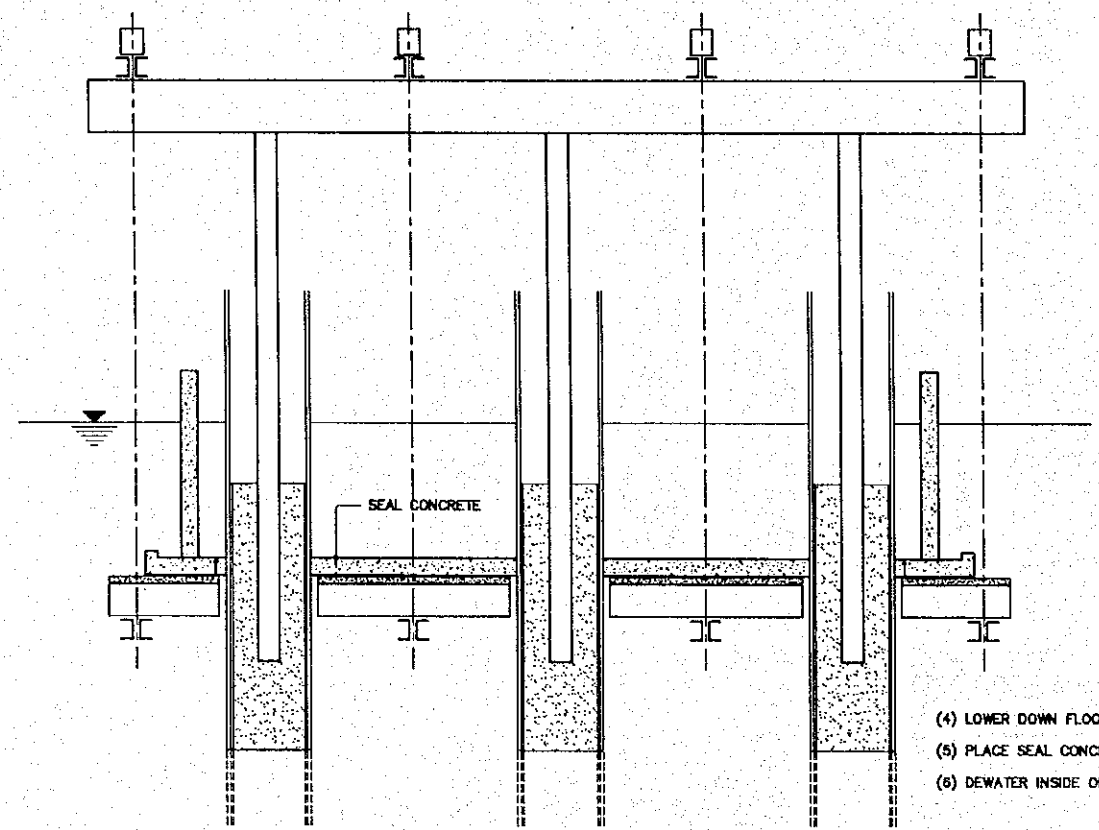
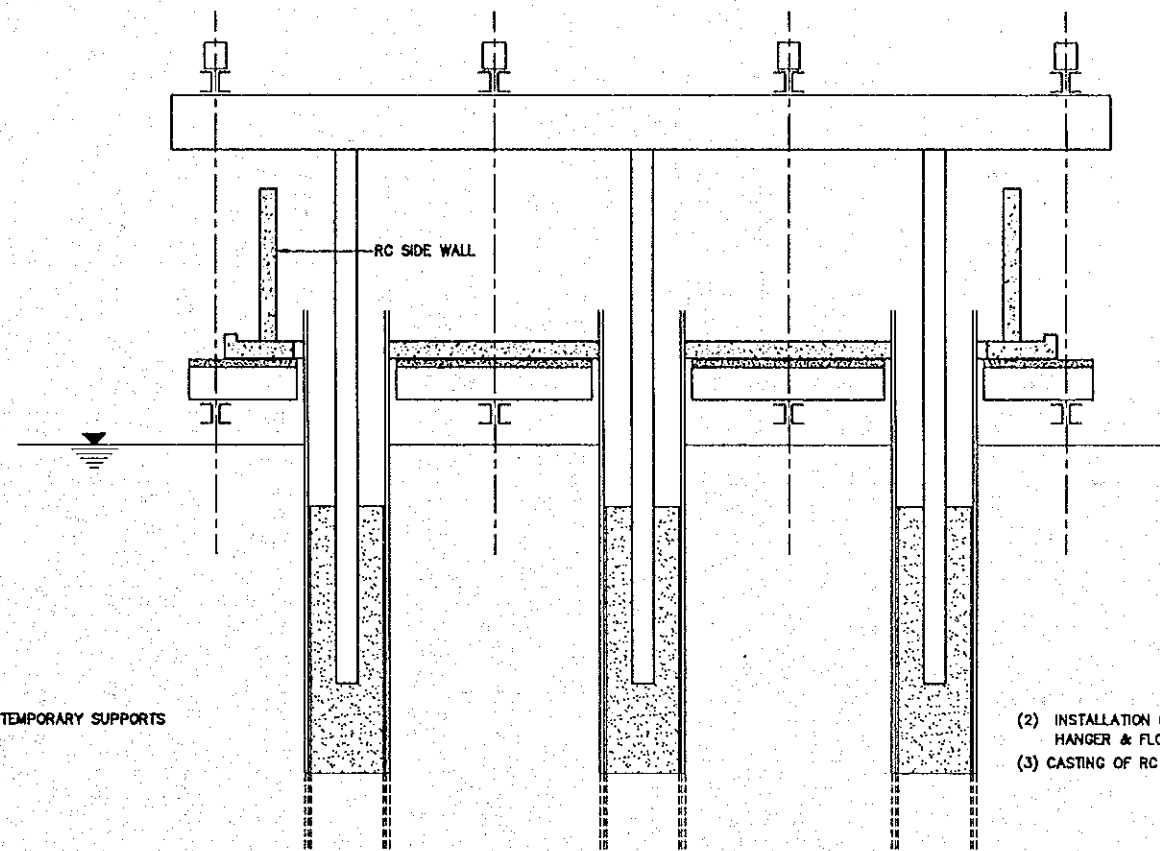
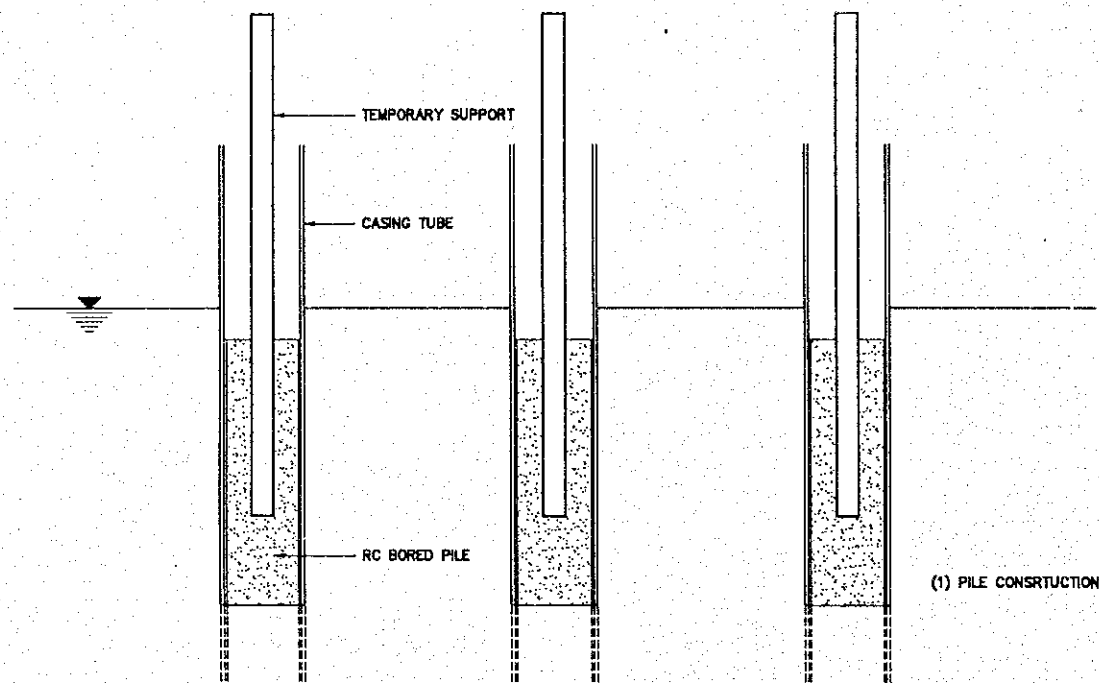
ASSUMED CONSTRUCTION
METHOD & SEQUENCE

SCALE	SHEET NO.
AS SHOWN	J-49



1 SECTION ELEVATION ON TYPICAL INTERNAL SPAN
J-49 SCALE 1:1000

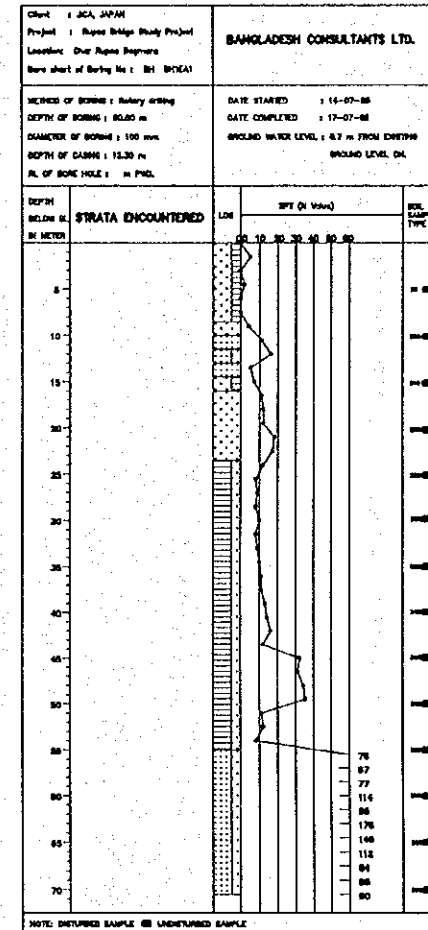
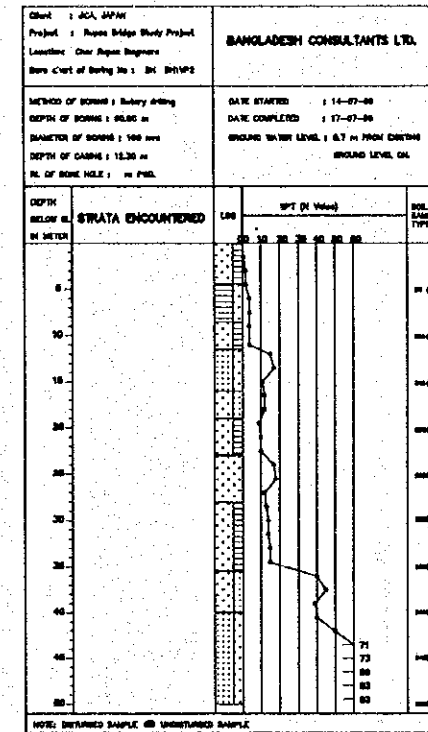
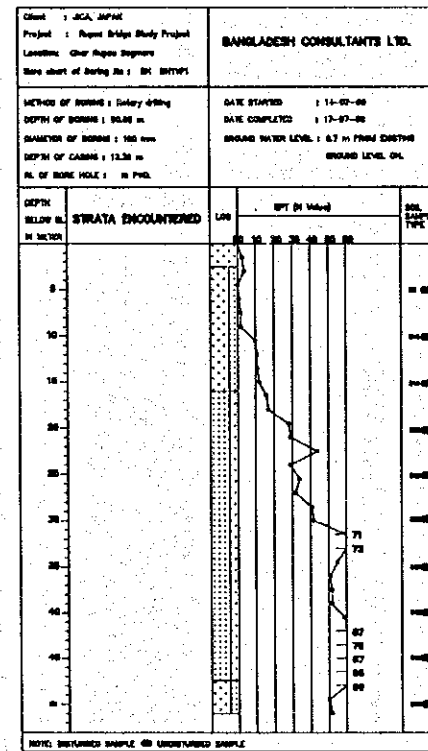
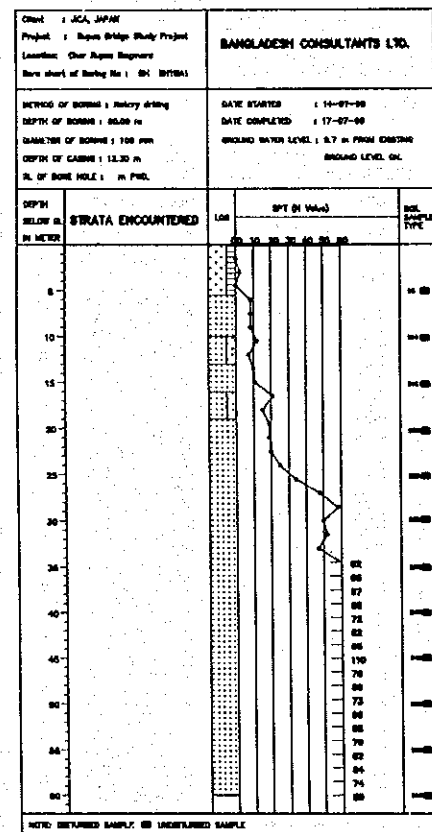




THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

BOREHOLE INFORMATION (SHEET 1 OF 2)

SCALE	SHEET NO.
AS SHOWN	J-50

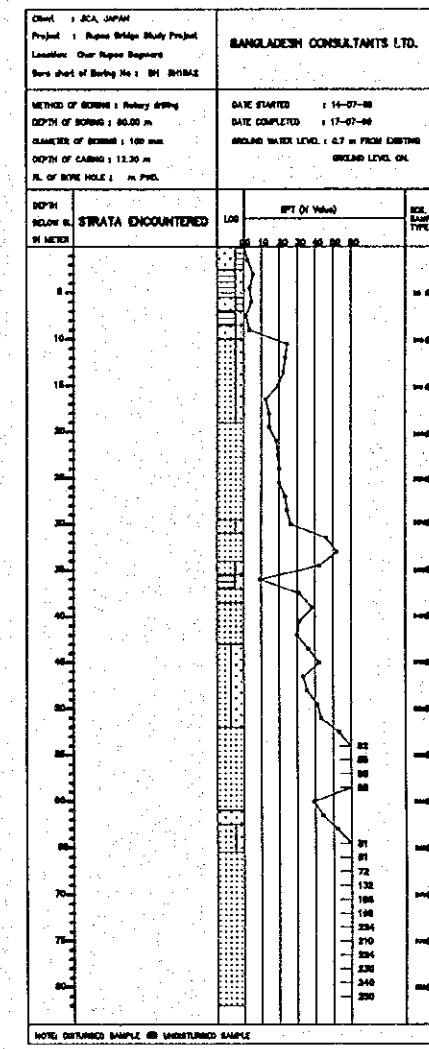
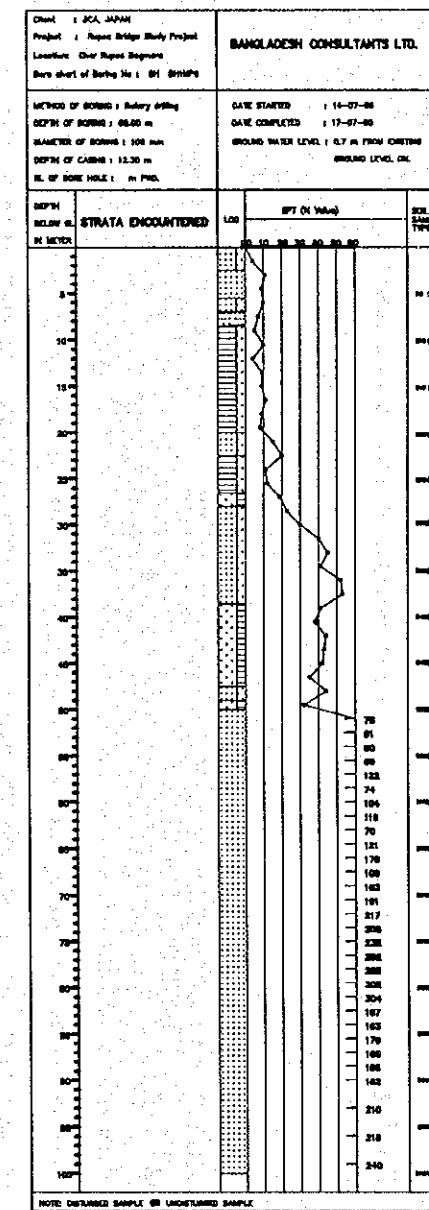
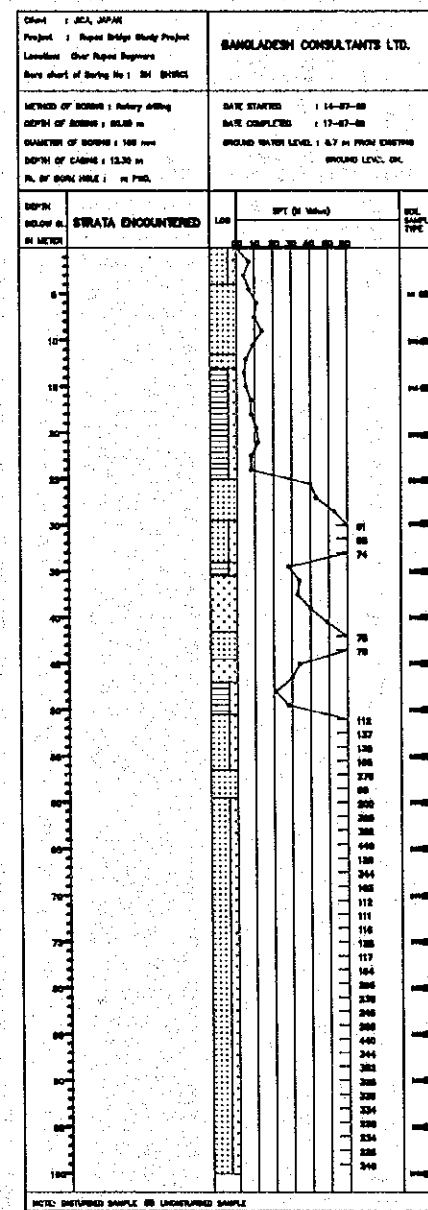
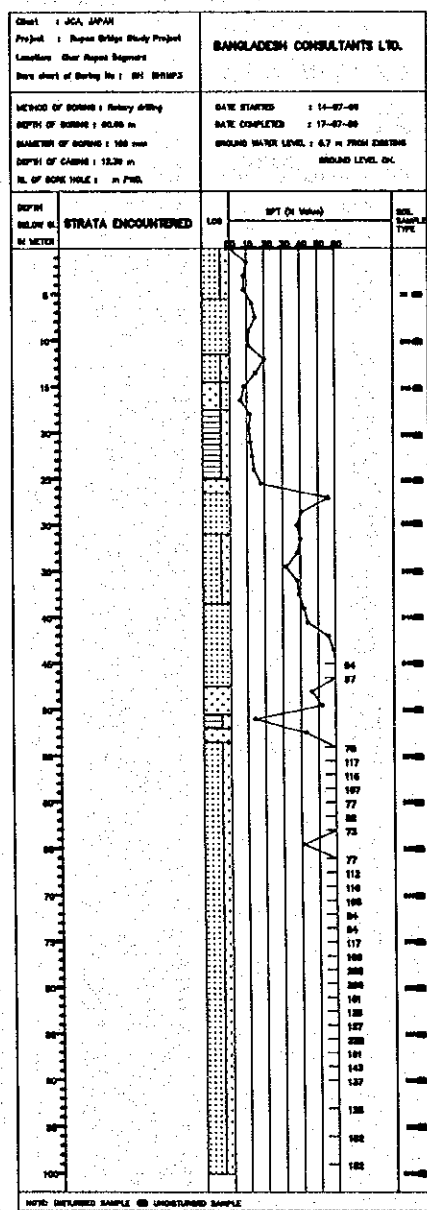
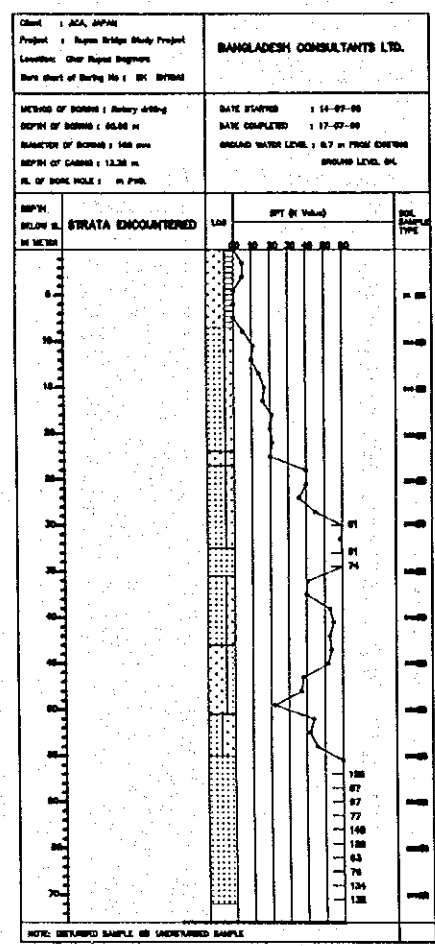


LEGENDS OF SOIL :

CLAY	(Symbol)
CLAY	(Symbol)
SAND	(Symbol)
GRAVELLY SAND	(Symbol)
SILTY CLAY	(Symbol)
SILTY SAND	(Symbol)
SANDY SILT	(Symbol)
SAND & SILT	(Symbol)
SILTY CLAY WITH ORGANIC MATTER	(Symbol)
ORGANIC CLAY	(Symbol)
SILT WITH SAND	(Symbol)
SAND WITH ORGANIC MATTER	(Symbol)

**THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)**

BOREHOLE INFORMATION (SHEET 2 OF 2)	SCALE	SHEET NO.
	AS SHOWN	J-51



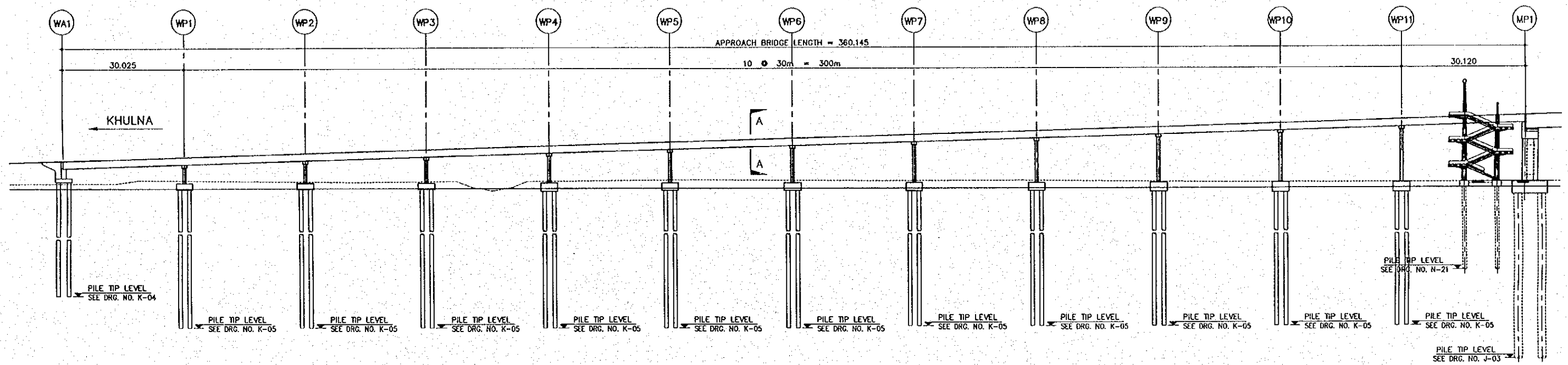
- LEGENDS OF SOIL :**
- SILT
 - CLAY
 - SAND
 - CLAYEY SILT
 - SILTY CLAY
 - SILTY SAND
 - SANDY SILT
 - SAND & SILT
 - SILTY CLAY WITH ORGANIC MATTER
 - ORGANIC CLAY
 - SILT WITH SAND
 - SAND WITH ORGANIC MATTER

K. APPROACH BRIDGE

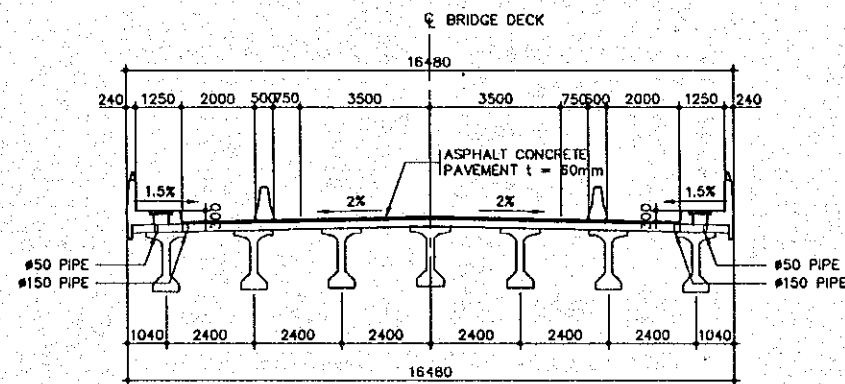
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

GENERAL ARRANGEMENT OF
APPROACH BRIDGE (KHULNA SIDE)

SCALE	SHEET NO.
AS SHOWN	K-01



A ELEVATION ON BRIDGE
K-01 SCALE 1:500

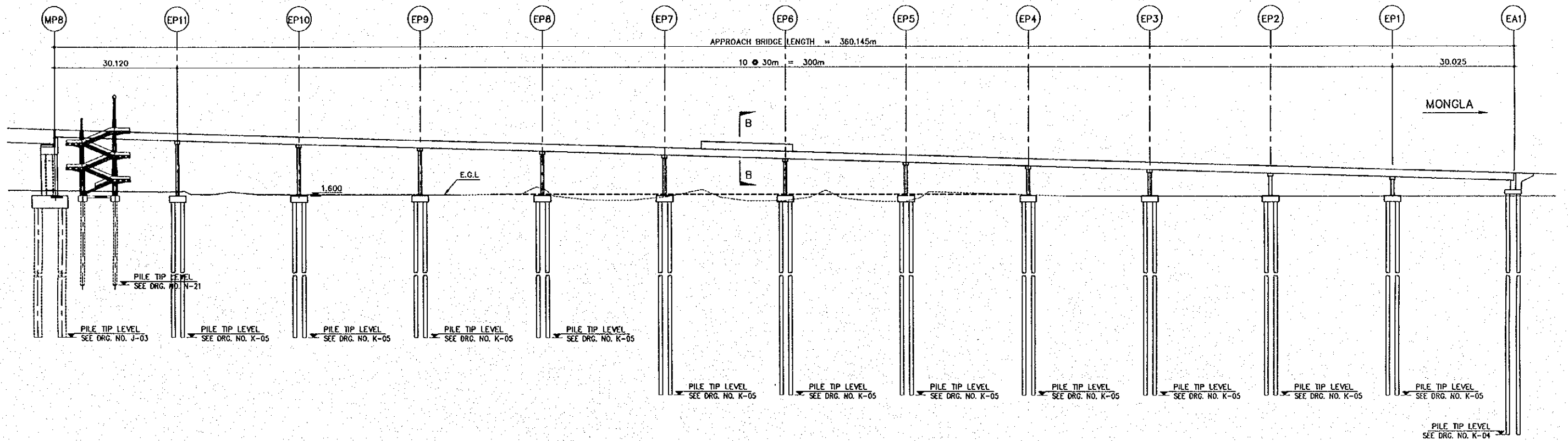


B SECTION A-A
K-01 SCALE 1:100

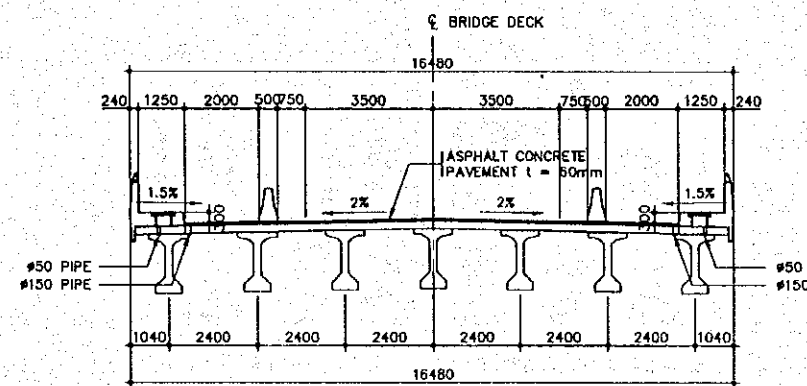
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

GENERAL ARRANGEMENT OF
APPROACH BRIDGE (MONGLA SIDE)

SCALE	SHEET NO.
AS SHOWN	K-02



A ELEVATION ON BRIDGE
K-02 SCALE 1:500



B SECTION B-B
K-02 SCALE 1:100

THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

REINFORCEMENT DETAILS
OF ABUTMENT

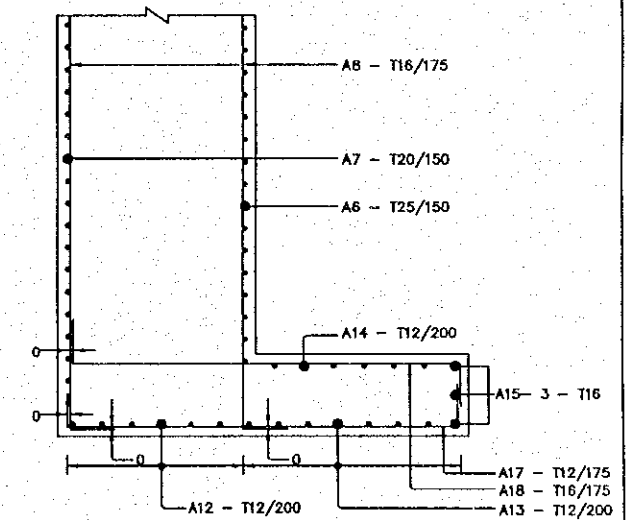
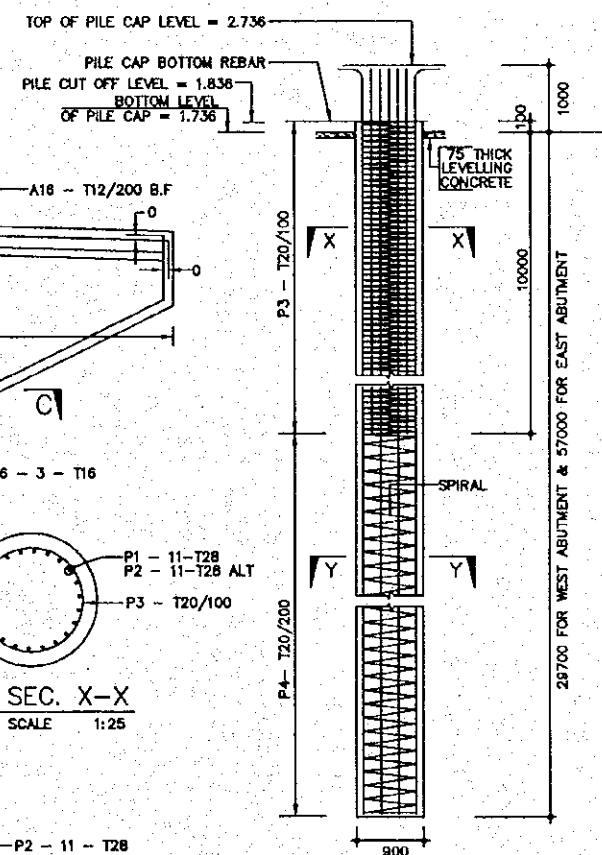
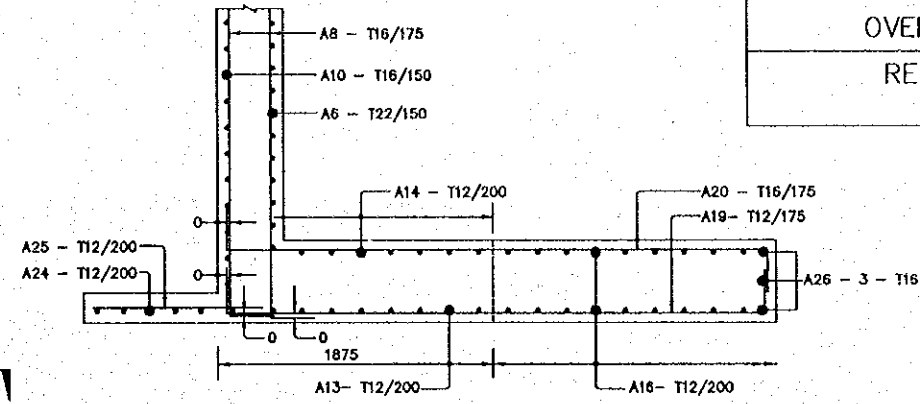
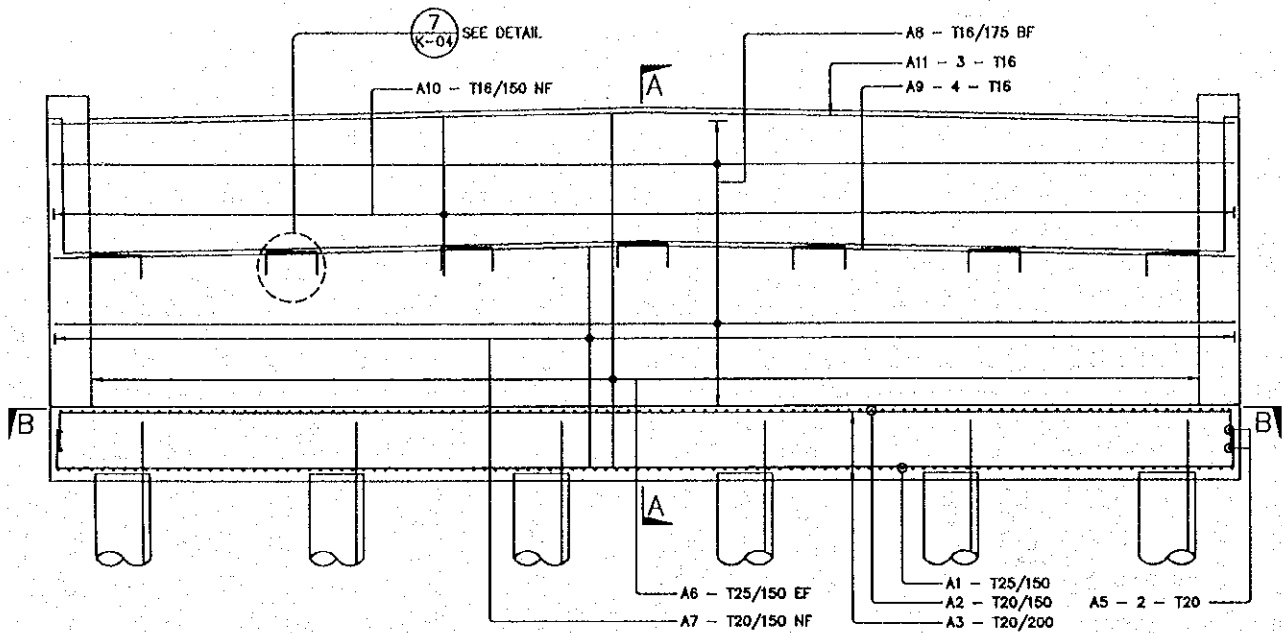
SCALE	SHEET NO.
AS SHOWN	K-04

NOTES :

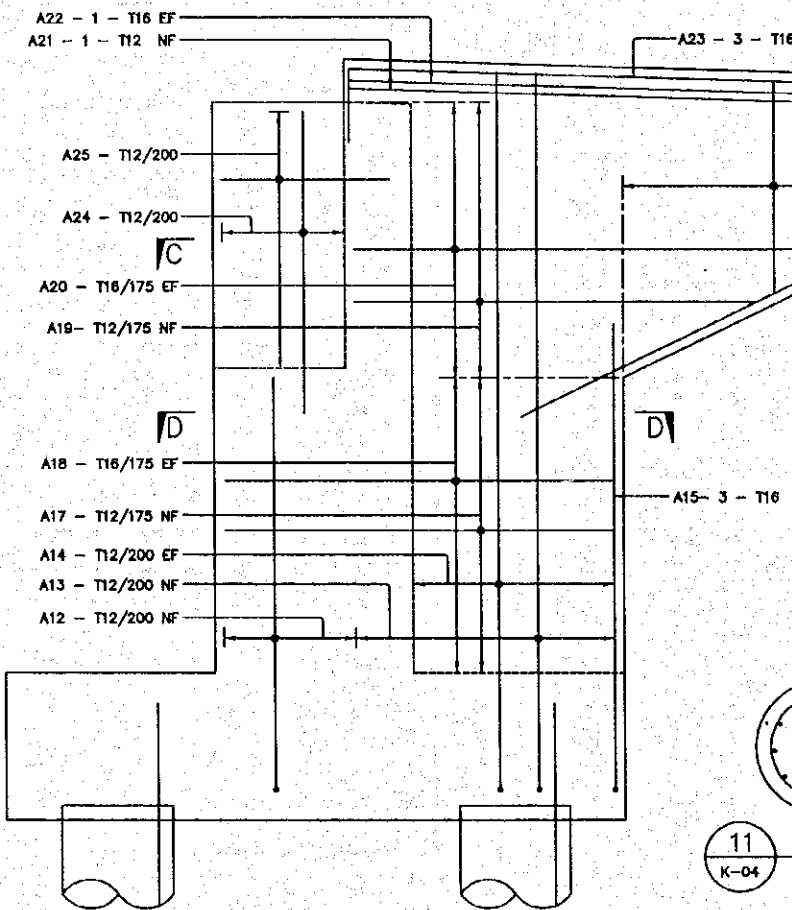
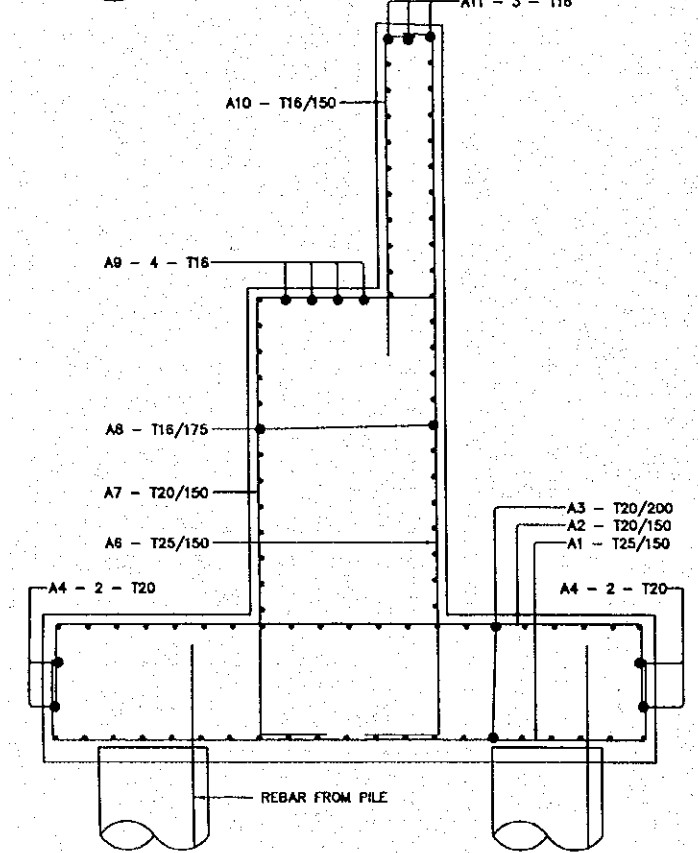
- ALL DIMENSIONS ARE IN MILLIMETER UNLESS MENTIONED OTHERWISE.
- 28 DAYS CYLINDER STRENGTH OF CONCRETE SHALL BE 30 MPa.
- REINFORCEMENT TO BE DEFORMED BARS TO AASHTO M31 (ASTM A615) GRADE 60.
- NOT ALL REINFORCEMENT ARE NECESSARILY SHOWN IN ANY VIEW.
- MINIMUM CLEAR COVER TO REINFORCEMENT :
(a) PILE CAP, BOTTOM = 150mm, TOP AND SIDE = 65mm,
(b) VERTICAL MEMBER, COLUMN = 65mm.
(c) PILE : STIRRUP = 90, PRIMARY BAR = 100.
- MINIMUM LAP LENGTHS TO BE AS FOLLOW :
FOR 50% SPLICE
32# = 1500mm, 28# = 1150mm, 25# = 925mm,
22# = 710mm, 20# = 630mm, 16# = 500mm, 12# = 380mm.
FOR 75 TO 100% SPLICE
32# = 1950mm, 28# = 1500mm, 25# = 1200mm,
22# = 930mm, 20# = 820mm, 16# = 660mm, 12# = 490mm.
LAP LENGTH BASED ON SMALLEST DIAMETER BAR AND CALCULATED IN
ACCORDANCE WITH AASHTO ARTICLE 8.32, ASSUMING BAR TO BE FULLY STRESSED.
- KEY TO REINFORCEMENT NOMENCLATURE:

P	PIER	P5 - 5 - T16/150 EF	LOCATION/COMMENT
BAR MARK			SPACING
QUANTITY			BAR DIAMETER
			T=GRADE 60 BAR
			R=GRADE 40 BAR

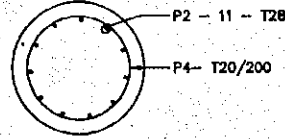
ABBREVIATION: -
NF = NEAR FACE; FF = FAR FACE; BF = BOTH FACE; EF = EARTH FACE;
T = TOP; B = BOTTOM; STAGG = STAGGERED LAP, ALT = ALTERNATE SPACING.



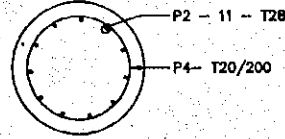
1 REINF. DETAIL OF ABUTMENT
K-04 SCALE 1:50



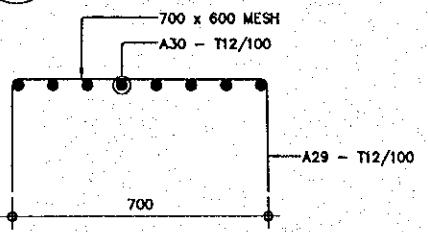
10 SEC. X-X
K-04 SCALE 1:25



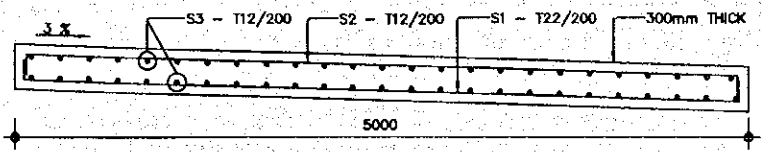
11 SEC. Y-Y
K-04 SCALE 1:25



2 SECTION A-A
K-04 SCALE 1:25



3 REINF. DETAIL OF WING WALL
K-04 SCALE 1:25

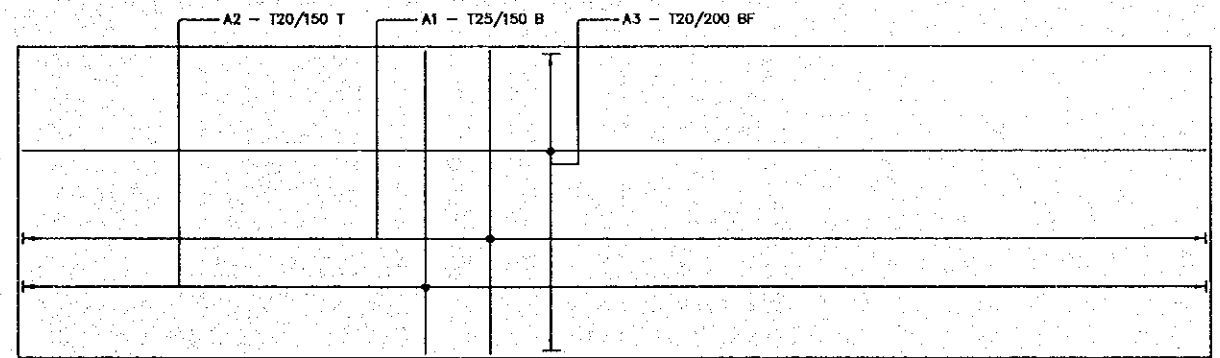


7 DETAIL
K-04 SCALE 1:10



8 SECTIONAL REINFORCEMENT DETAILS OF APPROACH SLAB
K-04 SCALE 1:25

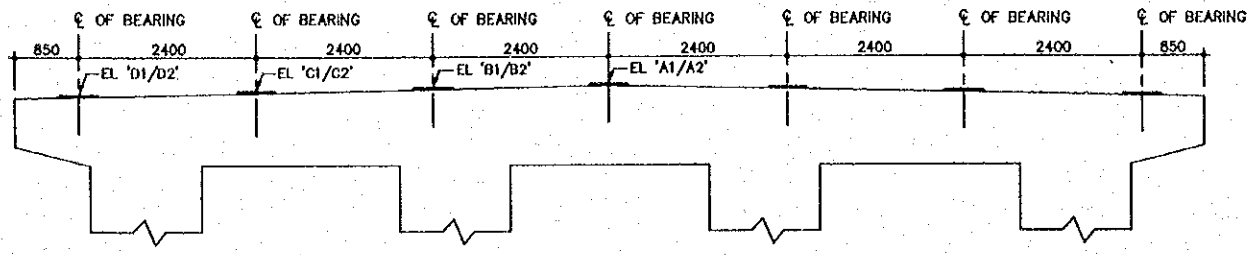
9 SECTION B-B
K-04 SCALE 1:50



**THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)**

GENERAL ARR. & RC DETAIL OF PIERS

	SCALE	SHEET NO.
	AS SHOWN	K-05



1. EAST SIDE (MONGLA)

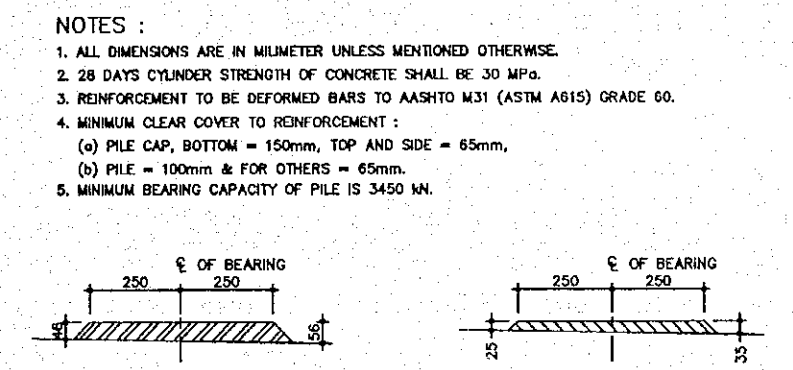
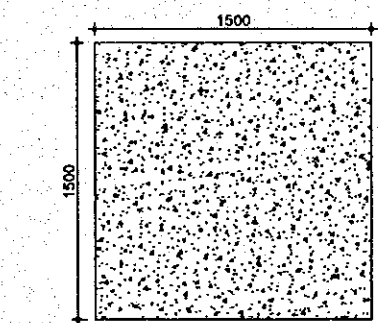
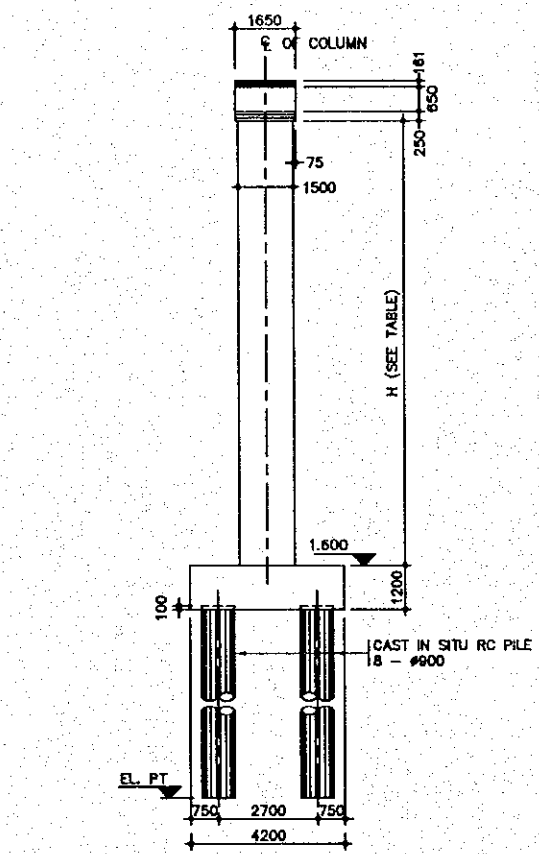
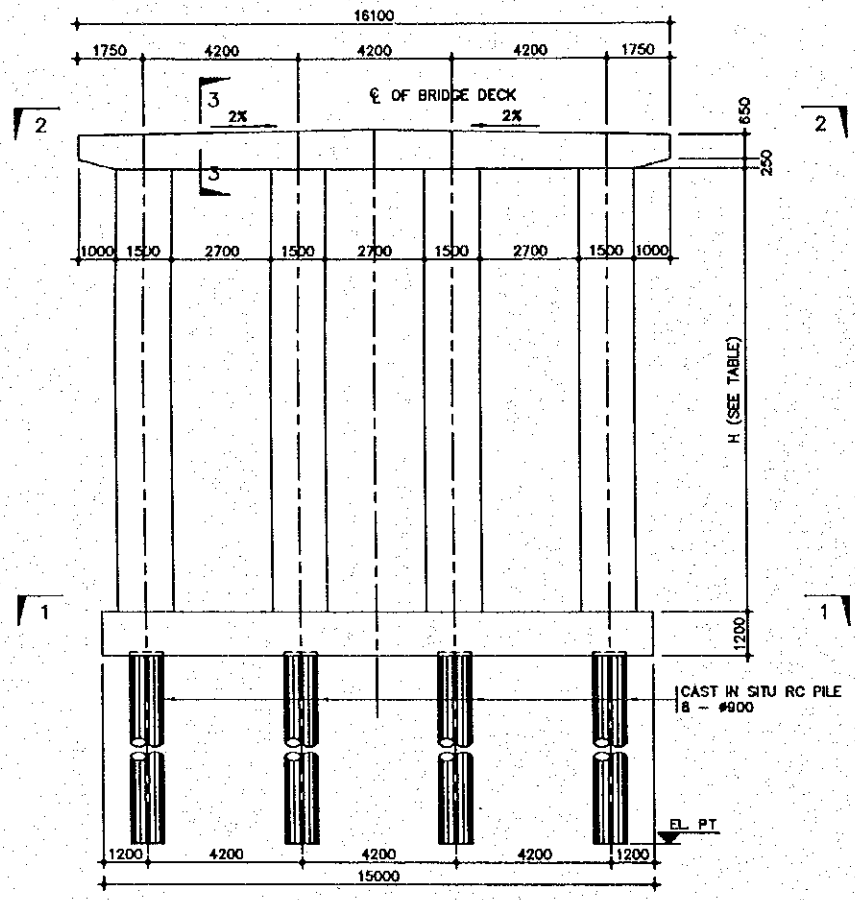
PIER	EP1	EP2	EP3	EP4	EP5	EP6	EP7	EP8	EP9	EP10	EP11
STATION	8210.120	8180.120	8150.120	8120.120	8090.120	8060.120	8030.120	8000.120	7970.120	7940.120	7910.120
EL. PT (PWD)	-55.000	-55.000	-55.000	-55.000	-55.000	-55.000	-55.000	-43.000	-43.000	-43.000	-43.000

2. WEST SIDE (KHULNA)

PIER	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9	WP10	WP11
STATION	6909.880	6939.880	6969.880	6999.880	7029.880	7059.880	7089.880	7119.880	7149.880	7179.880	7209.880
EL. PT (PWD)	-46.000	-46.000	-46.000	-46.000	-46.000	-46.000	-46.000	-46.000	-46.000	-46.000	-46.000

3. BOTH SIDES

PIER	EP1/WP1	EP2/WP2	EP3/WP3	EP4/WP4	EP5/WP5	EP6/WP6	EP7/WP7	EP8/WP8	EP9/WP9	EP10/WP10	EP11/WP11
FORMATION	7.996	8.896	9.796	10.696	11.596	12.496	13.393	14.296	15.196	16.096	16.996
EL. 'A1'	5.878	6.778	7.678	8.578	9.478	10.378	11.278	12.178	13.078	13.978	14.878
EL. 'B1'	5.830	6.730	7.630	8.530	9.430	10.330	11.230	12.130	13.030	13.930	14.830
EL. 'C1'	5.782	6.682	7.582	8.482	9.382	10.282	11.182	12.082	12.982	13.882	14.782
EL. 'D1'	5.734	6.634	7.534	8.434	9.334	10.234	11.134	12.034	12.934	13.834	14.734
EL. 'A2'	5.857	6.757	7.657	8.557	9.457	10.357	11.257	12.157	13.057	13.957	14.857
EL. 'B2'	5.809	6.709	7.609	8.509	9.409	10.309	11.209	12.109	13.009	13.909	14.809
EL. 'C2'	5.761	6.661	7.561	8.461	9.361	10.261	11.161	12.061	12.961	13.861	14.761
EL. 'D2'	5.713	6.613	7.513	8.413	9.313	10.213	11.113	12.013	12.913	13.813	14.713
H (m)	3.166	4.066	4.966	5.866	6.766	7.666	8.566	9.466	10.366	11.266	12.166



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS MENTIONED OTHERWISE.
2. 28 DAYS CYLINDER STRENGTH OF CONCRETE SHALL BE 30 MPa.
3. REINFORCEMENT TO BE DEFORMED BARS TO AASHTO M31 (ASTM A615) GRADE 60.
4. MINIMUM CLEAR COVER TO REINFORCEMENT :
(a) PILE CAP, BOTTOM = 150mm, TOP AND SIDE = 65mm,
(b) PILE = 100mm & FOR OTHERS = 65mm.
5. MINIMUM BEARING CAPACITY OF PILE IS 3450 kN.

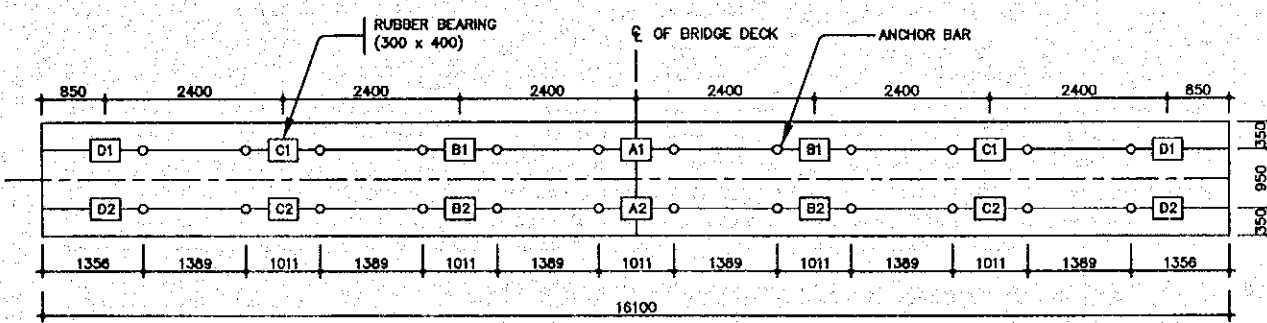
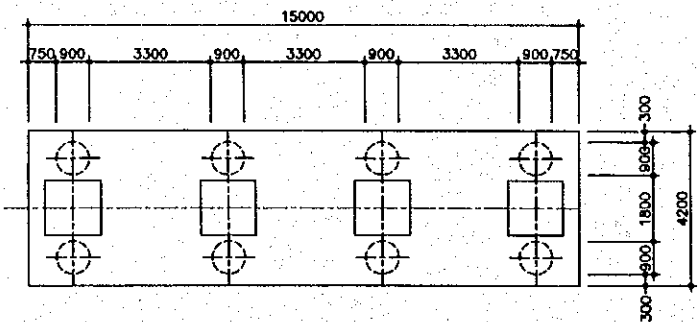
A FRONT ELEVATION OF TYPICAL PIER
SCALE 1:100

C SIDE ELEVATION OF TYPICAL PIER
SCALE 1:100

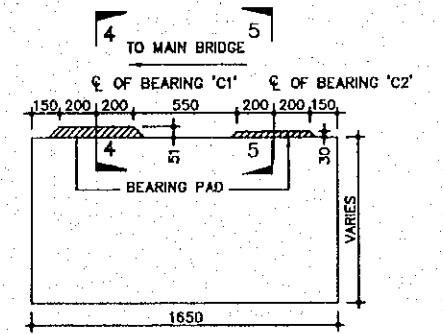
G TYPICAL COLUMN SECTION
SCALE 1:20

H SECTION 4-4
SCALE 1:10

I SECTION 5-5
SCALE 1:10



D SECTION 2-2
SCALE 1:100

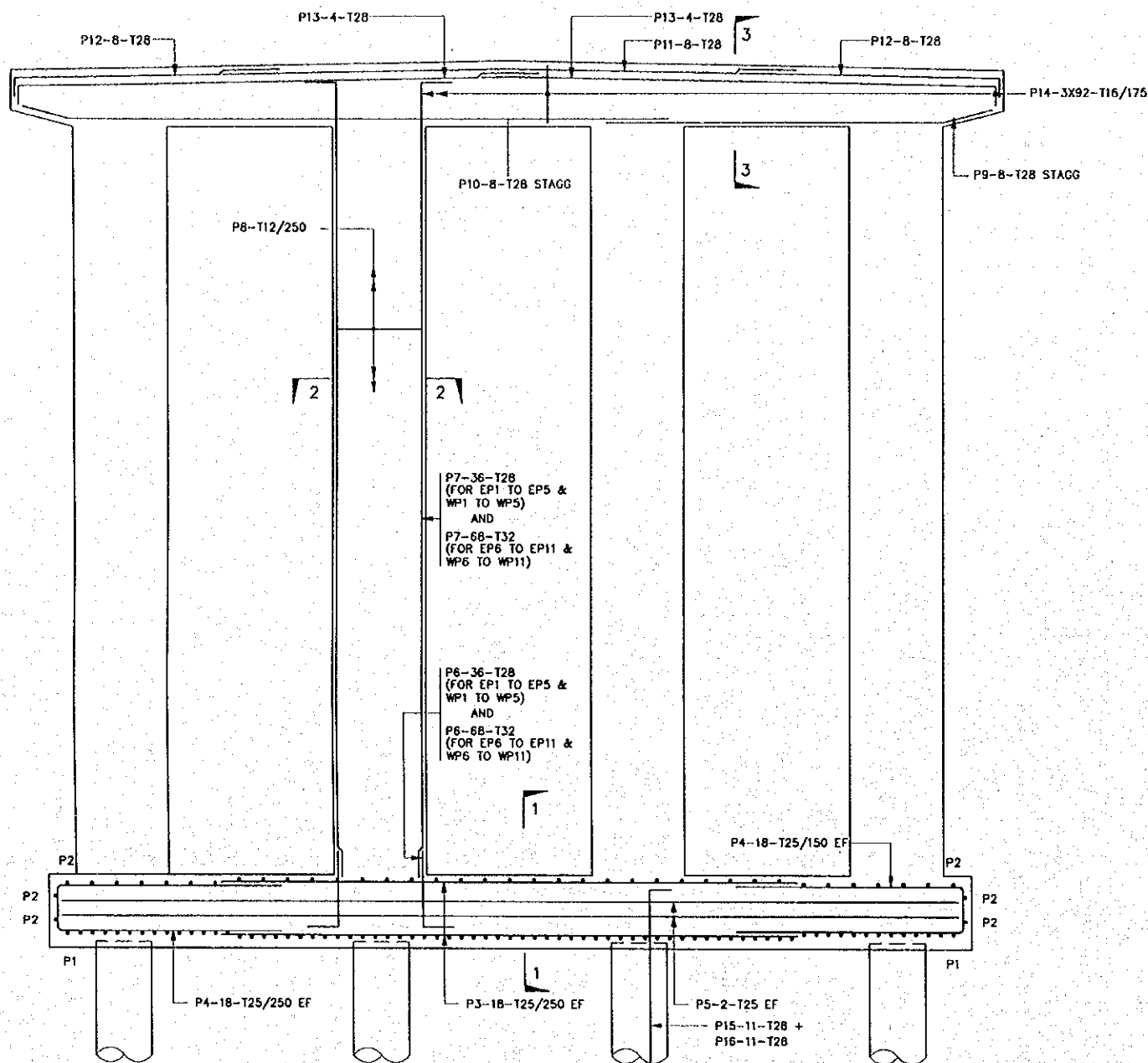


E SECTION 3-3
SCALE 1:20

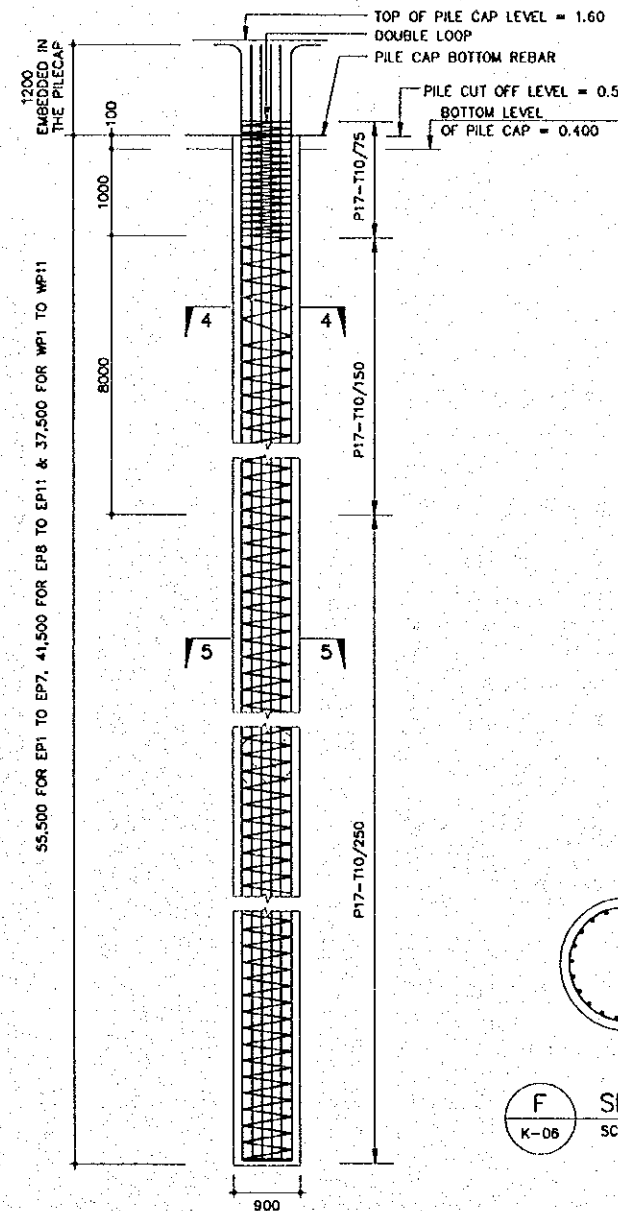
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

REINF. DETAILS OF PIERS

SCALE AS SHOWN
SHEET NO. K-06

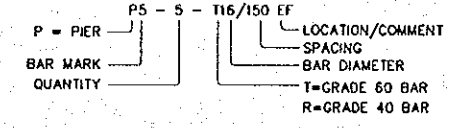


A FRONT ELEVATION OF TYPICAL PIER
K-06 SCALE 1:50

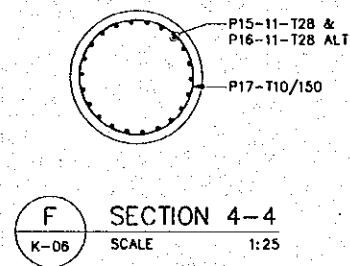


E PILE REINF. DETAILS
K-06 SCALE 1:50

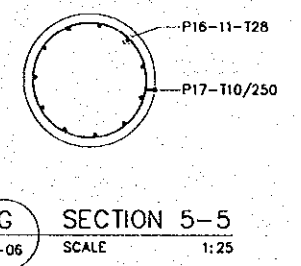
- NOTES :**
- ALL DIMENSIONS ARE IN MILLIMETER UNLESS MENTIONED OTHERWISE.
 - 28 DAYS CYLINDER STRENGTH OF CONCRETE SHALL BE 30 MPa.
 - REINFORCEMENT TO BE DEFORMED BARS TO AASHTO M31 (ASTM A615) GRADE 60.
 - NOT ALL REINFORCEMENT ARE NECESSARILY SHOWN IN ANY VIEW.
 - MINIMUM CLEAR COVER TO REINFORCEMENT :
(a) PILE CAP, BOTTOM = 150mm, TOP AND SIDE = 65mm.
(b) VERTICAL MEMBER, COLUMN = 65mm.
(c) PILE : STIRRUP = 90, PRIMARY BAR = 100.
 - MINIMUM LAP LENGTHS TO BE AS FOLLOW :
FOR 50% SPLICE
22# = 710mm, 20# = 630mm, 16# = 500mm, 12# = 380mm.
FOR 75 TO 100% SPLICE
22# = 930mm, 20# = 820mm, 16# = 660mm, 12# = 490mm.
LAP LENGTH BASED ON SMALLEST DIAMETER BAR AND CALCULATED IN ACCORDANCE WITH AASHTO ARTICLE 8.32, ASSUMING BAR TO BE FULLY STRESSED.
 - KEY TO REINFORCEMENT NOMENCLATURE:



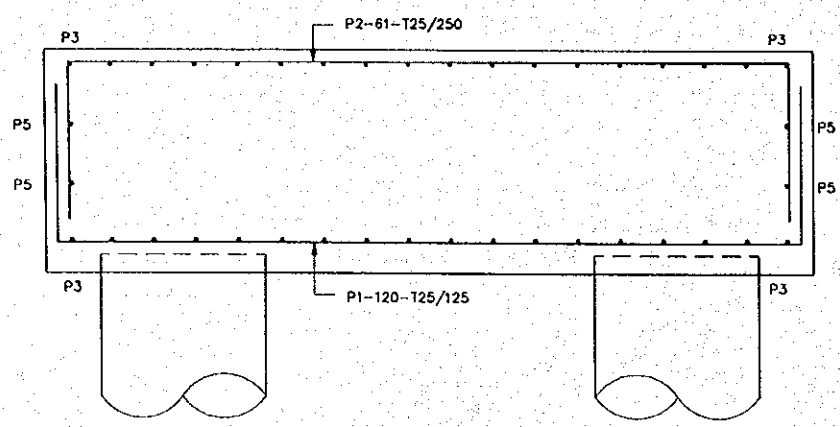
ABBREVIATION:-
NF = NEAR FACE; FF = FAR FACE; BF = BOTH FACE; EF = EARTH FACE;
T = TOP; B = BOTTOM; STAGG = STAGGERD LAP, ALT = ALTERNATE SPACING.



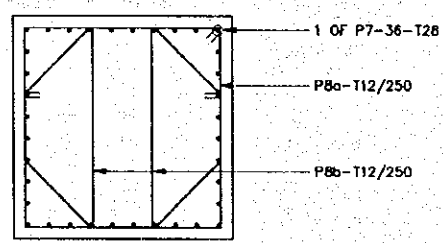
F SECTION 4-4
K-06 SCALE 1:25



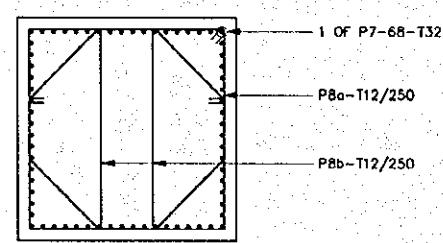
G SECTION 5-5
K-06 SCALE 1:25



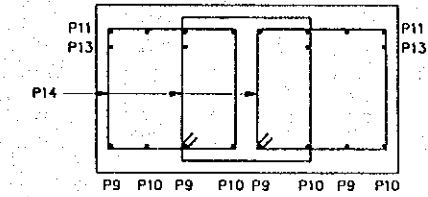
B SECTION 1-1
K-06 SCALE 1:20



C1 SECTION 2-2
K-06 SCALE 1:20



C2 SECTION 2-2
K-06 SCALE 1:20



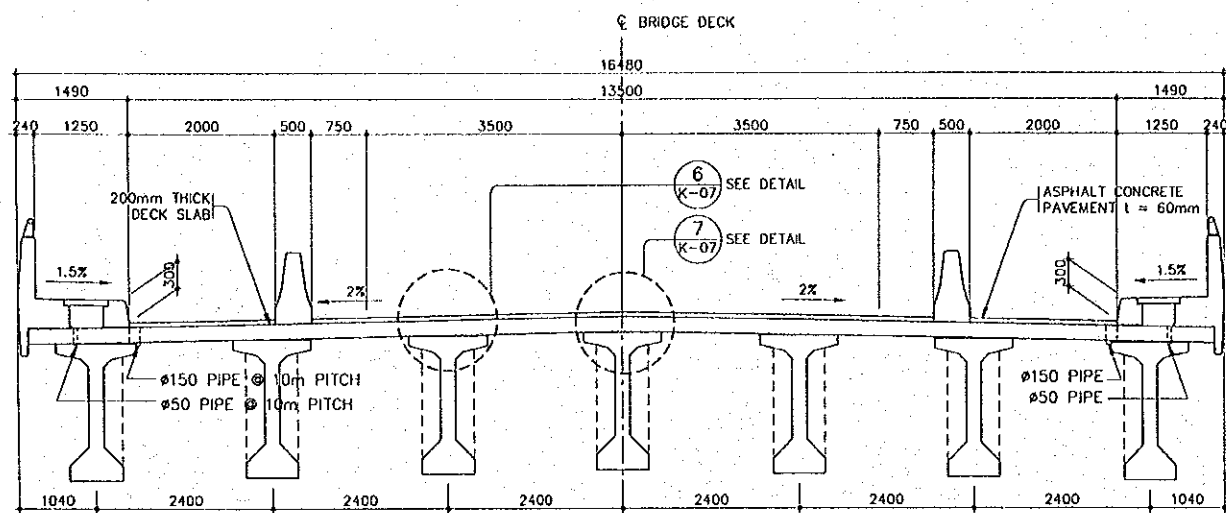
D SECTION 3-3
K-06 SCALE 1:20

(SEC. 2-2 OF DRAWING C1 IS APPLICABLE FOR PIER EP1 TO EP5 AND WP1 TO WP5)
(SEC. 2-2 OF DRAWING C2 IS APPLICABLE FOR PIER EP6 TO EP11 AND WP6 TO WP11)

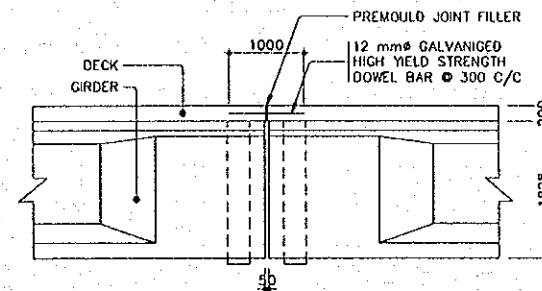
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

GENERAL ARRANGEMENT AND
RC DETAIL OF DECK

SCALE	SHEET NO.
AS SHOWN	K-07



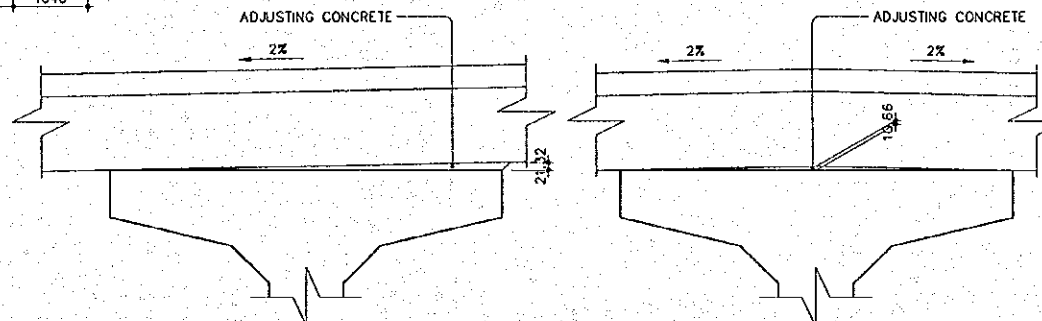
1 VIADUCT DECK SECTION
K-07 SCALE 1:50



5 JOINT DETAILS BETWEEN TWO GIRDER
K-07 SCALE 1:50

NOTES :

- ALL DIMENSIONS ARE IN MILLIMETER UNLESS MENTIONED OTHERWISE.
- 28 DAYS CYLINDER STRENGTH OF CONCRETE SHALL BE 30 MPa.
- REINFORCEMENT TO BE DEFORMED BARS TO AASHTO M31 (ASTM A615) GRADE 60.
- NOT ALL REINFORCEMENT ARE NECESSARILY SHOWN IN ANY VIEW.
- MINIMUM CLEAR COVER TO REINFORCEMENT :
(a) DECK SLAB: TOP = 50mm, BOTTOM = 40mm, SIDE = 40mm.
- MINIMUM LAP LENGTHS TO BE AS FOLLOW :
FOR 50% SPLICE
20# = 630mm, 16# = 500mm, 12# = 380mm.
FOR 75 TO 100% SPLICE
20# = 820mm, 16# = 660mm, 12# = 490mm.
LAP LENGTH BASED ON SMALLEST DIAMETER BAR AND CALCULATED IN ACCORDANCE WITH AASHTO ARTICLE 8.32, ASSUMING BAR TO BE FULLY STRESSED.
- KEY TO REINFORCEMENT NOMENCLATURE:



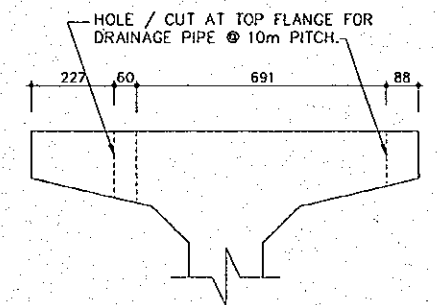
6 DETAIL
K-07 SCALE 1:10

ANCHOR BAR FOR BARRIER
(for detail see drg. no. J-41)

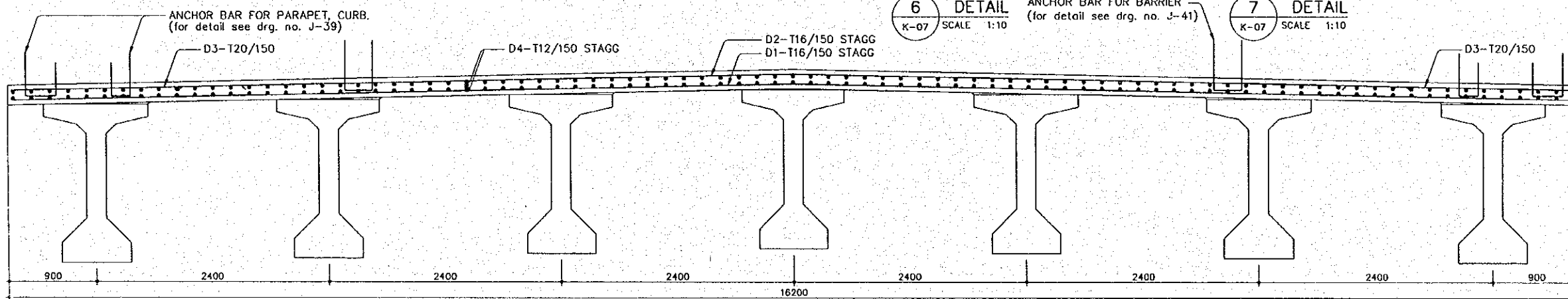
7 DETAIL
K-07 SCALE 1:10

ABBREVIATION: -
NF = NEAR FACE; FF = FAR FACE; BF = BOTH FACE; EF = EARTH FACE;
T = TOP; B = BOTTOM; STAGG = STAGGERED LAP, ALT = ALTERNATE SPACING.

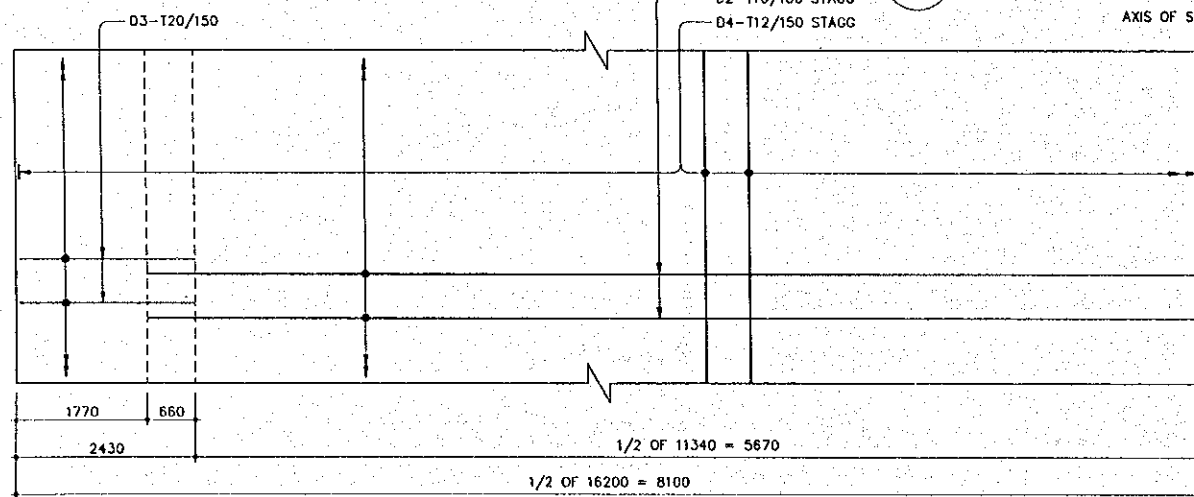
D5 - 5 - T16/150 STAGG
D = DECK SLAB BAR MARK QUANTITY
LOCATION/COMMENT
SPACING
BAR DIAMETER
T=GRADE 60 BAR
R=GRADE 40 BAR



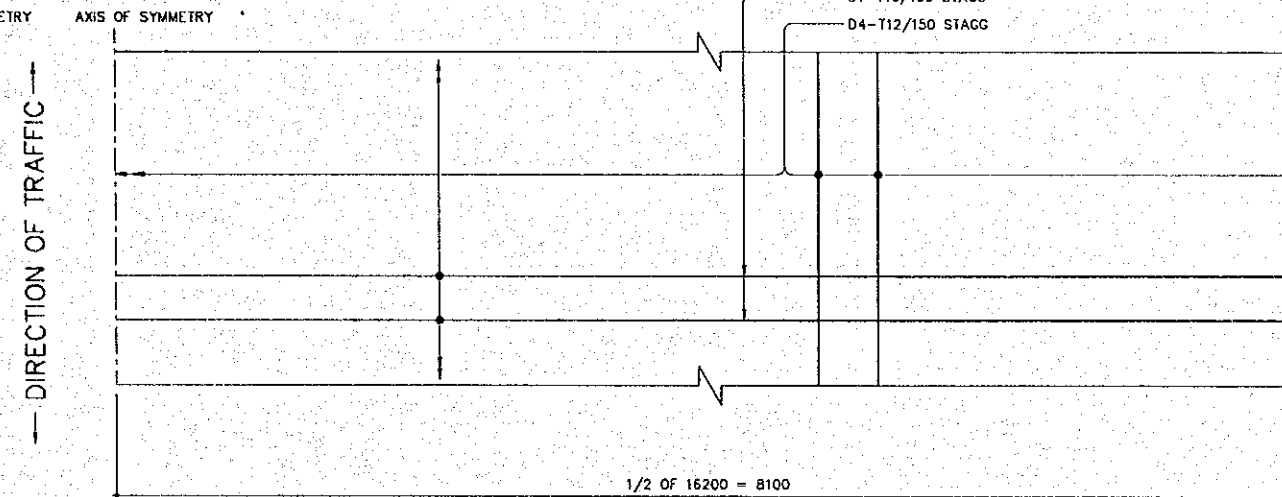
8 LOCATION OF HOLE AT TOP FLANGE FOR DRAINAGE PIPE
K-07 SCALE 1:10



2 REINFORCEMENT DETAILS OF DECK SLAB
K-07 SCALE 1:25



3 HALF PLAN OF TOP REINF. AT DECK SLAB
K-07 SCALE 1:50

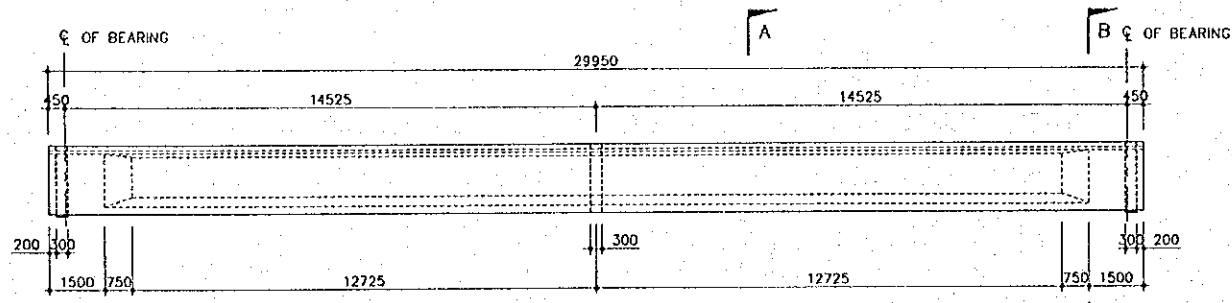


4 HALF PLAN OF BOTTOM REINF. AT DECK SLAB
K-07 SCALE 1:50

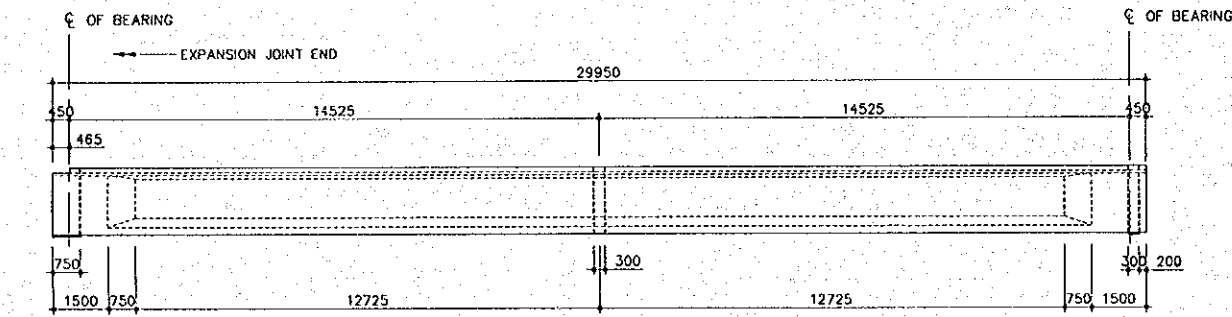
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

PRESTRESSED GIRDER DETAILS (1)

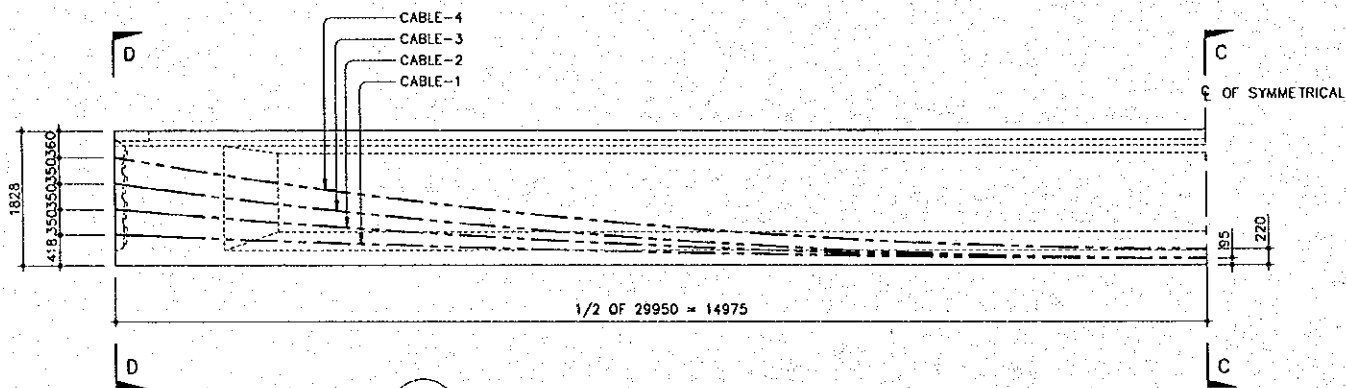
SCALE AS SHOWN SHEET NO. K-08



1 GENERAL ELEVATION OF ALL GIRDER EXCEPT (2)
K-08 SCALE 1:100



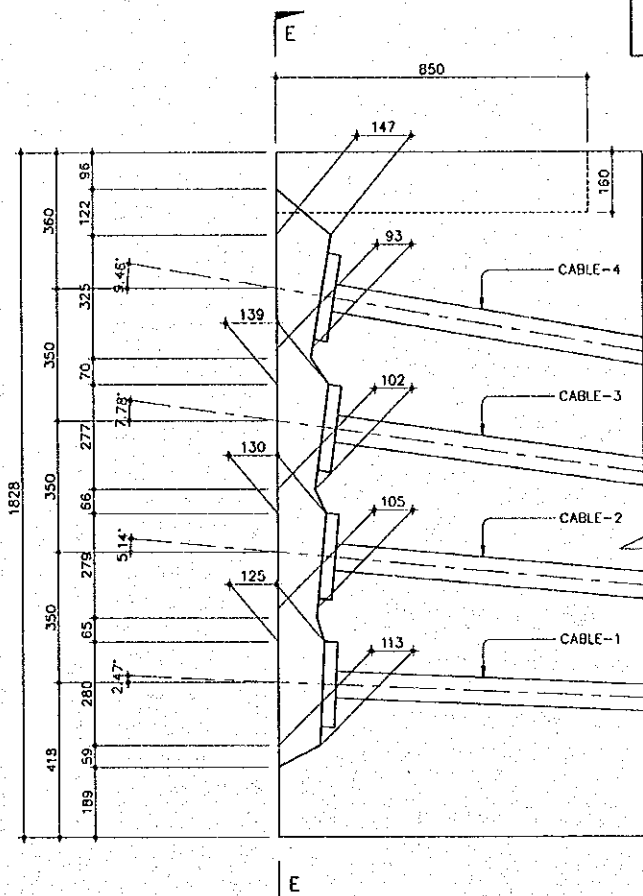
2 GENERAL ELEVATION OF GIRDERS NEAR EXPANSION JOINT
K-08 SCALE 1:100



3 HALF ELEVATION OF CABLE LAYOUT
K-08 SCALE 1:50

ELEVATION OF CABLE FROM SOFFIT OF GIRDER	DISTANCE FROM CENTER OF GIRDER																
	CABLE NO.	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	14975
CABLE-1	95.0	96.4	100.8	108.0	118.0	131.0	146.9	165.6	187.2	211.7	239.0	269.3	302.4	338.4	377.3	418.0	
CABLE-2	95.0	98.0	107.0	122.0	143.0	170.0	203.0	242.1	287.1	338.1	395.1	458.1	527.2	602.2	683.2	768.0	
CABLE-3	95.0	99.6	113.2	136.1	168.0	209.0	259.2	318.5	387.0	464.5	551.2	647.0	751.9	866.0	989.1	1118.0	
CABLE-4	220.0	225.6	242.3	270.1	309.0	359.1	420.3	492.7	576.2	670.8	776.5	893.4	1021.4	1180.5	1310.8	1468.0	

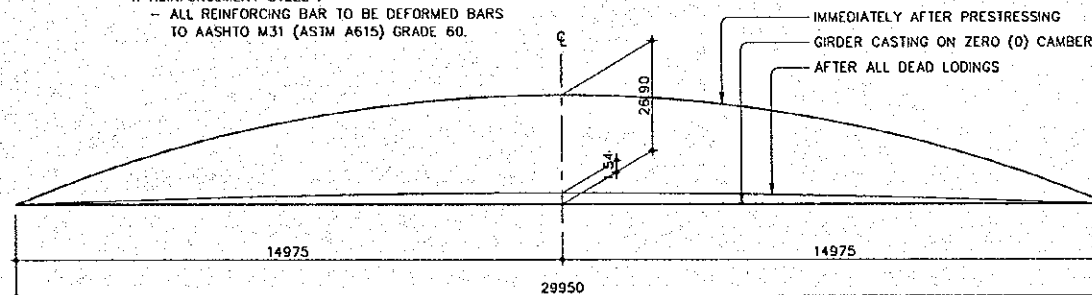
11 CABLE ELEVATION
K-08 SCALE NTS



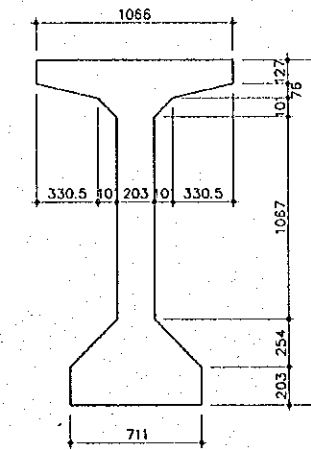
4 END RECESSES DIMENSIONS
K-08 SCALE 1:10

NOTES :

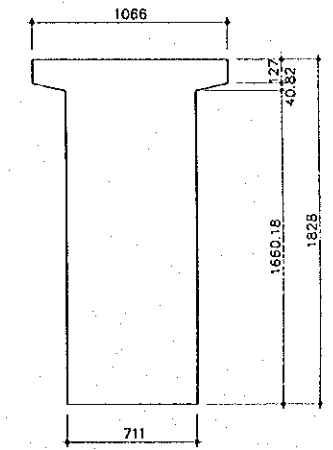
- ALL DIMENSIONS ARE IN MILLIMETER UNLESS MENTIONED OTHERWISE.
- CONCRETE :
- MINIMUM CONCRETE COMPRESSIVE CYLINDER TEST FOR GIRDERS, 28 DAYS, $f_c = 35$ MPa.
- TRANSFER OF PRESTRESS, $f_{ci} = 30$ MPa.
- PRESTRESSING CABLE :
- USE UNCOATED SEVEN WIRE STRESS RELIEVED STRAND ASTM A416 GRADE 270, DIA. = 12.7mm.
- TENDON 1, 2 & 3 CONTAINS 12 STRANDS.
- TENDON 4 CONTAINS 8 STRANDS.
- MINIMUM DUCT INTERNAL DIAMETER = 55mm.
- ASSUMED JACK LOSS = 3 PERCENT.
- DESIGN JACKING STRESS WILL BE = 1370 MPa (after jack loss).
- AVERAGE DESIGN ELONGATION = 210mm, BASED ON
- ONE SIDE JACKING
- MODULUS OF ELASTICITY = 193053 MPa.
- WOOLLE CO-EFFICIENT = 0.00066
- CURVATURE CO-EFFICIENT = 0.25.
- REINFORCEMENT STEEL :
- ALL REINFORCING BAR TO BE DEFORMED BARS TO AASHTO M31 (ASTM A615) GRADE 60.



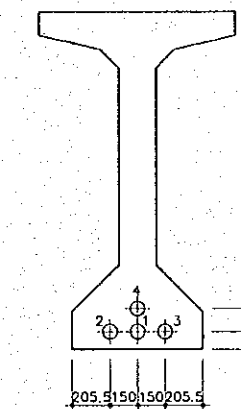
10 CAMBER DIAGRAM
K-08 SCALE NOT TO SCALE



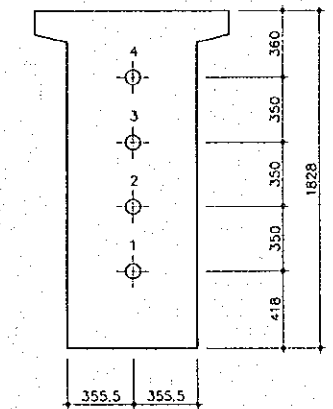
5 SECTION A-A
K-08 SCALE 1:20



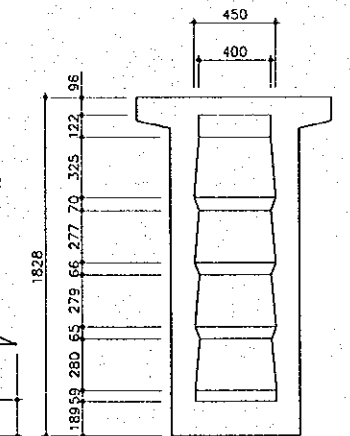
6 SECTION B-B
K-08 SCALE 1:20



7 SECTION C-C
K-08 SCALE 1:20



8 SECTION D-D
K-08 SCALE 1:20



9 SECTION E-E
K-08 SCALE 1:20

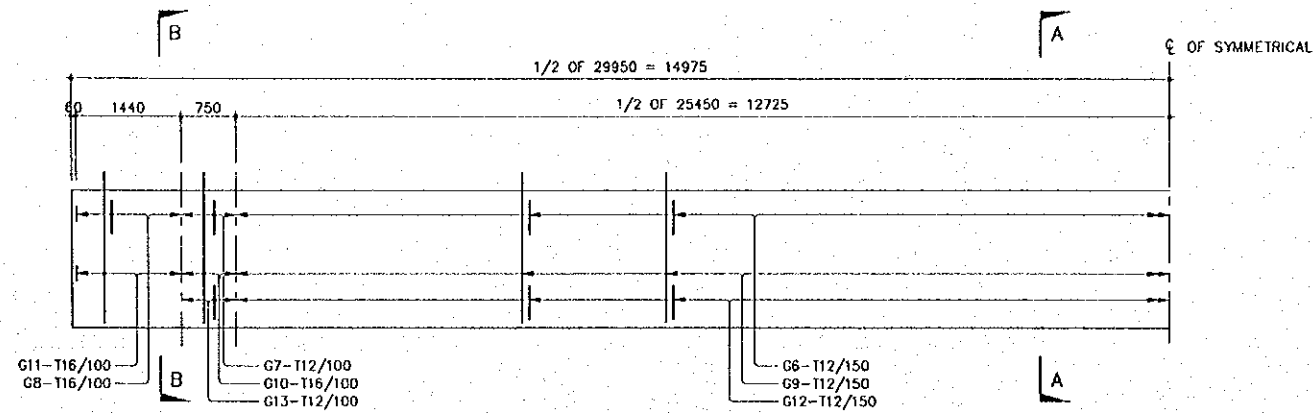
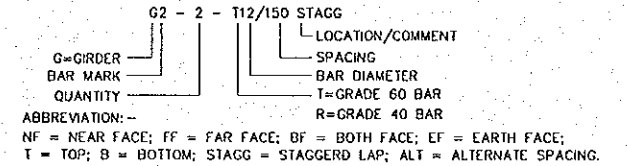
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

PRESTRESSED GIRDER DETAILS (2)

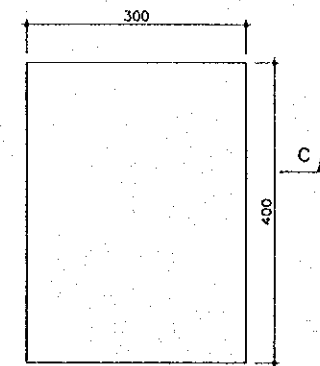
SCALE	SHEET NO.
AS SHOWN	K-09

NOTES :

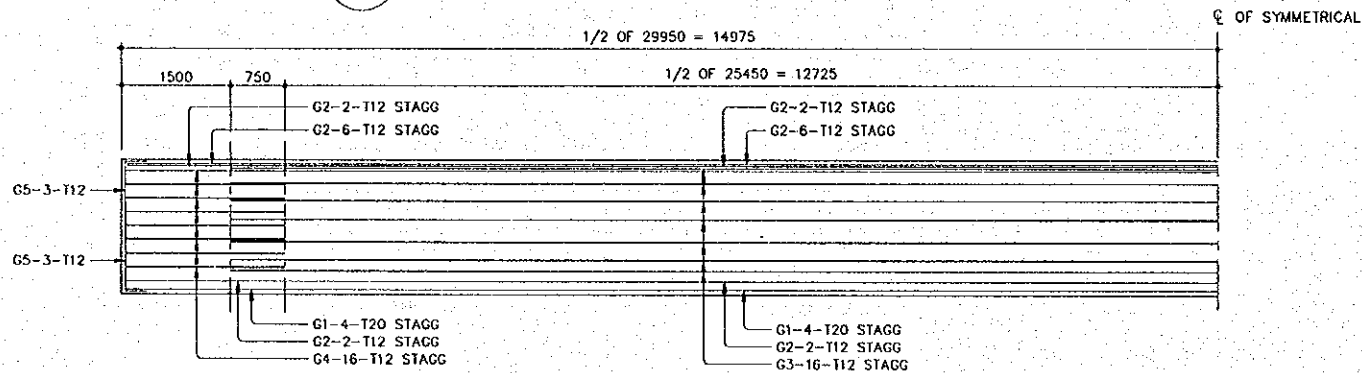
- ALL DIMENSIONS ARE IN MILLIMETER UNLESS MENTIONED OTHERWISE.
- NOT ALL REINFORCEMENT ARE NECESSARILY SHOWN IN ANY VIEW.
- CONCRETE :
- MINIMUM CONCRETE COMPRESSIVE CYLINDER TEST FOR GIRDERS.
28 DAYS, $f_c = 35 \text{ MPa}$.
TRANSFER OF PRESTRESS, $f_{ci} = 30 \text{ MPa}$.
- REINFORCING STEEL :
- ALL REINFORCING BAR TO BE DEFORMED BARS TO AASTHO M31 (ASTM A615) GRADE 60.
- MINIMUM LAP LENGTHS TO BE AS FOLLOW :
FOR 50% SPLICE
 $20\phi = 630\text{mm}$, $16\phi = 500\text{mm}$, $12\phi = 380\text{mm}$
FOR 75 TO 100% SPLICE
 $20\phi = 820\text{mm}$, $16\phi = 660\text{mm}$, $12\phi = 490\text{mm}$
LAP LENGTH BASED ON SMALLEST DIAMETER BAR AND CALCULATED IN ACCORDANCE WITH AASTHO ARTICLE 8.32, ASSUMING BAR TO BE FULLY STRESSED.
- MINIMUM CLEAR COVER TO REINFORCEMENT :
(a) STIRRUP = 40mm
(b) PRIMARY BARS = 50mm
- ELASTOMER TO BE USED IN BEARING SHALL BE OF SHORE HARDNESS OF 60 DUROMETER.
- STEEL LAMINATES TO BE USED IN BEARING SHALL BE MADE OF MADE OF MILD STEEL CONFORMING ASTM 136.
- KEY TO REINFORCEMENT NOMENCLATURE:



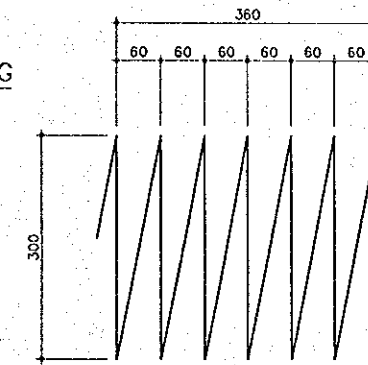
1 HALF ELEVATION OF GIRDER SHOWING VERTICAL NON-PRESTRESSED REINFORCEMENT
SCALE 1:50



7 PLAN OF BEARING
SCALE 1:5

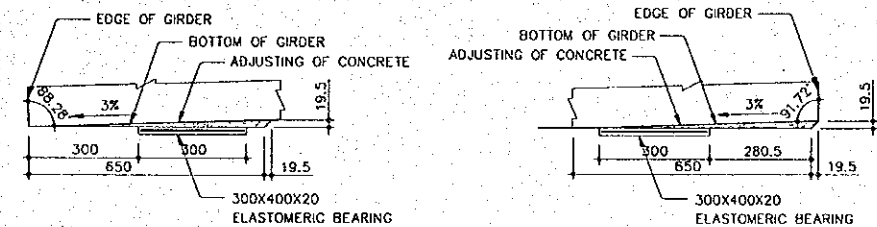


2 HALF ELEVATION OF GIRDER SHOWING HORIZONTAL NON-PRESTRESSED REINFORCEMENT
SCALE 1:50

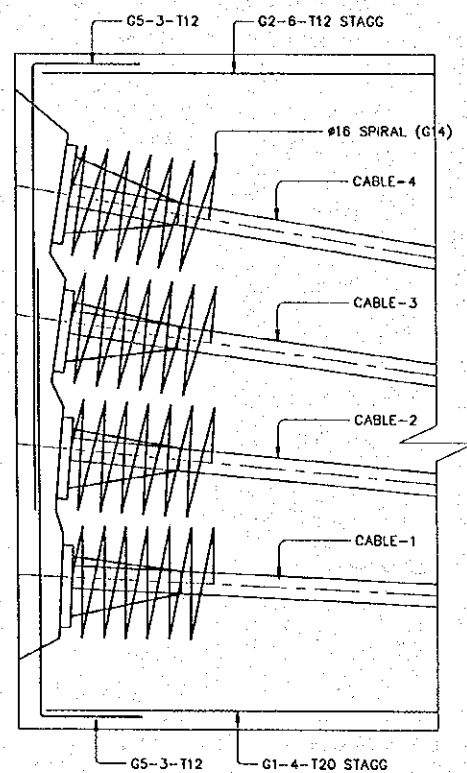


9 #16 SPIRAL
SCALE 1:5

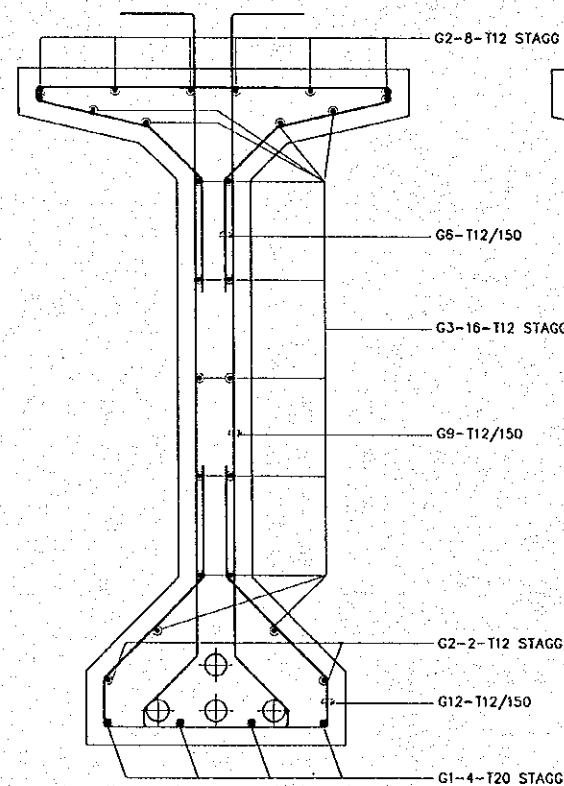
8 SECTION C-C
SCALE 1:5



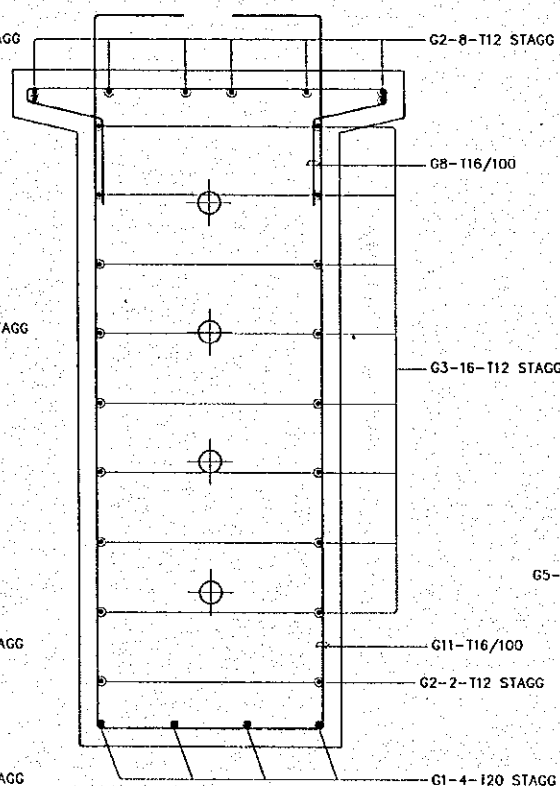
10 ADJUSTING CONCRETE & BEARING AT BOTTOM OF GIRDER NEAR SUPPORT
SCALE 1:10



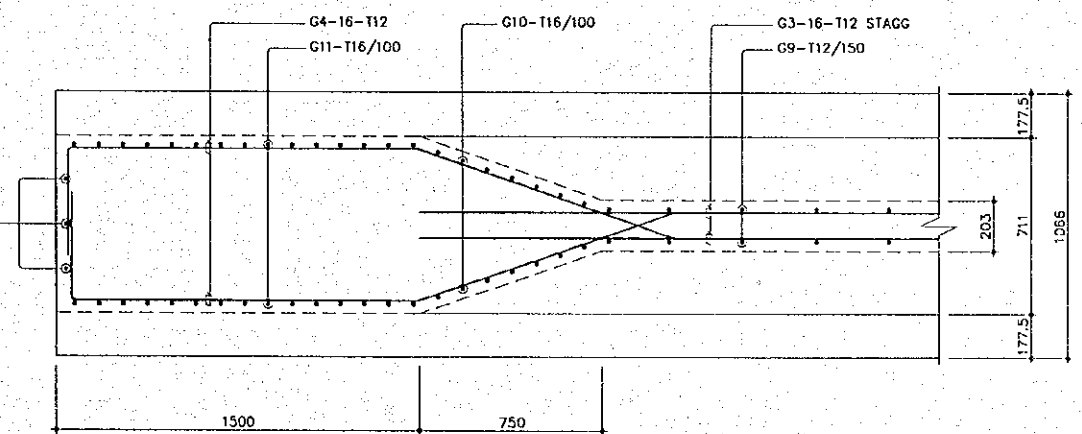
3 ELEVATION END BLOCK DETAIL
SCALE 1:10



4 SECTION A-A
SCALE 1:10



5 SECTION B-B
SCALE 1:10

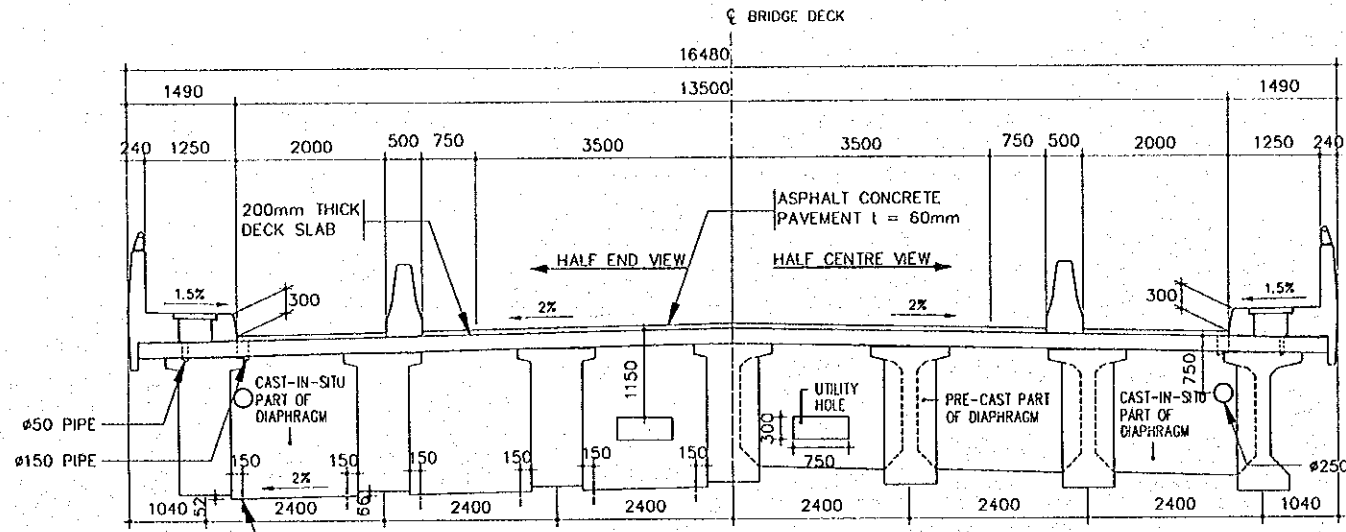


6 TYPICAL REINF. DETAIL OF GIRDER AT TAPER
SCALE 1:15

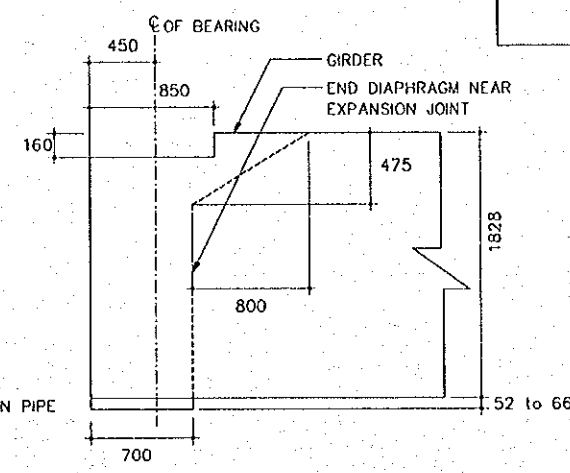
THE STUDY ON CONSTRUCTION OF THE BRIDGE
OVER THE RIVER RUPSA IN KHULNA (PHASE 2)

GENERAL ARRANGEMENT AND
RC DETAIL OF DIAPHRAGM

SCALE	SHEET NO.
AS SHOWN	K-10

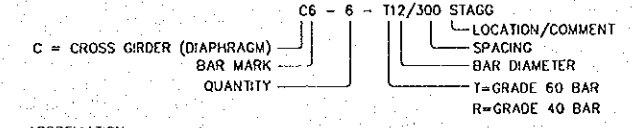


1 VIADUCT DECK SECTION (AT DIAPHRAGM)
SCALE 1:50

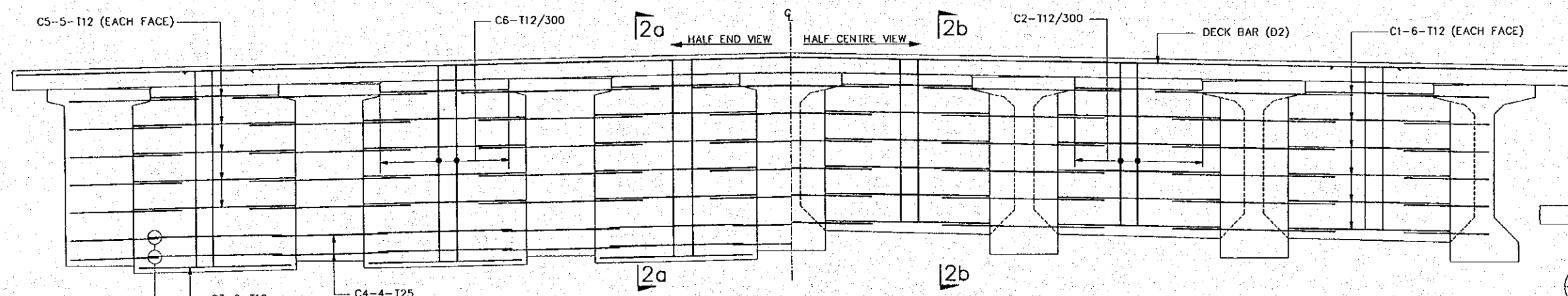


3 GEOMETRY OF END DIAPHRAGM
NEAR EXPANSION JOINT
SCALE 1:25

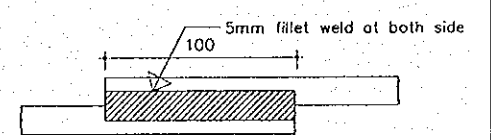
- NOTES :
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS MENTIONED OTHERWISE.
 2. 28 DAYS CYLINDER STRENGTH OF CONCRETE SHALL BE 30 MPa.
 3. REINFORCEMENT TO BE DEFORMED BARS TO AASHTO M31 (ASTM A615) GRADE 60.
 4. ULTIMATE STRENGTH OF WELDING MATERIAL SHALL BE 620 MPa.
 5. NOT ALL REINFORCEMENT ARE NECESSARILY SHOWN IN ANY VIEW.
 6. MINIMUM CLEAR COVER TO REINFORCEMENT :
(a) STIRRUP = 40mm, (b) PRIMARY BARS = 50mm.
 7. MINIMUM LAP LENGTHS TO BE AS FOLLOW :
FOR 50% SPLICE
12 ϕ = 380mm.
FOR 75 TO 100% SPLICE
12 ϕ = 490mm.
LAP LENGTH BASED ON SMALLEST DIAMETER BAR AND CALCULATED IN ACCORDANCE WITH AASHTO ARTICLE 8.32, ASSUMING BAR TO BE FULLY STRESSED.
 8. KEY TO REINFORCEMENT NOMENCLATURE:



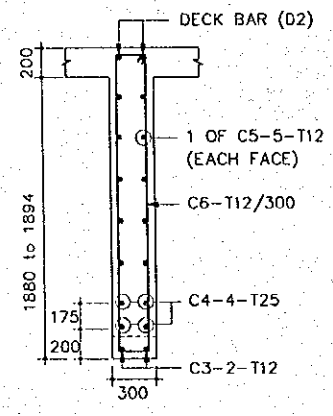
ABBREVIATION :-
NF = NEAR FACE; FF = FAR FACE; BF = BOTH FACE; EF = EARTH FACE;
T = TOP; B = BOTTOM; STAGG = STAGGERED LAP, ALT = ALTERNATE SPACING.



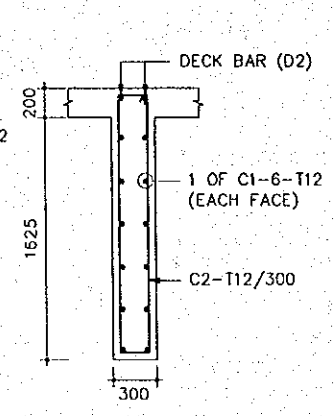
2 ELEVATION REINF. DETAIL OF DIAPHRAGM
EXCEPT DIAPHRAGM NEAR EXPANSION JOINT
SCALE 1:25



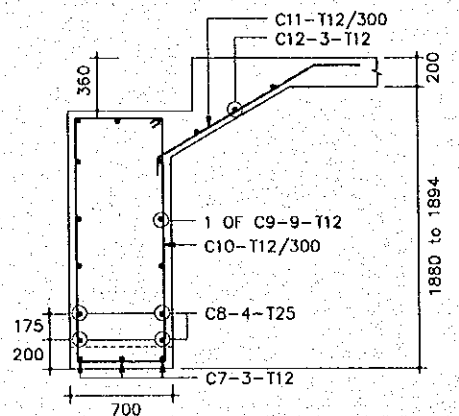
8 WELDED JOINT BETWEEN 25Ø BAR
SCALE NTS



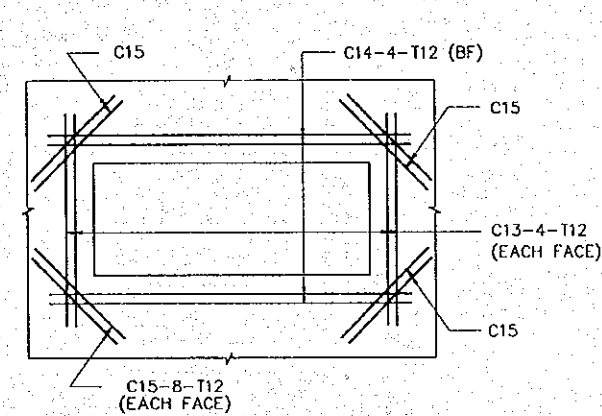
2a SECTION
SCALE 1:25



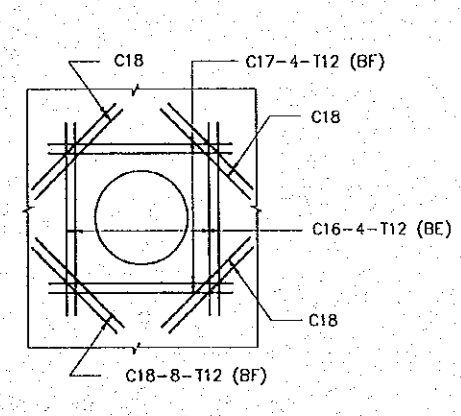
2b SECTION
SCALE 1:25



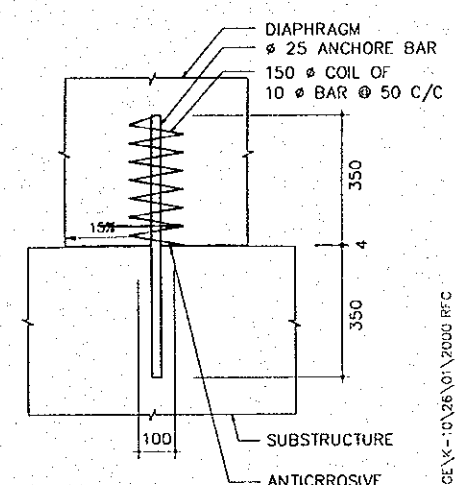
4 REINF. DETAIL OF END DIAPHRAGM
NEAR EXPANSION JOINT
SCALE 1:25



5 REINF. AROUND UTILITY HOLE
(AT DIAPHRAGM)
SCALE 1:5



6 REINF. AROUND 250 Ø
(HOLE AT DIAPHRAGM)
SCALE 1:20



7 DETAIL OF ANCHOR BAR
SCALE 1:20