



Republic of the Philippines  
**DEPARTMENT OF PUBLIC WORKS & HIGHWAYS**  
REGIONAL OFFICE NO. XI  
GOV. CHAVEZ ST., DAVAO CITY

CY : 2025 PROJECT  
DETAILED ENGINEERING DESIGN PLAN FOR

**CONSTRUCTION OF 701Bde FEMALE BARRACKS, 701st  
INFANTRY BRIGADE, SITIO MAGAY, BARANGAY DON MARTIN  
MARUNDAN, MATI CITY, DAVAO ORIENTAL**

LOCATION : MATI CITY, DAVAO DAVAO ORIENTAL

SUBMITTED:

JUDY ANN T. BERNARDINO

CHIEF, PLANNING AND DESIGN DIVISION

RECOMMENDED:

JOSELITO B. CABALLERO

ASSISTANT REGIONAL DIRECTOR

APPROVED:

JUBY B. CORDON

REGIONAL DIRECTOR

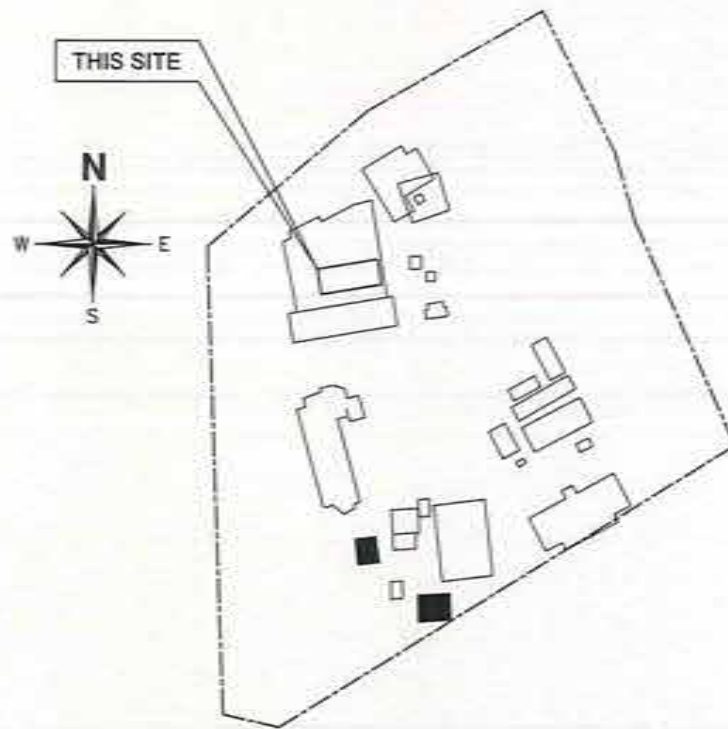
# SUMMARY OF QUANTITIES

| PART B - OTHER GENERAL REQUIREMENTS      |                    |                                                                        |                 |           |
|------------------------------------------|--------------------|------------------------------------------------------------------------|-----------------|-----------|
| Pay Item (Number)                        | Suffix (Subscript) | Description                                                            | Unit Of Measure | TOTAL QTY |
| B.3 (1)                                  |                    | Permits and Clearances                                                 | Lump Sum        | 1         |
| B.5 (1)                                  |                    | Project Billboard / Signboard                                          | Each            | 2         |
| B.7 (1)                                  |                    | Occupational Safety and Health                                         | Lump Sum        | 1         |
| B.9 (1)                                  |                    | Mobilization/Demobilization                                            | Lump Sum        | 1         |
| PART C - EARTHWORK                       |                    |                                                                        |                 |           |
| Pay Item (Number)                        | Suffix (Subscript) | Description                                                            | Unit Of Measure | TOTAL QTY |
| 800 (1)                                  |                    | Clearing and Grubbing                                                  | Square Meter    | 436       |
| 803 (1)                                  | a                  | Structure Excavation, Common Soil                                      | Cubic Meter     | 72.5      |
| 804 (1)                                  | a                  | Embankment from Roadway/Structure Excavation, Common Soil              | Cubic Meter     | 44.07     |
| 804 (2)                                  | a                  | Embankment from Borrow, Common Soil                                    | Cubic Meter     | 120       |
| 804 (7)                                  |                    | Gravel Fill                                                            | Cubic Meter     | 29.8      |
| PART D - REINFORCED CONCRETE             |                    |                                                                        |                 |           |
| 900 (1)                                  | c                  | Structural Concrete, 300 P.S., Class A, 28 days                        | Cubic Meter     | 63.64     |
| 902 (1)                                  | a1                 | Reinforcing Steel (Deformed), Grade 40                                 | Kilogram        | 5642      |
| 902 (1)                                  | a2                 | Reinforcing Steel (Deformed), Grade 60                                 | Kilogram        | 2134      |
| 903 (2)                                  |                    | Formworks and Falseworks                                               | Square Meter    | 274.32    |
| PART E - FINISHING AND OTHER CIVIL WORKS |                    |                                                                        |                 |           |
| 1000 (1)                                 |                    | Soil Poisoning                                                         | Liter           | 36        |
| 1001 (5)                                 | b                  | Catch Basin, CHB                                                       | Each            | 8         |
| 1001 (9)                                 |                    | Storm Drainage and Downspout                                           | Lump Sum        | 1         |
| 1001 (10)                                |                    | Pipes with Fittings Connection                                         | Lump Sum        | 1         |
| 1001 (11)                                |                    | Septic Vault/Tank, Concrete/CHB                                        | Lump Sum        | 1         |
| 1002 (4)                                 |                    | Plumbing Fixtures                                                      | Lump Sum        | 1         |
| 1002 (24)                                |                    | Cold Water Lines                                                       | Lump Sum        | 1         |
| 1003 (1)                                 | a1                 | Ceiling, 4.5mm Metal Frame, Fiber Cement Board                         | Square Meter    | 277       |
| 1003 (11)                                | a1                 | Fascia Board, 19mm Fiber Cement Board                                  | Meter           | 73        |
| 1004 (2)                                 |                    | Finishing Hardware                                                     | Lump Sum        | 1         |
| 1008 (1)                                 | a                  | Aluminum Glass Windows, Sliding Type                                   | Square Meter    | 21.5      |
| 1010 (1)                                 |                    | Frames (Jambs, Sills, Head, Transoms and Mullions)                     | Set             | 13        |
| 1010 (2)                                 | b                  | Doors, Wood Panel                                                      | Square Meter    | 21.84     |
| 1013 (2)                                 | a                  | Fabricated Metal Roofing Accessory, Gauge 26 (0.551mm) Ridge/Hip Rolls | Linear Meter    | 36.1      |
| 1013 (2)                                 | c                  | Fabricated Metal Roofing Accessory, Gauge 24 (0.701mm) Gutters         | Linear Meter    | 73        |
| 1014 (1)                                 | b2                 | Pre-painted Metal Sheets, above 0.427mm Rib Type, Long Span            | Square Meter    | 288       |
| 1017 (1)                                 | b                  | Roof Drain with Strainer, 75mm dia.                                    | Set             | 8         |
| 1018 (1)                                 |                    | Glazed Tiles and Trims                                                 | Square Meter    | 79.5      |
| 1018 (2)                                 |                    | Unglazed Tiles                                                         | Square Meter    | 226       |
| 1021 (1)                                 | a                  | Cement Floor Finish, Plain                                             | Square Meter    | 11.62     |
| 1027 (1)                                 |                    | Cement Plaster Finish                                                  | Square Meter    | 901       |
| 1032 (1)                                 | a                  | Painting Works, Masonry/Concrete                                       | Square Meter    | 1098.5    |
| 1032 (1)                                 | b                  | Painting Works, Wood                                                   | Square Meter    | 57.2      |
| 1032 (1)                                 | c                  | Painting Works, Steel                                                  | Square Meter    | 246       |
| 1038 (1)                                 |                    | Reflective Insulation                                                  | Square Meter    | 288       |
| 1043 (1)                                 |                    | PVC Doors and Frames                                                   | Square Meter    | 12.6      |
| 1046 (2)                                 | a1                 | CHB Non-Load Bearing (Including Reinforcing Steel), 100mm              | Square Meter    | 260.3     |
| 1046 (2)                                 | a2                 | CHB Non-Load Bearing (Including Reinforcing Steel), 150mm              | Square Meter    | 248.72    |
| 1047 (4)                                 | a                  | Metal Structure Accessories, Bolts and Rods                            | Each            | 56        |
| 1047 (5)                                 | b                  | Metal Structure Accessories, Sagrods                                   | Kilogram        | 7.4       |
| 1047 (5)                                 | d                  | Metal Structure Accessories, Steel Plates                              | Kilogram        | 86.35     |
| 1047 (8)                                 | a                  | Structural Steel, Trusses                                              | Kilogram        | 7709.18   |
| 1047 (8)                                 | b                  | Structural Steel, Purlins                                              | Kilogram        | 1871.1    |
| 1051 (5)                                 |                    | Metal Railing                                                          | Meter           | 138       |
| PART F - ELECTRICAL                      |                    |                                                                        |                 |           |
| 1100 (10)                                |                    | Conduits, Boxes & Fittings (Conduit Works/Conduit Rough-in)            | Lump Sum        | 1         |
| 1101 (33)                                |                    | Wires and Wiring Devices                                               | Lump Sum        | 1         |
| 1102 (1)                                 |                    | Panelboard with Main & Branch Breakers                                 | Lump Sum        | 1         |
| 1103 (1)                                 |                    | Lighting Fixtures                                                      | Lump Sum        | 1         |
| PART G - MECHANICAL                      |                    |                                                                        |                 |           |
| 1202 (5)                                 | a2                 | Fire Extinguisher, 9.07kg ABC with bracket                             | Set             | 11        |

|                                                                                                                                                                                                                                          |                                                                                                                                      |                       |                                  |                                           |                                                              |                                                       |                                     |         |           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------|-------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------|-------------------------------------|---------|-----------|
|  REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS<br>REGIONAL OFFICE NO. XI<br>904, DRIVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY | PROJECT NAME AND LOCATION                                                                                                            | SHEET CONTENTS        | PREPARED                         | REVIEWED                                  | SUBMITTED                                                    | RECOMMENDED                                           | APPROVED                            | SET NO. | SHEET NO. |
|                                                                                                                                                                                                                                          | CONSTRUCTION OF 781Bdc FEMALE BARRACKS, 781st INFANTRY BRIGADE, SITIO MAGAY, BARANGAY DON MARTIN MARUNDAN, MATI CITY, DAVAO ORIENTAL | SUMMARY OF QUANTITIES | FERDINAND M. RANOSA<br>ARCHITECT | ALVIN A. GINGAYAN<br>ENGINEER II, SECTION | JUDY ANN T. BERNARDINO<br>CHIEF PLANNING AND DESIGN DIVISION | JOSE LITO E. CABALLERO<br>ASSISTANT REGIONAL DIRECTOR | JUDY B. CORDON<br>REGIONAL DIRECTOR |         | 1         |



P E R S P E C T I V E



1 SITE DEVELOPMENT PLAN  
A-1 SCALE 1:150 M



2 VICINITY MAP  
A-1 SCALE 1:500 M

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REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

OFFICE OF THE BUILDING OFFICIAL

CITY OF MATI

LAND USE & ZONING

LINE AND GRADE

ARCHITECTURAL

STRUCTURAL

SANITARY

ELECTRICAL

MECHANICAL



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GOV. CHAVEZ COR. B. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:  
CONSTRUCTION OF 701Bda FEMALE BARRACKS,  
701st INFANTRY BRIGADE, SITIO MAGAY,  
BARANGAY DON MARTIN MARUNDAN, MATI CITY,  
DAVAO ORIENTAL

SHEET CONTENTS:  
PERSPECTIVE  
SITE DEVELOPMENT PLAN  
VICINITY MAP  
TABLE OF CONTENTS

PREPARED:  
FERDINAND M. RAÑOSA  
ARCHITECT  
DATE: \_\_\_\_\_

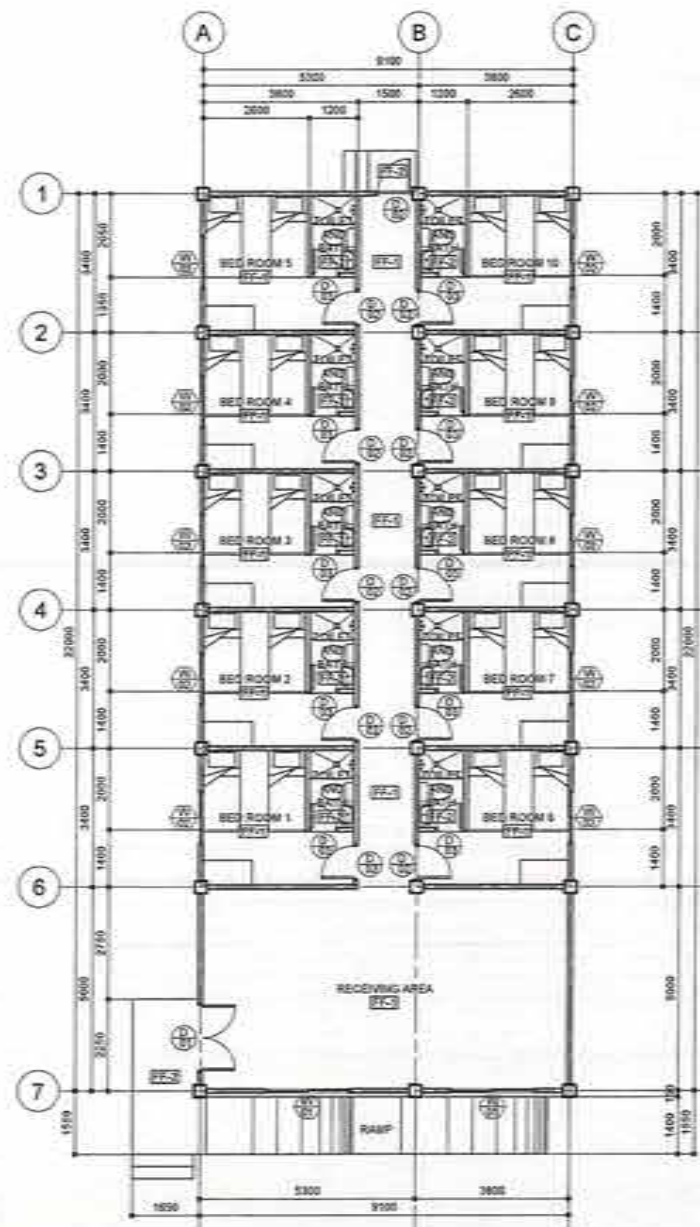
REVIEWED:  
ALVIN A. GINGATA  
ENGINEER IN CHARGE  
DATE: \_\_\_\_\_

SUBMITTED:  
JUDY ANN T. BERNARDINO  
CHIEF PLANNING AND DESIGN DIVISION  
DATE: \_\_\_\_\_

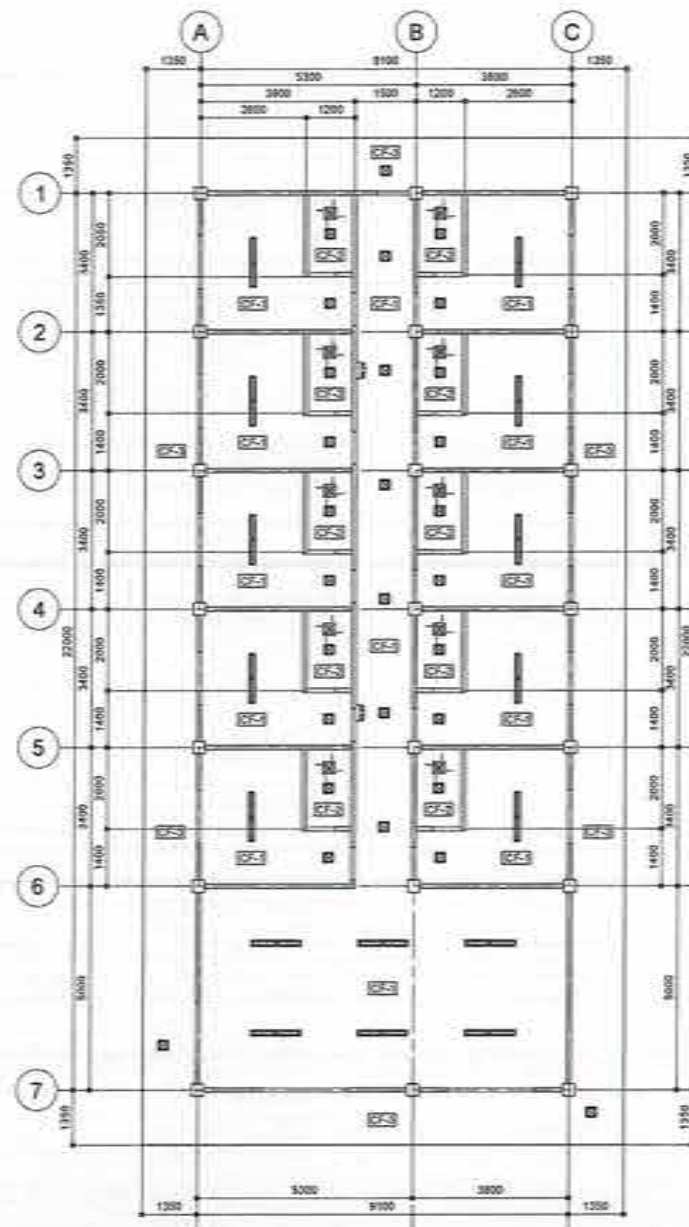
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ROSENDO B. CABALLERO  
ASSISTANT REGIONAL DIRECTOR  
DATE: \_\_\_\_\_

APPROVED:  
JUEY B. CORDON  
REGIONAL DIRECTOR  
DATE: \_\_\_\_\_

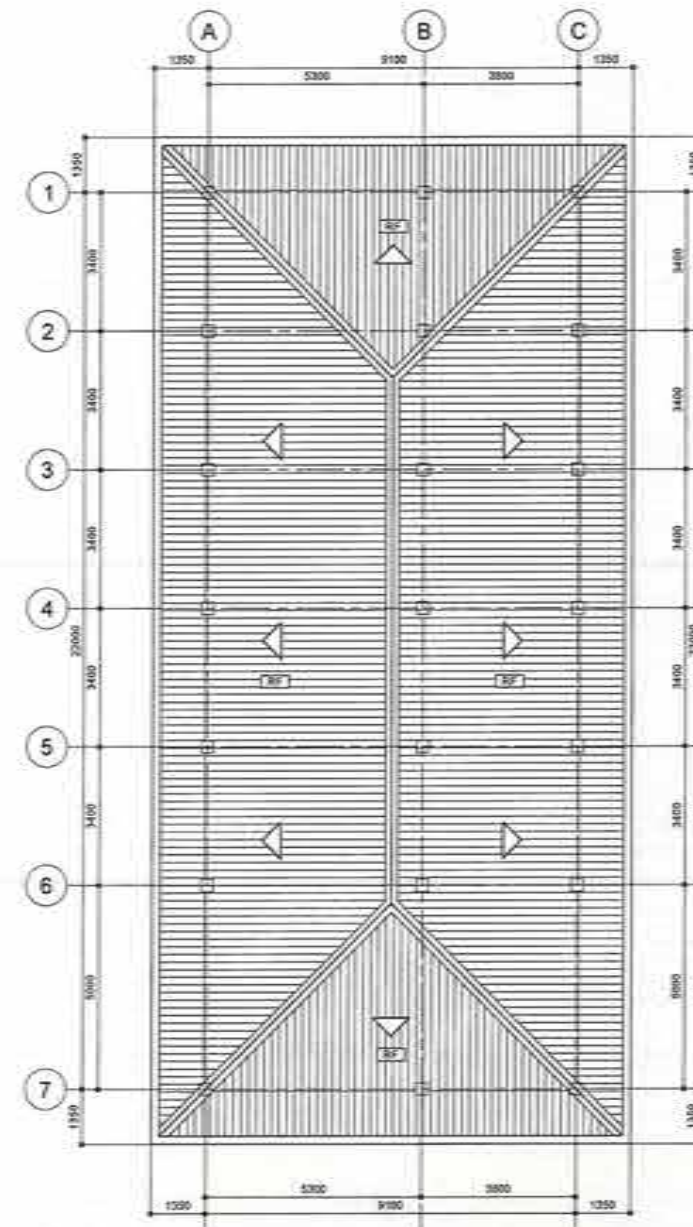
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1 FLOOR PLAN  
A-2 SCALE 1 : 100 M



2 REFLECTED CEILING PLAN  
A-2 SCALE 1 : 100 M



2 ROOF PLAN  
A-2 SCALE 1 : 100 M

| MARK | FLOOR FINISHES                                                                                                                                                                                                                                                                                                   |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FF-1 | 600mm x 600mm NON-SLIP CERAMIC FLOOR TILES WITH COLOR TO BE APPROVED BY OWNER AND THE ARCHITECT.                                                                                                                                                                                                                 |
| FF-2 | 600mm x 600mm NON-SKID CERAMIC FLOOR TILES WITH COLOR TO BE APPROVED BY OWNER AND THE ARCHITECT.                                                                                                                                                                                                                 |
| MARK | SPECIFICATION                                                                                                                                                                                                                                                                                                    |
| —    | 1-18 WATTS LED FLOURESCENT LAMP                                                                                                                                                                                                                                                                                  |
| ☐    | 14W LED TRI-COLOR RECESSED CIRCULAR DOWNLIGHT, > 1400 LUMENS OUTPUT @155mm                                                                                                                                                                                                                                       |
| ☐    | EMERGENCY LAMP 2 x 1 WATT                                                                                                                                                                                                                                                                                        |
| ☐    | EXHAUST FAN (200mm x 200mm) 26WATTS                                                                                                                                                                                                                                                                              |
| MARK | SPECIFICATION                                                                                                                                                                                                                                                                                                    |
| CF-1 | CEILING HEIGHT: 2.70m<br>3.5mm THK. FIBER CEMENT BOARD ON LIGHT GAUGE METAL FURRING SPACED AT 600mm ON CENTER BOTHWAYS AND VERTICAL HANGERS SPACED AT 1200mm ON CENTER BOTHWAYS. (PROVIDE EXTRA TENSION RODS FOR PORTIONS WITH LIGHTING FIXTURES TO AVOID SAGGING).                                              |
| CF-2 | CEILING HEIGHT: 2.40m<br>3.5mm THK. FIBER CEMENT BOARD ON LIGHT GAUGE METAL FURRING SPACED AT 600mm ON CENTER BOTHWAYS AND VERTICAL HANGERS SPACED AT 1200mm ON CENTER BOTHWAYS. (PROVIDE EXTRA TENSION RODS FOR PORTIONS WITH LIGHTING FIXTURES TO AVOID SAGGING).                                              |
| CF-3 | EAVES HEIGHT: BOTTOM OF TRUSS 3.5mm THK. FIBER CEMENT BOARD ON LIGHT GAUGE METAL FURRING SPACED AT 600mm ON CENTER BOTHWAYS AND VERTICAL HANGERS SPACED AT 1200mm ON CENTER BOTHWAYS. (PROVIDE EXTRA TENSION RODS FOR PORTIONS WITH LIGHTING FIXTURES TO AVOID SAGGING). w/ 200mm x 600mm L VENT IN ALL CORNERS. |
| MARK | SPECIFICATION                                                                                                                                                                                                                                                                                                    |
| RF   | 40mm THK. PRE-PAINTED RIB-TYPE LONG SPAN ROOFING                                                                                                                                                                                                                                                                 |



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DAVAO ORIENTAL

SHEET CONTENTS  
FLOOR PLAN  
REFLECTED CEILING PLAN  
ROOF PLAN

PREPARED  
FERDINAND M. RAJOSA  
ARCHITECT  
DATE

REVIEWED  
ALVIN A. GINGO  
ENGINEER II, SECTION 5-C  
DATE

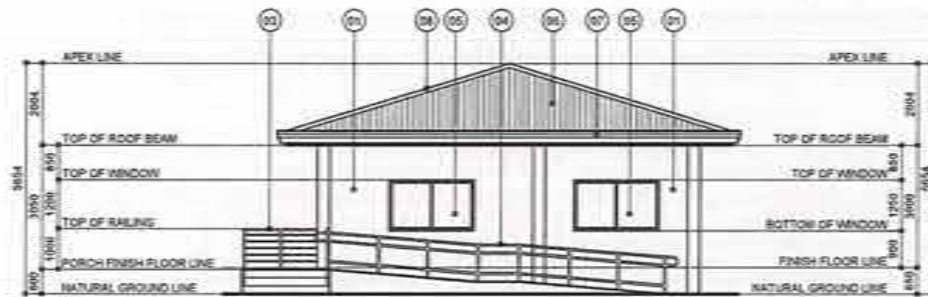
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JUDYANN T. BERNARDINO  
CHIEF PLANNING AND DESIGN DIVISION  
DATE

RECOMMENDED  
JOSELYN B. CABALLERO  
ASSISTANT REGIONAL DIRECTOR  
DATE

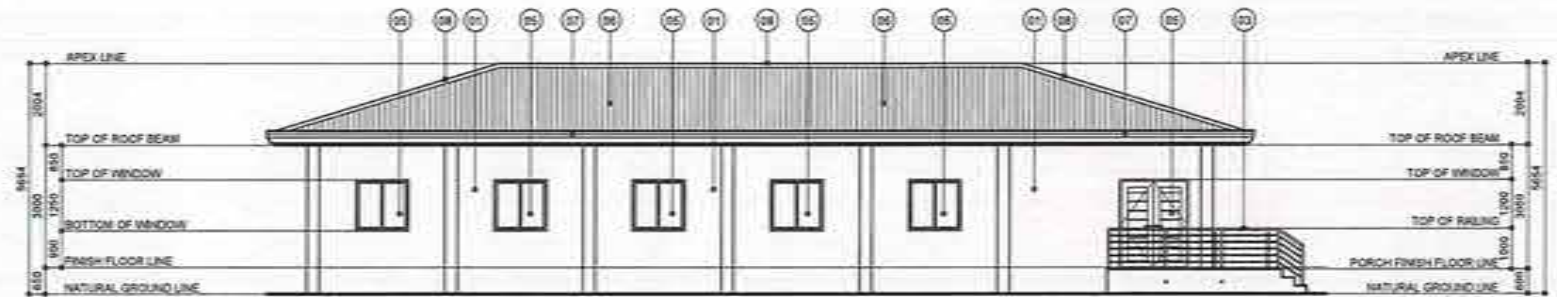
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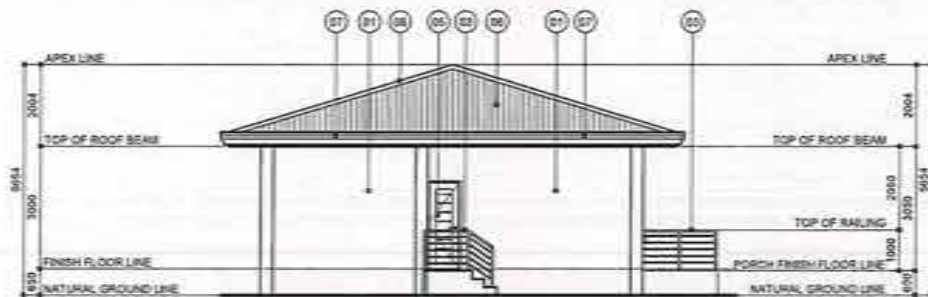
| MARK | SPECIFICATION                                                                                                                                                                    | MARK | SPECIFICATION                                    |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------------------------------------------------|
| 01   | 6" CHB WALL PLAIN CEMENT PLASTERED WITH ACRYTEX PAINT FINISH, COLOR TO BE APPROVED BY THE OWNER                                                                                  | 05   | SEE DOORS AND WINDOWS DETAIL                     |
| 02   | 4" CHB WALL PLAIN CEMENT PLASTERED WITH ACRYTEX PAINT FINISH, COLOR TO BE APPROVED BY THE OWNER                                                                                  | 06   | 40mm THK. PRE-PAINTED RIB-TYPE LONG SPAN ROOFING |
| 03   | 38mm Ø G.I. HANDRAIL, 900mm FROM FLOOR LEVEL, FULLY WELDED ON 38mm Ø G.I. PIPE BALLUSTER SP. AS SHOWN w/ 1" VERTICAL RAIL (PAINTED FINISH)                                       | 07   | 40mm THK. PRE-PAINTED G.I. GUTTER                |
| 04   | 38mm Ø G.I. HANDRAIL, 1@900mm, 1@700 mm HIGH FROM RAMP LANDING FLOOR LEVEL, FULLY WELDED ON 38mm Ø G.I. PIPE BALLUSTER @ 600mm O.C. PROVIDE 12mm Ø STEEL DOWELS (PAINTED FINISH) | 08   | 40mm THK. PRE-PAINTED RIDGE ROLL                 |



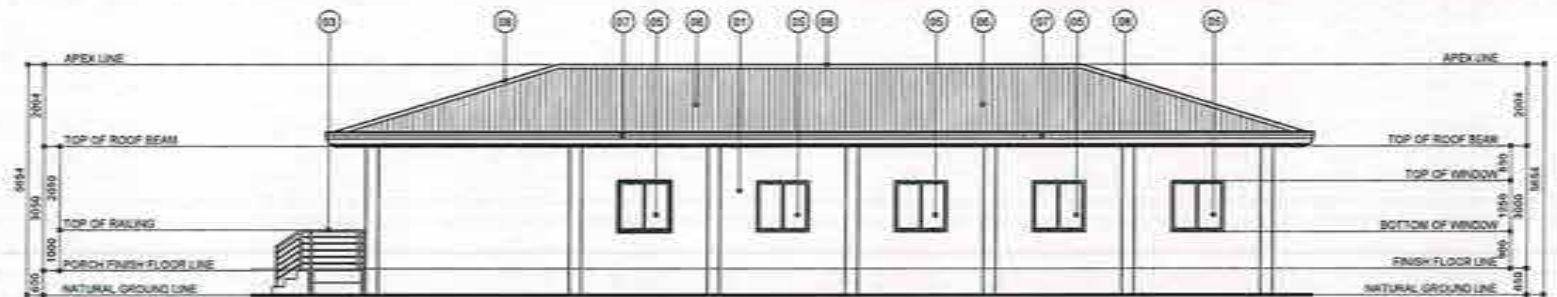
1 FRONT ELEVATION  
A-3 SCALE 1 : 100 M



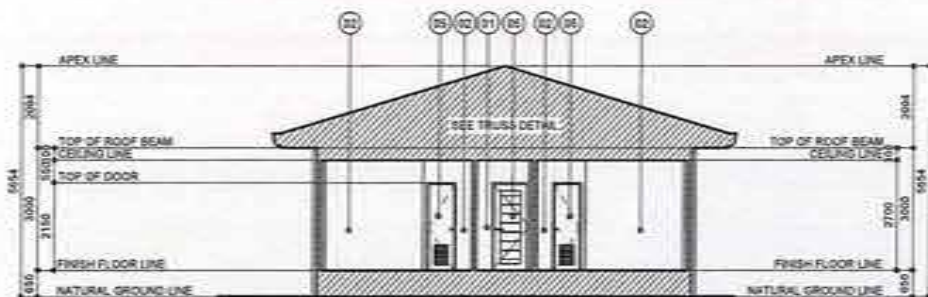
2 LEFT SIDE ELEVATION  
A-3 SCALE 1 : 100 M



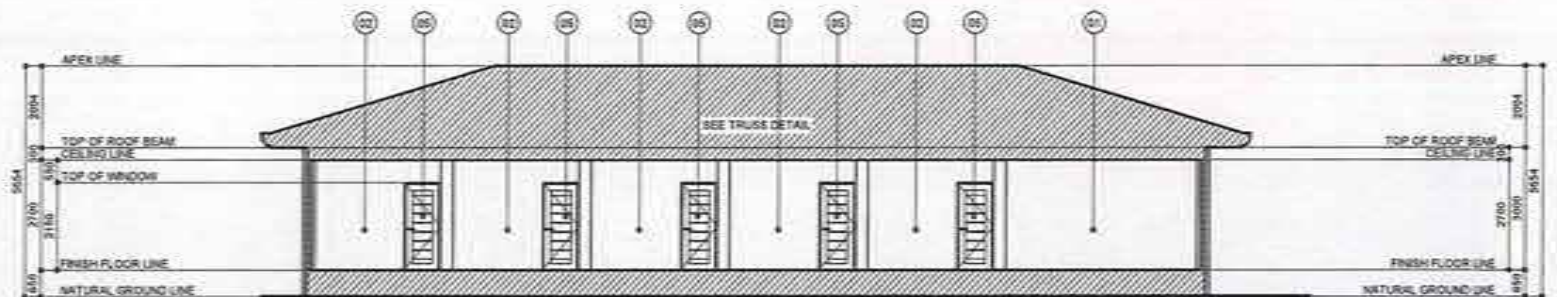
3 REAR ELEVATION  
A-3 SCALE 1 : 100 M



4 RIGHT SIDE ELEVATION  
A-3 SCALE 1 : 100 M



5 CROSS SECTION  
A-3 SCALE 1 : 100 M



6 RIGHT SIDE ELEVATION  
A-3 SCALE 1 : 100 M



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SHEET CONTENTS:  
FRONT ELEVATION  
LEFT SIDE ELEVATION  
REAR ELEVATION  
RIGHT SIDE ELEVATION  
CROSS SECTION  
LONGITUDINAL SECTION

PREPARED:  
FERDINAND M. RAÑOSA  
ARCHITECT  
DATE: \_\_\_\_\_

REVIEWED:  
ALGIN A. GINGRILLA  
ENGINEER IN CHARGE  
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ASSISTANT REGIONAL DIRECTOR  
DATE: \_\_\_\_\_

APPROVED:  
JUBY B. CORDON  
REGIONAL DIRECTOR  
DATE: \_\_\_\_\_

SET NO. 4  
SHEET NO. 14



# GENERAL NOTES & STANDARDS

## GENERAL

1. IN THE INTERPRETATION OF THESE DRAWINGS INDICATED DIMENSIONS SHALL GOVERN ALL DIMENSIONS. DISTANCES AND SIZES SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES.
2. UNLESS OTHERWISE SPECIFIED ON PLANS, ALL DIMENSIONS ARE IN METERS.

## DESIGN CRITERIA

### 1. DESIGN SPECIFICATION

ALL DESIGN SHALL CONFORM TO NATIONAL STRUCTURAL CODE OF THE PHILIPPINES (NSCP 2010) FOR BUILDINGS, TOWERS & OTHER VERTICAL STRUCTURES, 4th EDITION 1992, WHICH INCLUDES SEISMIC DESIGN.

### 2. LOADINGS

#### a. LIVE LOAD

- (1) ROOF = 0.96 kPa
- (2) FLOOR = 1.90 kPa
- (3) TOILET = 1.90 kPa
- (4) STAIRS = 1.90 kPa

#### b. DEAD LOAD

- (1) CONCRETE = 23.56 kN/m<sup>3</sup>
- (2) 150 mm CHB = 3.30 kPa
- (3) 100 mm CHB = 1.94 kPa
- (4) CEILING = 0.15 kPa
- (5) FLOOR FINISH = 0.86 kPa
- (6) MOVABLE PART = 1.00 kPa

#### c. WIND LOAD

- $P = C_e C_q C_s I$   
 where:  
 $P$  = ACTUAL WIND PRESS.  
 $C_e$  = EXPOSURE COEFF.  
 $C_q$  = PRESSURE COEFF.  
 $C_s$  = 0.50 INWARD  
 $C_s$  = 0.70 OUTWARD  
 $I$  = OCCUPANCY FAC. = 1.0

### 2. SEISMIC LOAD

$$V = \frac{ZCOW}{R_a}$$

- where:  
 $V$  = TOTAL BASE SHEAR  
 $Z$  = SEISMIC ZONE FACTOR = 0.40  
 $C$  = IMPORTANCE FACTOR = 1.25  
 $R_a$  = NUMERICAL COEFF. = 8.5  
 $W$  = TOTAL DEAD WEIGHT OF BLDG.

- $C$  = NUMERICAL COEFF. DETERMINATION  
 $C = \frac{1.25 S}{T^{2/3}} < 2.75$   
 $S$  = SITE COEFF. = 1.0  
 $T$  = FUNDAMENTAL PERIOD OF VIBRATION

### NOTES ON OCCUPANCY SPACING:

1. THE BUILDING SHALL HAVE A MINIMUM OF AT LEAST 75mm WALL TO WALL SPACING FROM OTHER NEIGHBORING STRUCTURE FOR STOREY DRIFT ALLOWANCE DURING EARTHQUAKE.

### NOTES ON FOUNDATION:

1. IN CASE THE ACTUAL SOIL BEARING PRESSURE IS FOUND LESS THAN THE ALLOWABLE VALUE 100 kPa, NOTIFY THE DESIGN/STRUCTURAL ENGINEER FOR PROPER DESIGN OF FOOTING
2. NO FOOTING SHALL REST ON FILL.

## MATERIALS

### 1. CONCRETE

UNLESS INDICATED OTHERWISE ON PLANS, THE CONCRETE CLASS AND STRENGTH SHALL BE AS FOLLOWS:

| STRUCTURAL MEMBER                        | CLASS | 28-DAY CYLINDER STRENGTH |
|------------------------------------------|-------|--------------------------|
|                                          |       | MPa PSI                  |
| FOUNDATIONS, TIED BEAMS, BEAMS AND SLABS | A     | 21.00 3000               |
| COLUMNS                                  | A     | 21.00 3000               |

### 2. REINFORCING STEEL

- (a) REINFORCING STEEL SHALL CONFORM TO ASTM A615 (ASTM A615), GRADE 40, DEFORMED WITH MIN. YIELD STRENGTH,  $f_y = 275$  MPa (40,000 PSI) FOR BARS 16mm & OR SMALLER & GRADE 60 WITH MIN. YIELD STRENGTH,  $f_y = 414$  MPa (60,000 PSI) FOR LARGER THAN 16mm.
- (b) REINFORCING STEEL SHALL BE FREE OF MILL SCALE, OIL OR ANY SUBSTANCES WHICH WILL WEAKEN THE BOND WITH CONCRETE.

### 3. STRUCTURAL STEEL, BOLTS AND WELDS

| MATERIAL                                 | SPECIFICATION                                   |
|------------------------------------------|-------------------------------------------------|
| TRUSSES, PURLINS, PLATES, BRACINGS, ETC. | ASTM A-36<br>$f_y = 248$ MPa                    |
| BOLTS                                    | ASTM A-307<br>$f_y = 59$ MPa; $f_u = 96.60$ MPa |
| WELDS                                    | E = 60xx ELECTRODES<br>$f_u = 94$ MPa           |

## CONSTRUCTION

### 1. SETTING OUT

THE SETTING OUT AND THE ELEVATIONS OF THE DIFFERENT COMPONENTS OF THE STRUCTURE SHALL BE APPROVED BY THE ENGINEER PRIOR TO THE START OF ANY CONSTRUCTION WORK.

### 2. REINFORCED CONCRETE

#### a. CONCRETE MIX AND PLACING

- (1) DESIGN OF CONCRETE MIX SHALL MEET THE DESIGN CONCRETE STRENGTH GIVEN UNDER ITEM 1 OF MATERIALS.
- (2) CONCRETE SHALL BE DEPOSITED, VIBRATED AND CURED IN ACCORDANCE WITH THE SPECIFICATIONS.
- (3) THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL PLACING SEQUENCES FOR ALL CONCRETING WORK.

## 2. REINFORCED CONCRETE

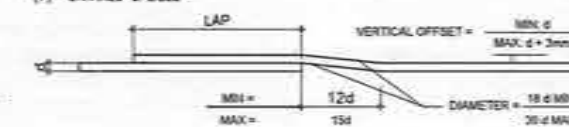
### a. CONCRETE MIX AND PLACING

- (1) DESIGN OF CONCRETE MIX SHALL MEET THE DESIGN CONCRETE STRENGTH GIVEN UNDER ITEM 1 OF MATERIALS.
- (2) CONCRETE SHALL BE DEPOSITED, VIBRATED AND CURED IN ACCORDANCE WITH THE SPECIFICATIONS.
- (3) THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL PLACING SEQUENCES FOR ALL CONCRETING WORK.

### b. BAR BENDING, SPLICING AND PLACING

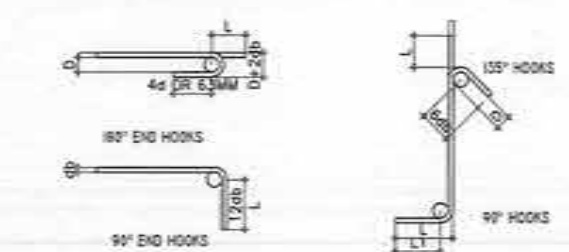
- (1) THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL OF SHOP DRAWINGS INDICATING THE BENDING, CUTTING, SPLICING AND INSTALLATION OF ALL REINFORCING BARS.
- (2) BARS SHALL BE BENT COLD. BARS PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT UNLESS PERMITTED BY THE ENGINEER.
- (3) BAR SPLICING NOT INDICATED ON DRAWINGS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
- (4) WELDED SPLICES, IF APPROVED BY THE ENGINEER, SHALL DEVELOP IN TENSION AT LEAST 125% OF THE SPECIFIED YIELD STRENGTH OF BARS.
- (5) NOT MORE THAN 50% OF THE BARS AT ANY ONE SECTION SHALL BE SPLICED.
- (6) UNLESS OTHERWISE SHOWN ON DRAWINGS, THE CLEAR DIST. BET. PARALLEL BARS IN A LAYER SHALL NOT BE LESS THAN 1.5 TIMES THE NOM. DIA. OF THE BAR NOR LESS THAN 1.5 TIMES THE MAX. SIZE OF COARSE AGGREGATE. THE CLEAR DIST. BET. LAYERS SHALL NOT BE LESS THAN 25mm NOR ONE BAR DIAMETER. THE BARS IN THE UPPER LAYER SHALL BE PLACED DIRECTLY ABOVE THOSE IN THE BOTTOM LAYER.

### (7) DRINKED SPLICES



### (8) HOOKS & BENTS

- ALL REINFORCEMENT SHALL BE BENT COLD UNLESS OTHERWISE PERMITTED BY THE STRUCT. ENGR.
- REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT, EXCEPT AS SHOWN IN THE DESIGN DRAWINGS OR PERMITTED BY THE STRUCTURAL ENGINEER.
- TIES & CLOSE STIRRUPS MUST BE BENT AT 135°



BAR DIAMETER: D=6d FOR #10 THRU #25  
 D=8d FOR #28, #32 AND #36  
 BAR DIAMETER: D=6d FOR #10 THRU #25  
 D=8d FOR #28, #32 AND #36

| BAR SIZE (DEFORMED) | DIAMETER (MM) | 180° HOOK |     | 90° HOOK |
|---------------------|---------------|-----------|-----|----------|
|                     |               | D + 2d    | L   |          |
| 10MM                | 60            | 75        | 125 | 150      |
| 12MM                | 75            | 100       | 150 | 200      |
| 16MM                | 95            | 125       | 175 | 250      |
| 20MM                | 115           | 150       | 200 | 300      |
| 25MM                | 150           | 200       | 230 | 450      |
| 28MM                | 240           | 300       | 350 | 550      |
| 32MM                | 300           | 335       | 450 | 600      |

| BAR SIZE (DEFORMED) | DIAMETER (MM) | 180° HOOK |     | 90° HOOK |
|---------------------|---------------|-----------|-----|----------|
|                     |               | D + 2d    | L   |          |
| 10MM                | 40            | 125       | 85  | 100      |
| 12MM                | 50            | 165       | 115 | 115      |
| 16MM                | 65            | 200       | 140 | 160      |
| 20MM                | 115           | 250       | 165 | 300      |
| 25MM                | 150           | 305       | 230 | 405      |

## c. CONCRETE COVER TO REINFORCEMENT

MINIMUM CONCRETE COVER TO REINFORCEMENT SHALL BE 75mm UNLESS SHOWN OTHERWISE ON DRAWINGS.

## d. CONSTRUCTION JOINT

- (1) THE POSITION AND FORM OF ANY CONSTRUCTION JOINTS SHALL BE AS SHOWN ON DRAWINGS OR AS AGREED WITH THE ENGINEER.
- (2) THE INTERFACE BETWEEN THE FIRST AND SECOND POUR OF CONCRETE SHALL BE ROUGHED WITH AN AMPITUDE OF 5mm MINIMUM.

## e. FALSEWORK

ALL FALSEWORK SHALL BE DESIGNED BY THE CONTRACTOR SUBJECT TO THE APPROVAL BY THE ENGINEER. THE FALSEWORK SHALL BE REMOVED ONLY AS DIRECTED BY THE ENGINEER.

## f. FORMWORK

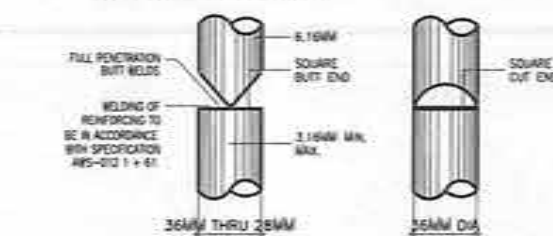
FORMWORK SHALL BE CONSTRUCTED SUCH THAT IT WILL NOT YIELD UNDER THE LOAD AND SHALL BE AS TO AVOID THE FORMATION OF FIRE.

## 3. STRUCTURAL STEEL

- a. IN ACTUAL FABRICATION OF STEEL TRUSSES, MEMBERS MEETING AT A POINT SHALL HAVE THEIR GRAVITY AXIS INTERSECT AS NEARLY AS PRACTICABLE AT A COMMON POINT.
- b. STRUCTURAL STEEL TO BE USED FOR FABRICATION AND ERECTION OF THIS STRUCTURE SHALL COMPLY WITH ALL THE PERTINENT PROVISIONS OF AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDING 1989, 8TH EDITION.
- c. ALL STRUCTURAL STEEL SHAPES SHALL BE ASTM A-36 STRUCTURAL STEEL UNLESS OTHERWISE INDICATED.
- d. ALL WELDED CONNECTIONS SHALL DEVELOP THE FULL STRENGTH OF THE MEMBERS CONNECTED.
- e. ALL BOLTS USED UNLESS OTHERWISE SPECIFIED SHALL BE ASTM 307 BOLTS.
- f. THE CONTRACTOR SHALL PROVIDE TEMPORARY ERECTION BRACINGS AND SHORING, AND MAKE ACTUAL MEASUREMENTS IN THE FIELD PRIOR TO FABRICATION/INSTALLATION OF ALL TRUSSES.
- g. THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS FOR ALL STRUCTURAL STEEL WORKS. THESE SHOP DRAWINGS SHALL BE APPROVED BY THE REG. DIR., DPWH R.O. XI BEFORE ANY FABRICATION COMMENCES.

## NOTES ON WELDS

- 1 - USE E70xx ELECTRODES FOR ALL MEMBERS WELDED.
- 2 - WELDS SHALL DEVELOP THE FULL STRENGTH OF MEMBERS JOINED UNLESS OTHERWISE SHOWN OR DETAILED IN THE DRAWINGS.



## 4. CAST-IN-PLACE (COLUMNS, BEAMS & SLAB)

- a. THE CONTRACTOR SHALL SUBMIT DESIGN COMPUTATIONS AND SHOP DRAWINGS FOR ALL PRE CAST/PRE-STRESSED MEMBERS, DULY SIGNED AND SEALED BY A STRUCTURAL ENGINEER BEFORE ANY FABRICATION, ERECTION AND INSTALLATION COMMENCES. THESE SHOP DRAWINGS SHALL BE APPROVED BY THE REGIONAL DIRECTOR, DPWH R.O. XI.

## 5. CONCRETE HOLLOW BLOCK WALLS:

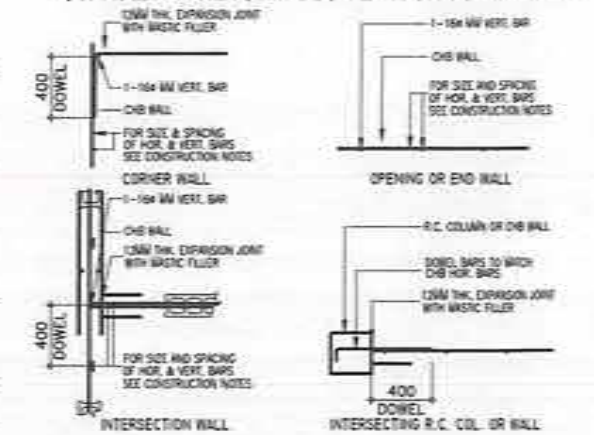
- 1 - UNLESS OTHERWISE SHOWN IN PLANS ALL CONCRETE HOLLOW BLOCKS AND CERAMIC BLOCKS SHALL BE REINFORCED AS SHOWN IN THE SCHEDULE OF CONCRETE HOLLOW BLOCKS AND CERAMIC BLOCK REINFORCEMENT.
- 2 - PROVIDE 150MM X 300MM STIFFENER COLUMN REINFORCED WITH 4-12MM WITH 6MM TIES AT 150MM ON CENTER WHERE CONCRETE HOLLOW BLOCKS REMAIN AND AT EVERY 3.00M OF CONCRETE HOLLOW BLOCK WALLS UNLESS NOTED IN STRUCTURAL PLANS.

| BLOCK THICKNESS | REINFORCEMENT     |                   | NOTES                                                                                                                                           |
|-----------------|-------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | HORIZONTAL        | VERTICAL          |                                                                                                                                                 |
| 75MM            | 10MM @ 600MM O.C. | 10MM @ 600MM O.C. | A. MINIMUM LAPS AT SPICE = 0.25M<br>B. PROVIDE RIGHT ANGLE REINFORCEMENT AT CORNERS 0.30M                                                       |
| 125MM           | 10MM @ 600MM O.C. | 10MM @ 600MM O.C. | C. WHERE CHB OR CER. BLK. WALL DOWELS JOIN COL. S.P. BEAMS AND WALL DOWELS WITH THE SAME SIZE AS VERT. OR HOR. REINFORCEMENTS SHALL BE PROVIDED |
| 150MM           | 10MM @ 600MM O.C. | 10MM @ 600MM O.C. |                                                                                                                                                 |
| 200MM           | 10MM @ 600MM O.C. | 10MM @ 600MM O.C. |                                                                                                                                                 |

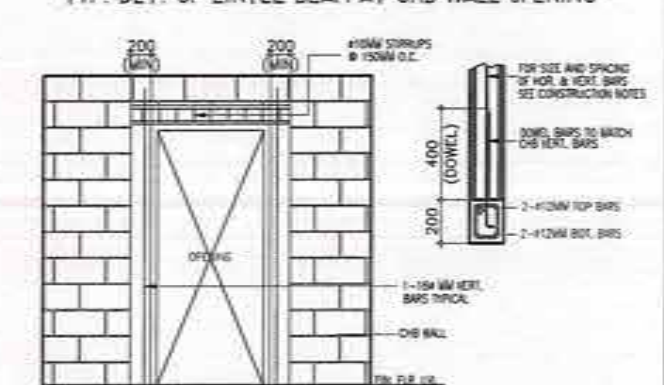
## REINFORCING CONCRETE LINTEL BEAM IN CONCRETE BLOCK WALLS

| CLEAR SPAN (L) | TOTAL LENGTH (L + 0.40M) | MIN. L' (MM) | REINFORCEMENTS |       |               |
|----------------|--------------------------|--------------|----------------|-------|---------------|
|                |                          |              | BOTTOM         | TOP   | STIRRUPS      |
| 1.20M          | 1.60M                    | 14.0         | 1-#10          | 1-#10 | #10MM @ 200MM |
| 1.50M          | 1.90M                    | 14.0         | 1-#10          | 1-#10 | #10MM @ 200MM |
| 1.80M          | 2.20M                    | 14.0         | 1-#12          | 1-#12 | #10MM @ 200MM |
| 2.10M          | 2.50M                    | 17.0         | 1-#10          | 1-#10 | #10MM @ 200MM |
| 2.40M          | 2.80M                    | 17.0         | 1-#12          | 1-#12 | #10MM @ 200MM |
| 2.70M          | 3.10M                    | 17.0         | 1-#16          | 1-#12 | #10MM @ 200MM |
| 3.00M          | 3.40M                    | 20.0         | 1-#18          | 1-#12 | #10MM @ 200MM |
| 3.30M          | 3.70M                    | 20.0         | 1-#18          | 1-#12 | #10MM @ 200MM |
| 3.60M          | 4.00M                    | 20.0         | 1-#20          | 1-#12 | #10MM @ 200MM |

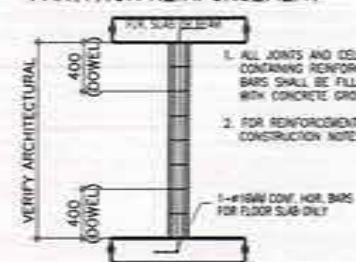
## TYPICAL CONNECTION DETAIL OF MASONRY WALL



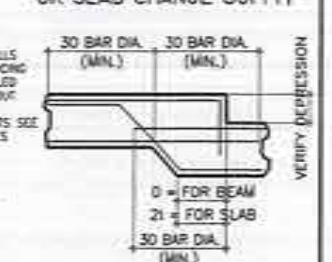
## TYP. DET. OF LINTEL BEAM AT CHB WALL OPENING



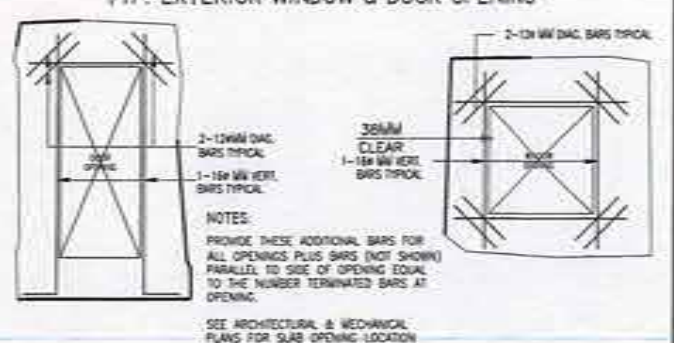
## TYP. SECTION OF MASONRY PARTITION REINFORCEMENT



## TYPICAL DETAIL FOR BEAM OR SLAB CHANGE SOFFIT



## TYP. EXTERIOR WINDOW & DOOR OPENING



REPUBLIC OF THE PHILIPPINES  
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
 REGIONAL OFFICE NO. XI  
 601, CHAVEZ COR., R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION  
 CONSTRUCTION OF 701Bd FEMALE BARRACKS,  
 701st INFANTRY BRIGADE, SITIO MAGAY,  
 BARANGAY DON MARTIN MARLUNDAN, MATI CITY,  
 DAVAO ORIENTAL

SHEET CONTENTS  
 GENERAL NOTES AND STANDARDS

PREPARED  
 DIANNE MARIELA L. CADANO  
 ENGINEER  
 DATE

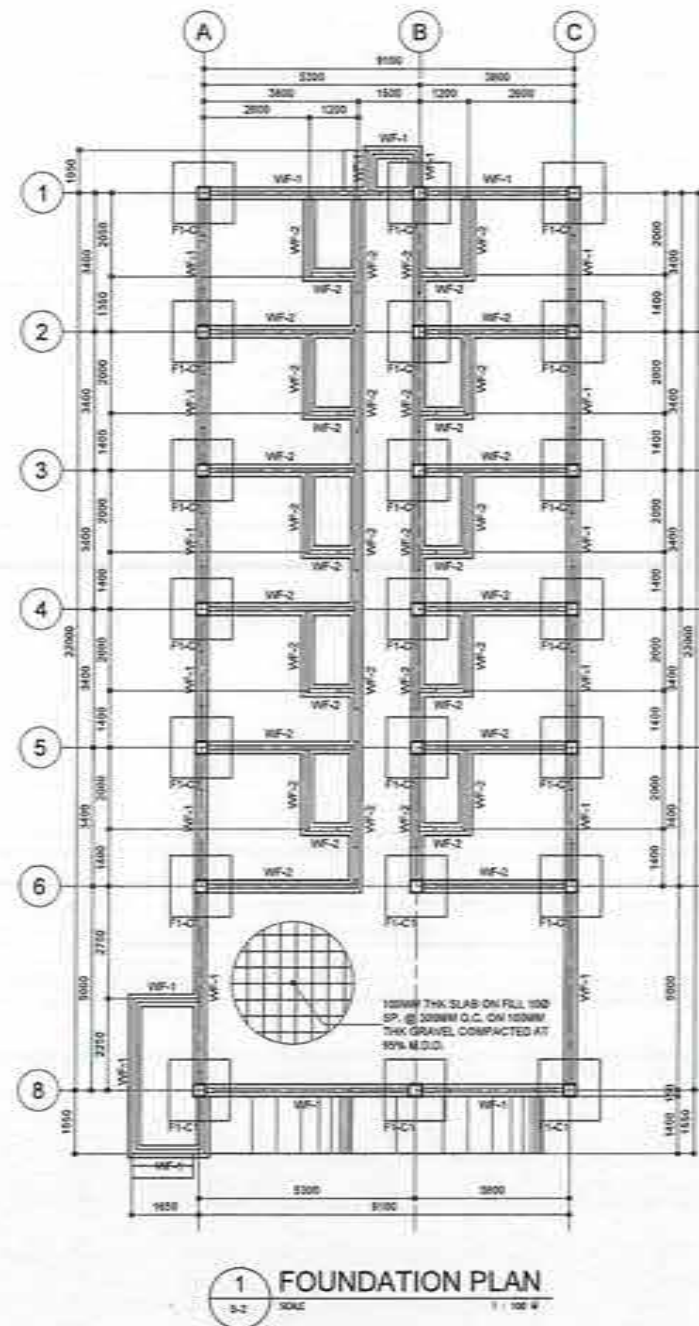
REVIEWED  
 ALGIN A. GINGA  
 ENGINEER R. SECTION  
 DATE

SUBMITTED  
 JUDY B. CORDON  
 CHIEF PLANNING AND DESIGN DIVISION  
 DATE

RECOMMENDED  
 JOSEPH B. CABALLERO  
 ASSISTANT REGIONAL DIRECTOR  
 DATE

APPROVED  
 JUDY B. CORDON  
 REGIONAL DIRECTOR  
 DATE

SHEET NO.  
 6  
 14



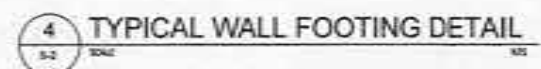
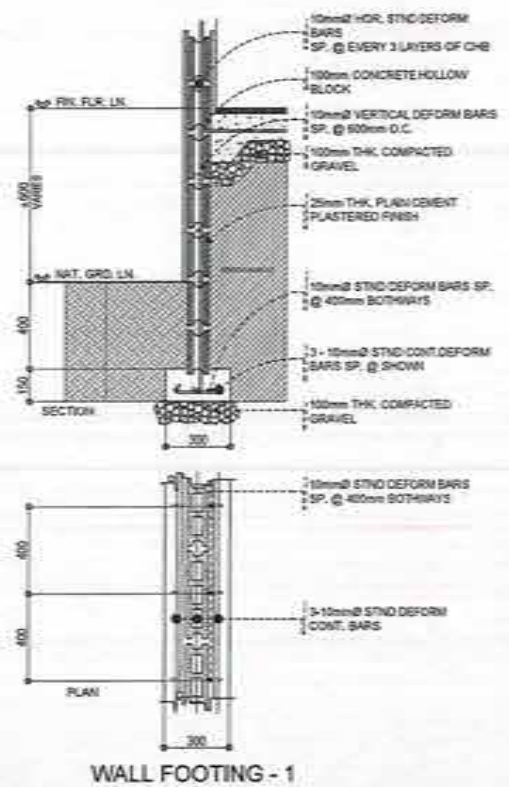
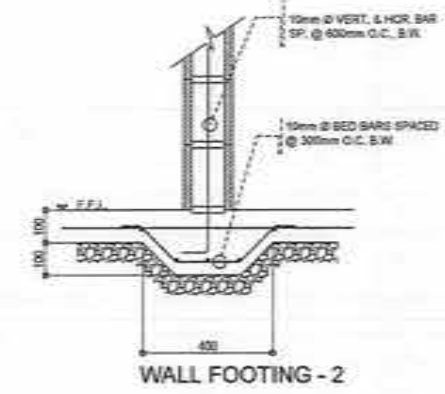
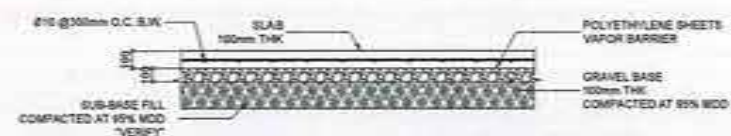
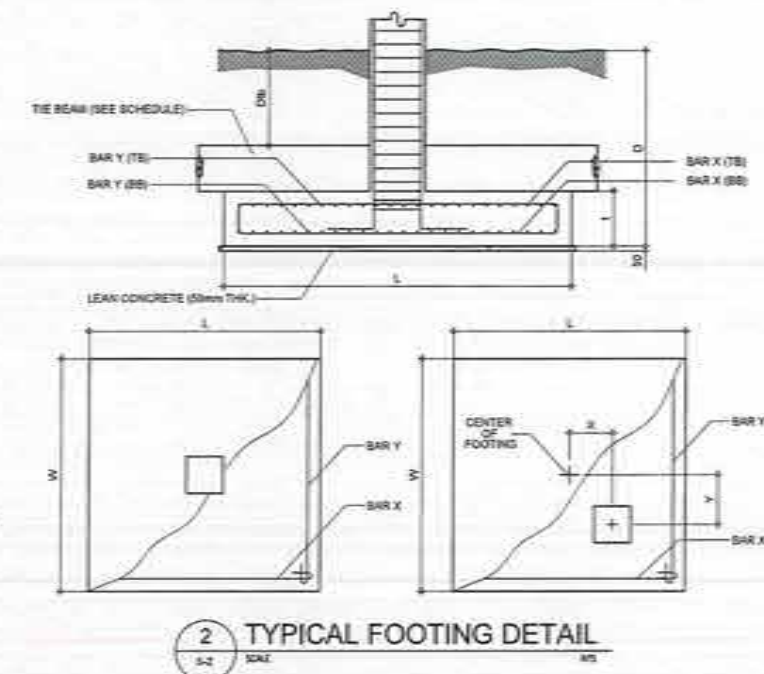
| SCHEDULE OF FOOTING |                         |               |                   |               |           |           |           |               |               |       |               |         |
|---------------------|-------------------------|---------------|-------------------|---------------|-----------|-----------|-----------|---------------|---------------|-------|---------------|---------|
| FOOTING<br>MARK     | FOOTING DIMENSIONS (mm) |               |                   |               |           |           |           | REINFORCEMENT |               |       |               | REMARKS |
|                     | Length<br>(mm)          | Width<br>(mm) | thickness<br>(mm) | depth<br>(mm) | X<br>(mm) | Y<br>(mm) | Z<br>(mm) | BAR X         |               | BAR Y |               |         |
|                     |                         |               |                   |               |           |           |           | TOP           | BOTTOM        | TOP   | BOTTOM        |         |
| F-1                 | 1500                    | 1500          | 300               | 1200          | -         | -         | -         | -             | 8-15mm $\phi$ | -     | 8-15mm $\phi$ |         |

CONCRETE COMPRESSIVE STRENGTH  $f_c = 21$  MPa (3000psi)  
STEEL REINF. YIELD STRENGTH  $f_y = 275$  Mpa (Gr. 40) for all bars

### SCHEDULE OF COLUMN

| MARK                    | P1                                                                     |
|-------------------------|------------------------------------------------------------------------|
| FOUNDATION TO ROOF BEAM |                                                                        |
| SIZE                    | 300mm X 300mm                                                          |
| VERT. BARS              | 8 - 20mm $\phi$                                                        |
| COLUMN TIES             | 10mm $\phi$ - 1 HOOPS SPACED AT 3 @ 50mm, 10 @ 75mm, REST @ 150mm O.C. |
| FOUNDATION LEVEL        |                                                                        |

CONCRETE COMPRESSIVE STRENGTH  $f_c = 21$  MPa (3000psi)  
STEEL REINF. YIELD STRENGTH  $f_y = 275$  Mpa (Gr. 40) for all bars



REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
REGIONAL OFFICE NO. XI  
GOV. CHAVEZ COR. R. WHARF AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:  
CONSTRUCTION OF 701B4 FEMALE BARRACKS,  
701st INFANTRY BRIGADE, 9110 MAGAY,  
BARANGAY DON MARTIN MARUNDA, MATI CITY,  
DAVAO ORIENTAL

SHEET CONTENTS:  
FOUNDATION PLAN  
SCHEDULE OF FOOTING  
SCHEDULE OF COLUMN  
TYPICAL FOOTING DETAIL  
TYPICAL SLAB ON FILL DETAIL  
TYPICAL WALL FOOTING DETAIL

PREPARED:  
DIANNE CARMELA L. CADANO  
ENGINEER II, SECTION CHIEF  
DATE: \_\_\_\_\_

REVIEWED:  
ALGIN A. GINGO  
ENGINEER II, SECTION CHIEF  
DATE: \_\_\_\_\_

QUANTIFIED:  
JUDY ANN T. BERNARDINO  
CHIEF PLANNING AND DESIGN DIVISION  
DATE: \_\_\_\_\_

RECOMMENDED:  
JOSELYN E. CABALLERO  
ASSISTANT REGIONAL DIRECTOR  
DATE: \_\_\_\_\_

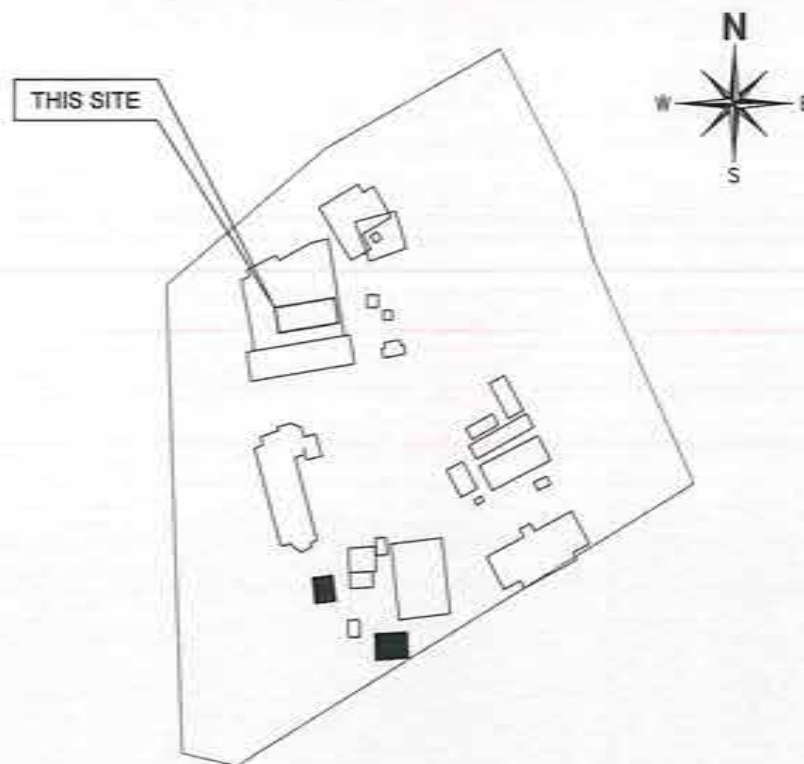
APPROVED:  
JUDY B. CORDON  
REGIONAL DIRECTOR  
DATE: \_\_\_\_\_

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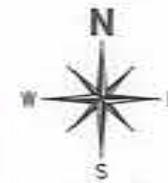




2 VICINITY MAP  
A-1 SCALE 1:500



1 SITE DEVELOPMENT PLAN  
A-1 SCALE 1:500



## GENERAL NOTES

- ALL PLUMBING WORKS INCLUDED HEREIN SHALL BE EXECUTED ACCORDING TO THE PROVISIONS OF THE NATIONAL PLUMBING CODE OF THE PHILIPPINES, THE NATIONAL CODE AND THE RULES AND REGULATIONS OF THE CITY MUNICIPALITY.
- COORDINATE THE DRAWINGS WITH OTHER RELATED DRAWINGS. THE PLUMBING ENGINEER/MASTER PLUMBER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY FOUND THEREIN.
- ALL PIPES SHALL BE INSTALLED AS INDICATED ON THE PLANS. ANY RELOCATIONS REQUIRED FOR PROPER EXECUTIONS OF OTHER TRADES SHALL BE WITH THE PRIOR APPROVAL BY THE ARCHITECT/ENGINEER.
- ALL PIPING SHALL BE APPROVED STANDARD IN CONFORMITY WITH THE REQUIREMENT OF THE NATIONAL BUILDING CODE OF THE PHILIPPINES.
  - FOR WATER LINES USE:
    - 1 INCH IN DIAMETER FOR MAIN LINE, UP FEED LINE AND DOWN FEED LINE
    - 3/4 INCH IN DIAMETER FOR BRANCHES
    - 1/2 INCH IN DIAMETER FOR FIXTURES
  - FOR SANITARY LINES USE:
    - 2 INCHES IN DIAMETER PVC PIPE SCHEDULE 1000 FOR LAVATORY, KITCHEN SINK, SINK, DRAIN BOWL, FLOOR DRAIN AND VENTILATION PIPES.
- PROPOSED SANITARY UTILITIES SHALL CONFORM TO THE ACTUAL LOCATION, DEPTH AND INVERT ELEVATION OF ALL EXISTING PIPES AND STRUCTURES AS VERIFIED BY THE CONTRACTOR.
- ALL SLOPES FOR HORIZONTAL SEWER LINES SHALL MAINTAIN 2% AS MINIMUM UNLESS OTHERWISE SPECIFIED.
- SIZE OF WATER SUPPLY PIPES TO FIXTURE SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES AT THE SITE SUCH AS DISPOSAL POINT FOR SEWAGE, EFFLUENT, STORM DRAINAGE AND WATER LINE SERVICE CONNECTION POINT.
- ALL PIPE SIZES ARE IN MILLIMETER NOMINAL INSIDE DIAMETER AND ALL DIMENSIONS ARE IN METER UNLESS OTHERWISE SPECIFIED.
- ALL SEWER PIPES EMBEDDED ON GROUND AND BELOW CONCRETE SLAB SHALL BE PROVIDED WITH SAND BEDDING MATERIALS.
- ALL FIXTURES FOR COMMON WASTE LINE SHALL BE PROVIDED WITH AIR CHAMBER AND MUST BE INDIVIDUALLY VENTED, UNLESS OTHERWISE INDICATED.
- FONT SUPPLY SPOUT SHALL BE PLACED 0.20M FROM THE FONT FLOOR FINISH.
- PROVIDE CLEANOUTS FOR EVERY CHANGE OF DIRECTION AND FOR EVERY 15 METERS HORIZONTAL RUN FOR SEWER & STORM DRAINAGE LINES.
- SEPTIC VAULT SHALL BE MADE WATER TIGHT OF CONCRETE, AS WITH THE VAULTS INFLUENT (INLET) AND EFFLUENT (OUTLET) ARE SUBMERGED AND ARRANGED IN SUCH A WAY THAT NEITHER SLUDGE NOR SCUM SHALL BE UNDULY DISTURBED.
- STORM DRAINAGE SHOULD BE REQUIRED TO COLLECT STORM WATER AND DISCHARGED TO AN APPROVED POINT OF DISPOSAL NOT IN CONFLICT WITH OTHER ORDINANCES OR REGULATIONS.
- ALL DRAINAGE PIPES SHOULD BE GRADED PROPERLY OR INCLINED FOR A DOWNWARD GRAVITY, FLOW OF WATER TOWARDS THE MAIN SEWER LINE.
- DRAINAGE PIPE SHOULD BE PROVIDED WITH ADEQUATE CLEANOUTS WHICH IS ACCESSIBLE FOR SERVICING OF REPAIR IN CASE OF STOPPAGE.
- DRAINAGE SYSTEM SHALL BE PROVIDED WITH VENTILATION PIPE WHICH WILL CONVEY GASES TO THE ATMOSPHERE WHERE IT CAN DO NO HARM TO HUMAN HEALTH.
- ALL PLUMBING WORKS SHALL BE DONE UNDER THE DIRECT OR IMMEDIATE SUPERVISION OF A DULY REGISTERED SANITARY ENGINEER OR PLUMBING ENGINEER/MASTER PLUMBER.

## LEGEND

| MARK | DRAWING | DESCRIPTION                  | SPECIFICATION                                    |
|------|---------|------------------------------|--------------------------------------------------|
|      |         | CATCH BASIN                  | 150mm Ø X POLYVINYL CHLORIDE (PVC) / SERIES 1000 |
|      |         | FLOOR DRAIN                  |                                                  |
|      |         | VENTILATION THRU ROOF        | 50mm Ø POLYVINYL CHLORIDE (PVC) / SERIES 1000    |
| 1    |         | 50mm Ø X 90d ELBOW           | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 2    |         | 50mm Ø X 45d ELBOW           | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 3    |         | 50mm Ø CLEANOUT              | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 4    |         | 50mm Ø TEE                   | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 5    |         | 50mm Ø P-TRAP                | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 6    |         | 50mm Ø WYE                   | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 7    |         | 100mm FLOOR DRAIN            | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 8    |         | 100mm Ø TEE                  | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 9    |         | 100mm Ø X 45d ELBOW          | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 10   |         | 100mm Ø X CLEANOUT           | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 11   |         | 100mm Ø X 50mm Ø WYE REDUCER | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 12   |         | 100mm Ø X 50mm Ø TEE REDUCER | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 13   |         | 100mm Ø WYE                  | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 14   |         | 100mm Ø X 90d ELBOW          | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 15   |         | 50mm Ø TEE-WYE               | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 16   |         | 150mm Ø X 45d ELBOW          | POLYVINYL CHLORIDE (PVC) / SERIES 1000           |
| 17   |         | SEPTIC VAULT                 |                                                  |
| 18   |         | WATER CLOSET                 |                                                  |
| 19   |         | SINK                         |                                                  |
| 20   |         | BAR SINK                     |                                                  |
| 21   |         | FLOOR CLEAN OUT              |                                                  |
| 22   |         | CLEAN OUT                    |                                                  |
| 23   |         | LAVATORY                     |                                                  |
| 24   |         | FAUCET                       |                                                  |
| 25   |         | VENT STACK                   |                                                  |
| 26   |         | SLOP SINK                    |                                                  |

## NOTE

ALL ARCHITECTURAL PLANS SHALL PREVAIL OVER ALL ENGINEERING PLANS WITH REGARDS TO DIMENSIONS, ANY DISCREPANCIES FOUND HEREIN SHALL BE VERIFIED WITH THE ARCHITECT.



REPUBLIC OF THE PHILIPPINES  
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GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:  
CONSTRUCTION OF 7019th FEMALE BARRACKS,  
701st INFANTRY BRIGADE, SITIO MAGAY,  
BARANGAY DON MARTIN MARUNDAN, MATI CITY,  
DAVAO ORIENTAL

SHEET CONTENTS:  
SITE DEVELOPMENT PLAN  
VICINITY MAP  
GENERAL NOTES  
LEGEND

PREPARED:  
FERDINAND M. RANOSA  
ARCHITECT  
DATE

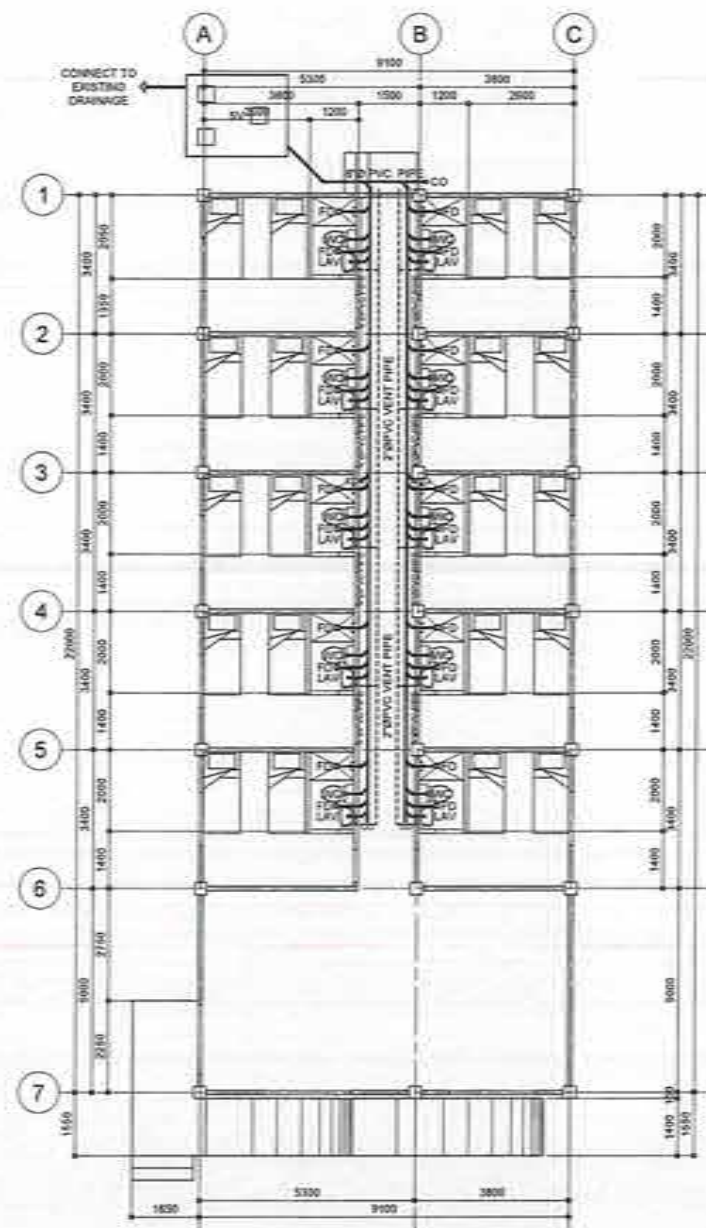
REVIEWED:  
ALGIN A. GONZALES  
ENGINEER III, SECTION  
DATE

SUBMITTED:  
JUDY M. BERNARDINO  
CHIEF, PLANNING AND DESIGN DIVISION  
DATE

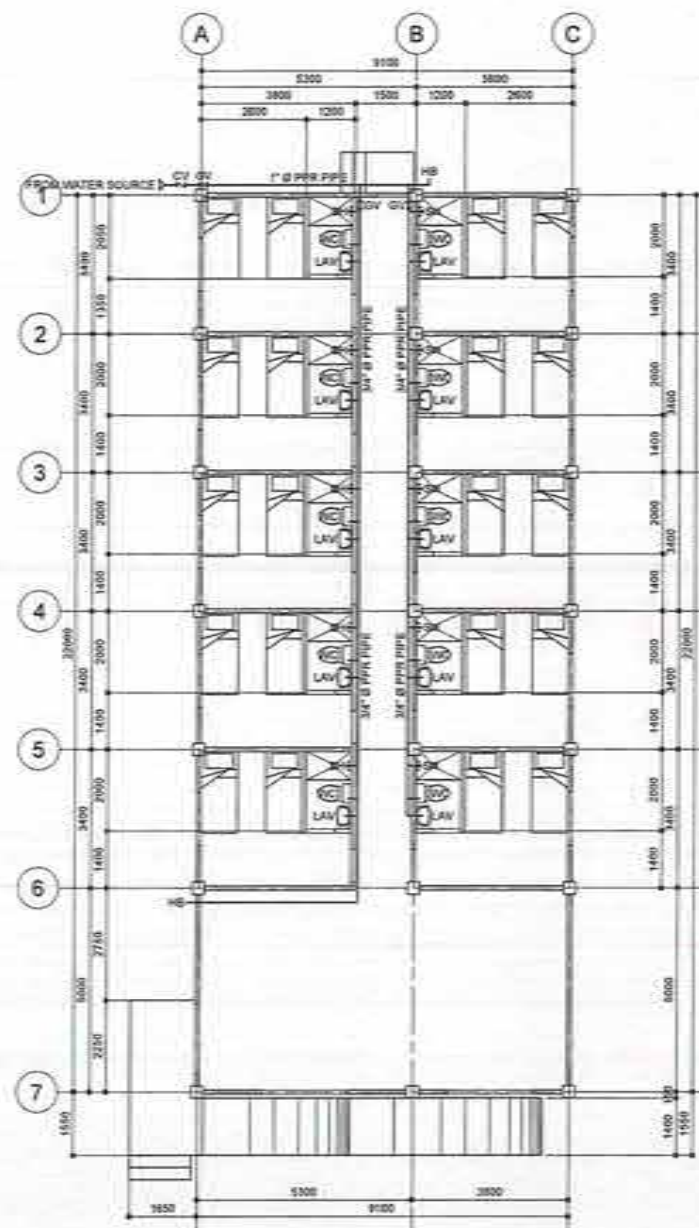
RECOMMENDED:  
JOSELYN B. CABALLERO  
PLANNING REGIONAL DIRECTOR  
DATE

APPROVED:  
JUDY B. CORDON  
REGIONAL DIRECTOR  
DATE

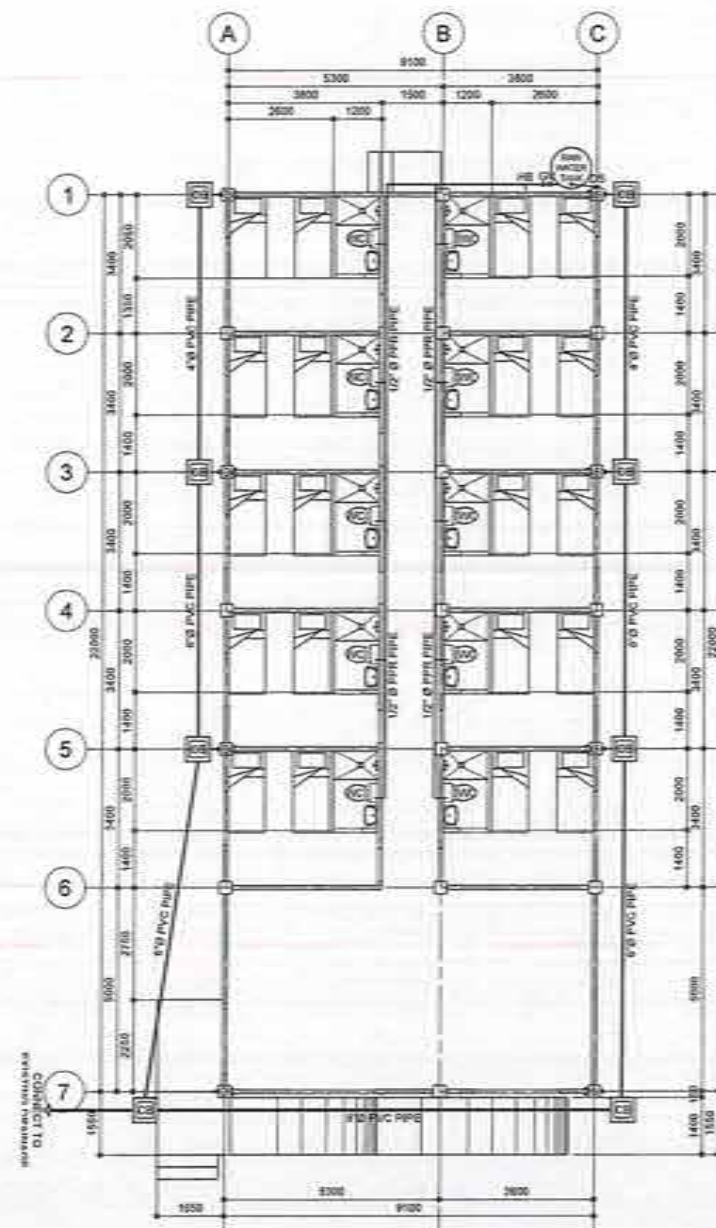
SET NO. 14  
SHEET NO. 9



1 SANITARY LAYOUT  
P-2 SCALE 1:100 W



2 WATERLINE LAYOUT  
P-2 SCALE 1:100 W



3 STORM DRAIN LAYOUT  
P-2 SCALE 1:100 W

| MARK | SPECIFICATION  |
|------|----------------|
| CO   | CLEAN OUT      |
| LAV  | LAVATORY       |
| —    | SANITARY LINE  |
| —    | WATER LINE     |
| WC   | WATER CLOSET   |
| FD   | FLOOR DRAIN    |
| RD   | ROOF DRAIN     |
| VTR  | VENT THRU ROOF |
| KS   | KITCHEN SINK   |
| DS   | DOWN SPOUT     |
| SV   | SEPTIC VAULT   |
| CB   | CATCH BASIN    |
| GT   | GREASE TRAP    |
| HB   | HOSE BIBB      |
| SH   | SHOWER HEAD    |

### NOTE

- ALL DOWNSPOUTS ARE 75mmØ  
PVC PIPE



REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
REGIONAL OFFICE NO. XI  
GOV. CHAVEZ COR. R. WHOSAYAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:  
CONSTRUCTION OF 701B46 FEMALE BARRACKS,  
701st INFANTRY BRIGADE, SITIO MAGAY,  
BARANGAY DON MARTIN MARUNDAN, MATI CITY,  
DAVAO ORIENTAL

SHEET CONTENTS:  
SANITARY LAYOUT  
WATERLINE LAYOUT  
STORM DRAIN LAYOUT

PREPARED:  
FERDINAND M. RAÑOSA  
ARCHITECT

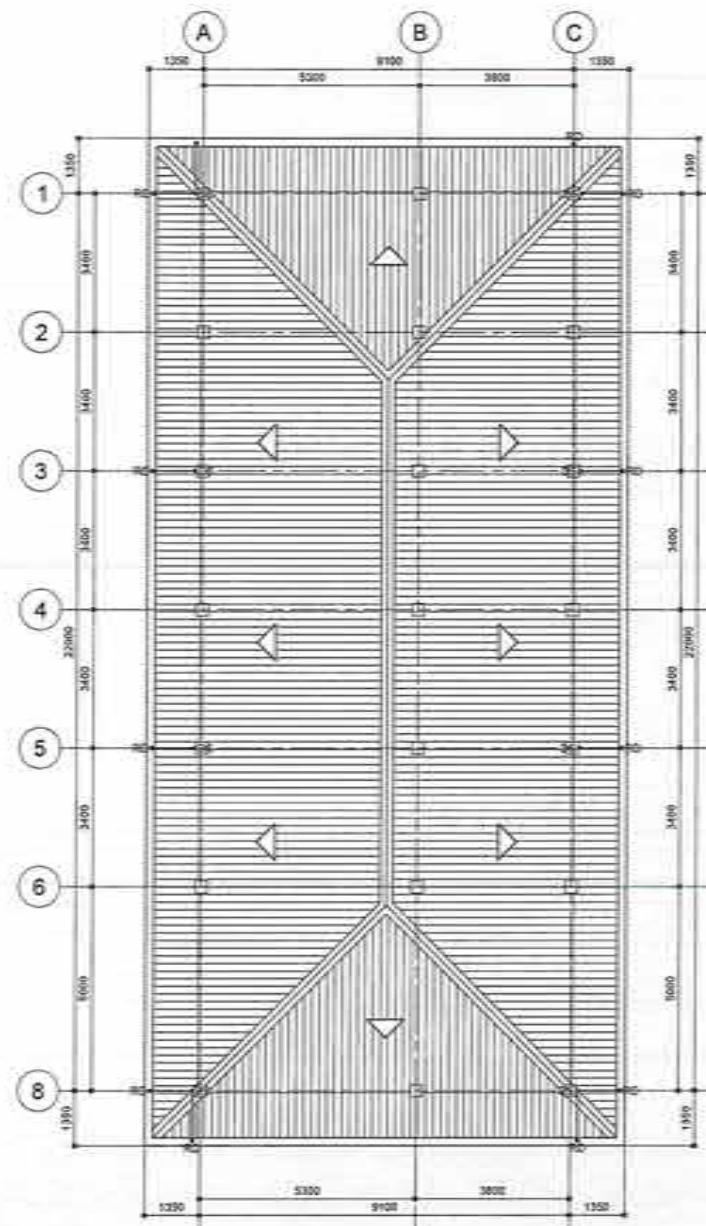
REVIEWED:  
ALGIN A. GINGOY  
ENGINEER II, SECTION

SUBMITTED:  
JUDY ANN T. BERNARDINO  
CHIEF, PLANNING AND DESIGN DIVISION

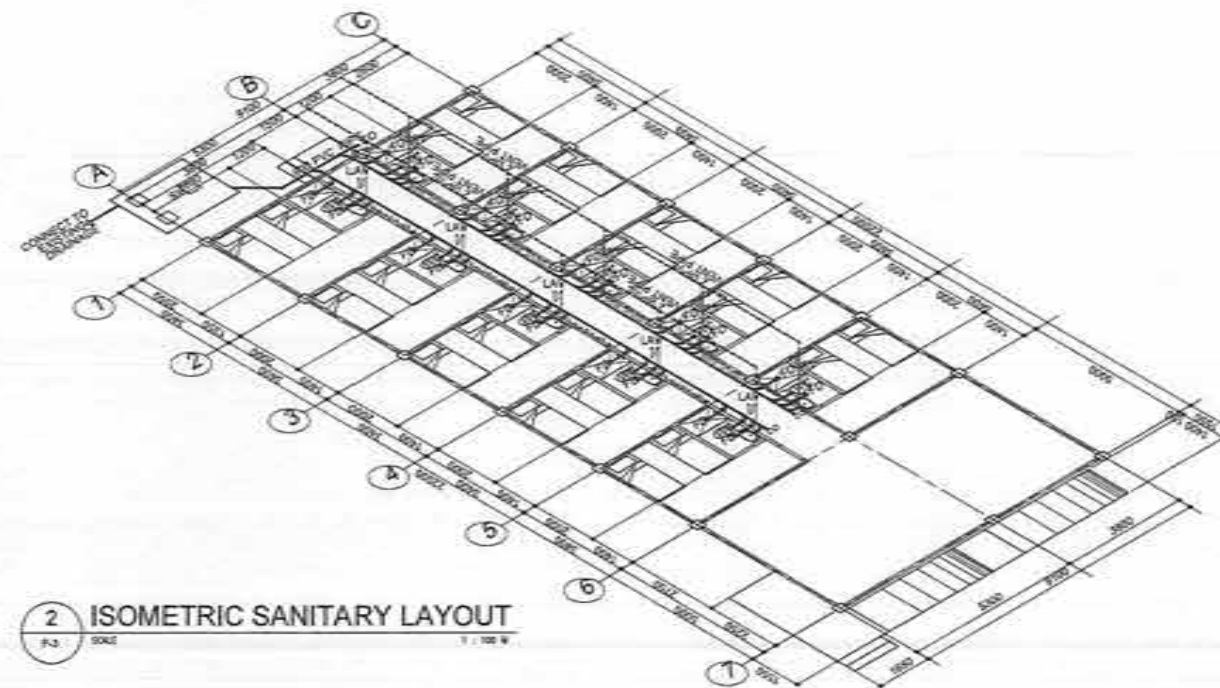
RECOMMENDED:  
JOSE LITO B. CABALLERO  
ASSISTANT REGIONAL DIRECTOR

APPROVED:  
JUDY B. CORDON  
REGIONAL DIRECTOR

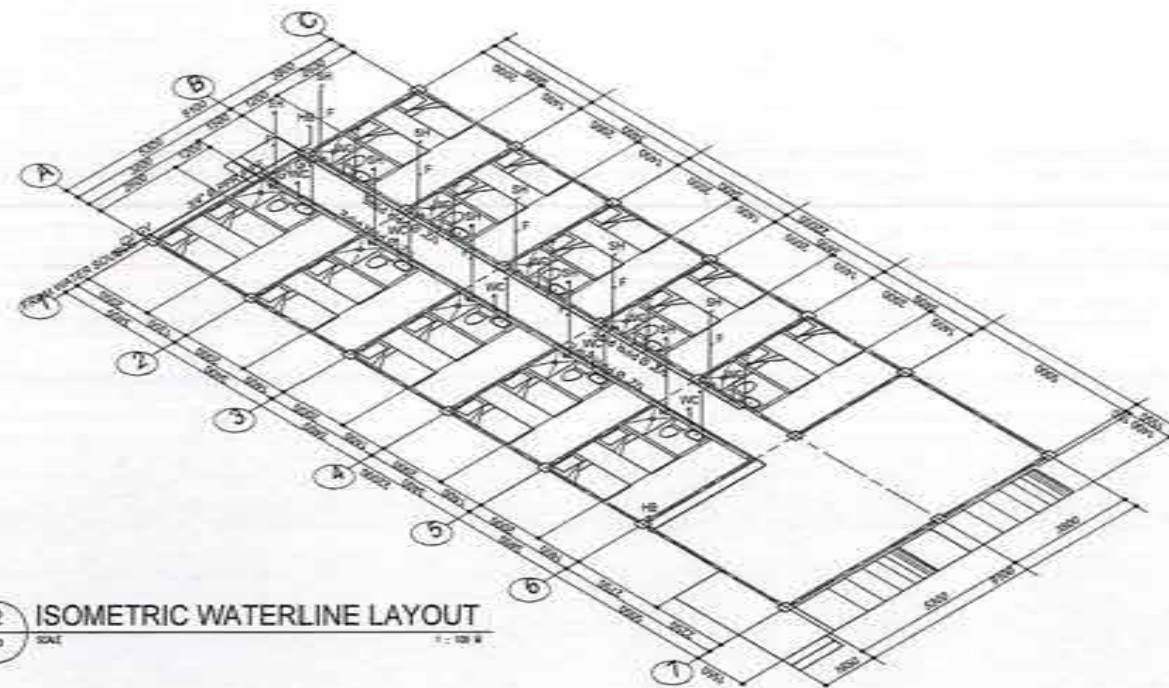
SET NO. 10  
2 4 14



1 ROOF DRAIN LAYOUT  
P-3 SCALE 1:100



2 ISOMETRIC SANITARY LAYOUT  
P-3 SCALE 1:100



2 ISOMETRIC WATERLINE LAYOUT  
P-3 SCALE 1:100

| MARK | SPECIFICATION  |
|------|----------------|
| CO   | CLEAN OUT      |
| LAV  | LAVATORY       |
| ---  | SANITARY LINE  |
| ---  | WATER LINE     |
| WC   | WATER CLOSET   |
| FD   | FLOOR DRAIN    |
| RD   | ROOF DRAIN     |
| VTR  | VENT THRU ROOF |
| KS   | KITCHEN SINK   |
| DS   | DOWN SPOUT     |
| SV   | SEPTIC VENT    |
| CB   | CATCH BASIN    |
| GT   | GREASE TRAP    |
| HB   | HOSE BIBB      |
| SH   | SHOWER HEAD    |

### NOTE

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GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:  
CONSTRUCTION OF 701Bth FEMALE BARRACKS,  
701st INFANTRY BRIGADE, SITIO MAGAY,  
BARANGAY DON MARTIN MARUNDA, MATI CITY,  
DAVAO ORIENTAL

SHEET CONTENTS:  
ROOF DRAIN LAYOUT  
ISOMETRIC SANITARY LAYOUT  
ISOMETRIC WATERLINE LAYOUT

PREPARED:  
FERDINAND M. RAÑOSA  
ARCHITECT

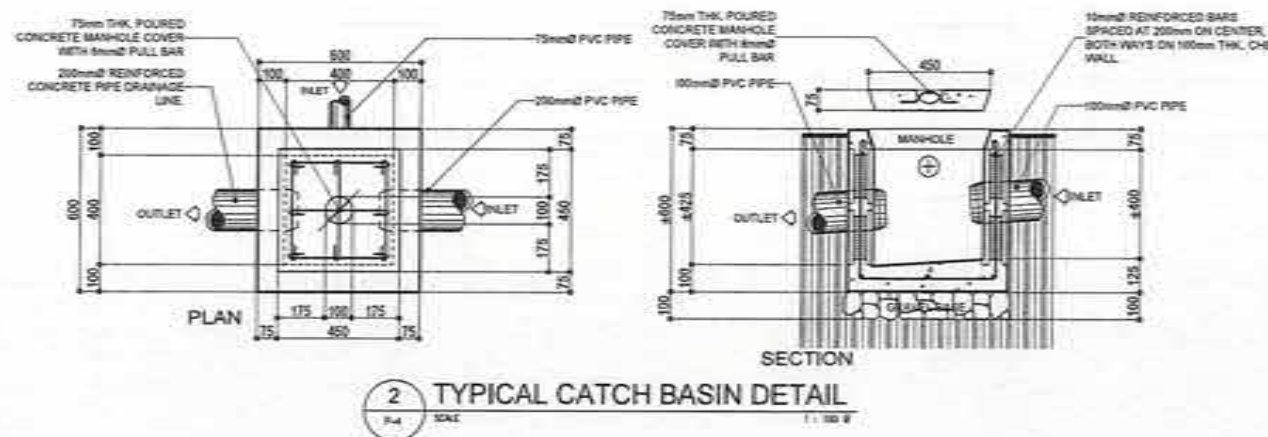
REVIEWED:  
ALGIN A. GINGA  
ENGINEER IN CHARGE

SUPervised:  
JUDY ANN T. BERNARDINO  
CHIEF PLANNING AND DESIGN DIVISION

RECOMMENDED:  
JOSEPH B. CABALLERO  
ASSISTANT REGIONAL DIRECTOR

APPROVED:  
JUDY B. CORDON  
REGIONAL DIRECTOR

SET NO. 11  
3 4 14



## RAIN HARVESTER COMPUTATION

GIVEN:

ROOF AREA: 277.02 sq.m.  
AVERAGE MONTHLY RAINFALL (from PAGASA): 156 mm  
COLLECTION EFFICIENCY assumed: 80%

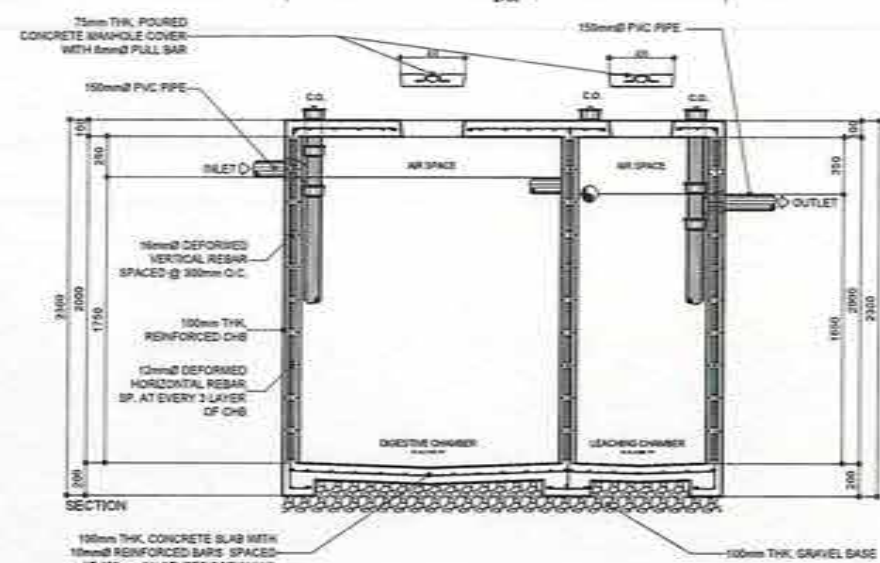
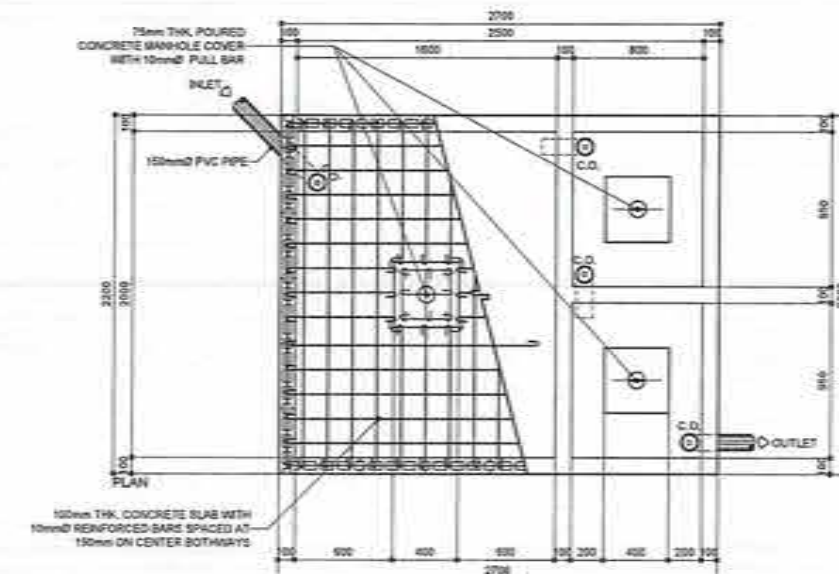
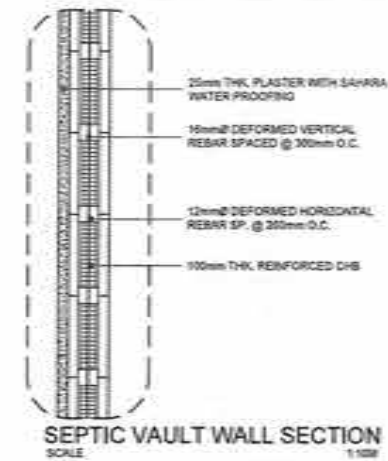
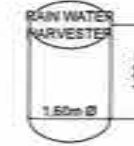
CALCULATION:

$V = \text{AVE. MONTHLY RAINFALL} \times \text{CATCHMENT SURFACE} \times \text{EFFICIENCY} \times 25\%$   
 $V = 0.156 \text{ m} \times 277.02 \text{ sq.m.} \times 0.80 \times 0.25$   
 $V = 8.6430 \text{ cu.m.}$   
 $V = \pi R^2 \times H$  (where H is the height of tank.)

using 1.60m dia TANK and Volume of 8.6430 cu.m.:

$8.6430 \text{ cu.m.} = 3.14(0.80\text{m})^2 \times H$   
 $H = 8.6430 \text{ cu.m.} / 2.010 \text{ sq.m.}$   
 $H = 4.30 \text{ m}$

THEREFORE, FOR THE ROOF SURFACE OF 277.02 sq.m., A CIRCULAR TANK WITH (DIAMETER x HEIGHT) OF 1.60 m Ø x 4.30 m CAN BE USED TO STORE A MINIMUM VOLUME OF 8.6430 cu.m.



## 3 SEPTIC VAULT DETAIL

P-4 SCALE 1:100

| MARK | SPECIFICATION  |
|------|----------------|
| CO   | CLEAN OUT      |
| LAV  | LAVATORY       |
| ---  | SANITARY LINE  |
| ---  | WATER LINE     |
| WC   | WATER CLOSET   |
| FD   | FLOOR DRAIN    |
| RD   | ROOF DRAIN     |
| VTR  | VENT THRU ROOF |
| KS   | KITCHEN SINK   |
| DS   | DOWN SPOUT     |
| SV   | SEPTIC VAULT   |
| CB   | CATCH BASIN    |
| GT   | GREASE TRAP    |
| HB   | HOSE BIBB      |
| SH   | SHOWER HEAD    |

## NOTE

ALL DOWNSPOUTS ARE 75mmØ PVC PIPE



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REGIONAL OFFICE NO. XI  
GOV. CHAVEZ COR. N. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:  
CONSTRUCTION OF 701Bd FEMALE BARRACKS,  
701st INFANTRY BRIGADE, SITIO MAGAY,  
BARANGAY DON MARTIN MARUNDAN, MATI CITY,  
DAVAO ORIENTAL

SHEET CONTENTS:  
ISOMETRIC STORM DRAIN LAYOUT  
TYPICAL CATCH BASIN DETAIL  
SEPTIC VAULT DETAIL  
RAIN HARVESTER COMPUTATION

PREPARED:  
FERDINAND M. RAÑOSA  
ARCHITECT

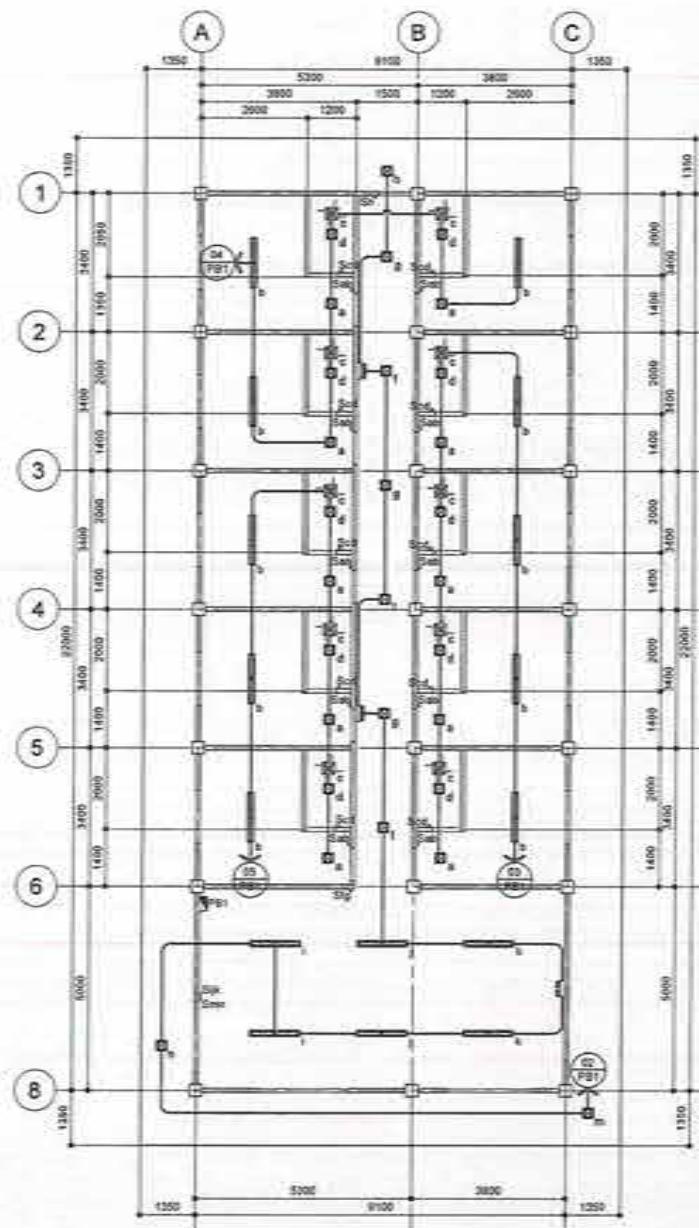
REVIEWED:  
ALGIN A. GIVORA  
ENGINEER IN CHARGE

SUBMITTED:  
JUDY T. BERNARDO  
CHIEF PLANNING AND DESIGN DIVISION

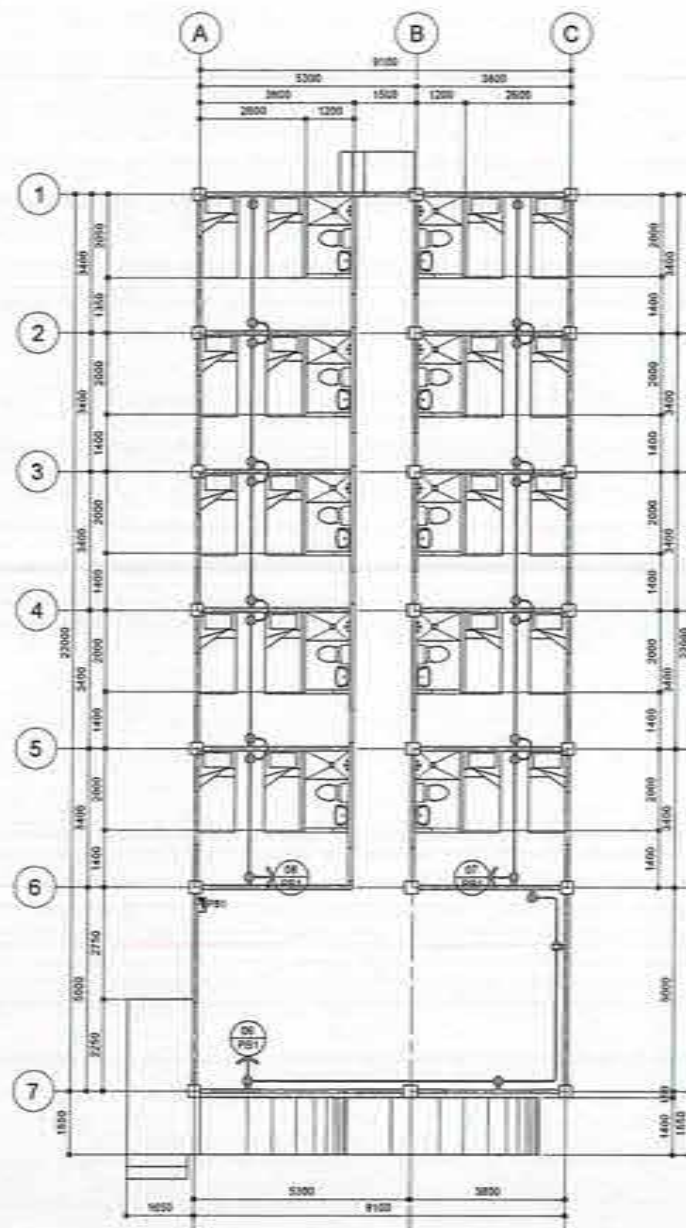
RECOMMENDED:  
JOSELO B. CABALLERO  
ASSISTANT REGIONAL DIRECTOR

APPROVED:  
JURY B. CORDON  
REGIONAL DIRECTOR

SET NO. 4  
SHEET NO. 12  
14



1 LIGHTING LAYOUT  
E-1 SCALE 1:100



2 POWER LAYOUT  
E-2 SCALE 1:100

| MARK | SPECIFICATION                                                             | NOTES & SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                       |
|------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | LIGHT AND POWER PANEL BOARD                                               | 1. ALL ELECTRICAL INSTALLATIONS MADE HEREIN SHALL CONFORM WITH THE RULES AND REGULATIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE (PEC), THE EXISTING LOCAL ORDINANCES, RULES AND REGULATIONS OF THE LOCAL ENFORCING AUTHORITY AND THE REQUIREMENT OF THE LOCAL UTILITY COMPANY CONCERNED WORKS SHALL NOT BE STARTED UNLESS A VALID PERMIT HAS BEEN SECURED                   |
|      | DUPLEX CONVENIENCE OUTLET 3 PRONGE 10AMPERES                              |                                                                                                                                                                                                                                                                                                                                                                                              |
| ---  | CIRCUIT LINE                                                              | 2. THE TYPE OF POWER SERVICE TO BE USED SHALL BE FROM 13.2KV SINGLE PHASE POWER SUPPLY AND TRANSFER TO 230VOLTS THRU BANK DISTRIBUTION TYPE TRANSFORMER 3WRES 230VOLTS 60HERTZ ALTERNATING CURRENT                                                                                                                                                                                           |
| ---  | CIRCUIT SWITCH LINE                                                       |                                                                                                                                                                                                                                                                                                                                                                                              |
|      | AIR CIRCUIT BREAKER                                                       | 3. ALL ELECTRICAL MATERIALS AND DEVICES TO BE USED AND INSTALLED HEREIN SHALL BE BRAND NEW OF APPROVED TYPE APPROPRIATE FOR BOTH LOCATION AND INTENDED USED AND WITH ACCORDANCE WITH THE PHILIPPINE ELECTRICAL CODE AND BY THE BUREAU OF STANDARDS AND WITH GOOD WORKMANSHIP INSTALLATION                                                                                                    |
|      | CIRCUIT HOMERUN                                                           |                                                                                                                                                                                                                                                                                                                                                                                              |
|      | EARTH GROUND                                                              | 4. GENERAL PURPOSED RECEPTACLES SHALL RATE 15AMPS 240VOLTS 3 PRONG UNIVERSAL TYPE AND FLOOR MOUNTED OUTLET SHOULD BE METALLIC POP-UP HIGH QUALITY BRAND                                                                                                                                                                                                                                      |
|      | 1-18 WATTS LED FLOURESCENT LAMP                                           |                                                                                                                                                                                                                                                                                                                                                                                              |
|      | 14W LED TRI-COLOR RECESSED CIRCULAR DOWNLIGHT > 1400 LUMENS OUTPUT Ø155mm | 5. CIRCUIT BREAKER MUST BE 10, 20, & 25KAIC FROM BRANCHES, SUB-FEEDERS & MAIN. ALL CIRCUIT BREAKERS MUST BE MOLDED CASE, BOLT-ON TYPE, AND INDUSTRIAL TYPE                                                                                                                                                                                                                                   |
|      | EMERGENCY LAMP 2 x 1 WATT                                                 |                                                                                                                                                                                                                                                                                                                                                                                              |
|      | EXHAUST FAN (200mm x 200mm) 25WATTS                                       | 6. LIGHT CONTROL SWITCHES SHALL BE RATED 10AMP, 300WATTS AND SHALL NOT CARRY A LOAD GREATER THAN 50AMPS                                                                                                                                                                                                                                                                                      |
|      | FLUSH TYPE TUMBLER SWITCH SINGLE 5 AMPERES                                |                                                                                                                                                                                                                                                                                                                                                                                              |
|      | FLUSH TYPE TUMBLER SWITCH DUPLEX 5 AMPERES                                | 7. ONLY HIGH POWER FACTOR BALLAST PREHEAT TYPE SHALL BE USED FOR FLUORESCENT LIGHTING FIXTURES                                                                                                                                                                                                                                                                                               |
|      | FLUSH TYPE TUMBLER SWITCH TRIPLEX 5 AMPERES                               |                                                                                                                                                                                                                                                                                                                                                                                              |
|      |                                                                           | 8. ALL ELECTRICAL WRING INSTALLATION SHALL BE DONE IN LOCATION AS FOLLOWS: (a) RIGID METALLIC CONDUIT (RMC) TO BE USED, IN SERVICE ENTRANCE AND FEEDERS, (b) ELECTRICAL METALLIC TUBING (EMT) TO BE USED ABOVE CEILING AND BETWEEN DOUBLE WALL PARTITION MADE OF COMBUSTIBLE MATERIALS (c) UNPLASTICIZED POLYVINYL CHLORINE CONDUIT (UPVC) TO BE USED IF EMBEDDED IN CONCRETE OR UNDERGROUND |
|      |                                                                           | 9. ALL WIRES SHALL BE COPPER AND THERMOPLASTIC INSULATED TYPE "THW" UNLESS OTHERWISE INDICATED. THE MINIMUM SIZE OF WIRE AND CONDUIT TO BE USED SHALL BE 1.5mm <sup>2</sup> THW AND 15mm NOMINAL DIAMETER RESPECTIVELY                                                                                                                                                                       |
|      |                                                                           | 10. ALL NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE PROVISIONS OF PEC PART 1, LATEST EDITION                                                                                                                                                                                                                                  |
|      |                                                                           | 11. ANY DISCREPANCY IN THE LOCATION AND RATINGS OF EQUIPMENTS AND APPARATUS SHALL BE VERIFIED WITH THE OWNER OR ANY OF HIS REPRESENTATIVES AND CHANGES SHALL BE MADE ACCORDINGLY                                                                                                                                                                                                             |
|      |                                                                           | 12. ALL PIPE SLEEVES SHALL BE PROVIDE WITH PROPER SUPPORT OR ANCHORAGE NECESSARY FOR PERMANENT CONNECTION TO CONCRETE WALLING OR BEAM                                                                                                                                                                                                                                                        |
|      |                                                                           | 13. WHEREVER REQUIRED AND NECESSARY, PULL BOXES OR JUNCTION BOXES OF PROPER SIZES SHALL BE INSTALLED AT CONVENIENT AND INCONSPICUOUS LOCATIONS, ALTHOUGH SUCH BOXES ARE NOT SHOWN AND MENTIONED IN THE PLANS OR IN THE SPECIFICATIONS                                                                                                                                                        |
|      |                                                                           | 14. ALL FEEDERS LOCATED OUTSIDE THE BUILDING SHALL BE ENCASED IN ALL AROUND CONCRETE WATER PROOFED ENVELOP, AND SHALL BE BURIED WITH NOT LESS THAN 600MM BELOW THE GROUND SURFACE                                                                                                                                                                                                            |
|      |                                                                           | 15. STANDARD TYPE OF ACCESSORIES, SPLICING DEVICES, TERMINATIONS, AND OTHER APPURTENANCES FOR THE ENTIRE ELECTRICAL INSTALLATIONS SHALL BE USED                                                                                                                                                                                                                                              |
|      |                                                                           | 16. MOUNTING HEIGHT OF PANEL AND DEVICES WERE AS FOLLOWS: (FROM THE FLOOR FINISH TO CENTER OF UNIT)<br>A. WALL SWITCHES 1 400mm<br>B. WALL CONVENIENCE OUTLETS 300mm<br>C. KWH METER 1 550mm<br>D. PANEL BOARD 1 800mm<br>(FROM THE CEILING FINISH TO CENTER OF UNIT)<br>E. RECHARGEABLE LIGHT OUTLETS 300mm                                                                                 |
|      |                                                                           | 17. THE CONTRACTOR SHALL SECURE ALL PERMITS AND PAY ALL FEES REQUIRED FOR THE WORK AND FURNISH THE OWNER THROUGH THE ENGINEERING FINAL CERTIFICATE OF ELECTRICAL INSPECTION AND APPROVAL FROM PROPER GOVERNMENT AUTHORITIES FOR COMPLETE WORK                                                                                                                                                |
|      |                                                                           | 18. THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATIONS OF SERVICE ENTRANCE FOR CONNECTIONS TO POWER SERVICE POINT                                                                                                                                                                                                                                                                   |
|      |                                                                           | 19. THE CONTRACTOR MUST SUBMIT "AS-BUILT" DRAWING PLANS, SIGNED & SEALED BY A PROFESSIONAL ELECTRICAL ENGINEER & SUPERVISION IN-CHARGE OF INSTALLATION SIGNED BY A PROFESSIONAL / REGISTERED ELECTRICAL ENGINEER OR REGISTERED MASTER ELECTRICIAN                                                                                                                                            |
|      |                                                                           | 20. ALL ELECTRICAL WORKS SHALL BE DONE UNDER THE STRICT & IMMEDIATE SUPERVISION OF A DULY REGISTERED ELECTRICAL ENGINEER                                                                                                                                                                                                                                                                     |



REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
REGIONAL OFFICE NO. XI  
GOV. CHAVEZ COR. R. MAGSAYSAY AVENUE, DAVAO CITY

PROJECT NAME AND LOCATION:  
CONSTRUCTION OF 701 FEMALE BARRACKS FACILITY, SITIO MAGAY, BRGY. DON MARTIN MARUNDAN, MATI CITY, DAVAO ORIENTAL

SHEET CONTENTS:  
LIGHTING LAYOUT  
POWER LAYOUT  
NOTES AND SPECIFICATION

PREPARED  
JOHN PHILIP S. CRIVENES  
ENGINEER II  
DATE:

REVIEWED  
ALGIN A. GINER  
ENGINEER II, SECTION CHIEF  
DATE:

DESIGNED  
JULY ANN T. BERNARDINO  
PLANNING AND DESIGN DIVISION  
DATE:

RECOMMENDED  
JOSEPH B. CABALLERO  
PLANNING DIVISION  
DATE:

APPROVED  
JULY B. CORDON  
REGIONAL DIRECTOR  
DATE:

SET NO. 1  
SHEET NO. 13  
14

## LOAD SCHEDULE

| DESIGNATION: LIGHTING & POWER PANEL<br>FEED FROM: MAIN DISTRIBUTION PANEL (NEW)<br>LOCATION: FEMALE BARRACKS BUILDING |     |                    |     | PROTECTION SPEC: Panelboard: 10 Branches, Bolt-On Type, Side Main, Single Phase<br>Main: Molded Case Circuit Breaker, Bolt-On Type, Single Phase, 240Volts<br>Branches: Air-Circuit Breakers, Bolt-On Type Single Phase, 240Volts<br>Busbar: 100Amps ( Maximum Ampacity ) |      |         |            |     |      |      | VOLTAGE: 220 V<br>PHASE: SINGLE PHASE<br>ENCLOSURE (P): NEMA-1       |                 |
|-----------------------------------------------------------------------------------------------------------------------|-----|--------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|------------|-----|------|------|----------------------------------------------------------------------|-----------------|
| PANEL                                                                                                                 | CKT | DESCRIPTION        | QTY | POWER                                                                                                                                                                                                                                                                     | VOLT | CURRENT | PROTECTION |     |      |      | CONDUCTORS                                                           | CONDUITS        |
|                                                                                                                       |     |                    |     |                                                                                                                                                                                                                                                                           |      |         | AT         | AF  | POLE | KAIC |                                                                      |                 |
| MPB                                                                                                                   | 01  | SUB-FEEDER         |     | 9 220                                                                                                                                                                                                                                                                     |      | 40.09   |            |     |      |      |                                                                      |                 |
|                                                                                                                       | 02  | LIGHTING LOADS     | 18  | 900                                                                                                                                                                                                                                                                       | 230  | 3.91    | 20         | 100 | 2    | 10   | 2 - 3.5mm <sup>2</sup> THHN Cu. + 1 - 3.5mm <sup>2</sup> THHN Cu.(G) | 20mmØ uPVC PIPE |
|                                                                                                                       | 03  | LIGHTING LOADS     | 16  | 800                                                                                                                                                                                                                                                                       | 230  | 3.48    | 20         | 100 | 2    | 10   | 2 - 3.5mm <sup>2</sup> THHN Cu. + 1 - 3.5mm <sup>2</sup> THHN Cu.(G) | 20mmØ uPVC PIPE |
|                                                                                                                       | 04  | LIGHTING LOADS     | 12  | 600                                                                                                                                                                                                                                                                       | 230  | 2.61    | 20         | 100 | 2    | 10   | 2 - 3.5mm <sup>2</sup> THHN Cu. + 1 - 3.5mm <sup>2</sup> THHN Cu.(G) | 20mmØ uPVC PIPE |
|                                                                                                                       | 05  | LIGHTING LOADS     | 12  | 600                                                                                                                                                                                                                                                                       | 230  | 2.61    | 20         | 100 | 2    | 10   | 2 - 3.5mm <sup>2</sup> THHN Cu. + 1 - 3.5mm <sup>2</sup> THHN Cu.(G) | 20mmØ uPVC PIPE |
|                                                                                                                       | 06  | ALL PURPOSED LOADS | 04  | 720                                                                                                                                                                                                                                                                       | 230  | 3.13    | 20         | 100 | 2    | 10   | 2 - 3.5mm <sup>2</sup> THHN Cu. + 1 - 3.5mm <sup>2</sup> THHN Cu.(G) | 20mmØ uPVC PIPE |
|                                                                                                                       | 07  | ALL PURPOSED LOADS | 10  | 1 800                                                                                                                                                                                                                                                                     | 230  | 7.83    | 20         | 100 | 2    | 10   | 2 - 3.5mm <sup>2</sup> THHN Cu. + 1 - 3.5mm <sup>2</sup> THHN Cu.(G) | 20mmØ uPVC PIPE |
|                                                                                                                       | 08  | ALL PURPOSED LOADS | 10  | 1 800                                                                                                                                                                                                                                                                     | 230  | 7.83    | 20         | 100 | 2    | 10   | 2 - 3.5mm <sup>2</sup> THHN Cu. + 1 - 3.5mm <sup>2</sup> THHN Cu.(G) | 20mmØ uPVC PIPE |
|                                                                                                                       | 09  | FUTURE LOADS       | 01  | 1 000                                                                                                                                                                                                                                                                     | 230  | 4.35    |            |     |      |      |                                                                      |                 |
|                                                                                                                       | 10  | FUTURE LOADS       | 01  | 1 000                                                                                                                                                                                                                                                                     | 230  | 4.35    |            |     |      |      |                                                                      |                 |

## LOAD ANALYSIS

### A. LOAD CALCULATION

SERVICE ENTRANCE CONDUCTOR & EQUIPMENT RATING

TOTAL FULL LOAD CURRENT:

$$I = 9\,220 + (230 \times 0.8) = 50.11 \text{ Amperes}$$

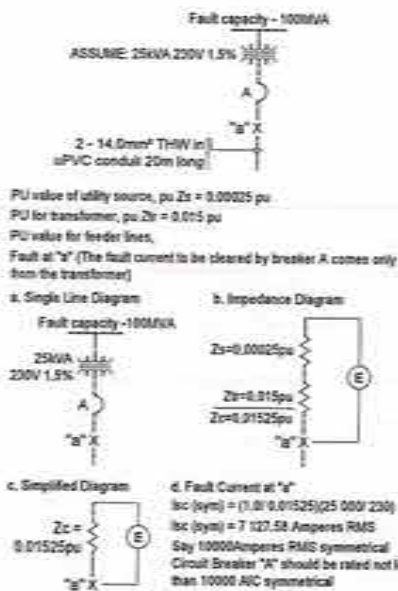
USE: 2 - 14.0mm<sup>2</sup> THW Cu WIRE +  
1 - 14.0mm<sup>2</sup> THW GROUND Cu WIRE  
INSIDE 1 - 25mmØ RMC PIPE

MAXIMUM CURRENT RATING OF PROTECTION DEVICE

(INVERSE TIME CIRCUIT BREAKER):

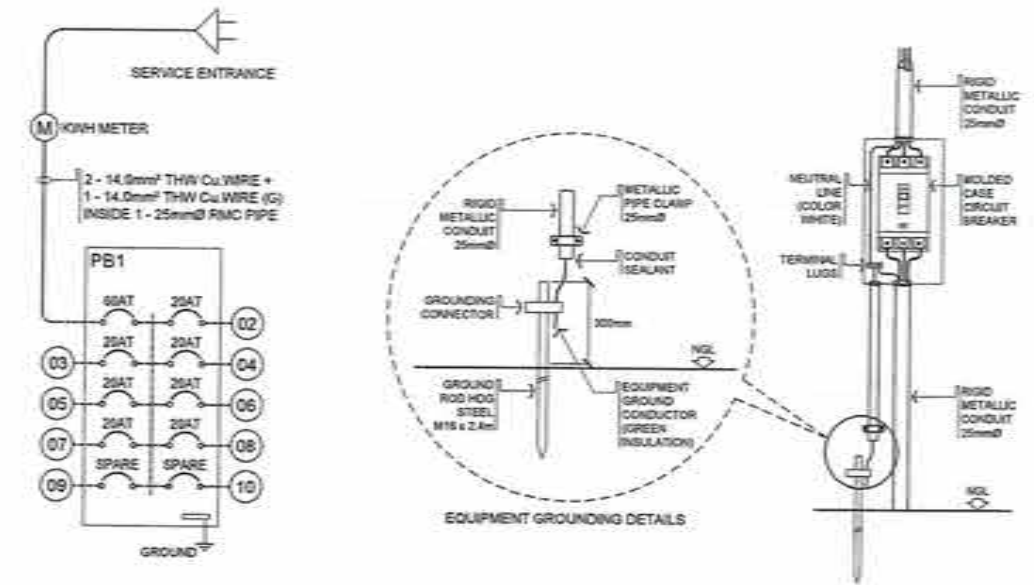
USE: 1 - 60AT 100AF 240V 1/2 100AIC ACB

### B. FAULT CURRENT CALCULATION



### C. VOLTAGE DROP CALCULATION

| FEEDER |               | CONDUCTORS              | CURRENT | DISTANCE | PHASE | IMPEDANCE |       | VOLTAGE DROP | VOLTAGE DROP TOTAL | VOLTAGE DROP (%) | VOLTAGE DROP (%) TOTAL | VOLTAGE DROP END |
|--------|---------------|-------------------------|---------|----------|-------|-----------|-------|--------------|--------------------|------------------|------------------------|------------------|
| FROM   | TO            |                         |         |          |       | R         | X     |              |                    |                  |                        |                  |
| XMER   | PB1           | 2 - 14.0mm <sup>2</sup> | 50.11 A | 18.0 m   | 1/4   | 0.490     | 0.063 | 2.92         |                    | 1.27             |                        | 227.08           |
| MPB    | CKT.07 - C.D. | 2 - 3.5mm <sup>2</sup>  | 7.94 A  | 12.9 m   | 1/4   | 2.000     | 0.054 | 1.23         | 4.15               | 0.54             | 1.81                   | 225.85           |



1 SINGLE LINE DIAGRAM  
E-2 SCALE: 1/8"

2 MAIN DISCONNECTION MEANS DETAIL  
E-2 SCALE: 1/8"

### ILLUMINATION CALCULATION

BUILDING TYPE: DINING/ PANTRY  
ROOM/ FLOOR: GROUND FLOOR  
ILLUMINATION (E): 200 lux  
CEILING HEIGHT: 2.70 m  
WORKPLANE HEIGHT: 0.85 m  
ROOM PERIMETER LINE: 28.20 m  
ROOM TOTAL AREA: 44.00 m<sup>2</sup>  
LUMINAIRE TYPE: FAMUCO 1X36Watts Recessed Troffer w/ Prismatic Diffuser

INITIAL OUTLET LUMENS: 5 200  
ROOM CAVITY RATIO: 3.20  
COEF. OF UTILIZATION: 0.62  
LIGHT LOSS FACTOR: 0.85  
LAMPS/ LUMINAIRE: 1.0  
NUMBER OF LUMINAIRES: 5.87

BUILDING TYPE: BEDROOMS  
ROOM/ FLOOR: GROUND FLOOR  
ILLUMINATION (E): 200 lux  
CEILING HEIGHT: 2.70 m  
WORKPLANE HEIGHT: 0.70 m  
ROOM PERIMETER LINE: 14.00 m  
ROOM TOTAL AREA: 9.78 m<sup>2</sup>  
LUMINAIRE TYPE: FAMUCO 1X36Watts Recessed Troffer w/ Prismatic Diffuser

INITIAL OUTLET LUMENS: 1 350  
ROOM CAVITY RATIO: 7.16  
COEF. OF UTILIZATION: 0.455  
LIGHT LOSS FACTOR: 0.85  
LAMPS/ LUMINAIRE: 1.0  
NUMBER OF LUMINAIRES: 1.82

BUILDING TYPE: CORRIDORS  
ROOM/ FLOOR: GROUND FLOOR  
ILLUMINATION (E): 100 lux  
CEILING HEIGHT: 2.70 m  
WORKPLANE HEIGHT: 0.70 m  
ROOM PERIMETER LINE: 37.60 m  
ROOM TOTAL AREA: 23.65 m<sup>2</sup>  
LUMINAIRE TYPE: LED BEGHELLI DOWNLIGHT 15WATTS COMPACT

INITIAL OUTLET LUMENS: 1 350  
ROOM CAVITY RATIO: 7.95  
COEF. OF UTILIZATION: 0.284  
LIGHT LOSS FACTOR: 0.85  
LAMPS/ LUMINAIRE: 1.0  
NUMBER OF LUMINAIRES: 6.04



3 VICINITY MAP  
E-2 SCALE: 1/8"

|                                                                                                                                                                |                                                                                                                 |                                                                                                                                      |                                      |                                 |                                                            |                                                  |                                     |         |           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------|------------------------------------------------------------|--------------------------------------------------|-------------------------------------|---------|-----------|
| <p>REPUBLIC OF THE PHILIPPINES<br/>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS<br/>REGIONAL OFFICE NO. XI<br/>GOV. CHAVEZ COR. B. MAGSAYSAY AVENUE, DAVAO CITY</p> | PROJECT NAME AND LOCATION                                                                                       | SHEET CONTENTS                                                                                                                       | PREPARED                             | REVIEWED                        | SUBMITTED                                                  | RECOMMENDED                                      | APPROVED                            | SET NO. | SHEET NO. |
|                                                                                                                                                                | CONSTRUCTION OF 701 FEMALE BARRACKS FACILITY, SITIO MAGAY, BRGY. DON MARTIN MARUNDAN, MATI CITY, DAVAO ORIENTAL | LOAD SCHEDULE<br>LOAD ANALYSIS<br>ILLUMINATION CALCULATION<br>SINGLE LINE DIAGRAM<br>MAIN DISCONNECTION MEANS DETAIL<br>VICINITY MAP | JOHN PHILIP S. ORGENES<br>ENGINEER I | ALGIN A. GINGON<br>ENGINEER III | JULIAN T. BERNARDINO<br>CHIEF PLANNING AND DESIGN DIVISION | JOSE L. CABALLERO<br>ASSISTANT REGIONAL DIRECTOR | JUBY B. CORDON<br>REGIONAL DIRECTOR | E<br>2  | 14<br>14  |