TERMS OF SPECIFICATIONS

PROCUREMENT AND IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE)-NEGOTIATED

I. RATIONALE

The Philippine Science High School – Zamboanga Peninsula Region Campus (PSHS-ZRC), being one of the fastest-growing campus in the PSHS System and racing towards the top producers of globally competitive Filipino Science and Technology leaders and professionals, continues to grow, improve and expand. Facing yet another challenge to provide a better-quality service, it is on track to bring its scholars closer to the internet by using their faster and more secured ICT facilities.

Installing fiber optic backbone network in PSHS-ZRC buildings will improve the campus community's network connectivity, thus, enhancing the teaching and learning process through one of the important aspects of the K-12 Curriculum, Information and Communications Technology.

Through the approved allocation for the capital outlays under General Appropriations Act 2021, PSHS-ZRC intends to apply the sum of ONE MILLION SIX HUNDRED TEN THOUSAND PESOS (₱1,610,000.00) being the approved budget for the contract for the PROCUREMENT AND IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE)-NEGOTIATED for PSHS-ZRC inter-building communication system powered by Fiber Optic Cable Backbone.

II. OBJECTIVES

The project aims to design a horizontal backbone cabling using fiber optic cable, and implement an interconnection system between the already built structures and the buildings to be constructed that are included in the master plan of the campus.

The PROCUREMENT AND IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE)-NEGOTIATED of PSHS-ZRC shall:

A. Provide high speed network connectivity to the existing structures and the buildings to be constructed.
B. Boost productivity and efficiency through expansion or open to performance upgrade/future expansion and can accommodate efficiently all data transmission service to the workstations.
C. Centralize the connectivity for ease of troubleshooting resulting to lesser downtime.
D. Relocate the LAN cables in the Academic Building-I.

III. QUALIFICATION OF THE CONTRACTOR

A. Should have at least two (2) years experience in System Integration or in similar project. Must attach proof of experience.
B. Should have personnel who have valid licenses or certifications relevant for the implementation of the project, issued by authorized licensing or training agency/authority. A registered electrical or electronics/electronics and communication engineer or a fiber optic licensed technician shall sign on the "As Built" cabling plan.
C. Should have own equipment and tools to be used in the project.

IV. REQUIRED DOCUMENTS

A. List of professional or trained employees to implement the project and their licenses or certifications relevant for the implementation of the project, issued by authorized licensing or training agency/authority, i.e., licensed for registered electrical or electronics/electronics and communication engineer or certification for fiber optic technician.

B. Brochures or Technical Data Sheet or equivalent document for the following items/equipment showing compliance with the required Technical Specifications:
   a. Network Switches and Fiber Patch Panels with FDU Closure
   b. Patch Panels for data cables and Patch Cords
   c. Fiber Optic Cable
   d. Steel Rack Network Cabinet – 6ft
   e. Steel Rack Wall-mounted Network Cabinet – 2ft
   f. And other materials specified in the technical specifications under A. Structured Horizontal Cabling System Requirements and Peripherals.

C. Proposed plans and design.
   a. Proposed Cabling Plan for Fiber Optic Backbone Cabling (with 48 core Fiber Optic Cable as backbone) for the existing structures (Admin Building, Academic Building-I, Academic Building-II, Dormitory Building-I, Dormitory Building-II, Canteen/Student Activity Center, and Guard House) and the buildings to be constructed. Relocation of the LAN cables of the Academic Building-I.

D. Submission of Bill of Materials/Quantities (and detailed estimates).

E. Proposed Work Plan and Detailed Implementation Schedule for the Project covering the whole period. This is to ensure the reliability, security and efficiency of the required services that the contractor shall perform. Time frame should be specified for each activity to be done and shall include Gantt Chart Summary.

Documents mentioned in "A" to "F" are to be submitted as part of the Technical Documents requirement.

Prospective Bidders are highly encourage to conduct site inspection.

V. DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR

A. Scope of Work and Activities

The contractor shall furnish all materials, labor, tools and equipment, and perform all operations necessary to complete the supply, delivery, installation, configuration, testing and commissioning of Fiber Optic Cabling and Network Switches in the identified structures mentioned in Item IV.D.a.

Detailed Scope of Work: Fiber Optic Backbone Cabling

1) Supply of materials, labor, delivery, installation, and configuration of various network equipment, cables and components.
2) Provision of in-house wiring from the fiber cable entrance to the network rack where network equipment is located.
3) Provision of electrical connectors/wiring for the data cabinet with circuit breaker.
4) Relocation of the LAN cables of the Academic Building-I.
5) Supply, delivery, pulling and termination of Fiber optic cable.
6) Supply, delivery, installation, configuration and testing of Network Switches.
7) Supply, delivery and installation of metal support for Cable Gutter, Underground PVC Pipe (Black), PVC conduits and other consumables.
8) Submission of Project Management Plan.

9) Provision of Technical documentation.
10) Continuity Testing.
11) End to end Tagging and Labeling.
12) Coordinate with the Resident Engineers in PSHS-ZRC for the Engineering works.

B. **Pre-installation**

A. The Contractor is required to conduct site inspection and secure certification from PSHS-ZRC.

C. **Installation**

A. Supply, deliver and install the required components as specified in the Work Plan duly approved by PSHS-ZRC and with the following Technical Specifications of this Terms of Specifiications (TOS).
B. Certification of After Sales support for the network equipment - including but not limited to, on-line, telephone, on-call, on-site and replacement if the hardware under warranty becomes defective.

D. **Post-Installation**

I. Conduct final inspection, tagging, testing and commissioning together with the PSHS-ZRC personnel.
II. Restore to their original state properties that are disturbed by excavation, installation, maintenance and/or removal of cabling equipment and other procedures conducted by the contractor to accomplish the project if applicable.
III. Conduct free training for IT personnel of PSHS-ZRC on the basic maintenance and operational requirements of structured cabling and the equipment.
IV. Render support services to PSHS-ZRC within the warranty period as follows:
    a. Technical support will be provided through phone calls or email within regular working hours from Monday to Friday, 8:00AM to 5:00PM
    b. If the supplied equipment is found defective and need to be pulled-out, the contractor shall provide replacement with the same or higher specifications.
    c. Rectify and or/replace any part that fail to pass any test/inspection or make alteration necessary to meet the specification.
    d. Responsible and accountable for any damage caused solely by the Contractor or its agent to the PSHS-ZRC Building as a direct result of the installation maintenance, and removal of any cabling components and devices.
V. Documentation
    a. Final Cabling Plan as built for Fiber Optic Backbone Cabling for the existing structures (Admin Building, Academic Building-I, Academic Building-II, Dormitory Building-I, Dormitory Building-II, Canteen/Student Activity Center, and Guard House) and the buildings to be constructed.
    b. Provide at least one (1) copy of the technical manual/documentation (English) in printed hard copy and electronic (soft copy) formats. The documents include Cabling and equipment installation, operation, configuration and testing.

VI. DURATION AND WARRANTY

a The Contractor shall complete the delivery and installation of work within Ninety (90)

calendar days from the date of receipt of Notice to Proceed.

The completion schedule provided shall be considered extended under the following circumstances and terms:

- Delays caused by rainfall, if applicable, force majeure or government-/agency-imposed restrictions;
- In all cases, the period or number of days of extension shall be agreed upon with the PSHS-ZRC in writing;
- Request for work period extension shall be made in writing.

Force majeure includes events such as Earthquake, Flood, Typhoon, Cyclone, Revolution, War and other cataclysmic phenomena of nature and misfortune which are beyond human prudence and foresight.

b. The Contractor shall guarantee that the entire structured cabling and networks are free from defects from workmanship and materials, and will remain so for the period of:

- 20 Years of Product Warranty from the Cabling Manufacturer of the Product Offered (for fiber optics).
- Minimum One (1) Year Warranty on Workmanship
- 2 Years Warranty on the entire hardware products
- The Contractor shall provide warranty service within the warranty period. Provision of upgrades and patches to be installed free of charge during the warranty period. The contractor shall be responsible for all the cost related to the warranty period for hardware products.

VII. DUTIES AND RESPONSIBILITIES OF PSHS-ZRC

A. Assist prospective bidders during the conduct of site Survey
B. Review and approve the work plan submitted by Contractor within five (5) working days after submission of the document.
C. Grant the contractor and its authorized representatives access to its premises and facilities located therein to perform the works. It shall assign personnel to accompany the contractor and/or its representatives, if needed.
D. Recommend to the contractor any action for a unit or part thereof that fails to pass any test and/or inspection or do not conform to specifications.
E. Issue a Certificate of Completion and Acceptance upon determination by the PSHS-ZRC Inspectorate Team that the following are delivered, installed, accomplished, passed, in good, working and usable conditions and/or complied with: (a) the supply, delivery, installation, configuration, testing and commissioning of Fiber Optic Cabling and Network Switches , (b) the demonstration, orientation and training for IT personnel for the Network Equipment/Switches, basic troubleshooting for the Fiber Optic Cabling, and (c) the documents required in Item V.D.V(a) and V.D.V(b) have been provided.
F. Pay the Contractor after completion including the training and documentation and acceptance of the project.

TECHNICAL SPECIFICATIONS

ITEM NO.	DESCRIPTION	UNIT
1	**PROCUREMENT AND IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE)-NEGOTIATED**	**1 Lot**
A.	**Structured Horizontal Cabling System Requirements and Peripherals**	
	Design of Fiber Optic Backbone Cabling	
	Supply, Delivery, Installation of the following Materials:	
	48 core Fiber Optic Cable, Single mode Armored Outdoor	
	Optical Distribution Frame - SC/APC - 48 Port - 3RU	
	Optical Distribution Frame - SC/APC - 1RU	
	Pigtails SC/APC, SM 9/125 , 0.9mm - 1m	
	Fusion Protective Sleeves	
	SC/APC - LC/UPC Patch cord Duplex SM 9/250, 3mm - 5m	
	Fiber Optic Closure - 48C	
	Steel Rack Network Cabinet – 6ft	
	Steel Rack Wall-mounted Network Cabinet – 2ft	
	Cable Manager - 1RU	
	SFP+ 10GbE LC Single Mode Transceivers Modules	
	Supported Media: Single-Mode Fiber	
	Connector Type: LC BiDi	
	Data Rate: 10Gbps SFP+	
	Underground PVC Pipe (Black)/PVC conduits	
B.	**Network Switch Devices**	
	Full Layer 2 Managed Switch PoE+ Rack Mount	
	Ports: 48 RJ45 Auto-Sensing 10/100/1000Gb	
	Auto-Sensing IEEE 802.3af/at PoE+, Configurable 24V Passive PoE	
	(2) 1Gb SFP Ports (2)1/10Gb SFP+ Ports	
	500W Power Supply	
	Switching Capacity: 140Gbps	
	Total Non-Blocking Throughput: 70Gbps	
	Must be compatible with the existing network devices installed in the Campus.	
	Other materials needed to complete the item.	
C.	**Roughing-Ins and Engineering Services**	
	Wiring Accessories, Pull Wires, Cable Tags and Ties, Electrical Tapes, Velcro Tapes, Foam Sealant, Electrical Connectors/Wiring for data cabinet with circuit breaker	
	Mobilization & Demobilization (Site preparation, delivery of materials/manpower)	
	Site Preparation, Site clearing, Excavation, Backfill, Disposal (Ground excavation 0.60m depth, 0.30 wide)	
	Demolition of Road Concrete Pavement (Affected Portion only)- Minor Equipments included	
	Concreting/Repair of Demolished Portion of Road	
	Reinforcing Bars (Grade 60)	
	Interior Building Preparation (Includes Chipping of walls, Plaster finishing, Painting)	
	Relocation of the LAN cables in the Academic Building-I	

	Project Management, Cable Pulling and Tagging, Splicing, Installation, Configuration, Commission and Termination. Including simulation and training, documentation and other items needed to complete the project.	

Please refer to ANNEX A for the map layout of the PSHS-ZRC and proposed location assignments of installations.

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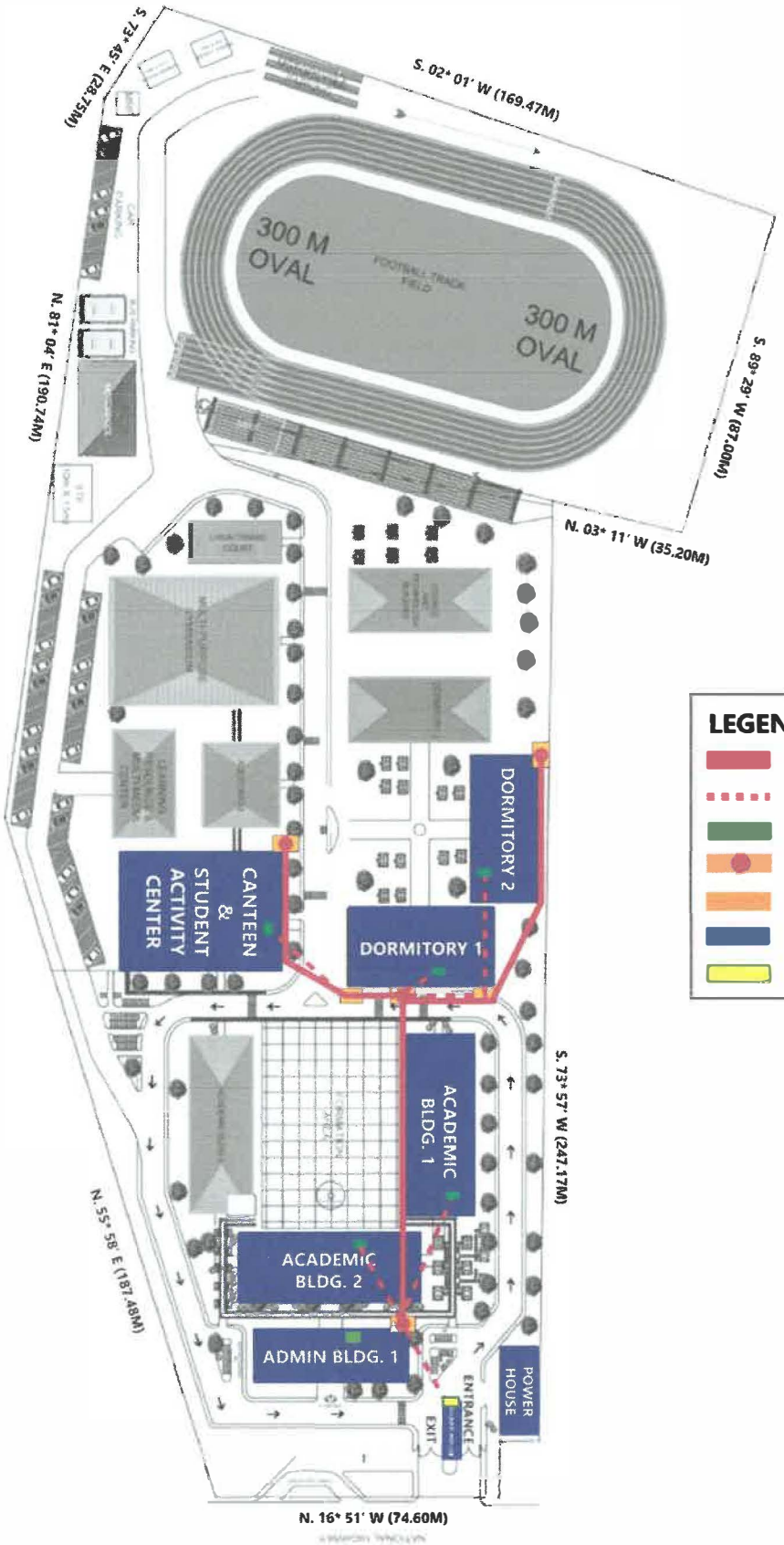
ANNEX A
PROPOSED LOCATION MAP OF INSTALLATIONS



LEGEND:
- 48C Fiber Optic Cable
- Distributed Fiber Optic Cable
- 6ft Data Cabinet
- Splice Part
- Man Hole
- Existing Building
- 2ft Wall-mounted Data Cabinet