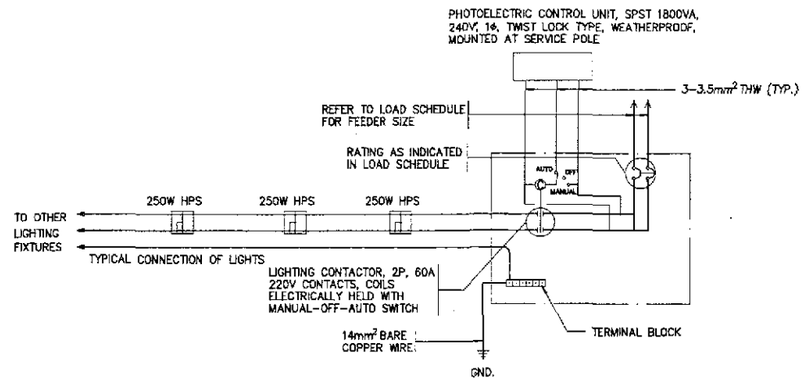
# ELECTRICAL

## 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 |
| | SERVICE ENTRANCE AND METERING PEDESTAL WITH LIGHTING CONTACTOR PANEL AS SHOWN IN THE DRAWINGS. |
| | CIRCUIT BREAKER, RATING AS SHOWN |
| | UNDERGROUND CONDUIT WITH CONCRETE ENVELOPE |
| | UNDERGROUND CONDUIT WITH REINFORCED CONCRETE ENVELOPE |
| M | KILOWATT HOUR METER, PHASE, VOLTAGE AND RATING AS SHOWN. |
| | CIRCUIT HOMERUN |
| | UNDERGROUND CONDUIT TO BE ABANDONED |



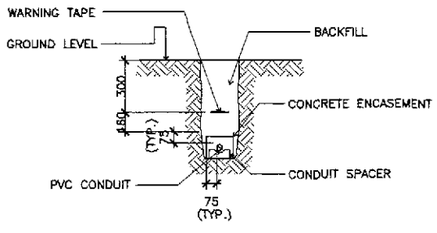

2 / ES-01 SCHEMATIC CONTROL DIAGRAM
NOT TO SCALE

## GENERAL NOTES:

1. ALL ELECTRICAL WORKS SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, THE LAWS AND ORDINANCES OF THE LOCAL CODE, ENFORCING AUTHORITIES AND THE REQUIREMENTS OF THE LOCAL POWER COMPANY. THE ELECTRICAL WORK SHALL BE DONE UNDER THE DIRECT SUPERVISION OF A DULY REGISTERED ELECTRICAL ENGINEER.
2. THE CONTRACTOR SHALL SECURE ALL PERMITS AND PAY ALL FEES REQUIRED FOR THE WORK AND FURNISH THE OWNER, THROUGH THE ENGINEERS FINAL CERTIFICATES OF ELECTRICAL INSPECTION AND APPROVAL FROM PROPER GOVERNMENT AUTHORITIES FOR COMPLETED WORK.
3. THE POWER SERVICE VOLTAGE SHALL BE 240V, 1ø, 2W, 60 Hz. 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, UNLESS OTHERWISE INDICATED.
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 2-3.5mm²THW & 1-3.5mm²TW(GND) INSIDE STEEL POLE.
6. RIGID STEEL CONDUIT SHALL BE USED FOR ALL EXPOSED AND CONCEALED CONDUIT RUN AND UNPLASTICIZED POLYVINYL CHLORIDE CONDUIT, SCHEDULE 40 FOR UNDERGROUND CONDUIT. THE CONDUIT SIZE INDICATED IS THE INSIDE DIAMETER OF CONDUIT.
7. 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 460mm BELOW GROUND LEVEL UNLESS OTHERWISE INDICATED, CONDUIT RUN CROSSING STREET SHALL BE ENCASED IN STEEL REINFORCED 2500 PSI CONCRETE WITH MINIMUM OF 75mm (3 INCHES) THICKNESS COVERED ALL AROUND.
10. ALL CONDUIT RUNS SHALL BE PROVIDED WITH AN 8.0mm TW COPPER GROUND WIRE. THIS GROUND WIRE SHALL BE TERMINATED AT THE PANELBOARD LOCATION. ALL METAL SURFACES SHALL LIKEWISE BE GROUNDED.
11. ALL PANELBOARD ENCLOSURES SHALL BE RAINTIGHT, 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 460mm BELOW FINISHED GRADE LINE EXCEPT, THAT UNDER ROAD AND PAVEMENT, IT SHALL BE NOT LESS THAN 600mm.
2. PROVIDE STEEL REBAR REINFORCEMENT ON PAVED AREA.
3. ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE F'c SHALL BE 13.8MPa (2000PSI)
4. REINFORCING BARS SHALL CONFORM TO PS GRADE 227, FY=227MPa (33,000PSI)
5. MAXIMUN SPACING OF PRECAST SPACER SHALL BE 1.5 METERS.
6. ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE SPECIFIED.




1 / ES-01 TYPICAL DUCT SECTION
NOT TO SCALE

ERNESTO M. ANTIOQUIA
ENGINEER
PTR. NO. 7403884 P.E.E. NO. 2953
ISSUED ON 01/02/2002 ISSUED AT CABUYAO, LAGUNA
T.I.N. 109-382-378

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

| | DATE | SIGNATURE |
|---|---|---|
| DESIGNED | 10/17/02 | E. ANTIOQUIA |
| CHECKED | 10/19/02 | E. ANTIOQUIA |
| SUBMITTED | 10/21/02 | TEAM LEADER |

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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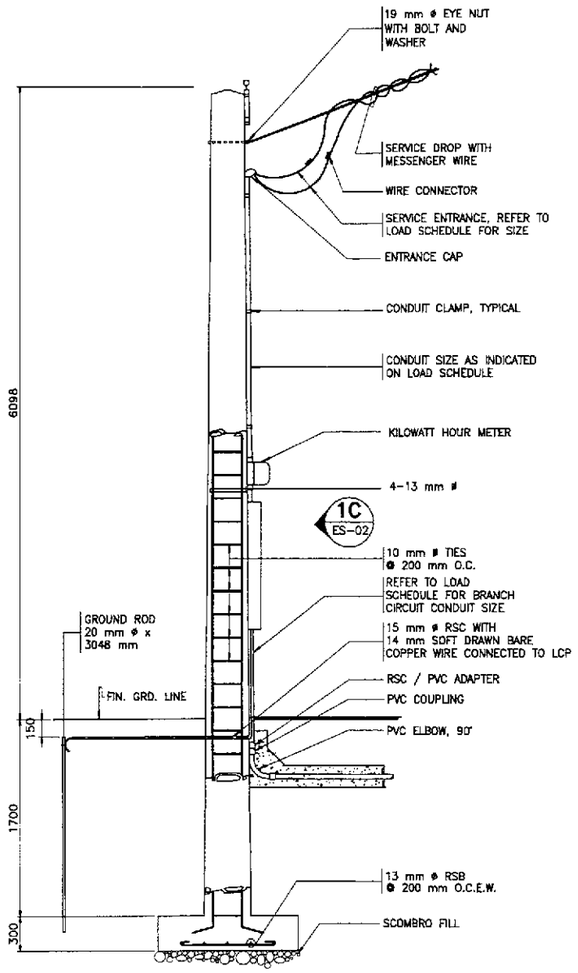
| Project Director | Chief, Mech'l-Elect'l Division | OIC, Director IV | Undersecretary | Secretary |

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 IV

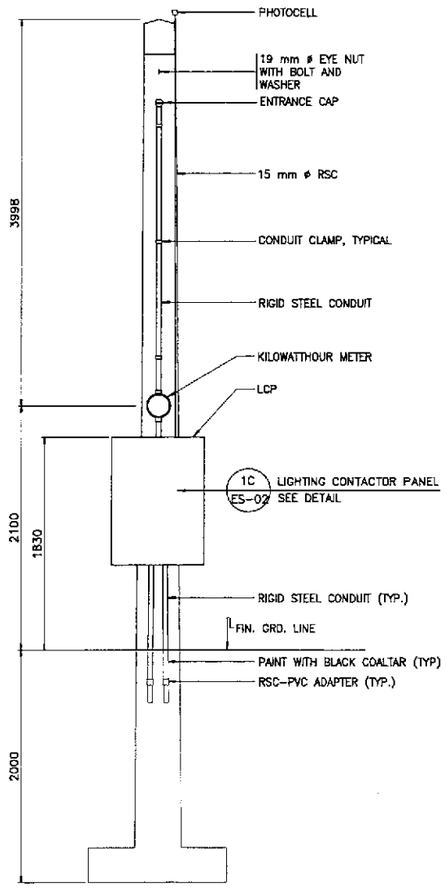
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
NOTES & LEGENDS, SCHEMATIC CONTROL DIAG. & DUCT SECTION
(ULTIMATE STAGE)

SHEET NO. :
ES-01




1A ES-02 SECTION

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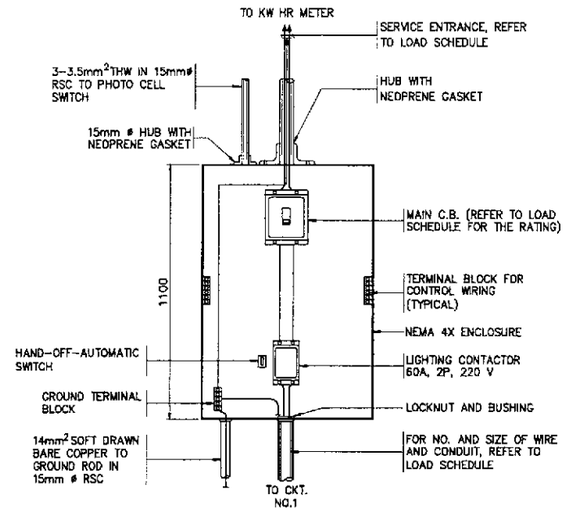
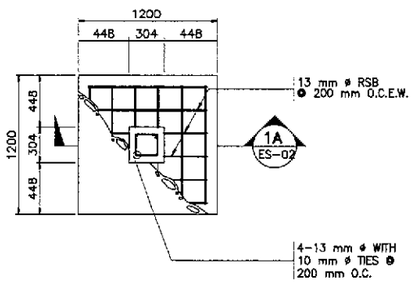



1C ES-02 DETAIL
SCALE 1:20




1D ES-02 FOOTING PLAN

1 ES-02 SERVICE POLE DETAILS
SCALE 1:20

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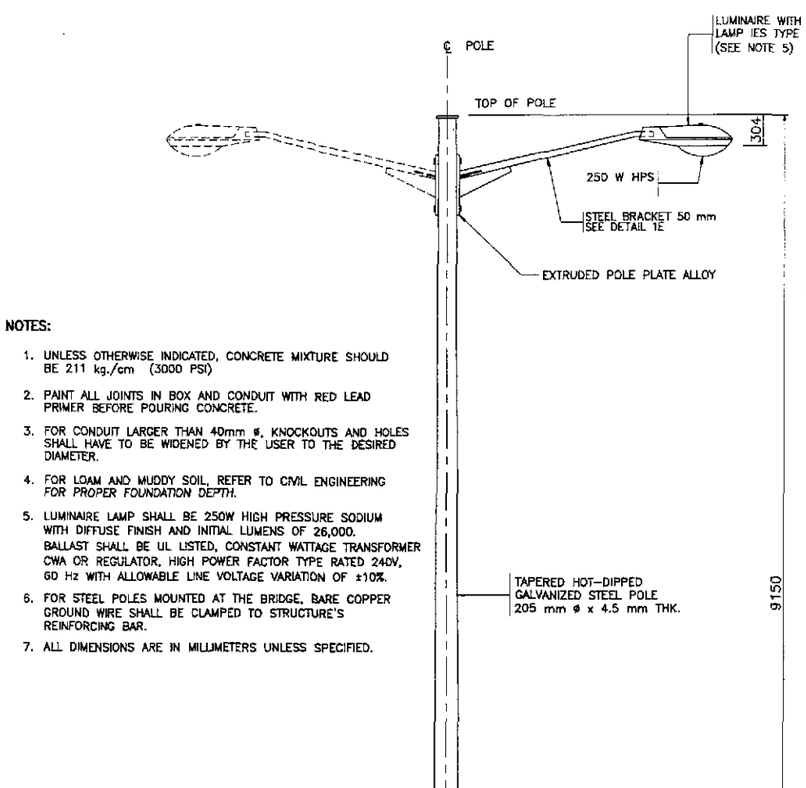
SCALE : AS SHOWN FULL SIZE A1

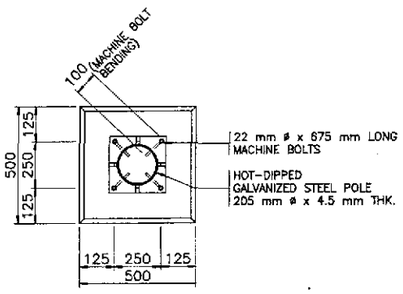
SHEET CONTENTS : SERVICE POLE DETAILS (ULTIMATE STAGE)

SHEET NO. : ES-02

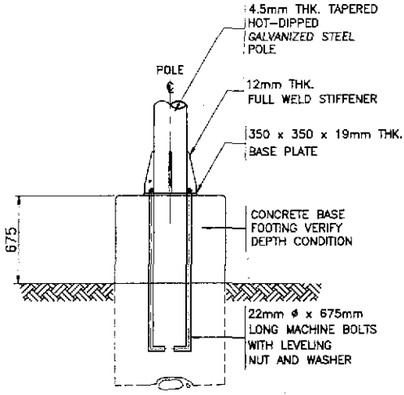



**NOTES:**

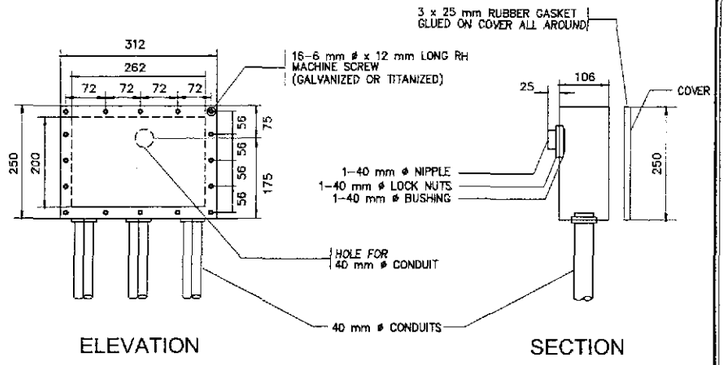
1. UNLESS OTHERWISE INDICATED, CONCRETE MIXTURE SHOULD BE 211 kg./cm (3000 PSI)
2. PAINT ALL JOINTS IN BOX AND CONDUIT WITH RED LEAD PRIMER BEFORE POURING CONCRETE.
3. FOR CONDUIT LARGER THAN 40mm ø, KNOCKOUTS AND HOLES SHALL HAVE TO BE WIDENED BY THE USER TO THE DESIRED DIAMETER.
4. FOR LOAM AND MUDDY 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 ±10%.
6. FOR STEEL POLES MOUNTED AT THE BRIDGE, BARE COPPER GROUND WIRE SHALL BE CLAMPED TO STRUCTURE'S REINFORCING BAR.
7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED.




PLAN

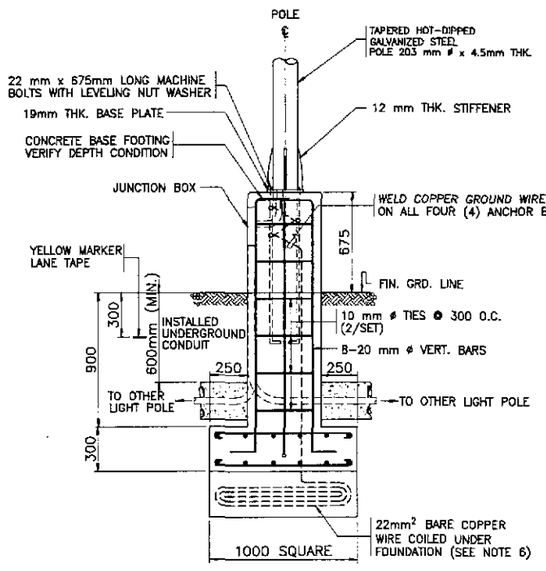



ELEVATION

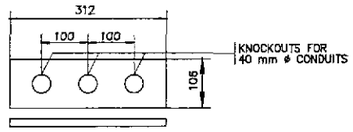



ELEVATION SECTION

## 1B ES-03 BASE PLATE DETAIL




ELEVATION




SECTION

MATERIAL:

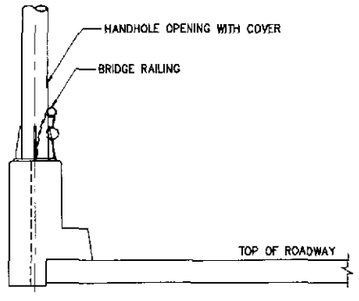
JUNCTION BOX – 50 mm THICK CAST ALUMINUM FOR BOX AND COVER

ANCHOR BOLT – ASTM A-36

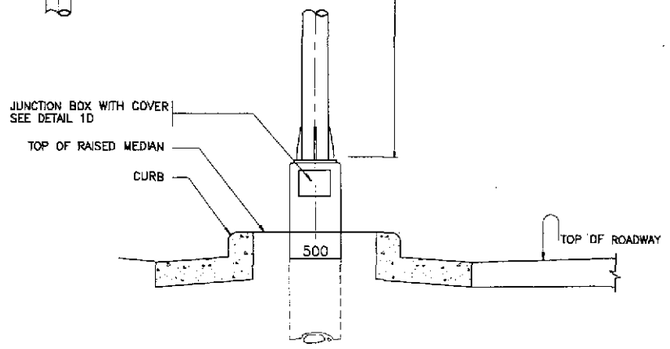
FINISH:

ANCHOR BOLT – ASTM A-153

## 1D ES-03 JUNCTION BOX DETAILS



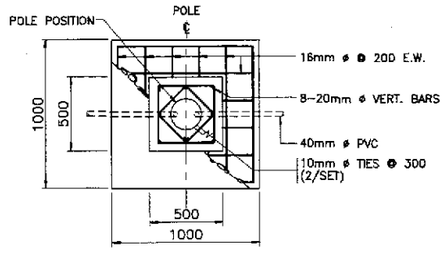

BRIDGE LEVEL



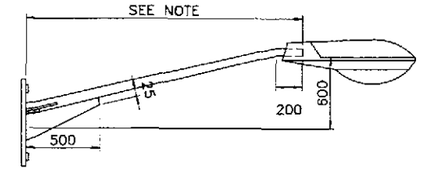

GROUND LEVEL

POLE SHAFT

| LENGTH | BASE DIA. | POLE TOP DIA. |
|---|---|---|
| 9000 | 205 | 115 |




PLAN




NOTE:

ARM LENGTH SHALL BE 3000mm UNLESS OTHERWISE INDICATED IN THE PLAN.

MATERIAL:

MAST ARM- B.I. PIPE AS PER PNS 26: 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 ES-03 MAST ARM DETAILS

## 1A ES-03 ELEVATION

## 1C ES-03 STANDARD FOOTING DETAIL

## 1 ES-03 STREET LIGHT POLE DETAILS I

NOT TO SCALE

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ENGINEER
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ISSUED ON 01/02/2002 ISSUED AT CABUYAO, LAGUNA
T.I.N. 106-382-375

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

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

| | DATE | SIGNATURE |
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| SUBMITTED | 10/21/07 | TEAM LEADER |

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| Project Director | Chief, Mech'l-Elect'l Division | OIC, Director IV | Undersecretary | 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 IV

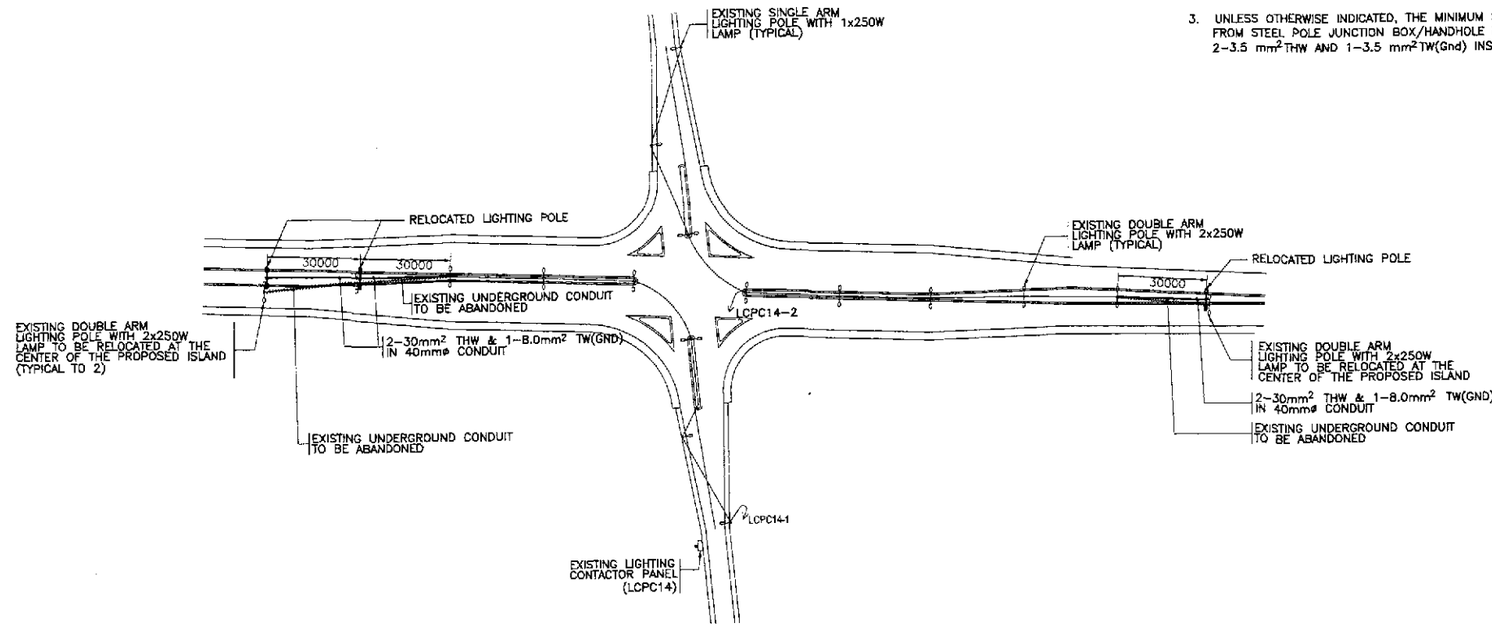
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
STREET LIGHT POLE DETAILS (ULTIMATE STAGE)

SHEET NO. : ES-03

NOTES:

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




1 / EI-01 ROADWAY LIGHTING PLAN
SCALE 1:1000

ERNESTO M. ANTIOQUIA
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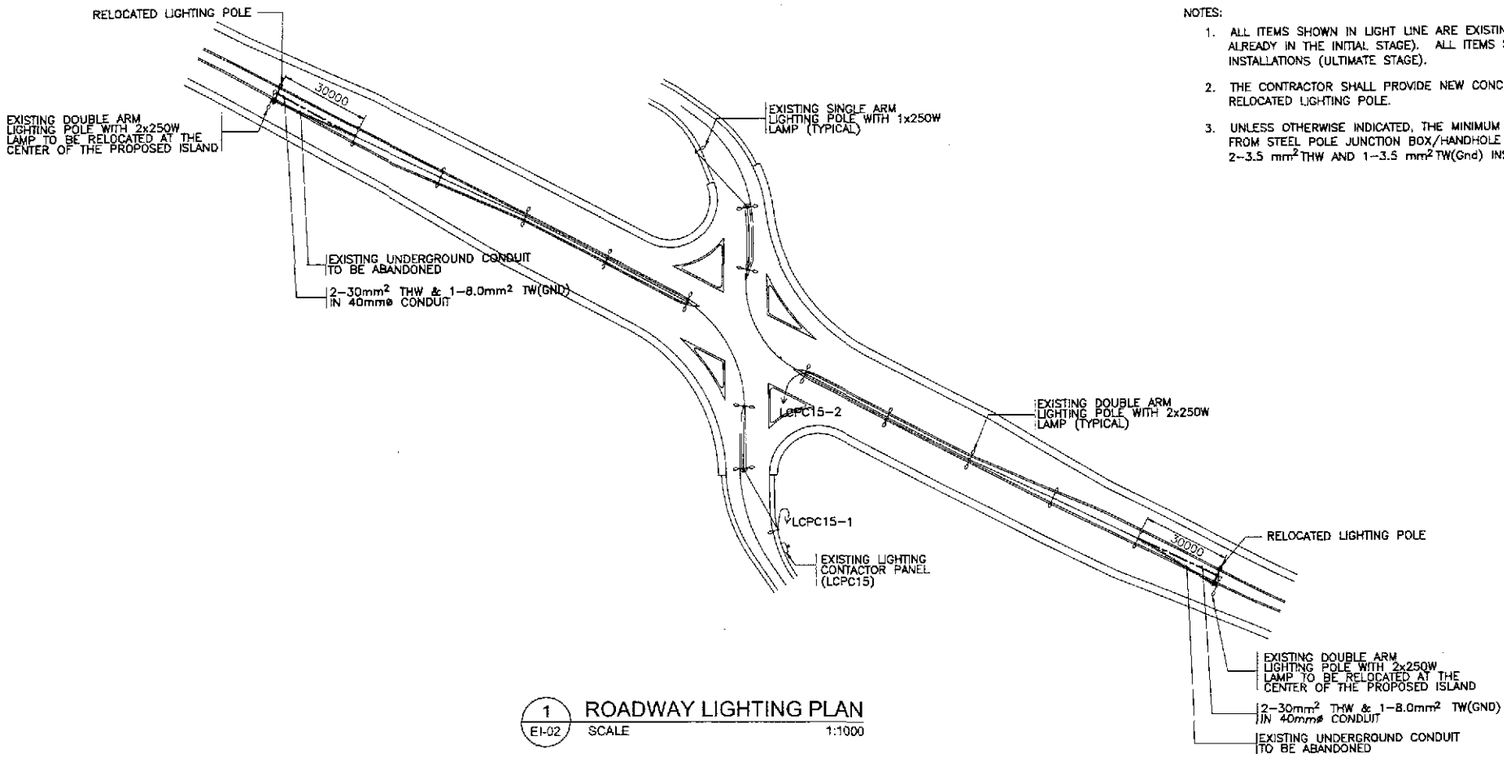
SCALE : 1:1000 FULL SIZE A1

SHEET CONTENTS : ROADWAY LIGHTING PLAN INTERSECTION A-25 (ULTIMATE STAGE)

SHEET NO. : EI-01




1 / EI-02 ROADWAY LIGHTING PLAN
SCALE 1:1000

NOTES:

1. ALL ITEMS SHOWN IN LIGHT LINE ARE EXISTING INSTALLATIONS (INCLUDED ALREADY IN THE INITIAL STAGE). ALL ITEMS SHOWN IN HEAVY LINE ARE NEW INSTALLATIONS (ULTIMATE STAGE).
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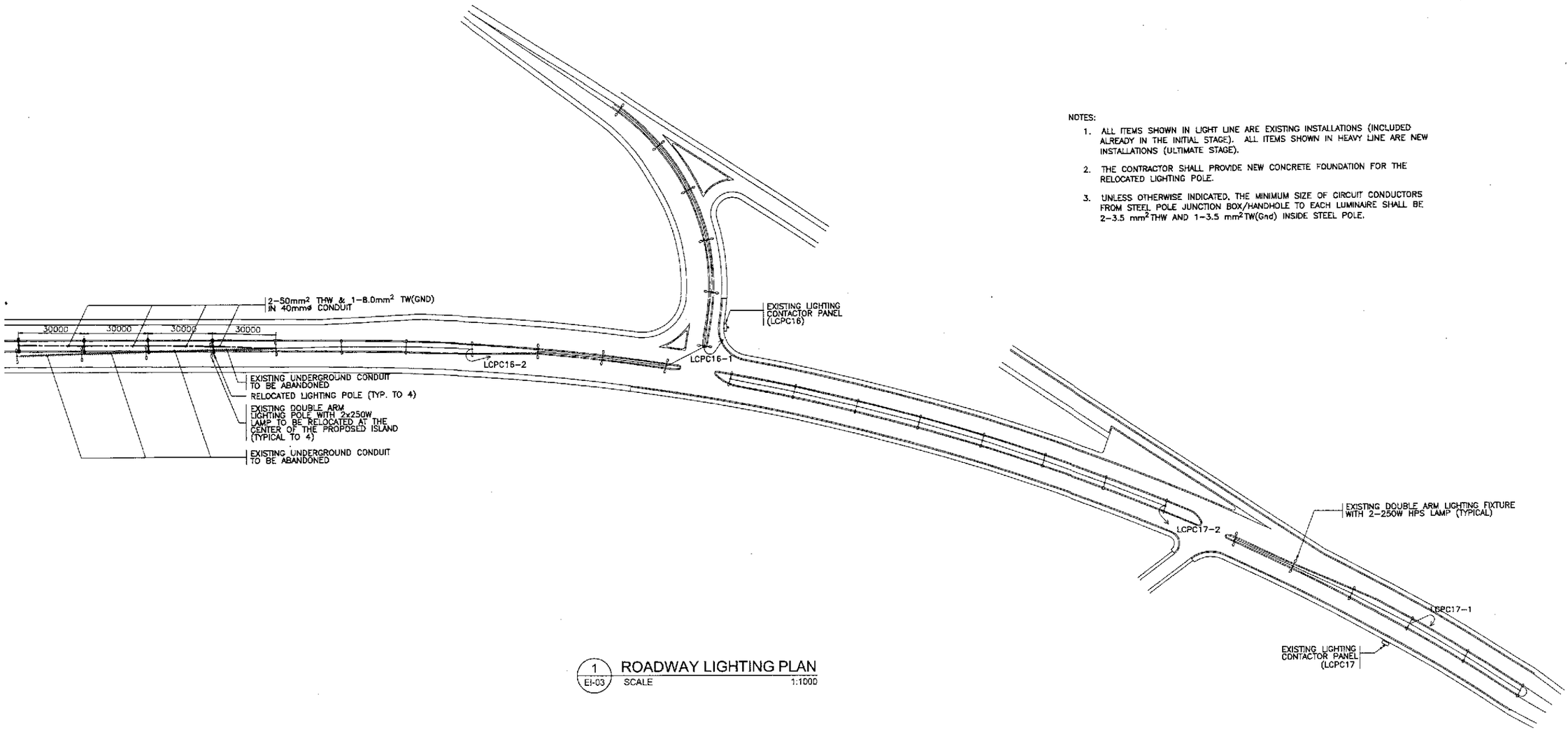
SHEET CONTENTS : ROADWAY LIGHTING PLAN INTERSECTION A-30 (ULTIMATE STAGE)

SHEET NO. : EI-02




1 / EI-03 ROADWAY LIGHTING PLAN
SCALE 1:1000

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| SUBMITTED | 10/21/02 | TEAM LEADER |

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

| PJHL - PMO | BUREAU OF DESIGN | | OFFICE OF THE SECRETARY | |
|---|---|---|---|---|
| Submitted By: | Reviewed By: | Recommended By: | Recommended By: (See cover sheet for Signature) | Approved By: (See cover sheet for Signature/Approval) |
| DANILO C. TRAJANO | FE M. BARRIENTOS | GILBERTO S. REYES | MANUEL M. BONOAN | SIMEON A. DATUMANONG |
| Project Director | Chief, Mech'l-Elect'l Division | OIC, Director IV | Undersecretary | 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 IV

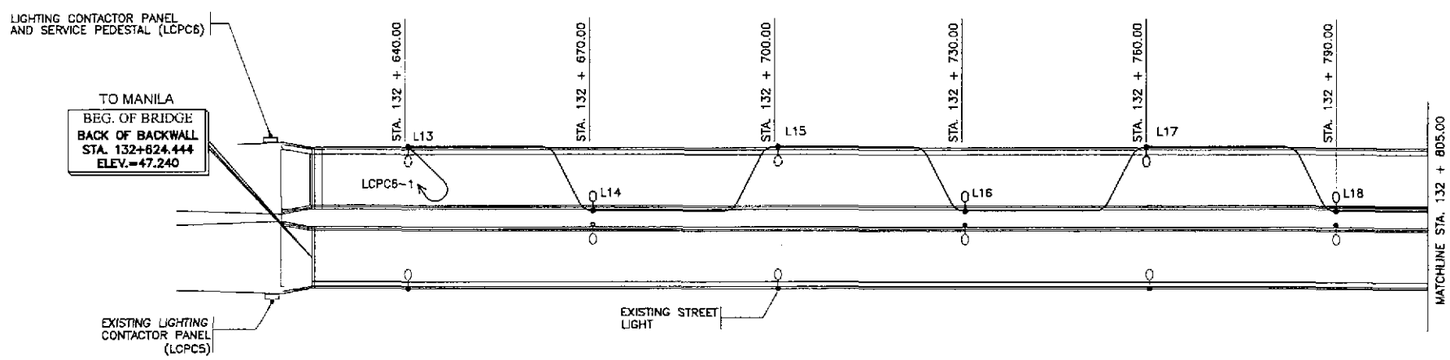
SCALE : 1:1000 FULL SIZE A1

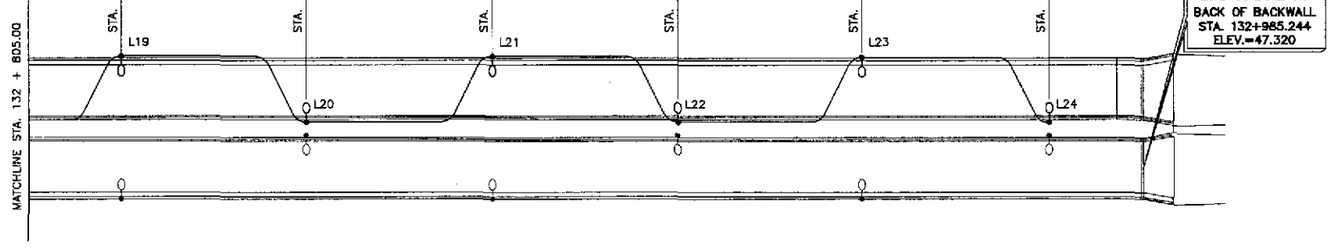
SHEET CONTENTS : ROADWAY LIGHTING PLAN
INTERSECTION A-35 (ULTIMATE STAGE)

SHEET NO. : EI-03

NOTES:

1. ALL ITEMS SHOWN IN LIGHT LINE ARE EXISTING INSTALLATIONS (INCLUDED ALREADY IN THE INITIAL STAGE). ALL ITEMS SHOWN IN HEAVY LINE ARE NEW INSTALLATIONS (ULTIMATE STAGE).
2. UNLESS OTHERWISE INDICATED, THE MINIMUM SIZE OF CIRCUIT CONDUCTORS FROM STEEL POLE JUNCTION BOX/HANDHOLE TO EACH LUMINAIRE SHALL BE 2–3.5 $mm^2$ THW AND 1–3.5 $mm^2$ TW(Gnd) INSIDE STEEL POLE.




## LOAD SCHEDULE

PANEL ID : LCPC6
FEED : TOP
MOUNTING : SURFACE

**LIGHTING CONTACTOR PANEL NO.6**

ENCLOSURE : NEMA 4X
MIN. KAIC : 10
MAIN CB : 30 AT, 100 AF, 2P

| CKT. NO. | LOAD DESCRIPTION | VOLTS | CONNECTED LOAD (VA) | CONNECTED LOAD AMPERE | NO. & SIZE OF WIRES & CONDUIT | PROTECTION AT | PROTECTION AF | PROTECTION P |
|---|---|---|---|---|---|---|---|---|
| 1 | L13 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | L14 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | L15 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | L16 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | L17 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | L18 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | L19 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | L20 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | L21 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | L22 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | L23 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | L24 (1 x 250 W HPS) | 220 | 310 | 1.41 | SEE NOTE 2 | | | |
| | | | | | | | | |
| | SUB-TOTAL | | 3720 | 16.92 | 2–30 $mm^2$ THW & 1–8.0 $mm^2$ TW(G) IN 40 $mm\phi$ CONDUIT | | | |
| | TOTAL | | 3720 | 16.92 | 2–30 $mm^2$ THW & IN 40 $mm\phi$ CONDUIT | 30 | 100 | 2 |

1 / EI-04 ROADWAY LIGHTING PLAN
SCALE 1:500

ERNESTO M. ANTIOQUIA
ENGINEER
PTR NO. 7403884 P.E.E. NO. 2913
ISSUED ON 01/02/2002 ISSUED AT CABUYAO, LAGUNA
T.I.N. 109-382-378

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

| | DATE | SIGNATURE |
|---|---|---|
| DESIGNED | 10/17/02 | E. ANTIOQUIA |
| CHECKED | 10/29/02 | E. ANTIOQUIA |
| SUBMITTED | 10/21/02 | M. KUCHI, TEAM LEADER |

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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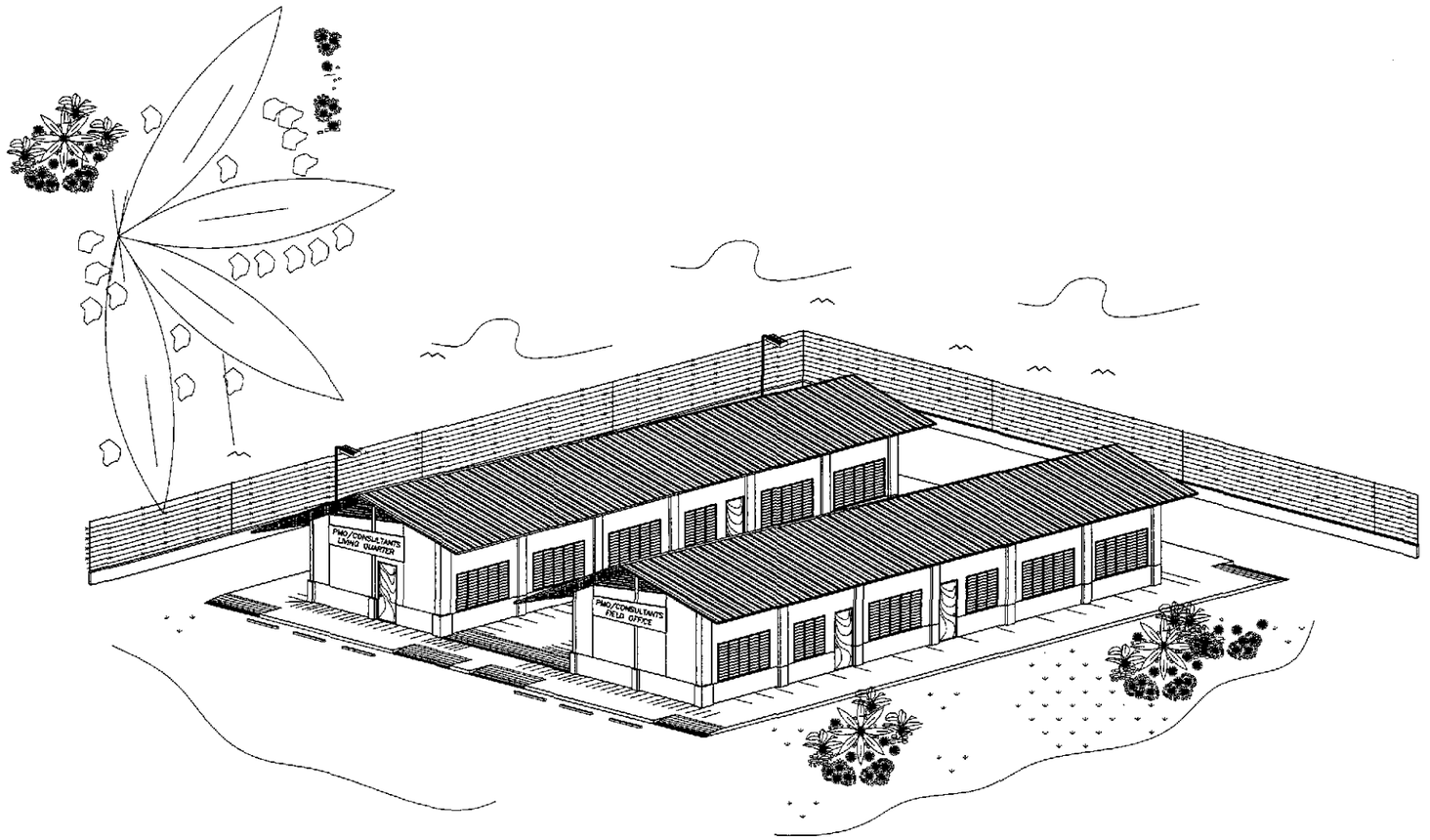
PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE : 1:500 FULL SIZE A1

SHEET CONTENTS :
TALAVERA RIVER BRIDGE CROSSING
ROADWAY LIGHTING PLAN AND LOAD SCHEDULE
ULTIMATE STAGE

SHEET NO. : EI-04

# ENGR'S FIELD OFFICE & LIVING QUARTERS




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.

ARNEL P. GONZALES
ENGINEER

PTR. NO. 2845340 P.R.C. NO. 53457
ISSUED ON 04/26/2002 T.I.N. 138-062-682
ISSUED AT SAN JUAN,M.M.

## TABLE OF CONTENTS



REPUBLIC OF THE PHILIPPINES
**OFFICE OF THE MUNICIPAL / CITY ENGINEER / BUILDING OFFICIAL**

CITY / DISTRICT / MUNICIPALITY

LAND USE and ZONING

LINE and GRADE

ARCHITECTURAL

STRUCTURAL

SANITARY

ELECTRICAL

MECHANICAL

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

| | DATE | SIGNATURE |
|---|---|---|
| DESIGNED | 10/17/02 | A. P. GONZALES |
| CHECKED | 10/19/02 | A. P. GONZALES |
| SUBMITTED | 10/21/02 | TEAM LEADER |

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| Project Director | Chief, Architectural Division | OIC, Director IV | Undersecretary | Secretary |

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

SCALE :
NOT TO SCALE
FULL SIZE A1

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

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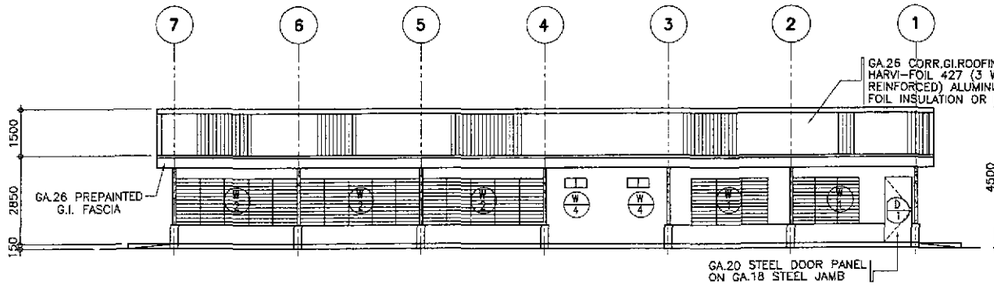


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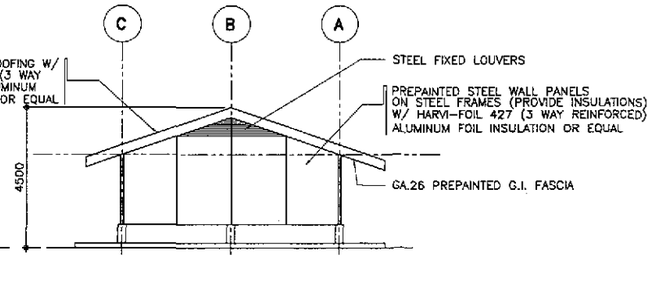


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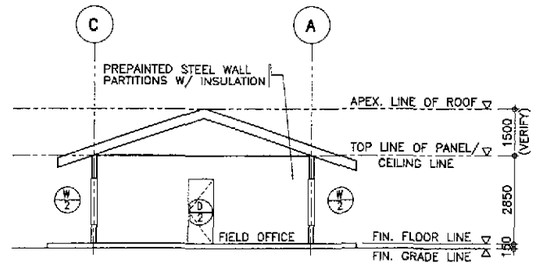


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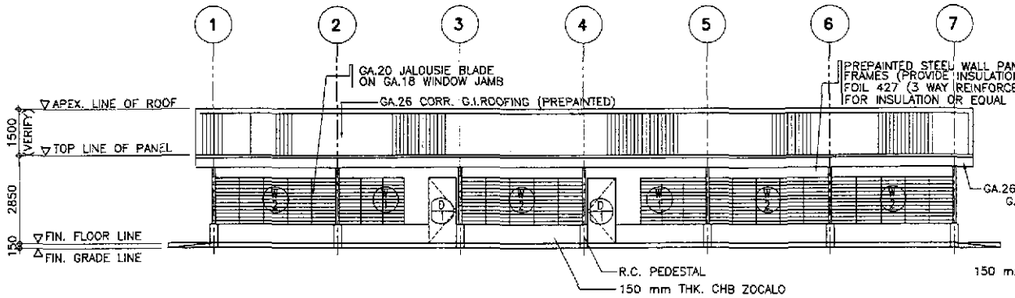


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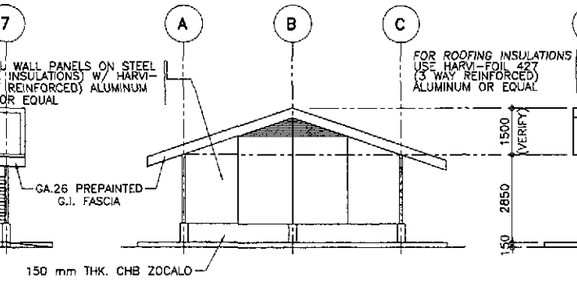


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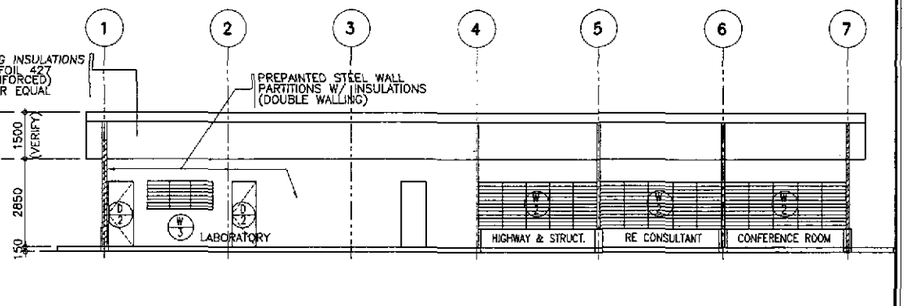


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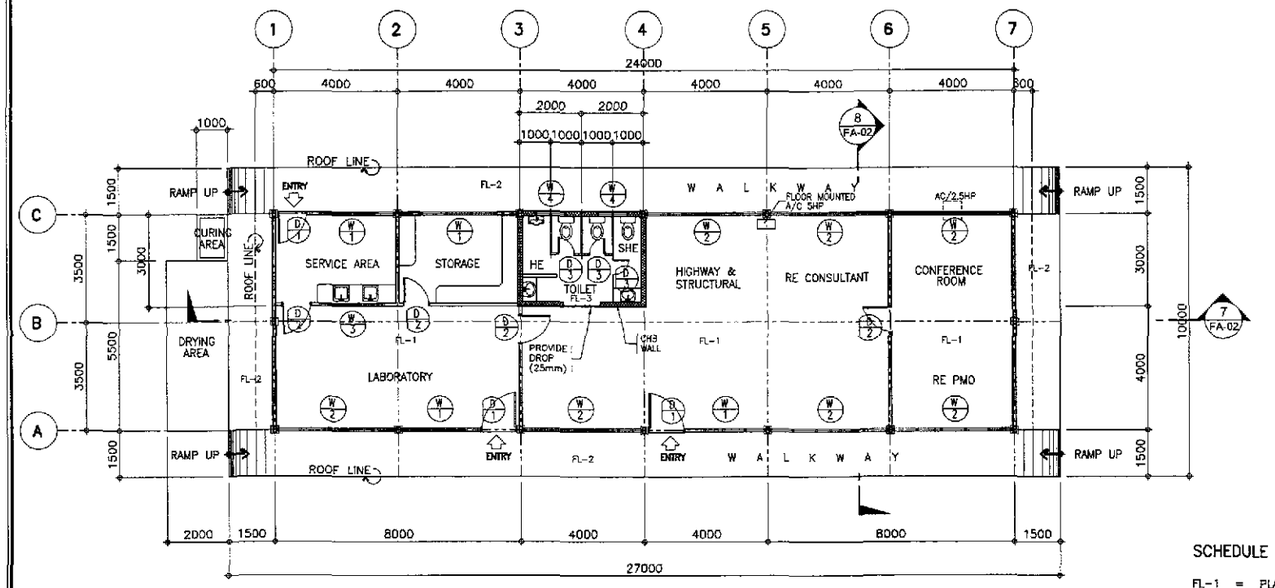
SCALE 1:100

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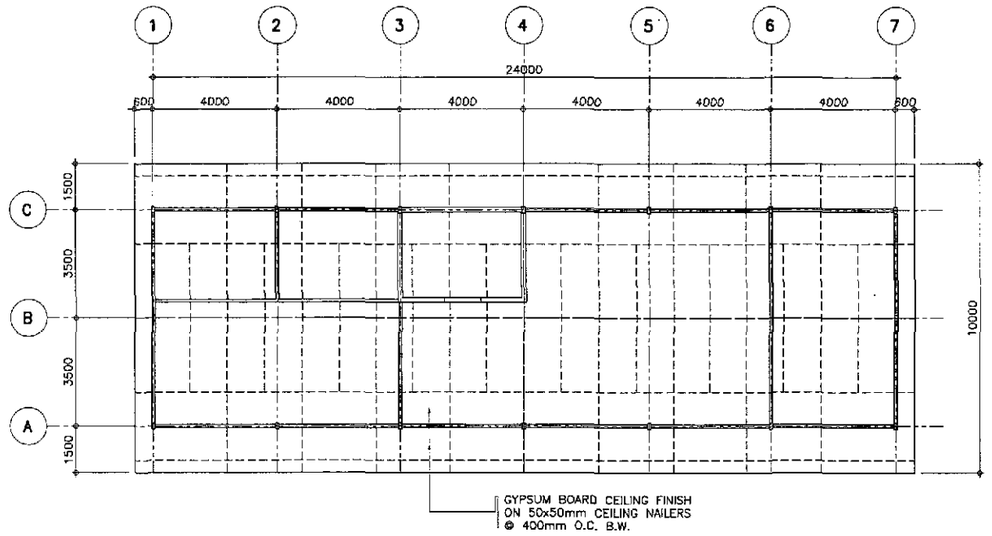


6 / FA-02 REFLECTED CEILING PLAN
SCALE 1:100

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

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

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

| | DATE | SIGNATURE |
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| DESIGNED | 10/17/02 | A. P. GONZALES |
| CHECKED | 10/19/02 | A. P. GONZALES |
| SUBMITTED | 10/21/02 | M. KUDO TEAM LEADER |

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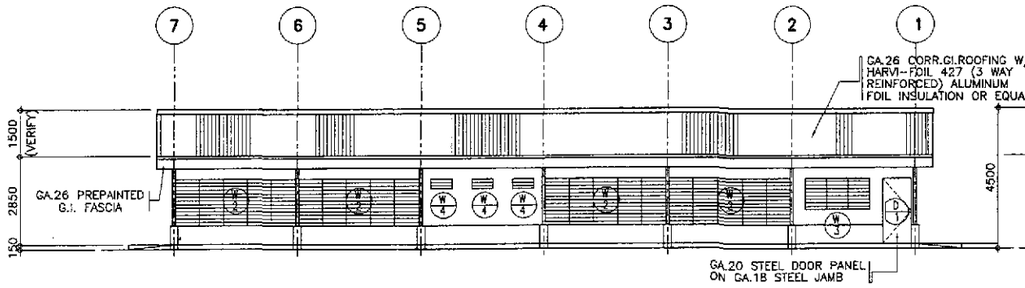
CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE : AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
ENGR'S FIELD OFFICE / LABORATORY
FLOOR PLAN, ELEVATIONS, CROSS-SECTIONS AND REFLECTED CEILING PLAN

SHEET NO. : FA-02

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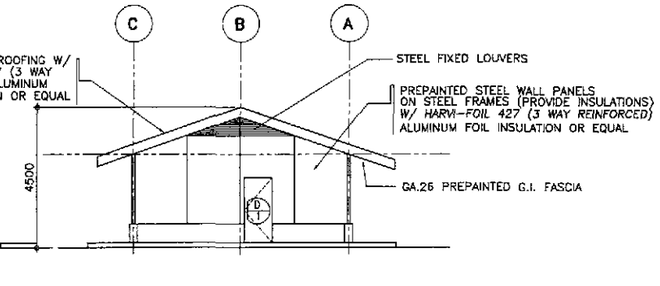


5 / FA-03 LEFT SIDE ELEVATION
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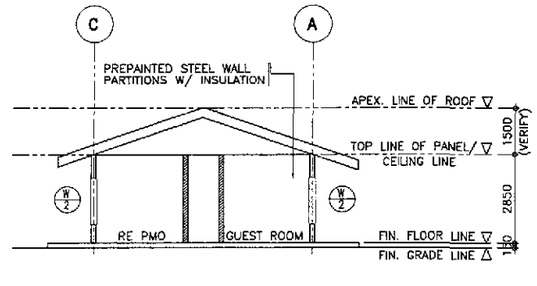
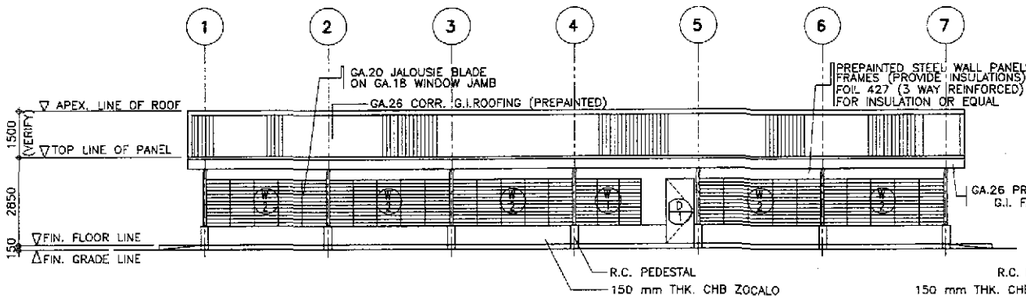
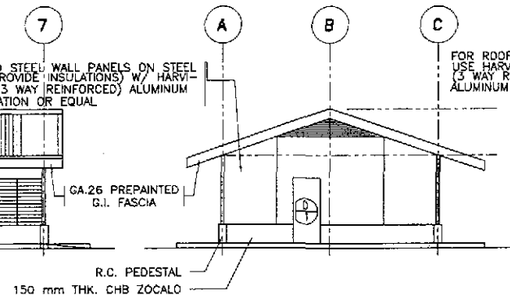



8 / FA-03 CROSS SECTION
SCALE 1:100




2 / FA-03 FRONT ELEVATION
SCALE 1:100

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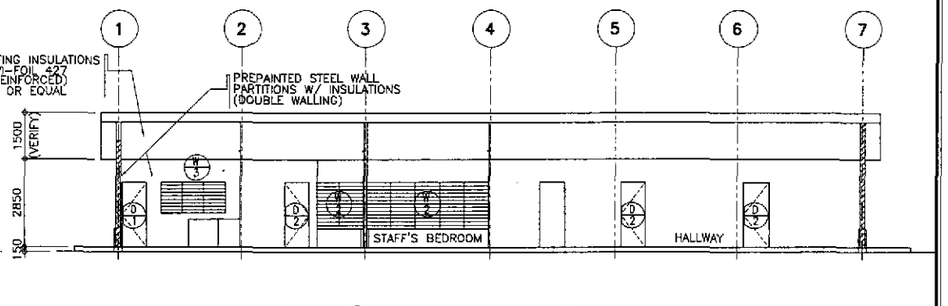
SCALE 1:100

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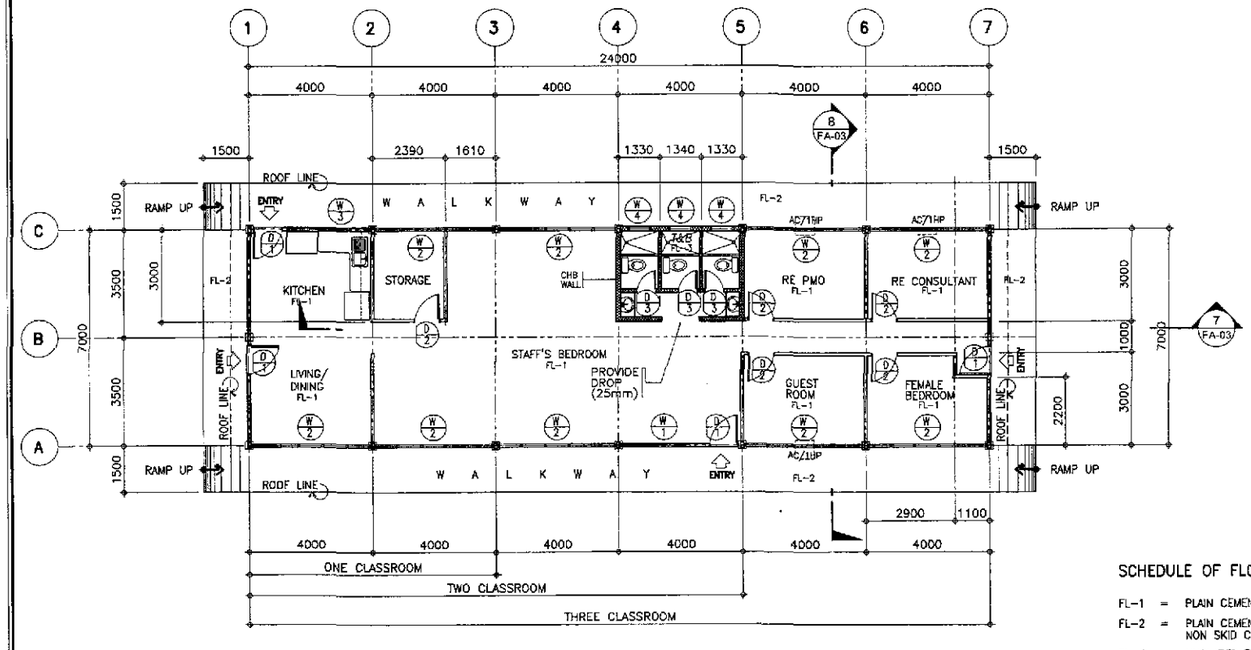
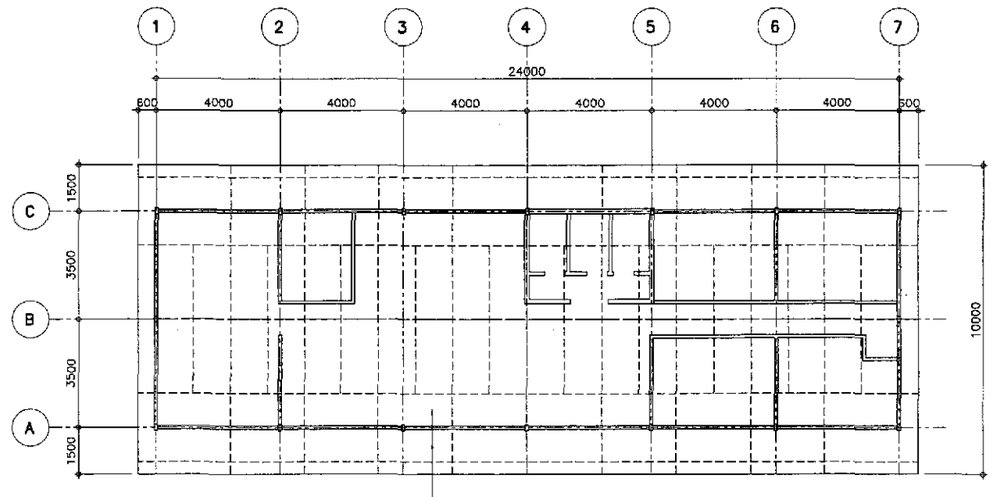
SCALE 1:100




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




6 / FA-03 REFLECTED CEILING PLAN
SCALE 1:100

SCHEDULE OF FLOOR FINISHES

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|---|---|---|
| DESIGNED | 10/17/02 | A. GONZALES |
| CHECKED | 10/19/02 | P. GONZALES |
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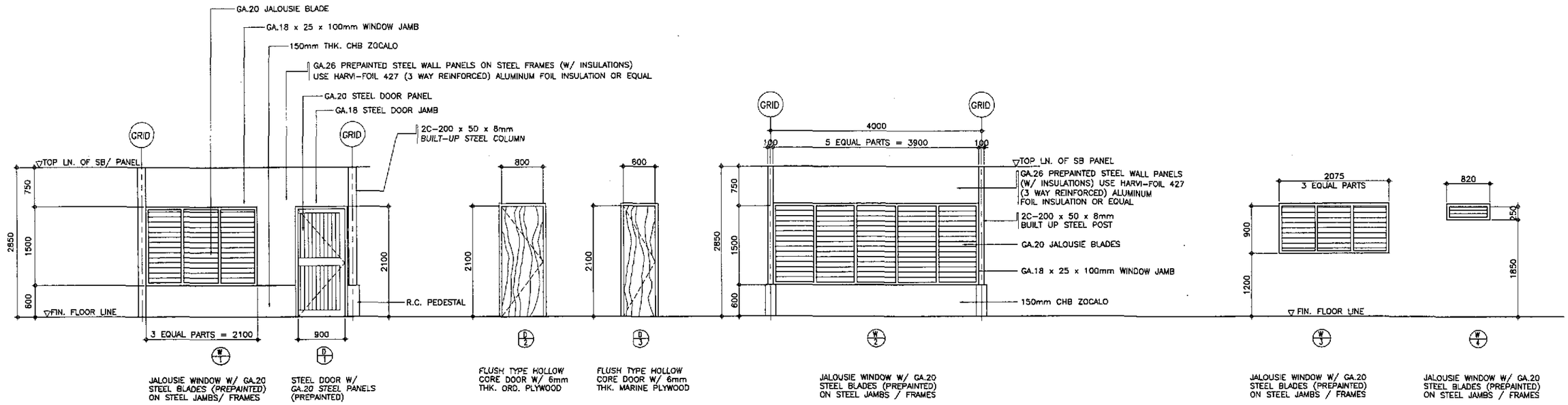
CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
ENGINEER'S LIVING QUARTERS
FLOOR PLAN, ELEVATIONS, CROSS-SECTION AND REFLECTED CEILING PLAN

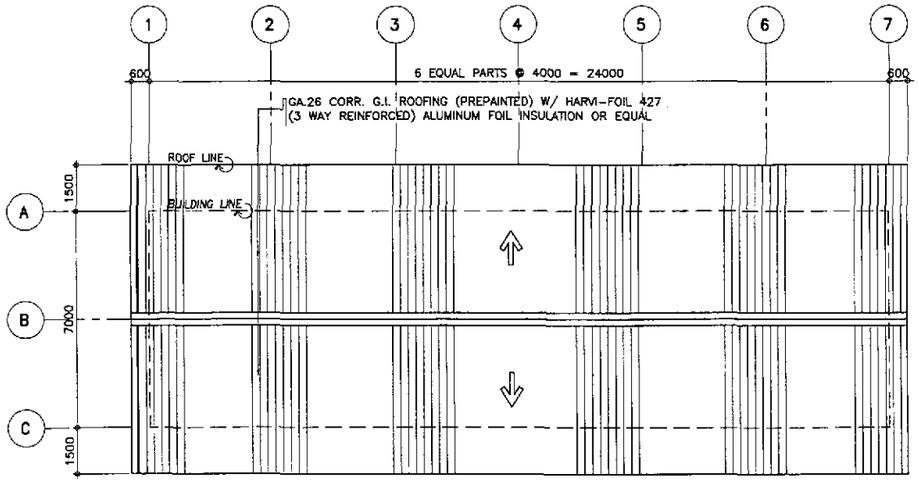
SHEET NO. : FA-03




FOR ENGINEER'S FIELD OFFICE

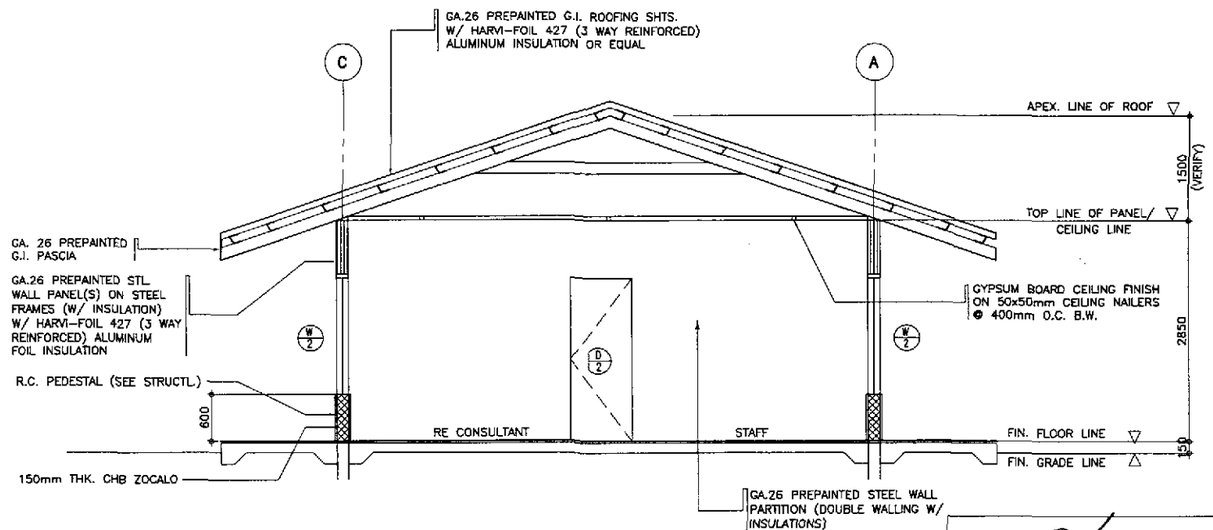
## 3 / FA-04 SCHEDULE OF DOORS & WINDOWS

SCALE 1:40




## 1 / FA-04 ROOF PLAN

SCALE 1:100




## 2 / FA-04 DETAIL CROSS SECTION

SCALE 1:40

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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.

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KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

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|---|---|---|---|
| DESIGNED | 11/17/02 | A. P. GONZALES | |
| CHECKED | 11/17/02 | A. P. GONZALES | |
| SUBMITTED | 11/21/02 | K. KUSUDA | TEAM LEADER |

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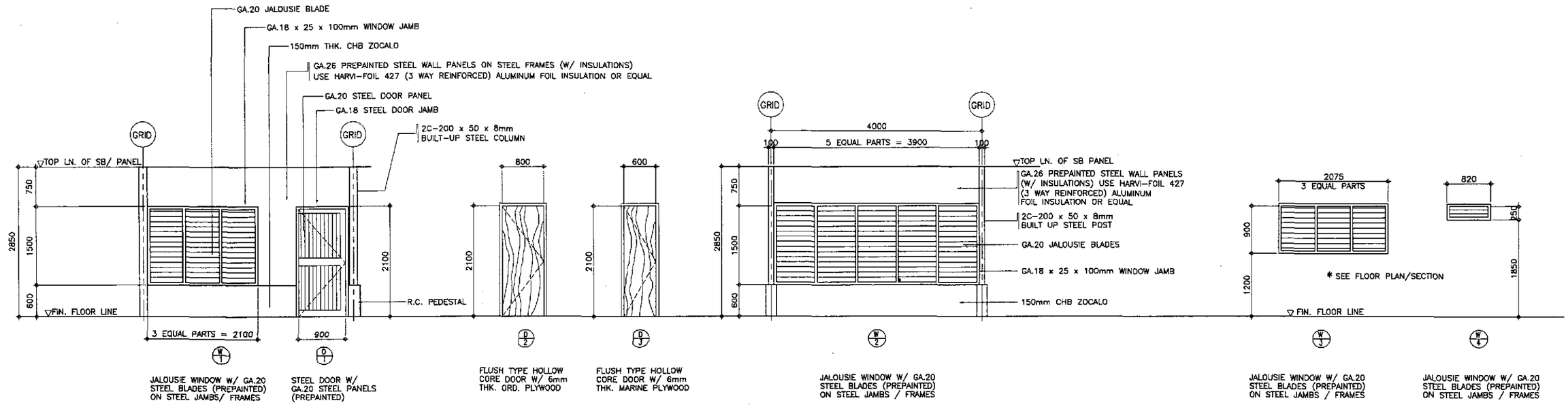
CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
ENGR'S FIELD OFFICE / LABORATORY
ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS

SHEET NO. : FA-04

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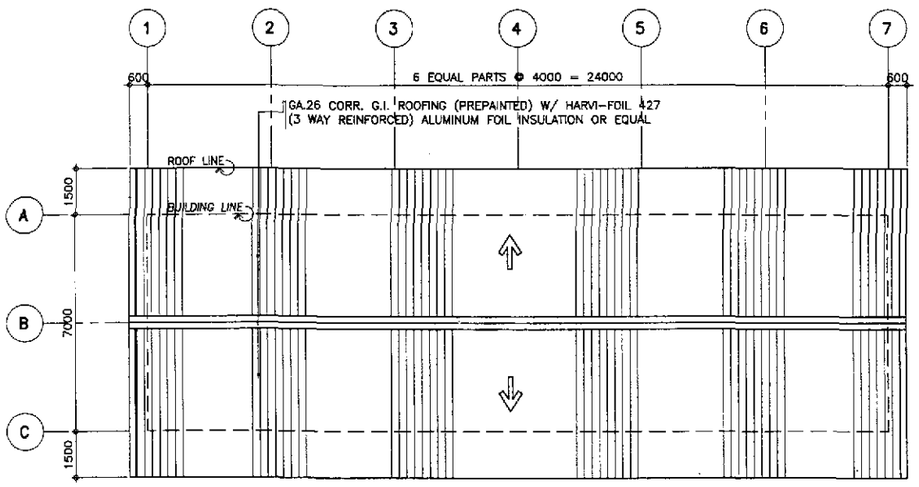
## SCHEDULE OF DOORS & WINDOWS
SCALE 1:40

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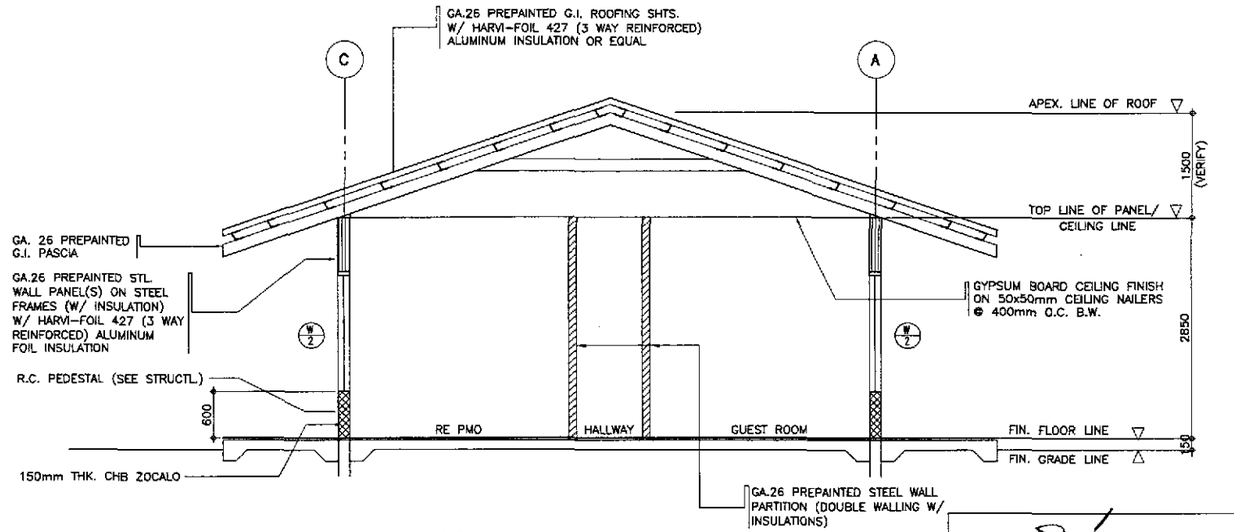
SCALE 1:100




2 / FA-05 DETAIL CROSS SECTION
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.

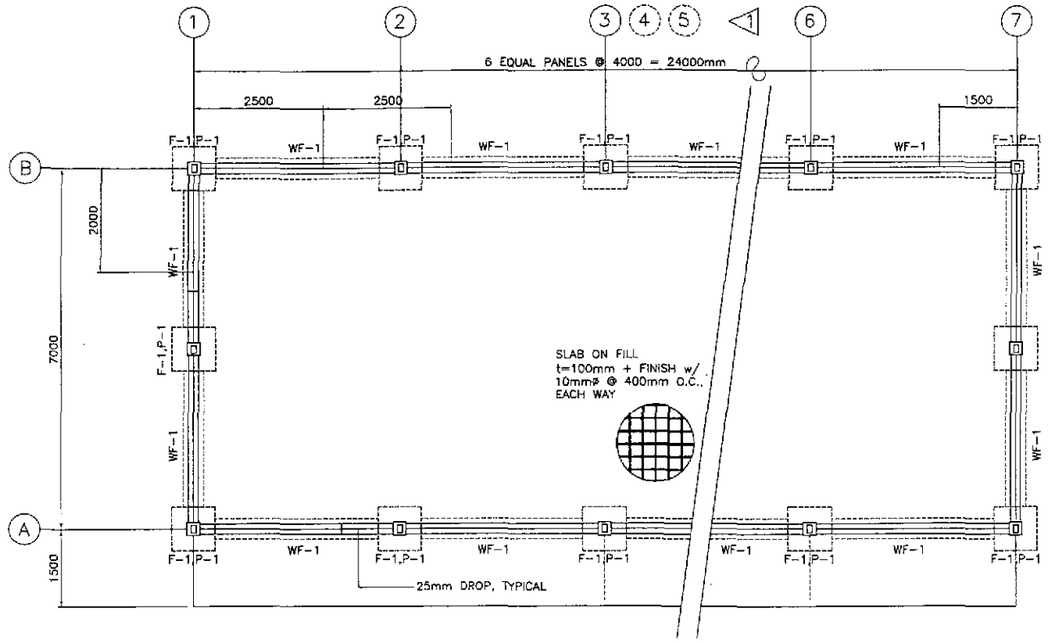
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.

| | DATE | SIGNATURE |
|---|---|---|
| DESIGNED | 10/17/02 | A. P. GONZALES |
| CHECKED | 10/17/02 | A. P. GONZALES |
| SUBMITTED | 10/21/02 | TEAM LEADER |

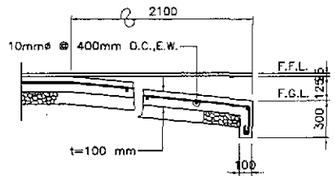
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

| PUHL – PMO | BUREAU OF DESIGN | | OFFICE OF THE SECRETARY | |
|---|---|---|---|---|
| Submitted By: | Reviewed By: | Recommended By: | Recommended By: (See cover sheet for Signature) | Approved By: (See cover sheet for Signature/Approval) |
| DANILO C. TRAJANO | EMMANUEL P. CUNTAPAY | GILBERTO S. REYES | MANUEL M. BONGAN | SIMEON A. DATUMANONG |
| Project Director | Chief, Architectural Division | DIC, Director IV | Undersecretary | Secretary |

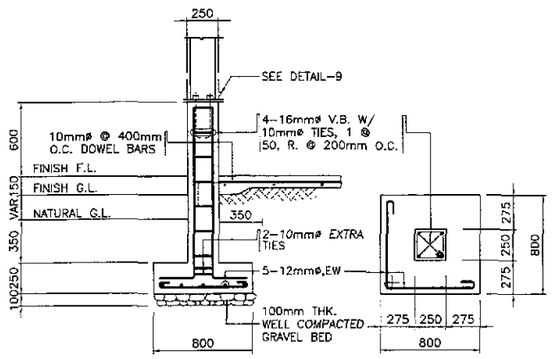
| PROJECT AND LOCATION : | SCALE : | SHEET CONTENTS : | SHEET NO. : |
|---|---|---|---|
| THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)<br>CABANATUAN BYPASS - CONTRACT PACKAGE IV | AS SHOWN<br>FULL SIZE A1 | ENGINEER'S LIVING QUARTERS<br>ROOF PLAN, CROSS-SECTION AND SCHEDULE OF DOORS & WINDOWS | FA-05 |



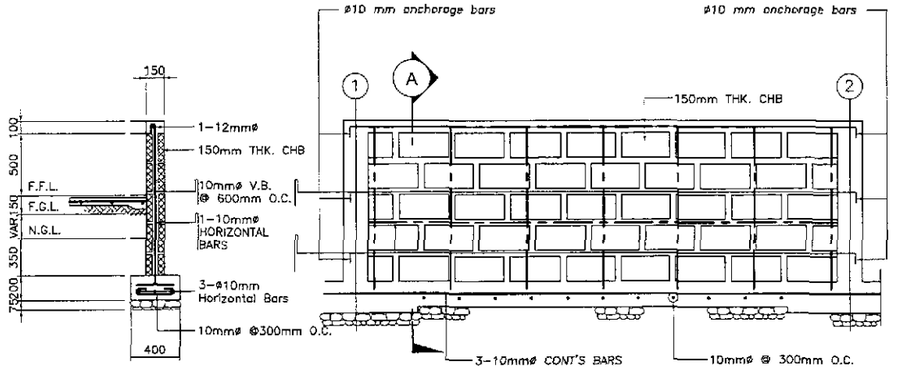

1 / FA-06 — FOUNDATION PLAN
SCALE 1:25




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




ELEVATION PLAN




SECTION A TYP. ELEVATION

2 / FA-06 — F-1, P-1
SCALE 1:25

3 / FA-06 — WF - 1
SCALE 1:25

## DESIGN CRITERIA :

I. LIVE LOAD

| | |
|---|---|
| ROOF | 0.58 KPa |
| OFFICE/LABORATORY | 2.40 KPa |

II. DEAD LOAD

| | |
|---|---|
| CONCRETE | 24 KN/m$^3$ |
| STEEL | 76.10 KN/m$^3$ |
| CHB | 2.73 KPa |

III. WIND LOAD

$p = Ce\ Cq\ Qs\ I$

WHERE :

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

IV. ALLOWABLE STRESSES

1. CONCRETE (ALLOWABLE COMPRESSIBLE STRENGTH @ 28 DAYS)
   a.) FOR FOOTINGS AND PEDESTAL COLUMN
   fc' = 20.70 mpa fc = 9.31mpa
   b.) FOR SLAB ON FILL
   fc' = 17.26 mpa fc = 7.76mpa
2. REINFORCING STEEL BARS (STRUCTURAL GRADE 33 DEFORMED BARS)
   fy = 227.0 mpa fst = 124.02 mpa
3. STRUCTURAL LIGHT GAGE COLD FORMED STEEL
   STIFFENED LIGHT GAGE CHANNEL FOR RAFTERS, STUD & WALLS
   fs = 124.0 mpa (18.000 psi)
4. STRUCTURAL BUILT-UP STEEL PLATES (ASTM A-36)
   FOR STEEL BOX COLUMN
   fy = 248.0 mpa (36,000 psi)
5. WELDS
   USE E-60 XX ELECTRODES
   fv = 93.76 mpa
6. BOLTS (ASTM A-307)
   fv = 69 mpa fst = 96.60 mpa
7. CONCRETE MASONRY UNITS (NON-LOAD BEARING CHB)
   fm' = 3.41 mpa (500 psi)
8. ASSUMED ALLOWABLE SOIL BEARING CAPACITY OF 95.76 KPa (2,000 psf)

NOTES ON FOUNDATION :

1. 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.
2. NO FOOTINGS SHALL REST ON FILL.

MATERIAL SPECIFICATIONS :

1. FOR ROOFING SHEETS :
   0.6mm THICK (GA.26) PREPAINTED CORRUGATED G.I. ROOFING SHEET, LONG SPAN.
2. FOR WALLING SHEETS : USE ALUMINUM FOIL INSULATION HARVI-FOIL 427 (3-WAY REINFORCED OR EQUAL). DOUBLE WALL 0.6mm THICK (GA.26) HIGH TENSILE STEEL SHEET WALLING/ CLADDING W/ ALUMINUM FOIL FOR INSULATION. HARVI-FOIL 427 (3-WAY REINFORCED OR EQUAL). BASE STEEL WITH 550 MPa YIELD STRESS.
3. 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.
4. ALL METAL PARTS SHALL BE GIVEN TWO(2) COATS OF ANTI-CORRDSIVE 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 :

1. ALL LOCATION OF ANCHOR BOLTS AND BOLT HOLES SHALL BE VERIFIED ON THE SITE PRIOR TO INSTALLATION / ASSEMBLY.
2. 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.
3. THE STEEL MANUFACTURER / FABRICATOR / CONTRACTOR SHALL SUBMIT *SHOP / FABRICATION DRAWINGS* TO INCLUDE MATERIAL SCHEDULES, ASSEMBLY PROCEDURE, CONNECTIONS AND SPLICES AS *PER APPROVED* PLANS FOR REVIEW AND APPROVAL OF THE DIRECTOR, BUREAU OF DESIGN.

ARNEL P. GONZALES
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
KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

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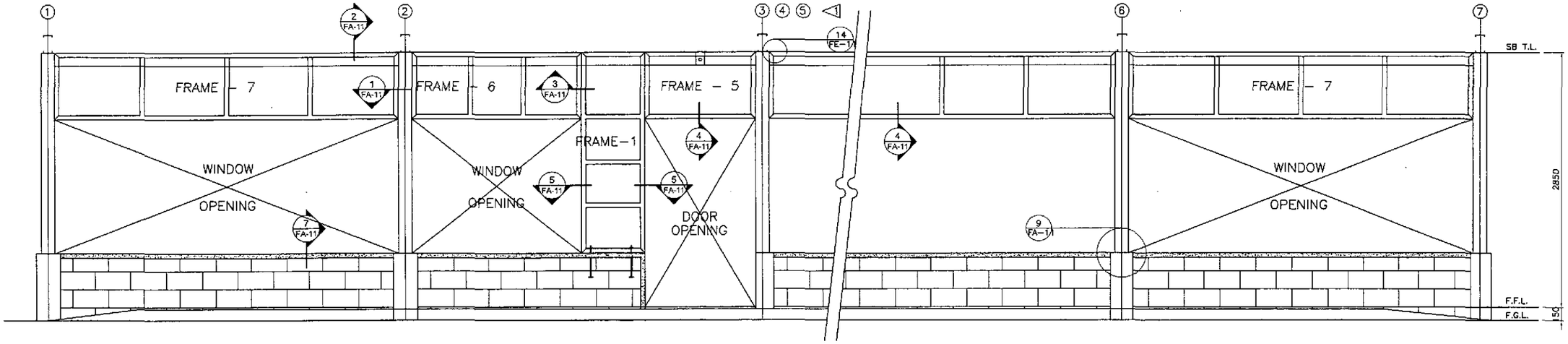
| Project Director | Chief, Structural Division | OIC, Director IV | Undersecretary | Secretary |

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 IV

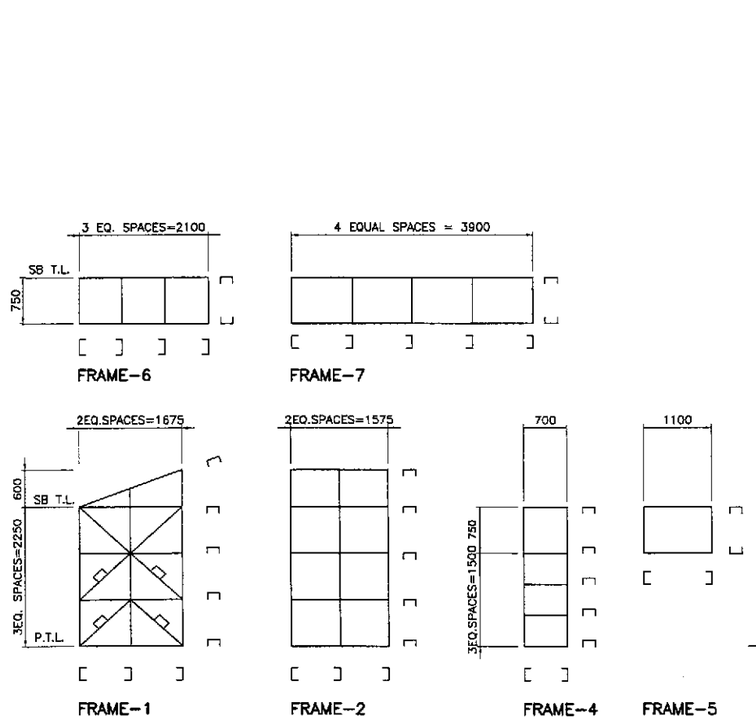
SCALE : AS SHOWN FULL SIZE A1

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

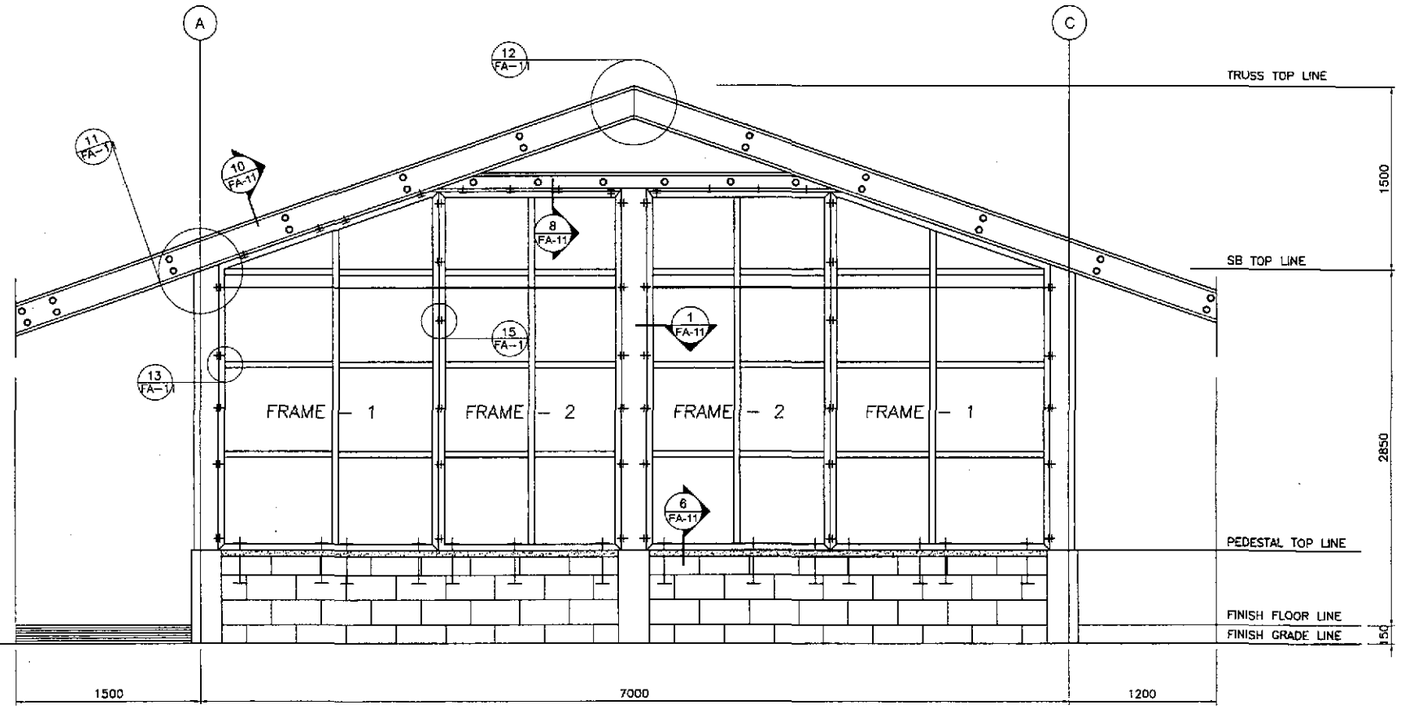
SHEET NO. : FA-06




## 2 / FA-07 FRONT ELEVATION
SCALE 1:25




## 1 / FA-07 FRAMES SCHEMATIC DIAGRAMS
SCALE 1:50




## 3 / FA-07 RIGHT SIDE ELEVATION
SCALE 1:25

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PTR. NO. 5845340 P.R.C. NO. 53457
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| DESIGNED | 10/17/02 | A. P. GONZALES |
| CHECKED | 10/19/02 | A.P. GONZALES |
| SUBMITTED | 10/21/02 | TEAM LEADER |

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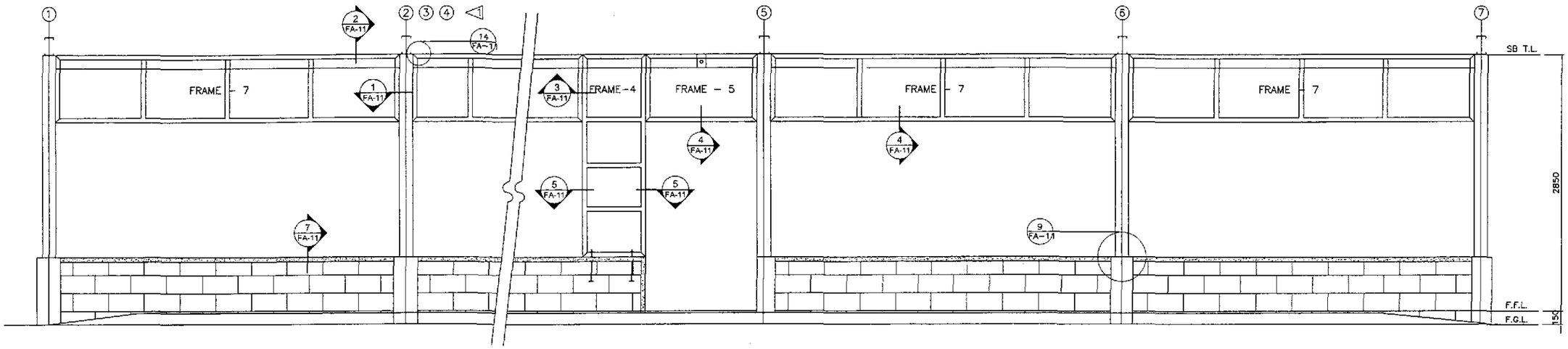
CABANATUAN BYPASS - CONTRACT PACKAGE IV

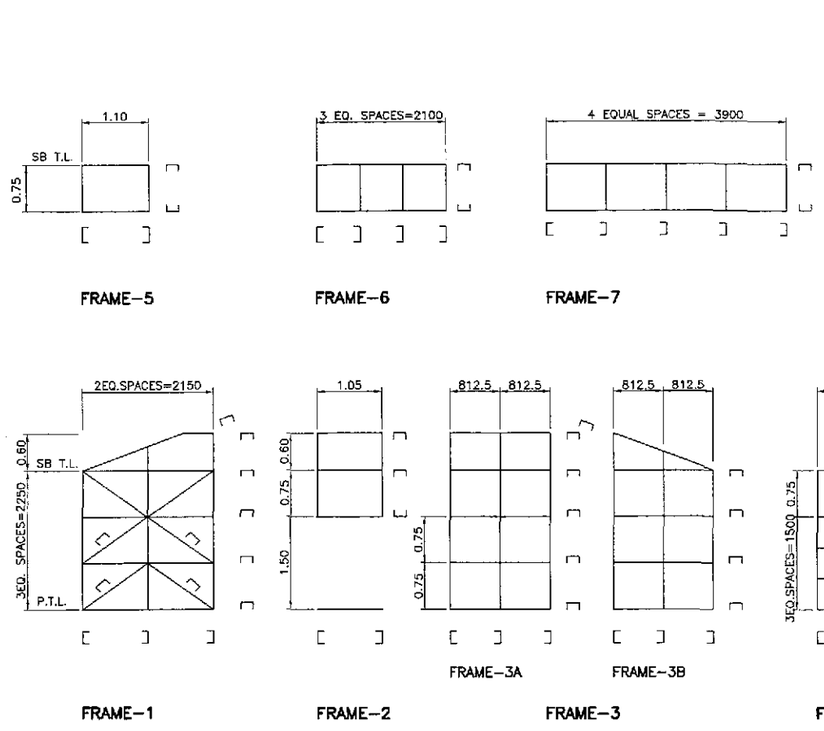
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
ENGR'S FIELD OFFICE / LABORATORY
FRONT AND RIGHT SIDE ELEVATION OF STEEL STUD FRAMES & SCHEMATIC DIAGRAM

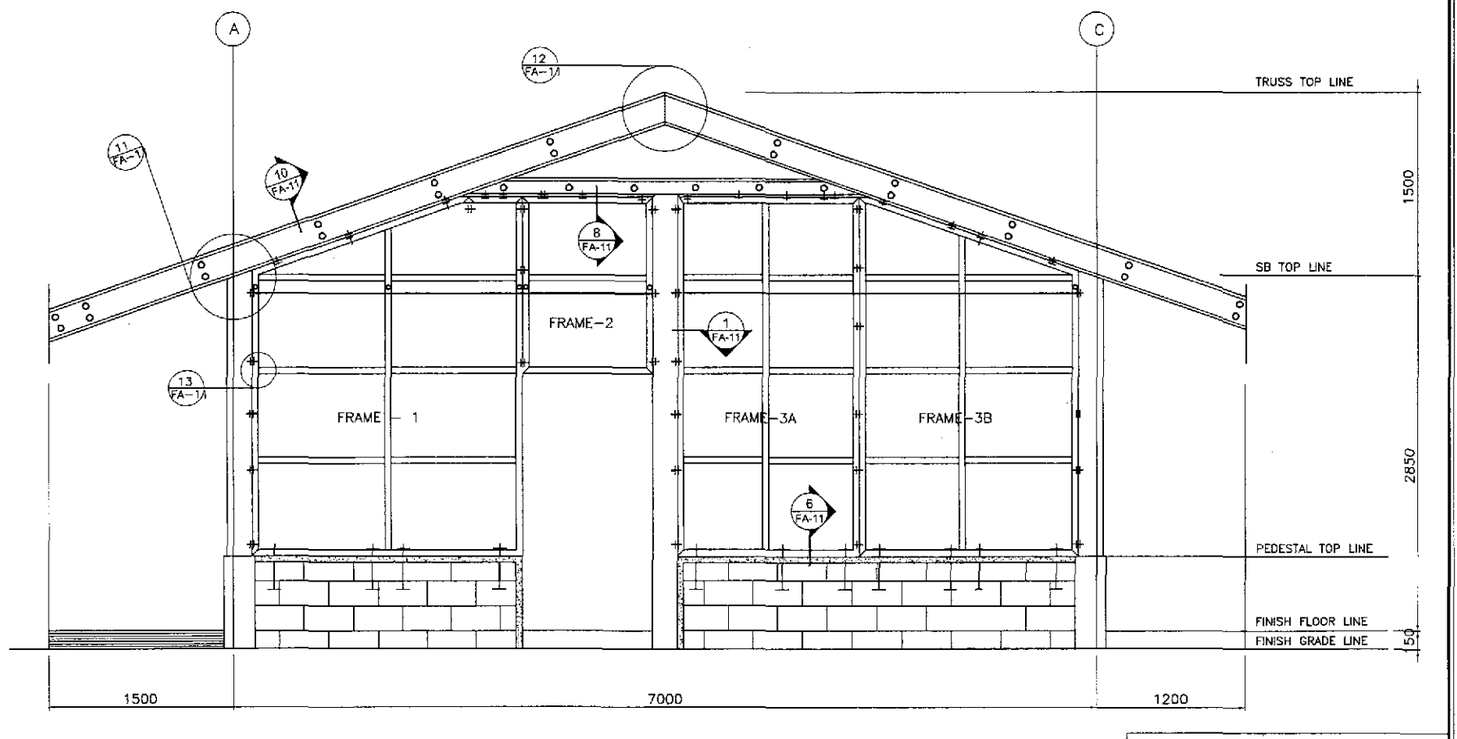
SHEET NO. : FA-07




2 / FA-08 **FRONT ELEVATION**
SCALE 1:25




1 / FA-08 **FRAMES SCHEMATIC DIAGRAMS**
SCALE 1:50




3 / FA-08 **RIGHT SIDE ELEVATION**
SCALE 1:25

ARNEL P. GONZALES
ENGINEER

PTR. NO. 5846340 P.R.C. NO. 53457
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| DESIGNED | 10/7/02 | A. P. GONZALES |
| CHECKED | 10/9/02 | A. P. GONZALES |
| SUBMITTED | 10/21/02 | TEAM LEADER |

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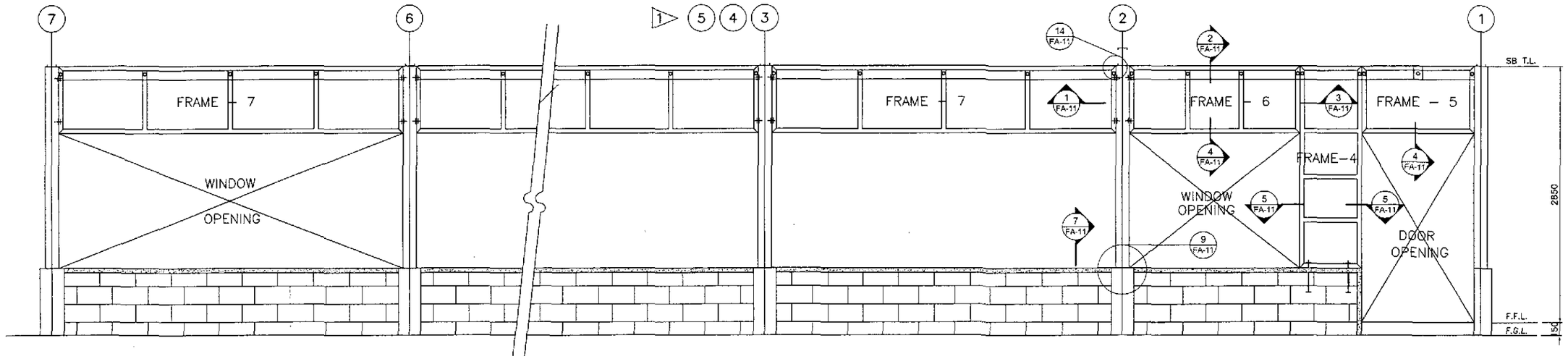
CABANATUAN BYPASS - CONTRACT PACKAGE IV

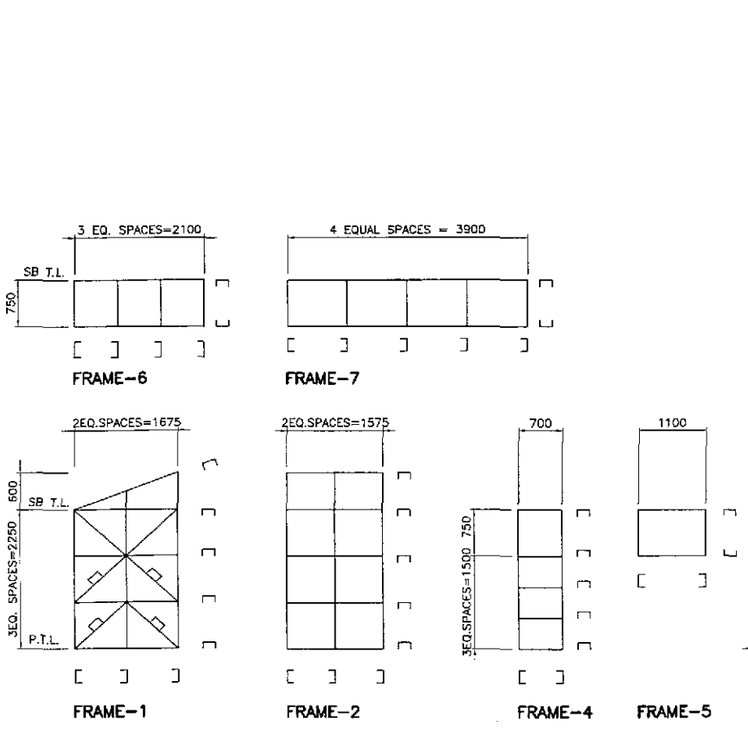
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
ENGINEER'S LIVING QUARTERS
FRONT AND RIGHT SIDE ELEVATION OF STEEL STUD FRAMES & SCHEMATIC DIAGRAM

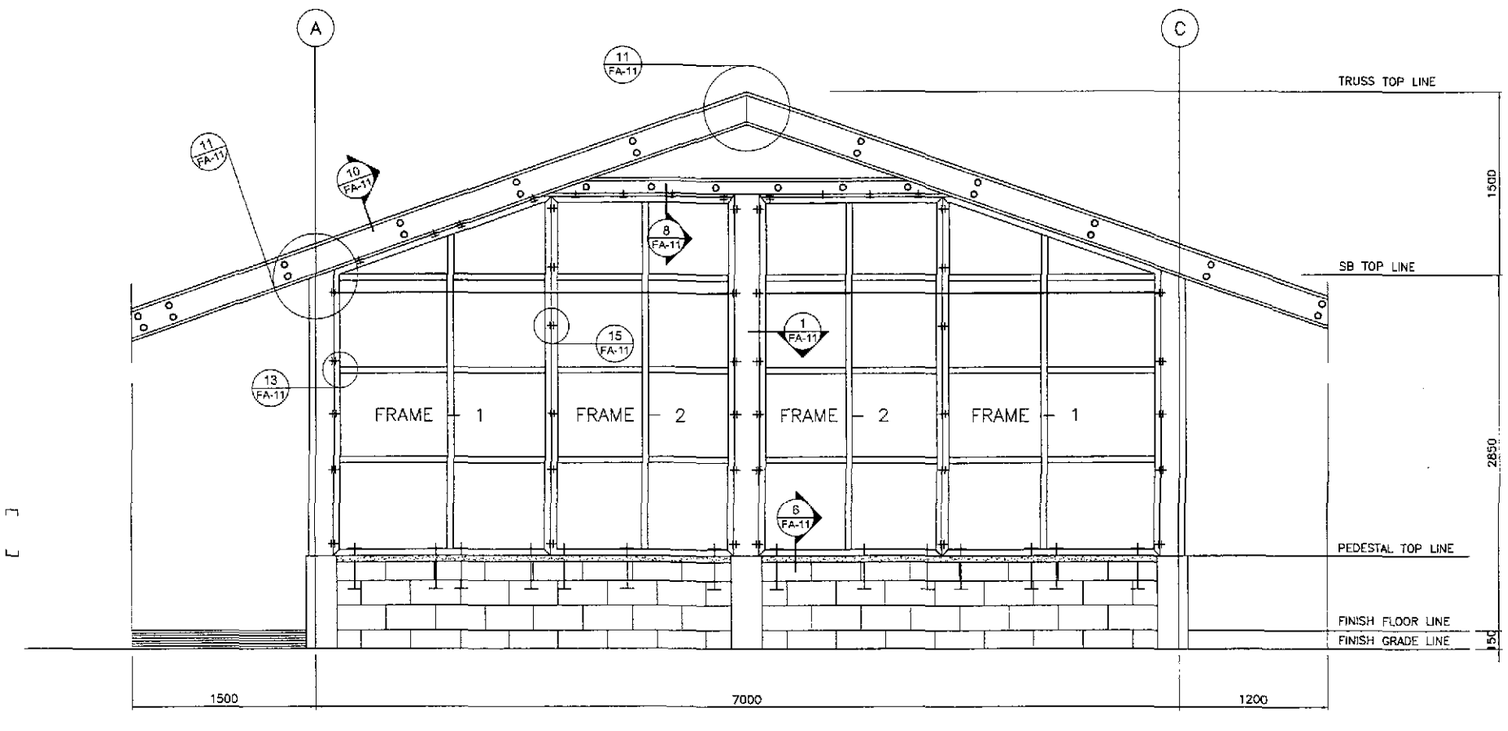
SHEET NO. : FA-08




2 FA-09 **REAR ELEVATION**
SCALE 1:25




1 FA-09 **FRAMES SCHEMATIC DIAGRAMS**
SCALE 1:50




3 FA-09 **LEFT SIDE ELEVATION**
SCALE 1:25

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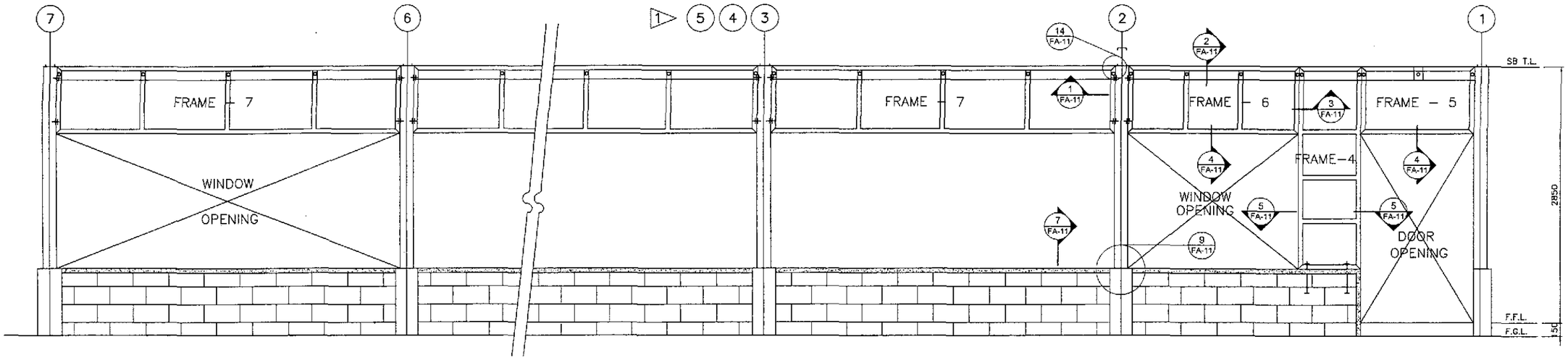
CABANATUAN BYPASS - CONTRACT PACKAGE IV

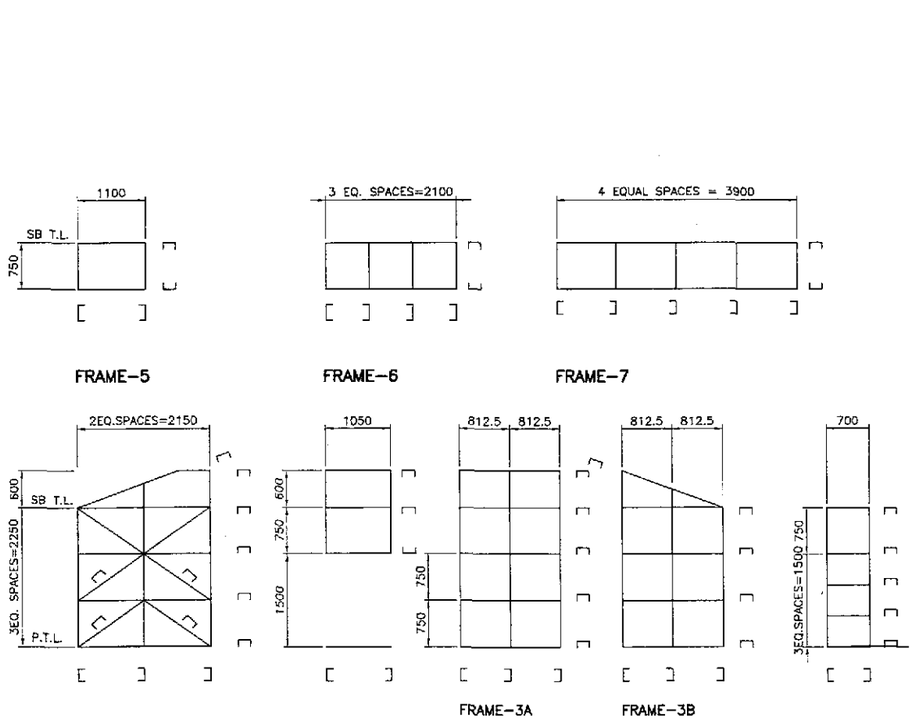
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
ENGR'S FIELD OFFICE / LABORATORY
REAR AND LEFT SIDE ELEVATION OF STEEL STUD FRAMES & SCHEMATIC DIAGRAM

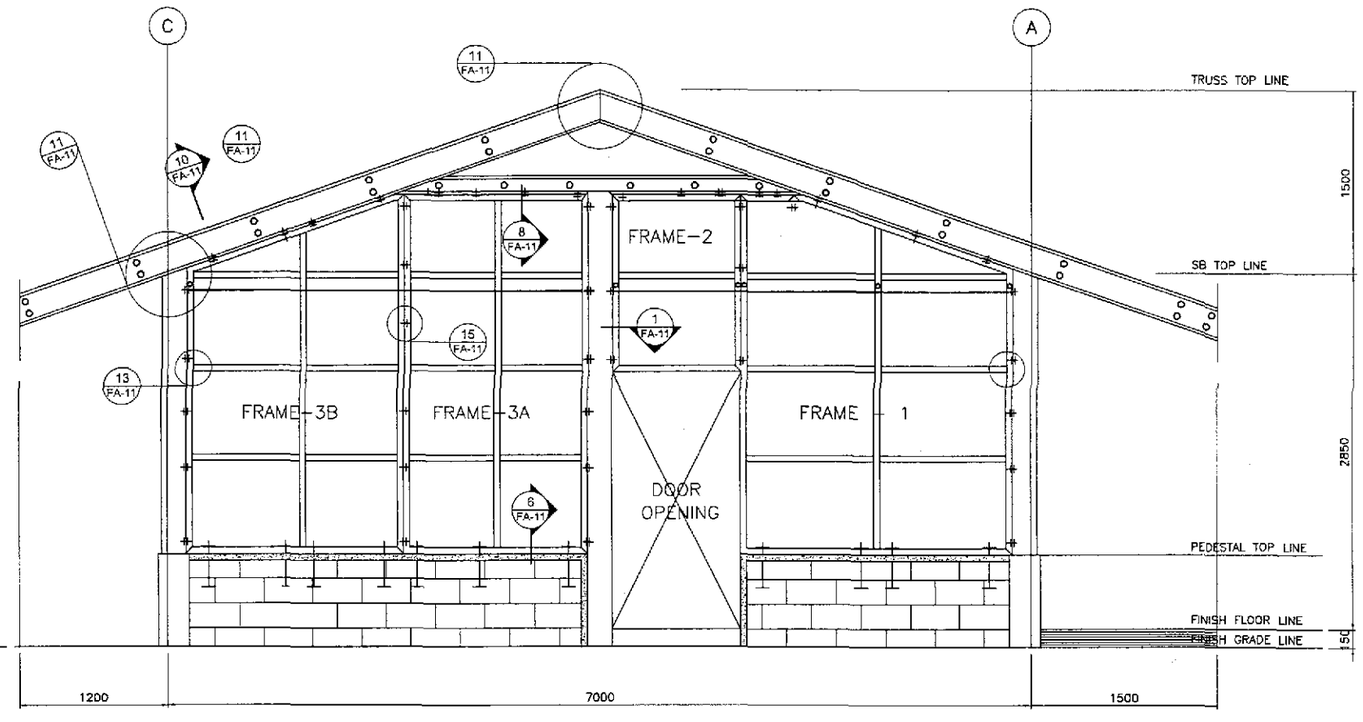
SHEET NO. : FA-09




2 FA-10 **REAR ELEVATION**
SCALE 1:25




1 FA-10 **FRAMES SCHEMATIC DIAGRAMS**
SCALE 1:50




3 FA-10 **LEFT SIDE ELEVATION**
SCALE 1:25

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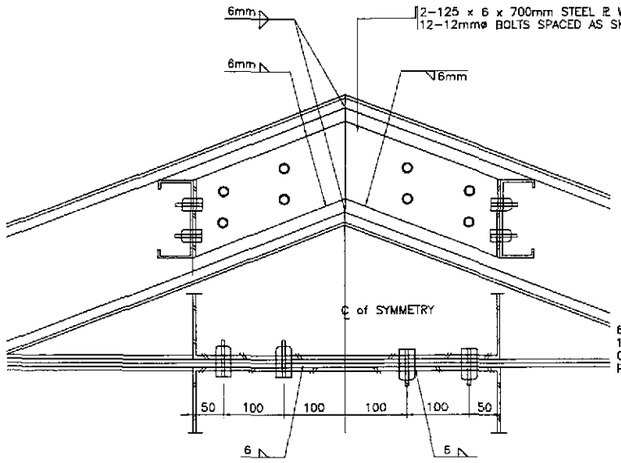
UPGRADING INTER-URBAN HIGHWAY SYSTEM
ALONG THE PAN-PHILIPPINE HIGHWAY
(Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

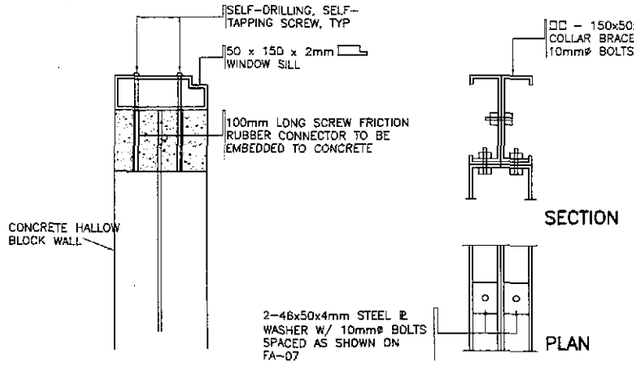
SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
ENGINEER'S LIVING QUARTERS
REAR AND LEFT SIDE ELEVATION OF STEEL STUD FRAMES & SCHEMATIC DIAGRAMS

SHEET NO. :
FA-10

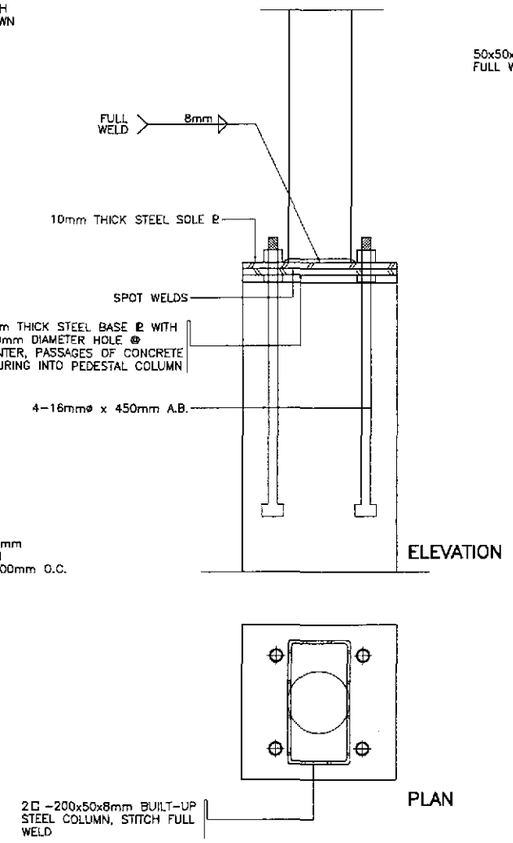



3 FA-11 **DETAIL - 12** SCALE 1:5

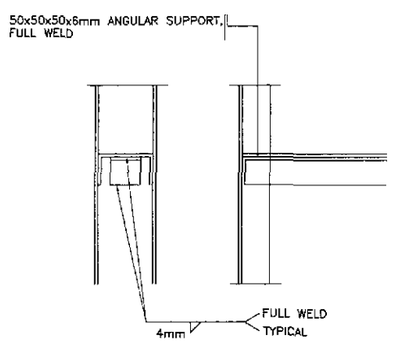



2 FA-11 **DETAIL - 7** SCALE 1:5

5 FA-11 **DETAIL - 8** SCALE 1:5



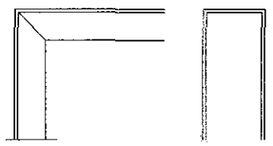

7 FA-11 **DETAIL - 9** SCALE 1:5

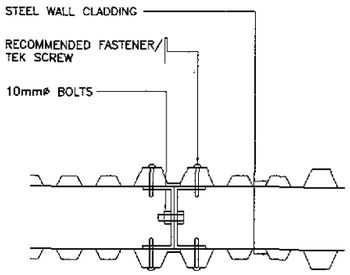



9 FA-11 **DETAIL - 10** SCALE 1:5

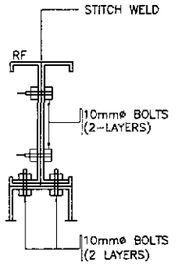
## NOTES :

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.

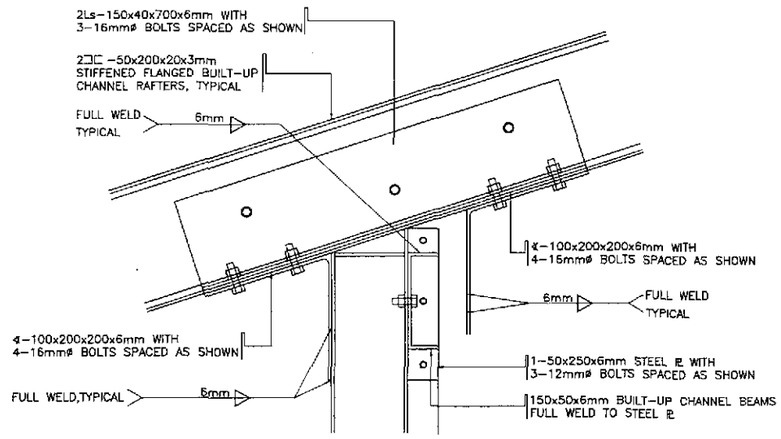


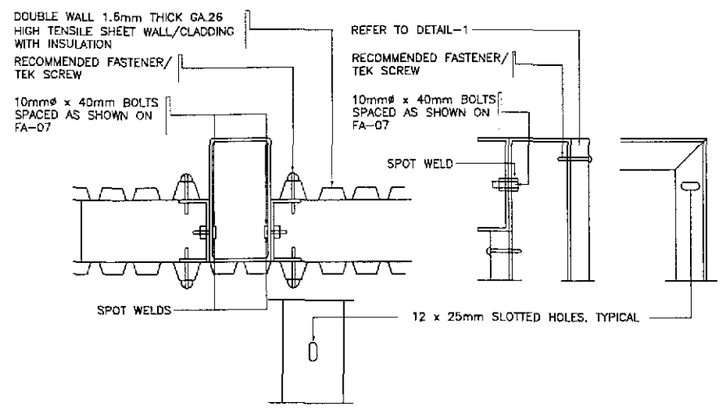

10 FA-11 **DETAIL - 13** SCALE 1:5




13 FA-11 **DETAIL - 14** SCALE 1:5

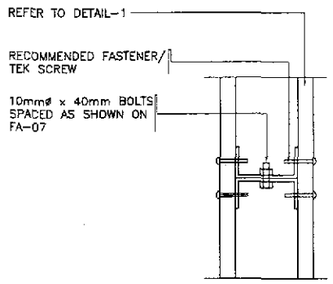



15 FA-11 **DETAIL - 15** SCALE 1:5

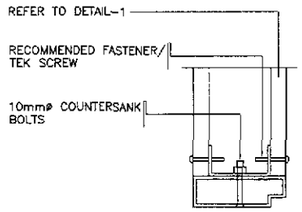



1 FA-11 **DETAIL - 1** SCALE 1:5

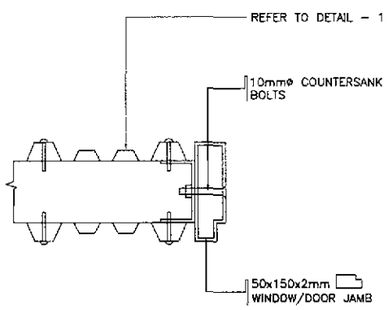
4 FA-11 **DETAIL - 2** SCALE 1:5




6 FA-11 **DETAIL - 3** SCALE 1:5

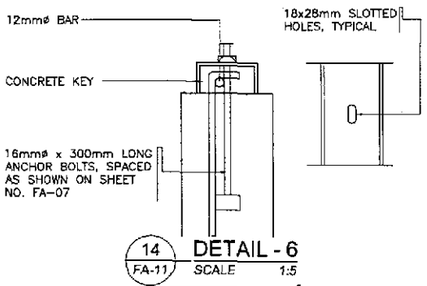



8 FA-11 **DETAIL - 4** SCALE 1:5




11 FA-11 **DETAIL - 5** SCALE 1:5

12 FA-11 **DETAIL - 11** SCALE 1:5




14 FA-11 **DETAIL - 6** SCALE 1:5

ARNEL P. GONZALES
ENGINEER

PTR, NO. 5846340 P.R.C. NO. 53457
ISSUED ON 04/26/2002 T.I.N. 138–062–582
ISSUED AT SAN JUAN,M.M.

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL — YEC YACHIYO ENGINEERING CO., LTD.

| | DATE | SIGNATURE |
|---|---|---|
| DESIGNED | 10/15/02 | A. P. GONZALES |
| CHECKED | 10/19/02 | A. P. GONZALES |
| SUBMITTED | 10/21/02 | M. BONDAD, TEAM LEADER |

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

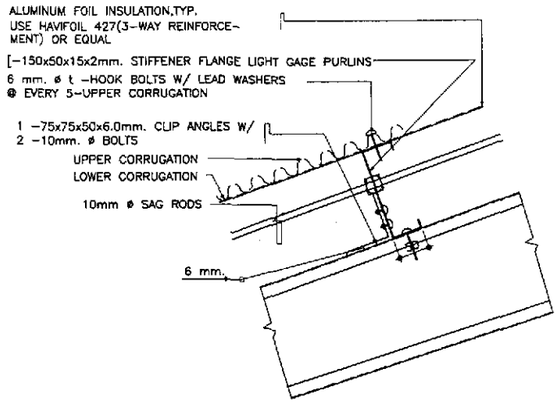
| PJHL – PMD | BUREAU OF DESIGN | | OFFICE OF THE SECRETARY | |
|---|---|---|---|---|
| Submitted By: | Reviewed By: | Recommended By: | Recommended By: (See cover sheet for Signature) | Approved By: (See cover sheet for Signature/Approval) |
| DANILO C. TRAJANO | WILFREDO S. LOPEZ | GILBERTO S. REYES | MANUEL M. BONDAD | SIMEON A. DATUMANONG |
| Project Director | Chief, Structural Division | OIC, Director IV | Undersecretary | 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 IV

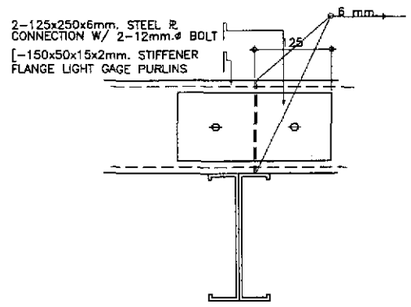
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
ENGINEER'S FIELD OFFICE AND LIVING QUARTERS
DETAILS OF CONNECTIONS DETAIL 1 TO 15

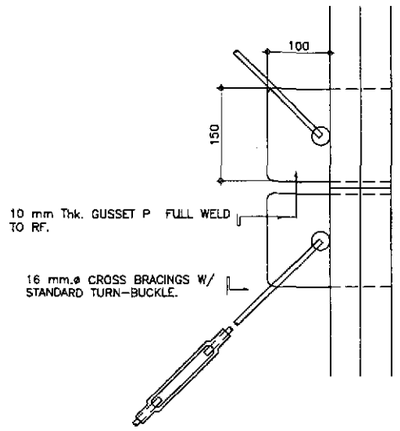
SHEET NO. : FA-11



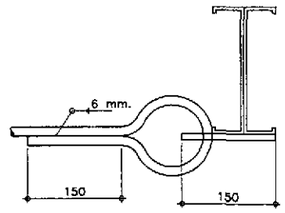

ELEVATION



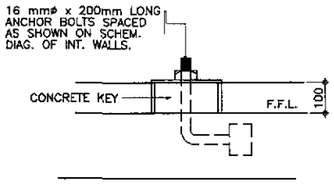

SECTION , SPLICE CONNECTION



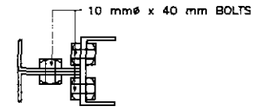

P L A N




SECTION

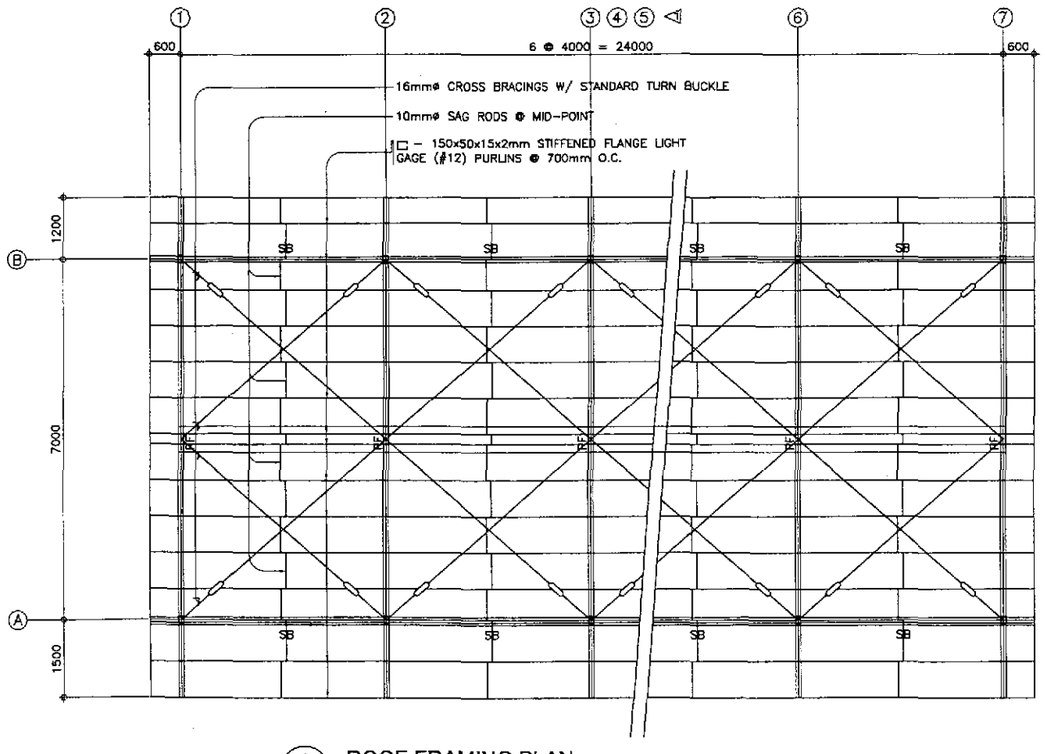



5 / FA-12 DETAIL - a
SCALE 1:5



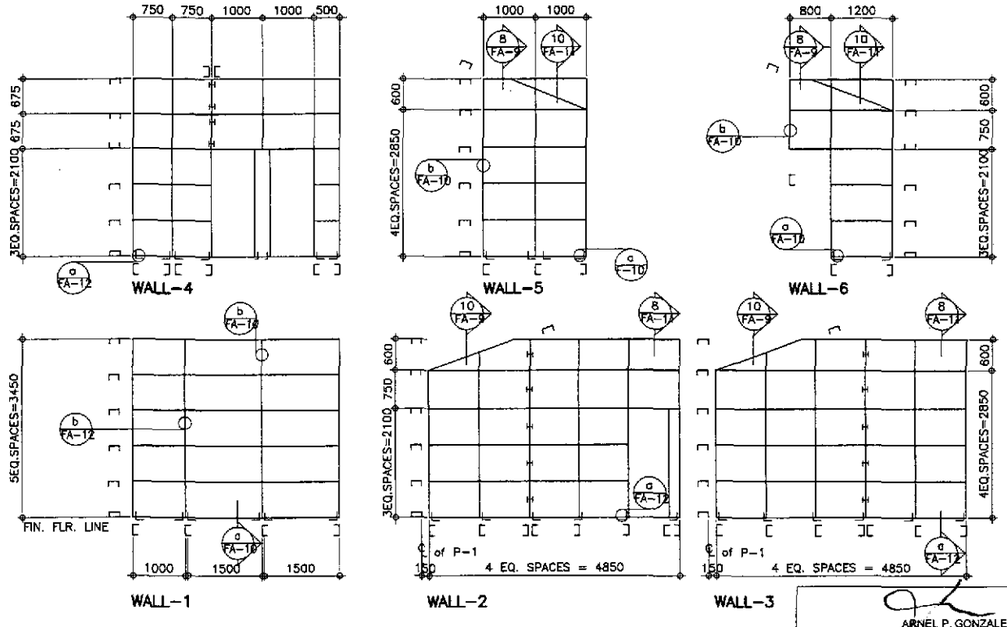

6 / FA-12 DETAIL - b
SCALE 1:5

2 / FA-12 PURLIN CONNECTION
SCALE 1:5




1 / FA-12 ROOF FRAMING PLAN
SCALE 1:60

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




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

ARNEL 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.

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

| | DATE | SIGNATURE |
|---|---|---|
| DESIGNED | 10/19/02 | A. P. GONZALES |
| CHECKED | 10/19/02 | A. P. GONZALES |
| SUBMITTED | 10/19/02 | M. KUBOTA TEAM LEADER |

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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|---|---|---|---|---|
| Submitted By: | Reviewed By: | Recommended By: | Recommended By: (See cover sheet for Signature) | Approved By: (See cover sheet for Signature/Approval) |
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| Project Director | Chief, Structural Division | OIC, Director IV | Undersecretary | Secretary |

PROJECT AND LOCATION :
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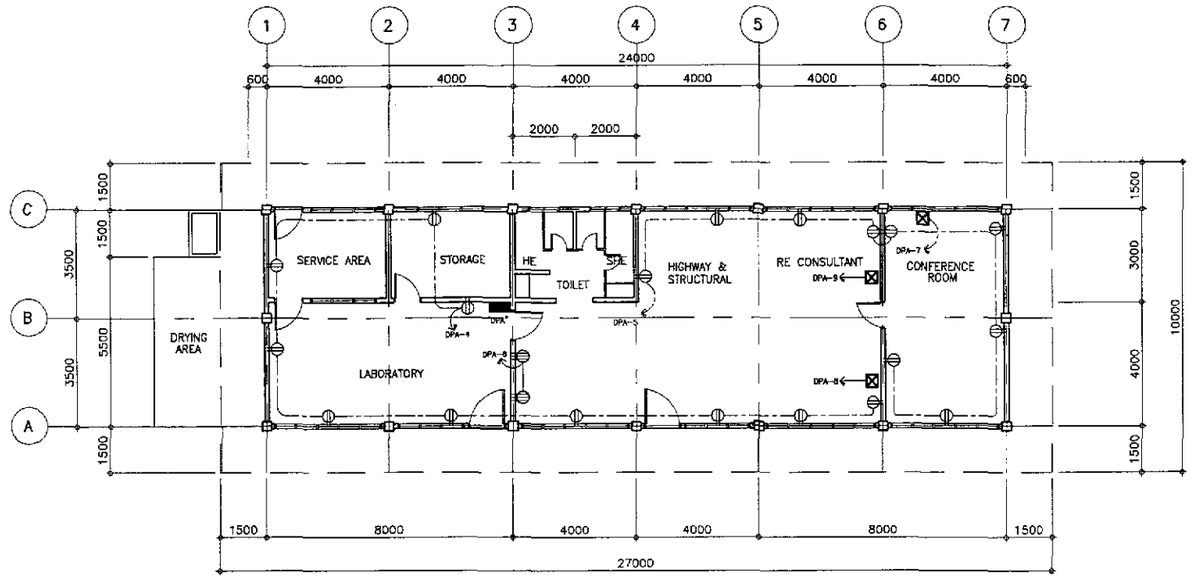
CABANATUAN BYPASS - CONTRACT PACKAGE IV

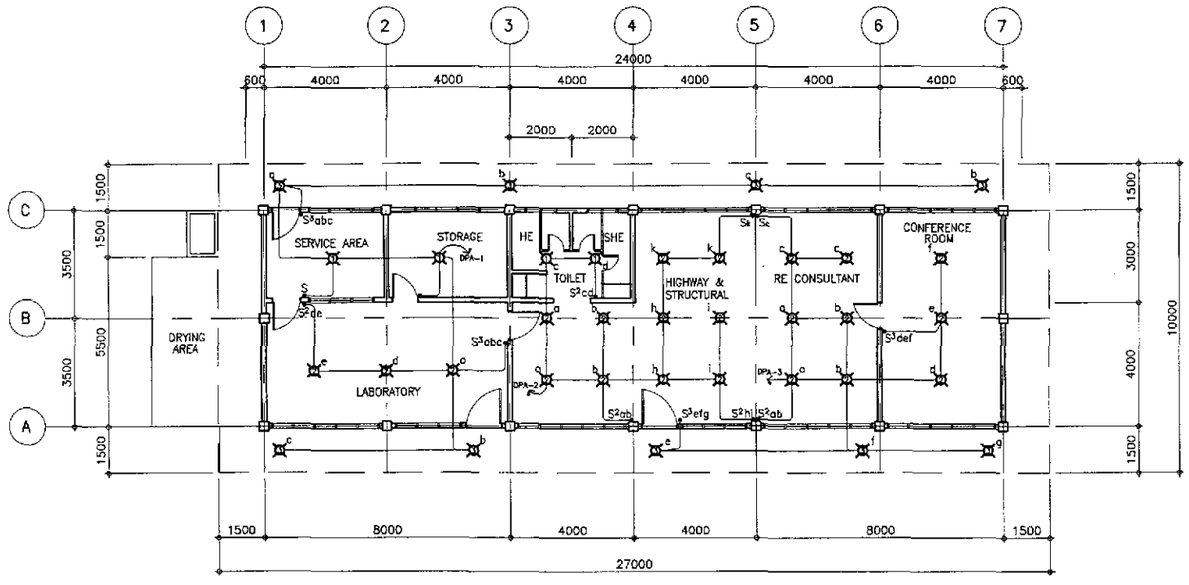
SCALE : AS SHOWN FULL SIZE A1

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

SHEET NO. : FA-12




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




2 / FE-01 LIGHTING LAYOUT OF THE ENGINEER'S FIELD OFFICE / LABORATORY
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 USED SHALL BE SINGLE-PHASE 2-WIRE, 240 VOLTS, 60Hz, AC.
3. ALL WIRINGS SHALL BE INSTALLED IN STANDARD GALVANIZED RIGID STEEL CONDUIT, RUN EMBEDDED INSIDE THE CONCRETE AND HOLLOW BLOCK STRUCTURES, SLABS, COLUMNS, WALLS PARTITIONS AND/OR RUN BETWEEN DOUBLE WALL WOODED PARTITIONS OR INSIDE THE CEILING SPACES.
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 NOR MENTIONED IN THE SPECIFICATIONS.
8. ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHT ABOVE THE FINISHED FLOOD LEVEL, UNLESS OTHERWISE NOTED.

   A. WALL SWITCHES .....1200 mm
   B. CONVENIENCE OUTLETS .....300 mm
   C. AIR CONDITIONING OUTLETS ....AT CONVENIENT HEIGHT NEAR THE EQUIPMENT
9. *STANDARD TYPE OF ACCESSORIES, SPLICING DEVICES, TERMINATORS AND OTHER* APPURTENANCES FOR THE ENTIRE ELECTRICAL INSTALLATION SHALL BE USED.
10. ALL MATERIALS TO BE USED SHALL BE BRAND NEW AND OF THE APPROVED TYPE FOR THE LOCATION AND PURPOSE.
11. THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATION OF THE *SERVICE ENTRANCE FOR CONNECTION* TO POWER COMPANY SERVICE POINT.
12. ALL ELECTRICAL WORKS SHALL BE DONE UNDER THE STRICT SUPERVISION OF A DULY REGISTERED ELECTRICAL ENGINEER.

## NOTE:

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

## ELECTRICAL SYMBOLS:

- CEILING LIGHT; REFER TO SCHEDULE OF LIGHTING FIXTURES AND LAMPS
- ELECTRICAL RISER
- S — ONE-WAY WALL SWITCH, 15A, 250V
- $S^2$ — 2 ONE-WAY WALL SWITCHES ON ONE-GANG PLATE, 15A, 250V
- $S^3$ — 3 ONE-WAY WALL SWITCHES ON ONE-GANG PLATE, 15A, 250V
- DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE, 20A, 250V
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- 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*
- (m) ELECTRIC SERVICE METER
- PROPOSED SERVICE ENTRANCE WITH CAP
- CONCEALED OR EMBEDED CONDUIT RUN
- *UNDERGROUND OR UNDER FLOOR CONDUIT RUN*
- CIRCUIT HOMERUN TO PANEL BOARD

ERNESTO M. ANTIOQUIA
ENGINEER

PTR. NO. 7403564 P.E.E. NO. 2913
ISSUED ON 01/02/2002 ISSUED AT CABUYAO, LAGUNA
T.I.N. 109-382-379

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

| | DATE | SIGNATURE |
|---|---|---|
| DESIGNED | 10/11/02 | ERNESTO M. ANTIOQUIA |
| CHECKED | 10/9/02 | ERNESTO M. ANTIOQUIA |
| SUBMITTED | 10/21/02 | TEAM LEADER |

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

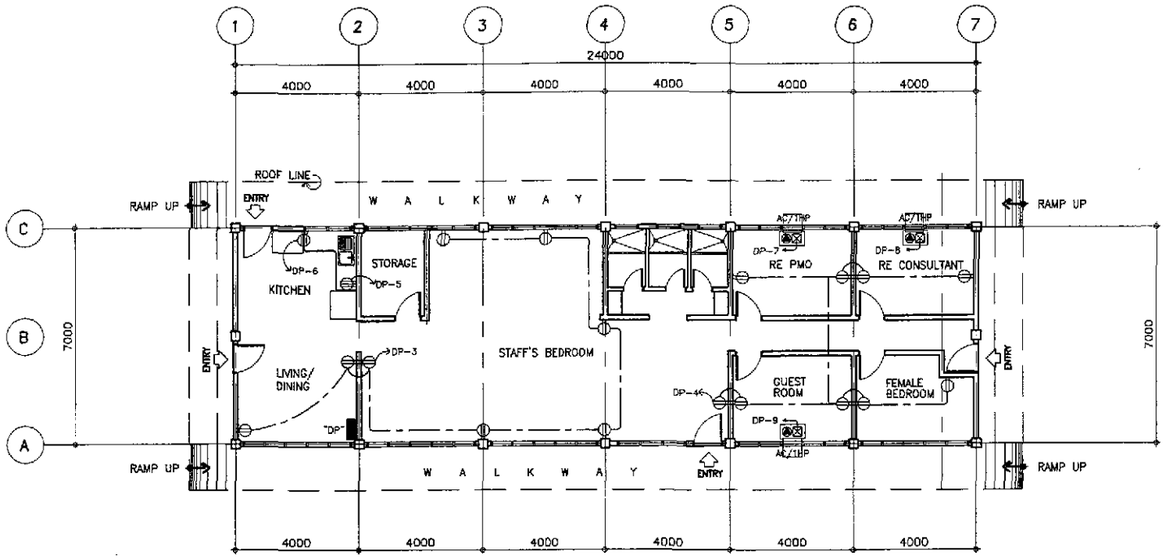
| PJHL - PMO | BUREAU OF DESIGN | | OFFICE OF THE SECRETARY | |
|---|---|---|---|---|
| Submitted By: | Reviewed By: | Recommended By: | Recommended By: (See cover sheet for Signature) | Approved By: (See cover sheet for Signature/Approval) |
| DANILO C. TRAJANO | FE M. BARRIENTOS | GILBERTO S. REYES | MANUEL M. BONDAN | SIMEON A. DATUMANONG |
| Project Director | Chief, Mechanical-Elect'l. Div. | OIC, Director IV | Undersecretary | 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 IV

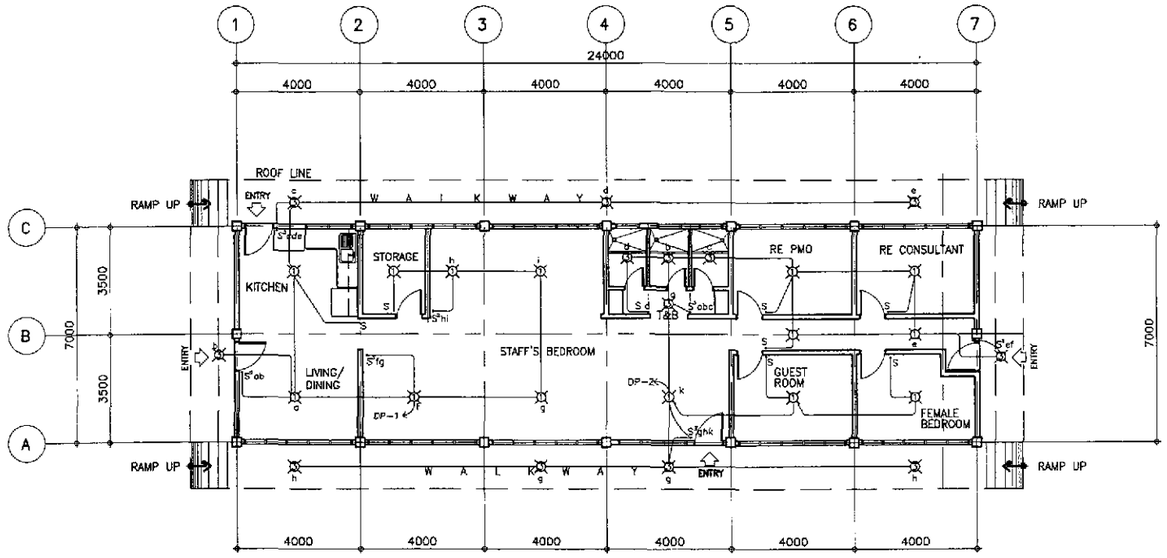
SCALE : AS SHOWN FULL SIZE A1

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

SHEET NO. : FE-01




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




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

## GENERAL NOTES:

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   B. CONVENIENCE OUTLETS .....300 mm
   C. AIR CONDITIONING OUTLETS ....AT CONVENIENT HEIGHT NEAR THE EQUIPMENT

9. STANDARD TYPE OF ACCESSORIES, SPLICING DEVICES, TERMINATORS AND OTHER APPURTENANCES FOR THE ENTIRE ELECTRICAL INSTALLATION SHALL BE USED.
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ERNESTO M. ANTIOQUIA
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JAPAN INTERNATIONAL COOPERATION AGENCY
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| | DATE | SIGNATURE |
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| DESIGNED | 10/19/01 | E.M. ANTIOQUIA |
| CHECKED | 10/19/01 | E.M. ANTIOQUIA |
| SUBMITTED | 10/21/01 | TEAM LEADER |

REPUBLIC OF THE PHILIPPINES
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SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
ENGINEER'S LIVING QUARTERS
LIGHTING LAYOUT, POWER LAYOUT
ELECTRICAL SYMBOLS & GENERAL NOTES

SHEET NO. : FE-02

## 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 VOLTS | AF | P | AT | SIZE OF HOMERUN WIRES IN CONDUIT |
|---|---|---|---|---|---|---|---|
| 1 | LIGHT OUTLETS | 455 | 220 | 50 | 2 | 15 | 2–3.5mm $TW^2$in 15mmøC |
| 2 | LIGHT OUTLETS | 840 | 220 | 50 | 2 | 15 | 2–3.5mm $TW^2$in 15mmøC |
| 3 | CONVENIENCE OUTLET | 1440 | 220 | 50 | 2 | 20 | 2–3.5mm $TW^2$in 15mmøC |
| 4 | CONVENIENCE OUTLET | 1620 | 220 | 50 | 2 | 20 | 2–3.5mm $TW^2$in 15mmøC |
| 5 | REFRIGERATOR | 500 | 220 | 50 | 2 | 20 | 2–3.5mm $TW^2$+ 1–20mm² TW(G) IN 15mmøC |
| 6 | ELECTRIC STOVE | 3000 | 220 | 50 | 2 | 30 | 2–5.5mm² THW+1–3.5mm² TW(G) IN 20mmøC |
| 7 | 1hp,1ϕ WDO,TYPE ACU | 1980 | 220 | 50 | 2 | 30 | 2–5.5mm² THW+1–3.5mm² TW(G) IN 20mmøC |
| 8 | 1hp,1ϕ WDO,TYPE ACU | 1980 | 220 | 50 | 2 | 30 | 2–5.5mm² THW+1–3.5mm² TW(G) IN 20mmøC |
| 9 | 1hp,1ϕ WDO,TYPE ACU | 1980 | 220 | 50 | 2 | 30 | 2–5.5mm² THW+1–3.5mm² TW(G) IN 20mmøC |
| 10 | SPARE | 1500 | 220 | 50 | 2 | 20 | – |
| 11 | SPARE | 1500 | 220 | 50 | 2 | 20 | – |
| 12 | SPARE | 1500 | 220 | 50 | 2 | 20 | – |
| | TOTAL | 18,095 | | | | | |

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

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

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

USE : 2–38mm² THW + 1–14mm² TW(G) IN 40mmø 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 VOLTS | AF | P | AT | SIZE OF HOMERUN WIRES IN CONDUIT |
|---|---|---|---|---|---|---|---|
| 1 | LIGHT OUTLETS | 590 | 220 | 50 | 2 | 15 | 2–3.5mm $TW^2$in 15mmøC |
| 2 | LIGHT OUTLETS | 1210 | 220 | 50 | 2 | 15 | 2–3.5mm $TW^2$in 15mmøC |
| 3 | LIGHT OUTLETS | 1065 | 220 | 50 | 2 | 15 | 2–3.5mm $TW^2$in 15mmøC |
| 4 | CONVENIENCE OUTLETS | 1800 | 220 | 50 | 2 | 20 | 2–3.5mm $TW^2$+ 1–2.0mm² TW(G) IN 15mmøC |
| 5 | CONVENIENCE OUTLETS | 1620 | 220 | 50 | 2 | 20 | 2–3.5mm $TW^2$+ 1–2.0mm² TW(G) IN 15mmøC |
| 6 | PHOTOCOPY MACHINE /HEAVY DUTY CO. | 2500 | 220 | 50 | 2 | 20 | 2–3.5mm $TW^2$+ 1–2.0mm² TW(G) IN 15mmøC |
| 7 | 3TR,1ø,SPLIT TYPE ACU | 6930 | 220 | 100 | 2 | 70 | 2–8mm² THW + 1–5.5mm² TW(G) IN 25mmøC |
| 8 | 3TR,1ø,SPLIT TYPE ACU | 6930 | 220 | 100 | 2 | 70 | 2–8mm² THW + 1–5.5mm² TW(G) IN 25mmøC |
| 9 | 3TR,1ø,SPLIT TYPE ACU | 6930 | 220 | 100 | 2 | 70 | 2–8mm² THW + 1–5.5mm² TW(G) IN 25mmøC |
| 10 | SPARE | 5000 | 220 | 100 | 2 | 70 | |
| 11 | SPARE FOR PERIMETER LIGHTS | 1500 | 220 | 50 | 2 | 30 | 2–5.5mm² THW + 1–3.5mm² TW(G) IN 25mmøC |
| 12 | SPARE | 1500 | 220 | 50 | 2 | 20 | – |
| | TOTAL | 37,575 | | | | | |

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

USE : 2–100mm² THW + 1–30mm² TW IN 50mmø RSC

$I_B$=162.25567+1.5(23)=196.75 Amps.

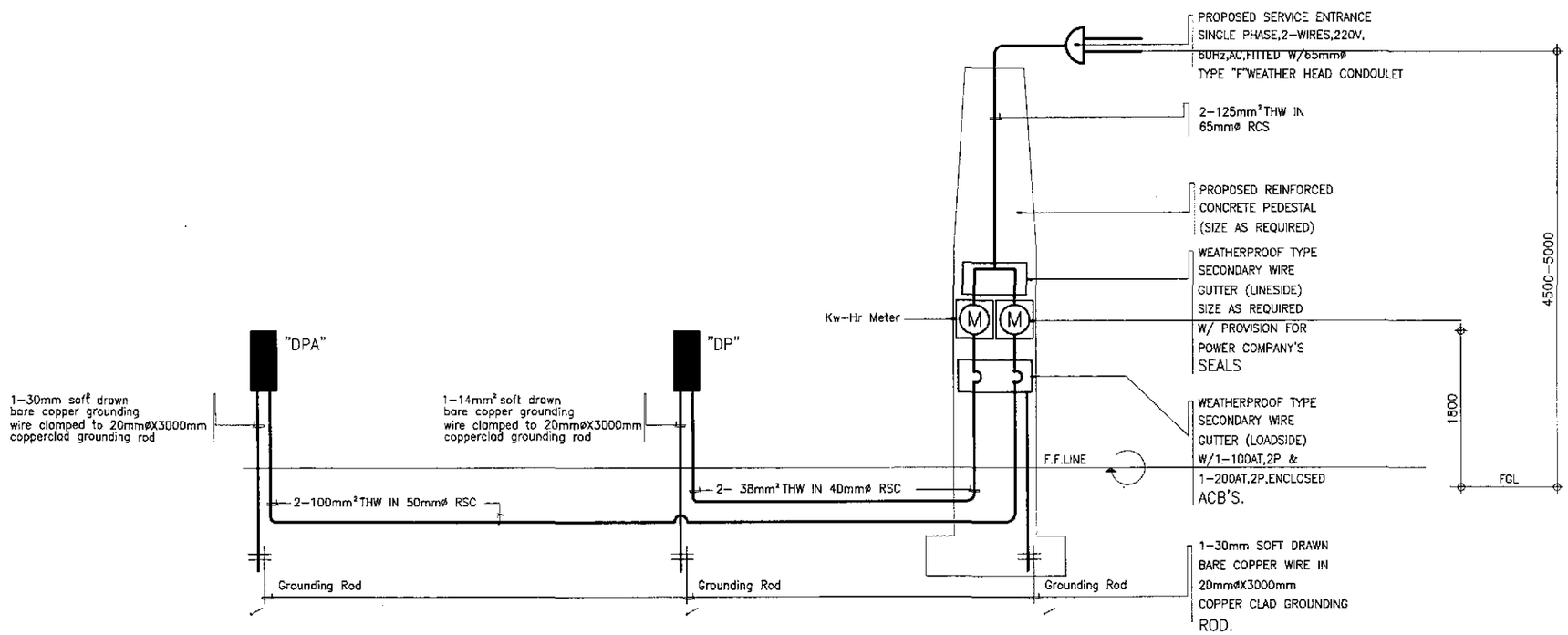
MAIN ACB: 225AF,2P,250 V,200AT,18 KAIC

## SCHEDULE OF LIGHTING FIXTURES & LAMPS

| SYMBOLS | DESCRIPTION | MOUNTING & INSTALLATION |
|---|---|---|
| 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% DF + 0.25(I)

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

$I_T$= 220.83 Amps.

USE : 2–125 mm² THW IN 65 mmø RSC

1 / FE-03 ELECTRICAL RISER DIAGRAMS
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

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

| | DATE | SIGNATURE |
|---|---|---|
| DESIGNED | 10/11/01 | E.M. ANTIOQUIA |
| CHECKED | 10/19/01 | E.M. ANTIOQUIA |
| SUBMITTED | 10/31/01 | TEAM LEADER |

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

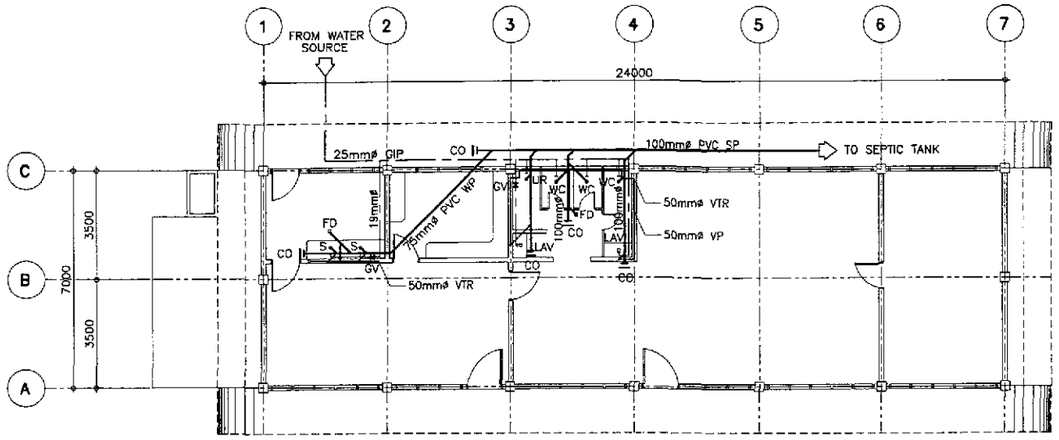
| PJHL – PMO | BUREAU OF DESIGN | | OFFICE OF THE SECRETARY | |
|---|---|---|---|---|
| Submitted By: | Reviewed By: | Recommended By: | Recommended By: (See cover sheet for Signature) | Approved By: (See cover sheet for Signature/Approval) |
| DANILO C. TRAJANO | FE M. BARRIENTOS | GILBERTO S. REYES | MANUEL M. BONOAN | SIMEON A. DATUMANONG |
| Project Director | Chief, Mechanical–Elect'l. Div. | OIC, Director IV | Undersecretary | 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 IV

SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
ENGINEER'S FIELD OFFICE AND LIVING QUARTERS
SCHEDULE OF LOADS AND COMPUTATIONS
ELECTRICAL RISER DIAGRAM

SHEET NO. : FE-03

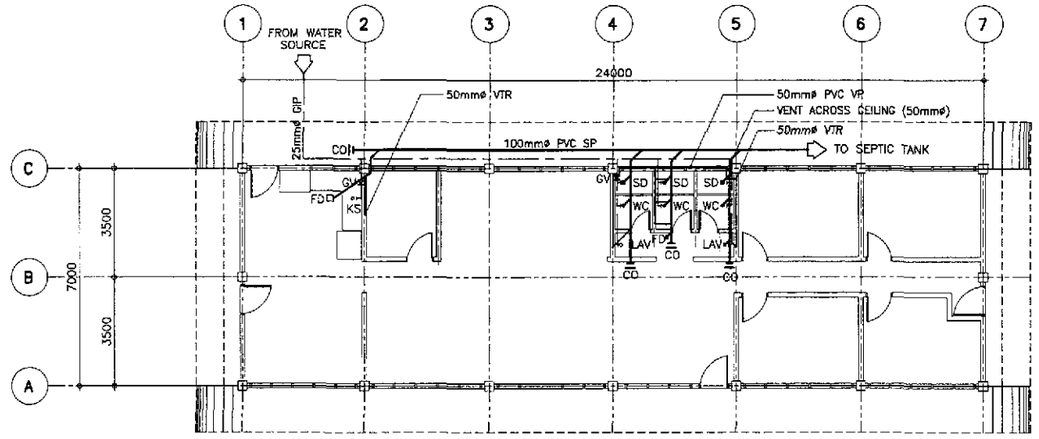



1 / FP-01

ENGINEER'S FIELD OFFICE

## SEWER AND WATER LINE LAYOUT

SCALE 1:100




2 / FP-01

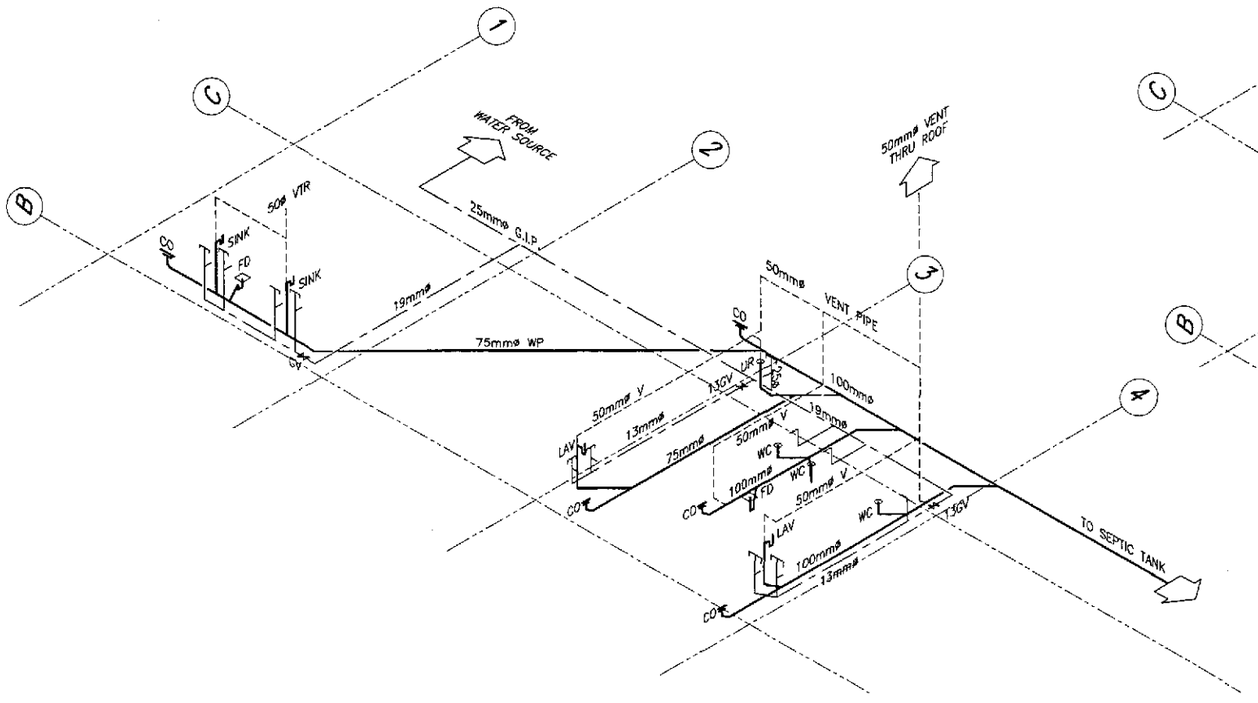
ENGINEER'S LIVING QUARTER

## SEWER AND WATER LINE LAYOUT

SCALE 1:100

LEGEND :

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

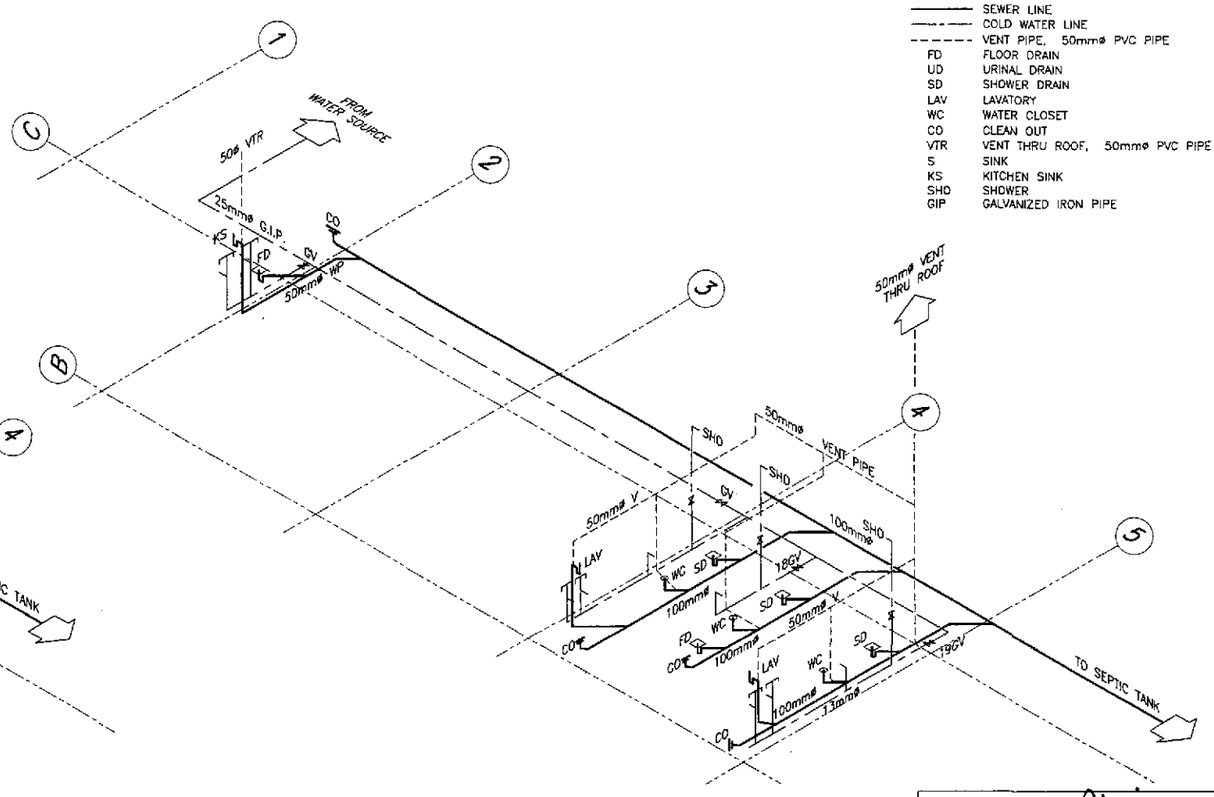



3 / FP-01

(SHOWING SEWER AND WATER LINE)

## ISOMETRIC DIAGRAM

SCALE 1:50




4 / FP-01

(SHOWING SEWER AND WATER LINE)

## ISOMETRIC DIAGRAM

SCALE 1:50

FAUSTINO A. 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

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL — YEC YACHIYO ENGINEERING CO., LTD.

| | DATE | SIGNATURE |
|---|---|---|
| DESIGNED | 10/17/02 | F. STA. MARIA |
| CHECKED | 10/19/02 | F. STA. MARIA |
| SUBMITTED | 10/21/02 | M. KUSUDA TEAM LEADER |

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

| PJHL – PMO | BUREAU OF DESIGN | | OFFICE OF THE SECRETARY | |
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| Submitted By: | Reviewed By: | Recommended By: | Recommended By: (See cover sheet for Signature) | Approved By: (See cover sheet for Signature/Approval) |
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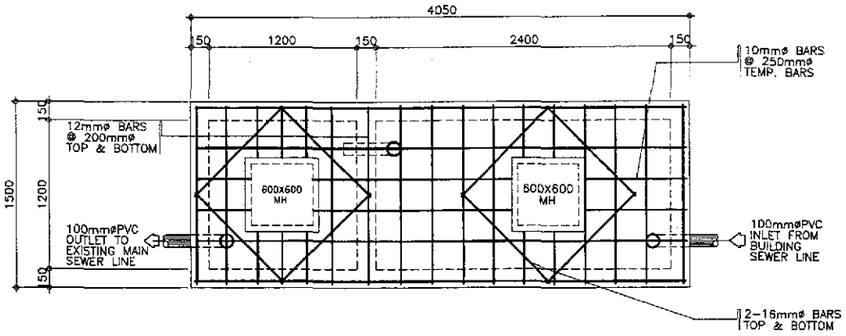
PROJECT AND LOCATION :
THE DETAILED DESIGN STUDY ON UPGRADING INTER-URBAN HIGHWAY SYSTEM ALONG THE PAN-PHILIPPINE HIGHWAY (Plaridel, Cabanatuan and San Jose Bypasses)
CABANATUAN BYPASS - CONTRACT PACKAGE IV

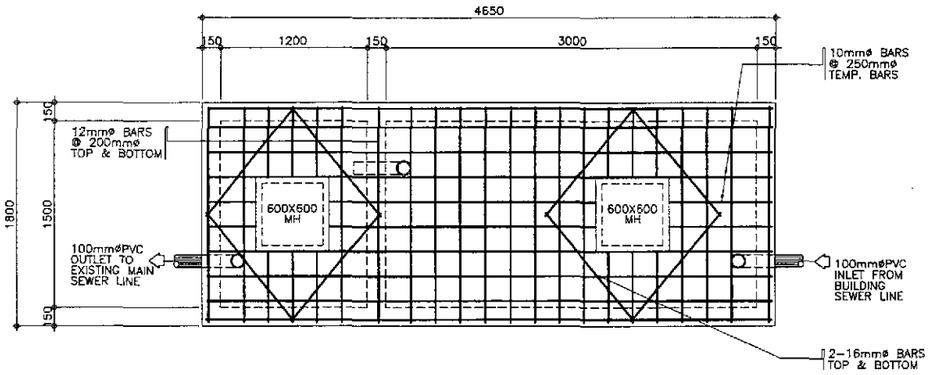
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
ENGINEER'S FIELD OFFICE AND LIVING QUARTERS
SEWER AND WATER LINE LAYOUT AND ISOMETRIC DIAGRAM

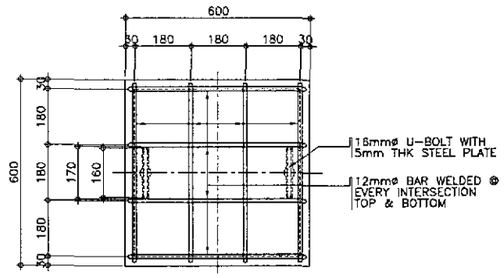
SHEET NO. : FP-01




1A FP-02 PLAN SCALE 1:20




1C FP-02 PLAN SCALE 1:20

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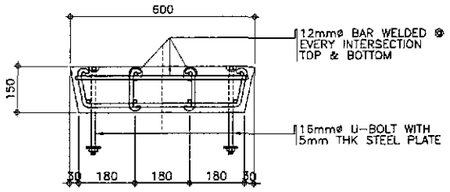


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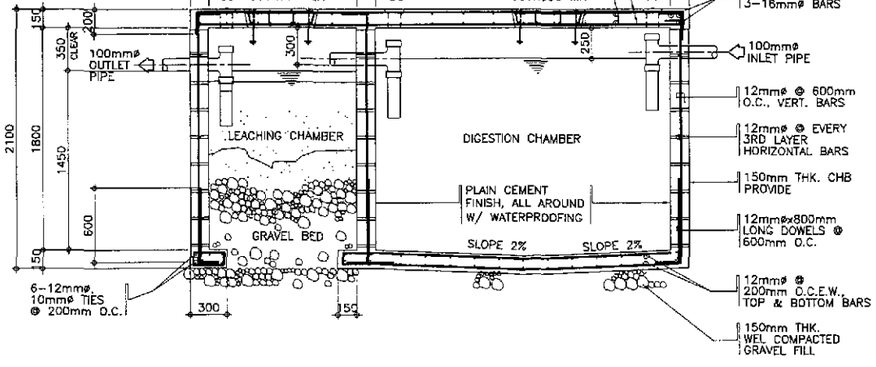
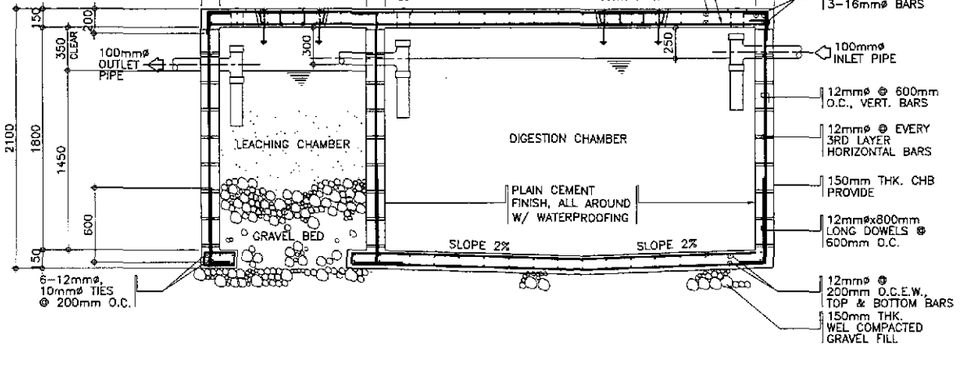



1B FP-02 SECTION SCALE 1:20

ENGINEER'S FIELD OFFICE




1D FP-02 SECTION SCALE 1:20

ENGINEER'S LIVING QUARTER

2 FP-02 CONCRETE COVER DETAIL SCALE AS SHOWN

1 FP-02 SEPTIC TANK DETAILS 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 BURRIED 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 75mmø (3") UNLESS OTHERWISE SPECIFIED.

RANDOLF [illegible]
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

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

KEI KATAHIRA & ENGINEERS INTERNATIONAL — YEC YACHIYO ENGINEERING CO., LTD.

| | DATE | SIGNATURE |
|---|---|---|
| DESIGNED | 10/17/02 | |
| CHECKED | 10/19/02 | |
| SUBMITTED | 10/21/02 | TEAM LEADER |

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DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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| Project Director | Chief, Architectural Division | OIC, Director IV | Undersecretary | Secretary |

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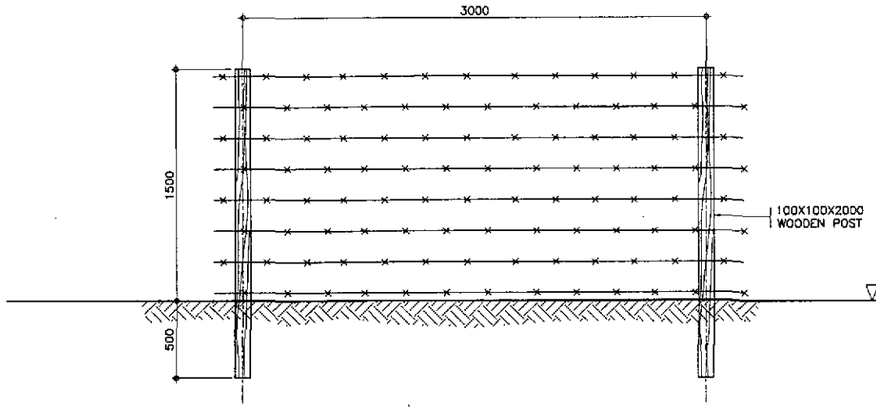
CABANATUAN BYPASS - CONTRACT PACKAGE IV

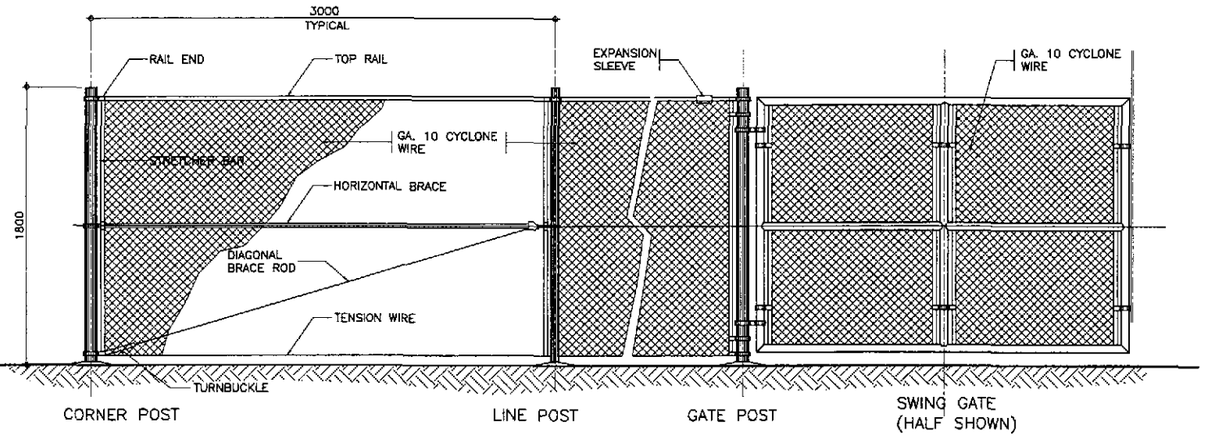
SCALE : AS SHOWN FULL SIZE A1

SHEET CONTENTS :
ENGINEER'S FIELD OFFICE AND LIVING QUARTERS
SEPTIC TANK DETAILS

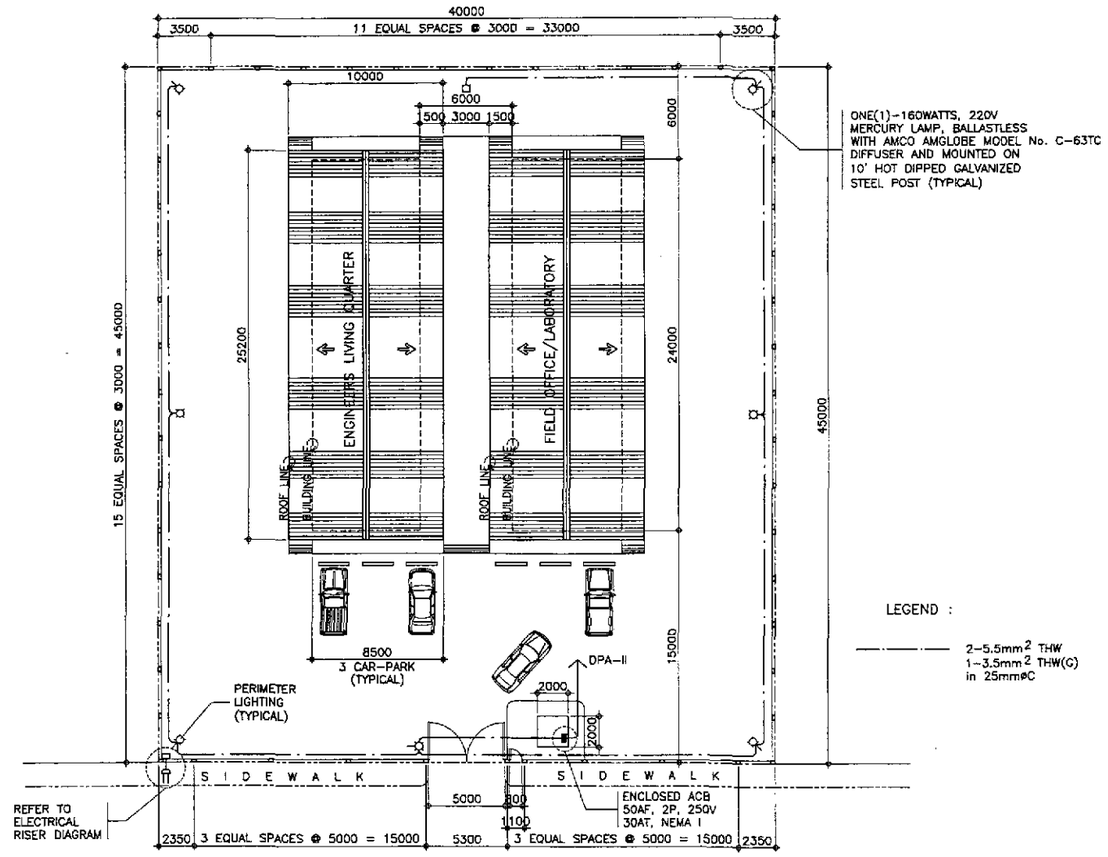
SHEET NO. :
FP-02



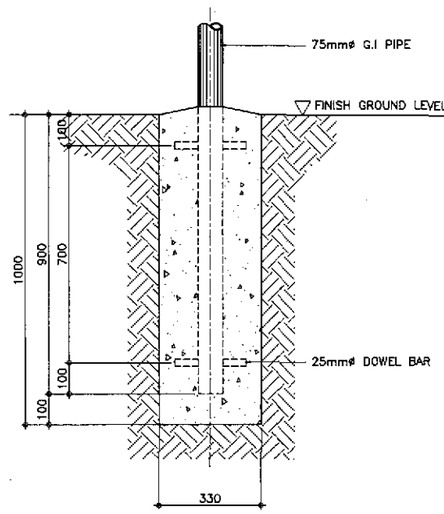

3 FX-01 TYPICAL ELEVATION FENCE (REAR & SIDE)
SCALE 1:20

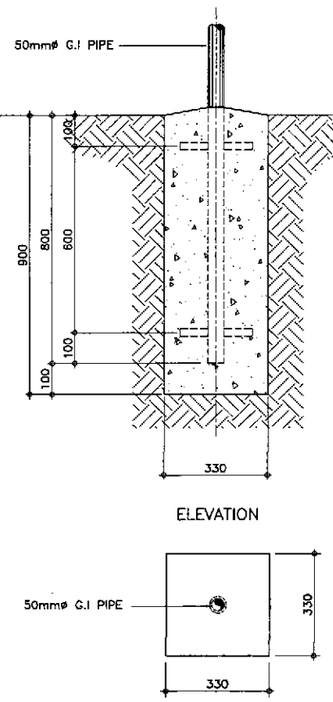



2 FX-01 TYPICAL ELEVATION - FENCE AND GATE
SCALE 1:20




1 FX-01 PLOT PLAN
SCALE 1:200




4 FX-01 TYPICAL FOUNDATION DETAIL
SCALE 1:10

ABNEL 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.

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KEI KATAHIRA & ENGINEERS INTERNATIONAL
YEC YACHIYO ENGINEERING CO., LTD.

| | DATE | SIGNATURE |
|---|---|---|
| DESIGNED | 4/1/02 | A. P. GONZALES |
| CHECKED | 4/1/02 | A. P. GONZALES |
| SUBMITTED | 10/31/02 | M. MUCHI TEAM LEADER |

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DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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CABANATUAN BYPASS - CONTRACT PACKAGE IV

SCALE :
AS SHOWN
FULL SIZE A1

SHEET CONTENTS :
ENGINEER'S FIELD OFFICE AND LIVING QUARTERS
PLOT PLAN, ELEVATION OF FENCE & GATE
TYPICAL FOUNDATION DETAILS

SHEET NO. :
FX-01