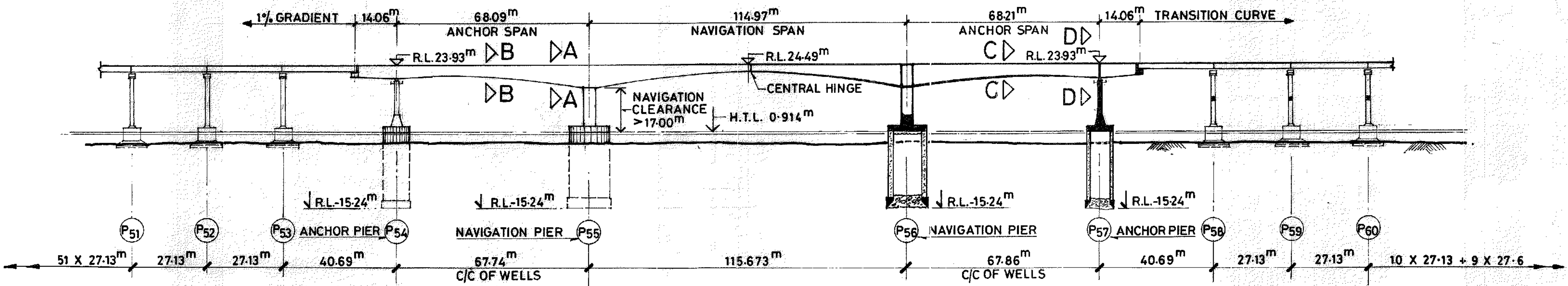
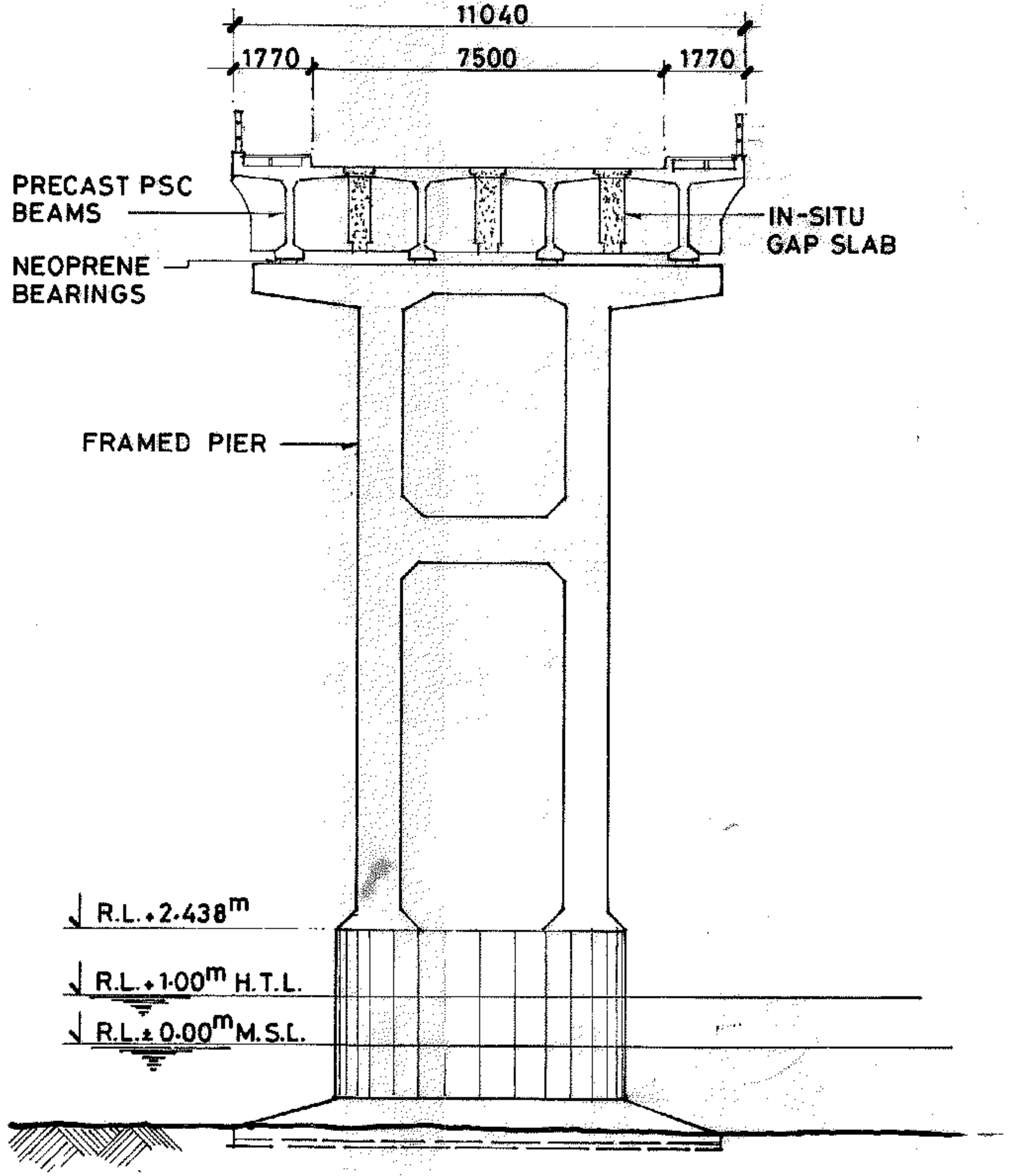
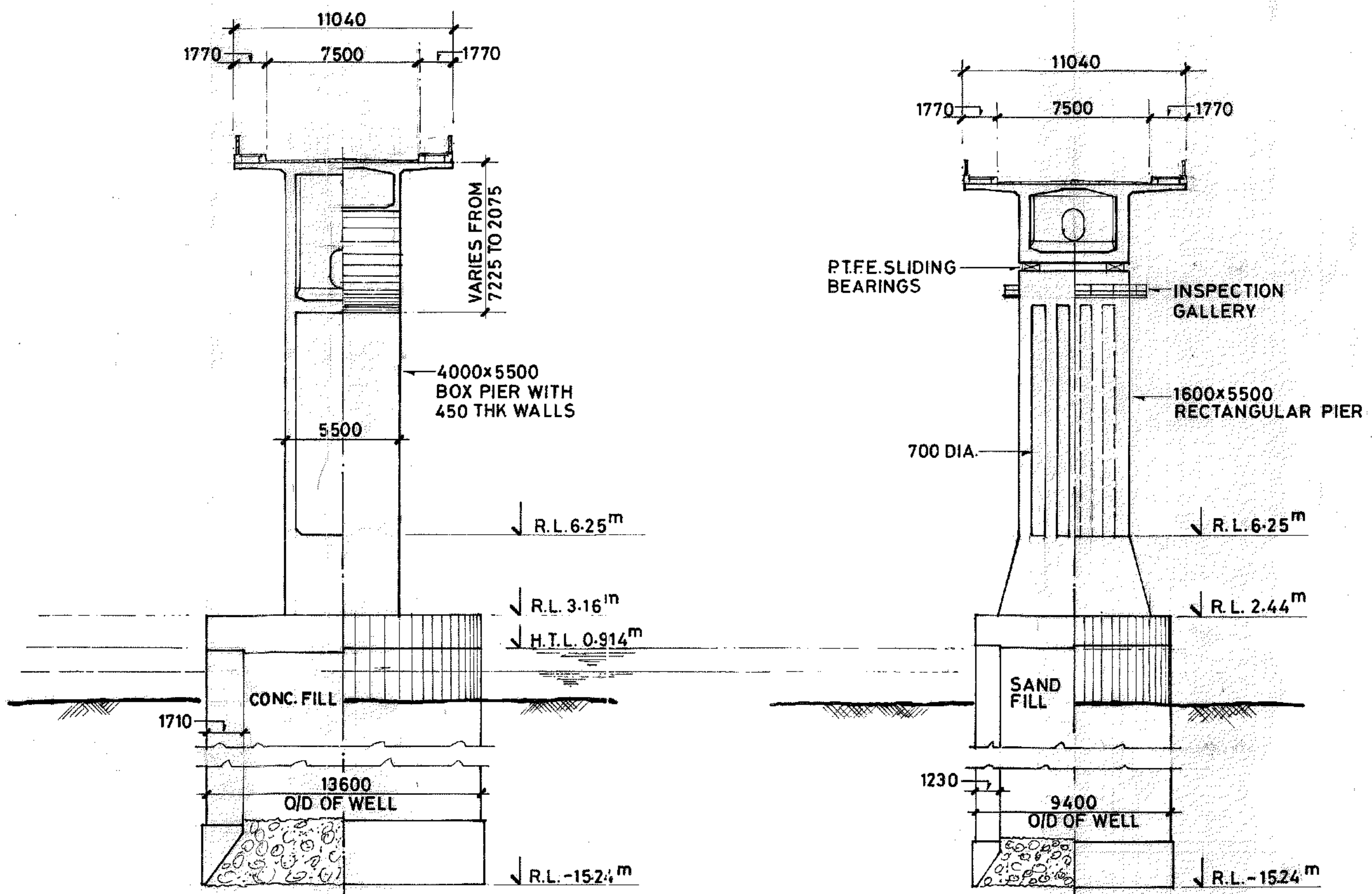

1% GRADIENT
14.06m
68.09m
ANCHOR SPAN
114.97m
NAVIGATION SPAN
68.21m
ANCHOR SPAN
14.06m
TRANSITION CURVE
R.L.23.93m
B
A
R.L.24.49m
C
D
R.L.23.93m
CENTRAL HINGE
NAVIGATION CLEARANCE >17.00m
H.T.L. 0.914m
R.L.-15.24m
R.L.-15.24m
R.L.-15.24m
R.L.-15.24m
P51
P52
P53
ANCHOR PIER
P54
NAVIGATION PIER
P55
P56
NAVIGATION PIER
P57
ANCHOR PIER
P58
P59
P60
51 X 27.13m
27.13m
27.13m
40.69m
67.74m
C/C OF WELLS
115.673m
67.86m
C/C OF WELLS
40.69m
27.13m
27.13m
10 X 27.13 + 9 X 27.6

PART ELEVATION PART LONGITUDINAL SECTION


11040
1770
7500
1770
PRECAST PSC BEAMS
IN-SITU GAP SLAB
NEOPRENE BEARINGS
FRAMED PIER
R.L.+2.438m
R.L.+1.00m H.T.L.
R.L.±0.00m M.S.L.

TYPICAL CROSS SECTION FOR NON-NAVIGATION SPANS


11040
1770
7500
1770
VARIES FROM 7225 TO 2075
4000×5500 BOX PIER WITH 450 THK WALLS
5500
R.L.6.25m
R.L. 3.16m
H.T.L. 0.914m
CONC. FILL
1710
13600
O/D OF WELL
R.L.-15.24m
11040
1770
7500
1770
P.T.F.E. SLIDING BEARINGS
INSPECTION GALLERY
1600×5500 RECTANGULAR PIER
700 DIA.
R.L. 6.25m
R.L. 2.44m
SAND FILL
1230
9400
O/D OF WELL
R.L.-15.24m

HALF SECTION A-A HALF SECTION B-B HALF SECTION C-C HALF SECTION D-D
FOR PIER P_{55}/P_{56} FOR PIER P_{54}/P_{57}

FIG. 2. GENERAL ARRANGEMENT OF PAMBAN BRIDGE (NAVIGATIONAL SPAN)

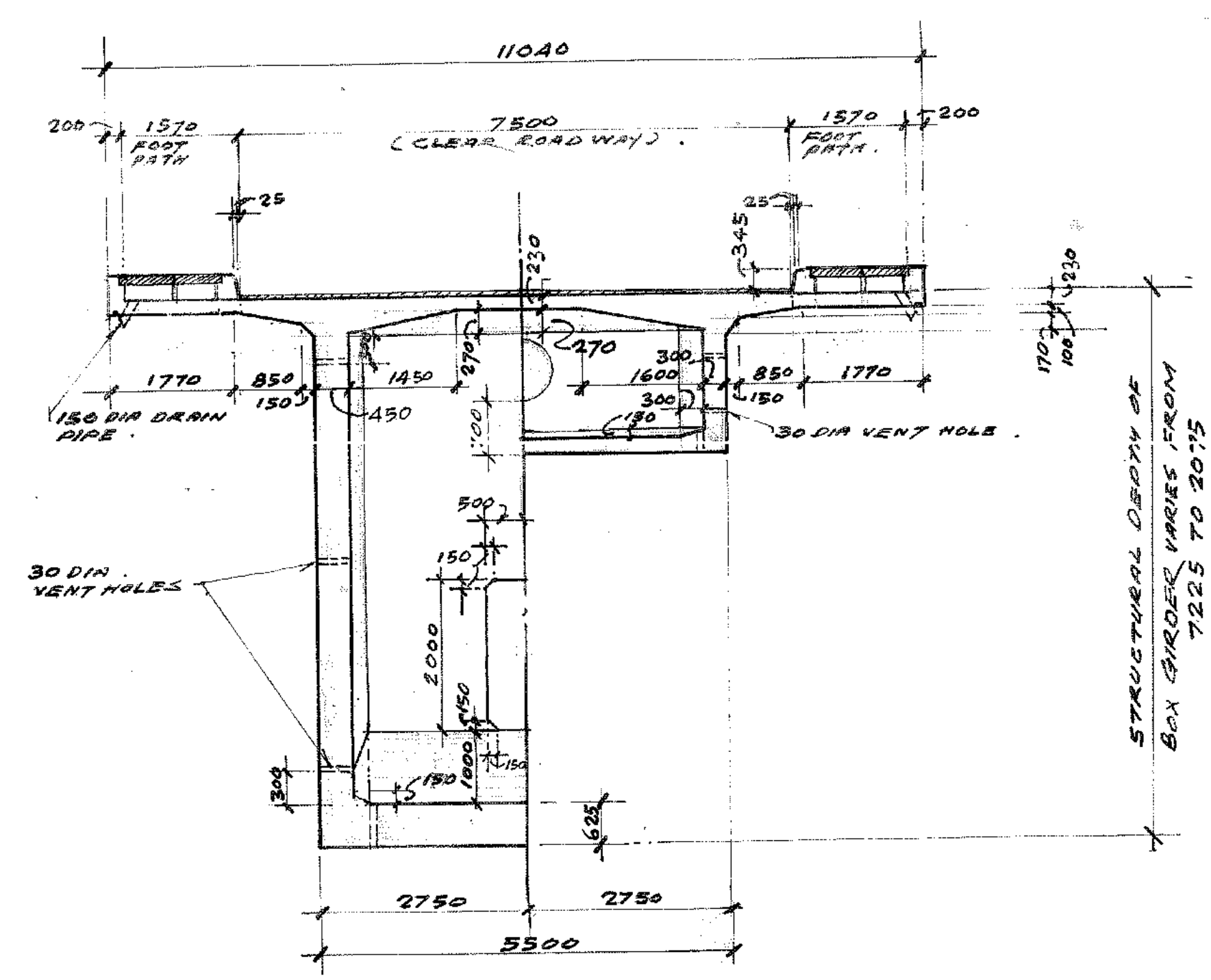
40691 (TO ℄ OF PIER P53 & P58).
26127 TO ℄ OF BEARINGS OF SUSPENDED SPAN.
14064
℄ OF ROCKER BEARING.
℄ OF PIER P54 & P57.
STRUCTURAL DECK LEVEL
FOR SECTIONAL DIMENSIONS OF ARTICULATION REFER DRG. NO. 526/98A
50 DIA. P.V.C. PIPE.
P.T.F.E. SLIDING BEARING.
1500
300
500
* PL. REFER NOTE NO. 7 ON DRG. NO. 526/98A
3336*
1800
1560
375
1329
{68090 BETWEEN ℄ OF P54 & P55
{68210 " " P56 & P57
{2586 FOR SPAN BETWEEN P54 & P55.
{2706 FOR SPAN BETWEEN P56 & P57.
30 DIA. AIR VENT.
℄ OF PIER P55 & P56.
2000 OPENING
1000
625
750 DIA. OPENING.
50 DIA. P.V.C. PIPE.
57486.5
114973 (NAVIGATION SPAN)
℄ OF SPAN
300 DIA. MAN HOLE
700 × 750 OPENING
30 DIA. AIR VENTS.
EQ
300
* TO BE ADJUSTED TO SUIT ACTUAL SPAN LENGTH & REQUIRED EXPANSION GAP.
3000*
1200 N.T.S.
1486.5 N.T.S.
3000
2000
52
51A
51
50
49
48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
1A
0
DEPTH OF GIRDER.
THICKNESS OF DECK SLAB.
AS SHOWN IN CROSS SECTION.
THICKNESS OF WEB.
THICKNESS OF SOFFIT SLAB.

• LONGITUDINAL SECTION OF BOX GIRDER.

℄ OF BOX GIRDER
2750
5500
2750
600
1000
1750 OPENING
50 DIA. P.V.C. PIPE
1000
1600 OPENING
500
600
450
1350
1350
450
150 DIA. HOLES.
50 DIA. P.V.C. PIPE
1000 OPENING
750 DIA. OPENING.

• HALF PLAN OF BOX GIRDER THROUGH WEB

(LOCATION OF HOLES IN SOFFIT SLAB NOT SHOWN. THE SAME SHALL BE AS REQUIRED FROM CONSTRUCTIONAL REQUIREMENT).


11040
200
1570 FOOT PATH
7500 (CLEAR ROAD WAY).
1570 FOOT PATH.
200
25
345
230
270
1770
850
150
1450
450
300
1600
130
150 DIA DRAIN PIPE.
30 DIA VENT HOLE.
170
100
500
150
2000
1800
30 DIA. VENT HOLES
300
625
2750
2750
5500
STRUCTURAL DEPTH OF BOX GIRDER VARIES FROM 7225 TO 2075

• HALF CROSS SECTION OF BOX GIRDER NEAR SUPPORT P55 & P56.

• HALF CROSS SECTION OF BOX GIRDER NEAR MID-SPAN

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED

2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH OUR TENDER DRG. NO 4636E.

3. FOR LOCATIONS & DETAILS OF HOLES FOR SUSPENDERS REFER SEPARATE DRG.

4. GENERAL ARRANGEMENT OF CABLE PROFILE REFER SEPARATE DRAWING.

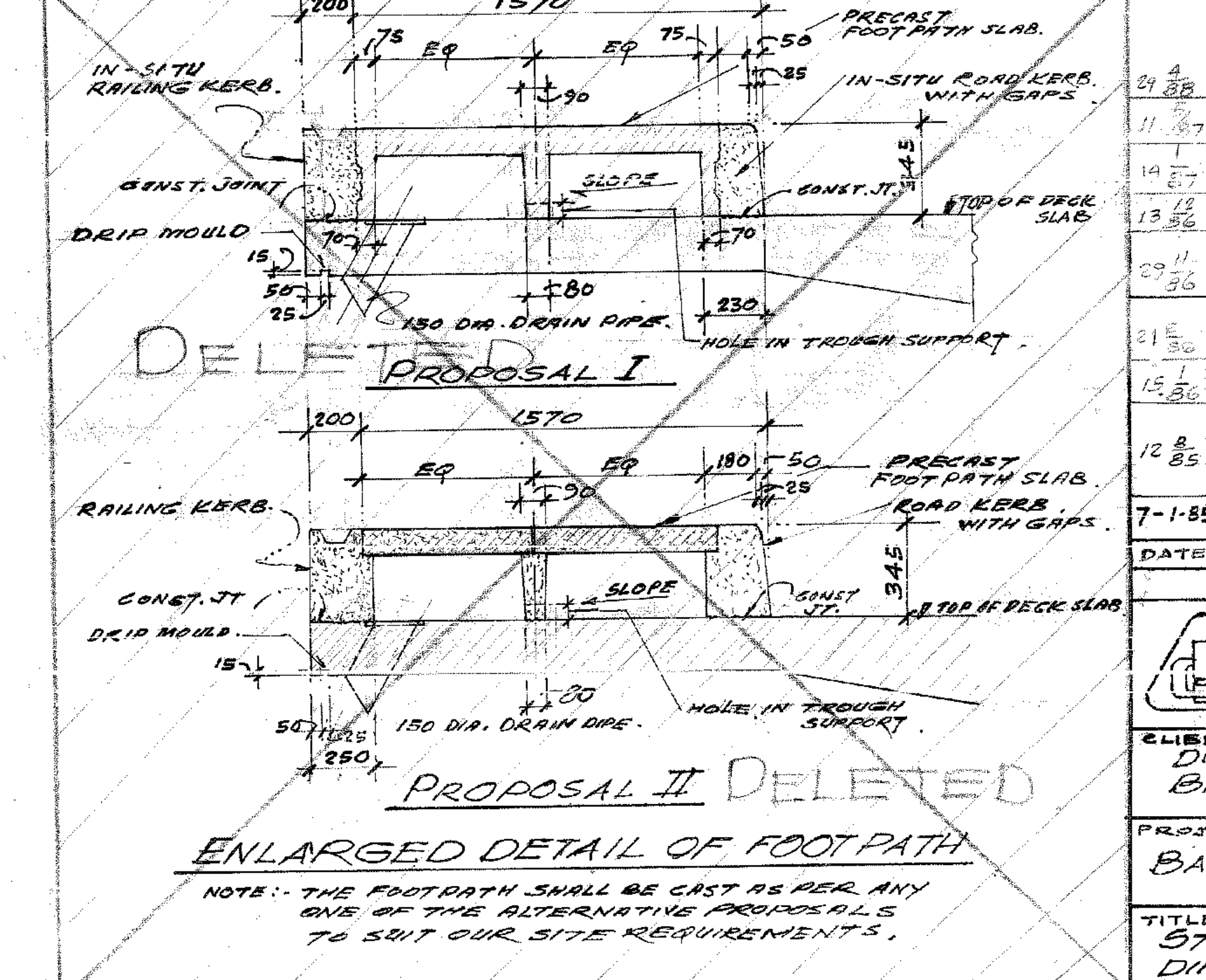
5. GENERAL ARRANGEMENT OF WELL FOUNDATIONS & PIER NOS: P54 & P57 REFER DRG. NO 526/32.

6. ALWAYS REFER THE LATEST REVISIONS OF THE DRAWINGS REFERRED HEREIN.

7. FOR GENERAL ARRANGEMENT OF NAVIGATION PIERS P55 & P56 REFER DRG. NO. 526/37.

8. DISTANCES BETWEEN CENTRE LINES OF WELLS ARE AS PER DIV. ENGINEER'S (H) PAMBAN BRIDGE PROJECT, DIV. II, LETTER NO. 2939/85 (P55)/HD DT. 19.8.85.

9. DURING ACTUAL EXECUTION, PRE CAMBER MAY BE PROVIDED SO AS TO ENSURE SMOOTH RIDING QUALITY.


200
1570
75
EQ
EQ
75
50
PRECAST FOOT PATH SLAB.
IN-SITU RAILING KERB.
90
25
IN-SITU ROAD KERB WITH GAPS.
CONST. JOINT
SLOPE
CONST. JT.
345
TOP OF DECK SLAB
DRIP MOULD
70
70
15
50
25
80
230
150 DIA. DRAIN PIPE.
HOLE IN TROUGH SUPPORT.
DELETED
PROPOSAL I
200
1570
EQ
EQ
180
50
PRECAST FOOT PATH SLAB.
RAILING KERB.
90
25
ROAD KERB WITH GAPS.
CONST. JT.
SLOPE
CONST. JT.
345
TOP OF DECK SLAB
DRIP MOULD.
15
80
50
25
250
150 DIA. DRAIN PIPE.
HOLE IN TROUGH SUPPORT.
PROPOSAL II DELETED

ENLARGED DETAIL OF FOOT PATH

NOTE:- THE FOOTPATH SHALL BE CAST AS PER ANY ONE OF THE ALTERNATIVE PROPOSALS TO SUIT OUR SITE REQUIREMENTS.

DATE	REV.	PARTICULARS	BY	CHKD
29 4/88	I	DETAILS BET. AXIS 50-52 MODIFIED		
11 5/87	H	DEPTH OF BOX GIRDER AT AXIS (52) MODIFIED. 3650 TO 3000		
14 1/87	G	NOTE NO. 9 MODIFIED, FOOTPATH DETAIL DELETED. WEB THK. IN c/s CORRECTED		
13 12/86	F	NOTE NO. 9 ADDED, MANHOLE IN DECK SLAB DELETED.		
29 11/86	E	LOCATION OF MAN HOLE IN DECK SLAB SHOWN. WEB THICKNESS BET. AXIS 16 TO 18 & 21 TO 24 MODIFIED.		
21 5/86	D	MIN. DECK SLAB THICKNESS INCREASED FROM 200mm TO 230mm & OTHER MINOR CHANGES.		
15 1/86	C	DECK TOP LEVELS CHANGED, ACTUAL SPANS SHOWN & OTHER MINOR CHANGES DONE		
12 8/85	B	NAVIGATION PIER DETAILS CHANGED TO 5.5m X 4.0m X 0.45m THICK BOX PIER WITH 0.35m ECCENTRICITY.		
7-1-85	A	BEARING OVER ANCHOR PIER CORRECTED AS PTFE SLIDING BEARING.		

REVISIONS.

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT
DIVISIONAL ENGINEER (H) PAMBAN
BRIDGE PROJECT DIVISION No. II.

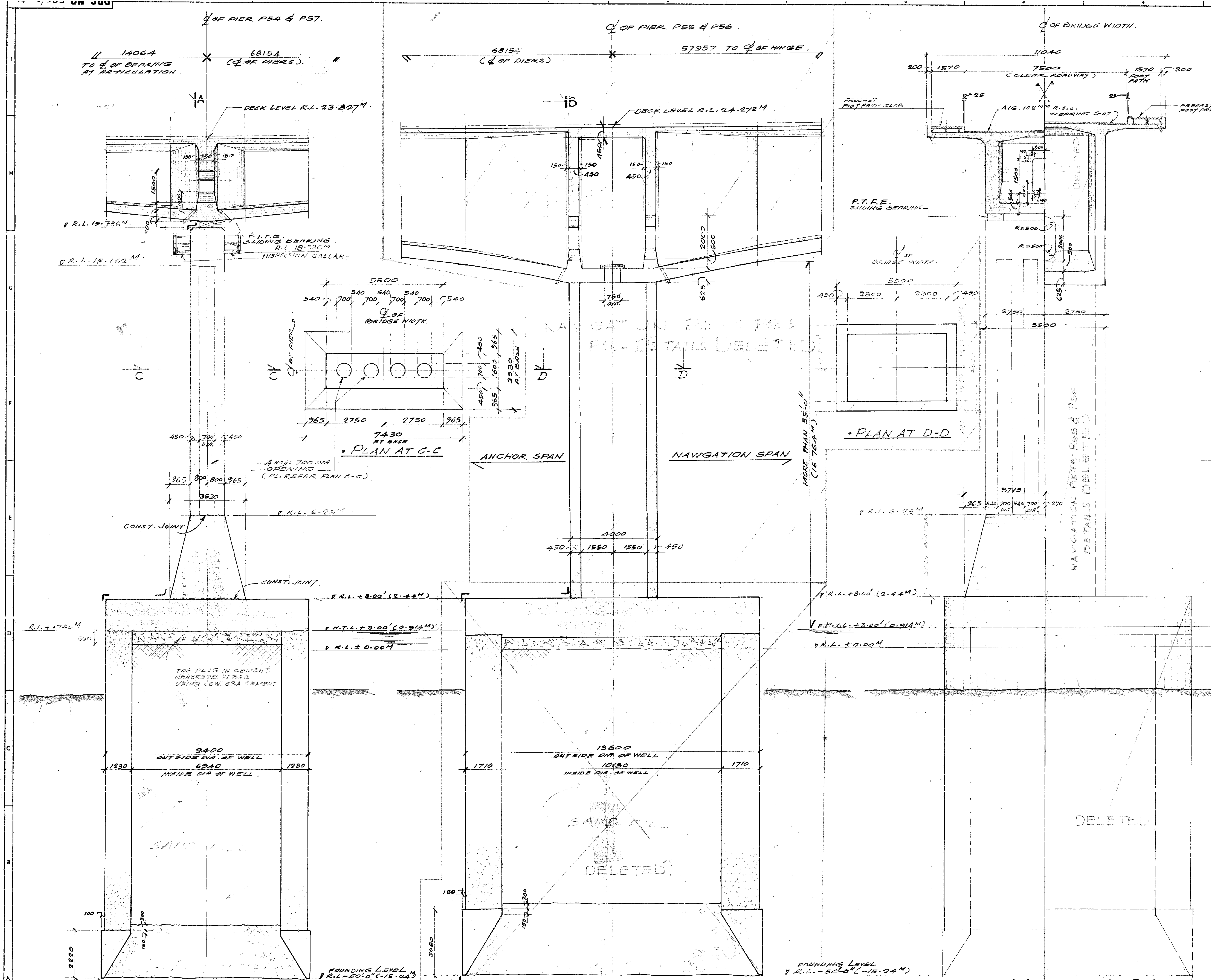
PROJECT:-
BALANCE WORK OF PAMBAN BRIDGE

TITLE:-
STRUCTURAL DECK TOP LEVELS &
DIMENSIONAL LAYOUT OF
SUPERSTRUCTURE FOR
NAVIGATION SPAN.

DRAWING NO AS PER DEPT. CE (H) 33/87 [IN LIEU OF CE (H) PBP 11/87]

APPROVED FOR CONST. BY DIV. ENGINEER PAMBAN BRIDGE PROJECT II VIDE PROC NO. 70/84 (1)/D-0/ DT 28-1-84.

DRN.		SCALE	1:75
CHKD.	D.T.M.	SER. No.	5894.
DSN.		DATE	10-9-1984
CHKD	T.M.	DRG. No. 526/31 I	


DRG. NO. 526/32 F
¢ OF PIER P54 & P57.
14064
TO ¢ OF BEARING AT ARTICULATION
68154 (¢ OF PIERS).
A
DECK LEVEL R.L. 23.827 M.
150
750
150
1500
1000
200
R.L. 19.736 M.
P.T.F.E. SLIDING BEARING. R.L 18.536 M
INSPECTION GALLARY
R.L. 18.152 M.
¢ OF PIER
C
C
450
700 DIA.
450
4 NOS: 700 DIA OPENING (PL. REFER PLAN C-C)
965
800
800
965
3530
CONST. JOINT
R.L. 6.25 M
CONST. JOINT
5500
540
700
540
700
540
700
700
540
¢ OF BRIDGE WIDTH.
450
700
1600
965
965
450
3530 AT BASE
965
2750
2750
965
7430 AT BASE
• PLAN AT C-C
¢ OF PIER P55 & P56.
6815 (¢ OF PIERS)
57957 TO ¢ OF HINGE.
B
DECK LEVEL R.L. 24.272 M.
450
150
150
450
150
150
450
2000
500
625
750 DIA.
NAVIGATION PIERS P55 & P56 DETAILS DELETED
D
D
ANCHOR SPAN
NAVIGATION SPAN
MORE THAN 55'-0" (16.76 M)
4000
450
1550
1550
450
R.L. + 8.00' (2.44 M)
R.L. + 8.00' (2.44 M)
R.L. + .740 M
600
H.T.L. + 3.00' (0.914 M)
H.T.L. + 3.00' (0.914 M)
R.L. ± 0.00 M
R.L. ± 0.00 M
TOP PLUG IN CEMENT CONCRETE 1:3:6 USING LOW C3A CEMENT
9400
OUT SIDE DIA. OF WELL
1230
6940
1230
INSIDE DIA OF WELL.
SAND FILL
13600
OUT SIDE DIA. OF WELL.
1710
10180
1710
INSIDE DIA. OF WELL.
SAND FILL
DELETED
100
300
150
2220
FOUNDING LEVEL R.L. -50'-0" (-15.24 M)
150
300
150
3080
FOUNDING LEVEL R.L. -50'-0" (-15.24 M)
A
B
¢ OF BRIDGE WIDTH.
11040
200
1570
7500 (CLEAR ROADWAY)
1570 FOOT PATH
200
PRECAST FOOT PATH SLAB.
25
AVG. 102 MM R.C.C. WEARING COAT
25
PRECAST FOOT PATH SLAB.
500
150
1500
1000
500
150
DELETED
P.T.F.E. SLIDING BEARING
R=500
R=500
2000
500
625
¢ OF BRIDGE WIDTH.
5500
450
2300
2300
450
2750
2750
5500
• PLAN AT D-D
NAVIGATION PIERS P55 & P56 DETAILS DELETED
3715
965
540
700 DIA
540
700 DIA
370
R.L. 6.25 M
DELETED

• VIEW AT A-A

• VIEW AT B-B

• CROSS SECTION OF WELL FOUNDATION FOR PIER P54 & P57.

• CROSS SECTION OF WELL FOUNDATION FOR PIER P55 & P56.

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES & LEVELS ARE IN METRES.

2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GIL. TENDER DRG. NO. 4636E.

3. FOR LOCATIONS & DETAILS OF HOLES FOR SUSPENDERS REFER SEPARATE DRG.

4. FOR DETAILS OF DRAIN SPOUT REFER SEPARATE DRG.

5. STRUCTURAL DECK TOP LEVELS & DIMENSIONAL LAYOUT OF SUPERSTRUCTURE FOR NAVIGATION SPANS REFER DRG. NO. 526/31A

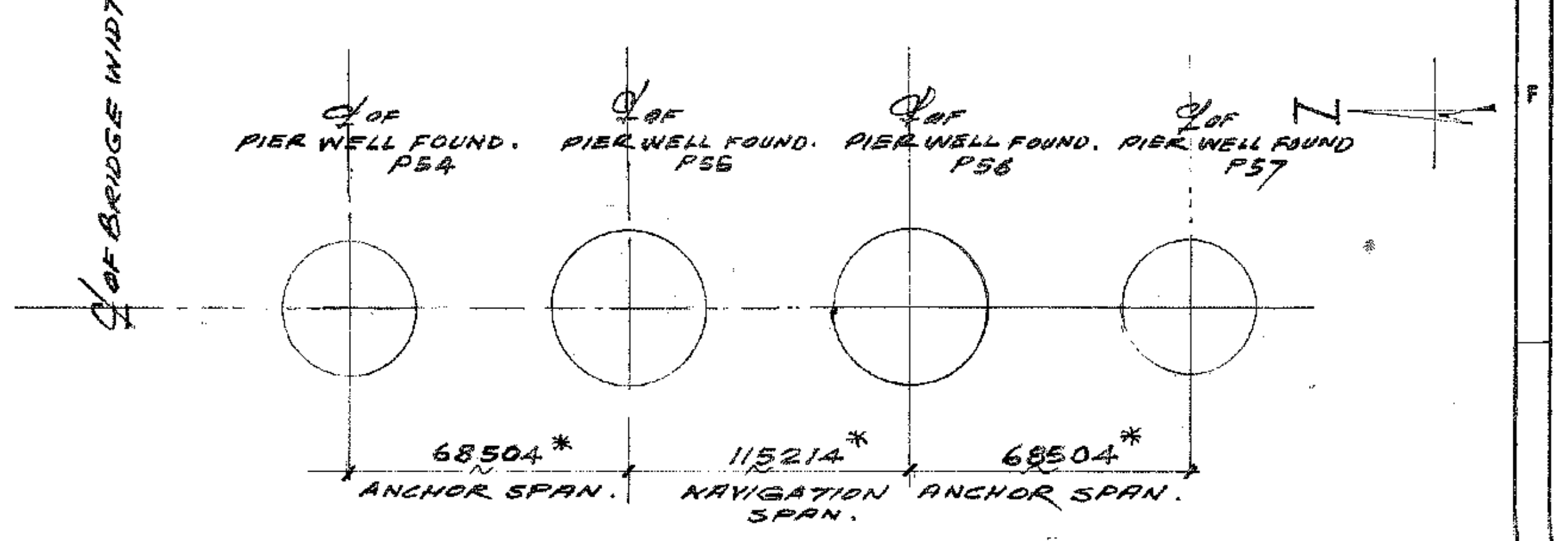
6. FOR R.C.C. DETAILS OF WELL STEININGS REFER DEPT.'S DRAWING NOS PBP/16/1981 & PBP/17/1981.

7. R.C.C. DETAILS OF WELL CAP REFER SEPARATE DRGS.

8 ALWAYS REFER THE LATEST REVISIONS OF THE DRAWINGS REFERRED HEREIN.

9. THE TILTS & SHIFTS FOR WELLS NOS. P54 TO P57 GIVEN HEREIN ARE SHOWN FROM DEPT'S LETTER

10. FOR GENERAL ARRANGEMENT OF NAVIGATION PIERS REFER SEPARATE DRAWING.


¢ OF BRIDGE WIDTH.
¢ OF PIER WELL FOUND. P54
¢ OF PIER WELL FOUND. P56
¢ OF PIER WELL FOUND. P56
¢ OF PIER WELL FOUND P57
N
68504*
ANCHOR SPAN.
115214*
NAVIGATION SPAN.
68504*
ANCHOR SPAN.

• KEY PLAN SHOWING ACTUAL POSITION OF WELLS

* ACTUAL DISTANCE BETWEEN WELLS TO BE VERIFIED AT SITE.

TILTS & SHIFTS
(AS PER DEPT'S LETTER NO. 70/84/HD/DT. 14.8.84.

VALUES PRESUMED TO BE AT TOP OF EXISTING WELL STEINING.

WELL UNDER PIER NO.	DIA. OF WELL	SHIFT	TILT IN C.M. TOWARDS	AVERAGE		TILT IN RATIO	
				TILT IN CM	IN RATIO	N.S.	E.W.
54	9.40 M	NIL	1.0 CM - 2.5 CM SOUTH WEST	1.75 CM	1/537	1/940	1/376
55	13.60 M	NIL	2.5 CM - 8.5 CM NORTH EAST	5.5 CM	1/247	1/544	1/160
56	13.60 M	NIL	4.0 CM - 2.0 CM SOUTH WEST	3.0 CM	1/453	1/340	1/680
57	9.40 M	NIL	2.5 CM - 8.5 CM SOUTH WEST	5.5 CM	1/170	1/376	1/110.

DATE	REV.	PARTICULARS	BY	CHKD.
11/5/87	G.	OPENING IN DIAPH. AT ANCHOR PIER DIAPH. MODIFIED.		
27.10.85	F	INSPECTION GALLARY INDICATED TOP LEVEL OF PIERS P54 & P57 MODIFIED TO R.L. 19.736 M		
16 12/85	E	MODIFIED AS PER CLIENT'S LETTER NO. 3487/B3/84-27 DT. 6-11-85		
31 8/85	D	MINOR CHANGES AS PER DEPT'S COMMENTS.		
23 7/85	C	ANCHOR PIER MADE SOLID UPTO R.L. 6.25 M & NAVIGATION PIER DETAILS DELETED.		
18 5/85	B	ANCHOR PIER MODIFIED.		
7-1-85	A	BEARING OVER ANCHOR PIER CORRECTED AS PTFE SLIDING & DETAILS FOR PNEUMATIC CORBEL DELETED.		

REVISIONS

DRAWING NO.
AS PER DEPARTMENT
PBP/13/85.

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THEIR WRITTEN PERMISSION.

APPROVED FOR CONSTRUCTION
BY DIVISIONAL ENGINEER
PAMBAN BRIDGE
PROJECT DIVISION [illegible]
[illegible] 70/84 (P-54) [illegible]
DT. 21-8-84

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT
DIVISIONAL ENGINEER (H) PAMBAN.
BRIDGE PROJECT DIVISION NO. II.

PROJECT
BALANCE WORK OF PAMBAN BRIDGE.

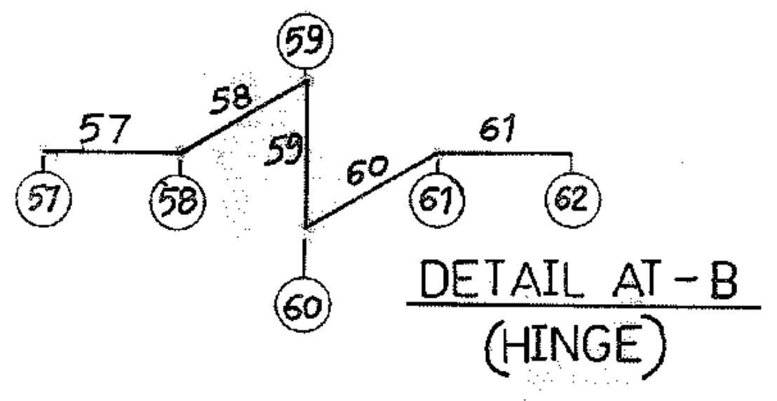
TITLE
GENERAL ARRANGEMENT
OF WELL FOUNDATIONS & PIER
NOS P54 & P57 FOR NAVIGATION SPANS

DRN.	Ramachandramurthy		SCALE	1:75
CHKD.		D.T.M.	SERIAL NO.	5895.
DSND.			DATE	10-9-1984.
CHKD.		T.M.	DRG. NO.	526/32 F

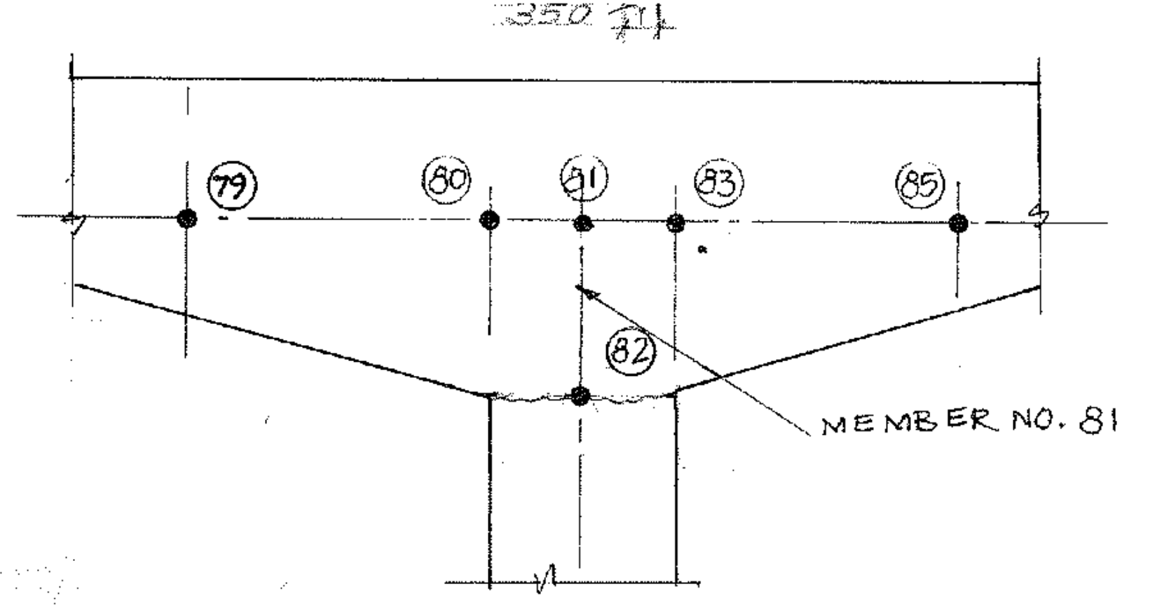
DRG. NO. 526/33 C

26.127
14.064
68090
ANCHOR SPAN.
114.553 (NAVIGATION SPAN).
68090
ANCHOR SPAN.
14.064
26.127
℄ OF BEARING
℄ OF PIER P54
℄ OF PIER P55
℄ OF SPAN
℄ OF PIER P56
℄ OF PIER P57
℄ OF BEARING
A
B
C
TOP OF WELL R.L 3.164 m
TOP OF WELL R.L 3.164 m
26127
3X3000
1329
315
1329
4X3000
2586
16X3000
1800
2000
1800
℄ of well
17X3000
1486
1200
17X3000
1800
2000
1800
℄ of well
16X3000
2586
4X3000
3X3000
315
1329
1329
26127

NOTE:- ENCIRCLED NUMBERS INDICATE JOINT NOS.
NUMBERS NOT ENCIRCLED INDICATE MEMBER NOS.



DETAIL AT - B
(HINGE)



IDEALIZATION NEAR TOP OF PIERS.

joint no	X co-ord. in metre	Y co-ord. in metres
1	0.000	22.302
2	26.127	22.575
3	27.927	22.598
4	29.487	22.579
5	32.487	22.487
6	35.487	22.360
7	38.487	22.172
8	39.816	22.048
9	40.191	22.043
10	40.566	22.049
11	41.895	22.209
12	44.895	22.452
13	47.895	22.641
14	50.895	22.736
15	53.895	22.795
16	56.481	22.817
17	59.481	22.820
18	62.481	22.811
19	65.481	22.751
20	68.481	22.667
21	71.481	22.602
22	74.481	22.503
23	77.481	22.341
24	80.481	22.195
25	83.481	22.053
26	86.481	21.925
27	89.481	21.737
28	92.481	21.604
29	95.481	21.415
30	98.481	21.265
31	101.481	21.047
32	104.481	20.525
33	106.281	20.654
34	108.281	20.662
35	108.281	19.047
36	110.281	20.670
37	108.281	11.586
38	112.081	20.856
39	108.281	6.250
40	115.081	21.102
41	108.281	2.039
42	118.081	21.372
43	121.081	21.596
44	124.081	21.846
45	127.081	22.067
46	130.081	22.311
47	133.081	22.476
48	136.081	22.676
49	139.081	22.870
50	142.081	23.102
51	145.081	23.226
52	148.081	23.360
53	151.081	23.459
54	154.081	23.534
55	157.081	23.585
56	160.081	23.595
57	163.081	23.623
58	164.281	23.557
59	165.766	23.537
60	165.766	22.637
61	167.254	23.587
62	168.454	23.623
63	171.454	23.595
64	174.454	23.585
65	177.454	23.534
66	180.454	23.459
67	183.454	23.360
68	186.454	23.226
69	189.454	23.102
70	192.454	22.870
71	195.454	22.676
72	198.454	22.476
73	201.454	22.311
74	204.454	22.067
75	207.454	21.846
76	210.454	21.596
77	213.454	21.372
78	216.454	21.102
79	219.454	20.856
80	221.254	20.670
81	223.254	20.662
82	223.254	19.047
83	225.254	20.654
84	223.254	11.586
85	227.054	20.525
86	223.254	6.250
87	230.054	21.047
88	223.254	2.039
89	233.054	21.265
90	236.054	21.415
91	239.054	21.604
92	242.054	21.737
93	245.054	21.925
94	248.054	22.053
95	251.054	22.195
96	254.054	22.341
97	257.054	22.503
98	260.054	22.602
99	263.054	22.667
100	266.054	22.751
101	269.054	22.811
102	272.054	22.820
103	275.054	22.817
104	277.640	22.795
105	280.640	22.736
106	283.640	22.641
107	286.640	22.452
108	289.640	22.209
109	290.969	22.049
110	291.344	22.043
111	291.719	22.048
112	293.048	22.172
113	296.048	22.360
114	299.048	22.487
115	302.048	22.579
116	303.608	22.598
117	305.408	22.575
118	331.535	22.302

member no	moment of inertia M^4	Area M^2	elastic modulus T/M^2
1	004.510	04.930	3.818×10^{6}
2	004.202	06.743	,,
3	007.474	06.159	,,
4	008.713	06.312	,,
5	010.771	06.585	,,
6	013.860	07.002	,,
7	017.671	08.418	,,
8	019.625	09.561	,,
9	019.625	09.561	,,
10	017.671	08.418	,,
11	013.860	07.002	,,
12	010.625	06.573	,,
13	008.770	06.326	,,
14	008.012	06.207	,,
15	007.731	06.158	,,
16	007.895	06.199	,,
17	008.311	06.236	,,
18	009.987	06.372	,,
19	009.873	06.546	,,
20	012.541	06.686	,,
21	014.776	06.843	,,
22	017.730	07.172	,,
23	020.642	07.646	,,
24	024.233	08.016	,,
25	028.288	08.306	,,
26	033.338	08.609	,,
27	038.852	08.914	,,
28	045.144	09.168	,,
29	052.194	09.431	,,
30	060.625	09.716	,,
31	073.454	10.605	,,
32	085.138	11.523	,,
33	094.827	12.327	,,
34	017.913	07.740	3.367×10^{6}
35	017.913	07.740	,,
36	017.913	07.740	,,
37	017.913	07.740	,,
38	094.827	12.327	3.818×10^{6}
39	085.138	11.523	,,
40	073.454	10.605	,,
41	059.986	09.895	,,
42	050.171	09.371	,,
43	041.662	09.055	,,
44	034.025	08.739	,,
45	027.477	08.376	,,
46	022.328	08.044	,,
47	018.278	07.734	,,
48	014.526	07.309	,,
49	011.182	06.789	,,
50	008.636	06.312	,,
51	006.963	06.009	,,
52	005.511	05.659	,,
53	004.542	05.446	,,
54	004.102	05.386	,,
55	003.790	05.341	,,
56	003.493	05.296	,,
57	003.412	05.252	,,
58	003.476	05.251	,,
59	001.000	01.000	,,
60	003.476	05.251	,,
61	3.412	05.252	,,
62	3.493	05.296	,,
63	3.790	05.341	,,
64	4.102	05.386	,,
65	4.542	05.446	,,
66	5.511	05.659	,,
67	6.965	06.003	,,
68	8.636	06.312	,,
69	11.187	06.789	,,
70	14.526	07.309	,,
71	18.278	07.734	,,
72	22.328	08.044	,,
73	27.477	08.376	,,
74	34.025	08.739	,,
75	41.662	09.055	,,
76	50.171	09.371	,,
77	59.986	09.895	,,
78	73.454	10.605	,,
79	85.138	11.523	,,
80	94.827	12.327	,,
81	17.913	07.740	3.367×10^{6}
82	,,	07.740	,,
83	,,	07.740	,,
84	,,	07.740	,,
85	94.829	12.327	3.818×10^{6}
86	85.138	11.523	,,
87	73.454	10.605	,,
88	60.525	09.716	,,
89	52.194	09.431	,,
90	45.144	09.167	,,
91	38.852	08.911	,,
92	33.338	08.609	,,
93	28.285	08.306	,,
94	24.233	08.026	,,
95	20.642	07.646	,,
96	17.290	07.212	,,
97	14.526	06.843	,,
98	12.541	06.686	,,
99	10.893	06.546	,,
100	9.332	06.372	,,
101	8.311	06.236	,,
102	7.895	06.199	,,
103	7.731	06.154	,,
104	8.012	06.209	,,
105	8.770	06.326	,,
106	10.625	06.573	,,
107	13.870	07.002	,,
108	17.671	08.418	,,
109	19.625	09.561	,,
110	19.625	09.561	,,
111	17.671	08.418	,,
112	13.860	07.002	,,
113	10.771	06.585	,,
114	8.636	06.312	,,
115	7.414	06.159	,,
116	4.202	06.743	,,
117	4.510	04.930	,,

NOTES:-

1. STRUCTURAL DECK TOP LEVELS & DIMENSIONAL LAYOUT OF SUPERSTRUCTURE FOR NAVIGATION SPANS. REFER DRG. NO. 526/31.
2. a) X- CO-ORDINATE - HORIZONTAL DISTANCE OF CENTRE LINE OF JOINT FROM CENTRE LINE OF JOINT NO-1
   b) Y- CO-ORDINATE - R.L OF C.G OF SECTION.
3. PENDULUM HINGE AT CENTRE LINE OF SPAN BETWEEN PIERS P55 & P56 AND ARTICULATED SUPPORT OF SUSPENDED SPANS. HAVE BEEN SIMULATED AS SHOWN IN THE SKETCH. FICTITIOUS VERTICAL MEMBER AND TWO ADJOINING FLEXIBLE MEMBERS ALLOW DISCONTINUITY FOR MOMENT AND AXIAL FORCE SIMULATING HINGE.
4. MODULUS OF ELASTICITY
   FOR PIER :(CONCRETE GRADE M300)
   $E_c = 3.118 \times 10^6\ t/m^2$.
   FOR SUPERSTRUCTURE :(CONCRETE GRADE M.450)
   $E_c = 3.818 \times 10^6\ t/m^2$.
   EC EVALUATED ACCORDING TO THE FORMULA
   $E_c = 18000\sqrt{F_c}$
   WHERE, E_c : MODULUS OF ELASTICITY IN Kg/cm^2
   F_c : CRUSHING STRENGTH OF CONCRETE AT 28 DAYS IN Kg/cm^2.
5. MEMBER NUMBERS 34 & 81 CONNECTING JOINTS AT TOP OF PIER AND C.G OF DECKING AT THAT SECTION ARE IDEALIZED AS PIER MEMBERS FOR FRAME ANALYSIS.
6. GENERAL ARRANGEMENT OF WELL FOUNDATIONS & PIER NOS P54 & P57 FOR NAVIGATION SPANS REFER DRG. NO. 526/32.
7. For G.A. OF NAVIGATION PIERS P_{55} & P_{56} REFER TO DRG. NO. 526/37
8. FIXITY LEVEL FOR PIERS ASSUMED AT CENTRE OF WELL CAP i.e AT R.L.(3.164 - ½x2.25M) = R.L. 2.039 M.

Date	Rev.	Particulars	By	Chkd
27/3/86	C	Section properties changed as per cross-sections in Drg. No. 526/31		

DATE	REV.	PARTICULARS	BY	CHKD.
17/1/86	B	FRAME GEOMETRY CHANGED AS PER ACTUAL SPANS & REDUCED ROAD LEVELS		
7/8/85	A	FRAME GEOMETRY AND SECTIONAL PROPERTIES REVISED		

REVISIONS

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT
DIVISIONAL ENGINEER (H) PAMBAN
BRIDGE PROJECT DIVISION Nº II.

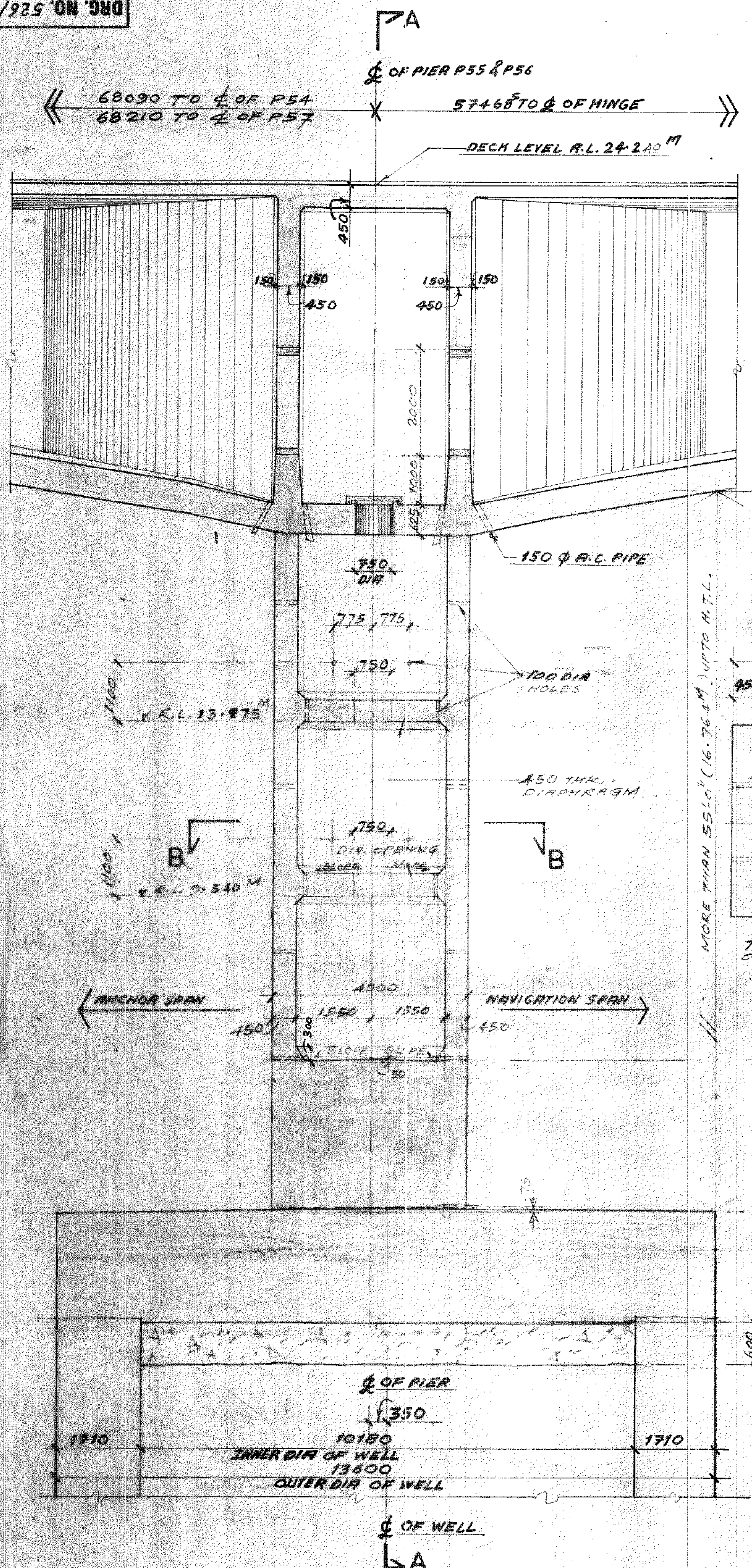
PROJECT
BALANCE WORK OF PAMBAN BRIDGE.

TITLE
FRAME GEOMETRY FOR COMPUTER ANALYSIS

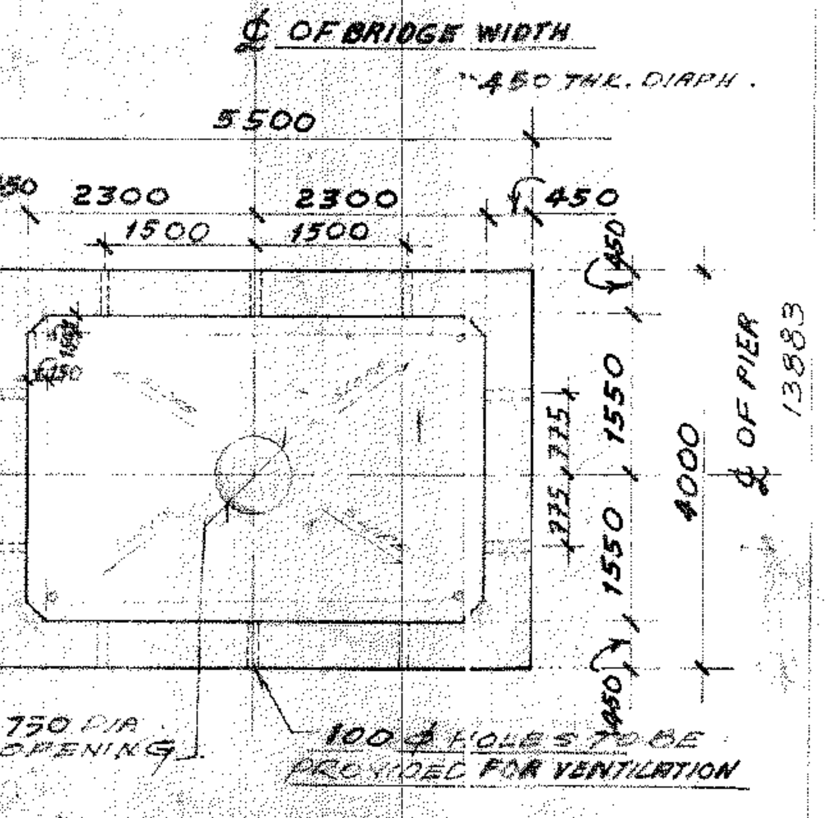
APPROVED FOR CONSTRUCTION BY

DRN.		SCALE	1:300
CHKD.	D.T.M.	SERIAL NO.	5752
DSND.		DATE	19th JUNE 1984
CHKD.		**DRG. NO.**	526/33 C

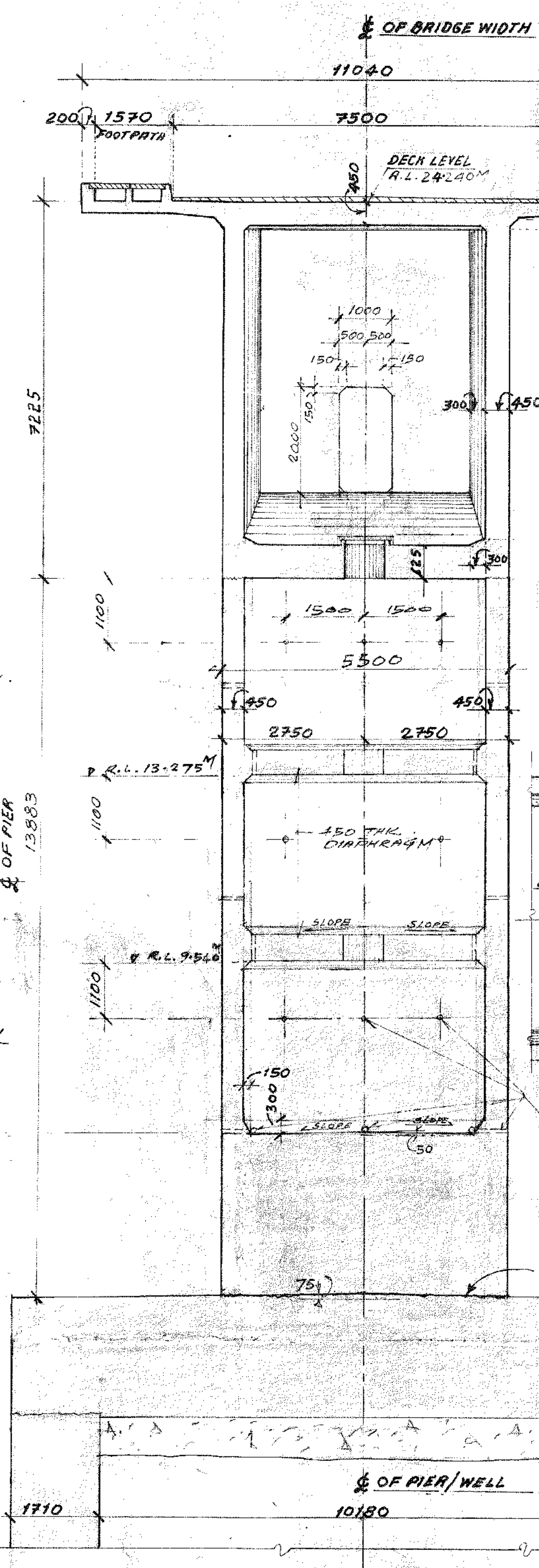
DRG. NO. 526/37B


A
℄ OF PIER P55 & P56
68090 TO ℄ OF P54
68210 TO ℄ OF P57
57468 TO ℄ OF HINGE
DECK LEVEL R.L. 24·240 M
450
150
150
450
2000
1000
425
750 DIA
775
750
100 DIA HOLES
150 φ R.C. PIPE
1100
R.L. 13·275 M
450 THK. DIAPHRAGM
750 DIA. OPENING
SLOPE
B
B
R.L. 9·540 M
MORE THAN 5510" (16·764 M) UPTO H.T.L.
ANCHOR SPAN
NAVIGATION SPAN
4300
1550
300
SLOPE
50
℄ OF PIER
350
1710
10180
INNER DIA OF WELL
13600
OUTER DIA OF WELL
℄ OF WELL
A

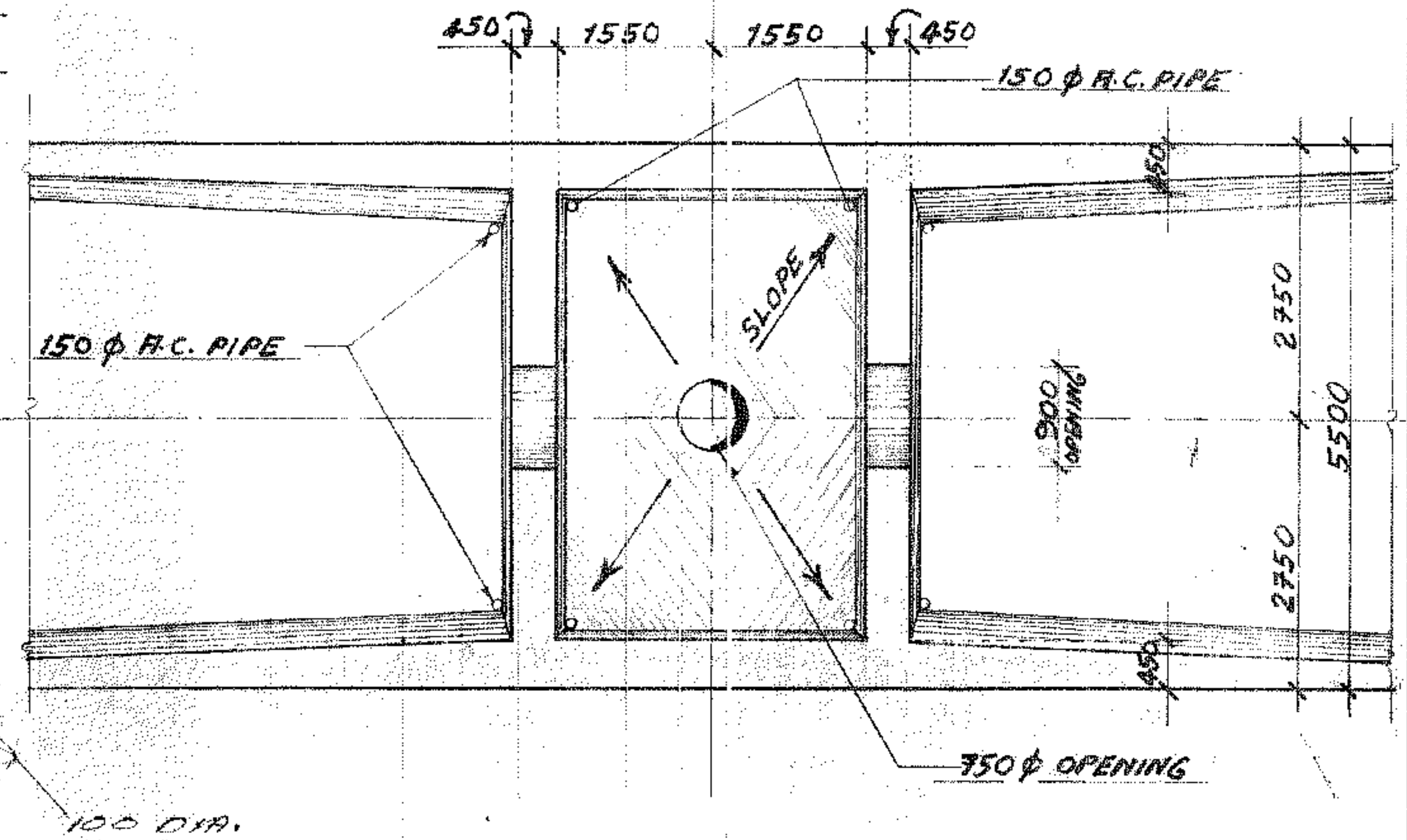
CROSS SECTION OF NAVIGATION PIERS P55 / P56


℄ OF BRIDGE WIDTH
450 THK. DIAPH.
5500
450
2300
2300
1500
1500
775
1550
1550
4000
℄ OF PIER
13883
750 DIA OPENING
100 φ HOLES TO BE PROVIDED FOR VENTILATION

PLAN AT B-B


℄ OF BRIDGE WIDTH
11040
200
1570
FOOTPATH
7500
1570
FOOTPATH
200
DECK LEVEL R.L. 24·240 M
450
170
100
7225
1000
500
500
150
150
2000
300
450
125
300
1100
1500
1500
5500
2750
2750
R.L. 13·275 M
450 THK. DIAPHRAGM
SLOPE
R.L. 9·540 M
R.L. 6·25 M
PIER SOLID UPTO R.L. 6·25
R.L. + 3·160 M
CONST. JOINT
75
H.T.L + 3·00' (0·914 M)
600
TOP PLUG IN C.C. 1:3:6 USING LOW C3A CEMENT
℄ OF PIER/WELL
1710
10180
1710

SECTION AT A-A


450
1550
1550
450
150 φ R.C. PIPE
450
SLOPE
900 OPENING
2750
5500
2750
150 φ R.C. PIPE
100 DIA. HOLES
750 φ OPENING

PART PLAN OF BOX GIRDER

NOTES

1) ALL DIMENSIONS ARE IN MILLIMETRES & LEVELS ARE IN METRES UNLESS OTHERWISE STATED
2) THIS DRAWING SHALL BE READ IN CONJUCTION WITH OUR TENDER DRG. NO. 4636E
3) FOR LOCATION & DETAILS OF HOLES FOR SUSPENDERS REFER SEPARATE DRG.
4) FOR DETAILS OF DRAIN SPOUT REFER SEPARATE DRG.
5) STRUCTURAL DECK TOP LEVELS & DIMENSIONAL LAY OUT OF SUPERSTRUCTURE FOR NAVIGATION SPANS REFER DRG. NO. 526/31c
6) FOR GENERAL ARRANGEMENT OF WELLS BELOW NAVIGATION PIERS REFER DEPT'S DRG No. PBP/17/1981.
7) FOR ALL DETAILS OF WELL CAP REFER SEPARATE DRG.
8) ALWAYS REFER THE LATEST REVISIONS OF THE DRG. REFERRED HEREIN.
9) FOR R.C. DETAILS OF NAVIGATION PIERS & PIER-HEADS REFER SEPARATE DRAWINGS.

DATE	REV.	PARTICULARS	BY	CHKD.
21/1/86	B.	PIER SHOWN SOLID UPTO R.L. 6·25 M & DIAPH. ADDED	[illegible]	[illegible]
9/11/85	A	R.L. OF BOTTOM OF WELL CAP RAISED TO H.T.L. & OTHER MINOR CHANGES, C.C. FILLING SHOWN.	[illegible]	[illegible]

REVISIONS

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT DIVISIONAL ENGINEER(H) PAMBAN BRIDGE PROJECT DIVISION NO. II

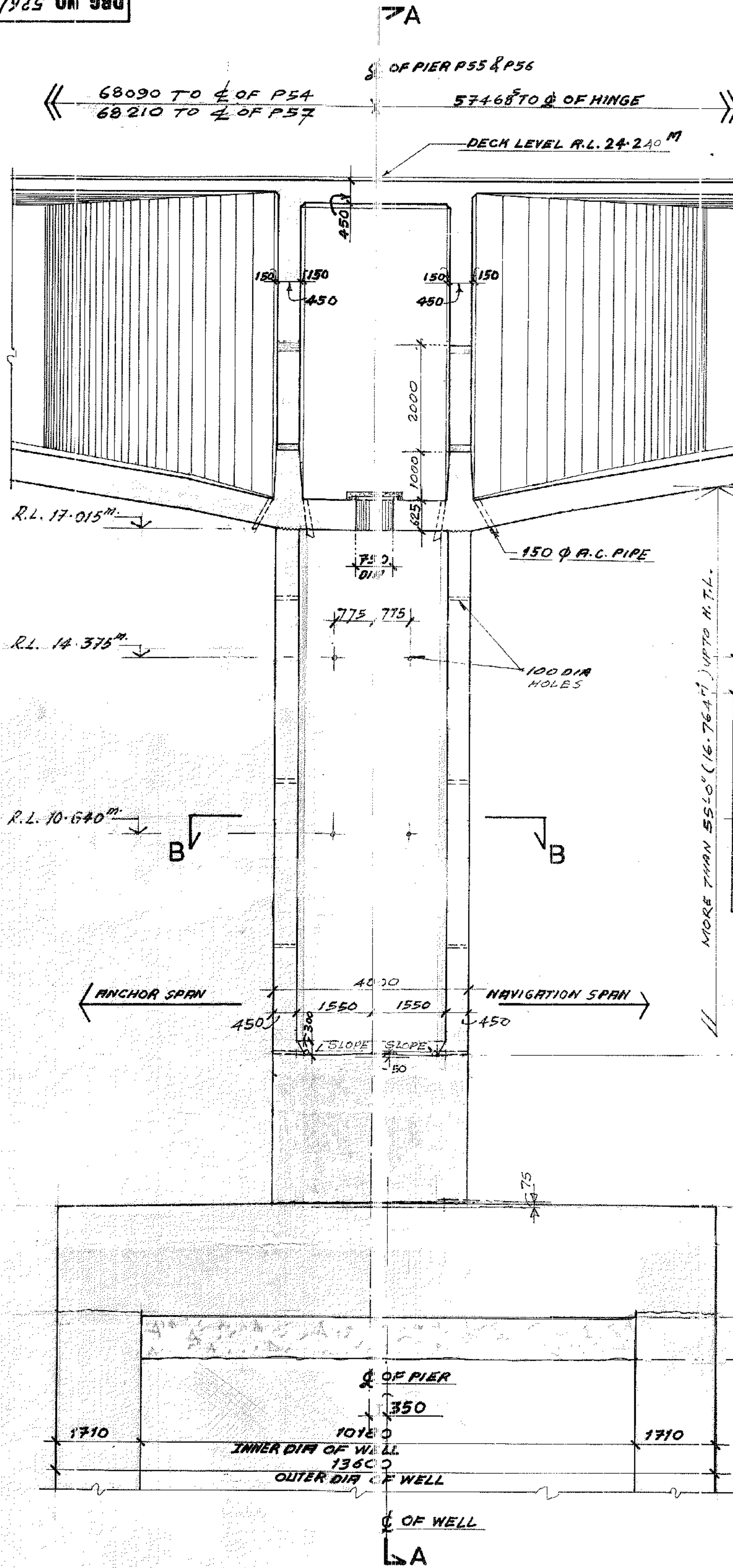
PROJECT BALANCE WORK OF PAMBAN BRIDGE

TITLE GENERAL ARRANGMENT OF NAVIGATION PIERS P55 & P56

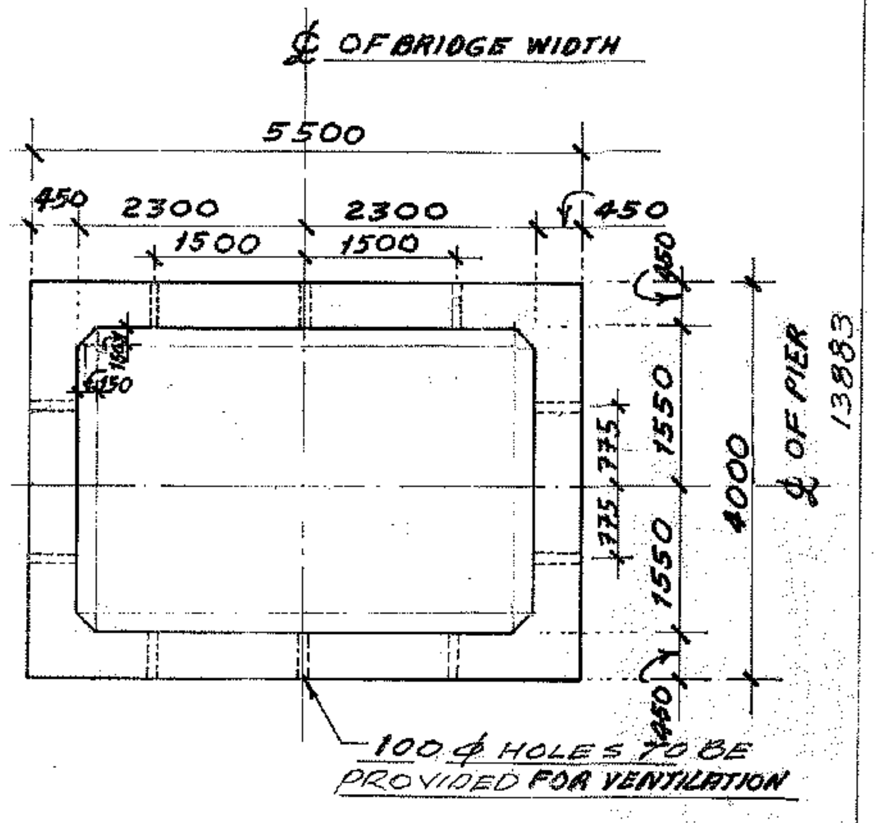
APPROVED FOR CONSTRUCTION BY

			SER. No.	DATE	SCALE
DRN.	U.R. Mandekar	D.T.M	6429	2/8/85	1:75
CHKD.					
DSND.		T.M	DRG. NO 526/37B		

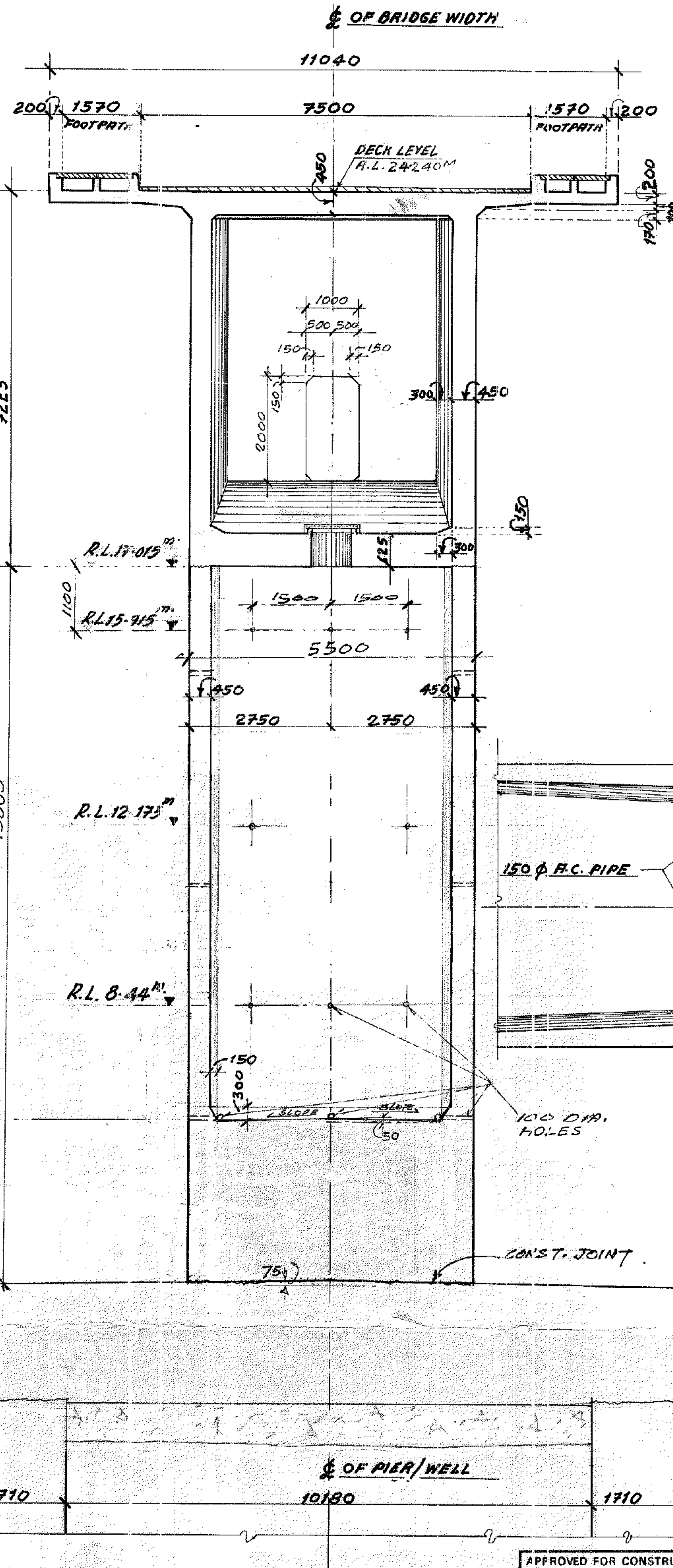
DRG. NO. 526/37c


A
℄ OF PIER P55 & P56
68090 TO ℄ OF P54
68210 TO ℄ OF P57
57468 TO ℄ OF HINGE
DECK LEVEL R.L. 24·240 M
R.L. 17·015 M
150 φ A.C. PIPE
R.L. 14·375 M
100 DIA HOLES
R.L. 10·640 M
B
B
MORE THAN 5510" (16·764 M) UPTO H.T.L.
ANCHOR SPAN
NAVIGATION SPAN
4000
1550
1550
450
R.L. + 3·164 M
H.T.L + 3·00' (0·914 M)
TOP PLUG IN C.C. 1:3:6 USING LOW C3A CEMENT
℄ OF PIER
350
1710
10180
INNER DIA OF WELL
13600
OUTER DIA OF WELL
℄ OF WELL
A

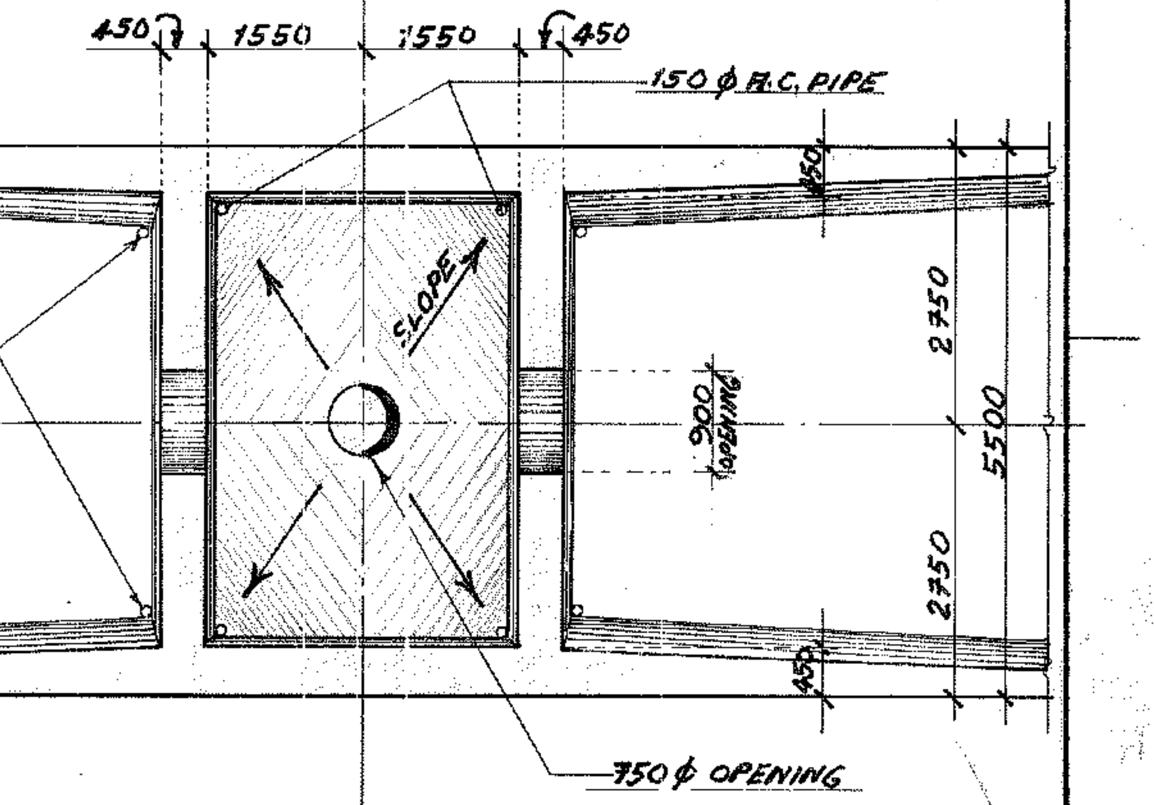
CROSS SECTION OF NAVIGATION PIERS P55 / P56


℄ OF BRIDGE WIDTH
5500
450
2300
2300
1500
1500
450
1550
1550
4000
℄ OF PIER
13883
100 φ HOLES TO BE PROVIDED FOR VENTILATION
▽ R.L. 6·25 M
PIER SOLID UPTO R.L. 6·25 M

PLAN AT B-B


℄ OF BRIDGE WIDTH
11040
200
1570
FOOTPATH
7500
1570
FOOTPATH
200
DECK LEVEL R.L. 24·240 M
7225
R.L. 17·015 M
R.L. 15·915 M
1500
1500
5500
2750
2750
R.L. 12·175 M
R.L. 8·44 M
100 DIA. HOLES
CONST. JOINT
75
℄ OF PIER/WELL
1710
10180
1710

SECTION AT A-A


450
1550
1550
450
150 φ A.C. PIPE
150 φ A.C. PIPE
SLOPE
900 OPENING
2750
5500
2750
750 φ OPENING

PART PLAN OF BOX GIRDER

NOTES

1) ALL DIMENSIONS ARE IN MILLIMETRES & LEVELS ARE IN METRES UNLESS OTHERWISE STATED
2) THIS DRAWING SHALL BE READ IN CONJUNCTION WITH OUR TENDER DRG. NO. 4636E
3) FOR LOCATION & DETAILS OF HOLES FOR SUSPENDERS REFER SEPARATE DRG.
4) FOR DETAILS OF DRAIN SPOUT REFER SEPARATE DRG.
5) STRUCTURAL DECK TOP LEVELS & DIMENSIONAL LAYOUT OF SUPERSTRUCTURE FOR NAVIGATION SPANS REFER DRG. NO. 526/31c
6) FOR GENERAL ARRANGEMENT OF WELLS BELOW NAVIGATION PIERS REFER DEPT'S DRG No. PBP/17/1981.
7) FOR ALL DETAILS OF WELL CAP REFER SEPARATE DRG.
8) ALWAYS REFER THE LATEST REVISIONS OF THE DRG. REFERRED HEREIN.
9) FOR R.C. DETAILS OF NAVIGATION PIERS & PIER-HEADS REFER SEPARATE DRAWINGS.

APPROVAL ACCORDED UPTO R.L. + 16·015 M ONLY.

DATE	REV.	PARTICULARS	BY	CHKD.
9-7-86	C	Diaphragms deleted.		
21 1/86	B.	PIER SHOWN SOLID UPTO R.L. 6·25 & DIAPH. ADDED.		
9 11/85	A	R.L. OF BOTTOM OF WELL CAP RAISED TO H.T.L. & OTHER MINOR CHANGES, C.C. FILLING SHOWN.		

REVISIONS

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT DIVISIONAL ENGINEER(H) PAMBAN BRIDGE PROJECT DIVISION NO. II

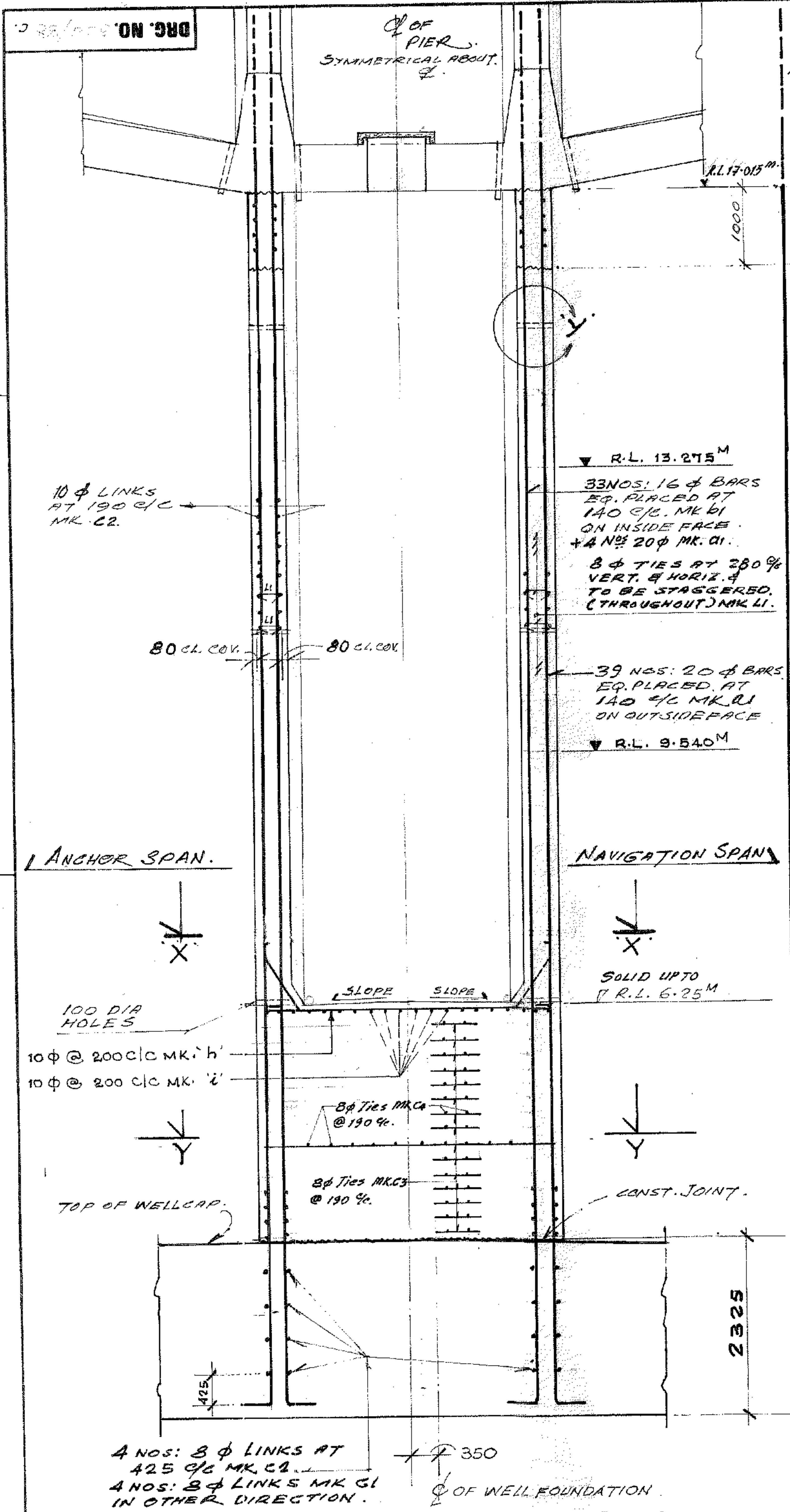
PROJECT BALANCE WORK OF PAMBAN BRIDGE

TITLE GENERAL ARRANGMENT OF NAVIGATION PIERS P55 & P56

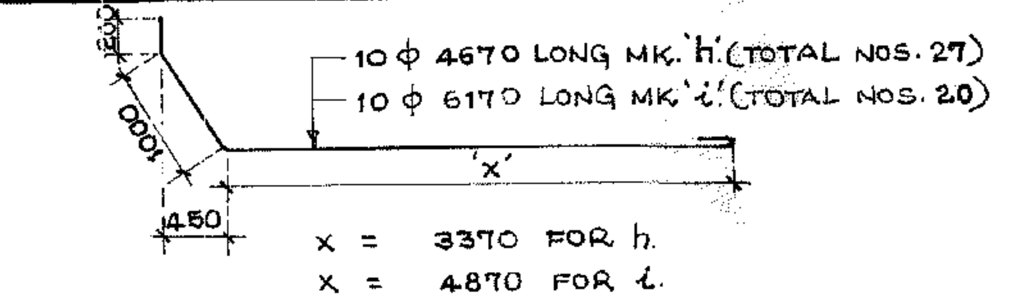
APPROVED FOR CONSTRUCTION BY Divisional Engineer Pamban Bridge project vide Procs No. 2939/85/D.O.(i) (P55 & P56) Dt. 26-7-86.

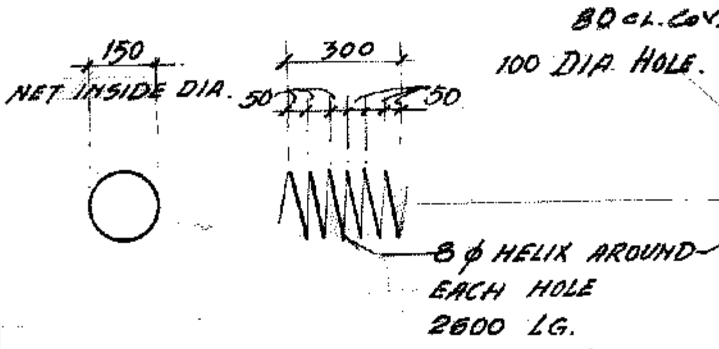
			SER. No.	DATE	SCALE
DRN.	U.R. Mandelkar	D.T.M	6428	2/8/85	1:75
CHKD.					
DSND.		T.M.	DRG. NO. 526/37c		

Drg. No: As per department
PBP/9/86

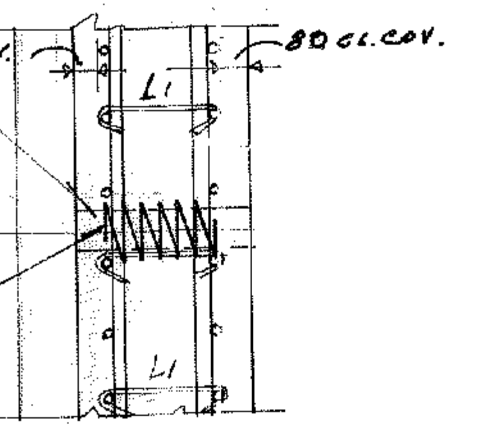

Ȼ OF PIER.
SYMMETRICAL ABOUT Ȼ.
R.L. 17·015 M.
1000
R.L. 16·015 M (REFER NOTE NO.10. BEFORE PROCEEDING).
{20 φ BARS 15965 LG. MK a1 TOTAL NOS 132.
{16 φ BARS 15965 LG. MK b1 TOTAL NOS: 108.
Y
R.L. 13.275 M
33NOS: 16 φ BARS EQ. PLACED AT 140 c/c. MK b1 ON INSIDE FACE. +4 NOS 20φ MK. a1.
8 φ TIES AT 280 c/c VERT. & HORIZ. & TO BE STAGGERED. (THROUGHOUT) MK L1.
10 φ LINKS AT 190 c/c MK. C2.
L1
80 CL. COV.
80 CL. COV.
39 NOS: 20 φ BARS EQ. PLACED AT 140 c/c MK a1 ON OUTSIDE FACE
R.L. 9·540 M
ANCHOR SPAN.
NAVIGATION SPAN
X
X
SOLID UPTO R.L. 6·25 M
SLOPE
SLOPE
100 DIA HOLES
10 φ @ 200 c/c MK. 'h'
10 φ @ 200 c/c MK. 'i'
8φ Ties MK.C4 @ 190 c/c.
Y
Y
8φ Ties MK.C3 @ 190 c/c.
TOP OF WELLCAP.
CONST. JOINT.
2325
425
4 NOS: 8 φ LINKS AT 425 c/c MK. C2.
4 NOS: 8 φ LINKS MK C1 IN OTHER DIRECTION.
350
Ȼ OF WELL FOUNDATION.

• CROSS SECTION OF PIER

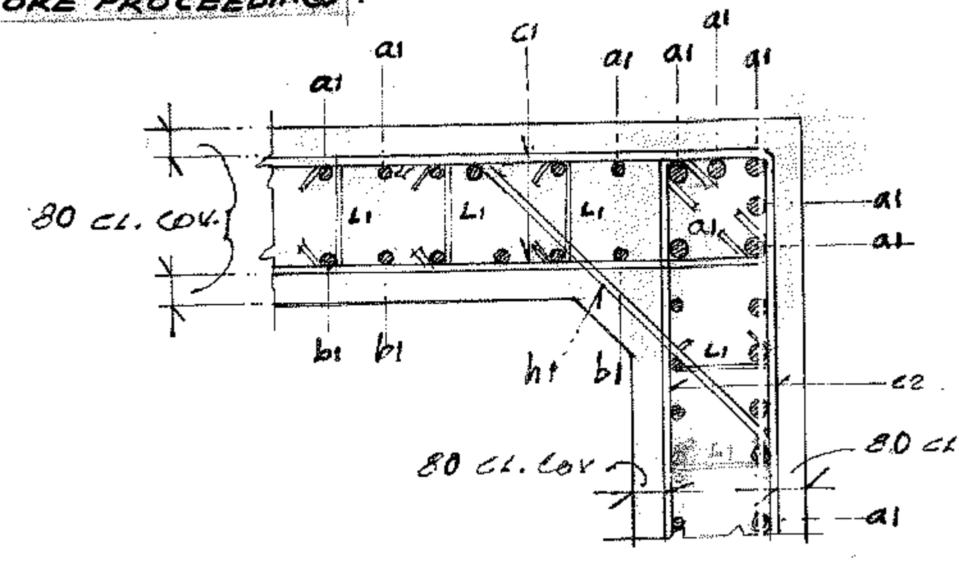

450
1000
10 φ 4670 LONG MK. 'h'. (TOTAL NOS. 27)
10 φ 6170 LONG MK. 'i'. (TOTAL NOS. 20)
'x'
x = 3370 FOR h.
x = 4870 FOR i.


150
NET INSIDE DIA.
300
50
50
8 φ HELIX AROUND EACH HOLE 2600 LG.

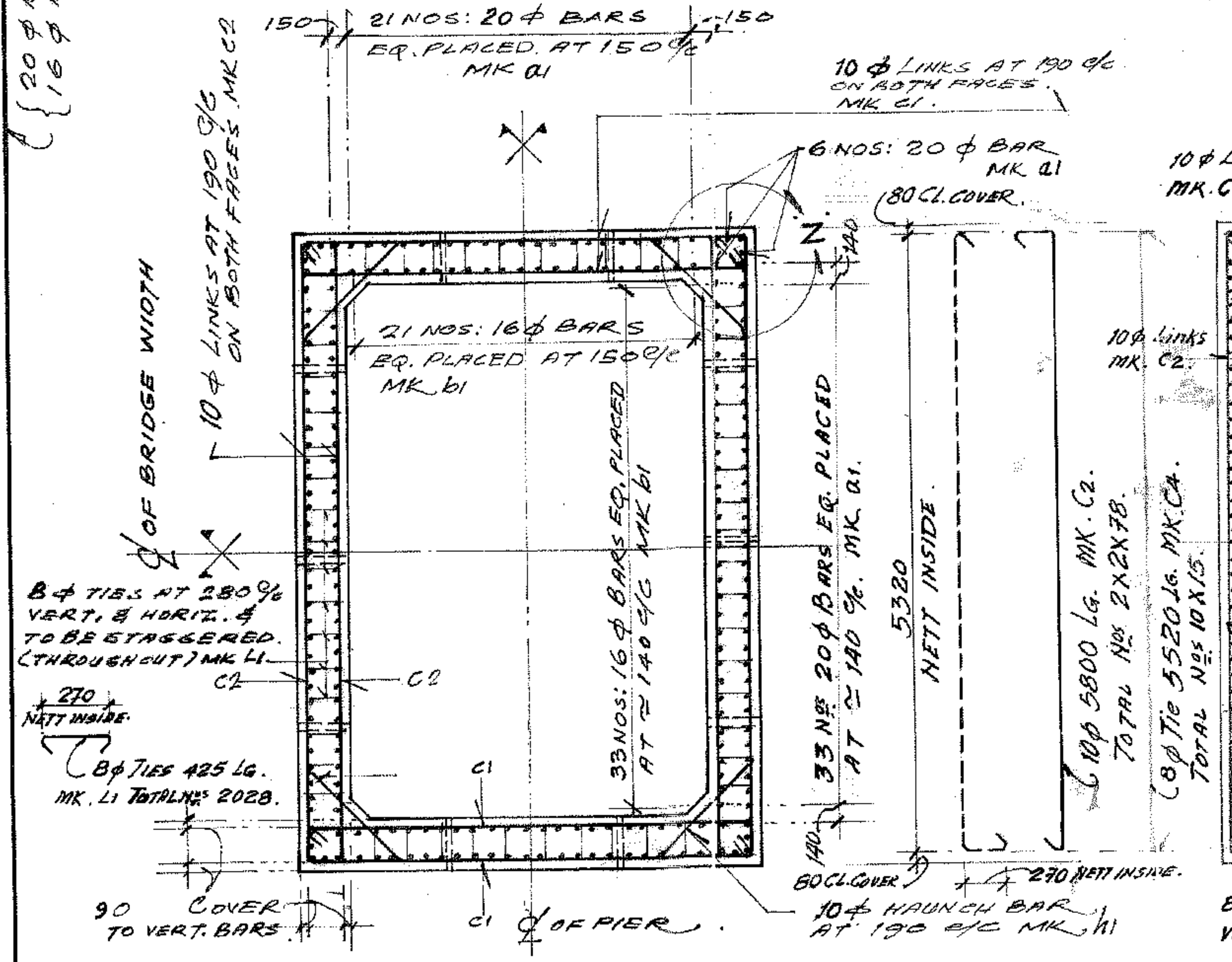
• DETAIL OF HELIX. (34 Nos)


80 CL. COV.
80 CL. COV.
100 DIA HOLE.
L1
L1

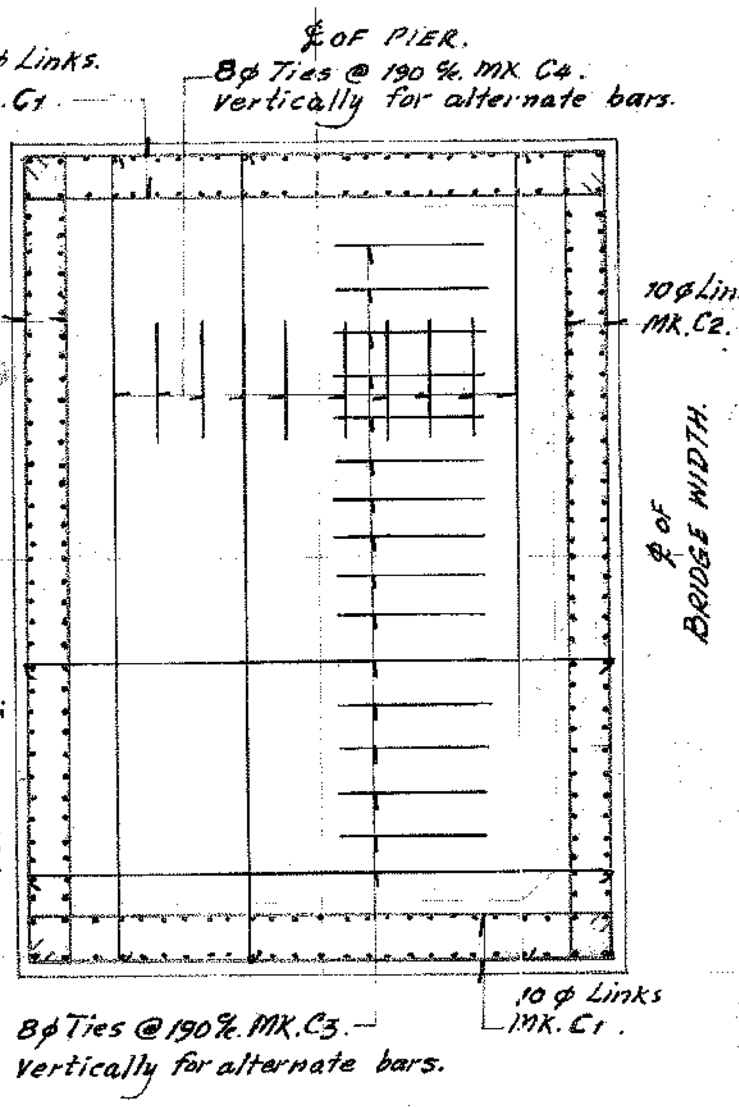
• ENLARGED DETAIL AT 'Y'


a1
a1
c1
a1
a1
a1
a1
80 CL. COV.
L1
L1
L1
a1
a1
a1
b1
b1
h1
b1
L1
c2
80 CL. COV.
80 CL. COV.
a1

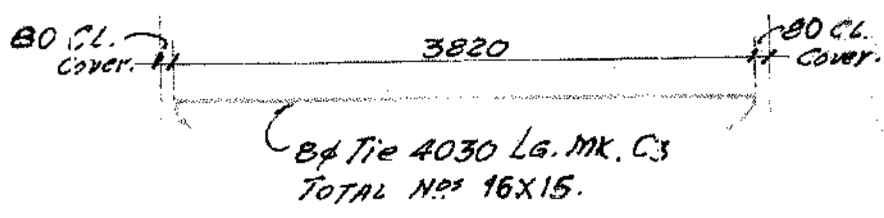
• ENLARGED DETAIL AT 'Z'

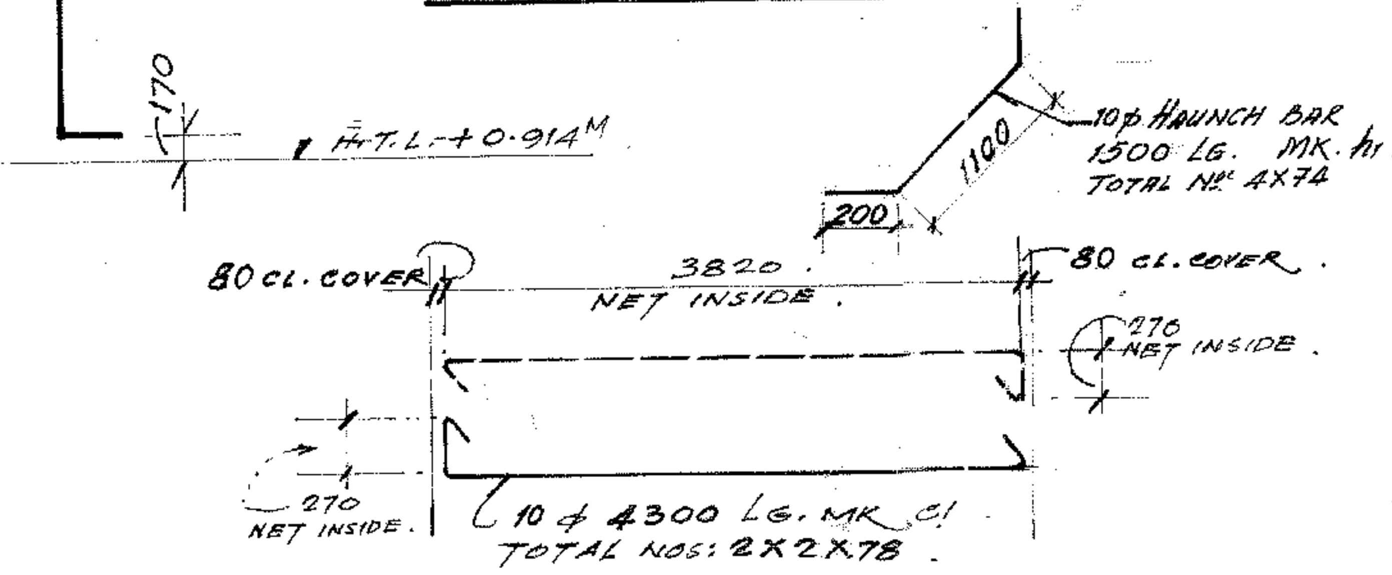

150
21 NOS: 20 φ BARS EQ. PLACED AT 150 c/c MK a1
150
10 φ LINKS AT 190 c/c ON BOTH FACES MK C2
10 φ LINKS AT 190 c/c ON BOTH FACES. MK C1.
X
6 NOS: 20 φ BAR MK a1
80 CL. COVER.
Z
140
21 NOS: 16 φ BARS EQ. PLACED AT 150 c/c MK b1
Ȼ OF BRIDGE WIDTH
X
8 φ TIES AT 280 c/c VERT. & HORIZ. & TO BE STAGGERED. (THROUGHOUT) MK L1.
C2
C2
270 NETT INSIDE.
8φ TIES 425 LG. MK. L1 TOTAL NOS 2028.
33 NOS: 16 φ BARS EQ. PLACED AT ≃ 140 c/c MK b1
33 NOS 20 φ BARS EQ. PLACED AT ≃ 140 c/c. MK a1.
5320 NETT INSIDE.
10φ 5800 LG. MK. C2. TOTAL NOS 2X2X78.
8φ Tie 5520 LG. MK.C4. TOTAL NOS 10X15.
c1
c1
c1
140
80 CL. COVER
270 NETT INSIDE.
90 COVER TO VERT. BARS.
Ȼ OF PIER.
10 φ HAUNCH BAR AT 190 c/c MK h1

• PLAN AT X-X


Ȼ OF PIER.
10 φ Links. MK.C1
8φ Ties @ 190 c/c. MK C4. Vertically for alternate bars.
10φ Links MK. C2.
10φ Links MK.C2.
Ȼ of BRIDGE WIDTH.
8φ Ties @ 190 c/c. MK.C3. Vertically for alternate bars.
10 φ Links MK. C1.

PLAN AT Y-Y.


80 CL. Cover.
3820
80 CL. Cover.
8φ Tie 4030 LG. MK. C3 TOTAL NOS 16X15.


170
H.T.L. +0·914 M
1100
200
10φ HAUNCH BAR 1500 LG. MK. h1. TOTAL NOS 4X74
80 CL. COVER
3820 NET INSIDE.
80 CL. COVER.
270 NET INSIDE.
270 NET INSIDE.
10 φ 4300 LG. MK. C1 TOTAL NOS: 2X2X78.

• QUANTITIES ARE SHOWN FOR ONE PIER ONLY ---- 2 - OFF.

Drg. No. as per department PBP/10/86

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES & LEVELS ARE IN METRES.
2. THIS DRG. SHALL BE READ IN CONJUNTION WITH GIL. TENDER DRG. NO. 4636E.
3. R.C.C. DETAILS OF WELL CAP UNDER NAVIGATION PIER REFER DRG. NO. 526/35B.
4. FOR GENERAL ARRANGEMENT OF NAVIGATION PIERS P55 & P56 REFER DRG. NO 526/37C.
5. FOR GENERAL LAYOUT & SECTIONAL DIMENSIONS OF BOX DECKING REFER DRG. NO. 526/31D.
6. GRADE OF CONCRETE FOR NAVIGATION PIER ......M350.
7. ALL REINFT. SHOWN IN THIS DRG. ARE TO BE OF MILD STEEL GRADE I CONFORMING TO I.S. 432 .... 1966.
8. REINFORCING BARS MAY BE JOINED BY LAPPING. THE MINIMUM LAP LENGTH SHALL NOT BE LESS THAN 30'D' WHERE 'D' IS THE DIA OF BARS TO BE LAPPED, SUCH JOINTS SHALL BE STAGGERED & NOT MORE THAN ONE IN EVERY TWO BARS BE LAPPED AT THE SAME SECTION.
9. CONSTRUCTION JT. TREATMENT :—
   a) THE TREATMENT OF CONST. JT. SHALL COMMENCE IMMEDIATELY AFTER THE CONCRETE HAS PARTIALLY SET, SAY WITHIN THREE TO FOUR HOURS OF CONCRETING. THE LAITANCE SHALL BE REMOVED BY WIRE BRUSHING, CHIPPING & WATER JETTING WHERE APPROPRIATE & THE COARSE AGGREGATES EXPOSED OVER THE ENTIRE AREA OF THE JOINT & THE SURFACE MAINTAINED IN A CLEAN CONDITION.

   b). AT LEAST 24 HOURS PRIOR TO PLACEMENT OF FRESH CONCRETE AGAINST THE EXPOSED SURFACE OF THE CONSTRUCTION JOINT, THE EXPOSED SURFACE SHALL BE THOROUGHLY WETTED & WETNESS MAINTAINED UNTIL AT LEAST 2 HOURS PRIOR TO COMMENCEMENT OF CONCRETING.

   c). AT THE TIME OF ACTUAL PLACEMENT OF CONCRETE AGAINST THE TREATED CONST. JT. SURFACE, THE SURFACE SHOULD BE IN A SATURATED DRY CONDITION. THE ROUGHENED SURFACE SHOULD BE THOROUGHLY CLEANED OF ALL LOOSE MATTERS BEFORE PLACING FRESH CONCRETE.
10. PIER CONCRETING SHALL BE STOPPED AT A CONSTRUCTION JOINT AT R.L. 16·015 M. FURTHER CONCRETING TO BE CARRIED OUT AS PER SEPARATE DRG. SHOWING REINFT. DETAILS OF PIER-HEAD.
11. ALWAYS REFER LATEST REVISIONS OF THE DRAWINGS REFERRED HEREIN.

REVISIONS

DATE	REV.	PARTICULARS	BY	CHKD.
9-7-86.	C	Bars MK. 'C1', 'C2', 'h1' Changed from 8φ to 10φ & Diaphragms deleted.		
2-7-86.	B	16 dia. bars on outer faces along 4 M. side changed to 20 dia. Plan at Y-Y added and other minor changes.		
30-1-86	A	PIER MADE SOLID UPTO R.L. 6·25 M, CROSS DIAPHRAGMS ADDED.	Khaler	

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

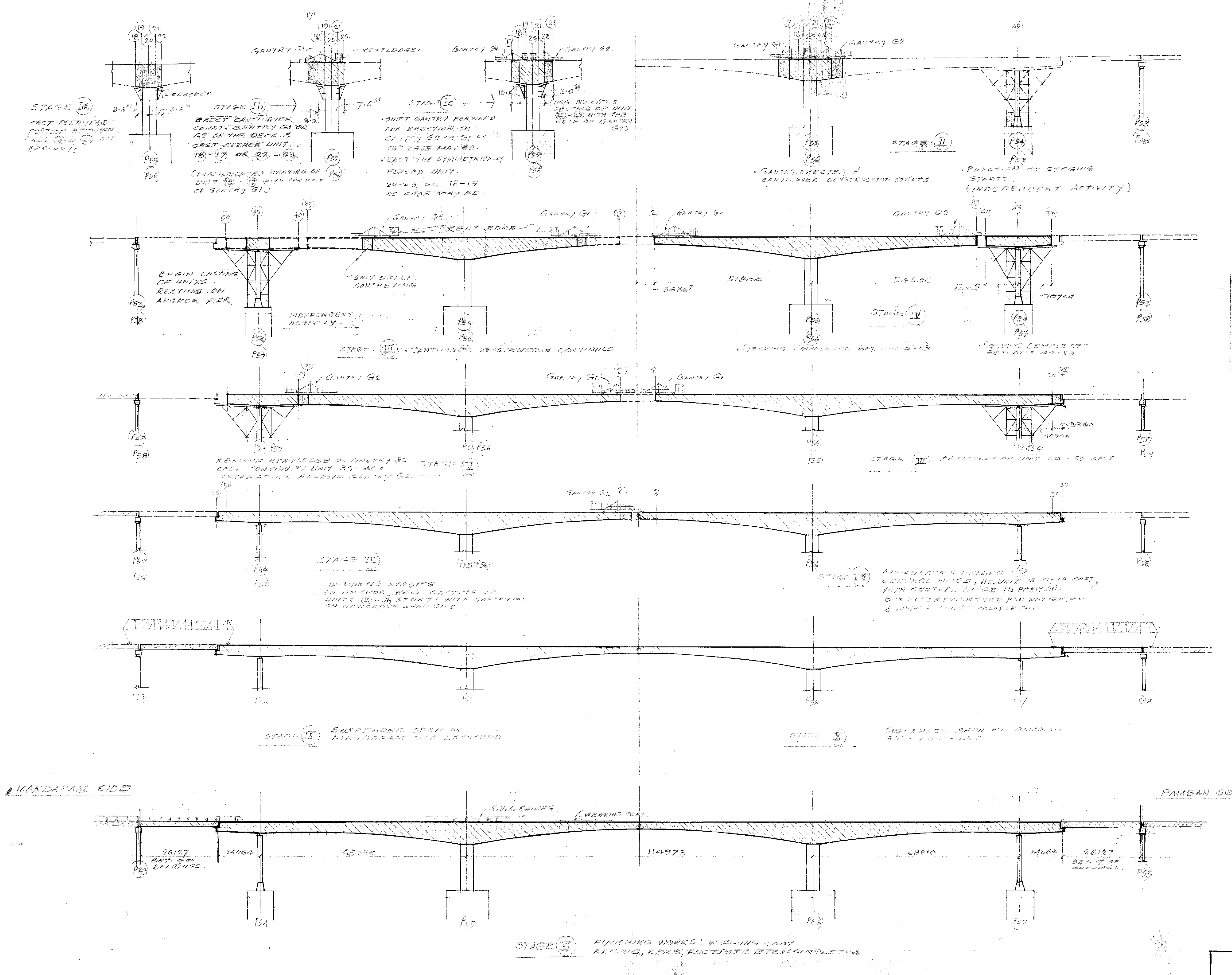
CLIENT
DIVISIONAL ENGINEER (H) PAMBAN BRIDGE PROJECT DIVN. No II.

PROJECT
BALANCE WORK OF PAMBAN BRIDGE.

TITLE
R.C.C. DETAILS OF NAVIGATION PIER Nos P55 & P56.

APPROVED FOR CONSTRUCTION BY Divisional Engineer Pamban Bridge Project II, vide Proc. No 2939/85/D.old (P55 & P56) Dt. 26-7-86.

				SER. No.	DATE	SCALE
DRN.	R.M.K.	D.T.M		6592	9/11/85	1:50 1:75
CHKD.						
DSND.		T.M.		DRG. NO. 526/38C		


STAGE Ia
CAST PIERHEAD PORTION BETWEEN AXES 18 & 22 ON BRACKETS
18 19 20 21 22
BRACKET
3.8M 3.8M
P55 P56
STAGE Ib
ERECT CANTILEVER CONST. GANTRY G1 OR G2 ON THE DECK & CAST EITHER UNIT 18-17 OR 22-23
(DRG. INDICATES CASTING OF UNIT 18-17 WITH THE HELP OF GANTRY G1)
GANTRY G1
KENTLEDGE.
3.0
7.6M
STAGE Ic
• SHIFT GANTRY FORWARD FOR ERECTION OF GANTRY G2 OR G1 AS THE CASE MAY BE.
• CAST THE SYMMETRICALLY PLACED UNIT. 22-23 OR 18-17 AS CASE MAY BE.
GANTRY G1
GANTRY G2.
10.6M
3.0M
(DRG. INDICATES CASTING OF UNIT 22-23 WITH THE HELP OF GANTRY G2)
STAGE II
• GANTRY ERECTED & CANTILEVER CONSTRUCTION STARTS.
• ERECTION OF STAGING STARTS. (INDEPENDENT ACTIVITY).
45
P53 P58 P54 P57
STAGE III • CANTILEVER CONSTRUCTION CONTINUES.
BEGIN CASTING OF UNITS RESTING ON ANCHOR PIER
INDEPENDENT ACTIVITY.
GANTRY G2.
KENTLEDGE
GANTRY G1
UNIT UNDER CONCRETING
50 45 40 39 2
STAGE IV
• DECKING COMPLETED BET. AXIS 2-39
• DECKING COMPLETED BET. AXIS 40-50
56865
51800
54506
3000
10704
STAGE V
REMOVE KENTLEDGE ON GANTRY G2 CAST CONTINUITY UNIT 39-40 & THEREAFTER REMOVE GANTRY G2.
STAGE VI ARTICULATION UNIT 50-52 CAST
3860
10704
STAGE VII
DISMANTLE STAGING ON ANCHOR WELL. CASTING OF UNITS 2-1A STARTS WITH GANTRY G1 ON NAVIGATION SPAN SIDE
STAGE VIII
ARTICULATION HOUSING CENTRAL HINGE, VIZ. UNIT 1A-0-1A CAST, WITH CENTRAL HINGE IN POSITION. BOX SUPERSTRUCTURE FOR NAVIGATION & ANCHOR SPANS COMPLETED.
STAGE IX SUSPENDED SPAN ON MANDAPAM SIDE LAUNCHED.
STAGE X SUSPENDED SPAN ON PAMBAN SIDE LAUNCHED.
MANDAPAM SIDE
PAMBAN SIDE
R.C.C. RAILING
WEARING COAT.
26127 BET. ℄ OF BEARINGS
14064
68090
114973
68810
14064
26127 BET. ℄ OF BEARINGS
P53 P54 P55 P56 P57 P58
STAGE XI FINISHING WORKS: WEARING COAT, RAILING, KERB, FOOTPATH ETC. COMPLETED

LEGEND

- ▨ PORTION ALREADY CAST
- ▩ UNIT UNDER CONSTRUCTION.
- ☐ WORK YET TO BE DONE.

NOTES:—.

1. ALL DIMENSIONS ARE IN MILLIMETRES & LEVELS ARE IN METRES UNLESS OTHERWISE STATED.
2. THIS DRAWING IS INDICATIVE ONLY & DIMENSIONS OF MEMBERS ARE NOT TO BE SCALED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE LATEST REVISION OF FOLLOWING DRGS :-
   - i) GENERAL ARRANGEMENT OF BRIDGE DRG. Nº 4636E.
   - ii) FOR GENERAL ARRANGEMENT OF NAVIGATION PIER-HEAD REFER DRG. NO 526/44.
   - iii) GENERAL LAYOUT & SECTIONAL DIMENSIONS OF BOX GIRDER DRG. NO. 526/31.
   - iv) THE CONSTRUCTION ACTIVITY ON MANDAPAM SIDE & PAMBAN SIDE MAY HAVE A TIME LAG TO SUIT THE CONSTRUCTION SCHEDULE.
   - v) FOR THE PORTION OF SUPERSTRUCTURE RESTING ON ANCHOR PIER, i.e. PORTION BETWEEN AXES 40 & 50, CASTING OF SYMMETRICALLY PLACED UNITS IS TO BE CARRIED OUT SIMULTANEOUSLY, STARTING WITH SOFFIT SLAB, WEB & DECK SLAB IN THAT ORDER.

DATE	REV.	PARTICULARS.	BY	CHKD.

REVISIONS.

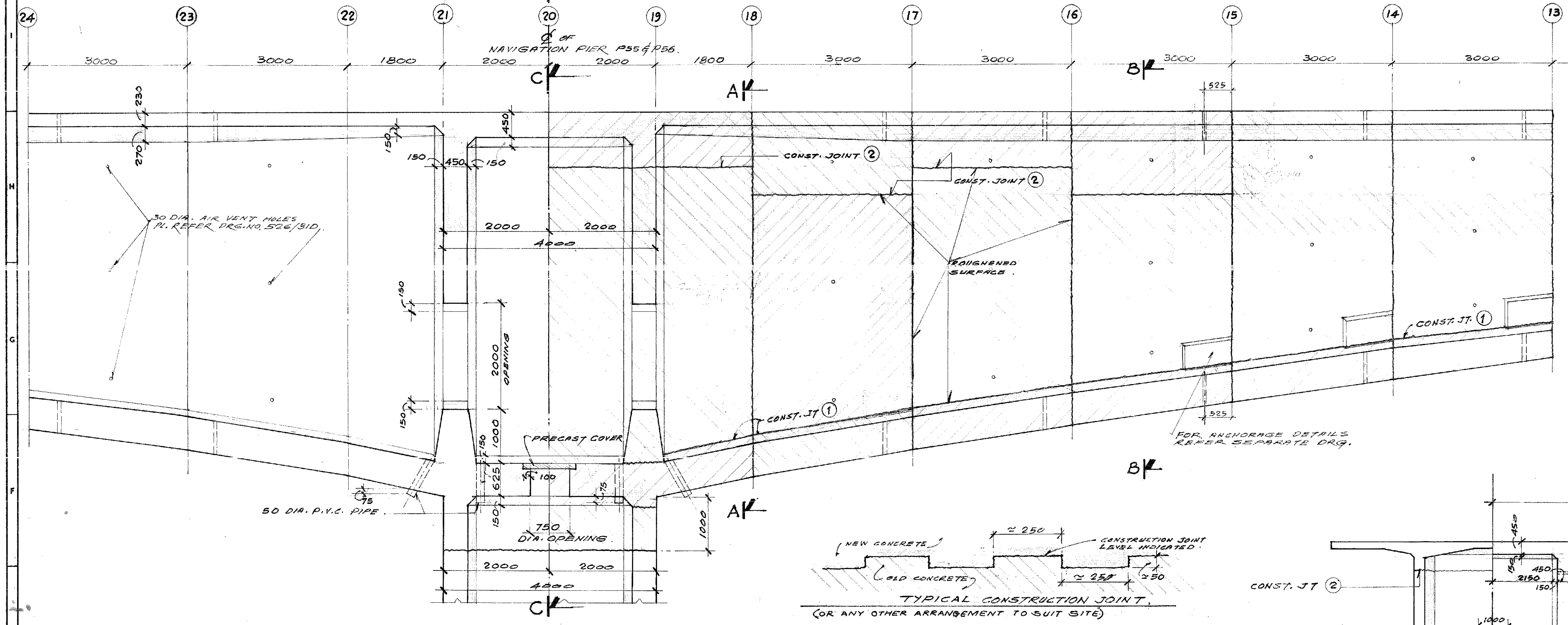
GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT. DIVISIONAL ENGINEER (H) PAMBAN. BRIDGE PROJECT DIVISION Nº II

PROJECT. BALANCE WORK OF PAMBAN BRIDGE.

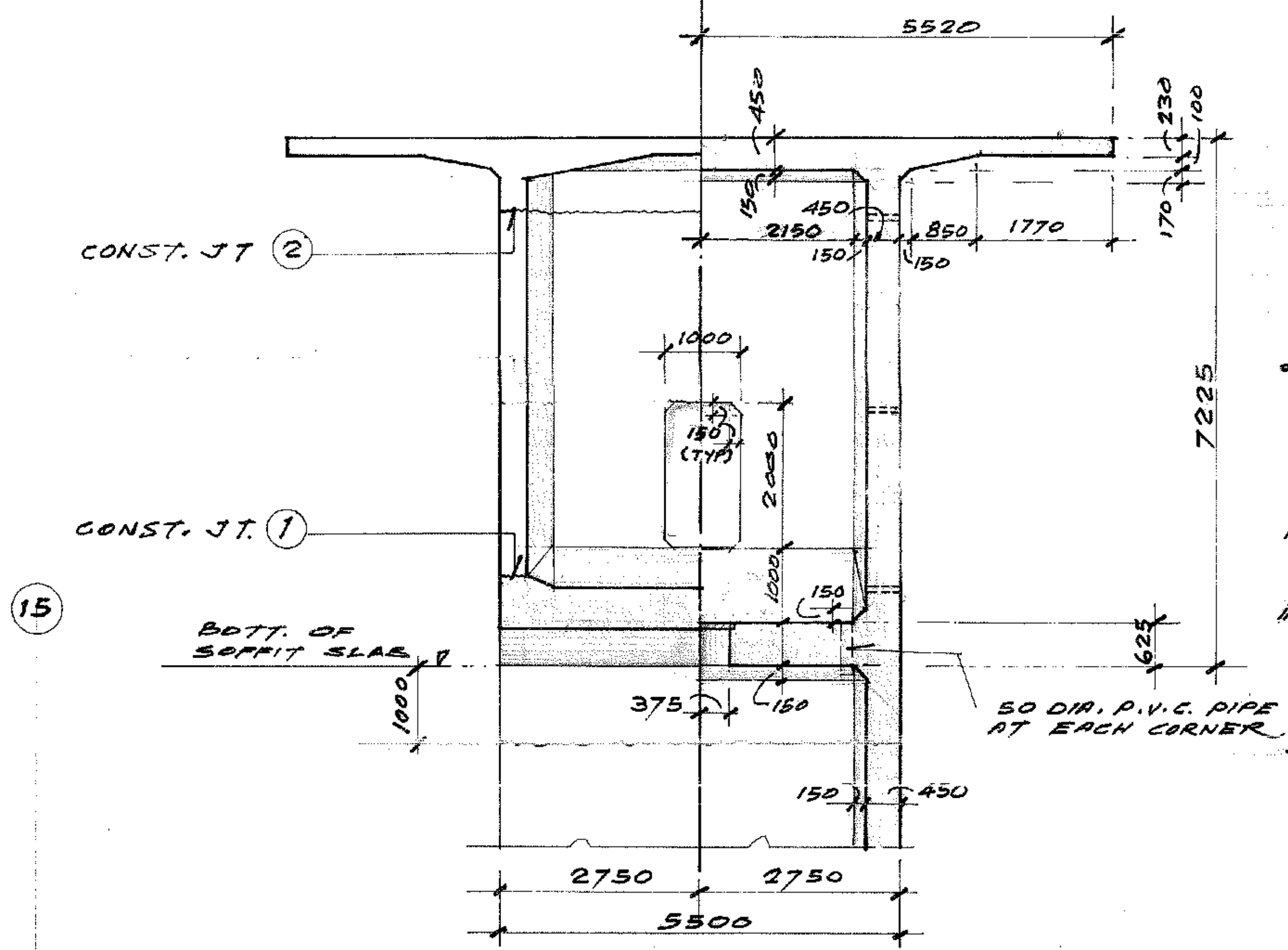
TITLE. CONSTRUCTION STAGES OF BOX DECKING.

DRN	R.M.Ko.		SCALE	-
CHKD		P.T.M.	SR. Nº	6998
DSND			DATE	5-8-86
CHKD		T.M.	DRG. Nº 526/41	

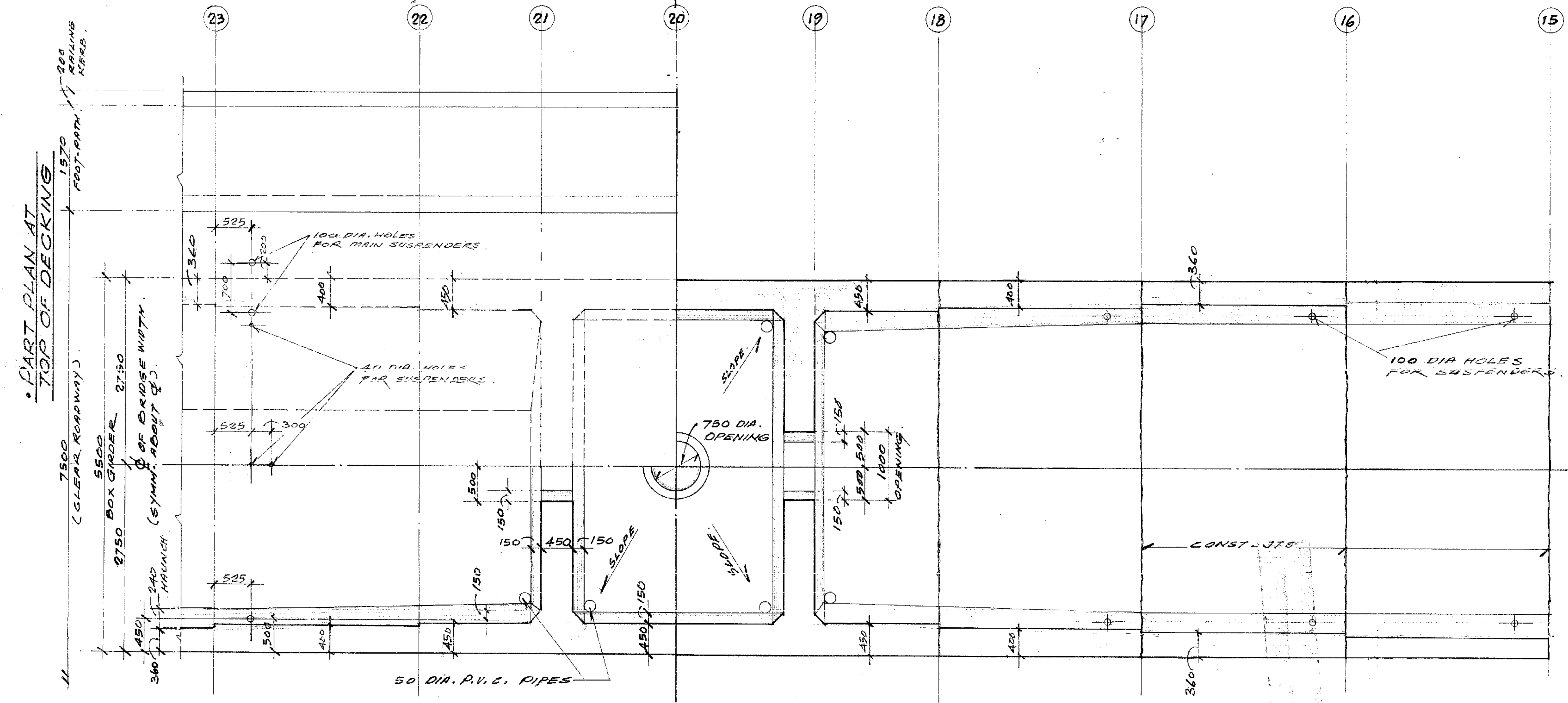

24
23
22
21
20
19
18
17
16
15
14
13
3000
1800
2000
℄ OF NAVIGATION PIER P55 & P56.
C
A
B
525
230
270
150
450
CONST. JOINT ②
30 DIA. AIR VENT HOLES
PL. REFER DRG. NO. 526/31D.
4000
ROUGHENED SURFACE.
CONST. JT. ①
2000 OPENING
1000
625
PRECAST COVER
100
75
750 DIA. OPENING
50 DIA. P.V.C. PIPE
FOR ANCHORAGE DETAILS REFER SEPARATE DRG.
NEW CONCRETE
≃ 250
CONSTRUCTION JOINT LEVEL INDICATED.
OLD CONCRETE
≃ 50

TYPICAL CONSTRUCTION JOINT
(OR ANY OTHER ARRANGEMENT TO SUIT SITE)

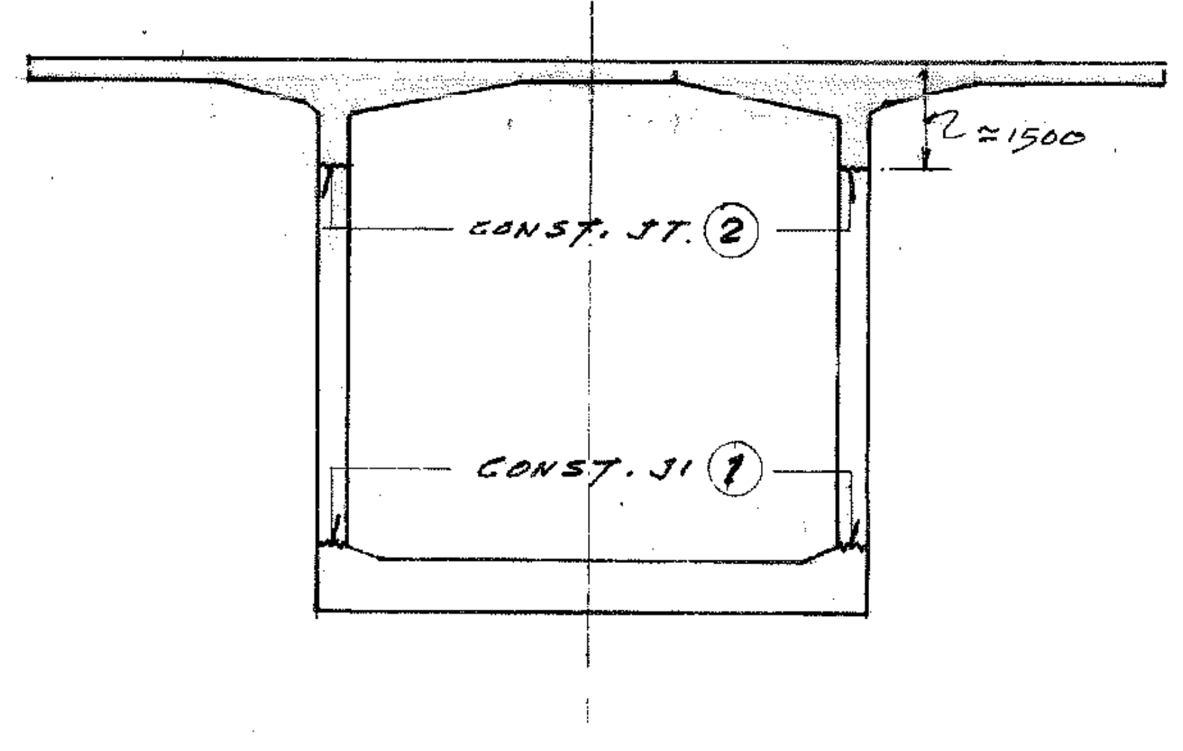
- PART LONGITUDINAL SECTION SHOWING PIER-HEAD DIMENSION ONLY
- PART LONGITUDINAL SECTION SHOWING CONSTRUCTION JOINTS ONLY


5520
450
230
170
100
2150
850
1770
150
CONST. JT ②
CONST. JT. ①
1000
2000
(TYP)
7225
625
BOTT. OF SOFFIT SLAB
1000
375
50 DIA. P.V.C. PIPE AT EACH CORNER
2750
5500

- SECTION AT A-A (SHOWING CONST. JTS. ONLY).
- SECTION AT C-C (SHOWING PIER-HEAD DIMENSIONS ONLY).


PART PLAN AT TOP OF DECKING
23
22
21
20
19
18
17
16
15
220 RAILING KERB.
1570 FOOT-PATH
7500 (CLEAR ROADWAY)
5500 BOX GIRDER
2750 ℄ OF BRIDGE WIDTH (SYMM. ABOUT ℄)
240 HAUNCH
525
360
100 DIA. HOLES FOR MAIN SUSPENDERS.
40 DIA. HOLES FOR SUSPENDERS
300
400
450
150
500
750 DIA. OPENING
SLOPE
1000 OPENING
100 DIA HOLES FOR SUSPENDERS.
CONST. JTS.
50 DIA. P.V.C. PIPES

- PART PLAN OF BOX GIRDER SHOWING DIMENSIONS
- PART PLAN OF BOX GIRDER SHOWING CONSTRUCTION JOINTS


≃1500
CONST. JT. ②
CONST. JT ①

SECTION AT B-B
(SHOWING CONST. JOINTS ONLY)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. FOR STRUCTURAL DECK TOP LEVELS & DIMENSIONAL LAYOUT OF BOX DECKING REFER DRG. NO. 526/31F.
3. FOR DETAILS OF PIER-HEAD REINFORCEMENT & CABLE PROFILE REFER SEPARATE DRGS.
4. REFER ALWAYS THE LATEST REVISIONS OF THE DRAWINGS REFERRED HEREIN.
5. CONSTRUCTION JOINTS SHALL BE PROVIDED AT POSITIONS AS GENERALLY INDICATED.
6. LOCATION OF JOINT 2 SHALL BE BELOW THE JUNCTION OF DECK SLAB AND WEB. THE JOINTS IN ADJOINING UNITS SHALL BE STAGGERED BY AT LEAST 300 mm.
7. THE TIME LAG BETWEEN SUCCESSIVE HORIZONTAL CONST. JTS 1 & 2 FOR UNITS BETWEEN SECTIONS 18 TO 22 SHALL PREFERABLY NOT EXCEED 48 HOURS. THE ENTIRE CONCRETING OF EACH UNIT SHALL GENERALLY BE COMPLETED WITHIN 7 DAYS.
8. THE TIME LAG FOR THE BALANCE UNITS BETWEEN SUCCESSIVE HORIZONTAL CONST. JTS. 1 & 2 SHALL NOT EXCEED 12 HOURS.

- CONSTRUCTION JOINT TREATMENT:-

a) THE TREATMENT OF CONST. JT. SHALL COMMENCE IMMEDIATELY AFTER THE CONCRETE HAS PARTIALLY SET WITHIN THREE TO FOUR HOURS OF CONCRETING. THE LAITANCE SHALL BE REMOVED BY WIRE BRUSHING, CHIPPING & WATER JETTING WHERE APPROPRIATE & THE COARSE AGGREGATES EXPOSED OVER THE ENTIRE AREA OF THE JOINT & THE SURFACE MAINTAINED IN A CLEAN CONDITION.

b) AT LEAST 24 HOURS PRIOR TO PLACEMENT OF FRESH CONCRETE AGAINST THE EXPOSED SURFACE OF THE CONST. JT, THE EXPOSED SURFACE SHALL BE THOROUGHLY WETTED & WETNESS MAINTAINED UNTIL AT LEAST TWO HOURS PRIOR TO COMMENCEMENT OF CONCRETING.

c) AT THE TIME OF ACTUAL PLACEMENT OF CONCRETE AGAINST THE TREATED CONST. JT. SURFACE, THE SURFACE SHOULD BE IN A SATURATED DRY CONDITION, THE ROUGHENED SURFACE SHOULD BE THOROUGHLY CLEANED OF ALL LOOSE MATTERS BEFORE PLACING FRESH CONCRETE.

- PRECAUTIONS WHILE CONCRETING:-

i) CONCRETE SHOULD BE PLACED IN UNIFORM LAYERS OF ABOUT 20 CM TO 30 CM IN DEPTH AND IN SUCH A MANNER SO AS TO AVOID DISPLACEMENT OF CABLES FROM THEIR CORRECT PROFILE

ii) ADEQUATE CARE SHALL BE TAKEN TO AVOID DEFORMATION OF SHEATHING DUCTS.

iii) CARE SHALL BE TAKEN TO ENSURE THAT VIBRATOR NEEDLE DOES NOT COME INTO CONTACT WITH SHEATHING DUCT DIRECTLY TO AVOID PUNCTURING.

iv) ALL JOINTS IN THE SHEATHING DUCTS SHALL BE EFFECTIVELY SEALED BY SUITABLE ADHESIVE TAPES TO PREVENT LEAKAGE OF CEMENT SLURRY.

v) CURING SHOULD BE DONE WITH FRESH WATER ONLY.

DATE	REV.	PARTICULARS	BY	CHKD.
12 12/86	B	MAN HOLE IN DECK SLAB AT PIER-HEAD DELETED		
24 11/86	A	LOCATION OF MAN HOLE IN DECK SLAB SHOWN, CONST. JT No 2a DELETED. CONST. JT 2 DELETED FOR UNIT 14-15 & 25-26 ONWARDS. THICKNESS OF WEBS SET. AXIS 16 TO 19 & 21 TO 24 MODIFIED.		

REVISIONS

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT DIVISIONAL ENGINEER (H) PAMBAN BRIDGE PROJECT DIVISION No II

PROJECT BALANCE WORK OF PAMBAN BRIDGE.

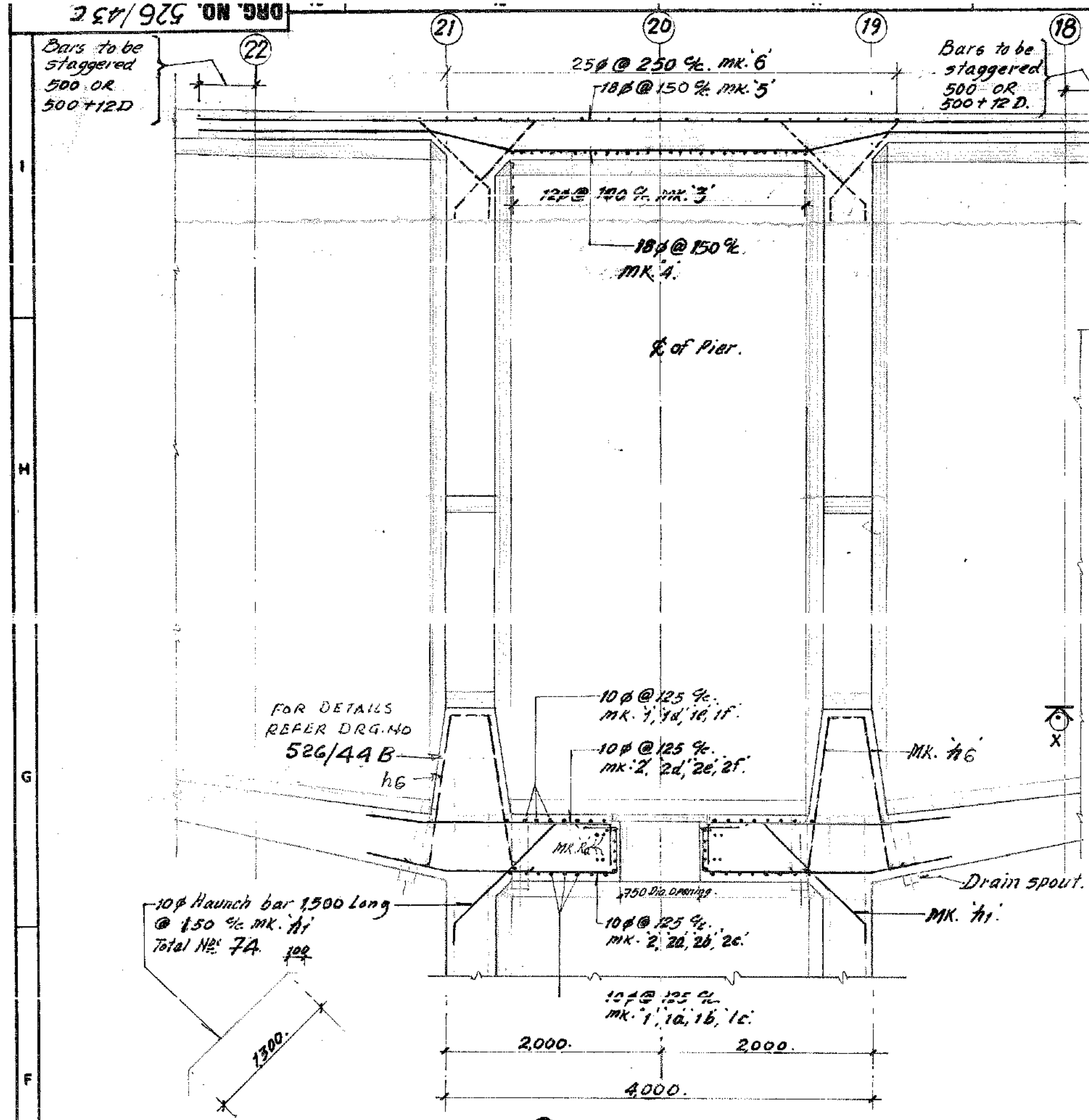
TITLE DIMENSIONAL LAYOUT FOR PIER-HEAD & DETAILS OF CONSTRUCTION JOINTS.

DRAWING No AS PER DEPT. CE (H) PBP/2/87.

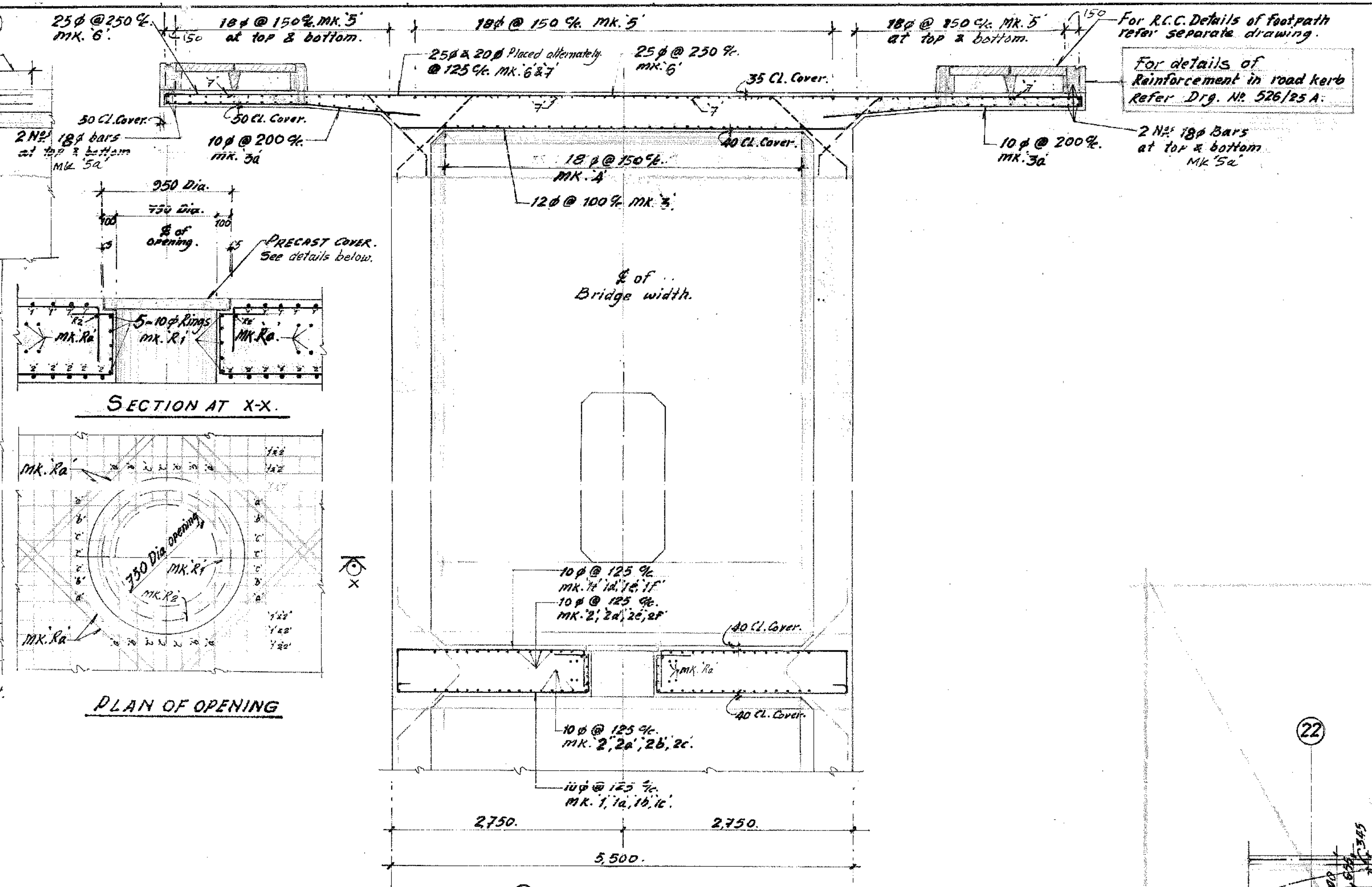
APPROVED FOR CONSTRUCTION BY DIV. ENGINEER PAMBAN BRIDGE PROJECT DIV II VIDE RLG. No 70/86 (I)/D-3/ DT. 28-1-87

DRN.			SCALE	1:400
CHKD.		D.T.M.	SERIAL NO.	7041
DSND.			DATE	14-7-1986
CHKD.		T.M.	**DRG. NO.**	526/42 B

DRG. NO. 526/43 C


Bars to be staggered 500 OR 500+12D
(22)
(21)
(20)
(19)
(18)
25φ @ 250 %. mk. '6'
18φ @ 150 % mk. '5'
Bars to be staggered 500 OR 500+12D.
12φ @ 100 %. mk. '3'
18φ @ 150 %. mk. '4'.
℄ of Pier.
FOR DETAILS REFER DRG. NO 526/44 B
h6
10φ @ 125 %. mk. '1', '1d', '1e', '1f'.
10φ @ 125 %. mk. '2', '2d', '2e', '2f'.
MK. 'h6'
MK. Ra
750 Dia. opening.
Drain spout.
MK. 'h1'.
10φ Haunch bar 1,500 Long @ 150 %. mk. 'h1' Total Nos 74.
100
1300.
10φ @ 125 %. mk. '2', '2a', '2b', '2c'.
10φ @ 125 %. mk. '1', '1a', '1b', '1c'.
2,000.
2000.
4000.

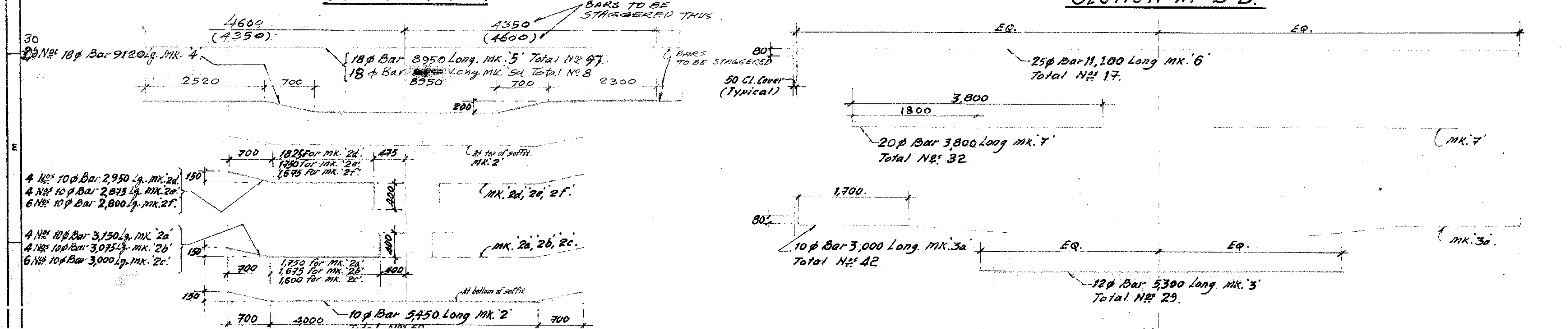
SECTION AT A-A.

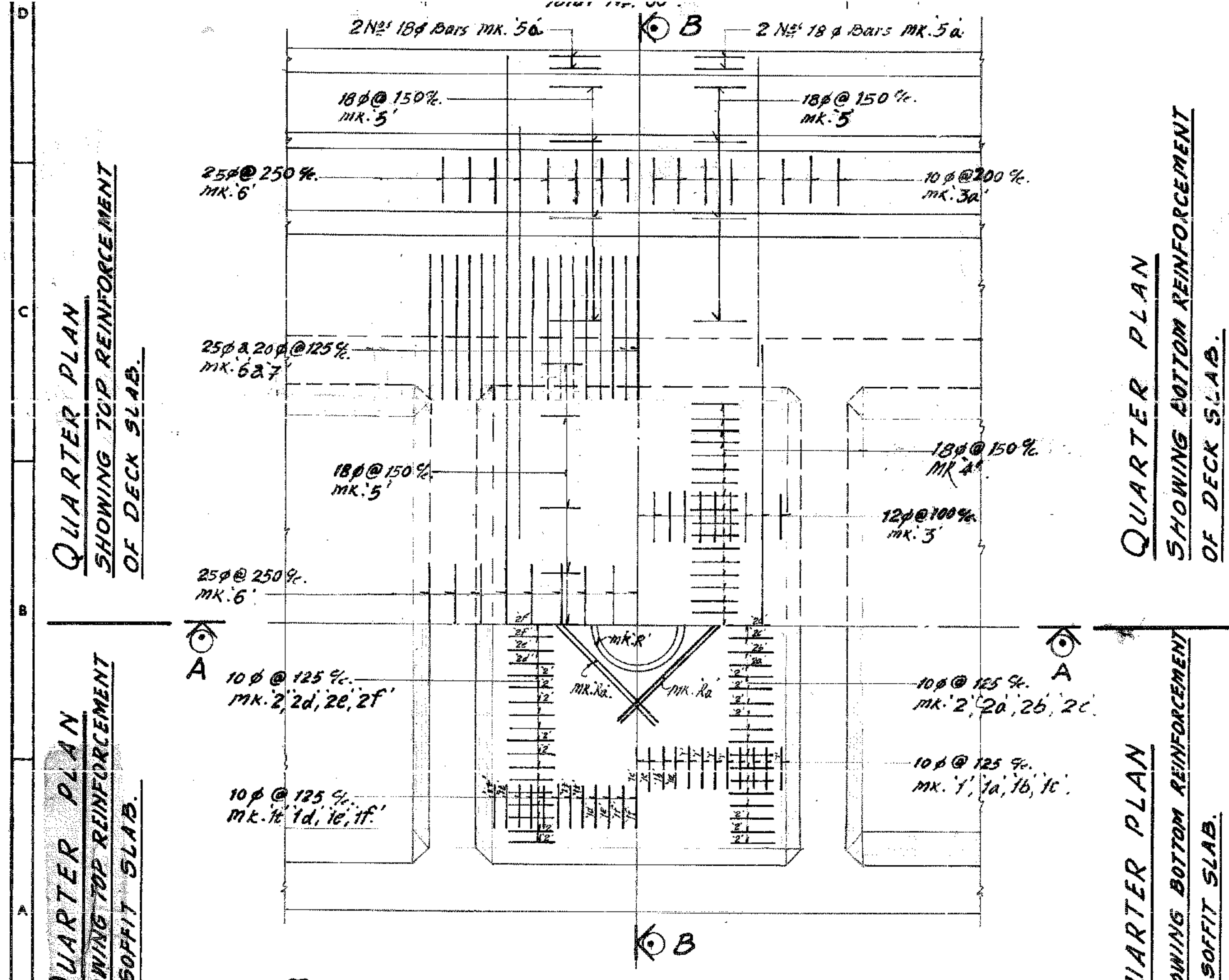

25φ @ 250 %. mk. '6'.
150
18φ @ 150 %. mk. '5' at top & bottom.
18φ @ 150 %. mk. '5'
18φ @ 150 %. mk. '5' at top & bottom.
150
For R.C.C. Details of footpath refer separate drawing.
For details of Reinforcement in road kerb Refer Drg. No 526/25 A.
25φ & 20φ Placed alternately @ 125 %. mk. '6 & 7'
25φ @ 250 %. mk. '6'
35 Cl. Cover.
7
50 Cl. Cover.
50 Cl. Cover.
2 Nos 18φ bars at top & bottom Mk '5a'
10φ @ 200 %. mk. '3a'
40 Cl. Cover.
18φ @ 150 %. mk. '4'
12φ @ 100 %. mk. '3'.
10φ @ 200 %. mk. '3a'
2 Nos 18φ Bars at top & bottom Mk '5a'
950 Dia.
750 Dia.
100
100
℄ of opening.
PRECAST COVER. See details below.
5-10φ Rings mk. 'R1'
mk. 'Ra'
MK. 'Ra'.
R2
mk. 'Ra'
750 Dia opening
mk. 'R1'
mk. 'R2'
X
X
℄ of Bridge width.
10φ @ 125 %. mk. '1t', '1d', '1e', '1f'
10φ @ 125 %. mk. '2', '2d', '2e', '2f'
40 Cl. Cover.
mk. 'Ra'
40 Cl. Cover.
10φ @ 125 %. mk. '2', '2a', '2b', '2c'.
10φ @ 125 %. mk. '1', '1a', '1b', '1c'.
2,750.
2,750.
5,500.

SECTION AT X-X.

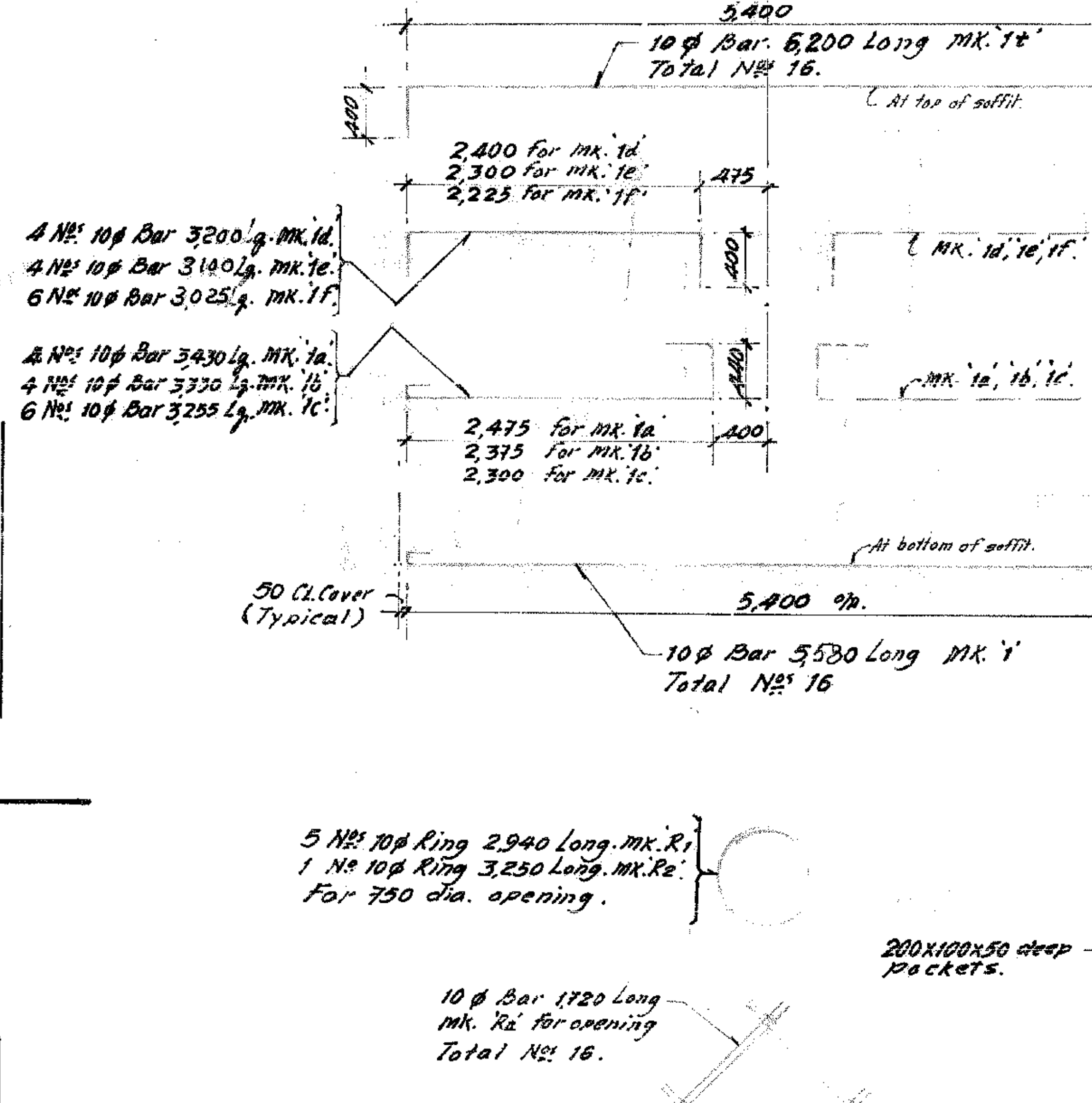
PLAN OF OPENING

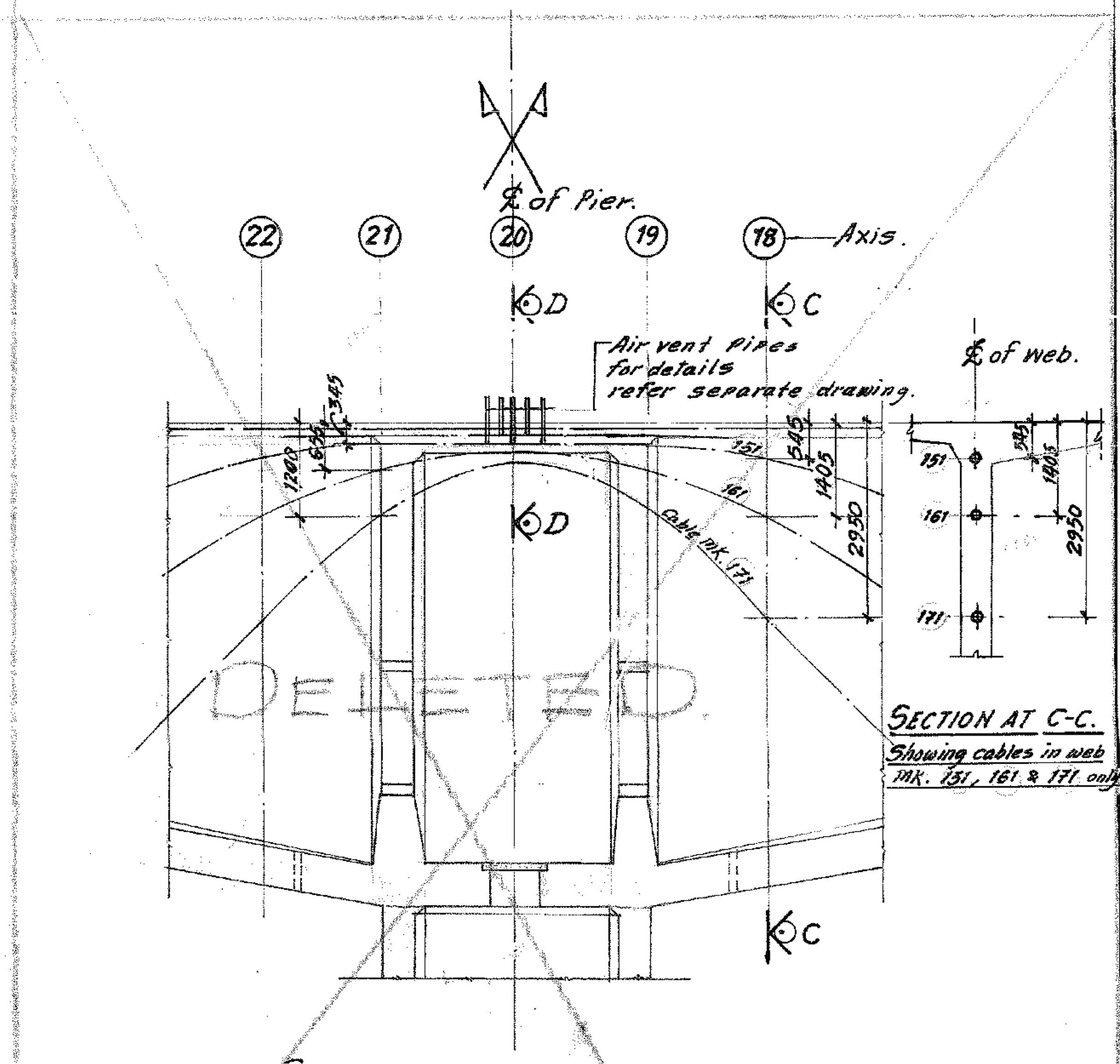
SECTION AT B-B.


4600 (4350).
4350 (4600)
BARS TO BE STAGGERED THUS.
30
30 Nos 18φ Bar 9120 Lg. MK. '4'.
18φ Bar 8950 Long. mk. '5' Total Nos 97.
18φ Bar 8950 Long mk '5a' Total No 8
2520
700
700
2300
200
BARS TO BE STAGGERED
80
50 Cl. Cover (Typical)
EQ.
EQ.
25φ Bar 11,100 Long mk. '6' Total Nos 17.
3,800
1800
20φ Bar 3,800 Long mk. '7' Total Nos 32
mk. '7'
700
1825 for mk. '2d'.
1750 for mk. '2e'.
1675 for mk. '2f'.
475
At top of soffit. mk. '2'
150
200
4 Nos 10φ Bar 2,950 Lg. mk. '2d'.
4 Nos 10φ Bar 2,875 Lg. mk. '2e'.
6 Nos 10φ Bar 2,800 Lg. mk. '2f'.
mk. '2d', '2e', '2f'.
4 Nos 10φ Bar 3,150 Lg. mk. '2a'
4 Nos 10φ Bar 3,075 Lg. mk. '2b'
6 Nos 10φ Bar 3,000 Lg. mk. '2c'.
400
mk. '2a', '2b', '2c'.
150
700
1,750 for mk. '2a'.
1,675 for mk. '2b'.
1,600 for mk. '2c'.
400
1,700.
80
10φ Bar 3,000 Long. mk. '3a' Total Nos 42
mk. '3a'.
EQ.
EQ.
12φ Bar 5,300 Long mk. '3' Total Nos 29.
150
At bottom of soffit.
700
4000
10φ Bar 5,450 Long mk. '2' Total Nos 50.
700


2 Nos 18φ Bars mk. '5a'
B
2 Nos 18φ Bars mk. '5a'
18φ @ 150 %. mk. '5'
18φ @ 150 %. mk. '5'
25φ @ 250 %. mk. '6'
10φ @ 200 %. mk. '3a'
25φ & 20φ @ 125 %. mk. '6 & 7'
18φ @ 150 %. mk. '5'
18φ @ 150 %. MK. '4'.
12φ @ 100 %. mk. '3'
25φ @ 250 %. mk. '6'
A
A
mk. 'R'
mk. 'Ra'
mk. 'Ra'
10φ @ 125 %. mk. '2', '2d', '2e', '2f'
10φ @ 125 %. mk. '2', '2a', '2b', '2c'.
10φ @ 125 %. mk. '1t', '1d', '1e', '1f'
10φ @ 125 %. mk. '1', '1a', '1b', '1c'.
B
QUARTER PLAN SHOWING TOP REINFORCEMENT OF DECK SLAB.
QUARTER PLAN SHOWING TOP REINFORCEMENT OF SOFFIT SLAB.
QUARTER PLAN SHOWING BOTTOM REINFORCEMENT OF DECK SLAB.
QUARTER PLAN SHOWING BOTTOM REINFORCEMENT OF SOFFIT SLAB.

TYPICAL DETAILS OF SOFFIT SLAB AND DECK SLAB OVER PIER HEAD.


5,400
10φ Bar 6,200 Long MK. '1t' Total Nos 16.
400
At top of soffit.
2,400 for mk. '1d'
2,300 for mk. '1e'
2,225 for mk. '1f'
475
4 Nos 10φ Bar 3,200 Lg. mk. '1d'.
4 Nos 10φ Bar 3,100 Lg. mk. '1e'.
6 Nos 10φ Bar 3,025 Lg. mk. '1f'.
400
MK. '1d', '1e', '1f'.
4 Nos 10φ Bar 3,430 Lg. MK. '1a'.
4 Nos 10φ Bar 3,330 Lg. mk. '1b'.
6 Nos 10φ Bar 3,255 Lg. mk. '1c'.
400
mk. '1a', '1b', '1c'.
2,475 for mk. '1a'
2,375 for mk. '1b'
2,300 for mk. '1c'.
400
At bottom of soffit.
50 Cl. Cover (Typical)
5,400 o/o.
10φ Bar 5,580 Long MK. '1' Total Nos 16
5 Nos 10φ Ring 2,940 Long. mk. 'R1'
1 No 10φ Ring 3,250 Long. mk. 'R2'.
For 750 dia. opening.
10φ Bar 1720 Long mk. 'Ra' for opening Total Nos 16.

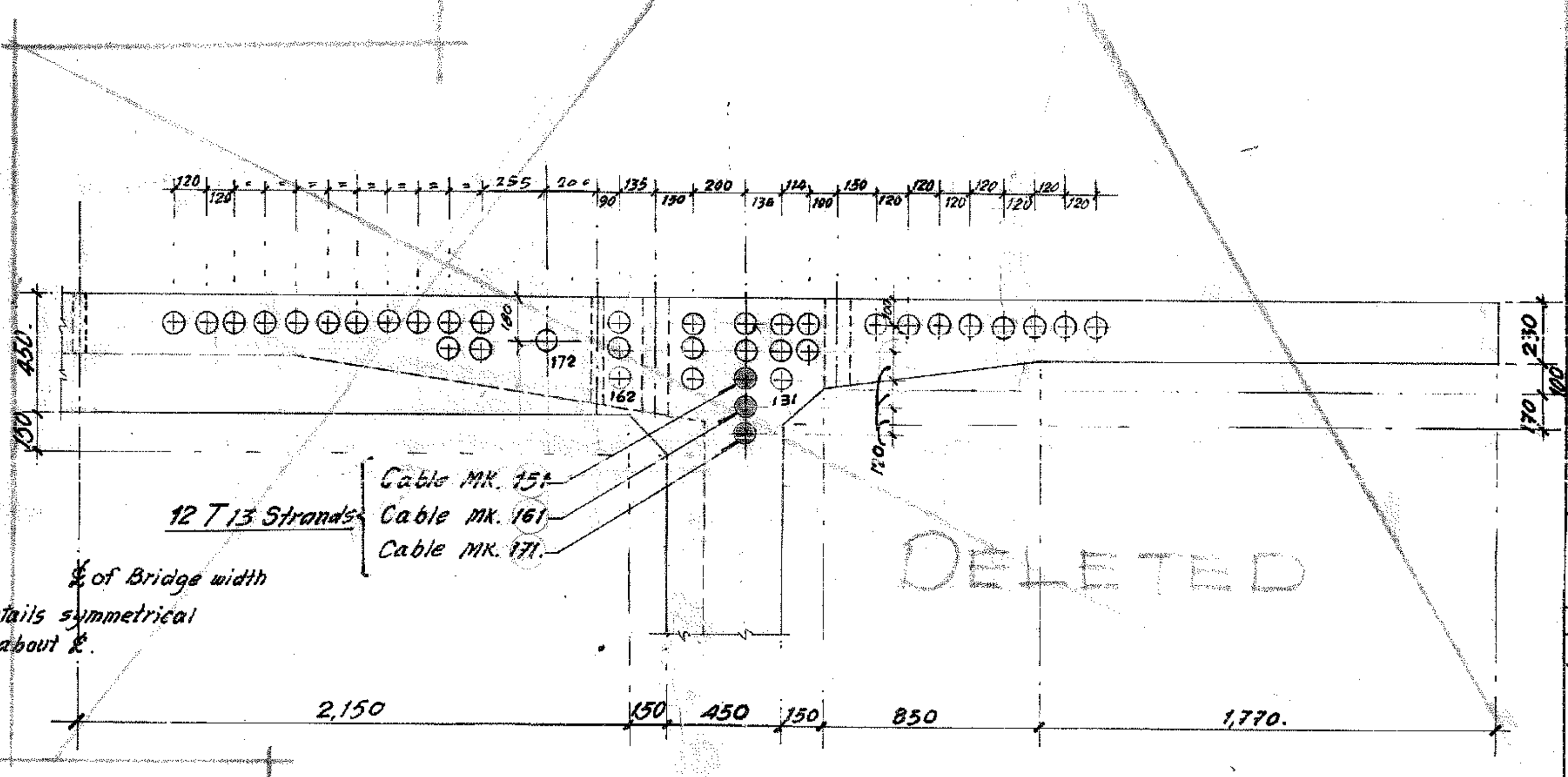

℄ of Pier.
(22)
(21)
(20)
(19)
(18)
Axis.
D
C
Air vent pipes for details refer separate drawing.
℄ of web.
345
625
1200
545
1405
2950
151
161
Cable MK. 171
D
DELETED
C
151
161
171
545
1405
2950

SECTION AT C-C.

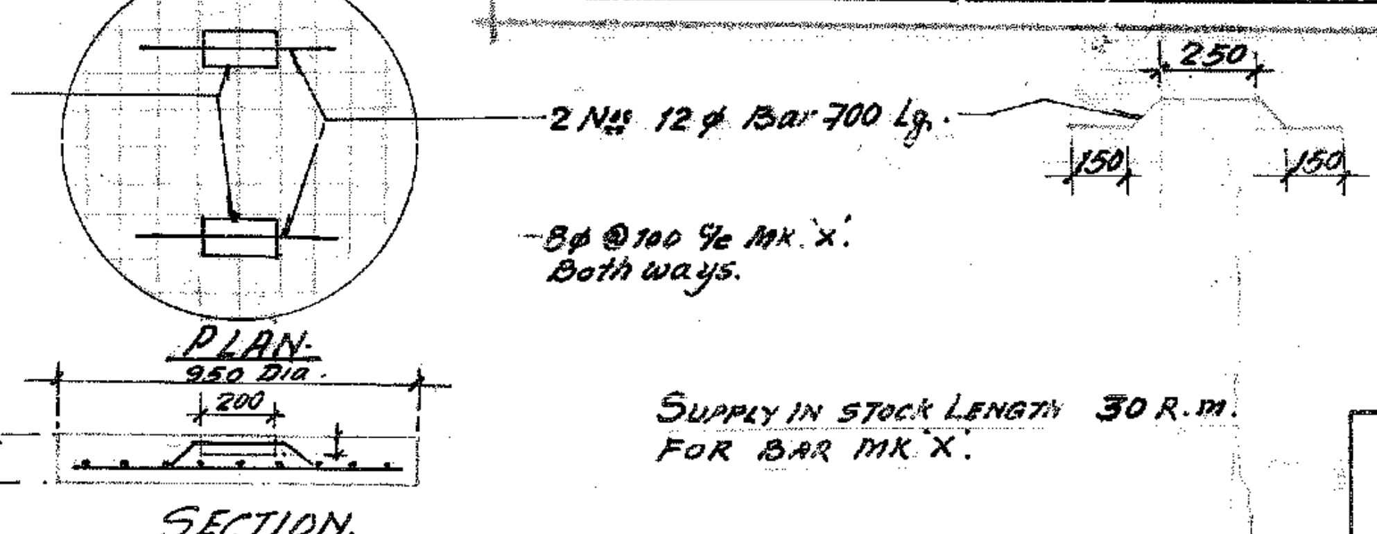
Showing cables in web MK. 151, 161 & 171 only.

CABLE PROFILE IN PIER HEAD

(FOR CABLE ORDINATES REFER DRG. NO 526/46A)


120
120
255
200
90
135
130
200
136
110
100
150
120
120
120
120
120
120
450
130
180
172
162
131
100
230
100
170
120
Cable MK. 151
Cable MK. 161
Cable MK. 171.
12 T 13 Strands
℄ of Bridge width
Details symmetrical about ℄.
DELETED
2,150
150
450
150
850
1,770.

ENLARGED CROSS SECTION OF DECK SLAB AT D-D.


200x100x50 deep pockets.
2 Nos 12φ Bar 700 Lg.
250
150
150
8φ @ 100 %. MK. 'X'. Both ways.
PLAN.
950 Dia.
200
125
SECTION.
SUPPLY IN STOCK LENGTH 30 R.m. FOR BAR MK 'X'.

DETAILS OF PRECAST COVER FOR OPENING AT SOFFIT SLAB.

NOTES

1). All dimensions are in millimetres unless otherwise stated.

2). For general arrangement of the bridge. refer Drg. No 4636 E.

3). For general arrangement of the Pier head refer Drg No 526/42.

4). For general arrangement of piers refer Drg. No 526/37.

5). For sectional dimensions of box decking refer Drg. No 526/31.

6). For reinforcement details of Piers refer Drg. No 526/38

7). Concrete grade for navigation pier head ………… m 450.

~~8) All reinforcement shown in this drawing are to be~~ of mild steel Grade I conforming to I.S. 432……1966.

9). Reinforcing bars may be joined by lapping. The minimum lap length shall not be less than 30 'D' where 'D' is the dia. of bars to be lapped. Such joints shall be staggered and not more than one in every two bars be lapped at the same section.

10). The reinforcement if required may be locally bent to avoid the clashing with cables / holes left.

11). This drawing is to be read in conjunction with Drg. No 526/44.

12). Always refer the latest revisions of the drawings referred herein.

13). For details of cable profile of P.S.C. box decking refer separate drawing.

14). For construction joint treatment & precautions while concreting refer note in Drg. No 526/42.

15). For details of cable profile refer Drg. No 526/46A.

QUANTITIES SHOWN FOR DECK SLAB & SOFFIT SLAB OVER ONE PIER ONLY 2-OFF.

PROVISION FOR A REMOTE POSSIBILITY OF LOSS OF PRE-STRESS TO THE EXTENT OF 15 % OF THE DESIGN PRESTRESS OVER AND ABOVE CODAL STIPULATIONS HAS ALREADY BEEN MADE WHICH MAY BE KEPT IN VIEW DURING THE MAINTENANCE OF THE BRIDGE.

DATE	REV.	PARTICULARS	BY	CHKD.
3-2-87	C	CHANGES AS PER DEPARTMENT'S LETTER NO. 70/84 (I) D-01 DATED 28-1-87		
14/1/87.	B	Changes as per department's letter No 4886/B3/86-24) dated 7-1-87.		
1/12/86.	A	Reinforcement at bottom in central panel of deck slab modified.		

REVISIONS

GAMMON INDIA LIMITED

ENGINEERS & CONTRACTORS

CLIENT
DIVISIONAL ENGINEER (H)
PAMBAN BRIDGE PROJECT DIVN. No II.

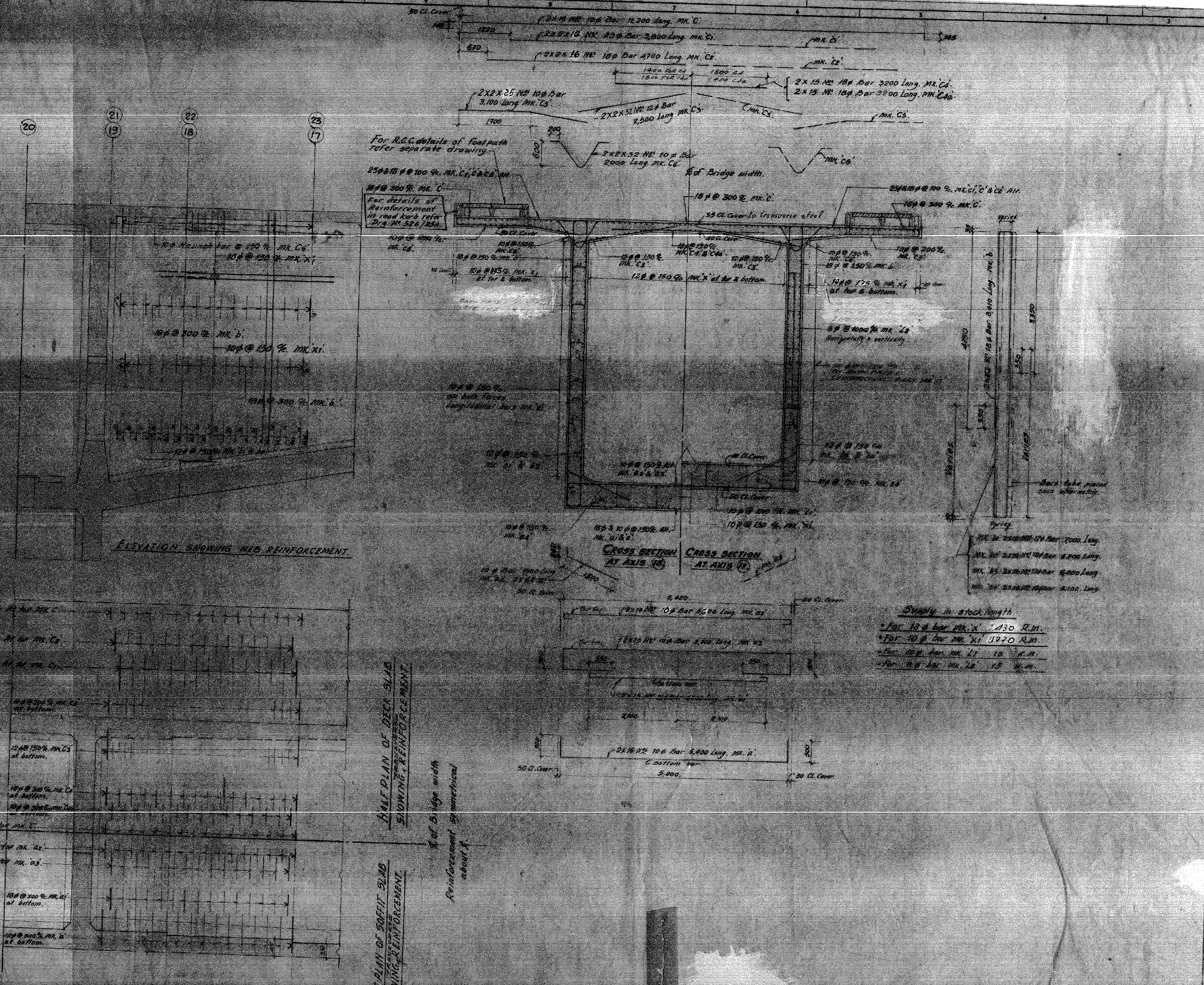
PROJECT
BALANCE WORKS OF PAMBAN BRIDGE.

TITLE
DETAILS OF
DECK SLAB AND SOFFIT SLAB
OVER NAVIGATION PIERS P55 & P56.

DRG. NO. AS PER
DEPARTMENT
CE(H) PBP
4/87

APPROVED FOR CONSTRUCTION
BY DIV. ENGINEER
PAMBAN BRIDGE PROJECT-
II VIDE PROC NO.
70/84(i)/D-01
DATED 28-1-87

DRN.			SCALE	1:40, 1:25 & 1:20.
CHKD.		D.T.M.	SERIAL NO.	7019
DSND.			DATE	30-7-1986.
CHKD.		T.M.	DRG. NO.	526/43 C


50 Cl. Cover
2×16 Nº 18φ Bar 11,200 Long. MK. 'C'.
2×2×16 Nº 25φ Bar 3,800 Long. MK. 'C1'.
MK. 'C1'
1220
670
2×2×16 Nº 18φ Bar 4700 Long. MK. 'C2'.
MK. 'C2'
1400 FOR C4
1800 FOR C4a
1800 C4
1400 C4a
2×15 Nº 18φ Bar 3200 Long. MK. 'C4'.
2×15 Nº 18φ Bar 3200 Long. MK. 'C4a'.
2×2×25 Nº 10φ Bar 3,100 Long MK. 'C5'.
1300
2×2×32 Nº 12φ Bar 2,500 Long MK. 'C3'.
MK. 'C3'.
MK. 'C5'.
200
600
2×2×32 Nº 10φ Bar 2000 Long MK. 'C6'
MK. 'C6'.
For R.C.C. details of footpath refer separate drawing.
℄ of Bridge width.
25φ&18φ @ 100 %. MK. 'C1','C2'&'C2' Alt.
18φ @ 300 %. MK. 'C'
For details of Reinforcement in road kerb refer Drg. Nº 526/25A.
18φ @ 300 %. MK. 'C'.
35 Cl. Cover to transverse steel
25φ&18φ @ 100 %. MK. 'C1','C'&'C2' Alt.
18φ @ 300 %. MK. 'C'.
50 Cl. Cover
10φ @ 200 %. MK. 'C5'.
10φ @ 150 %. MK. 'C6'.
18φ @ 150 %. MK. 'b'
10φ @ 175 %. MK. 'X1' at top & bottom.
40 Cl. Cover
18φ @ 150 %. MK. 'C4' & 'C4a'.
12φ @ 150 %. MK. 'C3'.
12φ @ 150 %. MK. 'C3'.
12φ @ 150 %. MK. 'X' at top & bottom.
10φ @ 150 %. MK. 'C6'
18φ @ 150 %. MK. 'b'
10φ @ 200 %. MK. 'C5'
10φ @ 175 %. MK. 'X1' at top & bottom.
8φ @ 1000 %. MK. 'L2' Horizontally & vertically.
10φ @ 150 %. on both faces Longitudinal bars MK. 'XI'
12φ @ 150 %. MK. 'b1' & 'b2'
10φ @ 150 % Alt. MK. 'a2' & 'a3'
40 Cl. Cover
12φ @ 150 %. MK. 'b1' & 'b2'
10φ @ 150 %. MK. 'b4'
50 Cl. Cover
10φ @ 1000 %. MK. 'L1'
10φ @ 150 %. MK. 'X1'.
10φ @ 150 %. MK. 'b4'
18φ & 10φ @ 150 %. Alt. MK. 'a1' & 'a'.
CROSS SECTION AT AXIS (18)
CROSS SECTION AT AXIS (17)
10φ Bar 1500 Long MK. 'b4'. 2×64 Nº
1200
50 Cl. Cover
Varies
Bars to be placed thus alternately
MK. 'b1' 2×16 Nº 12φ Bar 7000 Long.
MK. 'b2' 2×16 Nº 12φ Bar 6,700 Long.
MK. 'b3' 2×16 Nº 12φ Bar 6,600 Long.
MK. 'b4' 2×16 Nº 10φ Bar 6,100 Long.
5,400.
2×16 Nº 10φ Bar 5,600 Long. MK. 'a2'
2×15 Nº 10φ Bar 5,700 Long. MK. 'a3'
2,100
2,100
2×16 Nº 10φ Bar 5,400 Long. MK. 'a'.
C bottom bar.
5,400.
50 Cl. Cover
50 Cl. Cover
20
21
19
22
18
23
17
10φ Haunch bar @ 150 %. MK. 'C6'.
10φ @ 150 %. MK. 'X1'
18φ @ 300 %. MK. 'b'.
10φ @ 150 %. MK. 'XI'.
18φ @ 300 %. MK. 'b'.
12φ @ 150 %. MK. 'b1' & 'b2'
ELEVATION SHOWING WEB REINFORCEMENT.
18φ @ 300 %. At top MK. C
18φ @ 300 %. At top MK. 'C2'
25φ @ 300 %. At top MK. 'C1'
10φ @ 200 %. MK. 'C5' at bottom.
12φ @ 150 %. MK. 'C3' at bottom.
18φ @ 300 %. MK. 'C4' at bottom.
18φ @ 300 %. MK. 'C4a' at bottom.
18φ @ 300 %. At top MK. 'C'.
10φ @ 300 %. At top MK. 'a2'.
10φ @ 300 %. At top MK. 'a3'.
18φ @ 300 %. MK. 'a1' at bottom.
10φ @ 300 %. MK. 'a' at bottom.
HALF PLAN OF DECK SLAB SHOWING TRANSVERSE REINFORCEMENT.
HALF PLAN OF SOFFIT SLAB SHOWING TRANSVERSE REINFORCEMENT.
℄ of Bridge width
Reinforcement symmetrical about ℄.

Supply in stock length

- For 12φ bar MK. 'X' 1430 R.M.
- For 10φ bar MK. 'X1' 1770 R.M.
- For 10φ bar MK. 'L1' 10 R.M.
- For 8φ bar MK. 'L2' 15 R.M.

NOTES

1) All dimensions are in millimetres unless otherwise stated.

2). This drawing shall be read in conjunction with G.I.L. Tender Drg. Nº 4636 E.

3). This drawing is to be read in conjunction with the latest revisions of the following Drgs.

- Drg. Nº 526/42. Dimensional layout for Pier head & details of construction joints.
- Drg. Nº 526/43. Details of deckslab & soffit slab over navigation piers P55 & P56.
- Drg. Nº 526/44. R.C.C. Details of Pier head for Pier Nos. P55 & P56.

4). For details of cable profile, vent pipes & drain spouts refer separate drawings.

5). For construction joint treatment & precautions while concreting refer note in Drg. Nº 526/42.

6) Concrete grade for decking ..... M 450

7). All reinforcements shown in this drawing are to be of mild steel Grade-I conforming to I.S. 432-1966.

8). Reinforcing bars may be joined by lapping.... THE MIN. LAP LENGTH SHALL NOT BE LESS THAN 30D' WHERE 'D' IS THE DIA OF BARS TO BE LAPPED. SUCH JOINTS SHALL BE STAGGERED & NOT MORE THAN ONE IN EVERY TWO BARS BE LAPPED AT THE SAME SECTION.

9) REINFORCEMENT, IF REQUIRED, MAY BE LOCALLY BENT TO AVOID CLASHING WITH CABLES / HOLES LEFT.

THIS DRAWING IS APPROVED FOR THE PURPOSE OF OPERATION OF CONTRACT ONLY. FOR EXECUTION PURPOSES REFER TO DRG. Nº 526/45C

DATE	REV	PARTICULARS	BY	CHKD
[illegible]	[illegible]	Changes as per department's [illegible]	[illegible]	[illegible]
[illegible]	A	[illegible]	[illegible]	[illegible]

REVISIONS

GAMMON INDIA LIMITED

ENGINEERS & CONTRACTORS

CLIENT
DIVISIONAL ENGINEER (H) PAMBAN
BRIDGE PROJECT DIVN. Nº II

PROJECT
BALANCE WORK OF PAMBAN BRIDGE

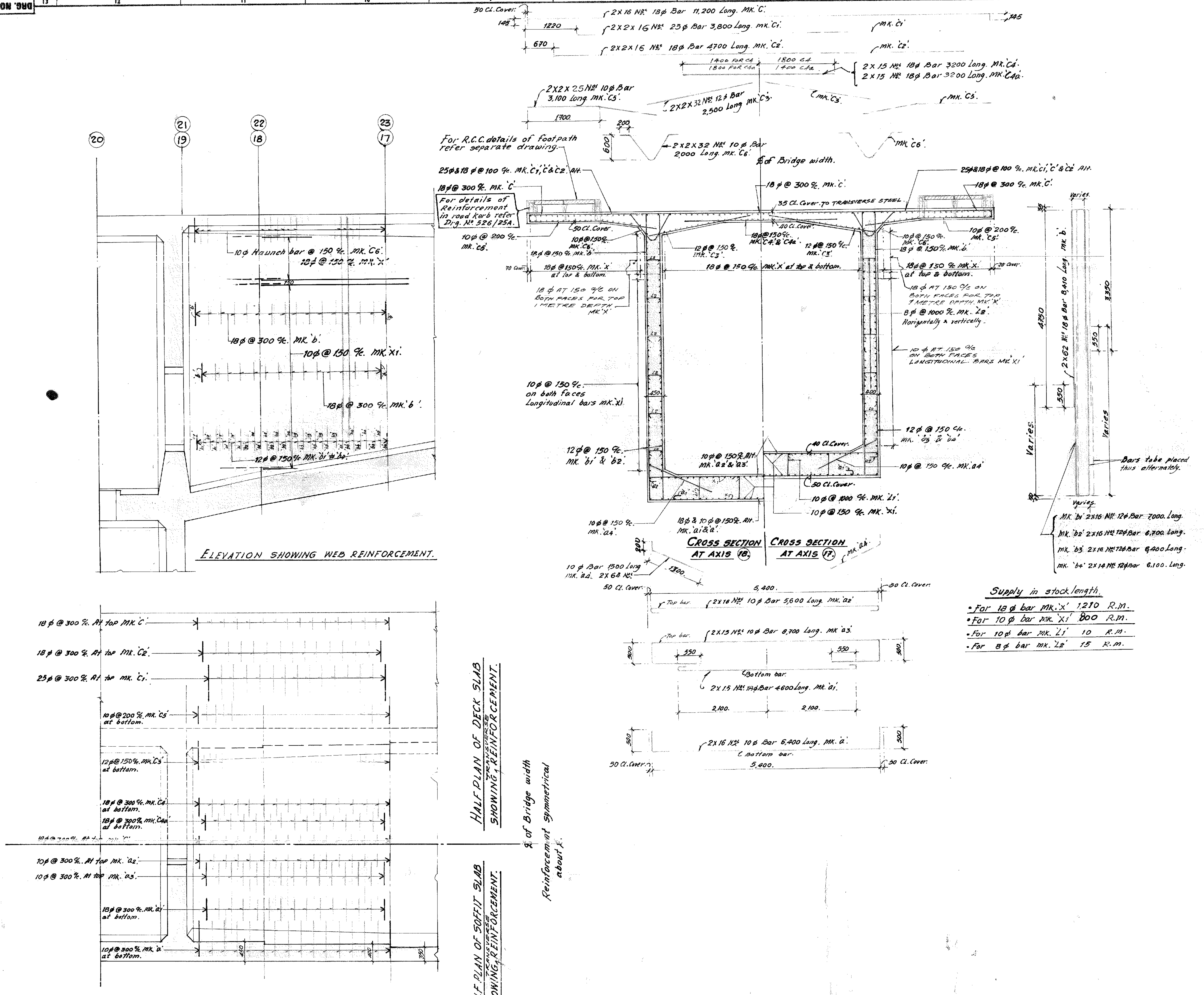
TITLE
R.C.C. DETAILS OF BOX GIRDER
BETWEEN AXIS 17 TO 19 AND 21 TO 23
OF NAVIGATION SPANS.

DRAWING NO.
AS PER DEPT.
CE. (H) PBP
7/87

APPROVED FOR CONSTRUCTION BY
APPROVED BY
DIV. ENGINEER PAMBAN BRIDGE
PROJECT II VIDE PROC. NO.
70/84 (i) / D.O. DATED
28-1-87.

DRN		T.M.	SCALE	1:40
CHKD			SERIAL NO	7130
DSND			DATE	6/10/86
CHKD		P.T.M.	DRG. NO.	526/45

DRG. NO. 526/45C.


50 CL. Cover.
145
1220
670
2X16 Nos 18φ Bar 11,200 Long. MK. 'C'.
2X2X16 Nos 25φ Bar 3,800 Long. mk. 'C1'.
2X2X16 Nos 18φ Bar 4700 Long. MK. 'C2'.
mk. 'C1'
mk. 'C2'
145
1400 FOR C4
1800 FOR C4a
1800 C4
1400 C4a
2 X 15 Nos 18φ Bar 3200 Long. MK. 'C4'.
2 X 15 Nos 18φ Bar 3200 Long. MK. 'C4a'.
2X2X25 Nos 10φ Bar 3,100 Long. MK. 'C5'.
2X2X32 Nos 12φ Bar 2,500 Long MK. 'C3'.
mk. 'C3'.
mk. 'C5'.
1700
200
600
2X2X32 Nos 10φ Bar 2,000 Long. mk. 'C6'.
MK 'C6'.
For R.C.C. details of footpath refer separate drawing.
℄ of Bridge width.
25φ&18φ@100 c/c. MK. 'C1', 'C' & 'C2' Alt.
18φ@ 300 c/c. MK. 'C'
For details of Reinforcement in road kerb refer Drg. No 526/25A.
18φ @ 300 c/c. mk. 'C'.
35 CL. Cover. TO TRANSVERSE STEEL.
25φ&18φ@100 c/c. mk. 'C1', 'C' & 'C2' Alt.
18φ @ 300 c/c. mk. 'C'.
50 CL. Cover.
40 CL. Cover.
10φ @ 200 c/c. mk. 'C5'.
10φ@150 c/c. MK. 'C6'.
18φ @150 c/c. mk. 'b'
12φ@ 150 c/c. mk. 'C3'.
18φ@150 c/c. MK. 'C4' & 'C4a'.
12φ@ 150 c/c. mk. 'C3'.
10φ @ 150 c/c. MK. 'C6'.
18φ @ 150 c/c. mk. 'b'.
10φ @ 200 c/c. mk. 'C5'.
70 Cover.
18φ @150 c/c. MK. 'X' at top & bottom.
18φ @ 150 c/c. MK. 'X' at top & bottom.
18φ @ 150 c/c mk. X. at top & bottom.
70 Cover.
18φ AT 150 c/c ON BOTH FACES FOR TOP 1 METRE DEPTH. MK 'X'
18φ AT 150 c/c ON BOTH FACES FOR TOP 1 METRE DEPTH. MK 'X'
8φ @ 1000 c/c. mk. 'L2'.
Horizontally & vertically.
10φ AT 150 c/c ON BOTH FACES LONGITUDINAL BARS MK 'X1'
10φ @ 150 c/c. on both faces Longitudinal bars mk. 'X1'.
450
400
12φ @ 150 c/c. mk. 'b3' & 'b4'.
12φ@ 150 c/c. mk. 'b1' & 'b2'.
40 CL. Cover.
10φ@ 150 c/c. Alt. mk. 'a2' & 'a3'.
10φ @ 150 c/c. MK. 'a4'
50 CL. Cover.
10φ @ 1000 c/c. MK. 'L1'.
10φ @ 150 c/c. MK. 'X1'.
10φ@ 150 c/c. mk. 'a4'.
18φ & 10φ @150 c/c. Alt. mk. 'a1' & 'a'.
CROSS SECTION AT AXIS ⑱.
CROSS SECTION AT AXIS ⑰.
mk. 'a4'.
200
1300
10 φ Bar 1500 Long mk. 'a4'. 2X 64 Nos.
50 CL. Cover.
5,400.
50 CL. Cover.
Top bar.
2X16 Nos 10φ Bar 5,600 Long. mk. 'a2'
Top bar.
2X15 Nos 10φ Bar 8,700 Long. mk 'a3'.
500
550
550
500
Bottom bar.
2X15 Nos 18φ Bar 4600 Long. mk. 'a1'.
2,100.
2,100.
500
2X16 Nos 10φ Bar 6,400 Long. mk. 'a'.
Bottom bar.
5,400.
500
50 CL. Cover.
50 CL. Cover.
Varies.
4750
3350
2X62 Nos 18φ Bar 8,410 Long mk. 'b'.
550
550
Varies.
Varies
Bars to be placed thus alternately.
Varies.
MK. 'b1' 2X16 Nos 12φ Bar 7000. Long.
MK. 'b2' 2X16 Nos 12φ Bar 6,700 Long.
MK. 'b3' 2X16 Nos 12φ Bar 6400 Long.
MK. 'b4' 2X14 Nos 12φ Bar 6,100. Long.
20
21
19
22
18
23
17
10φ Haunch bar @ 150 c/c. mk. 'C6'.
10φ @ 150 c/c. mk. 'X'
18φ @ 300 c/c. mk. 'b'.
10φ @ 150 c/c. mk. 'X1'.
18φ @ 300 c/c. mk. 'b'.
12φ @ 150 c/c. mk. 'b1' & 'b2'.
ELEVATION SHOWING WEB REINFORCEMENT.
18φ @ 300 c/c. At top mk. 'C'.
18φ @ 300 c/c. At top mk. 'C2'.
25φ @ 300 c/c. At top mk. 'C1'.
10φ@200 c/c. mk. 'C5' at bottom.
12φ@150 c/c. mk. 'C3' at bottom.
18φ @ 300 c/c. mk. 'C4' at bottom.
18φ @ 300 c/c. mk. 'C4a' at bottom.
10φ @ 300 c/c. At top mk. 'a2'.
10φ @ 300 c/c. At top mk. 'a3'.
18φ @ 300 c/c. mk. 'a1' at bottom.
10φ @ 300 c/c. mk. 'a' at bottom.
450
400
350
HALF PLAN OF DECK SLAB SHOWING TRANSVERSE REINFORCEMENT.
HALF PLAN OF SOFFIT SLAB SHOWING TRANSVERSE REINFORCEMENT.
℄ of Bridge width
Reinforcement symmetrical about ℄.

Supply in stock length.

- For 18φ bar mk. 'x' 1210 R.M.
- For 10φ bar mk. 'x1' 800 R.M.
- For 10φ bar mk. 'L1' 10 R.M.
- For 8φ bar mk. 'L2' 15 R.M.

NOTES

1). All dimensions are in millimetres unless otherwise stated.

2). This drawing shall be read in conjunction with G.I.L. Tender Drg. No 4636 E.

3). This drawing is to be read in conjunction with the latest revisions of the following Drgs

- Drg. No 526/42B Dimensional layout for Pierhead & details of construction joints.
- Drg. No 526/43C Details of deckslab & soffit slab over navigation piers P55 & P56.
- Drg. No 526/44B R.C.C. Details of Pier head for Pier Nos P55 & P56.

4). For details of cable profile, vent pipes & drain spouts refer separate drawings.

5). For construction joint treatment & precautions while concreting refer note in Drg. No 526/42.

6) Concrete grade for decking ..... M 450

7). All reinforcements shown in this drawing are to be of mild steel Grade-I conforming to I.S. 432-1966.

8). Reinforcing bars may be joined by lapping --- THE MIN. LAP LENGTH SHALL NOT BE LESS THAN 30'D' WHERE 'D' IS THE DIA OF BARS TO BE LAPPED. SUCH JOINTS SHALL BE STAGGERED & NOT MORE THAN ONE IN EVERY TWO BARS BE LAPPED AT THE SAME SECTION.

9) REINFORCEMENT, IF REQUIRED, MAY BE LOCALLY BENT TO AVOID CLASHING WITH CABLES/HOLES LEFT.

PROVISION FOR A REMOTE POSSIBILITY OF LOSS OF PRE-STRESS TO THE EXTENT OF 15% OF THE DESIGN PRESTRESS OVER AND ABOVE CODAL STIPULATIONS HAS ALREADY BEEN MADE WHICH MAY BE KEPT IN VIEW DURING THE MAINTENANCE OF THE BRIDGE.

DATE	REV.	PARTICULARS	BY	CHKD.
3-4.87	C	CHANGES AS PER DEPARTMENT'S LETTER NO. 70/84(i)/D-01 DATED, 28-1-87		
14/1/87.	B	changes as per department's letter No. 4886/B3/86-24/ dated 7-1-87.		
12-12-86.	A	Minor modification in reinforcement & web thickness		

REVISIONS

GAMMON INDIA LIMITE

ENGINEERS & CONTRACTORS

CLIENT
DIVISIONAL ENGINEER (H) PAMBAN
BRIDGE PROJECT DIVN. No II

PROJECT
BALANCE WORK OF PAMBAN BRIDG

TITLE R.C.C. DETAILS OF BOX GIRDE
BETWEEN AXIS 17 TO 19 AND 21 TO
OF NAVIGATION SPANS.

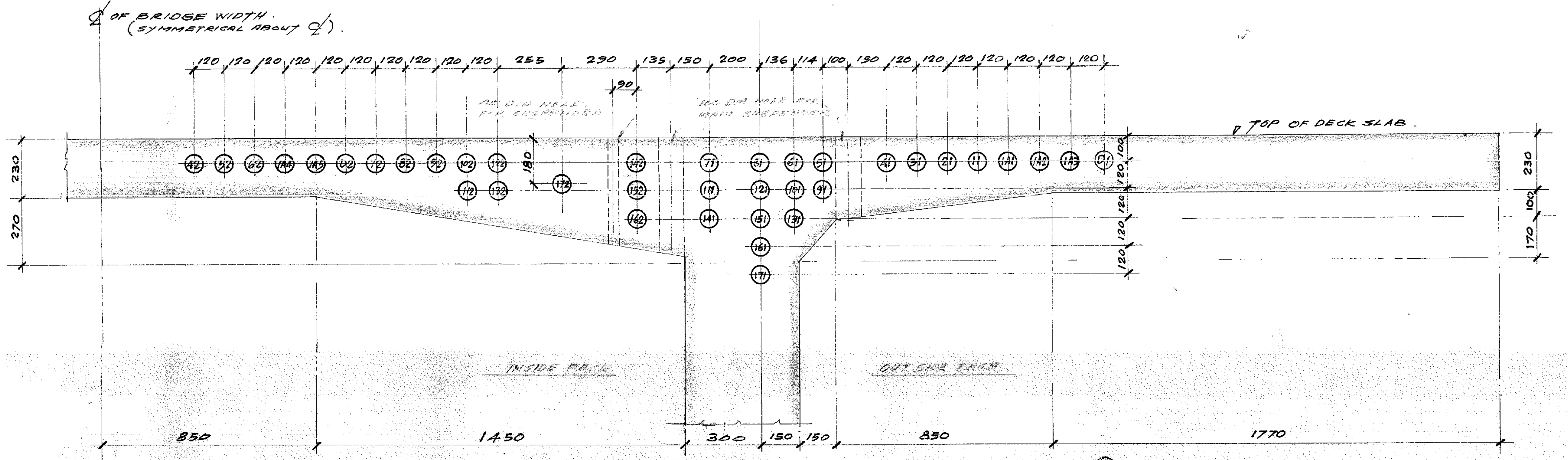
DRN.
CHKD.
DSND.
CHKD
T.M.

SCALE 1:40
SERIAL NO. 7130
DATE 6/10/86
DRG NO 526/45

DRAWING NO
AS PER DEPT
(H) PBP 6/87

APPROVED FOR CONSTRUCTION
BY DIV. ENGINEER
PAMBAN BRIDGE PROJECT
II VIDE PROG. No 70/84
(i)/D-01
DT. 28-1-87

DRG. NO. 526/46 A


℄ OF BRIDGE WIDTH (SYMMETRICAL ABOUT ℄)
120 120 120 120 120 120 120 120 120 120 255 290 135 150 200 136 114 100 150 120 120 120 120 120 120 120 120
90
140 DIA HOLE FOR SUSPENDER
140 DIA HOLE FOR SUSPENDER
TOP OF DECK SLAB
42 52 62 112 122 72 102 82 92 102 112 172 132 142 152 162 71 111 141 81 121 151 161 171 61 101 131 51 91 41 31 21 11 141 131 142 143 181
230 270 180 230 100 170 100 120 120 120
INSIDE FACE
OUTSIDE FACE
850 1450 300 150 150 850 1770

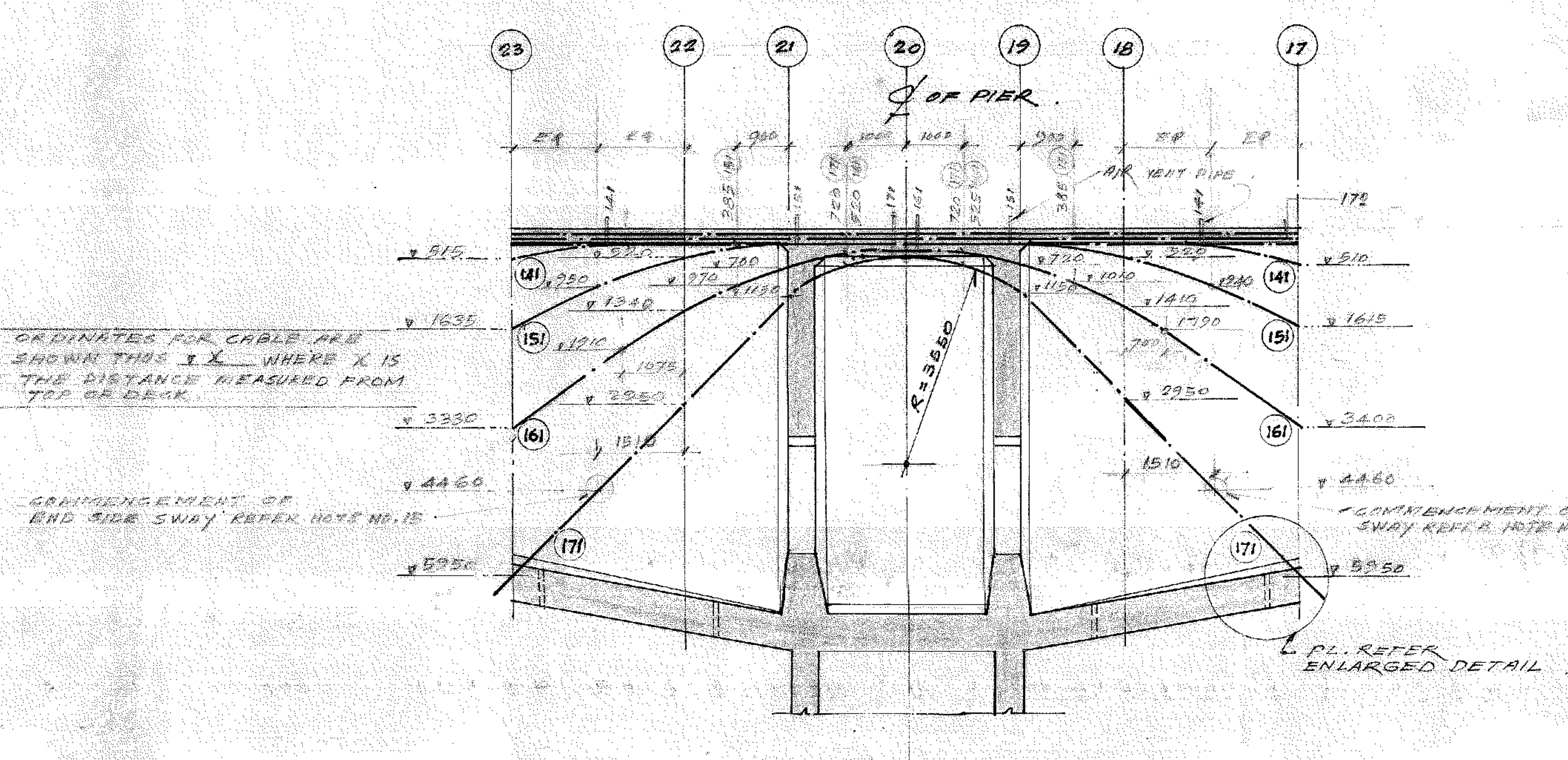
• HALF CROSS SECTION THROUGH AXIS ⑳

STRESSING DETAILS FOR CABLE NO. (171)

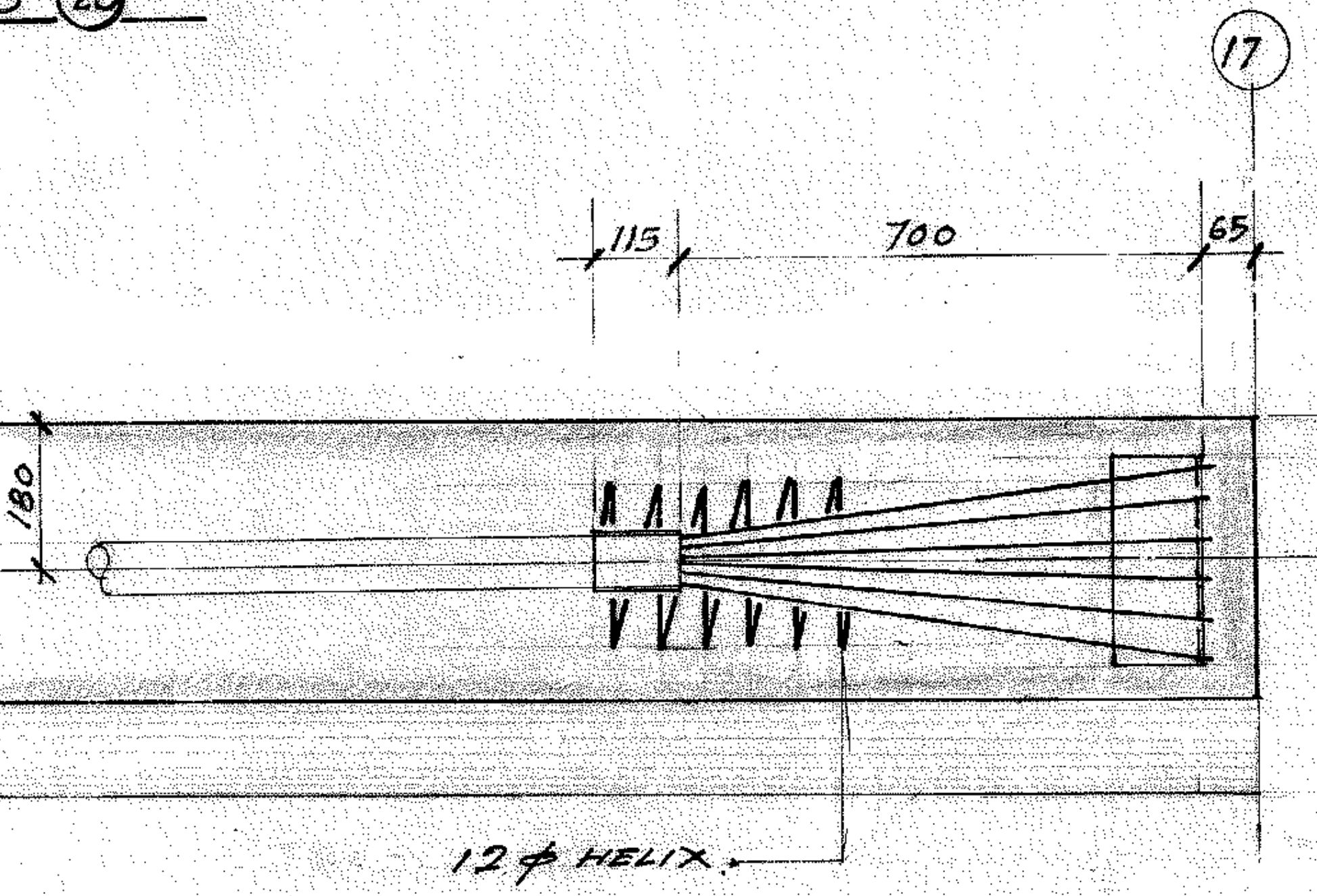
JACK GAUGE PRESSURE = 625 Kg/CM²
EXTENSION AT EACH END = 67 MM

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. THIS DRAWING SHALL BE READ INCONJUNCTION WITH GIL TENDER DRG. NO. 4636E.
3. FOR GENERAL LAYOUT & SECTIONAL DIMENSIONS OF BOX DECKING REFER DRG. NO. 526/31D.
4. FOR DIMENSIONAL LAYOUT FOR PIER-HEAD & DETAILS OF CONSTRUCTION JOINTS REFER DRG. NO. 526/42.
5. R.C.C. DETAILS OF PIER-HEAD FOR PIER NOS: P55 & P56. REFER DRG. NO. 526/44.
6. R.C.C. DETAILS OF DECK SLAB & SOFFIT SLAB OF PIER-HEAD REFER DRG. NO. 526/43.
7. FOR R.C.C. DETAILS OF BOX DECKING BETWEEN AXIS 17 TO 19 & 21 TO 23 REFER DRG. NO. 526/45.
8. THE HOLES FOR SUSPENDERS SHOULD BE PLUGGED IMMEDIATELY AFTER THE GANTRY IS MOVED.
9. FOR DETAILS OF AIR VENT PIPES & DRAIN PIPES REFER SEPARATE DRGS.
10. 69 MM MIN. INTERNAL DIA. BRIGHT METAL SHEATHING 0.3MM THK. SHALL BE USED FOR ALL CABLES.
11. H.T. STRANDS OF 12.7MM DIA. CONFORMING TO IS 6006-1983 SHALL BE USED FOR THIS JOB FOR MAKING PRESTRESSING CABLES.
12. ALWAYS REFER THE LATEST REVISIONS OF THE DRG. REFERRED HEREIN.
13. FOR DETAILS OF DEAD END ANCHORAGES REFER DRG. NO 526/49B
14. BEFORE THE CABLE STARTS BENDING IN THE ELEVATION ITS AXIS IS BROUGHT AT 150 MM DISTANCE FROM THE OUTSIDE FACE IF IT IS NOT ALREADY THERE. AT THE STRESSING END THE CABLE CENTRE LINE IS LOCATED AT 180 MM FROM THE OUTSIDE FACE. THIS WILL THEREFORE NEED DEVIATION OF CABLE BY 30MM SIDEWAYS. THIS IS TO BE DONE IN THE LAST 1200 MM LENGTH OF THE CABLE AS SHOWN IN THE DRG.
15. STRESSING OF CABLES COULD BE DONE ONLY WHEN CONCRETE ATTAINS STRENGTH OF 350 Kg/CM².
16. SLIP LOSS UPTO 6MM HAS BEEN ACCOUNTED FOR IN THE DESIGN. IN CASE OF SLIP MORE THAN 6MM, DESIGN MAY BE REVIEWED

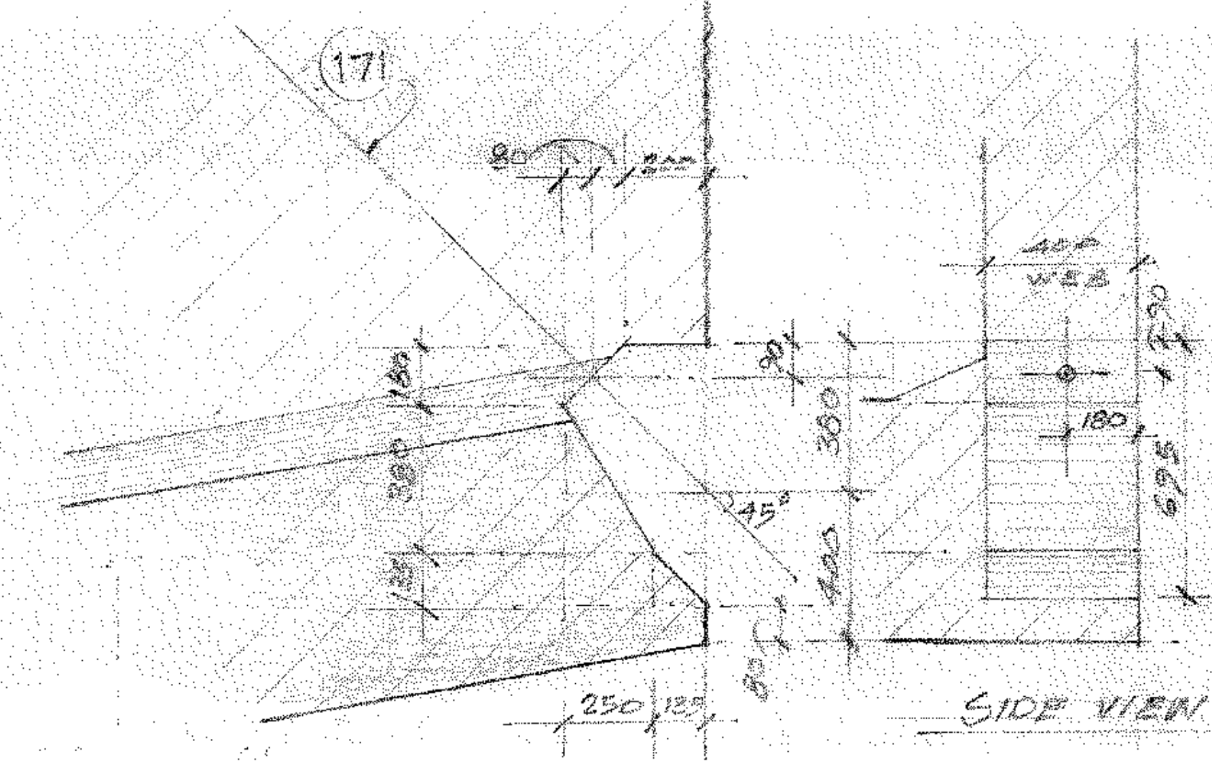

23 22 21 20 19 18 17
℄ OF PIER
AIR VENT PIPE
172
141 151 161 171
R=3650
ORDINATES FOR CABLE ARE SHOWN THUS ▼X WHERE X IS THE DISTANCE MEASURED FROM TOP OF DECK.
COMMENCEMENT OF END SIDE SWAY REFER NOTE NO. 15
▼515 ▼1635 ▼3330 ▼4460 ▼5950
▼510 ▼1615 ▼3400 ▼4460 ▼5950
PL. REFER ENLARGED DETAIL

• PART ELEVATION OF CABLE PROFILE


17
115 700 65
TOP OF DECK SLAB.
180
℄ OF CABLE
12 φ HELIX.

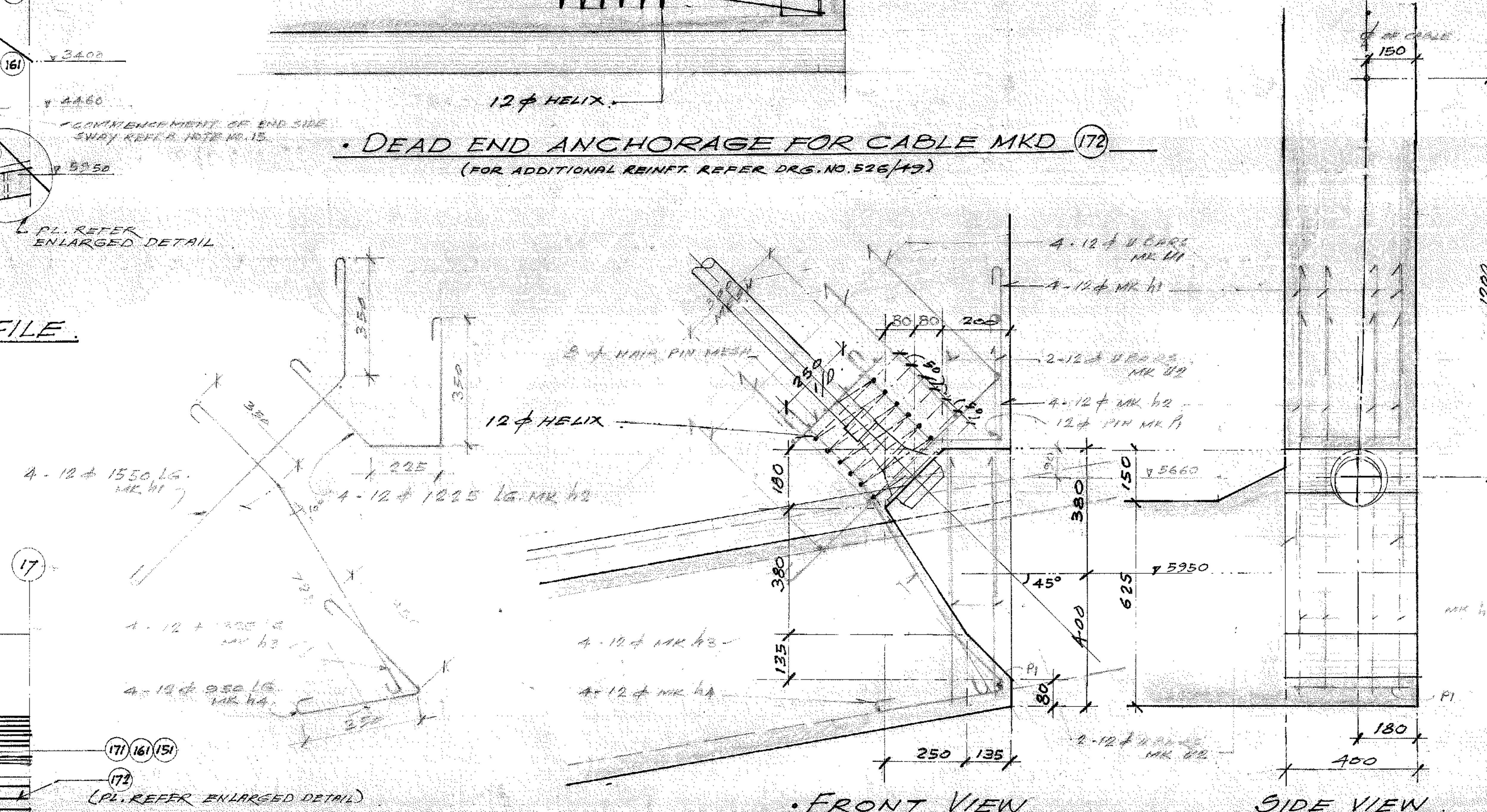
• DEAD END ANCHORAGE FOR CABLE MKD (172)

(FOR ADDITIONAL REINFT. REFER DRG. NO. 526/49)


171
80 200
400 WEB
180 380 135 400 625 85 45°
250 150
SIDE VIEW

· ELEVATION

(SHOWING CHASE DIMENSIONS)

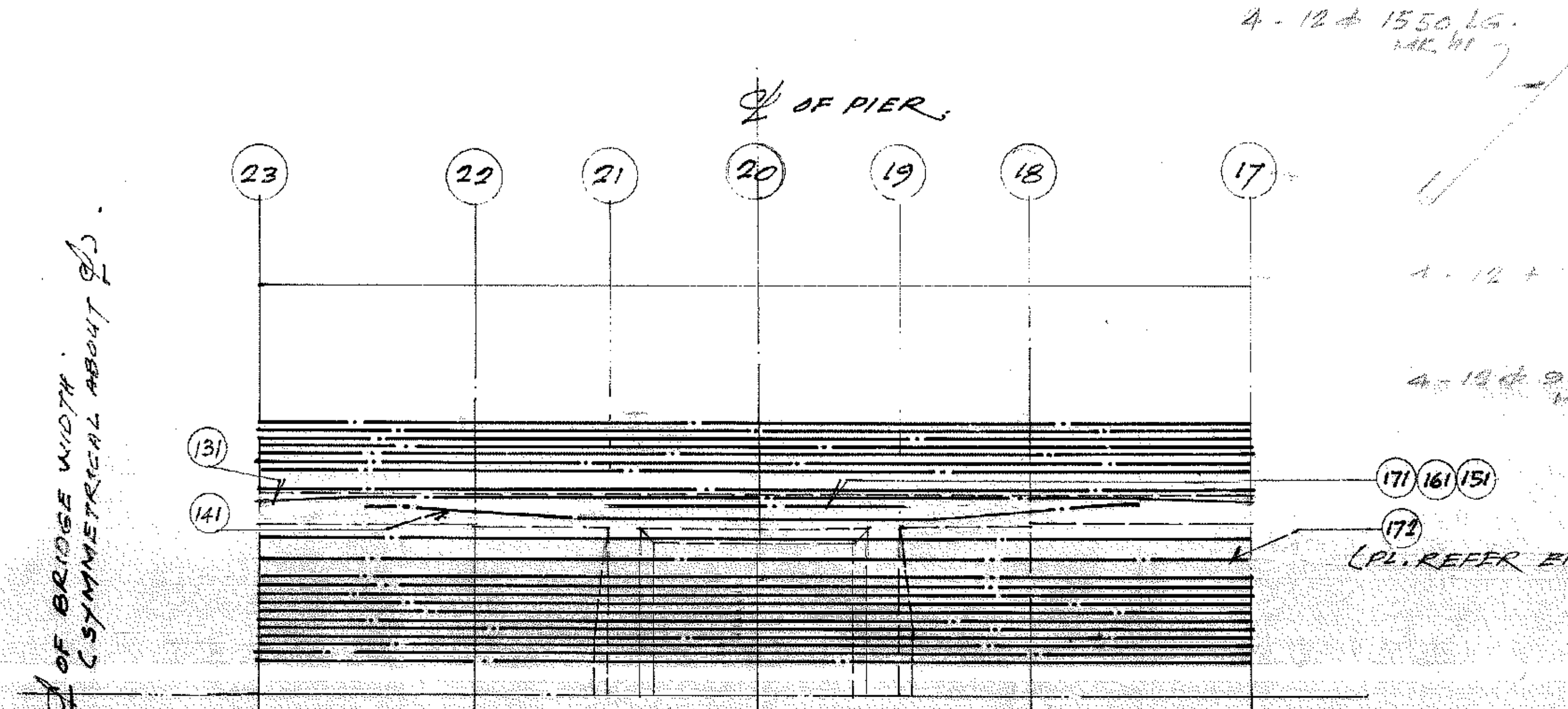

150
1200 (PL. REFER NOTE NO. 15)
4-12 φ U BARS MK U1
4-12 φ MK h1
80 80 200
2-12 φ U BARS MK U2
4-12 φ MK h2
12 φ PIN MK P1
8 φ HAIR PIN MESH
12 φ HELIX
350 350
225
4-12 φ 1550 LG. MK h1
4-12 φ 1225 LG. MK h2
4-12 φ 1650 LG. MK h3
4-12 φ 950 LG. MK h4
4-12 φ MK h3
4-12 φ MK h4
▼5660 ▼5950
180 380 135 150 380 400 625 45°
80 250 135
2-12 φ U BARS MK U2
P1
180 400
MK h3

FRONT VIEW.

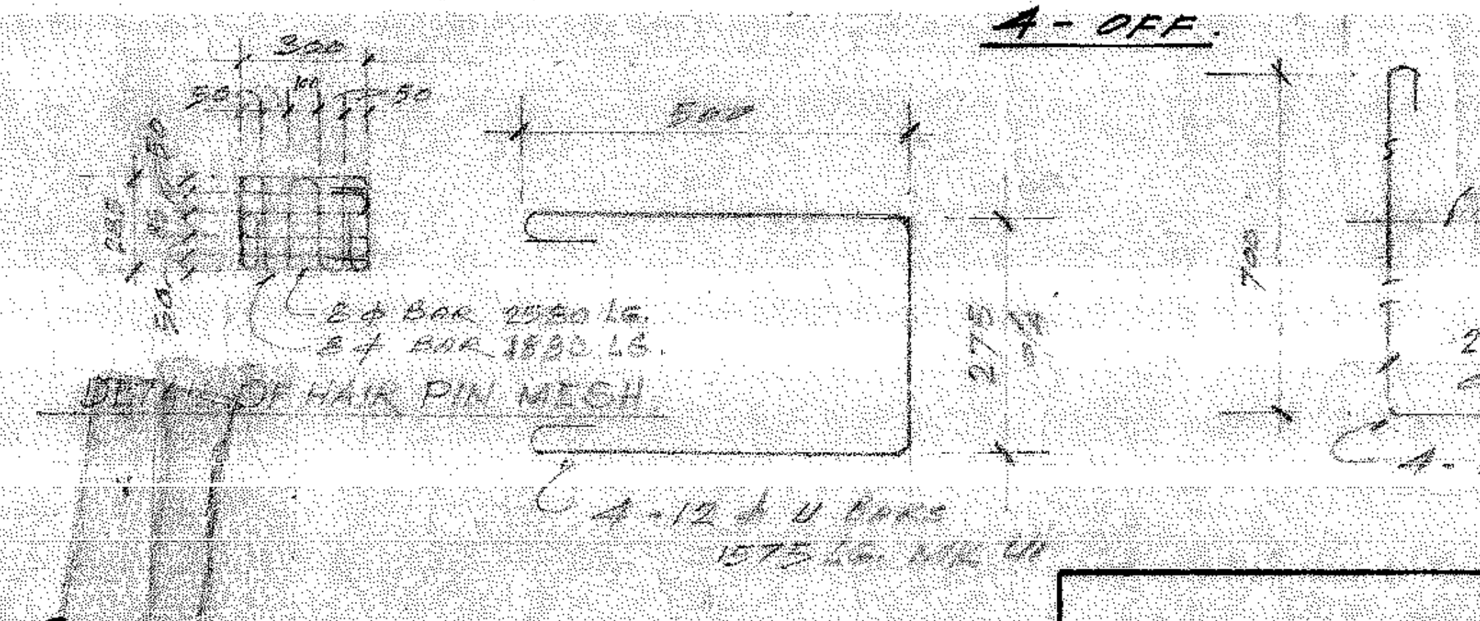
SIDE VIEW

ANCHORAGE DETAIL FOR CABLE (171)

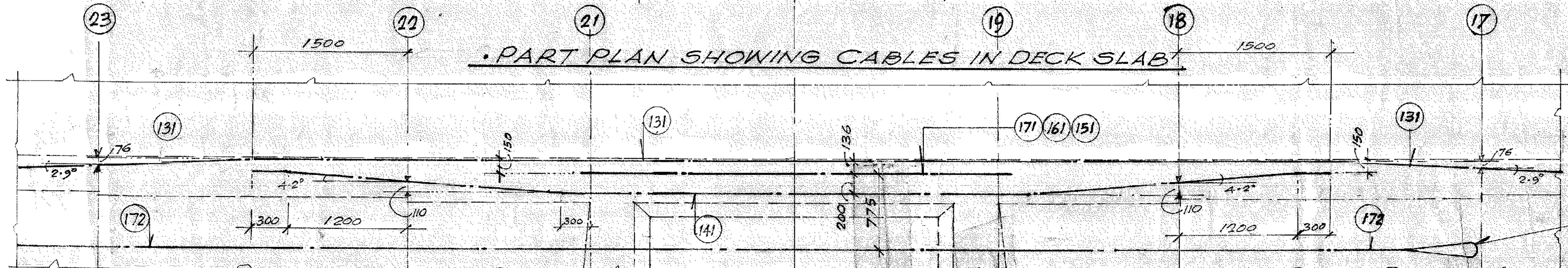
4-OFF.


℄ OF PIER
23 22 21 20 19 18 17
℄ OF BRIDGE WIDTH (SYMMETRICAL ABOUT ℄)
131 141
171 161 151
172 (PL. REFER ENLARGED DETAIL)

• PART PLAN SHOWING CABLES IN DECK SLAB


300
50 50 50
8 φ BAR 2580 LG.
8 φ BAR 1880 LG.
500
CONC. FACE
750
275
274
4-12 φ U BARS 1575 LG. MK U1
4-12 φ U BARS MK U2 (H.T.S.)

DETAILS OF HAIR PIN MESH


23 22 21 19 18 17
1500 1500
131 131 131 171 161 151
76 2.9° 4.2° 150 110 136 200 775 4.2° 150 76 2.9°
172 300 1200 300 141 110 1200 300 172

CABLE MKD 172
FOR DEAD END ANCHORAGE DETAILS
REFER DRG. NO. 526/49
(PL. REFER ENLARGED DETAIL).

• PART PLAN SHOWING CABLES BENT IN PLAN BETWEEN AXIS (17) TO (23)

DATE	REV.	PARTICULARS	BY	CHKD.
14/1/87	B	STRESSING DETAIL FOR CABLE NO. 171 & NOTE 16 & 17 ADDED. ALL CABLES IN CROSS SECT. NUMBERED. NOTE NO. 8 & 12 MODIFIED, BAR MK. h2 ALTERED, CABLE PROFILE ORDINATES CORRECTED.		
12/86	A	DEAD END ANCHORAGE FOR CABLE MKD 172 SHOWN & OTHER MINOR MODIFICATION DONE		

REVISIONS

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT
DIVISIONAL ENGINEER (H) PAMBAN
BRIDGE PROJECT DIVN. No. II

PROJECT
BALANCE WORK OF PAMBAN BRIDGE.

TITLE
GENERAL ARRANGEMENT OF
CABLE PROFILE BET. AXIS (17) TO (23)
(NAVIGATION SPAN)

APPROVED FOR CONSTRUCTION
BY DIV. ENG. PAMBAN BR. PROJECT II VIDE PROC.
NO 70/8A (1)D-0/ DT 28-1-87

DRAWING NO. AS PER DEPARTMENT.
CE(H) PBP/8/87

DRN.	R.M.K.		SCALE	1:75 & 1:1
CHKD.		T.M.	SERIAL NO.	7136
DSND.			DATE	14-10-8
CHKD.		P.T.M.	DRG. NO.	526

DRG. No. 526/48
℄ OF BRIDGE WIDTH
℄ OF WEB
• HALF CROSS SECTION THROUGH AXIS (45)
DELETED for DETAILS REFER DRG Nos 526/76 & 526/77
• ELEVATION.
(NOTE:- FOR R.C.C. DETAILS OF ANCHORAGES REFER SEPARATE DRG.)
MORTAR FILL
INSIDE FACE
OUT SIDE FACE
• SIDE VIEW
• TYPICAL ANCHORAGE DETAILS FOR CABLE MKD 482, 492, 521, 502 & 522
TOP OF DECK SLAB
• HALF CROSS SECTION THROUGH AXIS (20)
• PART CROSS SECTION BEYOND AXIS 17 & 23
BENT IN ELEVATION FOR CABLE MKD 122 & 142
DEAD END ANCHORAGES AT NAVIGATION SIDE ONLY
• BENT IN ELEVATION FOR CABLE MKD 132 & 152
• BENT IN ELEVATION FOR CABLE MKD 162
• BENT IN ELEVATION FOR CABLE MKD 62 52 42 ONLY.
• BENT IN ELEVATION FOR CABLE MKD 1A4 & 1A5 ONLY.
DELETED for DETAILS REFER DRG. NOS: 526/76 & 526/77
HORIZONTAL DISTANCE FROM ℄ OF BRIDGE WIDTH.
VERTICAL DISTANCE FROM DECK TOP
℄ OF CABLE.
℄ OF WEB/CABLE
• TYPICAL CROSS SECTION SHOWING CABLE CO-ORDINATES
CONTINUITY UNIT
• ENLARGED LONGITUDINAL CROSS SECTION OF BOX GIRDER DECKING SHOWING ANCHORAGES OF DECK CABLES BETWEEN AXIS (34) TO (52)
℄ OF BEARING
℄ OF ANCHOR PIER
℄ OF NAVIGATION PIER
℄ OF HINGE BEARING.
• HALF END VIEW OF ARTICULATION
• ELEVATION OF SOFFIT CABLES
• PLAN OF ARTICULATION
• PLAN OF SOFFIT CABLES
• ANCHORAGE DETAIL FOR CABLE MKD (11)
INSIDE FACE
100 DIA. DRAIN PIPES
• LONGITUDINAL CROSS SECTION OF BOX GIRDER (SHOWING CABLE PROFILE ONLY)
• VIEW AT Y-Y
• VIEW AT X-X
• SOFFIT CABLE IN ELEVATION
SECTION Z-Z
• SOFFIT CABLE IN PLAN
• HALF END VIEW AT AXIS (1A)
• PART PLAN OF CABLE PROFILE
300 MIN STRAIGHT
SMOOTH 'S' CURVE
300 MIN. STRAIGHT
℄ OF WEB
STARTING POINT OF BENDING
TRANSITION LENGTH
END POINT OF BENDING
AXIS.
SHEATHING OF CABLE
JOINT OF COUPLER TO BE SEALED PROPERLY
RIGID COUPLER TO BE STIFFENED DURING CONSTRUCTION.
SHEATHING TO BE INTRODUCED LATER.
UNIT CAST EARLIER BEING CAST
UNIT TO BE CAST LATER

• TYPICAL BENDING OF CABLES IN PLAN

• DETAILS OF CONNECTING SHEATHING OF CABLES

• NOMENCLATURE FOR CABLE NUMBERING

1. THE CABLES ARE NUMBERED IN THE FOLLOWING MANNER. THE DIGIT IN UNIT COLUMN INDICATES SERIAL NUMBER OF THE CABLE & THE DIGITS IN TENS/HUNDREDS COLUMNS INDICATE THE AXIS NO. ON NAVIGATION SPAN SIDE AT WHICH THE CABLE IS STOPPING e.g. CABLE NO 171 INDICATES THAT THE CABLE HAS SERIAL NO. 1. & STOPS AT AXIS 17 ON THE NAVIGATION SPAN SIDE.
2. SIMILARLY CABLES ORIGINATING FROM ANCHOR PIER SIDE ARE NUMBERED SUCH THAT DIGITS IN TENS/HUNDREDS COLUMNS INDICATE AXIS NO. ON SUSPENDED SPAN SIDE e.g. CABLE NO. 481 INDICATES THAT THE CABLE HAS SERIAL NO 1. & STOPS AT AXIS 48 ON THE SUSPENDED SPAN SIDE.
3. CABLES MKD D1 & D2 ARE DUMMY CABLES.
4. CABLES MKD S1 TO S4 ARE DUMMY CABLES IN SOFFIT.

• CABLE ORDINATES FOR CABLE MKD S1 & S2.

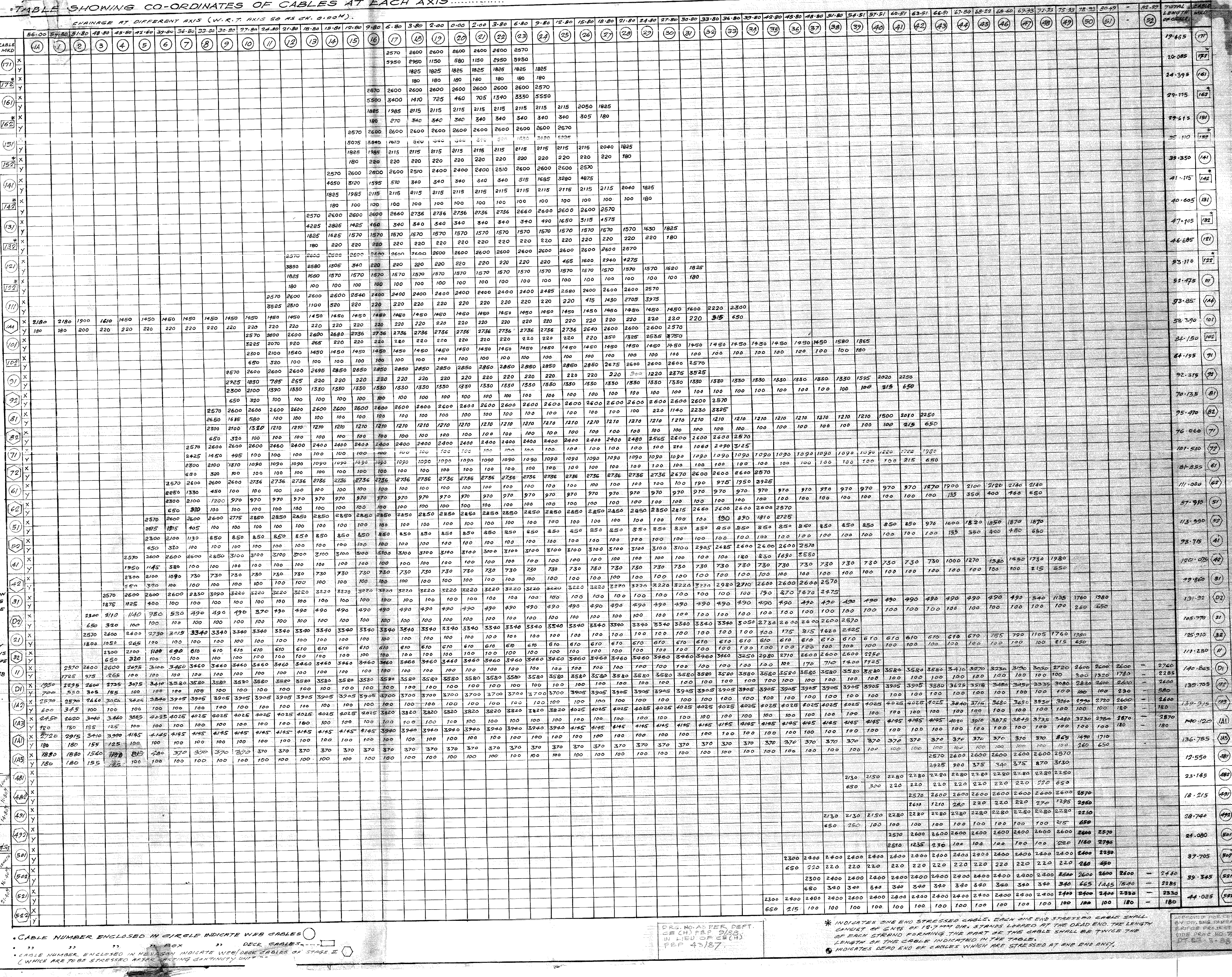
CABLE MKD	DIM.	5	4	3	2	1	1A	LENGTH
		SECTION / AXIS NOS:						
S1	X	–	2190	2480	2480	2415	2330	11.80M
	Y	–	1925	2175	2100	2025	1895	
S2	X	2190	2600	2600	2600	2600	2600	14.80M
	Y	2250	2250	2175	2100	2025	1895	

• CABLE ORDINATES FOR CABLE MKD S3 & S4

CABLE NO.	DIM.	AT 2M FROM AXIS 43, CH. 63.51	42	41	40	39	38	37	36	LENGTH
			SECTION / AXIS NOS:							
S4	X	–	2190	2480	2480	2480	2480	2190	–	16.40M
	Y	–	2750	2840	2810	2725	2670	2330	–	
S3	X	2190	2465	2600	2600	2600	2600	2500	2190	21.40M
	Y	2900	3050	2910	2810	2725	2735	2665	2425	

• TABLE SHOWING CO-ORDINATES OF CABLES AT EACH AXIS ....

CHAINAGE AT DIFFERENT AXIS (W.R.T. AXIS 20 AS CH. 0.00M).



CABLE MKD	TOTAL LENGTH OF CABLE
(171)	19.465
172 *	20.085
(161)	24.395
162 *	29.115
(151)	29.615
152 *	35.110
(141)	35.350
142 *	41.115
(131)	40.605
132 *	47.105
(121)	46.685
122 *	53.110
(111)	52.475
1A4	93.85
(101)	58.390
102	84.150
(91)	64.195
92	92.315
(81)	70.135
82	95.470
(71)	76.060
72	101.540
(61)	81.855
62	111.000
(51)	87.910
52	113.990
(41)	93.715
42	120.075
(31)	99.860
D2	131.92
(21)	105.770
32	125.910
(11)	111.280
(D1)	140.865
1A2	139.765
1A3	139.715
1A1	140.120
1A5	136.755
(481)	12.550
482	23.145
(491)	18.215
492	28.740
(501)	24.080
502	37.705
521	39.345
522	44.025

• CABLE NUMBER ENCLOSED IN CIRCLE INDICATE WEB CABLES ○
• " " " " BOX " DECK CABLES ☐
• CABLE NUMBER ENCLOSED IN HEXAGON INDICATE WEB/DECK CABLES OF STAGE II ⬡ (WHICH ARE TO BE STRESSED AFTER CASTING CONTINUITY UNIT)

* INDICATES ... SHALL ... LENGTH ... THE

APPROVED FOR CONST BY DIV. ENG. PAMBAN BRIDGE PROJECT II VIDE PROC. NO. 70/84 DT. [illegible]

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH GIL DRG. NO 4636 E.
3. FOR DIMENSIONAL LAYOUT FOR PIER-HEAD & DETAILS OF CONST. JOINTS REFER DRG. NO. 526/42.
4. FOR GENERAL LAYOUT & SECTIONAL DIMENSIONS OF BOX GIRDER REFER DRG. NO 526/31A.
5. FOR GENERAL ARRANGEMENT OF CABLE PROFILE BET. AXIS 17 TO 23 REFER DRG. NO. 526/46.
6. FOR DETAILS OF AIR VENT PIPES REFER DRG. NO 526/50.
7. FOR ENLARGED DETAILS OF ANCHORAGES & LAYOUT OF DECK CABLES BET. AXIS 31 TO 52 REFER DRG. NO. 526/77 & BET. AXIS 13 TO 1A REFER DRG. NO. 526/91, & 526/76.
8. FOR DETAILS OF ANCHORAGES FOR SOFIT CABLES S1 TO S4 REFER DRG. NO. 526/113.
9. 69 MM MIN. INTERNAL DIA. BRIGHT METAL SHEATHING 0.3MM THK. SHALL BE USED FOR ALL CABLES.
10. H.T. STRANDS OF 12.7 MM DIA CONFORMING TO CLASS TWO OF I.S. 6006-1983 SHALL BE USED FOR THIS JOB FOR MAKING PRESTRESSING CABLES.
11. FOR R.C.C. DETAILS OF BOX GIRDER BET. AXIS 0 TO 52 REFER SEPARATE DRGS.
12. LOCATIONS & DETAILS OF P.V.C. DRAIN PIPES REFER SEPARATE DRGS.
13. ALL THE TEMPORARY OPENINGS/CHASES/HOLES SHALL BE CLOSED WITH CONCRETE/MORTAR OF SAME MIX/PROPORTION WHICHEVER IS PRACTICABLE, SOON AFTER THEIR UTILITY IS OVER.
14. ALWAYS REFER THE LATEST REVISIONS OF THE DRG. REFERRED HEREIN.
15. THE AIR VENTS SHALL BE PROVIDED AT EACH ANCHORAGE, AT THE POINTS WHERE CABLE BENDS IN ELEVATION & AT THE AXIS 20 & 45 AS SHOWN IN DRAWING. THE SPACING BETWEEN THE ADJOINING AIR VENTS FOR A PARTICULAR CABLE SHALL BE IN THE RANGE OF 18 TO 20M. THE LOCATIONS OF AIR VENTS SHOWN ON THE DRAWING ARE INDICATIVE.
16. FOR ENLARGED DETAILS OF DEAD-END ANCHORAGES OF DECK CABLES MKD 162 TO 72 (ON NAVIGATION SIDE) REFER DRG. NO 526/58.
17. FOR ENLARGED DETAILS OF STRESSED-END ANCHORAGES OF DECK CABLES 162 TO 102 (ON ANCHOR SPAN SIDE) REFER DRG. NO 526/56.
18. THIS DRG. IS TO BE READ IN CONJUNCTION WITH DRG. NO. 526/55, 93, 94 & 112... GEOMETRY OF PRESTRESSING CABLES.
19. DUMMY CABLES IN SOFFIT:- DUMMY CABLES MKD S1 TO S4 IN SOFFIT ARE OF 12/5 MM H.T.S. WIRES; ULTIMATE TENSILE STRENGTH OF H.T. STEEL WIRES SHALL NOT LESS THAN 150 KG/MM². CROSS BATCH TYPE SHEATHING SHALL BE OF ... I.D. WITH THICKNESS OF 0.28 MM.

DATE	REV.	PARTICULARS	BY	CHKD
22 4/88	I	[illegible]	KG	
25 2/88	H	NOTE NO7 DELETED & ... CABLES WEB CABLES & SOFFIT CABLE ... MODIFICATIONS ...		RB
9 2/88	G	CHANGE IN CABLE PROFILE & ORDINATES OF CABLE MK. D1 IN ELEVATION BETWEEN AXIS 3 & 1A		RB
24 12/87	F	CABLES MKD ... INTERCHANGED ...		RB
18 ?/87	E	[illegible]		RB
? 8/87	D	CHANGE IN CABLE LENGTH ...		RB
? 5/87	C	CABLES MK. 11, 21, 31, ... DEAD END STRESSED ... CABLE MKD 112 DELETED & MKD 32 ADDED	KG	RB
8 4/87	B	NOMENCLATURE FOR CABLES ... AS PER ... LETTER NO. 4886 183/86-45 DT. 24-3-87	KG	RB
27 2/87	A	CHANGE IN CABLE GEOMETRY FOR SOME OF THE DECK CABLES. NOTE NO. 15, 16 & 17 ADDED. CABLE ... FOR CABLES BETWEEN AXIS ... CORRECTED ...	KG	RB

REVISIONS.

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT.
DIVISIONAL ENGINEER (H) PAMBAN, BRIDGE PROJECT DIVISION No II

PROJECT
BALANCE WORK OF PAMBAN BRIDGE

TITLE
GENERAL ARRANGEMENT OF CABLE PROFILE (NAVIGATION SPAN).

DRN Rmkandalgaonkar
CHKD R.M.K
DSND
CHKD

SCALE 1:75, 1:50
SERIAL NO. 7175
DATE 31-10-1986.
DRG. No. 526/48

• HALF CROSS SECTION THROUGH AXIS (45)
• ELEVATION.
(NOTE:- FOR R.C.C. DETAILS OF ANCHORAGES REFER SEPARATE DRG.)
• SIDE VIEW
INSIDE FACE
OUTSIDE FACE
• TYPICAL ANCHORAGE DETAILS FOR CABLE MKD 482, 492, 521, 502 & 522
• HALF CROSS SECTION THROUGH AXIS
• ENLARGED LONGITUDINAL CROSS SECTION OF BOX GIRDER DECKING SHOWING ANCHORAGES OF DECK CABLES BETWEEN AXIS (34) TO (52)
CONTINUITY UNIT
℄ OF BEARING
℄ OF ANCHOR PIER
DEAD END ANCHORAGES AT NAVIGATION SIDE ONLY
• BENT IN ELEVATION FOR CABLE MKD 162
• BENT IN ELEVATION FOR CABLE MKD 62 52 42 ONLY.
• BENT IN ELEVATION FOR CABLE MKD 1A4 & 1A5 ONLY
DELETED FOR DETAILS REFER DRG. NOS: 526/76 & 526/77
• TYPICAL CROSS SECTION SHOWING CABLE CO-ORDINATES
℄ OF BRIDGE WIDTH
℄ OF HINGE BEARING
• HALF END VIEW AT AXIS (1A)
• ANCHORAGE DETAIL FOR CABLE MKD (11)
APPROVAL FOR CABLES IN THIS PART ONLY
• LONGITUDINAL CROSS SECTION OF BOX GIRDER (SHOWING CABLE PROFILE ONLY)
APPROVAL FOR CABLES IN THIS PART ONLY
• SOFFIT CABLE IN ELEVATION
• VIEW AT X-X
• SOFFIT CABLE IN PLAN
℄ OF NAVIGATION PIER
• PART PLAN OF CABLE PROFILE
APPROVAL FOR CABLES IN THIS PART ONLY
APPROVAL FOR CABLES IN THIS PART ONLY
300 MIN. STRAIGHT
SMOOTH 'S' CURVE
300 MIN. STRAIGHT
AXIS
SHEATHING OF CABLE
JOINT OF COUPLER TO BE SEALED PROPERLY
RIGID COUPLER TO BE STIFFENED DURING CONSTRUCTION.
SHEATHING TO BE INTRODUCED LATER.
UNIT CAST EARLIER BEING CAST
UNIT TO BE CAST LATER.
• DETAILS OF CONNECTING SHEATHING OF CABLES

• NOMENCLATURE FOR CABLE NUMBERING...

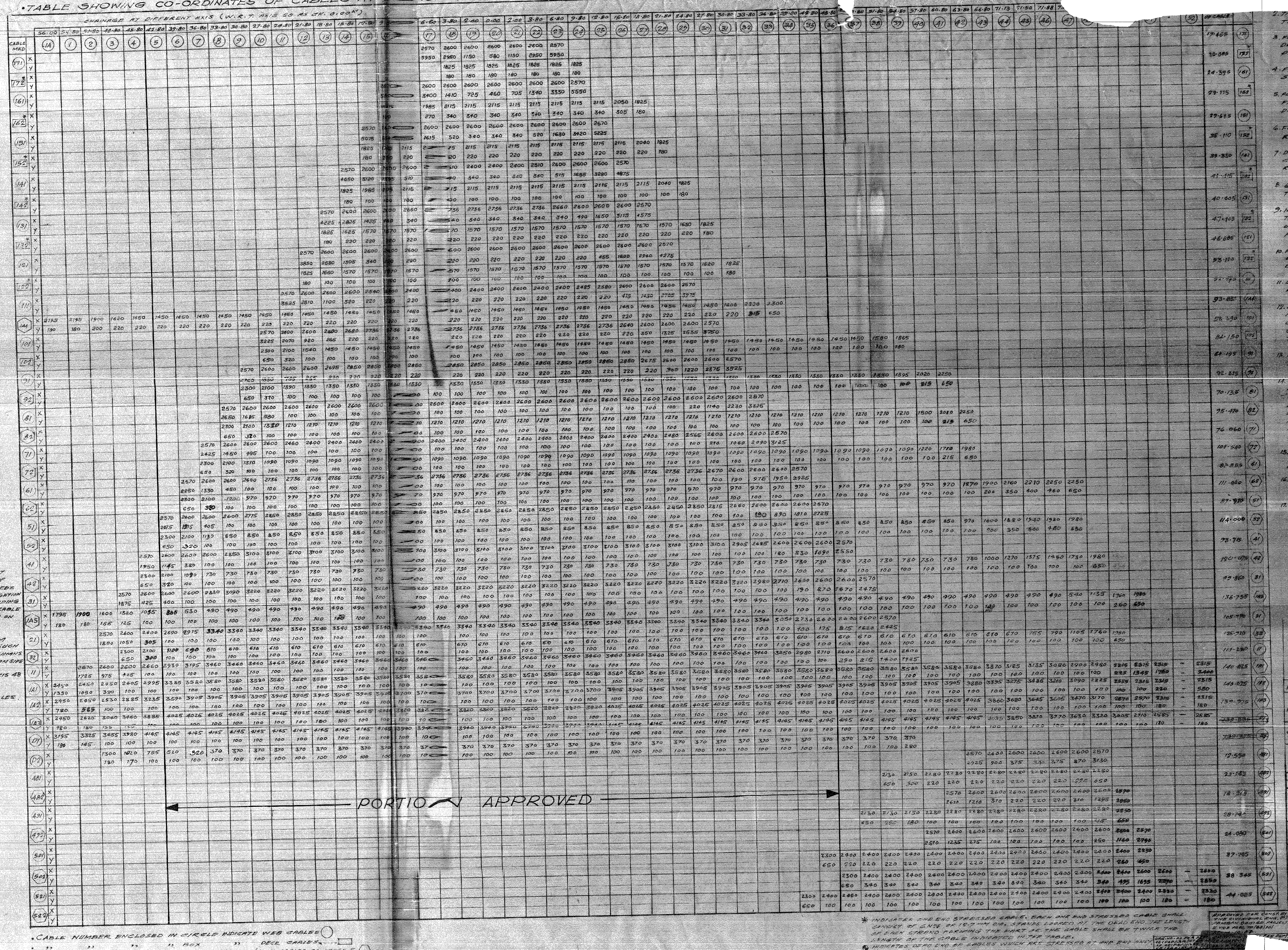
1. THE CABLES ARE NUMBERED IN THE FOLLOWING MANNER. THE DIGIT IN UNIT COLUMN INDICATES SERIAL NUMBER OF THE CABLE & THE DIGITS IN TENS/HUNDREDS COLUMNS INDICATE THE AXIS NO. ON NAVIGATION SPAN SIDE AT WHICH THE CABLE IS STOPPING e.g. CABLE NO 171 INDICATES THAT THE CABLE HAS SERIAL NO. 1. & STOPS AT AXIS 17 ON THE NAVIGATION SPAN SIDE.

2. SIMILARLY CABLES ORIGINATING FROM ANCHOR PIER SIDE ARE NUMBERED SUCH THAT DIGITS IN TENS/HUNDREDS COLUMNS INDICATE AXIS NO. ON SUSPENDED SPAN SIDE e.g. CABLE NO. 481 INDICATES THAT THE CABLE HAS SERIAL NO 1. & STOPS AT AXIS 48 ON THE SUSPENDED SPAN SIDE.

3. CABLES MKD D1 & D2 ARE DUMMY CABLES.

• TABLE SHOWING CO-ORDINATES OF CABLE

CHAINAGE AT DIFFERENT AXIS (W.R.T. AXIS 20 AS CH. 0.00M)



PORTION APPROVED

2. THIS DRAWING SHALL BE [illegible] TION WITH G.I.L DRG. NO 4636E.

3. FOR DIMENSIONAL LAYOUT FOR PIER-HEAD & DETAILS OF CONST. JOINTS REFER DRG. NO. 526/42.

4. FOR GENERAL LAYOUT & SECTIONAL DIMENSIONS OF BOX GIRDER REFER DRG NOS 526/31.

5. FOR GENERAL ARRANGEMENT OF CABLE PROFILE BET. AXIS 17 TO 23 REFER DRG. NO 526/46.

6. FOR DETAILS OF AIR VENT PIPES REFER DRG. NO. 526/50.

7. DETAILS OF BULKHEADS FOR ANCHORING CABLES FOR FUTURE PRESTRESSING REFER SEPARATE DRG.

8. 69 MM MIN. INTERNAL DIA BRIGHT METAL SHEATHING ·3MM THK. SHALL BE USED FOR ALL CABLES.

9. H.T. STRANDS OF 12.7 MM DIA CONFORMING TO CLASS TWO OF I.S. 6006-1983 SHALL BE USED FOR THIS JOB FOR MAKING PRESTRESSING CABLES.

10. FOR R.C.C. DETAILS O[illegible] BET. AXIS 0 TO 52 R[illegible] DRGS.

11. LOCATIONS & DETAILS OF P.V.C. DRAIN PIPES REFER SEPARATE DRGS.

12. ALL THE TEMPORARY OPENINGS/CHASES/HOLES SHALL BE CLOSED WITH CONCRETE OR MORTAR OF SAME MIX/PROPORTION WHICHEVER IS PRACTICABLE, SOON AFTER THEIR UTILITY IS OVER.

13. ALWAYS REFER THE LATEST REVISIONS OF THE DRG. REFERRED HEREIN.

14. THE AIR VENTS SHALL BE [illegible] ANCHORAGES, AT THE POINTS WHERE CABLE BENDS IN ELEVATION & AT THE AXIS 20 & 45 AS SHOWN IN DRAWING. THE SPACING BETWEEN THE ADJOINING AIR VENTS FOR A PARTICULAR CABLE SHALL BE IN THE RANGE OF 18 TO 20M. THE LOCATIONS OF AIRVENTS SHOWN ON THE DRAWING ARE INDICATIVE.

15. FOR ENLARGED DETAILS OF DEAD-END ANCHORAGES OF DECK CABLES MKD 162 TO 72 (ON NAVIGATION SIDE) REFER DRG. NO 526/58.

16. FOR ENLARGED DETAILS OF STRESSED-END ANCHORAGES OF DECK CABLES 162 TO 102 (ON ANCHOR SPAN SIDE) REFER DRG. NO 526/56.

17. THIS DRG. IS TO BE READ IN CONJUNCTION WITH DRG. NO 526/55, SHEET NO. 1 TO 4. GEOMETRY OF PRESTRESSING CABLES.

DATE	REV.	PARTICULARS	BY	CHKD
12 8/87	D	MODIFICATION IN CABLE LENGTHS AND CABLE ORDINATES	RG	RB
19 5/87	C	CABLE MKD. 11, 92, 82, 72, 62, 52 & 42 MADE BOTH END STRESSED IN LIEU OF ONE END STRESSED, LAYOUT OF THESE CABLES MODIFIED CABLE MKD 112 DELETED & MKD 32 ADDED.	RG	RB
8 4/87	B	NOMENCLATURE FOR CABLE NOS. ADDED & OTHER CORRECTIONS MADE AS PER DEPT'S LETTER NO. 4886 183/86-45 DT. 24-3-87	RG	RB
27 2/87	A	• CHANGE IN CABLE GEOMETRY FOR SOME OF THE DECK CABLES • NOTE NOS. 15, 16 & 17 ADDED. • CABLE ORDINATES FOR CABLES BETWEEN AXIS 9 TO 31 CHECKED & CORRECTED (WHEREVER NECESSARY) AS PER DRG. NO. 526/55.	RG	RB

REVISIONS.

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT
DIVISIONAL ENGINEER (H) PAMBAN BRIDGE PROJECT DIVISION No. II

PROJECT
BALANCE WORK OF PAMBAN BRIDGE

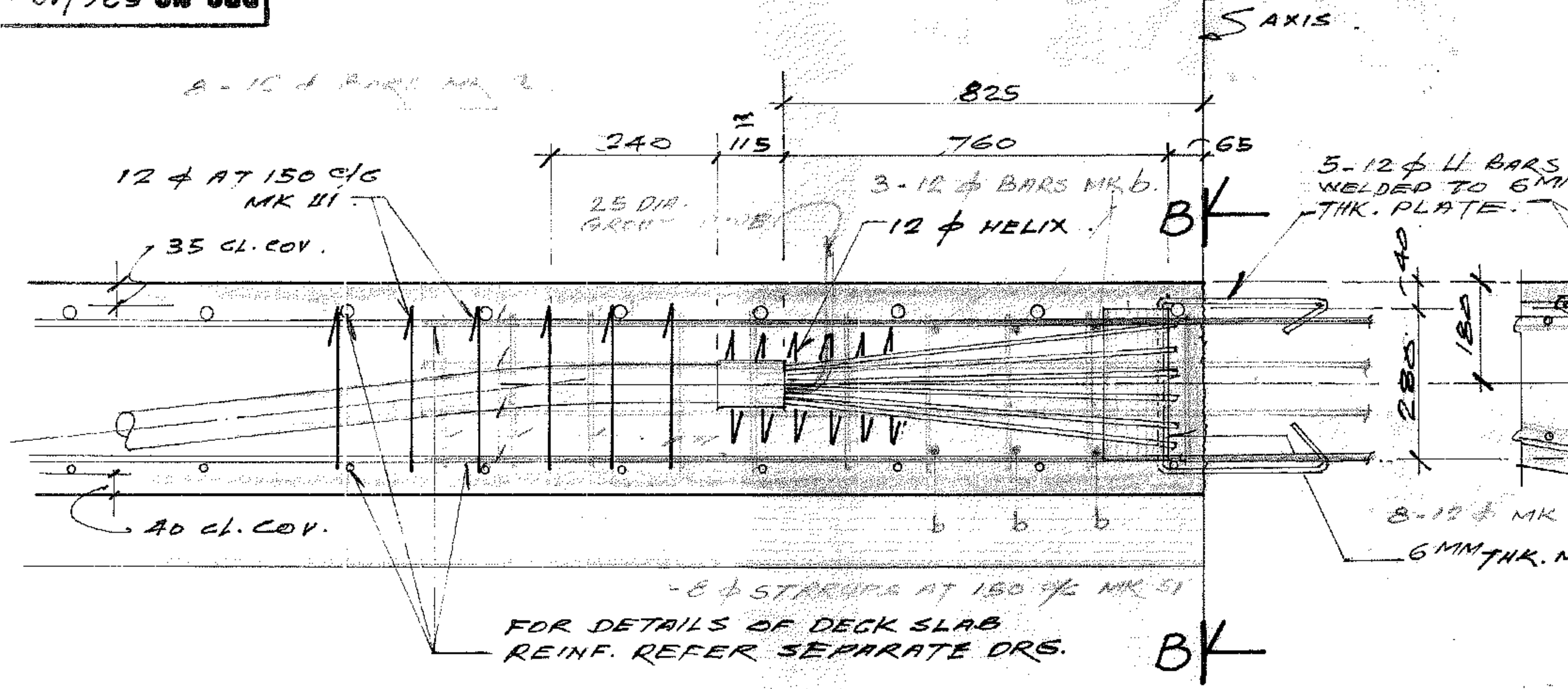
TITLE
GENERAL ARRANGEMENT OF CABLE PROFILE (NAVIGATION SPAN)

APPROVED FOR CONST. BY THE DIVISIONAL ENG. (H) PAMBAN BRIDGE PROJECT II VIDE PROC. No. [illegible]/84/[illegible]

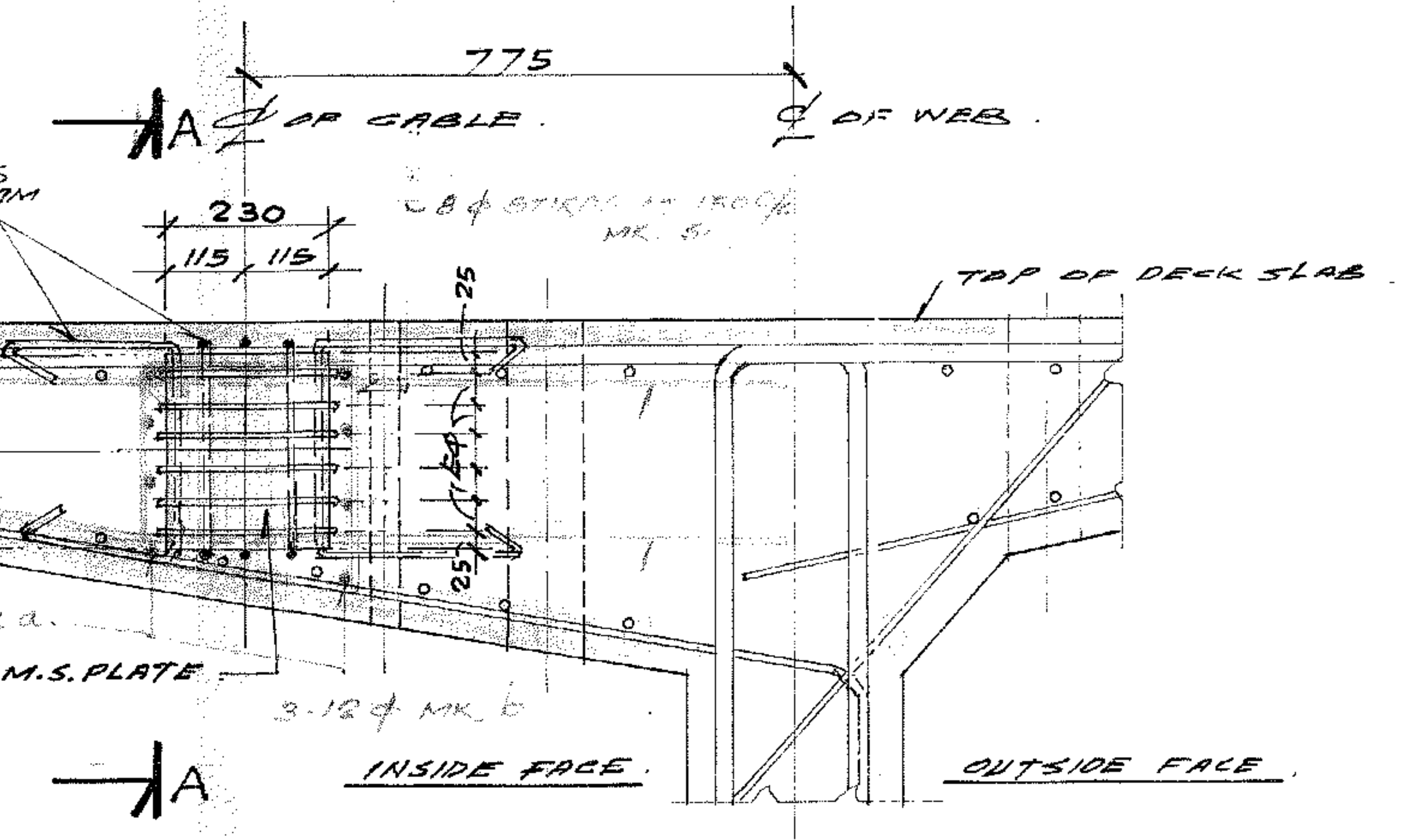
DRN K. [illegible]
CHKD K.M.K
DSND
CHKD

SCALE 1:75, 1:50
SERIAL No. 7179
DATE 31-10-1986
DRG. No. 526/48 D

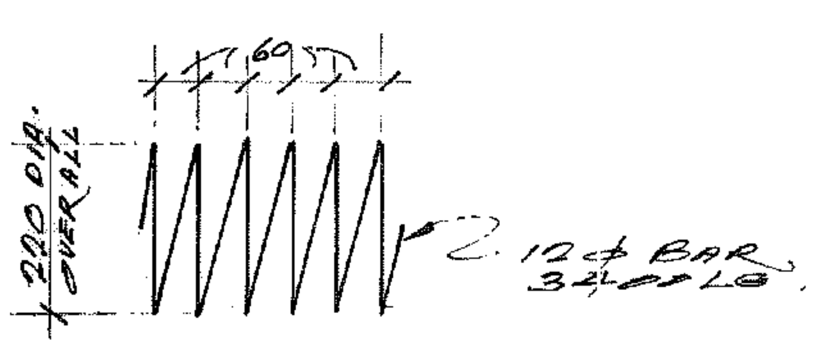
DRG. NO.526/49


8-12φ BARS MK 2
S AXIS
825
240
115
760
65
12φ AT 150 C/C MK U1
35 CL. COV.
25 DIA. GROUT TUBE
3-12φ BARS MK b.
12φ HELIX
B
5-12φ U BARS WELDED TO 6MM THK. PLATE.
40
180
280
b
40 CL. COV.
8-12φ MK a.
6MM THK. M.S. PLATE
-8φ STIRRUPS AT 150 C/C MK 51
FOR DETAILS OF DECK SLAB REINF. REFER SEPARATE DRG.
B

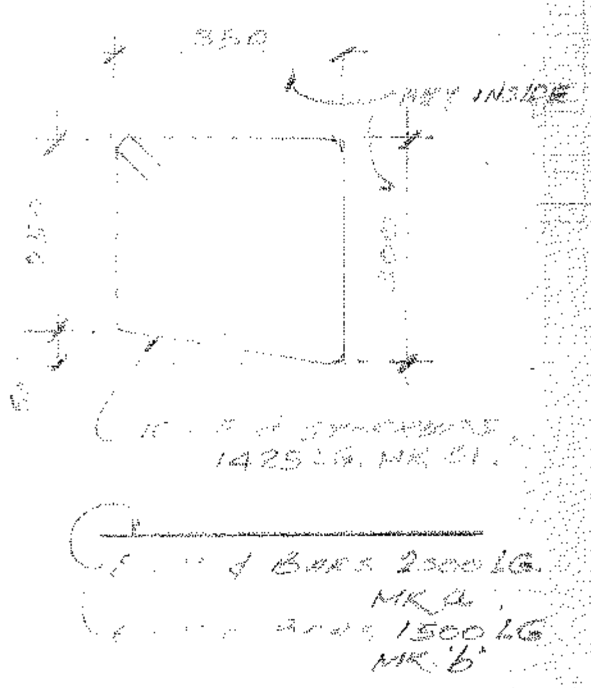
•SIDE VIEW AT A-A

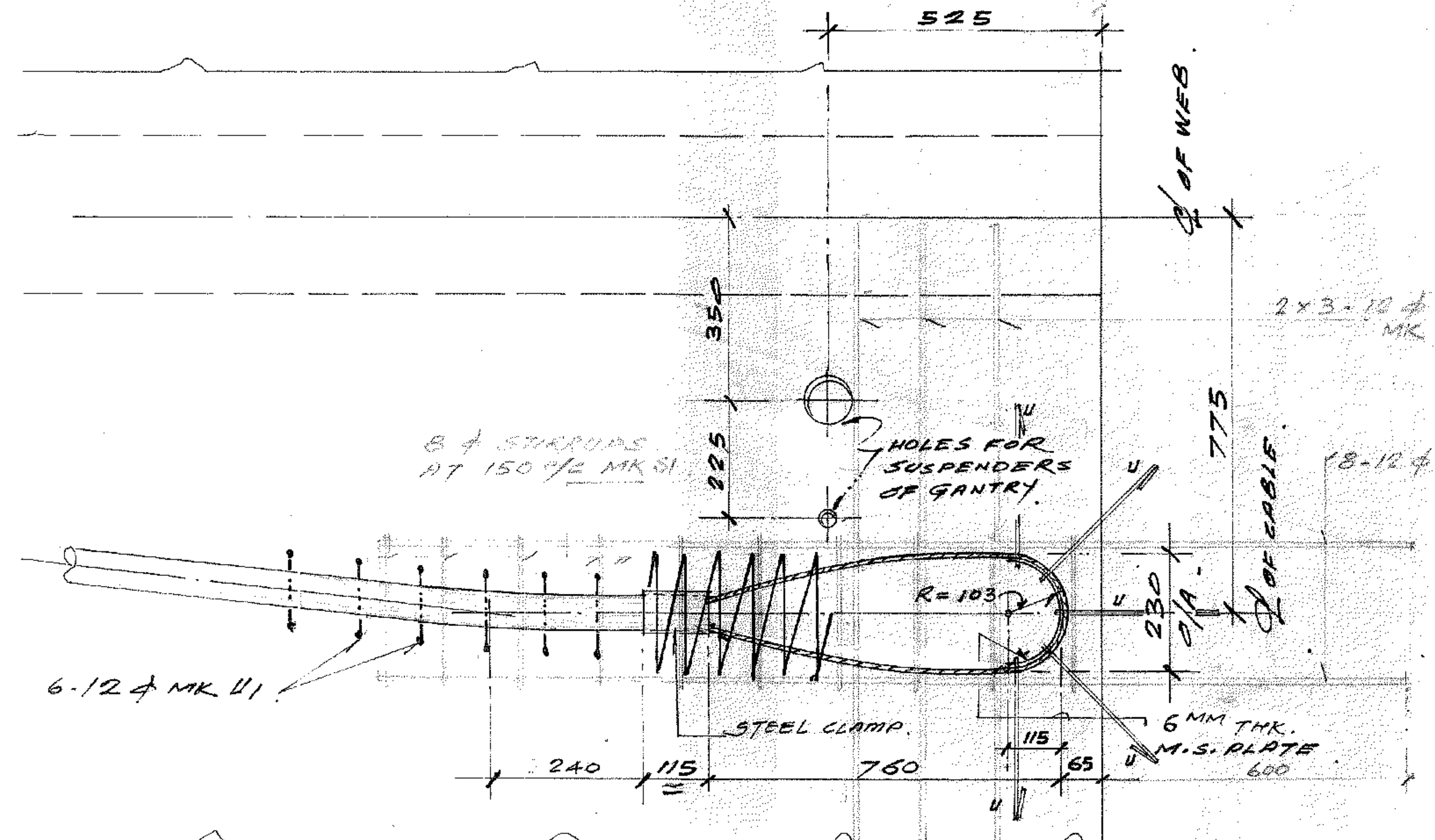

A
℄ OF CABLE
775
℄ OF WEB
230
115
115
8φ STIRPS AT 150 C/C MK 51
TOP OF DECK SLAB
25
25
3-12φ MK b
INSIDE FACE
OUTSIDE FACE
A

•END VIEW AT B-B


7.69
220 DIA. OVERALL
12φ BAR 3.4 M LG.

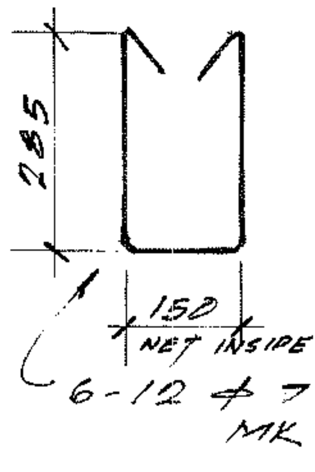
•DETAIL OF 12φ HELIX


350
KEY INSIDE
1425 LG. MK 51
BARS 2300 LG. MK a
1500 LG MK 'b'

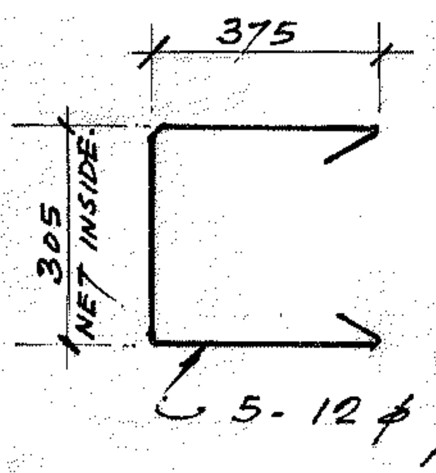

525
℄ OF WEB
2×3-12φ BARS MK b
350
775
225
HOLES FOR SUSPENDERS OF GANTRY
8φ STIRRUPS AT 150 C/C MK 51
8-12φ MK a
℄ OF CABLE
R=103
230 O/A
U
6-12φ MK U1
STEEL CLAMP
6MM THK. M.S. PLATE
600
240
115
760
115
65

•PLAN.

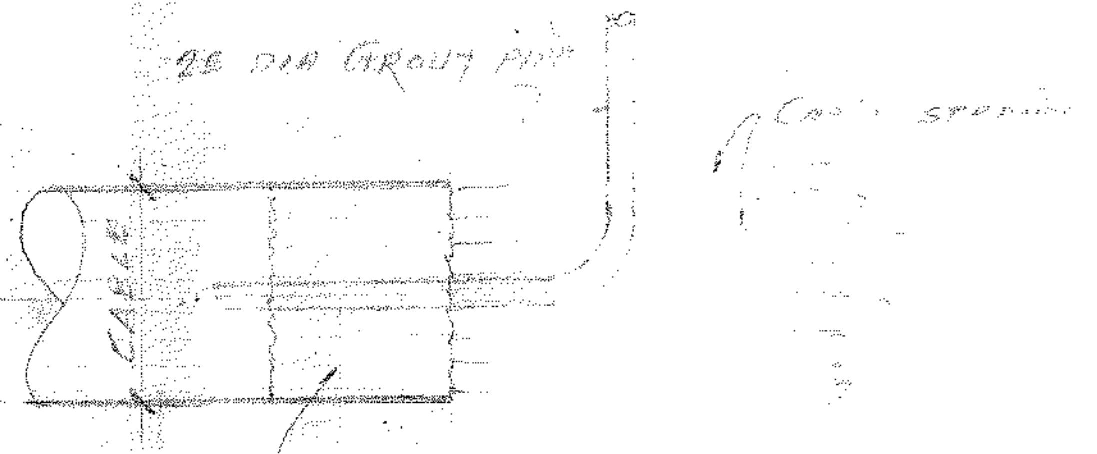
(OTHER DECK CABLES NOT SHOWN).


285
150 NET INSIDE.

6-12φ 725 LG.
MK U1.


375
305 NET INSIDE

5-12φ U BARS
1275 LG.
(WELDED TO 6MM THK. PLATE)


25 DIA GROUT PIPE
CABLE
CAP STIRRUP

DRY MORTAR PACKING BEFORE TAKING UP CONCRETING OF THE DECK SLAB [illegible]

DRAWING NO. AS PER DEPT. C.E (B) PBP/ 9/87.

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. FOR GENERAL ARRANGEMENT OF CABLE PROFILE REFER DRG. NO. 526/46A & 526/48.
3. FOR R.C.C. DETAILS OF BOX GIRDER REFER SEPARATE DRG.
4. ALWAYS REFER THE LATEST REVISIONS OF THE DRG. REFERRED HEREIN.
5. THE DETAILS OF DEAD END ANCHORAGE SHOWN IN THIS DRAWING ARE BASED ON THE DETAILS FOR THE DEAD END ANCHORAGE "VSL TYPE U" AS SHOWN IN THE VSL INTERNATIONAL BULLETIN FOR POST TENSIONING.
6. THE LOOPED STRANDS MUST BE PROPERLY FIXED WITH THE VERTICAL CURVED PLATE.

THE FOLLOWING CABLES ARE PROPOSED TO BE PROVIDED WITH DEADEND ANCHORAGE
CABLE NOS: 172, 162, 152, 142, 132, 122,

•QUANTITIES SHOWN FOR ONE DEAD END ANCHORAGE ONLY.

2X2X15-6

DATE	REV.	PARTICULARS	BY	CHKD.
2 7/87	C	THICKNESS OF M.S. PLATE CHANGED FROM 3.5MM TO 6MM. LOOPE DIMENSION MODIFIED	R	
24 3/87	B	BAR MK a, b & STIRPS 51 SHOWN NOTE NO. 6. ADDED.		RM
29 12/86	A	CABLES WITH DEAD END ANCHORAGE INDICATED NOTE NO. 5 ADDED		RM

REVISIONS

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

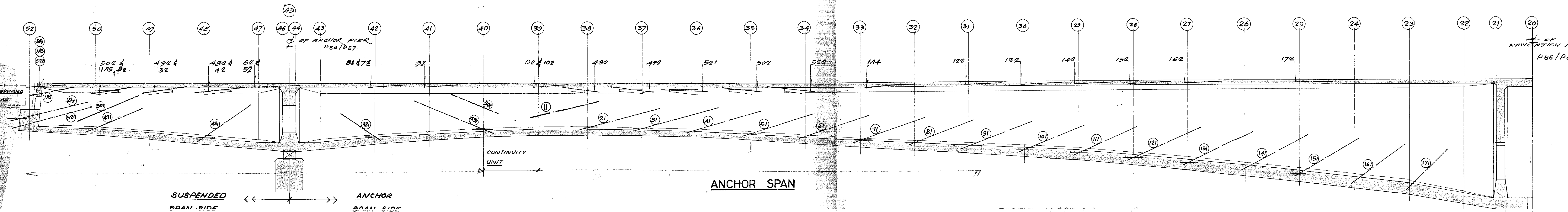
CLIENT DIVISIONAL ENGINEER (H) PAMBAN BRIDGE PROJECT DIVISION No. II.

PROJECT BALANCE WORK OF PAMBAN BRIDGE.

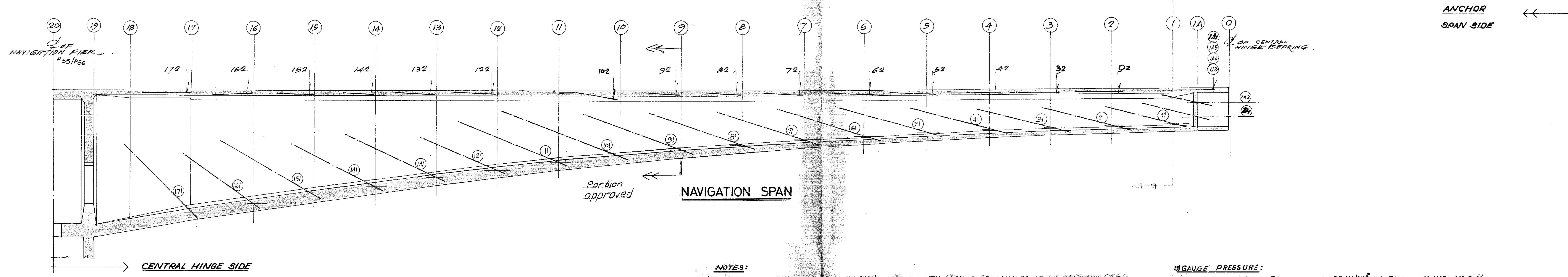
APPROVED FOR CONSTRUCTION BY DIV. ENGINEER PAMBAN BRIDGE PROJECT II VIDE P.B.P. 7/84 (1)/D-01

TITLE DETAILS OF DEAD END ANCHORAGES. (NAVIGATION SPAN).

DRN.	R.M.K.	T.M	SER. No.	DATE	SCALE
CHKD.			7231	26 11/86	1:10
DSND.		P.T.M.	DRG. NO. 526/49		



ANCHOR SPAN



NAVIGATION SPAN

	STRESSING FROM CENTRAL HINGE SIDE					STRESSING FROM ANCHOR SPAN SIDE					
	CABLE MK.	EXTENSION BASED ON Es = 1.95x10⁶ kg/cm²		EXTENSION BASED ON ACTUAL VALUE OF Es =		CABLE MK.	EXTENSION BASED ON Es = 1.95x10⁶ kg/cm²		EXTENSION BASED ON ACTUAL VALUE OF Es =		
	DECK/WEB CABLES	EXTENSION Δt IN mm	GAUGE PRESSURE Kg/Cm²	EXTENSION Δt IN mm	GAUGE PRESSURE Kg/Cm²	DECK/WEB CABLES	EXTENSION Δt IN mm	GAUGE PRESSURE Kg/Cm²	EXTENSION Δt IN mm	GAUGE PRESSURE Kg/Cm²	REMARK
BLES OVER VIGATION PIER TO BE STRESSED BEFORE CASTING CONTINUITY UNIT 39-40.	171	69	615			171	68	610			STRESSED FROM AXIS 17&23.
	161	83	600			161	84	600			STRESSED FROM AXIS 16&24.
	151	99	595			151	101	595			STRESSED FROM AXIS 15&25
	* 172	—	—			* 172	139	585			STRESSED FROM AXIS 25.
	141	116	585			141	118	590			STRESSED FROM AXIS 14&26.
	131	132	585			131	132	585			STRESSED FROM AXIS 13&27.
	* 162	—	—			* 162	185	575			STRESSED FROM AXIS 27.
	121	152	580			121	193	580			STRESSED FROM AXIS 12&28
	* 152	—	—			* 152	223	575			STRESSED FROM AXIS 28.
	111	167	580			111	167	570			STRESSED FROM AXIS 11&29
	* 142	—	—			* 142	258	570			STRESSED FROM AXIS 29
	101	185	575			101	185	575			STRESSED FROM AXIS 10&30
	* 132	—	—			* 132	295	570			STRESSED FROM AXIS 30.
	91	198	570			91	201	575			STRESSED FROM AXIS 9&31.
	* 122	—	—			* 122	329	570			STRESSED FROM AXIS 31.
	81	222	570			81	224	575			STRESSED FROM AXIS 8&32.
	71	255	570			71	286	565			STRESSED FROM AXIS 7&33.
	61	250	570			61	252	570			STRESSED FROM AXIS 6&34
	51	267	570			51	270	565			STRESSED FROM AXIS 5&35.
	41	280	570			41	280	565			STRESSED FROM AXIS 4&36.
	31	297	565			31	301	570			STRESSED FROM AXIS 3&37.
	21	308	550			21	314	570			STRESSED FROM AXIS 2&38.
	102	174	580			102	328	530			STRESSED FROM AXIS 10&39.
CABLES OVER ANCHOR PIER TO BE STRESSED BEFORE CASTING CONTINUITY UNIT 39-40.	STRESSING FROM ANCHOR SPAN SIDE					STRESSING FROM SUSPENDED SPAN SIDE					
	481	43	610			481	44	610			STRESSED FROM AXIS 42&48
	491	81	595			491	82	595			" " " 40&50
	501	80	595			501	80	595			" " " 40&50
CABLES OVER NAVIGATION PIER TO BE STRESSED AFTER CASTING CONTINUITY UNIT 39-40.	STRESSING FROM CENTRAL HINGE SIDE					STRESSING FROM ANCHOR SPAN SIDE					
	92	183	575			92	366	565			STRESSED FROM AXIS 9&41
	82	198	550			82	381	565			" " " 8&42
	72	216	570			72	380	565			" " " 7&42
	62	230	565			62	413	565			" " " 6&47
	52	244	570			52	407	555			" " " 5&47
	42	257	570			42	417	550			" " " 4&48
	32	277	565			32	441	560			" " " 3&49
	1A2	317	545			1A2	473	560			" " " 1A&52
	1A3	342	540			1A3	487	560			" " " 1A&52
	1A1	312	540			1A1	465	560			" " " 1A&52
	1A5	312	495			1A5	447	560			" " " 1A&50
	1A4	346	550			1A4	224	570			" " " 1A&33
	11	330	565			11	331	560			" " " 1&39
						S1	74	600			STRESSED FROM AXIS 4 ONE END STRESSED CABLES & DEAD END AT AXIS 1A
CABLES OVER NCHOR PIER TO E STRESSED FTER CASTING ONTINUITY NIT 39-40.	STRESSING FROM ANCHOR SPAN SIDE					STRESSING FROM SUSPENDED SPAN SIDE					
	482	116	585			482	40	615			STRESSED FROM AXIS 38&48
	492	132	580			492	57	575			" " " 37&49
	502	172	575			502	77	580			" " " 35&50
	521	142	540			521	100	585			" " " 36&52
	522	190	575			522	96	565			" " " 34&52

* DENOTES CABLES STRESSED FROM ONE END ONLY.

NOTES:

1) ~~THIS DRAWING SHALL BE READ IN CONJUNCTION WITH~~ LATEST REVISION OF OTHER APPROVED DRGS.
2) GRADE OF CONCRETE FOR SUPERSRUCTURE OF NAVIGATION & ANCHOR SPANS------M450.
3) AT THE TIME OF STRESSING CONCRETE IN ANCHORAGE ZONE SHALL HAVE CUBE STRENGTH OF 350 KG/CM².
4) FREYSSINET JACK MODEL S6 HAVING EFFECTIVE AREA OF TENSIONING PISTON OF 300 cm² IS TO BE USED. (EFFICENCY = 96%).
5) ALL CABLES CONSIST OF 12 Nos. OF 12.7 mm STRANDS CONFORMING TO I.S. 6006-1983.
6) THE EXTENSION MEASUREMENTS RECORDED HERE ARE BASED ON MODULUS OF ELASTICITY OF STEEL (Es) OF 1.95x10⁶ Kg/cm² IN CASE THE ACTUAL VALUE OF Es IS DIFFERENT, APPROPRIATE CORRECTION SHALL BE MADE AS PER THE FOLLOWING FORMULA.

MODIFIED DESIGNED EXTENSION ΔM (IN MM) $= \frac{1.95\times10^6}{E_{sa}} \times \Delta t$

WHERE

E_{sa}: ACTUAL MODULUS OF ELASTICITY OF STEEL IN KG/cm²

Δt: DESIGNED EXTENSION IN mm AS GIVEN IT THE TABLE.

7) **GENERAL NOTES ON STRESSING:**
- THE CABLES ARE TO BE STRESSED IN THE ORDER IN WHICH THEY ARE LISTED IN THE TABLE.
- THE CABLES SHALL BE MARKED 400 mm FROM THE FACE OF ANCHORAGE FOR RECORDING EXTENSION AFTER REMOVAL OF INITIAL SLACKNESS. (ALSO REFER TO NOTE NO. 10).
- CABLE EXTENSIONS SHOWN IN THE SCHEDULE ARE TOTAL EXTENSIONS ACCOUNTING FOR 3 mm FREE EXTENSION BETWEEN FACE OF ANCHORAGE AND GAUGE MARK AS ALSO 6 mm DRAW-IN AT STRESSING END. NO FURTHER ALLOWANCE NEED BE MADE FOR SLIP/OR DRAW-IN. OTHER THAN 6+3 = 9 mm REFERRED ABOVE.

8) **STRESSING OF CABLES:**

i) CABLES SHALL BE STRESSED FROM ONE END OR SIMULTANEOUSLY FROM BOTH ENDS AS INDICATED IN THE TABLE.

ii) NORMALLY THE SPECIFIED EXTENSIONS SHOULD BE OBTAINED AT THE SPECIFIED GAUGE PRESSURE. IN CASE THE SPECIFIED EXTENSIONS ARE NOT OBTAINED AT OR BELOW THE SPECIFIED GAUGE PRESSURE, THE STRESSING SHOULD BE CONTINUED TILL THE SPECIFIED EXTENSIONS ARE OBTAINED PROVIDED THE JACK GAUGE PRESSURES DO NOT EXCEED 625 KG/CM².

iii) IN CASE THE SPECIFIED EXTENSIONS ARE OBTAINED AT A LOWER GAUGE PRESSURE THAN SPECIFIED, THE STRESSING SHOULD BE CONTINUED TILL THE SPECIFIED GAUGE PRESSURE IS REACHED PROVIDED THE ADDITIONAL EXTENSION IS NOT MORE THAN 5% OF THE SPECIFIED EXTENSIONS.

iv) IF THE REQUIRED EXTENSION AT ANY ONE END OF A PARTICULAR CABLE IS NOT OBTAINED DESPITE THE GAUGE PRESSURE REACHING 625 KG/cm² THEN THE BALANCE EXTENSION MAY BE OBTAINED FROM THE OTHER END OF THIS CABLE, PROVIDED THE ABOVE GAUGE PRESSURE IS NOT EXCEEDED AT THAT END. HOW EVER THE EXTENSIONS AT EACH END DURING STRESSING OPERATIONS SHOULD BE EQUAL AS FAR AS POSSIBLE TO THOSE SPECIFIED IN THE TABLES. THIS CAN BE ACHIEVED BY "SEE-SAW" STRESSING AND A CONTINUOUS CO-ORDINATION OF THE STRESSING OPERATIONS AT EITHER END OF THE CABLE.

v) IF THE SPECIFIED TOTAL EXTENSION OF ANY CABLE IS NOT OBTAINED DESPITE THE GAUGE PRESSURE REACHING THE MAXIMUM LIMIT OF 625 KG/CM² BUT IF THE SHORT-FALL IN THE EXTENSION IS NOT MORE THAN 10% THE CABLE SHALL BE LOCKED. THE SHORT-FALL SHALL THEN BE MADE UP IN ADJACENT CABLES, SUBJECT TO THE GAUGE PRESSURE NOT EXCEEDING 625 KG/cm².

vi) IF THE SHORT FALL IN TOTAL EXTENSION OF ANY CABLE EXCEEDS 10% THEN THE CABLE SHOULD BE RELEASED COMPLETELY AND RESTRESSED. THE PARTICULARS OF SUCH CABLES AS WELL AS PARTICULARS OF THOSE WITH EXCESSIVE SLIP SHALL BE REPORTED TO CE(PBP) FOR FURTHER INSTRUCTION.

vii) LOCKING PRESSURE SHALL GENERALLY BE 300 Kg/Cm².

viii) THE EXTENSIONS AT THE STRESSING ENDS FOR A GIVEN CABLE MAY NOT BE IDENTICAL AS IN THE CASE FOR SYMMETRICAL CABLES. THE STRESSING OPERATION WILL THEREFORE HAVE TO BE PROPERLY CO-ORDINATED. DURING EACH STAGE OF PRESTRESSING THE STRESSING AT EACH END SHALL BE SYNCHRONIZED IN SUCH A WAY SO THAT EXTENSION AT BOTH ENDS ARE MORE OR LESS IN THE SAME PROPORTION AS THAT OF THE DESIGNED EXTENSION AT EACH END GIVEN IN THE TABLE. IT SHOULD ALSO BE ENSURED AT FREQUENT INTERVALS THAT THE RATIO OF ACTUAL EXTENSIONS/PRESSURE AT EACH END OF THE CABLE FAIRLY TALLIES WITH THE RATIO OF DESIGNED EXTENSION/PRESSURE AT EACH END GIVEN IN THE TABLE.

9) THE GAUGE MARK SHALL BE RECHECKED JUST BEFORE THE NEXT UNIT IS CAST OR 24 HOURS AFTER ANCHORING WHICHEVER IS EARLIER TO GUARD AGAINST POSSIBILITY OF SLOW SLIPPING.

10) THE GAUGE MARK FOR MEASUREMENT OF EXTENSION SHALL BE MADE WHEN GAUGE PRESSURE IS 100 KG/cm². THE INITIAL EXTENSION UPTO GAUGE PRESSURE OF 100 KG/cm² SHALL BE TAKEN EQUAL TO THE EXTENSION OBTAINED BETWEEN GAUGE PRESSURE OF 100 KG/cm² AND 200 KG/cm².

11) **DUMMY CABLES:**

i) THE STRESSING OF DUMMY CABLES SHALL BE DECIDED ONLY AFTER EXAMINING THE CUMULATIVE RESULT OF EARLIER STRESSED CABLES UP TO THAT SECTION. ONLY IN THE CASE OF RESULTS SHOWING A TOTAL SHORT FALL OF ONE WHOLE CABLE, A FULL DUMMY CABLE SHALL BE STRESSED, OTHERWISE PARTIAL STRESSING OF THE CABLE SHALL BE TAKEN UP IN THE LAST DUMMY CABLE MARKED D1, IF REQUIRED.

ii) IN AS MUCH AS A DUMMY CABLE IF REQUIRED AT A GIVEN SECTION NEEDS TO BE STRESSED BEFORE PROCEEDING WITH THE CASTING OF THE NEXT FORWARD UNIT, THE CLEARANCE FOR THE SAME SHALL BE SOUGHT FROM CE(PBP) BEFORE PROCEEDING FURTHER.

iii) THE EXTENSIONS OF DUMMY CABLES WILL BE FURNISHED IF THE SAME ARE FOUND NECESSARY.

12) GROUTING :-

CABLE DUCT SHALL BE FLUSHED WITH WATER UNDER PRESSURE NOT EXCEEDING 5 Kg/cm² PRIOR TO GROUTING TO DETECT ANY LEAKAGE AND/OR INTERCOMMUNICATION BETWEEN ADJOINING CABLE DUCTS.

13) GAUGE PRESSURE:

THE MAXIMUM GAUGE PRESSURE OF 625 Kg/cm² MENTIONED IN NOTE No. 8 ii. CORRESPONDS TO STRESS IN STEEL EQUAL TO 149.8 kg/mm² WHICH IS 80% OF BREAKING STRESS OF 187.3 Kg./mm².

$\frac{\text{STRESS IN CABLE}}{(\text{Kg/mm}^2)}$ $J = 0.24G$

WHERE G: GAUGE PRESSURE IN Kg/cm².

14) CABLES WILL BE THREADED JUST BEFORE IT IS ABSOLUTELY NECESSARY TO INSERT THEM. GENERALLY THE FOLLOWING PROCEDURE WILL BE ADOPTED FOR THREADING OF THE CABLES.

i) IN CASE OF DROOPING CABLE THE CABLE WILL BE THREADED ONE UNIT PRIOR TO THE COMMENCEMENT OF DROOPING OF CABLE.

ii) IN CASE OF ONE END STRESSED CABLES THE CABLE WILL BE THREADED BEFORE CASTING OF THE UNIT IN WHICH THE DEAD END OF THE CABLE IS LOCATED.

iii) THE DECK CABLE STRESSED FROM BOTH ENDS WILL BE THREADED ONE UNIT PRIOR TO CASTING OF THE UNIT IN WHICH THE ANCHORAGES FOR THE CABLE UNDER CONSIDERATION ARE LOCATED.

15) THE CABLE WILL BE GIVEN CEMENT WASH PRIOR TO ITS THREADING.

16) STAGE STRESSING HAS TO BE DONE TO ACHIEVE THE ELONGATION IN CABLES IF THE REQUIRED ELONGATION EXCEEDS THE STROKE LENGTH (300 MM) OF THE STRESSING JACK.

17) JACK SLIP LOSS UPTO 6 mm HAS BEEN ACCOUNTED FOR IN THE DESIGN. IN CASE OF SLIP MORE THAN 6 mm, DESIGN MAY BE REVIEWED.

ORDER OF STRESSING SECOND STAGE CABLES:

(A). ORDER OF STRESSING CABLES ON MANDAPAM SIDE (ie. on P54 & P55)

1). Cable MK. 502 after casting continuity unit 39-40.
2). Cable MK. 11 after casting unit 2-1.
3). Cables MK. 1A1, 1A2, 1A3, 482, 492, 521 and 522 to be stressed before launching of suspended span beams on Mandapam side is commenced.
4). Cables MK. 1A4, 1A5, S1, 32, 42, 52, 62, 72, 82 and 92 can be stressed after or concurrently with launching operations depending on site convenience.

However plese note that cabes 1A4, 1A5 & S1 have to be stressed before casting unit 1A-0 partly/fully.

(B). ORDER OF STRESSING CABLES ON PAMBAN SIDE (ie. on P56 & P57).

1). Cable MK. 502 after casting continuity unit 39-40.
2). Cable MK. 11 after casting unit 2-1.
3). Cables MK. S1, 1A1, 1A2, 1A3, 1A4, 1A5, 42, 32, 482, 492, 521, 522 to be stressed before the launching truss crosses the gap in unit 1A-0-1A and comes on Pamban side.
4). Cables MK. 52, 62, 72, 82 and 92 are to be stressed only after the launching truss is in its final position to launch suspended span beams on Pamban side. These cables can be stressed concurrently with launching of beams on Pamban side.

NOTE: Concreting of unit 50-52 can be commenced before stressing of cable MK. 502, as it is supported on staging.

DATE	REV.	PARTICULARS	BY.	CHKD
14/7/88	H	NOTE UNDER 'ORDER OF STRESSING SECOND STAGE CABLES' ALTERED.		
16-6-88	G	DRG. MODIFIED AS PER DEPT'S LETTER NO. PBP No. II DN. MANDAPAM CAMP. PROC. No. Rc. 70/84/DO DATED DATED 3-6-88		RB
28-4-88	F	ANCHORAGE POSITIONS OF CABLE MKS. 491 & 501 & THEIR GAUGE PRESSURES & EXTENSIONS ALTERED GAUGE PRESSURES & EXTENSIONS FOR II-STAGE CABLES ADDED		
2-12-87	E	Gauge pressure & extension for cable mk. 481 revised.		
9-11-87	D	EXTENSIONS & GAUGE PRESSURES FOR STAGE-II CABLES OVER ANCHOR PIER ADDED		
8-9-87	C	ANCHORAGE POSITION MODIFIED AS PER DRG. NO 526/480 CABLE EXTENSIONS & GAUGE PRESSURE FROM CABLE NO. 81 TO 102 ADDED.	Sanjay	
28.5.87	B	CABLE EXTENSIONS AND GAUGE PRESSURES MODIFIED.	Sanjay	RB
9/3/87	A	Changes as per Dept.'s letter no 4886/B3/RC-85 dt 24/3/87		

REVISIONS

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT
DIVISIONAL ENGINEER (H) PAMBAN.
BRIDGE PROJECT DIVISION No. II

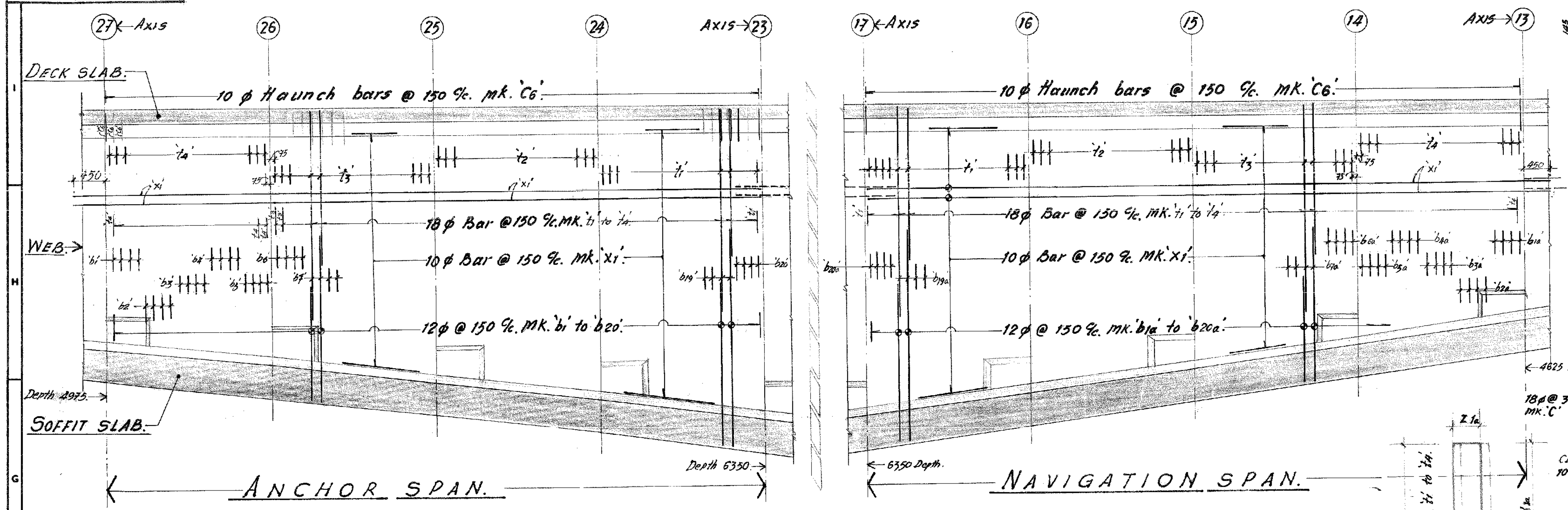
PROJECT.
BALANCE WORK OF PAMBAN BRIDGE

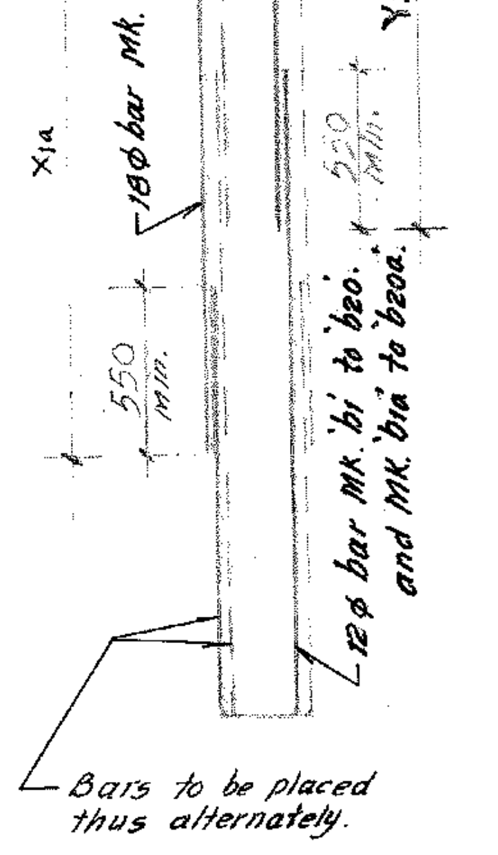
TITLE
PRESTRESSING SCHEDULE OF BOX GIRDER.
(NAVIGATION AND ANCHOR SPANS.)

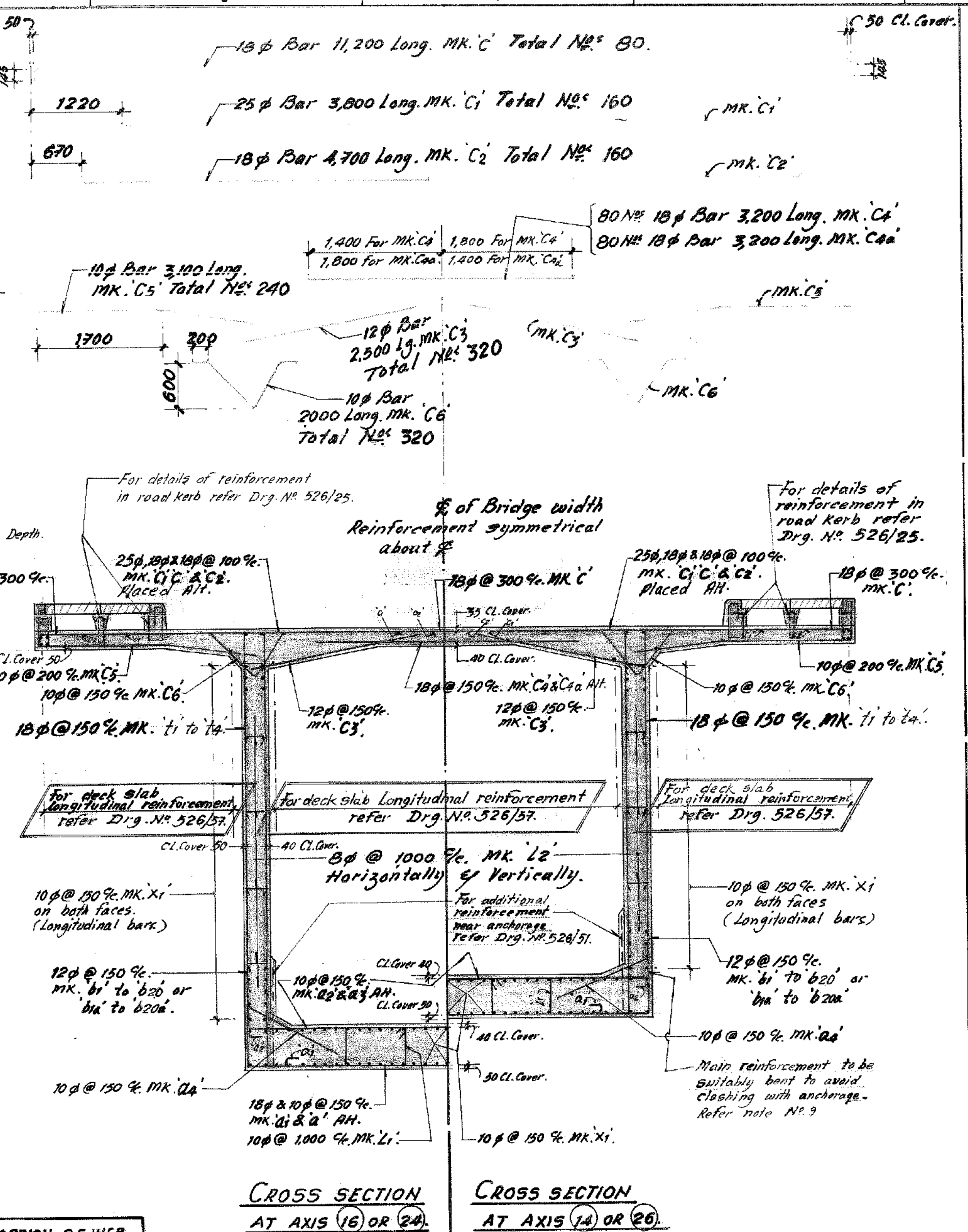
DRG. NO. AS PER DEPT.
CE (H) PBP 36/88

APPROVED FOR CONSTRUCTION BY THE DIV. ENGINEER'S (H) PBP No. II DN. MANDAPAM CAMP PROC. No. RC. 70/84/DO DATED 3/6/88.

DRN	R.M.K./S.M.N.		SCALE	—
CHKD		T.M.	SER. NO.	7353
DSND			DATE	23RD JAN. 1987
CHKD		P.T.M.	DRG. No.	526/52

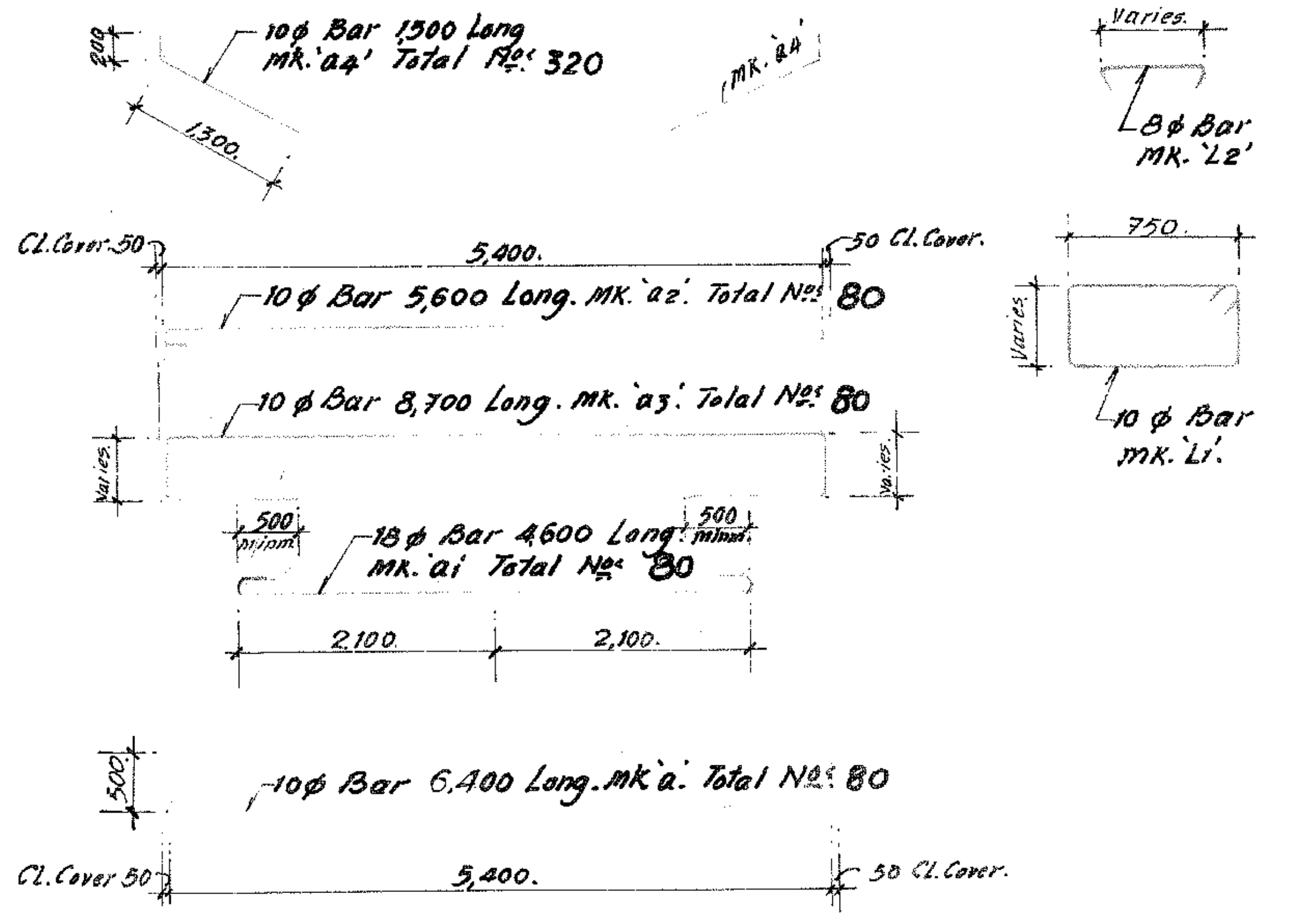

27 Axis
26
25
24
Axis 23
17 Axis
16
15
14
Axis 13
DECK SLAB
WEB
SOFFIT SLAB
10 φ Haunch bars @ 150 %. MK. 'C6'
18 φ Bar @ 150 %. MK. 't1' to 't4'
10 φ Bar @ 150 %. MK. 'X1'
12 φ @ 150 %. MK. 'b1' to 'b20'
12 φ @ 150 %. mk. 'b1a' to 'b20a'
Depth 2925
Depth 6350
6350 Depth
4625 Depth
450
ANCHOR SPAN.
NAVIGATION SPAN.


Z 1a
18 φ bar mk. 't1' to 't4'
X1a
Y1a
550 min.
12 φ bar mk. 'b1' to 'b20' and mk. 'b1a' to 'b20a'
Bars to be placed thus alternately.


Cl. Cover. 50
50 Cl. Cover.
18 φ Bar 11,200 Long. MK. 'C' Total Nos 80.
25 φ Bar 3,800 Long. MK. 'C1' Total Nos 160
18 φ Bar 4,700 Long. MK. 'C2' Total Nos 160
1220
670
MK. 'C1'
mk. 'C2'
80 Nos 18 φ Bar 3,200 Long. MK. 'C4'
80 Nos 18 φ Bar 3,200 Long. MK. 'C4a'
1,400 For MK. 'C4' / 1,800 For MK. 'C4'
1,800 for MK. 'C4a' / 1,400 For MK. 'C4a'
10 φ Bar 3,100 Long. MK. 'C5' Total Nos 240
MK. 'C5'
1700
200
600
12 φ Bar 2,500 lg. MK. 'C3' Total Nos 320
mk. 'C3'
10 φ Bar 2000 Long. mk. 'C6' Total Nos 320
MK. 'C6'
For details of reinforcement in road kerb refer Drg. No 526/25.
℄ of Bridge width Reinforcement symmetrical about ℄
18 φ @ 300 %. MK. 'C'
25 φ, 18 φ & 18 φ @ 100 %. MK. 'C1' 'C' & 'C2'. Placed Alt.
Cl. Cover 50
10 φ @ 200 %. MK. 'C5'.
10 φ @ 150 %. MK. 'C6'.
18 φ @ 150 %. MK. 't1' to 't4'.
35 Cl. Cover
40 Cl. Cover.
12 φ @ 150 %. mk. 'C3'.
18 φ @ 150 %. MK. 'C4' & 'C4a' Alt.
For deck slab longitudinal reinforcement refer Drg. No 526/57.
Cl. Cover 50
40 Cl. Cover
8 φ @ 1000 %. MK. 'L2' Horizontally & Vertically.
10 φ @ 150 %. MK. 'X1' on both faces. (Longitudinal bars)
For additional reinforcement near anchorage refer Drg. No 526/51.
12 φ @ 150 %. mk. 'b1' to 'b20' or 'b1a' to 'b20a'.
Cl. Cover 40
10 φ @ 150 %. mk. 'a2' & 'a3' Alt.
Cl. Cover 50
40 Cl. Cover.
50 Cl. Cover.
10 φ @ 150 %. mk. 'a4'
18 φ & 10 φ @ 150 %. mk. 'a1' & 'a' Alt.
10 φ @ 1,000 %. mk. 'L1'.
10 φ @ 150 %. MK. 'X1'.
Main reinforcement to be suitably bent to avoid clashing with anchorage. Refer note No 9

CROSS SECTION AT AXIS (16) OR (24).

CROSS SECTION AT AXIS (14) OR (26).


10 φ Bar 1500 Long mk. 'a4' Total Nos 320
200
1300
mk. 'a4'
Varies.
8 φ Bar MK. 'L2'
750
Varies
10 φ Bar mk. 'L1'.
Cl. Cover 50
5,400.
50 Cl. Cover.
10 φ Bar 5,600 Long. MK. 'a2'. Total Nos 80
10 φ Bar 8,700 Long. mk. 'a3'. Total Nos 80
Varies.
500 min.
18 φ Bar 4600 Long. MK. 'a1' Total Nos 80
2,100
2,100.
500.
10 φ Bar 6,400 Long. mk. 'a'. Total Nos 80
Cl. Cover 50
5,400.
50 Cl. Cover.

ELEVATION SHOWING WEB REINFORCEMENT ONLY.

SCHEDULE OF REINFORCEMENT IN WEB FROM AXIS (23) TO (27).

SUBJECT TO SITE CHECK. (FOR BOTTOM PORTION)

Bar MK.	Bar Dia.	Dim. X.	Dim Y.	Dim. Z.	Total length of bar.	Total Nos of bar.	Remarks.
'b1'	12φ	2,400	1,700	210	4,310.	4×2	Axis (27)–(26)
'b2'	"	2,450	1,750	"	4,410.	4×2	
'b3'	"	2,525	1,825	"	4,560.	4×2	
'b4'	"	2,575	1,875	"	4,660.	4×2	
'b5'	"	2,625	1,925	"	4,760.	4×2	
'b6'	"	2,500	1,800	210	4,510.	4×2	Axis (26)–(25)
'b7'	"	2,575	1,875	"	4,660.	4×2	
'b8'	"	2,650	1,950	"	4,810.	4×2	
'b9'	"	2,725	2,025	"	4,960.	4×2	
'b10'	"	2,775	2,075	"	5,160.	4×2	
'b11'	"	2,650	1,950	210.	4,810.	4×2	Axis (25)–(24)
'b12'	"	2,725	2,025	"	4,960.	4×2	
'b13'	"	2,775	2,075	"	5,060.	4×2	
'b14'	"	2,850	2,150	"	5,210.	4×2	
'b15'	"	2,900	2,200	"	5,310.	4×2	
'b16'	"	2,800	2,100	270	5,170.	4×2	Axis (24)–(23)
'b17'	"	2,875	2,175	"	5,320.	4×2	
'b18'	"	2,950	2,250	"	5,470.	4×2	
'b19'	"	3,025	2,325	"	5,620.	4×2	
'b20'	"	3,100	2,400	"	5,770.	4×2	

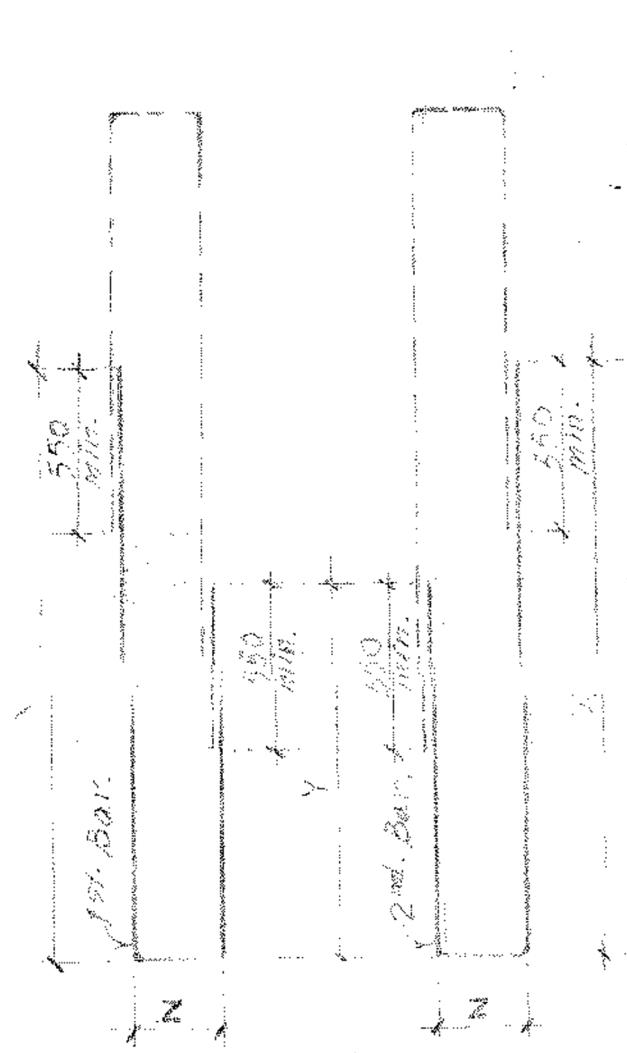
SCHEDULE OF REINFORCEMENT IN WEB FROM AXIS (13) TO (17).

SUBJECT TO SITE CHECK. (FOR BOTTOM PORTION.)

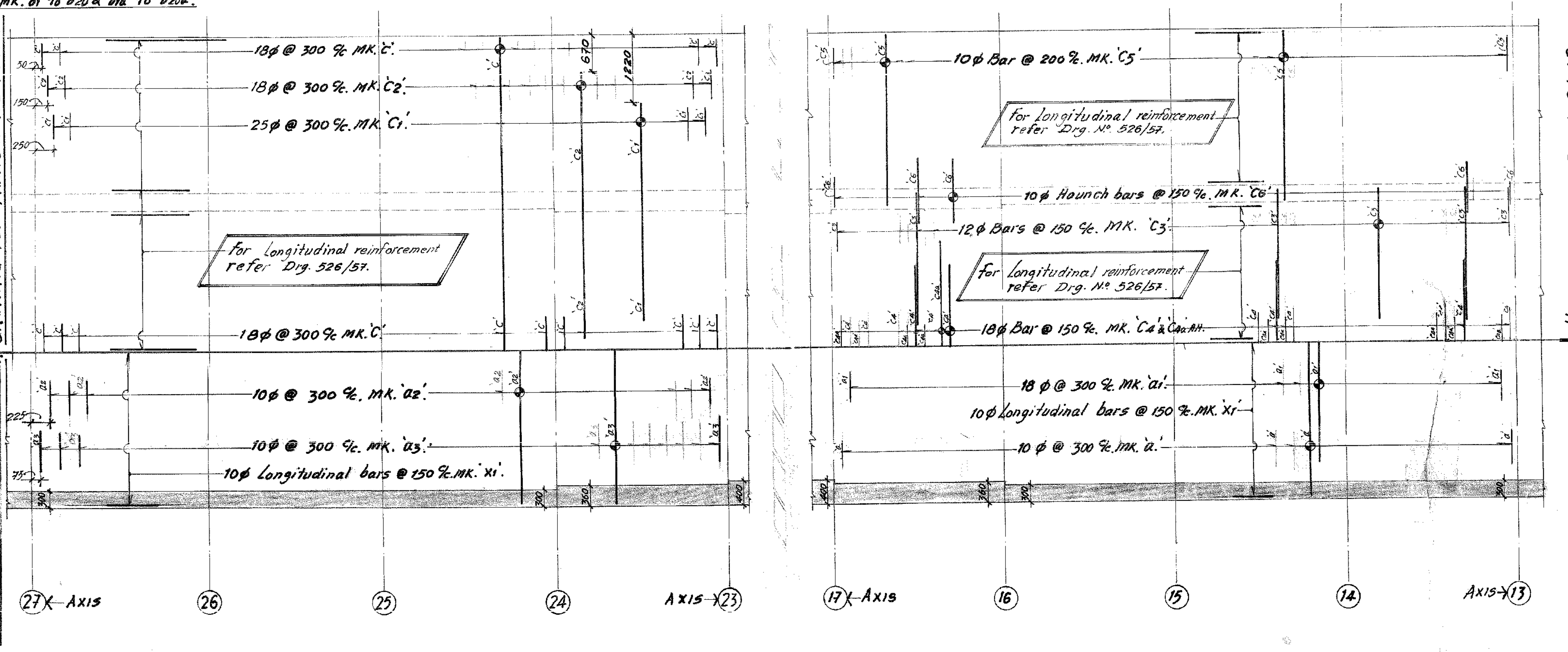
Bar MK.	Bar Dia.	Dim X.	Dim Y.	Dim. Z	Total length of bar.	Total Nos of bar.	Remarks.
'b1a'	12φ	2,075	1,375	210	3,660	4×2	Axis (13)–(14)
'b2a'	"	2,150	1,450	"	3,810	4×2	
'b3a'	"	2,250	1,550	"	4,010	4×2	
'b4a'	"	2,325	1,625	"	4,160	4×2	
'b5a'	"	2,400	1,700	"	4,310	4×2	
'b6a'	"	2,300	1,600	210	4,110	4×2	Axis (14)–(15)
'b7a'	"	2,375	1,675	"	4,260	4×2	
'b8a'	"	2,475	1,775	"	4,460	4×2	
'b9a'	"	2,550	1,850	"	4,610	4×2	
'b10a'	"	2,625	1,925	"	4,760	4×2	
'b11a'	"	2,525	1,825	210	4,560	4×2	Axis (15)–(16)
'b12a'	"	2,600	1,900	"	4,710	4×2	
'b13a'	"	2,700	2,000	"	4,910	4×2	
'b14a'	"	2,775	2,075	"	5,060	4×2	
'b15a'	"	2,850	2,150	"	5,210	4×2	
'b16a'	"	2,770	2,050	270	5,090	4×2	Axis 16 – 17
'b17a'	"	2,850	2,150	"	5,270	4×2	
'b18a'	"	2,925	2,225	"	5,420	4×2	
'b19a'	"	3,025	2,325	"	5,620	4×2	
'b20a'	"	3,100	2,400	"	5,770	4×2	

SCHEDULE OF REINF. IN TOP PORTION OF WEB.

Bar MK.	Bar Dia.	Dim. X1a	Dim. Y1a	Dim. Z1a	Total length of bar.	Total Nos of bar.
't1'	18	4,500	3,750	270	8,520	20×4
't2'	"	4,300	3,550	210	8,060	20×4
't3'	"	4,100	3,350	210	7,660	20×4
't4'	"	3,900	3,150	210	7,260	20×4


550 min.
X
Y
Z
1st Bar
2nd Bar

ARRANGEMENT OF 12φ BAR IN WEB FROM MK. 'b1' to 'b20' & 'b1a' to 'b20a'.


18 φ @ 300 %. MK. 'C'.
18 φ @ 300 %. MK. 'C2'.
25 φ @ 300 %. MK. 'C1'.
670
1220
For Longitudinal reinforcement refer Drg. 526/57.
18 φ @ 300 %. MK. 'C'
10 φ Bar @ 200 %. MK. 'C5'
For longitudinal reinforcement refer Drg. No 526/57.
10 φ Haunch bars @ 150 %. MK. 'C6'
12 φ Bars @ 150 %. MK. 'C3'.
For longitudinal reinforcement refer Drg. No 526/57.
18 φ Bar @ 150 %. MK. 'C4' & 'C4a' Alt.
10 φ @ 300 %. mk. 'a2'.
10 φ @ 300 %. mk. 'a3'.
10 φ Longitudinal bars @ 150 %. MK. 'X1'.
18 φ @ 300 %. MK. 'a1'.
10 φ Longitudinal bars @ 150 %. MK. 'X1'
10 φ @ 300 %. mk. 'a'.
27 Axis
26
25
24
Axis 23
17 Axis
16
15
14
Axis 13

HALF PLAN OF DECK SLAB SHOWING TOP TRANSVERSE REINF.

HALF PLAN OF SOFFIT SLAB SHOWING TOP REINFORCEMENT.

HALF PLAN OF DECK SLAB SHOWING BOTT. TRANSVERSE REINF.

HALF PLAN OF SOFFIT SLAB SHOWING BOTT. REINFORCEMENT.

SUPPLY IN STOCK LENGTH.

- For 10 φ Bar Mk. 'X1' – 5,250 R. M.
- For 10 φ Bar Mk. 'L1' – 260 R. M.
- For 8 φ Bar Mk. 'L2' – 60 R. M.

QUANTITIES GIVEN FOR ONE ARM ONLY 2-OFF.

NOTES

1). All dimensions are in millimetres unless otherwise stated

2). This drawing shall be read in conjunction with G.I.L. Tender Drg. No 4636 E.

3). This drawing is to be read in conjunction with the latest revisions of the following drawings.

- Drg. No 526/42A Dimensional layout for pierhead & details of const. joints
- Drg. No 526/43B Details of deck slab & soffit slab over navigation piers P55 & P56.
- Drg. No 526/44B. R.C.C. Details of pier head for Pier Nos P55 & P56.
- Drg. Nos 526/46B & 526/48 Details of cable profile.
- Drg. No 526/50 Details of vent pipes.

4). For details of drain spouts refer separate drawing.

5. For construction joint treatment & precautions while concreting refer note in Drg. No 526/42A

6). Concrete grade for decking....... M 450.

7). All reinforcements shown in this drawing are to be of mild steel Grade -I conforming to I.S. 432 - 1966.

8). Reinforcing bars may be joined by lapping----.The minimum lap length shall not be less than 30 'd' where 'd' is the Dia. of bars to be lapped. Such joints shall be staggered & not more than one in every two bars be lapped at the same section.

9). Reinforcement, if required, may be locally bent to avoid clashing with cables / holes left.

10). For R.C. details of box girder between axis (17) to (19) & (21) to (23) refer Drg. No 526/45B

11). For Longitudinal reinforcement in deck slab portion refer DRG. No 526/57.

DATE	REV.	PARTICULARS	BY	CHKD.
8/4/87	B	Changes as per department's letter No 4886/B3/86-95 dated 24/3/87.		
13/3/87	A	Web reinforcement position corrected & other minor changes.		

REVISIONS

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

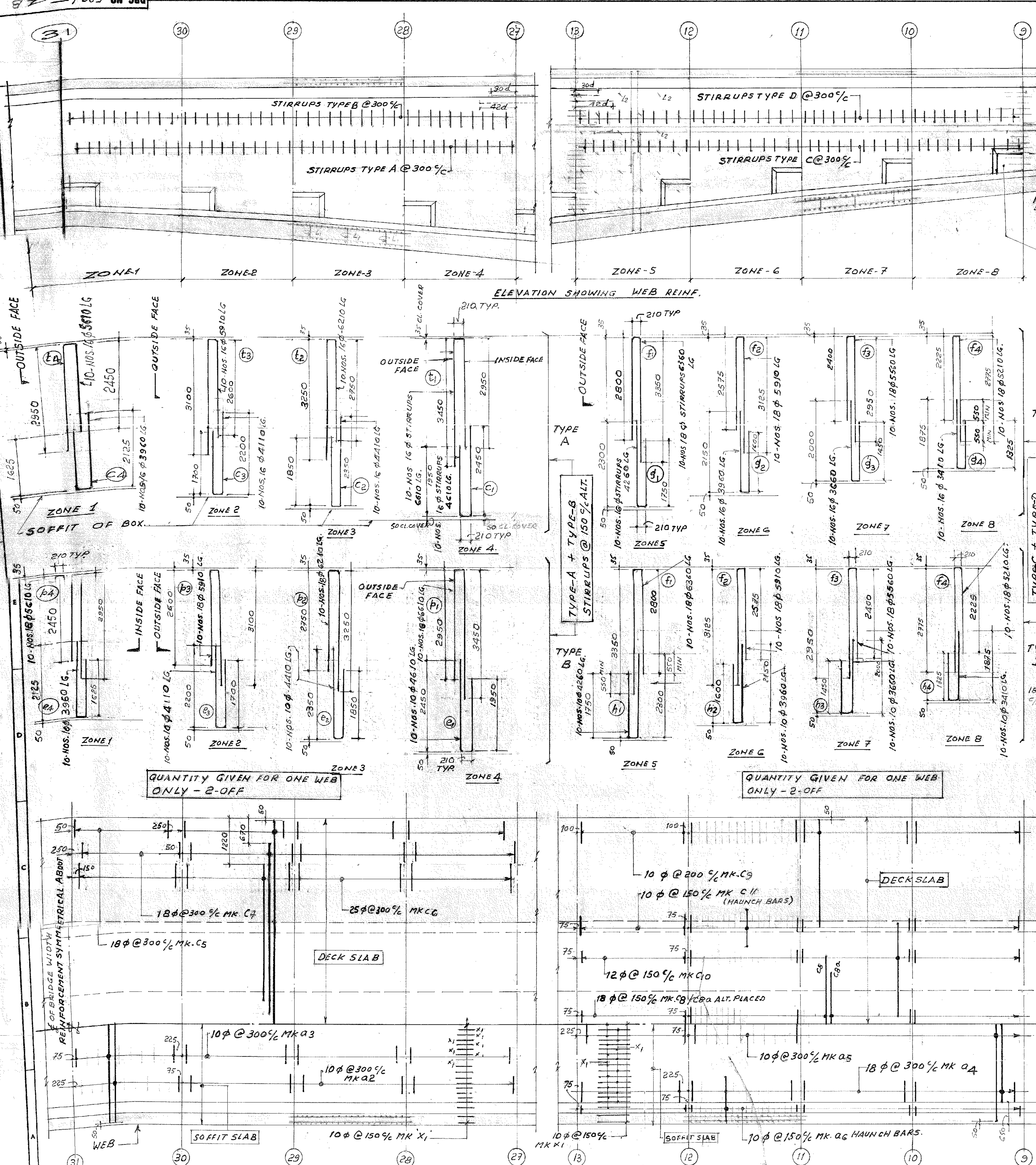
CLIENT DIVISIONAL ENGINEER (H)
PAMBAN BRIDGE PROJECT DIVN. No II.

PROJECT BALANCE WORK OF PAMBAN BRIDGE

TITLE R.C.C. DETAILS OF BOX GIRDER BETWEEN AXIS 23 TO 27 & 13 TO 17 OF NAVIGATION SPANS.

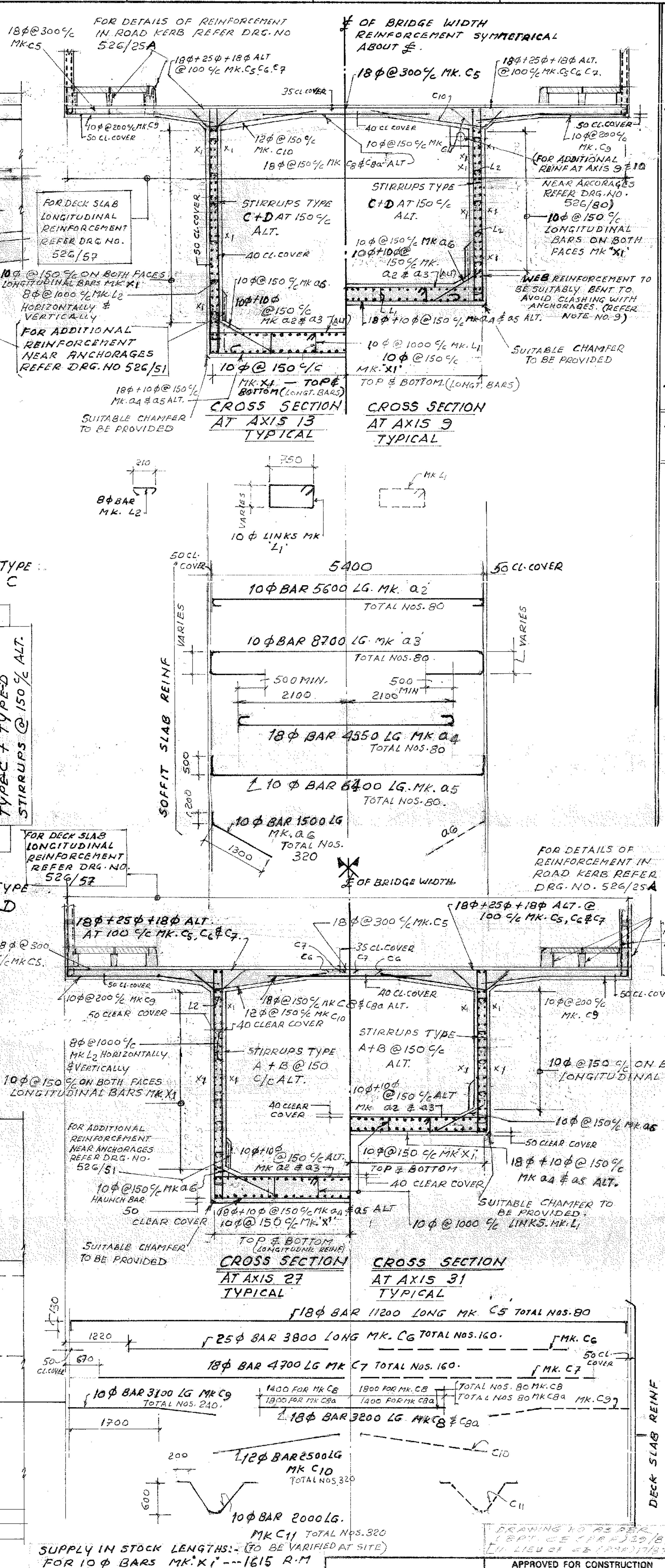
DRN.		SCALE	1:50
CHKD.	T.M.	SERIAL NO.	7359
DSND.		DATE	2/2/87.
CHKD.	P.T.M.	DRG. NO.	526/53B

APPROVED FOR CONSTRUCTION BY


ELEVATION SHOWING WEB REINF.
STIRRUPS TYPE B @ 300 c/c
STIRRUPS TYPE A @ 300 c/c
STIRRUPS TYPE D @ 300 c/c
STIRRUPS TYPE C @ 300 c/c
ZONE-1
ZONE-2
ZONE-3
ZONE-4
ZONE-5
ZONE-6
ZONE-7
ZONE-8
30d
42d
31
30
29
28
27
13
12
11
10
9
OUTSIDE FACE
INSIDE FACE
SOFFIT OF BOX.
TYPE A
TYPE B
TYPE C
TYPE D
TYPE-A + TYPE-B STIRRUPS @ 150 c/c ALT.
TYPE-C + TYPE-D STIRRUPS @ 150 c/c ALT.
QUANTITY GIVEN FOR ONE WEB ONLY - 2-OFF
QUANTITY GIVEN FOR ONE WEB ONLY - 2-OFF
DECK SLAB
SOFFIT SLAB
WEB
℄ OF BRIDGE WIDTH SYMMETRICAL ABOUT ℄
18φ @ 300 c/c MK. C7
25φ @ 300 c/c MK C6
18φ @ 300 c/c MK. C5
10 φ @ 200 c/c MK. C8
10 φ @ 150 c/c MK C11 (HAUNCH BARS)
12φ @ 150 c/c MK C10
18φ @ 150 c/c MK C8/C8a ALT. PLACED
10φ @ 300 c/c MK a3
10φ @ 300 c/c MK a2
10φ @ 300 c/c MK a5
18 φ @ 300 c/c MK a4
10φ @ 150 c/c MK X1
10 φ @ 150 c/c MK. a6 HAUNCH BARS.

PLAN SHOWING TOP REINF. OF DECK & SOFFIT SLABS. (BOTTOM REINFORCEMENT OF DECK & SOFFIT SLABS ARE AS SHOWN FOR AXIS 9 TO 13)

PLAN SHOWING BOTTOM REINF OF DECK & SOFFIT SLABS. (TOP REINFORCEMENT OF DECK & SOFFIT SLABS ARE AS SHOWN FOR AXIS 27 TO 31)


FOR DETAILS OF REINFORCEMENT IN ROAD KERB REFER DRG. NO 526/25A
℄ OF BRIDGE WIDTH REINFORCEMENT SYMMETRICAL ABOUT ℄
18φ @ 300 c/c MK. C5
18φ + 25φ + 18φ ALT. @ 100 c/c MK. C5 C6 C7
FOR DECK SLAB LONGITUDINAL REINFORCEMENT REFER DRG. NO. 526/57
STIRRUPS TYPE C+D AT 150 c/c ALT.
10φ @ 150 c/c ON BOTH FACES LONGITUDINAL BARS MK X1
8φ @ 1000 c/c MK. L2 HORIZONTALLY & VERTICALLY
FOR ADDITIONAL REINFORCEMENT NEAR ANCHORAGES REFER DRG. NO 526/51
WEB REINFORCEMENT TO BE SUITABLY BENT TO AVOID CLASHING WITH ANCHORAGES (REFER NOTE NO. 9)
SUITABLE CHAMFER TO BE PROVIDED
CROSS SECTION AT AXIS 13 TYPICAL
CROSS SECTION AT AXIS 9 TYPICAL
10φ LINKS MK L1
8φ BAR MK. L2
5400
10φ BAR 5600 LG. MK. a2 TOTAL NOS. 80
10φ BAR 8700 LG. MK a3 TOTAL NOS. 80
18φ BAR 4550 LG MK a4 TOTAL NOS. 80
10 φ BAR 6400 LG. MK. a5 TOTAL NOS. 80
10 φ BAR 1500 LG MK. a6 TOTAL NOS. 320
SOFFIT SLAB REINF
℄ OF BRIDGE WIDTH.
STIRRUPS TYPE A+B @ 150 c/c ALT.
CROSS SECTION AT AXIS 27 TYPICAL
CROSS SECTION AT AXIS 31 TYPICAL
18φ BAR 11200 LONG MK C5 TOTAL NOS. 80
25φ BAR 3800 LONG MK. C6 TOTAL NOS. 160.
18φ BAR 4700 LG MK C7 TOTAL NOS. 160.
10φ BAR 3100 LG MK C9 TOTAL NOS. 240.
18φ BAR 3200 LG MK C8 & C8a
12φ BAR 2500 LG MK C10 TOTAL NOS 320
10φ BAR 2000 LG. MK C11 TOTAL NOS. 320
DECK SLAB REINF

SUPPLY IN STOCK LENGTHS:- (TO BE VARIFIED AT SITE)
FOR 10 φ BARS MK. 'X1' ---1615 R.M
+ 2520 R.M
FOR 10φ BARS MK. L1 ---- 130 R.M.
FOR 8φ BARS MK. L2 --- 60 R.M

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED
2. THIS DRG. SHALL BE READ IN CONJUNCTION WITH G.I.L TENDER DRG NO. 4636 E.
3. THIS DRG. IS TO BE READ IN CONJUNCTION WITH THE LATEST REVISIONS OF THE FOLLOWING DRGS.:- IF APPROVED.
   - DRG. NO. 526/31B, DIMENSIONAL LAY OUT OF SUPERSTRUCTURE FOR NAVIGATION SPAN.
   - DRG. NO. 526/46B & 526/48, DETAILS OF CABLE PROFILE.
   - DRG. NO. 526/50 - DETAILS OF VENT PIPES.
   - DRG. NO. 526/41 - CONSTRUCTION STAGES OF BOX DECKING.
   - DRG. NO. 526/53 R.C.C. DETAILS OF BOX GIRDER BETWEEN AXIS 23 TO 27 & 13 TO 17 OF NAVIGATION SPAN.
   - DRG. NO. 526/67 - DETAILS OF PRECAST R.C.C FOOT PATH SLABS.
   - FOR DETAILS OF RAILING REFER SEPARATE DRG.
4. FOR DETAILS OF DRAIN SPOUTS REFER SEPARATE DRG.
5. FOR CONSTRUCTION JOINT TREATMENT & PRECAUTIONS WHILE CONCRETING REFER NOTES IN DRG. NO. 526/42B
6. CONCRETE GRADE FOR DECKING – M450.
7. ALL REINFORCEMENT SHOWN IN THIS DRG. ARE TO BE MILD STEEL GRADE – I CONFORMING TO I.S. 432-1966.
8. REINFORCEMENT BARS MAY BE JOINED BY LAPPING ------ THE MINIMUM LAP LENGTH SHALL NOT BE LESS THAN 30 "d" WHERE "d" IS THE DIA OF BARS TO BE LAPPED. SUCH JOINTS SHALL BE STAGGERED & NOT MORE THAN ONE IN EVERY TWO BARS BE LAPPED AT THE SAME SECTION.
9. REINFORCEMENT, IF REQUIRED, MAY BE LOCALLY BENT TO AVOID CLASHING WITH CABLES/ ANCHORAGES/ HOLES LEFT.
10. FOR THE SAKE OF CLARITY LONGITUDINAL REINFORCEMENT HAS NOT BEEN SHOWN ON THIS DRAWING. FOR DETAILS THEREOF REFER DRG. NO. 526/57.

QUANTITIES GIVEN FOR ONE ARM ONLY. 2-OFF

FOR DETAILS OF STARTER BARS FOR HANDRAIL POSTS REFER DEPARTMENT'S DRG. NO. PBP/26/1981

DATE	REV.	PARTICULARS	BY	CHKD.
1-9-87	B	REVISED AS PER DEPT'S LETTER NO 4886/B3/86-68 DATED 3-2-87		
7-4-87	A	CHANGES AS PER DEPARTMENT'S LETTER NO. 4886/B3/86-45 DATED 24-3-87	HP	

REVISIONS

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT: DIVISIONAL ENGINEER (H) PAMBAN BRIDGE PROJECT (DIVISION NO. II)

PROJECT: BALANCE WORKS OF PAMBAN BRIDGE.

TITLE: R.C.C. DETAILS OF BOX GIRDER BETWEEN AXIS 9 TO 13 & 27 TO 31 OF NAVIGATION SPANS.

DRAWING NO AS PER (DEPT. CE (PBR) 39/87 (IN LIEU OF CE (PBR) 17/87)

APPROVED FOR CONSTRUCTION BY

DRN.	H Pereira		SCALE	1:50
CHKD.		T.M.	SERIAL NO.	7366
DSND.			DATE	5-2-87
CHKD.		P.T.M.	DRG. NO.	526/54 B

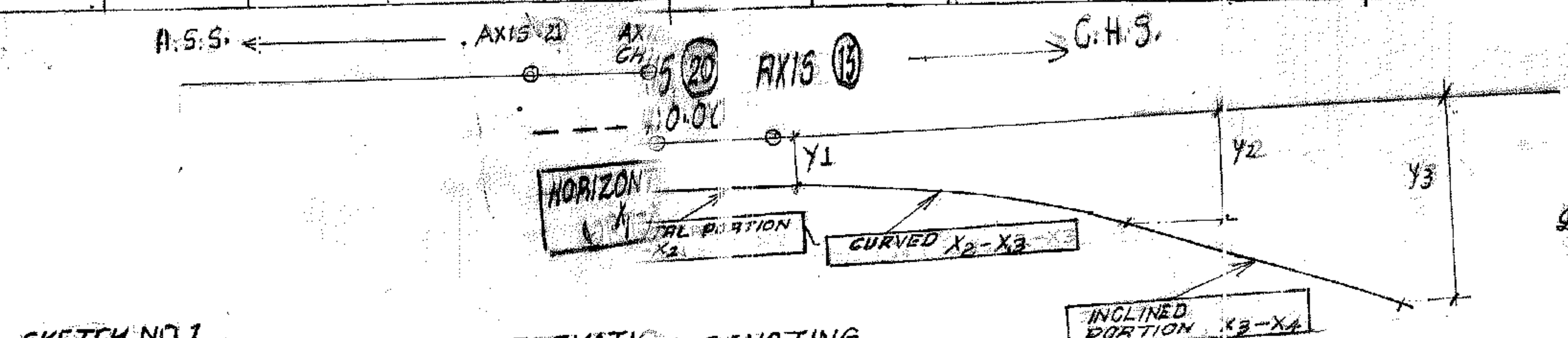
DRG. NO.

GEOMETRY OF PRESTRESSING CABLES IN PLAN AND ELEVATION FOR WEB CABLE N^{os} 91 TO 31

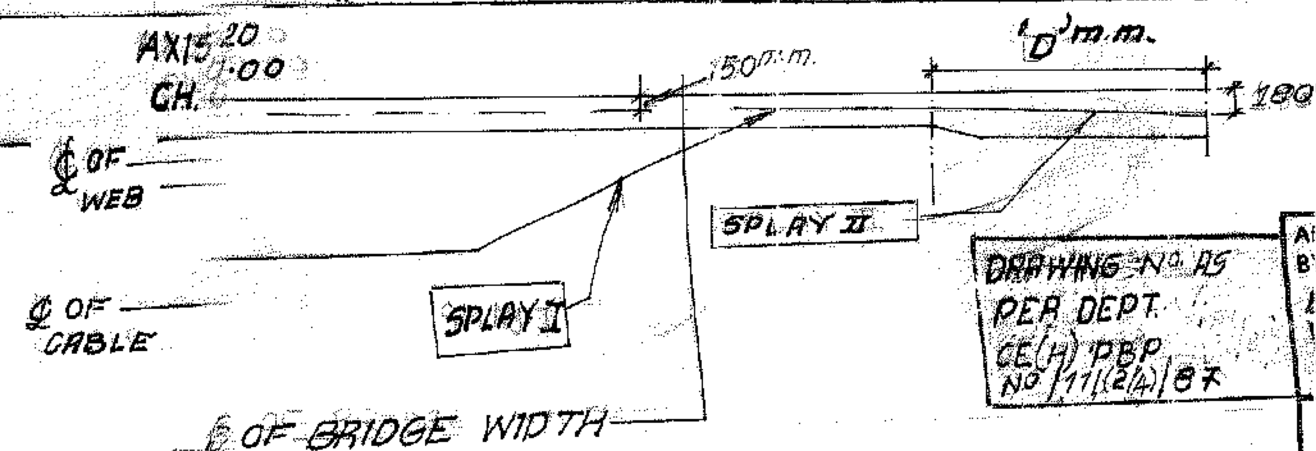
CABLE NO	SIDE CONSIDERED (W.R.T. AXIS 20)	CHAINAGE W.R.T. AXIS 20 AS 0·00 CHAINAGE (IN METRES): LOCATION & CHAINAGE OF HORIZONTAL CURVED AND INCLINED PORTION OF CABLE IN ELEVATION: HORIZONTAL PORTION X_1-X_2		CURVED PORTION X_2-X_3		INCLINED PORTION X_3-X_4		LOCATION, CHAINAGE DETAILS OF SPLAY PORTION OF CABLE, IN PLAN: SPLAY I		DETAILS OF SPLAY I	SPLAY II		DETAILS OF SPLAY II 30$^{m.m.}$ 'D' m.m.	ORDINATES OF SALIENT POINTS (IN MM)			INCLINATION OF HORIZONTAL PORTION OF CABLE WITH HORIZONTAL (IN DEGREES)	VARIATION OF ORDINATE IN INCLINED PORTION PER METRE OF HORIZONTAL DISTANCE (IN m.m.)
		BEGIN	END	BEGIN	END	BEGIN	END	BEGIN	END		BEGIN	END		Y_1	Y_2	Y_3		
91	C.H.S.	AT AXIS 20 CH: 0·00	2·000 FROM AXIS 13 CH 20·80	2·000 FROM AXIS 13 CH·20·80	1·500^{M} FROM AXIS 11 CH.26·30	1·500^{M} FROM AXIS 11 CH. [illegible]·70	AT AXIS 9 CH: 30·80	0·300^{M} FROM AXIS 14 CH. 16·300	1·700^{M} FROM AXIS 13 CH.20·500	250^{mm} IN 4400$^{m.m.}$	AXIS 10 CH. 27·80	AXIS 9 CH. 30·80	30^{mm} IN 3000$^{m.m.}$	220	1285	2925	20	364·0
	A.S.S.	AT AXIS 20 CH. 0·00	1500^{M} FROM AXIS 27 CH. 20·30	1·500^{M} FROM AXIS 27 CH. 20·30	2·450^{M} FROM AXIS 28 CH.24·25	2·450^{M} FROM AXIS 26 CH.16·1	AT AXIS 31 CH. 30·80	0·300^{M} FROM AXIS 26 CH. 16·100	1200^{M} FROM AXIS 27 CH: 20·00	250^{mm} IN 3000$^{m.m.}$	AXIS 30 CH: 27·80	AXIS 31 CH. 30·80	30$^{m.m}$ IN 3000$^{m.m.}$	220	1010	3525	21	383·8
81	C.H.S.	AT AXIS 20 CH:0·00	AT AXIS 11 CH: 24·80	AT AXIS 11 CH: 24·80	0·500^{M} FROM	0·500^{M} AXIS 10 CH:25·30	AT AXIS 8 CH: 33·80	—	—	—	AXIS 9 CH.30·8	AXIS 8 CH. 33·80	30$^{m.m.}$ IN 3000$^{m.m.}$	100	755	2650	19	344·3
	A.S.S.	AT AXIS 20 CH: 0·00	AT 1·500^{M} FROM AXIS 28 CH: 23·30	AT 1·500^{M} FROM AXIS 28 CH: 23·30	2·400^{M} FROM AXIS 29 CH. 27·2	2·400^{M} AXIS 29 CH:27·20	AT AXIS 32 CH: 33·8	—	—	—	AXIS 31 CH: 30·80	AXIS 32 CH. 33·80	30$^{m.m.}$ IN 3000$^{m.m}$	100	920	3325	20	364·0
71	C.H.S.	AT AXIS 20 CH: 0·00	AT AXIS 10 CH: 27·80	AT AXIS 10 CH. 27·80	1·00^{M} FROM AXIS 9 CH 31·80	1·000^{M} FROM AXIS 9 CH. 3[illegible]·8	AT AXIS 7 CH. 36·8	1·800^{M} FROM AXIS 12 CH. 23·60	2·700^{M} FROM AXIS 11 CH.27·50	200$^{m.m}$ IN 3900$^{m.m.}$	AXIS 8 CH. 33·8	AXIS 7 CH. 34·6	30$^{m.m.}$ IN 3000$^{m.m.}$	100	800	2425	18	324·9
	A.S.S.	AT AXIS 20 CH. 0·00	1·500^{M} FROM AXIS 29 CH.:26·300	1·500^{M} FROM AXIS 29 CH: 26·300	2·400^{M} FROM AXIS 30 CH.:30·2	2·400^{M} FROM AXIS 30 CH: 30·200	AT AXIS 33 CH: 36·80	0·300^{M} FROM AXIS 27 CH 13·1	1·200^{M} FROM AXIS 29 CH: 26·00	200$^{m.m.}$ IN 6000$^{m.m.}$	AXIS 32 CH: 33·80	AXIS 33 CH: 36·80	30$^{m.m.}$ in 3000$^{m.m.}$	100	850	3125	19	344·3
61	C.H.S.	AT AXIS 20 CH: 0·00	AT AXIS 9 CH: 30·80	AT AXIS 9 CH:30·80	1·050^{M} FROM AXIS 8 CH: 34·85	1·050^{M} FROM AXIS 8 CH: 3[illegible]·850	AT AXIS 6 CH:30·80	0·300^{M} FROM AXIS 10 CH: 28·100	2·700^{M} FROM AXIS 10 CH. 30·500	136$^{m.m.}$ IN 2400$^{m.m.}$	AXIS 7 CH. 36·60^{M}	AXIS 6 CH.39·80^{M}	30$^{m.m.}$ 3000$^{m.m.}$	100	735	2250	17	305·7
	A.S.S.	AT AXIS 20 CH: 0·00	1500^{M} FROM AXIS 30 CH: 29·300	1·500^{M} FROM AXIS 30 CH: 29·30	2·500^{M} FROM AXIS 31 CH: 32·30	1·500^{M} FROM AXIS 31 CH:3[illegible]·30	AT AXIS 36 CH: 39·80	1·800^{M} FROM AXIS 27 CH: 26·60	1·200^{M} FROM AXIS 30 CH: 29·000	136$^{m.m.}$ IN 2400$^{m.m.}$	AXIS 33 CH: 36·80	AXIS 34 CH: 39·80	30$^{m.m.}$ IN 3000$^{m.m.}$	100	400	2325	18	324·3
51	C.H.S.	AT AXIS 20 CH. 0·00	AT AXIS 8 CH: 33·80	AT AXIS 8 CH: 33·80^{M}	1·800^{M} FROM AXIS 7 CH: 38·30	1·500^{M} FROM AXIS 7 CH: [illegible]8·30	AT AXIS 5 CH. 42·80	1·200^{M} FROM AXIS 10 CH: 29·600	2·700^{M} FROM AXIS 9 CH.33·5	250$^{m.m.}$ IN 3900$^{m.m.}$	AXIS 6 CH. 39·80	AXIS 5 CH: 42·80	30$^{m.m.}$ IN 3000$^{m.m.}$	100	785	2075	16	286·7
	A.S.S.	AT AXIS 20 CH: 0·00	1·50^{M} FROM AXIS 31 CH: 32·30	1·50^{M} FROM AXIS 31 CH. 32·30	2·40^{M} FROM AXIS 32 CH: 36·200	2·400^{M} FROM AXIS 32 CH: 3[illegible]·200	AT AXIS 35 CH: 42·80	2·300^{M} FROM AXIS 29 CH 27·100	1·200^{M} FROM AXIS 31 CH. 32·00	250$^{m.m}$ IN 4900$^{m.m.}$	AXIS 34 CH. 39·80	AXIS 35 CH: 42·80	30$^{m.m.}$ IN 3000$^{m.m.}$	100	705	2725	17	305·7
41	C.H.S.	AT AXIS 20 CH 0·00	AT AXIS 7 CH: 36·850	AT AXIS 7 CH: 36·80	AT 2·100^{M} FROM AXIS CH.41·900	AT 2·100^{M} FROM AXIS CH.4[illegible]·900	AT AXIS 4 CH. 45·8	0·300^{M} FROM AXIS 30 CH. 28·100	2·700^{M} AXIS 8 CH.36·50	5000$^{m.m}$ IN 5400$^{m.m.}$	AXIS 5 CH: 42·80	AXIS 4 CH: 45·8	30$^{m.m.}$ IN 3000$^{m.m.}$	100	980	1350	15	268·0
	A.S.S.	AT AXIS 20 CH: 0·00	1·500^{M} FROM AXIS 32 CH: 35·30^{M}	1·500^{M} FROM AXIS 32 CH: 35·30^{M}	1·700^{M} FROM AXIS 33 CH: 38·500	1·700^{M} FROM AXIS 33 CH. 3[illegible]·50^{M}	AT AXIS 36 CH: 45·80^{M}	·300^{M} FROM AXIS 30 CH: 28·100	1·200^{M} FROM AXIS 32 CH: 35·00	500$^{m.m.}$ TO 6900$^{m.m.}$	AXIS 35 CH. 42·80	AXIS 36 CH. 45·80	30$^{m.m.}$ IN 3000$^{m.m.}$	100	455	2550	16	286·7
31	C.H.S.	AT AXIS 20 CH: 0·00	AT AXIS 6 CH: 39·80	AT AXIS 6 CH: 39·800	0·600^{M} FROM AXIS 5 CH. 43·40	0·600^{M} FROM AXIS 5 CH. [illegible]3·400	AT AXIS 3 CH. 48·80^{M}	1·50 FROM AXIS 9 CH. 32·30	2·70^{M} FROM AXIS 7 CH. 39·50	620$^{m.m}$ IN 7200$^{m.m.}$	AXIS 4 CH. 45·8	AXIS 3 CH. 48·8	30$^{m.m}$ IN 3000$^{m.m.}$	100	535	1875	14	249·3
	A.S.S.	AT AXIS 20 CH: 0·00	1·500^{M} FROM AXIS 33 CH: 38·3	1·500^{M} FROM AXIS 33 CH: 38·300	1·50^{M} FROM AXIS 34 CH: 41·500	1·50^{M} FROM AXIS 34 CH: [illegible]1·300	AT AXIS 37 CH: 48·80	0·300^{M} FROM AXIS 31 CH. 311	1·200^{M} FROM AXIS 33 CH: 38·00	620$^{m.m}$ IN 6900$^{m.m.}$	AXIS 36 CH. 45·80	AXIS 37 CH. 48·80	30$^{m.m.}$ IN 3000$^{m.m.}$	100	465	2475	15	268·0

NOTES

1) THIS DRAWING SHALL BE READ IN CONJUNCTION WITH OUR DRG. NO 526/48 IN CASE OF ANY DISCREPANCIES MATTER SHALL BE REFERRED TO H.O.
2) THE CHAINAGE AT THE CENTRE-LINE OF NAVIGATION PIER (AT AXIS 20) IS TAKEN AS 0·00 METRES
3) THE SKETCH NO.1 ILLUSTRATES THE HORIZONTAL CURVED AND INCLINED PORTION OF CABLE IN ELEVATION.
4) THE SKETCH NO.2 ILLUSTRATES THE SPLAY I AND SPLAY II OF CABLE IN PLAN. DURING SPLAY I THE CABLE IS BROUGHT FROM IT'S POSITION AT PIER HEAD TO CENTRE LINE OF WEB. DURING SPLAY II THE CABLE IS BROUGHT FROM CENTRE LINE OF WEB TO CENTRE LINE OF ANCHORAGE. PLEASE NOTE THAT HORIZONTAL SHIFT IN SPLAY II IS 30$^{m.m.}$
5) THE ORDINATES Y_1, Y_2 AND Y_3 ARE THE ORDINATES AT SALIENT POINTS AS ILLUSTRATED IN SKETCH NO-1.



SKETCH NO.1
VIEW OF CABLE PROFILE IN ELEVATION DENOTING SALIENT FEATURES OF CABLE AS GIVEN IN TABLE ABOVE



SKETCH Nº 2 PLAN OF CABLE INDICATING SPLAY I AND SPLAY II AS DETAILED IN TABLE

DRAWING Nº AS PER DEPT CE(H) PBP Nº 11(2/4)/87

APPROVED FOR CONSTRUCTION BY DIV. ENG. PAMBAN BRIDGE PROJECT II VIDE PROC. NO. R.O. 70/84/00 DT 20/5/87

DATE	REV.	PARTICULARS	BY	CHKD.
2/9/87	B	MODIFIED AS PER DEPT'S LETTER Nº EC 20/8/20 70 84 DATED 20/5/87		
9/4/87	A	Note Nº 1 modified.		

REVISIONS

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT: DIVISIONAL ENGG. (H) PAMBAN BRIDGE PROJECT DIVISION No II

PROJECT: BALANCE WORK OF PAMBAN BRIDGE

TITLE: GEOMETRY OF PRESTRESSING CABLES (NAVIGATION SPAN)

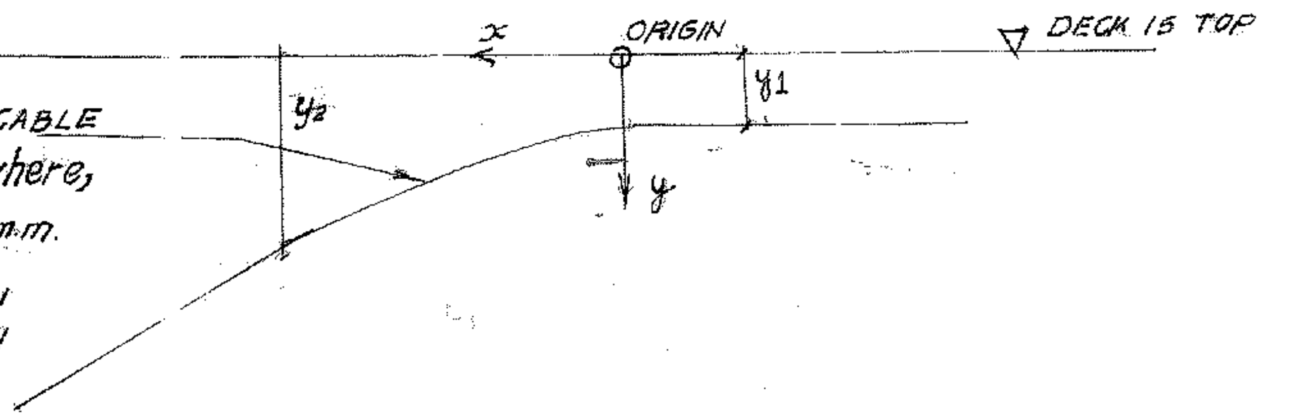
DRN.	Sanjay	T.M	SER. No.	DATE	SCALE
CHKD.		P.T.M.	7385	10.2.87	—
DSND.			DRG. NO. 526/59 A		

DRG. NO.

GEOMETRY OF INTERMEDIATE POINTS IN CURVED PORTION OF PRESTRESSING CABLE Nos. 171 TO 31.

CABLE NO	SIDE W.R.T. AXIS 20	EQUATION OF CURVE $y = ax^2 + c$	HORIZONTAL DISTANCE 'X_1' FOR WHICH CURVE EXTENDS (METRES)	ORDINATE (Y_1) W.R.T. DECK TOP AT THE APEX OF THE CURVE, C (m.m)	ORDINATES OF THE CURVE FOR SPECIFIED HORIZONTAL DISTANCES FROM THE APEX OF THE CURVE (IN m.m) 0.500 M	1.000 M	1.500 M	2.000 M	2.500 M	3.000 M	3.500 M	4.000 M	4.500 M	5.000 M	5.500 M	ORDINATE (Y_2) AT END POINT OF CURVE (m.m.)
171	C.H.S.	$y = 42.5x^2 + 580$	2.00	580	616	723	901	1150	—	—	—	—	—	—	—	1150
	A.S.S.	$y = 142.5x^2 + 580$	2.00	580	616	723	301	1150	—	—	—	—	—	—	—	1150
161	C.H.S.	$y = 65.7x^2 + 460$	4.50	460	476	526	608	723	871	1051	1265	1511	1790	—	—	1790
	A.S.S.	$y = 60.8 + 460$	4.875	460	475	521	597	703	840	1007	1205	1435	1691	—	—	1905
151	C.H.S.	$y = 55.3x^2 + 340$	5.550	340	354	395	464	561	686	838	1017	1225	1460	1723	2013	2045
	A.S.S.	$y = 56.0x^2 + 340$	5.660	340	354	396	466	564	690	844	1026	1236	1474	1740	2034	2135
141	C.H.S.	$y = 55.4x^2 + 340$	4.760	340	354	395	465	562	686	838	1019	1226	1462	—	—	1585
	A.S.S.	$y = 61.10^2 + 340$	4.690	340	355	401	477	584	722	890	1088	1316	1577	—	—	1685
131	C.H.S.	$y = 53.6x + 340$	4.50	340	353	394	461	554	675	822	997	1198	1425	—	—	1425
	A.S.S.	$y = 67.2x^2 + 3.40$	3.75	340	357	407	491	609	760	945	1163	—	—	—	—	1285
121	C.H.S.	$y = 53.6x^2 + 220$	4.50	220	233	274	341	434	555	702	877	1078	1305	—	—	1305
	A.S.S.	$y = 58.4x^2 + 220$	3.5	220	235	278	351	454	585	746	935	—	—	—	—	935
111	C.H.S.	$y = 43.5x^2 + 2.2$	4.5	220	231	264	318	394	492	612	753	916	1100	—	—	1100
	A.S.S.	$y = 48.4x^2 + 220$	5.00	220	232	268	329	414	523	656	813	995	1200	1430	—	1430
101	C.H.S.	$y = 43.8x^2 + 220$	4.00	220	231	264	319	395	494	614	757	920			—	920
	A.S.S.	$y = 57.1x^2 + 220$	3.60	220	234	277	348	448	577	734	979	1134	—	—	—	960
91	C.H.S.	$y = 35.2x^2 + 220$	5.50	220	229	255	299	361	440	537	651	793	933	1100	1285	1285
	A.S.S.	$y = 50.6x^2 + 220$	3.95	220	233	271	334	423	536	675	840	—	—	—	—	1010
81	C.H.S.	$y = 53.5x^2 + 100$	3.50	100	113	154	220	314	434	582	755	—	—	—	—	755
	A.S.S.	$y = 53.9x^2 + 100$	3.90	100	113	154	221	316	437	585	760	—	—	—	—	920
71	C.H.S.	$y = 43.8x^2 + 100$	4.00	100	111	144	199	275	374	494	636	800	—	—	—	800
	A.S.S.	$y = 49.3x^2 + 100$	3.90	100	112	149	211	297	408	544	704	—	—	—	—	850
61	C.H.S.	$y = 38.7x^2 + 100$	4.05	100	110	139	187	255	342	449	574	719	—	—	—	735
	A.S.S.	$y = 43.3x^2 + 100$	3.00	100	111	143	197	273	371	490	—	—	—	—	—	490
51	C.H.S.	$y = 33.8x^2 + 100$	4.50	100	108	134	176	235	311	404	514	641	785	—	—	785
	A.S.S.	$y = 39.8x^2 + 100$	3.90	100	110	140	190	259	349	458	588	—	—	—	—	705
41	C.H.S.	$y = 30.9x^2 + 100$	5.00	100	108	131	170	224	293	378	419	594	726	873	—	(980) 905
	A.S.S.	$y = 34.9x^2 + 100$	3.20	100	109	135	179	240	318	414	—	—	—	—	—	455
31	C.H.S.	$y = 33.2x^2 + 100$	3.60	100	108	133	175	233	308	339	507	—	—	—	—	535
	A.S.S.	$y = 40.6x^2 + 100$	3.00	100	110	141	191	262	354	465	—	—	—	—	—	465

CURVED PORTION OF CABLE
EQUATION: $y = ax^2 + c$ where,
'y' IS THE ORDINATE IN m.m.
'x' IS THE DISTANCE IN METRES FROM THE ORIGIN WHERE THE ORDINATE IS REQUIRED.



NOTES

1) THIS DRAWING SHALL BE READ IN CONJUNCTION WITH OUR DRG No 526/48 IN CASE OF ANY DISCREPANCIES MATTER SHALL BE REFERRED TO H.O.
2) THIS DRG. IS TO BE READ IN CONJUNCTION WITH SHEET Nos 1/4, 2/4 AND 3/4 OF DRG No 526/55.
3) THE SKETCH SHOWN ILLUSTRATES THE CO-ORDINATES AND THE EQUATION FOR THE CURVED PORTION OF THE PRESTRESSING CABLE
4) A SAMPLE CALCULATION FOR THE DERIVATION OF THE EQUATION OF THE CURVED PORTION OF THE CABLE NO. 171 (CENTRAL HINGE SIDE) IS GIVEN BELOW.

ORDINATE AT ANCHORAGE POINT (Y_3) 5950 m.m.
ANGLE AT WHICH CABLE IS ANCHORED = 45°
EQUIVALENT HORIZONTAL DISTANCE FROM WHICH THE INCLINED PORTION OF CABLE EXTENDS = 4800 m.m.
ORDINATE AT STARTING POINT ON INCLINED PORTION.
(OR END POINT OF CURVE), $Y_2 = 5950 - (4800 \times \tan 45^\circ) = 1150$ m.m.

ORDINATE AT APEX, Y_1, = 580 m.m.
EQUATION OF CURVE, $Y = ax^2 + c$
WHEN $x = 0$, $Y = 580$, $\therefore c = 580$
WHEN $x = 2000$, $y = 1150$, $\therefore a = \frac{1150 - 580}{(2000)^2} = 0.0001425$

$\therefore$ EQUATION OF CURVE $y = (142.5x^2 + 580)$ m.m. WHERE 'x' IS IN METRES.

DATE	REV.	PARTICULARS	BY	CHKD.
2/9/87	B	MODIFIED AS PER DEPT. LETTER NO R.C.70/84/DO DATED 20/5/87.		RB
9/4/87	A	NOTE No. 1 MODIFIED		RB

REVISIONS

GAMMON INDIA LIMITED
ENGINEERS & CONTRACTORS

CLIENT: DIVISIONAL ENGG (H) PAMBAN BRIDGE PROJECT DIVISION No II

PROJECT: BALANCE WORK OF PAMBAN BRIDGE

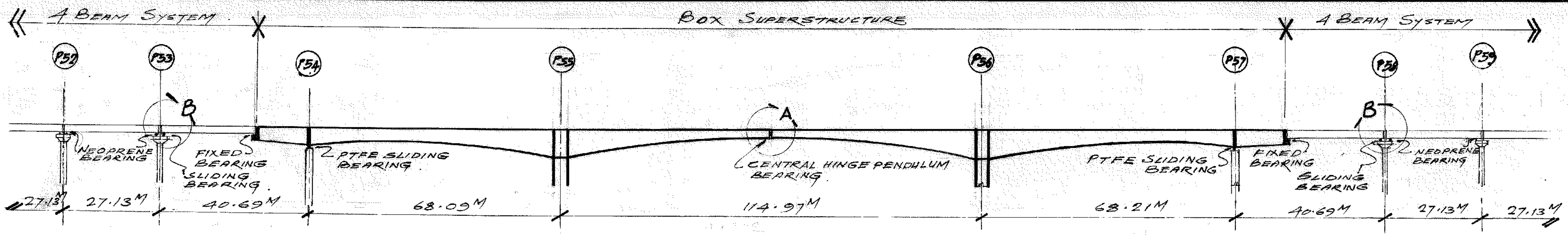
DRAWING NO. AS PER DEPT. CE(H) PBP NO/11 (4/4)/87

APPROVED FOR CONSTRUCTION BY DIV. ENG. PAMBAN BRIDGE PROJECT II VIDE PROC. No R.O 70/94/00 DT. 20/5/87

TITLE: GEOMETRY OF PRESTRESSING CABLES (NAVIGATION SPAN)

					SER. No.	DATE	SCALE
DRN.	30/87		T.M		1387		—
CHKD.							
DSND.	M.V.		P.T.M.	DRG. NO. 526/55 A			

SH. 4/4


4 BEAM SYSTEM
BOX SUPERSTRUCTURE
4 BEAM SYSTEM
P52
P53
P54
P55
P56
P57
P58
P59
B
A
B
NEOPRENE BEARING
FIXED BEARING
SLIDING BEARING
PTFE SLIDING BEARING
CENTRAL HINGE PENDULUM BEARING
PTFE SLIDING BEARING
FIXED BEARING
SLIDING BEARING
NEOPRENE BEARING
27·13M
27·13M
40·69M
68·09M
114·97M
68·21M
40·69M
27·13M
27·13M

• KEY ELEVATION

B. EXPANSION JOINT TYPE TWO (OVER PIER P53/P58)

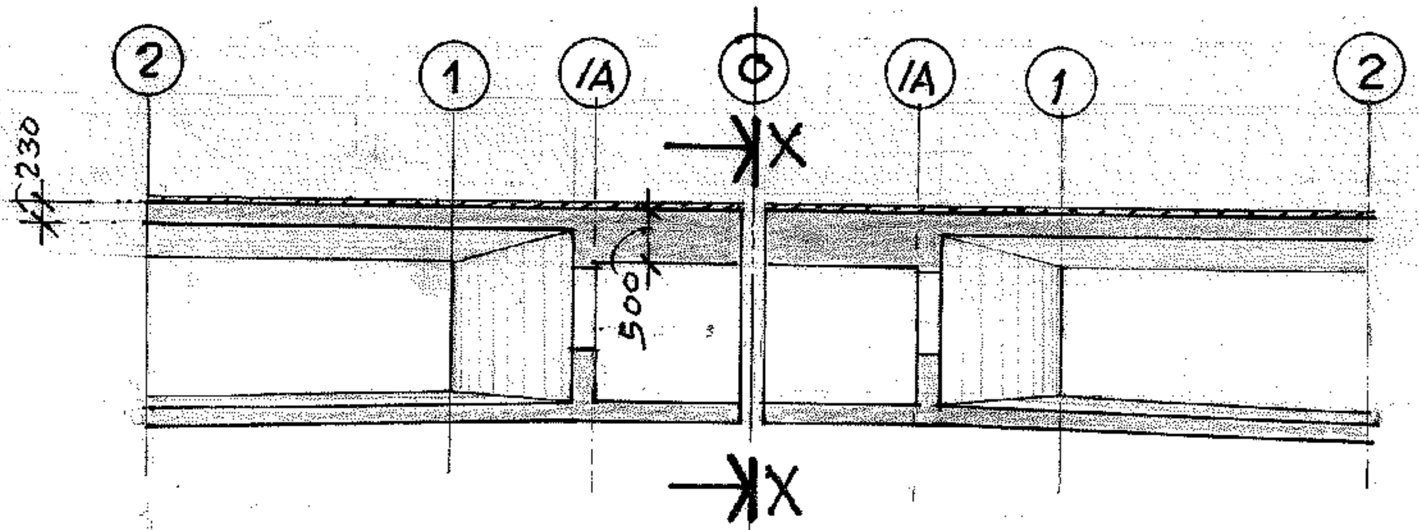
- MIN. GAP...... 60 MM
- MOVEMENT DUE TO CREEP/SHRINKAGE (+) 52 MM
- MOVEMENT DUE TO TEMPERATURE (+) OR (-) 53MM
- MAXIMUM GAP ------ 165 MM
- MAXIMUM ROTATION ---- 0·004 RAD.

A. EXPANSION JOINT TYPE ONE (AT CENTRAL HINGE)

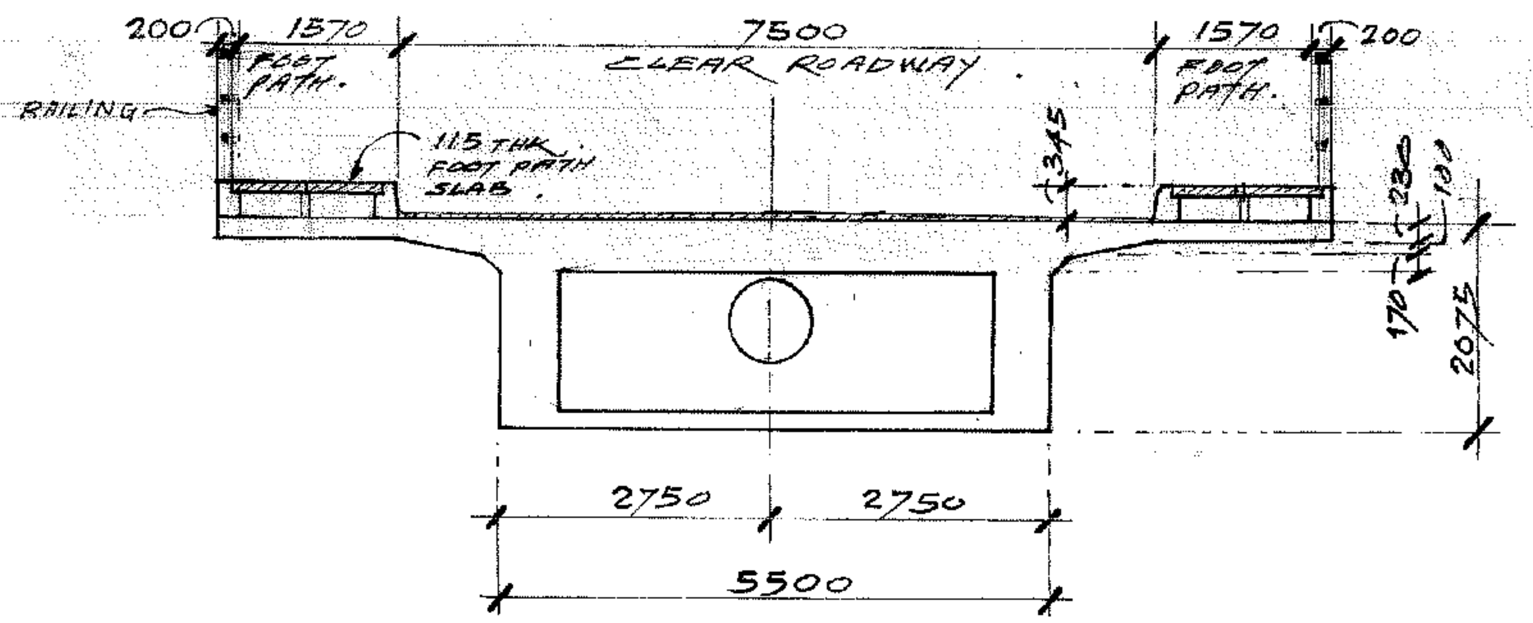
- MIN. GAP...... 60 MM
- MOVEMENT DUE TO CREEP/SHRINKAGE (+) 42 MM.
- MOVEMENT DUE TO TEMPERATURE... (+) OR (-) 46 MM
- MAXIMUM GAP...... 150 MM.
- MAXIMUM ROTATION...... 0·05 RAD.

• NOTE.

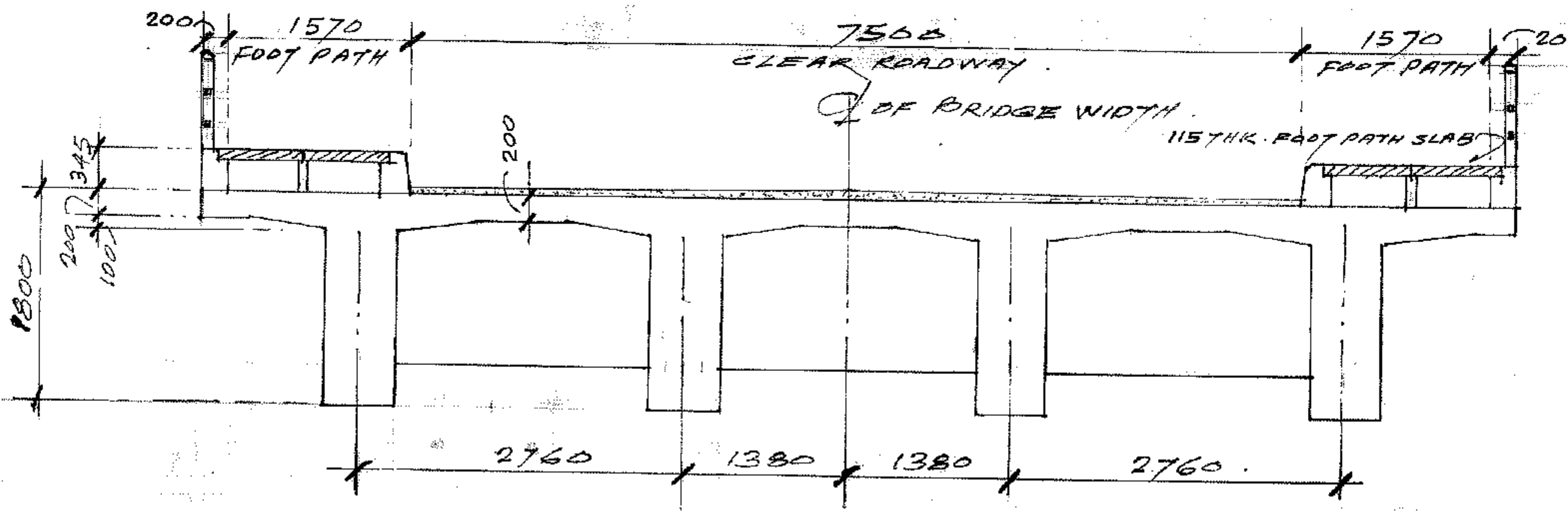
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.


2
1
/A
©
/A
1
2
X
X
230
500

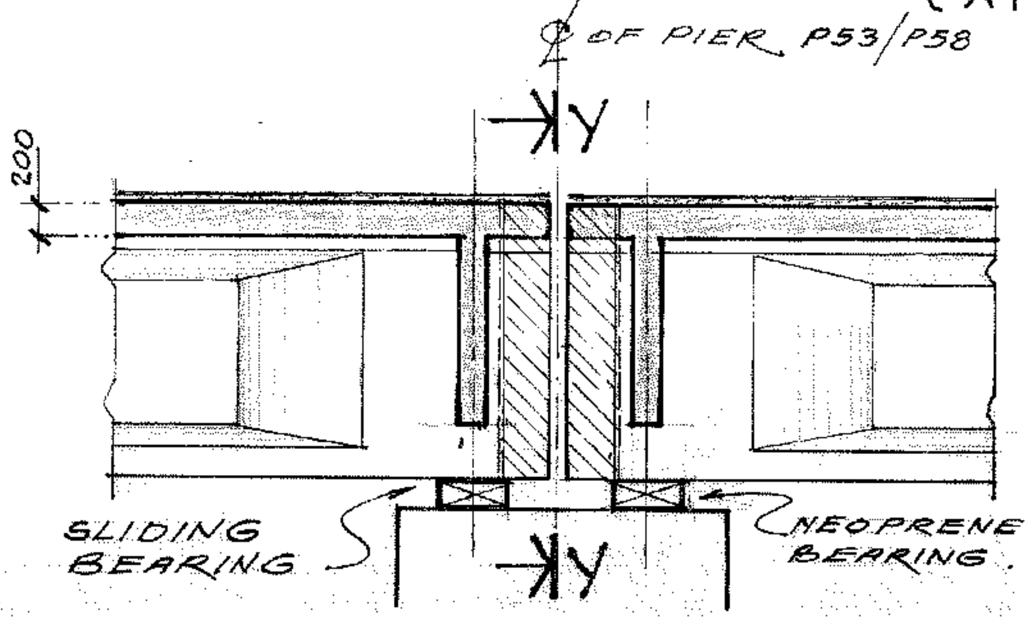
• LONGITUDINAL SECTION OF BOX GIRDER AT 'A'


200
1570
FOOT PATH.
7500
CLEAR ROADWAY.
1570
FOOT PATH.
200
RAILING
115 THK FOOT PATH SLAB.
345
230
100
170
2075
2750
2750
5500

• CROSS SECTION OF BOX GIRDER AT X-X
(AT CENTRAL HINGE)


200
1570
FOOT PATH
7560
CLEAR ROADWAY.
1570
FOOT PATH
200
℄ OF BRIDGE WIDTH.
115 THK. FOOT PATH SLAB
200
345
200
100
1800
2760
1380
1380
2760.

• END VIEW OF DECKING AT Y-Y


℄ OF PIER P53/P58
Y
Y
200
SLIDING BEARING
NEOPRENE BEARING.

• ELEVATION AT 'B'

PAMBAN BRIDGE

DESIGN DATA FOR EXPANSION JOINTS
AT CENTRAL HINGE AND
OVER PIER P53 & P58.
SKETCH NO. 7669 DATE:- 14-8-87.