PROJECT REQUIREMENTS

DESIGN AND BUILD

For the Project - **IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE)**

of Philippine Science High School, Central Mindanao Campus
located at Nangka, Balo-i, Lanao del Norte

A. BACKGROUND

The Philippine Science High School, Central Mindanao Campus (PSHS-CMC) is a 5-hectares campus consisting of academic buildings, dormitories, gymnasium administrative building, and Science research facility among others.

The project approved budget for construction is Six Million Seven Hundred Twenty-Seven Thousand (Php 6,727,000.00) inclusive of taxes.

B. MAIN OBJECTIVE

This project would provide PSHS-CMC with a fiber optic backbone connecting all campus buildings, to include all necessary structured cabling to deliver (wired and wifi) network connectivity to all rooms and offices, IPPBx system, power backup system, and fault protection system.

Furthermore, it shall include the supply and installation of a network firewall appliance which can support web content filtering, threat management on multiple VLAN.

The project shall improve PSHS-CMC's current Internet bandwidth.

Shown herewith is the scope of coverage;

No.	Location	Description
1	Academic Building 1	
	9-Classrooms	1 LAN port per classroom
	1-Clinic	1 LAN port + 1 IP Phone port
	1-Registrar	2 LAN ports + 1 IP Phone port
	1- CID/SSD Office	3 LAN ports + 1 IP Phone port
	9-Other Offices	1 LAN port per office
	Faculty Office 1	20 LAN ports (1 per cubicle), + 1 IP Phone port 6U Cabinet
	Faculty Office 2	20 LAN ports (1 per cubicle), + 1 IP Phone port 6U Cabinet
	2-Biometric Station	1 LAN port per station
	Library	30 LAN ports, 6U Cabinet
		6 Wireless AP
		Distribution Facility (Managed Switches ,Patch Panel, Slim Patch Cables (Cat6/5e – 28AWG, 0.15 in (3.8mm), Temperature Monitor, Wall mounted DIN rail enclosure w/ TVSS & Circuit Breaker Hybrid power backup system
		Cooling System (1HP Inverter Air Con)
2	Academic Building 2	
	12-Classroom	1 LAN port per classroom
		3 Wireless AP, UPS
		6U Cabinet, Managed Switches ,Patch Panel, Slim Patch Cables (Cat6/5e – 28AWG, 0.15 in (3.8mm), UPS, Wall mounted DIN rail enclosure w/ TVSS & Circuit Breaker
		Cooling System – Exhaust fan
3	Academic Building 3	
	14- Classrooms/Labs	1 LAN port per classroom
	9-Faculty/SRS Office	2 LAN ports per Office
	9-Faculty/SRS Office	1 IP Phone port per office
	2-Biometric Station	1 LAN port per station
		4 Wireless AP
		Managed Switches ,Patch Panel, Slim Patch Cables (Cat6/5e – 28AWG, 0.15 in (3.8mm), Wall mounted DIN rail enclosure w/ TVSS & Circuit Breaker Hybrid power backup system
		Cooling System (Exhaust fan)
4	Supply Office / Storage	5 LAN ports + 1 IP Phone port
		1 Wireless AP
5	Dorm Girls	

	1-Dorm Manager Office	2 LAN ports + 1 IP Phone port
	1-Study Room	2 LAN ports
		1 Wireless AP
		6U Cabinet, Managed Switches ,Patch Panel, Slim Patch Cables (Cat6/5e – 28AWG, 0.15 in (3.8mm), UPS, Wall mounted DIN rail enclosure w/ TVSS & Circuit Breaker
6	Dorm Boys	
	1-Dorm Manager Office	2 LAN ports + 1 IP Phone port
	1-Study Room	2 LAN ports
	1-Computer Center	20 LAN ports, 1 per computer
		1 Wireless AP
		6U Cabinet, Managed Switches ,Patch Panel, Slim Patch Cables (Cat6/5e – 28AWG, 0.15 in (3.8mm), UPS, Wall mounted DIN rail enclosure w/ TVSS & Circuit Breaker
		Cooling System
7	Dormitory 3	
	Offices	2 LAN ports, 2 IP Phone port, 1 per office
		1 Wireless AP
8	Gymnasium	
	1-AV Room	4 LAN ports, + 1 IP Phone
	1-Faculty Office	6 LAN ports, 1 per cubicle
	1-Biometric Station	1 LAN
		2 Wireless AP
		6U Cabinet, Managed Switches ,Patch Panel, Slim Patch Cables (Cat6/5e – 28AWG, 0.15 in (3.8mm),UPS, Wall mounted DIN rail enclosure w/ TVSS & Circuit Breaker
9	Function Hall	
	3-Offices	1 LAN per office
	3-Offices	1 IP Phone port
	1-Stage	1 LAN
		1 Wireless AP
		6U Cabinet, Managed Switches ,Patch Panel, Slim Patch Cables (Cat6/5e – 28AWG, 0.15 in (3.8mm),UPS, Wall mounted DIN rail enclosure w/ TVSS & Circuit Breaker
10	Administration Building	
	1-Biometric Station	1 LAN
		6 Wireless AP
		Main Distribution Facility Managed Switches, Load Balancer/Router, Patch Panel,

		Slim Patch Cables (Cat6/5e – 28AWG, 0.15 in (3.8mm) Firewall appliance with 2 yrs. subscription Upgrade existing server memory to 16Gb, Temperature Monitor Wall mounted DIN rail enclosure w/ TVSS & Circuit Breaker Hybrid power backup system
		Cooling System
11	Student Learning Resource Center	
		6 Wireless AP
		Managed Switches ,Patch Panel, Slim Patch Cables (Cat6/5e – 28AWG, 0.15 in (3.8mm),UPS, Wall mounted DIN rail enclosure w/ TVSS & Circuit Breaker
12	Main Gate/Back Gate	
	1-Biometric Station	1 LAN
	2-Guard house	2 IP Phone port+2 device
		1 Outdoor Wireless AP (Main Gate)
13	Canteen	2 IP Phone port
		1 Wireless AP
14	Student Kiosk/Lounge	1 Outdoor Wireless AP
15	Campus grounds	4 Outdoor Wireless AP

C. SCOPE OF WORK AND SERVICES

1. Design Phase
    a. Prepare the Network Physical & Logical design.
    b. Prepare drawings, plans, Technical Specification to be used during the implementation of the project.

2. Pre-Construction Phase
    a. Preparation of the PERT-CPM / Gantt chart of the construction phase.

    b. Provide all other necessary documents that shall be required by PSHS-CMC.

3. Construction Phase
    a. The contractor shall furnish all the construction materials needed for the execution of the work to include manpower, equipment, tools and other incidentals necessary to

complete the works in accordance with the construction drawings, technical specifications as enumerated herein;

b. Supply and installation 15 IP Phones which is compatible with the existing IP PBX System of PSHS-CMC.

c. Improve the network link from ISP port location to PSHS-CMC network with at least 500Mbps throughput.

d. Install a network security system that supports the entire network infrastructure to include a network firewall appliance which can support web content filtering, threat management on multiple VLAN and physical security of network devices (eg. server cabinets, cooling systems) .

e. Install structured cabling including server cabinets, roughing materials (PVC pipes, plastic moldings, boxes), including all supports, brackets, hangers, hangers, fittings, connectors, conduits, cable ducts that supports connectivity to existing and future offices, laboratories and classrooms.

f. Provide a system that supports wireless connectivity for the entire campus using the latest mesh technology with capability of having multiple SSID, Hotspot and VLAN support.

g. Installation of fiber optic backbone/line from the main data center connecting major campus buildings / structure (Administration building, SLRC, Academic Buildings 1,2 & 3, Residence Hall 1&2, Gymnasium).

h. Install Hybrid Power Back-up System for servers (Admin Building, Academic Building 1 & 3), to support 1 at least hour of continuous power, and UPS for other IDFs.

i. Install a wall mounted DIN rail enclosure with circuit breaker and surge protector device (Transient Voltage Surge Suppressor) with proper earth grounding for protection of network devices and servers against lightning and power surge.

D. SUBMITTALS AND OTHERS

The Contractor shall prepare and submit the following reports:

a) Submission of as-built plans (3-copies) and digital copy.

b) Submission of all technical manuals, brochures, diagrams, etc.

E. MINIMUM REQUIREMENTS

1. Personnel
   a) ECE or related course (with corresponding Networking Certification) experience in similar project

   b) Registered Electrical Engineer- Licensed with at least one (1) year experience in power distribution works.

   c) Safety Officer – Should be a Construction Occupational Safety and Health (COSH) or BOSH Certified.

2. Equipment
   a) Networking Tools
   b) Civil Works -1-unit Jackhammer, Compactor,1-unit Bagger Mixer,

3. Experience – The contractor should have at least designed and built a similar project.

F. DATA, LOCAL SERVICES AND FACILITIES (Provided by PSHS-CMC)

a) Campus Master Plan
b) Building plans

G. CONRACT DURATION– One hundred-eighty (180) - calendar days

H. MODE OF PAYMENT

a) Design Phase in the amount of Php 245,000.00

Payment Schedule	Gross Amount (Php)	Cumulative gross amount of Payment (Php)
Upon submission of preliminary drawings, design 15% of the lump-sum amount. Upon submission/presentation of preliminary design, drawings and acceptance by PSHS-CMC.	36,750.00	36,750.00
70% of the lump-sum amount. Upon submission of the final	171,500.00	208,250.00

drawings, design and specifications.		
15% of the lump-sum amount. Upon completion for rendering project management and supervision services during the project implementation phase.	36,750.00	245,000.00

b) Construction Phase in the amount of Php 6,482,000.00

Payment Schedule	Advance Payment	1st	2nd	3rd	4th
Projected Billing Schedule (Upon completed percentage of accomplishment)	Advance Payment, 15% After receipt of NTP and submission of Surety Bond	First Billing After 25% completion (Less advance payment)	Second Billling After 50% completion	Third Billing After 75% completion	Fourth Billing After 100% completion
Projected Accomplishment	Advance payment based on GPPB Resolution no. 08-2011 dated 7 Oct 2011, Paragraph 4 (needs submission of Surety Bond)	25%	50%	75%	100%
Equivalent Payment (in Php)	972,300.00	648,200.00	1,620,500.00	1,620,500.00	1,620,500.00
Cumulative Payment (inPhp)	972,300.00	1,620,500.00	3,241,000.00	4,861,500.00	6,482,000.00

Prepared by:

Rosalito C. Mocorro
Information System Analyst

Rade D. Rayon
Science Research Specialist

Reviewed by:

Ronnie C. Impuesto
Design and Build Committee Vice Chairman

Jasmin C. Esperante
Design and Build Committee Chairman

Recommending Approval:

Marisa L. Dahan
FAD Chief

Approved by:

Franklin S. Salisid
OIC Campus Director