



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



March 9, 2022

Request for Quotation/ Proposal

No.	Project No.	Project Name	Location	Amount	Duration Cal. Days	Office	Source Fund
<u>Buildings – Small B</u>							
1	22-001SV	Proposed Rehabilitation of Fire Exit at Social Development Center at Barangay Payatas	Payatas	165,523.84	30	Engineering Department	Engineering Department
2	22-002SV	Proposed Rehabilitation of Reception Area at Betty Go Belmonte Super Health Center in Barangay Holy Spirit	Holy Spirit	341,124.74	30	Engineering Department	20% Community Development Fund
3	22-003SV	Proposed Rehabilitation of Novaliches District Hospital Covid Ward	San Bartolome	354,897.38	30	Engineering Department	Engineering Department - SB No. 1
4	22-004SV	Proposed Rehabilitation of Waterline System at Culiati High School	Culiati	586,890.41	60	Engineering Department	Special Education Fund
5	22-005SV	Proposed Temporary Enclosure for Crematory Machine at Baesa Crematorium	Baesa	594,910.45	30	Engineering Department	Engineering Department - SB No. 1
6	22-006SV	Proposed Rehabilitation of Reception Area at Health Centers in Barangay Libis and Barangay Bagumbuhay (District 3)	Libis and Bagumbuhay	632,587.24	30	Engineering Department	20% Community Development Fund
7	22-007SV	Proposed Rehabilitation of Reception Area at Health Centers in Barangay Alicia and Barangay Paltok (District 1)	Alicia and Paltok	809,220.13	30	Engineering Department	20% Community Development Fund
8	22-008SV	Proposed Rehabilitation of Day Care Center at Idang Street, Sitio Aguardiente	Sta. Monica	828,057.99	30	Engineering Department	Engineering Department - SB No. 1
9	22-009SV	Proposed Upgrading of Electrical System at Sauyo High School	Tandang Sora	846,268.11	90	Engineering Department	Special Education Fund
10	22-010SV	Proposed Rehabilitation of Reception Area at Health Centers in Barangay Apolonio Samson, Barangay Tandang Sora and Barangay Pasong Tamo (District 6)	Apolonio Samson, Tandang Sora and Pasong Tamo	851,009.93	30	Engineering Department	20% Community Development Fund



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11	22-011SV	Proposed Rehabilitation of Electrical System at North Fairview Elementary School	North Fairview	856,353.23	60	Engineering Department	Special Education Fund
12	22-012SV	Proposed Upgrading of Service Entrance at NOH Sta. Lucia Senior High School	Sta. Lucia	908,850.15	60	Engineering Department	Special Education Fund
13	22-013SV	Proposed Construction of Terrace at Barangay Hall In Barangay Kalusugan	Kalusugan	914,528.02	60	Engineering Department	Engineering Department
14	22-014SV	Proposed Rehabilitation of Distribution Feeder at Lagro Elementary School	Greater Lagro	933,602.51	60	Engineering Department	Special Education Fund
15	22-015SV	Proposed Rehabilitation of Reception Area at Health Centers in Barangay Kamuning, Barangay Kaunlaran and Barangay San Vicente (District 4)	Kamuning, Kaunlaran and San Vicente	953,997.37	30	Engineering Department	20% Community Development Fund
<u>Roads – Small B</u>							
16	22-016SV	Proposed Rehabilitation (Surface Improvement) at Lourdes Street	Novaliches Proper	933,825.43	30	Engineering Department	20% Community Development Fund

The Quezon City Government through its Bids and Awards Committee – Infra and Consultancy undertake a Small Value Procurement in accordance with **Section 53.9 of the Revised Implementing Rules and Regulations of Republic Act No. 9184**.

Please quote your best offer for the project/s described above, subject to the Terms and Conditions provided. Submit your proposal/price quotation duly signed by you or your duly authorized representative not later than **15 March 2022** on or before **10:00 A.M.**, Philippine Standard Time, together with the following documents:

1. PhilGEPS Platinum Certificate (3 pages)
2. DTI or SEC Registration Certificate
3. Mayor's Permit
4. Tax Clearance
5. PCAB License (Bidders with valid Philippine Contractors Accreditation Board (PCAB)
6. Audited Financial Statements
7. Net Financial Contracting Capacity (NFCC)
8. List of Key Construction Personnel to be assign for the project
9. List of Major Equipment to be used for the Project
10. Duly Notarized Affidavit of Undertaking of Key Personnel and Equipment
11. Income/Business Tax Returns
12. 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.



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Opening of Quotations/Proposals will be on **15 March 2022** at exactly **1:00 P.M.**

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: **IN CAPITAL LETTERS**

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

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.

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 ng Quezon
CITY ENGINEERING DEPARTMENT
5th, 6th, 7th Floors, QC Civic Center Building "B"
Telephone Nos. 8988 4242 Local 9538



**PROJECT TITLE : PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT NORTH FAIRVIEW
ELEMENTARY SCHOOL,**

LOCATION : BARANGAY NORTH FAIRVIEW, DISTRICT 5, QUEZON CITY /

LIST OF MANPOWER

NO	MANPOWER	QTY
1	Project Engineer	1
2	Materials Engineer	1
3	Safety Officer / Safety Engineer	Refer to DOLE Requirements
4	Foreman	1
5	Skilled Worker	3
6	Driver	1
7	Laborer/Helper	3

Prepared by:


ALEXIS M. DIZON
Planning & Programming Division

Checked by:


JOCELYN A. NAONG
Planning & Programming Division



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT
5th, 6th, 7th Floors, QC Civic Center Building "B"
Telephone Nos. 8966-4242 Local 8536



PROJECT TITLE : **PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT NORTH FAIRVIEW
ELEMENTARY SCHOOL** ✓

LOCATION : **BARANGAY NORTH FAIRVIEW, DISTRICT 5, QUEZON CITY** ✓

LIST OF EQUIPMENT

NO.	NAME OF EQUIPMENT	NO. OF UNIT
1	Elf Truck	1
2	Scaffolding	As Needed
3	Power Tools	As Needed
4	Minor Tools	As Needed

Prepared by:


ALEXIS M. DIZON
Planning and Programming Division

Checked by:


JOCELYN A. NAONG
Planning and Programming Division

**PROJECT TITLE : PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT NORTH FAIRVIEW
ELEMENTARY SCHOOL**

LOCATION : BARANGAY NORTH FAIRVIEW, DISTRICT 5, QUEZON CITY

PROJECT NO. : 22 - 011SV

DURATION : Sixty (60) Calendar Days

BREAKDOWN OF COST

ITEM NO	WORK DESCRIPTION	MATERIALS COST	LABOR COST	INDIRECT COST	AGGREGATE COST
I	GENERAL REQUIREMENTS				
II	SITE WORKS				
III	CIVIL WORKS / STRUCTURAL WORKS				
IV	ARCHITECTURAL WORKS				
V	ELECTRICAL WORKS				
VI	UTILITY & ANCILLIARY WORKS				

TOTAL COST P

LUMP SUM BID IN WORDS : _____

Contractor : _____

BILL OF QUANTITIES
(Building Construction/Rehabilitation Project)

PROJECT TITLE : PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT NORTH FAIRVIEW
ELEMENTARY SCHOOL

LOCATION : BARANGAY NORTH FAIRVIEW, DISTRICT 5, QUEZON CITY

PROJECT NO. : 22 - 011SV

DURATION : Sixrty (60) Calendar Days

SCOPE OF WORKS:

- 1 General Requirements include billboard, temporary facilities and utilities, scaffolding, and construction health and safety and hauling and disposal of demolished materials and debris.
- 2 Site Works include chipping of concrete wall and slab for electrical conduit installation.
- 3 Civil and Architectural works include concrete topping and painting.
- 4 Electrical works include installation of electrical roughing ins, wirings, panelboard, circuit breaker & accessories and upgrading & remodeling of main electrical service entrance from single phase connection to three phase connection.
- 5 All necessary testing of materials and commissioning works must be performed as per standard procedure.

ITEM NO	WORK DESCRIPTION AND SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
I	GENERAL REQUIREMENTS				
	Billboard	1	piece	P	P
	Clearing, hauling and disposal of construction materials and debris	1	t.l.		
	Construction Health and Safety	1	unit		
	Scaffolding (Rental)	35	sq.m.		
	Temporary Electrical and Water Facilities	60	day		
				Direct Cost I	P
II	SITE WORKS				
	Chipping of concrete wall & slab (for electrical)	4	sq.m	P	P
	Demolition Works				
	Dismantling of exisiting 14mm ² THW Wire	50	l.m.		
	Dismantling of exisiting 100mm ² THW Wire	130	l.m.		
	Dismantling of exisiting Main Circuit Breaker	2	assy		
				Direct Cost II	P
III	CIVIL WORKS / STRUCTURAL WORKS				
	Masonry Works				
	25mm Concrete Topping (for electrical)	4	sq.m	P	P
				Material Cost III	P
				Labor Cost III	
				Direct Cost III	P
IV	ARCHITECTURAL WORKS				
	Epoxy Enamel Paint Finish (Electrical Works)	1	sq.m	P	P
				Material Cost IV	P

ITEM NO	WORK DESCRIPTION AND SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
				Labor Cost IV	
				Direct Cost IV	P
V	ELECTRICAL WORKS				
	Roughing-ins				
	25mmØ IMC Pipe	1	piece	P	P
	32mmØ IMC Pipe	1	piece		
	32mmØ PVC Pipe	5	piece		
	40mmØ PVC Pipe	10	piece		
	65mmØ IMC Pipe	3	piece		

ITEM NO	WORK DESCRIPTION AND SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
	Fittings and Accessories				
	25mmØ Entrance Cap Die Cast	1	piece		
	25mmØ IMC Locknut and Bushing	1	pair		
	32mmØ Entrance Cap Die Cast	1	piece		
	32mmØ IMC Locknut and Bushing	1	pair		
	32mmØ PVC Adaptor	8	piece		
	32mmØ PVC Locknut and Bushing	8	pair		
	40mmØ PVC Adaptor	15	piece		
	40mmØ PVC Locknut and Bushing	15	pair		
	65mmØ Entrance Cap Die Cast	3	piece		
	65mmØ IMC Locknut and Bushing	3	piece		
	100mmØ Solderless Connector w/ two-bolt	2	pair		
	100mm x 100mm Metal Junction box with cover	10	piece		
	Secondary Rack w/ 2 Spool Heavy Duty	12	set		
	20mm Ø x 3000mm Grounding Rod w/ Ground Clamp	3	set		
	Pipe Hangers & Support				
	Horizontal layout of pipe	45	l.m.		
	Secondary Rack Support	12	piece		
	Vertical layout of pipe	12	l.m.		
	Wires and Cables				
	5.5mm² TW Wire	75	l.m.		
	8.0mm² TW Wire	1	roll		
	14mm² THW Wire	1	roll		
	22mm² THW Wire	2	roll		
	22mm² TW Wire	75	l.m.		
	100mm² THW Wire	130	l.m.		
	Panelboard				
	(DP-DPWH2) DPWH2 BUILDING	1	assy		
	Main: 100AT, 2P, 230V, Bolt-on Branches: 4-50AT, 2P, 230V, Bolt-on 1-60AT, 2P, 230V, Bolt-on Enclosure: Surface Mounted NEMA 1 w/ Ground Terminals				
	(MDP) MAIN DISTRIBUTION PANEL	1	assy		
	Main: 500AT, 3P, 230V, Bolt-on Branches: 3-250AT, 2P, 230V, Bolt-on Enclosure: Surface Mounted NEMA 3R w/ Ground Terminals				
	Miscellaneous & Consumables				
	400cc PVC Solvent	1	can		
	Electrical Tape	5	piece		
	GI Tie Wire Ga. 16 (for cable pulling)	1	kg		
	Hacksaw Blade	1	piece		
	Masking Tape	1	piece		
	Pulling Lubricant		can		

ITEM NO	WORK DESCRIPTION AND SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
	Rubber Tape	1	piece		
	Torch w/ Butane	1	set		
				Materials Cost V	P
				Labor Cost V	
				Direct Cost V	P
VI	UTILITY & ANCILLIARY WORKS				
	Electrical Earth Pit	1	unit	P 4,875.10	P
				Materials Cost VI	P

SUMMARY

ITEM NO	WORK DESCRIPTION & SCOPE OF WORKS		TOTAL COST
I	GENERAL REQUIREMENTS		P
II	SITE WORKS		
III	CIVIL WORKS / STRUCTURAL WORKS		
IV	ARCHITECTURAL WORKS		
V	ELECTRICAL WORKS		
VI	UTILITY & ANCILLIARY WORKS		
Note: Strictly enforce health protocols relative to the latest applicable DPWH Memorandum		TOTAL DIRECT COST Overhead, Contingencies and Miscellaneous Expenses (OCM) Profit VAT TOTAL ESTIMATED COST	P P



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**PROJECT TITLE: PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT NORTH FAIRVIEW
ELEMENTARY SCHOOL**

LOCATION: BARANGAY NORTH FAIRVIEW, DISTRICT 5, QUEZON CITY

TECHNICAL SPECIFICATIONS

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

These supplemental items consist of temporary lighting & water facilities, billboard, construction safety net and health. Personnel Protective Equipment (PPE) should be used by the construction personnel or manpower at all times.

1.2 SITE WORKS

This item consists of disposal of material that has been and replaced.

1.3 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.

1.3.1 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

1.3.2 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

1.3.3 National Fire Protection Association (NFPA)

NFPA 70 (2002) National Electrical Code

1.3.4 Underwriters Laboratories Inc. (UL)

UL 1242	(1996; Mar 1998) Intermediate Metal Conduit
UL 467	(1993; Rev Apr 1999) Grounding & Bonding Equipment
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

1.3.5 Institute of Integrated Electrical Engineer (IIEE)

PEC (2017) Philippine Electrical Code

1.3.6 Philippine National Standard (PNS)

BS (2002) Bureau of Standard

1.4 SUBMITTALS

Submit the following:

1.4.1 Shop Drawings Panelboards

1.4.2 Product Data

Receptacles
Circuit breakers
Switches
Enclosed Circuit breakers

1.4.3 Test Reports

Insulation Resistance & Continuity test
Grounding system test

Functionality Test

1.5 MAINTENANCE**1.5.1 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. 230 volt, three phase: black, red and yellow

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 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 PEC. 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 exceeds 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 FIELD QUALITY CONTROL

Furnish test equipment and personnel and submit written copies of test result. Give the engineer five (5) working days' notice prior to each test.

3.2.1 Insulation Resistance and Continuity Test

Upon completion of wiring installations, test wiring rated 600 volt and less to verify that no short circuits or accidental grounds exist. Perform insulation resistance test on wiring 14 mm² and larger diameter using insulation resistance test instrument which applies voltage of approximately 500 volts on provide direct reading of resistance, Minimum resistance shall be 250,000 ohms. This shall be well documented as test forms supervised

by a licensed electrical practitioner with valid Professional Regulation Commission ID. Attached in this test form is a certificate of calibration.

3.2.2 Grounding Resistance Test

Upon completion of main service entrance, 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. Minimum resistance shall be 5 ohms. This shall be well documented as test forms supervised by a licensed electrical practitioner with valid Professional Regulation Commission ID. Attached in this test form is a certificate of calibration.

3.2.3 Functionality Test

This shall be performed after completion of installation of wiring devices and lighting fixture/s. Wiring devices shall provide appropriate voltage for its respective equipment or appliance as detailed in the schedule of loads. All Lighting Fixtures shall provide appropriate color temperature and illumination as required. The switch/es nomenclature shall be able to control the fixture/s as referred by the 'as-built' plan. This shall be well documented as test forms supervised by a licensed electrical practitioner with valid Professional Regulation Commission ID. Attached in this test form is a certificate of calibration.

4 CONCRETE WORKS

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

PREPARED BY:



ALEXIS M. DIZON

Planning and Programming Division

CHECKED BY:



JOCELYN A. NAONG

Planning and Programming Division

DEPED3 BUILDING : DP-DPD3-GF

LOCATION: GROUND FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	5-LIGHTING OUTLET	230	500	2.17	30	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
2	5-LIGHTING OUTLET	230	500	2.17	30	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
3	5-DUPLEX C.O.	230	900	3.91	30	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
4	2-ORBIT FAN, 4-WALL FAN	230	660	2.87	30	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
5	1-HP ACU	230	2760	12.00	70	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
6	SPACE	-	-	-	-	-	-
			5320	23.13			

COMPUTATION :

$$I = \left(\frac{5 \times 20 \text{ VA}}{230 \text{ V}} \right) + 25\% (12)$$

$$I = 26.13 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 100AT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 30mm² THHN & 1-8.0mm² TW GROUND WIRE
IN 40mm² PVC PIPE**DEPED3 BUILDING : DP-DPD3-3F**

LOCATION: THIRD FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	5-LIGHTING OUTLET	230	500	2.17	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
2	5-LIGHTING OUTLET	230	500	2.17	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
3	5-DUPLEX C.O.	230	900	3.91	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
4	2-ORBIT FAN, 4-WALL FAN	230	660	2.87	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
5	SPARE				20		
6	SPARE				20		
7	SPARE				30		
			2560	11.13			

COMPUTATION :

$$I = \frac{2560 \text{ VA}}{230 \text{ V}}$$

$$I = 11.13 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 60AT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 8.0mm² THHN & 1-5.5mm² TW GROUND WIRE
IN 25mm² PVC PIPE**DEPED2 BUILDING : LPP1 & LPP2 (TYPICAL)**

LOCATION: GROUND FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	16-LIGHTING OUTLET	230	1600	6.96	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
2	16-LIGHTING OUTLET	230	1600	6.96	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
3	8-DUPLEX C.O.	230	1440	6.26	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
4	8-ORBIT FAN, 8-WALL FAN	230	1760	7.65	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
			6400	27.83			

COMPUTATION :

$$I = \frac{6400 \text{ VA}}{230 \text{ V}}$$

$$I = 27.83 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 60AT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 14mm² THHN & 1-8.0mm² TW GROUND WIRE
IN 32mm² PVC PIPE**DEPED3 BUILDING : DP-DPD3-2F**

LOCATION: SECOND FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	5-LIGHTING OUTLET	230	500	2.17	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
2	5-LIGHTING OUTLET	230	500	2.17	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
3	5-DUPLEX C.O.	230	900	3.91	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
4	2-ORBIT FAN, 4-WALL FAN	230	660	2.87	20	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
			2560	11.13			

COMPUTATION :

$$I = \frac{2560 \text{ VA}}{230 \text{ V}}$$

$$I = 11.13 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 60AT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 8.0mm² THHN & 1-5.5mm² TW GROUND WIRE
IN 25mm² PVC PIPE**DPWH1 BUILDING : DP-DPWH1**

LOCATION: GROUND FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	30-LIGHTING OUTLET	230	3000	13.04	30	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
2	6-DUPLEX C.O.	230	2880	12.52	40	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
3	15-LIGHTING OUTLET	230	4500	19.57	50	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 32mm ² PVC PIPE
4	22-DUPLEX C.O., 2-ORBIT FAN	230	3920	16.61	60	2-1.5mm ² THHN COPPER WIRE 1-1.5mm ² TW GROUND WIRE	IN 32mm ² PVC PIPE
5	SPARE				60		
6	SPARE				60		
7	SPARE				100		
			14700	61.74			

COMPUTATION :

$$I = \frac{14700 \text{ VA}}{230 \text{ V}}$$

$$I = 61.74 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 200AT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 100mm² THHN & 1-14mm² TW GROUND WIRE
IN 65mm² PVC PIPE**DEPED2 BUILDING : DP-DPD2**

LOCATION: GROUND FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	PP1	230	6400	27.83	60	2-14.0mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 32mm ² PVC PIPE
2	PP2	230	6400	27.83	60	2-14.0mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 32mm ² PVC PIPE
3	HALLWAY	230	2720	11.82	60	2-14.0mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 32mm ² PVC PIPE
4	SPARE				60	2-14.0mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 32mm ² PVC PIPE
			15520	67.48			

COMPUTATION :

$$I = \frac{15520 \text{ VA}}{230 \text{ V}}$$

$$I = 67.48 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 100AT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 30mm² THHN & 1-8.0mm² TW GROUND WIRE
IN 40mm² PVC PIPE**1 SCHEDULE OF LOADS**

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE :

**PROPOSED REHABILITATION OF
ELECTRICAL SYSTEM AT NORTH FAIRVIEW
ELEMENTARY SCHOOL**

LOCATION: BARANGAY NORTH FAIRVIEW, DISTRICT 5, QUEZON CITY

DRAWN BY: *LD*

DATE: 02/05/2021

CHECKED BY: SDO

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 CONTENT

SCHEDULE OF LOADS

SHEET NO.

EL-03
37

DPWH3 BUILDING : LPA

LOCATION: GROUND FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	12-LIGHTING OUTLET	230	1080	4.70	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
2	11-LIGHTING OUTLET	230	387	1.68	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
3	12-LIGHTING OUTLET	230	1080	4.70	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
4	15-LIGHTING OUTLET	230	360	1.57	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
5	4-WALL FAN	230	374	1.63	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
6	4-WALL FAN	230	374	1.63	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
7	5-DUPLEX C.O.	230	900	3.9	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
8	5-DUPLEX C.O.	230	900	3.9	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
9	1-2HP WATER PUMP	230	2760	12.00	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
10	1-2HP WATER PUMP	230	2760	12.00	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
11	FACP	230	500	2.17	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
12	SPARE	230	1000	4.35	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
			12475	54.24			

COMPUTATION :

$$IT = \left(\frac{12475 \text{ VA}}{230 \text{ V}} \times 80\% \text{ DF} \right) + 25\% (12)$$

$$IT = 41.39 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 60AAT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 14mm² THHN & 1-5.5mm² TW GROUND WIRE
IN 40mm² PVC PIPE**SB BUILDING : DP-SB**

LOCATION: GROUND FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	LPP1	230	9910	43.09	100	2-30mm ² THHN COPPER WIRE 1-60mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
2	LPP2	230	9910	43.09	100	2-30mm ² THHN COPPER WIRE 1-60mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
3	LPP3	230	9910	43.09	100	2-30mm ² THHN COPPER WIRE 1-60mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
4	LPP4	230	9910	43.09	100	2-30mm ² THHN COPPER WIRE 1-60mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
			39640	172.35			

COMPUTATION :

$$IT = \left(\frac{39640 \text{ VA}}{230 \text{ V}} \times 80\% \text{ DF} \right) + 25\% (12)$$

$$IT = 172.35 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 200AAT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 30mm² THHN & 1-14mm² TW GROUND WIRE
IN 65mm² PVC PIPE**SB BUILDING : LPP1, 2, 3 & 4 (TYPICAL)**

LOCATION: GROUND, SECOND, THIRD & FOURTH FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	5-LIGHTING OUTLET	230	500	2.17	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
2	5-LIGHTING OUTLET	230	500	2.17	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
3	5-LIGHTING OUTLET	230	500	2.17	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
4	5-LIGHTING OUTLET	230	500	2.17	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
5	6-ORBT FAN	230	660	2.87	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
6	6-ORBT FAN	230	660	2.87	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
7	7-ORBT FAN	230	770	3.35	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
8	8-ORBT FAN	230	880	3.83	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
9	4-DUPLEX C.O.	230	720	3.13	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
10	4-DUPLEX C.O.	230	720	3.13	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
11	5-DUPLEX C.O.	230	900	3.91	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
12	5-DUPLEX C.O.	230	900	3.91	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
			9910	43.09			

COMPUTATION :

$$IT = \left(\frac{9910 \text{ VA}}{230 \text{ V}} \times 80\% \text{ DF} \right) + 25\% (12)$$

$$IT = 43.09 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 100AAT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 30mm² THHN & 1-8.0mm² TW GROUND WIRE
IN 40mm² PVC PIPE**DPWH3 BUILDING : LPB**

LOCATION: GROUND FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	12-LIGHTING OUTLET	230	1080	4.70	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
2	11-LIGHTING OUTLET	230	387	1.68	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
3	12-LIGHTING OUTLET	230	1080	4.70	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
4	15-LIGHTING OUTLET	230	360	1.57	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
5	4-WALL FAN	230	374	1.63	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
6	4-WALL FAN	230	374	1.63	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
7	5-DUPLEX C.O.	230	900	3.9	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
8	5-DUPLEX C.O.	230	900	3.9	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
9	SPARE	230	820	3.57	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
10	SPARE	230	1000	4.35	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
			7502	32.67			

COMPUTATION :

$$IT = \left(\frac{7502 \text{ VA}}{230 \text{ V}} \times 80\% \text{ DF} \right) + 25\% (12)$$

$$IT = 24.09 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 40AAT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 5.5mm² THHN & 1-5.5mm² TW GROUND WIRE
IN 32mm² PVC PIPE**DPWH3 BUILDING : DP-DPWH3**

LOCATION: GROUND FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	LPPA	230	12475	54.24	60	2-14.0mm ² THHN COPPER WIRE 1-5.5mm ² TW GROUND WIRE	IN 40mm ² PVC PIPE
2	LPPB	230	7502	32.62	40	2-5.5mm ² THHN COPPER WIRE 1-5.5mm ² TW GROUND WIRE	IN 32mm ² PVC PIPE
3	ECOOSTER PUMP-3HP	230	3910	17.00	40	2-8.0mm ² THHN COPPER WIRE 1-5.5mm ² TW GROUND WIRE	IN 32mm ² PVC PIPE
			23887	103.86			

COMPUTATION :

$$IT = \left(\frac{23887 \text{ VA}}{230 \text{ V}} \times 90\% \text{ DF} \right) + 25\% (17)$$

$$IT = 97.72 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 150AAT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 38mm² THHN & 1-14mm² TW GROUND WIRE
IN 40mm² RSC PIPE**DPWH2 BUILDING : LPP1 & 2 (TYPICAL)**

LOCATION: GROUND, SECOND, THIRD & FOURTH FLOOR

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	5-LIGHTING OUTLET	230	500	2.17	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
2	5-LIGHTING OUTLET	230	500	2.17	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
3	5-LIGHTING OUTLET	230	500	2.17	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
4	5-LIGHTING OUTLET	230	500	2.17	15	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
5	3-ORBT FAN	230	330	1.43	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
6	4-DUPLEX C.O.	230	720	3.13	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
7	SPARE				20		
8	SPARE				20		
9	SPARE				30		
10	SPARE				30		
			3250	13.26			

COMPUTATION :

$$IT = \left(\frac{3050 \text{ VA}}{230 \text{ V}} \times 80\% \text{ DF} \right) + 25\% (12)$$

$$IT = 13.26 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 50AAT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 8.0mm² THHN & 1-5.5mm² TW GROUND WIRE
IN 25mm² PVC PIPE**1 SCHEDULE OF LOADS**

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE :

**PROPOSED REHABILITATION OF
ELECTRICAL SYSTEM AT NORTH FAIRVIEW
ELEMENTARY SCHOOL**

LOCATION: BARANGAY NORTH FAIRVIEW, DISTRICT 5, QUEZON CITY

DRAWN BY: *MSA*

DATE: 02/05/2021

CHECKED BY: *SDD*

REVISION NO.:

SUBMITTED BY:

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

RECOMMENDING APPROVAL:

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

APPROVED BY:

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

SHEET CONTENT

SCHEDULE OF LOADS

SHEET NO.

EL-04
47

DPWH2 BUILDING : LPCC

LOCATION: COVERED COURT (FEEDER WIRES ARE FOR RELOCATION)

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	4-FLOODLIGHT	230	1600	6.96	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
2	4-FLOODLIGHT	230	1600	6.96	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
3	4-DUPLEX C.O.	230	720	3.13	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
4	4-DUPLEX C.O.	230	720	3.13	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ² PVC PIPE
			4640	20.17			

COMPUTATION :

$$IT = \frac{4640 \text{ VA}}{230 \text{ V}}$$

$$IT = 20.17 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 60AT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 14mm² THHN & 1-5.5mm² TW GROUND WIRE
IN 32mm² PVC PIPEDISTRIBUTION FEEDER : 2 - 14mm² THW WIRE & 1-5.5mm² TW GROUND WIRE IN FREE AIR AT 60° C**DPWH2 BUILDING : DP-DPWH2**

LOCATION: GROUND FLOOR (PANELCB AND FEEDER WIRES ARE FOR REPLACEMENT)

MOUNTING: NEMA1, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	LPP1	230	3050	13.26	50	2-8.0mm ² THHN COPPER WIRE 1-5.5mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
2	LPP2	230	3050	13.26	50	2-8.0mm ² THHN COPPER WIRE 1-5.5mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
3	LPP3	230	3050	13.26	50	2-8.0mm ² THHN COPPER WIRE 1-5.5mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
4	LPP4	230	3050	13.26	50	2-8.0mm ² THHN COPPER WIRE 1-5.5mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
5	LPCC	230	4620	20.17	90	2-14.0mm ² THHN COPPER WIRE 1-5.5mm ² TW GROUND WIRE	IN 32mm ² PVC PIPE
			16840	73.22			

COMPUTATION :

$$IT = \frac{16840 \text{ VA}}{230 \text{ V}}$$

$$IT = 73.22 \text{ AMP.}$$

OVER CURRENT PROTECTION:

USE : 100AT, 2P, 230V MOULDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER:USE : 2 - 38mm² THHN & 1-8.0mm² TW GROUND WIRE
IN 40mm² PVC PIPEDISTRIBUTION FEEDER : 2 - 22mm² THW WIRE & 1-8.0mm² TW GROUND WIRE IN FREE AIR AT 60° C**F1 - FEEDER LINE 1**

LOCATION: MDP

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMPERE	AT	SIZE OF	
						WIRES	CONDUITS
1	DP-DPD3-GF	230	5620	23.13	100	2-30.0mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 40mm ² PVC PIPE
2	DP-DPD3-2F	230	2560	11.13	50	2-8.0mm ² THHN COPPER WIRE 1-5.5mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
3	DP-DPD3-3F	230	2560	11.13	50	2-8.0mm ² THHN COPPER WIRE 1-5.5mm ² TW GROUND WIRE	IN 25mm ² PVC PIPE
4	DP-DPWH1	230	14200	61.74	200	2-30.0mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 65mm ² PVC PIPE
5	DP-DPD2	230	15520	67.48	100	2-30.0mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 40mm ² PVC PIPE
	TOTAL		40160	174.61			

COMPUTATION :

$$IT = 174.61 \text{ A} \times 80\% \text{ DF}$$

$$IT = 139.69 \text{ AMPERES}$$

OVER CURRENT PROTECTION:

USE : 250AT, 2P, 230V, MOULDED CASE CIRCUIT BREAKER

MAIN FEEDER:USE : 2 - 125mm² THHN & 1-22mm² TW GROUND WIRE IN 65mm² IMC PIPE**DISTRIBUTION FEEDER:**USE : 2 - 100mm² THW IN FREE AIR AT 60° C**F2 - FEEDER LINE 2**

LOCATION: MDP

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMPERE	AT	SIZE OF	
						WIRES	CONDUITS
1	DP-DPWH2	230	16840	73.22	100	2-22.0mm ² THW COPPER WIRE	IN FREE AIR
2	DP-DPWH3	230	23857	103.86	150	2-38.0mm ² THHN COPPER WIRE 1-4.0mm ² TW GROUND WIRE	IN 40mm ² RSC PIPE
	TOTAL		40727	177.07			

COMPUTATION :

$$IT = 177.07 \text{ A} \times 80\% \text{ DF}$$

$$IT = 141.67 \text{ AMPERES}$$

OVER CURRENT PROTECTION:

USE : 250AT, 2P, 230V, MOULDED CASE CIRCUIT BREAKER

MAIN FEEDER:USE : 2 - 125mm² THHN & 1-22mm² TW GROUND WIRE IN 65mm² IMC PIPE**DISTRIBUTION FEEDER:**USE : 2 - 100mm² THW IN FREE AIR AT 60° C**F3 - FEEDER LINE 3**

LOCATION: MDP (FEEDER WIRES ARE FOR REPLACEMENT)

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMPERE	AT	SIZE OF	
						WIRES	CONDUITS
1	DP-SB	230	39640	172.35	200	2-80.0mm ² THHN COPPER WIRE 1-14.0mm ² TW GROUND WIRE	IN 65mm ² RSC PIPE
	TOTAL		39640	172.35			

COMPUTATION :

$$IT = 172.35 \text{ A} \times 80\% \text{ DF}$$

$$IT = 137.88 \text{ AMPERES}$$

OVER CURRENT PROTECTION:

USE : 250AT, 2P, 230V, MOULDED CASE CIRCUIT BREAKER

MAIN FEEDER:USE : 2 - 125mm² THHN & 1-22mm² TW GROUND WIRE IN 65mm² IMC PIPE**DISTRIBUTION FEEDER:**USE : 2 - 100mm² THW & 22mm² TW GROUND WIRE IN FREE AIR AT 60° C**MAIN DISTRIBUTION PANEL / MDP**

LOCATION: SERVICE ENTRANCE (PANELCB IS FOR REPLACEMENT, CORRESPONDING WIRES ARE RETAIN EXCEPT FOR F3)

MOUNTING: NEMA3R, SURFACE MOUNTED WITH GRAY
POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK
FOR SOLID GROUND BUS

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMPERE LOAD				AT	SIZE OF	
				AB	BC	CA	3Ø		WIRES	CONDUITS
1	FEEDER LINE 1 / F1	230	40160	174.61				250	2-125mm ² THHN COPPER WIRE 1-22mm ² TW GROUND WIRE	IN 65mm ² IMC PIPE
2	FEEDER LINE 2 / F2	230	40727		177.07			250	2-125mm ² THHN COPPER WIRE 1-22mm ² TW GROUND WIRE	IN 65mm ² IMC PIPE
2	FEEDER LINE 3 / F3	230	39640			172.35		250	2-125mm ² THHN COPPER WIRE 1-22mm ² TW GROUND WIRE	IN 65mm ² IMC PIPE
	TOTAL		120527	174.61	177.07	172.35				

COMPUTATION :

$$IT = [1.732 \times (177.07 \text{ A}) \times 90\% \text{ DF}] + 25\% (17)$$

$$IT = 280.27 \text{ AMPERES}$$

OVER CURRENT PROTECTION:

USE : 500AT/500AF, 3P, 230V, MOULDED CASE CIRCUIT BREAKER IN NEMA 3R

MAIN FEEDER:USE : 2 SETS [3 - 125mm² THHN & 1-22mm² TW GROUND WIRE] IN 90mm² IMC PIPE**1 SCHEDULE OF LOADS**

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:	DRAWN BY: JAC	SUBMITTED BY:	RECOMMENDING APPROVAL:	APPROVED BY:	SHEET CONTENT	SHEET NO.
PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT NORTH FAIRVIEW ELEMENTARY SCHOOL	DATE: 02/05/2021	CHECKED BY: SDO	ENGR. LEO S. DEL ROSARIO HEAD, PLANNING & PROGRAMMING DIVISION	ENGR. ISAGANI R. VERZOSA, JR. OIC, CITY ENGINEERING DEPARTMENT	HON. MA. JOSEFINA G. BELMONTE CITY MAYOR, QUEZON CITY	SCHEDULE OF LOADS
LOCATION: BARANGAY NORTH FAIRVIEW, DISTRICT 5, QUEZON CITY	REVISION NO.:					EL-05 5-7

3 SET - SECONDARY
RACK, 2 SPOOL (NEW)

2-22mm² THW FEEDER
WIRE IN FREE AIR FOR
D²WH2 BUILDING
PANELBOARD (NEW)

2-100mm² Ø SOLDERLESS
CONNECTOR WITH TWO
BOLT (NEW)

65mm² IMC PIPE FOR FEEDER 1, 2 & 3 (NEW)
*including service caps and vertical supports

MOULDED CASE CIRCUIT BREAKER/MCCB, 500AT,
500AF 3P, 230V, 60Hz WITH BRANCHES: 3-250AT, 2P
IN WEATHER PROOF "NEMA 3R" ENCLOSURE (NEW)

MAIN: 2 set [3-125mm² THHN WIRE & 1-22mm²
TW GROUNDING WIRE] IN 90mm Ø IMC PIPE
EMBEDDED (EXISTING/RETAIN)

FEEDER LINE 2: 2-125mm² THHN WIRE &
1-22mm² TW GROUND WIRE CONNECTED TO
2-100mm² THW WIRE IN FREE AIR
(EXISTING/RETAIN)

FEEDER LINE 1: 2-125mm² THHN WIRE &
1-22mm² TW GROUND WIRE CONNECTED TO
2-100mm² THW WIRE IN FREE AIR
(EXISTING/RETAIN)

FEEDER LINE 3: 2-125mm² THHN WIRE &
1-22mm² TW GROUND WIRE CONNECTED TO
2-100mm² THW WIRE IN FREE AIR (NEW)

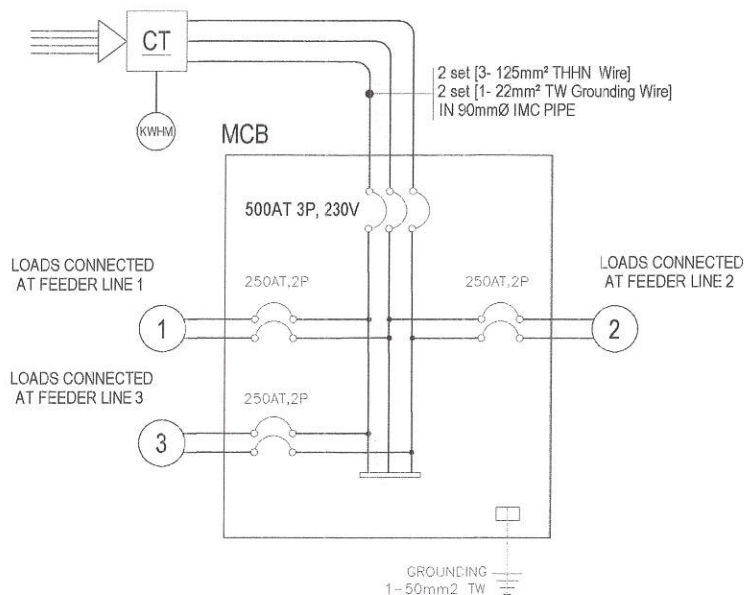
1-20mm Ø GROUNDING ROD W/ CONNECTOR (NEW)
IN 500MM X 500MM EARTH PIT (NEW)

2-20mm Ø GROUNDING ROD W/ CONNECTOR (NEW)

NGL

SERVICE ENTRANCE

UTILITY COMPANY
OVERHEAD LINE
230 VAC, 3ø, 60HZ



1 SERVICE ENTRANCE DETAILS

NOT TO SCALE

2 MAIN PANEL DIAGRAM

NOT TO SCALE



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE :

**PROPOSED REHABILITATION OF
ELECTRICAL SYSTEM AT NORTH FAIRVIEW
ELEMENTARY SCHOOL**

LOCATION: BARANGAY NORTH FAIRVIEW, DISTRICT 5, QUEZON CITY

DRAWN BY: *SPC*

DATE: 02/05/2021

CHECKED BY: SDO

REVISION NO.:

SUBMITTED BY:

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

RECOMMENDING APPROVAL:

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

APPROVED BY:

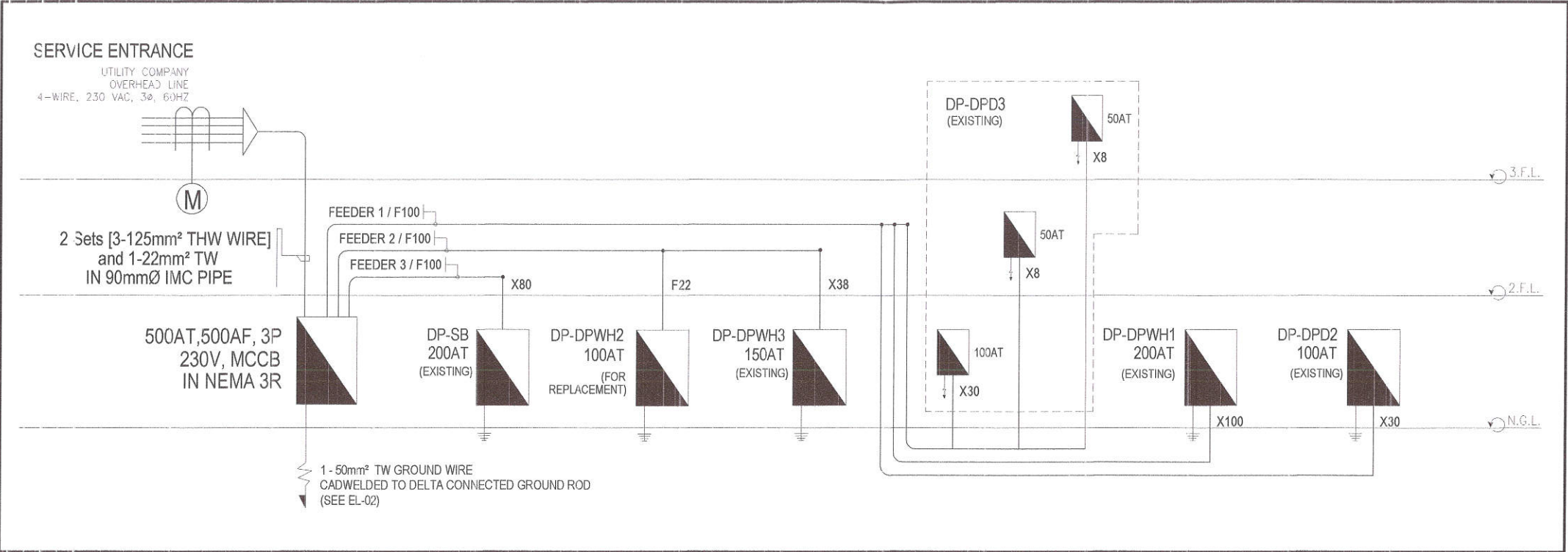
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT

SERVICE ENTRANCE DETAILS
PANEL DIAGRAM

SHEET NO.

EL-06
6-7



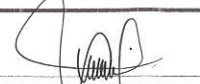





1 RISER DIAGRAM

WIRE CODE	SIZE OF	
	WIRES	CONDUITS
X8	2-8.0mm ² THHN COPPER WIRE 1-5.5mm ² TW GROUND WIRE	IN 25mmØ PVC PIPE
X30	2-30.0mm ² THHN COPPER WIRE 1-14.0mm ² TW GROUND WIRE	IN 40mmØ PVC PIPE
X38	2-38.0mm ² THHN COPPER WIRE 1-14.0mm ² TW GROUND WIRE	IN 40mmØ RSC PIPE
X80	2-80.0mm ² THHN COPPER WIRE 1-14.0mm ² TW GROUND WIRE	IN 65mmØ RSC PIPE
X100	2-100.0mm ² THHN COPPER WIRE 1-14.0mm ² TW GROUND WIRE	IN 65mmØ PVC PIPE
F14	2-14mm ² THW COPPER WIRE	IN FREE AIR
F22	2-22mm ² THW COPPER WIRE	IN FREE AIR
F100	2-100mm ² THW COPPER WIRE	IN FREE AIR

2 WIRE ORIENTATION

NOT TO SCALE

 <div>Republika ng Pilipinas Lungsod ng Quezon CITY ENGINEERING DEPARTMENT</div>	PROJECT TITLE :	DRAWN BY: 	SUBMITTED BY:	RECOMMENDING APPROVAL:	APPROVED BY:	SHEET CONTENT	SHEET NO.
	PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT NORTH FAIRVIEW ELEMENTARY SCHOOL	DATE: 02/05/2021	 ENGR. LEO S. DEL ROSARIO HEAD, PLANNING & PROGRAMMING DIVISION	 ENGR. ISAGANI R. VERZOSA, JR. OIC, CITY ENGINEERING DEPARTMENT	 HON. MA. JOSEFINA G. BELMONTE CITY MAYOR, QUEZON CITY	RISER DIAGRAM WIRE ORIENTATION	
		CHECKED BY: 