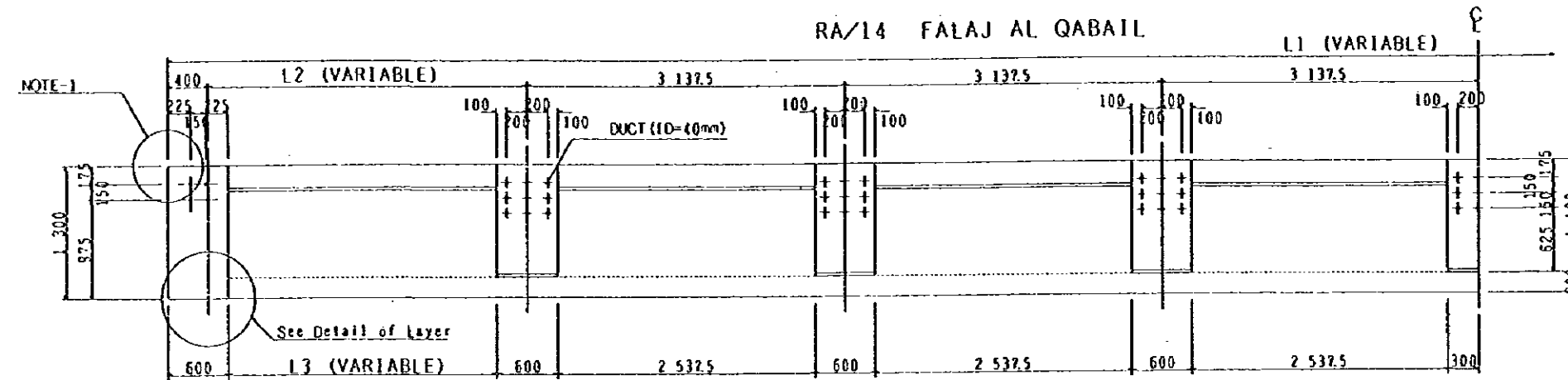


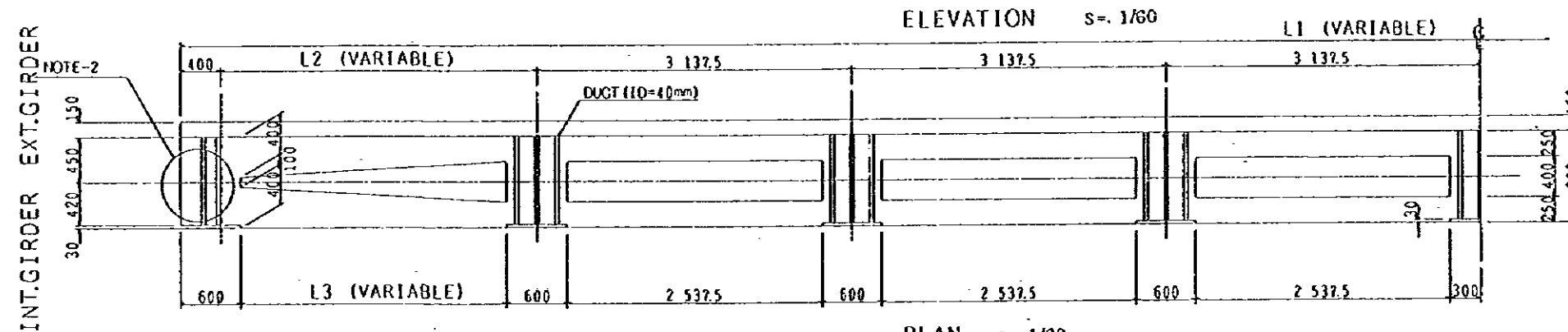
## RA/14 FALAJ AL QABAIL



L1	25 701 ~ 25 920
L2	3 038 ~ 3 147.5
L3	2 538 ~ 2 647.5

MAX., MIN. VALUE OF L

SEE AND CHECK VALUE OF L OF PER GIRDER FROM GENERAL VIEW SHEET (DIMENSION LIST)

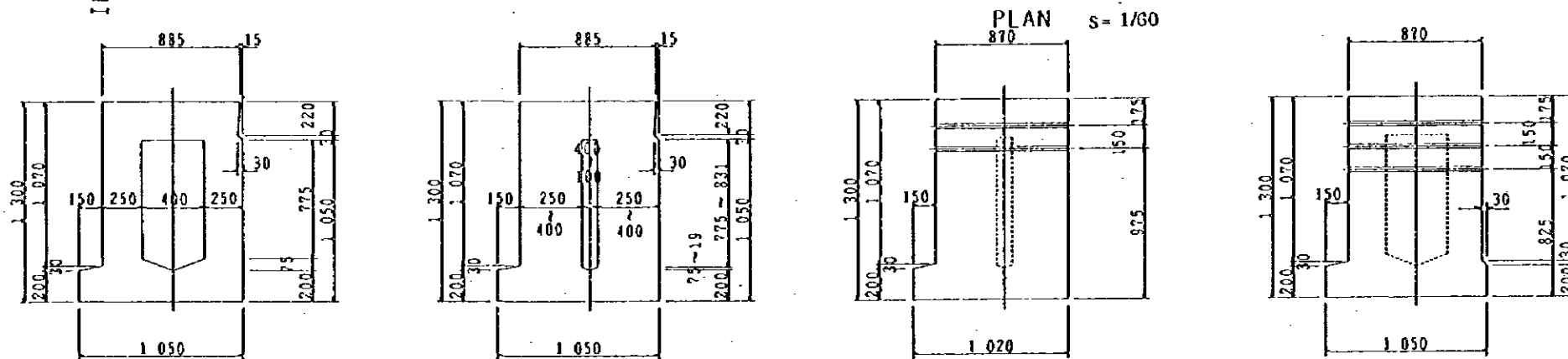


NOTE-1:

CONSIDERING THE EFFECT LONGITUDINAL SLOPE (%) TO END GIRDER BOTH ENDS SHOULD BE FIXED PARALLEL TO Y-AXIS

NOTE-2:

TRANSVERSE TENDONS FOR END DIAPHRAGMS SHALL BE ALIGNED WITH SKEW ANGLE  $\theta$



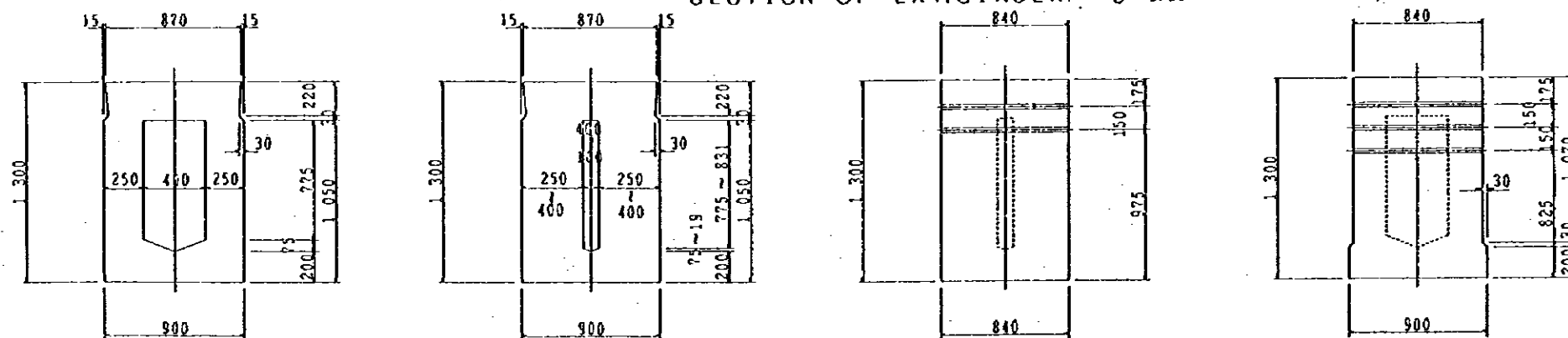
TYPICAL SECTION

AT WEB WIDENED

AT GIRDER END

AT CROSS BEAM

SECTION OF EXT. GIRDER S= 1/40



TYPICAL SECTION

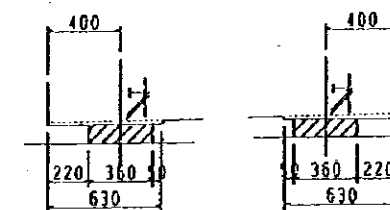
AT WEB WIDENED

AT GIRDER END

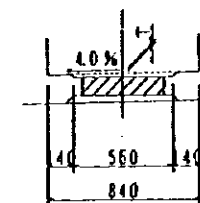
AT CROSS BEAM

SECTION OF INT. GIRDER S= 1/40

STRUCTURAL DETAIL OF MAIN GIRDER AT A-LINE



ELEVATION



SECTION

DETAIL OF LAYER S= 1/40

	T	REMARKS
(A1) ~ (P1)	FIX	20
(P10) ~ (A2)	MOV.	21
(P1) ~ (P2)	FIX	29
(P9) ~ (P10)	MOV.	22
(P2) ~ (P3)	FIX	27
(P8) ~ (P9)	MOV.	23
(P3) ~ (P4)	FIX	26
(P7) ~ (P8)	MOV.	24
(P4) ~ (P5)	FIX	25
(P6) ~ (P7)	MOV.	25
(P5) ~ (P6)	FIX	24
	MOV.	24

NOTES:

JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)

JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS

PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY

TITLE: STRUCTURAL DETAIL OF MAIN GIRDER AT A-LINE

DATE

DWONO.

B-8



L



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**NOTES:**

**MAP**

63

PR

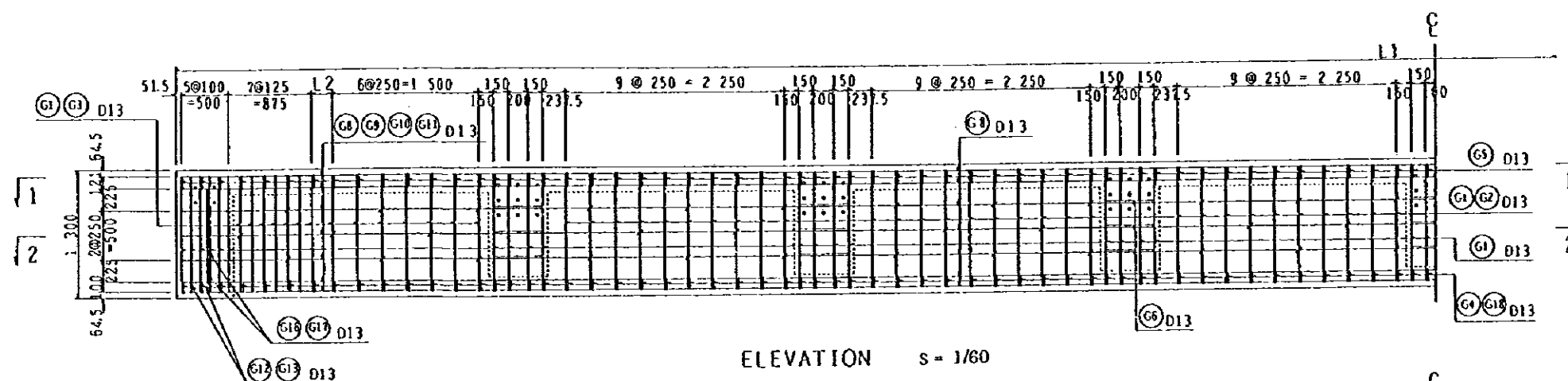
71

**D**

DV

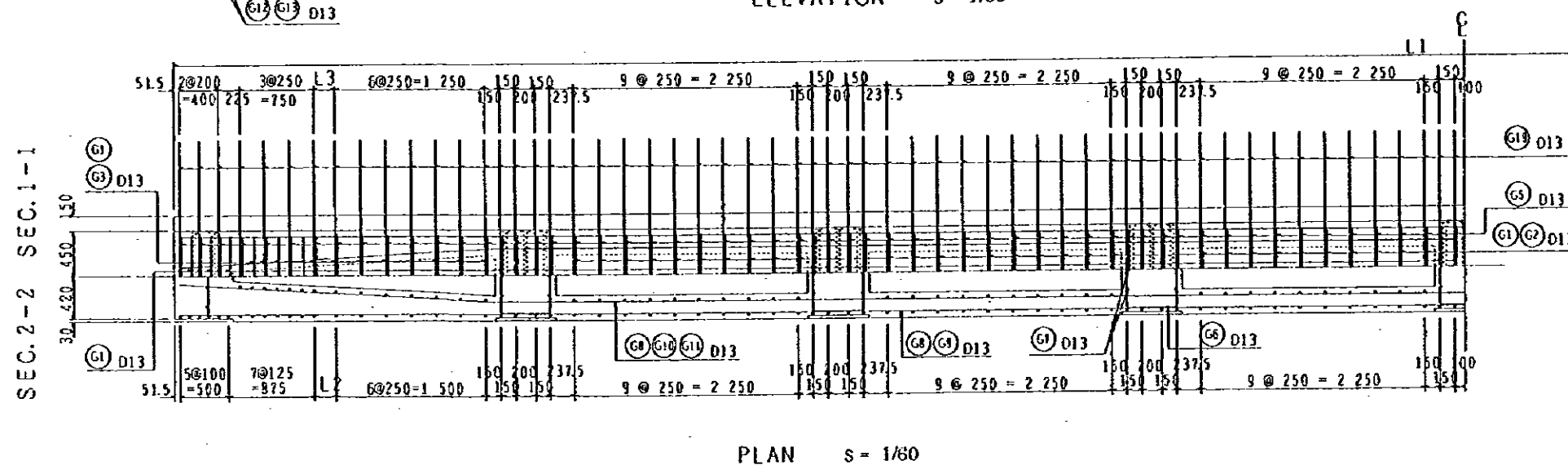
**B-9**

## RA/14 FALAJ AL QABAIL



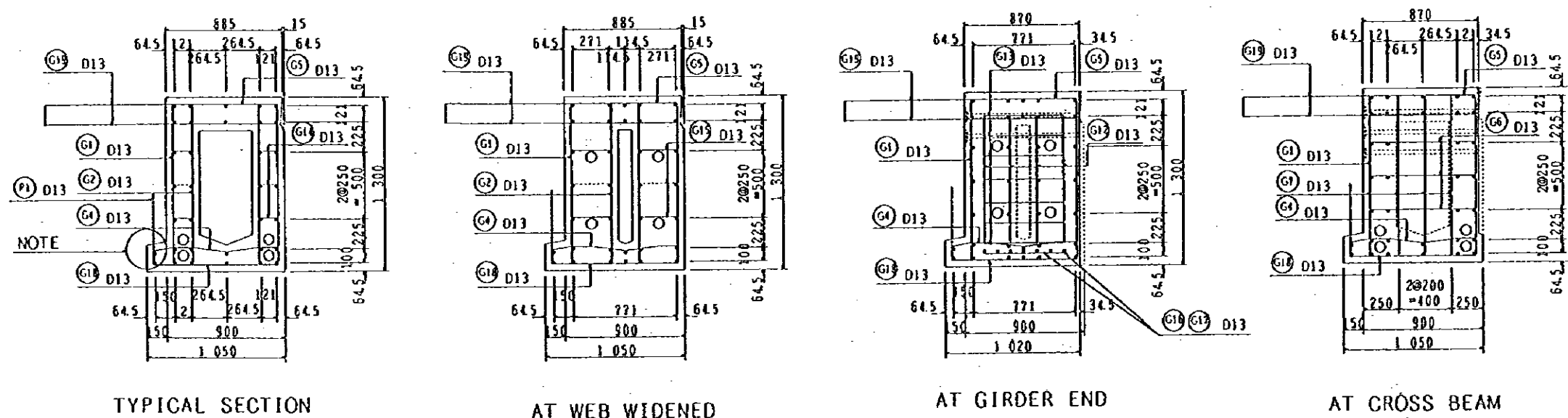
L1	25 701 ~ 25 920
L2	111.5 ~ 221.0
L3	111.5 ~ 221.0

SEE AND CHECK VALUE OF L'  
FOR OTHER EXT.GIRDER LENGTH  
FROM GENERAL VIEW SHEET



NOTE :

FOR ALTERNATIVE CONSTRUCTION  
JOINT, INSERT INSIDE  
THREADED JOINT TO HANDLE  
PLANTED VERTICAL BAR



SECTION S- 1/40

A-LINE RE-BAR ARRANGEMENT-1 (EXT.GIRDER)

**NOTES:**

**JAPAN INTERNATIONAL COOPERATION AGENCY**  
**(JICA)**

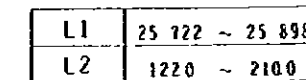
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT : MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS

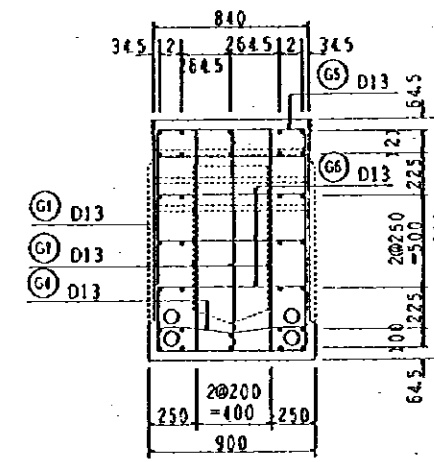
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY

TITLE	RE-BAR ARRANGEMENT(17) AT A-LINE
-------	----------------------------------

DATE	DWGNO.	B-10
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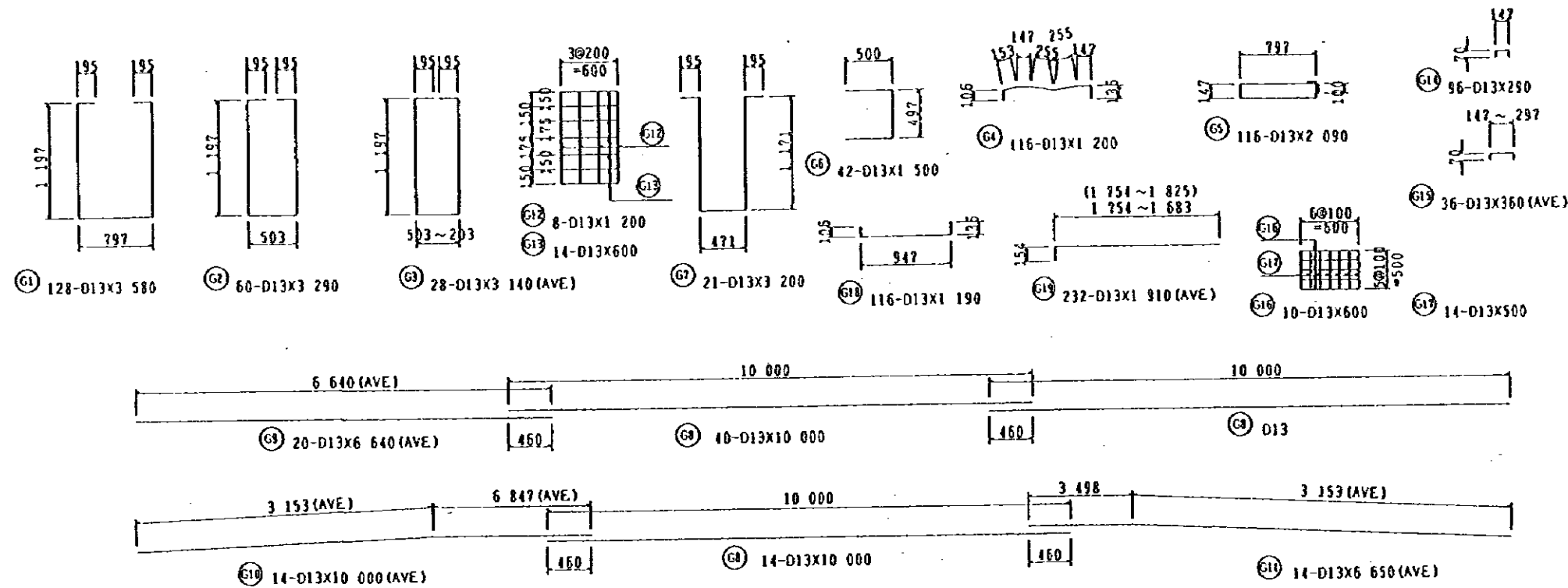
SEE AND CHECK VALUE OF L'  
FOR OTHER INT.GIRDER LENGTH  
FROM GENERAL VIEW SHEET



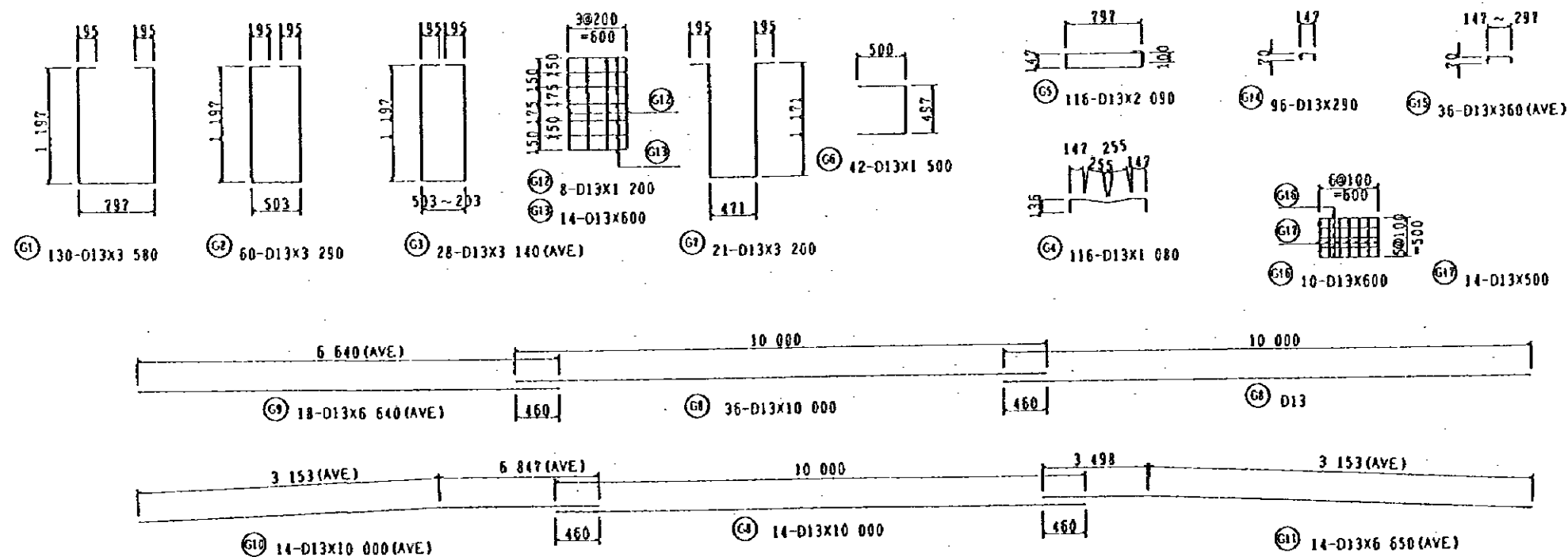
AT CROSS BEAM

A-LINE RE-BAR ARRANGEMENT-2 (INT.GIRDER)

<b>CLIENT :</b> MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS	
<b>PROJECT:</b> D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY	
<b>TITLE</b> RE-BAR ARRANGEMENT(2/2) AT A-LINE	
<b>DATE</b>	<b>DWGNO.</b> B-11



FOR EXT.GIRDER s= 1/60



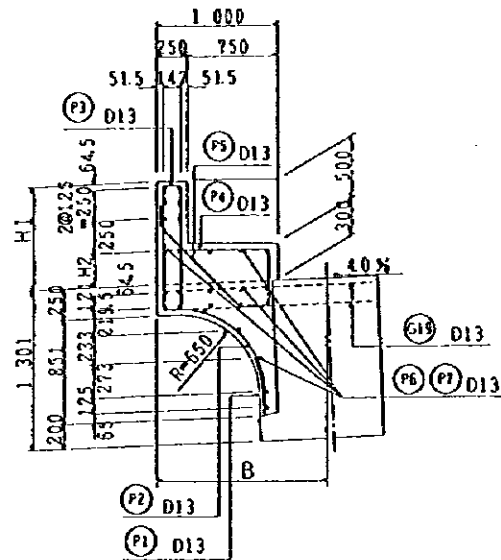
FOR INT.GIRDER s= 1/60

## BAR SCHEDULE OF MAIN GIRDER AT A-LINE

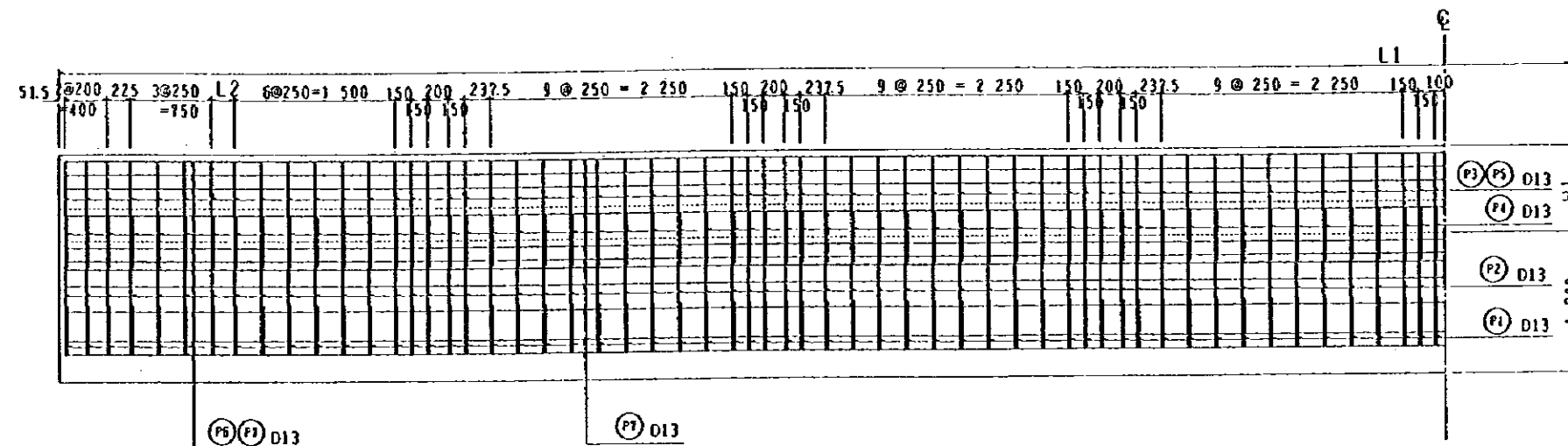
NOTES:

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FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: BAR SCHEDULE OF MAIN GIRDER AT A-LINE  
DATE: \_\_\_\_\_ DWGNO. B-12

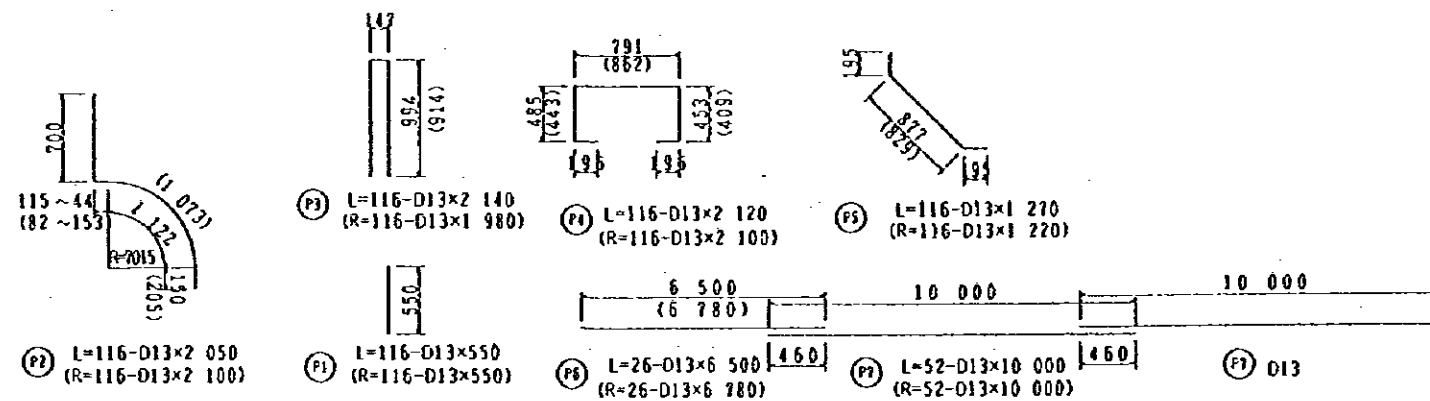


SECTION

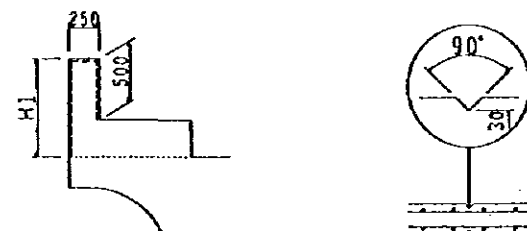


ELEVATION

RE-BAR ARRANGEMENT S= 1/60



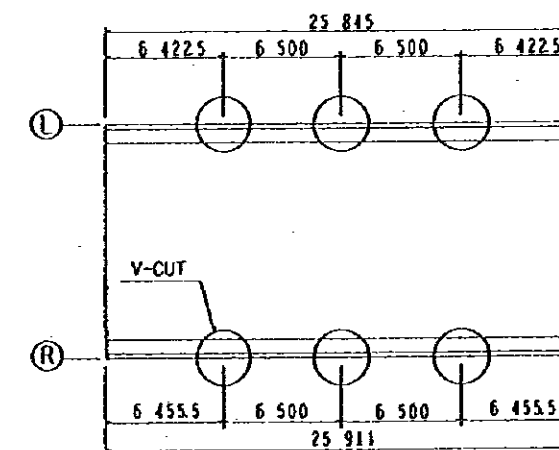
## BAR SCHEDULE



### DETAIL OF V-CUT

		(A1) ~ (A2)	REMARKS
(L)	L1	25 670	LEVEL
	L2	960	LEVEL
	B	1 400 ~ 1 329	VARIABLE
	H1	840	
	H2	2755	
(R)	L1	25 948	LEVEL
	L2	2350	LEVEL
	B	1 400 ~ 1 421	VARIABLE
	H1	760	
	H2	1955	

## DIMENSION LIST

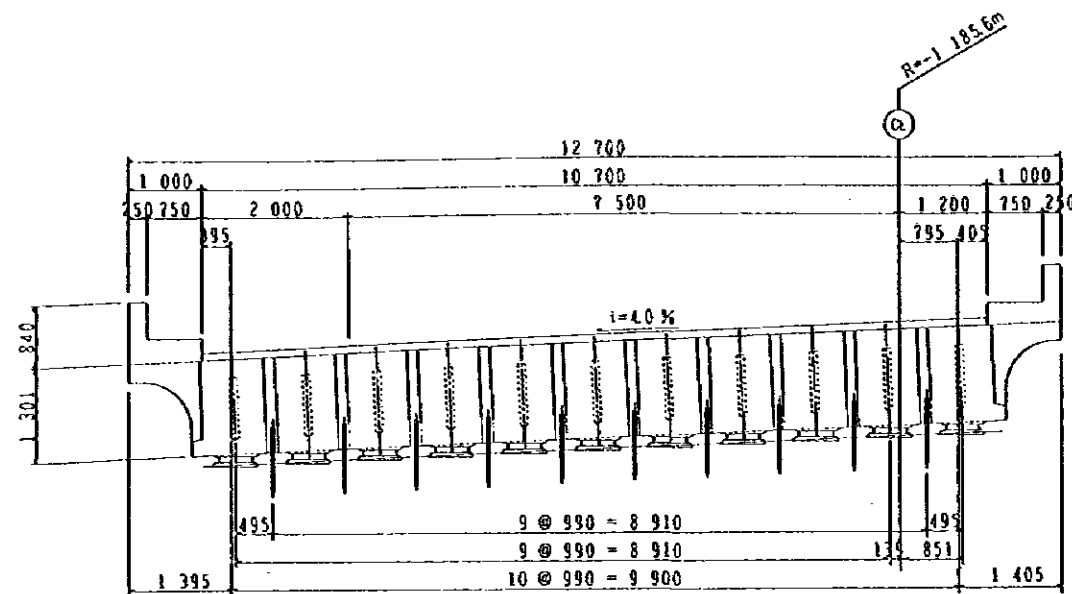


## RAILING AND CANTILEVER SLAB AT A-LINE

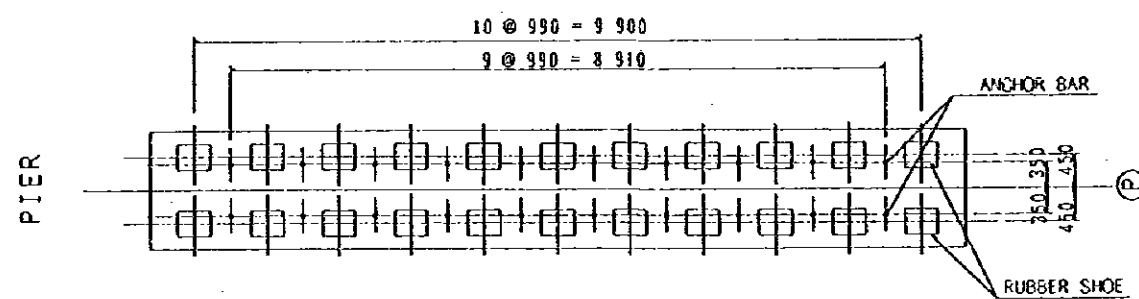
**NOTES:**

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TUKUYAMA CONSULTANTS INTERNATIONAL**

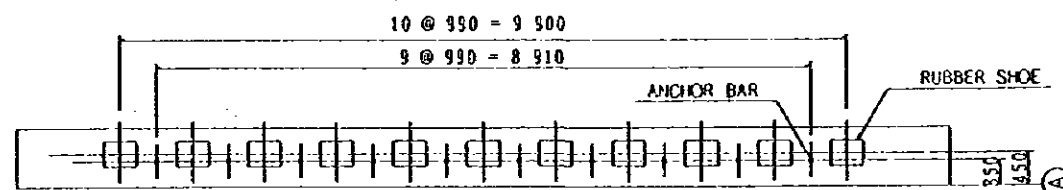
CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS	
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY	
TITLE RAILING AND CANTILEVERSLAB AT A-LINE	
DATE	DWGNO. B-13



SECTION s= 1/100



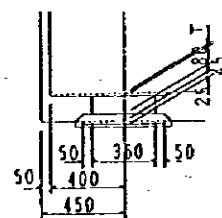
PIER



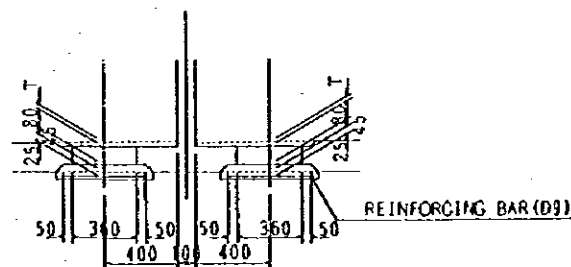
ABUTMENT

PLAN s= 1/100

DETAIL OF SHOE AND ANCHOR BAR

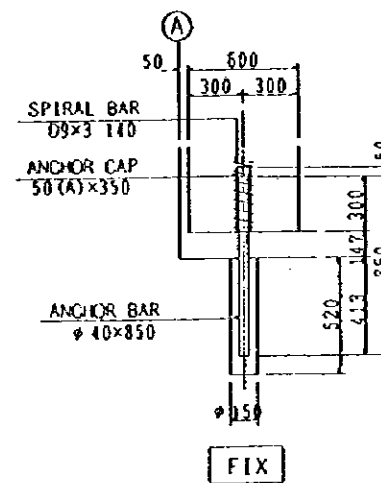


FOR ABUTMENT

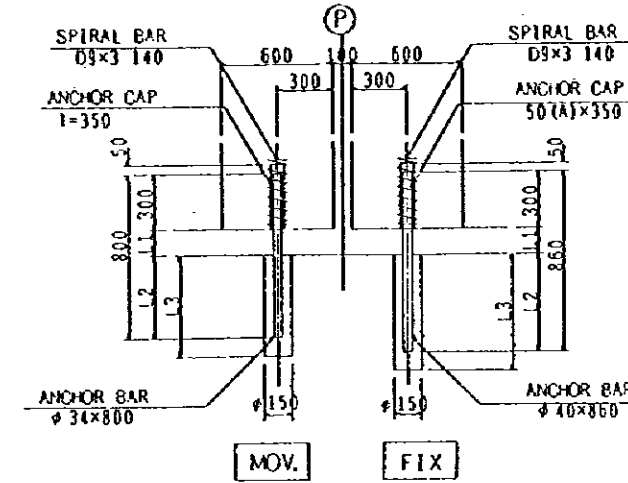


FOR PIER

DETAIL OF SHOE s= 1/40

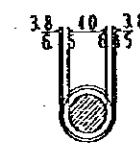


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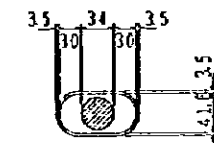


FOR PIER

DETAIL OF ANCHOR BAR s= 1/40

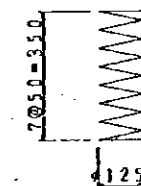
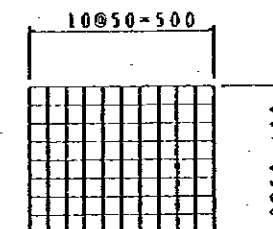
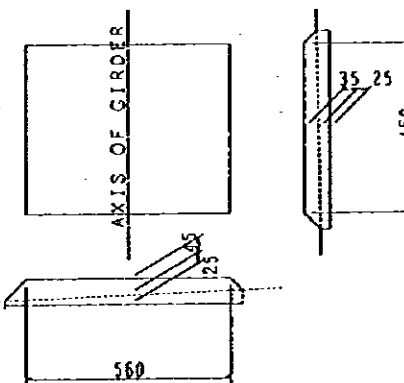


FOR FIX

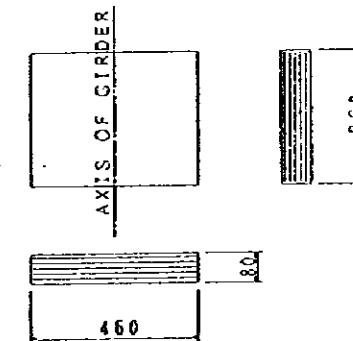


FOR MOV.

ANCHOR CAP s= 1/10


SPIRAL BAR (D9)  
s= 1/40

REINFORCING BAR (D9)  
s= 1/40


SHOE BASE s= 1/20



SYNTHETIC RUBBER SHOE s= 1/20

		T	L1	L2	L3
(A1)~(F1)	FIX	20	145	415	520
(F10)~(A2)	MOV.	21	146	354	460
(F1)~(P2)	FIX	29	154	405	520
(F8)~(P10)	MOV.	22	147	353	460
(P2)~(P3)	FIX	27	152	408	520
(P8)~(P9)	MOV.	23	148	352	460
(P3)~(P4)	FIX	26	151	409	520
(P7)~(P8)	MOV.	24	149	351	460
(P4)~(P5)	FIX	25	150	410	520
(P6)~(P7)	MOV.	25	150	350	460
(P5)~(P6)	FIX	24	149	411	520
	MOV.	24	149	351	460

(PER SPAN)

	DESCRIPTION	UNIT	QUANTITY	REMARKS
FIX	ANCHOR BAR (GALV.)	kg	84.8	w= 8.48 kg/pc.
	ANCHOR CAP (GALV.)	kg	18.6	w=1.86 kg/pc.
	FILLER	kg	5.9	w=0.588 kg/anc.
	SYNTHETIC RUBBER SHOE	Pcs	11	460x360x80
	REINFORCING BAR	kg	54.8	w=4.98 kg/Set
	SPIRAL BAR	kg	17.6	w=1.76 kg/pc.
	NON SHRINKAGE MORTAR	m <sup>3</sup>	0.231	0.021m <sup>3</sup> /Shoe
MOV.	ANCHOR BAR (GALV.)	kg	52.0	w=5.20 kg/pc.
	ANCHOR CAP (GALV.)	kg	23.7	w=2.37 kg/pc.
	FILLER	kg	14.5	w=1.45 kg/anc.
	SYNTHETIC RUBBER SHOE	Pcs	11	460x360x80
	REINFORCING BAR	kg	54.8	w=4.98kg/Set
	SPIRAL BAR	kg	17.6	w=1.76 kg/pc.
	NON SHRINKAGE MORTAR	m <sup>3</sup>	0.231	0.021m <sup>3</sup> /Shoe
		m <sup>3</sup>	0.080	0.008m <sup>3</sup> /Hole (AVE)

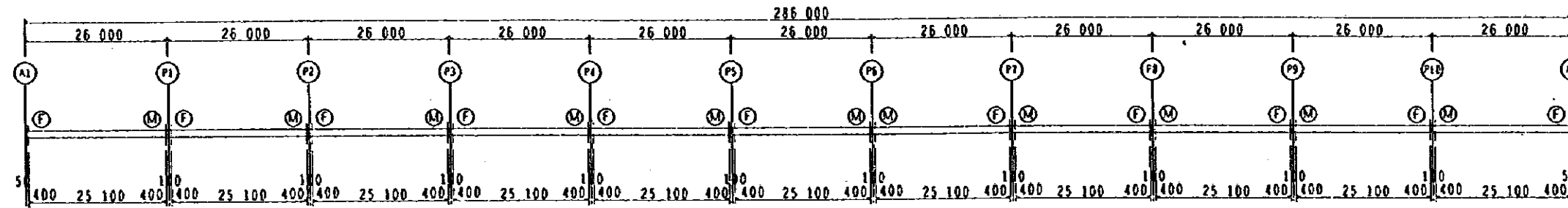
MATERIAL LIST

NOTES:

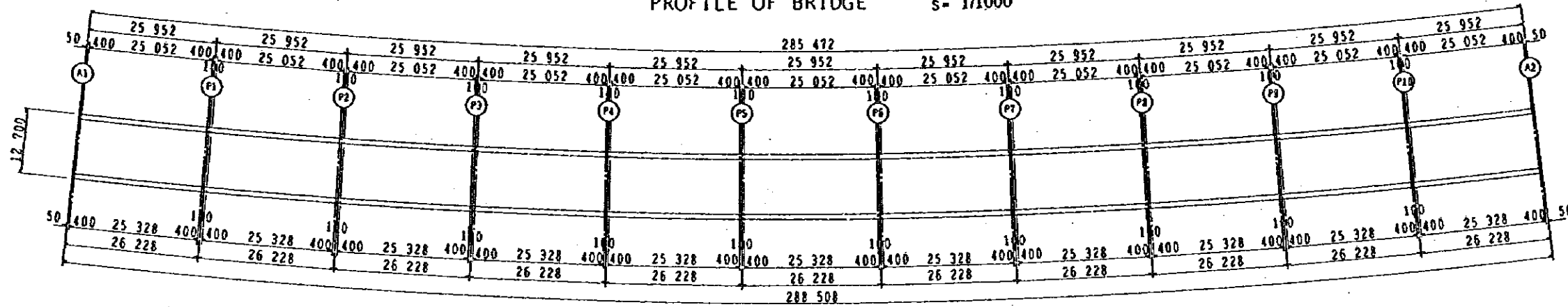
JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: DETAIL OF SHOE AND ANCHOR BAR AT A-LINE  
DATE: DWGNO. B-14

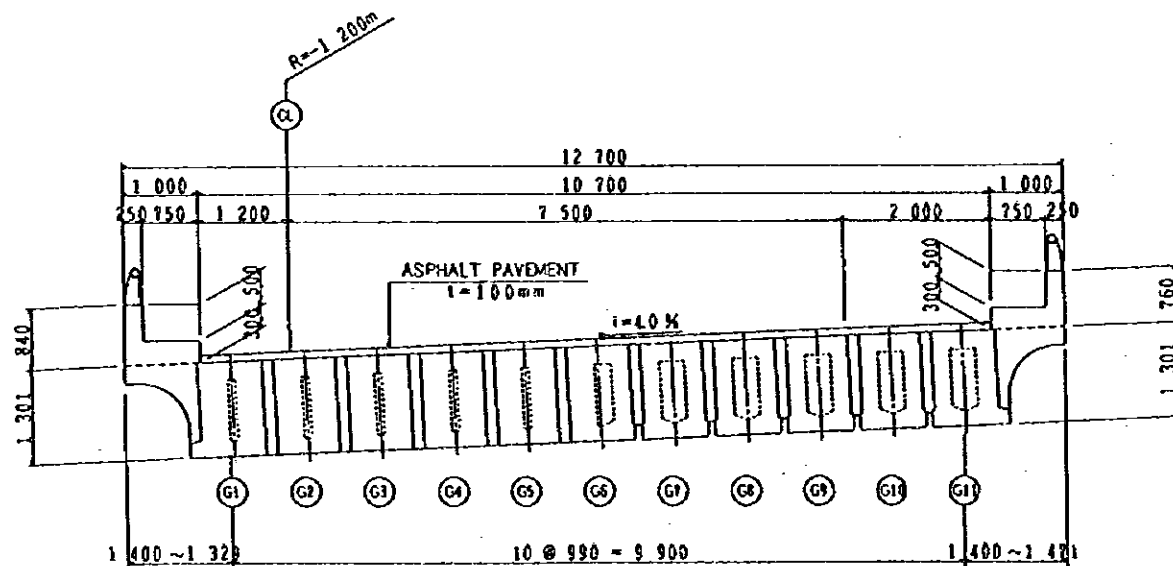
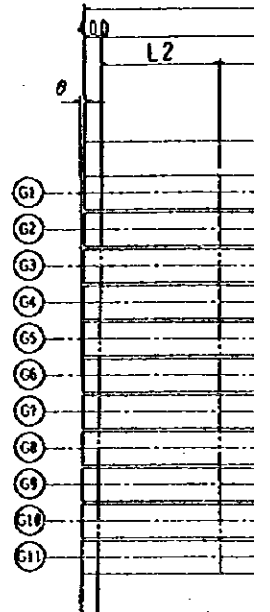
DETAIL OF SHOE AND ANCHOR BAR AT A-LINE



PROFILE OF BRIDGE s= 1/1000



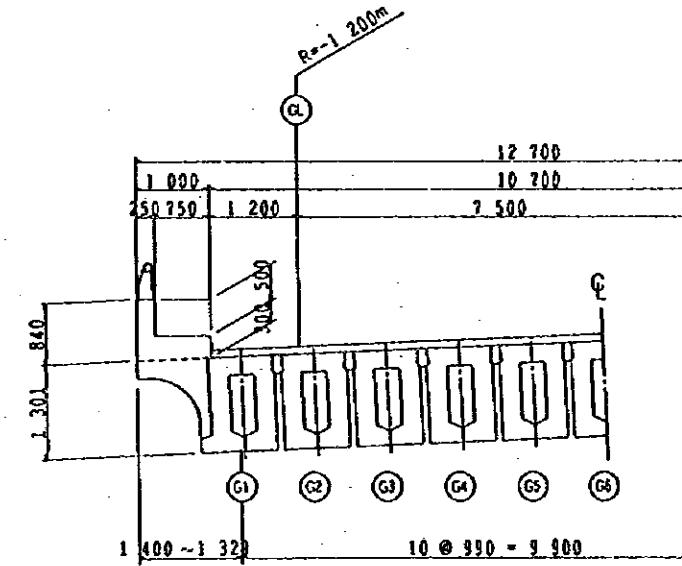
PLAN s= 1/1000



GIRDER END

MIDDLE SPAN

SECTION s= 1/100



TYPICAL SEC

		G1	G2
A1 ~ P2	L0	25 883	25 90
	L1	25 083	25 11
	L2	3 129.0	3 141
	Ø		
P2 ~ P7	L0	25 882	25 90
	L1	25 082	25 11
	L2	3 128.5	3 135
	Ø		
P7 ~ P8	L0	25 883	25 90
	L1	25 083	25 11
	L2	3 129.0	3 141
	Ø		
P8 ~ P10	L0	25 884	25 91
	L1	25 084	25 11
	L2	3 129.5	3 141
	Ø		
P10 ~ A2	L0	25 885	25 91
	L1	25 085	25 11
	L2	3 130.0	3 141
	Ø		

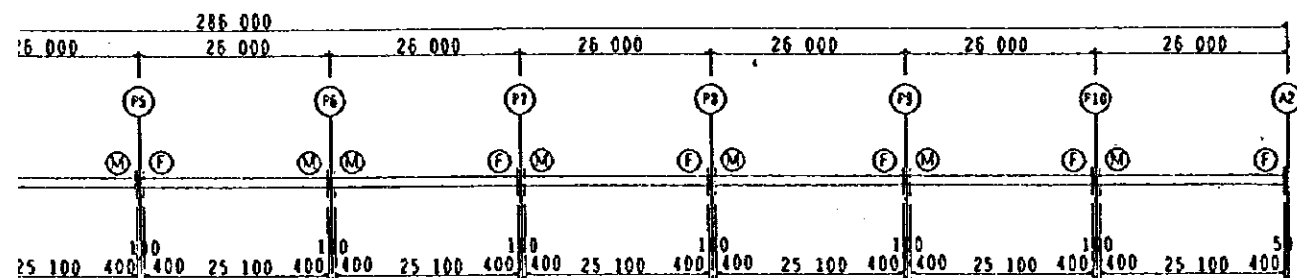
GENERAL VIEW OF BRIDGE AT B-LINE

NOTES:

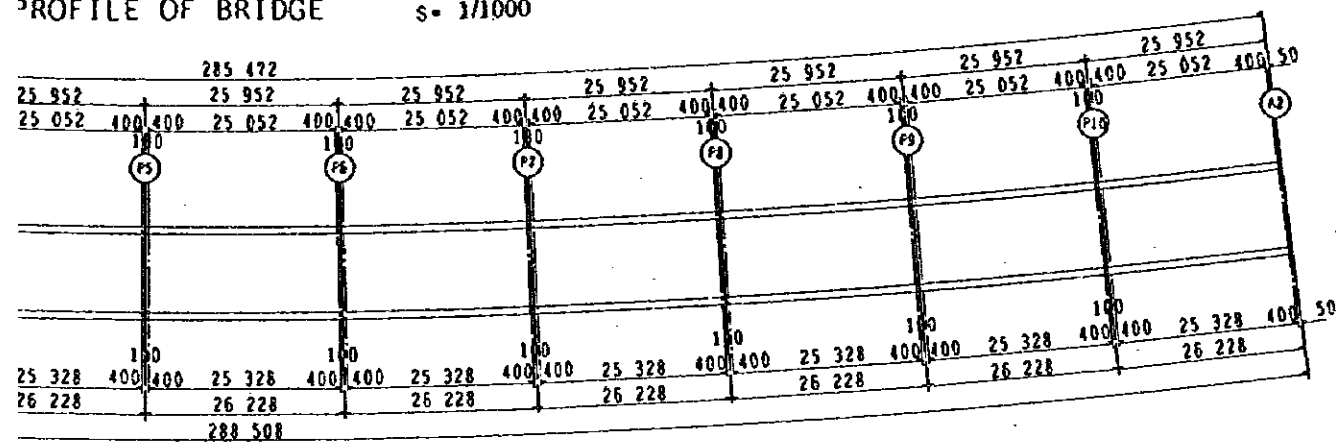
JAPAN INTERNATIONAL COOPERATION  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL



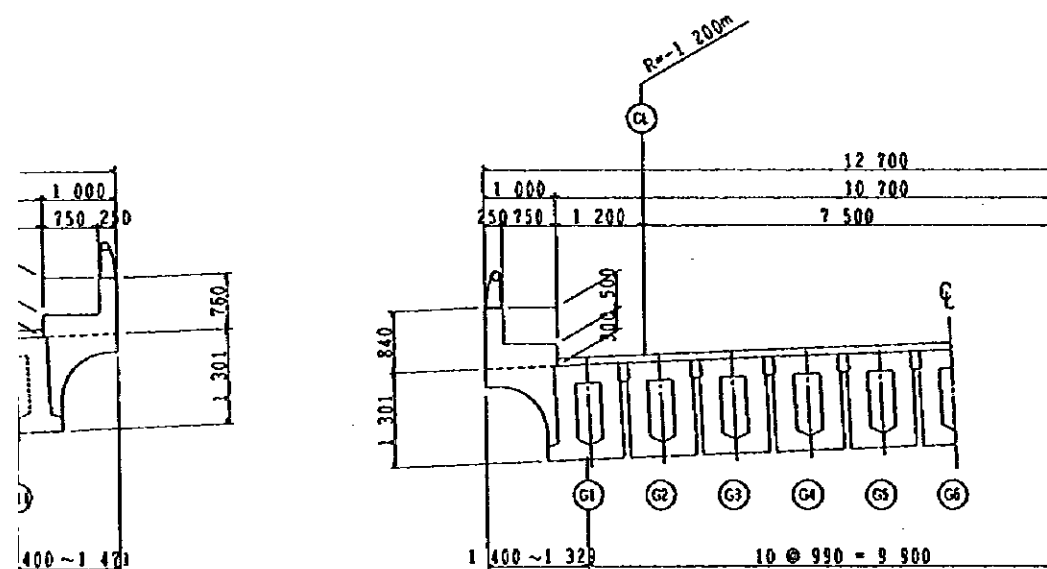
# RA/14 FALAJ AL QABAIL



PROFILE OF BRIDGE s= 1/1000



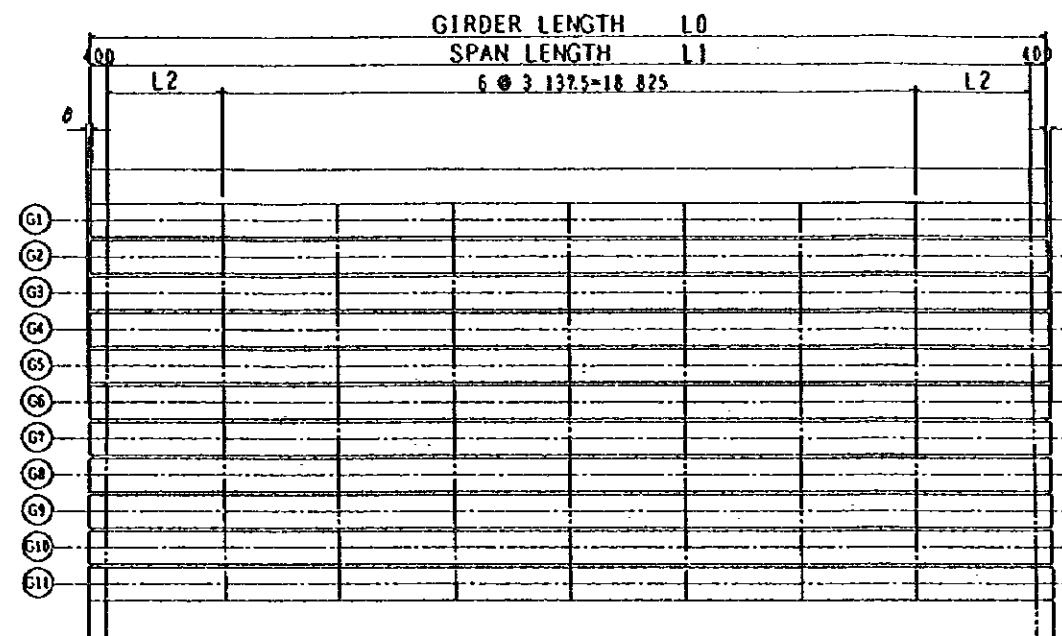
PLAN s= 1/1000



TYPICAL SEC.

SECTION s= 1/100

## GENERAL VIEW OF BRIDGE AT B-LINE



R=-1 200m(AT CL)

GIRDER LENGTH

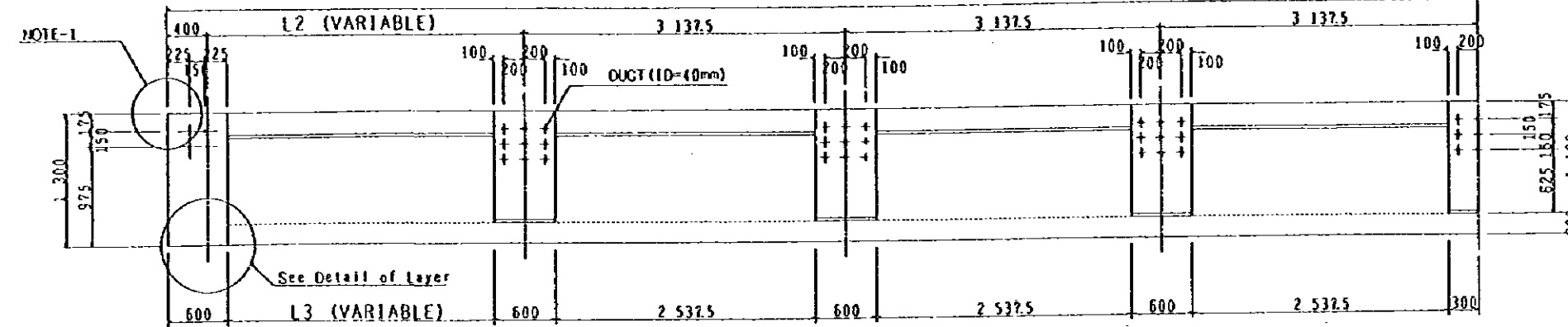
		G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	REMARKS
(A1) ~ (P2)	L0	25 883	25 905	25 925	25 948	25 969	25 991	26 012	26 033	26 055	26 076	26 098	INCLINED LENGTH
	L1	25 083	25 105	25 125	25 148	25 169	25 191	25 212	25 233	25 255	25 276	25 298	"
	L2	3 128.0	3 140.0	3 150.0	3 161.5	3 172.0	3 183.0	3 193.5	3 204.0	3 215.0	3 225.5	3 236.5	"
	θ	0.62083											
(P2) ~ (P7)	L0	25 882	25 904	25 925	25 946	25 968	25 989	26 011	26 032	26 054	26 075	26 097	INCLINED LENGTH
	L1	25 082	25 104	25 125	25 146	25 168	25 189	25 211	25 232	25 254	25 275	25 297	"
	L2	3 128.5	3 139.5	3 150.0	3 160.5	3 171.5	3 182.0	3 193.0	3 203.5	3 214.5	3 225.0	3 236.0	"
	θ	0.62083											
(P7) ~ (P8)	L0	25 883	25 905	25 926	25 948	25 969	25 991	26 012	26 033	26 055	26 076	26 098	INCLINED LENGTH
	L1	25 083	25 105	25 126	25 148	25 169	25 191	25 212	25 233	25 255	25 276	25 298	"
	L2	3 128.0	3 140.0	3 150.0	3 161.5	3 172.0	3 183.0	3 193.5	3 204.0	3 215.0	3 225.5	3 236.5	"
	θ	0.62083											
(P8) ~ (P11)	L0	25 884	25 905	25 927	25 948	25 970	25 991	26 013	26 034	26 056	26 077	26 098	INCLINED LENGTH
	L1	25 084	25 105	25 127	25 148	25 170	25 191	25 213	25 234	25 256	25 277	25 298	"
	L2	3 129.5	3 140.0	3 151.0	3 161.5	3 172.5	3 183.0	3 194.0	3 204.5	3 215.5	3 226.0	3 236.5	"
	θ	0.62083											
(P11) ~ (A2)	L0	25 885	25 906	25 928	25 949	25 971	25 992	26 014	26 035	26 056	26 078	26 099	INCLINED LENGTH
	L1	25 085	25 106	25 128	25 149	25 171	25 192	25 214	25 235	25 256	25 278	25 299	"
	L2	3 130.0	3 140.5	3 151.5	3 162.0	3 173.0	3 183.5	3 194.5	3 205.0	3 215.5	3 226.5	3 237.0	"
	θ	0.62083											

DIMENSION LIST FOR B-LINE

JAPAN INTERNATIONAL COOPERATION AGENCY  
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JICA STUDY TEAM  
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FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: GENERAL VIEW OF BRIDGE AT B-LINE  
DATE: \_\_\_\_\_ DWGNO. B-15

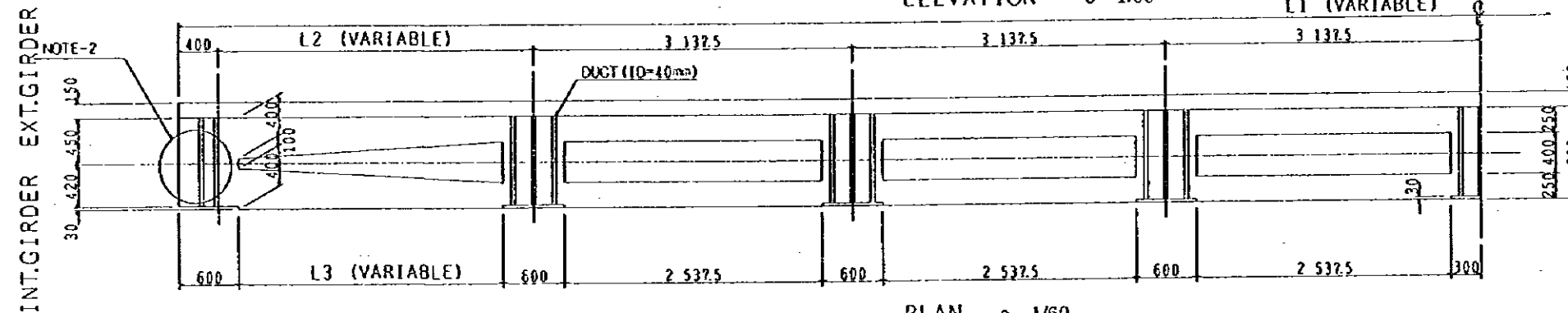
# RA/14 FALAJ AL QABAIL



L1	25 882 ~ 26 099
L2	3 128.5 ~ 3 237.0
L3	2 628.5 ~ 2 737.0

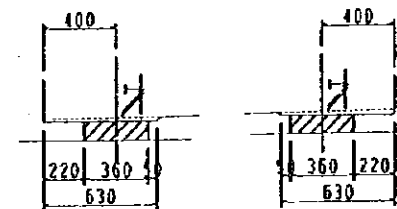
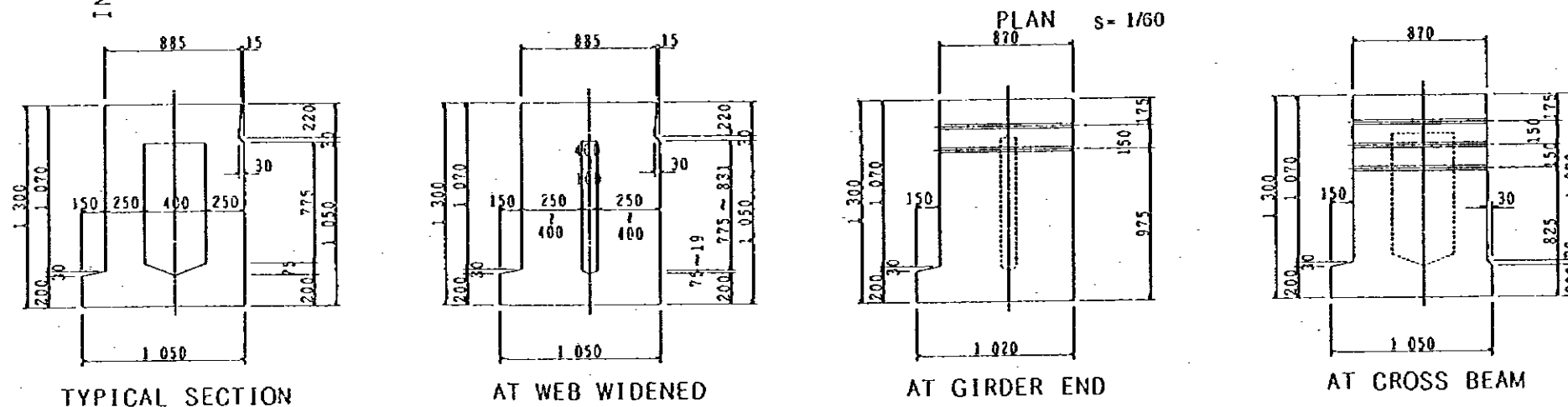
MAX., MIN. VALUE OF L

SEE AND CHECK VALUE OF L OF PER GIRDER FROM GENERAL VIEW SHEET (DIMENSION LIST)

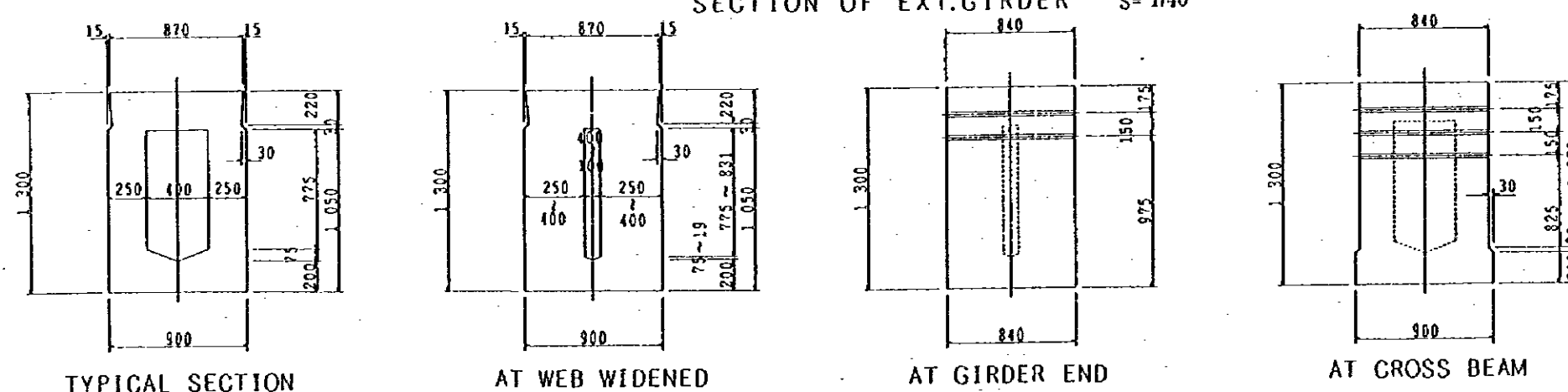
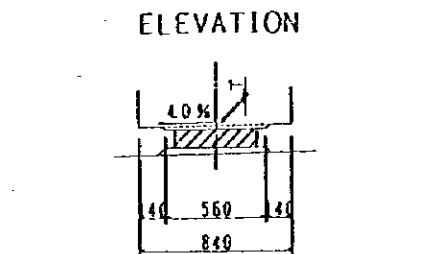


NOTE-1: CONSIDERING THE EFFECT LONGITUDINAL SLOPE (1%) TO END GIRDER BOTH ENDS SHOULD BE FIXED PARALLEL TO Y-AXIS

NOTE-2: TRANSVERSE TENDONS FOR END DIAPHRAGMS SHALL BE ALIGNED WITH SKEW ANGLE  $\theta$



	T	REMARKS
(A1) ~ (P1)	FIX	20
(P10) ~ (A2)	MOV.	21
(P1) ~ (P2)	FIX	29
(P3) ~ (P10)	MOV.	22
(P2) ~ (P3)	FIX	27
(P8) ~ (P9)	MOV.	23
(P3) ~ (P4)	FIX	26
(P7) ~ (P8)	MOV.	24
(P4) ~ (P5)	FIX	25
(P6) ~ (P7)	MOV.	25
(P5) ~ (P6)	FIX	24
	MOV.	24



SECTION  
DETAIL OF LAYER S= 1/40

## STRUCTURAL DETAIL OF MAIN GIRDER AT B-LINE

NOTES:

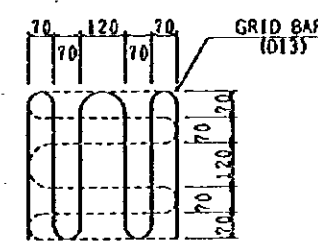
JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: STRUCTURAL DETAIL OF MAIN GIRDER AT B-LINE  
DATE: DWGNO. B-16



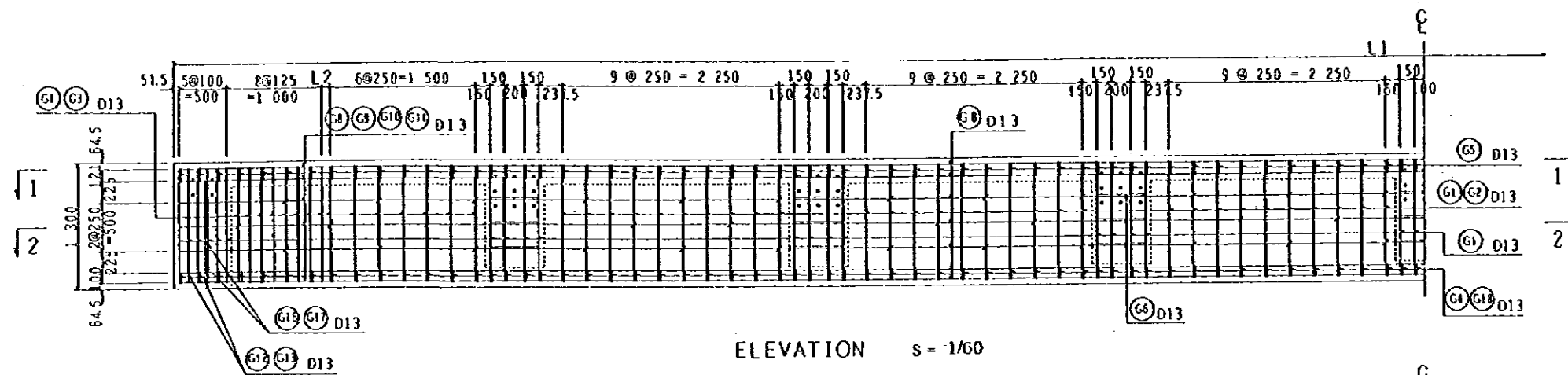
SEE AND CHECK VALUE OF L'  
FOR OTHER GIRDER LENGTH  
FROM GENERAL VIEW SHEET

W BASED ON GIRDER LENGTH 25.990m(AVE)  
EXTRA LENGTH FOR TENSIONING IS NOT INCLUDED  
 $w=11.010\text{kg/m/Cable (10T15.28)}$

$$\alpha = 2 \times (H_1 - H_2) / (2 \times L_1 - L_2) \quad \text{rad.}$$
$$\begin{aligned} S1 &= 1200 / \cos \alpha \\ S2 &= 2 \times (1 + 8/3 \times n^2 - 32/5 \times n^4 + 128/7 \times n^6 - 512/9 \times n^8) \\ n &= (H1 - H2 - \tan \alpha \times 1200) / (2 \times L2) \end{aligned}$$


FOR CROSS BEAM

NOTES:		JAPAN INTERNATIONAL COOPERATION AGENCY	CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS	
		(JICA)	PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY	
		JICA STUDY TEAM	TITLE: DETAIL OF TENDONS AT B-LINE	
		PACIFIC CONSULTANTS INTERNATIONAL FUKUYAMA CONSULTANTS INTERNATIONAL	DATE	DWG NO. B-17

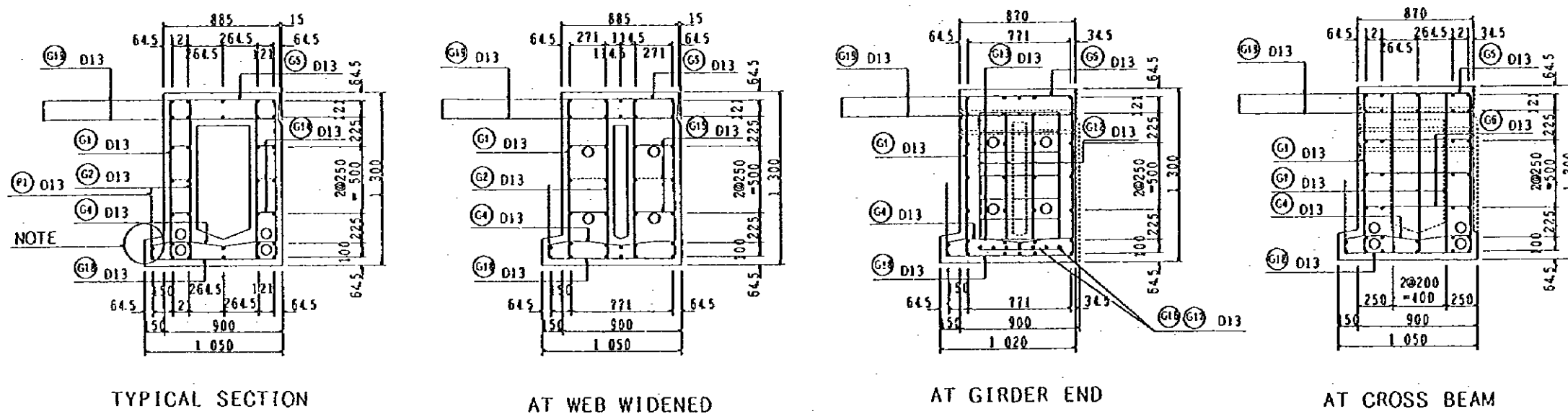
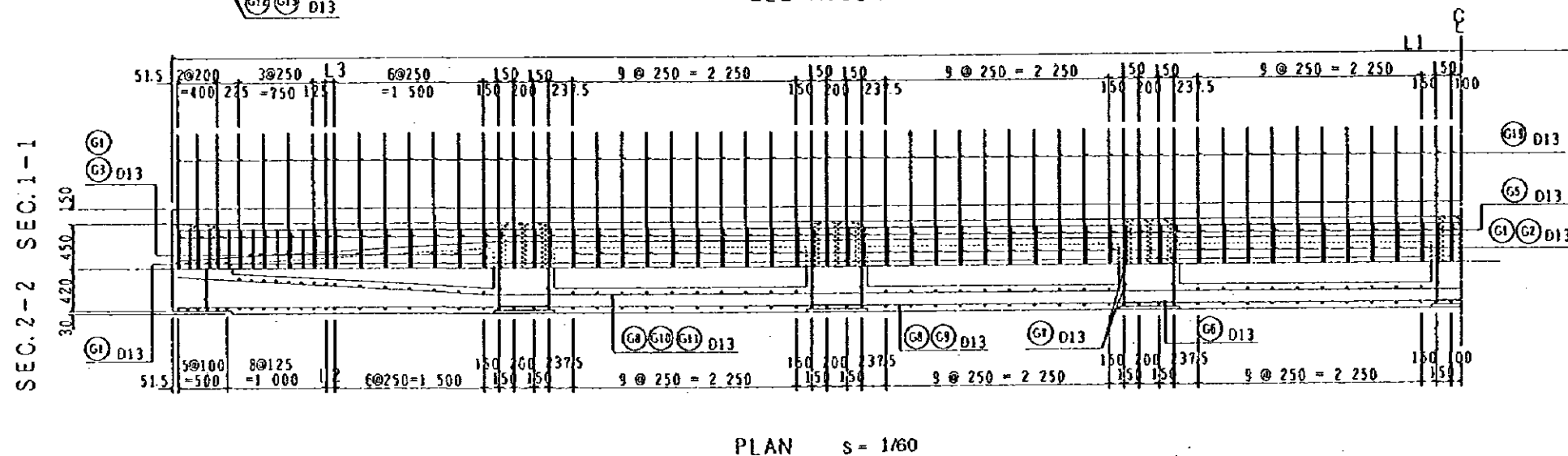


L1	25 882 ~ 26 099
L2	77.0 ~ 185.5
L3	77.0 ~ 185.5

SEE AND CHECK VALUE OF L'  
FOR OTHER EXT.GIRDER LENGTH  
FROM GENERAL VIEW SHEET

NOTE :

FOR ALTERNATIVE CONSTRUCTION  
JOINT, INSERT INSIDE  
THREADED JOINT TO HANDLE  
PLANTED VERTICAL BAR

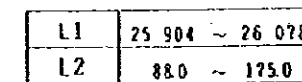


B-LINE RE-BAR ARRANGEMENT-1 (EXT.GIRDER)

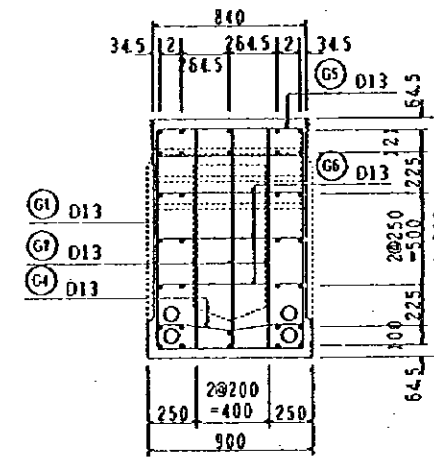
**NOTES:**

**JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL**

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS		
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY		
TITLE RE-BAR ARRANGEMENT(1/2) AT B-LINE		
DATE	DWGNO.	B-18



SEE AND CHECK VALUE OF L'  
FOR OTHER INT.GIRDER LENGTH  
FROM GENERAL VIEW SHEET

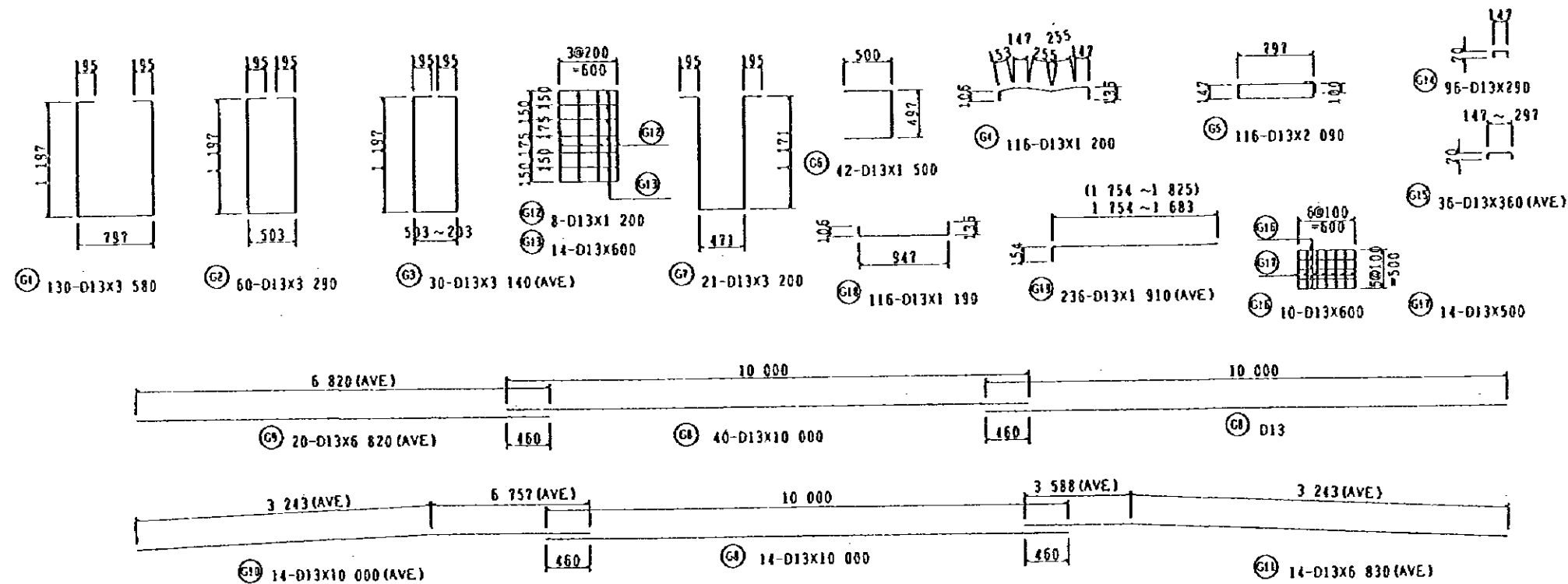


AT CROSS BEAM

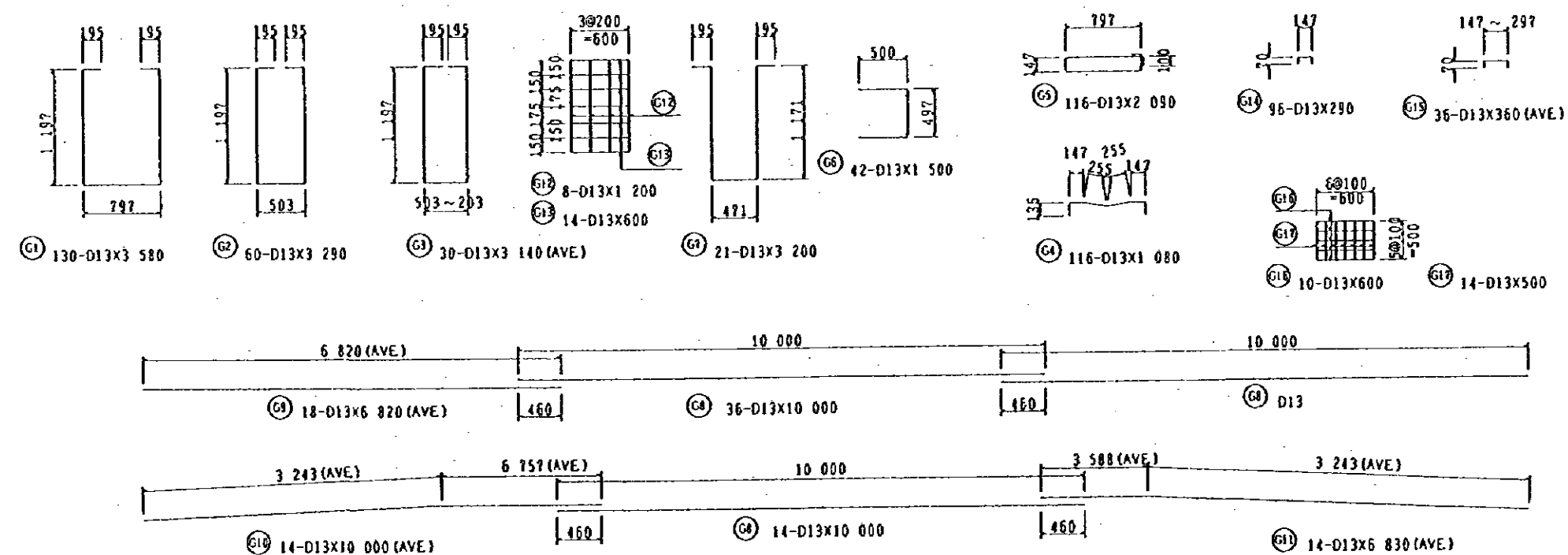
B-LINE RE-BAR ARRANGEMENT-2 (INT.GIRDER)

DATE	DWGNO.	B-19
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## RA/14 FALAJ AL QABAIL



FOR EXT.GIRDER S= 1/60

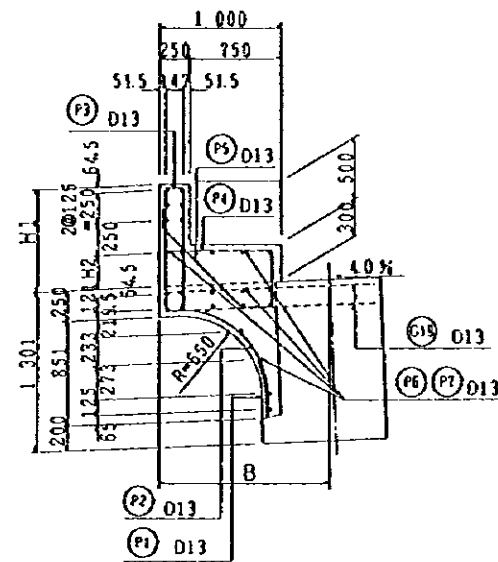


FOR INT.GIRDER S- 1/60

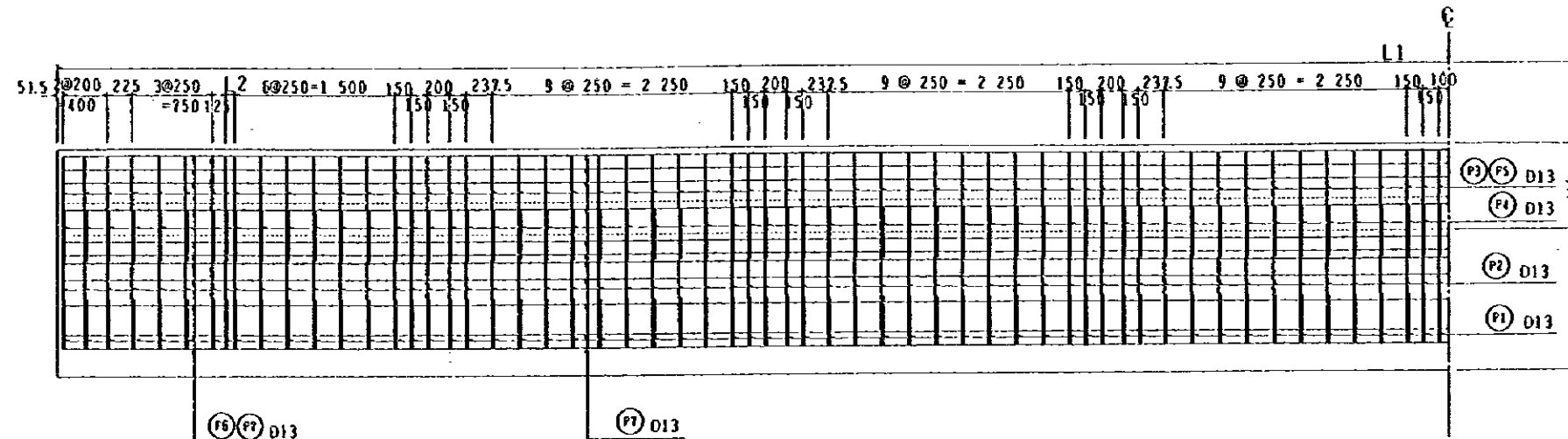
BAR SCHEDULE OF MAIN GIRDER AT B-LINE

NOTES:		JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS	
		JICA STUDY TEAM PACIFIC CONSULTANTS INTERNATIONAL FUKUYAMA CONSULTANTS INTERNATIONAL	PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY	
			TITLE	BAR SCHEDULE OF MAIN GIRDER AT B-LINE
			DATE	DWGNO. B-20

# RA/14 FALAJ AL QABAIL

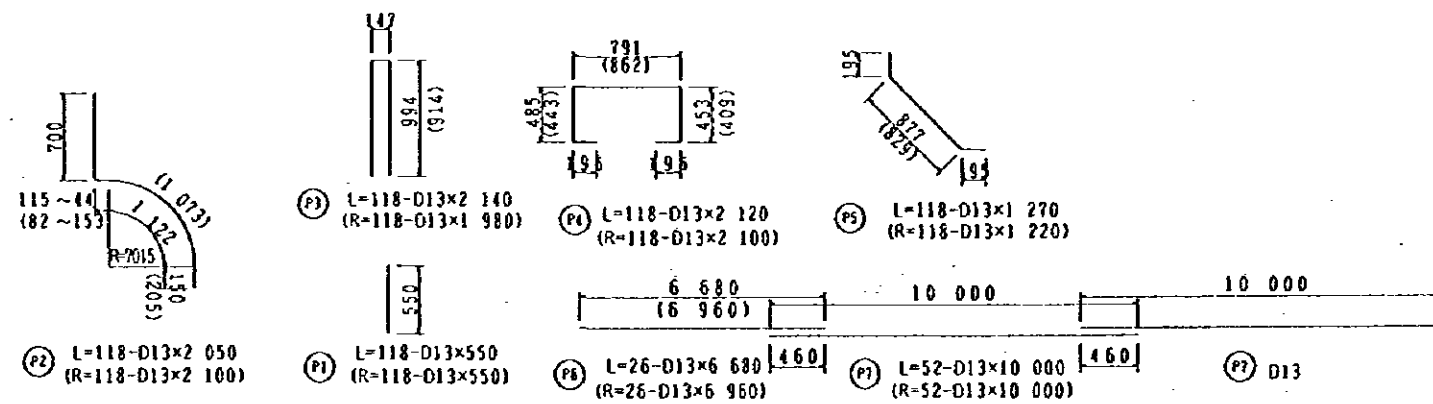


SECTION

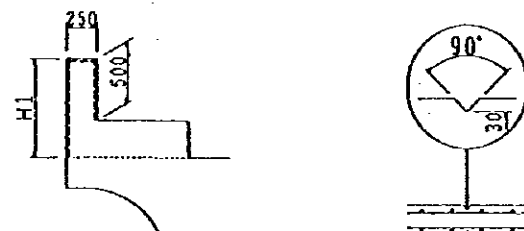


ELEVATION

RE-BAR ARRANGEMENT S= 1/60



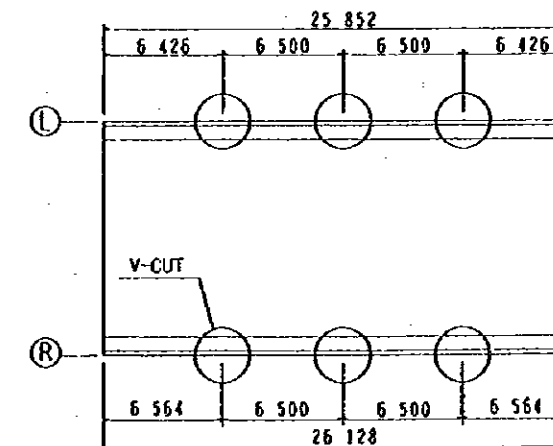
BAR SCHEDULE



DETAIL OF V-CUT

	(A1) ~ (A2)	REMARKS
L1	25 852	LEVEL
L2	620	LEVEL
B	1 400 ~ 1 329	VARIABLE
H1	840	
H2	275.5	
L1	26 128	LEVEL
L2	200.0	LEVEL
B	1 400 ~ 1 471	VARIABLE
H1	760	
H2	195.5	

DIMENSION LIST

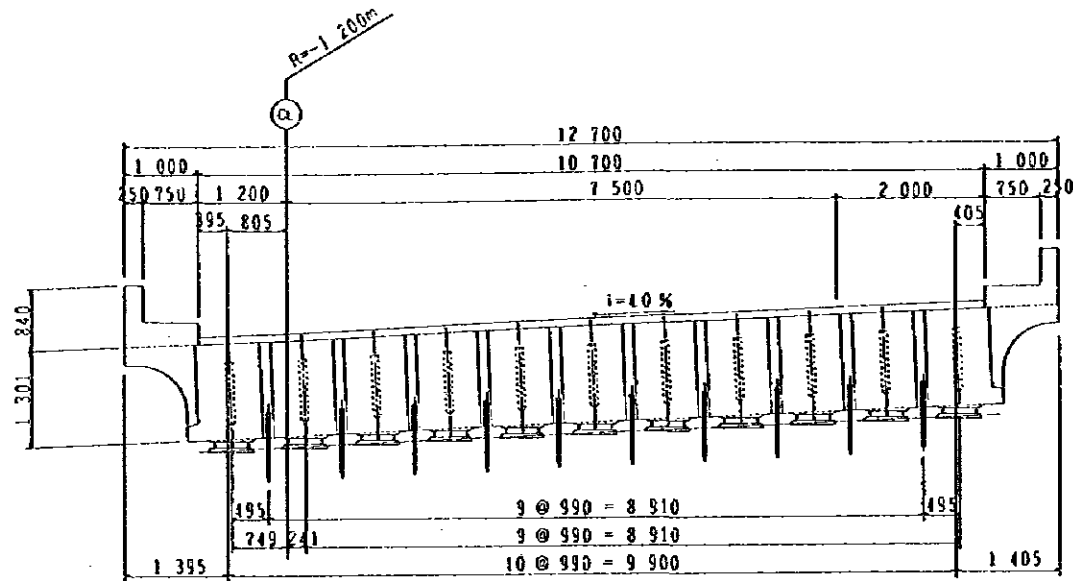


## RAILING AND CANTILEVER SLAB AT B-LINE

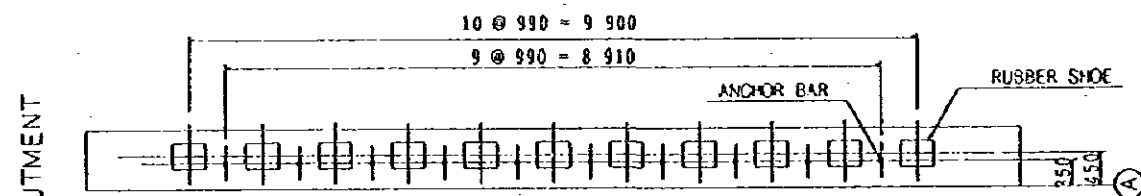
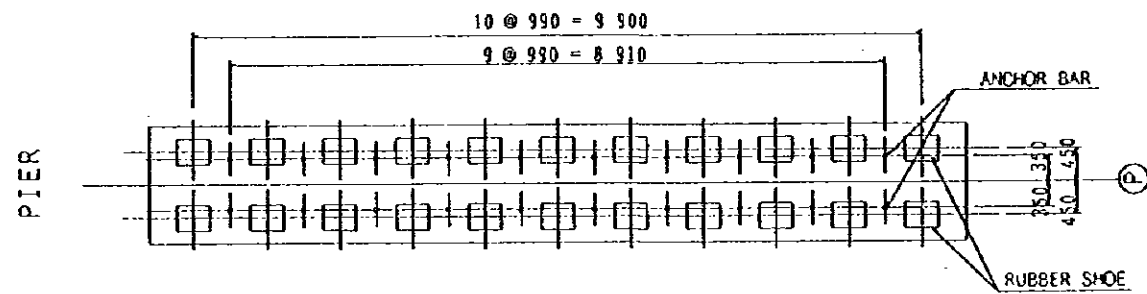
NOTES:

JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: RAILING AND CANTILEVER SLAB AT B-LINE  
DATE: \_\_\_\_\_ DWGNO. B-21

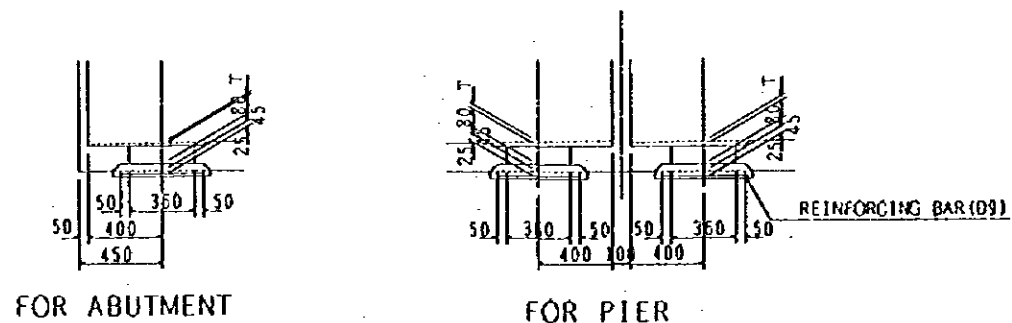


SECTION S= 1/100

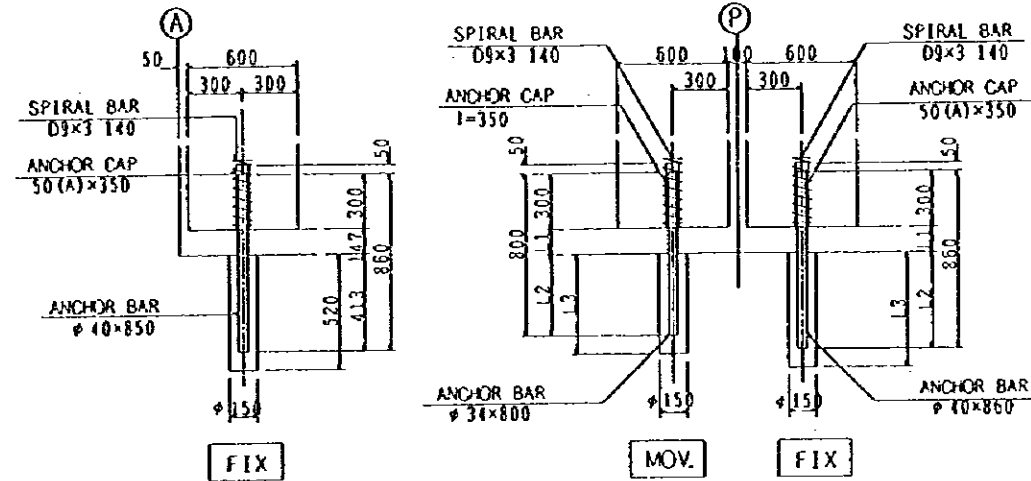


PLAN  $s = 1/100$

### DETAIL OF SHOE AND ANCHOR BAR



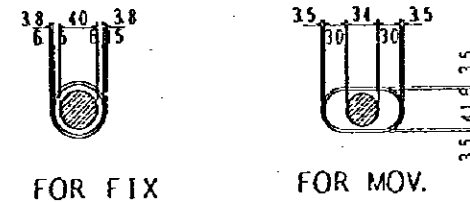
DETAIL OF SHOE S= 1/40



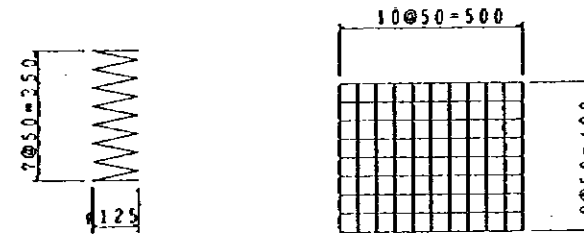
FOR ABUTMENT

FOR PIER

DETAIL OF ANCHOR BAR  $s = 1/40$

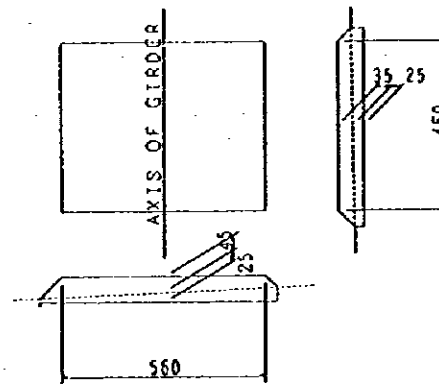


ANCHOR CAP S= 1/10



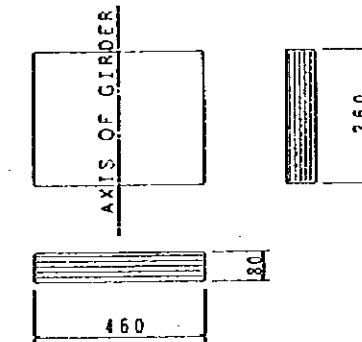
SPIRAL BAR (D9)  
S = 1/40

REINFORCING BAR (D9)  
S = .1/40



SHOE BASE  $s = 1/20$

		T	L1	L2	L3
A1 ~ P1	FIX	20	145	415	520
P10 ~ A2	MOV.	21	146	354	460
P1 ~ P2	FIX	29	154	406	520
P8 ~ P10	MOV.	22	147	353	460
P2 ~ P3	FIX	27	152	408	520
P8 ~ P9	MOV.	23	148	352	460
P3 ~ P4	FIX	26	151	409	520
P7 ~ P8	MOV.	24	149	351	460
P4 ~ P5	FIX	25	150	410	520
P6 ~ P7	MOV.	25	150	350	460
	FIX	24	149	411	520
P5 ~ P6	MOV.	24	149	351	460



SYNTHETIC RUBBER SHOE s= 1/20

		(PER SPAN)		
	DESCRIPTION	UNIT	QUANTITY	REMARKS
FIX	ANCHOR BAR (GALV.)	kg	84.8	w= 84.8 kg/pc.
	ANCHOR CAP (GALV.)	kg	18.6	w=1.86 kg/pc.
	FILLER	kg	5.9	w=0.588 kg/anc.
	SYNTHETIC RUBBER SHOE	Pcs	11	460x360x80
	REINFORCING BAR	kg	54.8	w=4.98 kg/Set
	SPIRAL BAR	kg	17.6	w=1.76 kg/pc.
	NON SHRINKAGE MORTAR	m <sup>3</sup>	0.231	0.021m <sup>3</sup> /Shoe
		m <sup>3</sup>	0.090	0.009m <sup>3</sup> /Hole (AVE.
MOV.	ANCHOR BAR (GALV.)	kg	57.0	w=5.70 kg/pc.
	ANCHOR CAP (GALV.)	kg	23.7	w=2.37 kg/pc.
	FILLER	kg	14.5	w=1.45 kg/anc.
	SYNTHETIC RUBBER SHOE	Pcs	11	460x360x80
	REINFORCING BAR	kg	54.8	w=4.98kg/Set
	SPIRAL BAR	kg	17.6	w=1.76 kg/pc.
	NON SHRINKAGE MORTAR	m <sup>3</sup>	0.231	0.021m <sup>3</sup> /Shoe
		m <sup>3</sup>	0.080	0.008m <sup>3</sup> /Hole (AVE.

## MATERIAL LIST

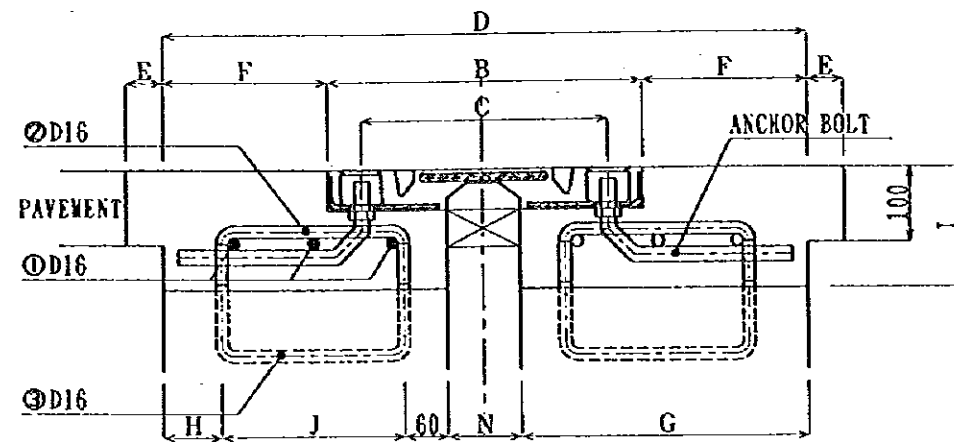
**NOTES:**

**JAPAN INTERNATIONAL COOPERATION AGENCY**  
**(JICA)**  
**JICA STUDY TEAM**  
**PACIFIC CONSULTANTS INTERNATIONAL**  
**FUKUYAMA CONSULTANTS INTERNATIONAL**

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS	
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY	
TITLE: DETAIL OF SHOE AND ANCHOR BAR AT B-LINE	
DATE	DWGNO. B-22



# FALAJ AL QABAIL

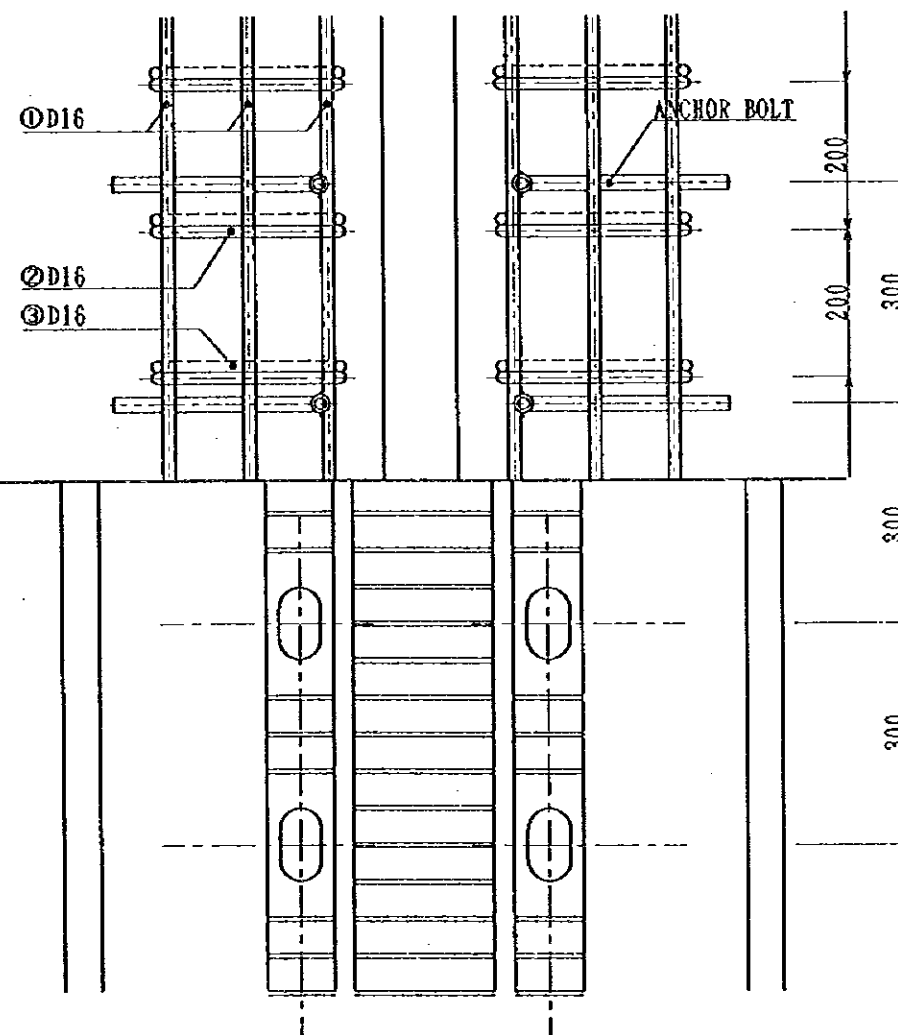


## MEASURE DATA

	A	B	C	D	E	F	G	H	I	J	STANDARD SPACE BETWEEN SLABS N	TRAVEL
PIER	54	433	340	879	50	223	390	80	160	250	100	80
ABUT	40	303	235	709	50	203	330	70	150	200	50	50

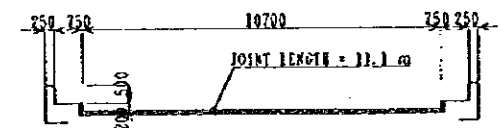
## MATERIAL LIST (PER 10 m)

MATERIAL	CLASSIFICATION	UNIT	PIER	ABUT
TRANSFLEX JOINT	INCLUDING ANCHORBOLT	m	10.0	10.0
SEALANT	FOR JOINT SEALS	kg	22.5	16.0
	FOR PLUG HOLE	kg	8.5	4.0
REINFORCING BAR	ØD16	kg	93.60	93.60
	ØD16	kg	60.84	53.04
RECESS CONCRETE	HIGH-EARLY STRENGTH CONCRETE	m³	1.143	0.964
COLORING AGENT OF THE FACE	3 kg/m²	kg	16.0	15.0
POLYURETHANE FORM		m	10.0	10.0
TRANSIENT FILLING MATERIAL	SAND	m³	0.66	0.53
	ASPHALT CONCRETE	m³	0.73	0.60



## QUANTITY LIST

	PIER	ABUTMENT
AL KHABURAHN	20	4
TOTAL LENGTH	222.0	44.4



JOINT LENGTH PER 1 PLACE

## TRANSFLEX JOINT

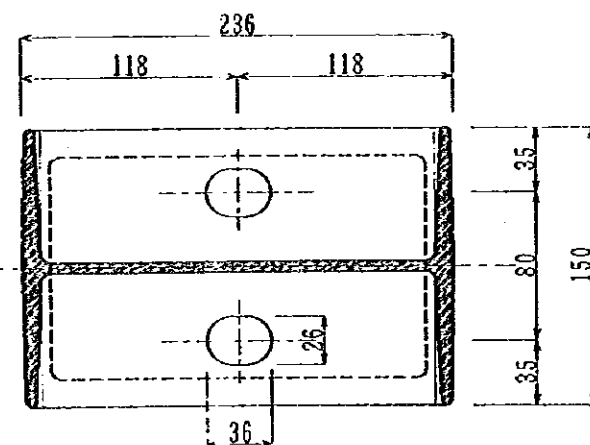
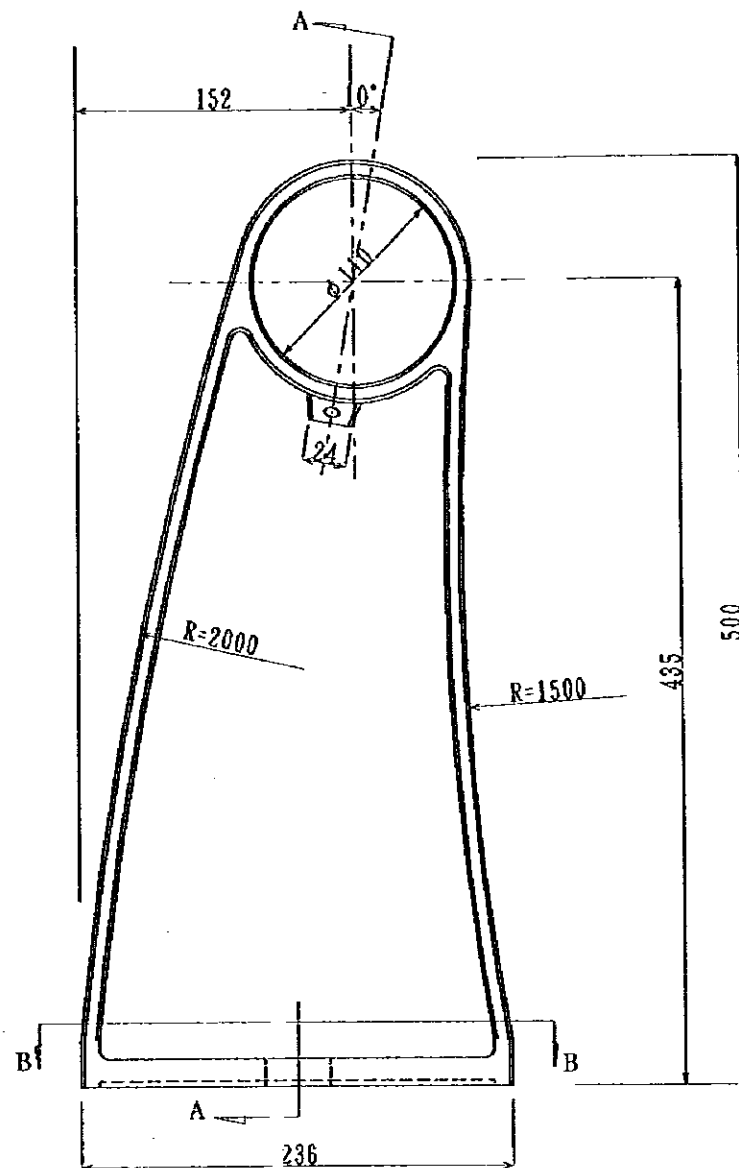
S-1/10

NOTES:

JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
YUKUYAMA CONSULTANTS INTERNATIONAL

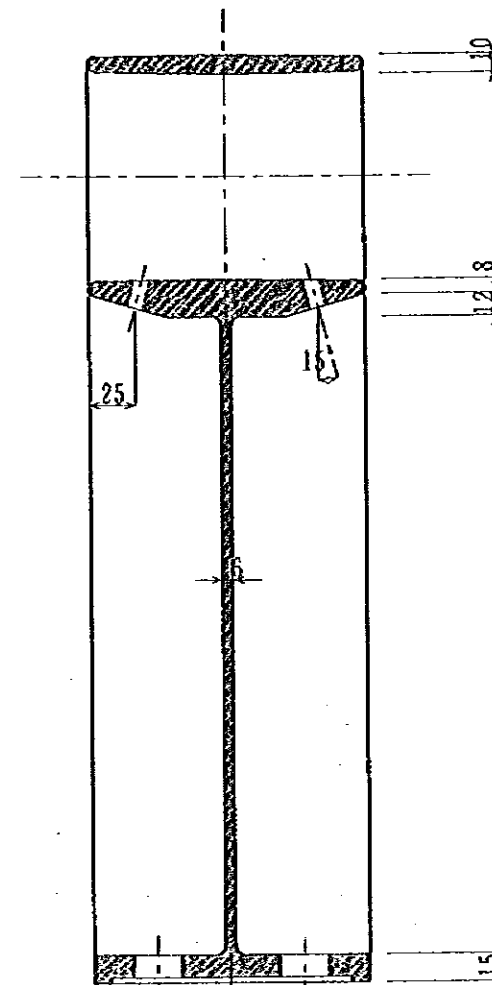
CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: EXPANSION JOINT  
DATE: \_\_\_\_\_ DWGNO. B-23

# FALAJ AL QABAIL

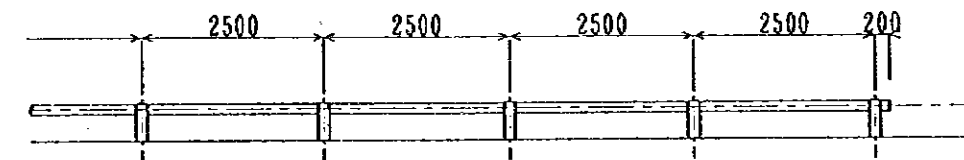


B-B SECTION

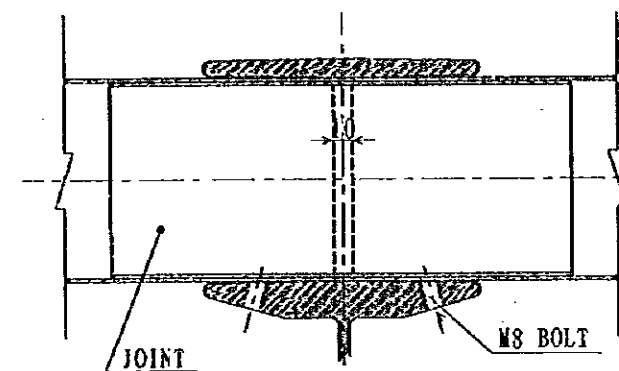
POST SCALE



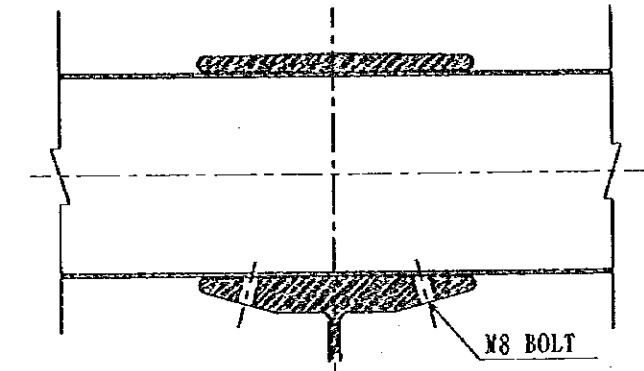
A-A SECTION



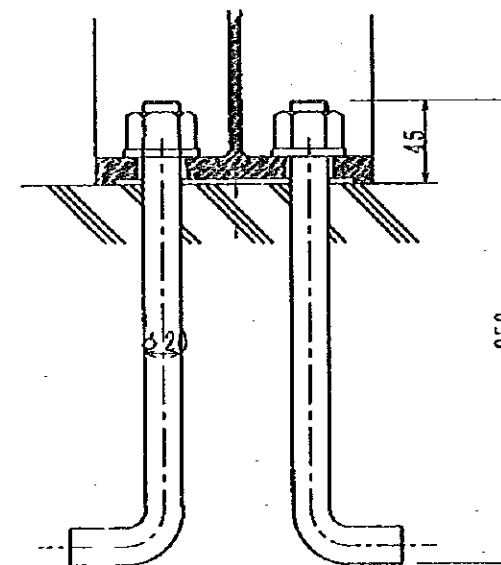
POST ARRANGEMENT



RAIL JOINT SECTION



RAIL PENETRATING SECTION



ANCHOR BOLT



HANDRAIL LOCATION

## HANDRAIL S=1:4 ALUMINIUM PRODUCTS

NOTES:

JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)

JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
YUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS

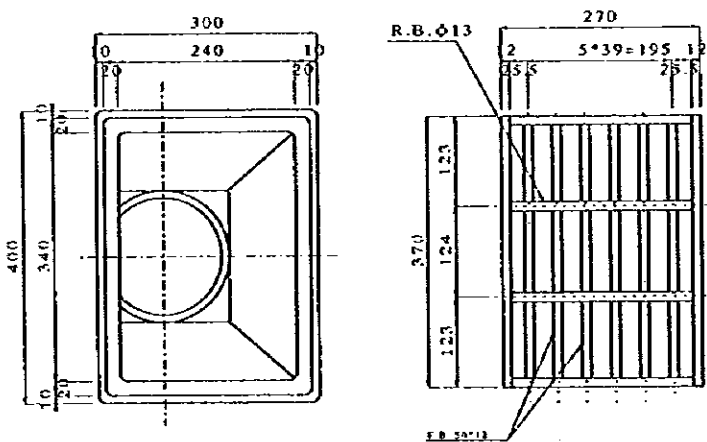
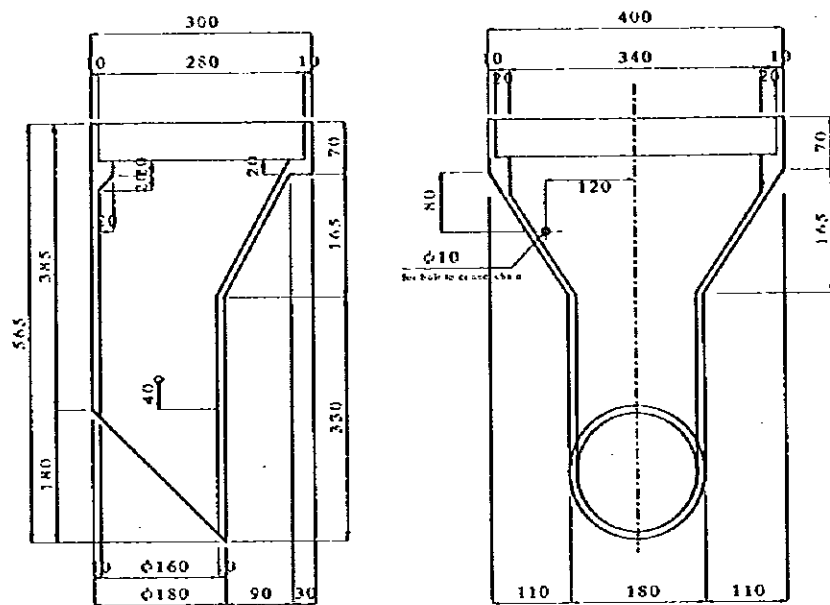
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY

TITLE HANDRAIL

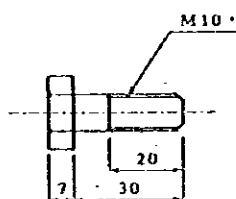
DATE DWGNO. B-24

**BRIDGE DRAINAGE DETAILS  
(FALAJ AL QABAIL FLYOVER)**

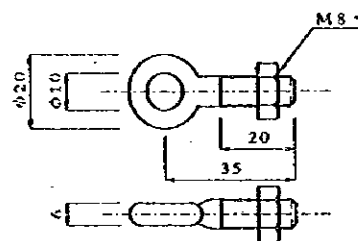
### CATCH BASIN (S=1:5)



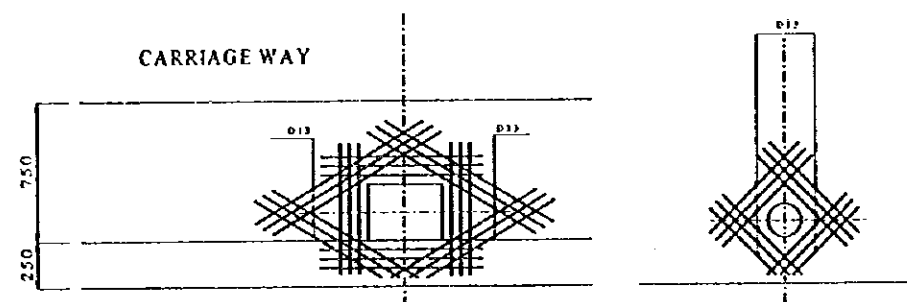
BISS (S = 1:1)



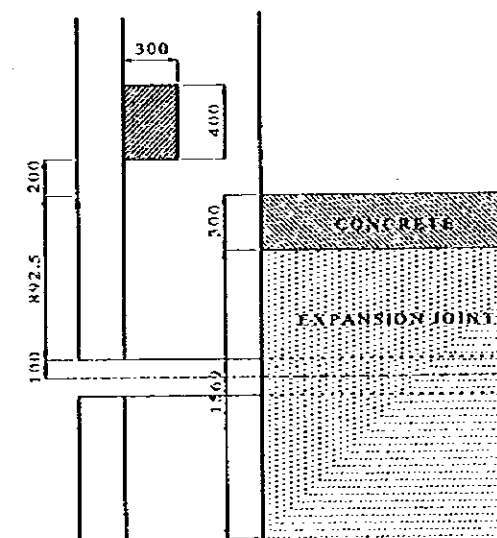
**BOLT TO CONNECT CHAIN (S=1:1)**



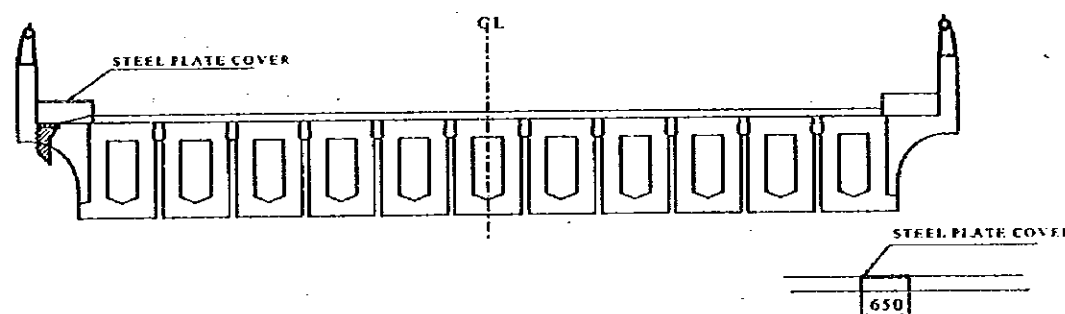
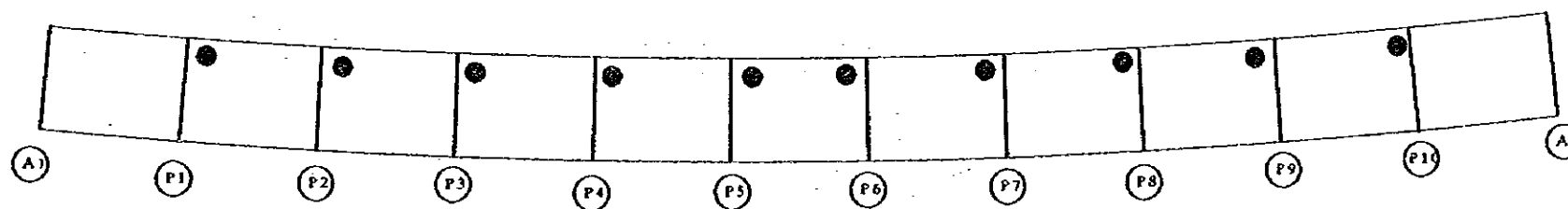
REINFORCING (S=1:20)



### INSTALLING LOCATION DETAIL



CROSS SECTIONAL LOCATION

**INSTALLATION LOCATIONS (A-LINE, B-LINE)**

**NOTES:**

JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)

JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

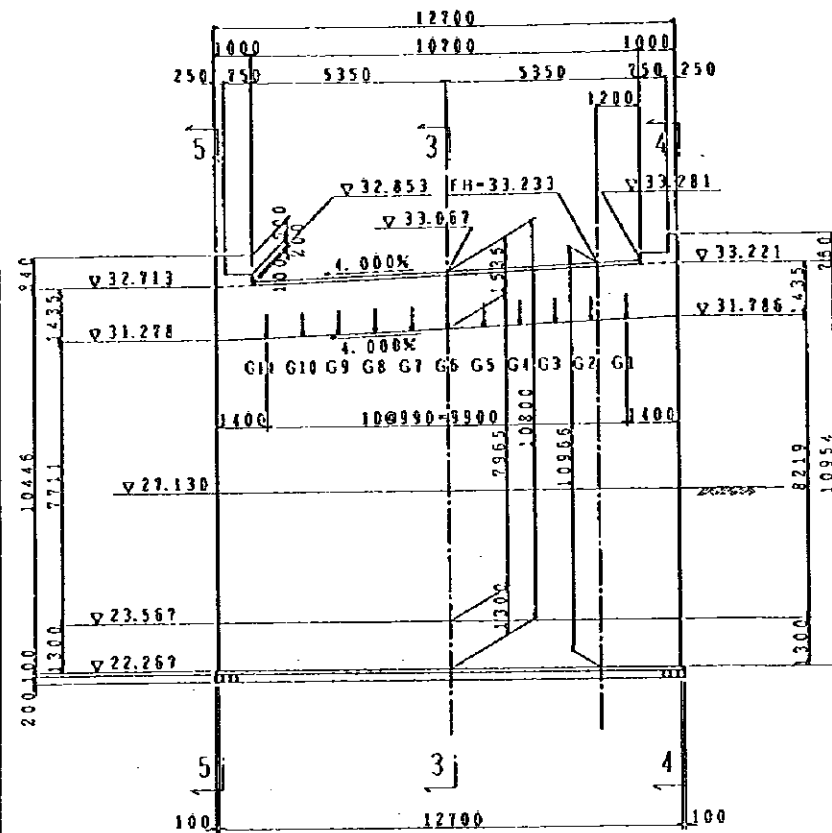
CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS

PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY

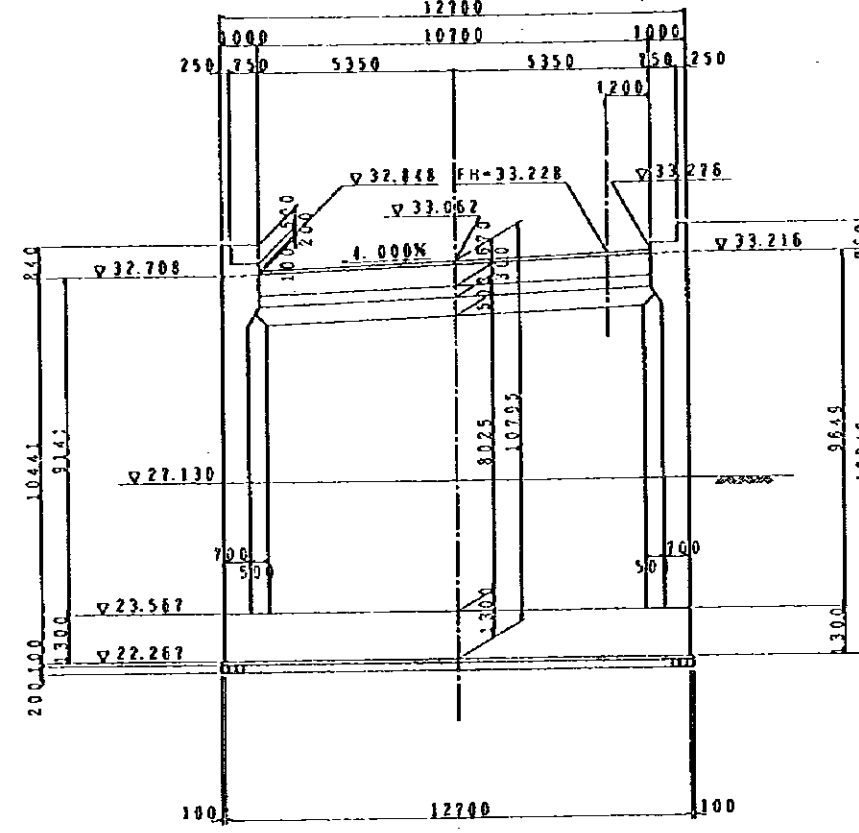
TITLE	BRIDGE DRAINAGE DETAILS (FALAJ AL QABAIL)
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DATE	DWO. NO.	B-25
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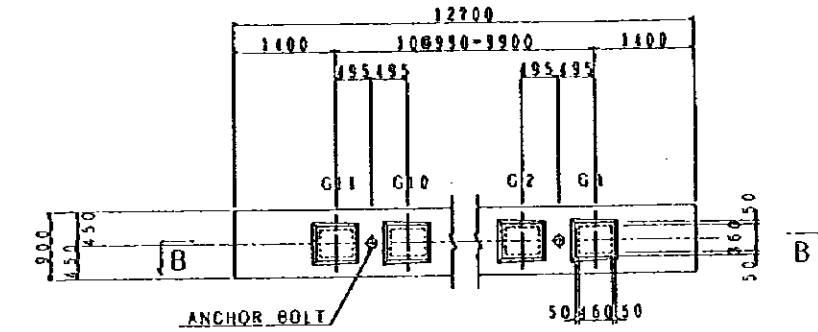
# RA/14 FALAJ AL QABAIL



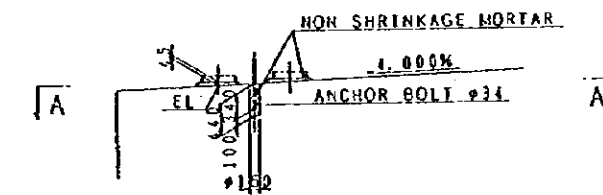
SECTION 1-1 S= 1/200



SECTION 2-2 S= 1/200



SECTION A-A S= 1/100



SECTION B-B S= 1/100

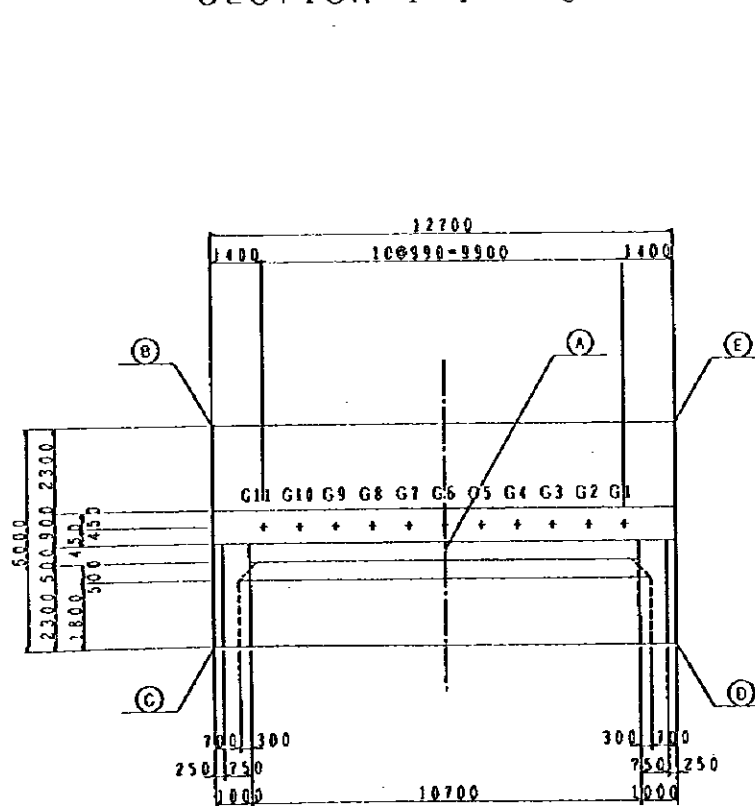
## DETAIL OF SHOE BED

### SHOE ELEVATION(EL) TABLE

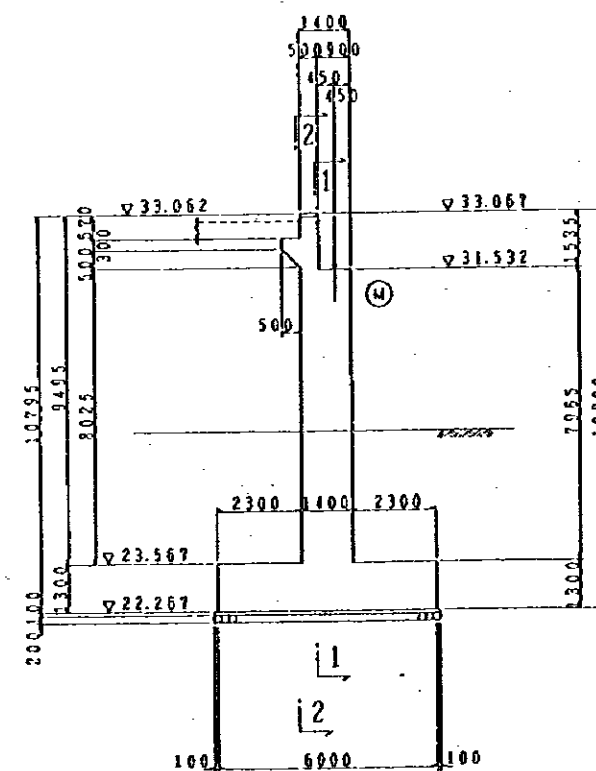
G 1	G11
31.830	31.434

### CO-ORDINATES LIST

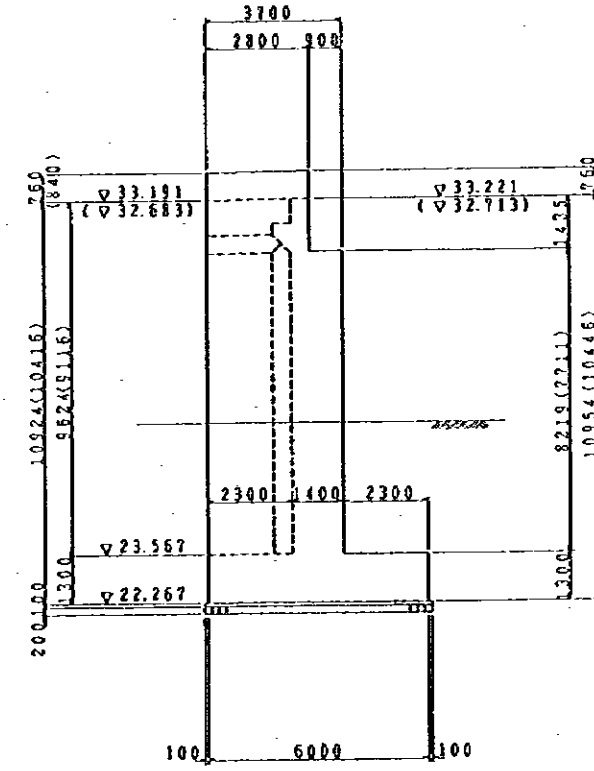
A	X	Y
A	2701305.6915	460502.0658
B	2701310.9451	460511.9744
C	2701374.7732	460507.9257
D	2701366.2034	460498.5525
E	2701361.7753	460502.6010



PLAN S= 1/200



SECTION 3-3 S= 1/200



SECTION 4-4 (5-5) S= 1/200

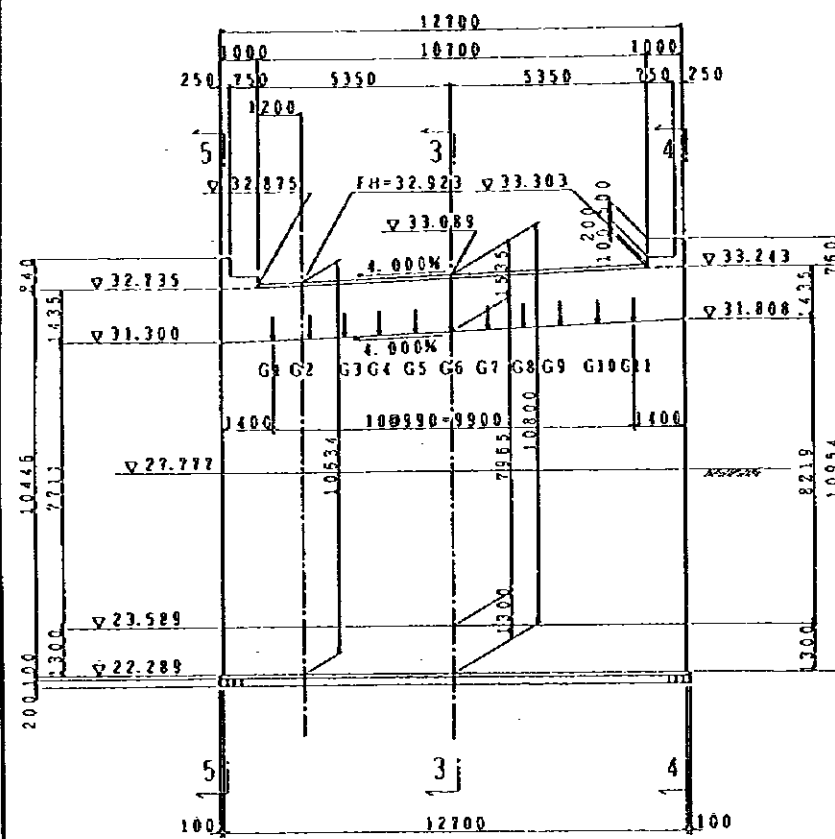
## STRUCTURAL DETAIL OF A1 ABUTMENT AT A-LINE

NOTES:

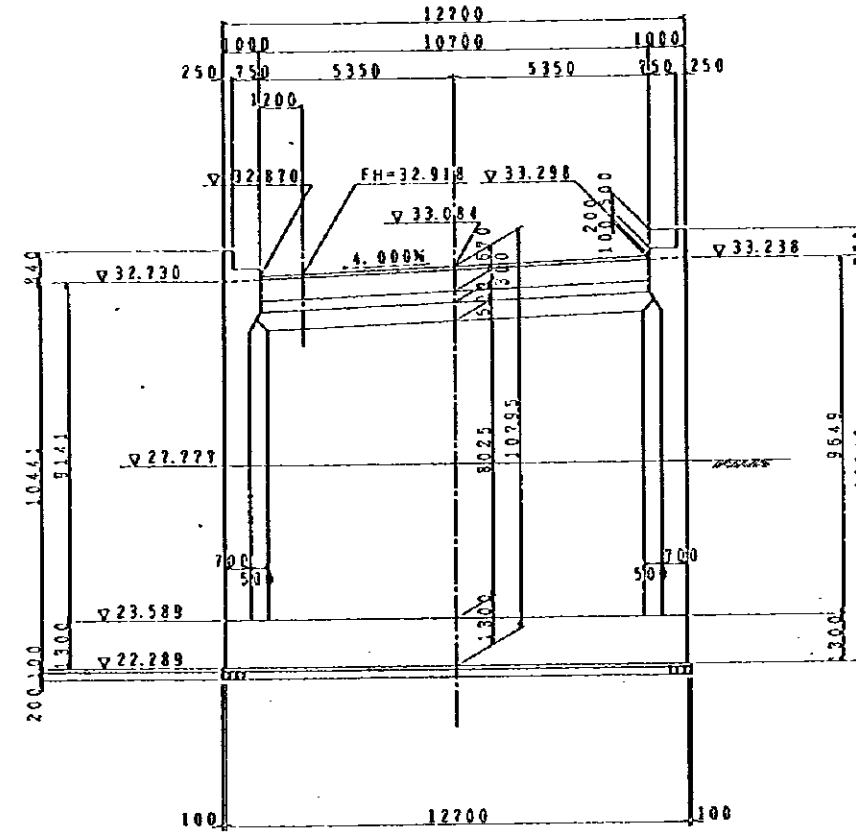
JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: STRUCTURAL DETAIL OF A1 ABUTMENT AT A-LINE  
DATE: \_\_\_\_\_ DWGNO. B-26

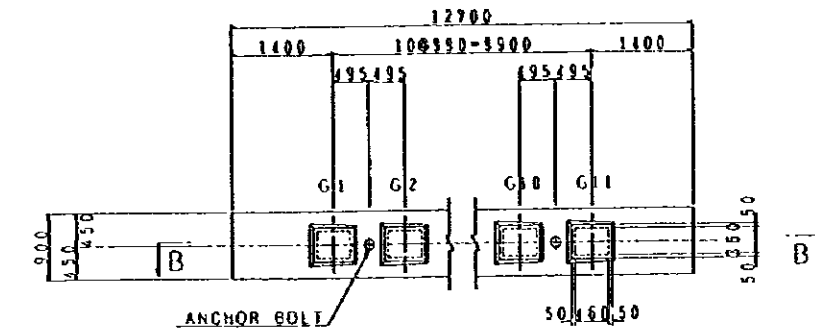
# RA/14 FALAJ AL QABAIL



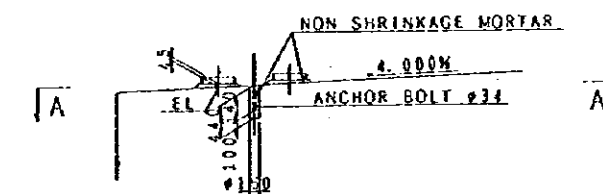
SECTION 1-1 S= 1/200



SECTION 2-2 S= 1/200



SECTION A-A S= 1/100



SECTION B-B S= 1/100

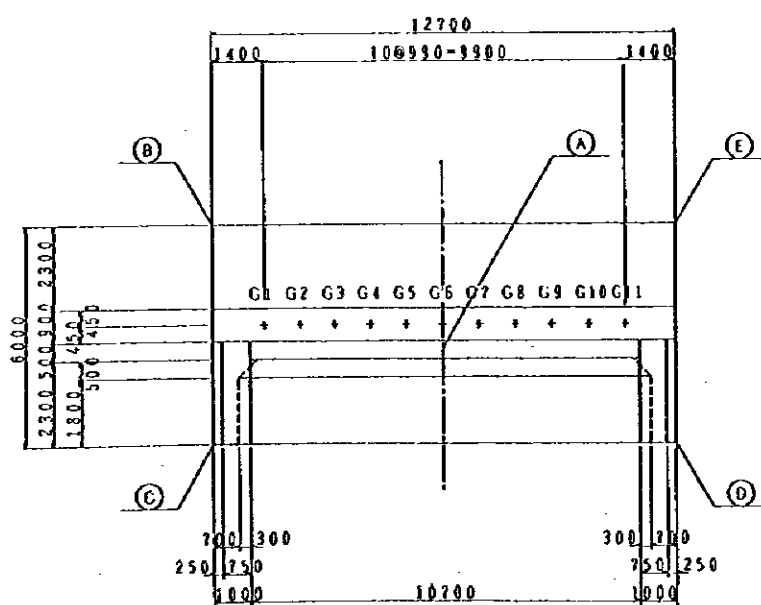
DETAIL OF SHOE BED

SHOE ELEVATION(EL) TABLE

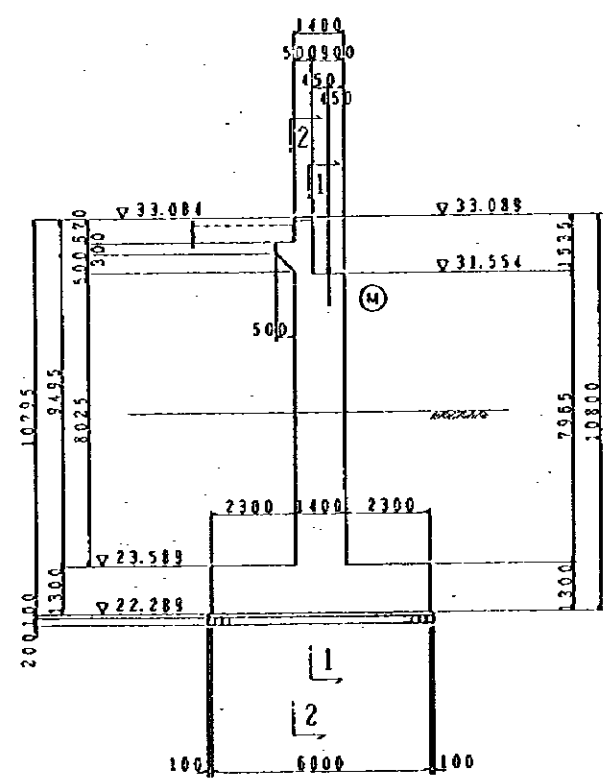
G 1	G11
31.456	31.852

CO-ORDINATES LIST

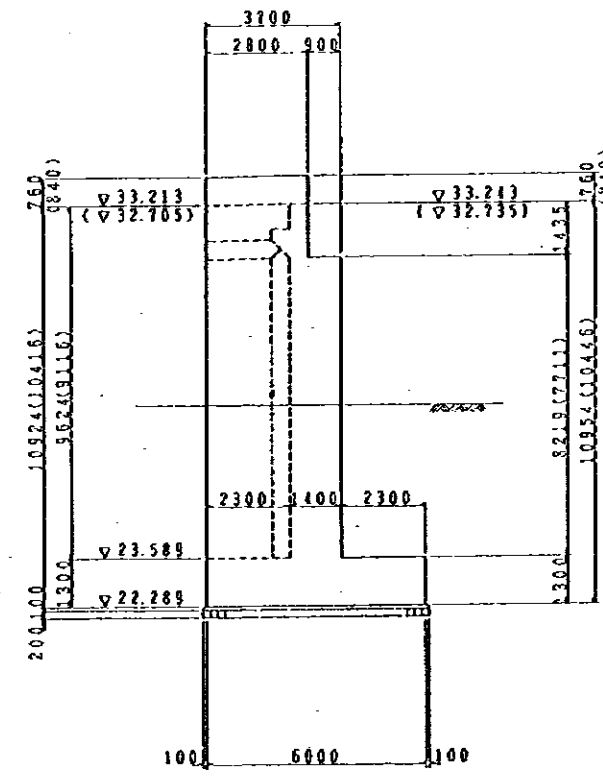
A	X	Y
A	2701354	4643
B	2701354	4756
C	2701354	4870
D	2701354	4984
E	2701354	5098



PLAN S= 1/200



SECTION 3-3 S= 1/200



SECTION 4-4 (5-5) S= 1/200

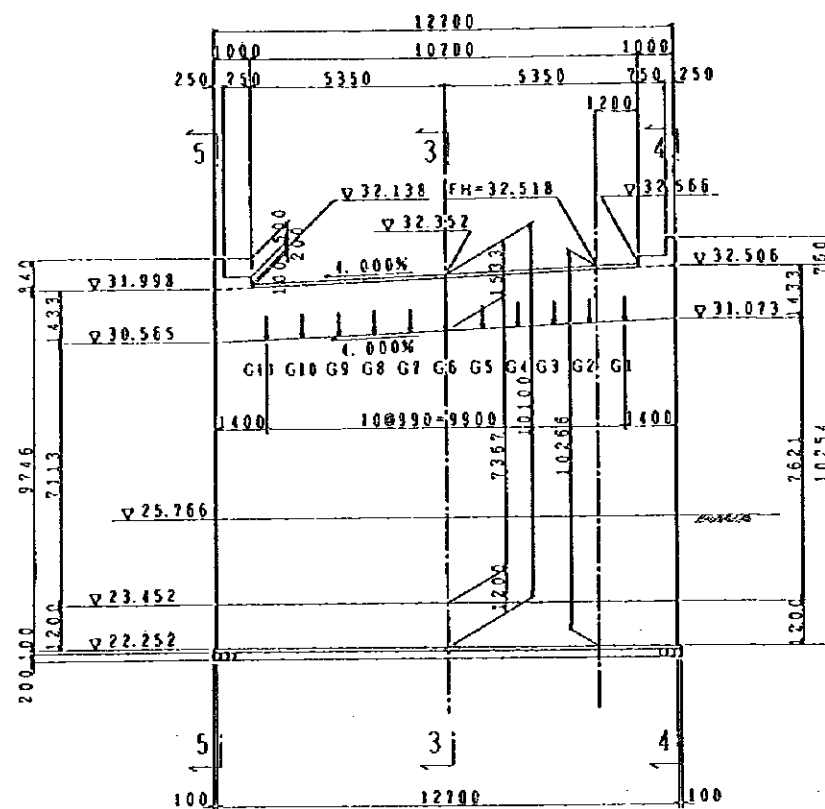
STRUCTURAL DETAIL OF A1 ABUTMENT AT B-LINE

NOTES:

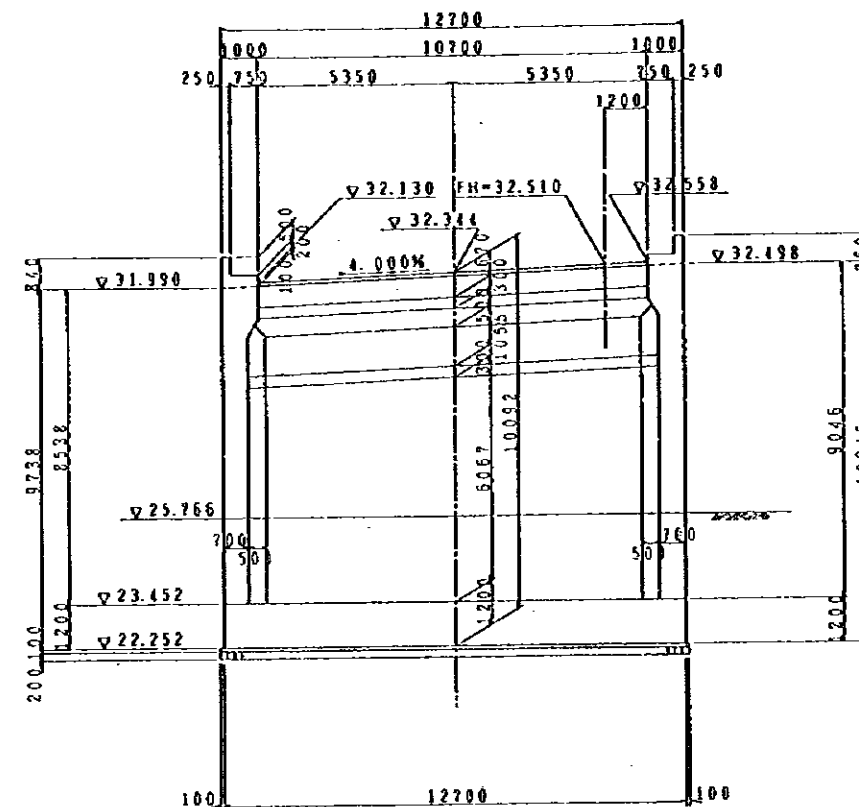
JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: STRUCTURAL DETAIL OF A1 ABUTMENT AT B-LINE  
DATE: \_\_\_\_\_ DWGNO. B-27

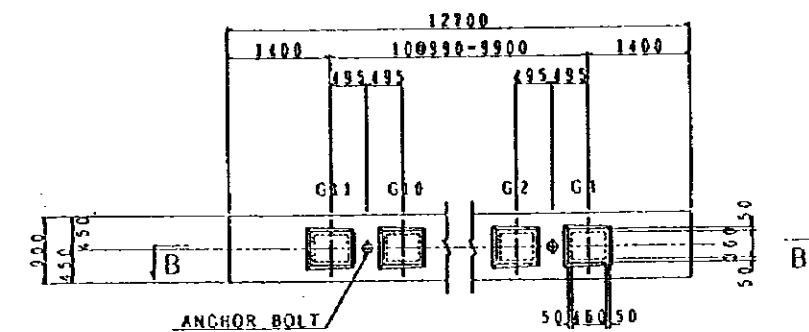
# RA/14 FALAJ AL QABAIL



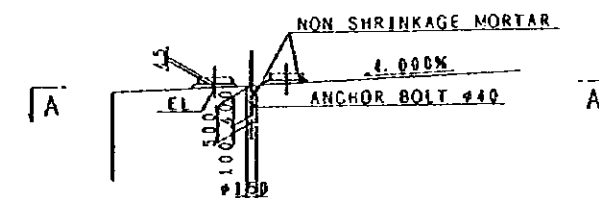
SECTION 1-1 S= 1/200



SECTION 2-2 S= 1/200



SECTION A-A S= 1/100



SECTION B-B S= 1/100

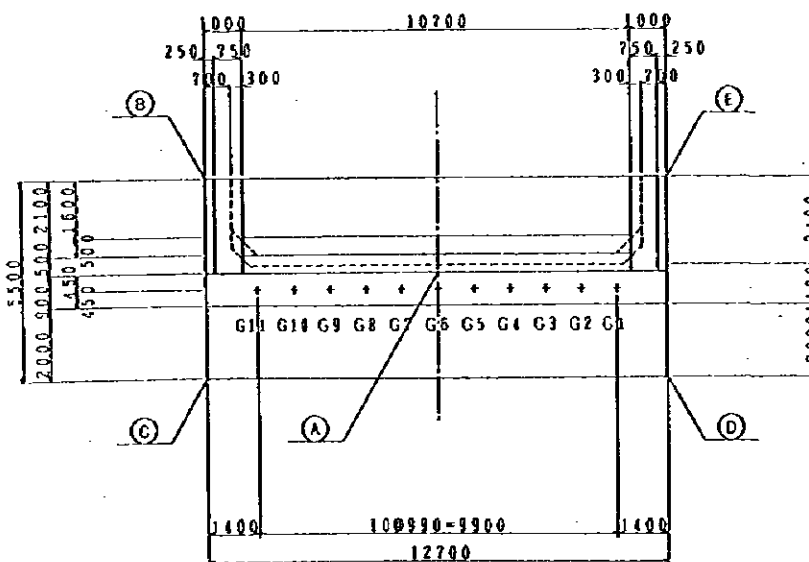
DETAIL OF SHOE BED

SHOE ELEVATION(EL) TABLE

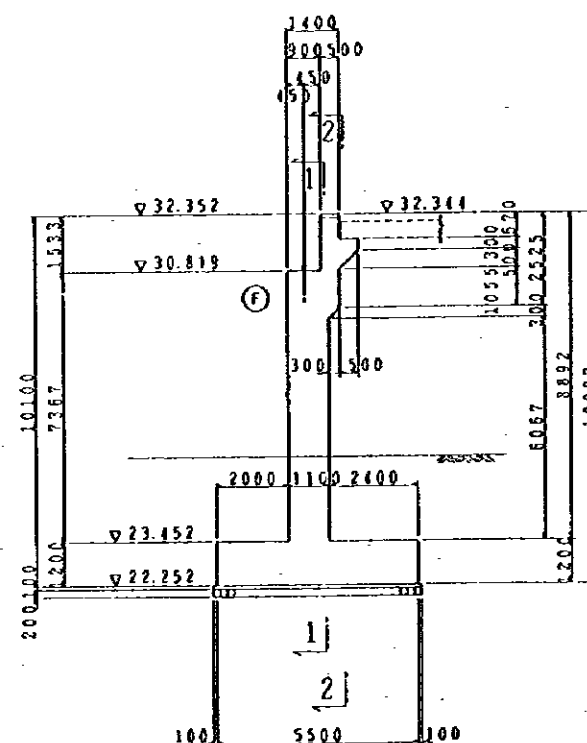
G 1	G11
30.621	31.017

CO-ORDINATES LIST

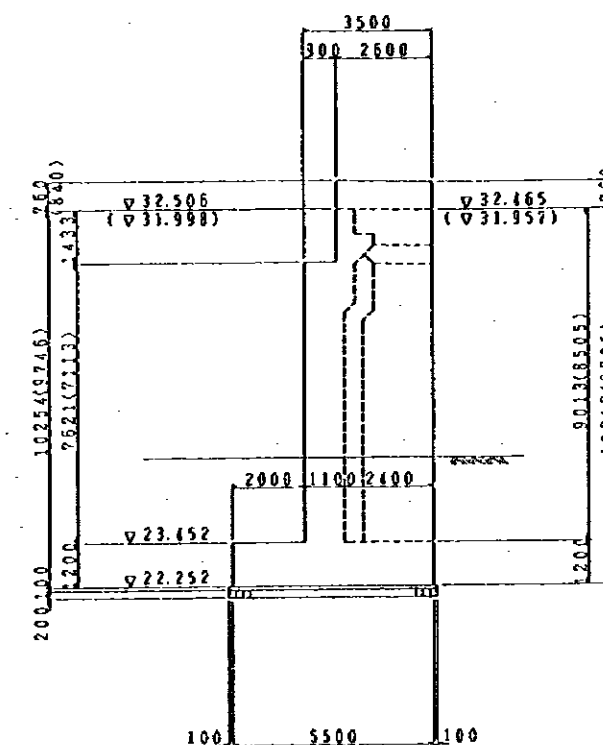
A	X	Y
A	2701178	7556
B	2701182	5930
C	2701187	0420
D	2701190	5179
E	2701193	0977
F	2701197	8444
G	2701200	5369
H	2701204	3969
I	2701208	4869
J	2701212	6559



PLAN S= 1/200



SECTION 3-3 S= 1/200



SECTION 4-4 (5-5) S= 1/200

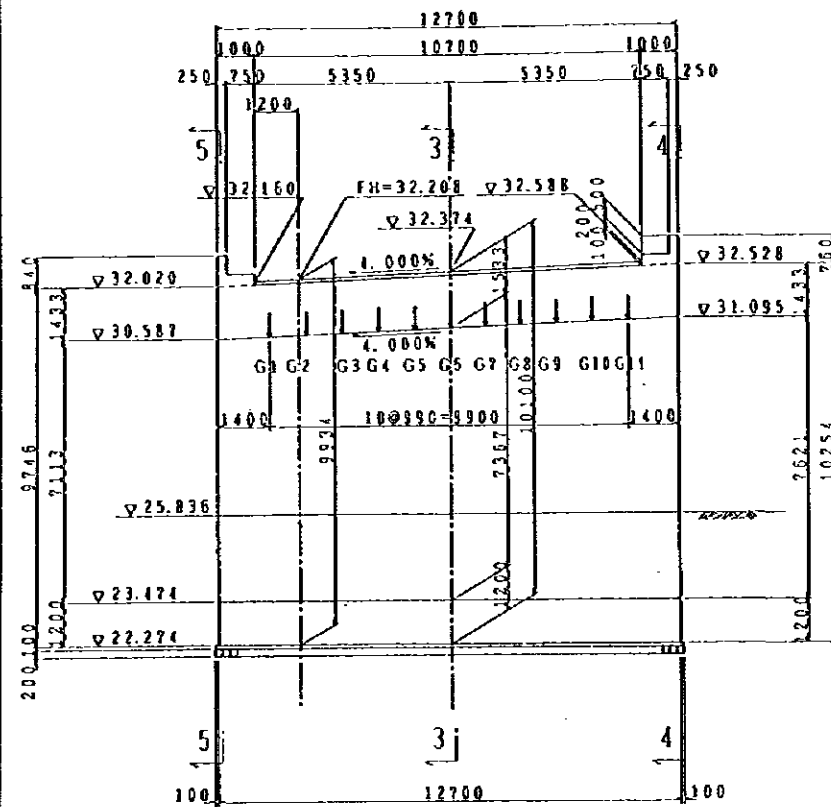
STRUCTURAL DETAIL OF A2 ABUTMENT AT A-LINE

NOTES:

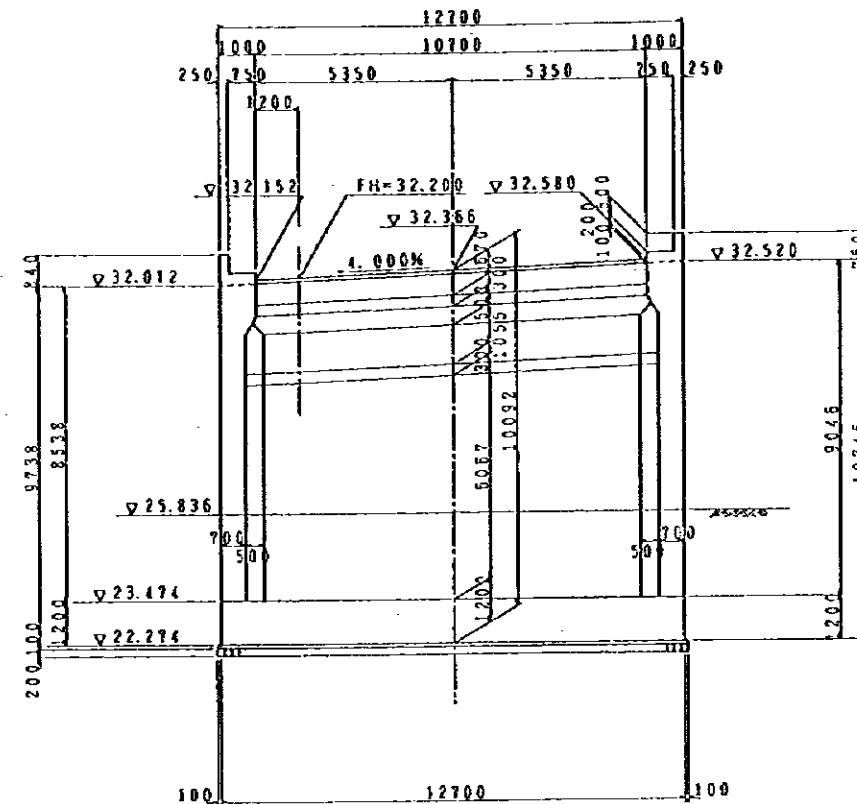
JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: STRUCTURAL DETAIL OF A2 ABUTMENT AT A-LINE  
DATE: \_\_\_\_\_ DWGNO. B-28

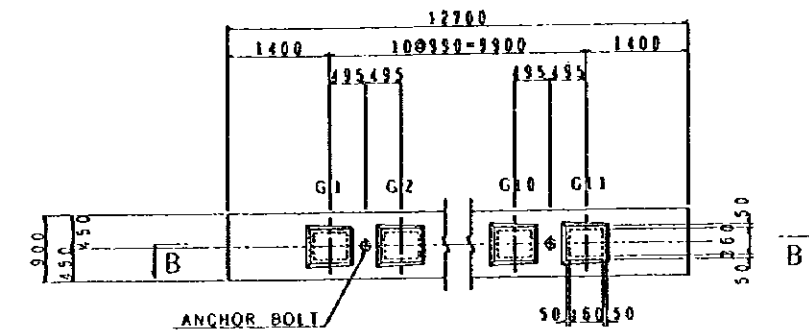
# RA/14 FALAJ AL QABAIL



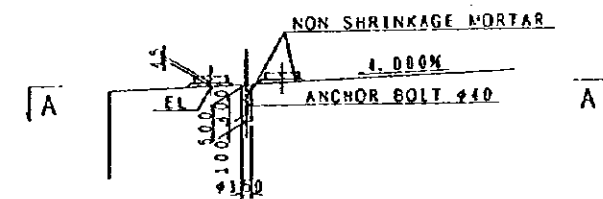
SECTION 1-1 S= 1/200



SECTION 2-2 S= 1/200



SECTION A-A S= 1/100



SECTION B-B S= 1/100

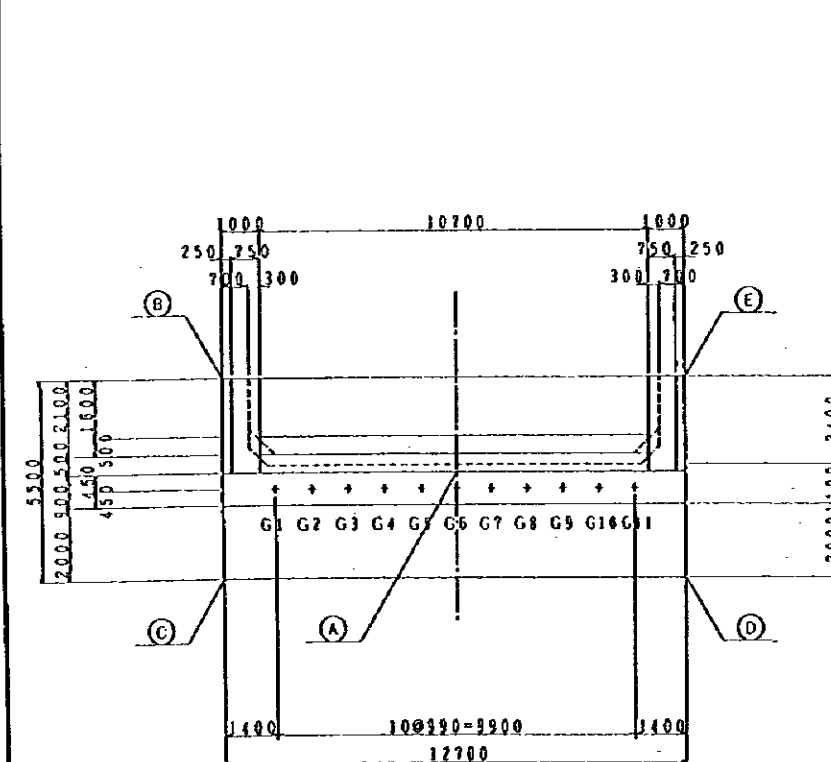
DETAIL OF SHOE BED

SHOE ELEVATION(EL) TABLE

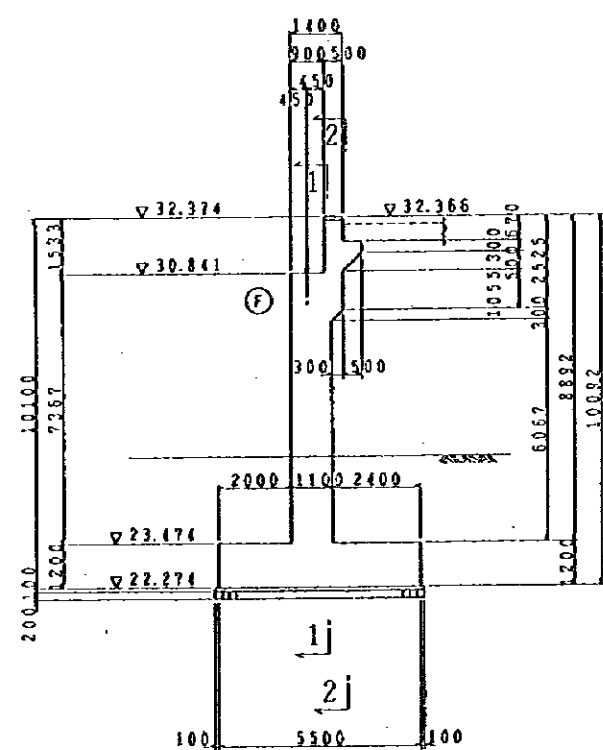
G 1	G11
30.643	31.039

CO-ORDINATES LIST

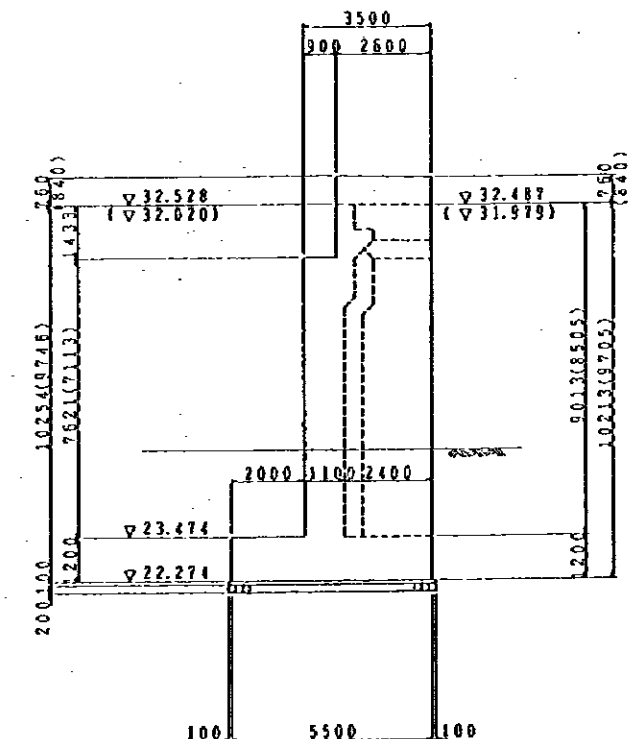
A	X	Y
A	2701168	63550
B	2701168	63550
C	2701168	63550
D	2701168	63550
E	2701168	63550



PLAN S= 1/200



SECTION 3-3 S= 1/200



SECTION 4-4 (5-5) S= 1/200

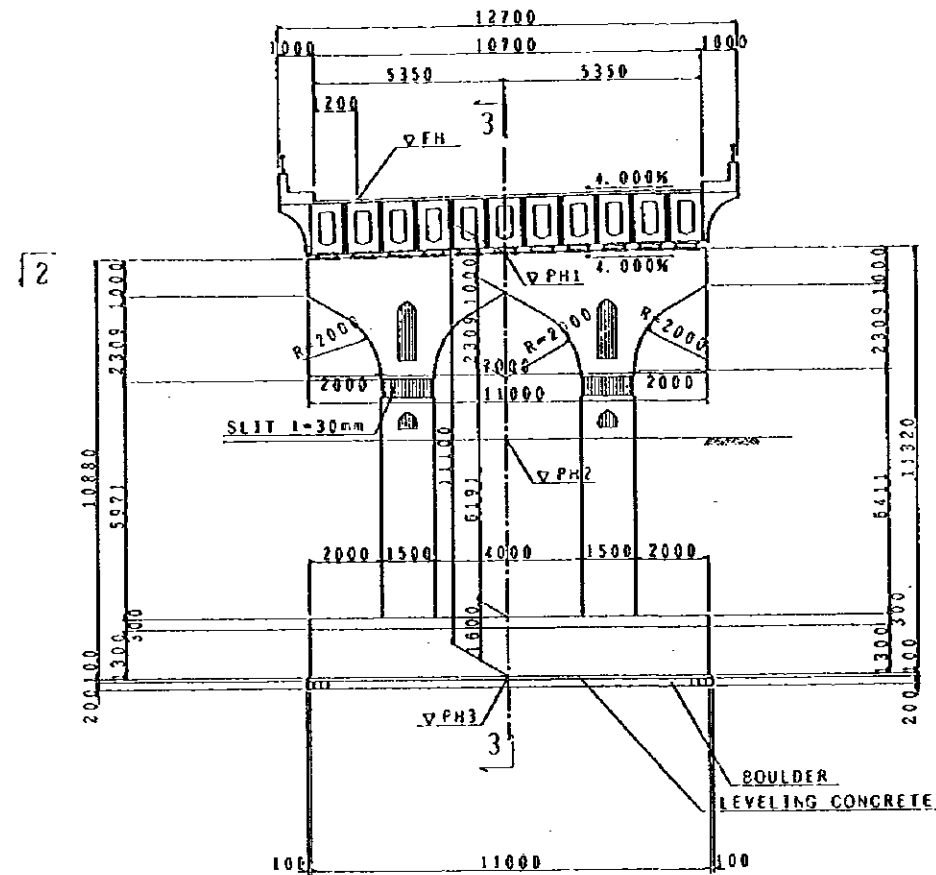
STRUCTURAL DETAIL OF A2 ABUTMENT AT B-LINE

NOTES:

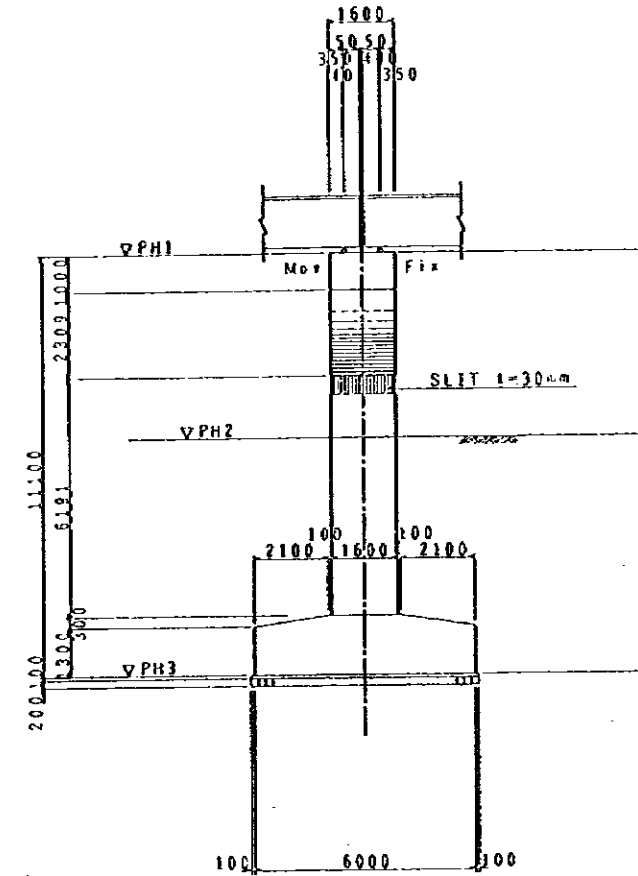
JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: STRUCTURAL DETAIL OF A2 ABUTMENT AT B-LINE  
DATE: \_\_\_\_\_ DWGNO. B-29

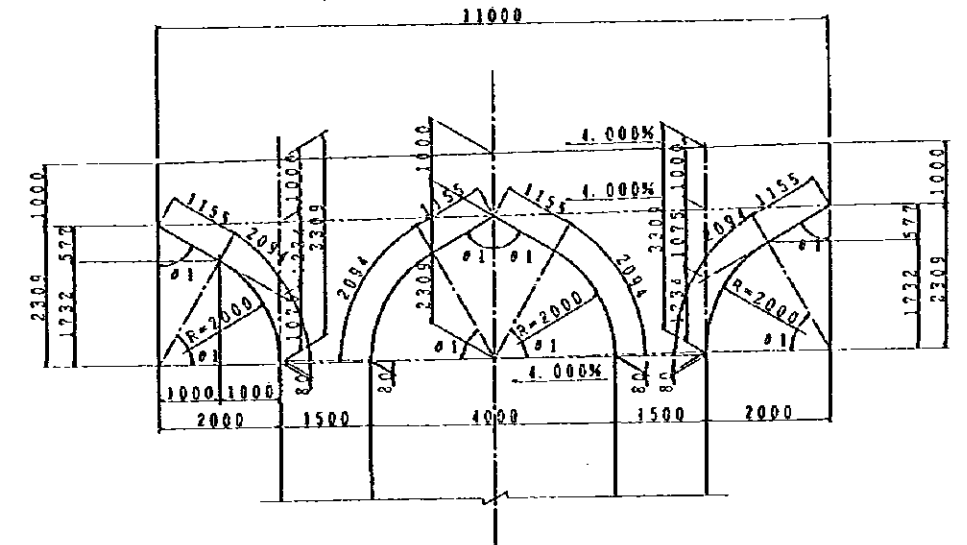
# RA/14 FALAJ AL QABAIL



SECTION 1-1 S= 1/200



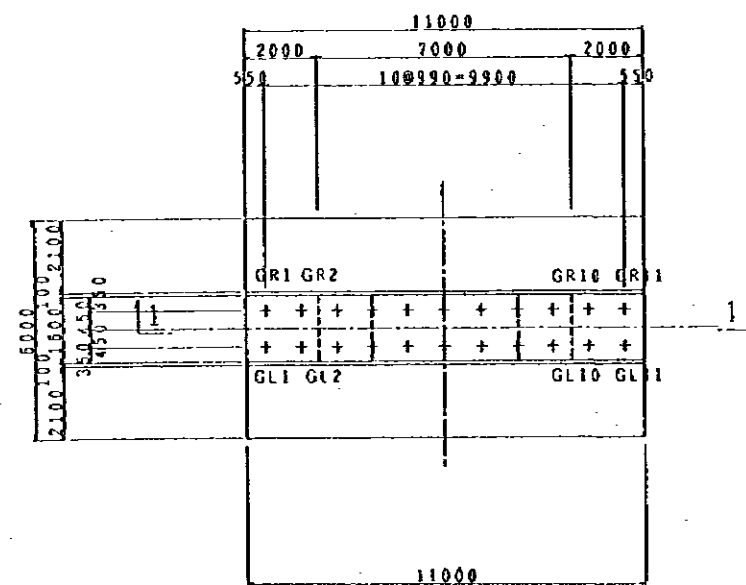
SECTION 3-3 S= 1/200



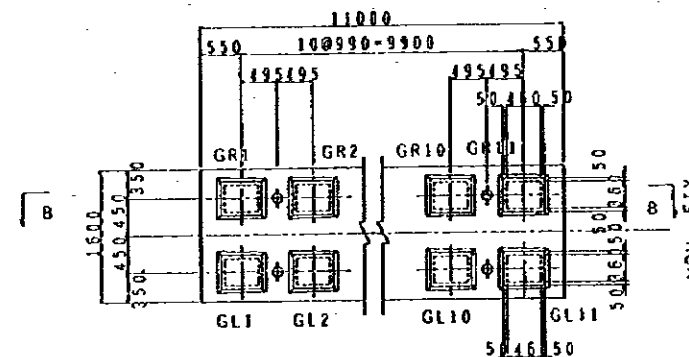
BEAM DETAIL S= 1/120

DIMENSION TABLE

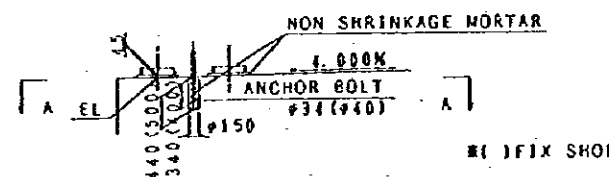
		PH1	PH2	PH3	H 1	H 2
A-LINE	P 1	31.762	26.838	20.662	4924	6176
	P 2	31.945	26.547	20.845	5398	5702
	P 3	32.066	26.256	20.966	5810	5290
	P 4	32.125	25.980	21.052	6145	4955
	P 5	32.122	25.980	21.022	6142	4958
	P 6	32.057	25.980	20.957	6077	5023
	P 7	31.930	25.980	20.830	5950	5150
	P 8	31.741	26.174	20.641	5567	5533
	P 9	31.490	26.038	20.390	5452	5648
	P10	31.177	25.902	20.077	5275	5825
B-LINE	P 1	31.785	27.283	20.685	4502	6598
	P 2	31.967	26.189	20.867	5178	5922
	P 3	32.088	26.295	20.988	6108	4992
	P 4	32.147	25.980	21.047	6167	4933
	P 5	32.144	25.980	21.044	6164	4936
	P 6	32.079	25.980	20.979	6099	5001
	P 7	31.952	25.980	20.852	5972	5128
	P 8	31.763	26.178	20.663	5585	5515
	P 9	31.512	26.064	20.412	5448	5652
	P10	31.199	25.950	20.099	5249	5851



SECTION 2-2 S= 1/200



SECTION A-A S= 1/50

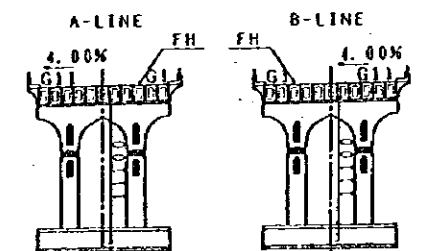


SECTION B-B S= 1/100

DETAIL OF SHOE BED

SHOE ELEVATION(EL) TABLE

	A-LINE		B-LINE	
	GIL (GIR)	GIL (GIR)	GIL (GIR)	GIL (GIR)
P 1	31.564	31.960	31.587	31.983
P 2	31.747	32.143	31.769	32.165
P 3	31.868	32.264	31.890	32.286
P 4	31.927	32.323	31.949	32.345
P 5	31.924	32.320	31.946	32.342
P 6	31.859	32.255	31.881	32.277
P 7	31.732	32.128	31.754	32.150
P 8	31.543	31.938	31.565	31.961
P 9	31.292	31.688	31.314	31.710
P10	30.979	31.375	31.001	31.397



KEY PLAN

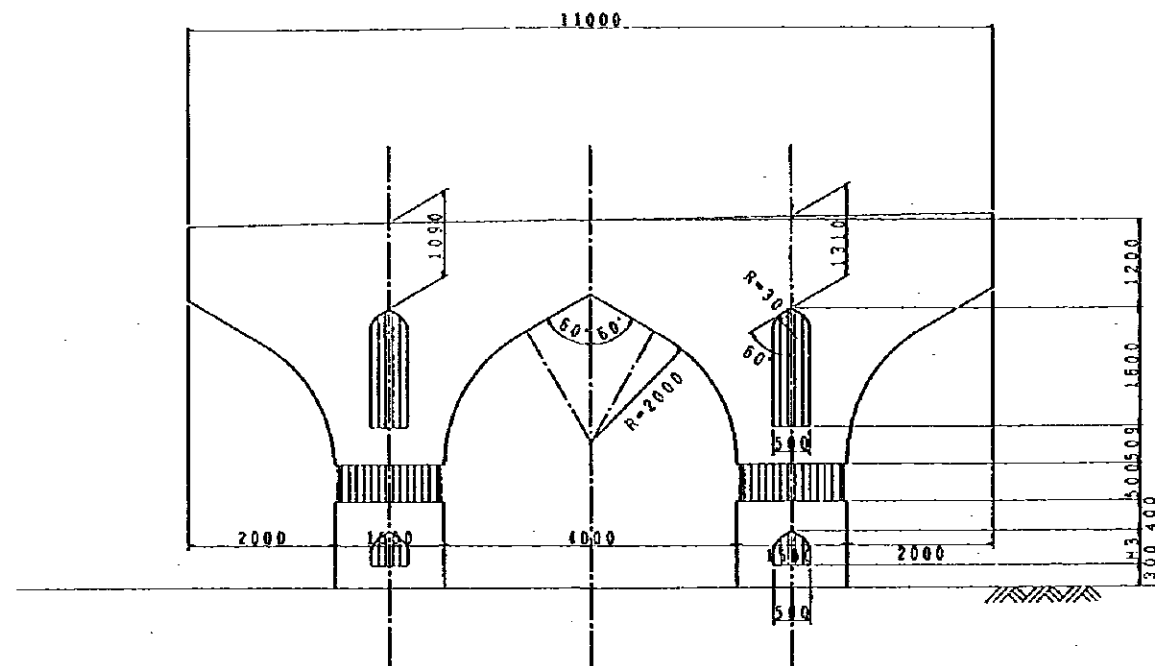
NOTES:

JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

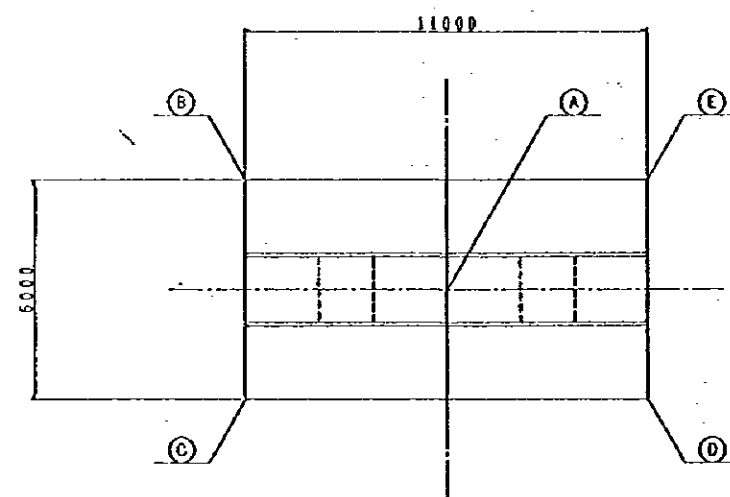
CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: STRUCTURAL DETAIL OF TWO-COLUMN PIER(P1-P10) AT A,B-LINE(1/2)  
DATE: \_\_\_\_\_ DWGNO. B-30



# RA/14 FARAJ AL QABAIL



SLIT OF PLAN S= 1/100



FRAMING PLAN S= 1/200

DIMENSION (H<sub>3</sub>) TABLE

	A-LINE	B-LINE
P 1	415	-
P 2	889	669
P 3	1301	1539
P 4	1636	1658
P 5	1633	1655
P 6	1568	1590
P 7	1441	1463
P 8	1058	1076
P 9	1194	939
P10	766	740

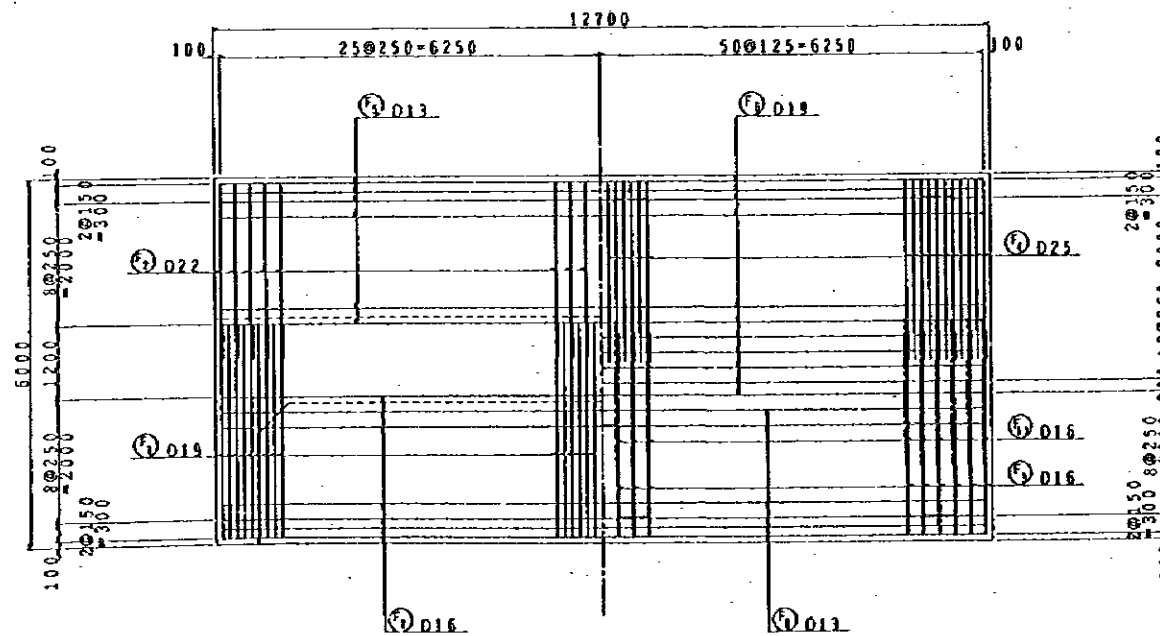
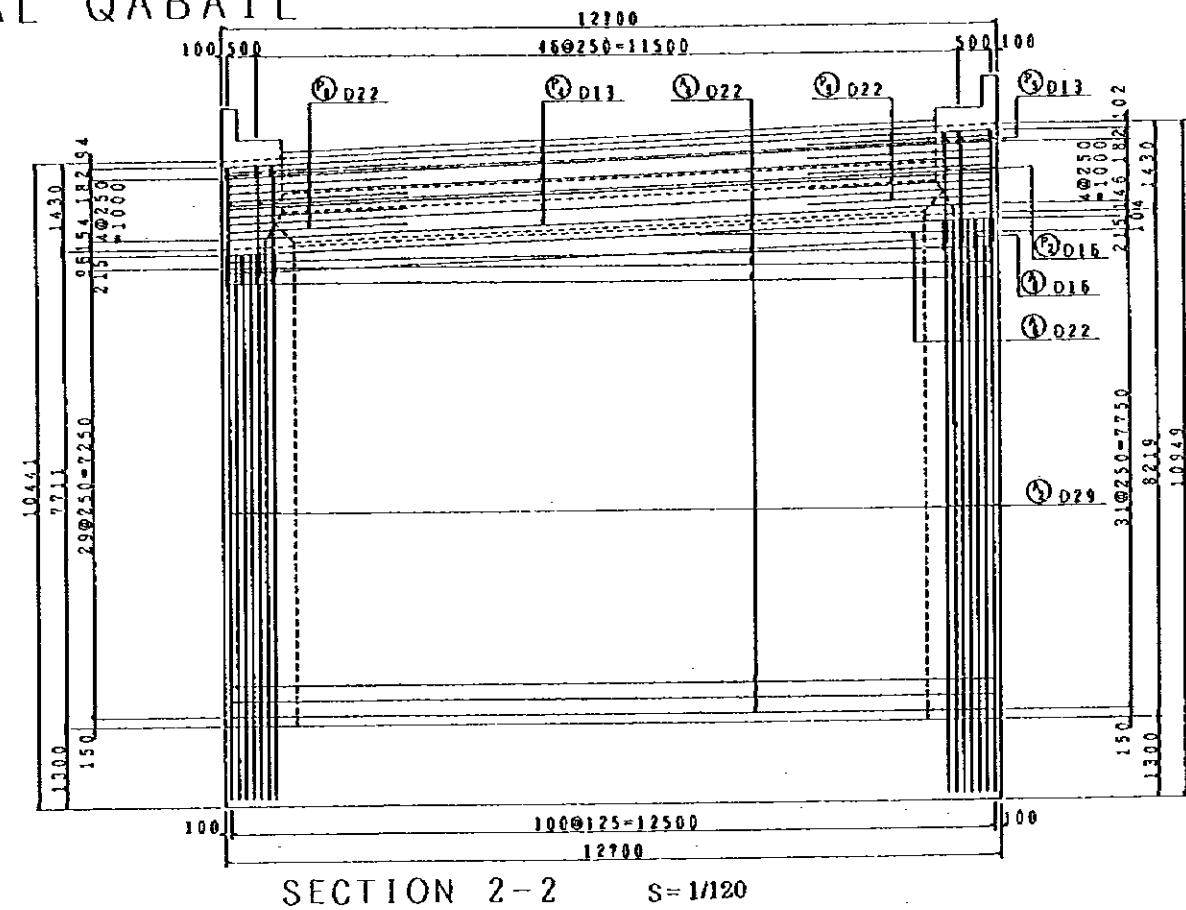
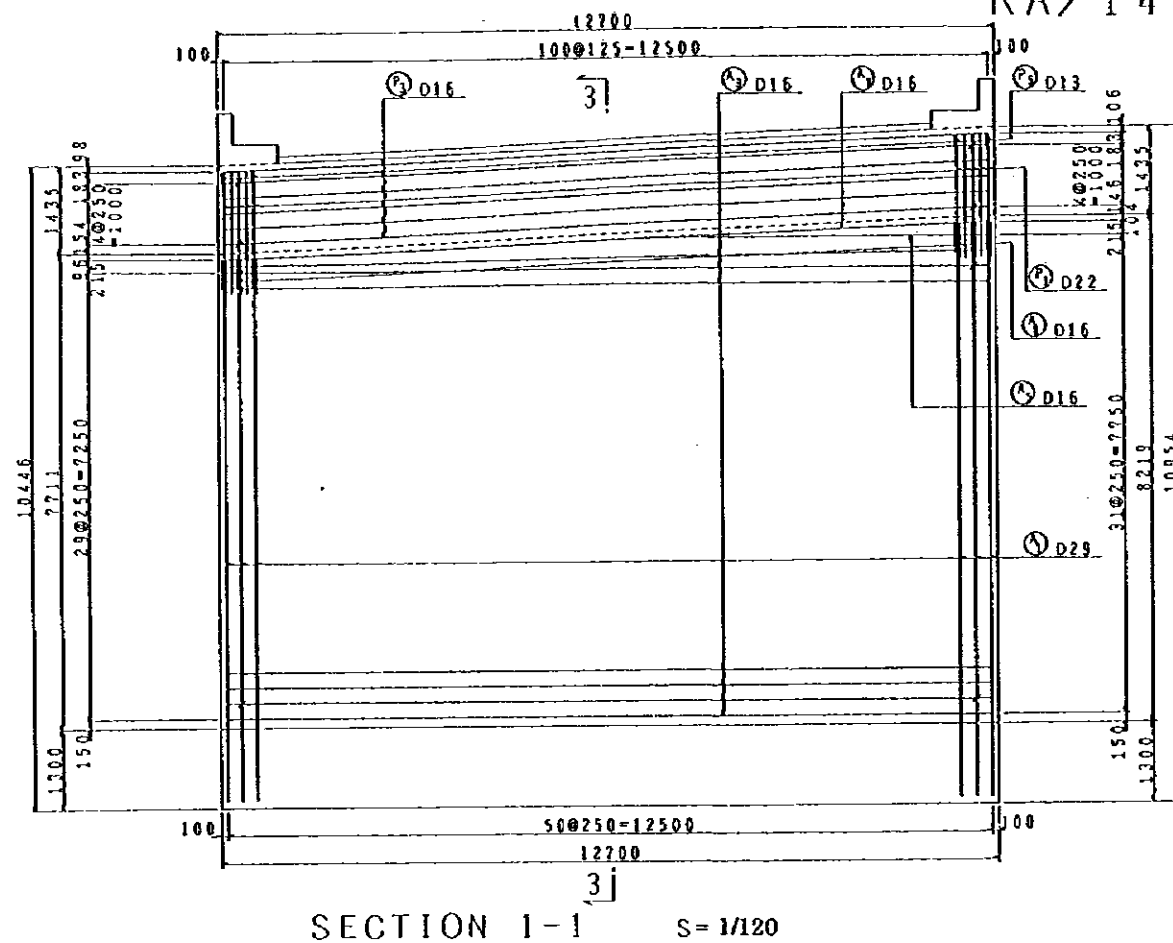
CO-ORDINATES LIST

		A	B	C	D	E
A I L I N E	P1	270131.4	270131.4	270131.4	270131.4	270131.4
	P2	270131.4	270131.4	270131.4	270131.4	270131.4
	P3	270131.4	270131.4	270131.4	270131.4	270131.4
	P4	270131.4	270131.4	270131.4	270131.4	270131.4
	P5	270131.4	270131.4	270131.4	270131.4	270131.4
	P6	270131.4	270131.4	270131.4	270131.4	270131.4
	P7	270131.4	270131.4	270131.4	270131.4	270131.4
	P8	270131.4	270131.4	270131.4	270131.4	270131.4
	P9	270131.4	270131.4	270131.4	270131.4	270131.4
	P10	270131.4	270131.4	270131.4	270131.4	270131.4
B I L I N E	P1	270131.4	270131.4	270131.4	270131.4	270131.4
	P2	270131.4	270131.4	270131.4	270131.4	270131.4
	P3	270131.4	270131.4	270131.4	270131.4	270131.4
	P4	270131.4	270131.4	270131.4	270131.4	270131.4
	P5	270131.4	270131.4	270131.4	270131.4	270131.4
	P6	270131.4	270131.4	270131.4	270131.4	270131.4
	P7	270131.4	270131.4	270131.4	270131.4	270131.4
	P8	270131.4	270131.4	270131.4	270131.4	270131.4
	P9	270131.4	270131.4	270131.4	270131.4	270131.4
	P10	270131.4	270131.4	270131.4	270131.4	270131.4

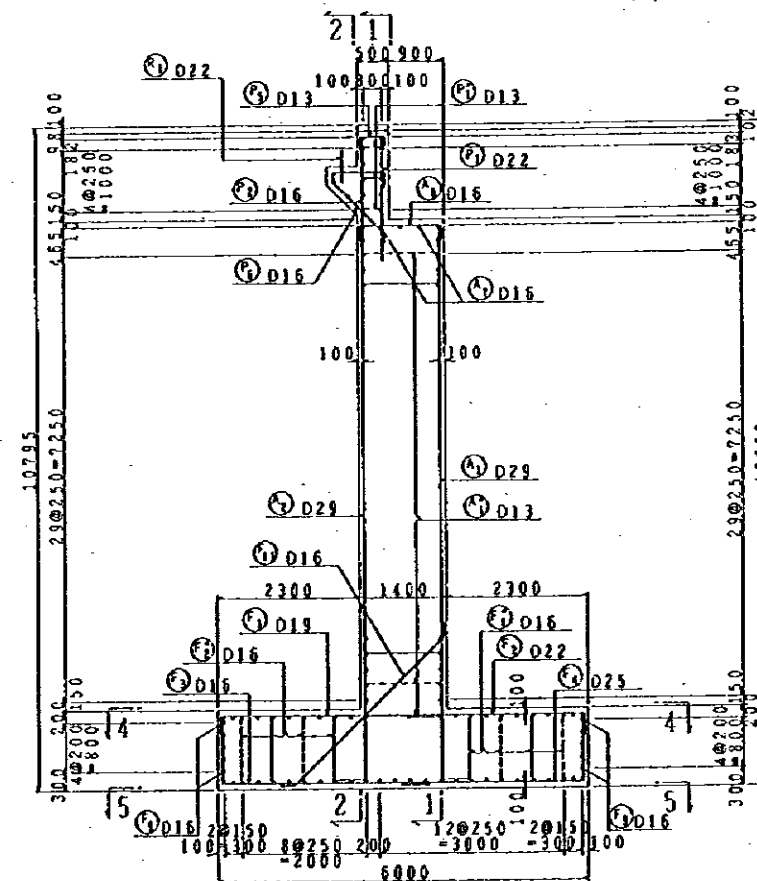
## STRUCTURAL DETAIL OF TWO-COLUMN PIER FOR P1~P10 AT A·B-LINE (2/2)

NOTES:	JICA STUDY TEAM PACIFIC CONSULTANTS INTERNATIONAL FUKUYAMA CONSULTANTS INTERNATIONAL	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS		
			PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY		
			TITLE: STRUCTURAL DETAIL OF TWO-COLUMN PIER(P1-P10) AT A,B-LINE (2/2)		
			DATE	DWGNO.	B-31

# RA/14 FALAJ AL QABAIL



SECTION 5-5 S=1/120



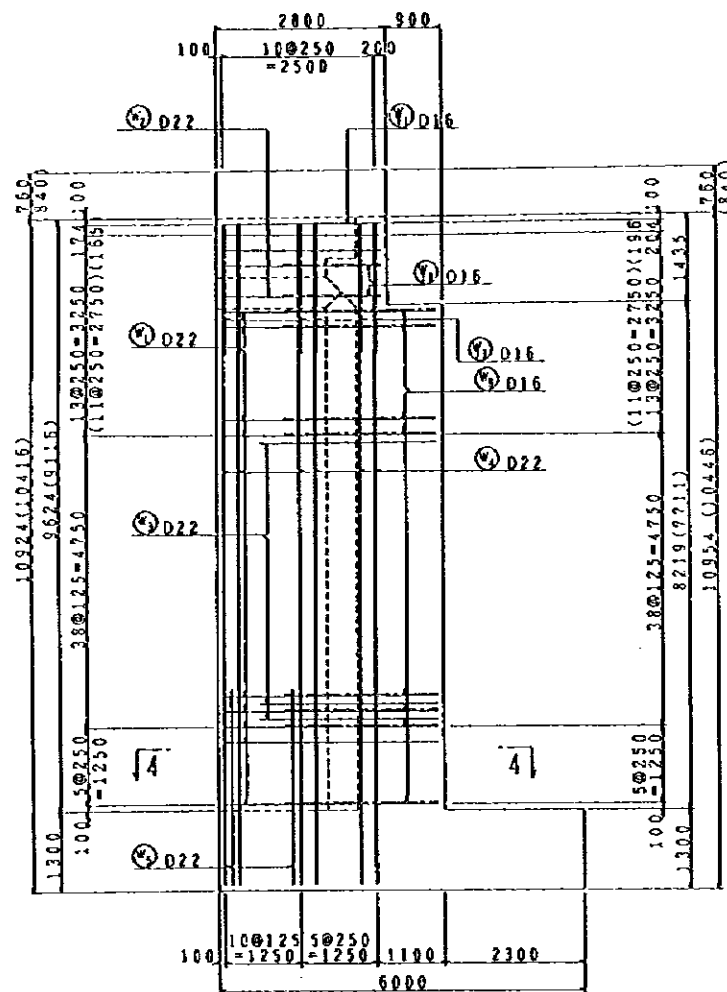
RE-BAR ARRANGEMENT OF A1 ABUTMENT AT A-B-LINE (1/3)

NOTES:

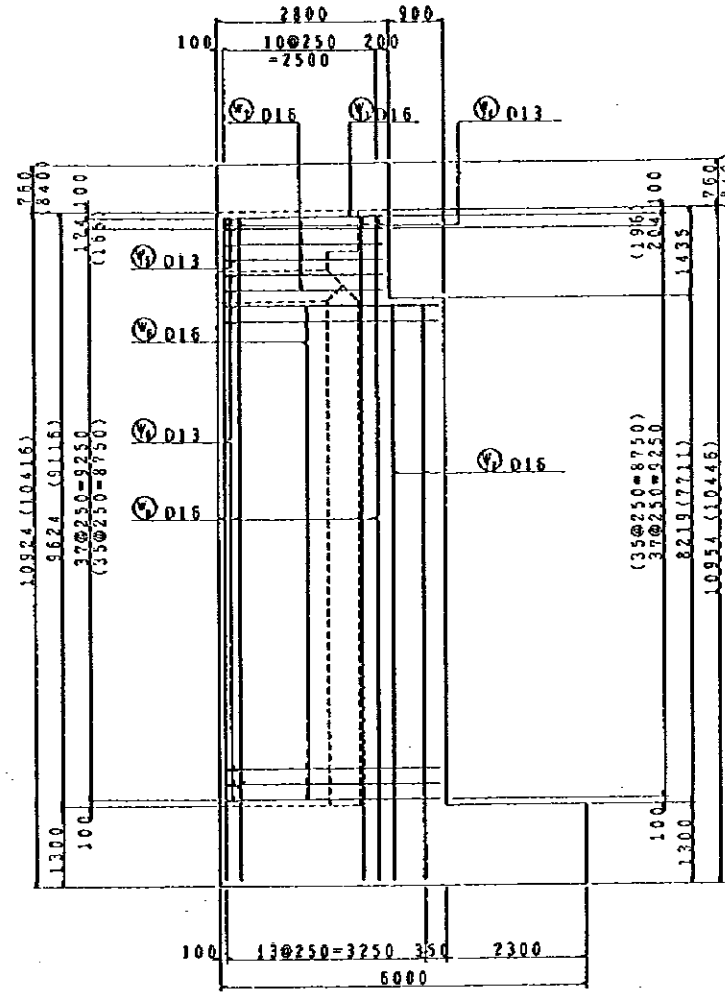
JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: RE-BAR ARRANGEMENT OF A1 ABUTMENT AT A-B-LINE (1/3)  
DATE: \_\_\_\_\_ DWGNO. B-32

RA/14 FALAJ AL QABAIL

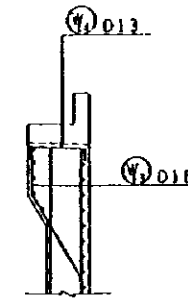


SECTION 1-1 S = 1/120

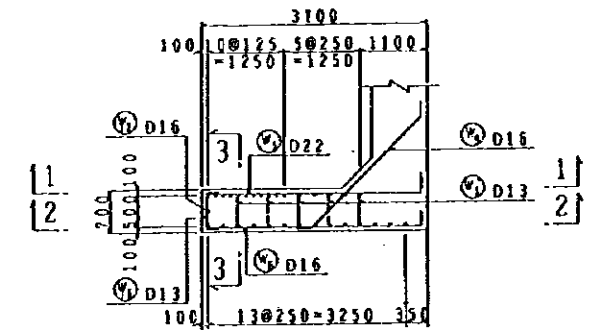


SECTION 2-2 S = 1/120

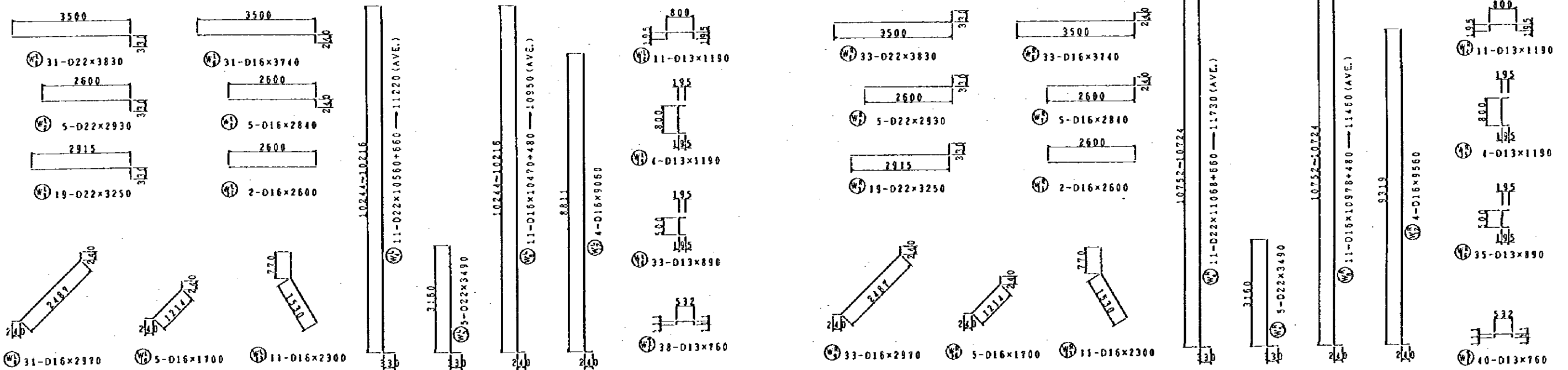
NOTE: ( ) LEFT WING



SECTION 3-3 S=1/120



SECTION 4-4 S= 1/120



RE-BAR ARRANGEMENT OF A1 ABUTMENT AT A-B-LINE (2/3)

**NOTES:**

**JAPAN INTERNATIONAL COOPERATION AGENCY**  
**(JICA)**

**JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL**

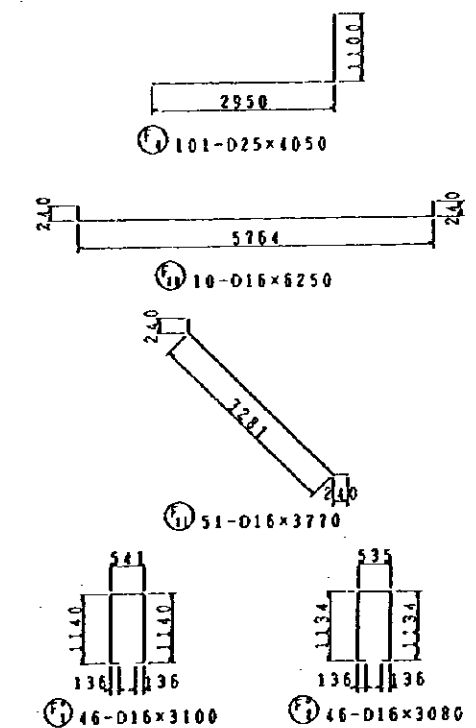
CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS

PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY.

TITLE	RE-BAR ARRANGEMENT OF A1 ABUTMENT AT A,B-LINE(2/3)
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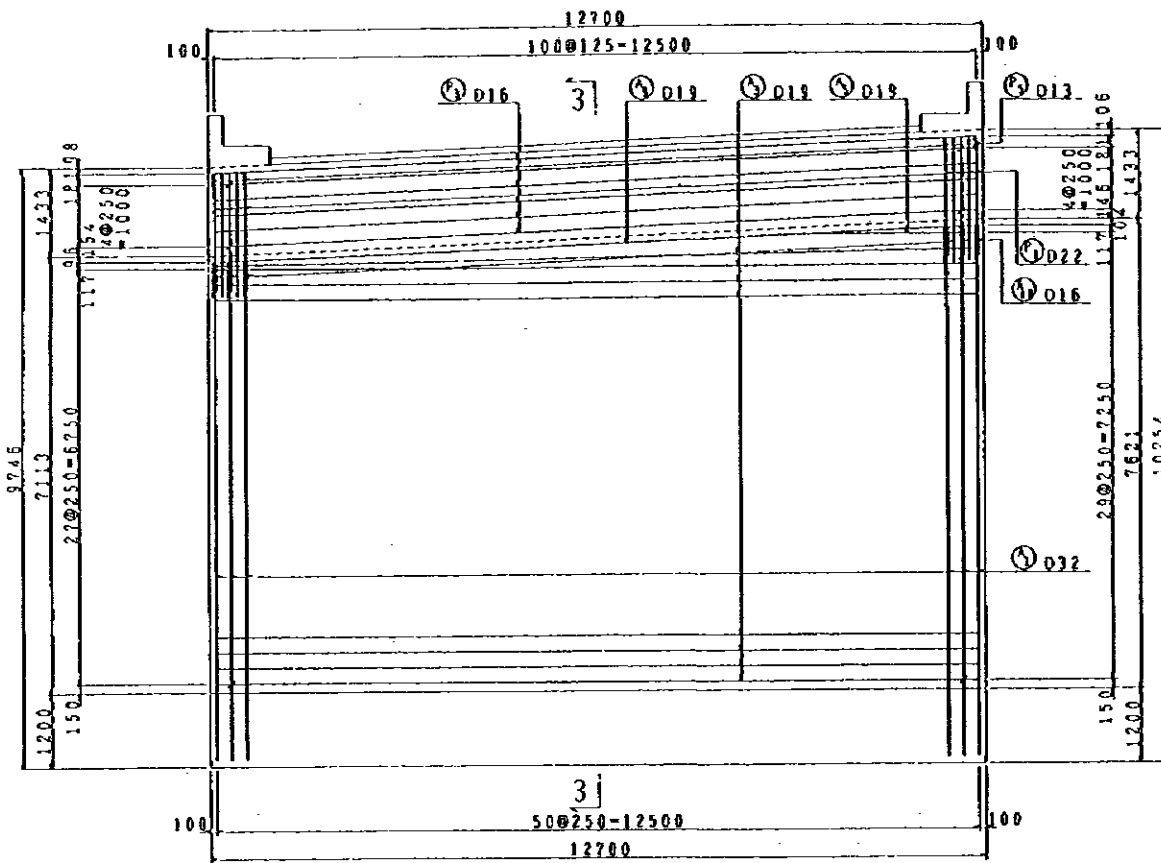
DATE	DWGNO.	B-33
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RE-BAR ARRANGEMENT OF A1 ABUTMENT AT A-B-LINE (3/3)

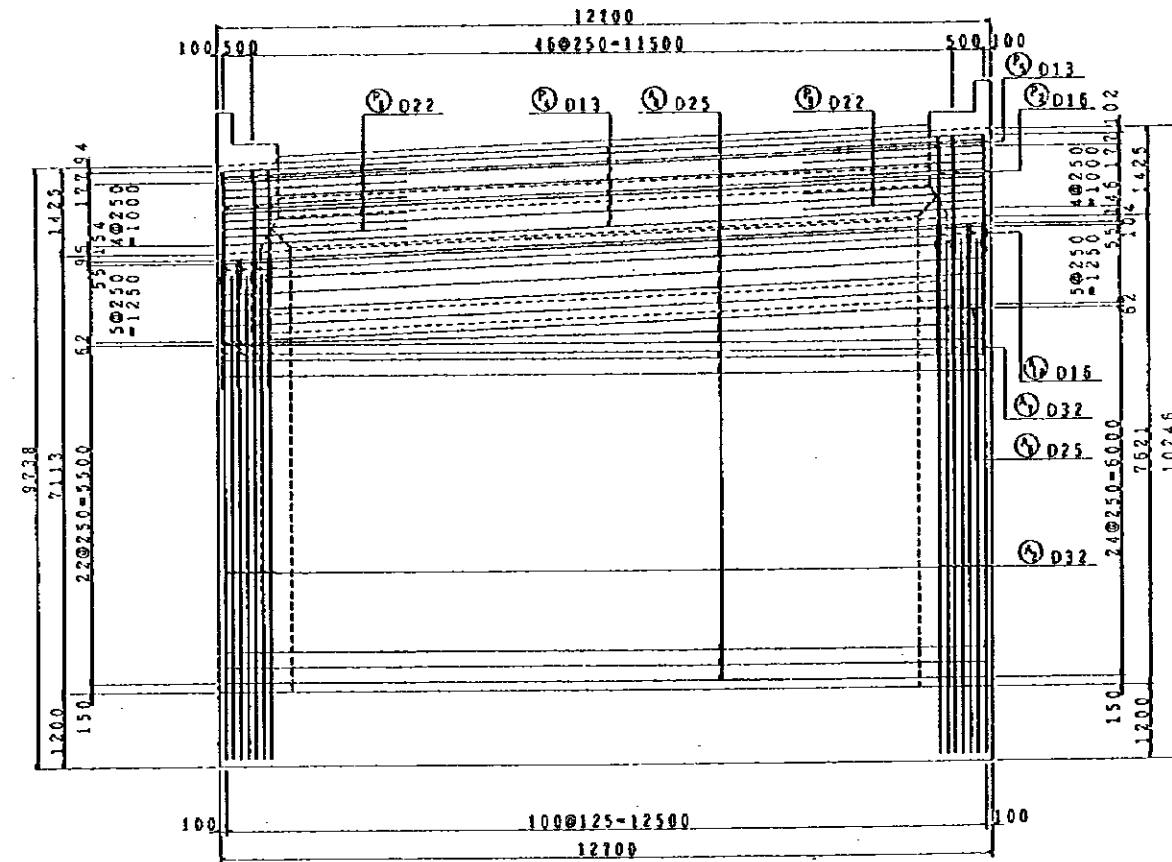


CLIENT :	MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS		
PROJECT :	D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY		
TITLE	RE-BAR ARRANGEMENT OF A1 ABUTMENT AT A,B-LINE (3/3)		
DATE		DWGNO.	B-34

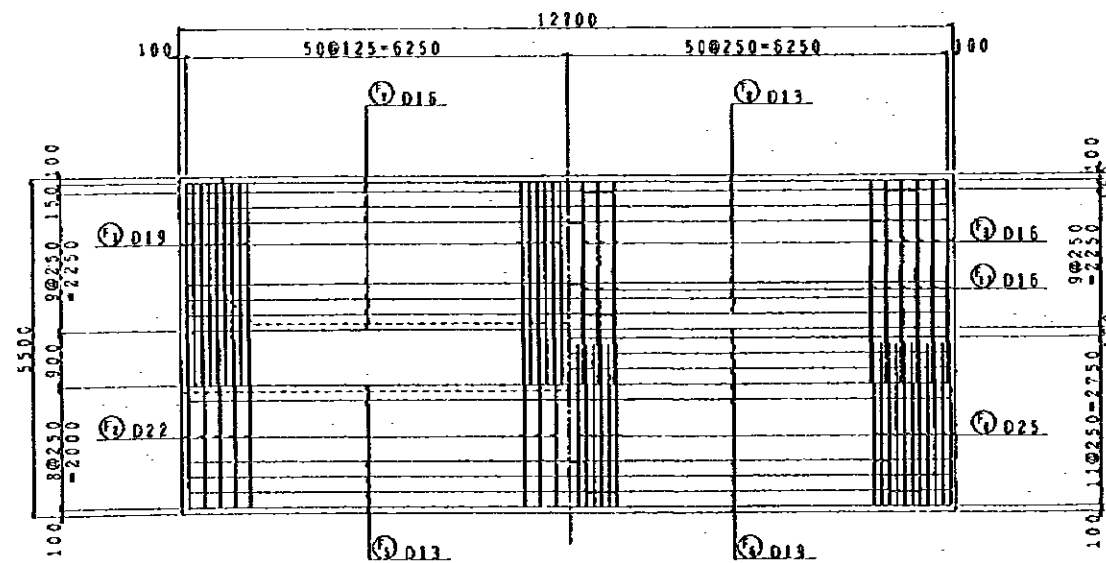
# RA/14 FALAJ AL QABAIL



SECTION 1-1 S=1/120

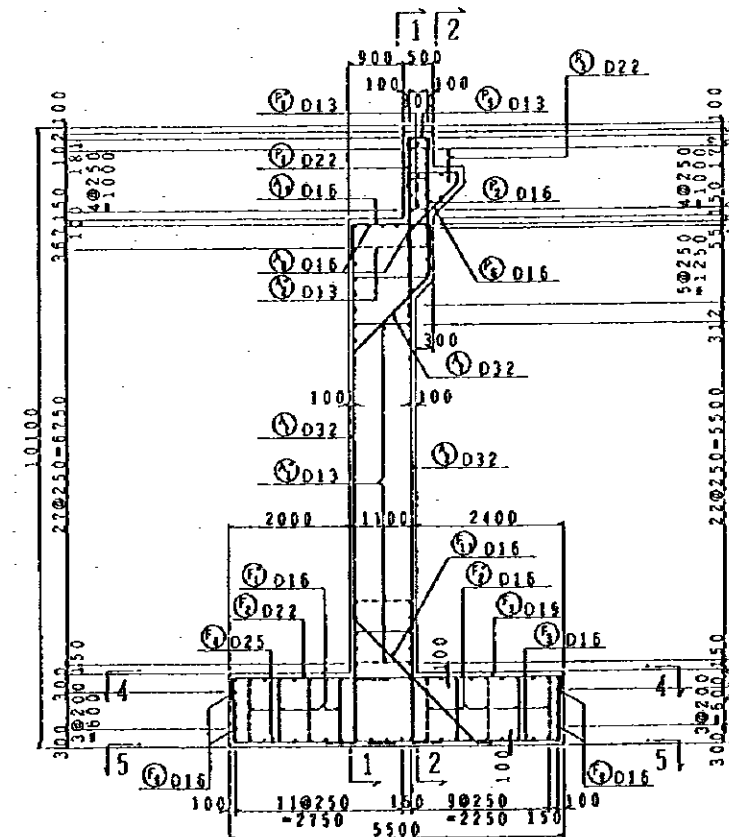


SECTION 2-2 S=1/120



SECTION 4-4 S=1/120

SECTION 5-5 S=1/120



SECTION 3-3 S=1/120

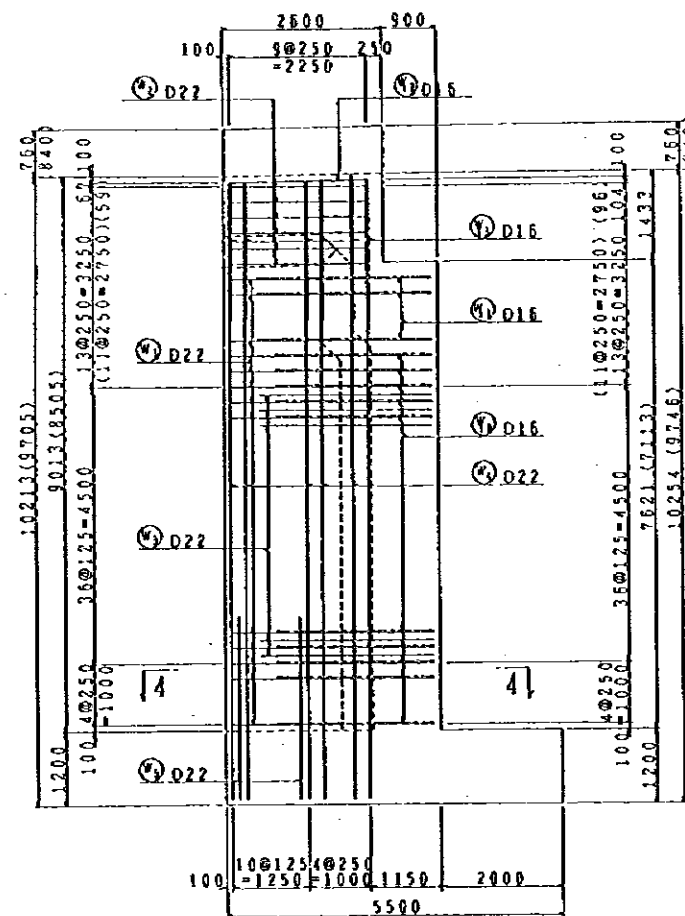
RE-BAR ARRANGEMENT OF A2 ABUTMENT AT A·B-LINE(1/3)

NOTES:

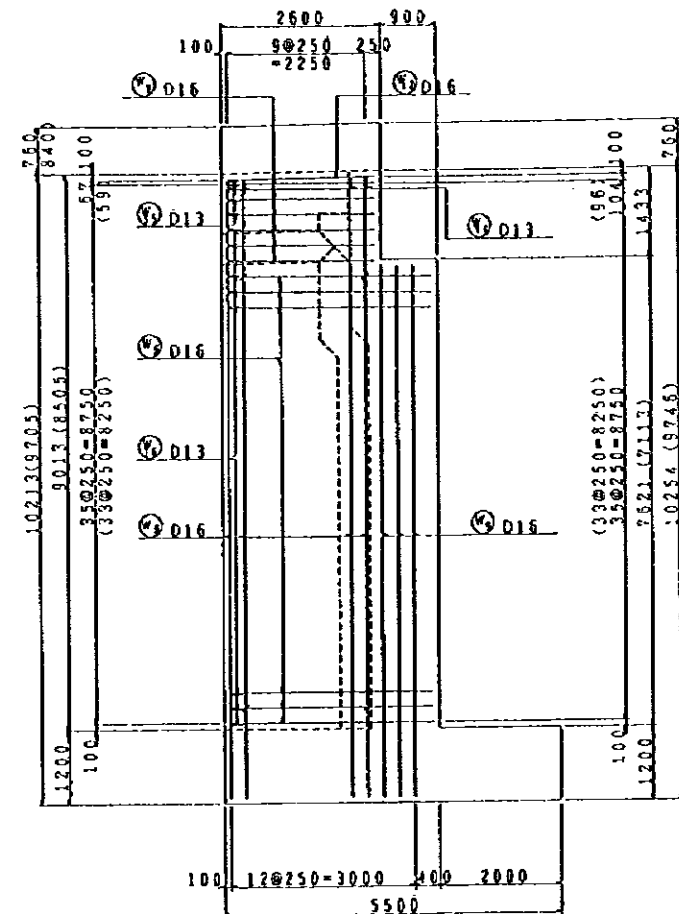
JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: RE-BAR ARRANGEMENT OF A2 ABUTMENT AT A·B-LINE(1/3)  
DATE: \_\_\_\_\_ DWGNO. B-35

# RA/14 FALAJ AL QABAIL

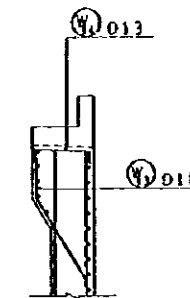


SECTION 1-1 S=1/120

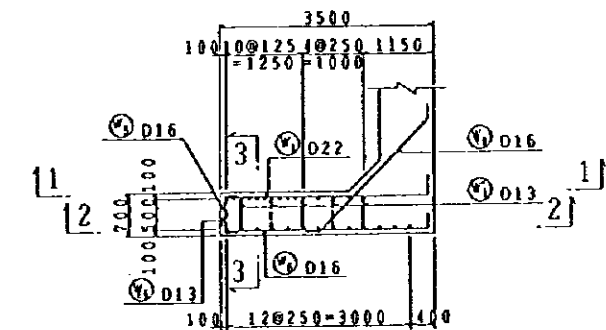


SECTION 2-2 S=1/120

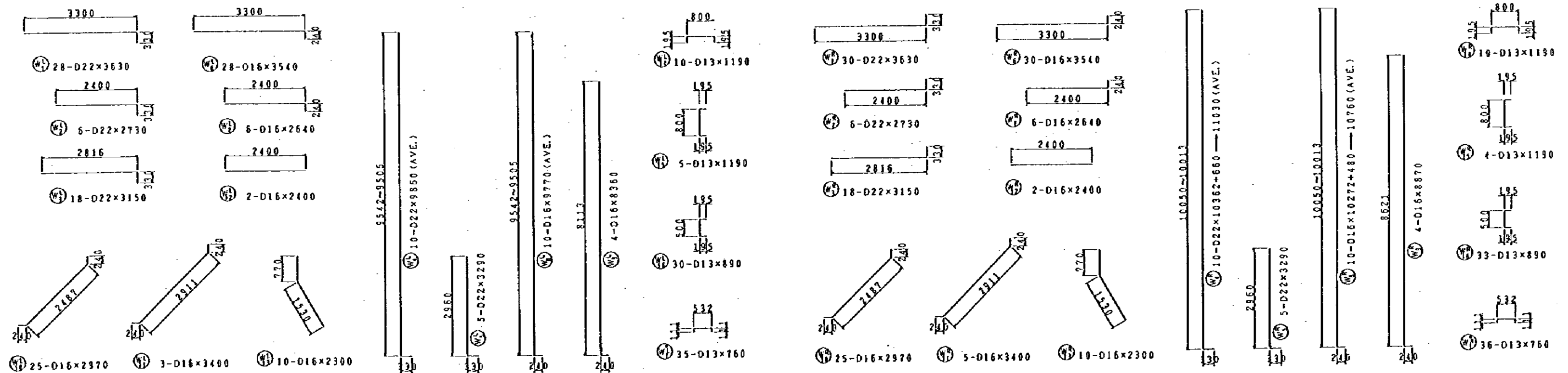
NOTE: ( ) LEFT WING



SECTION 3-3 S=1/120



SECTION 4-4 S=1/120



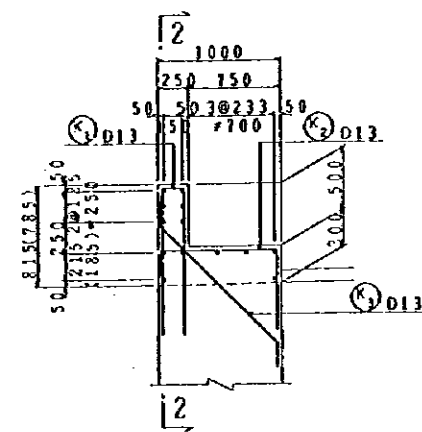
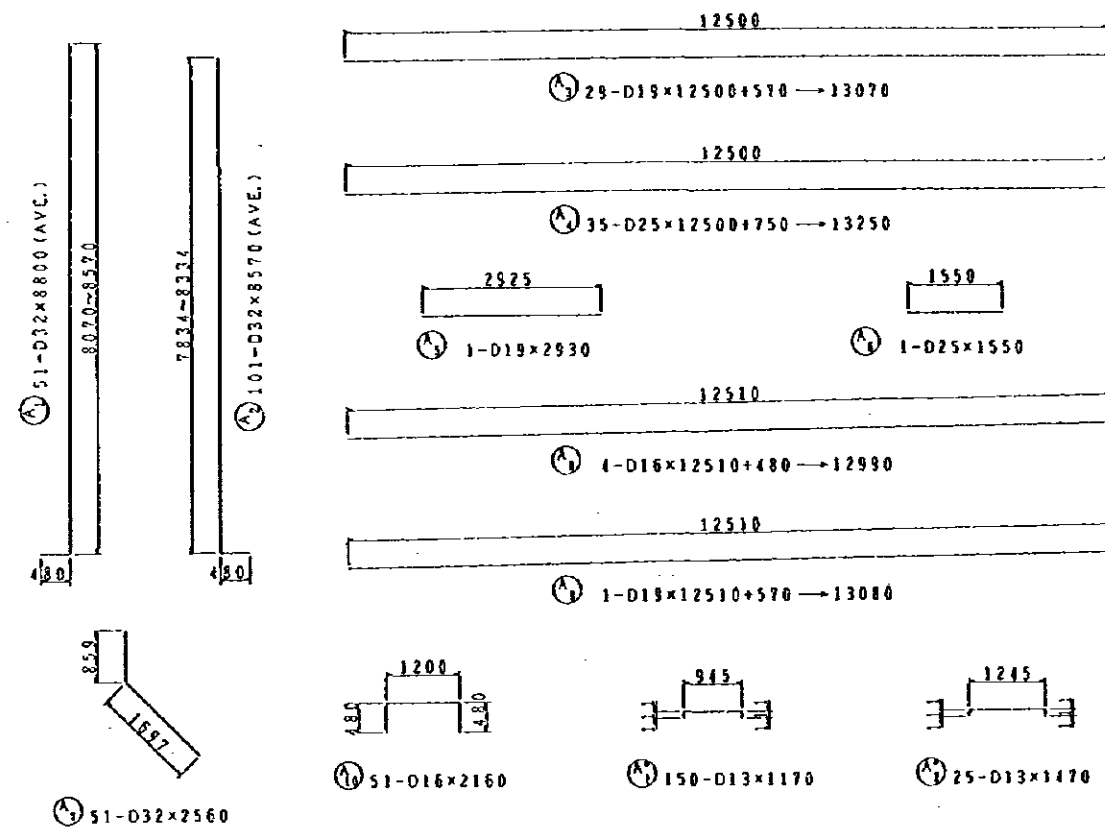
RE-BAR ARRANGEMENT OF A2 ABUTMENT AT A-B-LINE (2/3)

NOTES:

JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

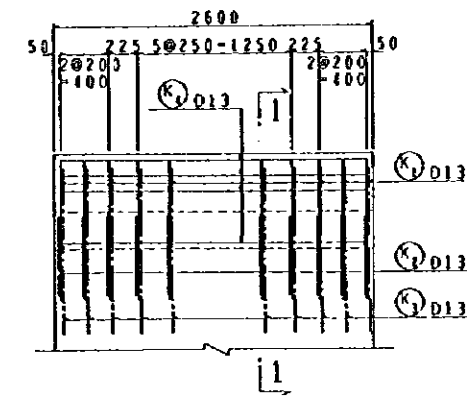
CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: RE-BAR ARRANGEMENT OF A2 ABUTMENT AT A-B-LINE (2/3)  
DATE: \_\_\_\_\_ DWGNO. B-36

# RA/14 FALAJ AL QABAIL

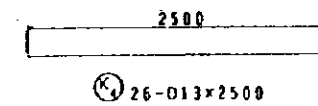
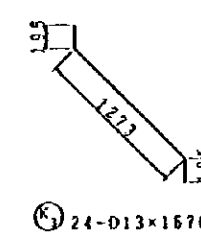
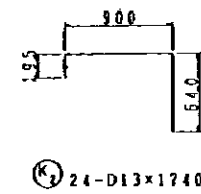
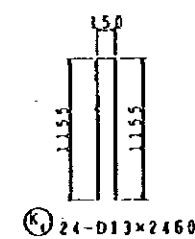


SECTION 1-1

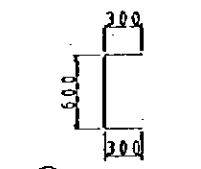
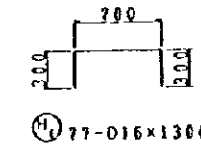
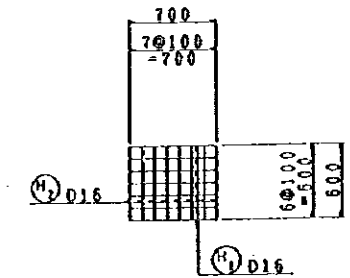
NOTE: 1. RIGHT RAILING



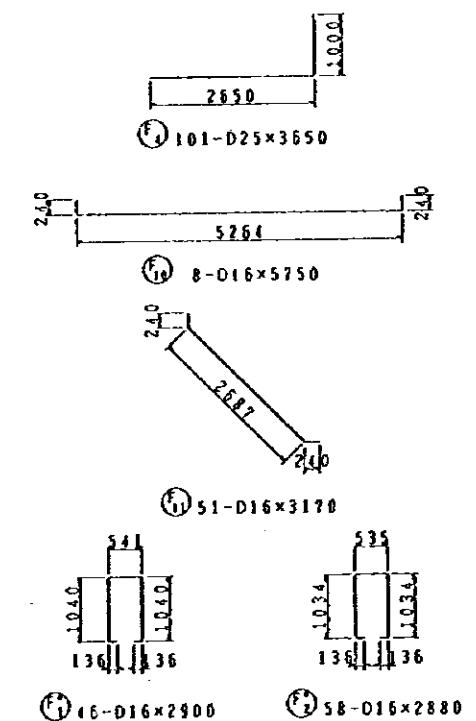
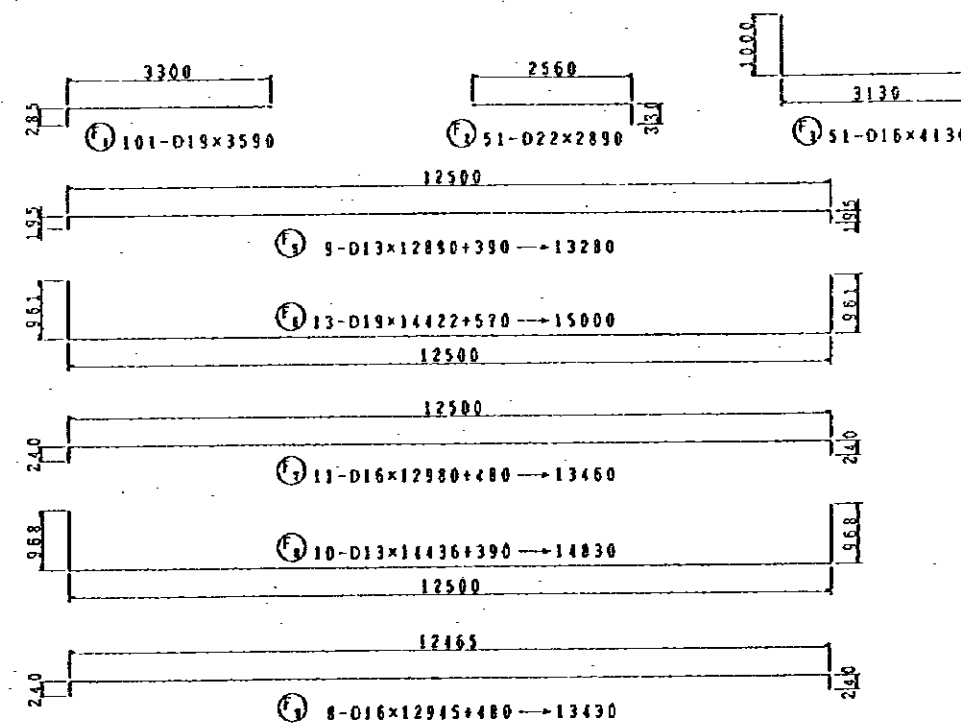
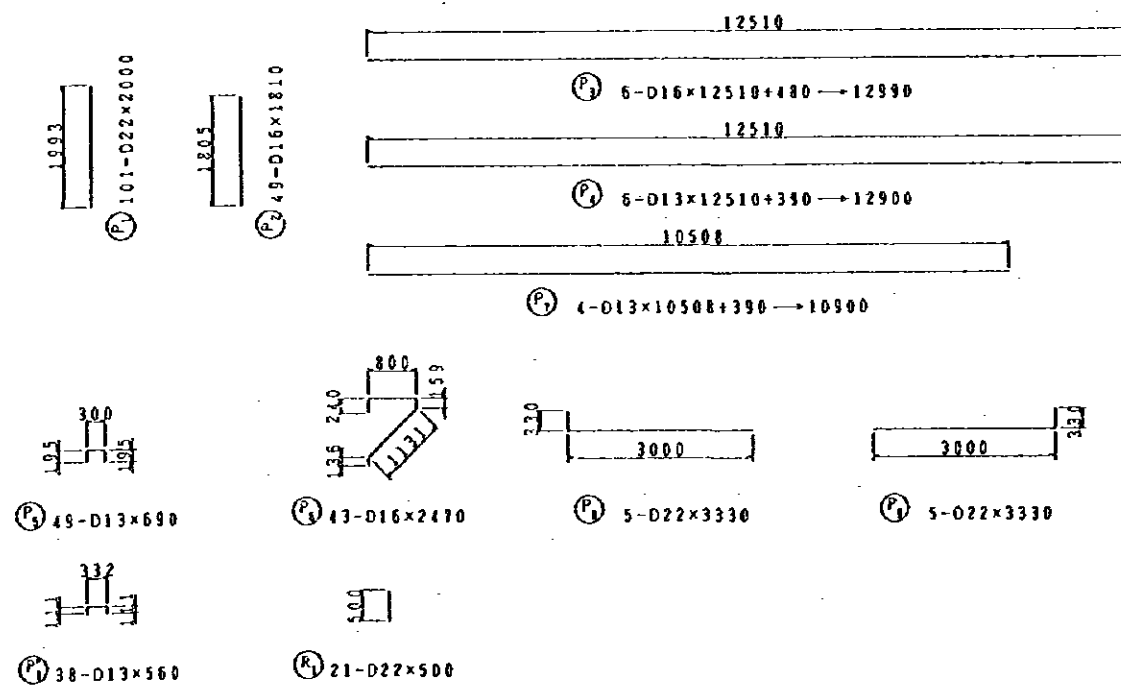
SECTION 2-2



DETAIL OF RAILING S= 1/60



DETAIL OF SHOE BED S= 1/60



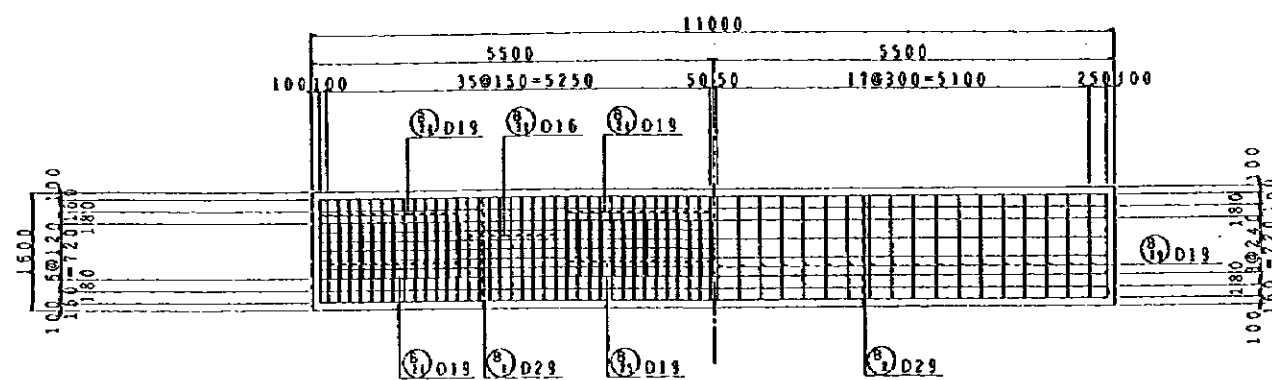
RE-BAR ARRANGEMENT OF A2 ABUTMENT AT A-B-LINE (3/3)

NOTES:

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(JICA)  
JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

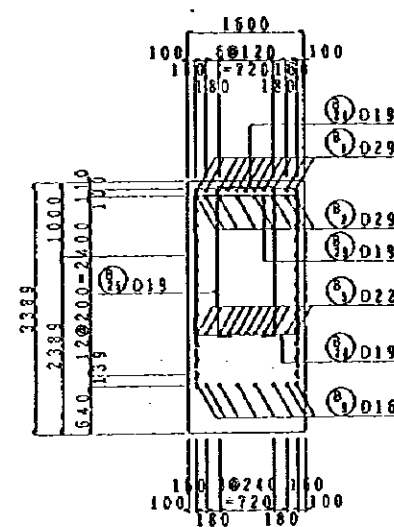
CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: RE-BAR ARRANGEMENT OF A1 ABUTMENT AT A-B-LINE (3/3)  
DATE: \_\_\_\_\_ DWGNO. B-37

# RA/14 FALAJ AL QABAIL

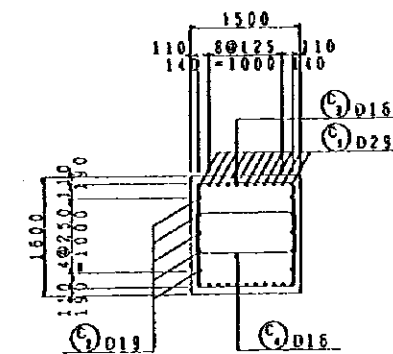


SECTION 1 - 1 S= 1/100

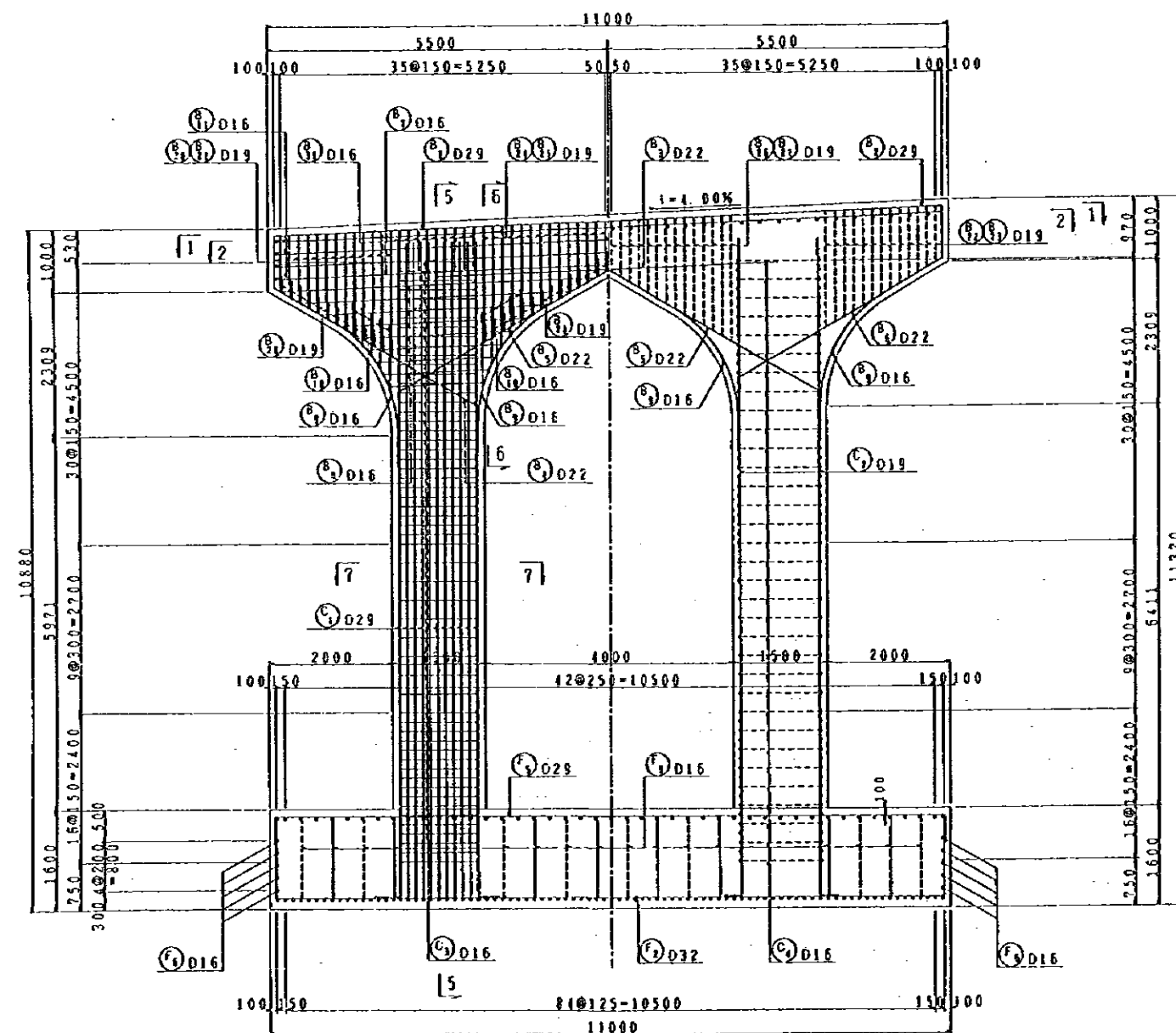
SECTION 2 - 2 S= 1/100



SECTION 6 - 6 S= 1/100

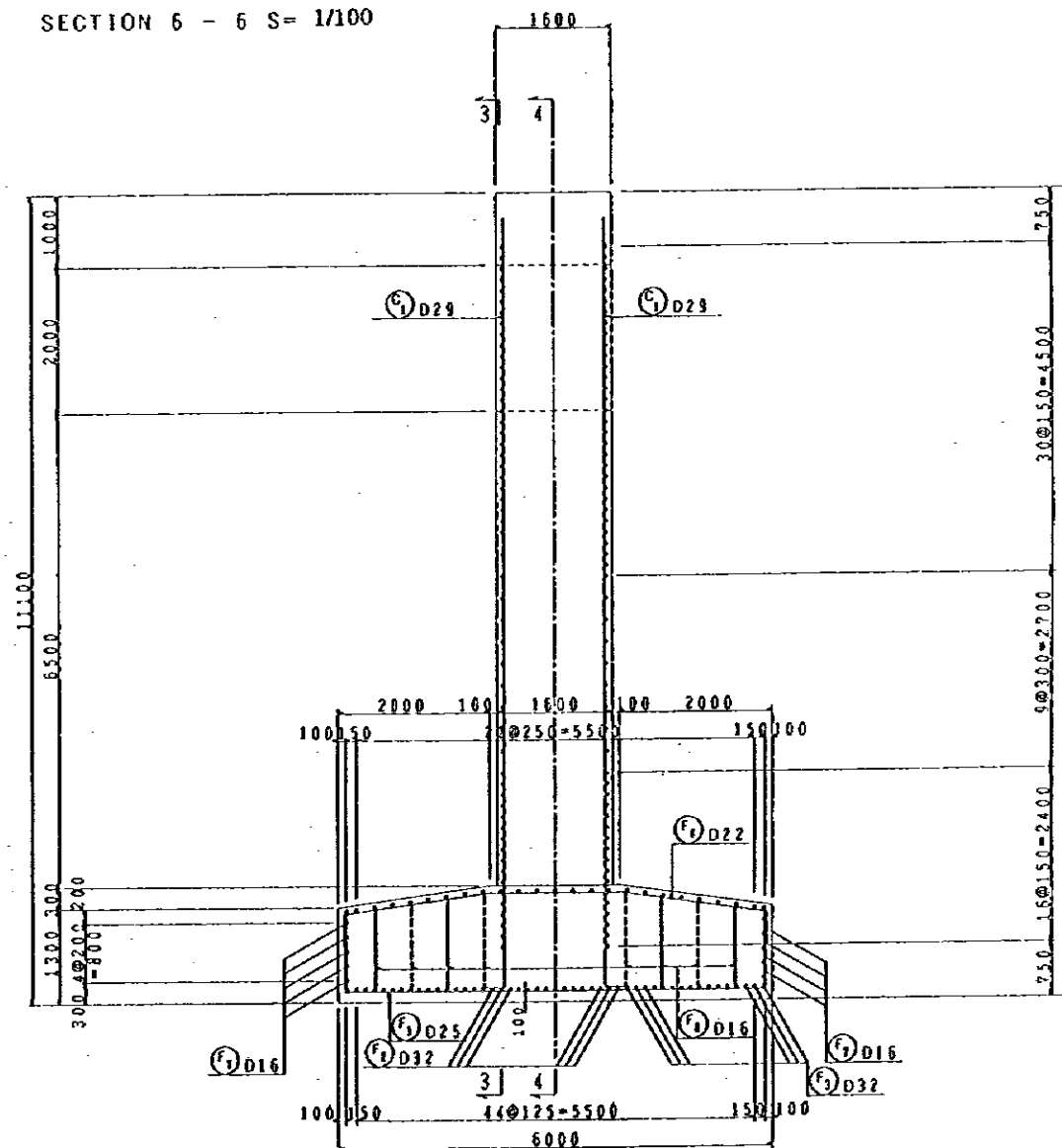


SECTION 7 - 7 S= 1/100



SECTION 3 - 3 S= 1/100

SECTION 4 - 4 S= 1/100



SECTION 5 - 5 S= 1/100

## RE-BAR ARRANGEMENT OF TWO-COLUMN PIER FOR P1~P10 AT A·B-LINE (1/2)

NOTES:

JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)

JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY

TITLE RE-BAR ARRANGEMENT OF TWO-COLUMN PIER(P1-P10) AT A·B-LINE(1/2)

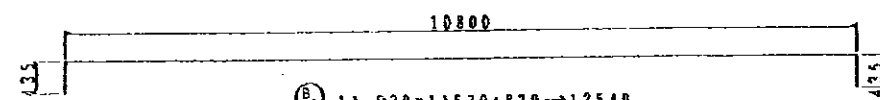
DATE

DWGNO.

B-38

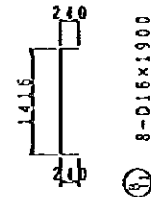
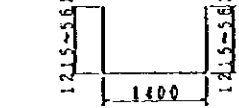
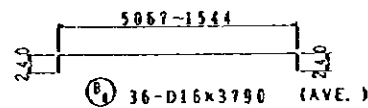


# RA/14 FALAJ AL QABAIL

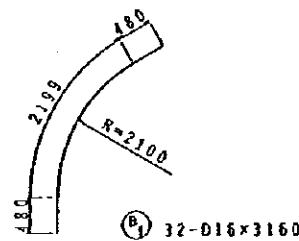
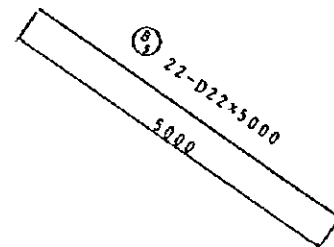
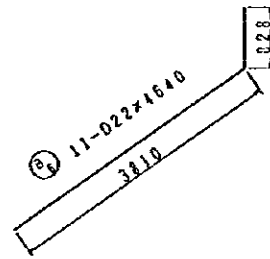
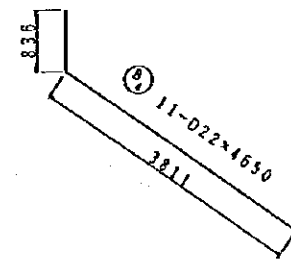


8-D29x10800+870-11670

6-D16x10800+480-11280



11-D22x5500

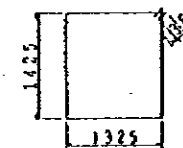


44-D29x10940+870-11810

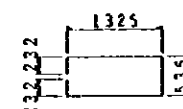
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20-D19x10795+570-11370

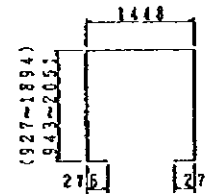
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112-D16x5780

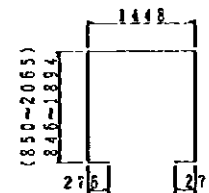


66-D16x3650



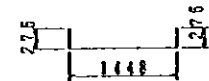
13-D19x5000 (AVE.)

13-D19x4830 (AVE.)

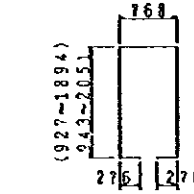


14-D19x4740 (AVE.)

14-D19x4920 (AVE.)

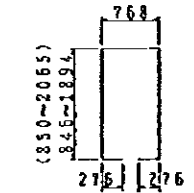


54-D19x2000



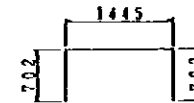
13-D19x4320 (AVE.)

13-D19x4150 (AVE.)

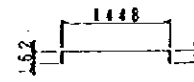


14-D19x4060 (AVE.)

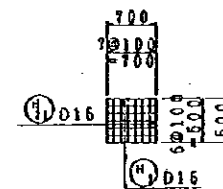
14-D19x4240 (AVE.)



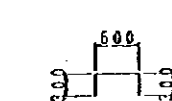
18-D16x2850



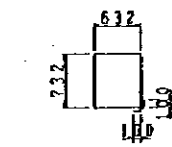
36-D19x1780



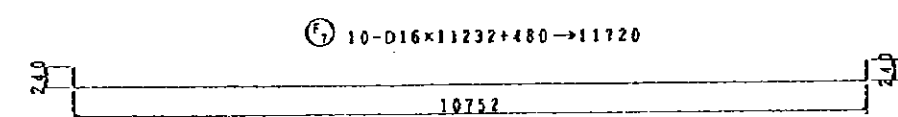
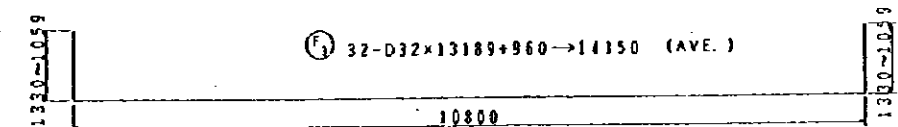
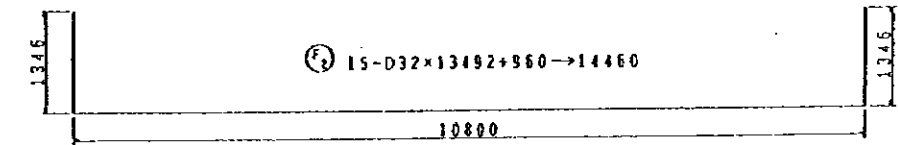
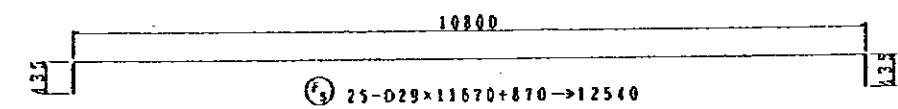
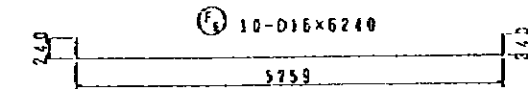
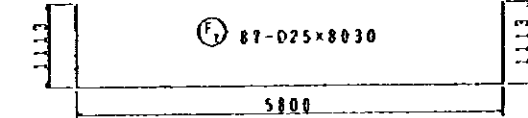
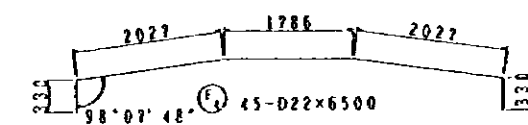
154-D16x1300



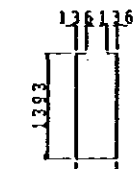
176-D16x1200



22-D16x2930



84-D16x3450 (AVE.)



24-D16x3610

DETAIL OF SHOE BED S=1/100

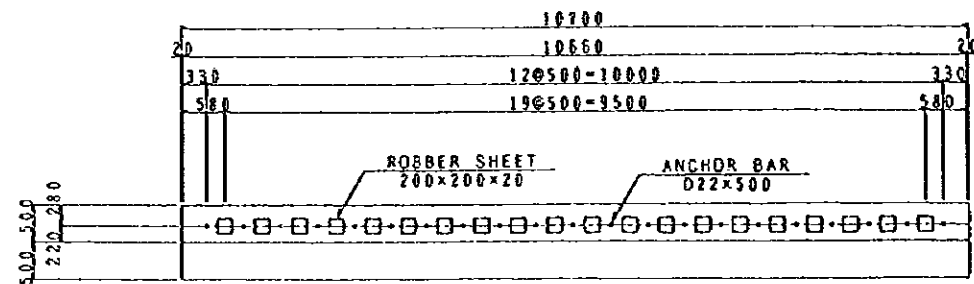
## RE-BAR ARRANGEMENT OF TWO-COLUMN PIER FOR P1~P10 AT A-B-LINE (2/2)

NOTES:

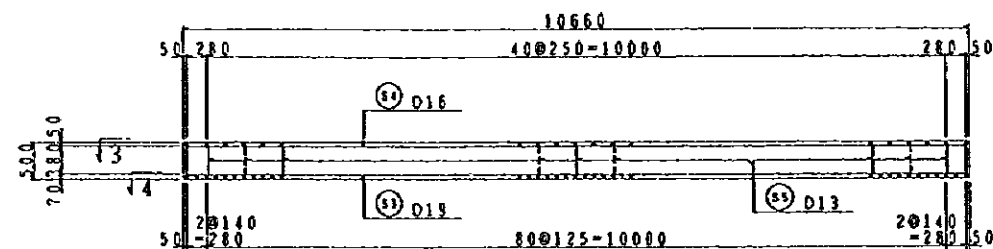
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JICA STUDY TEAM  
PACIFIC CONSULTANTS INTERNATIONAL  
FUKUYAMA CONSULTANTS INTERNATIONAL

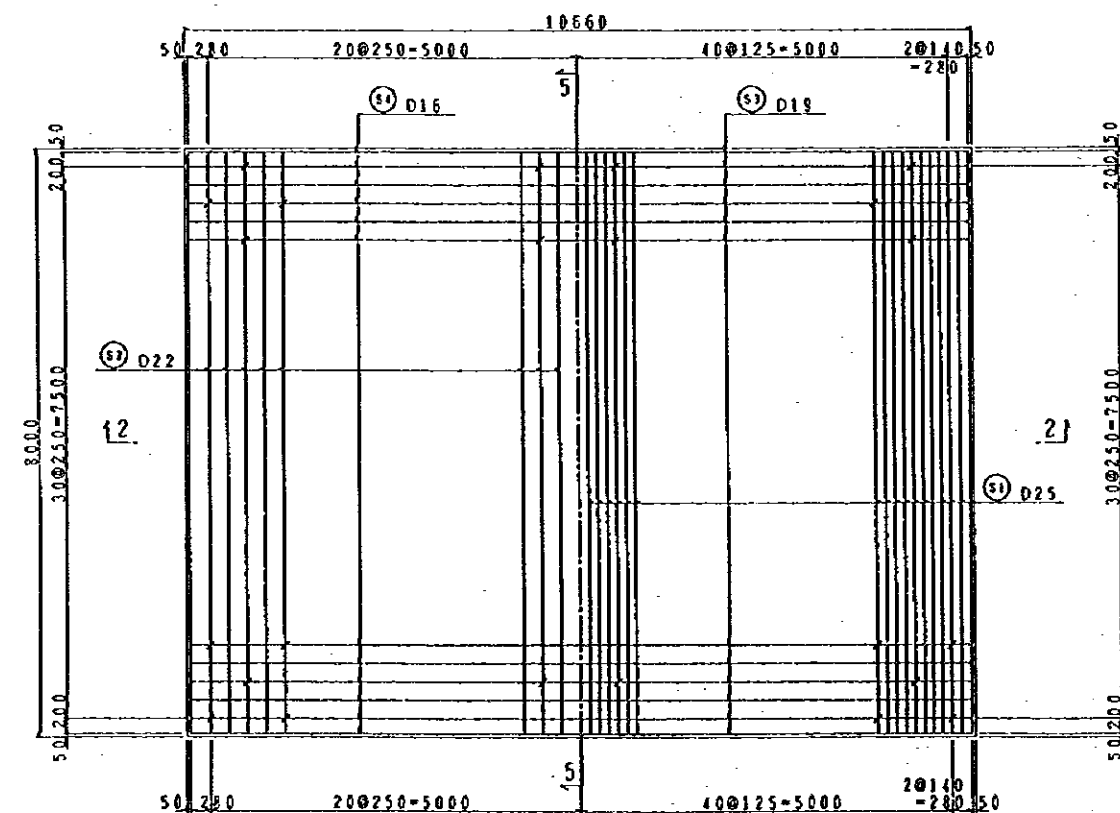
CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: RE-BAR ARRANGEMENT OF TWO-COLUMN PIER(P1-P10) AT A-B-LINE (2/2)  
DATE: \_\_\_\_\_ DWGNO. B-39



SECTION 1-1 S= 1/100

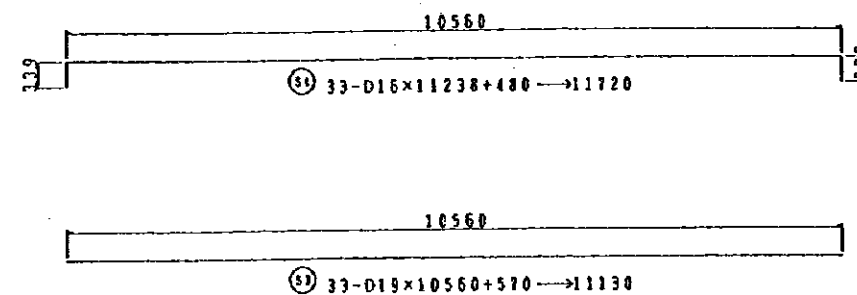


SECTION 2-2 S= 1/100

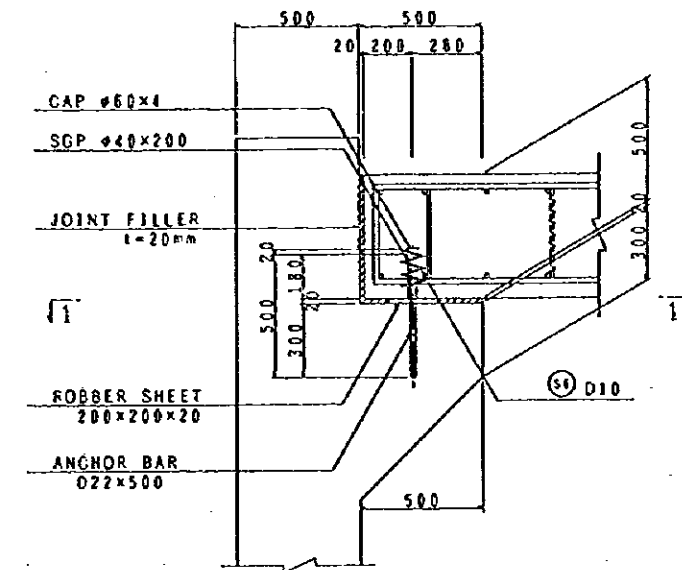
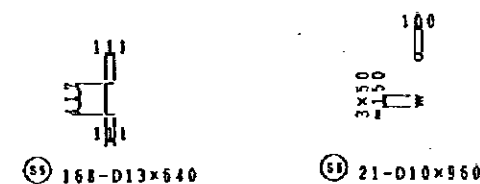


SECTION 3-3 S= 1/100

SECTION 4-4 S= 1/100



SECTION 5-5 S= 1/100



PLAN S= 1/30

# RE-BAR ARRANGEMENT OF APPROACH SLAB

## NOTES:


This drawing shows one approach slab. This is applied for all 4 abutments. So the total number of approach slabs are 4.

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CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: RE-BAR ARRANGEMENT OF APPROACH SLAB  
DATE: \_\_\_\_\_ DWGNO. B-40

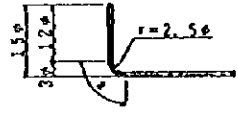
# BAR BENDING DIAGRAM

## LAP JOINT LENGTH

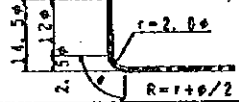
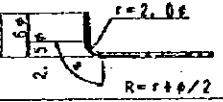
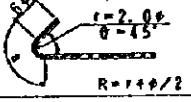
φ	ℓ	LAP JOINT LENGTH
D13	390	
D16	480	
D19	570	
D22	660	
D25	750	
D29	870	
D32	960	

	JAPAN		OMAN	
	CROSS-SECTIONAL AREA (cm <sup>2</sup> )	NOMINAL WEIGHT (kg/m)	CROSS-SECTIONAL AREA (cm <sup>2</sup> )	NOMINAL WEIGHT (kg/m)
D13	1.267	0.995	1.290	0.994
D16	1.986	1.56	2.000	1.552
D19	2.865	2.25	2.839	2.235
D22	3.871	3.04	3.871	3.042
D25	5.067	3.98	5.097	3.973
D29	6.424	5.04	6.452	5.059
D32	7.942	6.23	8.194	6.403

## BENDING DIMENSION (MAIN REINFORCEMENT)

φ	θ ≤ 90° R=3φ	θ > 90° R=5.5φ	HOOK LENGTH
D13	39	71.5	
D16	48	88	
D19	57	104.5	
D22	66	121	
D25	75	137.5	
D29	87	159.5	
D32	96	176	

## BENDING DIMENSION (STIRRUP, ERECTION BAR)

φ	R=2.5φ	θ=90°	θ=45°	HOOK LENGTH		
		ℓ	ℓ	STIRRUP	ERECTION BAR	HOOP
D13	32.5	51	77			
D16	40	63	94			
D19	47.5	75	112			
D22	55	86	130			

NOTES:

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CLIENT: MINISTRY OF COMMUNICATIONS, DIRECTORATE GENERAL OF ROADS  
PROJECT: D/D ON ROAD DEVELOPMENT PROJECT ON BATINAH HIGHWAY  
TITLE: BAR BENDING DIAGRAM  
DATE: \_\_\_\_\_ DWGNO. B-41