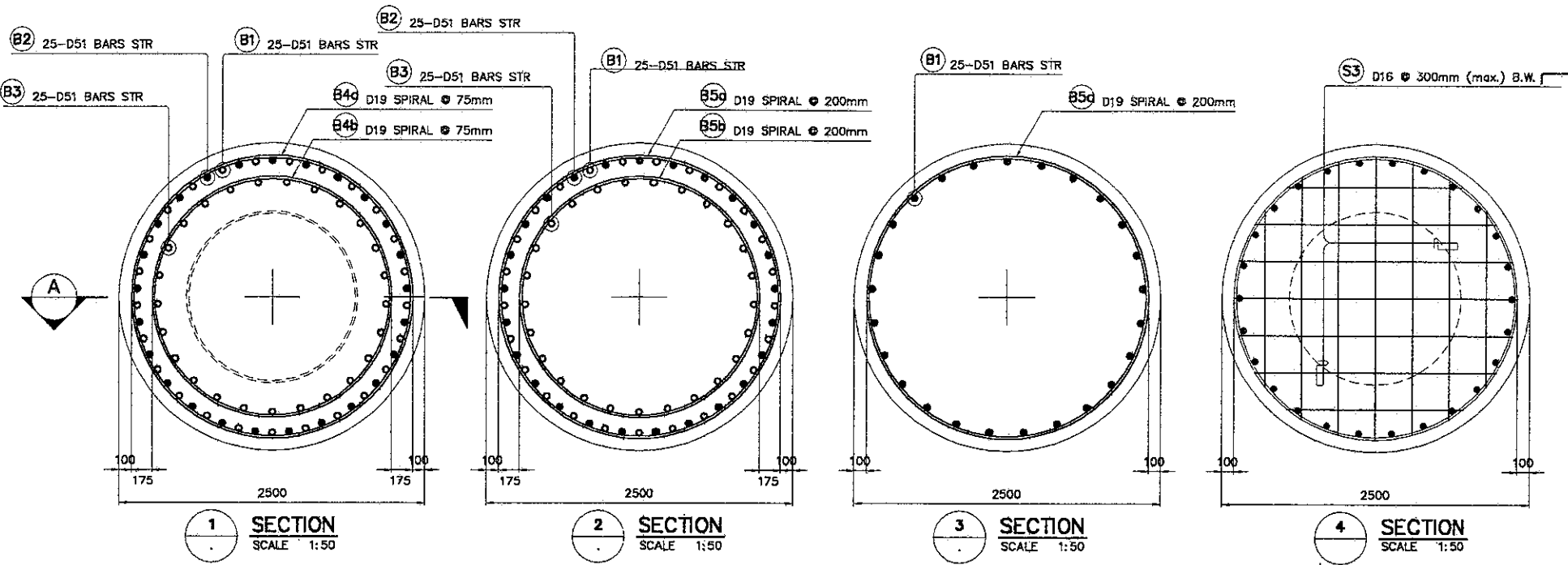


A SECTION
 SCALE 1:100

B LAYOUT OF STIFFENER/SPACER
 SCALE 1:100

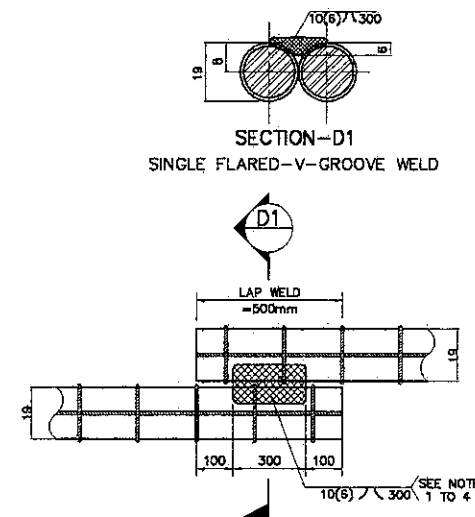


1 SECTION
 SCALE 1:50

2 SECTION
 SCALE 1:50

3 SECTION
 SCALE 1:50

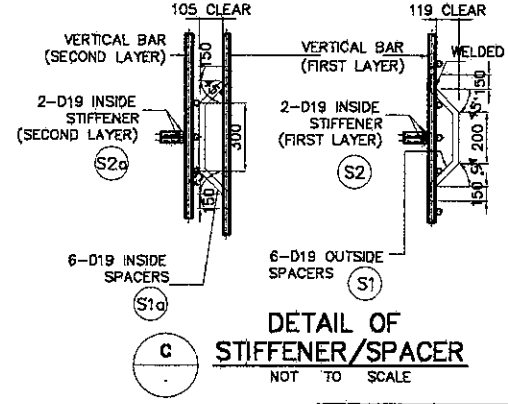
4 SECTION
 SCALE 1:50



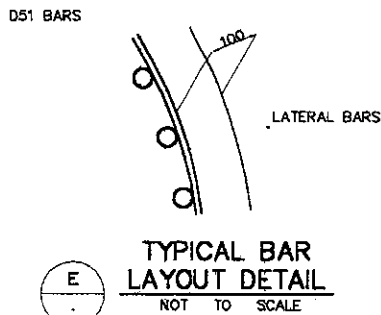
SECTION-D1
 SINGLE FLARED-V-GROOVE WELD

D1
 LAP WELD = 500mm

D
 DIRECT LAP JOINT WITH BARS IN CONTACT
DETAIL OF SPIRAL REINF. FULL LAP-WELD CONNECTION
 NOT TO SCALE



DETAIL OF STIFFENER/SPACER
 NOT TO SCALE

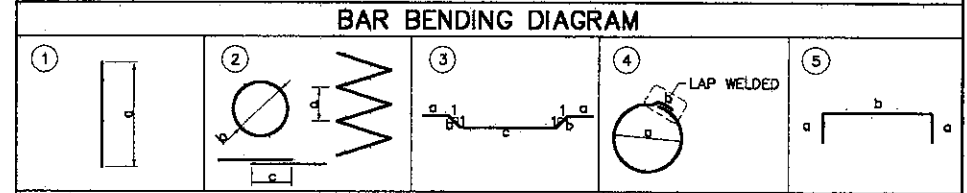


E TYPICAL BAR LAYOUT DETAIL
 NOT TO SCALE

BORED PILE TYPE		BP-PF5
SIZE (mm)		D2500
MAIN BARS	SIZE (mm)	51
	NO. OF LAYERS	2.0
	NO. OF PCS. (1)	50
	NO. OF PCS. (2)	25
SPIRAL	SIZE (mm)	19
	NO. / SET	

LOCATION	DIMENSION						n1	n2	
	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)		S1	S1a
P5	40000	32400	39750	38000	1900	750	162	19	9

- NOTES ON LAP-WELD CONNECTION :**
- SPIRAL REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE)
 - WELDING SHOULD CONFORM TO AWS (D1.4) *STRUCTURAL WELDING CODE REINFORCED STEEL*
 - USE ELECTRODE E90XX.
 - CARE SHOULD BE TAKEN NOT TO DAMAGE THE COLUMN MAIN BARS DURING WELDING.
- NOTES :**
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - BORED PILE MAIN BARS ARE PROVIDED WITHOUT ANY SPLICE. HOWEVER SPLICING OF MAIN BARS BY MECHANICAL COUPLERS ARE ALLOWED WITH PERMISSION FROM THE STRUCTURAL ENGINEER.
 - COMPOSITE COLUMN SOCKET TYPE CONNECTION SEE DWG. NO. PSB-035
 - CONCRETE : $F_c' = 30MPa$
 - REINFORCING STEEL =
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

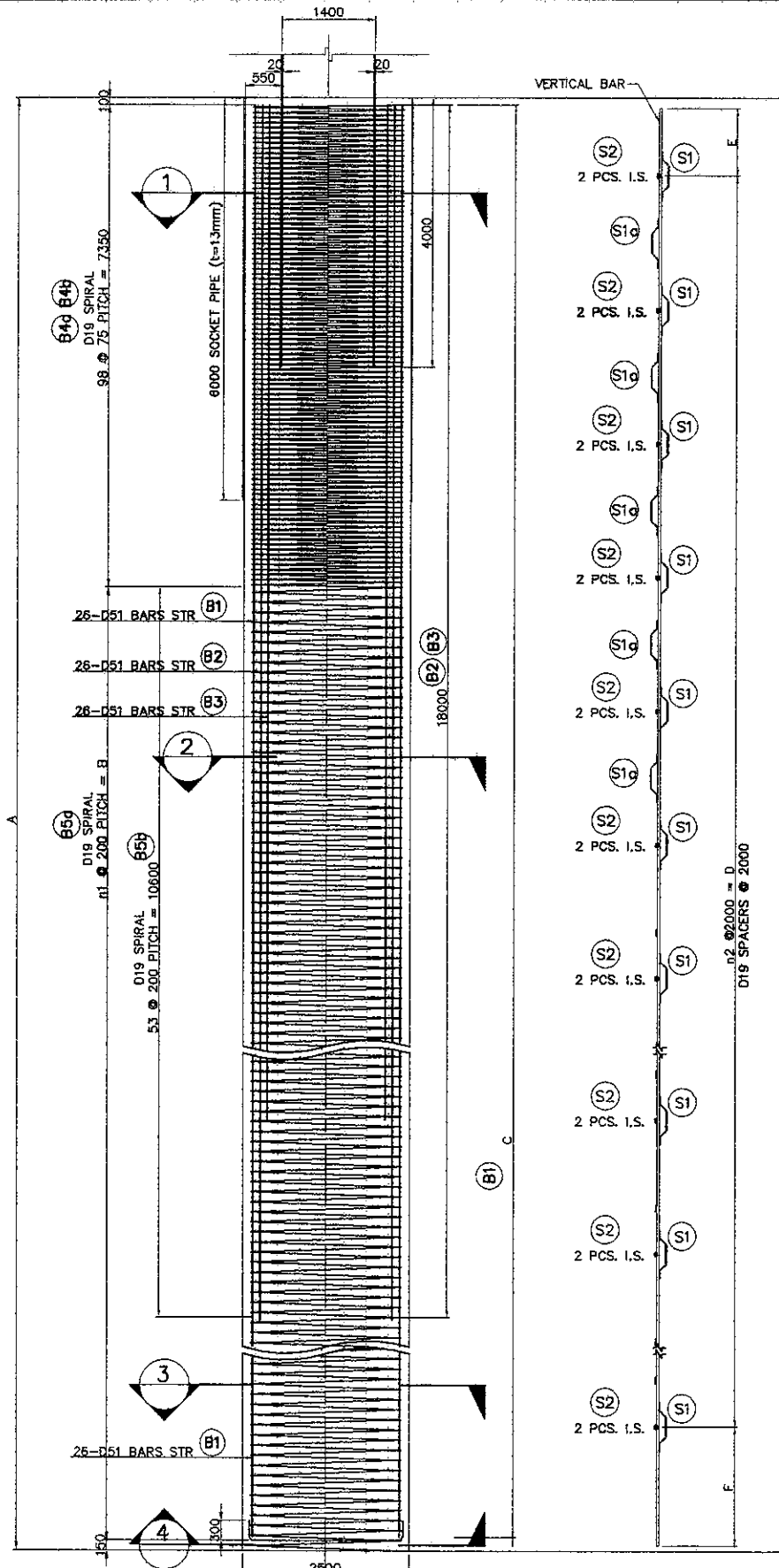


BAR BENDING DIAGRAM

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)
				a	b	c	d	e	f				
PIER P5, DIA = 2500 mm L = 40000 mm	B1	51	1	39750						39750	25	15.90	15601
	B2	51	1	18000						18000	25	15.90	7155
	B3	51	1	18000						18000	25	15.90	7155
	B4a	19	2	75	2300	500				737756	1	2.23	1645
	B4b	19	2	75	1950	500				625554	1	2.23	1395
	B5a	19	2	200	2300	500				1218964	1	2.23	2718
	B5b	19	2	200	1950	500				340050	1	2.23	758
	S1	19	3	150	170	250				890	120	2.23	238
	S1a	19	3	150	150	350				950	54	2.23	114
	S2	19	4	2160	170					6952	40	2.23	620
	S2a	19	4	1810	170					5853	18	2.23	235
	S3	16	5	150	1885					2165	14	1.58	48
	TOTAL WEIGHT FOR / PILE = 37,883 Kgs.												
	TOTAL VOLUME CONCRETE = 196.35 m ³												

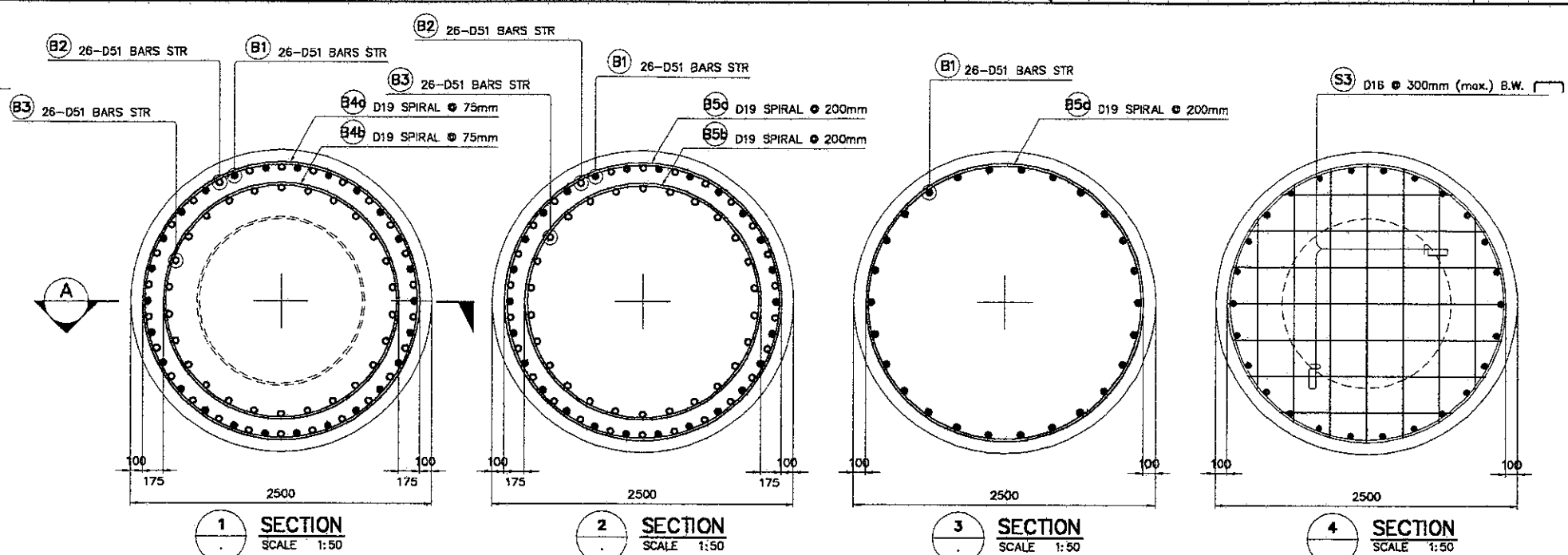
THE SCHEDULE OF REINFORCEMENT SHOWN ON THE BAR BENDING DIAGRAM TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

BORED PILE REINF. DETAILS (PIER P5)
 SCALE AS SHOWN



A SECTION
 SCALE 1:100

B LAYOUT OF STIFFENER/SPACER
 SCALE 1:100

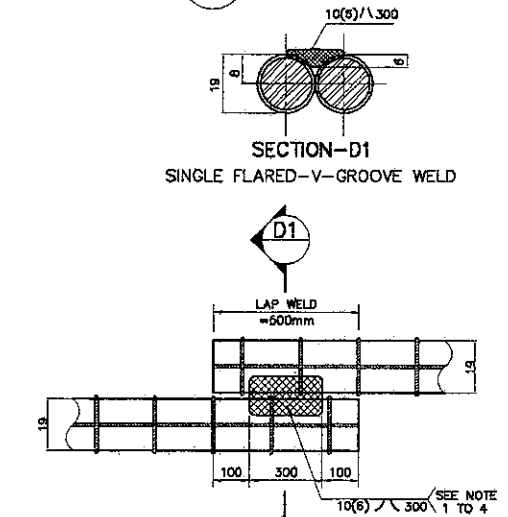


1 SECTION
 SCALE 1:50

2 SECTION
 SCALE 1:50

3 SECTION
 SCALE 1:50

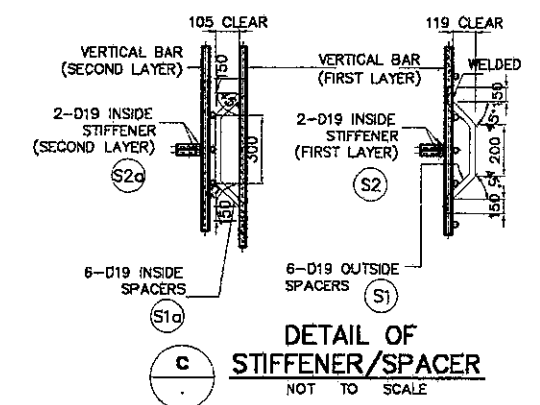
4 SECTION
 SCALE 1:50



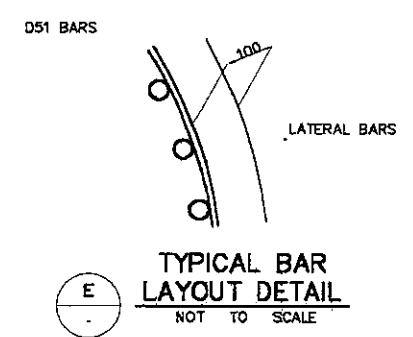
D1
 SECTION-D1
 SINGLE FLARED-V-GROOVE WELD
 NOT TO SCALE



D
 DIRECT LAP JOINT WITH BARS IN CONTACT
 DETAIL OF SPIRAL REIN.
 FULL LAP-WELD CONNECTION
 NOT TO SCALE



C
 DETAIL OF STIFFENER/SPACER
 NOT TO SCALE

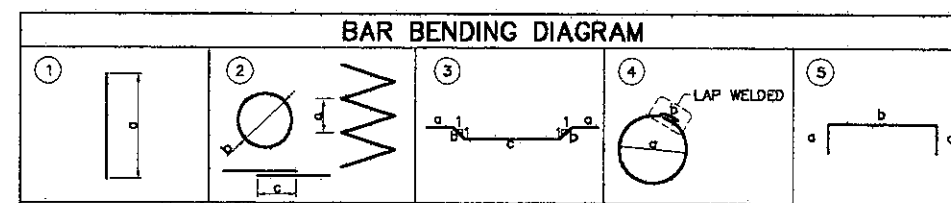


E
 TYPICAL BAR LAYOUT DETAIL
 NOT TO SCALE

BORED PILE TYPE		BP- PF6
SIZE (mm)		D2500
MAIN BARS	SIZE (mm)	51
	NO. OF LAYERS	2.0
	NO. OF PCS. (1)	52
	NO. OF PCS. (2)	26
SPIRAL	SIZE (mm)	19
	NO. / SET	

LOCATION	DIMENSION							n1		
	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	n1	S1	S1a	
P6	36000	28400	35750	34000	1000	750	142	17	7	

- NOTES ON LAP-WELD CONNECTION :**
- SPIRAL REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE)
 - WELDING SHOULD CONFORM TO AWS (D1.4)
 STRUCTURAL WELDING CODE REINFORCED STEEL
 - USE ELECTRODE E90XX.
 - CARE SHOULD BE TAKEN NOT TO DAMAGE THE COLUMN MAIN BARS DURING WELDING.
- NOTES :**
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - BORED PILE MAIN BARS ARE PROVIDED WITHOUT ANY SPLICE. HOWEVER SPLICING OF MAIN BARS BY MECHANICAL COUPLERS ARE ALLOWED WITH PERMISSION FROM THE STRUCTURAL ENGINEER.
 - COMPOSITE COLUMN SOCKET TYPE CONNECTION SEE DWG. NO. PSB-036
 - CONCRETE : $F_c = 30MPa$
 - REINFORCING STEEL=
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

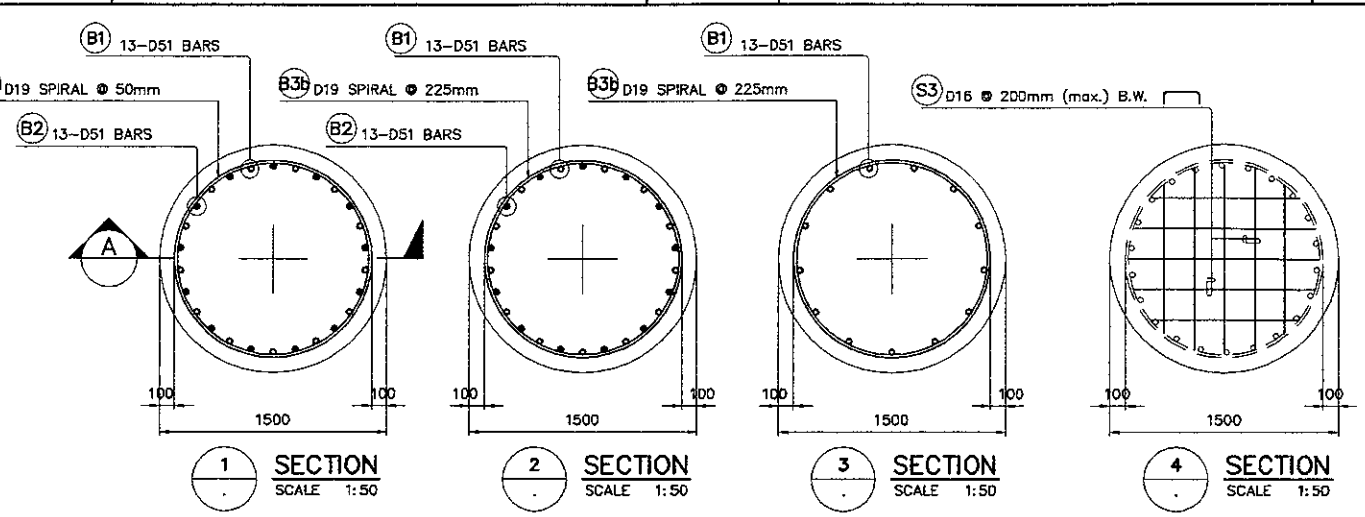
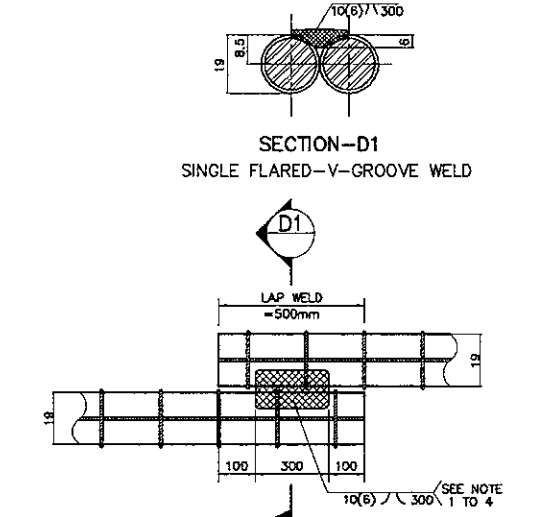
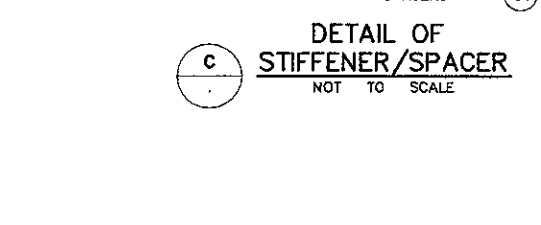
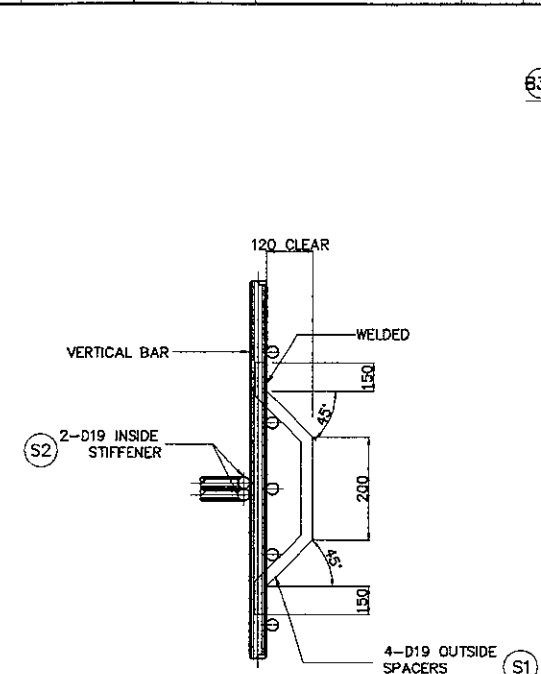
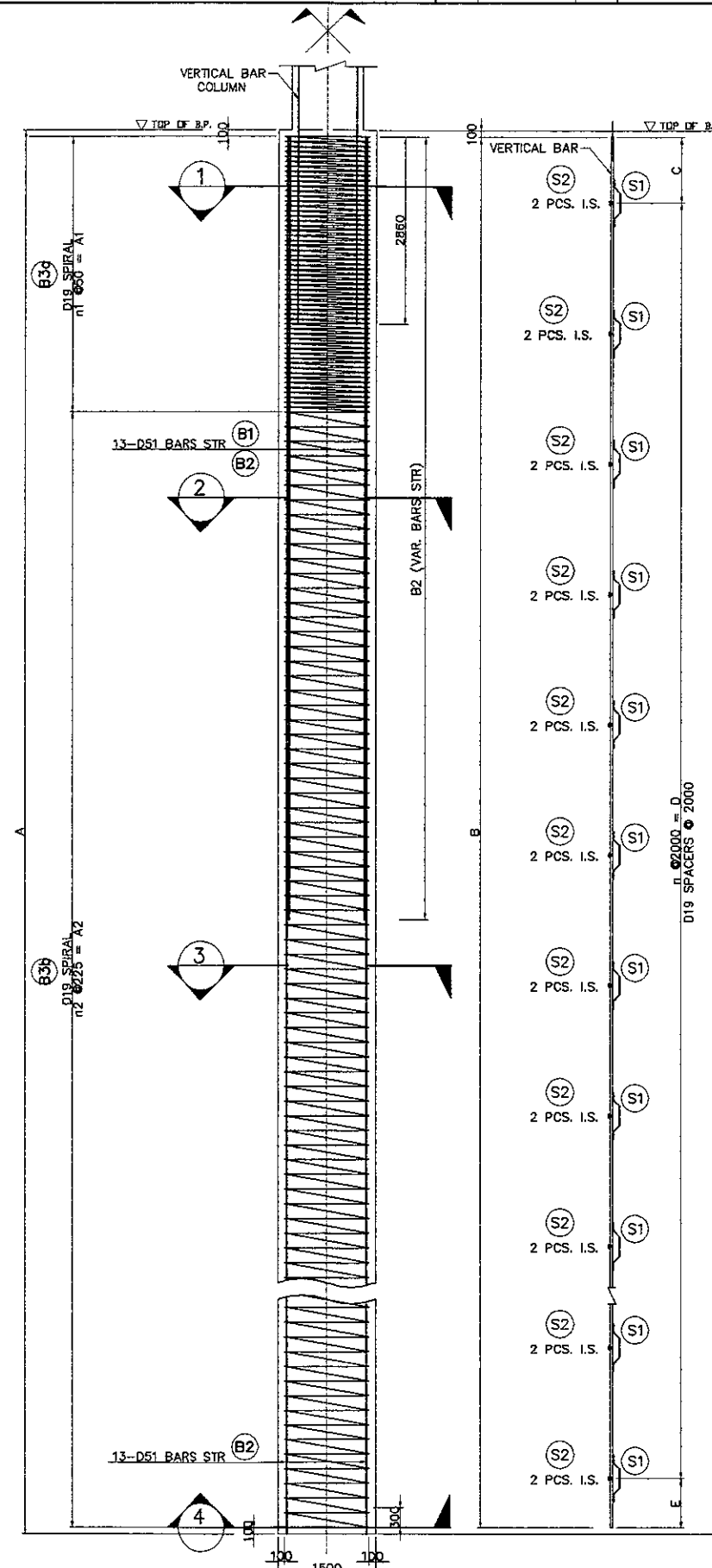


BAR BENDING DIAGRAM

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)
				a	b	c	d	e	f				
PIER P6, DIA = 2500 mm L = 36000 mm	B1	51	1	35750						35750	26	15.90	14779
	B2	51	1	18000						18000	26	15.90	7441
	B3	51	1	18000						18000	26	15.90	7441
	B4a	19	2	75	2300	500				737756	1	2.23	1645
	B4b	19	2	75	1950	500				625554	1	2.23	1395
	B5a	19	2	200	2300	500				1068524	1	2.23	2383
	B5b	19	2	200	1950	500				340050	1	2.23	758
	S1	19	3	150	170	250				890	108	2.23	214
	S1a	19	3	150	150	350				950	42	2.23	89
	S2	19	4	2160	170					6952	38	2.23	558
	S2a	19	4	1810	170					5853	14	2.23	183
	S3	16	5	150	1885					2185	14	1.58	48
	TOTAL WEIGHT FOR / PILE = 36,935 Kgs.												
	TOTAL VOLUME CONCRETE = 176.71 m ³												

THE SCHEDULE OF REINFORCEMENT SHOWN ON THE BAR BENDING DIAGRAM TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

BORED PILE REINF. DETAILS (PIER P6)
 SCALE AS SHOWN

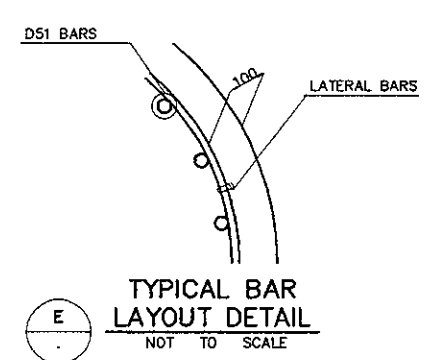


- NOTES ON LAP-WELD CONNECTION :
- SPIRAL REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE)
 - WELDING SHOULD CONFORM TO AWS (D1.4) "STRUCTURAL WELDING CODE REINFORCED STEEL"
 - USE ELECTRODE E80XX.
 - CARE SHOULD BE TAKEN NOT TO DAMAGE THE COLUMN MAIN BARS DURING WELDING.

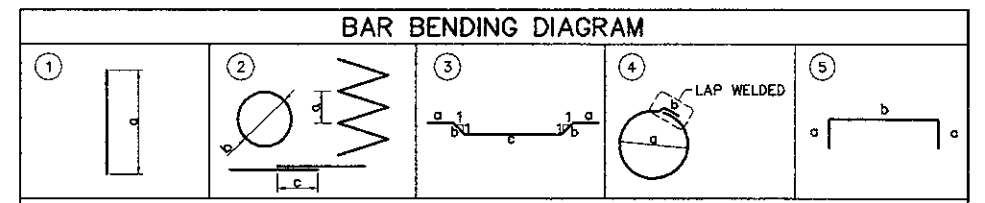
DIMENSION						
LOCATION	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	n
P9	24000	23775	1000	22000	775	11
P10	22000	21750	1000	20000	750	10

- NOTES :
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - BORED PILE MAIN BARS ARE PROVIDED WITHOUT ANY SPLICE. HOWEVER SPLICING OF MAIN BARS BY MECHANICAL COUPLERS ARE ALLOWED WITH PERMISSION FROM THE STRUCTURAL ENGINEER.
 - CONCRETE : $F_c' = 30\text{MPa}$
 - REINFORCING STEEL-
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

DIMENSION				
LOCATION	A1 (mm)	A2 (mm)	n1	n2
P9	4200	19575	56	87
P10	4200	17550	56	78



BORED PILE TYPE	BP-PF4
SIZE (mm)	Ø1500
MAIN BARS	SIZE (mm) 32
	NO. OF LAYERS 1.0
	NO. OF PCS. 26
SPIRAL	SIZE (mm) 19
	NO. / SET



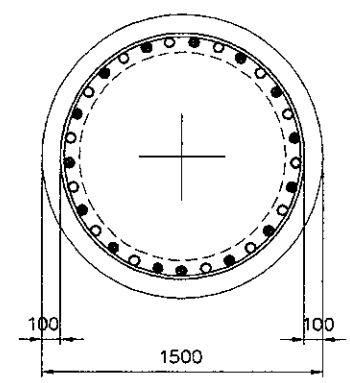
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQD.	UNIT WEIGHT (kg/m)	WEIGHT (kg)
				a	b	c	d	e	f				
PIER P9 DIA = 1500 mm L = 24000 mm	B1	51	1	23775						23775	13	15.90	4914
	B2	51	1	12000						12000	13	15.90	2480
	B3a	19	2	50	1300	500				238237	1	2.23	531
	B3b	19	2	225	1300	500				370119	1	2.23	825
	S1	19	3	150	170	250				890	48	2.23	95
	S2	19	4	1160	170					3814	24	2.23	204
	S3	16	5	150	1150				1450	10	1.58	23	
TOTAL WEIGHT FOR / PILE = 9,072 Kgs.											VOLUME CONCRETE = 42.41 M3		
PIER P10 DIA = 1500 mm L = 22000 mm	B1	51	1	21750						21750	13	15.90	4496
	B2	51	1	12000						12000	13	15.90	2480
	B3a	19	2	50	1300	500				238237	1	2.23	531
	B3b	19	2	225	1300	500				331831	1	2.23	740
	S1	19	3	150	170	250				890	44	2.23	87
	S2	19	4	1160	170					3814	22	2.23	187
	S3	16	5	150	1150				1450	10	1.58	23	
TOTAL WEIGHT FOR / PILE = 8,544 Kgs.											VOLUME CONCRETE = 38.88 M3		

THE SCHEDULE OF REINFORCEMENT SHOWN ON THE BAR BENDING DIAGRAM TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

BORED PILE REINFORCEMENT DETAILS (PIER P9 & P10)
 SCALE AS SHOWN

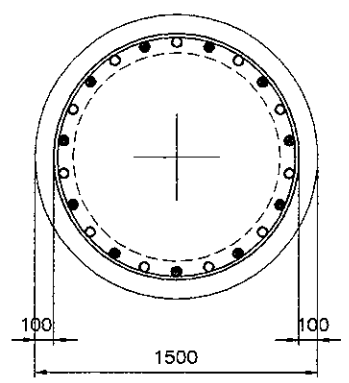
SCHEDULE OF BORED PILE

BP-PF1 PIER P1 & P11



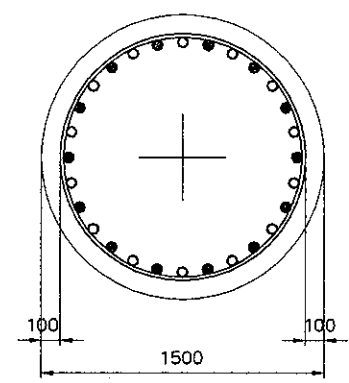
BORED PILE TYPE	BP-PF1
SIZE (mm)	1500
MAIN BARS	
SIZE (mm)	51
NO. LAYERS	1
NO. OF PCS.	29
SPIRAL	
SIZE (mm)	19
NO. / SET	

BP-PF2 PIER P2



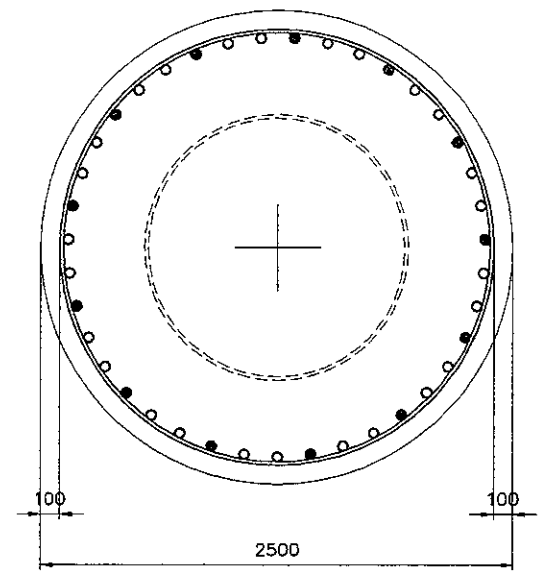
BORED PILE TYPE	BP-PF2
SIZE (mm)	1500
MAIN BARS	
SIZE (mm)	51
NO. LAYERS	1
NO. OF PCS.	22
SPIRAL	
SIZE (mm)	19
NO. / SET	

BP-PF3 PIER P3 & P8



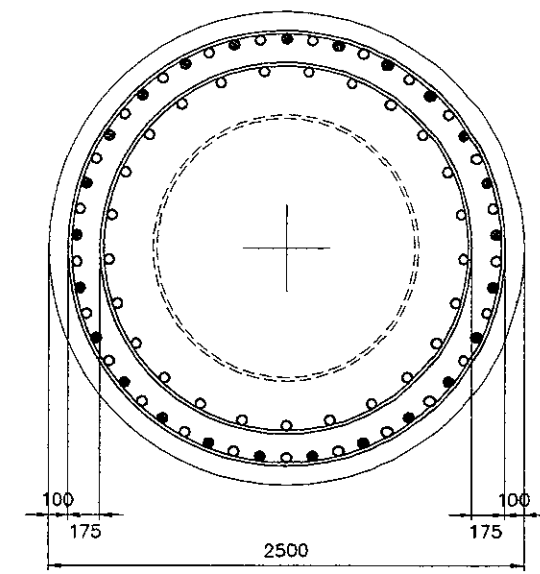
BORED PILE TYPE	BP-PF3
SIZE (mm)	1500
MAIN BARS	
SIZE (mm)	51
NO. LAYERS	1
NO. OF PCS.	28
SPIRAL	
SIZE (mm)	19
NO. / SET	

BP-PF4 PIER P4 & P7



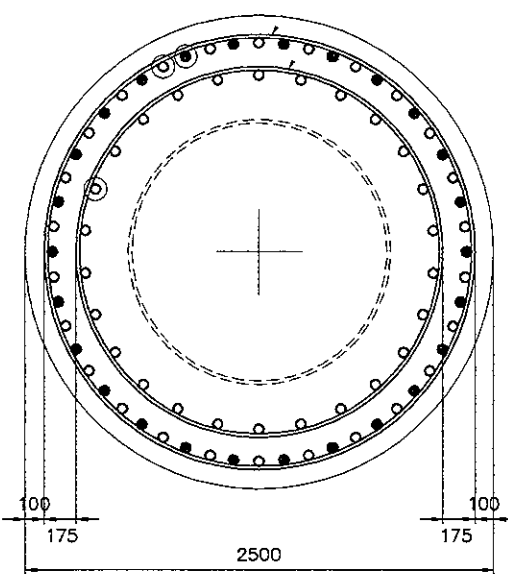
BORED PILE TYPE	BP-PF4
SIZE (mm)	2500
MAIN BARS	
SIZE (mm)	51
NO. LAYERS	1
NO. OF PCS.	39
SPIRAL	
SIZE (mm)	19
NO. / SET	

BP-PF5 PIER P5



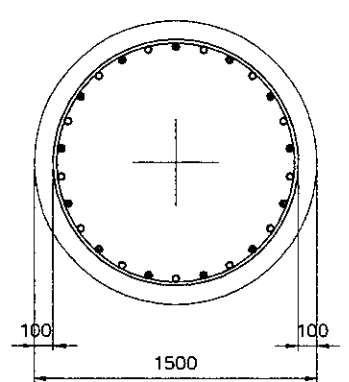
BORED PILE TYPE	BP-PF5
SIZE (mm)	2500
MAIN BARS	
SIZE (mm)	51
NO. LAYERS	2
NO. OF PCS.(1)	50
NO. OF PCS.(2)	25
SPIRAL	
SIZE (mm)	19
NO. / SET	

BP-PF6 PIER P6



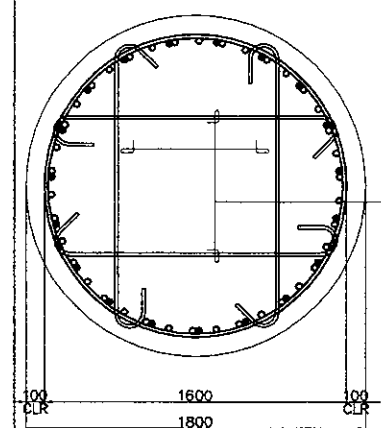
BORED PILE TYPE	BP-PF6
SIZE (mm)	2500
MAIN BARS	
SIZE (mm)	51
NO. LAYERS	2
NO. OF PCS.(1)	52
NO. OF PCS.(2)	26
SPIRAL	
SIZE (mm)	19
NO. / SET	

BP-PF7 PIER P9 & P10



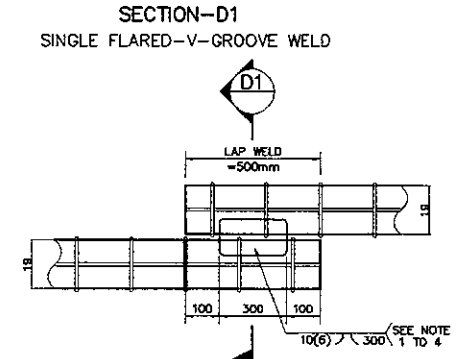
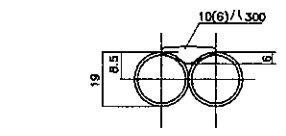
BORED PILE TYPE	BP-PF7
SIZE (mm)	1500
MAIN BARS	
SIZE (mm)	32
NO. LAYERS	1
NO. OF PCS.	26
SPIRAL	
SIZE (mm)	19
NO. / SET	

BP-PF8 ABUTMENT A1 & A2



BORED PILE TYPE	BP-PF8
SIZE (mm)	1800
MAIN BARS	
SIZE (mm)	32
NO. LAYERS	2
NO. OF PCS.(1)	48
NO. OF PCS.(2)	32
SPIRAL	
SIZE (mm)	19
NO. / SET	

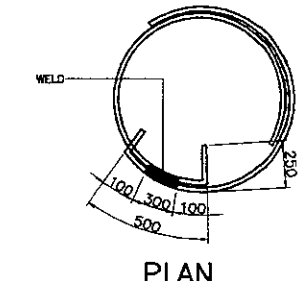
D15 CROSS TIES
 @ 300 MM O.C.
 DISTRIBUTED OVER UPPER
 1.4 M. OF PILE

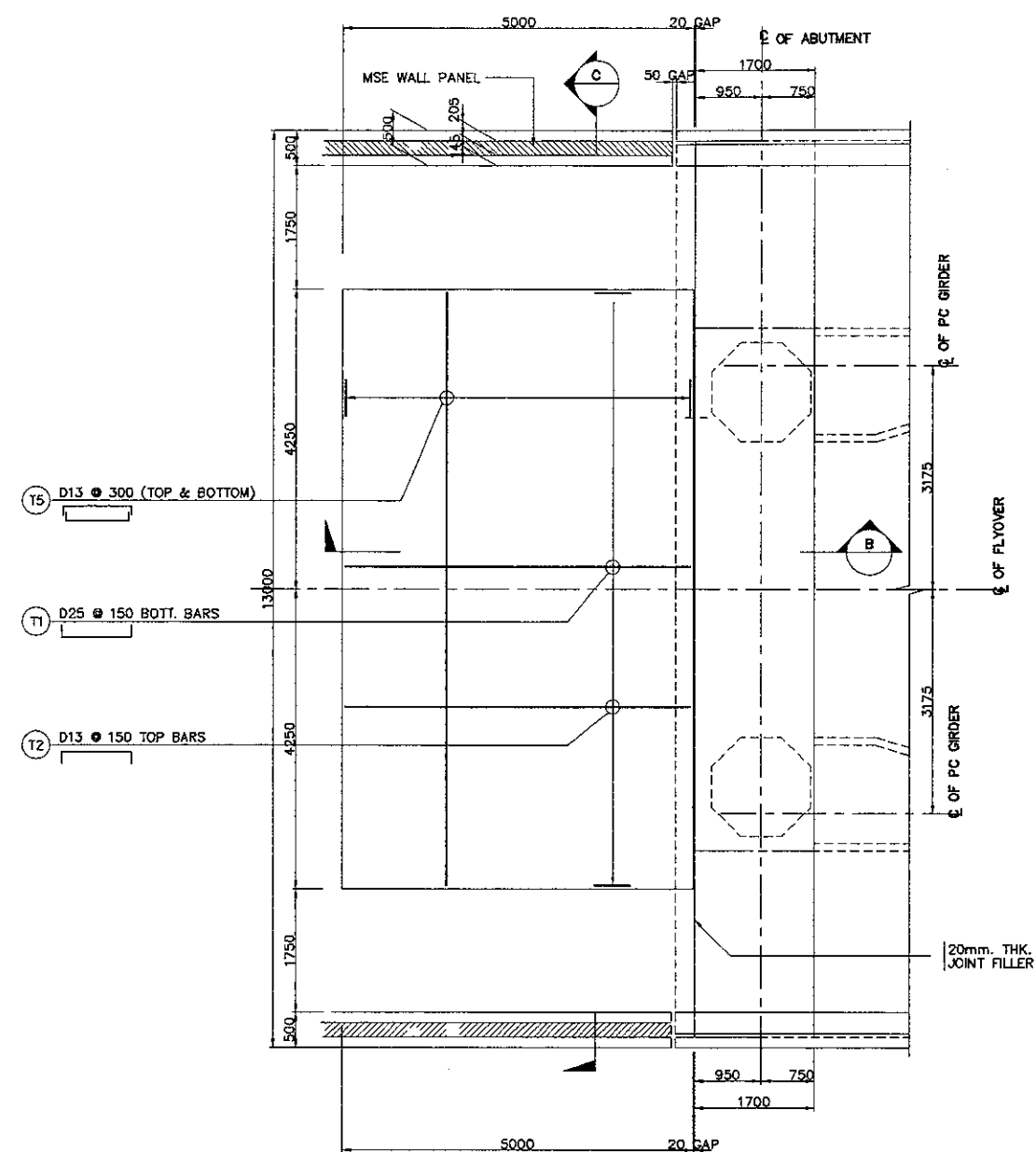


DIRECT LAP JOINT WITH BARS IN CONTACT

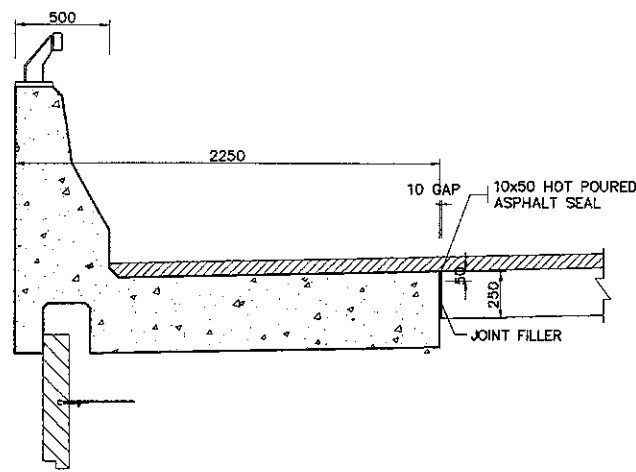
SECTIONS

DETAILS OF LAP WELD SPLICE FOR SPIRAL

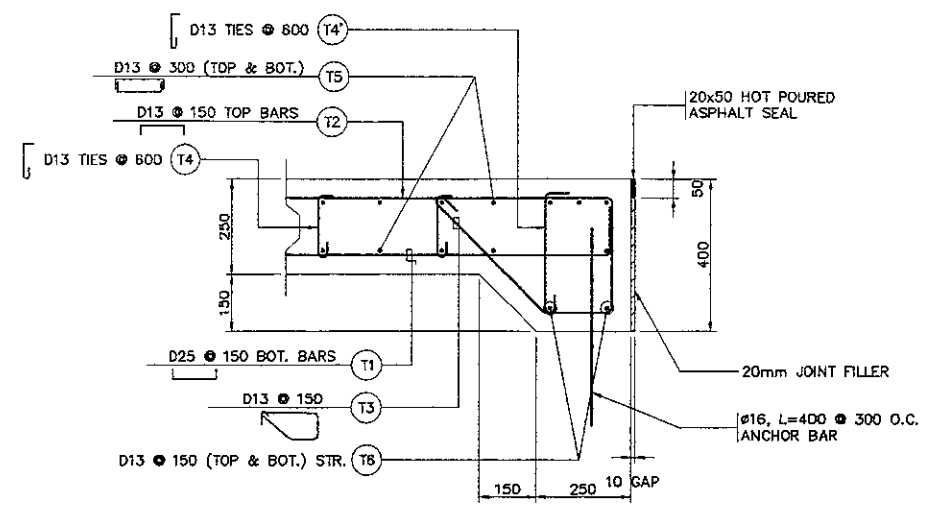




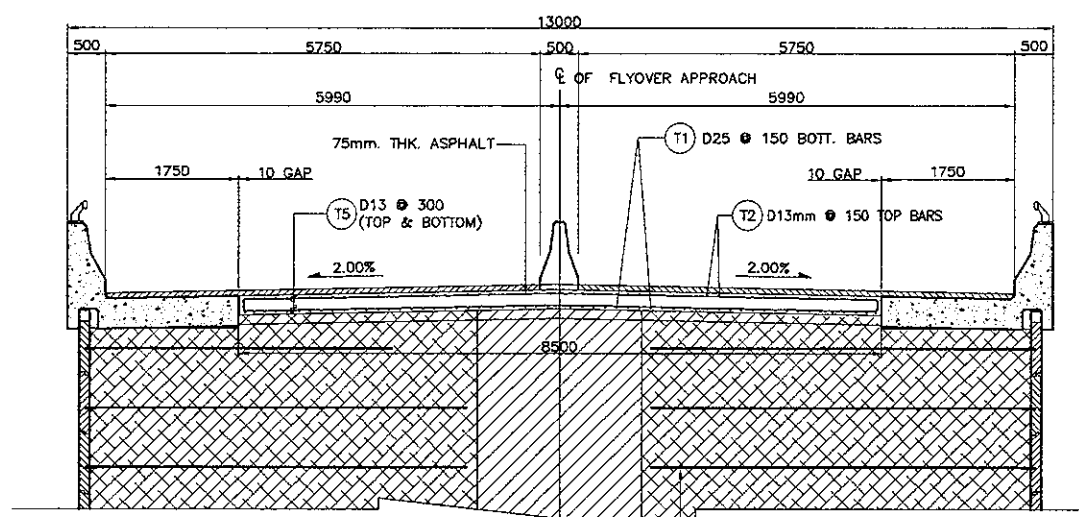
A PLAN
 SCALE 1:100



2 DETAIL
 SCALE 1:40



1 DETAIL
 SCALE 1:20

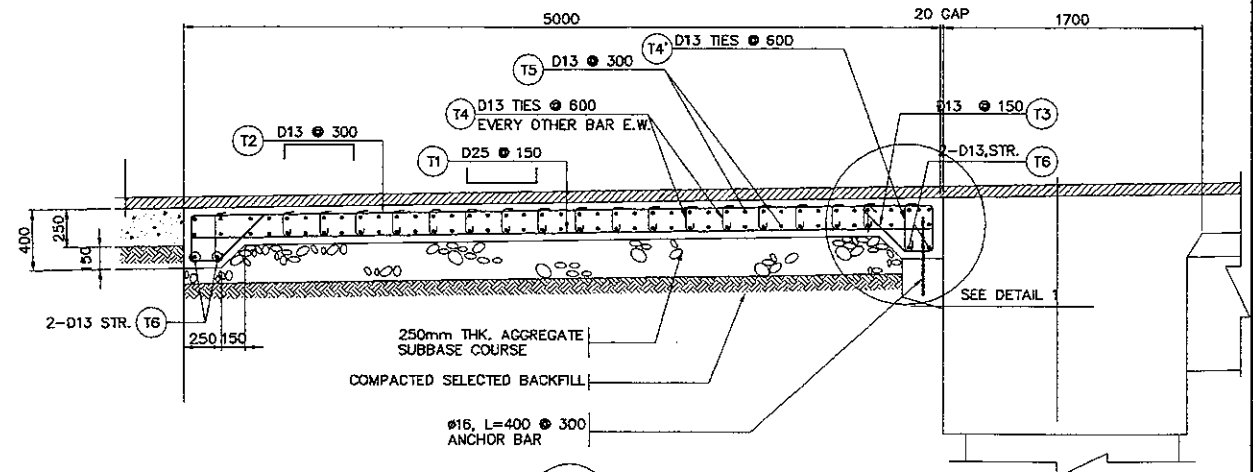


C SECTION @ APPROACH SLAB
 SCALE 1:100

ESTIMATE OF QUANTITIES (PER APPROACH SLAB)

BAR BENDING DIAGRAM		SCHEDULE OF REINFORCEMENT													
①	②	LOCATION	BAR MARK	D (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT					LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m.)	WEIGHT (kg)	
③	④					a	b	c	d	e					f
		TRANSITION SLAB	T1	25	1	100	4900					5100	58	3.85	1139
			T2	13	1	100	4900					5100	58	1.04	308
			T3	13	2	150	300	250	300	550	150	1700	116	1.04	206
			T4	13	3	150	150	200				500	120	1.04	62
			T4'	13	3	150	300	200				650	30	1.04	20
			T5	13	1	100	8400					8600	36	1.04	322
		T6	13	4	100	8400					8500	4	1.04	35	
TOTAL WEIGHT												= 2,092 kg.			
		VOLUME OF CONCRETE	APPROACH SLAB										= 11.454 cu.m.		
TOTAL VOLUME A1 + A2												= 22.908 cu.m.			

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.



B SECTION
 SCALE 1:50



JAPAN INTERNATIONAL
COOPERATION AGENCY



DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

M. S. E. WALL



KATAHIRA & ENGINEERS INTERNATIONAL

MECHANICALLY STABILIZED EARTH WALL

NOTES :

1. THE MECHANICALLY STABILIZED EARTH WALL SHOWN IN THIS SET OF DRAWINGS SHALL COMPLY WITH THE REQUIREMENTS OF AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION I AND II."
 THE CONTRACTOR MAY PROPOSE WALL TYPES OTHER THAN THAT SHOWN IN THE DRAWINGS AND APPROVED BY THE ENGINEER.
 DESIGN LIFE = 75 YEARS

2. MATERIALS

- 2.1 PRECAST CONCRETE PANELS
 28TH DAY COMPRESSIVE STRENGTH OF CONCRETE = 30 MPa
 THE EXTERIOR FACE OF THE PANELS MUST BE UNIFORM AND MUST NOT SHOW SIGNIFICANT VARIATIONS FROM ONE PANEL TO ANOTHER. PANELS SHOULD CONFORM TO THE DIMENSIONS SHOWN AND BE FREE OF HONEYCOMBS, STRAINS OR DEEP CRACKS IN THE FACE.
- 2.2 STEEL REINFORCING STRIPS
 STEEL REINFORCING STRIPS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 123 AND HAVE A CORROSION-RESISTANCE DURABILITY IN ACCORDANCE WITH AASHTO REQUIREMENTS. A MINIMUM AVERAGE ZINC COATING MASS OF 600 GRAMS PER METER SQUARE AS PER ISO 1460 SHALL BE ADAPTED.
 THE STEEL REINFORCING STRIPS(60mm x 4mm) SHALL BE RIBBED FLATS OF GRADE 350 (F_y=350MPa) AND CONFORMING TO THE LATEST AASHTO REQUIREMENTS. STEEL REINFORCING STRIPS MUST EXHIBIT A MAX. TENSILE LOAD OF 32.05 KN PER STRIP.
 THE REINFORCING STRIPS SHALL HAVE A MINIMUM APPARENT COEFFICIENT OF FRICTION, f*, OF 2.0 AT GROUND LEVEL.

2.3 STRUCTURE BACKFILL
 THE STRUCTURE BACKFILL FOR MECHANICALLY STABILIZED EARTH WALL SHALL CONFORM TO THE FOLLOWING GRADING REQUIREMENTS.

SIEVE SIZE	PERCENT PASSING
4"	100
NO. 40	0-60
NO. 200	0-15

OTHER REQUIREMENTS FOR BACKFILL SHALL BE IN ACCORDANCE WITH THE LATEST AASHTO REQUIREMENTS OR AS PER MANUFACTURER'S / SUPPLIER'S RECOMMENDATIONS.

2.4 JOINT FILLER
 FILLER FOR VERTICAL JOINTS SHALL BE FLEXIBLE OPEN CELL POLYURETHANE FOAM STRIPS OF 40mm SQUARE CROSS-SECTION OR EQUIVALENT. THE VERTICAL JOINT SHALL BE ENCLOSED WITH GEOTEXTILE MEMBRANE AS SHOWN IN THE DRAWINGS. HORIZONTAL JOINT FILLER SHALL BE RESIN BONDED CORK FILLER BOARD CONFORMING TO ASTM D 1752 AND RUBBER PAD WITH SHORE HARDNESS OF 85 +0, -5.

2.5 CONCRETE LEVELING PAD
 CONCRETE LEVELING PAD SHALL HAVE A 28TH DAY COMPRESSIVE STRENGTH OF 21MPa.

3. ALLOWABLE SOIL BEARING CAPACITY

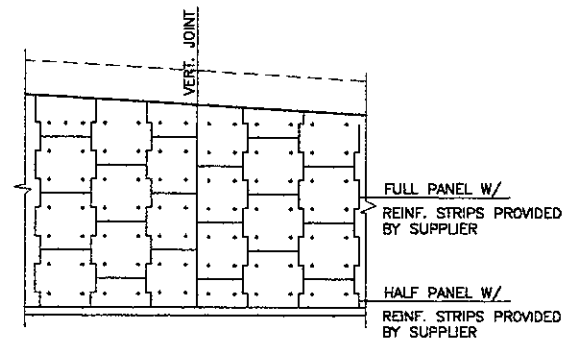
THE CONTRACTOR SHALL VERIFY THAT THE ALLOWABLE SOIL BEARING CAPACITY AT FOUNDATION LEVEL SHALL BE SUFFICIENT FOR M. S. E. WALL.

4. FOUNDATION TREATMENT

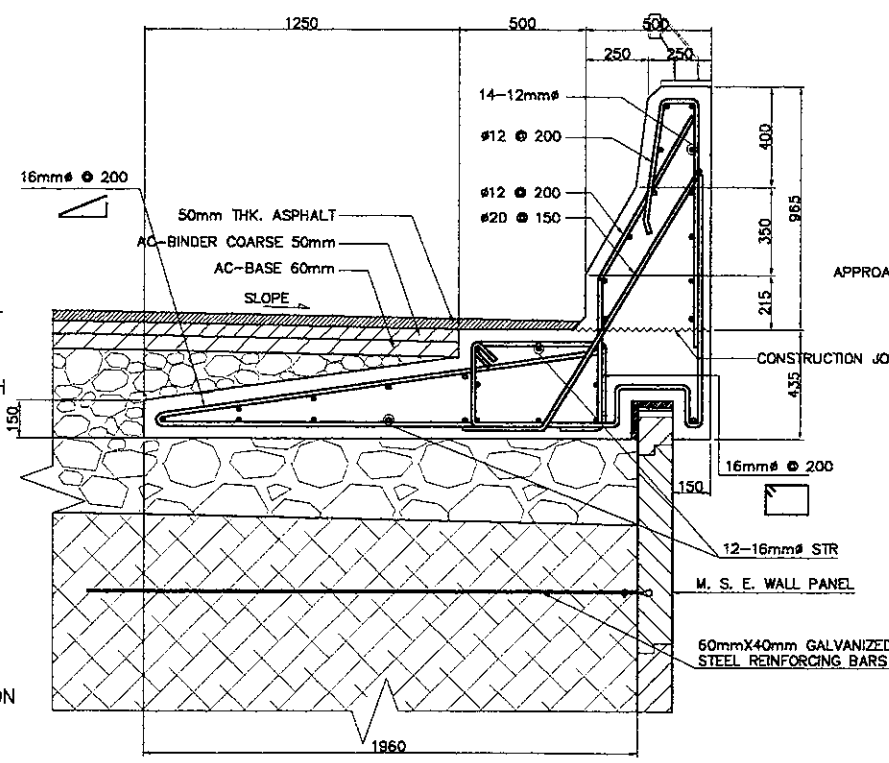
THE CONTRACTOR SHALL PREPARE THE FOUNDATION FOR MECHANICALLY STABILIZED EARTH WALL (M.S.E.W) IN ACCORDANCE WITH THE PLANS AND SHALL VERIFY IF THE EXISTING FOUNDATION IS SUITABLE TO SUPPORT THE M.S.E.W.
 IN AREAS WHERE EXCAVATION OF FOUNDATION MATERIAL IS NECESSARY, THE CONTRACTOR SHALL PERFORM SUCH EXCAVATION TO THE LIMITS SHOWN IN THE DRAWINGS. THE EXCAVATED MATERIALS SHALL BE REPLACED WITH STRUCTURE BACKFILL MATERIAL MEETING THE REQUIREMENTS OF THE EARTH RETAINING SYSTEM.

5. CONSTRUCTION

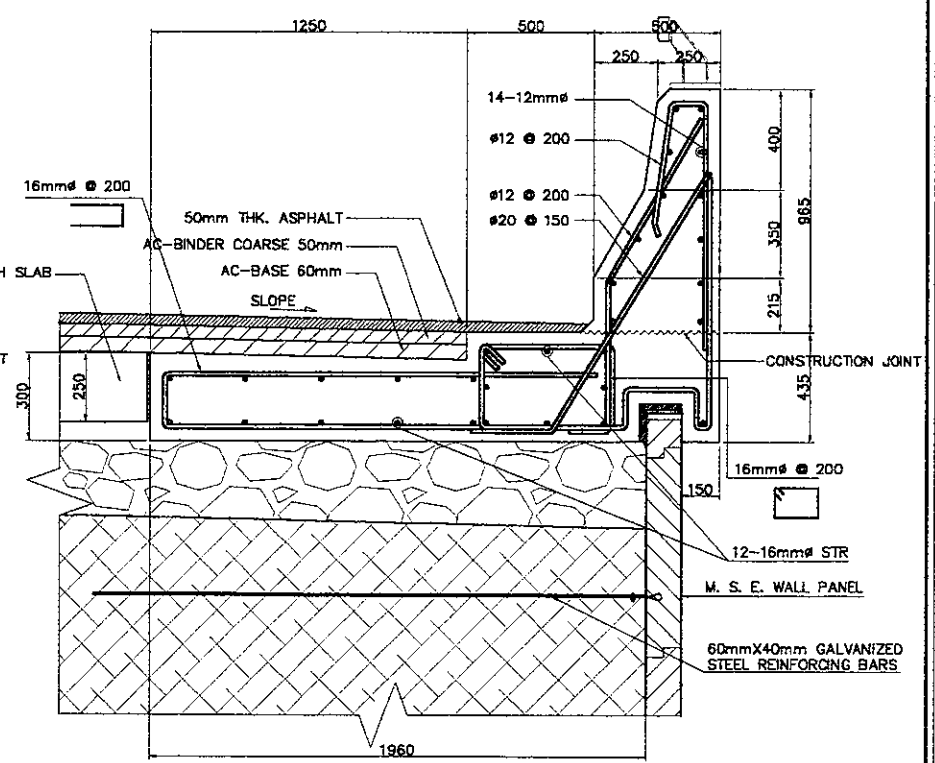
THE MECHANICALLY STABILIZED EARTH WALL SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO REQUIREMENTS OR RECOMMENDED BY THE MANUFACTURER / SUPPLIER.
 THE CONTRACTOR SHALL SUBMIT, FOR THE APPROVAL OF THE ENGINEER, WORKING PLAN AND DRAWINGS OF CONSTRUCTION METHOD, SEQUENCE, SAFETY AND QUALITY ASSURANCE.



TYPICAL WALL PANELS

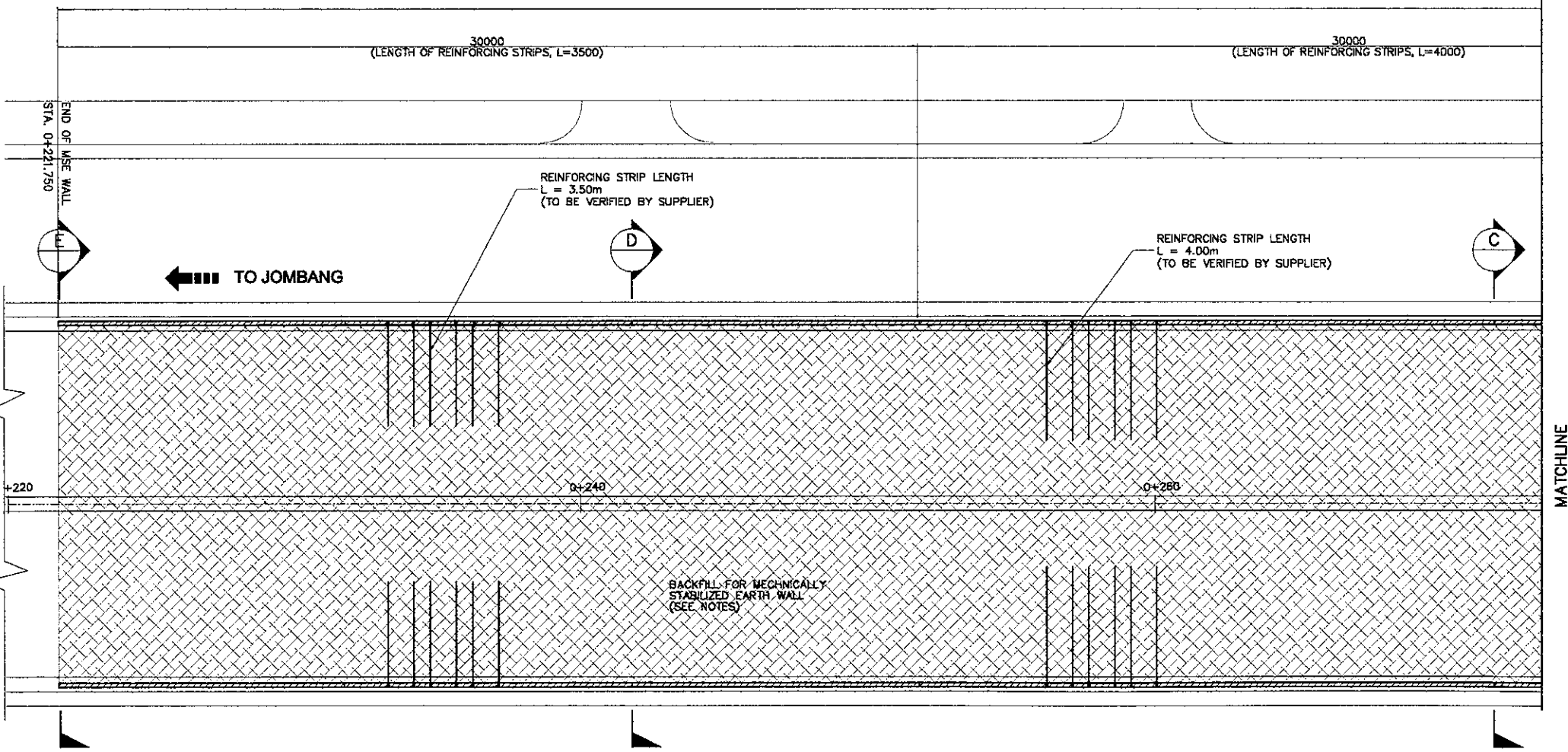
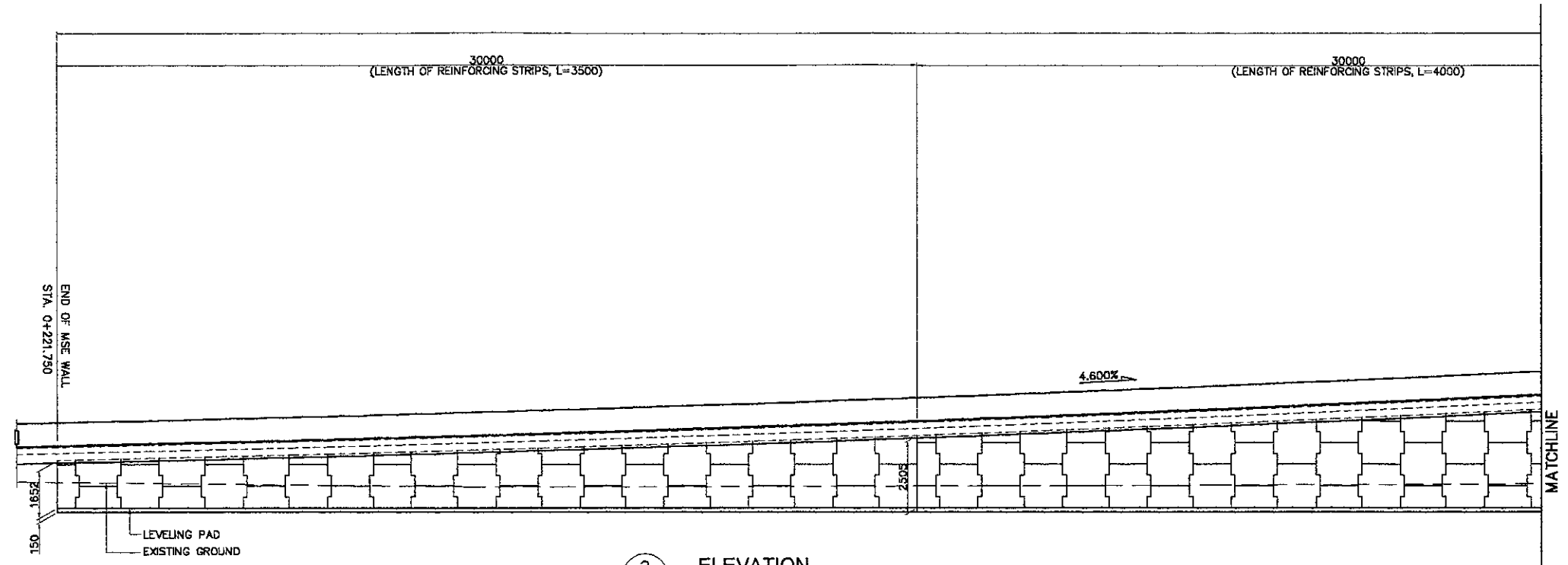


STANDARD DETAIL OF CONCRETE RAILING AT M. S. E. WALL

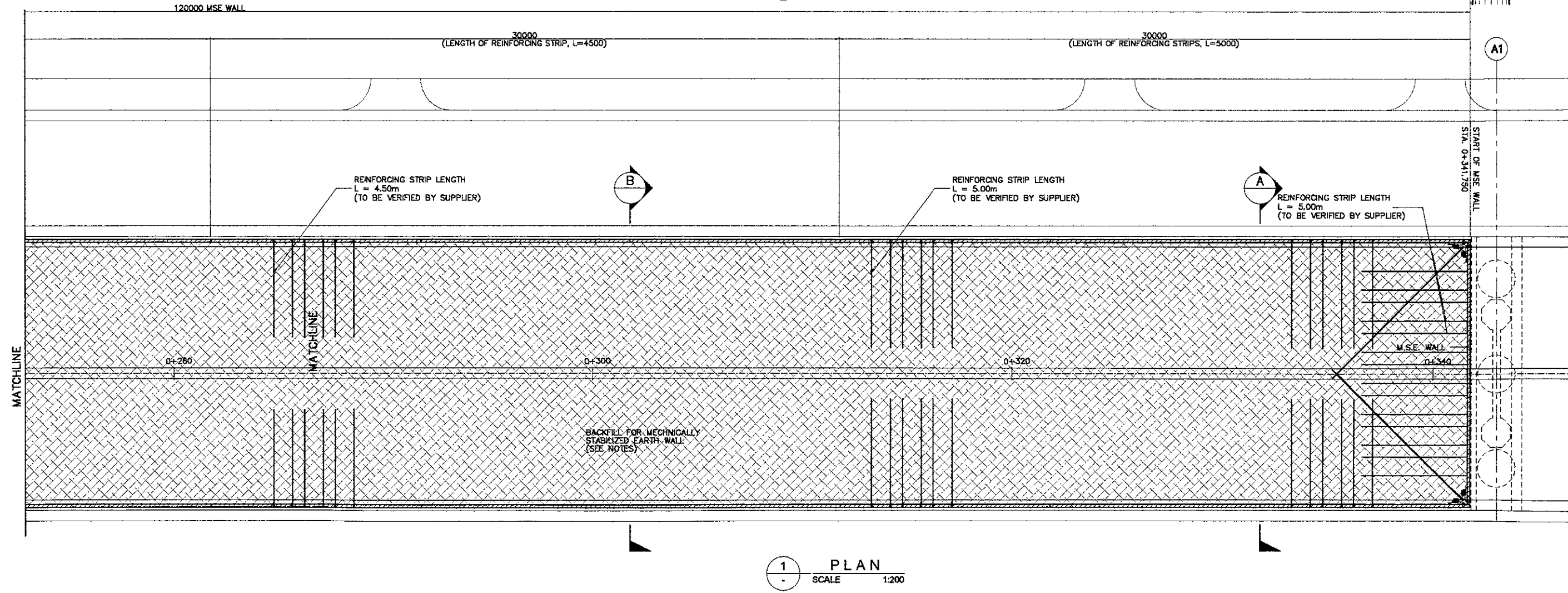
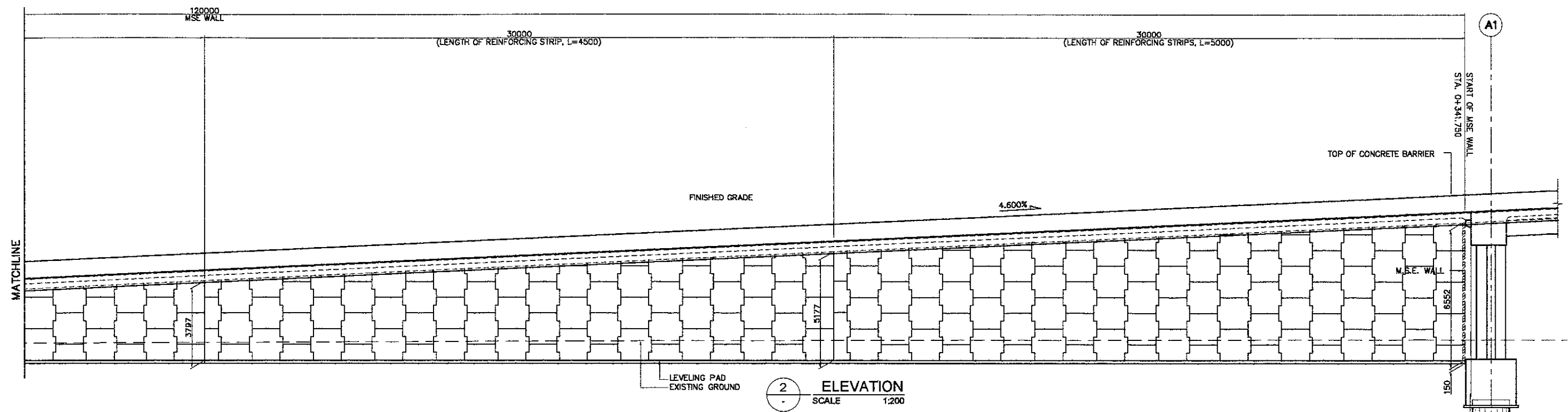


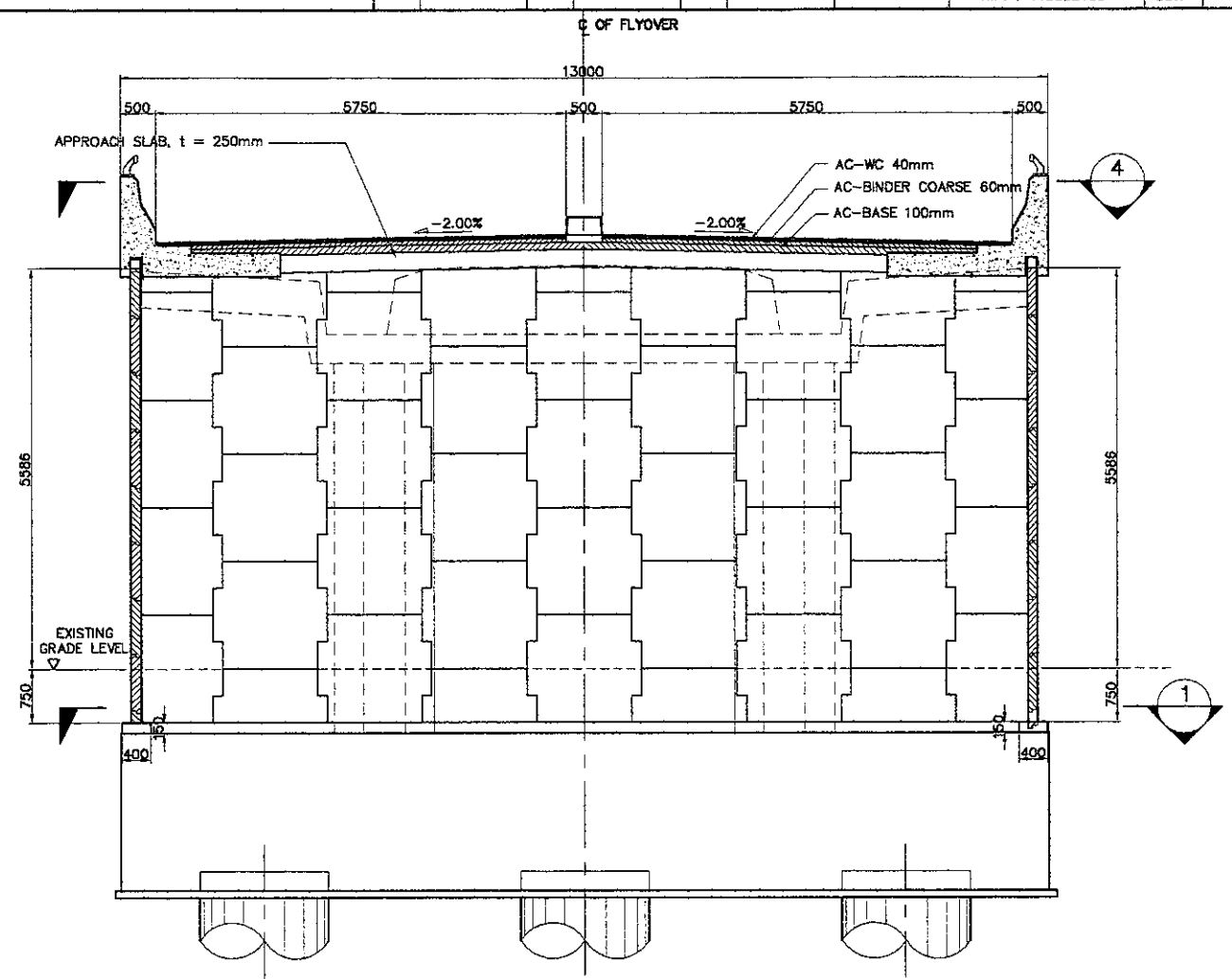
STANDARD DETAIL OF CONCRETE RAILING AT APPROACH SLAB

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

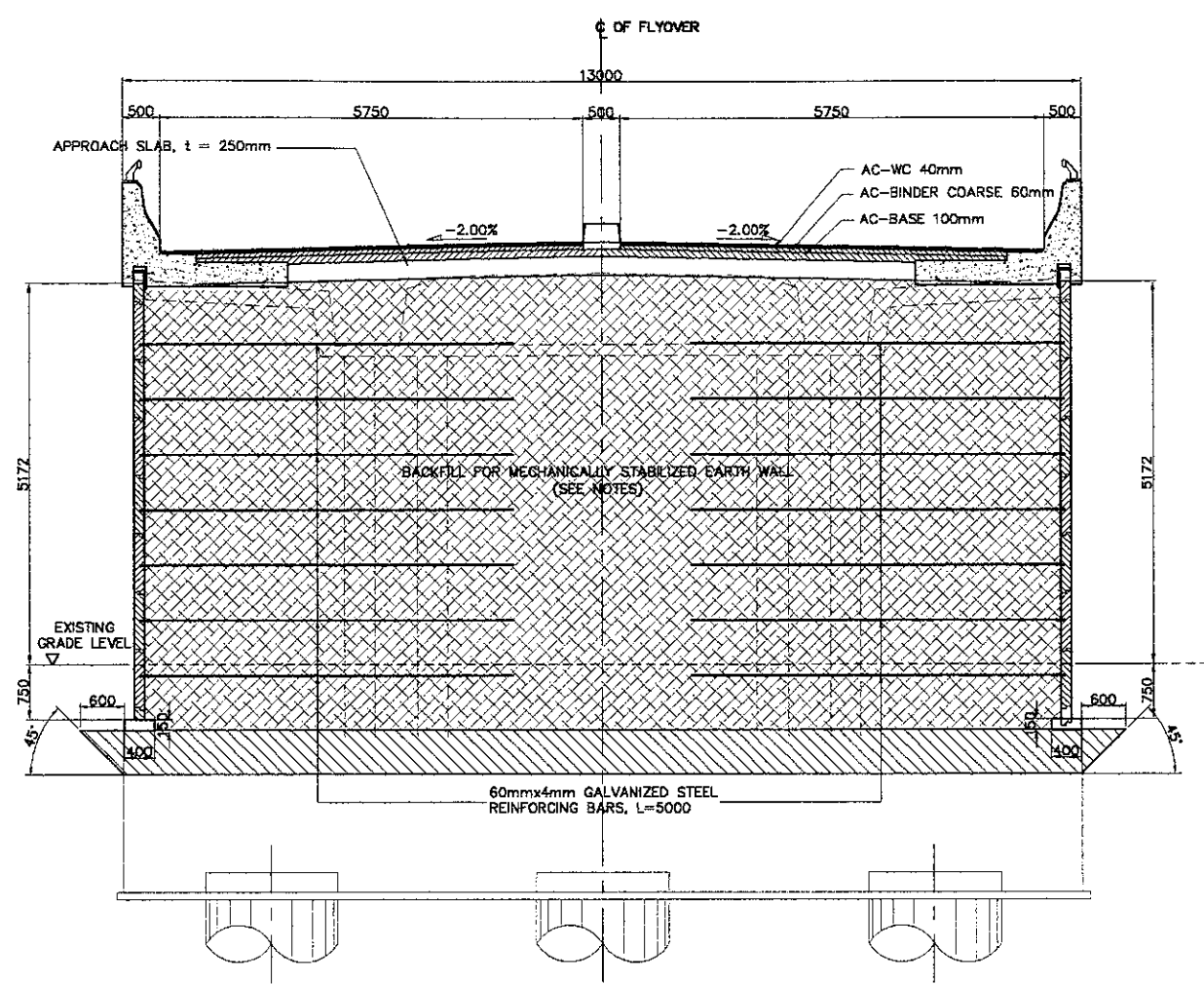


DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	T. OKUMURA	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

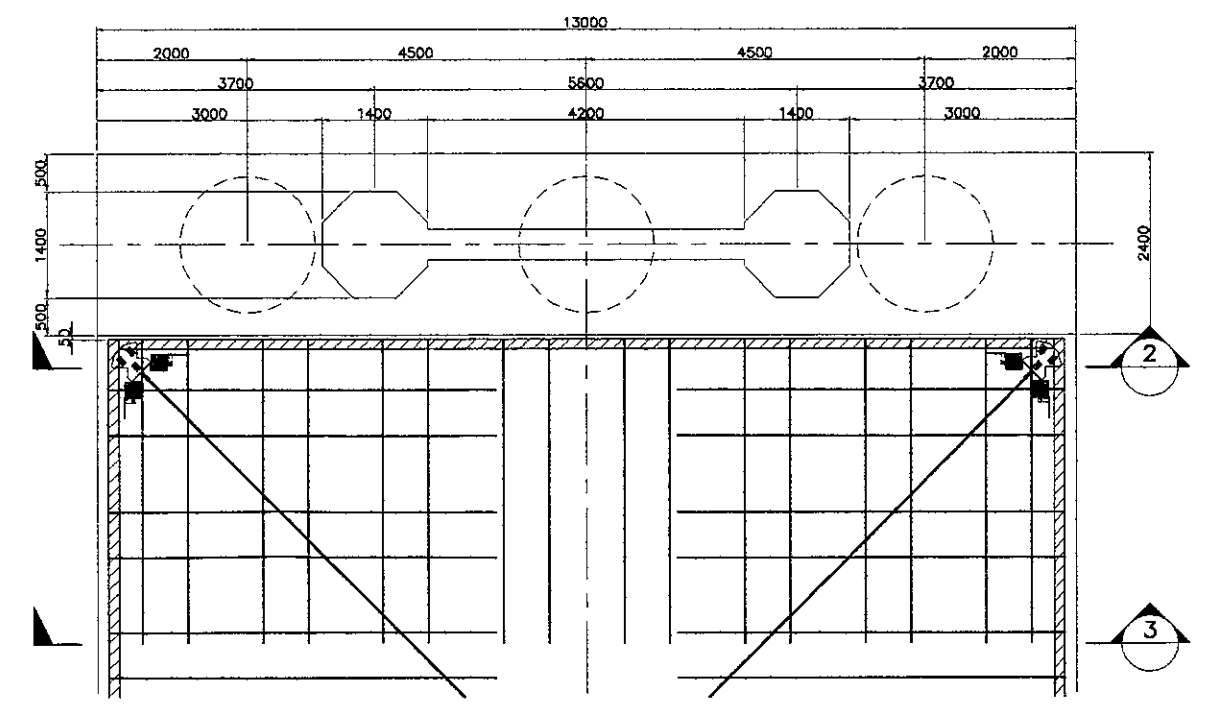




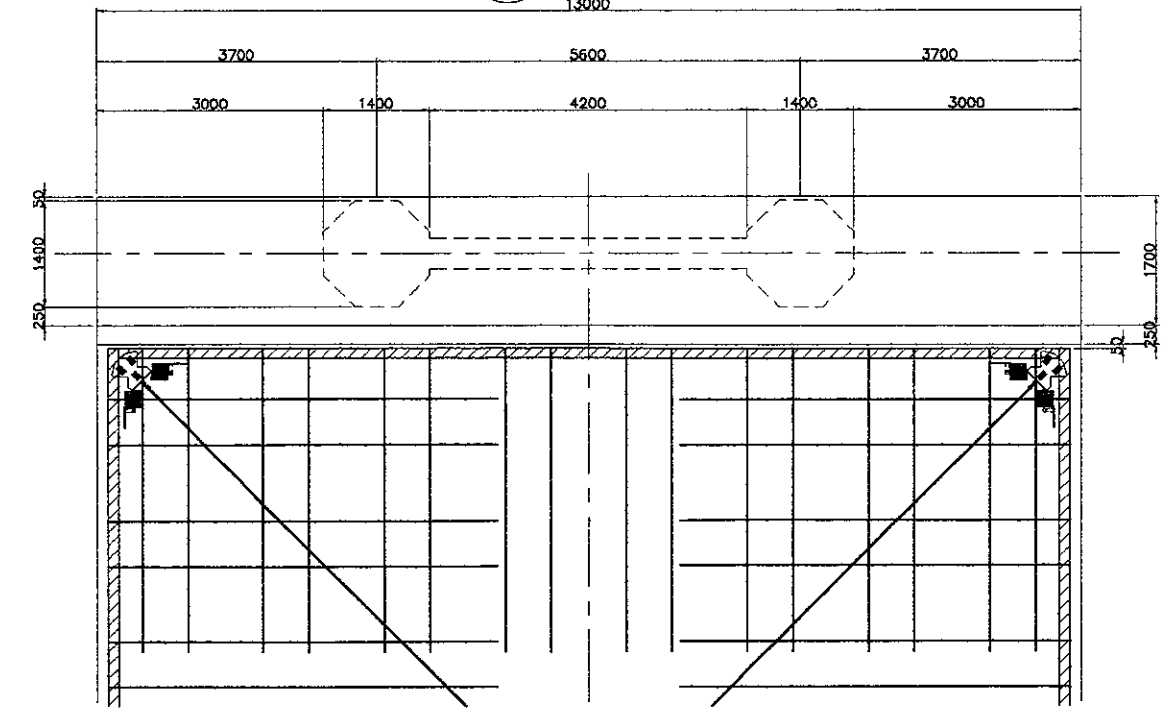
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 SCALE 1:100



3 SECTION
 SCALE 1:100

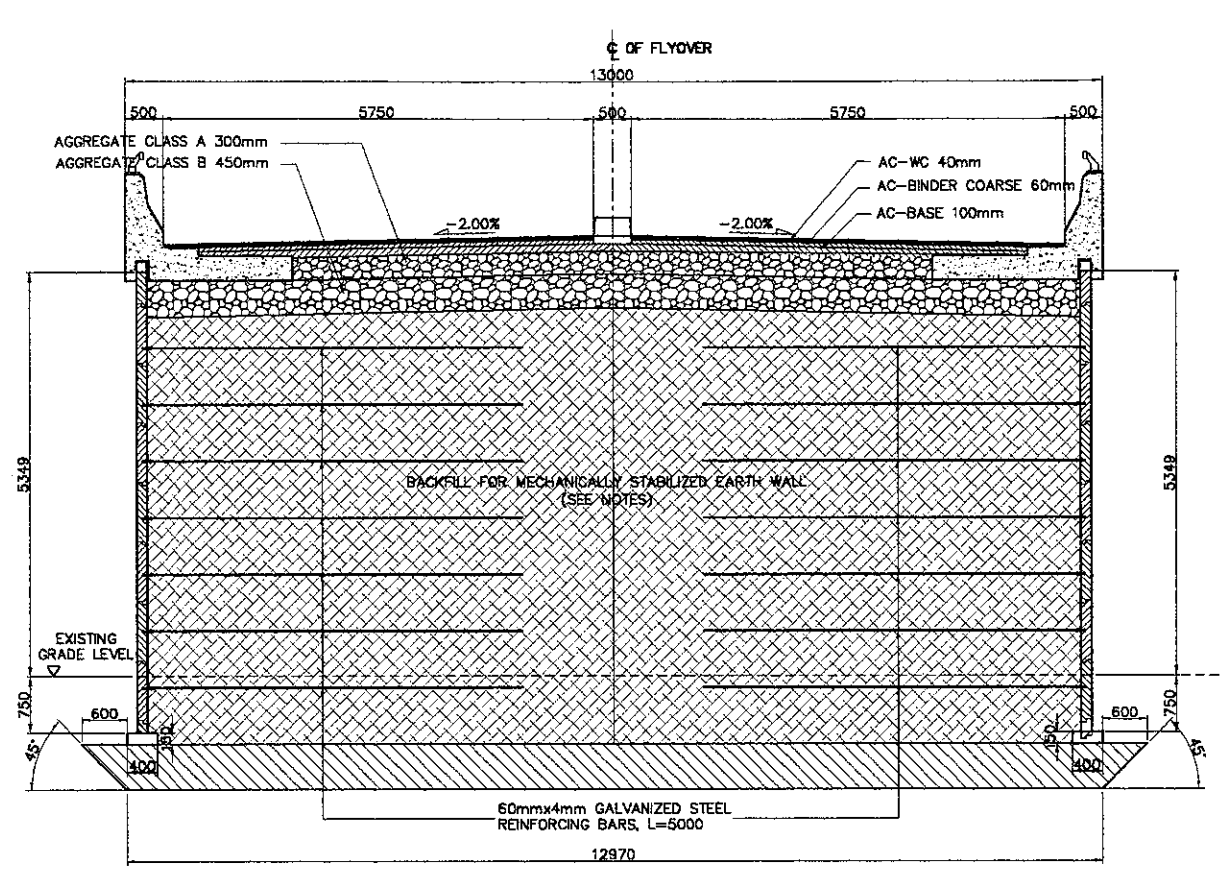


1 SECTION
 SCALE 1:100

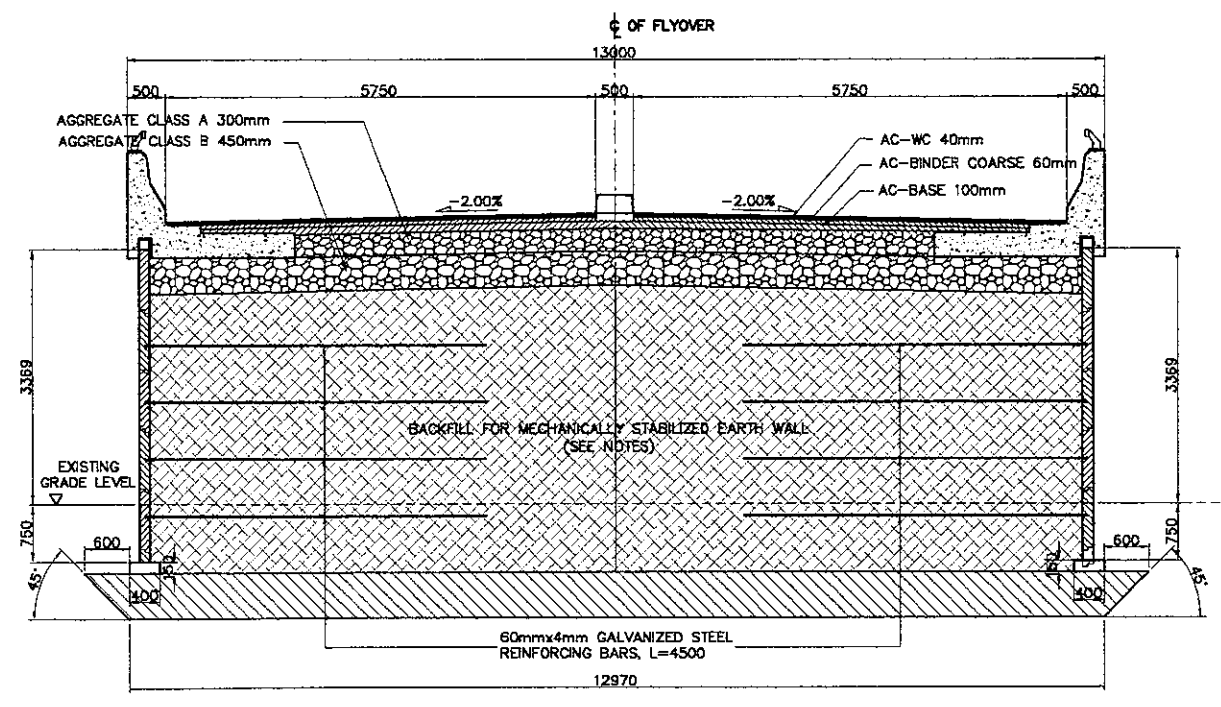


4 SECTION
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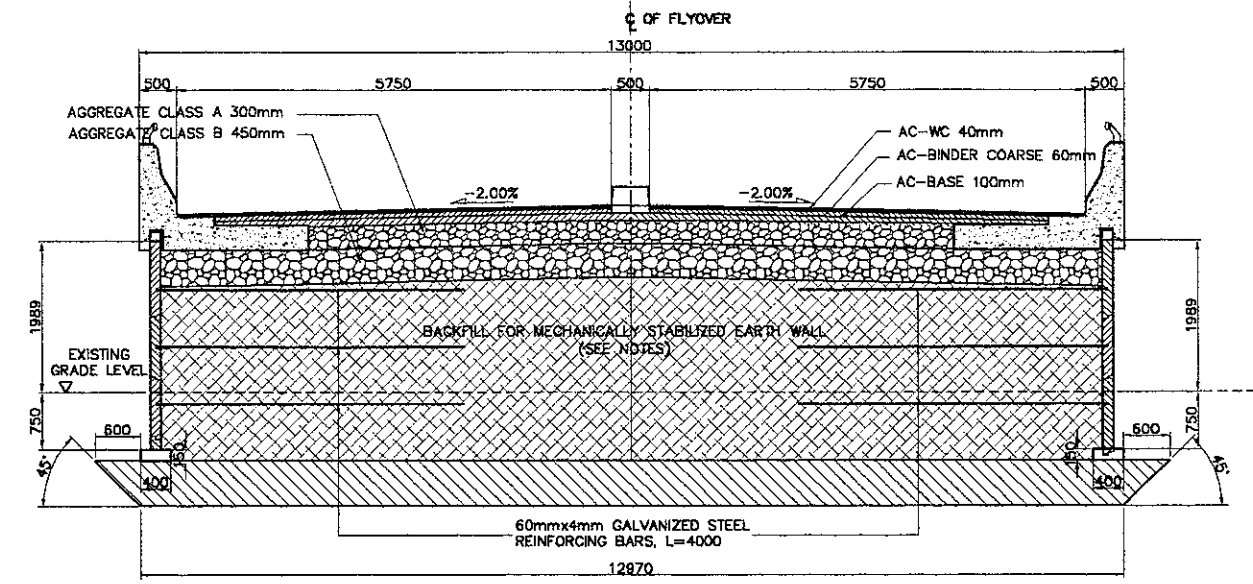
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name: T. OKUMURA	Name: T. OKUMURA	Name: M. KIUCHI
Sign: _____	Sign: _____	Sign: _____
Date: _____	Date: _____	Date: _____



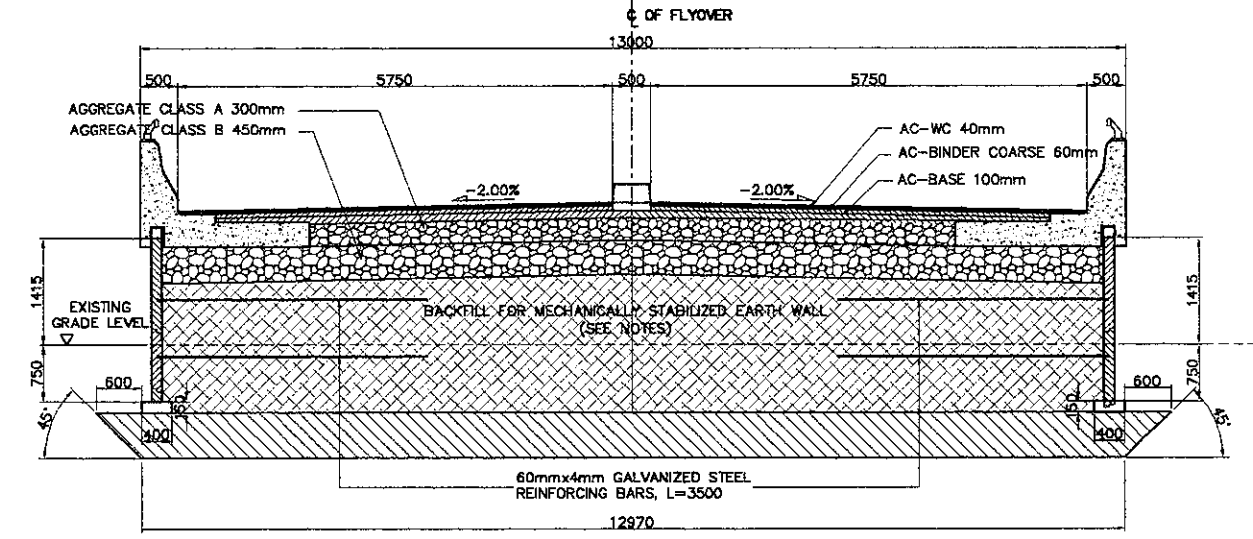
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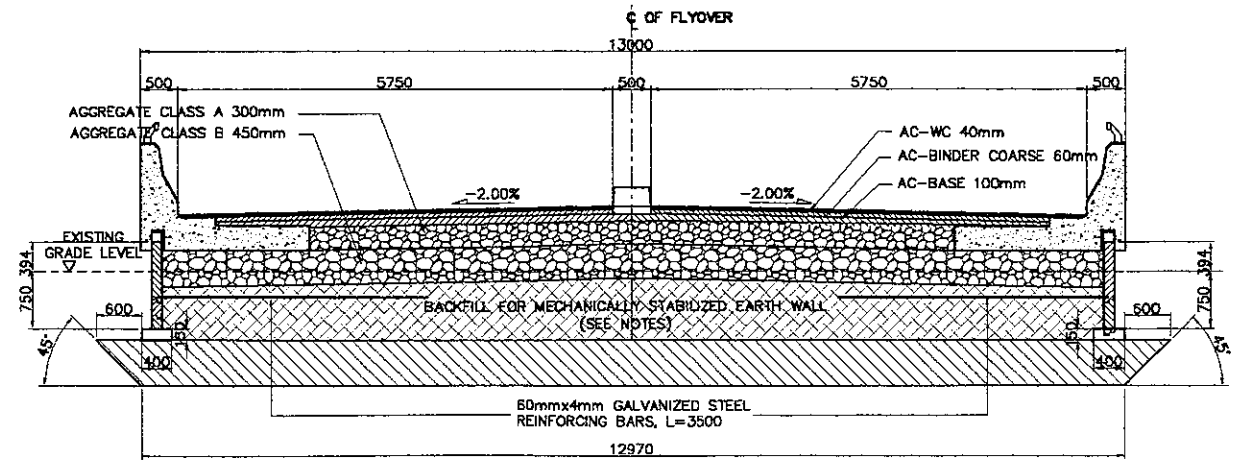
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C SECTION
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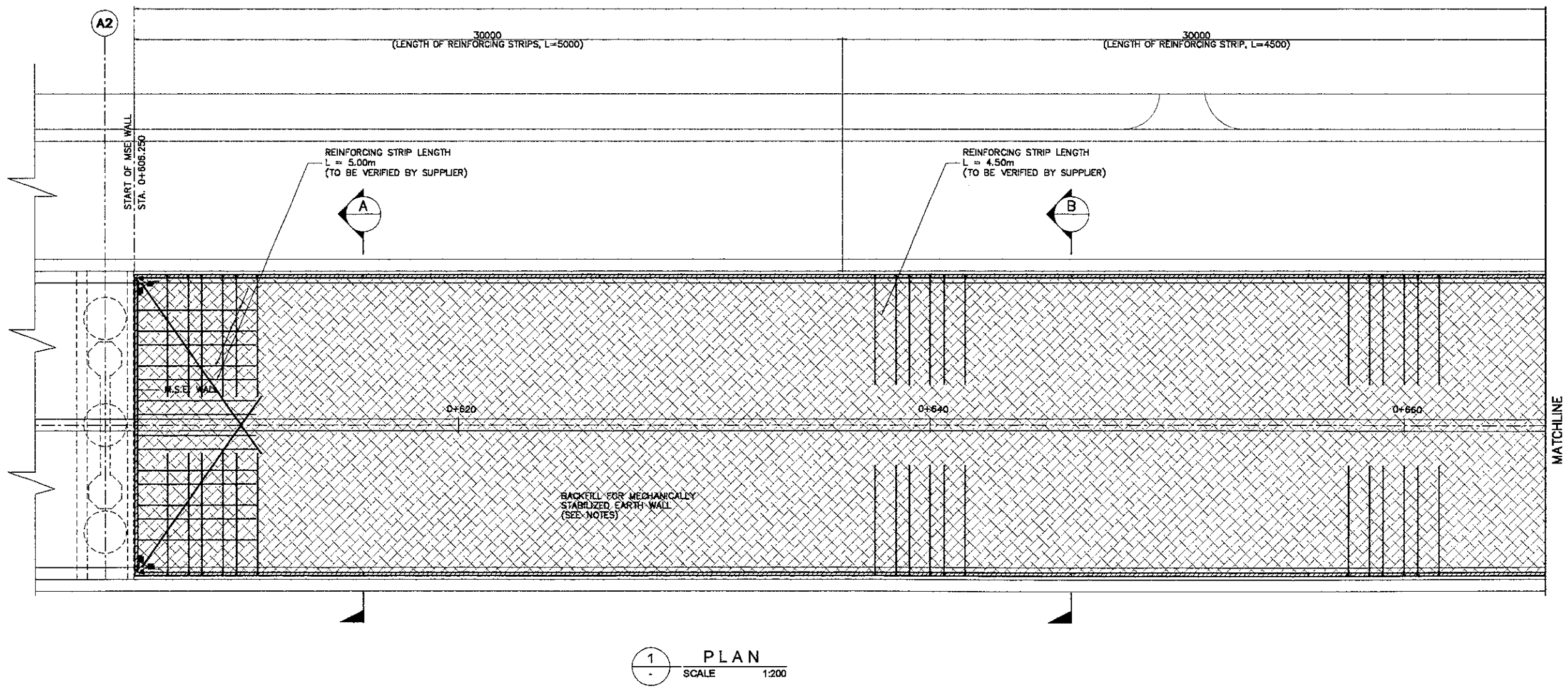
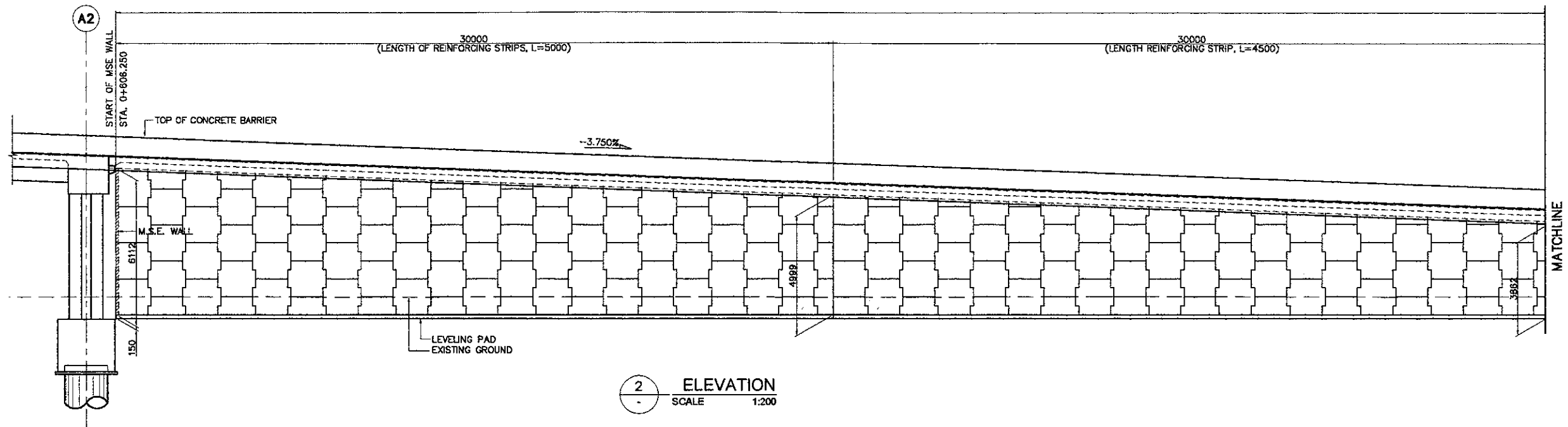


D SECTION
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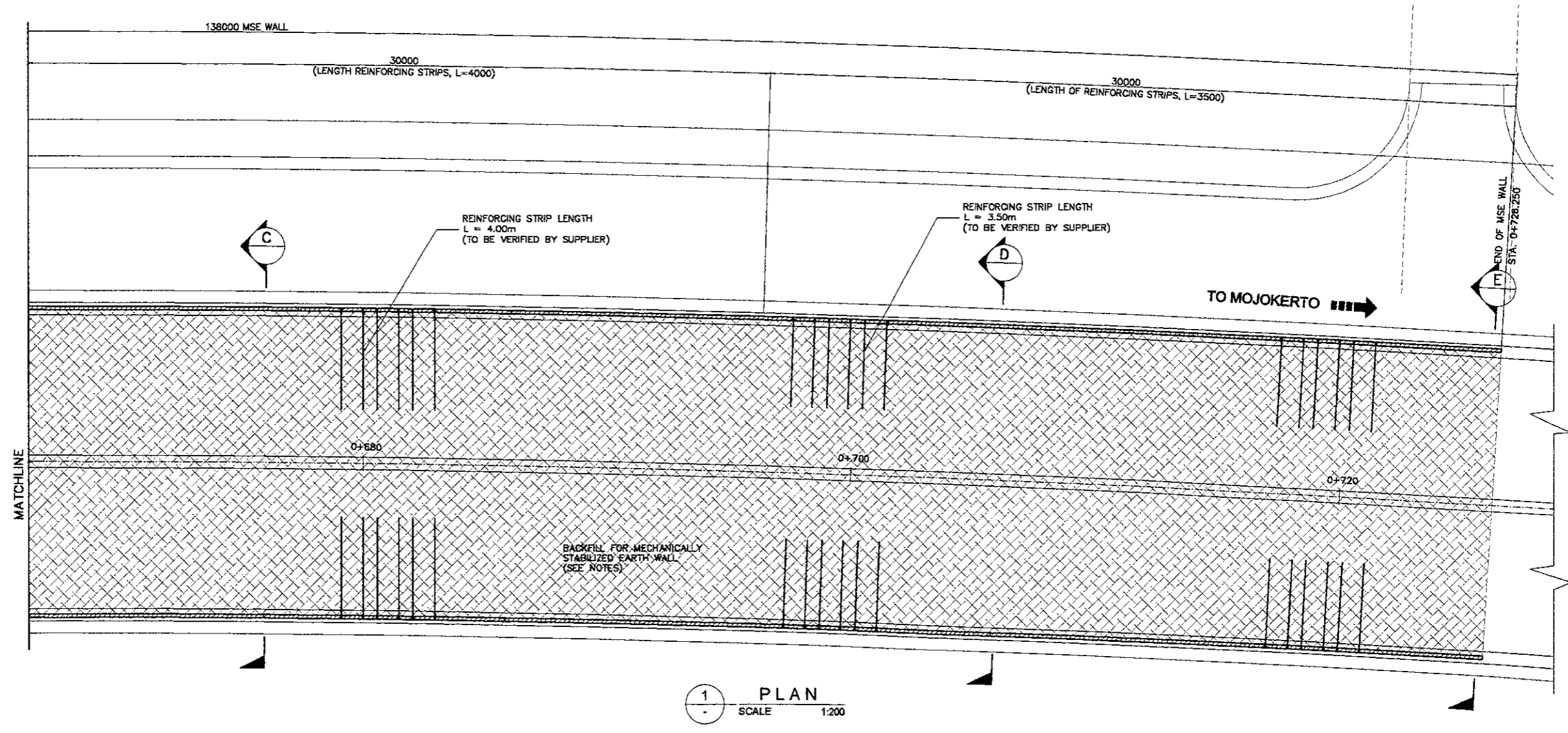
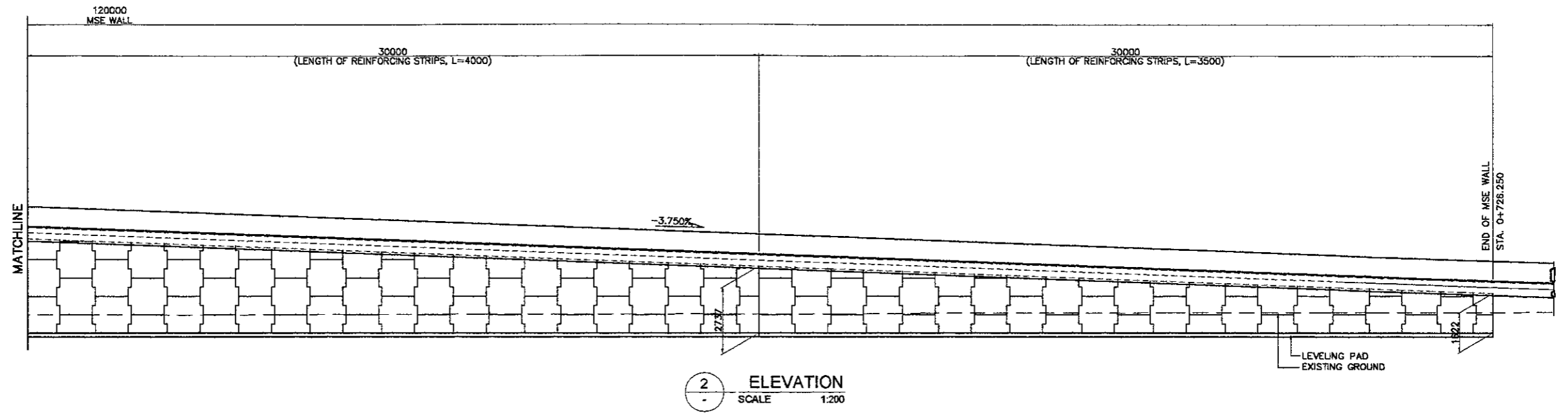


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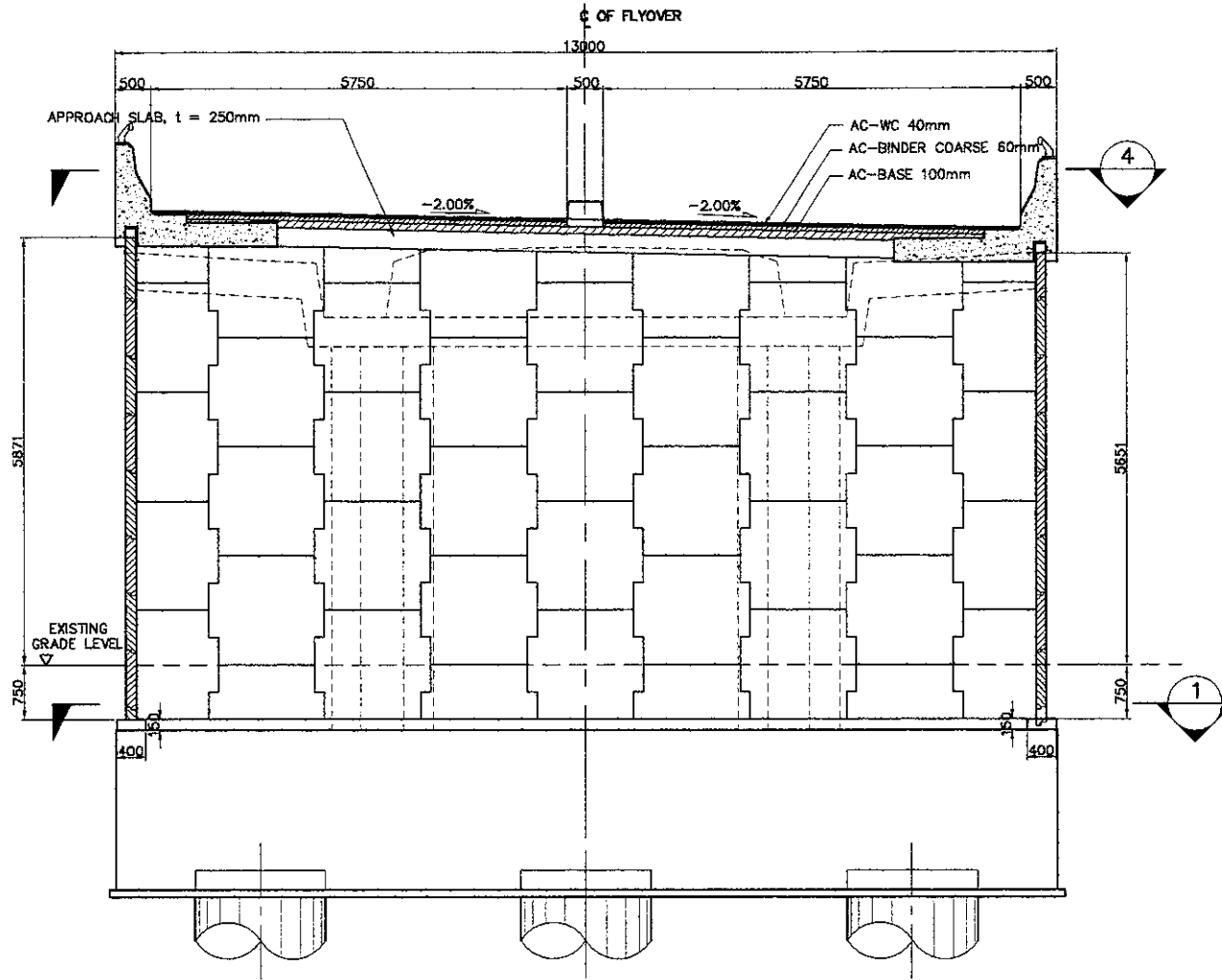
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	T. OKUMURA	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



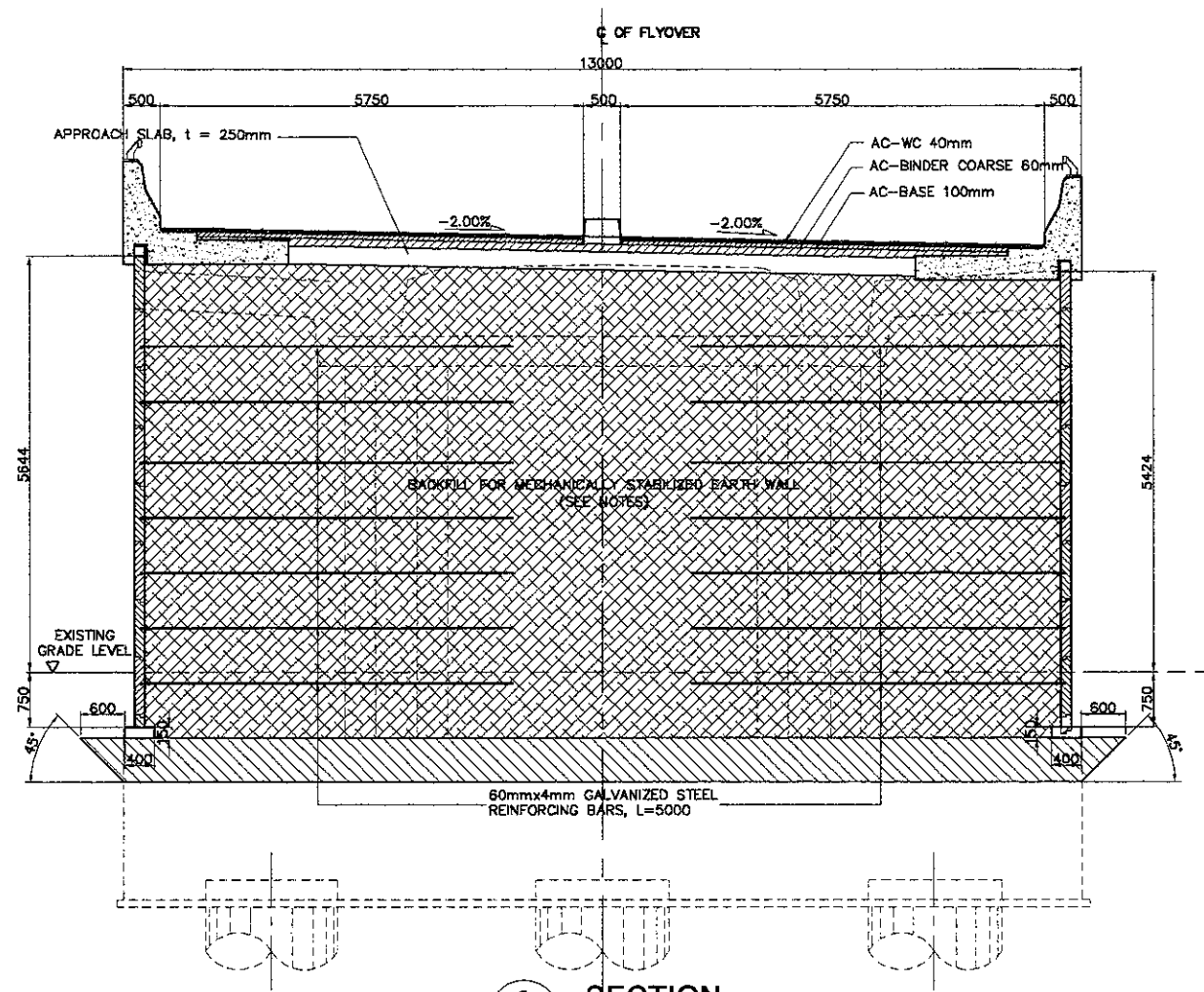
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Sign		Sign		Sign	
Date		Date		Date	



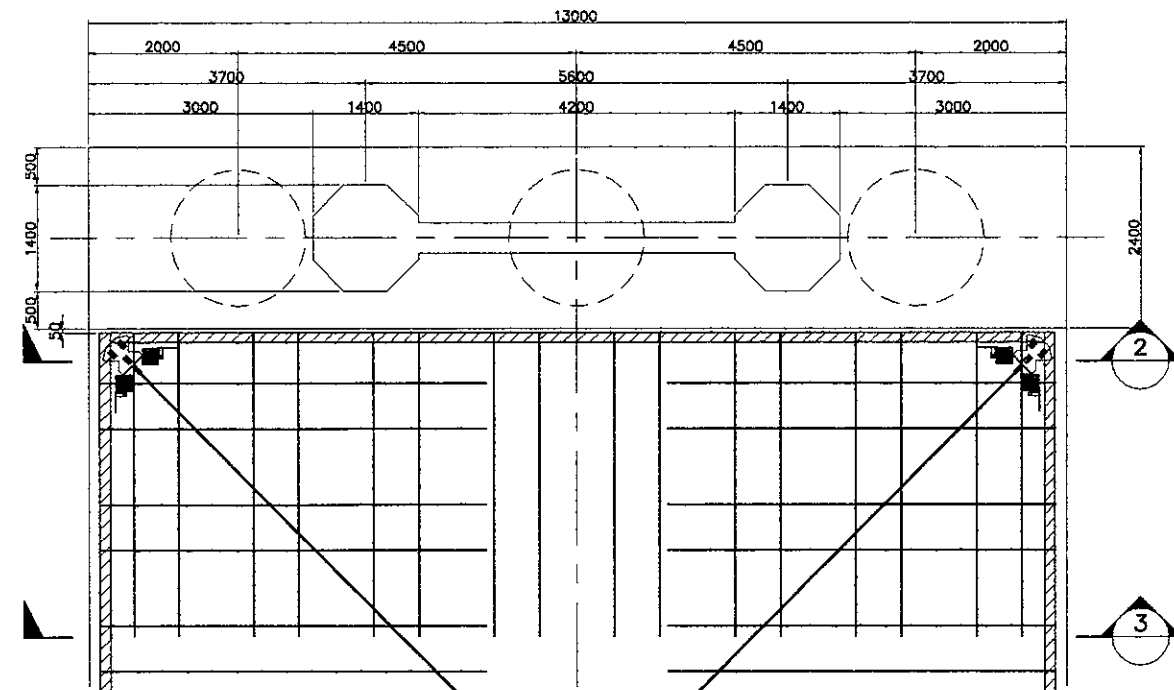
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name T. OKUMURA	Name T. OKUMURA	Name M. KIUCHI
Sign	Sign	Sign
Date	Date	Date



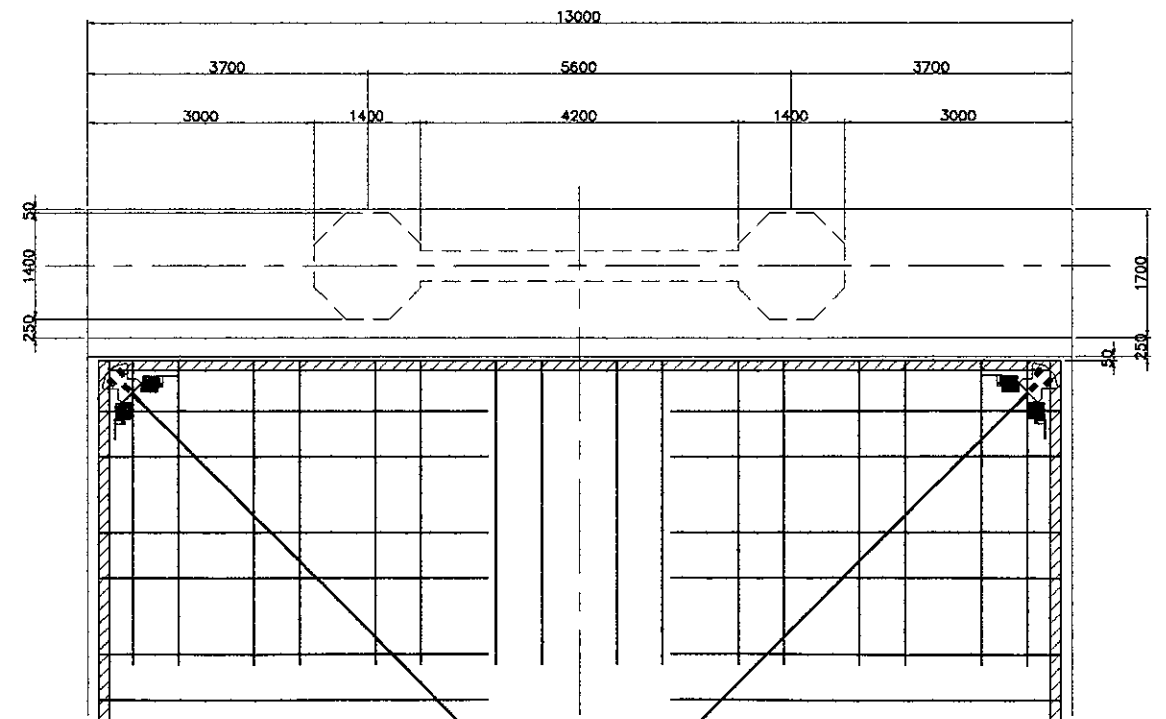
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3 SECTION
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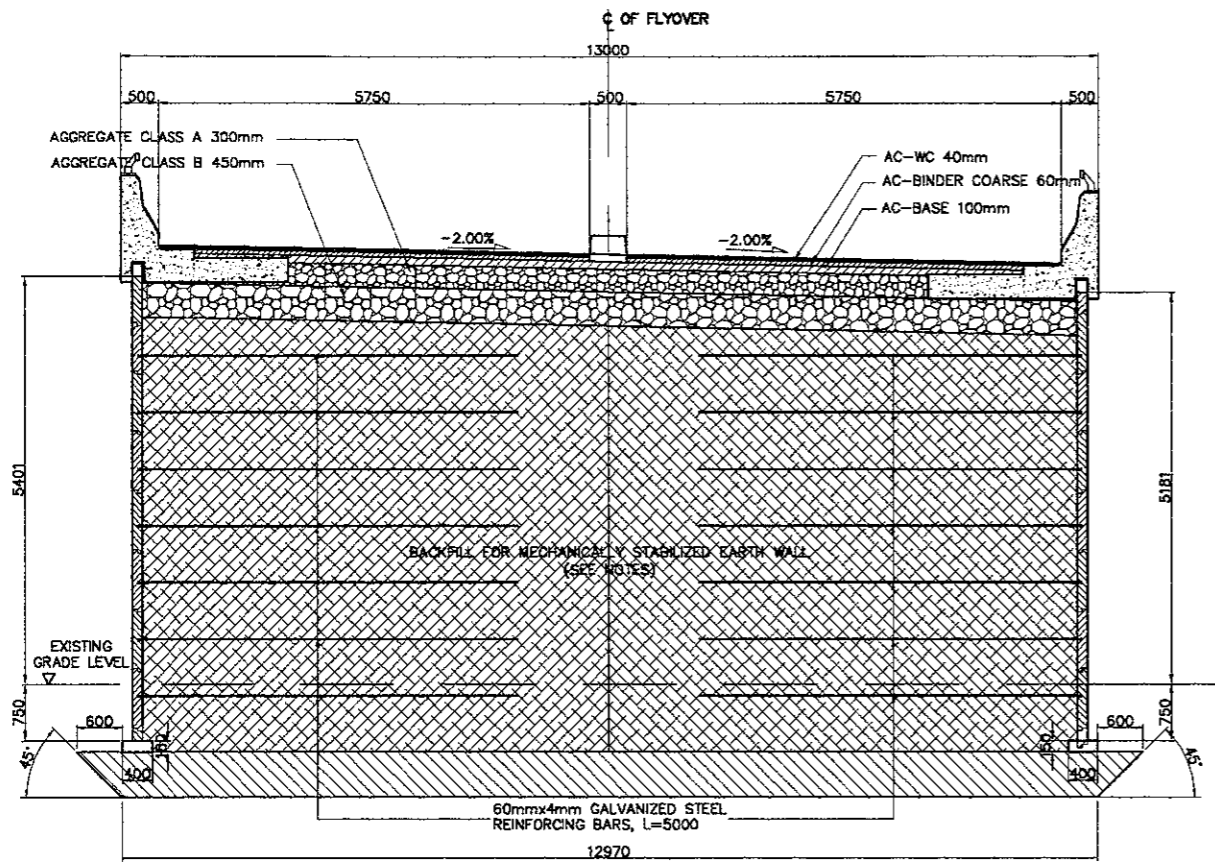


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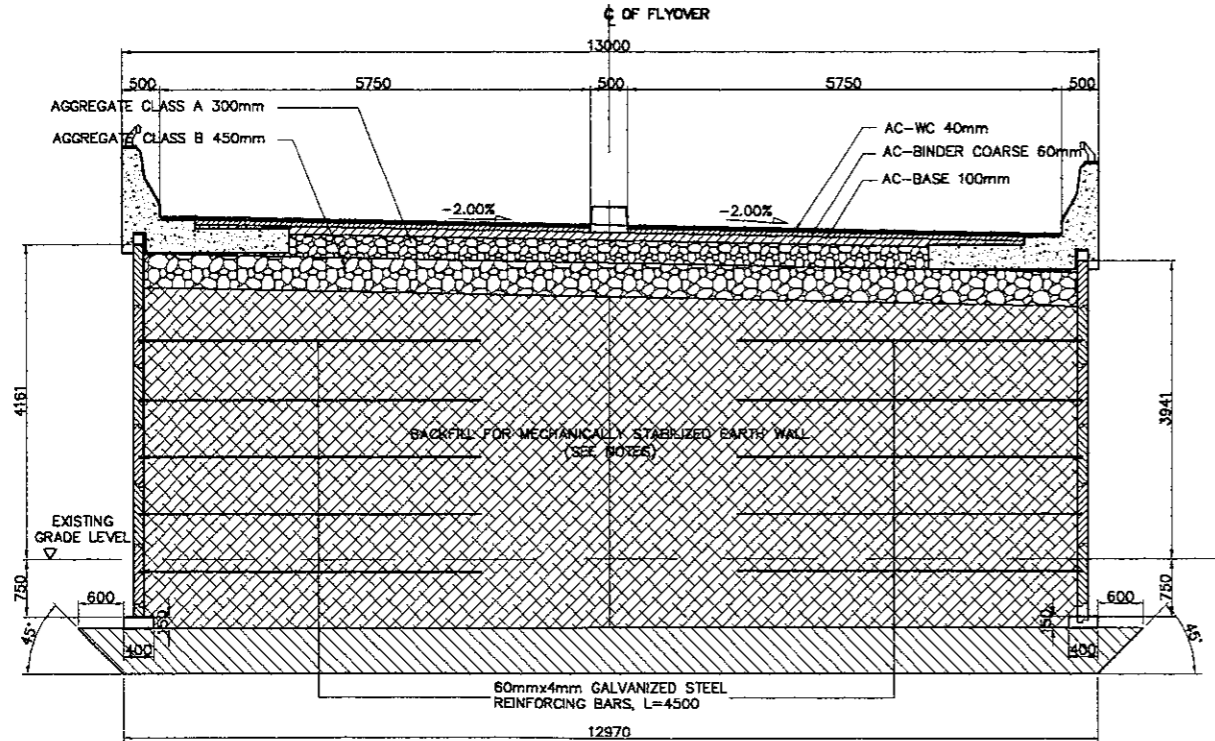


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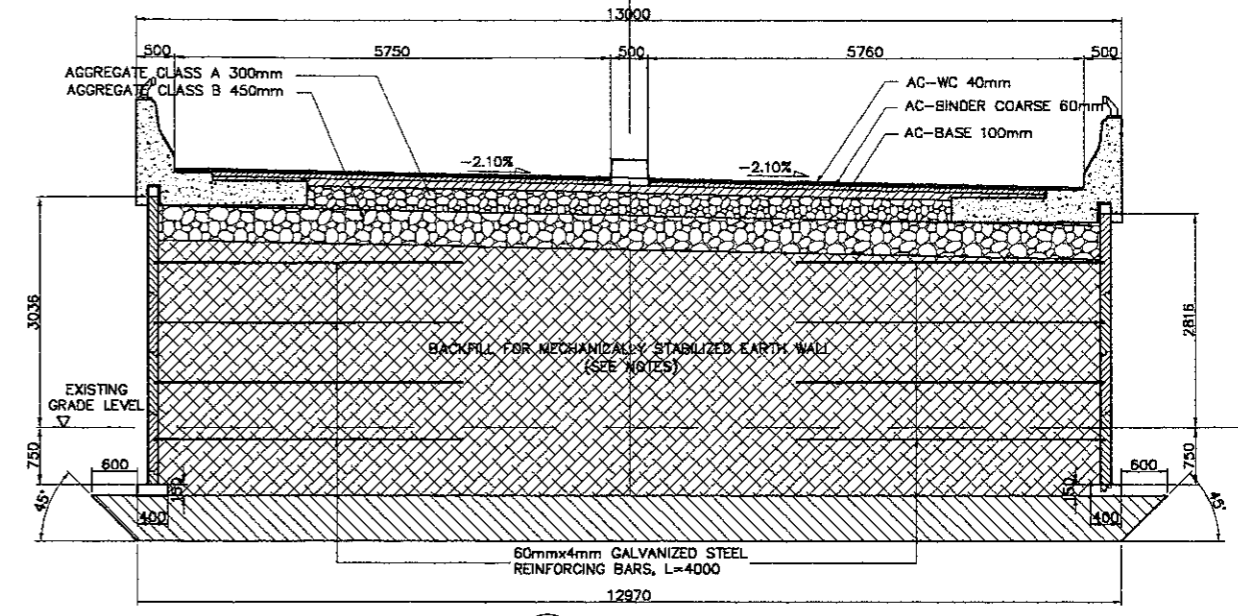
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name T. OKUMURA	Name T. OKUMURA	Name M. KIUCHI
Sign	Sign	Sign
Date	Date	Date



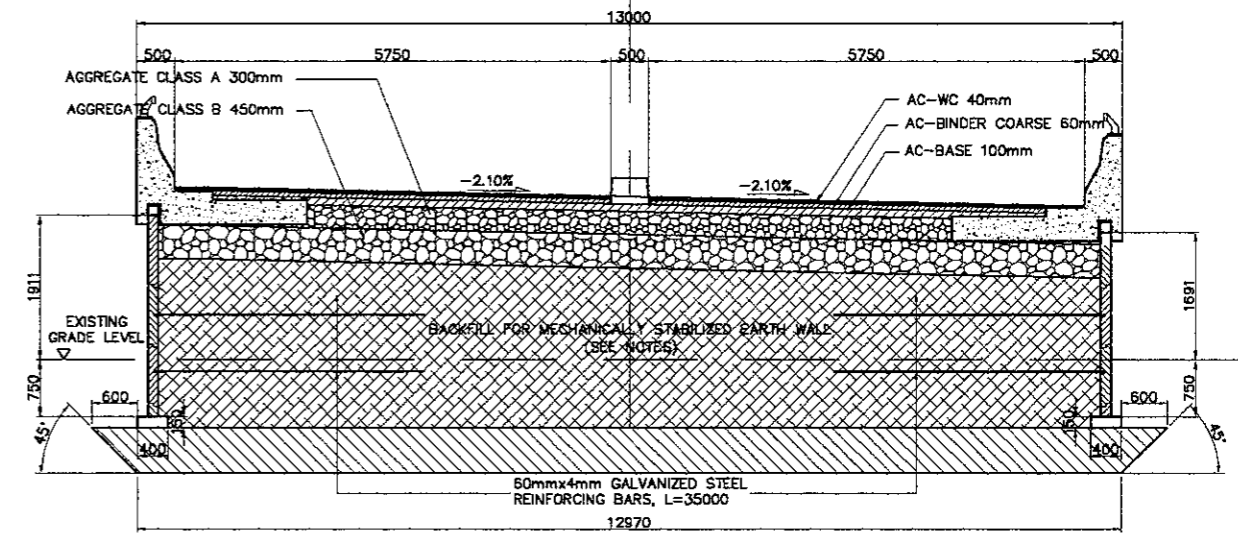
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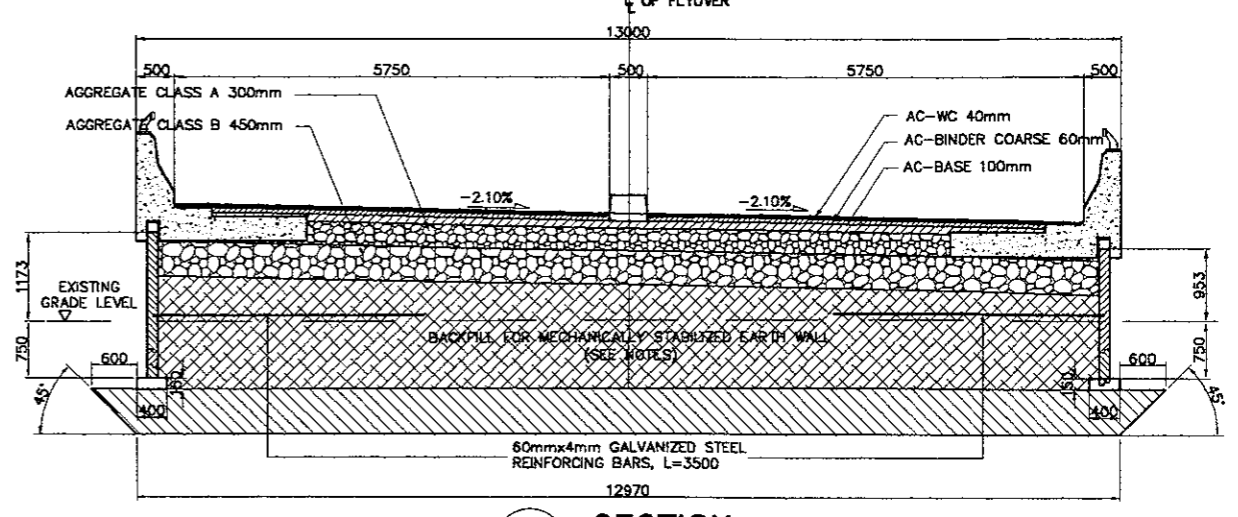
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C SECTION
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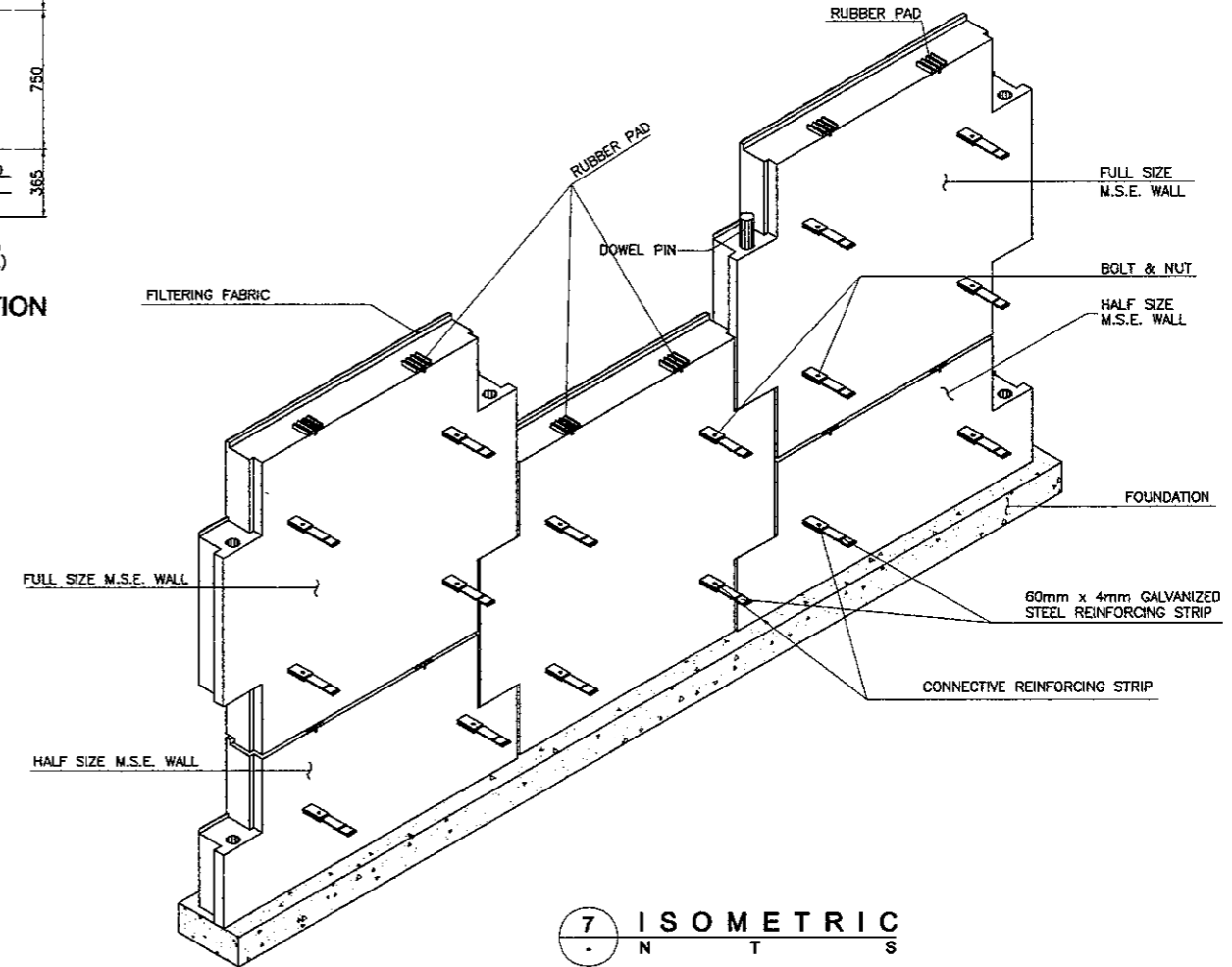
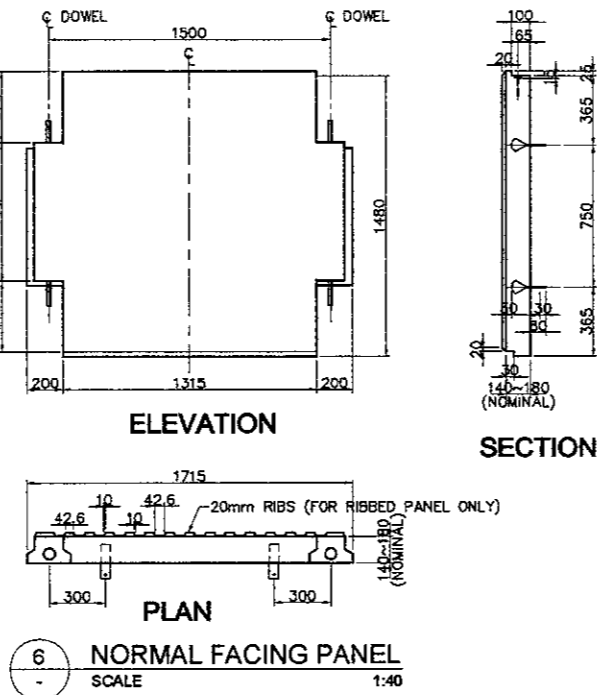
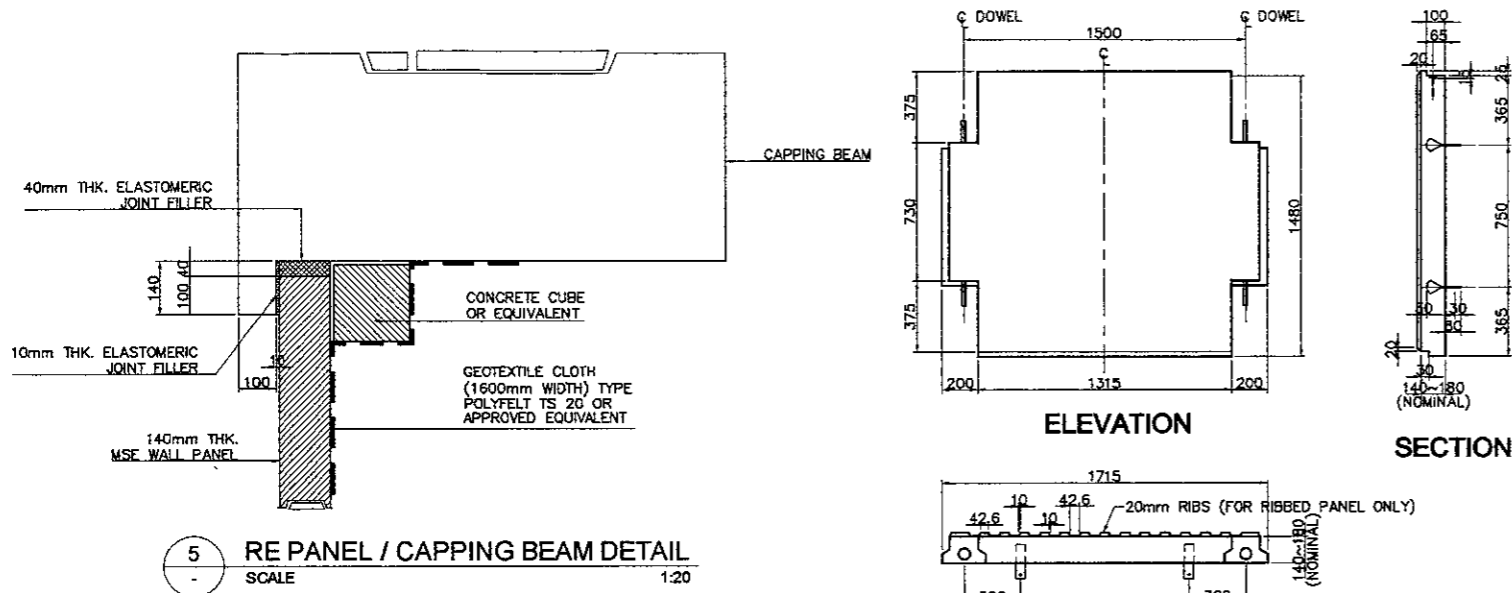


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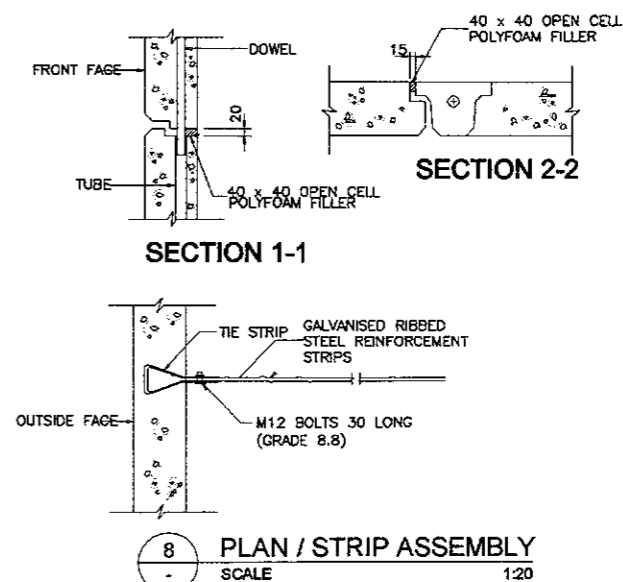
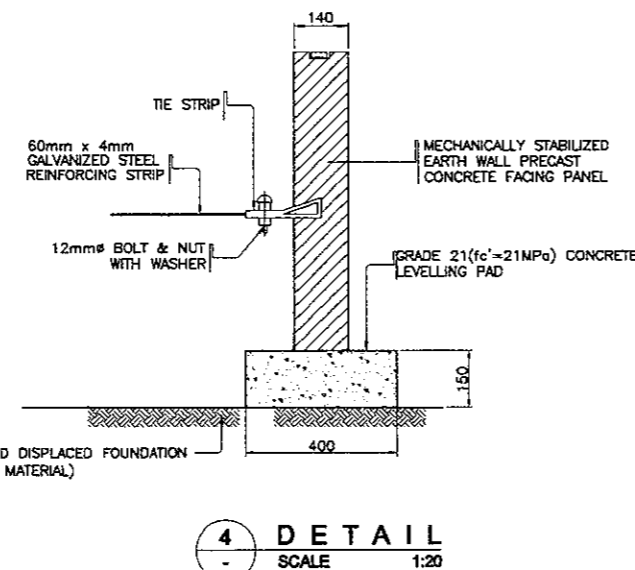
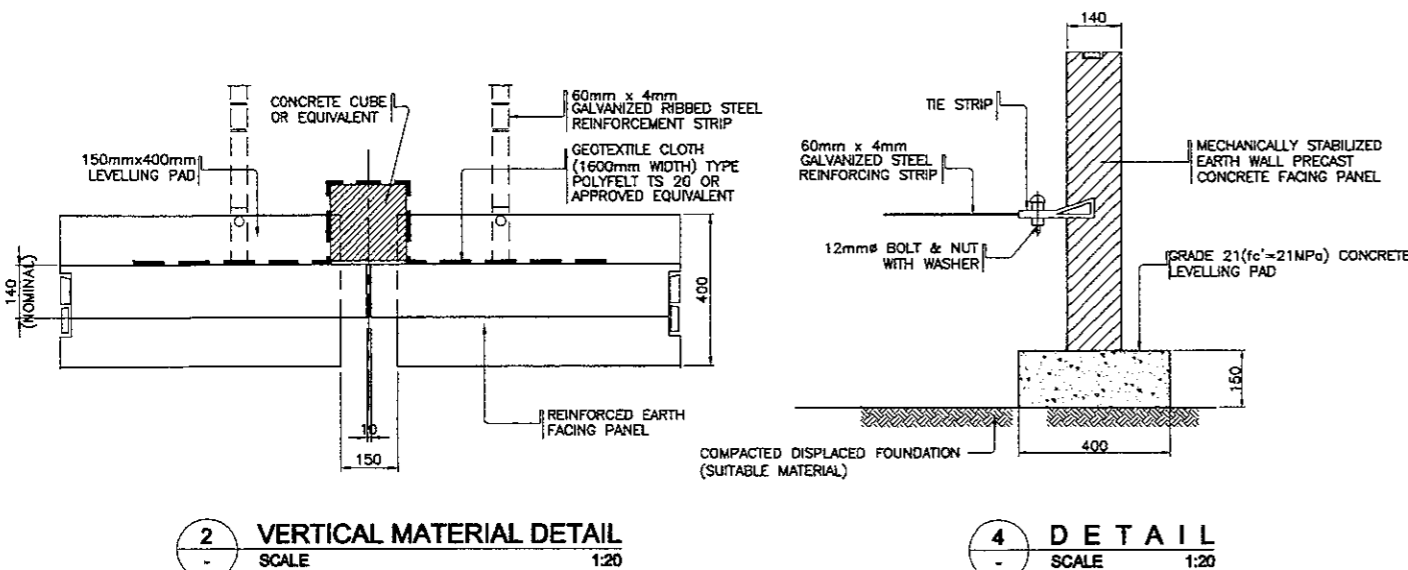
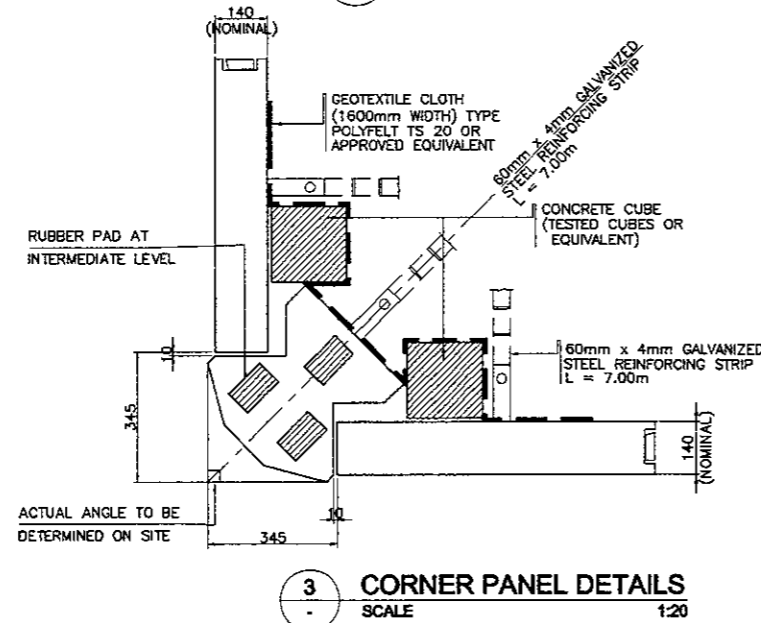
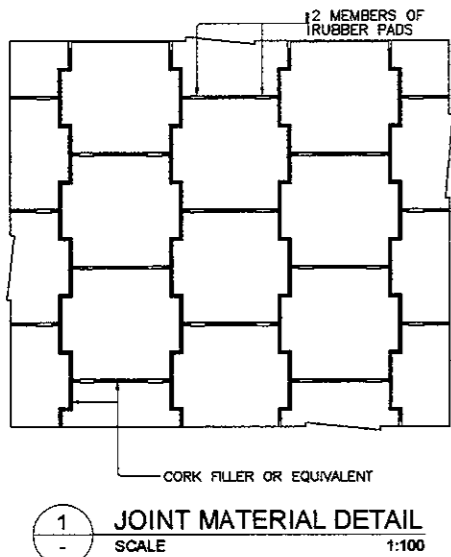


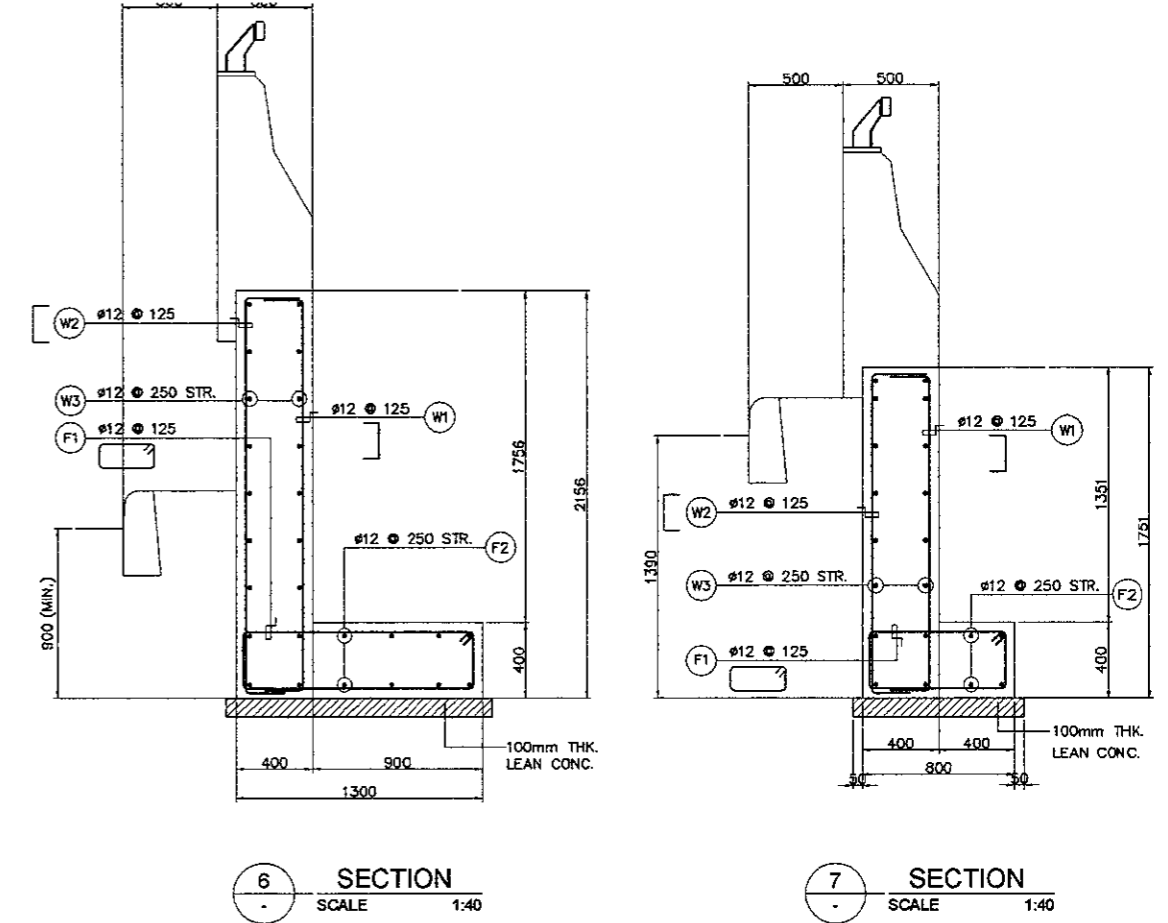
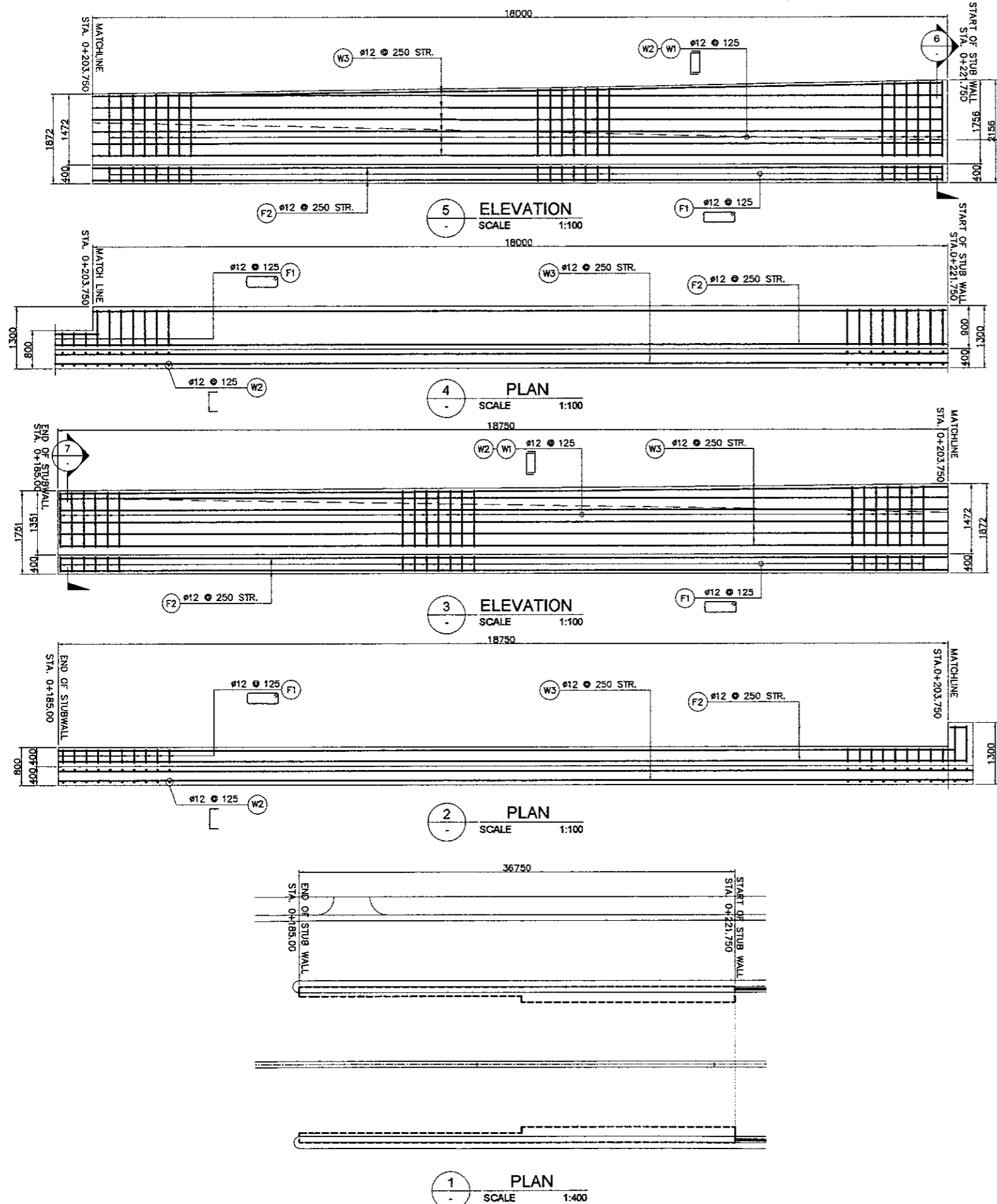
E SECTION
 SCALE 1:100

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



NOTES:
 1. REINFORCING BARS FOR THE PC-PANELS SHALL BE PROVIDED / DESIGN BY THE MANUFACTURER / SUPPLIER FOR APPROVAL OF THE ENGINEER PRIOR TO CASTING AND / OR FABRICATION.

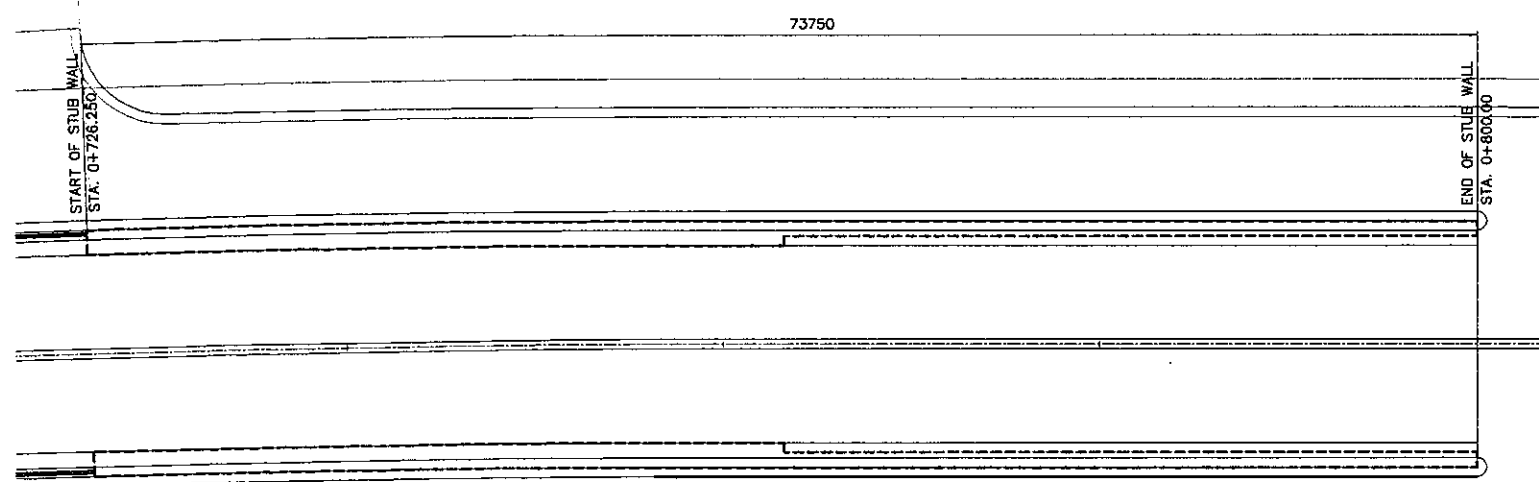
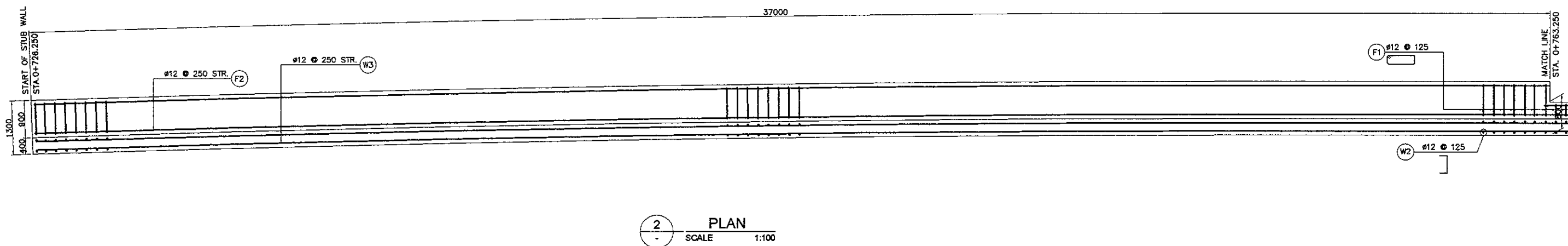
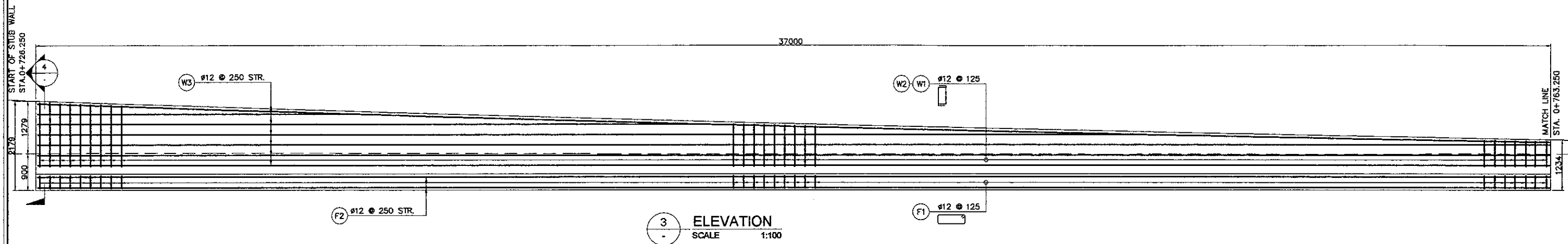




BAR BENDING DIAGRAM															
SCHEDULE OF REINFORCEMENT															
LOCA-TION	BAR MARK	SIZE (mm)	SPACING	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WT (kg/m)	WEIGHT (kg)	REMARKS
					a	b	c	d	e	f					
STUBWALL STA. 0+185.00 (STA. 0+203.750 LEFT & RIGHT)	W1	12	125	2	300	1874	300				2474	590	0.888	1,296.00	b is ave.
	W2	12	125	2	300	1874	300				2474	590	0.888	1,296.00	b is ave.
	W3	12	250	1	12000						12000	72	0.888	767.00	b is ave.
	W3a	12	250	1	1700						1700	24	0.888	36.00	
	F1	12	125	3	150	150	720	320	720	320	2380	302	0.888	638.00	
	F1a	12	125	3	150	150	1220	320	1220	320	3380	290	0.888	870.00	
	F2	12	250	1	12000						12000	16	0.888	170.00	
	F2a	12	250	1	7010						7010	16	0.888	100.00	
	F3	12	250	1	12000						12000	24	0.888	256.00	
	F3a	12	250	1	6260						6260	24	0.888	133.00	
TOTAL WEIGHT =											5,562.00				

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY, THE CONTRACTOR SHOULD CHECKED AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

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

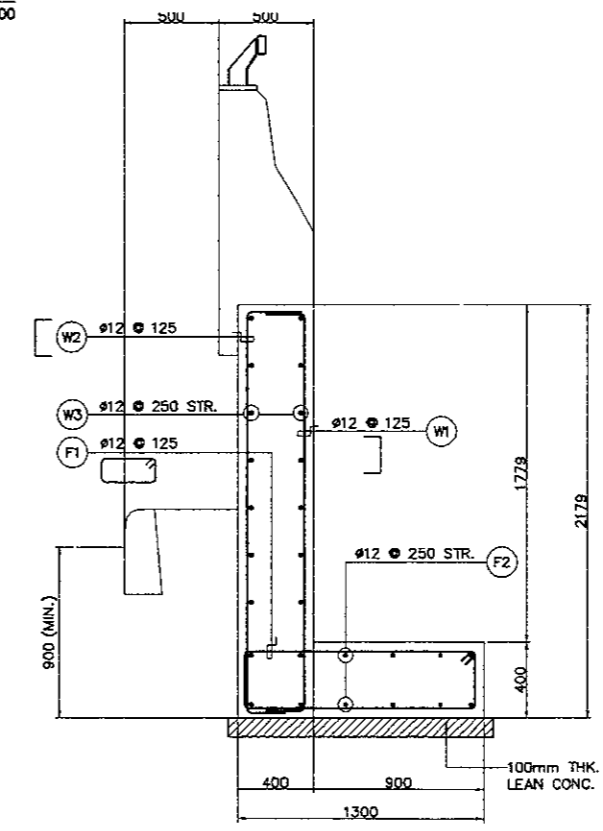
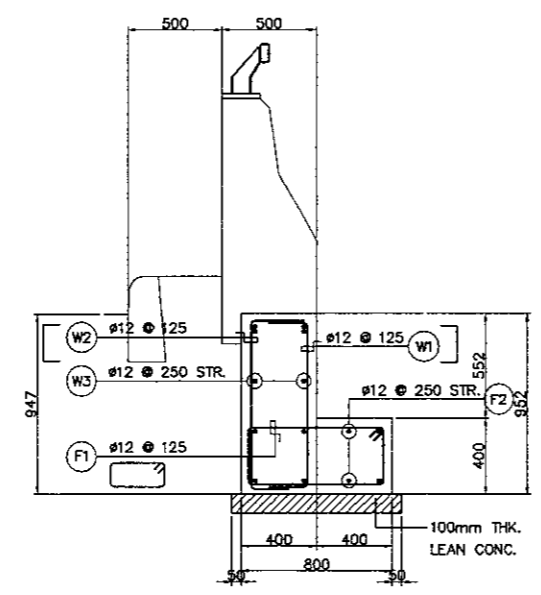
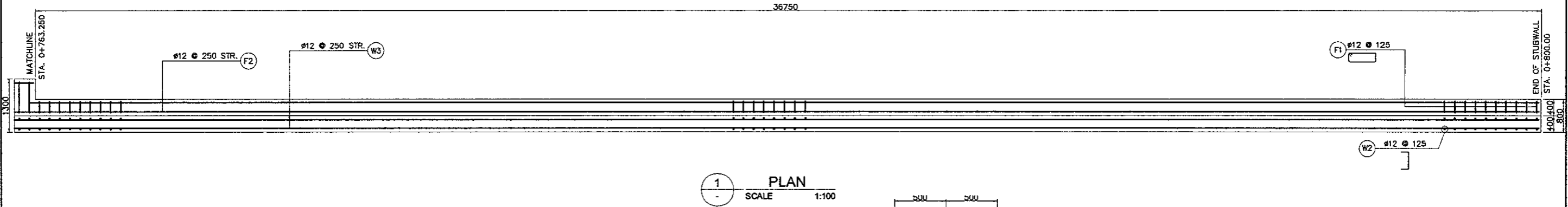
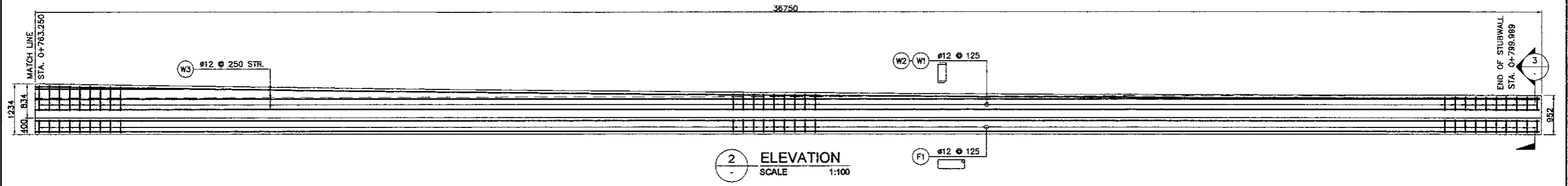


1 PLAN
 SCALE 1:400

BAR BENDING DIAGRAM																
SCHEDULE OF REINFORCEMENT																
LOCATION	BAR MARK	SIZE (mm)	SPACING	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WT (kg/m)	WEIGHT (kg)	REMARKS	
					a	b	c	d	e	f						
STUBWALL (STA. 0+726.250 TO 0+800.000) (LEFT & RIGHT)	W1	12	125	2	300	1486	300					2086	1182	0.888	2,189.00	b is ave.
	W2	12	125	2	300	1486	300					2086	1182	0.888	2,189.00	b is ave.
	W3	12	250	1	12000							12000	120	0.888	1,279.00	b is ave.
	W3a	12	250	1	3850							3850	20	0.888	68.00	
	F1	12	125	3	150	150	720	320	720	320		2380	590	0.888	1247.00	
	F1a	12	125	3	150	150	1220	320	1220	320		3380	594	0.888	1783.00	
	F2	12	250	1	12000							12000	48	0.888	511.00	
	F2a	12	250	1	1610							1610	16	0.888	23.00	
	F3	12	250	1	12000							12000	72	0.888	767.00	
	F3a	12	250	1	1860							1860	24	0.888	40.00	
TOTAL WEIGHT = 10,096.00																

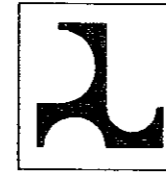
THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECKED AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

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





JAPAN INTERNATIONAL
COOPERATION AGENCY

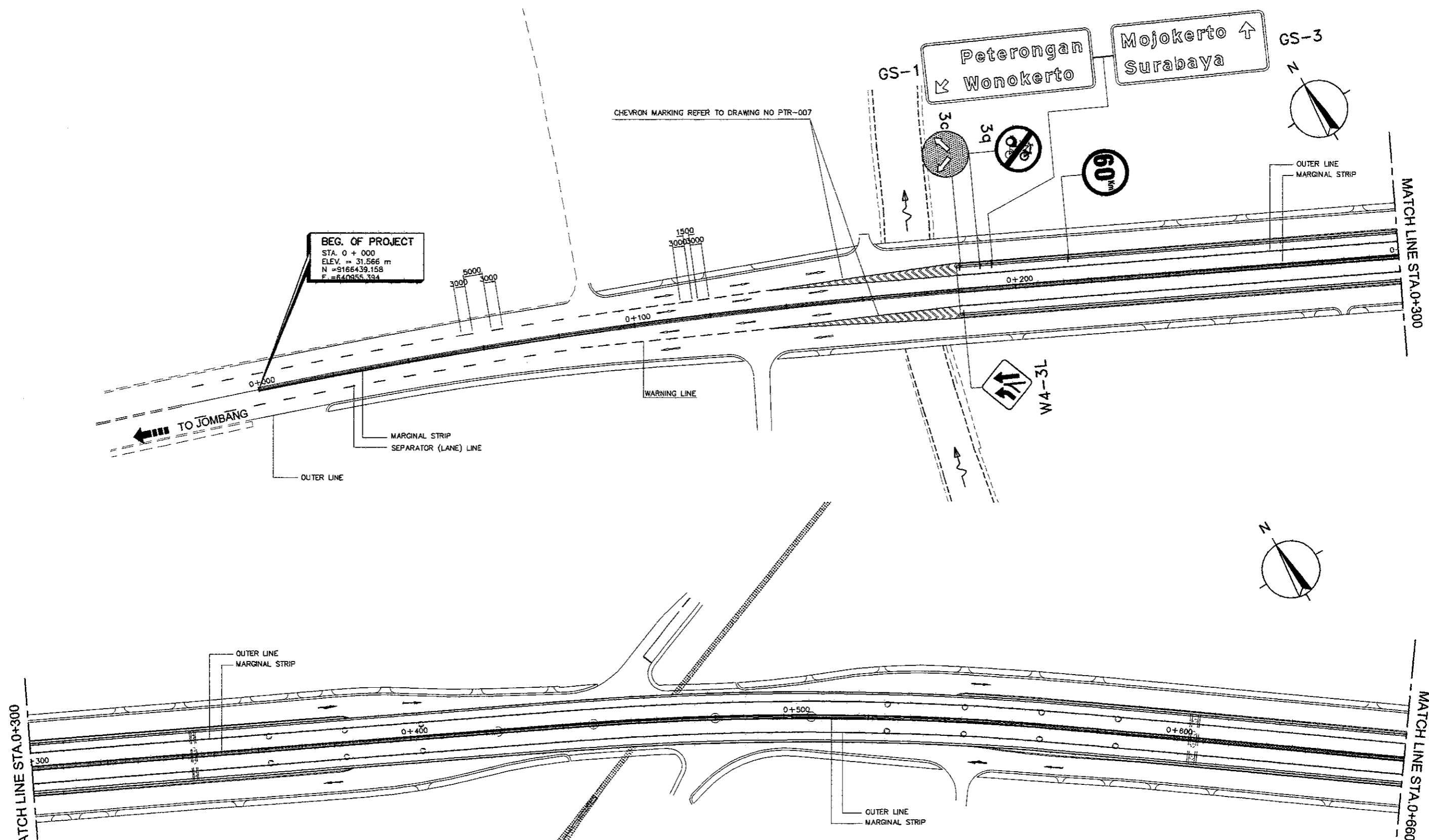


DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

TRAFFIC CONTROL

 **KEI** KATAHIRA & ENGINEERS INTERNATIONAL

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

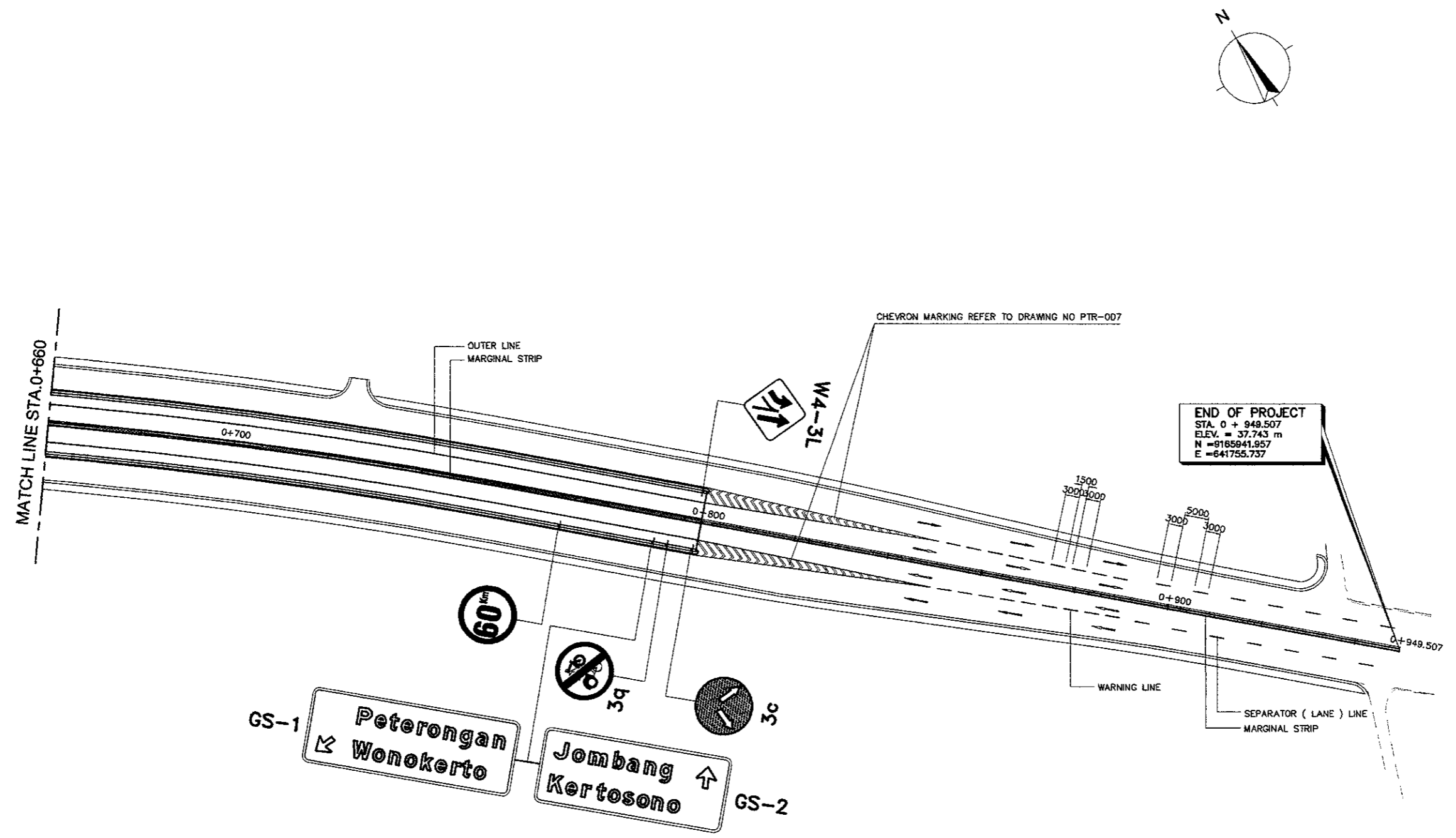


NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. FOR PAVEMENT MARKING DETAILS REFER TO DWG. NO.PTR-005 AND PTR-006
3. FOR STANDARD TRAFFIC SIGNS DETAILS, REFER TO DWGS. PTR-008 TO PTR-011
4. LOCATION OF SIGNS SHALL BE VERIFIED DURING CONSTRUCTION
6. OVERHEAD GUIDE SIGN SHALL BE ATTACHED TO A CANTILEVER TYPE SIGNS SUPPORT, REFER TO DWG.PTR-014 AND PTR-015
7. DELINEATORS SHALL BE INSTALLED AT FACE OF NEW JERSEY BARRIER AND PARAPET

1 TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT (FLYOVER)
 SCALE 1:1000

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



NOTES:

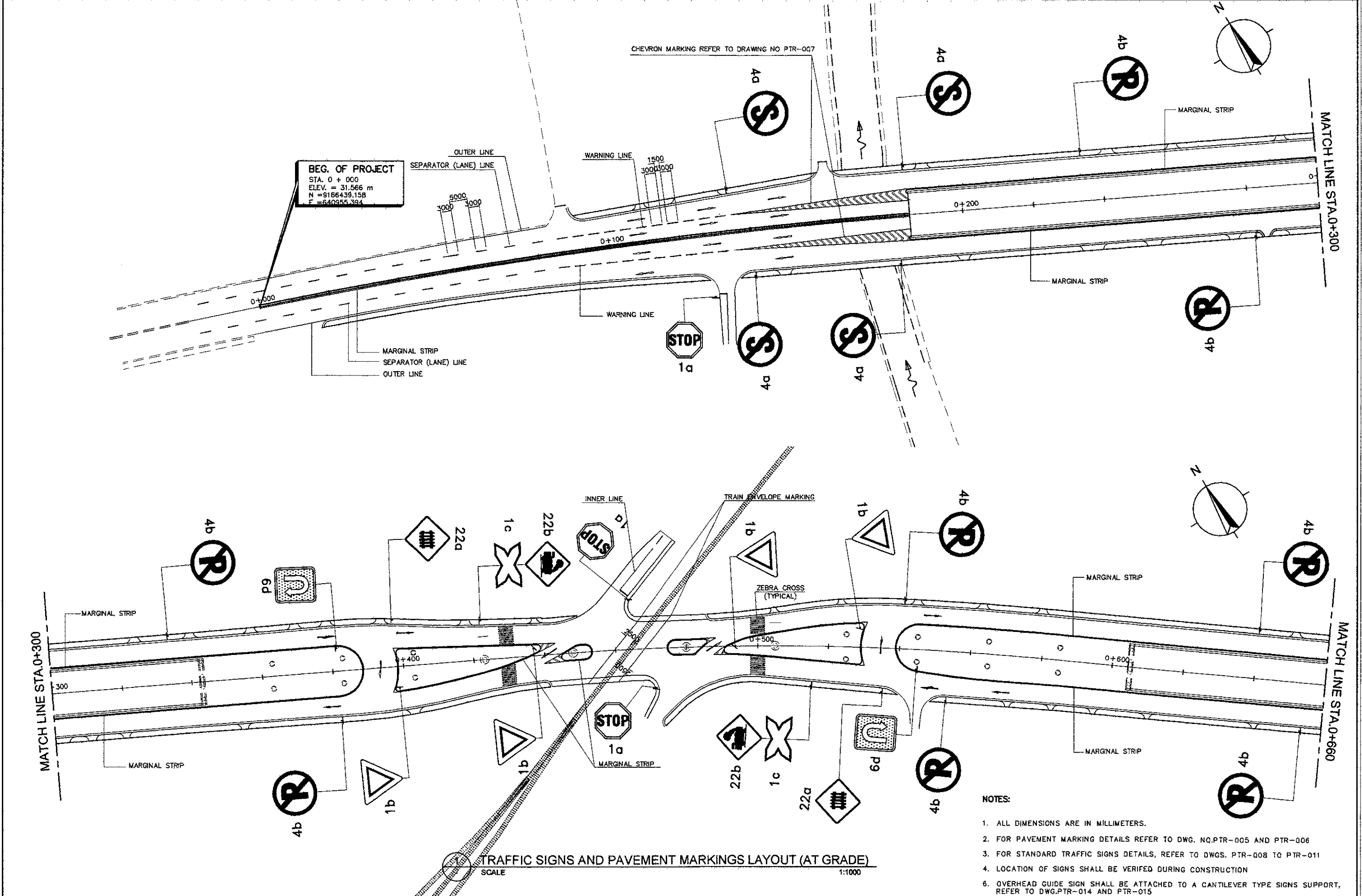
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2. FOR PAVEMENT MARKING DETAILS REFER TO DWG. NO.PTR-005 AND PTR-006
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7. DELINEATORS SHALL BE INSTALLED AT FACE OF NEW JERSEY BARRIER AND PARAPET

1

 TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT (FLYOVER)

 SCALE 1:1000

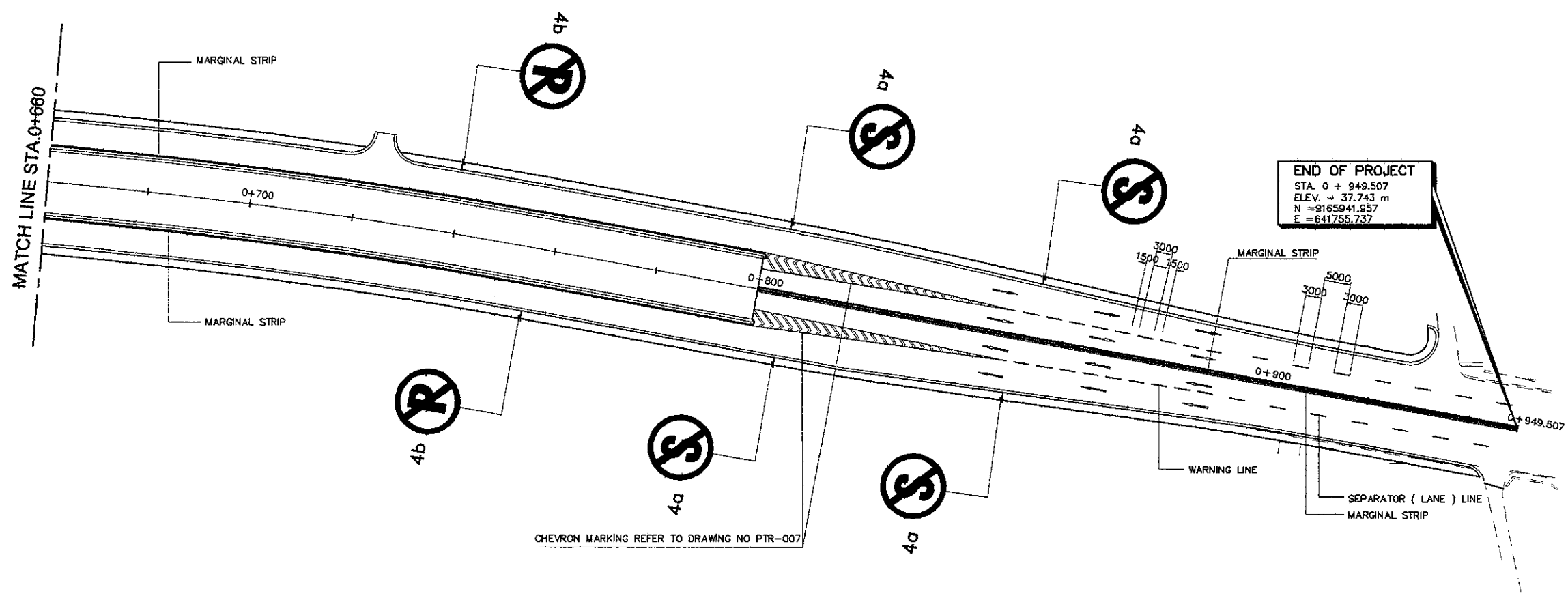
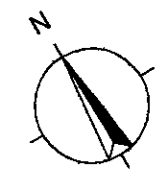
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name R. UENO	Name T. OKUMURA	Name M. KIUCHI
Sign	Sign	Sign
Date	Date	Date



TRAFFIC SIGNS AND PAVEMENT MARKINGS LAYOUT (AT GRADE)
 SCALE 1:1000

- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. FOR PAVEMENT MARKING DETAILS REFER TO DWG. NQ.PTR-005 AND PTR-006
 3. FOR STANDARD TRAFFIC SIGNS DETAILS, REFER TO DWGS. PTR-008 TO PTR-011
 4. LOCATION OF SIGNS SHALL BE VERIFIED DURING CONSTRUCTION
 5. OVERHEAD GUIDE SIGN SHALL BE ATTACHED TO A CANTILEVER TYPE SIGNS SUPPORT, REFER TO DWG.PTR-014 AND PTR-015
 6. DELINEATORS SHALL BE INSTALLED AT FACE OF NEW JERSEY BARRIER AND PARAPET

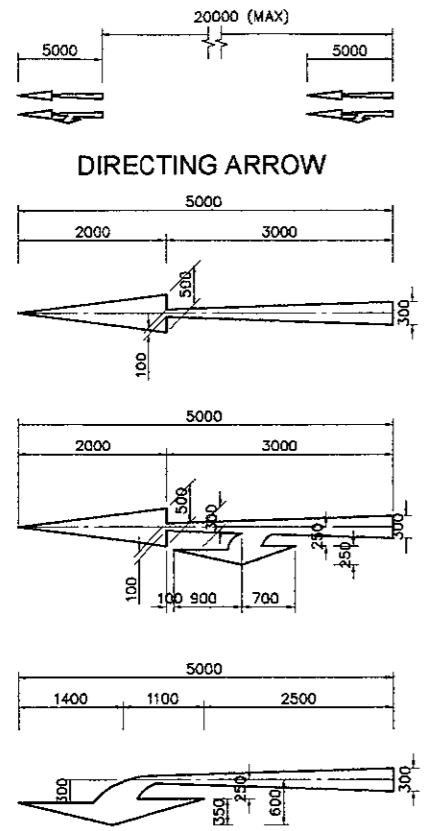
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



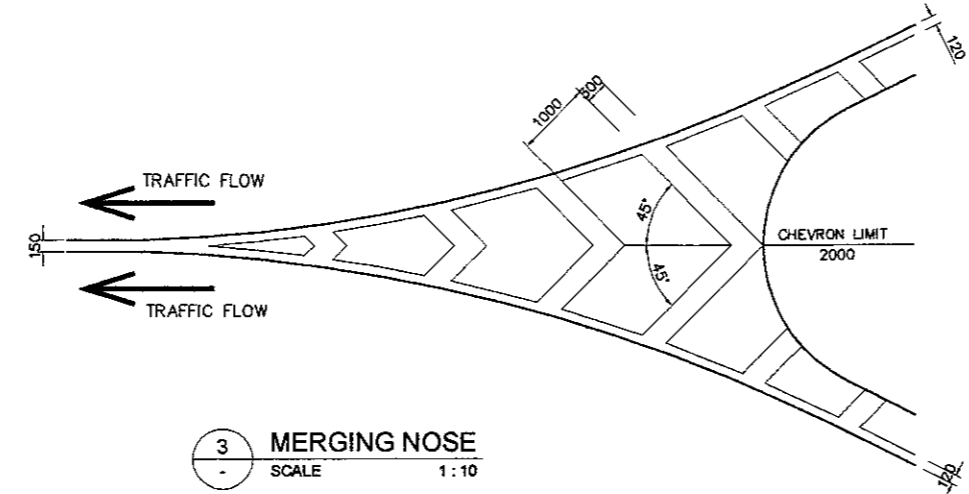
CHEVRON MARKING REFER TO DRAWING NO PTR-007

NOTES:

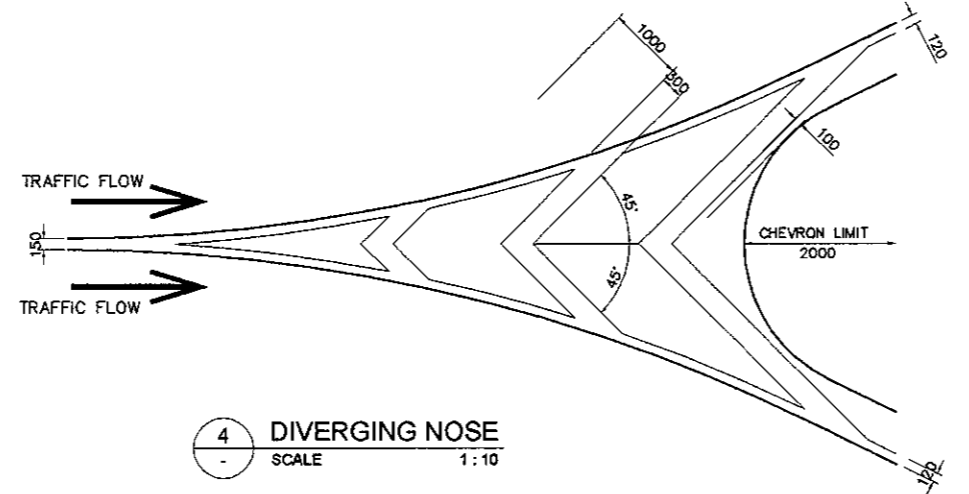
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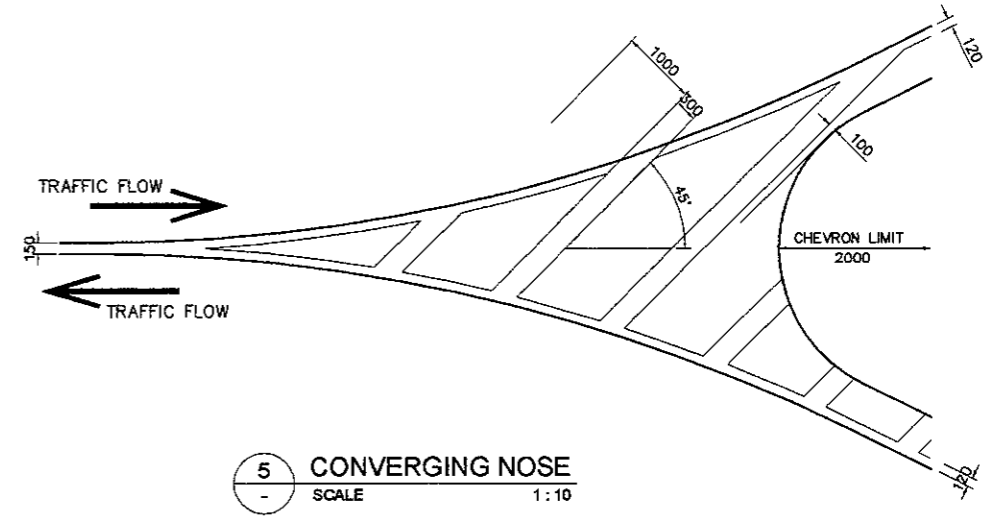
2 ARROW MARKING DETAIL
 SCALE 1:10



3 MERGING NOSE
 SCALE 1:10



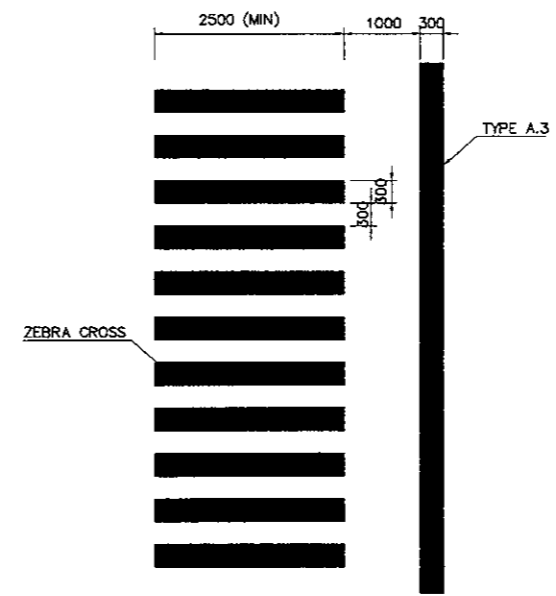
4 DIVERGING NOSE
 SCALE 1:10



5 CONVERGING NOSE
 SCALE 1:10

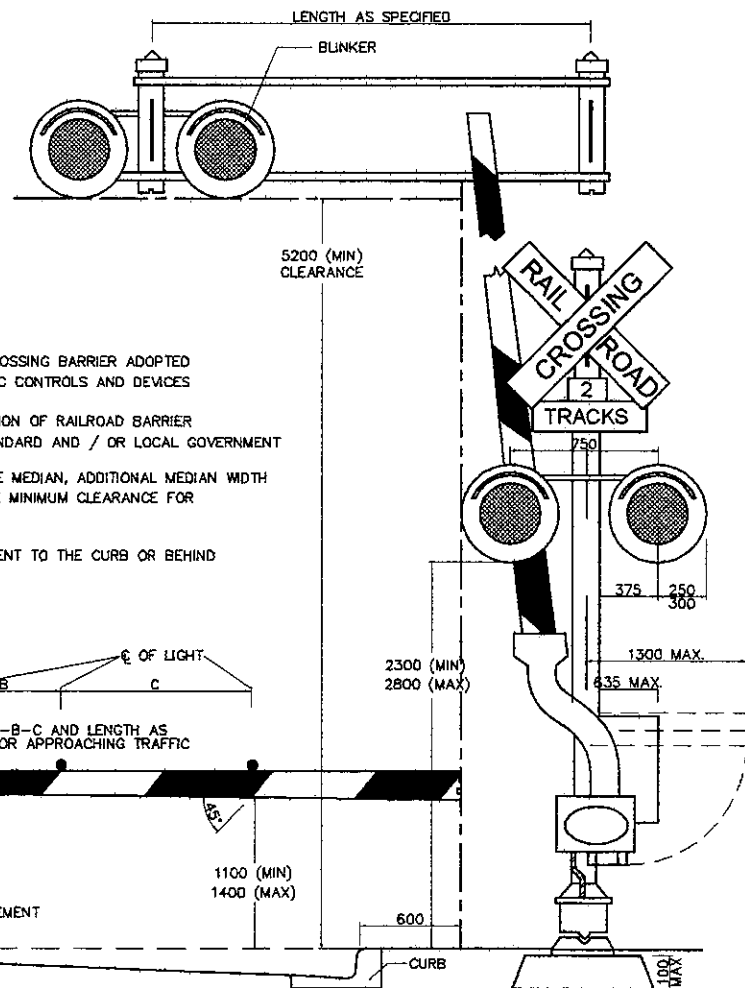
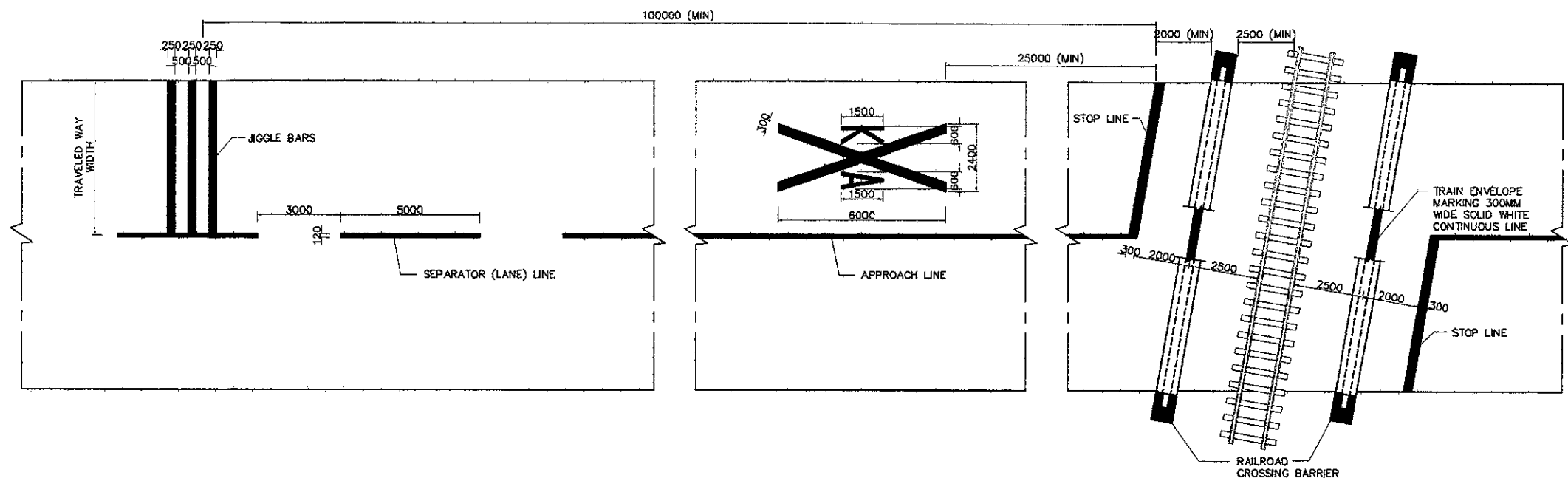
TYPE	LANE MARKINGS	
A	CONTINUOUS/SOLID LINE	
	1. MARGINAL STRIP/DIRECTION LINE	
	2. APPROACH LINE	
B	3. STOP LINE	
	BROKEN GUIDING LINE (SEPARATOR/DIVIDING LINES) (V < 60 KM/H)	
C	WARNING LINE (MIN 50M)	

1 TYPES OF LINE MARKING
 SCALE 1:400

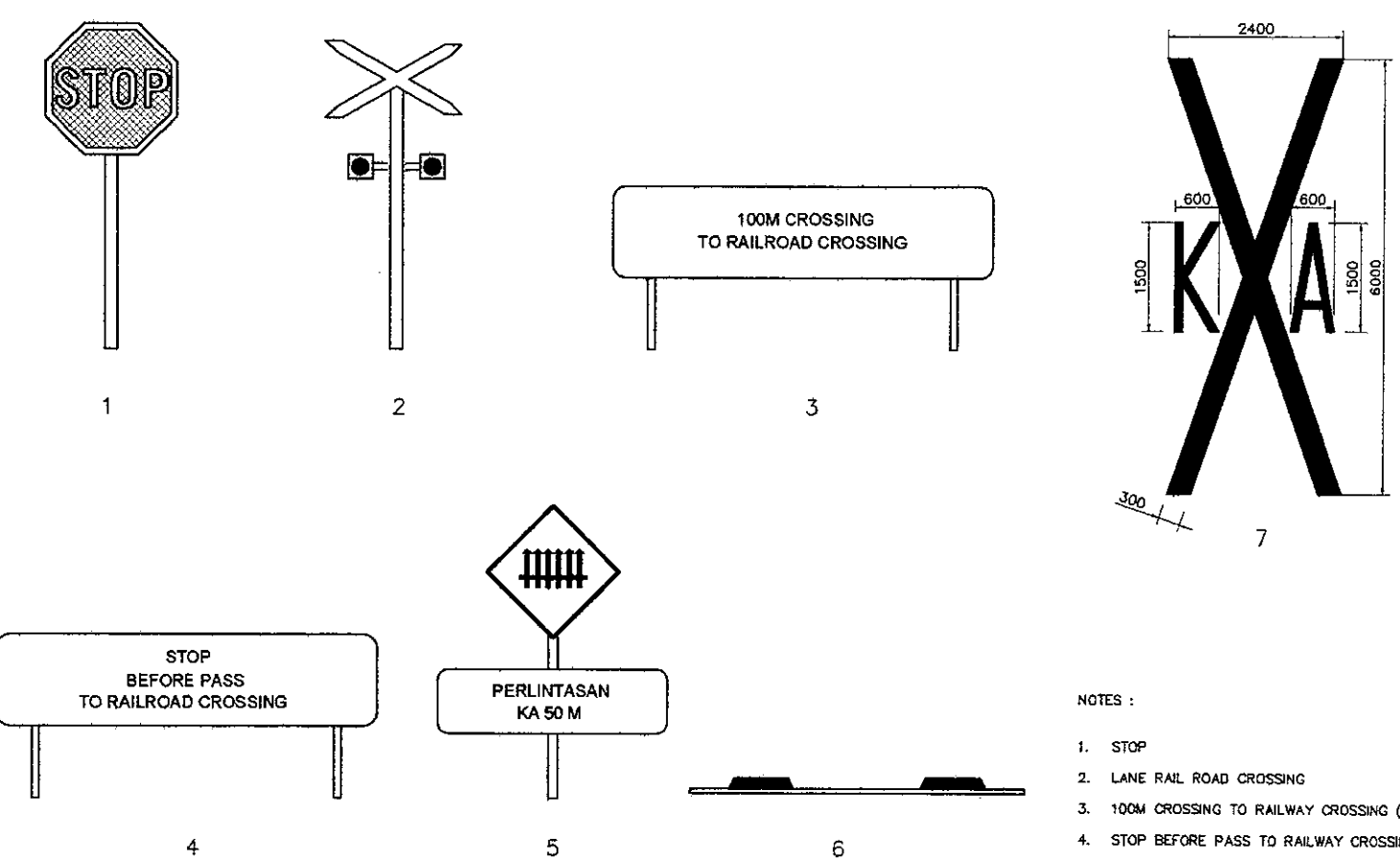


6 STOP LINE LOCATION AT PEDESTRIAN CROSSING
 SCALE 1:10

- NOTES**
- ROAD MARKINGS TO BE WHITE PAINT AND THE MATERIAL SHALL BE APPROVED BY THE ENGINEER
 - ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SHOWN
 - MARKING AT ALL LOCATIONS OF THE ROAD SHALL BE PROVIDED AS SHOWN IN THE DRAWINGS AND AS INSTRUCTED/ APPROVED BY THE ENGINEER
 - PAVEMENT/ROAD MARKINGS SHOULD CONFORM WITH THE "DINAS PERHUBUNGAN LALU LINTAS DAN ANGKUTAN JALAN SETEPAT"



- NOTES :
1. TYPICAL EXAMPLE OF RAILROAD CROSSING BARRIER ADOPTED FROM MANUAL ON UNIFORM TRAFFIC CONTROLS AND DEVICES
 2. DETAILED FABRICATION & INSTALATION OF RAILROAD BARRIER SHOULD CONFORM TO PT. KAI STANDARD AND / OR LOCAL GOVERNMENT
 3. WHERE GATES ARE LOCATED IN THE MEDIAN, ADDITIONAL MEDIAN WIDTH MAY BE REQUIRED TO PROVIDE THE MINIMUM CLEARANCE FOR THE COUNTERWEIGHT SUPPORT
 4. SIDEWALK CAN BE LOCATED ADJACENT TO THE CURB OR BEHIND THE RAILWAY BARRIER

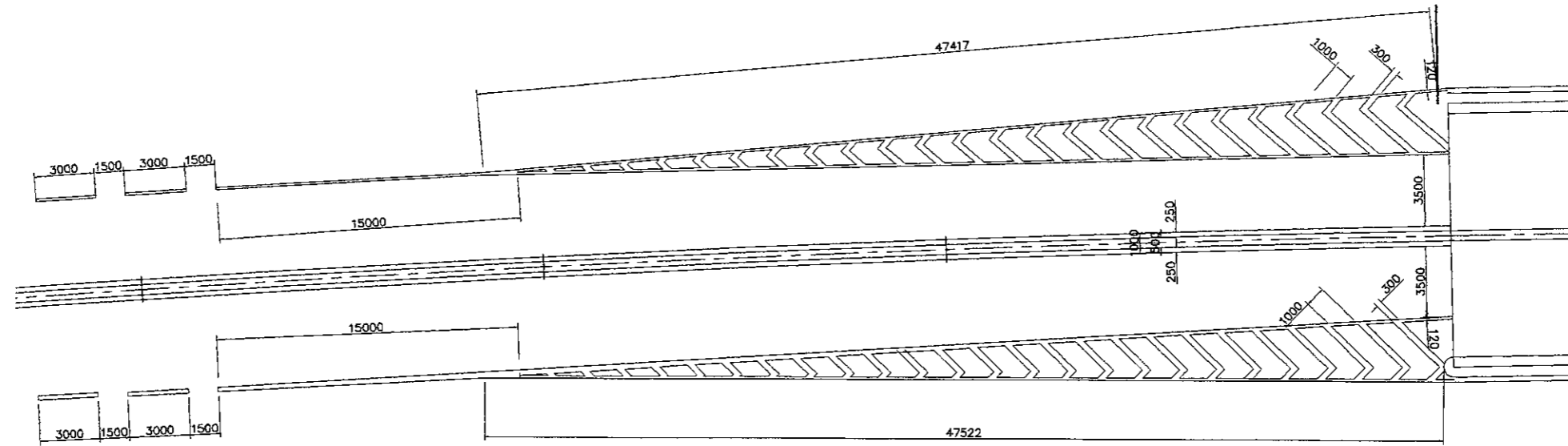



- NOTES :
1. STOP
 2. LANE RAIL ROAD CROSSING
 3. 100M CROSSING TO RAILWAY CROSSING (OPTIONAL)
 4. STOP BEFORE PASS TO RAILWAY CROSSING (OPTIONAL)
 5. RAILWAY CROSSING WITH GATES
 6. JIGGLE BARS
 7. RAILROAD CROSSING

TYPICAL RAILROAD CROSSING GATE
 SCALE

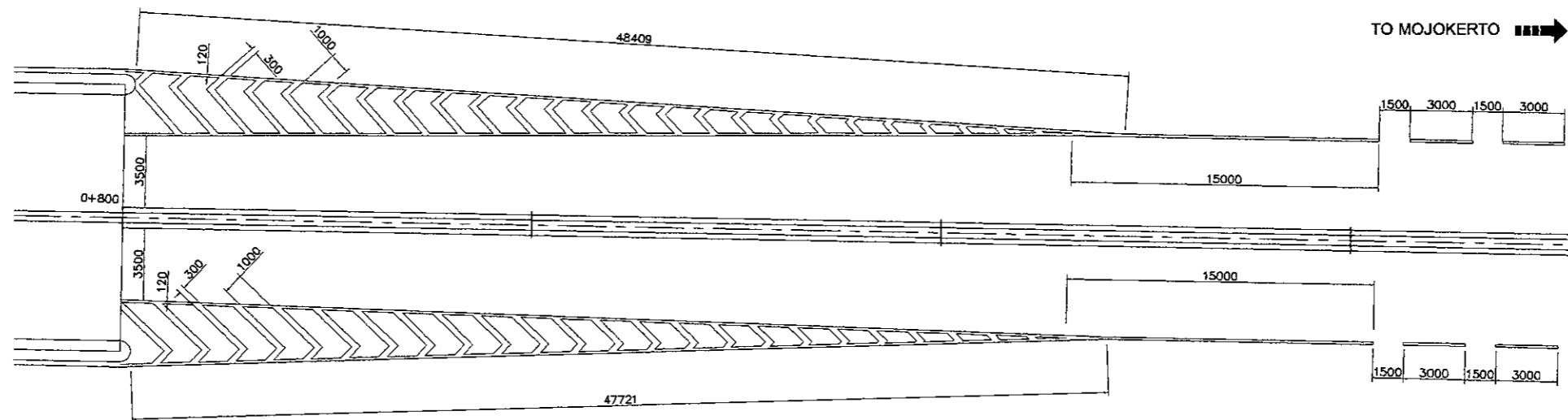
1 STANDARD SIGNS AND PAVEMENT MARKINGS AT RAILROAD CROSSING
 NOT TO SCALE

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	




TO JOMBANG

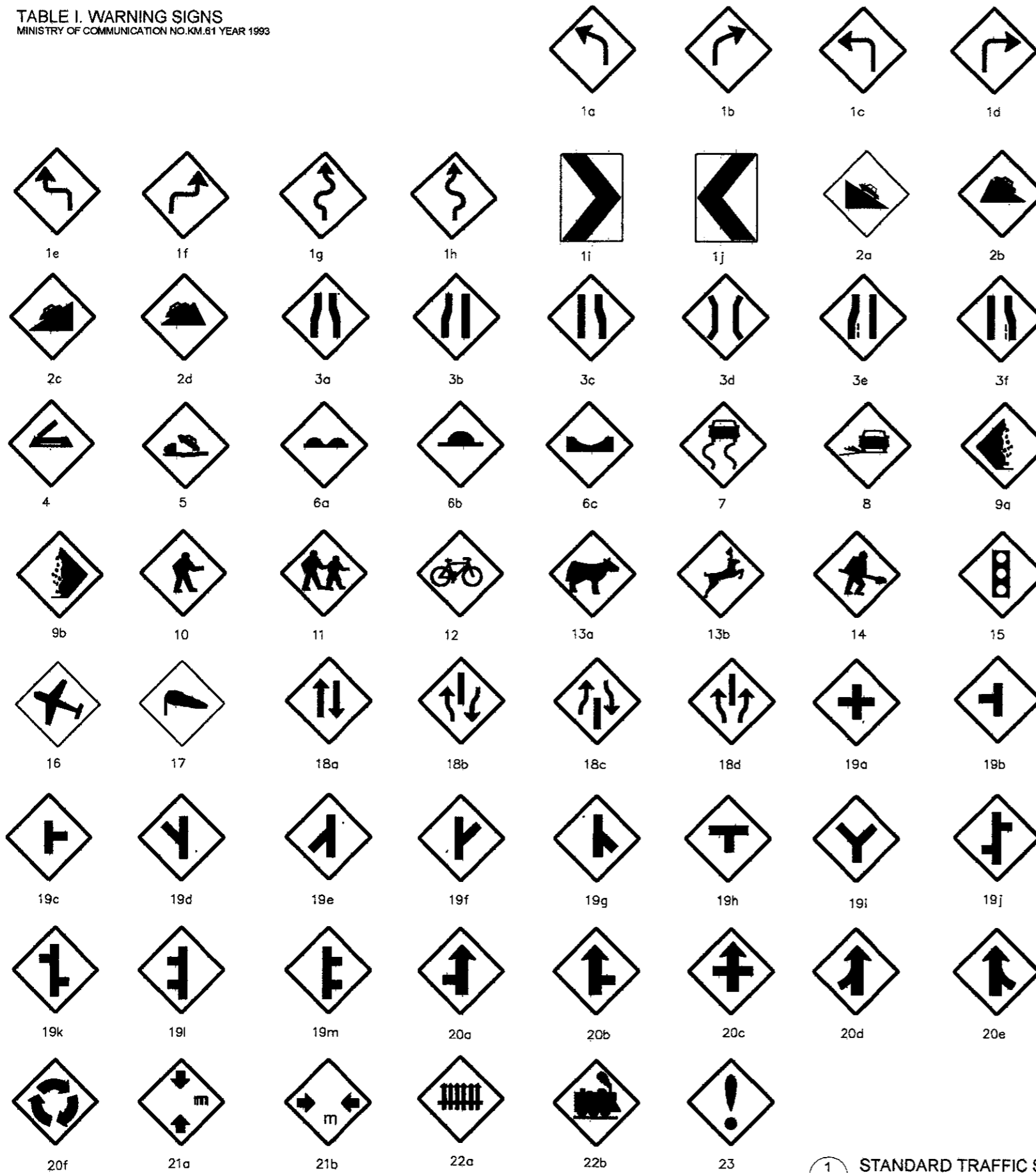
APPROACH 1



TO MOJOKERTO


APPROACH 2

TABLE I. WARNING SIGNS
 MINISTRY OF COMMUNICATION NO.KM.61 YEAR 1993



- 1a. LEFT CURVE
- 1b. RIGHT CURVE
- 1c. SHARP LEFT CURVE
- 1d. SHARP RIGHT CURVE
- 1e. DOUBLE CURVE, BEGIN WITH LEFT CURVE
- 1f. DOUBLE CURVE, BEGIN WITH RIGHT CURVE
- 1g. MANY CURVES, BEGIN WITH LEFT CURVE
- 1h. MANY CURVES, BEGIN WITH RIGHT CURVE
- 1i. RIGHT CURVE
- 1j. LEFT CURVE
- 2a. DOWN GRADE
- 2b. DOWN GRADE SHARP
- 2c. UP GRADE
- 2d. UP GRADE SHARP
- 3a. CHANGING OF ROAD WIDTH
- 3b. CHANGING OF ROAD WIDTH LEFT
- 3c. CHANGING OF ROAD WIDTH RIGHT
- 3d. CHANGING OF ROAD WIDTH AT BRIDGE
- 3e. MERGER OF LEFT LANE TO RIGHT LANE
- 3f. MERGER OF RIGHT LANE TO LEFT LANE
- 4. LIFT BRIDGE
- 5. WHARF
- 6a. CONDITIONAL OF ROAD PROFILE IS NOT EVEN
- 6b. CONDITIONAL OF ROAD PROFILE IS CONVEX
- 6c. CONDITIONAL OF ROAD PROFILE IS CONCAVE
- 7. SLIPPERY
- 8. MANY GRAVEL'S
- 9a. FALLING ROCKS FROM LEFT
- 9b. FALLING ROCKS FROM RIGHT
- 10. WATCH FOR PEDESTRIAN
- 11. WATCH FOR CHILDREN
- 12. WATCH FOR BICYCLE
- 13a. WATCH FOR CATTLE
- 13b. WATCH FOR WILD LIFE
- 14. ROAD WORK
- 15. TRAFFIC CONTROL LIGHTS
- 16. PLANE TRAJECTORY
- 17. WIND FROM SIDE COURSE
- 18a. TWO WAY TRAFFIC
- 18b. BEGINNING OF SEPARATOR ON TWO WAY TRAFFIC
- 18c. END OF SEPARATOR ON TWO WAY TRAFFIC
- 18d. BEGINNING OF SEPARATOR ON ONE WAY TRAFFIC
- 19a. CROSS ROAD
- 19b. INTERSECTION FROM LEFT DIRECTION TRAFFIC
- 19c. INTERSECTION FROM RIGHT DIRECTION TRAFFIC
- 19d. INTERSECTION FROM FRONT LEFT DIRECTION TRAFFIC
- 19e. INTERSECTION FROM BACK LEFT DIRECTION TRAFFIC
- 19f. INTERSECTION FROM FRONT RIGHT DIRECTION TRAFFIC
- 19g. INTERSECTION FROM BACK RIGHT DIRECTION TRAFFIC
- 19h. T-TYPE INTERSECTION
- 19i. Y-TYPE INTERSECTION
- 19j. TWO INTERSECTION, BEGIN FROM LEFT DIRECTION TRAFFIC AND THEN RIGHT DIRECTION TRAFFIC
- 19k. TWO INTERSECTION, BEGIN FROM RIGHT DIRECTION TRAFFIC AND THEN LEFT DIRECTION TRAFFIC
- 19l. TWO INTERSECTION, BOTH OF THEM FROM LEFT DIRECTION TRAFFIC
- 19m. TWO INTERSECTION, BOTH OF THEM FROM RIGHT DIRECTION TRAFFIC
- 20a. CROSSROAD WITH PRIORITY
- 20b. INTERSECTION FROM LEFT DIRECTION TRAFFIC WITH PRIORITY
- 20c. INTERSECTION FROM RIGHT DIRECTION TRAFFIC WITH PRIORITY
- 20d. INTERSECTION FROM BACK LEFT DIRECTION TRAFFIC WITH PRIORITY
- 20e. INTERSECTION FROM BACK RIGHT DIRECTION TRAFFIC WITH PRIORITY
- 21a. HEIGHT OF FREE SPACE
- 21b. WIDTH OF FREE SPACE
- 22a. RAIL ROAD CROSSING WITH GATES
- 22b. RAIL ROAD CROSSING WITHOUT GATES
- 23. LOOK OUT

COLOR LEGEND :

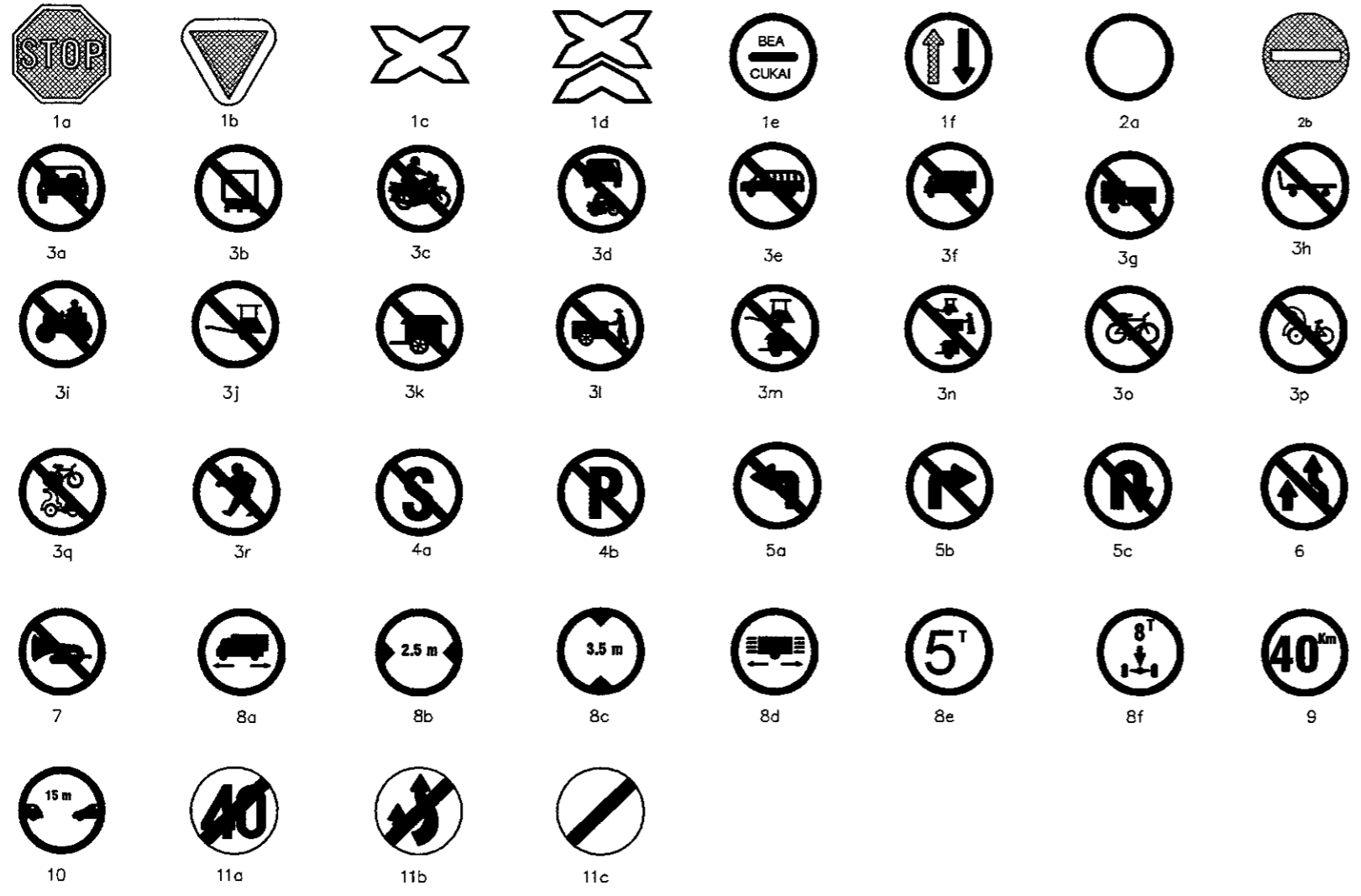
YELLOW

BLACK

NOTE :

STANDARD TRAFFIC ROAD SIGNS SHOULD CONFORM WITH THE "DINAS PERHUBUNGAN LALU LINTAS DAN ANGKUTAN JALAN SETEMPAT"

TABLE II A. PROHIBITION SIGN
 MINISTRY OF COMMUNICATION NO.KM.61 YEAR 1993

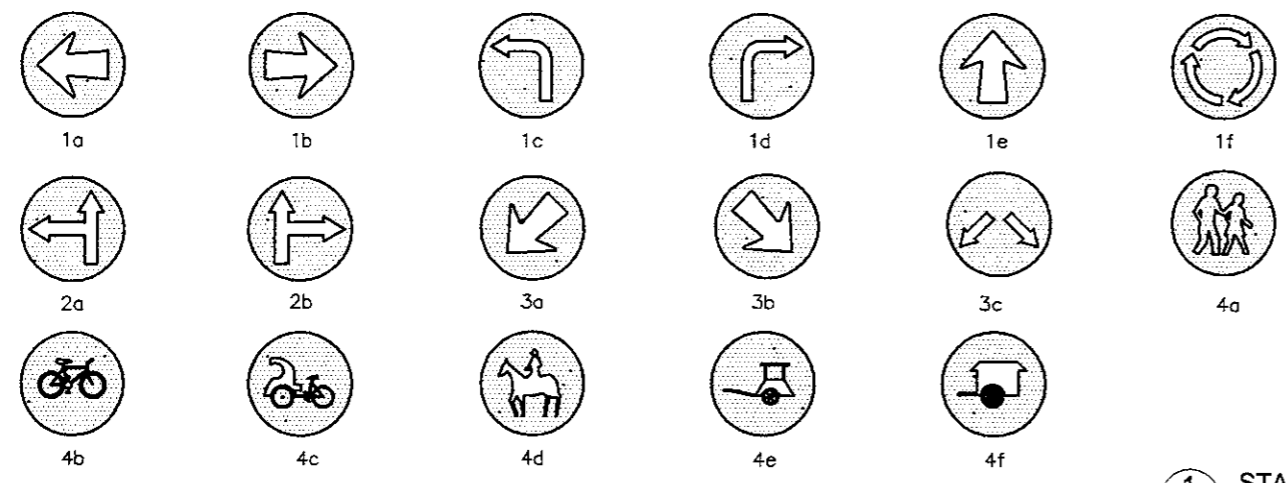


- 1a. STOP
- 1b. GIVE WAY, YIELD
- 1c. ONE LANERAIL ROAD CROSSING
- 1d. TWO LANERAIL ROAD CROSSING
- 1e. STOP FOR INVESTIGATION CONCERN WITH 'BEA CUKAI'
- 1f. PRIORITY FOR VEHICLES FROM BOTH DIRECTION
- 2a. NO ENTRY FOR ALL VEHICLES FROM BOTH DIRECTIONS
- 2b. NO ENTRY FOR ALL VEHICLES
- 3a. NO ENTRY FOR FOUR WHEEL MOTORIZED VEHICLES
- 3b. NO ENTRY FOR THREE WHEEL MOTORIZED VEHICLES
- 3c. NO ENTRY FOR TWO WHEEL MOTORIZED VEHICLES
- 3d. NO ENTRY FOR ALL MOTORIZED VEHICLES
- 3e. NO ENTRY FOR BUS
- 3f. NO ENTRY FOR TRUCK
- 3g. NO ENTRY FOR MOTORIZED VEHICLE WITH PULL A CART
- 3h. NO ENTRY FOR TRAILER
- 3i. NO ENTRY FOR ROLLER
- 3j. NO ENTRY FOR CARRIAGE
- 3k. NO ENTRY FOR OXCART
- 3l. NO ENTRY FOR PUSHCART
- 3m. NO ENTRY FOR CARRIAGE AND OXCART
- 3n. NO ENTRY FOR CARRIAGE, PUSHCART AND OXCART
- 3o. NO ENTRY FOR BICYCLE
- 3p. NO ENTRY FOR TRICYCLE
- 3q. NO ENTRY FOR BICYCLE AND TRICYCLE
- 3r. NO ENTRY FOR PEDESTRIAN
- 4a. NO STOPPING
- 4b. NO PARKING
- 5a. TURN TO LEFT PROHIBITION (NO LEFT TURN)
- 5b. TURN TO RIGHT PROHIBITION (NO RIGHT TURN)
- 5c. CHANGE OF COURSE PROHIBITION (NO U-TURN)
- 6. NO OVERTAKE
- 7. NO HORN
- 8a. LENGTH LIMIT FOR MOTORIZED VEHICLE
- 8b. WIDTH LIMIT
- 8c. HEIGHT LIMIT
- 8d. LENGHT LIMIT FOR CART
- 8e. WEIGHT LIMIT FOR CART
- 8f. WEIGHT LIMIT
- 9. SPEED LIMIT
- 10. DISTANCE LIMIT
- 11a. END OF SPEED LIMIT AREA
- 11b. END OF NO OVERTAKE AREA
- 11c. END OF PROHIBITION AREA

COLOR LEGEND :

	YELLOW
	RED
	BLACK
	BLUE

TABLE II B. INSTRUCTION SIGN



- 1a. INDICATION OF DIRECTION TO LEFT
- 1b. INDICATION OF DIRECTION TO RIGHT
- 1c. TURNING INDICATION TO LEFT
- 1d. TURNING INDICATION TO RIGHT
- 1e. MUST BE RUN IN A STRAIGHT LINE
- 1f. MUST BE FOLLOW THE ARROW POINTS WHILE ON TRAFFIC ROTARY
- 2a. MUST BE FOLLOW ONE OF THE ARROW POINTS
- 2b. MUST BE FOLLOW ONE OF THE ARROW POINTS
- 3a. MUST PASS THIS LANE
- 3b. MUST PASS THIS LANE
- 3c. MUST PASS IN ONE OF THESE LANES
- 4a. FOR PEDESTRIANS
- 4b. FOR BICYCLES
- 4c. FOR TRICYCLES
- 4d. FOR HORSE
- 4e. FOR CARRIAGE
- 4f. FOR OXCART

NOTE :
 STANDARD TRAFFIC ROAD SIGNS SHOULD CONFORM WITH THE " DINAS PERHUBUNGAN LALU LINTAS DAN ANGKUTAN JALAN SETEMPAT "