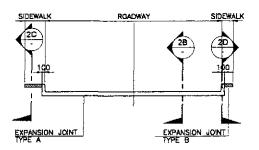
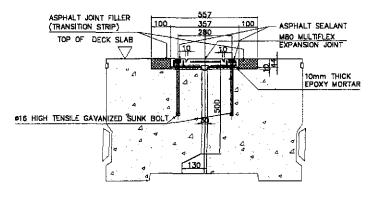
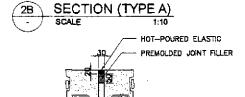


KATAHIRA & ENGINEERS YEO YACHIYO ENGINEERING CO., LTD.

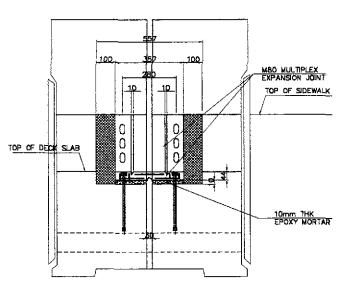


ELEVATION





SECTION (TYPE B) SCALE



2D SECTION (TYPE A)
- SCALE 1:10

PROJECT AND LOCATION :

THE DETAILED DESIGN STUDY ON

UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)

CABANATUAN BYPASS - CONTRACT PACKAGE II

# **EXPANSION JOINT DETAIL**

Approved By:

(See cover sheel for Signature/Approval)

SIMEON A. DATUMANONG

Secretary

(See cover sneet for Signoture) MANUEL M. BONDAN Undersecratory

## A.) QUALITY TESTING OF RUBBER COMPOUND

PROPERTIES	SPECIFICATION
HARDNESS (SHORE A)	50 ± 5
TENSILE STRENGTH (MPa)	13 MIN
ELONGATION AT BREAK (%)	400 MIN
COMPRESSION SET (AFTER 22h AT 70°C)	20% MAX
OZONE RESISTANCE (AFTER 72h AT 40°C, 20% STRAIN 100 pphm	NO CRACK
OIL RESISTANCE IN ASTM NO. 3 OIL (168h AT 25°C VOLUME CHANGE)	15% MAX

#### B.) DIMENSION CHECK ON METAL PLATES

DIMENSION	SPECIFICATION
LENGTH	± 1
WIDTH	0 TO -1.5 MIN
THICKNESS	±0.5 MIN

#### C.) QUALITY CHECK

PROPERTY	SPECIFICATION
DIMENSION	ACCORDING TO PRODUCT DRAWING
SURFACE APPEARANCE	NO VISIBLE CRACK
RUBBER COVER HARDNESS (SHORE A)	50 ± 5

#### INSTALLATION MATERIALS

- 1. EPOXY BEDDING
  2. EPOXY NOSING
  3. BOLT/NUTS
  4. SEALANT

SCALE :

AS SHOWN

FULL SIZE A1

LOCATION	EXPANSION JOINT TYPE	MOVEMENT (mm)	LENGTH (m)
BRIDGE 3	MULTIFLEX 80	30	21
BRIDGE 4	MULTIFLEX 80	30	21
BRIDGE 5	MULTIFLEX 80	30	21
BRIDGE 6	MULTIFLEX 80	30	21
BRIDGE 7	MULTIFLEX 80	30	21
BRIDGE B	MULTIFLEX 80	30	21
BRIDGE 9	MULTIFLEX 80	30	21

LOCATION	ELASTOMERIC BEARING PAD SIZE	QUANTITY
BRIDGE 3	600x350x50	10 PCS.
DRIDGE 3	200x200x50	16 PCS.
BRIDGE 4	600x350x50	10 PCS.
DKIUBE 4	200x200x50	16 PCS.
BRIDGE 5	600×350×50	10 PCS.
BRIDGE 3	200×200×50	16 PCS.
BRIDGE 6	600x350x50	10 PC5.
BRIDGE &	200×200×50	16 PCS.
BRIDGE 7	550x300x50	6 PCS.
BRIDGE /	200x200x50	16 PCS.
BRIDGE 8	600x350x50	10 PCS.
BRIDGE G	200x200x50	16 PCS.
BRIDGE 9	600x350x50	30 PCS.
DIVIDUE B	200x200x50	40 PCS.

SHEET CONTENTS :

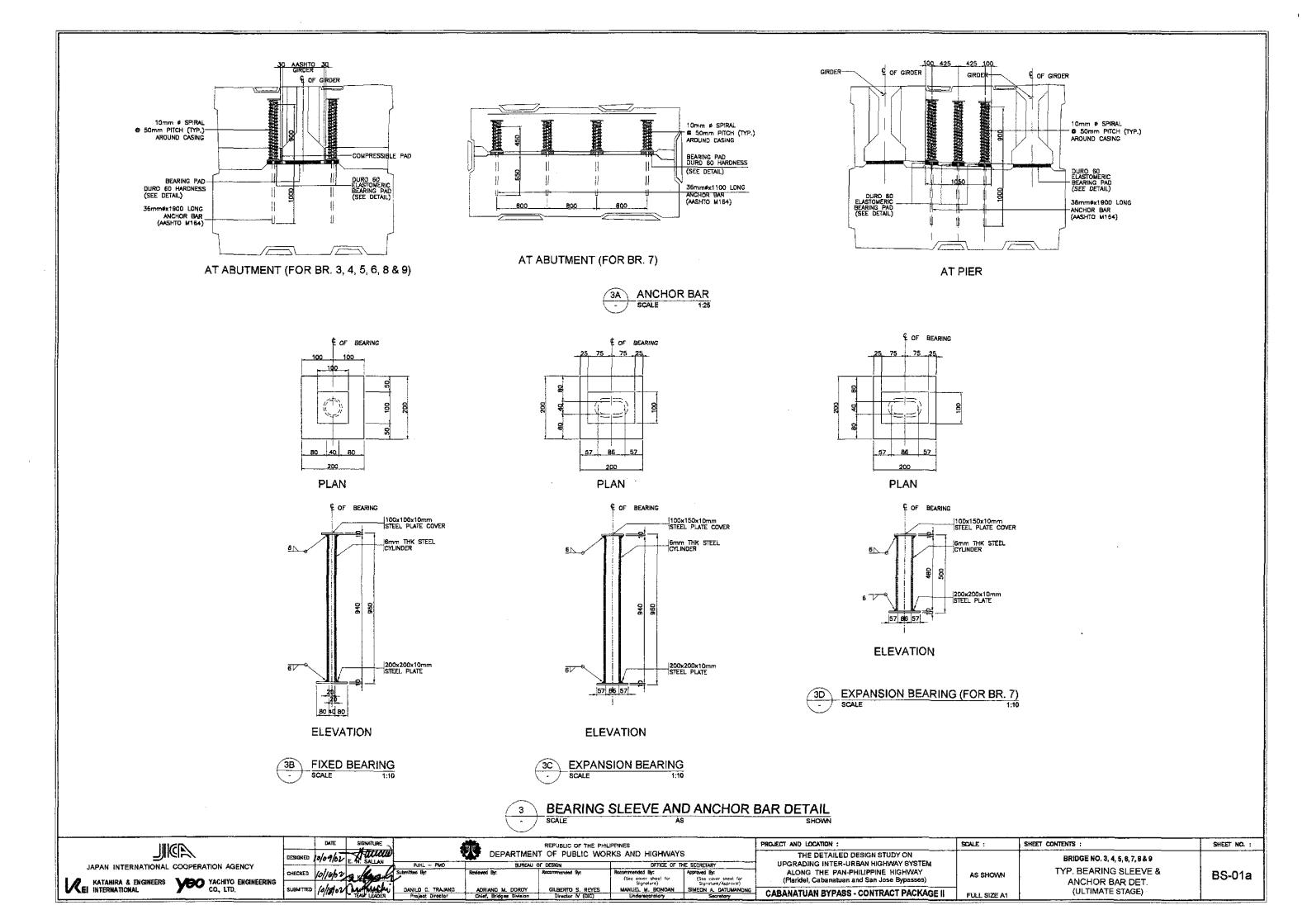
BRIDGE NO. 3, 4, 5, 6, 7, 8 & 9

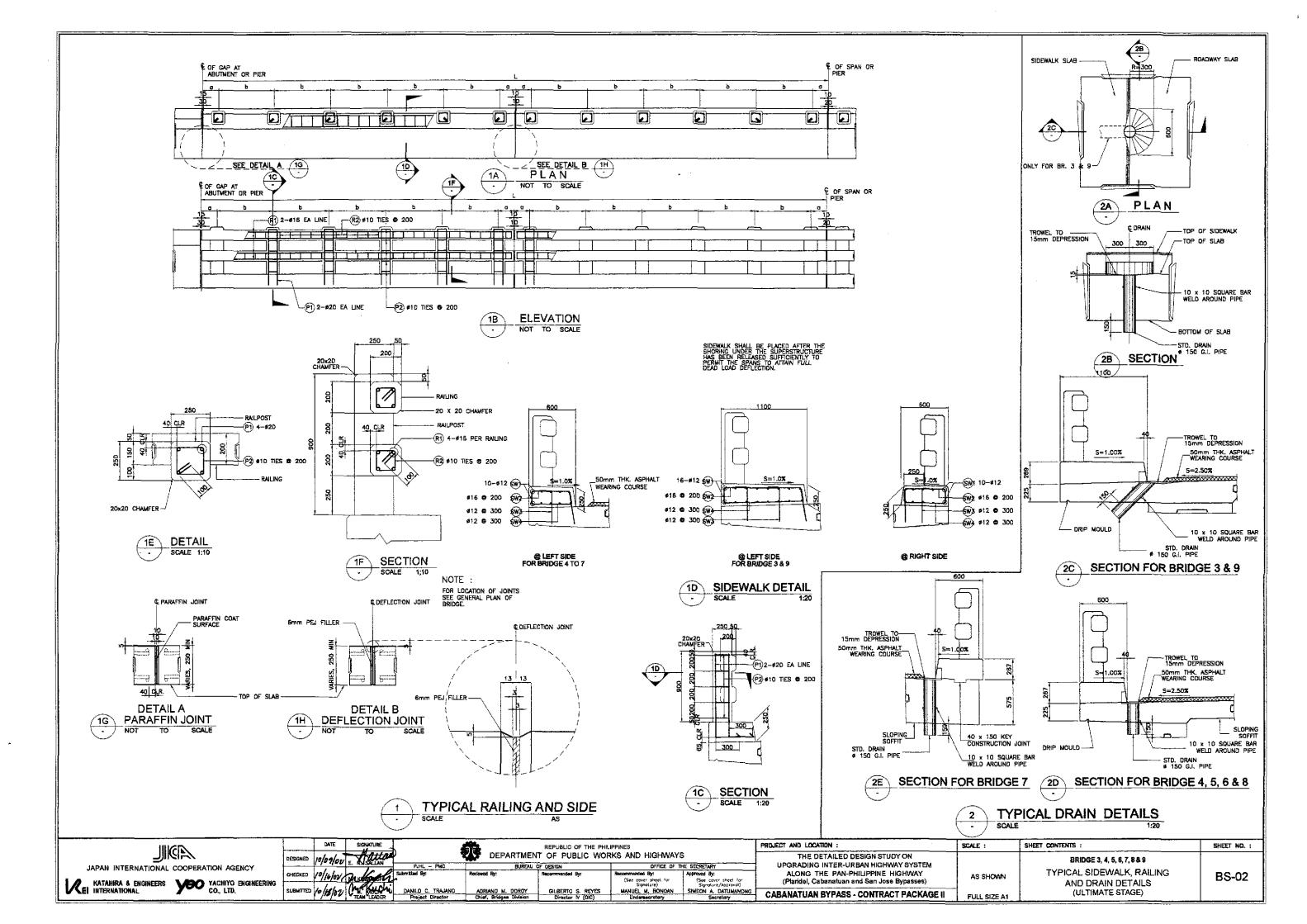
TYP. BEARING PAD

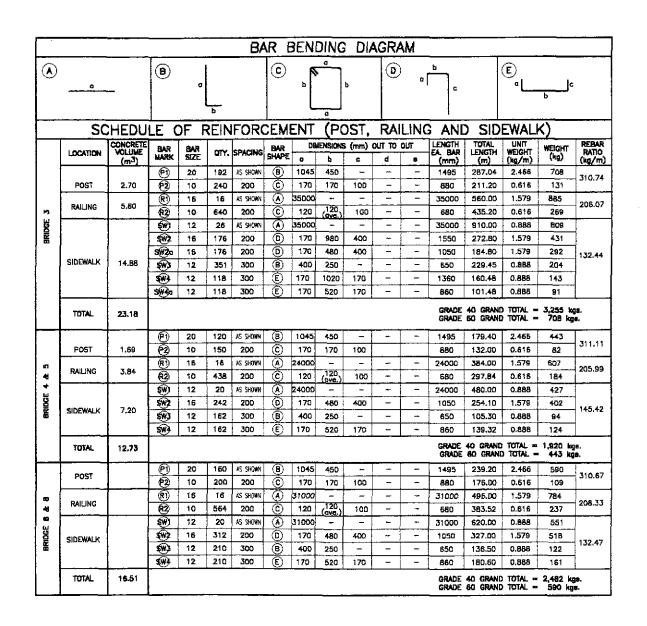
& EXPANSION JOINT (ULTIMATE STAGE)

SHEET NO. :

**BS-01** 





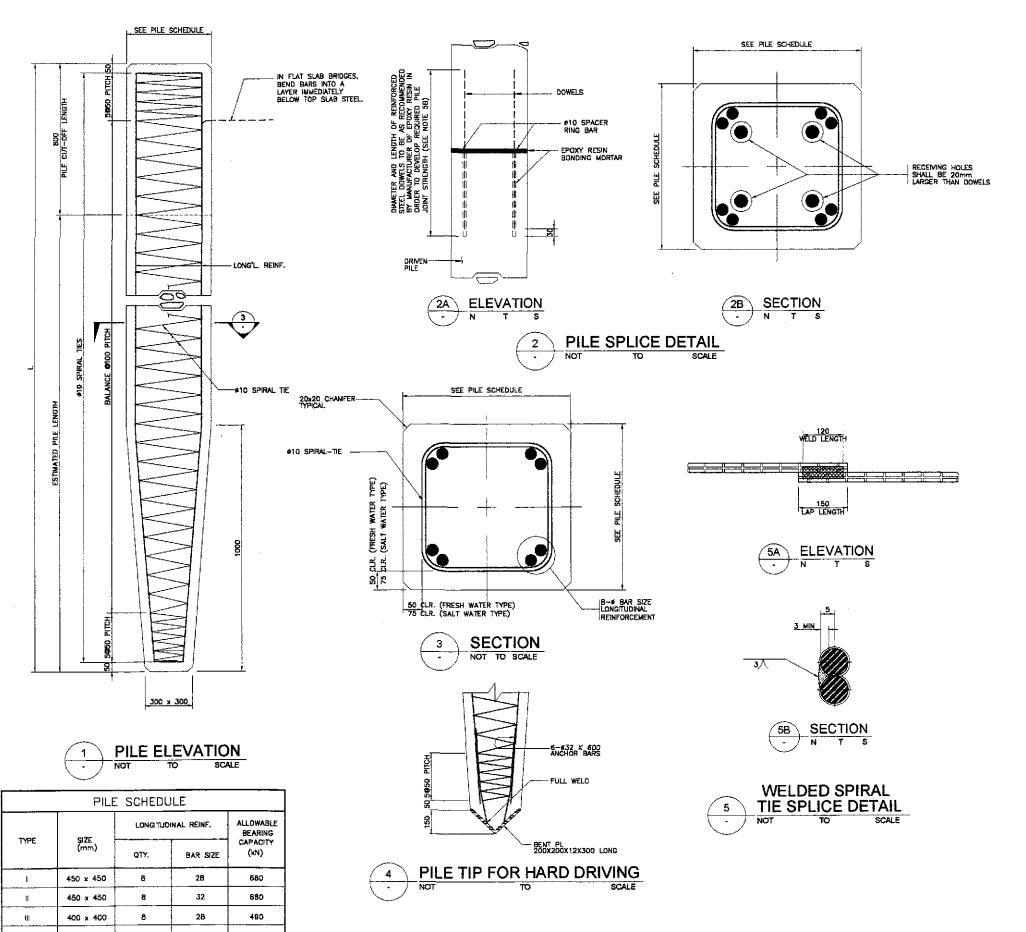


		<u>-</u>				B/	\R [	3EN	DING	DIA	AGR/	\M_						
<b>(A)</b>	<u> </u>	<b></b>	B	٥	6		©	ь		b	0	a	c c		E L		i	
	SC	HEDU	LE C	OF F	REIN	FOR	CEM	ENT	_(P(	OST,	RAI	LINC	ANI	) SID	EWAL	K)		
	LOCATION	CONCRETE VOLLIME (m <sup>3</sup> )	BAR MARK	BAR	QTY.	SPACING	BAR SHAPE	Dil	(ENSIONS	(mm)	OUT TO	DUT e	LENGTH EA BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m	
ſ	DOCT	2.25	ව	20	160	as shown	<b>(B)</b>	1045	450			-	1495	239.20	2.466	590	740.50	
1	POST	2.25	<b>(</b> 2)	10	200	200	©	170	170	100	-	-	880	176.00	0.616	109	310.57	
				<b>(R1)</b>	16	16	AS SHOWN	<b>(A)</b>	32000	•••	-	-	-	32000	512.00	1.579	809	205.86
-	RAILING	5.12	<b>(2</b> )	10	584	200	©	120	(ave.)	100	-	_	680	397.12	0.616	245	205.80	
BRIDGE	SIDEWALK	[	€	12	20	AS SHOWN	<u>(A)</u>	32000		-	-	_	32000	640.00	0.686	569		
		]	<b>₩</b>	16	322	200	0	170	480	400	_	_	1050	338.10	1.579	534	145.10	
		9.60	<b>\$₩</b> )	12	216	300	₿	400	250		-	~	650	140.40	888.0	125	1 42.10	
Ļ			5₩}	12	216	300	(E)	170	520	170			860	185,76	0.888	165	<u> </u>	
.	TOTAL	16.97											GRADE 6	O GRAND O GRAND	TOTAL -	2,556 kga 590 kga.		
	POST	5.06	<b>(9</b> )	20	360	as shown	₿	1045	450		_		1495	538.20	2.466	1328	T	
L	PUSI	5.05	(2)	10	450	200	ၜ	170	170	100			880	396.00	0.616	244	310.52	
ſ	B. C. II. L. L. C.	9,60	<b>R</b> 1	16	16	AS SHOWN	(A)_	61200	-		-	-	61200	979.20	1.579	1547	214.80	
L	RAILING	9.60	<b>(2</b> 2)	10	1228	200	©	120	120	100		-	6B0	835.04	0.616 515 214.6	214,00		
- 1			<b>5₩</b> )	12	26	AS SHOWN	A	61200	-		-		61200	1591.20	0.888	1413	]	
•			5W2	16	307	200	<b>©</b>	170	980	400	-		155D	475.85	1.579	752		
BRIDGE	SIDEWALK	25.50	5W2a	16	307	200	<u>@</u>	170	480	400			1050	322.35	1.579	509	509 134.67	
86				€9	12	615	300	B	400	250	_=		_	650	399.75	0.888	355	1
- 1			\$₩}	12	205	300	<u>E</u>	170	1020	170			1360	278.80	0.888	248	]	
L			S∰a	12	205	300	(E)	170	520	170	<u>.</u>	_	86D	176.30	0.888	157	<u> </u>	

#### RAILING FOR BRIDGES

BRIDGE NO.	SPAN LENGTH (m)	NO. OF EXP. JT. INSIDE SPAN	NO. OF POST W/IN EXP. JT.	NO. OF RAIL POST PER SPAN	<u>է</u> (mm)	c (mm)	b (mm)
BR. 3	35.00	3	6	48	17515	250	1652
BR. 4	24,00	2	5	30	12015	250	1878
BR. 5	24.00	2	5	30	12015	250	1878
BR. 6	31.00	3	5	40	15515	250	1815
BR. 7	10.00	1	4	32	10015	250	1503
DR. /	12.00	1	4	16	12000	250	1834
BR. 8	31.00	3	5	40	15515	250	1815
BR, 9	20.00	2	5	30	10015	250	1545
BR, 9	20.00	2	5	30	20000	250	1542

IIIGE		DATE SIGNAT	_)		REPUBLIC OF THE PHIL			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
ADMIL.	DESIGNED	Op glos E A SA	ttat		IT OF PUBLIC WOI			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM		BRIDGE 3, 4, 5, 6, 7, 8 & 9	
JAPAN INTERNATIONAL COOPERATION AGENCY	CHECKED /	chelon La	Submitted By:	Reviewed By:	OF DESIGN Recommended By:	Recommended By:	THE SECRETARY Approved By:	ALONG THE PAN-PHILIPPINE HIGHWAY	AS SHOWN	SCHEDULE OF REINFORCEMENT	BS-02a
KATAHIRA & ENGINEERS YEO YACHIYO ENGINEERING CO, LTD.	e) (0) (0) (0)	In least to	DANILO C. TRAJANO	ADRIANO M. DOROY	GILBERTO S. REYES	(See cover sheet for Signature) MANUEL M. BONOAN	(See cover sheet for Signature/Approval) SIMEON A. DATUMANONG	(Ptaridel, Cabanatuan and San Jose Bypasses)		(POST, RAILING AND SIDEWALK)	00-026
V C INTERNATIONAL CO, LID.	300MII (EL)	TEAM LI	ADER Project Director	Chief, Bridges Division	Director N (CIC)	Undersecratory	Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1	(ULTIMATE STAGE)	<u> </u>



### **NOTES**

#### 1. CONCRETE :

CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF CLASS AA CONCRETE. WITH 2B MPG CYLINDER STRENGTH AND 19.0mm MAXIMUM AGGREGATE SIZE.

#### 2. REINFORGENMENT:

- A ALL REINFORCING STEEL SHALL BE DEFORMED BARS COMFORMING TO ASSHTO M31 (ASTM A615) GRADE 40 AND 60.

  B. SPLICES OF ADJACENT LONGITUDINAL STEEL SHALL BE STAGGERRED 10D BAR DIAMETERS APART, LENGTH OF SPLICES SHALL BE 1000mm FOR #25 AND 1300mm FOR #28 AND 1700mm FOR #32.
- C. SPIRAL-TIES SHALL BE WELDED AT SPLICES.

#### 3. DRIVING:

- A PILE HEADS SHALL BE PROTECTED FROM DIRECT IMPACT OF THE HAMMER BY CUSHION BLOCKS CONSISTING OF SEVERAL BLOCKS OF WOOD OR OF OTHER APPROVED MATERIALS.

  B. PILES SHALL BE DRIVEN TO A DEPTH THAT WILL PRODUCE THE REQUIRED ALLOWABLE BEARING CAPACITY.

#### 4. PILE FOUNDATION DESIGN:

- A. IN PILE—BENT PIERS, PILE LENGTHS SHALL BE DETERMINED BY THE ENGINEER/
  CONSULTANT BASED ON THE ALLOWABLE PILE BEARING CAPACITY SPECIFIED BELOW.
  B. IN COLUMN—BENT PIERS, THE NUMBER, LOCATION AND LENGTH OF PILES SHALL BE
  DETERMINED BY THE ENGINEER/CONSULTANT BASED ON THE LOADING INFORMATION
  GIVEN IN THE PIER DETAILS.
- 5. PILE SPLICE :
- A. PILES MAY BE SPLICED ONLY IF STRICTLY NECESSARY AND APPROVED BY THE ENGINEER/CONSULTANT, PILE SPLICES SHALL BE LOCATED AT LEAST 10m BELOW THE EXISTING GROUND LEVEL.

  PILE SPLICE SHALL DEVELOP 100% AXIAL, AND 50% BENDING OF THE CAPACITY OF THE PILE SECTION WHERE THE SPLICE IS LOCATED.
- 6. ALLOWABLE PILE BEARING CAPACITY : (SEE PILE SCHEDULE)
- 7. MINIMUM HAMMER ENERGY RATING = 55 kN-m
- 8. BASIS FOR COMPUTING ALLOWABLE PILE BEARING CAPACITY:

$$PdI = \left(\frac{167 \text{ eh Eh}}{S + 2.54}\right) \left(\frac{Wr + 0.18 \text{ Wp}}{Wr + Wp}\right)$$

- Poil = ALLOWABLE PILE BEARING CAPACITY ( kN)

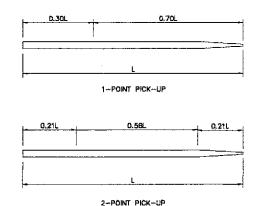
  sh = HAMMER EFFICIENCY
  En = HAMMER ENERGY RATING (kN-m)
  Wr = WEIGHT OF RAM (kN)
  Wp = WEIGHT OF PILE AND OTHER DRIVEN WEIGHTS (kN)
  S = AVERAGE PERETRATION PER BLOW FOR THE LAST
  150mm OF DRIVING (mm)

#### 9. TEST PILES

TEST PILES SHALL BE DRIVEN WITH THE SAME HAMMER USED FOR DRIVING REGULAR PILES AND MAY BE PART OF FOUNDATION IF APPROVED BY THE ENGINEER/CONSULTANT.

#### 10. PICK-UP POINTS :

PICK-UP POINTS SHALL BE MARKED ON ALL PILES AND ALL LIFTING SHALL BE DONE AT THESE POINTS.



THE USE OF SPECIAL EMBEDDED OR ATTACHED LIFTING DEVICES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER/CONSULTANT.

JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS YEO YACHIYO ENGINEERING INTERNATIONAL YEO, LTD.

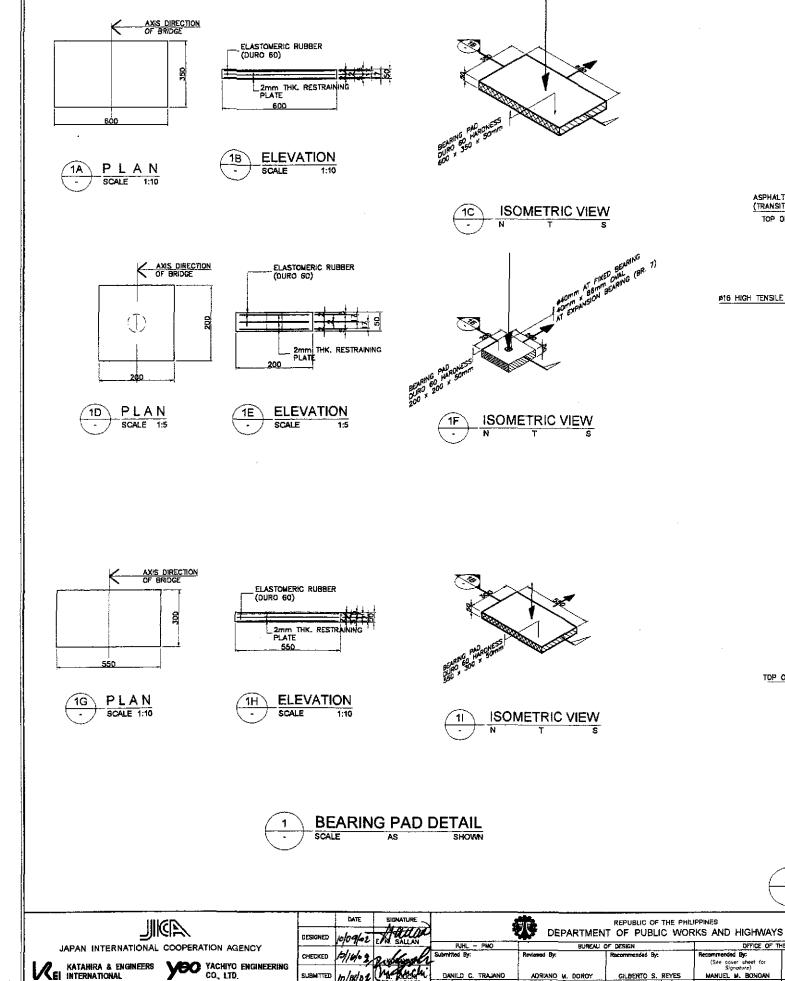
	DATE	SKONATURE -		## .	REPUBLIC OF THE PHILI	PPINES		F
DESIGNED .	10/09/02	EN SALLAN						
			PUHL — PINO	BUREAU C	F DESIGN	E SECRETARY		
CHECKED	10/11/02	Dente L	Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for	Approved By: (See cover sheet for	
	7.7147	1. 4. 4.		ĺ		Signoture)	Signoture/Approvat)	
SUBMITTED	10/18/02	My Buch	DANILO C. TRAJANO	ADRIANO M. DORGY	GILBERTO S. REYES	MANUEL M. BONGAN	SIMEON A. DATUMANONG	-
	100/00	TEAM LEADER	Project Director	Chief, Bridges Division	Director IV (OIC)	Undersecretary	Secretory	
			The second secon					=

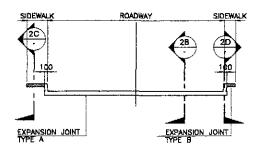
PROJECT AND LOCATION : SCALE : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II

BRIDGE NO. 3, 4, 5, 6, 7, 8 & 9 TYPICAL PRECAST CONCRETE AS SHOWN PILE DETAILS (ULTIMATE STAGE) FULL SIZE A1

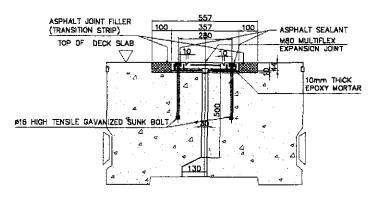
SHEET CONTENTS :

**BS-03** 

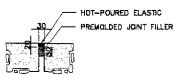




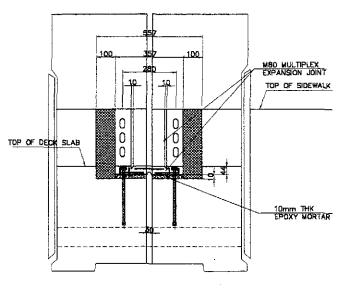
# ELEVATION



#### 2B SECTION (TYPE A) SCALE



# SECTION (TYPE B) SCALE 1:10



# SECTION (TYPE A) - SCALE 1:10

#### A.) QUALITY TESTING OF RUBBER COMPOUND

PROPERTIES	SPECIFICATION
HARDNESS (SHORE A)	50 ± 5
TENSILE STRENGTH (MPa)	13 MIN
ELONGATION AT BREAK (%)	400 MIN
COMPRESSION SET (AFTER 22h AT 70°C)	20% MAX
OZONE RESISTANCE (AFTER 72h AT 40°C, 20% STRAIN 100 pphm	NO CRACK
OIL RESISTANCE IN ASTM NO. 3 OIL (1686 AT 25°C VOLUME CHANGE)	15% MAX

#### B.) DIMENSION CHECK ON METAL PLATES

DIMENSION	SPECIFICATION
LENGTH	± 1
WIDTH	0 TO -1.5 MIN
THICKNESS	±0.5 MIN

#### C.) QUALITY CHECK

PROPERTY	SPECIFICATION
DIMENSION	ACCORDING TO PRODUCT DRAWING
SURFACE APPEARANCE	NO VISIBLE CRACK
RUBBER COVER HARONESS (SHORE A)	50 ± 5

### INSTALLATION MATERIALS

- 1. EPOXY BEDDING
  2. EPOXY NOSING
  3. BOLT/NUTS
  4. SEALANT

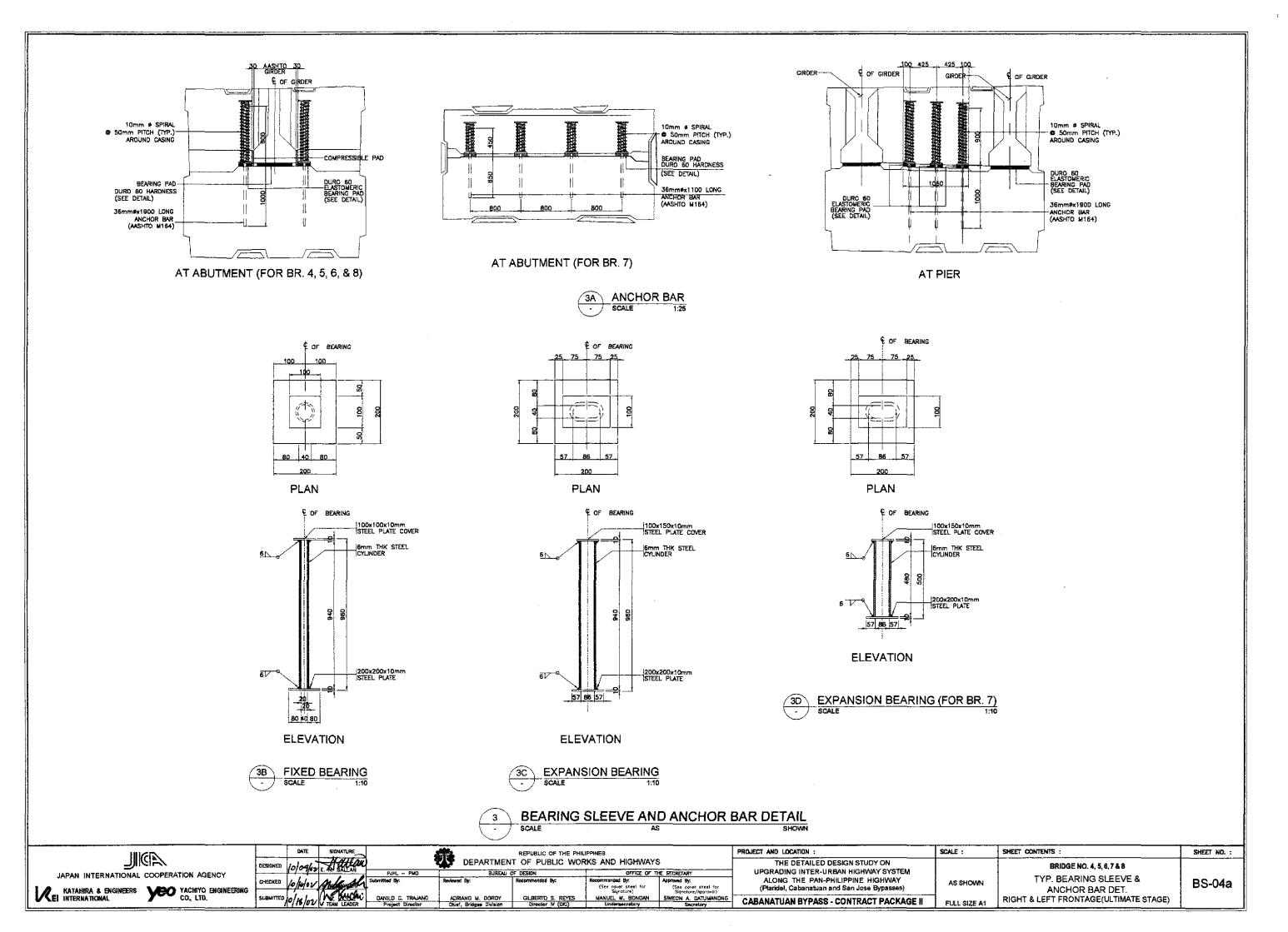
LOCATION	EXPANSION TYPE	μž	MOVEMENT (mm)	LENGTH (m)
BRIDGE 4	MULTIFLEX	80	30	14
BRIDGE 5	MULTIFLEX	80	30	14
BRIDGE 6	MULTIFLEX	80	30	14
BRIDGE 7	MULTIFLEX	80	30	14
BRIDGE 8	MULTIFLEX	80	30	14

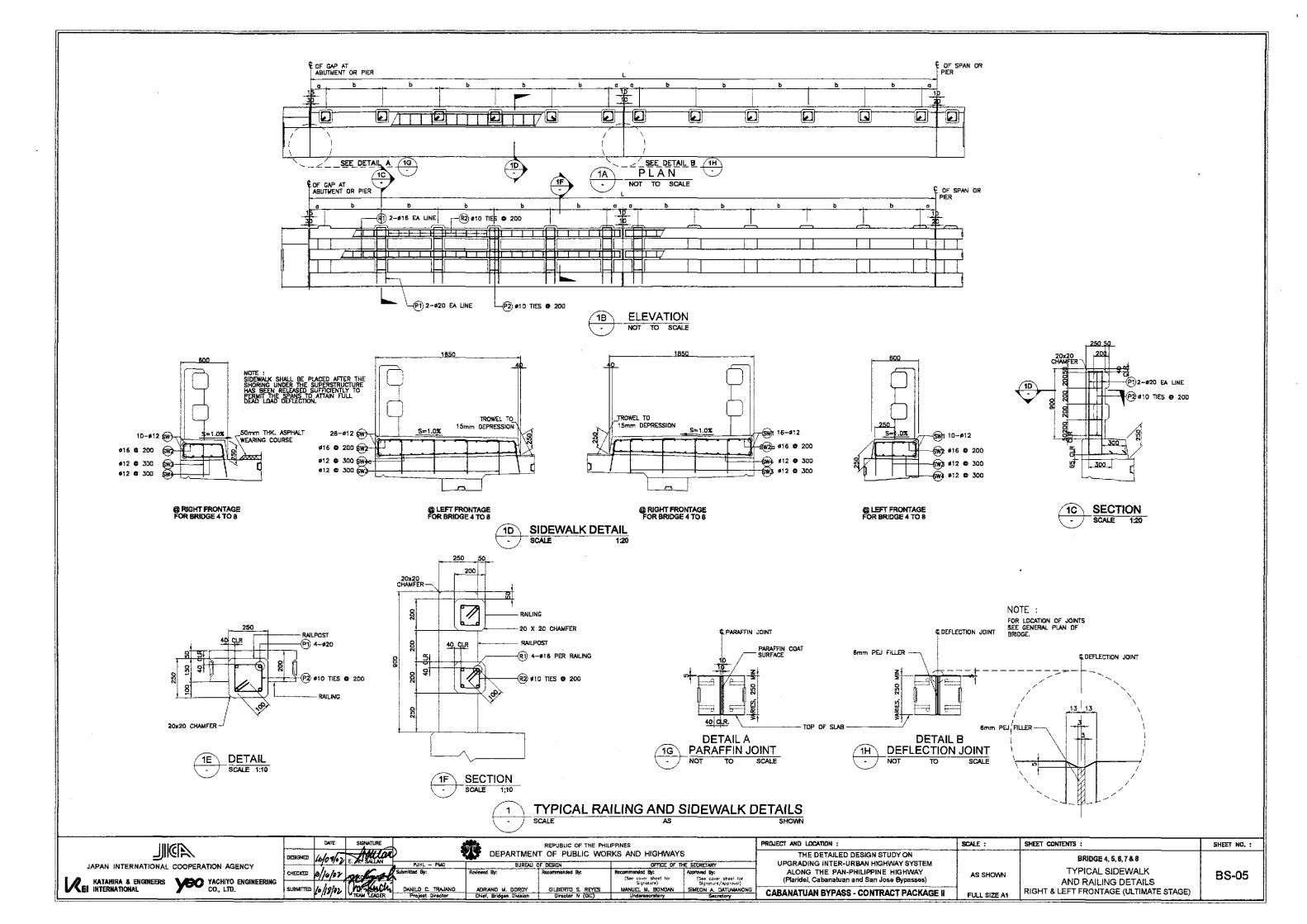
LOCATION	ELASTOMERIC BEARING PAD SIZE	QUANTITY
BRIDGE 4	600x350x50	8 PCS.
BNIDGE 7	200x200x50	12 PCS.
BRIDGE 5	600x350x50	8 PCS.
DIVIDGE 3	200x200x50	12 PCS.
BRIDGE 6	600x350x50	8 PCS.
BRIDGE O	200x200x50	12 PCS.
BRIDGE 7	550x300x50	6 PCS.
BRIDGE /	200x200x50	16 PCS.
BRIDGE 8	600x350x50	& PCS,
BINIDGE 0	200x200x50	12 PCS.

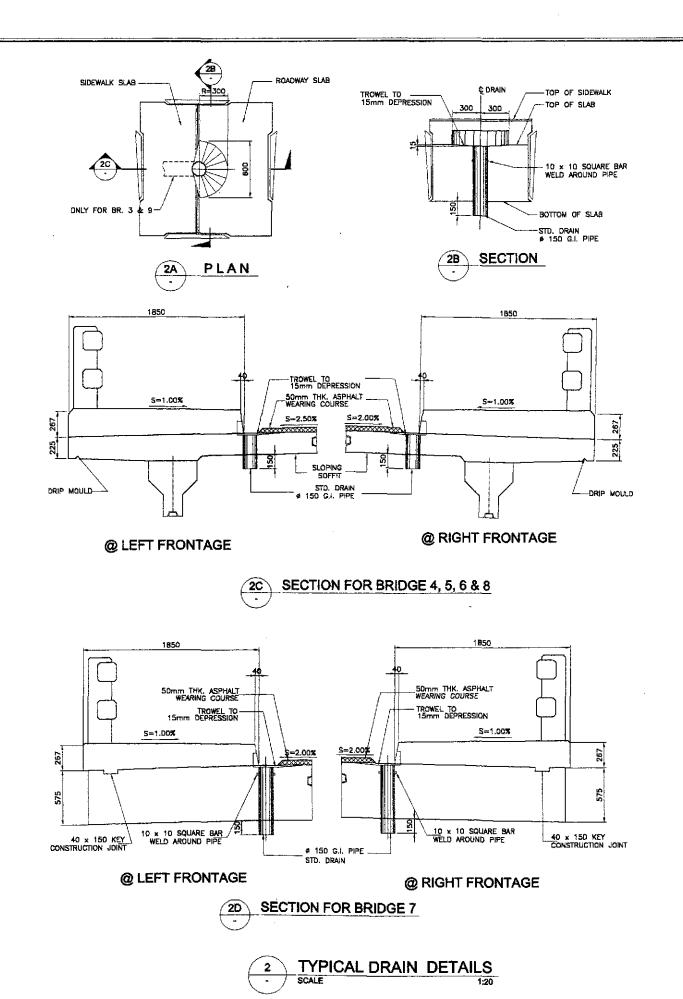
2	EXPAN	ISION JOINT	DETAIL
$\Box$	SCALE	AS	SHOWN

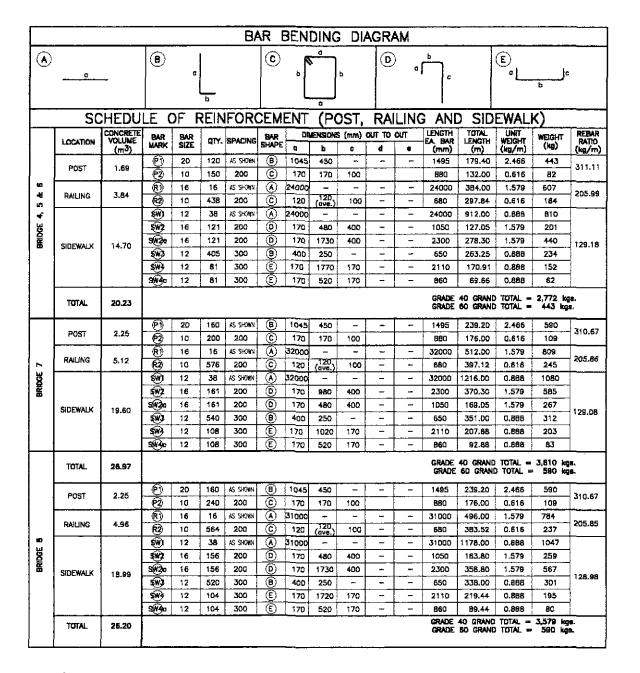
(See cover sheet for Signature)
MANUEL M. BONOAN
Undersecretory

		PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	(İ
HIGHWAYS	<u> </u>	THE DETAILED DESIGN STUDY ON		BRIDGE NO. 4, 5, 6, 7 & 8		i
OFFICE OF THe ad By: over sheet for gnature)	E SECRETARY  Approved By: (See cover sheet for Signature/Approvel)	UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	TYP. BEARING PAD & EXPANSION JOINT	BS-04	
M. BONOAN	SIMEON A. DATUMANDING Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE (I	FULL SIZE A1	RIGHT & LEFT FRONTAGE(ULTIMATE STAGE)		





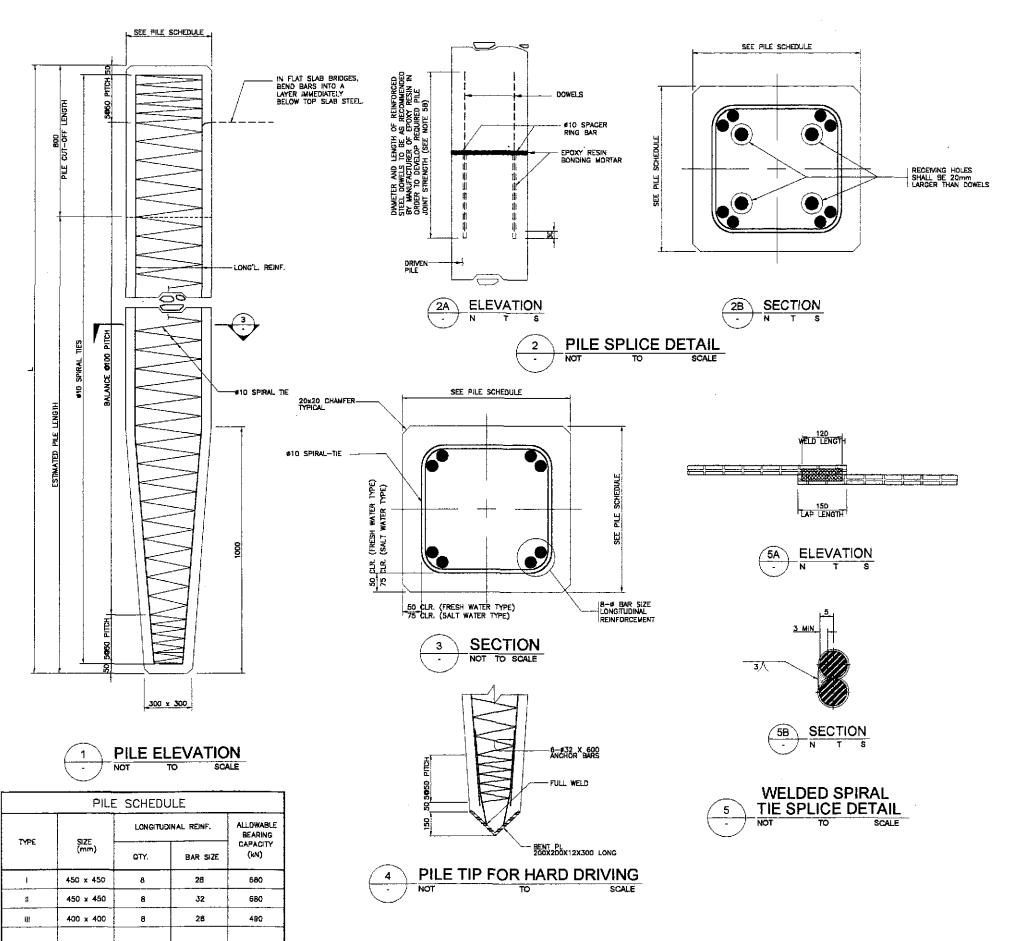




#### RAILING FOR BRIDGES

BRIDGE NO.	SPAN LENGTH (m)	NO, OF EXP. JT. INSIDE SPAN	NO, OF POST W/IN EXP. JT.	NO. OF RAIL POST PER SPAN	L (mm)	a (mm)	(տա)
BR. 4	24,00	2	5	30	12015	250	1878
BR. 5	24.00	2	5	30	12015	250	1878
BR. 6	31.00	3	5	40	15515	250	1815
9R. 7	10.00	1	4	32	10015	250	1503
י יאם	12,00	1	4	16	12000	250	1834
9R. 8	31.00	3	5	40	15515	250	1815

· · · · · · · · · · · · · · · · · · ·						<u> </u>						
шег	<u>\</u>		DATE SIGNATURE			REPUBLIC OF THE PHIL			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	A)	DESIGNED	10/09/00 X WWW	,	DEPARTMEN	IT OF PUBLIC WOR	rks and highway	'S	THE DETAILED DESIGN STUDY ON		BRIDGE 4, 5, 6, 7 & 8	
JAPAN INTERNATIONAL CO	OPERATION AGENCY		July 1	PJHL - PMO Submitted Bit	BUREAU	OF DESIGN Recommended By:	OFFICE OF	THE SECRETARY Approved By:	UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY		TYP, DRAIN DET, & SCHED, OF REINF.	
I // KATAHIRA & ENGINEERS \	YACHIYO ENGINEERING	CHECKED	10/16/82/AKENER	Januar by:	NOVEMENT DIS	Recorrenellula dy.	(See cover sheet for	(See cover sheet for	(Plantel, Cabanatuan and San Jose Bypasses)	AS SHOWN	(POST, RAILING AND SIDEWALK)	BS-05a
EI INTERNATIONAL	CO., LTD.	SUBMITTED	10/16/02 My 8 444	DANILO C. TRAJANO	ADRIAND M. DOROY	GILBERTO S. REYES	Signature) MANUEL M. BONGAN	SIMEON A. DATUMANONG	CABANATUAN BYPASS - CONTRACT PACKAGE II	FUILL SIZE A1	RIGHT & LEFT FRONTAGE(ULTIMATE STAGE)	
ii			/ TEAN LEADER	Project Director	Civief, Bridges Division	Director N (DIC)	Undermotratory	Secretary	CABANATOAN BIT HOS BONTIONS I AGRACE	T PULL SIZE A	<u> </u>	



#### NOTES

#### 1. CONCRETE :

CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF CLASS AA CONCRETE. WITH 2B MPG CYLINDER STRENGTH AND 19.0mm MAXIMUM AGGREGATE SIZE.

#### 2. REINFORCENMENT:

- A. ALL REINFORCING STEEL SHALL BE DEFORMED BARS COMFORMING TO ASSHTO M31 (ASTM A615) GRADE 40 AND 6D.

  B. SPLICES OF ADJACENT LONGITUDINAL STEEL SHALL BE STAGGERRED 1DD BAR DIAMETERS APART, LENGTH OF SPLICES SHALL BE 1000mm FOR #25 AND 1300mm FOR #28 AND 1700mm FOR #32.

  C. SPIRAL-TIES SHALL BE WELDED AT SPLICES.

#### 3. DRIVING:

- A PILE HEADS SHALL BE PROTECTED FROM DIRECT IMPACT OF THE HAMMER BY CUSHION BLOCKS CONSISTING OF SEVERAL BLOCKS OF WOOD OR OF OTHER
- APPROVED MATERIALS.

  B. PILES SHALL BE DRIVEN TO A DEPTH THAT WILL PRODUCE THE REQUIRED ALLOWABLE BEARING CAPACITY.

#### 4. PILE FOUNDATION DESIGN:

A. IN PILE—BENT PIERS, PILE LENGTHS SHALL BE DETERMINED BY THE ENGINEER/
CONSULTANT BASED ON THE ALLOWAGLE PILE BEARING CAPACITY SPECIFIED BELOW.
B. IN COLUMN—BENT PIERS, THE NUMBER, LOCATION AND LENGTH OF PILES SHALL BE
DETERMINED BY THE ENGINEER/CONSULTANT BASED ON THE LOADING INFORMATION
GIVEN IN THE PIER DETAILS.

#### 5. PILE SPLICE :

- A. PILES MAY BE SPLICED ONLY IF STRICTLY NECESSARY AND APPROVED BY THE ENGINEER/CONSULTANT, PILE SPLICES SHALL BE LOCATED AT LEAST 10m BELOW THE EXISTING GROUND LEVEL.

  PILE SPLICE SHALL DEVELOP 100% AVAIL, AND 50% BENDING OF THE CAPACITY OF THE PILE SECTION WHERE THE SPLICE IS LOCATED.
- 6. ALLOWABLE PILE BEARING CAPACITY : (SEE PILE SCHEDULE)
- 7. MINIMUM HAMMER ENERGY RATING = 55 kN-m
- 8. BASIS FOR COMPUTING ALLOWABLE PILE BEARING CAPACITY:

$$Poll=\left(\begin{array}{c} 167 \text{ eh Eh} \\ \hline S + 2.54 \end{array}\right) \left(\begin{array}{c} Wr + 0.15 Wp \\ \hline Wr + Wp \end{array}\right)$$

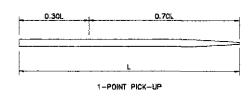
- Poll = ALLOWABLE PILE BEARING CAPACITY ( kN)
  sh = HAMMER EFFICIENCY
  EN = HAMMER ENERGY RATING (kN-m)
  wr = WEIGHT OF RAM (kN)
  Wp = WEIGHT OF PILE AND OTHER DRIVEN WEIGHTS (kN)
  S = AVERAGE PENETRATION PER BLOW FOR THE LAST
  150mm OF DRIVING (mm)

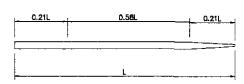
### 9. TEST PILES

TEST PILES SHALL BE DRIVEN WITH THE SAME HAMMER USED FOR DRIVING REGULAR PILES AND MAY BE PART OF FOUNDATION IF APPROVED BY THE ENGINEER/CONSULTANT.

#### 10. PICK-UP POINTS :

PICK-UP POINTS SHALL BE MARKED ON ALL PILES AND ALL LIFTING SHALL BE DONE AT THESE POINTS.

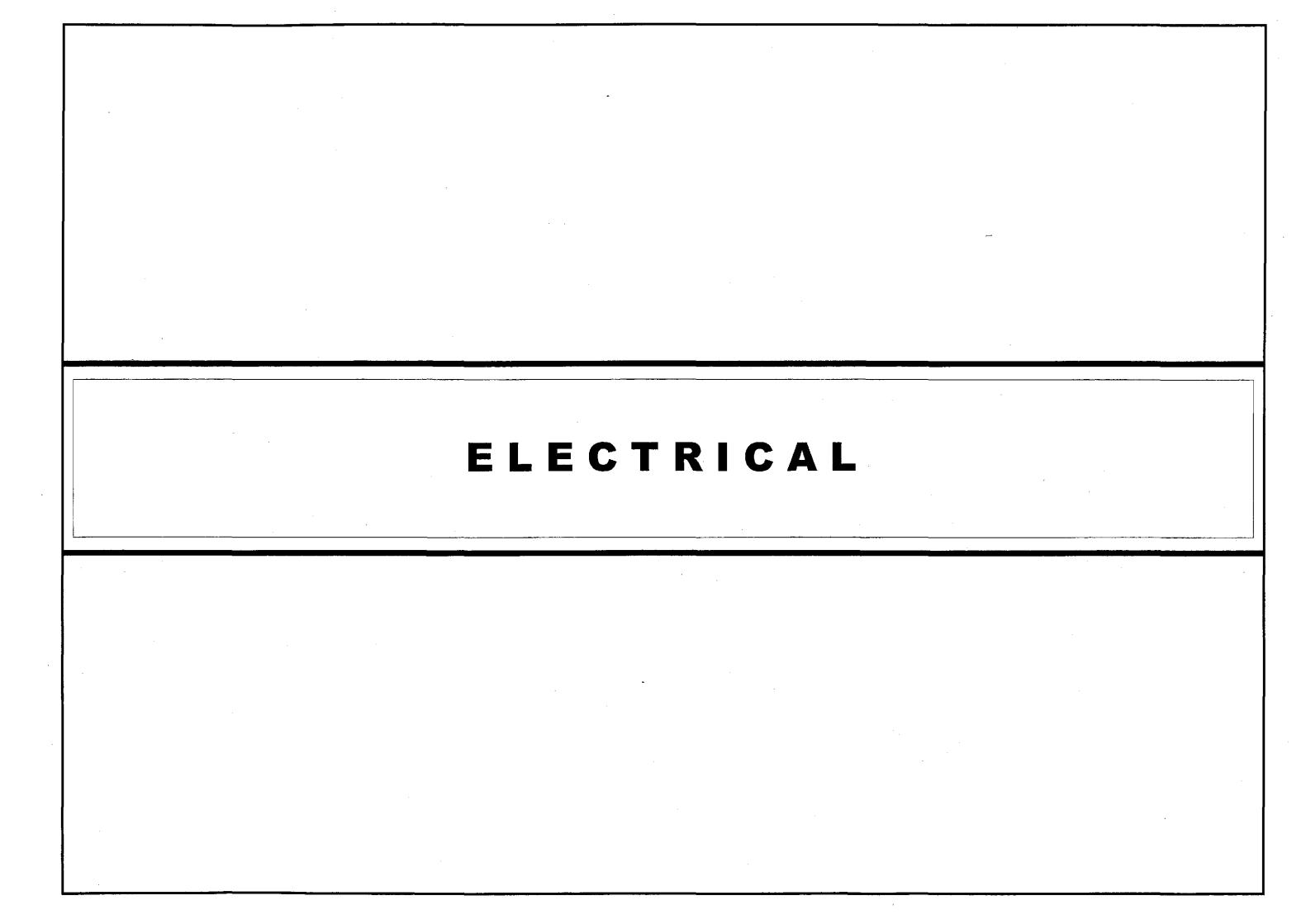




2-POINT PICK-UP

THE USE OF SPECIAL EMBEDDED OR ATTACHED LIFTING DEVICES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER/CONSULTANT.

IIIGE		DATE	SIGNATURE	4		REPUBLIC OF THE PHILI			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	DESIGNED	10/09/07	AMILAN	) <b>1</b>	DEP	ARTMENT OF PUBLIC WOR			THE DETAILED DESIGN STUDY ON		BRIDGE NO. 4, 5, 6, 7 & 8	
JAPAN INTERNATIONAL COOPERATION AGENCY	CHECKED	interior	0.1/1	PuHL PMO Submitted By:	Reviewed By:	BUREAU OF DESIGN Recommended By:	OFFICE OF 1 Recommended By:	HE SECRETARY Approved By:	UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY	AS SHOWN	TYPICAL PRECAST CONCRETE	BS-06
KATAHIRA & ENGINEERS YOU YACHIYO ENGINEERING CO., LTD.		. 1.1.	The state of	L			(See cover sheet for Signoture)	(See cover sheel for Signoture/Approval)	(Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	PILE DETAILS	55-00
CO., LTD.	SUBMITTED	10/18/02	TEAR LEADER	DANILO C. TRAJANO Project Director	ADRIANO M. Chief, Bridges	DOROY GILBERTO S. REYES  Division Director IV (OIC)	MANUEL M. BONDAN Undersecretory	SIMEON A. DATUMANONG Secretory	CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1	RIGHT & LEFT FRONTAGE(ULTIMATE STAGE)	



### LEGEND AND SYMBOLS:

STREET LIGHTING POLE WITH 1 x 250 WATTS, 240 VOLTS HIGH PRESSURE SODIUM LUMINAIRE SINGLE BRACKET / SINGLE ARM, LOCATED AT 180° ON CENTER IES TYPE II MEDIUM SEMI CUT-OFF, SIMILAR TO GE M250A2

DITTO - EXCEPT DDUBLE ARM JIGHT POLE WITH 2 x 250 WATTS HPS LAMP

1 x 40W FLUORESCENT LIGHTING FIXTURE, 240V

SERVICE ENTRANCE AND METERING PEDESTAL WITH LIGHTING CONTACTOR PANEL

UNDERGROUND CONDUIT WITH CONCRETE ENVELOPE

EXPOSED CONDUIT RUM

UNDERGROUND CONDUIT WITH STEEL REINFORCED CONCRETE ENVELOPE

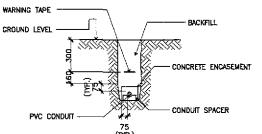
CIRCUIT HOMERUN

UNDERGROUND CONDUIT TO BE ABANDONED

#### **GENERAL NOTES:**

- ALL ELECTRICAL WORKS SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, THE LAWS AND ORDINANCES OF THE LOCAL CODE, ENFORCING AUTHORITIES AND THE REQUIREMENTS OF THE LOCAL POWER COMPANY. THE ELECTRICAL WORK SHALL BE DONE UNDER THE DIRECT SUPERVISION OF A DULY REGISTERED ELECTRICAL ENGINEER.
- THE CONTRACTOR SHALL SECURE ALL PERMITS AND PAY ALL FEES REQUIRED FOR THE WORK AND FURNISH THE OWNER, THROUGH THE ENGINEERS FINAL CERTIFICATES OF ELECTRICAL INSPECTION AND APPROVAL FROM PROPER COVERNMENT AUTHORITIES FOR COMPLETED WORK.
- 3. THE POWER SERVICE VOLTAGE SHALL BE 240V, 10, 2W, 60 Hz. UNLESS OTHERWISE INDICATED, ALL MATERIALS TO BE USED AND EQUIPMENT TO BE INSTALLED SHALL BE BRAND NEW AND MUST BE OF THE APPROVED TYPES FOR THE PARTICULAR LOCATION AND PURPOSE INTENDED.
- ALL WIRES SHALL BE COPPER, THERMOPLASTIC INSULATED TYPE THW, BOOY, UNLESS OTHERWISE INDICATED. BRAND SHALL BE PHELPS DODGE, DURAFLEX OR ADDROVED SOLVED.
- UNLESS OTHERWISE INDICATED, THE MINIMUM SIZE OF CIRCUIT CONDUCTORS FROM STEEL POLE JUNCTION BOX/HANDHOLE TO EACH LUMINAIRE SHALL BE 2-3.5mm<sup>2</sup>THW & 1-3.5mm<sup>2</sup>TW(GND) INSIDE STEEL POLE
- RIGID STEEL CONDUIT SHALL BE USED FOR ALL EXPOSED AND CONCEALED CONDUIT RUN AND UNPLASTICIZED POLYMNYL CHLORIDE CONDUIT, SCHEDULE 40 FOR UNDERGROUND CONDUIT. THE CONDUIT SIZE INDICATED IS THE INSIDE DIAMETER OF CONDUIT.
- ALL NON-CURRENT CARRYING PARTS OF EVERY ELECTRICAL EQUIPMENT/FIXTURE SHALL BE GROUNDED EFFECTIVELY.
- Underground conduit run shall be buried a minimum of 460mm below ground level.
   Unless otherwise indicated, conduit run crossing street shall be encased in steel
   Reinforced 2500 psi concrete with minimum of 75mm (3 inches) thickness covered all around.
- ALL CONDUIT RUNS SHALL BE PROVIDED WITH AN 8.0mm TW COPPER GROUND WIRE. THIS
  GROUND WIRE SHALL BE TERMINATED AT THE PANELBOARD LOCATION. ALL METAL SURFACES
  SHALL LIKEWISE BE GROUNDED.
- ALL STREET LUMINAIRE ASSEMBLY INCLUDING POLE AND FOUNDATION SHALL WITHSTAND WINDS UP TO 250 KPH PER HOUR GUSTING WITHOLT PERMANENT DEFORMATION.
- 11. DO NOT INSTALL POLE WITHOUT COMPLETE INSTALLATION/CONNECTION OF THE LUMINAIRE ASSEMBLY.
- CONCRETE HANDHOLES OR OUTDOOR TYPE PULLBOXES OF CODE 1.61mm (GAGE 16) MINIMUM SHALL BE PROVIDED BY THE CONTRACTOR, WHENEVER NECESSARY, TO FACILITATE WIRE PULLING EVEN IF THESE ITEMS ARE NOT SHOWN IN THE PLANS.

#### NOTES:



- 1. UNLESS OTHERWISE SPECIFIED, TOP OF CONCRETE ENVELOPE SHALL NOT BE LESS THAN 460mm BELOW FINISHED GRADE LINE EXCEPT, THAT UNDER ROAD AND PAYEMENT, IT SHALL BE NOT LESS THAN 600mm.
- 2. PROVIDE STEEL REBAR REINFORCEMENT ON PAVED AREA.
- 3. ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE F'G SHALL BE 13.8MPg (2000PSI)
- 4. REINFORCING BARS SHALL CONFORM TO PS GRADE 227, FY=227MPa (33,000PSI)
- 5. MAXIMUM SPACING OF PRECAST SPACER SHALL BE 1.5 METERS.
- 6. ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE SPECIFIED.



ERNESTO M. ANTIQUIA

ERNESTO M. ANTIQUIA

ENORMED

PIR NO. 7403694

P.E. NO. 2813

SSUED ON 01/92/2002

13.N. 109-342-379

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS

YOU YACHIYO ENGINEERING
CO., LTD.

DESIGNED 10/09/09 E. MIDOQUIA.

CHECKED 10/10/02 ENGLOSIN

SUBMITTED 10/18/92 Am. MACHINI
TEAM LEADER

REPUBLIC OF THE PHILIPPINES

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN

OFFICE OF THE

OFFICE OF THE SECRETARY

Racommended By: Approved By: (See cover sheet for Signature) Signature/Approvel)

MANUEL M. BONDAN SIMEON A. DATUMANONG

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

CABANATUAN BYPASS · CONTRACT PACKAGE II

PROJECT AND LOCATION :

STEM
AY
Ses)

AS SHOWN

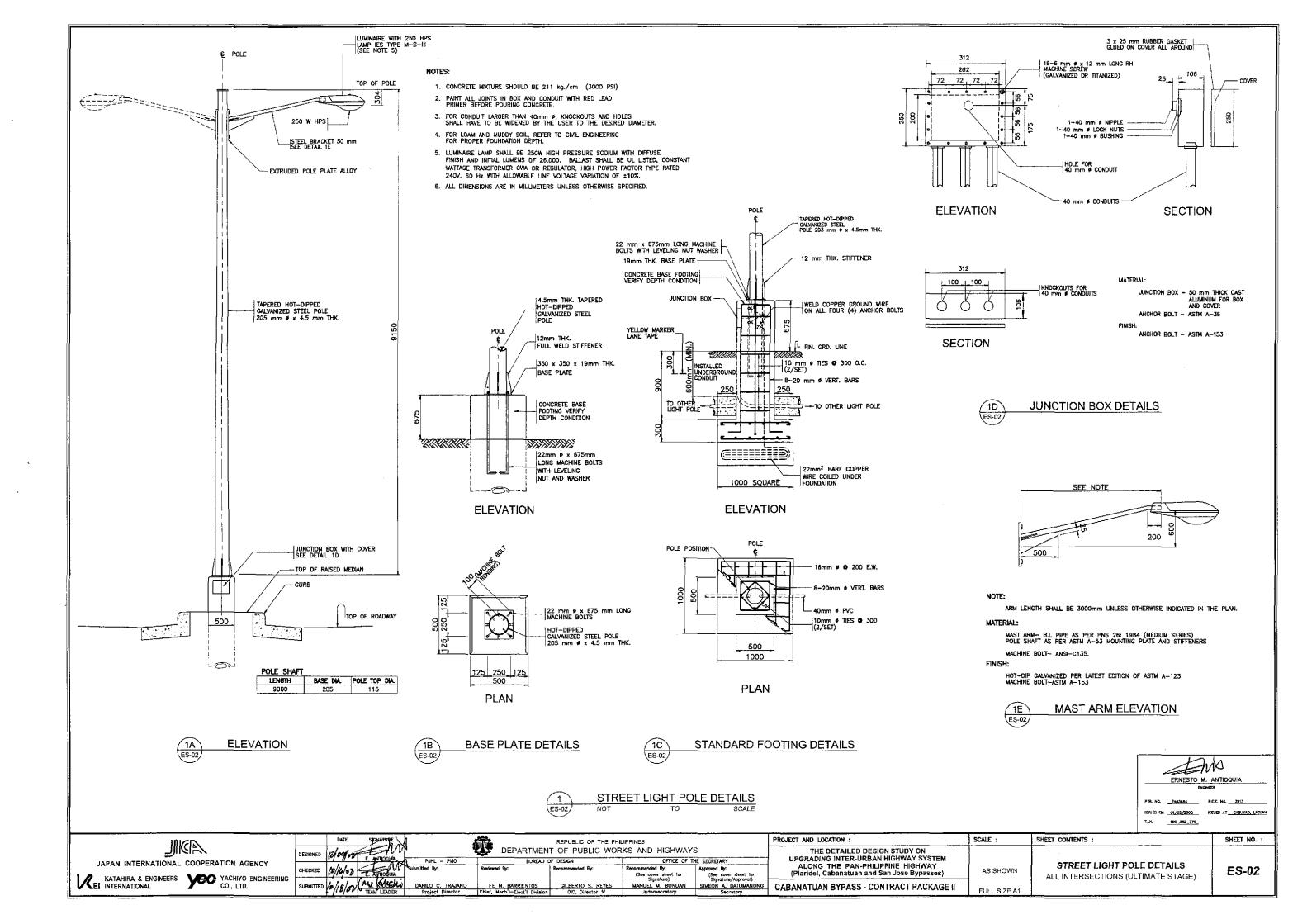
(AGE II FULL SIZE A1

SCALE :

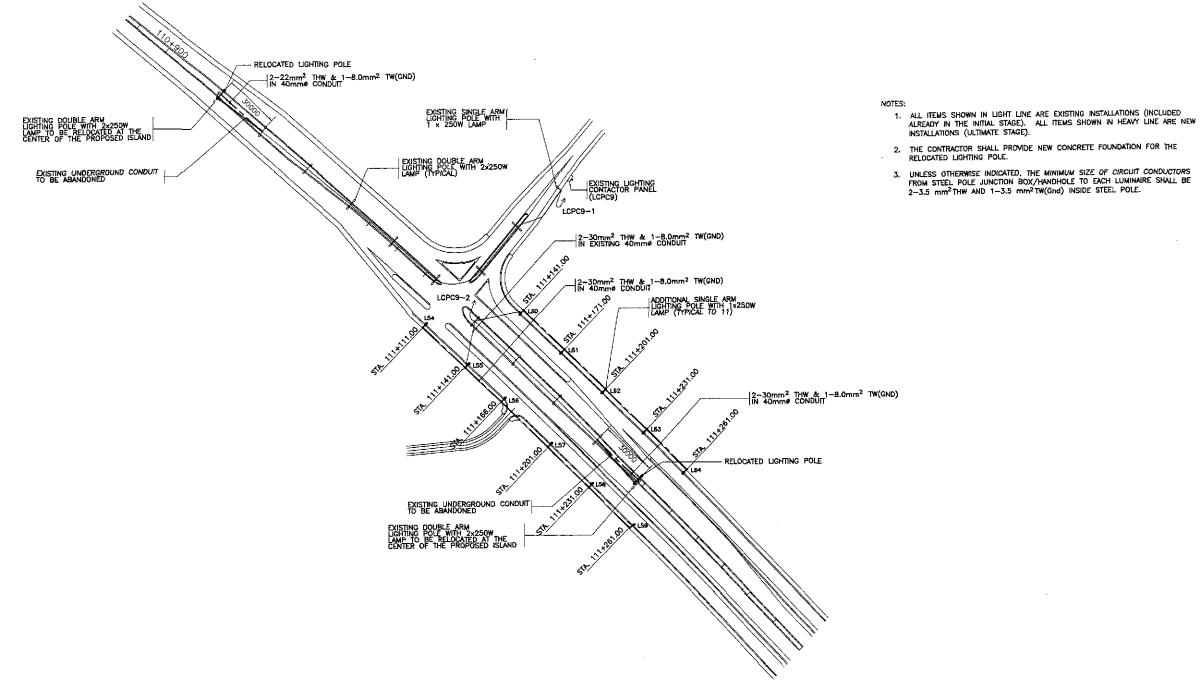
NOTES & LEGENDS AND
DUCT SECTION
ALL INTERSECTIONS (ULTIMATE STAGE)

SHEET CONTENTS :

ES-01







1 ROADWAY LIGHTING PLAN
EI-01 SCALE 1-4000

ERNESTO M. ANTIOQUIA

DIGGGER

PIR NO. 7403864 P.E.E. NO. 2913

SSUED ON 01/02/7802 ISSUED AT CARRYAG LAGUNA

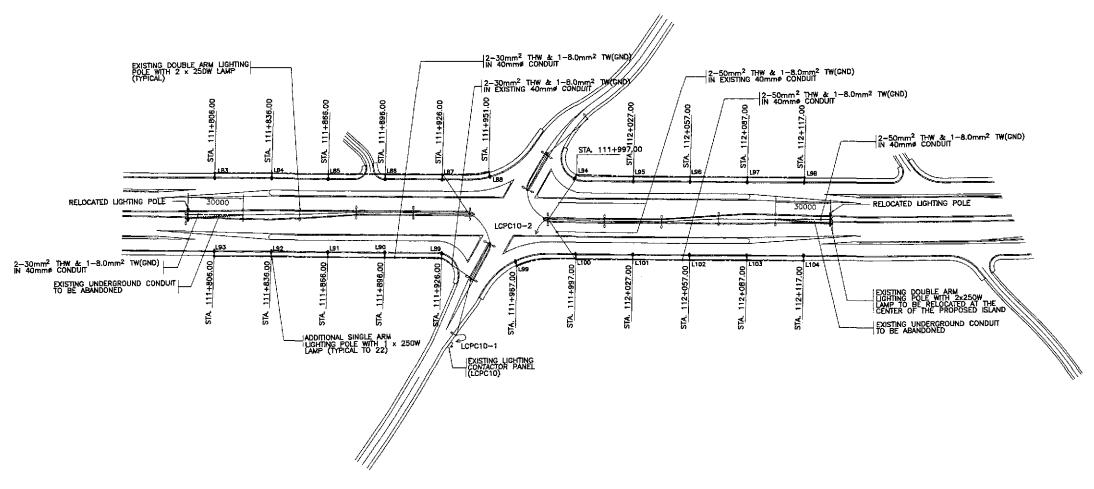
T.LN. 109-382-379

101612	DATE	SIGNATURE			REPUBLIC OF THE PH	IILIPPINES		PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
JICA JAPAN INTERNATIONAL COOPERATION AGENCY	DESIGNED / / / 99/	E ANTICOULA	PJHL - PMD	***	T OF PUBLIC WOL	RKS AND HIGHWAY	S HE SECRETARY	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM		ROADWAY LIGHTING PLAN	
	CHECKED 6/6/6	L FAM	Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for	Approved By: (See cover sheet for Signature/Approved)	ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:1000		EI-01
KATAHRA & ENGINEERS YEO YACHIYO ENGINEERING CO., LTD.	SUBMITTED /2/8/0	2 TEAN LEADER	DANILO C. TRAJANG Project Director	FE M. BARRIENTOS Chief, Mech'i-Elect'i Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONGAN Undersacretory		CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1	INTERSECTION A-14 (ULTIMATE STAGE)	1



#### NOTES:

- ALL ITEMS SHOWN IN LIGHT LINE ARE EXISTING INSTALLATIONS (INCLUDED ALREADY IN THE INITIAL STAGE). ALL ITEMS SHOWN IN HEAVY LINE ARE NEW INSTALLATIONS (ULTIMATE STAGE).
- THE CONTRACTOR SHALL PROVIDE NEW CONCRETE FOUNDATION FOR THE RELOCATED LIGHTING POLE.
- UNLESS OTHERWISE INDICATED, THE MINIMUM SIZE OF CIRCUIT CONDUCTORS FROM STEEL POLE JUNCTION BOX/HANDHOLE TO EACH LUMINAIRE SHALL BE 2-3.5 mm<sup>2</sup>THW AND 1-3.5 mm<sup>2</sup>TW(Gnd) INSIDE STEEL POLE.



1 ROADWAY LIGHTING PLAN SCALE 1:1000

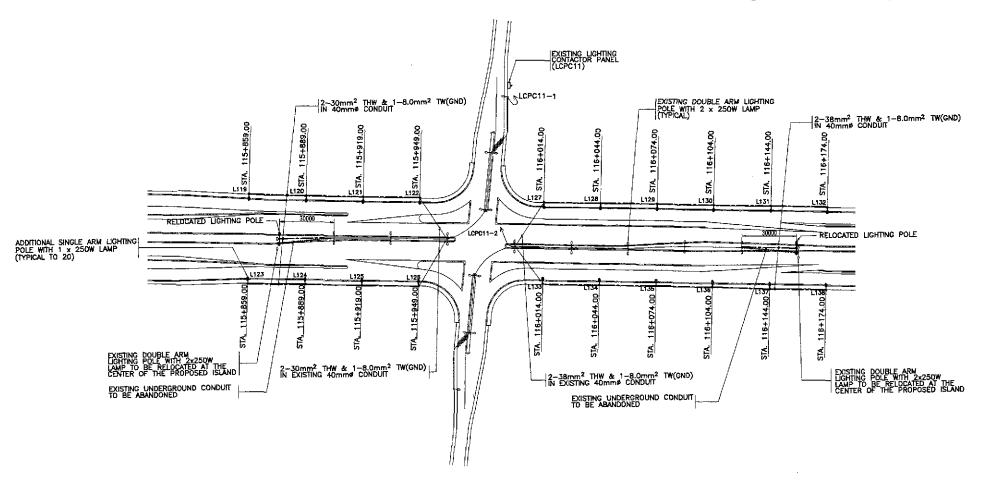
	1	ENN .
	ERNESTO I	ANTIQUIA
	EX	GNEER
PTR. NO.	7403884	P.E.E. NO. 2013
ISSUED OH	m/m2/2002	ISSUED AT <u>CABUYAO, LAGUNA</u>
TLN	109-362-379	

INIGE	DATE	SIGNATURE		4	REPUBLIC OF THE PHI	LIPPINES	_	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	DESIGNED 10/64/04	A IN		DEPARTMEN	IT OF PUBLIC WOR	KS AND HIGHWAYS	S	THE DETAILED DESIGN STUDY ON			
JAPAN INTERNATIONAL COOPERATION AGENCY	17.7	E. ANIOGOUA	PUHL - PMO	BUREAU	OF DESIGN	OFFICE OF THE	HE SECRETARY	UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY		ROADWAY LIGHTING PLAN	
1 • A	CHECKED (0)1402	Br William	Submitted by:	Reviewed By:	Recommended By:	(See cover sheet for	Approved By: (See cover sheet for	(Plaridel, Cabanatuan and San Jose Bypasses)	1:1000		EI-02
KATAHIRA & ENGINEERS YACHIYO ENGINEERING CO., LTD.	SUBMITTED /0/18/02	(Michael March	DANILO C. TRAJANO		GILBERTO S. REYES	Signature) MANUEL M. BONOAN	Signoture/Approvel) SIMEON A. DATUMANONG	CABANATUAN BYPASS - CONTRACT PACKAGE II		INTERSECTION A-15 (ULTIMATE STAGE)	
	10/10/00	TEAM LEADER	Project Director	Chief, Mech i-Elect   Division	OIC, Director N	Undersecretory	Secretary		FULL SIZE A1		1



#### NOTES:

- ALL ITEMS SHOWN IN LIGHT LINE ARE EXISTING INSTALLATIONS (INCLUDED ALREADY IN THE INITIAL STAGE). ALL ITEMS SHOWN IN HEAVY LINE ARE NEW INSTALLATIONS (ULTIMATE STAGE).
- 2. THE CONTRACTOR SHALL PROVIDE NEW CONCRETE FOUNDATION FOR THE RELOCATED LIGHTING POLE.
- UNLESS OTHERWISE INDICATED, THE MINIMUM SIZE OF CIRCUIT CONDUCTORS FROM STEEL POLE JUNCTION BOX/HANDHOLE TO EACH LUMINAIRE SHALL BE 2-3.5 mm<sup>2</sup> THW AND 1-3.5 mm<sup>2</sup> TW(Gnd) INSIDE STEEL POLE.



1 ROADWAY LIGHTING PLAN SCALE 1:1000

ERNESTO M. ANTIQUIIA

INCOMEDI

PTR. NO. 7403664 P.EE NO. 2913

SSUED SH. 107-02720002 ISSUED AT CARUYAO, LAGUKA

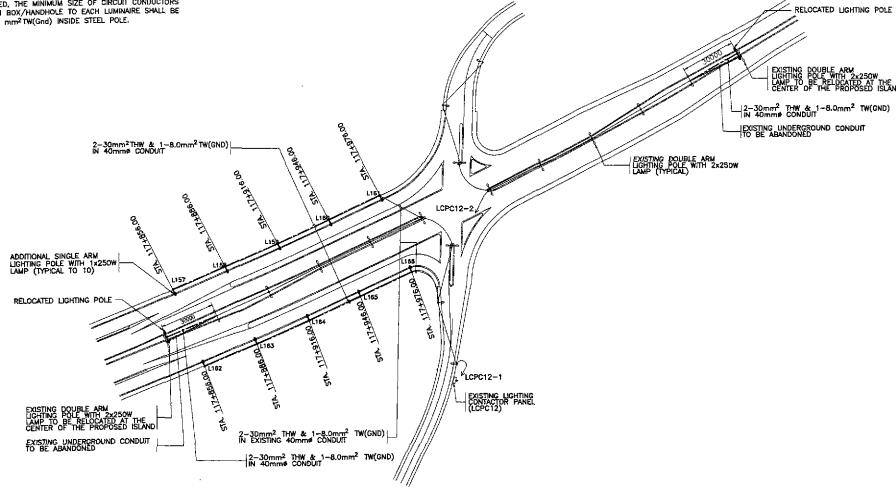
LLA. 109-382-378

						_				
	DATE SIGNATURE	_		REPUBLIC OF THE PHI	ILIPPINES		PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
DESIGNED	10/09/0	<b>Т</b>	DEPARTMEN	IT OF PUBLIC WOF			THE DETAILED DESIGN STUDY ON			
	Line Line	PJHL - PMO Submitted By:		~-	Recommended By:		ALONG THE PAN-PHILIPPINE HIGHWAY	4 4000	ROADWAY LIGHTING PLAN	EI-03
RING	7 ANDOUG		-4.	•	(See cover sheet for Signature)	(See cover sheet for Signature/Approval)	(Plaridel, Cabanatuan and San Jose Bypasses)	1:1000	INTERSECTION A.18 (HI TIMATE STAGE)	EI-03
SUBMITTE	TO 10/18/02 M. KNOCH	DANILO C. TRAJANO Project Director	FE M. BARRIENTOS Chief, Mech'l-Elect'i Division	GILBERTO S. REYES OIC, Director N	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1	THE TOTAL STATE OF THE STATE OF	
Ŧ	CHECKED	DESIGNED 10/09/03 E. ANTIQUE CHECKED (0/10/03/ E.)	DESIGNED 10/09/09 E. ANTIQUIA. PUHL - PMO  CHECKED 10/10/102 Submitted by:  DANILO C. TRAJANO  TRAJANO	DESIGNED 10/09/09 E. ANTIQUIA PUHL - PMO BUREAU  CHECKED 10/10/19 Submitted By:  Reviewed By:  SUBMITTED 10/18/10/10/10/10/10/10/10/10/10/10/10/10/10/	DESIGNED 10/04/02 E. ANTIQUIA PUHL - PMO BUREAU OF DESIGN  CHECKED 10/14/02 Submitted By: Reviewed By. Recommended 8y:  SUBMITTED 18/18/18/18/18/18/18/18/18/18/18/18/18/1	DESIGNED 10/04/07 E. NITICUIA  CHECKED 10/14/07 Submitted By:  Reviewed By:  Recommended By:  Recommended By:  Submitted By:	DESIGNED 10/09/09 E. NITIOUIA  CHECKED 10/19/09 E. NITIOUIA  Submitted By:  Reviewed By:  Recommended By:  Recommended By:  (See cover sheet for Signature, Approved)  Signature, Approved)  SINDHITTED 10/18/19/19/19/19/19/19/19/19/19/19/19/19/19/	DESIGNED INFO IN THE PRILIPPINES  DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  THE DETAILED DESIGN STUDY ON  UPGRADING INTER-URBAN HIGHWAY SYSTEM  ALONG THE PAN-PHILIPPINE HIGHWAY  (See cover sheet for Signoture/Approved)  SUBMITTED IN THE DETAILED DESIGN STUDY ON  UPGRADING INTER-URBAN HIGHWAY SYSTEM  ALONG THE PAN-PHILIPPINE HIGHWAY  (Plaridel, Cabanatuan and San Jose Bypasses)  Signoture/Approved)  SUBMITTED IN THE DETAILED DESIGN STUDY ON  UPGRADING INTER-URBAN HIGHWAY SYSTEM  ALONG THE PAN-PHILIPPINE HIGHWAY  (Plaridel, Cabanatuan and San Jose Bypasses)  Signoture/Approved)  SUBMITTED IN THE DETAILED DESIGN STUDY ON  UPGRADING INTER-URBAN HIGHWAY SYSTEM  ALONG THE PAN-PHILIPPINE HIGHWAY  (Plaridel, Cabanatuan and San Jose Bypasses)  Signoture/Approved)  SIMPLE IN THE DETAILED DESIGN STUDY ON  UPGRADING INTER-URBAN HIGHWAY SYSTEM  ALONG THE PAN-PHILIPPINE HIGHWAY  (Plaridel, Cabanatuan and San Jose Bypasses)  Signoture/Approved)  SIMPLE IN THE DETAILED DESIGN STUDY ON  UPGRADING INTER-URBAN HIGHWAY SYSTEM  ALONG THE PAN-PHILIPPINE HIGHWAY  (Plaridel, Cabanatuan and San Jose Bypasses)  Signoture/Approved)  SIMPLE IN THE DETAILED DESIGN STUDY ON  UPGRADING INTER-URBAN HIGHWAY SYSTEM  ALONG THE PAN-PHILIPPINE HIGHWAY  (Plaridel, Cabanatuan and San Jose Bypasses)  Signoture/Approved)  SIMPLE IN THE DETAILED DESIGN STUDY ON  UPGRADING INTER-URBAN HIGHWAY SYSTEM  ALONG THE PAN-PHILIPPINE  ALONG THE PAN-PHILIPPINE  CABANATUAN BYPASS - CONTRACT PACKAGE II	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY Submitted by:  Recommended By:  Reco	DESIGNED IN OFFICE OF THE SECRETARY  DESIGNED IN OFFICE OF THE SECRETARY  CHECKED IN OFFICE OF THE SECRETARY  ALONG THE PAN-PHILIPPINE HIGHWAY  (See cover short for Signoture)  SIGNOTURE AND JOSE SPRASSON  SIGNOTURE AND JOSE SPRASSON  INTERSECTION A-18 (ULTIMATE STAGE)  INTERSECTION A-18 (ULTIMATE STAGE)



#### NOTES

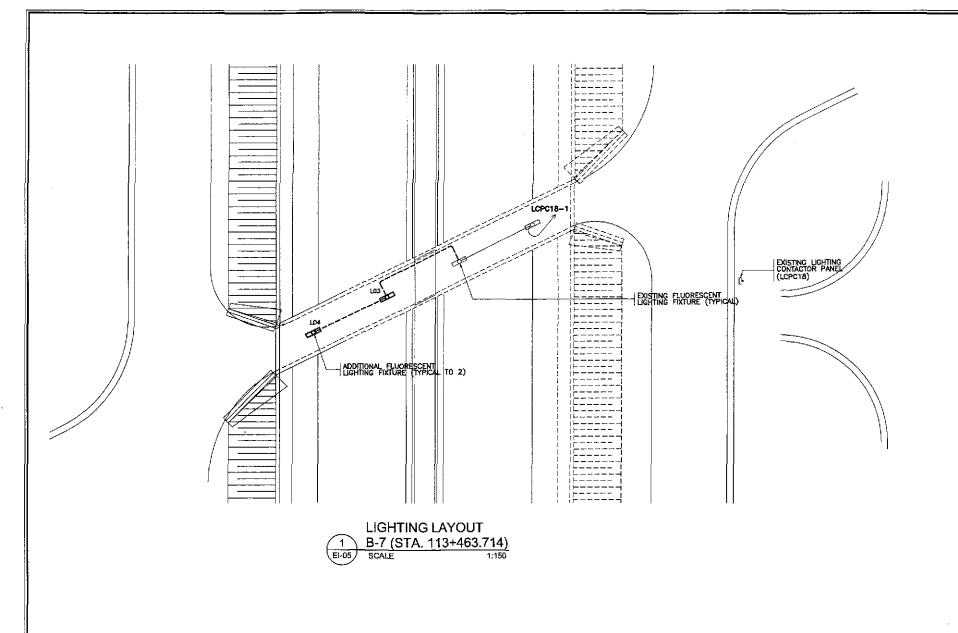
- 1. ALL ITEMS SHOWN IN LIGHT LINE ARE EXISTING INSTALLATIONS (INCLUDED ALREADY IN THE NITIAL STAGE). ALL ITEMS SHOWN IN HEAVY LINE ARE NEW INSTALLATIONS (ULTIMATE STAGE).
- THE CONTRACTOR SHALL PROVIDE NEW CONCRETE FOUNDATION FOR THE RELOCATED LIGHTING POLE.
- UNLESS OTHERWISE INDICATED, THE MINIMUM SIZE OF CIRCUIT CONDUCTORS FROM STEEL POLE JUNGTION BOX/HANDHOLE TO EACH LUMINAIRE SHALL BE 2-3.5 mm<sup>2</sup>THW AND 1-3.5 mm<sup>2</sup>TW(Gnd) INSIDE STEEL POLE.



1 ROADWAY LIGHTING PLAN 1:1000

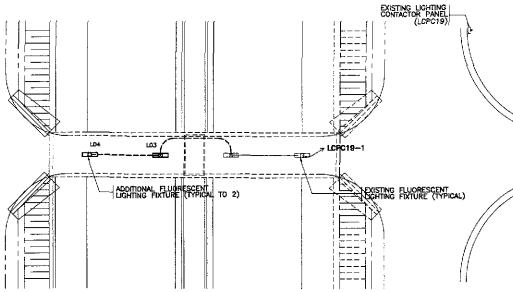


╟	IIIER	DATE SIGNATURE	-		REPUBLIC OF THE PHI			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	JAPAN INTERNATIONAL COOPERATION AGENCY	DESIGNED 10/09/02 E. ANEDQUIA	PJHL - PMO	DEPARTMEN	T OF PUBLIC WOR		S HE SECRETARY	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM		ROADWAY LIGHTING PLAN	
		CHECKED 10/10 DE E ANTIQUIA	Submitted By:	Reviewed By:	Recommended By:	Recommended By: (See cover sheet for Signature)	Approved By: (See cover sheet for Signature/Approval)	ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:1000	INTERSECTION A-19 (ULTIMATE STAGE)	El-04
	KATAHIRA & ENGINEERS YACHIYO ENGINEERING CO., LTD.	SUBMITTED 10/18/01 TEAM LEADER	DANILO C. TRAJANO Project Director	FE M. BARRIENTOS Chief, Mech I-Elect I Division	GILBERTO S. REYES OIC, Director M	MANUEL M. BONDAN Undersocretory	SIMEGN A DATUMANONG Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1	atticitorio (della Ale)	ļ <u></u>



NOTE

 ALL ITEMS SHOWN IN LIGHT LINE ARE EXISTING INSTALLATIONS (INCLUDED ALREADY IN THE INITIAL STAGE). ALL ITEMS SHOWN IN HEAVY LINE ARE NEW INSTALLATIONS (ULTIMATE STAGE).



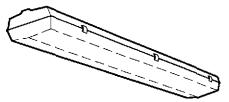
LIGHTING LAYOUT

B-8 (STA. 115+160.000)

EI-05 SCALE 1:150

SCALE :

FULL SIZE A1



CEILING LUMINAIRE, SURFACE MOUNTED, 1P56 (MINIMUM). HOUSING SHALL BE MADE FROM GLASS FIBRE REINFORCED POLYESTER RESIN. PATTERNED COVER SHALL BE MADE FROM POLYCARBONATE DIFFUSER. BALLAST SHALL BE UL USTED, RAPID START HIGH POWER FACTOR TYPE.

[0]	220	1 x 40W FLUORESCENT	SURFACE
SYMBOL	VOLT	LAMP	MOUNTING

3 LIGHTING FIXTURE SCHEDULE EI-05 NOT TO SCALE ERNESTO M. ANTIOQUIA

 PTR ND.
 7403884
 P.E. NO.
 2913

 ISSUED ON
 01/02/2002
 ISSUED AT
 CARRYNO, LACERIA

 TAIN.
 108-382-379

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS

KATAHIRA & ENGINEERS

CO., LTD.

SIGNATURE E. ANTIQUUA Submi - PMO

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BURGAU OF DESIGN OFFICE OF THE

OFFICE OF THE SECRETARY

Recommended By:
(See cover sheet for Signature)

MANUEL M. BONOAN
Undersacretary

Signature (Approvo)

SIMEON A. DATUMANONG

Socretary

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

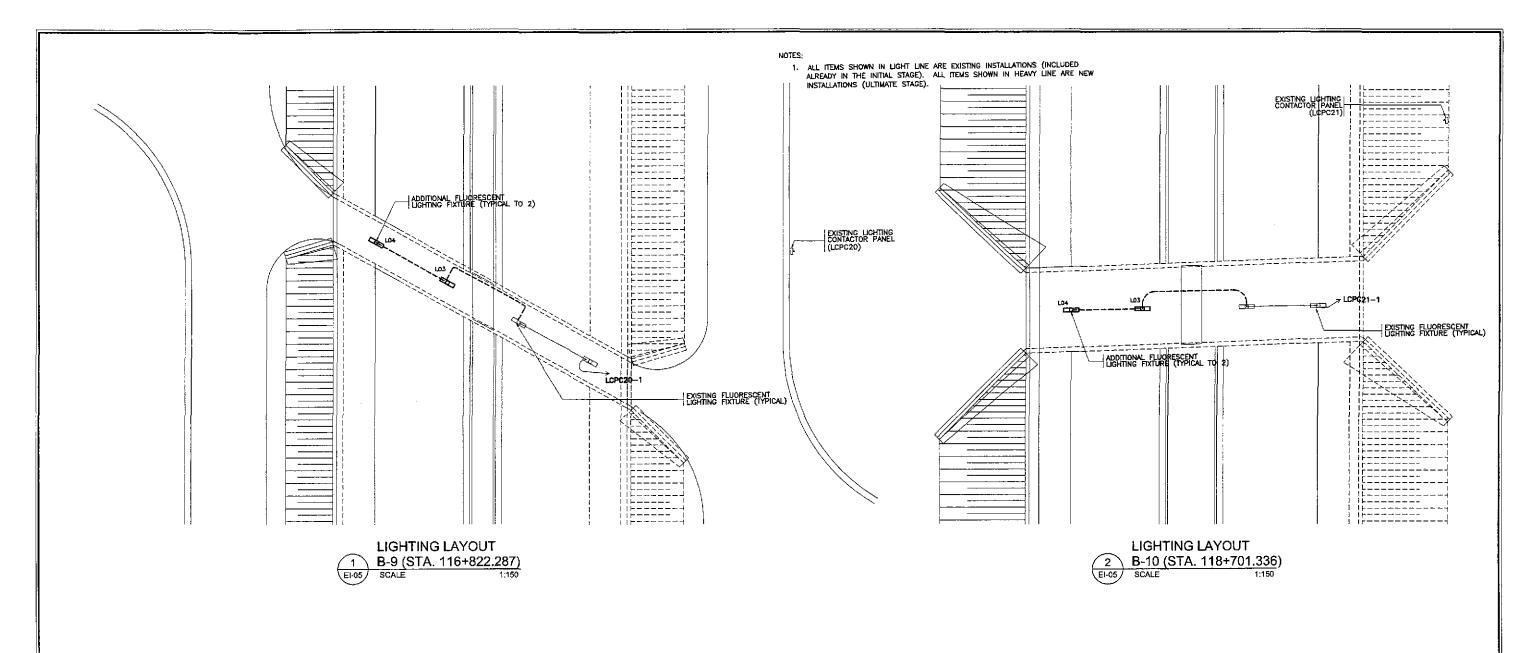
CABANATUAN BYPASS - CONTRACT PACKAGE II

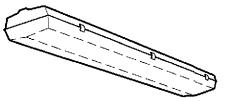
PROJECT AND LOCATION:

LIGHTING LAYOUT AND
LIGHTING FIXTURE SCHEDULE
BOX CULVERT B-7 AND BOX CULVERT B-8
(ULTIMATE STAGE)

SHEET CONTENTS :

El-05





CEILING LUMINAIRE, SURFACE MOUNTED, 1956 (MINIMUM). HOUSING SHALL BE MADE FROM GLASS FIBRE REINFORCED POLYESTER RESIN. PATTERNED COVER SHALL BE MADE FROM POLYCARBONATE DIFFUSER. BALLAST SHALL BE UL LISTED, RAPID START HIGH POWER FACTOR TYPE.

	220	1 x 40W FLUORESCENT	SURFACE
SYMBOL	VOLT	LAMP	MOUNTING

3 LIGHTING FIXTURE SCHEDULE
EI-05 NOT TO SCALE

ERNESTO M. ANTIOQUIA

DIGGER

PTR. NO. 2403644 P.E.C. NO. 2913

ISSUED ON 01/02/2002 ISSUED AT CABUYAO, LAGAMA
7.I.M. 1001-383-3373

SHEET NO. :

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS

KEI INTERNATIONAL

KEI INTERNATIONAL

ESIGNED ICIO 9 SUBMITTED DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN OFFICE OF THE SECRETARY

Recommended By:

Rec

THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)
SIMEON A. DATUMANONG
CABANATUAN BYPASS - CONTRACT PACKAGE II

SCALE :

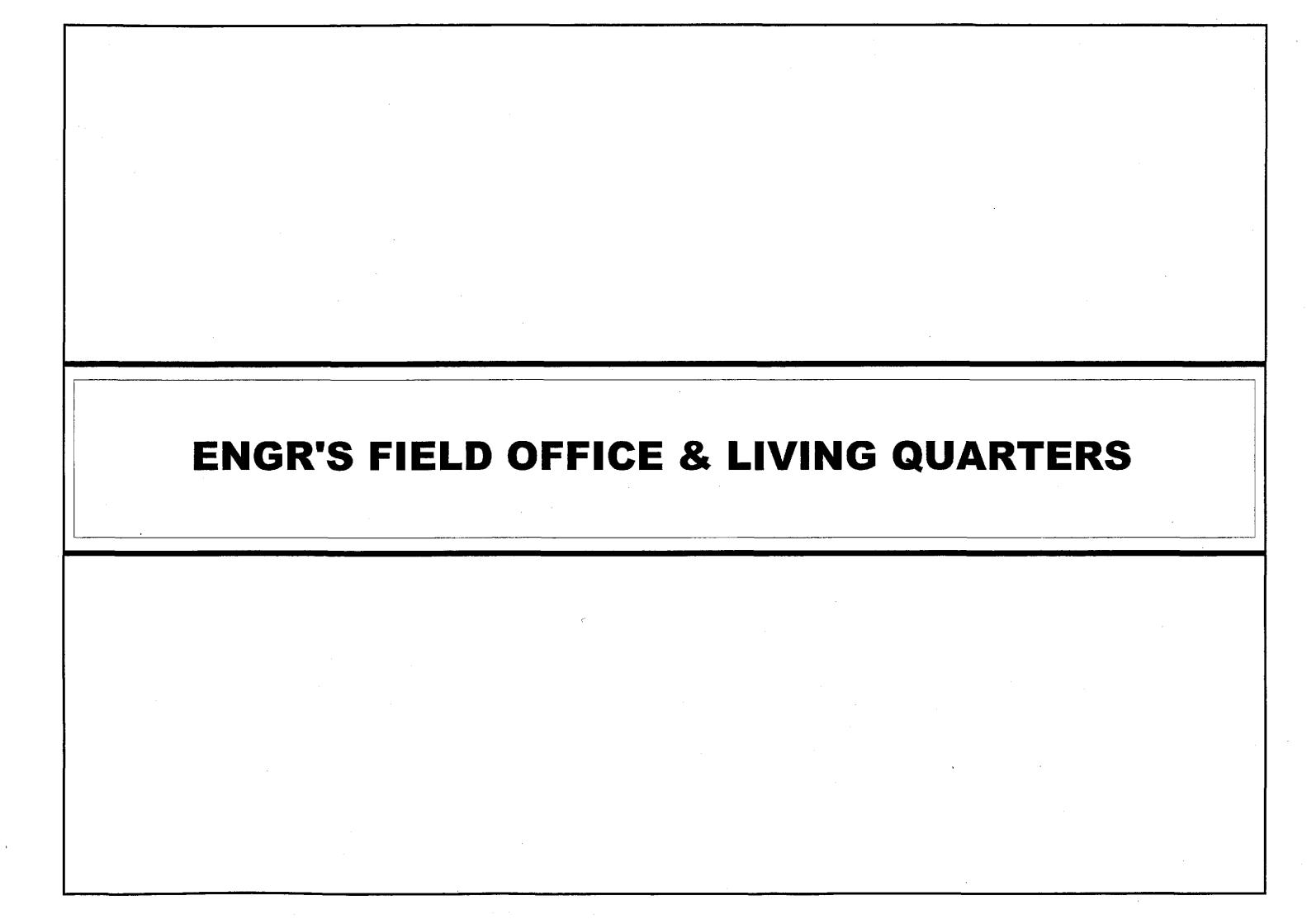
FULL SIZE A1

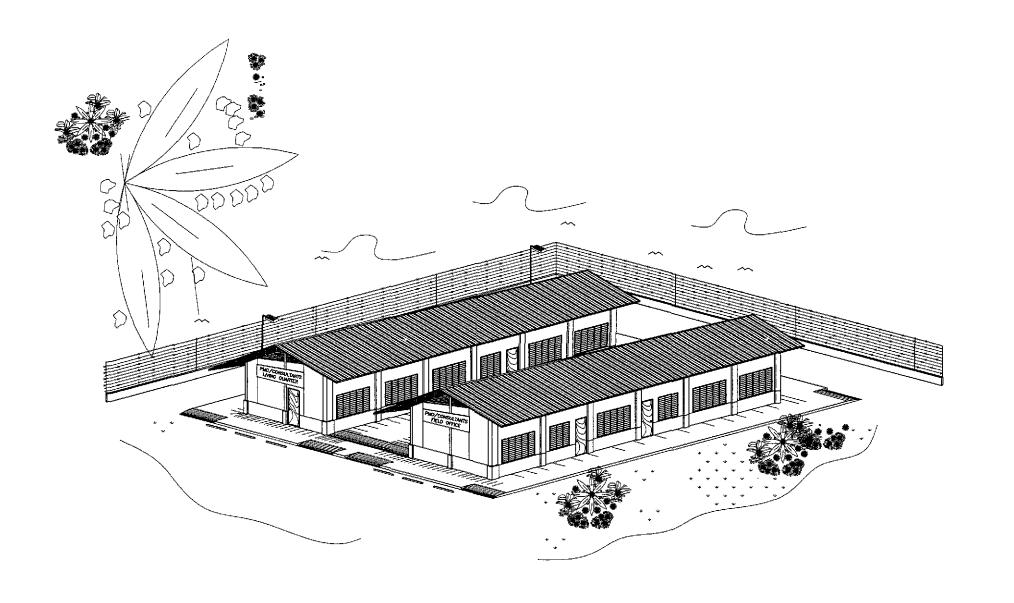
PROJECT AND LOCATION :

LIGHTING LAYOUT AND
LIGHTING FIXTURE SCHEDULE
BOX CULVERT B-9 AND BOX CULVERT B-10

SHEET CONTENTS :

NG FIXTURE SCHEDULE
ERT B-9 AND BOX CULVERT B-10
(ULTIMATE STAGE)





PERSPECTIVE

#### GENERAL NOTES:

IT IS THE INTENTION OF THE DPWH THAT AFTER COMPLETION OF THE PROJECTS ALL PRE-FABRICATED METAL FIELD OFFICES WITH LABORATORY AND EMGINEER'S QUARTERS BUILDINGS BE DONATED TO THE NEAREST PUBLIC SCHOOL. THESE AFOREMENTIONED BUILDINGS SHOULD THEREFORE BE LOCATED WITHIN A PUBLIC SCHOOL COMPOUND OR ON A GOVERNMENT LOT THAT COULD BE EASILY ACQUIRED BY THE DEPARTMENT OF EDUCATION. FOR NEW SCHOOL STRE. IF NONE IS AVAILABLE, THEN THE PRE-FABRICATED METAL COMPONENTS SHALL BE DISMANTLED AFTER COMPLETION OF THE PROJECT FOR DONATION TO THE NEAREST PUBLIC SCHOOL AUTHORITIES OR TO THE LOCAL GOVERNMENT UNIT WHERE SAID PROJECT IS LOCATED.

## OFFICE OF THE MUNICIPAL / CITY ENGINEER / BUILDING OFFICIAL TABLE OF CONTENTS CITY / DISTRICT / MUNICIPALITY ARCHITECTURAL : LAND USE and ZONING FA-01 PERSPECTIVE TABLE OF CONTENTS 02 ENGINEER'S FIELD OFFICE/LABORATORY FLOOR PLAN FRONT & REAR ELEV. LEFT & RIGHT SIDE ELEV. LONGITUDINAL & CROSS SECT. REFLECTED CEILING PLAN 03 ENGINEER'S LIVING QUARTERS FLOOR PLAN FRONT & REAR ELEV. LEFT & RIGHT SIDE ELEV. LONGITUDINAL & CROSS SECT. REFLECTED CEILING PLAN LINE and GRADE 04 ENGINEER'S FIELD OFFICE/LABORATORY ROOF PLAN DET. CROSS SECTION SCHEDULE OF DOORS & WINDOWS 05 ENGINEER'S LIVING QUARTERS ROOF PLAN DET. CROSS SECTION SCHEDULE OF DOORS & WINDOWS STRUCTURAL: ARCHITECTURAL FA-06 FOUNDATION PLAN, R.C. RAMP DETAIL DET. OF F-1, P-1, WF-1 DESIGN CRITERIA 07 ENGINEER'S FIELD OFFICE/LABORATORY ELEV. OF STEEL STUD FRAMES FRAMES SCHEMATIC DIAGRAMS 08 ENGINEER'S LIVING QUARTERS ELEV. OF STEEL STUD FRAMES FRAMES SCHEMATIC DIAGRAMS 09 ENGINEER'S FIELD OFFICE/LABORATORY REAR AND LEFT SIDE ELEVATION OF STEEL STUD FRAMES, AND SCHEMATIC DIAGRAMS STRUCTURAL 10 ENGINEER'S LIVING QUARTERS REAR AND LEFT SIDE ELEVATION OF STEEL STUD FRAME, AND SCHEMATIC DIAGRAMS 11 DETAIL CONNECTIONS, DETAILS 1 TO 15 12 RDOF FRAMING PLAN SCHEM.DIAGRAM ( INT. WALLS ) PURLIN CONNECTION CROSS BRACING CONNECTION SANITARY ELECTRICAL: FE-01 ENGINEER'S FIELD OFFICE/LABORATORY LIGHTING LAYOUT POWER LAYOUT ELECT'L. SYMBOLS & GEN. NOTES 02 ENGINEER'S LIVING QUARTERS LIGHTING LAYOUT POWER LAYOUT ELECT'L. SYMBOLS & GEN. NOTES ELECTRICAL 03 SCHEDULE OF LOADS AND COMPUTATIONS ELECT'L, RISER DIAGRAMS PLUMBING : FP-D1 SEWER AND WATER LINE LAYOUT ISOMETRIC DIAGRAM 02 SEPTIC TANK DETAILS MECHANICAL EXTERNAL : FX~01 PLOT PLAN ELEV — FENCE & GATE FOUNDATION DETAIL

SHEET NO. :

FA-01

REPUBLIC OF THE PHILIPPINES

ARNEL P. GONZALES

PTR. NO. 5846340 P.R.C. NO. 53457
ISSUED ON 04/26/2002 T.I.N. 138-062-682

ISSUED AT <u>SAN JUAN,M.M.</u>

JAPAN INTERNATIONAL COOPERATION AGENCY

JAPAN INTERNATIONAL COOPERATION ACENCY

KATAHIRA & ENGINEERS
INTERNATIONAL

STATEMENT OF THE PROPERTY OF THE P

	DATE	SIGNATURE	ž		REPUBLIC OF THE PHIL	IPPINES		
ESIGNED	60/09/02		•	DEPARTMEN'	T OF PUBLIC WOR	KS AND HIGHWAYS	3	_
	19- 11-2	a. P. CONZALES	PJHL ~ PMO	BUREAU C	OF DESIGN	OFFICE OF TH	IE SECRETARY	
HECKED	100 / 20 A may		Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:	
	[4][0]03	A. R. CONZALES		·		(See cover sheet for	(See cover sheet for	
UBMITTED .	lo/ixlan	HE KING IN	DANILO C. TRAJANO	EMMANUEL P. CUNTAPAY	CILBERTO S. REYES	Signoture) MANUEL M. BONDAN	Signoture/Approval) SIMEON A. DATUMANONG	_
	1-110100	V TEAM LEADER	Project Director	Chief, Architectural Division	OIC, Director M	Undersecretory	Secretary	
								=

PROJECT AND LOCATION:

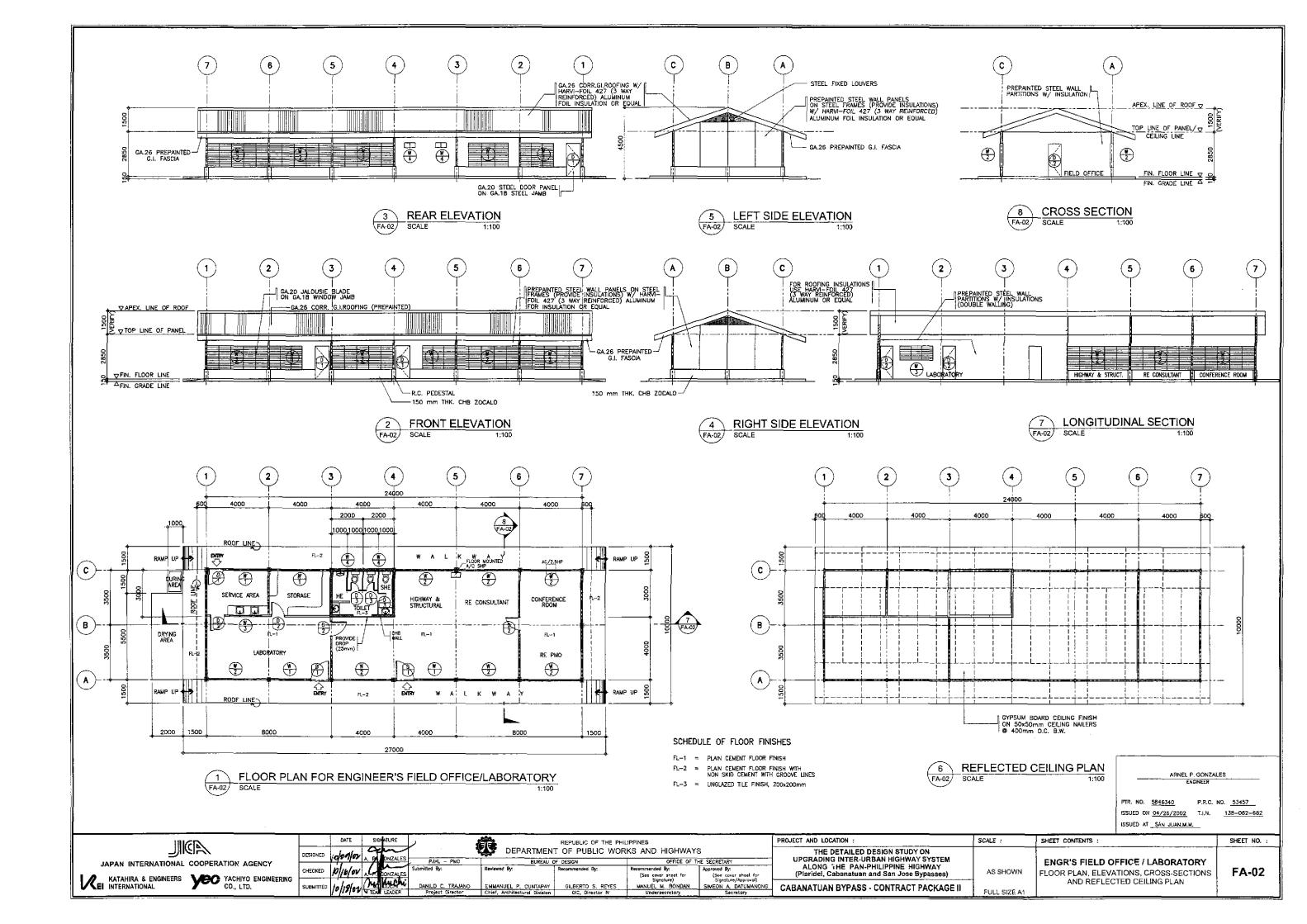
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)

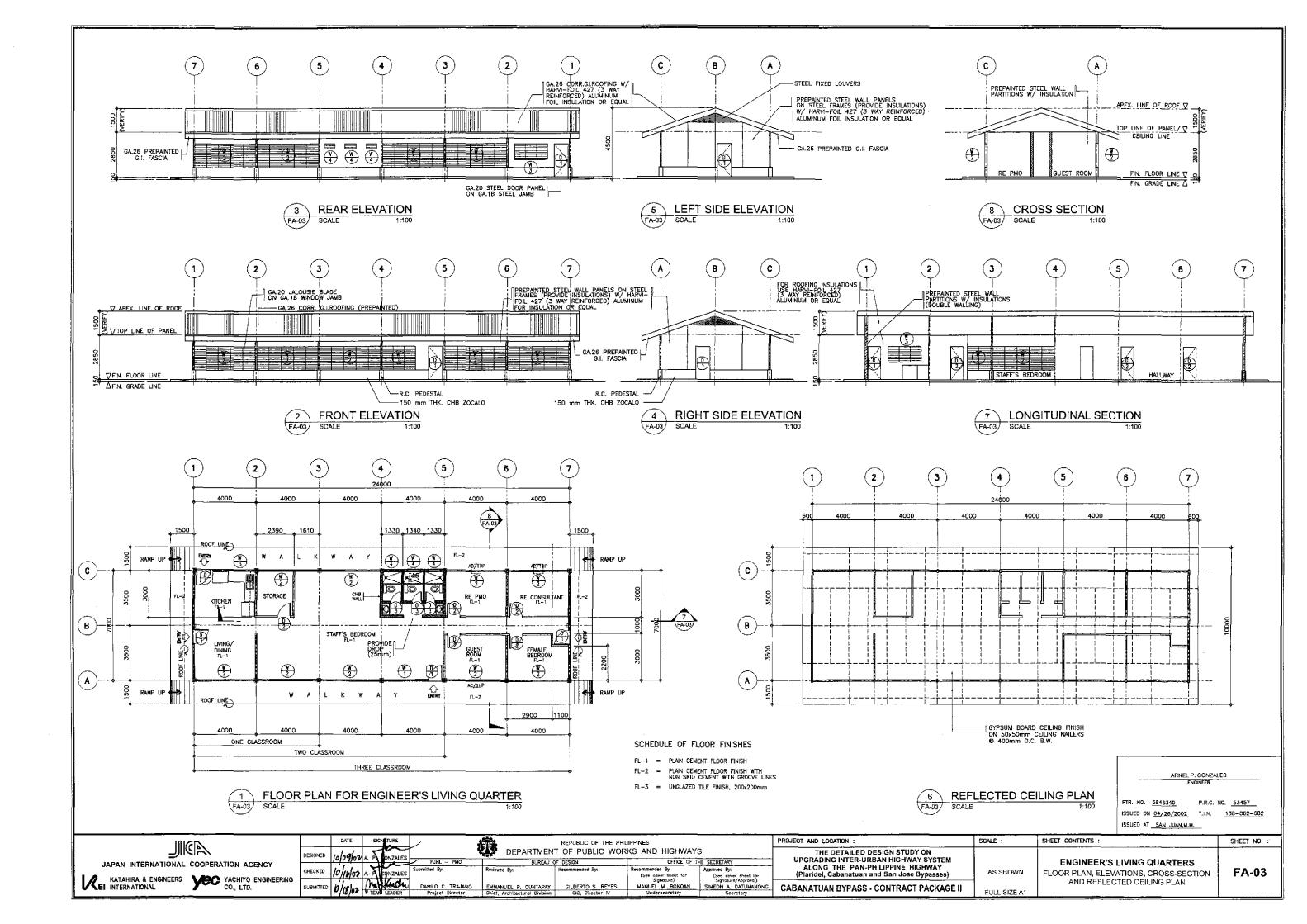
CABANATUAN BYPASS - CONTRACT PACKAGE II

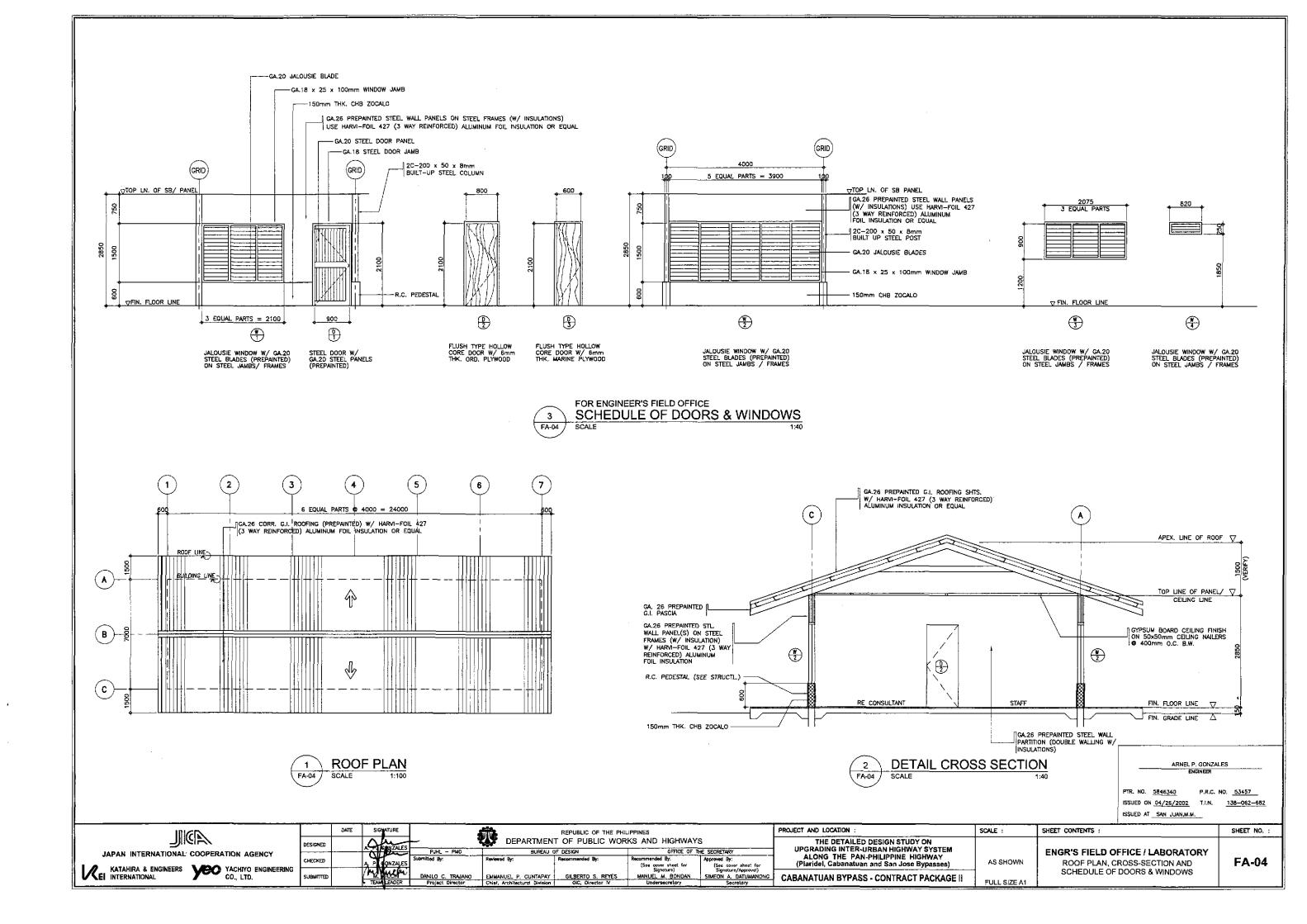
FULL SIZE A1

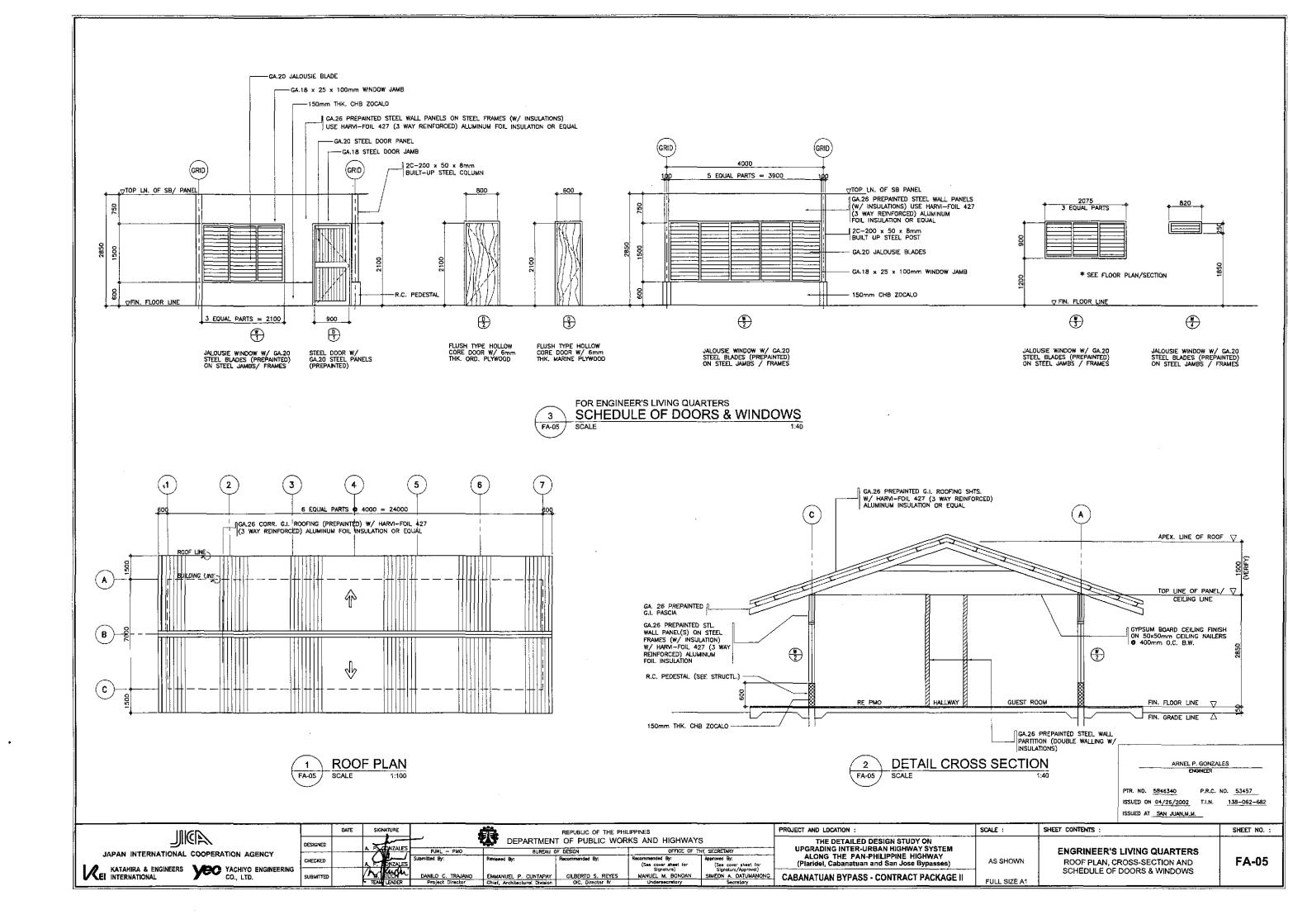
SHEET CONTENTS:

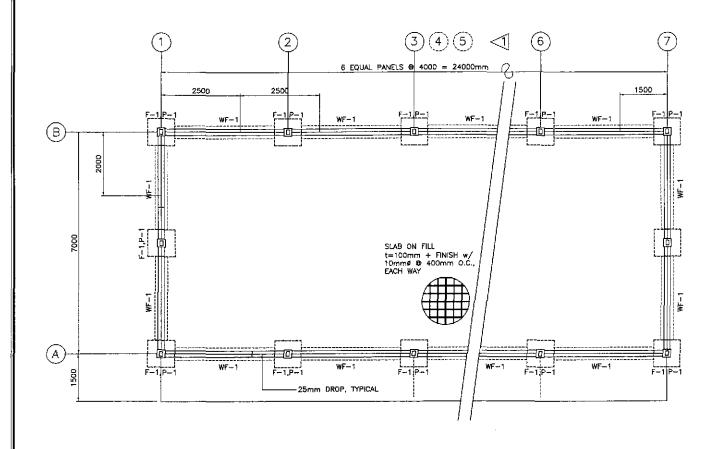
ENGINEER'S FIELD OFFICE
AND LIVING QUARTERS
PERSPECTIVE AND
TABLE OF CONTENTS

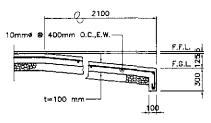






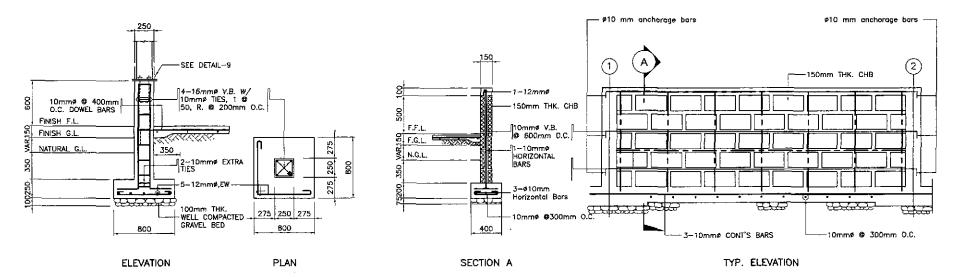








#### FOUNDATION PLAN FA-06 SCALE



F-1, P-1 2 FA-06 SCALE 1:25

WF - 1 3 FA-06 SCALE 1:25

### DESIGN CRITERIA:

I. LIVE LOAD

ROOF OFFICE/LABORATORY

II. DEAD LOAD

CONCRETE STEEL

III. WIND LOAD

p = Ce Cq Qs I WHERE :

P = ACTUAL WIND PRESSURE
Ce = GUST FACTOR COEFFICIENT ( EXPOSURE B=0.63 )
Cq = PRESSURE COEFFICIENT
Qs = 1.50 KPB FOR ZONE 2&3, Qs=1.92 FOR ZONE 1
I = OCCUPANCY IMPORTANCE = 1.00

#### IV. ALLOWABLE STRESSES

1. CONCRETE (ALLOWABLE COMPRESSIBLE STRENGTH @ 28 DAYS)

a.) FOR FOOTINGS AND PEDESTAL COLUMN fc' = 20.70 mpa fc = 9.31mpa b.) FOR SLAB ON FILL fc' = 17.26 mpa fc = 7.76mpa

2. REINFORCING STEEL BARS (STRUCTURAL GRADE 33 DEFORMED BARS)

fy = 227.0 mpa fst = 124.02 mpa

3. STRUCTURAL LIGHT GAGE COLD FORMED STEEL STIFFENED LIGHT GAGE CHANNEL FOR RAFTERS, STUD & WALLS fs = 124.0 mpg (18.000 psi)

4. STRUCTURAL BUILT-UP STEEL PLATES (ASTM A-36)

FOR STEEL BOX COLUMN fy = 248.0 mpg (36,000 psi)

5. WELDS

USE E-60 XX ELECTRODES fv = 93.76 mpa

6. BOLTS (ASTM A-307) fv = 69 mpa fst = 96.60 mpa

7. CONCRETE MASONRY UNITS (NON-LOAD BEARING CHB)

fm' = 3.41 mpa (500 psi)

8. ASSUMED ALLOWABLE SOIL BEARING CAPACITY OF 95.76 KPg (2,000 psf)

#### NOTES ON FOUNDATION:

IN CASE THE ACTUAL SOIL BEARING PRESSURE IS FOUND LESS THAN THE ASSUMED VALUE OF 95.76 KPQ, NOTIFY THE DIRECTOR, BUREAU OF DESIGN FOR PROPER REVISION OF FOOTINGS.
 NO FOOTINGS SHALL REST ON FILL

#### MATERIAL SPECIFICATIONS

FOR ROOFING SHEETS:
 O.6mm THICK (GA.26) PREPAINTED CORRUGATED G.I. ROOFING SHEET, LONG SPAN.
 FOR WALLING SHEETS: USE ALUMINUM FOIL

2. FOR WALLING SHEETS: USE ALUMINUM FOIL
INSULATION HARVI—FOIL 427 (3—WAY REINFORCED OR EQUAL). DOUBLE
WALL 0.6mm THICK (GA.26) HIGH TENSILE STEEL SHEET WALLING/
CLADDING W/ ALUMINUM FOIL FOR INSULATION. HARVI—FOIL 427 (3—WAY
REINFORCED OR EQUAL). BASE STEEL WITH 550 MPG YIELD STRESS.

3. THE VERTICAL AND HORIZONTAL STUDS AND RAFTERS SHALL CONFORM WITH
THE AMERICAN IRON AND STEEL INSTITUTE (AIS), SPECIFICATION OF LIGHT
GAGE COLD—FORMED STEEL STRUCTURAL MEMBERS AS PER ASTM
A246—LIGHT GAGE STRUCTURAL QUALITY FLAT ROLLED CARBON STEEL SHEET.

ALL METAL PARTS SHALL BE GIVEN TWO(2) COATS OF ANTI-CORROSIVE PAINT OF APPROVED QUALITY WITH A MINIMUM TOTAL THICKNESS OF 3mm. FINISHING PAINT SHALL BE 2-COATS OF GLOSS OF APPROVED QUALITY, WEATHER RESISTANT AND OF THE SAME COLOR AS THE PREPAINTED SHEETINGS. BASE OF SIDINGS AND DOOR AND WINDOW JAMES SHALL BE GIVEN ANOTHER TWO COATS OF BROWN OR MAHOGANY COLORED ENAMEL

#### NOTES :

ALL LOCATION OF ANCHOR BOLTS AND BOLT HOLES SHALL BE VERIFIED ON THE SITE PRIOR TO INSTALLATION / ASSEMBLY.
 HOLES FOR ALL BOLTS SHALL BE 1.5mm LARGER IN DIAMETER THAN BOLTS. BOLTS SHALL BE FITTED WITH STANDARD NUTS AND WASHERS TO ENSURE TIGHT FIT.
 THE STEEL MANUFACTURER / FABRICATOR / CONTRACTOR SHALL SUBMIT

SHOP / FABRICATION DRAWINGS TO INCLUDE MATERIAL SCHEDULES, ASSEMBLY PROCEDURE, CONNECTIONS AND SPLICES AS PER APPROVED PLANS FOR REVIEW AND APPROVAL OF THE DIRECTOR, BUREAU OF DESIGN.

ARNEL P. GONZALES

PTR. NO. <u>5846340</u> P.R.C. NO. 53457 ISSUED ON <u>04/26/2002</u> T.I.N. <u>138-062-682</u> ISSUED AT <u>SAN JUAN,M.M.</u>

ANU JAPAN INTERNATIONAL COOPERATION AGENCY YACHIYO ENGINEERING CO., LTD. KATAHIRA & ENGINEERS

DATE 109/02 10/10/02 A 6 NZALES
10/18/02 TEAM LEADER

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY (See cover sheet (or Signature/Approval) MANUEL, M. BONDAN Undersecretory SIMEON A. DATUMANONG

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

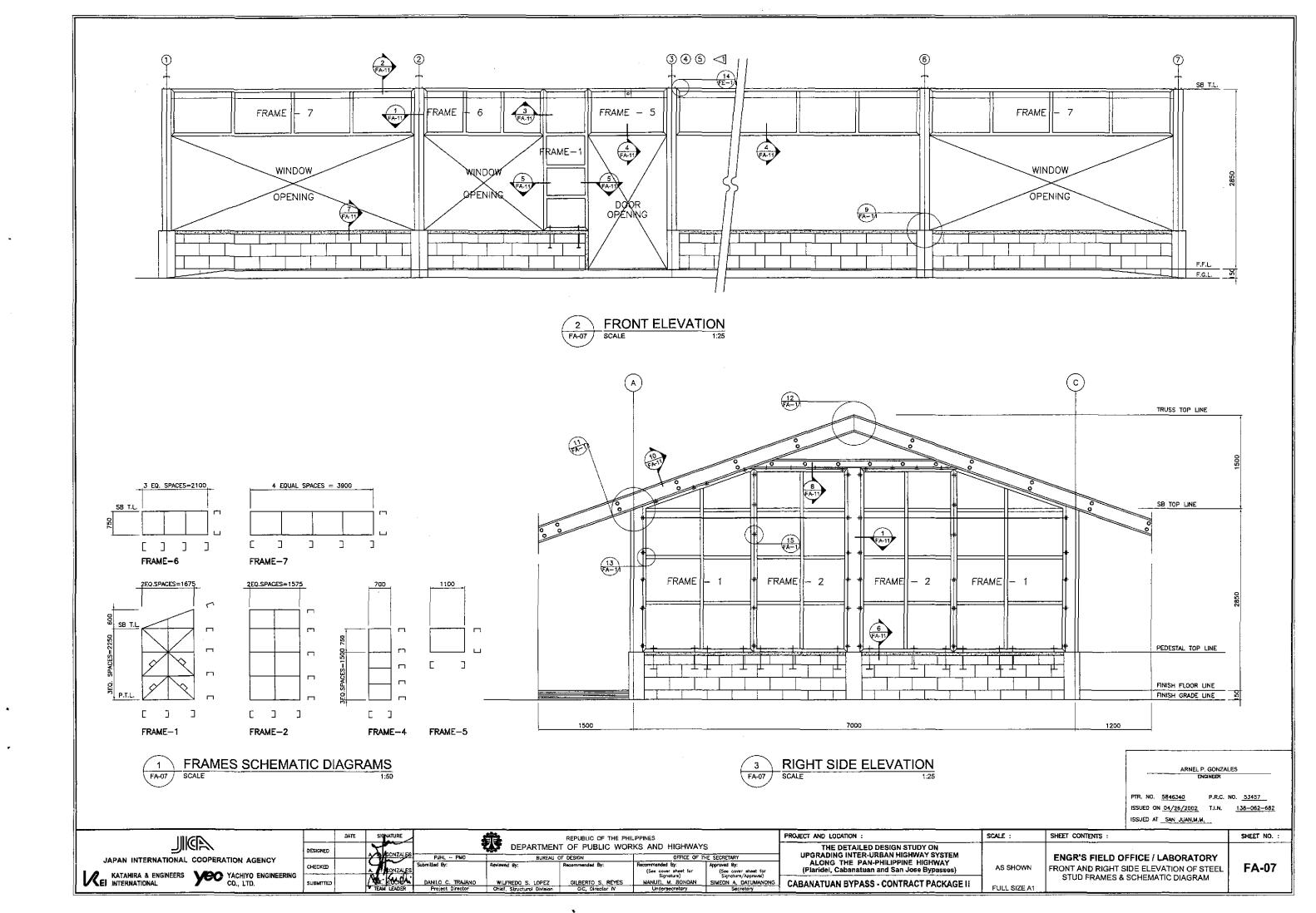
AS SHOWN FULL SIZE A1

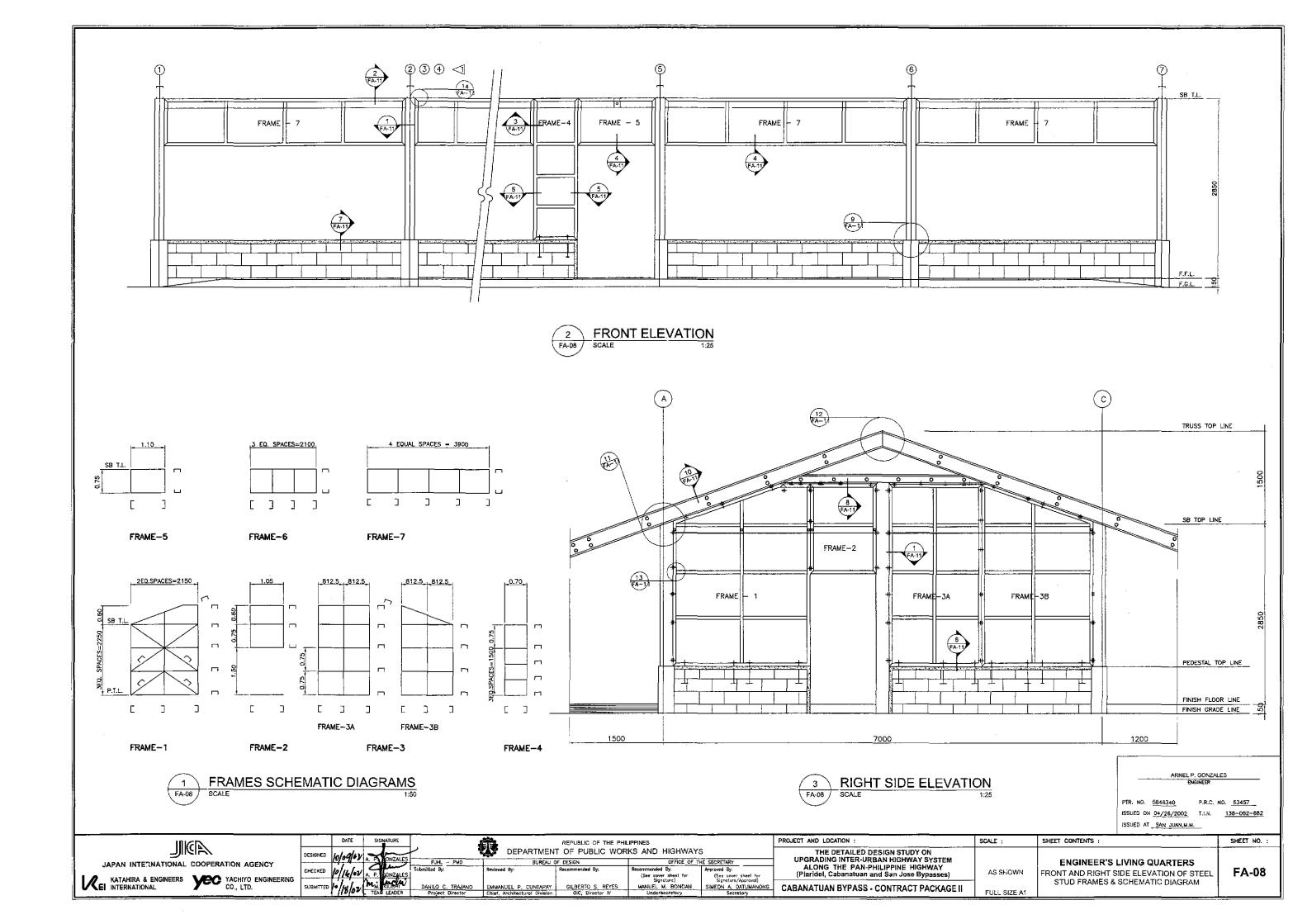
SCALE :

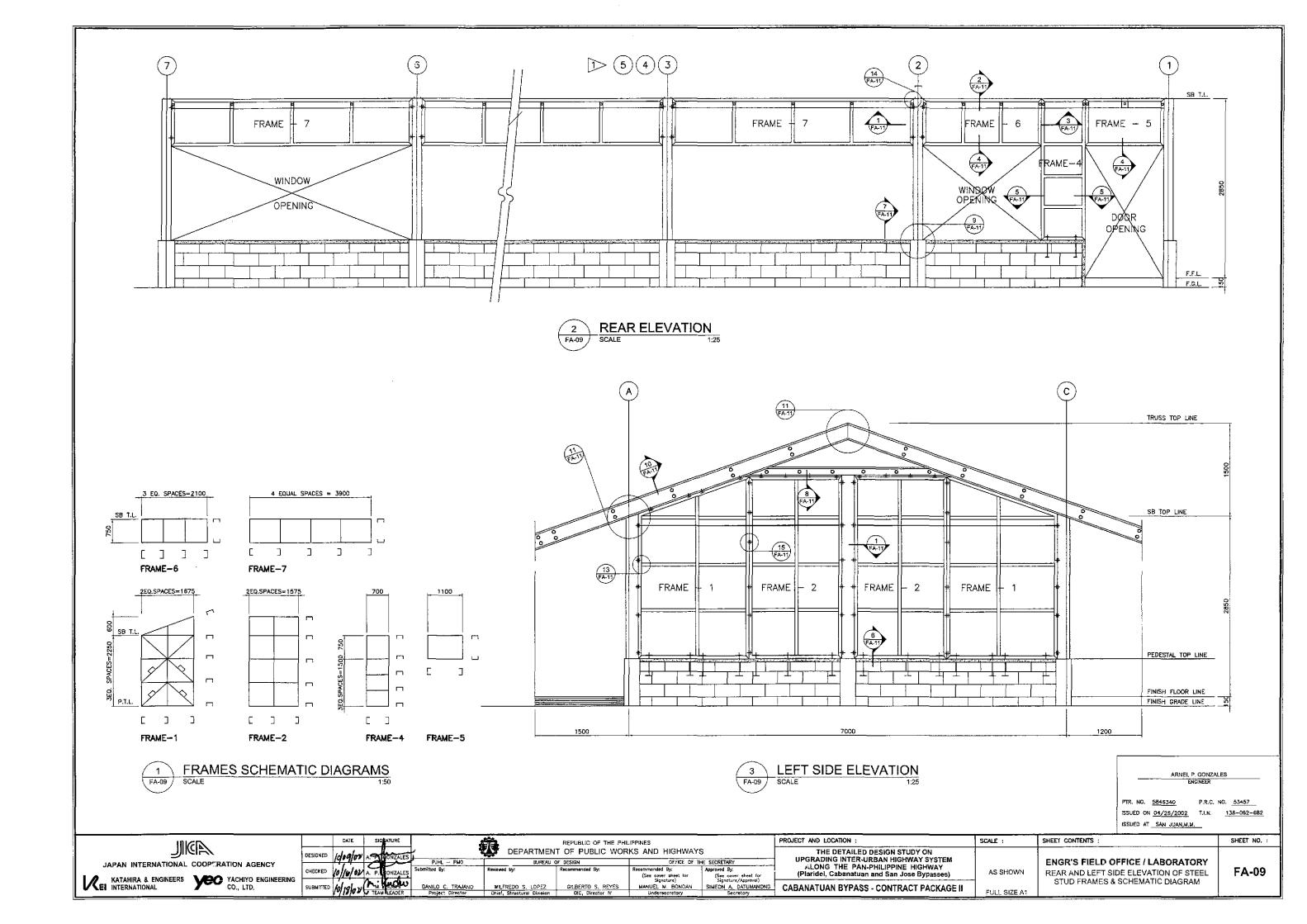
**ENGINEER'S FIELD OFFICE** AND LIVING QUARTERS FOUNDATION PLAN, R.C. RAMP, DETAILS OF F1, P-1 & WF1 AND DESIGN CRITERIA

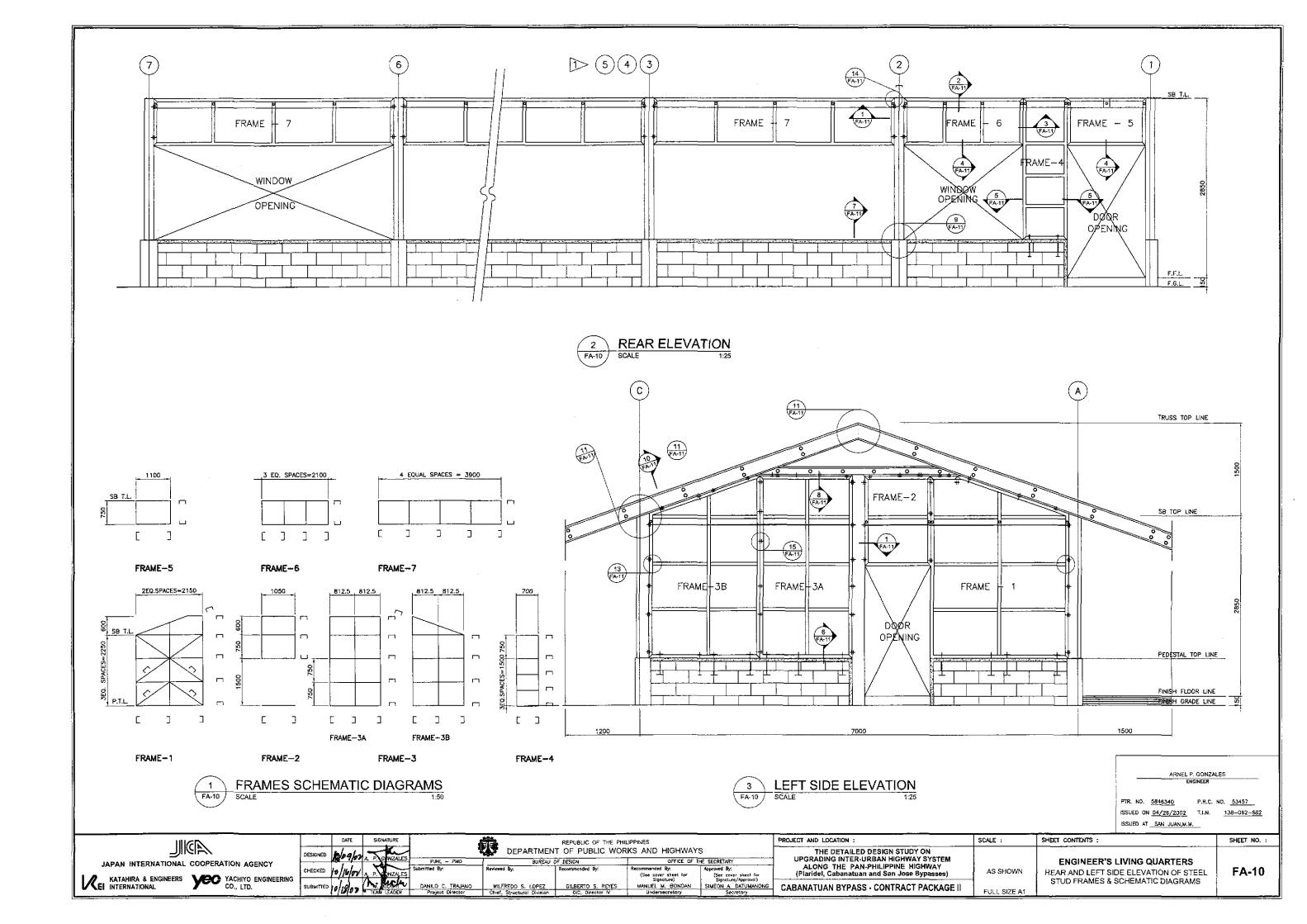
SHEET CONTENTS :

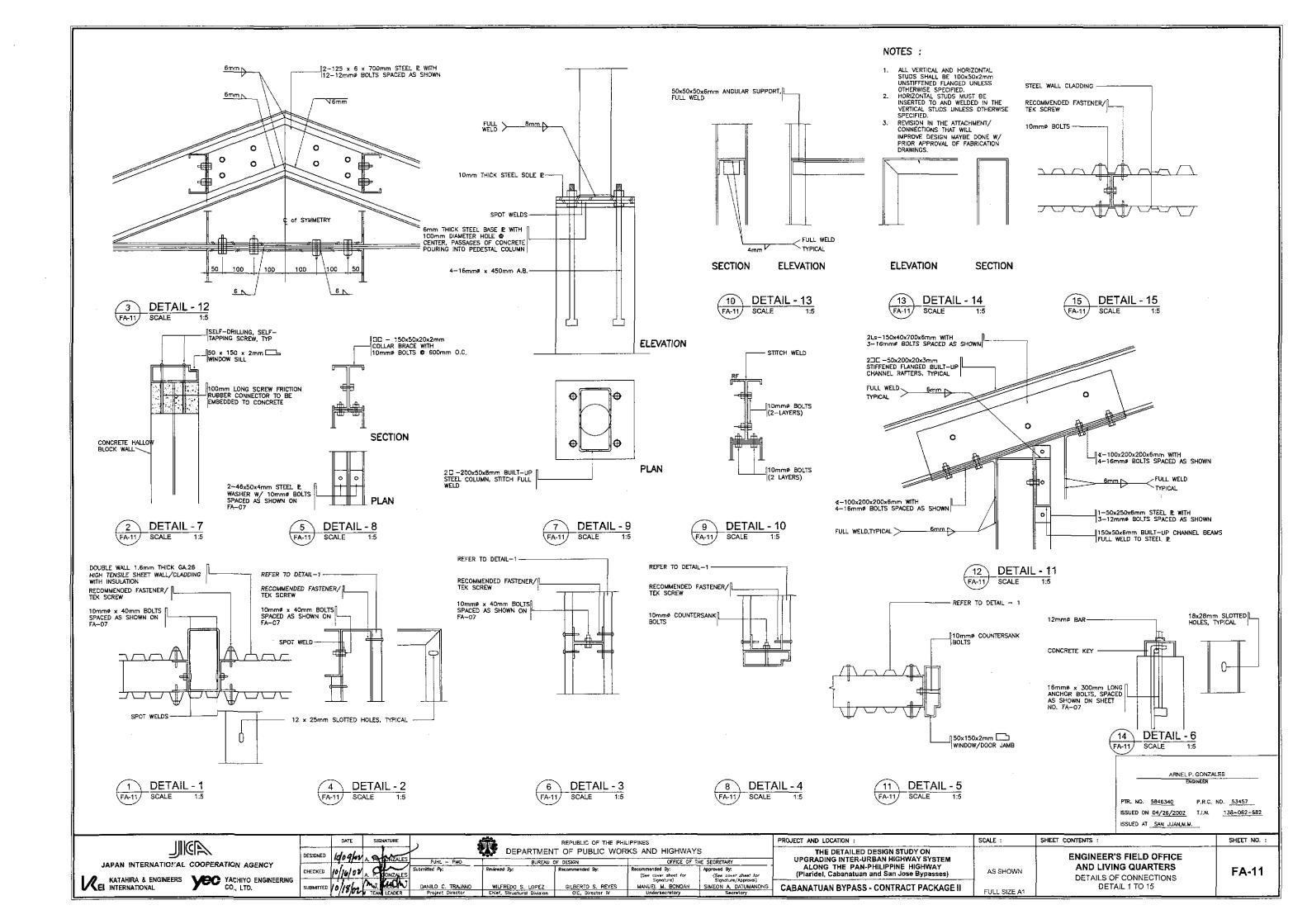
FA-06

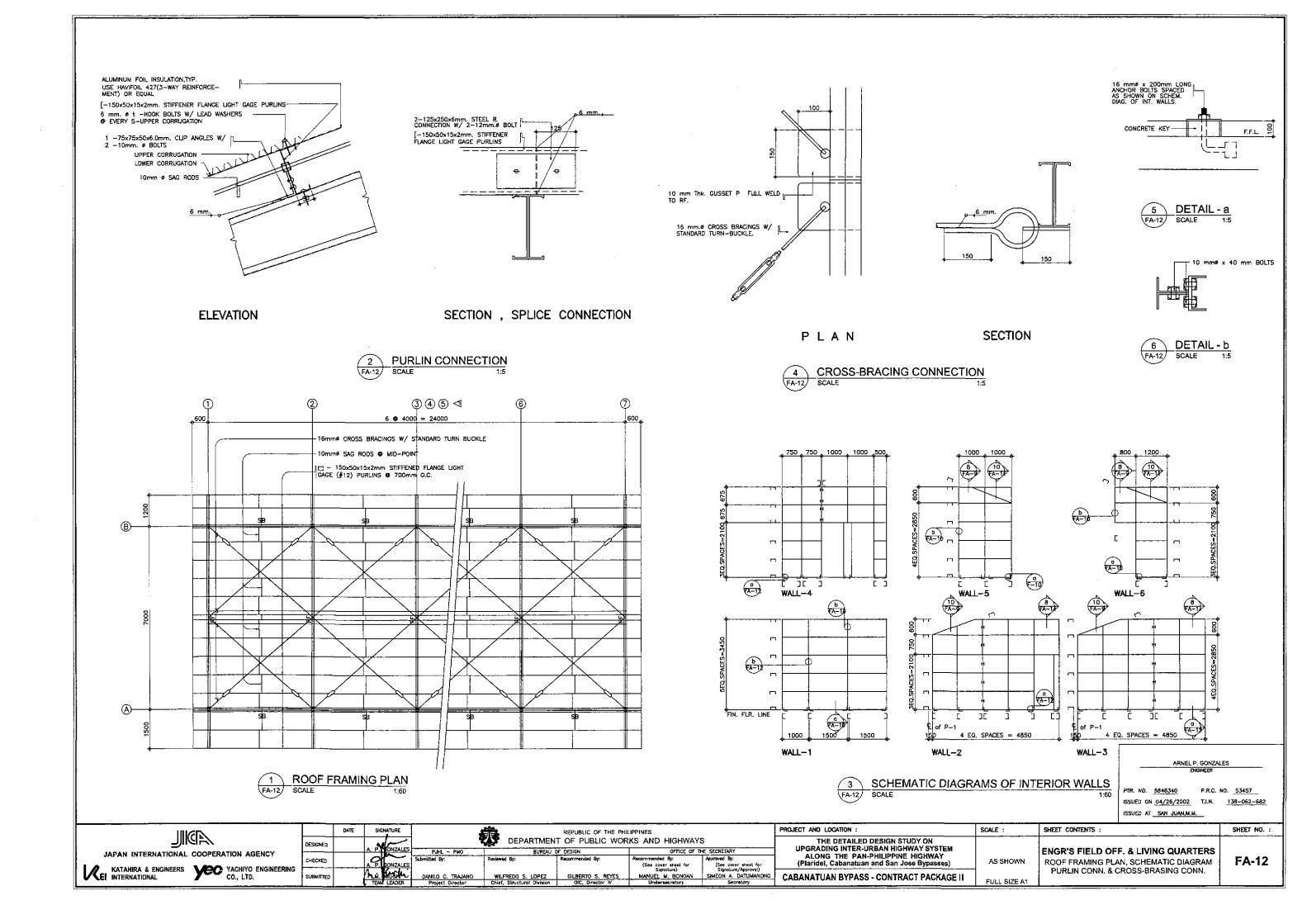


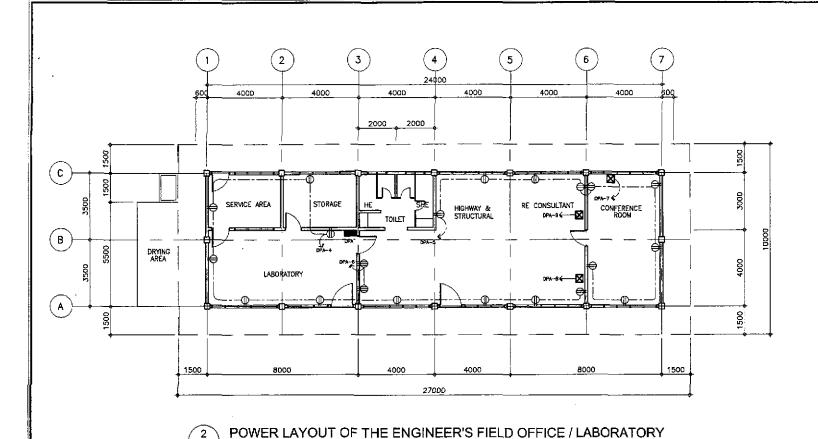


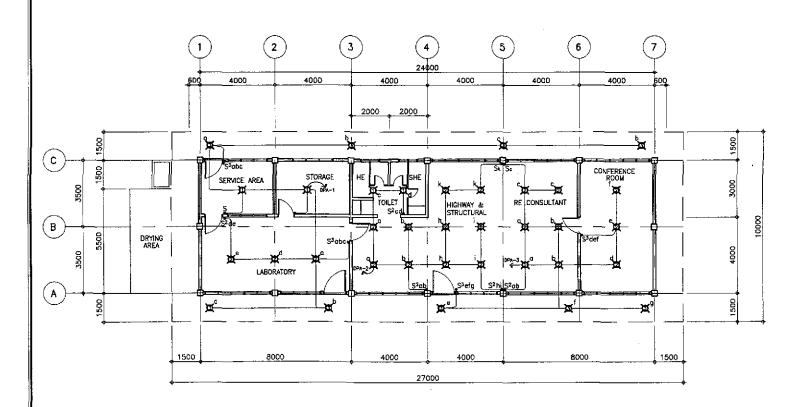












#### **GENERAL NOTES:**

- 1. ALL ELECTRICAL WORKS SHALL BE DONE IN STRICT COMPLIANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHIL. ELECT. CODE, EXISTING APPLICABLE ORDINANCES, RULES AND REGULATIONS OF THE LOCAL GOVERNMENT AND THE REQUIREMENTS OF THE POWER COMPANY.
- 2. THE TYPE OF POWER SERVICE TO USED SHALL BE SINGLE-PHASE 2-WIRE, 240 VOLTS, 60Hz, AC.
- 3. ALL WIRINGS SHALL BE INSTALLED IN STANDARD GALVANIZED RIGID STEEL CONDUIT, RUN EMBEDDED INSIDE THE CONCRETE AND HOLLOW BLOCK STRUCTURES, SLABS, COLUMNS, WALLS PARTITIONS AND/OR RUN BETWEEN DOUBLE WALL WOODED PARTITIONS OR INSIDE THE CEILING SPACES.
- ALL LIGHTING CIRCUIT HOMERUNS AND CONVENIENCE OUTLETS SHALL BE WIRED WITH NOT LESS THAN 3.5mm IN SIZE.
- 5. THE MINIMUM SIZES OF WIRE AND CONDUIT TO BE USED SHALL BE 2.0mm2 AND 15mm NOMINAL DIAMETER, RESPECTIVELY.
- 5. ALL NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE M OF THE PHIL. ELECT. CODE, PART I, LATEST EDITION.
- 7. WHENEVER REQUIRED AND NECESSARY, PULL BOXES OF PROPER SIZES SHALL BE INSTALLED AT CONVENIENT AND INCONSPICUOUS LOCATIONS, ALTHOUGH SUCH BOXES ARE NOT SHOWN ON THE PLAN IS NOR MENTIONED IN THE
- 8 ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHT ABOVE THE FINISHED FLOOD LEVEL, UNLESS OTHERWISE NOTED.
- A. WALL SWITCHES .......1200 mm

  B. CONVENIENCE OUTLETS .....300 mm

  C. AIR CONDITIONING OUTLETS ....AT CONVENIENT HEIGHT NEAR THE EQUIPMENT
- 9 STANDARD TYPE OF ACCESSORIES, SPLICING DEVICES, TERMINATORS AND OTHER APPURTENANCES FOR THE ENTIRE ELECTRICAL INSTALLATION SHALL BE USED.
- 10 ALL MATERIALS TO BE USED SHALL BE BRAND NEW AND OF THE APPROVED TYPE FOR THE LOCATION AND PURPOSE.
- 11 THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATION OF THE SERVICE ENTRANCE FOR CONNECTION TO POWER COMPANY SERVICE POINT.
- 12 ALL ELECTRICAL WORKS SHALL BE DONE UNDER THE STRICT SUPERVISION OF A DULY REGISTERED ELECTRICAL ENGINEER.

#### NOTE:

ALL FLUORESCENT LIGHTING FIXTURES SHALL BE EQUIPPED WITH A HIGH POWER FACTOR PRE-HEAT WITH STARTER TYPE BALLAST, COMPLETE WITH ALL NECESSARY ACCESSORIES, WIRED AND READY FOR SERVICE USED.

#### **ELECTRICAL SYMBOLS:**

- CEILING LIGHT; REFER TO SCHEDULE OF LIGHTING FIXTURES AND LAMPS
- ELECTRICAL RISER
- ONE-WAY WALL SWITCH, 15A, 250V
- 2 ONE-WAY WALL SWITCHES ON ONE-GANG PLATE,
- 3 ONE-WAY WALL SWITCHES ON ONE-GANG PLATE,
- DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE,  $\Theta$ 20A, 250V
- HEAVY DUTY CONVENIENCE OUTLETS, SINGLE-GROUNDING TYPE, 30A, 250V ₽
- AIR CONDITIONING OUTLET GROUNDING TYPE WITH AUTOMATIC CIRCUIT BREAKER IN ONE ENCLOSURE
- ENCLOSED AUTOMATIC CIRCUIT BREAKER (ACB) 70AT, 100AF, 2P, 240V
- DISTRIBUTION PANEL BOARD
- PULL BOX OR JUNCTION BOX
- ELECTRIC SERVICE METER
- PROPOSED SERVICE ENTRANCE WITH CAP
  - CONCEALED OR EMBEDED CONDUIT RUN
- ----- UNDERGROUND OR UNDER FLOOR CONDUIT RUN
- -> CIRCUIT HOMERUN TO PANEL BOARD

ERNEST

PTR. NO. 7403664

P.E.E. NO. 2913 ISSUED AT <u>CABUYAO, LAG</u>UI

ISSUED ON 01/02/2002

109-382-379

ADIL

KATAHIRA & ENGINEERS

FE-01

FE-01/

SCALE

JAPAN INTERNATIONAL COOPERATION AGENCY YACHIYO ENGINEERING CO., LTD.

SCALE

P/18/02

LIGHTING LAYOUT OF THE ENGINEER'S FIELD OFFICE / LABORATORY

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

OFFICE OF THE SECRETARY MANUEL M. BONDAN SIMEON A. DATUMANON

THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II

PROJECT AND LOCATION

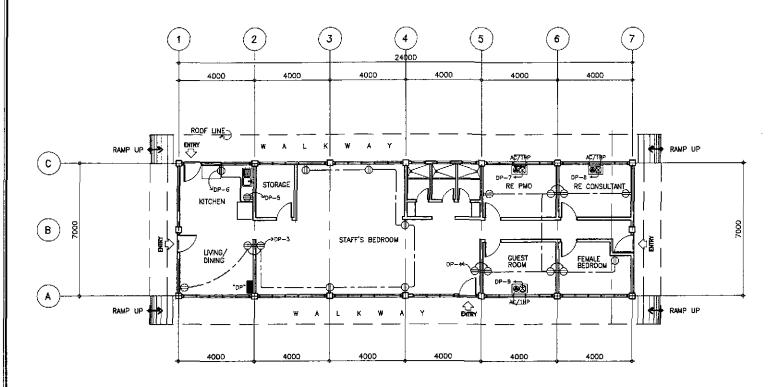
AS SHOWN FULL SIZE A1

SCALE :

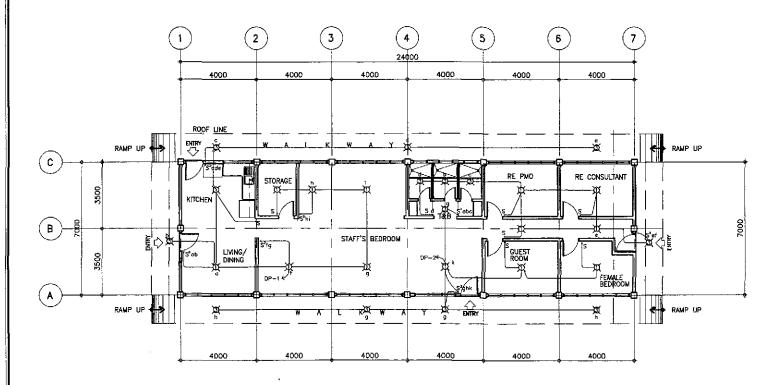
**ENGR'S FIELD OFFICE / LABORATORY** LIGHTING LAYOUT, POWER LAYOUT **ELECTRICAL SYMBOLS & GENERAL NOTES** 

SHEET CONTENTS

FE-01



#### POWER LAYOUT FOR ENGINEER'S LIVING QUARTER FE-02 SCALE



LIGHTING LAYOUT FOR ENGINEER'S LIVING QUARTER FE-02 SCALE

### **GENERAL NOTES:**

- ALL ELECTRICAL WORKS SHALL BE DONE IN STRICT COMPLIANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHIL. ELECT. CODE, EXISTING APPLICABLE ORDINANCES, RULES AND REGULATIONS OF THE LOCAL GOVERNMENT AND THE REQUIREMENTS OF THE POWER COMPANY.
- THE TYPE OF POWER SERVICE TO USED SHALL BE SINGLE--PHASE 2-WIRE, 240 VOLTS, 60Hz, AC.
- ALL WIRINGS SHALL BE INSTALLED IN STANDARD GALVANIZED RIGID STEEL CONDUIT, RUN EMBEDDED INSIDE THE CONCRETE AND HOLLOW BLOCK STRUCTURES, SLABS, COLUMNS, WALLS PARTITIONS AND/OR RUN BETWEEN DOUBLE WALL WOODED PARTITIONS OR INSIDE THE CEILING SPACES.
- ALL LIGHTING CIRCUIT HOMERUNS AND CONVENIENCE OUTLETS SHALL BE WIRED WITH NOT LESS THAN 3.5mm IN SIZE.
- 5. THE MINIMUM SIZES OF WIRE AND CONDUIT TO BE USED SHALL BE 2.0mm2 AND 15mm NOMINAL DIAMETER, RESPECTIVELY.
- ALL NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE IV THE PHIL. ELECT. CODE, PART I, LATEST EDITION,
- WHENEVER REQUIRED AND NECESSARY, PULL BOXES OF PROPER SIZES SHALL BE INSTALLED AT CONVENIENT AND INCONSPICUOUS LOCATIONS, ALTHOUGH SUCH BOXES ARE NOT SHOWN ON THE PLAN IS NOR MENTIONED IN THE
- ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHT ABOVE THE FINISHED FLOOD LEVEL, UNLESS OTHERWISE NOTED.

A. WALL SWITCHES .1200 mm

- 9 STANDARD TYPE OF ACCESSORIES, SPLICING DEVICES, TERMINATORS AND OTHER APPURTENANCES FOR THE ENTIRE ELECTRICAL INSTALLATION SHALL BE USED.
- 10 ALL MATERIALS TO BE USED SHALL BE BRAND NEW AND OF THE APPROVED TYPE FOR THE LOCATION AND PURPOSE.
- 11 THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATION OF THE SERVICE ENTRANCE FOR CONNECTION TO POWER COMPANY SERVICE POINT.
- 12 ALL ELECTRICAL WORKS SHALL BE DONE UNDER THE STRICT SUPERVISION OF A DULY REGISTERED ELECTRICAL ENGINEER.

#### NOTE:

ALL FLUORESCENT LIGHTING FIXTURES SHALL BE EQUIPPED WITH A HIGH POWER FACTOR PRE-HEAT WITH STARTER TYPE BALLAST, COMPLETE WITH ALL NECESSARY ACCESSORIES, WIRED AND READY FOR SERVICE USED.

### **ELECTRICAL SYMBOLS:**

- CEILING LIGHT; REFER TO SCHEDULE OF LIGHTING FIXTURES AND LAMPS
- ELECTRICAL RISER
- ONE-WAY WALL SWITCH, 15A, 250V
- 2 ONE-WAY WALL SWITCHES ON ONE-GANG PLATE, 15A, 250V
- 3 ONE-WAY WALL SWITCHES ON ONE-GANG PLATE, S³ 15A, 250V
- DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE,  $\Theta$
- HEAVY DUTY CONVENIENCE OUTLETS, SINGLE-GROUNDING TYPE, 30A, 250V
- AIR CONDITIONING OUTLET GROUNDING TYPE WITH AUTOMATIC CIRCUIT BREAKER IN ONE ENCLOSURE
- ENCLOSED AUTOMATIC CIRCUIT BREAKER (ACB) 70AT, 100AF, 2P, 240V
- DISTRIBUTION PANEL BOARD
- PULL BOX OR JUNCTION BOX
- ELECTRIC SERVICE METER
- - CONCEALED OR EMBEDED CONDUIT RUN
  - UNDERGROUND OR UNDER FLOOR CONDUIT RUN
- → CIRCUIT HOMERUN TO PANEL BOARD

PTR. NO. 7403664

P.E.E. NO. 2913 ISSUED AT <u>CABUYAO, LA</u>GUN

ISSUED ON 01/02/2002 109-382-379

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS YACHIYO ENGINEERING CO., LTD.

E.M. ANTICOLIA 19/18/02

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

OFFICE OF THE SECRETARY

CABANATUAN BYPASS - CONTRACT PACKAGE II

PROJECT AND LOCATION

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

AS SHOWN

SHEET CONTENTS :

SCALE :

**ENGINEER'S LIVING QUARTERS** LIGHTING LAYOUT, POWER LAYOUT **ELECTRICAL SYMBOLS & GENERAL NOTES** 

FE-02

#### SCHEDULE OF LOADS AND COMPUTATIONS

			PANE	ELBO	λĸ	(D	"DP" MAIN A.C.B. : 100AF,2P, 250V 100 AT, 18 KAIC W/SOLID NEUTRAL
CRT.	LOAD DESCRIPTION	VA	BRANC VOLTS	_	REA		SIZE OF HOMERUN WIRES IN CONDUIT
1	LIGHT OUTLETS	455	220	50	H	15	2-3.5mm TW <sup>2</sup> in 15mmøC
2	LIGHT OUTLETS	640	220	50	2	15	2-3.5mm TW <sup>2</sup> in 15mm¢C
3	CONVENIENCE OUTLET	1440	220	50	2	20	2-3.5mm TW <sup>2</sup> in 15mm¢C
4	CONVENIENCE OUTLET	1620	220	50	2	20	2-3.5mm TW <sup>2</sup> in 15mm#C
5	REFRIGERATOR	500	220	50	2	20	2-3.5mm TW <sup>2</sup> + 1-20mm <sup>2</sup> TW(C) IN 15mm/C
6	ELECTRIC STOVE	3000	220	50	2	30	2-5.5mm <sup>2</sup> THW+1-3.5mm <sup>2</sup> TW(G) iN 20mmøC
7	1hp,10 WDO,TYPE ACU	1980	220	50	2	30	2-5.5mm <sup>2</sup> THW+1-3.5mm <sup>2</sup> TW(G) IN 2Dmm#C
8	1hp,10 WDO,TYPE ACU	1980	220	50	2	30	2-5.5mm <sup>2</sup> THW+1-3.5mm <sup>2</sup> TW(G) IN 20mm@C
9	1hp,1\$ WOO,TYPE ACU	1980	220	50	2	30	2-5.5mm <sup>2</sup> THW+1-3.5mm <sup>2</sup> TW(G) IN 20mm#C
10	SPARE	1500	220	50	2	20	
11	SPARE	1500	220	50	2	20	
12	SPARE	1500	220	50	2	20	-
	TOTAL	18,095					

## ENGINEER'S LIVING QUARTERS

IV @ 90% D.F. =  $\frac{18095}{220}$  (0.90)+0.25(8)= 76.03 Amps

 $\frac{18095}{220}$  (0.90)+1.5(8)= 86.03 Amps

MAIN ACB: 100AF,2P,250 V,100AT,15KAIC

USE : 2-38mm2THW + 1-14mm2TW(G) IN 40mm# RSC

### SCHEDULE OF LIGHTING FIXTURES & LAMPS

SYMBOLS	DESCRIPTION	MOUNTING & INSTALLATION			
Ø	ONE (1) 40 WATTS, 220V, FLUORESCENT LIGHTING FIXTURES, BOX TYPE	SURFACE CEILING MOUNTED			
Q	ONE (2) 40 WATTS, 220V, FLUORESCENT LIGHTING FIXTURES, BOX TYPE	SURFACE CEILING MOUNTED			
Ø	DNE (1)—SL—18 LAMP WITH HEXLESS TYPE, MEDIUM BASE PORCELAIN RECEPTACLE	SURFACE CEILING MOUNTED			

ALL FLUORESCENT LIGHTING FIXTURES SHALL BE EQUIPPED. WITH A HIGH POWER FACTOR PRE-HEAT WITH STARTER
TYPE BALLAS, COMPLETE WITH ALL NECESSARY ACCESSORIES. WIRED AND READY FOR USE.

## SCHEDULE OF LOADS AND COMPUTATIONS

			PANELBOARD "				"DPA" MAIN A.C.B.: 225AF,2P, 250V 200 AT, 18 KAIC W/SOLID NEUTRAL
CRT. NO.	LOAD DESCRIPTION	VA	BRANG VOLTS	_			SIZE OF HOMERUN WIRES IN CONDUIT
1	LIGHT OUTLETS	590	220	50.	2	15	2-3.5mm TW <sup>2</sup> in 15mm#C
2	LIGHT OUTLETS	1210	220	50	2	15	2~3.5mm TW <sup>2</sup> in 15mmøC
3	LIGHT OUTLETS	1065	220	50	2	15	2-3.5mm TW <sup>2</sup> in 15mm¢C
4	CONVENIENCE OUTLETS	1800	220	50	2	20	2-3.5mm TW <sup>2</sup> + 1-2.0mm TW(G) IN 15mmøC
5	CONVENIENCE OUTLETS	1620	220	50	2	20	2-3.5mm TW2+ 1-2.0mm TW(G) IN 15mm@C
6	PHOTOCOPY MACHINE /HEAVY DUTY CO.	2500	220	50	2	20	2-3.5mm TW <sup>2</sup> + 1-2.0mm <sup>2</sup> TW(G) IN 15mmøC
7	3TR,1ø,SPLIT TYPE ACU	6930	220	100	2	70	2-8mm <sup>2</sup> THW + 1-5.5mm <sup>2</sup> TW(G) IN 25mm¢C
8	3TR,1ø,SPLIT TYPE ACU	6930	220	100	2	70	2-8mm <sup>2</sup> THW + 1-5.5mm <sup>2</sup> TW(G) IN 25mm¢C
9	3TR,1ø,SPLIT TYPE ACU	6930	220	100	2	70	2-8mm <sup>2</sup> THW + 1-5.5mm <sup>2</sup> TW(G) IN 25mm¢C
10	SPARE	5000	220	100	2	70	
11	SPARE FOR PERIMETER LIGHTS	1500	220	50	2	30	2-5.5mm <sup>2</sup> THW + 1-3.5mm <sup>2</sup> TW(G) IN 25mm¢C
12	SPARE	1500	220	50	2	20	-
	TOTAL	37,575					

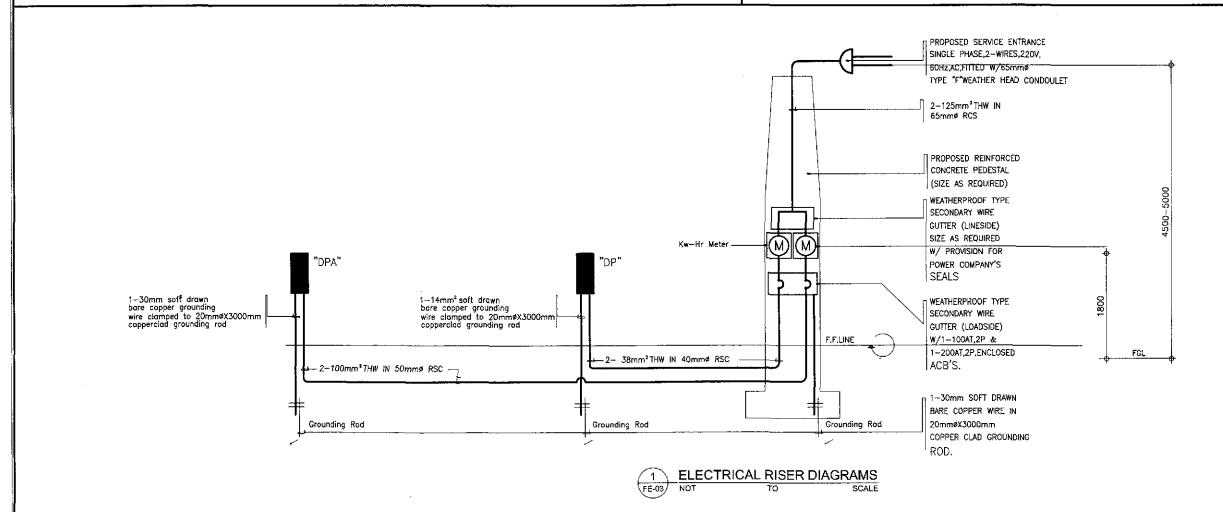
## ENGINEER'S FIELD OFFICE/LABORATORY

IV @ 95% D.F. =  $\frac{37575(0.95)}{220}$  +0.25(23)= 168 Amps USE :  $2-100 \text{mm}^2 \text{THW} + 1-30 \text{mm}^2 \text{TW} \text{ in } 50 \text{mm} \text{ rsc}$ I<sub>R</sub>=162.25567+1.5(23)=196.75 Amps. MAIN ACB: 225AF,2P,250 V,200AT,18 KAIC

### SCHEDULE OF LIGHTING FIXTURES & LAMPS

SYMBOLS	DESCRIPTION	MOUNTING & INSTALLATION			
Ħ	ONE (1) 40 WATTS, 220V, FLUORESCENT LIGHTING FIXTURES, BOX TYPE	SURFACE CEILING MOUNTED			
Ø	ONE (2) 40 WATTS, 220V, FLUORESCENT LIGHTING FIXTURES, BOX TYPE	SURFACE CEILING MOUNTED			
Q	ONE (1)-SL-18 LAMP WITH HEXLESS TYPE, MEDIUM BASE PORCELAIN RECEPTACLE	SURFACE CEILING MOUNTED			

ALL FLUORESCENT LIGHTING FIXTURES SHALL BE EQUIPPED WITH A HIGH POWER FACTOR PRE-HEAT WITH STARTER TYPE BALLAS, COMPLETE WITH ALL NECESSARY ACCESSORIES, WIRED AND READY FOR USE.



COMPUTATION FOR REQUIRED SIZE OF MAIN SERVICE ENTRANCE FEEDER:

<u>VA"DPA"+VA"AP"</u> @ 85% DF + 0.25(1) 220 37575+18095 (0.85)+0.25(23) 220 I<sub>T</sub> ≈ 220.83 Amps. USE: 2-125 mm2 THW IN

PTR. NO. 7403664 P.E.E. NO. 2913 ISSUED ON <u>01/02/2002</u> ISSUED AT CABUYAO, LAGUNA T.I.N. 109-382-379

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS YEC YACHIYO ENGINEERING CO., LTD.

P/18/02 AN MACH

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

OFFICE OF THE SECRETARY SIMEON A. DATUMANONO MANUEL M. BONOAN

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

CABANATUAN BYPASS - CONTRACT PACKAGE II

PROJECT AND LOCATION :

**ENGINEER'S FIELD OFFICE** AND LIVING QUARTERS AS SHOWN SCHEDULE OF LOADS AND COMPUTATIONS ELECTRICAL RISER DIAGRAM

SHEET CONTENTS :

SCALE :

FULL SIZE A1

FE-03

