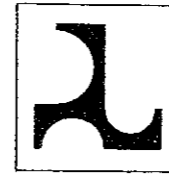




JAPAN INTERNATIONAL
COOPERATION AGENCY



DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

MISCELLANEOUS

 KATAHIRA & ENGINEERS INTERNATIONAL

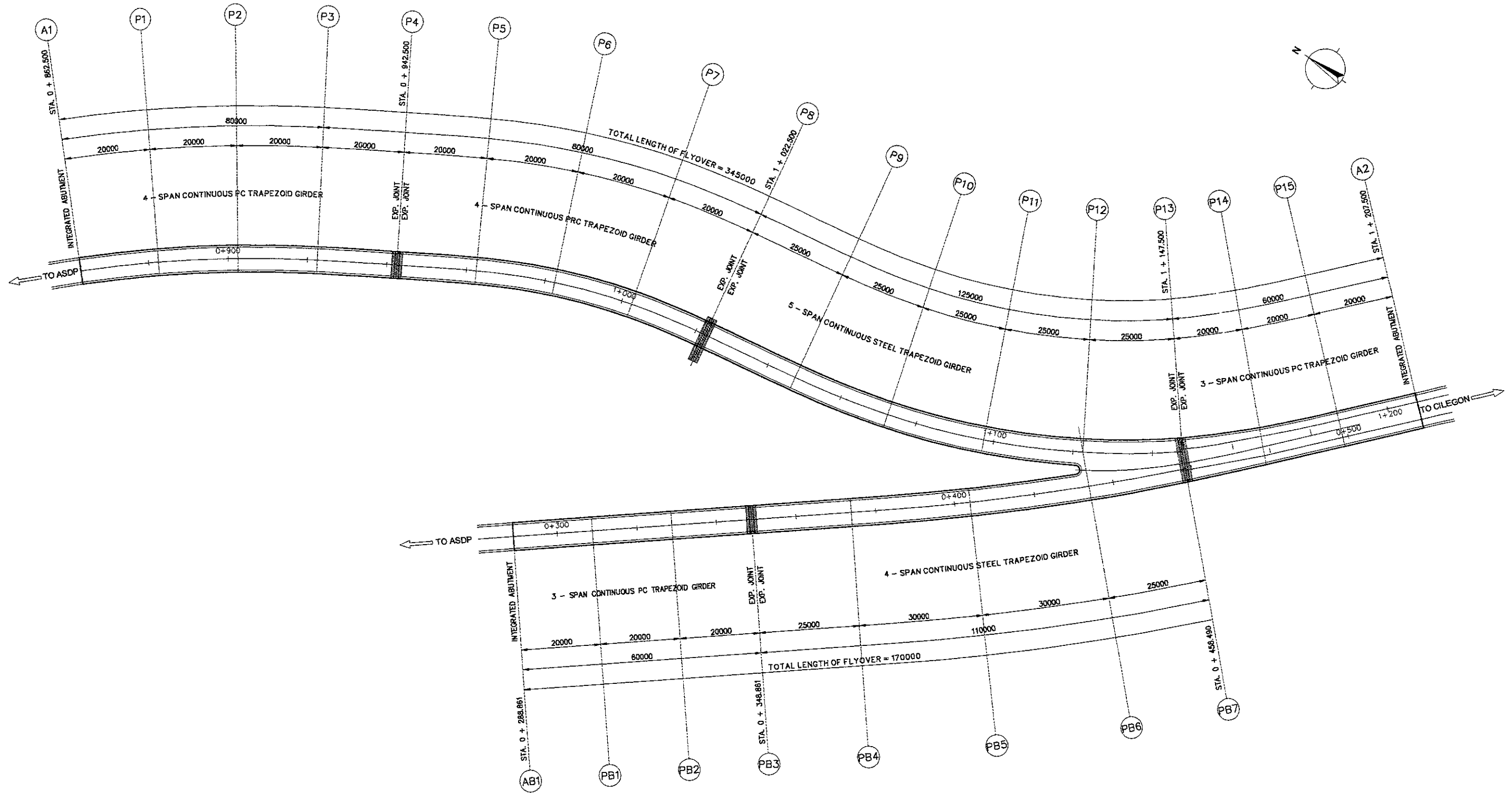
SUPPLEMENTARIES FOR STEEL SUPERSTRUCTURE

NO.	ITEM	UNIT	QUANTITY	NOTES
1	BEARING : - MOVEABLE TYPE B1 (φ485x69.5mm) - MOVEABLE TYPE B2 (φ400x65.5mm) - FIXED TYPE C1 (φ580x77mm) - FIXED TYPE C2 (φ730x90mm) - FIXED TYPE C3 (φ935x112mm) - FIXED TYPE C4 (φ270x46.5mm)	pcs pcs pcs pcs pcs pcs	2 4 2 1 2 1	
2	STOPPER (φ300x143mm)	pcs	4	
3	EXPANSION JOINT : - PIER P8 - PIER PB3 - PIER P13	m' m' m'	2 2 2	
4	RESTRAINER : - PIER P8 TYPE 1 (TP-130) - PIER PB3 TYPE 1 (TP-130) - PIER P13 TYPE 2 (TP-170)	pcs pcs pcs	2 2 4	
5	PARAPET - NO OUTER GUTTER - WITH OUTER GUTTER	m' m'	362 75	
6	MEDIAN	m'	-	HIGHWAY PORTION
7	SAFETY FENCE	m'	54	

SUPPLEMENTARIES FOR PC SUPERSTRUCTURE

NO.	ITEM	UNIT	QUANTITY	NOTES
1	BEARING : - TYPE A1 (470x370x95mm) - TYPE A2 (420x520x95mm)	pcs pcs	6 2	
2	STOPPER (φ55x143mm)	pcs	12	
3	PARAPET : - NO OUTER GUTTER - WITH OUTER GUTTER	m' m'	480.0 80.0	
4	MEDIAN	m'	-	HIGHWAY PORTION
5	EXPANSION JOINT	m'	72.5	

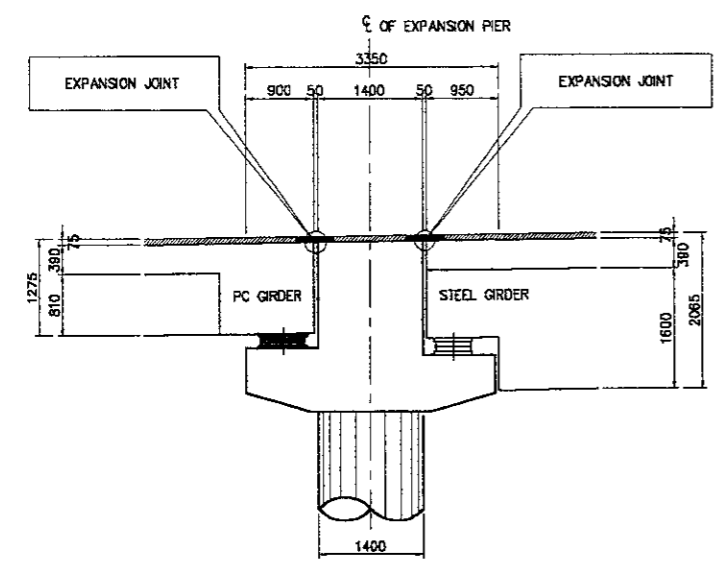
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	S. MATSUI	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



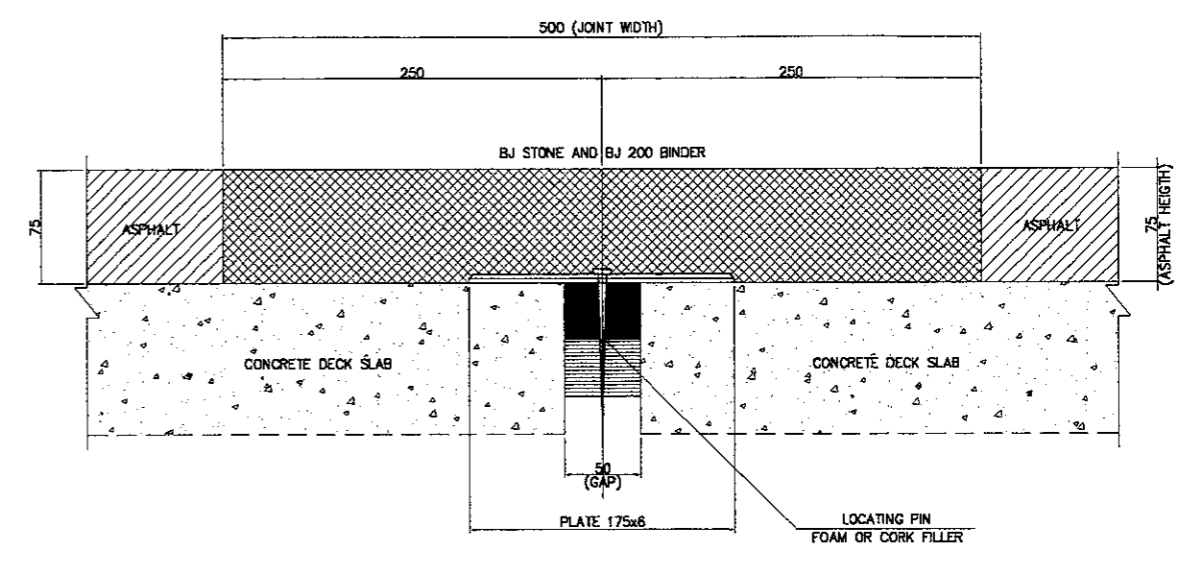
LAYOUT OF EXPANSION JOINT
 SCALE 1 : 1000

- NOTES :**
1. TOTAL MOVEMENT OF EACH TYPE OF EXPANSION JOINTS = 50 mm
 2. THE DETAIL OF EXPANSION JOINTS SEE DWG. NO. MSM-03
 3. ALL DIMENSIONS ARE IN MILLIMETERS

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	S. MATSUI	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

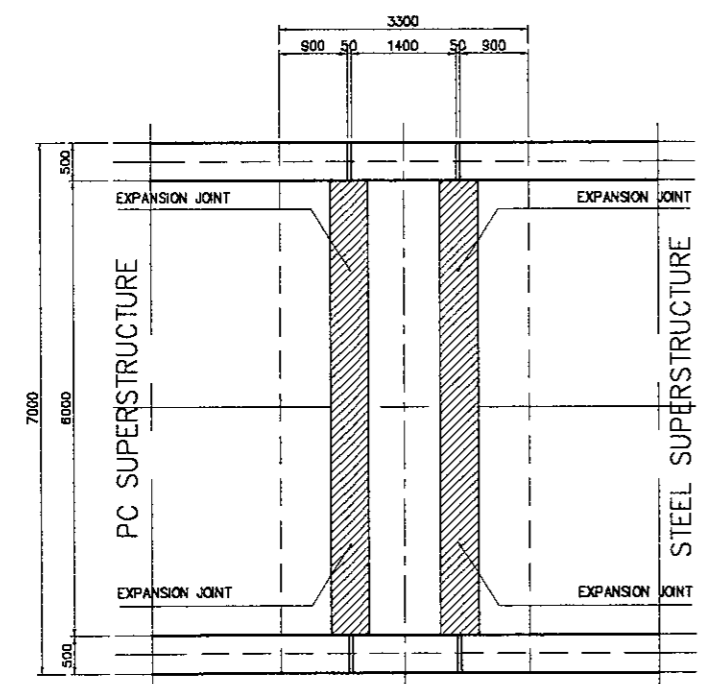


PROFILE OF PIER
 SCALE 1 : 100

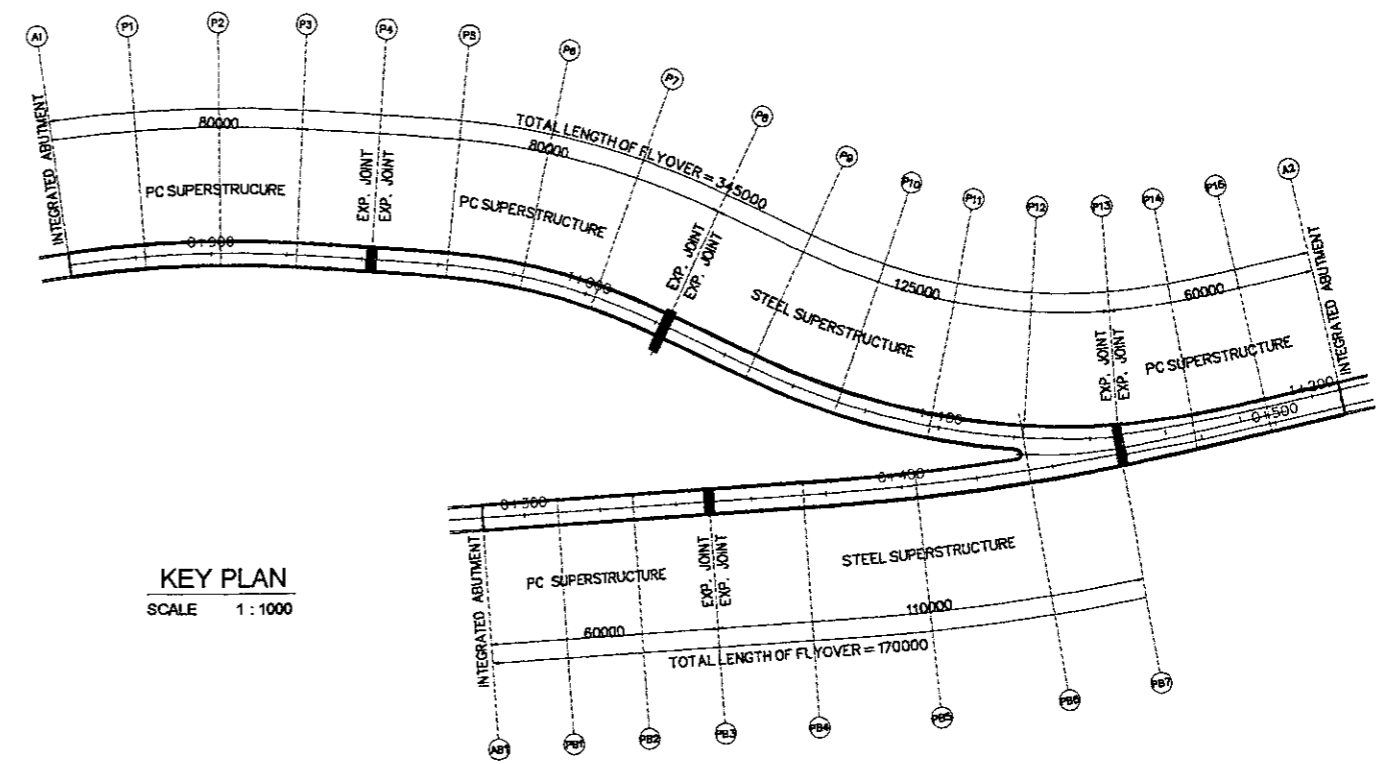


- MAXIMUM MOVEMENT HORIZONTAL 50 MM
- MAXIMUM MOVEMENT VERTICAL 2 MM

DETAIL - A
 SCALE 1 : 5

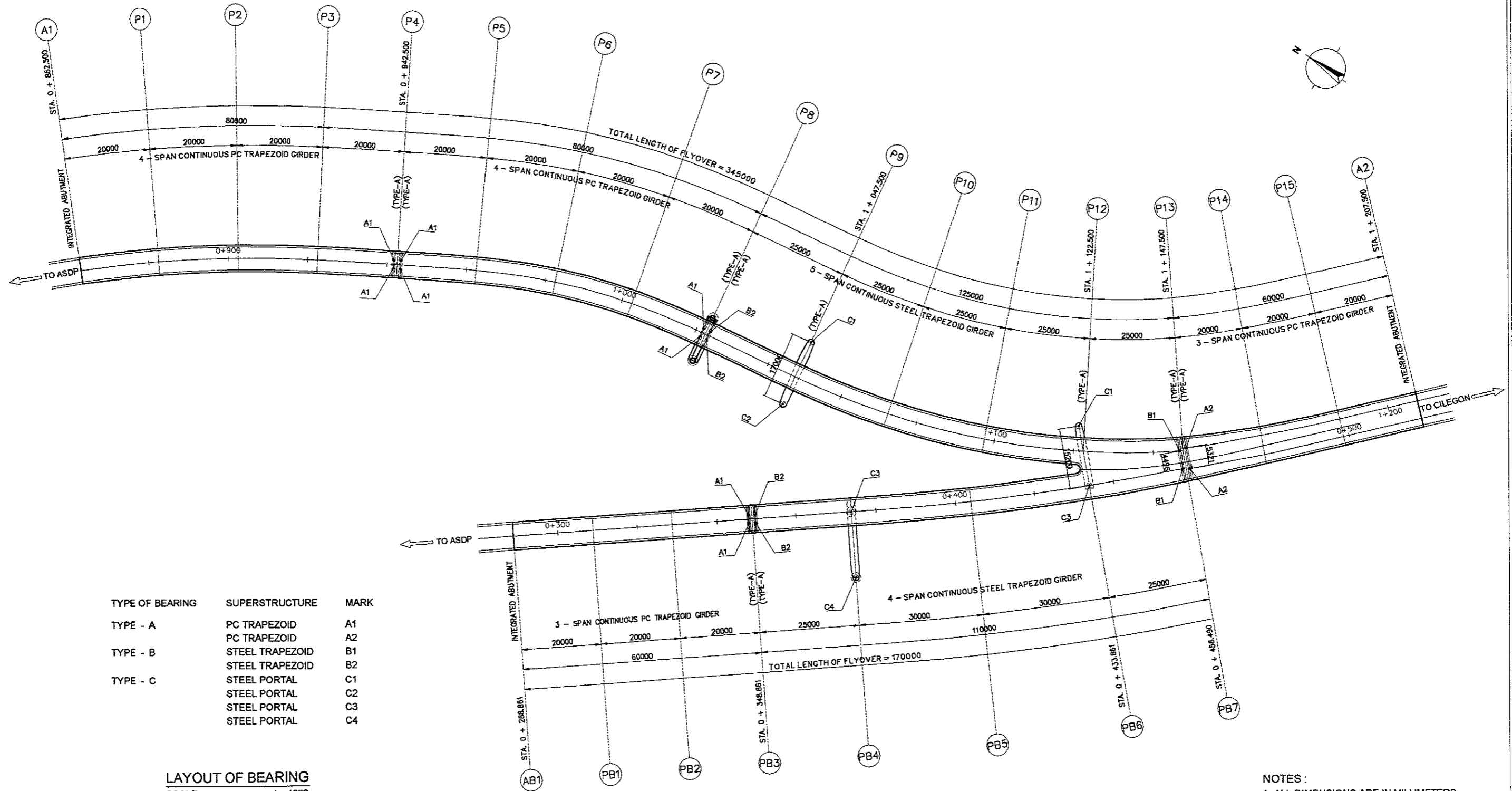


PLAN SECTION
 SCALE 1 : 100



KEY PLAN
 SCALE 1 : 1000

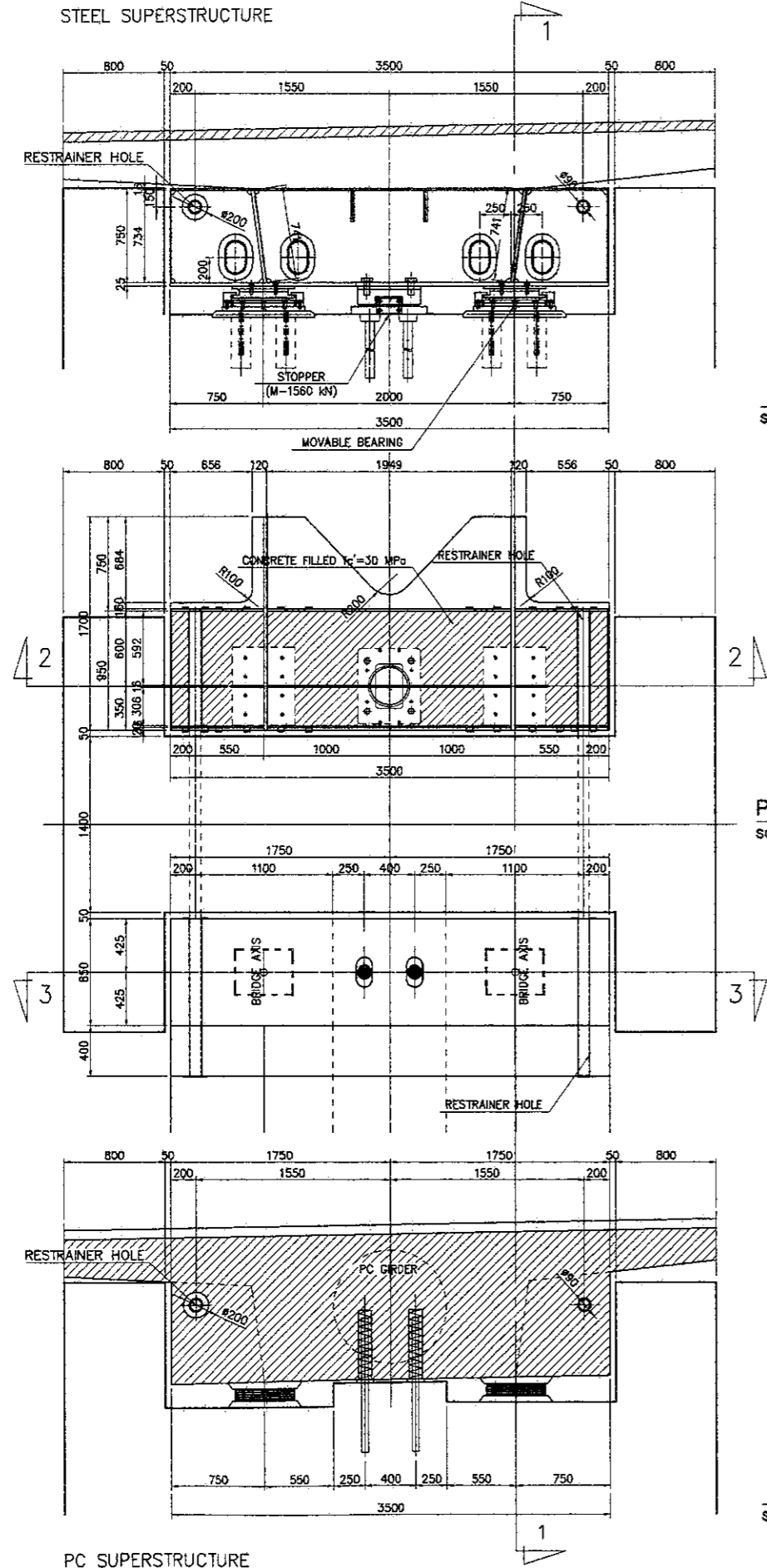
- NOTES :
1. THE SAME CONDITION WITH HIGHWAY EXPANSION JOINT
 2. ALL DIMENSIONS ARE IN MILLIMETERS



TYPE OF BEARING	SUPERSTRUCTURE	MARK
TYPE - A	PC TRAPEZOID	A1
	PC TRAPEZOID	A2
TYPE - B	STEEL TRAPEZOID	B1
	STEEL TRAPEZOID	B2
TYPE - C	STEEL PORTAL	C1
	STEEL PORTAL	C2
	STEEL PORTAL	C3
	STEEL PORTAL	C4

LAYOUT OF BEARING
 SCALE 1 : 1000

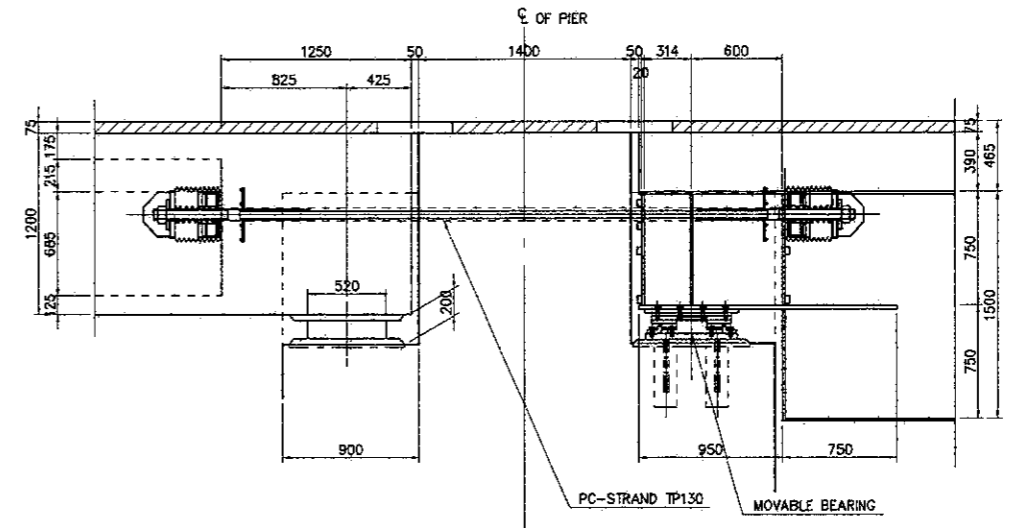
- NOTES :
1. ALL DIMENSIONS ARE IN MILLIMETERS
 2. SEE DETAIL OF BEARING TYPE
 3. - TYPE A : MOVABLE BEARING FOR PC
 - TYPE B : MOVABLE BEARING FOR STEEL
 - TYPE C : FIXED BEARING FOR STEEL



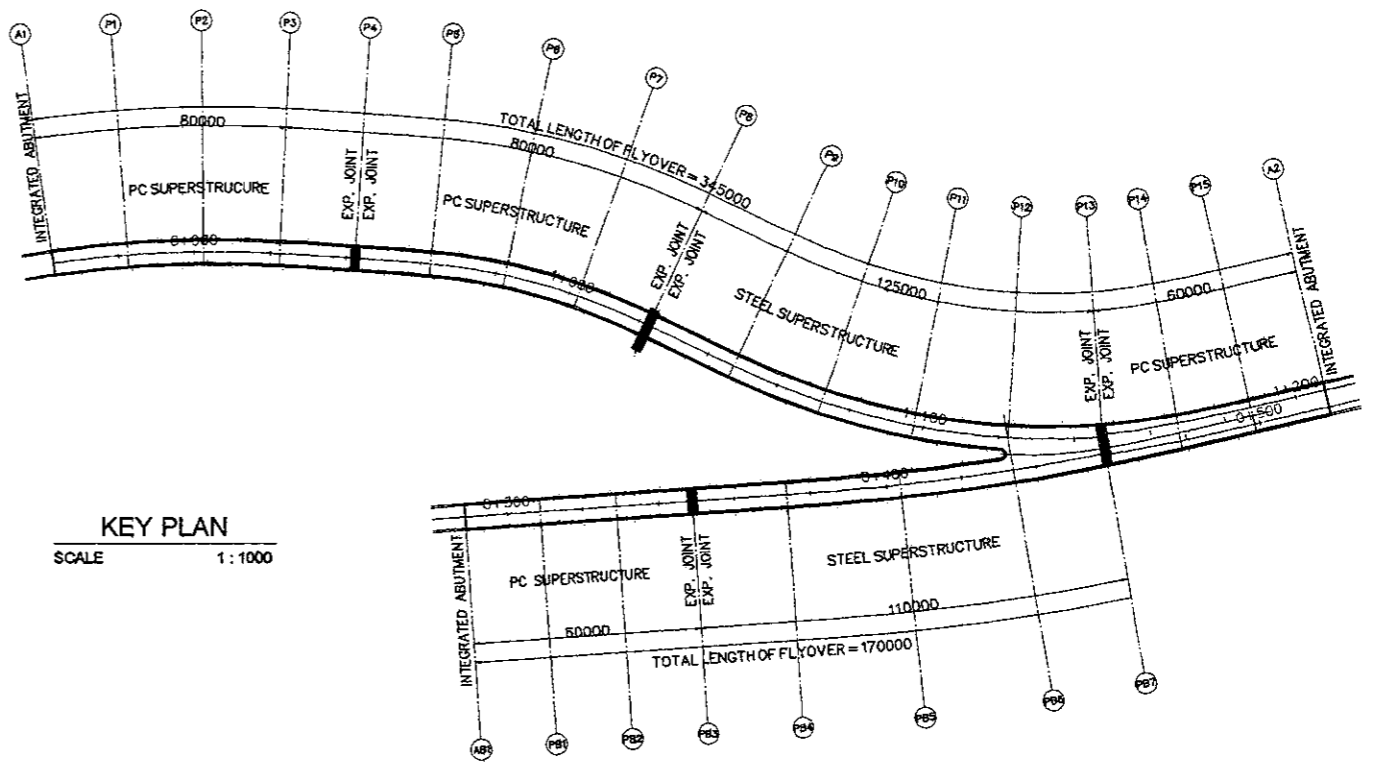
SECTION 2-2
 SCALE 1 : 50

PLAN OF SECTION
 SCALE 1 : 50

SECTION 3-3
 SCALE 1 : 50



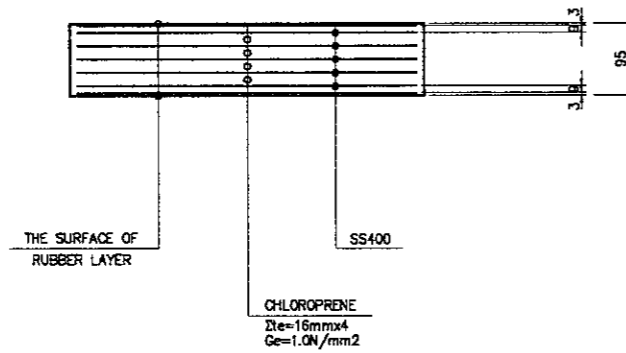
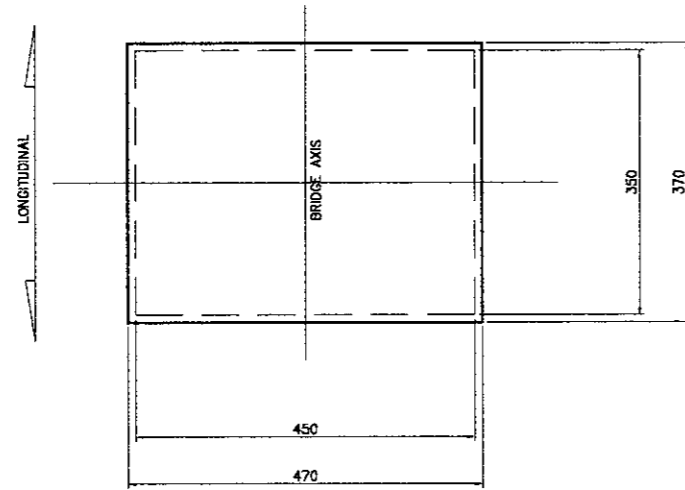
SECTION 1-1
 SCALE 1 : 50



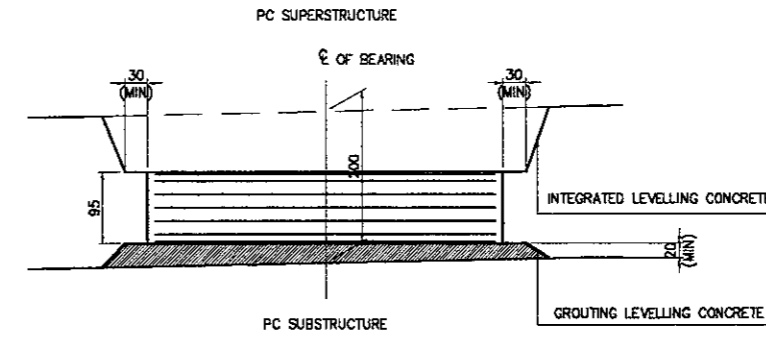
KEY PLAN
 SCALE 1 : 1000

NOTES :
 ALL DIMENSIONS ARE IN MILLIMETERS

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	S. MATSUI	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

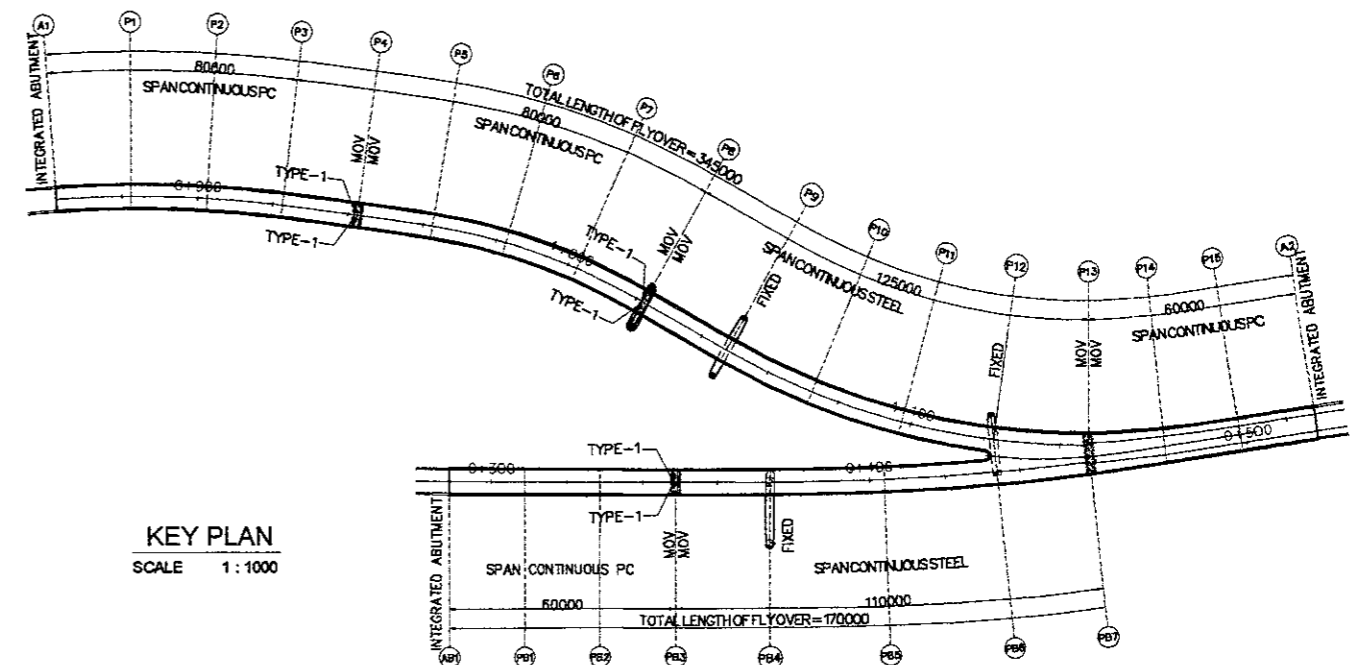


MOVABLE BEARING
 SCALE 1 : 10



BEARING SEATING DETAIL
 SCALE 1 : 10

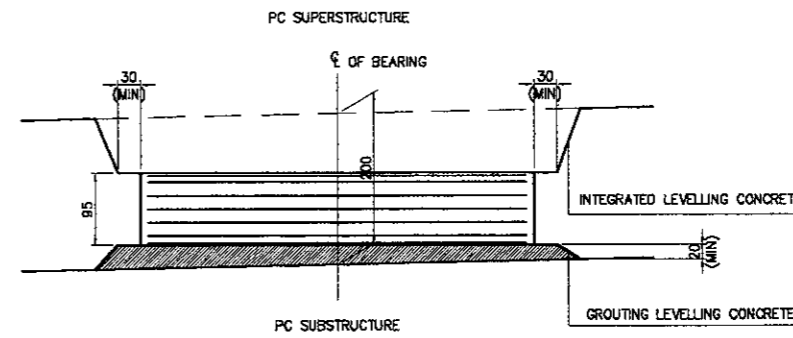
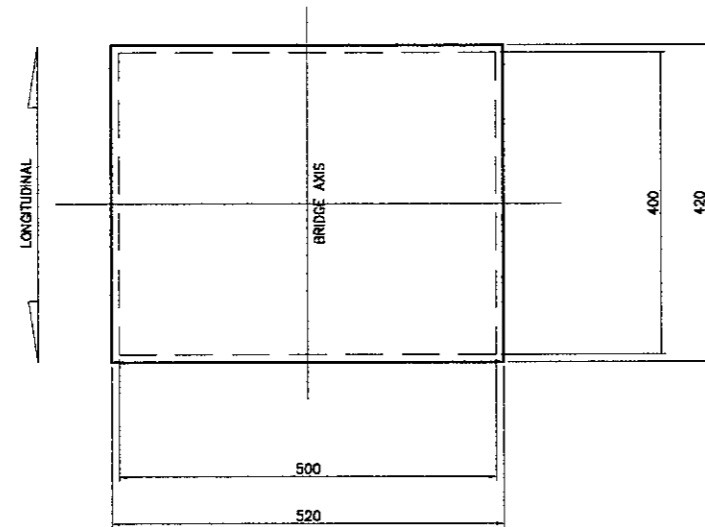
NAME	SIZE	MATERIAL	UNIT (NOS.)	
			P4	2 (LEFT-RIGHT)
RUBBER BEARING (TYPE-1)	370x470x95	CHLOROPRENE SS400	P8	2 (LEFT-RIGHT)
			PB3	2 (LEFT-RIGHT)



KEY PLAN
 SCALE 1 : 1000

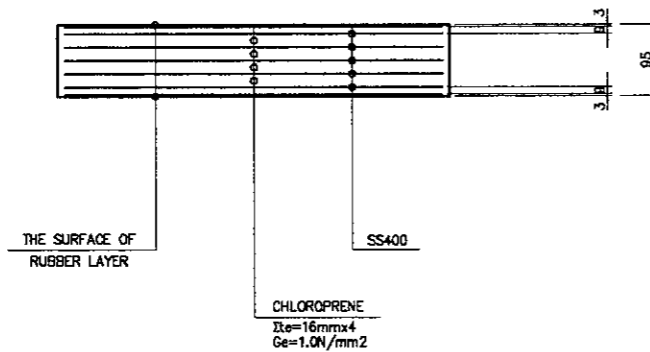
NOTES :
 ALL DIMENSIONS ARE IN MILLIMETERS

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	S. MATSUI	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

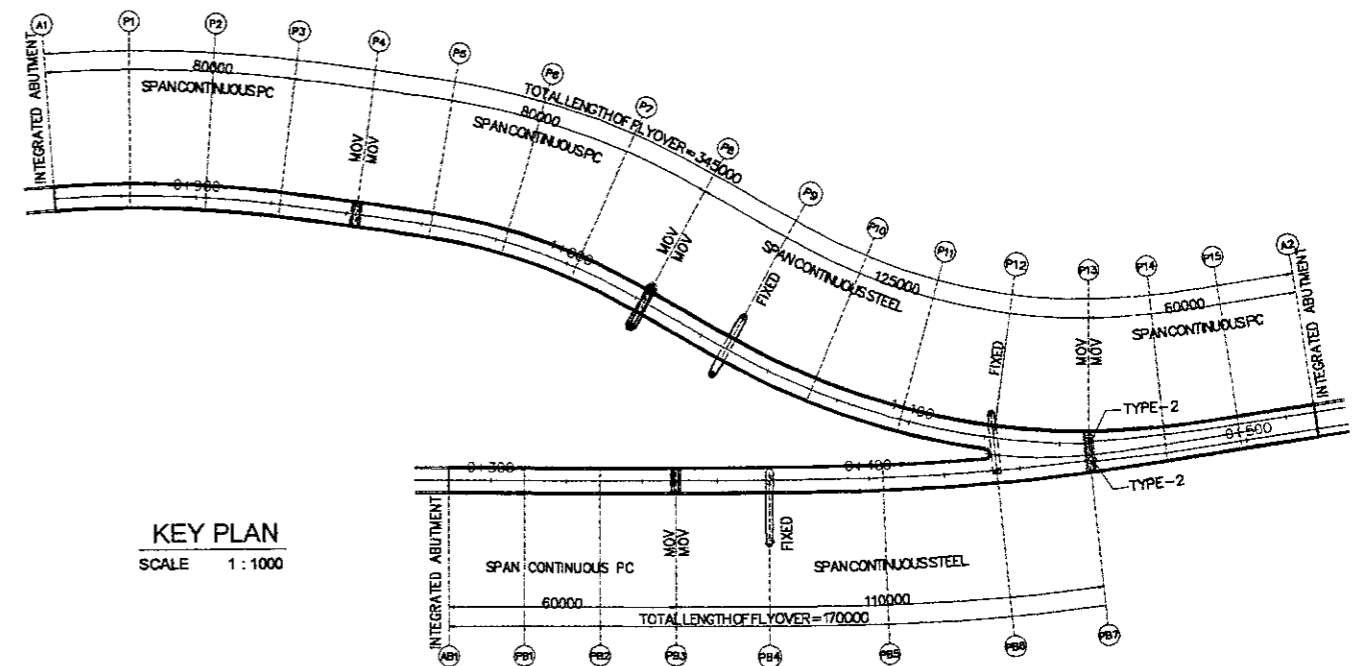


BEARING SEATING DETAIL
 SCALE 1 : 10

NAME	SIZE	MATERIAL	UNIT (NOS.)
RUBBER BEARING (TYPE-2)	420x520x95	CHLOROPRENE SS400	P13 2 (LEFT-RIGHT)

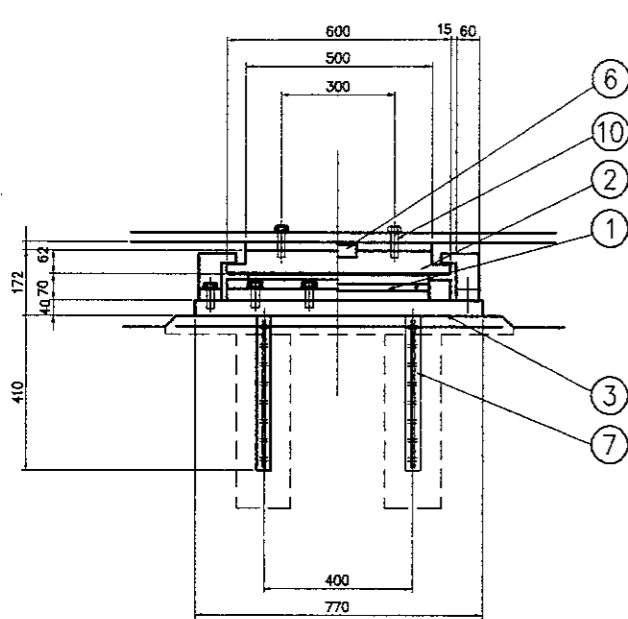


MOVABLE BEARING
 SCALE 1 : 10

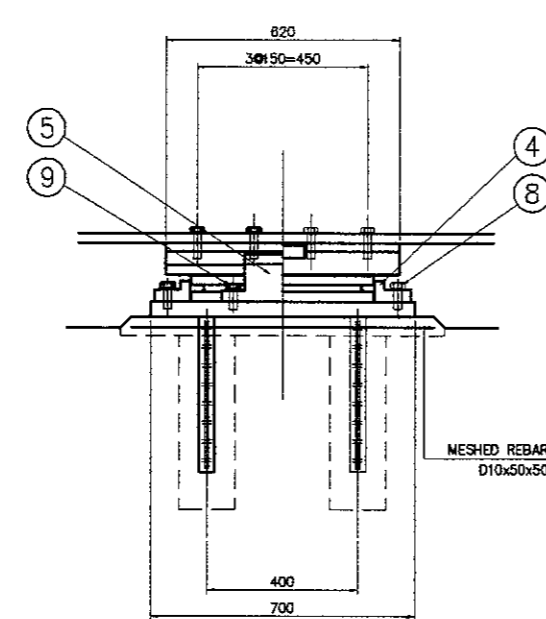


KEY PLAN
 SCALE 1 : 1000

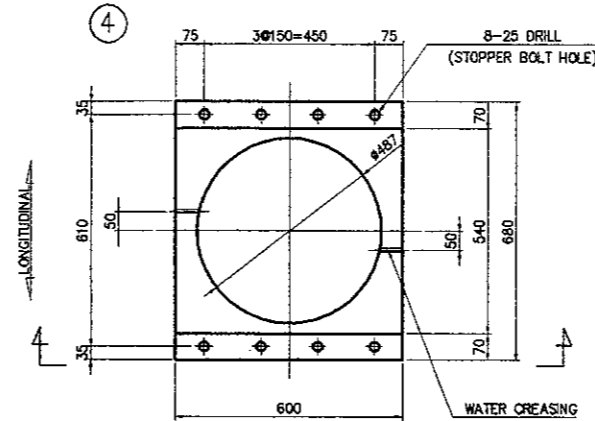
NOTES :
 ALL DIMENSIONS ARE IN MILLIMETERS



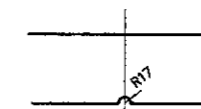
SECTION OF TRANSVERSE DIRECTION
SCALE 1:20



SECTION OF LONGITUDINAL DIRECTION
SCALE 1:20



STOPPER
SCALE 1:20



DETAIL OF WATER CREASING
SCALE 1:10

* HOLE OF EYE BOLT SHALL BE FILLED

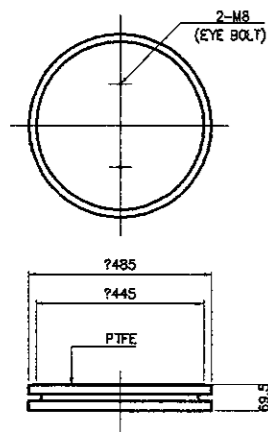
DESIGN CONDITION

	REACTION FORCE		
	kN	R max	
MAXIMUM REACTION FORCE			2622
MAXIMUM REACTION	kN	R max2	2069
DEAD LOAD REACTION	kN	Rd	1120
LIVE LOAD REACTION	kN	R1 I	751
MAX UP LIFT MOVEMENT	mm	δ c I	0.54
MAX VERTICAL MOVEMENT	mm	δ I	1.47
VERTICAL SPRING	kN/mm	Kv	1410
HORIZONTAL DISPLACEMENT(RUBBER BEARING DISPLACEMENT)			
LONGITUDINAL DISPLACEMENT	(NORMAL)	mm	Δ I
	(DYNAMIC ANALYSIS)	mm	Δ I*
RUBBER BEARING MATERIAL AND CHARACTERISTIC			
TYPE OF RUBBER	MATERIAL	G	NR.G10

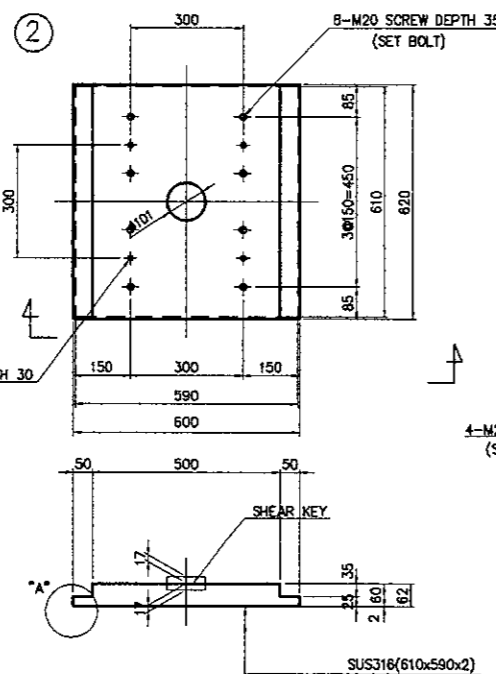
MATERIAL LIST

NO.	DESCRIPTION	MATERIAL	QTY	WEIGHT(kg)	REMARK
1	MOVABLE RUBBER TYPE BEARING (ELASTIC LOAD BEARING PAD)	NR,SS400,P.T.F.E.	1	67.2	Hps-3000
2	SLIDING PLATE	SM490A,SUS316	1	162.1	
3	BASE PLATE	SM490A	1	167.0	
4	STOPPER PLATE	SM490A	1	79.6	
5	SIDE BLOCK	SCW480orM490A	2	29.6	
6	SHEAR KEY	SM490orS35CN	1	2.1	
7	ANCHOR BOLT	SD345	4	18.9	
8	STOPPER BOLT WASHER	STRENGTH 8.8	8	2.1	
9	SIDE BLOCK BOLT WASHER	STRENGTH 8.8	4	0.9	
10	SET BOLT WASHER	STRENGTH 8.8	8	0.6	
11	EYE BOLT	SS400	—	—	M16
TOTAL				532.1 (kg)	
BRIDGE SEAT MORTAR		NON SHRINK MORTAR			(m ³)
GRID REINFORCING BAR					
S1	D10x800	SD295	18	8.1	
S2	D10x850	SD295	17	8.1	
TOTAL				16.2 (kg)	

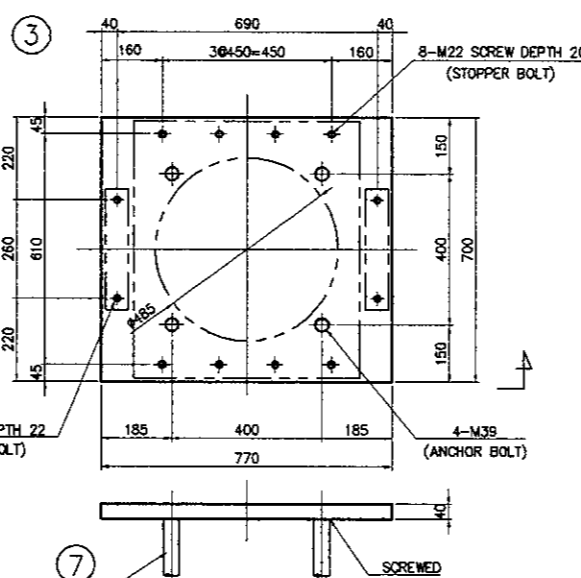
1 [ELASTIC BEARING PLATE] (FOR 3000 kN)



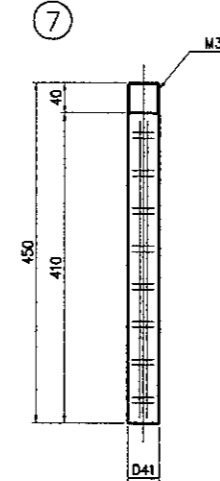
MOVABLE BEARING
SCALE 1:20



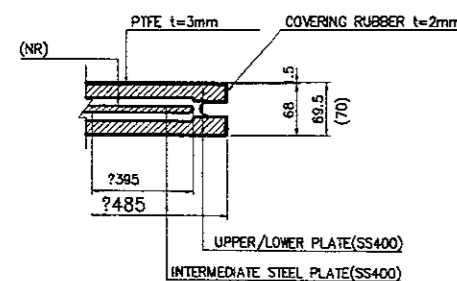
SLIDING PLATE
SCALE 1:20



BASE PLATE
SCALE 1:20

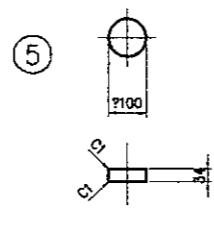


ANCHOR BOLT
SCALE 1:10

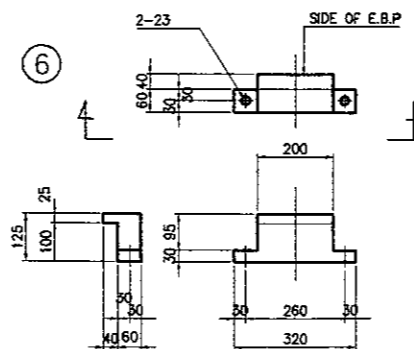


DETAIL OF E.B.P.

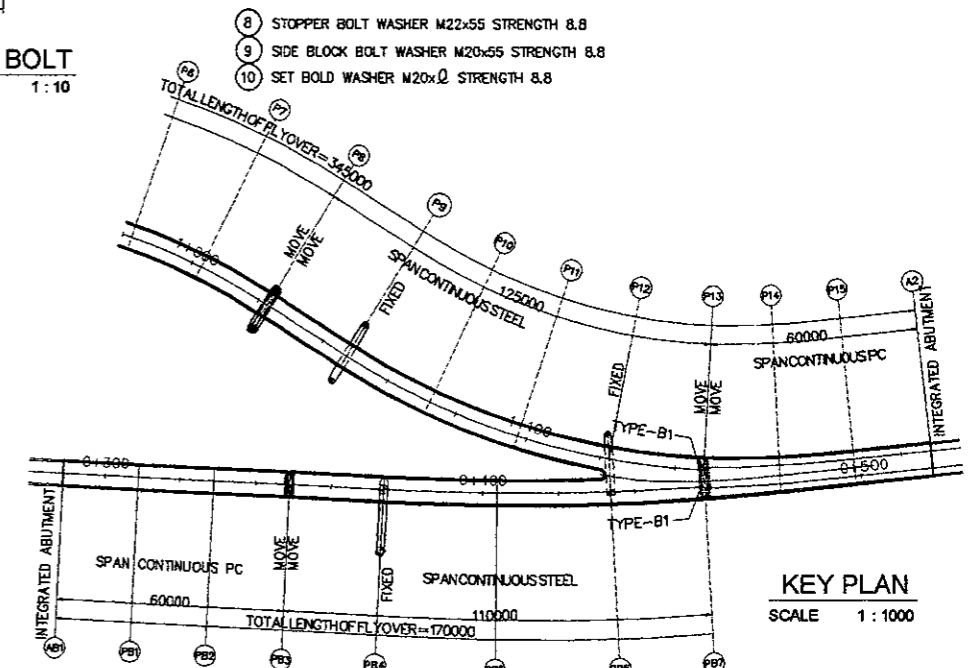
DETAIL OF "A"



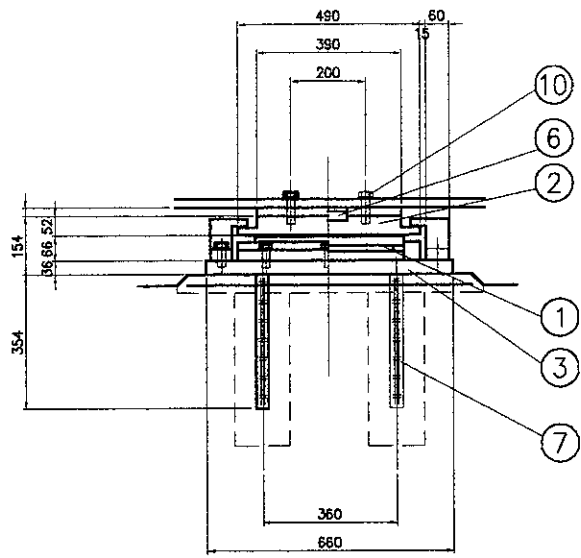
SHEAR KEY
SCALE 1:20



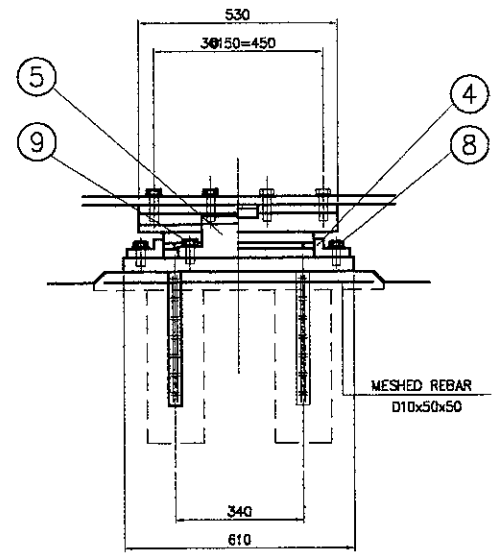
SIDE BLOCK
SCALE 1:20



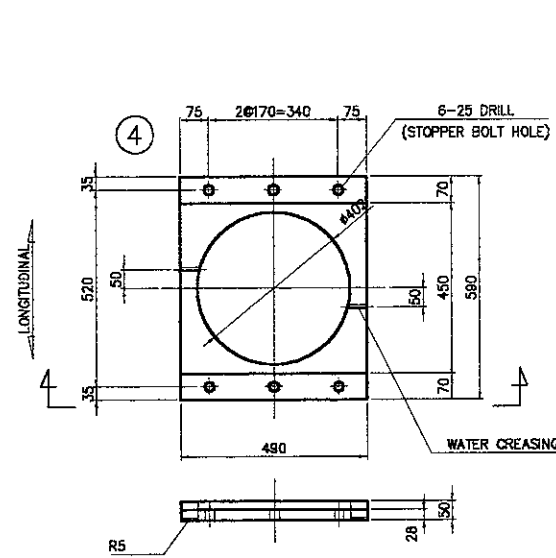
KEY PLAN
SCALE 1:1000



SECTION OF TRANSVERSE DIRECTION
SCALE 1:20

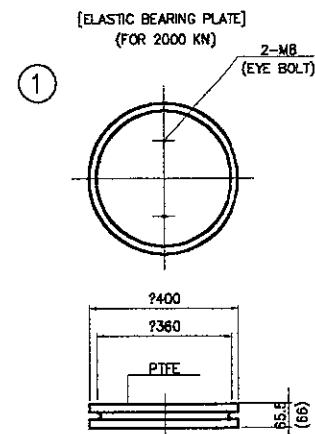


SECTION OF LONGITUDINAL DIRECTION
SCALE 1:20

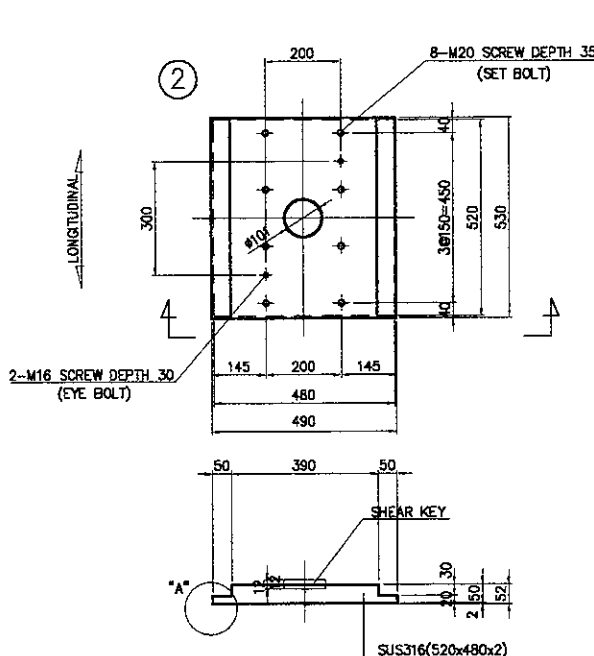


STOPPER
SCALE 1:20

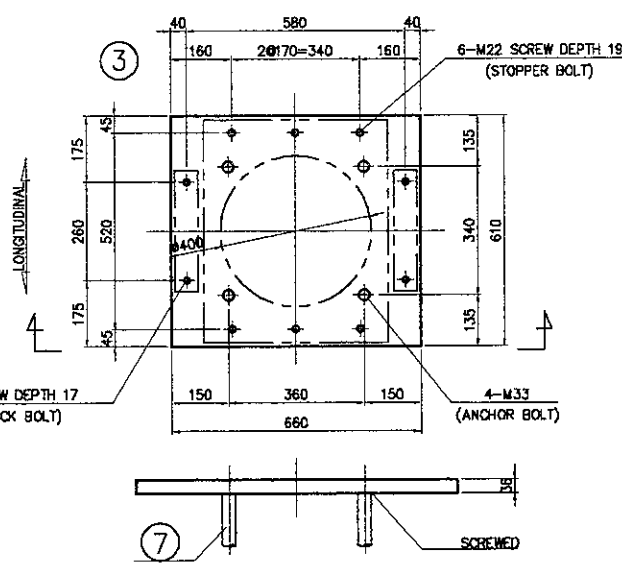
DETAIL OF WATER CREAMING
SCALE 1:10



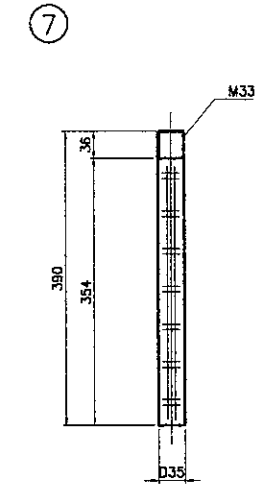
MOVABLE BEARING
SCALE 1:20



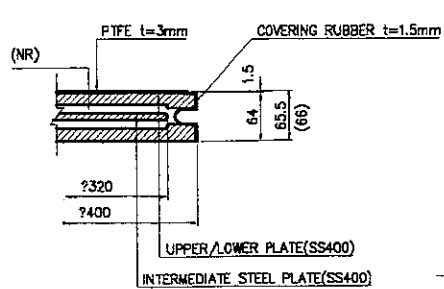
SLIDING PLATE
SCALE 1:20



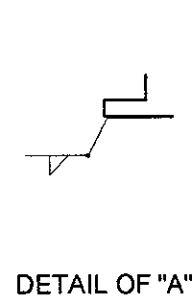
BASE PLATE
SCALE 1:20



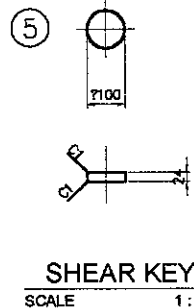
ANCHOR BOLT
SCALE 1:10



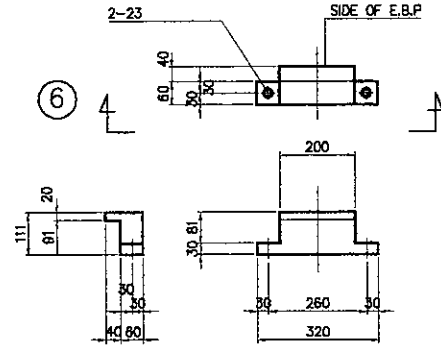
DETAIL OF E.B.P



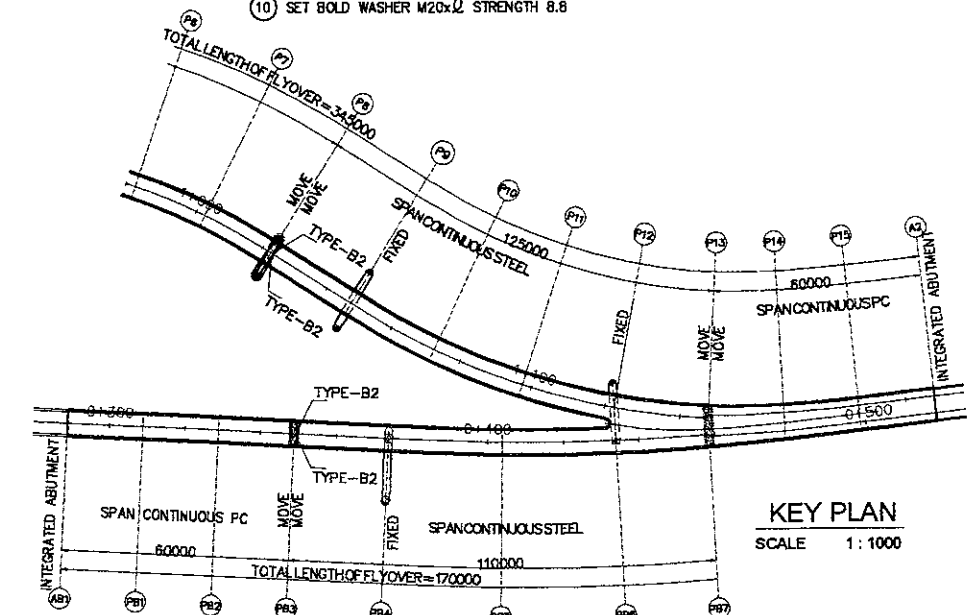
DETAIL OF "A"



SHEAR KEY
SCALE 1:20



SIDE BLOCK
SCALE 1:20



KEY PLAN
SCALE 1:1000

DESIGN CONDITION

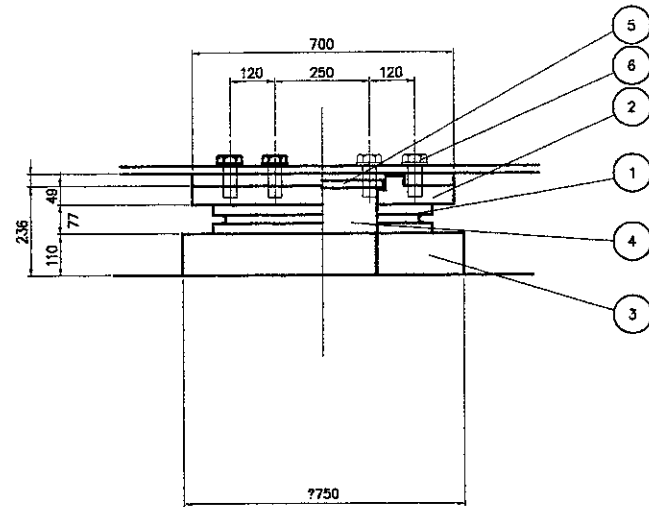
		REACTION FORCE			
MAXIMUM REACTION FORCE	kN	R max	1944		
MAXIMUM REACTION	kN	R max2	1018		
DEAD LOAD REACTION	kN	Rd	924		
LIVE LOAD REACTION	kN	R1 I	510		
MAX UP LIFT MOVEMENT	mm	d c l	0.72		
MAX VERTICAL MOVEMENT	mm	d l	1.44		
VERTICAL SPRING	kN/mm	Kv	710		
HORIZONTAL DISPLACEMENT(RUBBER BEARING DISPLACEMENT)					
LONGITUDINAL DISPLACEMENT	(NORMAL)		mm	Δl	8.2
	(DYNAMIC ANALYSIS)		mm	$\Delta l e$	50.0
RUBBER BEARING MATERIAL AND CHARACTERISTIC					
TYPE OF RUBBER	MATERIAL		G	NR-G10	

MATERIAL LIST

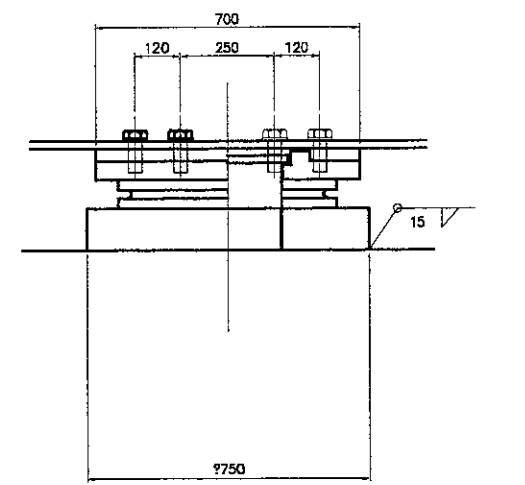
					(1 UNIT)
NO.	DESCRIPTION	MATERIAL	QTY	WEIGHT (kg)	REMARK
1	MOVABLE RUBBER TYPE BEARING (ELASTIC LOAD BEARING PAD)	NR,SS400,P.T.F.E	1	42.0	Hips=2000
2	SLIDING PLATE	SM490A,SUS316	1	91.8	
3	BASE PLATE	SM490A	1	112.3	
4	STOPPER PLATE	SM490A	1	51.2	
5	SIDE BLOCK	SCW480N or M490A	2	26.4	
6	SHEAR KEY	SM490A or S35CN	1	1.5	
7	ANCHOR BOLT	SD345	4	11.7	
8	STOPPER BOLT WASHER	STRENGTH 8.8	8	1.5	
9	SIDE BLOCK BOLT WASHER	STRENGTH 8.8	4	0.8	
10	SET BOLT WASHER	STRENGTH 8.8	8	2.6	
11	EYE BOLT	SS400	—	—	M16
TOTAL				341.9 (kg)	
BRIDGE SEAT MORTAR		NON SHRINK MORTAR			(m ³)
GRID REINFORCING BAR					
S1	D10x700	SD295	16	6.3	
S2	D10x750	SD295	15	6.3	
TOTAL				12.6 (kg)	

- BASED ON HIGHWAY BRIDGE BEARING MANUAL
- MEMBER WITH O TO BE MELT ZINC PLATING JIS H 8841 HD255, HD235
- WEIGHT OF MOVABLE RUBBERS BEARING (ELASTIC LOADING PLATE) IS FOR REFERENCE ONLY
- WEIGHT OF SET BOLT MUST BE COUNTED FOR Q=100 AS REFERENCE
- SHEAR KEY AND PARTNES SHALL BE HIGH DENSITY ZINC COAT 80 μm
- NUMBER OF EYE BOLT SHALL BE DECIDED BASED ON THE ERECTION REQUIREMENT
- EYE BOLT HOLE FOR FABRICATION MUST BE LARGES

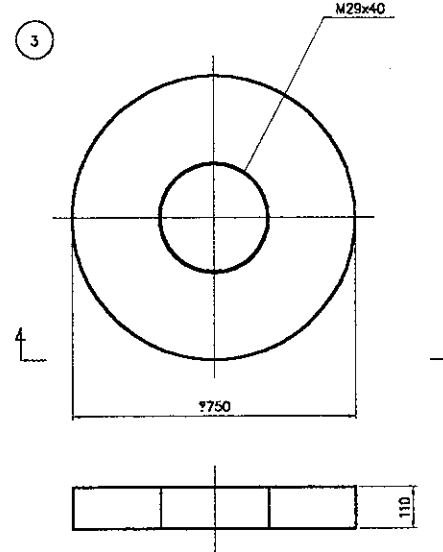
- STOPPER BOLT WASHER M22x55 STRENGTH 8.8
- SIDE BLOCK BOLT WASHER M20x55 STRENGTH 8.8
- SET BOLT WASHER M20xQ STRENGTH 8.8



SECTION OF TRANVERSE DIRECTION
SCALE 1:20



SECTION OF LONGITUDINAL DIRECTION
SCALE 1:20



BASE PLATE
SCALE 1:20

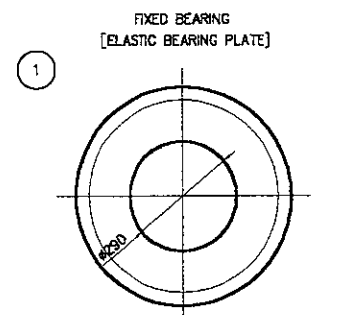
DESIGN CONDITION

REACTION FORCE			????
MAXIMUM REACTION FORCE	kN	Rmax	2991
MAXIMUM REACTION	kN	Rmax2	2207
DEAD LOAD REACTION	kN	Rd	1781
MAXIMUM VERTICAL MOVEMENT	mm	&	0.817
VERTICAL SPRING	kN/mm	Kv	890
LONGITUDINAL REACTION	kN	Rhe1	2700
TRANSVERSAL REACTION	kN	Rhe2	2700
SEISMIC UP LIFT FORCE	kN	Ru	528
RUBBER BEARING MATERIAL & CHARECTERISTIC			
RUBBER TYPE	-	MATERIAL G	NR_G10

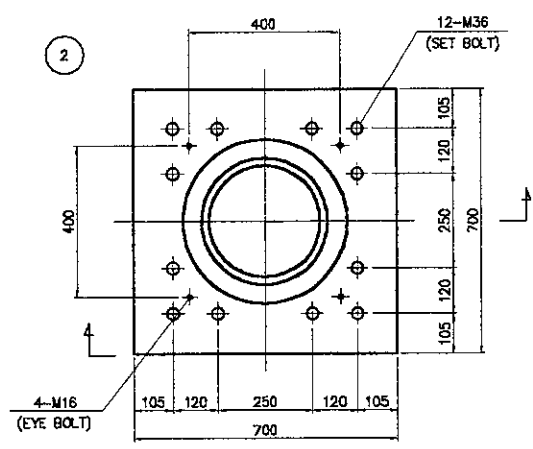
MATERIAL LIST

NO.	DESCRIPTION	MATERIAL	QTY	WEIGHT (kg)	REMARKS
1	FIXED RUBBER TYPE BEARING	NR,SS400	1	78.7	FxSB
2	SLIDING PLATE	SM490A	1	168.1	
3	BASE PLATE	SM490A	1	324.5	
4	DOWEL	S45CN	1	129.6	
5	RING NUT	S45CN	1	2.3	
6	SET BOLT WHASER	STRENGTH 8.8	12	15.4	
7	EYE BOLT	SS400	---	---	M16
TOTAL				718.6	(kg)

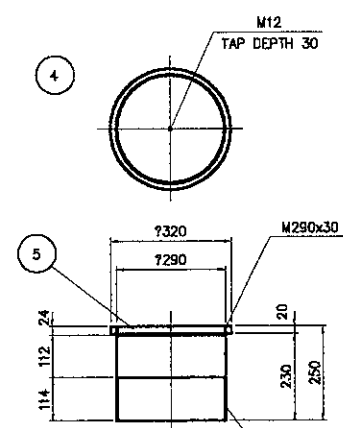
- BASED ON HIGHWAY BRIDGE BEARING MANUAL
- MEMBER WITH O TO MELT ZINC PLATING
JS H 8641 HDZ55, HDZ35
- WEIGHT OF FIXED RUBBER BEARING (ELASTIC LOADING PLATE) IS FOR REFERENCE ONLY
- WEIGHT OF SET BOLT MUST BE COUNTED FOR $\phi=100$ mm AS REFERENCE
- NUMBER OF EYE BOLT SHALL BE DECIDED BASED ON THE ERECTION REQUIREMENT
- EYE BOLT HOLE FOR FABRICATION MUST BE REASONABLY LARGES



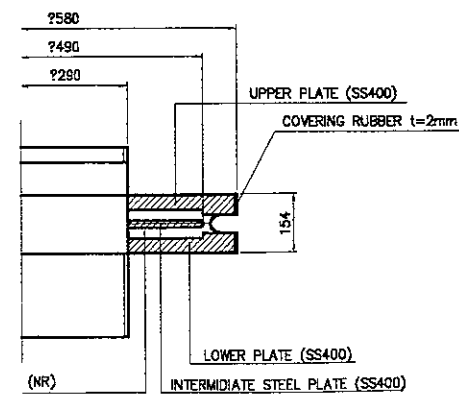
FIXED BEARING
SCALE 1:20



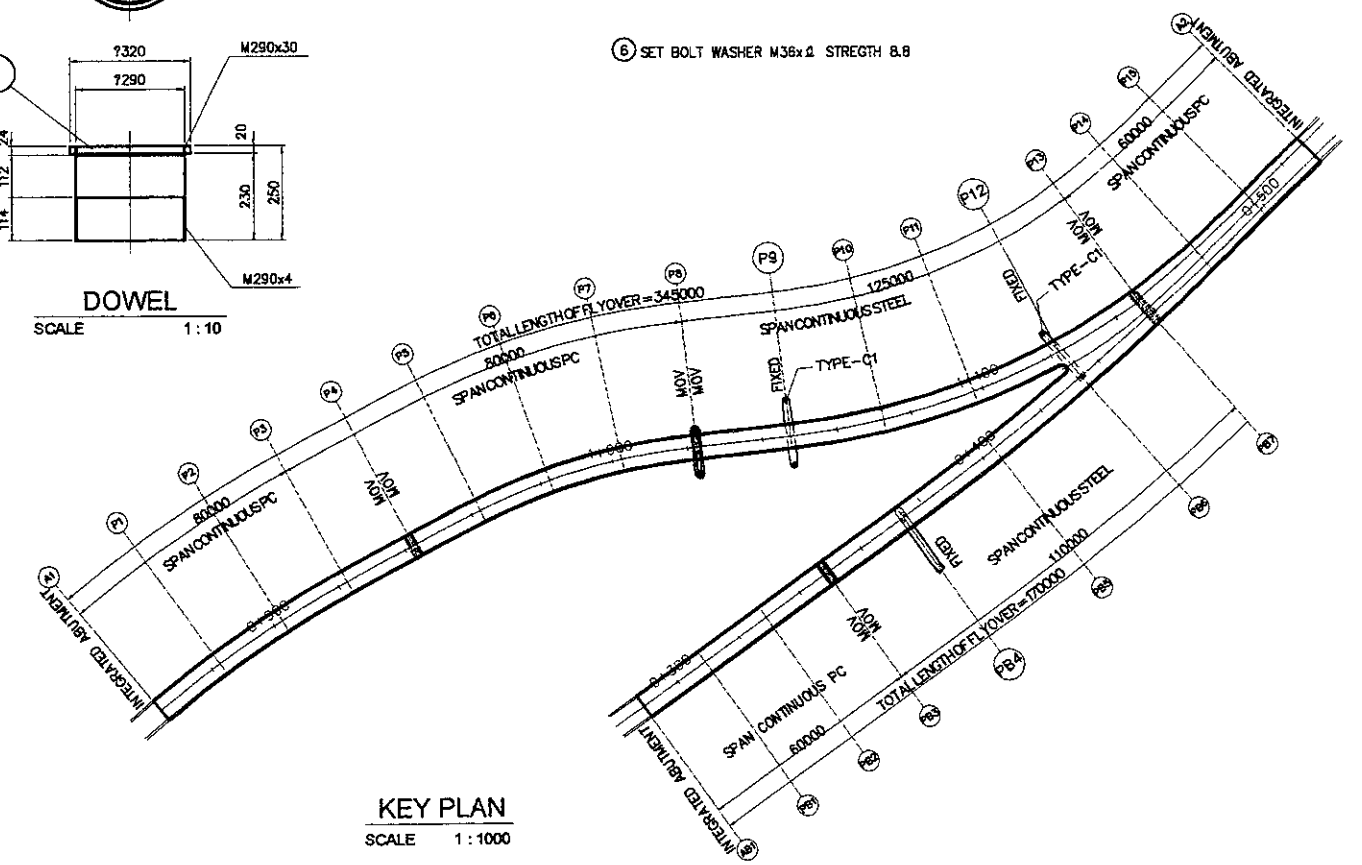
SLIDING PLATE
SCALE 1:20



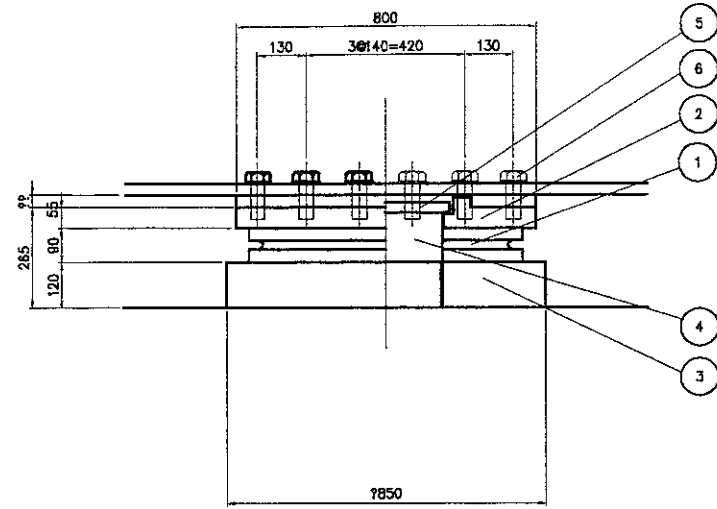
DOWEL
SCALE 1:10



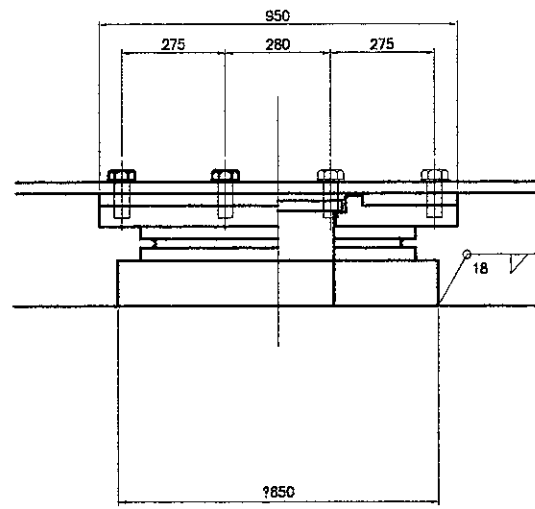
DETAIL OF E.B.P



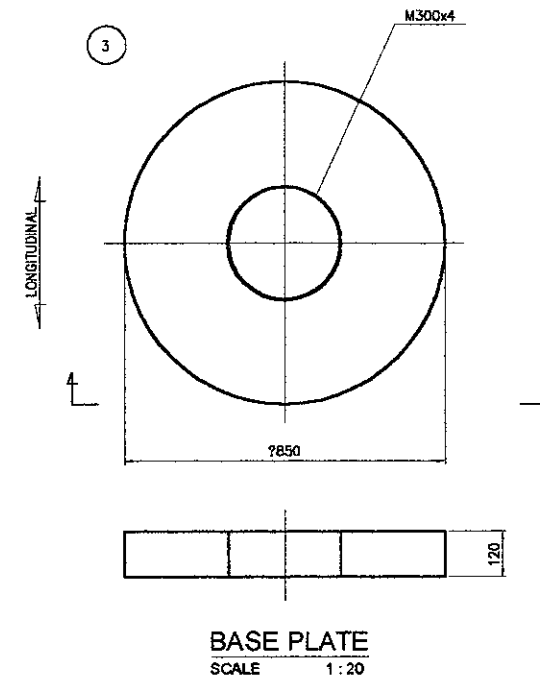
KEY PLAN
SCALE 1:1000



SECTION OF TRANSVERSE DIRECTION
SCALE 1:20



SECTION OF LONGITUDINAL DIRECTION
SCALE 1:20



BASE PLATE
SCALE 1:20

DESIGN CONDITION

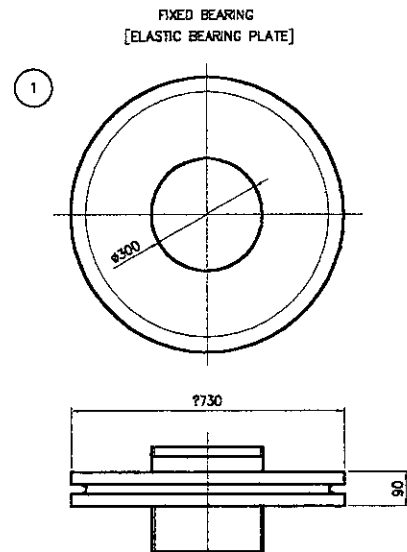
REACTION FORCE			
MAXIMUM REACTION FORCE	kN	Rmax	4670
MAXIMUM REACTION	kN	Rmax2	3093
DEAD LOAD REACTION	kN	Rd	2775
MAXIMUM VERTICAL MOVEMENT	mm	δ	1.050
VERTICAL SPRING	kN/mm	Kv	1740
LONGITUDINAL REACTION	kN	Rhe1	4200
TRANSVERSAL REACTION	kN	Rhe2	4200
SEISMIC UP LIFT FORCE	kN	Ru	833
RUBBER BEARING MATERIAL & CHARACTERISTIC			
RUBBER TYPE	-	MATERIAL.G	NR.310

MATERIAL LIST

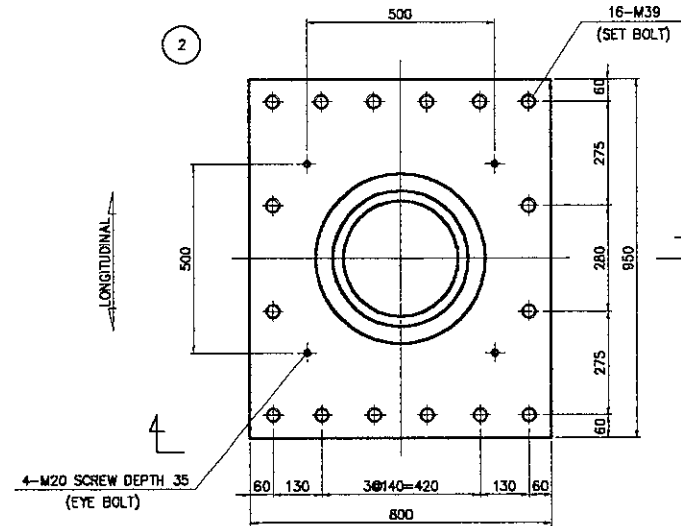
NO.	DESCRIPTION	MATERIAL	QTY	WEIGHT (kg)	REMARKS
1	FIXED RUBBER TYPE BEARING	NR,SS400	1	159.7	FxSB
2	SLIDING PLATE	SM490A	1	295.0	
3	BASE PLATE	SM490A	1	467.9	
4	DOWEL	S45CN	1	153.7	
5	RING NUT	S45CN	1	4.1	
6	SET BOLT WASHER	STRENGTH 8.8	16	25.2	
7	EYE BOLT	SS400	-	-	M20
TOTAL				1105.6	(kg)

- BASED ON HIGHWAY BRIDGE BEARING MANUAL
- MEMBER WITH O TO MELT ZINC PLATING
JIS H 8641 HDZ55, HDZ35
- WEIGHT OF FIXED RUBBER BEARING (ELASTIC LOADING PLATE) IS FOR REFERENCE ONLY
- WEIGHT OF SET BOLT MUST BE COUNTED FOR φ=100mm AS REFERENCE
- NUMBER OF EYE BOLT SHALL BE DECIDED BASED ON THE ERECTION REQUIREMENT
- EYE BOLT HOLE FOR FABRICATION MUST BE REASONABLY LARGES

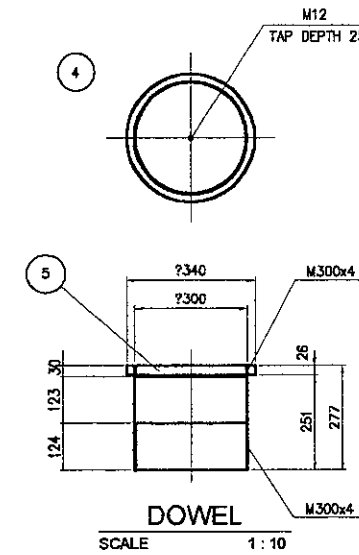
⑥ SET BOLT WASHER M39xφ STRENGTH 8.8



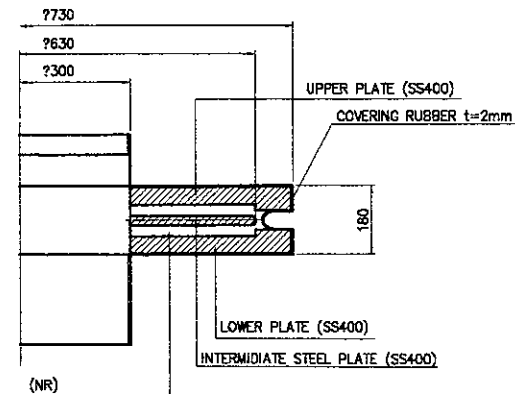
FIXED BEARING
SCALE 1:20



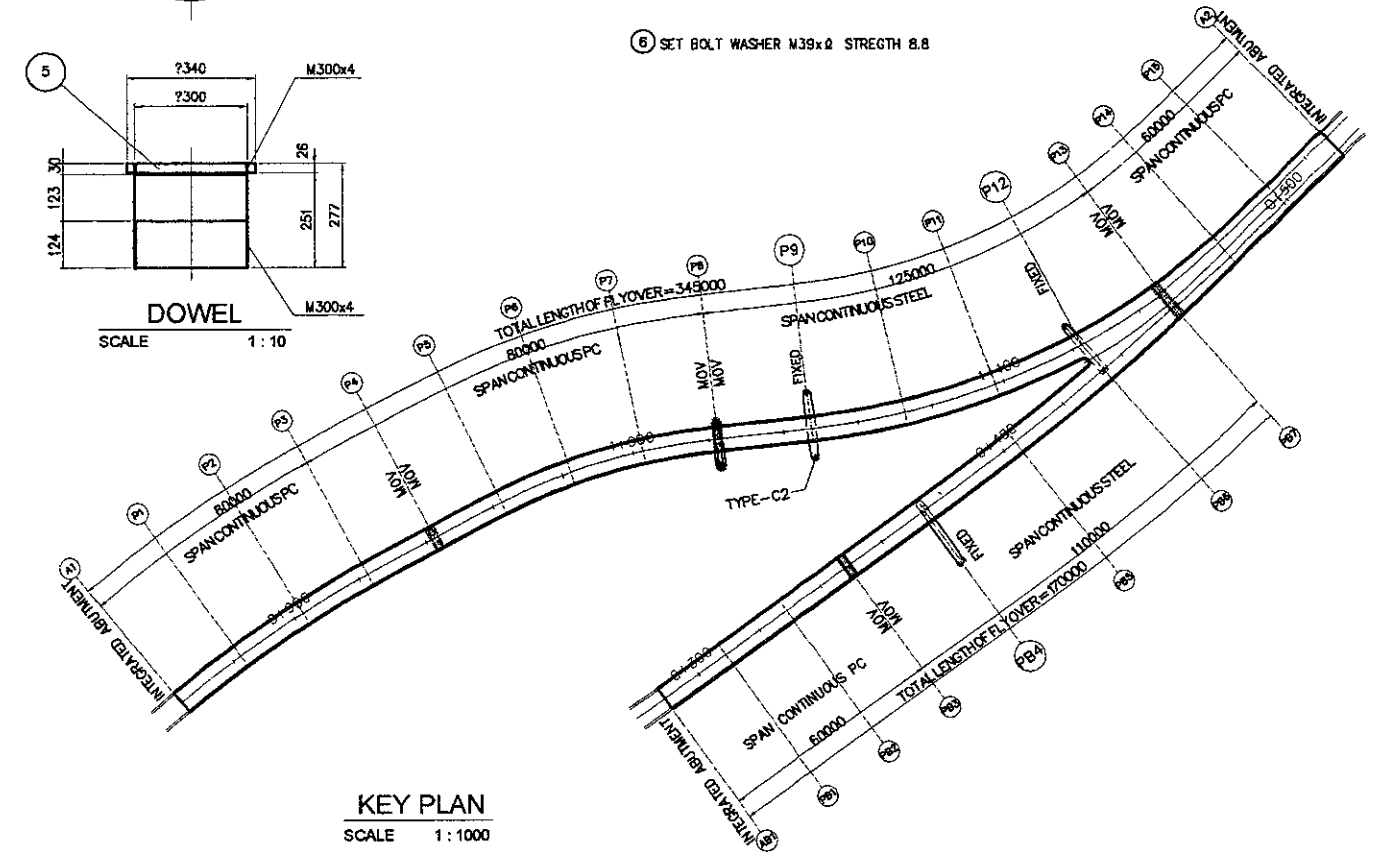
SLIDING PLATE
SCALE 1:20



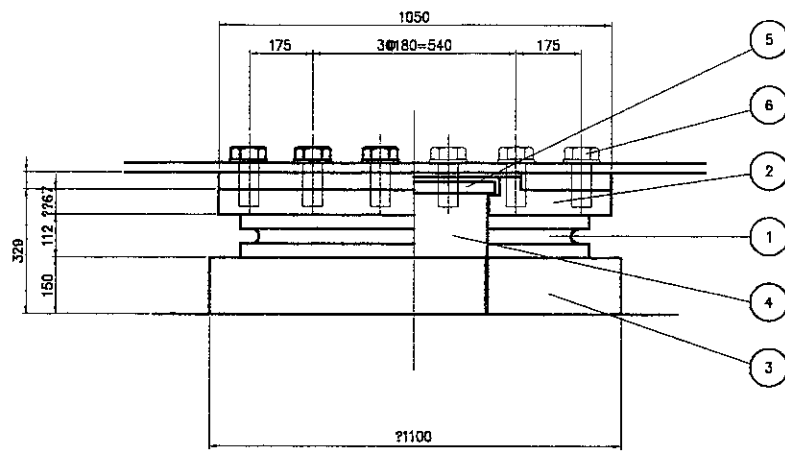
DOWEL
SCALE 1:10



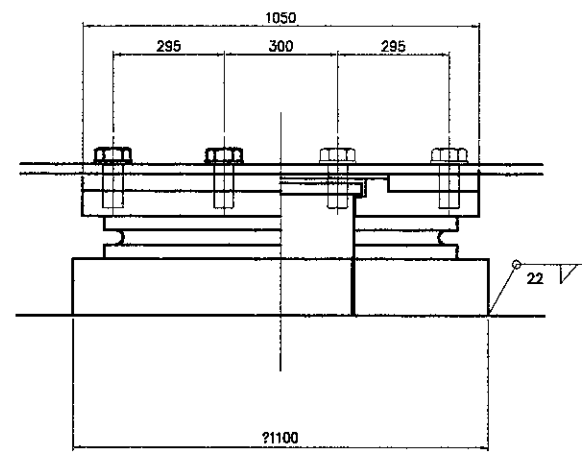
DETAIL OF E.B.P



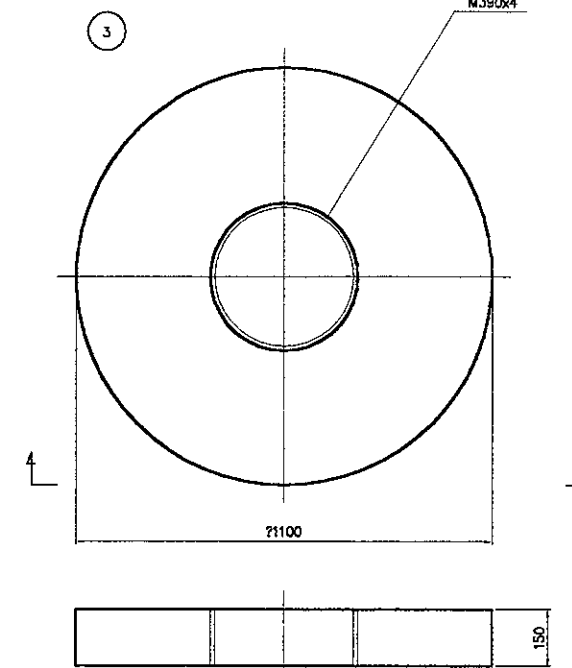
KEY PLAN
SCALE 1:1000



SECTION OF TRANVERSE DIRECTION
 SCALE 1 : 20

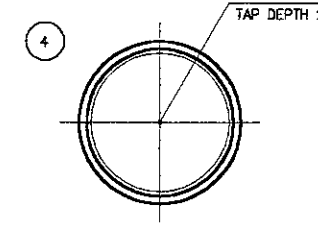


SECTION OF LONGITUDINAL DIRECTION
 SCALE 1 : 20



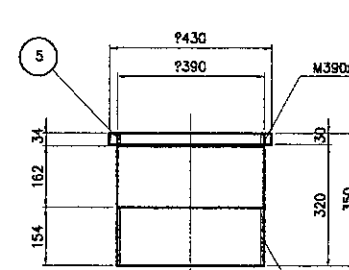
BASE PLATE

SCALE 1 : 20



DOWEL

SCALE 1 : 10



DESIGN CONDITION

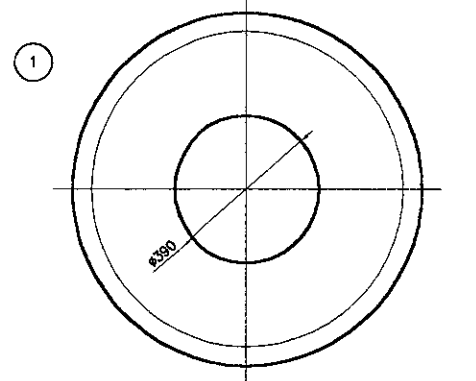
REACTION FORCE			
MAXIMUM REACTION FORCE	kN	Rmax	8185
MAXIMUM REACTION	kN	Rmax2	5115
DEAD LOAD REACTION	kN	Rd	5046
MAXIMUM VERTICAL MOVEMENT	mm	δ	1.358
VERTICAL SPRING	kN/mm	Kv	2430
LONGITUDINAL REACTION	kN	Rhe1	7600
TRANSVERSAL REACTION	kN	Rhe2	7600
SEISMIC UP LIFT FORCE	kN	Ru	1514
RUBBER BEARING MATERIAL & CHARACTERISTIC			
RUBBER TYPE	-	MATERIAL.G	NR.G10

MATERIAL LIST

NO.	DESCRIPTION	MATERIAL	QTY	WEIGHT (kg)	REMARKS
1	FIXED RUBBER TYPE BEARING	NR,SS400	1	313.8	FxSB
2	SLIDING PLATE	SM490A	1	518.2	
3	BASE PLATE	SM490A	1	978.3	
4	DOWEL	S45CN	1	328.2	
5	RING NUT	S45CN	1	6.1	
6	SET BOLT WASHER	STRENGTH 8.8	16	51.2	
7	EYE BOLT	SS400	-	-	M30
TOTAL				2195.8	(kg)

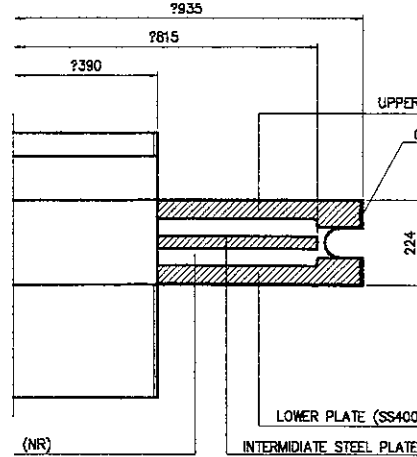
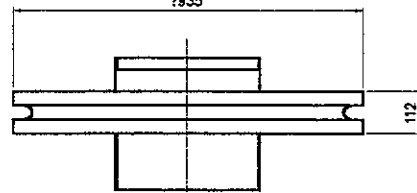
1. BASED ON HIGHWAY BRIDGE BEARING MANUAL
2. MEMBER WITH O TO MELT ZINC PLATING
JIS H 8641 HDZ55, HDZ35
3. WEIGHT OF FIXED RUBBER BEARING (ELASTIC LOADING PLATE) IS FOR REFERENCE ONLY
4. WEIGHT OF SET BOLT MUST BE COUNTED FOR $d=100\text{mm}$ AS REFERENCE
5. NUMBER OF EYE BOLT SHALL BE DECIDED BASED ON THE ERECTION REQUIREMENT
6. EYE BOLT HOLE FOR FABRICATION MUST BE REASONABLY LARGES

⑥ SET BOLT WASHER M52x4 STRENGTH 8.8

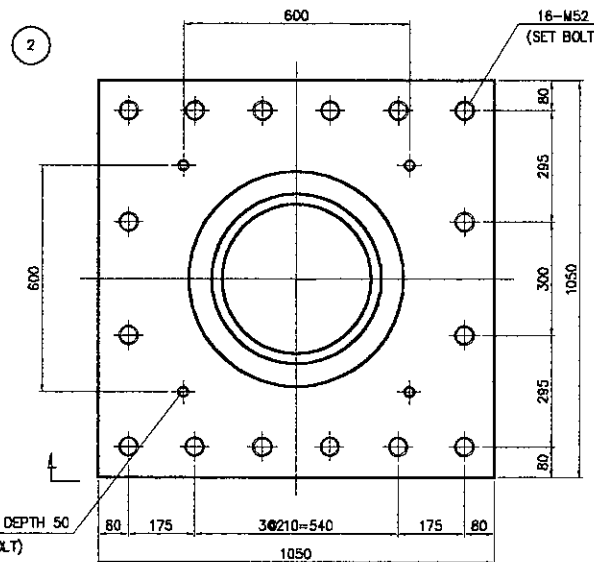


FIXED BEARING

SCALE 1 : 20

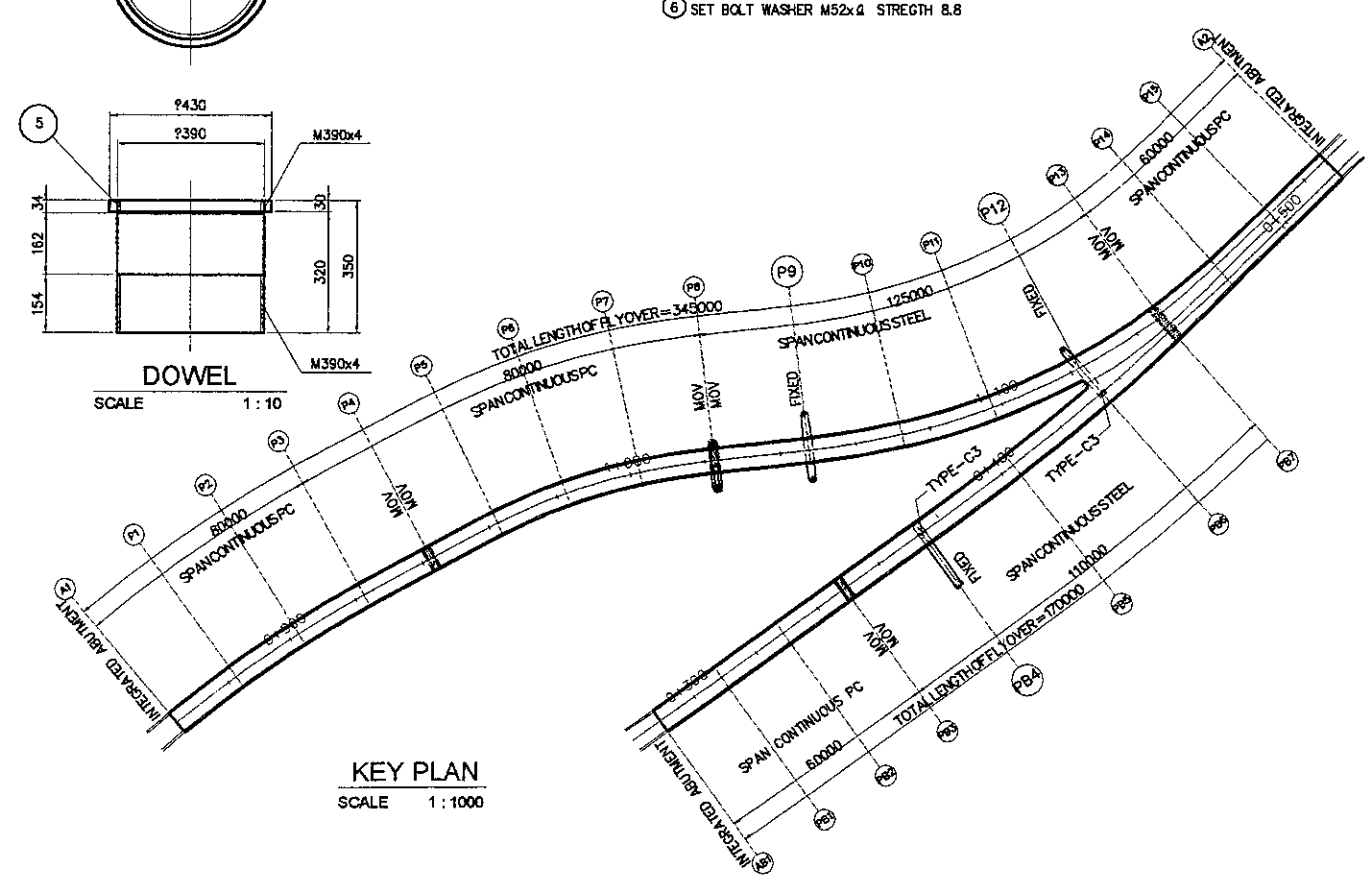
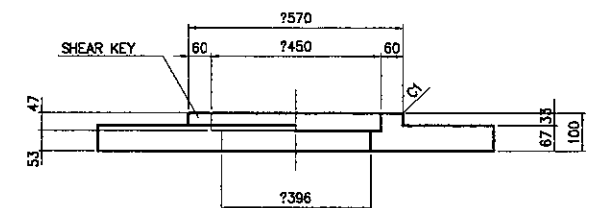


DETAIL OF E.B.P



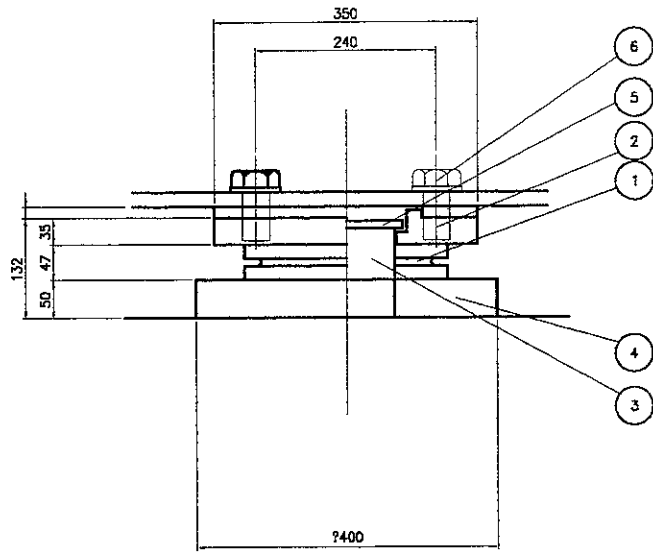
SLIDING PLATE

SCALE 1 : 20

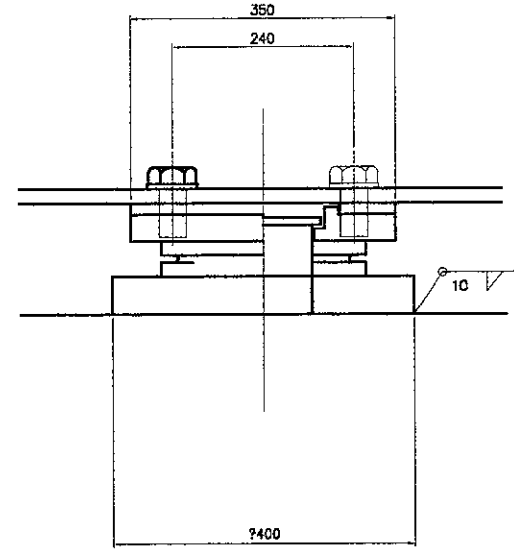


KEY PLAN

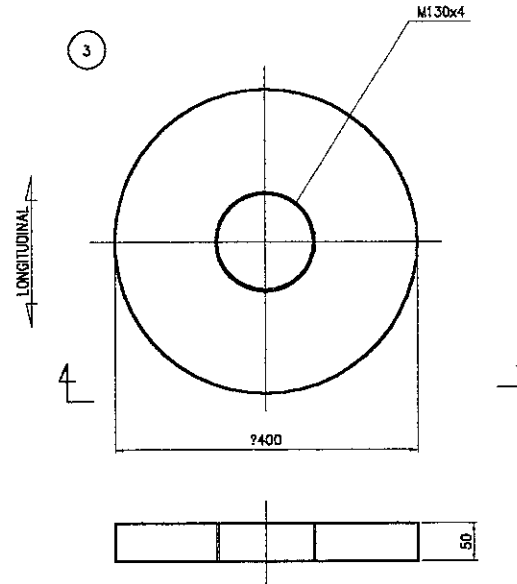
SCALE 1 : 1000



SECTION OF TRANSVERSE DIRECTION
SCALE 1:20



SECTION OF LONGITUDINAL DIRECTION
SCALE 1:20



BASE PLATE
SCALE 1:20

DESIGN CONDITION

REACTION FORCE		
MAXIMUM REACTION FORCE	kN	Rmax
MAXIMUM REACTION	kN	Rmax2
DEAD LOAD REACTION	kN	Rd
MAXIMUM VERTICAL MOVEMENT	mm	δ
VERTICAL SPRING	kN/mm	Kv
LONGITUDINAL REACTION	kN	Rhe1
TRANSVERSAL REACTION	kN	Rhe2
SEISMIC UP LIFT FORCE	kN	Ru

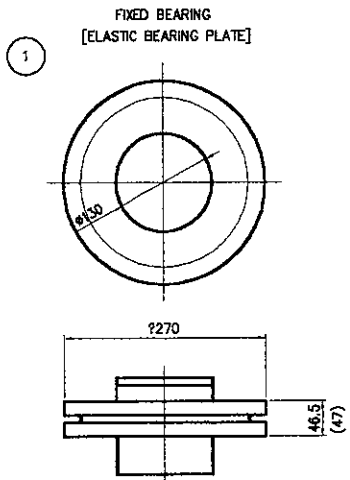
RUBBER BEARING MATERIAL & CHARECTERISTIC	
RUBBER TYPE	MATERIAL-G NR.310

MATERIAL LIST

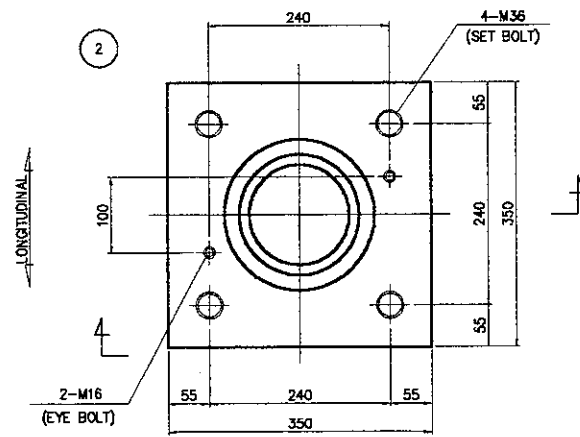
NO.	DESCRIPTION	MATERIAL	QTY	WEIGHT (kg)	REMARKS
1	FIXED RUBBER TYPE BEARING	NR,SS400	1	10.8	FxSB
2	SLIDING PLATE	SM490A	1	28.8	
3	BASE PLATE	SM490A	1	44.1	
4	DOWEL	S45CN	1	13.3	
5	RING NUT	S45CN	1	0.3	
6	SET BOLT WASHER	STRENGTH 8.8	4	5.1	
7	EYE BOLT	SS400	—	—	M16
TOTAL				102.4	(kg)

- BASED ON HIGHWAY BRIDGE BEARING MANUAL
- MEMBER WITH O TO MELT ZINC PLATING
JS H 8641 HDZ55, HDZ35
- WEIGHT OF FIXED RUBBER BEARING (ELASTIC LOADING PLATE) IS FOR REFERENCE ONLY
- WEIGHT OF SET BOLT MUST BE COUNTED FOR $\phi=100$ mm AS REFERENCE
- NUMBER OF EYE BOLT SHALL BE DECIDED BASED ON THE ERECTION REQUIREMENT
- EYE BOLT HOLE FOR FABRICATION MUST BE REASONABLY LARGES

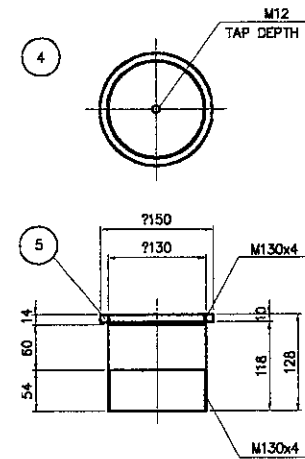
6 SET BOLT WASHER M36x2 STRENGTH 8.8



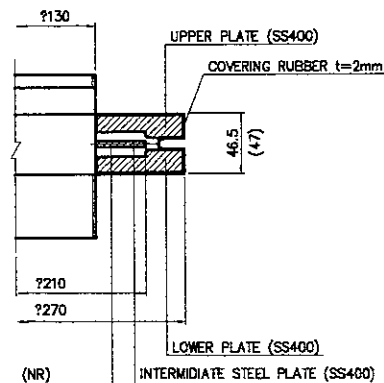
FIXED BEARING
SCALE 1:20



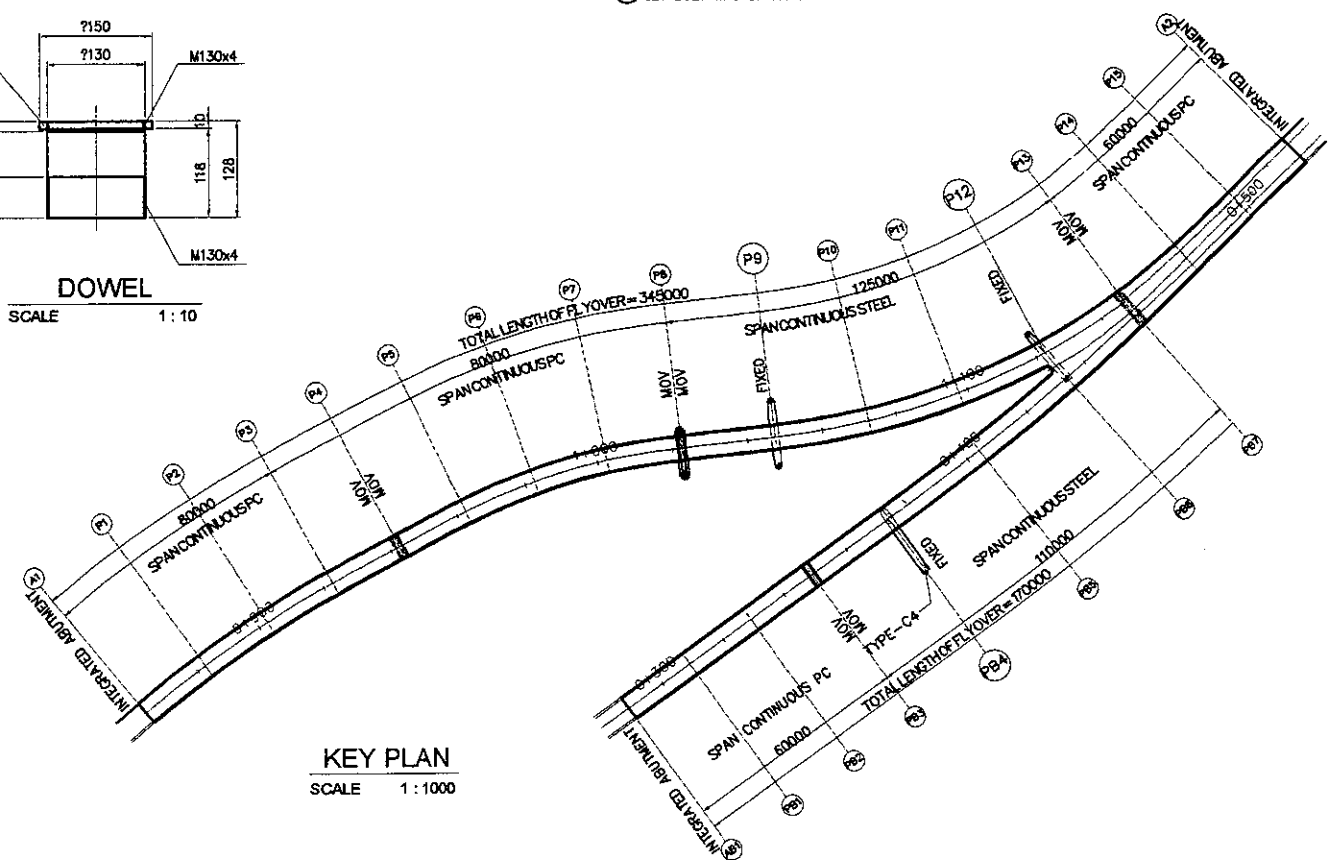
SLIDING PLATE
SCALE 1:20



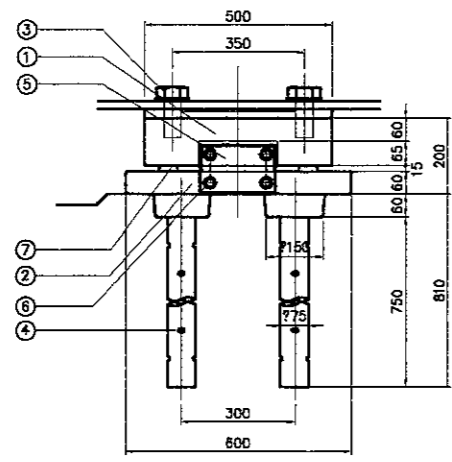
DOWEL
SCALE 1:10



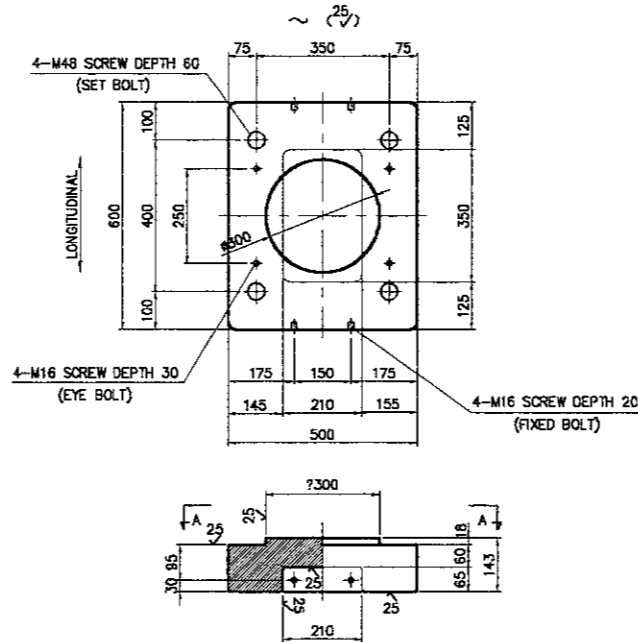
DETAIL OF E.B.P



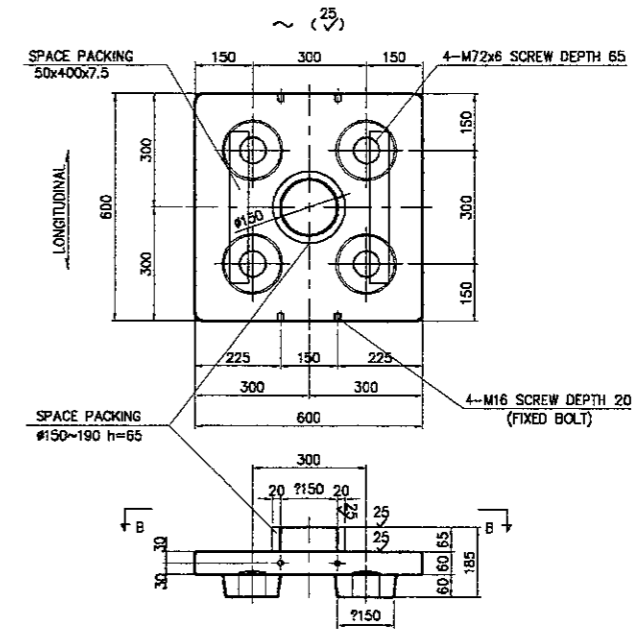
KEY PLAN
SCALE 1:1000



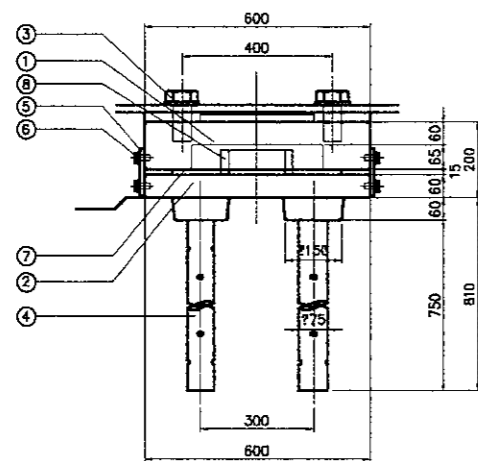
TRANVERSE DIRECTION
 SCALE 1 : 20



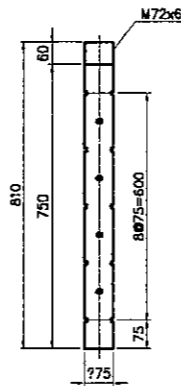
SLIDING PLATE
 SCALE 1 : 20



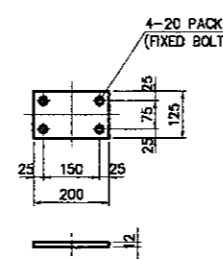
STOPPER PLATE
 SCALE 1 : 20



LONGITUDINAL DIRECTION
 SCALE 1 : 20



ANCHOR BOLT
 SCALE 1 : 10

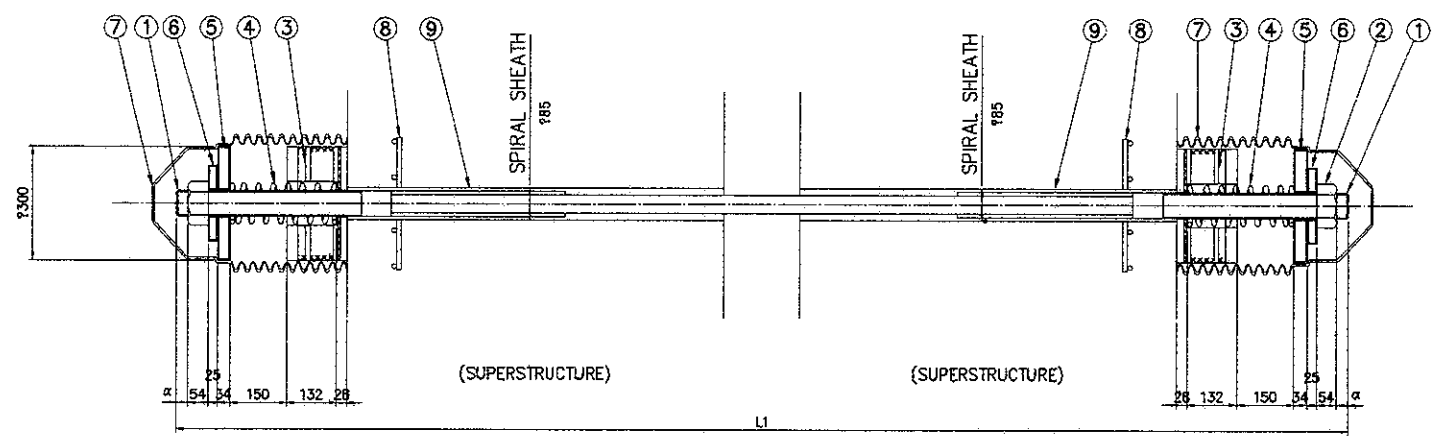


FIXED PLATE
 SCALE 1 : 10

DESCRIPTION

NO.	DESCRIPTION	DIMENSI	MATERIAL	QTY	WEIGHT (kg)	REMARKS
①	SLIDING PLATE	600x500x143	SCW48CN	1	263.5	
②	STOPPER PART	600x600x185	SCW48CN	1	203.6	
③	SET BOLT WHASER	M48x6	STRENGTH 8.8	4	10.7	
4	ANCHOR BOLT	φ75x810	S35CN	4	112.4	M72 SCREW DEPTH 60
5	FIXED PLATE	125x200x12	SS400	2	4.5	
6	FIXED BOLT, WHASER	M16x30	STRENGTH 4.6	8	0.8	
7	SPACE PACKING	50x400x15	NR or CR	2 SET	---	G=B 2
8	CUSHION PACKING	φ150~190 h=65	CR	1 SET	---	Hs = 55 ±5
9	EYE BOLT	M16	SS400	-	---	
					595.5	(kg)

1. BASED ON HIGHWAY BRIDGE BEARING MANUAL
2. MEMBER WITH 0 TO BE MELT ZINC PLATING
 JS H 8641 HDZ55, HDZ35
3. SPACE PACKING CAN NOT BE OMITTED TO KEEP THE SPACE BETWEEN SUPERSTRUCTURE AND SUBSTRUCTURE
4. WEIGHT OF SET BOLT MUST BE COUNTED FOR φ=100 AS REFERENCE
5. EYE BOLT CAN BE USE FOR HANGING HOOK
6. NUMBER OF EYE BOLT SHALL BE DECICED BASED ON THE ERECTION REQUIREMENT



DESIGN CONDITION

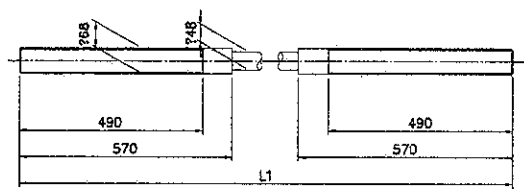
DESIGN LOAD	≤ 1085 (kN)
PC WIRE STRAND	TP 130
TYPE	300

MATERIAL LIST (1-SET BRIDGE FALL PREVENTION SYSTEM)

No	NAME	SPECIFICATION	UNIT	QTY	1 PIER	REMARKS
1	PC WIRE STRAND	SWPR	PCS	1		PE-COAT
2	N U T	S45C	SET	2		ZINC PLATING MB BOLT
3	STOPPER PLATE	CR,NEO PLUS,SS400	PCS	2		
4	SPRING	SWOSC8	SET	2		PE-COAT
5	BUFFER	NEO PLUS,SS400	SET	2		
6	BUFFER	NEO PLUS,SS400	SET	2		
7	PROTECTION CAP	CR or TPE	SET	2		
8	WIRE MESH	SD295	SET	16		
9	SPIRAL	SPCC	SET	2		

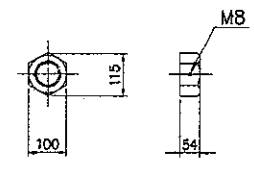
DETAIL OF ATTACHMENT
 SCALE 1 : 20

① PC鋼より線 (TP130)



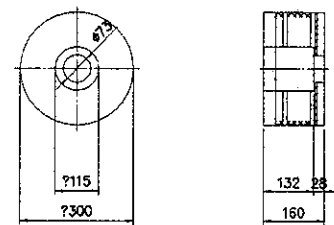
1-PC WIRE STRAND (TP200)
 SCALE 1 : 20

② 緩み止め付ナット



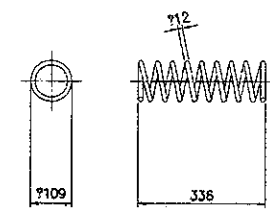
2-N U T
 SCALE 1 : 20

③ セーフティストッパー



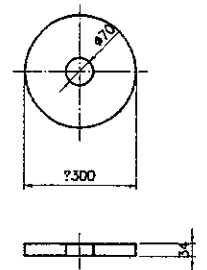
3-STOPPER PLATE
 SCALE 1 : 20

④ コイルスプリング



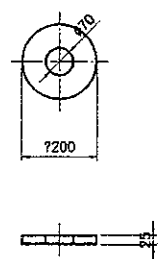
4-SPRING
 SCALE 1 : 20

⑤ 防錆支圧板



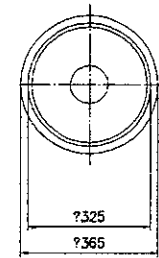
5-BUFFER
 SCALE 1 : 20

⑥ 防錆座金



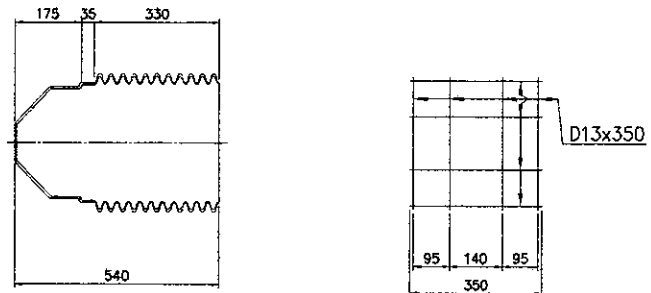
6-BUFFER
 SCALE 1 : 20

⑦ 防錆キャップ

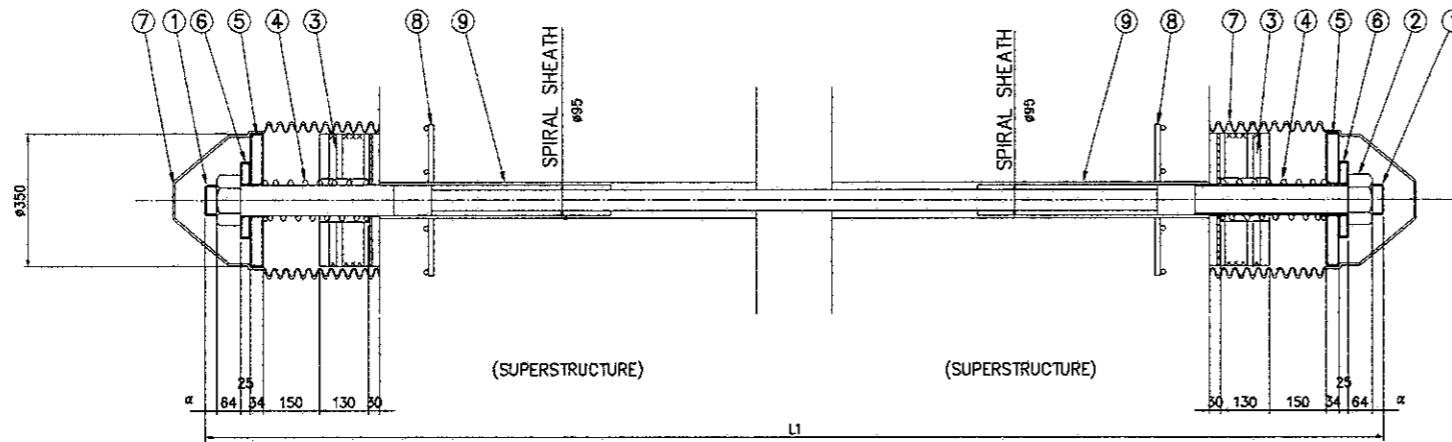


7-PROTECTION CAP (POLYETHYLENE)
 SCALE 1 : 20

⑧ 用心鉄筋



8-WIRE MESH
 SCALE 1 : 20



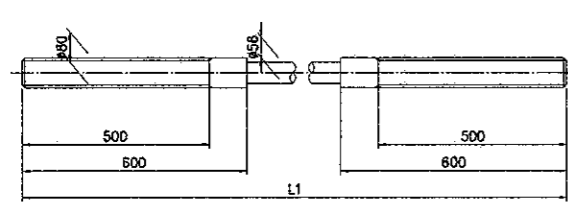
DESIGN CONDITION

DESIGN LOAD	≤ 1428 (kN)
PC WIRE STRAND	TP 170
TYPE	350

MATERIAL LIST (1-SET BRIDGE FALL PREVENTION SYSTEM)

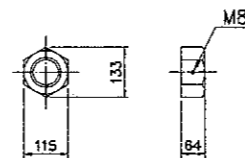
No	NAME	SPECIFICATION	UNIT	QTY	1 PIER	REMARKS
1	PC WIRE STRAND	SWPR	PCS	1		PE-COAT
2	N U T	S45C	SET	2		ZINC PLATING MB BOLT
3	STOPPER PLATE	CR,NEO PLUS,SS400	PCS	2		
4	SPRING	SW05CB	SET	2		PE-COAT
5	BUFFER	NEO PLUS,SS400	SET	2		
6	BUFFER	NEO PLUS,SS400	SET	2		
7	PROTECTION CAP	CR or TPE	SET	2		
8	WIRE MESH	SD295	SET	16		
9	SPIRAL	SPCC	SET	2		

DETAIL OF ATTACHMENT
 SCALE 1 : 20



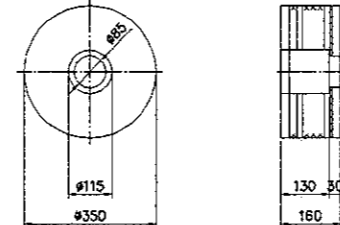
1-PC WIRE STRAND (TP200)
 SCALE 1 : 20

① PC鋼より線 (TP170)



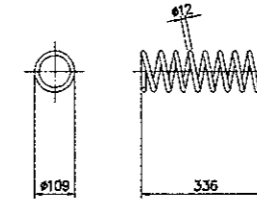
2-N U T
 SCALE 1 : 20

② 緩み止め付ナット



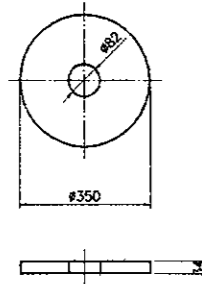
3-STOPPER PLATE
 SCALE 1 : 20

③ セーフティストッパー



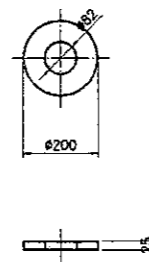
4-SPRING
 SCALE 1 : 20

④ コイルスプリング



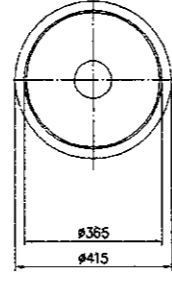
5-BUFFER
 SCALE 1 : 20

⑤ 防錆支圧板



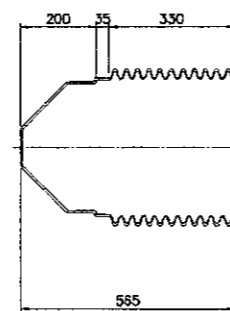
6-BUFFER
 SCALE 1 : 20

⑥ 防錆座金



7-PROTECTION CAP (POLYETHELENE)
 SCALE 1 : 20

⑦ 防錆キャップ



8-WIRE MESH
 SCALE 1 : 20

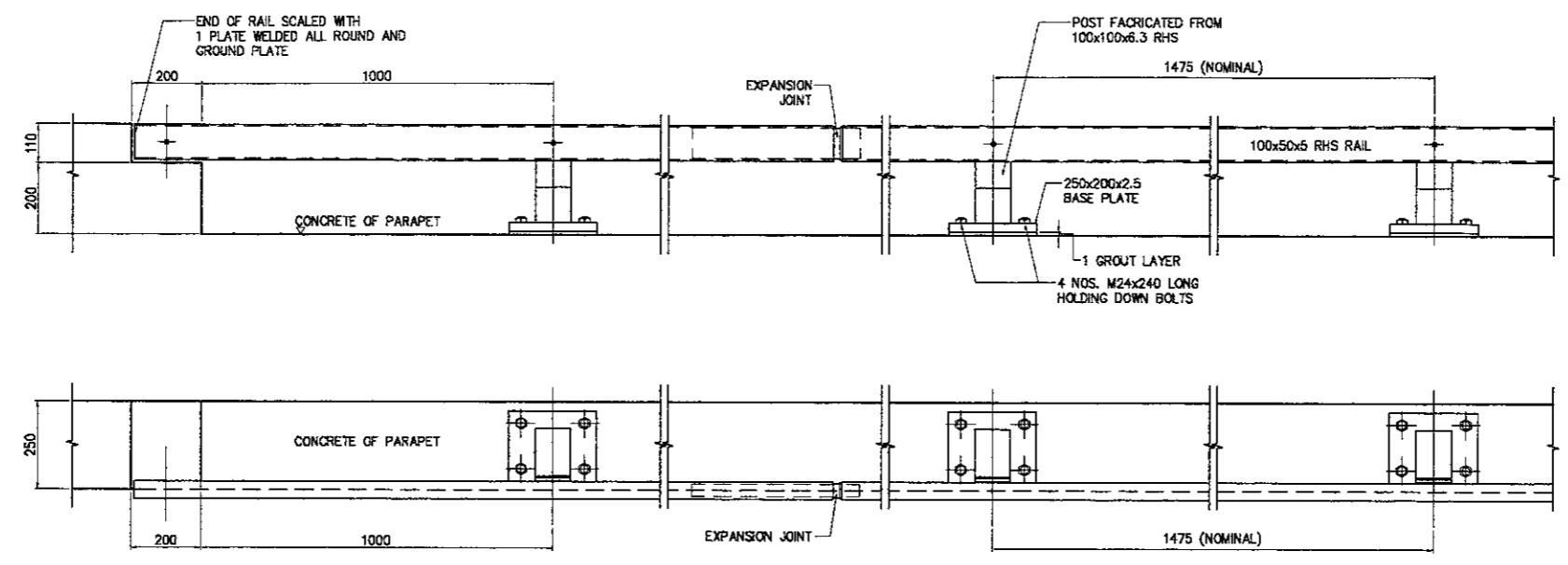
⑧ 用心鉄筋

DESIGNED BY	CHECKED BY	SUBMITTED BY
Name: S. MATSUI	Name: T. OKUMURA	Name: M. KIUCHI
Sign	Sign	Sign
Date	Date	Date

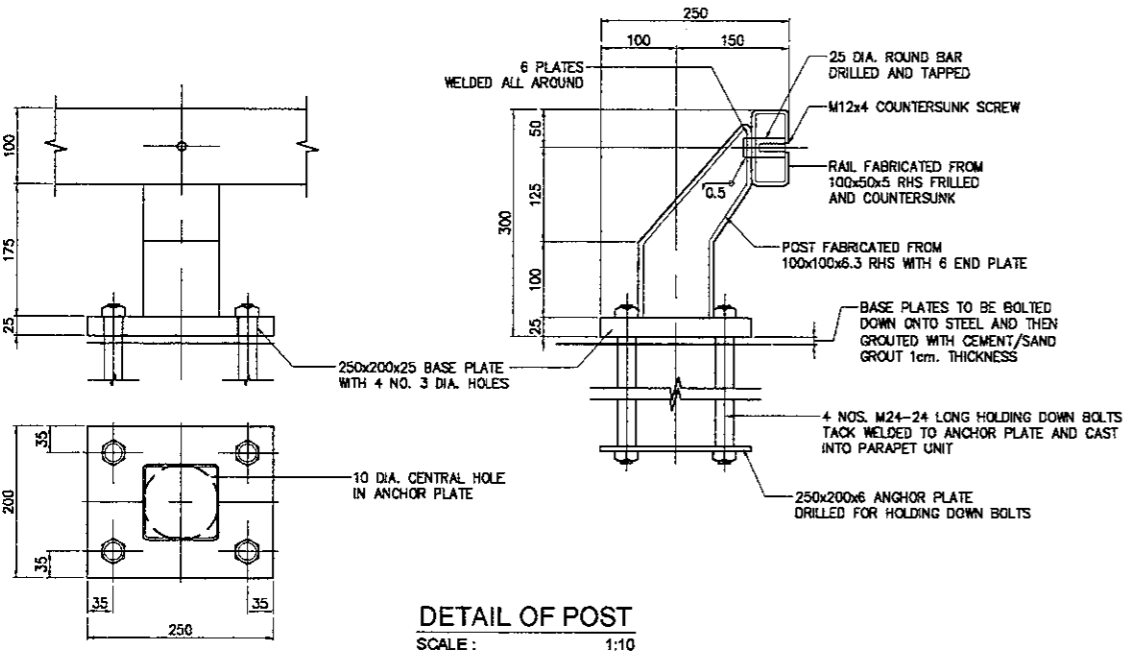
APPROVED BY: Ir. HERRY VAZA M,Eng.Sc
 NIP. : 110038400

Sign	Date
------	------

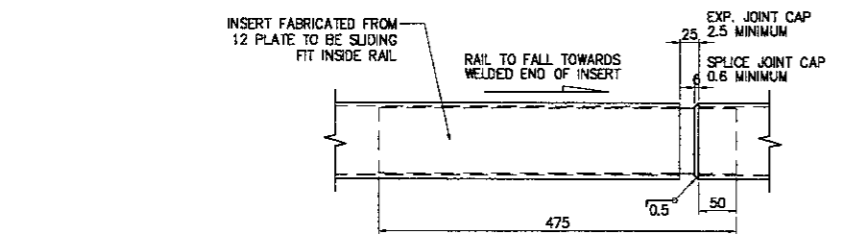
- NOTES :**
- DIMENSIONS ARE IN MILLIMETERS
 - STRUCTURAL STEEL SECTIONS ARE TO BE GRADE 400 STEEL TO BE BS 4360
 - BOLTS AND SCREWS ARE TO BE GRADE 6.8 TO BS 3692 ALL BOLTS AND SCREWS ARE TO BE GALVANIZED SHERARIZED OR OTHERWISE CORROSION PROTECTED
 - ALL STEEL WORK AND WELDING TO BE IN ACCORDANCE WITH CLAUSE 57.07 OF THE SPECIFICATION
 - WELDS ARE 5 MM CONTINUOUS FILLET WELDS UNLESS STATED OTHERWISE
 - POSTS ARE TO BE FIXED TRULY VERTICAL
 - RAIL JOINT TO BE LOCATED AT THE QUARTER POINT OF A PANEL
 - RAIL EXPANSION JOINTS ARE TO BE PROVIDED AT ALL BRIDGE DECK AND APPROACH RAMP EXPANSION JOINTS
 - RAILS ARE TO BE CONTINUOUS OVER TWO POSTS MAXIMUM RAIL LENGTH IS NOT TO EXCEED 8000
 - ALL FABRICATED STEELWORK IS TO BE HOT DIP GALVANIZED
 - AFTER ERECTION ALL STEELWORK IS TO BE PAINTED TO THE REINFORCEMENTS OF SECTION 57.07 OF THE SPECIFICATION



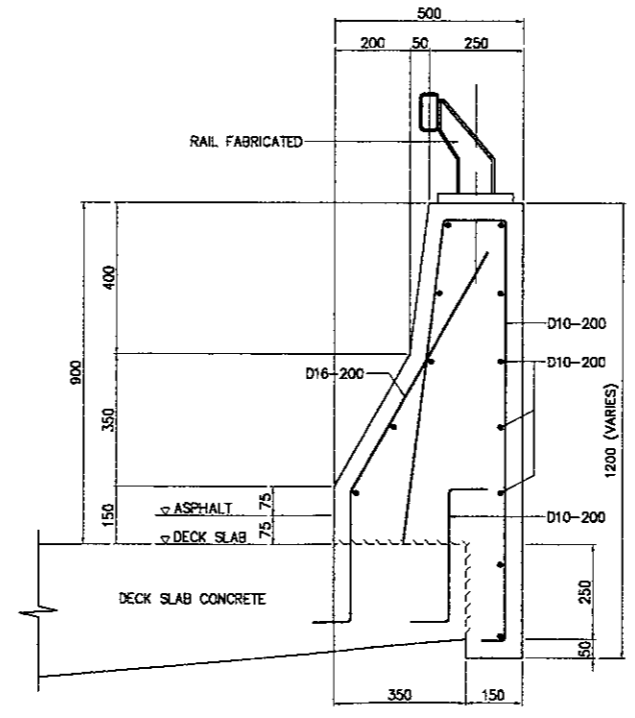
DETAILS FOR PROFILED PLINTH
 SCALE : 1:20



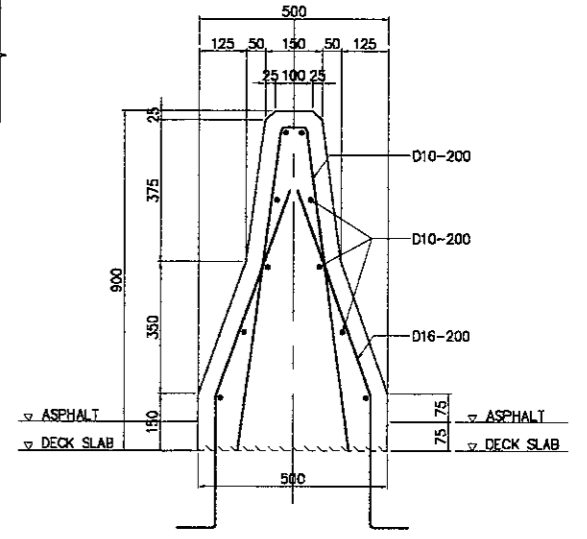
DETAIL OF POST
 SCALE : 1:10



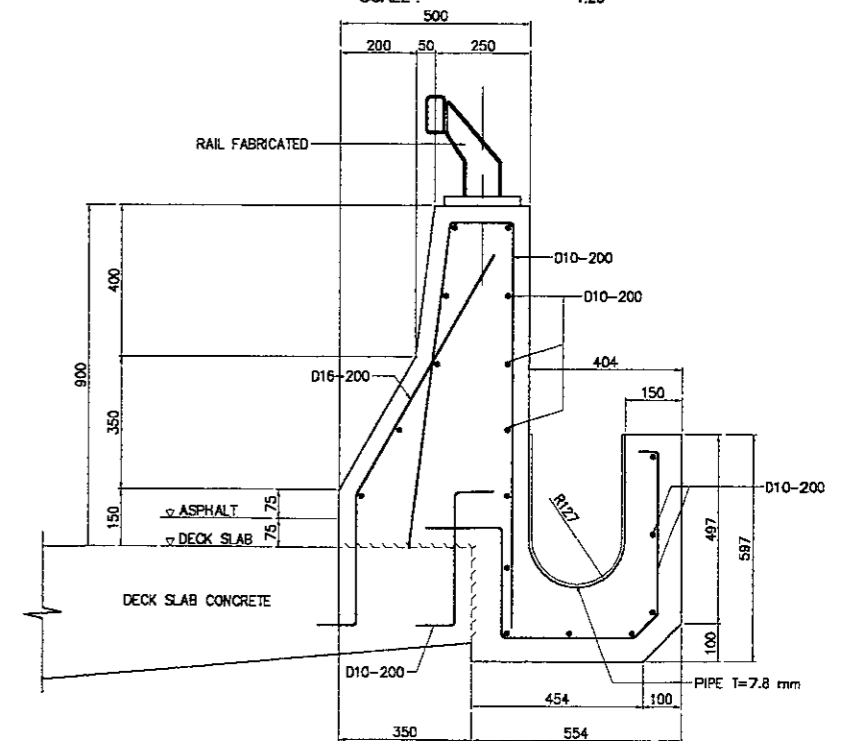
DETAILS OF JOINT
 SCALE : 1:10



DETAIL OF PARAPET
 SCALE : 1:20

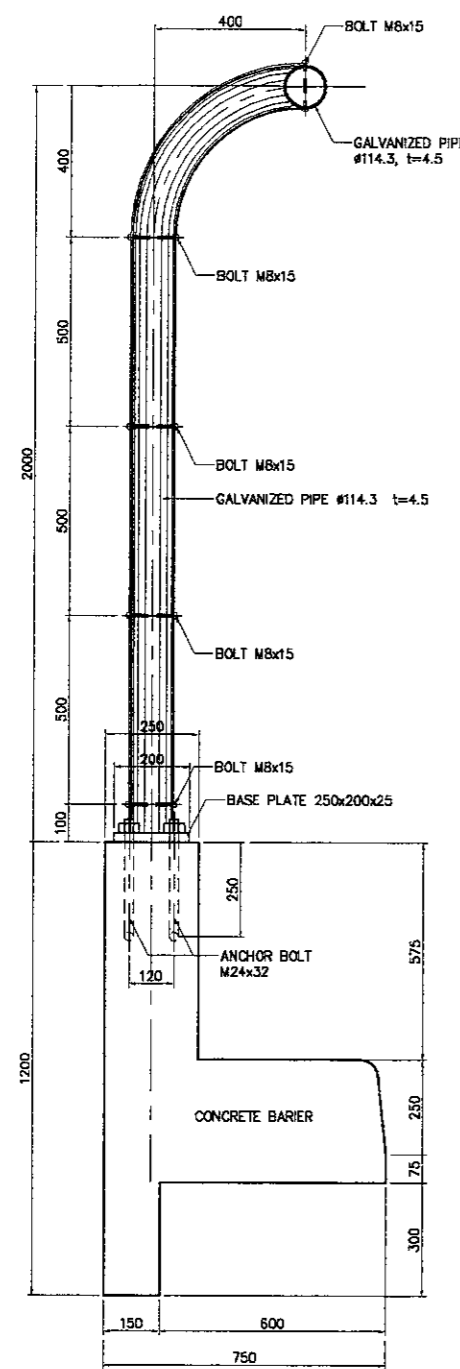


DETAIL OF MEDIAN
 SCALE : 1:20

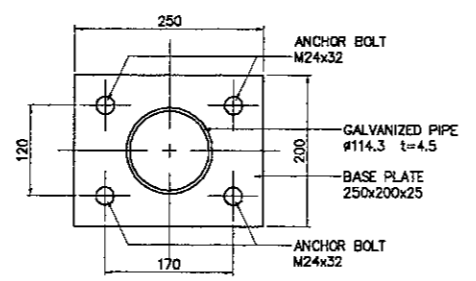


DETAIL OF OUTER GUTTER
 SCALE : 1:20

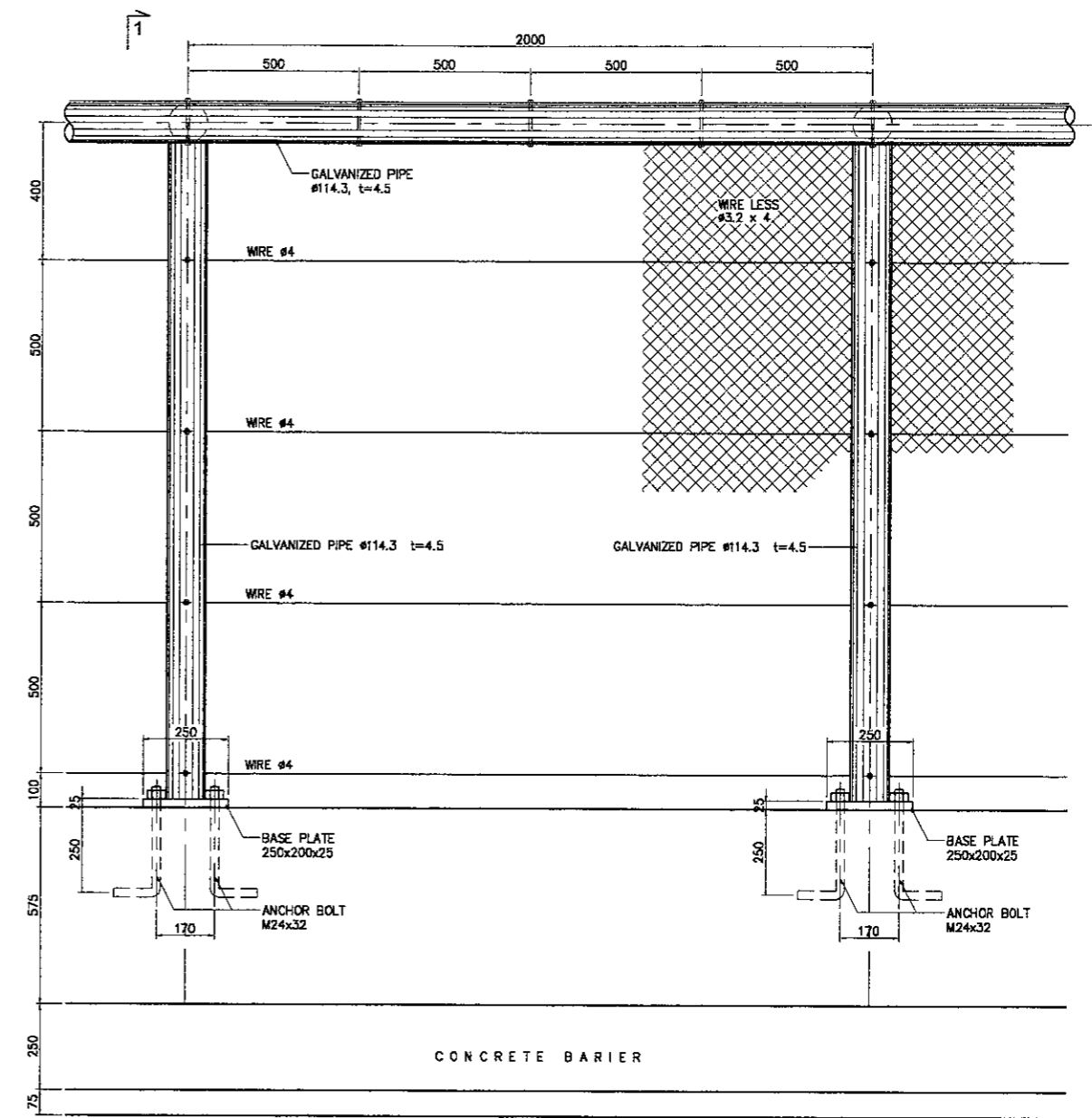
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	S. MATSUI	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



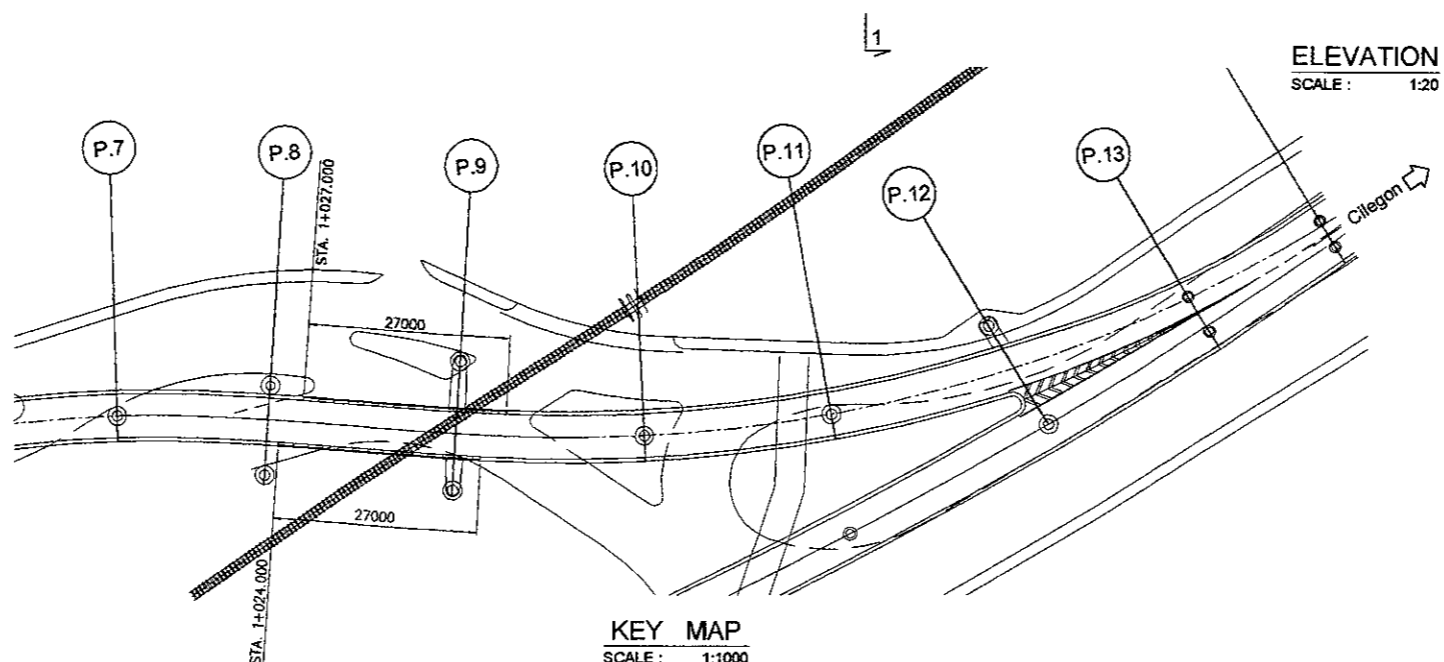
SECTION 1-1
 SCALE : 1:20



DETAIL OF BASE PLATE
 SCALE : 1:10



ELEVATION
 SCALE : 1:20



KEY MAP
 SCALE : 1:1000



JAPAN INTERNATIONAL
COOPERATION AGENCY

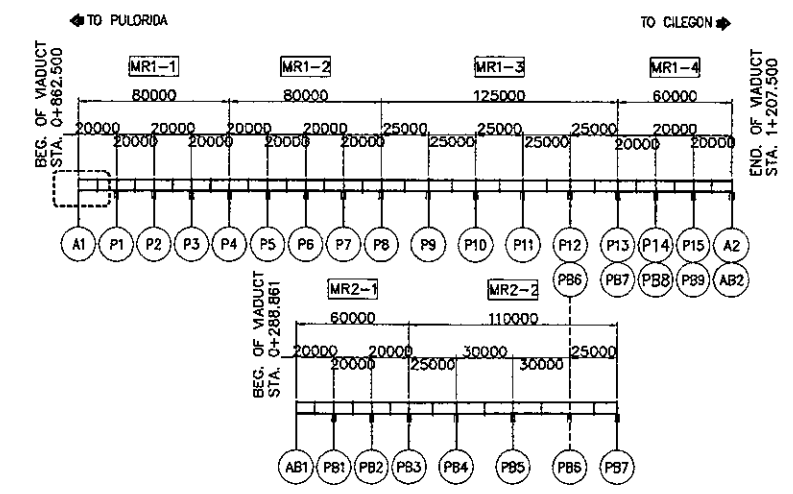
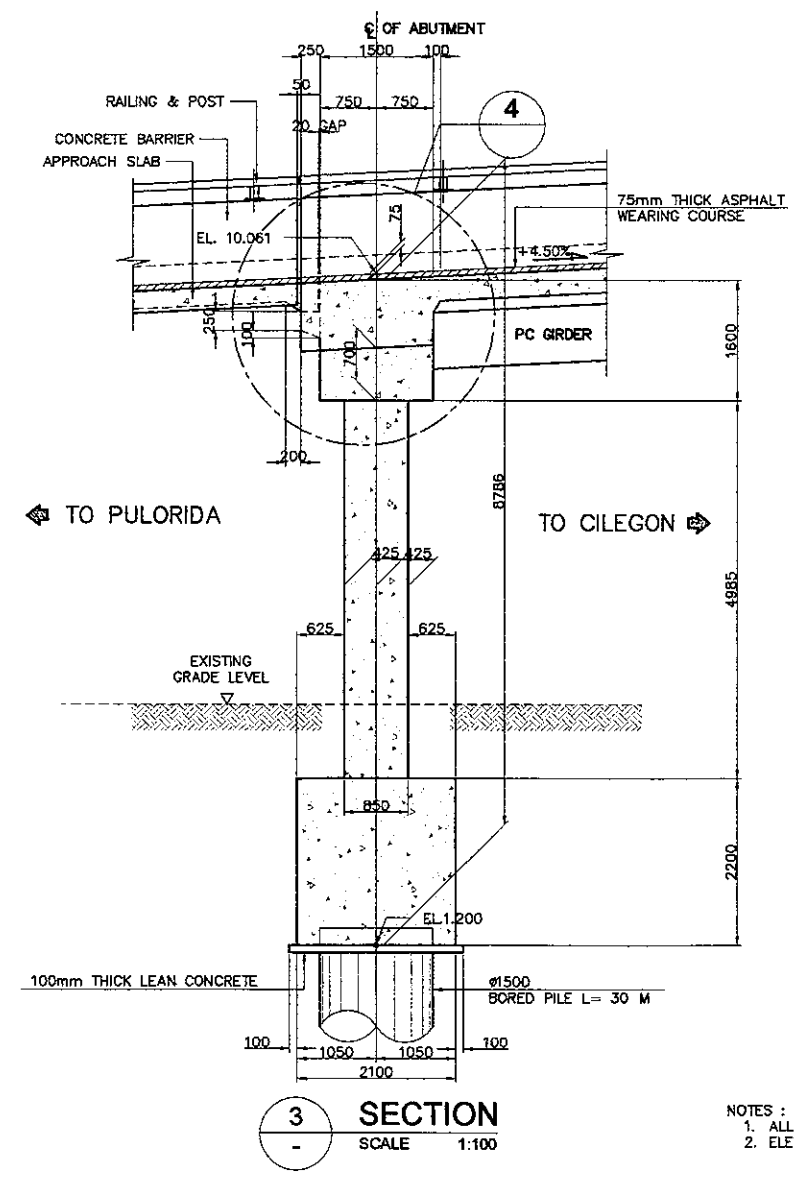
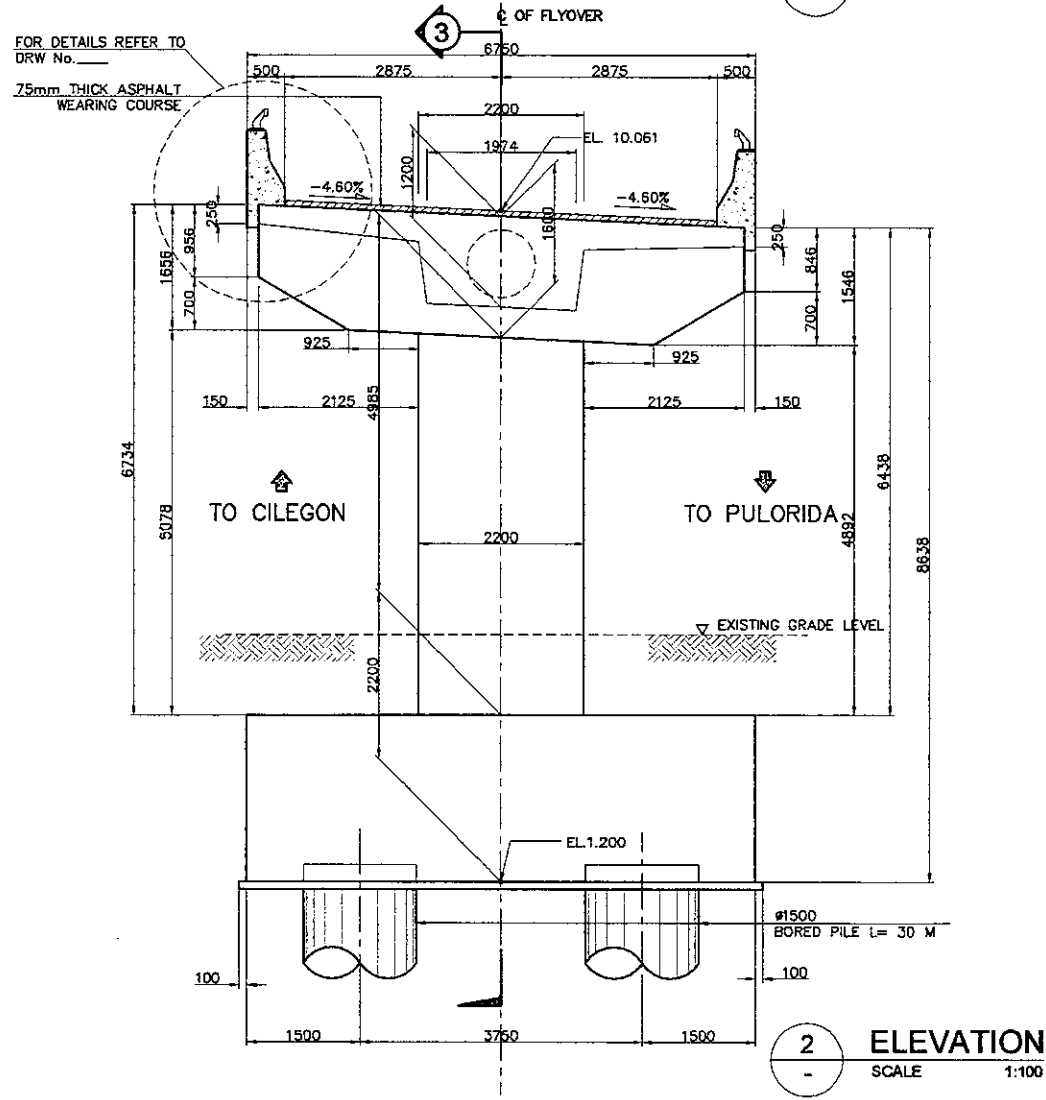
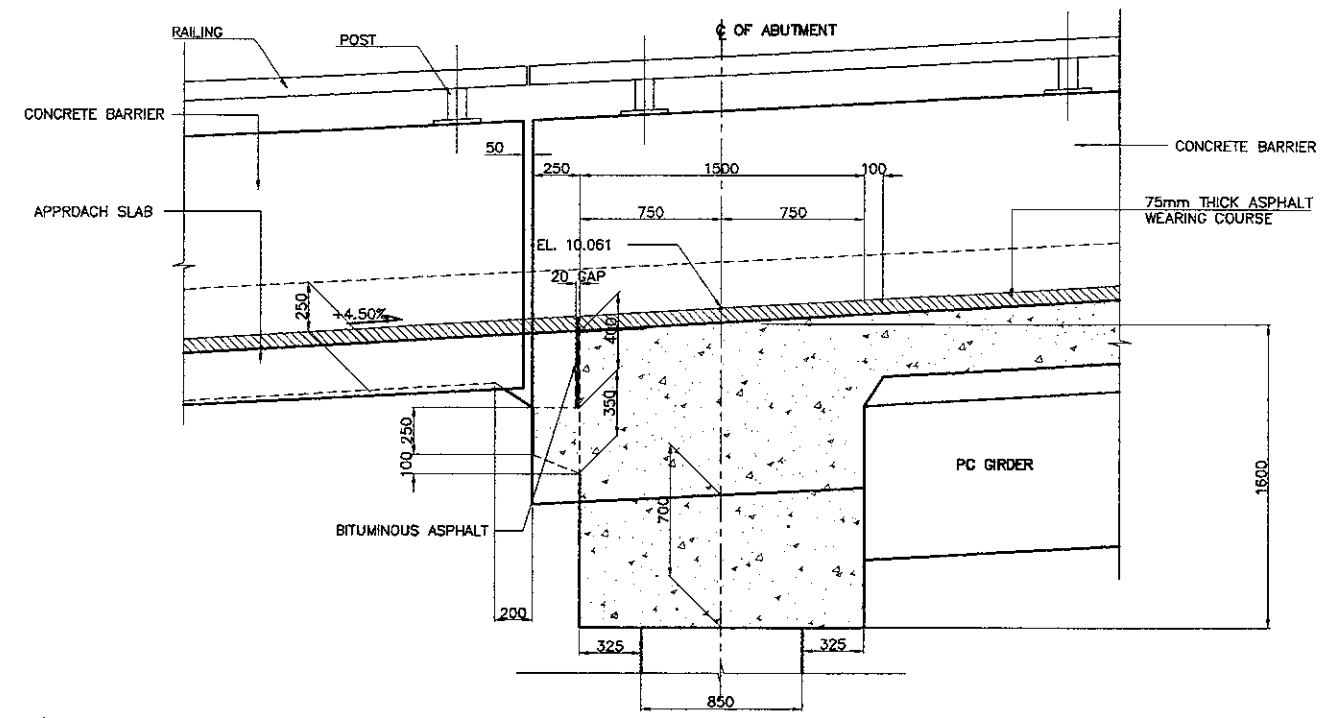
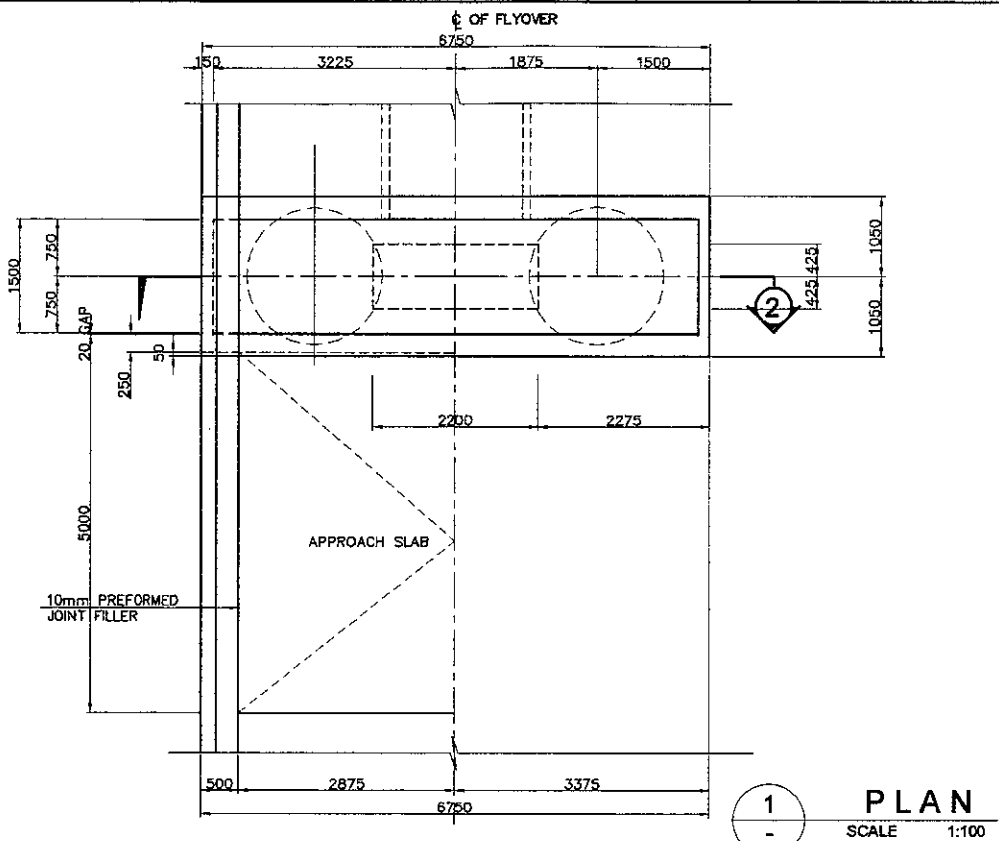


DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

SUBSTRUCTURES

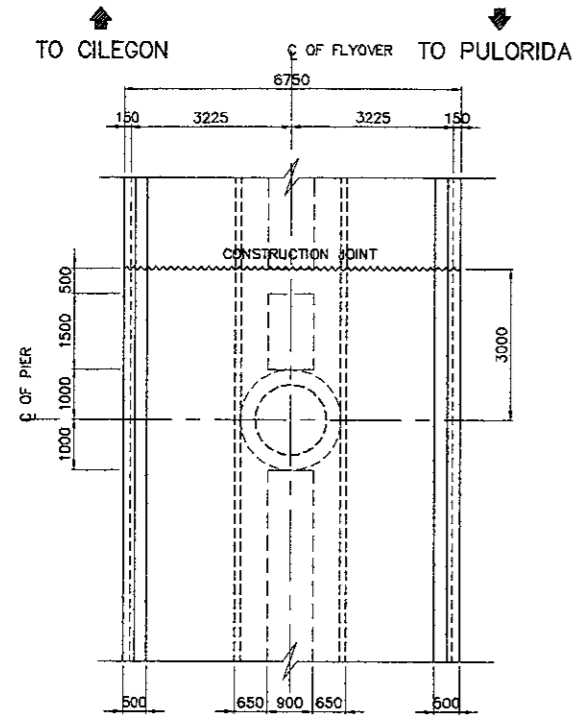
Kei KATAHIRA & ENGINEERS INTERNATIONAL

DESIGNED BY	CHECKED BY	SUBMITTED BY
Name A. GOURLEY	Name T. OKUMURA	Name M. KIUCHI
Sign	Sign	Sign
Date	Date	Date

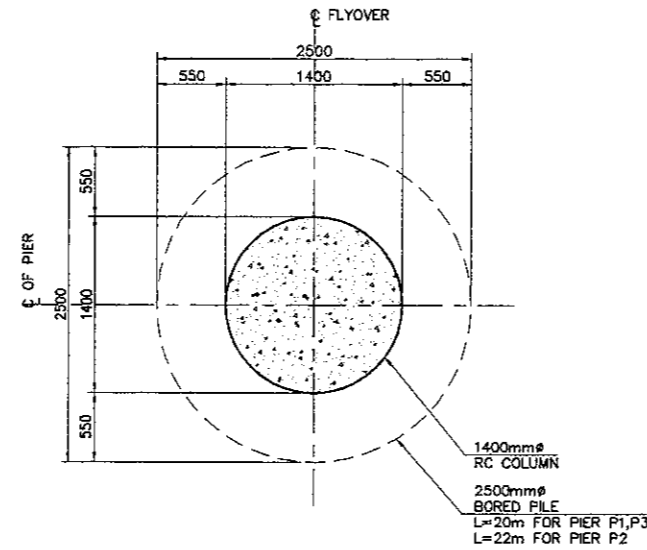


NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS AREA IN METERS

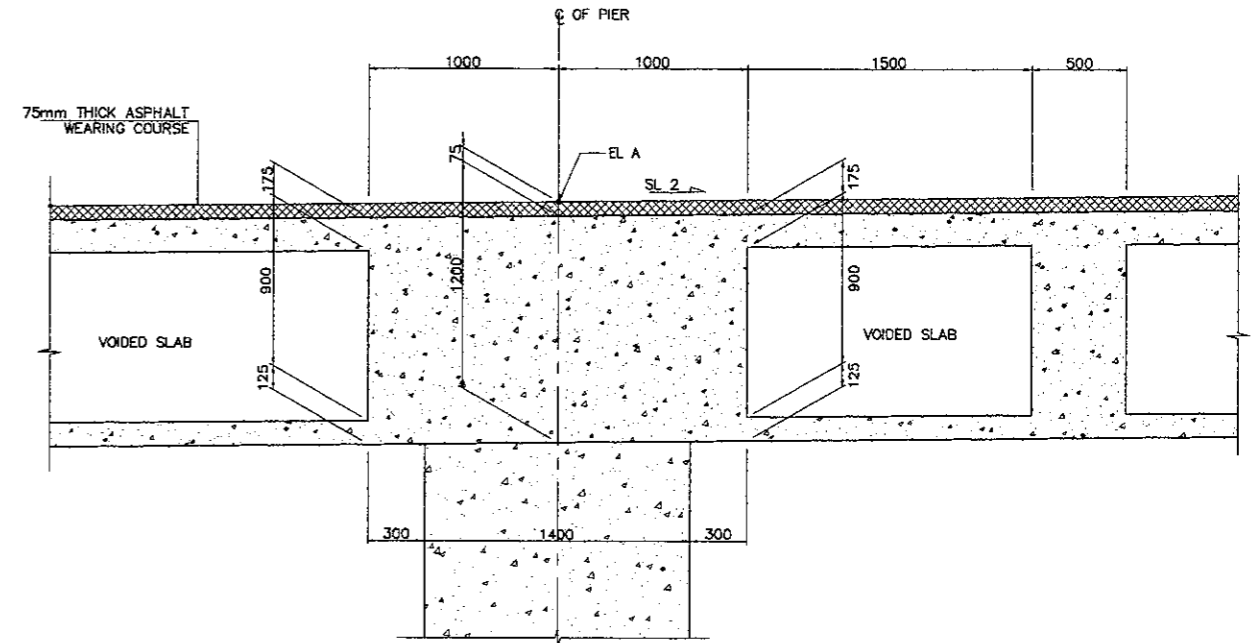
PIER	EL A	EL B	SL 1	SL 2	H	H1	H2	H3	H4	H5	H6
P1	10.856	3.170	-4.600%		6411	1087	1303	805	815	292	488
P2	11.483	3.800	-4.600%		6408	1087	1303	805	815	292	488
P3	11.942	3.700	-4.857%		6967	1081	1308	804	816	287	493



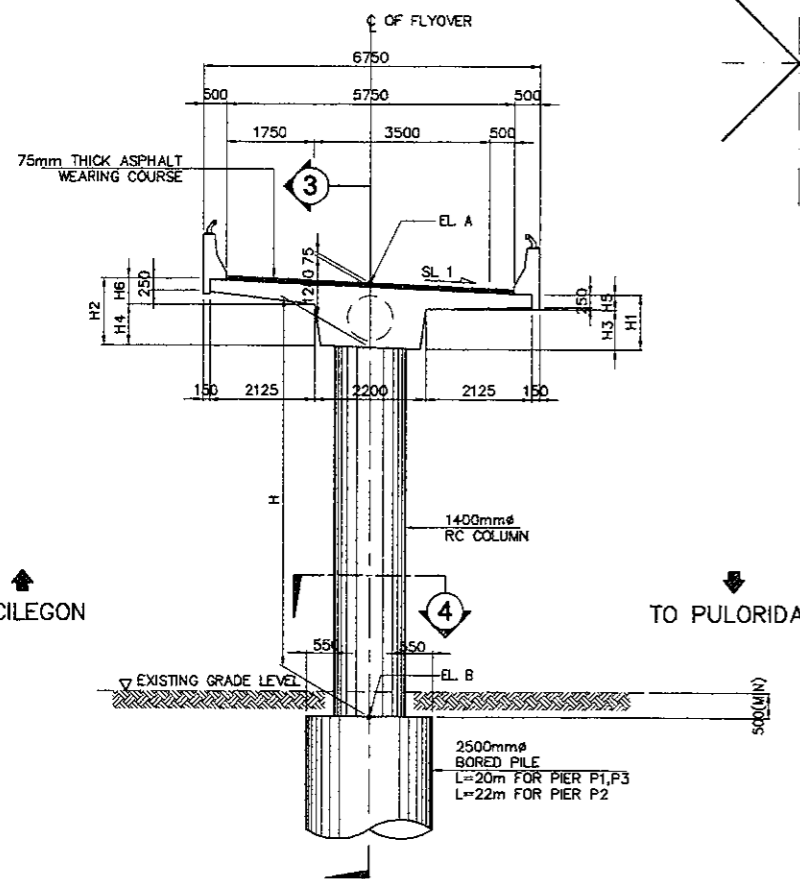
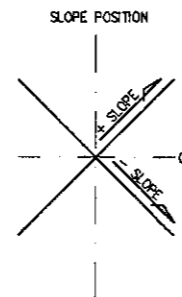
2 PLAN
 SCALE: 1:150



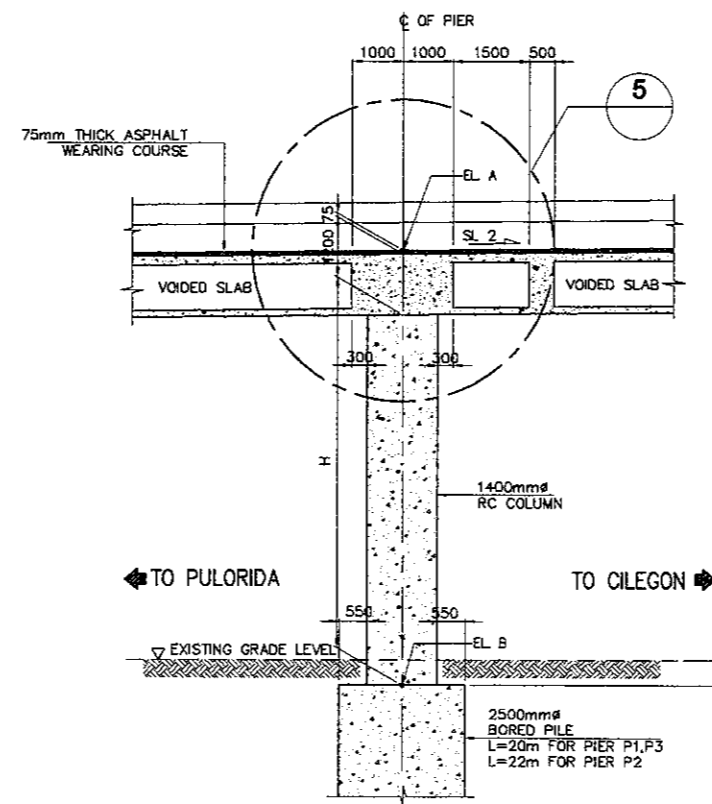
4 SECTION
 SCALE: 1:60



5 DETAIL
 SCALE: 1:40

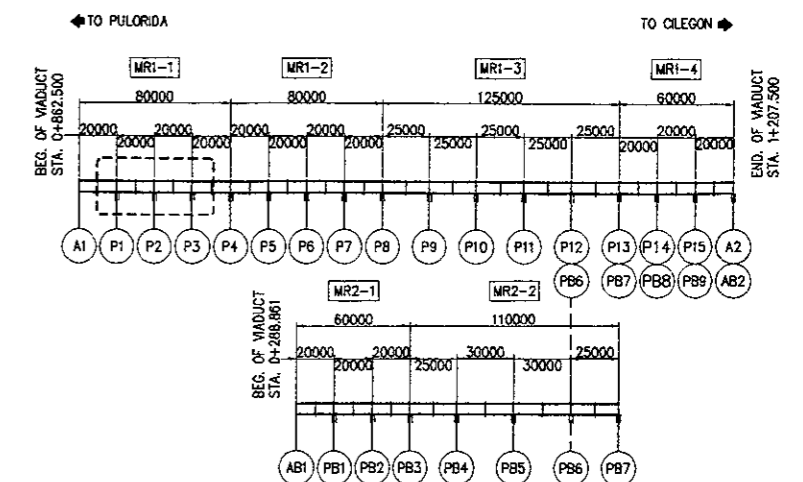


1 ELEVATION
 SCALE: 1:150

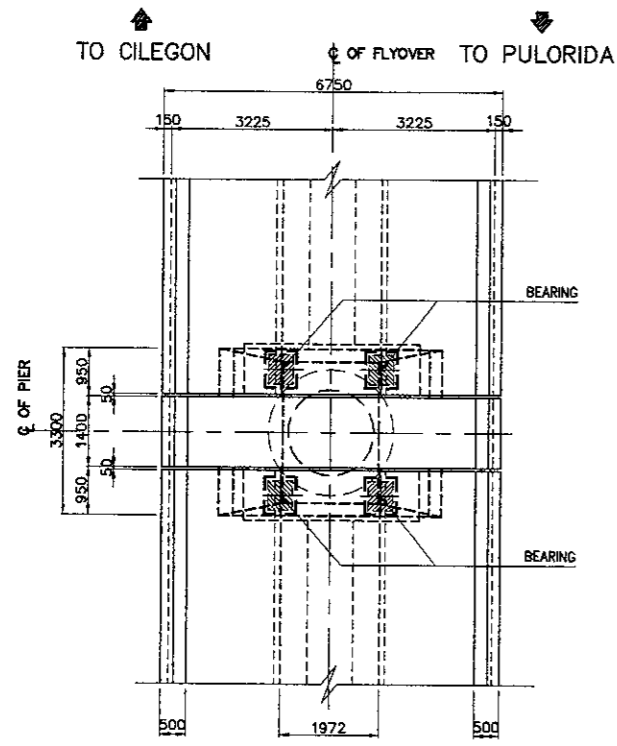


3 SECTION
 SCALE: 1:150

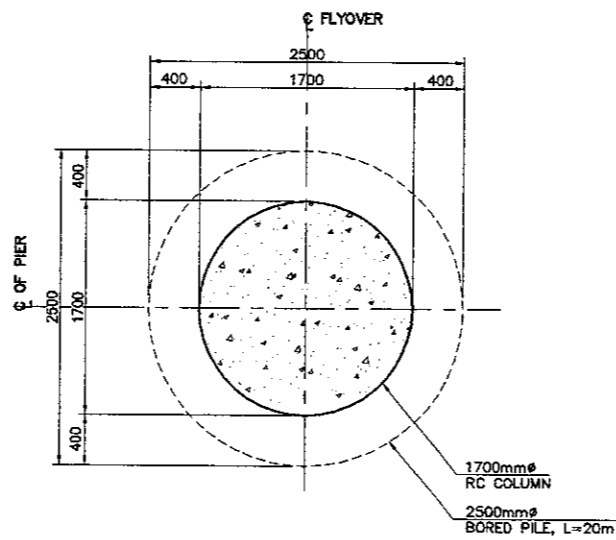
- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETER
 - ELEVATIONS ARE IN METERS



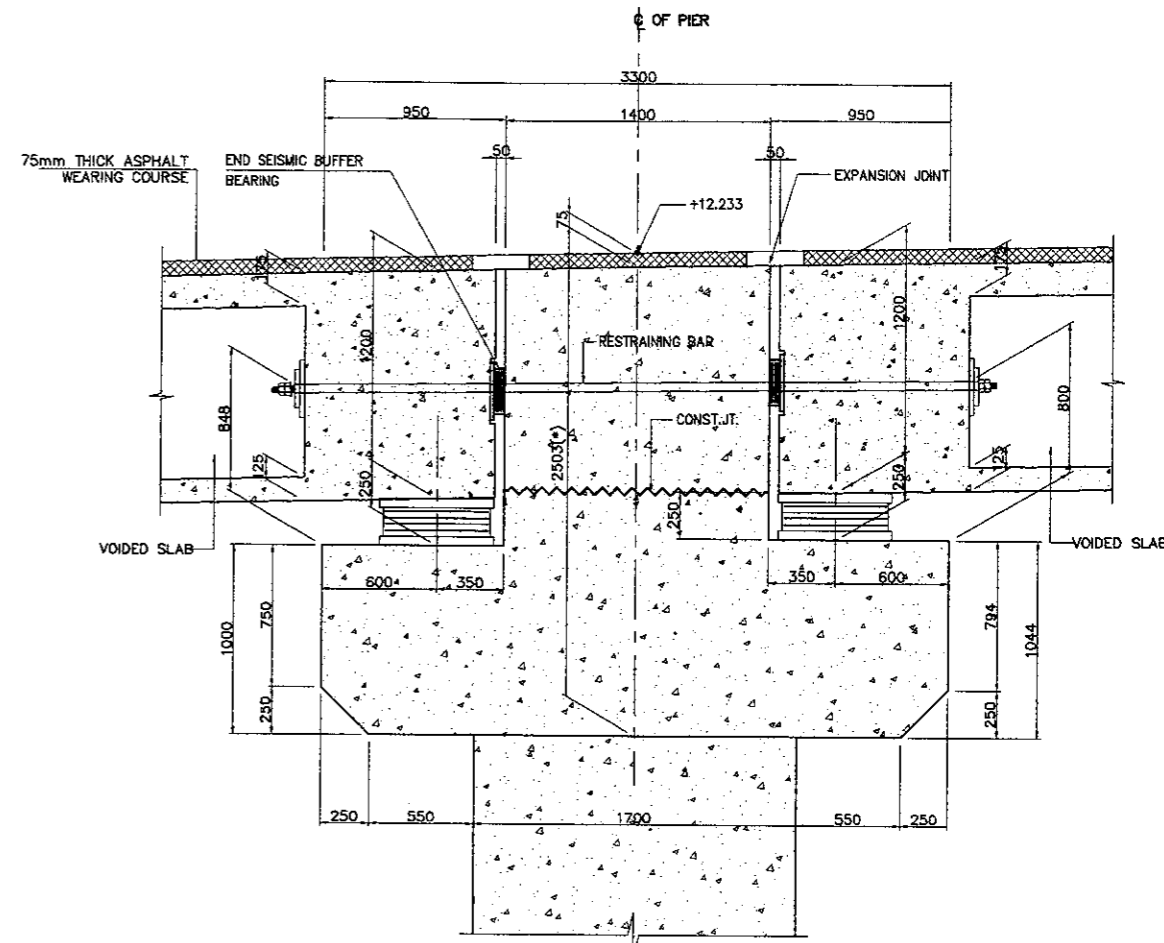
KEY PLAN
 SCALE: 1:4000



2 PLAN
 SCALE: 1:150



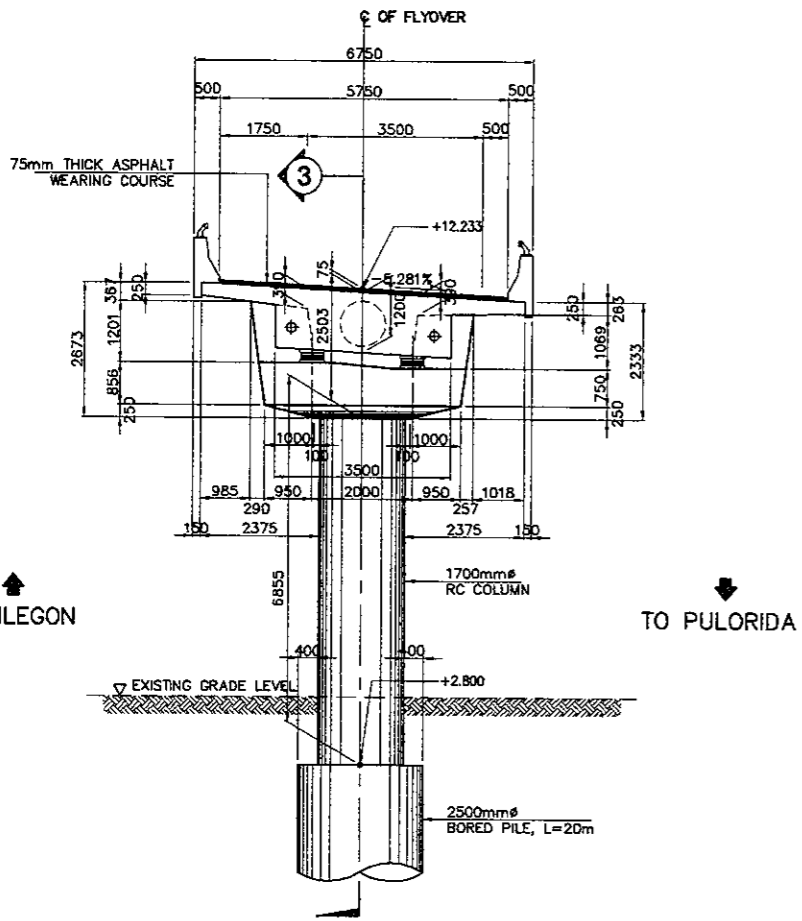
4 SECTION
 SCALE: 1:60



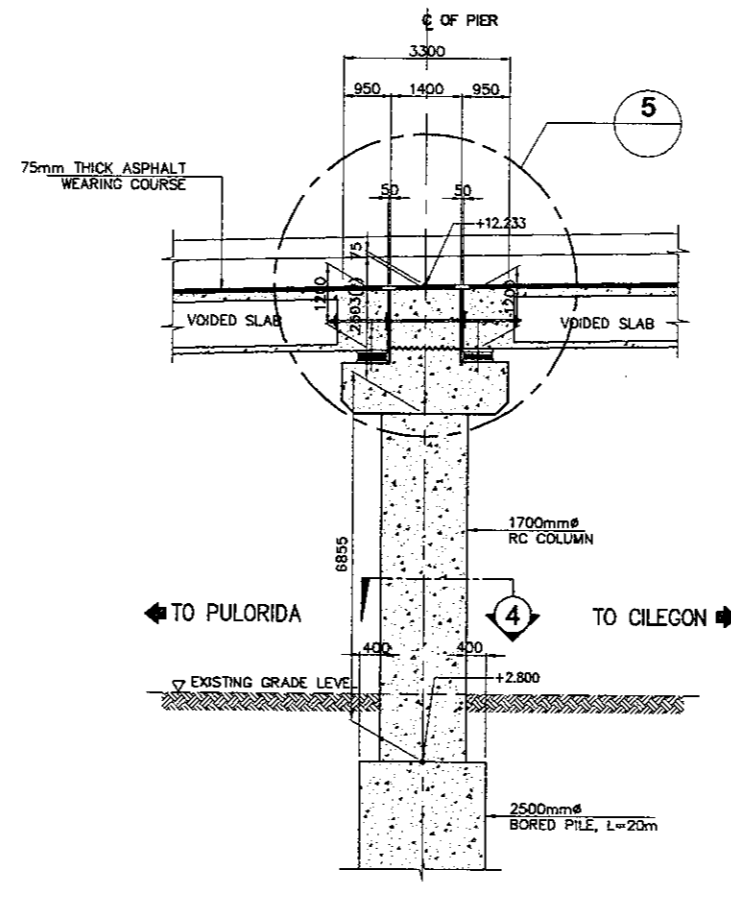
5 DETAIL
 SCALE: 1:40

(*) NOTES:
 1. DIMENSION GIVEN AT ? ALIGNMENT OF FLYOVER
 2. DIMENSION VARIES AT CROSS DECK

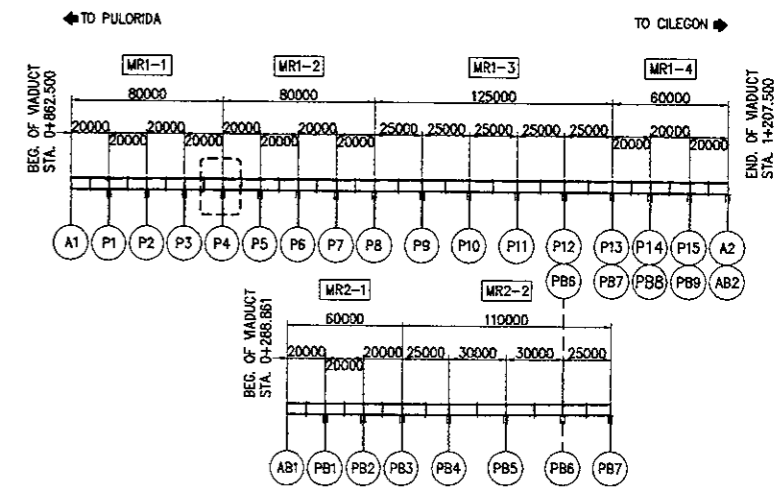
NOTES:
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS



1 ELEVATION
 SCALE: 1:150

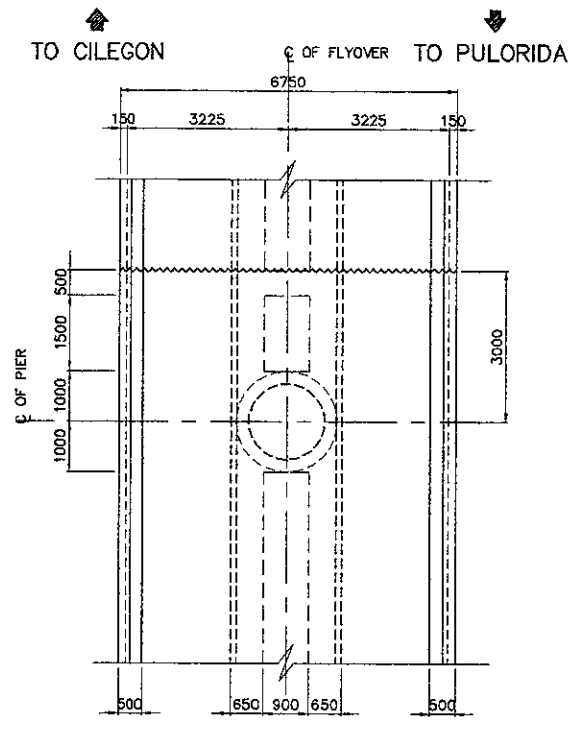


3 SECTION
 SCALE: 1:150

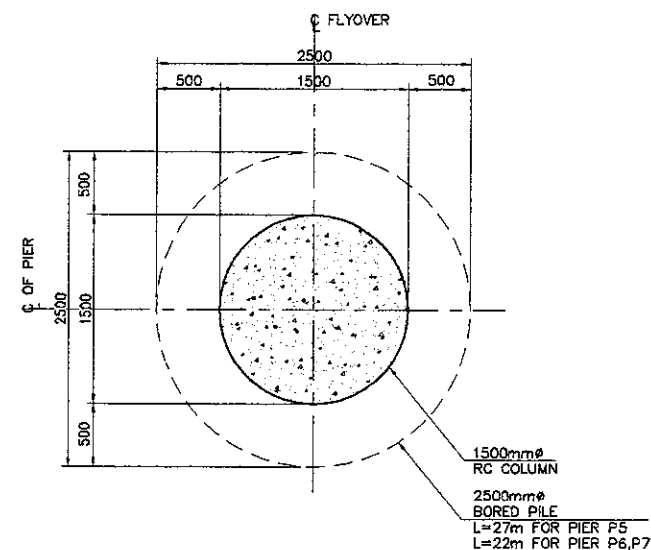


KEY PLAN
 SCALE: 1:4000

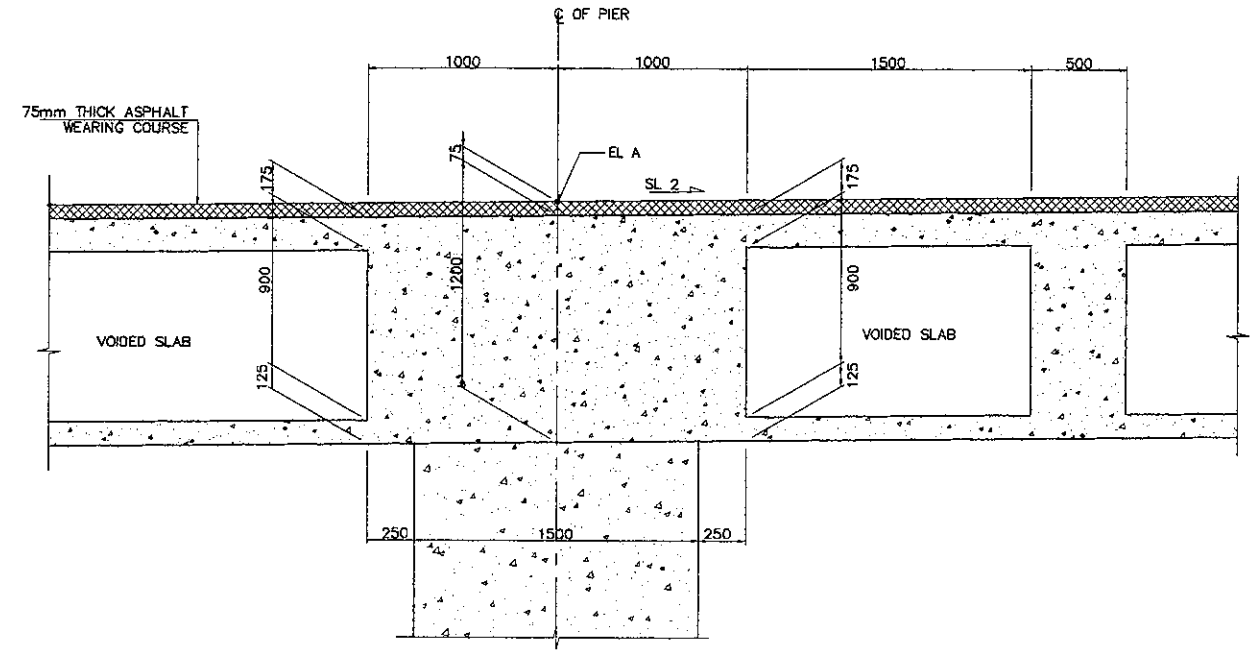
PIER	EL A	EL B	SL 1	SL 2	H	H1	H2	H3	H4	H5	H6
P5	12.358	3.280	-5.704%	0.300%	7803	1072	1328	804	817	269	511
P6	12.418	3.340	-6.000%	0.300%	7803	1066	1334	803	817	263	518
P7	12.478	3.400	-4.880%	0.300%	7803	1091	1308	804	816	286	484



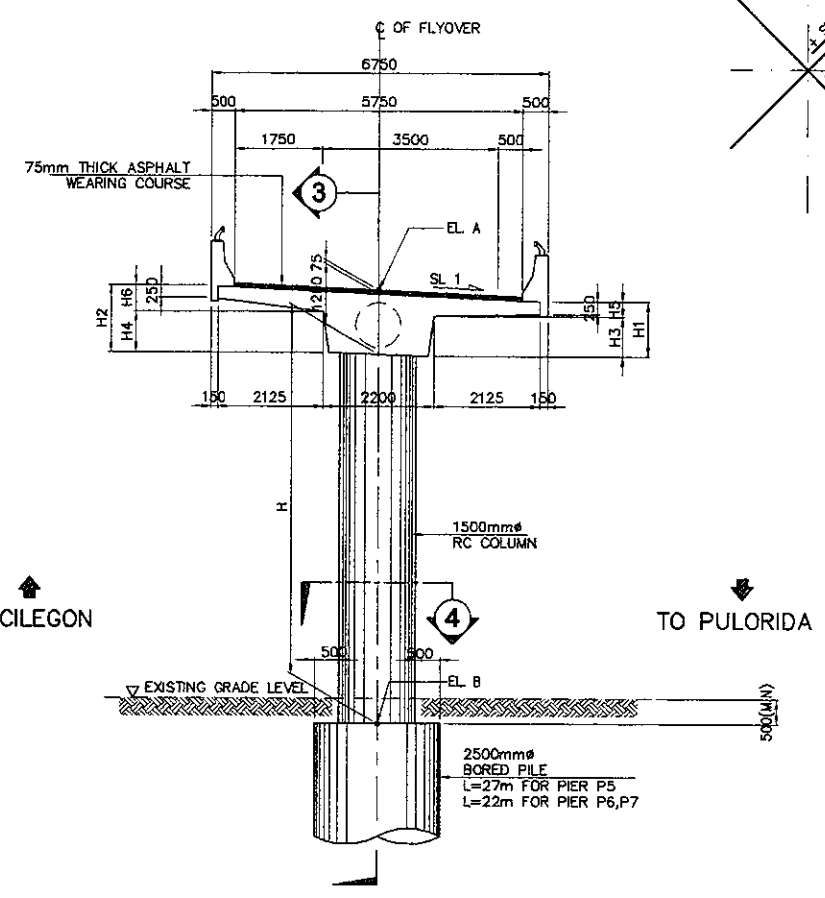
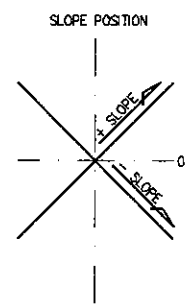
2 PLAN
 SCALE : 1:150



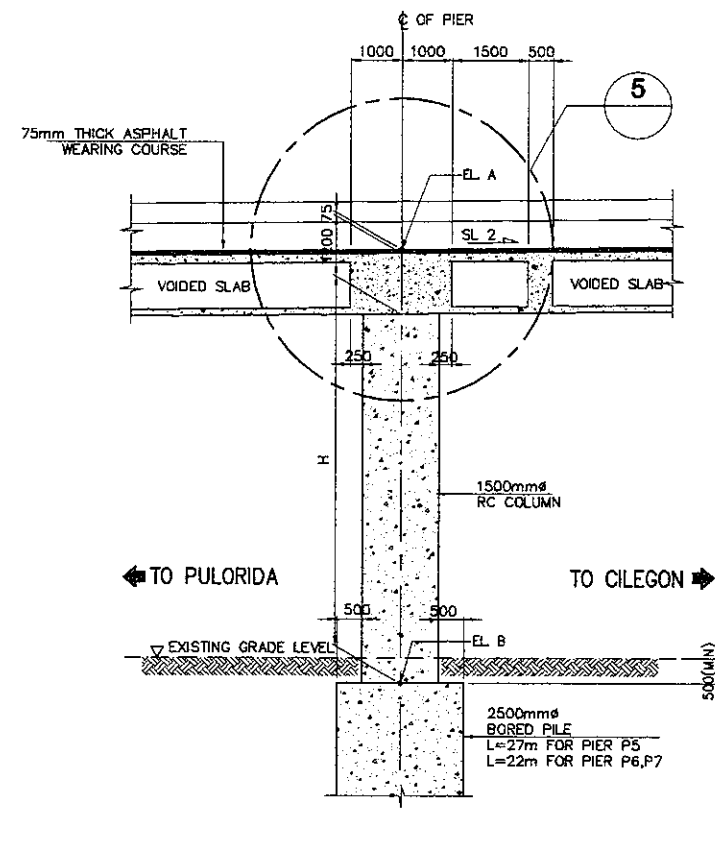
4 SECTION
 SCALE : 1:60



5 DETAIL
 SCALE : 1:40

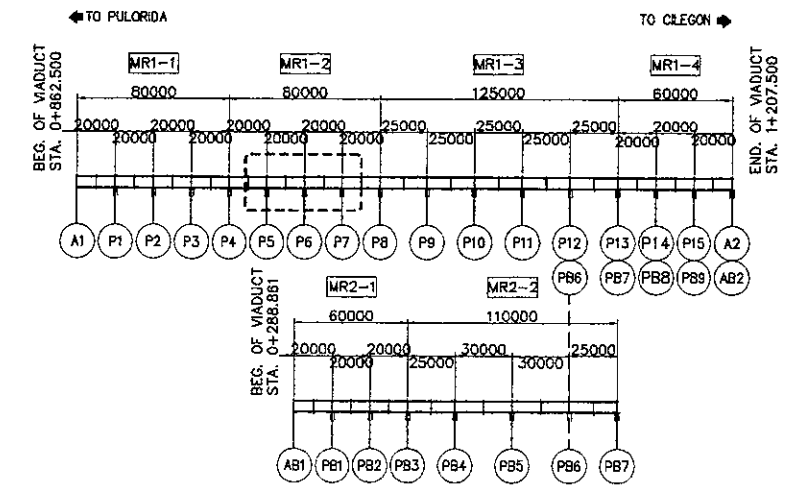


1 ELEVATION
 SCALE : 1:150

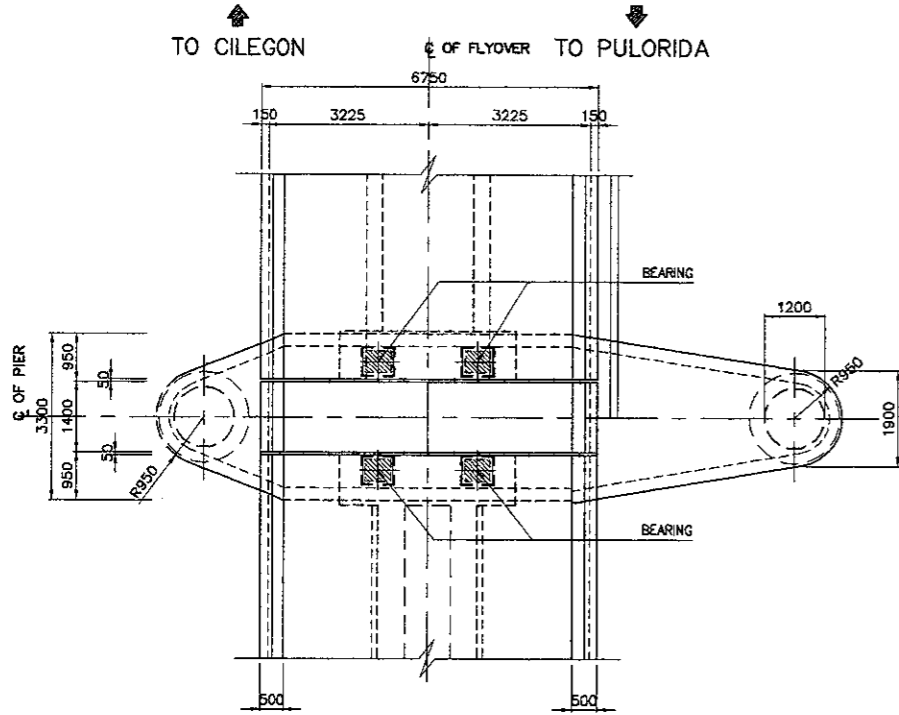


3 SECTION
 SCALE : 1:150

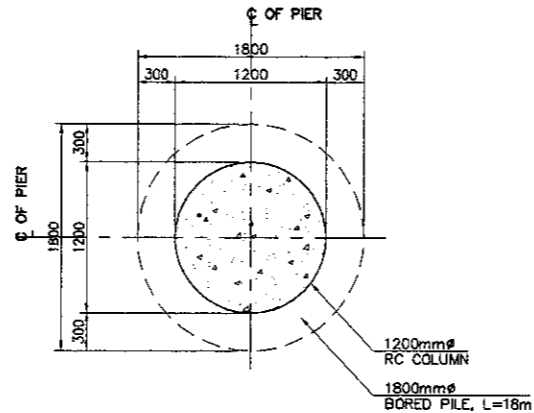
NOTES:
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS



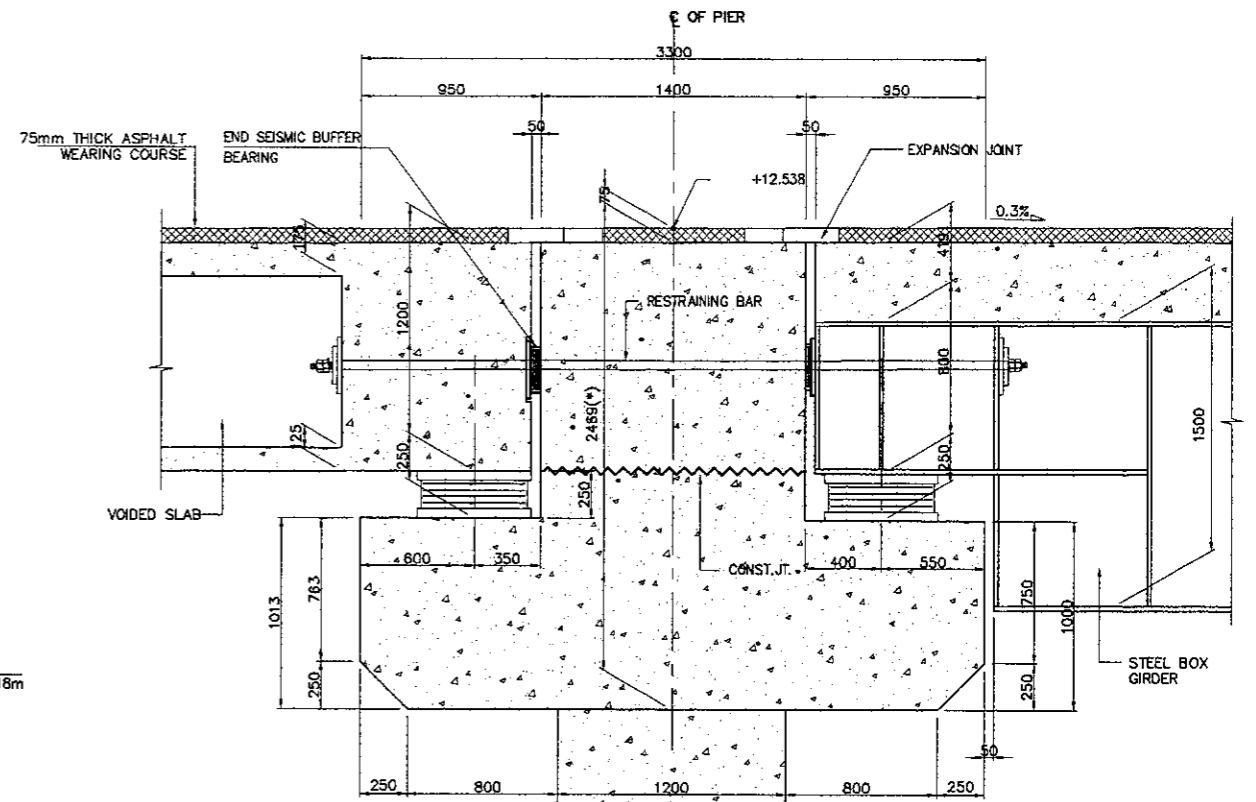
KEY PLAN
 SCALE : 1:4000



2 PLAN
 SCALE : 1:150



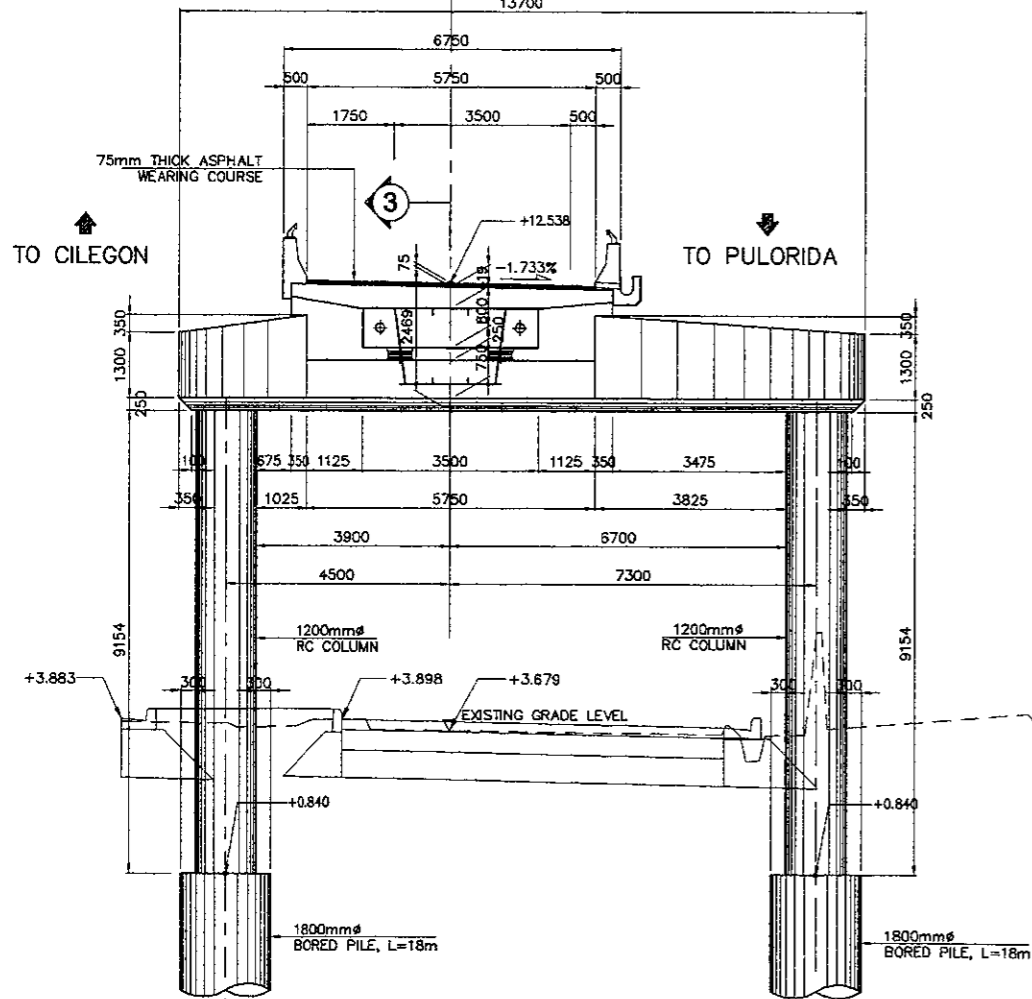
4 SECTION
 SCALE : 1:60



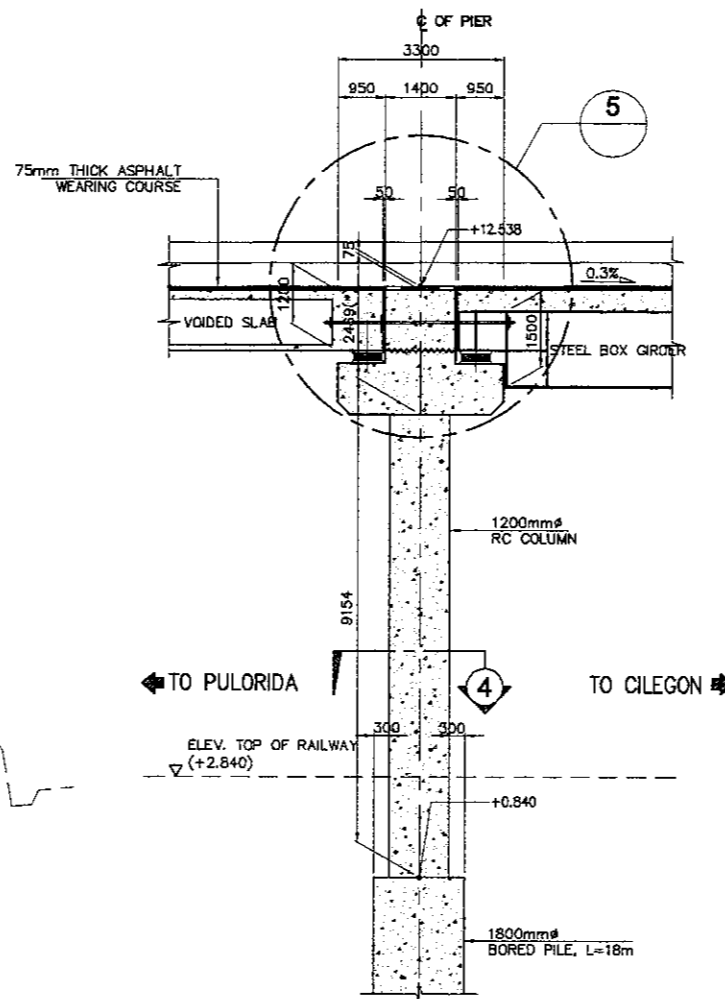
5 DETAIL
 SCALE : 1:40

(*) NOTES :
 1. DIMENSION GIVEN AT ? ALIGNMENT OF FLYOVER
 2. DIMENSION VARIES AT CROSS DECK

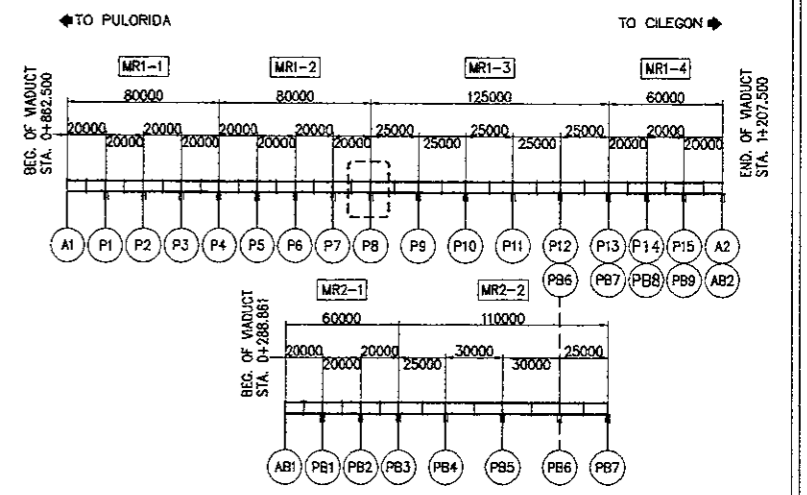
NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS



1 ELEVATION
 SCALE : 1:150



3 SECTION
 SCALE : 1:150



KEY PLAN
 SCALE : 1:4000



JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	A. GOURLEY	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF HIGHWAYS

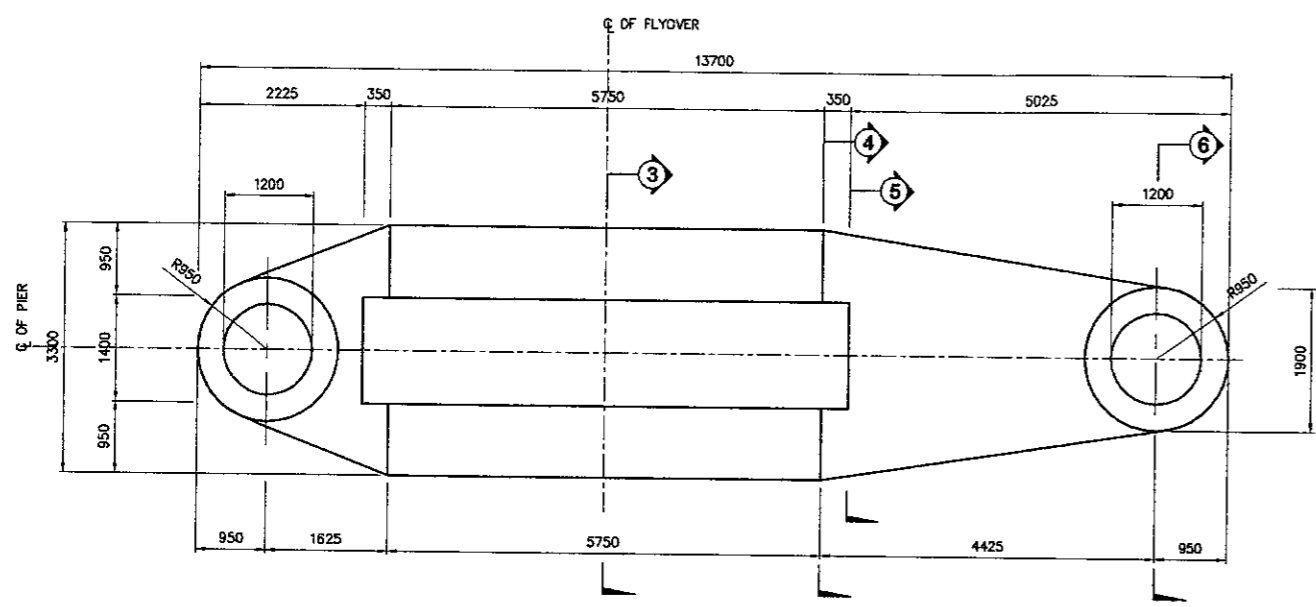
APPROVED BY		Sign	Date
Ir. HERRY VAZA M.Eng.Sc NIP. : 110038400			

PROJECT AND LOCATION :
 DETAILED DESIGN STUDY OF
 NORTH JAVA CORRIDOR FLYOVER PROJECT
 MERAK FLYOVER - CONTRACT PACKAGE 1
 (MERAK - BALARAJA)
 BANTEN PROVINCE

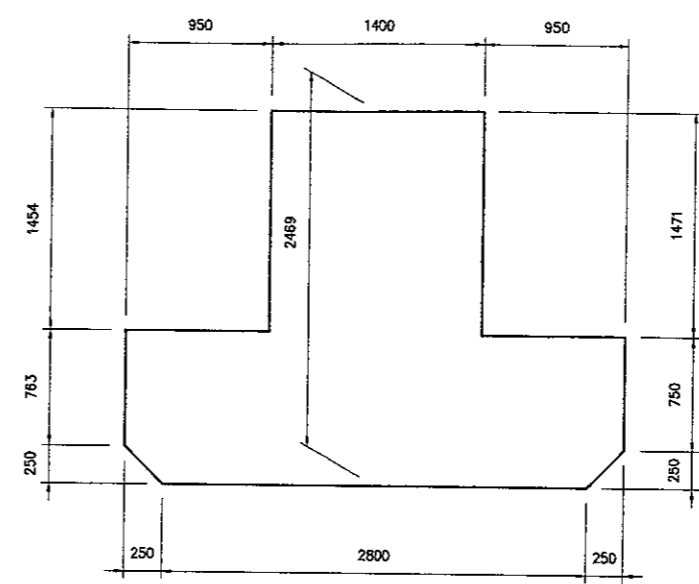
SCALE :
 1 : 50
 1 : 100
 FULL SIZE A3

DRAWING TITLE :
 PIER LAYOUT
 P8 (EXP.)
 2 OF 2

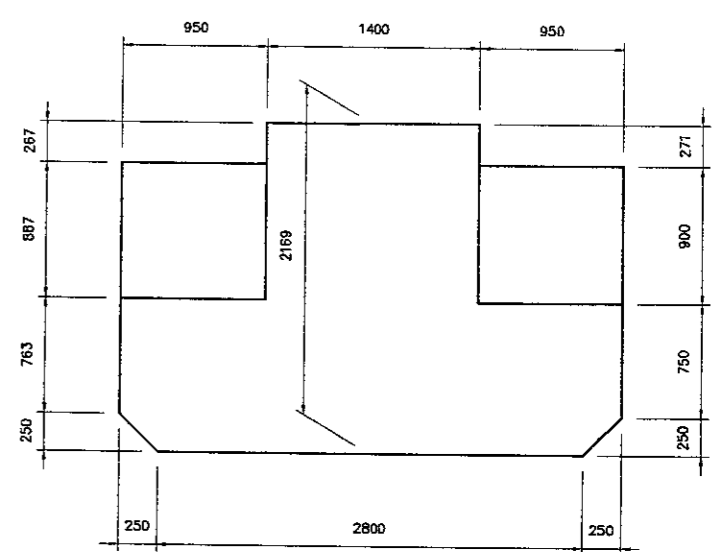
DRAWING NO :
 MSB-006
 SHEET NO :
 06 / 94



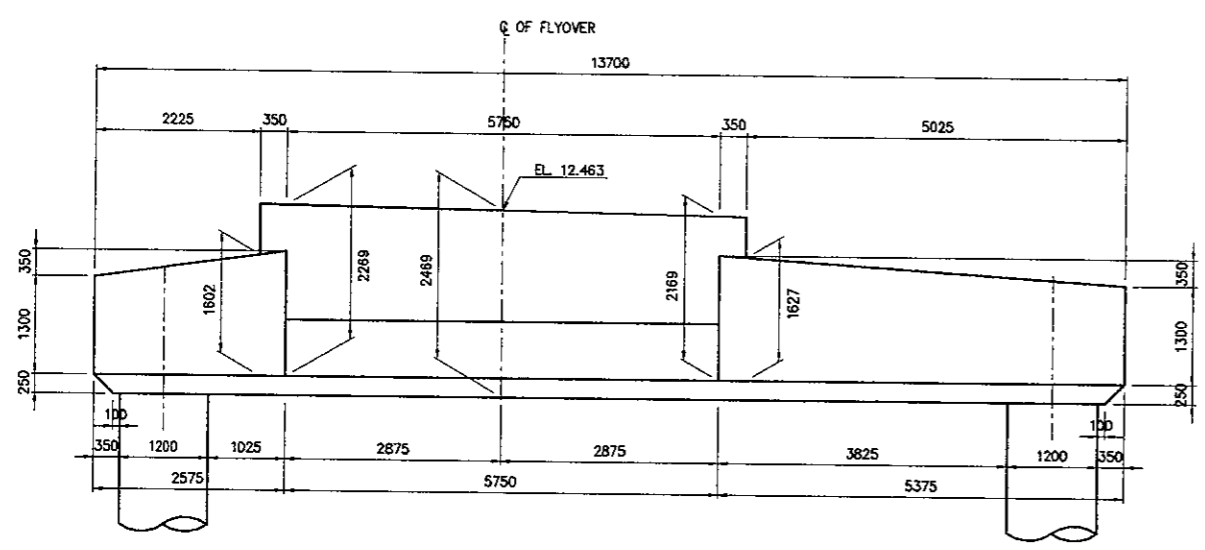
2 PLAN
SCALE : 1:100



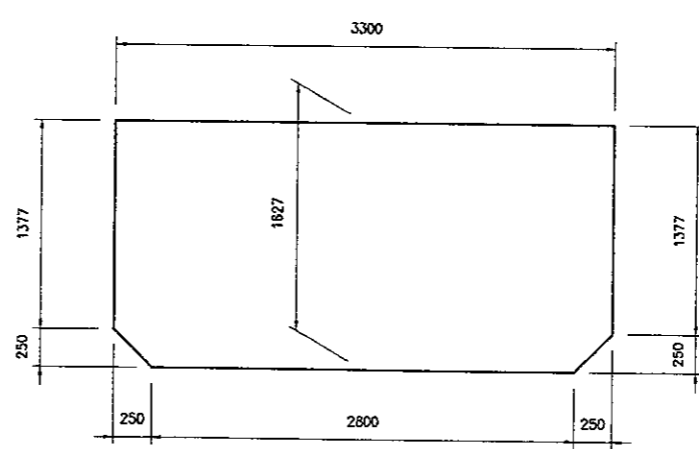
3 SECTION
SCALE : 1:50



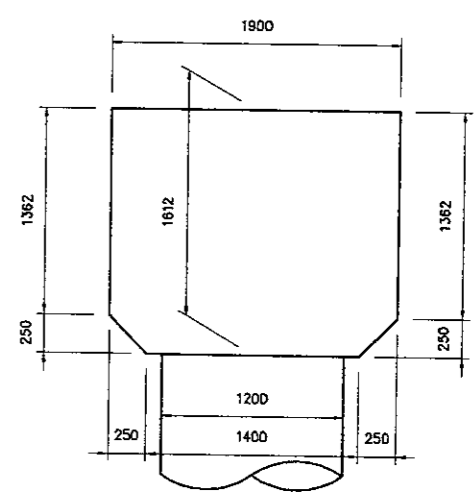
4 SECTION
SCALE : 1:50



1 ELEVATION
SCALE : 1:100



5 SECTION
SCALE : 1:50

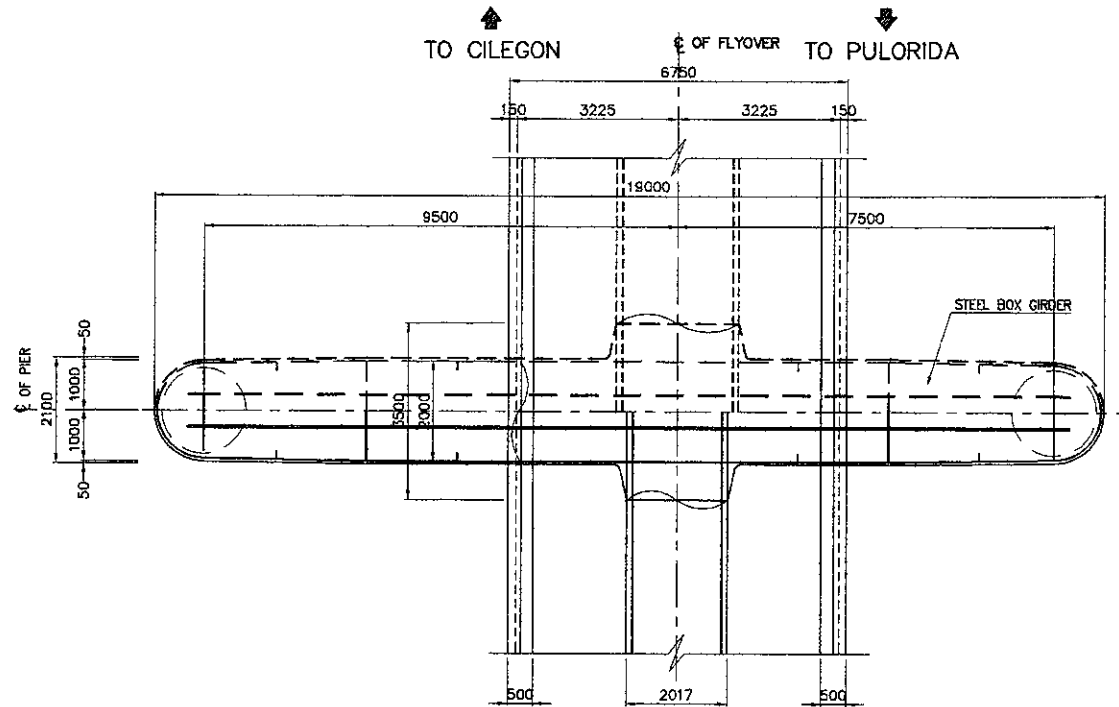


6 SECTION
SCALE : 1:50

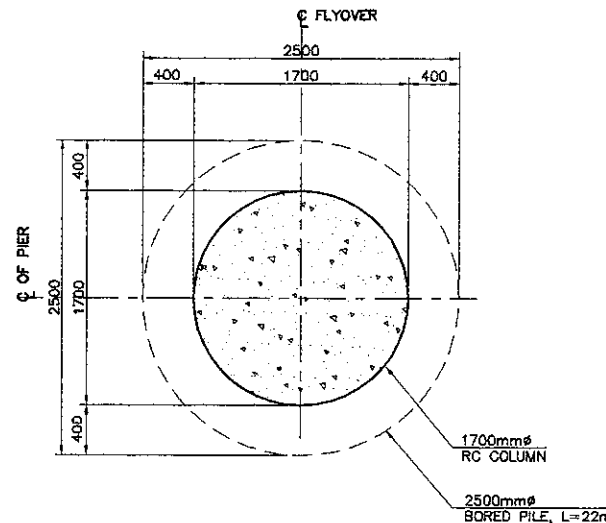
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name: A. GOURLEY	Name: T. OKUMURA	Name: M. KIUCHI
Sign	Sign	Sign
Date	Date	Date

APPROVED BY: Ir. HERRY VAZA M.Eng.Sc
 NIP. : 110038400

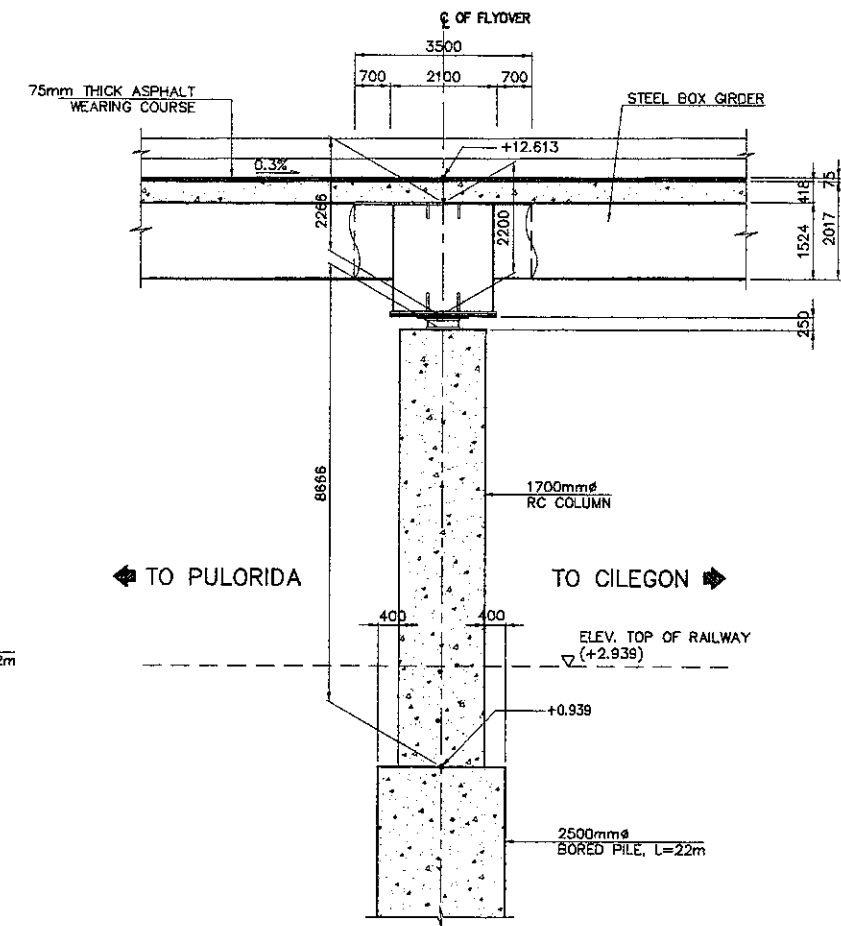
Sign	Date
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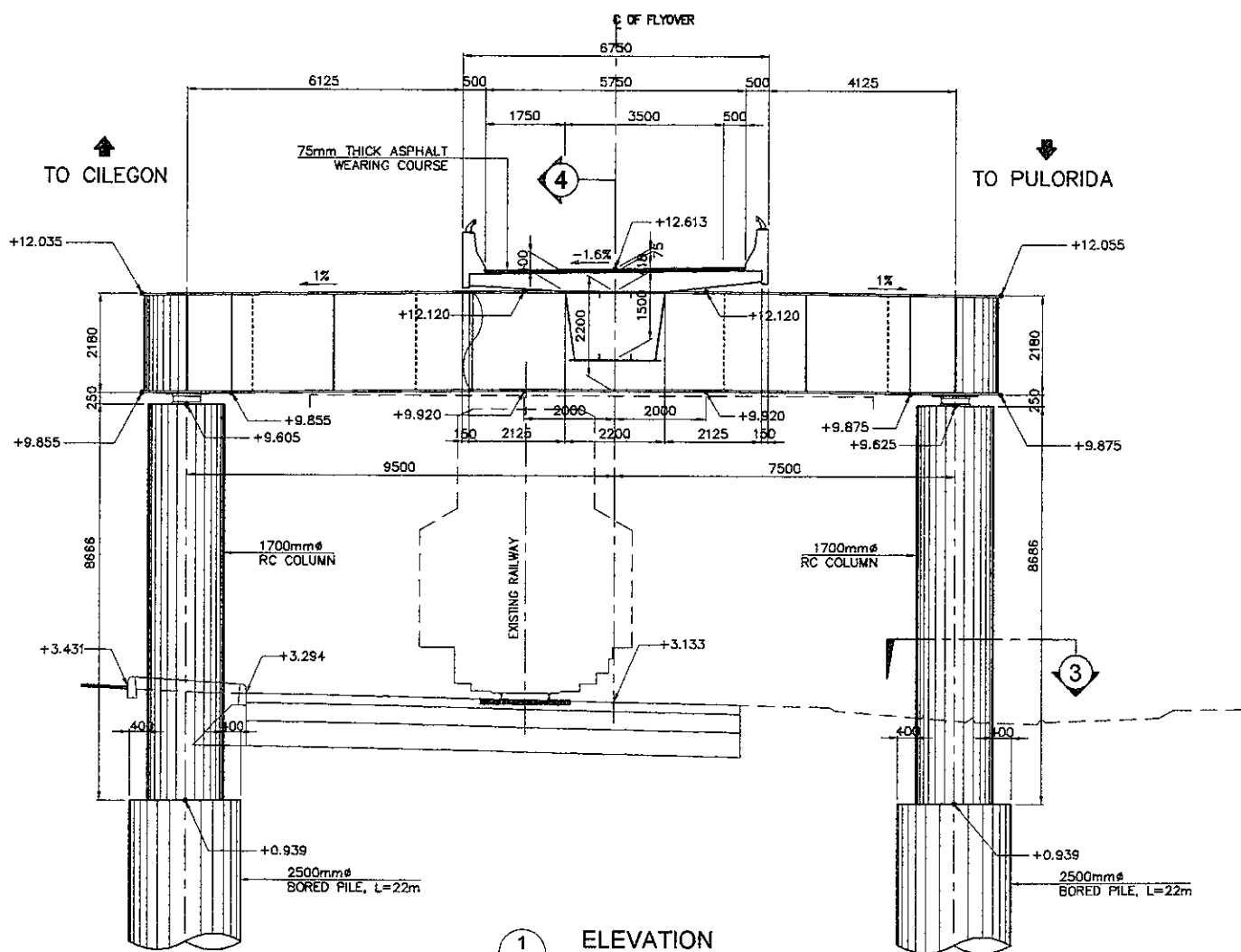
2 PLAN
 SCALE : 1:150



3 SECTION
 SCALE : 1:60

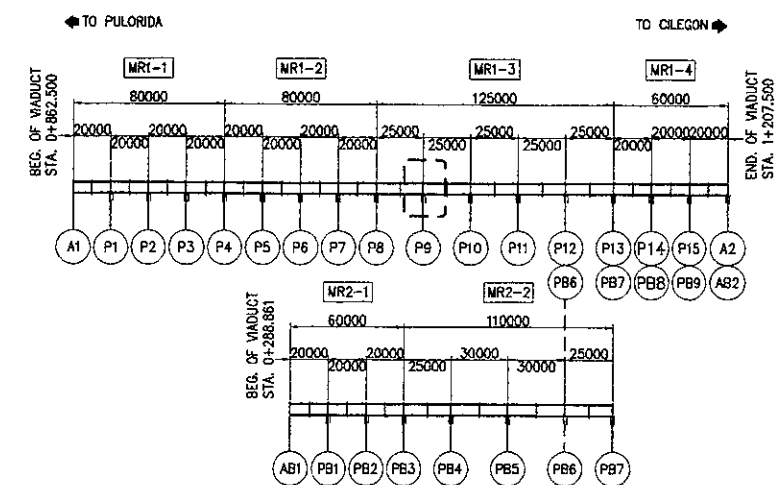


4 SECTION
 SCALE : 1:150



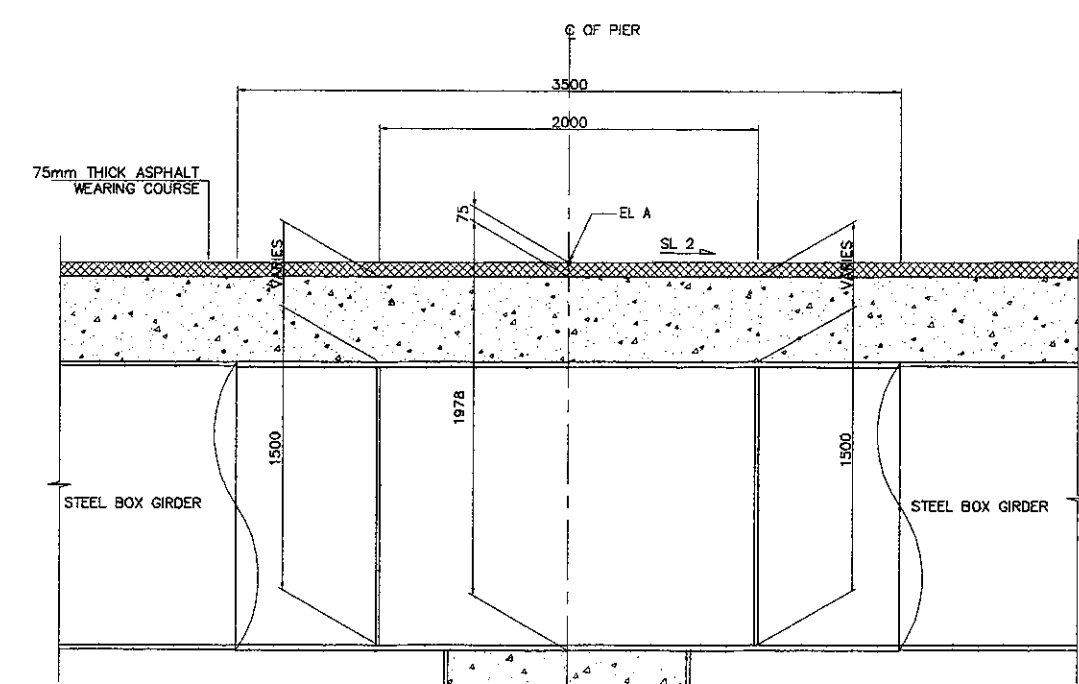
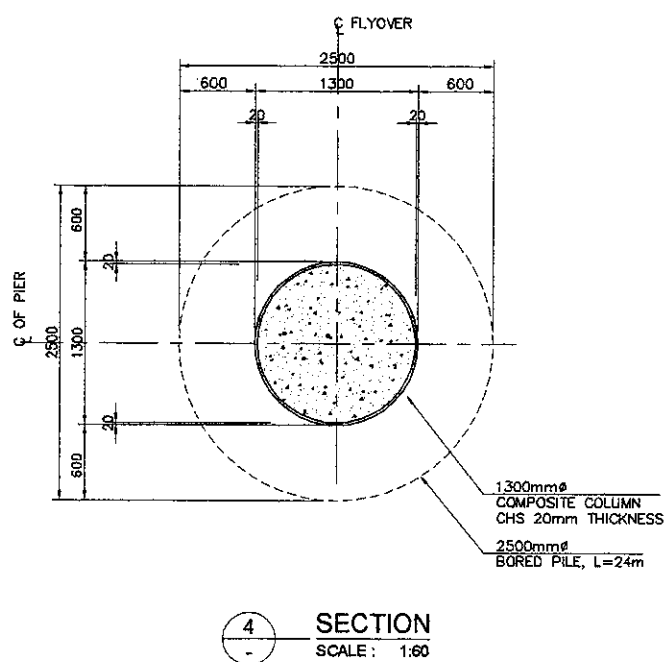
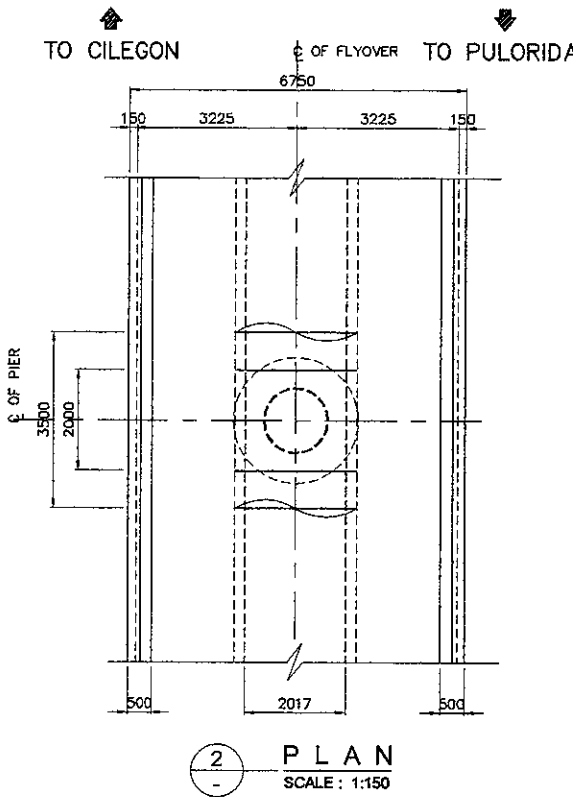
1 ELEVATION
 SCALE : 1:150

- NOTES :
- ALL DIMENSIONS ARE IN MILLIMETER
 - ELEVATIONS ARE IN METERS

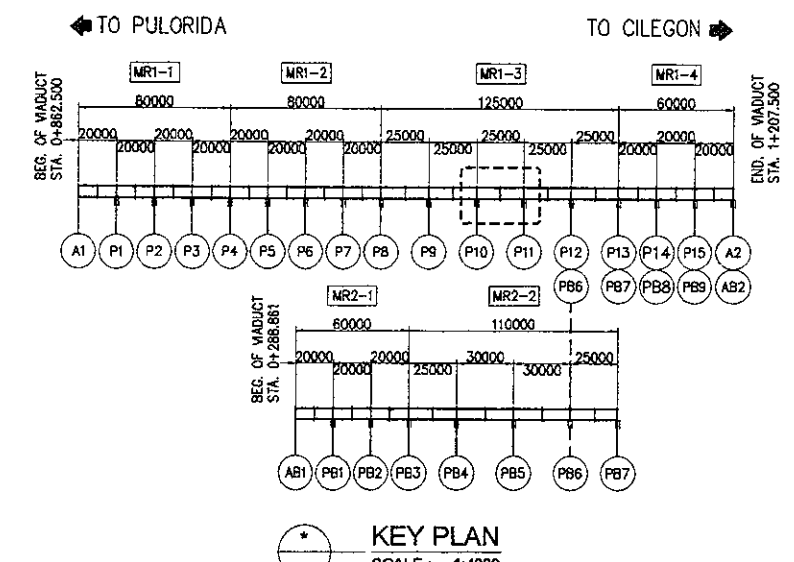
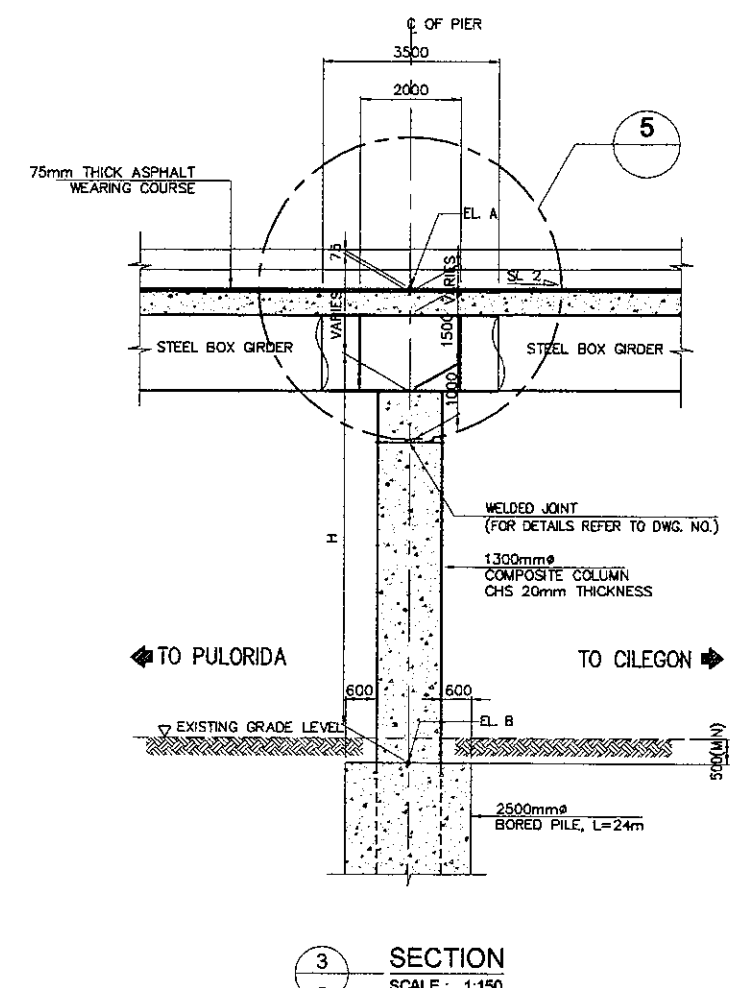
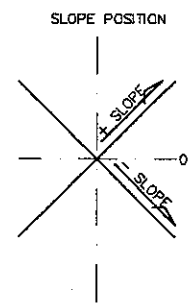
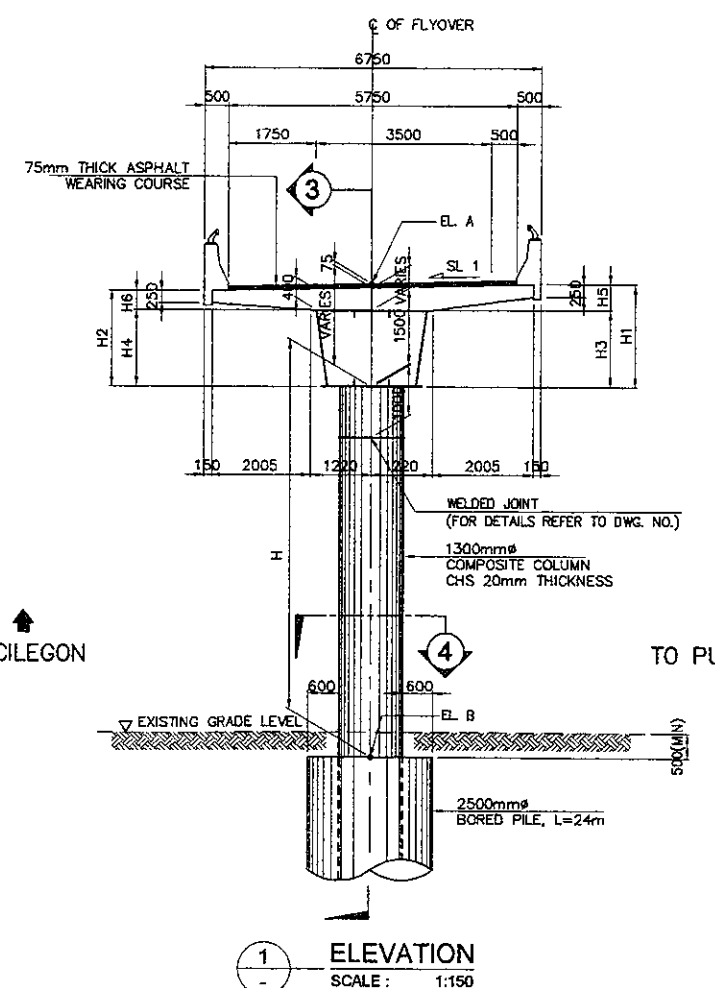


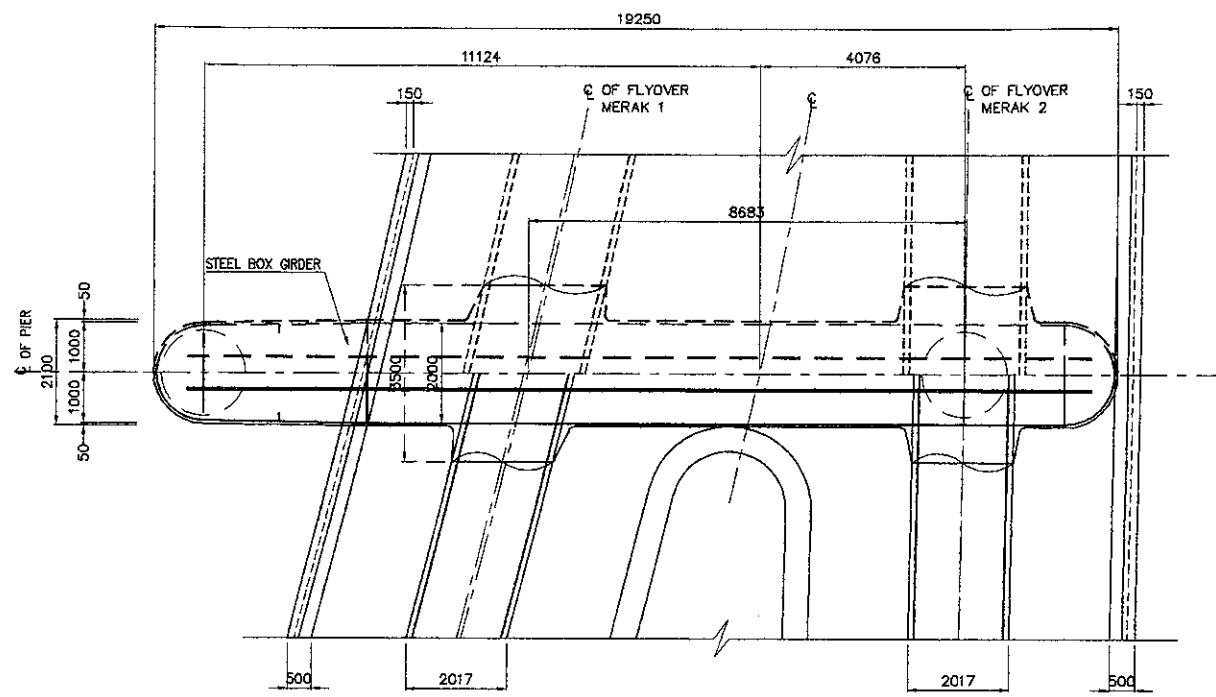
KEY PLAN
 SCALE : 1:4000

SCHEDULE OF PIERS (FIXED)											
PIER	EL A	EL B	SL 1	SL 2	H	H1	H2	H3	H4	H5	H6
P10	12.620	2.500	+5.168%	+0.300%	8060	2152	1818	1528	1528	624	290
P11	12.462	2.500	+5.600%	+0.300%	7897	2170	1809	1528	1528	642	281

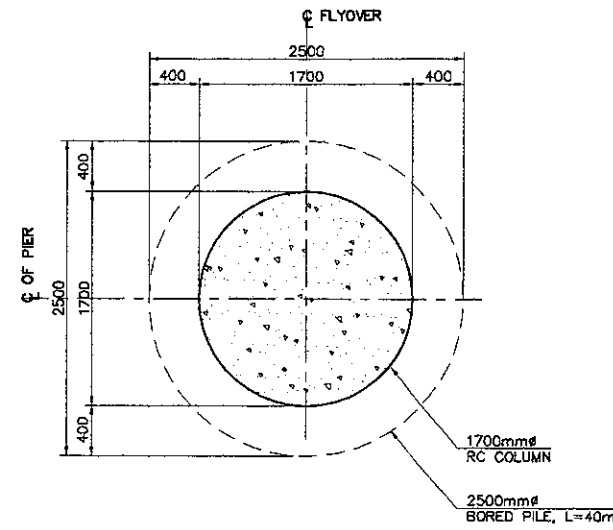


NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS

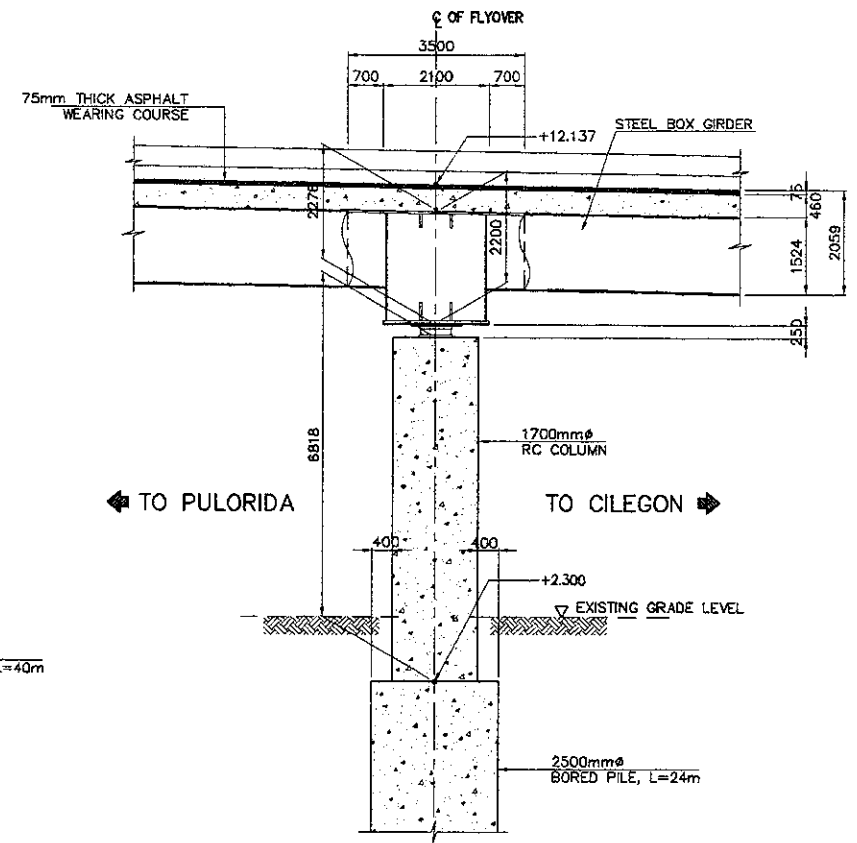




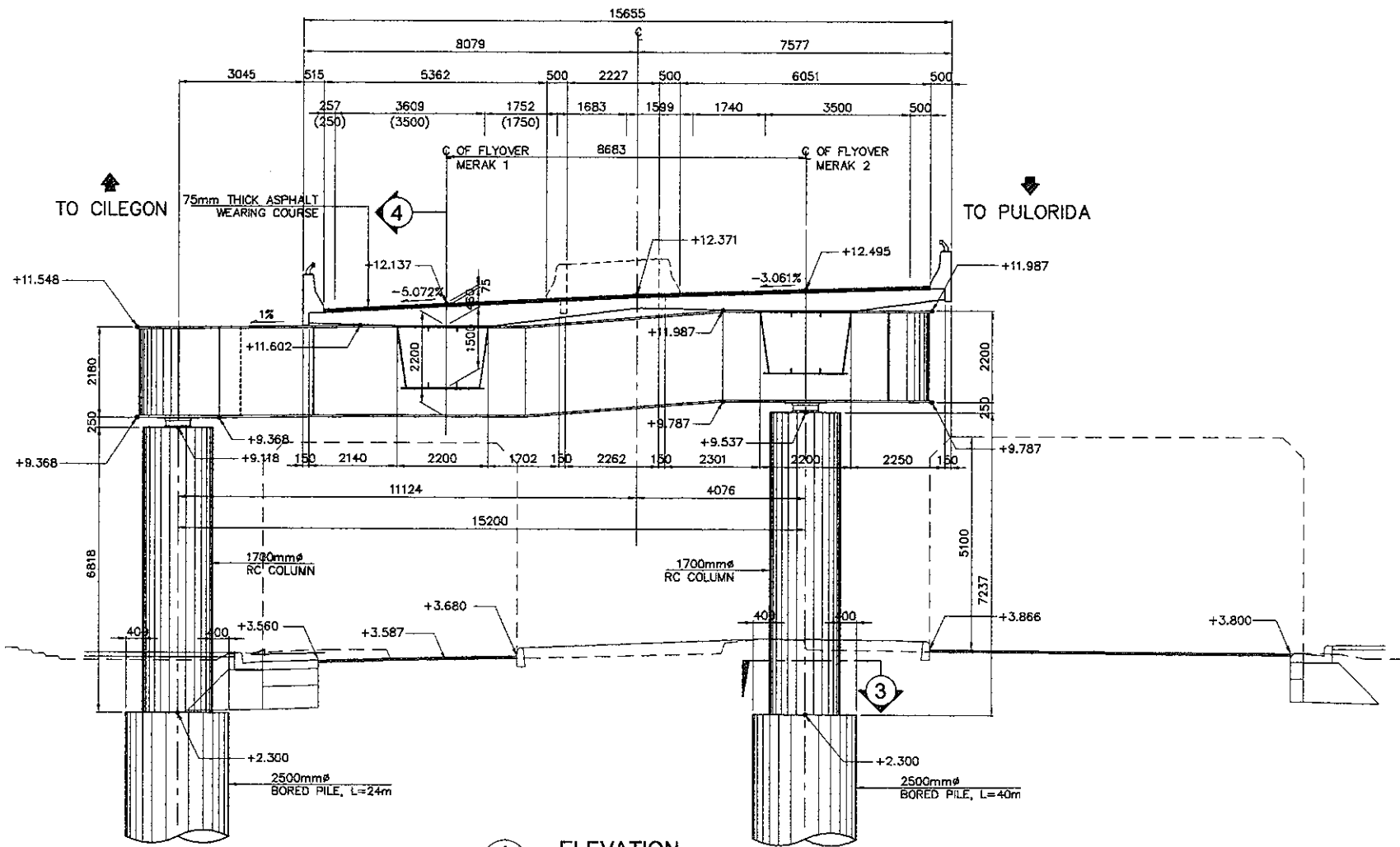
2 PLAN
 SCALE : 1:150



3 SECTION
 SCALE : 1:60

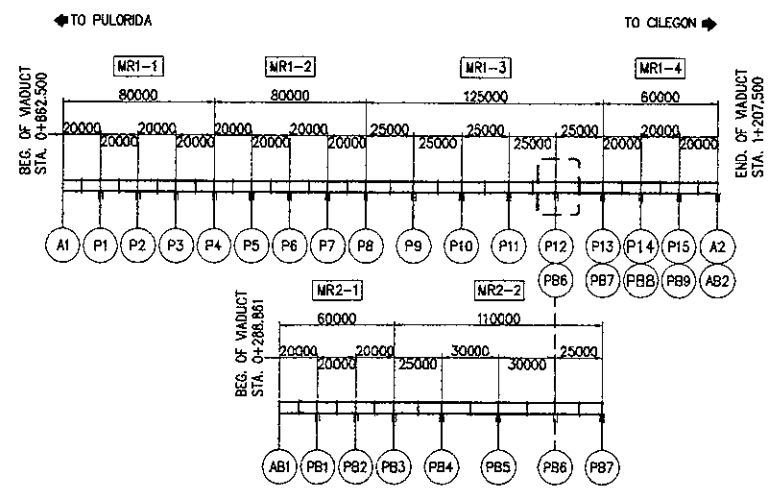


4 SECTION
 SCALE : 1:150

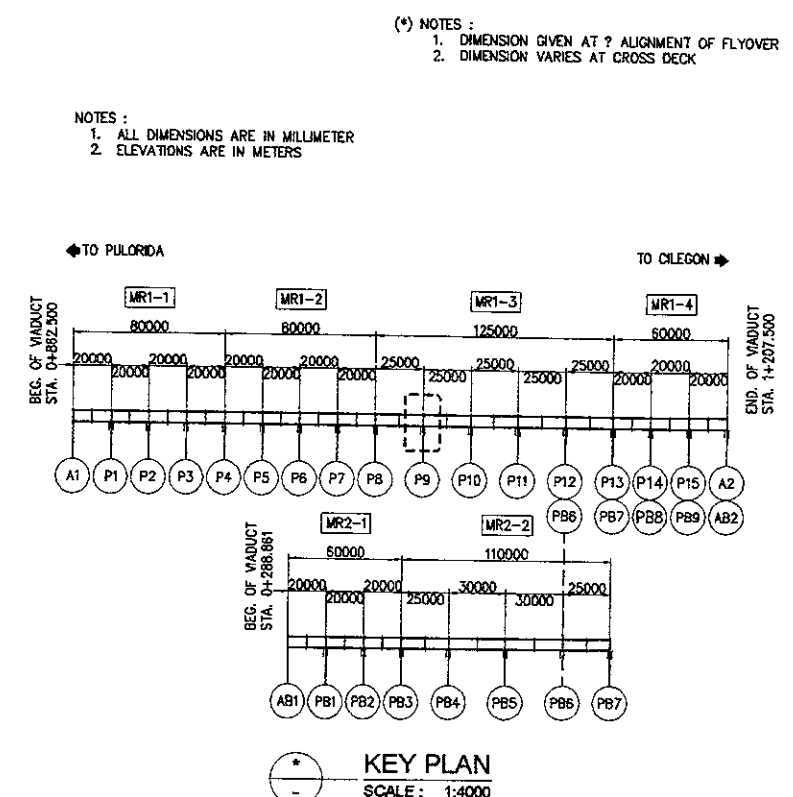
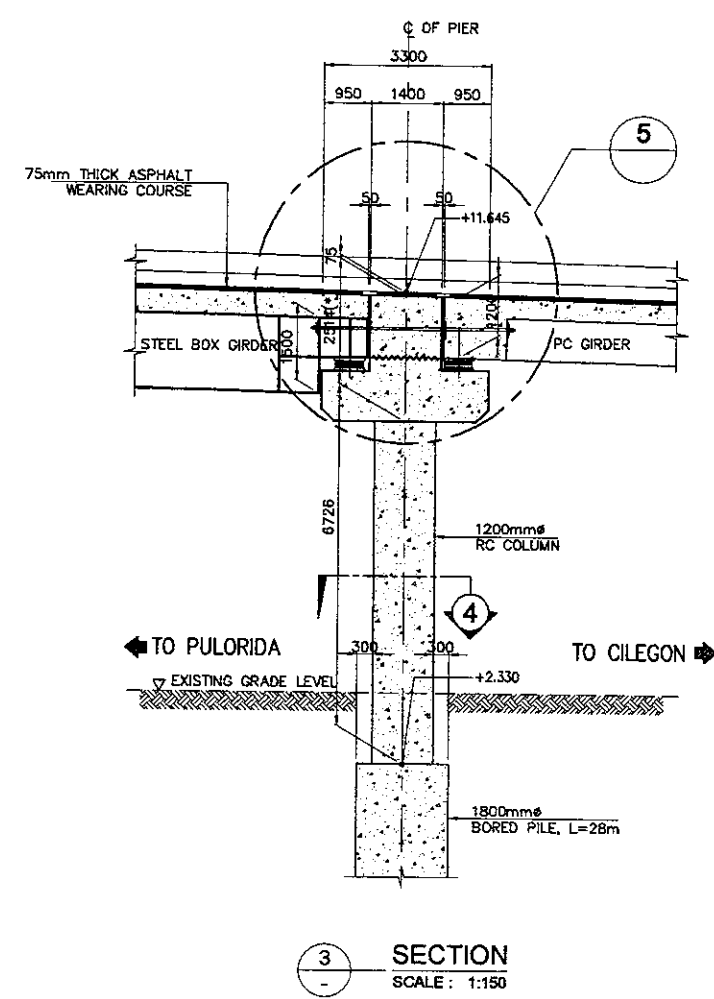
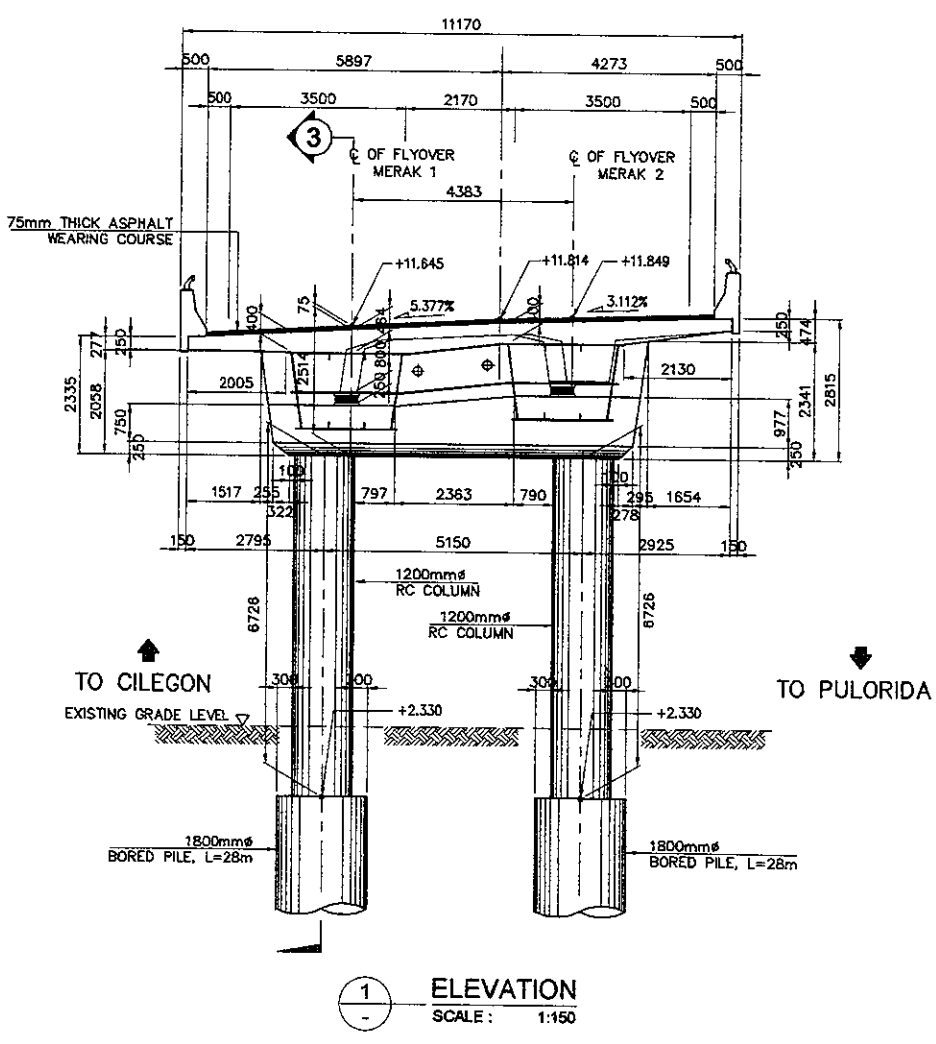
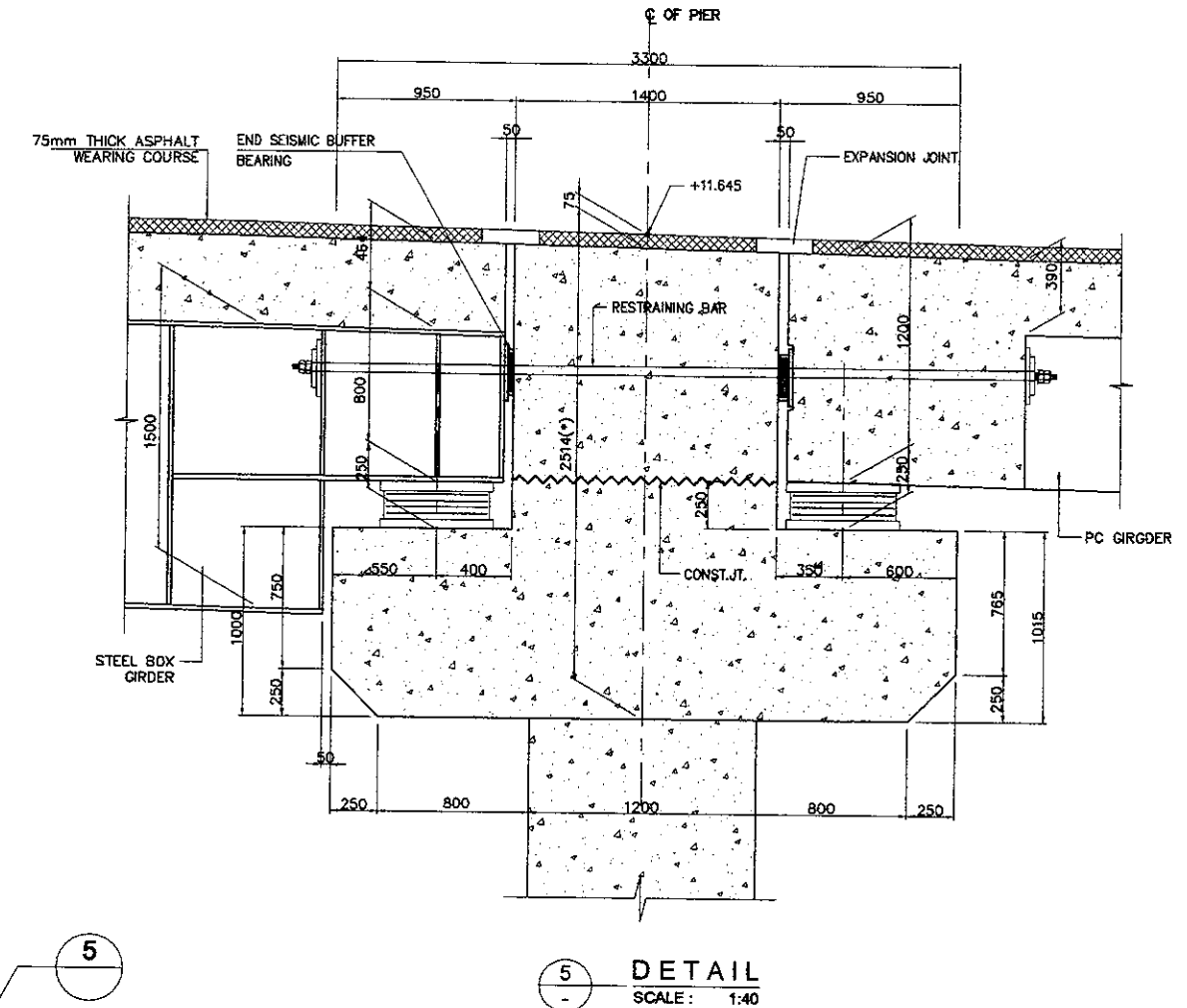
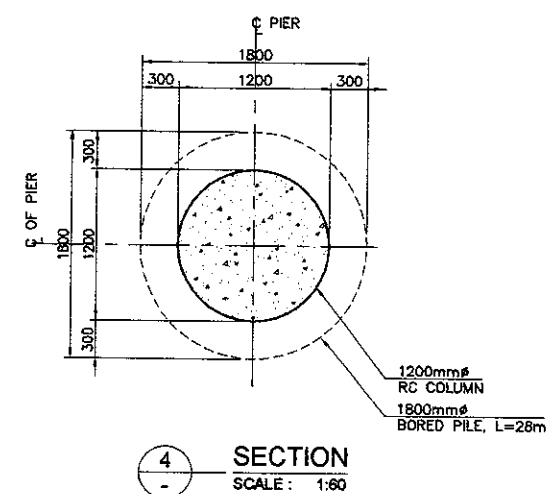
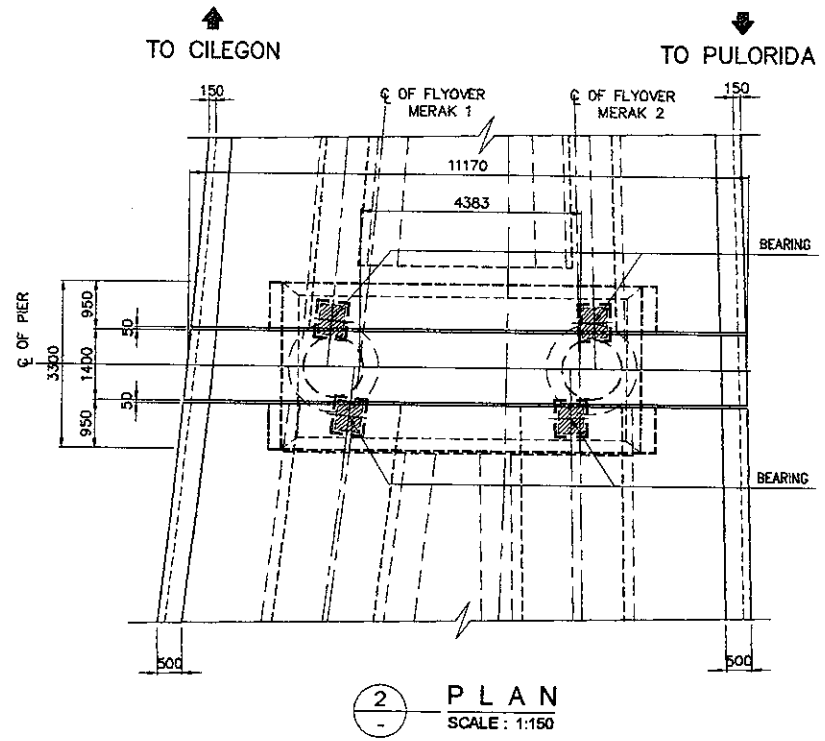


1 ELEVATION
 SCALE : 1:150

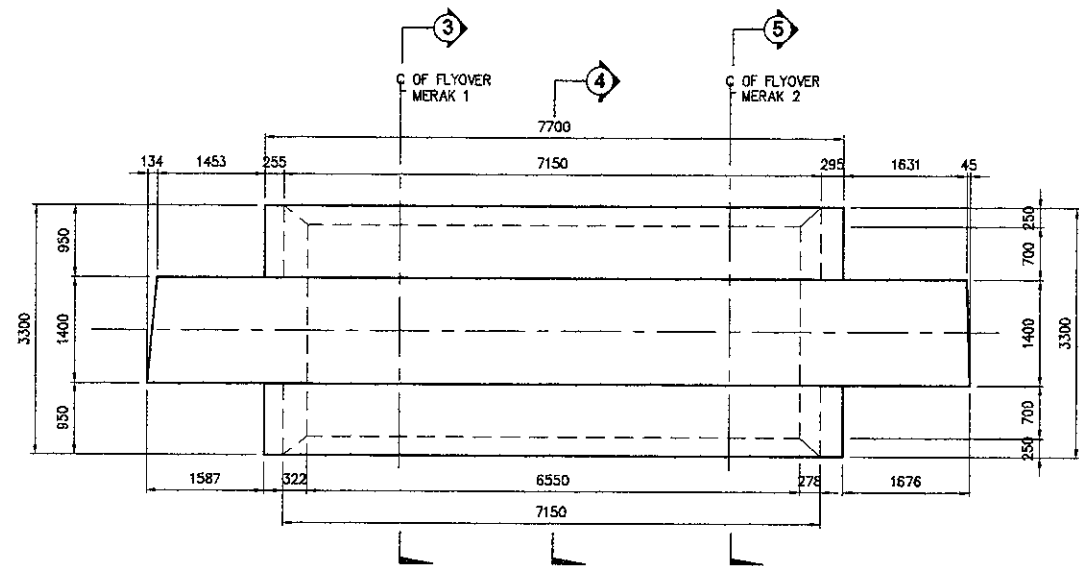
NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS



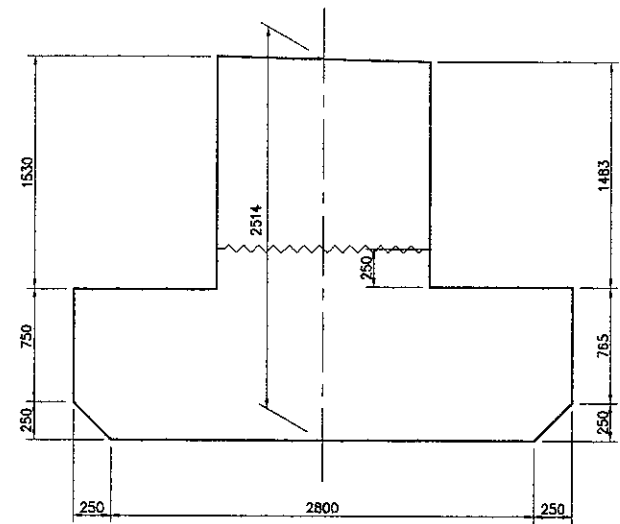
KEY PLAN
 SCALE : 1:4000



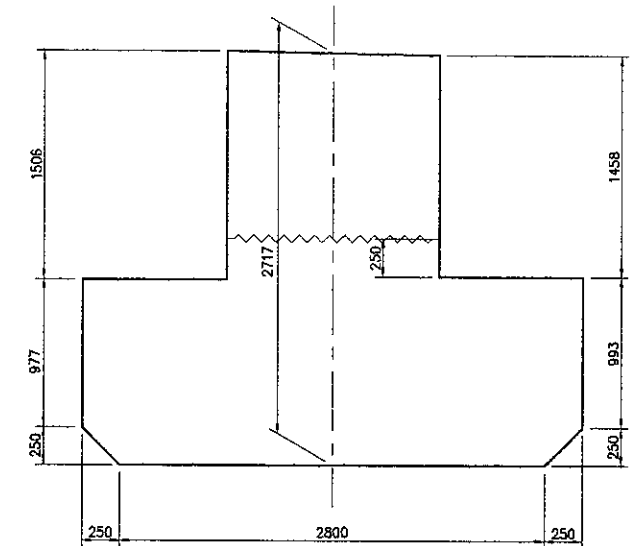
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	A. GOURLEY	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



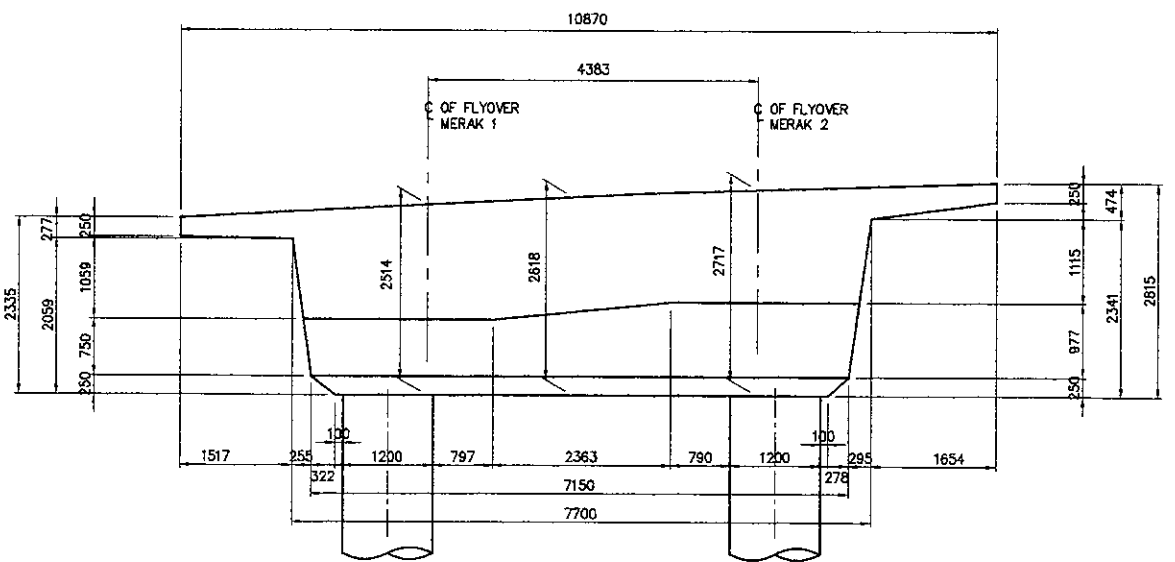
2 PLAN
 SCALE : 1:100



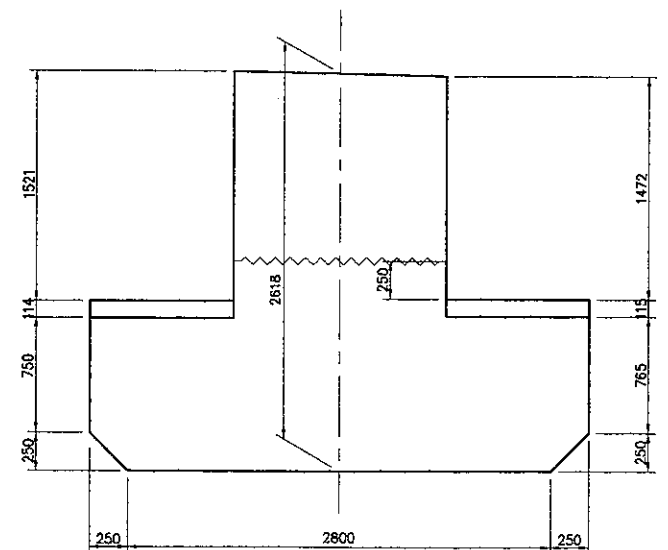
3 SECTION
 SCALE : 1:50



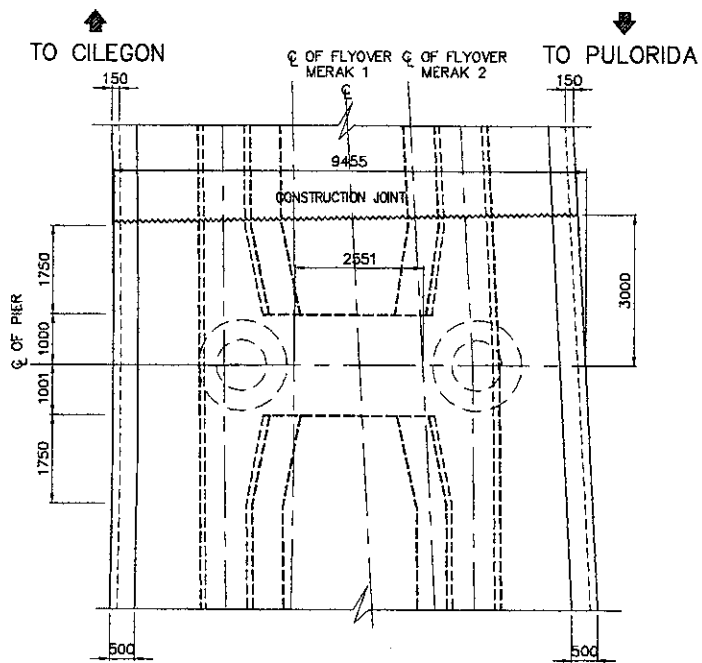
5 SECTION
 SCALE : 1:50



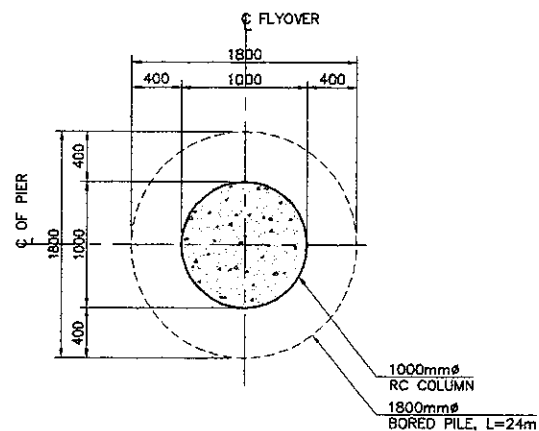
1 ELEVATION
 SCALE : 1:100



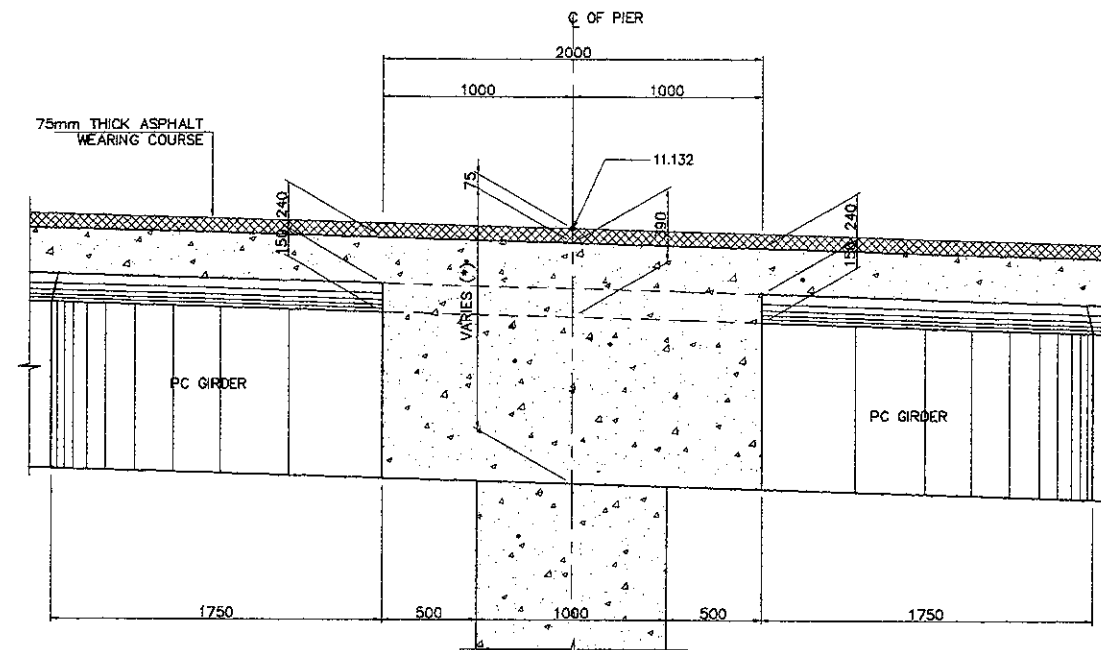
4 SECTION
 SCALE : 1:50



2 PLAN
 SCALE : 1:150

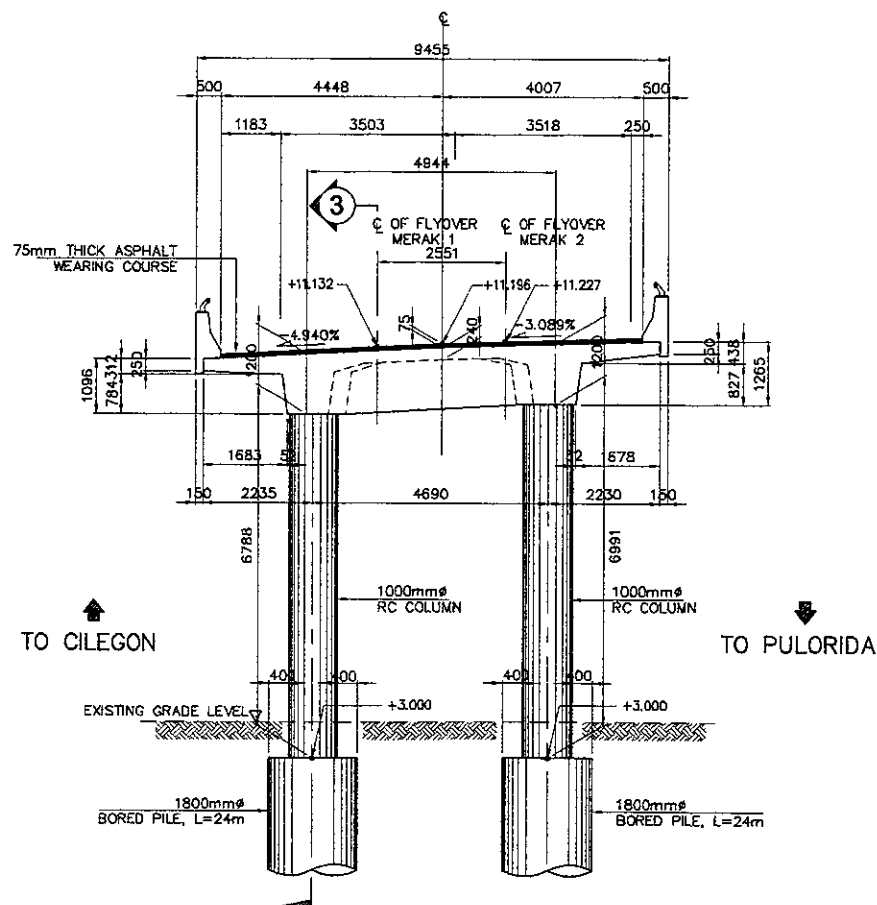


4 SECTION
 SCALE : 1:60

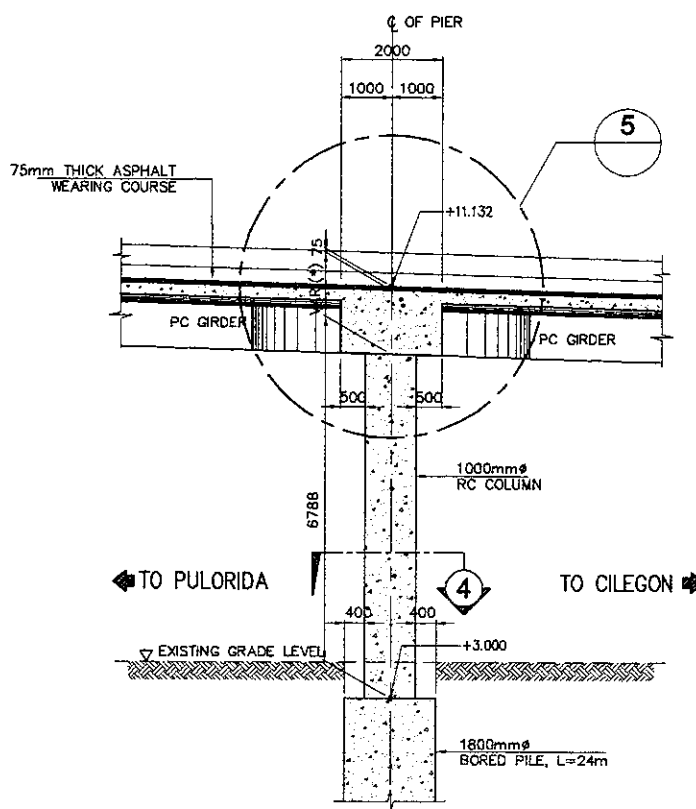


5 DETAIL
 SCALE : 1:40

(*) NOTES :
 1. DIMENSION GIVEN AT ? ALIGNMENT OF FLYOVER
 2. DIMENSION VARIES AT CROSS DECK

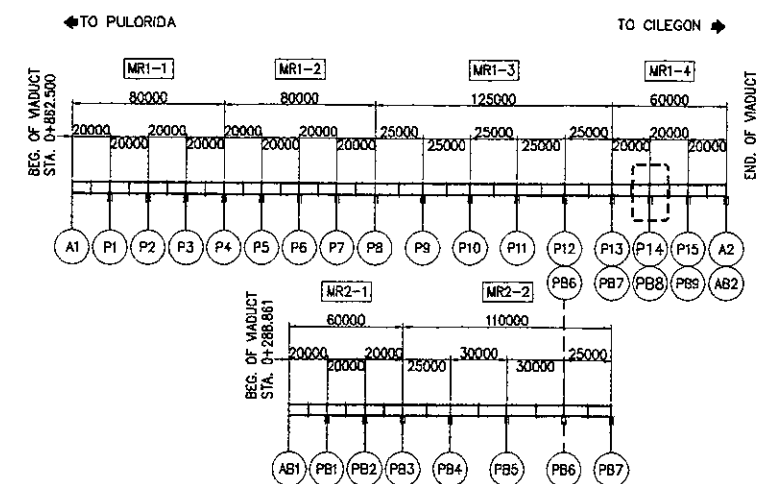


1 ELEVATION
 SCALE : 1:150



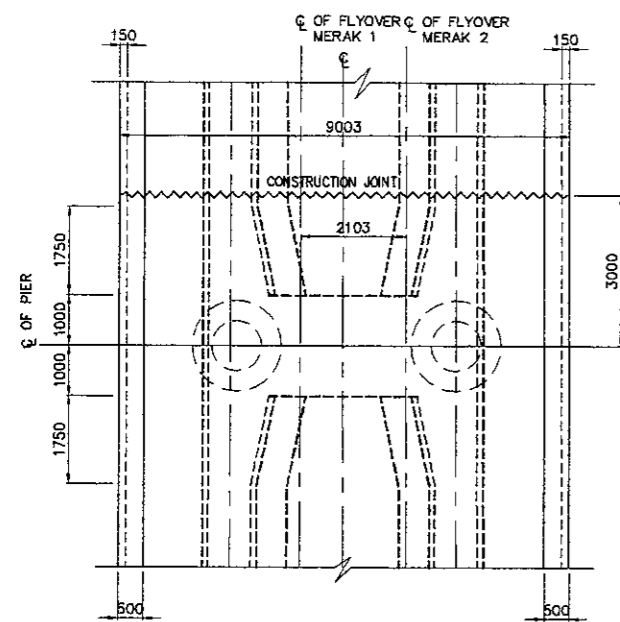
3 SECTION
 SCALE : 1:150

NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS

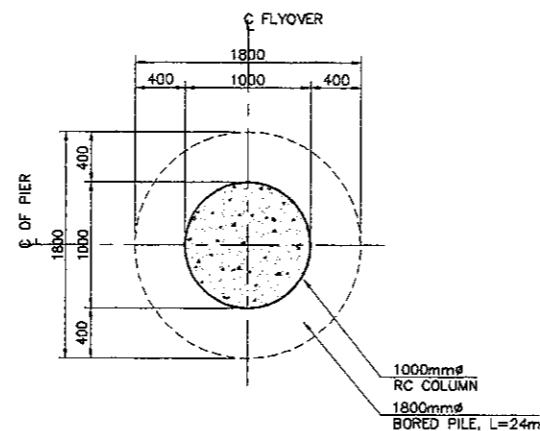


*** KEY PLAN**
 SCALE : 1:4000

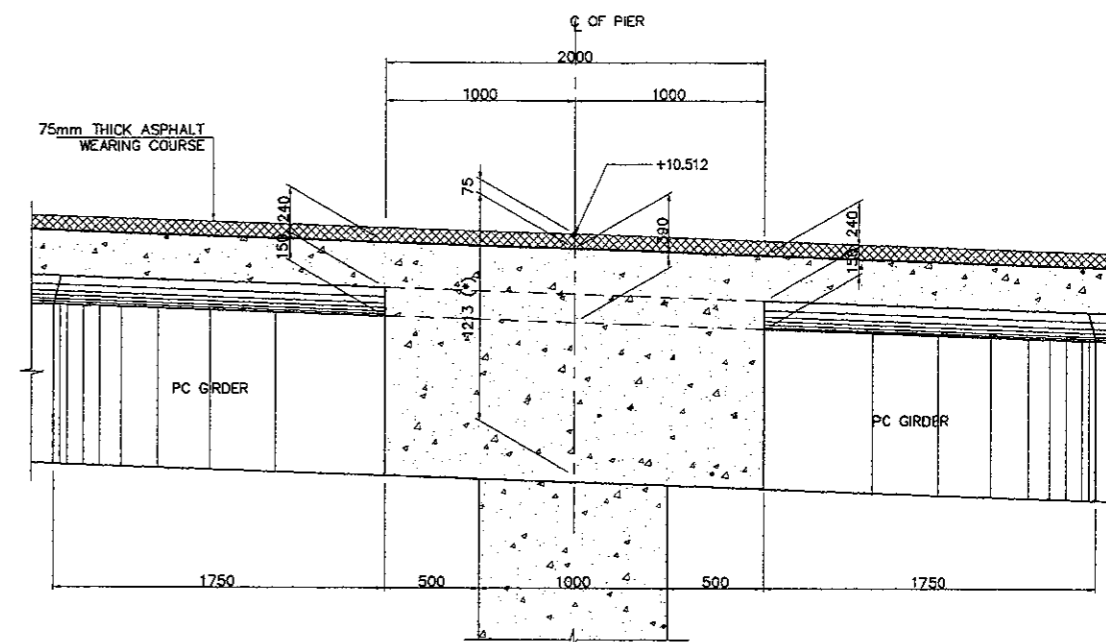
↑ TO CILEGON ↓ TO PULORIDA



2 PLAN
 SCALE : 1:150

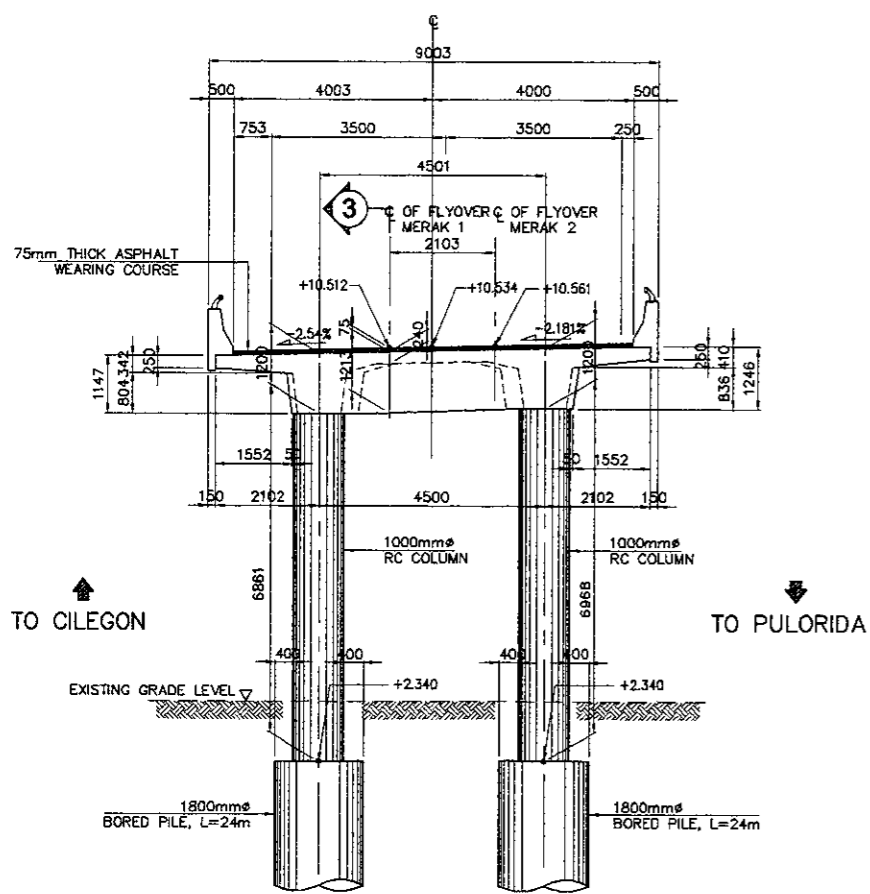


4 SECTION
 SCALE : 1:60

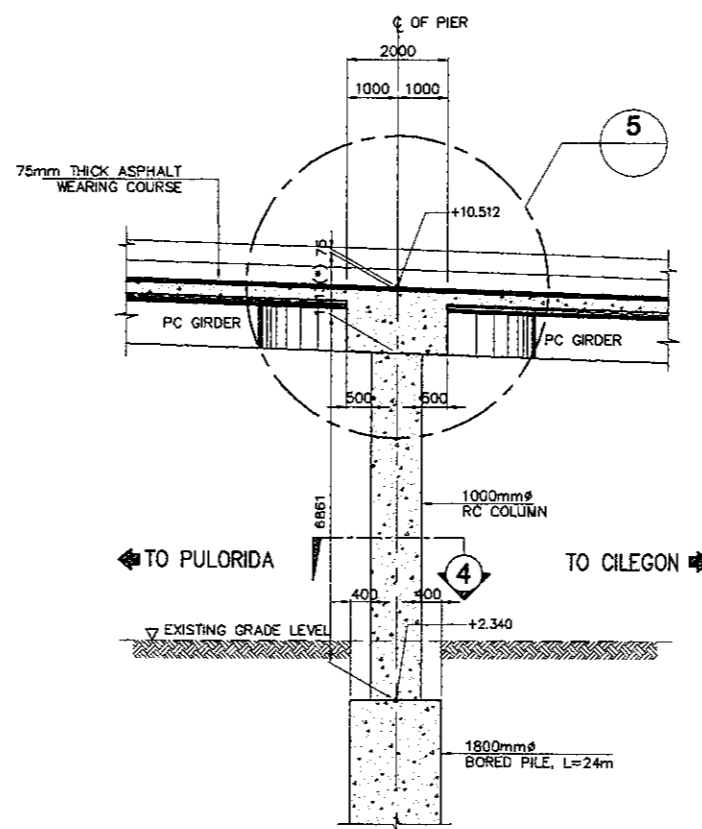


5 DETAIL
 SCALE : 1:40

(*) NOTES :
 1. DIMENSION GIVEN AT ? ALIGNMENT OF FLYOVER
 2. DIMENSION VARIES AT CROSS DECK

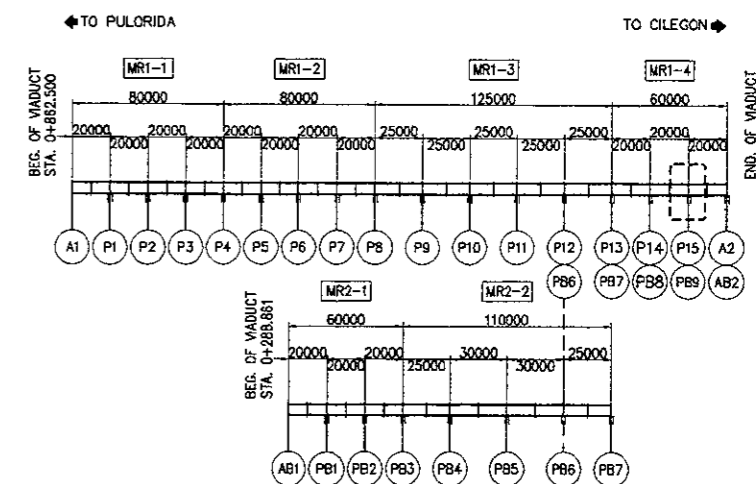


1 ELEVATION
 SCALE : 1:150



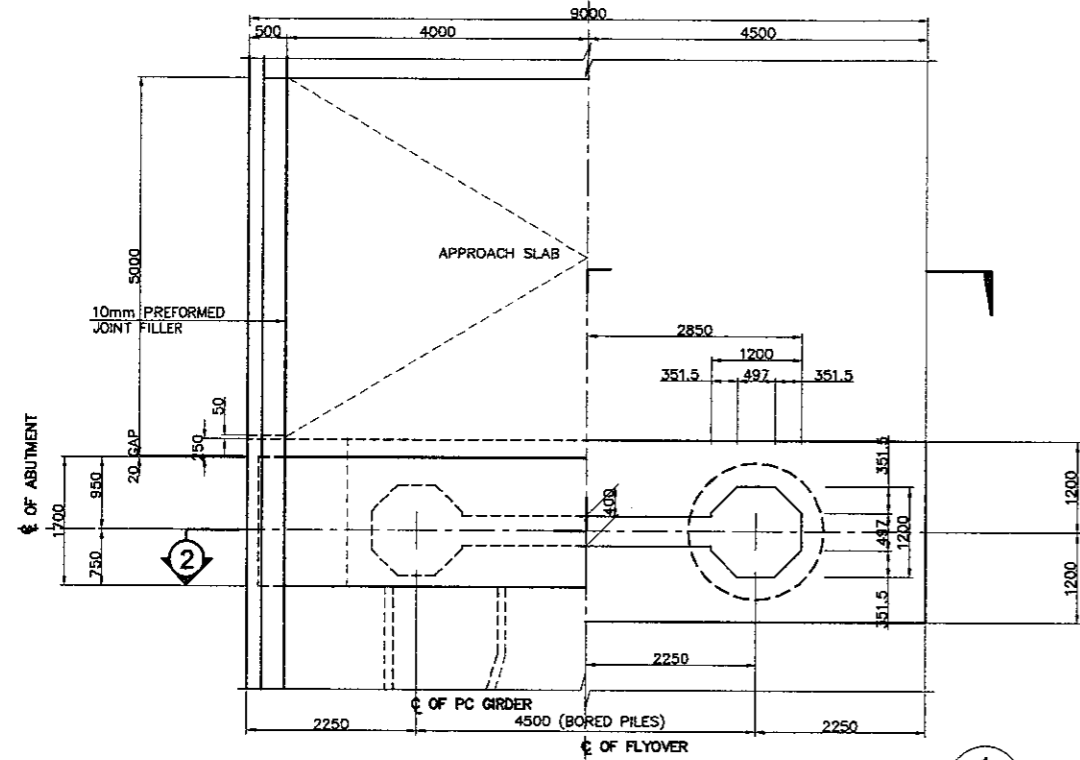
3 SECTION
 SCALE : 1:150

NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS

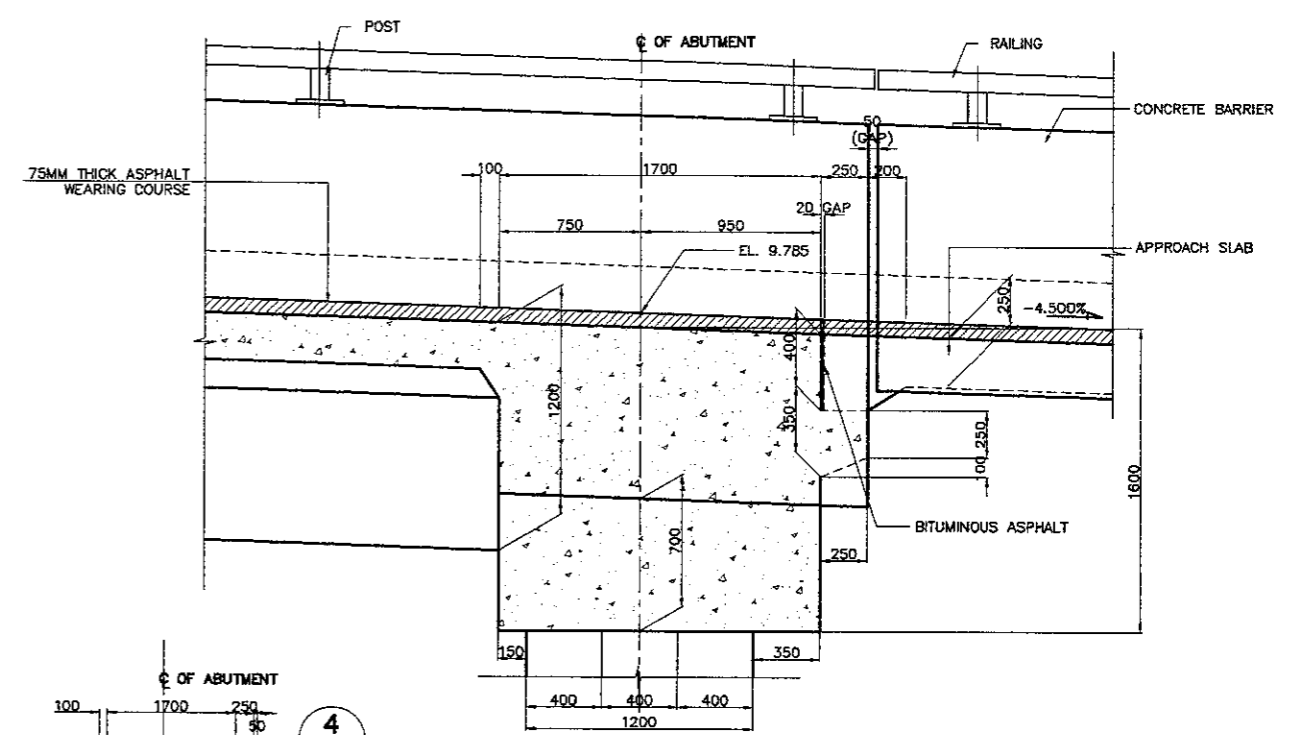


KEY PLAN
 SCALE : 1:4000

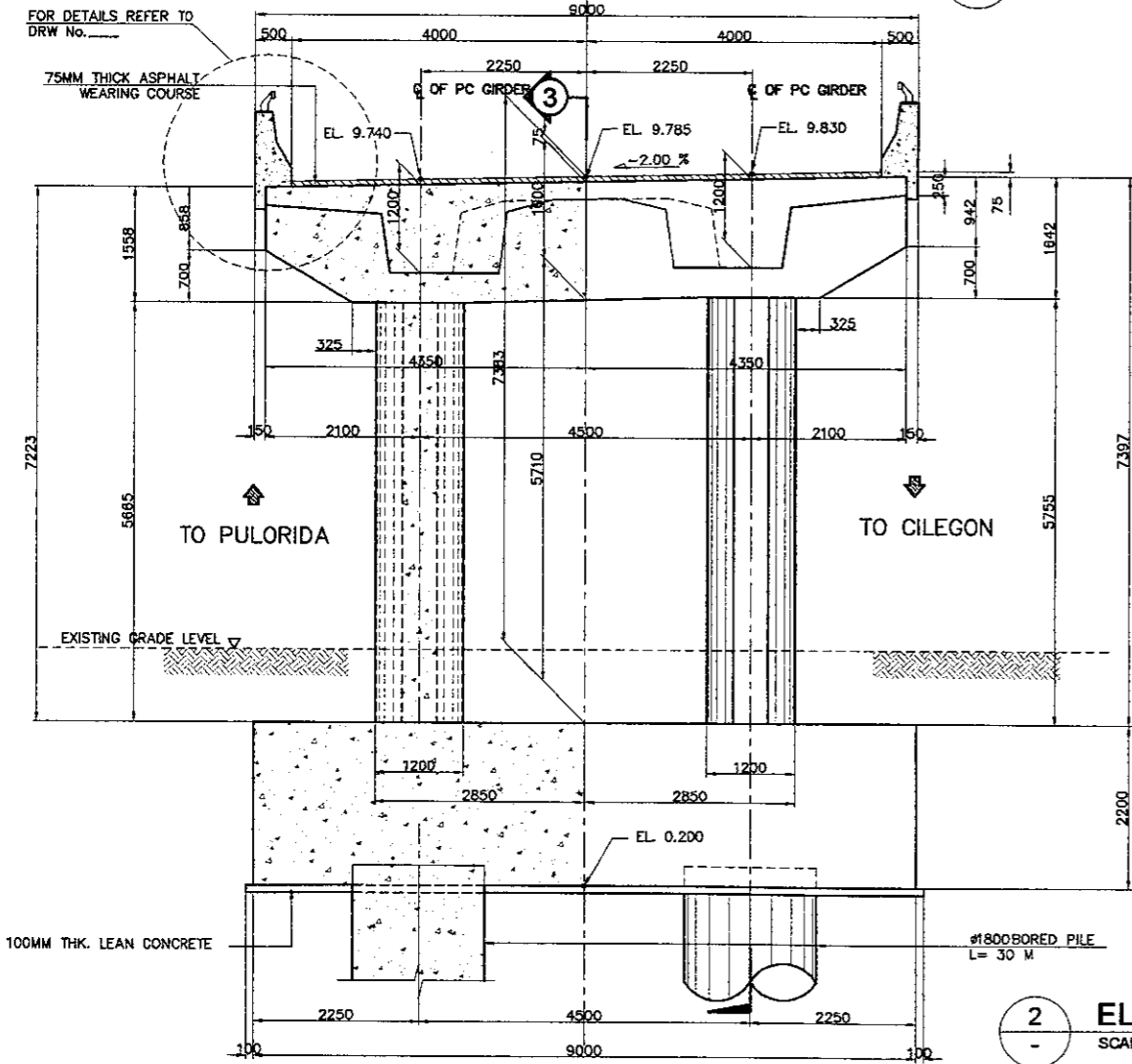
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name: A. GOURLEY	Name: T. OKUMURA	Name: M. KIUCHI
Sign: _____	Sign: _____	Sign: _____
Date: _____	Date: _____	Date: _____



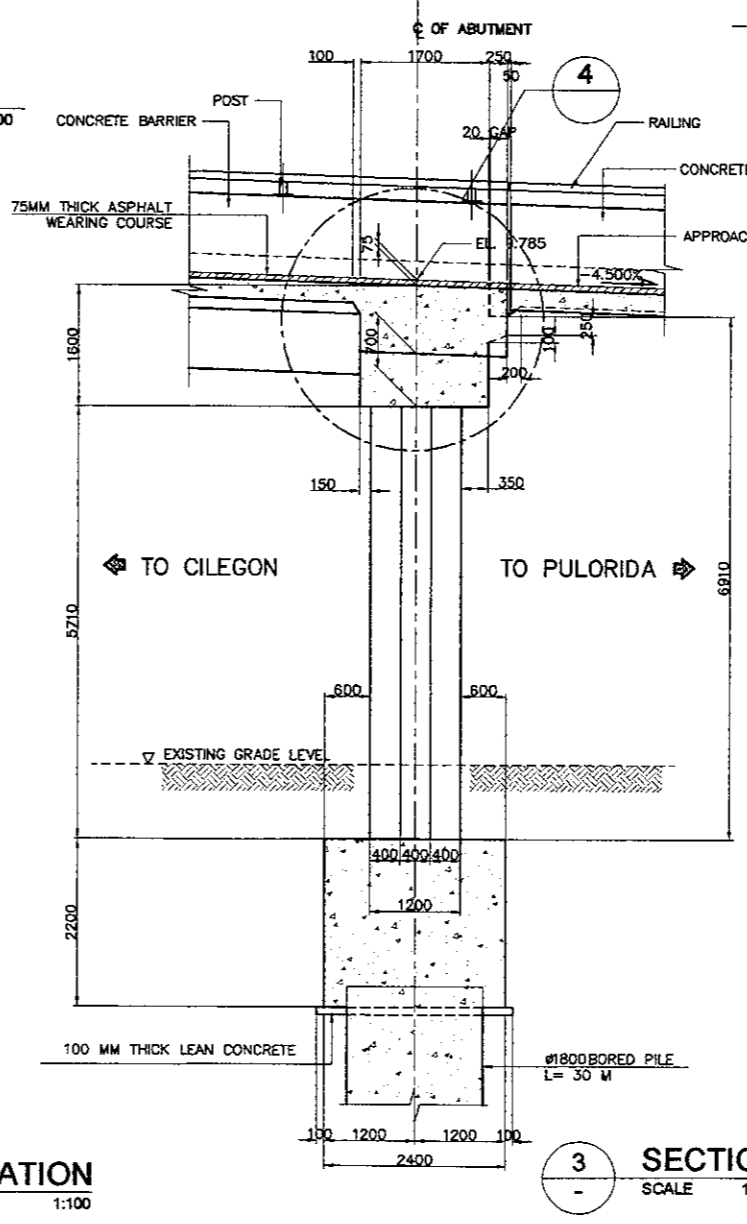
1 PLAN
 SCALE 1:100



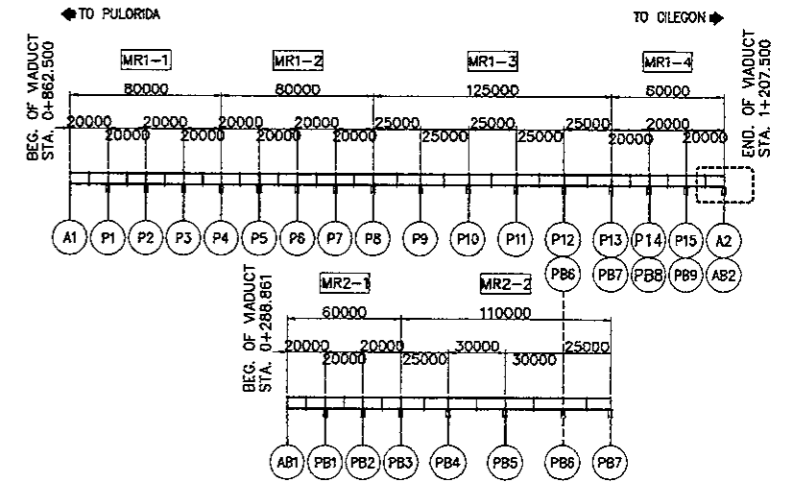
4 DETAIL
 SCALE 1:40



2 ELEVATION
 SCALE 1:100

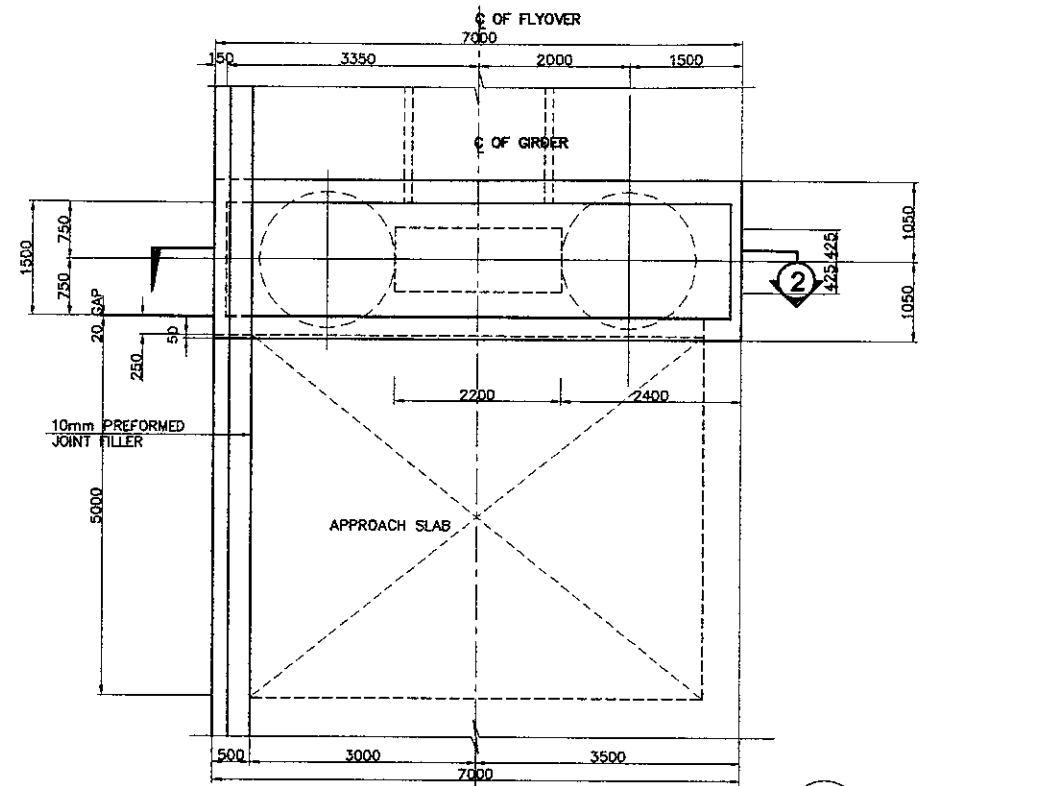


3 SECTION
 SCALE 1:100

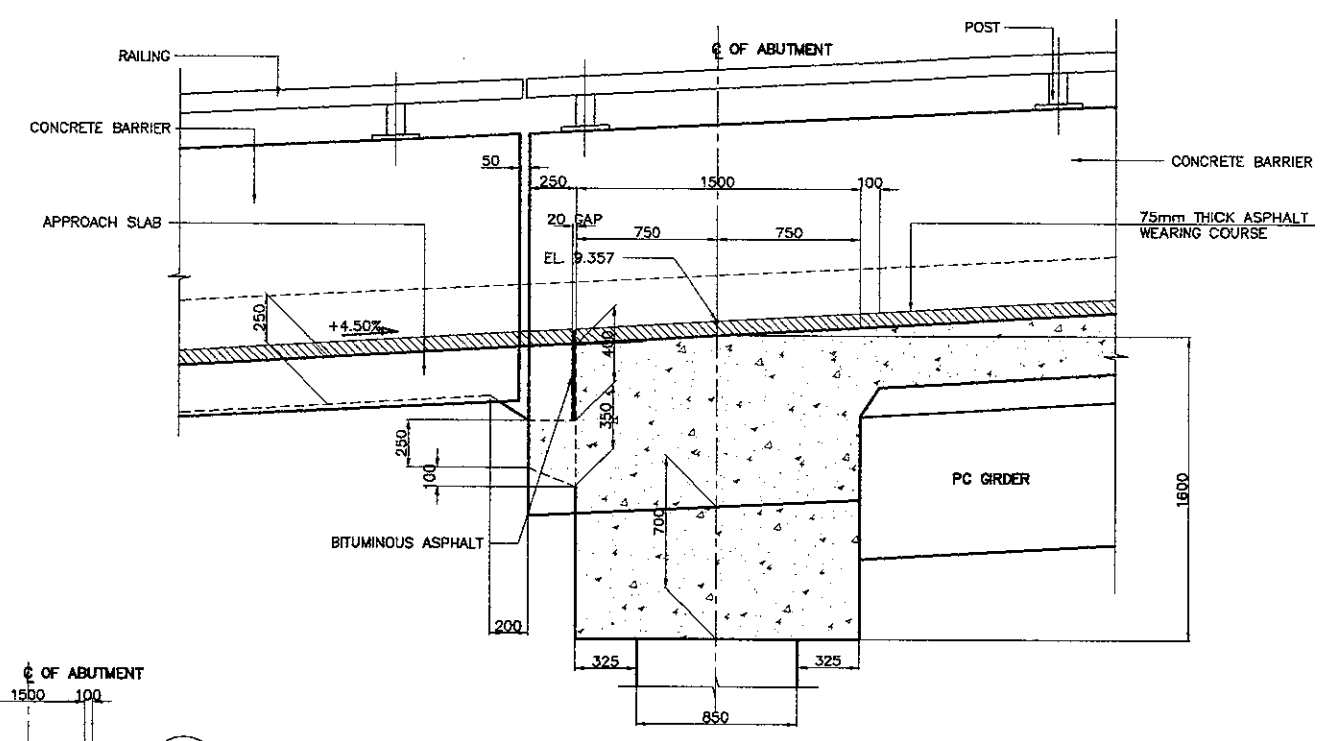


KEY PLAN
 SCALE 1:4000

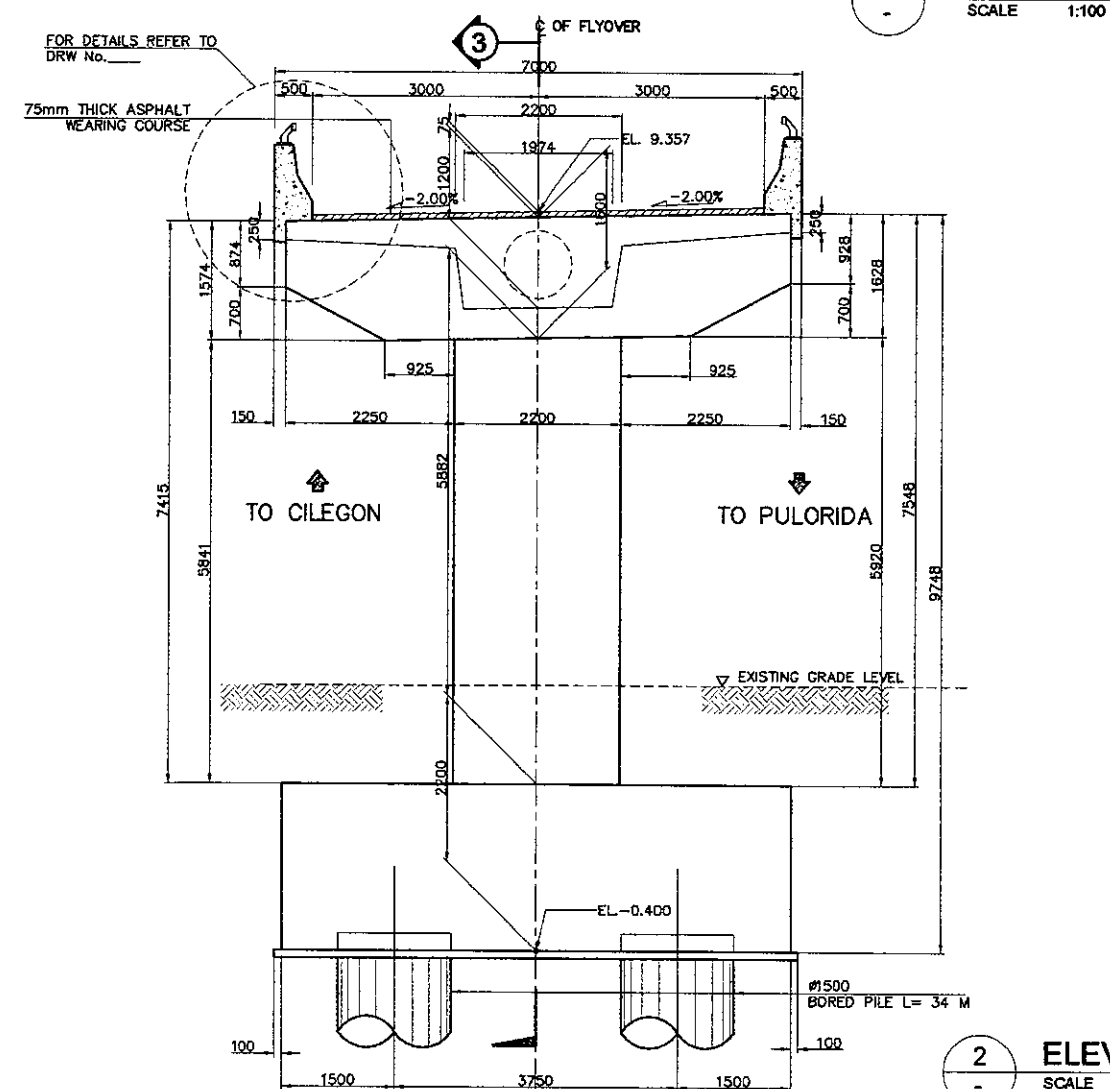
NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS



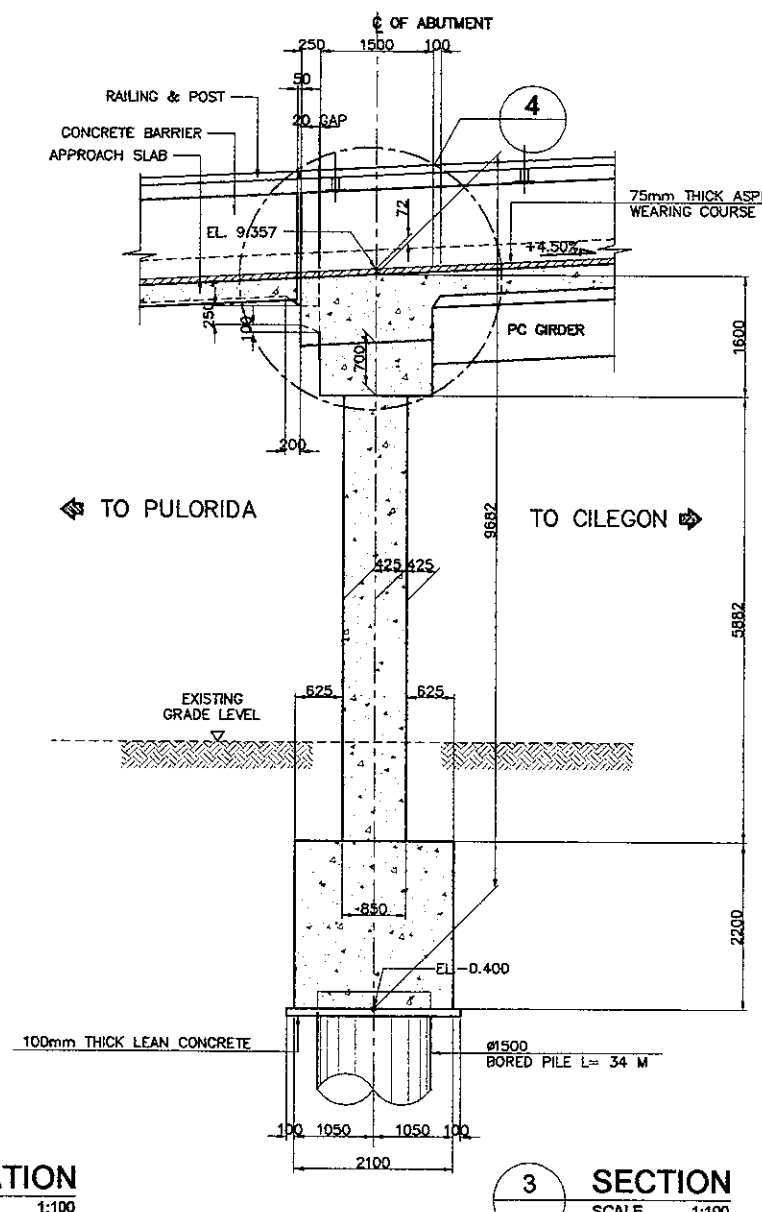
1 PLAN
 SCALE 1:100



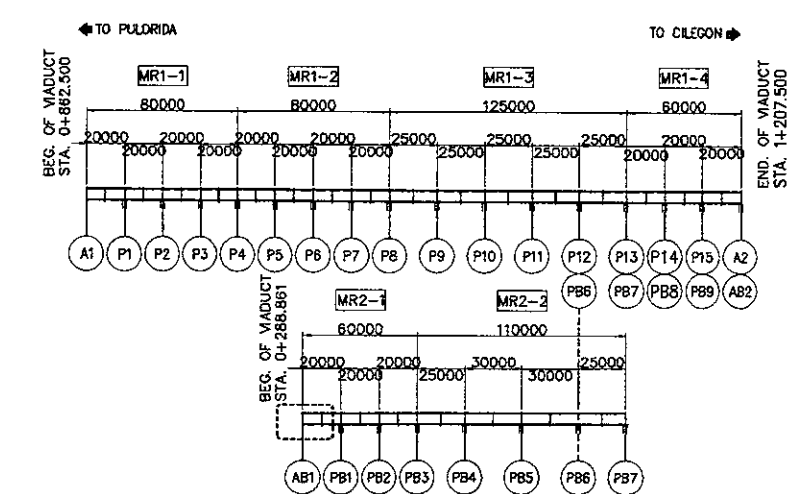
4 DETAIL
 SCALE 1:40



2 ELEVATION
 SCALE 1:100



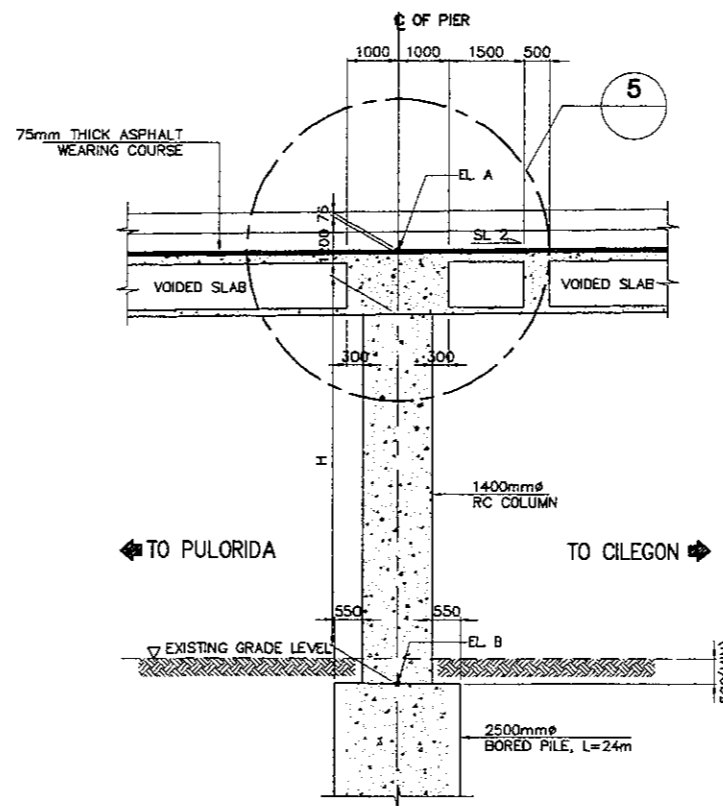
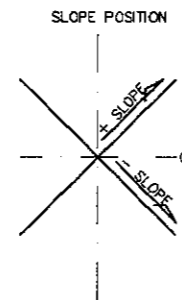
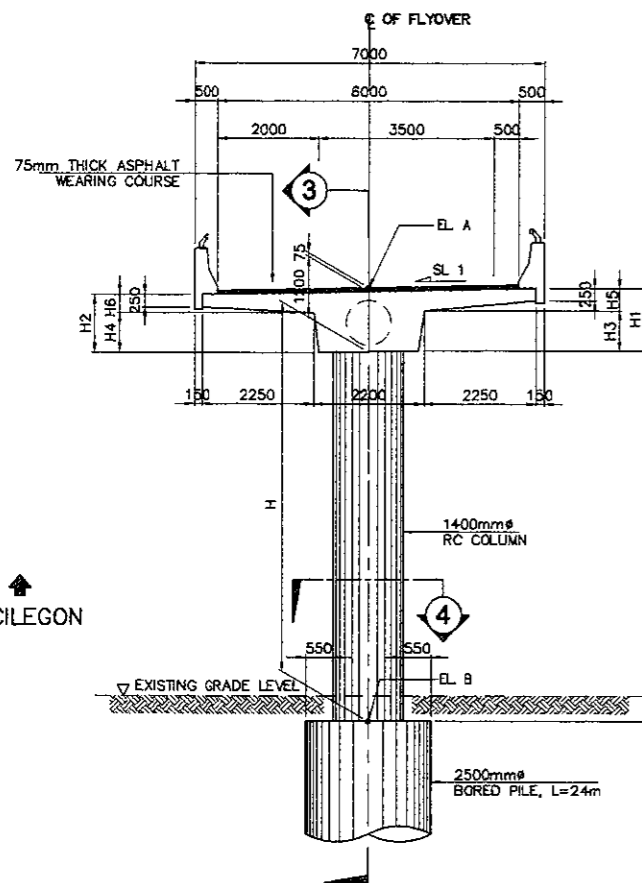
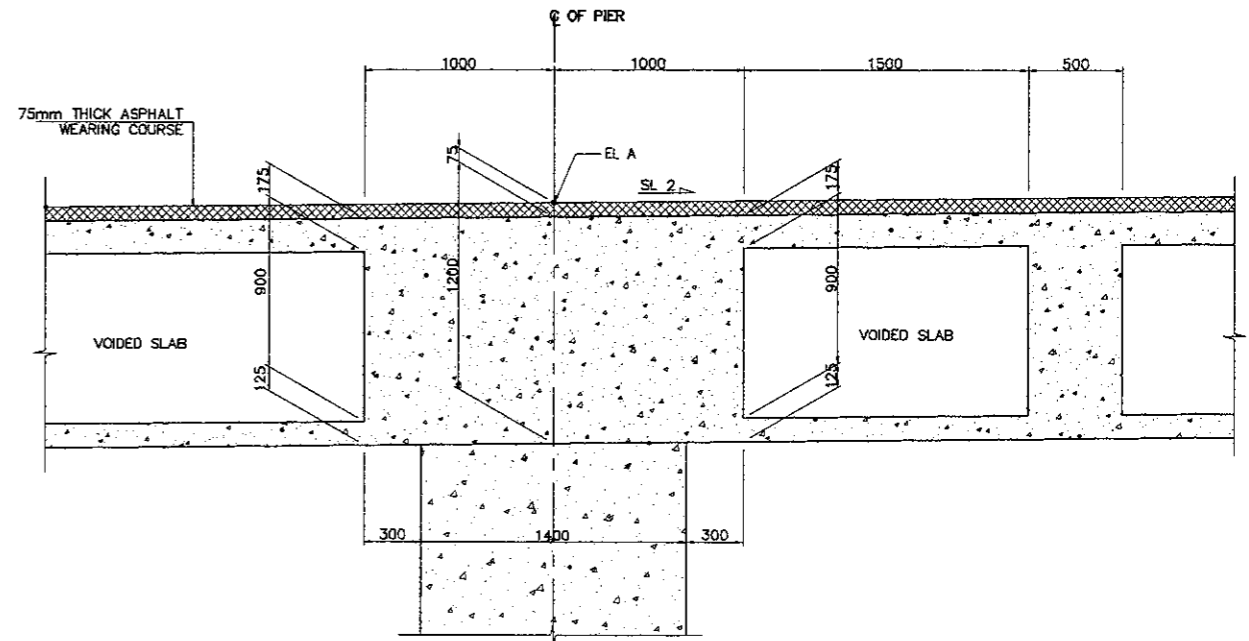
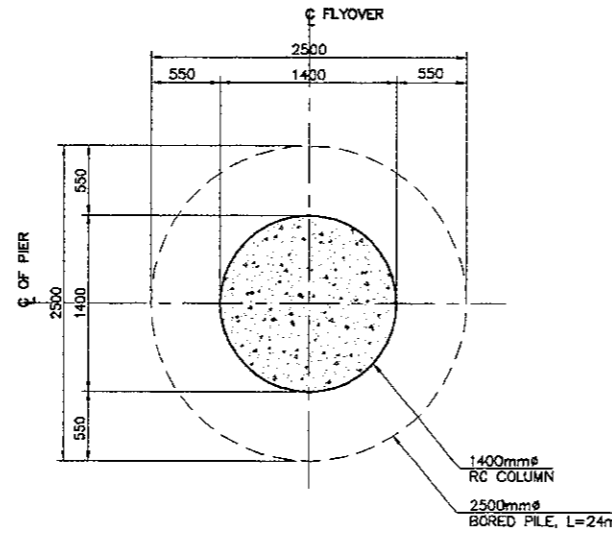
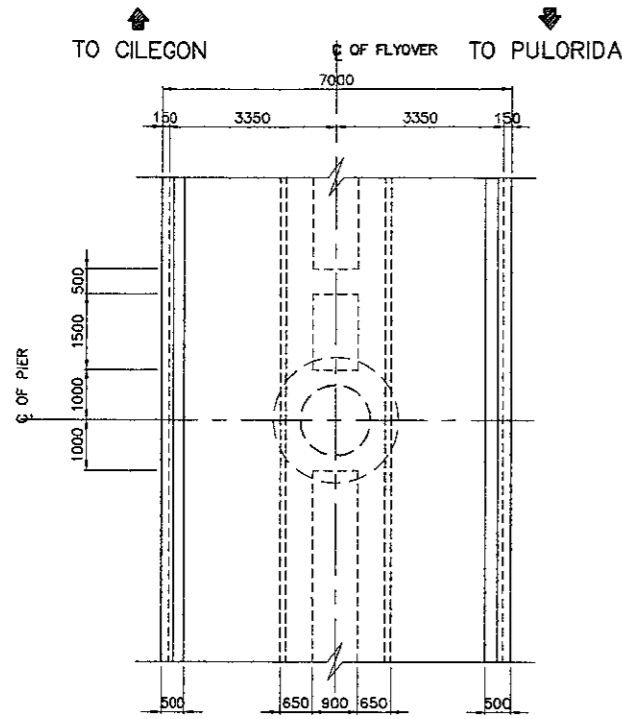
3 SECTION
 SCALE 1:100



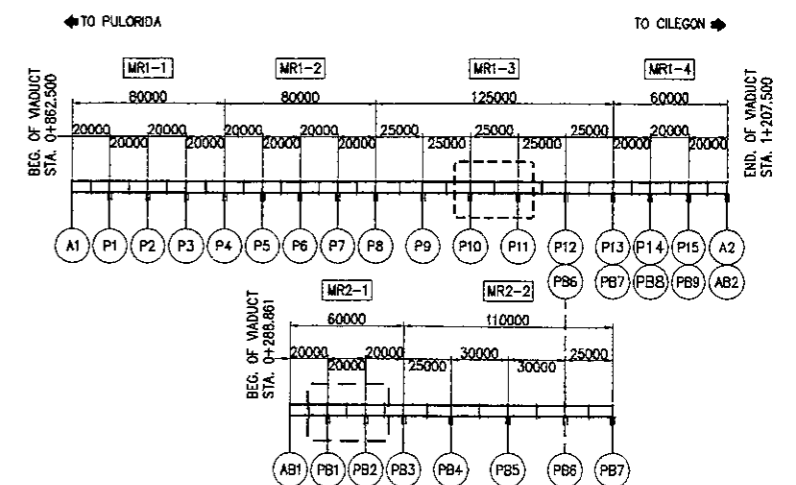
KEY PLAN
 SCALE 1:4000

NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS AREA IN METERS

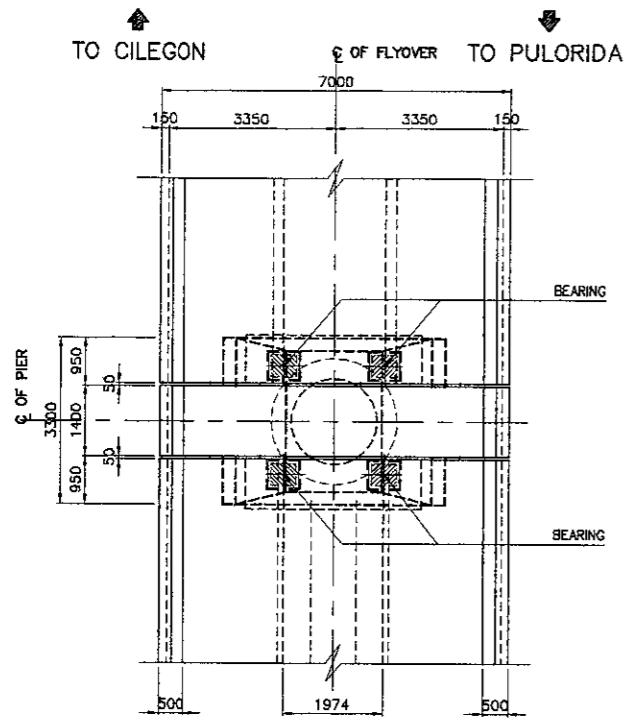
SCHEDULE OF PIERS (FIXED)											
PIER	EL A	EL B	SL 1	SL 2	H	H1	H2	H3	H4	H5	H6
PB1	10.257	1.300	+2.000%	+4.500%	7682	1247	1153	802	798	445	355
PB2	11.157	1.300	+2.000%	+4.500%	8582	1247	1153	802	798	445	355



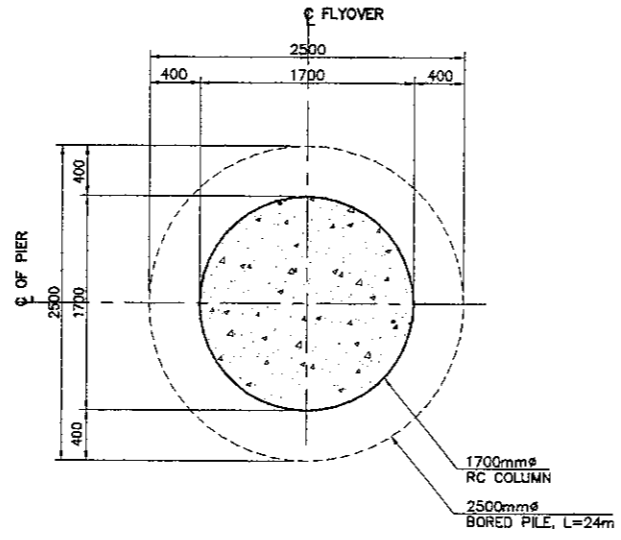
- NOTES :
- ALL DIMENSIONS ARE IN MILLIMETER
 - ELEVATIONS ARE IN METERS



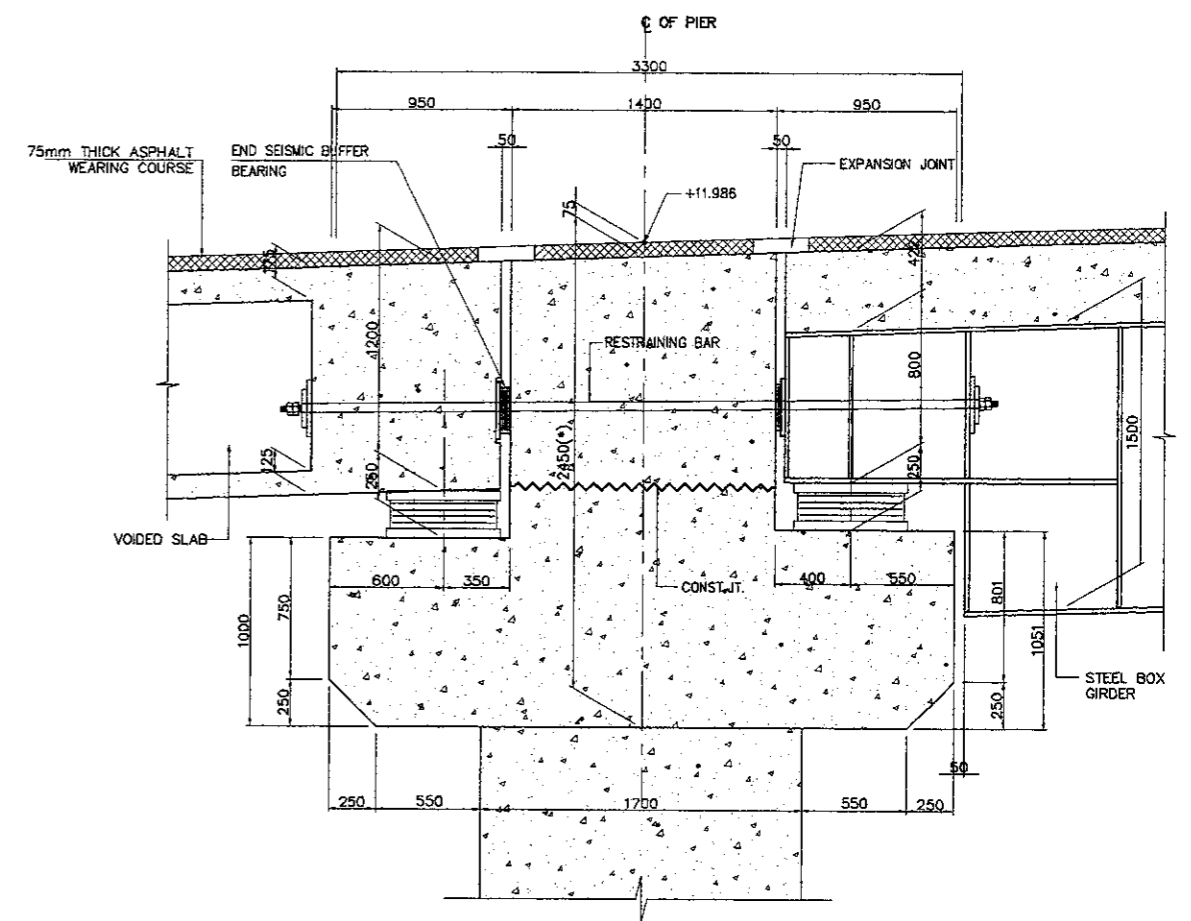
KEY PLAN
SCALE: 1:4000



2 PLAN
 SCALE : 1:150



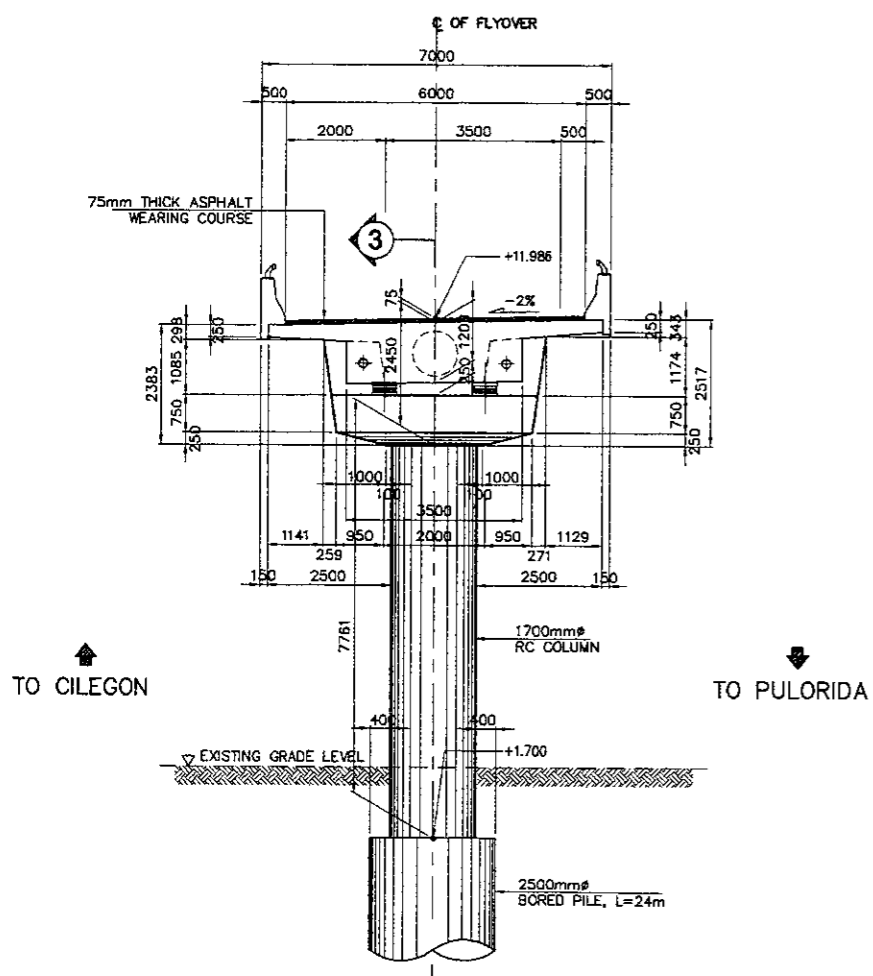
4 SECTION
 SCALE : 1:60



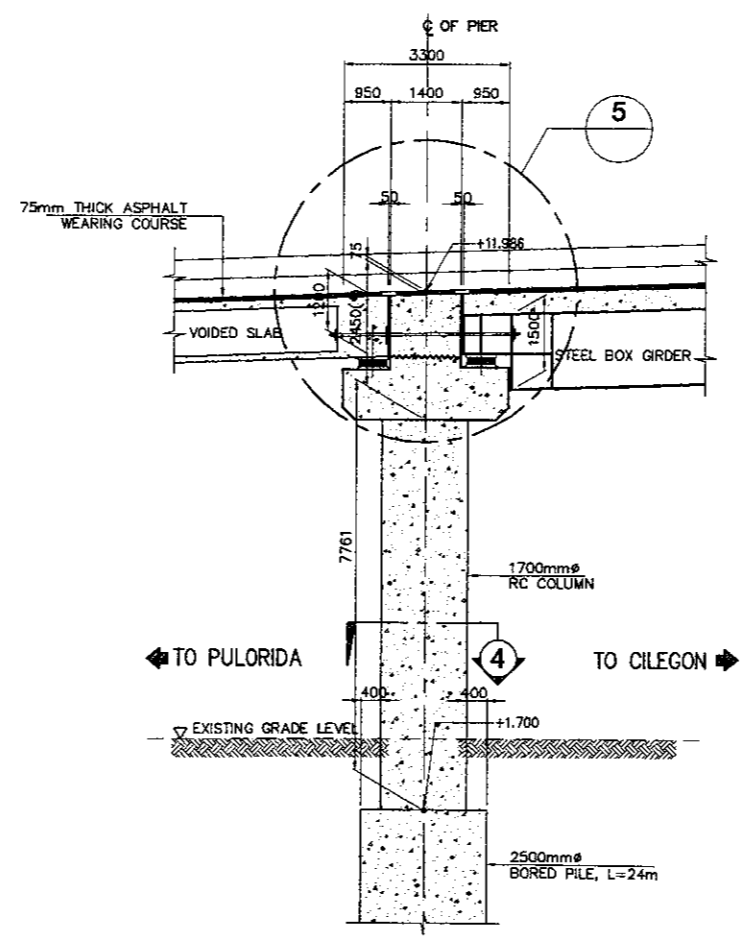
5 DETAIL
 SCALE : 1:40

(*) NOTES :
 1. DIMENSION GIVEN AT ? ALIGNMENT OF FLYOVER
 2. DIMENSION VARIES AT CROSS DECK

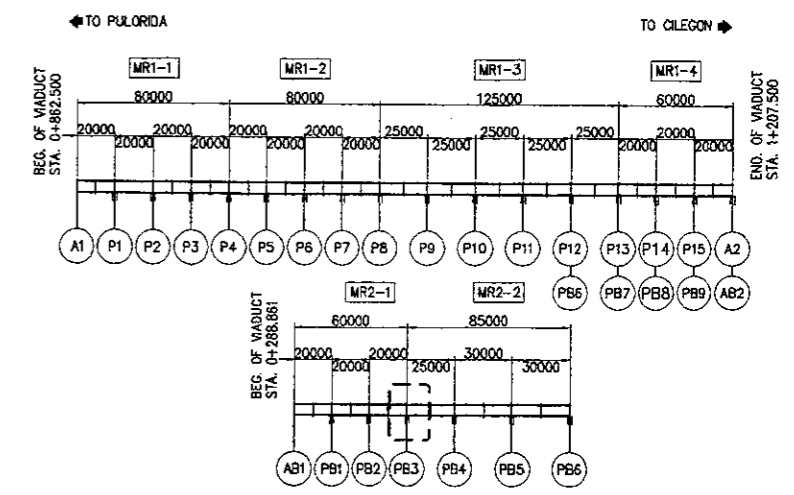
NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS



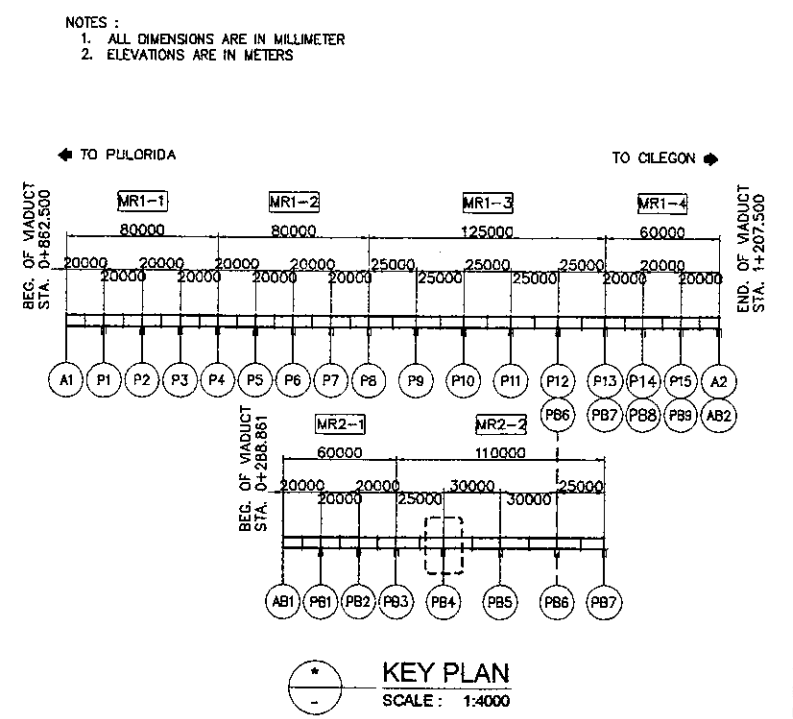
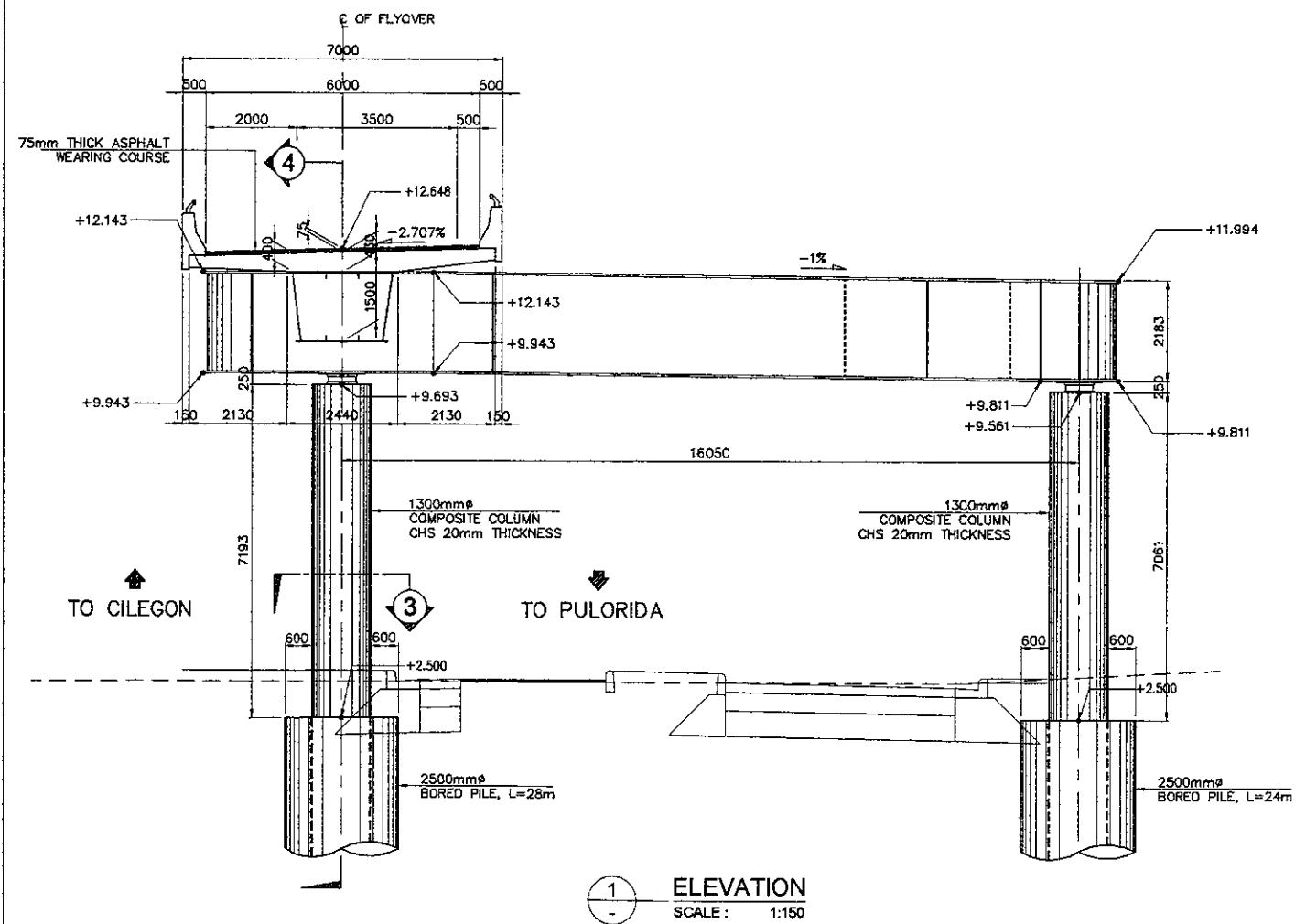
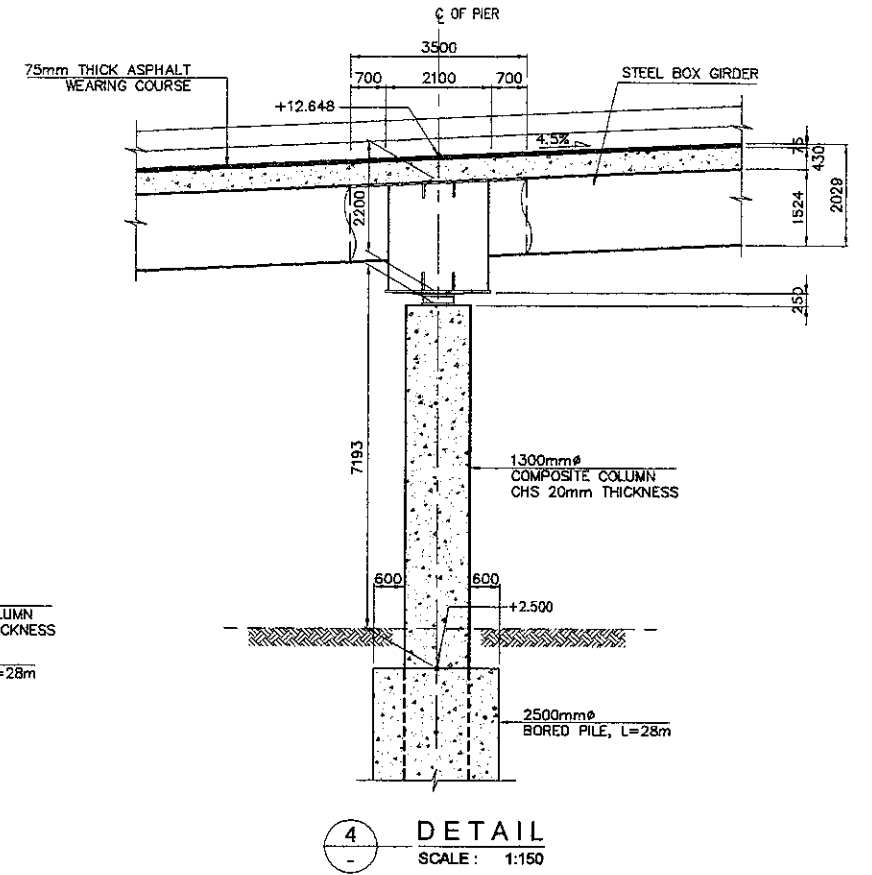
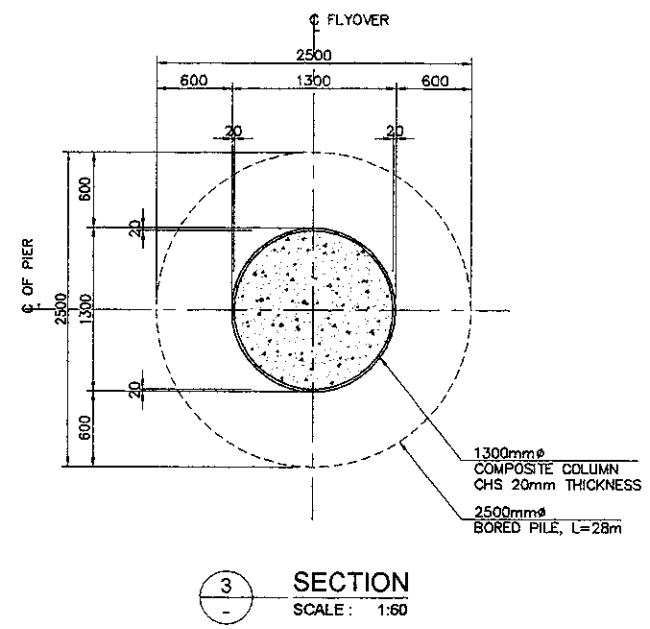
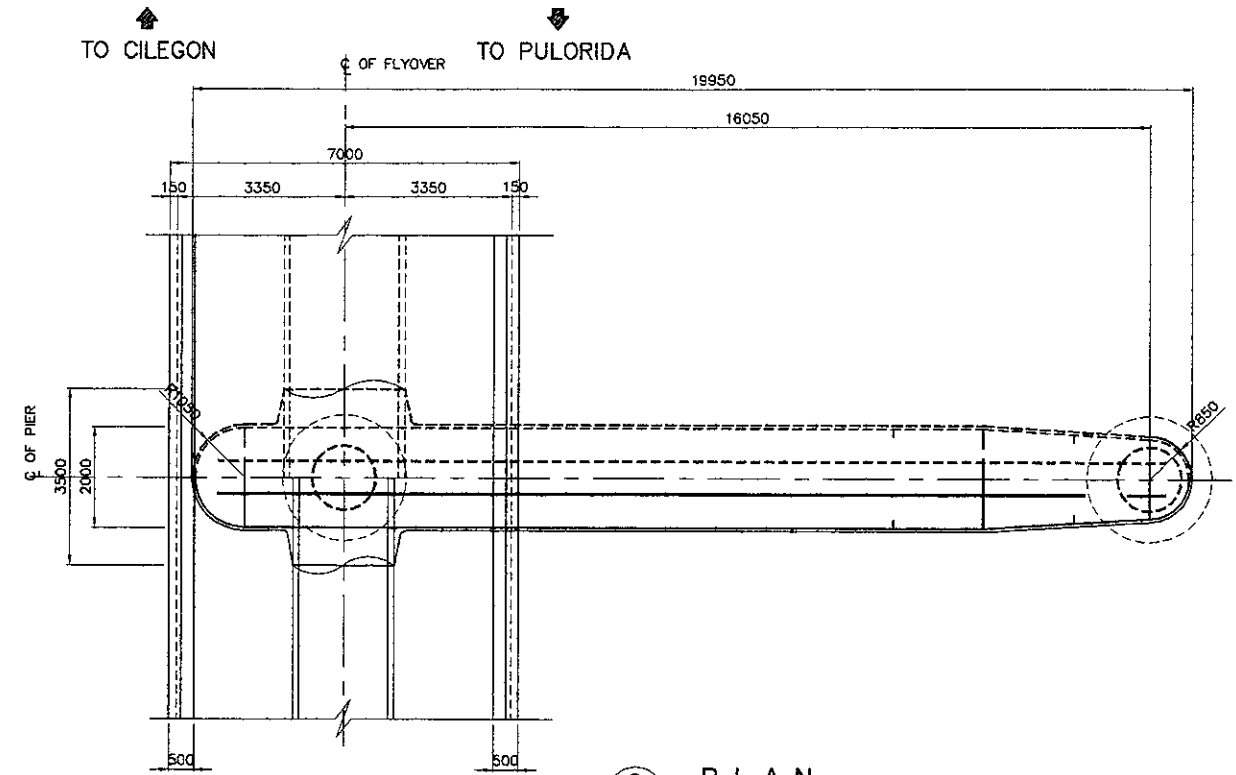
1 ELEVATION
 SCALE : 1:150

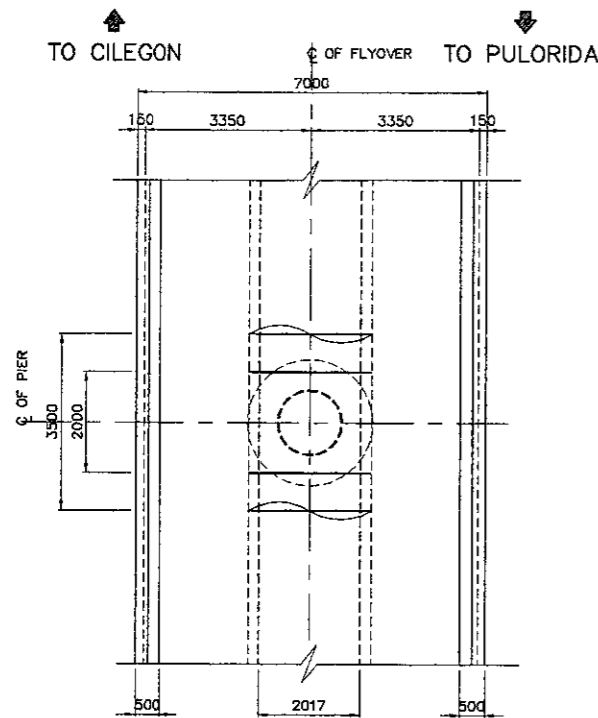


3 SECTION
 SCALE : 1:150

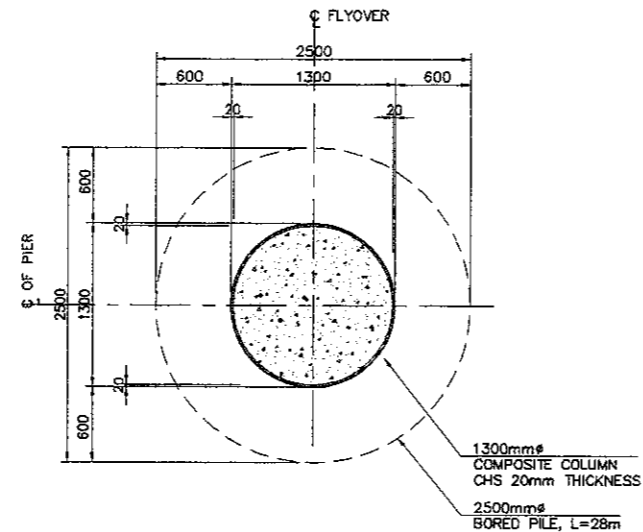


6 KEY PLAN
 SCALE : 1:4000

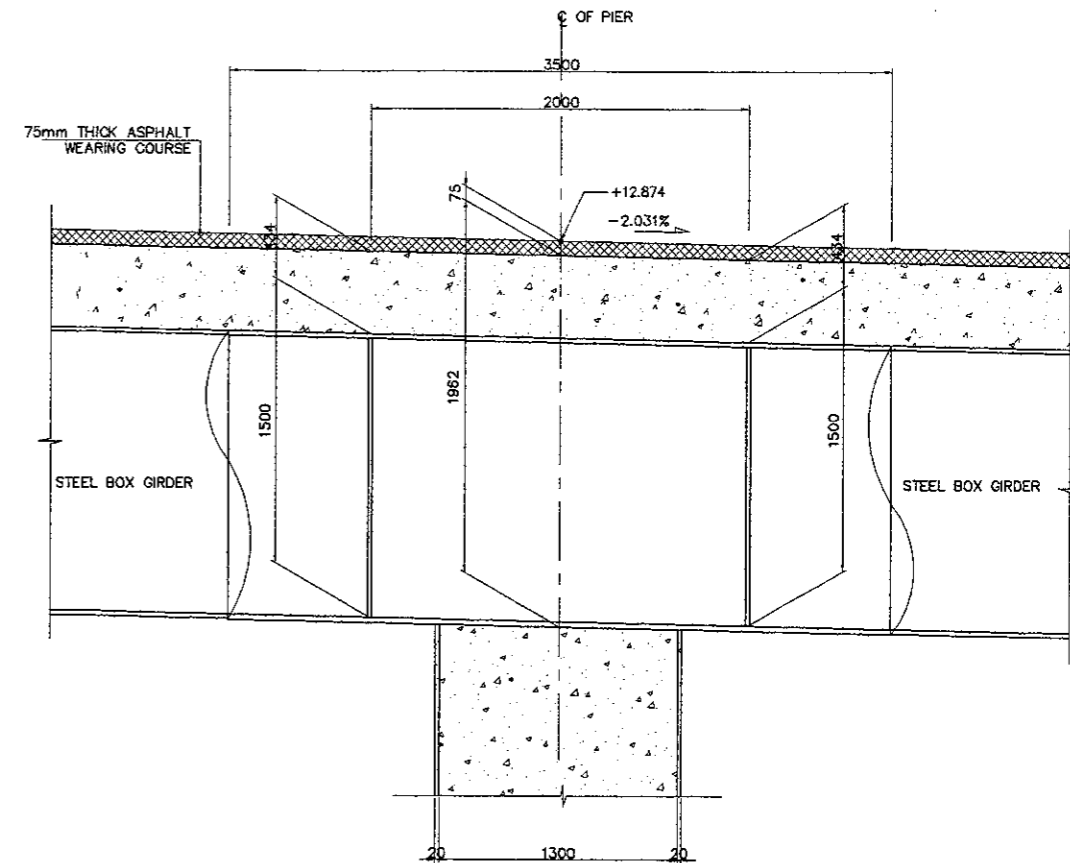




2 PLAN
 SCALE : 1:150

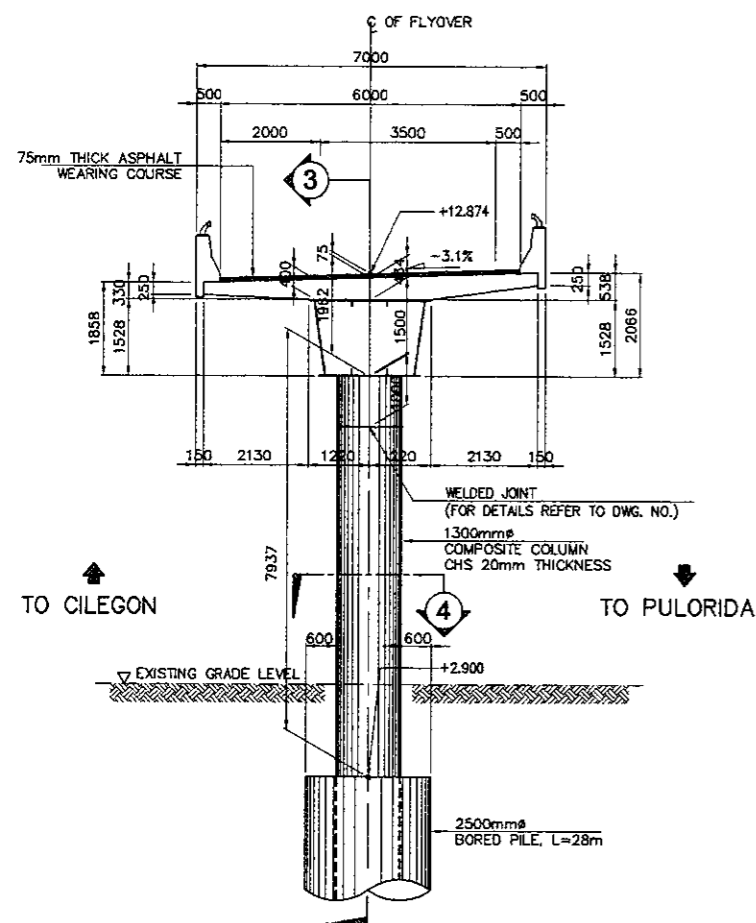


4 SECTION
 SCALE : 1:60

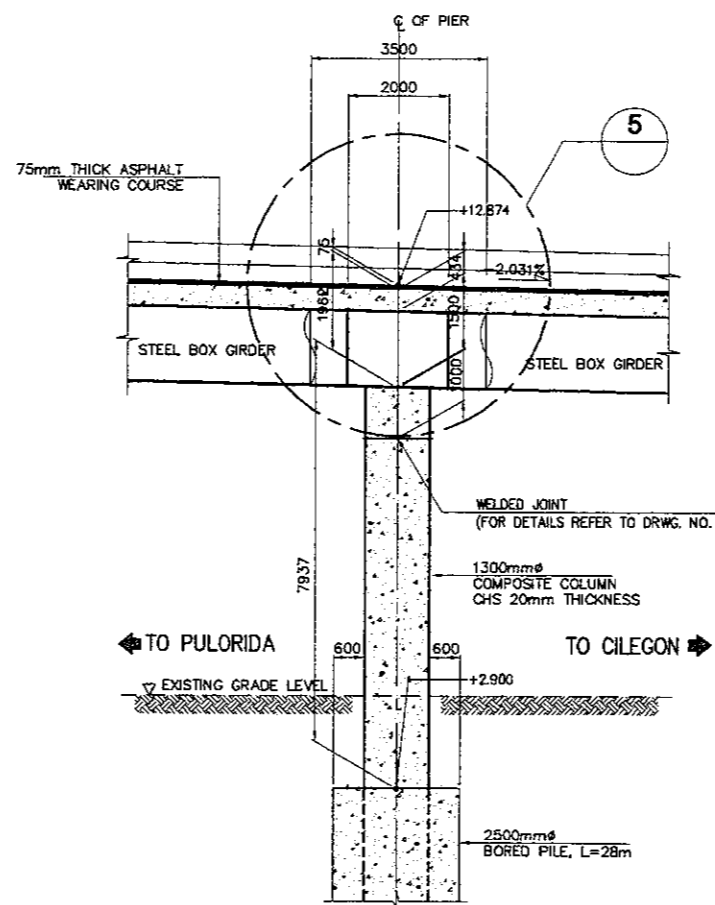


5 DETAIL
 SCALE : 1:40

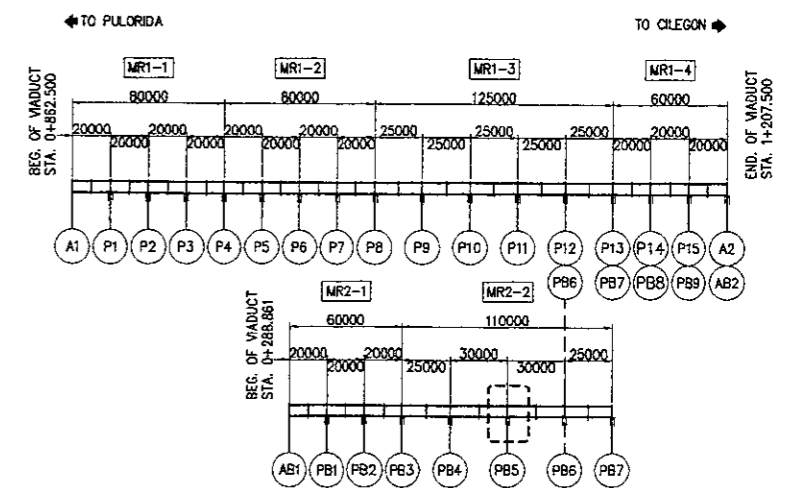
NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS



1 ELEVATION
 SCALE : 1:150



3 SECTION
 SCALE : 1:150



KEY PLAN
 SCALE : 1:4000