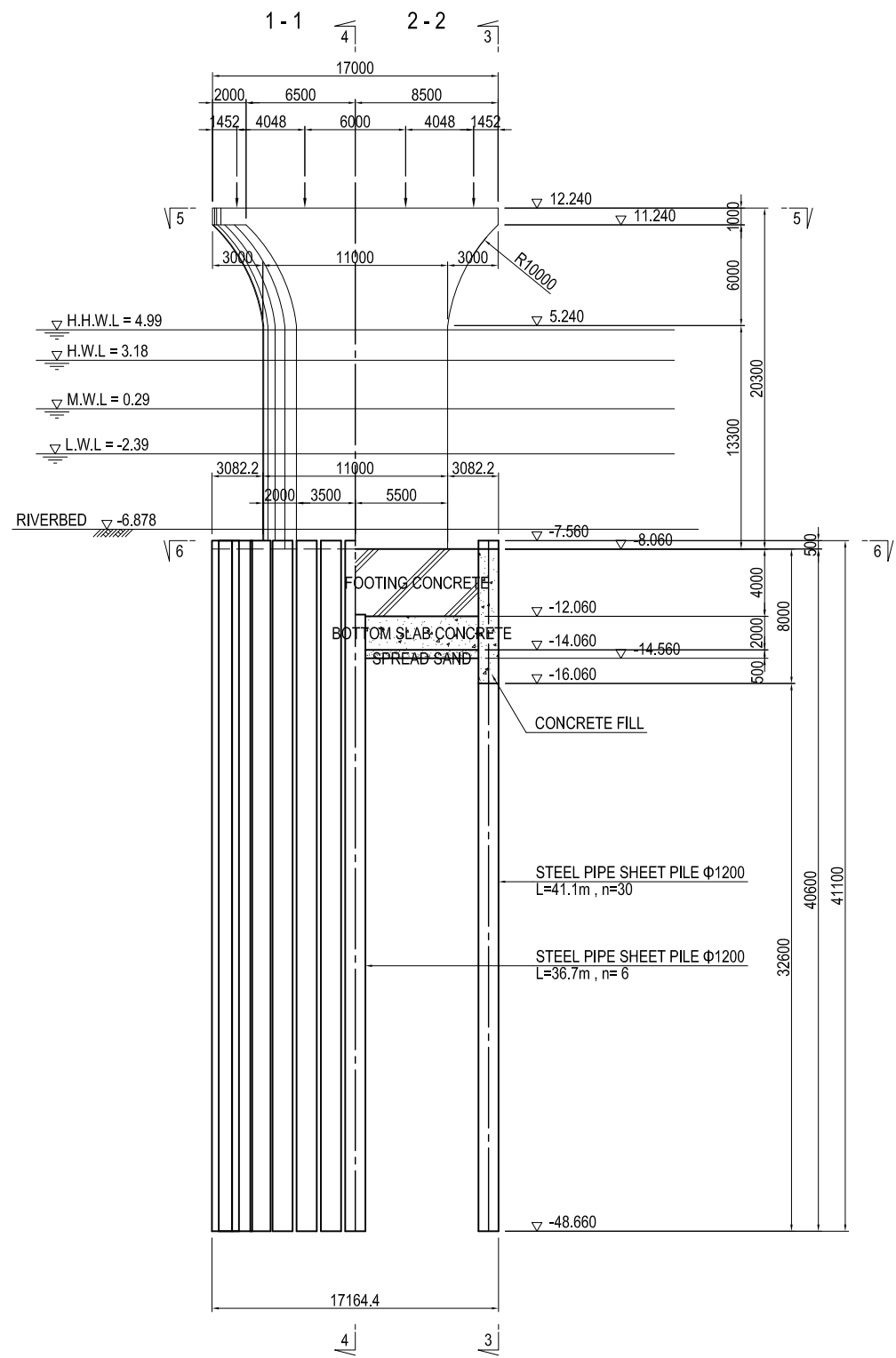


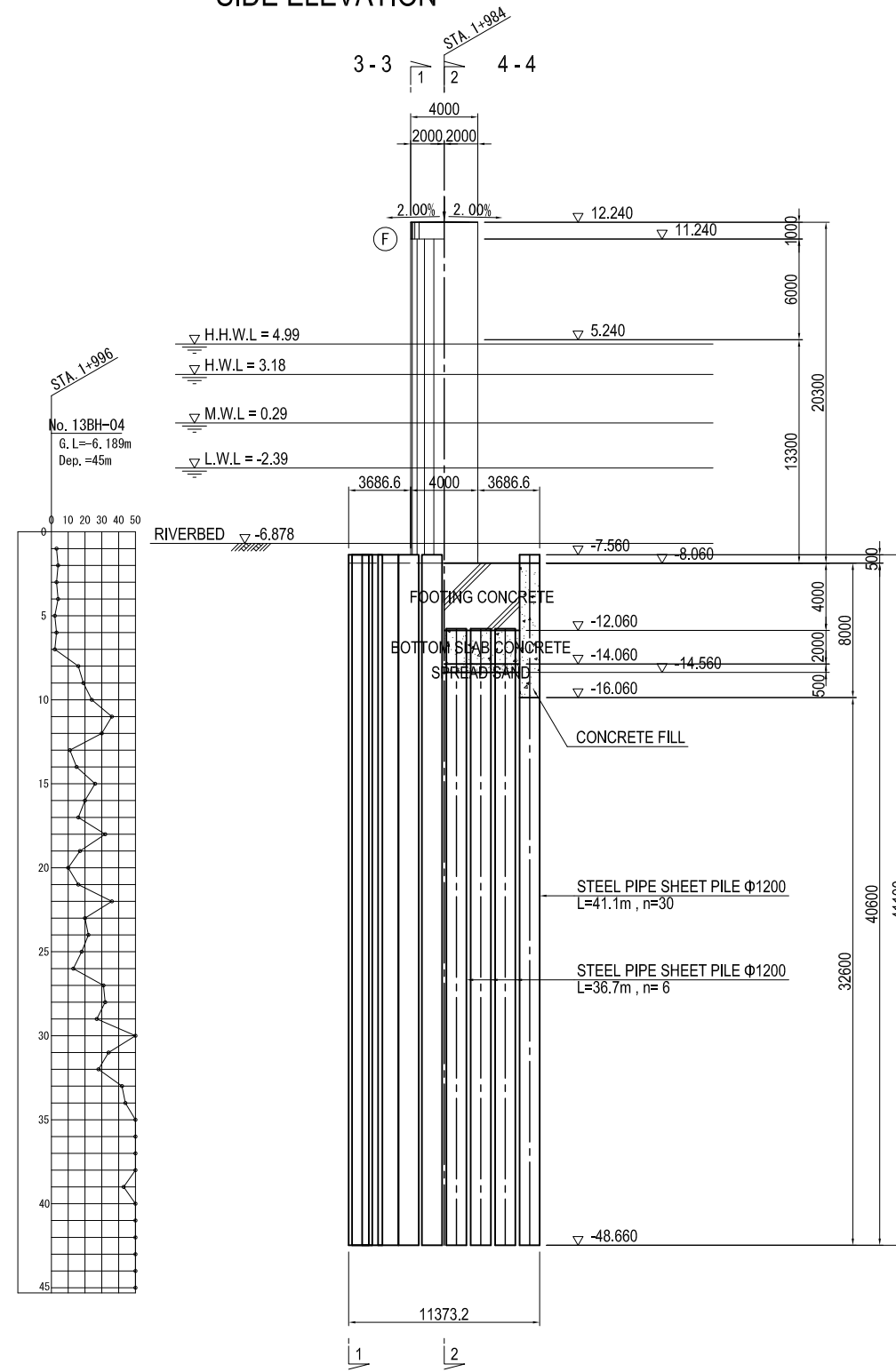
GENERAL VIEW OF P19 PIER (1)

S=1:400

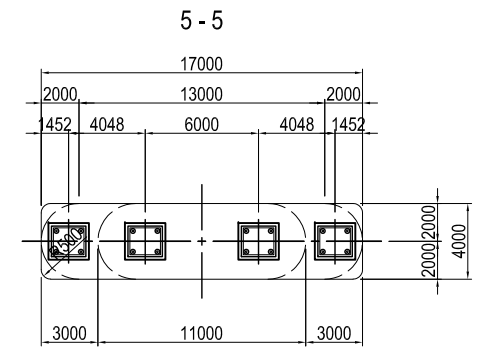
FRONT ELEVATION



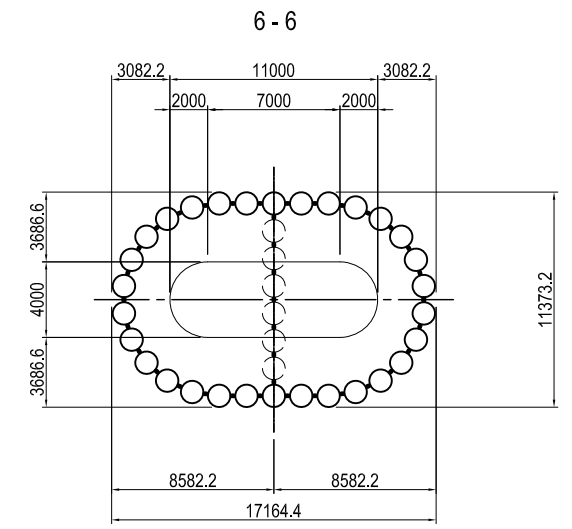
SIDE ELEVATION



PLAN



PLAN



USE MATERIALS

	CONCRETE	BAR
BEAM	$\sigma_{ck} = 30 \text{ N/mm}^2$	SD345
COLUMN	$\sigma_{ck} = 30 \text{ N/mm}^2$	SD390 • SD345
FOOTING	$\sigma_{ck} = 24 \text{ N/mm}^2$	SD345

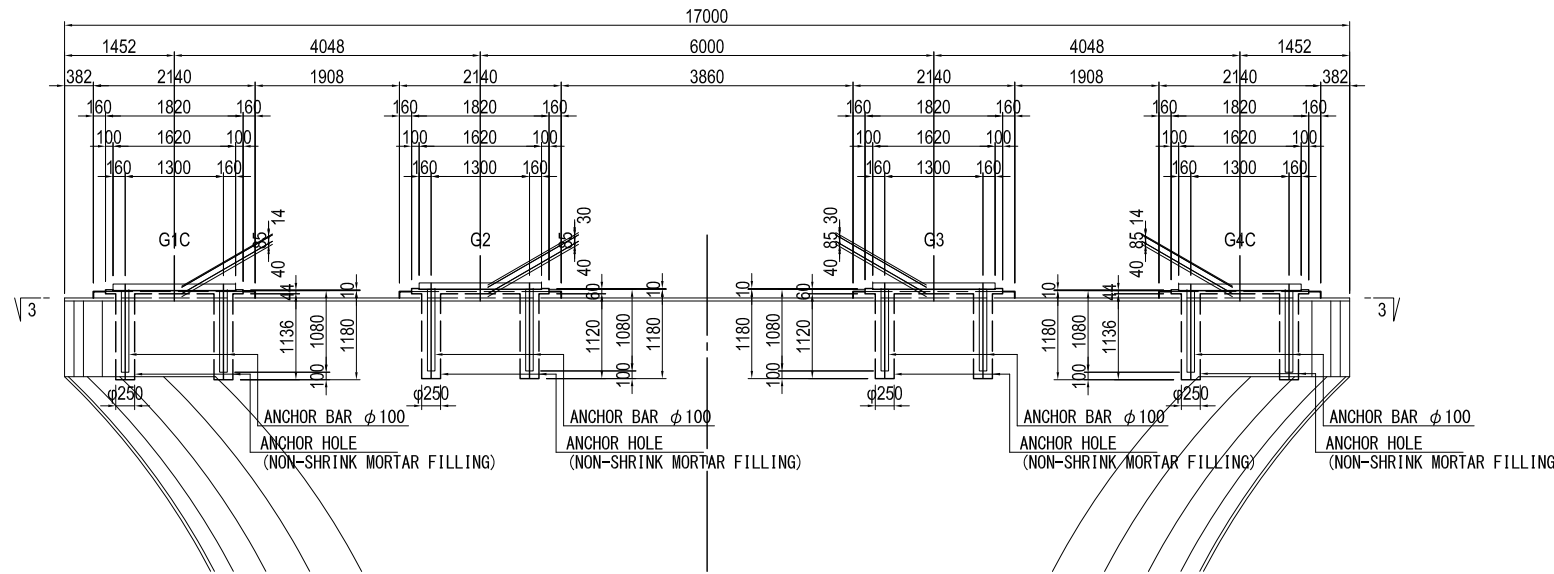
GENERAL VIEW OF P19 PIER (2)

S=1:100

DETAIL OF BEARING AND ANCHOR

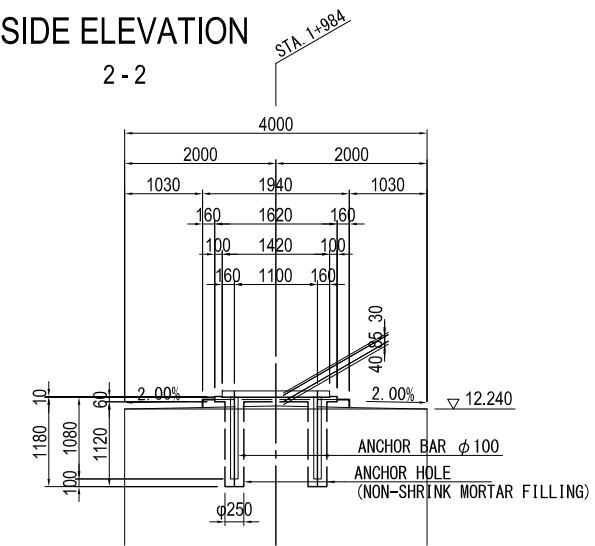
FRONT ELEVATION

1-1



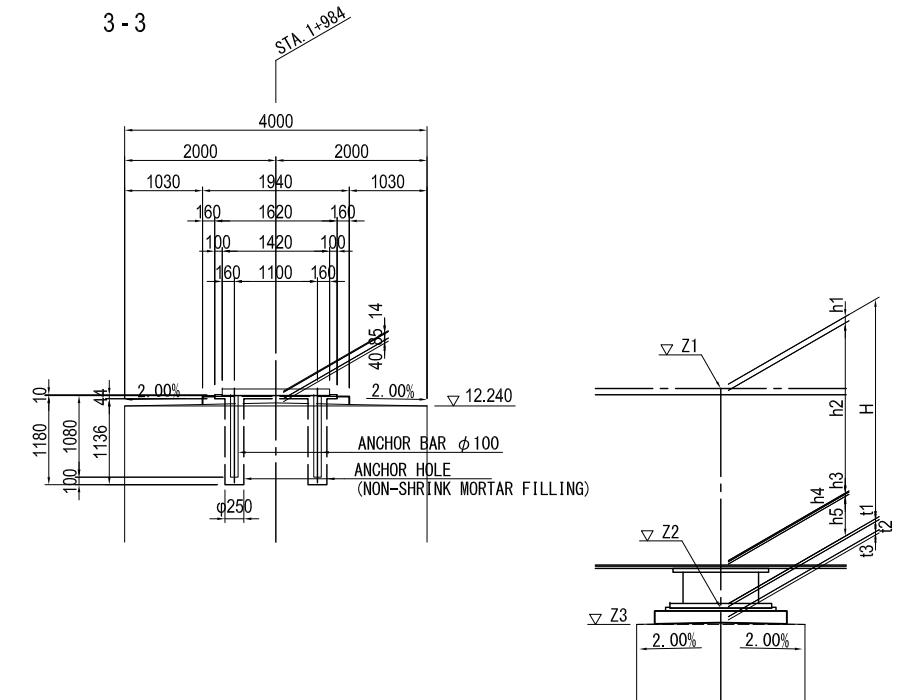
SIDE ELEVATION

2-2



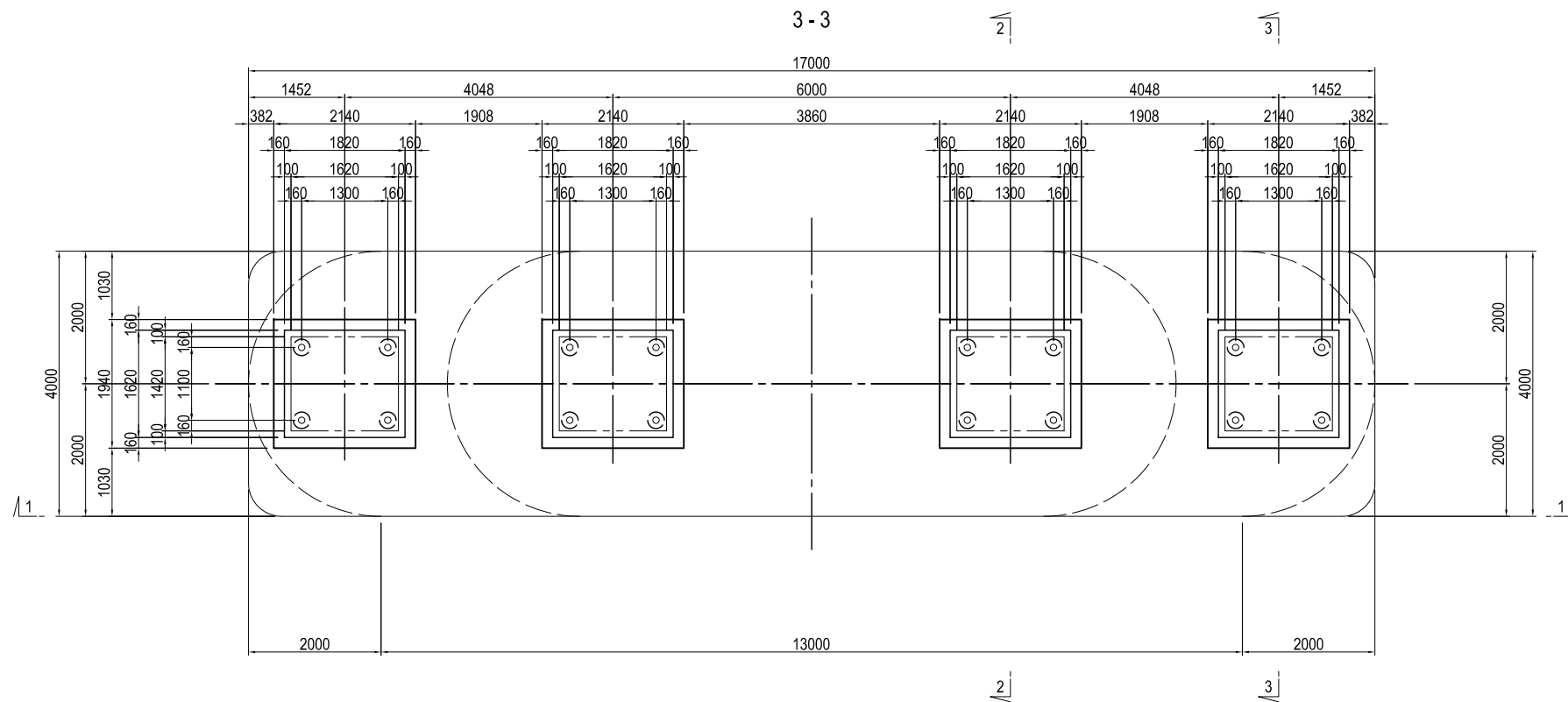
SIDE ELEVATION

3-3



PLAN

3-3



	P19 PIER				
	G1C	G2	G3	G4C	
PROPOSED HEIGHT	Z1	15.617	15.698	15.698	15.617
PAVEMENT	h1	0.080	0.080	0.080	0.080
GIRDER	h2	2.709	2.790	2.790	2.709
BOTTOM FLANGE	h3	0.050	0.034	0.034	0.050
SOLE PLATE	h4	0.040	0.040	0.040	0.040
BEARING	h5	0.359	0.359	0.359	0.359
SUBTOTAL	H	3.238	3.303	3.303	3.238
ELEVATION OF BEARING BOTTOM	Z2	12.379	12.395	12.395	12.379
MORTAR	t1	0.014	0.030	0.030	0.014
BEARING BASE	t2	0.085	0.085	0.085	0.085
DRAINAGE INCLINE	t3	0.040	0.040	0.040	0.040
ELEVATION OF PIER TOP	Z3	12.240	12.240	12.240	12.240

PROJECT NAME
DETAILED DESIGN ON
BAGO RIVER BRIDGE
CONSTRUCTION PROJECT

FINANCED BY
JICA
JAPAN INTERNATIONAL
COOPERATION AGENCY

COUNTERPART
REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF CONSTRUCTION
DEPARTMENT OF BRIDGE

JICA STUDY TEAM
NIPPON KOEI CO., LTD.
ORIENTAL CONSULTANTS GLOBAL CO., LTD.
METROPOLITAN EXPRESSWAY COMPANY LIMITED
CHODAI CO., LTD.
NIPPON ENGINEERING CONSULTANTS CO., LTD.

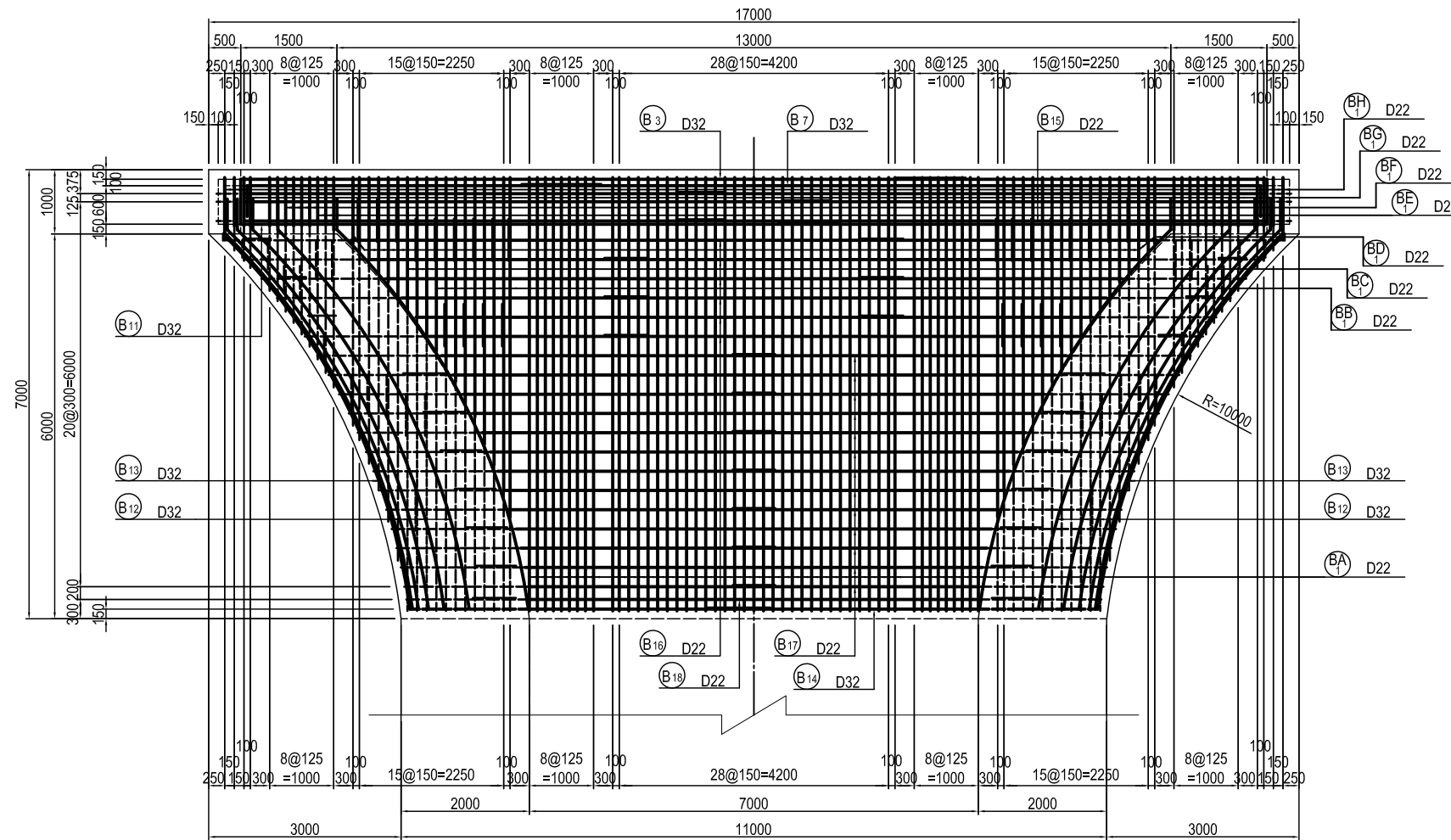
	NAME	SIGNATURE	DATE
PREPARED BY	S. IMADA	<i>S. Imada</i>	27 Nov.2017
CHECKED BY	T. HAYAKAWA	<i>T. Hayakawa</i>	28 Nov.2017
APPROVED BY	Y. SANO	<i>Y. Sano</i>	29 Nov.2017

DRAWING TITLE
GENERAL VIEW OF P19 PIER (2)

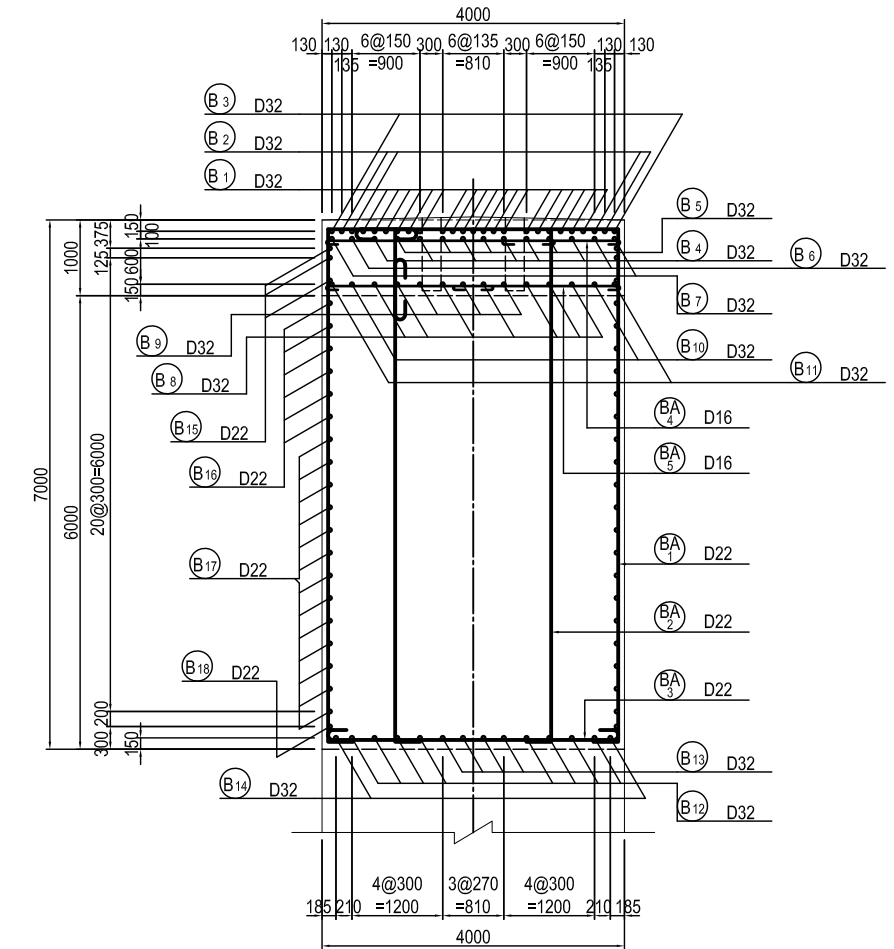
PACKAGE
2
DWG No.
P2-SB-2502

BAR ARRANGEMENT OF P19 PIER (1) S=1:100 BEAM

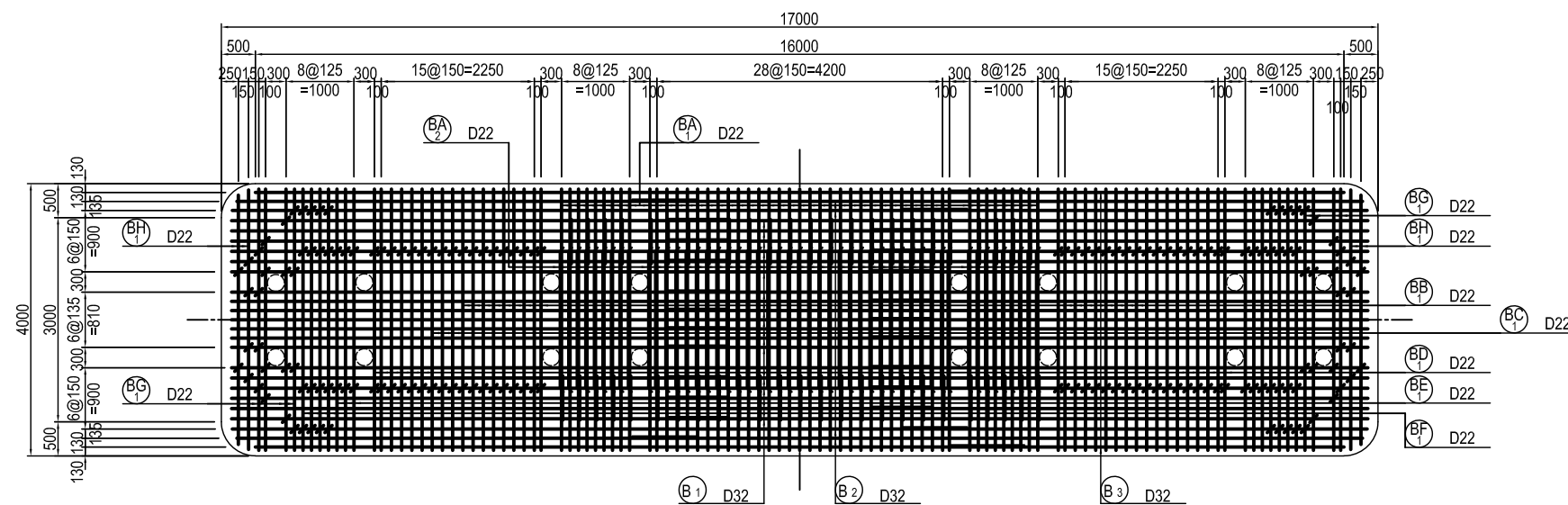
FRONT ELEVATION 1-1



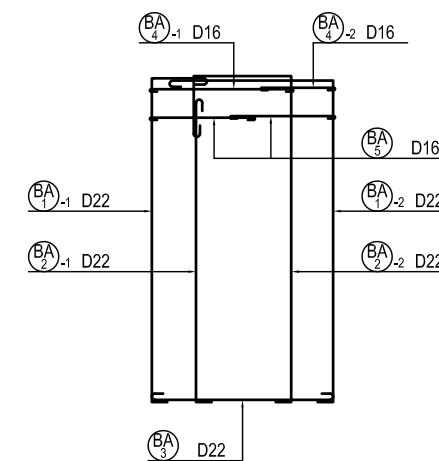
SECTION 3-3



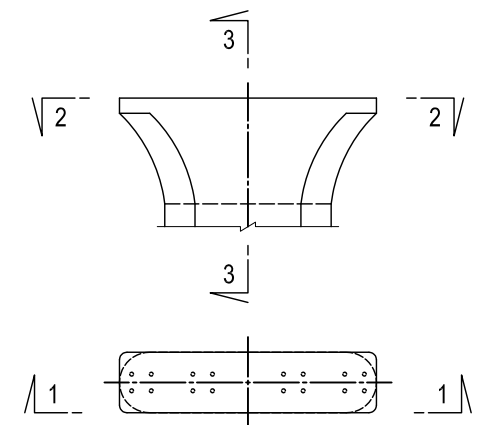
PLAN 2-2



ASSEMBLY DRAWING OF STIRRUP



MARKING DIAGRAM



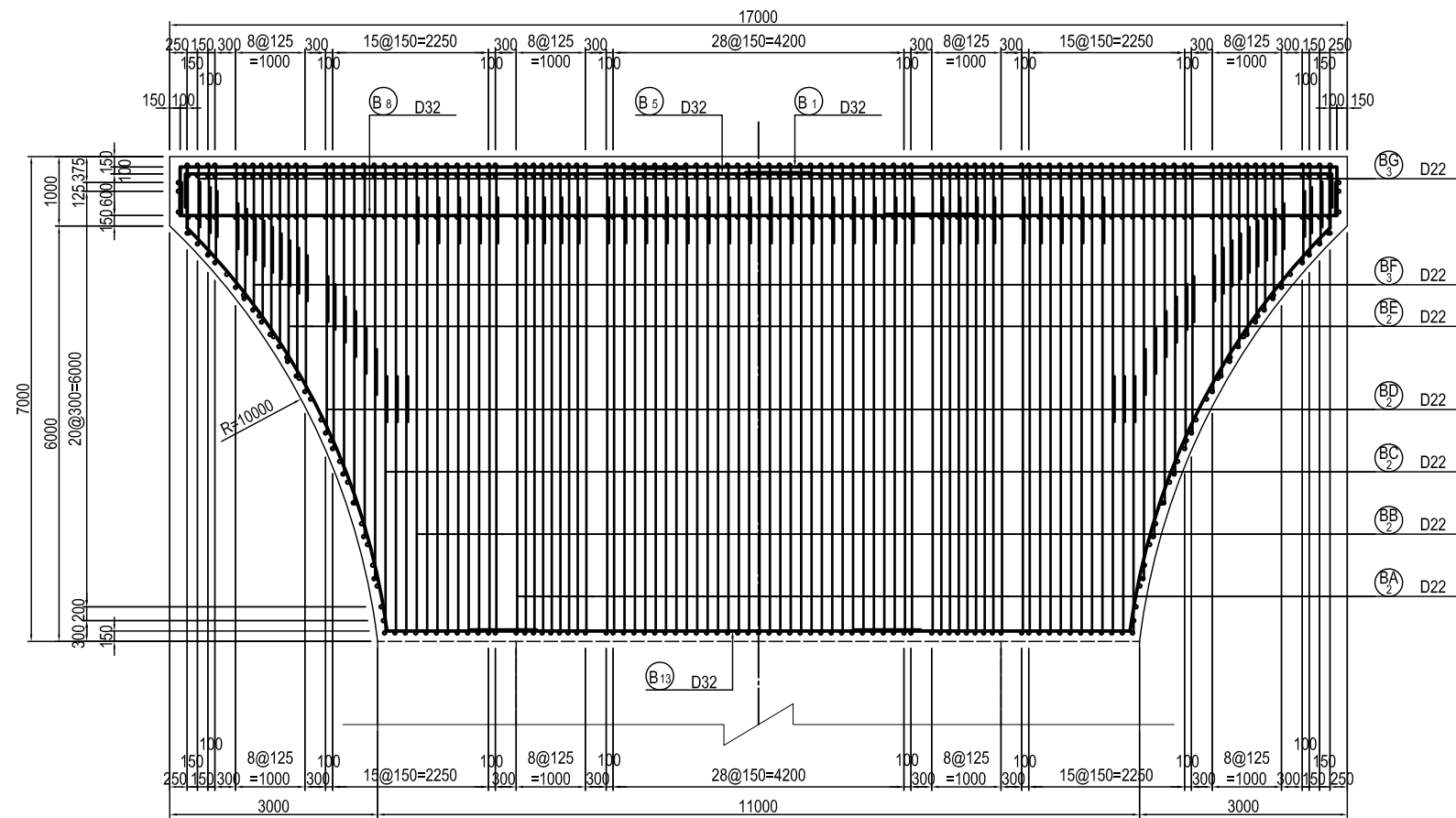
USE MATERIALS

	CONCRETE	BAR
BEAM	σck = 30 N/mm ²	SD345

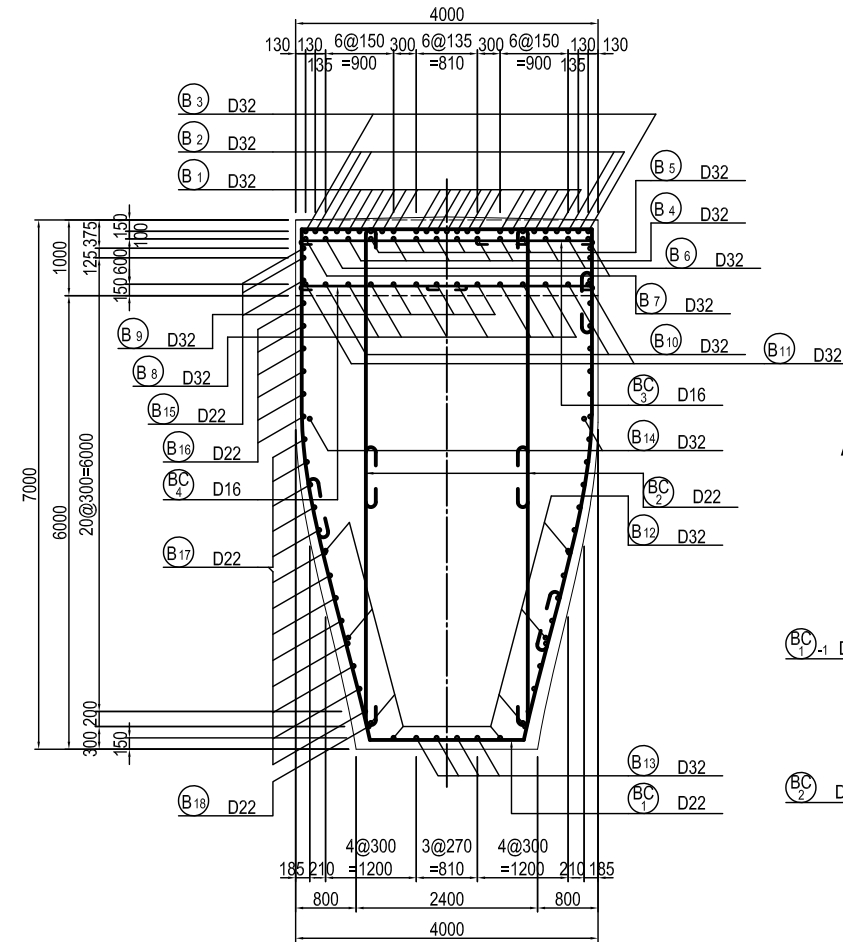
BAR ARRANGEMENT OF P19 PIER (2) S=1:100

BEAM

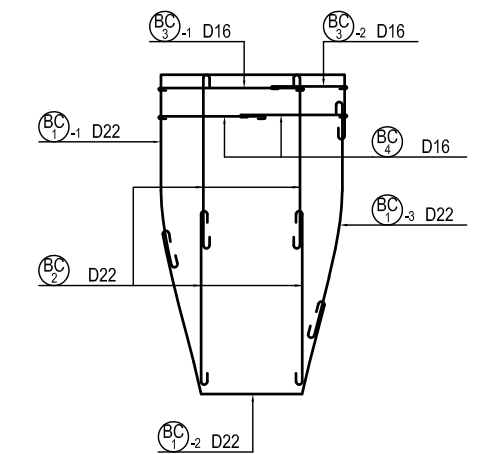
SECTION 4-4



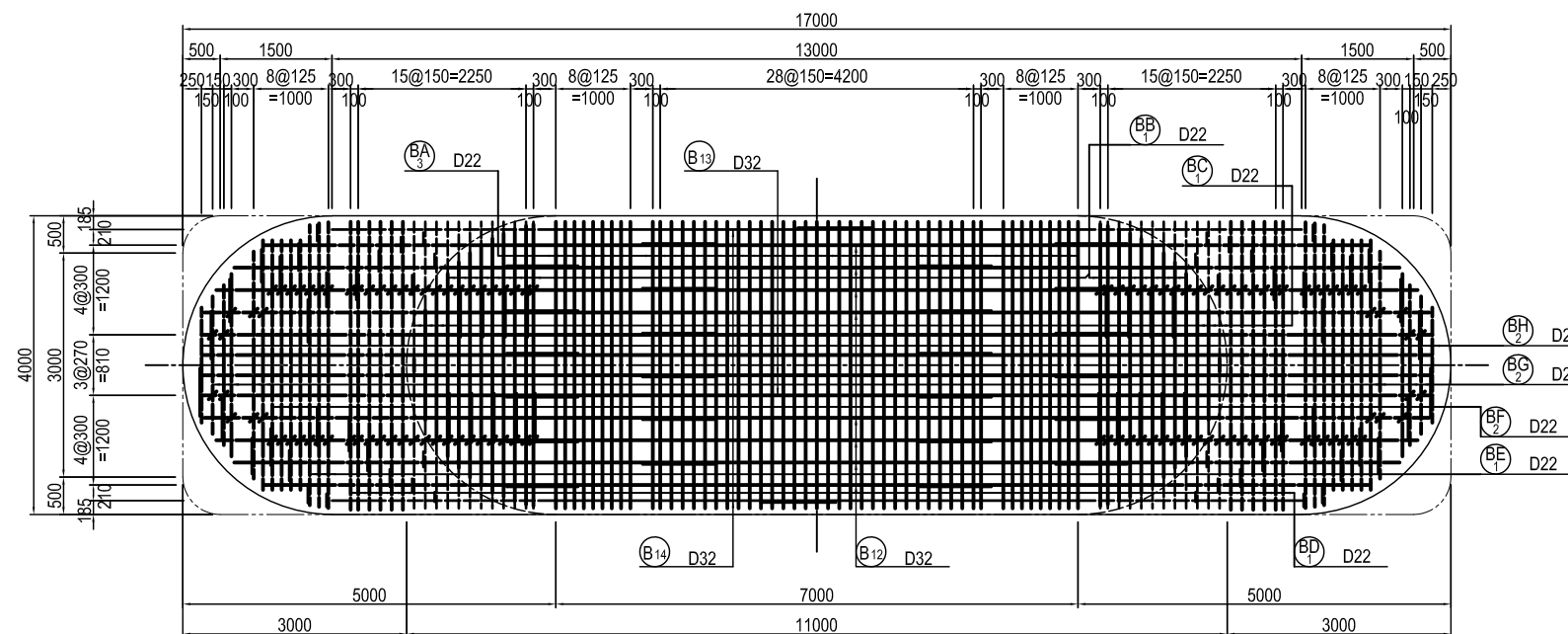
SECTION 7-7



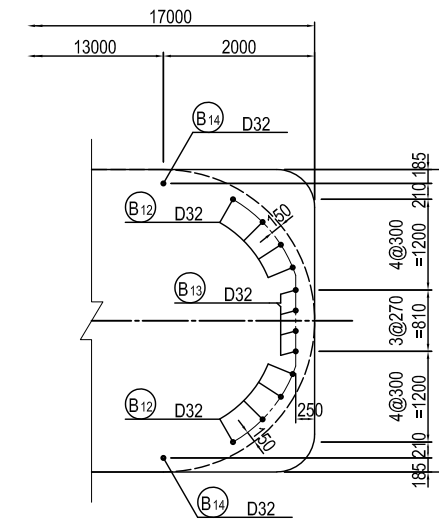
ASSEMBLY DRAWING OF STIRRUP



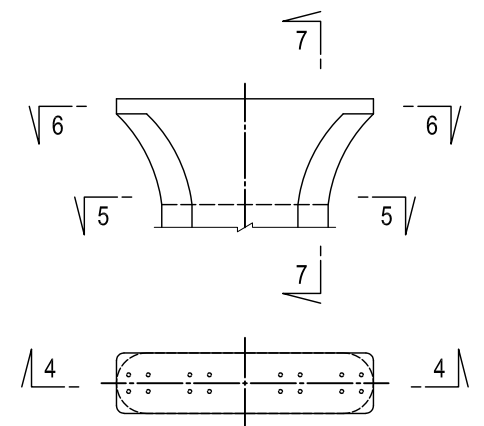
PLAN 5-5



PLAN 6-6



MARKING DIAGRAM



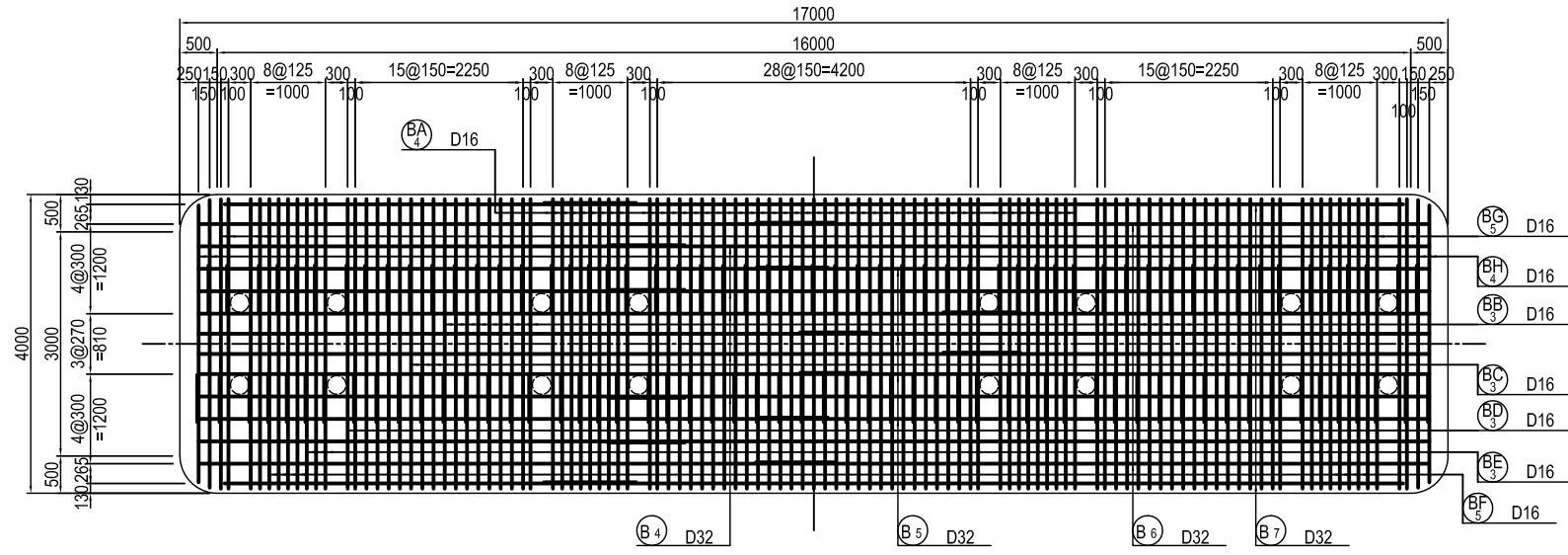
USE MATERIALS

	CONCRETE	BAR
BEAM	σ _{ck} = 30 N/mm ²	SD345

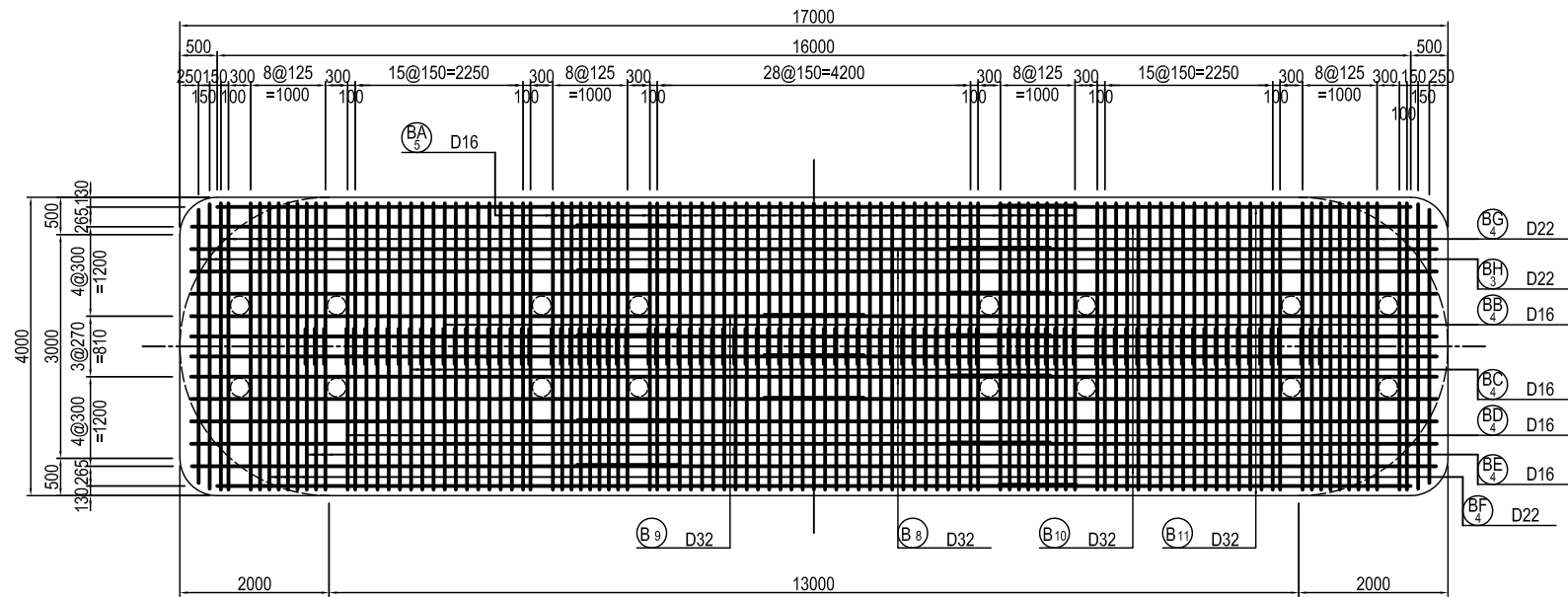
BAR ARRANGEMENT OF P19 PIER (3) S=1:100

BEAM

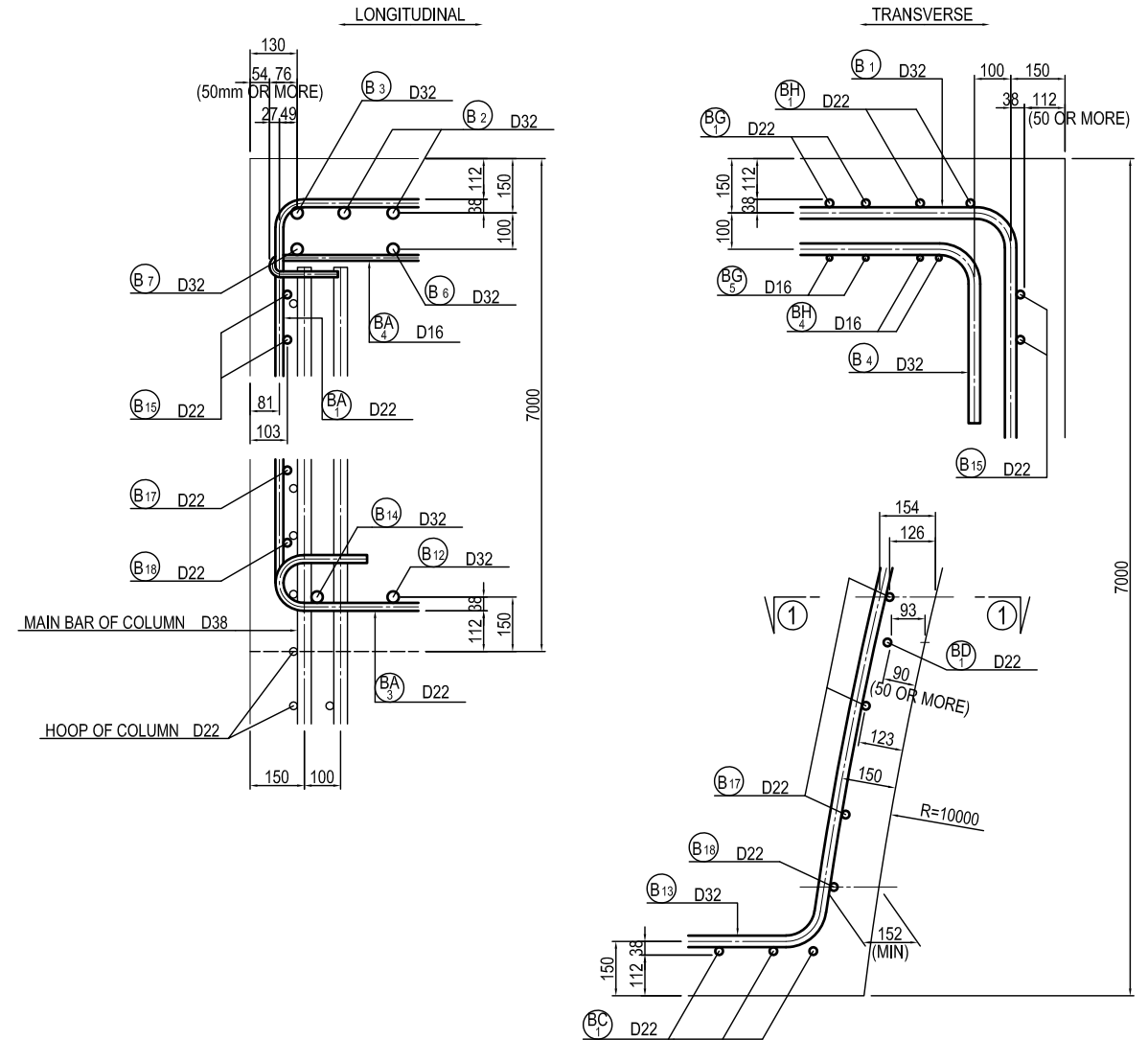
PLAN
8-8



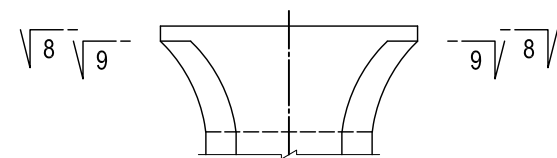
PLAN
9-9



DETAIL OF BEAM S=1:20



MARKING DIAGRAM



USE MATERIALS

	CONCRETE	BAR
BEAM	σ _{ck} = 30 N/mm ²	SD345

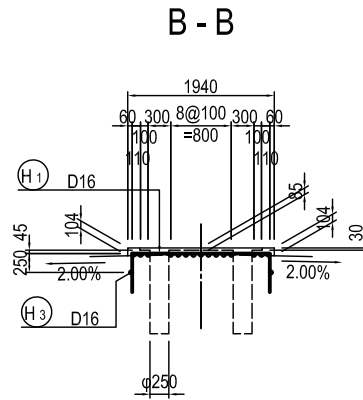
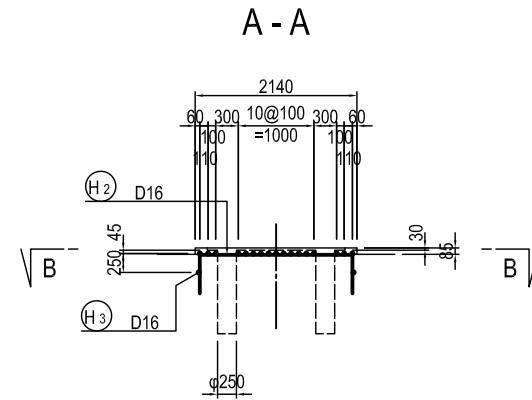
BAR ARRANGEMENT OF P19 PIER (4) S=1:100

BEAM

BAR ARRANGEMENT OF BEARING BASE

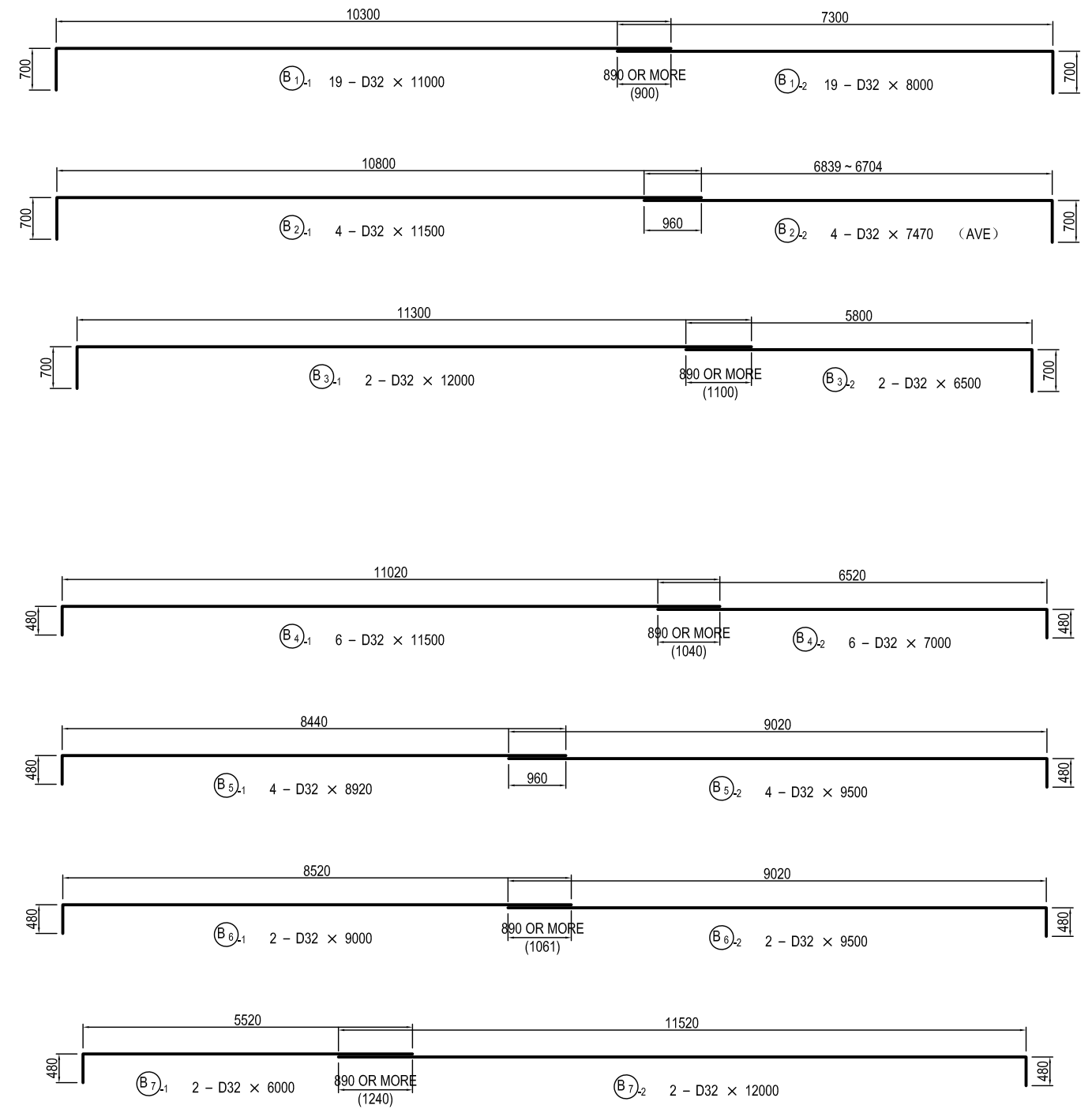
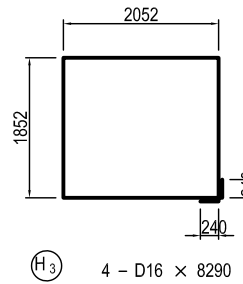
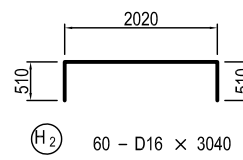
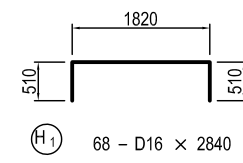
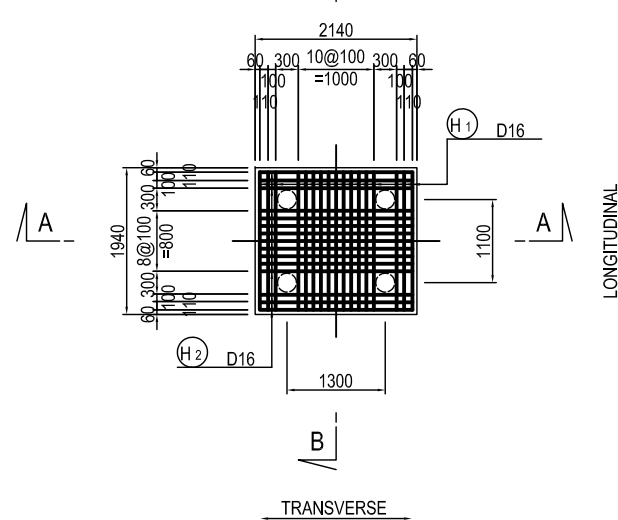
(N = 4)

SECTION



PLAN

C - C



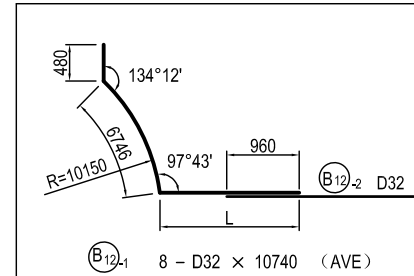
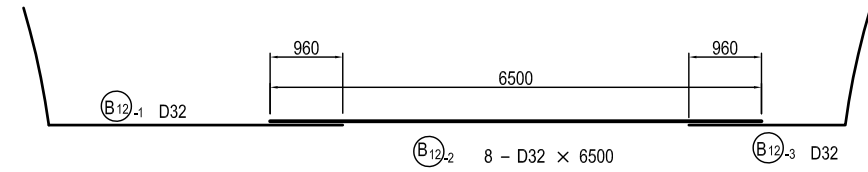
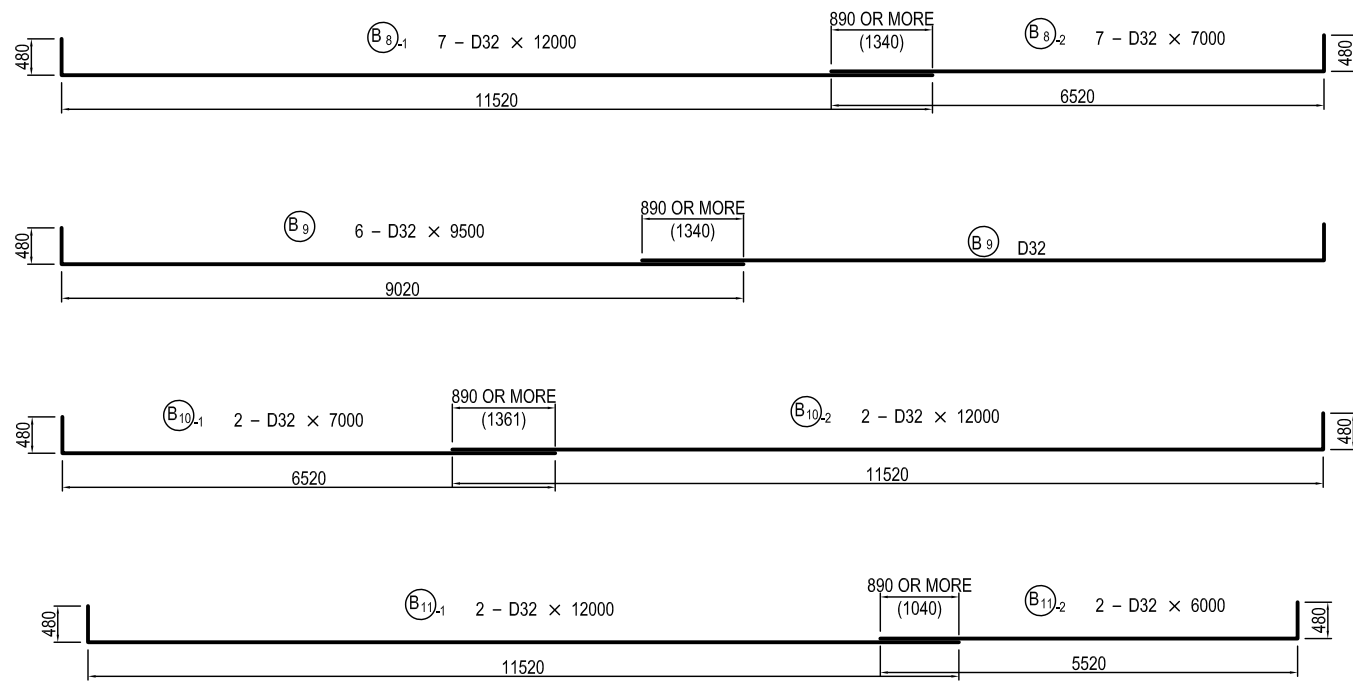
USE MATERIALS

	CONCRETE	BAR
BEAM	σ _{ck} = 30 N/mm ²	SD345

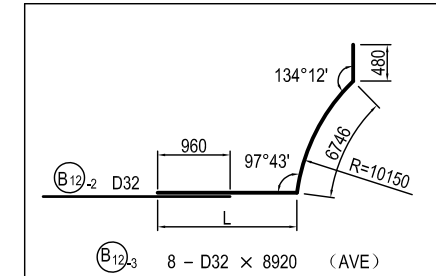
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME PREPARED BY S. IMADA CHECKED BY T. HAYAKAWA APPROVED BY Y. SANO	SIGNATURE 	DATE 27 Nov.2017 28 Nov.2017 29 Nov.2017	DRAWING TITLE BAR ARRANGEMENT OF P19 PIER (4)	PACKAGE 2 DWG No. P2-SB-2506
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BAR ARRANGEMENT OF P19 PIER (5) S=1:100

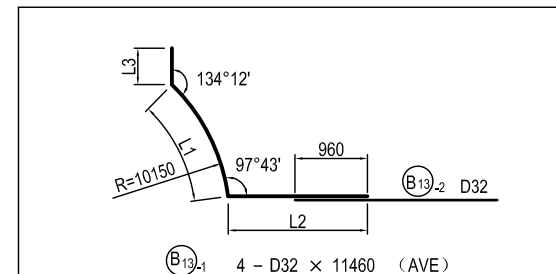
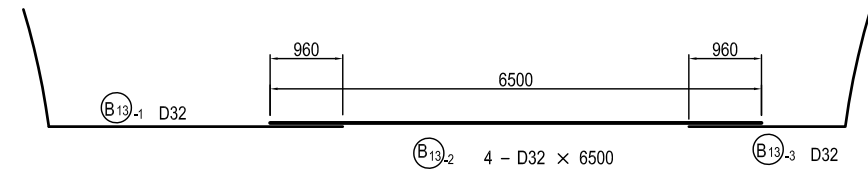
BEAM



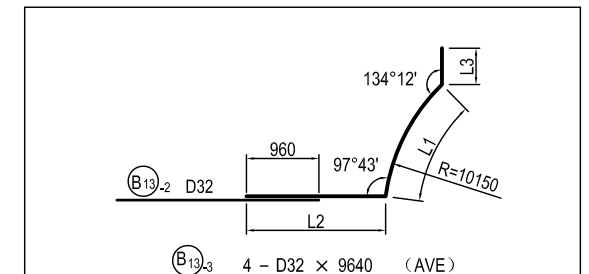
MARKS	DIA.	NOS. OF BARS	LENGTH L	TOTAL LENGTH ΣL
B12-1 1	D32	2	3058	10284
2	"	2	3449	10675
3	"	2	3691	10917
4	"	2	3848	11074
AVE		8		10738



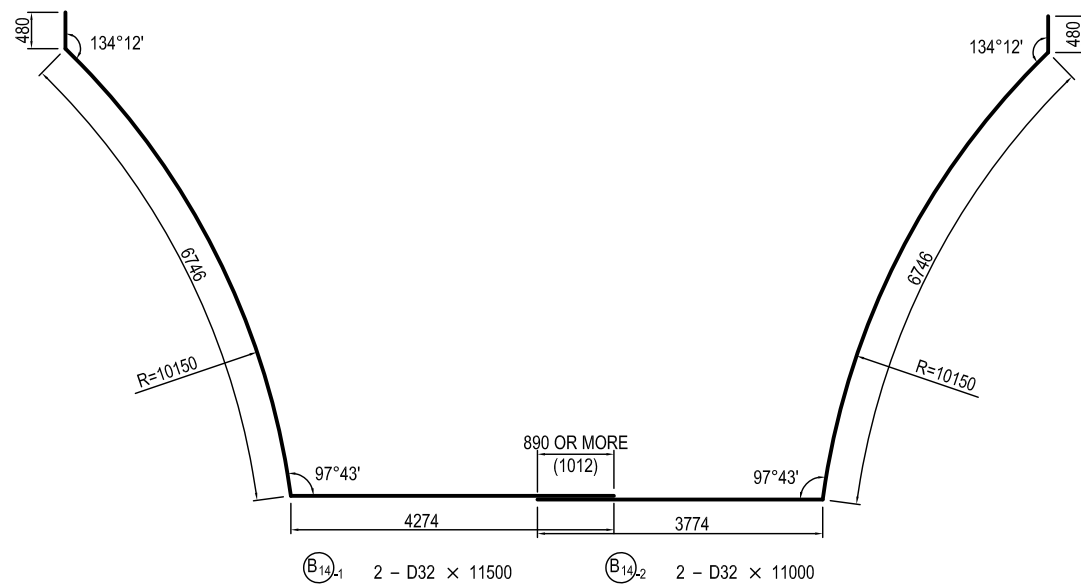
MARKS	DIA.	NOS. OF BARS	LENGTH L	TOTAL LENGTH ΣL
B12-3 1	D32	2	1238	8464
2	"	2	1629	8855
3	"	2	1871	9097
4	"	2	2028	9254
AVE		8		8918



MARKS	DIA.	NOS. OF BARS	LENGTH L1	LENGTH L2	LENGTH L3	TOTAL LENGTH ΣL
B13-1 1	D32	2	6669	3943	840	11452
2	"	2	6613	3983	880	11476
AVE		4				11464



MARKS	DIA.	NOS. OF BARS	LENGTH L1	LENGTH L2	LENGTH L3	TOTAL LENGTH ΣL
B13-3 1	D32	2	6669	2123	840	9632
2	"	2	6613	2163	880	9656
AVE		4				9644

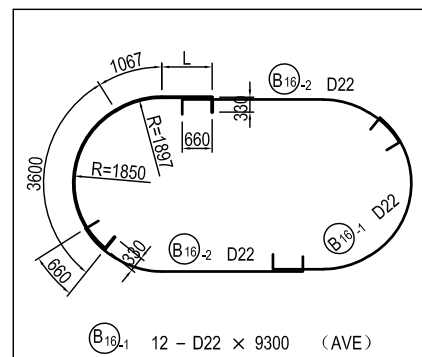
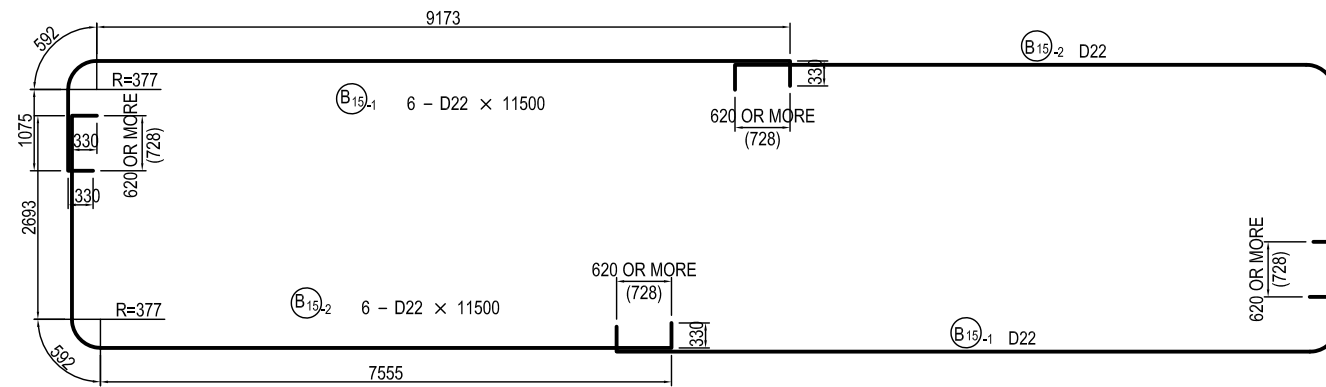


USE MATERIALS

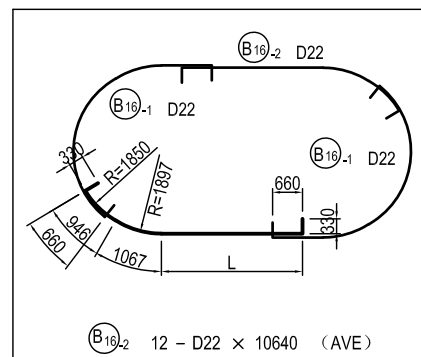
	CONCRETE	BAR
BEAM	σ _{ck} = 30 N/mm ²	SD345

BAR ARRANGEMENT OF P19 PIER (6) S=1:100

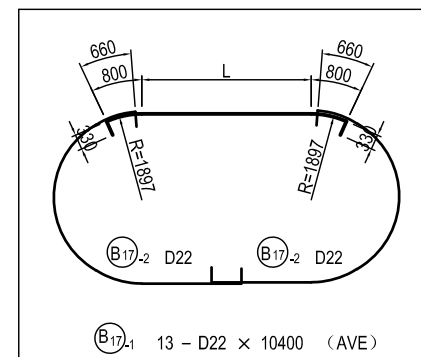
BEAM



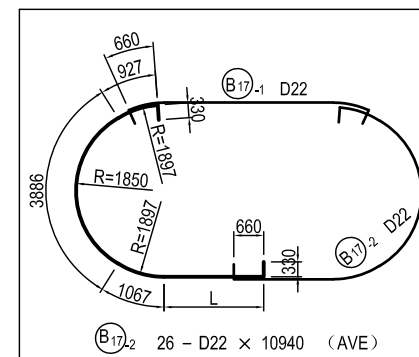
MARKS	DIA.	NOS. OF BARS	LENGTH L	TOTAL LENGTH ΣL
B16-1 1	D22	2	4612	9939
2	"	2	4328	9655
3	"	2	4065	9392
4	"	2	3823	9150
5	"	2	3598	8925
6	"	2	3391	8718
AVE		12		9297



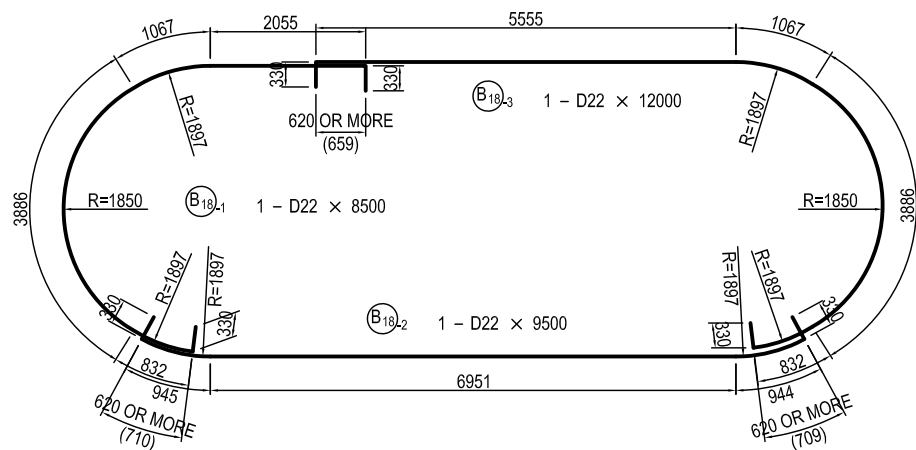
MARKS	DIA.	NOS. OF BARS	LENGTH L	TOTAL LENGTH ΣL
B16-2 1	D22	2	8612	11285
2	"	2	8328	11001
3	"	2	8065	10738
4	"	2	7823	10496
5	"	2	7598	10271
6	"	2	7391	10064
AVE		12		10643



MARKS	DIA.	NOS. OF BARS	LENGTH L	TOTAL LENGTH ΣL
B17-1 1	D22	1	9737	11997
2	"	1	9381	11641
3	"	1	9052	11312
4	"	1	8749	11009
5	"	1	8470	10730
6	"	1	8215	10475
7	"	1	7982	10242
8	"	1	7771	10031
9	"	1	7580	9840
10	"	1	7410	9670
11	"	1	7260	9520
12	"	1	7128	9388
13	"	1	7016	9276
AVE		13		10395



MARKS	DIA.	NOS. OF BARS	LENGTH L	TOTAL LENGTH ΣL
B17-2 1	D22	2	5198	11738
2	"	2	5020	11560
3	"	2	4856	11396
4	"	2	4705	11245
5	"	2	4565	11105
6	"	2	4438	10978
7	"	2	4321	10861
8	"	2	4215	10755
9	"	2	4120	10660
10	"	2	4035	10575
11	"	2	3960	10500
12	"	2	3894	10434
13	"	2	3838	10378
AVE		26		10937



USE MATERIALS

	CONCRETE	BAR
BEAM	σ _{ck} = 30 N/mm ²	SD345

PROJECT NAME
DETAILED DESIGN ON
BAGO RIVER BRIDGE
CONSTRUCTION PROJECT

FINANCED BY
 JAPAN INTERNATIONAL
COOPERATION AGENCY

COUNTERPART
 REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF CONSTRUCTION
DEPARTMENT OF BRIDGE

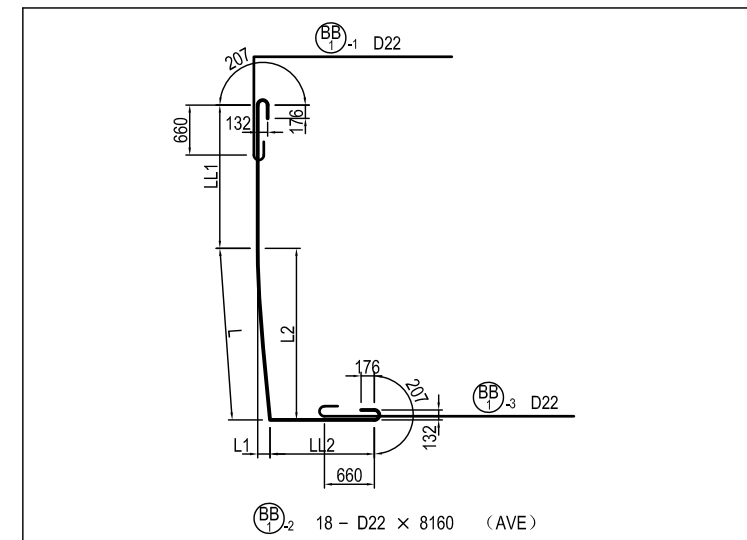
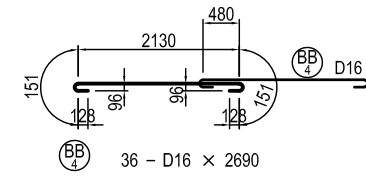
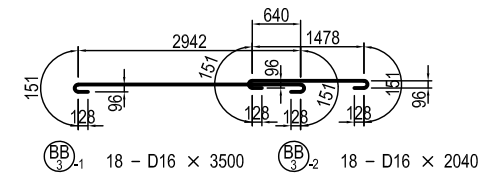
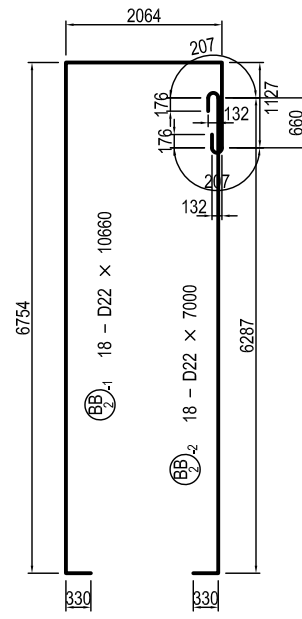
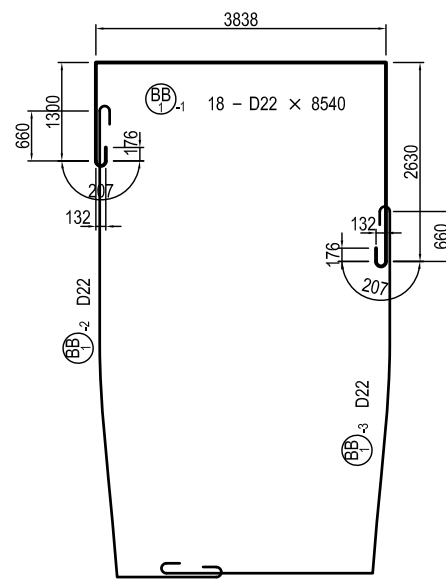
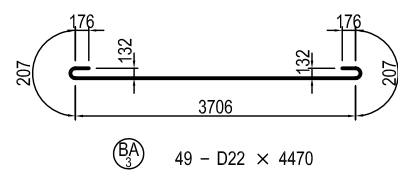
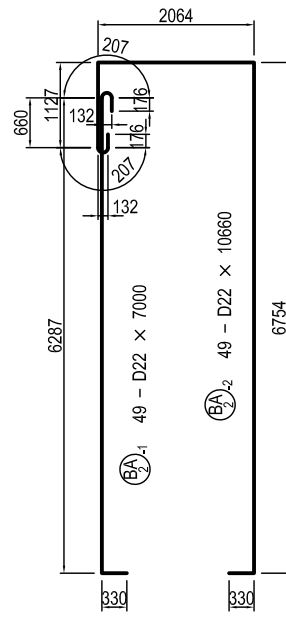
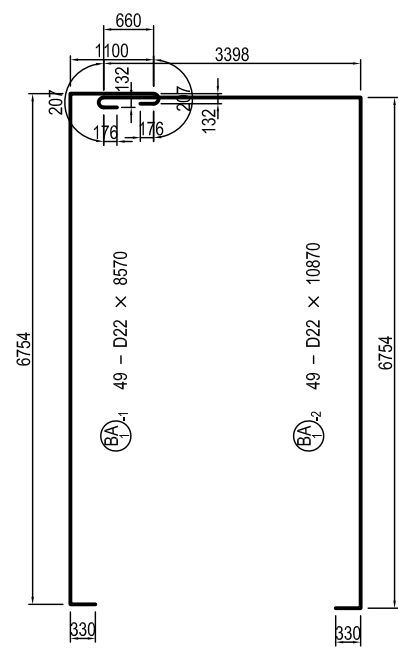
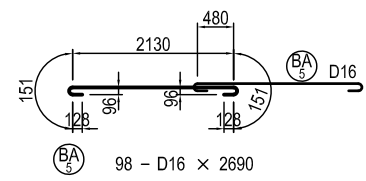
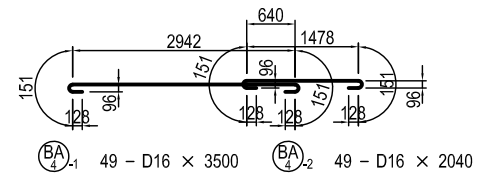
JICA STUDY TEAM
 NIPPON KOEI CO., LTD.
ORIENTAL CONSULTANTS GLOBAL CO., LTD.
METROPOLITAN EXPRESSWAY COMPANY LIMITED
CHODAI CO., LTD.
NIPPON ENGINEERING CONSULTANTS CO., LTD.

	NAME	SIGNATURE	DATE
PREPARED BY	S. IMADA		27 Nov.2017
CHECKED BY	T. HAYAKAWA		28 Nov.2017
APPROVED BY	Y. SANO		29 Nov.2017

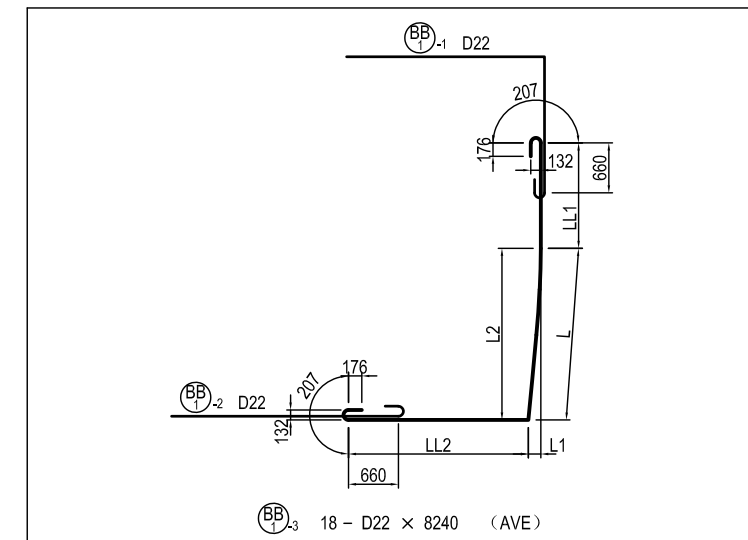
DRAWING TITLE
BAR ARRANGEMENT OF P19 PIER (6)

PACKAGE
2
DWG No.
P2-SB-2508

BAR ARRANGEMENT OF P19 PIER (7) S=1:100 BEAM



MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	LENGTH L2	LENGTH LL1	LENGTH LL2	TOTAL LENGTH ΣL
BB1-2 1	D22	2	1464	33	1464	4650	1511	8391
2	"	2	1892	54	1891	4223	1490	8371
3	"	2	2282	97	2280	3834	1447	8329
4	"	2	2606	155	2601	3513	1389	8274
5	"	2	3029	227	3020	3094	1317	8206
6	"	2	3241	315	3225	2889	1229	8125
7	"	2	3607	416	3580	2534	1128	8035
8	"	2	3827	541	3785	2329	1003	7925
9	"	2	4115	698	4051	2063	846	7790
AVE		18						8161

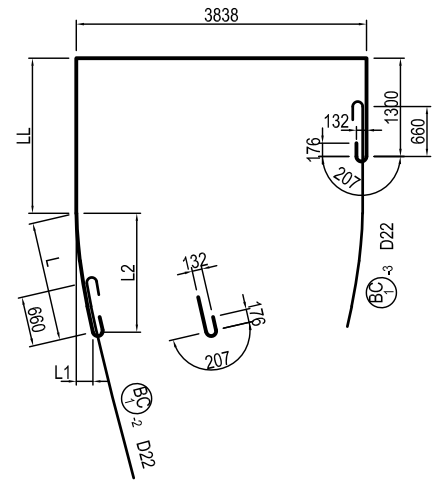
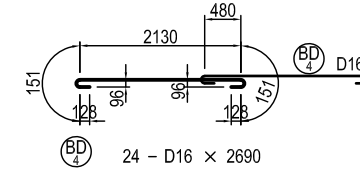
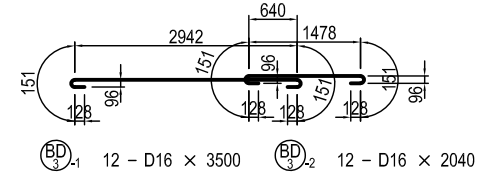
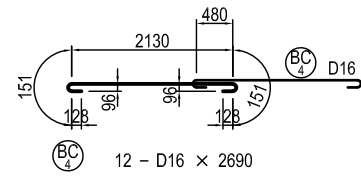
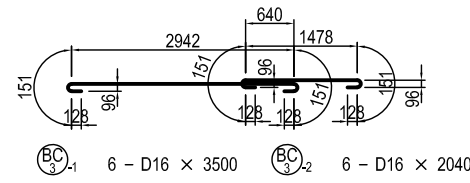


MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	LENGTH L2	LENGTH LL1	LENGTH LL2	TOTAL LENGTH ΣL
BB1-3 1	D22	2	1464	33	1464	3320	2921	8471
2	"	2	1892	54	1891	2893	2900	8451
3	"	2	2282	97	2280	2504	2857	8409
4	"	2	2606	155	2601	2183	2799	8354
5	"	2	3029	227	3020	1764	2727	8286
6	"	2	3241	315	3225	1559	2639	8205
7	"	2	3607	416	3580	1204	2538	8115
8	"	2	3827	541	3785	999	2413	8005
9	"	2	4115	698	4051	733	2256	7870
AVE		18						8241

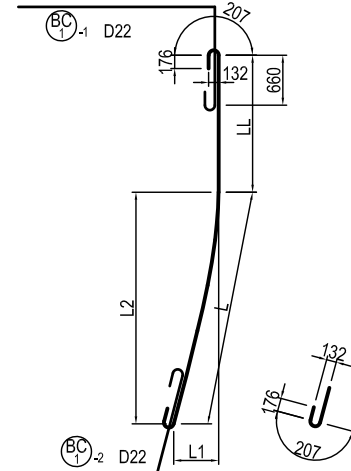
USE MATERIALS

	CONCRETE	BAR
BEAM	σck = 30 N/mm ²	SD345

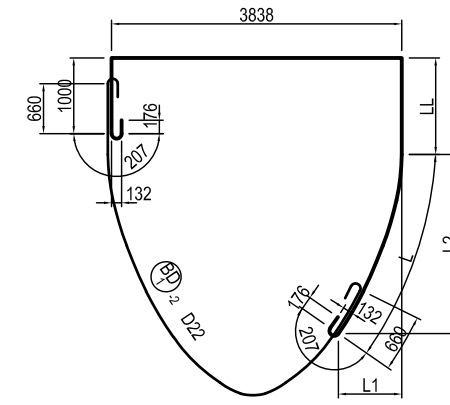
BAR ARRANGEMENT OF P19 PIER (8) S=1:100 BEAM



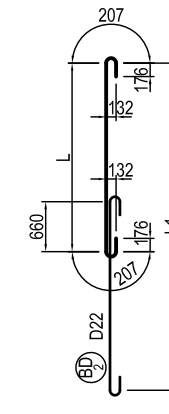
MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	LENGTH L2	LENGTH LL	TOTAL LENGTH ΣL
BC1-1	D22	2	1591	219	1573	2451	9946
2	"	2	1871	304	1837	2177	9952
3	"	2	2008	400	1961	2049	9961
AVE		6					9953



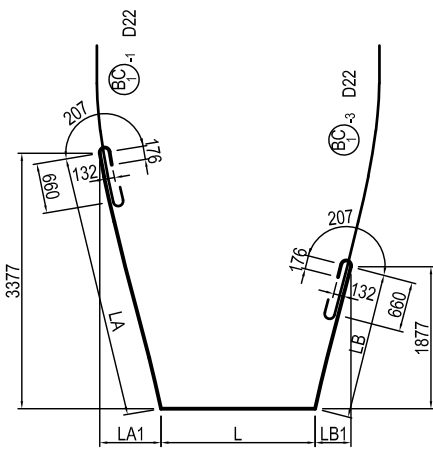
MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	LENGTH L2	LENGTH LL	TOTAL LENGTH ΣL
BC1-3	D22	2	3129	594	3064	1811	5706
2	"	2	3426	761	3327	1537	5729
3	"	2	3591	975	3434	1409	5766
AVE		6					5734



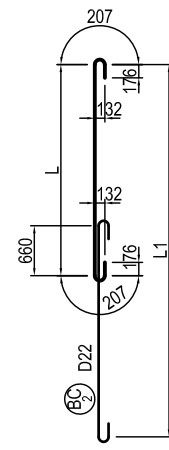
MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	LENGTH L2	LENGTH LL	TOTAL LENGTH ΣL
BD1-1	D22	2	1907	407	1855	1851	9362
2	"	2	2150	524	2071	1623	9377
3	"	2	2289	665	2171	1503	9396
4	"	2	2544	836	2369	1277	9425
5	"	2	2697	1045	2436	1167	9468
6	"	2	2879	1218	2528	1027	9510
AVE		12					9423



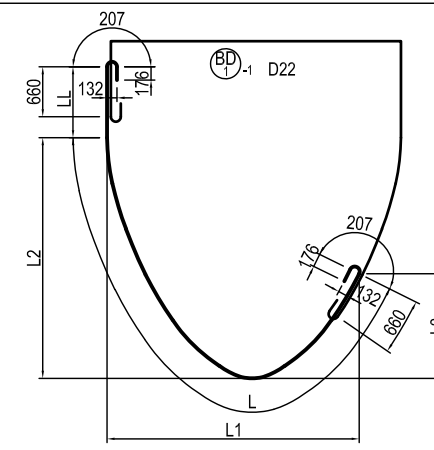
MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	TOTAL LENGTH ΣL
BD2	D22	8	2645	4630	3411
2	"	8	2445	4229	3211
3	"	8	2266	3872	3032
4	"	8	2105	3549	2871
5	"	8	1957	3253	2723
6	"	8	1864	3068	2630
AVE		48			2980



MARKS	DIA.	NOS. OF BARS	LENGTH LA	LENGTH LA1	LENGTH LB	LENGTH LB1	LENGTH L	TOTAL LENGTH ΣL
BC1-2	D22	2	3474	811	1936	474	2038	8214
2	"	2	3536	1043	1981	760	1465	7748
3	"	2	3791	1621	2209	1120	171	6937
AVE		6						7633



MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	TOTAL LENGTH ΣL
BC2	D22	8	3543	6425	4309
2	"	8	3159	5657	3925
3	"	8	2877	5093	3643
AVE		24			3959



MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	LENGTH L2	LENGTH L3	LENGTH LL	TOTAL LENGTH ΣL
BD1-2	D22	2	8159	3633	4120	2894	1511	10436
2	"	2	7303	3548	3741	2287	1283	9352
3	"	2	6546	3453	3373	1799	1163	8475
4	"	2	5999	3336	3183	1383	937	7702
5	"	2	5399	3189	2925	1015	827	6992
6	"	2	5104	3072	2841	791	687	6557
AVE		12						8252

USE MATERIALS

BEAM	CONCRETE	BAR
	σ _{ck} = 30 N/mm ²	SD345

PROJECT NAME
DETAILED DESIGN ON
BAGO RIVER BRIDGE
CONSTRUCTION PROJECT

FINANCED BY
JICA
JAPAN INTERNATIONAL
COOPERATION AGENCY

COUNTERPART
REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF CONSTRUCTION
DEPARTMENT OF BRIDGE

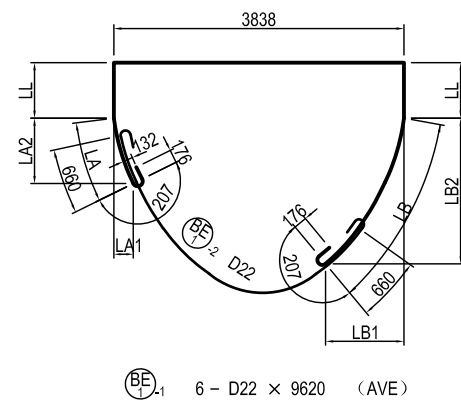
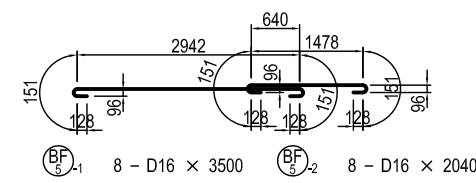
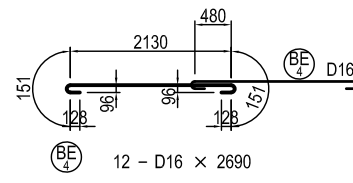
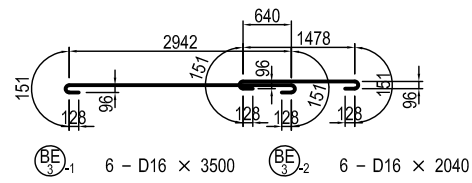
JICA STUDY TEAM
NIPPON KOEI CO., LTD.
ORIENTAL CONSULTANTS GLOBAL CO., LTD.
METROPOLITAN EXPRESSWAY COMPANY LIMITED
CHODAI CO., LTD.
NIPPON ENGINEERING CONSULTANTS CO., LTD.

	NAME	SIGNATURE	DATE
PREPARED BY	S. IMADA	<i>S. Imada</i>	27 Nov.2017
CHECKED BY	T. HAYAKAWA	<i>T. Hayakawa</i>	28 Nov.2017
APPROVED BY	Y. SANO	<i>Y. Sano</i>	29 Nov.2017

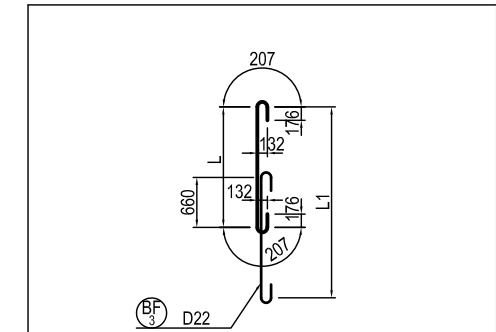
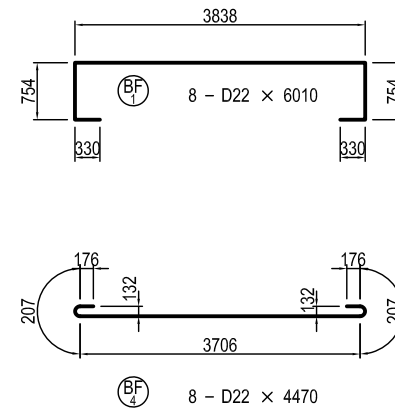
DRAWING TITLE
BAR ARRANGEMENT OF P19 PIER (8)

PACKAGE
2
DWG No.
P2-SB-2510

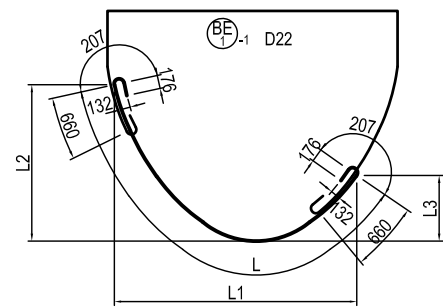
BAR ARRANGEMENT OF P19 PIER (9) S=1:100 BEAM



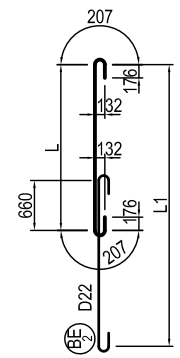
MARKS	DIA.	NOS. OF BARS	LENGTH LA	LENGTH LA1	LENGTH LA2	LENGTH LB	LENGTH LB1	LENGTH LB2	LENGTH LL	TOTAL LENGTH ΣL
BE1-1	D22	6	820	196	793	2475	1141	2129	818	9535
2	"	2	905	257	863	2624	1351	2154	736	9605
3	"	2	970	325	906	2780	1612	2117	679	9712
AVE		6								9617



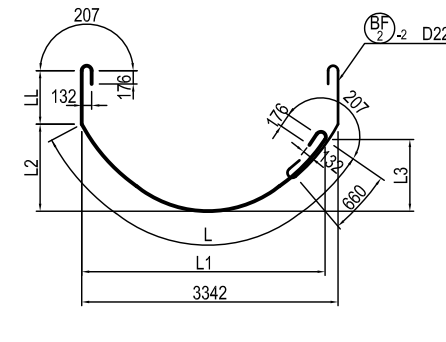
MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	TOTAL LENGTH ΣL
BF3	D22	4	1335	2009	2101
2	"	4	1251	1841	2017
3	"	4	1170	1680	1936
4	"	4	1093	1526	1859
AVE		16			1978



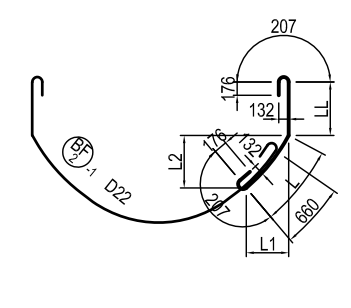
MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	LENGTH L2	LENGTH L3	TOTAL LENGTH ΣL
BE1-2	D22	6	4693	3139	2292	792	5459
2	"	2	4230	2959	2069	569	4996
3	"	2	3755	2725	1858	358	4521
AVE		6					4992



MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	TOTAL LENGTH ΣL
BE2	D22	24	1611	2561	2377
2	"	8	1514	2368	2280
3	"	8	1423	2185	2189
AVE		24			2282



MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	LENGTH L2	LENGTH L3	LENGTH L4	LENGTH L5	TOTAL LENGTH ΣL
BF1-1	D22	8	4397	3300	1340	1258	1228		6391
2	"	2	4172	3218	1287	1068	1092		6030
3	"	2	3933	3126	1233	887	964		5663
4	"	2	3721	3016	1196	713	829		5316
AVE		8							5850



MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	LENGTH L2	LENGTH L3	LENGTH L4	TOTAL LENGTH ΣL
BF2-2	D22	8	753	407	631	1228		2747
2	"	2	912	530	737	1092		2770
3	"	2	1069	665	828	964		2799
4	"	2	1243	821	914	829		2838
AVE		8						2789

USE MATERIALS

	CONCRETE	BAR
BEAM	σ _{ck} = 30 N/mm ²	SD345

PROJECT NAME
DETAILED DESIGN ON
BAGO RIVER BRIDGE
CONSTRUCTION PROJECT

FINANCED BY
 JAPAN INTERNATIONAL
COOPERATION AGENCY

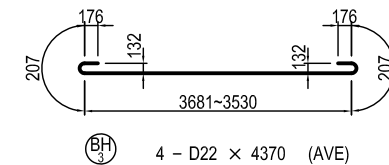
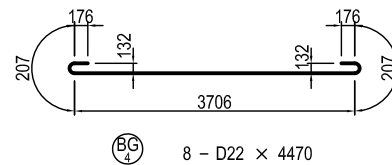
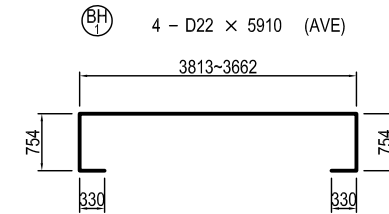
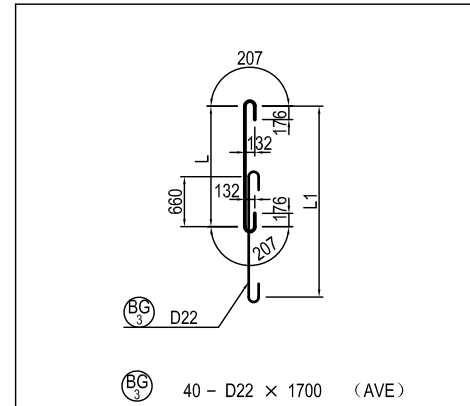
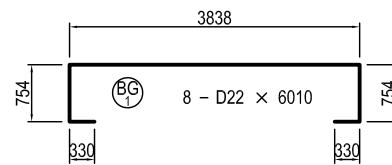
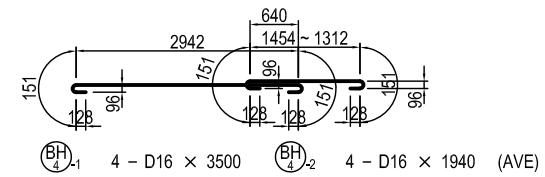
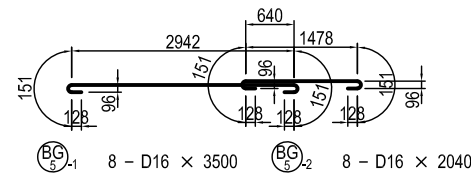
COUNTERPART
 REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF CONSTRUCTION
DEPARTMENT OF BRIDGE

JICA STUDY TEAM
 NIPPON KOEI CO., LTD.
ORIENTAL CONSULTANTS GLOBAL CO., LTD.
METROPOLITAN EXPRESSWAY COMPANY LIMITED
CHODAI CO., LTD.
NIPPON ENGINEERING CONSULTANTS CO., LTD.

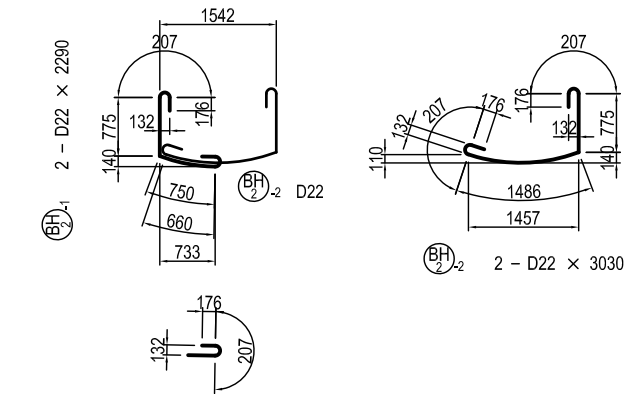
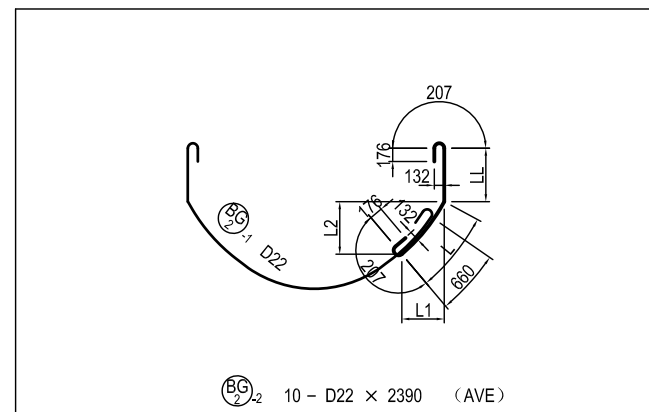
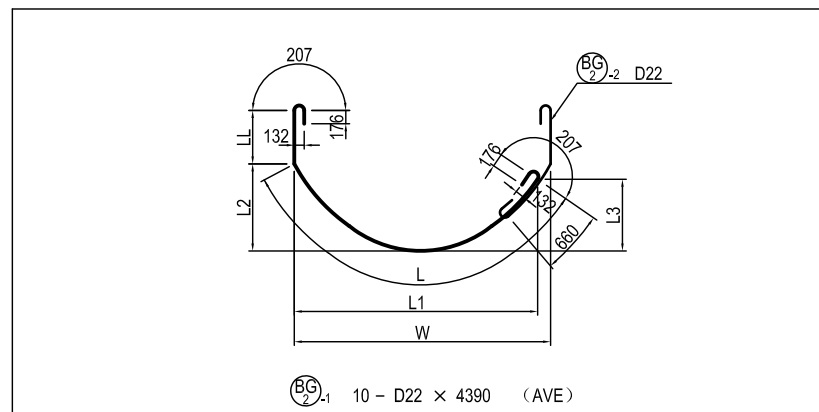
	NAME	SIGNATURE	DATE
PREPARED BY	S. IMADA		27 Nov.2017
CHECKED BY	T. HAYAKAWA		28 Nov.2017
APPROVED BY	Y. SANO		29 Nov.2017

DRAWING TITLE	PACKAGE
BAR ARRANGEMENT OF P19 PIER (9)	2
	DWG No.
	P2-SB-2511

BAR ARRANGEMENT OF P19 PIER (10) S=1:100 BEAM



MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	TOTAL LENGTH ΣL
BG3 1	D22	8	1113	1565	1879
2	"	8	1038	1415	1804
3	"	8	869	1077	1635
4	"	8	866	1071	1632
5	"	8	787	914	1553
AVE		40			1701



MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	LENGTH L2	LENGTH L3	LENGTH W	LENGTH LL	TOTAL LENGTH ΣL
BG2-1 1	D22	2	4015	3220	1151	948	3342	707	5488
2	"	2	3528	2977	876	789	3042	824	5118
3	"	2	2594	2371	491	432	2442	852	4212
4	"	2	2227	2077	369	321	2142	863	3856
5	"	2	1715	1639	271	159	1842	799	3280
AVE		10							4391

MARKS	DIA.	NOS. OF BARS	LENGTH L	LENGTH L1	LENGTH L2	LENGTH LL	TOTAL LENGTH ΣL
BG2-2 1	D22	2	898	561	694	707	2371
2	"	2	769	545	536	824	2359
3	"	2	752	645	379	852	2370
4	"	2	740	662	320	863	2369
5	"	2	892	840	269	799	2457
AVE		10					2385

USE MATERIALS

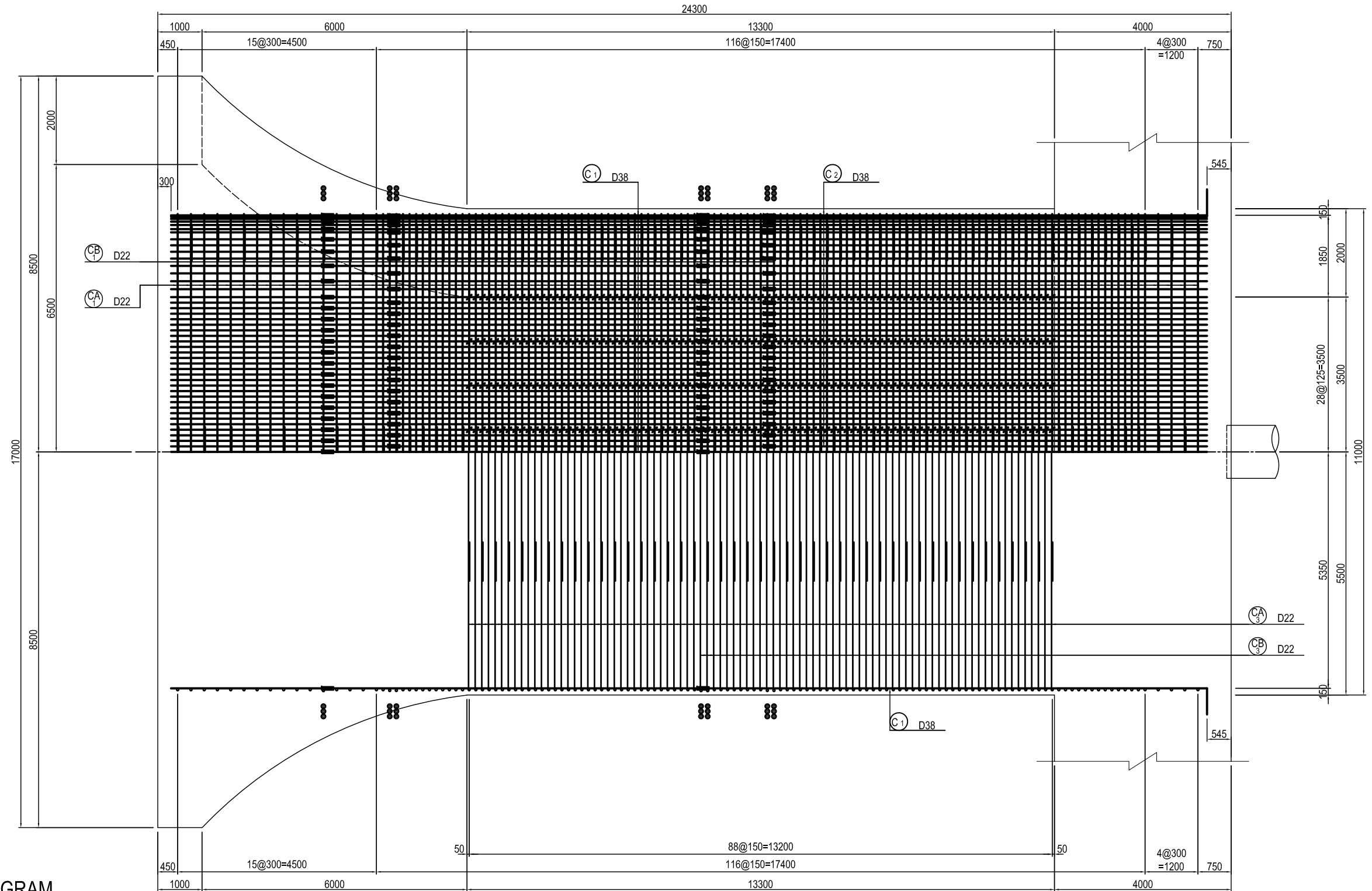
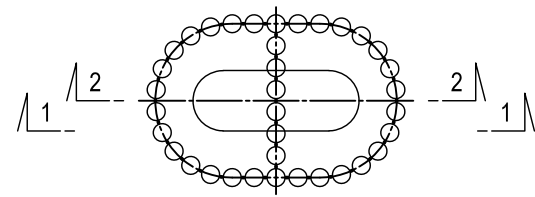
	CONCRETE	BAR
BEAM	σ _{ck} = 30 N/mm ²	SD345

BAR ARRANGEMENT OF P19 PIER (11) S=1:100 COLUMN

FRONT ELEVATION
1-1

SECTION
2-2

MARKING DIAGRAM



Notes) 1. : This mark indicates hoop arranged in the location of mechanical joint.
2. : This mark indicates a mechanical joint.

USE MATERIALS

COLUMN	CONCRETE $\sigma_{ck} = 30 \text{ N/mm}^2$	BAR	
		MAIN BAR	OTHERS
		SD390	SD345

PROJECT NAME
DETAILED DESIGN ON
BAGO RIVER BRIDGE
CONSTRUCTION PROJECT

FINANCED BY
 JAPAN INTERNATIONAL
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COUNTERPART
 REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF CONSTRUCTION
DEPARTMENT OF BRIDGE

JICA STUDY TEAM
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 ORIENTAL CONSULTANTS GLOBAL CO., LTD.
 METROPOLITAN EXPRESSWAY COMPANY LIMITED
 CHODAI CO., LTD.
 NIPPON ENGINEERING CONSULTANTS CO., LTD.

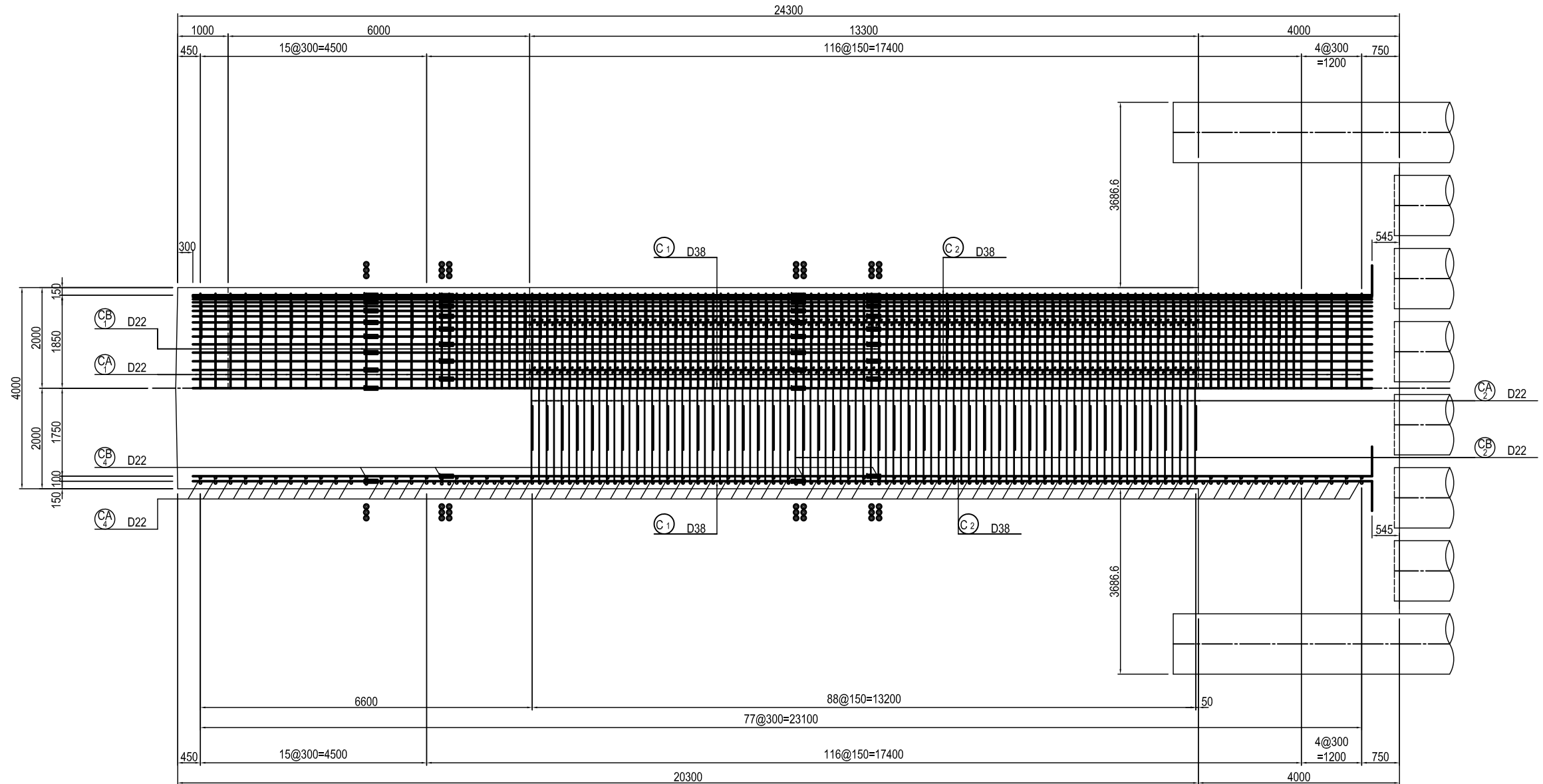
	NAME	SIGNATURE	DATE
PREPARED BY	S. IMADA		27 Nov.2017
CHECKED BY	T. HAYAKAWA		28 Nov.2017
APPROVED BY	Y. SANO		29 Nov.2017

DRAWING TITLE
BAR ARRANGEMENT OF P19 PIER (11)

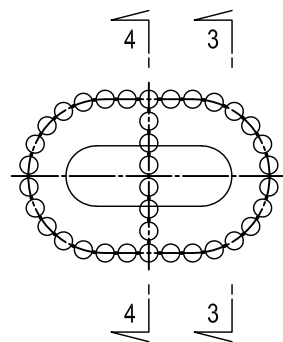
PACKAGE
2
DWG No.
P2-SB-2513

BAR ARRANGEMENT OF P19 PIER (12) S=1:100 COLUMN

SECTION SIDE ELEVATION
4-4
3-3



MARKING DIAGRAM



- Notes) 1. : This mark indicates hoop arranged in the location of mechanical joint.
 2. : This mark indicates a mechanical joint.

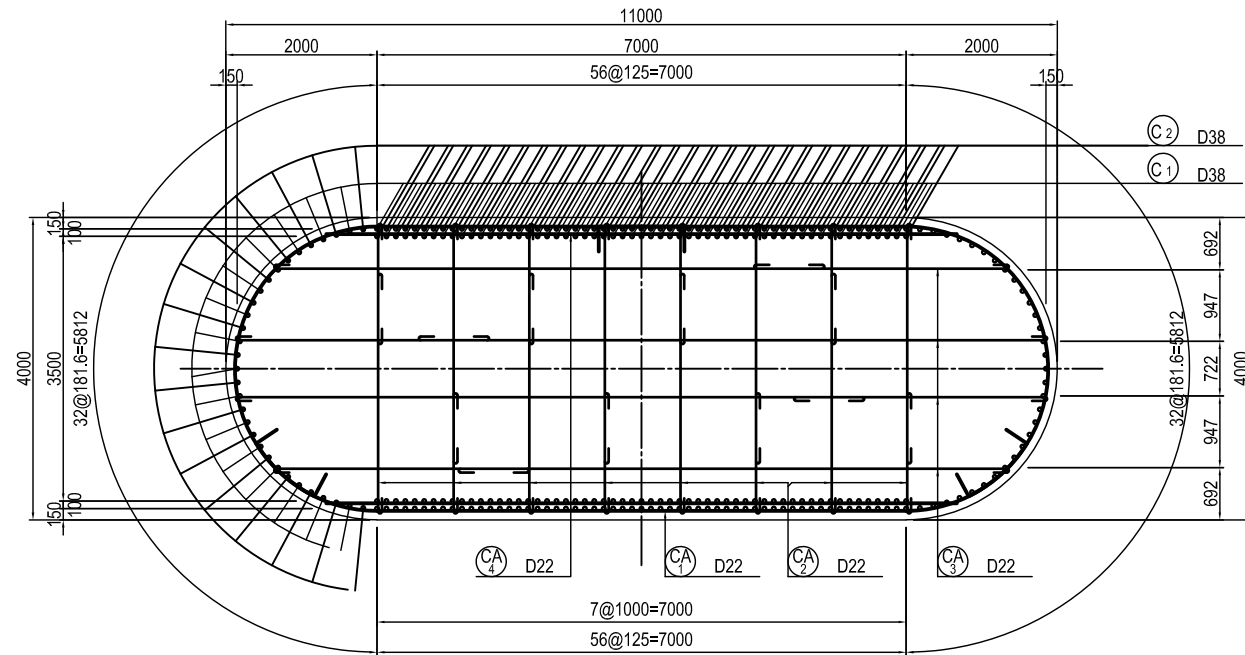
USE MATERIALS

COLUMN	CONCRETE $\sigma_{ck} = 30 \text{ N/mm}^2$	BAR	
		MAIN BAR	OTHERS
		SD390	SD345

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE BAR ARRANGEMENT OF P19 PIER (12)	PACKAGE 2 DWG No. P2-SB-2514	
				PREPARED BY	S. IMADA				27 Nov.2017
				CHECKED BY	T. HAYAKAWA				28 Nov.2017
				APPROVED BY	Y. SANO				29 Nov.2017

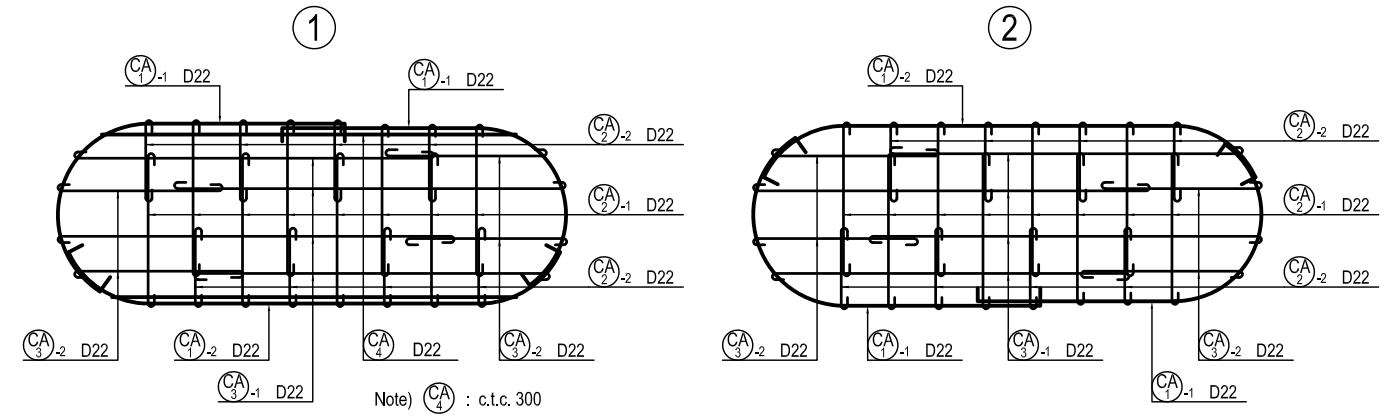
BAR ARRANGEMENT OF P19 PIER (13) S=1:100 COLUMN

**PLAN
5-5**

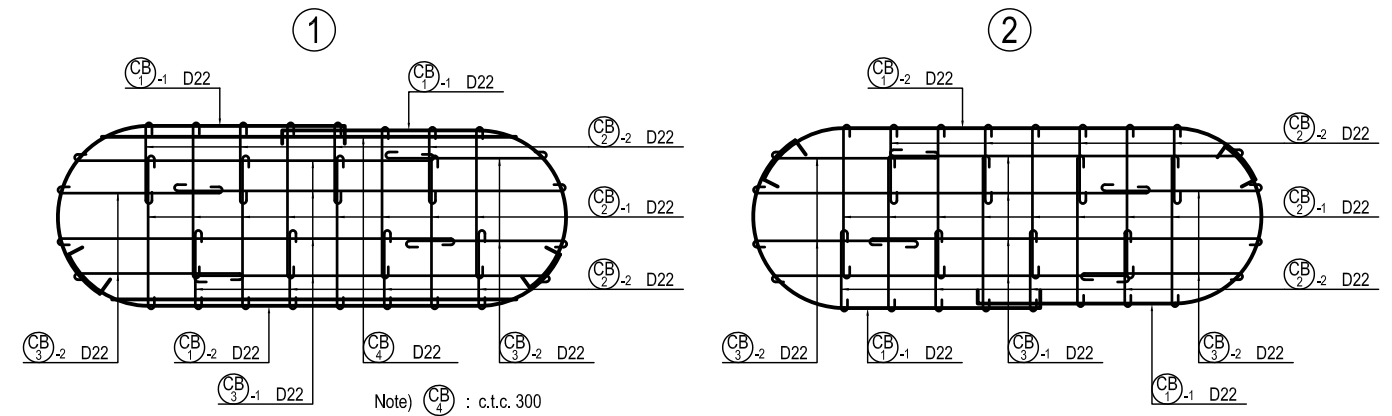


**ASSEMBLY DRAWING OF HOOP
(c.t.c. 150)**

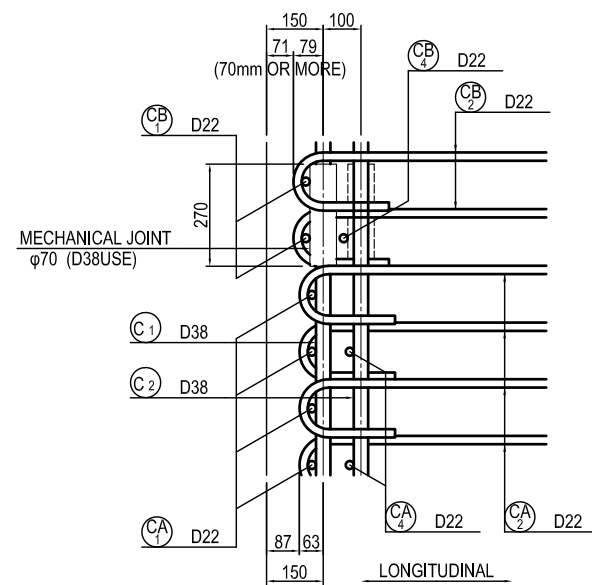
【STANDARD PART】



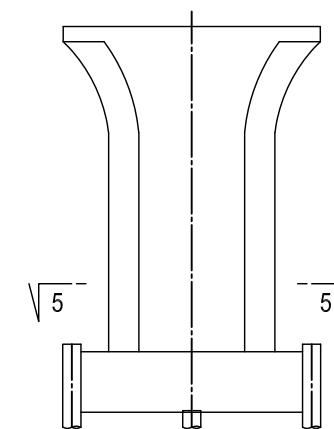
【MECHANICAL JOINT PART】



DETAIL OF COLUMN S=1:20



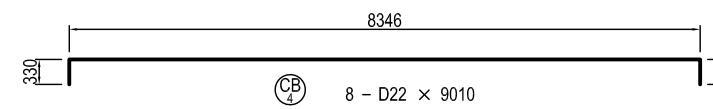
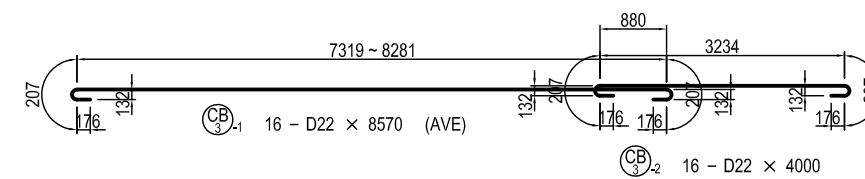
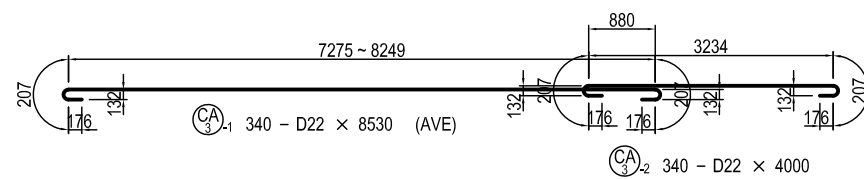
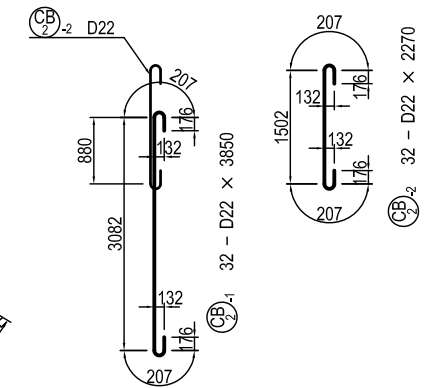
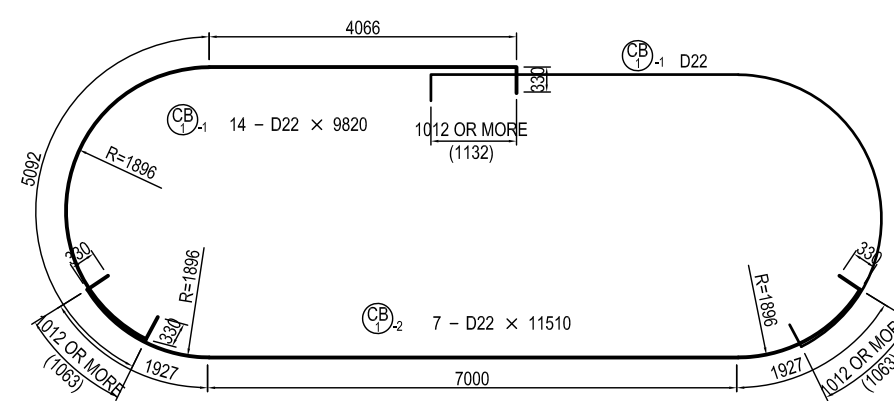
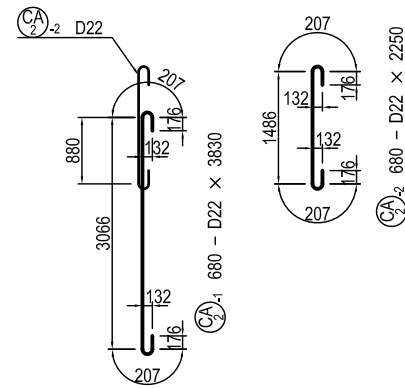
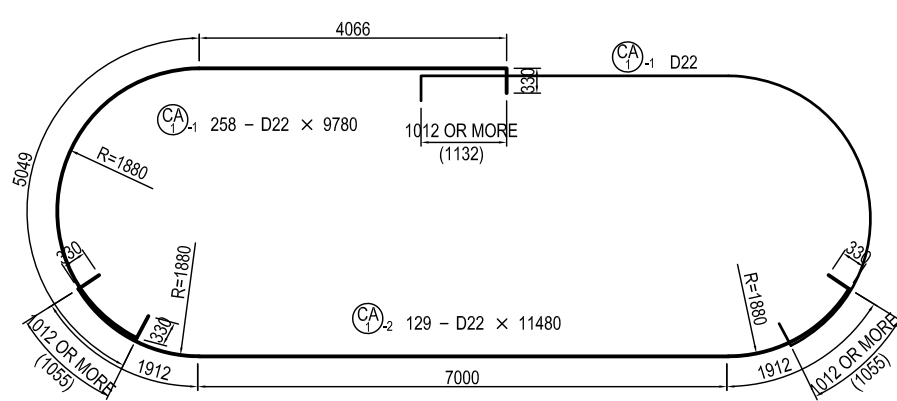
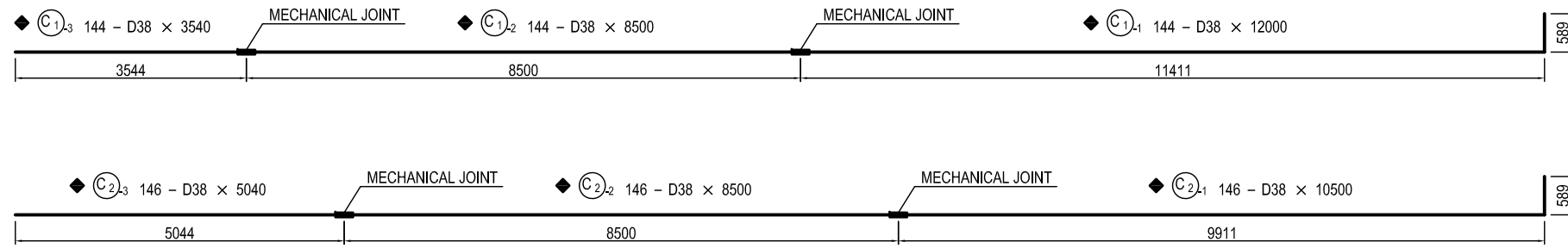
MARKING DIAGRAM



USE MATERIALS

COLUMN	CONCRETE	BAR		
	$\sigma_{ck} = 30 \text{ N/mm}^2$	MAIN BAR	SD390	OTHERS

BAR ARRANGEMENT OF P19 PIER (14) S=1:100 COLUMN



LAP LENGTH LIST OF HOOP

DIA.	R	LAP LENGTH (40φ)	L
D13	39	520	598
D16	48	640	736
D19	57	760	874
D22	66	880	1012
D25	75	1000	1150
D29	87	1160	1334
D32	96	1280	1472

- Notes) 1. : SD390
2. : MECHANICAL JOINT

USE MATERIALS

COLUMN	CONCRETE σ _{ck} = 30 N/mm ²	BAR	
		MAIN BAR	OTHERS
		SD390	SD345

BAR ARRANGEMENT OF P19 PIER (15) NOT TO SCALE

BAR SCHEDULE (SD390)

MARKS	DIA.	LENGTH (mm)	NOS. OF BARS	UNIT WEIGHT (kg/m)	WEIGHT/EA. (kg)	WEIGHT (kg)	REMARKS
C 1-1	D38	12000	144	8.95	107.40	15466	(144)
1-2	"	8500	144	"	76.08	10956	(144)
1-3	"	3540	144	"	31.68	4562	"
2-1	"	10500	146	"	93.98	13721	(146)
2-2	"	8500	146	"	76.08	11108	(146)
2-3	"	5040	146	"	45.11	6586	"
SUBTOTAL						62399 kg	
(MECHANICAL JOINT)							
SD390				D38	62399 kg	(580)	
TOTAL						62399 kg	(580)

BAR SCHEDULE (SD345)

MARKS	DIA.	LENGTH (mm)	NOS. OF BARS	UNIT WEIGHT (kg/m)	WEIGHT/EA. (kg)	WEIGHT (kg)	REMARKS
B 1-1	D32	11000	19	6.23	68.53	1302	"
1-2	"	8000	19	"	49.84	947	"
2-1	"	11500	4	"	71.65	287	"
2-2	"	7470	4	"	46.54	186	(AVE)
3-1	"	12000	2	"	74.76	150	"
3-2	"	6500	2	"	40.50	81	"
4-1	"	11500	6	"	71.65	430	"
4-2	"	7000	6	"	43.61	262	"
5-1	"	8920	4	"	55.57	222	"
5-2	"	9500	4	"	59.19	237	"
6-1	"	9000	2	"	56.07	112	"
6-2	"	9500	2	"	59.19	118	"
7-1	"	6000	2	"	37.38	75	"
7-2	"	12000	2	"	74.76	150	"
8-1	"	12000	7	"	74.76	523	"
8-2	"	7000	7	"	43.61	305	"
9	"	9500	6	"	59.19	355	"
10-1	"	7000	2	"	43.61	87	"
10-2	"	12000	2	"	74.76	150	"
11-1	"	12000	2	"	74.76	150	"
11-2	"	6000	2	"	37.38	75	"
12-1	"	10740	8	"	66.91	535	(AVE)
12-2	"	6500	8	"	40.50	324	"
12-3	"	8920	8	"	55.57	445	(AVE)
13-1	"	11460	4	"	71.40	286	(AVE)
13-2	"	6500	4	"	40.50	162	"
13-3	"	9640	4	"	60.06	240	(AVE)
14-1	"	11500	2	"	71.65	143	"
14-2	"	11000	2	"	68.53	137	"
15-1	D22	11500	6	3.04	34.96	210	"
15-2	"	11500	6	"	34.96	210	"
16-1	"	9300	12	"	28.27	339	(AVE)
16-2	"	10640	12	"	32.35	388	(AVE)
17-1	"	10400	13	"	31.62	411	(AVE)
17-2	"	10940	26	"	33.26	865	(AVE)
18-1	"	8500	1	"	25.84	26	"
18-2	"	9500	1	"	28.88	29	"
18-3	"	12000	1	"	36.48	36	"
SUBTOTAL						10990 kg	
BA 1-1	D22	8570	49	3.04	26.05	1276	"
1-2	"	10870	49	"	33.04	1619	"
2-1	"	7000	49	"	21.28	1043	"
2-2	"	10660	49	"	32.41	1588	"
3	"	4470	49	"	13.59	666	"
4-1	D16	3500	49	1.56	5.46	268	"
4-2	"	2040	49	"	3.18	156	"
5	"	2690	98	"	4.20	412	"
SUBTOTAL						7028 kg	

MARKS	DIA.	LENGTH (mm)	NOS. OF BARS	UNIT WEIGHT (kg/m)	WEIGHT/EA. (kg)	WEIGHT (kg)	REMARKS
BB 1-1	D22	8540	18	3.04	25.96	467	"
1-2	"	8160	18	"	24.81	447	(AVE)
1-3	"	8240	18	"	25.05	451	(AVE)
2-1	"	10660	18	"	32.41	583	"
2-2	"	7000	18	"	21.28	383	"
3-1	D16	3500	18	1.56	5.46	98	"
3-2	"	2040	18	"	3.18	57	"
4	"	2690	36	"	4.20	151	"
SUBTOTAL						2637 kg	
BC 1-1	D22	9950	6	3.04	30.25	182	(AVE)
1-2	"	7630	6	"	23.20	139	(AVE)
1-3	"	5730	6	"	17.42	105	(AVE)
2	"	3960	24	"	12.04	289	(AVE)
3-1	D16	3500	6	1.56	5.46	33	"
3-2	"	2040	6	"	3.18	19	"
4	"	2690	12	"	4.20	50	"
SUBTOTAL						817 kg	
BD 1-1	D22	9420	12	3.04	28.64	344	(AVE)
1-2	"	8250	12	"	25.08	301	(AVE)
2	"	2980	48	"	9.06	435	(AVE)
3-1	D16	3500	12	1.56	5.46	66	"
3-2	"	2040	12	"	3.18	38	"
4	"	2690	24	"	4.20	101	"
SUBTOTAL						1285 kg	
BE 1-1	D22	9620	6	3.04	29.24	175	(AVE)
1-2	"	4990	6	"	15.17	91	(AVE)
2	"	2280	24	"	6.93	166	(AVE)
3-1	D16	3500	6	1.56	5.46	33	"
3-2	"	2040	6	"	3.18	19	"
4	"	2690	12	"	4.20	50	"
SUBTOTAL						534 kg	
BF 1	D22	6010	8	3.04	18.27	146	"
2-1	"	5850	8	"	17.78	142	(AVE)
2-2	"	2790	8	"	8.48	68	(AVE)
3	"	1980	16	"	6.02	96	(AVE)
4	"	4470	8	"	13.59	109	"
5-1	D16	3500	8	1.56	5.46	44	"
5-2	"	2040	8	"	3.18	25	"
SUBTOTAL						630 kg	
BG 1	D22	6010	8	3.04	18.27	146	"
2-1	"	4390	10	"	13.35	134	(AVE)
2-2	"	2390	10	"	7.27	73	(AVE)
3	"	1700	40	"	5.17	207	(AVE)
4	"	4470	8	"	13.59	109	"
5-1	D16	3500	8	1.56	5.46	44	"
5-2	"	2040	8	"	3.18	25	"
SUBTOTAL						738 kg	

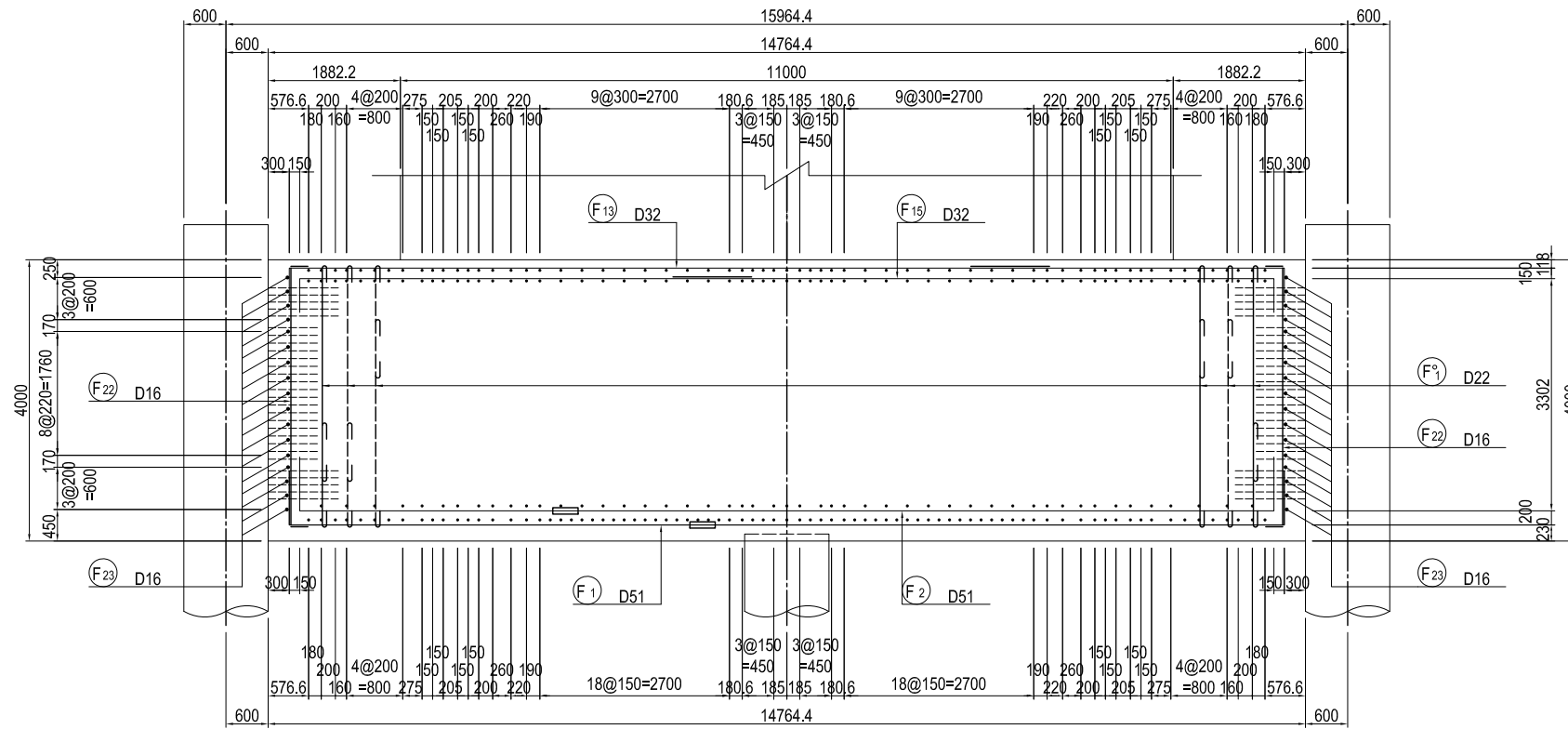
MARKS	DIA.	LENGTH (mm)	NOS. OF BARS	UNIT WEIGHT (kg/m)	WEIGHT/EA. (kg)	WEIGHT (kg)	REMARKS
BH 1	D22	5910	4	3.04	17.97	72	(AVE)
2-1	"	2290	2	"	6.96	14	"
2-2	"	3030	2	"	9.21	18	"
3	"	4370	4	"	13.28	53	(AVE)
4-1	D16	3500	4	1.56	5.46	22	"
4-2	"	1940	4	"	3.03	12	(AVE)
SUBTOTAL						191 kg	
H 1	D16	2840	68	1.56	4.43	301	"
2	"	3040	60	"	4.74	284	"
3	"	8290	4	"	12.93	52	"
SUBTOTAL						637 kg	
CA 1-1	D22	9780	258	3.04	29.73	7670	"
1-2	"	11480	129	"	34.90	4502	"
2-1	"	3830	680	"	11.64	7915	"
2-2	"	2250	680	"	6.84	4651	"
3-1	"	8530	340	"	25.93	8816	(AVE)
3-2	"	4000	340	"	12.16	4134	"
4	"	9000	148	"	27.36	4049	"
SUBTOTAL						41737 kg	
CB 1-1	D22	9820	14	3.04	29.85	418	"
1-2	"	11510	7	"	34.99	245	"
2-1	"	3850	32	"	11.70	374	"
2-2	"	2270	32	"	6.90	221	"
3-1	"	8570	16	"	26.05	417	(AVE)
3-2	"	4000	16	"	12.16	195	"
4	"	9010	8	"	27.39	219	"
SUBTOTAL						2089 kg	
SD345				D32	8476 kg		
				D22	58477 "		
				D16	2360 "		
TOTAL						69313 kg	

USE MATERIALS

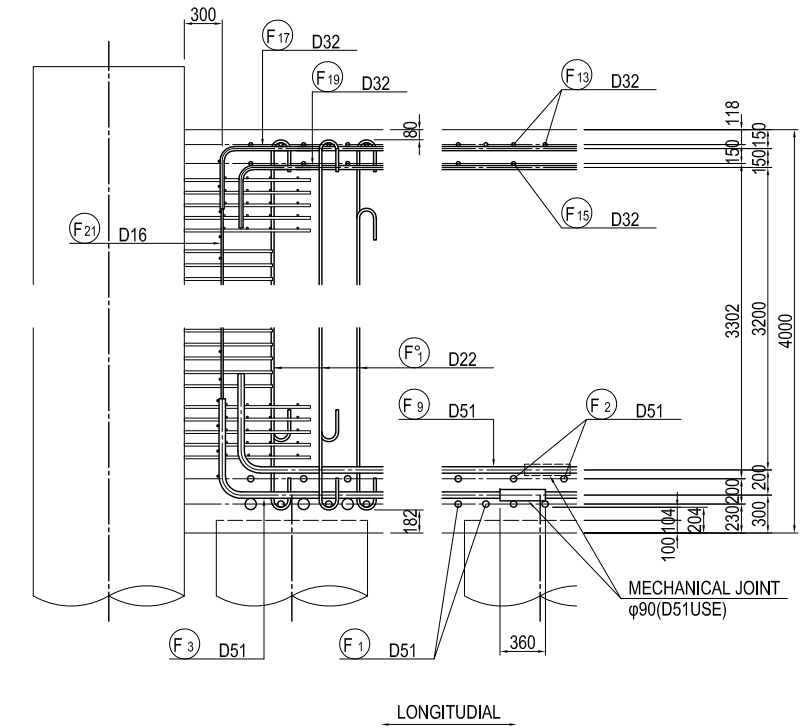
COLUMN	CONCRETE	BAR	
		MAIN BAR	OTHERS
	σck = 30 N/mm ²	SD390	SD345

BAR ARRANGEMENT OF P19 FOOTING (1) S=1:100

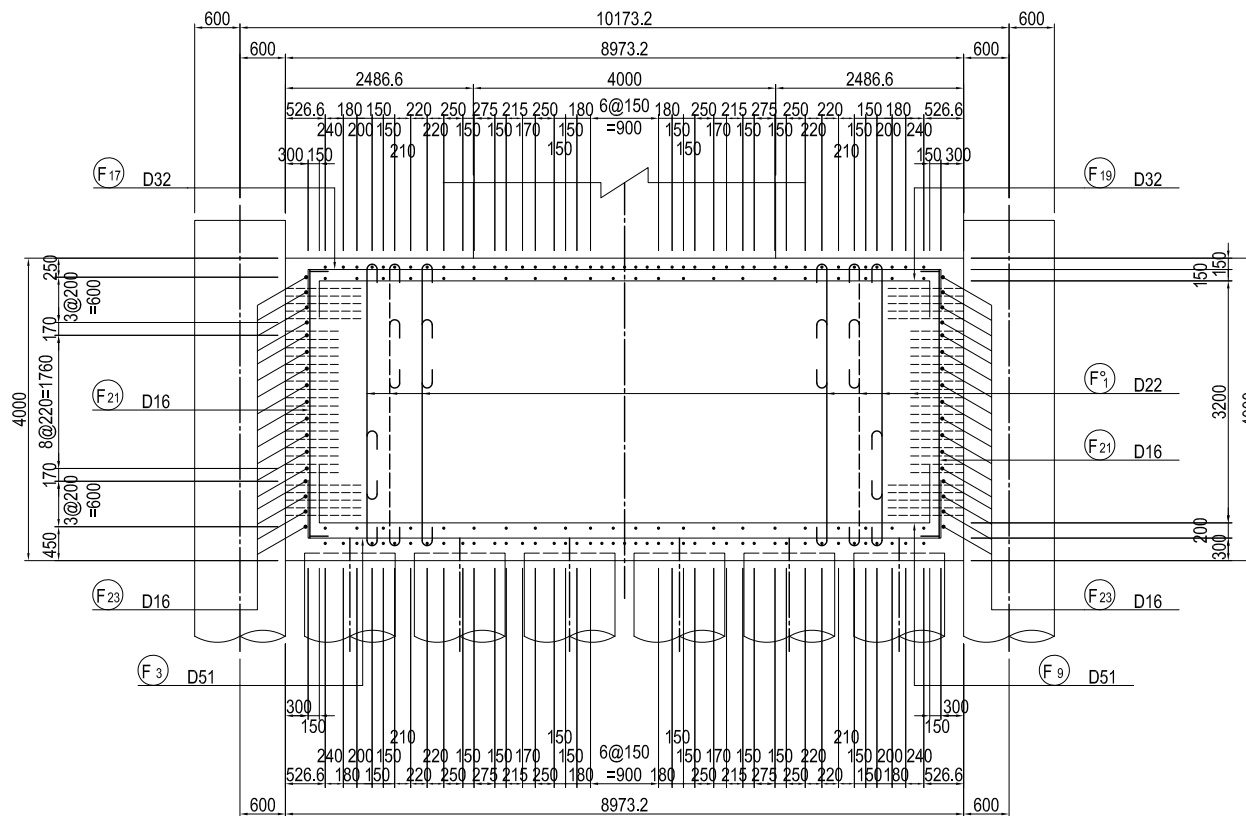
SECTION 1-1



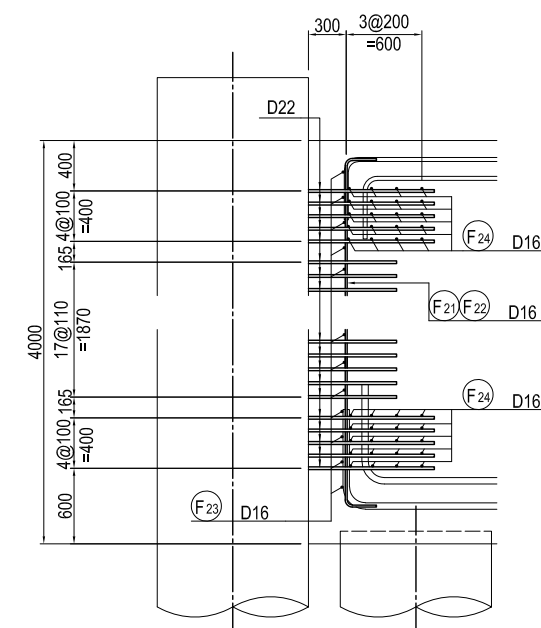
DETAIL OF PILE CAP S=1:60



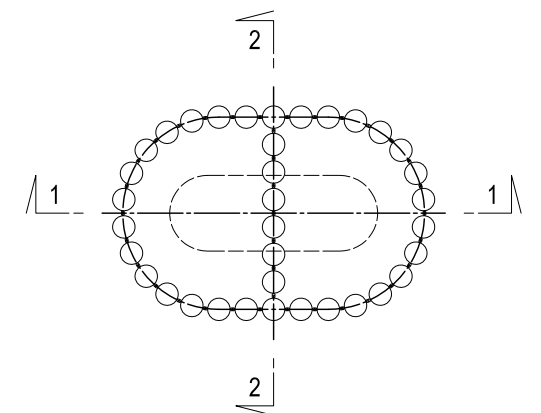
SECTION 2-2



DETAIL OF CONNECTION BETWEEN STEEL PIPE SHEET PILE AND FOOTING S=1:60



MARKING DIAGRAM



Note: — : MECHANICAL JOINT

USE MATERIALS

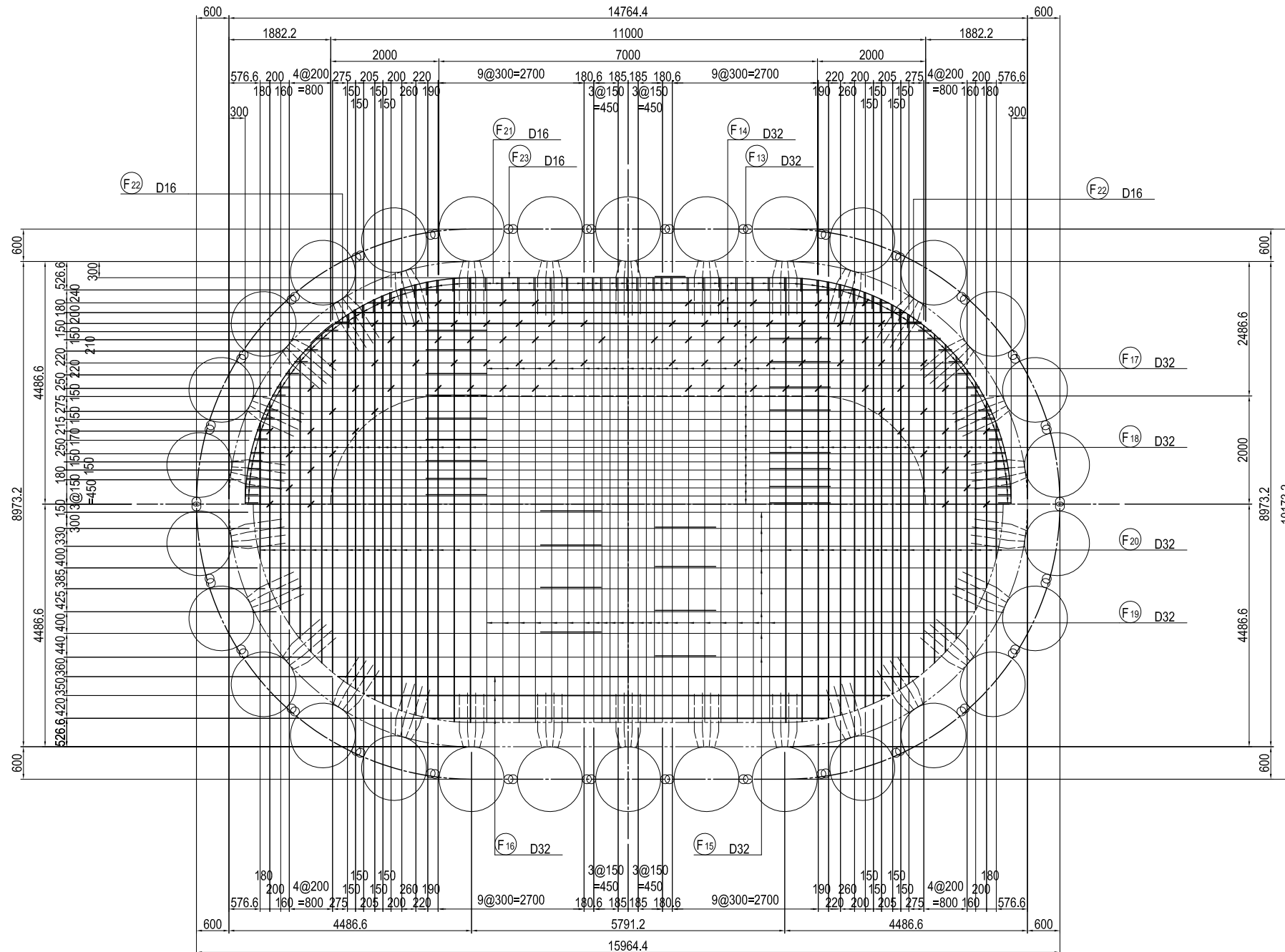
	CONCRETE	BAR
FOOTING	σck = 24 N/mm ²	SD345

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JICA JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE BAR ARRANGEMENT OF P19 FOOTING (1)	PACKAGE 2 DWG No. P2-SB-2518
				PREPARED BY	S. IMADA	27 Nov.2017		
				CHECKED BY	T. HAYAKAWA	28 Nov.2017		
				APPROVED BY	Y. SANO	29 Nov.2017		

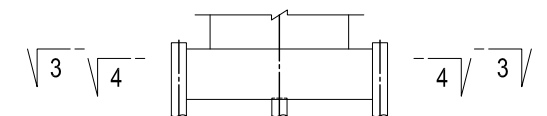
BAR ARRANGEMENT OF P19 FOOTING (2) S=1:100

PLAN
3-3

PLAN
4-4



MARKING DIAGRAM



USE MATERIALS

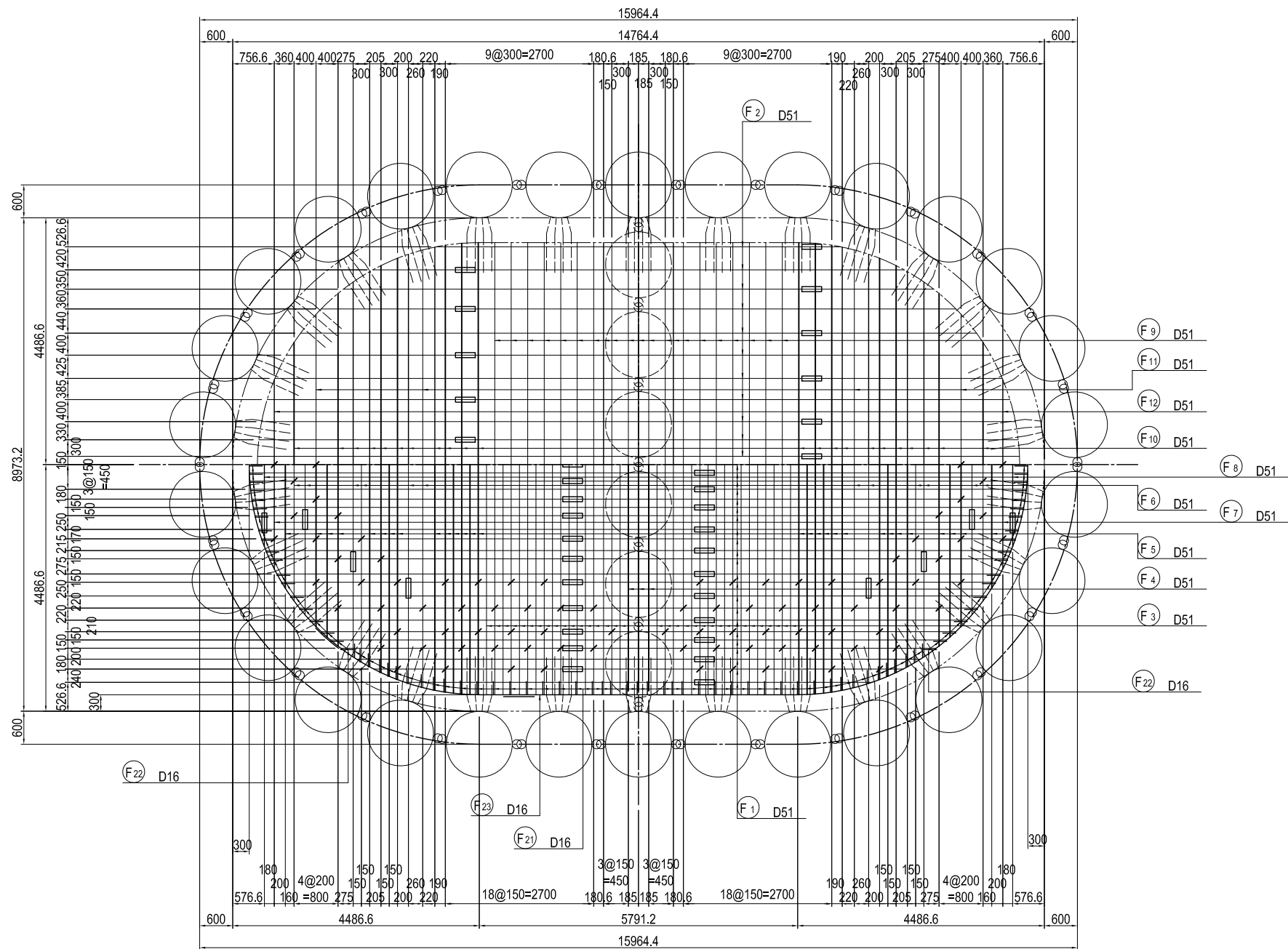
	CONCRETE	BAR
FOOTING	$\sigma_{ck} = 24 \text{ N/mm}^2$	SD345

<small>PROJECT NAME</small> DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	<small>FINANCED BY</small> JAPAN INTERNATIONAL COOPERATION AGENCY	<small>COUNTERPART</small> REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	<small>JICA STUDY TEAM</small> NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>NAME</th> <th>SIGNATURE</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>PREPARED BY</td> <td>S. IMADA</td> <td></td> <td>27 Nov.2017</td> </tr> <tr> <td>CHECKED BY</td> <td>T. HAYAKAWA</td> <td></td> <td>28 Nov.2017</td> </tr> <tr> <td>APPROVED BY</td> <td>Y. SANO</td> <td></td> <td>29 Nov.2017</td> </tr> </tbody> </table>		NAME	SIGNATURE	DATE	PREPARED BY	S. IMADA		27 Nov.2017	CHECKED BY	T. HAYAKAWA		28 Nov.2017	APPROVED BY	Y. SANO		29 Nov.2017	<small>DRAWING TITLE</small> BAR ARRANGEMENT OF P19 FOOTING (2)	<small>PACKAGE</small> 2 <small>DWG No.</small> P2-SB-2519
	NAME	SIGNATURE	DATE																			
PREPARED BY	S. IMADA		27 Nov.2017																			
CHECKED BY	T. HAYAKAWA		28 Nov.2017																			
APPROVED BY	Y. SANO		29 Nov.2017																			

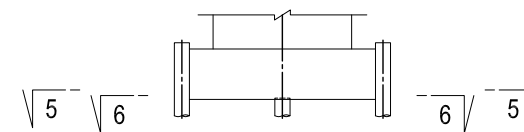
BAR ARRANGEMENT OF P19 FOOTING (3) S=1:100

PLAN
5-5

PLAN
6-6



MARKING DIAGRAM



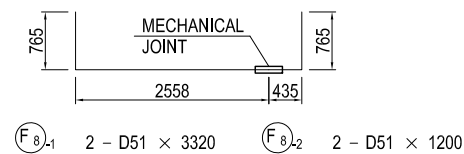
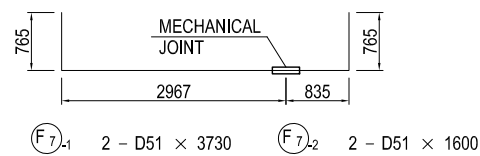
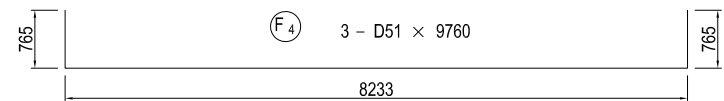
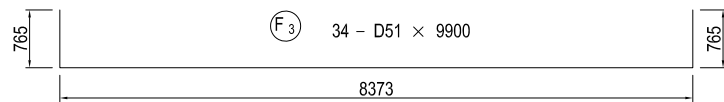
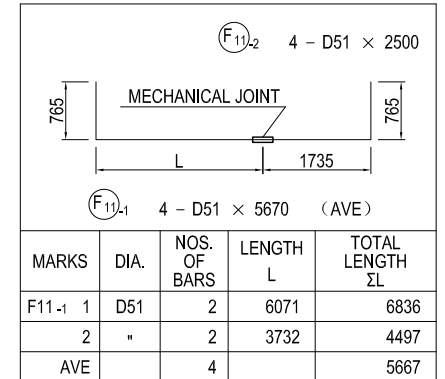
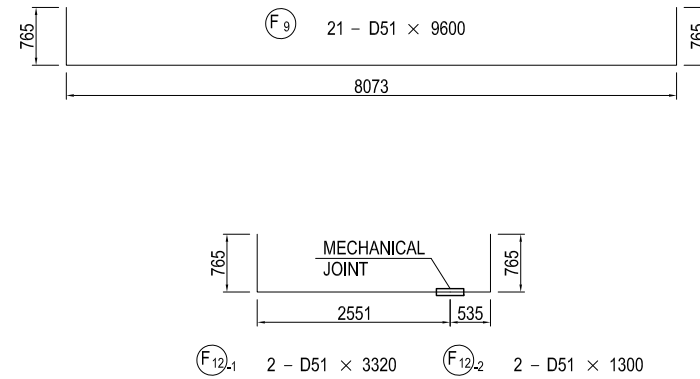
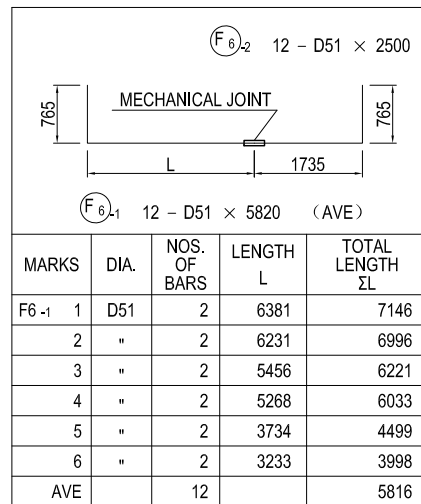
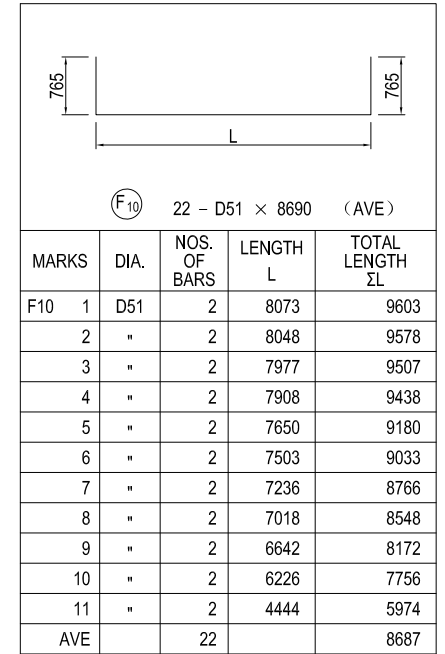
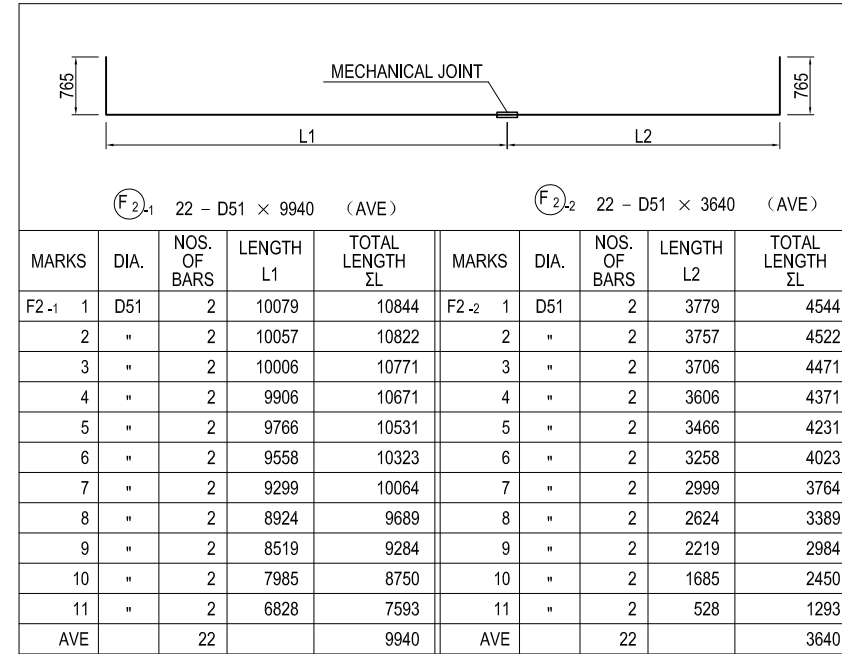
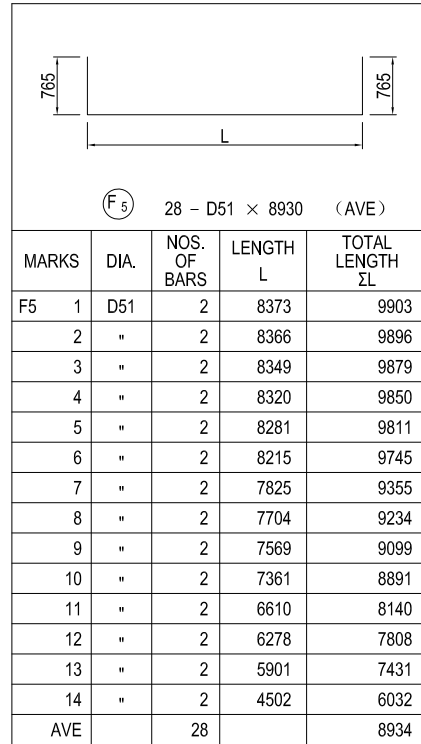
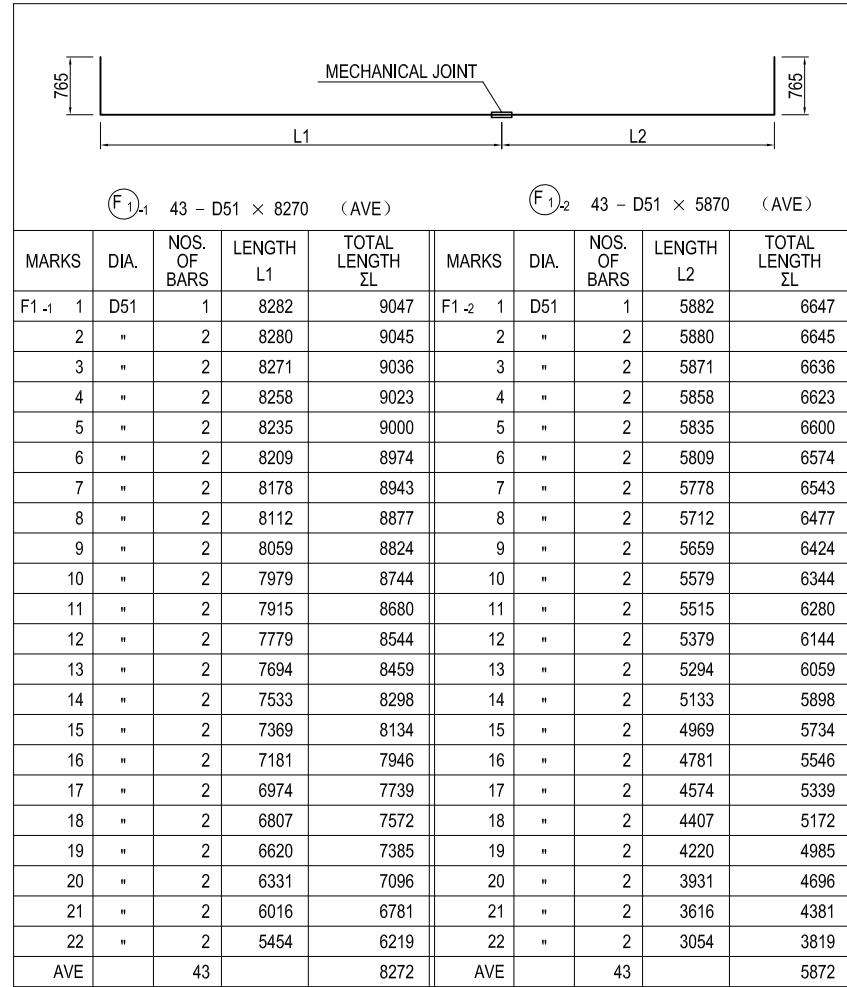
USE MATERIALS

	CONCRETE	BAR
FOOTING	$\sigma_{ck} = 24 \text{ N/mm}^2$	SD345

Note) : MECHANICAL JOINT

<small>PROJECT NAME</small> DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	<small>FINANCED BY</small> JAPAN INTERNATIONAL COOPERATION AGENCY	<small>COUNTERPART</small> REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	<small>JICA STUDY TEAM</small> NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>NAME</th> <th>SIGNATURE</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>PREPARED BY</td> <td>S. IMADA</td> <td></td> <td>27 Nov.2017</td> </tr> <tr> <td>CHECKED BY</td> <td>T. HAYAKAWA</td> <td></td> <td>28 Nov.2017</td> </tr> <tr> <td>APPROVED BY</td> <td>Y. SANO</td> <td></td> <td>29 Nov.2017</td> </tr> </tbody> </table>		NAME	SIGNATURE	DATE	PREPARED BY	S. IMADA		27 Nov.2017	CHECKED BY	T. HAYAKAWA		28 Nov.2017	APPROVED BY	Y. SANO		29 Nov.2017	<small>DRAWING TITLE</small> BAR ARRANGEMENT OF P19 FOOTING (3)	<small>PACKAGE</small> 2 DWG No. P2-SB-2520
	NAME	SIGNATURE	DATE																			
PREPARED BY	S. IMADA		27 Nov.2017																			
CHECKED BY	T. HAYAKAWA		28 Nov.2017																			
APPROVED BY	Y. SANO		29 Nov.2017																			

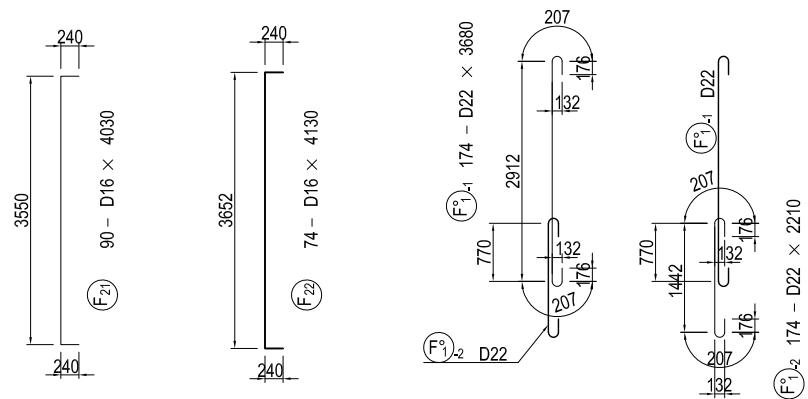
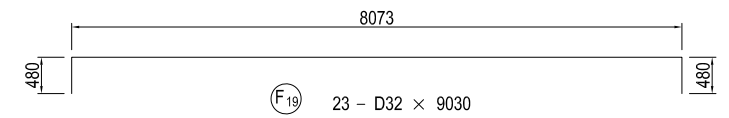
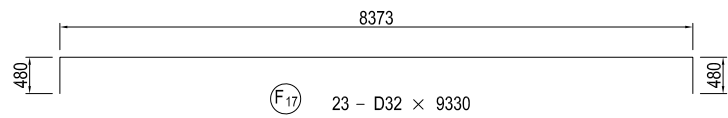
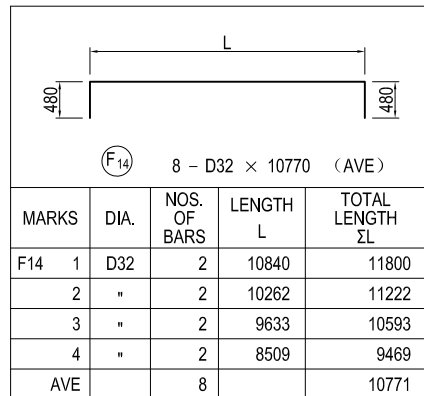
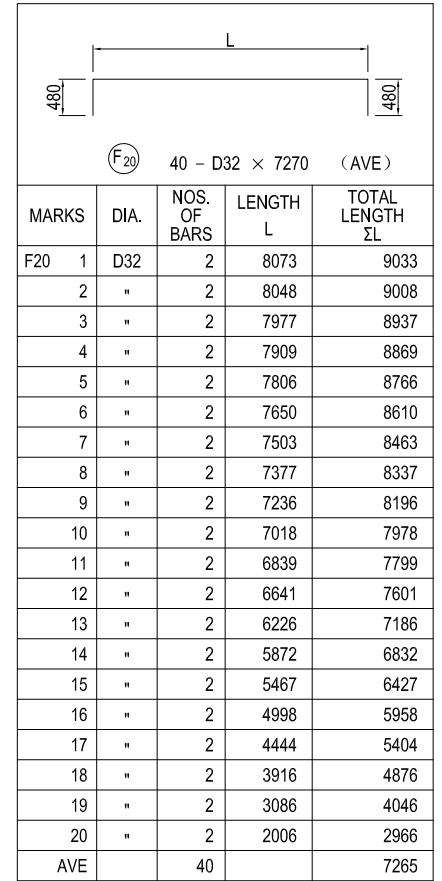
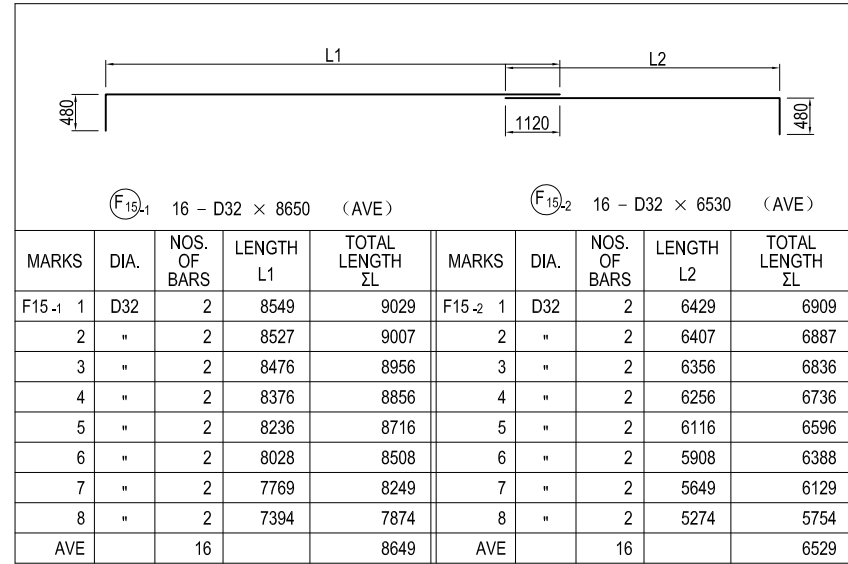
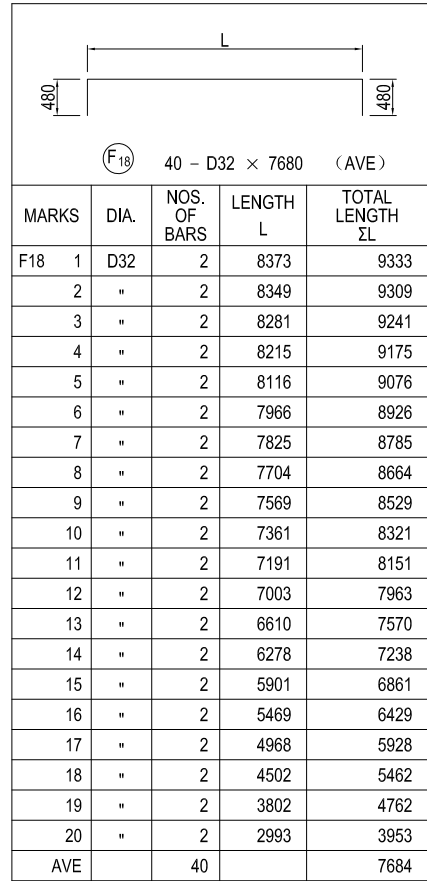
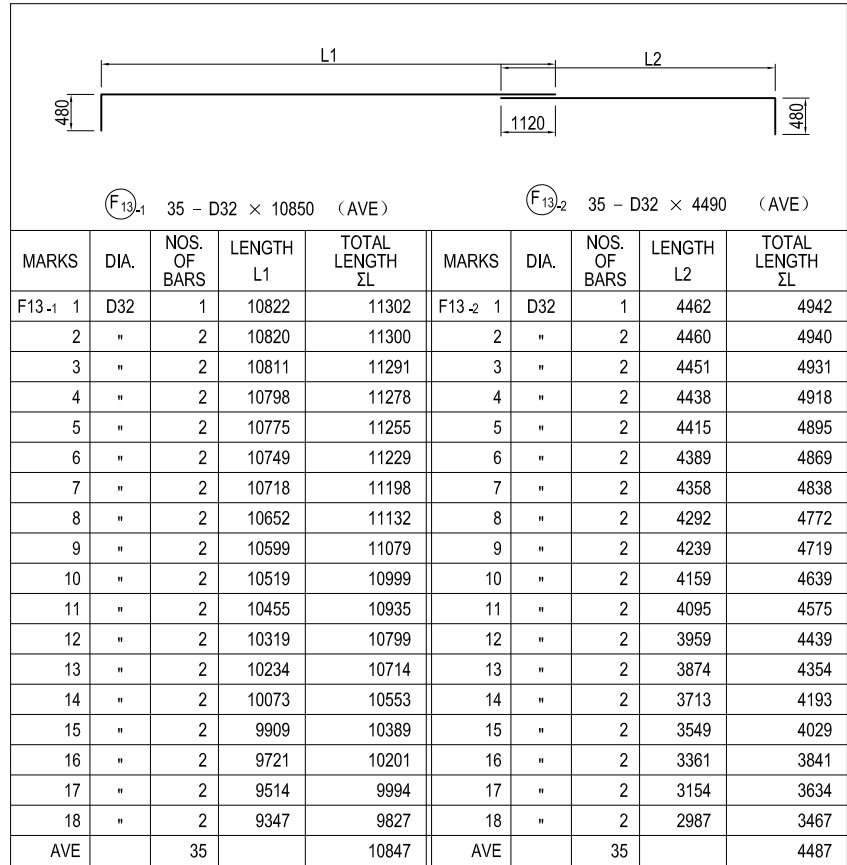
BAR ARRANGEMENT OF P19 FOOTING (4) S=1:100



USE MATERIALS

	CONCRETE	BAR
FOOTING	σ _{ck} = 24 N/mm ²	SD345

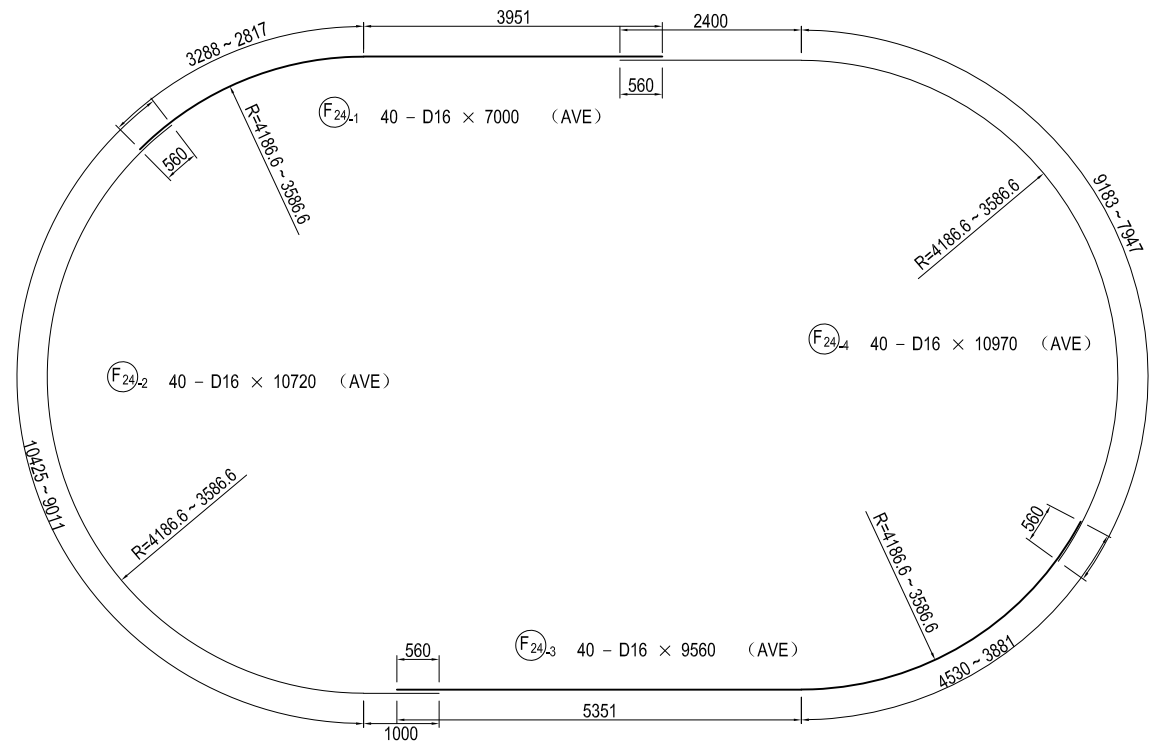
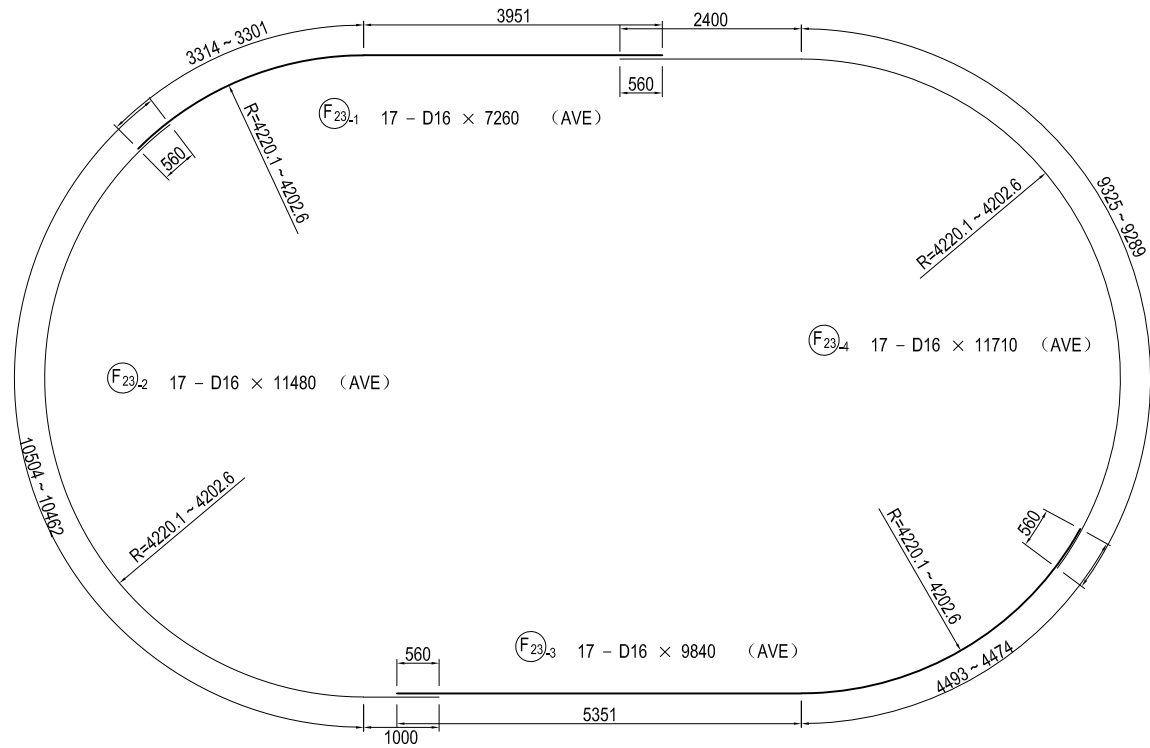
BAR ARRANGEMENT OF P19 FOOTING (5) S=1:100



USE MATERIALS

	CONCRETE	BAR
FOOTING	σ _{ck} = 24 N/mm ²	SD345

BAR ARRANGEMENT OF P19 FOOTING (6) S=1:100



Note) The joint position of the reinforcing bar is rotated 180 degrees for each step arranged.

BAR SCHEDULE

MARKS	DIA.	LENGTH (mm)	NOS. OF BARS	UNIT WEIGHT (kg/m)	WEIGHT/EA. (kg)	WEIGHT (kg)	REMARKS
F 1-1	D51	8270	43	15.9	131.49	5654	↳ (43) (AVE)
1-2	"	5870	43	"	93.33	4013	↳ (AVE)
2-1	"	9940	22	"	158.05	3477	↳ (22) (AVE)
2-2	"	3640	22	"	57.88	1273	↳ (AVE)
3	"	9900	34	"	157.41	5352	↳
4	"	9760	3	"	155.18	466	"
5	"	8930	28	"	141.99	3976	" (AVE)
6-1	"	5820	12	"	92.54	1110	↳ (12) (AVE)
6-2	"	2500	12	"	39.75	477	↳
7-1	"	3730	2	"	59.31	119	↳ (2)
7-2	"	1600	2	"	25.44	51	↳
8-1	"	3320	2	"	52.79	106	↳ (2)
8-2	"	1200	2	"	19.08	38	↳
9	"	9600	21	"	152.64	3205	↳
10	"	8690	22	"	138.17	3040	" (AVE)
11-1	"	5670	4	"	90.15	361	↳ (4) (AVE)
11-2	"	2500	4	"	39.75	159	↳
12-1	"	3320	2	"	52.79	106	↳ (2)
12-2	"	1300	2	"	20.67	41	↳
13-1	D32	10850	35	6.23	67.60	2366	↳ (AVE)
13-2	"	4490	35	"	27.97	979	↳ (AVE)
14	"	10770	8	"	67.10	537	↳ (AVE)
15-1	"	8650	16	"	53.89	862	↳ (AVE)
15-2	"	6530	16	"	40.68	651	↳ (AVE)
16	"	10220	6	"	63.67	382	↳ (AVE)
17	"	9330	23	"	58.13	1337	"
18	"	7680	40	"	47.85	1914	" (AVE)
19	"	9030	23	"	56.26	1294	"
20	"	7270	40	"	45.29	1812	" (AVE)
21	D16	4030	90	1.56	6.29	566	↳
22	"	4130	74	"	6.44	477	"
23-1	"	7260	17	"	11.33	193	↳ (AVE)
23-2	"	11480	17	"	17.91	304	↳ (AVE)
23-3	"	9840	17	"	15.35	261	↳ (AVE)
23-4	"	11710	17	"	18.27	311	↳ (AVE)
24-1	"	7000	40	"	10.92	437	↳ (AVE)
24-2	"	10720	40	"	16.72	669	↳ (AVE)
24-3	"	9560	40	"	14.91	596	↳ (AVE)
24-4	"	10970	40	"	17.11	684	↳ (AVE)
SUBTOTAL						49656	kg
F° 1-1	D22	3680	174	3.04	11.19	1947	↳
1-2	"	2210	174	"	6.72	1169	"
SUBTOTAL						3116	kg
(MECHANICAL JOINT)							
				D51	33024	kg	(87)
				D32	12134	"	
				D22	3116	"	
				D16	4498	"	
				TOTAL	52772	kg	(87)

USE MATERIALS

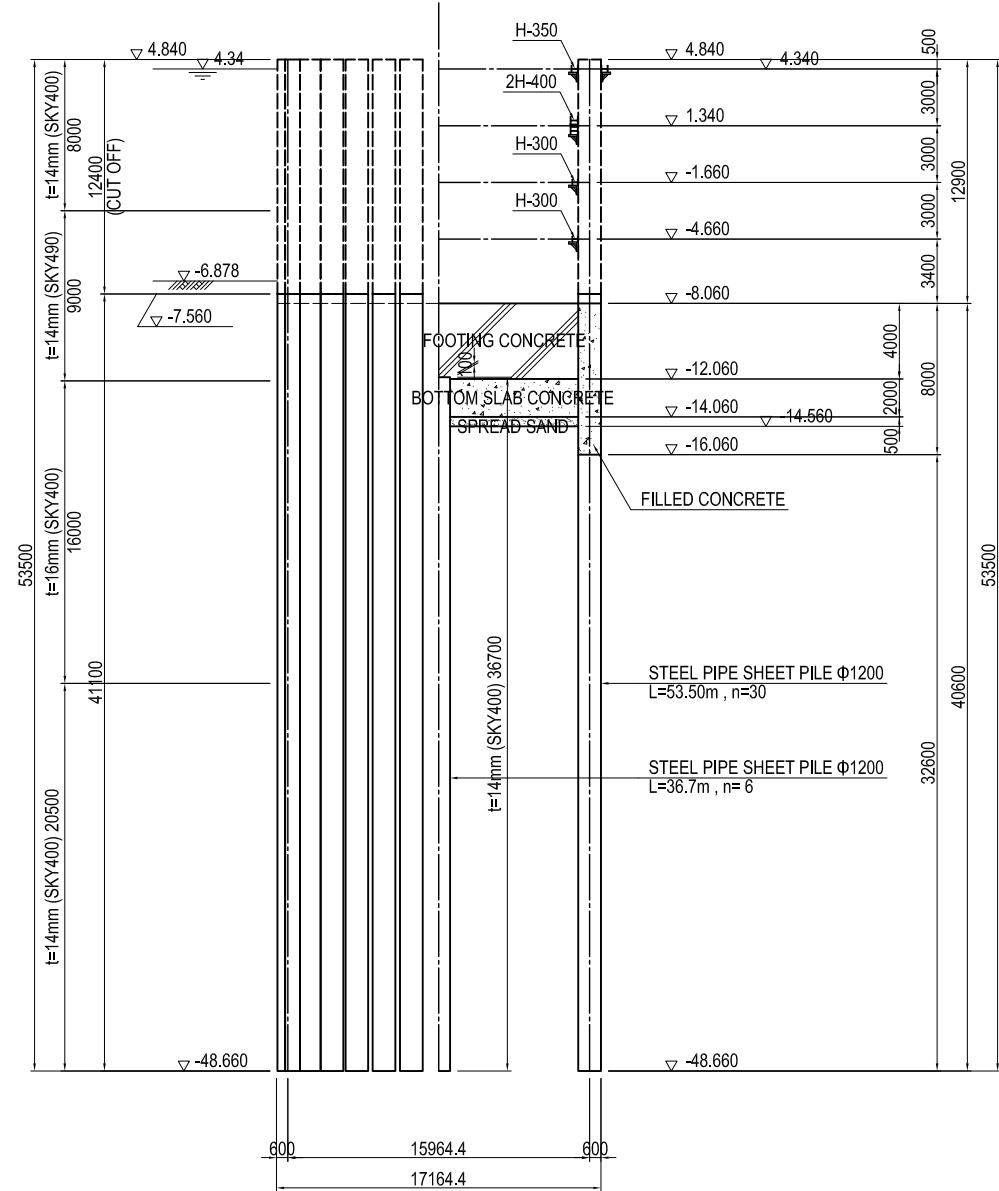
	CONCRETE	BAR
FOOTING	σ _{ck} = 24 N/mm ²	SD345

GENERAL VIEW OF STEEL PIPE SHEET PILE FOUNDATION OF P19 PIER

S=1:400

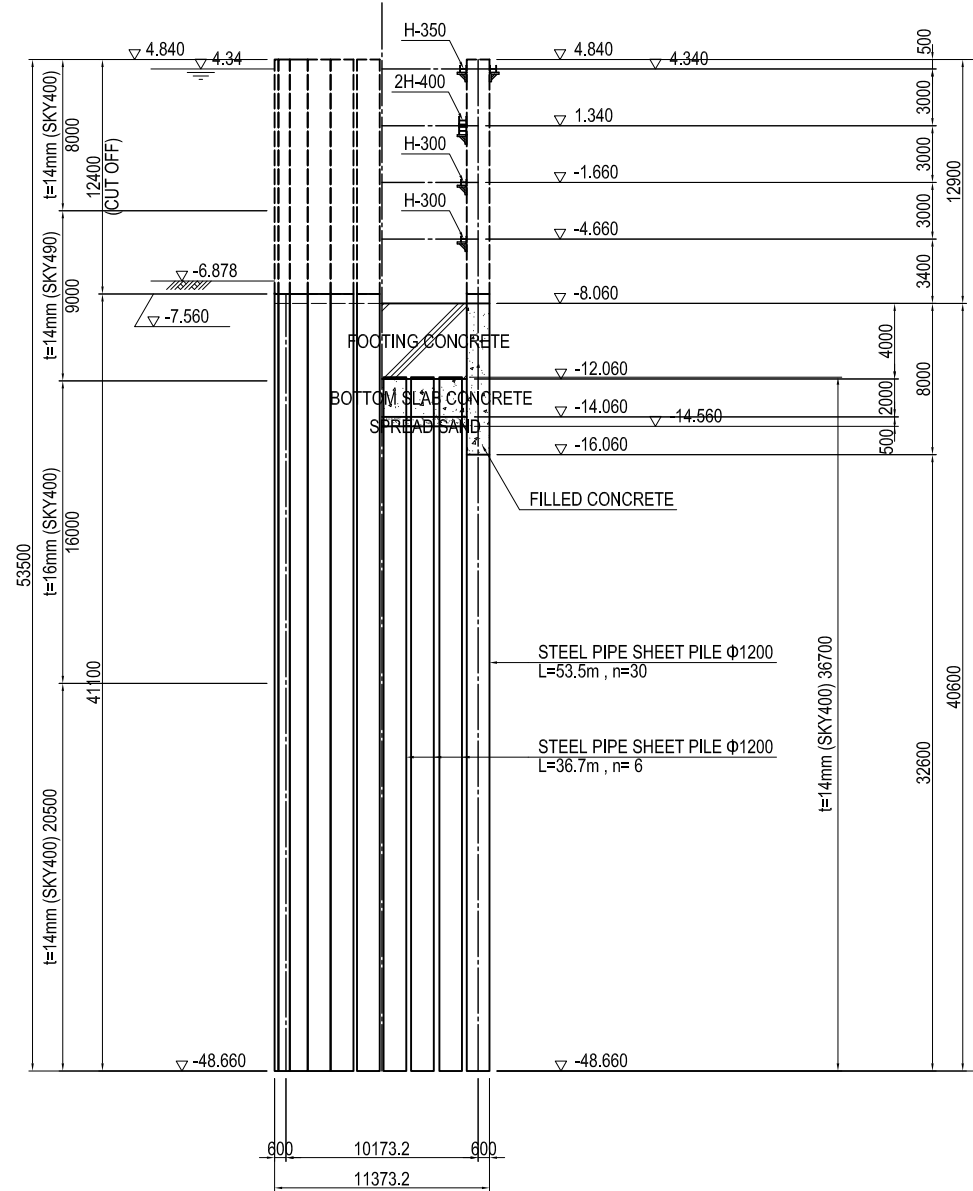
FRONT ELEVATION

1-1 2-2

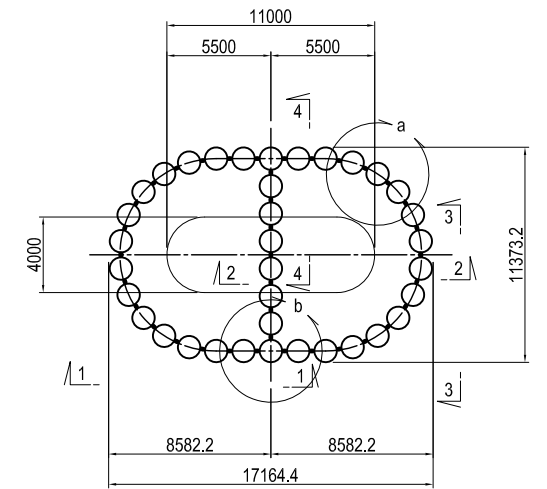


SIDE ELEVATION

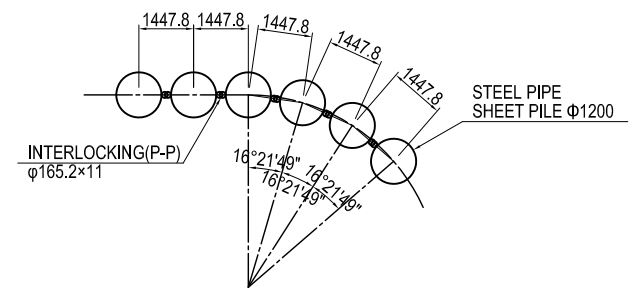
3-3 4-4



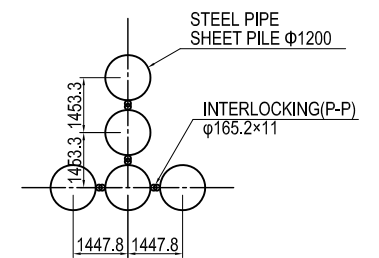
PLAN



DETAIL a S=1:200



DETAIL b S=1:200



USE MATERIALS

	CONCRETE	BAR
FOOTING	σ _{ck} = 24 N/mm ²	SD345

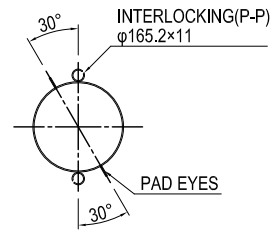
Note: Temporary support can be used for reference only.

PROJECT NAME	FINANCED BY	COUNTERPART	JICA STUDY TEAM	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE
DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	JICA JAPAN INTERNATIONAL COOPERATION AGENCY	REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	S. IMADA	<i>S. Imada</i>	27 Nov.2017	GENERAL VIEW OF STEEL PIPE SHEET PILE FOUNDATION OF P19 PIER	2
				T. HAYAKAWA	<i>T. Hayakawa</i>	28 Nov.2017		DWG No.
				Y. SANO	<i>Y. Sano</i>	29 Nov.2017		P2-SB-2524

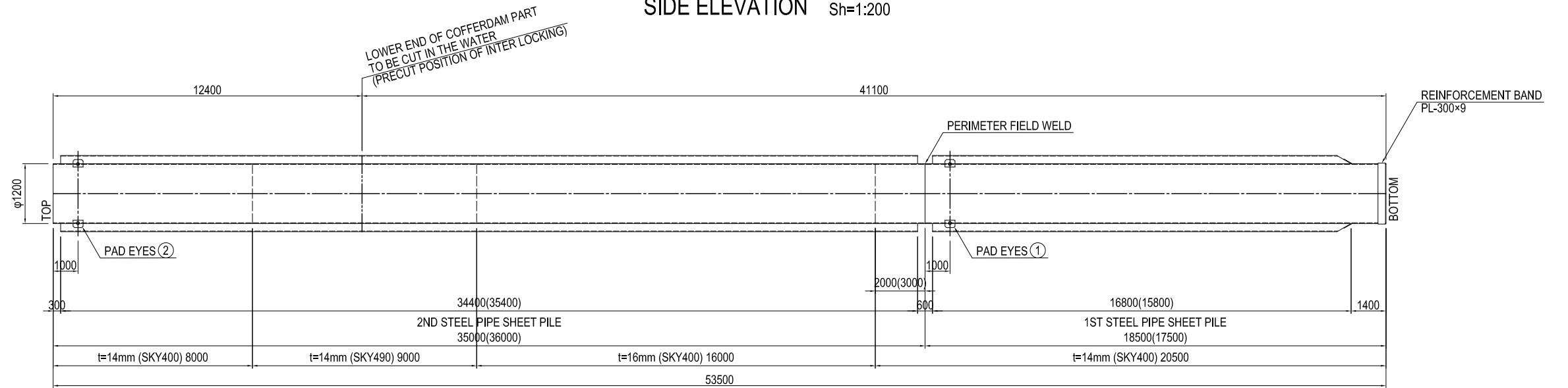
DETAIL OF STEEL PIPE SHEET PILE OF P19 PIER (1)

CROSS SECTION S=1:200

TYPE A
(TYPE B)

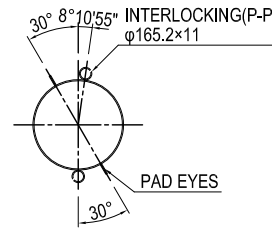


SIDE ELEVATION Sv=1:100
Sh=1:200

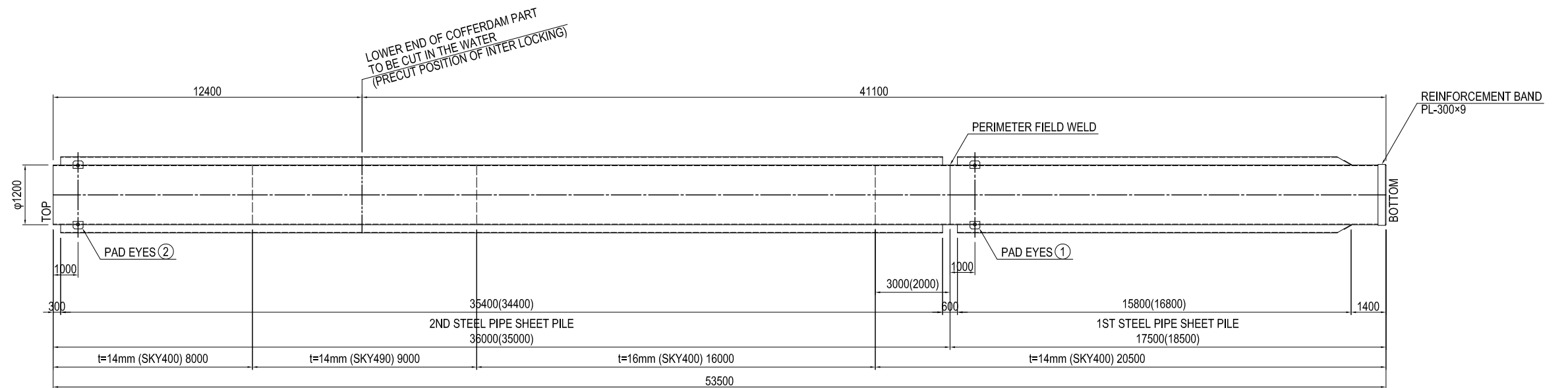
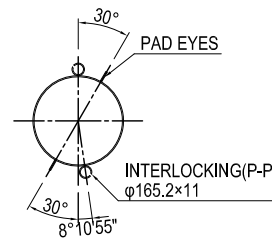


CROSS SECTION S=1:200

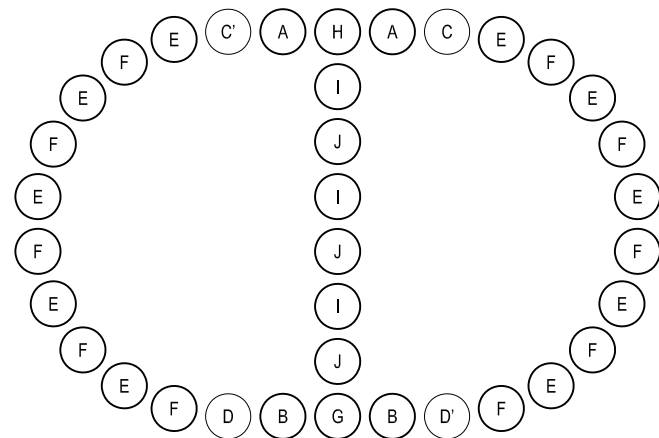
TYPE C
(TYPE D)



TYPE C'
(TYPE D')



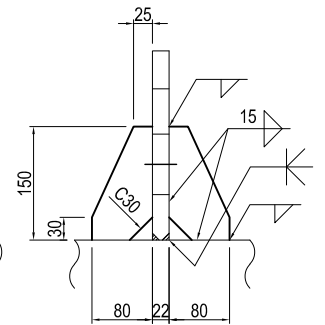
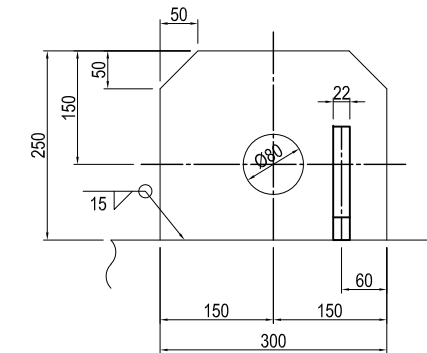
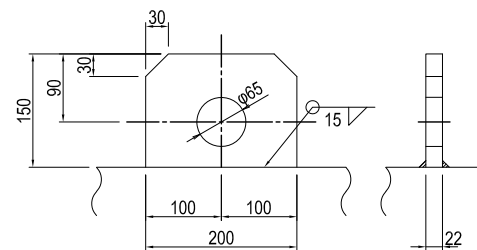
STEEL PIPE SHEET PILE TYPE AND POSITION



DETAIL OF EYES S=1:10

PAD EYES ① PL-200x150x22 (SM490A)

PAD EYES ② PL-300x250x22 (SM490A)

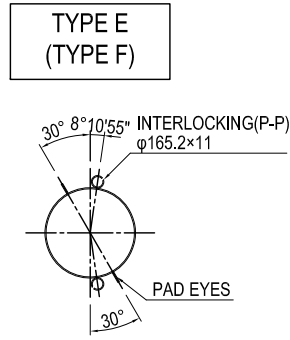


Note: Drawing of Pad Eye (metal fitting for hanging) and the position of perimeter field weld can be used for reference only.

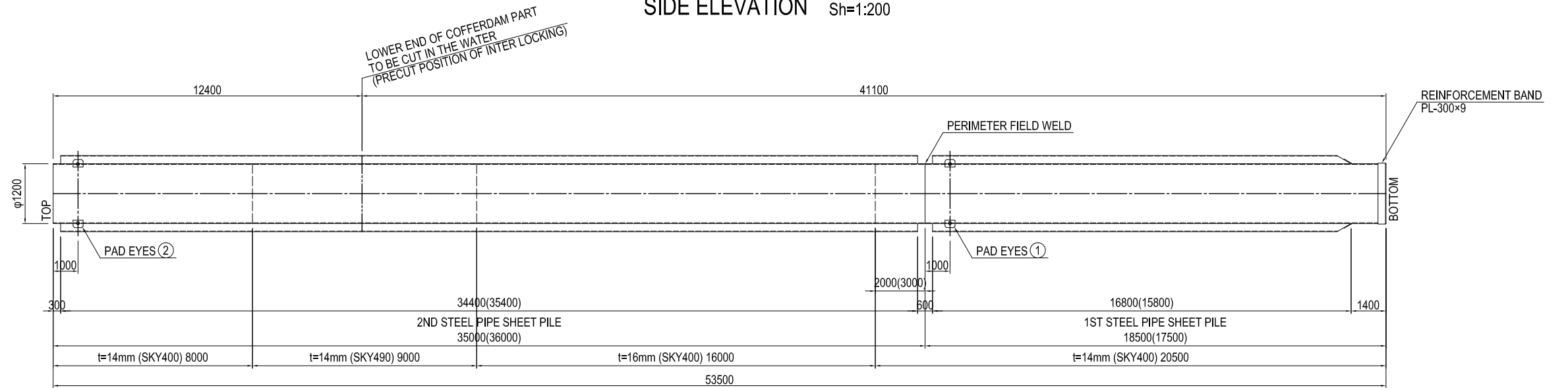
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JICA JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME S. IMADA	SIGNATURE <i>S. Imada</i>	DATE 27 Nov.2017	DRAWING TITLE DETAIL OF STEEL PIPE SHEET PILE OF P19 PIER (1)	PACKAGE 2
				CHECKED BY T. HAYAKAWA	<i>T. Hayakawa</i>	28 Nov.2017		DWG No.
				APPROVED BY Y. SANO	<i>Y. Sano</i>	29 Nov.2017		P2-SB-2525

DETAIL OF STEEL PIPE SHEET PILE OF P19 PIER (2)

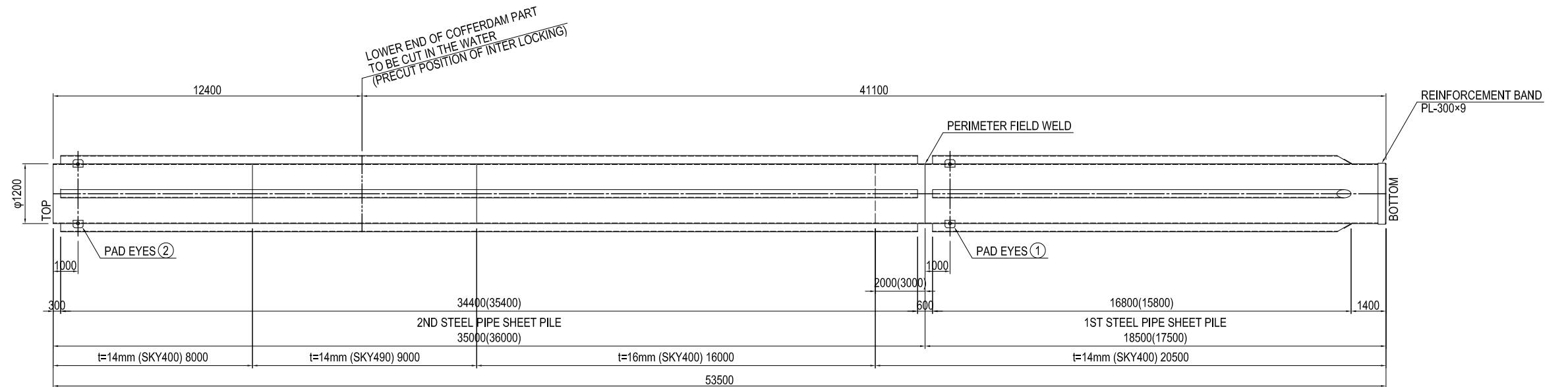
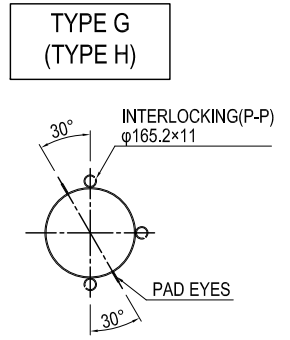
CROSS SECTION S=1:200



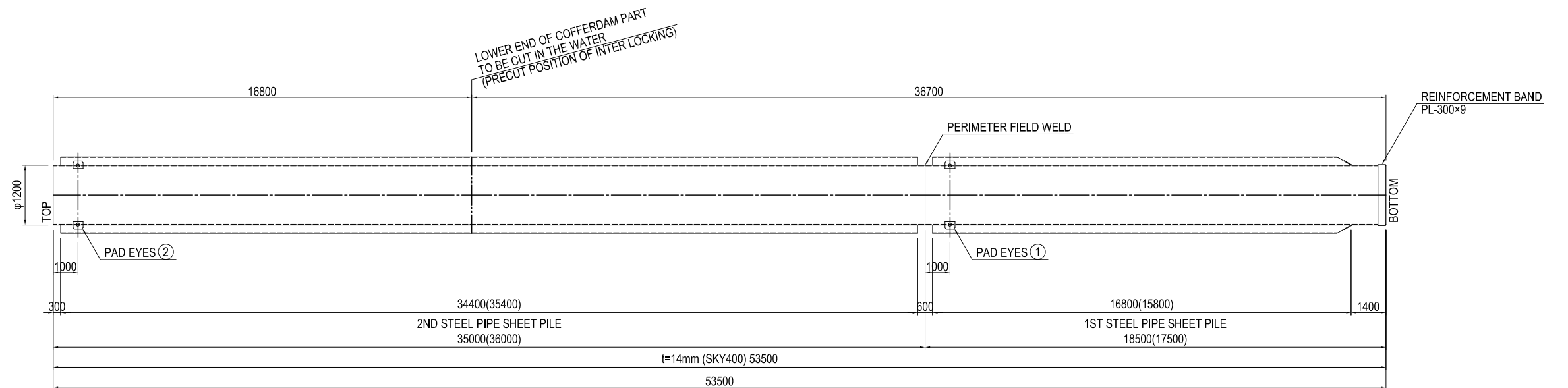
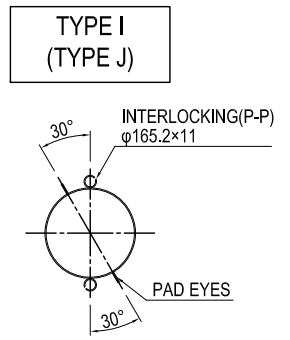
SIDE ELEVATION Sv=1:100 Sh=1:200



CROSS SECTION S=1:200



CROSS SECTION S=1:200

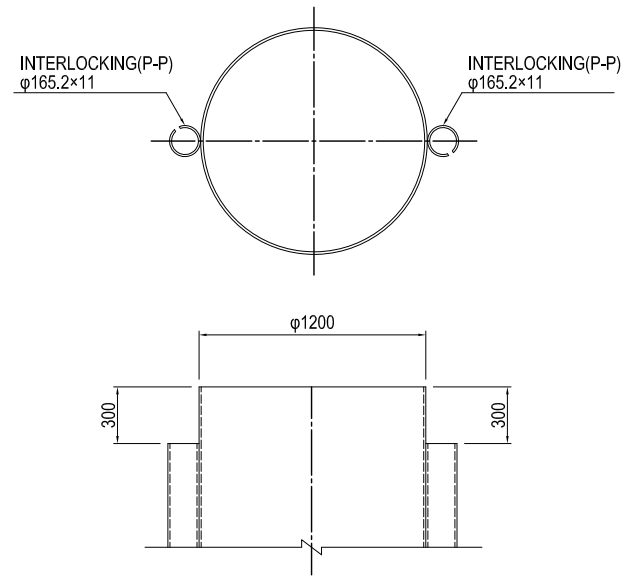


Note: Drawing of Pad Eye (metal fitting for hanging) and the position of perimeter field weld can be used for reference only.

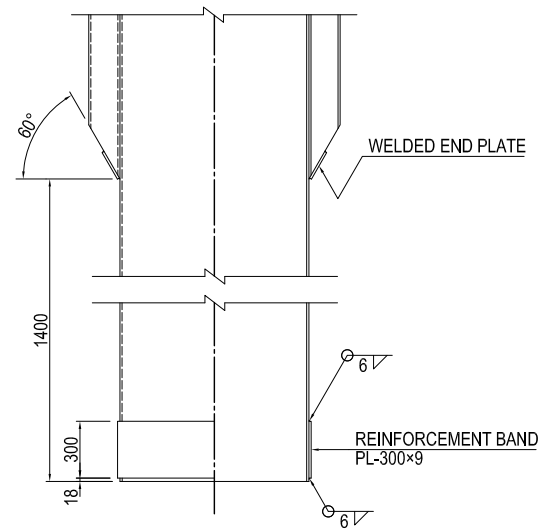
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME S. IMADA T. HAYAKAWA Y. SANO	SIGNATURE 	DATE 27 Nov.2017 28 Nov.2017 29 Nov.2017	DRAWING TITLE DETAIL OF STEEL PIPE SHEET PILE OF P19 PIER (2)	PACKAGE 2 DWG No. P2-SB-2526
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DETAIL OF INTERLOCKING OF STEEL PIPE SHEET PILE OF P19 PIER

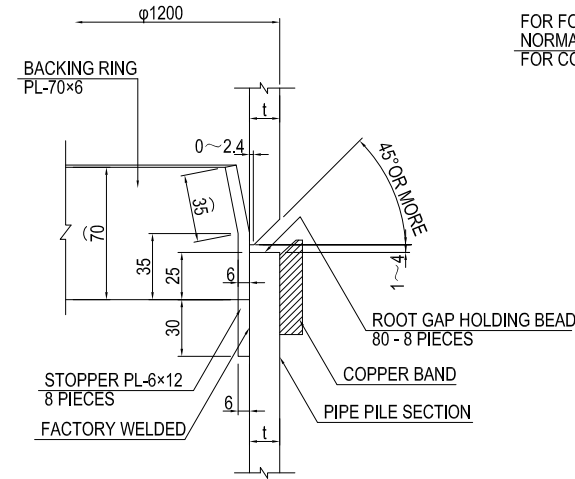
DETAIL OF STEEL PIPE SHEET PILE TOP S=1:40



DETAIL OF STEEL PIPE SHEET PILE TOE S=1:40

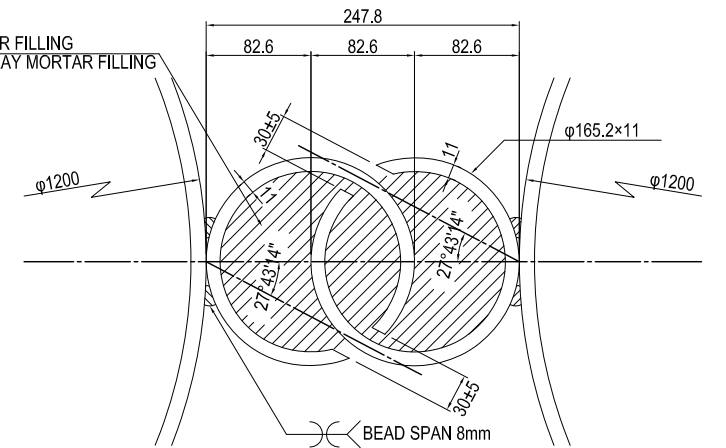


DETAIL OF PERIMETER FIELD WELDING OF STEEL PIPE SHEET PILE S=1:4



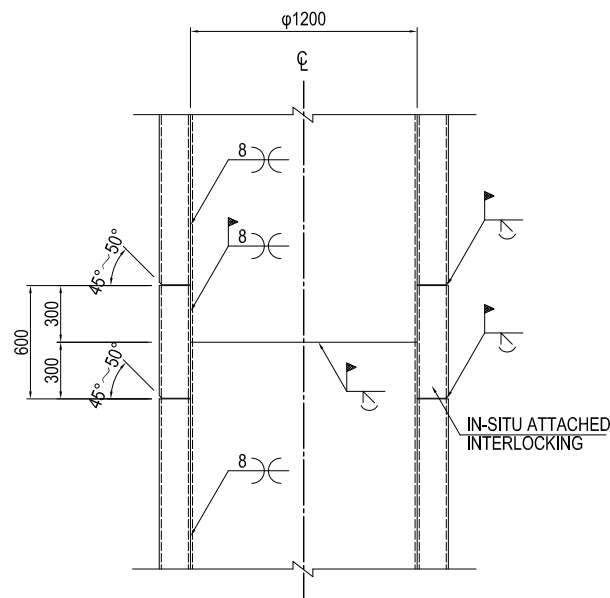
FOR FOUNDATION PART :
NORMAL STRENGTH MORTAR FILLING
FOR COFFERDAM PART : CLAY MORTAR FILLING

DETAIL OF CONNECTED INTERLOCKING(P-P) S=1:6

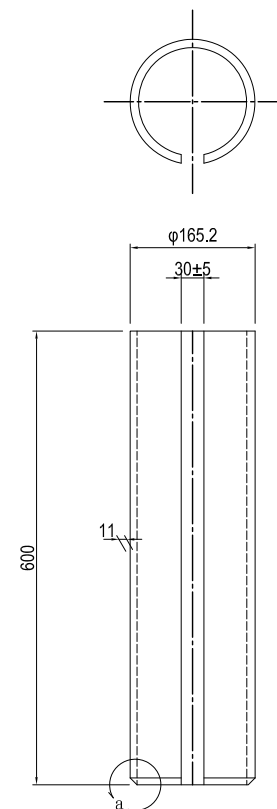


TREATMENT OF STEEL PIPE SHEET PILE INTERLOCKING

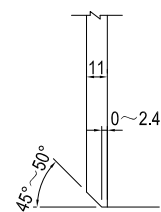
DETAIL OF IN-SITU LONGITUDINAL WELDING PART S=1:40



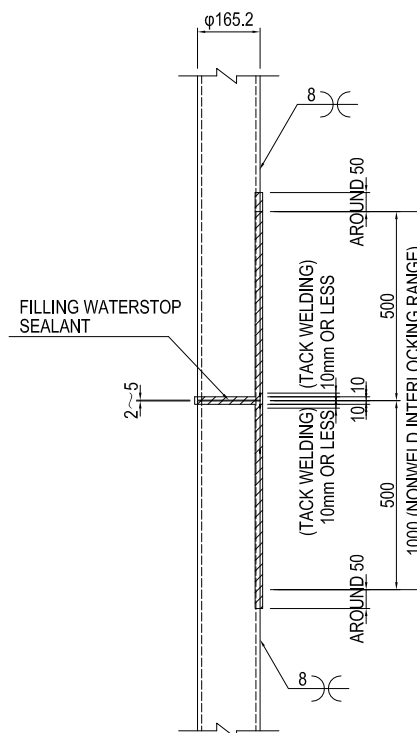
DETAIL OF IN-SITU ATTACHED INTERLOCKING S=1:10



DETAIL a

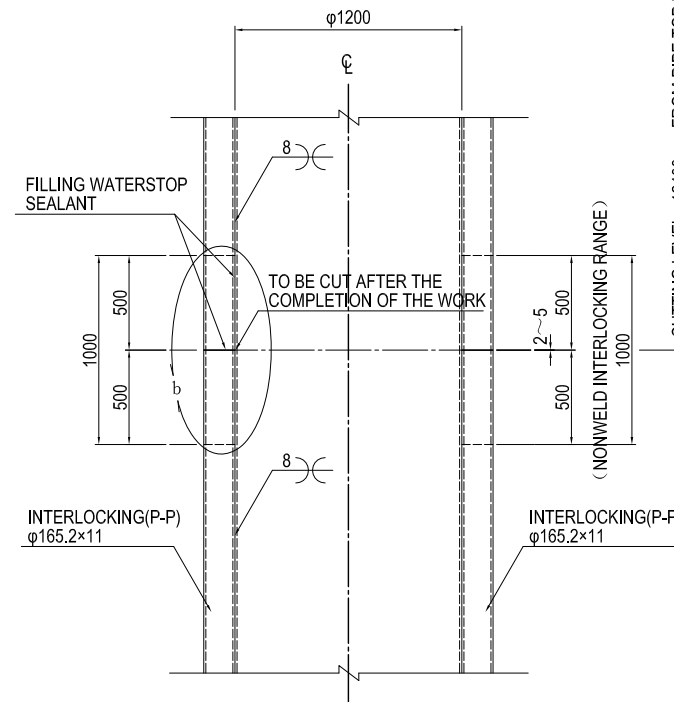


DETAIL b

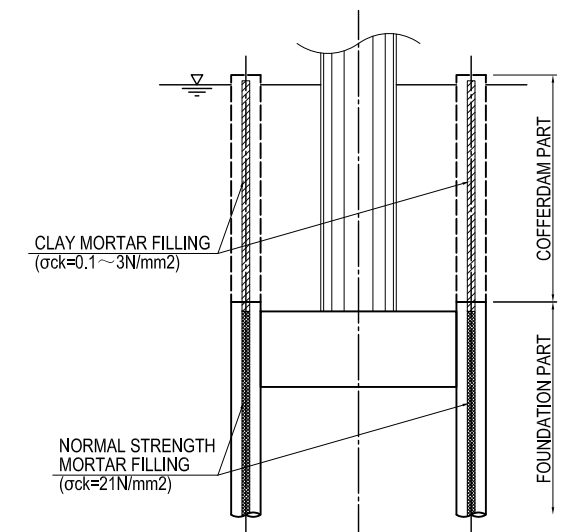


CUTTING LEVEL : 12400mm FROM PIPE TOP FOR EXTERNAL-WALL SHEET PILING.

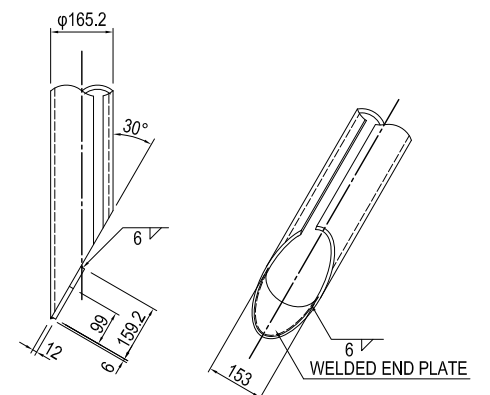
DETAIL OF PRECUT INTERLOCKING S=1:40



CUTTING LEVEL : 12400mm FROM PIPE TOP FOR EXTERNAL-WALL SHEET PILING.

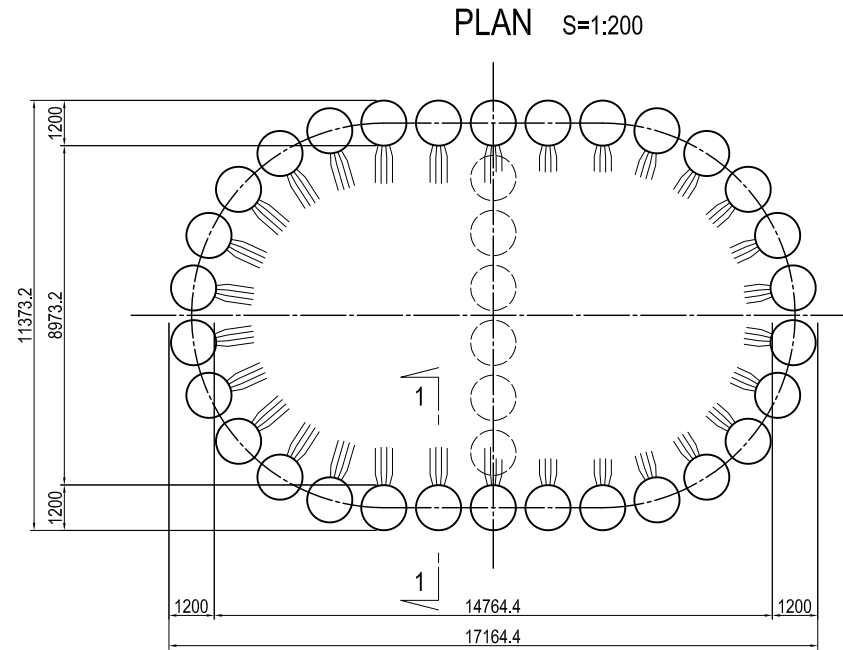


DETAIL OF INTERLOCKING TOE S=1:20

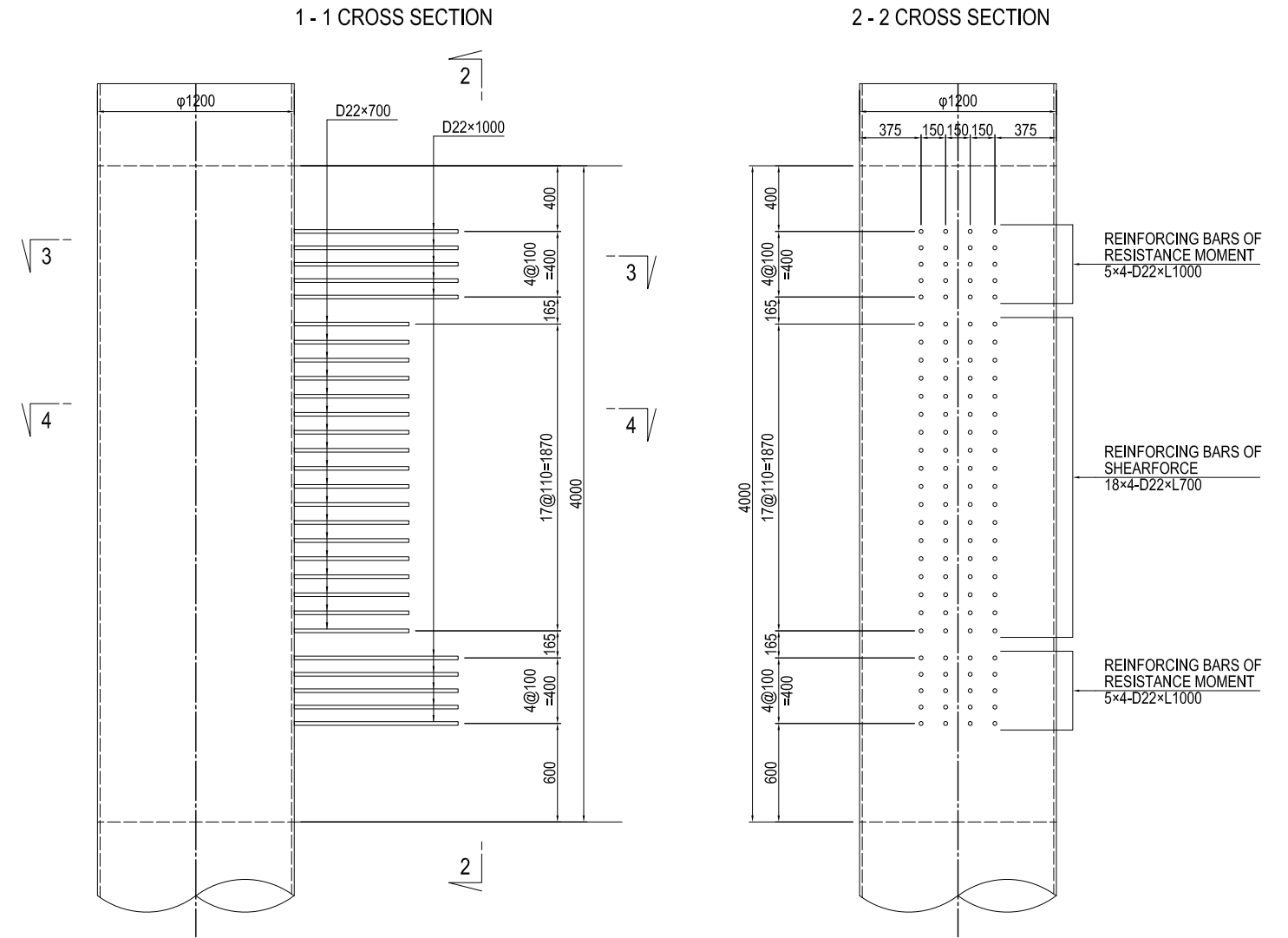


PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY jica JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAIL OF INTERLOCKING OF STEEL PIPE SHEET PILE OF P19 PIER	PACKAGE 2 DWG No. P2-SB-2527
				PREPARED BY	S. IMADA	27 Nov.2017		
				CHECKED BY	T. HAYAKAWA	28 Nov.2017		
				APPROVED BY	Y. SANO	29 Nov.2017		

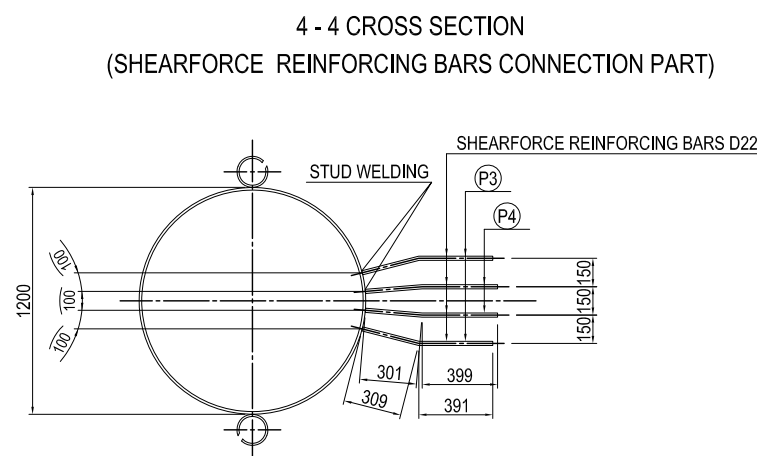
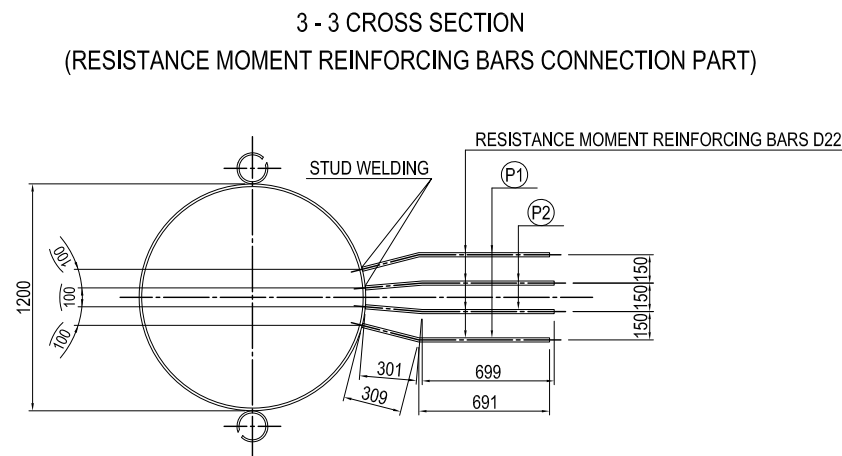
DETAIL OF CONNECTION BETWEEN STEEL PIPE SHEET PILE AND FOOTING OF P19 PIER



DETAIL OF CONNECTION BETWEEN STEEL PIPE SHEET PILE AND FOOTING S=1:40



CROSS SECTION OF CONNECTION BETWEEN STEEL PIPE SHEET PILE AND REINFORCING BARS S=1:40



FABRICATION OF REINFORCING BARS S=1:40

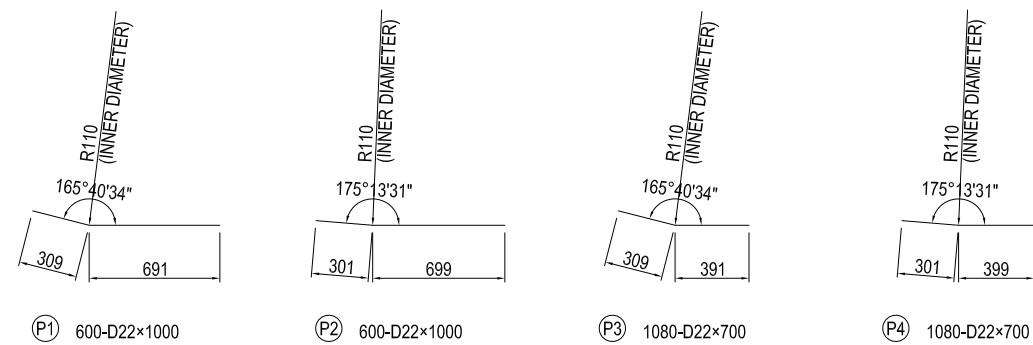
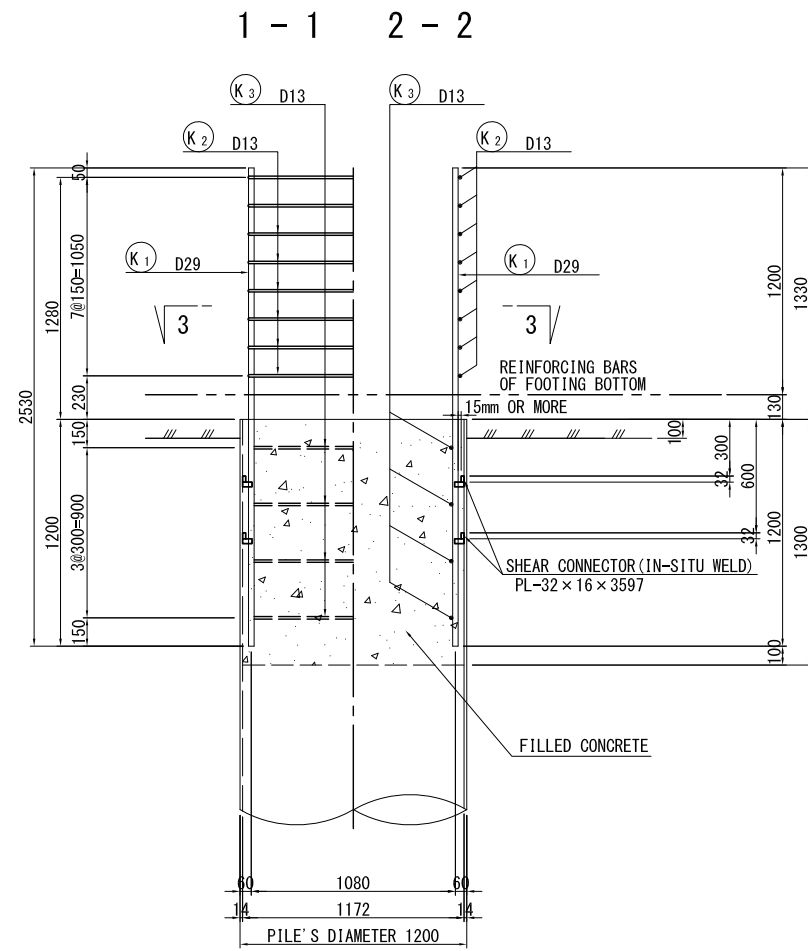


TABLE OF REINFORCING BARS

MARK	TYPE	LENGTH (mm)	PIECES (piece)	UNIT WEIGHT (kg/m)	UNIT WEIGHT (kg/piece)	WEIGHT (kg)	GRADE	MEMO	
P1	D22	1000	600	3.04	3.04	1824.0	SD345 for STUD WELDING	—	
P2	D22	1000	600	3.04	3.04	1824.0	SD345 for STUD WELDING	—	
P3	D22	700	1080	3.04	2.13	2300.4	SD345 for STUD WELDING	—	
P4	D22	700	1080	3.04	2.13	2300.4	SD345 for STUD WELDING	—	
					D22	8248.8 kg			
					TOTAL WEIGHT	8248.8 kg			

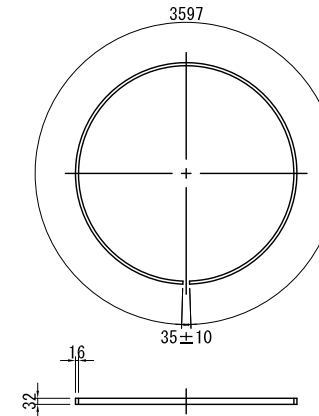
DETAIL OF PILE TOP CONNECTION TO THE BASE CONCRETE OF P19 PIER S=1:40

DETAIL OF PILE TOP

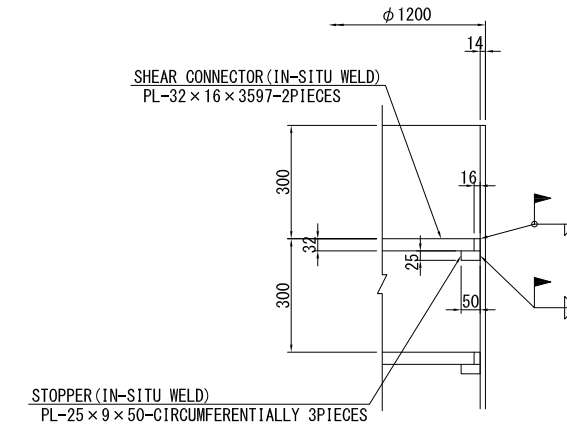


DETAIL OF ATTACHMENT OF SHEAR CONNECTOR

CENTER OF LENGTH



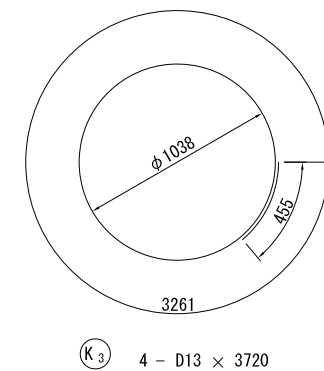
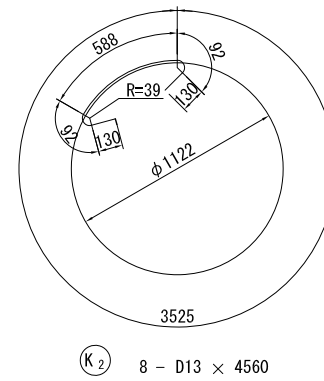
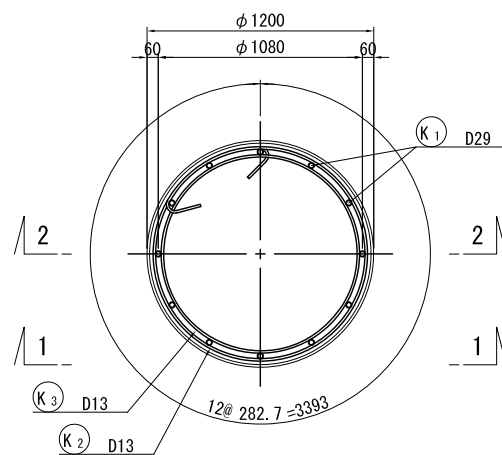
SETTING IN THE FIELD S=1:20



MATERIAL LIST

MARKS	SECTION SIZE	LENGTH (mm)	NOS. OF BARS	UNIT WEIGHT (kg/m)	WEIGHT/E.A. (kg)	WEIGHT (kg)	MATERIAL	REMARKS
PILE TOP ACCOMPANYING ITEMS								
PL	PL-32×16	3597	2	4.019	14.456	28.9	SS400	SHEAR CONNECTOR
PL	PL-25×9	50	6	1.766	0.088	0.5	SS400	STOPPER
REINFORCEMENT								
K1	D29	2530	12	5.04	12.75	153	SD345	
K2	D13	4560	8	0.995	4.54	36.3	SD345	○
K3	D13	3720	4	0.995	3.70	14.8	SD345	○
TOTAL						204		
FILLED CONCRETE (σ _{ck} = 24 N/mm ²)								
						$V = 1/4 \times \pi \times 1.172^2 \times 1.300 = 1.402 \text{ m}^3$		

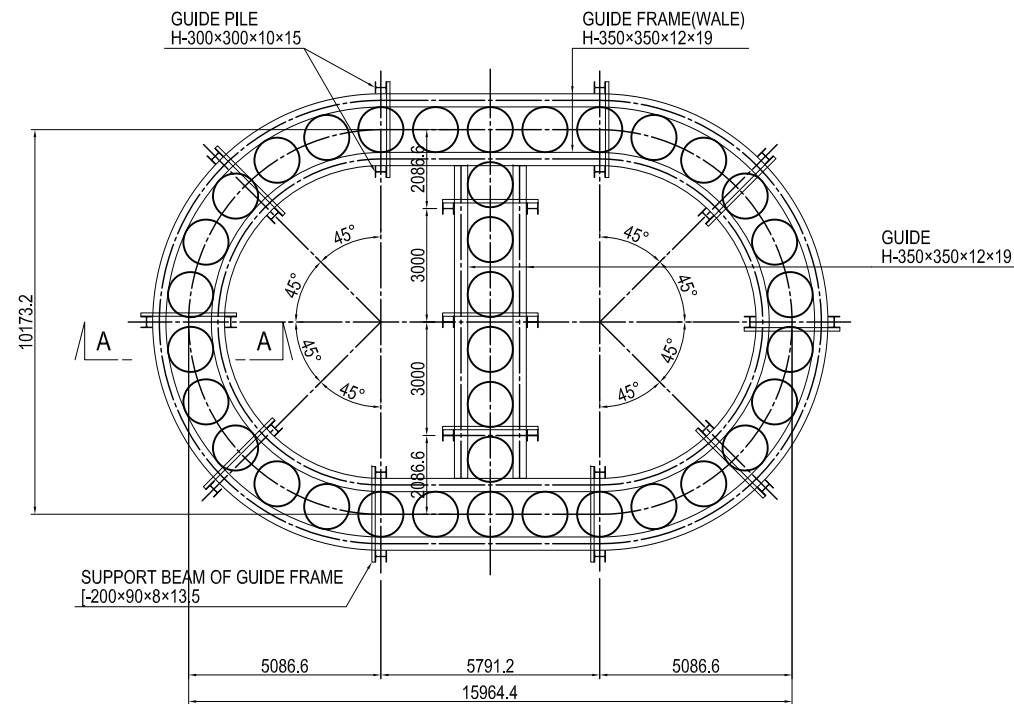
3 - 3



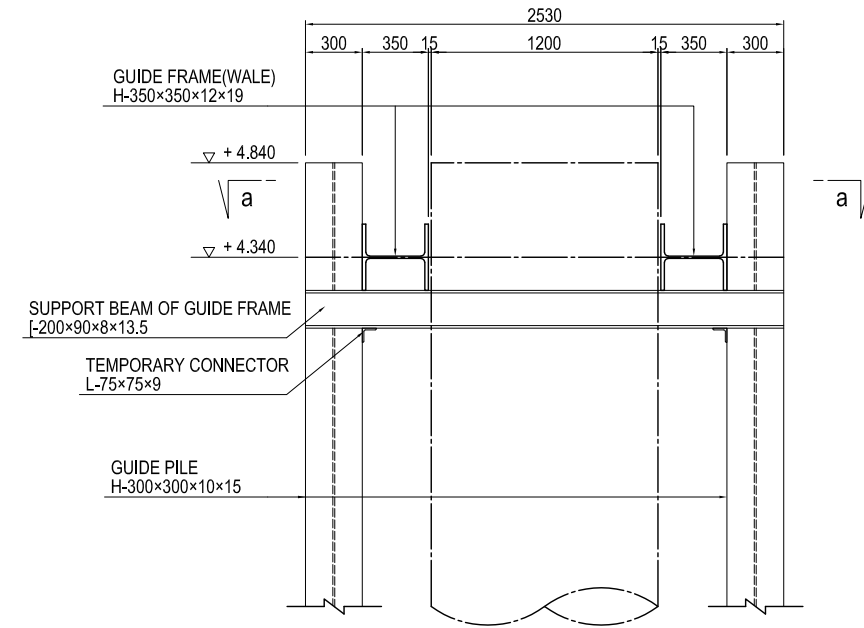
ITEM	DIVISION	UNIT CONTENT	WEIGHT/E.A.	QUANTITY
NUMBER OF PILE		Number		6
PILE TOP	SS400	TOTAL	kg	29.4
REINFORCEMENT	SD345	D29	kg	153
		D13	kg	51
		TOTAL	kg	204
FILLED CONCRETE	σ _{ck} = 24 N/mm ²	m ³	1.402	8.4

(REFERENCE) LAYOUT PLAN OF COFFERDAM PART OF P19 PIER (1)

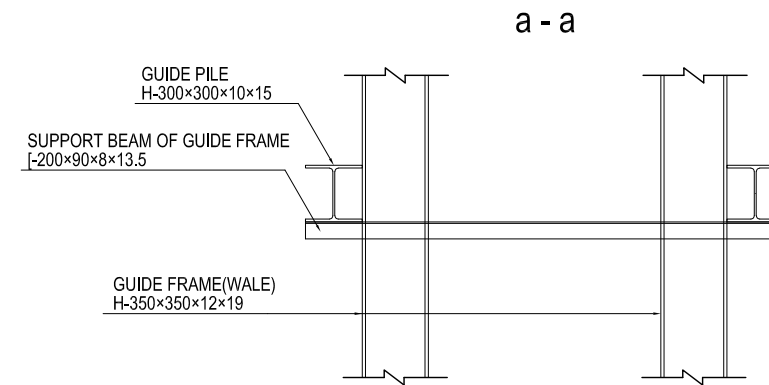
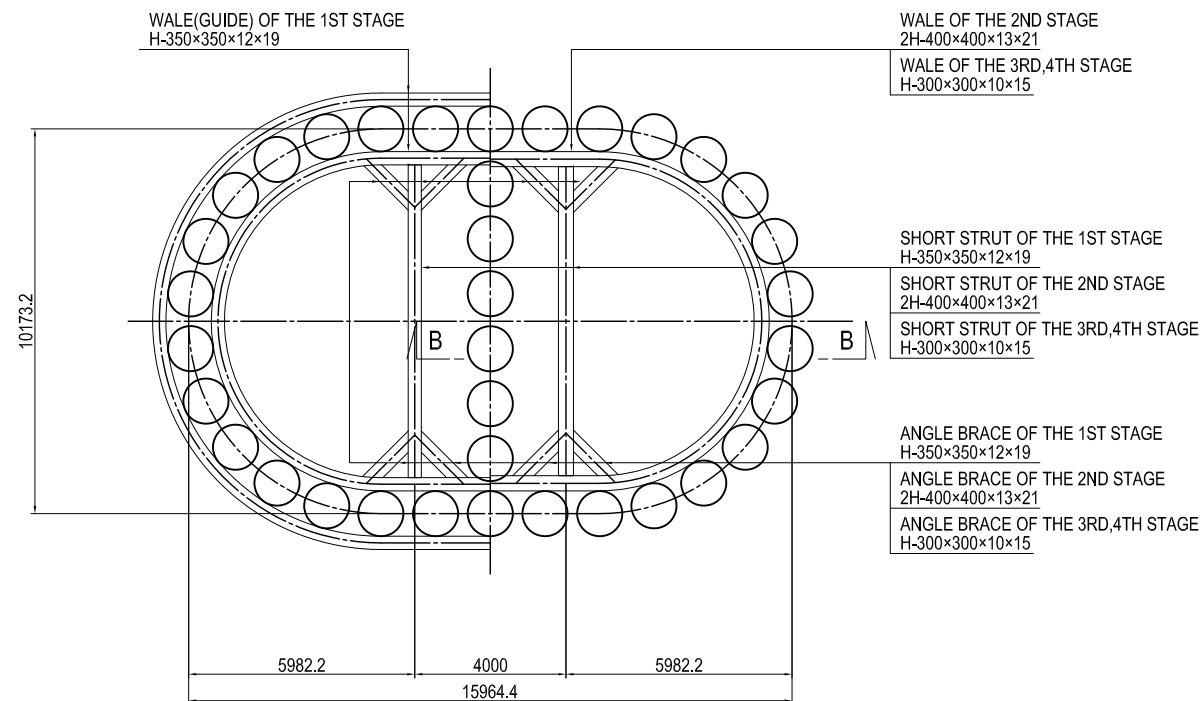
LAYOUT PLAN OF GUIDE FRAMES AND GUIDE PILES S=1:200



DETAIL OF ATTACHMENT OF GUIDE PILES AND GUIDE FRAMES S=1:40



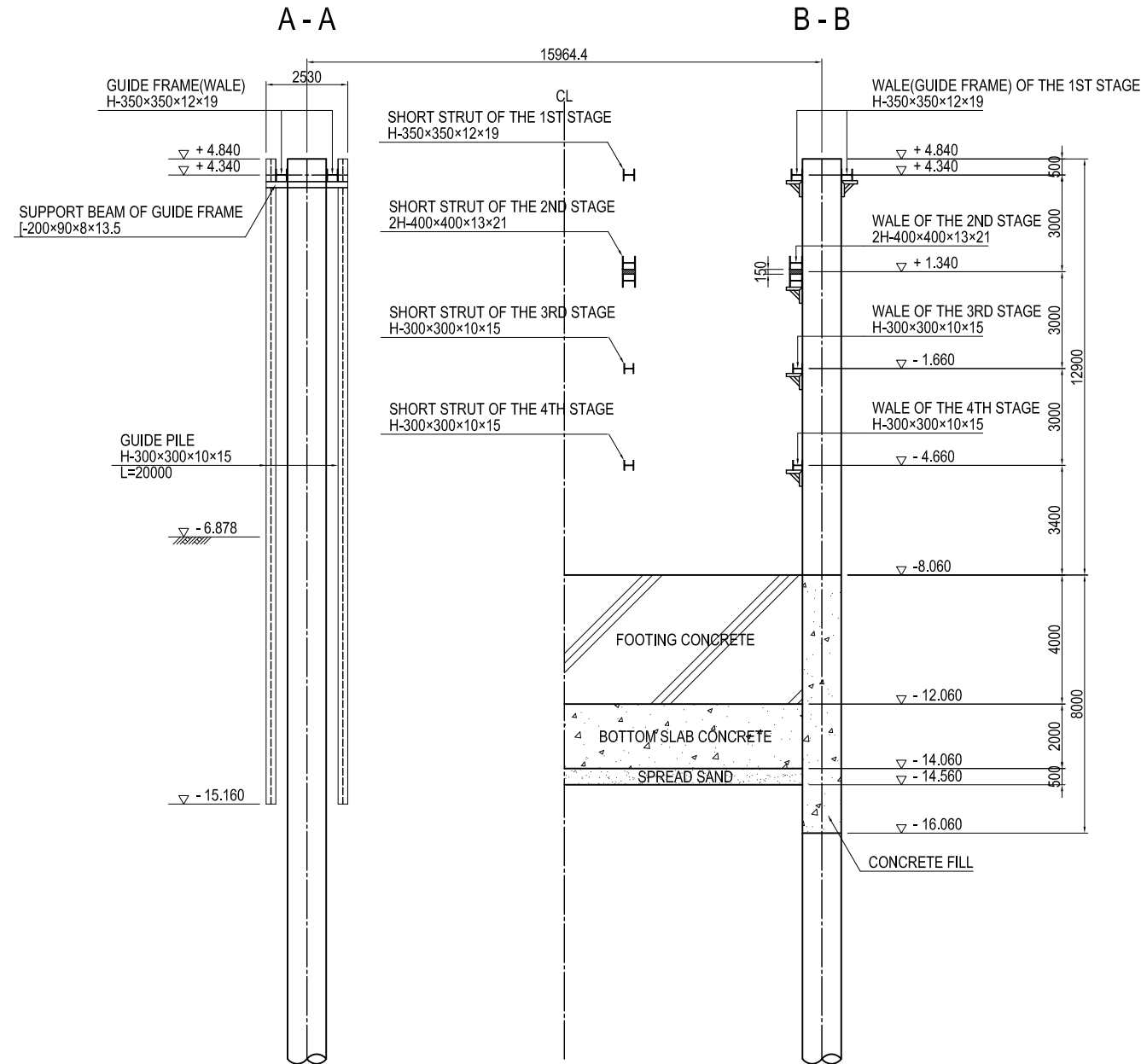
LAYOUT PLAN OF STRUTS AND WALES S=1:200



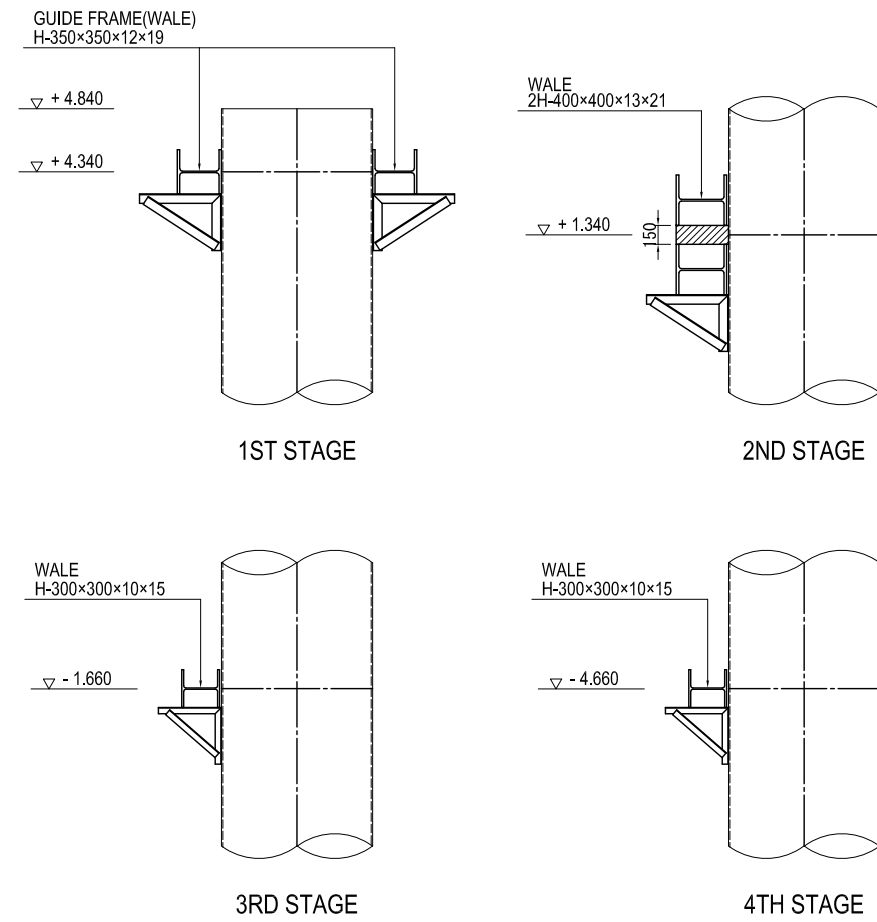
PROJECT NAME	FINANCED BY	COUNTERPART	JICA STUDY TEAM	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE
DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	JICA JAPAN INTERNATIONAL COOPERATION AGENCY	REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	S. IMADA	<i>S. Imada</i>	27 Nov.2017	(REFERENCE) LAYOUT PLAN OF COFFERDAM PART OF P19 PIER (1)	2
				T. HAYAKAWA	<i>T. Hayakawa</i>	28 Nov.2017		DWG No.
				Y. SANO	<i>Y. Sano</i>	29 Nov.2017		P2-SB-2530

(REFERENCE) LAYOUT PLAN OF COFFERDAM PART OF P19 PIER (2)

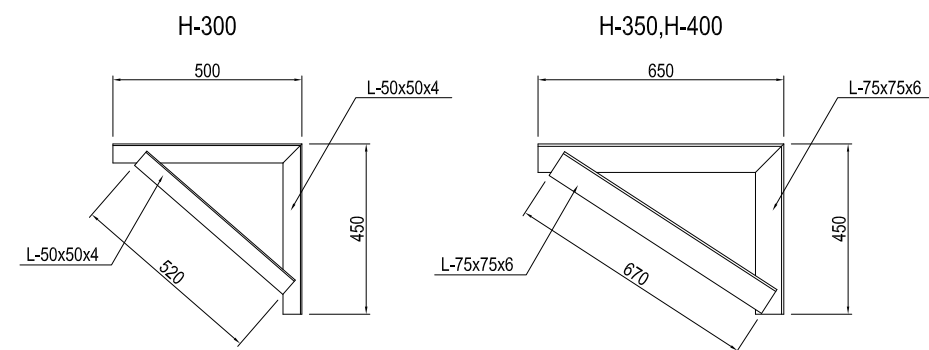
CROSS SECTION S=1:200



DETAIL OF ATTACHMENT OF WALE S=1:60



DETAIL OF BRACKET S=1:20



PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE (REFERENCE) LAYOUT PLAN OF COFFERDAM PART OF P19 PIER (2)	PACKAGE	
				PREPARED BY	S. IMADA			27 Nov.2017	2
				CHECKED BY	T. HAYAKAWA			28 Nov.2017	DWG No.
				APPROVED BY	Y. SANO			29 Nov.2017	P2-SB-2531

(REFERENCE) CONSTRUCTION PLAN OF STEEL PIPE SHEET PILE WORK OF P19 PIER

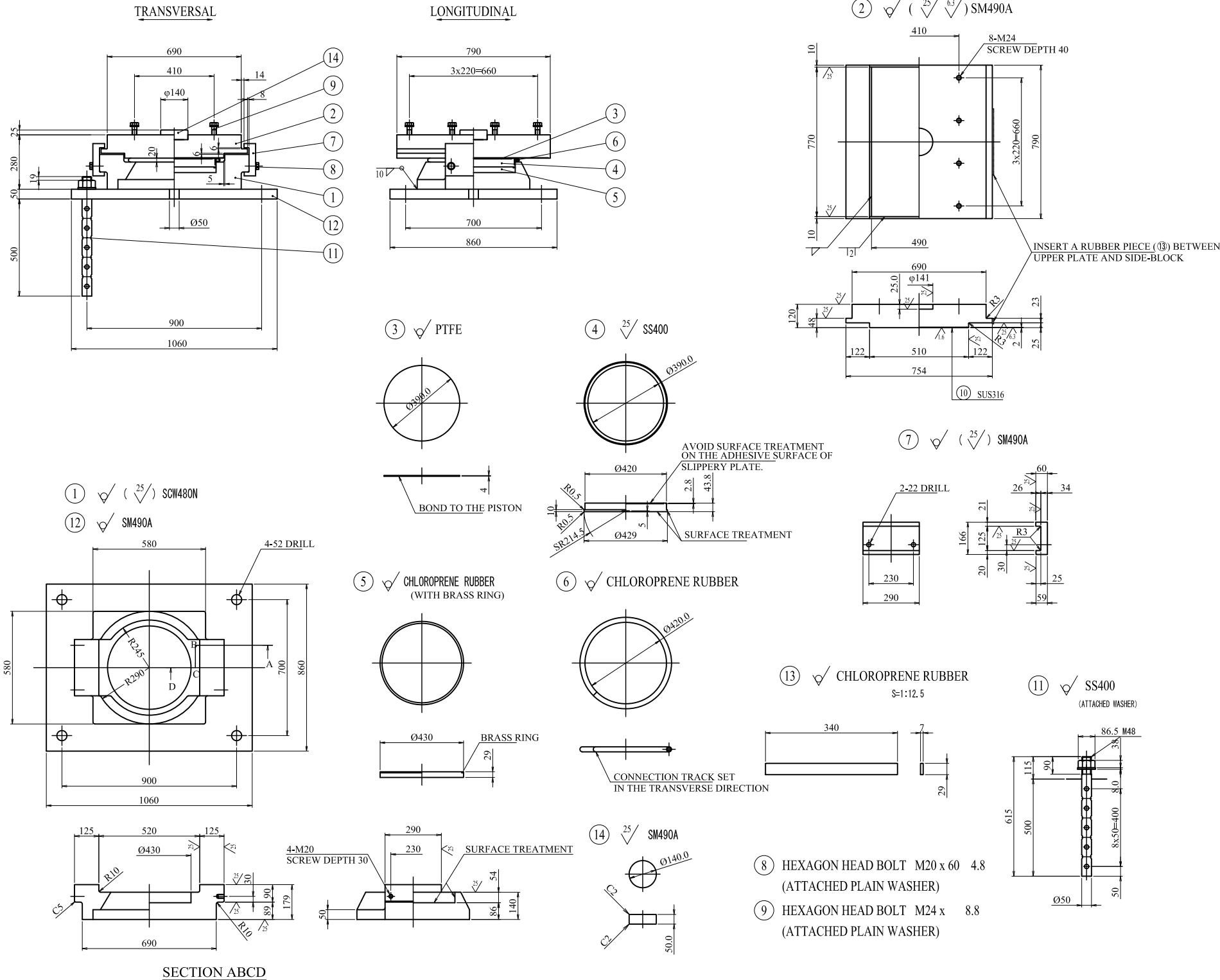
S=1:400

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
<p>Excavate inside of exterior sheet piles and filled with concrete as shown. Draining the inside of cofferdam up to +0.340m level. The 1st support Installation.</p>	<p>The 2nd support Installation. Underwater excavation up to -14.560m level.</p>	<p>Draining the inside of cofferdam up to -2.660m level. Placement of spread sand followed by Casting of underwater bottom slab concrete.</p>	<p>The 3rd support Installation. Dry up inside the cofferdam.</p>	<p>The 4th support Installation.</p>
STEP 6				
<p>Casting of footing concrete.</p>				

Note : This drawing can be used for reference only.

<p>PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT</p>	<p>FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY</p>	<p>COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE</p>	<p>JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.</p>	<p>PREPARED BY CHECKED BY APPROVED BY</p>	<p>NAME S. IMADA T. HAYAKAWA Y. SANO</p>	<p>SIGNATURE </p>	<p>DATE 27 Nov.2017 28 Nov.2017 29 Nov.2017</p>	<p>DRAWING TITLE (REFERENCE) CONSTRUCTION PLAN OF STEEL PIPE SHEET PILE WORK OF P19 PIER</p>	<p>PACKAGE 2 DWG No. P2-SB-2532</p>
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DETAIL OF STEEL BEARING (MOVABLE TYPE, P13) (1) S=1:25



DESIGN CONDITION

REACTION		
MAXIMUM TOTAL REACTION	R	3200 kN
DEAD LOAD REACTION	Rd	2200 kN
LONGITUDINAL HORIZONTAL FORCE (IN MOVEMENT)	R _{lif}	350 kN
TRANVERSE HORIZONTAL FORCE (IN SEISMIC L1)	R _{lt2}	700 kN
UPLIFT FORCE (IN SEISMIC L1)	V	220 kN
AMOUNT OF DISPLACEMENT		
TOTAL DESIGN DISPLACEMENT	e	±130 mm
SEISMIC COEFFICIENT		
HORIZONTAL SEISMIC COEFFICIENT	K _{hc}	0.30
FRICTION COEFFICIENT		
DESIGN FRICTION COEFFICIENT	f	0.10
SUPPORTING CONDITIONS		
BRIDGE LONGITUDINAL DIRECTION : MOVE	BRIDGE TRANVERSE DIRECTION : FIX	

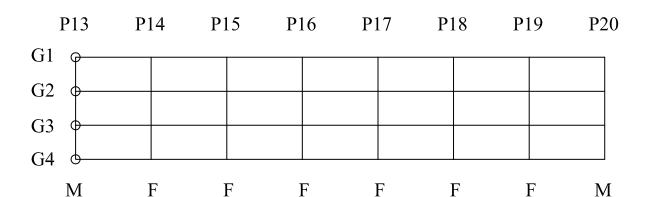
TABLE OF MATERIAL

NO.	COMPONENTS	MATERIAL	Qty	WEIGHT (kg)	NOTE
1	POT	SCW480N	1	310.8	
2	UPPER PLATE	SM490A	1	490.6	
3	SLIPPERY PLATE	PTFE	1	1.1	
4	PISTON	SS400	1	45.5	
5	RUBBER PLATE	CHLOROPRENE RUBBER	1	5.5	WITH BRASS RING
6	SEALING RING	CHLOROPRENE RUBBER	1	0.5	
7	SIDE BLOCKS	SM490A	2	30.0	
8	HEXAGON HEAD BOLT+ WASHER	—	4	0.9	
9	HEXAGON HEAD BOLT+ WASHER	—	8	3.4	
10	STAINLESS PLATE	SUS316	1	6.0	490x2x766
11	ANCHOR BOLT+ NUT+ WASHER	SS400	4	42.8	
12	BASE PLATE	SM490A	1	354.3	
13	RUBBER PIECES	CHLOROPRENE RUBBER	2	—	FOR INSTALLATION
14	SHEAR KEY	SM490A	1	6.0	
TOTAL WEIGHT				1297.4 (kg)	

Notes:

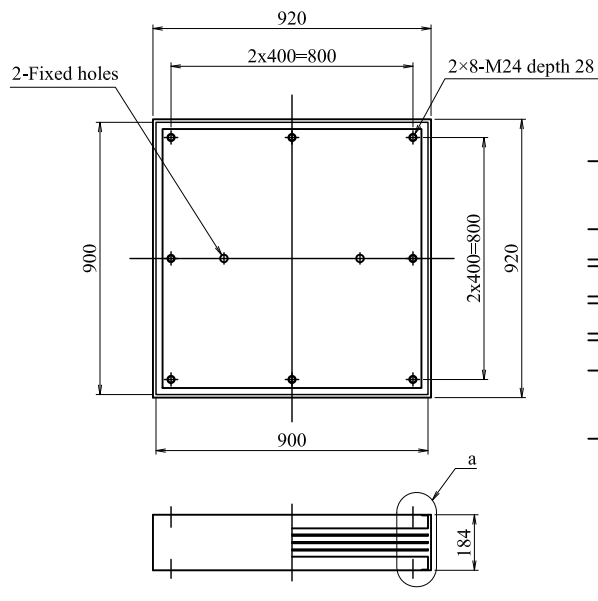
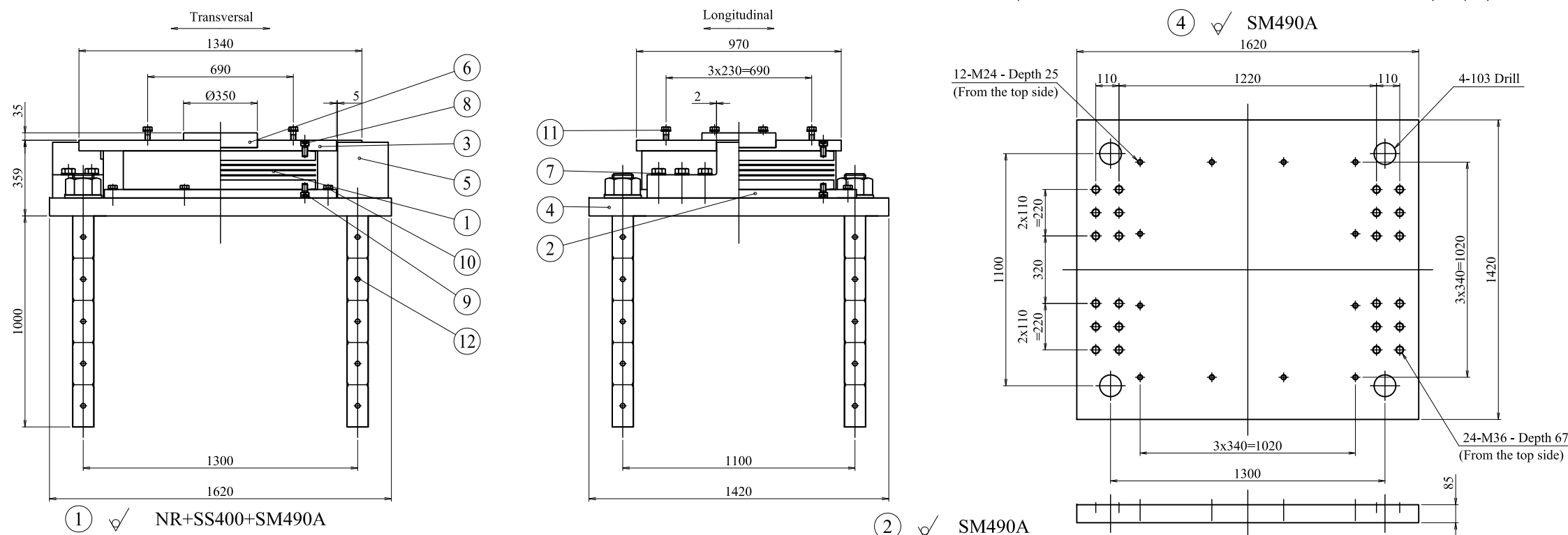
- Surface treatment shall be Hot Dipped Galvanized for steel block and plate with more than 550kg/sq.m and bolt, nut, washer with more than 350kg/sq.m.
- The rubber piece number ⑬ shall be removed after the installation of the bearing.
- The weight of bolt number ⑨ is for reference.
- Detail of fix holes shall be decided by bearing manufacture in necessary.
- Details of the slab and girder are designed based on the product shown in this Drawing.
- The Contractor has option to propose an alternative equivalent to the specified product, which shall be subjected to the Engineer's approval.

LAYOUT

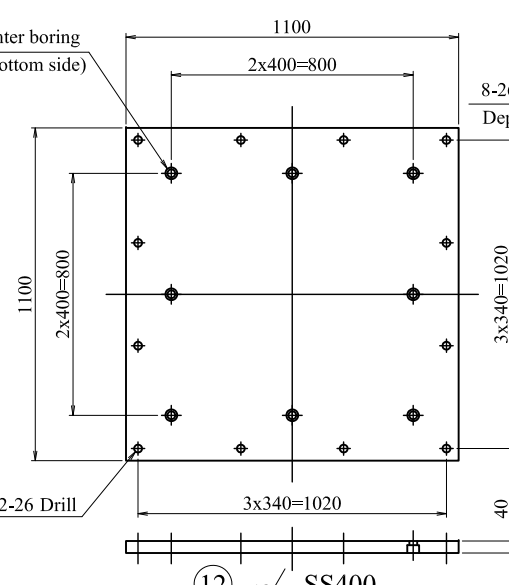
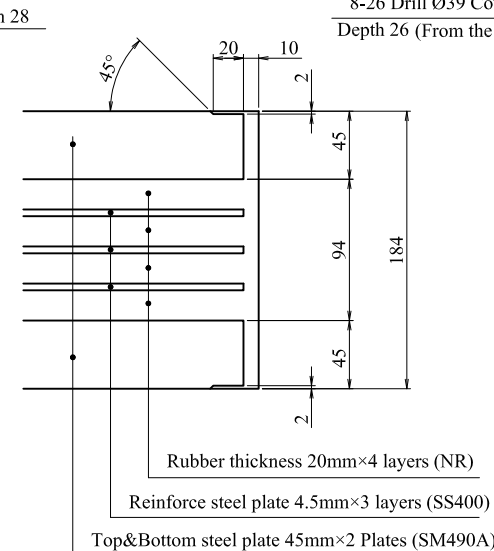


PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME S. IMADA T. HAYAKAWA Y. SANO	SIGNATURE 	DATE 15 Jun.2017 20 Jun.2017 21 Jun.2017	DRAWING TITLE DETAIL OF STEEL BEARING (MOVABLE TYPE,P13) (1)	PACKAGE 2 DWG No. P2-SB-3001
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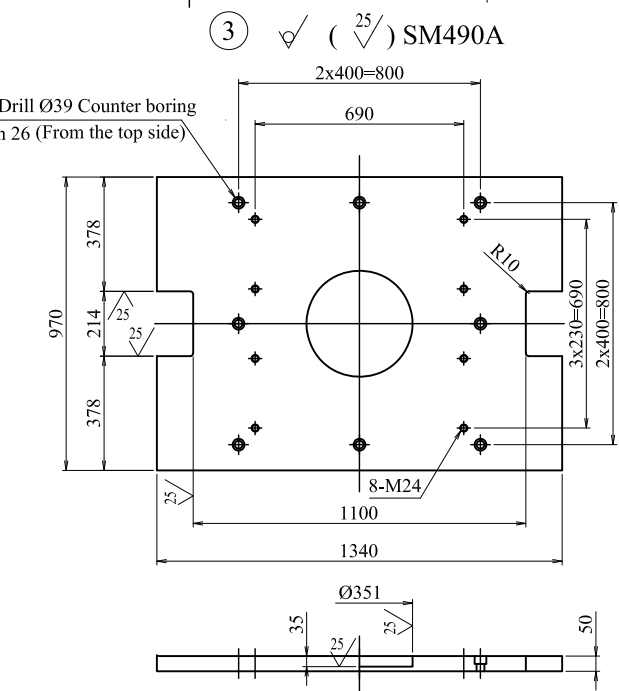
DETAIL OF RUBBER BEARING (FIXED TYPE, P14 & P19) (2) S=1:25



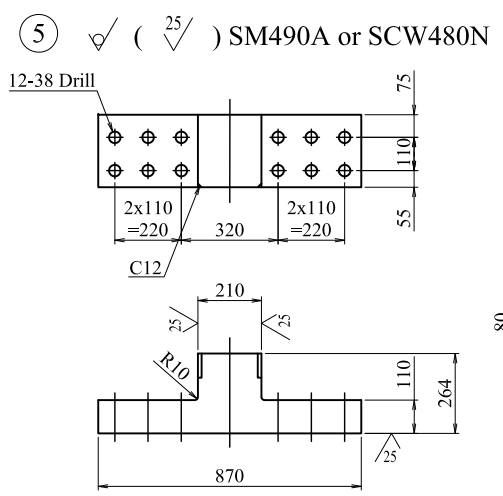
Detail "a" S=1:5



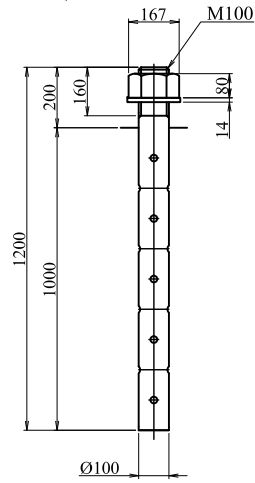
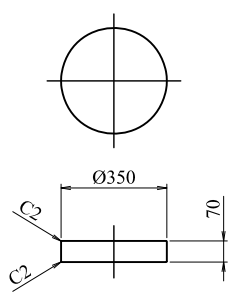
12 SS400 (Attached Washer)



3 (25) SM490A



6 25 SM490A



- 7 Hexagon bolt M36×180 8.8 or Equivalent (Washer attached)
- 8 Hexagon socket head cap screw M24×50 10.9 or Equivalent
- 9 Hexagon socket head cap screw M24×40 10.9 or Equivalent
- 10 Hexagon bolt M24×65 8.8 or Equivalent (Washer attached)
- 11 Hexagon bolt M24× 8.8 or Equivalent (Washer attached)

Design conditions

Maximum Reaction Load	R	8070	kN
Dead Load	Rd	6101	kN
Longitudinal Horizontal Force (EQ Level 1)	Rh1	2060	kN
Transversal Horizontal Force (EQ Level 1)	Rh2	1892	kN
Uplift Load (Earthquake)	V	610	kN

Rubber		
Static Elastic Shear Modulus	G0	0.8 N/mm ²
Elongation at Break	γu	550 %
Testing Load for Rotation	R1	7653 kN
Vertical Deflection (at Rotation Checking)	δr	1.50 mm

Support Condition of Bearing		
Longitudinal Direction:	Fix	Transversal Direction: Fix

Material

Num	Part	Material	Qty.	Weight (kg)	Note
1	Rubber	NR+SS400+SM490A	1	739.2	
2	Middle Plate	SM490A	1	375.5	
3	Upper Plate	SM490A	1	459.4	
4	Base Plate	SM490A	1	1498.8	
5	Side Block	SM490A or SCW480N	2	459.0	
6	Shear Key	SM490A	1	52.9	
7	Hexagon Bolt + Washer	—	24	46.1	
8	Hexagon Socket Head Cap Screws Bolt	—	8	2.4	
9	Hexagon Socket Head Cap Screws Bolt	—	8	2.1	
10	Hexagon Bolt + Washer	—	12	4.3	
11	Hexagon Bolt + Washer	—	8	3.4	
12	Anchor Bolt + Washer	SS400	4	324.8	
Total weight				3967.9	(kg)

- Notes:
- Surface treatment shall be Hot Dipped Galvanized for steel block and plate with more than 550kg/sq.m and bolt, nut, washer with more than 350kg/sq.m.
 - Weight of bolt ⑪ is reference value.
 - Detail of Fix holes shall be decided by bearing manufacture in necessary.
 - Details of the slab and girder are designed based on the product shown in this Drawing.
 - The Contractor has option to propose an alternative equivalent to the specified product, which shall be subjected to the Engineer's approval.

Layouts

