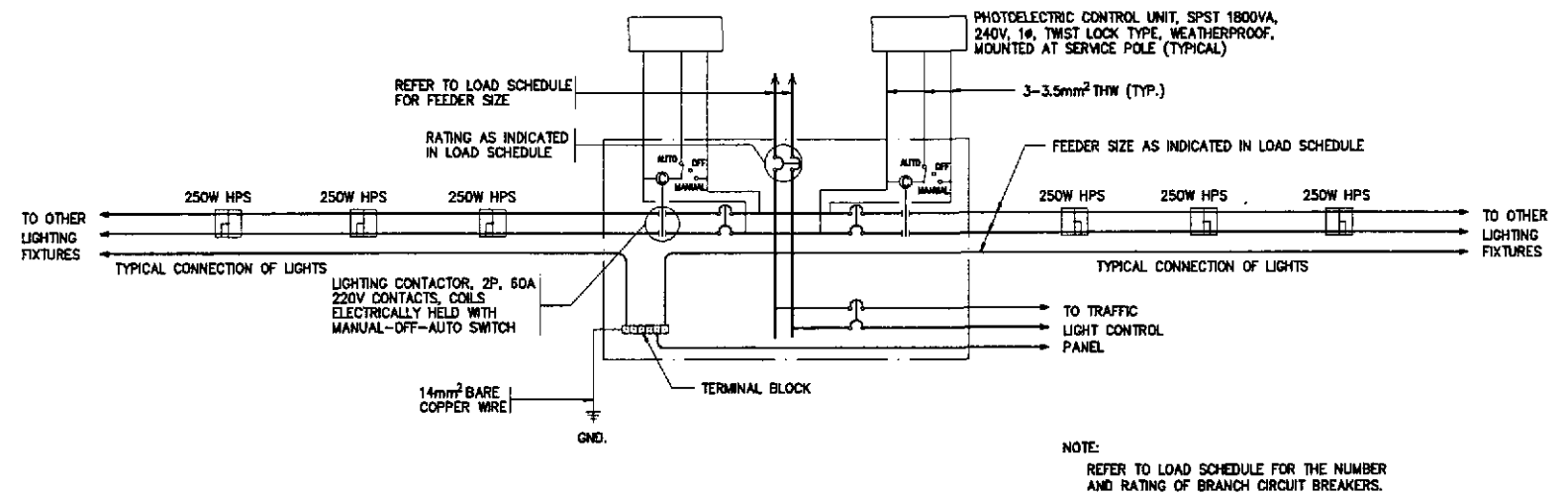


ELECTRICAL

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 IES TYPE III MEDIUM SEMI CUT-OFF, SIMILAR TO GE M250A2
- DITTO- EXCEPT DOUBLE ARM LIGHT POLE WITH 2 x 250 WATTS HPS LAMP
- 1 x 40W FLUORESCENT LIGHTING FIXTURE, 240V
- SERVICE ENTRANCE AND METERING PEDESTAL WITH LIGHTING CONTACTOR PANEL AS SHOWN IN THE DRAWINGS.
- CIRCUIT BREAKER, RATING AS SHOWN
- UNDERGROUND CONDUIT WITH CONCRETE ENVELOPE
- EXPOSED CONDUIT RUN
- UNDERGROUND CONDUIT WITH STEEL REINFORCED CONCRETE ENVELOPE
- KILOWATT HOUR METER, PHASE, VOLTAGE AND RATING AS SHOWN.
- CIRCUIT HOMERUN



NOTE:
REFER TO LOAD SCHEDULE FOR THE NUMBER AND RATING OF BRANCH CIRCUIT BREAKERS.

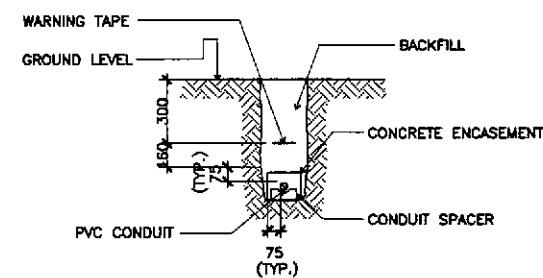
2 SCHEMATIC CONTROL DIAGRAM
ES-01 SCALE 1-20

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, 1φ, 2W, 60 Hz. 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 2-3.5mm² THW & 1-3.5mm² TW(GND) INSIDE STEEL POLE.
6. UNLESS OTHERWISE INDICATED ALL CONDUIT PIPES SHALL BE UNPLASTICIZED POLYVINYL CHLORIDE CONDUIT SCHEDULE 40 OR POLYTHELENE PIPE AS MANUFACTURED BY MOLDEX, NELTEX OR APPROVED EQUAL. THE CONDUIT SIZE INDICATED IS THE INSIDE DIAMETER OF CONDUIT.
7. THE CONTRACTOR SHALL VERIFY AND COORDINATE TO LOCAL UTILITY COMPANY THE ACTUAL LOCATION OF THE SERVICE ENTRANCE FOR CONNECTION TO THE POWER SUPPLY. LIKEWISE, THE CONCRETE PEDESTAL SHALL BE PROVIDED BY THE CONTRACTOR.
8. ALL NON-CURRENT CARRYING PARTS OF EVERY ELECTRICAL EQUIPMENT/FIXTURE SHALL BE GROUNDED EFFECTIVELY.
9. UNDERGROUND CONDUIT RUN SHALL BE BURIED A MINIMUM OF 450mm 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.
10. UNPROTECTED CONDUIT RISERS AND EXPOSED CONDUIT RUNS SHALL BE RIGID STEEL CONDUIT.
11. ALL PANELBOARD ENCLOSURES SHALL BE RAINIGHT, NEMA 4X ENCLOSURE (1.5mm THICK MINIMUM GAUGE 14 FOR BOX AND COVER) WITH CONCEALED HINGE AND FLUSH LOCK KEY.
12. ALL STREET LUMINAIRE ASSEMBLY INCLUDING POLE AND FOUNDATION SHALL WITHSTAND WINDS UP TO 250 KPH PER HOUR GUSTING WITHOUT PERMANENT DEFORMATION.
13. DO NOT INSTALL POLE WITHOUT COMPLETE INSTALLATION/CONNECTION OF THE LUMINAIRE ASSEMBLY.
14. ALL CIRCUIT BREAKERS SHALL BE UL LISTED AS SWD (SWITCHING DUTY) SUITABLE FOR HIGH INITIAL INRUSH CURRENT FOR SWITCHING THE PRESSURE SODIUM LUMINAIRES. SIEMENS-ITE, SQUARE D, WESTINGHOUSE BRANDS SHALL BE USED OR APPROVED EQUIVALENT.
15. 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 450mm 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.

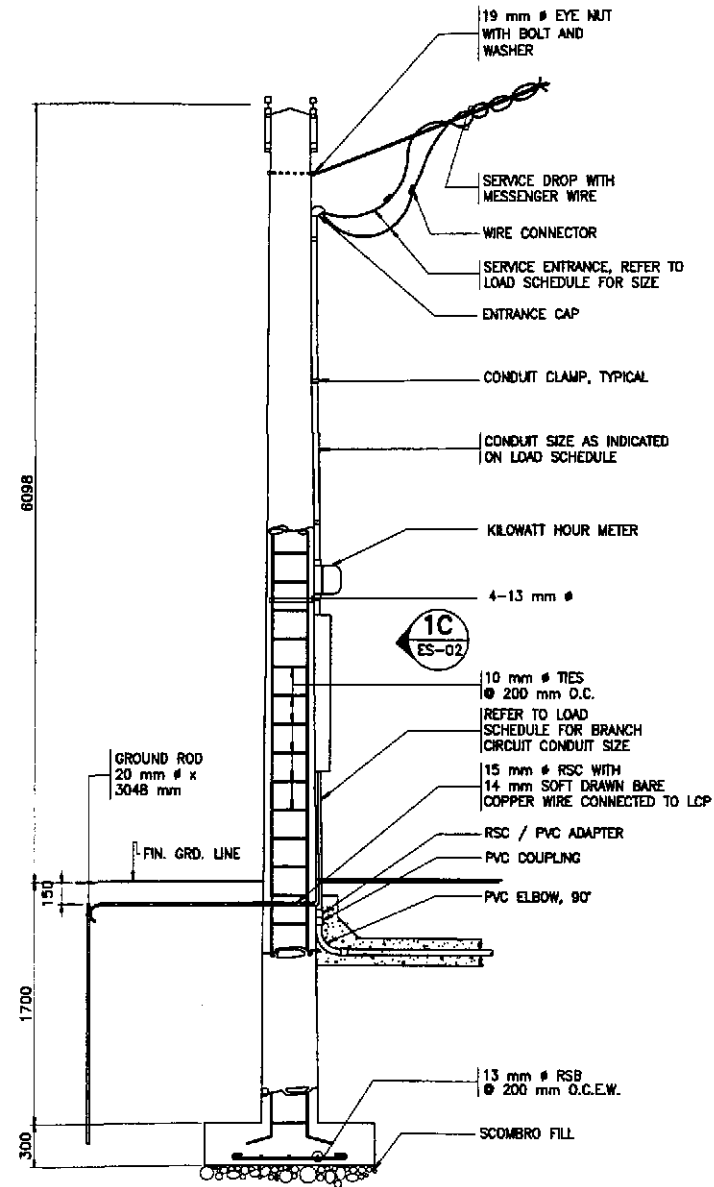


1 TYPICAL DUCT SECTION
ES-01 NOT TO SCALE

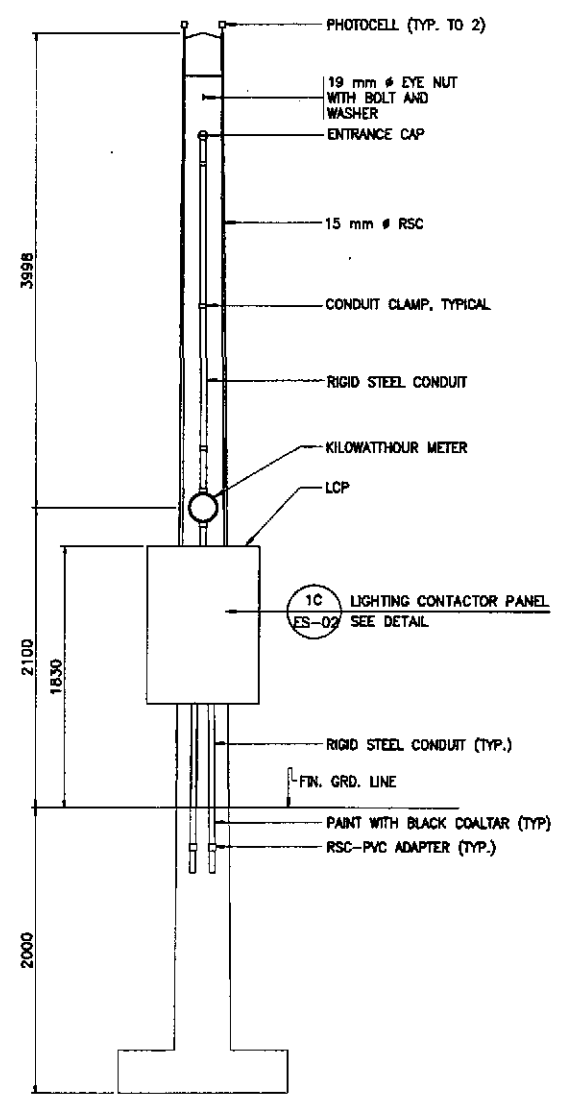
ERNESTO M. ANTIOQUIA
ENGINEER
P.R. NO. 2402884 P.E.C. NO. 2813
ISSUED ON 09/02/2002 ISSUED AT CAGAYAN DE ORO
T.A. 108-382-378

	DESIGNED	10/16/02		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 (Pilaridol, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : NOTES & LEGENDS, SCHEMATIC CONTROL DIAG. & DUCT SECTION ALL INTERSECTIONS (INITIAL STAGE)	SHEET NO. : ES-01					
	CHECKED	10/16/02							Submitted By: DANIL C. TRAJANO Project Director	Reviewed By: FE M. BARRIENTOS Chief, Mech'-Elect' Division	Recommended By: GILBERTO S. REYES OIC, Director IV	(See cover sheet for Signatures) MANUEL M. BONJAN Undersecretary	(See cover sheet for Signatures/Approvals) SIMEON A. DATUMANONG Secretary
	SUBMITTED	10/18/02							TEAM LEADER	Project Director	Chief, Mech'-Elect' Division	Undersecretary	Secretary

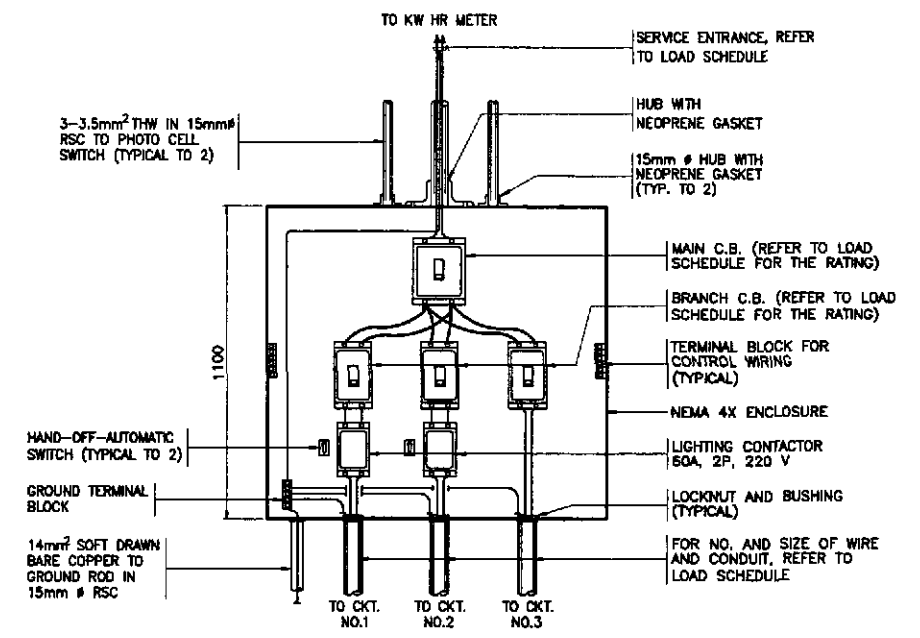
NOTE:
 FOR THE LIGHTING CONTACTOR PANEL THAT HAS ONLY ONE CIRCUIT, THE CONTRACTOR SHALL PROVIDE ONE SET OF CIRCUIT BREAKER, LIGHTING CONTACTOR AND H-D-A SWITCH (REFER TO LOAD SCHEDULE FOR THE RATING OF CIRCUIT BREAKER).



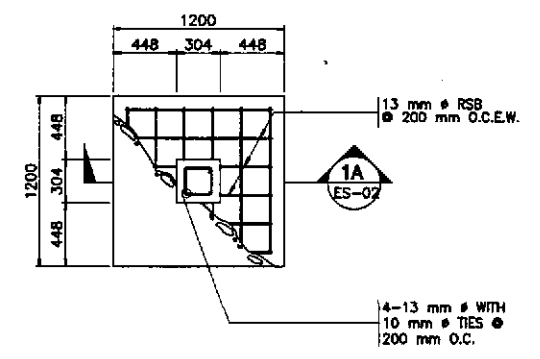
1A SECTION
 ES-02



1B ELEVATION
 ES-02



1C DETAIL
 ES-02 SCALE 1:20

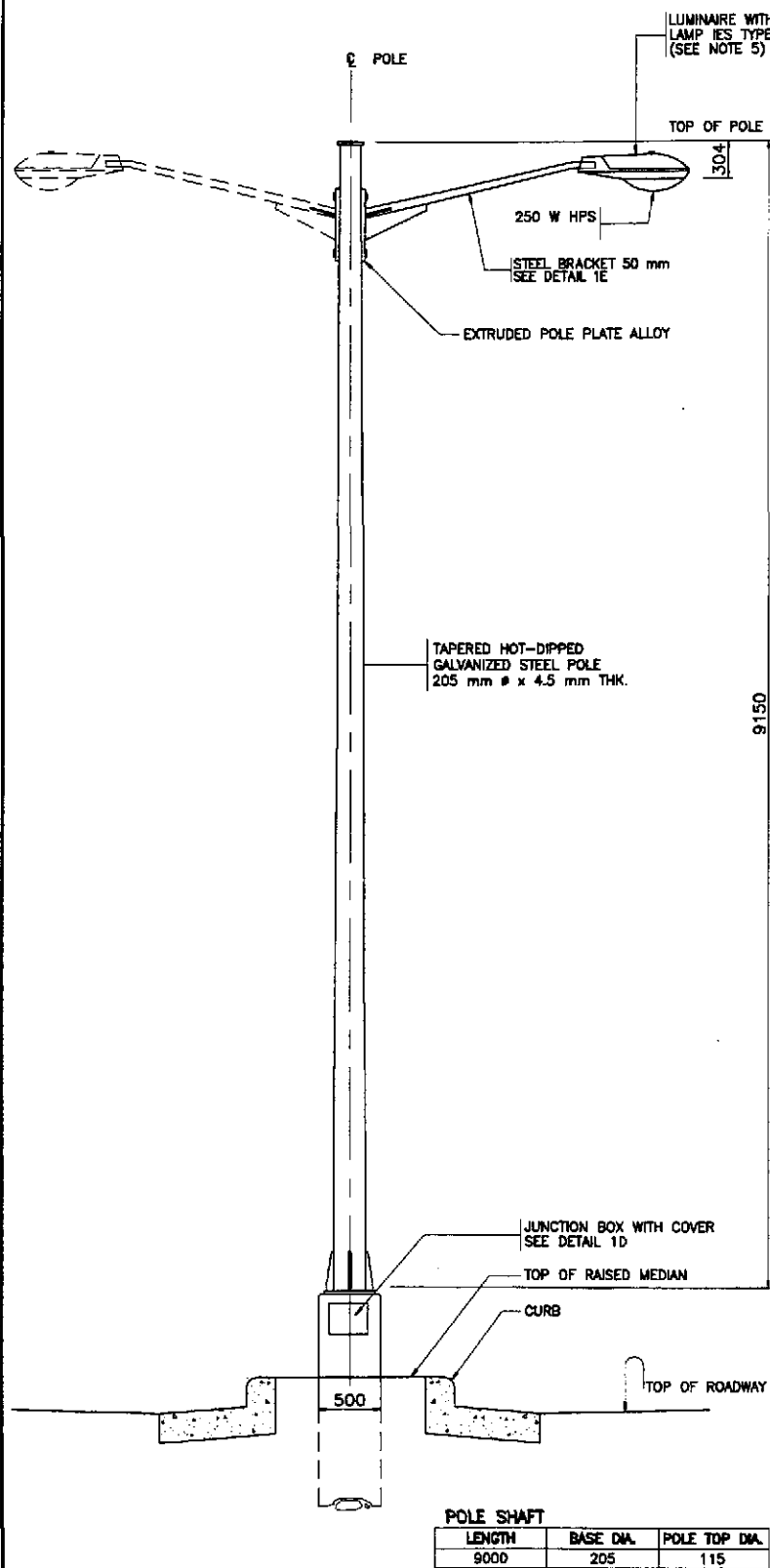


1D FOOTING PLAN
 ES-02

1 SERVICE POLE DETAILS
 ES-02 SCALE 1:20

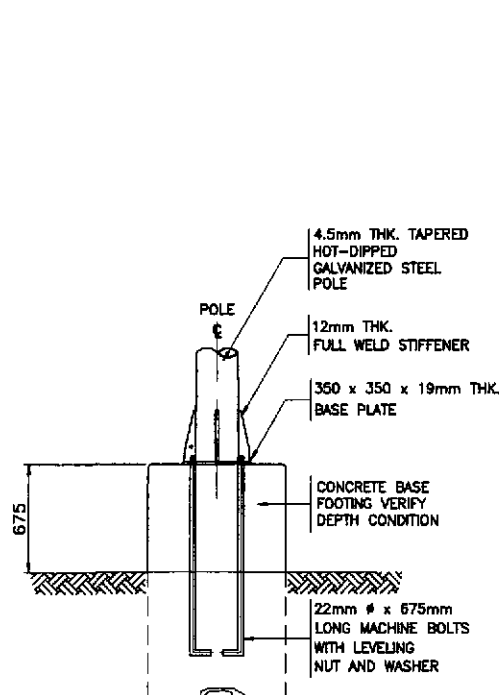
EM
 ERNESTO M. ANTIOQUIA
 DESIGNER
 PTR. NO. 740288-1 P.E.L. NO. 2913
 ISSUED ON 01/02/2002 ISSUED AT CAGAYAN DE ORO
 T.L.N. 100-382-378

JICA JAPAN INTERNATIONAL COOPERATION AGENCY		DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN		PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		SCALE : AS SHOWN	SHEET CONTENTS : SERVICE POLE DETAILS ALL INTERSECTIONS (INITIAL STAGE)	SHEET NO. : ES-02
DESIGNED 10/16/02	CHECKED 10/16/02	SUBMITTED 10/18/02	Submitted By: DANILO C. TRAJANO Project Director	Reviewed By: FE M. BARRIENTOS Chief, Mech-Elect ¹ Division	Recommended By: GILBERTO S. REYES OIC, Director IV	Recommended By: MANUEL M. BONDAN Undersecretary	Approved By: SIMEDON A. DATUMANONG Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE II FULL SIZE A1

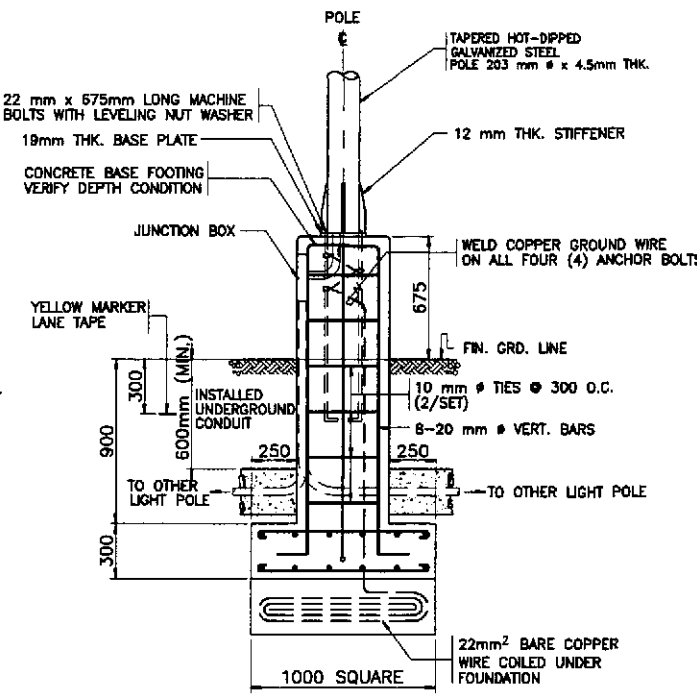


1A ELEVATION
ES-03

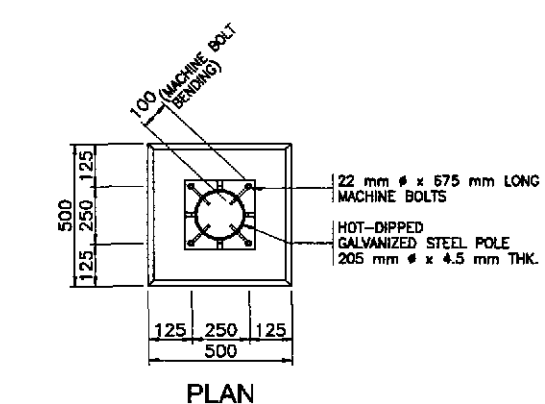
- NOTES:
1. CONCRETE MIXTURE SHOULD BE 211 kg./cm (3000 PSI)
 2. PAINT ALL JOINTS IN BOX AND CONDUIT WITH RED LEAD PRIMER BEFORE POURING CONCRETE.
 3. FOR CONDUIT LARGER THAN 40mm ϕ , KNOCKOUTS AND HOLES SHALL HAVE TO BE WIDENED BY THE USER TO THE DESIRED DIAMETER.
 4. FOR LOAM AND MUDDY SOIL, REFER TO CIVIL ENGINEERING FOR PROPER FOUNDATION DEPTH.
 5. LUMINAIRE LAMP SHALL BE 250W HIGH PRESSURE SODIUM WITH DIFFUSE FINISH AND INITIAL LUMENS OF 26,000. BALLAST SHALL BE UL LISTED, CONSTANT WATTAGE TRANSFORMER CWA OR REGULATOR, HIGH POWER FACTOR TYPE RATED 240V, 60 Hz WITH ALLOWABLE LINE VOLTAGE VARIATION OF $\pm 10\%$.
 6. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



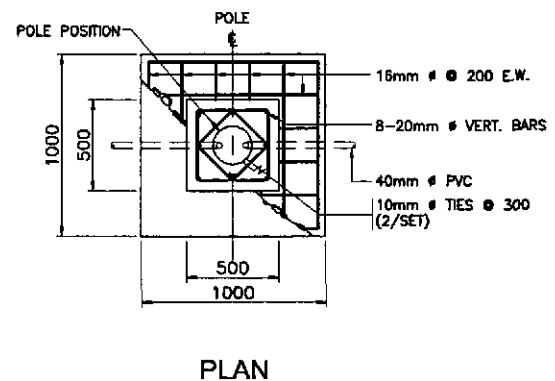
1B BASE PLATE DETAIL
ES-03



1D STANDARD FOOTING DETAIL
ES-03

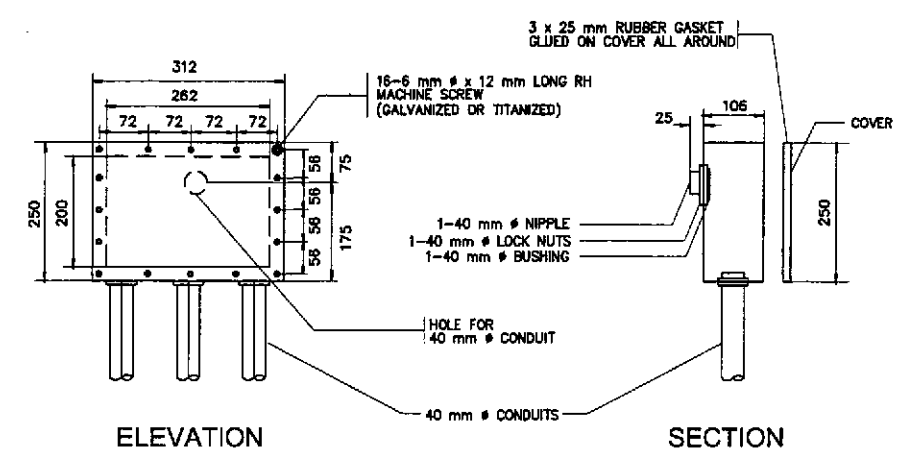


PLAN

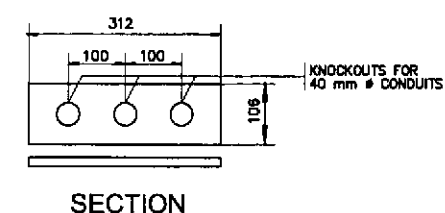


PLAN

1 STREET LIGHT POLE DETAILS
ES-03 NOT TO SCALE



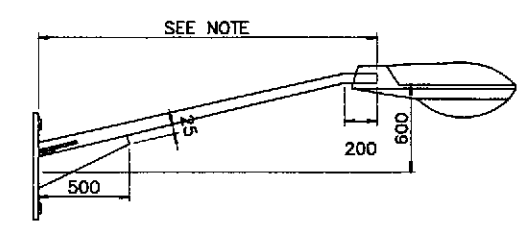
ELEVATION SECTION



SECTION

- MATERIAL:
- JUNCTION BOX - 50 mm THICK CAST ALUMINUM FOR BOX AND COVER
 - ANCHOR BOLT - ASTM A-36
- FINISH:
- ANCHOR BOLT - ASTM A-153

1D JUNCTION BOX DETAILS
ES-03



- NOTE:
- ARM LENGTH SHALL BE 3000mm UNLESS OTHERWISE INDICATED IN THE PLAN.
- MATERIAL:
- MAST ARM - B.I. PIPE AS PER PMS 28: 1984 (MEDIUM SERIES)
 - POLE SHAFT AS PER ASTM A-53 MOUNTING PLATE AND STIFFENERS
 - MACHINE BOLT - ANSI-C135.
- FINISH:
- HOT-DIP GALVANIZED PER LATEST EDITION OF ASTM A-123
 - MACHINE BOLT - ASTM A-153

1E MAST ARM DETAILS
ES-03

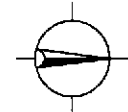
EM
ERNESTO M. ANTIOQUIA
ENGINEER

PTR. NO. 7403004 FILE NO. 2012
ISSUED ON 05/03/2002 ISSUED AT CEBU, CEBU
T.A.N. 108-368-378

	DESIGNED	DATE	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 (Pardiel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : STREET LIGHT POLE DETAILS ALL INTERSECTIONS (INITIAL STAGE)	SHEET NO. : ES-03					
	CHECKED	10/16/02	<i>E. Antioquia</i>						Submitted By: DANILDO C. TRAJANO Project Director	Reviewed By: FE M. BARRIENTOS Chief, Mech-Elect'l Division	Recommended By: GILBERTO S. REYES OIC, Director M	Recommended By: MANUEL M. BONDAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary
	SUBMITTED	10/16/02	<i>M. Bondan</i>						TEAM LEADER	Project Director	Chief, Mech-Elect'l Division	OIC, Director M	Undersecretary

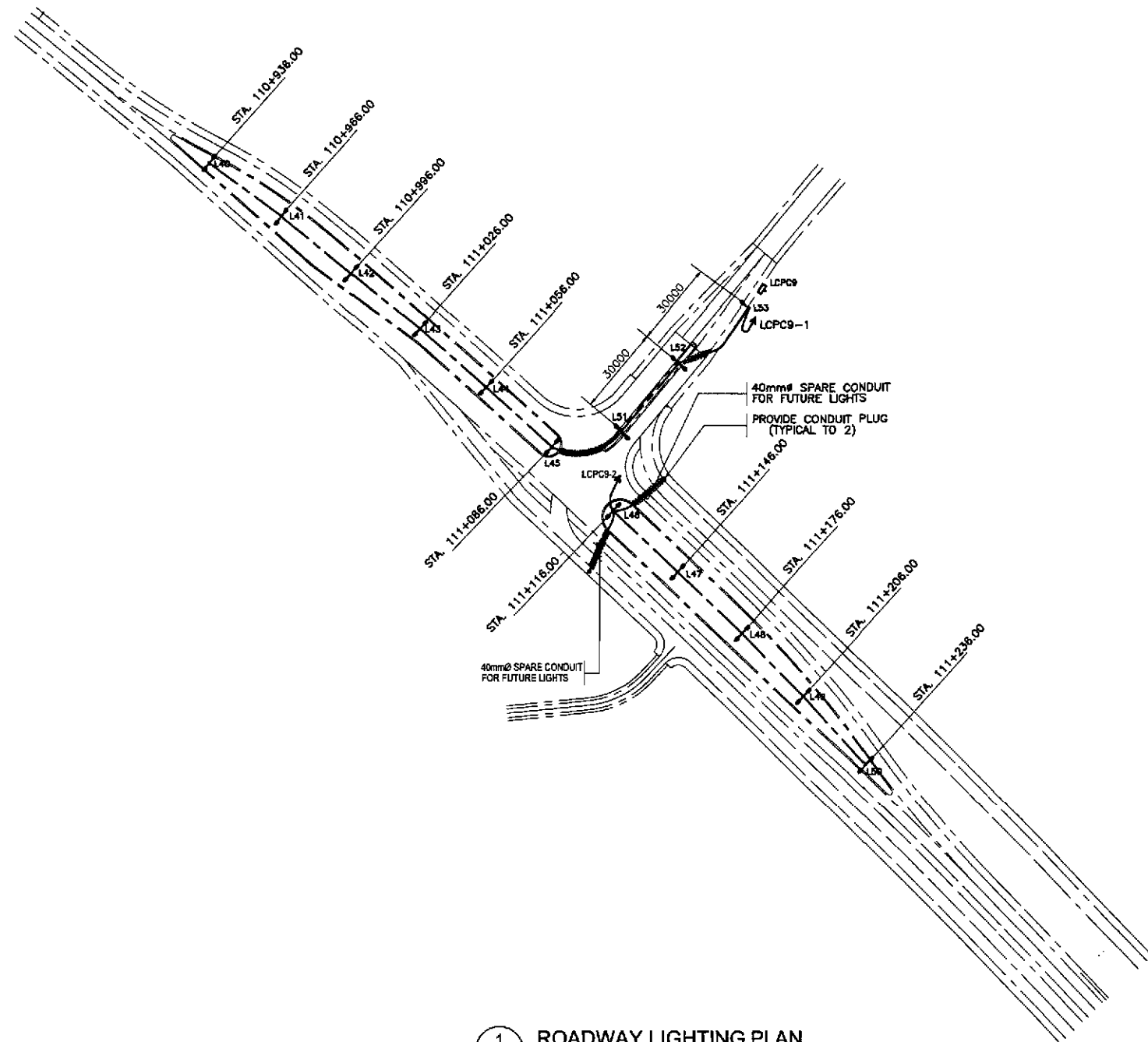
NOTES:

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



LOAD SCHEDULE

CKT. NO.	LOAD DESCRIPTION	VOLTS	CONNECTED LOAD		NO. & SIZE OF WIRES & CONDUIT	PROTECTION		
			(VA)	AMPERE		AT	AF	P
1	L53 (1 x 250 W HPS)	220	310	1.41	SEE NOTE 1			
	L52 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L51 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L45 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L44 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L43 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L42 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L41 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
L40 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1				
	SUB-TOTAL		5270	23.97	2-22 mm ² THW & 1-8.0 mm ² TW(G) IN 40 mm# CONDUIT	30	100	2
2	L46 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L47 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L48 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L49 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L50 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L54 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L55 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L56 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L57 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L58 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L59 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L60 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L61 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L62 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L63 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L64 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	SUB-TOTAL		6510	29.61	2-30 mm ² THW & 1-8.0 mm ² TW(G) IN 40 mm# CONDUIT	40	100	2
3	TRAFFIC LIGHTS	220	3450	15	WIRES & CONDUIT (BY OTHERS)	30	100	2
	TOTAL		15230	68.58	2-38 mm ² THW IN 40 mm# CONDUIT	90	100	2



1 ROADWAY LIGHTING PLAN
E1-01 SCALE 1:1000

ERNESTO M. ANTIOQUIA
OWNER
PTR. NO. 740284 P.E.E. NO. 2915
ISSUED ON 07/02/2008 ISSUED AT CAGAYAN LAGUNA
T.L.K. 108-262-372

	DESIGNED	10/16/02	[Signature]	PJHL - PWD BUREAU OF DESIGN Submitted By: DANILO C. TRAJANO Project Director	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS Reviewed By: FE M. BARRIENTOS Chief, Mech-Elect Division	OFFICE OF THE SECRETARY Recommended By: GILBERTO S. REYES OIC, Director IV Approved By: MANUEL M. BONJAN Undersecretary SIMEON A. DATUMANONG Secretary	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/16/02	[Signature]				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	1:1000 FULL SIZE A1	ROADWAY LIGHTING PLAN AND LOAD SCHEDULE INTERSECTION A-14 (INITIAL STAGE)	EI-01

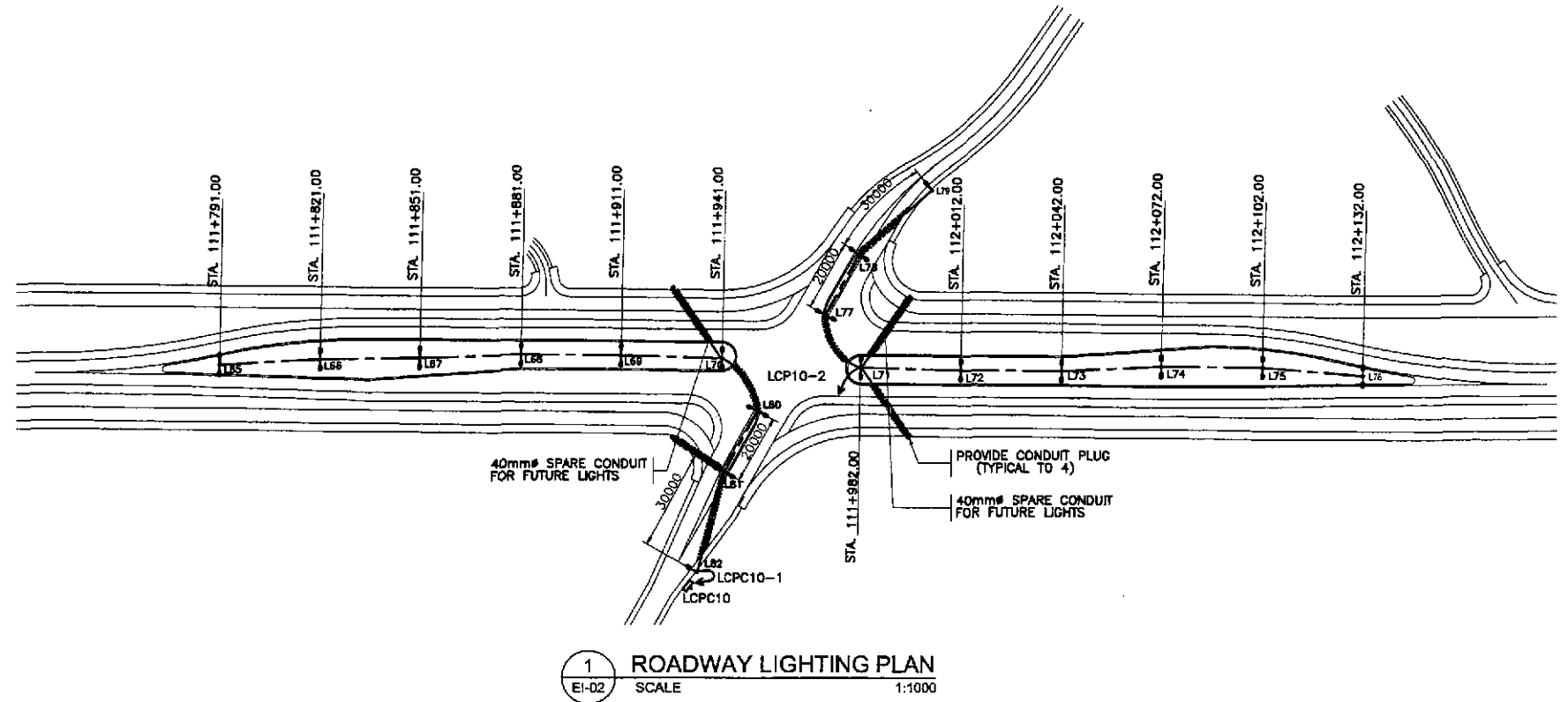
NOTE:

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



LOAD SCHEDULE

CKT. NO.	LOAD DESCRIPTION	VOLTS	CONNECTED LOAD		NO. & SIZE OF WIRES & CONDUIT	PROTECTION		
			(VA)	AMPERE		AT	AF	P
1	L82 (1 x 250 W HPS)	220	310	1.41	SEE NOTE 1			
	L81 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L80 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L70 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L69 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L68 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L67 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L66 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L65 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L83 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L84 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L85 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L86 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L87 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L88 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L89 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L90 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L91 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L92 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
L93 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1				
	SUB-TOTAL		9300	42.27	2-30 mm ² THW & 1-8.0 mm ² TW(G) IN 40 mm# CONDUIT	60	100	2
2	L71 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L72 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L73 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L74 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L75 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L76 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L77 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L78 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L79 (1 x 250 W HPS)	220	310	1.41	SEE NOTE 1			
	L94 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L95 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L96 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L97 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L98 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	SUB-TOTAL		8680	39.48	2-50 mm ² THW & 1-8.0 mm ² TW(G) IN 40 mm# CONDUIT	50	100	2
3	TRAFFIC LIGHTS	220	3450	15	WIRES & CONDUIT (BY OTHERS)	30	100	2
	TOTAL		20810	93.96	2-50 mm ² THW & 1-8.0 mm ² TW(G) IN 40 mm# CONDUIT	125	225	2

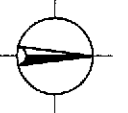


Ernst
ERNESTO M. ANTIOQUIA
 ENGINEER
 P.R. NO. 7403804 P.E.C. NO. 2913
 ISSUED ON 01/02/2002 ISSUED AT CAGAYAN, LAOAG
 T.I.N. 108-383-370

	DESIGNED	10/11/02	<i>[Signature]</i> E. ANTIOQUIA	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)			SCALE : 1:1000	SHEET CONTENTS : ROADWAY LIGHTING PLAN AND LOAD SCHEDULE INTERSECTION A-15 (INITIAL STAGE)	SHEET NO. : E1-02
	CHECKED	10/16/02	<i>[Signature]</i> E. ANTIOQUIA		BUREAU OF DESIGN			CABANATUAN BYPASS - CONTRACT PACKAGE II FULL SIZE A1		
	SUBMITTED	10/18/02	<i>[Signature]</i> E. ANTIOQUIA		Submitted By: DANILLO C. TRAJANO Project Director	Reviewed By: FE M. BARRIENTOS Chief, Mech-Elect Division	Recommended By: GILBERTO S. REYES OIC, Director IV			

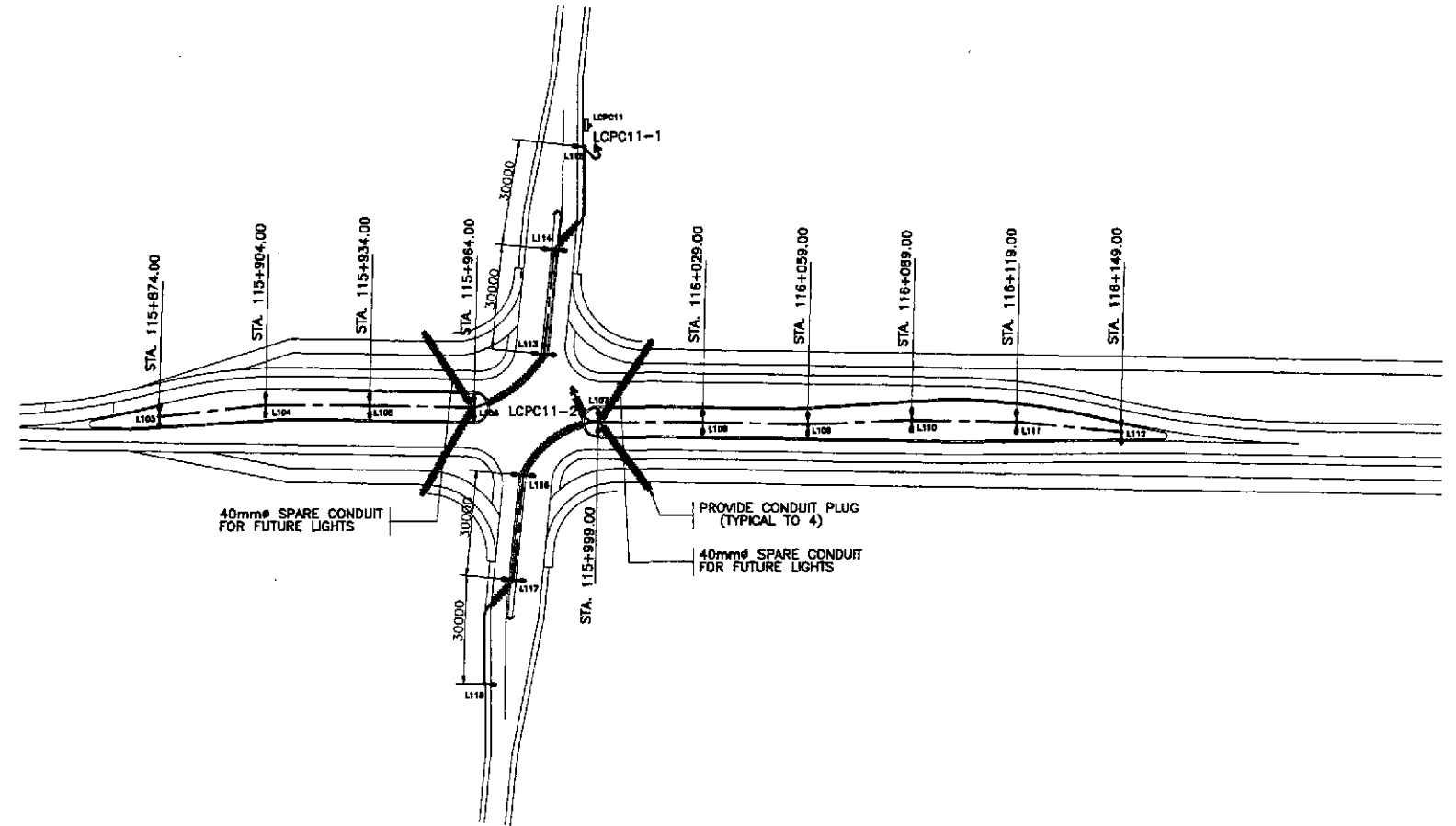
NOTE:

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



LOAD SCHEDULE

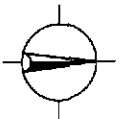
CKT. NO.	LOAD DESCRIPTION	VOLTS	CONNECTED LOAD		NO. & SIZE OF WIRES & CONDUIT	PROTECTION		
			(VA)	AMPERE		AT	AF	P
1	L115 (1 x 250 W HPS)	220	310	1.41	SEE NOTE 1			
	L114 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L113 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L106 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L105 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L104 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L103 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L126 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L125 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L124 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L123 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L122 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L121 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L120 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L119 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
SUB-TOTAL			6510	29.61	2-30 mm ² THW & 1-8.0 mm ² TW(G) IN 40 mm ϕ CONDUIT	40	100	2
2	L107 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L108 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L109 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L110 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L111 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L112 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L133 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L134 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L135 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L136 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L137 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L138 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L127 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L128 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L129 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
L130 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1				
L131 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1				
L132 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1				
SUB-TOTAL			7440	33.84	2-38 mm ² THW & 1-8.0 mm ² TW(G) IN 40 mm ϕ CONDUIT	50	100	2
3	TRAFFIC LIGHTS	220	3450	15	WIRES & CONDUIT (BY OTHERS)	30	100	2
TOTAL			17400	78.45	2-38 mm ² THW IN 40 mm ϕ CONDUIT	100	100	2



1 ROADWAY LIGHTING PLAN
 EI-03 SCALE 1:1000

Ernesto M. Antioquia
ERNESTO M. ANTIOQUIA
 ENGINEER
 P.R. NO. 7402884 P.E.E. NO. 2813
 ISSUED ON 01/02/2008 ISSUED AT CAGAYAN LARANA
 T.A. 108-382-373

	DESIGNED	DATE	SIGNATURE	P.H.E. - PMO Submitted By: DANILLO C. TRAJANO Project Director	BUREAU OF DESIGN Reviewed By: FE. M. BARRIENTOS Chief, Mech-Elect Division	OFFICE OF THE SECRETARY Recommended By: GILBERTO S. REYES OIC, Director IV	Approved By: MANUEL M. BONDAN Undersecretary	Approved By: SIMEDON A. DATUMANONG Secretary	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/16/02	<i>E. Antioquia</i>						THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses)	1:1000	ROADWAY LIGHTING PLAN AND LOAD SCHEDULE	EI-03
	SUBMITTED	10/18/02	<i>Ernesto M. Antioquia</i>						CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1	INTERSECTION A-18 (INITIAL STAGE)	

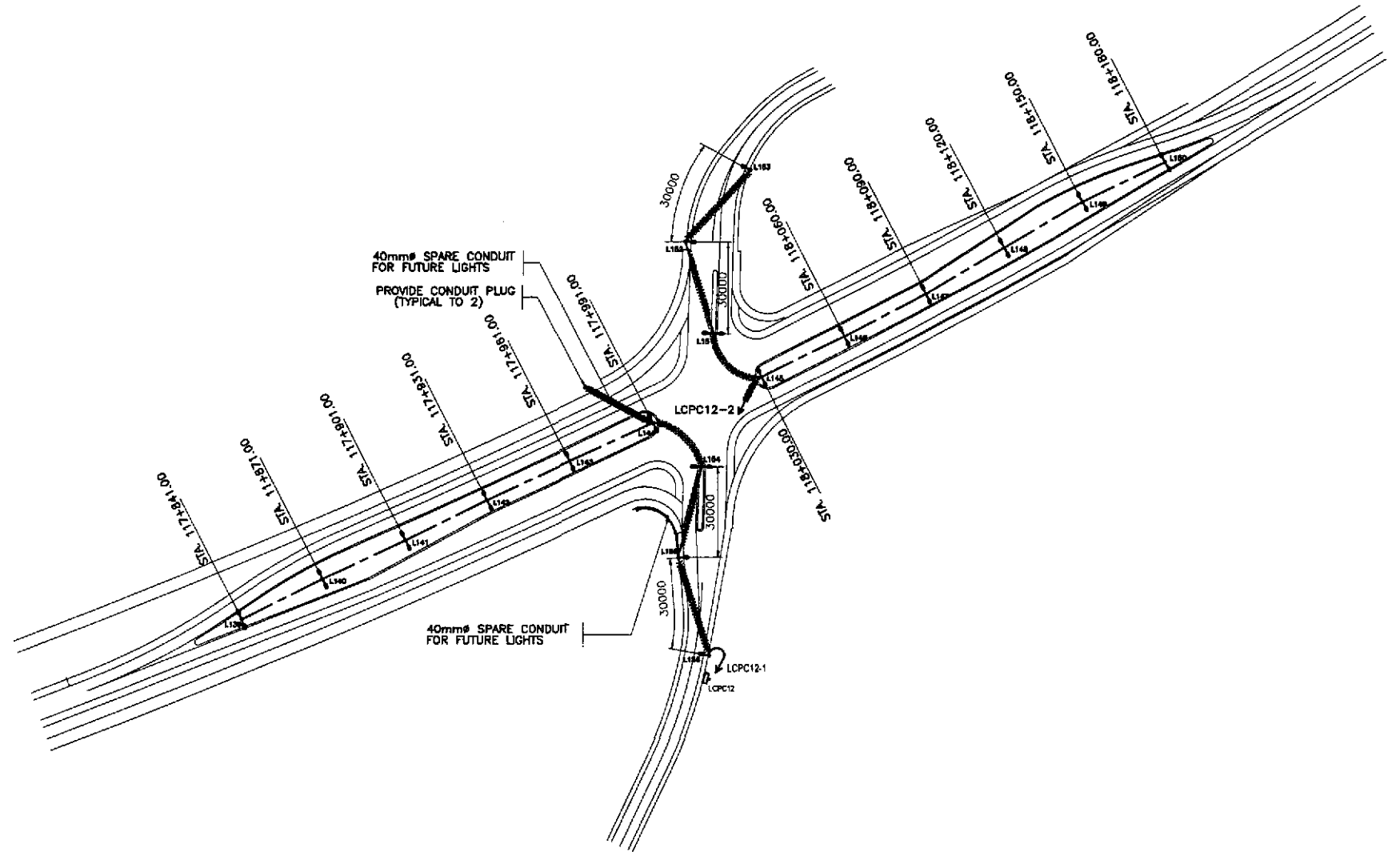


NOTE:

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

LOAD SCHEDULE

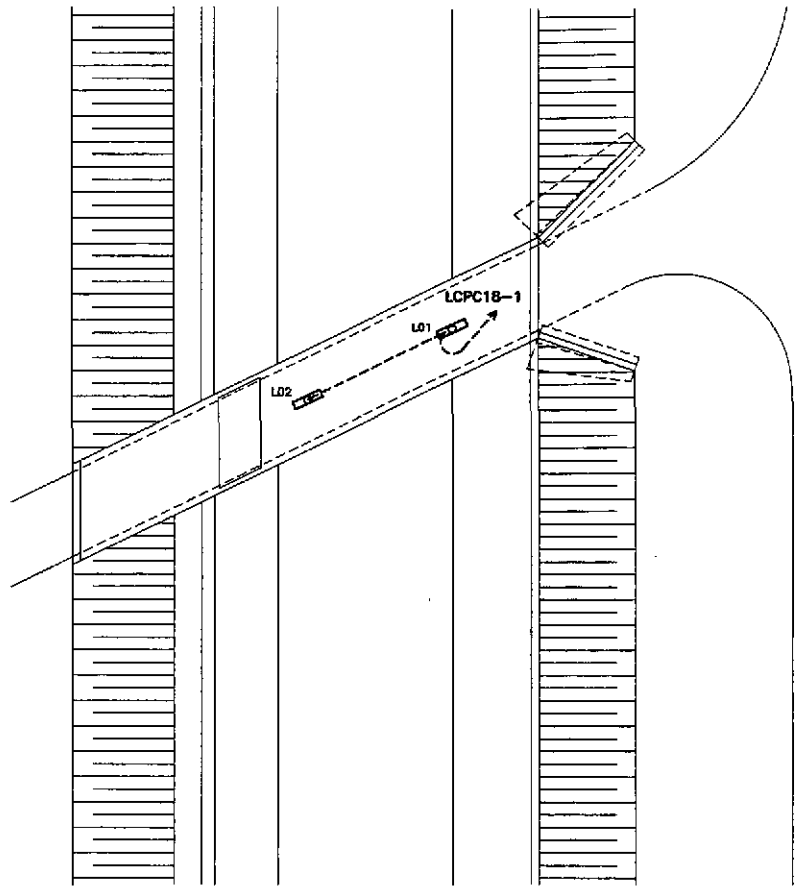
CKT. NO.	LOAD DESCRIPTION	VOLTS	CONNECTED LOAD		NO. & SIZE OF WIRES & CONDUIT	PROTECTION		
			(VA)	AMPERE		AT	AF	P
1	L156 (1 x 250 W HPS)	220	310	1.41	SEE NOTE 1			
	L155 (1 x 250 W HPS)	220	310	1.41	SEE NOTE 1			
	L154 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L144 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L143 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L142 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L141 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L140 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L139 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L166 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L165 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L164 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L183 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L182 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L181 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L180 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L159 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L158 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
	L157 (1 x 250 W HPS) (FUTURE)	220	310	1.41	SEE NOTE 1			
SUB-TOTAL			8060	38.66	2-30 mm ² THW & 1-8.0 mm ² TW(G) IN 40 mm# CONDUIT	50	100	2
2	L145 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L146 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L147 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L148 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L149 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L150 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L151 (2 x 250 W HPS)	220	620	2.82	SEE NOTE 1			
	L152 (1 x 250 W HPS)	220	310	1.41	SEE NOTE 1			
L153 (1 x 250 W HPS)	220	310	1.41	SEE NOTE 1				
SUB-TOTAL			4960	22.56	2-30 mm ² THW & 1-8.0 mm ² TW(G) IN 40 mm# CONDUIT	30	100	2
3	TRAFFIC LIGHTS	220	3450	15	WIRES & CONDUIT (BY OTHERS)	30	100	2
TOTAL			16470	74.32	2-38 mm ² THW & IN 40 mm# CONDUIT	100	100	2



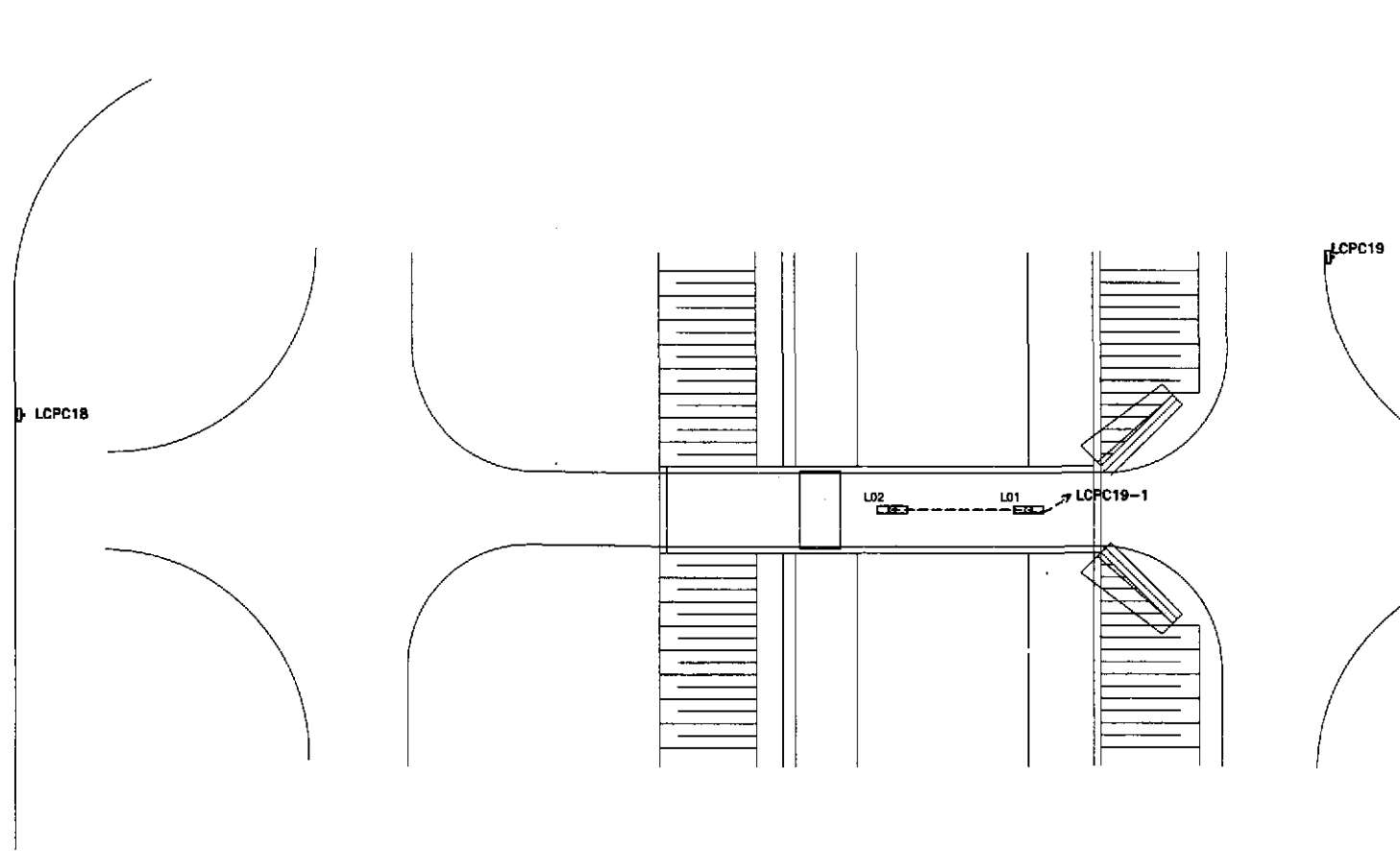
1 ROADWAY LIGHTING PLAN
 EI-04 SCALE 1:1000

Ernesto M. Antioquia
ERNESTO M. ANTIOQUIA
 Designer
 PTR. NO. 743384 P.E.C. NO. 2013
 ISSUED ON 01/02/2002 ISSUED AT CAGAYAN LAGUNA
 T.A.M. 309-382-379

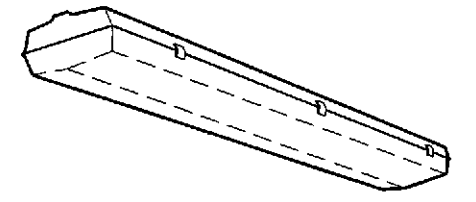
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p> <p>KATAHIRA & ENGINEERS INTERNATIONAL</p> <p>YACHIYO ENGINEERING CO., LTD.</p>	DESIGNED: 10/10/01 CHECKED: 10/16/01 SUBMITTED: 10/18/01	DATE: 10/10/01 SIGNATURE: <i>Ernesto M. Antioquia</i> E. ANTIOQUIA E. ANTIOQUIA TEAM LEADER	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	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	SCALE : 1:1000 FULL SIZE A1	SHEET CONTENTS : ROADWAY LIGHTING PLAN AND LOAD SCHEDULE INTERSECTION A-19 (INITIAL STAGE)	SHEET NO. : EI-04
	BUREAU OF DESIGN Submitted By: DANILO C. TRAJANO Project Director Reviewed By: FE W. BARRIENTOS Chief, Mech-Elect Division Recommended By: GILBERTO S. REYES OIC, Director IV Office of the Secretary Recommended By: MANUEL M. BONDAN Undersecretary Approved By: SIMEON A. DATUMANONG Secretary						



1 LIGHTING LAYOUT
B-7 (STA. 113+463.714)
EI-05 SCALE 1:150



2 LIGHTING LAYOUT
B-8 (STA. 115+160.000)
EI-05 SCALE 1:150



CEILING LUMINAIRE, SURFACE MOUNTED, IP56 (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

LOAD SCHEDULE

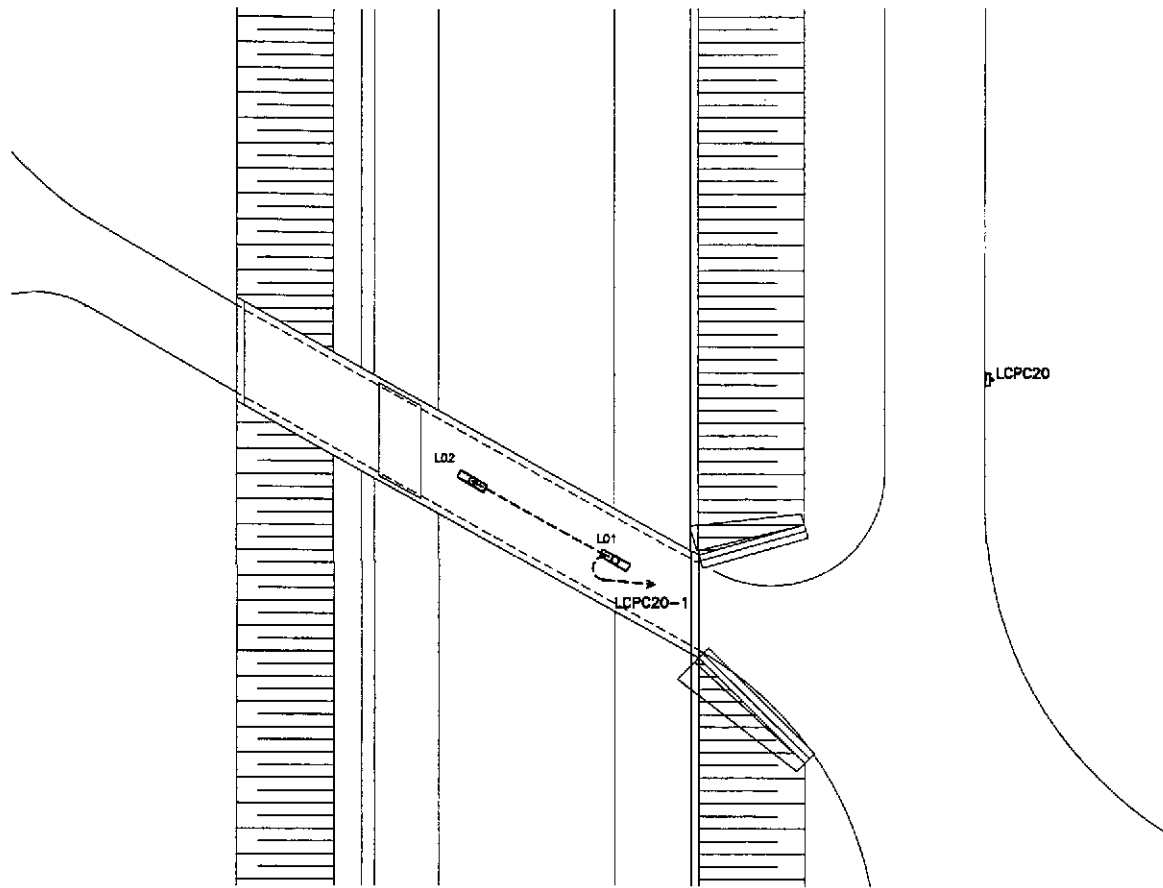
PANEL ID : LCPC18		LIGHTING CONTACTOR		ENCLOSURE : NEMA 4X			
FEED : TOP		PANEL NO.18		MIN. KAIC : 10			
MOUNTING : SURFACE				MAIN CB : 20 AT, 100 AF, 2P			
CKT. NO.	LOAD DESCRIPTION	VOLTS	CONNECTED LOAD		PROTECTION		
			(VA)	AMPERE	AT	AF	P
1	L01 (1 x 40 W FLUORESCENT LAMP)	220	50	0.23			
	L02 (1 x 40 W FLUORESCENT LAMP)	220	50	0.23			
	L03 (1 x 40 W FLUORESCENT LAMP) - FUTURE	220	50	0.23			
	L04 (1 x 40 W FLUORESCENT LAMP) - FUTURE	220	50	0.23			
SUB-TOTAL			200	0.92	2-5.5 mm ² THW & 1-3.5 mm ² TW(G) IN 20 mm ^ø CONDUIT		
TOTAL			200	0.92	20	100	2

LOAD SCHEDULE

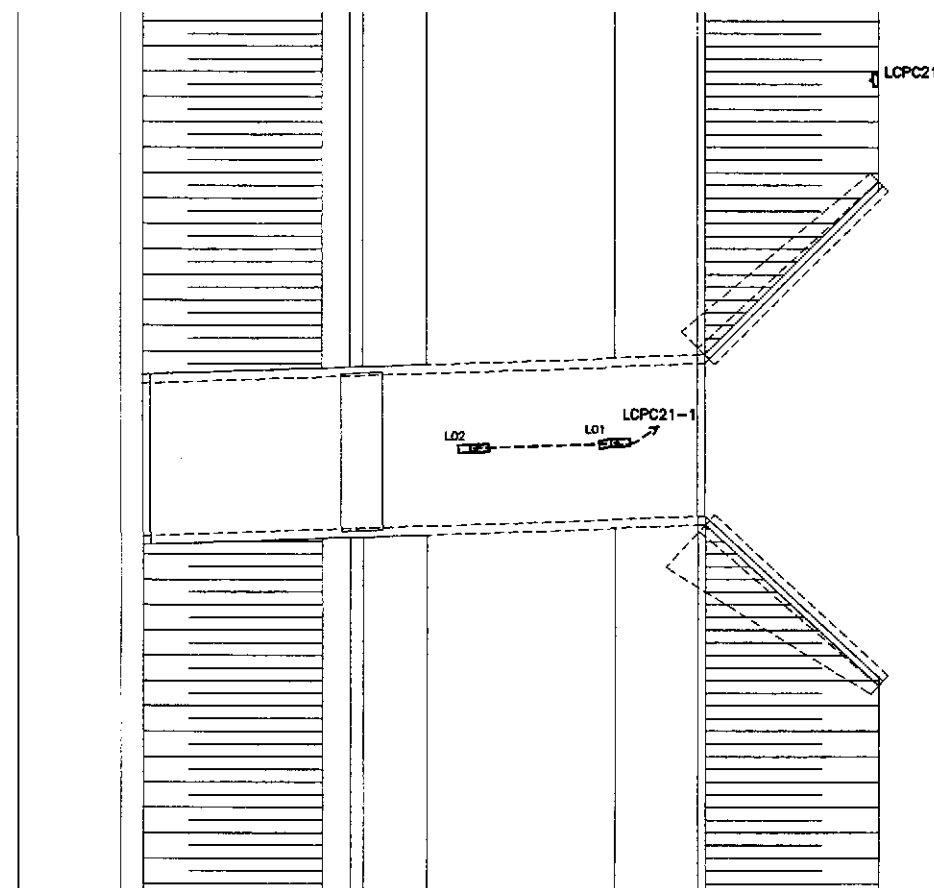
PANEL ID : LCPC19		LIGHTING CONTACTOR		ENCLOSURE : NEMA 4X			
FEED : TOP		PANEL NO.19		MIN. KAIC : 10			
MOUNTING : SURFACE				MAIN CB : 20 AT, 100 AF, 2P			
CKT. NO.	LOAD DESCRIPTION	VOLTS	CONNECTED LOAD		PROTECTION		
			(VA)	AMPERE	AT	AF	P
1	L01 (1 x 40 W FLUORESCENT LAMP)	220	50	0.23			
	L02 (1 x 40 W FLUORESCENT LAMP)	220	50	0.23			
	L03 (1 x 40 W FLUORESCENT LAMP) - FUTURE	220	50	0.23			
	L04 (1 x 40 W FLUORESCENT LAMP) - FUTURE	220	50	0.23			
SUB-TOTAL			200	0.92	2-5.5 mm ² THW & 1-3.5 mm ² TW(G) IN 20 mm ^ø CONDUIT		
TOTAL			200	0.92	20	100	2

EM
ERNESTO M. ANTIOQUIA
DESIGNER
P.R. NO. 7453664 P.E.E. NO. 2813
ISSUED ON 01/02/2002 ISSUED AT CAGAYAO, LAAGAN
T.N. 109-302-372

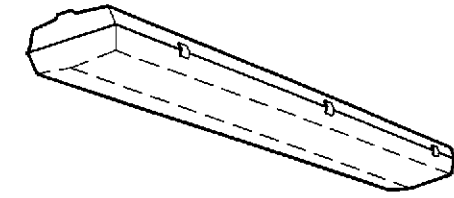
	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pardiel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II	SCALE : 1: FULL SIZE A1	SHEET CONTENTS : LIGHTING LAYOUT, LOAD SCHEDULE AND LIGHTING FIXTURE SCHEDULE BOX CULVERT B-7 AND B-8 (INITIAL STAGE)	SHEET NO. : EI-05
	CHECKED	10/16/02	E. ANTIOQUIA	BUREAU OF DESIGN						
	SUBMITTED	10/18/02	W. Kuch	Submitted By: DANILO C. TRAJANO Project Director	Reviewed By: FE M. BARRIENTOS Chief, Mech ^l -Elect ^l Division	Recommended By: GILBERTO S. REYES Dir. Director IV				



1 LIGHTING LAYOUT
B-9(STA. 116+822.287)
SCALE 1:150
EI-05



2 LIGHTING LAYOUT
B-10 (STA. 118+701.336)
SCALE 1:150
EI-05



CEILING LUMINAIRE, SURFACE MOUNTED, IP56 (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.

SYMBOL	VOLT	220	1 x 40W FLUORESCENT LAMP	SURFACE MOUNTING
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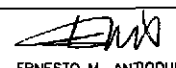
3 LIGHTING FIXTURE SCHEDULE
EI-05 NOT TO SCALE



LOAD SCHEDULE

CKT. NO.	LOAD DESCRIPTION	VOLTS	CONNECTED LOAD		NO. & SIZE OF WIRES & CONDUIT	PROTECTION		
			(VA)	AMPERE		AT	AF	P
1	L01 (1 x 40 W FLUORESCENT LAMP)	220	50	0.23				
	L02 (1 x 40 W FLUORESCENT LAMP)	220	50	0.23				
	L03 (1 x 40 W FLUORESCENT LAMP) - FUTURE	220	50	0.23				
	L04 (1 x 40 W FLUORESCENT LAMP) - FUTURE	220	50	0.23				
SUB-TOTAL			200	0.92	2-5.5 mm ² THW & 1-3.5 mm ² TW(G) IN 20 mm ^ø CONDUIT			
TOTAL			200	0.92	2-5.5 mm ² THW IN 20 mm ^ø CONDUIT	20	100	2

LOAD SCHEDULE

CKT. NO.	LOAD DESCRIPTION	VOLTS	CONNECTED LOAD		NO. & SIZE OF WIRES & CONDUIT	PROTECTION		
			(VA)	AMPERE		AT	AF	P
1	L01 (1 x 40 W FLUORESCENT LAMP)	220	50	0.23				
	L02 (1 x 40 W FLUORESCENT LAMP)	220	50	0.23				
	L03 (1 x 40 W FLUORESCENT LAMP) - FUTURE	220	50	0.23				
	L04 (1 x 40 W FLUORESCENT LAMP) - FUTURE	220	50	0.23				
SUB-TOTAL			200	0.92	2-5.5 mm ² THW & 1-3.5 mm ² TW(G) IN 20 mm ^ø CONDUIT			
TOTAL			200	0.92	2-5.5 mm ² THW IN 20 mm ^ø CONDUIT	20	100	2


 ERNESTO M. ANTIOQUIA
 DESIGNER
 P.W. NO. 7403664 P.E.E. NO. 2815
 ISSUED ON 01/02/2002 ISSUED AT CAGAYAN DE ORO
 T.A. 109-362-379

	DESIGNED	DATE	SIGNATURE	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :			SCALE :	SHEET CONTENTS :	SHEET NO. :		
	CHECKED	10/16/02	E. ANTIOQUIA		THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)			1:			LIGHTING LAYOUT, LOAD SCHEDULE AND LIGHTING FIXTURE SCHEDULE BOX CULVERT B-9 AND B-10 (INITIAL STAGE)	EI-06
	SUBMITTED	10/18/02	E. ANTIOQUIA		CABANATUAN BYPASS - CONTRACT PACKAGE II			FULL SIZE A1				
Submitted By: DANILLO C. TRAJANO, Project Director Reviewed By: FE M. BARRIENTOS, Chief, Mech'-Elect' Division Recommended By: GILBERTO S. REYES, D.C., Director IV Recommended By: MANUEL M. BONDAN, Undersecretary Approved By: SIMEDON A. DATUMANONG, Secretary												

ENGR'S FIELD OFFICE & LIVING QUARTERS

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FRONT & REAR ELEV.
LEFT & RIGHT SIDE ELEV.
LONGITUDINAL & CROSS SECT.
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03 ENGINEER'S LIVING QUARTERS
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FRONT & REAR ELEV.
LEFT & RIGHT SIDE ELEV.
LONGITUDINAL & CROSS SECT.
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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
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R.C. RAMP DETAIL
DET. OF F-1, P-1, WF-1
DESIGN CRITERIA

07 ENGINEER'S FIELD OFFICE/LABORATORY
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08 ENGINEER'S LIVING QUARTERS
ELEV. OF STEEL STUD FRAMES
FRAMES SCHEMATIC DIAGRAMS

09 ENGINEER'S FIELD OFFICE/LABORATORY
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POWER LAYOUT
ELECT'L. SYMBOLS & GEN. NOTES

02 ENGINEER'S LIVING QUARTERS
LIGHTING LAYOUT
POWER LAYOUT
ELECT'L. SYMBOLS & GEN. NOTES

03 SCHEDULE OF LOADS
AND COMPUTATIONS
ELECT'L. RISER DIAGRAMS

PLUMBING :

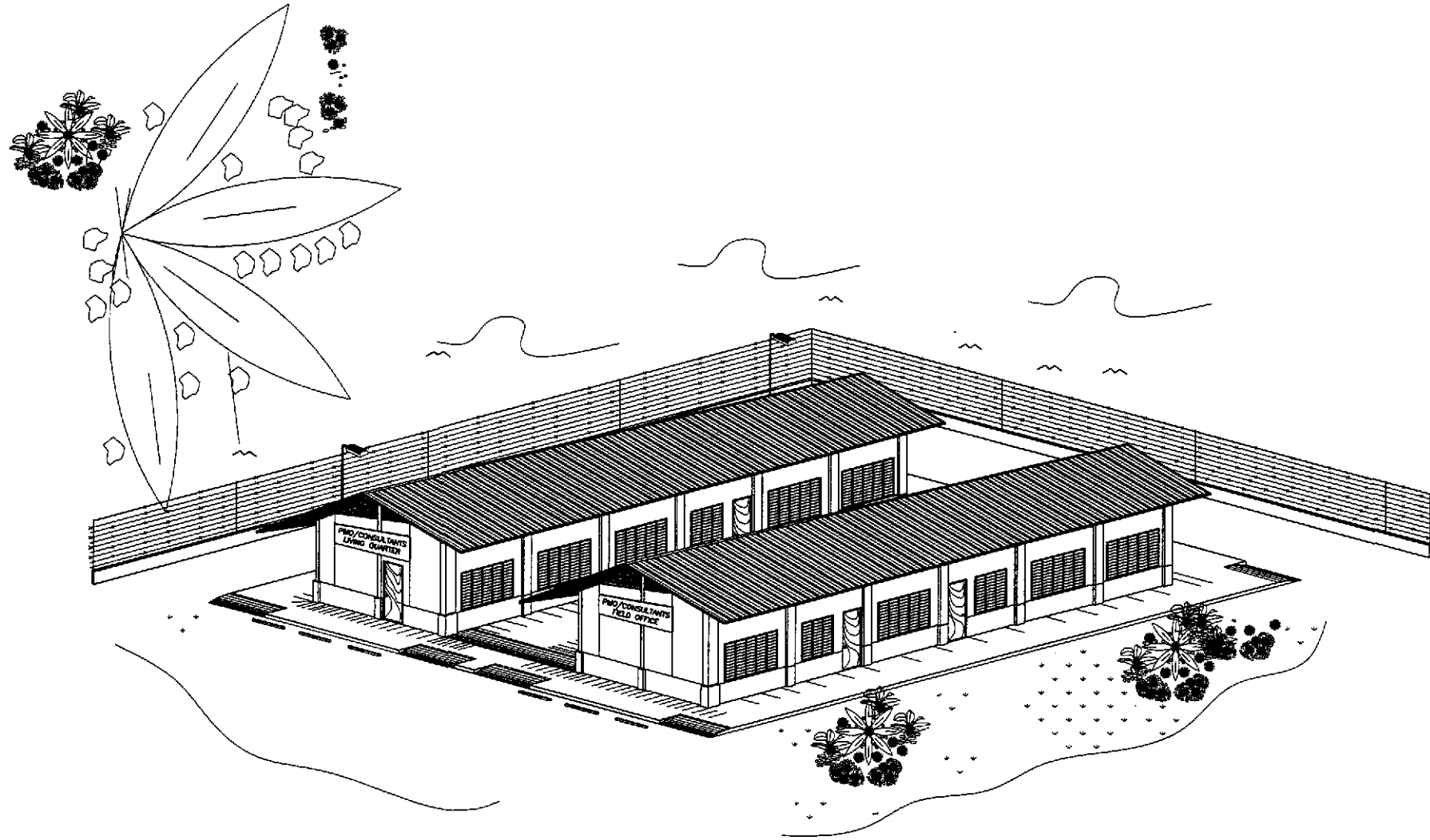
FP-01 SEWER AND WATER LINE LAYOUT
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02 SEPTIC TANK DETAILS

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FX-01 PLOT PLAN
ELEV - FENCE & GATE
FOUNDATION DETAIL

LAND USE and ZONING
LINE and GRADE
ARCHITECTURAL
STRUCTURAL
SANITARY
ELECTRICAL
MECHANICAL



PERSPECTIVE

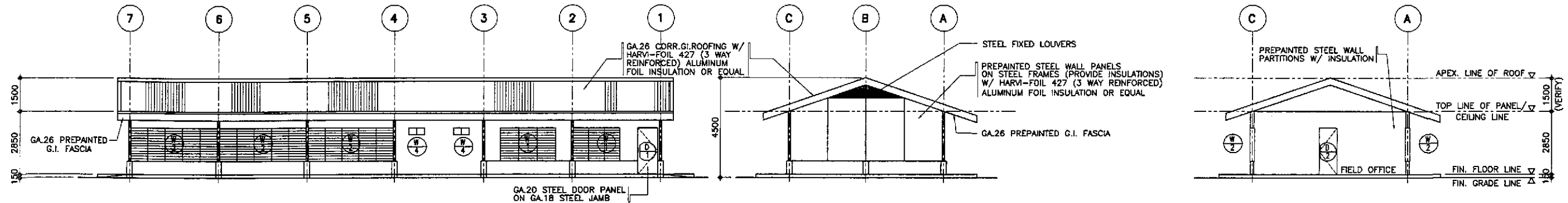
GENERAL NOTES :

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

[Signature]
ARNEL 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.

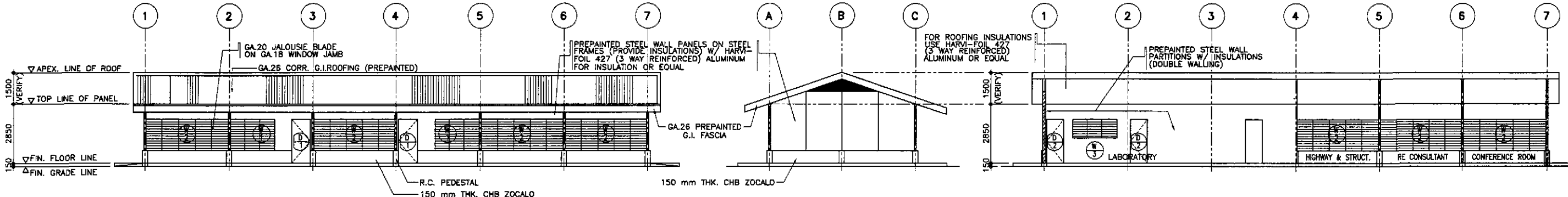
JICA JAPAN INTERNATIONAL COOPERATION AGENCY		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	SCALE : NOT TO SCALE FULL SIZE A1	SHEET CONTENTS : ENGINEER'S FIELD OFFICE AND LIVING QUARTERS PERSPECTIVE AND TABLE OF CONTENTS	SHEET NO. : FA-01
DESIGNED	10/16/02	P. GONZALES Submitted By:	DANILLO C. TRAJANO Project Director	EMMANUEL P. CUNTAPAY Chief, Architectural Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDAN Undersecretary	SIMEON A. DATUMANONG Secretary		
CHECKED	10/16/02	P. GONZALES Reviewed By:							
SUBMITTED	10/16/02	T. VICENTE TEAM LEADER							



3 REAR ELEVATION
FA-02 SCALE 1:100

5 LEFT SIDE ELEVATION
FA-02 SCALE 1:100

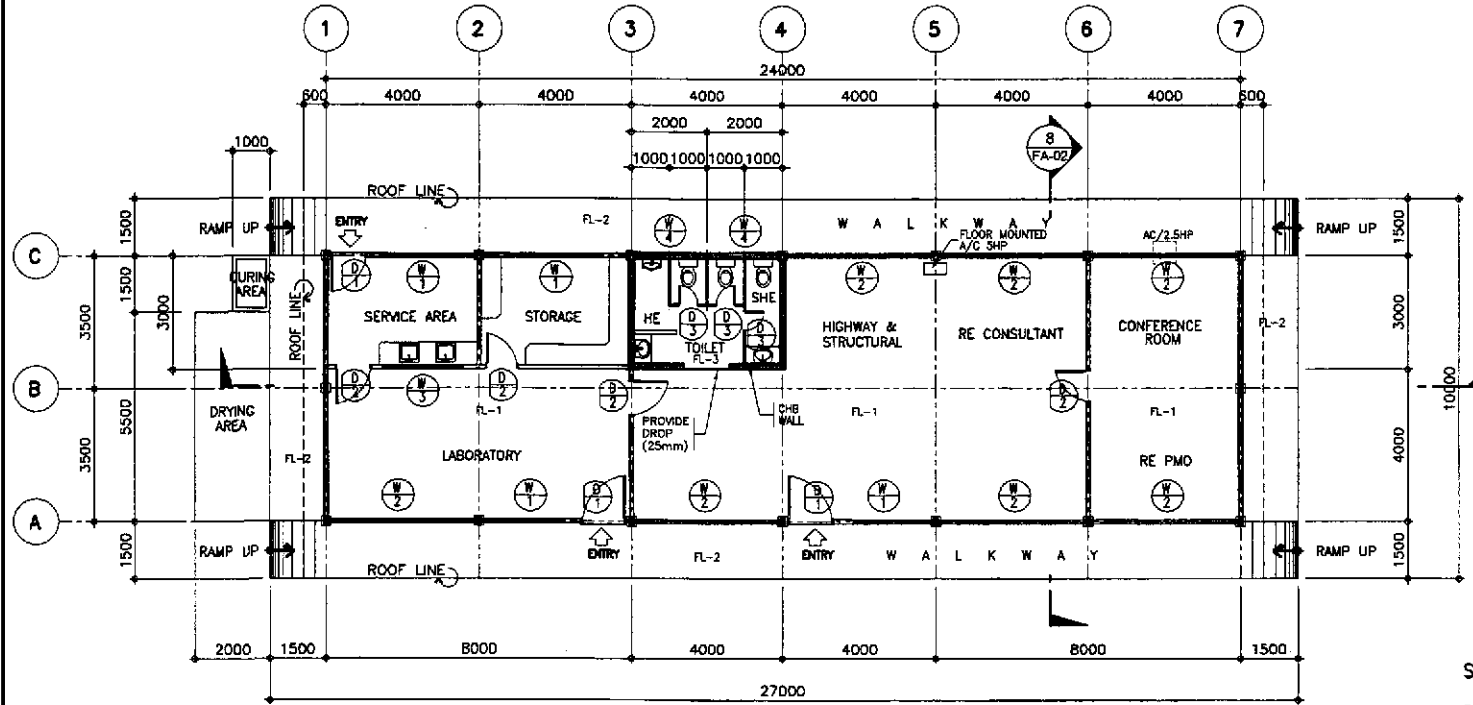
8 CROSS SECTION
FA-02 SCALE 1:100



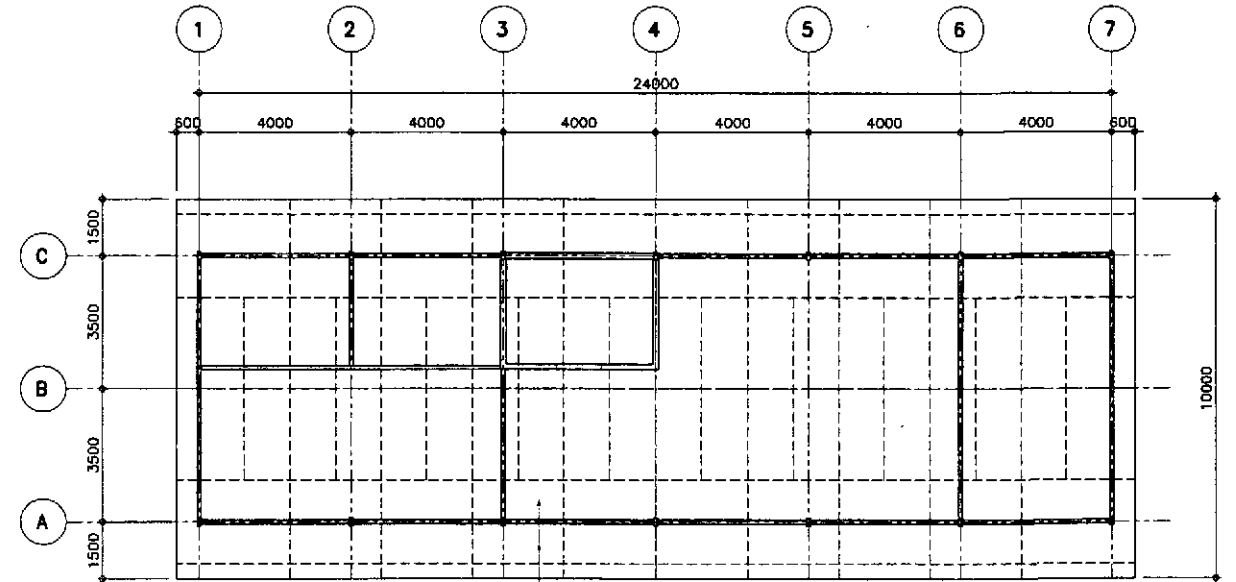
2 FRONT ELEVATION
FA-02 SCALE 1:100

4 RIGHT SIDE ELEVATION
FA-02 SCALE 1:100

7 LONGITUDINAL SECTION
FA-02 SCALE 1:100



1 FLOOR PLAN FOR ENGINEER'S FIELD OFFICE/LABORATORY
FA-02 SCALE 1:100



6 REFLECTED CEILING PLAN
FA-02 SCALE 1:100

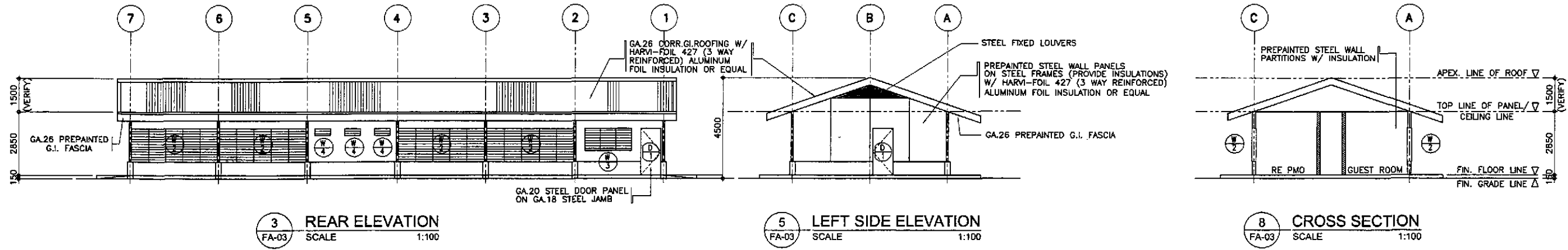
SCHEDULE OF FLOOR FINISHES

- 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

ANSEL 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.

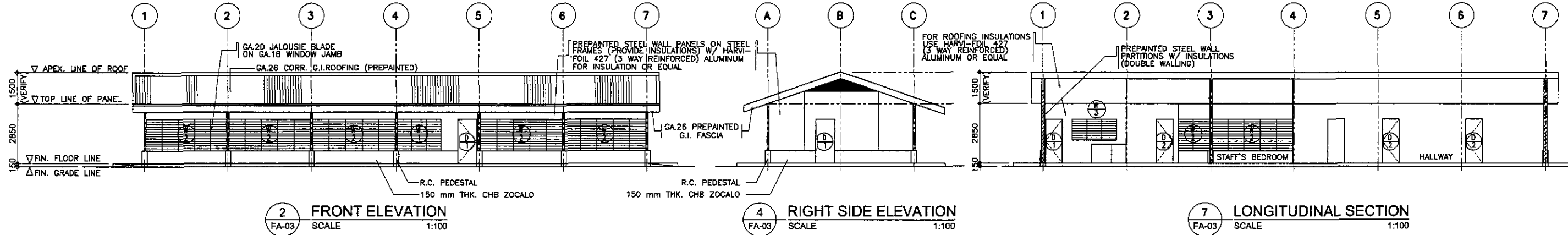
		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		SCALE : AS SHOWN	SHEET CONTENTS : ENGR'S FIELD OFFICE / LABORATORY FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN	SHEET NO. : FA-02
DESIGNED	DATE	SIGNATURE	Submitted By: DANIL C. TRAJANO Project Director	Reviewed By: EMMANUEL P. CUNTAPAY Chief, Architectural Division	Recommended By: GILBERTO S. REYES OIC, Director IV	Approved By: MANUEL M. BOHONAN Undersecretary	Approved By: SIMEON A. DATUMAHONG Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1	



3 REAR ELEVATION
FA-03 SCALE 1:100

5 LEFT SIDE ELEVATION
FA-03 SCALE 1:100

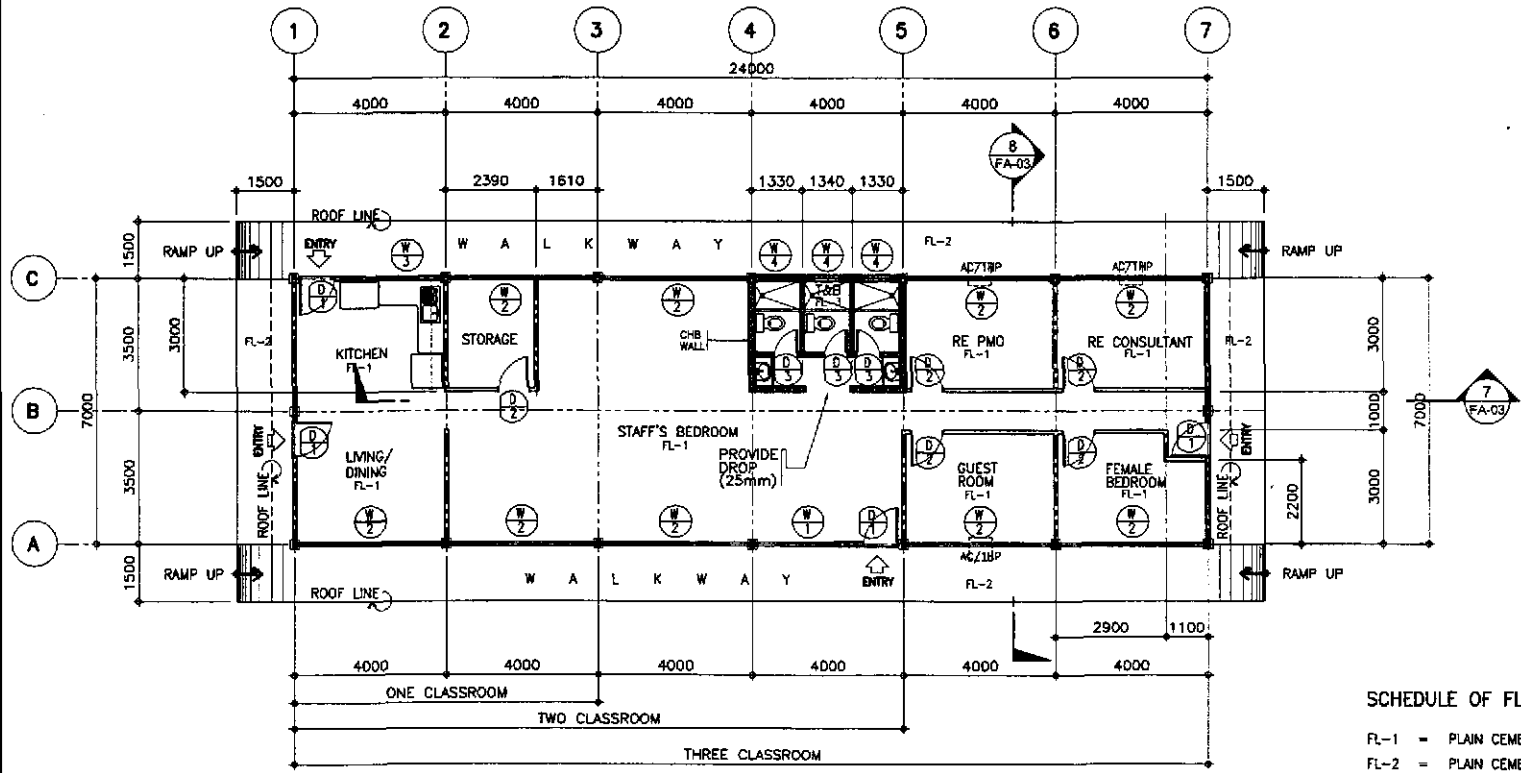
8 CROSS SECTION
FA-03 SCALE 1:100



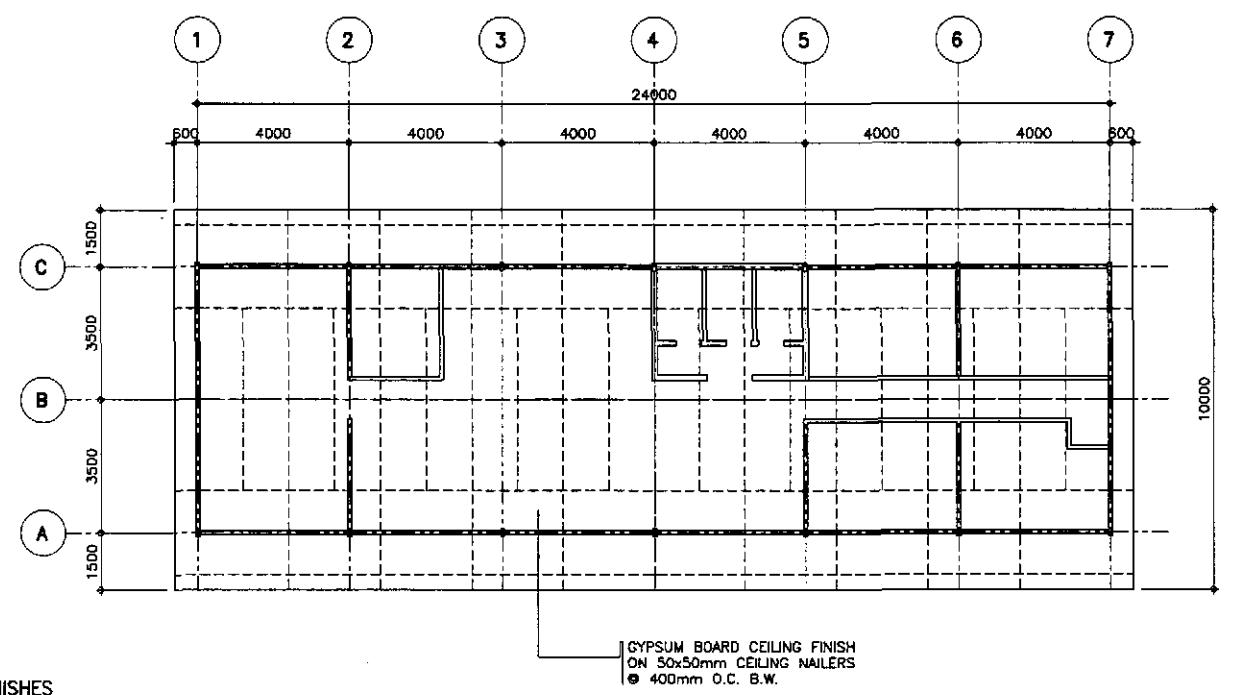
2 FRONT ELEVATION
FA-03 SCALE 1:100

4 RIGHT SIDE ELEVATION
FA-03 SCALE 1:100

7 LONGITUDINAL SECTION
FA-03 SCALE 1:100



1 FLOOR PLAN FOR ENGINEER'S LIVING QUARTER
FA-03 SCALE 1:100



6 REFLECTED CEILING PLAN
FA-03 SCALE 1:100

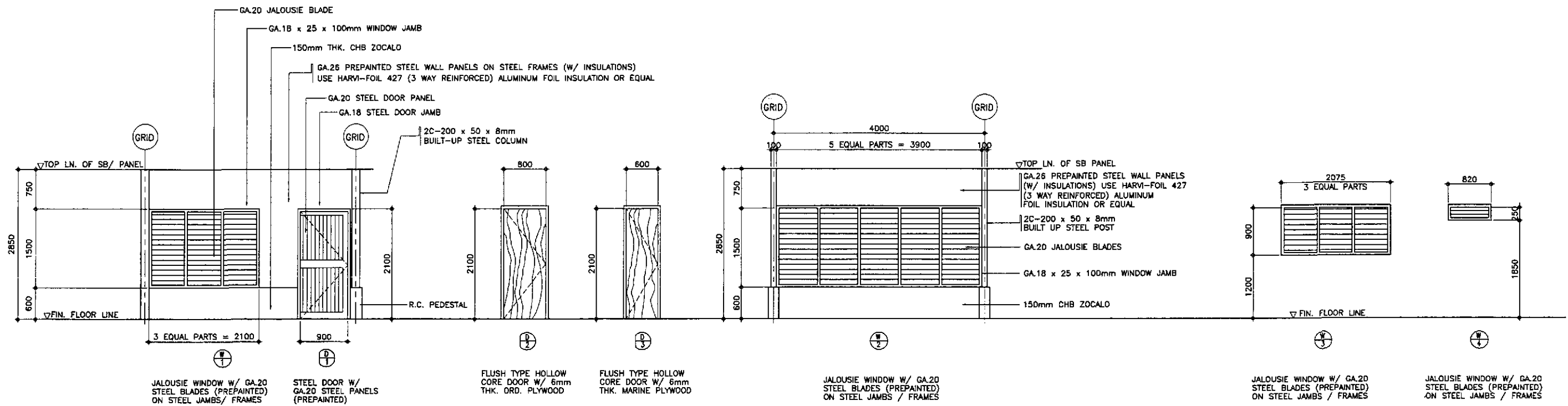
SCHEDULE OF FLOOR FINISHES

- 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

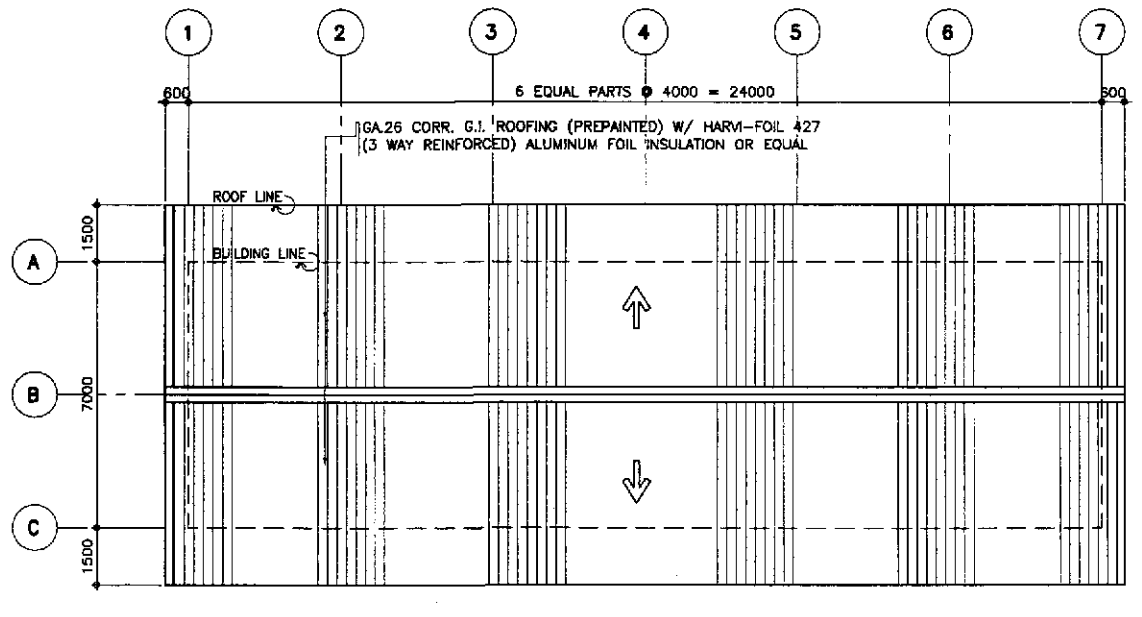
ARDEL P. GONZALES
ENGINEER

PTR. NO. 5846340 P.R.C. NO. 53457
ISSUED ON 04/26/2002 T.J.N. 138-052-682
ISSUED AT SAN JUAN, M.M.

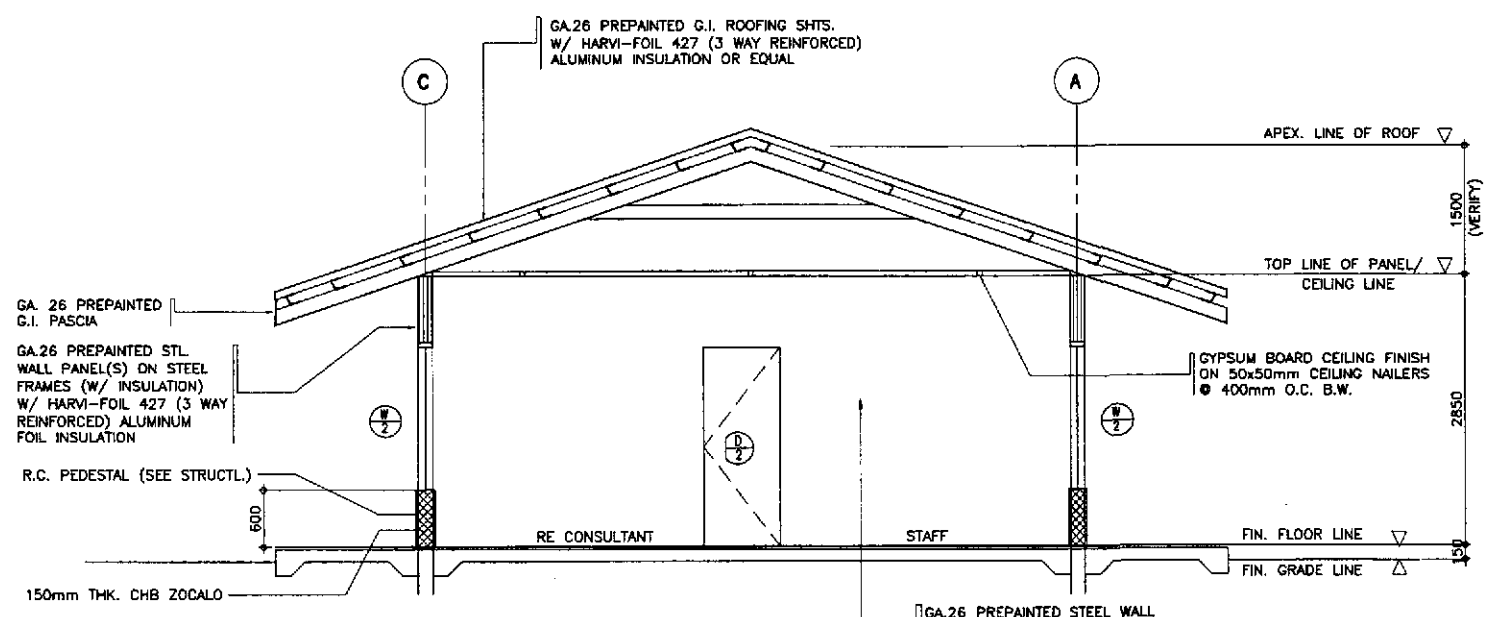
	DESIGNED	DATE	SIGNATURE	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	PROJECT AND LOCATION :			SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	10/10/02	ARDEL P. GONZALES		BUREAU OF DESIGN	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)			AS SHOWN	FLOOR PLAN, ELEVATIONS, CROSS-SECTION AND REFLECTED CEILING PLAN	FA-03
	SUBMITTED	10/10/02	ARDEL P. GONZALES		OFFICE OF THE SECRETARY	CABANATUAN BYPASS - CONTRACT PACKAGE II			FULL SIZE A1		
				Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:			
				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 FIELD OFFICE
SCHEDULE OF DOORS & WINDOWS
 SCALE 1:40



1 **ROOF PLAN**
 FA-04 SCALE 1:100



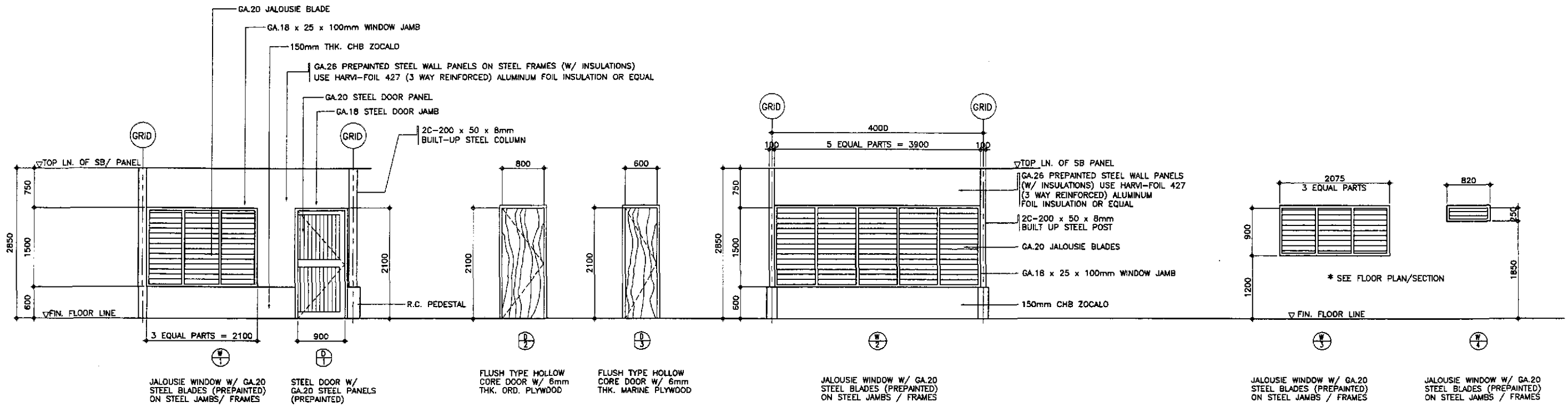
2 **DETAIL CROSS SECTION**
 FA-04 SCALE 1:40

ARNEL P. GONZALES
 ENGINEER
 PTR. NO. 5846340 P.R.C. NO. 53457
 ISSUED ON 04/26/2002 T.I.N. 138-082-682
 ISSUED AT SAN JUAN, M.M.

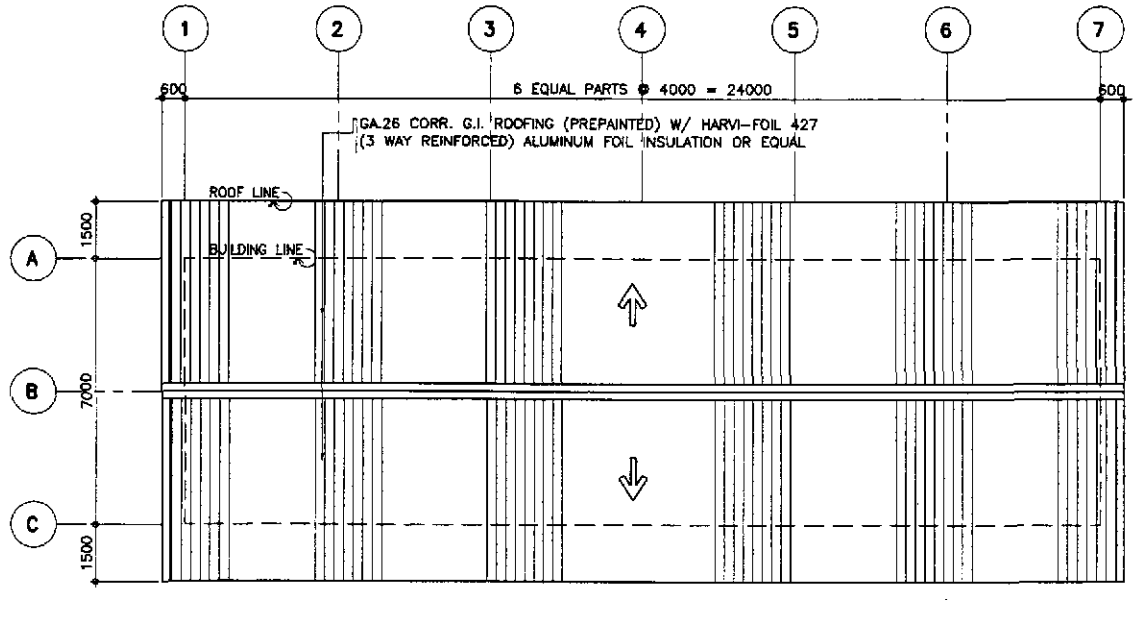
JICA
 JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS
YEI INTERNATIONAL
yeo YACHIYO ENGINEERING CO., LTD.

DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				
DESIGNED 10/14/02	A. P. GONZALES	BUREAU OF DESIGN		OFFICE OF THE SECRETARY		
CHECKED 10/16/02	A. P. GONZALES	Submitted By:	Reviewed By:	Recommended By:	Recommended By:	Approved By:
SUBMITTED 10/18/02	A. P. GONZALES	DANILO C. TRAJANO Project Director	EMMANUEL P. CUNTAPAY Chief, Architectural Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONQAN Undersecretary	SIMEON A. DATUMANONG Secretary

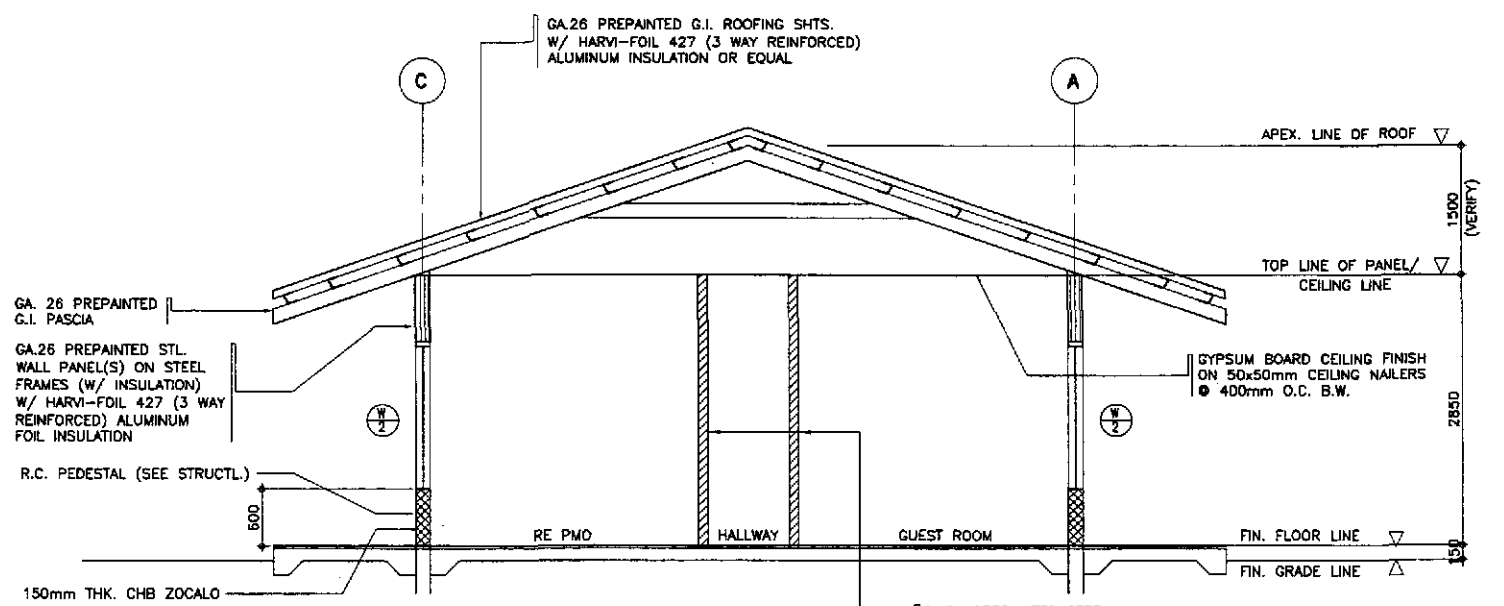
PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	ENGR'S FIELD OFFICE / LABORATORY ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS	FA-04
CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		



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



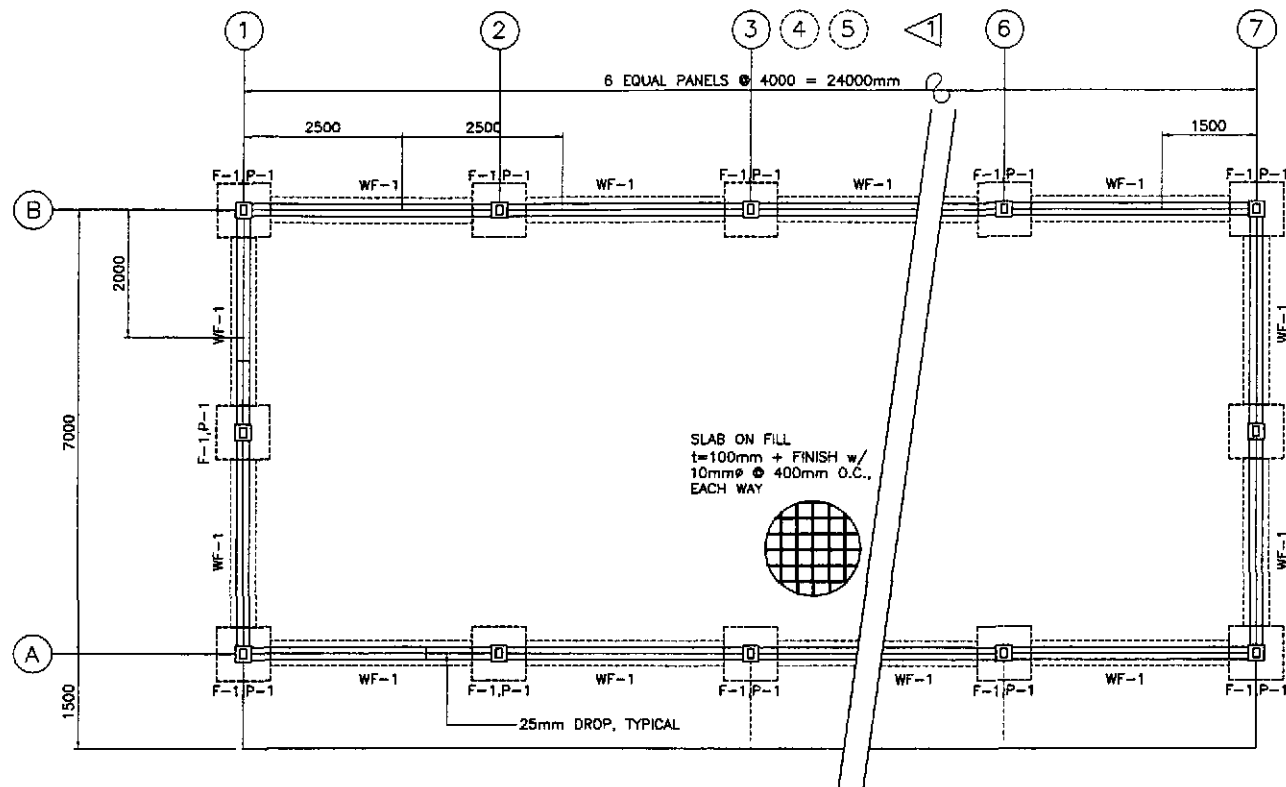
1 ROOF PLAN
 FA-05 SCALE 1:100



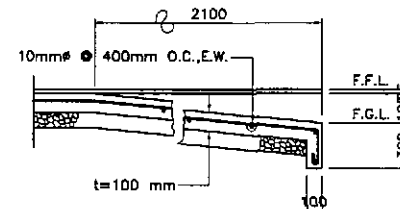
2 DETAIL CROSS SECTION
 FA-05 SCALE 1:40

ARNEL P. GONZALES
 ENGINEER
 PTR. NO. 5845340 P.R.C. NO. 53457
 ISSUED ON 04/26/2002 T.I.N. 138-082-682
 ISSUED AT SAN JUAN, M.M.

	DESIGNED	DATE	SIGNATURE	 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II	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
	CHECKED	10/16/02	A. P. GONZALES					



1 FOUNDATION PLAN
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/m³
STEEL 75.10 KN/m³
CHB 2.73 KPa

III. WIND LOAD

$$p = C_e C_q Q_s I$$

WHERE :

p = ACTUAL WIND PRESSURE
C_e = GUST FACTOR COEFFICIENT (EXPOSURE B=0.63)
C_q = PRESSURE COEFFICIENT
Q_s = 1.50 KPa FOR ZONE 2&3, Q_s=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_c' = 20.70 mpa f_c = 9.31 mpa
 - FOR SLAB ON FILL
f_c' = 17.26 mpa f_c = 7.76 mpa
- REINFORCING STEEL BARS (STRUCTURAL GRADE 33 DEFORMED BARS)
f_y = 227.0 mpa f_{st} = 124.02 mpa
- STRUCTURAL LIGHT GAGE COLD FORMED STEEL
STIFFENED LIGHT GAGE CHANNEL FOR RAFTERS, STUD & WALLS
f_s = 124.0 mpa (18,000 psi)
- STRUCTURAL BUILT-UP STEEL PLATES (ASTM A-36)
FOR STEEL BOX COLUMN
f_y = 248.0 mpa (36,000 psi)
- WELDS
USE E-60 XX ELECTRODES
f_w = 93.78 mpa
- BOLTS (ASTM A-307)
f_v = 69 mpa f_{st} = 96.60 mpa
- CONCRETE MASONRY UNITS (NON-LOAD BEARING CHB)
f_m' = 3.41 mpa (500 psi)
- ASSUMED ALLOWABLE SOIL BEARING CAPACITY OF 95.76 KPa (2,000 psf)

NOTES ON FOUNDATION :

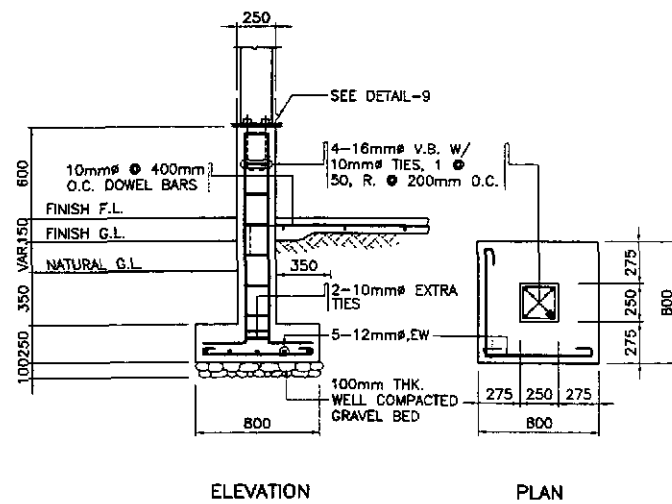
- IN CASE THE ACTUAL SOIL BEARING PRESSURE IS FOUND LESS THAN THE ASSUMED VALUE OF 95.76 KPa, NOTIFY THE DIRECTOR, BUREAU OF DESIGN FOR PROPER REVISION OF FOOTINGS.
- NO FOOTINGS SHALL REST ON FILL.

MATERIAL SPECIFICATIONS :

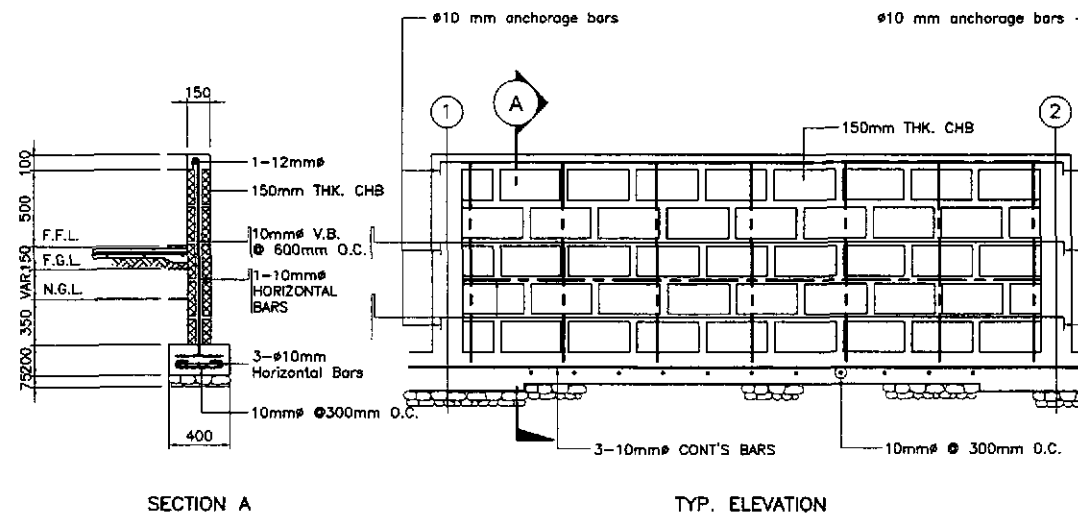
- FOR ROOFING SHEETS :
0.6mm THICK (GA.26) PREPAINTED CORRUGATED G.I. ROOFING SHEET, LONG SPAN.
- FOR WALLING SHEETS : USE ALUMINUM FOIL INSULATION HARVI-FOIL 427 (3-WAY REINFORCED OR EQUAL). DOUBLE WALL 0.6mm THICK (GA.26) HIGH TENSILE STEEL SHEET WALLING/CLADDING W/ ALUMINUM FOIL FOR INSULATION. HARVI-FOIL 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 PREPAINTED 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.



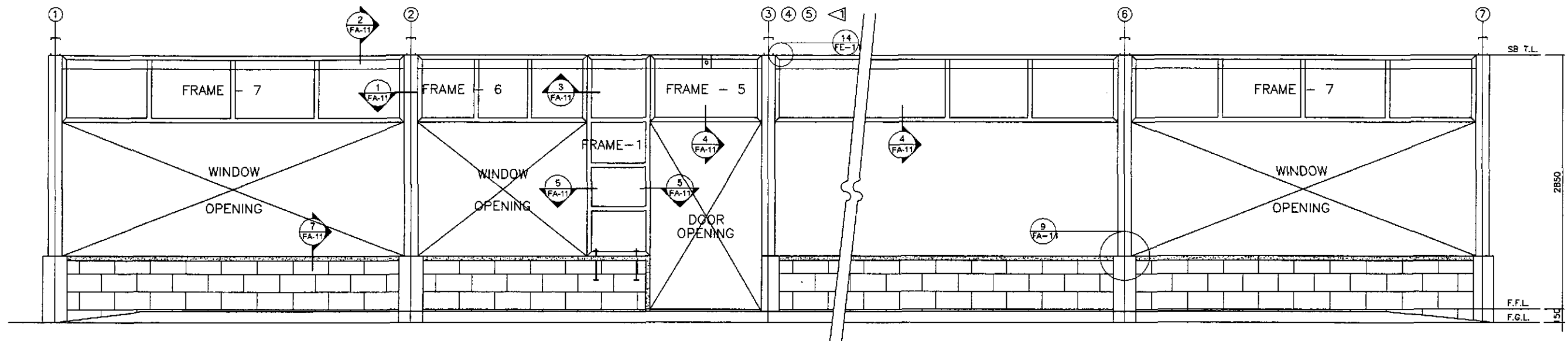
2 F-1, P-1
FA-06 SCALE 1:25



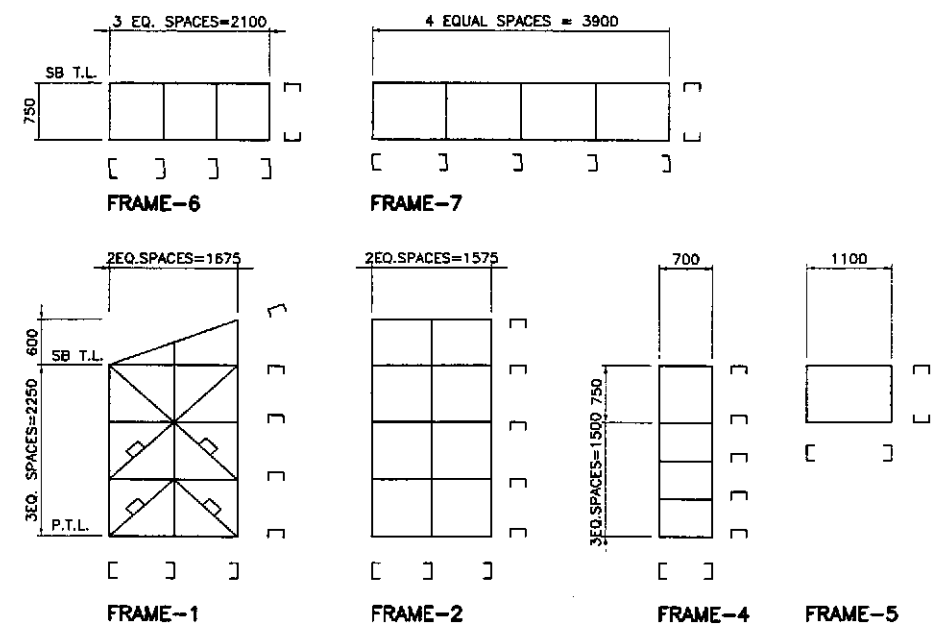
3 WF-1
FA-06 SCALE 1:25

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

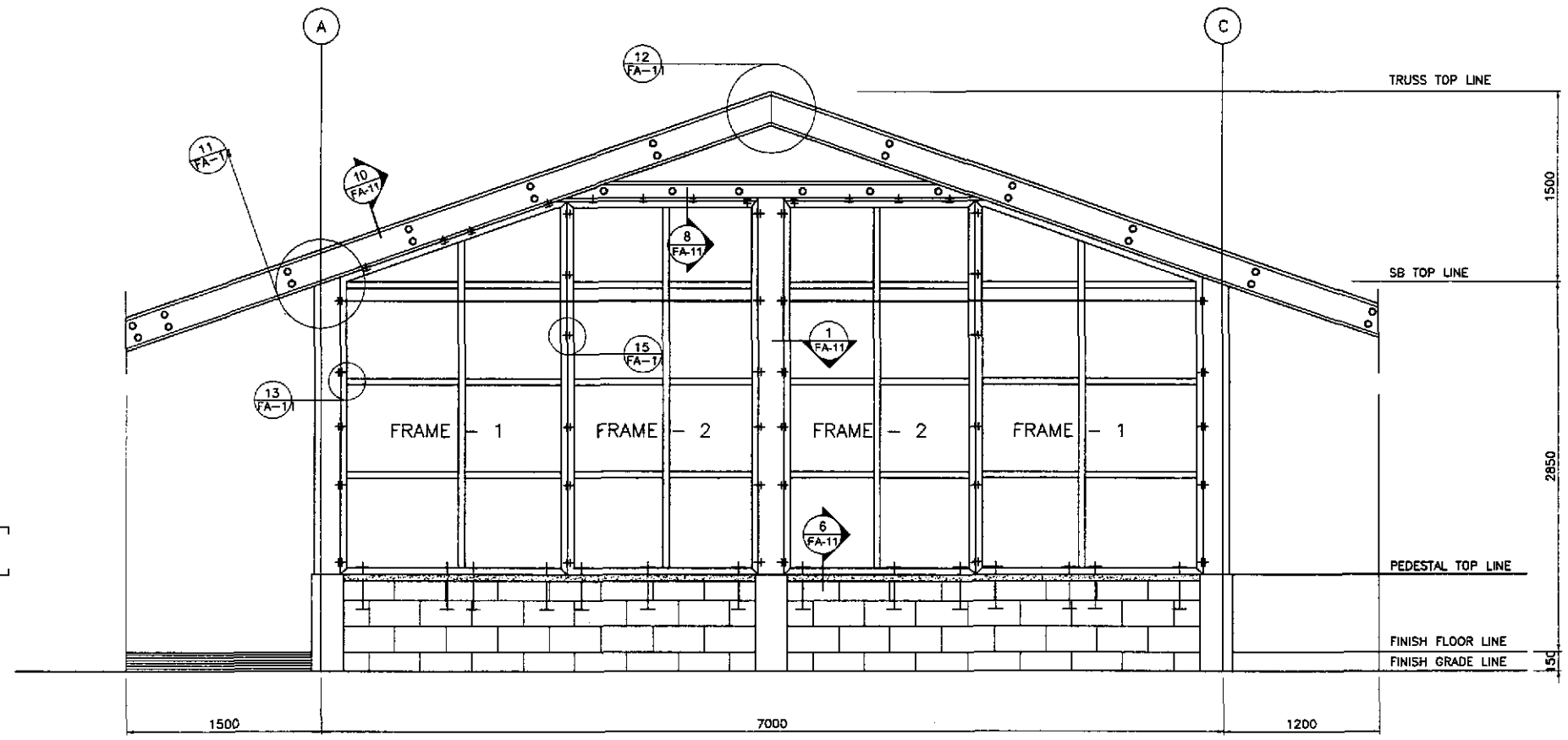
	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Palarid, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II	SCALE : 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
	CHECKED			BUREAU OF DESIGN Submitted By: DANILLO C. TRAJANO Chief, Structural Division						
	SUBMITTED			OFFICE OF THE SECRETARY Recommended By: WILFREDO S. LOPEZ Chief, Structural Division Recommended By: GILBERTO S. REYES OIC, Director IV Approved By: MANUEL M. BONDAN Undersecretary Approved By: SIMEON A. DATUMANONG Secretary						



2 FRONT ELEVATION
FA-07 SCALE 1:25



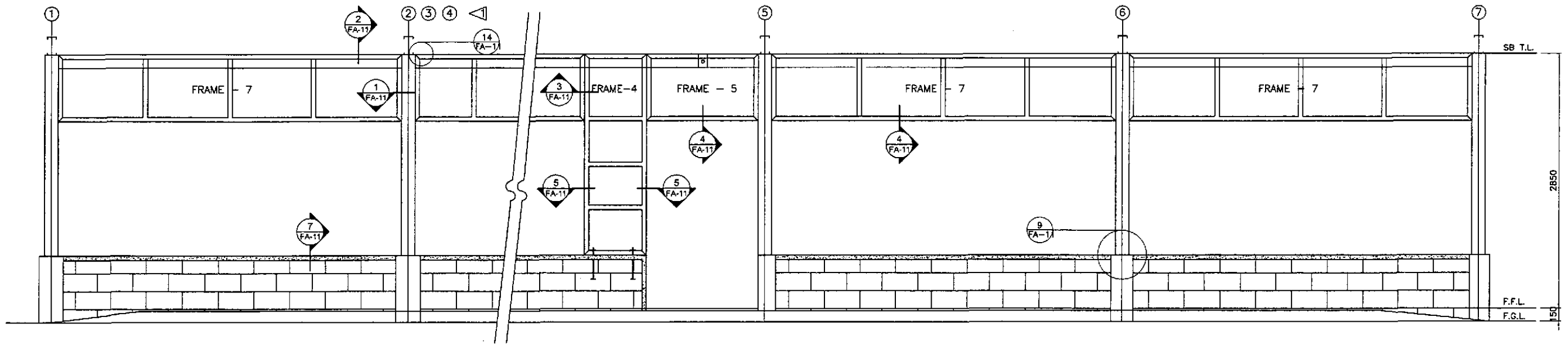
1 FRAMES SCHEMATIC DIAGRAMS
FA-07 SCALE 1:50



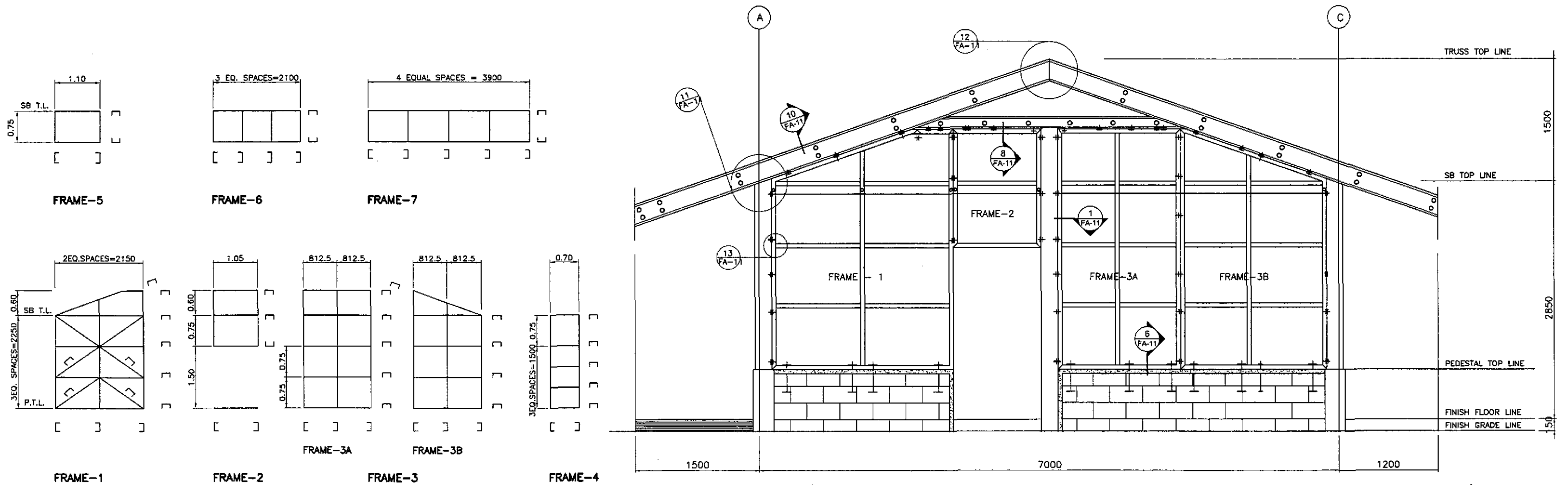
3 RIGHT SIDE ELEVATION
FA-07 SCALE 1:25

ARNEL P. GONZALES
ENGINEER
PTR. NO. 5846340 P.R.C. NO. 53457
ISSUED ON 04/26/2002 T.I.N. 138-062-882
ISSUED AT SAN JUAN, M.M.

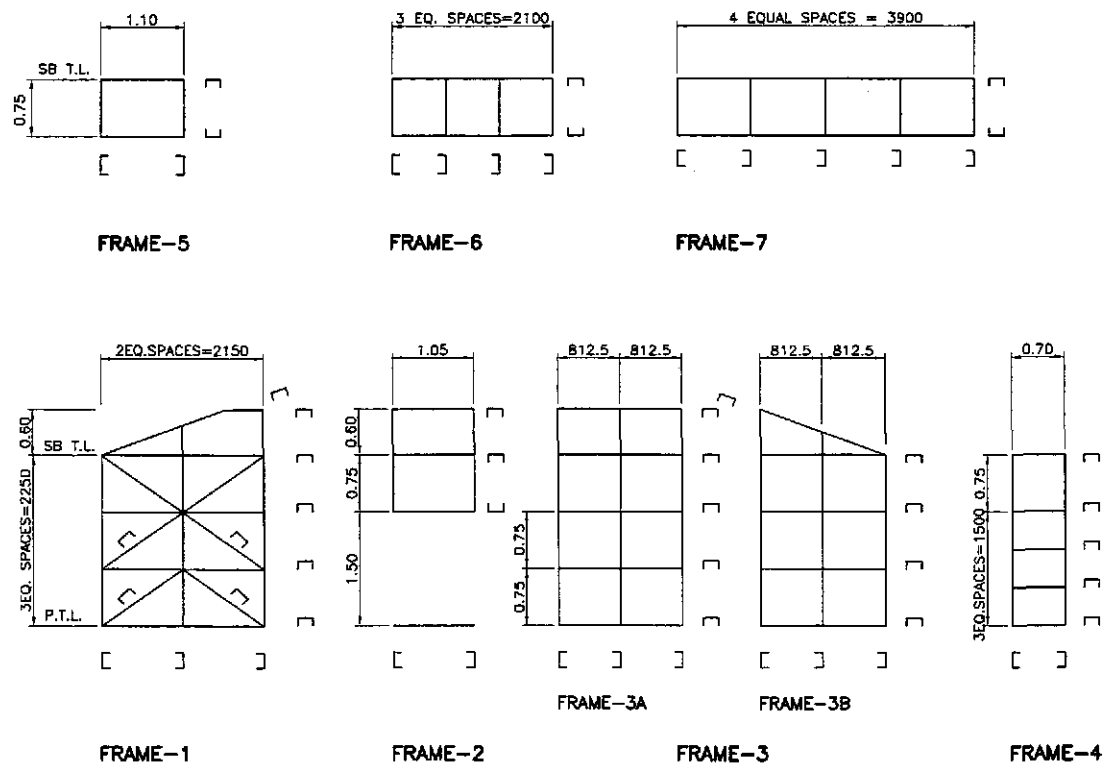
	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS					PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II	SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : ENGR'S FIELD OFFICE / LABORATORY FRONT AND RIGHT SIDE ELEVATION OF STEEL STUD FRAMES & SCHEMATIC DIAGRAM	SHEET NO. : FA-07
	CHECKED	10/16/02	A. B. GONZALES	Submitted By: DANILO C. TRAJANO Project Director	Reviewed By: WILFREDO S. LOPEZ Chief, Structural Division	Recommended By: GILBERTO S. REYES OIC, Director IV	Recommended By: MANUEL M. BONDAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary				



2 FRONT ELEVATION
FA-08 SCALE 1:25



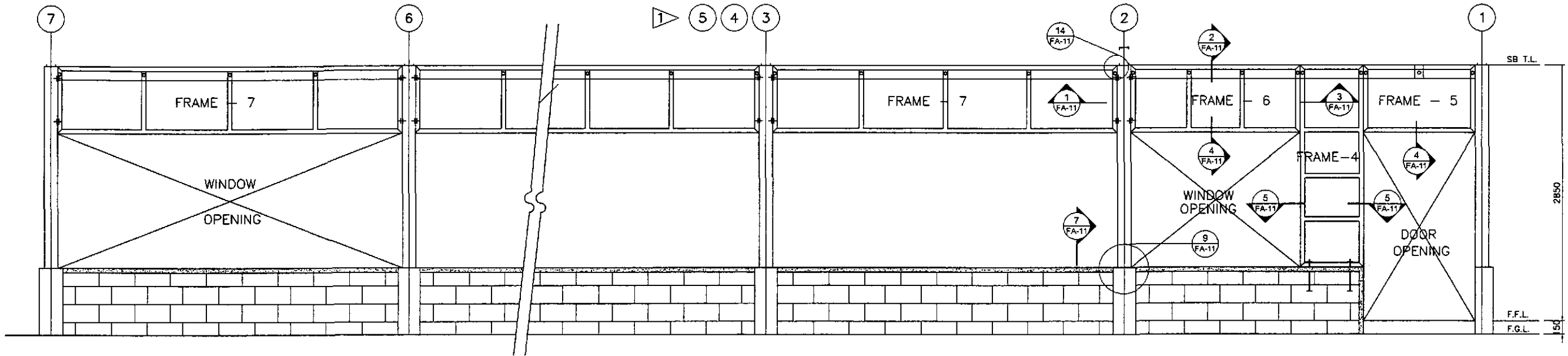
3 RIGHT SIDE ELEVATION
FA-08 SCALE 1:25



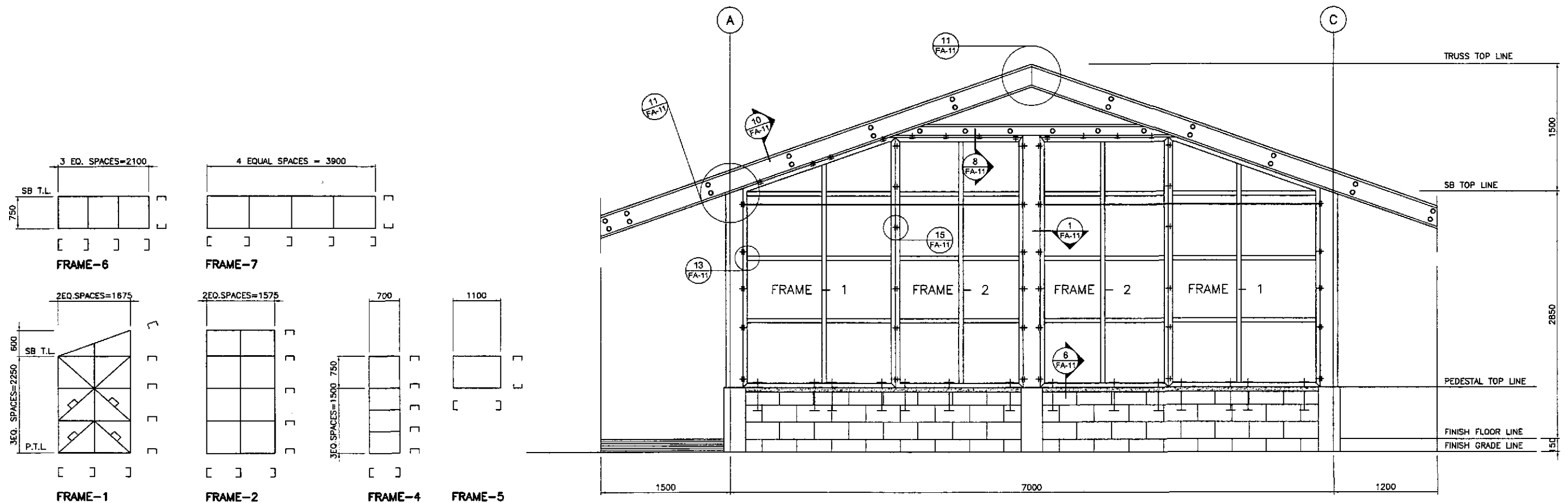
1 FRAMES SCHEMATIC DIAGRAMS
FA-08 SCALE 1:50

ARVEL P. GONZALES
ENGINEER
PTR. NO. 5846340 P.R.C. NO. 53457
ISSUED ON 04/26/2002 T.I.N. 138-082-682
ISSUED AT SAN JUAN, M.M.

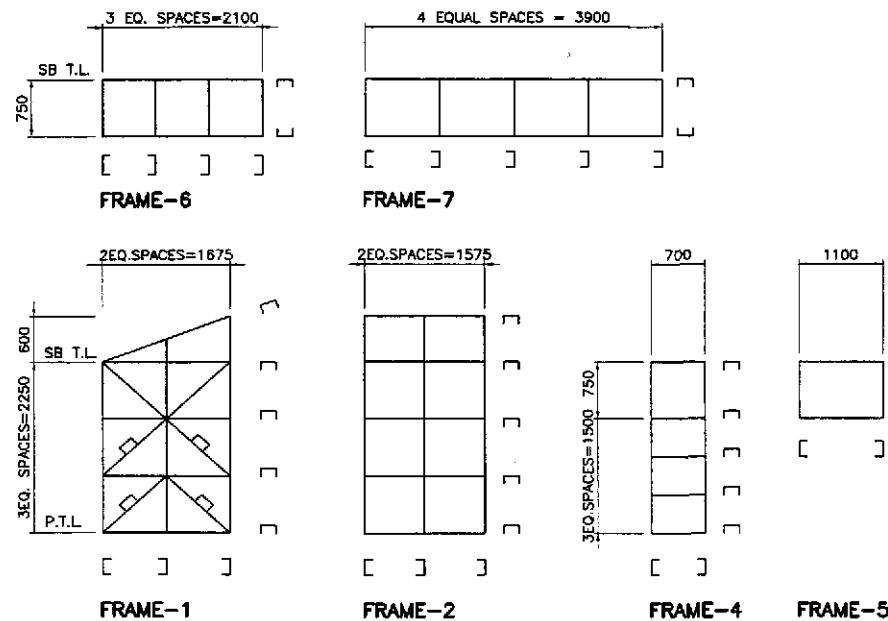
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED				BUREAU OF DESIGN Submitted By: DANILO C. TRAJANO Project Director	OFFICE OF THE SECRETARY Recommended By: EMANUEL P. CUNTAPAY Chief, Architectural Division	Recommended By: GILBERTO S. REYES OIC, Director IV	Approved By: MANUEL M. BONDAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary	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



2 REAR ELEVATION
FA-09 SCALE 1:25



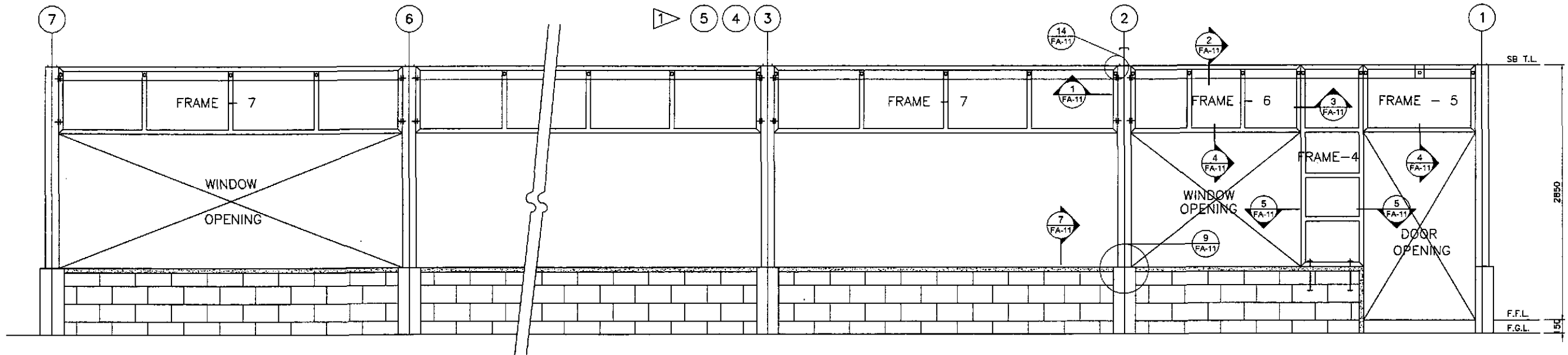
3 LEFT SIDE ELEVATION
FA-09 SCALE 1:25



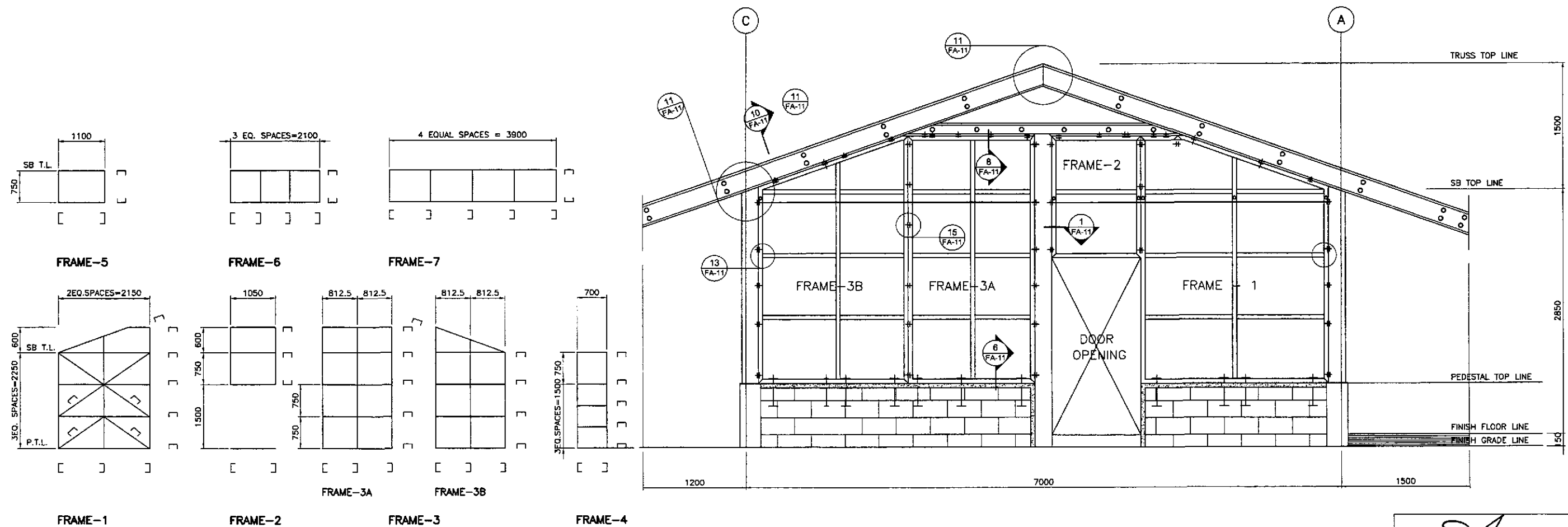
1 FRAMES SCHEMATIC DIAGRAMS
FA-09 SCALE 1:50

ARDEL 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.

	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	DESIGNED	10/10/02	A.P. GONZALES	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)	AS SHOWN	ENGR'S FIELD OFFICE / LABORATORY
CHECKED	10/16/02	A.P. GONZALES	Submitted By:	Reviewed By:	Recommended By:	CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1	REAR AND LEFT SIDE ELEVATION OF STEEL STUD FRAMES & SCHEMATIC DIAGRAM	
SUBMITTED	10/18/02	A.P. GONZALES	DANILO C. TRAJANO Project Director	WILFREDO S. LOPEZ Chief, Structural Division	GILBERTO S. REYES O.C. Director IV				



2 REAR ELEVATION
FA-10 SCALE 1:25



1 FRAMES SCHEMATIC DIAGRAMS
FA-10 SCALE 1:50

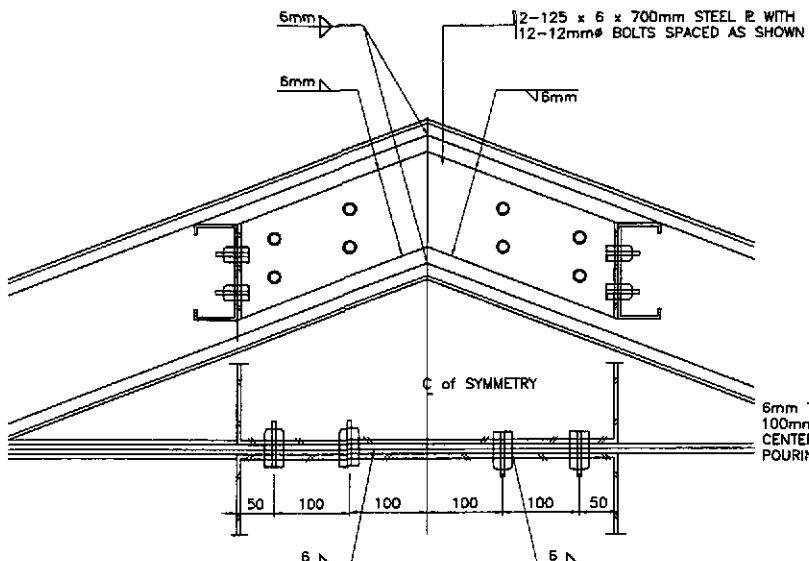
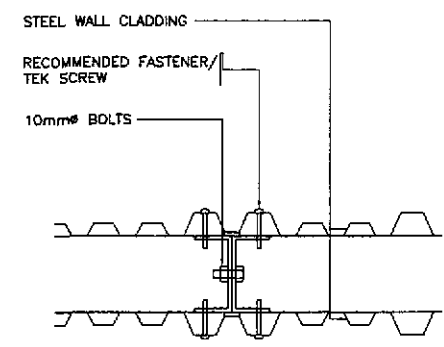
3 LEFT SIDE ELEVATION
FA-10 SCALE 1:25

MANUEL P. GONZALES
ENGINEER
PTR. NO. 554634D P.R.C. NO. 53457
ISSUED ON 04/28/2002 T.I.N. 138-062-882
ISSUED AT SAN JUAN, M.M.

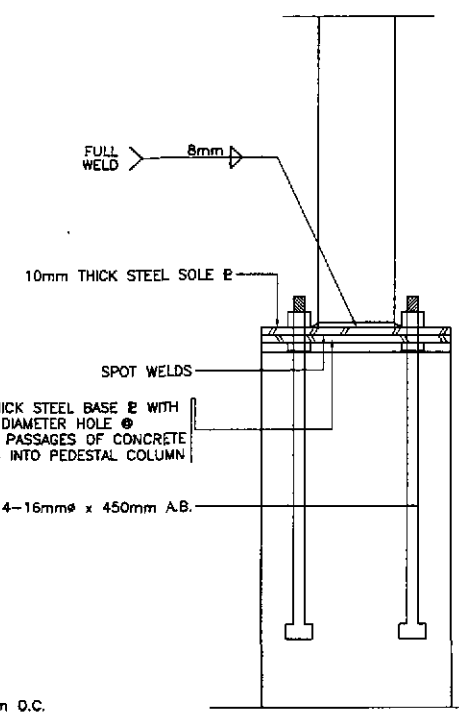
		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		SCALE : AS SHOWN FULL SIZE A1	SHEET CONTENTS : ENGINEER'S LIVING QUARTERS REAR AND LEFT SIDE ELEVATION OF STEEL STUD FRAMES & SCHEMATIC DIAGRAMS	SHEET NO. : FA-10
DESIGNED	DATE	SIGNATURE	Submitted By: PJHL - PMO DANILLO C. TRAJANO Project Director		Reviewed By: WILFREDO S. LOPEZ Chief, Structural Division		Recommended By: GILBERTO S. REYES OIC, Director IV		Approved By: MANUEL M. BONGAN Undersecretary Approved By: SIMEON A. DATUMANONG Secretary	

NOTES :

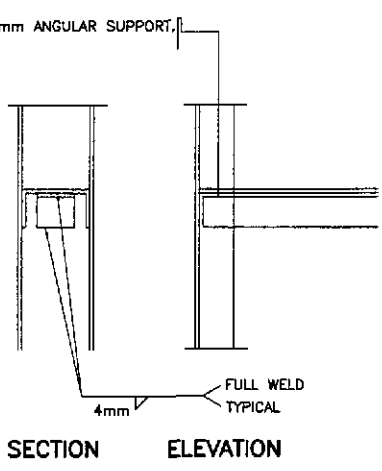
1. ALL VERTICAL AND HORIZONTAL STUDS SHALL BE 100x50x2mm UNSTIFFENED FLANGED UNLESS OTHERWISE SPECIFIED.
2. HORIZONTAL STUDS MUST BE INSERTED TO AND WELDED IN THE VERTICAL STUDS UNLESS OTHERWISE SPECIFIED.
3. REVISION IN THE ATTACHMENT/ CONNECTIONS THAT WILL IMPROVE DESIGN MAYBE DONE W/ PRIOR APPROVAL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



3 DETAIL - 12
FA-11 SCALE 1:5



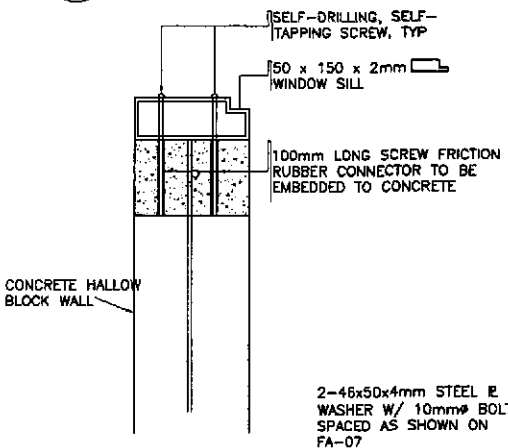
10 DETAIL - 13
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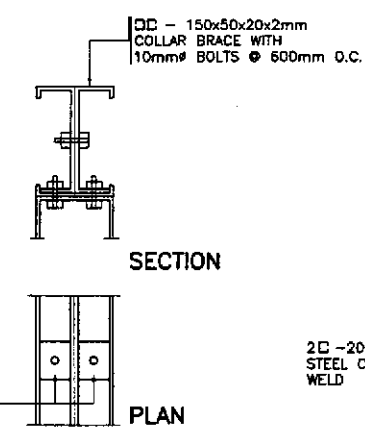
13 DETAIL - 14
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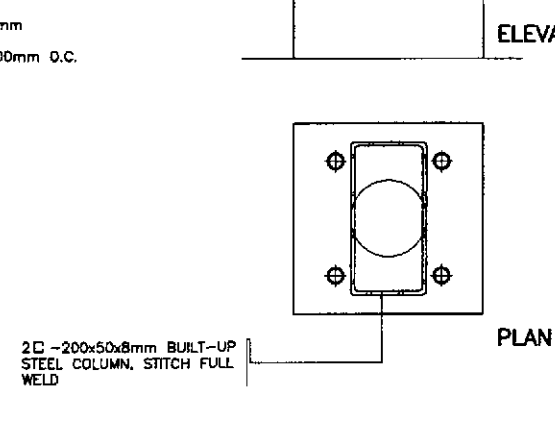
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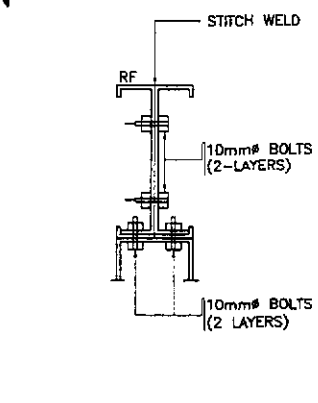
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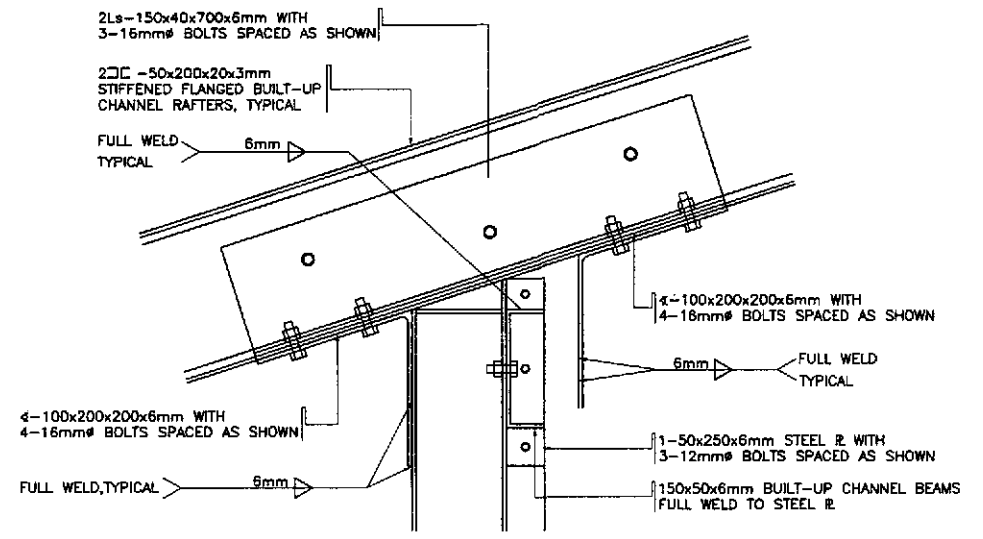
5 DETAIL - 8
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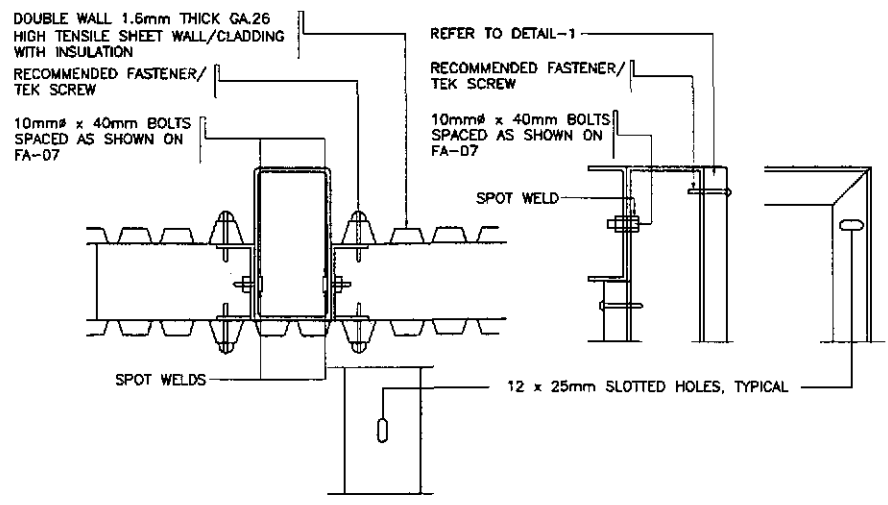
7 DETAIL - 9
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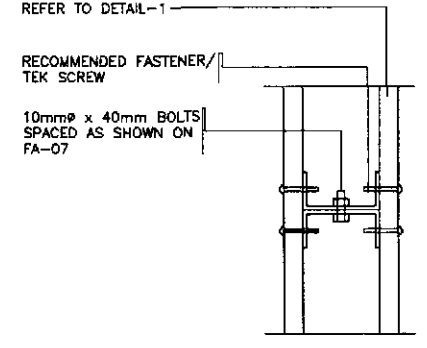
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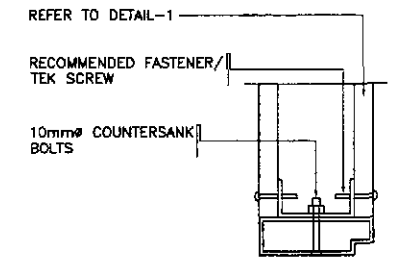
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FA-11 SCALE 1:5



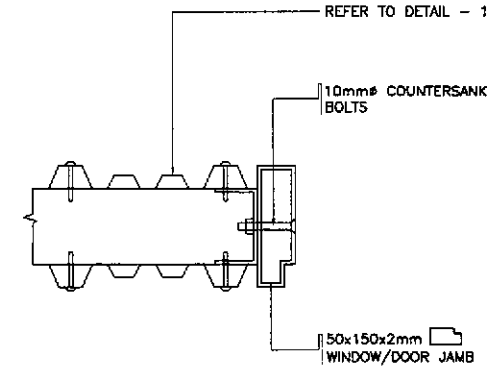
1 DETAIL - 1
FA-11 SCALE 1:5



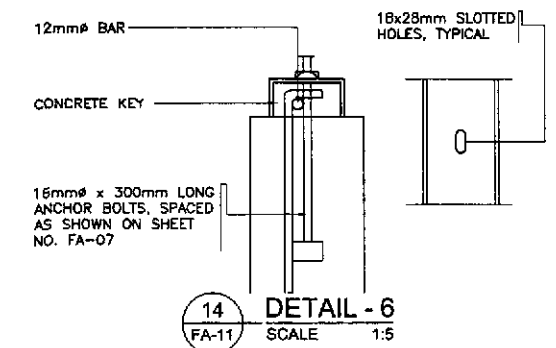
6 DETAIL - 3
FA-11 SCALE 1:5



8 DETAIL - 4
FA-11 SCALE 1:5



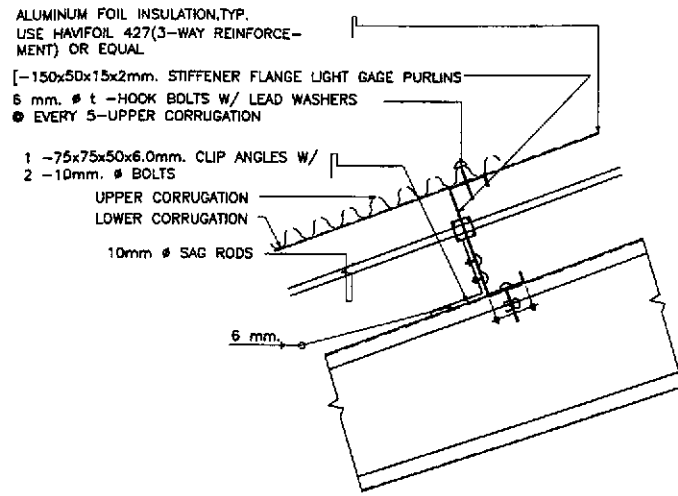
11 DETAIL - 5
FA-11 SCALE 1:5



14 DETAIL - 6
FA-11 SCALE 1:5

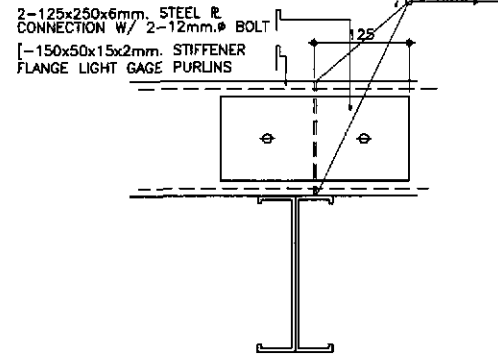
APRIL P. GONZALES
ENGINEER
PTR. NO. 5845340 P.R.C. NO. 53457
ISSUED ON 04/26/2002 T.I.N. 138-062-882
ISSUED AT SAN JUAN, M.M.

	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	10/16/01	A. P. GONZALES		Submitted By: DANILLO C. TRAJANO Project Director	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pilaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II	AS SHOWN	ENGINEER'S FIELD OFFICE AND LIVING QUARTERS DETAILS OF CONNECTIONS DETAIL 1 TO 15	FA-11
	SUBMITTED	10/18/01	APRIL P. GONZALES		Reviewed By: WILFREDO S. LOPEZ Chief, Structural Division Recommended By: GILBERTO S. REYES OIC, Director IV Approved By: MANUEL M. BONDAN Undersecretary SIMEON A. DATUMANONG Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		

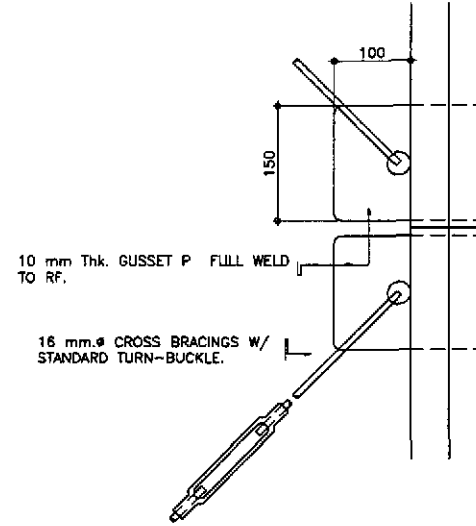


ELEVATION

2 PURLIN CONNECTION
FA-12 SCALE 1:5

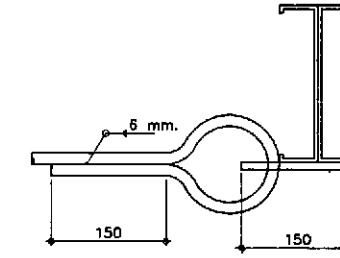


SECTION, SPLICE CONNECTION

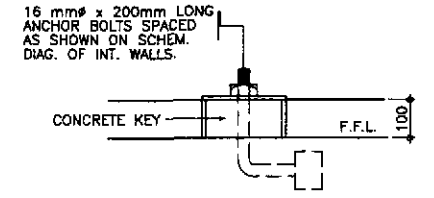


PLAN

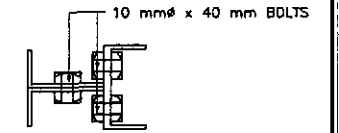
4 CROSS-BRACING CONNECTION
FA-12 SCALE 1:5



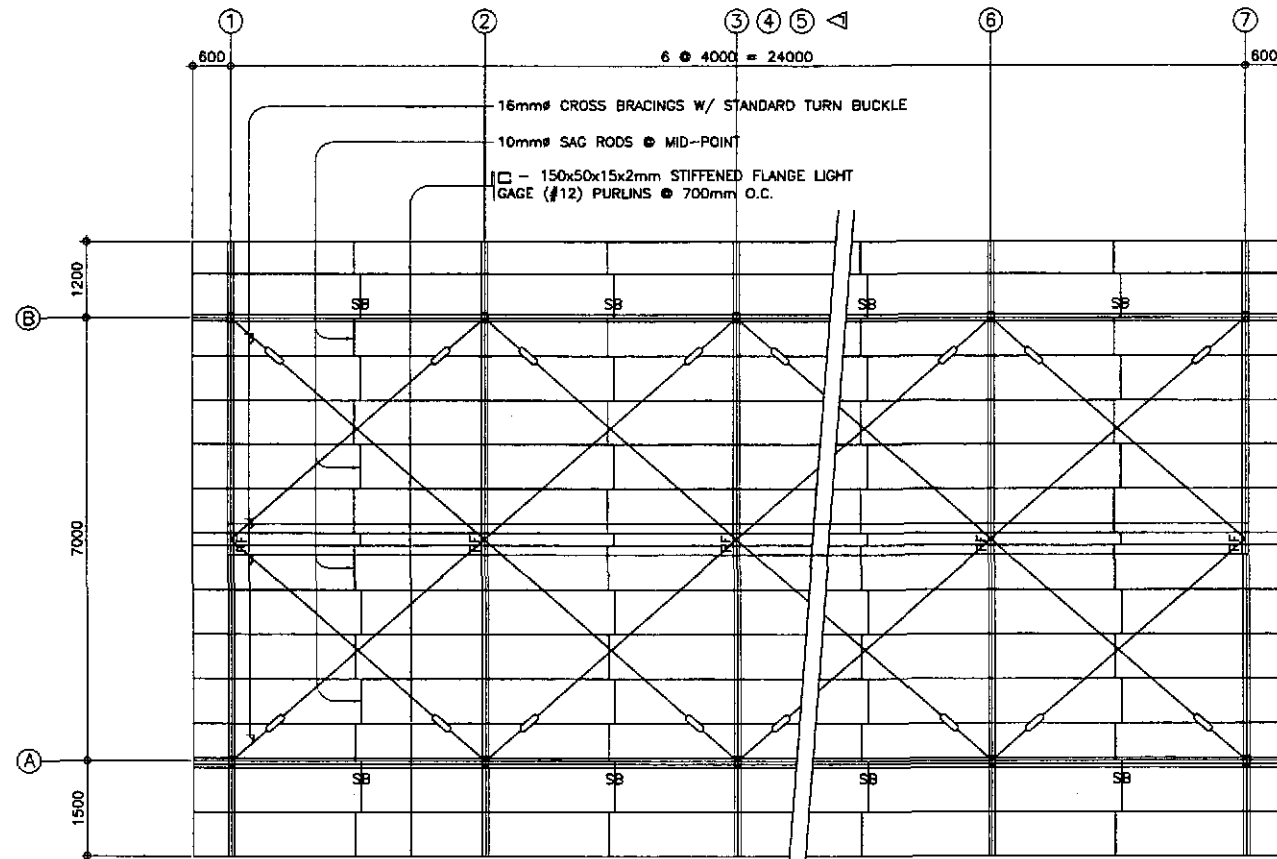
SECTION



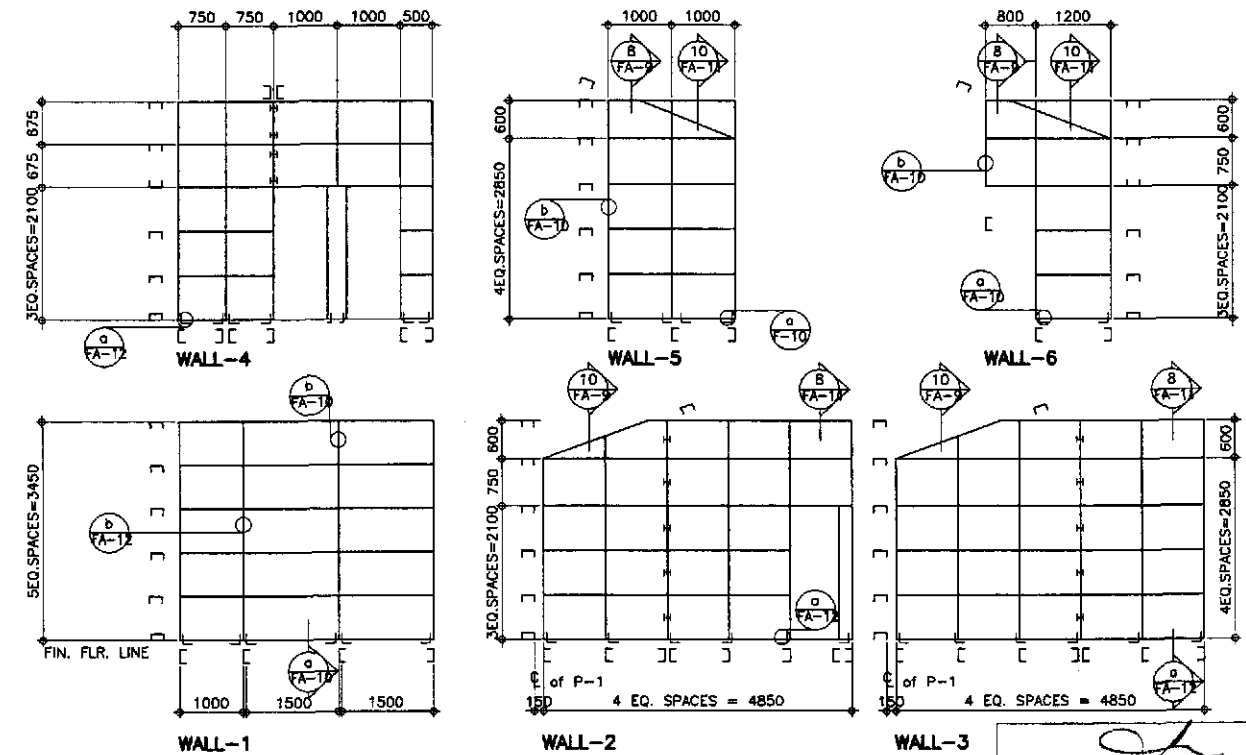
5 DETAIL - a
FA-12 SCALE 1:5



6 DETAIL - b
FA-12 SCALE 1:5



1 ROOF FRAMING PLAN
FA-12 SCALE 1:80



3 SCHEMATIC DIAGRAMS OF INTERIOR WALLS
FA-12 SCALE 1:80

ARNEL P. GONZALES
ENGINEER

PTR. NO. 5848340 P.R.C. NO. 53457
ISSUED ON 04/28/2002 T.I.N. 138-D62-682
ISSUED AT SAN JUAN, M.M.

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KAI KATAHIRA & ENGINEERS INTERNATIONAL

YEO YACHIYO ENGINEERING CO., LTD.

DESIGNED	DATE	SIGNATURE
CHECKED		
SUBMITTED		

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

BUREAU OF DESIGN

OFFICE OF THE SECRETARY

Submitted By: DANILO C. TRAJANO, Project Director

Reviewed By: WILFREDO S. LOPEZ, Chief, Structural Division

Recommended By: GILBERTO S. REYES, OIC, Director IV

Recommended By: MANUEL M. BONDAN, Undersecretary

Approved By: SIMEDON A. DATUMANING, Secretary

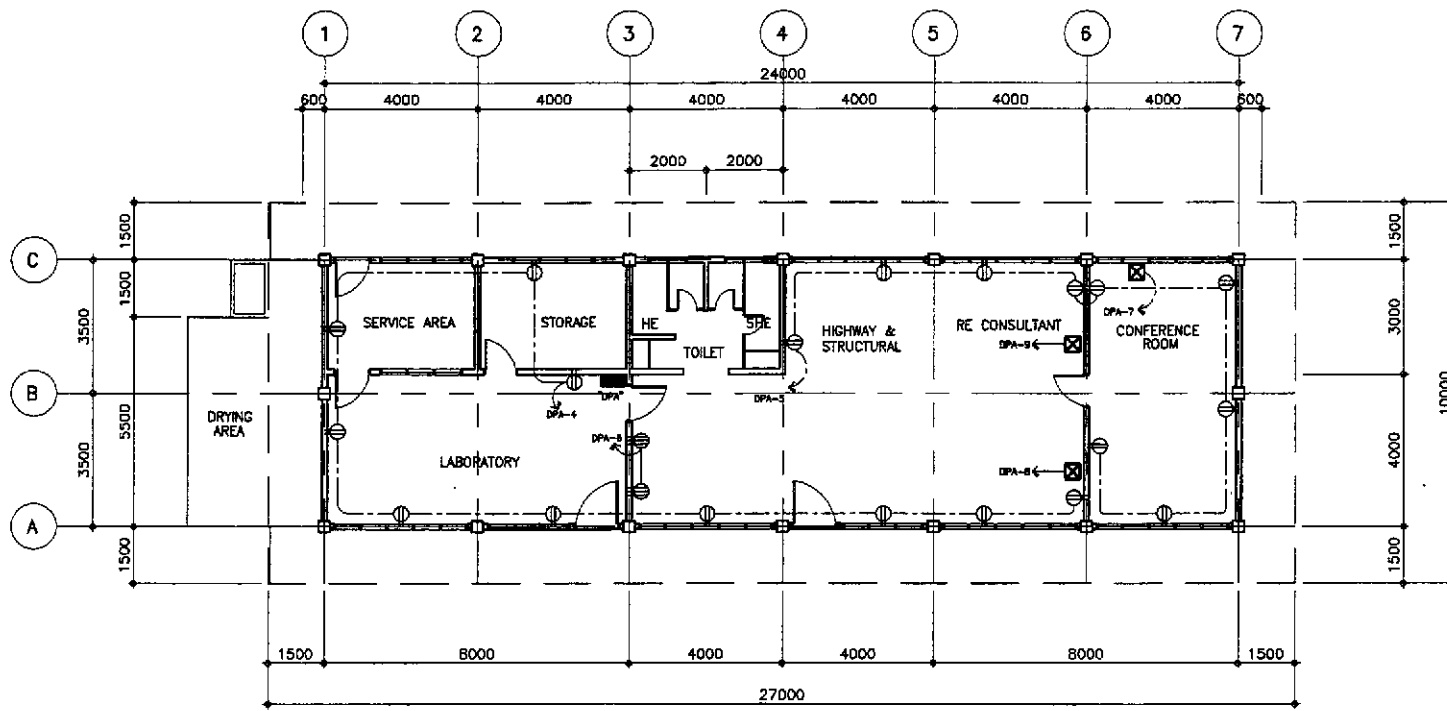
PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)

CABANATUAN BYPASS - CONTRACT PACKAGE II

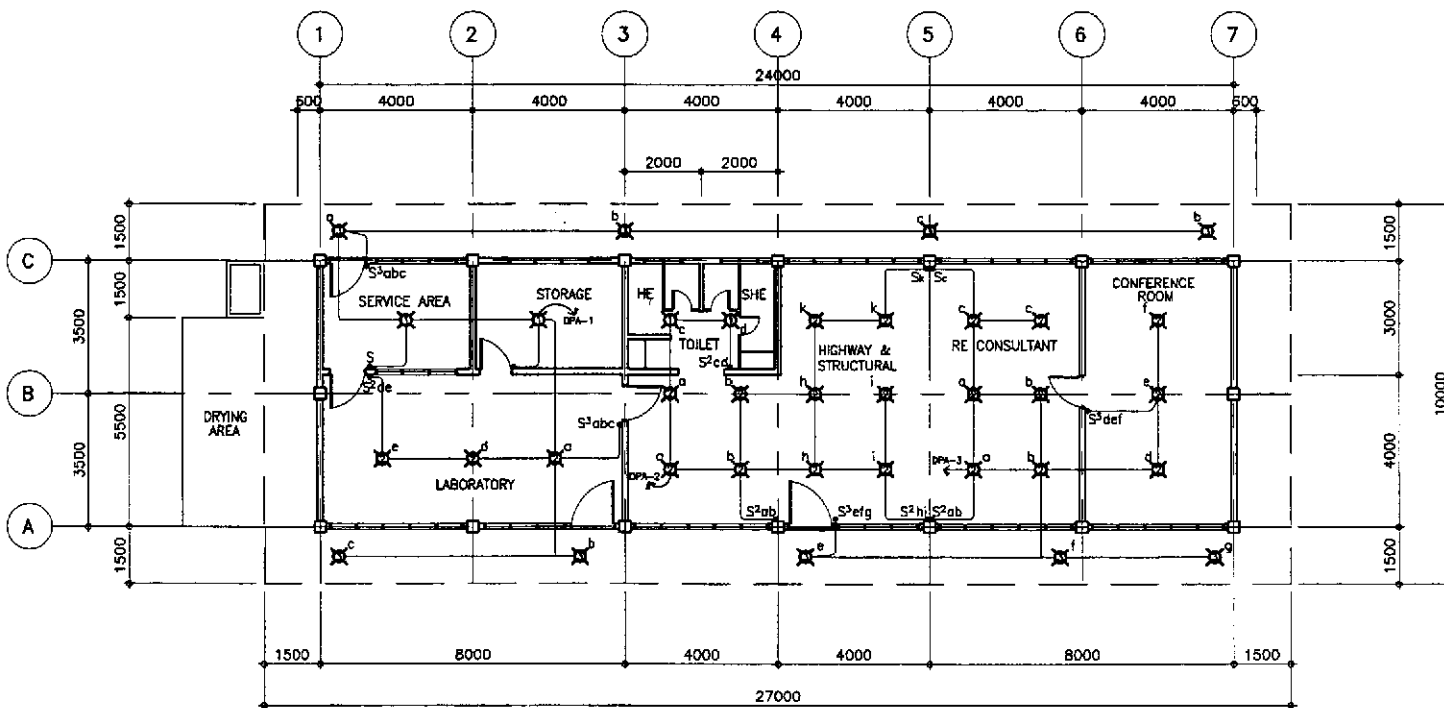
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
ENGR'S FIELD OFF. & LIVING QUARTERS
ROOF FRAMING PLAN, SCHEMATIC DIAGRAM
PURLIN CONN. & CROSS-BRACING CONN.

SHEET NO. :
FA-12



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



2 LIGHTING 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 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.
- 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 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 NOR MENTIONED IN THE SPECIFICATIONS.
- ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHT ABOVE THE FINISHED FLOOD LEVEL, UNLESS OTHERWISE NOTED.
A. WALL SWITCHES1200 mm
B. CONVENIENCE OUTLETS300 mm
C. AIR CONDITIONING OUTLETSAT 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.

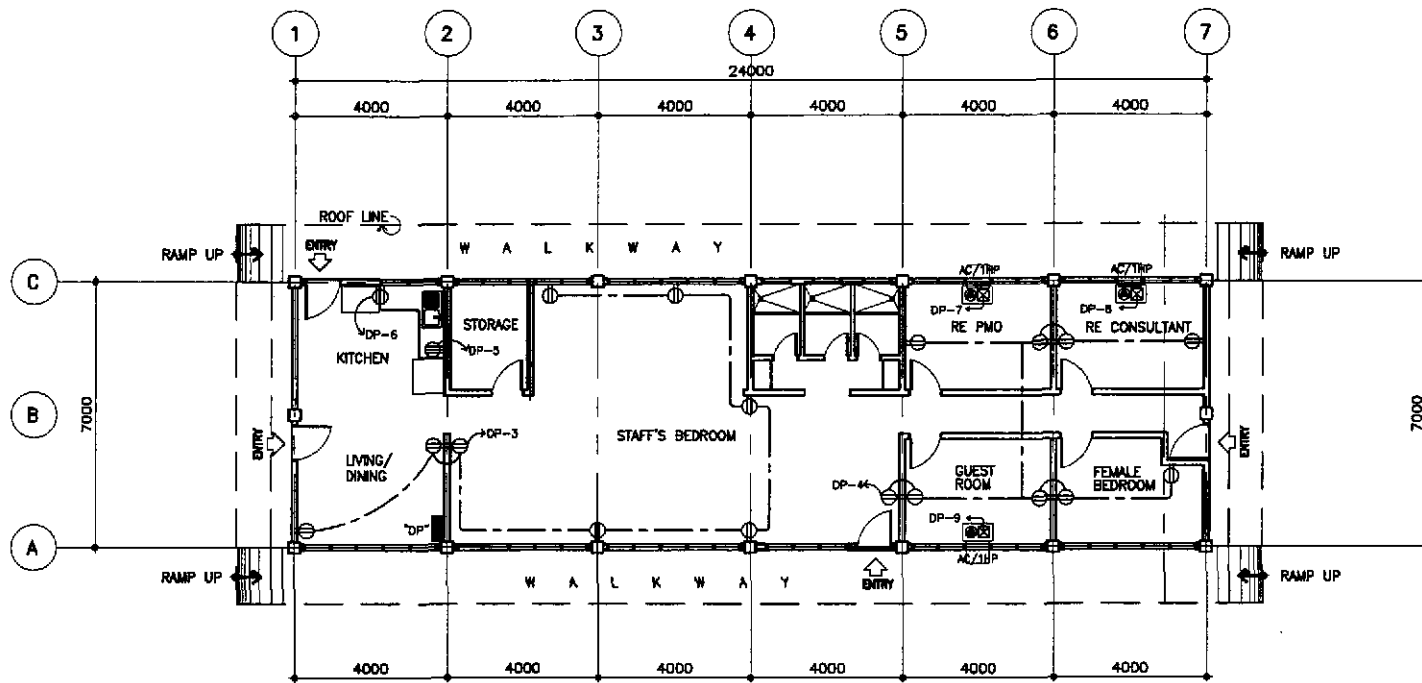
ELECTRICAL SYMBOLS:

- 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

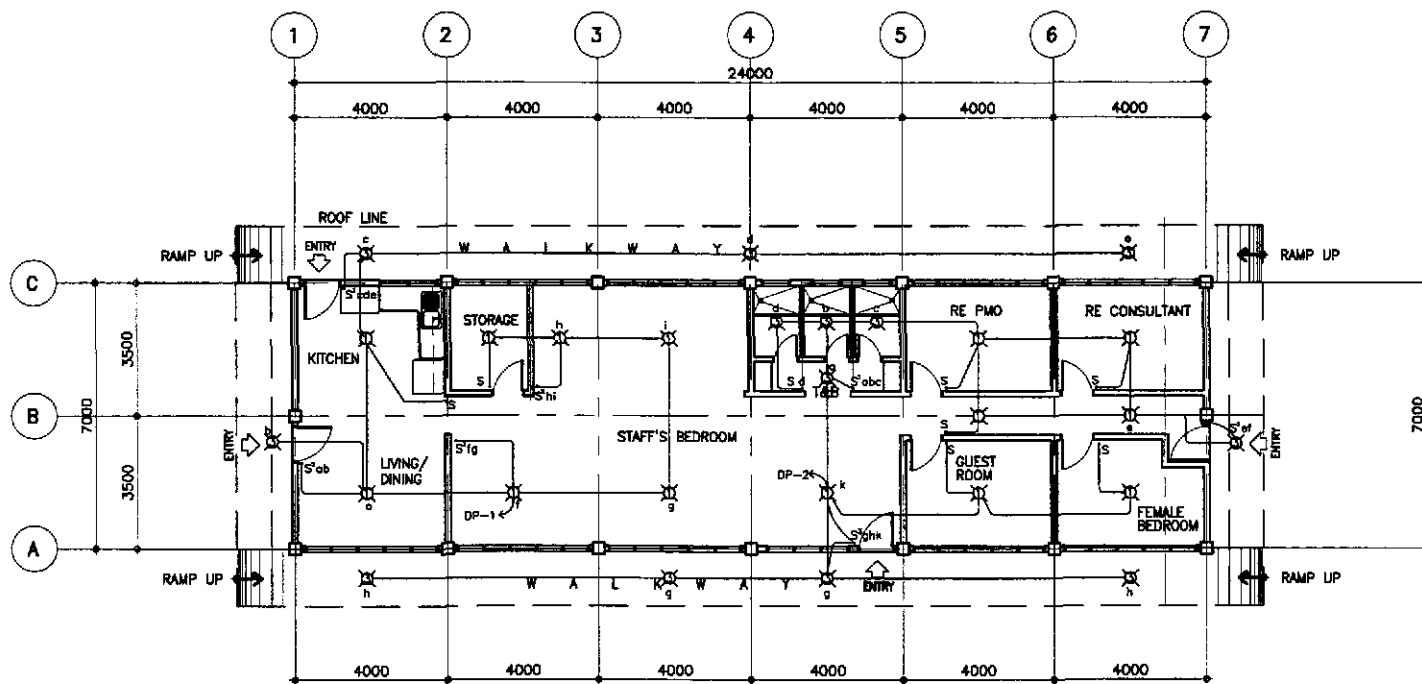
ERNESTO M. ANTIDOUA
ENGINEER

PTR. NO. 7403664 P.E.E. NO. 2813
ISSUED ON 01/02/2002 ISSUED AT CABUYAO, LAGUNA
T.I.N. 109-382-379

	DESIGNED	10/11/02		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN OFFICE OF THE SECRETARY	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/16/02			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	ENGR'S FIELD OFFICE / LABORATORY LIGHTING LAYOUT, POWER LAYOUT ELECTRICAL SYMBOLS & GENERAL NOTES	FE-01
	SUBMITTED	10/18/02			CABANATUAN BYPASS - CONTRACT PACKAGE II FULL SIZE A1			
Submitted By: DANILO C. TRAJANO Project Director Reviewed By: FE M. BARRIENTOS Chief, Mechanical-Elect. Div. Recommended By: SILBERTO S. REYES OTC, Director IV Recommended By: MANUEL M. BONOAN Undersecretary Approved By: SIMEON A. DATUMANONG Secretary								



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:

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 BE 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 WOODEN PARTITIONS OR INSIDE THE CEILING SPACES.
4. 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.
6. 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.
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 NOT MENTIONED IN THE SPECIFICATIONS.
8. ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHT ABOVE THE FINISHED FLOOR LEVEL, UNLESS OTHERWISE NOTED.
A. WALL SWITCHES1200 mm
B. CONVENIENCE OUTLETS300 mm
C. AIR CONDITIONING OUTLETSAT 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
- S ONE-WAY WALL SWITCH, 15A, 250V
- S² 2 ONE-WAY WALL SWITCHES ON ONE-GANG PLATE, 15A, 250V
- S³ 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

EM Antioquia
ERNESTO M. ANTIOQUIA
ENGINEER

PTR. NO. 7403664 P.E.E. NO. 2913
ISSUED ON 01/02/2002 ISSUED AT CUBAYAO, LAGUNA
T.I.N. 106-382-379

	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	DESIGNED	10/14/02	<i>E.M. Antioquia</i>	BUREAU OF DESIGN			THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pinaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	ENGINEER'S LIVING QUARTERS LIGHTING LAYOUT, POWER LAYOUT ELECTRICAL SYMBOLS & GENERAL NOTES
CHECKED	10/16/02	<i>E.M. Antioquia</i>	Submitted By:	Reviewed By:	Recommended By:	CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		
SUBMITTED	10/18/02	<i>M. Riccio</i>	DANILO C. TRAJANO Project Director	FE M. BARRIENTOS Chief, Mechanical-Elect. Div.	GILBERTO S. REYES OIC, Director IV				

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 ² TW ² in 15mm ² C
2	LIGHT OUTLETS	640	220	50	2	15	2-3.5mm ² TW ² in 15mm ² C
3	CONVENIENCE OUTLET	1440	220	50	2	20	2-3.5mm ² TW ² in 15mm ² C
4	CONVENIENCE OUTLET	1620	220	50	2	20	2-3.5mm ² TW ² in 15mm ² C
5	REFRIGERATOR	500	220	50	2	20	2-3.5mm ² TW ² + 1-20mm ² TW(G) IN 15mm ² C
6	ELECTRIC STOVE	3000	220	50	2	30	2-5.5mm ² THW+1-3.5mm ² TW(G) IN 20mm ² C
7	1hp, 1 ϕ WDG, TYPE ACU	1980	220	50	2	30	2-5.5mm ² THW+1-3.5mm ² TW(G) IN 20mm ² C
8	1hp, 1 ϕ WDG, TYPE ACU	1980	220	50	2	30	2-5.5mm ² THW+1-3.5mm ² TW(G) IN 20mm ² C
9	1hp, 1 ϕ WDG, TYPE ACU	1980	220	50	2	30	2-5.5mm ² THW+1-3.5mm ² TW(G) IN 20mm ² 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					

$I_T = 90\% \text{ D.F.} = \frac{18095}{220} (0.90) + 0.25(B) = 76.03 \text{ Amps}$
 $I_B = \frac{18095}{220} (0.90) + 1.5(B) = 86.03 \text{ Amps}$
 MAIN ACB: 100AF, 2P, 250 V, 100AT, 15KAIC
 USE : 2-38mm² THW + 1-14mm² TW(G) IN 40mm² 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.

ENGINEER'S LIVING QUARTERS

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 ² TW ² in 15mm ² C
2	LIGHT OUTLETS	1210	220	50	2	15	2-3.5mm ² TW ² in 15mm ² C
3	LIGHT OUTLETS	1065	220	50	2	15	2-3.5mm ² TW ² in 15mm ² C
4	CONVENIENCE OUTLETS	1800	220	50	2	20	2-3.5mm ² TW ² + 1-2.0mm ² TW(G) IN 15mm ² C
5	CONVENIENCE OUTLETS	1620	220	50	2	20	2-3.5mm ² TW ² + 1-2.0mm ² TW(G) IN 15mm ² C
6	PHOTOCOPIY MACHINE /HEAVY DUTY CO.	2500	220	50	2	20	2-3.5mm ² TW ² + 1-2.0mm ² TW(G) IN 15mm ² C
7	JTR, 1 ϕ , SPLIT TYPE ACU	6930	220	100	2	70	2-8mm ² THW + 1-5.5mm ² TW(G) IN 25mm ² C
8	JTR, 1 ϕ , SPLIT TYPE ACU	6930	220	100	2	70	2-8mm ² THW + 1-5.5mm ² TW(G) IN 25mm ² C
9	JTR, 1 ϕ , SPLIT TYPE ACU	6930	220	100	2	70	2-8mm ² THW + 1-5.5mm ² TW(G) IN 25mm ² C
10	SPARE	5000	220	100	2	70	-
11	SPARE FOR PERIMETER LIGHTS	1500	220	50	2	30	2-5.5mm ² THW + 1-3.5mm ² TW(G) IN 25mm ² C
12	SPARE	1500	220	50	2	20	-
TOTAL		37,575					

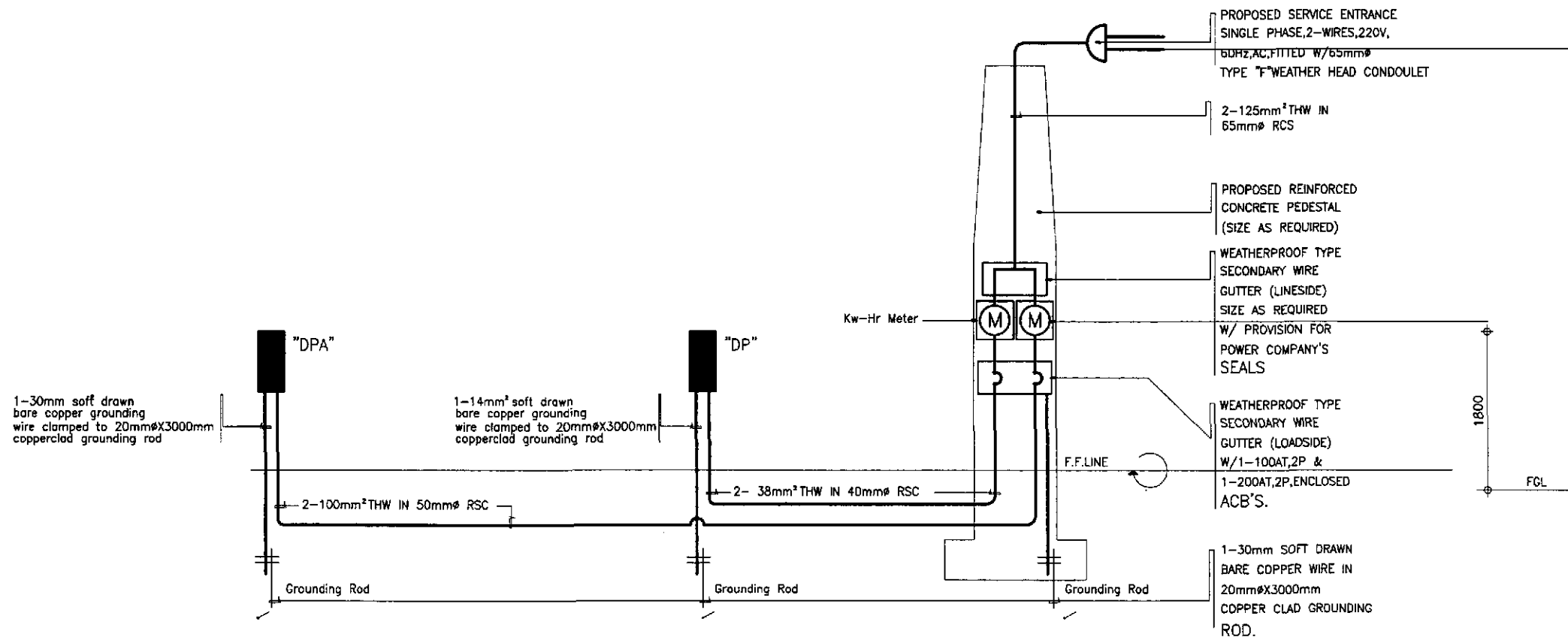
$I_T = 95\% \text{ D.F.} = \frac{37575(0.95)}{220} + 0.25(23) = 168 \text{ Amps}$
 USE : 2-100mm² THW + 1-30mm² TW IN 50mm² RSC
 $I_B = 162.25587 + 1.5(23) = 196.75 \text{ Amps}$
 MAIN ACB: 225AF, 2P, 250 V, 200AT, 18 KAIC

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 FIELD OFFICE/LABORATORY

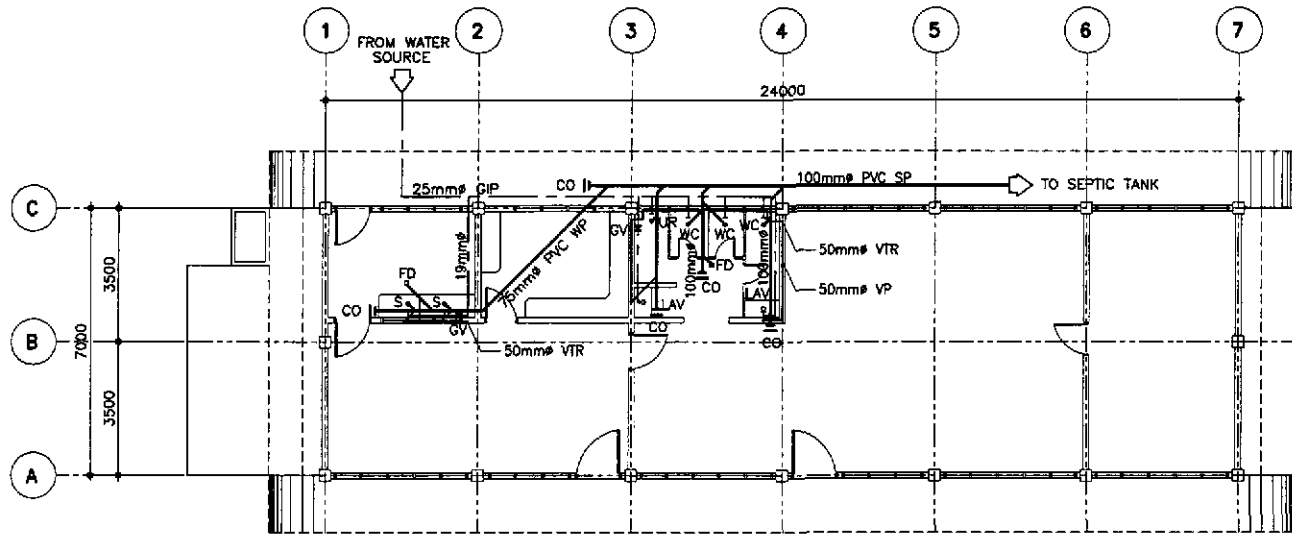


COMPUTATION FOR REQUIRED SIZE OF MAIN SERVICE ENTRANCE FEEDER:

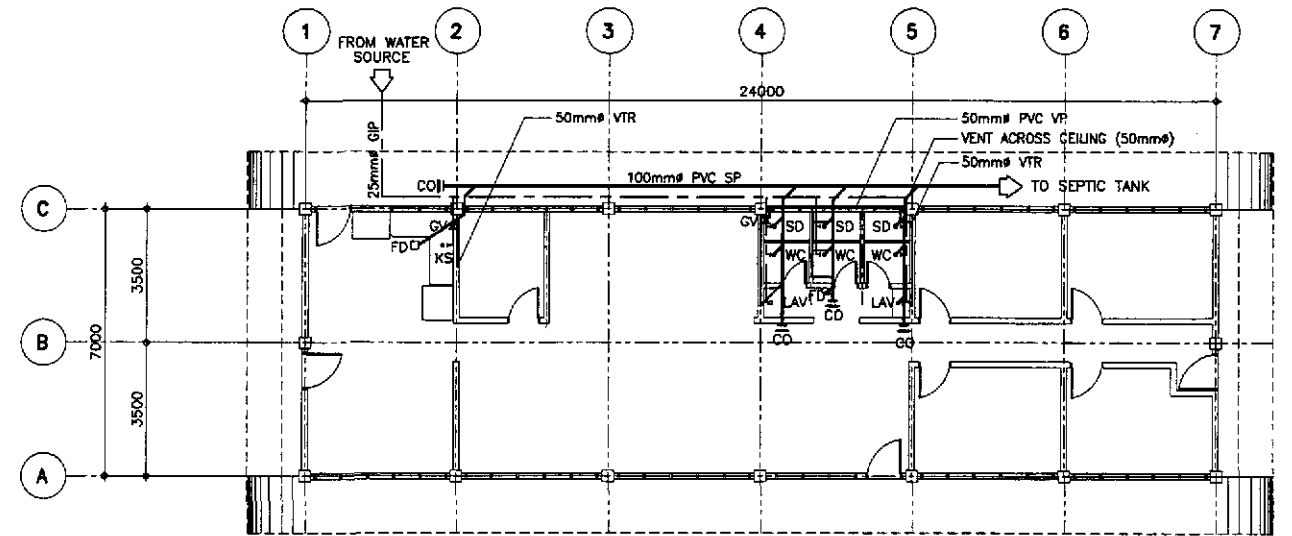
$I_T = \frac{VA^{DPA} + VA^{AP}}{220} @ 85\% \text{ DF} + 0.25(I)$
 $I_T = \frac{37575 + 18095}{220} (0.85) + 0.25(23)$
 $I_T = 220.83 \text{ Amps}$
 USE : 2-125 mm² THW IN 65 mm² RSC

1 ELECTRICAL RISER DIAGRAMS
 FE-03 NOT TO SCALE

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

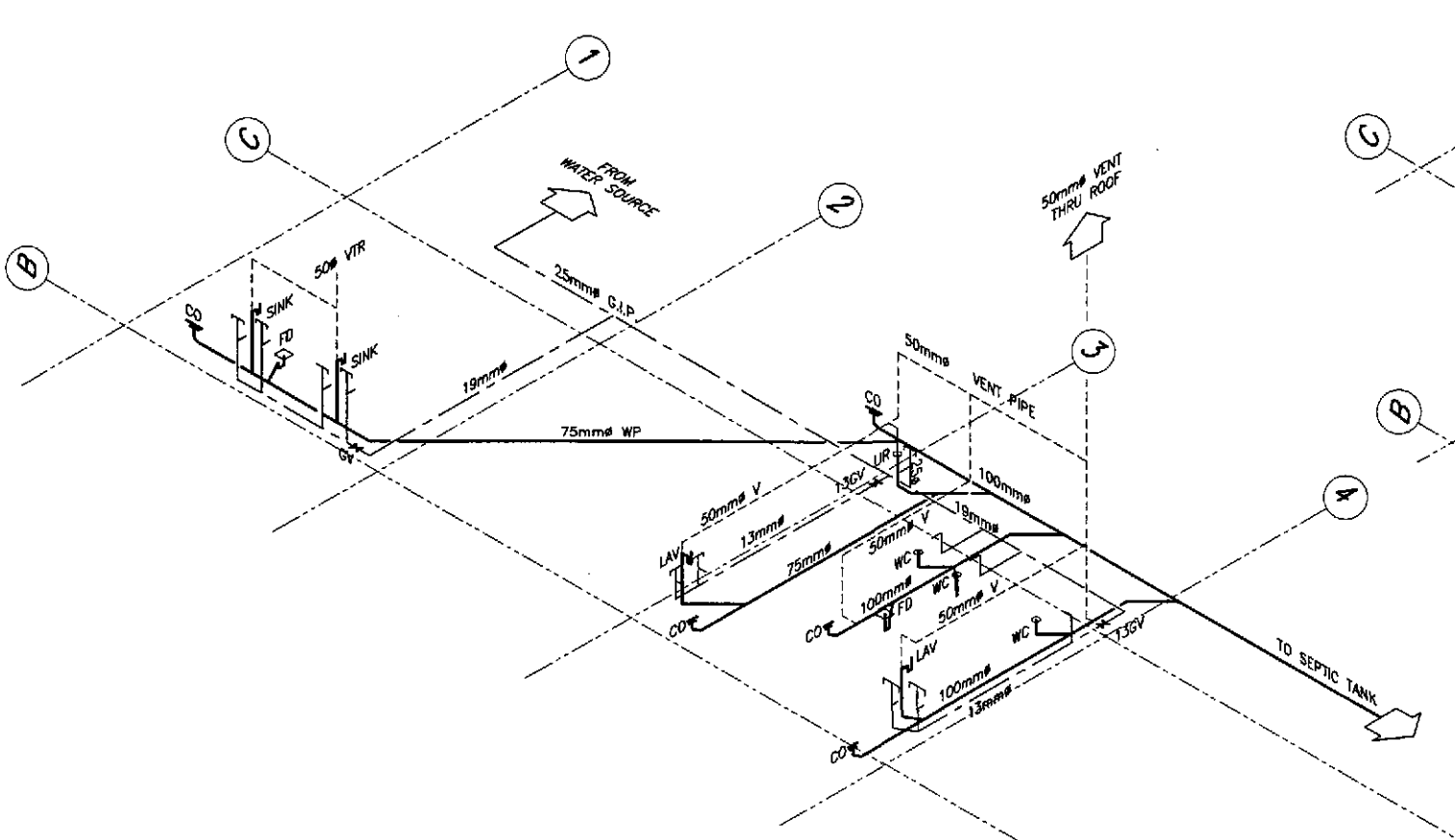


1 ENGINEER'S FIELD OFFICE
SEWER AND WATER LINE LAYOUT
FP-01 SCALE 1:100

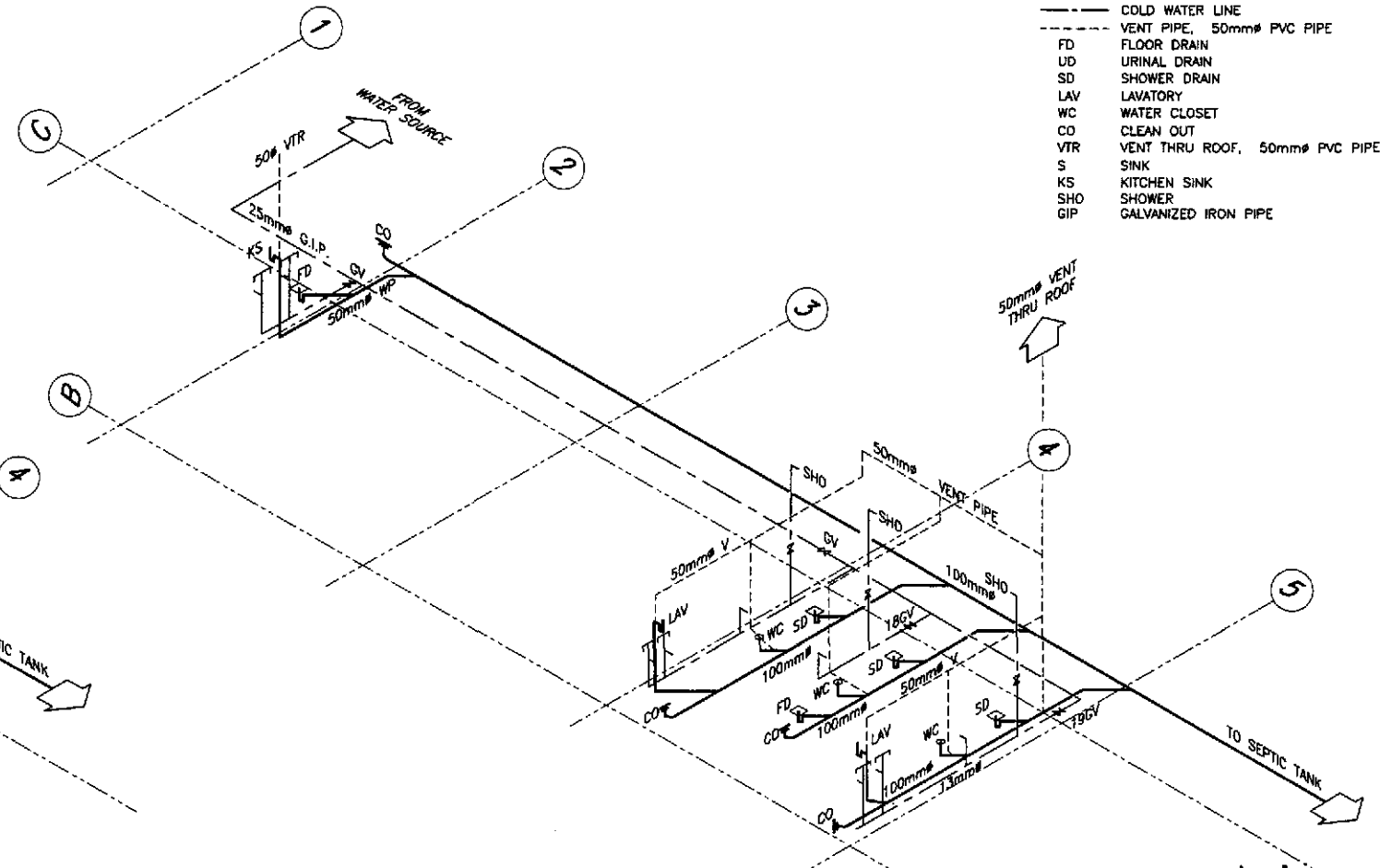


2 ENGINEER'S LIVING QUARTER
SEWER AND WATER LINE LAYOUT
FP-01 SCALE 1:100

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

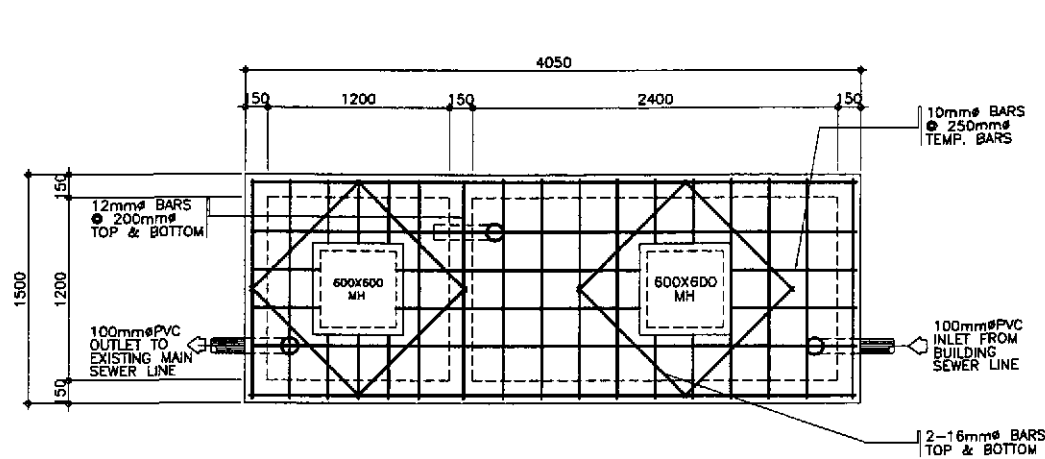


4 (SHOWING SEWER AND WATER LINE)
ISOMETRIC DIAGRAM
FP-01 SCALE 1:50

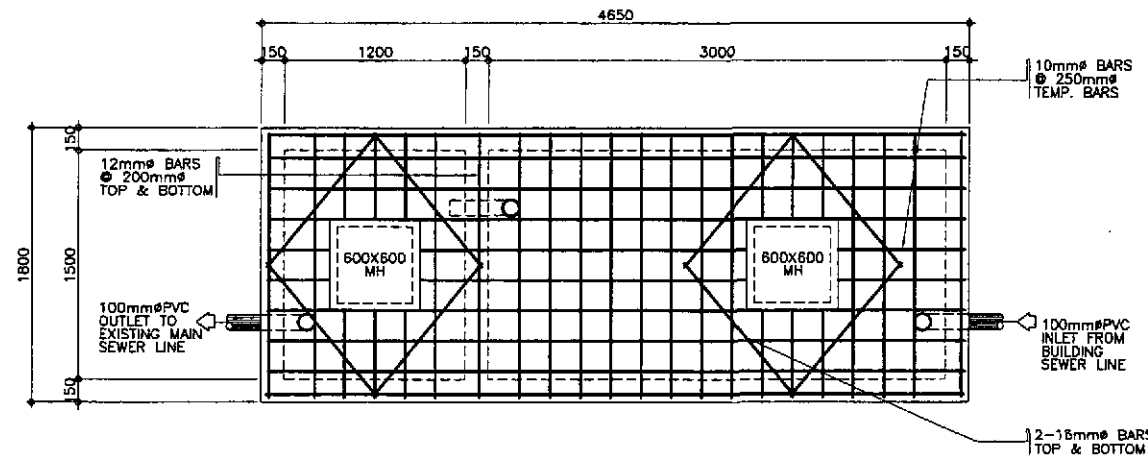
[Signature]
FRANCISCO STA. MARIA
SANITARY ENGINEER

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

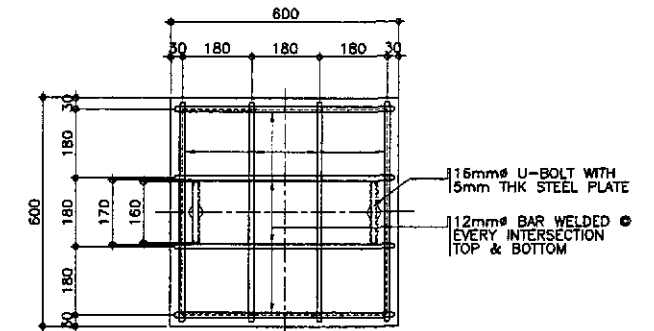
	DESIGNED	DATE	SIGNATURE	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	PROJECT AND LOCATION :				SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/16/02	[Signature]		BUREAU OF DESIGN Submitted By: PJHL - PMO Reviewed By: EMANUEL P. CUNTAPAY Recommended By: GILBERTO S. REYES (See cover sheet for Signature/Approval) Approved By: MANUEL M. BONOAN (See cover sheet for Signature/Approval) SIMEDN A. DATUMANONG Undersecretary Secretary	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	ENGINEER'S FIELD OFFICE AND LIVING QUARTERS SEWER AND WATER LINE LAYOUT AND ISOMETRIC DIAGRAM



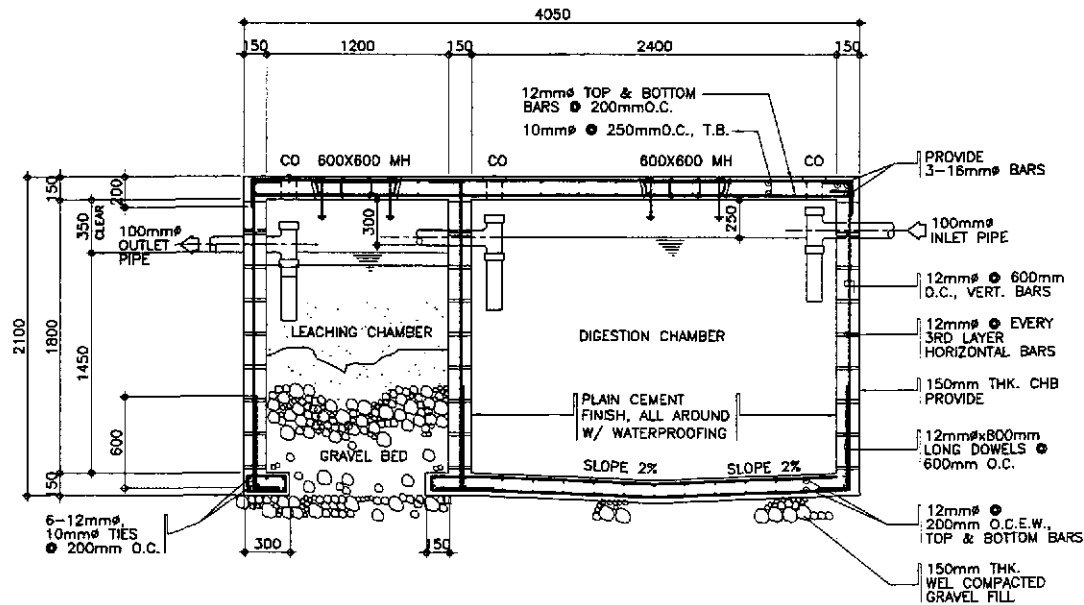
1A PLAN
FP-02 SCALE 1:20



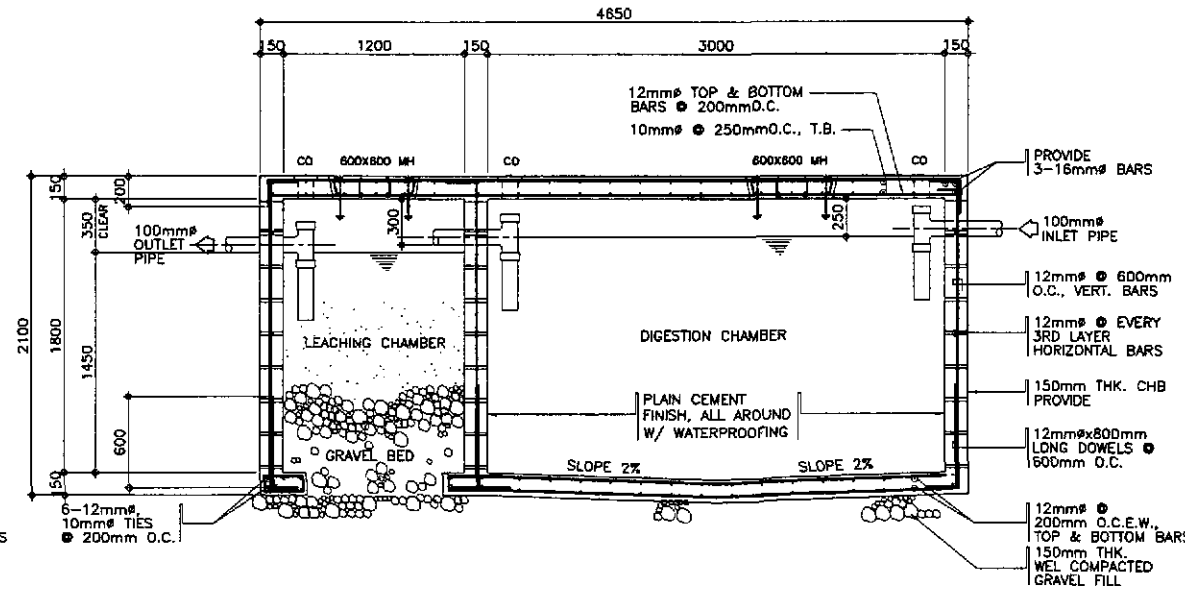
1C PLAN
FP-02 SCALE 1:20



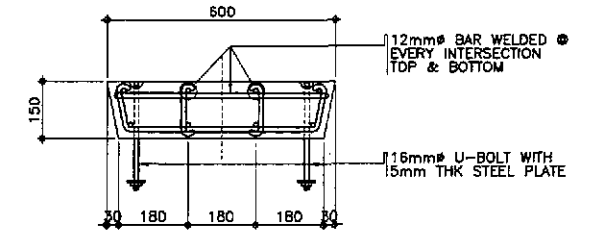
2A PLAN
FP-02 SCALE 1:20



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

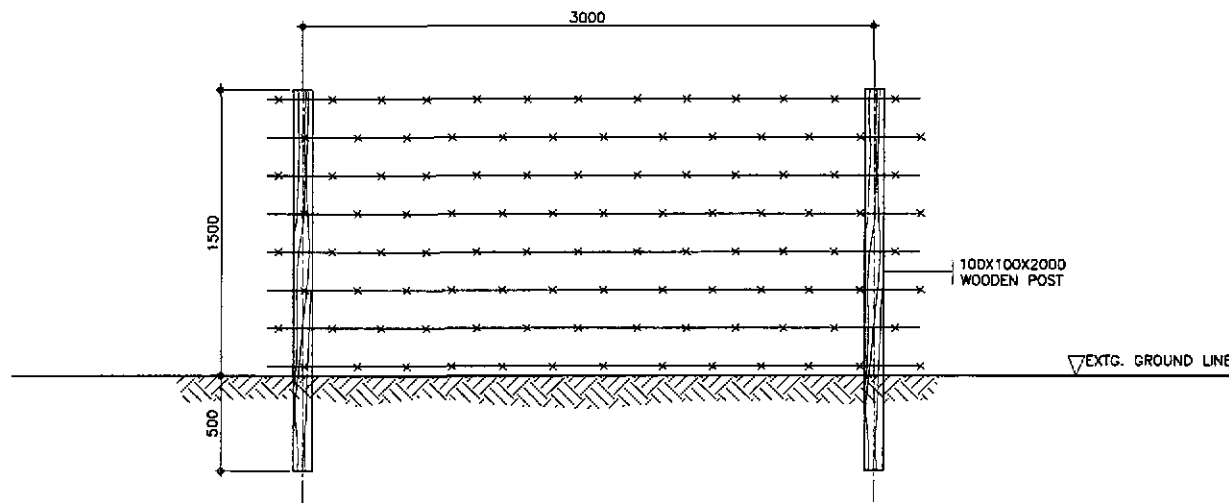
- GENERAL NOTES:
1. ALL PLUMBING WORKS INCLUDED HEREIN EXECUTED ACCORDING TO THE PROVISIONS AND REQUIREMENTS OF THE PHILIPPINE NATIONAL PLUMBING CODE.
 2. SOIL AND WASTE PIPE LINE SHALL BE PVC, SIZE AS IN DRAWING.
 3. ALL WATER LINES SHALL BE G.I. PIPE SCHEDULE 40 AND SIZE OF PIPES TO THE FIXTURES SHALL 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

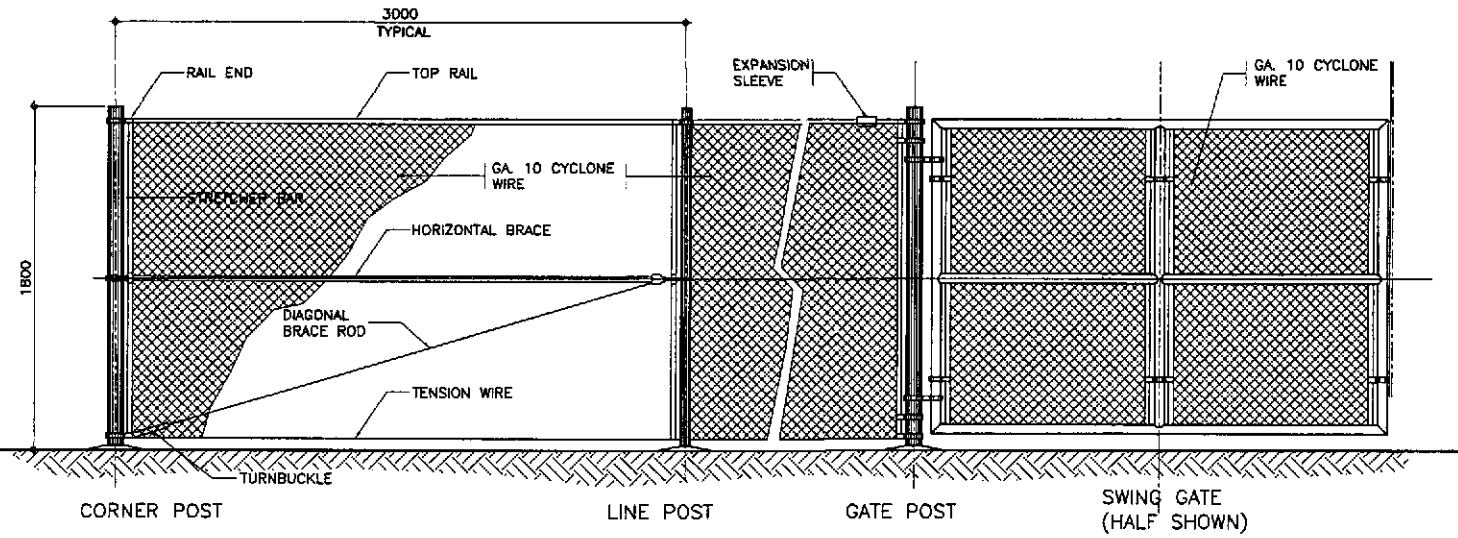
Manuel M. Bondon
FRANCISCA S. MARIA
SANITARY ENGINEER

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

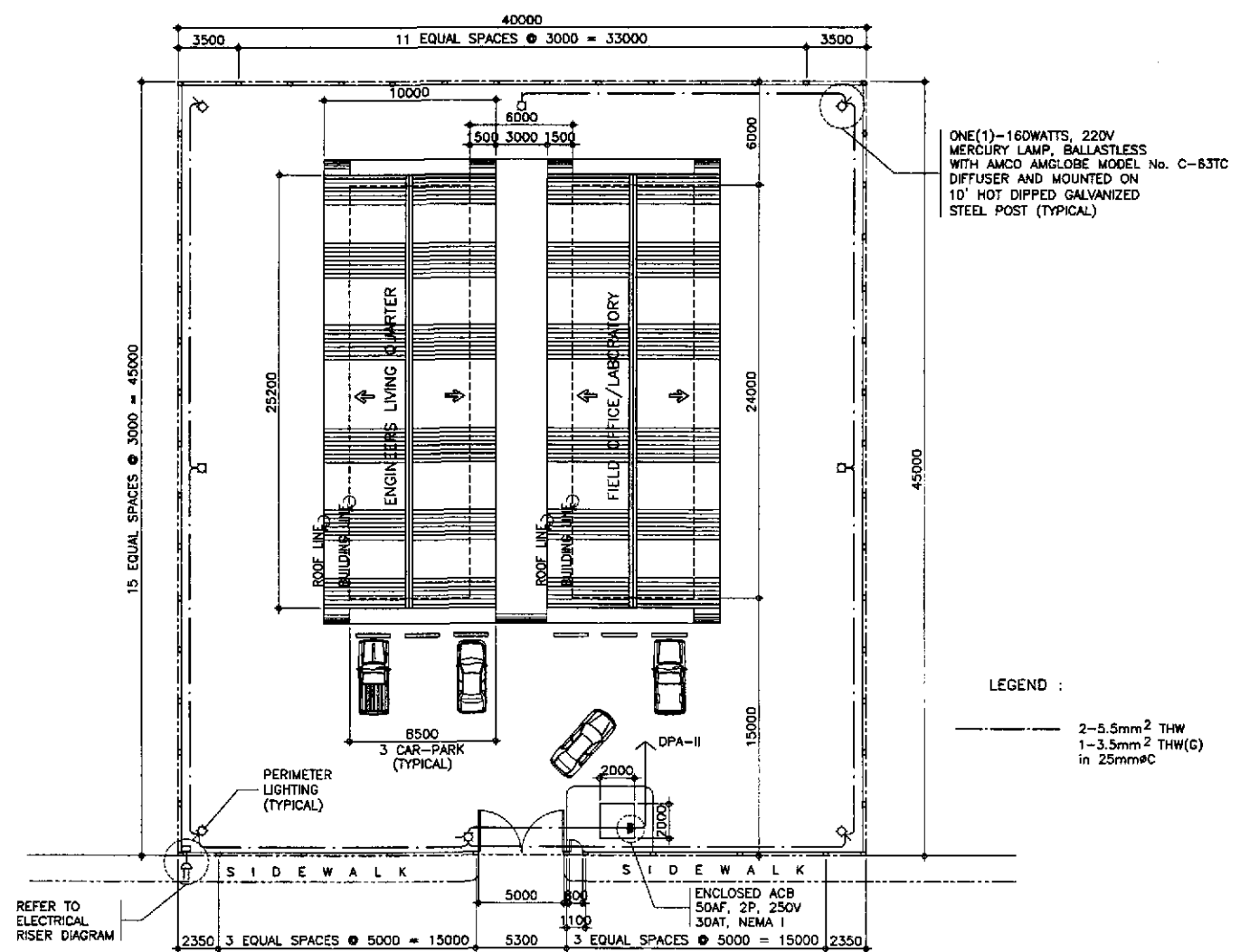
	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	10/16/02	<i>Manuel M. Bondon</i>		Submitted By:	BUREAU OF DESIGN	OFFICE OF THE SECRETARY	THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	AS SHOWN	ENGINEER'S FIELD OFFICE AND LIVING QUARTERS SEPTIC TANK DETAILS	FP-02	
SUBMITTED	10/18/02	<i>Manuel M. Bondon</i>	Team Leader	Reviewed By:	DANILO C. TRAJANO Project Director	EMMANUEL P. CUNTAPAY Chief, Architectural Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONDON Undersecretary	SIMEON A. DATUMANONG Secretary	CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1	



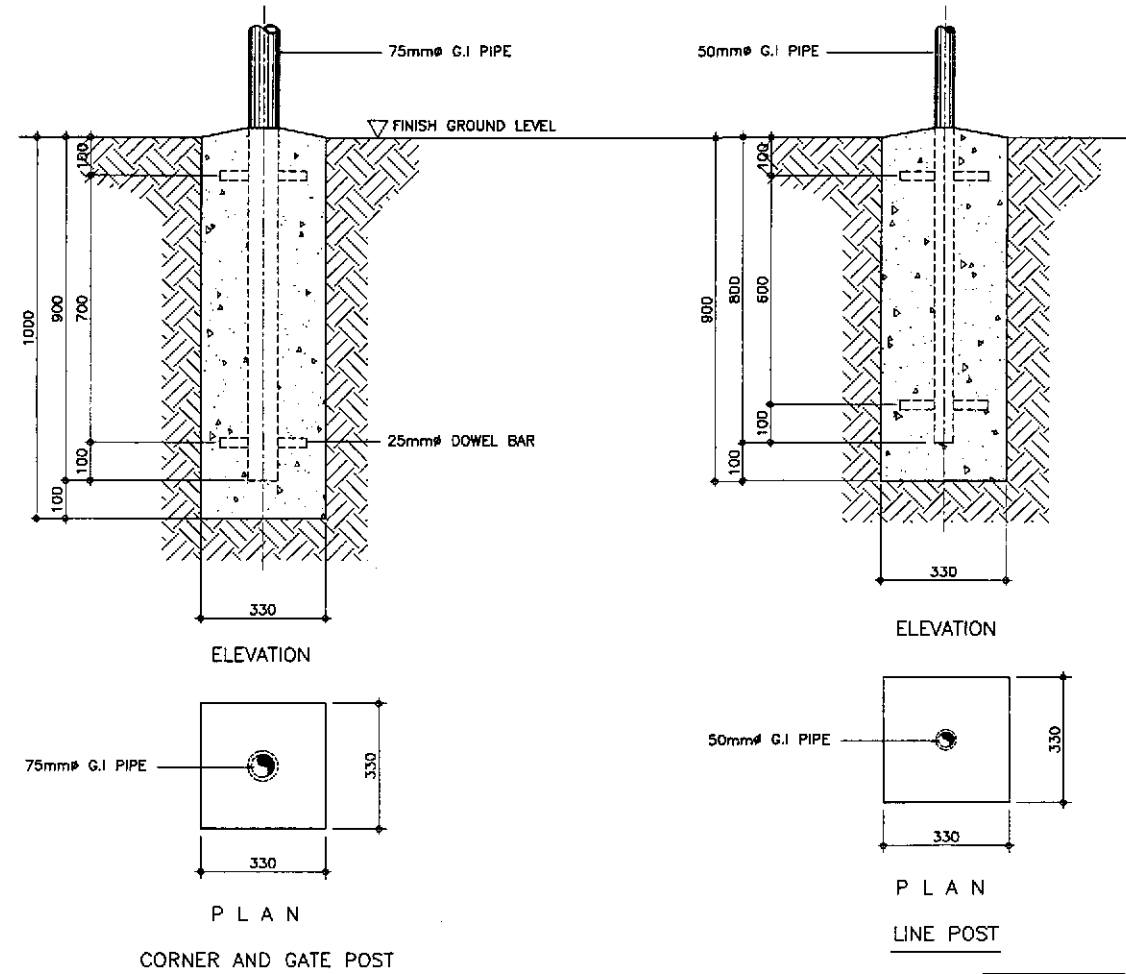
3 TYPICAL ELEVATION FENCE (REAR & SIDE)
 FX-01 SCALE 1:20



2 TYPICAL ELEVATION - FENCE AND GATE
 FX-01 SCALE 1:20



1 PLOT PLAN
 FX-01 SCALE 1:200



4 TYPICAL FOUNDATION DETAIL
 FX-01 SCALE 1:10

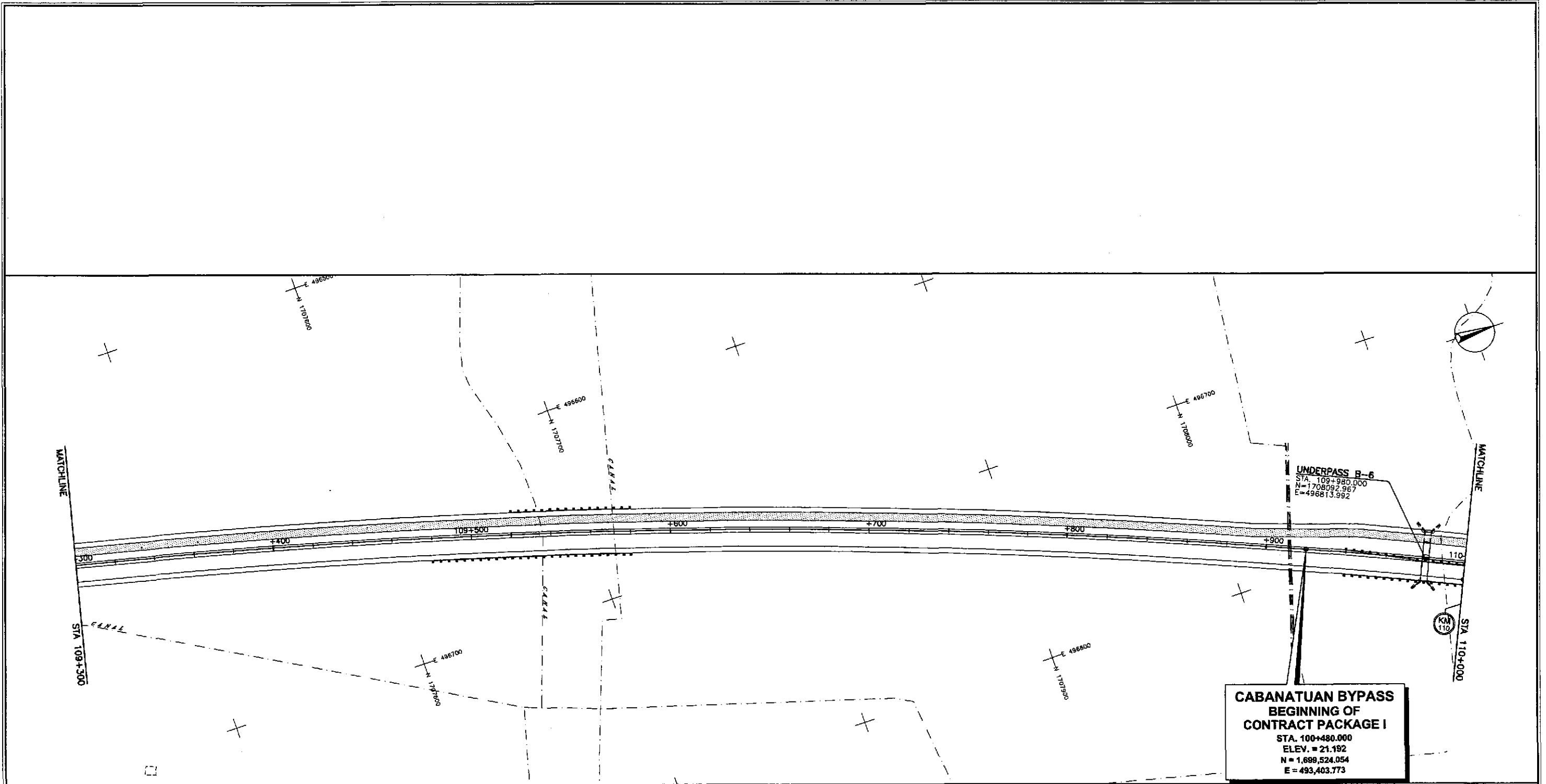
ONE(1)-160WATTS, 220V MERCURY LAMP, BALLASTLESS WITH AMCO AMGLOBE MODEL No. C-83TC DIFFUSER AND MOUNTED ON 10' HOT DIPPED GALVANIZED STEEL POST (TYPICAL)

LEGEND :
 ——— 2-5.5mm² THW
 ——— 1-3.5mm² THW(G) in 25mmØC

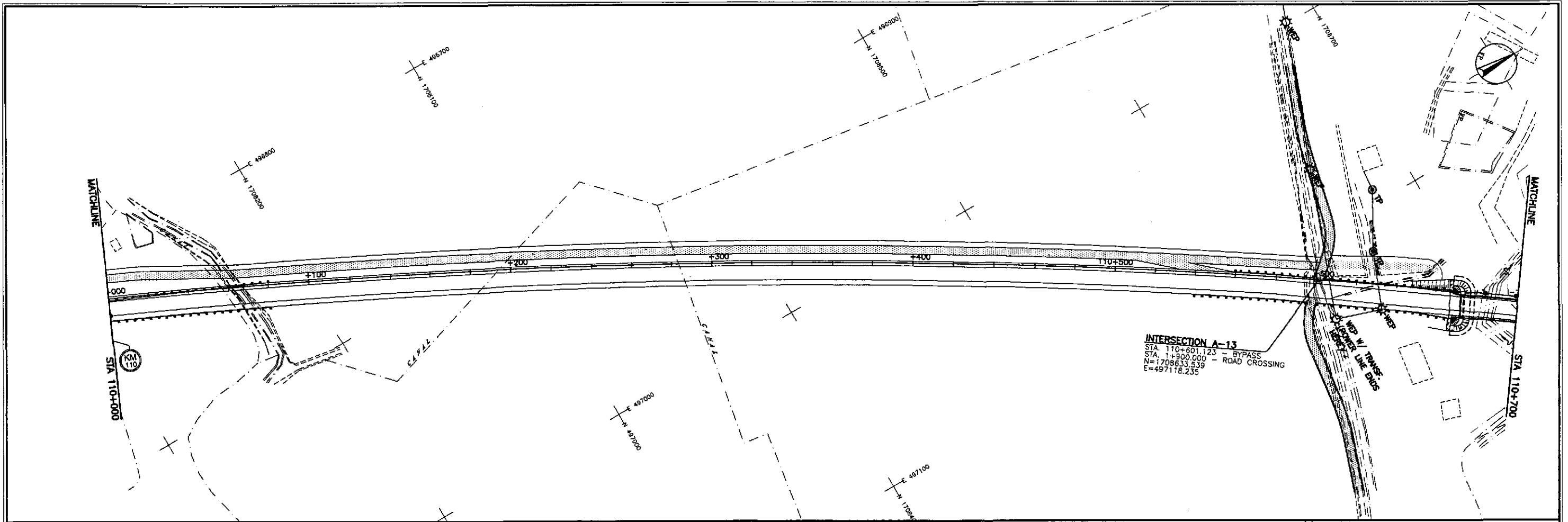
Emmanuel P. Gonzales
 EMMANUEL P. GONZALES
 ENGINEER
 PTR. NO. 5846340 P.R.C. NO. 53457
 ISSUED ON 04/26/2002 T.I.N. 138-062-682
 ISSUED AT SAN JUAN, M.M.

	DESIGNED	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS			PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED			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) CABANATUAN BYPASS - CONTRACT PACKAGE II	AS SHOWN FULL SIZE A1	ENGINEER'S FIELD OFFICE AND LIVING QUARTERS PLOT PLAN, ELEVATION OF FENCE & GATE TYPICAL FOUNDATION DETAILS	FX-01
	SUBMITTED			PJHL - PMO Submitted By: DANILLO C. TRAJANO Project Director	Reviewed By: EMMANUEL P. CUNTAPAY Chief, Architectural Division	Recommended By: GILBERTO S. REYES OIC, Director IV				

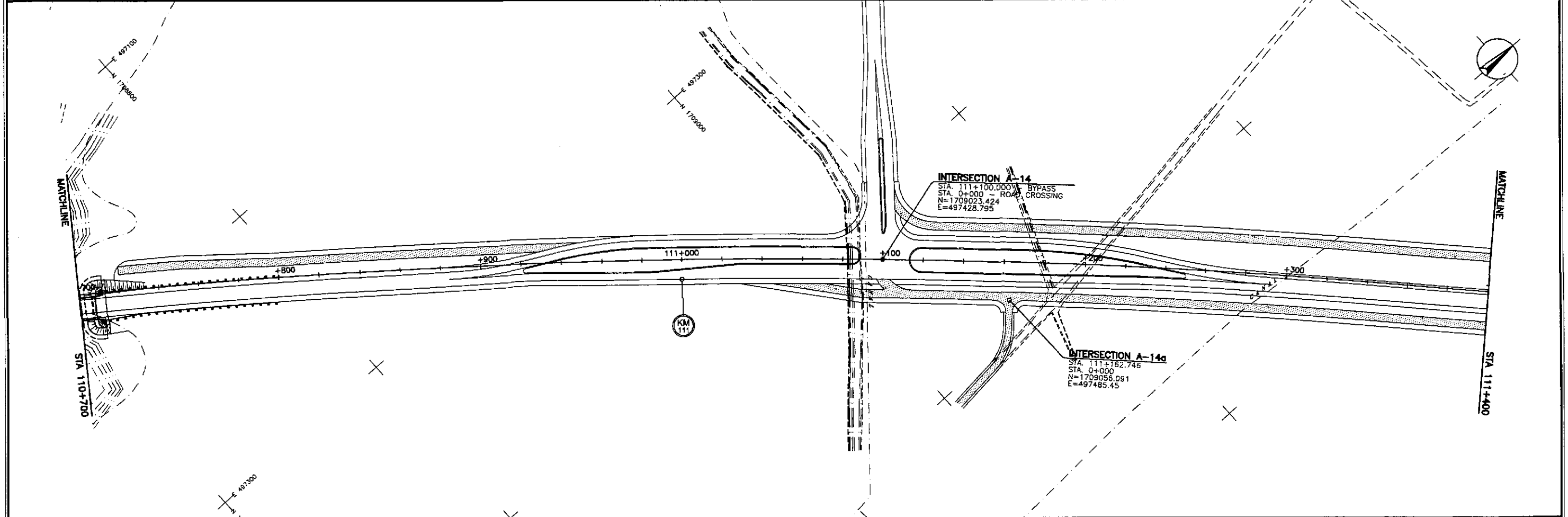
OTHERS



	DESIGNED	10/14/02	<i>[Signature]</i> T. ACACIO	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/14/02	<i>[Signature]</i> JOSE	BUREAU OF DESIGN Submitted By: DANILLO C. TRAJANO Project Director				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Pilaridel, Cabanatuan and San Jose Bypasses)	1:1000	UTILITY RELOCATION REFERENCE LAYOUT PLAN ALONG BYPASS STA. 109+920 - STA. 110+000	OE-01
	SUBMITTED	10/18/02	<i>[Signature]</i> K. K. K.	OFFICE OF THE SECRETARY Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division Recommended By: GILBERTO S. REYES OIC, Director IV Recommended By: MANUEL M. BONGAN Undersecretary Approved By: SIMEON A. DATUMANONG Secretary				CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		



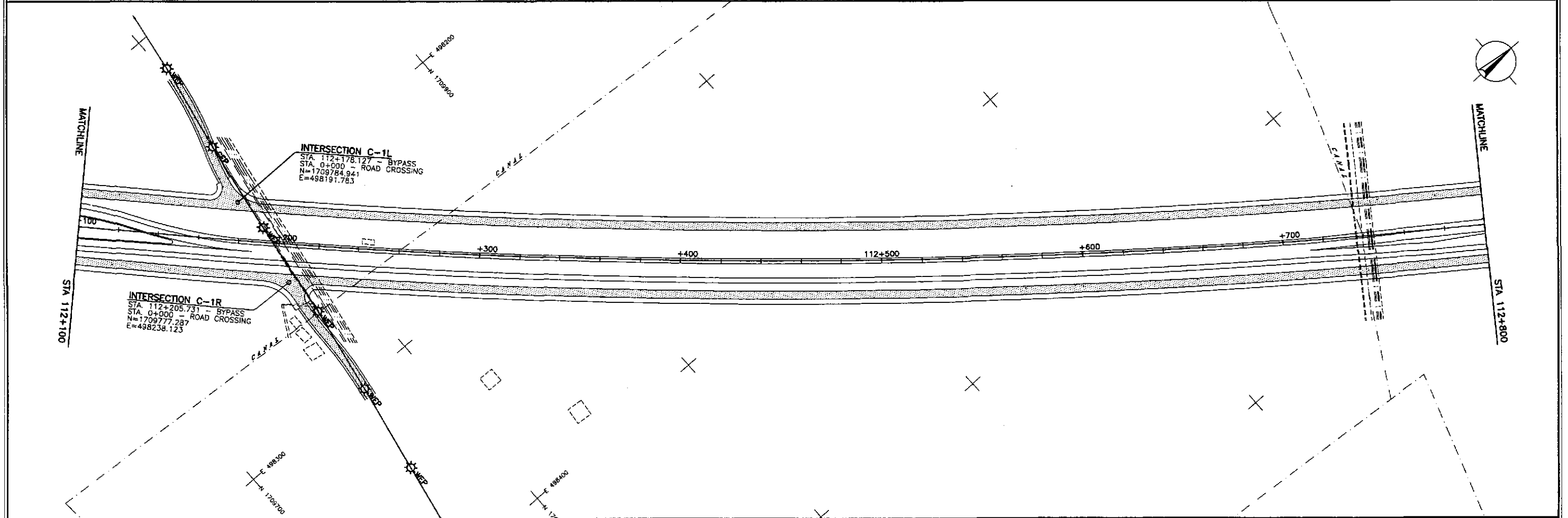
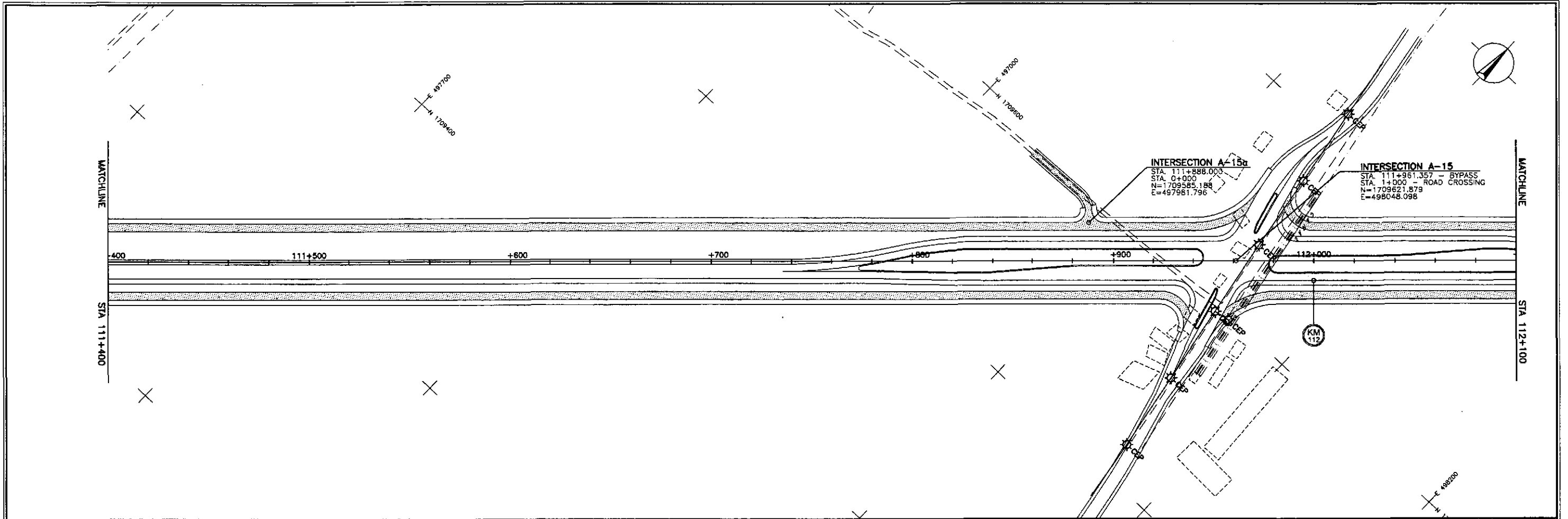
INTERSECTION A-13
 STA. 110+601.123 - BYPASS
 STA. 110+900.000 - ROAD CROSSING
 N=1709633.539
 E=497118.235



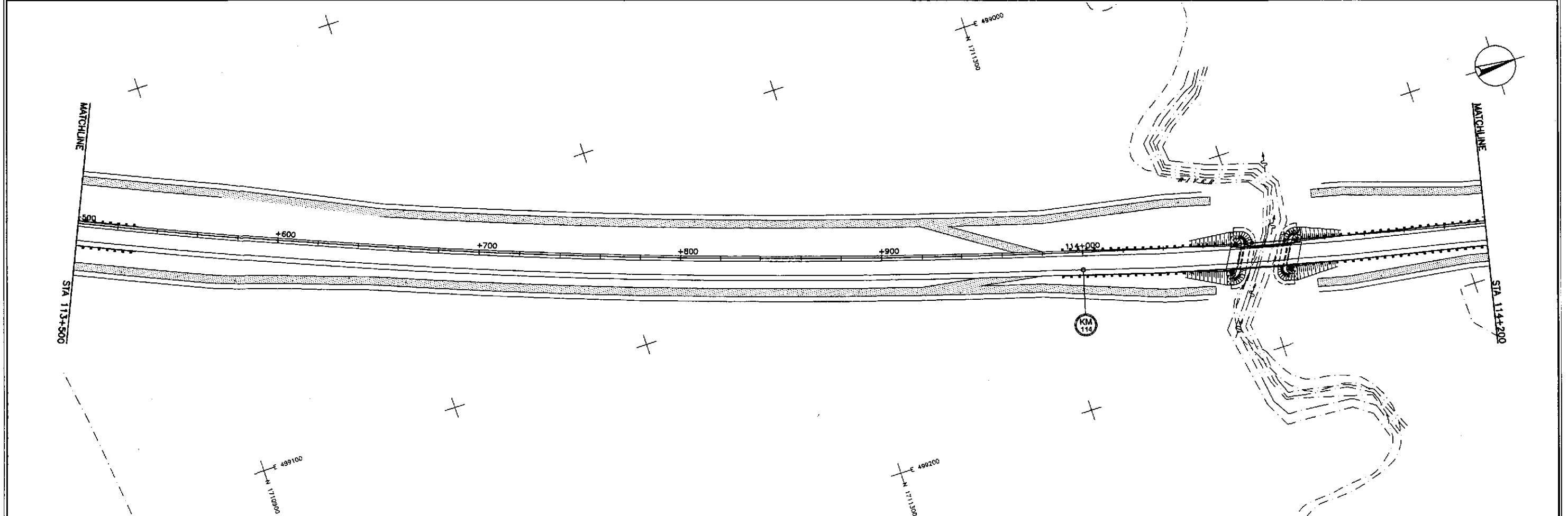
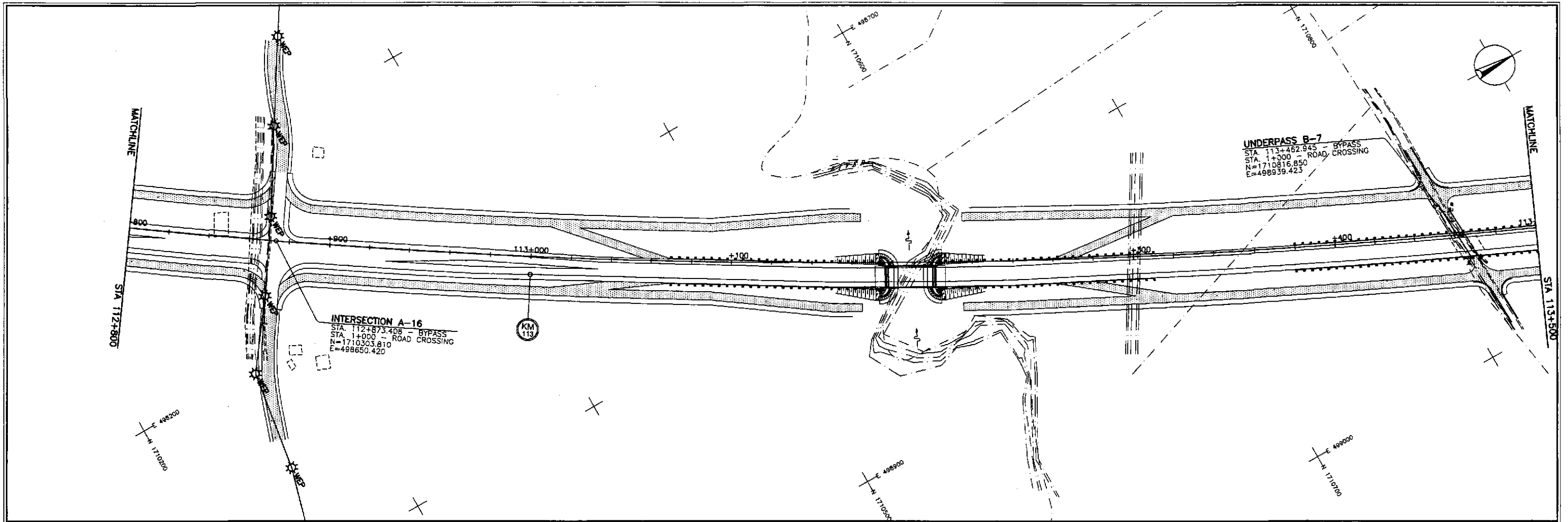
INTERSECTION A-14
 STA. 111+100.000 - BYPASS
 STA. 0+000 - ROAD CROSSING
 N=1709023.424
 E=497428.795

INTERSECTION A-14a
 STA. 111+162.746
 STA. 0+000
 N=1709058.091
 E=497485.45

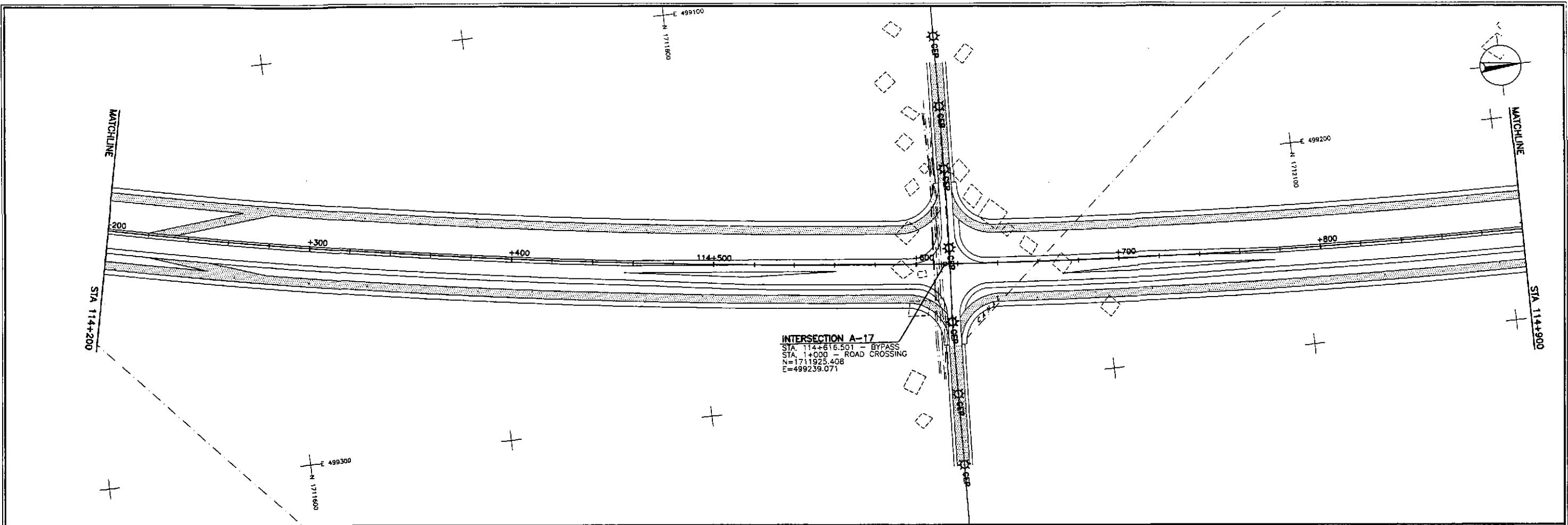
 JAPAN INTERNATIONAL COOPERATION AGENCY		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)		SCALE : 1:1000 FULL SIZE A1	SHEET CONTENTS : UTILITY RELOCATION REFERENCE LAYOUT PLAN ALONG BYPASS STA. 110+000 - STA. 111+400	SHEET NO. : OE-02
DESIGNED	DATE	SIGNATURE	P.W.D. - P.W.O. Submitted By:		BUREAU OF DESIGN Reviewed By:		OFFICE OF THE SECRETARY Recommended By:		Approved By:	
CHECKED	10/16/02	<i>[Signature]</i>	DANILLO C. TRAJANO Project Director		JOSEFINA M. ALAGAR Chief, Highways Division		GILBERTO S. REYES OIC, Director IV		MANUEL M. BONOAN Undersecretary	
SUBMITTED	10/18/02	<i>[Signature]</i>					SIMEON A. DATUMAMONG Secretary			



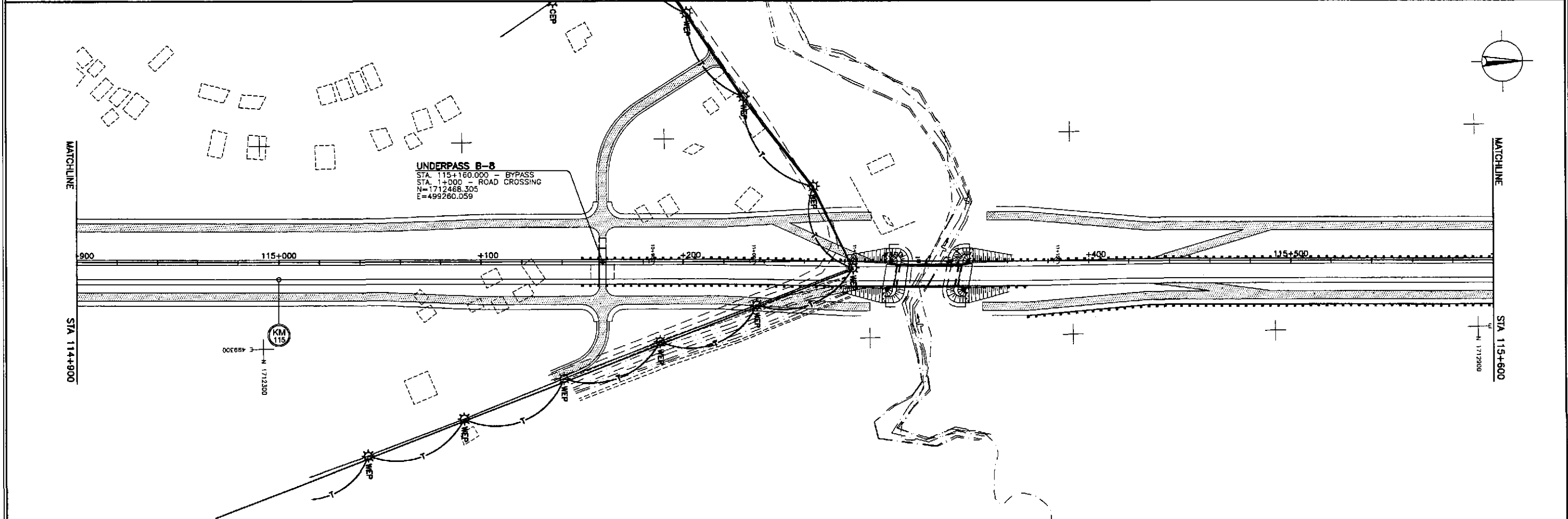
	DESIGNED	10/14/02	<i>[Signature]</i> KACIO	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	CHECKED	10/16/02	<i>[Signature]</i> ROSE	BUREAU OF DESIGN OFFICE OF THE SECRETARY				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)	1:1000	UTILITY RELOCATION REFERENCE LAYOUT PLAN ALONG BYPASS STA. 11+400 - STA. 112+800	OE-03
	SUBMITTED	10/18/02	<i>[Signature]</i> TEAM LEADER	Submitted By:	Reviewed By:	Recommended By:	Recommended By:	CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		
				DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONGAN Undersecretary	SIMEON A. DATUMANONG Secretary			



	DESIGNED	DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS					PROJECT AND LOCATION : THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Paridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II	SCALE : 1:1000 FULL SIZE A1	SHEET CONTENTS : UTILITY RELOCATION REFERENCE LAYOUT PLAN ALONG BYPASS STA. 112+800 + STA. 114+200	SHEET NO. : OE-04
	CHECKED	10/14/07	SIGNATURE		BUREAU OF DESIGN		OFFICE OF THE SECRETARY						
	SUBMITTED	10/18/07	TEAM LEADER		Submitted By: DANILO C. TRAJANG Project Director	Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	Recommended By: GILBERTO S. REYES OIC, Director IV	Recommended By: MANUEL M. BONDAN Undersecretary	Approved By: SIMEDON A. DATUMANONG Secretary				

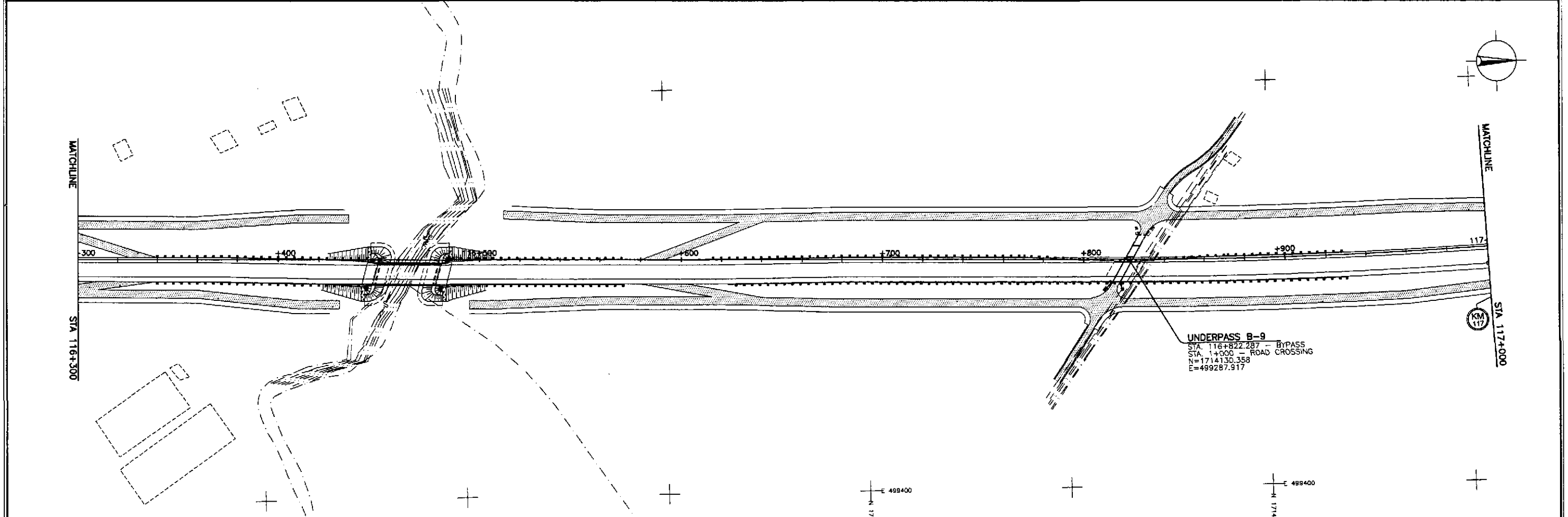
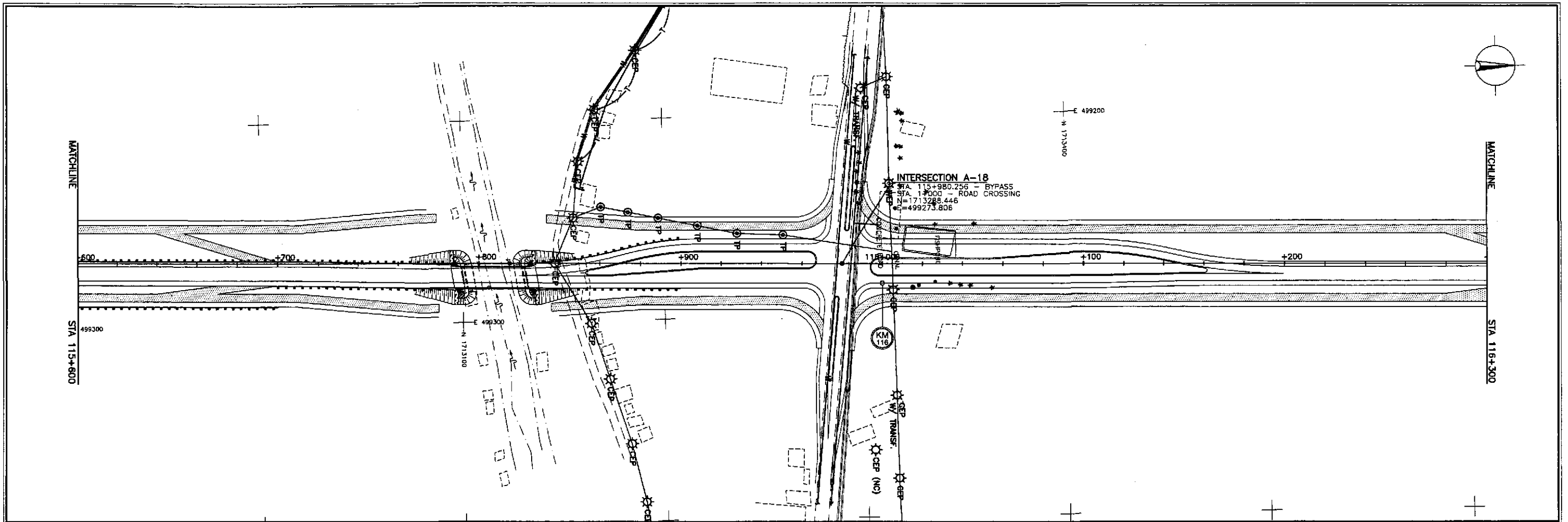


INTERSECTION A-17
 STA. 114+616.501 - BYPASS
 STA. 1+000 - ROAD CROSSING
 N=1711925.408
 E=499239.071

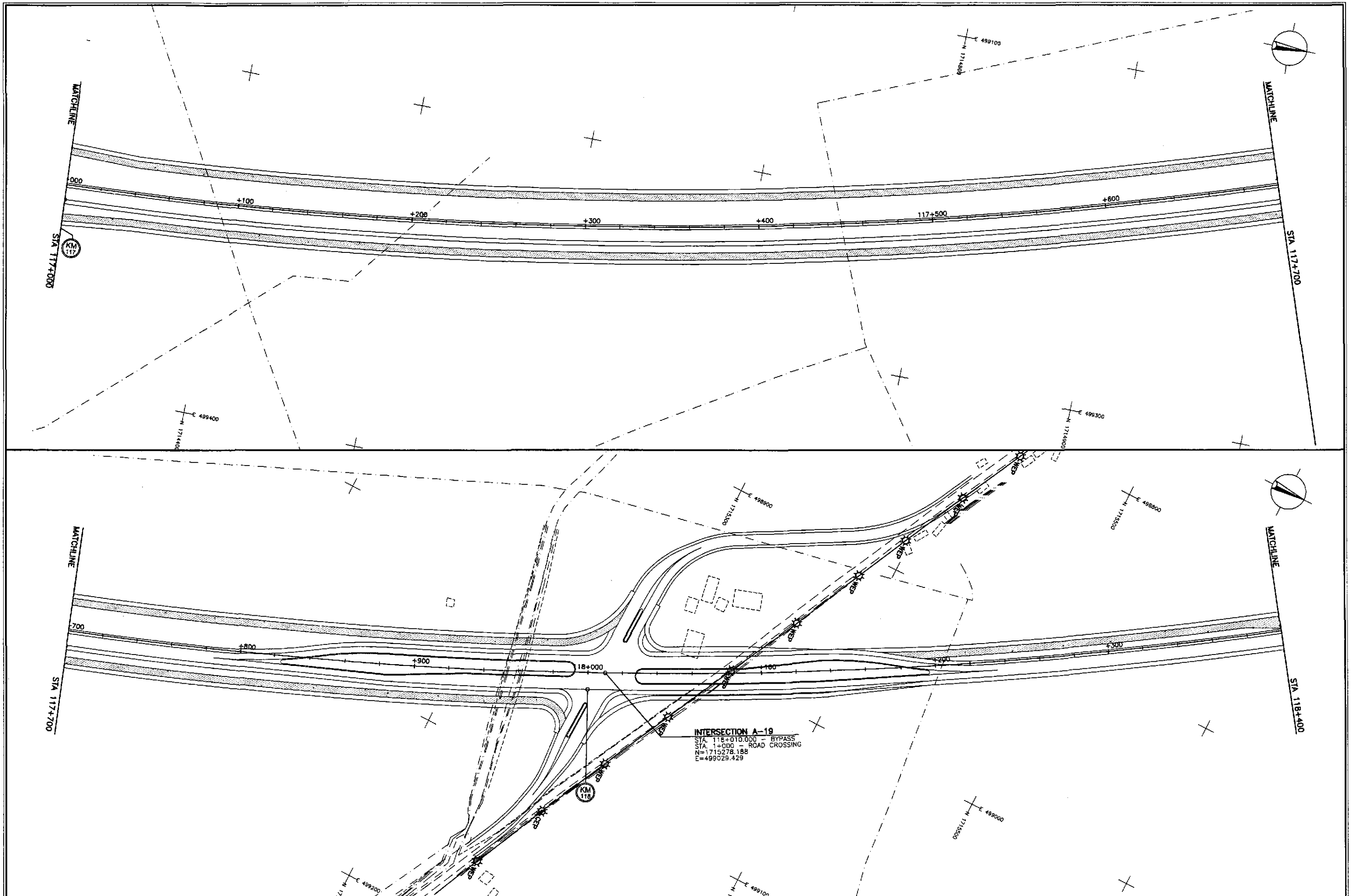


UNDERPASS B-8
 STA. 115+160.000 - BYPASS
 STA. 1+000 - ROAD CROSSING
 N=1712468.305
 E=499260.059

	DESIGNED	10/4/10	<i>[Signature]</i>	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	PROJECT AND LOCATION :			SCALE :	SHEET CONTENTS :	SHEET NO. :			
	CHECKED	10/16/10	<i>[Signature]</i>		PjHL - PMO Submitted By: DANILLO C. TRAJANO Project Director	BUREAU OF DESIGN Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division	OFFICE OF THE SECRETARY Recommended By: GILBERTO S. REYES OIC, Director IV	Recommended By: MANUEL M. BONGAN Undersecretary	Approved By: SIMEON A. DATUMANONG Secretary	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	1:1000 FULL SIZE A1	UTILITY RELOCATION REFERENCE LAYOUT PLAN ALONG BYPASS STA. 114+200 - STA. 115+600	OE-05
	SUBMITTED	10/18/10	<i>[Signature]</i>		TEAM LEADER								

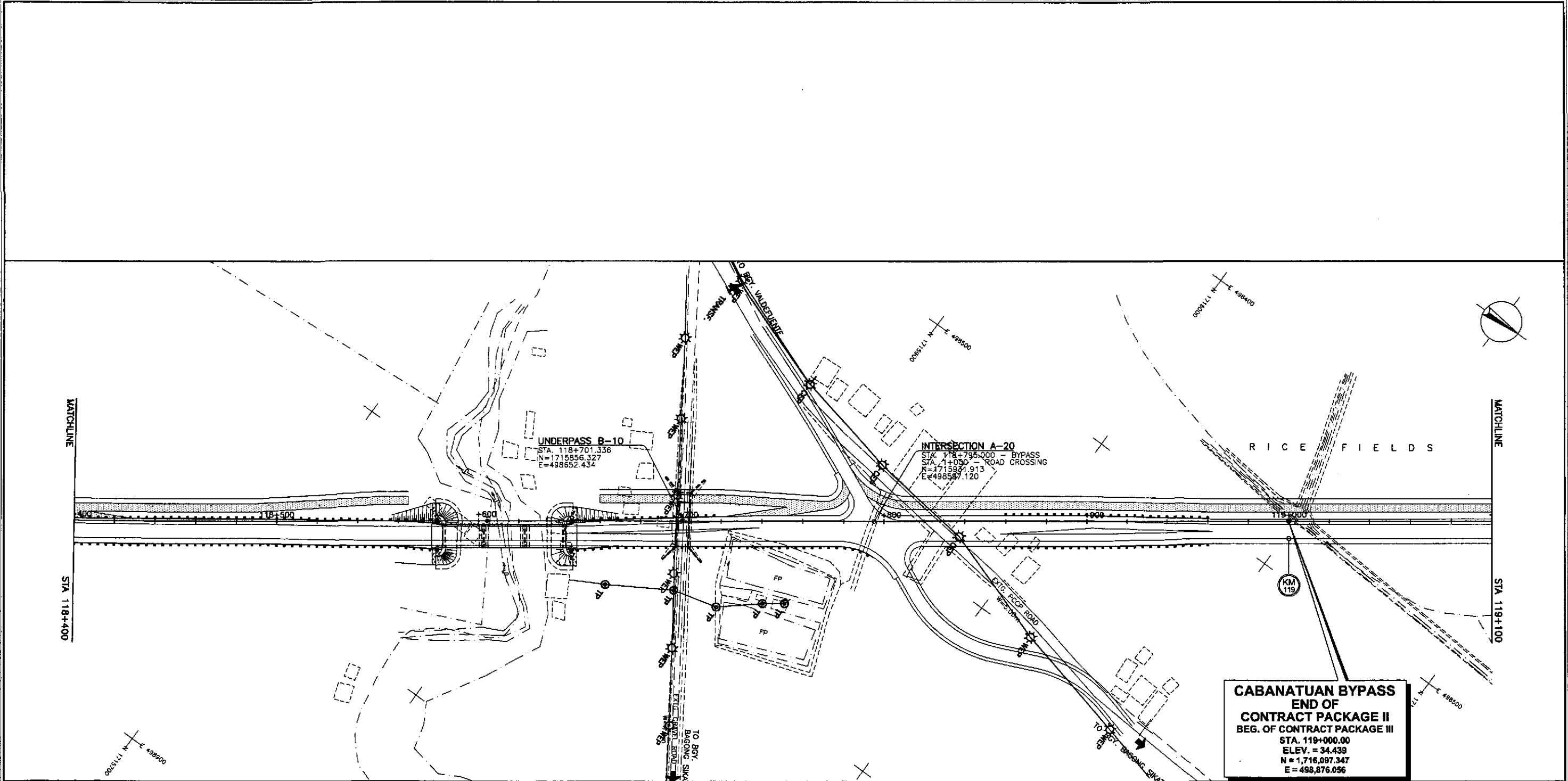


	DATE	SIGNATURE					PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	DESIGNED	10/14/10	<i>[Signature]</i>	DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN				THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Piaridel, Cabanatuan and San Jose Bypasses)	1:1000	UTILITY RELOCATION REFERENCE LAYOUT PLAN	OE-06
	CHECKED	10/16/10	<i>[Signature]</i>	Submitted By:	Reviewed By:	Recommended By:	Recommended By:	FULL SIZE A1	ALONG BYPASS		
SUBMITTED	10/18/10	<i>[Signature]</i>	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONAAN Undersecretary	SIMEON A. DATUMANONG Secretary		STA. 115+600 - STA. 117+000		

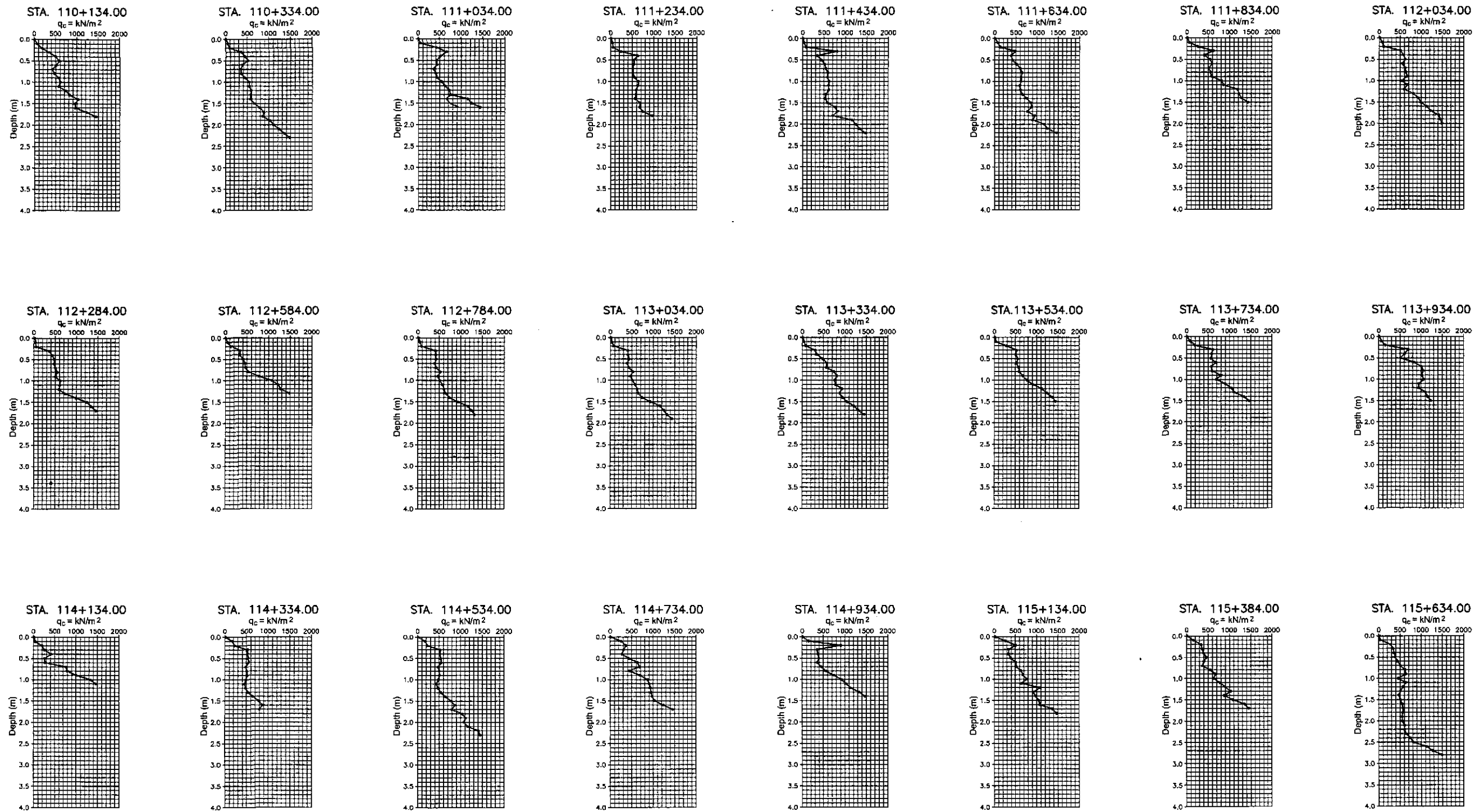


INTERSECTION A-19
 STA. 118+010.000 - BYPASS
 STA. 114+000 - ROAD CROSSING
 N=1715278.188
 E=499029.429

	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :
	DESIGNED	10/14/02	<i>[Signature]</i> A. ACACIO	BUREAU OF DESIGN		OFFICE OF THE SECRETARY		1:1000 FULL SIZE A1	UTILITY RELOCATION REFERENCE LAYOUT PLAN ALONG BYPASS STA. 117+000 - STA. 118+400	OE-07
	CHECKED	10/16/02	<i>[Signature]</i> S. ROSE	Submitted By:	Reviewed By:	Recommended By:	Recommended By:			
SUBMITTED	10/18/02	<i>[Signature]</i> M. ROCHA	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONGAN Undersecretary	SIMEON A. DATUMANONG Secretary			

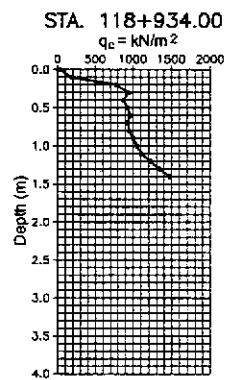
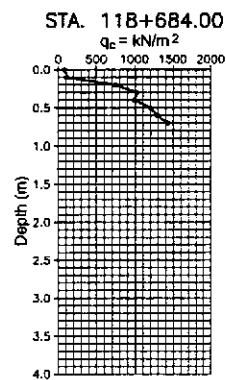
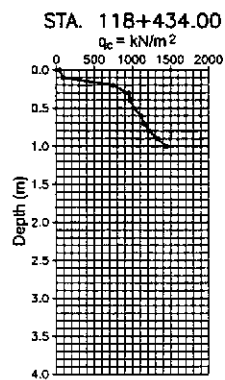
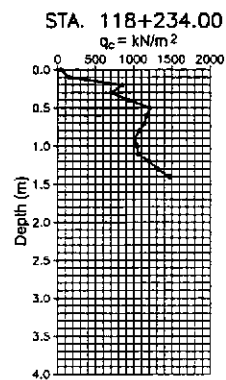
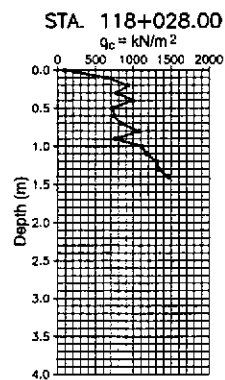
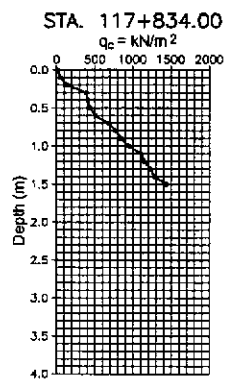
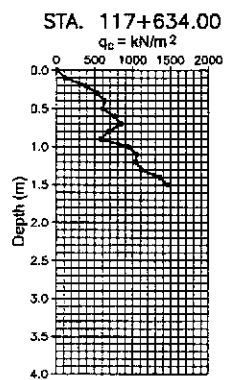
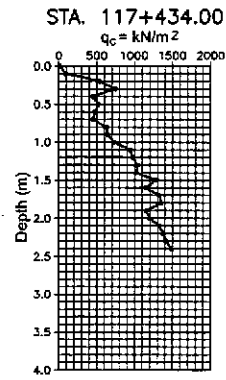
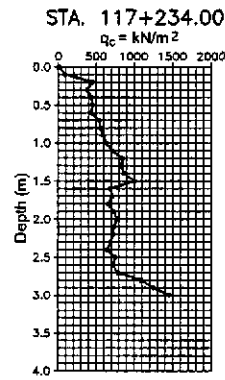
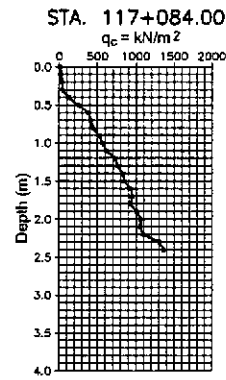
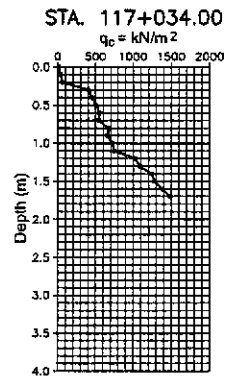
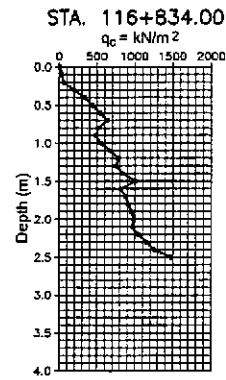
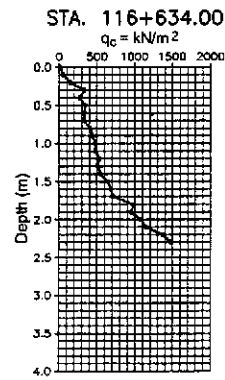
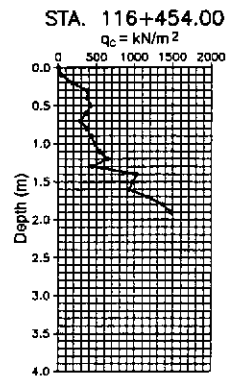
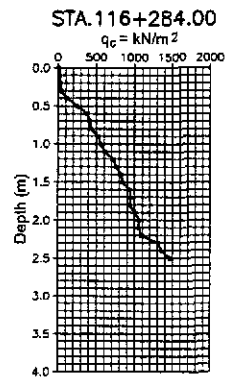


	DATE	SIGNATURE	REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS				PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :						
	DESIGNED	10/14/12	[Signature]	PUHL - PMO Submitted By:		BUREAU OF DESIGN Reviewed By:		OFFICE OF THE SECRETARY Recommended By:		THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Piaridel, Cabanatuan and San Jose Bypasses) CABANATUAN BYPASS - CONTRACT PACKAGE II	1:1000 FULL SIZE A1	UTILITY RELOCATION REFERENCE LAYOUT PLAN ALONG BYPASS STA. 118+400 - STA. 119+000	OE-08			
	CHECKED	10/16/12	[Signature]	DANILLO C. TRAJANO Project Director		JOSEFINA M. ALAGAR Chief, Highways Division		GILBERTO S. REYES DIC, Director IV						MANUEL M. BONOAN Undersecretary		SIMEON A. DATUMANONG Secretary
SUBMITTED	10/18/12	[Signature]	TEAM LEADER													



1
GEOTECHNICAL SURVEY - PORTABLE CONE PENETRATION TEST (CPT)
 OC-01 NOT TO SCALE

		DATE	SIGNATURE		REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS	PROJECT AND LOCATION :	SCALE :	SHEET CONTENTS :	SHEET NO. :	
	DESIGNED	10/1/02	<i>S. S. Gosa</i>	PJHL - PMO	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)	NOT TO SCALE	PORTABLE CONE PENETRATION TEST (CPT) PROFILE ALONG BYPASS STA. 110+134.00 - STA. 115+634.00	OC-01
	CHECKED	10/16/02	<i>S. S. Gosa</i>	Submitted By:	Reviewed By:	Recommended By:	CABANATUAN BYPASS - CONTRACT PACKAGE II	FULL SIZE A1		
SUBMITTED	10/12/02	<i>M. S. Gosa</i>	DANILO C. TRAJANO Project Director	JOSEFINA M. ALAGAR Chief, Highways Division	GILBERTO S. REYES OIC, Director IV	MANUEL M. BONGAN Undersecretary	SIMEON A. DATUMANONG Secretary			



2
OC-012

GEOTECHNICAL SURVEY - PORTABLE CONE PENETRATION TEST (CPT)

NOT

TO

SCALE

	DESIGNED	10/14/02	S. G. ROSE	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS</p>	PROJECT AND LOCATION :			SCALE :	SHEET CONTENTS :	SHEET NO. :	
	CHECKED	10/16/02	S. G. ROSE		THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)			NOT TO SCALE	PORTABLE CONE PENETRATION TEST (CPT) PROFILE ALONG BYPASS STA. 116+284.00 - STA. 118+934.00	OC-02	
	SUBMITTED	10/18/02	B. S. KROUCH TEAM LEADER		CABANATUAN BYPASS - CONTRACT PACKAGE II			FULL SIZE A1			
Submitted By: DANILLO C. TRAJANO Project Director				Reviewed By: JOSEFINA M. ALAGAR Chief, Highways Division			Recommended By: GILBERTO S. REYES OIC, Director IV			Office of the Secretary Approved By: MANUEL M. BONDAN Undersecretary SIMEON A. DATUMANDONG Secretary	