



TECHNICAL SPECIFICATIONS FOR THE PROCUREMENT AND IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE) – NEGOTIATED PROCUREMENT

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.

To respond to this, PSHS-ZRC has embarked on the acquisition of a new and responsive cabling infrastructure, which install new network cabling. This will also ensure reliability and improve longevity of the network, all its servers and attached devices and equipment.

Through the allocation in the General Appropriations Act 2022, PSHS-ZRC intends to apply the remaining **ONE MILLION FOUR HUNDRED TWENTY-NINE THOUSAND FOUR HUNDRED PESOS (₱1,429,400.00)** from the SIX MILLION PESOS (Php 6,000,000), as the Approved Budget for the Contract (ABC) for the **PROCUREMENT AND IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE) – NEGOTIATED PROCUREMENT** for PSHS-ZRC inter-building communication system.

II. OBJECTIVES

The project aims to:

- (a) Design and install structured cabling in Administration Building,
- (b) Design and install fiber optic indoor backbone cabling in Administration Building,
- (c) Design and install fiber optic outdoor backbone cabling from Academic Building II to Academic Building III,
- (c) Design and install server room and electrical system of the server room,
- (d) Install and configure ICT Equipment.

The structured cabling system and communication facility shall:

1. Provide user friendly environment with efficient, less technical support and open to performance upgrade/future expansion and can accommodate efficiently all data transmission service to the workstations;
2. Facilitate efficient communication;
3. Provide high-speed network connectivity (Wireless and LAN) to Administration Building;

III. QUALIFICATION REQUIREMENTS

- a.) The Bidder should have at least two (2) years of experience in System Integration or in similar project.
- b.) Should have personnel who have valid licenses relevant for the implementation of the project, issued by authorized licensing agency/authority:
 - A registered electrical engineer or;
 - Registered electronics/electronics and communication engineer;



- c.) Should have own equipment and tools to be used in the project.

Other documentary requirements to be submitted by bidder:

1. List of licensed personnel to implement the project with complete qualification and experience data (with valid licenses issued by the PRC).
2. Brochures or Technical Data Sheet or equivalent document for the following items/equipment showing compliance with the required Technical Specifications:
 - 48 Port POE Manage Switch
 - UTP Cable (CAT 6)
 - Fiber Optic Cable (FOC) 4-Core Single mode
 - Fiber Optic Cable (FOC) 48-Core Single mode
 - Access Point (WIFI Device)
 - Closed Circuit Television (CCTV)
 - IP Phone
 - SFP Transceiver Module 10GB
 - 55" Smart TV
3. Proposed cabling plan and design for Data outlets to the offices of Administration Building, Wi-Fi System, CCTV System, and IP Phones, and implementation schedule for the Project covering the whole period.
4. Prospective Bidders are required to conduct site inspection and secure a certification from PSHS-ZRC. This is to ensure the reliability, security and efficiency of the required services that the contractor shall perform.
5. Timeframe should be specified for each activity to be done and shall include Gantt Chart Summary.
6. Documentation (for both components)
 - Final Cabling Design as built plan for Wi-Fi System
 - Final Cabling Design as built plan for Network/Structured Cabling for LAN Cables
 - Final Cabling Design as built plan for CCTV Cabling System
 - Final Cabling Design as built plan for IP Phones.
 - Final Plan as built for Electrical Layout of Server Room

Documents mentioned in "1" to "5" are to be submitted as part of the Technical Documents requirement. Documents mentioned in "6" shall be submitted upon completion of the project.

The Contractor shall complete the delivery and installation of work within Sixty (180) calendar days from the date of receipt of Notice to Proceed.

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

1. Delays caused by force majeure events;
2. In all cases, the period or number of days of extension shall be agreed upon with the PSHS-ZRC in writing;
3. Claims for time extension of the contract period due to force majeure shall be subject to approval by the PSHS-ZRC. 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.
4. The Contractor shall guarantee that the entire structured cabling and networks are free from all defective 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).
- 3 Years of Product Warranty from the Cabling Manufacturer of the Product Offered for CAT 6 cable.
- 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.

IV. DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR

A. Scope of Work and Activities

- The contractor shall furnish all labor, materials, tools and equipment, and perform all operations necessary to complete the supply, delivery, installation, testing and commissioning of Structured Cabling (integrated voice and data) and Network Switches, Electrical System of PSHS-ZRC Server Room, Wi-Fi System, CCTV System, and IP Phones.
- The contractor must provide demonstration and training for IT Personnel for the Network Equipment (switches and access points), basic trouble shooting for the Structured Cabling, Wi-Fi System, CCTV System, and IP Phones.
- 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.
- Bidder shall be responsible for all the cost related to the warranty period for hardware products.

A.1 Scope of Work: Structured Cabling for Local Area Network (LAN), Wi-Fi System, CCTV System, IP Phones

1. Supply of materials, labor, delivery, installation, and configuration of Structured Cabling for Local Area Network (LAN), Wi-Fi System, CCTV System, IP Phones.

Structured Cabling/Cable Management System

- Shall install cable tray from ceiling to network racks to Administration Building (Server Room).
- There should be a separate cable tray system for data cable and CCTV cables.
- Should install data outlets (data and voice) as follows:

Location	Office	Data Outlet (Data)	Data Outlet (Voice)
Ground Floor			
Administration Building	HR	2	1
	Technical Office	2	1
	QMR	2	1
	Registrar Office	4	1
	Cashier's Office	2	1
	Accounting Office	3	1
	SAO/FAD Office	4	1
	Conference Room	2	1



	COA Office	3	1
	Supply Office	3	1
TOTAL		27	10
Second Floor			
Administration Building	Campus Director's Office	2	1
	Campus Director's Assistant Office	2	1
	COA Office	2	1
	QM Office	2	1
	MIS Office	2	1
	Server Room	1	1
	Conference Room	2	1
TOTAL		15	6
Third Floor			
Administration Building	Conference Room	4	1
TOTAL		4	1
OVERALL TOTAL		46	17

Wi-Fi System

- The contractor shall design a Wi-Fi cabling system (ceiling).
- Coordinate with the IT Personnel of PSHS-ZRC for labelling and placing of the Access Points.
- Proper label after installation.
- Should install cablings and access points as follows:

Location	Office	Access Point (Data Cable)	With Access Point Equipment
Ground Floor			
Administration Building	HR	1	✓
	QMR	1	
	Registrar Office	1	✓
	Accounting Office	1	✓
	SAO/FAD Office	1	✓
	COA Office	1	
	Supply Office	1	✓
	Hallway	3	✓
TOTAL		10	
Second Floor			
Administration Building	Campus Director's Office	1	✓
	Campus Director's Assistant Office	1	✓
	COA Office	1	
	QM Office	1	
	MIS Office	1	✓
	Conference Room	1	
	Record Office	1	
	Hall Way	3	✓
TOTAL		10	
Third Floor			
	Conference Room	2	✓



Administration Building	Open Area	1	
	Pantry	1	
TOTAL		4	
OVERALL TOTAL		24	

CCTV System

- The contractor shall design a CCTV Cabling System for the Administration Building of PSHS-ZRC.
- Coordinate with the IT Personnel of PSHS-ZRC for labelling of cables.
- Proper label after installation.

Location	Office	CCTV (Data Cable)	CCTV	With CCTV Equipment
Administration Building	HR	1	Dome	✓
	Registrar Office	2	Dome	✓
	Cashier's Office	1	Dome	✓
	Storage Room	1	Dome	✓
	Hallway	2	Bullet	✓
	Stairs	2	Dome	✓
	Open Area (Entrance & Exit)	1	Dome	✓
TOTAL		10		
Administration Building	Campus Director's Assistant Office	1	Dome	✓
	Server Room	1	Dome	✓
	Record & Archive Room	1	Dome	✓
	Hall Way	2	Bullet	✓
	Open Area	1	Dome	✓
	Waiting Area	1	Dome	✓
	Stairs	2	Dome	✓
TOTAL		9		
Administration Building	Open Area	2	Dome	✓
	Water Tank	1	Bullet	✓
TOTAL		3		
OVERALL TOTAL		22		

IP Phones System

- Shall design and install IP Phones System for the Administration Building of PSHS-ZRC.
- Transfer the current IP phones from the HR, Registrar, Campus Director, Campus Director's Assistant, and MIS offices to the corresponding offices in the Administration Building.
- Coordinate with the IT Personnel of PSHS-ZRC for labelling and placing of the terminal phones.
- Proper label after installation.
- The IP Phone cablings should be installed to offices as follows:



Location	Office	IP Phone (Data Cable)	With IP Phone Device
Ground Floor			
Administration Building	HR	1	
	Technical Office	1	✓
	QMR	1	✓
	Registrar Office	1	
	Cashier's Office	1	✓
	Accounting Office	1	✓
	SAO/FAD Office	1	✓
	Conference Room	1	✓
	COA Office	1	✓
	Supply Office	1	✓
TOTAL		10	
Second Floor			
Administration Building	Campus Director's Office	1	
	Campus Director's Assistant Office	1	
	COA Office	1	✓
	QM Office	1	✓
	MIS Office	1	
	Record Office	1	✓
	Conference Room	1	✓
TOTAL		6	
Third Floor			
Administration Building	Conference Room	1	✓
TOTAL		1	
OVERALL TOTAL		17	

2. Supplied equipment must be compatible with the PSHS-ZRC installed network equipment.
3. Conduct of site survey and provisions of appropriate site specifications for the supplied equipment.
4. Submission of the Bill of Materials for the project including software and hardware and its related network architecture.
5. Provision of the in-house wiring, including the Telco lines, from the cable entrance to the network rack where the routers and network switches are located.
6. All data cables must be ceiling-embedded.
7. Supply delivery and pulling of Category 6 UTP cable.
8. Supply, delivery and installation of metal support for Cable Gutter, PVC conduits and other consumables
9. Submission of Project Management Plan.
10. Provision of Technical Documentation.
11. Continuity Testing.
12. End to end Tagging and Labelling.
13. Coordinate with the Resident Engineers in PSHS-ZRC for the Engineering works.

A.2 Scope of Work: Installation of Server Room for Administration Building and Academic Building III

1. Provision of Electrical Plan and Working Drawings



- The contractor shall submit a blue print of General Perspective that includes other working drawings such as Equipment Arrangement and Electrical design.
 - Should have sufficient dedicated circuits for all equipment as needed for flexibility in the event a circuit fails.
 - All systems must be properly grounded.
2. Supply, delivery, installation, set-up and commissioning of the following equipment and materials:
- Required Cables and other materials/accessories
 - Switches
 - Electrical Circuit Components which include but not limited to the following:
 - Circuit Breakers
 - Power Outlets
 - PVC Conduits
 - Other electrical components needed for the installation
 - UPS (Uninterruptable Power Supply) Unit (installation only)
 - Should provide maximum protection and power quality for mission-critical loads.
 - Should be suitable for a wide range of applications including IT and the most demanding industrial environments.
 - Should have a battery care system that consists of a series of functions designed to optimize battery management and achieve the best performance and operating life possible.
 - Should be of maximum reliability and availability.
3. Carpentry/Masonry works
- Finishing and paint works
4. Cable Management
- Coordinate with the IT Personnel of PSHS-ZRC for labelling and placement of the nodes or endpoints of the cables.
 - Proper label and tagging of the network cables.

A.3 Scope of Work: Installation of Fiber Backbone Cabling from Academic Building II to Academic Building III

1. Supply of materials, labor, delivery, and installation of Fiber Backbone Cabling from Academic Building II to Academic Building III.
- During installation of Fiber Optic Cable, the contractor must conduct site preparation, site clearing, excavation, backfill, and disposal activities.
 - Ground excavation should be 0.60m depth, 0.30 wide.
 - For protection, fiber optic cable should be put into a PVC conduit.

A.4 Scope of Work: Installation of Smart TV to Administration Building (Lobby)

1. Supply of materials, labor, delivery, and installation of Smart TV at the Administration Building (Lobby).
- Required Cables and other materials/accessories
 - Electrical Circuit Components which include but not limited to the following:
 - Power Outlets
 - PVC Conduits
 - Other electrical components needed for the installation



- Wall mount installation of the Smart TV is required.
- Ground excavation should be 0.60m depth, 0.30 wide.
- For protection, fiber optic cable should be put into a PVC conduit.

B. Pre-installation

- a.) Submit Work Plan within five (5) working days upon receipt of Notice to Proceed

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 TOS.
- b.) Coordinate with the Information Systems Analyst (ISA) / MIS Coordinator of the PSHS-ZRC regarding the scheduling of delivery and installation dates of all materials and ICT equipment to be used.
- c.) Implement all works indicated in the approved plans and designs. All revisions and deviations from the approved plans and designs, especially if it must impact the overall cost for the project, must be subject to the approval of PSHS-ZRC.
- d.) Properly groom, tag and terminate cables from end-to-end connection.
- e.) The contractor/supplier must prepare and submit the following:
 - Equipment and Materials Delivery Schedule
 - Weekly Implementation Schedule
 - Weekly Progress Report
 - Final Acceptance Documentary Requirements

D. Post-Installation

- Restore damages to property caused by excavation, installation, maintenance and/or removal of cabling equipment and other procedures conducted by the contractor to accomplish the project.
- The contractor will not restore damages from the ceiling where the cablings are embedded.
- Conduct free training for IT personnel of PSHS-ZRC on the basic maintenance and operational requirements of structured cabling and the equipment.
- 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.
- Render support services to PSHS-ZRC within the warranty period as follow:
 - (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 restore 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. 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.
- c) Grant the contractor and its authorized representative 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 Certification of Inspection and Acceptance upon determination by the PSHS -ZRC Inspectorate Team that the delivered and installed equipment and components are usable and in good working condition.
- f) Pay the Contractor after completion including the training and documentation and acceptance of the project.



TECHNICAL SPECIFICATIONS

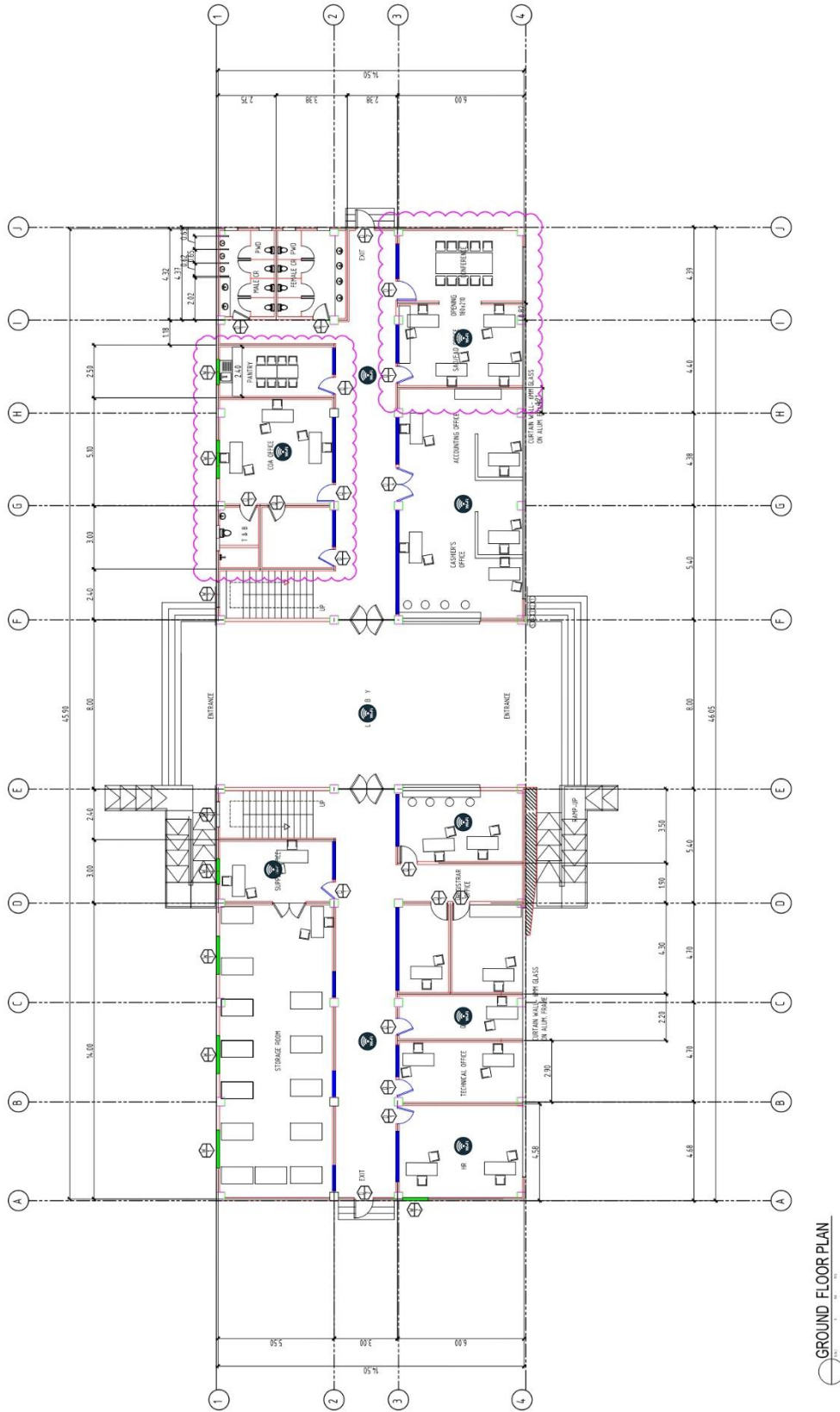
ITEM NO.	DESCRIPTION	QUANTITY	UNIT
1	PROCUREMENT AND IMPLEMENTATION OF K-12 PROGRAM (MITHI-ICT INFRASTRUCTURE) – NEGOTIATED PROCUREMENT	1	lot
	I. STRUCTURED CABLING MATERIALS AND EQUIPMENTS		
	A. Supply, Delivery, Installation of the following Materials:		
	1. CAT 6 Data Cable	4,832.95	meters
	2. Access Point	16.00	units
	3. CCTV Camera		
	• Indoor IP CCTV Camera (Bullet Type)	6.00	units
	• Indoor IP CCTV Camera (Dome Type)	16.00	units
	4. Hard Disk Drive 4TB (for the Network Video Recorder)	1.00	unit
	5. IP Phone	13.00	units
	6. Information Outlet (CAT 6)	63.00	pcs
	7. Faceplates	63.00	pcs
	8. Patch Cords	128.00	pcs
	9. 48 Port POE Manage Switch	3.00	units
	10. 24 port Patch panel	6.00	pcs
	11. Cable manager 2RU	6.00	pcs
	12. CAT6 RJ45	200.00	pcs
	13. Rubber boots	200.00	pcs
	14. Fiber Optic Cable (FOC) 4-Core Single mode	50.00	meters
	15. Fiber Optic Cable (FOC) 48-Core Single mode Armored	600.00	meters
	16. Optical Distribution Frame (ODF) 24 ports	1.00	unit
	17. Optical Distribution Frame (ODF) 8 ports	2.00	units
	18. Pigtail for Fiber Distribution Unit (FDU)	18.00	pcs
	19. SC APC Connector	18.00	pcs
	20. SFP Transceiver Module 10GB	14.00	pcs
	21. PVC Pipe PNS 2"	500.00	pcs
	22. Plastic moldings	250.00	pcs
	23. PVC long elbow 2"	170.00	pcs
	24. U bolt	170.00	pcs
	25. No more nails adhesive 300g	20.00	pcs
	26. Junction Box	63.00	pcs
	27. 55" Smart TV	1.00	unit
	II. ROUGHING-INS AND ENGINEERING SERVICES		
	1. Wiring Accessories, Pull Wires, Cable Tags and Ties, Electrical Tapes, Velcro Tapes, Foam Sealant, Electrical Connectors/Wiring for data cabinet with circuit breaker, TV Accessories	1.00	lot
	2. Site preparation and manpower: Site clearing, Excavation, Backfill, Disposal (Ground excavation 0.60m depth, 0.30 wide)	1.00	lot



	Demolition of Road and Wall Concrete Pavement (Affected Portion only) Installation of Smart TV at the Administration Building (Lobby)		
	3. Repairs of Damage Area caused During Installation	1.00	lot
	4. Interior Building Preparation (Includes Plaster finishing, Painting)	50.00	sqm
	5. Splicing, Installation, Configuration, Commission and Termination. Including simulation and training, documentation and other items needed to complete the project.	1.00	lot

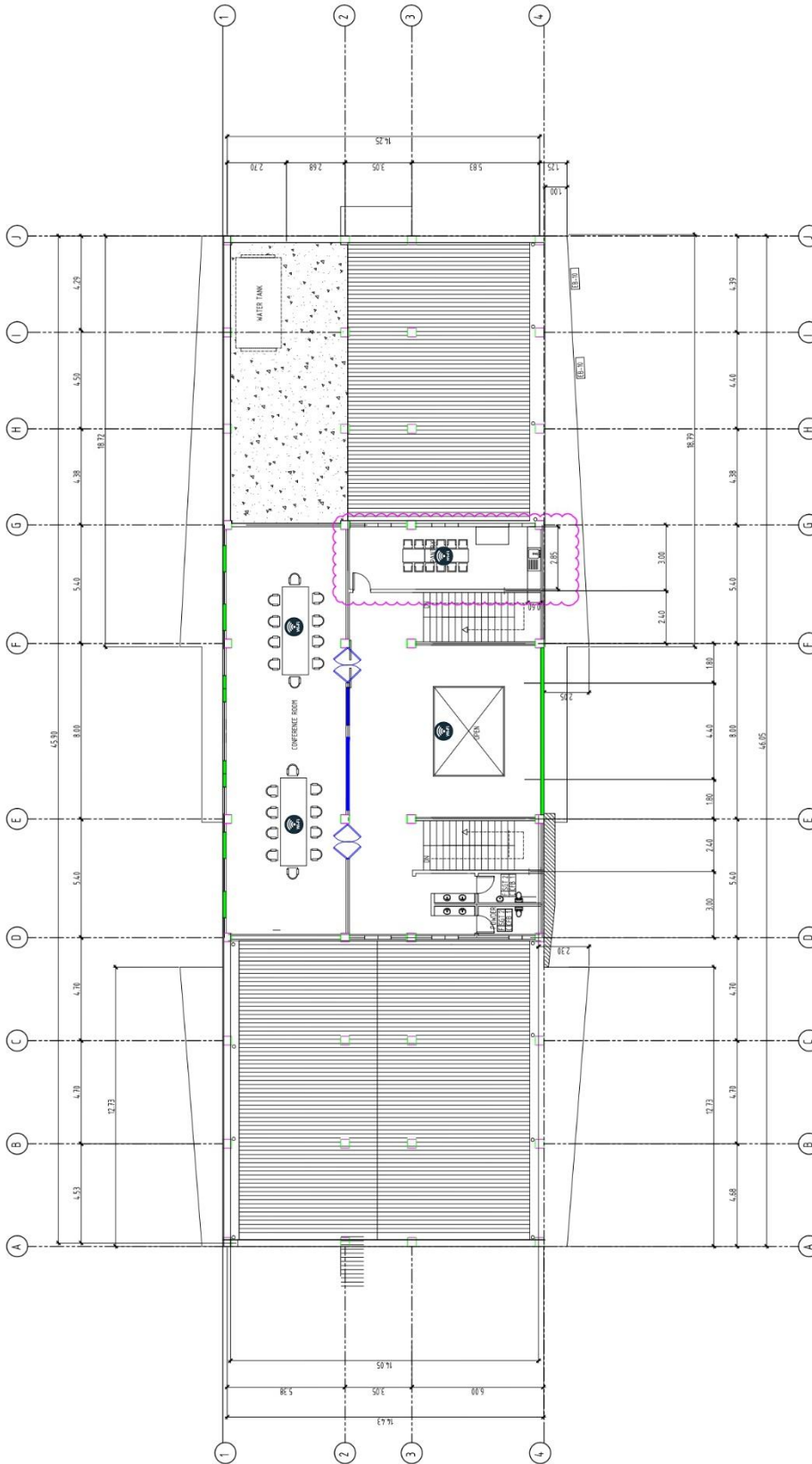


Proposed WIFI Installation (Ground Floor)





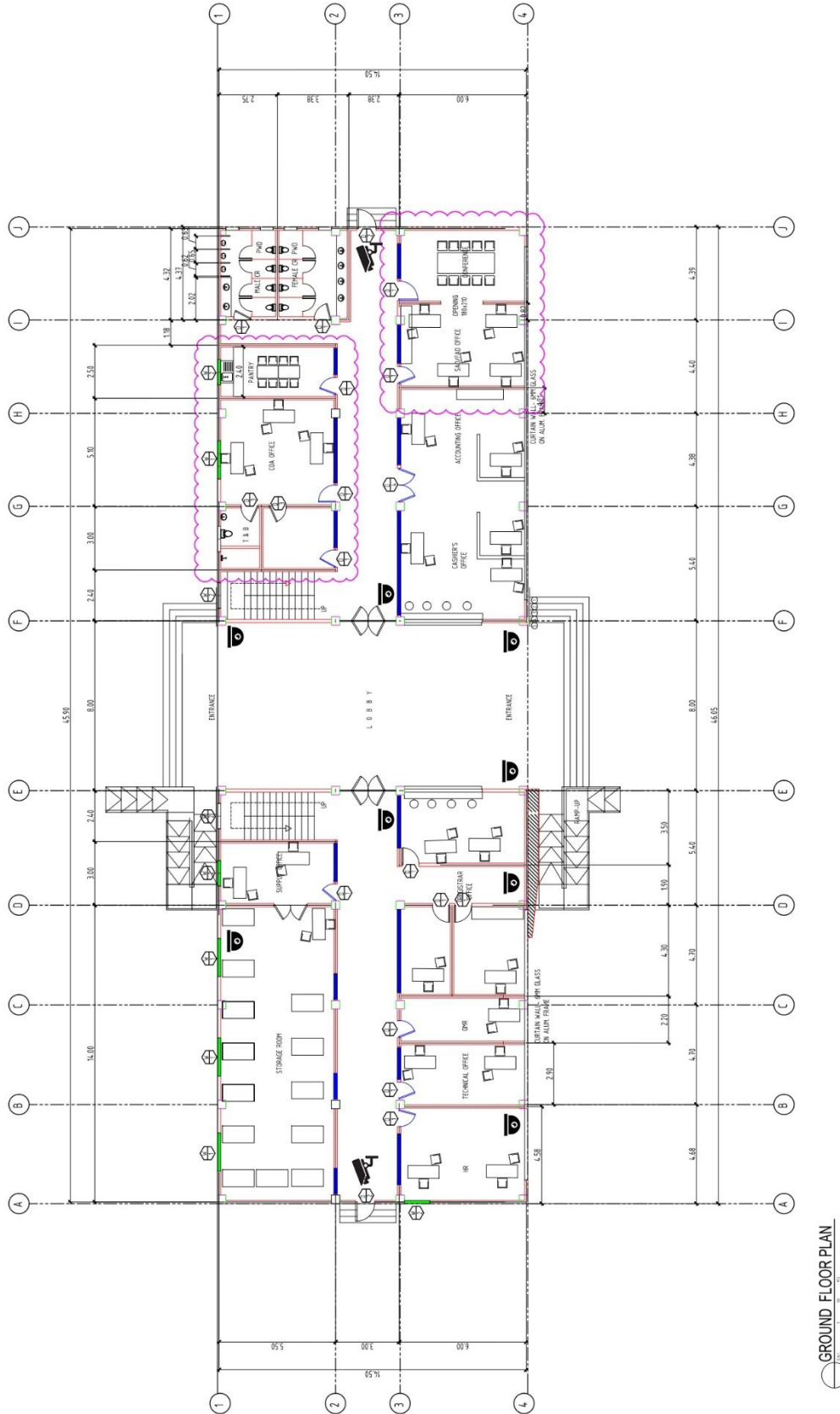
Proposed WIFI Installation (3rd Floor)



THIRD FLOOR PLAN

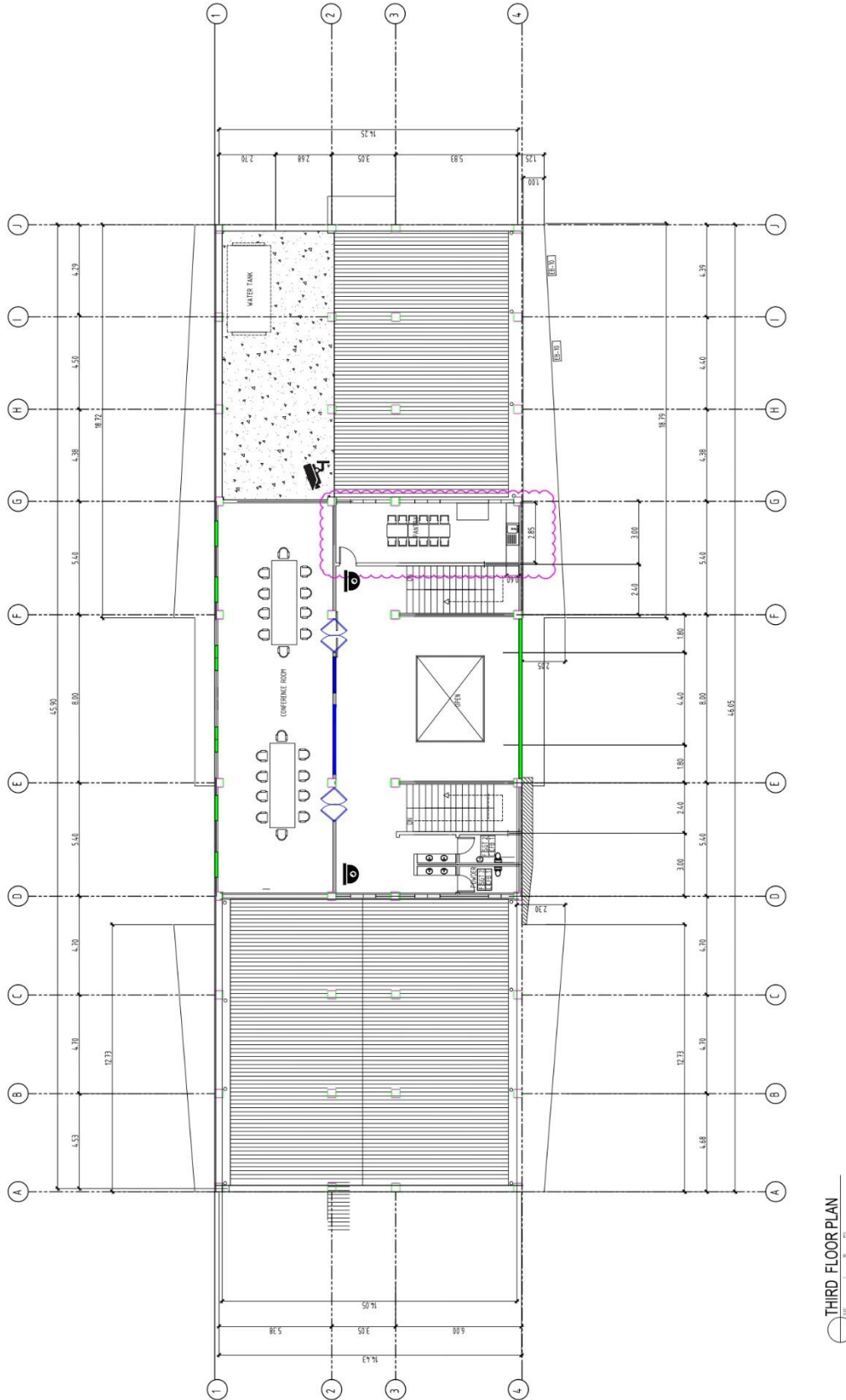


Proposed CCTV Installation (Ground Floor)



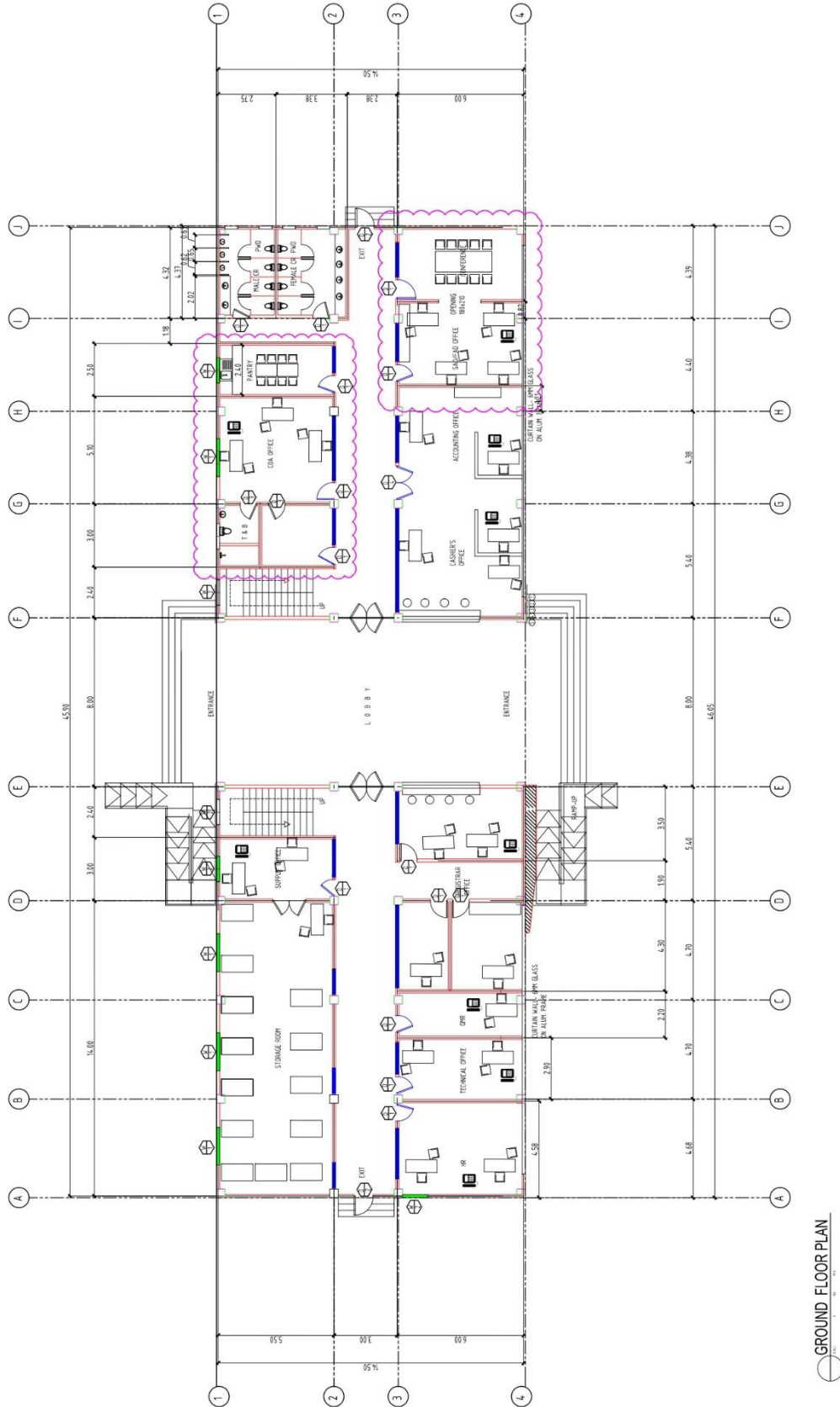


Proposed CCTV Installation (3rd Floor)



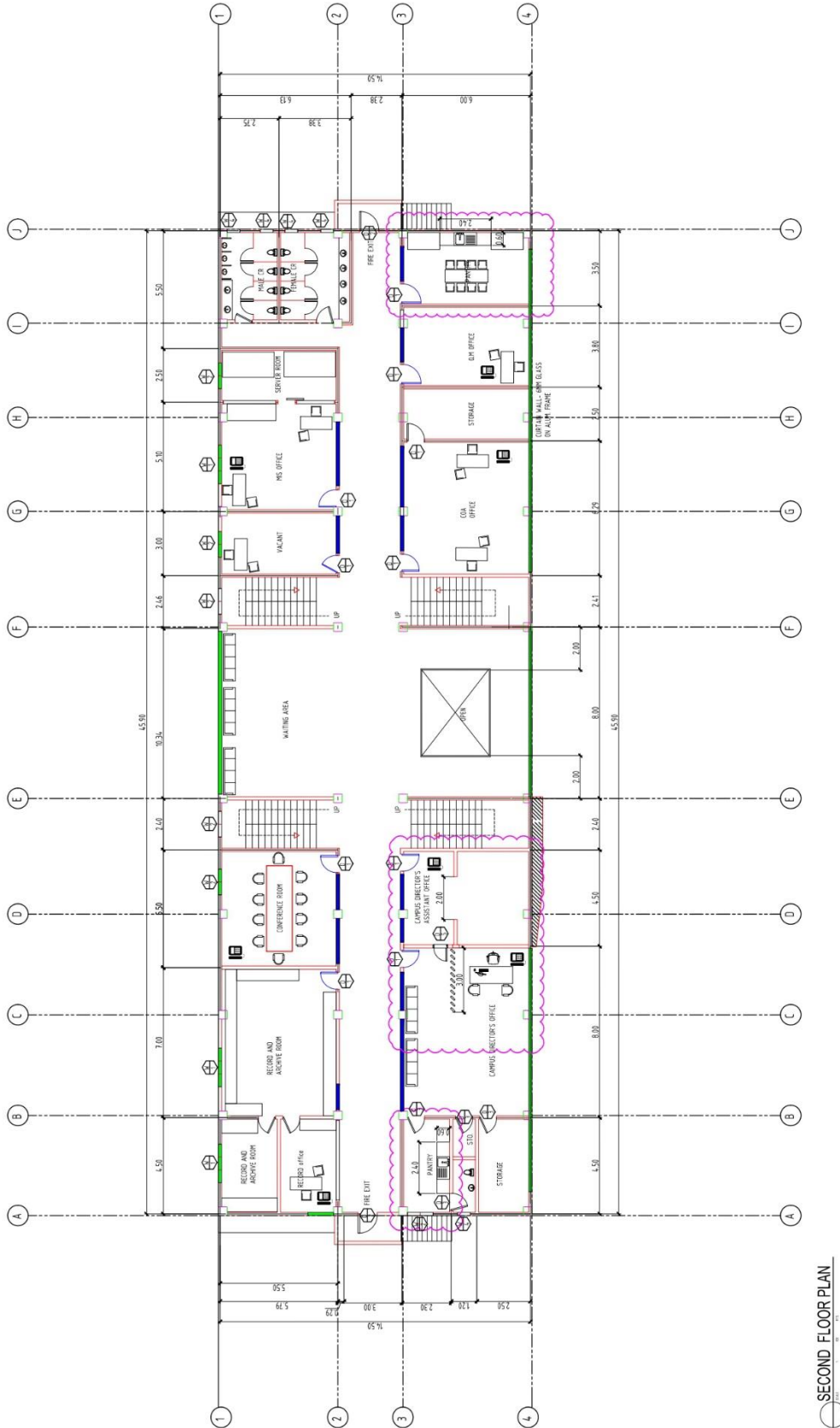


Proposed IP Phone Installation (Ground Floor)





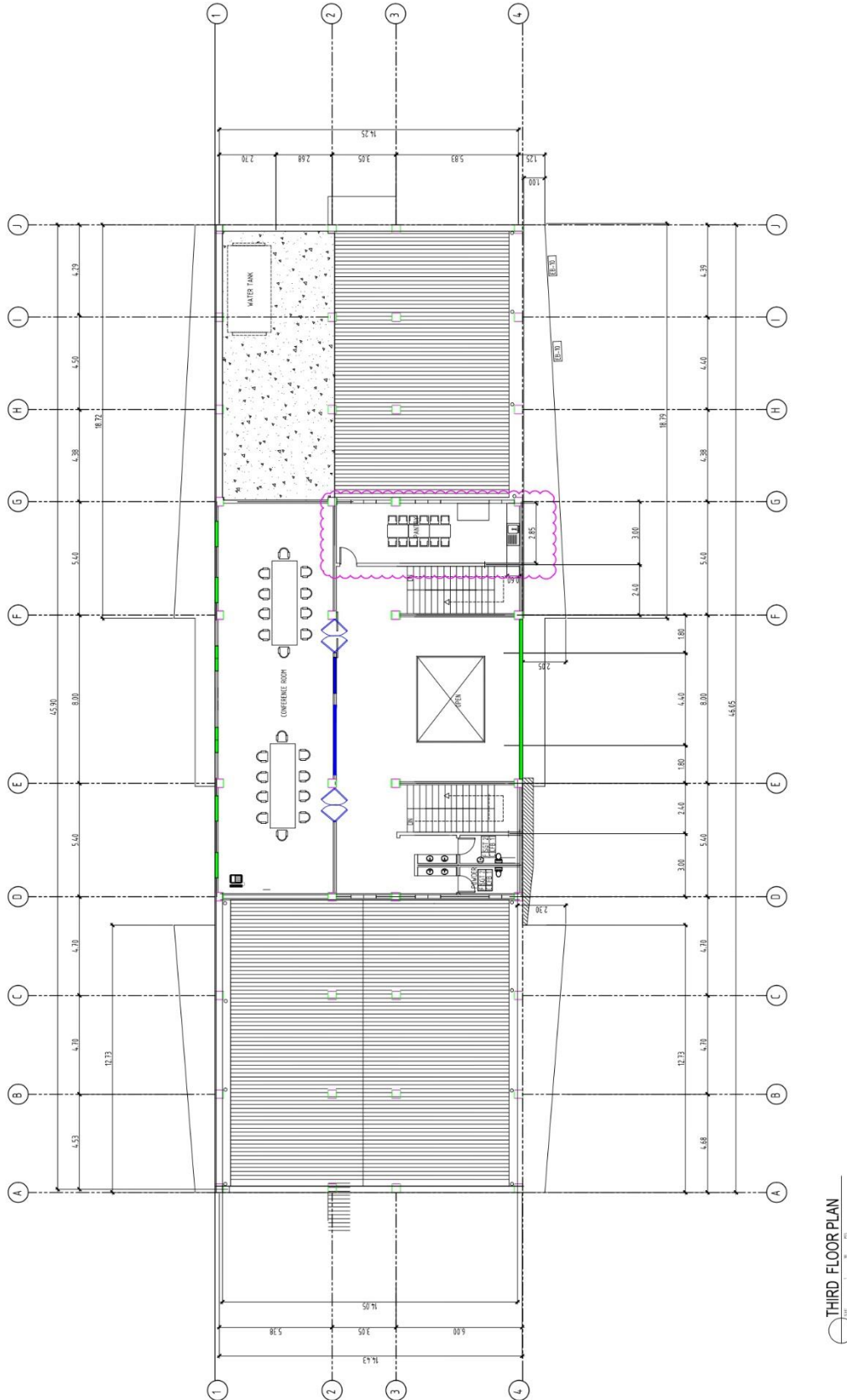
Proposed IP Phone Installation (2nd Floor)



SECOND FLOOR PLAN




Proposed IP Phone Installation (3rd Floor)



THIRD FLOOR PLAN





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