



Republika ng Pilipinas Lungsod Quezon

BIDS AND AWARDS COMMITTEE FOR INFRASTRUCTURE & CONSULTANCY

2nd Floor, Finance Building, Procurement Department, Quezon City Hall Complex, Elliptical Road, Quezon City



REQUEST FOR QUOTATION / PROPOSAL **(Negotiated Procurement 53.9)**

The Quezon City Government through its Bids and Awards Committee – Infra and Consultancy undertake an Emergency Procurement for the **PROPOSED INSTALLATION OF ELECTRICAL SERVICE ENTRANCE OF LAGRO SENIOR HIGH SCHOOL** located at **ASENCION AVE., BARANGAY GREATER LAGRO, DISTRICT 5, QUEZON CITY**, in accordance with **Section 53.2 of the Revised Implementing Rules and Regulations of Republic Act No. 9184**.

Name of Project : **PROPOSED ELECTRICAL WIRING SYSTEM DUE TO ADDITIONAL LOADS AT EUGENIO LOPEZ JR. CENTER FOR MEDIA ARTS SENIOR HIGH SCHOOL**

Approved Budget:
for the Contract **FIVE HUNDRED TWENTY ONE THOUSAND EIGHT HUNDRED EIGHTY SIX PESOS AND 78/100 (Php521,886.78)**

Description : **Program of Work**
I. General Requirements
II. Installation of Electrical System
III. Fabricated PVC Brackets
IV. Construction of Concrete Distribution Pole
V. Insulation Resistance Testing

Completion of the Works is required within **Sixty (60)** calendar days from receipt of Notice to Proceed.

Please see attached:
Detailed Proposal Form
Plan
Technical Specification

Please quote your best offer for the project/s described below, subject to the Terms and Conditions provided. Submit your proposal/price quotation duly signed by you or your duly authorized representative not later than **14 September 2020** on or before **11:00am**, Philippine Standard Time, together with the following documents:

1. PhilGEPS Platinum Certificate
2. Business Registration (DTI & SEC)
3. Mayor's & Business Permit (2020)
4. Tax Clearance
5. PCAB License (Bidders with valid Philippine Contractors Accreditation Board (PCAB) Building-Small B)
6. Audited Financial Statements (2019)
7. Net Financial Contracting Capacity (NFCC)
8. Income/Business Tax Returns (2019)
9. Omnibus Sworn Statement prescribed by the Government Procurement Policy Board (GPPB) duly notarized with attached Secretary's Certificate (*If a partnership, corporation, cooperative, or joint venture*). The authorized representative as identified in the Omnibus Sworn Statement shall be the signatory in the proposal/price quotation form.

in a **SEALED LONG BROWN ENVELOPE** shall:

1. Contain the Name of Project of the contract to be quoted in capital letters;
2. Bear the name and address of the Contractor in capital letters;
3. Be addressed to the Procuring Entity's BAC.

Name of Project: **PROPOSED INSTALLATION OF ELECTRICAL SERVICE ENTRANCE OF LAGRO SENIOR HIGH SCHOOL**

**Quezon City Local Government
BIDS AND AWARDS COMMITTEE (INFRA & CONSULTANCY)
2/F Procurement Department, Finance Building
Quezon City Hall Compound**

For any clarification you may contact us at 89884242 loc. 8505/8709.

ATTY. MARK DALE DIAMOND P. PERRAL
Chairman, BAC Infra and Consultancy



Republika ng Pilipinas Lungsod Quezon

BIDS AND AWARDS COMMITTEE FOR INFRASTRUCTURE & CONSULTANCY
2nd Floor, Finance Building, Procurement Department, Quezon City Hall Complex, Elliptical Road, Quezon City



TERMS AND CONDITIONS

1. Contractor shall **provide correct and accurate** information required in this form.
2. Price quotation/proposal must be valid for a period of thirty (30) calendar days from the date of submission.
3. Price quotation/proposal, to be denominated in Philippine Peso shall include all taxes, duties and/or levies payable.
4. Quotation/Proposal **exceeding the Approved Budget for the Contract (ABC) shall be rejected.**
5. Award of contract shall be made to the lowest quotation/proposal (for infra) which complies with the minimum technical specifications and other terms and conditions stated herein.
6. Any interlineations, erasures or overwriting shall be valid only if they are signed or initialed by the contractor or his/her duly authorized representative/s.
7. The Engineering Department shall have the right to inspect and monitor the construction projects
8. Non-submission of eligibility documents shall mean disqualification of Quotation/Proposal.
9. Liquidated damages equivalent to one tenth (1/10) of one percent (1%) of the cost of the unperformed portion for every day of delay, Engineering Department shall rescind the contract once the cumulative amount of liquidated damages reaches ten percent (10%) of the amount of the contract, without prejudice to other courses of action and remedies open to it.
10. Failure to follow these instructions will disqualify your entire quotation/proposal.


ATTY. MARK DALE DIAMOND P. PERRAL
Chairman, BAC Infra and Consultancy

PROGRAM OF WORK QC INFRA PROJECT

**PROJECT TITLE : PROPOSED INSTALLATION OF ELECTRICAL SERVICE ENTRANCE OF
LAGRO SENIOR HIGH SCHOOL**

LOCATION : ASENCION AVE., BARANGAY GREATER LAGRO, DISTRICT 5, QUEZON CITY

SCOPE OF WORK:

1. Wiring and installation of Service Entrance
2. Installation of Main Protection Circuit Breaker
3. Construction of Concrete Metering Pole
4. Certification of Insulation Resistance Test

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION & SCOPE OF WORKS	UNIT	QTY.		UNIT COST		TOTAL COST
A.	GENERAL REQUIREMENT						
	Temporary Lighting & Water Facilities	days	60	P		P	
	Steel Barricade with caution tape (Rental)	each	41				
	Billboard	pc	1				
	Construction Safety and Health						
	Safety Helmet	pcs	9				
	Safety Shoes	pcs	9				
	Safety Gloves	pcs	7				
	Vest	pcs	7				
	Face mask	pcs	9				
	Harness	pcs	7				
	Goggles	pcs	7				
					Direct Cost A	P	
B	INSTALLATION OF ELECTRICAL SYSTEM						
I	Roughing-ins						
	50mm0 Entrance Cap Diecast US	set	2				
	50mm0x 10' IMC Pipe	pcs	3				
	50mm0 x 3/8" 0 U-bolt w/ nut and washer	pairs	8				
	2"0x10'PVC Pipe	pcs	6				
	1 1/2"0x 10' PVC Pipe	pcs	12				
	1"0 x 10' PVC Pipe	pc	1				
	2"0 x PVC Long Elbow	pcs	5				
	1 1/2"0 x PVC Long Elbow	pcs	3				
	1"0 x PVC Long Elbow	pcs	1				
	1 1/2"0 Entrance Cap Diecast US	set	2				
	100mm0 Solderless Connector w/two bolt	pcs	2				
	60mm0 Solderless Connector w/two bolt	pcs	4				
II	Wires & Cables						
	100mm ² THHN Wire (black)	mtrs	40				
	60mm ² THHN Wire (black)	mtrs	80				
	58mm ² THHN Wire (black)	mtrs	70				
	30mm ² THHN Wire (white)	mtrs	20				
	3.5mm ² THHN Wire	roll	1				
III	Panel board						
	Moulded Case Circuit Breaker 225 AT, CB, 2P, 230V, w/	set	1				
	Ground Terminal Enclosure Weatherproof Type in "NEMA 12"						
	Industrial Type						

ITEM NO.	WORK DESCRIPTION & SCOPE OF WORKS	UNIT	QTY.		UNIT COST		TOTAL COST
IV	Miscellaneous & Consumables						
	Rubber Tape Nitto	rolls	20				
	Electrical Tape	rolls	20				
	500 MCM Solderless Connector w/two bolt	pcs	15				
	350 MCM Solderless Connector w/two bolt	pcs	6				
	Pipe/Conduit Supports, Brackets and Other Accessories	unit	1				
					Material Cost	P	
					Labor Cost		
					Direct Cost B	P	
C.	FABRICATED PVC BRACKETS						
	Fabricated PVC Brackets Ls	lot	1				
					Direct Cost C	P	
D.	CONSTRUCTION OF CONCRETE DISTRIBUTION POLE						
	Cement	bags	18				
	Sand	cum	2				
	Gravel	cum	3				
	Assorted RSB	kgs	170				
	Assorted CWN	kgs	4				
	GI Tie Wire Ga16	kgs	4				
	2" x 3" x 12' Form lumber	bdf	300				
	3/4" x 4' x 8' Form plywood	pcs	2				
					Material Cost	P	
					Labor Cost		
					Direct Cost D	P	
E.	INSULATION RESISTANCE TEST						
	Certification of Insulation Resistance Test	lot	1				
					Direct Cost E	P	
Total Direct Cost						P	
OCM							
Profit							
VAT							
PROJECT COST						P	

[Signature Over Printer Name]

[in the capacity of]

Duly authorized to sign Bid/Quote for and on behalf of _____

Name of Project: **PROPOSED INSTALLATION OF ELECTRICAL SERVICE ENTRANCE OF LAGRO SENIOR HIGH SCHOOL**

Location: **ASENCION AVE., BARANGAY GREATER LAGRO, DISTRICT 5, QUEZON CITY**

ABC: **P521,886.78**

SUMMARY

A.	GENERAL REQUIREMENT	P	
B.	INSTALLATION OF ELECTRICAL SYSTEM		
C.	FABRICATED PVC BRACKETS		
D.	CONSTRUCTION OF CONCRETE DISTRIBUTION POLE		
E.	INSULATION RESISTANCE TEST		
TOTAL DIRECT COST		P	
OCM			
PROFIT			
VAT			
TOTAL ESTIMATED COST		P	

Amount in Words: _____

NAME OF COMPANY: _____
ADDRESS: _____

[Signature Over Printer Name]

[in the capacity of]

Duly authorized to sign Bid/Quote for and on behalf of _____

Name of Project: **PROPOSED INSTALLATION OF ELECTRICAL SERVICE ENTRANCE OF LAGRO SENIOR HIGH SCHOOL**

Location: **ASENCION AVE., BARANGAY GREATER LAGRO, DISTRICT 5, QUEZON CITY**
ABC: **P521,886.78**

BREAKDOWN OF COST

	Item of Work (Description)	MATERIALS COST	LABOR COST	INDIRECT COST	AGGREGATE COST
A.	GENERAL REQUIREMENT				
B.	INSTALLATION OF ELECTRICAL SYSTEM				
C.	FABRICATED PVC BRACKETS				
D.	CONSTRUCTION OF CONCRETE DISTRIBUTION POLE				
E.	INSULATION RESISTANCE TEST				
	T O T A L				

Amount in Words: _____

NAME OF COMPANY: _____
ADDRESS: _____

[Signature Over Printer Name]

[in the capacity of]

Duly authorized to sign Bid/Quote for and on behalf of _____



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT
5th, 6th, 7th Floor, QC Civic Center Building "B"
Telephone Nos. 8988-4242 Local 8538



NAME OF PROJECT: **PROPOSED INSTALLATION OF ELECTRICAL SYSTEM OF LAGRO SENIOR HIGH SCHOOL**

LOCATION: **ASCENSION AVE. BARANGAY GREATER LARO, DISTRICT 5, QUEZON CITY**

TECHNICAL SPECIFICATIONS

PART 1 – GENERAL

1.1 REFERENCE

The publications listed below form a part of his specification to the extent referenced. the publications are referred to in the text by the basic designation only.

1.1.1 American Society for Testing and Materials (ASTM)

ASTM A123/A123M (2000) Zinc (Hot-dip Galvanized) Coatings On Iron and Steel Products

ASTM B1 (1995) Hard – Drawn Copper Wire

ASTM BB (1999) Concentric-Lay-Stranded Copper Conductor, Hard, Medium – Hard or Soft

1.1.2 National Electrical Manufacturers Association (NEMA)

NEMA C80.3 (1994) Electrical Metallic Tubing – zinc Coated (EMT)

NEMA c57.12.28 (1999) Pad mounted equipment-Enclosure Integrity

NEMA TC 2 (1998) Electrical Polyvinyl Chloride (PVC) Tubing (EPT) and Conduit (EPC- 40)

NEMA TC3 (1999) PVC Fittings for Use with Rigid PVC Conduit ant Tubing

NEMA WD 1 (1999) General requirements for Wiring Devices

1.1.3 National Fire Protection Association (NFPA)

NFPA 70 (2002) National Electrical Code

1.1.4 Underwriters Laboratories Inc. (UL)

UL 1242 (1996; Mar 1998) Intermediate Metal Conduit

UL 467 (1993; Rev Apr 1999) Grounding & Bonding Equipment

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- | | |
|---------|--|
| UL 486A | (1997; Rev Dec 1998) Wire Connection & Soldering Legs for Use with Copper Conductors |
| UL 486C | (1997; Rev Aug 1998) Splicing Wire Connectors |
| UL 489 | (1996; Rev thru Dec 1998) Molded-Case Circuit Breakers |
| UL 50 | (1995; R 1999, Bul. 1999) Safety Enclosures for Electrical Equipment |
| UL510 | (1994; R Apr 1998) Poly Vinyl Chloride Polyethylene & Rubber Insulating Tape |
| UL 514A | (1996; Rev Dec 1999) Metallic Outlet Boxes |
| UL 797 | (1993; R1997) Electrical Metallic Tubing |
| UL 83 | (1998; R 1999, Bul. 1999 & 2000) Thermoplastic-Insulated Wires & Cables |
| UL 869A | (1998) Service Equipment |
- 1.1.5 Institute of Integrated Electrical Engineer (IIEE)
- | | |
|-----|-----------------------------------|
| PEC | (2002) Philippine Electrical Code |
|-----|-----------------------------------|
- 1.1.6 Philippine National Standard (PNS)
- | | |
|----|---------------------------|
| BS | (2002) Bureau of Standard |
|----|---------------------------|

1.3 SUBMITTALS

Submit the following:

1.3.1 Shop Drawings

Panelboards

1.3.2 Product Data

Receptacles

Circuit breakers

Switches

Enclosed Circuit breakers

1.3.3 Test Reports

600-volt wiring test

Grounding system test



1.4 MAINTENANCE

1.4.1 Electrical Systems

Submit operation and maintenance manuals for electrical systems that provide basic data relating to the design, operation, and maintenance of the electrical distribution system for the building.

This shall include:

- a. Single line diagram of the "as-built" building electrical system.
- b. Manufacturers' operating and maintenance manuals on active electrical equipment.

PART 2 – PRODUCTS

2.1 MATERIALS AND EQUIPMENT

Materials, equipment, and devices shall, as a minimum, meet requirements of UL, where UL standards are established for those items, and requirements of NFPA 70 and PEC.

2.2 CONDUIT AND FITTINGS

Shall conform to the following:

2.2.1 Rigid Nonmetallic Conduit

PVC Type EPC-40, in accordance with NEMA TC 2 and UL 651.

2.2.2 Intermediate Metal Conduit (IMC)

UL 1242, zinc-coated steel only.

2.2.3 Fittings for IMC threaded-type, Split couplings unacceptable.

2.2.4 Fittings for Rigid Nonmetallic Conduit

NEMA TC 3.

2.3 WIRE AND CABLES

Wires and cables shall meet applicable requirements of NFPA 70, PEC and PNS and UL for type of insulation, jacket, and conductor specified or indicated. Wires and cables manufactured more than 12 months prior to date of delivery shall not be used.

2.3.1 Conductors, shall be stranded unless specifically indicated otherwise. Conductor sizes and ampacities shown are based on copper, unless indicated otherwise. All conductors shall be copper.



2.3.1.1 Equipment Manufacturer Requirements

When manufacturer's equipment requires copper conductors at the terminations or requires copper conductors to be provided between components, of equipment, provide copper conductors or splices, splice boxes, and other work required to satisfy manufacturer's requirements.

2.3.2 Color Coding

Provide for service, feeder, branch, control, and signalling circuit conductors. Color shall be green for grounding conductors Color of ungrounded conductors in different voltage systems shall be as follows;

- a. 240 volt, single phase: black and red
- b. 240 volt, 3 phase: red and blue

2.3.3 Insulation

Unless specified or indicated otherwise or required by NFPA 70, PEC and PNS, power and lighting wires shall be 600-volt. Type THW or THHN conforming to UL 83 except that grounding wire may be type TW conforming to UL 83, Where lighting fixtures require 90-degree Centigrade (C) conductors, provide only conductors with 90-degree C insulation or better.

2.3.4 Bonding Conductors

ASTM B1, Solid bare copper wire for sizes 8mm² and smaller diameter, ASTM B8, Class B, stranded bare copper wire for sizes 14mm² and larger diameter.

2.4 SPLICES AND TERMINATION COMPONENTS

UL 486A for wire connectors and UL 510 for Insulating tapes, Connectors for 5.5 mm² and smaller diameter wires shall be insulated, pressure-type in accordance with UL 486A or UL 486C (twist-on splicing connector). Provide solderless terminal lugs on stranded conductors.

2.5 PANELBOARDS

UL 67 and UL 50 having a short-circuit current rating of 10,000 amperes symmetrical minimum, Panelboards for use as service disconnecting means shall additionally conform to UL 869A, Panelboards shall be circuit breaker-equipped. Design shall be such that individual breakers can be removed without disturbing adjacent units or without loosening or removing supplemental insulation supplied as means of obtaining clearances as required by UL "Specific breaker placement" is required in panelboards to match the breaker placement indicated in the panelboard schedule on the drawings, Use of *Subfeed Breakers* is not acceptable unless specifically indicated otherwise, Main breaker shall be *Separated* mounted *above* branch breakers, Circuit breakers shall be bolt-on type, Where *space only* is indicated, make provisions for future installation of breakers. Panelboard locks shall be keyed same. Directories shall indicate load served by each circuit in panelboard, Directories shall also indicate source of service to panelboard (e.g. Panel PA served from Panel MDP), Type directories and mount in holder behind transparent protective covering. Panelboards shall be listed and labelled for their intended use, Enclosure shall be galvanized steel gauge 14. Paint coating system shall comply with NEMA C57.12.28 for galvanized steel.

2.5.1 Panelboard Buses

Support copper bus bars on bases independent of circuit breakers. Main buses and back pans shall be designed so that breakers may be changed without machining, drilling, or tapping. Provide separate ground bus identified as equipment grounding bus per UL 67 for connecting conducting bus per UL 67 form connecting grounding conductors, bond steel cabinet.

2.5.2 Circuit Breakers

UL 489, thermal magnetic-type having a minimum short-circuit current rating equal to the short-circuit current rating of the panelboard in which the circuit breaker shall be mounted. Breaker terminals shall be UL listed as suitable for type of conductor provided. Series rated circuit breakers and plug-in circuit breakers without a self-contained bracket and not secured by a positive locking device requiring mechanical release for removal are unacceptable. Series rated circuit breakers and plug-in circuit breakers are unacceptable.

2.5.2.1 Multipole Breakers

Provide common trip-type with single operating handle. Breaker design shall be such that overload in one pole automatically causes all poles to open. Maintain phase sequence throughout each panel so that three adjacent breaker poles are connected to Phases A,B, and C, respectively.

2.6 ENCLOSED CIRCUIT BREAKERS

UL 489, Individual molded case circuit breakers with voltage and continuous current ratings, number of poles, overload trip setting, and short circuit current interrupting rating as indicated. Enclosure type as indicated.

2.7 GROUNDING AND BONDING EQUIPMENT

UL 467, Ground rods shall be copper-clad steel, with minimum diameter of 20 mm and minimum length of 3050 mm.

PART 3 – EXECUTION

3.1 INSTALLATION

Electrical installations shall conform to requirements of NFPA 70 and PEC and to requirements specified herein.

3.1.1 Wiring Methods

Provide insulated conductors installed in IMC, and rigid non-metallic conduit except where specifically indicated or specified otherwise or required by NFPA 70 and PEC to be installed

Otherwise, Provide insulated green equipment grounding conductor for circuit(S) installed in conduit and raceways. Minimum conduit size shall be 15mm nominal inside diameter for low voltage lighting and power circuits.

3.1.1.2 Nonmetallic Conduit

a. Restrictions applicable to PVC Schedule 40

- (1) Do not use in areas where subject to severe physical damage
- (2) Do not use above grade

3.1.1.3 Service Entrance Conduit, Underground

PVC, type-EPC 40, underground portion shall be encased in minimum of 75 mm of concrete and shall be installed minimum 460 mm below slab or grade.

3.1.2 Conduit Installation

Unless indicated otherwise, conceal conduit under floor slabs and within finished walls ceilings, and floors, install conduit parallel with or at right angles to ceilings, walls, and structural members where located above accessible ceilings and where conduit will be visible after completion of project.

3.1.2.1 Conduit through Floor Slabs

Where conduits rise through floor slabs. Curved portion of bends shall not be visible above finished slab.

3.1.2.2 Conduit Support

Support conduit by pipe straps, wall brackets, hangers, or ceiling trapeze. Fasten by concrete inserts or expansion bolts on concrete and by machine screws, welded threaded studs, or spring-tension clamps on steel work. Threaded C-Clamps may be used on IMC conduit only. Do not weld conduits of pipe straps to steel structures, Load applied to fasteners shall not exceed one-fourth proof test load. Fasteners attached to concrete ceiling shall be vibration resistant and shock-resistant. Holes cut to depth of more than 40 mm in reinforced concrete beams or to depth of more than 20 mm in concrete joints shall not cut main reinforcing bars. Fill unused holes. In partitions of light



steel construction, use sheet metal screws. In suspended-ceiling construction, run conduit above ceiling. Do not support conduit by ceiling support system. Conduit and box systems shall be supported independently of both (a) tie wires supporting ceiling grid system, and (b) ceiling grid system into which ceiling panels are placed. Supporting means shall not be shared between electrical raceways and mechanical piping or ducts. Installation shall be coordinated with above-ceiling mechanical systems to assure maximum accessibility to all systems. Spring-steel fasteners may be used for lighting branch circuit conduit supports in suspended ceilings in dry locations.

3.1.2.3 Directional Changes in Conduit Runs

Make Changes in direction of runs with symmetrical bends or cast-metal fittings. Make field-made bends and offsets with hickey or conduit-bending machine. Do not install crushed or deformed conduits. Avoid trapped conduits. Prevent plaster, dirt, or trash from lodging in conduits, boxes, fittings, and equipment during construction. Free clogged conduits of obstructions.

3.1.2.4 Pull Wire

Install pull wires in empty conduits, Pull wire shall be plastic having minimum 890-N tensile strength. Leave minimum 915 mm of slack at each end of pull wire.

3.1.2.5 Conduit Installed in Concrete Floor Slabs

Locate so as not to adversely affect structural strength of slabs. Install conduit within middle one-third of concrete slab. Do not stack conduits. Space conduits horizontally not closer than three diameters, except at cabinet locations. Curved portions of bends shall not be visible above finish slab. Increase slab thickness as necessary to provide minimum 25 mm cover over conduit. Where embedded conduits cross building and/or expansion joints, provide suitable watertight expansion/deflection fittings and bonding jumpers. Expansion/deflection fittings shall allow horizontal and vertical movements of raceway. Conduit larger than 22 mm trade size shall be parallel with or at right angles to main reinforcement, when at right angles to reinforcement, conduit shall be close to one of supports of slab.

3.1.2.6 Locknuts and Bushings

Fasten conduits to sheet metal boxes and cabinets with two locknuts where required by NFPA 70 and PEC where insulated bushings are used, and where bushings cannot be brought into firm contact with the box; otherwise, use at least minimum single locknut and bushing. Locknuts shall have sharp edges for digging into wall of metal enclosures. Install bushing on ends of conduits, and provide insulating type where required by NFPA 70 and PEC.

3.1.3 Boxes, Outlets, and Supports

Provide boxes in wiring and raceway systems wherever required for pulling of wires, making connections, and mounting of devices or fixtures. Boxes for metallic raceways shall be cast-metal, except that nonmetallic boxes may be used with nonmetallic conduit system. Each box shall have volume required by NFPA 70 and PEC for number of



conductors enclosed in box. Boxes for mounting lighting fixtures shall be minimum 100 mm square, or octagonal, except that smaller boxes may be installed as required by fixture configurations, as approved. Provide separate boxes for flush or recessed fixtures when required by fixture terminal operating temperature; fixtures shall be readily removable for access to boxes unless ceiling access panels and provided, Support boxes and pendants for surface-mounted fixtures on suspended ceilings independently of ceiling supports, or make adequate provisions for distributing load over ceiling support members in an approved manner. Fasten boxes and supports with wood screws on wood. With bolts and expansion shields on concrete, with toggle bolts on hollow masonry units, and with machine screws or welded studs on steel.

3.1.4 Conductor Identification

Provide conductor identification within each enclosure where tap, splice, or termination is made. For conductor's 14mm² and smaller diameter, color coding shall be by factory applied, color-impregnated insulation. For conductors 22mm² and larger diameter, color coding shall be by plastic-coated, self-sticking markers, colored nylon cable ties and plates; or heat shrink-type sleeves.

3.1.5 Splices

Make splices in accessible locations, make splices in conductors 5.5mm² and smaller diameter with insulated, pressure-type connector, Make splices in conductors 22mm² and larger diameter with solderless connector, and cover with insulation material equipment to conductor insulation.

Seal openings around electrical penetrations through fire resistance-rated walls, partitions, floor, or ceilings.

3.1.6 Grounding and Bonding

In accordance with NFPA 70 and NEC. Ground exposed non-current-carrying metallic parts of electrical equipment, metallic raceway systems, grounding conductor in metallic and nonmetallic raceways, telephone system grounds. Make ground connection to driven ground rods on exterior of building. Interconnect all grounding media in or on the structure to provide a common ground potential.

3.1.6.1 Resistance

Maximum resistance-to-ground of grounding system shall not exceed 5 ohms, contact Engineer for further instructions.

3.1.6.2 Equipment Connections

Provide power wiring for the connection of motors and control equipment under this section of the specification. Except as otherwise specifically noted or specified, automatic control wiring, control devices, and protective devices within the control circuitry are not included in the section of the specifications but shall be provided under the section specifying the associated equipment.



3.2.2 Grounding System Test

Test grounding system to ensure continuity, and that resistance to ground is not excessive. Test each ground rod for resistance to ground before making connections to rod; tie grounding system together and test for resistance to ground. Make resistance measurements in dry weather, not earlier than 48 hours after rainfall. Submit written results of each test to Engineer, and indicate location of rods as well as resistance and soil conditions at time measurements were made.

4.0 Concrete Works

Concrete works must be done using 2 bagger mixers with 3000 psi or 4000 psi with Grade 40 or Grade 60 reinforcing bars as specified in the plan and program of works.

PREPARED BY:


STEPHANIE D. OVIEDO

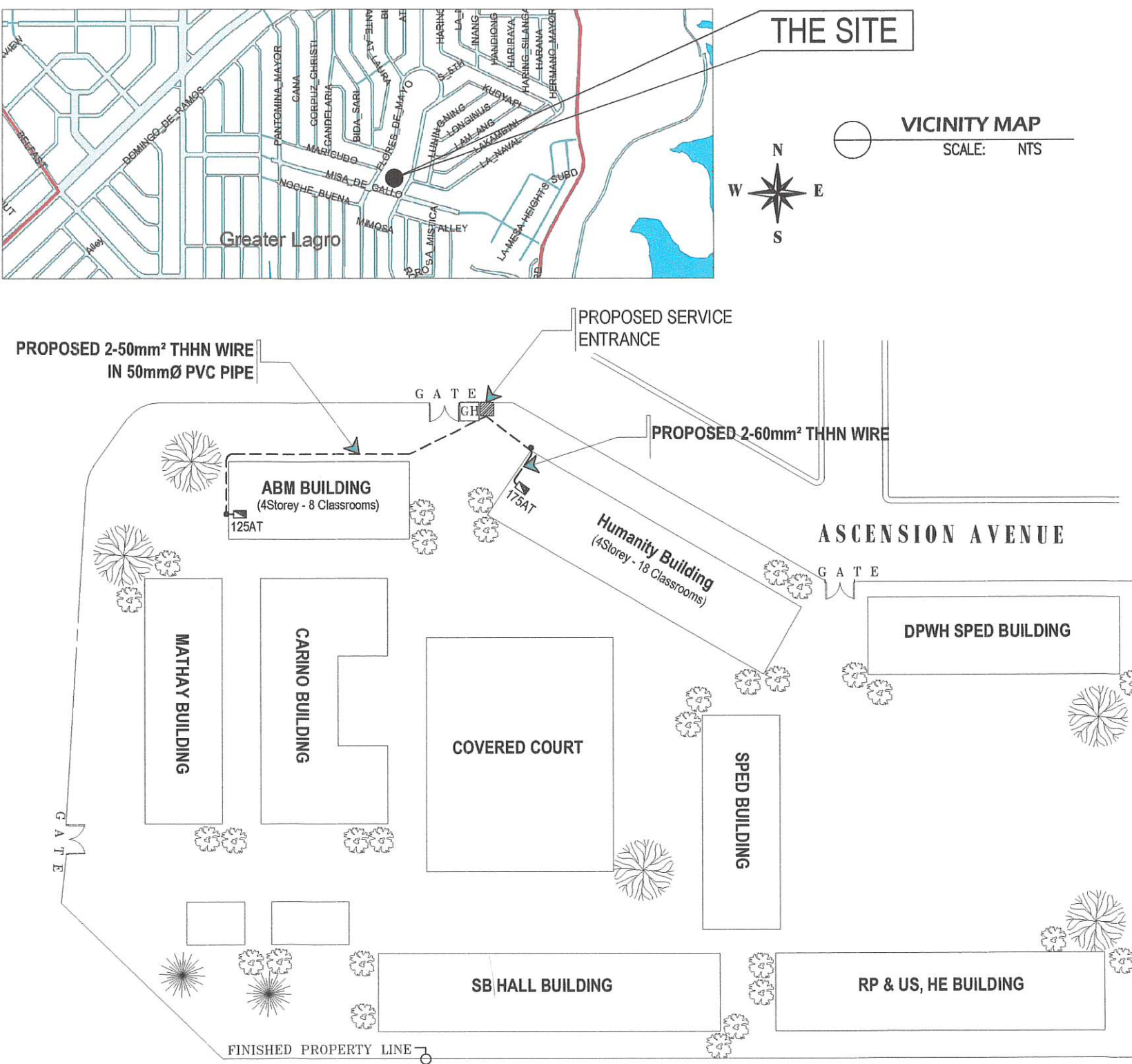
Planning and Programming Division

CHECKED BY:


SO A. CHAN, JR.

Planning and Programming Division

1. ALL WORKS SHALL BE DONE IN ACCORDANCE WITH THE PLANS
PLANS AND SPECIFICATION
2. THE WORKS SHALL COMPLY WITH THE PROVISION OF THE LATEST EDITION
OF THE PHILIPINE ELECTRICAL CODE, LAWS, ORDINANCES, RULES
AND REGULATIONS OF THE LOCALITY HAVING JURISDICTION OVER THE
PROJECT REQUIREMENTS OF LOCAL POWER COMPANY.
3. ALL THE JOB SHALL BE EXECUTED IN THE MOST THOROUGH PROMPT
AND WORKMANLIKE MANNER EMPLOYING STANDARD TOOLS, EQUIPMENT,
METHOD AND GOOD ENGINEERING PRACTICES. THE JOB SHALL BE DONE
COMPLETE IN ALL ASPECTS AS REQUIRED PER PLANS AND SPECIFICATIONS
AND READY FOR OPERATIONS.
4. ALL MATERIALS TO BE USED SHALL BE OF THE BEST QUALITY , BRAND
NEW AS SPECIFIED.
5. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO PRESENT GENERAL
LAYOUT AND BROAD OUTLINE/DESCRIPTION OF THE PROJECT BUT DO NOT
NECESSARILY INDICATE/DESCRIBED ACTUAL LOCATIONS, LEVEL AND DISTANCES
OF THE EQUIPMENT. THE CONTRACTOR IS HEREBY REQUIRED TO MAKE SUCH
ADJUSTMENT AT THE JOBSITE AS LOCATION, DISTANCES AND LEVELS ARE
GOVERNED BY ACTUAL FIELD CONDITIONS.
6. ANY DISCREPANCY BETWEEN THE PLANS AND SPECIFICATIONS SHALL BE
BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION /DECISION.
7. ALL LIGHTING AND CONVENIENCE OUTLET CIRCUITS SHALL BE 3.5 SQ. MM.
THW COPPER WIRE UNLESS OTHERWISE NOTED. MINIMUM SIZE OF WIRE SHALL
BE 3.5 SQ. MM. COPPER WIRE
8. ALL DUPLEX RECEPTACLE OUTLETS SHALL BE GROUNDING TYPE WITH PARALLEL
SLOTS FOR 220V.
9. UNLESS NOTED OTHERWISE IN THE DRAWING, WIRING DEVICES SHALL
BE INSTALLED AS FOLLOWS.
- LIGHTING CONTROL – 1.40 M. ABOVE FLOOR FINISH
OUTLET
CONVENIENCE – 0.30 M. ABOVE FLOOR FINISH
OUTLET
10. BOXES, WIRE, GUTTERS, ENCLOSURE SHALL BE FABRICATED FROM
STEEL WITH THICKNESS AS FOLLOWS:
- | SURFACE STEEL | GA |
|--|-------|
| UP TO INCLUDING 152.40mm | GA 16 |
| OVER 152.40 mm BUT NOT
OVER 457.30 mm | GA 14 |
| OVER 457.30 mm BUT NOT
OVER 762 mm | GA 12 |
| OVER 762 mm | GA 10 |
11. REFER TO NOTES AND SPECIFICATION FOR MORE INFORMATION.



1 GENERAL NOTES & SPECIFICATIONS

2 SITE DEVELOPMENT PLAN



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
PROPOSED INSTALLATION OF
ELECTRICAL SERVICE ENTRANCE OF
LAGRO SENIOR HIGH SCHOOL

LOCATION: ASCENSION AVE., BARANGAY GREATER LAGRO,
DISTRICT 5, QUEZON CITY

DRAWN BY: ENGR. JDO

DATE: 05/18/2023

CHECKED BY: [Signature]

REVISION NO.

SUBMITTED BY:

ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:

ENGR. SAGANI R. VERZOSA, JR.
CITY ENGINEERING DEPARTMENT

APPROVED BY:

HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENTS:

GENERAL NOTES &
SPECIFICATION
VICINITY MAP
SITE DEVELOPMENT PLAN

SHEET NO.

E-01

LPP- DPWH BUILDING (4-STOREY 18 ROOMS), TYPICAL FORM (GROUND FLOOR & 3RD FLOOR)

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	CKT. BREAKER			SIZE OF	
					AT	AF	P	WIRES	CONDUITS
1	11 LIGHTING OUTLET	230	1,100	4.78	15	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
2	16 LIGHTING OUTLET	230	1,600	6.95	15	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
3	16 LIGHTING OUTLET	230	1,600	6.95	15	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
4	8 LIGHTING OUTLET	230	800	2.61	30	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
5	5 OUTLET	230	900	3.91	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 20mm"Ø PVC PIPE
6	5 OUTLET	230	900	3.91	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 20mm"Ø PVC PIPE
7	5 WALL FAN	230	1,000	4.34	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 20mm"Ø PVC PIPE
8	5 WALL FAN	230	1,000	4.34	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 20mm"Ø PVC PIPE
9	SPARE								
10	SPARE								
TOTAL			8,900						

COMPUTATION :

$$IT = \frac{8,900 VA + (2,300 VA \times 25\%)}{230 V}$$

$$= 41.20 \text{ AMPERES}$$

OVER CURRENT PROTECTION DEVICE
USE : 70AT,CB, 2P, 230V

MAIN FEEDER LINE
USE : 2 - 22 mm2 THHN WIRE & 1-8.0mm2 THHN GROUND WIRE
IN 32mmØ PVC PIPE

LPP- DPWH BUILDING (4-STOREY 18 ROOMS), TYPICAL FORM (2ND FLOOR & 4TH FLOOR)

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	CKT. BREAKER			SIZE OF	
					AT	AF	P	WIRES	CONDUITS
1	9 LIGHTING OUTLET	230	900	3.91	15	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
2	16 LIGHTING OUTLET	230	1,600	6.95	15	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
3	16 LIGHTING OUTLET	230	1,600	6.95	15	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
4	8 LIGHTING OUTLET	230	800	2.61	30	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
5	5 OUTLET	230	900	3.91	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 20mm"Ø PVC PIPE
6	5 OUTLET	230	900	3.91	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 20mm"Ø PVC PIPE
7	5 WALL FAN	230	1,000	4.34	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 20mm"Ø PVC PIPE
8	5 WALL FAN	230	1,000	4.34	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 20mm"Ø PVC PIPE
9	SPARE								
10	SPARE								
TOTAL			8,700						

COMPUTATION :

$$IT = \frac{8,700 VA + (2,300 VA \times 25\%)}{230 V}$$

$$= 40.33 \text{ AMPERES}$$

OVER CURRENT PROTECTION DEVICE
USE : 70AT,CB, 2P, 230V

MAIN FEEDER LINE
USE : 2 - 22 mm2 THHN WIRE & 1-8.0mm2 THHN GROUND WIRE
IN 32mmØ IMC PIPE

MDP- DPWH BUILDING (4 STOREY, 18 ROOMS)

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	CKT. BREAKER			SIZE OF	
					AT	AF	P	WIRES	CONDUITS
1	GROUND FLOOR	230	8,900	38.69	70	100	2	2-22mm2 THHN COPPER WIRE 1-8.0mm2 THHN GROUND WIRE	IN 25mm"Ø IMC PIPE
2	2ND FLOOR	230	8,700	37.82	70	100	2	2-22mm2 THHN COPPER WIRE 1-8.0mm2 THHN GROUND WIRE	IN 25mm"Ø IMC PIPE
3	3RD FLOOR	230	8,900	38.69	70	100	2	2-22mm2 THHN COPPER WIRE 1-8.0mm2 THHN GROUND WIRE	IN 25mm"Ø IMC PIPE
4	4TH FLOOR	230	8,700	37.82	70	100	2	2-22mm2 THHN COPPER WIRE 1-8.0mm2 THHN GROUND WIRE	IN 25mm"Ø IMC PIPE
TOTAL			35,200						

COMPUTATION :

$$IT = \frac{35,200 + (2,300VA \times 25\%)}{230 V}$$

$$= 155.54 \text{ AMPERES}$$

OVER CURRENT PROTECTION DEVICE
USE : 175AT,CB, 2P, 230V

MAIN FEEDER LINE
USE : 2 - 60 mm2 THHN WIRE & 1-22mm2 THHN GROUND WIRE
IN 50mmØ IMC PIPE

LPP- DPWH BUILDING (4 STOREY, 8 ROOMS) GROUND FLOOR

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	CKT. BREAKER			SIZE OF	
					AT	AF	P	WIRES	CONDUITS
1	16 LIGHTING OUTLET	230	1,600	6.95	15	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
2	6 LIGHTING OUTLET	230	600	2.61	15	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
3	5 OUTLET	230	900	3.91	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 25mm"Ø PVC PIPE
4	4 WALL FAN	230	800	3.48	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 25mm"Ø PVC PIPE
TOTAL			3,900						

COMPUTATION :

$$IT = \frac{3,900 + (2,300VA \times 25\%)}{230 V}$$

$$= 19.46 \text{ AMPERES}$$

OVER CURRENT PROTECTION DEVICE
USE : 40AT,CB, 2P, 230V

MAIN FEEDER LINE
USE : 2 - 8.0 mm2 THHN WIRE & 1-8.0mm2 THHN GROUND WIRE
IN 25mmØ PVC PIPE

LPP- DPWH BUILDING (4 STOREY, 8 ROOMS) TYPICAL FORM (2ND FLOOR TO 4TH FLOOR)

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	CKT. BREAKER			SIZE OF	
					AT	AF	P	WIRES	CONDUITS
1	12 LIGHTING OUTLET	230	1,000	5.22	15	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
2	8 LIGHTING OUTLET	230	800	2.61	15	50	2	2-3.5mm2 THHN COPPER WIRE	IN 20mm"Ø PVC PIPE
3	5 OUTLET	230	900	3.91	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 25mm"Ø PVC PIPE
4	4 WALL FAN	230	800	2.61	30	50	2	2-3.5mm2 THHN COPPER WIRE 1-2.0mm2 THHN GROUND WIRE	IN 25mm"Ø PVC PIPE
TOTAL			3,700						

COMPUTATION :

$$IT = \frac{3,700 + (2,300VA \times 25\%)}{230 V}$$

$$= 18.59 \text{ AMPERES}$$

OVER CURRENT PROTECTION DEVICE
USE : 40AT,CB, 2P, 230V

MAIN FEEDER LINE
USE : 2 - 8.0 mm2 THHN WIRE & 1-8.0mm2 THHN GROUND WIRE
IN 25mmØ PVC PIPE

3 SCHEDULE OF LOADS 1 OF 2



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:

PROPOSED INSTALLATION OF
ELECTRICAL SERVICE ENTRANCE OF
LAGRO SENIOR HIGH SCHOOL

LOCATION: ASCENSION AVE., BARANGAY GREATER LAGRO,
DISTRICT 5, QUEZON CITY

DRAWN BY:

ENGR. JOD

DATE:

05/15/2023

CHECKED BY:

REVISION NO.

SUBMITTED BY:

ENGR. LEO S. DEL ROSARIO
HEAD PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:

ENGR. ISAGANI R. VERZOSA, JR.
CITY ENGINEERING DEPARTMENT

APPROVED BY:

HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENTS:

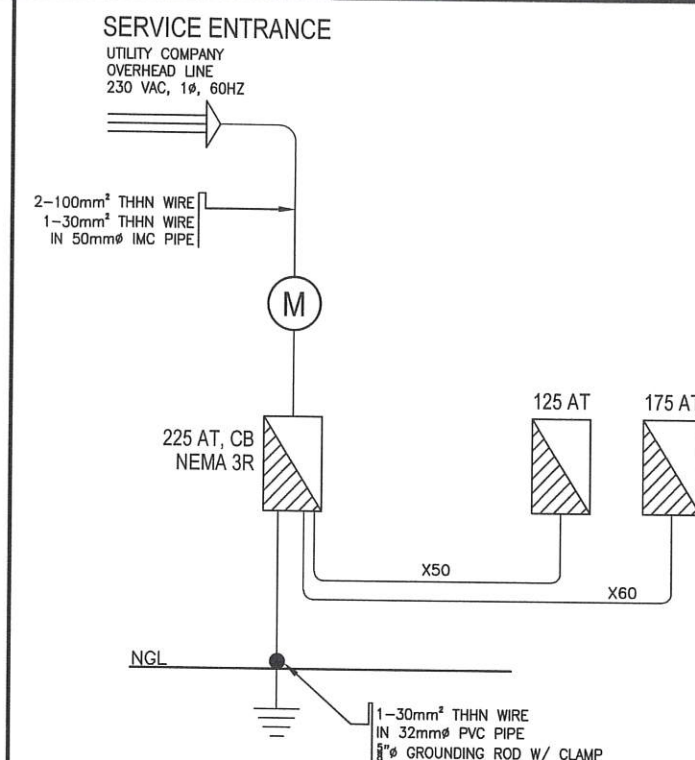
SCHEDULE OF LOADS
1 OF 2

SHEET NO.

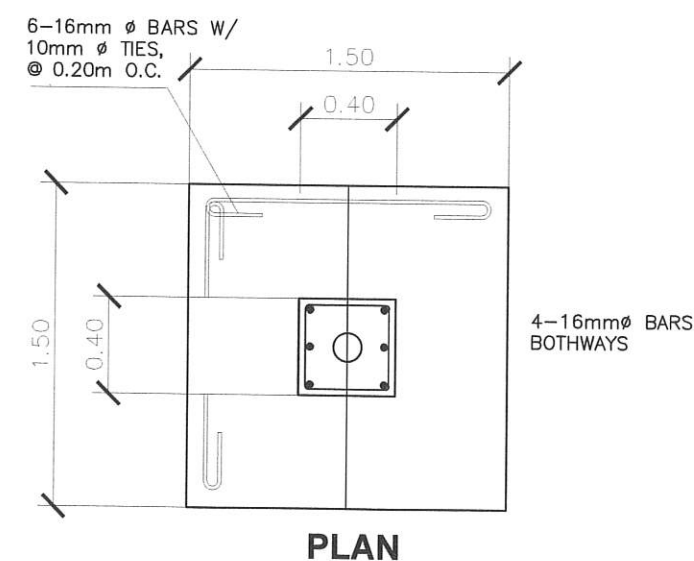
E-02

MDP- DPWH BUILDING (4 STOREY, 8 ROOMS)									
CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	CKT. BREAKER			SIZE OF	
					AT	AF	P	WIRES	CONDUITS
1	GROUND FLOOR	230	3,900	16.95	40	50	2	2-8.0mm ² THHN COPPER WIRE 1-8.0mm ² THHN GROUND WIRE	IN 25mm ^ø PVC PIPE
2	2ND FLOOR	230	3,700	16.08	40	50	2	2-8.0mm ² THHN COPPER WIRE 1-8.0mm ² THHN GROUND WIRE	IN 25mm ^ø PVC PIPE
3	3RD FLOOR	230	3,700	16.08	40	50	2	2-8.0mm ² THHN COPPER WIRE 1-8.0mm ² THHN GROUND WIRE	IN 25mm ^ø PVC PIPE
4	4TH FLOOR	230	3,700	16.08	40	50	2	2-8.0mm ² THHN COPPER WIRE 1-8.0mm ² THHN GROUND WIRE	IN 25mm ^ø PVC PIPE
TOTAL			15,000						
COMPUTATION :									
IT = $\frac{15,000 + (2,300VA \times 25\%)}{230 V}$				OVER CURRENT PROTECTION DEVICE USE : 125AT,CB, 2P, 230V					
= 67.72AMPERES				MAIN FEEDER LINE USE : 2 - 50 mm ² THHN WIRE & 1-14mm ² THHN GROUND WIRE IN 32mm ^ø IMC PIPE					

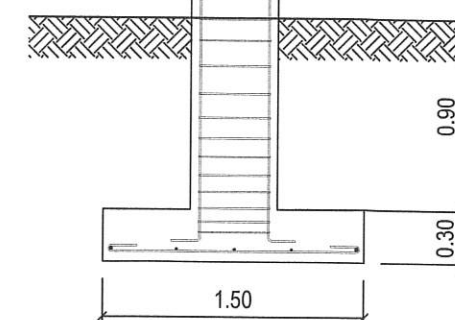
MCB- LOAD SCHEDULE AND COMPUTATION									
CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	CKT. BREAKER			SIZE OF	
					AT	AF	P	WIRES	CONDUITS
1	DPWH BLDG. (4-18)	230	15,000	65.22	125	225	2	2-38mm ² THHN COPPER WIRE 1-14mm ² THHN GROUND WIRE	IN 32mm ^ø IMC PIPE
2	DPWH BLDG. (4-8)	230	35,200	153.04	175	225	2	2-60mm ² THHN COPPER WIRE 1-22mm ² THHN GROUND WIRE	IN 50mm ^ø IMC PIPE
TOTAL			50,200						
COMPUTATION :									
IT = $\frac{50,200 + (2,300VA \times 25\%)}{230 V}$				OVER CURRENT PROTECTION DEVICE USE : 225AT,CB, 2P, 230V					
= 220.76 AMPERES				MAIN FEEDER LINE USE : 2 - 100 mm ² THHN WIRE & 1-30mm ² THHN GROUND WIRE IN 50mm ^ø IMC PIPE					



5 SINGLE LINE DIAGRAM



8-16MM ϕ RSB
w/ 10MM ϕ TIE



4 SCHEDULE OF LOADS 2 OF 2

6 CONCRETE DISTRIBUTION POLE DETAIL & COLUMN FOOTING DETAIL



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PROPOSED INSTALLATION OF
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LOCATION: ASCENSION AVE., BARANGAY GREATER LAGRO,
DISTRICT 5, QUEZON CITY

DRAWN BY: ENGR. SDO
DATE: 09/19/2020
CHECKED BY:
REVISION NO.:

SUBMITTED BY:

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APPROVED BY:

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CITY MAJOR, QUEZON CITY

SHEET CONTENTS:

SCHEDULE OF LOADS
2 OF 2
SINGLE LINE DIAGRAM
CONCRETE DISTRIBUTION
POLE DETAIL & COLUMN
FOOTING DETAIL

SHEET NO.

E-03