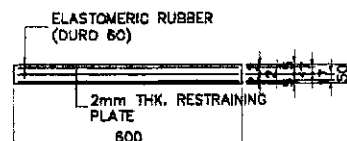
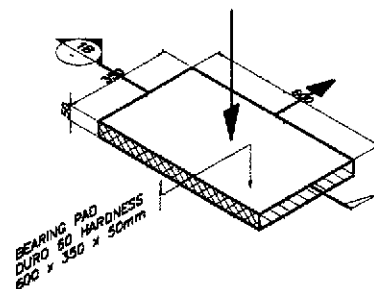


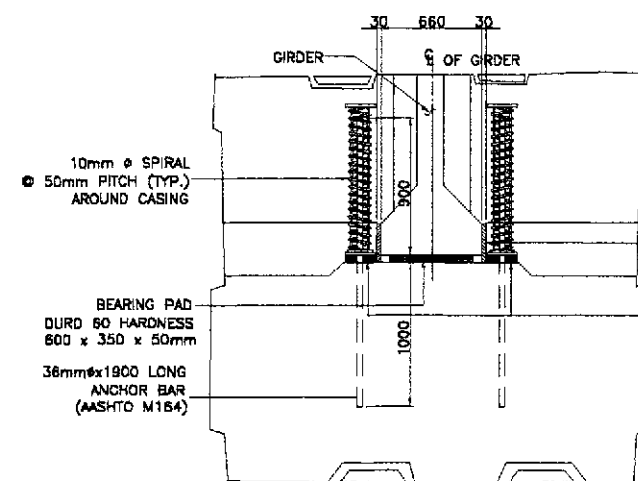
1A PLAN  
SCALE 1:10



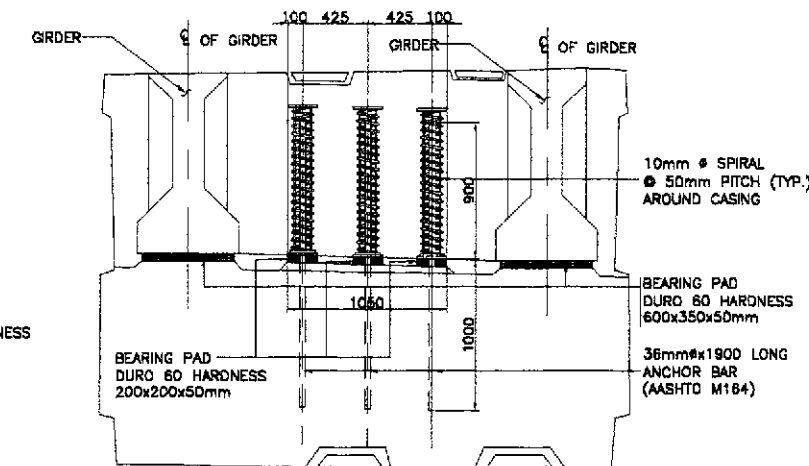
1B ELEVATION  
SCALE 1:10



1C ISOMETRIC VIEW  
SCALE 1:10

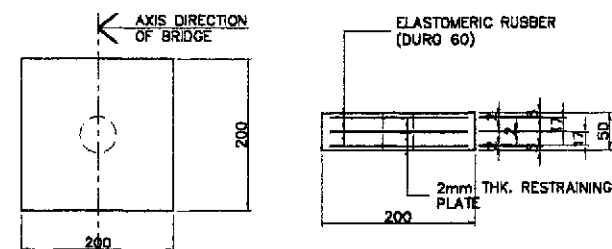


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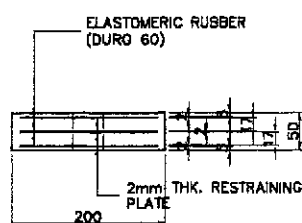


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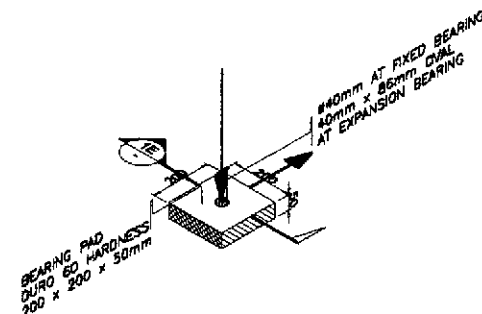
3A ANCHOR BAR  
SCALE 1:25



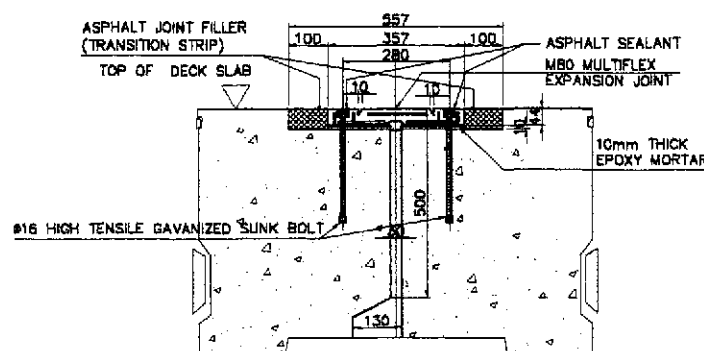
1D PLAN  
SCALE 1:5



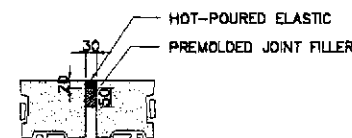
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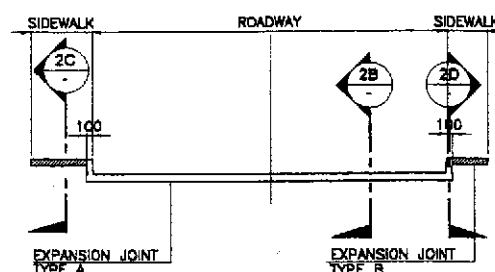
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SCALE 1:5



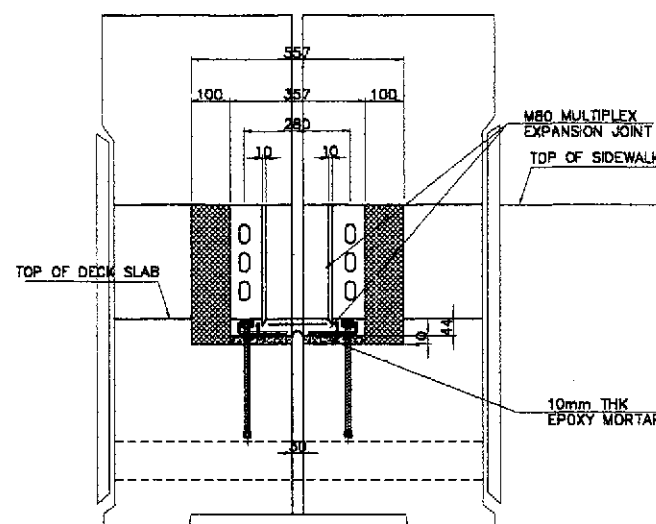
2B SECTION (TYPE A)  
SCALE 1:10



2C SECTION (TYPE B)  
SCALE 1:10

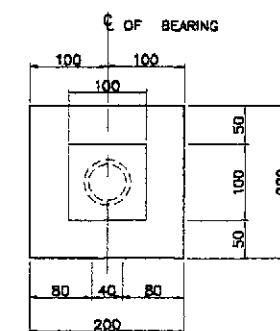


2A ELEVATION  
SCALE 1:10

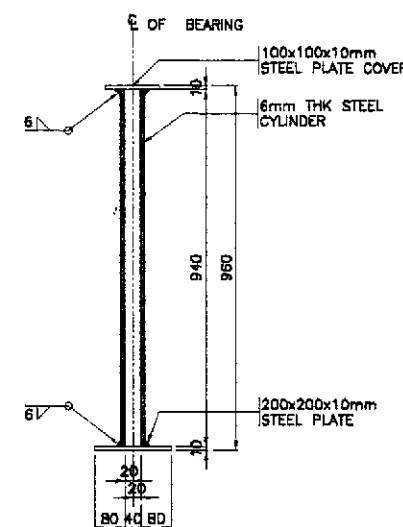


2D SECTION (TYPE A)  
SCALE 1:10

2 EXPANSION JOINT DETAIL  
SCALE AS SHOWN

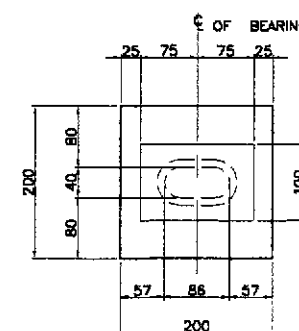


PLAN

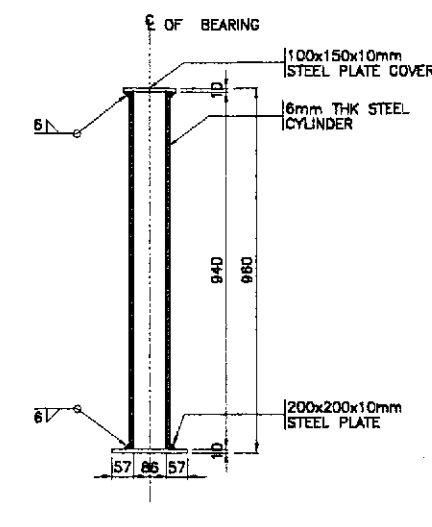


ELEVATION

3B FIXED BEARING  
SCALE 1:10



PLAN



ELEVATION

3C EXPANSION BEARING  
SCALE 1:10

3 BEARING SLEEVE AND ANCHOR BAR DETAIL  
SCALE AS SHOWN

#### 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

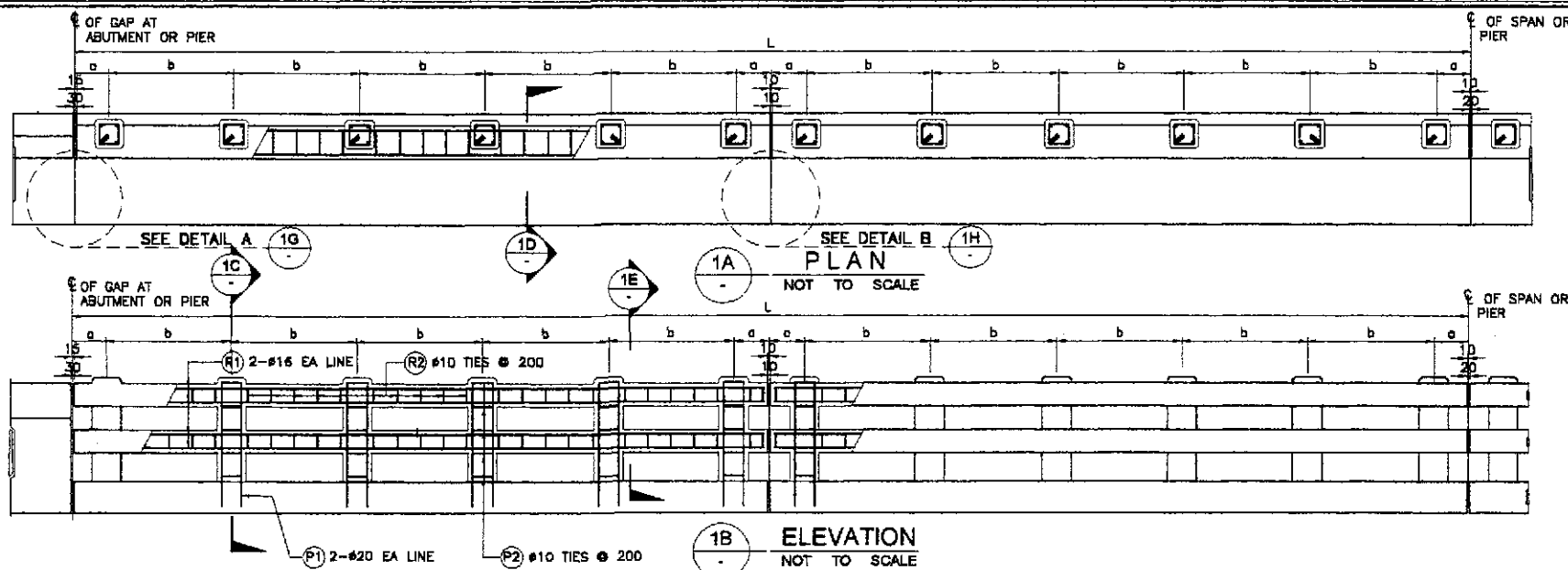
#### INSTALLATION MATERIALS

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

LOCATION	EXPANSION JOINT TYPE	MOVEMENT (mm)	LENGTH (m)
BRIDGE 1	MULTIFLEX 80	30	26
BRIDGE 2	MULTIFLEX 80	30	26

LOCATION	ELASTOMERIC BEARING PAD SIZE	QUANTITY
BRIDGE 1	600x350x50	20 PCS.
BRIDGE 1	200x200x50	28 PCS.
BRIDGE 2	600x350x50	30 PCS.
BRIDGE 2	200x200x50	40 PCS.

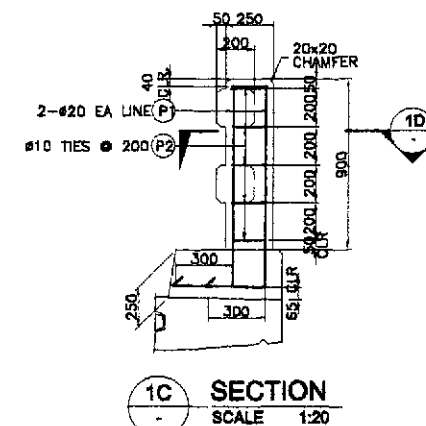
JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS YACHIYO ENGINEERING CO., LTD.		DATE: 10/15/02 DESIGNED: E. N. SALLAN CHECKED: 10/15/02 SUBMITTED: 10/16/02 TEAM LEADER:	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY Recommended By: MANUEL M. BORJAN Approved By: SIMEON A. DATUMANONG	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE I	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : BRIDGE NO. 1 & 2 TYP. BEARING PAD, EXPANSION JOINT, BEARING SLEEVE & ANCHOR BAR DET. (ULTIMATE STAGE)	SHEET NO. : BS-01
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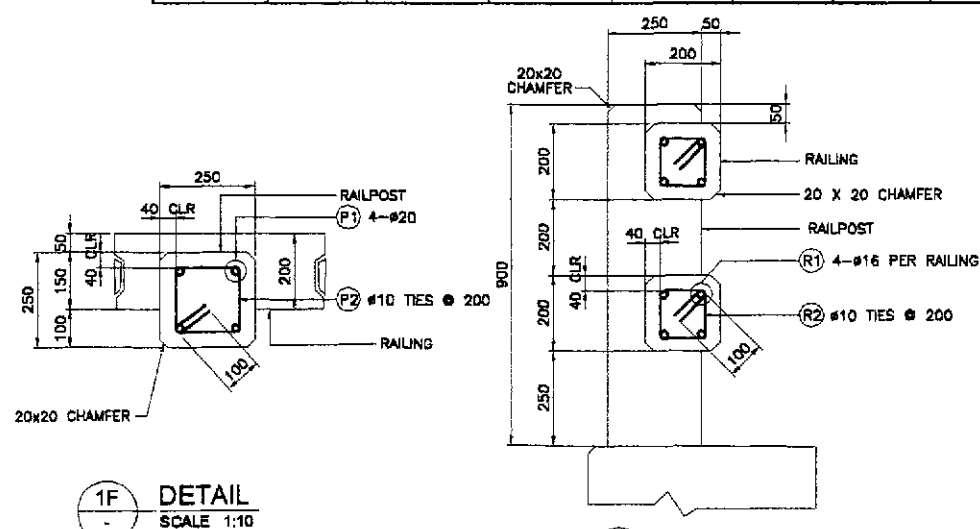
RAILING FOR BRIDGES

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)	b (mm)
BR. 1	25.00	2	5	30	25015	250	1960
BR. 2	20.00	2	5	30	20015	250	1543
	22.00	2	5	30	22000	250	1709

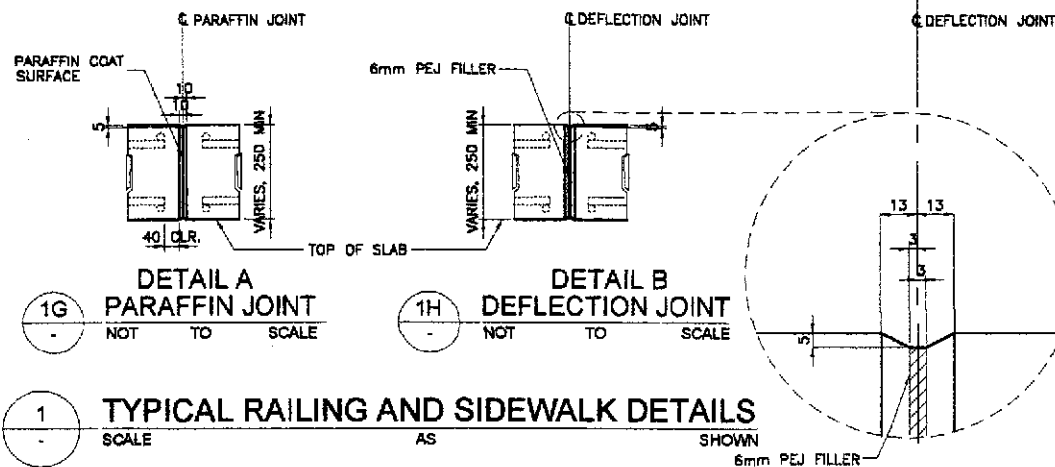
NOTE :  
SIDEWALK SHALL BE PLACED AFTER THE SHORING UNDER THE SUPERSTRUCTURE HAS BEEN RELEASED SUFFICIENTLY TO PERMIT THE SPANS TO ATTAIN FULL DEAD LOAD DEFLECTION.



1D SIDEWALK DETAIL  
SCALE 1:20



NOTE :  
FOR LOCATION OF JOINTS  
SEE GENERAL PLAN OF  
BRIDGE.



# BAR BENDING DIAGRAM

(A)

a

(B)

a  
b

(C)

a  
b  
c

(D)

a  
b  
c

(E)

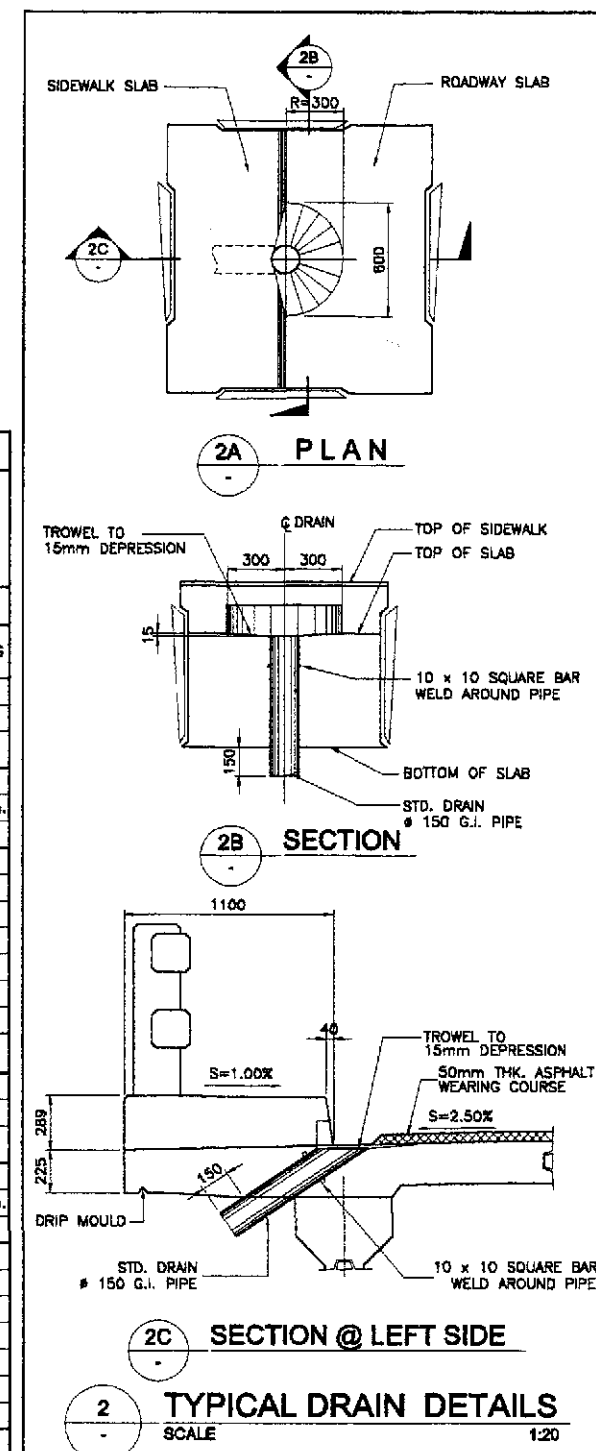
a  
b  
c

## SCHEDULE OF REINFORCEMENT (POST, RAILING AND SIDEWALK)

BRIDGE 1

BRIDGE 2

LOCATION	CONCRETE VOLUME (m <sup>3</sup> )	BAR MARK	BAR SIZE	QTY.	SPACING	BAR SHAPE	DIMENSIONS (mm) OUT TO OUT					LENGTH EA. BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	REBAR RATIO (kg/m <sup>3</sup> )	REMARKS	
							a	b	c	d	e							
POST	3.38	P1	20	240	AS SHOWN	(B)	1045	450	-	-	-	1495	358.80	2.466	885			
		P2	10	300	200	(C)	170	170	100	-	-	880	264.00	0.616	163			
GRADE 40 TOTAL = 163 kgs.																	310.52	
GRADE 60 TOTAL = 885 kgs.																		
RAILING	8.00	R1	16	16	AS SHOWN	(A)	50600	-	-	-	-	50600	809.60	1.579	1279			
		R2	10	840	200	(C)	120	120 (AVE.)	100	-	-	680	639.20	0.616	394		b is ave.	
GRADE 40 TOTAL = 1,673 kgs.																	209.13	
SIDEWALK	21.51	SW1	12	26	AS SHOWN	(A)	50600	-	-	-	-	50600	1315.80	0.888	1169			
		SW2	16	254	200	(D)	170	980	400	-	-	1550	393.70	1.579	622			
		SW2a	16	254	200	(D)	170	480	400	-	-	1050	266.70	1.579	422			
		SW3	12	507	300	(B)	400	250	-	-	-	650	329.55	0.888	293			
		SW4	12	169	300	(E)	170	1020	170	-	-	1360	229.34	0.888	205			
		SW4a	12	169	300	(E)	170	520	170	-	-	880	145.34	0.888	130			
		GRADE 40 TOTAL = 2,841 kgs.														132.11		
		GRADE 60 GRAND TOTAL = 4,677 kgs.																
GRADE 60 GRAND TOTAL = 885 kgs.																		
TOTAL	32.83																	
POST	5.06	P1	20	360	AS SHOWN	(B)	1045	450	-	-	-	1495	538.20	2.466	1328			
		P2	10	450	200	(C)	170	170	100	-	-	880	396.00	0.616	244			
GRADE 40 TOTAL = 244 kgs.																	310.52	
GRADE 60 TOTAL = 1328 kgs.																		
RAILING	9.92	R1	16	16	AS SHOWN	(A)	53200	-	-	-	-	53200	1011.20	1.579	1597			
		R2	10	1164	200	(C)	120	120 (AVE.)	100	-	-	680	862.24	0.616	488		b is ave.	
GRADE 40 TOTAL = 2,085 kgs.																	210.18	
SIDEWALK	26.86	SW1	12	26	AS SHOWN	(A)	53200	-	-	-	-	53200	1643.20	0.888	1460			
		SW2	16	317	200	(D)	170	980	400	-	-	1550	491.35	1.579	776			
		SW2a	16	317	200	(D)	170	480	400	-	-	1050	332.45	1.579	526			
		SW3	12	636	300	(B)	400	250	-	-	-	650	413.40	0.888	368			
		SW4	12	212	300	(E)	170	1020	170	-	-	1360	288.32	0.888	257			
		SW4a	12	212	300	(E)	170	520	170	-	-	880	182.22	0.888	162			
		GRADE 40 TOTAL = 3,548.00 kgs.														132.12		
		GRADE 60 GRAND TOTAL = 5,678 kgs.																
GRADE 60 GRAND TOTAL = 1,328 kgs.																		
TOTAL	41.33																	



# NOTES

- CONCRETE :  
CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF CLASS AA CONCRETE WITH 28 MPa CYLINDER STRENGTH AND 19.0mm MAXIMUM AGGREGATE SIZE.
- REINFORCEMENT :  
A. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASSHTO M31 (ASTM A615) GRADE 40 AND 60.  
B. SPLICES OF ADJACENT LONGITUDINAL STEEL SHALL BE STAGGERED 100 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.
- 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.
- 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.
- 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.  
B. PILE SPLICE SHALL DEVELOP 100% AXIAL AND 50% BENDING OF THE CAPACITY OF THE PILE SECTION WHERE THE SPLICE IS LOCATED.
- ALLOWABLE PILE BEARING CAPACITY : (SEE PILE SCHEDULE)
- MINIMUM HAMMER ENERGY RATING = 55 kN-m
- BASIS FOR COMPUTING ALLOWABLE PILE BEARING CAPACITY:

$$P_{all} = \left( \frac{187 \text{ eh Eh}}{S + 2.54} \right) \left( \frac{W_r + 0.18 W_p}{W_r + W_p} \right)$$

WHERE:

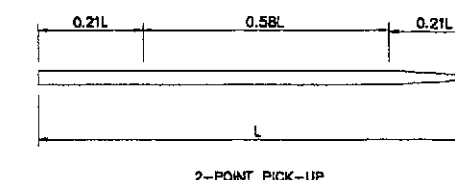
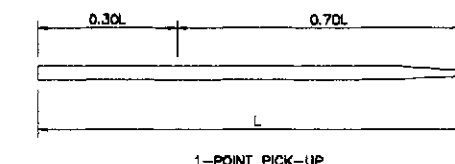
$P_{all}$  = ALLOWABLE PILE BEARING CAPACITY (kN)  
 $eh$  = HAMMER EFFICIENCY  
 $Eh$  = HAMMER ENERGY RATING (kN-m)  
 $W_r$  = WEIGHT OF RAM (kN)  
 $W_p$  = WEIGHT OF PILE AND OTHER DRIVEN WEIGHTS (kN)  
 $S$  = AVERAGE PENETRATION PER BLOW FOR THE LAST 150mm OF DRIVING (mm)

## 9. TEST PILES

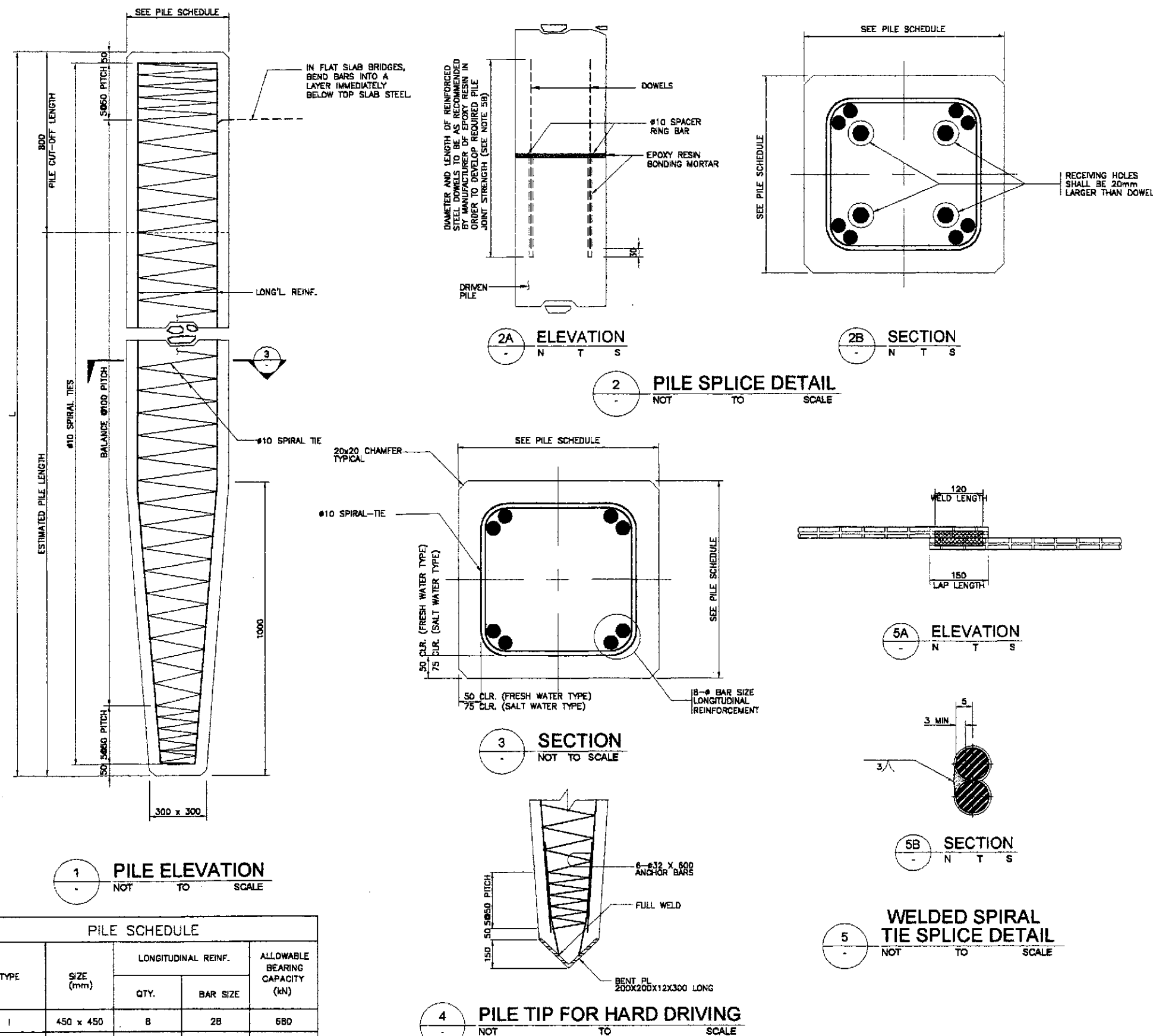
TEST PILES SHALL BE DRIVEN WITH THE SAME HAMMER USED FOR DRIVING REGULAR PILES AND MAY BE PART OF FOUNDATION IF APPROVED BY THE ENGINEER/CONSULTANT.

## 10. PICK-UP POINTS :

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



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



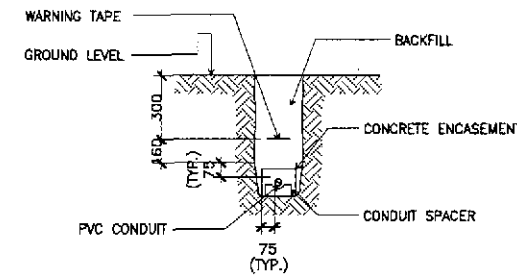
**ELECTRICAL**

## 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 LINES TYPE III MEDIUM SEMI CUT-OFF, SIMILAR TO GE M250A2
	-DITTO- EXCEPT DOUBLE ARM LIGHT POLE WITH 2 x 250 WATTS HPS LAMP
	SERVICE ENTRANCE AND METERING PEDESTAL WITH LIGHTING CONTACTOR PANEL AS SHOWN IN THE DRAWINGS.
	UNDERGROUND CONDUIT WITH CONCRETE ENVELOPE
	UNDERGROUND CONDUIT WITH REINFORCED CONCRETE ENVELOPE
	KILOWATT HOUR METER, PHASE, VOLTAGE AND RATING AS SHOWN.
	CIRCUIT HOMERUN
	UNDERGROUND CONDUIT TO BE ABANDONED

## NOTES:

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



1  
ES-01 TYPICAL DUCT SECTION  
NOT TO SCALE

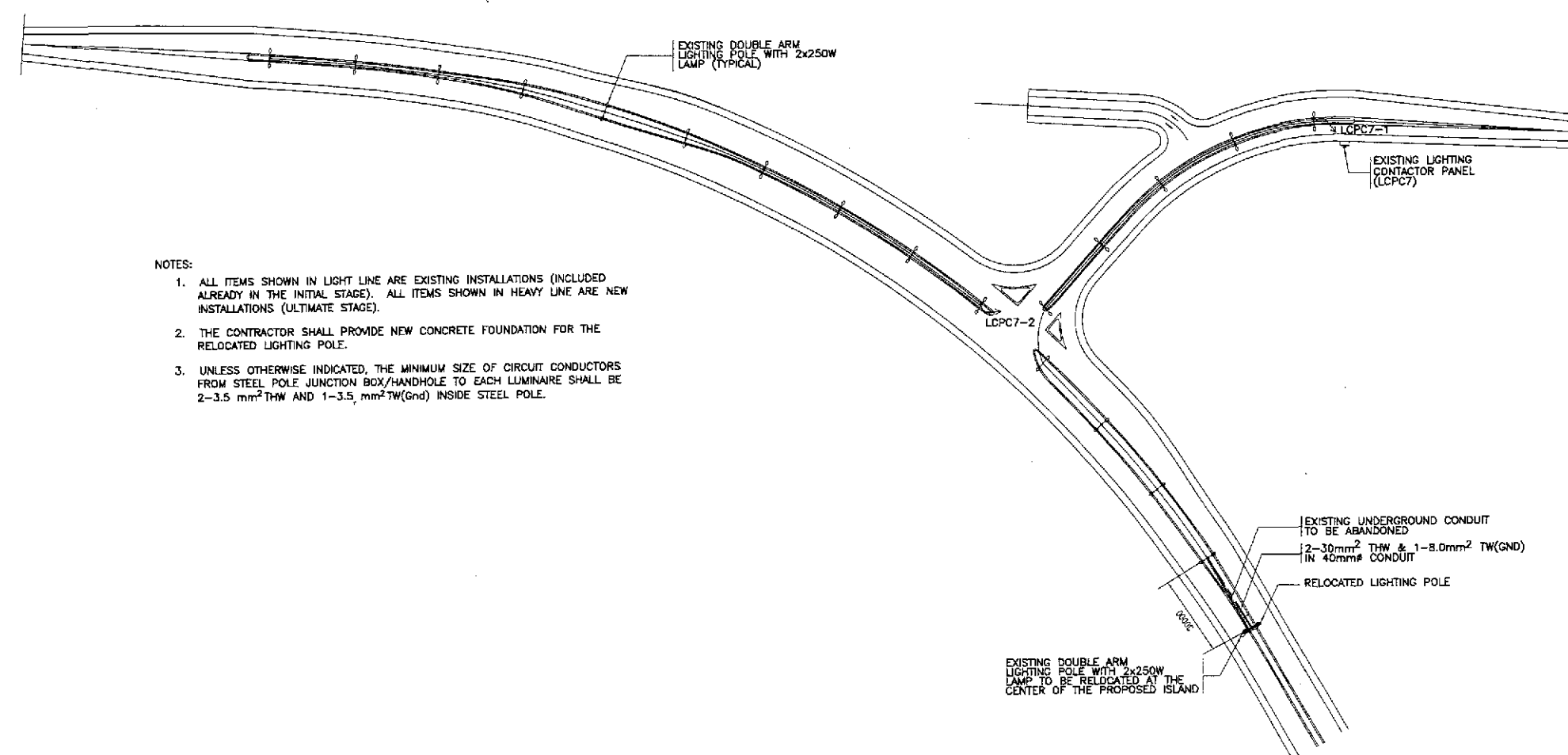
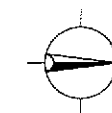
## GENERAL NOTES:

1. 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.
2. THE CONTRACTOR SHALL SECURE ALL PERMITS AND PAY ALL FEES REQUIRED FOR THE WORK AND FURNISH THE OWNER, THROUGH THE ENGINEER'S FINAL CERTIFICATES OF ELECTRICAL INSPECTION AND APPROVAL FROM PROPER GOVERNMENT AUTHORITIES FOR COMPLETED WORK.
3. THE POWER SERVICE VOLTAGE SHALL BE 240V, 1Ø, 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.
4. ALL WIRES SHALL BE COPPER, THERMOPLASTIC INSULATED TYPE THW, 600V, UNLESS OTHERWISE INDICATED. BRAND SHALL BE PHELPS DODGE, DURAFLEX OR APPROVED EQUAL.
5. 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.
6. RIGID STEEL CONDUIT SHALL BE USED FOR ALL EXPOSED AND CONCEALED CONDUIT RUN AND UNPLASTICIZED POLYVINYL CHLORIDE CONDUIT, SCHEDULE 40 FOR UNDERGROUND CONDUIT. THE CONDUIT SIZE INDICATED IS THE INSIDE DIAMETER OF CONDUIT.
7. ALL NON-CURRENT CARRYING PARTS OF EVERY ELECTRICAL EQUIPMENT/FIXTURE SHALL BE GROUNDED EFFECTIVELY.
8. 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.
9. 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.
10. ALL STREET LUMINAIRE ASSEMBLY INCLUDING POLE AND FOUNDATION SHALL WITHSTAND WINDS UP TO 250 KPH PER HOUR GUSTING WITHOUT PERMANENT DEFORMATION.
11. DO NOT INSTALL POLE WITHOUT COMPLETE INSTALLATION/CONNECTION OF THE LUMINAIRE ASSEMBLY.
12. CONCRETE HANDHOLES OR OUTDOOR TYPE PULLBOXES OF CODE 1.81mm (GAGE 18) MINIMUM SHALL BE PROVIDED BY THE CONTRACTOR, WHENEVER NECESSARY, TO FACILITATE WIRE PULLING EVEN IF THESE ITEMS ARE NOT SHOWN IN THE PLANS.

ERNESTO M. ANTIOQUIA  
ENGINEER  
P.E. NO. 740864 P.E.E. NO. 2913  
ISSUED ON 01/07/2002 ISSUED AT CAGAYAN, CAGAYAN  
TIN. 100-382-379

	DESIGNED	10/3/02		 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :				SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/10/02			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)				AS SHOWN	NOTES & LEGENDS AND DUCT SECTION ALL INTERSECTIONS (ULTIMATE STAGE)	ES-01
	SUBMITTED	10/16/02			CABANATUAN BYPASS - CONTRACT PACKAGE I				FULL SIZE A1		
Submitted By:		Reviewed By:		Recommended By:		Approved By:					
DANILO C. TRAJANO Project Director		FE M. BARRIENTOS Chief, Mech/Elect Division		GILBERTO S. REYES OIC, Director IV		MANUEL M. BONDAN Undersecretary		SIMEON A. DATUMANONG Secretary			



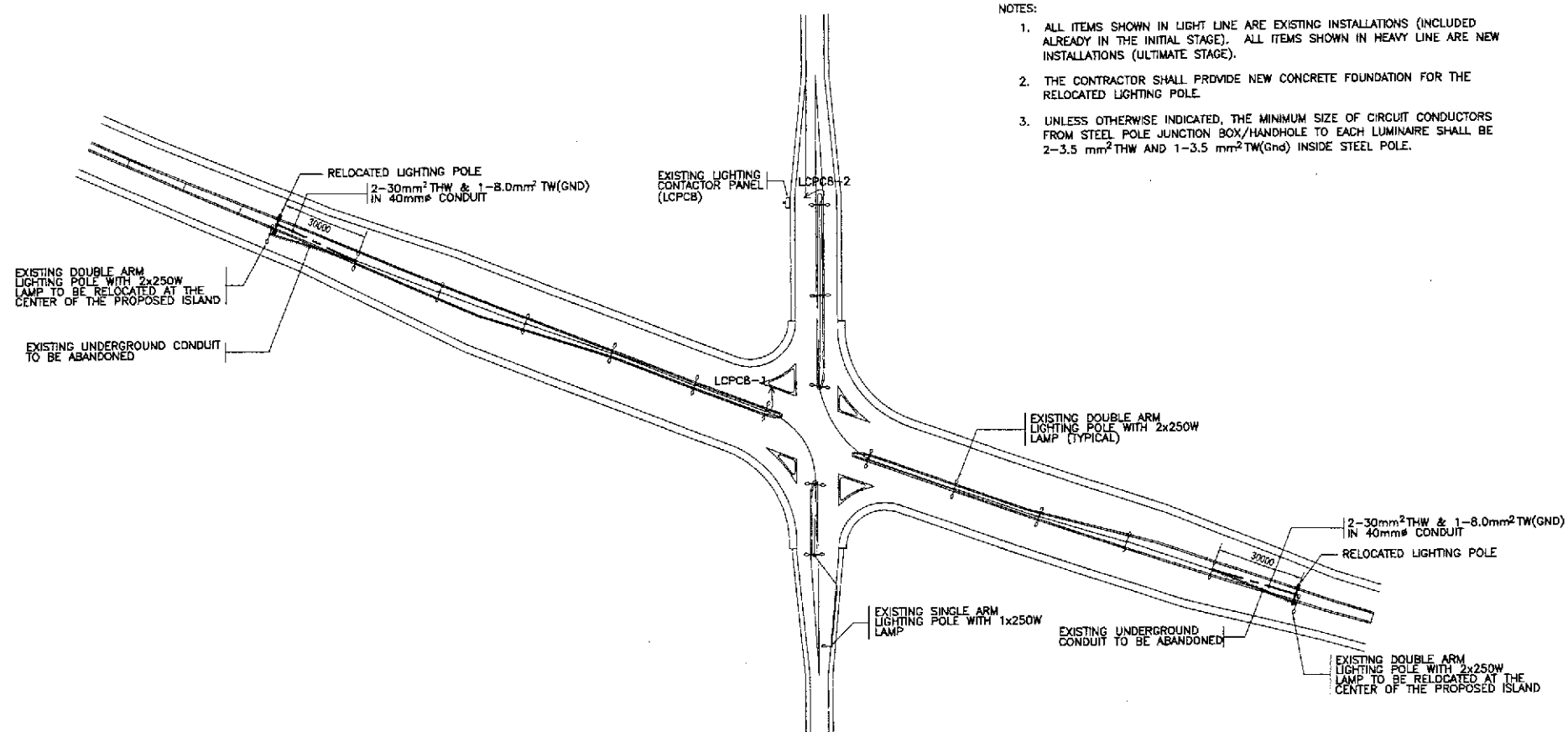
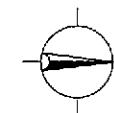


- NOTES:
1. ALL ITEMS SHOWN IN LIGHT LINE ARE EXISTING INSTALLATIONS (INCLUDED ALREADY IN THE INITIAL STAGE). ALL ITEMS SHOWN IN HEAVY LINE ARE NEW INSTALLATIONS (ULTIMATE STAGE).
  2. THE CONTRACTOR SHALL PROVIDE NEW CONCRETE FOUNDATION FOR THE RELOCATED LIGHTING POLE.
  3. UNLESS OTHERWISE INDICATED, THE MINIMUM SIZE OF CIRCUIT CONDUCTORS FROM STEEL POLE JUNCTION BOX/HANDHOLE TO EACH LUMINAIRE SHALL BE 2-3.5 mm² THW AND 1-3.5 mm² TW(Gnd) INSIDE STEEL POLE.

1 ROADWAY LIGHTING PLAN  
EI-01 SCALE 1:1000

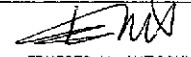
ERNESTO M. ANTIOQUIA  
ENGINEER  
PTR. NO. 740384 P.E.E. NO. 2813  
ISSUED ON 01/02/2002 ISSUED AT CAGAYAN, LAGUNA  
T.L.N. 109-362-378






 JAPAN INTERNATIONAL COOPERATION AGENCY  KATAHIRA & ENGINEERS  YACHIYO ENGINEERING CO., LTD.	DESIGNED	10/5/02		 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS Submitted By: PJHL - PMO Reviewed By: FE M. BARRIENTOS Recommended By: GILBERTO S. REYES Manuel M. BONDAN SIMEON A. DATUMANONG	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/10/02			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:1000	ROADWAY LIGHTING PLAN	EI-01
	SUBMITTED	10/16/02			CABANATUAN BYPASS - CONTRACT PACKAGE I	FULL SIZE A1	INTERSECTION A-1 (ULTIMATE STAGE)	



- NOTES:
1. 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.
  3. UNLESS OTHERWISE INDICATED, THE MINIMUM SIZE OF CIRCUIT CONDUCTORS FROM STEEL POLE JUNCTION BOX/HANDHOLE TO EACH LUMINAIRE SHALL BE 2-3.5 mm² THW AND 1-3.5 mm² TW(GND) INSIDE STEEL POLE.

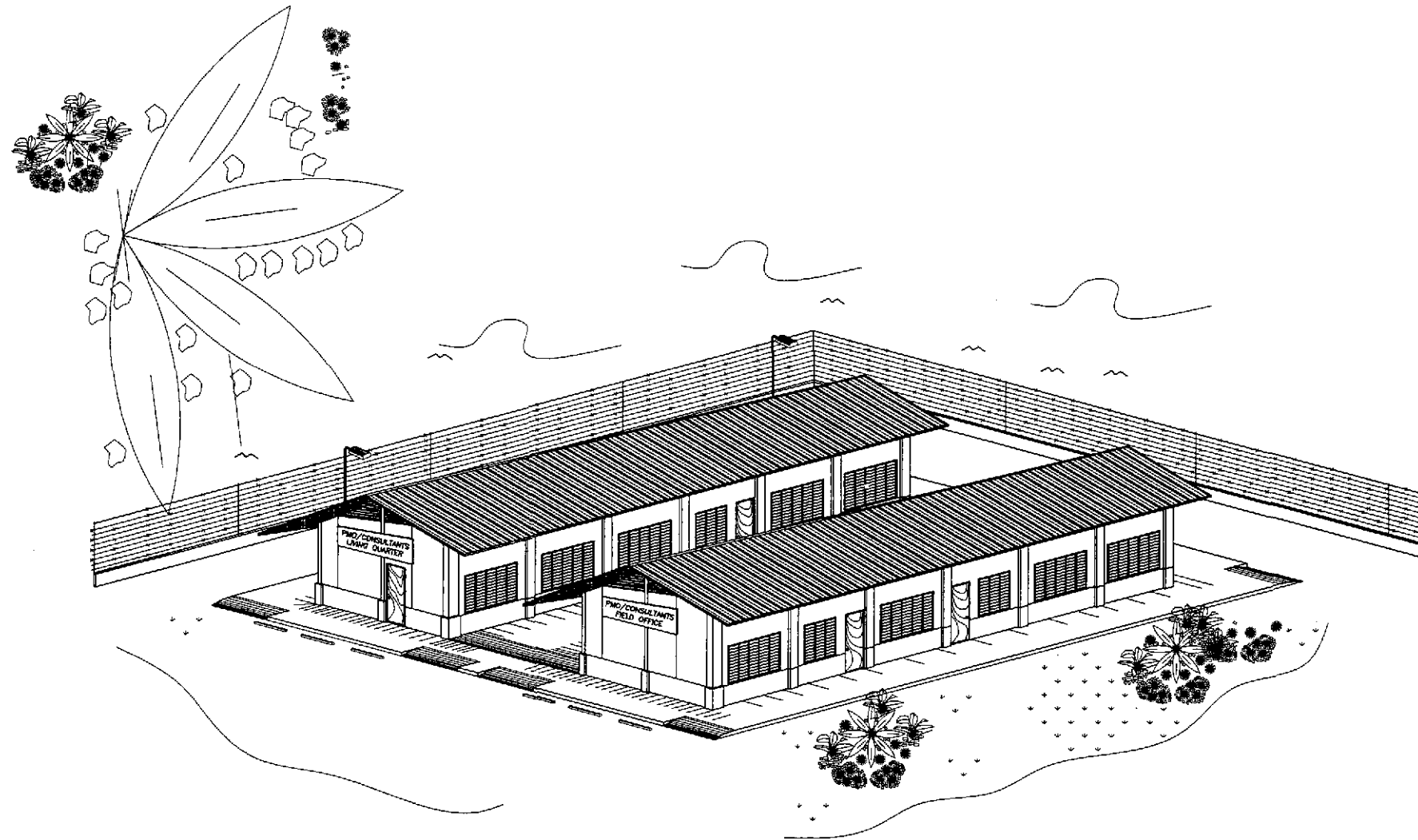
1 ROADWAY LIGHTING PLAN  
EI-02 SCALE 1:1000

  
ERNESTO M. ANTIOQUIA  
ENGINEER  
P.R. NO. 7403884 P.E.E. NO. 2913  
ISSUED ON 05/02/2002 ISSUED AT CAGAYAN, LAZARUS  
T.L.N. 102-383-372

 JAPAN INTERNATIONAL COOPERATION AGENCY			 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS						PROJECT AND LOCATION :		SCALE :	SHEET CONTENTS :	SHEET NO.
DESIGNED	10/5/02		BUREAU OF DESIGN		OFFICE OF THE SECRETARY				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:1000	ROADWAY LIGHTING PLAN	EI-02	
CHECKED	10/15/02		Submitted By: PWO		Reviewed By:								
			DANILO C. TRAJANO Project Director		FE M. BARRIENTOS Chief, Mech-Elect Division								
SUBMITTED	10/16/02		GILBERTO S. REYES OIC, Director IV		MANUEL M. BONDAN Undersecretary								
			TEAM LEADER		SIMEON A. DATUMANONG Secretary				CABANATUAN BYPASS - CONTRACT PACKAGE I	FULL SIZE A1	INTERSECTION A-10 (ULTIMATE STAGE)		



# **ENGR'S FIELD OFFICE & LIVING QUARTERS**



P E R S P E C T I V E

GENERAL NOTES :

IT IS THE INTENTION OF THE DPWH THAT AFTER COMPLETION OF THE PROJECTS ALL PRE-FABRICATED METAL FIELD OFFICES WITH LABORATORY AND ENGINEER'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 SITE. 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.

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ENGINEER / BUILDING OFFICIAL

CITY / DISTRICT / MUNICIPALITY

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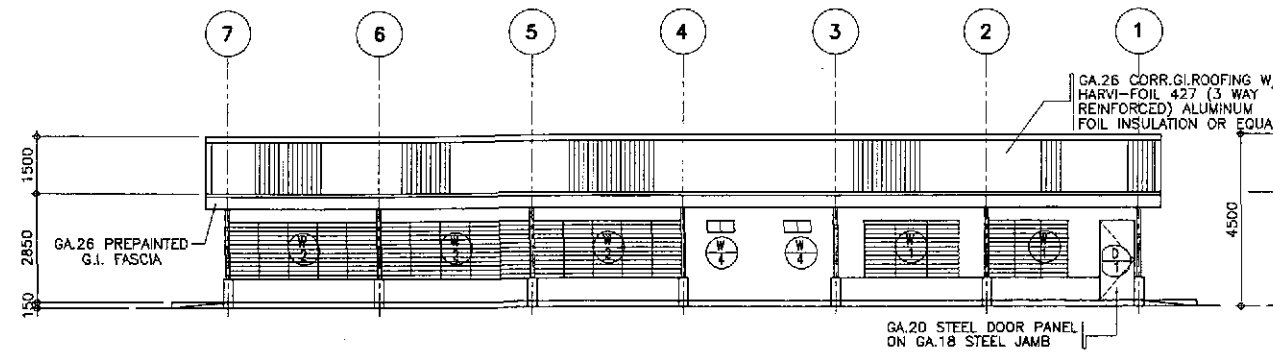
EXTERNAL :

- FX-01 PLOT PLAN  
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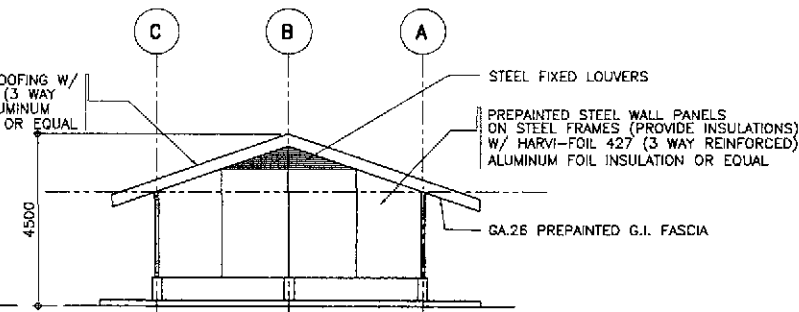
ARUEL P. GONZALES  
ENGINEER

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

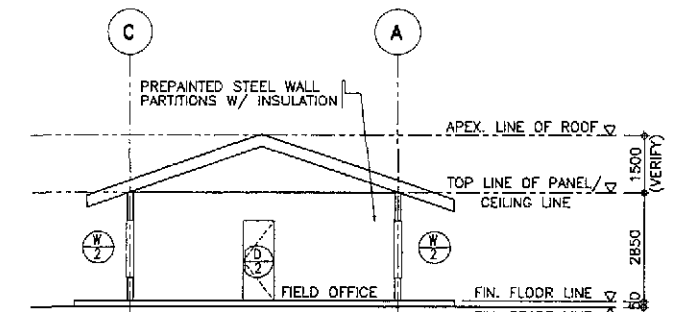
 JAPAN INTERNATIONAL COOPERATION AGENCY  KATAHIRA & ENGINEERS INTERNATIONAL  YACHIO ENGINEERING CO., LTD.	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
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	CHECKED	10/15/02	A. P. GONZALES	Submitted By:	Reviewed By:	Recommended By:	Office of the Secretary				
	SUBMITTED	10/16/02	A. P. GONZALES	DANILO C. TRAJANO Project Director	EMMANUEL P. CUNTAPAY Chief, Architectural Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONGAN Undersecretary				



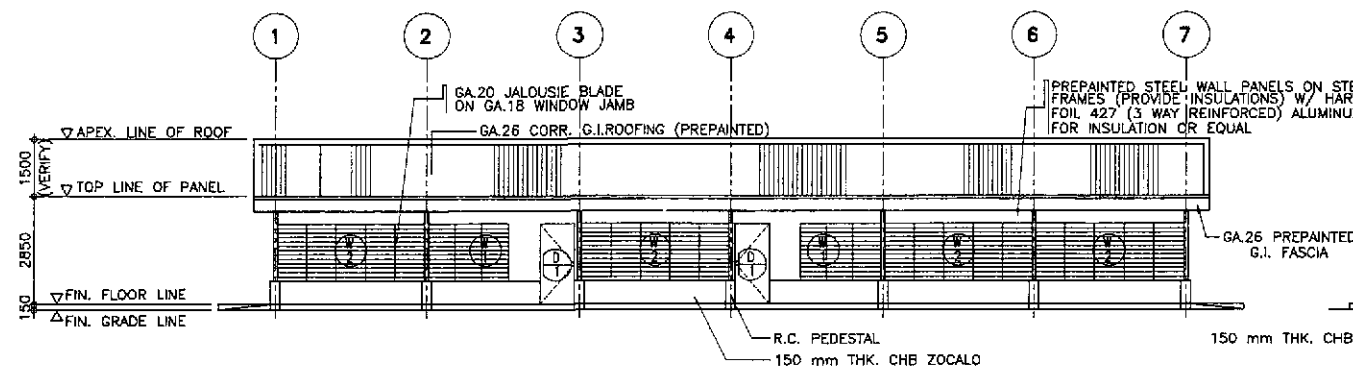
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FA-02 SCALE 1:100



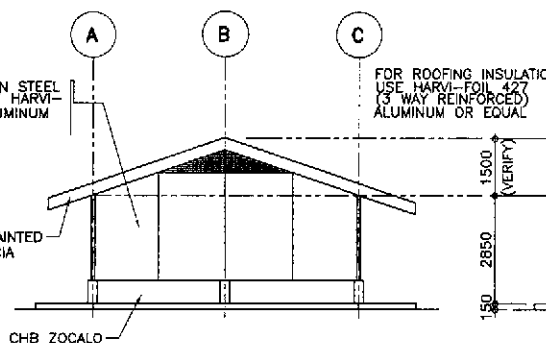
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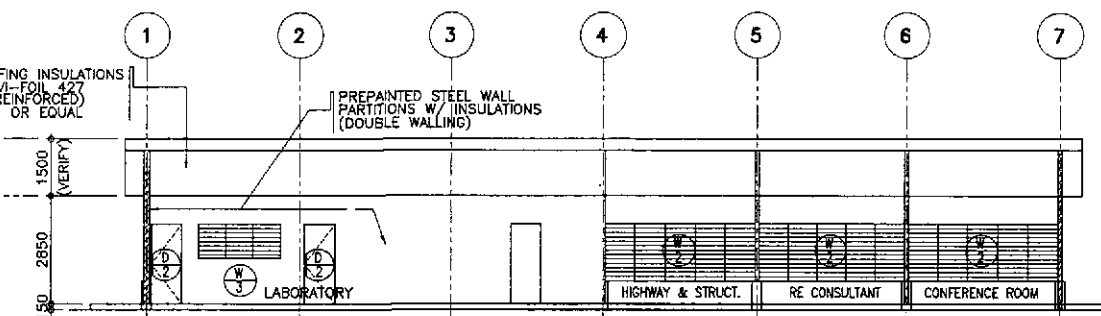
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FA-02 SCALE 1:100



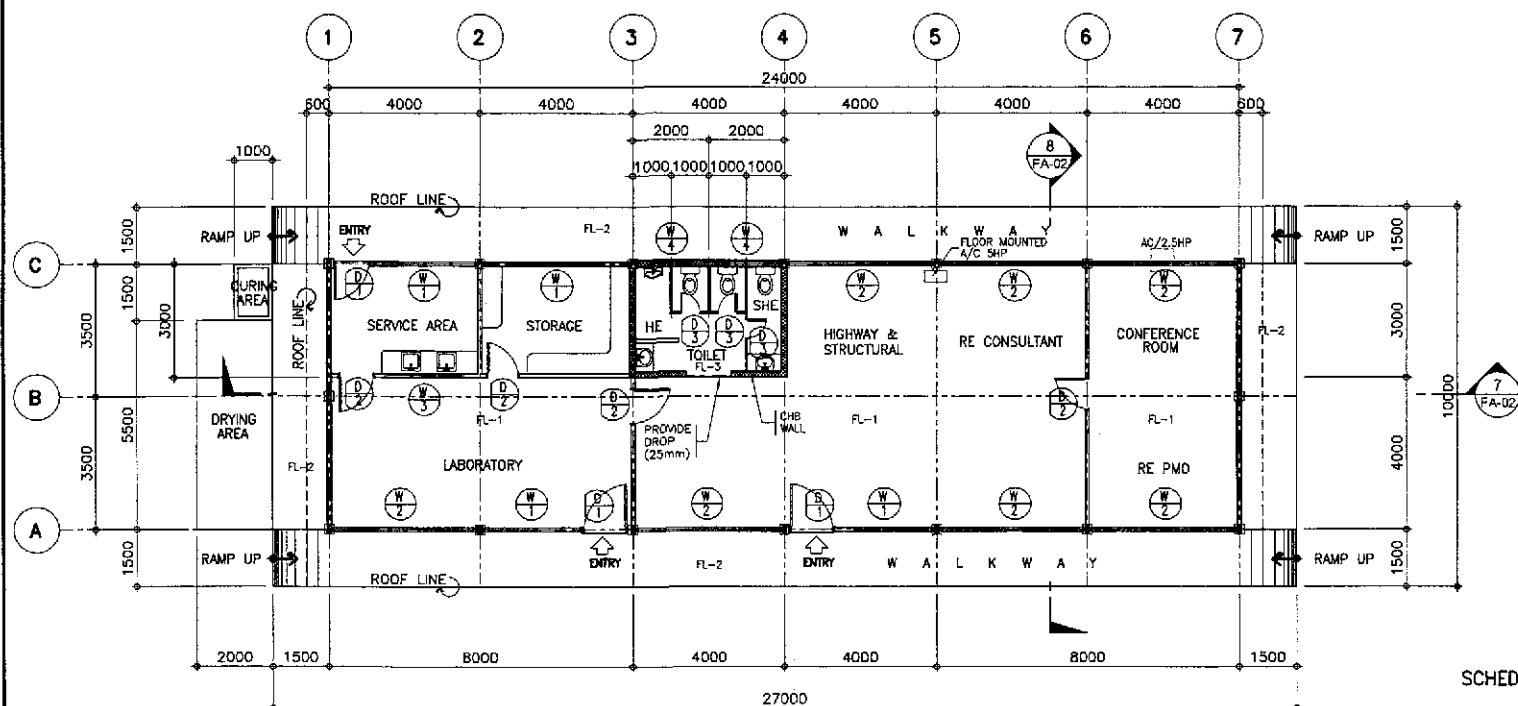
2 FRONT ELEVATION  
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4 RIGHT SIDE ELEVATION  
FA-02 SCALE 1:100



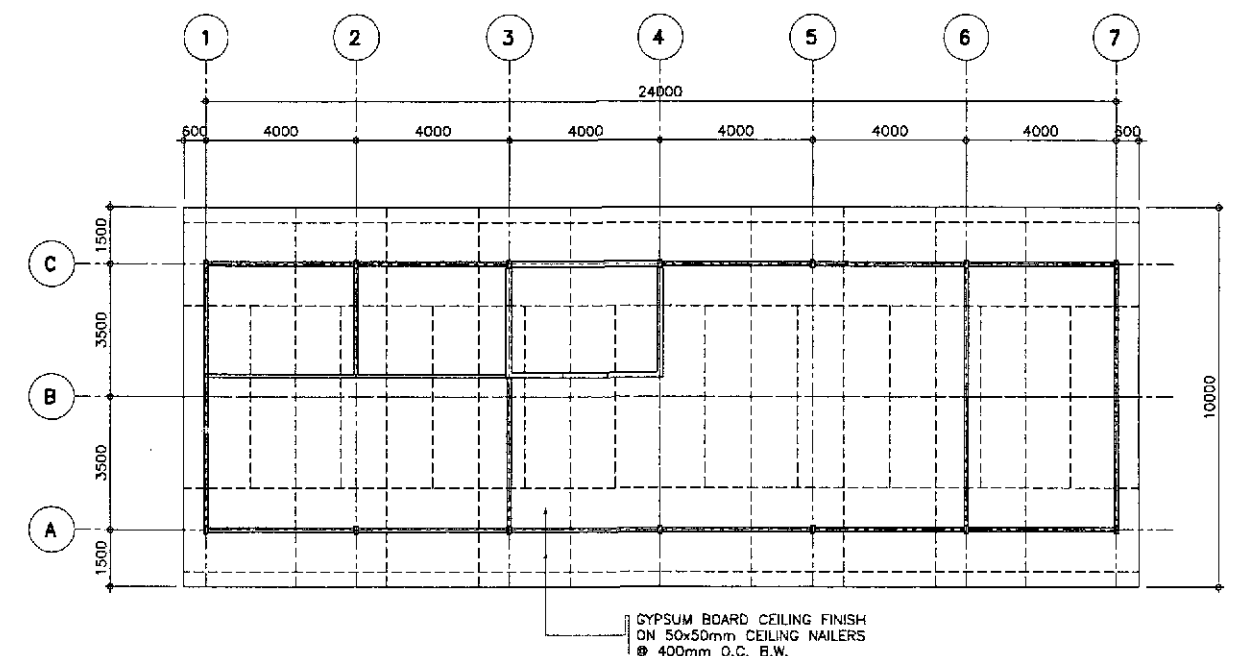
7 LONGITUDINAL SECTION  
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1 FLOOR PLAN FOR ENGINEER'S FIELD OFFICE/LABORATORY  
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#### SCHEDULE OF FLOOR FINISHES





- FL-1 = PLAIN CEMENT FLOOR FINISH
- FL-2 = PLAIN CEMENT FLOOR FINISH WITH NON SKID CEMENT WITH GROOVE LINES
- FL-3 = UNGLAZED TILE FINISH, 200x200mm

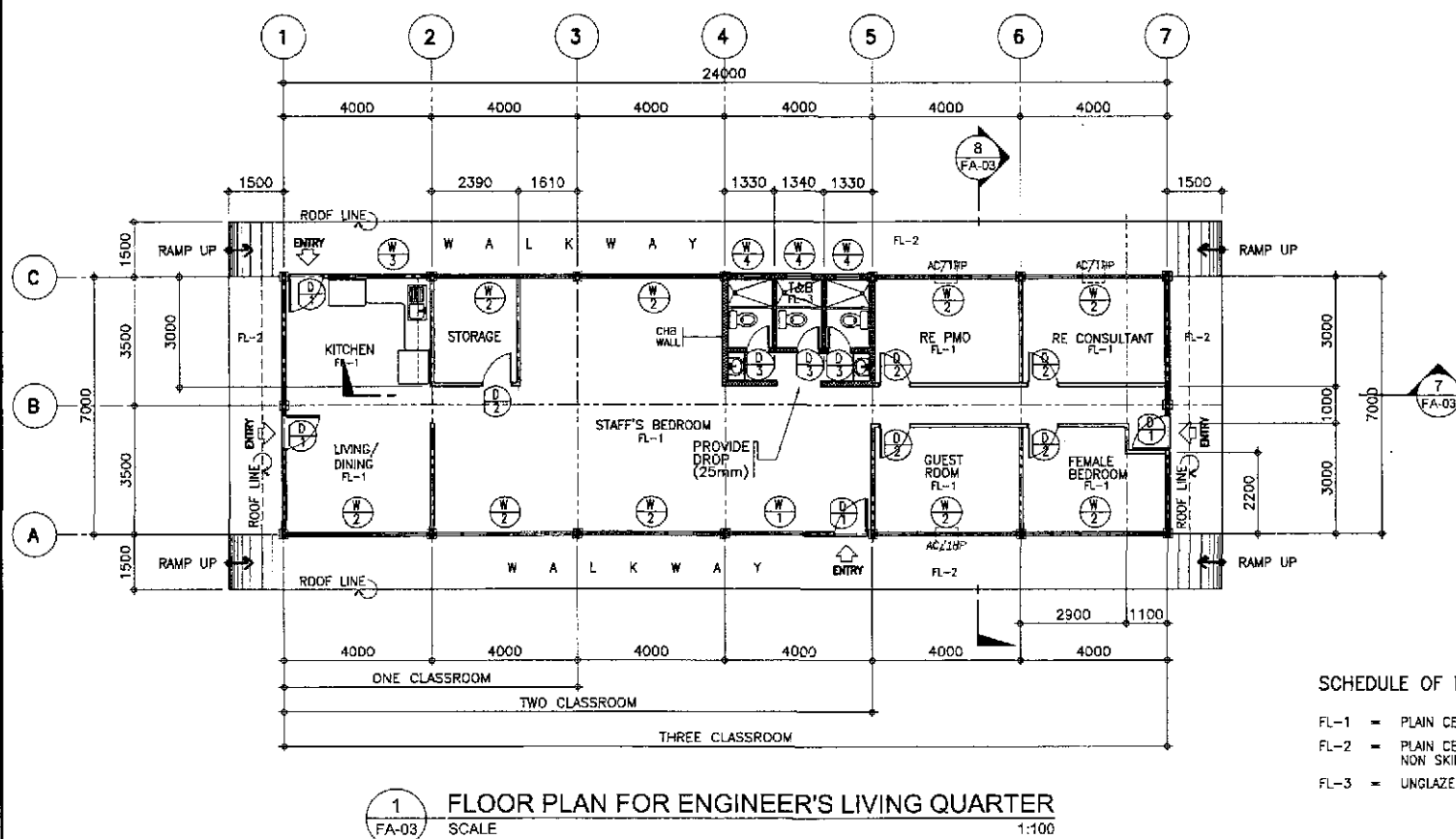
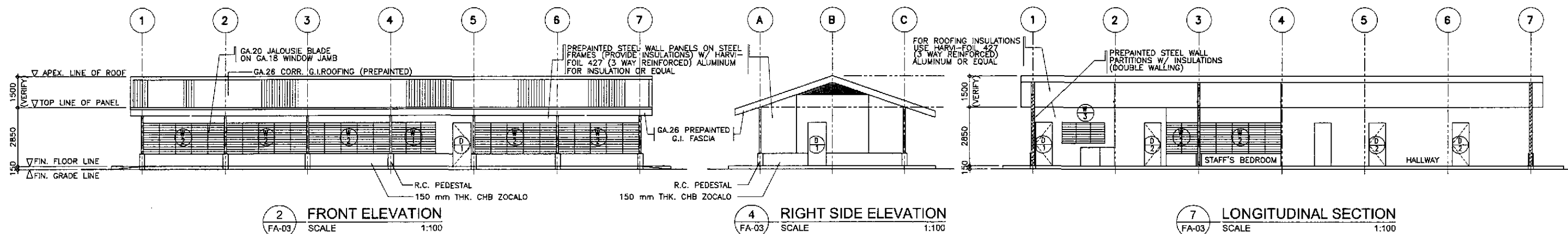
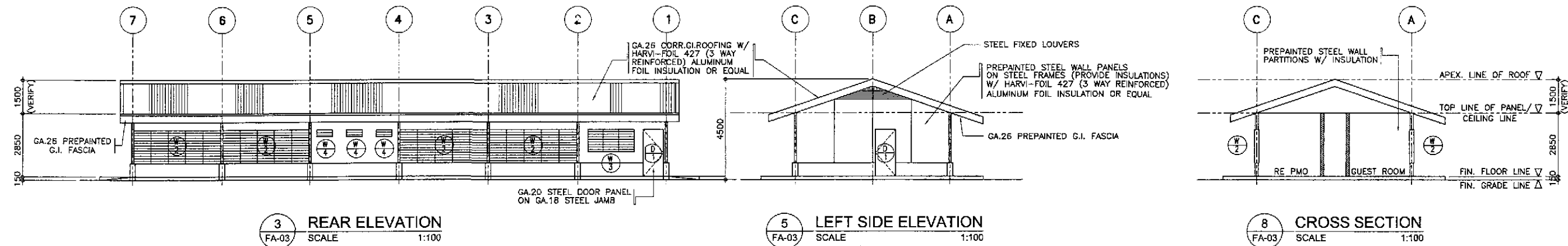


6 REFLECTED CEILING PLAN  
FA-02 SCALE 1:100

ARNEL P. GONZALES  
ENGINEER

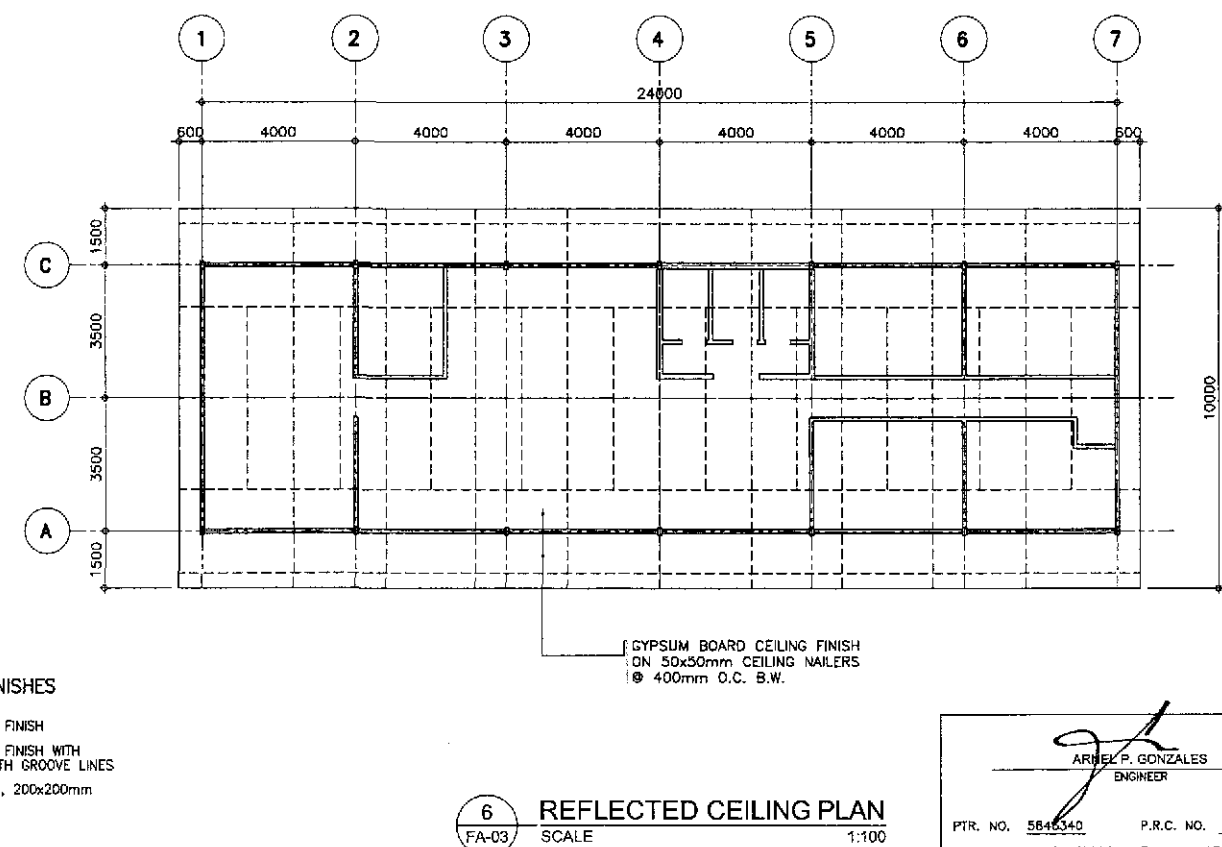
PTR. NO. 5846340 P.R.C. NO. 53457  
ISSUED ON 04/26/2002 T.J.N. 138-062-682  
ISSUED AT SAN JUAN, M.M.

<div> JAPAN INTERNATIONAL COOPERATION AGENCY</div> <div> YACHIYO ENGINEERING CO., LTD.</div>			<table><tr><th>DATE</th><th>SIGNATURE</th></tr><tr><td>10/5/02</td><td>A.P. GONZALES</td></tr><tr><td>10/18/02</td><td>A.P. GONZALES</td></tr><tr><td>10/18/02</td><td>TEAM LEADER</td></tr></table>		DATE	SIGNATURE	10/5/02	A.P. GONZALES	10/18/02	A.P. GONZALES	10/18/02	TEAM LEADER	<div> REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</div> <table><tr><th colspan="2">BUREAU OF DESIGN</th><th colspan="2">OFFICE OF THE SECRETARY</th></tr><tr><td>Submitted By:</td><td>Reviewed By:</td><td>Recommended By:</td><td>Approved By:</td></tr><tr><td>DANILO C. TRAJANO Project Director</td><td>EMMANUEL P. CUNTAPEY Chief, Architectural Division</td><td>GILBERTO S. REYES OIC, Director IV</td><td>MANUEL M. BONDAN Undersecretary</td></tr><tr><td></td><td></td><td></td><td>SIMEDON A. DATUMANONG Secretary</td></tr></table>				BUREAU OF DESIGN		OFFICE OF THE SECRETARY		Submitted By:	Reviewed By:	Recommended By:	Approved By:	DANILO C. TRAJANO Project Director	EMMANUEL P. CUNTAPEY Chief, Architectural Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDAN Undersecretary				SIMEDON A. DATUMANONG Secretary	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses)  CABANATUAN BYPASS - CONTRACT PACKAGE I		SCALE :  AS SHOWN  FULL SIZE A1	SHEET CONTENTS : ENGR'S FIELD OFFICE / LABORATORY FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN	SHEET NO. :  FA-02
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			SIMEDON A. DATUMANONG Secretary																																		



#### SCHEDULE OF FLOOR FINISHES

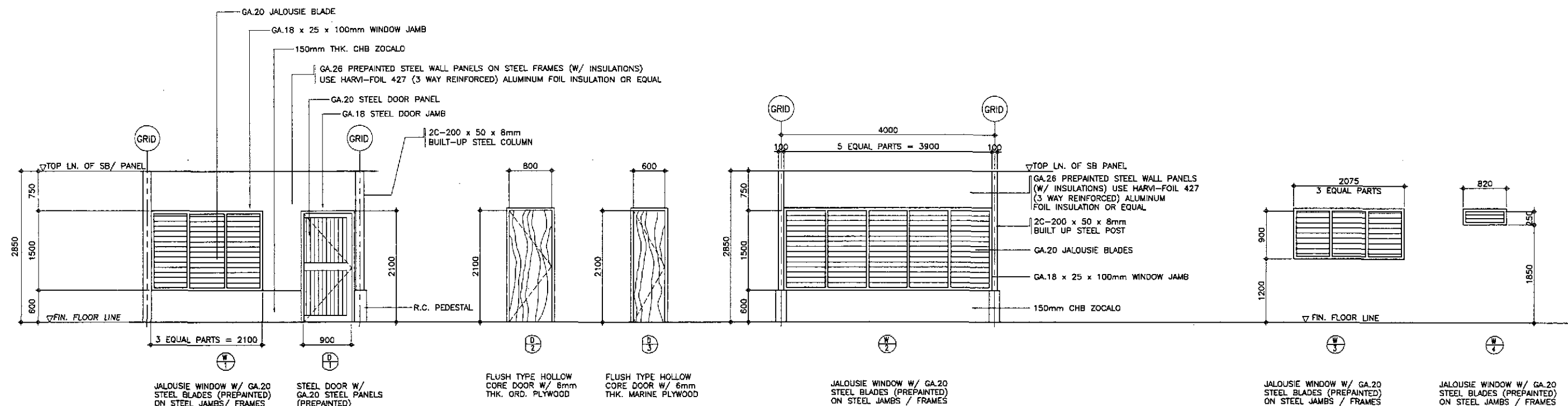
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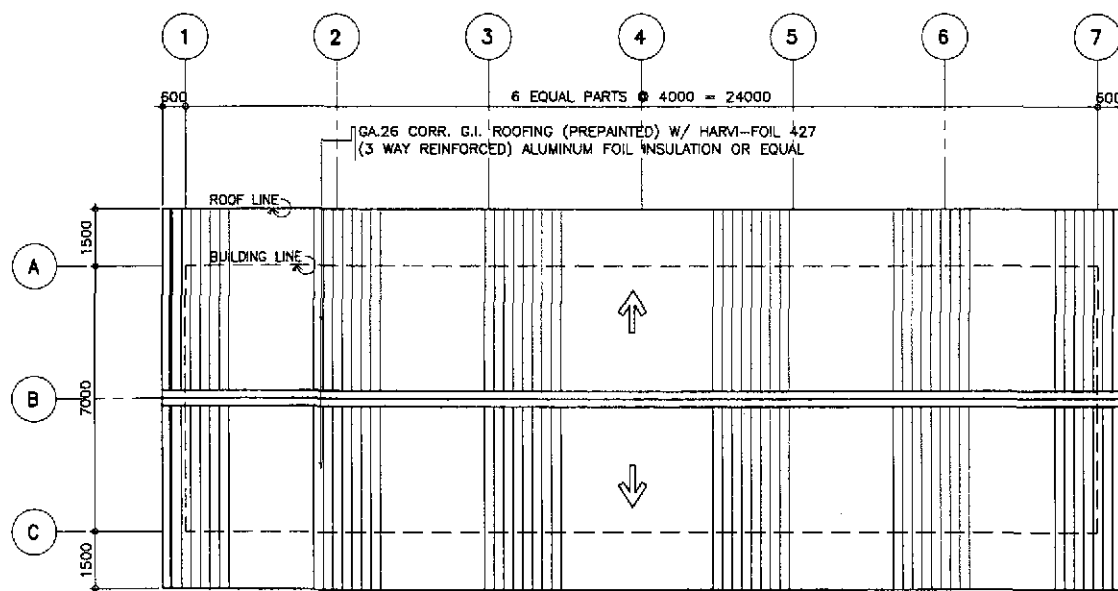
ARIEL P. GONZALES  
ENGINEER

PTR. NO. 5845340 P.R.C. NO. 53457  
ISSUED ON 04/26/2002 T.I.N. 138-062-682  
ISSUED AT SAN JUAN, M.M.

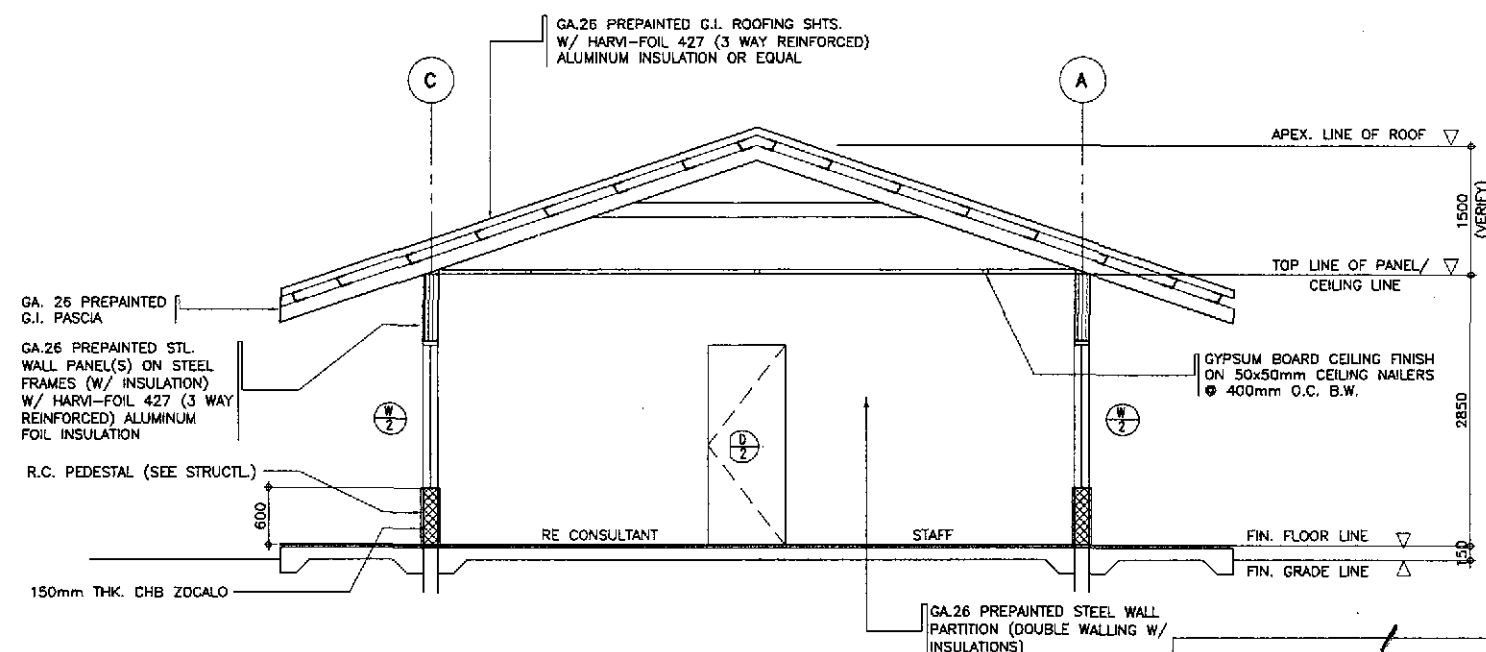
<b>JICA</b> JAPAN INTERNATIONAL COOPERATION AGENCY <b>KAI</b> KATAHIRA & ENGINEERS INTERNATIONAL <b>yec</b> YACHIYO ENGINEERING CO., LTD.		DATE: 10/10/02 SIGNATURE: [Signature] DESIGNED: 10/10/02 CHECKED: 10/10/02 SUBMITTED: 10/10/02	PUBL. - PMO Submitted By: DANIL C. TRAJANO Project Director	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN Reviewed By: EMMANUEL P. CUNTAPEY Chief, Architectural Division	OFFICE OF THE SECRETARY Recommended By: GILBERTO S. REYES O.C., Director IV MANUEL M. BONDAN Undersecretary 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) CABANATUAN BYPASS - CONTRACT PACKAGE I	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : ENGINEER'S LIVING QUARTERS FLOOR PLAN, ELEVATIONS, CROSS-SECTION AND REFLECTED CEILING PLAN	SHEET NO. : FA-03
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3 FOR ENGINEER'S FIELD OFFICE  
FA-04 SCHEDULE OF DOORS & WINDOWS  
SCALE 1:40



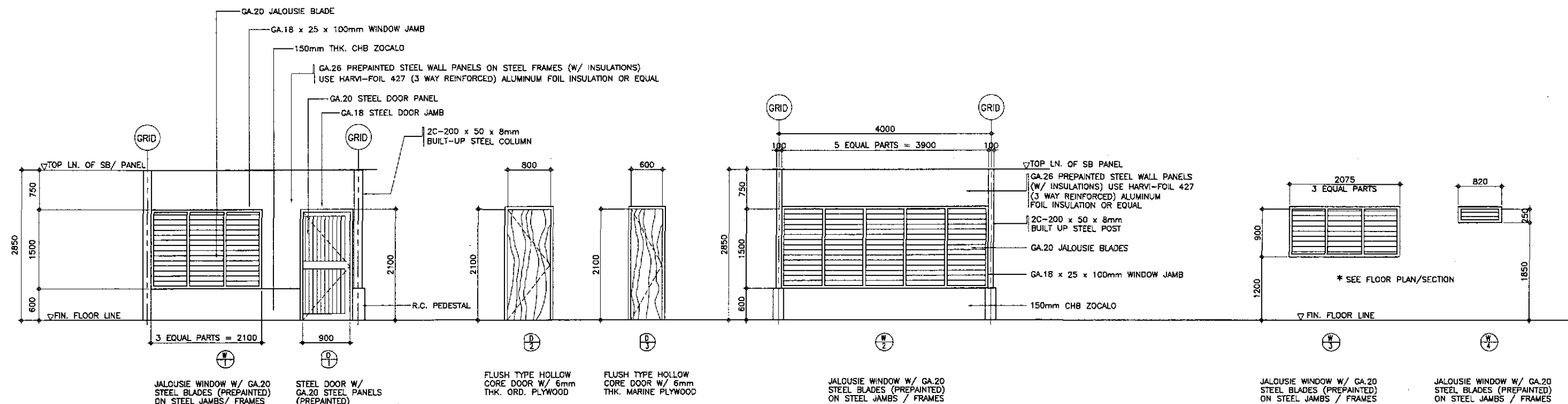
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FA-04 SCALE 1:100



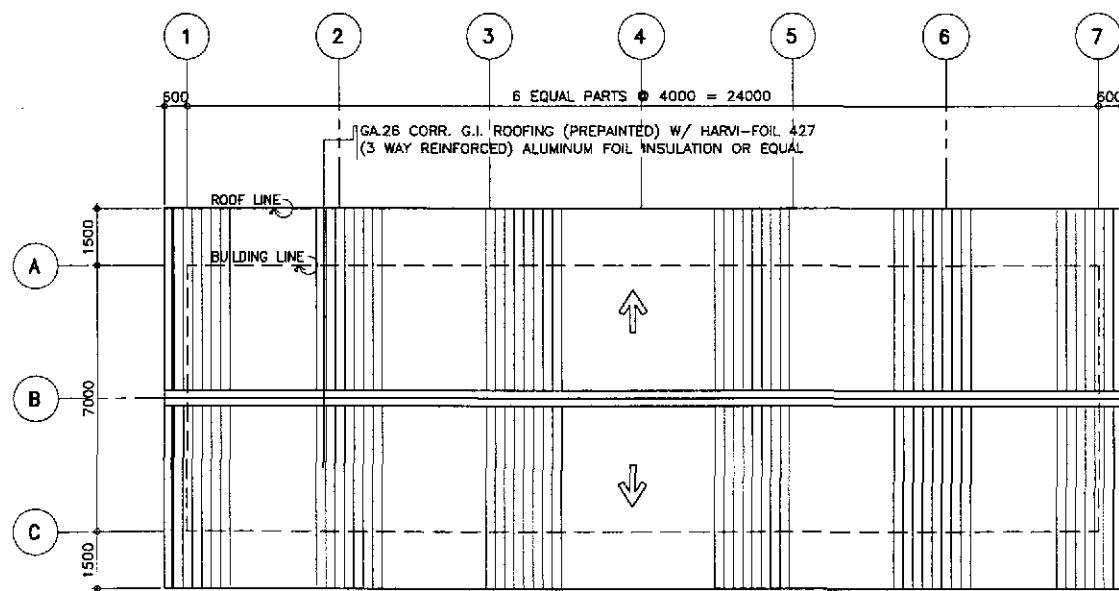
2 DETAIL CROSS SECTION  
FA-04 SCALE 1:40

ARNE P. GONZALES  
ENGINEER  
PTR. NO. 584634 P.R.C. NO. 53457  
ISSUED ON 04/28/2002 T.J.N. 138-062-682  
ISSUED AT SAN JUAN, M.M.

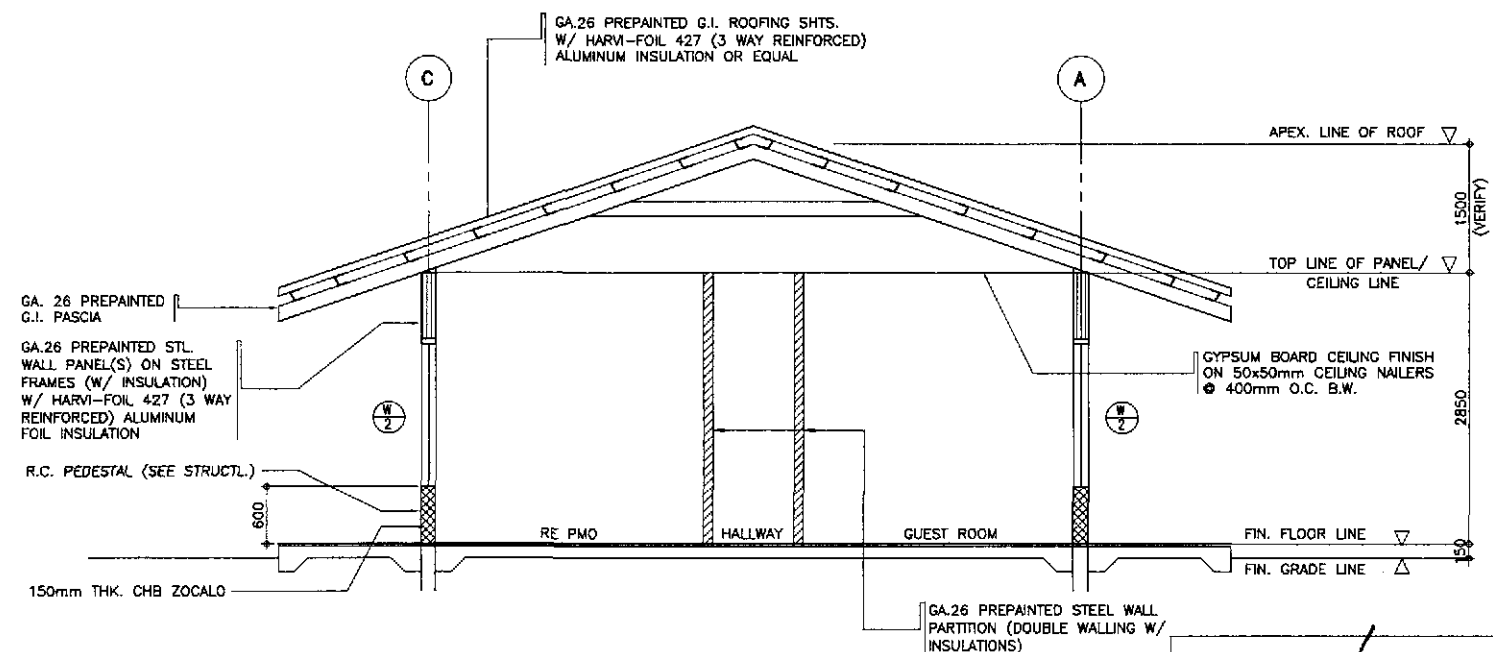
JICA JAPAN INTERNATIONAL COOPERATION AGENCY				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE I		SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : ENGR'S FIELD OFFICE / LABORATORY ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS	SHEET NO. : FA-04
DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN		OFFICE OF THE SECRETARY			
CHECKED	10/5/02	A. P. GONZALES	Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:	
SUBMITTED	10/16/02	A. P. GONZALES	DANILO C. TRAJANO Project Director	EMMANUEL P. CUNTAPAY Chief, Architectural Division	GILBERTO S. REYES O.C. Director IV	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary	



3 FOR ENGINEER'S LIVING QUARTERS  
FA-05 SCHEDULE OF DOORS & WINDOWS  
SCALE 1:40



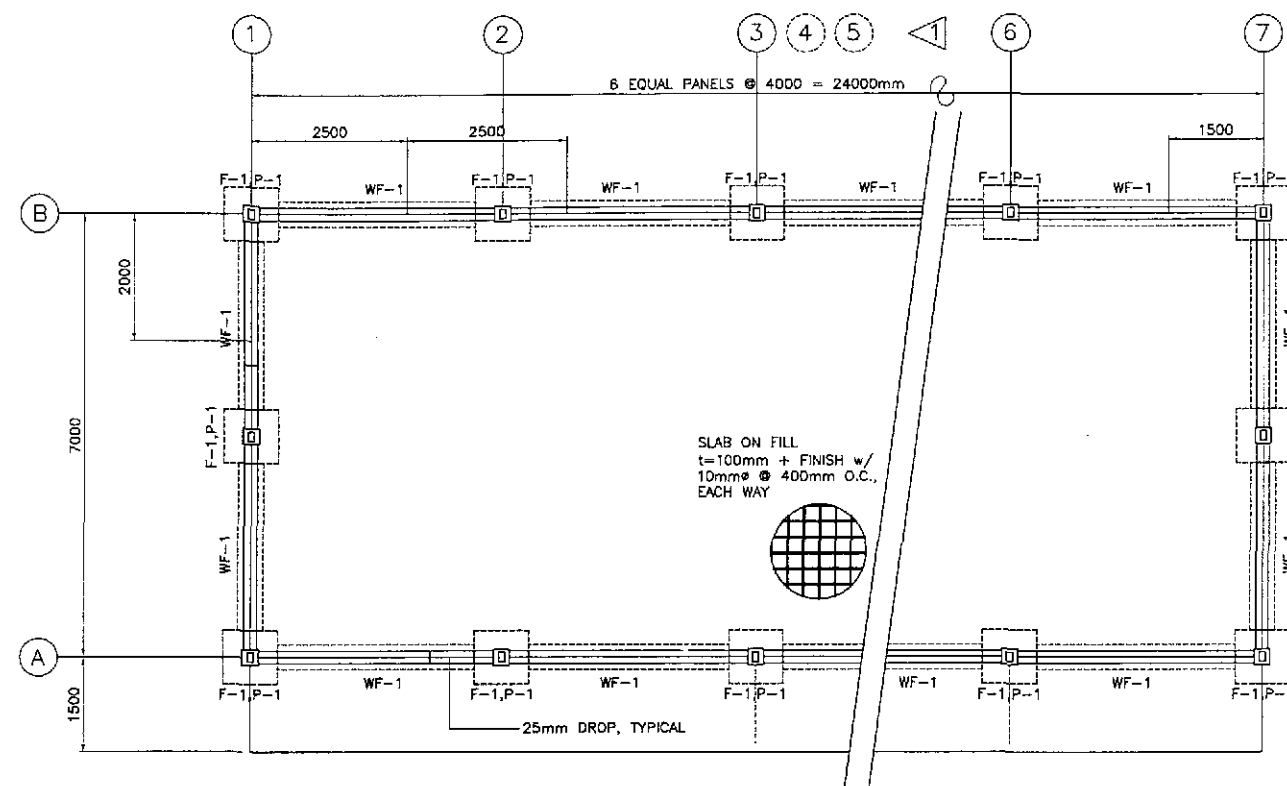
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FA-05 SCALE 1:100



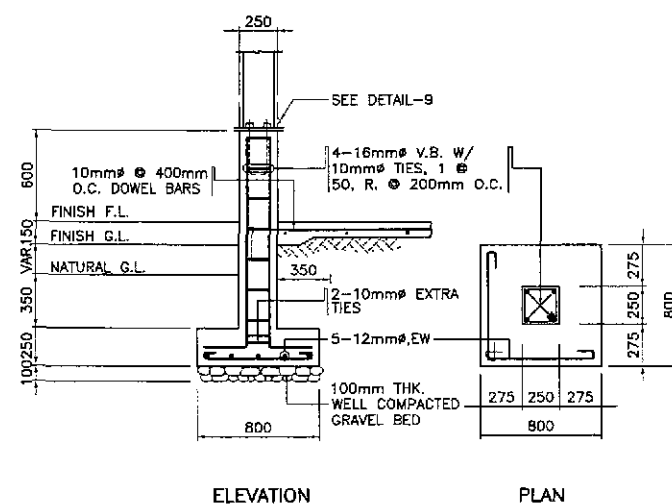
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ARNEL P. GONZALES  
ENGINEER  
PTR. NO. 5845440 P.R.C. NO. 53457  
ISSUED ON 04/26/2002 T.I.N. 138-062-682  
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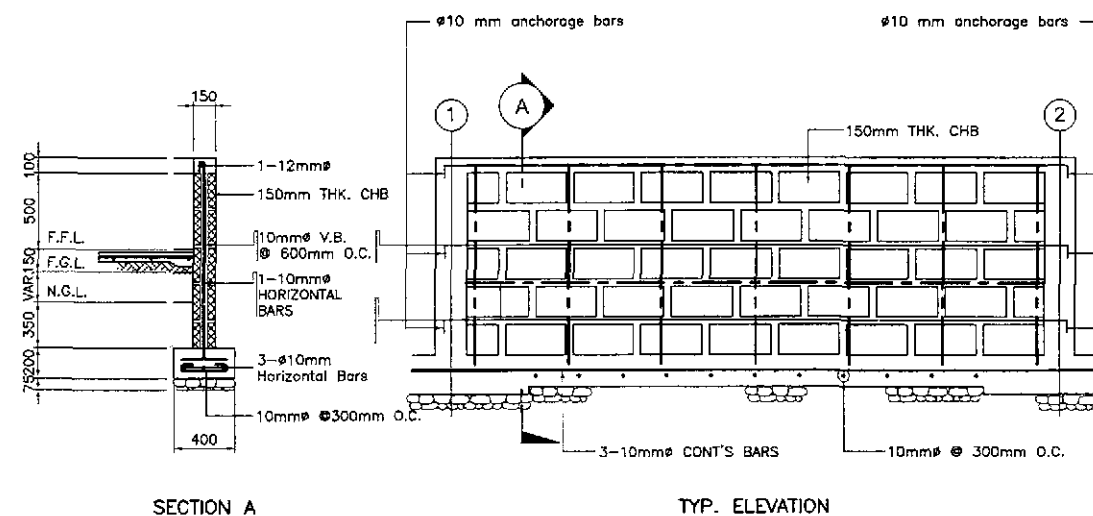
<b>JICA</b> JAPAN INTERNATIONAL COOPERATION AGENCY <b>KATAHIRA &amp; ENGINEERS</b> INTERNATIONAL <b>yeo</b> YACHIYO ENGINEERING CO., LTD.		DATE: 10/5/02 SIGNATURE: [Signature] DESIGNED: [Signature] CHECKED: [Signature] SUBMITTED: [Signature]	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY Submitted By: DANILLO C. TRAJANO, Project Director Reviewed By: EMMANUEL P. CUNTAPAY, Chief, Architectural Division Recommended By: GILBERTO S. REYES, OIC, Director IV Recommended By: MANUEL M. BONGAN, 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) CABANATUAN BYPASS - CONTRACT PACKAGE I	SCALE: AS SHOWN FULL SIZE A1	SHEET CONTENTS: ENGINEER'S LIVING QUARTERS ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS	SHEET NO.: FA-05
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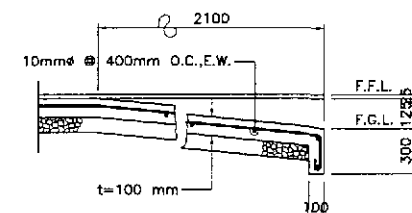
1 FOUNDATION PLAN  
FA-06 SCALE 1:25



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



3 WF-1  
FA-06 SCALE 1:25



4 R.C. RAMP DETAIL  
FA-06 SCALE 1:25

## DESIGN CRITERIA :

### I. LIVE LOAD

ROOF	0.58 KPa
OFFICE/LABORATORY	2.40 KPa

### II. DEAD LOAD

CONCRETE	24 KN/m <sup>3</sup>
STEEL	78.10 KN/m <sup>3</sup>
CHB	2.73 KPa

### III. WIND LOAD

$$p = C_e C_q Q_s I$$

WHERE :

p = ACTUAL WIND PRESSURE  
C<sub>e</sub> = GUST FACTOR COEFFICIENT ( EXPOSURE B=0.63 )  
C<sub>q</sub> = PRESSURE COEFFICIENT  
Q<sub>s</sub> = 1.50 KPa FOR ZONE 2&3, Q<sub>s</sub>=1.92 FOR ZONE 1  
I = OCCUPANCY IMPORTANCE = 1.00

### IV. ALLOWABLE STRESSES

- CONCRETE (ALLOWABLE COMPRESSIBLE STRENGTH @ 28 DAYS)
  - FOR FOOTINGS AND PEDESTAL COLUMN  
f<sub>c</sub>' = 20.70 mpa f<sub>c</sub> = 9.31 mpa
  - FOR SLAB ON FILL  
f<sub>c</sub>' = 17.26 mpa f<sub>c</sub> = 7.76 mpa
- REINFORCING STEEL BARS (STRUCTURAL GRADE 33 DEFORMED BARS)  
f<sub>y</sub> = 227.0 mpa f<sub>st</sub> = 124.02 mpa
- STRUCTURAL LIGHT GAGE COLD FORMED STEEL  
STIFFENED LIGHT GAGE CHANNEL FOR RAFTERS, STUD & WALLS  
f<sub>s</sub> = 124.0 mpa (18,000 psi)
- STRUCTURAL BUILT-UP STEEL PLATES (ASTM A-36)  
FOR STEEL BOX COLUMN  
f<sub>y</sub> = 248.0 mpa (36,000 psi)
- WELDS  
USE E-60 XX ELECTRODES  
f<sub>w</sub> = 93.76 mpa
- BOLTS (ASTM A-307)  
f<sub>w</sub> = 69 mpa f<sub>st</sub> = 96.60 mpa
- CONCRETE MASONRY UNITS (NON-LOAD BEARING CHB)  
f<sub>m</sub>' = 3.41 mpa (500 psi)
- ASSUMED ALLOWABLE SOIL BEARING CAPACITY OF 95.76 KPa (2,000 psf)

### NOTES ON FOUNDATION :

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

### MATERIAL SPECIFICATIONS :

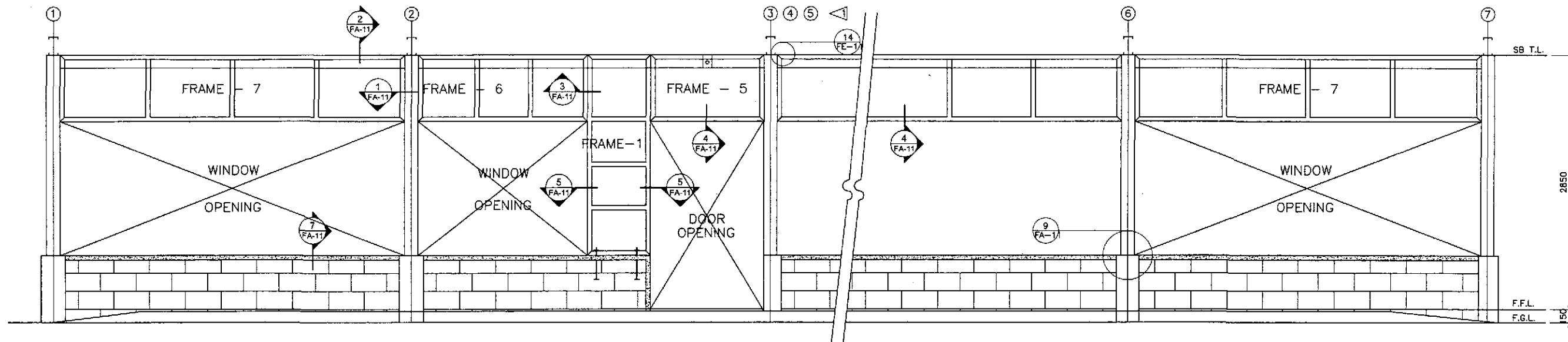
- FOR ROOFING SHEETS :  
0.6mm THICK (GA.26) PREPARED CORRUGATED G.I. ROOFING SHEET, LONG SPAN.
- FOR WALLING SHEETS : USE ALUMINUM FOIL INSULATION HARVI-FOIL 427 (3-WAY REINFORCED OR EQUAL). DOUBLE WALL 0.6mm THICK (GA.26) HIGH TENSILE STEEL SHEET WALLING/CLADDING W/ ALUMINUM FOIL FOR INSULATION. HARVI-FOIL 427 (3-WAY REINFORCED OR EQUAL). BASE STEEL WITH 550 MPa YIELD STRESS.
- THE VERTICAL AND HORIZONTAL STUDS AND RAFTERS SHALL CONFORM WITH THE AMERICAN IRON AND STEEL INSTITUTE (AISI). 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 PREPARED SHEETINGS. BASE OF SIDINGS AND DOOR AND WINDOW JAMBS SHALL BE GIVEN ANOTHER TWO COATS OF BROWN OR MAHOGANY COLORED ENAMEL PAINT.

### NOTES :

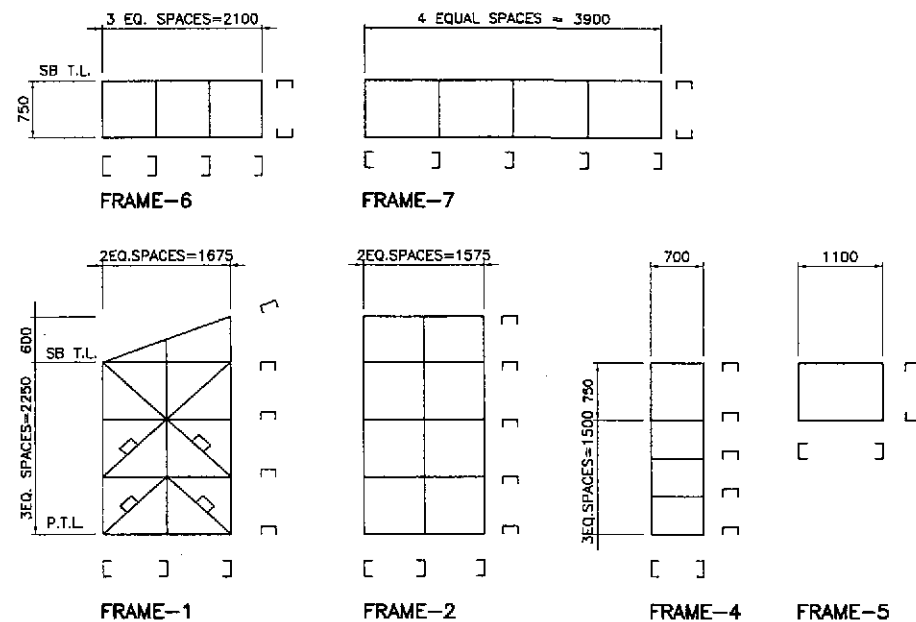
- ALL LOCATION OF ANCHOR BOLTS AND BOLT HOLES SHALL BE VERIFIED ON THE SITE PRIOR TO INSTALLATION / ASSEMBLY.
- HOLES FOR ALL BOLTS SHALL BE 1.6mm LARGER IN DIAMETER THAN BOLTS. BOLTS SHALL BE FITTED WITH STANDARD NUTS AND WASHERS TO ENSURE TIGHT FIT.
- THE STEEL MANUFACTURER / FABRICATOR / CONTRACTOR 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.

APRIL P. GONZALES  
ENGINEER  
PTR. NO. 5848340 P.R.C. NO. 53457  
ISSUED ON 04/26/2002 T.I.N. 138-062-682  
ISSUED AT SAN JUAN M.W.

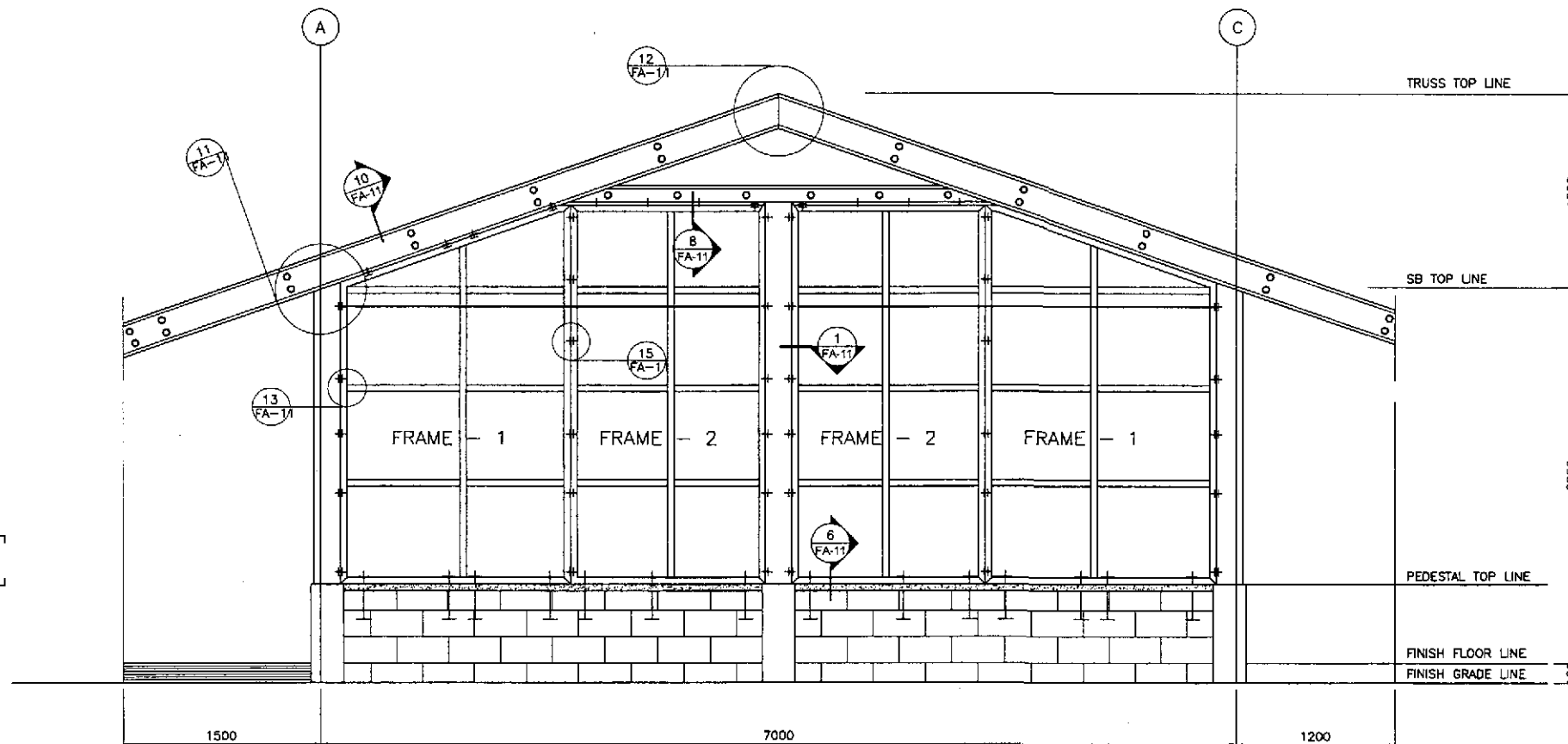
<b>JICA</b> JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS YACHIYO ENGINEERING CO., LTD.		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN Submitted By: DANILLO C. TRAJANO Reviewed By: WILFREDO S. LOPEZ Recommended By: GILBERTO S. REYES Approved By: MANUEL M. BONDAN 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 I		SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : ENGINEER'S FIELD OFFICE AND LIVING QUARTERS FOUNDATION PLAN, R.C. RAMP, DETAILS OF F1, P-1 & WF1 AND DESIGN CRITERIA	SHEET NO. : FA-06
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2 FRONT ELEVATION  
FA-07 SCALE 1:25







1 FRAMES SCHEMATIC DIAGRAMS  
FA-07 SCALE 1:50

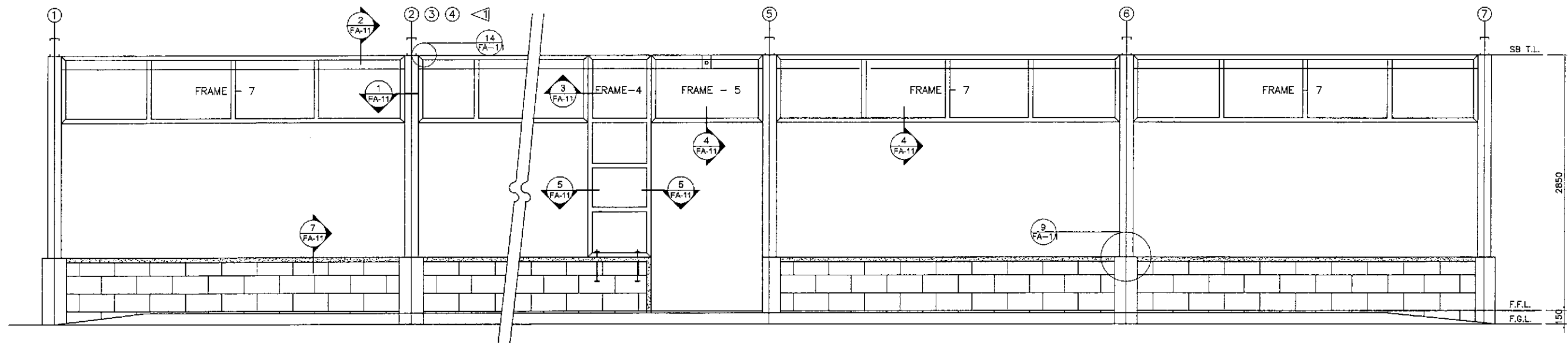


3 RIGHT SIDE ELEVATION  
FA-07 SCALE 1:25

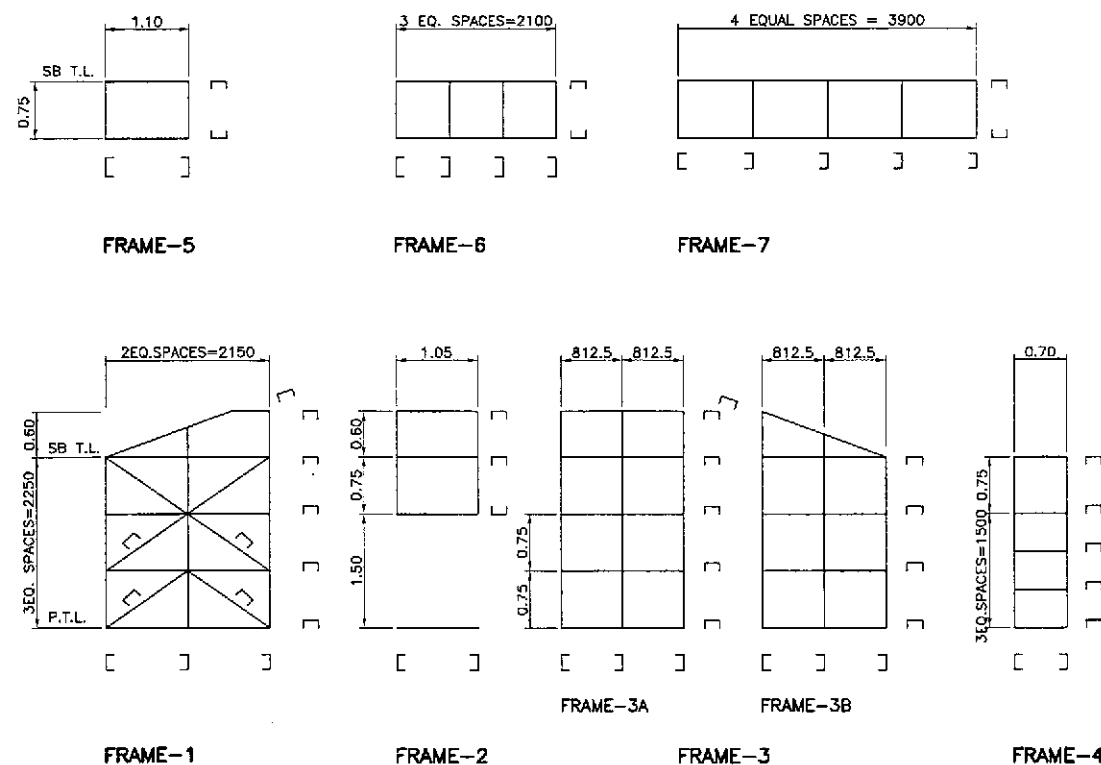
PTR. NO. 5846340 P.R.C. NO. 53457  
ISSUED ON 04/26/2002 T.I.N. 138-062-682  
ISSUED AT SAN JUAN, M.M.

<div> JAPAN INTERNATIONAL COOPERATION AGENCY</div> <div> KATAHIRA &amp; ENGINEERS INTERNATIONAL</div> <div> YACHIYO ENGINEERING CO., LTD.</div>			<div>DATE 10/15/02</div> <div>SIGNATURE A. P. GONZALES</div>	<div> REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</div> <div><div>BUREAU OF DESIGN</div><div>OFFICE OF THE SECRETARY</div></div>	<div>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 I</div>	<div>SCALE :  AS SHOWN  FULL SIZE A1</div>	<div>SHEET CONTENTS :  ENGR'S FIELD OFFICE / LABORATORY FRONT AND RIGHT SIDE ELEVATION OF STEEL STUD FRAMES &amp; SCHEMATIC DIAGRAM</div>	<div>SHEET NO. :  FA-07</div>
DESIGNED	10/15/02	A. P. GONZALES						
CHECKED	10/15/02	A. P. GONZALES						
SUBMITTED	10/16/02	A. P. GONZALES						
			Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:	
			DANILO C. TRAJANO Project Director	WILFREDO S. LOPEZ Chief, Structural Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONAON Undersecretary	SIMEON A. DATUMANONG Secretary	

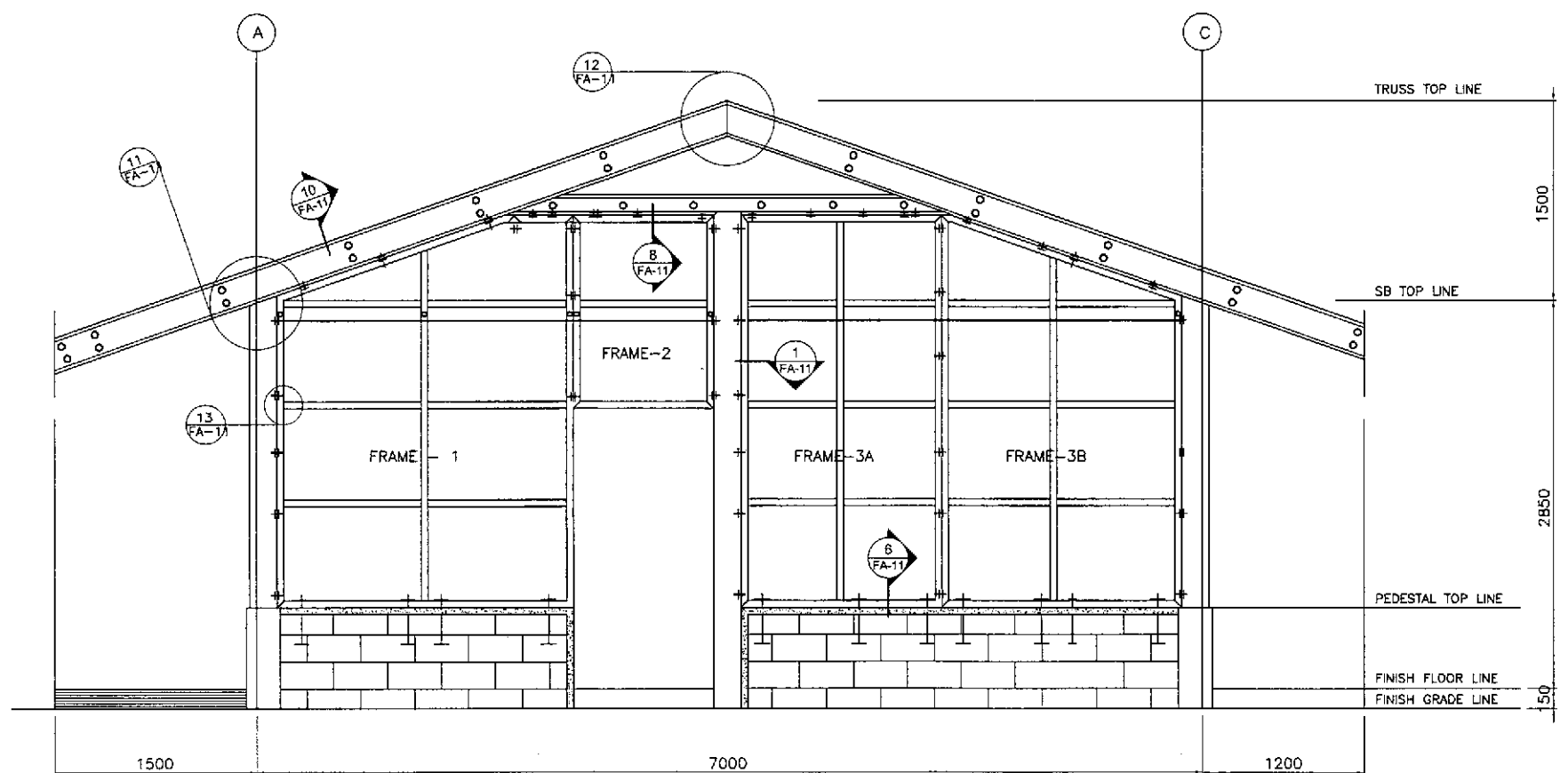




2 FRONT ELEVATION  
FA-08 SCALE 1:25









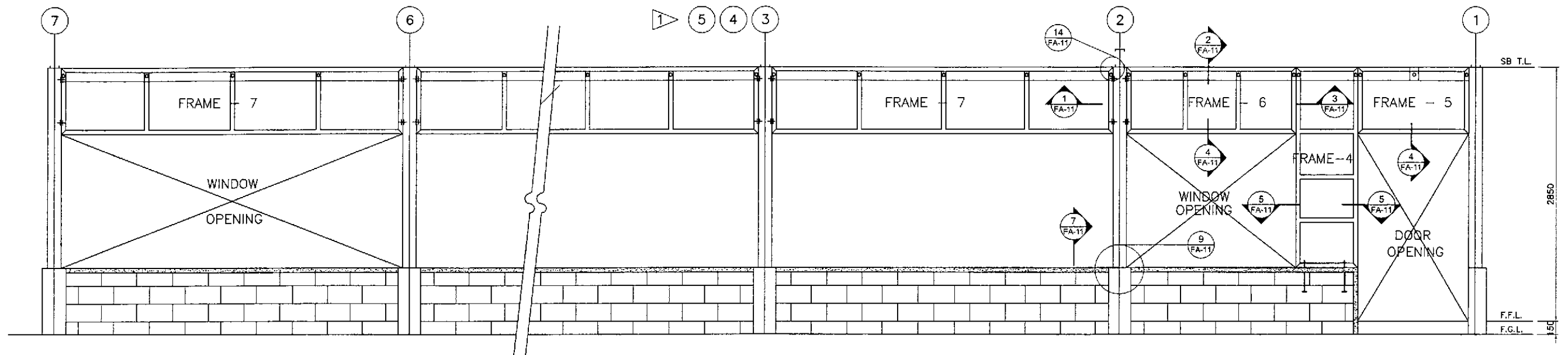
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FA-08 SCALE 1:50



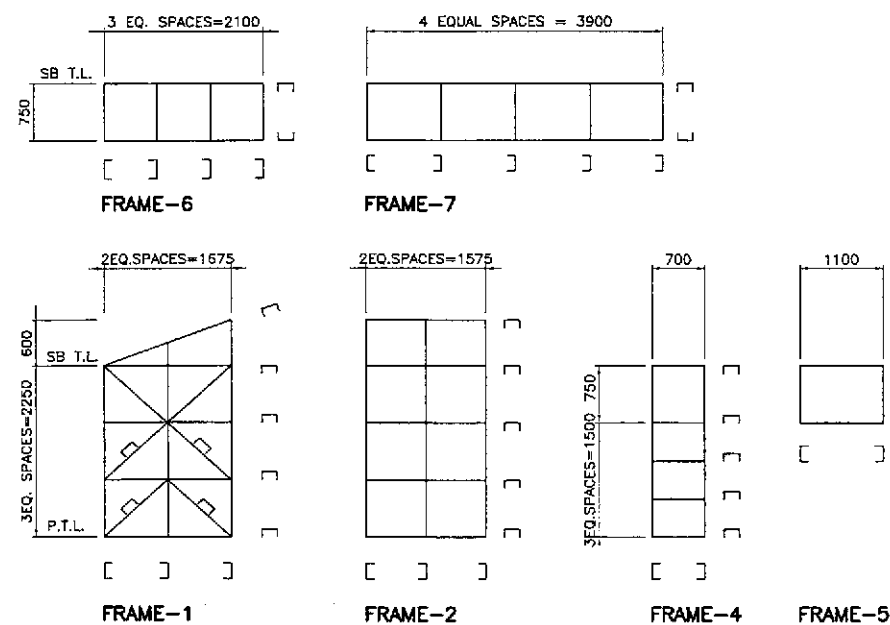
3 RIGHT SIDE ELEVATION  
FA-08 SCALE 1:25

ARUEL P. GONZALES  
ENGINEER  
PTR. NO. 5846340 P.R.C. NO. 53457  
ISSUED ON 04/25/2002 T.I.N. 138-062-682  
ISSUED AT SAN JUAN, M.M.

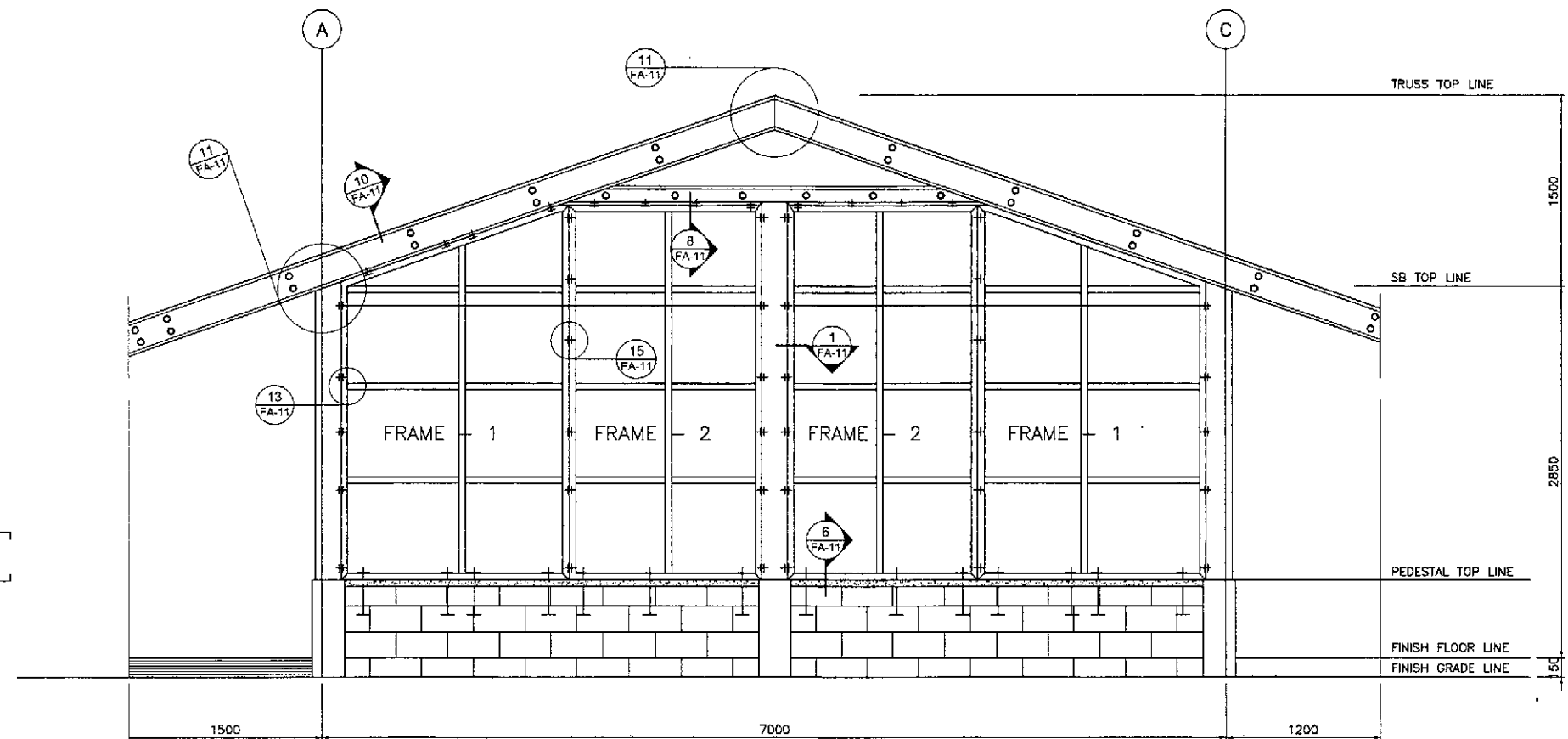
<div> JAPAN INTERNATIONAL COOPERATION AGENCY</div> <div> KATAHIRA &amp; ENGINEERS INTERNATIONAL</div> <div> YACHIYO ENGINEERING CO., LTD.</div>			<table><tr><td>DATE</td><td>SIGNATURE</td><td colspan="5"><div> REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</div></td></tr><tr><td>DESIGNED</td><td>10/10/01 A. P. GONZALES</td><td colspan="2">PUHL - PMO</td><td colspan="3">BUREAU OF DESIGN</td><td>OFFICE OF THE SECRETARY</td></tr><tr><td>CHECKED</td><td>10/10/01 A. P. GONZALES</td><td colspan="2">Submitted By:</td><td>Reviewed By:</td><td>Recommended By:</td><td>Recommended By:</td><td>Approved By:</td></tr><tr><td>SUBMITTED</td><td>10/10/01 M. KUCHI</td><td colspan="2">DANILO C. TRAJANO Project Director</td><td>EMMANUEL P. CUNTAPAY Chief, Architectural Division</td><td>GILBERTO S. REYES OIC, Director IV</td><td>MANUEL M. BONDAN Undersecretary</td><td>SIMEON A. DATUMANONG Secretary</td></tr></table>							DATE	SIGNATURE	<div> REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</div>					DESIGNED	10/10/01 A. P. GONZALES	PUHL - PMO		BUREAU OF DESIGN			OFFICE OF THE SECRETARY	CHECKED	10/10/01 A. P. GONZALES	Submitted By:		Reviewed By:	Recommended By:	Recommended By:	Approved By:	SUBMITTED	10/10/01 M. KUCHI	DANILO C. TRAJANO Project Director		EMMANUEL P. CUNTAPAY Chief, Architectural Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary	PROJECT AND LOCATION :  THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pinarid, Cabanatuan and San Jose Bypasses)  CABANATUAN BYPASS - CONTRACT PACKAGE I		SCALE :  AS SHOWN  FULL SIZE A1	SHEET CONTENTS :  ENGINEER'S LIVING QUARTERS FRONT AND RIGHT SIDE ELEVATION OF STEEL STUD FRAMES & SCHEMATIC DIAGRAM	SHEET NO. :  FA-08
DATE	SIGNATURE	<div> REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</div>																																											
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2 REAR ELEVATION  
FA-09 SCALE 1:25



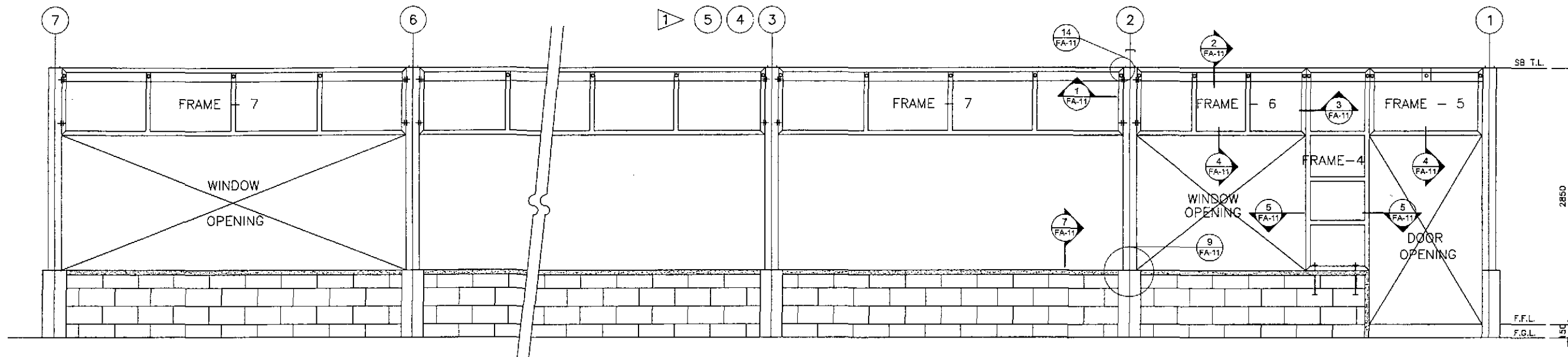
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FA-09 SCALE 1:50



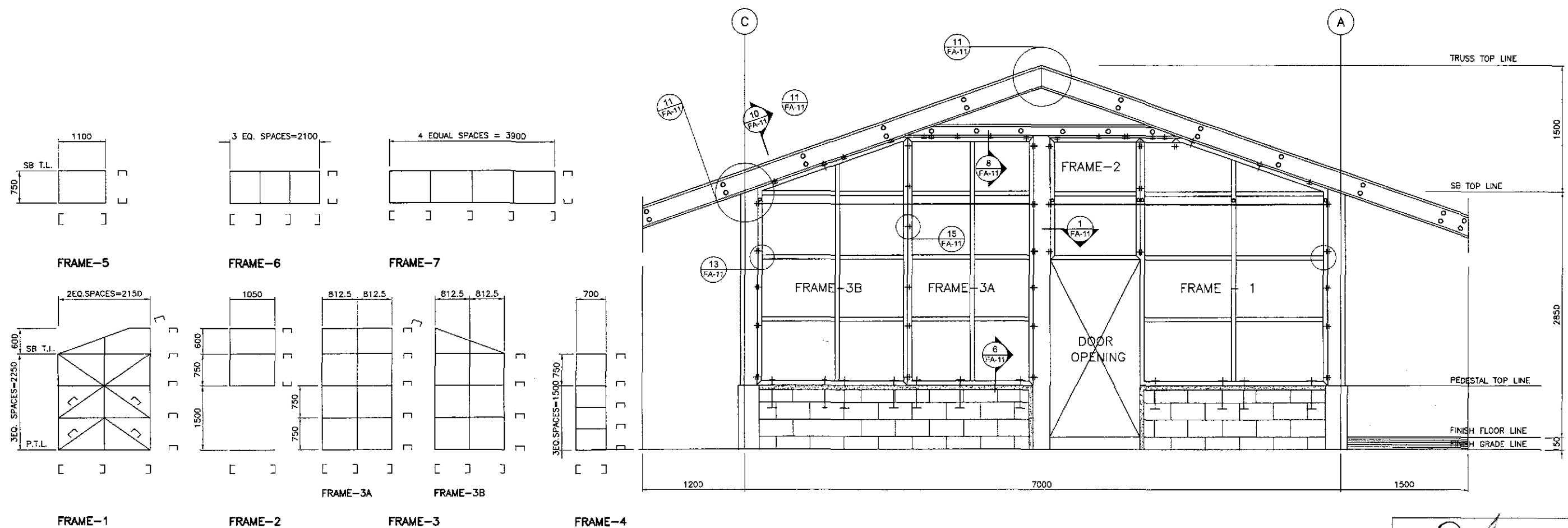
3 LEFT SIDE ELEVATION  
FA-09 SCALE 1:25

ARNEL P. GONZALES  
ENGINEER  
PTR. NO. 5848340 P.R.C. NO. 53457  
ISSUED ON 04/26/2002 T.I.N. 138-062-682  
ISSUED AT SAN JUAN, M.M.

<b>JICA</b> JAPAN INTERNATIONAL COOPERATION AGENCY <b>KATAHIRA &amp; ENGINEERS</b> INTERNATIONAL <b>YEO</b> YACHIYO ENGINEERING CO., LTD.			REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN Submitted By: <b>DANILO C. TRAJANO</b> Project Director Reviewed By: <b>EMMANUEL P. CUNTAPAY</b> Chief, Architectural Division Recommended By: <b>GILBERTO S. REYES</b> OIC, Director IV Recommended By: <b>MANUEL M. BONDAN</b> Undersecretary Approved By: <b>SIMEON A. DATUMANONG</b> Secretary				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Palarod, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE I	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : ENGR'S FIELD OFFICE / LABORATORY REAR AND LEFT SIDE ELEVATION OF STEEL STUD FRAMES & SCHEMATIC DIAGRAM	SHEET NO. : FA-09
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2 REAR ELEVATION  
FA-10 SCALE 1:25



3 LEFT SIDE ELEVATION  
FA-10 SCALE 1:25

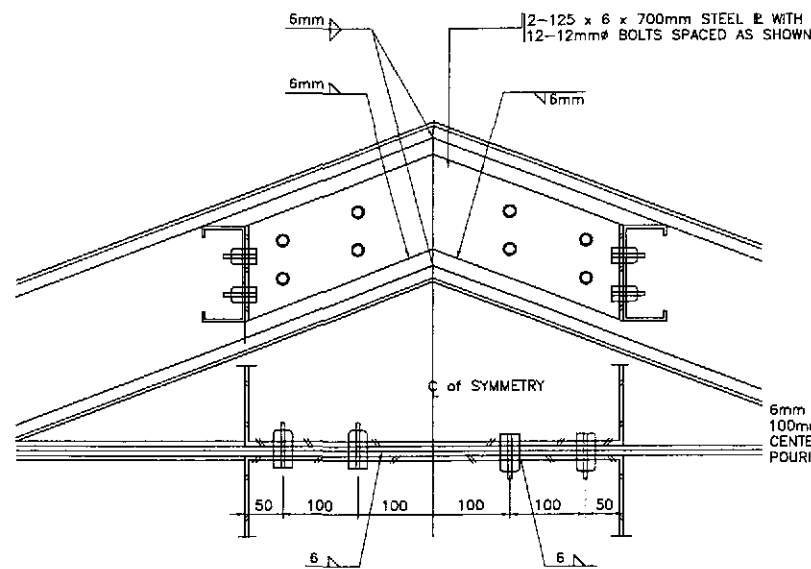
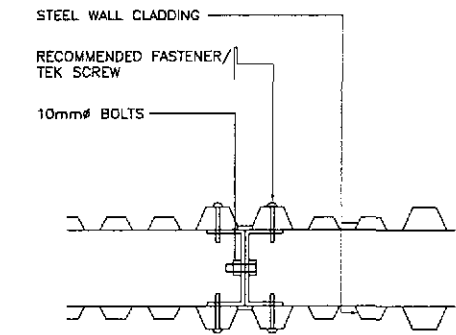
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FA-10 SCALE 1:50

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ISSUED ON 04/25/2002 T.I.N. 138-062-682  
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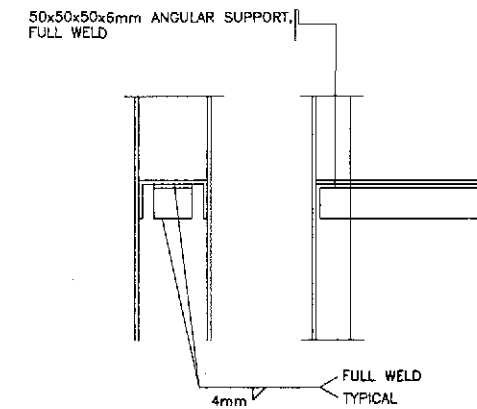
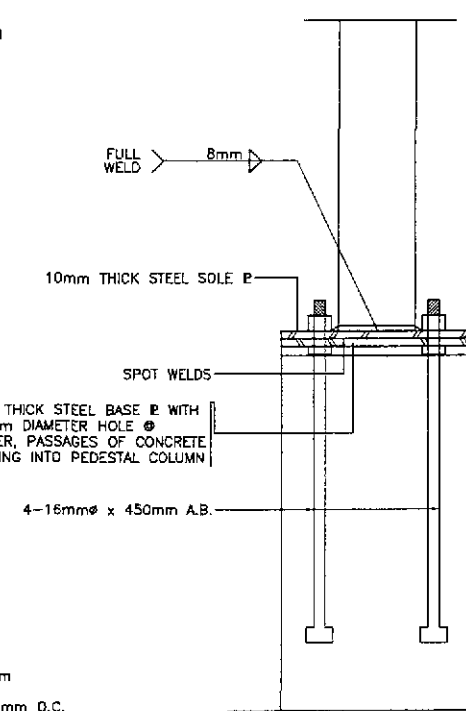
<div> JAPAN INTERNATIONAL COOPERATION AGENCY</div> <div> KATAHIRA &amp; ENGINEERS INTERNATIONAL</div> <div> YACHIYO ENGINEERING CO., LTD.</div>		<table><tr><th></th><th>DATE</th><th>SIGNATURE</th></tr><tr><td>DESIGNED</td><td>10/16/02</td><td>A. P. GONZALES</td></tr><tr><td>CHECKED</td><td>10/15/02</td><td>P. GONZALES</td></tr><tr><td>SUBMITTED</td><td>10/16/02</td><td>RICHIE TEAM LEADER</td></tr></table>		DATE	SIGNATURE	DESIGNED	10/16/02	A. P. GONZALES	CHECKED	10/15/02	P. GONZALES	SUBMITTED	10/16/02	RICHIE TEAM LEADER	<div> REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</div> <table><tr><td colspan="2">PUBL - PMO</td><td colspan="2">BUREAU OF DESIGN</td><td colspan="2">OFFICE OF THE SECRETARY</td></tr><tr><td>Submitted By:</td><td>Reviewed By:</td><td>Recommended By:</td><td>Recommended By:</td><td>Approved By:</td><td></td></tr><tr><td>DANILO C. TRAJANO Project Director</td><td>WILFREDO S. LOPEZ Chief, Structural Division</td><td>GILBERTO S. REYES OIC, Director IV</td><td>MANUEL M. BONDAN Undersecretary</td><td>SIMEON A. DATUMANONG Secretary</td><td></td></tr></table>	PUBL - PMO		BUREAU OF DESIGN		OFFICE OF THE SECRETARY		Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:		DANILO C. TRAJANO Project Director	WILFREDO S. LOPEZ Chief, Structural Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary		<table><tr><td>PROJECT AND LOCATION :</td><td>SCALE :</td><td>SHEET CONTENTS :</td><td>SHEET NO. :</td></tr><tr><td>THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)</td><td>AS SHOWN</td><td>ENGINEER'S LIVING QUARTERS REAR AND LEFT SIDE ELEVATION OF STEEL STUD FRAMES &amp; SCHEMATIC DIAGRAMS</td><td>FA-10</td></tr><tr><td>CABANATUAN BYPASS - CONTRACT PACKAGE I</td><td>FULL SIZE A1</td><td></td><td></td></tr></table>	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	ENGINEER'S LIVING QUARTERS REAR AND LEFT SIDE ELEVATION OF STEEL STUD FRAMES & SCHEMATIC DIAGRAMS	FA-10	CABANATUAN BYPASS - CONTRACT PACKAGE I	FULL SIZE A1		
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# NOTES :

- ALL VERTICAL AND HORIZONTAL STUDS SHALL BE 100x50x2mm UNSTIFFENED FLANGED UNLESS OTHERWISE SPECIFIED.
- HORIZONTAL STUDS MUST BE INSERTED TO AND WELDED IN THE VERTICAL STUDS UNLESS OTHERWISE SPECIFIED.
- REVISION IN THE ATTACHMENT/ CONNECTIONS THAT WILL IMPROVE DESIGN MAYBE DONE W/ PRIOR APPROVAL OF FABRICATION DRAWINGS.



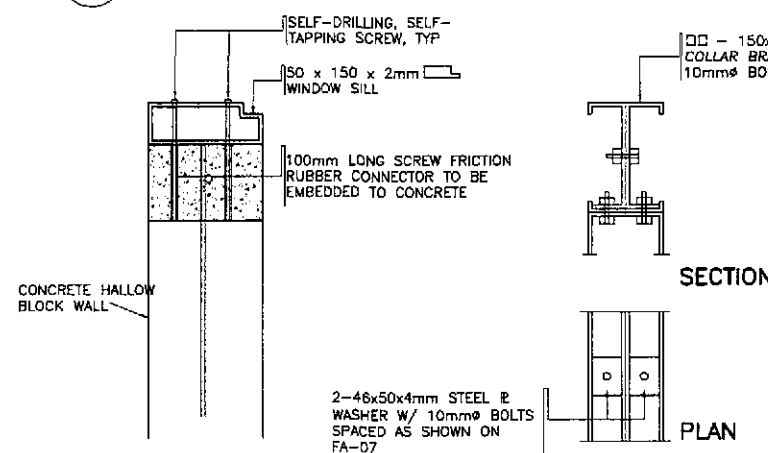
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FA-11 SCALE 1:5



10 DETAIL - 13  
FA-11 SCALE 1:5

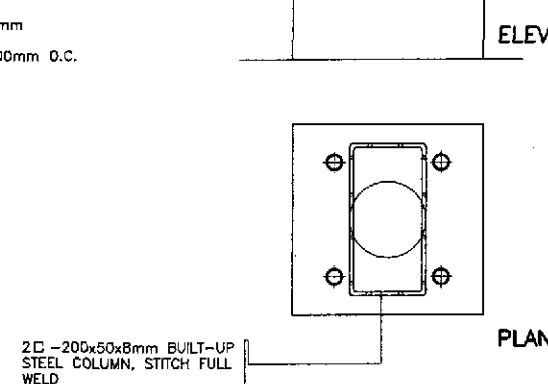
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15 DETAIL - 15  
FA-11 SCALE 1:5



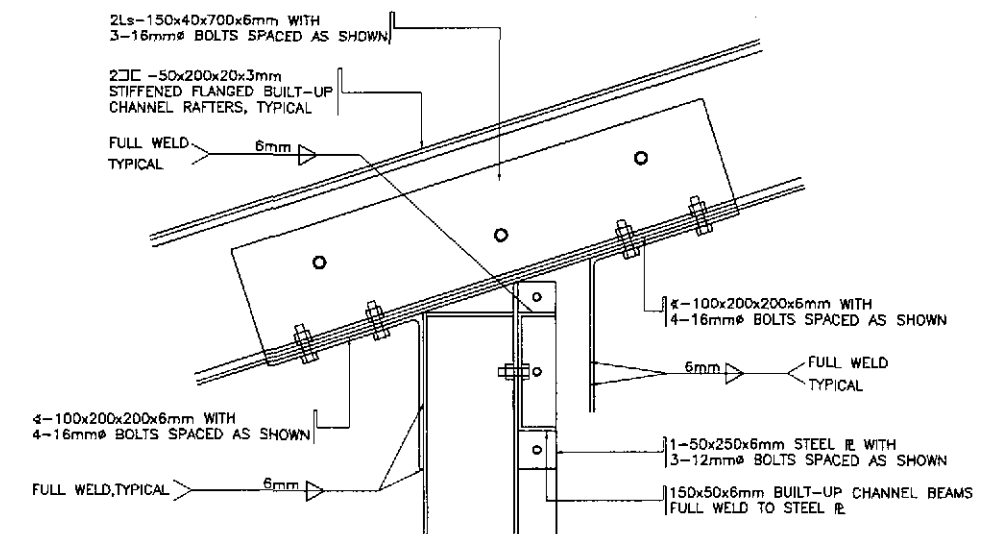
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5 DETAIL - 8  
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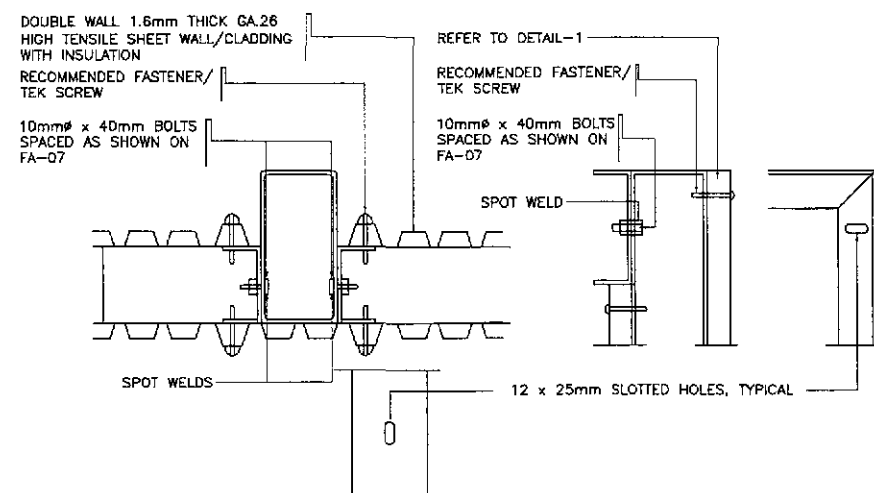


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9 DETAIL - 10  
FA-11 SCALE 1:5

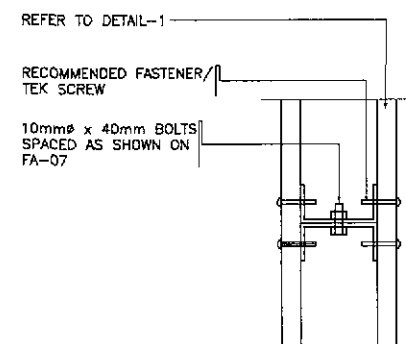


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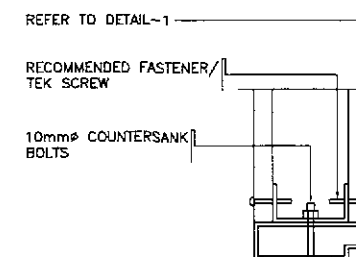


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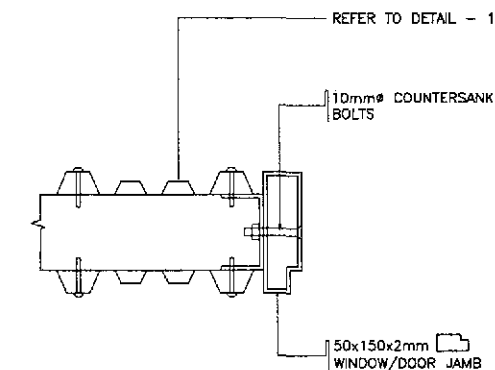
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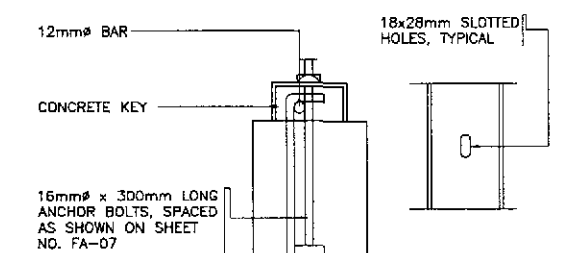
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8 DETAIL - 4  
FA-11 SCALE 1:5



11 DETAIL - 5  
FA-11 SCALE 1:5



14 DETAIL - 6  
FA-11 SCALE 1:5

ARTHUR P. GONZALES  
ENGINEER

PTR. NO. 5845340 P.R.C. NO. 53457  
ISSUED ON 04/26/2002 T.I.N. 138-DE2-582  
ISSUED AT SAN JUAN, M.M.

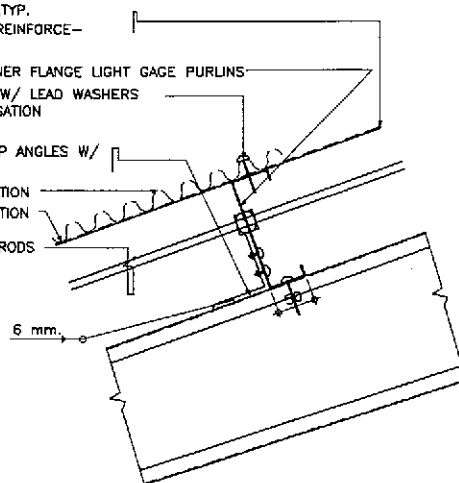
<b>JICA</b> JAPAN INTERNATIONAL COOPERATION AGENCY <b>KATAHIRA &amp; ENGINEERS</b> INTERNATIONAL <b>yco</b> YACHIYO ENGINEERING CO., LTD.		DATE: 10/16/02 DESIGNED: A. P. GONZALES CHECKED: A. P. GONZALES SUBMITTED: 10/16/02	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN PROJECT DIRECTOR: DANILLO C. TRAJANO CHIEF, STRUCTURAL DIVISION: WILFREDO S. LOPEZ CHIEF, CIVIL DIVISION: GILBERTO S. REYES UNDERSECRETARY: MANUEL M. BONDAN SECRETARY: SIMON A. DATUMANONG	PROJECT AND LOCATION : <b>THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)</b> <b>CABANATUAN BYPASS - CONTRACT PACKAGE I</b>	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : <b>ENGINEER'S FIELD OFFICE AND LIVING QUARTERS DETAILS OF CONNECTIONS DETAIL 1 TO 15</b>	SHEET NO. : <b>FA-11</b>
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ALUMINUM FOIL INSULATION, TYP.  
USE HAVIFOL 427(3-WAY REINFORCE-  
MENT) OR EQUAL

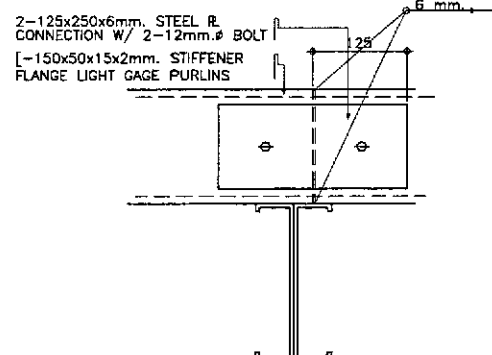
[-150x50x15x2mm. STIFFENER FLANGE LIGHT GAGE PURLINS  
6 mm. # 1 - HOOK BOLTS W/ LEAD WASHERS  
# EVERY 5-UPPER CORRUGATION

1 -75x75x50x6.0mm. CLIP ANGLES W/  
2 -10mm. # BOLTS

UPPER CORRUGATION  
LOWER CORRUGATION  
10mm # SAG RODS

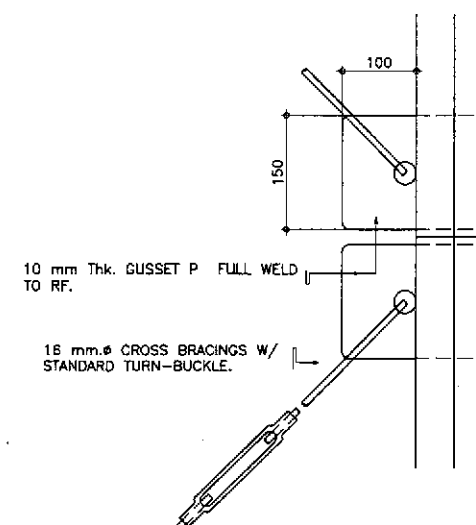


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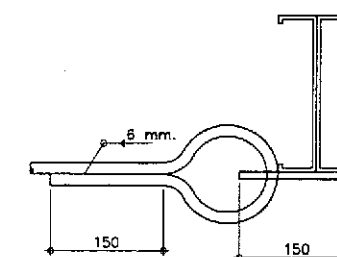


SECTION, SPLICE CONNECTION

2 PURLIN CONNECTION  
FA-12 SCALE 1:5

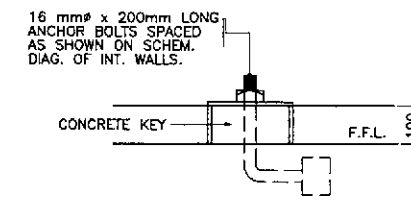


PLAN

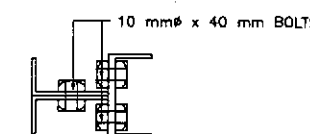


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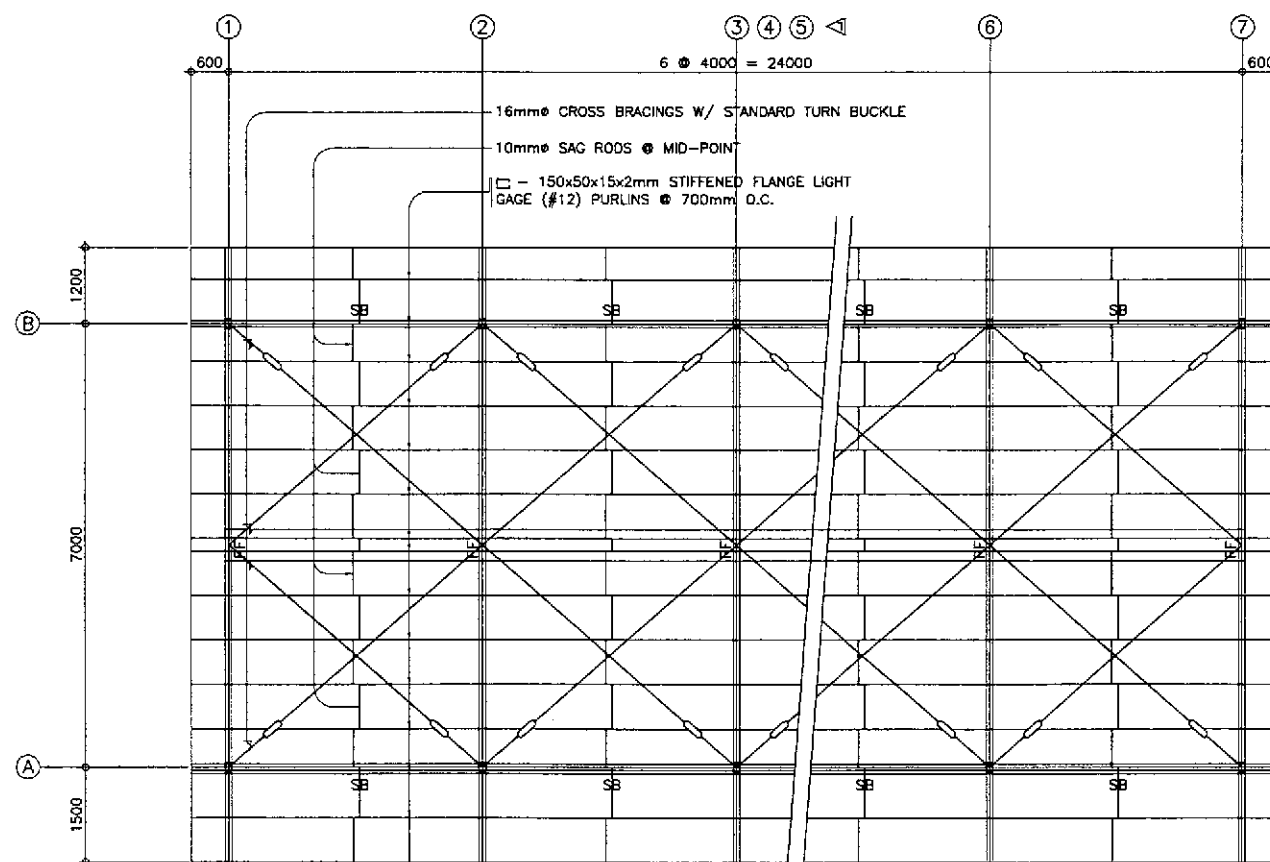
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FA-12 SCALE 1:5



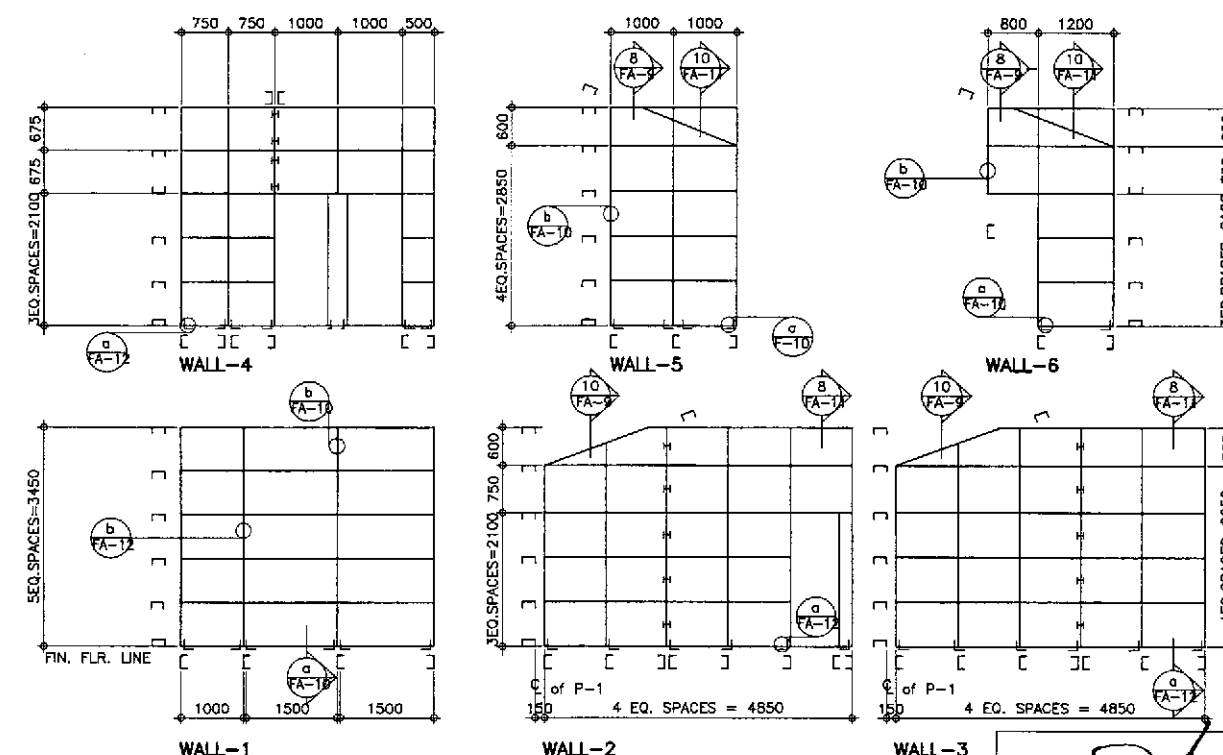
5 DETAIL - a  
FA-12 SCALE 1:5



6 DETAIL - b  
FA-12 SCALE 1:5



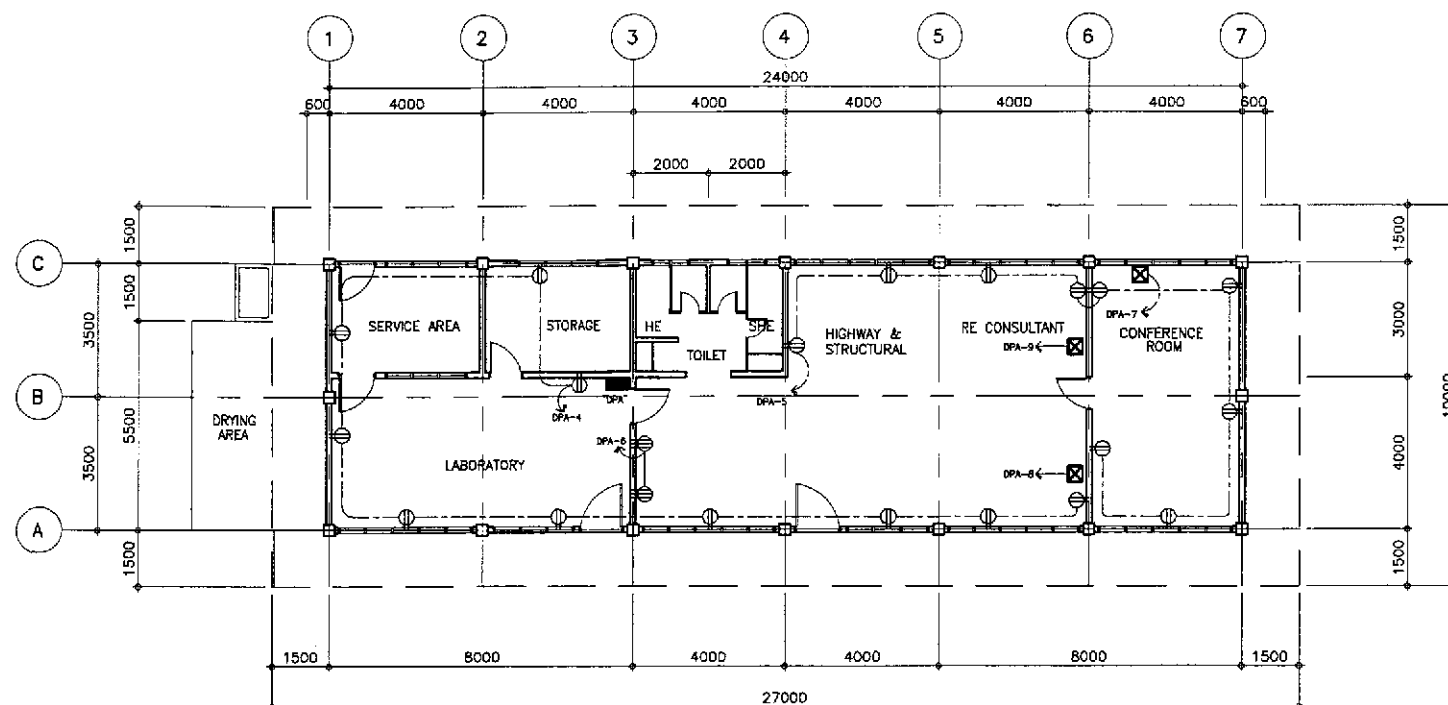
1 ROOF FRAMING PLAN  
FA-12 SCALE 1:60



3 SCHEMATIC DIAGRAMS OF INTERIOR WALLS  
FA-12 SCALE 1:60

ARNEL P. GONZALES  
ENGINEER  
PTR. NO. 5846540 P.R.C. NO. 53457  
ISSUED ON 04/25/2002 T.I.N. 138-052-682  
ISSUED AT SAN JUAN, M.M.

JICA JAPAN INTERNATIONAL COOPERATION AGENCY				PROJECT AND LOCATION : <b>THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)</b> <b>CABANATUAN BYPASS - CONTRACT PACKAGE I</b>		SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : <b>ENGR'S FIELD OFF. &amp; LIVING QUARTERS</b> ROOF FRAMING PLAN, SCHEMATIC DIAGRAM PURLIN CONN. & CROSS-BRACING CONN.	SHEET NO. : <b>FA-12</b>
DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN		OFFICE OF THE SECRETARY			
CHECKED	10/15/02	ARNEL P. GONZALES	Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:	
SUBMITTED	10/16/02	ARNEL P. GONZALES	DANILO C. TRAJANO Project Director	WILFREDO S. LOPEZ Chief, Structural Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary	



2 POWER LAYOUT OF THE ENGINEER'S FIELD OFFICE / LABORATORY  
FE-01 SCALE 1:100

### GENERAL NOTES:

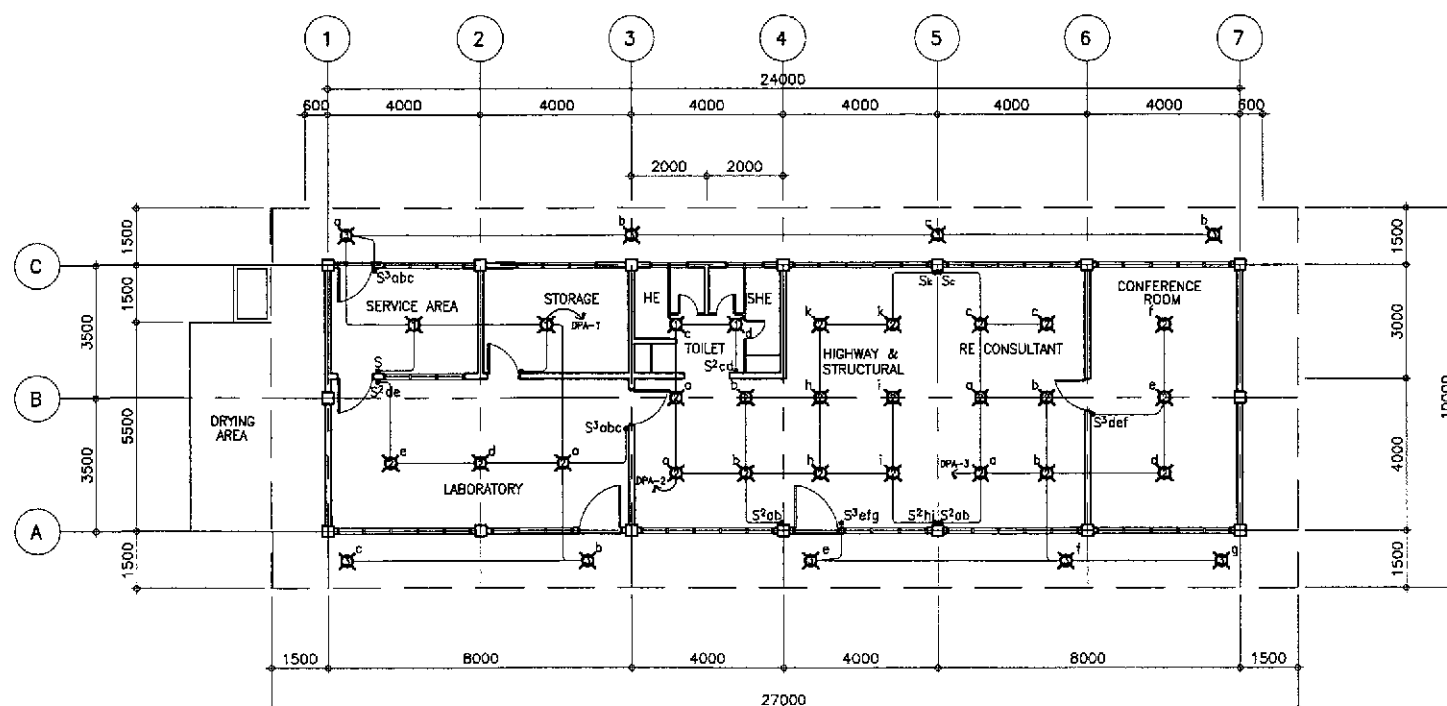
- ALL ELECTRICAL WORKS SHALL BE DONE IN STRICT COMPLIANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHIL. ELECT. CODE, EXISTING APPLICABLE ORDINANCES, RULES AND REGULATIONS OF THE LOCAL GOVERNMENT AND THE REQUIREMENTS OF THE POWER COMPANY.
- THE TYPE OF POWER SERVICE TO USED SHALL BE SINGLE-PHASE 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 WOODEN PARTITIONS OR INSIDE THE CEILING SPACES.
- ALL LIGHTING CIRCUIT HOMERUNS AND CONVENIENCE OUTLETS SHALL BE WIRED WITH NOT LESS THAN 3.5mm IN SIZE.
- THE MINIMUM SIZES OF WIRE AND CONDUIT TO BE USED SHALL BE 2.0mm<sup>2</sup> 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 OF 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 NOT MENTIONED IN THE SPECIFICATIONS.
- ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHT ABOVE THE FINISHED FLOOR LEVEL, UNLESS OTHERWISE NOTED.  
A. WALL SWITCHES .....1200 mm  
B. CONVENIENCE OUTLETS .....300 mm  
C. AIR CONDITIONING OUTLETS .....AT CONVENIENT HEIGHT NEAR THE EQUIPMENT
- STANDARD TYPE OF ACCESSORIES, SPLICING DEVICES, TERMINATORS AND OTHER APPURTENANCES FOR THE ENTIRE ELECTRICAL INSTALLATION SHALL BE USED.
- ALL MATERIALS TO BE USED SHALL BE BRAND NEW AND OF THE APPROVED TYPE FOR THE LOCATION AND PURPOSE.
- THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATION OF THE SERVICE ENTRANCE FOR CONNECTION TO POWER COMPANY SERVICE POINT.
- 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:

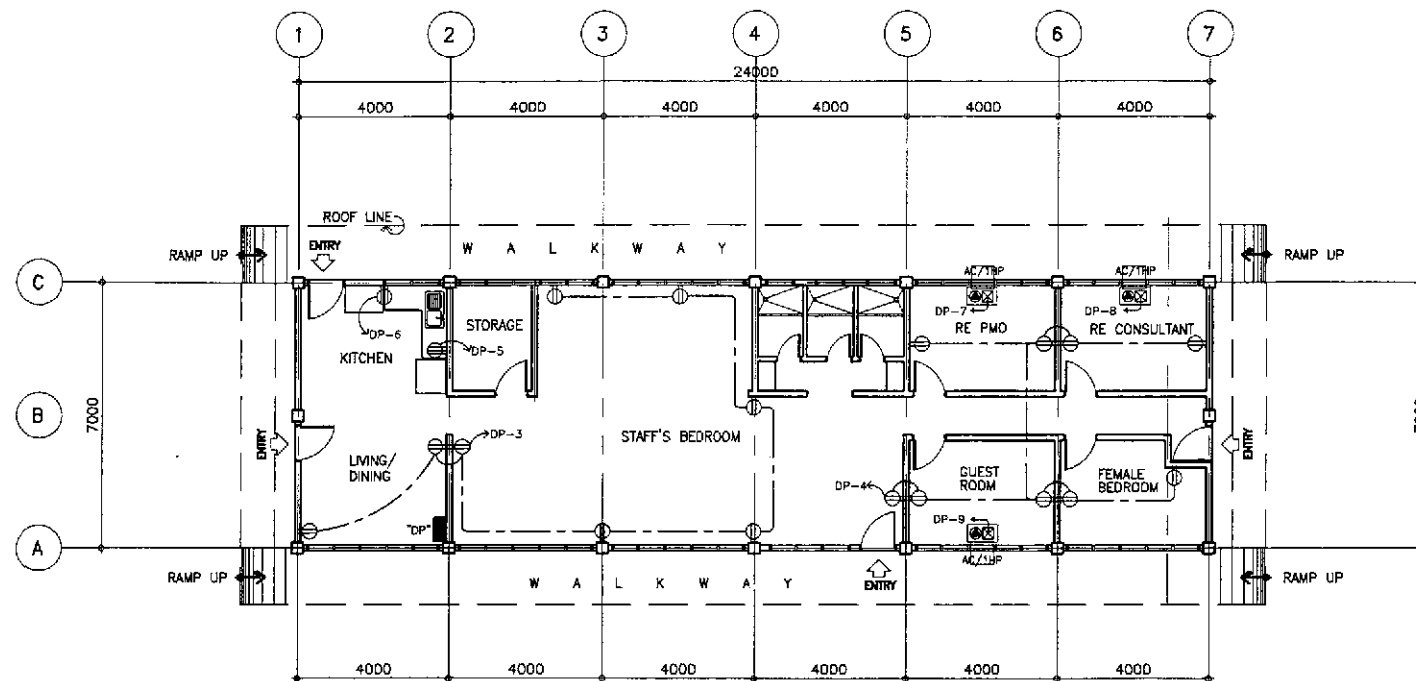
- CEILING LIGHT; REFER TO SCHEDULE OF LIGHTING FIXTURES AND LAMPS
- ELECTRICAL RISER
- ONE-WAY WALL SWITCH, 15A, 250V
- 2 ONE-WAY WALL SWITCHES ON ONE-GANG PLATE, 15A, 250V
- 3 ONE-WAY WALL SWITCHES ON ONE-GANG PLATE, 15A, 250V
- DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE, 20A, 250V
- HEAVY DUTY CONVENIENCE 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 EMBEDDED CONDUIT RUN
- UNDERGROUND OR UNDER FLOOR CONDUIT RUN
- CIRCUIT HOMERUN TO PANEL BOARD



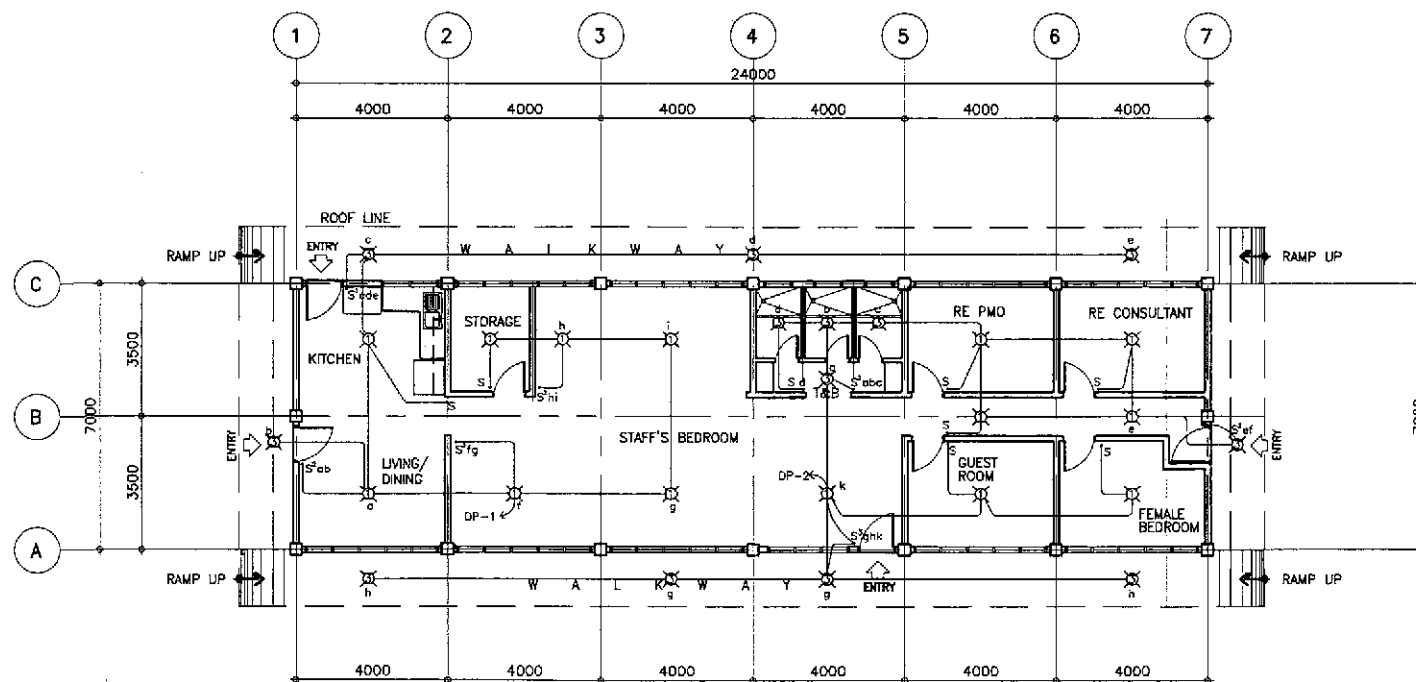
2 LIGHTING LAYOUT OF THE ENGINEER'S FIELD OFFICE / LABORATORY  
FE-01 SCALE 1:100

ERNESTO M. ANTICOLIA  
ENGINEER  
PTR. NO. 7403664 P.E.E. NO. 2913  
ISSUED ON 01/02/2002 ISSUED AT CAGAYAN, LAGUNA  
T.J.N. 109-382-379

JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHIYO ENGINEERING CO., LTD.		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) CABANATUAN BYPASS - CONTRACT PACKAGE I		SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : ENGR'S FIELD OFFICE / LABORATORY LIGHTING LAYOUT, POWER LAYOUT ELECTRICAL SYMBOLS & GENERAL NOTES	SHEET NO. : FE-01
DESIGNED	DATE	SIGNATURE	Submitted By:	Reviewed By:	Recommended By:	Approved By:				
CHECKED	10/15/02	E.M. ANTICOLIA	DANILO C. TRAJANO	FE. M. BARRIENTOS	GILBERTO S. REYES	MANUEL M. BORDAN				
SUBMITTED	10/16/02	M. RICH	Project Director	Chief, Mechanical-Elect. Div.	Dir. Director IV	SIMEON A. DATUMANONG				



2 POWER LAYOUT FOR ENGINEER'S LIVING QUARTER  
FE-02 SCALE 1:100



1 LIGHTING LAYOUT FOR ENGINEER'S LIVING QUARTER  
FE-02 SCALE 1:100

### 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.
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- 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 WOODEN PARTITIONS OR INSIDE THE CEILING SPACES.
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A. WALL SWITCHES .....1200 mm  
B. CONVENIENCE OUTLETS .....300 mm  
C. AIR CONDITIONING OUTLETS .....AT CONVENIENT HEIGHT NEAR THE EQUIPMENT
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- 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
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- 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, 15A, 250V
- DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE, 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 EMBEDDED CONDUIT RUN
- UNDERGROUND OR UNDER FLOOR CONDUIT RUN
- CIRCUIT HOMERUN TO PANEL BOARD

ERNESTO M. ANTIOQUIA  
ENGINEER

PTR. NO. 7403684 P.E.E. NO. 2913  
ISSUED ON 01/02/2002 ISSUED AT CABUYAO, LAGUNA  
T.J.N. 109-382-379

 JAPAN INTERNATIONAL COOPERATION AGENCY		 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 : AS SHOWN FULL SIZE A1	SHEET CONTENTS : ENGINEER'S LIVING QUARTERS LIGHTING LAYOUT, POWER LAYOUT ELECTRICAL SYMBOLS & GENERAL NOTES	SHEET NO. : FE-02
DESIGNED 10/5/02 E.M. ANTIOQUIA	CHECKED 10/5/02 E.M. ANTIOQUIA	SUBMITTED 10/6/02 M. RUIZ	P.W. - PMO Submitted By: DANILO C. RAJANO Project Director	BUREAU OF DESIGN Reviewed By: FE M. BARRIENTOS Chief, Mechanical-Elect. Div.	OFFICE OF THE SECRETARY Recommended By: GILBERTO S. REYES Dir., Director IV	Approved By: (See cover sheet for Signature/Approval) MANUEL M. BONDAN Undersecretary	CABANATUAN BYPASS - CONTRACT PACKAGE I	

## SCHEDULE OF LOADS AND COMPUTATIONS

PANELBOARD "DP"							MAIN A.C.B. : 100AF,2P, 250V 100 AT, 18 KAIC W/SOLID NEUTRAL	
CRT. NO.	LOAD DESCRIPTION	VA	RATING OF BRANCH BREAKER				SIZE OF HOMERUN WIRES IN CONDUIT	
			VOLTS	AF	P	AT		
1	LIGHT OUTLETS	455	220	50	2	15	2-3.5mm TW <sup>2</sup> in 15mmØC	
2	LIGHT OUTLETS	840	220	50	2	15	2-3.5mm TW <sup>2</sup> in 15mmØC	
3	CONVENIENCE OUTLET	1440	220	50	2	20	2-3.5mm TW <sup>2</sup> in 15mmØC	
4	CONVENIENCE OUTLET	1620	220	50	2	20	2-3.5mm TW <sup>2</sup> in 15mmØC	
5	REFRIGERATOR	500	220	50	2	20	2-3.5mm TW <sup>2</sup> + 1-20mm <sup>2</sup> TW(G) IN 15mmØC	
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,1Ø WDO,TYPE ACU	1980	220	50	2	30	2-5.5mm <sup>2</sup> THW+1-3.5mm <sup>2</sup> TW(G) IN 20mmØC	
8	1hp,1Ø WDO,TYPE ACU	1980	220	50	2	30	2-5.5mm <sup>2</sup> THW+1-3.5mm <sup>2</sup> TW(G) IN 20mmØC	
9	1hp,1Ø WDO,TYPE ACU	1980	220	50	2	30	2-5.5mm <sup>2</sup> THW+1-3.5mm <sup>2</sup> TW(G) IN 20mmØC	
10	SPARE	1500	220	50	2	20	-	
11	SPARE	1500	220	50	2	20	-	
12	SPARE	1500	220	50	2	20	-	
	TOTAL	18,095						

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

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

MAIN ACB: 100AF, 2P, 250 V, 100AT, 15KAIC  
USE : 2-38mm<sup>2</sup> THW + 1-14mm<sup>2</sup> TW(G) IN 40mm<sup>2</sup> RSC

## SCHEDULE OF LIGHTING FIXTURES & LAMPS

SYMBOLS	DESCRIPTION	MOUNTING & INSTALLATION
①	ONE (1) 40 WATTS, 220V, FLUORESCENT LIGHTING FIXTURES, BOX TYPE	SURFACE CEILING MOUNTED
②	ONE (2) 40 WATTS, 220V, FLUORESCENT LIGHTING FIXTURES, BOX TYPE	SURFACE CEILING MOUNTED
③	ONE (1)-SL-18 LAMP WITH HEXLESS TYPE, MEDIUM BASE PORCELAIN RECEPTACLE	SURFACE CEILING MOUNTED

NOTE:  
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	RATING OF BRANCH BREAKER				SIZE OF HOMERUN WIRES IN CONDUIT				
			VOLTS	AF	P	AT					
1	LIGHT OUTLETS	590	220	50	2	15	2-3.5mm TW <sup>2</sup> IN 15mm <sup>2</sup> C				
2	LIGHT OUTLETS	1210	220	50	2	15	2-3.5mm TW <sup>2</sup> IN 15mm <sup>2</sup> C				
3	LIGHT OUTLETS	1085	220	50	2	15	2-3.5mm TW <sup>2</sup> IN 15mm <sup>2</sup> C				
4	CONVENIENCE OUTLETS	1800	220	50	2	20	2-3.5mm TW <sup>2</sup> + 1-2.0mm <sup>2</sup> TW(G) IN 15mm <sup>2</sup> C				
5	CONVENIENCE OUTLETS	1620	220	50	2	20	2-3.5mm TW <sup>2</sup> + 1-2.0mm <sup>2</sup> TW(G) IN 15mm <sup>2</sup> C				
6	PHOTOCOPY MACHINE /HEAVY DUTY CD.	2500	220	50	2	20	2-3.5mm TW <sup>2</sup> + 1-2.0mm <sup>2</sup> TW(G) IN 15mm <sup>2</sup> C				
7	3TR,1 $\phi$ ,SPLIT TYPE ACU	6930	220	100	2	70	2-8mm <sup>2</sup> THW + 1-5.5mm <sup>2</sup> TW(G) IN 25mm <sup>2</sup> C				
8	3TR,1 $\phi$ ,SPLIT TYPE ACU	6930	220	100	2	70	2-8mm <sup>2</sup> THW + 1-5.5mm <sup>2</sup> TW(G) IN 25mm <sup>2</sup> C				
9	3TR,1 $\phi$ ,SPLIT TYPE ACU	6930	220	100	2	70	2-8mm <sup>2</sup> THW + 1-5.5mm <sup>2</sup> TW(G) IN 25mm <sup>2</sup> 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 <sup>2</sup> C				
12	SPARE	1500	220	50	2	20	-				
	TOTAL	37,575									

$$I_v @ 95\% D.F. = \frac{37575(0.95)}{220} + 0.25(23) = 168 \text{ Amps}$$

$$USE : 2-100mm<sup>2</sup> THW + 1-30mm<sup>2</sup> TW IN 50mm<sup>2</sup> RSC$$

$$I_g = 162.25567 + 1.5(23) = 196.75 \text{ Amps}$$

MAIN ACB: 225AF, 2P, 250 V, 200AT, 18 KAIC

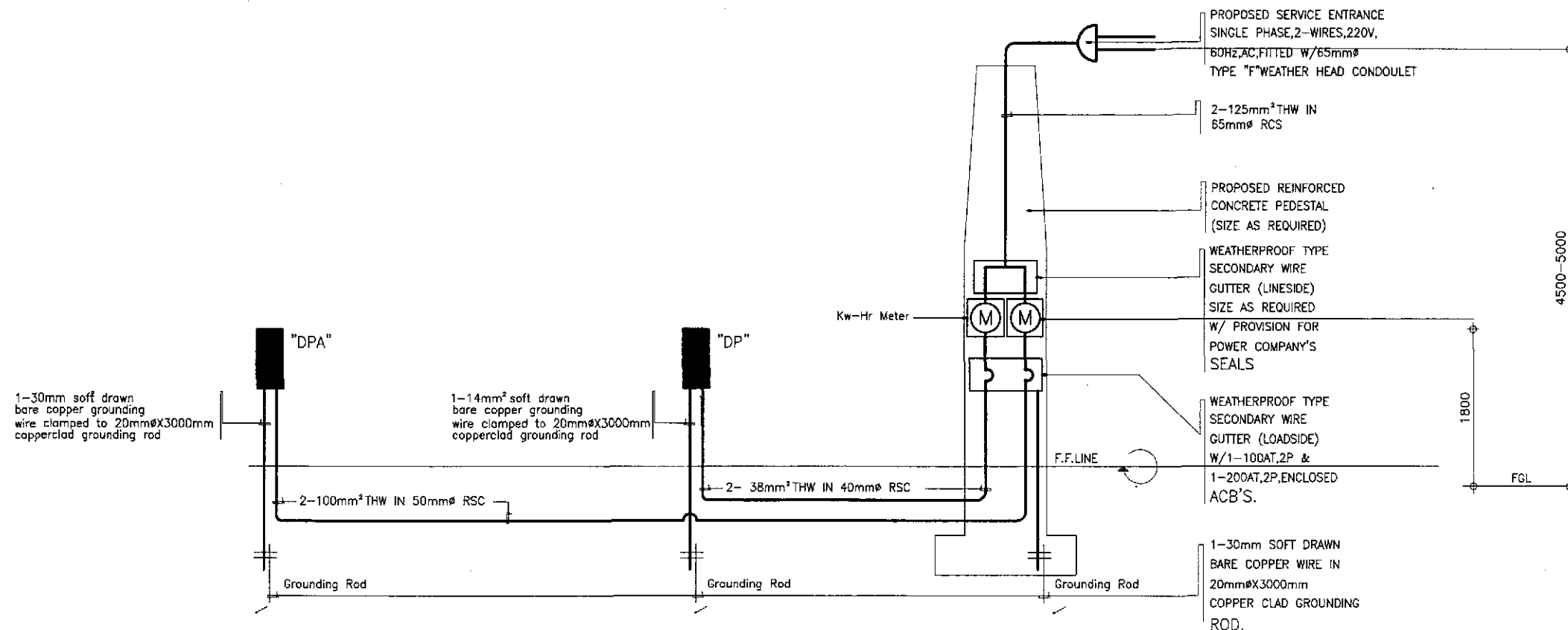
## SCHEDULE OF LIGHTING FIXTURES & LAMPS

SYMBOLS	DESCRIPTION	MOUNTING & INSTALLATION
①	ONE (1) 40 WATTS, 220V, FLUORESCENT LIGHTING FIXTURES, BOX TYPE	SURFACE CEILING MOUNTED
②	ONE (2) 40 WATTS, 220V, FLUORESCENT LIGHTING FIXTURES, BOX TYPE	SURFACE CEILING MOUNTED
③	ONE (1)-SL-18 LAMP WITH HEXLESS TYPE, MEDIUM BASE PORCELAIN RECEPTACLE	SURFACE CEILING MOUNTED

NOTE:  
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.

## ENGINEER'S LIVING QUARTERS

## ENGINEER'S FIELD OFFICE/LABORATORY



COMPUTATION FOR REQUIRED SIZE OF MAIN SERVICE ENTRANCE FEEDER:

$$I_T = \frac{VA_{DPA} + VA_{AP}}{220} @ 85\% DF + 0.25(I)$$

$$I_T = \frac{37575 + 18095}{220} (0.85) + 0.25(23)$$

$$I_T = 220.83 \text{ Amps}$$

USE : 2-125 mm<sup>2</sup> THW IN 65 mm<sup>2</sup> RSC

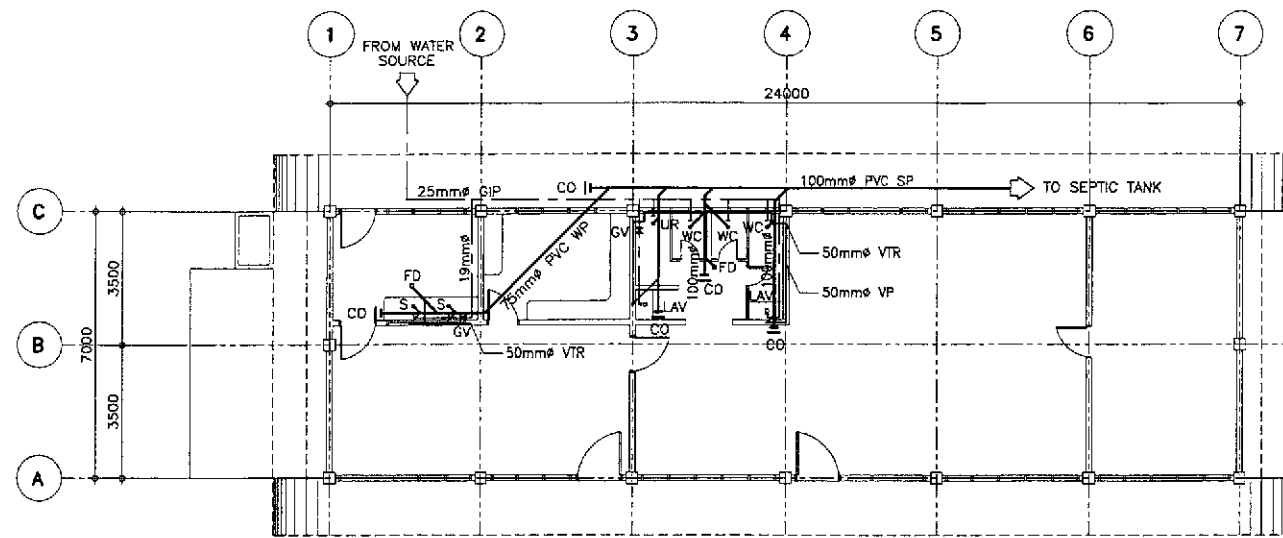
1 ELECTRICAL RISER DIAGRAMS  
FE-03 NOT TO SCALE

ERNESTO M. ANTICQUIA  
ENGINEER

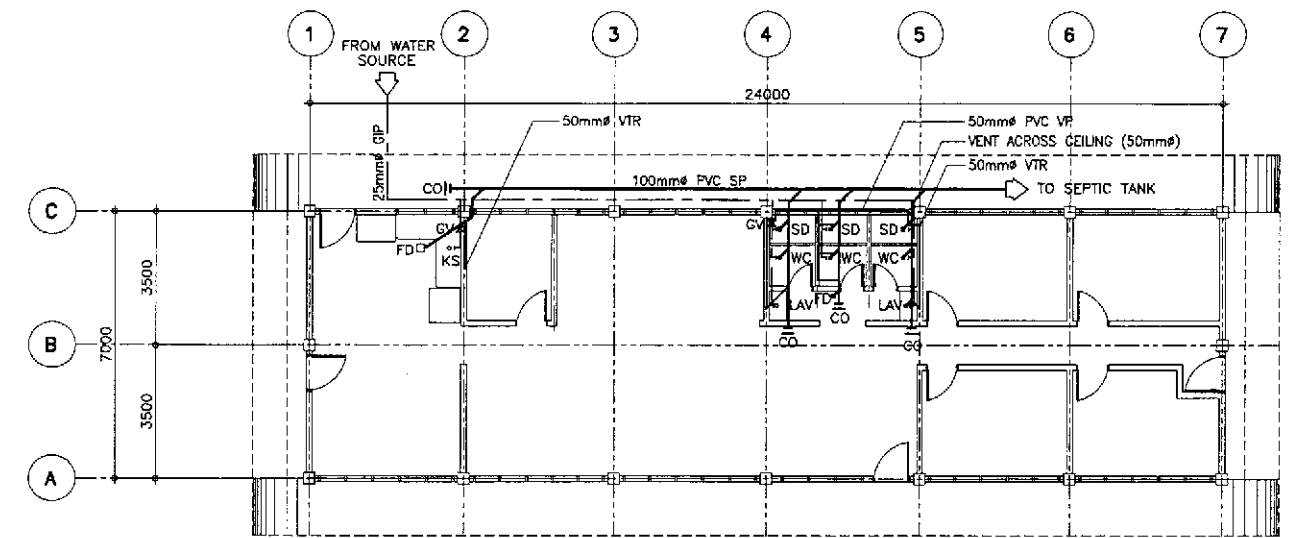
PTR. NO. 7403684 P.E.E. NO. 2913  
ISSUED ON 01/02/2002 ISSUED AT CAGAYAN, LAGUNA  
T.I.N. 109-382-379

<b>JICA</b> 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 Submitted By: DANILLO C. TRAJANO Reviewed By: FE M. BARRIENTOS Recommended By: GILBERTO S. REYES Approved By: MANUEL M. BONDAN 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 I		SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : ENGINEER'S FIELD OFFICE AND LIVING QUARTERS SCHEDULE OF LOADS AND COMPUTATIONS ELECTRICAL RISER DIAGRAM	SHEET NO. : FE-03
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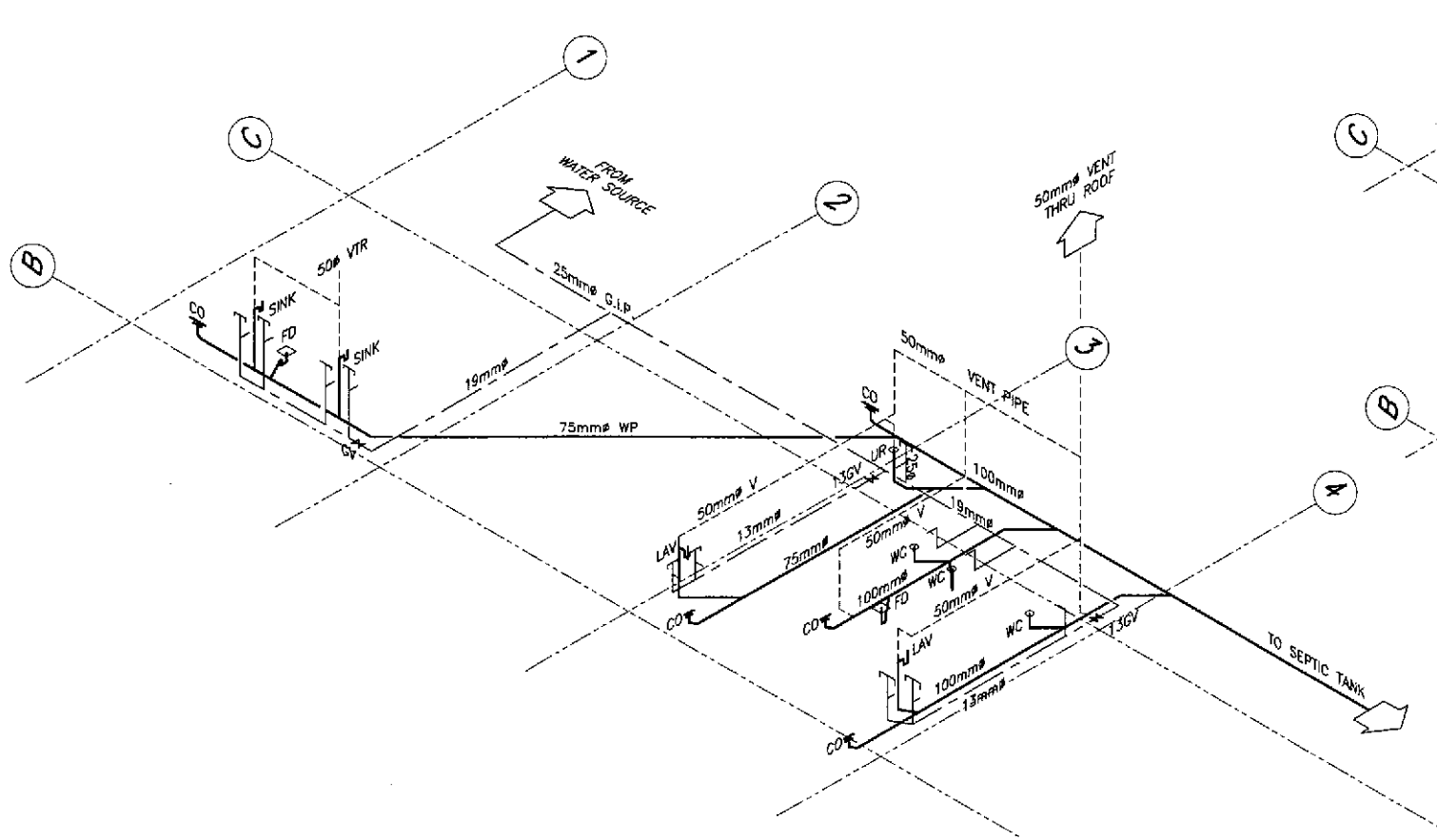


1  
FP-01  
ENGINEER'S FIELD OFFICE  
SEWER AND WATER LINE LAYOUT  
SCALE 1:100

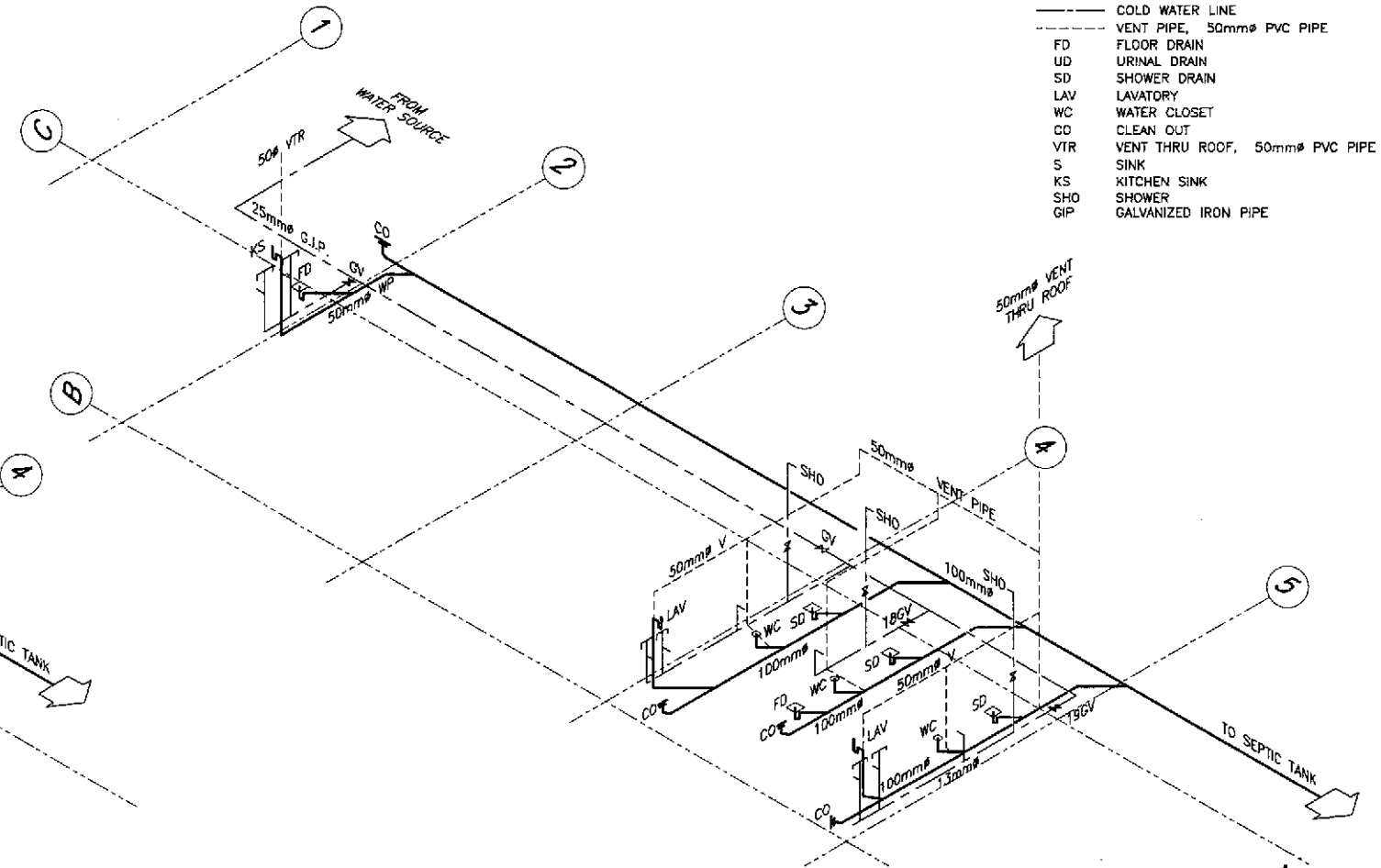


2  
FP-01  
ENGINEER'S LIVING QUARTER  
SEWER AND WATER LINE LAYOUT  
SCALE 1:100

- LEGEND :
- SEWER LINE
  - - - COLD WATER LINE
  - - - VENT PIPE, 50mm PVC PIPE
  - FD FLOOR DRAIN
  - UD URINAL DRAIN
  - SD SHOWER DRAIN
  - LAV LAVATORY
  - WC WATER CLOSET
  - CO CLEAN OUT
  - VTR VENT THRU ROOF, 50mm PVC PIPE
  - S SINK
  - KS KITCHEN SINK
  - SHO SHOWER
  - GIP GALVANIZED IRON PIPE



3  
FP-01  
(SHOWING SEWER AND WATER LINE)  
ISOMETRIC DIAGRAM  
SCALE 1:50

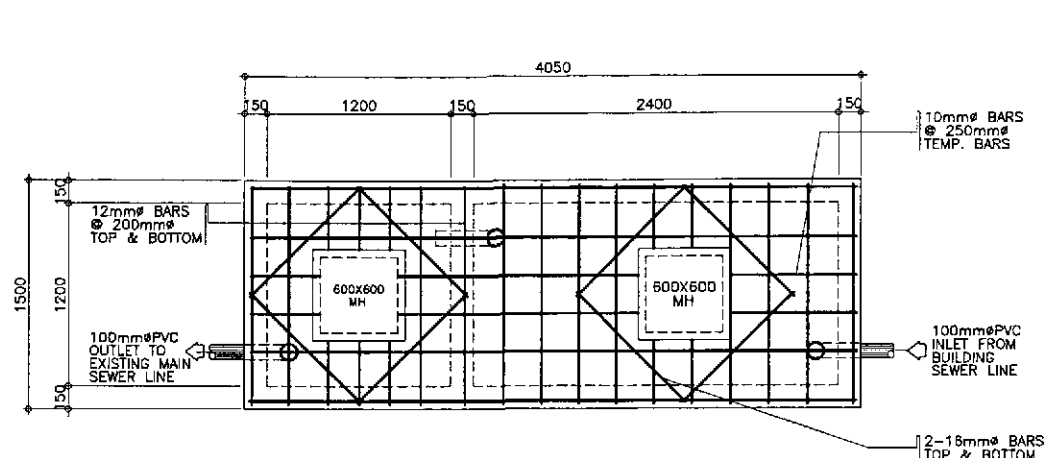


4  
FP-01  
(SHOWING SEWER AND WATER LINE)  
ISOMETRIC DIAGRAM  
SCALE 1:50

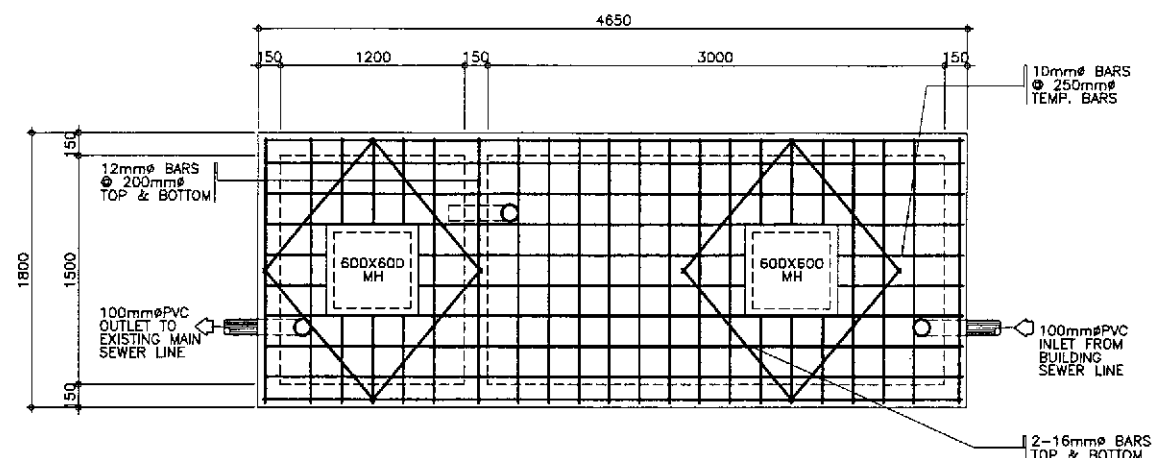
*RAVENSAL M. MARIAN*  
SANITARY ENGINEER

PTR. NO. 0083138 P.R.C. NO. 0000695  
ISSUED ON 03/26/2002 T.I.N. 119-878-225  
ISSUED AT SAN MATEO, RIZAL

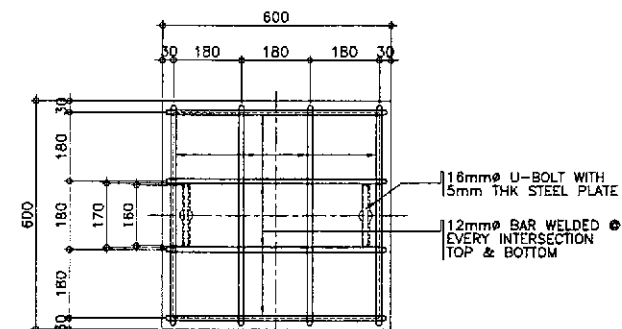
<b>JICA</b> JAPAN INTERNATIONAL COOPERATION AGENCY <b>KATAHIRA &amp; ENGINEERS</b> INTERNATIONAL <b>yeo</b> YACHIYO ENGINEERING CO., LTD.		DATE DESIGNED 10/1/02 CHECKED 10/15/02 SUBMITTED 10/16/02	SIGNATURE     	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE 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) CABANATUAN BYPASS - CONTRACT PACKAGE I	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : ENGINEER'S FIELD OFFICE AND LIVING QUARTERS SEWER AND WATER LINE LAYOUT AND ISOMETRIC DIAGRAM	SHEET NO. : FP-01
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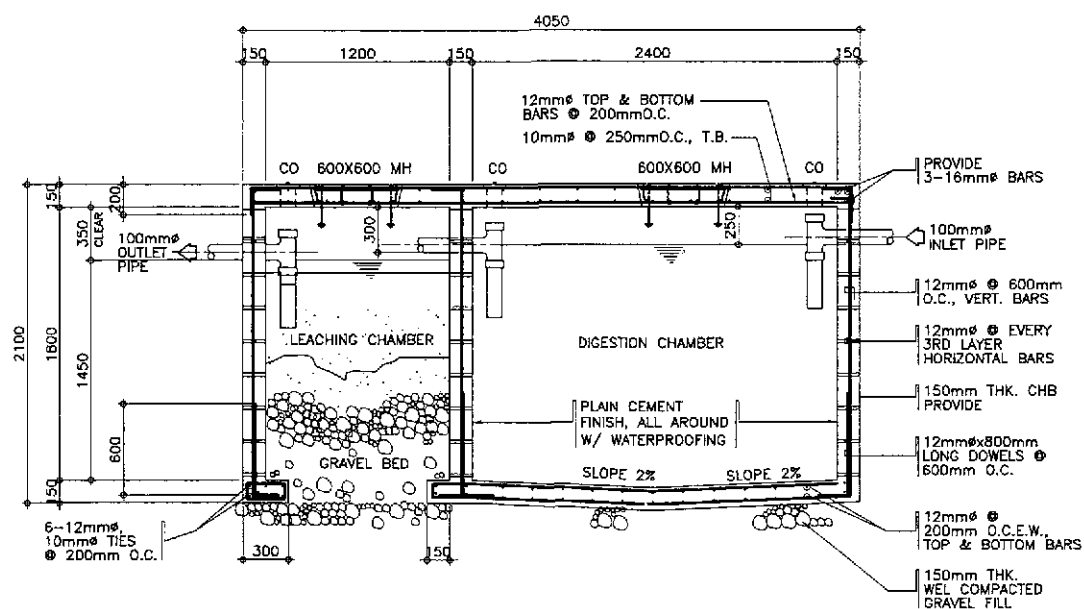
1A PLAN  
FP-02 SCALE 1:20



1C PLAN  
FP-02 SCALE 1:20

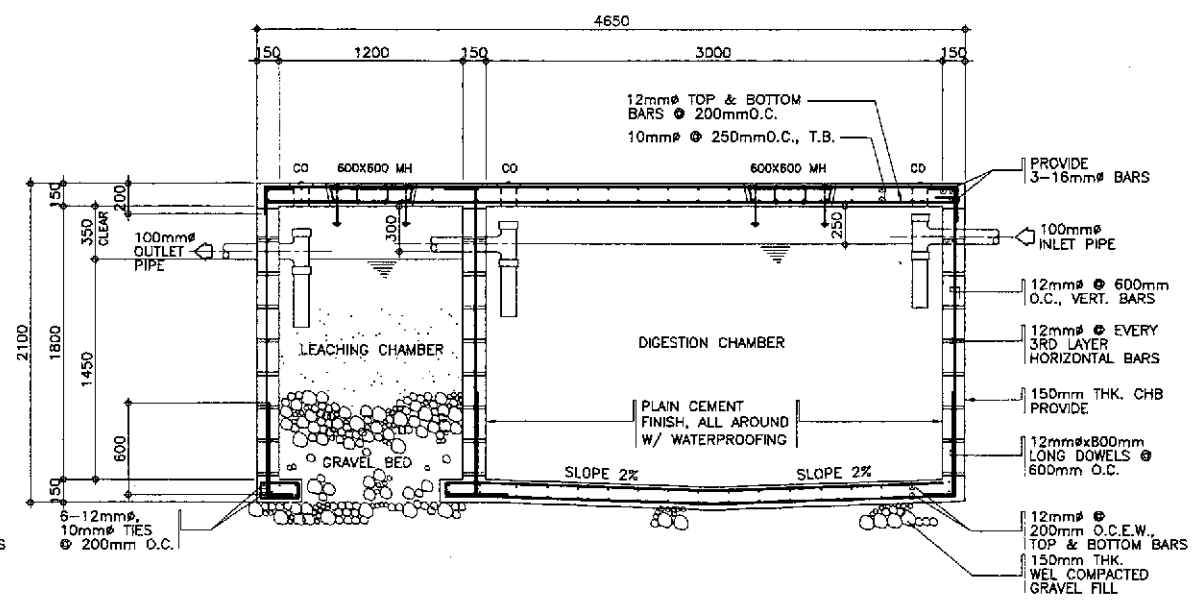


2A PLAN  
FP-02 SCALE 1:20



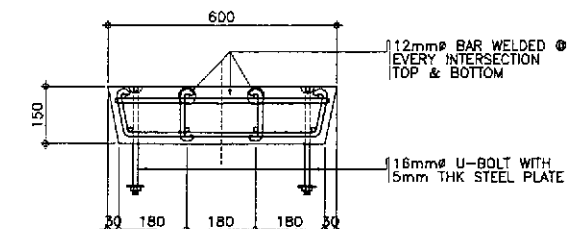
1B SECTION  
FP-02 SCALE 1:20

ENGINEER'S FIELD OFFICE



1D SECTION  
FP-02 SCALE 1:20

ENGINEER'S LIVING QUARTER



2B SECTION  
FP-02 SCALE 1:20

2 CONCRETE COVER DETAIL  
FP-02 SCALE AS SHOWN

#### GENERAL NOTES:

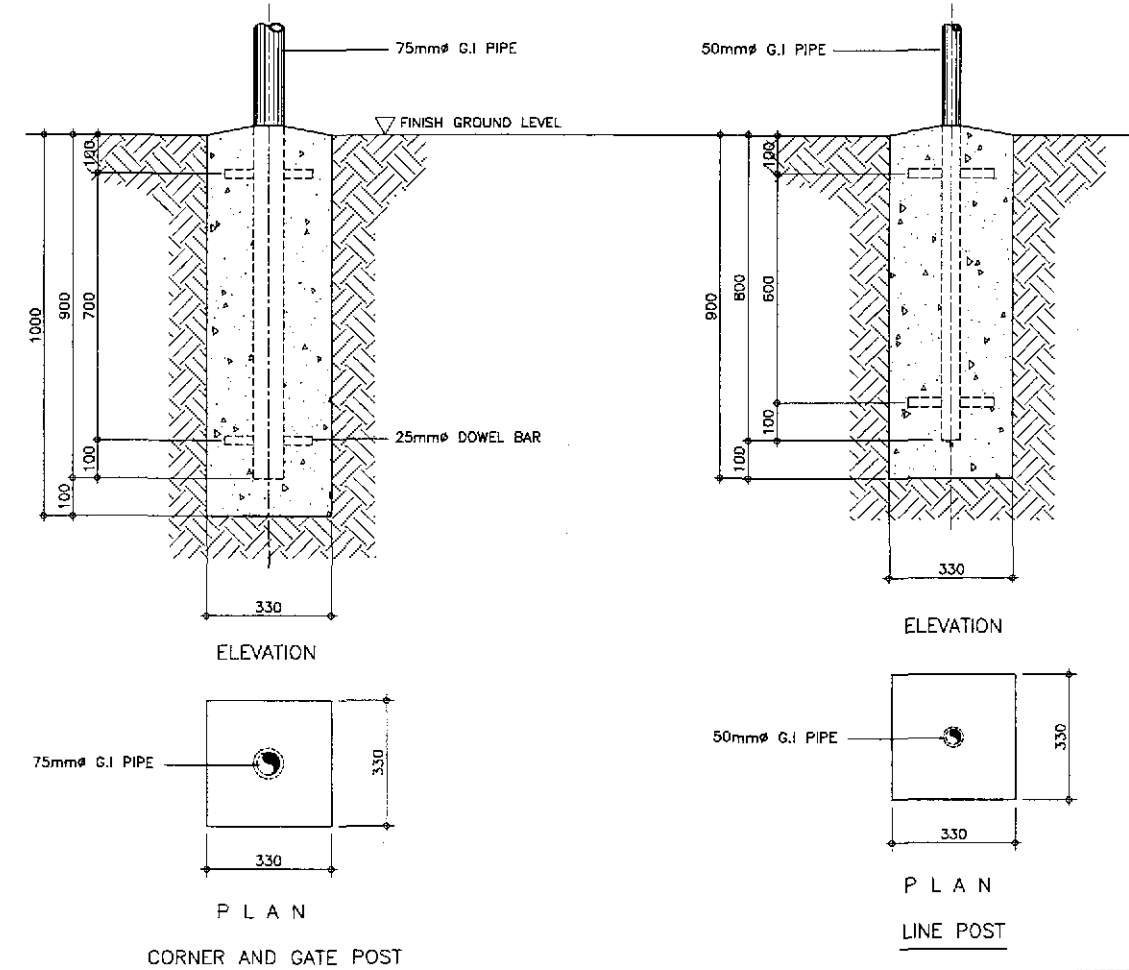
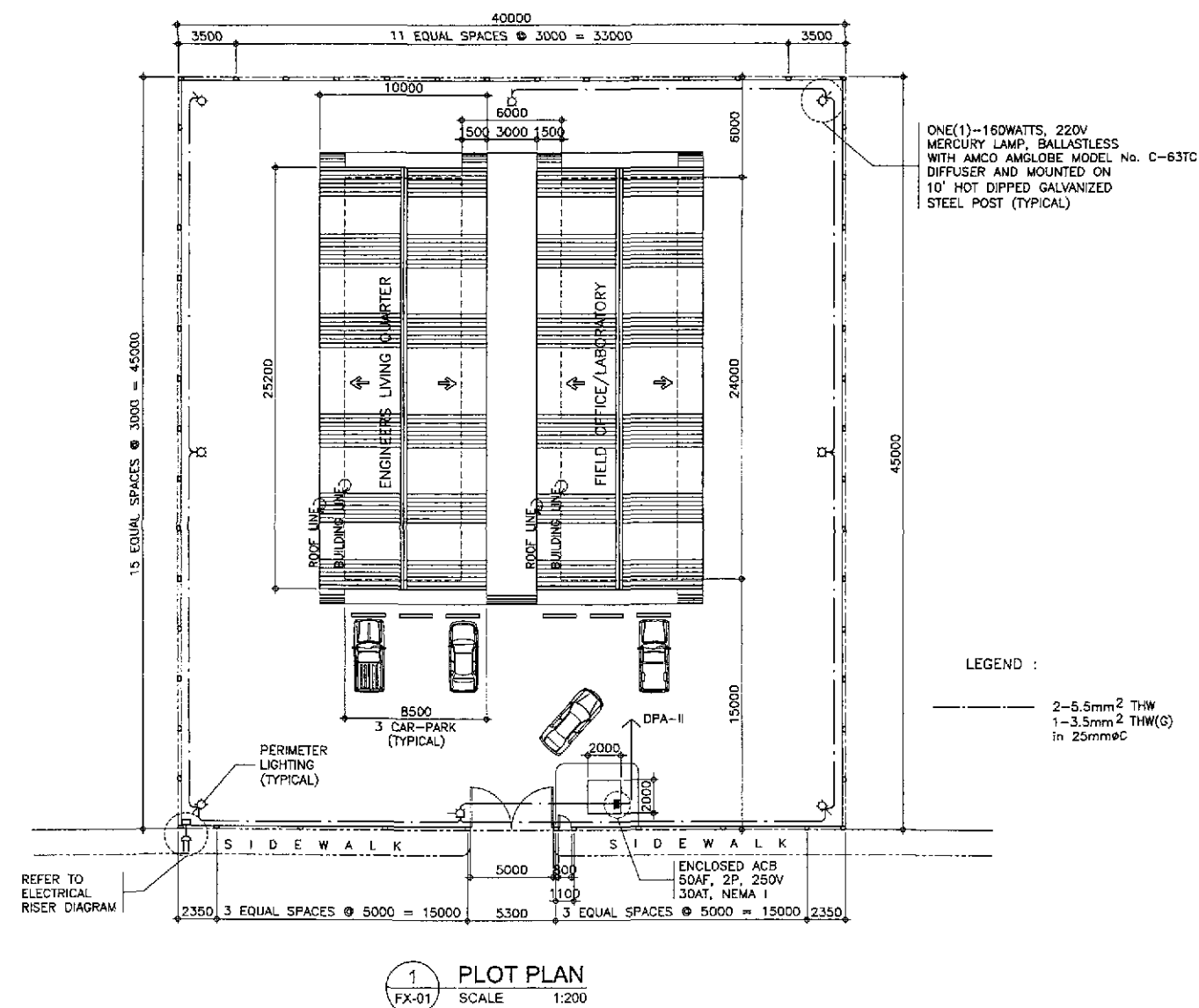
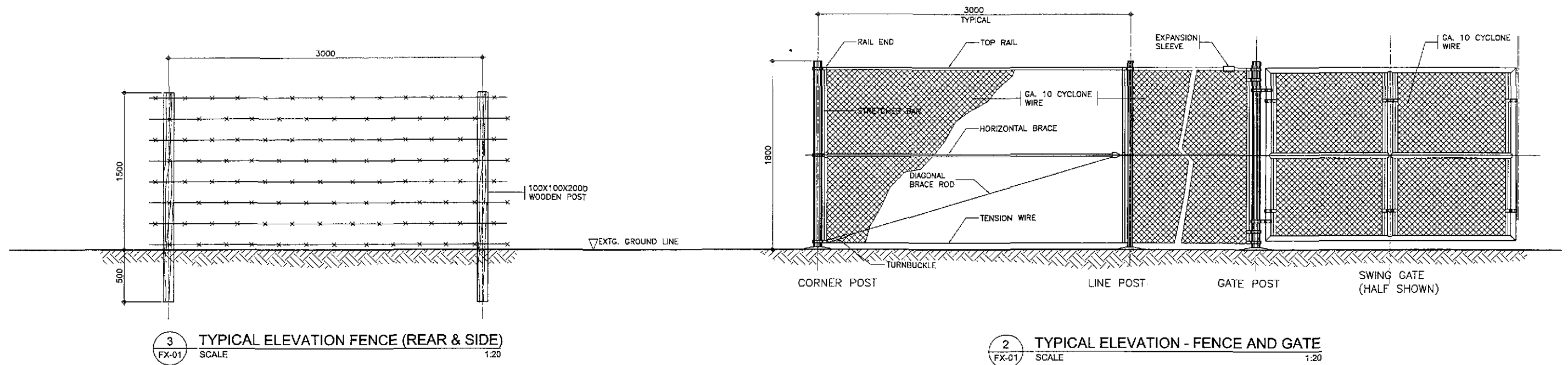
1. ALL PLUMBING WORKS INCLUDED HEREIN EXECUTED ACCORDING TO THE PROVISIONS AND REQUIREMENTS OF THE PHILIPPINE NATIONAL PLUMBING CODE.
2. SOIL AND WASTE PIPE LINE SHALL BE PVC, SIZE AS IN DRAWING.
3. ALL WATER LINES SHALL BE G.I. PIPE SCHEDULE 40 AND SIZE OF PIPES TO THE FIXTURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
4. PROVIDE 2% SLOPE FOR HOUSE AND SEWER LINES.
5. ALL G.I. PIPES AND FITTINGS BURIED UNDERGROUND SHALL BE LEAD COATED OR TAR COATED.
6. VENT THRU ROOF PIPE SHALL BE AT LEAST 0.30m ABOVE ROOF.
7. ALL DOWNSPOUTS SHALL BE PVC PIPES 75mm (3") UNLESS OTHERWISE SPECIFIED.

1 SEPTIC TANK DETAILS  
FP-02 SCALE AS SHOWN

FAUSTINO STA MARIA  
SANITARY ENGINEER

PTR. NO. 0083138 P.R.C. NO. 0000695  
ISSUED ON 03/26/2002 T.I.N. 119-878-225  
ISSUED AT SAN MATEO, RIZAL

<b>JICA</b> JAPAN INTERNATIONAL COOPERATION AGENCY <b>KATAHIRA &amp; ENGINEERS</b> INTERNATIONAL <b>YEO</b> YACHIYO ENGINEERING CO., LTD.		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY DESIGNED: 10/5/02 CHECKED: 10/15/02 SUBMITTED: 10/16/02 REVIEWED BY: EMANUEL P. CUNTAPAY RECOMMENDED BY: GILBERTO S. REYES APPROVED BY: MANUEL M. BONDAN APPROVED BY: SIMON 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 I	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : ENGINEER'S FIELD OFFICE AND LIVING QUARTERS SEPTIC TANK DETAILS	SHEET NO. : FP-02
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ARNEL F. GONZALES  
ENGINEER

PTR. NO. 2848340 P.R.C. NO. 53457  
ISSUED ON 04/25/2002 T.I.N. 138-062-682  
ISSUED AT SAN JUAN, M.M.

<b>JICA</b> JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL yeo YACHIYO ENGINEERING CO., LTD.		DESIGNED: 10/6/02 A. P. GONZALES CHECKED: 10/6/02 A. P. GONZALES SUBMITTED: 10/6/02 A. P. GONZALES	DATE: 10/6/02 SIGNATURE: A. P. GONZALES	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) CABANATUAN BYPASS - CONTRACT PACKAGE I	SCALE: AS SHOWN FULL SIZE A1	SHEET CONTENTS: ENGINEER'S FIELD OFFICE AND LIVING QUARTERS PLOT PLAN, ELEVATION OF FENCE & GATE TYPICAL FOUNDATION DETAILS	SHEET NO.: FX-01
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