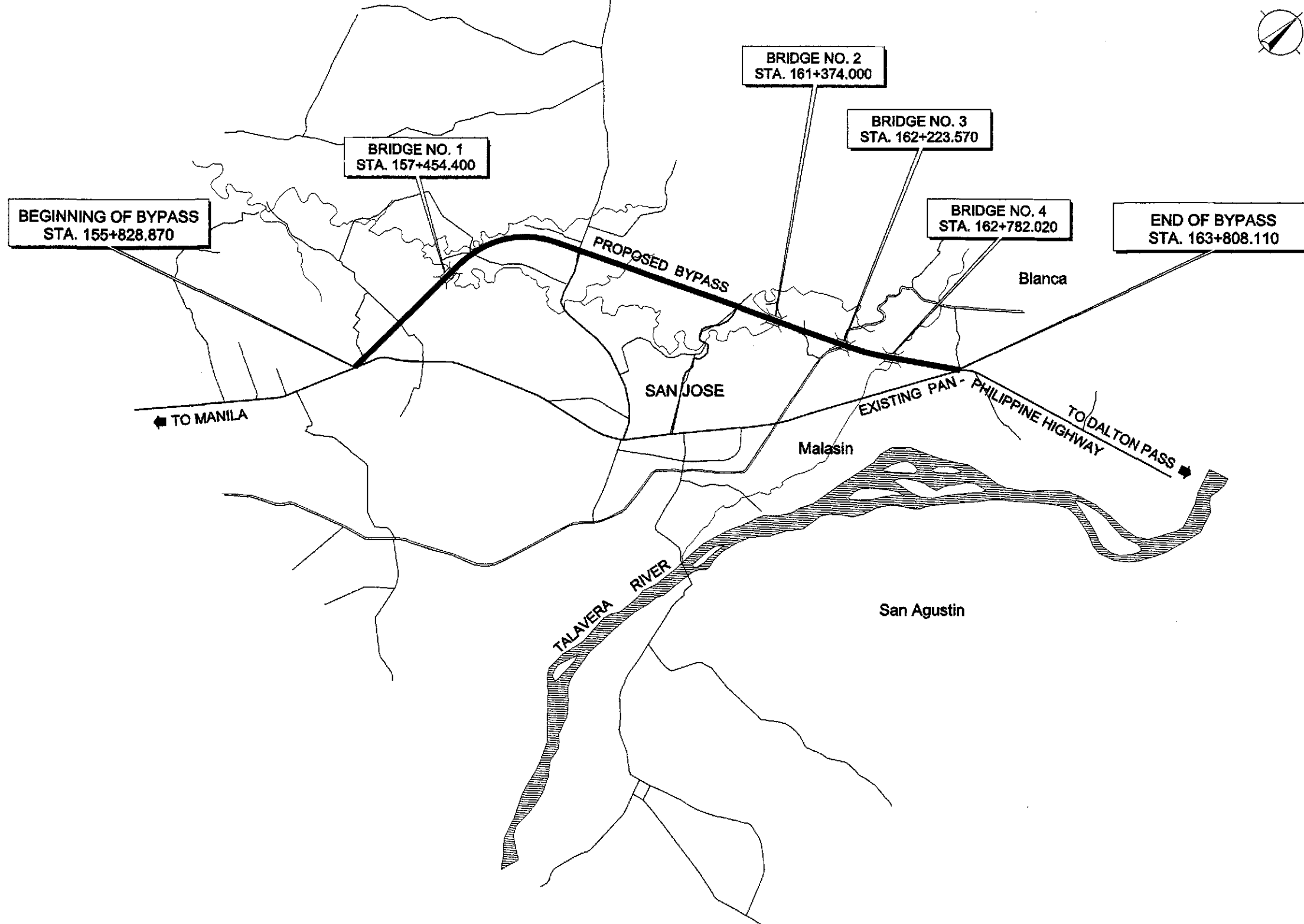


BRIDGES



A SAN JOSE BYPASS BRIDGES LOCATION MAP
NOT TO SCALE

	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	DESIGNED	9/2/02	E. N. SALLAN	BUREAU OF DESIGN		THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pilaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGES LOCATION MAP	BG-01
	CHECKED	7/4/02	[Signature]	Submitted By:	Reviewed By:				
SUBMITTED	9/6/02	[Signature]	DANILO C. TRAJANO Project Director	ADRIANO M. DORCY Chief, Bridges Division	GILBERTO S. REYES Director IV (GIC)	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary	FULL SIZE A1	(INITIAL STAGE)

GENERAL NOTES FOR BRIDGES

(SHEET 2 OF 2)

8. STRUCTURAL STEEL

THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS FOR ALL STRUCTURAL STEEL WORK. THESE SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER BEFORE ANY FABRICATION COMMENCES.

9. SHORING

- (a) CAMBER FOR REINFORCED CONCRETE SUPERSTRUCTURES WERE DETERMINED BASED ON THE USE OF SHORINGS DURING CONSTRUCTION.
- (b) CAMBER FOR COMPOSITE SUPERSTRUCTURES WITH PRECAST PRESTRESSED GIRDERS WERE DETERMINED BASED ON UNSHORED CONDITIONS.

10. EXCAVATION

EXCAVATION FOR STRUCTURES SHALL BE TO THE NEAT LINES OF FOOTING OR AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

11. WATER ELEVATION

WATER ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY AND VARIATION FOUND DURING CONSTRUCTION SHALL NOT BE CONSIDERED AS A BASIS FOR EXTRA COMPENSATION.

12. DETOUR

THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN DETOUR BRIDGES, AND/OR ROADS DURING CONSTRUCTION TO ALLOW CONTINUOUS FLOW OF TRAFFIC. THEY SHALL BE CONSTRUCTED ON LOCATION AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER/CONSULTANT. NO ADDITIONAL COST SHALL BE ALLOWED FOR ANY RELOCATION OF DETOUR.

13. PRESTRESSED CONCRETE

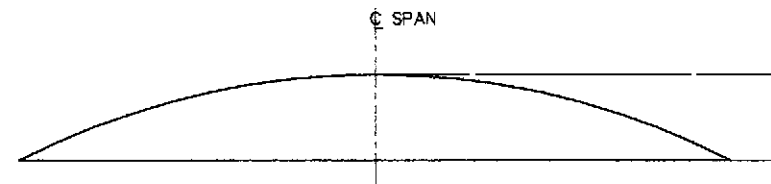
GIRDER DESIGN GUIDE

- a.) POST-TENSIONING ; THE PROPOSED TYPE OF TENDONS WHICH WILL BE USED IN THE POST-TENSIONED DESIGNS, ALL NECESSARY ADDITIONAL DETAILS INCLUDING THOSE FOR END ANCHORAGES, METHODS TO BE EMPLOYED AND PROCEDURES TO BE FOLLOWED, SHALL BE AS APPROVED BY THE ENGINEERS/CONSULTANT. A PORTION OF THE TENDONS SHALL BE DRAPED LONGITUDINAL IN PARABOLIC POSITIONS. ALL TENDONS SHALL BE PLACED SO THAT THEIR CENTER OF GRAVITY WILL BE AT THE POSITION SHOWN ON PLANS. THE TOTAL POST-TENSION FORCE AFTER LOSSES REQUIRED AT MIDSPAN SHALL BE PROVIDED AS CALLED FOR IN THE VARIOUS DESIGNS. THE REQUIRED FORCES AFTER LOSSES SHALL BE OBTAINED BY APPLYING INITIAL TENSILE FORCES OF SUFFICIENT MAGNITUDE TO ALLOW FOR ALL SUBSEQUENT LOSSES, INCLUDING THOSE FOR ELASTIC SHORTENING, SHRINKAGE, CREEP, RELAXATION, FRICTION, AND EFFICIENCY OF END ANCHORAGES. AFTER SECURING THE END ANCHORAGES ALL TENDONS SHALL BE PRESSURE GROUTED IN THEIR CONDUITS IN ACCORDANCE WITH "SPECIFICATIONS".

- b.) CONCRETE FOR GIRDERS SHALL BE A MINIMUM STRENGTH OF 41 N/mm² (6,000 PSI) AT THE AGE OF 28 DAYS.
- c.) CONCRETE FOR CAST-IN-PLACE SLAB HAVE A MINIMUM STRENGTH 21 N/mm² (3,000 PSI) AT THE AGE OF 28 DAYS.
- d.) THE CONTRACTOR MAY PROPOSE ANY ALTERNATIVE TENDON SIZE AND LAYOUT AND SUBJECT SHALL MEET THE APPROVAL OF THE ENGINEER.
- e.) THE REQUIRED STRENGTH OF CONCRETE AT TIME OF TENSIONING SHALL BE 35 MPa (5,000 PSI). A GRID CONSISTING OF #12 BARS AT 100 CENTERS IN BOTH DIRECTIONS SHALL BE PLACED NEAR EACH ANCHORAGE OF THE POST-TENSIONING SYSTEM.
- f.) HANDLING PRESTRESSED CONCRETE BEAMS : THE BEAMS SHALL BE MAINTAINED IN AN UPRIGHT POSITION AND SHALL BE LIFTED BY SUITABLE DEVICES PROVIDED AT THE ENDS OF THE BEAMS. ATTENTION IS DIRECTED TO THE INCREASED DIFFICULTY OF LIFTING BEAMS WITHOUT END BLOCKS. THE CONTRACTORS PROPOSED LIFTING DETAILS SHOULD BE GIVEN CAREFUL CONSIDERATION BEFORE BEING SUBMITTED ON SHOP DRAWING FOR APPROVAL. THE USE OF HOLES FOR LIFTING PURPOSES WILL NOT BE PERMITTED.
- g.) CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE ENGINEER THE CALCULATED ELONGATION OF THE PRESTRESSING TENDONS CORRESPONDING TO THE REQUIRED JACKING FORCES.
- h.) SHOP DRAWING SHALL SUBMIT FOR APPROVAL PRIOR TO FABRICATION.

14. DRAWINGS














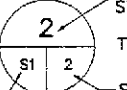
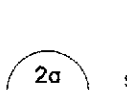

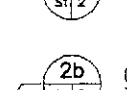
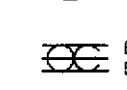


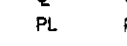
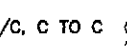



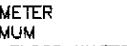
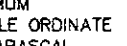
- a.) ALL ELEVATIONS, STATIONING AND DIMENSIONS SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
- b.) ALL QUANTITIES SHALL BE VERIFIED DURING CONSTRUCTION.



DEAD LOAD CAMBER DIAGRAM





A = FABRICATION CAMBER - ESTIMATED PRESTRESS CAMBER LESS DEFLECTION DUE TO GIRDER DEAD LOAD

SYMBOLS

 LINE OF SYMMETRY OR SIMILARITY  NORTH ARROW  INDICATION OF ELEVATION  LIMITS OF DIMENSION  SECTION IN WATER  SECTION IN EARTH  SECTION IN STRUCTURAL STEEL  SECTION IN CONCRETE  SECTION IN EXISTING CONCRETE STRUCTURE  BITUMINOUS WEARING SURFACE ON BRIDGES  PLAN VIEW AND ELEVATION OF CUT & FILL SLOPES  PLAN VIEW OF RUBBLE CONC. ON SLOPE  PLAN VIEW OF GROUTED RIPRAP ON SLOPE	 IDENTIFICATION SYMBOL  TITLE TARGET  SUB-TITLE TARGET  SECTION TARGET  DETAIL REF TARGET  BUNDLED BARS  ROUND  SQUARE  AT  AND  CENTERLINE  PLATE  ANGLE SHAPE  C/C, C TO C CENTER TO CENTER
--	---

ABBREVIATIONS

ABT	ABOUT	kPa	KILOPASCAL
ABUT	ABUTMENT	m	METER
BEG	BEGINNING	mm	MILLIMETER
BET	BETWEEN	MAX	MAXIMUM
BOTT	BOTTOM	MFWL	MAX. FLOOD WATER LEVEL
BR	BRIDGE	MIN	MINIMUM
BRG	BEARING	MO	MIDDLE ORDNATE
CLR	CLEAR	MPa	MEGAPASCAL
cm	CENTIMETER	N	NEWTON
COL	COLUMN	NF	NEAR FACE
CONC	CONCRETE	No.	NUMBER
CONST	CONSTRUCTION	O.C.	ON CENTER
CTR	CENTER	PEJ	PREMOULDED EXPANSION JOINT
DET	DETAIL	PVC	POLYVINYL CHLORIDE
DIAM	DIAMETER	PVI	POINT OF VERT. INTERSECTION
DIAPH	DIAPHRAGM	QTY	QUANTITY
DWG	DRAWING	R	RADIUS
EA	EACH	RC	REINFORCED CONCRETE
EF	EACH FACE	RDWY	ROADWAY
ELEV	ELEVATION	REINF	REINFORCEMENT
ENGR	ENGINEER	SDWK	SIDEWALK
EQ	EQUAL	SL	SLOPE
EW	EACHWAY	SP	SPIRAL
EXP	EXPANSION	SPCD	SPACED
EXT	EXTERIOR	SPCS	SPACES
EXIST	EXISTING	STD	STANDARD
FF	FAR FACE	STIR	STIRRUP
FTG	FOOTING	STA	STATION
GEN	GENERAL	STRUCT	STRUCTURE
HOR	HORIZONTAL	SYMM	SYMMETRY
HW	HIGH WATER	THK	THICK
INT	INTERIOR	TYP	TYPICAL
INTERM	INTERMEDIATE	VAR	VARIABLE
JT	JOINT	VERT	VERTICAL
L	LENGTH	VOL	VOLUME
LG	LONG	W	WIDTH
kg	KILOGRAM	W/	WITH
kN	KILONEWTON	&	AND

 JAPAN INTERNATIONAL COOPERATION AGENCY	 KATAHIRA & ENGINEERS INTERNATIONAL	 YACHIYO ENGINEERING CO., LTD.	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	SCALE : N. T. S.	SHEET CONTENTS : GENERAL NOTES FOR BRIDGES (SHEET 2 OF 2) (INITIAL STAGE)	SHEET NO. : BG-03	
DESIGNED: 9/2/02 E. N. SALLAN CHECKED: 9/4/02 M. ROSAYASIN SUBMITTED: 9/6/02 M. ROSAYASIN			BUREAU OF DESIGN Submitted By: DANILLO C. TRAJANO, Project Director Recommended By: ADRIANO M. DORGY, Chief, Bridges Division Recommended By: GILBERTO S. REYES, Director IV (GIC) Recommended By: MANUEL M. BONGAN, Undersecretary Approved By: SIMEON A. DATUMARANG, Secretary			FULL SIZE A1		

BRIDGE NAME : BRIDGE NO. 1
 BRIDGE LENGTH : 40.00
 SPECIFICATION : 1 - 40.00 m SPAN TYPE VI PSCG ON SEAT TYPE ABUTMENT

SUMMARY OF QUANTITIES						
PAY ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		SUPER-STRUCTURE	TOTAL
			" A "	" B "		
103(2)a	Bridge Excavation, Common, Above O.W.L.	cu.m.	133.83	133.83		268.00
103(2)c	Bridge Excavation, Common, Below O.W.L.	cu.m.	255.49	255.49		511.00
104(3)	Embankment from Borrow Pit	cu.m.	979.05	1,121.71		2,101.00
104(4)	Embankment for Bridge Approach	cu.m.	332.23	287.70		620.00
200(1)	Aggregate Subbase Course	cu.m.	17.13	17.13		35.00
311(2)	PCC Pavement (Reinforced) t=300mm, including Dowel Bars (Approach Slab)	sq.m.	72.75	72.75		146.00
401(1)a	Concrete Post and Railing	l.m.			80.00	80.00
404(1)	Reinforcing Steel, Grade 40	kg	5,513.00	5,513.00	19,648.00	30,675.00
404(2)	Reinforcing Steel, Grade 60	kg	17,838.00	17,838.00	2,093.00	37,770.00
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	269.61	269.61		540.00
405(1)d	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.			168.86	169.00
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	2.95	2.95	12.00	18.00
405(6)	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	22.62	22.62		46.00
405(1)n	Prestressed Concrete Girder Type VI Modified L=40.00m	each			6.00	6.00
407(1)c	Elastomeric Bearing Pad (600x350x50, Duro 60)	each			12.00	12.00
407(2)a	Expansion Joint, (± 40mm Movement)	l.m.			25.00	25.00
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.			2.40	2.40
407(4)	Metal Drain (150 mmø G.I. Drain Pipe)	l.m.			6.00	6.00
504(1)	Grouted Riprap, Class "A"	cu.m.	172.57	192.56		366.00
509(1)	Gabions	cu.m.	135.78	140.18		276.00
SPL 420(2)c	Realignment of River/Stream	L.S.				1.00

BRIDGE NAME : BRIDGE NO. 3
 BRIDGE LENGTH : 40.00
 SPECIFICATION : 1 - 40.00 m SPAN TYPE VI PSCG ON SEAT TYPE ABUTMENT

SUMMARY OF QUANTITIES						
PAY ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		SUPER-STRUCTURE	TOTAL
			" A "	" B "		
103(2)a	Bridge Excavation, Common, Above O.W.L.	cu.m.	881.30	535.30		1,217.00
104(3)	Embankment from Borrow Pit	cu.m.	78.43	54.85		134.00
104(4)	Embankment for Bridge Approach	cu.m.	71.93	58.23		131.00
200(1)	Aggregate Subbase Course	cu.m.	17.13	17.13		35.00
311(2)	PCC Pavement (Reinforced) t=300mm, including Dowel Bars (Approach Slab)	sq.m.	72.75	72.75		146.00
401(1)a	Concrete Post and Railing	l.m.			80.00	80.00
404(1)	Reinforcing Steel, Grade 40	kg	5,366.00	5,560.00	20,423.00	31,350.00
404(2)	Reinforcing Steel, Grade 60	kg	19,098.00	18,109.00	2,093.00	39,301.00
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	274.80	271.81		547.00
405(1)d	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.			168.86	169.00
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	2.95	2.95	12.00	18.00
405(6)	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	22.62	22.62		46.00
405(1)n	Prestressed Concrete Girder Type VI Modified L=40.00m	each			6.00	6.00
407(1)c	Elastomeric Bearing Pad (600x350x50, Duro 60)	each			12.00	12.00
407(2)a	Expansion Joint, (± 40mm Movement)	l.m.			25.00	25.00
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.			2.40	2.40
407(4)	Metal Drain (150 mmø G.I. Drain Pipe)	l.m.			6.00	6.00
504(1)	Grouted Riprap, Class "A"	cu.m.	55.48	4.67		61.00
510(1)	Sodding	sq.m.	60.95	79.24		141.00

BRIDGE NAME : BRIDGE NO. 2
 BRIDGE LENGTH : 40.00
 SPECIFICATION : 1 - 40.00 m SPAN TYPE VI PSCG ON SEAT TYPE ABUTMENT

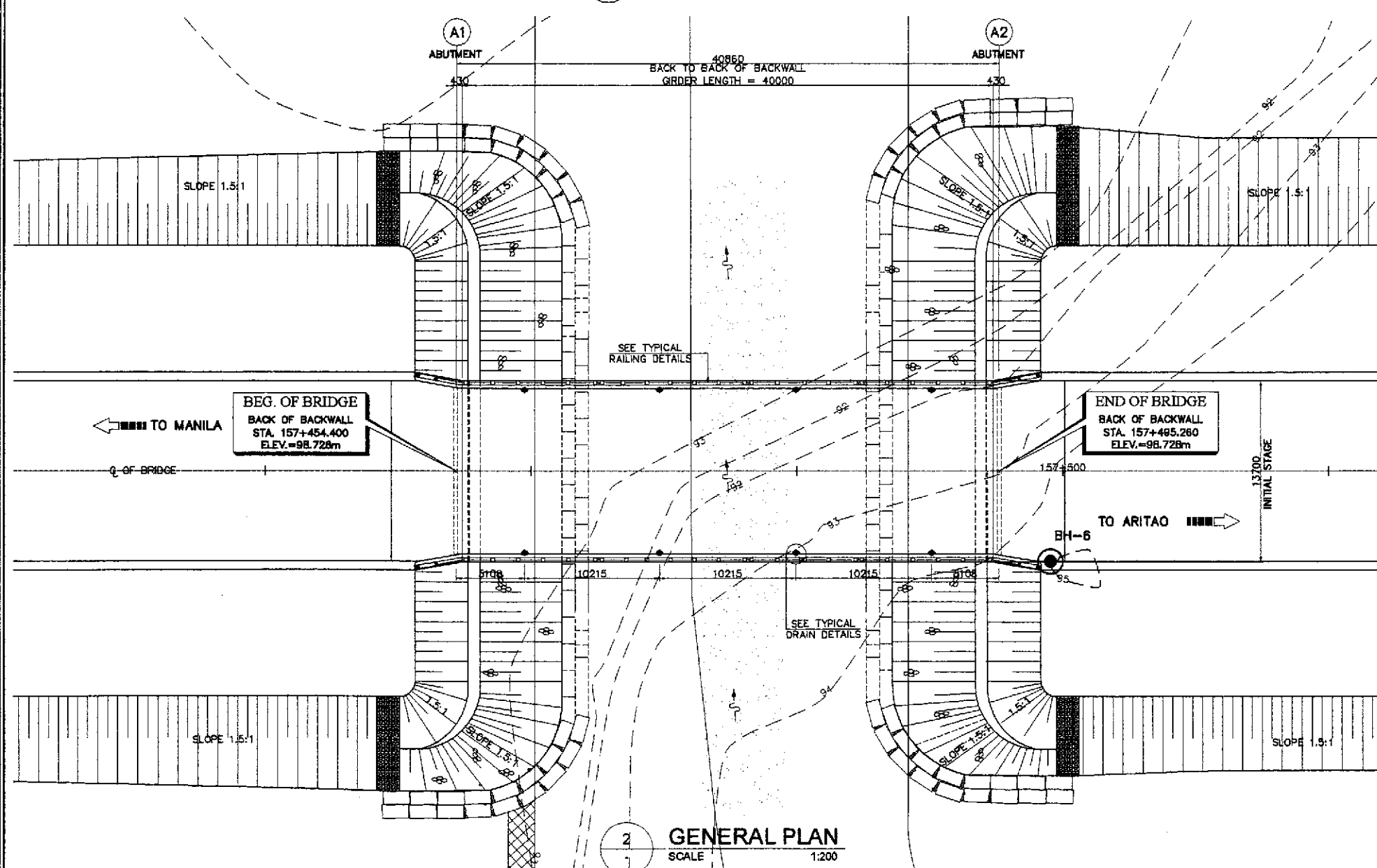
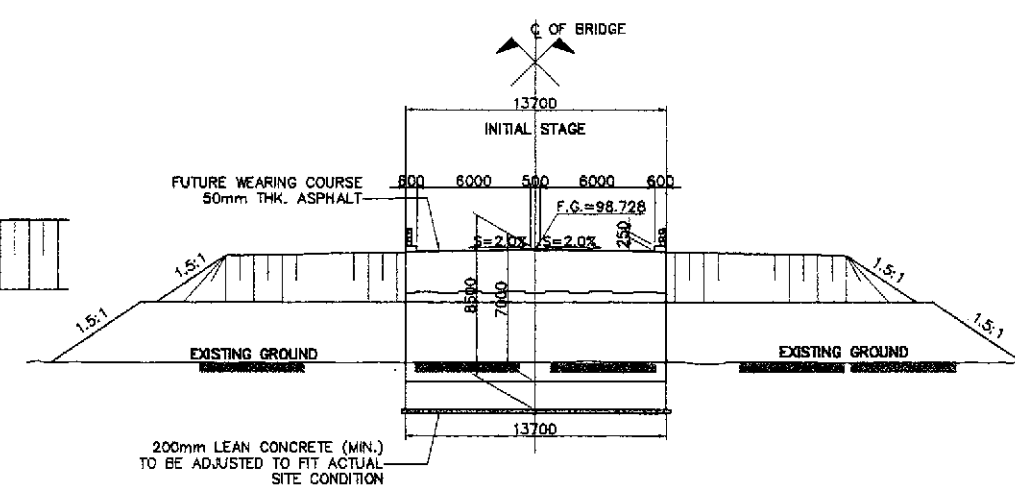
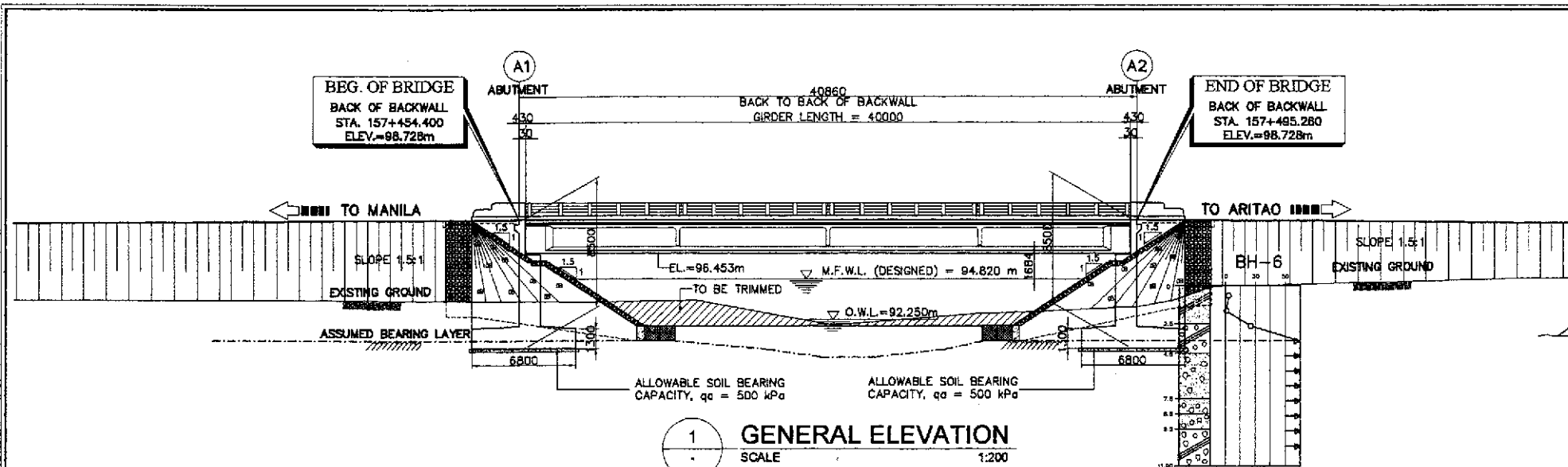
SUMMARY OF QUANTITIES						
PAY ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		SUPER-STRUCTURE	TOTAL
			" A "	" B "		
101(2)a	Removal of Existing Pedestrian Bridge	each				1.00
103(2)a	Bridge Excavation, Common, Above O.W.L.	cu.m.	222.46	222.46		445.00
103(2)c	Bridge Excavation, Common, Below O.W.L.	cu.m.	472.74	472.74		946.00
104(3)	Embankment from Borrow Pit	cu.m.	825.48	891.77		1,718.00
104(4)	Embankment for Bridge Approach	cu.m.	291.13	318.53		610.00
200(1)	Aggregate Subbase Course	cu.m.	17.13	17.13		35.00
311(2)	PCC Pavement (Reinforced) t=300mm, including Dowel Bars (Approach Slab)	sq.m.	72.75	72.75		146.00
401(1)a	Concrete Post and Railing	l.m.			80.00	80.00
404(1)	Reinforcing Steel, Grade 40	kg	6,706.00	6,706.00	19,648.00	33,061.00
404(2)	Reinforcing Steel, Grade 60	kg	24,593.00	24,593.00	2,093.00	51,280.00
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	357.30	357.30		715.00
405(1)d	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.			168.86	169.00
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	2.95	2.95	12.00	18.00
405(6)	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	53.91	54.07		108.00
405(1)n	Prestressed Concrete Girder Type VI Modified L=40.00m	each			6.00	6.00
407(1)c	Elastomeric Bearing Pad (600x350x50, Duro 60)	each			12.00	12.00
407(2)a	Expansion Joint, (± 40mm Movement)	l.m.			25.00	25.00
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.			2.40	2.40
407(4)	Metal Drain (150 mmø G.I. Drain Pipe)	l.m.			6.00	6.00
504(1)	Grouted Riprap, Class "A"	cu.m.	64.16	64.65		129.00
506(1)	Loose Boulder Apron(Hand Laid Rock)	cu.m.	83.77	84.24		169.00
507(2)b	Sheet Pile (85 x 400 x 8mm thk.) Furnished and Driven	l.m.	611.03	614.46		1,225.49
510(1)	Rubble Concrete Slope Protection	cu.m.	65.51	75.26		141.00

BRIDGE NAME : BRIDGE NO. 4
 BRIDGE LENGTH : 52.50
 SPECIFICATION : 15.75-21.00-15.75 m SPAN RCDG ON SEAT TYPE ABUTMENT/2 COLUMN BENT PIER ON PILES

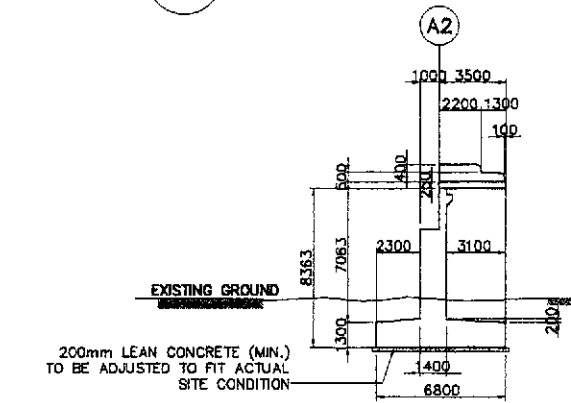
SUMMARY OF QUANTITIES								
PAY ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		PIER		SUPER-STRUCTURE	TOTAL
			" A "	" B "	" P1 "	" P2 "		
103(2)a	Bridge Excavation, Common, Above O.W.L.	cu.m.	72.60	85.80				159.00
103(2)c	Bridge Excavation, Common, Below O.W.L.	cu.m.			289.08	289.08		579.00
104(3)	Embankment from Borrow Pit	cu.m.	125.88	135.50				262.00
104(4)	Embankment for Bridge Approach	cu.m.	85.63	99.33				185.00
200(1)	Aggregate Subbase Course	cu.m.	17.13	17.13				35.00
311(2)	PCC Pavement (Reinforced) t=300 mm, including Dowel Bars (Approach Slab)	sq.m.	72.75	72.75				146.00
400(4)a	RC Piles (400 mm x 400 mm) Furnished	l.m.	447.00	447.00	501.00	501.00		1,896.00
400(13)a	RC Piles (400 mm x 400 mm) Driven	l.m.	420.00	420.00	468.00	468.00		1,776.00
400(15)a	Test Piles (400 mm x 400 mm)	l.m.	23.25	23.25	21.25	21.25		89.00
400(19)a	Pile Shoes (300 mm x 300 mm x 12 mm x 300 mm long)	each	22.00	22.00	27.00	27.00		98.00
401(1)a	Concrete Post & Railing	l.m.					105.00	105.00
404(1)	Reinforcing Steel, Grade 40	kg	4,194.00	4,194.00	3,441.00	3,441.00	32,790.00	48,060.00
404(2)	Reinforcing Steel, Grade 60	kg	7,162.00	7,162.00	20,599.00	20,599.00	33,306.00	88,828.00
405(1)b	Structural Concrete Class "A" (fc' = 21MPa)	cu.m.	105.66	105.66	133.22	133.22		478.00
405(1)c	Structural Concrete Class "A1" (fc' = 21MPa)	cu.m.					333.50	334.00
405(3)	Structural Concrete Class "C" (fc' = 21MPa)	cu.m.	2.94	2.94			15.75	22.00
405(6)b	Structural Concrete Class "B" (Lean Concrete) fc' = 17MPa	cu.m.	38.06	35.49	6.49	6.49		87.00
407(1)a	Elastomeric Bearing Pad (400x300x50, Duro 60)	each					12.00	12.00
407(2)a	Expansion Joint, (± 40mm Movement)	l.m.					25.00	25.00
407(2)g	Expansion Joint, 30mm for Bridge Sidewalk	l.m.					2.40	3.00
407(4)	Metal Drain (150 mmø G.I. Drain Pipe)	l.m.					9.00	9.00
504(1)	Grouted Riprap, Class "A"	cu.m.	55.15	50.11				106.00
506(1)	Loose Boulder Apron(Hand Laid Rock)	cu.m.	80.65	72.93				154.00
507(2)b	Sheet Pile (85x 400 x 8mm thk.) Furnished and Driven	l.m.	588.25	531.97				1,121.00
509(1)	Gabions	cu.m.			76.00	76.00		152.00
510(1)	Rubble Concrete Slope Protection	cu.m.	73.47	45.19				119.00

NOTE: ALL QUANTITIES SHALL BE VERIFIED DURING CONSTRUCTION

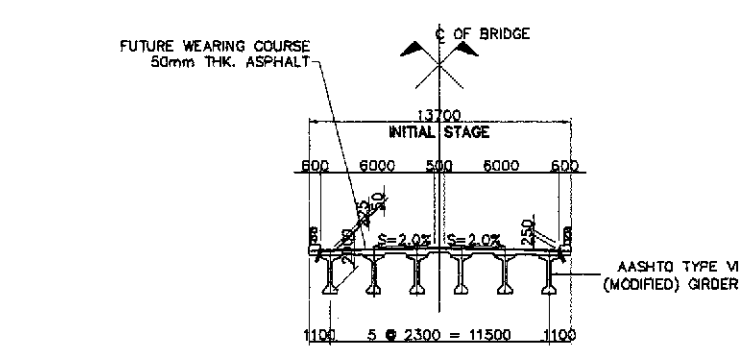
	DESIGNED	9/2/02			REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	9/4/02			BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	N. T. S.	BRIDGE NO. 1, 2, 3 & 4 SUMMARY OF QUANTITIES		BG-04
	SUBMITTED	9/6/02			OFFICE OF THE SECRETARY				SAN JOSE BYPASS	FULL SIZE A1	(INITIAL STAGE)		
			Submitted By: DANILLO C. TRAJANO Project Director	Reviewed By: ADRIANO M. DOROY Chief, Bridges Division	Recommended By: GILBERTO S. REYES Director IV (OIC)	Recommended By: MANUEL M. BONDAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary						



3A SECTION AT ABUTMENT A2
SCALE 1:200



3B SIDE ELEVATION
SCALE 1:200



4 SECTION AT MID-SPAN
SCALE 1:200

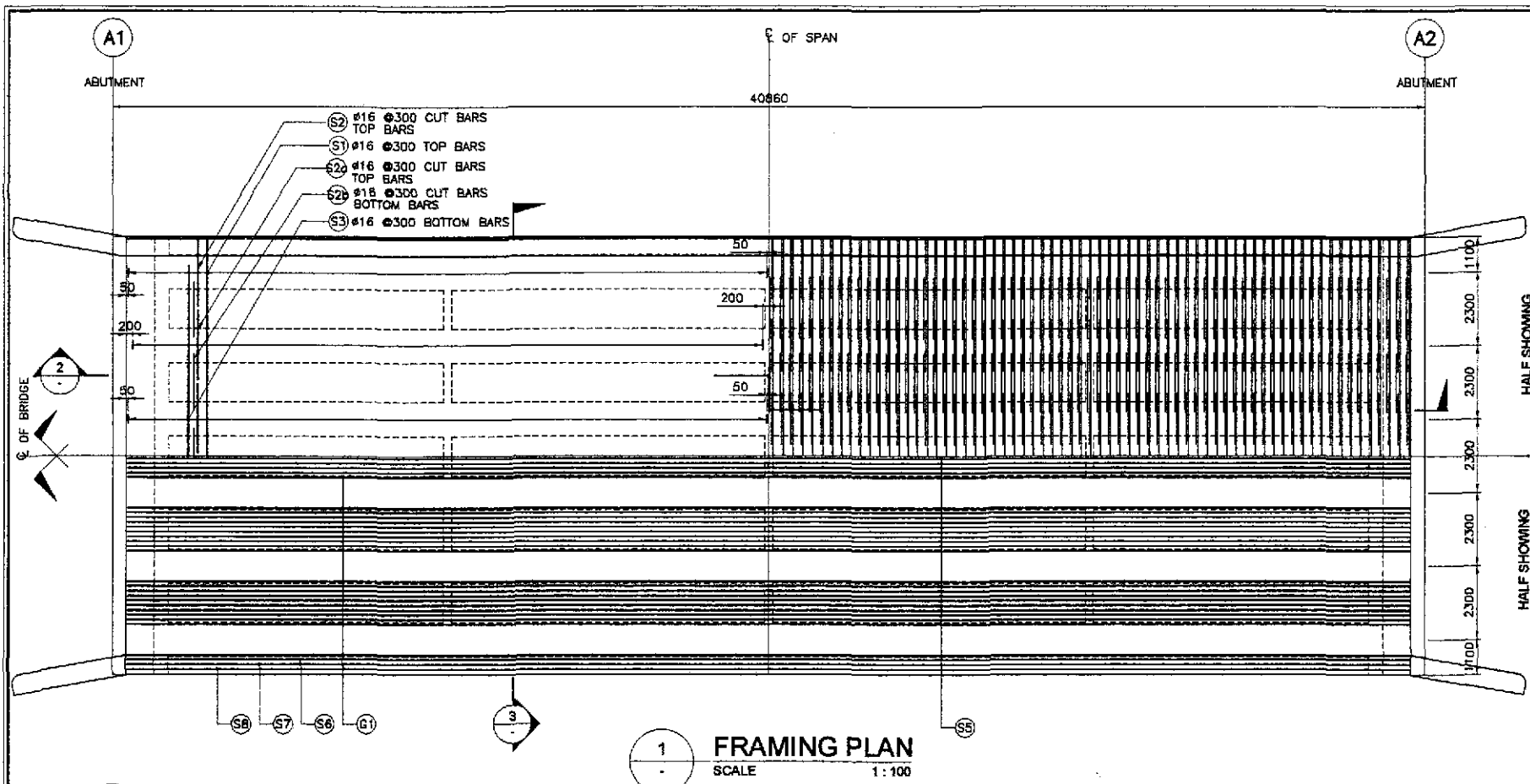
HYDRAULIC DATA	
VELOCITY @ 50 YEARS, V_{50}	1.945 m/sec
DISCHARGE @ 50 YEARS, Q_{50}	101.800 cu.m/sec
CATCHMENT AREA, CA	19.300 sq. km

NOTE :
PRIOR TO CONSTRUCTION SOIL INVESTIGATION AT ABUTMENT A1 SHALL BE CONDUCTED FOR CONFIRMATION OF ASSUMED BEARING CAPACITY

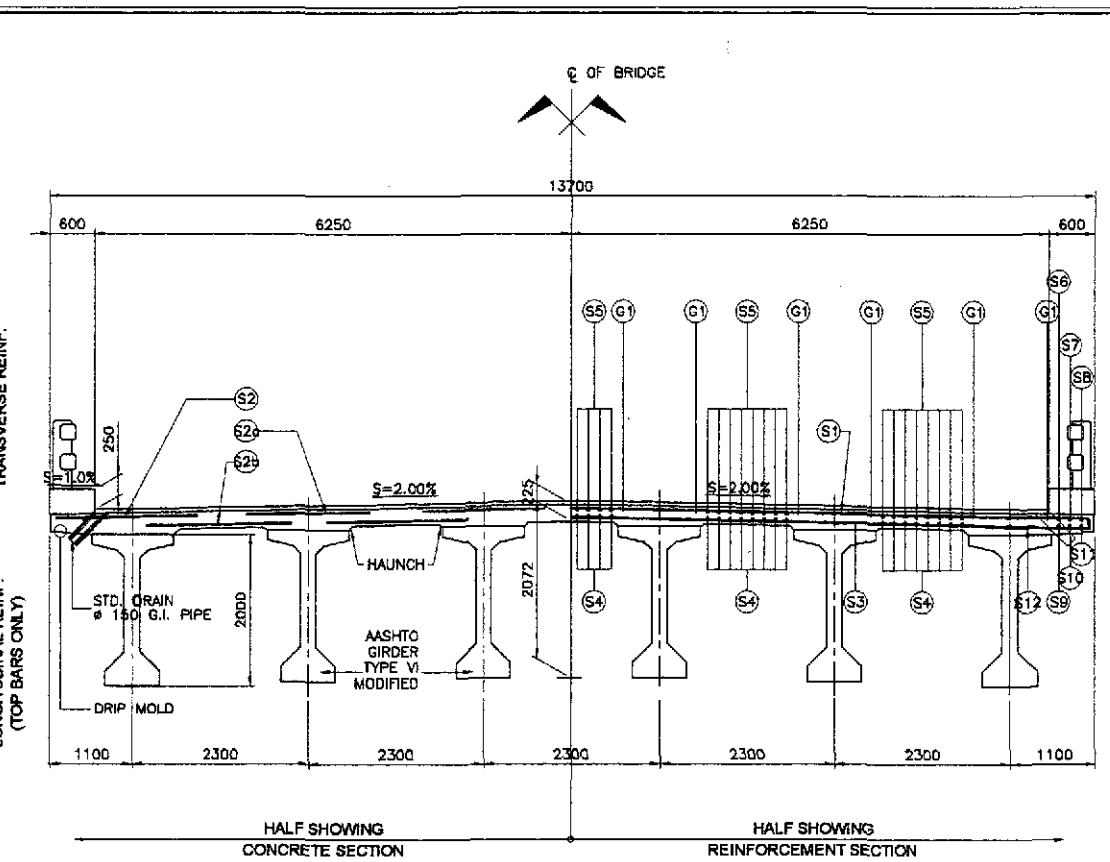
A SAN JOSE BYPASS BRIDGE NO. 1
SCALE AS SHOWN

PERFECTO L. ZAPLAN JR.
D/C Chief, Hydraulics Division, B00

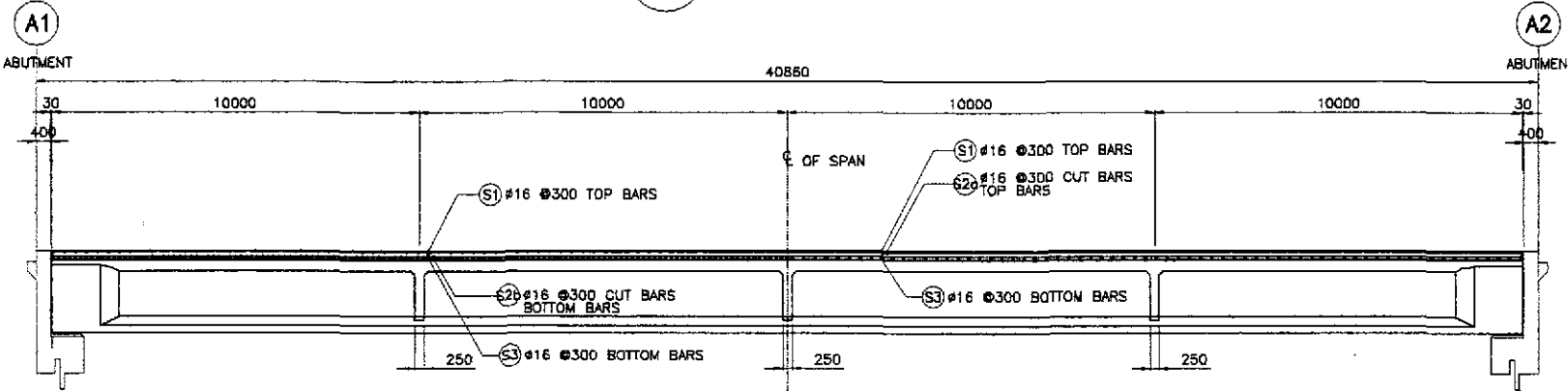
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses) SAN JOSE BYPASS	SCALE : 1 : 200 FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 1 GENERAL PLAN, ELEVATION AND SECTIONS (INITIAL STAGE)	SHEET NO. : B1-01
	CHECKED	9/2/02	[Signature]		BUREAU OF DESIGN							
	SUBMITTED	9/4/02	[Signature]	OFFICE OF THE SECRETARY								



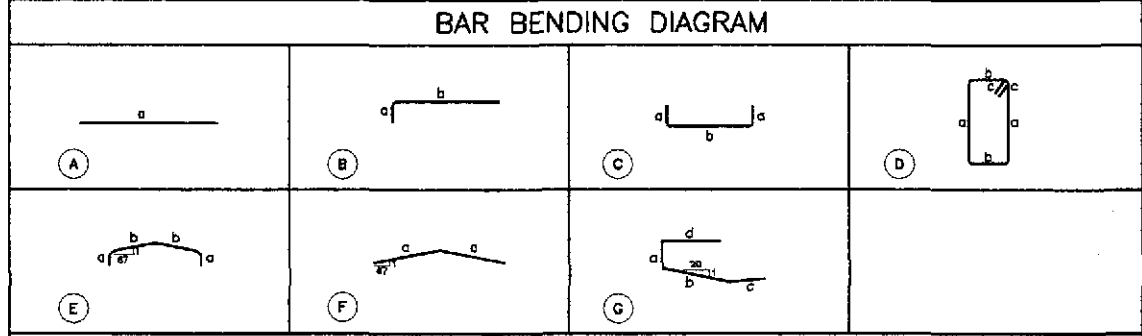
1 FRAMING PLAN
SCALE 1:100



3 TYPICAL CROSS-SECTION
SCALE 1:50



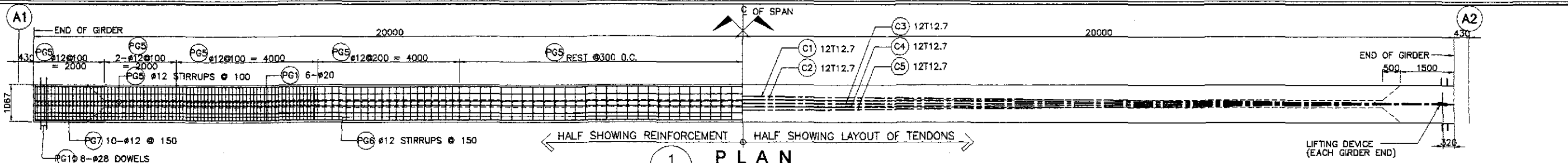
2 LONGITUDINAL SECTION
SCALE 1:100



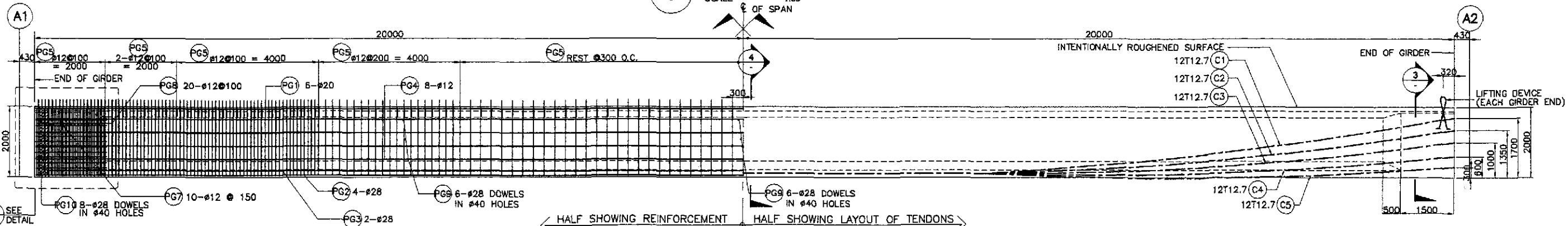
ESTIMATED QUANTITIES OF SUPERSTRUCTURE			
ITEM NO.	DESCRIPTION	UNIT	TOTAL
404(1)a	REINFORCING STEEL GRADE 40	kg.	41,091
	DECK SLAB		17153
	DIAPHRAGM		735
	GIRDER		18372
	SIDEWALK, RAILING, & POST		3239
	APPROACH SLAB		1592
404(1)b	REINFORCING STEEL GRADE 60	kg.	19275
	DECK SLAB		0
	DIAPHRAGM		2093
	GIRDER		11370
	SIDEWALK, RAILING, & POST		708
	APPROACH SLAB		5104
405(1)	STRUCTURAL CONCRETE	cu. m.	405
	DECK SLAB		144.61
	DIAPHRAGM		24.24
	GIRDER		182.42
	SIDEWALK, RAILING, & POST		21.10
	APPROACH SLAB		21.82

SCHEDULE OF REINFORCEMENT															
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)
							a	b	c	d					
DECK SLAB	144.61	G1	16	24	AS SHOWN	(A)	39920	-	-	-	39920	958.08	1.579	1513	118.62
		S1	16	134	300	(E)	145	6810	-	-	13910	1863.94	1.579	2844	
		S2	16	264	300	(A)	1850	-	-	-	1850	488.40	1.579	772	
		S2a	16	782	300	(A)	1600	-	-	-	1600	1267.20	1.579	2001	
		S2b	16	660	300	(A)	1200	-	-	-	1200	792.00	1.579	1251	
		S3	16	134	300	(F)	6075	-	-	-	12150	1628.10	1.579	2571	
		S4	16	40	150	(A)	39920	-	-	-	39920	1596.80	1.579	2522	
		S5	16	40	150	(A)	39920	-	-	-	39920	1596.80	1.579	2522	
		S6	16	2	AS SHOWN	(A)	39920	-	-	-	39920	79.84	1.579	127	
		S7	16	2	AS SHOWN	(A)	39920	-	-	-	39920	79.84	1.579	127	
		S8	16	2	AS SHOWN	(A)	39920	-	-	-	39920	79.84	1.579	127	
		S9	16	2	AS SHOWN	(A)	39920	-	-	-	39920	79.84	1.579	127	
S10	16	2	AS SHOWN	(A)	39920	-	-	-	39920	79.84	1.579	127			
S11	16	2	AS SHOWN	(A)	39920	-	-	-	39920	79.84	1.579	127			
S12	12	180	450	(G)	145	500	900	300	1845	332.10	0.886	295			
TOTAL	144.61														GRADE 40 TOTAL = 17153 KGS.

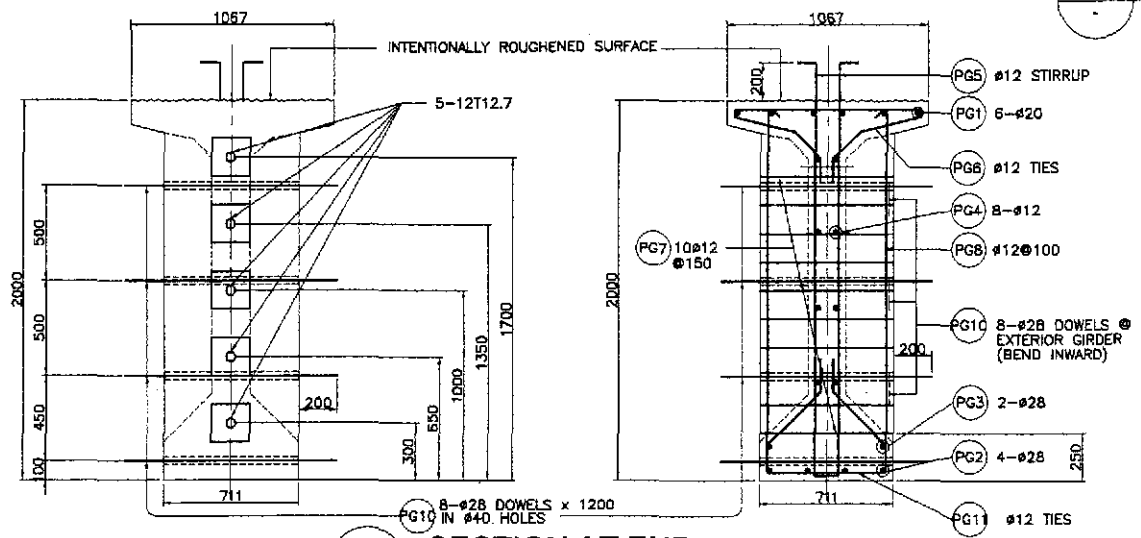
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	9/1/02	<i>[Signature]</i>		FJHL - PMO	BUREAU OF DESIGN	OFFICE OF THE SECRETARY	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pilaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 1 & 2 DECK FRAMING PLAN AND SECTION (INITIAL STAGE)	B1-02	
	SUBMITTED	9/1/02	<i>[Signature]</i>		DANILO C. TRAJANO Project Director	ADRIANO M. DORCY Chief, Bridges Division	GILBERTO S. REYES Director (CIC)	MANUEL M. BONDAN Undersecretary	SIMEDON A. DATUMANONG Secretary	FULL SIZE A1		



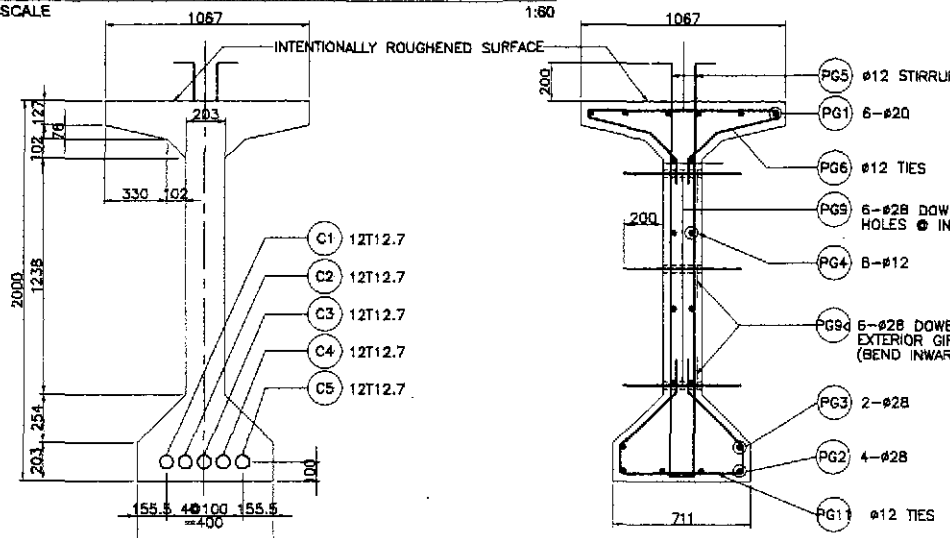
1 PLAN
SCALE 1:80



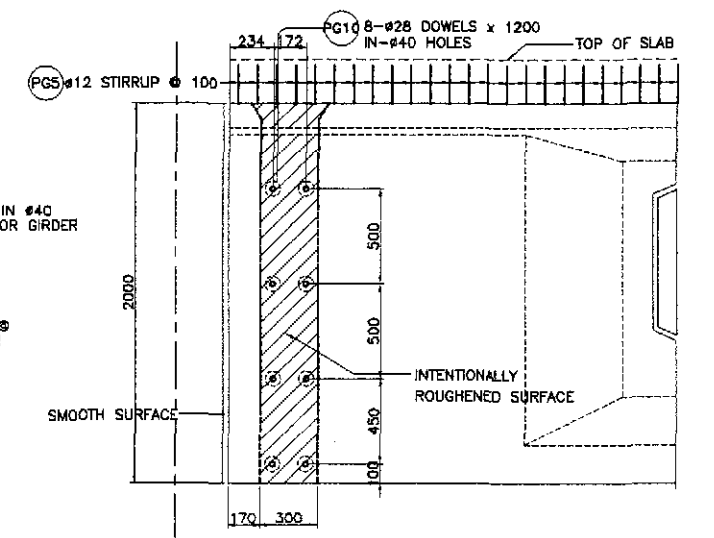
2 PRESTRESSED GIRDER ELEVATION
SCALE 1:80



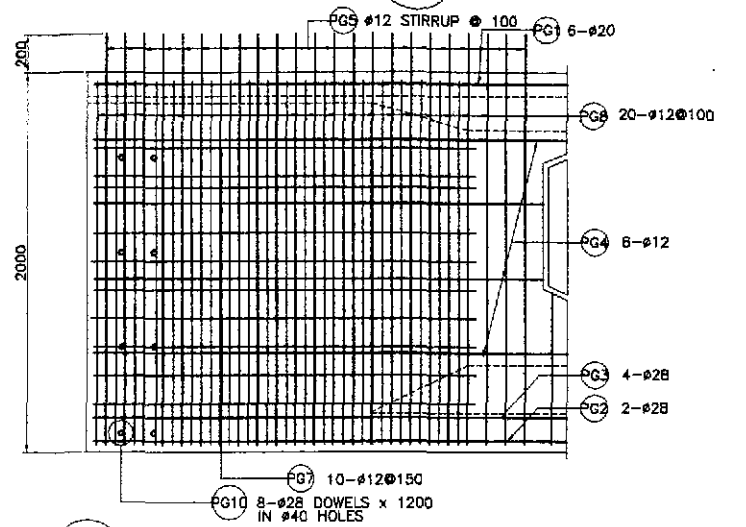
3 SECTION AT END
SCALE 1:20



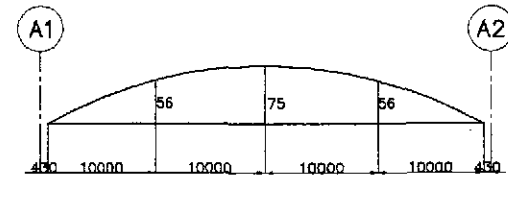
4 SECTION AT MIDSPAN
SCALE 1:20



5 DOWELS AT END BLOCK
SCALE 1:20



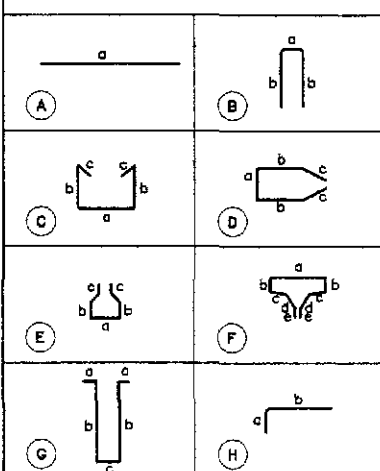
6 END BLOCK REINF. DETAIL
SCALE 1:20



7 CAMBER DIAGRAM
NOT TO SCALE

- NOTES:
- 1.) SEE GENERAL NOTES, -2, FOR GIRDER DESIGN GUIDE.
 - 2.) JACKING FORCE PER GIRDER, $P_j = 8261$ KN.
 - 3.) JACKING WILL BE DONE AT BOTH ENDS.
 - 4.) FINAL PRESTRESSING FORCE @ MIDSPAN, $F_{NET} = 6122$ KN.

BAR BENDING DIAGRAM



SCHEDULE OF REINFORCEMENT

LOCATION	CONCRETE VOLUME (m³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION (mm) OUT TO OUT					LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (KG/CU.M)
							a	b	c	d	e					
GIRDER	32.07	PG1	20	6	AS SHOWN	(A)	39920	-	-	-	-	39920	239.52	2.466	591	154.51
		PG2	28	4	AS SHOWN	(A)	39920	-	-	-	-	39920	159.68	4.833	772	
		PG3	28	2	AS SHOWN	(A)	39920	-	-	-	-	39920	79.84	4.833	386	
		PG4	12	8	AS SHOWN	(A)	39920	-	-	-	-	39920	319.36	0.888	284	
		PG5	12	294	150	(G)	210	2150	103	-	-	4823	1417.96	0.888	1260	
		PG6	12	294	150	(F)	1000	50	340	200	150	2480	729.12	0.888	648	
		PG7	12	20	150	(D)	635	1450	550	-	-	4635	92.70	0.888	83	
		PG8	12	40	100	(C)	635	1950	150	-	-	4835	193.40	0.888	172	
		PG9	28	18	AS SHOWN	(A)	603	-	-	-	-	603	10.85	4.833	53	
		PG10	28	16	AS SHOWN	(A)	1200	-	-	-	-	1200	19.20	4.833	93	
		PG11	12	294	150	(E)	635	160	550	150	-	2355	692.37	0.888	615	
TOTAL	32.07															

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

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL YEO YACHIYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PROJECT AND LOCATION: THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) SAN JOSE BYPASS

SCALE: AS SHOWN FULL SIZE A1

SHEET CONTENTS: BRIDGE NO. 1 & 2 AASHTO GIRDER TYPE-IV MODIFIED (INITIAL STAGE)

SHEET NO.: B1-03

DESIGNED: 9/12/02 E. M. SALLAN

CHECKED: 9/14/02 M. M. BONDAN

SUBMITTED: 9/16/02 M. M. BONDAN

DATE: 9/12/02

SIGNATURE: E. M. SALLAN

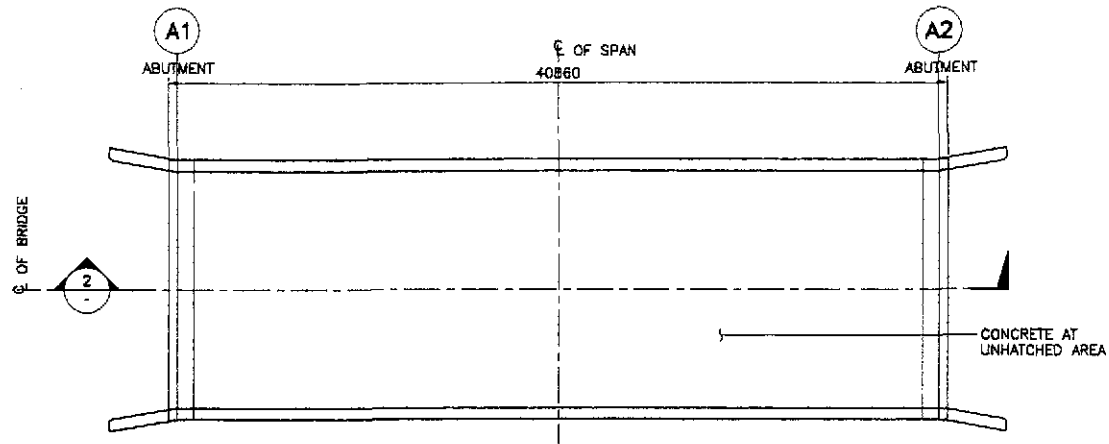
Submitted By: DANILO C. TRAJANO Project Director

Reviewed By: ADRIANO M. DOROS Chief, Bridge Division

Recommended By: GILBERTO S. REYES Director IV (GC)

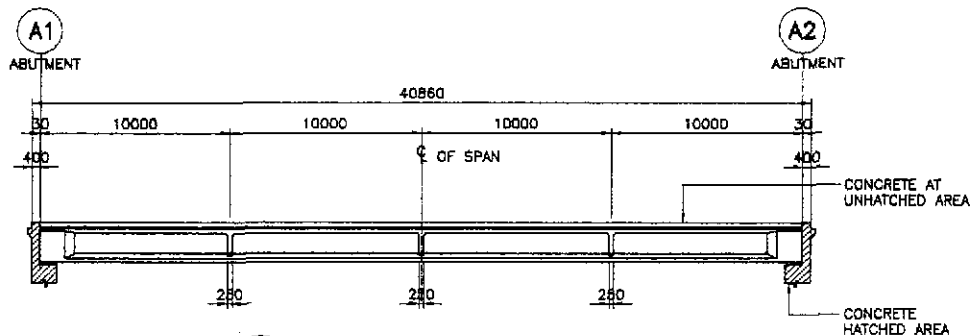
Approved By: MANUEL M. BONDAN Undersecretary

Approved By: SIMON A. DATUMANONG Secretary



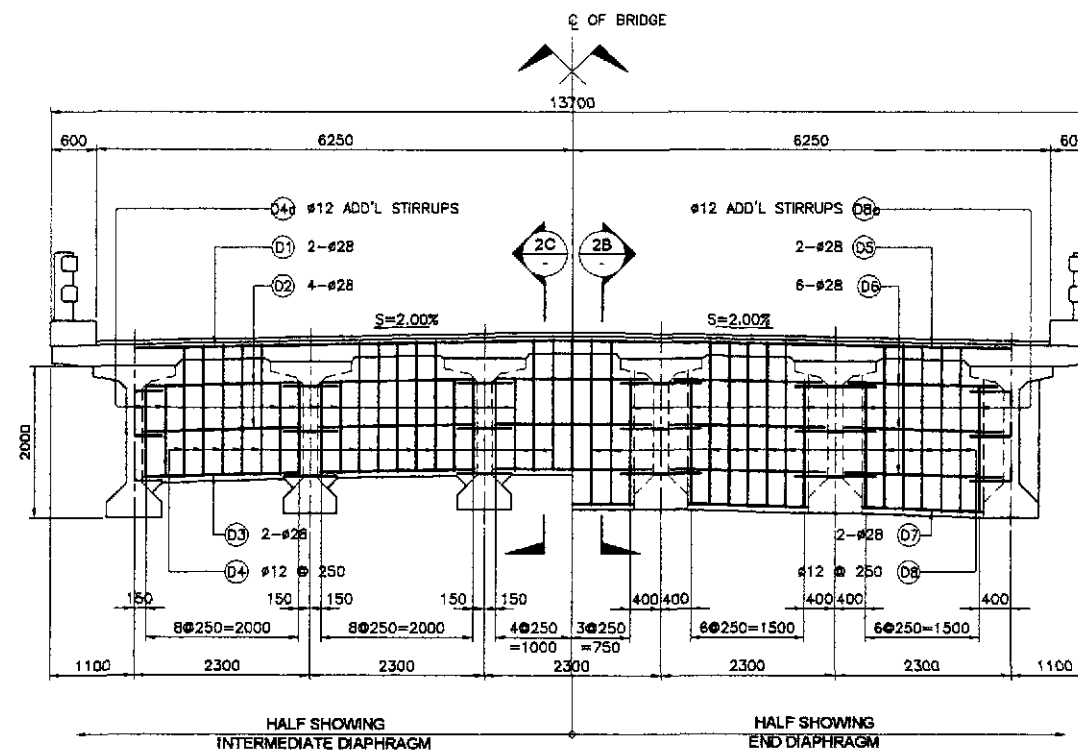
1A PLAN
SCALE 1:200

- NOTES:
1. CONCRETE AT HATCHED AREAS SHALL BE PLACED AT LEAST TWENTY ONE (21) DAYS AHEAD OF CONCRETE AT UNHATCHED AREAS.
 2. REINFORCEMENT SHALL BE CONTINUOUS AT CONSTRUCTION JOINTS.

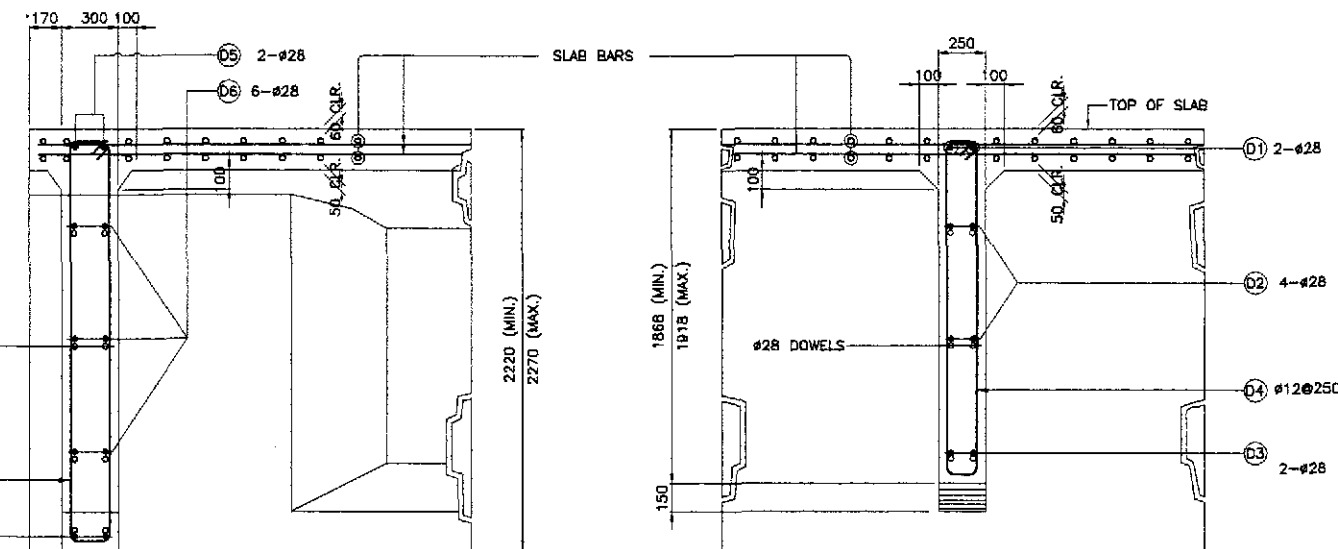


1B LONGITUDINAL SECTION
SCALE 1:200

1 CONCRETE POURING SEQUENCE
SCALE 1:200



2A ELEVATION
SCALE 1:50



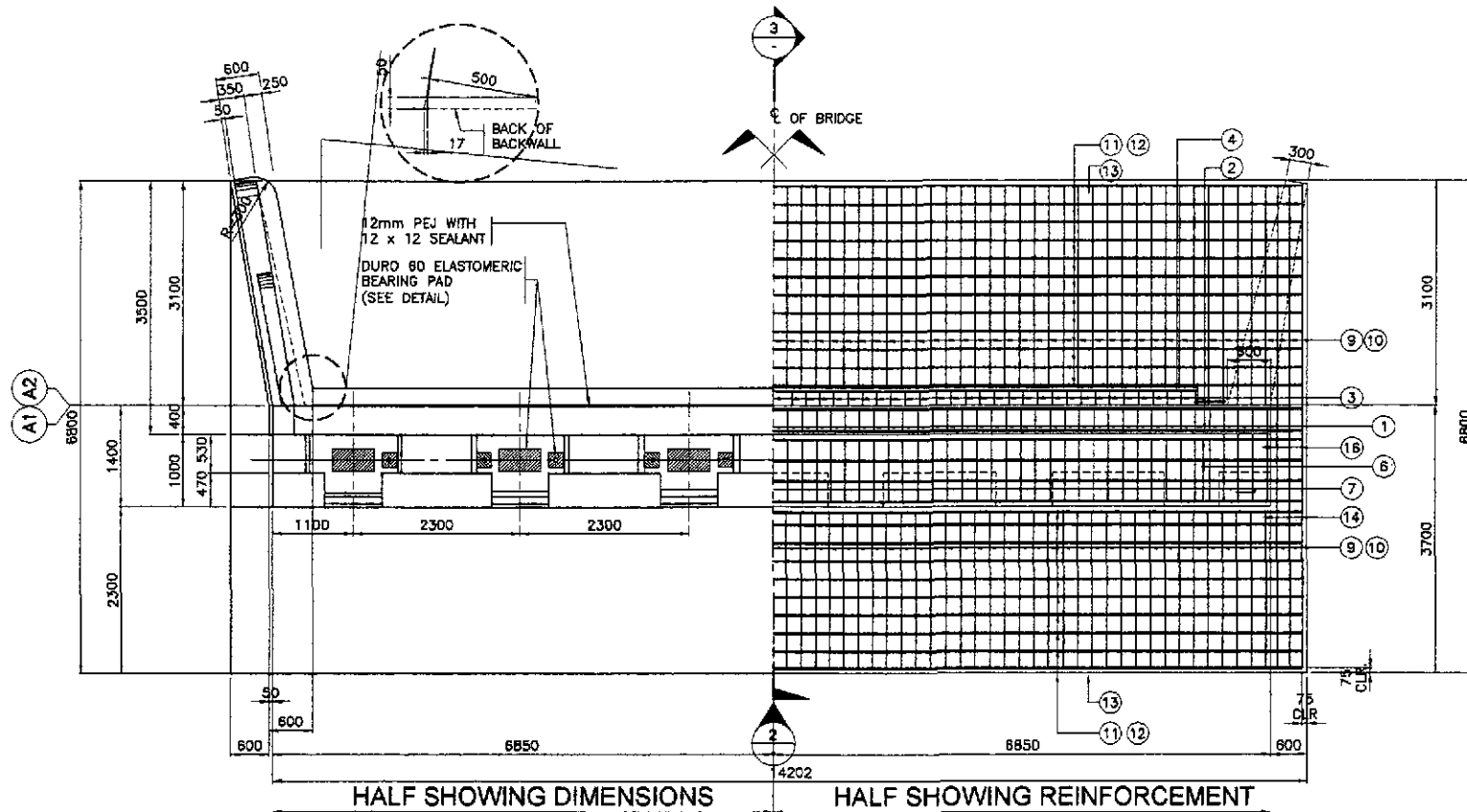
2B SECTION
SCALE 1:20

2C SECTION
SCALE 1:20

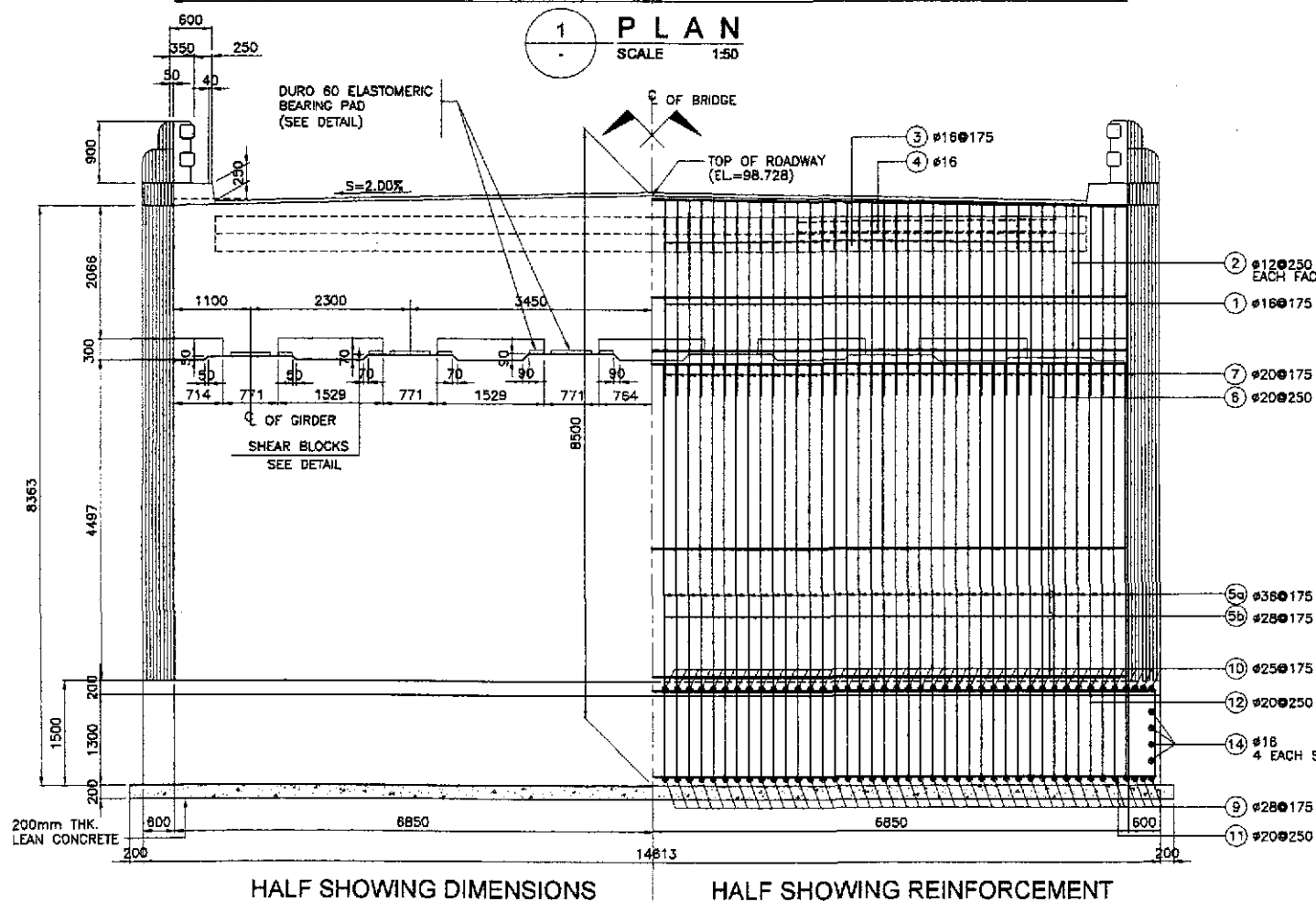
2 DETAIL OF END AND INTERMEDIATE DIAPHRAGM
SCALE AS SHOWN

BAR BENDING DIAGRAM																	
SCHEDULE OF REINFORCEMENT																	
STRUCTURE COMPONENT	LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT				LENGTH EACH BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT IN (kg)	REBAR RATIO (kg/m ³)	REMARKS
DIAPHRAGM	INTERMEDIATE DIAPHRAGM	14.49	D1	28	6	AS SHOWN	(A)	5750	5750	-	-	11500	69.00	4.833	334	118.02	TOP BARS
			D2	28	60	AS SHOWN	(B)	2150	-	-	-	2150	129.00	4.833	624		DIST. BARS
			D3	28	30	AS SHOWN	(B)	2150	-	-	-	2150	64.50	4.833	312		BOTT. BARS
			D4	12	75	250	(C)	150	1795 (AVE.)	150	-	4190	314.25	0.888	280		STIRRUPS
	D4a	12	60	AS SHOWN	(C)	150	1200	150	-	3000	180.00	0.888	160	ADD'L STIRRUPS			
	D5	28	4	AS SHOWN	(A)	5750	5750	-	-	11500	46.00	4.833	223	TOP BARS			
	D6	28	60	AS SHOWN	(B)	1550	-	-	-	1550	93.00	4.833	450	DIST. BARS			
	D7	28	20	AS SHOWN	(B)	1550	-	-	-	1550	31.00	4.833	150	BOTT. BARS			
END DIAPHRAGM	12.87	D8	12	50	250	(C)	200	2145 (AVE.)	150	-	4990	249.50	0.888	222	STIRRUPS		
		D8a	12	20	AS SHOWN	(C)	200	1700	150	-	4100	82.00	0.888	73	ADD'L STIRRUPS		
TOTAL		27.36															

GRADE 40 TOTAL = 735 kgs.
GRADE 80 TOTAL = 2,093 kgs.



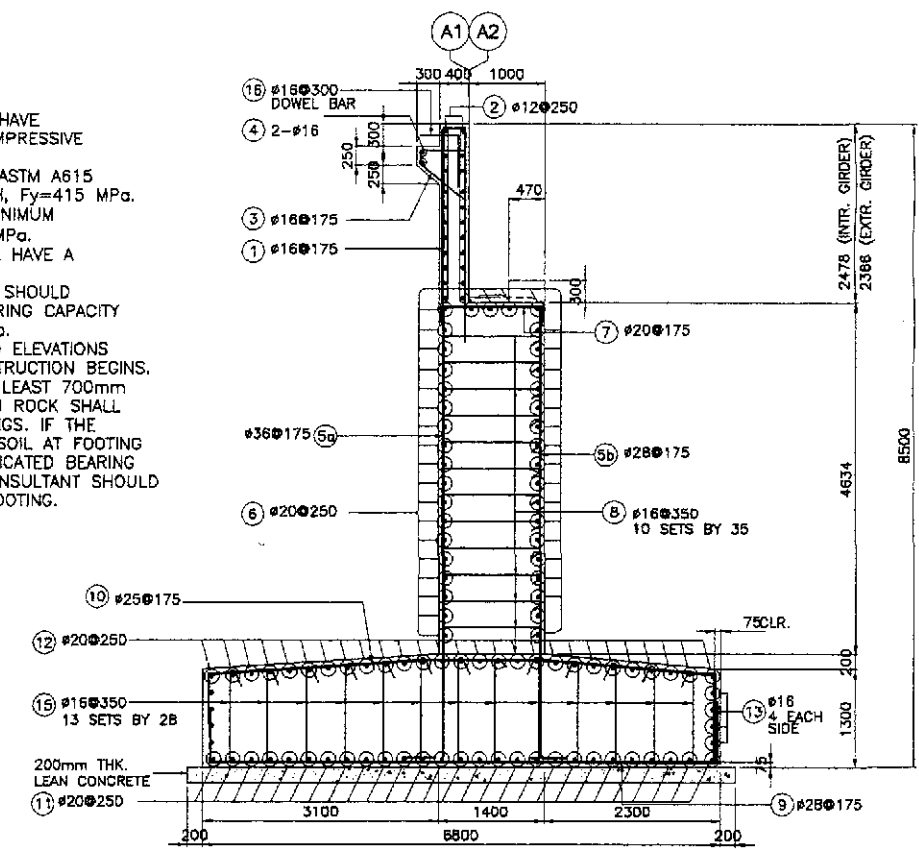
1 PLAN
SCALE 1:50



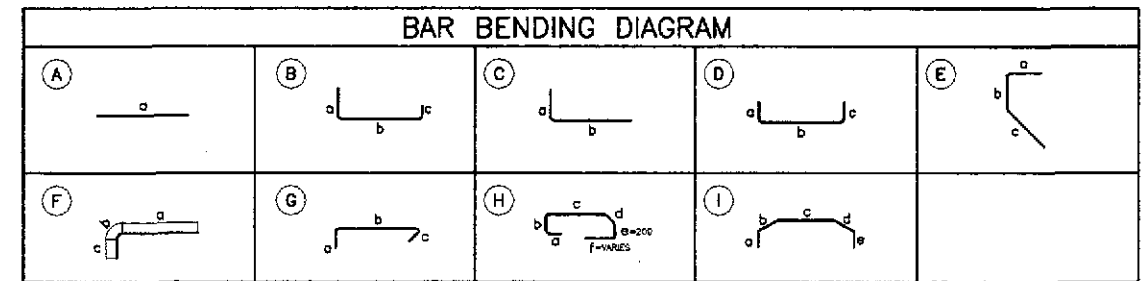
2 ELEVATION
SCALE 1:50

NOTE:

1. CONCRETE FOR ABUTMENT SHALL HAVE A MINIMUM 28-DAY CYLINDER COMPRESSIVE STRENGTH, $f'_c=21.0$ MPa.
2. ALL REBARS SHALL CONFORM TO ASTM A615 GRADE 60 WITH A YIELD STRENGTH, $F_y=415$ MPa.
3. LEAN CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH, $f'_c=17$ MPa.
4. LEAN CONCRETE THICKNESS SHALL HAVE A MINIMUM OF 200mm.
5. FOR ABUTMENT, THE CONTRACTOR SHOULD VERIFY THAT THE ALLOWABLE BEARING CAPACITY AT FOUNDATION LEVEL IS 500 KPa.
6. ALL DIMENSIONS, STATIONINGS AND ELEVATIONS SHALL BE VERIFIED BEFORE CONSTRUCTION BEGINS.
7. FOOTING SHALL BE EMBEDDED AT LEAST 700mm INTO HARD STRATA. EXCAVATION IN ROCK SHALL BE TO THE TRIM LINES OF FOOTINGS. IF THE CONDITIONS OF THE FOUNDATION SOIL AT FOOTING ELEVATION IN SUCH THAT THE INDICATED BEARING CAPACITY CAN NOT BE ATTAIN, CONSULTANT SHOULD BE NOTIFIED FOR REDESIGN OF FOOTING.

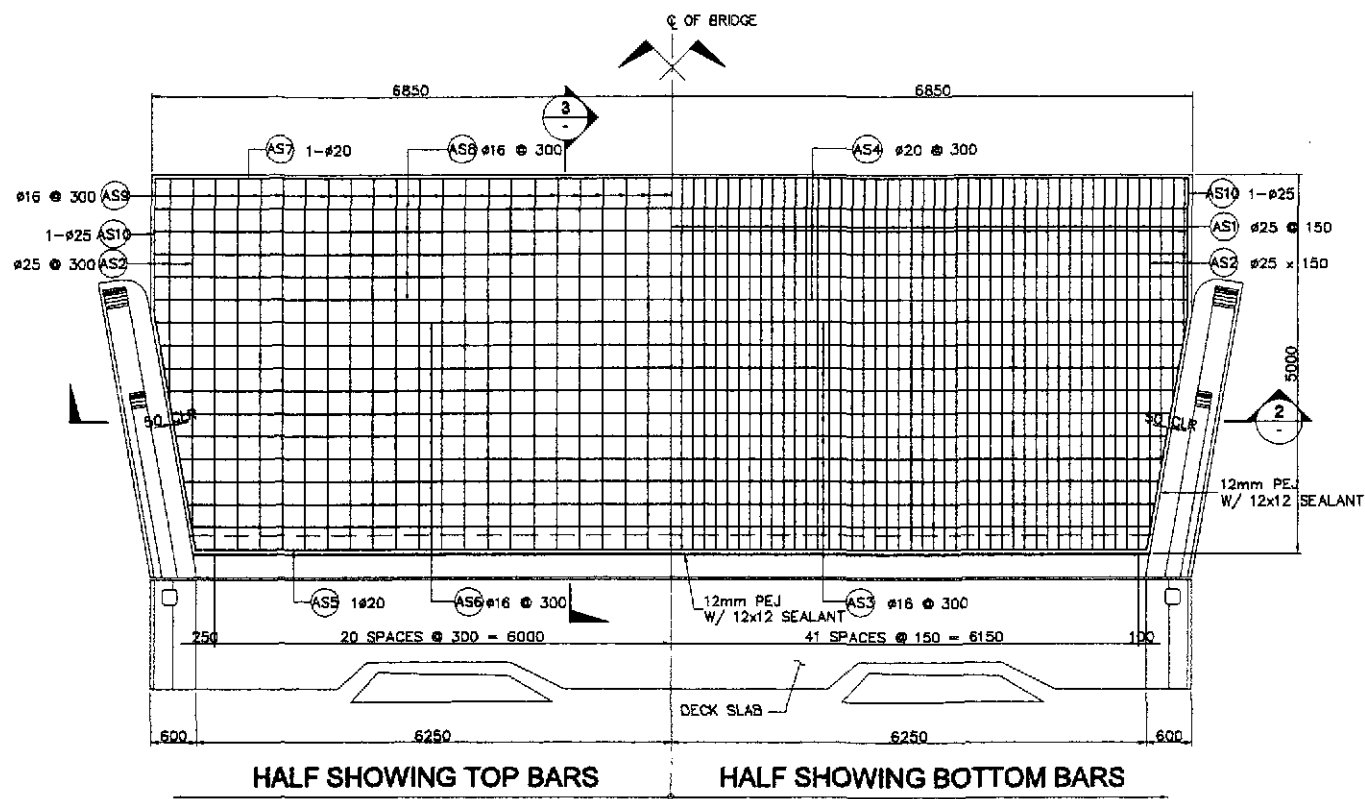


3 SECTION
SCALE 1:50

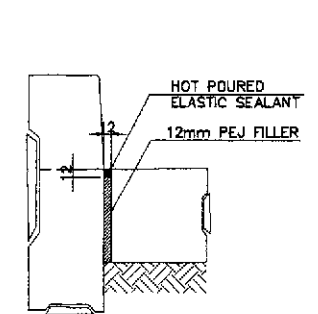


SCHEDULE OF REINFORCEMENT PER ABUTMENT																
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm)					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)
							a	b	c	d	e					
BACKWALL	14.99	1	15	79	175	D	2800	300	2800	-	-	5900	466.10	1.579	736	80.19
		2	12	22	250	A	13600	-	-	-	-	13600	299.20	0.888	266	
		3	16	72	175	E	550	150	700	-	-	1400	100.80	1.579	160	
		4	18	2	AS SHOWN	A	12400	-	-	-	-	12400	24.80	1.579	40	
MAINWALL	88.88	5a	36	79	175	C	400	5900	-	-	-	6300	497.70	7.991	3978	101.89
		5b	28	79	175	C	400	5900	-	-	-	6300	497.70	4.833	2406	
		6	20	39	250	A	13600	-	-	-	-	13600	530.40	2.486	1308	
		7	20	79	175	D	250	1300	250	-	-	1800	142.20	2.466	351	
		8	18	350	350	C	250	1300 (AVE)	250	-	-	1800	630.00	1.579	995	
		9	28	85	175	D	700	6850	700	-	-	8050	684.25	4.833	3307	
FOOTING	143.93	10	25	85	175	I	700	3100	1300	2300	700	8100	688.50	3.854	2654	65.25
		11	20	27	250	D	700	14750	700	-	-	16150	436.05	2.466	1076	
		12	20	27	250	D	700	14750	700	-	-	16150	436.05	2.466	1076	
		13	15	8	AS SHOWN	A	14750	-	-	-	-	14750	118.00	1.579	187	
		14	18	8	AS SHOWN	A	6850	-	-	-	-	6850	53.20	1.579	85	
		15	18	364	350	C	250	12700 (AVE)	250	-	-	1750	637.00	1.579	1006	
DOWEL		16	15	38	300	C	650	500	-	-	1150	43.7	1.579	70		
TOTAL	247.80															GRADE 40 TOTAL = 3,545 kgs. GRADE 60 TOTAL = 16,156 kgs.

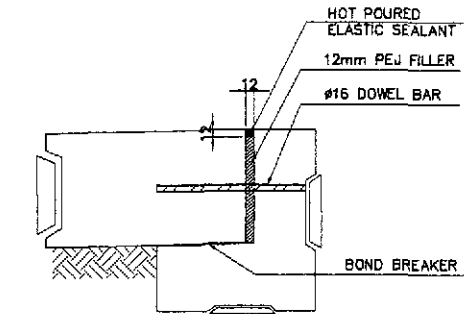
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS					PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :			
	CHECKED	9/2/02	A. P. GONZALES		BUREAU OF DESIGN					THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)				AS SHOWN	BRIDGE NO. 1 ABUTMENT MAINWALL REINFORCEMENT DETAILS (INITIAL STAGE)	B1-05
	SUBMITTED	9/6/02	M. RUILO		Submitted By:	Reviewed By:	Recommended By:	Approved By:	SAN JOSE BYPASS				FULL SIZE A1			



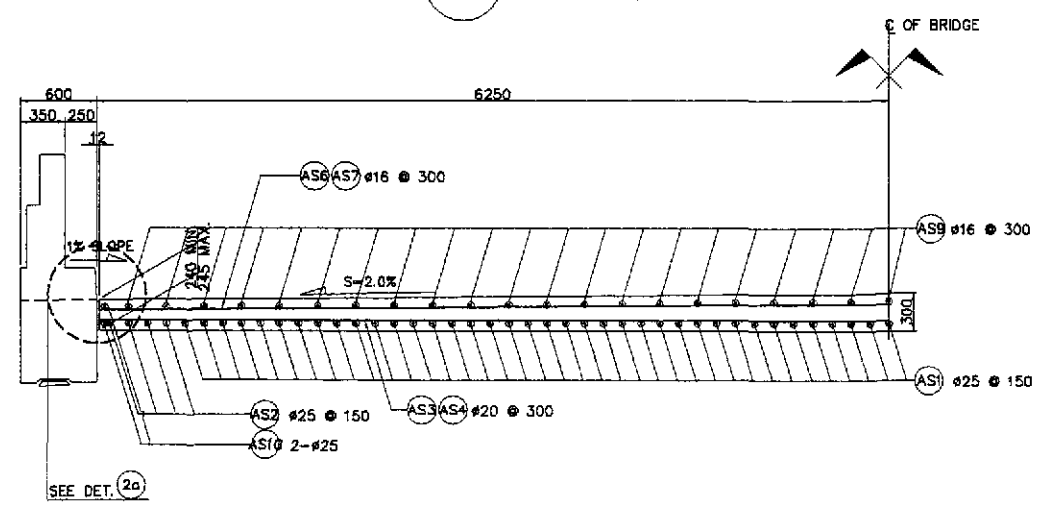
1 PLAN
SCALE 1:50



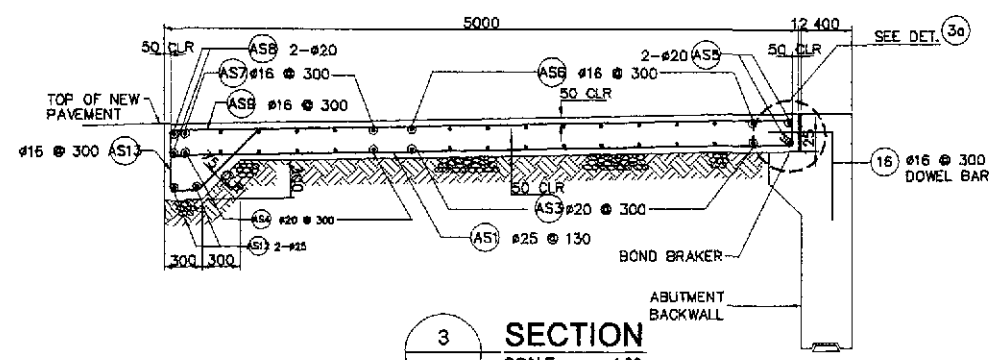
2a DETAIL
SCALE 1:10



3a DETAIL
SCALE 1:10



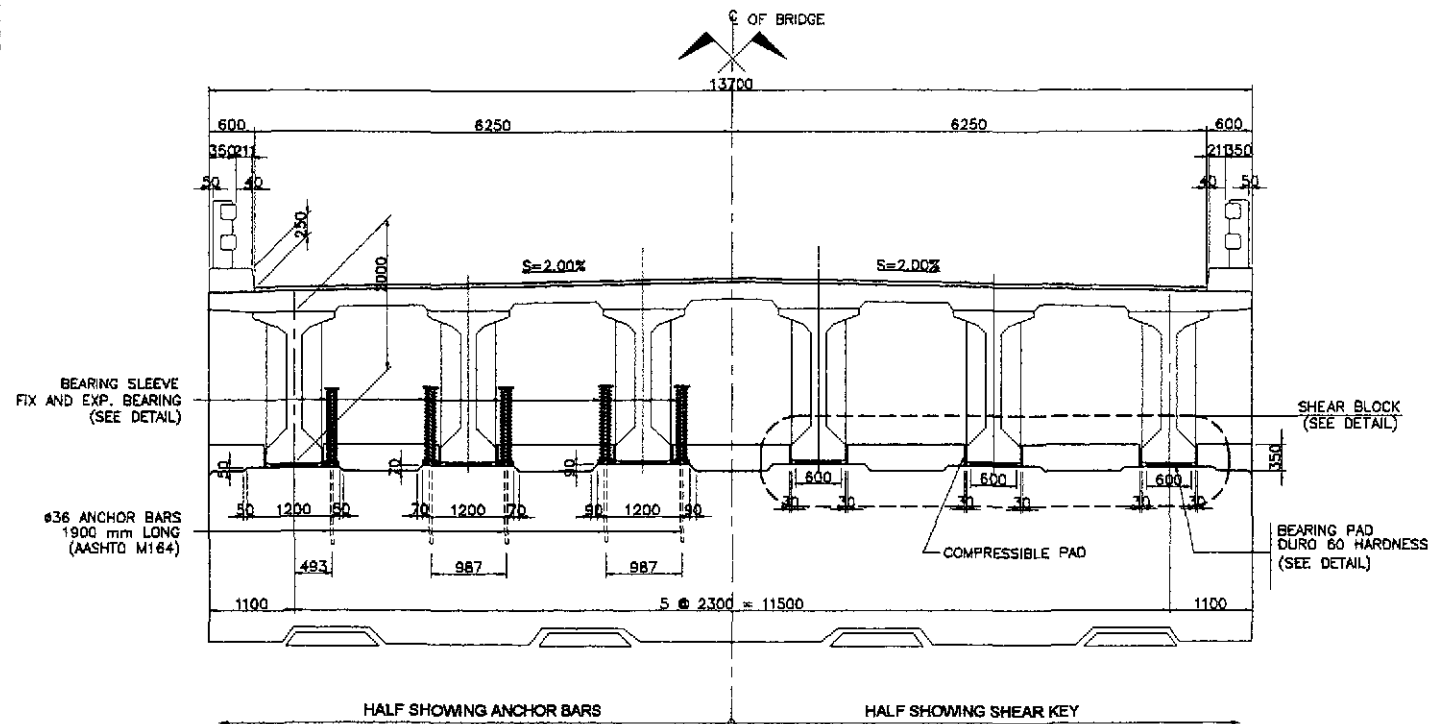
2 SECTION
SCALE 1:30



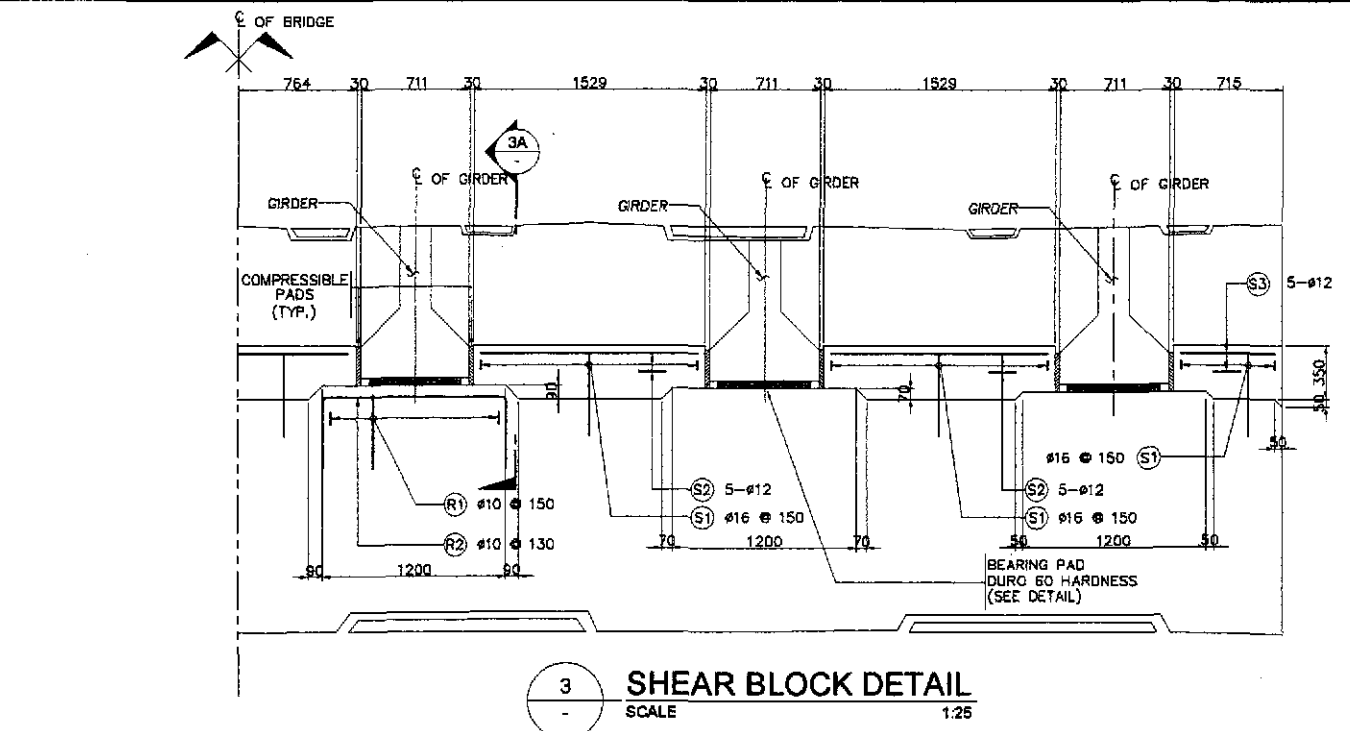
3 SECTION
SCALE 1:30

BAR BENDING DIAGRAM																
A		B		C		D										
SCHEDULE OF REINFORCEMENT PER APPROACH SLAB																
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO GUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/cu.m)
							a	b	c	d	e					
APPROACH SLAB	21.82	AS	25	81	150	B	4900	200	-	-	-	5100	413.10	3.854	1593	153.44
		AS	25	8	150	B	3700	200	-	-	-	3900	31.20	3.854	121	
		AS	20	12	300	A	13100	-	-	-	-	13100	157.20	2.466	388	
		AS	20	6	300	A	13600	-	-	-	-	13600	81.60	2.466	202	
		AS	20	1	AS SHOWN	A	12400	-	-	-	-	12400	12.40	2.466	31	
		AS	16	11	300	A	13000	-	-	-	-	13100	144.10	1.579	228	
		AS	16	5	300	A	13600	-	-	-	-	13600	58.00	1.579	108	
		AS	20	1	AS SHOWN	A	13600	-	-	-	-	13600	13.60	2.466	34	
		AS	16	41	300	B	4900	200	-	-	-	5100	209.10	1.579	331	
		AS	10	4	AS SHOWN	C	1800	3200	-	-	-	5000	20.00	3.854	78	
		AS	16	4	300	D	500	200	700	-	-	1800	7.20	1.579	12	
		AS	25	2	AS SHOWN	A	13600	-	-	-	-	13600	27.20	3.854	105	
		AS	16	41	300	D	500	200	700	-	-	1800	73.80	1.579	117	
TOTAL	21.82											GRADE 40 TOTAL = 796 kgs. GRADE 60 TOTAL = 2,552 kgs.				

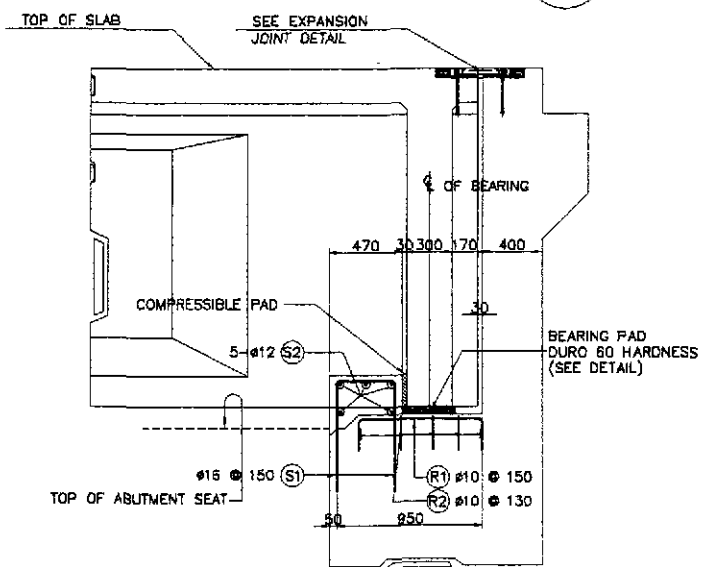
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS					PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	7/2/02	E. R. SALLAN		BUREAU OF DESIGN					THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	BRIDGE NO. 1 & 2 APPROACH SLAB PLAN, SECTION AND DETAIL (INITIAL STAGE)	B1-07
	SUBMITTED	7/4/02	TEAM LEADER		OFFICE OF THE SECRETARY					FULL SIZE A1			
				FUHL - PMO DANILLO C. TRAJANO Project Director		BUREAU OF DESIGN ADRIANO M. DORCOY Chief, Bridge Division		OFFICE OF THE SECRETARY Recommended By: CILBERTO S. REYES Director IV (OC)		Recommended By: MANUEL M. BONOAN Underscretary		Approved By: SIMEON A. DATUMANONG Secretary	



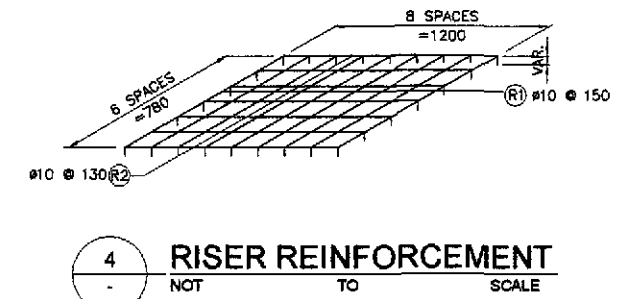
1 SECTION AT ABUTMENT SEAT
SCALE 1:50



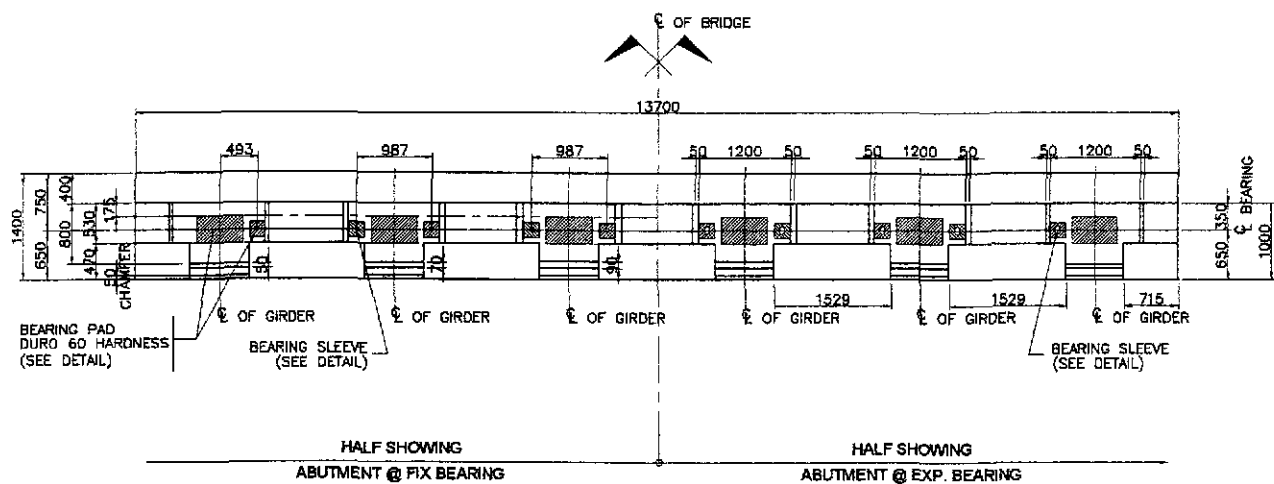
3 SHEAR BLOCK DETAIL
SCALE 1:25



3A SECTION
SCALE 1:25



4 RISER REINFORCEMENT
SCALE NOT TO SCALE



2 PLAN AT ABUTMENT SEAT
SCALE 1:50

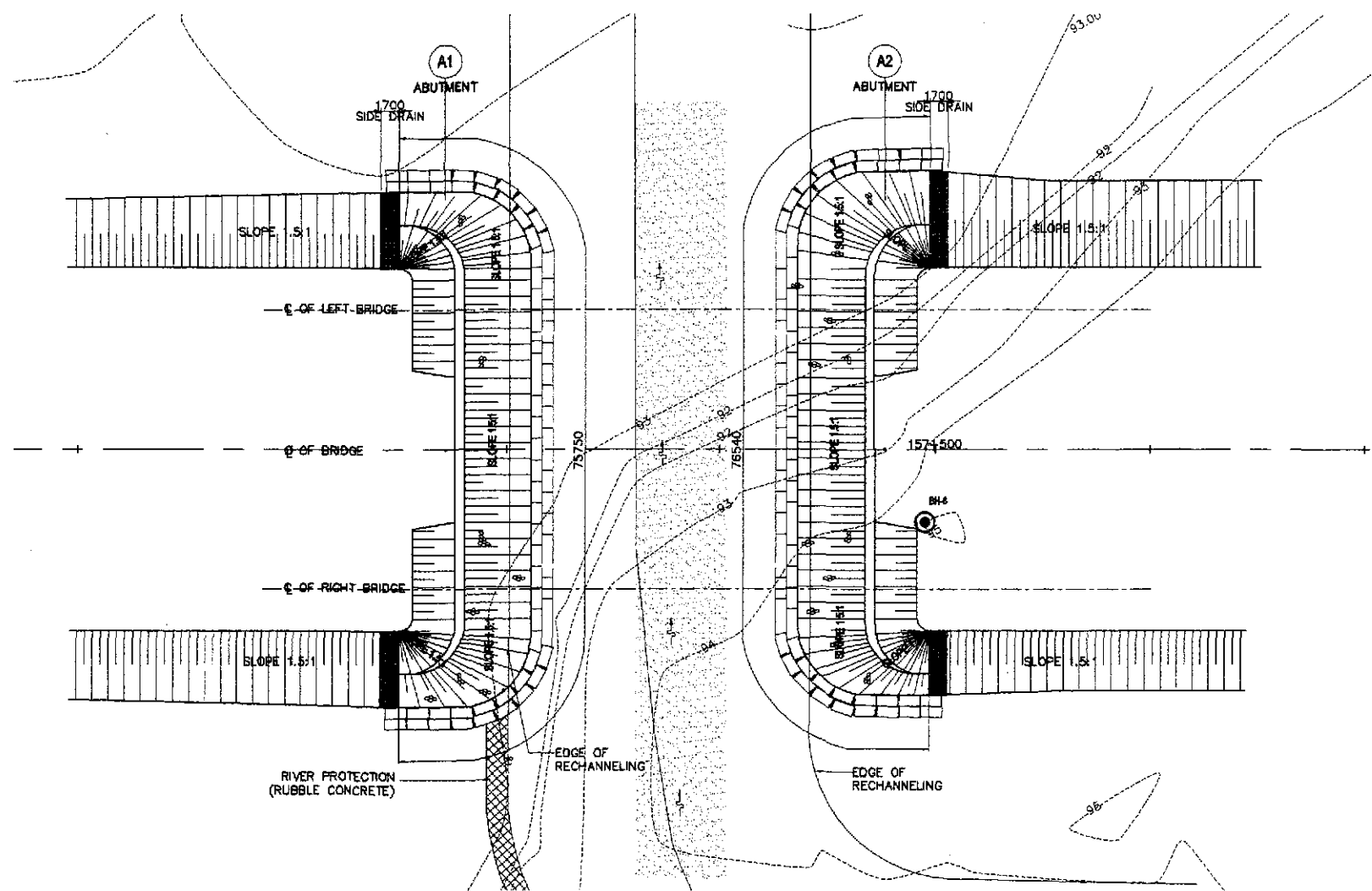
BAR BENDING DIAGRAM																
A							B									
a							a b c									
SCHEDULE OF REINFORCEMENT																
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSION (mm) OUT TO OUT					LENGTH EACH BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)
							a	b	c	d	e					
SHEAR KEY & RISER	1.97	S1	16	56	150	(B)	560	390	560			1510	98.150	1.579	155	147.21
		S2	12	25	AS SHOWN	(A)	1449					1449	36.23	0.888	33	
		S3	12	10	AS SHOWN	(A)	635					635	6.35	0.888	6	
		R1	10	54	150	(B)	500	780	500			1780	96.12	0.616	60	
		R2	10	42	130	(B)	500	1200	500			2200	92.40	0.616	57	
TOTAL	1.97															GRADE 40 TOTAL = 311 kgs.

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

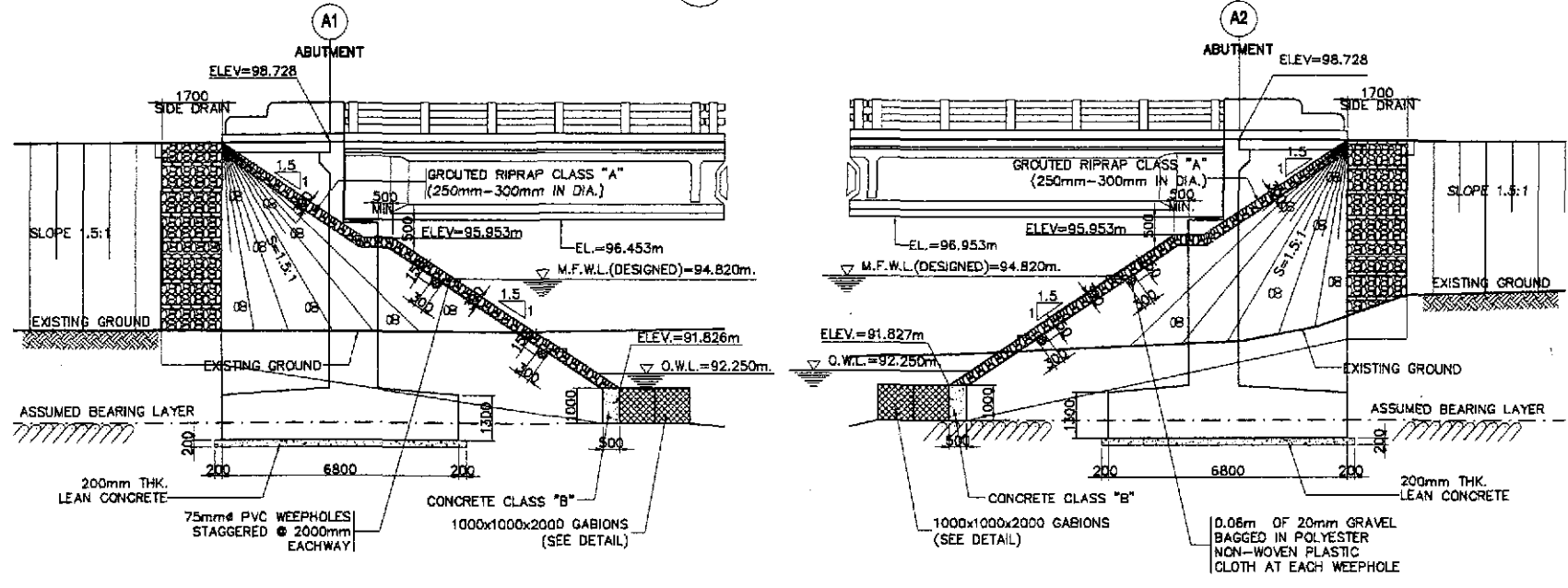
JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YEO YACHIO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BUREAU OF DESIGN
OFFICE OF THE SECRETARY
Submitted By: DANILLO C. TRAJANO, Project Director
Reviewed By: ADRIANO M. DORCY, Chief, Bridges Division
Recommended By: GILBERTO S. REYES, Director IV (DIC)
Approved By: MANUEL M. BONCAN, Undersecretary
Approved By: SIMON A. DATUMANONG, Secretary

PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
SCALE : AS SHOWN
SHEET CONTENTS : BRIDGE NO. 1 & 2 SHEAR KEY AND RISER DETAILS AT ABUTMENT (INITIAL STAGE)
SHEET NO. : B1-08



1A PLAN SCALE 1:300

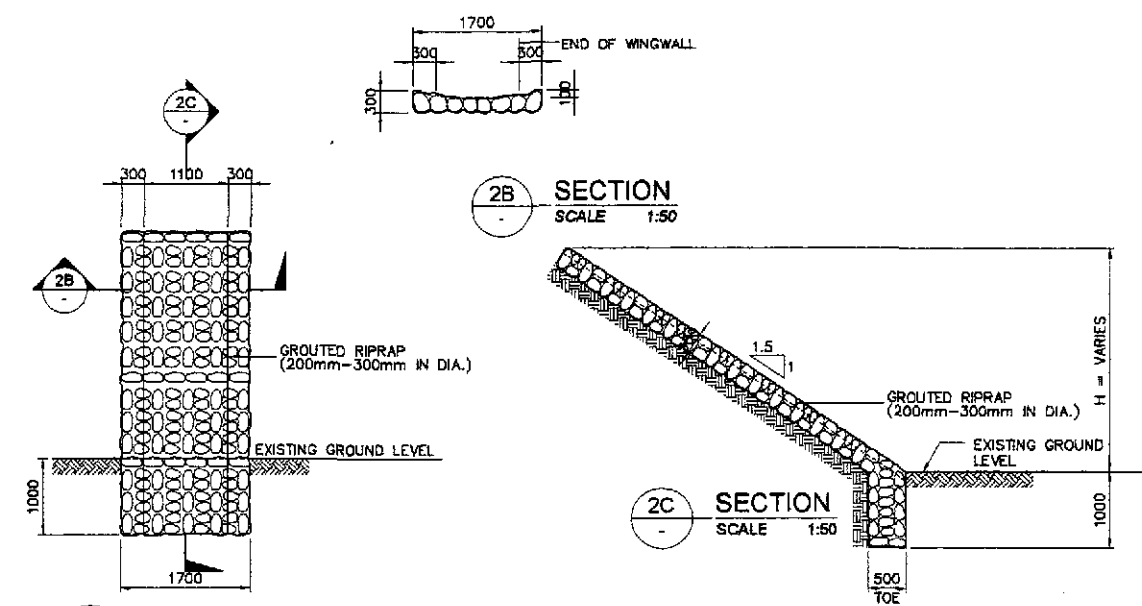


1B ELEVATION SCALE 1:100

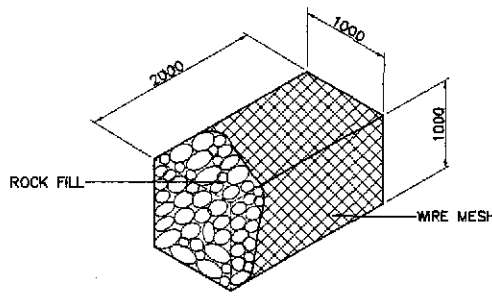
1 ABUTMENT SLOPE PROTECTION DETAIL SCALE AS SHOWN

GENERAL NOTES:

- GROUTED RIPRAP (250mm-300mm DIA.) SHALL BE USED FOR THE FACING AND SHALL BE CAREFULLY HANDLAID WITH THE LONGEST DIMENSIONS PERPENDICULAR TO THE SLOPE AND FIRMLY BEDDED INTO THE SLOPE AND ADJACENT TO THE ADJOINING BOULDERS SPACED BETWEEN THE BOULDERS. THE SPACE BETWEEN THE BOULDERS SHALL BE COMPLETELY FILLED WITH MORTAR. THE OUTSIDE SURFACE OF THE BOULDERS SHALL BE LEFT EXPOSED AND THE SURFACE OF THE MORTAR SHALL BE SWEEPED WITH A STIFF BROOM.
- WIRE MESH GABIONS
 - WIRE - THE WIRE MESH SHALL BE MADE OF GALVANIZED STEEL HAVING A MINIMUM SIZE OF 3.40mm DIAMETER (U.S. WIRE GAUGE NO.11) THE TENSILE STRENGTH OF THE WIRE SHALL BE IN THE RANGE OF 413.70 TO 586.10 MPa. (60,000 TO 85,000 Psi) THE MINIMUM ZINC COATING OF THE WIRE SHALL BE 22.70 GRAMS PER 0.0929m² OF UNCOATED WIRE SURFACES AS DETERMINED BY TEST CONDUCTED IN ACCORDANCE WITH AASHTO T85.
 - ROCK FILL - ROCK USED IN THE GABIONS SHALL CONSIST OF HARD, DURABLE ROCK PIECES THAT WILL NOT DETERIORATE WHEN SUBMERGED IN WATER OR EXPOSED TO SEVERE WEATHER CONDITIONS. ROCK PIECES SHALL BE GENERALLY UNIFORMLY GRADED IN SIZES RANGING FROM 100mm TO 200mm. FILLED GABIONS SHALL HAVE A MINIMUM DENSITY OF 1,400kg./m³. VOIDS SHALL BE EVENLY DISTRIBUTED. THE ROCKS SHALL MEET THE REQUIREMENTS OF AASHTO M63 EXCEPT THAT THE SODIUM SULFATE SOUNDNESS LOSS SHALL NOT EXCEED 9% AFTER 5 CYCLES.
- GEOTEXTILE THE FOLLOWING SPECIFICATIONS ARE REQUIRED:
 - POLYESTER OR POLYPROPYLENE - 100%
 - MECHANICALLY BONDED/HEAT BONDED
 - NON-WOVEN
 - EFFECTIVE OPENING SIZE - 110 MICRONS (MAX.)
 - THICKNESS UNDER PRESSURE - 0.80mm (MIN.)
 - WEIGHT - 200g./sq. m. (MIN.)
 - CBR PUNCTURE STRENGTH - 400N (MIN.)
 - MULTI-DIRECTIONAL TENSILE STRENGTH - 13KN/m
- GRAVEL FILTER SHALL BE COARSE AGGREGATES MATERIALS WHICH SATISFY THE REQUIREMENTS FOR ITEM 405, STRUCTURAL CONCRETE, GRADING B OF TABLE 405.1 AS REVISED.



2 TYPICAL SIDE DRAIN DETAIL SCALE AS SHOWN

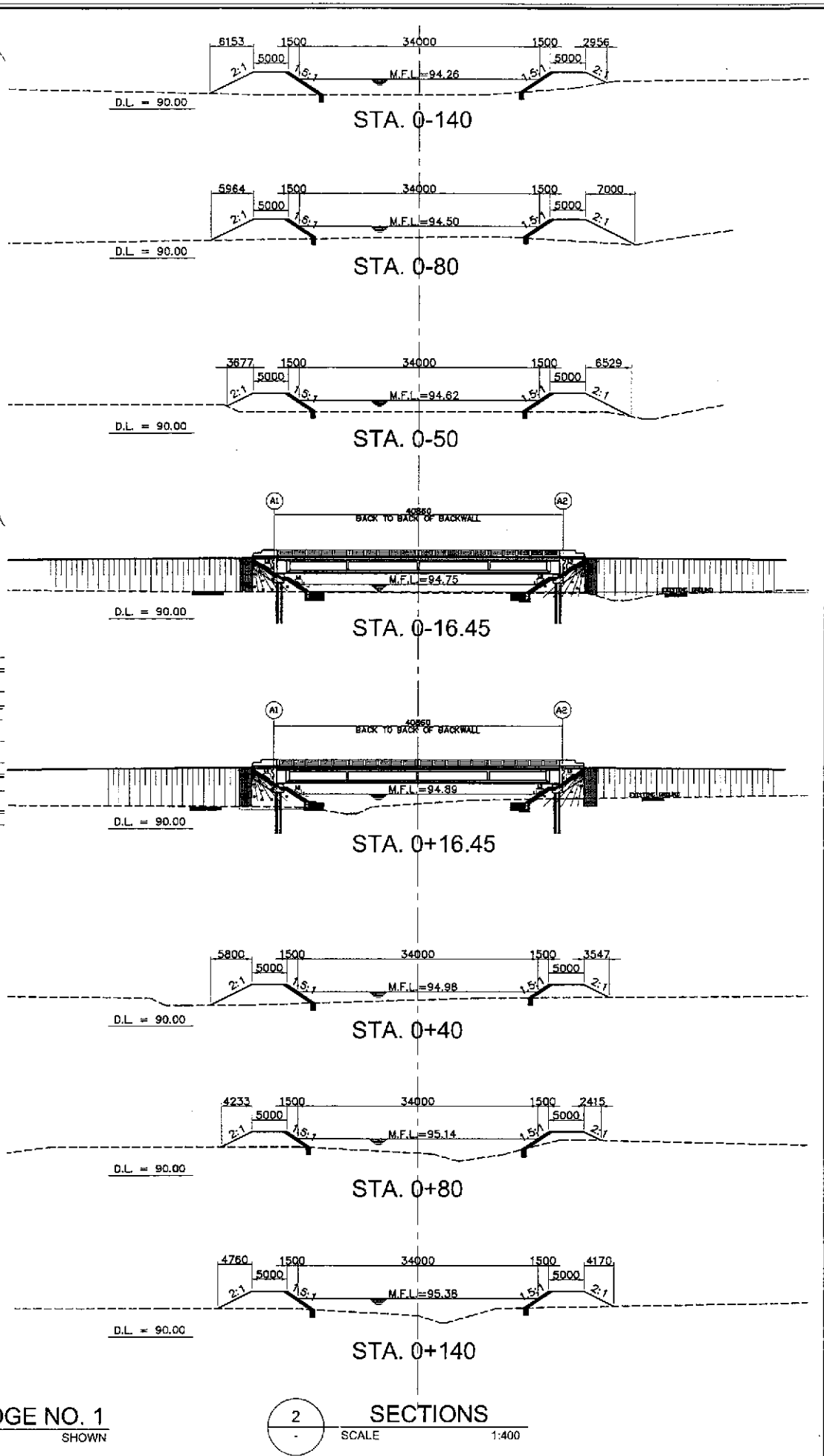
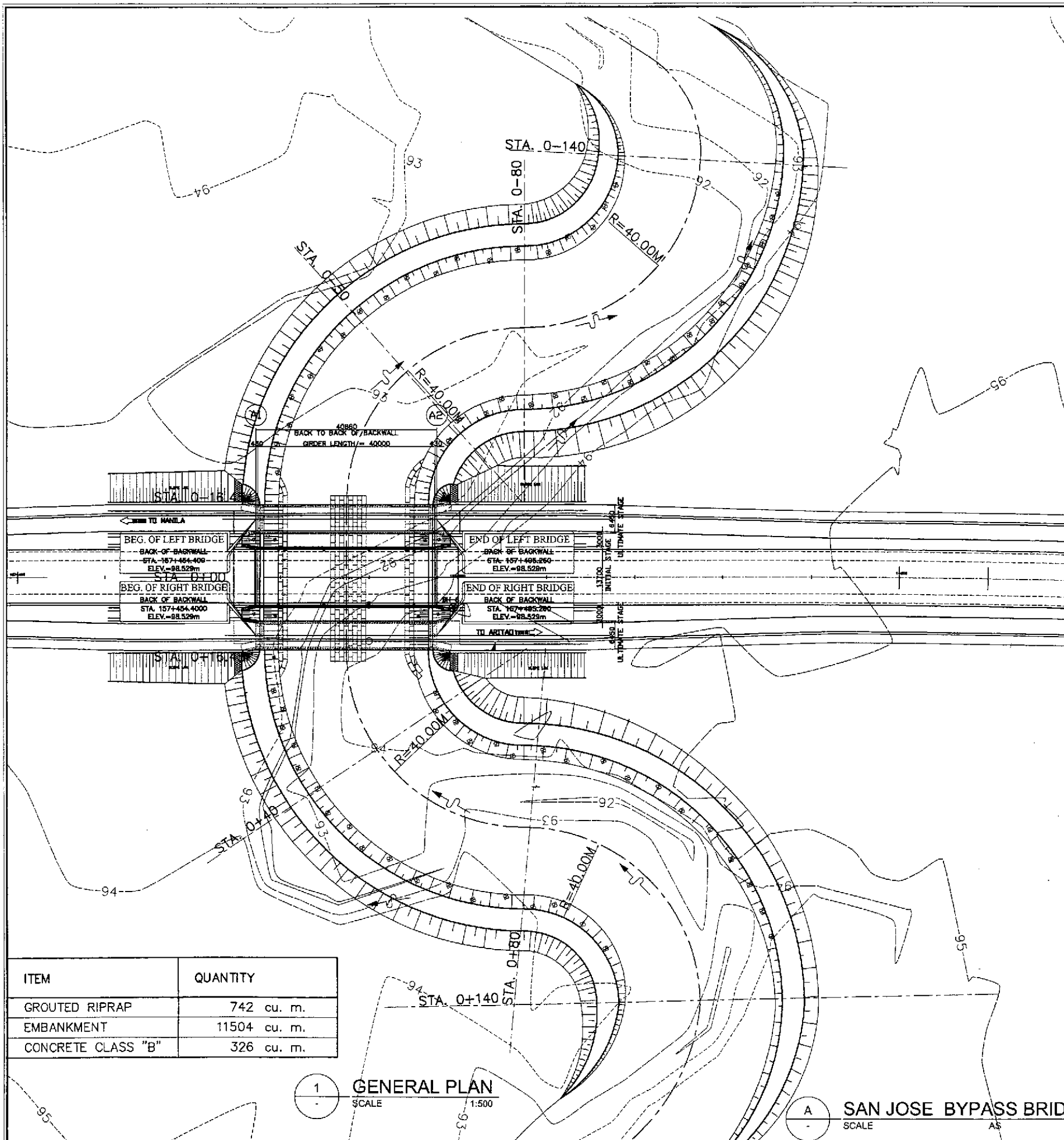


3 GABION DETAIL SCALE 1:50

VELOCITY (m/sec)	ROCK SIZE (mm)	
	VERY TURBULENT FLOW	SMOOTH FLOW
1.00	40	-
1.50	135	-
2.00	170	-
2.50	255	137
3.00	370	197
3.50	515	270
4.00	690	350
4.50	825	425
5.00	>900	590

LOCATION	SIZES	QUANTITY	
		ABUTMENT-A1	ABUTMENT-A2
GABIONS	1000 x 1000 x 2000	68 PCS	70 PCS
SIDE DRAIN	200mm-300mm IN DIA.	10.28 cu. m	10.80 cu. m
GROUTED RIPRAP	250mm-300mm IN DIA.	182.57 cu. m	181.66 cu. m

	DESIGNED: 9/2/02, GONZALES CHECKED: 9/4/02, [Signature] SUBMITTED: 9/6/02, [Signature]	DATE: 9/2/02 SIGNATURE: [Signature]	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY	PROJECT AND LOCATION: THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) SAN JOSE BYPASS	SCALE: AS SHOWN FULL SIZE A1	SHEET CONTENTS: BRIDGE NO. 1 ABUTMENT PROTECTION AND SIDE DRAIN DETAILS (INITIAL STAGE)	SHEET NO.: B1-09
	SUBMITTED BY: DANILLO C. TRAJANO, Project Director REVIEWED BY: PERFECTO L. ZAPLAN JR., Chief, Hydraulic Division (QC) RECOMMENDED BY: GILBERTO S. REYES, Director IV (QC) MANUEL M. BONGAON, Undersecretary SIMON A. DATUMANDONG, Secretary						
	JICA JAPAN INTERNATIONAL COOPERATION AGENCY						



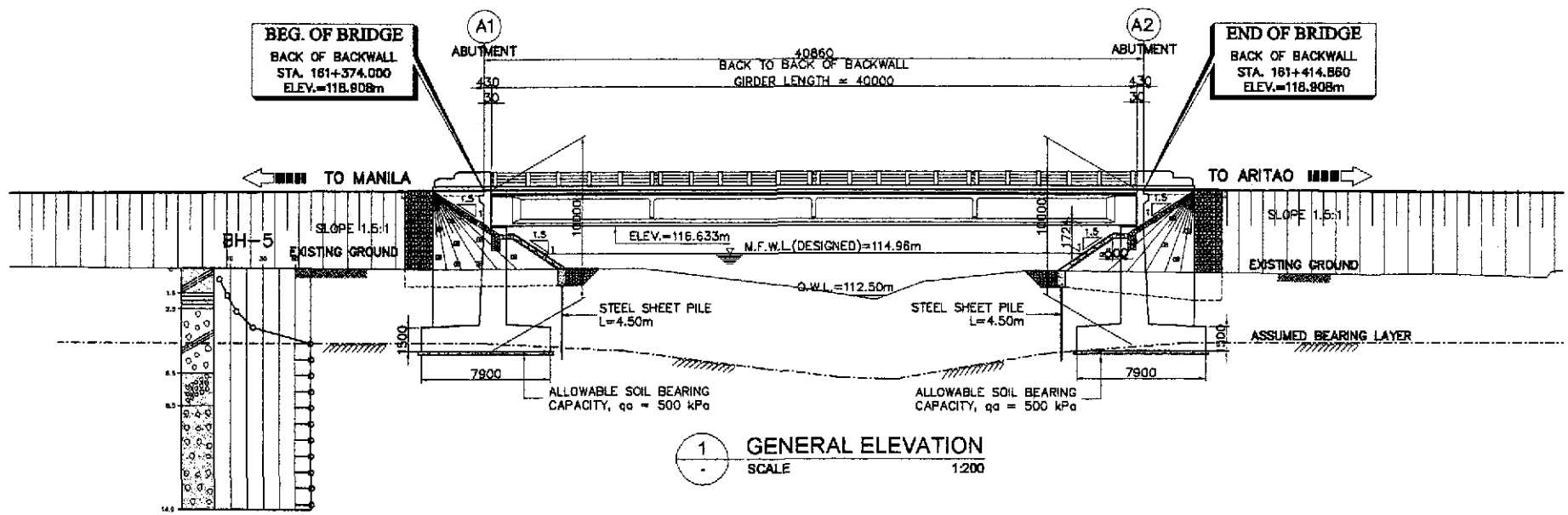
ITEM	QUANTITY
GROUTED RIPRAP	742 cu. m.
EMBANKMENT	11504 cu. m.
CONCRETE CLASS "B"	326 cu. m.

1 GENERAL PLAN
SCALE 1:500

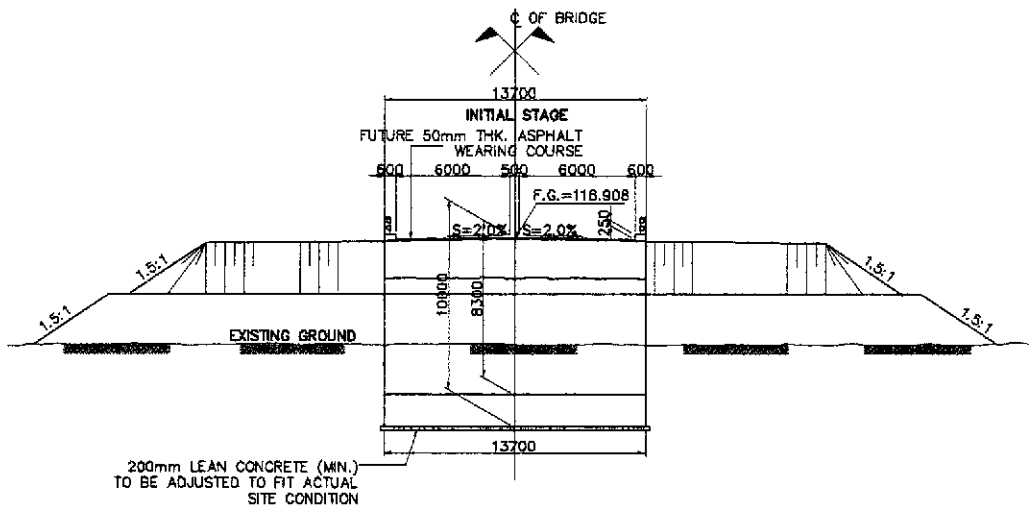
A SAN JOSE BYPASS BRIDGE NO. 1
SCALE AS SHOWN

2 SECTIONS
SCALE 1:400

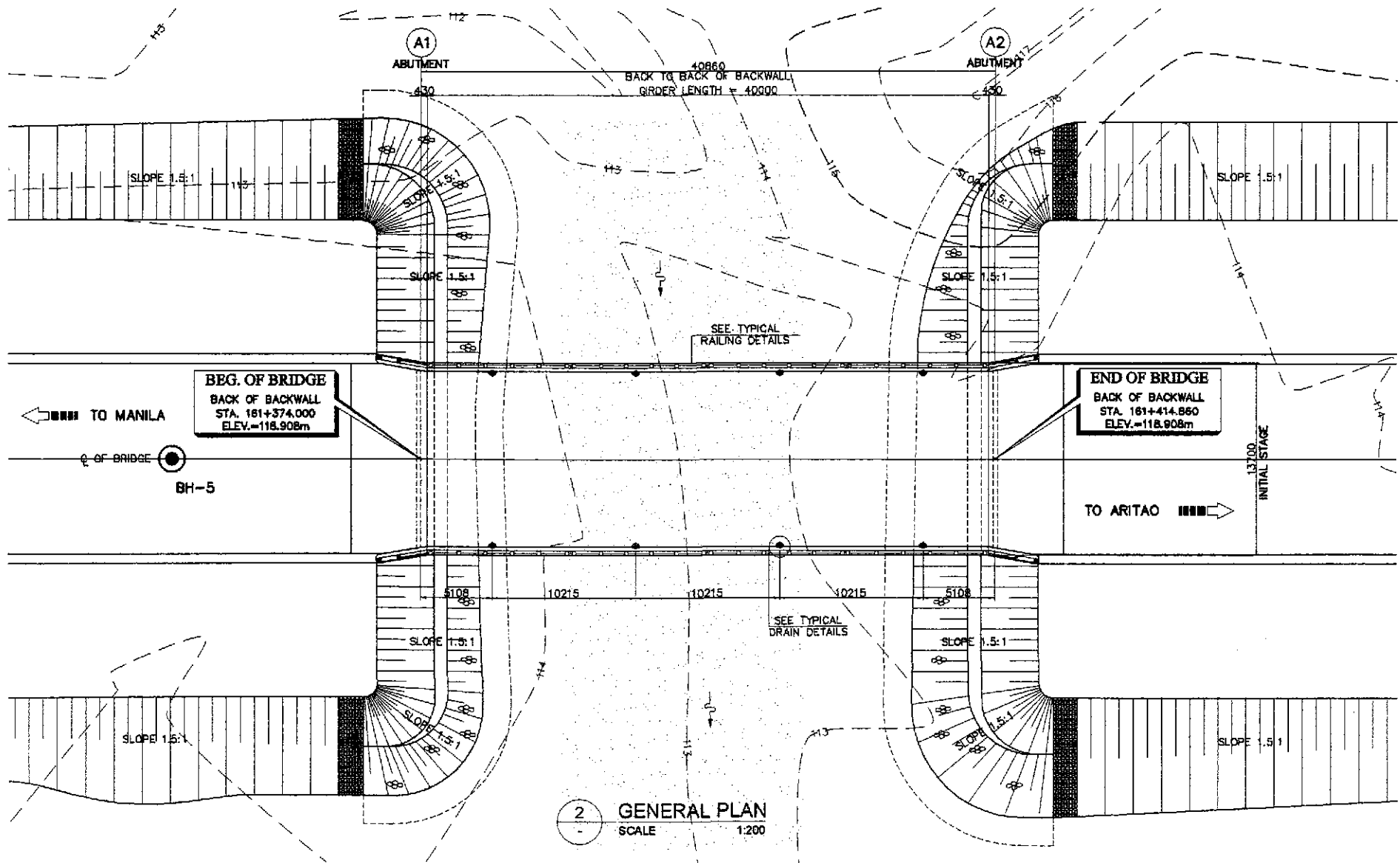
	DESIGNED: 7/2/02 CHECKED: 9/4/02 SUBMITTED: 9/6/02	SIGNATURE: [Signature] DATE: 7/2/02	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) SAN JOSE BYPASS	SCALE : 1:400 FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 1 RIVER REALIGNMENT DETAILS (INITIAL STAGE)	SHEET NO. : B1-10	
	BUREAU OF DESIGN PUHL - PMO Submitted By: [Signature] DANILLO C. TRAJANG Project Director			OFFICE OF THE SECRETARY Reviewed By: [Signature] ADRIANO M. DOROY Chief, Bridges Division			Recommended By: [Signature] GILBERTO S. REYES Director IV (OIC)	
	Recommended By: [Signature] MANUEL M. BONDAN Undersecretary			Approved By: [Signature] SIMEON A. DATUMANONG Secretary				



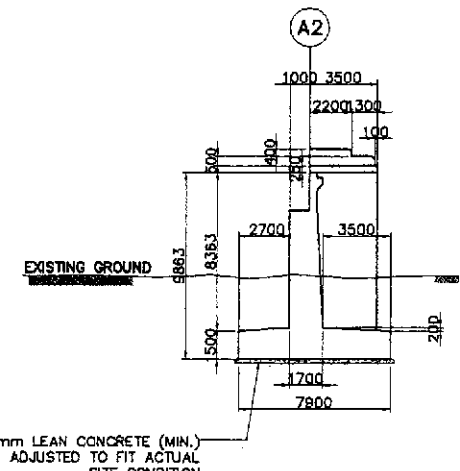
1 GENERAL ELEVATION
SCALE 1:200



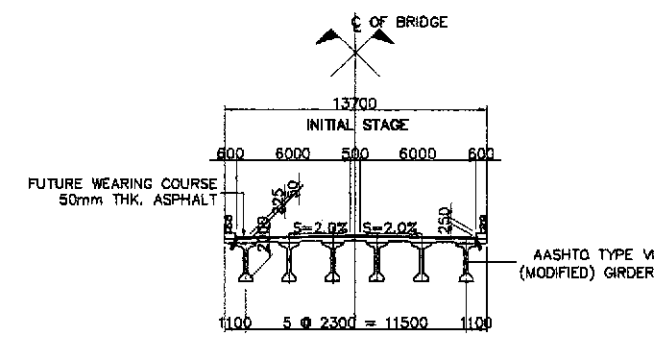
3A SECTION @ ABUTMENT A2
SCALE 1:200



2 GENERAL PLAN
SCALE 1:200



3B SIDE ELEVATION
SCALE 1:200



3C SECTION @ MID-SPAN
SCALE 1:200

HYDRAULIC DATA	
VELOCITY @ 50 YEARS, V ₅₀	3.147 m/sec
DISCHARGE @ 50 YEARS, Q ₅₀	148.100 cu.m./sec
CATCHMENT AREA, CA	13.300 sq. km

NOTE:
PRIOR TO CONSTRUCTION SOIL INVESTIGATION AT ABUTMENT A2 SHALL BE CONDUCTED FOR CONFIRMATION OF ASSUMED BEARING CAPACITY AND FOOTING ELEVATION.

A SAN JOSE BYPASS BRIDGE NO.2 (STA.161+374.000)
SCALE AS SHOWN

PERFECTO L. ZAPLAN JR.
OIC Chief, Hydraulics Division, BOD

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAMIRA & ENGINEERS
YUO YACHIYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN OFFICE OF THE SECRETARY

DESIGNED: 9/16/02 E. R. SALLAN
CHECKED: 9/16/02 [Signature]
SUBMITTED: 9/16/02 [Signature]

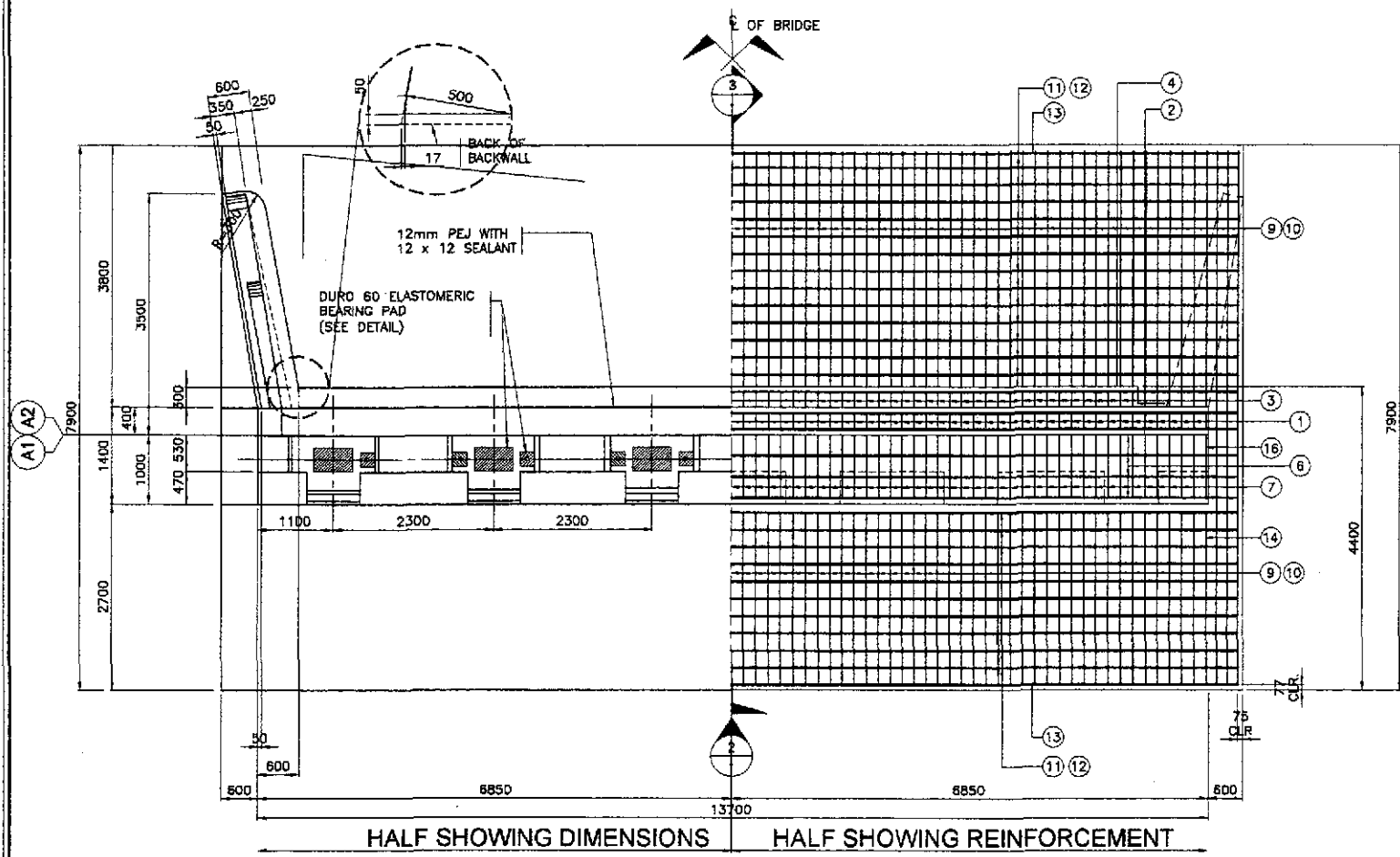
Submitted By: DANILLO C. TRAJANO, Project Director
Reviewed By: ADRIANO M. BORDY, Chief, Bridge Division
Recommended By: GILBERTO S. REYES, Director IV (OIC)
Approved By: MANUEL M. BONDAN, Undersecretary
Approved By: SIMEON A. DATUMANONG, Secretary

PROJECT AND LOCATION: THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)

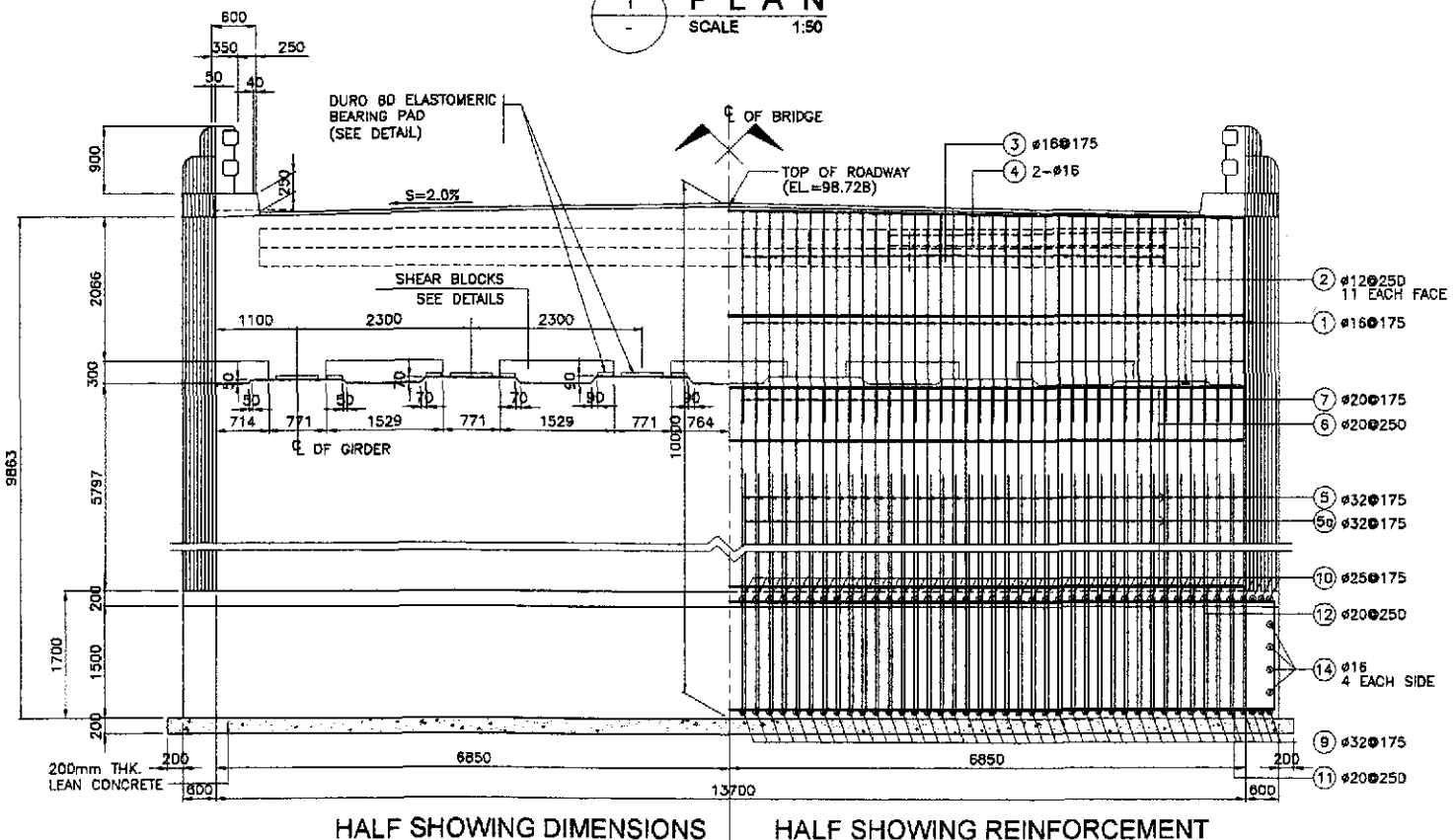
SCALE: 1:200 FULL SIZE A1

SHEET CONTENTS: BRIDGE NO. 2 GENERAL PLAN, ELEVATION AND SECTIONS (INITIAL STAGE)

SHEET NO.: B2-01



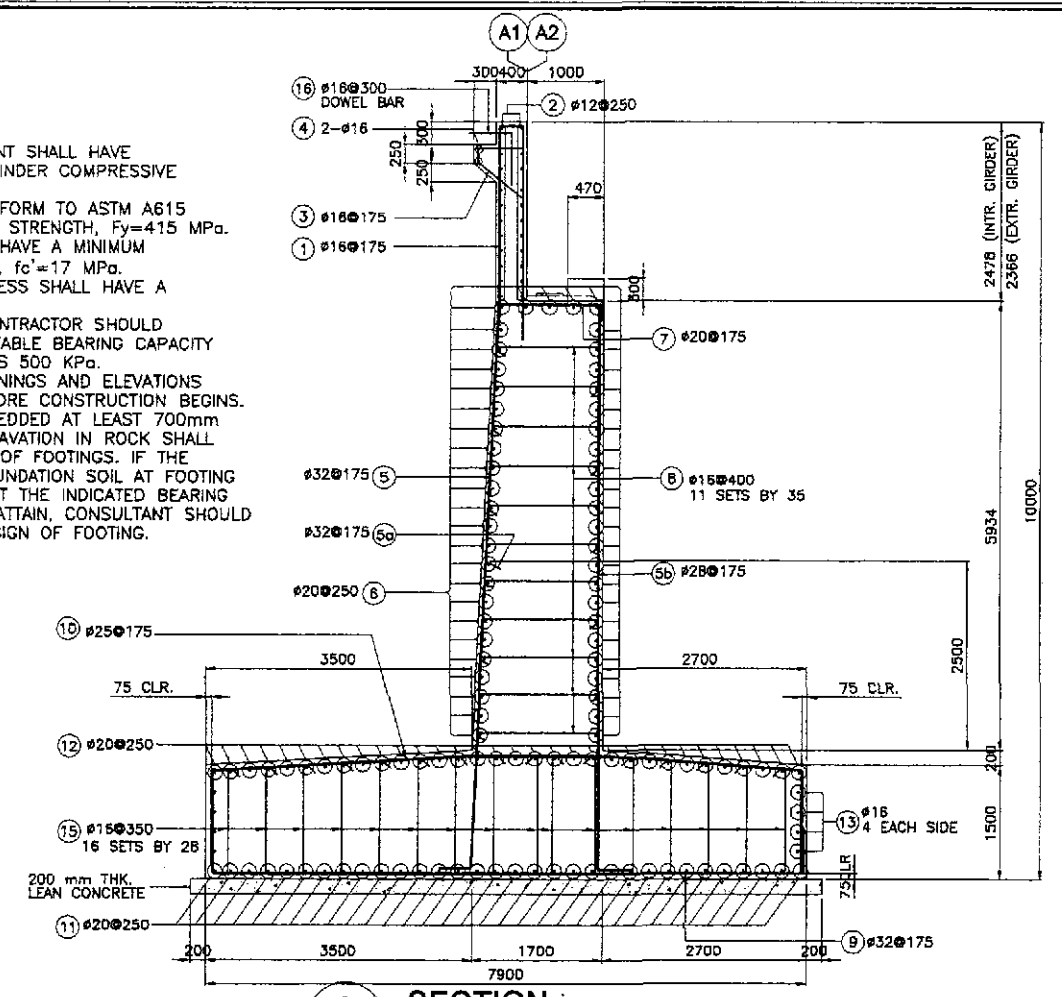
1 PLAN
SCALE 1:50



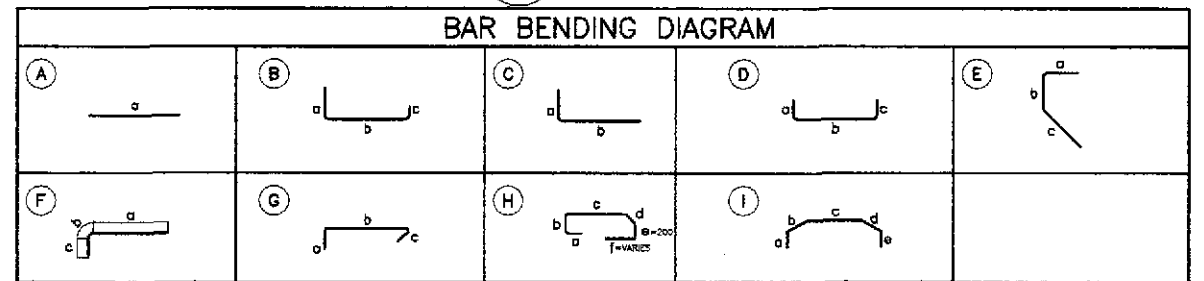
2 ELEVATION
SCALE 1:50

NOTE:

1. CONCRETE FOR ABUTMENT SHALL HAVE A MINIMUM 28-DAY CYLINDER COMPRESSIVE STRENGTH, $f'_c=21$ MPa.
2. ALL REBARS SHALL CONFORM TO ASTM A615 GRADE 60 WITH A YIELD STRENGTH, $F_y=415$ MPa.
3. LEAN CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH, $f'_c=17$ MPa.
4. LEAN CONCRETE THICKNESS SHALL HAVE A MINIMUM OF 200mm.
5. FOR ABUTMENT, THE CONTRACTOR SHOULD VERIFY THAT THE ALLOWABLE BEARING CAPACITY AT FOUNDATION LEVEL IS 500 KPa.
6. ALL DIMENSIONS, STATIONINGS AND ELEVATIONS SHALL BE VERIFIED BEFORE CONSTRUCTION BEGINS.
7. FOOTING SHALL BE EMBEDDED AT LEAST 700mm INTO HARD STRATA. EXCAVATION IN ROCK SHALL BE TO THE TRIM LINES OF FOOTINGS. IF THE CONDITIONS OF THE FOUNDATION SOIL AT FOOTING ELEVATION IN SUCH THAT THE INDICATED BEARING CAPACITY CAN NOT BE ATTAIN, CONSULTANT SHOULD BE NOTIFIED FOR REDESIGN OF FOOTING.

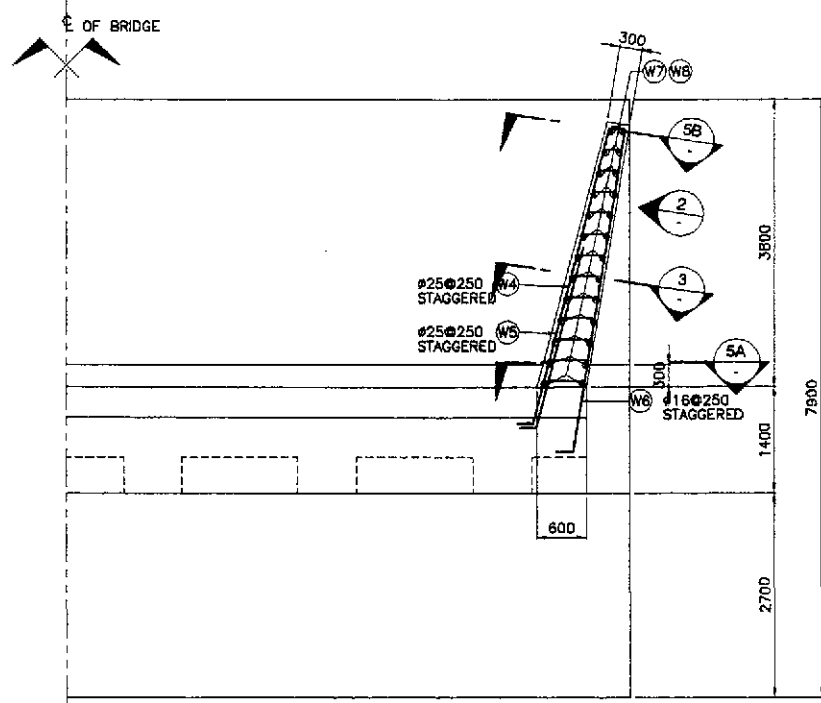


3 SECTION
SCALE 1:50

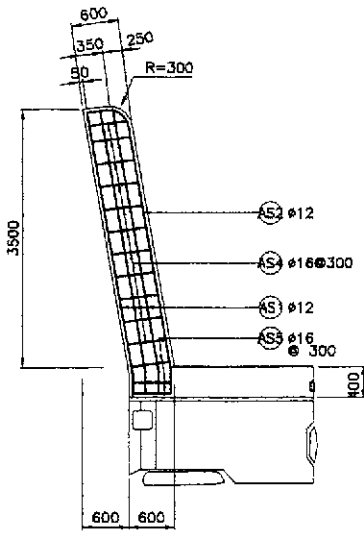


SCHEDULE OF REINFORCEMENT PER ABUTMENT																
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ³)
							a	b	c	d	e					
BACKWALL	14.99	1	16	79	175	B	2800	300	2800	-	-	5900	466.10	1.579	736	80.19
		2	12	22	250	A	13600	-	-	-	-	13600	299.20	0.988	265	
		3	16	68	175	E	550	150	700	-	-	1400	100.80	1.579	160	
		4	16	2	AS SHOWN	A	12400	-	-	-	-	12400	24.80	1.579	40	
MAINWALL	126.01	5	32	79	175	C	400	7500	-	-	-	7900	624.10	8.313	3940	98.08
		6a	32	79	175	C	400	4050	-	-	-	4450	351.55	8.313	2220	
		6b	28	79	175	C	400	7500	-	-	-	7900	624.10	4.833	3017	
		6	20	49	250	A	13600	-	-	-	-	13600	886.40	2.466	1644	
		7	20	79	175	D	250	1300	250	-	-	1800	142.20	2.466	351	
		8	16	385	400	C	250	450(over)	250	-	-	1950	750.75	1.579	1186	
FOOTING	190.87	9	32	85	175	D	800	7750	800	-	-	9350	794.75	6.313	5018	64.58
		10	25	85	175	I	800	3500	1600	2700	800	9400	799.00	3.854	3080	
		11	20	32	250	D	800	14750	800	-	-	16350	523.20	2.466	1291	
		12	20	32	250	D	800	14750	800	-	-	16350	523.20	2.466	1291	
		13	16	8	AS SHOWN	A	14750	-	-	-	-	14750	118.00	1.579	187	
		14	16	8	AS SHOWN	A	7750	-	-	-	-	7750	62.00	1.579	98	
DOWEL		15	16	448	350	G	250	450(over)	250	-	1950	873.60	1.579	1380		
TOTAL	331.87															GRADE 40 TOTAL = 4,123 kgs. GRADE 60 TOTAL = 21,852 kgs.

	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS					PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :			
	CHECKED	9/2/02	A. GONZALES		BUREAU OF DESIGN					THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)				AS SHOWN	BRIDGE NO. 2 ABUTMENT MAINWALL REINFORCEMENT DETAILS (INITIAL STAGE)	B2-05
	SUBMITTED	9/6/02	M. KIMURA		Submitted By:	Reviewed By:	Recommended By:	Approved By:	SAN JOSE BYPASS				FULL SIZE A1			

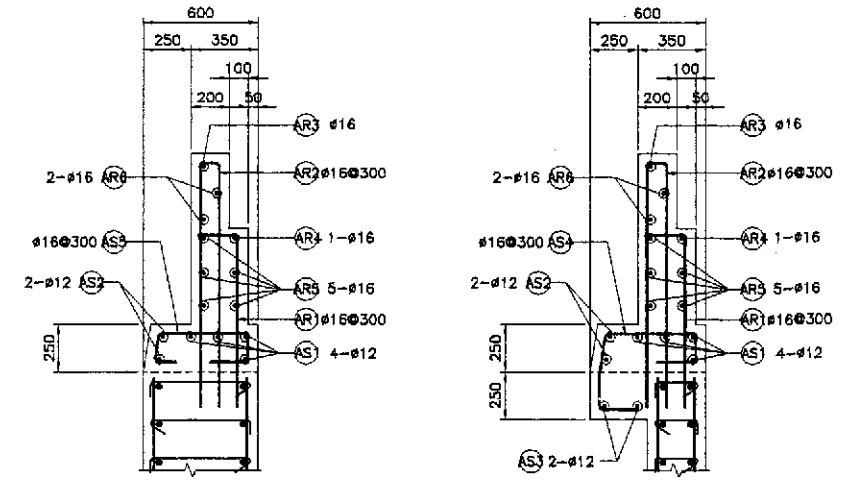


1 PLAN SCALE 1:50



4 SIDEWALK DETAIL SCALE 1:50

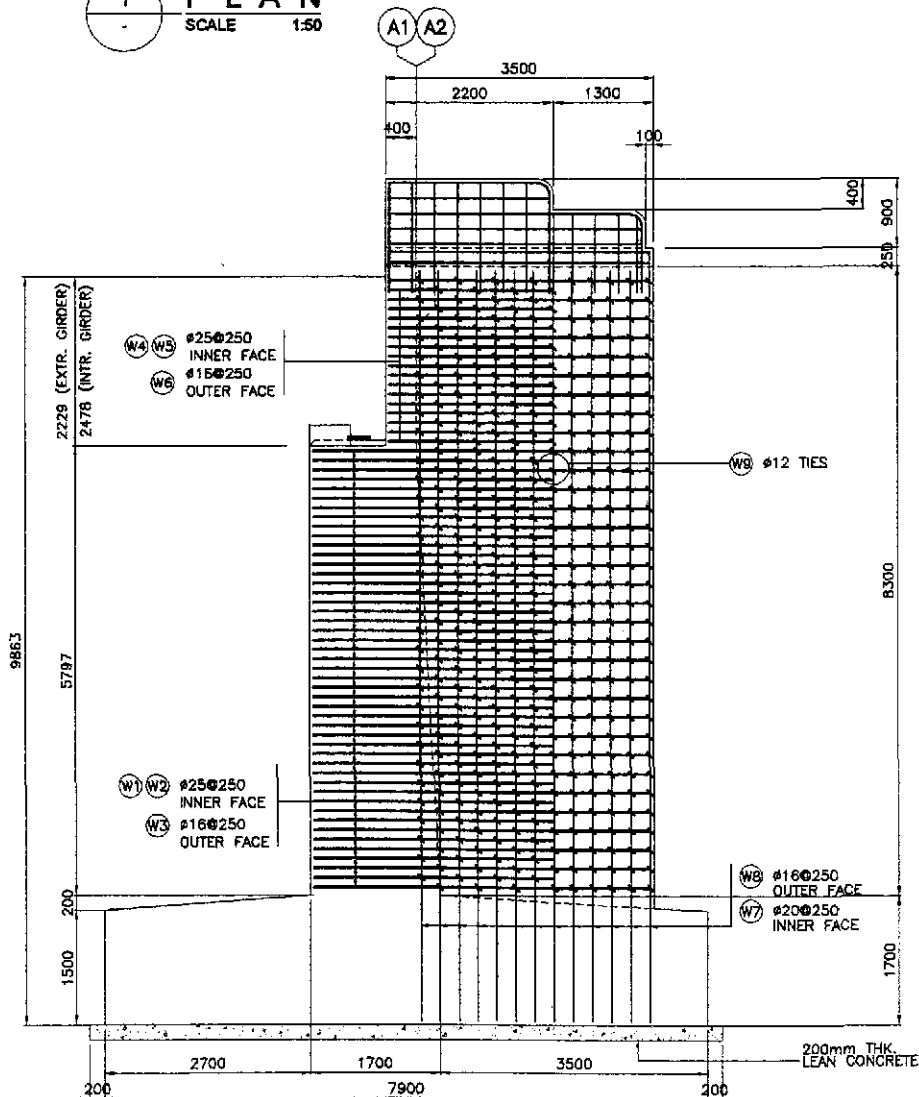
- NOTE:
1. CONCRETE FOR ABUTMENT SHALL HAVE A MINIMUM 28-DAY CYLINDER COMPRESSIVE STRENGTH, $f_c=21$ MPa.
 2. ALL REBARS SHALL CONFORM TO ASTM A615 GRADE 60 WITH A YIELD STRENGTH, $F_y=415$ MPa.
 3. LEAN CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH, $f_c=17$ MPa.
 4. LEAN CONCRETE THICKNESS SHALL HAVE A MINIMUM OF 200mm.
 5. FOR ABUTMENT, THE CONTRACTOR SHOULD VERIFY THAT THE ALLOWABLE BEARING CAPACITY AT FOUNDATION LEVEL IS 500 KPa.
 6. ALL DIMENSIONS, STATIONINGS AND ELEVATIONS SHALL BE VERIFIED BEFORE CONSTRUCTION BEGINS.
 7. FOOTING SHALL BE EMBEDDED AT LEAST 700mm INTO HARD STRATA. EXCAVATION IN ROCK SHALL BE TO THE TRIM LINES OF FOOTINGS. IF THE CONDITIONS OF THE FOUNDATION SOIL AT FOOTING ELEVATION IN SUCH THAT THE INDICATED BEARING CAPACITY CAN NOT BE ATTAIN, CONSULTANT SHOULD BE NOTIFIED FOR REDESIGN OF FOOTING.



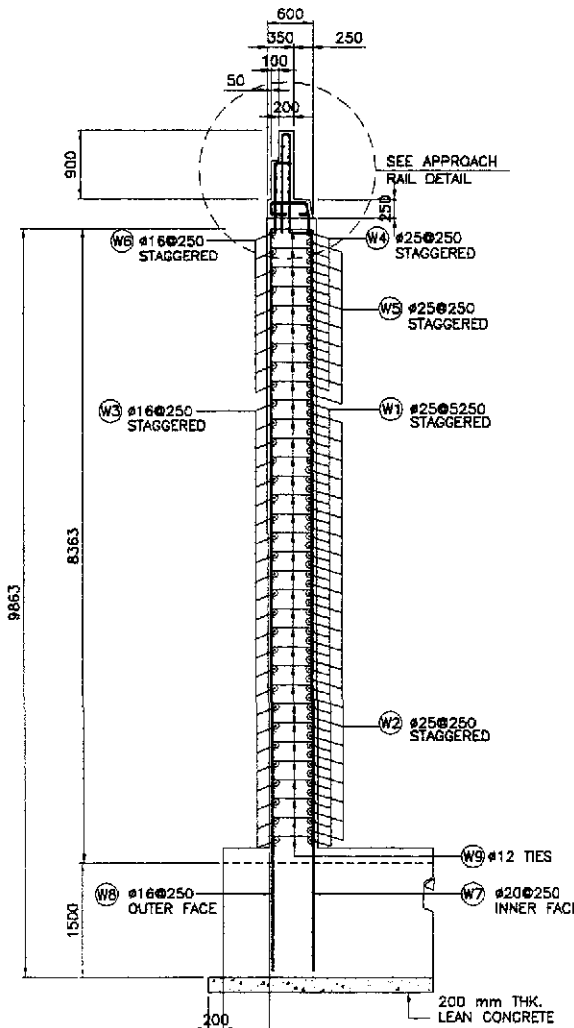
5A SECTION SCALE 1:20

5B SECTION SCALE 1:20

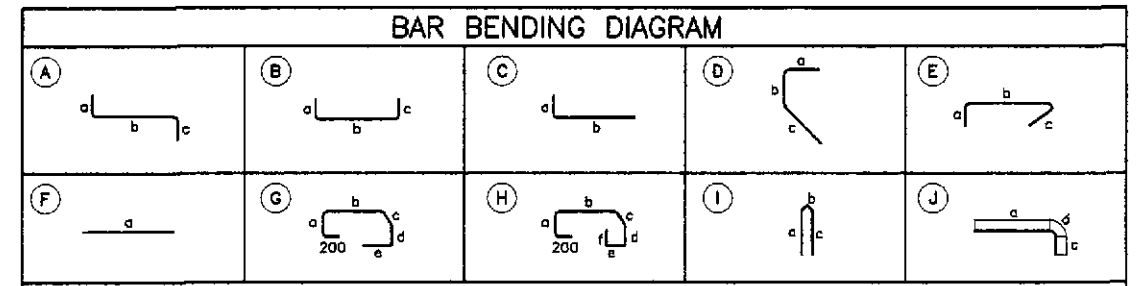
5 APPROACH RAIL DETAILS SCALE 1:20



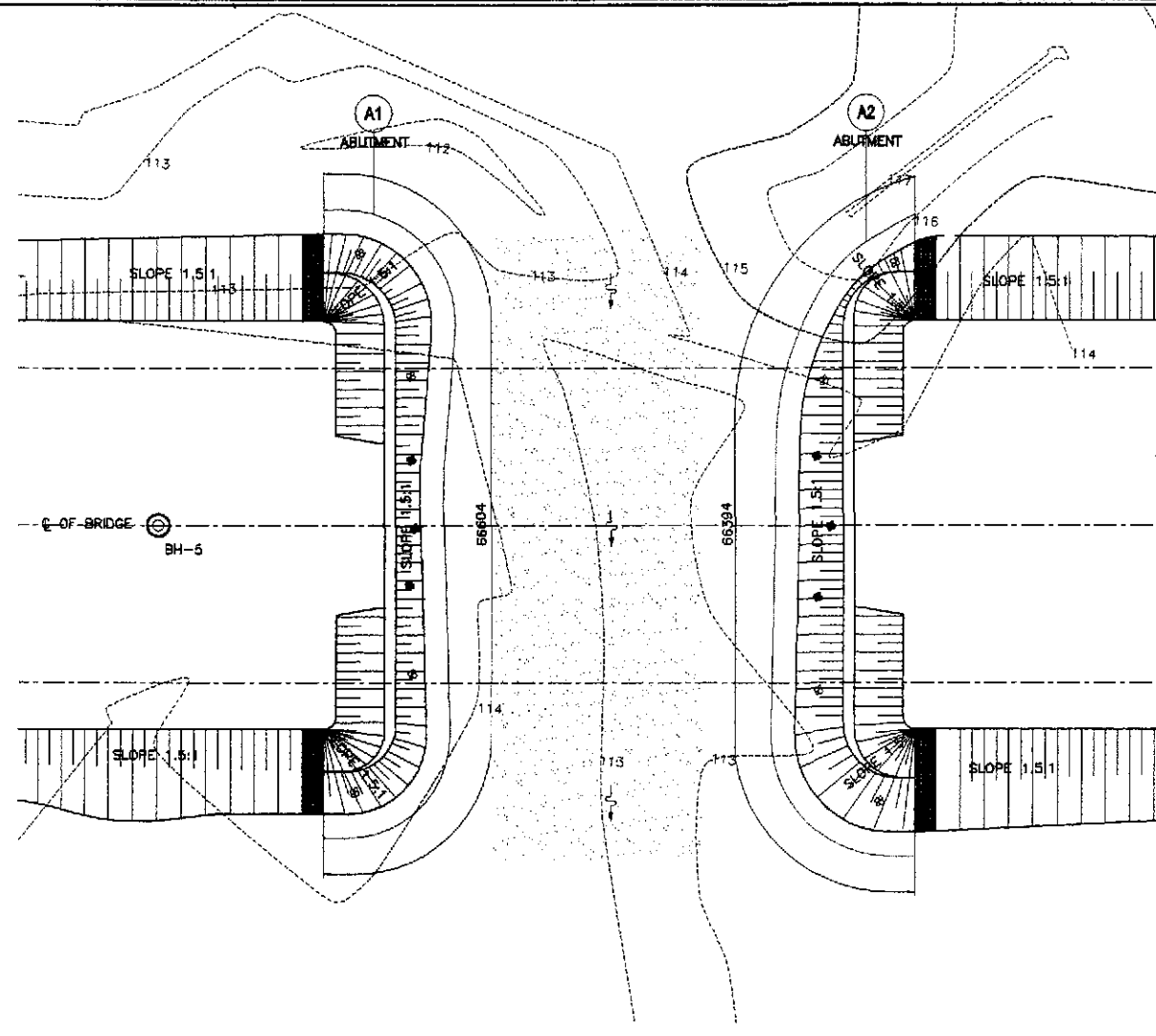
2 WINGWALL ELEVATION SCALE 1:50



3 SECTION SCALE 1:50



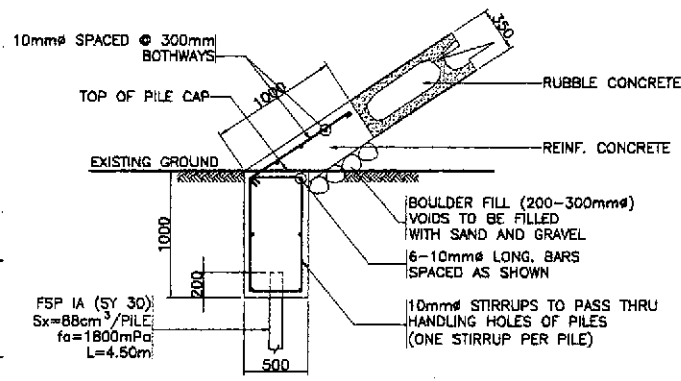
SCHEDULE OF REINFORCEMENT PER ABUTMENT																		
LOCATION	CONCRETE VOLUME (m ³)	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WT. (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m ²)		
WINGWALL	23.47	W1	25	48	250	(B)	400	4400	150	-	-	-	4950	237.60	3.854	916	182.35	
		W2	25	48	250	(C)	400	3200	-	-	-	-	3600	165.60	3.854	639		
		W3	16	48	250	(B)	400	4400	150	-	-	-	4950	237.60	1.579	376		
		W4	25	22	250	(B)	400	3400	150	-	-	-	3950	86.90	3.854	335		
		W5	25	20	250	(C)	400	2200	-	-	-	-	2800	52.00	3.854	201		
		W6	16	22	250	(B)	400	3400	150	-	-	-	3950	86.90	1.579	138		
		W7	20	26	250	(C)	250	9875	-	-	-	-	10125	263.25	2.466	650		
		W8	16	26	250	(C)	250	9875	-	-	-	-	10125	263.25	1.579	416		
		W9	12	888	AS SHOWN	(F)	170	450	170	-	-	-	780	685.72	0.888	609		
												GRADE 60 TOTAL =	2741					
												GRADE 40 TOTAL =	1539					
APPROACH SIDEWALK	1.54	AS1	12	8	AS SHOWN	(F)	3500	-	-	-	-	3500	28.00	0.888	25	75.98		
		AS2	12	4	AS SHOWN	(F)	3500	-	-	-	-	3500	14.00	0.888	13			
		AS3	12	4	AS SHOWN	(F)	3500	-	-	-	-	3500	14.00	0.888	13			
		AS4	16	24	300	(H)	170	460	200	170	200	-	1400	33.60	1.579		54	
		AS5	16	6	300	(G)	170	460	200	200	-	-	1230	7.38	1.579		12	
												GRADE 40 TOTAL =	117					
APPROACH RAILING	1.41	AR1	16	14	300	(C)	200	900	-	-	-	1100	11.00	1.579	18	123.41		
		AR2	16	14	300	(I)	1300	120	1300	-	-	-	2720	38.09	1.579		61	
		AR3	16	2	AS SHOWN	(J)	2100	236	900	-	-	-	3236	6.47	1.579		11	
		AR4	16	2	AS SHOWN	(J)	3300	236	1300	-	-	-	4836	9.67	1.579		16	
		AR5	16	10	AS SHOWN	(F)	3400	-	-	-	-	-	3400	34.00	1.579		54	
AR6	16	4	AS SHOWN	(F)	2100	-	-	-	-	-	2100	8.40	1.579	14				
												GRADE 40 TOTAL =	174					
TOTAL	26.42													GRADE 60 TOTAL =	2,741 kgs.			
												GRADE 40 TOTAL =	1830 kgs.					



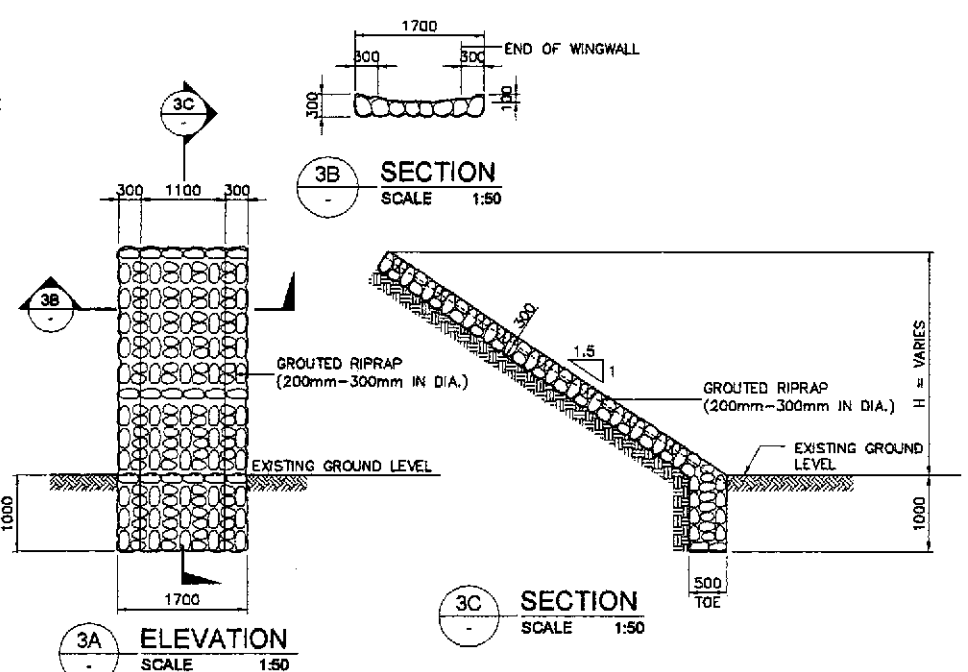
1A PLAN SCALE 1:300

- NOTES FOR RUBBLE CONCRETE:**
- RUBBLE CONCRETE SHALL BE CLASS "B" (1:2.5:5) MIX CONCRETE WITH BOULDERS EMBEDDED THEREIN. BOULDERS 250-300mm# SHALL BE CAREFULLY HAND-LAID WITHIN THE CONCRETE SECTION. THE BOULDERS SHALL BE THOROUGHLY INCORPORATED INTO THE CONCRETE MASS WITH A COVER OF 30mm AND NOT LESS THAN 30mm APART. THE RUBBLE CONCRETE SHALL BE COMPOSED OF 40% CLASS "B" CONCRETE 60% BOULDERS.
 - FOR THE LOOSE BOULDER APRON, BOULDERS 350-450mm# SHALL BE HAND-LAID, CLOSE TOGETHER AND SHALL BE FIRMLY BEDDED. ALL VOIDS BETWEEN BOULDERS SHALL BE FILLED WITH GRAVEL AND THE JOINTS FILLED WITH TIGHTLY DRIVEN SPALLS.
 - CURTAIN WALLS SHALL BE USED AT BOTH ENDS OF THE LOOSE BOULDER APRON BANK PROTECTION WORKS. BOULDERS SHALL BE CAREFULLY HAND-LAID AND EMBEDDED INTO THE CONCRETE SECTION.
 - NO CONCRETING UNDER WATER SHALL BE PERMITTED.
 - PROVIDE 1.0 m. BERM WHEN HEIGHT (H) IS > 4.0 m.

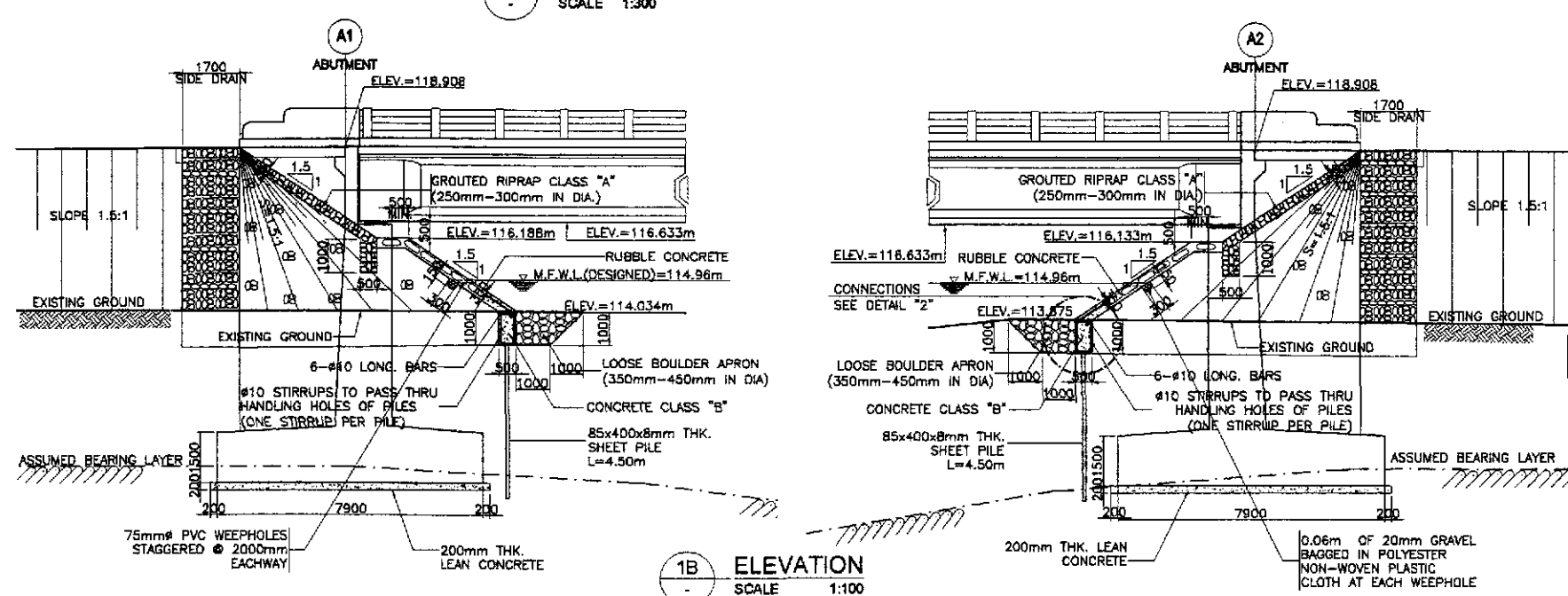
- GENERAL NOTES:**
- GRouted RIPRAP (250mm-300mm DIA.) SHALL BE CAREFULLY HANDLAID WITH THE LONGEST DIMENSIONS PERPENDICULAR TO THE SLOPE AND FIRMLY BEDDED INTO THE SLOPE AND ADJACENT TO THE ADJOINING BOULDERS SPACED BETWEEN THE BOULDERS. THE SPACE BETWEEN THE BOULDERS SHALL BE COMPLETELY FILLED WITH MORTAR. THE OUTSIDE SURFACE OF THE BOULDERS SHALL BE LEFT EXPOSED AND THE SURFACE OF THE MORTAR SHALL BE SWEEPED WITH A STIFF BROOM.
 - GEOTEXTILE THE FOLLOWING SPECIFICATIONS ARE REQUIRED:
 - POLYESTER OR POLYPROPYLENE - 100%
 - MECHANICALLY BONDED/HEAT BONDED
 - NON-WOVEN
 - EFFECTIVE OPENING SIZE - 110 MICRONS (MAX.)
 - THICKNESS UNDER PRESSURE - 0.80mm (MIN.)
 - WEIGHT - 200g/sq. m. (MIN.)
 - CBR PUNCTURE STRENGTH - 40QN (MIN.)
 - MULTI-DIRECTIONAL TENSILE STRENGTH - 13KN/m
 - GRAVEL FILTER SHALL BE COARSE AGGREGATES MATERIALS WHICH SATISFY THE REQUIREMENTS FOR ITEM 405, STRUCTURAL CONCRETE, GRADING B OF TABLE 405.1 AS REVISED.
 - HAND-LAID ROCK SHALL BE MORE THAN 0.015cu.m. IN VOLUME AND SHALL CONSISTS OF HARD AND DURABLE STONES. ALL SHALL BE LAID FLAT AND SECURELY PLACED WITH LARGER STONES GENERALLY LOCATED IN THE LOWER PART OF THE STRUCTURE.



2 CAPPING AND SHEET PILE CONNECTIONS SCALE 1:30



3 TYPICAL SIDE DRAIN DETAIL SCALE AS SHOWN



1 ABUTMENT SLOPE PROTECTION DETAIL SCALE AS SHOWN

VELOCITY (m/sec)	ROCK SIZE (mm)		LOCATION	SIZES	QUANTITY	
	VERY TURBULENT FLOW	SMOOTH FLOW			ABUT. A1	ABUT. A2
1.00	40	-	CONC. CLASS "B"	1000 x 500 x LENGTH	27.92 cu. m.	28.08 cu. m.
1.50	135	-	REBAR	#10, GRADE 40	442.00 kgs.	442.00 kgs.
2.00	170	-	BOULDER APRON	350mm-450mm IN DIA.	83.77 cu. m.	84.24 cu. m.
2.50	255	137	RUBBLE CONCRETE	250mm-300mm IN DIA.	65.51 cu. m.	75.26 cu. m.
3.00	370	197				
3.50	515	270	SHEET PILE	85 x 400 x 8mm THK.	123.00 pcs.	123.00 pcs.
4.00	890	350	SIDE DRAIN	200mm-300mm IN DIA.	10.28 cu. m.	10.77 cu. m.
4.50	825	425				
5.00	>900	590	GRouted RIPRAP	250mm-300mm IN DIA.	53.88 cu. m.	53.88 cu. m.

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL
YEO YACHIYO ENGINEERING CO., LTD.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN
OFFICE OF THE SECRETARY

DESIGNED: 9/2/02
CHECKED: 9/4/02
SUBMITTED: 9/4/02

APPROVED: 9/4/02

PERFECTO L. ZAPLAN JR. (Chief, Hydraulics Division (9C))
GILBERTO S. REYES (Director IV (9C))
MANUEL M. BONGUAN (Undersecretary)

PROJECT AND LOCATION: THE DETAILED DESIGN STUDY ON UPGRADING THE PAN-PHILIPPINE HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)

SCALE: AS SHOWN

SHEET CONTENTS: BRIDGE NO. 2 ABUTMENT PROTECTION AND SIDE DRAIN DETAILS (INITIAL STAGE)

SHEET NO.: B2-09