BASIC DESIGN

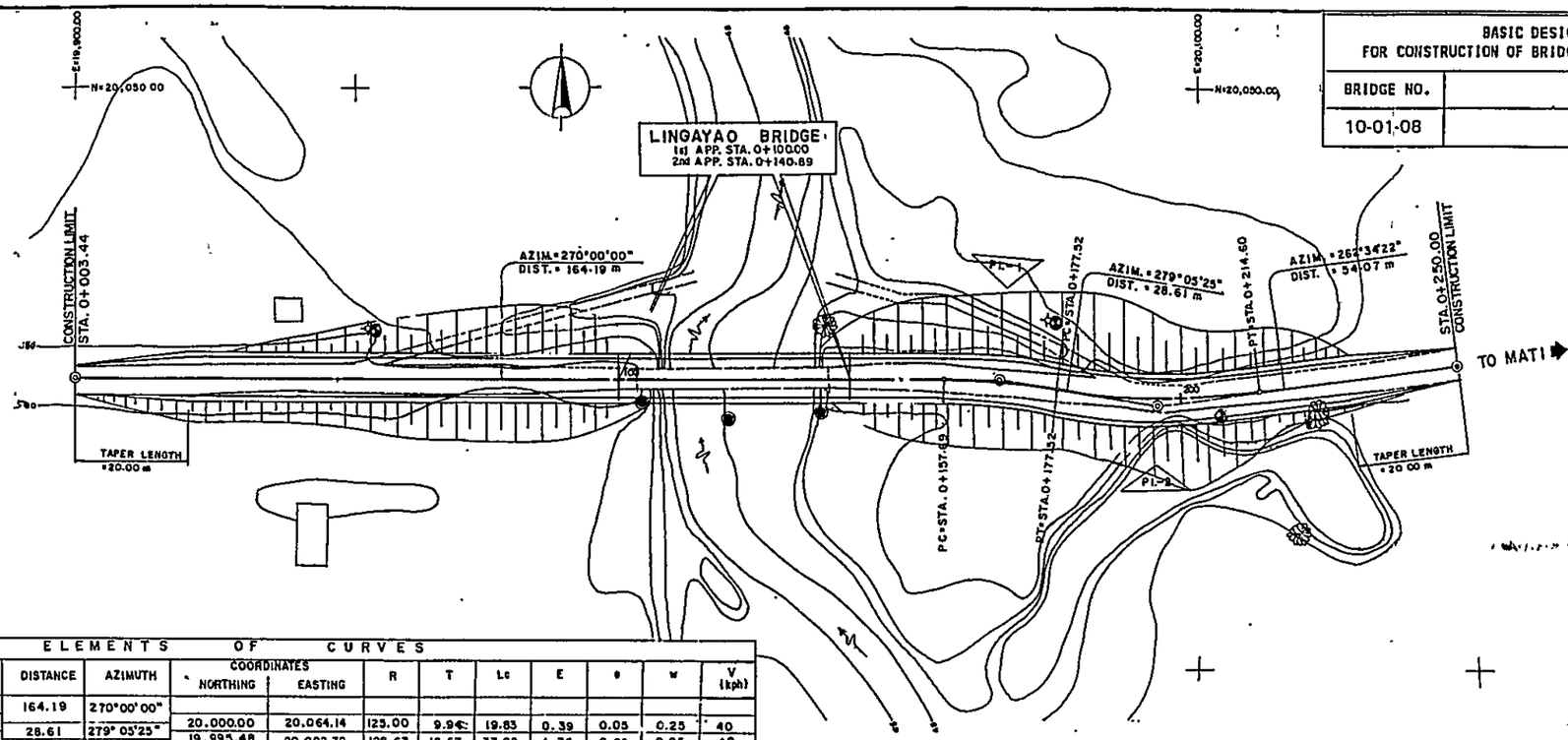
OF

APPROACH ROADS

(GROUP 2)

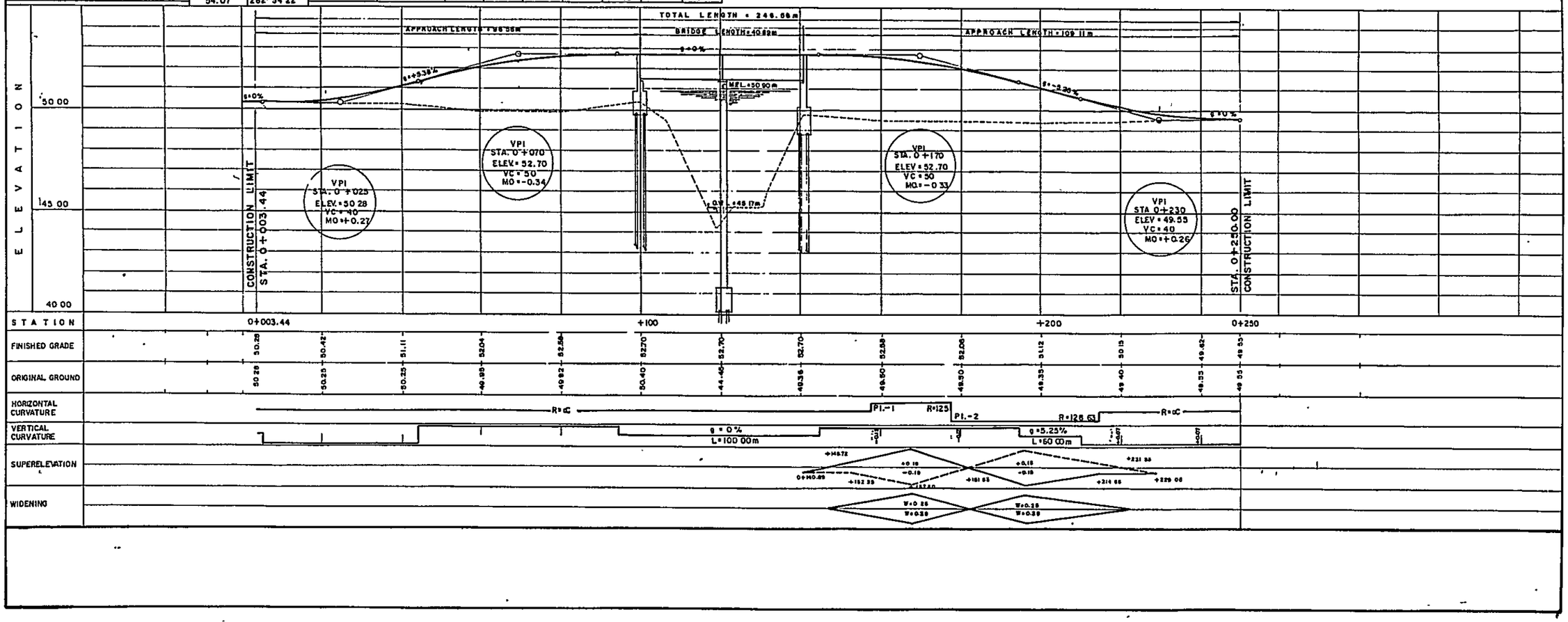
BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA

BRIDGE NO.	BRIDGE NAME	SHEET NO.
10-01-08	Lingayao	92

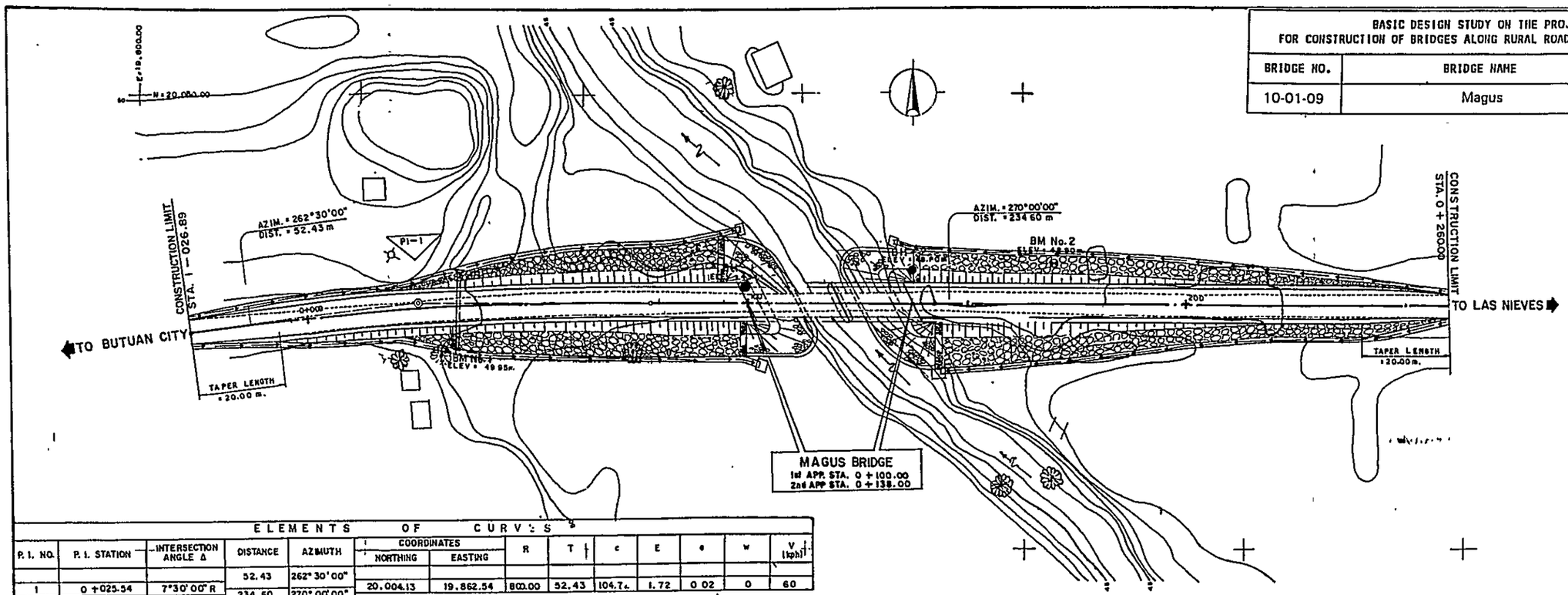


ELEMENTS OF CURVES

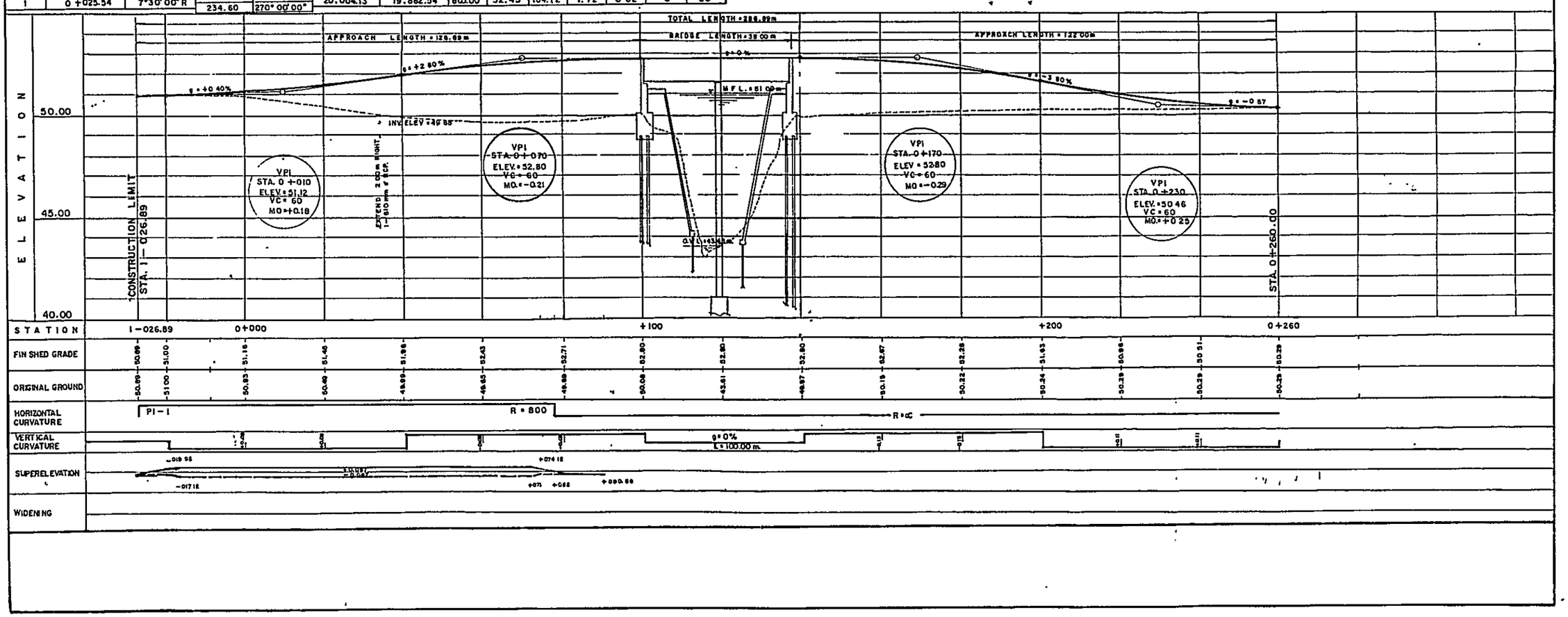
P.I. NO	P.I. STATION	INTERSECTION ANGLE Δ	DISTANCE	AZIMUTH	COORDINATES NORTHING	COORDINATES EASTING	R	T	Lc	E	e	w	V (kph)
			164.19	270°00'00"									
1	0+167.63	9°05'25"R	28.61	279°05'25"	20,000.00	20,064.14	125.00	9.96	19.83	0.39	0.05	0.25	40
2	0+196.19	16°31'03"L	54.07	262°34'22"	19,995.48	20,092.39	128.63	18.67	37.08	1.35	0.05	0.25	40



BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	BRIDGE NAME	SHEET NO.
10-01-09	Magus	93

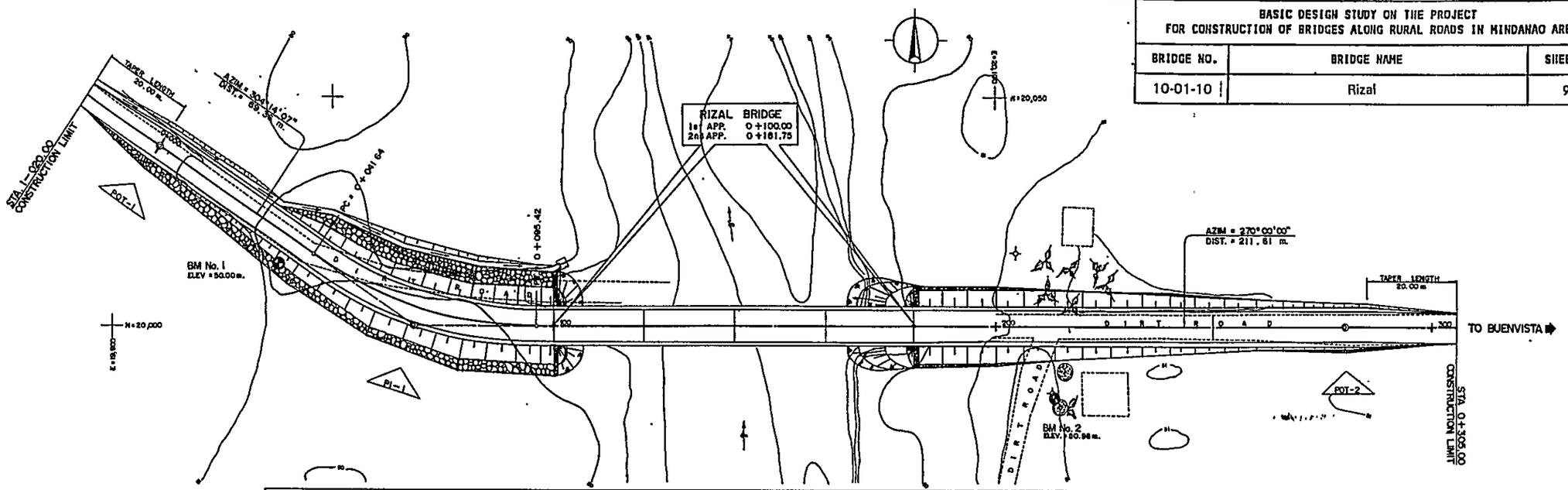


ELEMENTS OF CURVES													
P. I. NO.	P. I. STATION	INTERSECTION ANGLE Δ	DISTANCE	AZIMUTH	COORDINATES NORTHING	COORDINATES EASTING	R	T	c	E	e	w	V (kph)
			52.43	262° 30' 00"									
1	0 +025.54	7°30' 00" R	234.60	270° 00' 00"	20,004.13	19,862.54	800.00	52.43	104.74	1.72	0 02	0	60



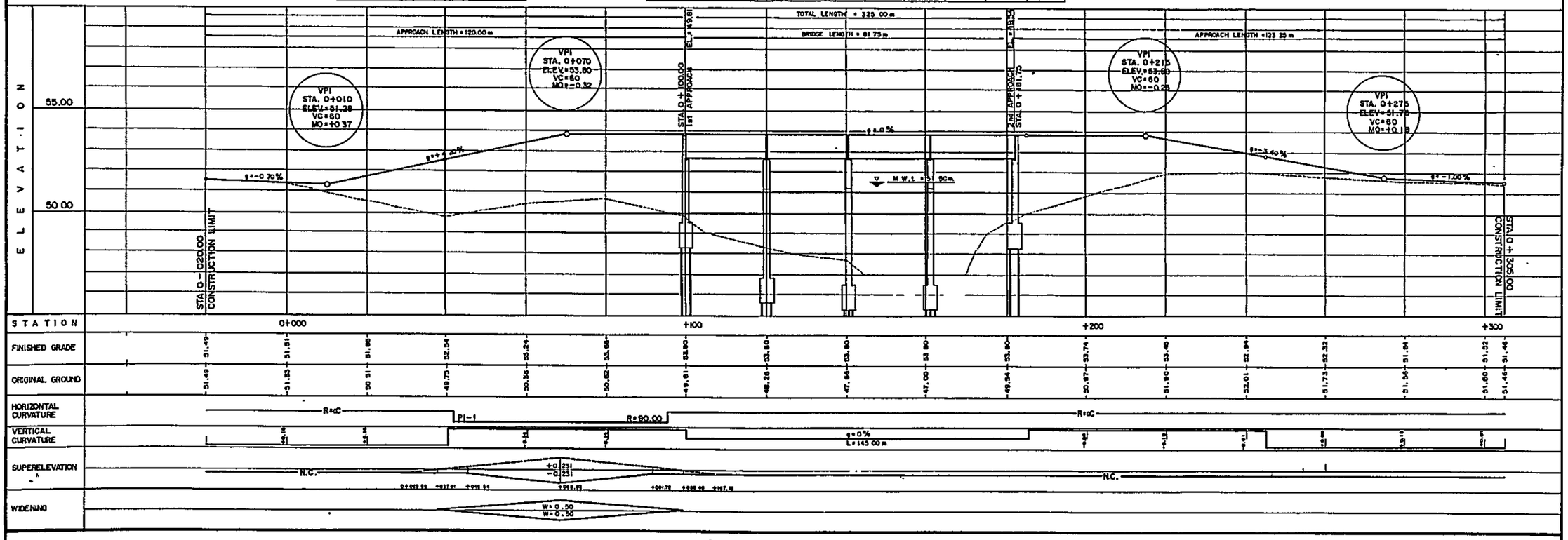
BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA

BRIDGE NO.	BRIDGE NAME	SHEET NO.
10-01-10	Rizal	94



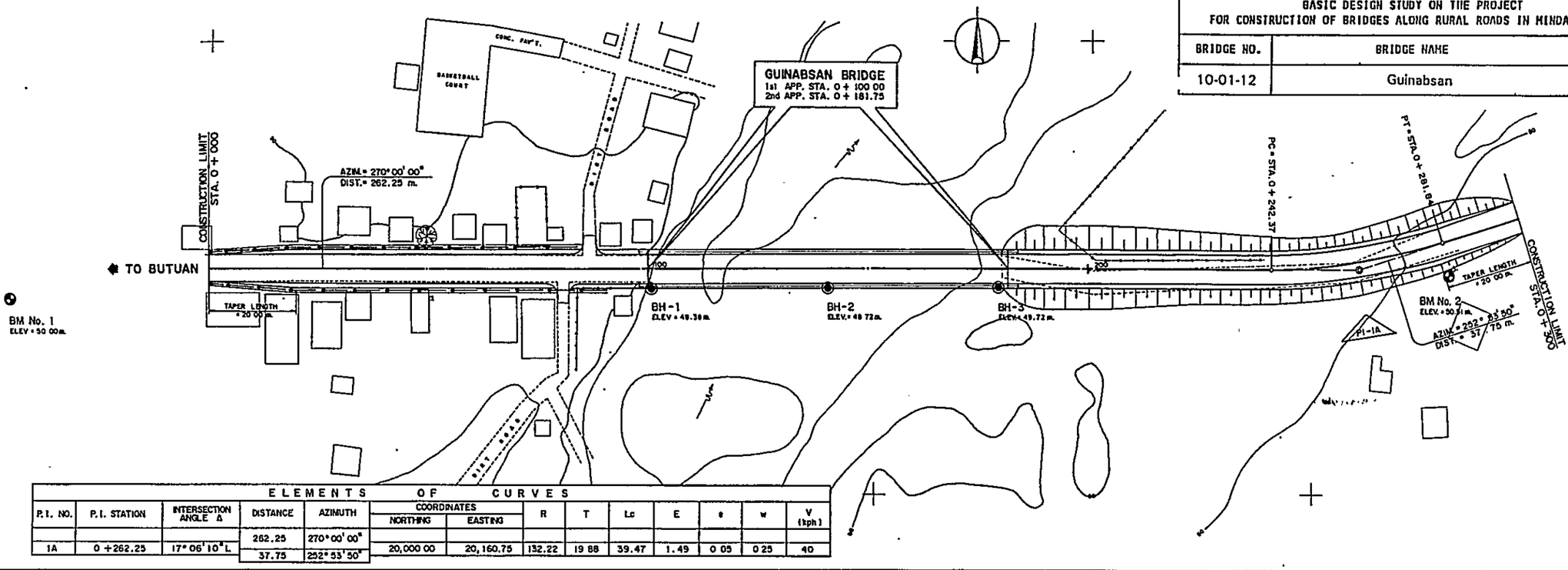
ELEMENTS OF CURVES

P.I. NO	P.I. STATION	INTERSECTION ANGLE Δ	DISTANCE	AZIMUTH	COORDINATES NORTHING	COORDINATES EASTING	R	T	Lc	E	e	w	V (kph)
POT-1			69.36	304°14'07"	20,039.02	19,911.05							
1	0+069.36	34°14'07" L			20,000.00	19,968.39	90.00	27.72	53.78	4.17	0.060	0.50	50
POT-2			211.61	270°00'00"	20,000.00	20,180.00							



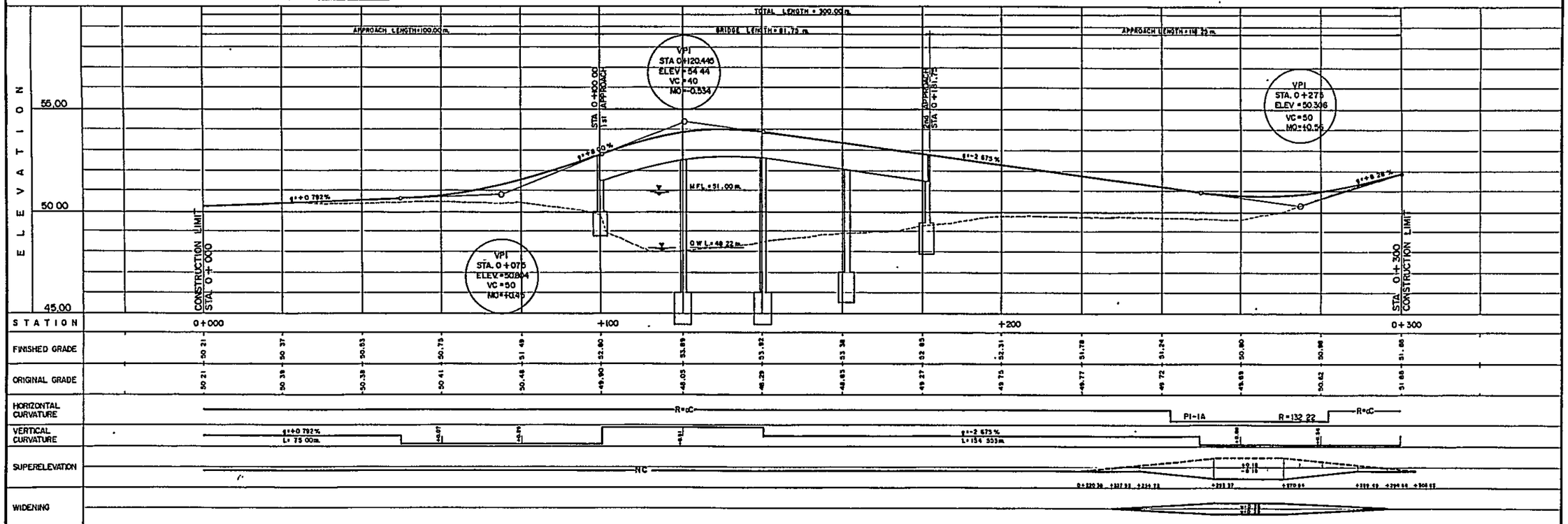
BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA

BRIDGE NO.	BRIDGE NAME	SHEET NO.
10-01-12	Guinabsan	95

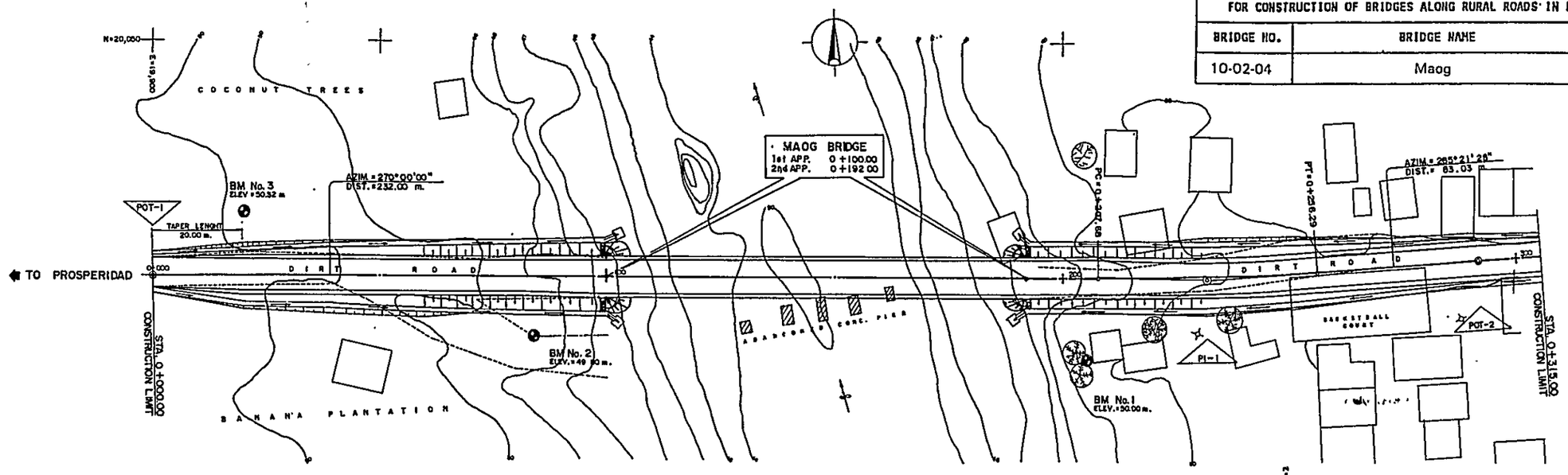


ELEMENTS OF CURVES

P.I. NO.	P.I. STATION	INTERSECTION ANGLE Δ	DISTANCE	AZIMUTH	COORDINATES NORTHING	COORDINATES EASTING	R	T	Lc	E	e	w	V (kph)
			262.25	270° 00' 00"									
1A	0 +262.25	17° 06' 10" L	37.75	252° 53' 50"	20,000 00	20,160.75	132.22	19 88	39.47	1.49	0 05	0 25	40

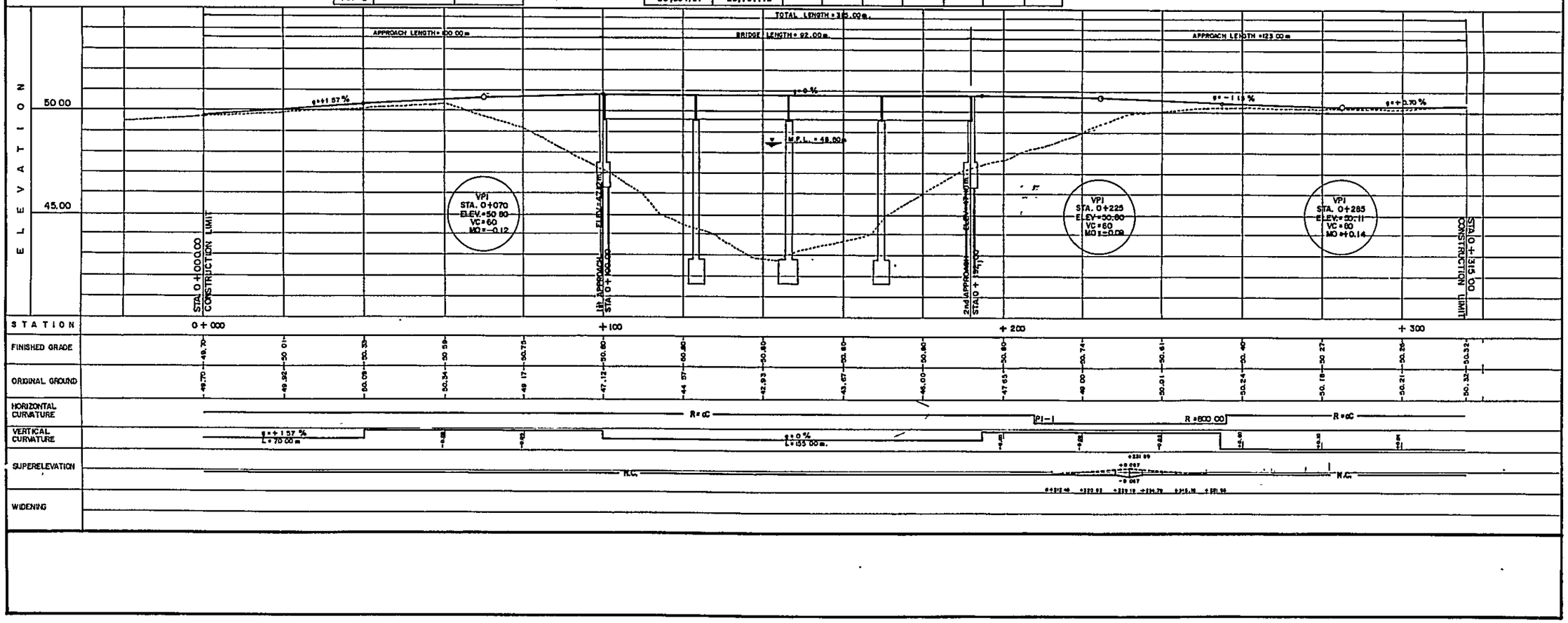


BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	BRIDGE NAME	SHEET NO.
10-02-04	Maog	96



ELEMENTS OF CURVES

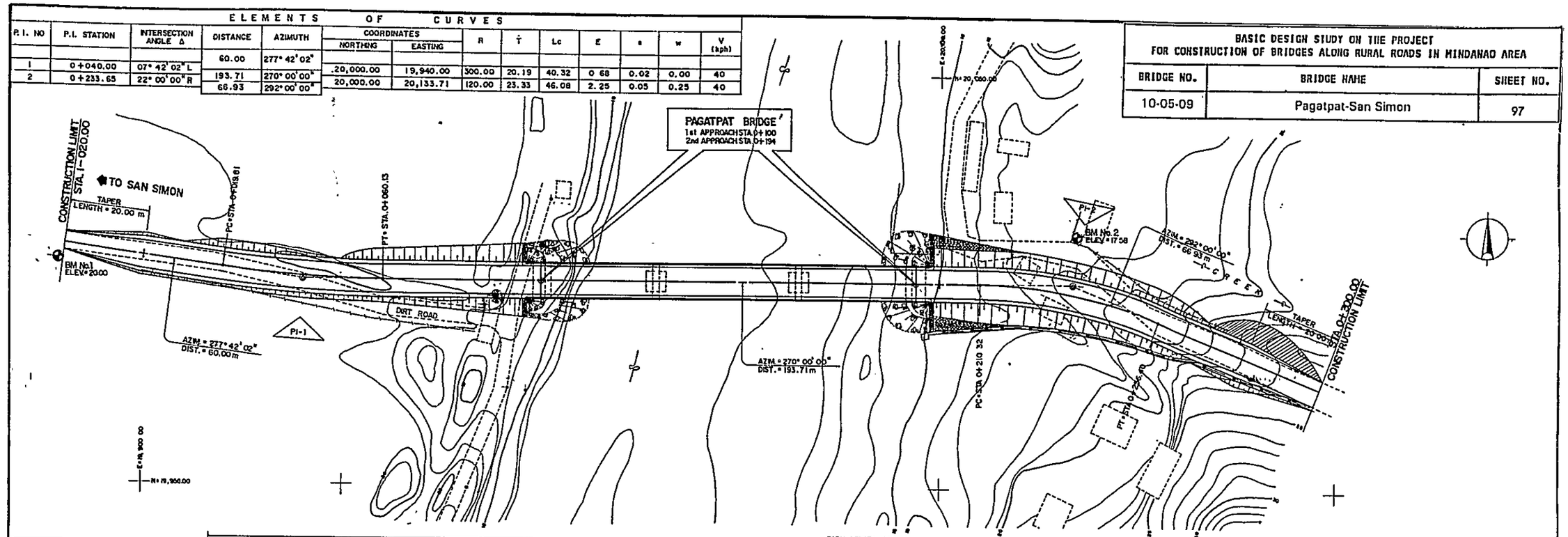
P.I. NO.	P.I. STATION	INTERSECTION ANGLE Δ	DISTANCE	AZIMUTH	COORDINATES NORTHING	COORDINATES EASTING	R	T	Lc	E	e	w	V (kph)
POT-1			232.00	270°00'00"	20,000.00	19,900.00							
1	0 + 232.00	4°38'32"L			20,000.00	20,132.00	600.00	24.32	48.61	0.49	0.02	0.00	60
POT-2			83.03	265°21'28"	20,004.87	20,191.78							

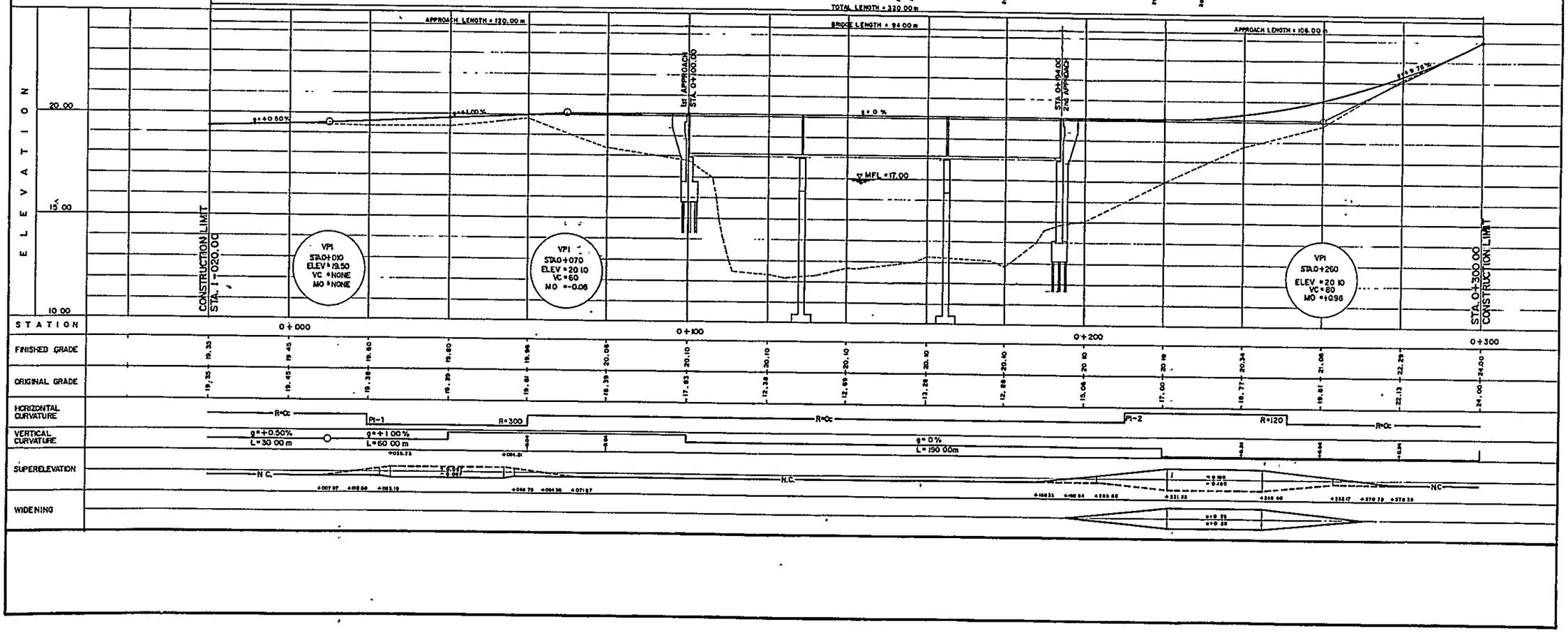


BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	BRIDGE NAME	SHEET NO.
10-05-09	Pagatpat-San Simon	97

ELEMENTS OF CURVES

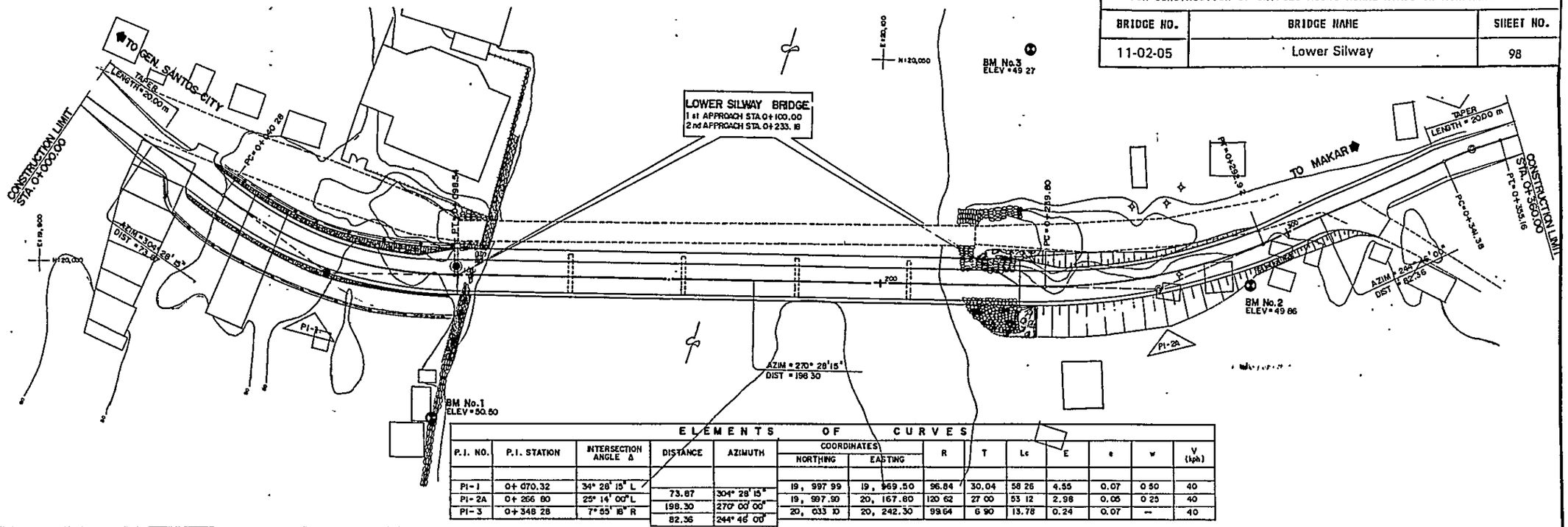
P.I. NO	P.I. STATION	INTERSECTION ANGLE Δ	DISTANCE	AZIMUTH	COORDINATES NORTHING	COORDINATES EASTING	R	T	Lc	E	s	w	V (kph)
			60.00	277° 42' 02"									
1	0+040.00	07° 42' 02" L			20,000.00	19,940.00	300.00	20.19	40.32	0.68	0.02	0.00	40
			193.71	270° 00' 00"									
2	0+233.65	22° 00' 00" R			20,000.00	20,133.71	120.00	23.33	46.08	2.25	0.05	0.25	40
			66.93	292° 00' 00"									





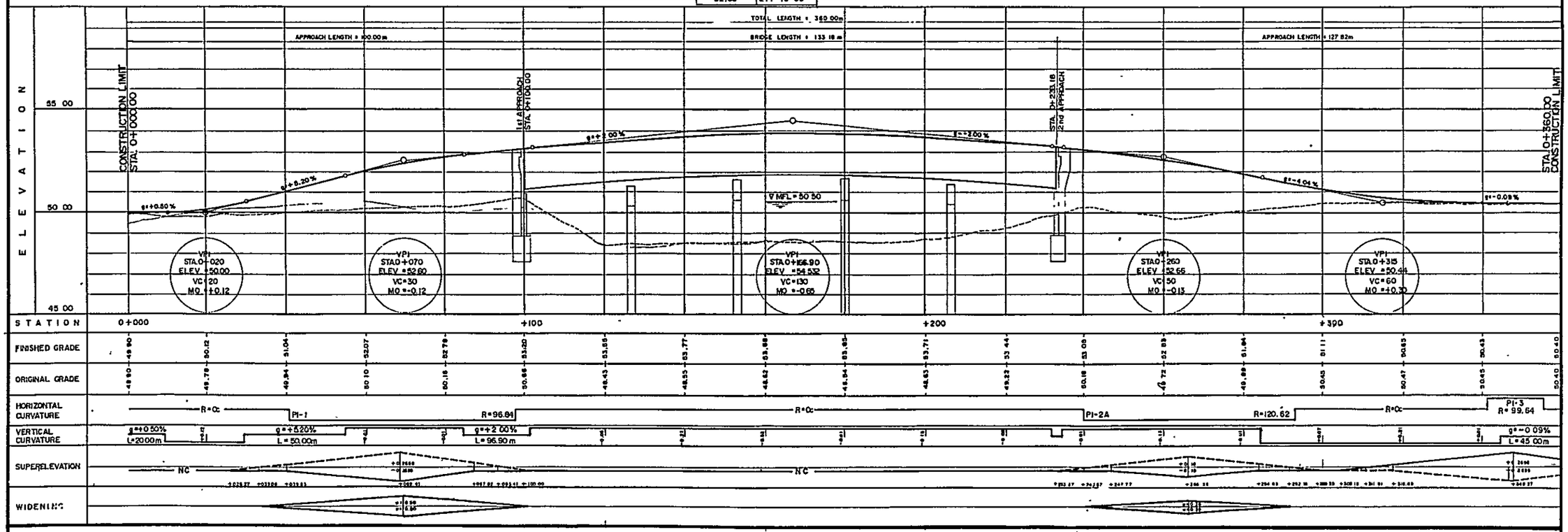
BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA

BRIDGE NO.	BRIDGE NAME	SHEET NO.
11-02-05	Lower Silway	98



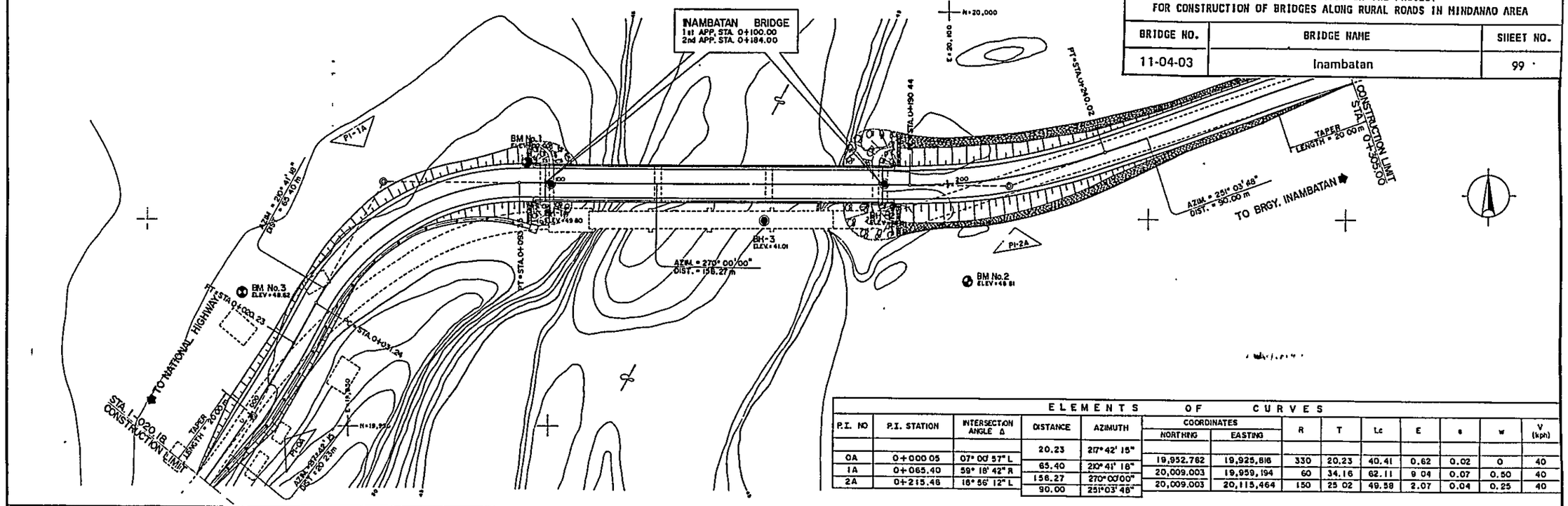
ELEMENTS OF CURVES

P.I. NO.	P.I. STATION	INTERSECTION ANGLE Δ	DISTANCE	AZIMUTH	COORDINATES NORTHING	COORDINATES EASTING	R	T	Lc	E	e	w	V (kph)
PI-1	0+070.32	34° 28' 15" L			19, 997.99	19, 969.50	96.84	30.04	58.26	4.55	0.07	0.50	40
PI-2A	0+266.80	25° 14' 00" L	73.67	304° 28' 15"	19, 997.90	20, 167.80	120.62	27.00	53.12	2.98	0.05	0.25	40
PI-3	0+348.28	7° 55' 18" R	198.30	270° 00' 00"	20, 033.10	20, 242.30	99.64	6.90	13.78	0.24	0.07	--	40
			82.36	244° 46' 00"									



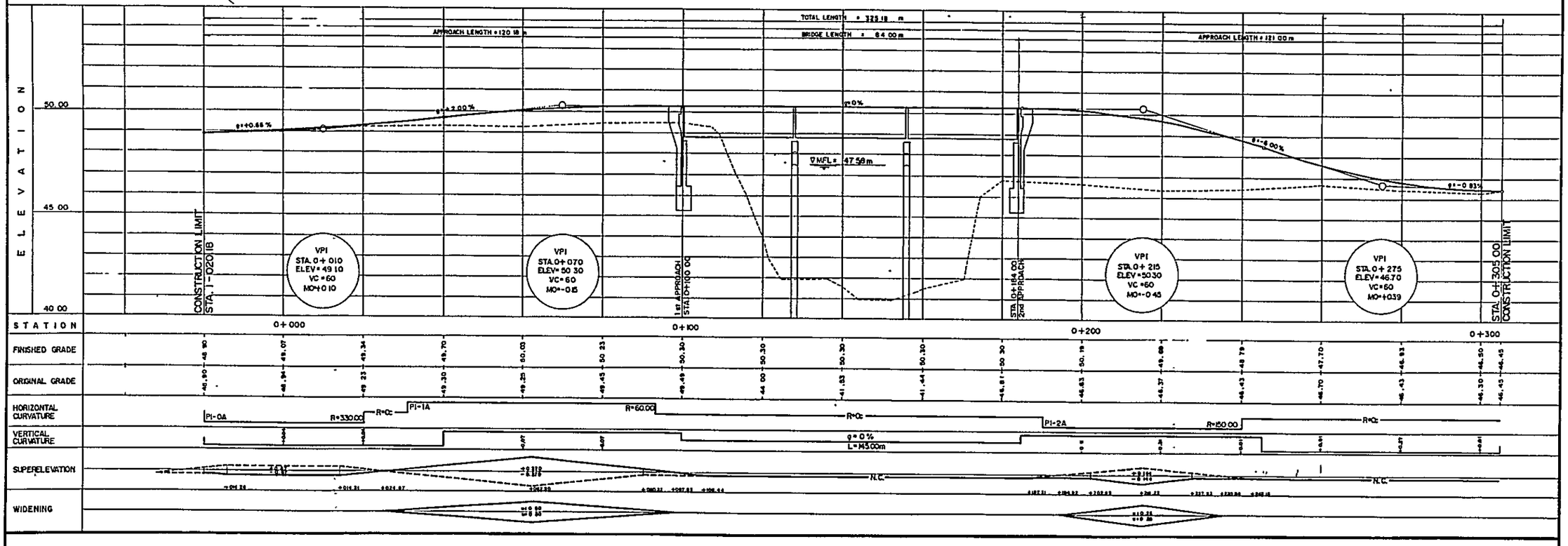
BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA

BRIDGE NO.	BRIDGE NAME	SHEET NO.
11-04-03	Inambatan	99



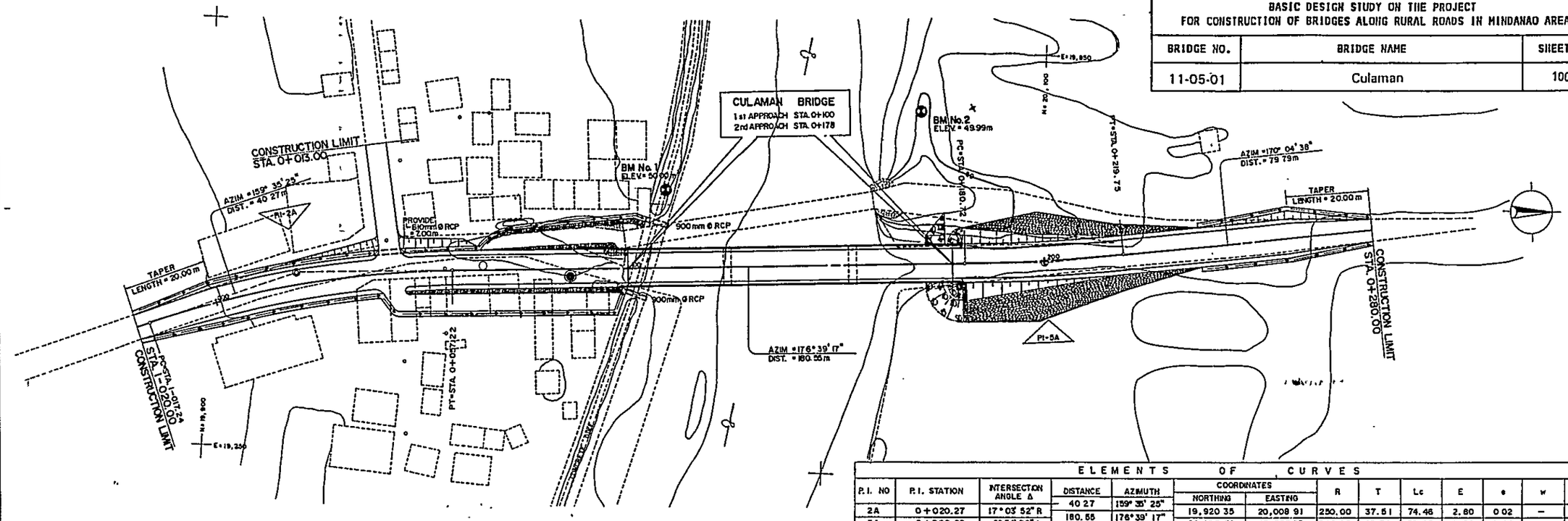
ELEMENTS OF CURVES

P.I. NO	P.I. STATION	INTERSECTION ANGLE Δ	DISTANCE	AZIMUTH	COORDINATES NORTHING	COORDINATES EASTING	R	T	Lc	E	e	w	V (kph)
			20.23	217° 42' 15"									
0A	0+000 05	07° 00' 57" L	65.40	210° 41' 18"	19,952.762	19,925.816	330	20.23	40.41	0.62	0.02	0	40
1A	0+065.40	59° 18' 42" R	156.27	270° 00'00"	20,009.003	19,959.194	60	34.16	62.11	9 04	0.07	0.50	40
2A	0+215.46	18° 56' 12" L	90.00	251°03' 48"	20,009.003	20,115,464	150	25 02	49.58	2.07	0.04	0.25	40



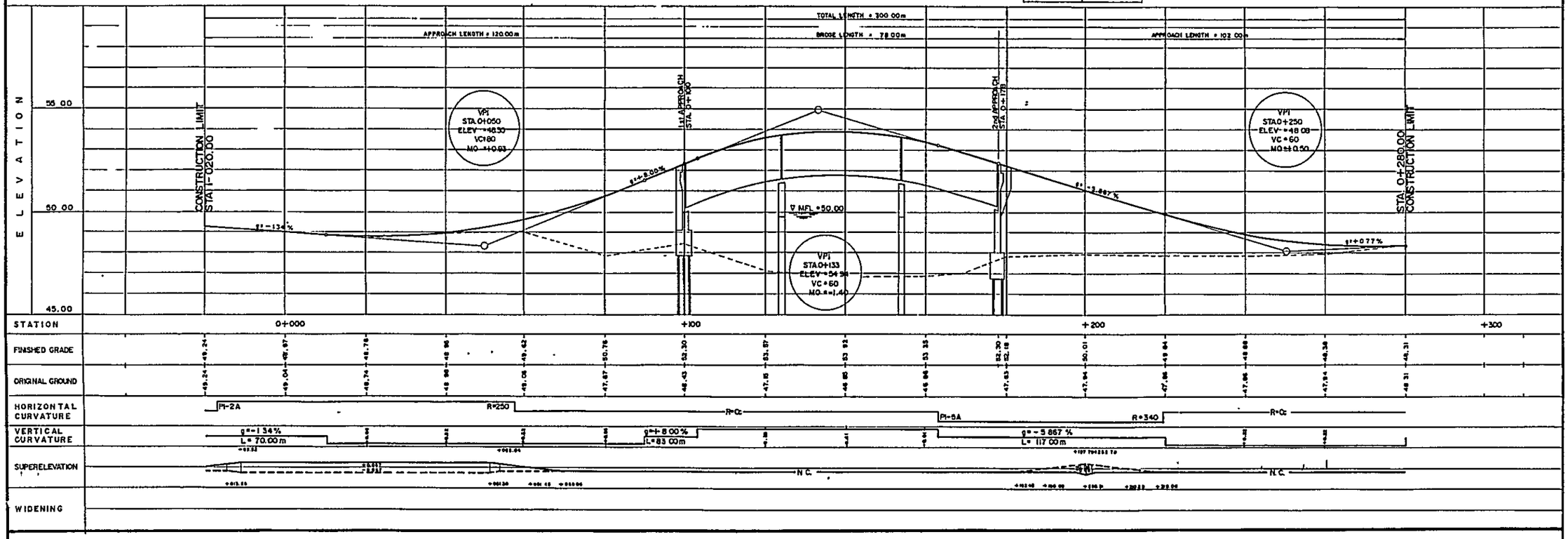
BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA

BRIDGE NO.	BRIDGE NAME	SHEET NO.
11-05-01	Culaman	100



ELEMENTS OF CURVES

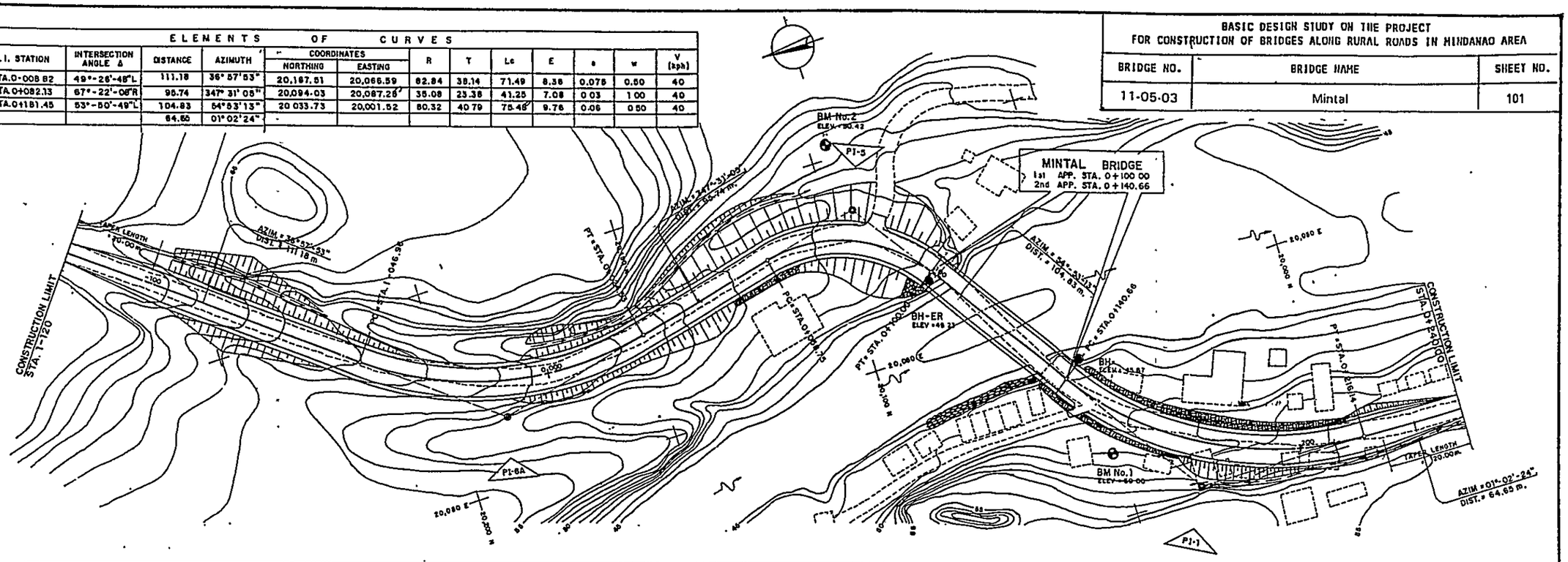
P.I. NO	P.I. STATION	INTERSECTION ANGLE Δ	DISTANCE	AZIMUTH	COORDINATES NORTHING	COORDINATES EASTING	R	T	Lc	E	e	w	V (kph)
2A	0+020.27	17°03'52" R	40.27	159°35'25"	19,920.35	20,008.91	250.00	37.51	74.46	2.80	0.02	—	40
5A	0+200.26	6°34'39" L	180.55	176°39'17"	20,100.59	19,998.37	340.00	19.54	39.03	0.56	0.02	—	40
			79.79	170°04'38"									

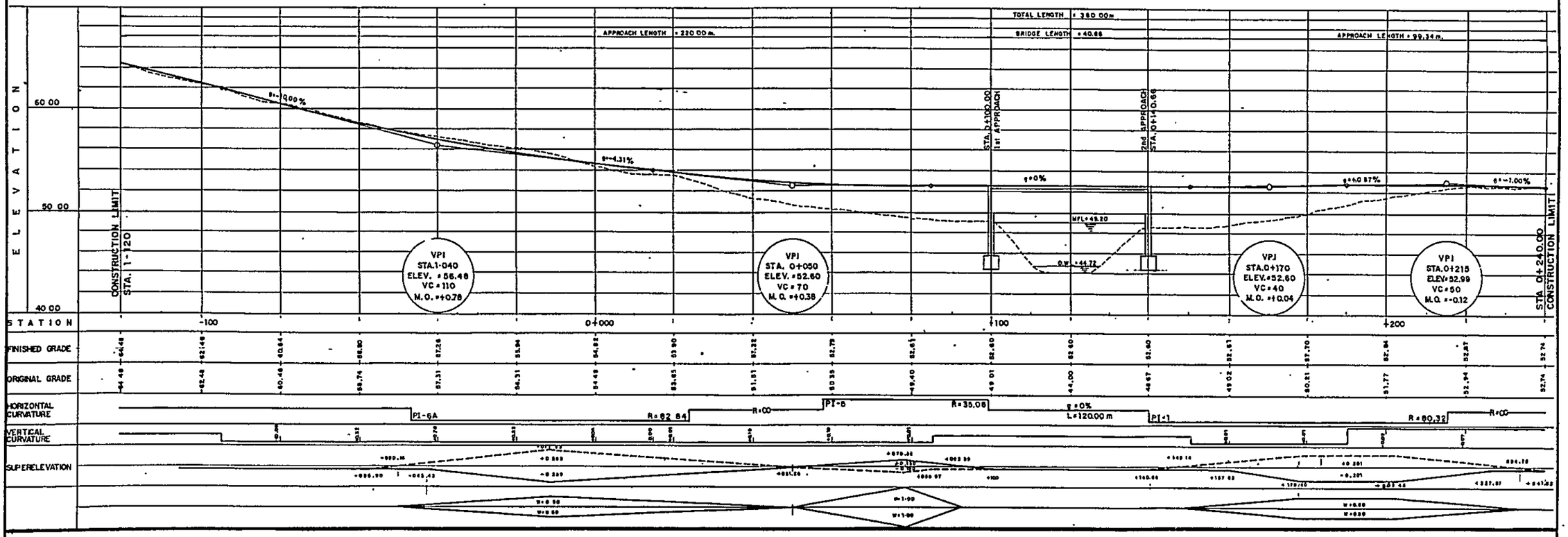


ELEMENTS OF CURVES													
P.I. NO	P.I. STATION	INTERSECTION ANGLE Δ	DISTANCE	AZIMUTH	COORDINATES		R	T	Lc	E	s	w	V (kph)
					NORTHING	EASTING							
PI-6A	STA.0+008.82	49°-26'-48"L	111.18	36° 57' 53"	20,187.51	20,066.59	82.84	38.14	71.49	8.36	0.075	0.50	40
PI-5	STA.0+082.13	67°-22'-08"R	96.74	347° 31' 05"	20,094.03	20,087.26	35.08	23.38	41.25	7.08	0.03	1.00	40
PI-1	STA.0+181.45	53°-50'-49"L	104.83	54°53'13"	20 033.73	20,001.52	80.32	40.79	75.48	9.76	0.06	0.50	40
			64.65	01°02'24"	-								

BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA

BRIDGE NO.	BRIDGE NAME	SHEET NO.
11-05-03	Mintal	101





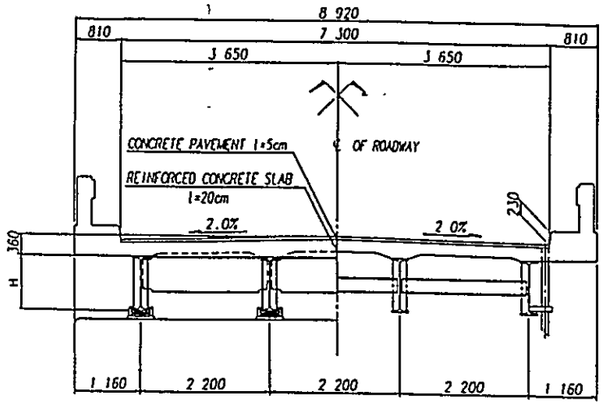
BASIC DESIGN

OF

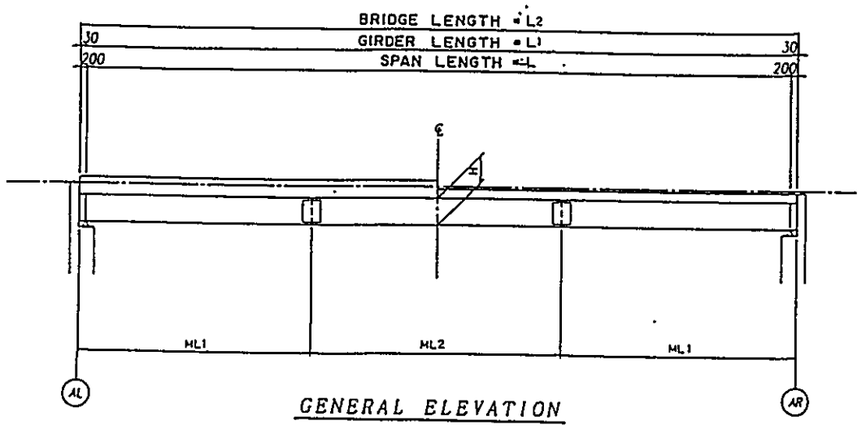
SUPERSTRUCTURES

(GROUP 2)

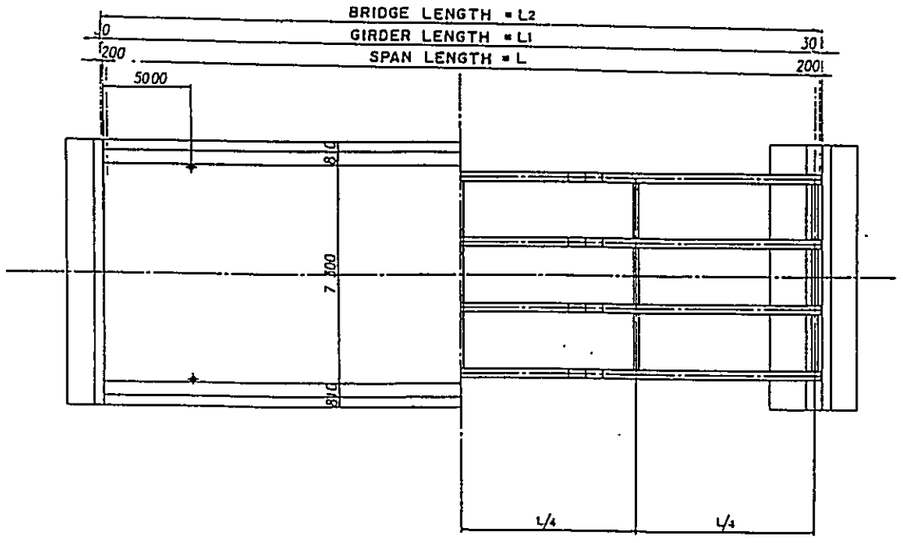
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.		SHEET NO.
	GENERAL VIEW	102



SUPERSTRUCTURE CROSS SECTION



GENERAL ELEVATION



GENERAL PLAN

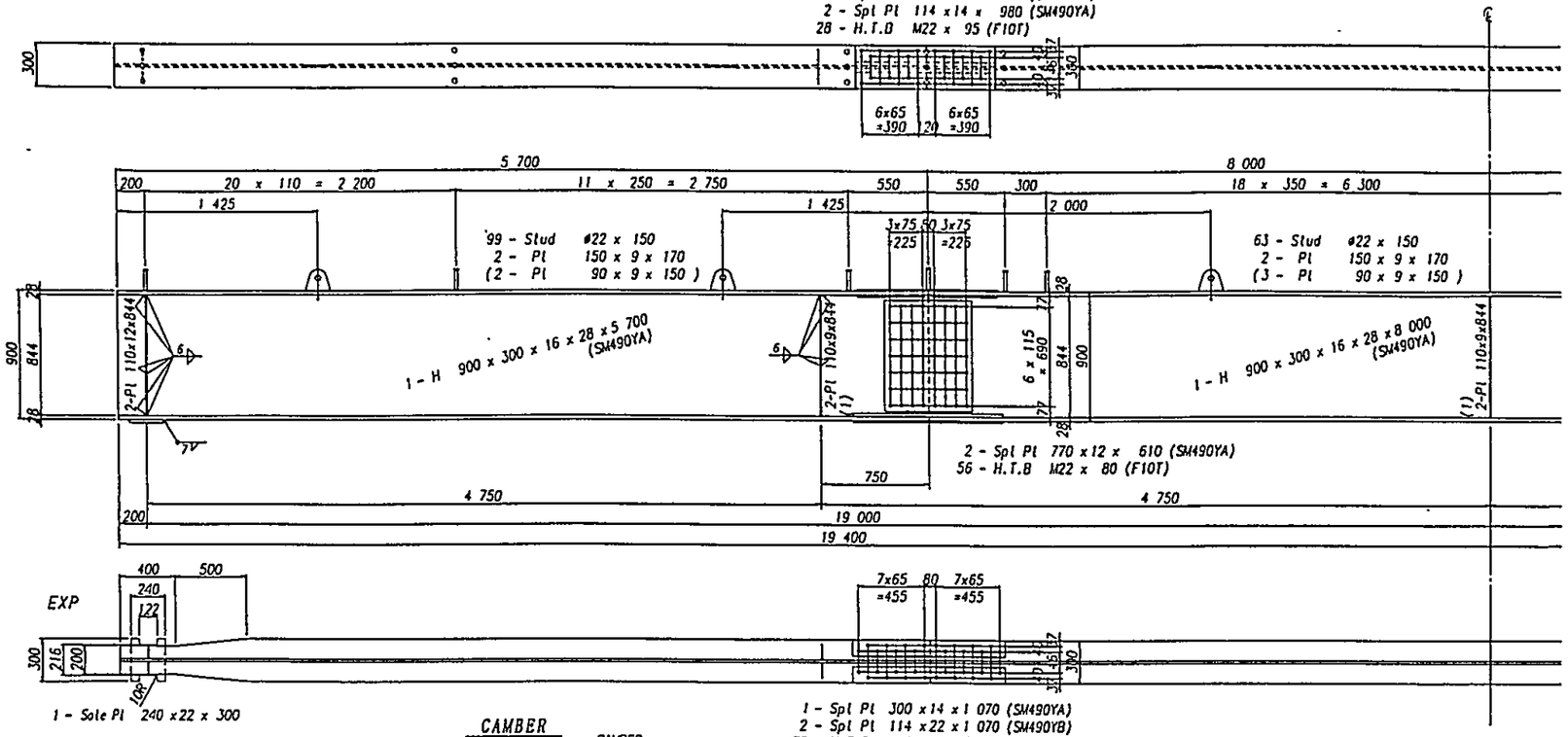
SPAN L (m)	BRIDGE LENGTH L_2 (m)	GIRDER LENGTH L_1 (m)	GIRDER SIZE	MENBE LENGTH		
				ML_1 (m)	ML_2 (m)	L/4
15	15.46	15.4	0.700	4.7	6.0	3.75
18	18.46	18.4	0.890	5.5	7.4	4.5
19	19.46	19.4	0.900	5.7	8.0	4.75
20	20.46	20.4	0.912	6.2	8.0	5.0
21	21.46	21.4	0.912	6.7	8.0	5.25
22	22.46	22.4	0.912	7.0	8.4	5.5
23	23.46	23.4	0.912	7.7	8.0	5.75
24	24.46	24.4	0.912	7.95	8.5	6.0

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.		SHEET NO.
	MAIN GIRDER L = 19	103

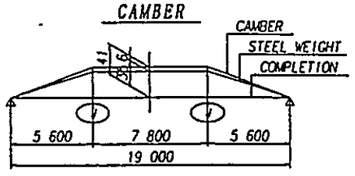
DETAILS OF SUPERSTRUCTURES

L=19.0M

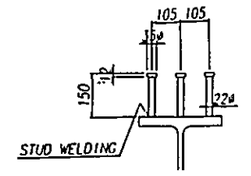
MAIN GIRDER SCALE 1:20



CAMBER

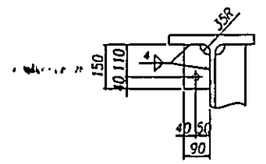


DETAIL OF STUD SCALE 1:10



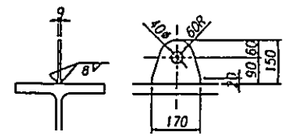
1 - Stud ϕ22 x 150

DETAIL OF HANGER SCALE 1:10



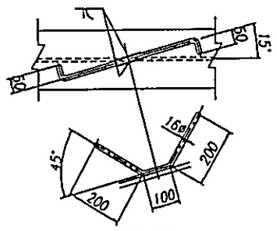
1 - Pl 90 x 9 x 150

DETAIL OF PAD EYE SCALE 1:10

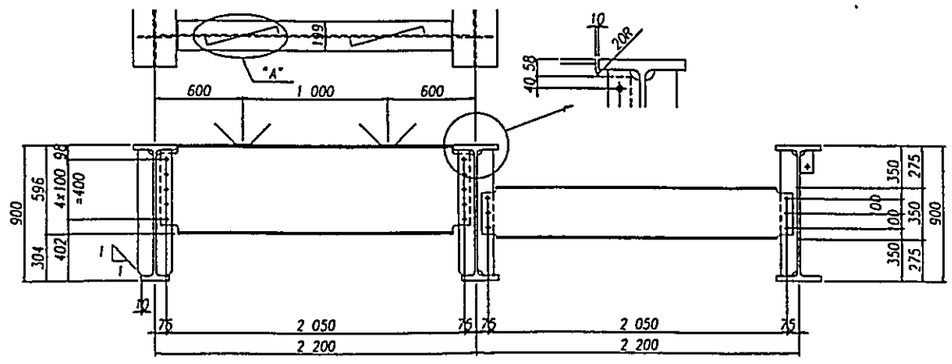


1 - Pl 150 x 9 x 170

DETAIL "A" SCALE 1:10



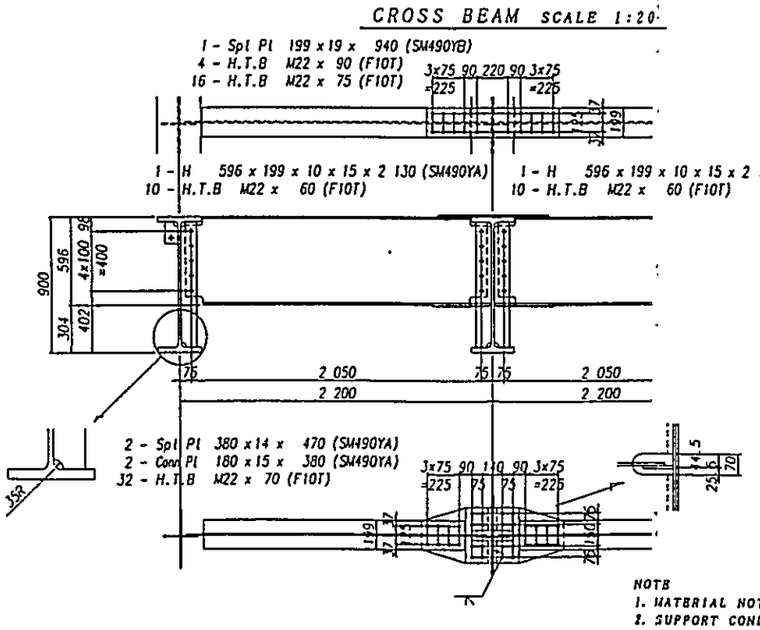
END FLOOR BEAM SCALE 1:20



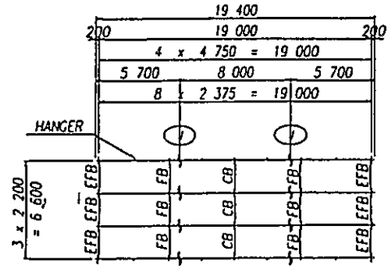
1 - H 596 x 199 x 10 x 15 x 2 130
10 - H.T.B M22 x 65 (F10T)
2 - R.B ϕ16 x 600

1 - H 350 x 175 x 7 x 11 x 2 130
6 - H.T.B M22 x 60 (F10T)

FLOOR BEAM SCALE 1:20



MARKING



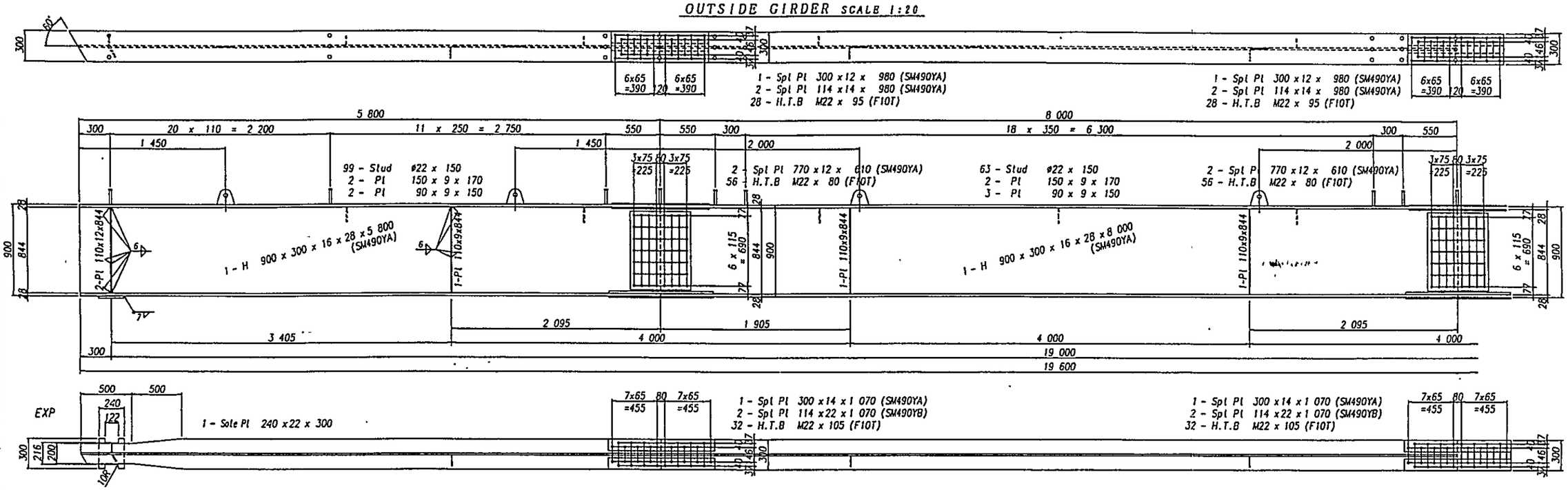
NOTE
1. MATERIAL NOT SPECIFIED IS SS400
2. SUPPORT CONDITION (FIX OR EXP) IS REFERED TO BRIDGE PLAN
3. CAMBER IS PARABOLIC BUT IN THIS DRAWING IS MAXIMUM

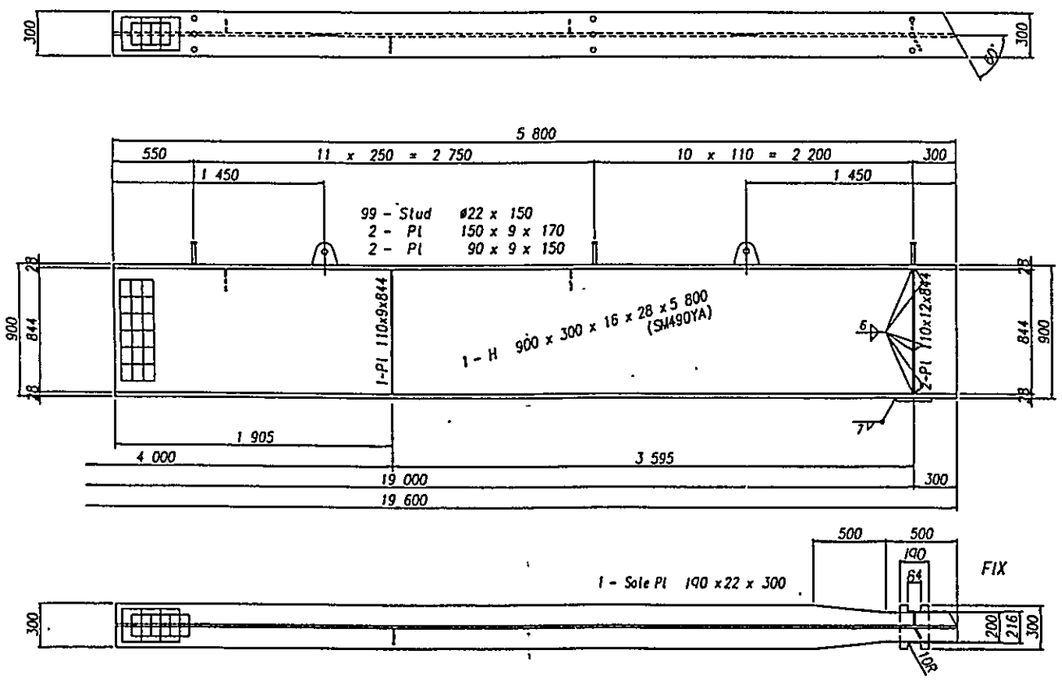
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.		SHEET NO.
	MAIN GIRDER (1) L = 19	104

DETAILS OF SUPERSTRUCTURES

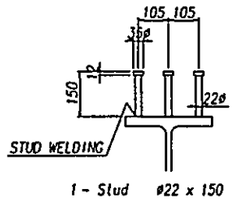
L=19.0M

OUTSIDE GIRDER SCALE 1:20



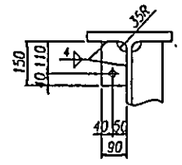


DETAIL OF STUD SCALE 1:10



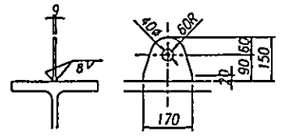
1 - Stud ø22 x 150

DETAIL OF HANGER SCALE 1:10



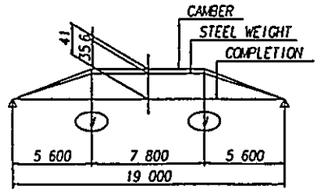
1 - Pl 90 x 9 x 150

DETAIL OF PAD EYE SCALE 1:10

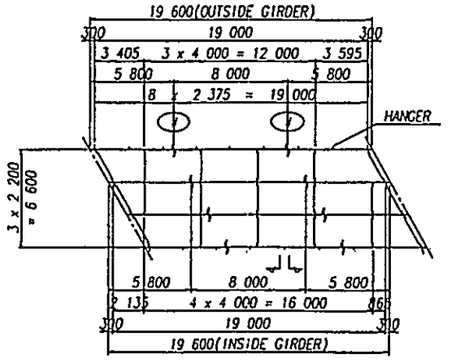


1 - Pl 150 x 9 x 170

CAMBER



MARKING



NOTE

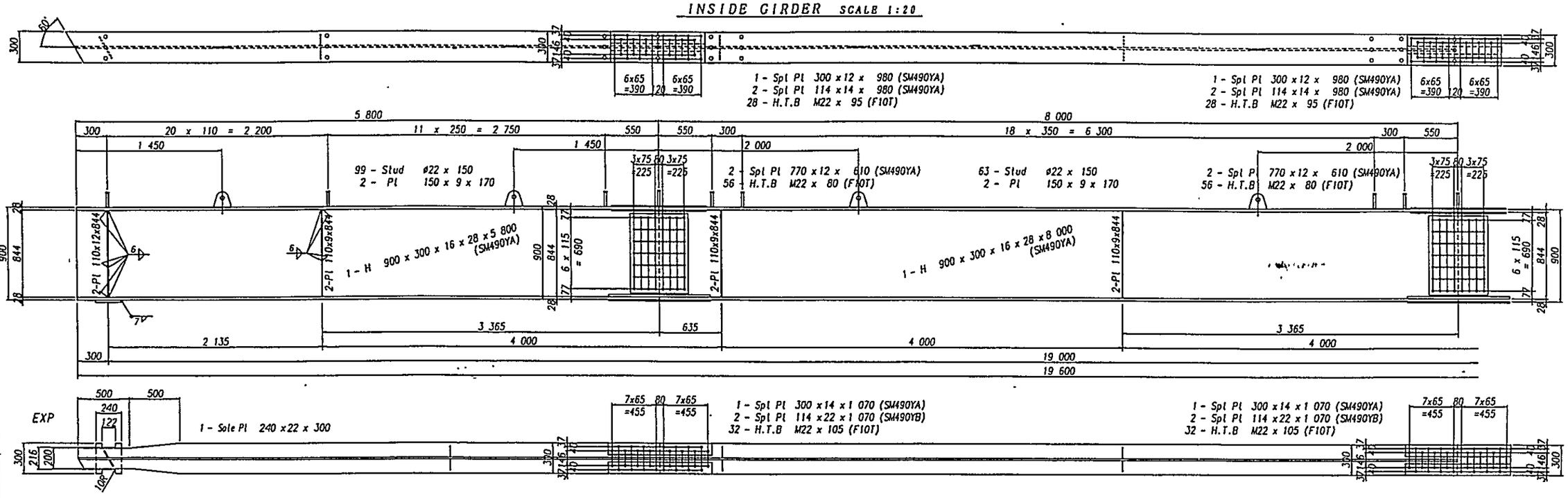
1. MATERIAL NOT SPECIFIED IS SS400
2. SUPPORT CONDITION (FIX OR EXP) IS REFERED TO BRIDGE PLAN
3. CAMBER IS PARABOLIC BUT IN THIS DRAWING IS MAXIMUM

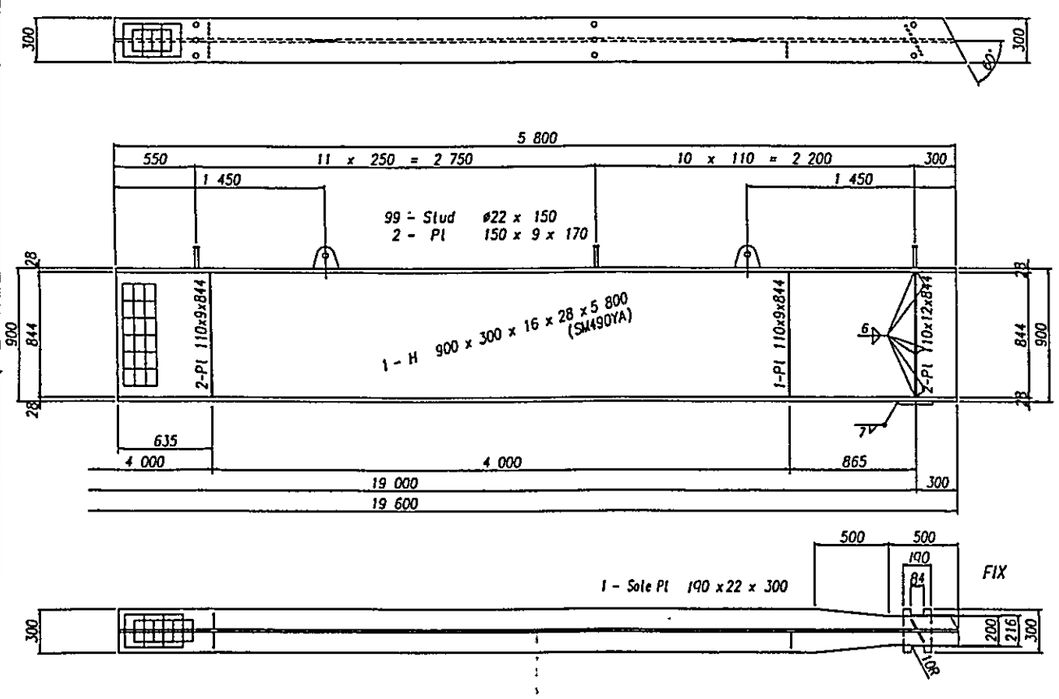
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.		SHEET NO.
	MAIN GIRDER (2) L = 19	105

DETAILS OF SUPERSTRUCTURES

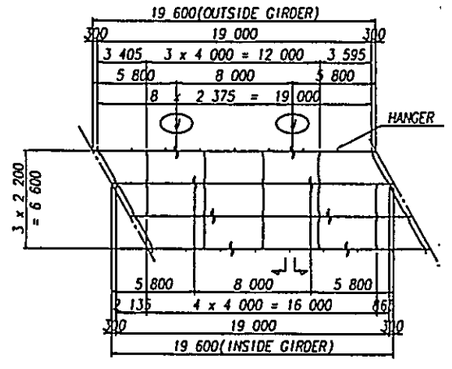
L=19.0M

INSIDE GIRDER SCALE 1:20





MARKING



NOTE
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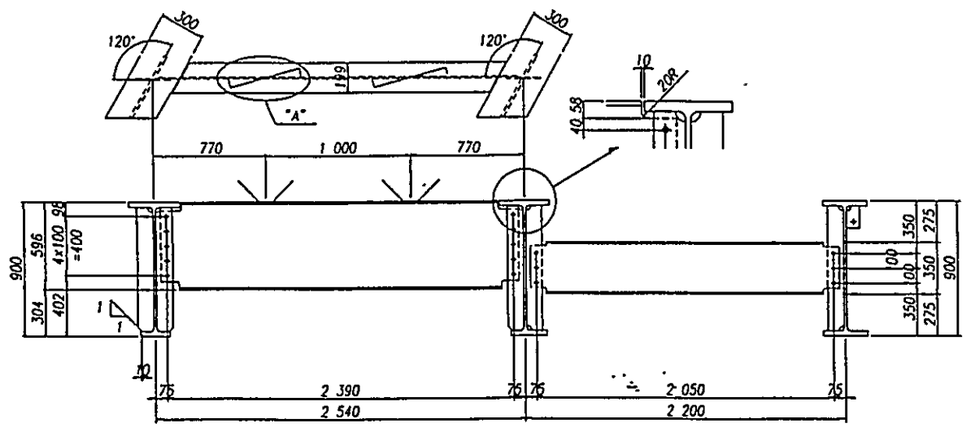
DETAILS OF SUPERSTRUCTURES

L=19.0M

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.		SHEET NO.
	CROSS BEAM & FLOOR BEAM	106

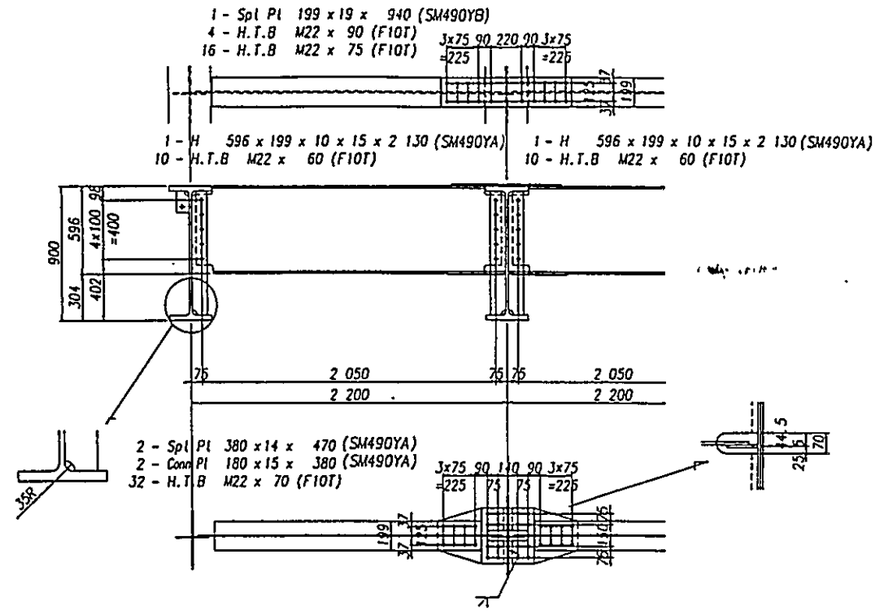
END FLOOR BEAM SCALE 1:20 FLOOR BEAM SCALE 1:20



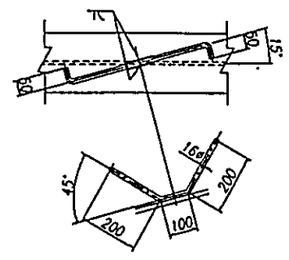
1 - H 596 x 199 x 10 x 15 x 2 470
10 - H.T.B M22 x 65 (F10T)
2 - R.B φ16 x 600

1 - H 350 x 175 x 7 x 11 x 2 130
6 - H.T.B M22 x 60 (F10T)

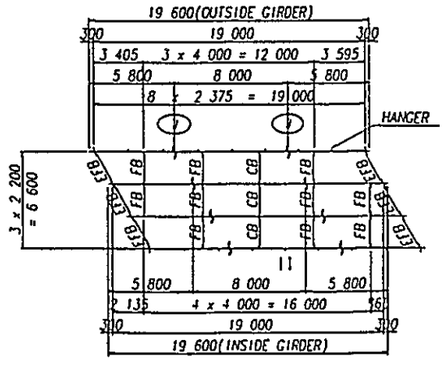
CROSS BEAM SCALE 1:20



DETAIL "A" SCALE 1:10



MARKING



NOTE
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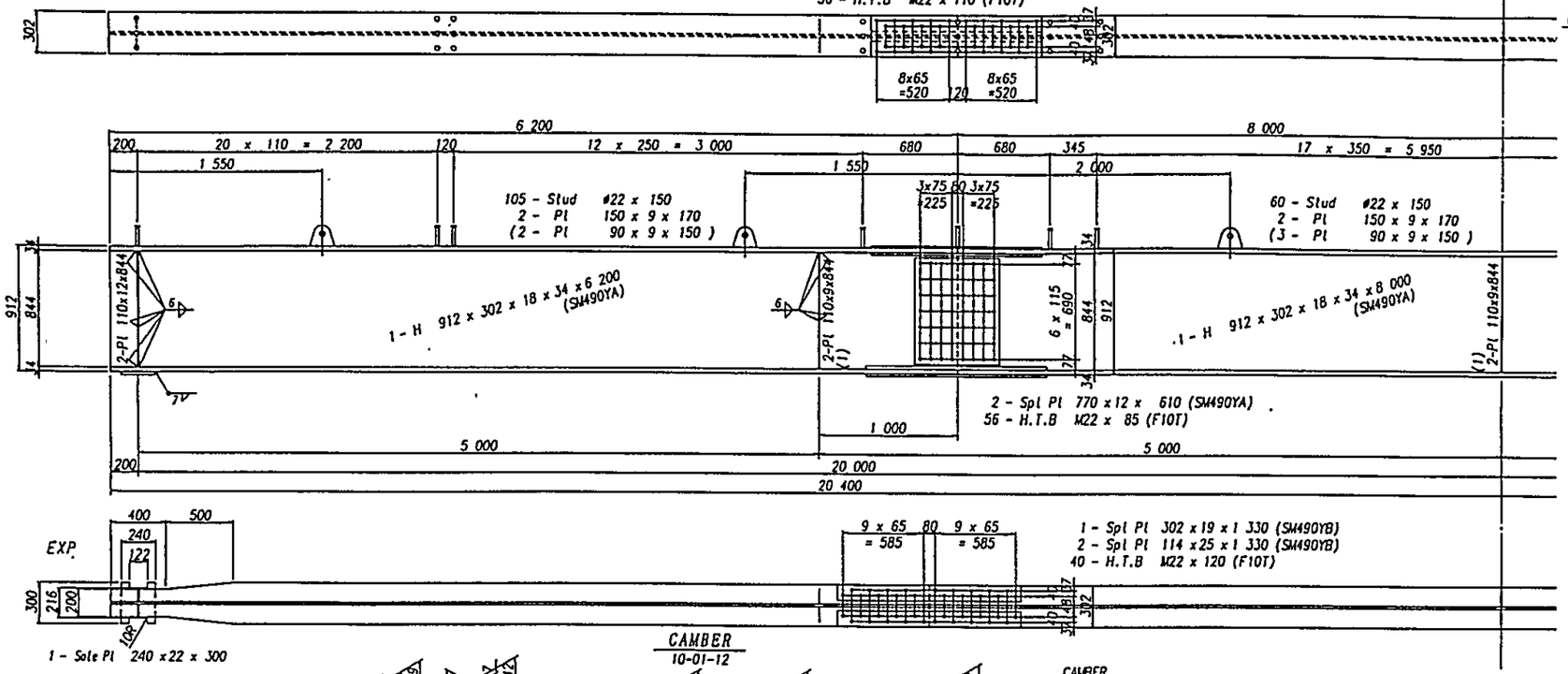
BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA

BRIDGE NO.		SHEET NO.
	MAIN GIRDER L = 20	107

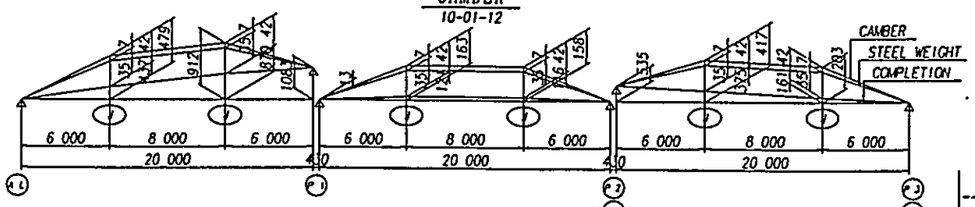
DETAILS OF SUPERSTRUCTURES

L=20.0M

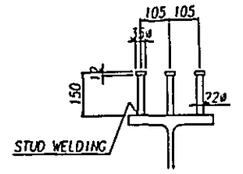
MAIN GIRDER SCALE 1:20



CAMBER 10-01-12

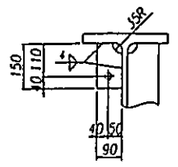


DETAIL OF STUD SCALE 1:10



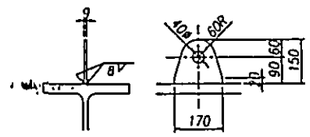
1 - Stud ø22 x 150

DETAIL OF HANGER SCALE 1:10



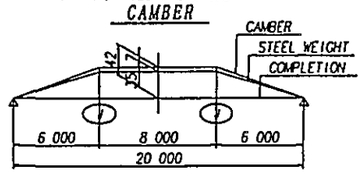
1 - Pl 90 x 9 x 150

DETAIL OF PAD EYE SCALE 1:10



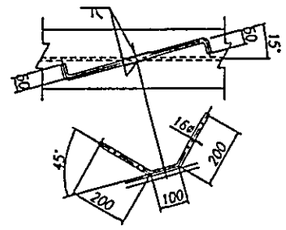
1 - Pl 150 x 9 x 170

CAMBER

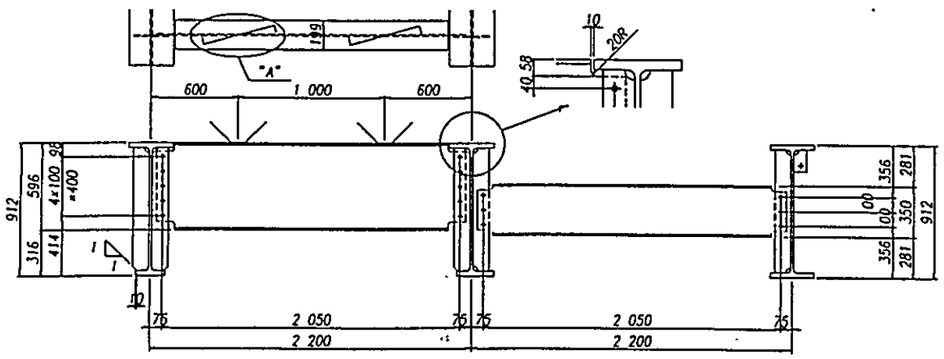


STANDARD
(EXCEPT FOR 10-01-12)

DETAIL "A" SCALE 1:10



END FLOOR BEAM SCALE 1:20

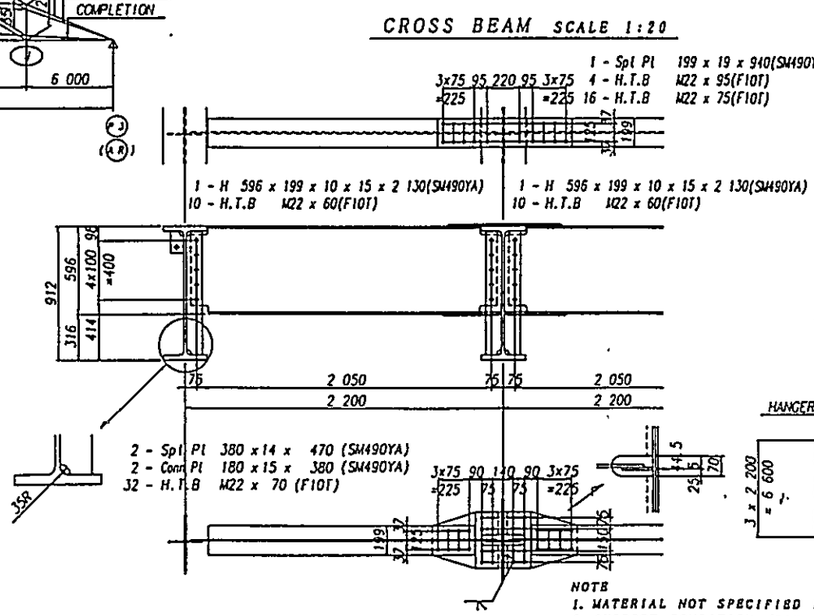


1 - H 596 x 199 x 10 x 15 x 2 130
10 - H.T.B M22 x 65 (F10T)
2 - R.B ø16 x 600

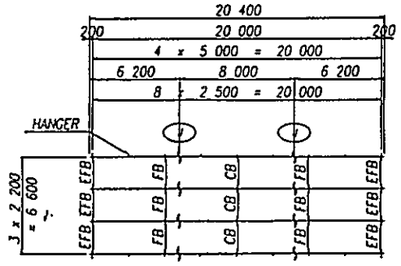
1 - H 350 x 175 x 7 x 11 x 2 130
6 - H.T.B M22 x 60 (F10T)

FLOOR BEAM SCALE 1:20

CROSS BEAM SCALE 1:20



MARKING



NOTE
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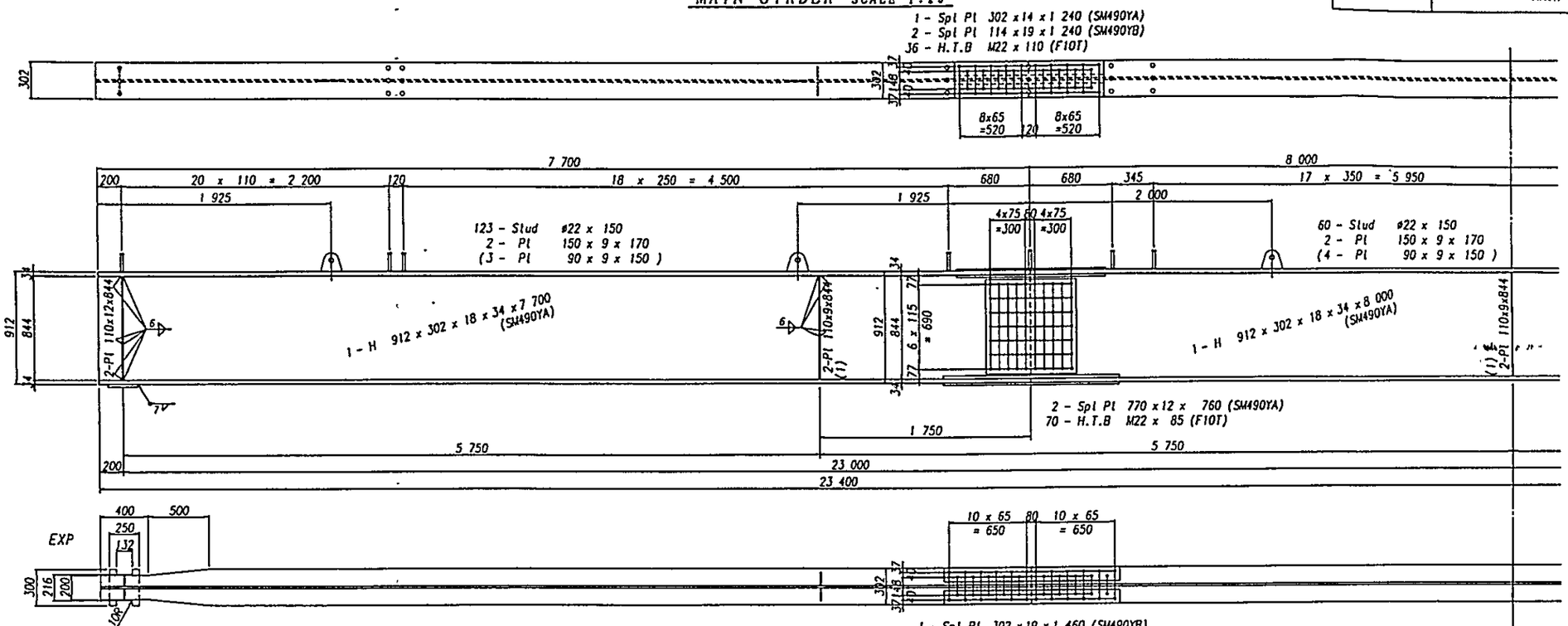
BASIC DESIGN STUDY ON THE PROJECT
FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA

BRIDGE NO.		SHEET NO.
	MAIN GIRDER L = 23	108

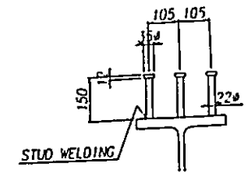
DETAILS OF SUPERSTRUCTURES

L=23.0M

MAIN GIRDER SCALE 1:20

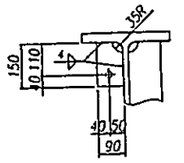


DETAIL OF STUD SCALE 1:10



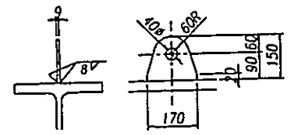
1 - Stud ø22 x 150

DETAIL OF HANGER SCALE 1:10



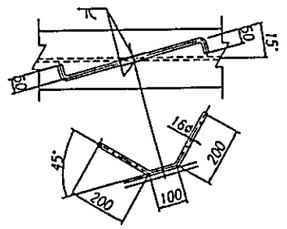
1 - Pl 90 x 9 x 150

DETAIL OF PAD EYE SCALE 1:10

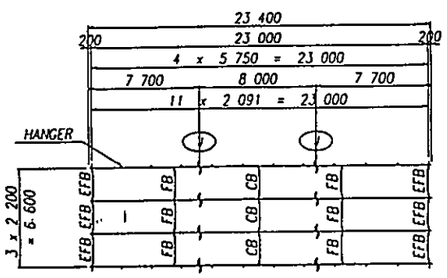


1 - Pl 150 x 9 x 170

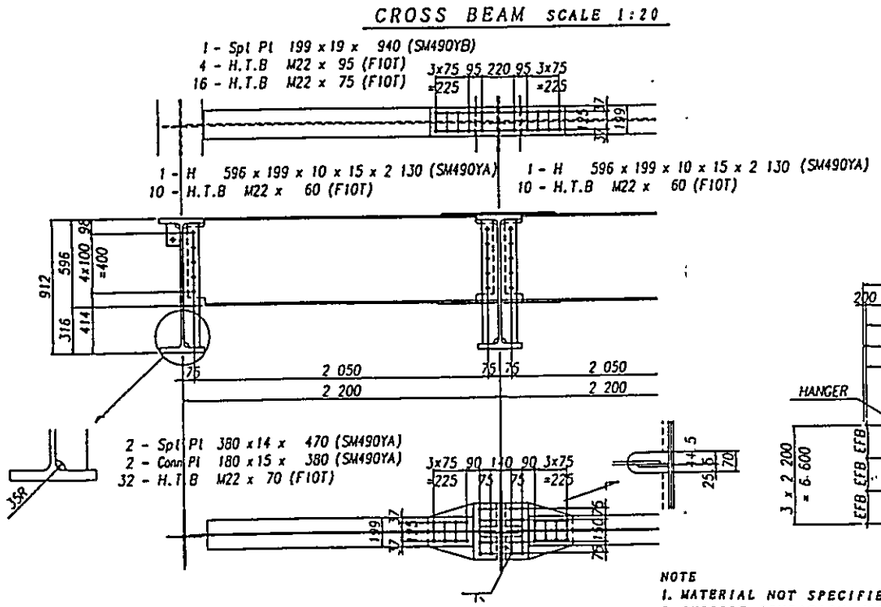
DETAIL "A" SCALE 1:10



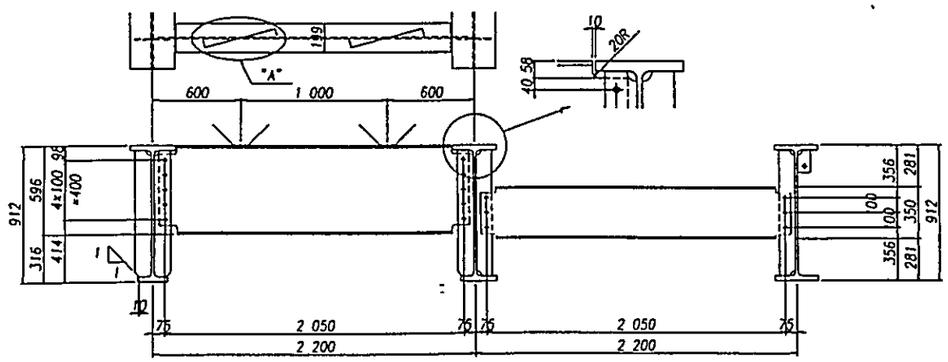
MARKING



CROSS BEAM SCALE 1:20



END FLOOR BEAM SCALE 1:20



FLOOR BEAM SCALE 1:20

NOTE
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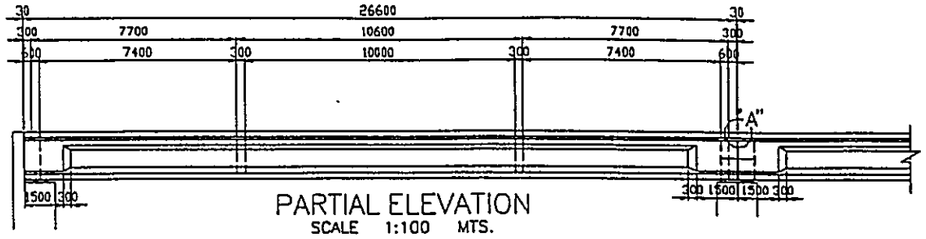
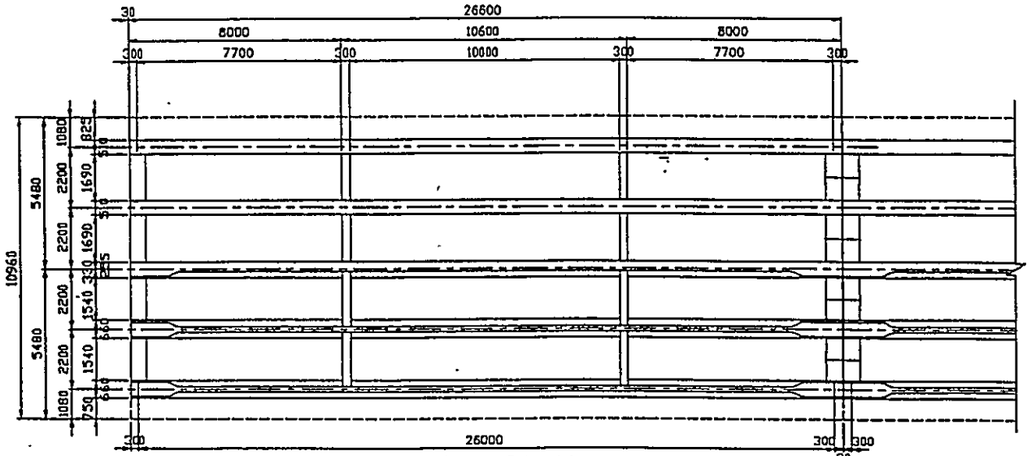
3. CAMBER IS PARABOLIC BUT IN THIS DRAWING IS MAXIMUM

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Lower-Silway	SHEET NO.
11-02-05	GENERAL VIEW	109

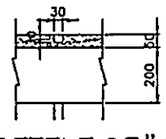
DIMENSION FOR SUPERSTRUCTURE



PARTIAL ELEVATION
SCALE 1:100 MTS.



PARTIAL PLAN
SCALE 1:100 MTS.



DETELE OF "A"
SCALE 1:10 MTS.

GENERAL NOTE:

1. UNITS ARE ALL IN MILLIMETERS EXCEPT SHOWN OTHERWISE
2. MATERIALS
   - 2.1 PRESTRESSED CONCRETE
     - σ STRESSING — 29.43 MPa
     - σ 28 DAYS — 34.34 MPa
   - 2.2 DIAPHRAMS — 23.54 MPa A 28 DAYS
   - 2.3 REBARS — ASTM A615 GRADE 40 (fy = 275 MPa)
   - 2.4PRESTRESSING STRANDS — ASTM A416 GRADE 270k NORMAL RELAXATION

   PROPERTIES OF 12.7mm ø STRANDS:

AREA	99mm²
WEIGHT	0.78 Kg/m
MIN.BREAKING LOAD	184 KN
ELASTIC MODULUS	1.95 x 10⁵ MPa

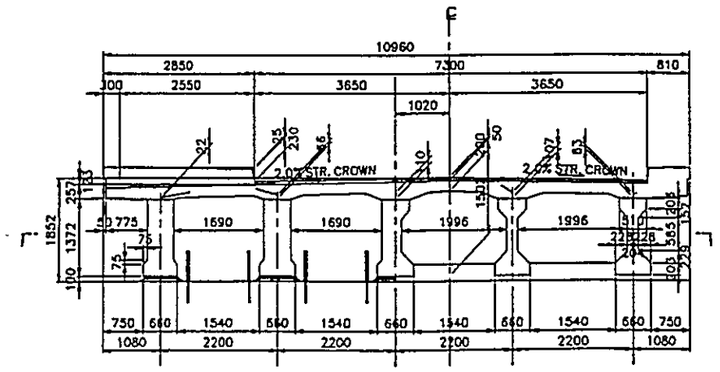
3. PRESTRESSING CABLES SHALL BE STRESSED IN STAGE AT BOTH ENDS.

   No. OF STRAND/CABLE 12 STRANDS
   JACKING FORCE/CABLE 1580.40 KN

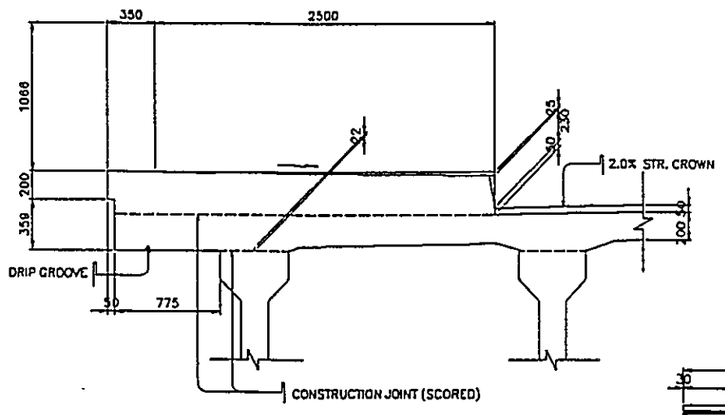
4. PRECAST GIRDER SEGMENTS SHALL BE LIFTED AFTER CONCRETE HAS ATTAINED ITS 28 DAY COMPRESSIVE STRENGTH.
5. PRECAST GIRDER SEGMENTS SHALL BE SUPPORTED, WHEN INSTALLED, AT LOCATIONS INDICATED IN THE DRAWING AS LIFTING POINTS.

ESTIMATE OF QUANTITIES

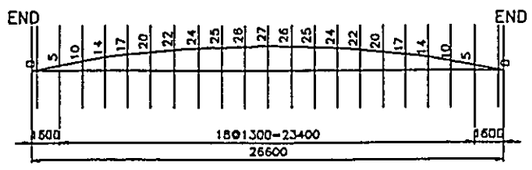
ITEM No	DESCRIPTION	UNIT	QUANTITY
	RAILING(STRUCTIAL CONCRETE)	M	
	RAINFORCING STEEL	Kg	
	STRUCTURAL CONCRETE CLASS "A"	M³	
	PRESTRESSED STRUCTIAL		
	CONCRETE GIRDER L=27.60M	EACH	



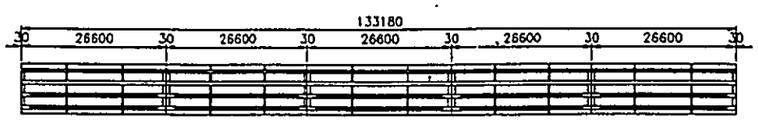
SECTION
SCALE 1:40 MTS.



DETAIL OF HANDRAIL

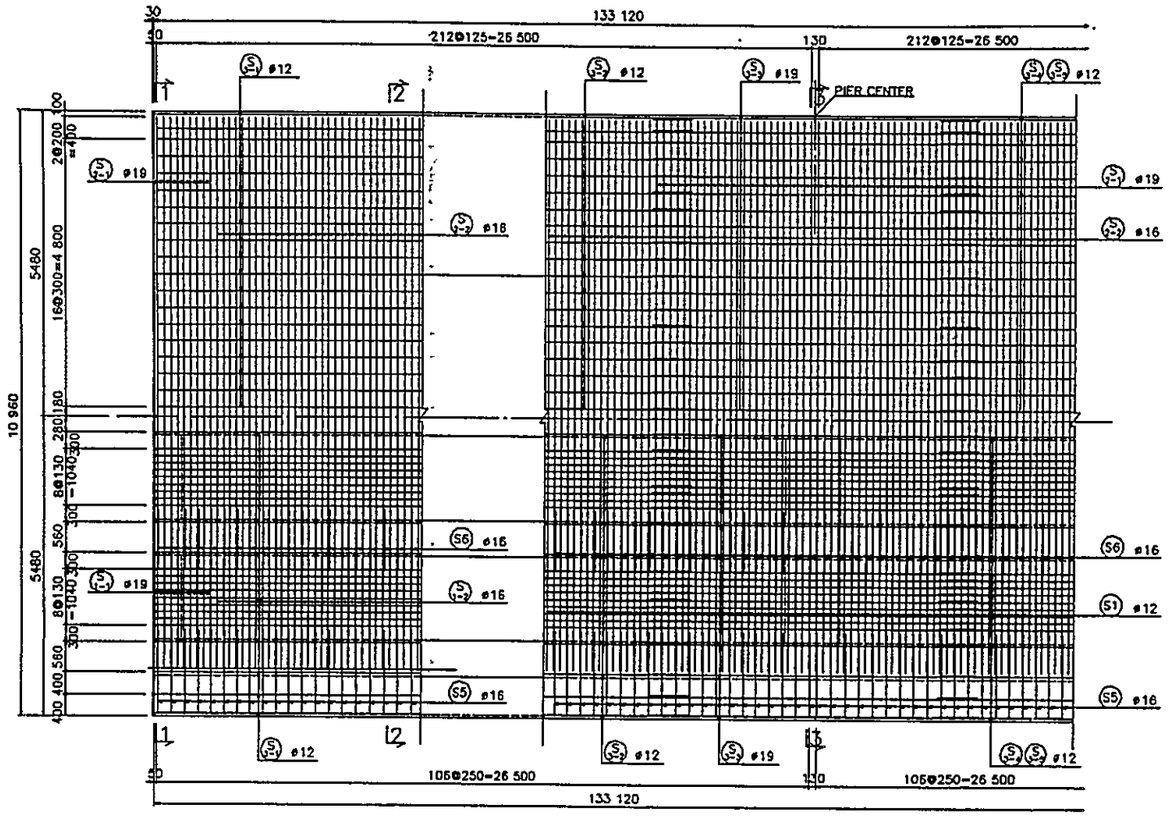


CAMBER DIAGRAM
NOT TO SCALE

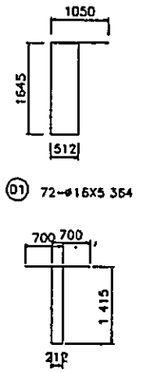


MARKING
NOT TO SCALE

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Lower-Silway	SHEET NO.
11-02-05	DIAPHRAMGM	110



P L A N
SCALE 1.50 M



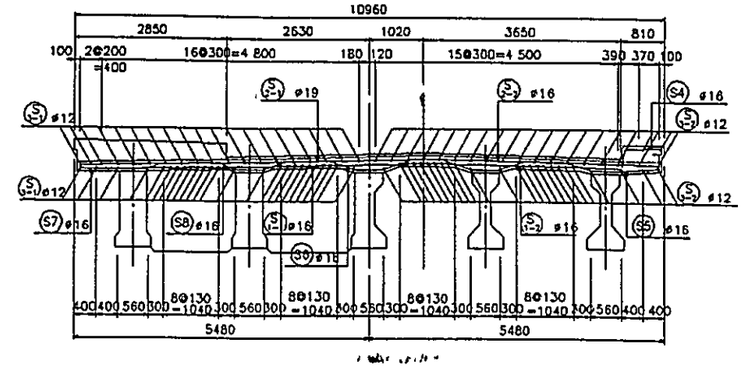
D1 72-φ16X5 364

D3 72-φ16X4 442

D2 144-φ16X1 000

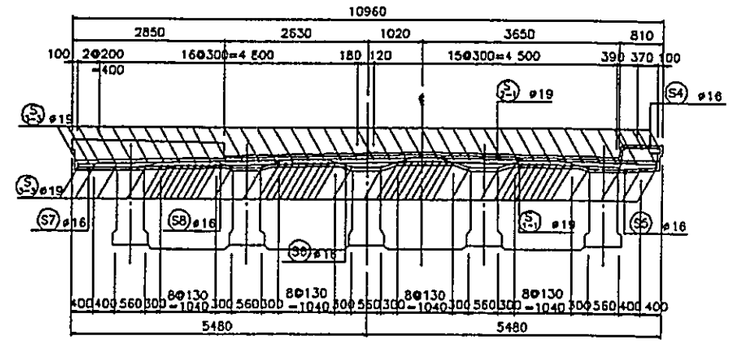
D4 112-φ16X1 000

D5 16-φ16X1 440

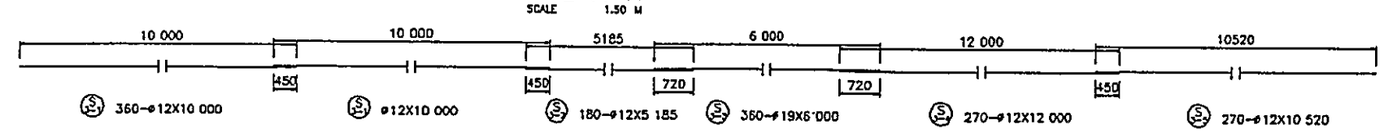


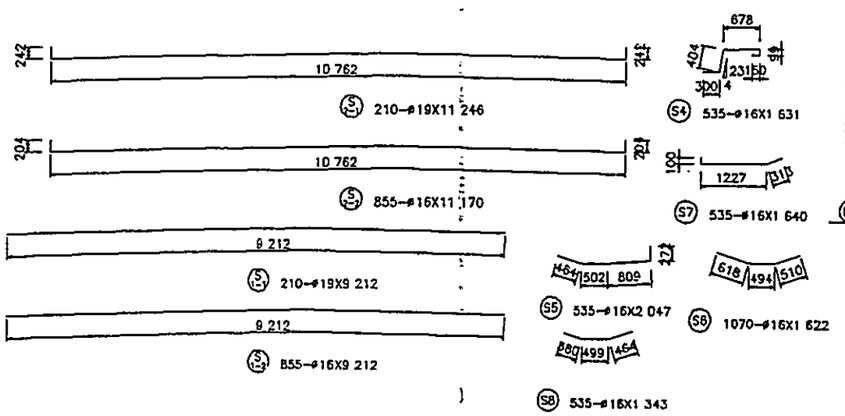
1 – 1 2 – 2

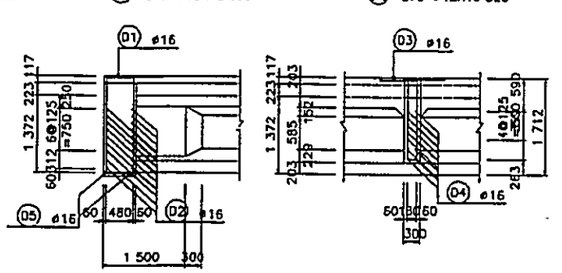
SECTION OF SLAB
SCALE 1.50 M



3 – 3
SCALE 1.50 M

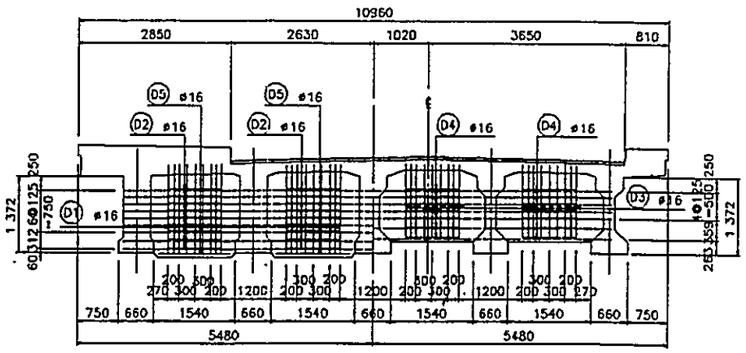






END DIAPHRAGM INTERMEDIATE DIAPHRAGM AT JOINT

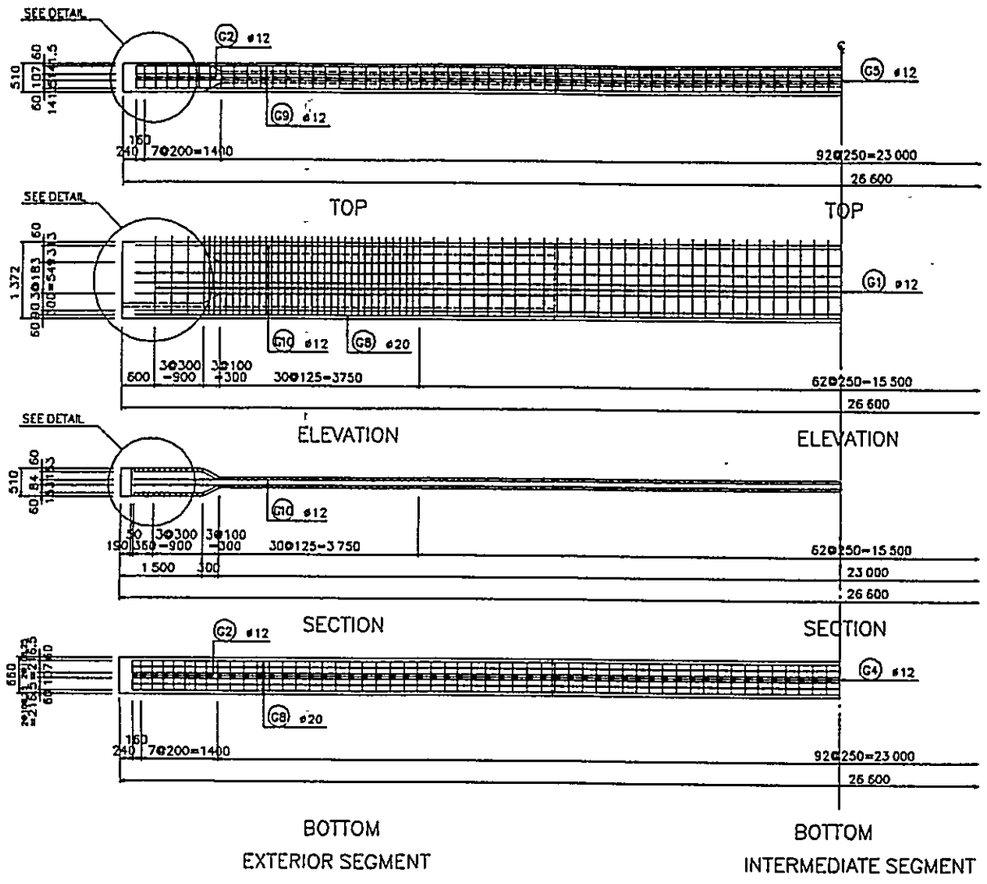
CROSS SECTION
SCALE 1.50 M



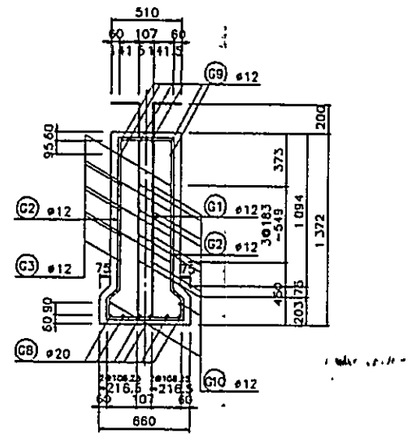
E N D INTERMEDIATE

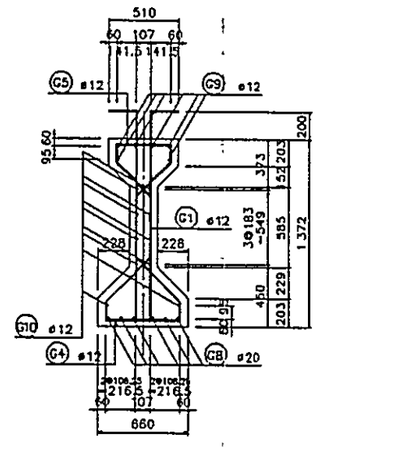
SECTION OF DIAPHRAMGM
SCALE 1.50 M

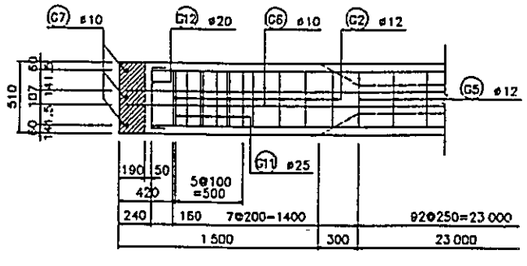
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Lower-Silway	SHEET NO.
11-02-05	MAIN GIRDER (1)	111

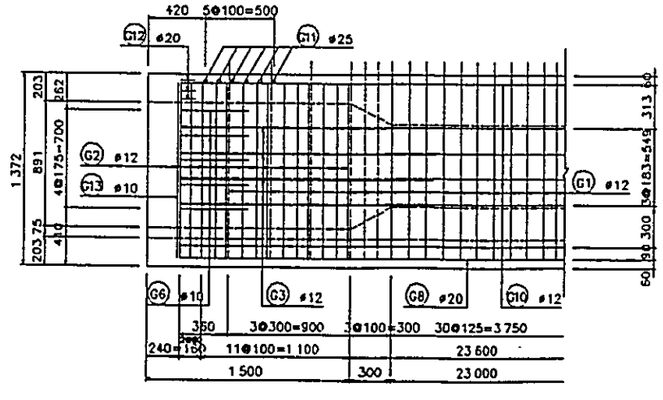


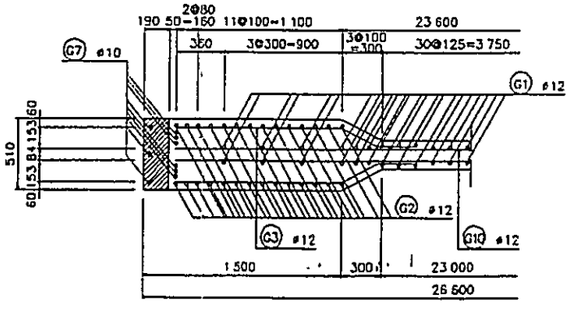
BAR ARRANGEMENT OF BEAM
SCALE 1:50 M





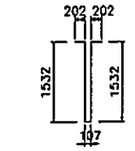




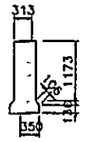


DETAILS
SCALE 1:20 M

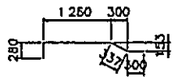
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Lower-Silway	SHEET NO.
11-02-05	MAIN GIRDER (2)	112



G1 135–ø12X3 573

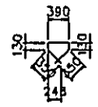


G2 56–ø12X2 178



G3 16–ø12X2 177

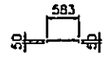
G4 93–ø12X1 726



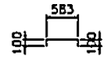
G5 93–ø12X1 350

G6 20–ø10X730

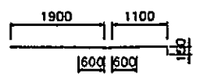
G7 18–ø10X1 252



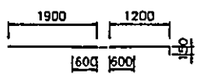
G11 12–ø25X683



G12 6–ø20X783

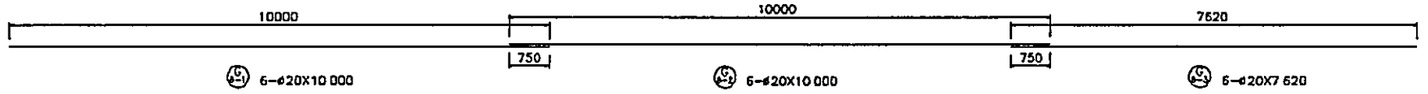


G13 28–ø16x1 900 G14 28–ø16x1 250

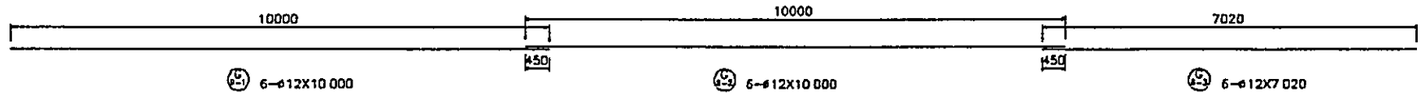


G15 36–ø16X1 900 G16 36–ø16X1 350

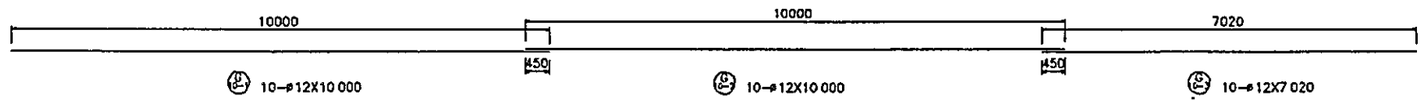
G17 43–ø12X809



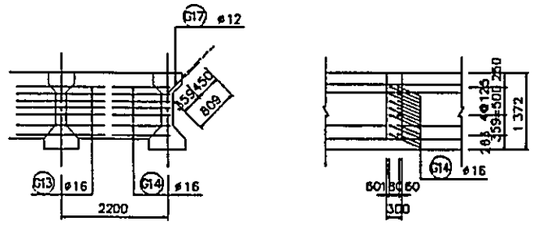
G9 6–ø20X10 000 G10 6–ø20X10 000 G9 6–ø20X7 620



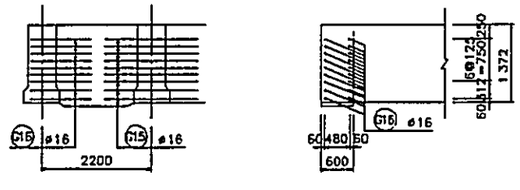
G9 6–ø12X10 000 G10 6–ø12X10 000 G9 6–ø12X7 020



G8 10–ø12X10 000 G8 10–ø12X10 000 G8 10–ø12X7 020



INTERMEDIATE DIAPHRAGM
SCALE 1:50 M



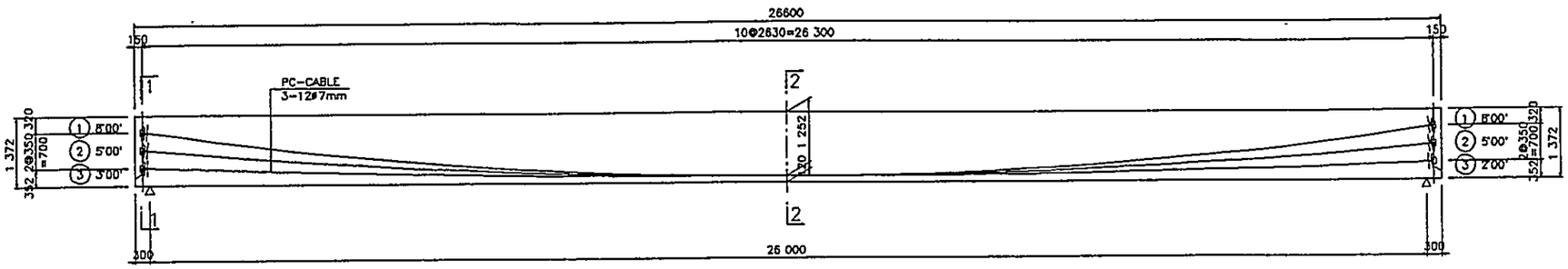
END DIAPHRAGM
SCALE 1:50 M

SCHEDULE OF REINFORCEMENT

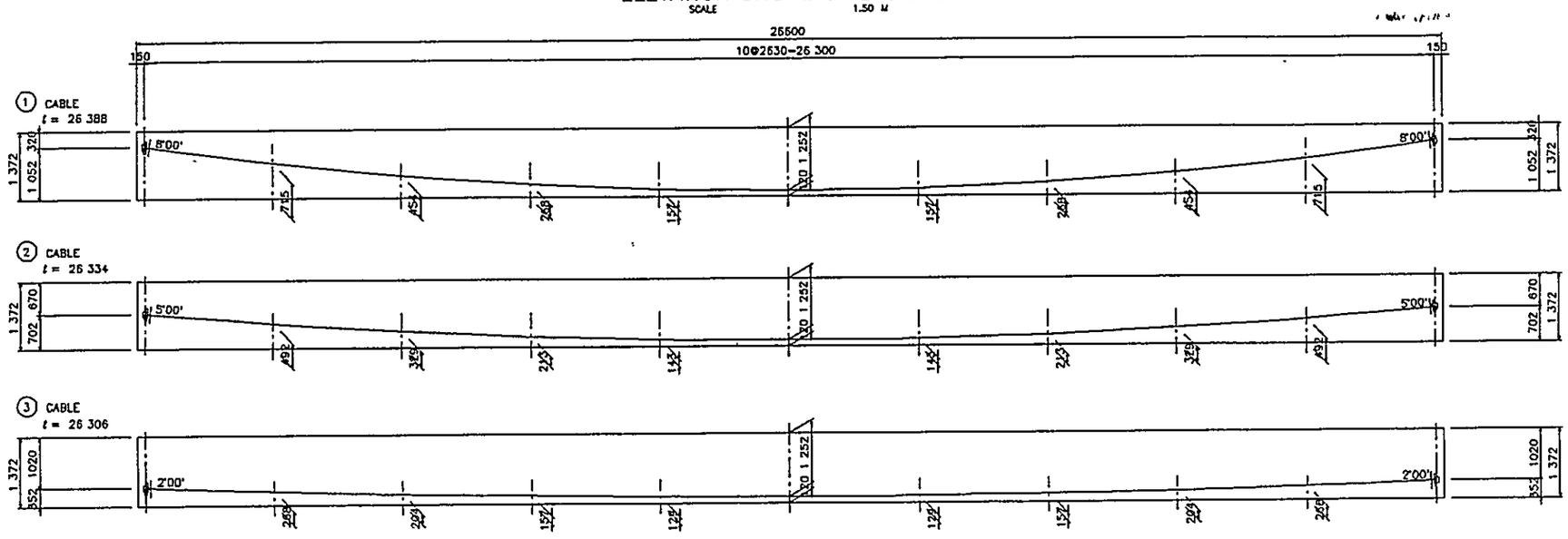
LOCATION	BAR MARK	SIZE (mm ø)	LENGTH (mm)	UNIT WT. (kg/m)	NO. OF BARS	WEIGHT (kg)	REMARKS
GIRDER	G 1	ø12	3573	0.888	135	428 3	
	G 2	ø12	2178	0.888	56	108 3	
	G 3	ø12	2177	0 888	16	30.9	
	G 4	ø12	1726	0.888	93	142.5	
	G 5	ø12	1350	0 888	93	111.5	
	G 6	ø10	730	0 616	20	9.0	
	G 7	ø10	1252	0.616	18	13.9	
	G8–1	ø20	10000	2.466	6	148 0	
	G8–2	ø20	10000	2.466	6	148 0	
	G8–3	ø20	7620	2.466	6	112.7	
	G9–1	ø12	10000	0 888	6	53.3	
	G9–2	ø12	10000	0 888	6	53.3	
	G9–3	ø12	7020	0.888	6	37.4	
	G10–1	ø12	10000	0 888	10	88.8	
	G10–2	ø12	10000	0.888	10	88 8	
	G10–3	ø12	7020	0.888	10	62.3	
	G 11	ø25	683	3 853	12	31.6	
	G 12	ø20	783	2 466	6	11.6	
	G 13	ø16	1900	1.578	28	83.9	INTERMEDIATE
	G 14	ø16	1250	1.578	28	55.2	EXTERIOR
	G 15	ø16	1900	1.578	36	107.9	INTERMEDIATE
	G 16	ø16	1350	1.578	36	76.7	EXTERIOR
	G 17	ø12	809	0.888	43	30.9	INTERMEDIATE
			INTERMEDIATE		=	1902.9 KG	
			EXTERIOR		=	1812.1 KG	
	TOTAL	INTERMEDIATE	1902 9×5× 5		=	47 572.5 KG	
	TOTAL	EXTERIOR	1812.1×5× 5		=	45 302.5 KG	
SLAB	S1–1	ø19	9212	2.226	210	4306.2	
	S1–2	ø16	9212	1.578	855	12428.7	
	S2–1	ø19	11246	2.226	210	5257.1	
	S2–2	ø16	11170	1.578	855	15070.5	
	S3–1	ø12	10000	0 888	360	3196.8	
	S3–2	ø12	5185	0 888	180	828.8	
	S3–3	ø19	6000	2.226	360	4808.2	
	S3–4	ø12	12000	0 888	270	2877.1	
	S3–5	ø12	10520	0.888	270	2522.3	
	S 4	ø16	1631	1.578	535	1376.9	
	S 5	ø16	2047	1.578	535	1728.1	
	S 6	ø16	1622	1.578	1070	2738.7	
	S 7	ø16	1640	1.578	535	1384.5	
	S 8	ø16	1343	1 578	535	1133.8	
			TOTAL		=	59 657.7 KG	
DIAPHRAGM	D 1	ø16	4464	1.578	72	507.2	
	D 2	ø16	1000	1.578	144	227.2	
	D 3	ø16	4442	1.578	72	504.7	
	D 4	ø16	1000	1.578	112	176.7	
	D 5	ø16	1440	1.578	16	36.4	
						1 452.2 KG	
			TOTAL	1 452.2×5	=	7 261.0 KG	

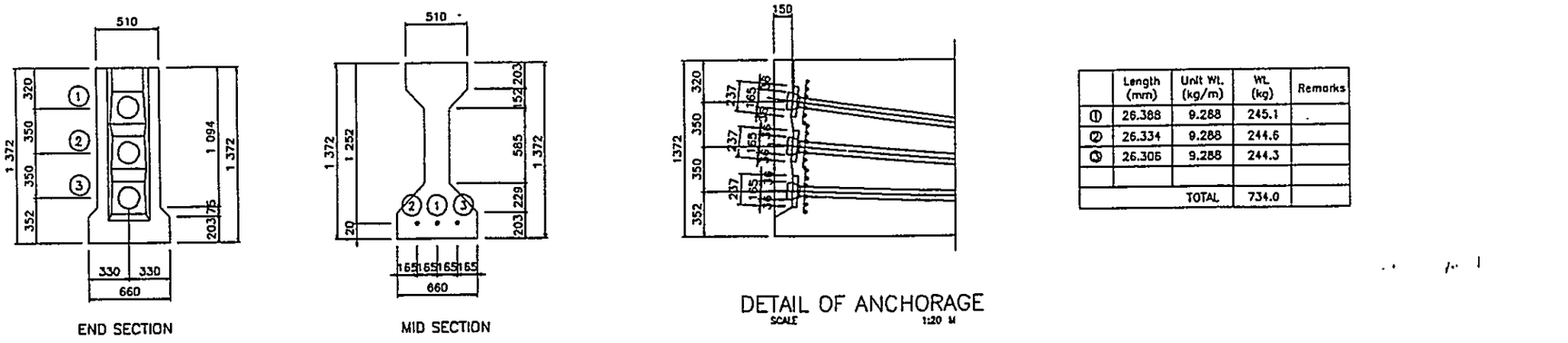
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Lower-Silway	SHEET NO.
11-02-05	MAIN GIRDER (3)	113

ELEVATION
SCALE 1:50 M



ELEVATION SHOWING TENDONS
SCALE 1:50 M



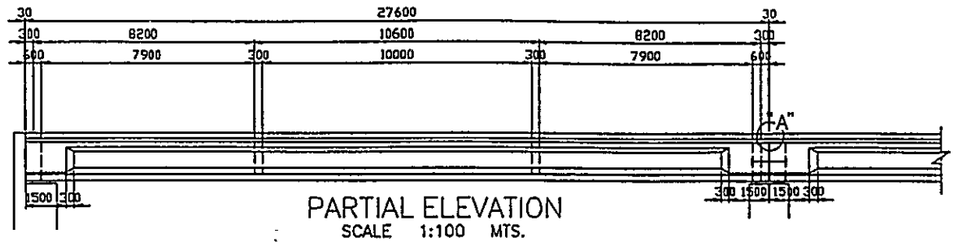


	Length (mm)	Unit Wt. (kg/m)	Wt. (kg)	Remarks
①	26.388	9.288	245.1	
②	26.334	9.288	244.6	
③	26.306	9.288	244.3	
		TOTAL	734.0	

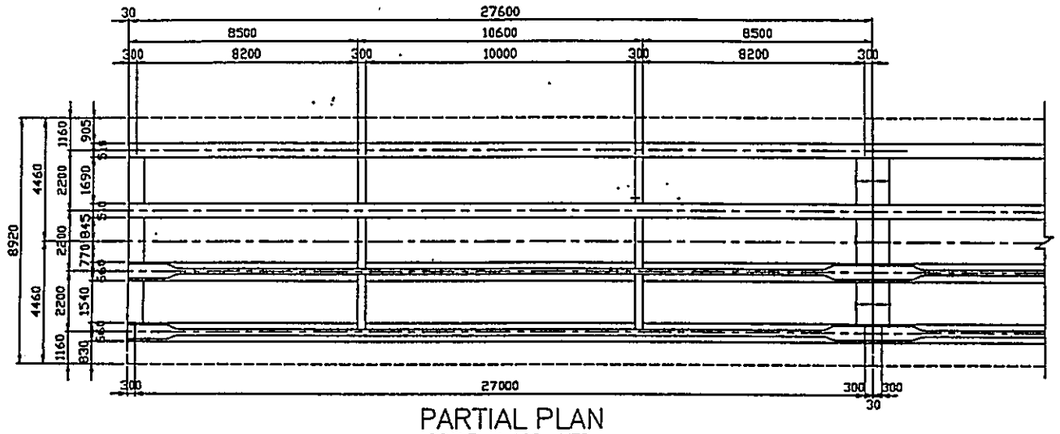
SECTION & DETAILS
SCALE 1:20 M

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Inambatan	SHEET NO.
11-04-03	GENERAL VIEW	114

DIMENSION FOR SUPERSTRUCTURE-



PARTIAL ELEVATION
SCALE 1:100 MTS.



PARTIAL PLAN
SCALE 1:100 MTS.

GENERAL NOTE:

1. UNITS ARE ALL IN MILLIMETERS EXCEPT SHOWN OTHERWISE
2. MATERIALS
   - 2.1 PRESTRESSED CONCRETE
     - σ STRESSING: 29.43 MPa
     - σ 28 DAYS: 34.34 MPa
   - 2.2 DIAPHRAMS: 23.54 MPa A 28 DAYS
   - 2.3 REBARS: ASTM A615 GRADE 40 (fy = 275 MPa)
   - 2.4 PRESTRESSING STRANDS: ASTM A416 GRADE 270k NORMAL RELAXATION

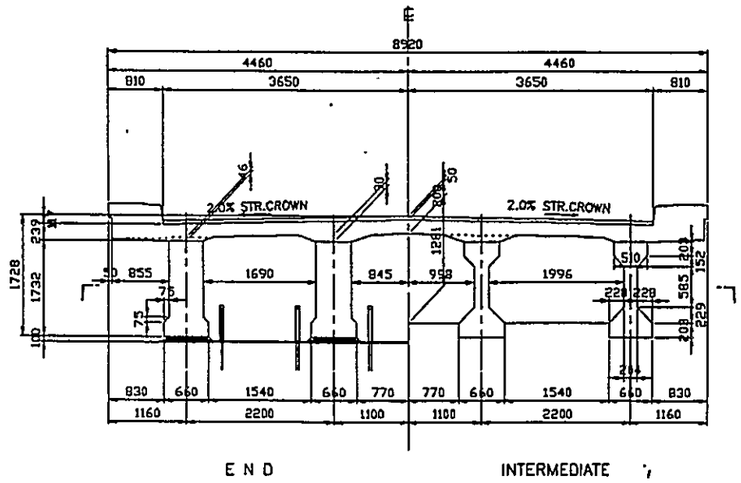
   PROPERTIES OF 12.7mm ø STRANDS:

AREA	99mm²
WEIGHT	0.78 Kg/m
MIN.BREAKING LOAD	184 KN
ELASTIC MODULUS	1.95 x 10⁵ MPa

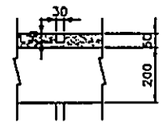
3. PRESTRESSING CABLES SHALL BE STRESSED IN STAGE AT BOTH ENDS.

   No. OF STRAND/CABLE 12 STRANDS
   JACKING FORCE/CABLE 1580.40 KN

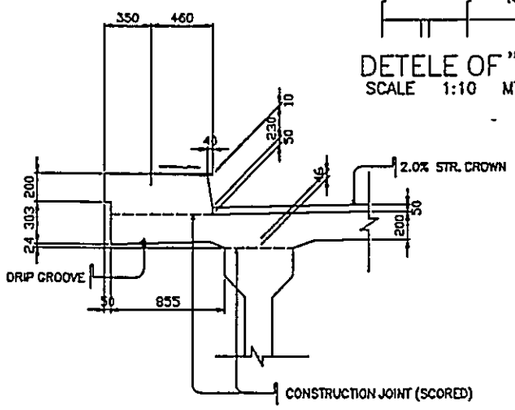
4. PRECAST GIRDER SEGMENTS SHALL BE LIFTED AFTER CONCRETE HAS ATTAINED ITS 28 DAY COMPRESSIVE STRENGTH.
5. PRECAST GIRDER SEGMENTS SHALL BE SUPPORTED, WHEN INSTALLED, AT LOCATIONS INDICATED IN THE DRAWING AS LIFTING POINTS.



SECTION
SCALE 1:40 MTS.

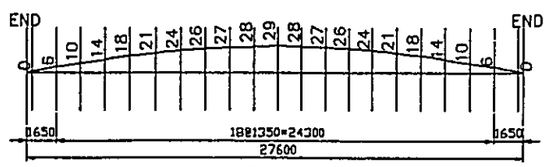


DETELE OF "A"
SCALE 1:10 MTS.

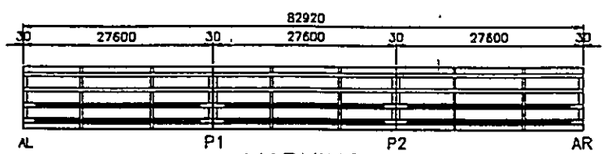


DETAIL OF HANDRAIL

ESTIMATE OF QUANTITIES			
ITEM No	DESCRIPTION	UNIT	QUANTITY
	RAILING(STRUCTIAL CONCRETE)	M	
	RAINFORCING STEEL	Kg	
	STRUCTURAL CONCRETE CLASS "A"	M³	
	PRESTRESSED STRUCTUAL		
	CONCRETE GIRDER L=27.60M	EACH	

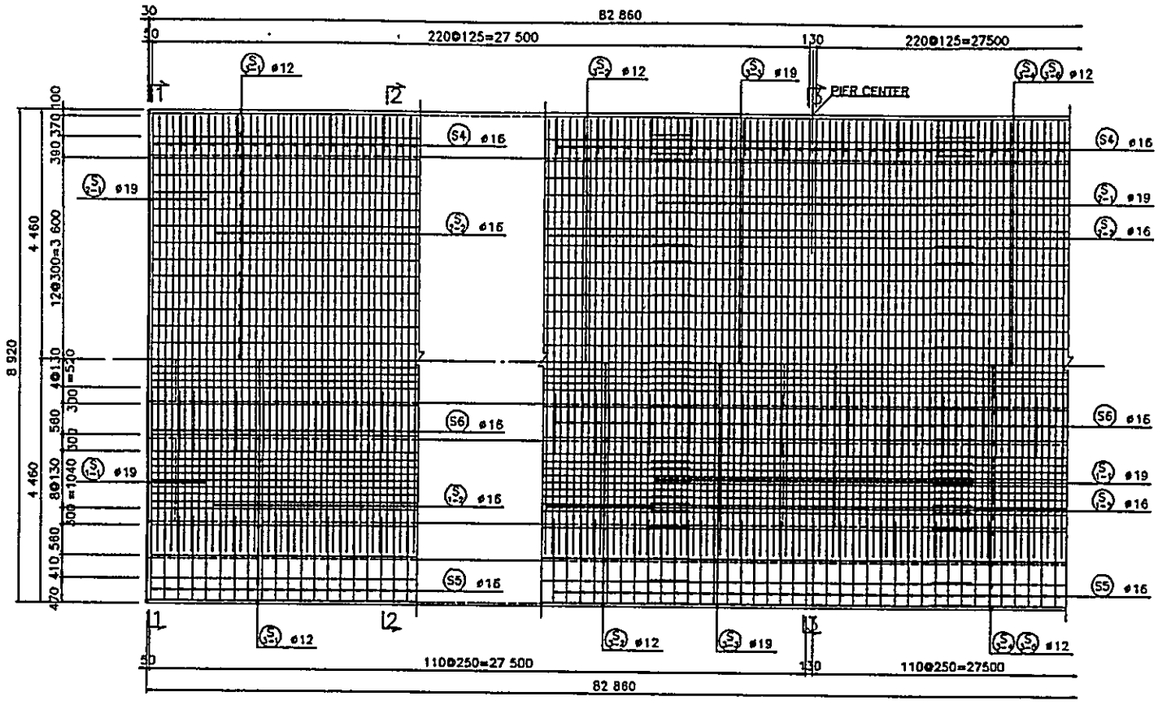


CAMBER DIAGRAM
NOT TO SCALE

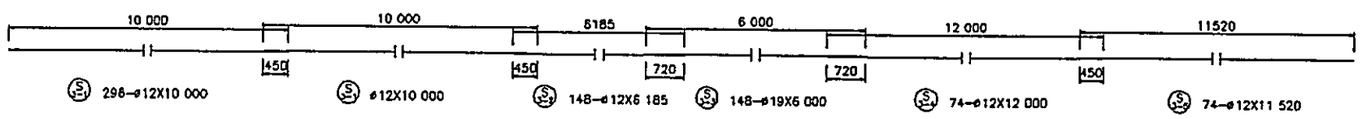


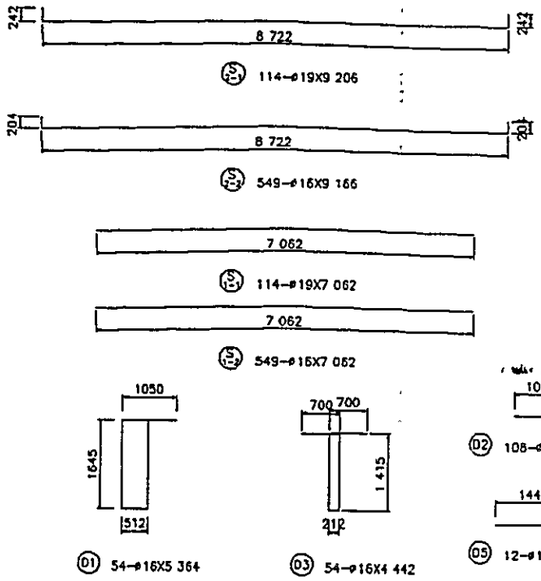
MARKING
NOT TO SCALE

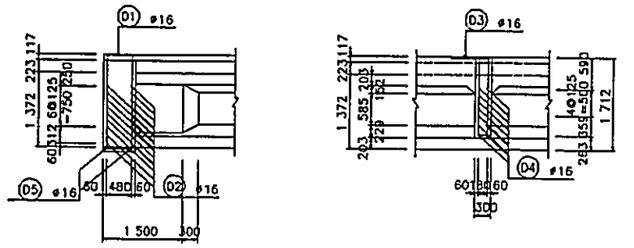
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Inambatan	SHEET NO.
11-04-03	DIAPHRAMGM	115



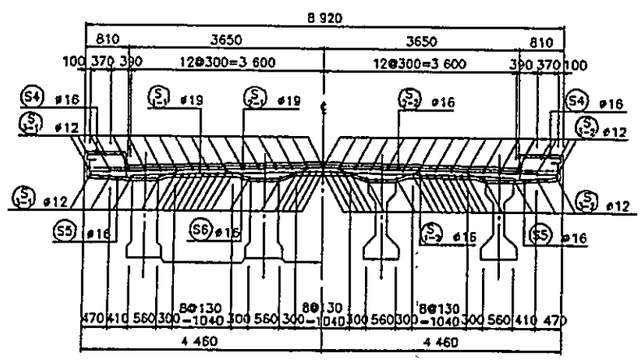
P L A N
SCALE 1:50 M





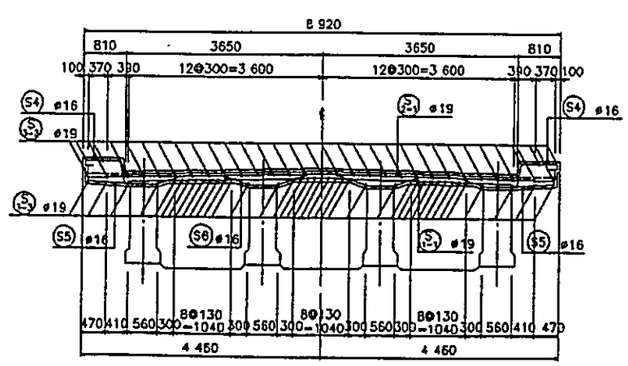


CROSS SECTION
SCALE 1:50 M

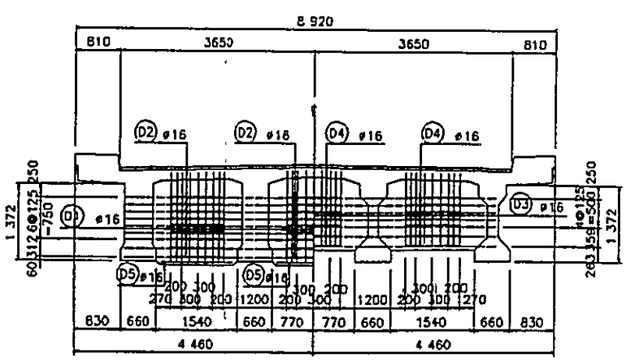


1 – 1 2 – 2

SECTION OF SLAB
SCALE 1:50 M



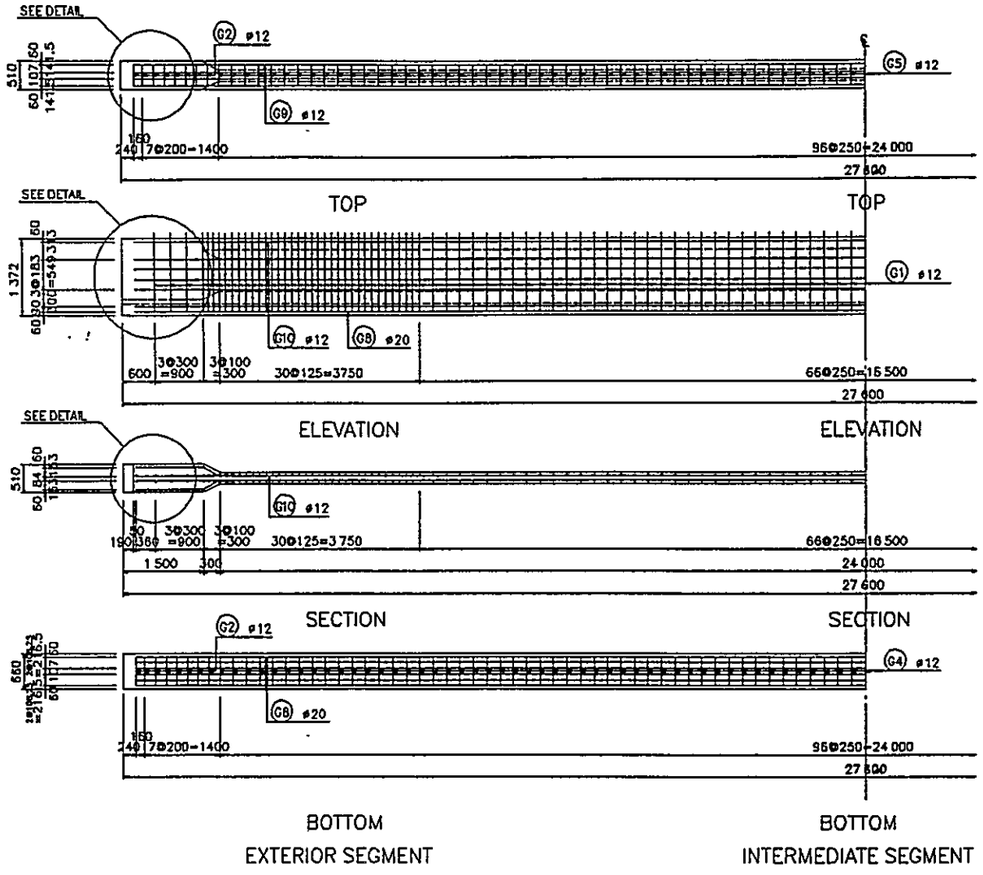
3 – 3
SCALE 1:50 M



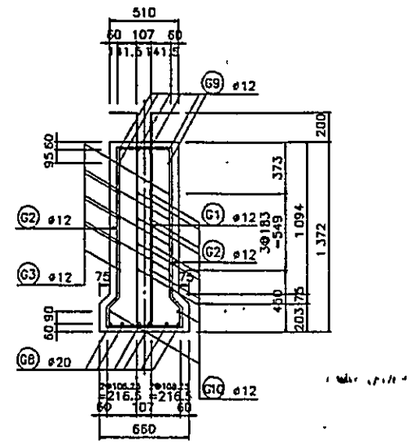
E N D INTERMEDIATE

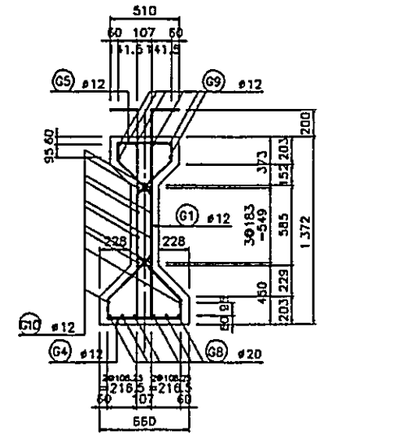
SECTION OF DIAPHRAMGM
SCALE 1:50 M

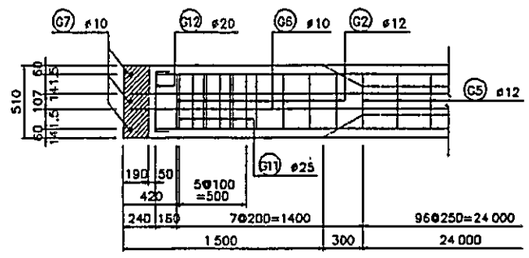
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Inambatan	SHEET NO.
11-04-03	MAIN GIRDER (1)	116

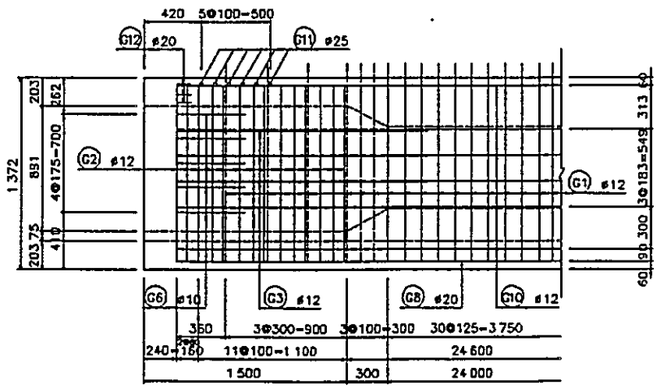


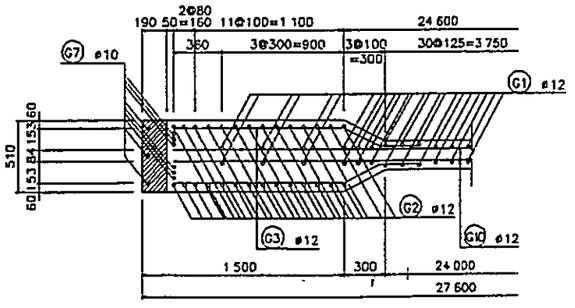
BAR ARRANGEMENT OF BEAM
SCALE 1:50 M





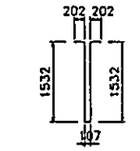




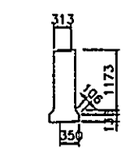


DETAILS
SCALE 1:20 M

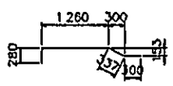
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Inambatan	SHEET NO.
11-04-03	MAIN GIRDER (2)	117



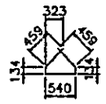
G1 139–ø12X3 573



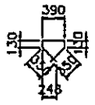
G2 56–ø12X2 178



G3 16–ø12X2 177



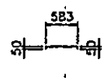
G4 97–ø12X1 726



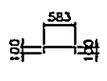
G5 97–ø12X1 350

G6 20–ø10X730

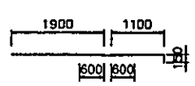
G7 18–ø10X1 252



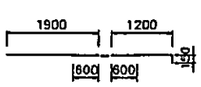
G11 12–ø25X683



G12 6–ø20X783



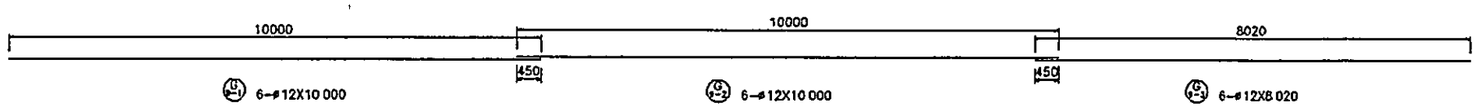
G13 28–ø16x1 900 G14 28–ø16x1 250



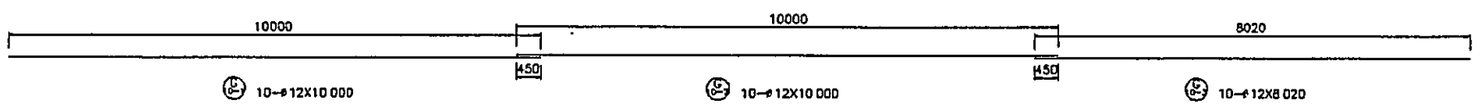
G15 36–ø16X1 900 G16 36–ø16X1 350

G17 43–ø12X809

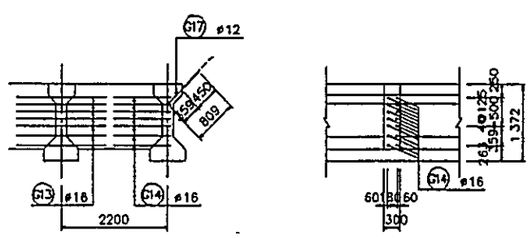
G1 6–ø20X10 000 G3 6–ø20X10 000 G3 6–ø20X8 620



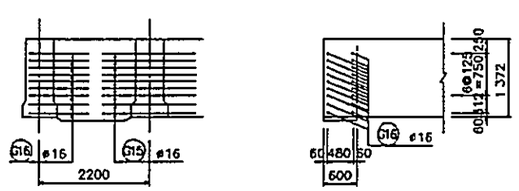
G1 6–ø12X10 000 G3 6–ø12X10 000 G3 6–ø12X8 020



G2 10–ø12X10 000 G2 10–ø12X10 000 G2 10–ø12X8 020



INTERMEDIATE DIAPHRAGM
SCALE 1:50 M



END DIAPHRAGM
SCALE 1:50 M

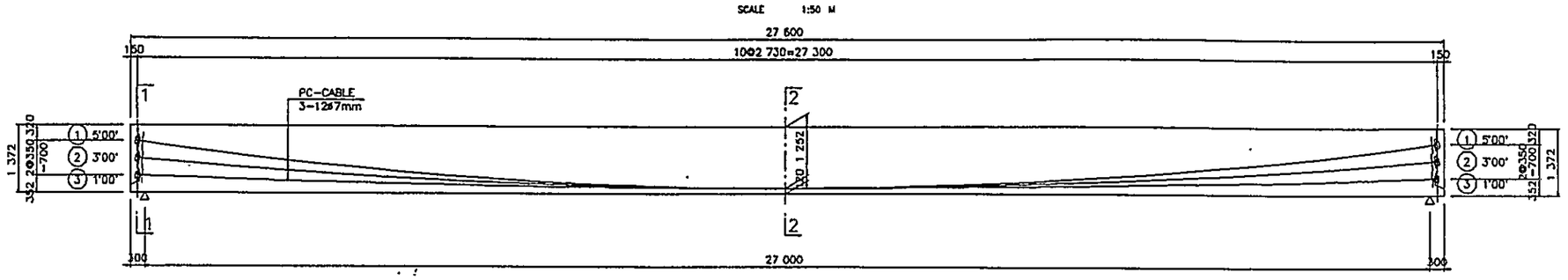
SCHEDULE OF REINFORCEMENT

LOCATION	BAR MARK	SIZE (mmø)	LENGTH (mm)	UNIT WT. (kg/m)	NO. OF BARS	WEIGHT (kg)	REMARKS
GIRDER	G 1	ø12	3573	0 888	139	441.0	
	G 2	ø12	2178	0 888	56	108.3	
	G 3	ø12	2177	0.888	16	30 9	
	G 4	ø12	1726	0.888	97	148.7	
	G 5	ø12	1350	0.888	97	116.3	
	G 6	ø10	730	0.616	20	9.0	
	G 7	ø10	1252	0 616	18	13 9	
	G8–1	ø20	10000	2.466	6	148 0	
	G8–2	ø20	10000	2.466	6	148.0	
	G8–3	ø20	8620	2.466	6	127.5	
	G9–1	ø12	10000	0.888	6	53 3	
	G9–2	ø12	10000	0.888	6	53.3	
	G9–3	ø12	8020	0.888	6	42.7	
	G10–1	ø12	10000	0.888	10	88.8	
	G10–2	ø12	10000	0 888	10	88 8	
	G10–3	ø12	8020	0.888	10	71.2	
	G 11	ø25	683	3.853	12	31.6	
	G 12	ø20	783	2.466	6	11.8	
	G 13	ø16	1900	1.578	28	83.9	INTERMEDIATE
	G 14	ø16	1250	1.578	28	55.2	EXTERIOR
	G 15	ø16	1900	1.578	36	107.9	INTERMEDIATE
	G 16	ø16	1350	1.578	36	76 7	EXTERIOR
	G 17	ø12	809	0.888	43	30.9	INTERMEDIATE
			INTERMEDIATE		=	1 955.6 KG	
			EXTERIOR		=	1 864.8 KG	
	TOTAL	INTERMEDIATE	1 955.6×4×3		=	23 467.2 KG	
	TOTAL	EXTERIOR	1 864.8×4×3		=	22 377.6 KG	
SLAB	S1–1	ø19	7062	2.226	114	1792.1	
	S1–2	ø16	7062	1.578	549	6118.0	
	S2–1	ø19	9206	2.226	114	2336.2	
	S2–2	ø16	9166	1.578	549	7940.7	
	S3–1	ø12	10000	0.888	296	2628.5	
	S3–2	ø12	6185	0.888	148	812.9	
	S3–3	ø19	6000	2.226	148	1976.7	
	S3–4	ø12	12000	0.888	74	788.5	
	S3–5	ø12	11520	0.888	74	757.0	
	S 4	ø16	1831	1.578	666	1714.1	
	S 5	ø16	2047	1.578	666	2151.3	
	S 6	ø16	1622	1.578	666	1704.6	
			TOTAL		=	30 720 6 KG	
DIAPHRAGM	D 1	ø16	4464	1.578	54	380 4	
	D 2	ø16	1000	1.578	108	170.4	
	D 3	ø16	4442	1.578	54	378.5	
	D 4	ø16	1000	1.578	84	132.6	
	D 5	ø16	1440	1.578	12	27.3	
						1 089.2 KG	
			TOTAL	1 089.2×3	=	3 267.6 KG	

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Inambatan	SHEET NO.
11-04-03	MAIN GIRDER (3)	118

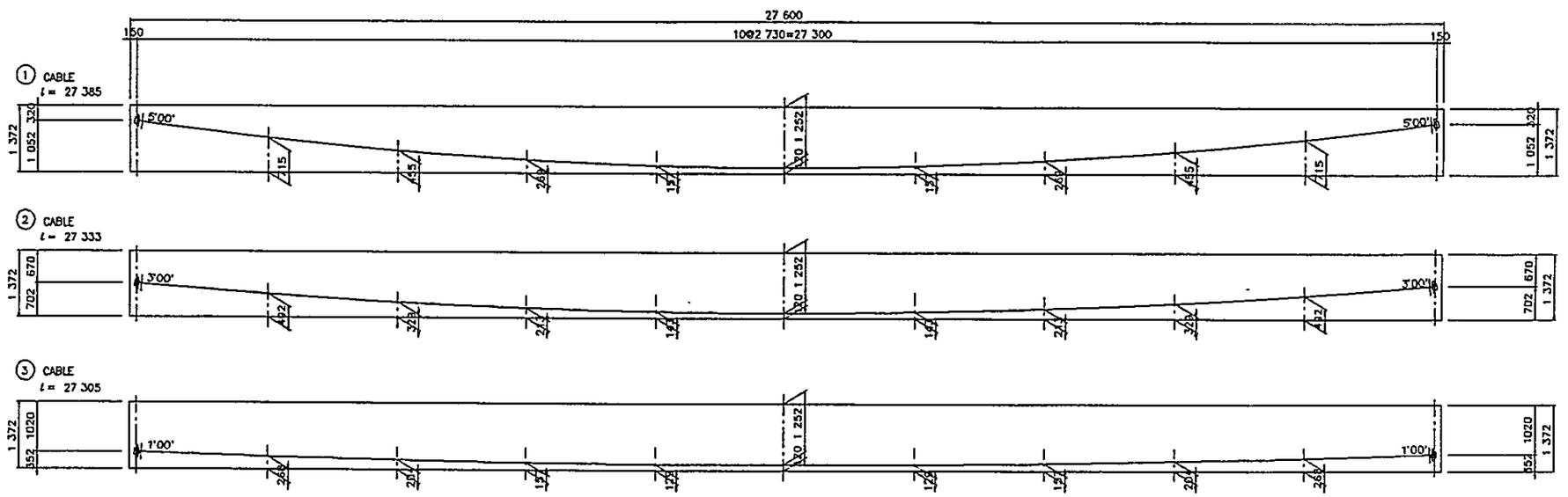
ELEVATION

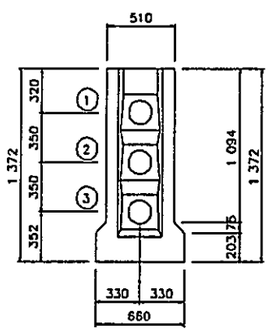
SCALE 1:50 M



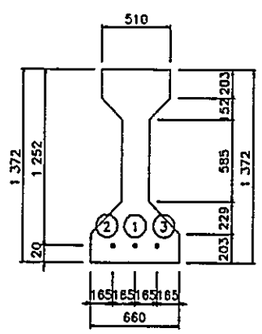
ELEVATION SHOWING TENDONS

SCALE 1:50 M

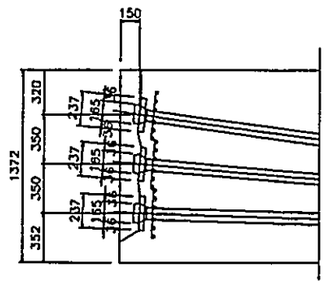




END SECTION



MID SECTION



DETAIL OF ANCHORAGE

SCALE 1:20 M

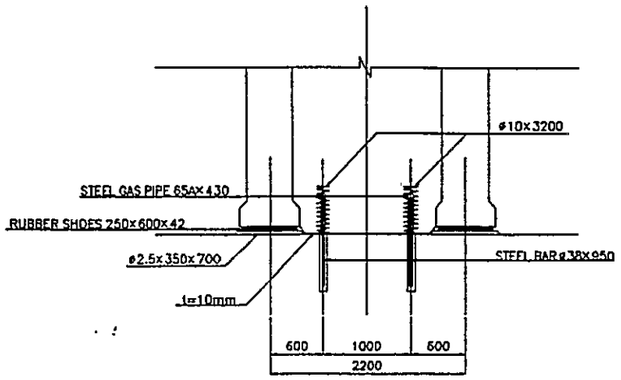
SECTION & DETAILS

SCALE 1:20 M

	Length (mm)	Unit Wt. (kg/m)	Wt. (kg)	Remarks
①	27.385	9.288	254.4	
②	27.333	9.288	253.9	
③	27.305	9.288	253.6	
		TOTAL	761.8	

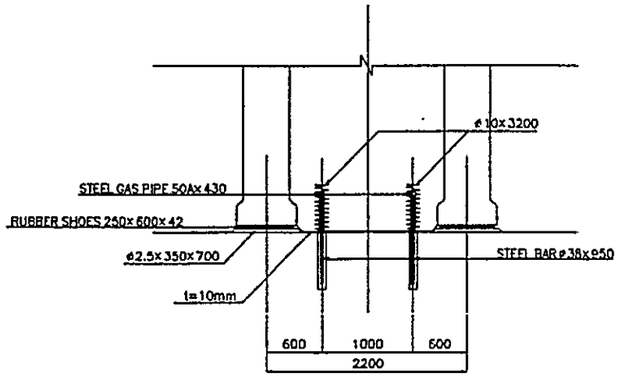
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.		SHEET NO.
	ADDITIONAL WORKS	119

AL & AR
(EXPANSION)

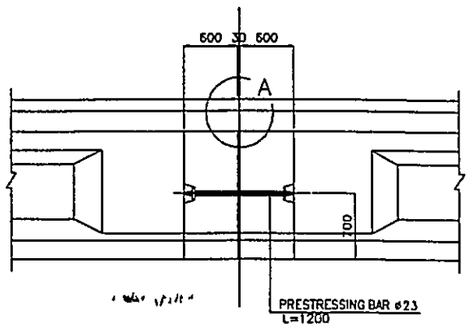


DETAIL OF ANCHOR BAR
SCALE 1:30 M

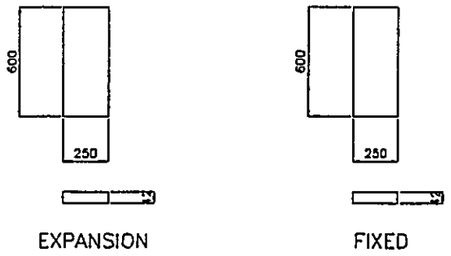
P1 & P2
(FIXED)



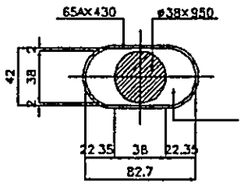
DETAIL OF ANCHOR BAR
SCALE 1:30 M



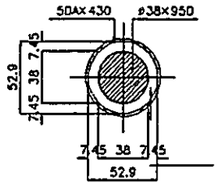
SIDE SECTION
SCALE 1:30 M



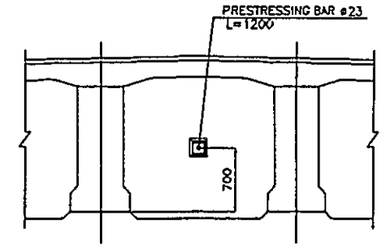
DEMENTION OF RUBBER SHOES
SCALE 1:15 M



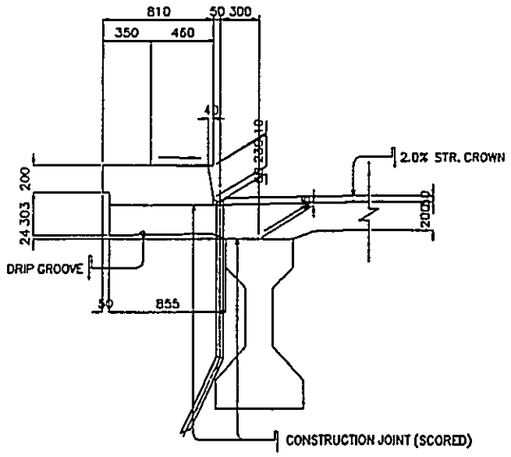
EXPANSION
SCALE 1:2 M



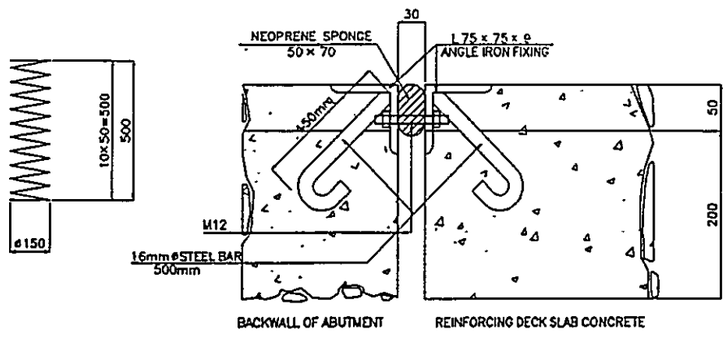
FIXED
SCALE 1.2 M



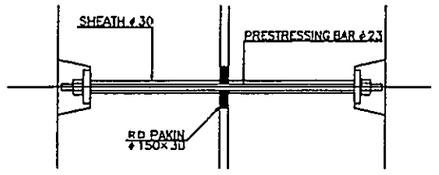
SECTION
SCALE 1:30 M



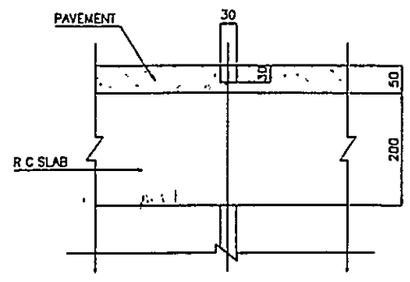
DETAIL OF DRAINAGE



DETAILE



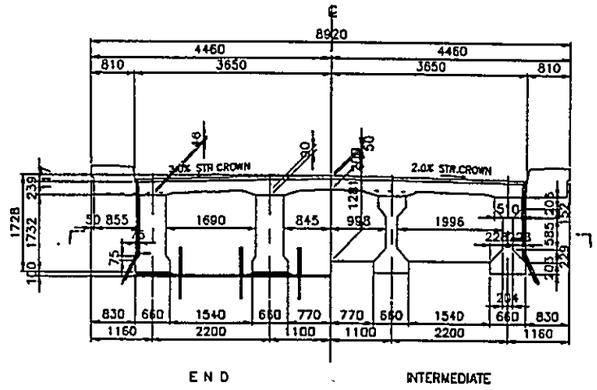
DETAILE
SCALE 1:10 M



DETAILE "A"
SCALE 1.5 M

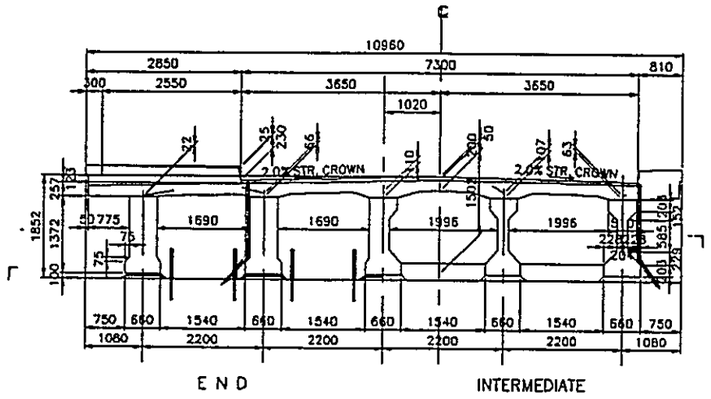
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.		SHEET NO.
	DETAIL OF DRAINAGE	120

INAMBATAN Br.

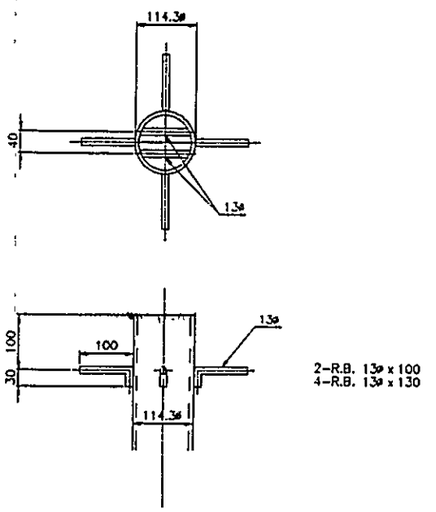


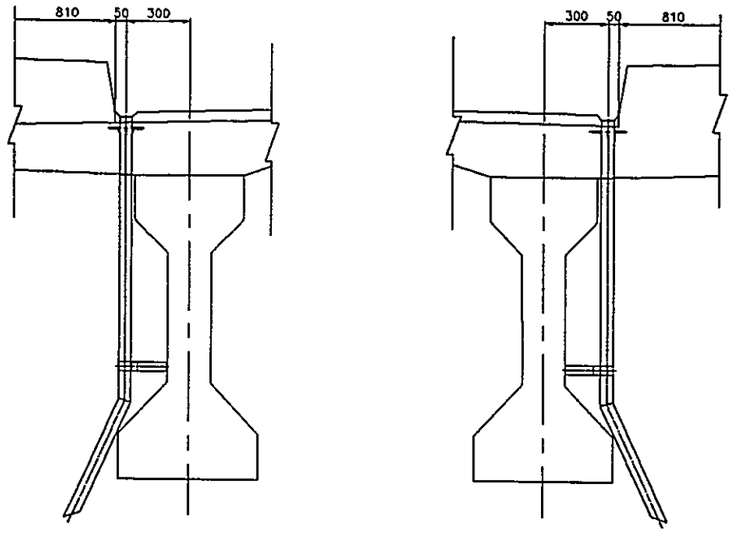
SECTION
SCALE 1:50 MTS.

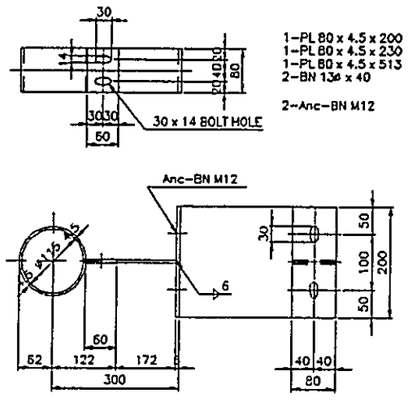
LOWER–SILWAY Br.



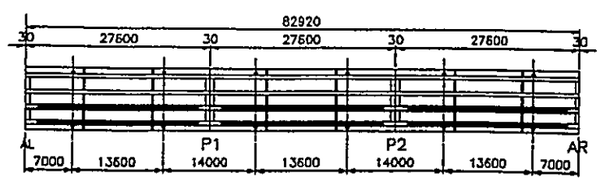
SECTION
SCALE 1:50 MTS.



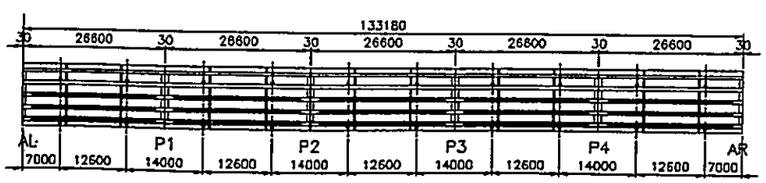




DETALE OF DRAINAGE
SCALE 1:5 MTS.



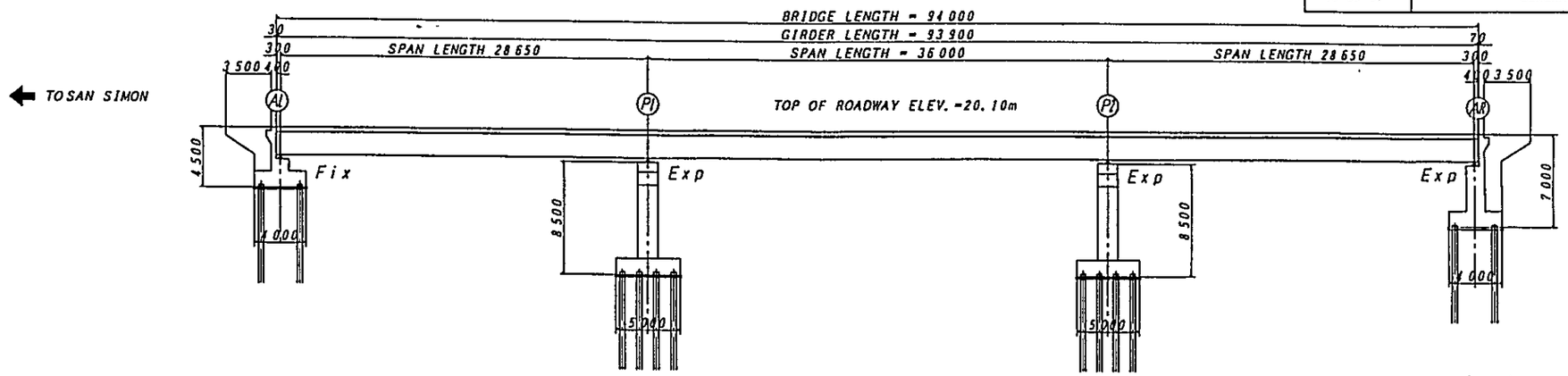
MARKING
NOT TO SCALE



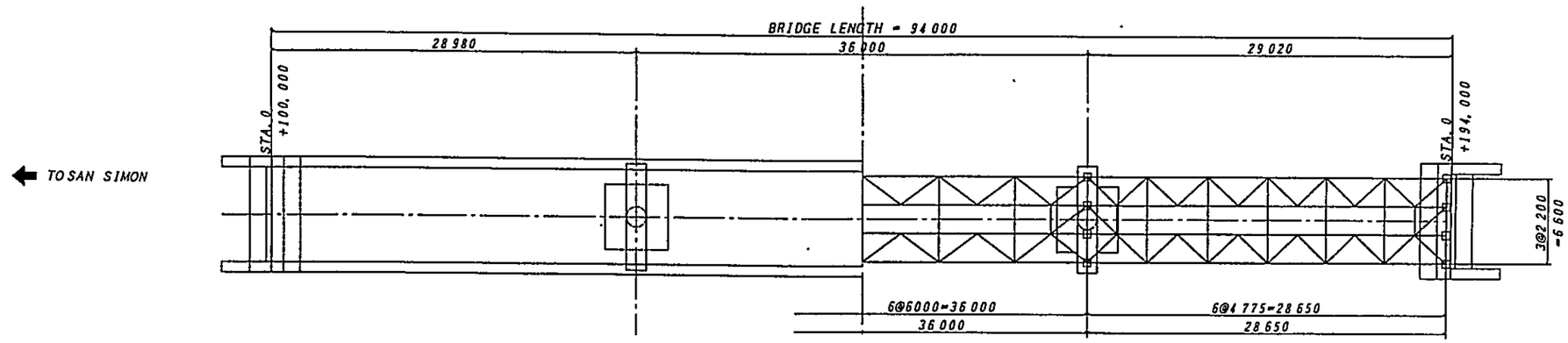
MARKING
NOT TO SCALE

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	GENERAL VIEW	121

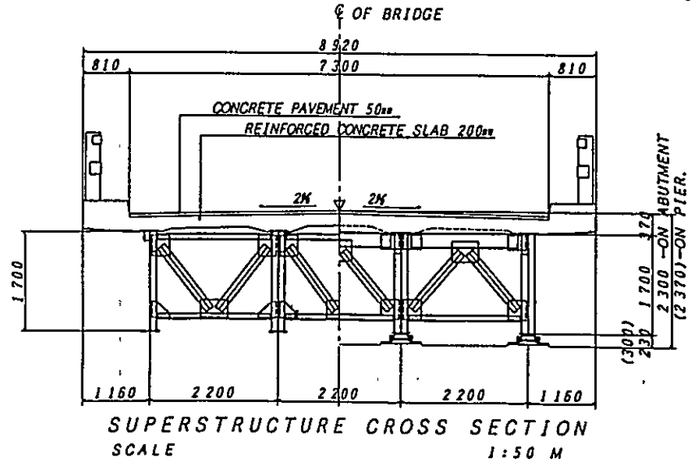
GENERAL VIEW
10-05-09 PAGATAPAT BRIDGE



GENERAL ELEVATION
SCALE 1:200 M



GENERAL PLAN
SCALE 1:200 M

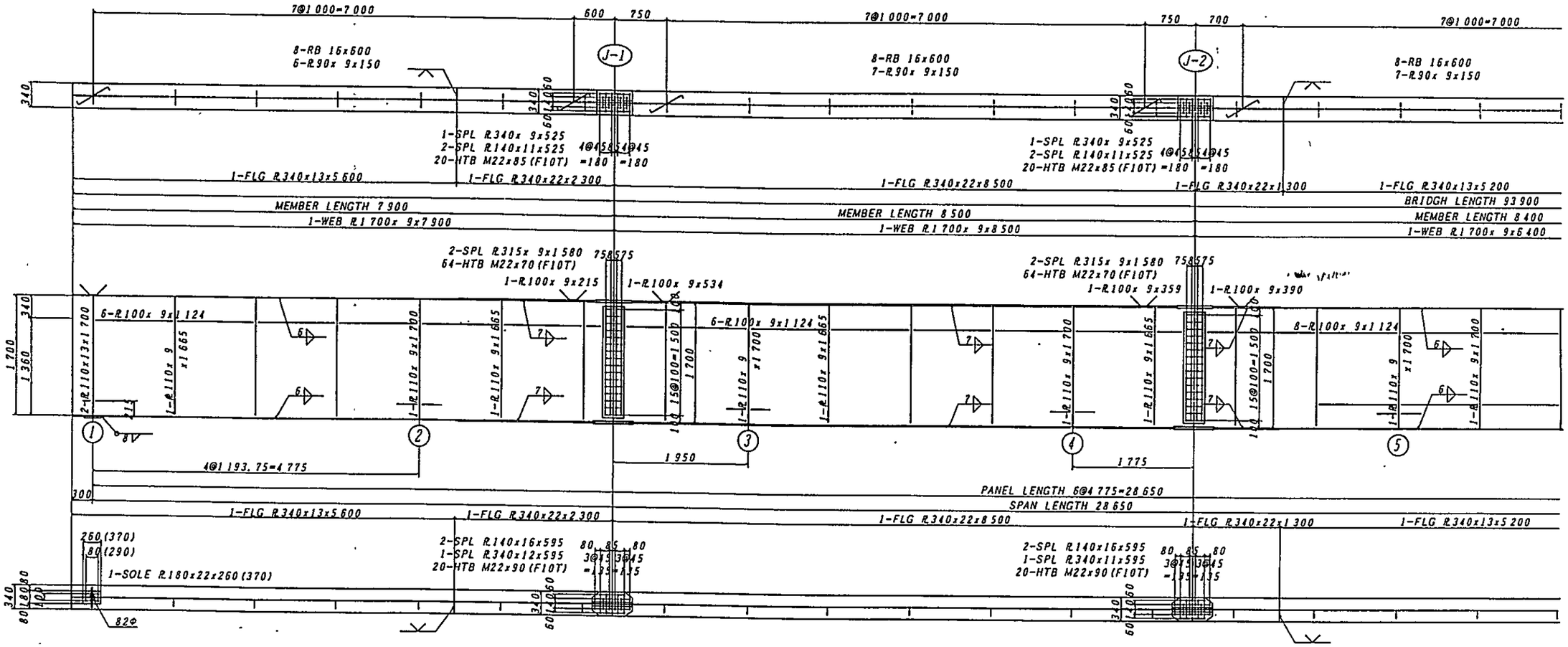


SUPERSTRUCTURE CROSS SECTION
SCALE 1:50 M

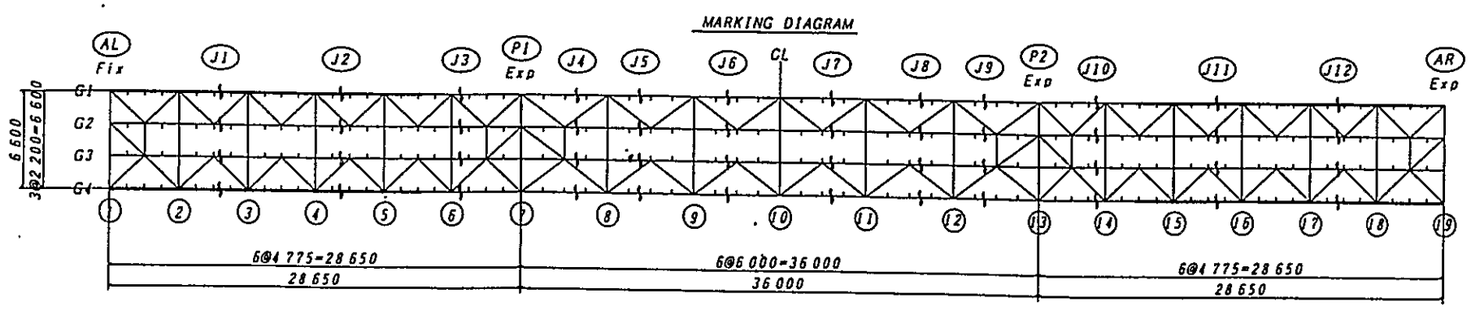
1. DESIGN SPECIFICATION
   AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES(15TH EDITION 1992)
2. DESIGN LOAD
   2.1 DEAD LOAD: CONCRETE 23.54 KN/m
   CONCRETE PAVEMENT 23.54 KN/m
   2.2 LIVE LOAD: ROADWAY LIVE LOAD HS 20 - 44
   SIDEWALK LIVE LORD 2.873 KN/m
   2.3 TEMPERATURE CHANGE:
   RISE +20°, FALL -20.
   2.4 EARTHQUAKE LOAD:
   C=0.20 WITH, REFERENCE TO RELEVANT AASHTO PROVISIONS AND APPLICABLE CODE
   2.5 OTHER LOAD: IN ACCORDANCE WITH 1992 AASHTO SPECIFICATION.
3. MATERIALS
   3.1 STEEL FOR SUPERSTRUCTURE:
   STEEL SHALL BE SPECIFIED BY JIS GRADE.
   3.2 CONCRETE: CONCRETE FOR SUPERSTRUCTURE fc'=(CLASS A) fc=280kg/cm²
   CONCRETE FOR SUBSTRUCTURE fc'=(CLASS A) fc=270kg/cm²
   3.3 OTHERS: OTHER MATERIALS SHALL CONFORM TO JIS
4. SUBSTRUCTURE
   AS DETAILED INFORMATION FOR SUBSTRUCTURES ARE NOT PROVIDED, DECIDED TYPE AND DIMENSION OF SUBSTRUCTURES WILL BE SPECIFIED IN SUBSTRCTURE'S DRAWING.
5. DRAWING
   ALL DIMENSIONS ARE EXPRESSED IN MILLIMETER UNLESS OTHERWISE SHOWN INPLANS ALL ELEVATION ARE IN METERS.

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	MAIN GIRDER G1, G4 (1)	122

MAIN GIRDER (G1, G4) S=1/30



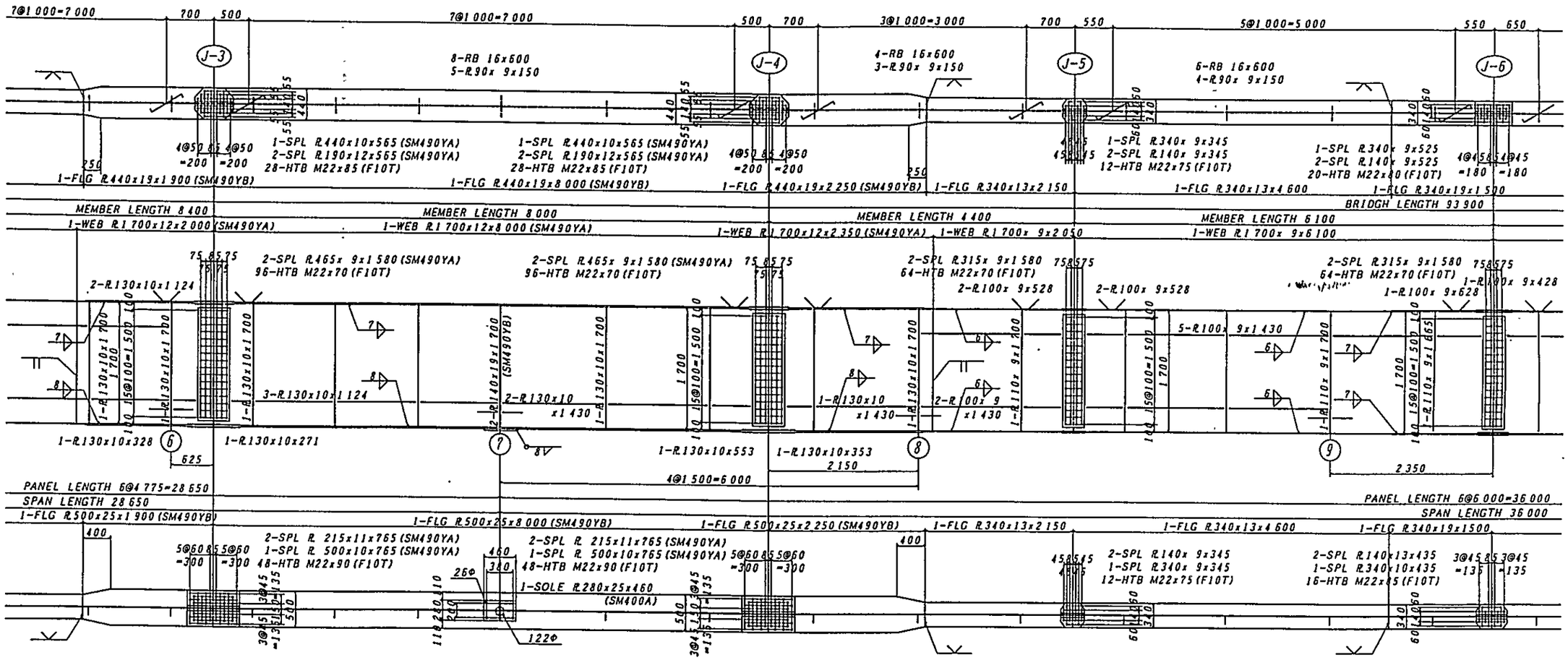
MARKING DIAGRAM



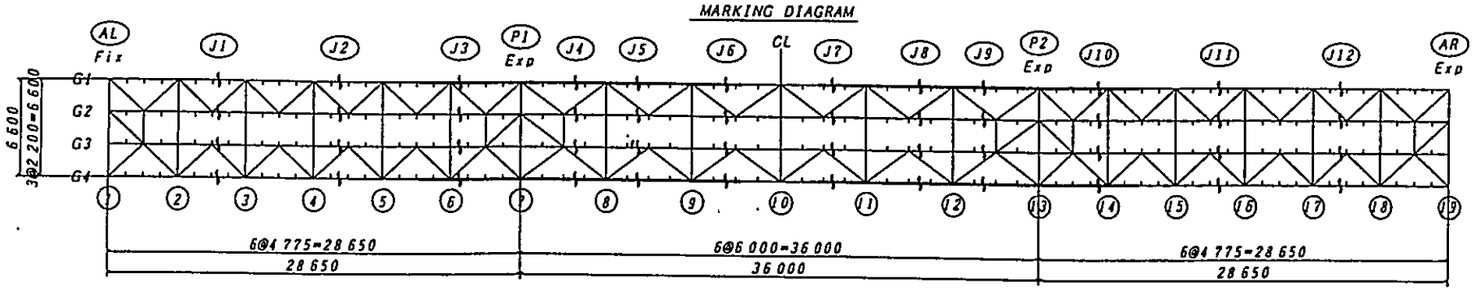
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	MAIN GIRDER G1, G4 (2)	123

MAIN GIRDER (G1, G4) S=1/30



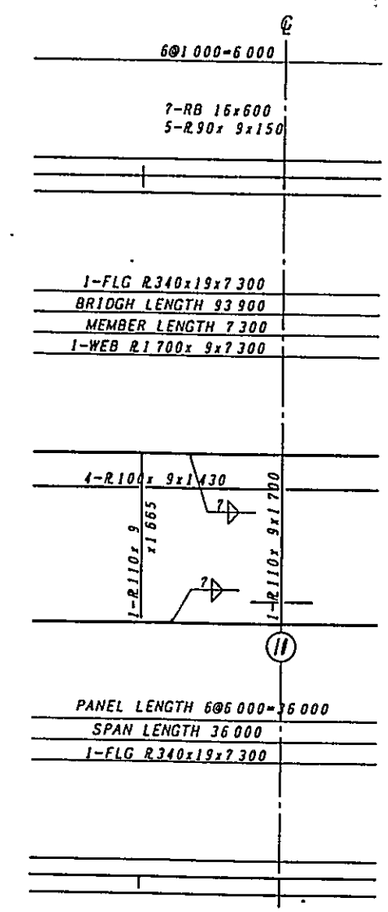
MARKING DIAGRAM



NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	MAIN GIRDER G1, G4 (3)	124

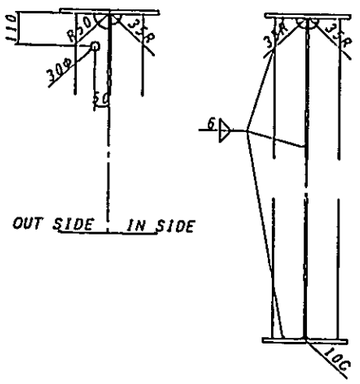
MAIN GIRDER (G1, G4) S=1/30



END STIFF (MID STIFF)

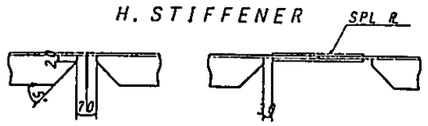
OUTSIDE GIRDER

V. STIFFENER

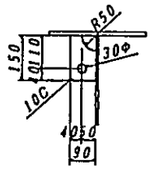


INSIDE GIRDER

H. STIFFENER

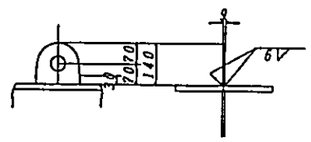


HANGER



1-R 90x9x150

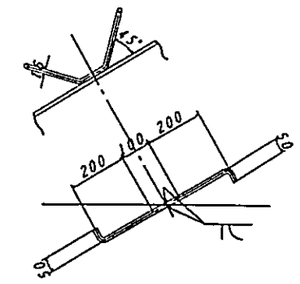
GIRDER HANGER



1-R 140x9x150

SLAB ANCHOR

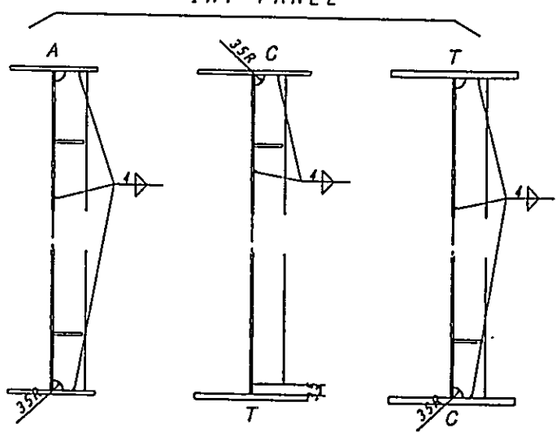
SCALE 1:10



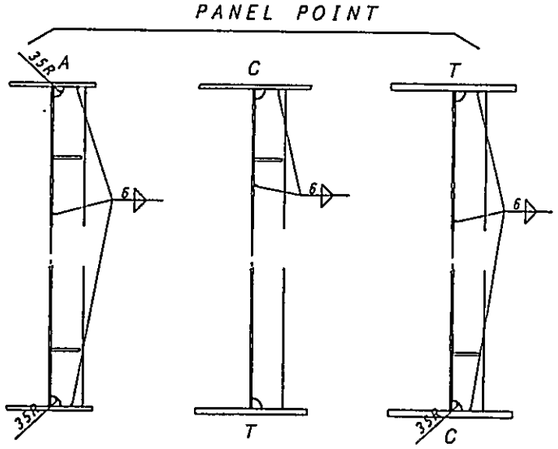
RB 16Φx600
BEND UP IN FIELD

INT STIFF

INT PANEL

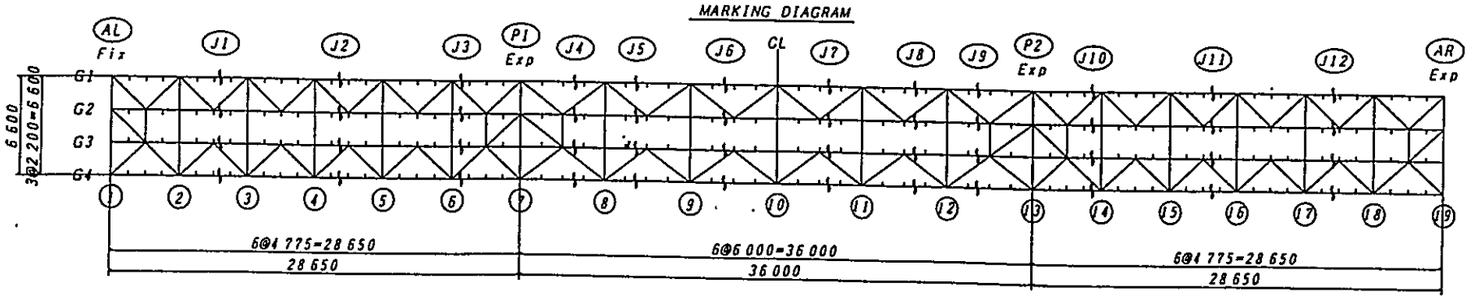


PANEL POINT



A : ALTERNATING STRESS PANEL
C : COMPRESSION SIDE
T : TENSION SIDE

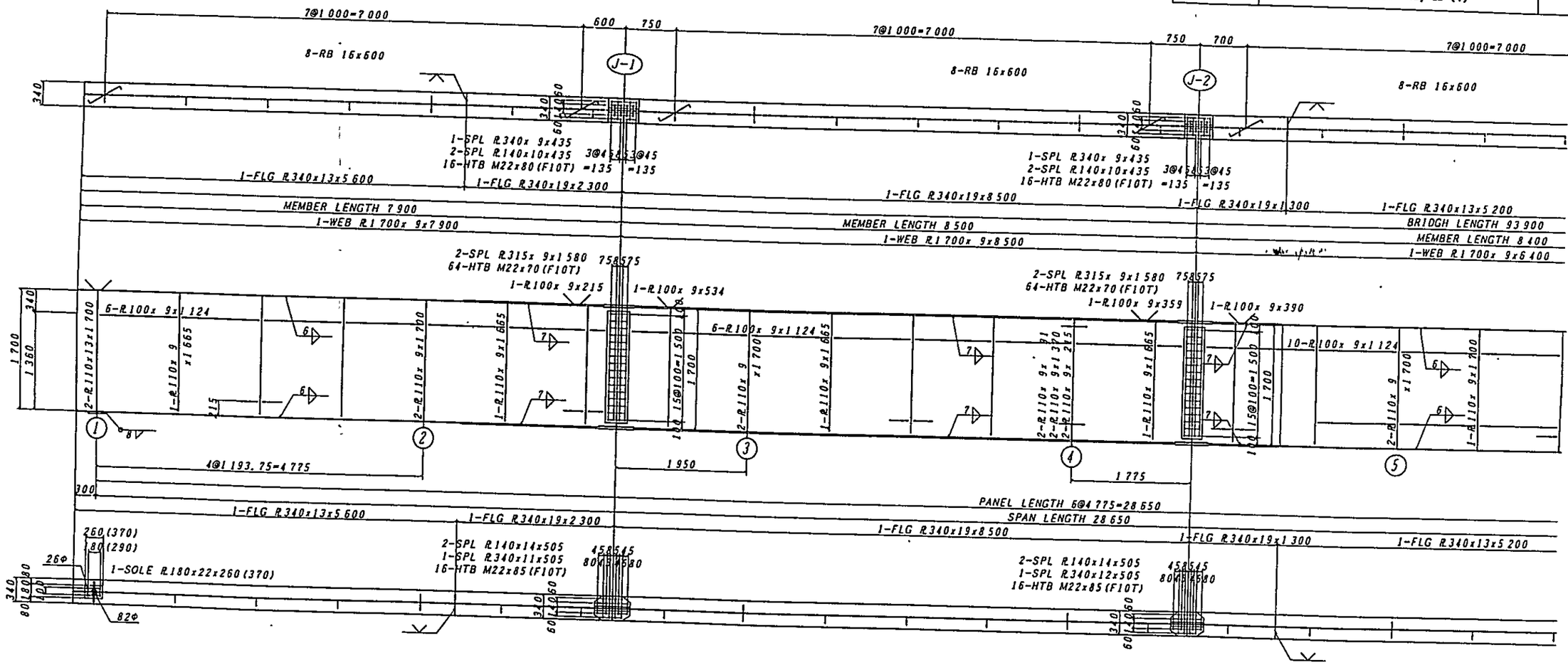
MARKING DIAGRAM



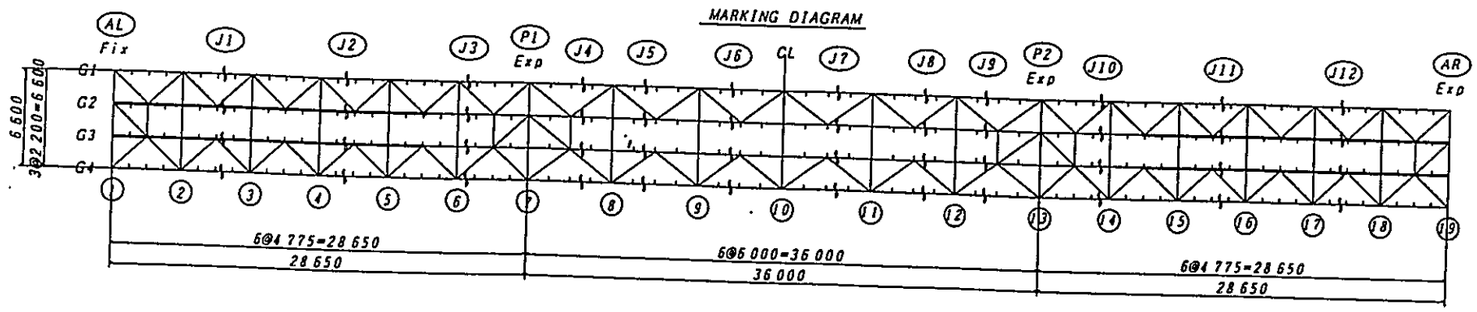
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	MAIN GIRDER G2, G3 (1)	125

MAIN GIRDER (G2, G3) S=1/30



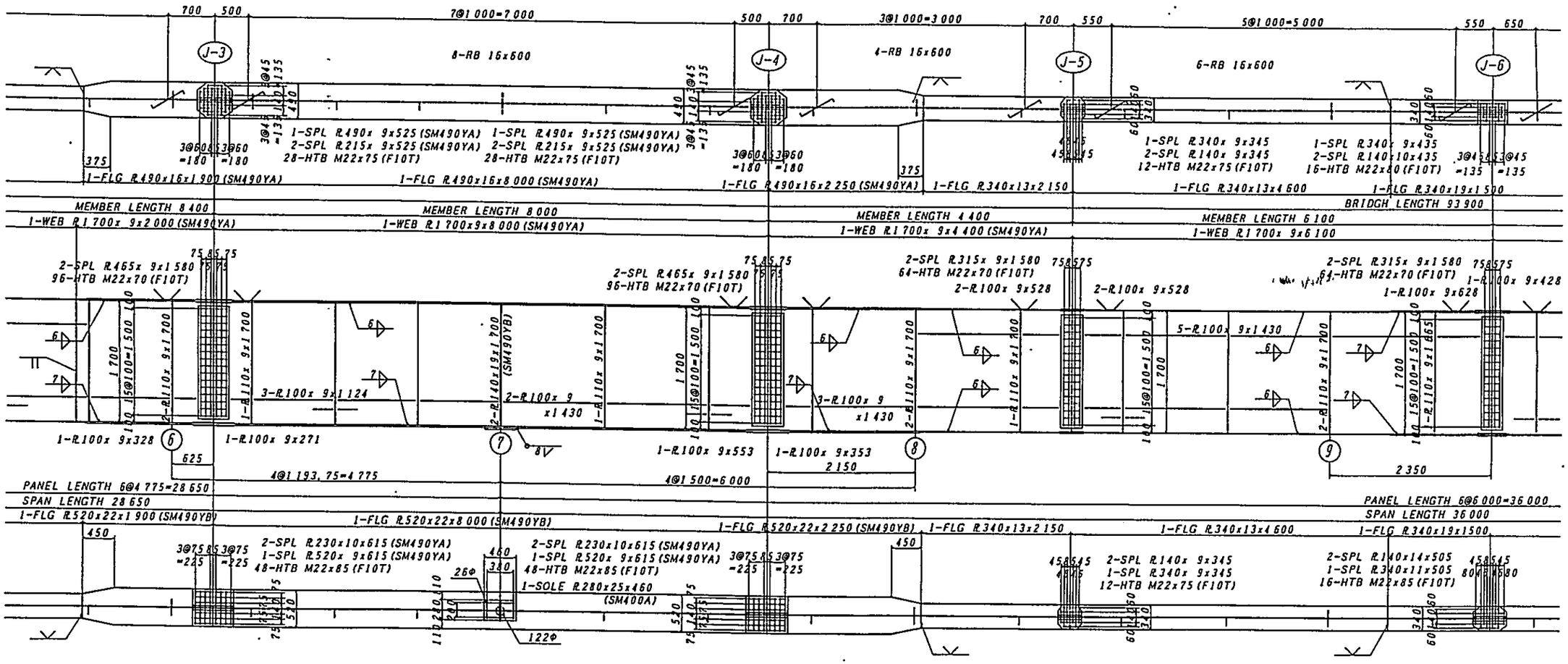
MARKING DIAGRAM



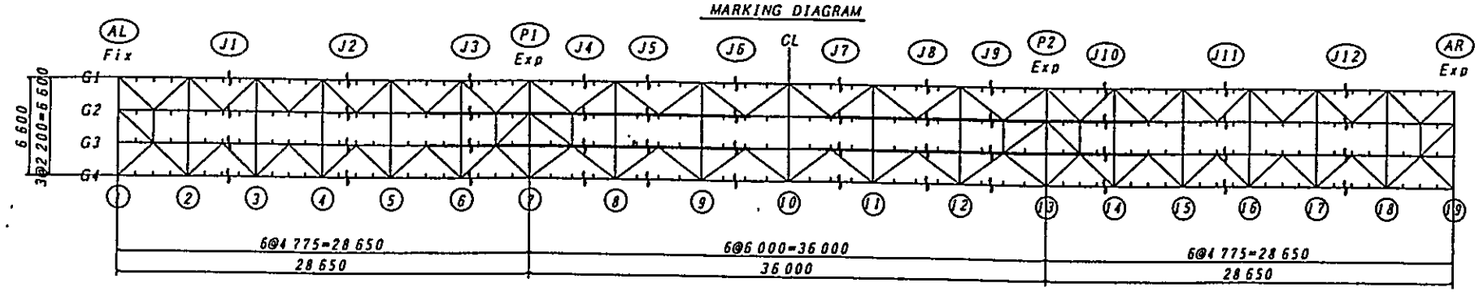
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	MAIN GIRDER G2, G3 (2)	126

MAIN GIRDER (G2, G3) S=1/30



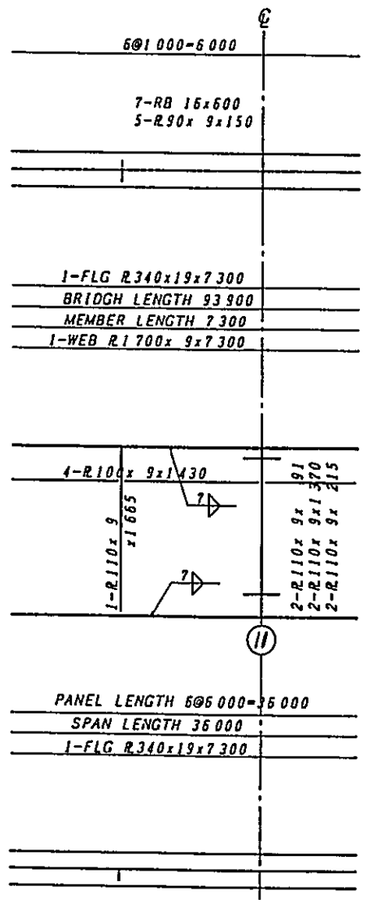
MARKING DIAGRAM



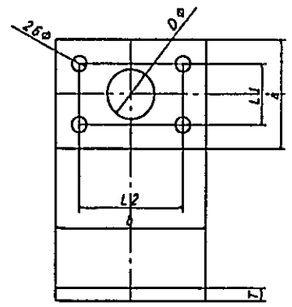
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	MAIN GIRDER G2, G3 (3)	127

MAIN GIRDER (G2, G3) S=1/30

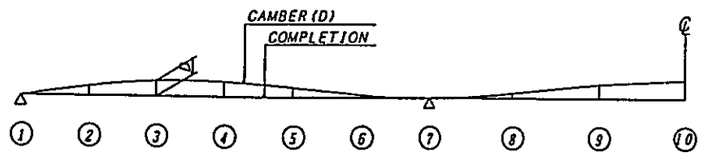


SOLE PLATE
SCALE 1:5



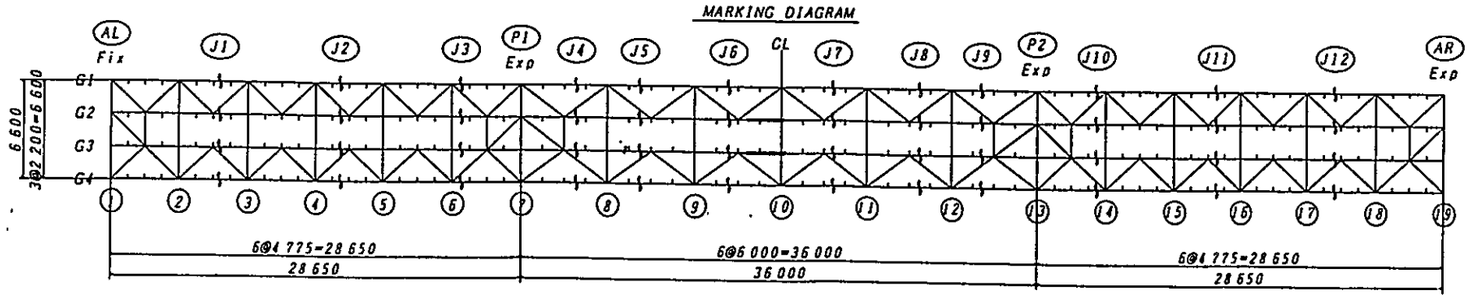
	AL	AR	P1,P2
a	180	180	280
b	260	370	460
L1	100	100	200
L2	180	290	380
D	82	82	122
T	22	22	25

CAMBER



	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
G1, G4	0	17	27	26	17	5	0	9	24	31
G2, G3	0	13	20	19	12	4	0	7	18	23

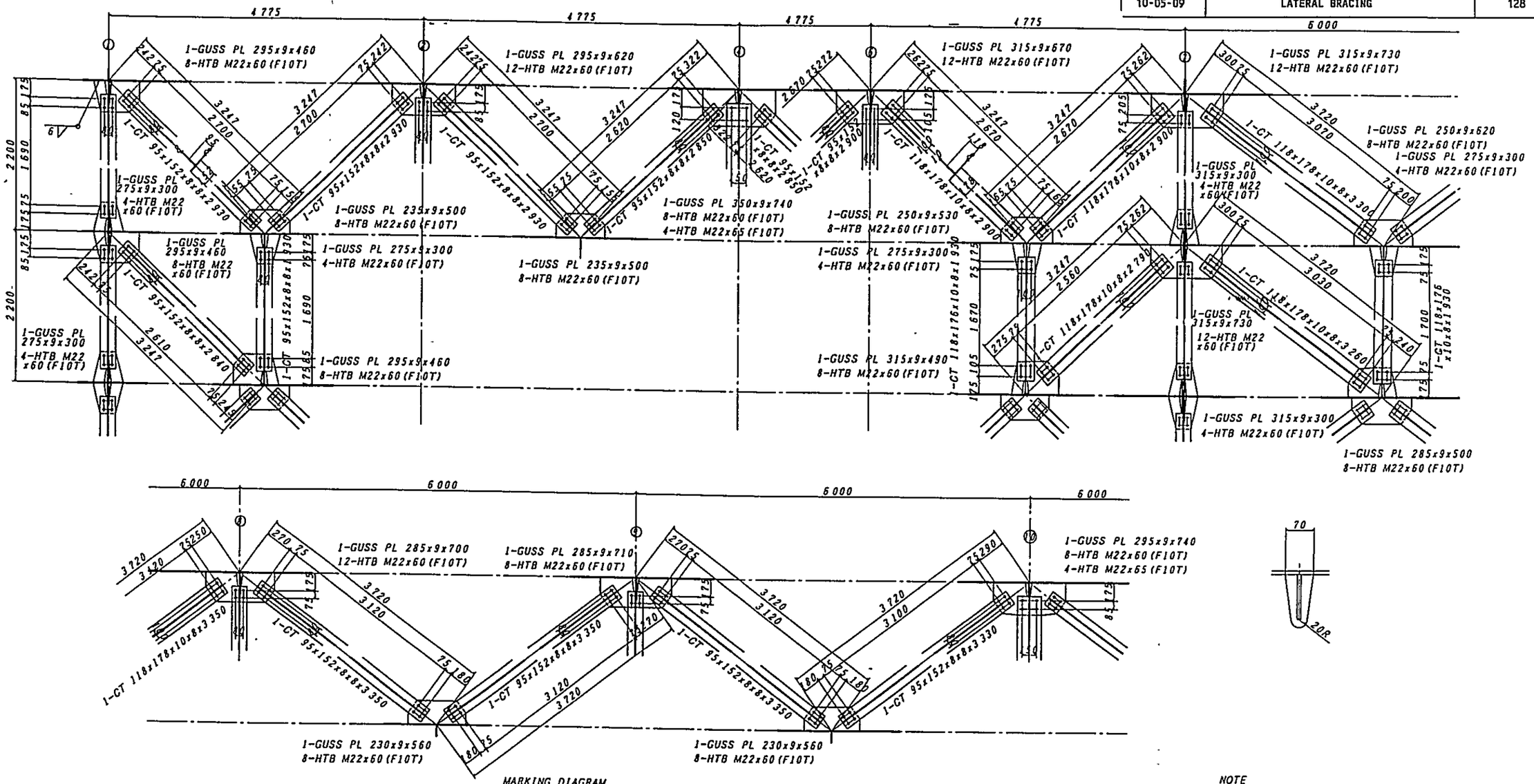
MARKING DIAGRAM



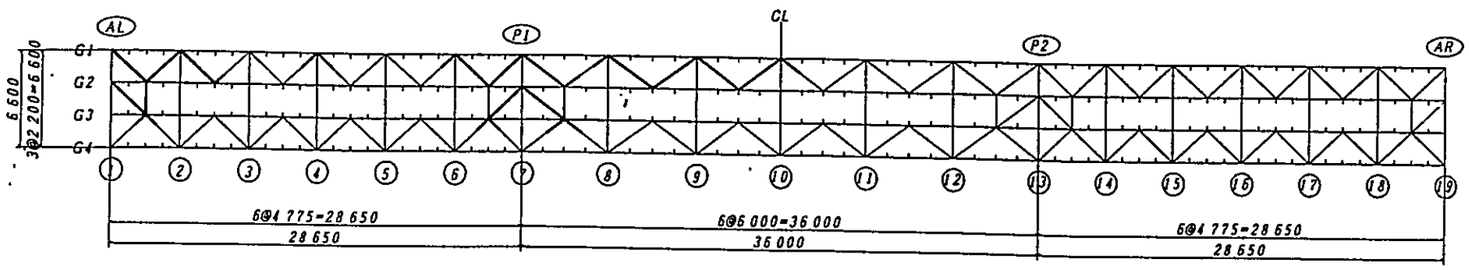
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	LATERAL BRACING	128

LATERAL BRACING S=1/30 S=1/20



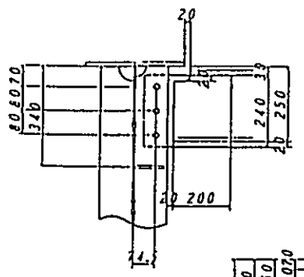
MARKING DIAGRAM



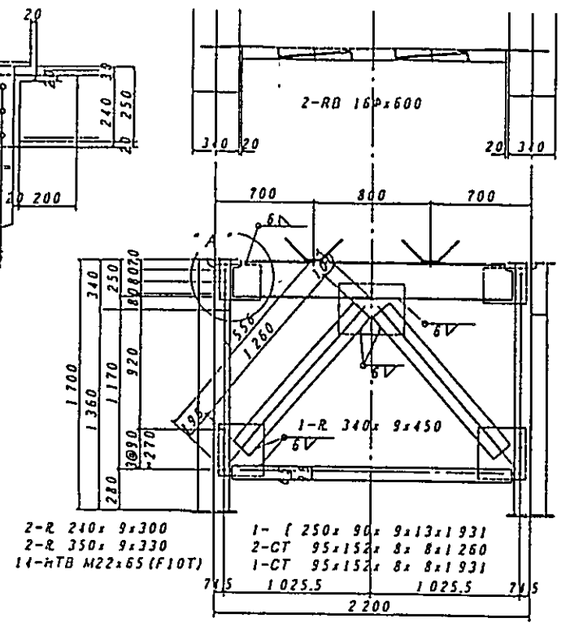
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	CROSS BEAM & SWAY BRACING	129

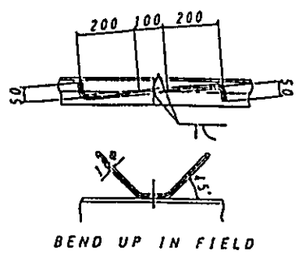
DATAIL "A"
SCALE 1:10



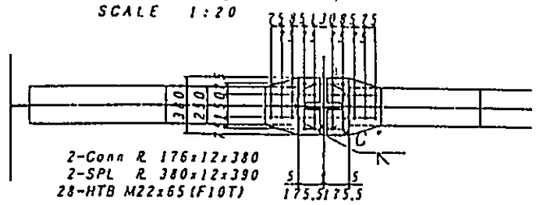
END SWAY BRACING
SCALE 1:20



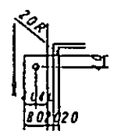
SLAB ANCHOR
SCALE 1:10



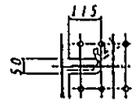
CROSS BEAM
SCALE 1:20

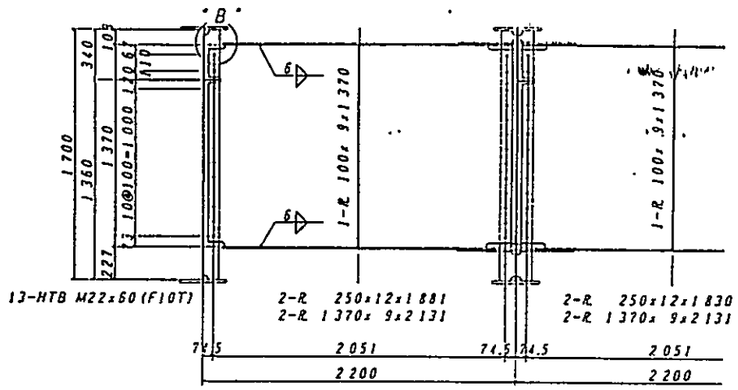


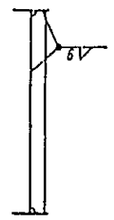
DATAIL "B"
SCALE 1:10



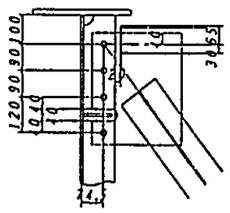
DATAIL "C"
SCALE 1:10



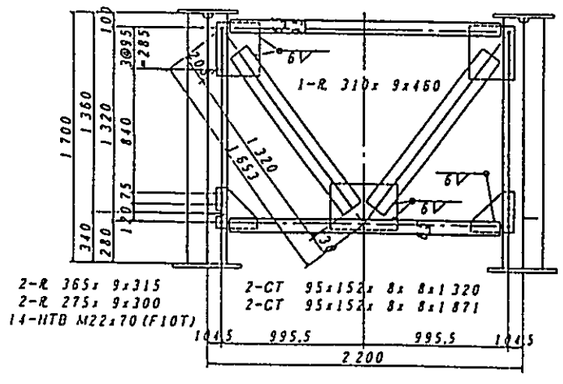




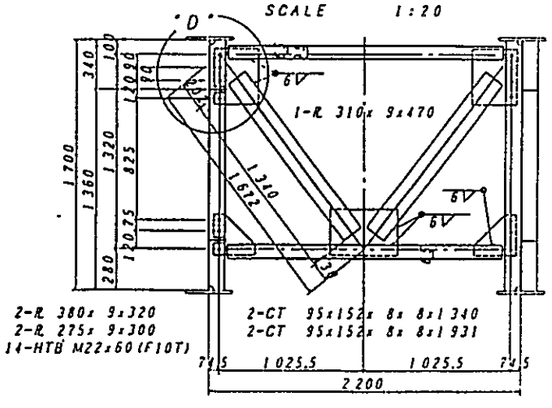
DATAIL "D"
SCALE 1:10



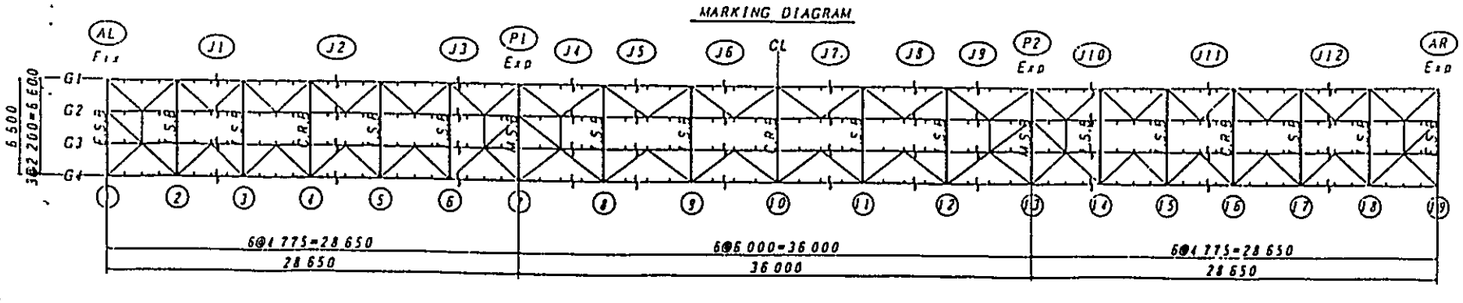
MID SWAY BRACING
SCALE 1:20



INT SWAY BRACING
SCALE 1:20



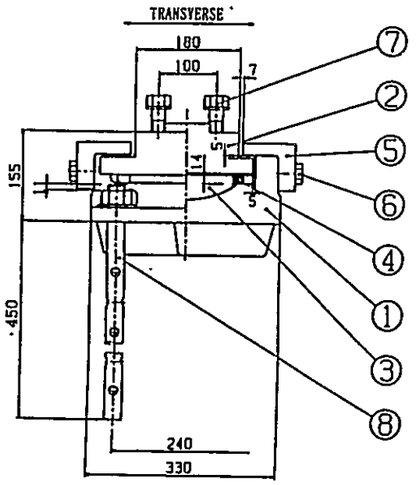
MARKING DIAGRAM

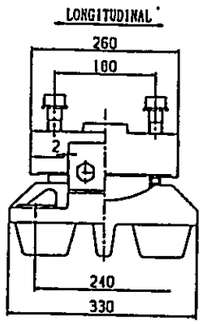


NOTE
1. MATERIAL NOT SPECIFIED IS SS400

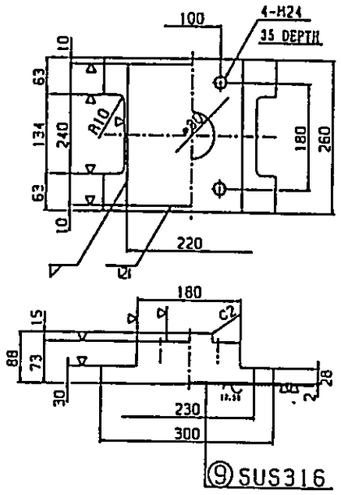
SHOE (1)

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	SHOE (1)	130





②～(▽ ▽▽) SS400



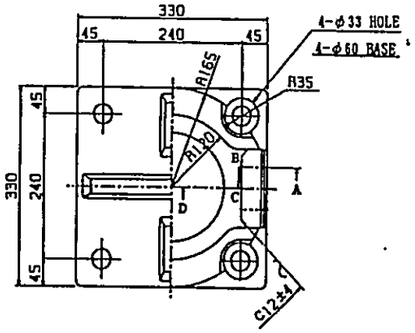
DESIGN CONDITION

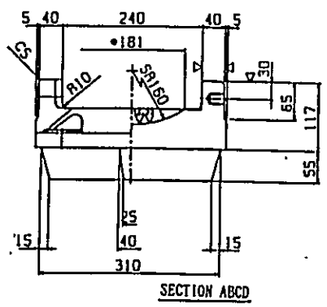
Reaction		
Overall Reaction	R	60.3 tf
Dead Load Reaction	Rd	48.0 tf
Longitudinal Horizontal Force (at movement)	R Hlf	19.5 tf
longitudinal Horizontal Force (at earthquake)	R Hle	25.4 tf
Transverse Horizontal Force (at earthquake)	R Hte	25.4 tf
Uplift (at earthquake)	V	6.7 tf
Allowable Bearings Stress		
Allowable Bearings Stress For Substructure	σba	80 kgf/cm2
Allowable Bearings Stress For Superstructure	σba	2100 kgf/cm2

MATERIAL LIST

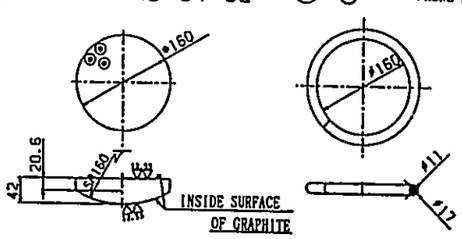
Mark	Name	Material	No	Weight	Remarks
①	Bottom Shoe	SC450	1	51.8	
②	Top Shoe	SS400	1	31.1	
③	Bearing Plate	HBsC4 + SL	1	4.9	
④	Seal Ring	Chloroprene Gum	1	0.1	
⑤	Side Block	SS400 or SC450	2	7.1	
⑥	Bolt	SS400	4	0.8	JIS B1180
⑦	Bolt and Washer	SS400	4	1.4	JIS B1180, 1256
⑧	Anchor Bolt	SS400	4	12.3	JIS B1181 M30
⑨	Stainless Steel	SUS316	1	0.8	220×2×236
Σ = 110.3 (kg)					
PAINT AREA 0.40 m2					

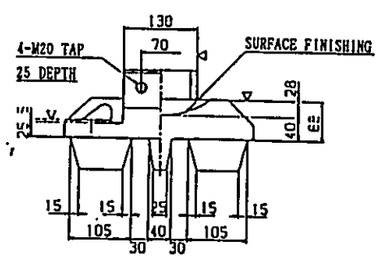
①～(▽ ▽▽) SC450



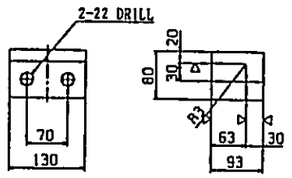


③▽(▽▽) HBsC4+SL ④～ CHLOROPRENE RUBBER





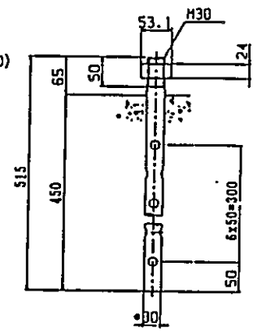
⑤～(▽) SS400 OR SC450



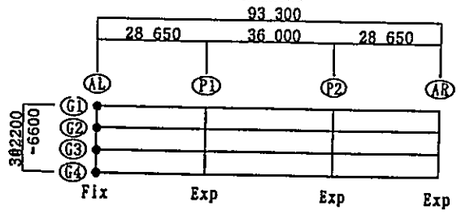
⑥ HEXAGON HEAD BOLT (JIS B 1180)
M 20 × 50 4.6

⑦ HEXAGON HEAD BOLT (JIS B 1180)
M 24 × 70 4.6
PLAIN WASHER (JIS B 1256)
24 × 44 × 4.5-10H

⑧～ SS400

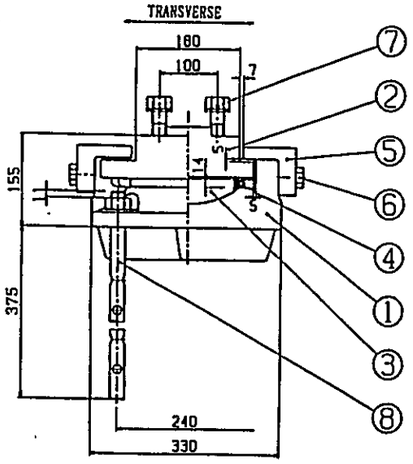


MARKING

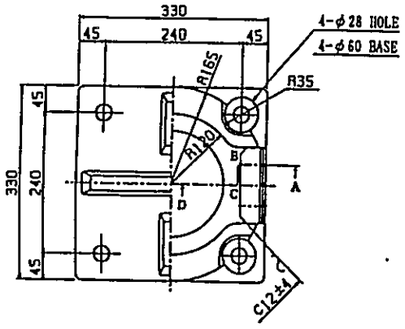


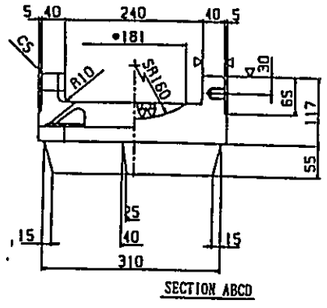
SHOE (2)

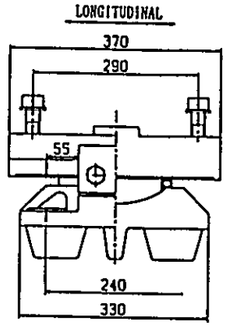
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	SHOE (2)	131



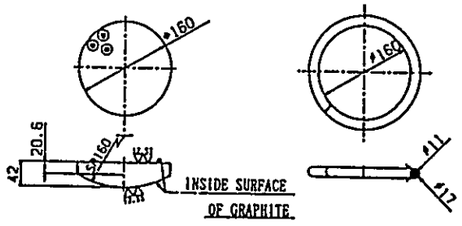
①～(▽ 12.5S) SC450

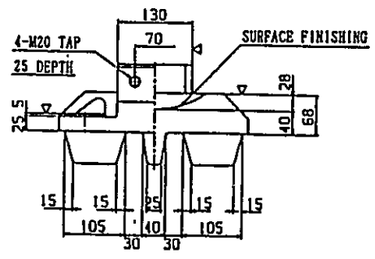




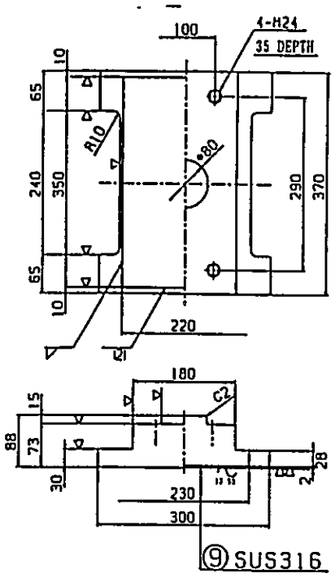


③▽(12.5S) HBsC4+SL　④～ CHLOROPRENE RUBBER

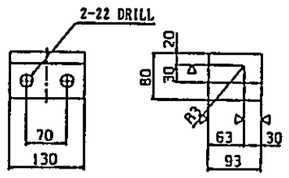




②～(▽ ▽▽) SS400



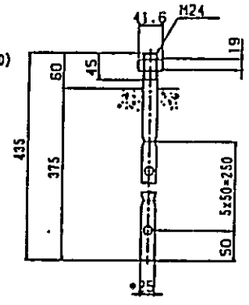
⑤～(▽) SS400 OR SC450



⑥ HEXAGON HEAD BOLT (JIS B 1180)
M20 ×50 4.6

⑦ HEXAGON HEAD BOLT (JIS B 1180)
M24 × 70 4.6
PLAIN WASHER (JIS B 1256)
24 ×44 ×4.5-10H

⑧～ SS400



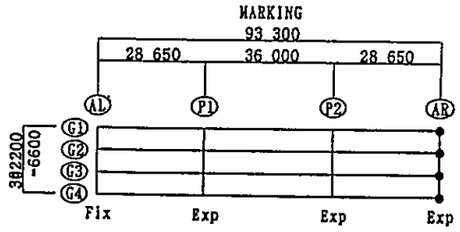
DESIGN CONDITION

Reaction		
Overall Reaction	R	60.3 tf
Dead Load Reaction	Rd	48.0 tf
Longitudinal Horizontal Force (at movement)	R Hlf	9.0 tf
longitudinal Horizontal Force (at earthquake)	R Hle	17.6 tf
Transverse Horizontal Force (at earthquake)	R Hte	17.6 tf
Uplift (at earthquake)	V	6.7 tf
Sliding Length		
Calculation Sliding Length	e1	50 mm
Design Sliding Length	e2	70 mm
Overall Sliding Length	e	110 mm
Coefficient Friction		
Design Coefficient Friction	f	0.15
Allowable Bearings Stress		
Allowable Bearings Stress For Substructure	σba	80 kgf/cm2
Allowable Bearings Stress For Superstructure	σba	2100 kgf/cm2

MATERIAL LIST

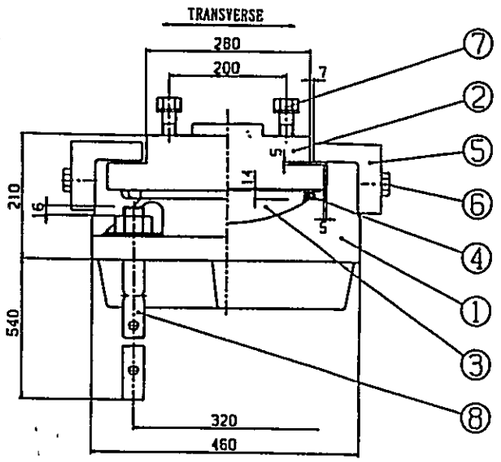
Mark	Name	Material	No	Weight	Remarks
①	Bottom Shoe	SC450	1	52.0	
②	Top Shoe	SS400	1	43.4	
③	Bearing Plate	HBsC4 + SL	1	4.9	
④	Seal Ring	Chloroprene Gum	1	0.1	
⑤	Side Block	SS400 or SC450	2	7.1	
⑥	Bolt	SS400	4	0.8	JIS B1180
⑦	Bolt and Washer	SS400	4	1.4	JIS B1180, 1256
⑧	Anchor Bolt	SS400	4	7.1	JIS B1181 M24
⑨	Stainless Steel	SUS316	1	1.2	220×2×346
			Σ =	118.0	(kg)
PAINT AREA				0.42	m2

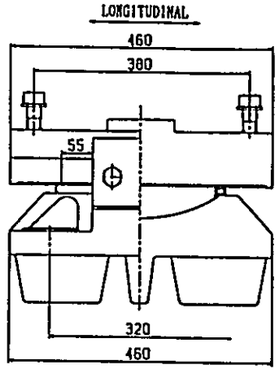
MARKING



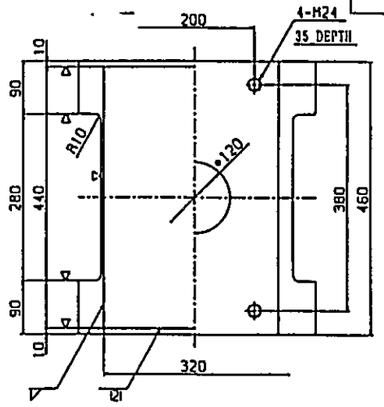
SHOE (3)

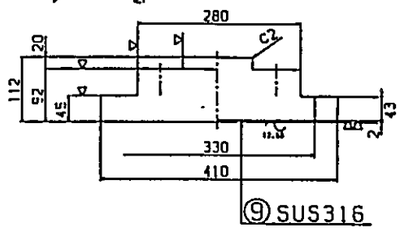
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	SHOE (3)	132





②～(▽ ▽▽) SS400





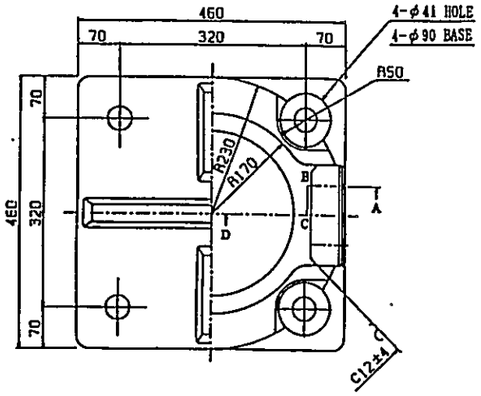
DESIGN CONDITION

Reaction		
Overall Reaction	R	153.7 tf
Dead Load Reaction	Rd	120.0 tf
Longitudinal Horizontal Force (at movement)	R Hlf	23.0 tf
longitudinal Horizontal Force (at earthquake)	R Hle	36.6 tf
Transverse Horizontal Force (at earthquake)	R Hte	36.6 tf
Uplift (at earthquake)	V	12.9 tf
Sliding Length		
Calculation Sliding Length	e1	50 mm
Design Sliding Length	e2	70 mm
Overall Sliding Length	e	110 mm
Coefficient Friction		
Design Coefficient Friction	f	0.15
Allowable Bearings Stress		
Allowable Bearings Stress For Substructure	σba	80 kgf/cm2
Allowable Bearings Stress For Superstructure	σba	2100 kgf/cm2

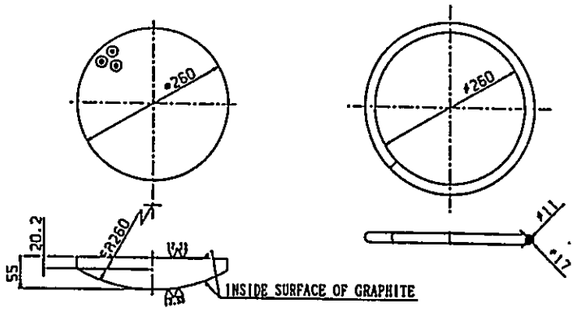
MATERIAL LIST

Mark	Name	Material	No	Weight	Remarks
①	Bottom Shoe	SC450	1	149.2	
②	Top Shoe	SS400	1	105.0	
③	Bearing Plate	HBsC4 + SL	1	15.7	
④	Seal Ring	Chloroprene Gum	1	0.1	
⑤	Side Block	SS400 or SC450	2	18.0	
⑥	Bolt	SS400	4	1.1	JIS B1180
⑦	Bolt and Washer	SS400	4	1.4	JIS B1180, 1256
⑧	Anchor Bolt	SS400	4	21.6	JIS B1181 M36
⑨	Stainless Steel	SUS316	1	2.2	320×2×436
Σ = 314.3 (kg)					
PAINT AREA 0.76 m2					

①～(▽ 12.5S ▽▽) SC450

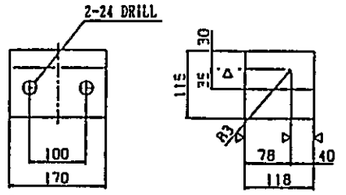


③▽(▽▽ 12.5S) HBsC4+SL

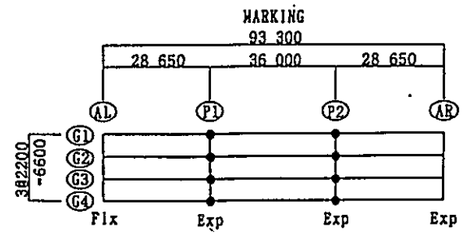


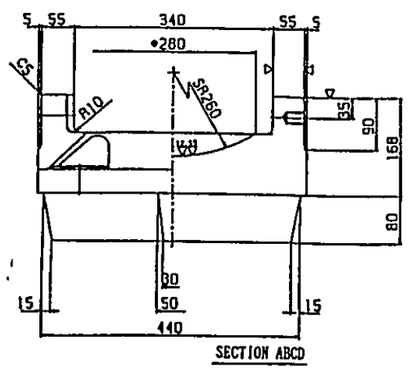
④～ CHLOROPRENE RUBBER

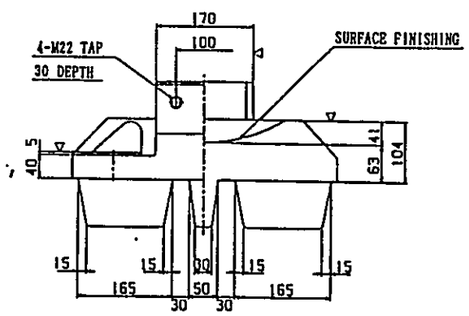
⑤～(▽) SS400 OR SC450



MARKING



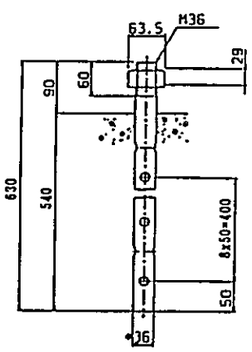




⑥ HEXAGON HEAD BOLT (JIS B 1180)
M22 × 65 4.6

⑦ HEXAGON HEAD BOLT (JIS B 1180)
M24 × 85 4.6
PLAIN WASHER (JIS B 1256)
24 × 44 × 4.5-10H

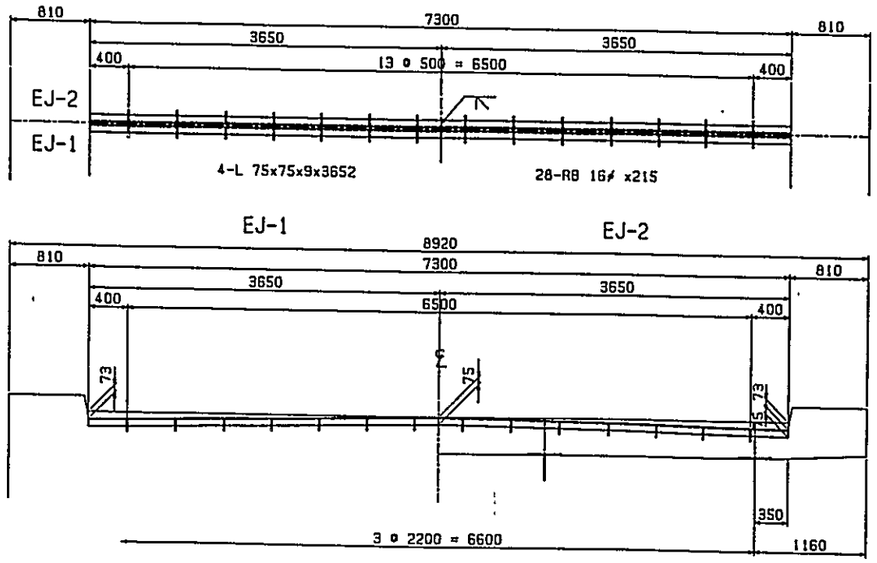
⑧～ SS400

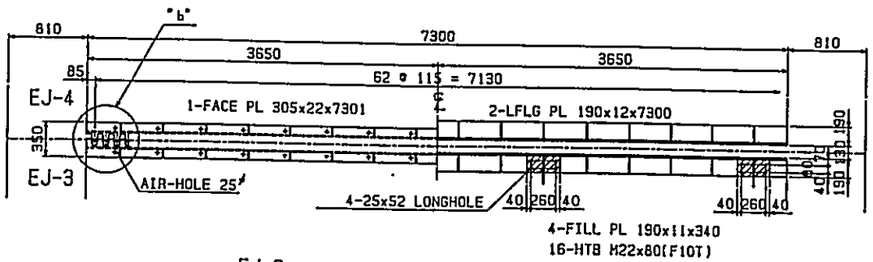


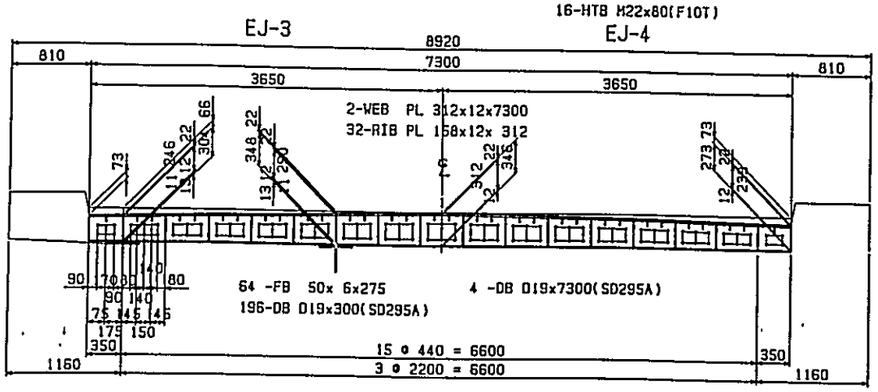
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Pagatapat	SHEET NO.
10-05-09	EXPANSION & DRAINAGE	133

EXPANSION JOINT AND DRAINAGE

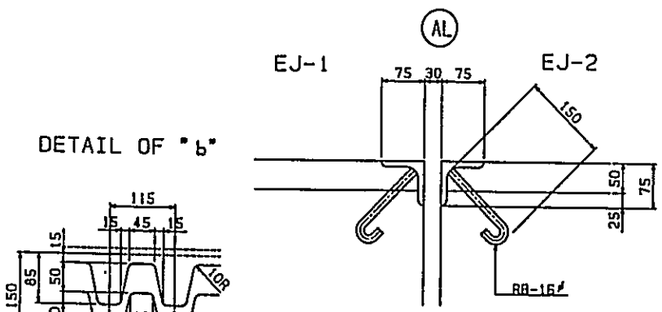
EXPANSION JOINT S=1:30



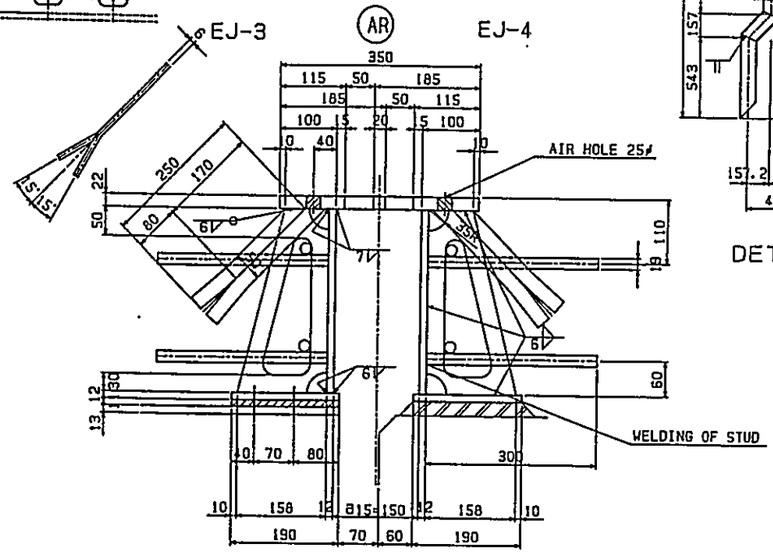




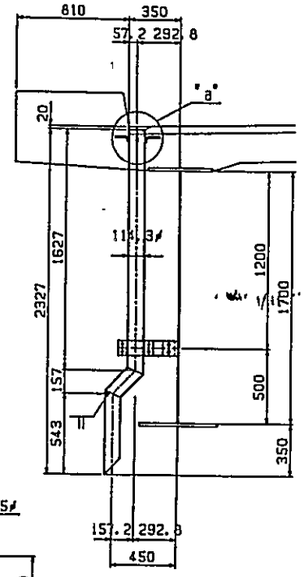
SECTION OF EXPANSION JOINT S=1:5



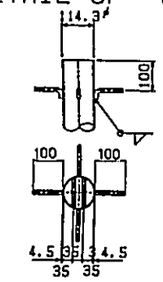
DETAIL OF "b"



DRAINAGE S=1:5

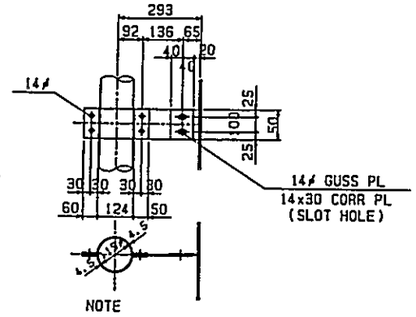


DETAIL OF "a"



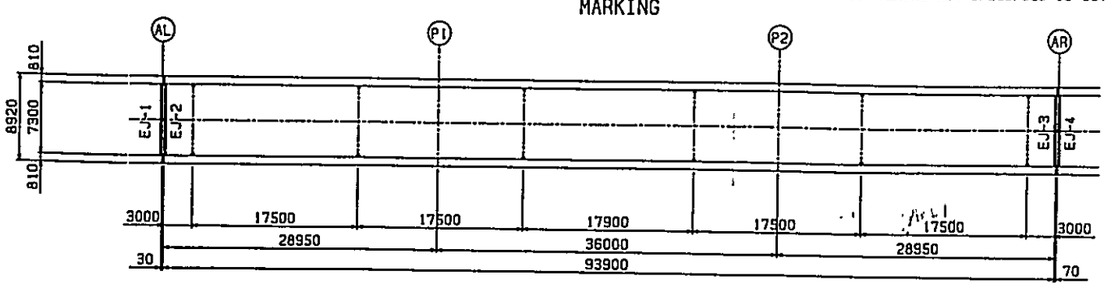
1-PIPE 100Ax1651(SGP)
1-PIPE 100Ax 270(SGP)
1-PIPE 100Ax 567(SGP).
2-RB 13ϕx100
4-RB 13ϕx130
1-PL 100x4.5x100
2-PL 100x4.5x310
1-PL 100x4.5x206
2-BN M12x40
4-BN M12x30

DETAIL OF SUPPORT S=1:10



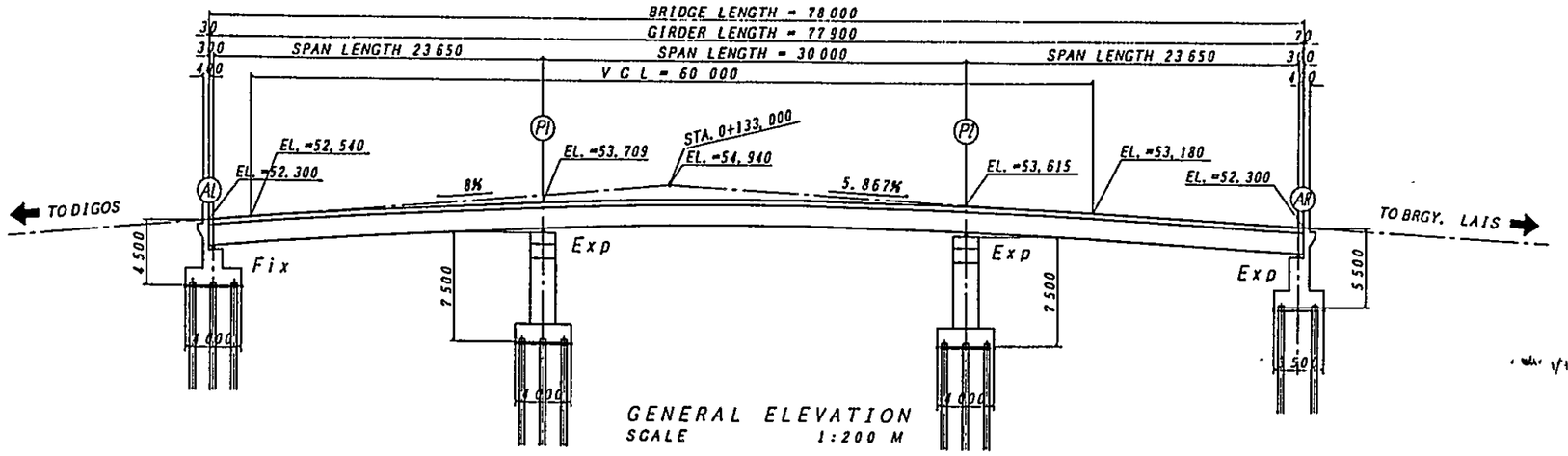
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

MARKING

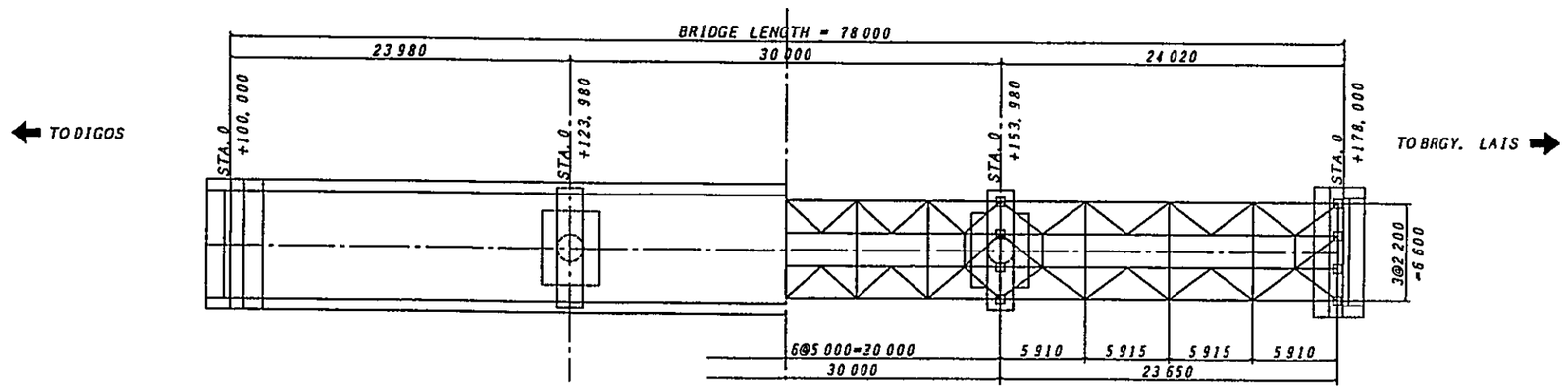


BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Culaman	SHEET NO.
11-05-01	GENERAL VIEW	134

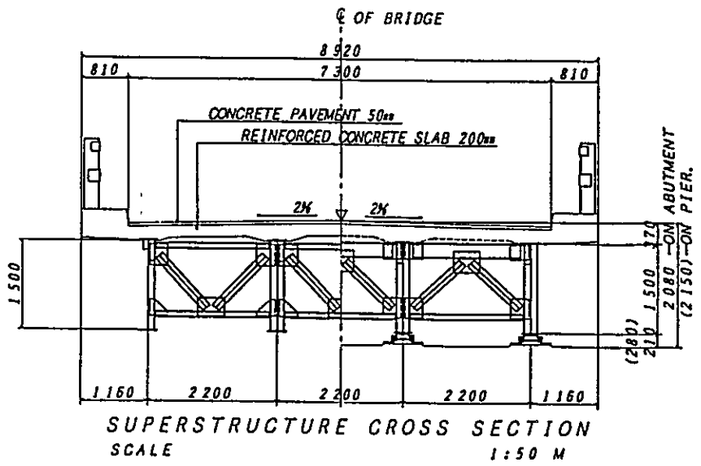
GENERAL VIEW
11-05-01 CULAMAN BRIDGE



GENERAL ELEVATION
SCALE 1:200 M



GENERAL PLAN
SCALE 1:200 M

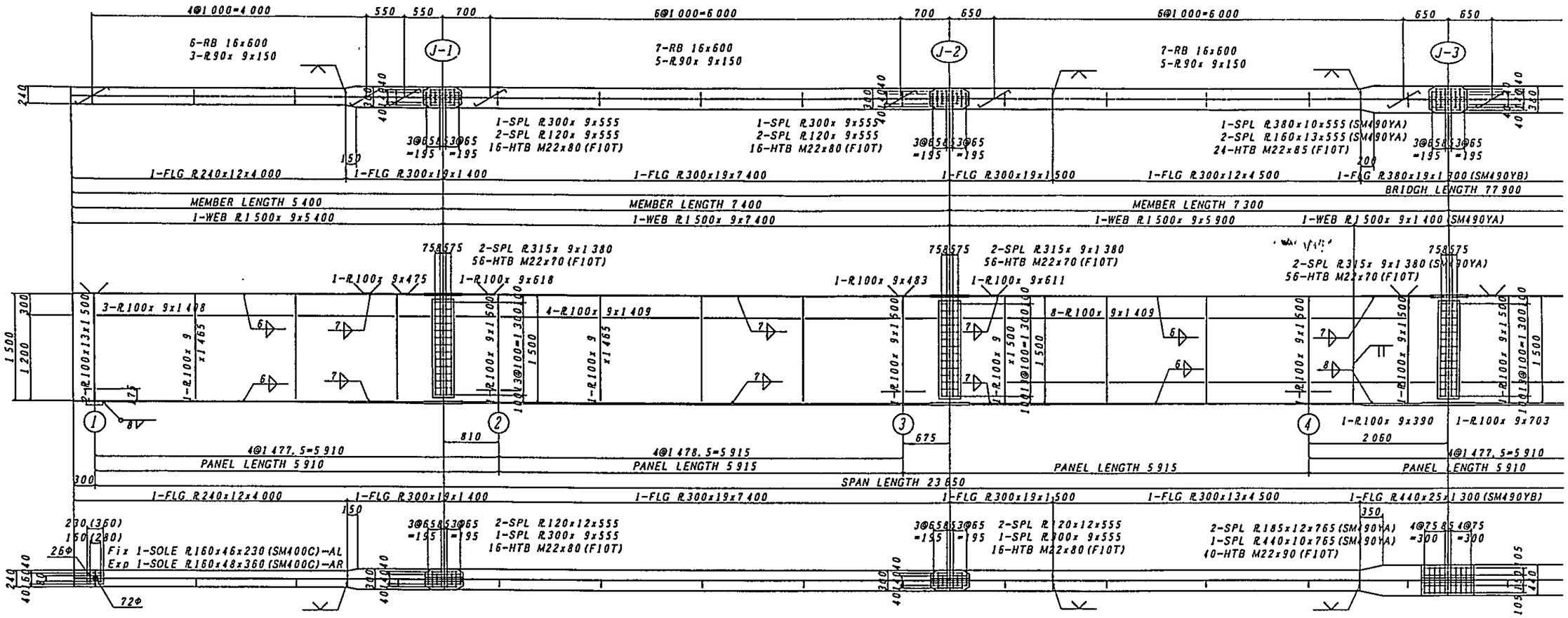


SUPERSTRUCTURE CROSS SECTION
SCALE 1:50 M

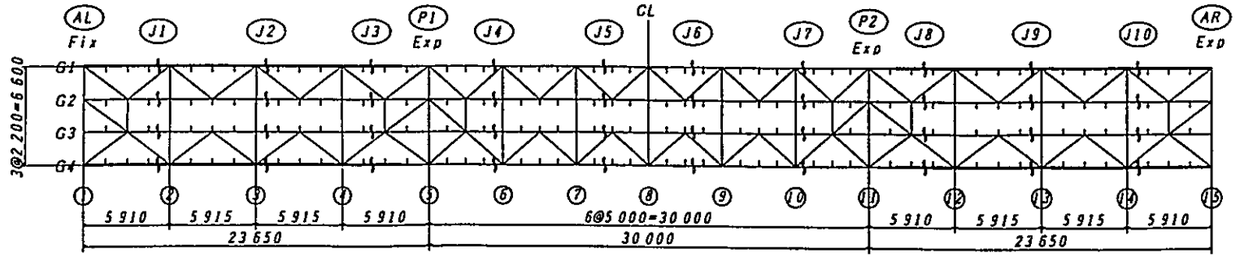
1. DESIGN SPECIFICATION
   AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES(15TH EDITION 1992)
2. DESIGN LOAD
   2.1 DEAD LOAD: CONCRETE 23.54 KN/m
   CONCRETE PAVEMENT 23.54 KN/m
   2.2 LIVE LOAD: ROADWAY LIVE LOAD HS 20 - 44
   SIDEWALK LIVE LORD 2.873 KN/m
   2.3 TEMPERATURE CHANGE:
   RISE +20°, FALL -20,
   2.4 EARTHQUAKE LOAD:
   C=0.20 WITH REFERENCE TO RELEVANT AASHTO PROVISIONS AND APPLICABLE CODE
   2.5 OTHER LOAD: IN ACCORDANCE WITH 1992 AASHTO SPECIFICATION.
3. MATERIALS
   3.1 STEEL FOR SUPERSTRUCTURE:
   STEEL SHALL BE SPECIFIED BY JIS GRADE.
   3.2 CONCRETE: CONCRETE FOR SUPERSTRUCTURE f'c'=(CLASS A) f'c=280kg/cm²
   CONCRETE FOR SUBSTRUCTURE f'c'=(CLASS A) f'c=210kg/cm²
   3.3 OTHERS: OTHER MATERIALS SHALL CONFORM TO JIS
4. SUBSTRUCTURE
   AS DETAILED INFORMATION FOR SUBSTRUCTURES ARE NOT PROVIDED, DECIDED TYPE AND DIMENSION OF SUBSTRUCTURES WILL BE SPECIFIED IN SUBSTRCTURE'S DRAWING.
5. DRAWING
   ALL DIMENSIONS ARE EXPRESSED IN MILLIMETER UNLESS OTHERWISE SHOWN INPLANS ALL ELEVATION ARE IN METERS.

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Culaman	SHEET NO.
11-05-01	MAIN GIRDER G1, G4 (1)	135

MAIN GIRDER (G1, G4) S=1/30



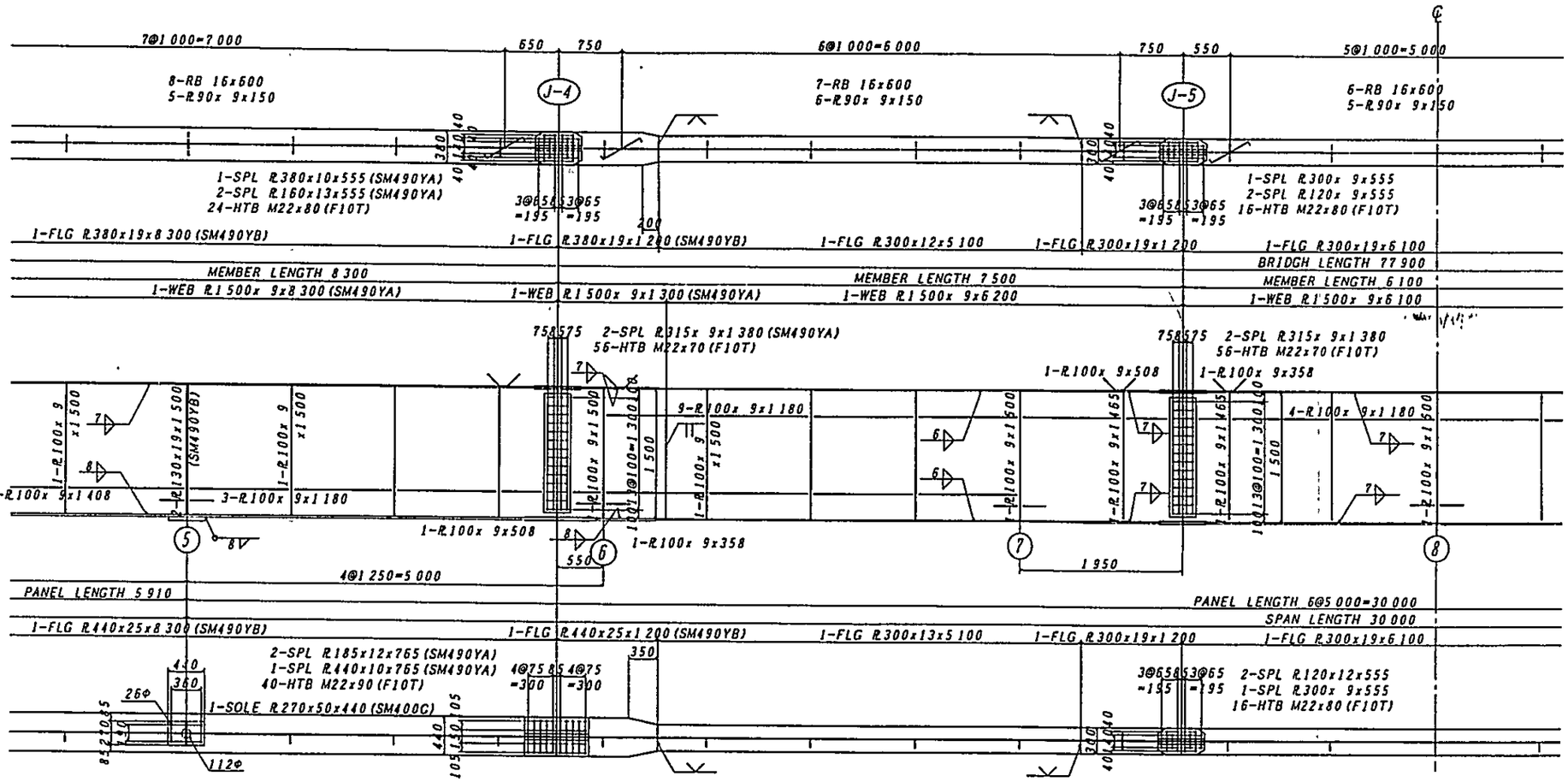
MARKING DIAGRAM



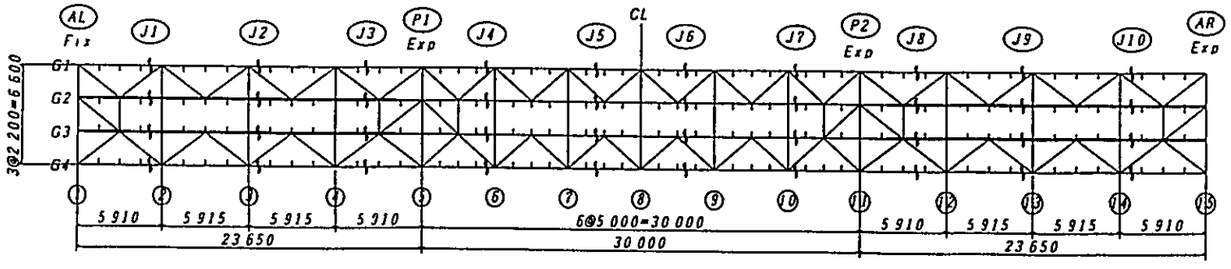
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Culaman	SHEET NO.
11-05-01	MAIN GIRDER G1, G4 (2)	136

MAIN GIRDER (G1, G4) S=1/30



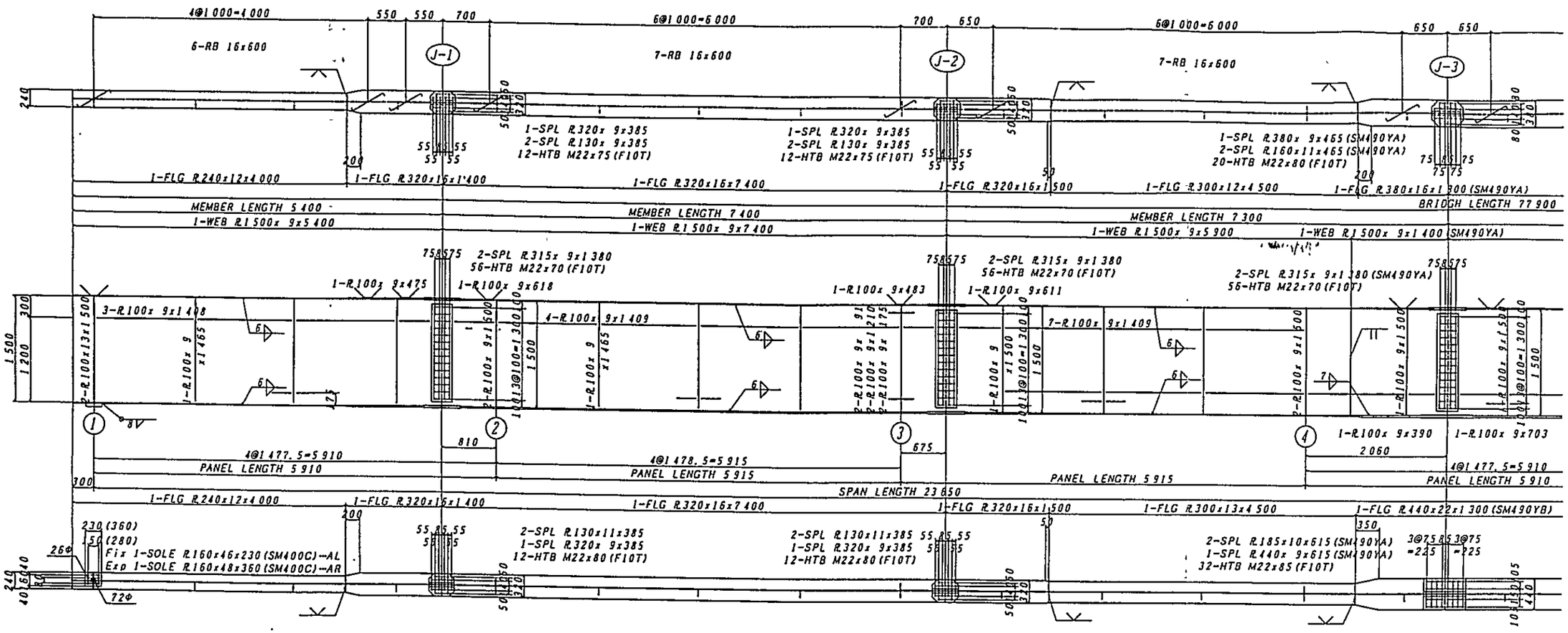
MARKING DIAGRAM



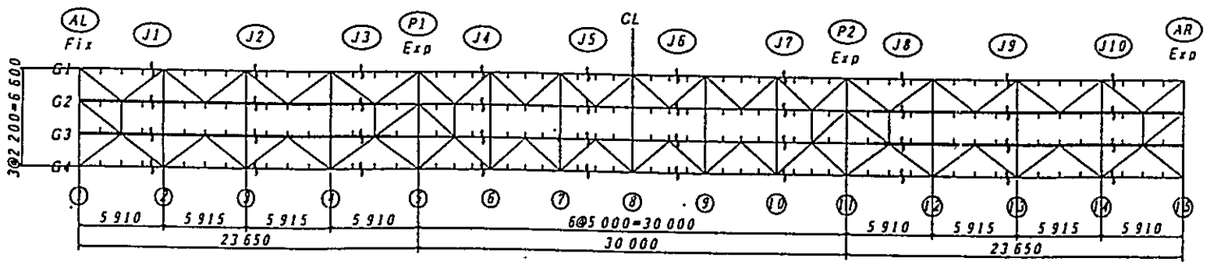
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Culaman	SHEET NO.
11-05-01	MAIN GIRDER G2, G3 (1)	137

MAIN GIRDER (G2, G3) S=1/30



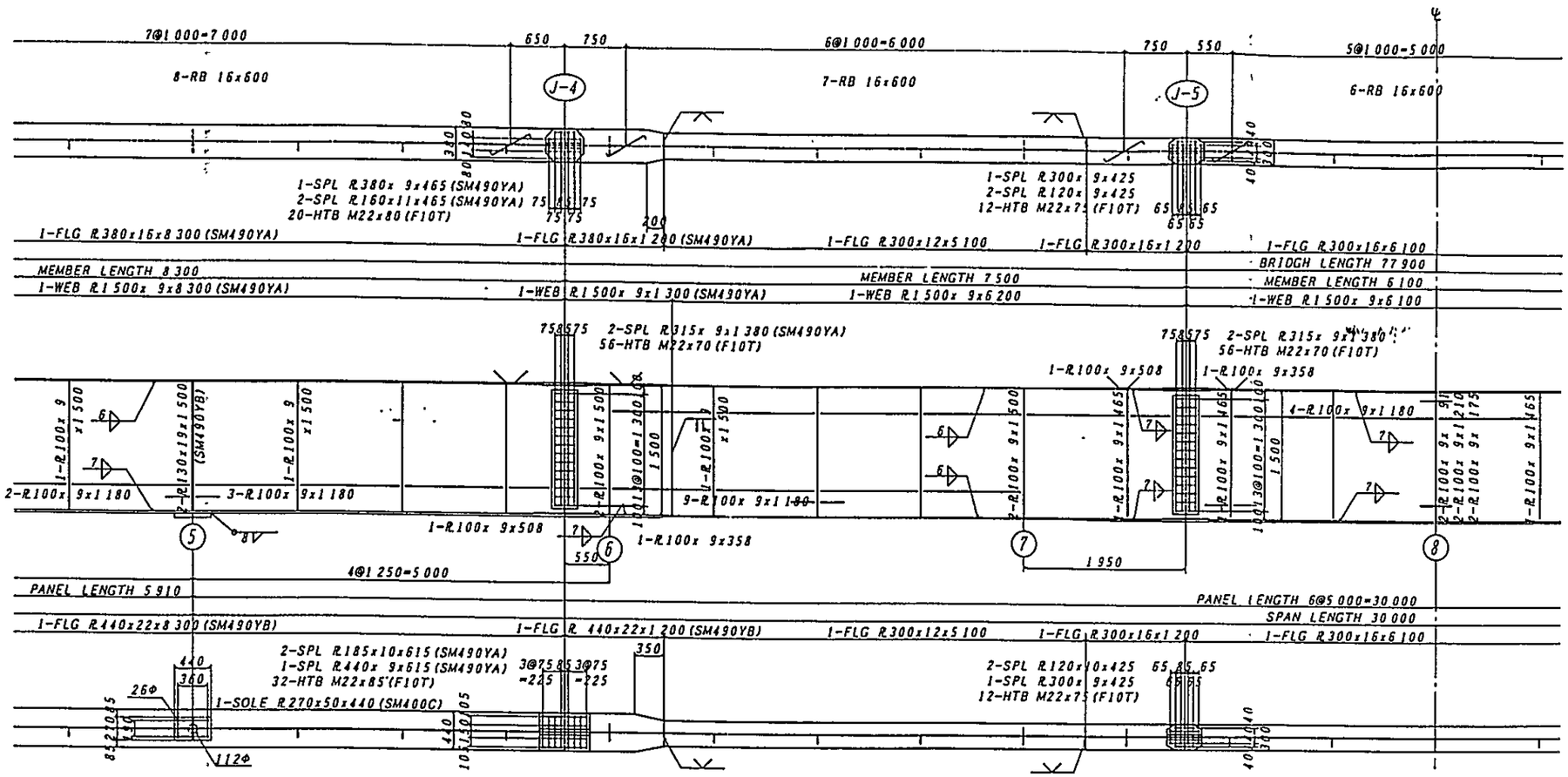
MARKING DIAGRAM



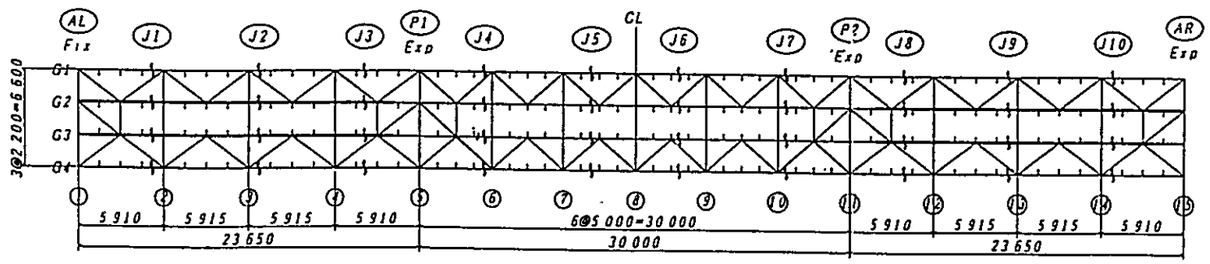
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Culaman	SHEET NO.
11-05-01	MAIN GIRDER G2, G3 (2)	138

MAIN GIRDER (G2, G3) S=1/30



MARKING DIAGRAM



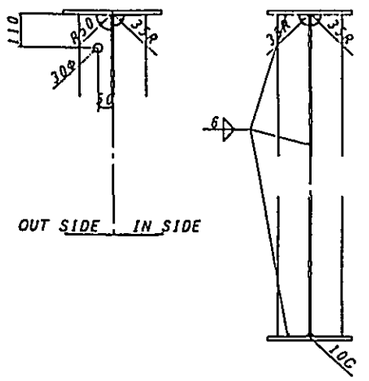
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Culaman	SHEET NO.
11-05-01	CAMBER	139

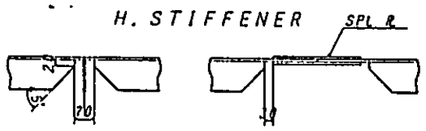
END STIFF
(MID STIFF)

OUTSIDE GIRDER INSIDE GIRDER

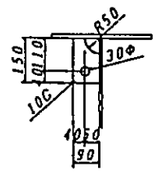
V. STIFFENER



H. STIFFENER

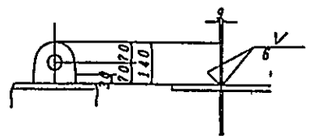


HANGER



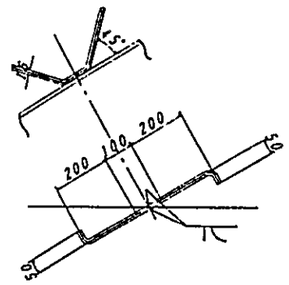
1-R 90x9x150

GIRDER HANGER

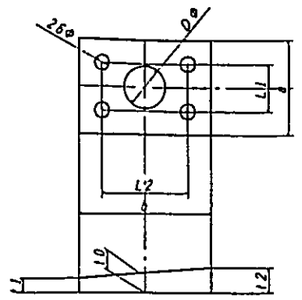


1-R 140x9x150

SLAB ANCHOR
SCALE 1:10

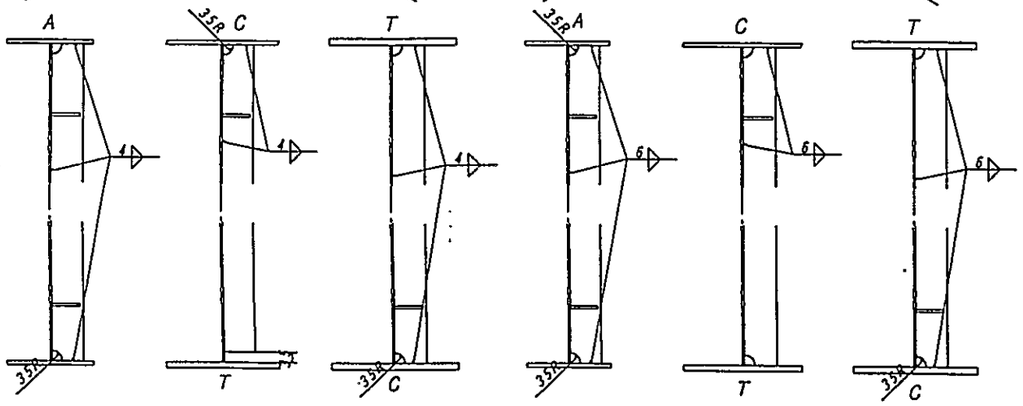


RB 16Φx600
BEND UP IN FIELD



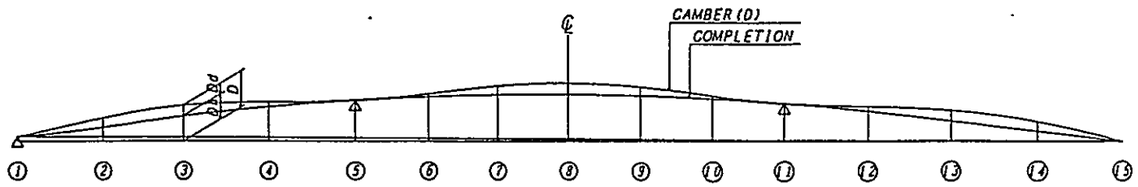
	AL	AR	PL,P2
a	160	160	270
D	230	360	440
L1	80	80	190
L2	150	280	360
D	72	72	112
L0	34	34	36
L1	25	23	24
L2	43	45	48
T	46	48	50

INT PANEL INT STIFF PANEL POINT



A:ALTERNATING STRESS PANEL
C:COMPRESSION SIDE
T:TENSION SIDE

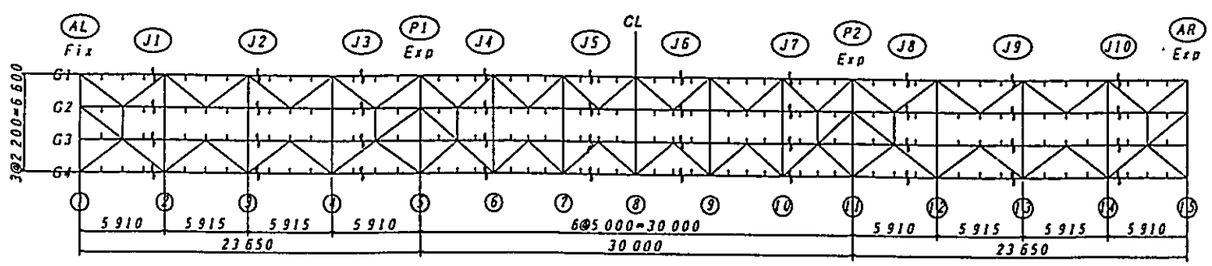
CAMBER



		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
G1,G4	Dh	8	469	857	1 164	1 390	1 519	1 589	1 602	1 557	1 455	1 294	1 030	694	347	0
	Dd	0	16	18	8	0	5	15	19	15	5	0	8	18	16	0
	D	8	485	875	1 172	1 390	1 524	1 604	1 621	1 572	1 460	1 294	1 038	712	363	0
G2,G3	Dh	8	469	857	1 164	1 390	1 519	1 589	1 602	1 557	1 455	1 294	1 030	694	347	0
	Dd	0	12	13	6	0	4	11	14	11	4	0	6	13	12	0
	D	8	481	870	1 170	1 390	1 523	1 600	1 616	1 568	1 459	1 294	1 036	707	359	0

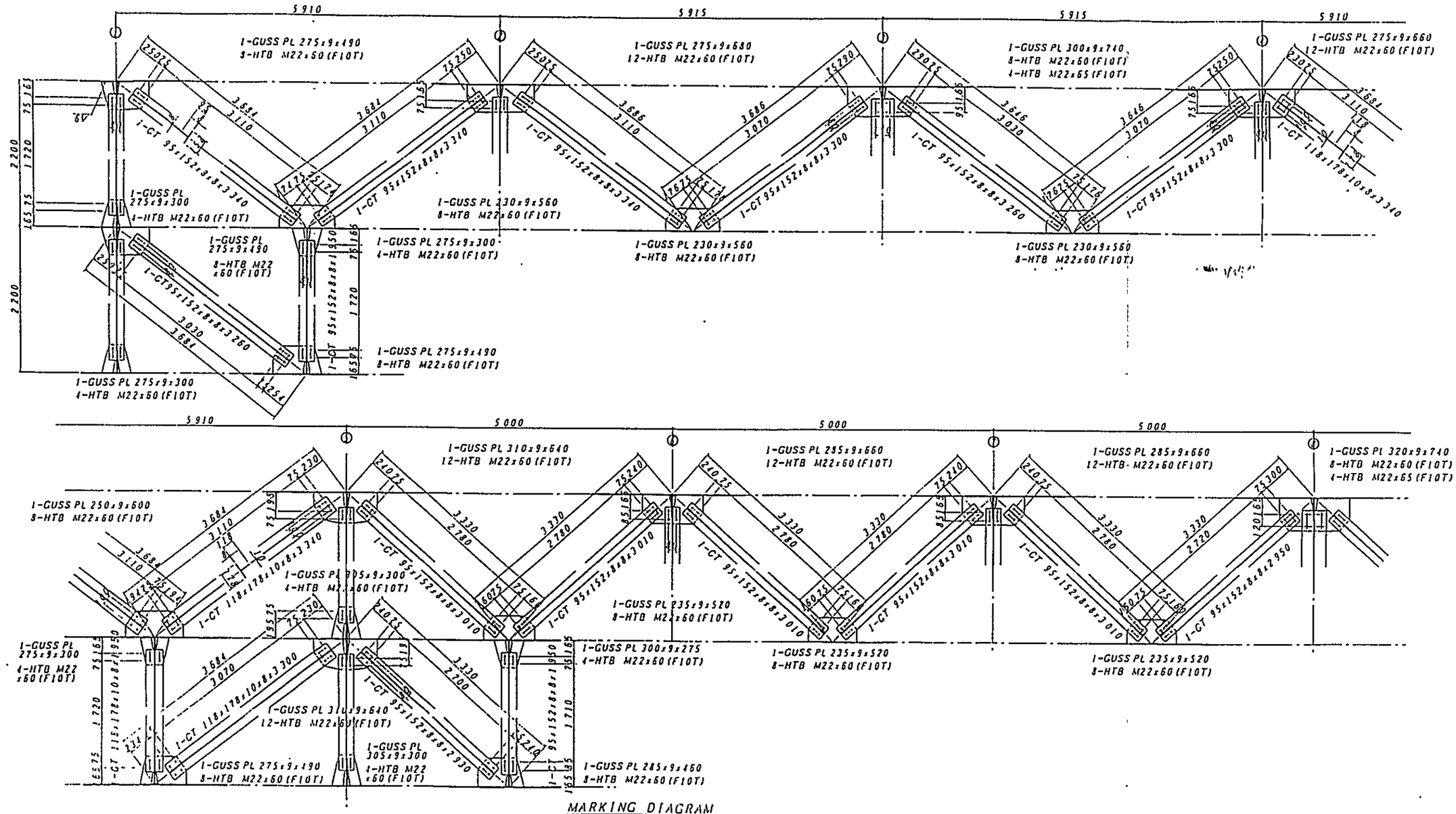
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

MARKING DIAGRAM

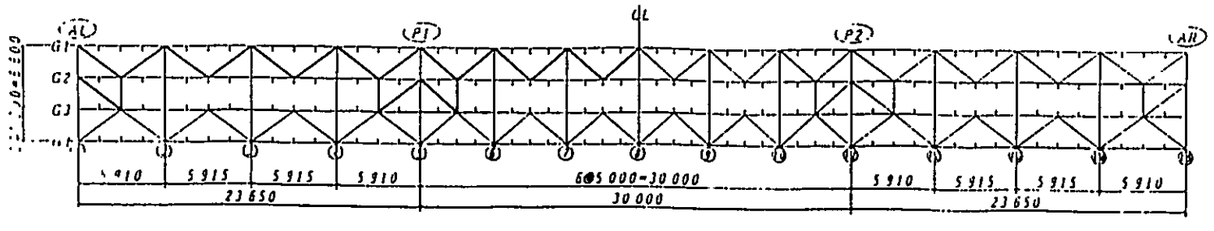


BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Culaman	SHEET NO.
11-05-01	LATERAL BRACING	140

LATERAL BRACING S=1/30 S=1/20



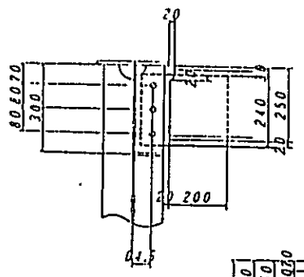
MARKING DIAGRAM



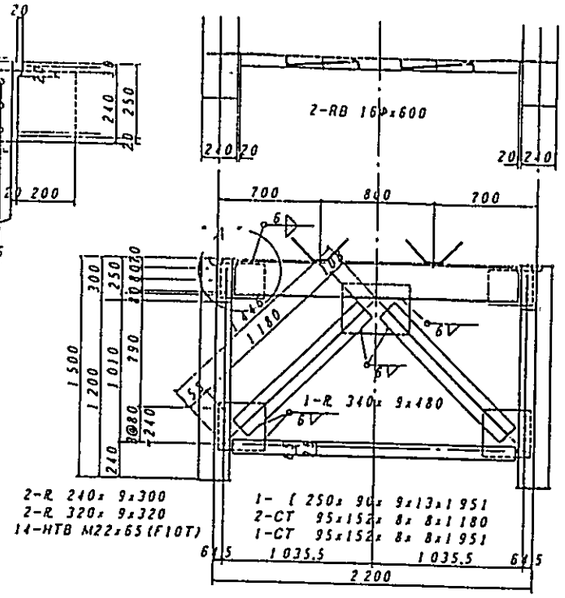
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Culaman	SHEET NO.
11-05-01	CROSS BEAM & SWAY BRACING	141

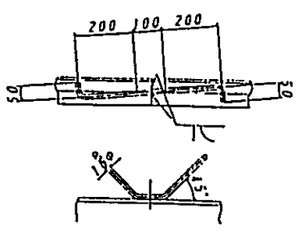
DATAIL "A"
SCALE 1:10



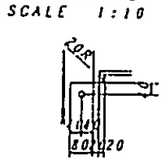
END SWAY BRACING
SCALE 1:20



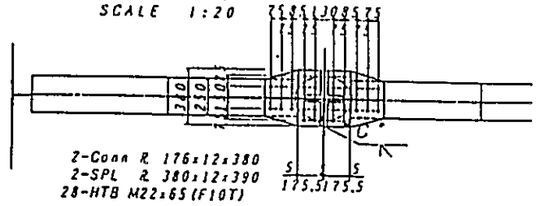
SLAB ANCHOR
SCALE 1:10



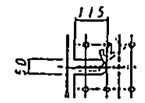
DATAIL "B"
SCALE 1:10

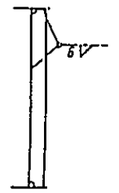


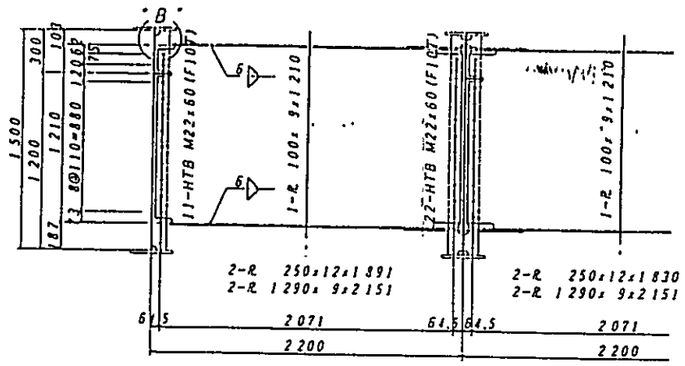
CROSS BEAM
SCALE 1:20



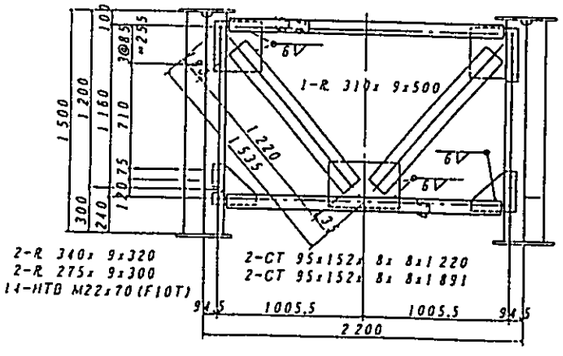
DATAIL "C"
SCALE 1:10



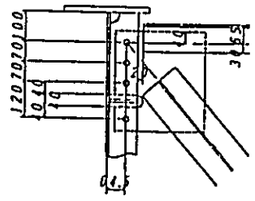




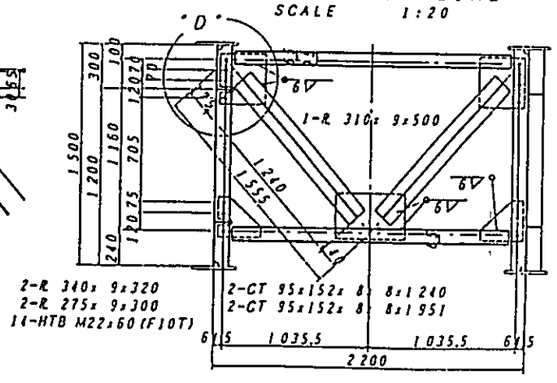
MID SWAY BRACING
SCALE 1:20



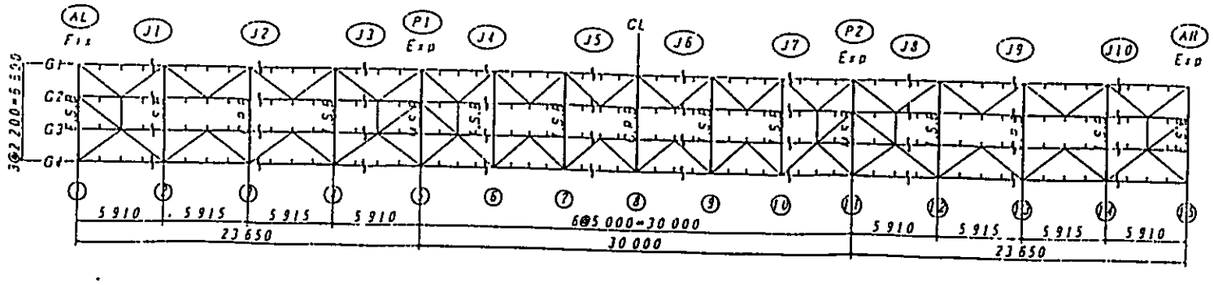
DATAIL "D"
SCALE 1:10



INT SWAY BRACING
SCALE 1:20



MARKING DIAGRAM

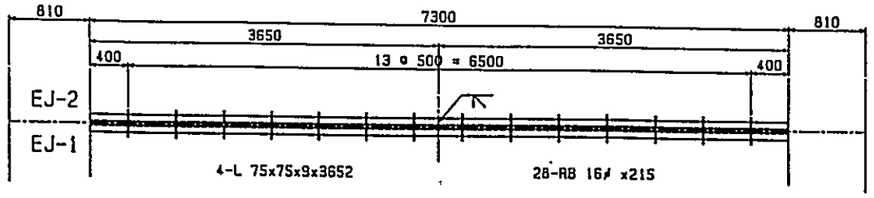


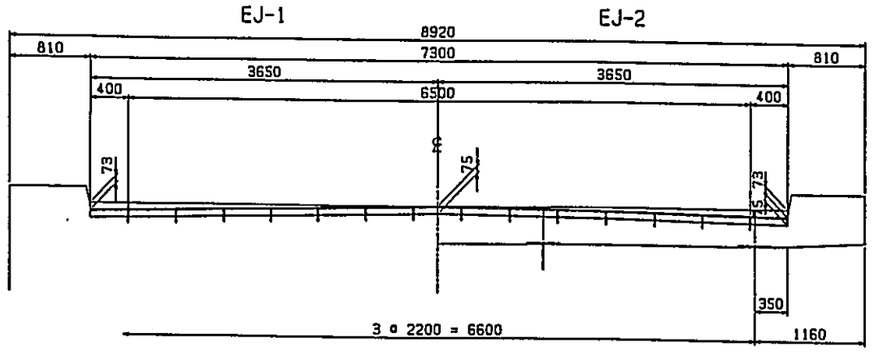
NOTE
1. MATERIAL NOT SPECIFIED IS SS400

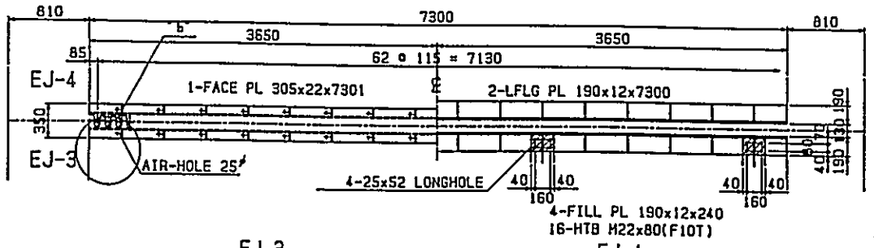
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Culaman	SHEET NO.
11-05-01	EXPANSION JOINT & DRAINAGE	142

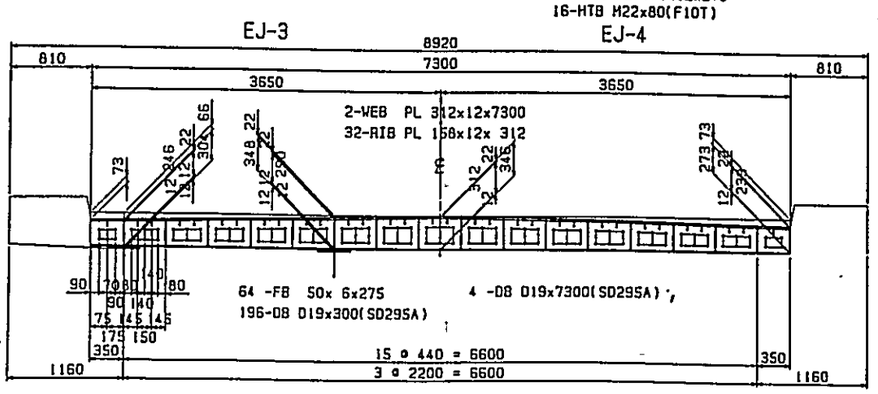
EXPANSION JOINT AND DRAINAGE

EXPANSION JOINT S=1:30

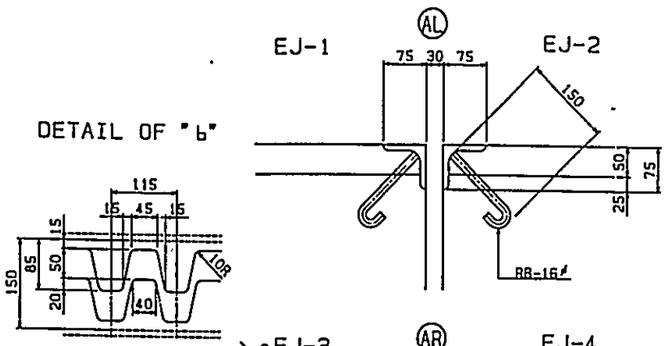




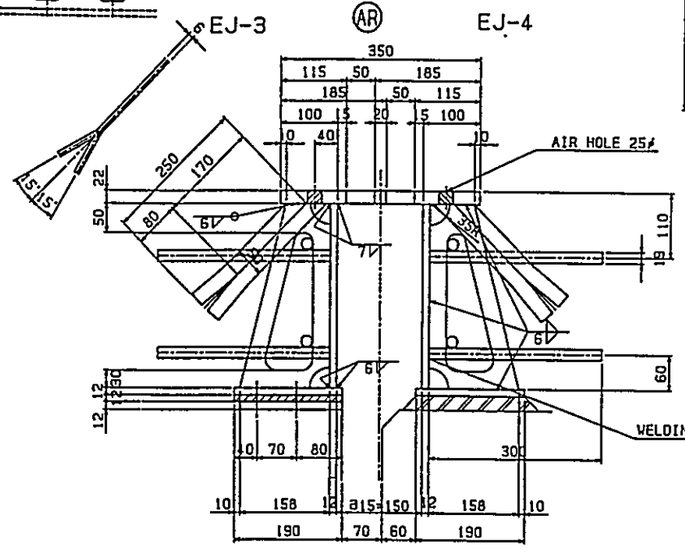




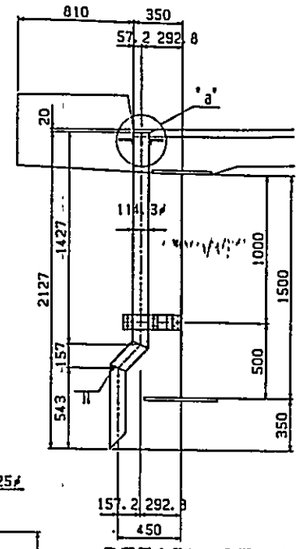
SECTION OF EXPANSION JOINT S=1:5



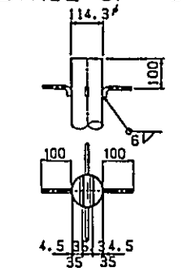
DETAIL OF "b"



DRAINAGE S=1:5

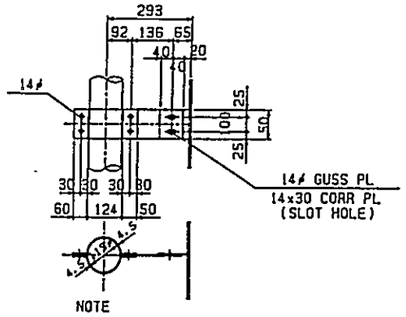


DETAIL OF "a"



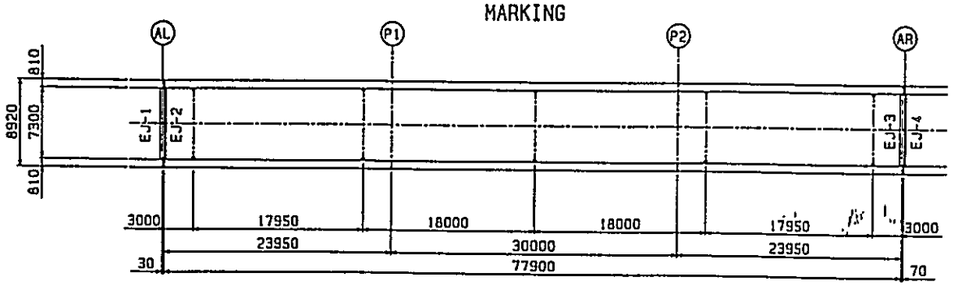
1-PIPE 100Ax1451(SGP)
1-PIPE 100Ax 270(SGP)
1-PIPE 100Ax 567(SGP)
2-RB 13ϕx100
4-RB 13ϕx130
1-PL 100x4.5x100
2-PL 100x4.5x310
1-PL 100x4.5x206
2-BN M12x40
4-BN M12x30

DETAIL OF SUPPORT S=1:10



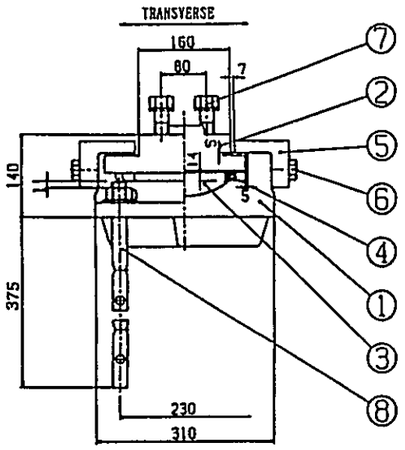
1. MATERIAL NOT SPECIFIED IS SS400

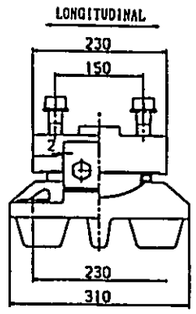
MARKING



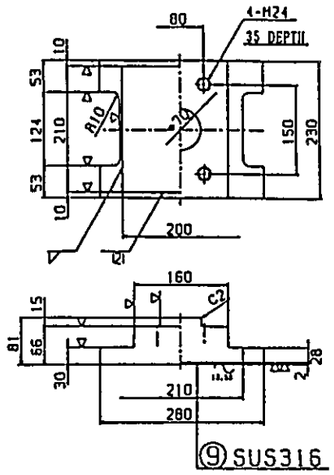
SHOE (1)

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Culaman	SHEET NO.
11-05-01	SHOE (1)	143





②～(▽ ▽▽) SS400

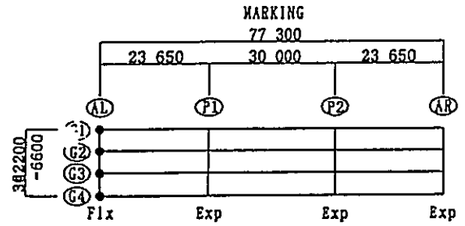


DESIGN CONDITION

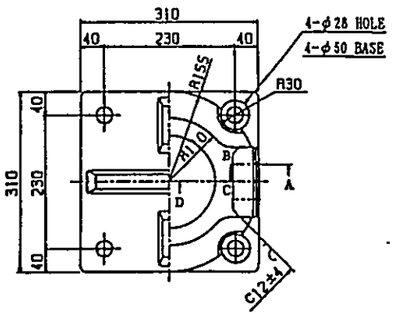
Reaction		
Overall Reaction	R	46.1 tf
Dead Load Reaction	Rd	32.0 tf
Longitudinal Horizontal Force (at movement)	R Hlf	13.5 tf
longitudinal Horizontal Force (at earthquake)	R Hle	17.6 tf
Transverse Horizontal Force (at earthquake)	R H2e	17.6 tf
Uplift (at earthquake)	V	6.2 tf
Allowable Bearings Stress		
Allowable Bearings Stress For Substructure	σba	80 kgf/cm2
Allowable Bearings Stress For Superstructure	σba	2100 kgf/cm2

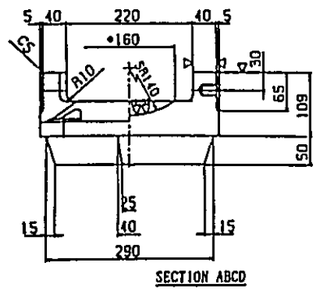
WATERIAL LIST

Mark	Name	Material	No	Weight	Remarks
①	Bottom Shoe	SC450	1	42.1	
②	Top Shoe	SS400	1	22.7	
③	Bearing Plate	HBsC4 + SL	1	3.6	
④	Seal Ring	Chloroprene Gum	1	0.1	
⑤	Side Block	SS400 or SC450	2	6.5	
⑥	Bolt	SS400	4	0.8	JIS B1180
⑦	Bolt and Washer	SS400	4	1.4	JIS B1180, 1256
⑧	Anchor Bolt	SS400	4	7.1	JIS B1181 M24
⑨	Stainless Steel	SUS316	1	0.7	200×2×206
			Σ =	85.0 (kg)	
PAINT AREA				0.35 m2	

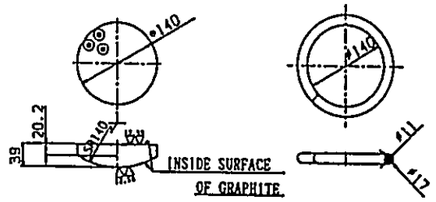


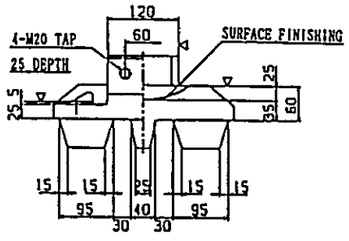
①～(▽ ▽▽) SC450



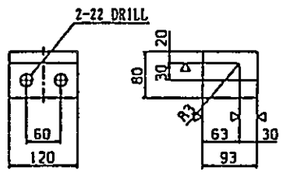


③▽(▽▽) HBsC4+SL ④～ CHLOROPRENE RUBBER





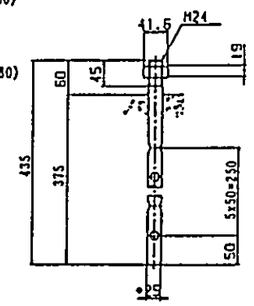
⑤～(▽) SS400 OR SC450



⑥ HEXAGON HEAD BOLT (JIS B 1180)
M 20 ×50 4.6

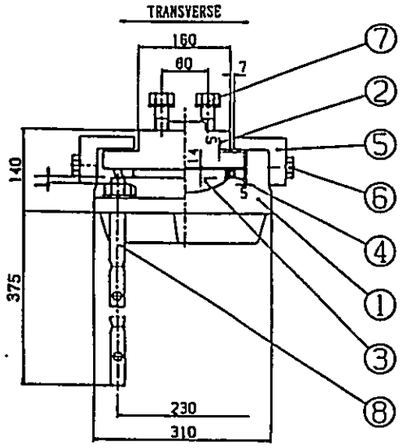
⑦ HEXAGON HEAD BOLT (JIS B 1180)
M 24 × 70 4.6
PLAIN WASHER (JIS B 1256)
24 ×44 ×4.5-10H

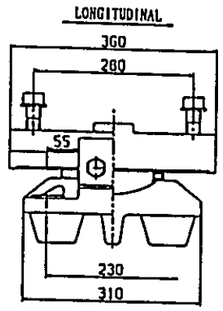
⑧～ SS400



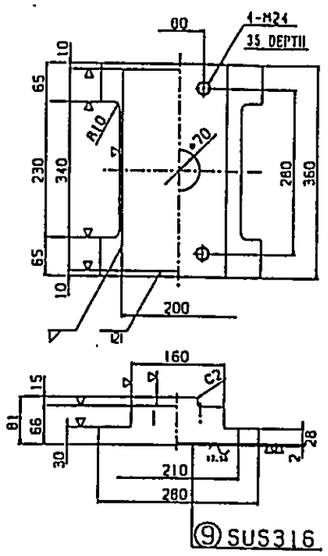
SHOE (2)

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Culaman	SHEET NO.
11-05-01	SHOE (2)	144





②～(▽ ▽▽) SS400



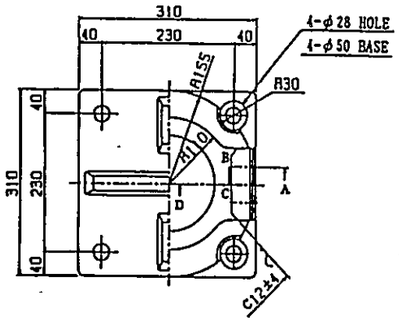
DESIGN CONDITION

Reaction		
Overall Reaction	R	46.1 tf
Dead Load Reaction	Rd	32.0 tf
Longitudinal Horizontal Force (at movement)	R Hlf	6.9 tf
longitudinal Horizontal Force (at earthquake)	R Hle	17.6 tf
Transverse Horizontal Force (at earthquake)	R Hte	17.6 tf
Uplift (at earthquake)	V	6.2 tf
Sliding Length		
Calculation Sliding Length	e1	50 mm
Design Sliding Length	e2	70 mm
Overall Sliding Length	e	110 mm
Coefficient Friction		
Design Coefficient Friction	f	0.15
Allowable Bearings Stress		
Allowable Bearings Stress For Substructure	σba	80 kgf/cm2
Allowable Bearings Stress For Superstructure	σba	2100 kgf/cm2

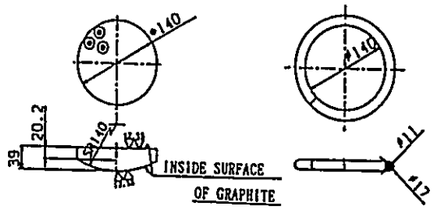
MATERIAL LIST

Mark	Name	Material	No	Weight	Remarks
①	Bottom Shoe	SC450	1	42.1	
②	Top Shoe	SS400	1	34.9	
③	Bearing Plate	HBsC4 + SL	1	3.6	
④	Seal Ring	Chloroprene Gum	1	0.1	
⑤	Side Block	SS400 or SC450	2	6.5	
⑥	Bolt	SS400	4	0.8	JIS B1180
⑦	Bolt and Washer	SS400	4	1.4	JIS B1180. 1256
⑧	Anchor Bolt	SS400	4	7.1	JIS B1181 M24
⑨	Stainless Steel	SUS316	1	1.1	200×2×336
		Σ =		97.6	(kg)
PAINT AREA				0.38	m2

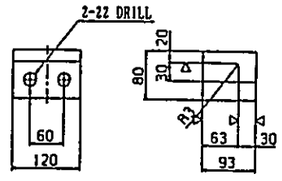
①～(▽ ▽▽) SC450



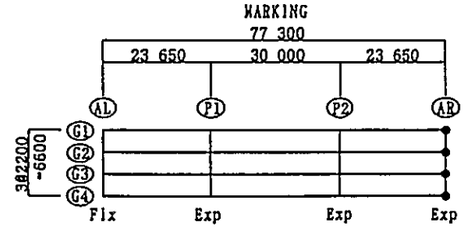
③▽(▽▽) HBsC4+SL ④～ CHLOROPRENE RUBBER

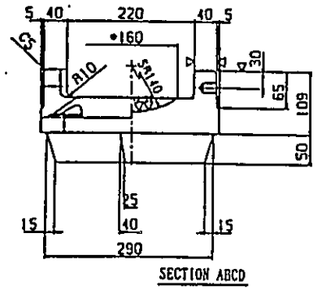


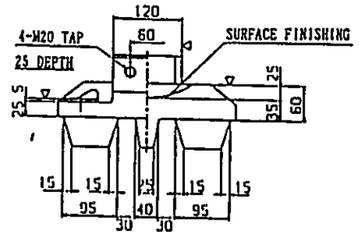
⑤～(▽) SS400 OR SC450



WARKING



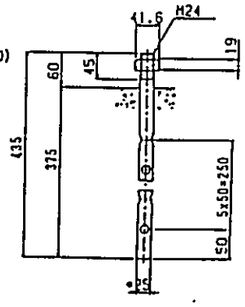




⑥ HEXAGON HEAD BOLT (JIS B 1180)
M 20 × 50 4.6

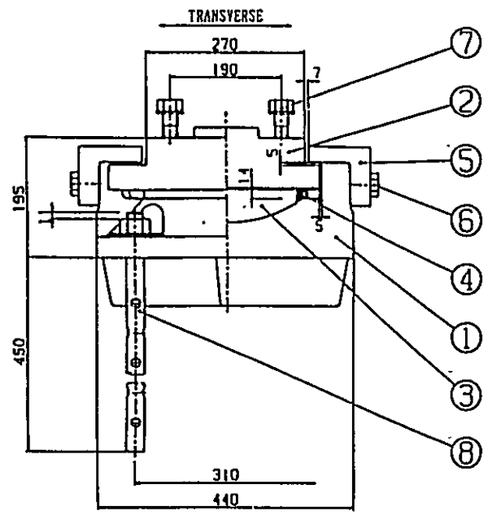
⑦ HEXAGON HEAD BOLT (JIS B 1180)
M 24 × 70 4.6
PLAIN WASHER (JIS B 1256)
24 × 44 × 4.5-10H

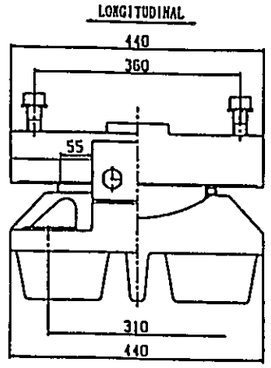
⑧～ SS400



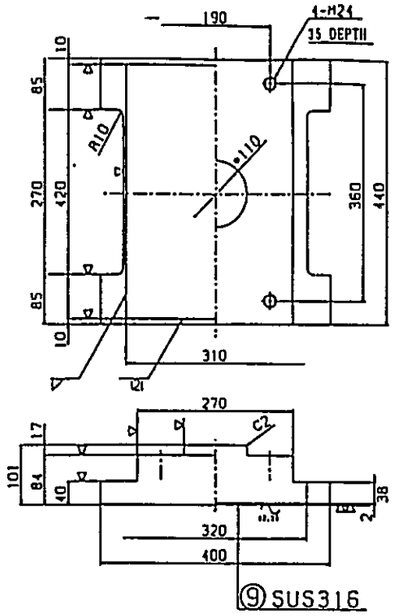
SHOE (3)

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Cutaman	SHEET NO.
11-05-01	SHOE (3)	145





②～(▽ ▽▽) SS400



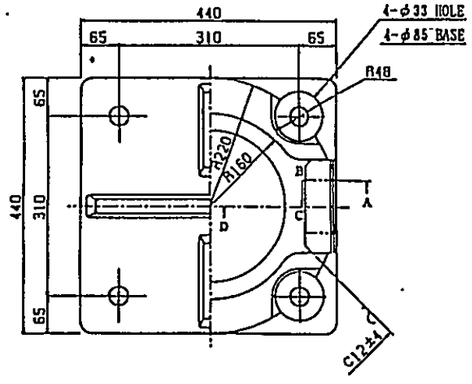
DESIGN CONDITION

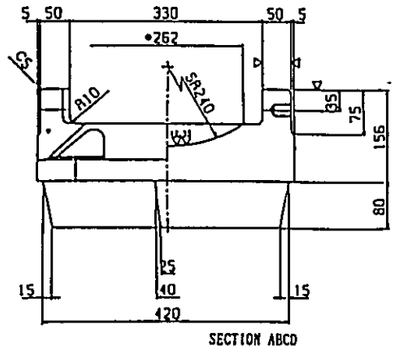
Reaction		
Overall Reaction	R	127.2 tf
Dead Load Reaction	Rd	100.0 tf
Longitudinal Horizontal Force (at movement)	R Hlf	19.0 tf
longitudinal Horizontal Force (at earthquake)	R Hle	25.4 tf
Transverse Horizontal Force (at earthquake)	R Hte	25.4 tf
Uplift (at earthquake)	V	10.9 tf
Sliding Length		
Calculation Sliding Length	e1	50 mm
Design Sliding Length	e2	70 mm
Overall Sliding Length	e	110 mm
Coefficient Friction		
Design Coefficient Friction	f	0.15
Allowable Bearings Stress		
Allowable Bearings Stress For Substructure	σba	80 kgf/cm2
Allowable Bearings Stress For Superstructure	σba	2100 kgf/cm2

MATERIAL LIST

Mark	Name	Material	No	Weight	Remarks
①	Bottom Shoe	SC450	1	124.4	
②	Top Shoe	SS400	1	88.0	
③	Bearing Plate	HBsC4 + SL	1	13.2	
④	Seal Ring	Chloroprene Gum	1	0.1	
⑤	Side Block	SS400 or SC450	2	12.4	
⑥	Bolt	SS400	4	1.0	JIS B1180
⑦	Bolt and Washer	SS400	4	1.4	JIS B1180, 1256
⑧	Anchor Bolt	SS400	4	12.6	JIS B1181 M30
⑨	Stainless Steel	SUS316	1	2.1	310×2×416
		Σ =		255.2	(kg)
PAINT AREA				0.66	m2

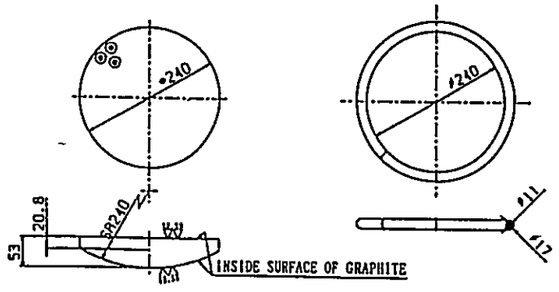
①～(▽ ▽▽) SC450

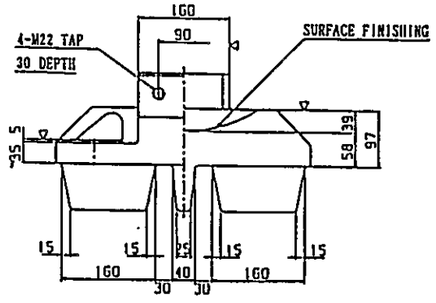




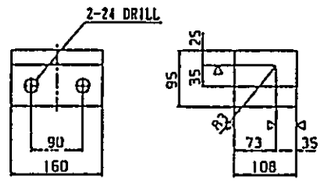
③▽(▽▽) HBsC4+SL

④～ CHLOROPRENE RUBBER





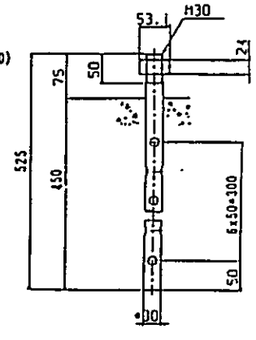
⑤～(▽) SS400 OR SC450



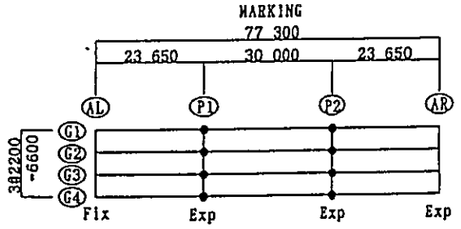
⑥ HEXAGON HEAD BOLT (JIS B 1180)
M22 ×60 4.6

⑦ HEXAGON HEAD BOLT (JIS B 1180)
M24 × 85 4.6
PLAIN WASHER (JIS B 1256)
24 ×44 ×4.5-10H

⑧～ SS400



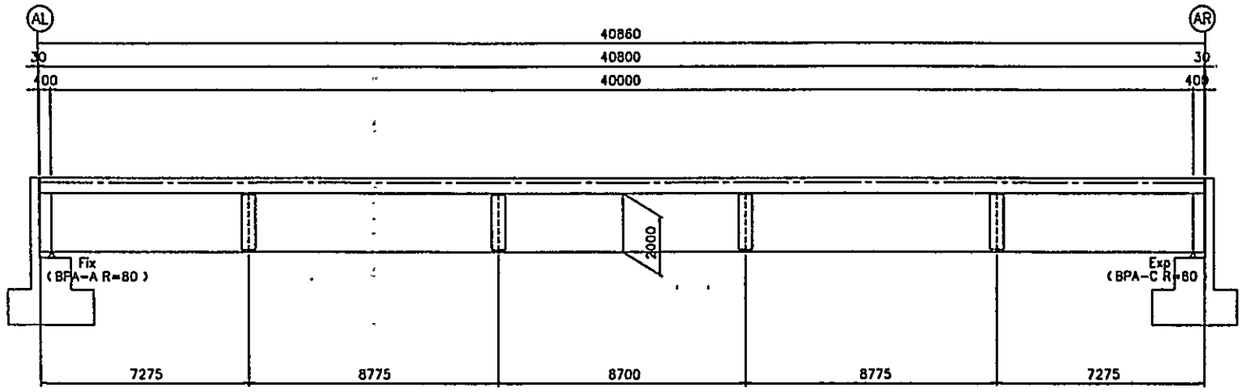
MARKING



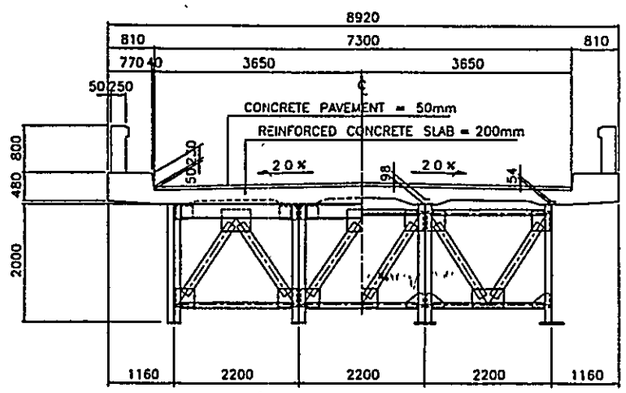
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Mintal	SHEET NO.
11-05-03	GENERAL VIEW	146

GENERAL VIEW

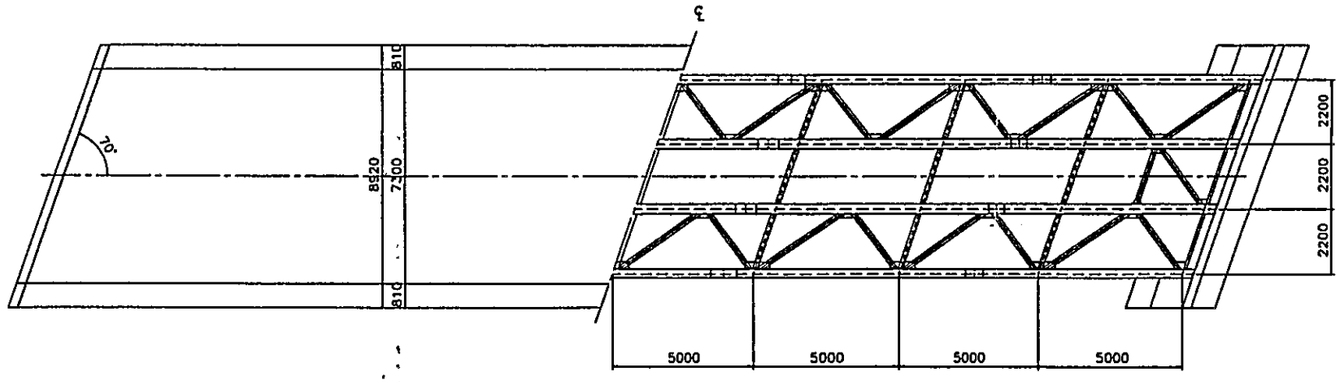
GENERAL ELEVATION
SCALE 1:100



SUPERSTRUCTURE CROSS SECTION
SCALE 1:50



GENERAL PLAN
SCALE 1:100

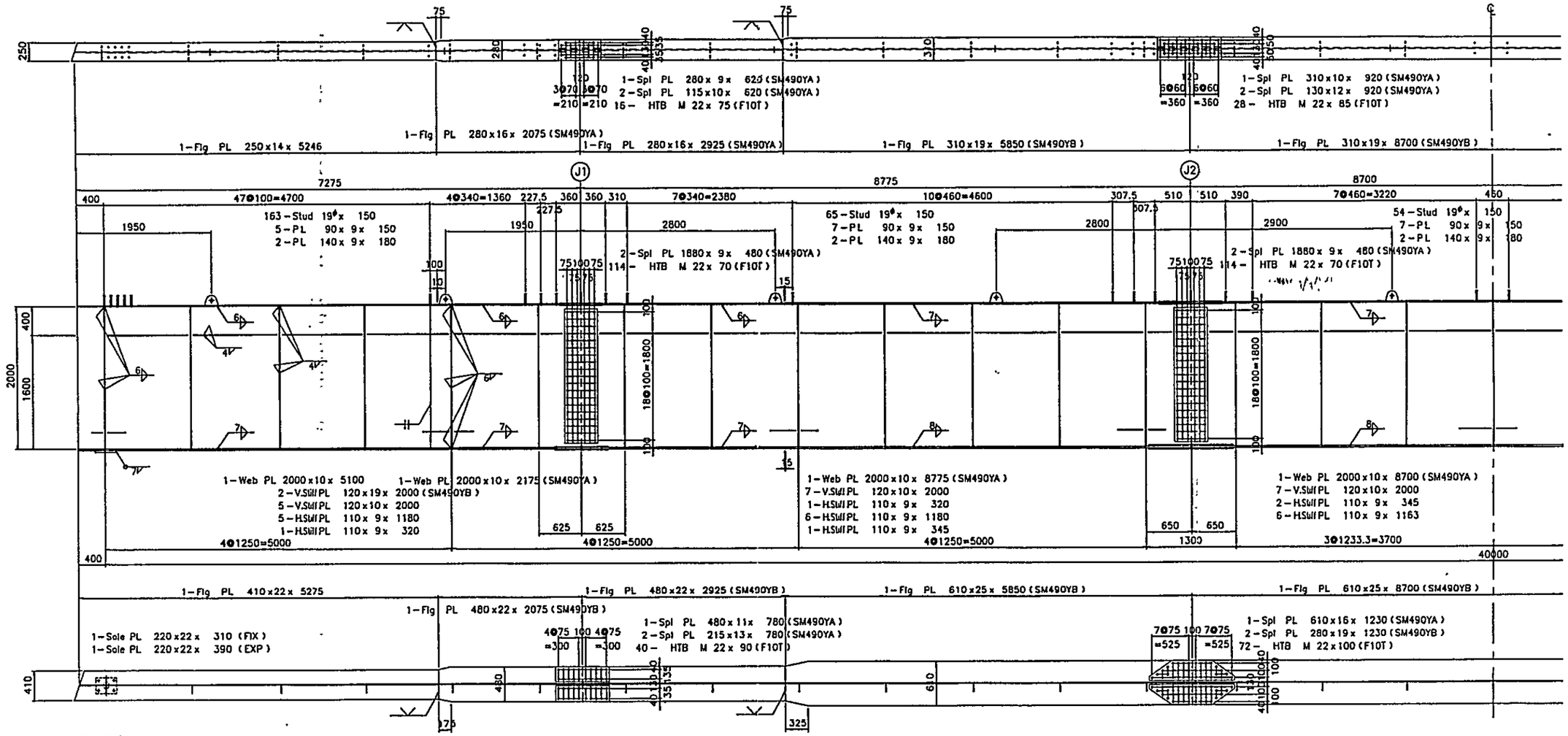


1. DESIGN SPECIFICATION
   AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (15th EDITION 1992).
2. DESIGN LOAD
   - 2.1 DEAD LOAD : CONCRETE 23.54 KN/m³
     CONCRETE PAVEMENT 23.54 KN/m³
   - 2.2 LIVE LOAD : ROADWAY LIVE LOAD HS 20-44
     SIDEWALK LIVE LOAD 2.873 KN/m²
   - 2.3 TEMPERATURE CHANGE :
     RISE +20° . FALL −20°
   - 2.4 EARTHQUAKE LOAD :
     C=0.20 WITH REFERENCE TO RELEVANT AASHTO PROVISIONS AND APPLICABLE CODE.
   - 2.5 OTHER LOADS : IN ACCORDANCE WITH 1992 AASHTO SPECIFICATION.
3. MATERIALS
   - 3.1 STEEL FOR SUPERSTRUCTURE :
     STEEL SHALL BE SPECIFIED BY JIS GRADE.
   - 3.2 CONCRETE : CONCRETE FOR SUPERSTRUCTURE fc'=(CLASS A) fc=280kg/cm²
     CONCRETE FOR SUBSTRUCTURE fc'=(CLASS A) fc=280kg/cm²
   - 3.3 OTHERS : OTHER MATERIALS SHALL CONFORM TO JIS.
4. SUBSTRUCTURE
   AS DETAILED INFORMATION FOR SUBSTRUCTURES ARE NOT PROVIDED, DECIDED TYPE AND DIMENSION OF SUBSTRUCTURES WILL BE SPECIFIED IN SUBSTRUCTURE'S DRAWING.
5. DRAWING
   ALL DIMENSIONS ARE EXPRESSED IN MILLIMETER UNLESS OTHERWISE SHOWN PLANS ALL ELEVATION ARE IN METERS.

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Mintal	SHEET NO.
11-05-03	MAIN GIRDER G1, G4	147

MAIN GIRDER G1,G4

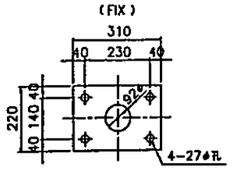
SCALE 1:30



SOLE PLATE

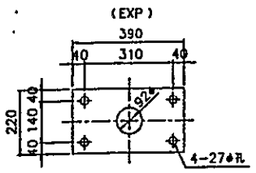
SCALE 1:10

(FIX)



1-Sole PL 220x22x 310

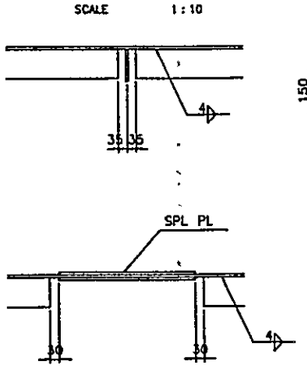
(EXP)



1-Sole PL 220x22x 390

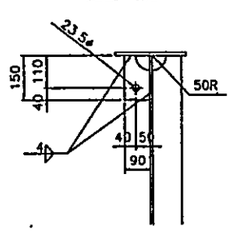
H. STIFFENER

SCALE 1:10



HANGER

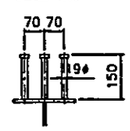
SCALE 1:10



1-PL 90x 9x 150

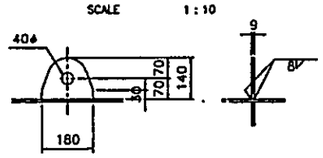
STUD

SCALE 1:10



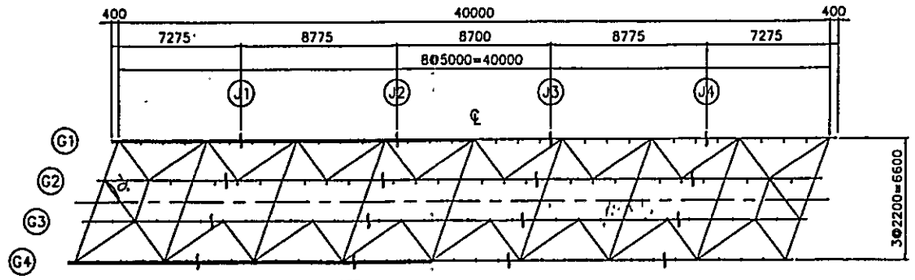
GIRDER HANGER

SCALE 1:10



1-PL 140x 9x 180

MARKING DIAGRAM



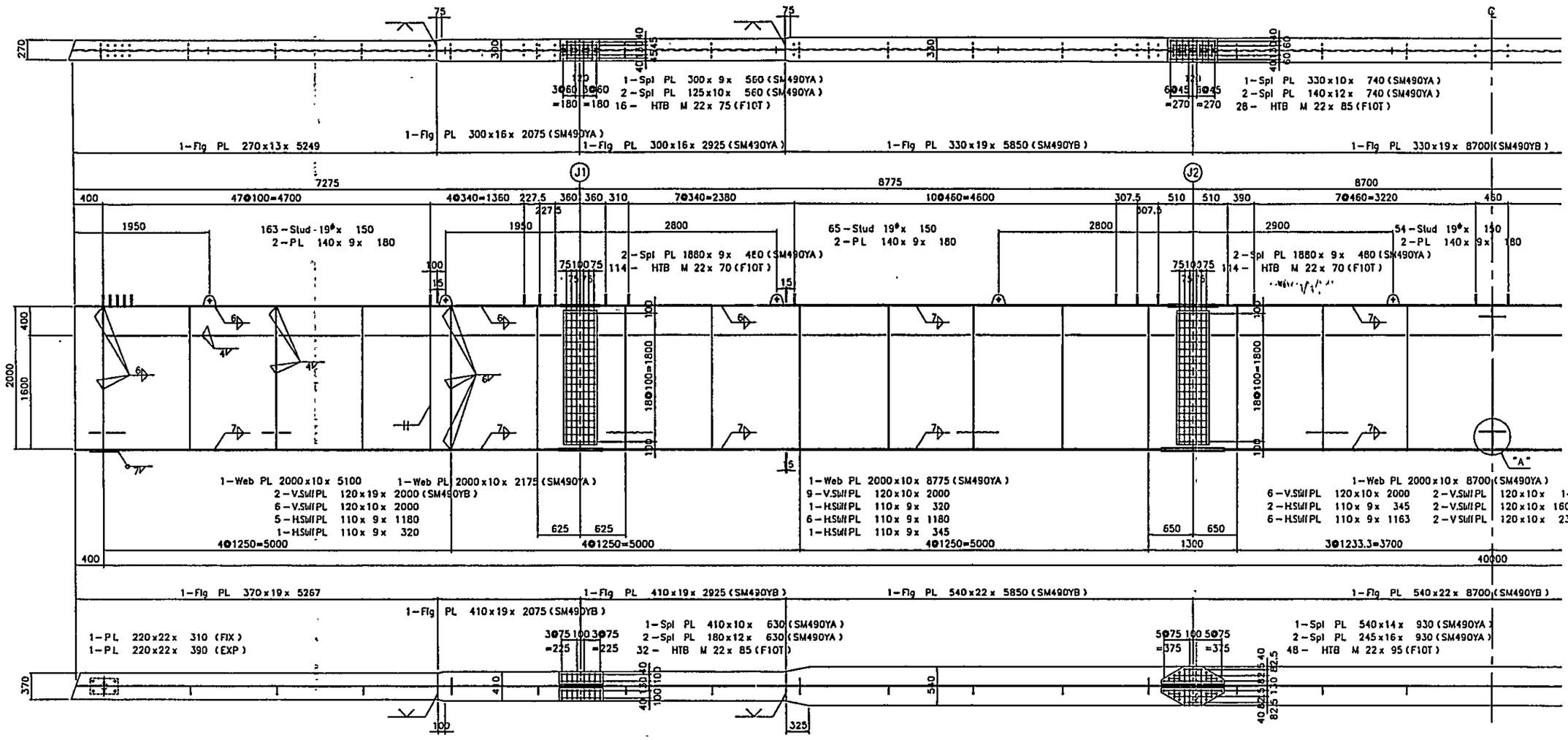
NOTE :

1. MATERIAL NOT SPECIFIED IS SS400.

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Mintal	SHEET NO.
11-05-03	MAIN GIRDER G2, G3	148

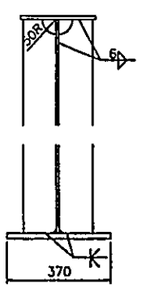
MAIN GIRDER G2,G3

SCALE 1 : 30



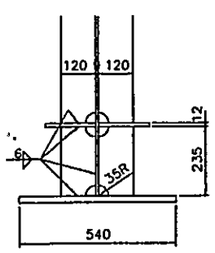
END STIFFENER

SCALE 1 : 10

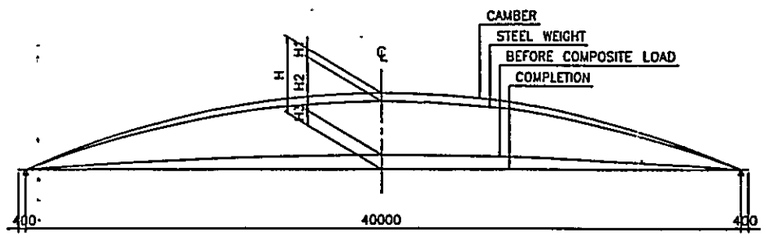


DETAIL "A"

SCALE 1 : 10

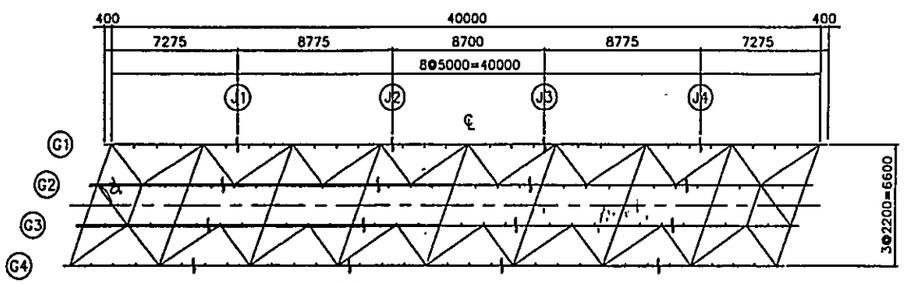


CAMBER



	H1	H2	H3	H
G1,G4	30	110	17	157
G2,G3	32	126	0	158

MARKING DIAGRAM



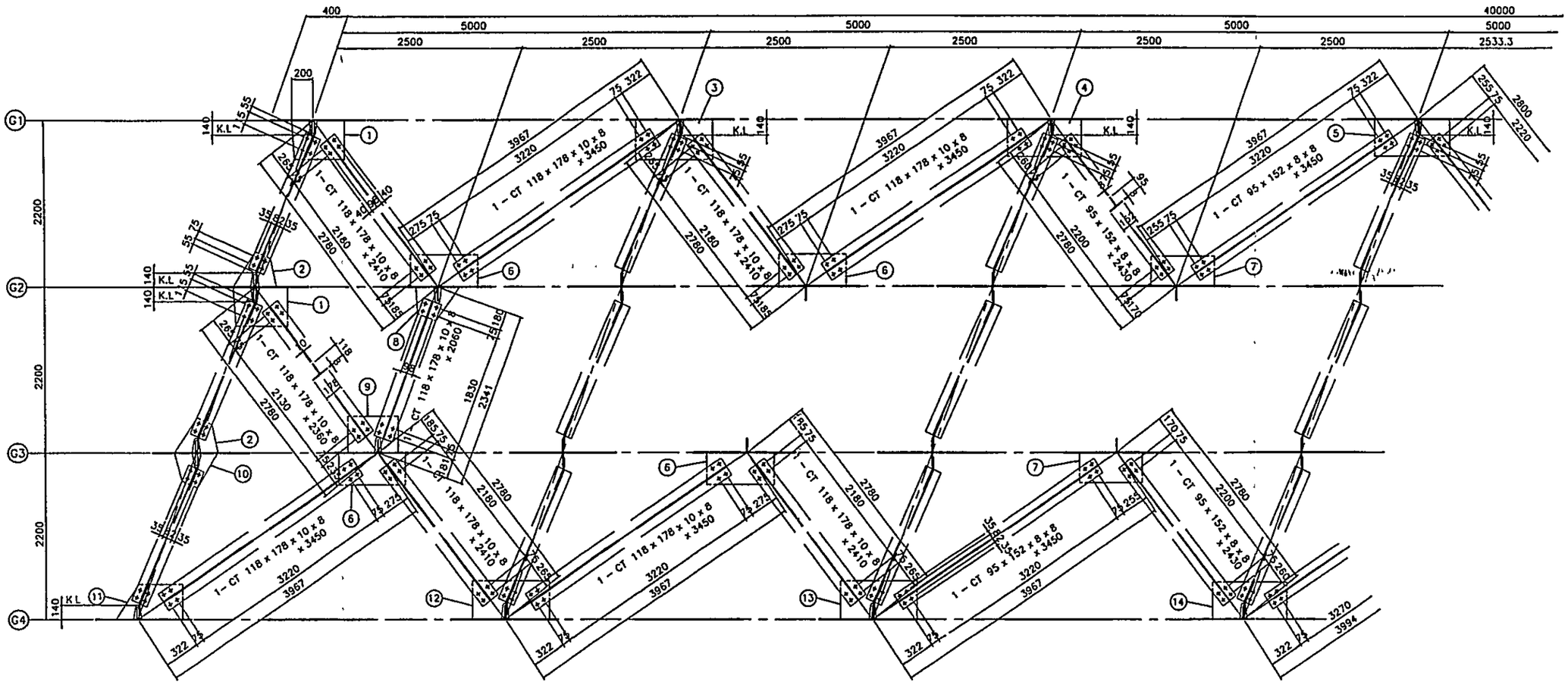
NOTE :

1. MATERIAL NOT SPECIFIED IS SS400.

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Mintal	SHEET NO.
11-05-03	LATERAL BRACING	149

LATERAL BRACING

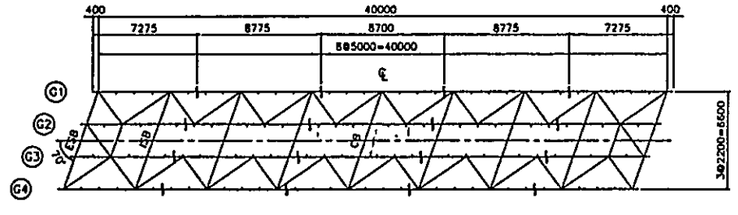
SCALE 1 : 20



(1)	4 – Guss PL	350 x 9 x	505	(8)	2 – Guss PL	305 x 9 x	400
(2)	4 – Guss PL	315 x 9 x	400	(9)	2 – Guss PL	330 x 9 x	470
(3)	2 – Guss PL	350 x 9 x	715	(10)	2 – Guss PL	300 x 9 x	400
(4)	2 – Guss PL	340 x 9 x	710	(11)	2 – Guss PL	350 x 9 x	615
(5)	2 – Guss PL	335 x 9 x	695	(12)	2 – Guss PL	350 x 9 x	715
(6)	8 – Guss PL	290 x 9 x	630	(13)	2 – Guss PL	350 x 9 x	710
(7)	4 – Guss PL	270 x 9 x	585	(14)	2 – Guss PL	340 x 9 x	700

360 – HTB M 22 x 60 (F10T)

MARKING DIAGRAM

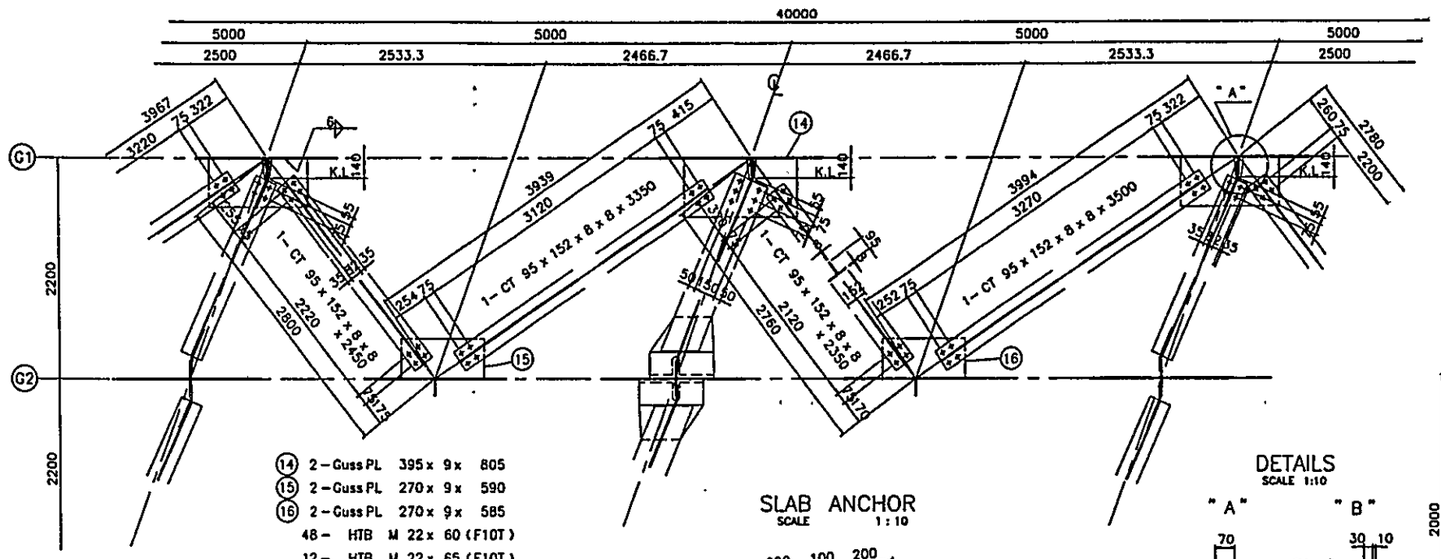


NOTE :

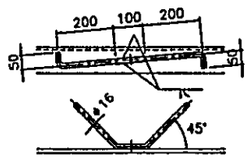
1. MATERIAL NOT SPECIFIED IS SS400.

BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Mintal	SHEET NO.
11-05-03	LATERAL, CROSS BEAM & SWAY	150

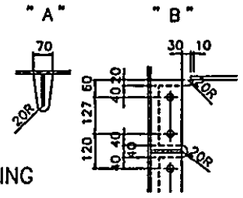
LATERAL BRACING
SCALE 1 : 20



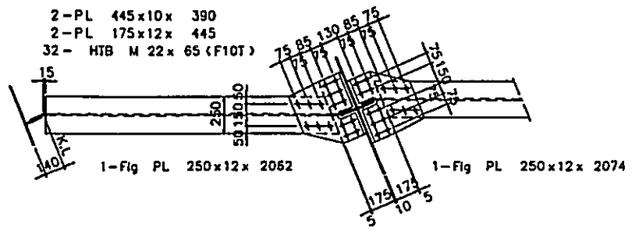
SLAB ANCHOR
SCALE 1 : 10

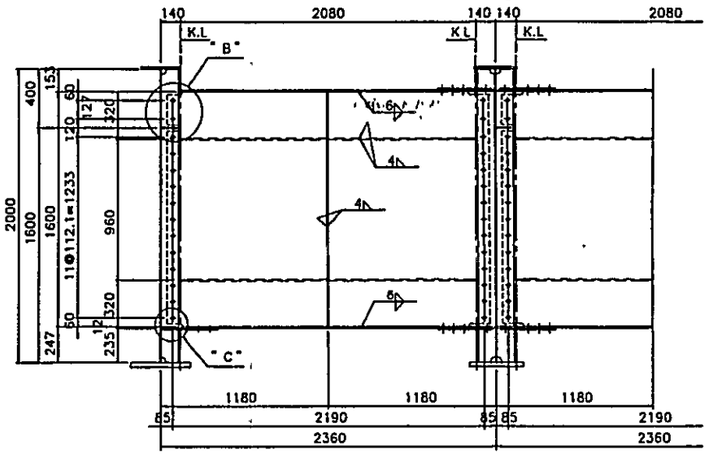


DETAILS
SCALE 1:10



CROSS BEAM
SCALE 1 : 20

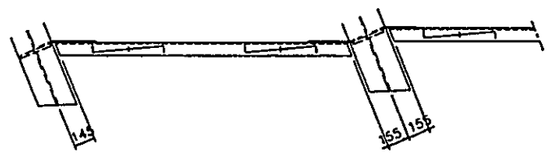


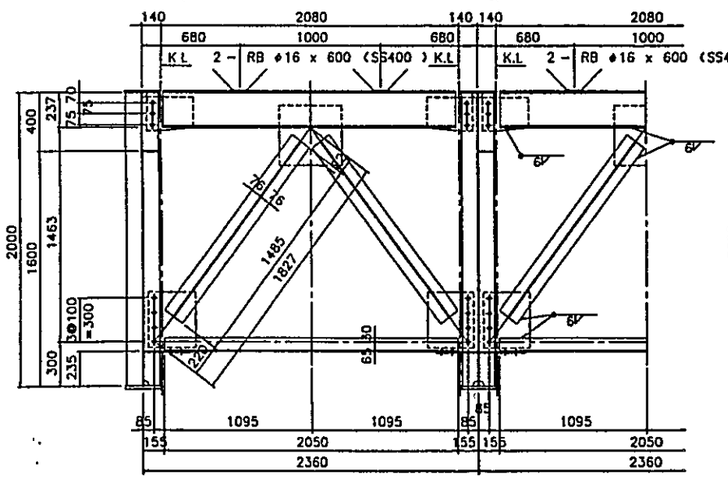


1-Web PL 1600 x 9 x 2270
28- HTB M 22 x 60 (F10T)
1-V.Stiff PL 100 x 9 x 1600
2-H.Stiff PL 90 x 9 x 2050

1-Web PL 1600 x 9 x 2270
28- HTB M 22 x 60 (F10T)
1-V.Stiff PL 100 x 9 x 1600
2-H.Stiff PL 90 x 9 x 2050

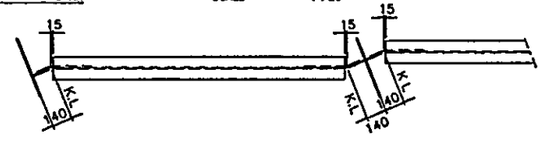
END SWAY BRACING
SCALE 1 : 20

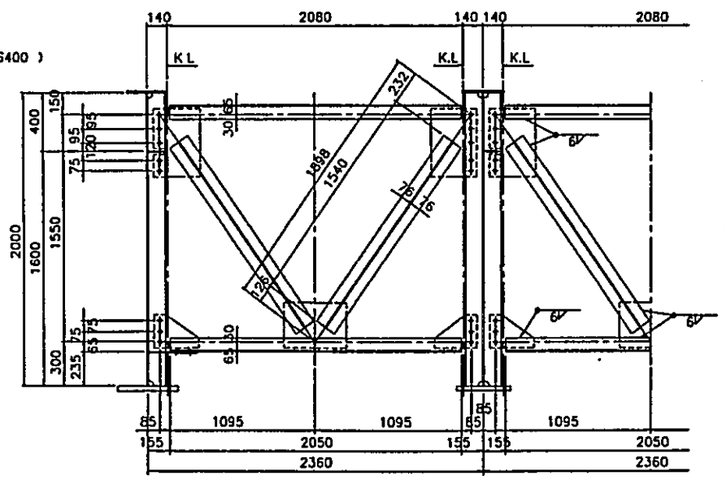




1- C 250 x 90 x 9 x 13 x 2091
2- CT 95 x 152 x 8 x 8 x 1485
1- CT 95 x 152 x 8 x 8 x 2050
2-Gusset PL 230 x 9 x 325
1-Gusset PL 410 x 9 x 445
2-Gusset PL 380 x 9 x 325
14- HTB M 22 x 70 (F10T)

INT. SWAY BRACING
SCALE 1 : 20

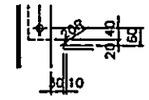




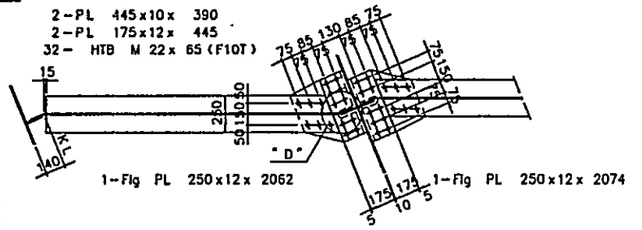
1- C 250 x 90 x 9 x 13 x 2081
2- CT 95 x 152 x 8 x 8 x 1485
1- CT 95 x 152 x 8 x 8 x 2050
2-Gusset PL 230 x 9 x 325
1-Gusset PL 410 x 9 x 445
2-Gusset PL 380 x 9 x 325
14- HTB M 22 x 70 (F10T)

2- CT 95 x 152 x 8 x 8 x 2050
2- CT 95 x 152 x 8 x 8 x 1540
2-Gusset PL 465 x 9 x 325
1-Gusset PL 310 x 9 x 445
2-Gusset PL 230 x 9 x 300
16- HTB M 22 x 60 (F10T)

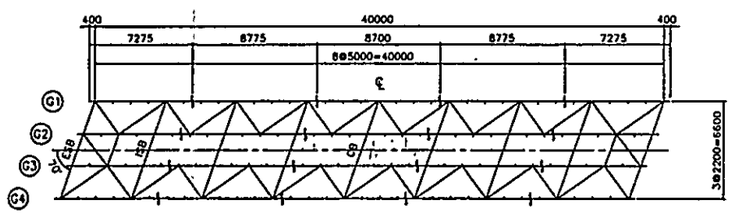
" C "



" D "

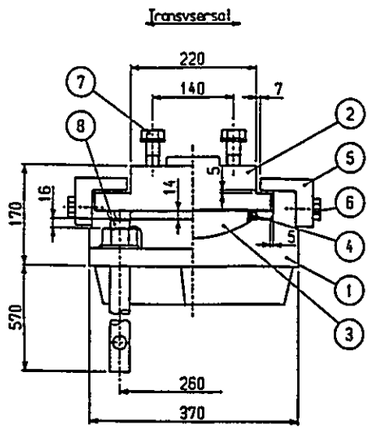


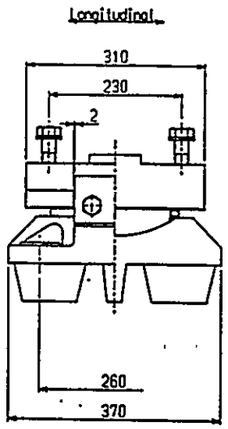
MARKING DIAGRAM



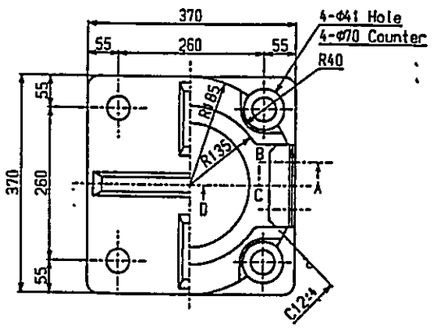
NOTE :
1. MATERIAL NOT SPECIFIED IS SS400.

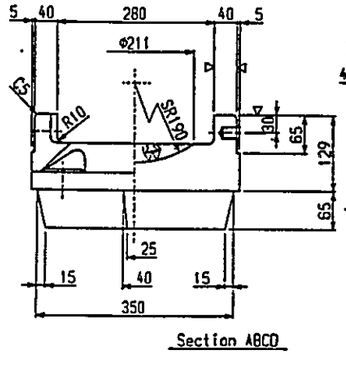
BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Mintal	SHEET NO.
11-05-03	SHOE (1)	151



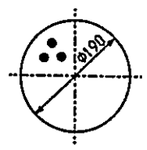


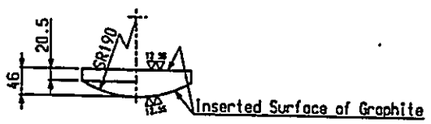
① ~ (▽ $\overset{12.5S}{\nabla\nabla}$) SC450

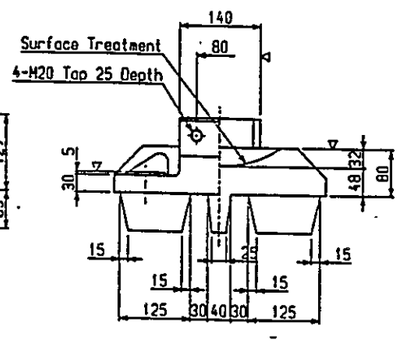




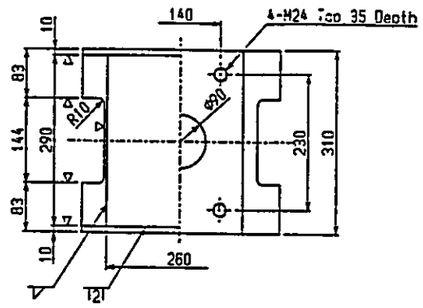
③ ▽ ($\overset{12.5S}{\nabla\nabla}$) HBsC4+SL

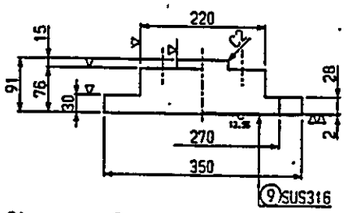




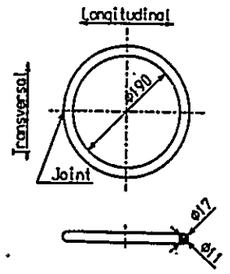


② ~ (▽ ▽▽) SS400

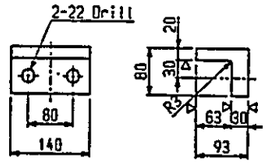




④ ~ Cloroprene Gum



⑤ ~ (▽) SS400 or SC450



⑥ Hexagon Bolt M20X50 4.6

⑦ Hexagon Bolt M24X 4.6
Plain Washer 24 X 44 X 4.5 -10H

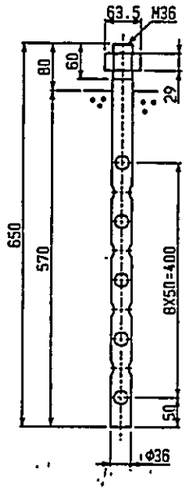
DESIGN CONDITION

REACTION		
Total Reaction	R	85 ton
Dead Load Reaction	Rd	64 ton
Longitudinal Reaction(Hav)	R_{Hlf}	22.9 ton
Longitudinal Reaction(Seismic)	R_{Hle}	36.6 ton
Transverse Reaction(Seismic)	R_{Ble}	26.1 ton
Uplift	V	7.2 ton
BEARING STRESS		
Lower Constructing Allowable	σ_{ba}	80 kg/cm²
Upper Constructing Allowable	σ_{ba}	2100 kg/cm²

MATERIAL LIST

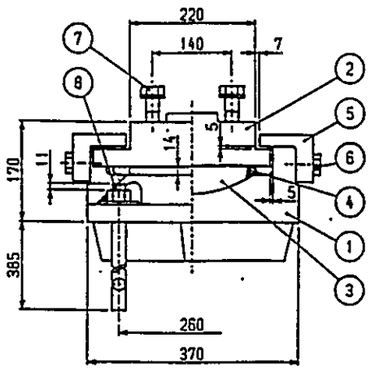
MARK	NAME	MATERIAL	Q'ty	WEIGHT (kg)	REMARKS
1	Lower Shoe	SC450	1	73.8	
2	Upper Shoe	SS400	1	46.3	
3	Bearing Plate	HBsC4+SL	1	7.4	
4	Seal Ring	Cloroplene Gum	1	0.1	
5	Side Block	SS400 or SC450	2	7.7	
6	Hexagon Bolt	—	4	0.8	JIS B 1180
7	Hexagon Bolt·Washer	—	4	1.4	JIS B 1180 JIS B 1256
8	Anchor Bolt·Nut	SS400	4	15.9	JIS B 1181
9	Stainless Plate	SUS316	1	1.2	260X220X6
Total Weight (kg)				154.6	
TREATMENT OF ANTIRUST					
Zinc Hot Dip Galvanizing	Quantity 550g/m²min, 350g/m²min(Bolt)				
Paint	Paint Area 0.48m²				

⑧ ~ SS400

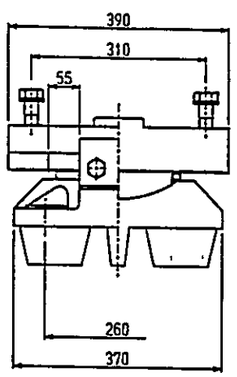


BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Mintal	SHEET NO.
11-05-03	SHOE (2)	152

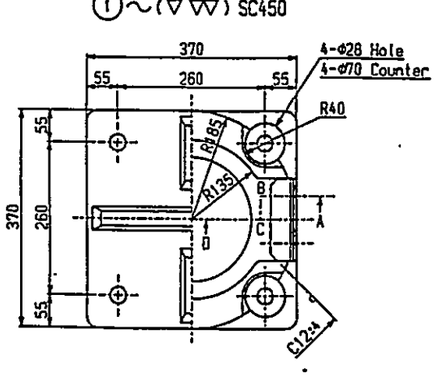
Transversal

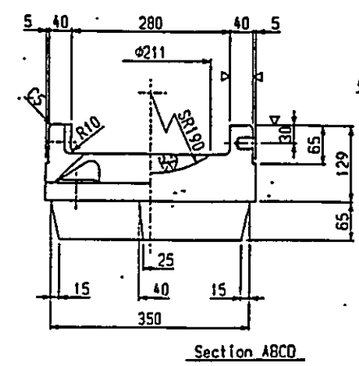


Longitudinal



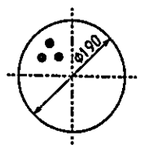
① ~ (▽ $\overset{12.5S}{\nabla\nabla}$) SC450

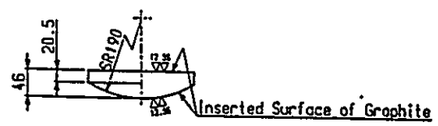


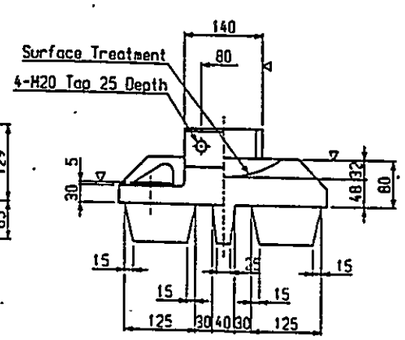


Section ABCD

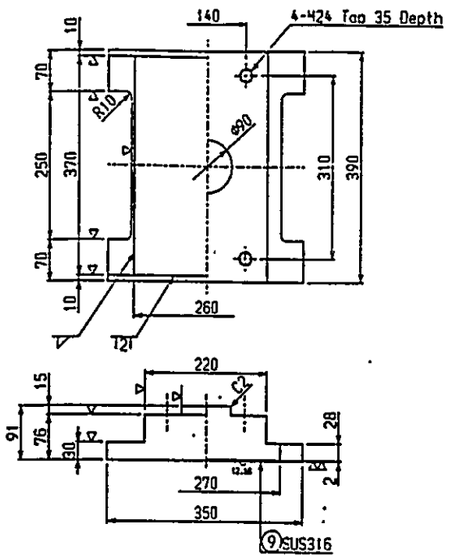
③ ▽ ($\overset{12.5S}{\nabla\nabla}$) HBsC4+SL



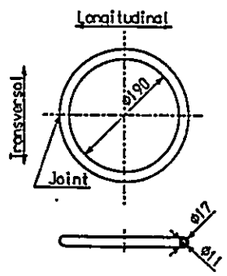




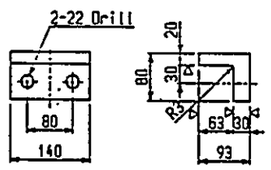
② ~ (▽ ▽▽) SS400



④ ~ Cloroprene Gum



⑤ ~ (▽) SS400 or SC450



⑥ Hexagon Bolt M20X50 4.6

⑦ Hexagon Bolt M24X 4.6
Plain Washer 24 X 44 X 4.5 -10H

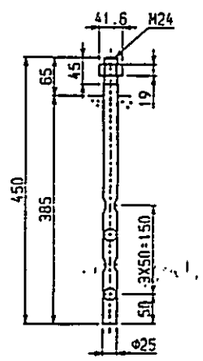
DESIGN CONDITION

REACTION		
Total Reaction	R	85 ton
Dead Load Reaction	Rd	64 ton
Longitudinal Reaction(Hav)	R_{Hf}	12.7 ton
Longitudinal Reaction(Seimic)	R_{He}	17.6 ton
Transverse Reaction(Seimic)	R_{Qe}	17.6 ton
Uplift	V	7.2 ton
MOVEMENT		
Movable Lenght	e_1	50 mm
Surplus Lenght	e_2	70 mm
Total Lenght	e	110 mm
FRICTION		
Friction Coefficient	f	0.15
BEARING		
Lower Constracting Allowable	σ_{ba}	80 kg/cm²
Upper Constracting Allowable	σ_{ba}	2100 kg/cm²

MATERIAL LIST

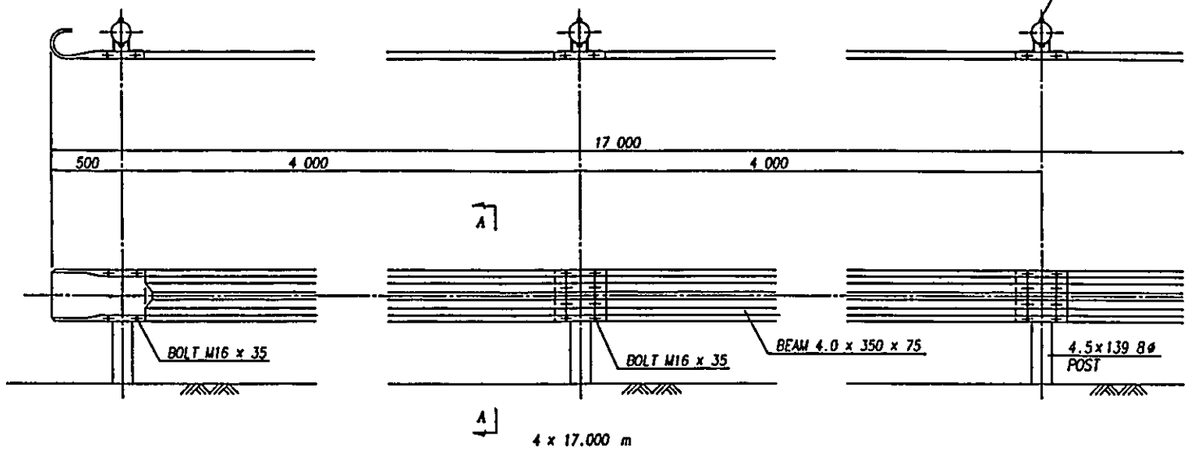
MARK	NAME	MATERIAL	Q'ty	WEIGHT (kg)	REMARKS
1	Lower Shoe	SC450	1	74.5	
2	Upper Shoe	SS400	1	57.0	
3	Bearing Plate	HBsC4+SL	1	7.4	
4	Seal Ring	Cloroplene Gum	1	0.1	
5	Side Block	SS400 or SC450	2	7.7	
6	Hexagon Bolt	–	4	0.8	JIS B 1180
7	Hexagon Bolt・Washer	–	4	1.4	JIS B 1180 JIS B 1256
8	Anchor Bolt・Nut	SS400	4	5.8	JIS B 1181
9	Stainless Plate	SUS316	1	1.5	260X220X6S
Total Weight (kg)				156.2	
TREATMENT OF ANTIRUST					
Fire Hot Dip Galvanizing	Quantity 550g/m²min. 350g/m²min(Bolt)				
Paint	Paint Area 0.49m²				

⑧ ~ SS400

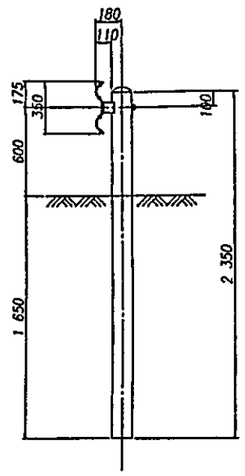


BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES ALONG RURAL ROADS IN MINDANAO AREA		
BRIDGE NO.	Mintal	SHEET NO.
11-05-03	GUARD RIAL & EXPANSION	153

GUARD RAIL S=1/20



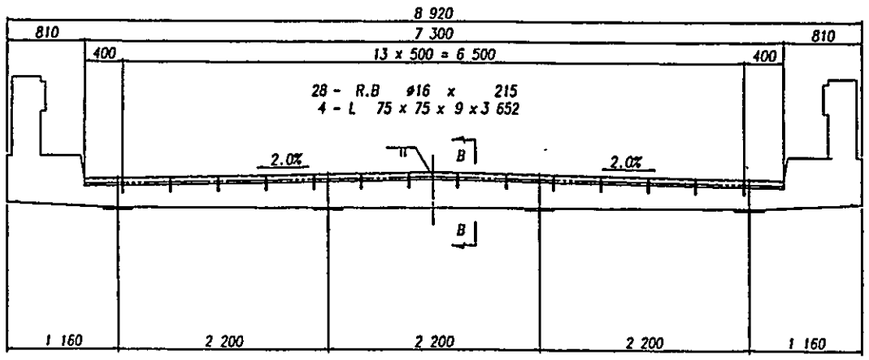
A - A



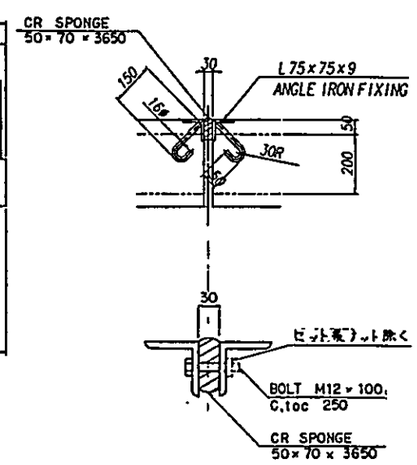
MARKING

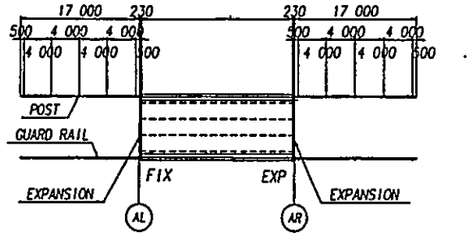
EXPANSION S=1/30

ROCATION OF ANGLE IRON FIXING

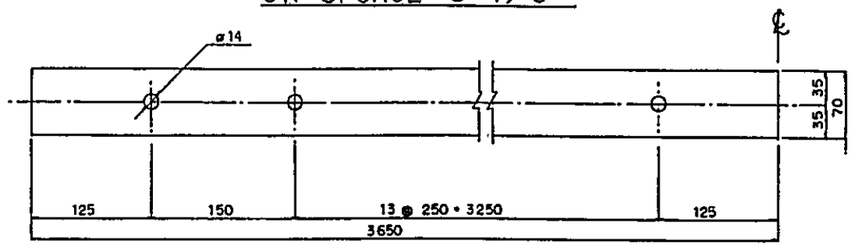


B - B S=1/10





CR SPONGE S=1/3



NOTE
1. MATERIAL NOT SPECIFIED IS SS400