UNIVERSITY OF THE PHILIPPINES CEBU

PHILIPPINE BIDDING DOCUMENTS

Construction of the Learning Commons Annex Phase 2

APPROVED BUDGET FOR THE CONTRACT

Fifteen Million Pesos Only

(PHP 15,000,000.00)

Government of the Republic of the Philippines

Sixth Edition

July 2020

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Glossary of Terms, Abbreviations, and Acronyms

ABC – Approved Budget for the Contract.

ARCC – Allowable Range of Contract Cost.

BAC – Bids and Awards Committee.

Bid – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender*. (2016 revised IRR, Section 5[c])

Bidder – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

Bidding Documents – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

CDA – Cooperative Development Authority.

Consulting Services – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

Contract – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

Contractor – is a natural or juridical entity whose proposal was accepted by the Procuring Entity and to whom the Contract to execute the Work was awarded. Contractor as used in these Bidding Documents may likewise refer to a supplier, distributor, manufacturer, or consultant.

CPI – Consumer Price Index.

DOLE – Department of Labor and Employment.

DTI – Department of Trade and Industry.

Foreign-funded Procurement or Foreign-Assisted Project – Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

GFI – Government Financial Institution.

GOCC – Government-owned and/or –controlled corporation.

Goods – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term "related" or "analogous services" shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

GOP – Government of the Philippines.

Infrastructure Projects – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PCAB – Philippine Contractors Accreditation Board.

PhilGEPS - Philippine Government Electronic Procurement System.

Procurement Project – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

UN – United Nations.

Section I. Invitation to Bid

University of the Philippines Cebu

Invitation to Bid for the Construction of the Learning Commons Annex Phase 2

1. The *University of the Philippines Cebu*, through the *GAA 2022* intends to apply the sum of Fifteen *Million Pesos Only (PhP 15,000,000.00)* being the Approved Budget for the Contract (ABC) to payments under the contract for *Construction of the Learning Commons Annex Phase 2* with contract ID *I-2022-006*. Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The *University of the Philippines Cebu* now invites bids for the above Procurement Project. Completion of the Works is required ***180 (one hundred eighty) Calendar Days***. Bidders should have completed a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).

3. Bidding will be conducted through open competitive bidding procedures using non-discretionary "*pass/fail*" criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

4. Interested bidders may obtain further information from *University of the Philippines Cebu* and inspect the Bidding Documents at the address given below from *8:00 AM – 12:00 NN, 1:00 PM – 5:00 PM.*

5. A complete set of Bidding Documents may be acquired by interested bidders on *September 5, 2022* from given address and website/s below *and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of* Fifteen *Thousand Pesos Only (PhP 15,000.00).* The Procuring Entity shall allow the bidder to present its proof of payment for the fees *in person or through email.*

6. The *University of the Philippines Cebu* will hold a Pre-Bid Conference on *September 14, 2022, 10:00AM* at *UP Cebu BAC Office, Room 207 2nd Floor UP Cebu Administration Building, Gorordo Ave., Lahug, Cebu City and via ZOOM*
   Meeting ID: 923 8480 7023 Passcode: BACPRE-BID
   which shall be open to prospective bidders.

7. Bids must be duly received by the BAC Secretariat through **manual submission** at the office address as indicated below on or before *September 28, 2022, 10:00AM.* Late bids shall not be accepted.

8. All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 16.

9. Bid opening shall be on *September 28, 2022, 10:00AM* at the given address below *UP Cebu BAC Office, Room 207 2nd Floor UP Cebu Administration Building, Gorordo Ave., Lahug, Cebu City.* Bids will be opened in the presence of the bidders' representatives who choose to attend the activity face to face or via ZOOM
Meeting ID: 912 0780 3445 Passcode: OPENINGBID

10. The *University of the Philippines Cebu* reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised Implementing Rules and Regulations (IRR) of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

11. For further information, please refer to:

    Emma Gandionco
    BAC Secretariat Chair
    Bids and Awards Committee
    UP Cebu, Lahug, Cebu City
    bac_sec.upcebu@up.edu.ph
    (032) 232-8187 loc 316

12. You may visit the following websites:

    For downloading of Bidding Documents:

Dr. Lorel S. Dee
BAC Chairperson

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, ***University of the Philippines Cebu*** invites Bids for the **Construction of the Learning Commons Annex Phase 2** with Project Identification Number ***I-2022-006.***

The Procurement Project (referred to herein as "Project") is for the construction of Works, as described in Section VI (Specifications).

2. Funding Information

2.1. The GOP through the source of funding as indicated below for ***2022*** in the amount of ***Fifteen Million Pesos Only (Php 15,000,000.00).***

2.2. The source of funding is:

NGA, the General Appropriations Act or Special Appropriations.

3. Bidding Requirements

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manual and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or invitation to bid by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have inspected the site, determined the general characteristics of the contracted Works and the conditions for this Project, such as the location and the nature of the work; (b) climatic conditions; (c) transportation facilities; (c) nature and condition of the terrain, geological conditions at the site communication facilities, requirements, location and availability of construction aggregates and other materials, labor, water, electric power and access roads; and (d) other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

4. Corrupt, Fraudulent, Collusive, Coercive, and Obstructive Practices

The Procuring Entity, as well as the Bidders and Contractors, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and

obstructive practices defined under Annex "I" of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.

5.2. The Bidder must have an experience of having completed a Single Largest Completed Contract (SLCC) that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC adjusted, if necessary, by the Bidder to current prices using the PSA's CPI, except under conditions provided for in Section 23.4.2.4 of the 2016 revised IRR of RA No. 9184.

A contract is considered to be "similar" to the contract to be bid if it has the major categories of work stated in the **BDS**.

5.3. For Foreign-funded Procurement, the Procuring Entity and the foreign government/foreign or international financing institution may agree on another track record requirement, as specified in the Bidding Document prepared for this purpose.

5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.2 of the 2016 IRR of RA No. 9184.

6. Origin of Associated Goods

There is no restriction on the origin of Goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN.

7. Subcontracts

7.1. The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than fifty percent (50%) of the Project.

The Procuring Entity has prescribed that:

> Subcontracting is allowed. The portions of Project and the maximum percentage allowed to be subcontracted are indicated in the **BDS,** which shall not exceed fifty percent (50%) of the contracted Works.

7.1. The Supplier may identify its subcontractor during the contract implementation stage. Subcontractors identified during the bidding may be changed during the implementation of this Contract. Subcontractors must submit the documentary requirements under Section 23.1 of the 2016 revised IRR of RA No. 9184 and comply with the eligibility criteria specified in **ITB** Clause 5 to the implementing or end-user unit.

7.2. Subcontracting of any portion of the Project does not relieve the Contractor of any liability or obligation under the Contract. The Supplier will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants, or workmen as fully as if these were the Contractor's own acts, defaults, or negligence, or those of its agents, servants, or workmen.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address BAC Office Rm 207, 2nd Floor Administrative Building, and/or through videoconferencing/webcasting via Zoom as indicated in paragraph 6 of the **IB.**

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10. Documents Comprising the Bid: Eligibility and Technical Components

10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.

10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

10.3. A valid PCAB License is required, and in case of joint ventures, a valid special PCAB License, and registration for the type and cost of the contract for this Project. Any additional type of Contractor license or permit shall be indicated in the **BDS**.

10.4. A List of Contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen) assigned to the contract to be bid, with their complete qualification and experience data shall be provided. These key personnel must meet the required minimum years of experience set in the **BDS**.

10.5. A List of Contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership, certification of

availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be, must meet the minimum requirements for the contract set in the **BDS**.

11. Documents Comprising the Bid: Financial Component

11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.

11.2. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.

11.3. For Foreign-funded procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Alternative Bids

Bidders shall submit offers that comply with the requirements of the Bidding Documents, including the basic technical design as indicated in the drawings and specifications. Unless there is a value engineering clause in the **BDS**, alternative Bids shall not be accepted.

13. Bid Prices

All bid prices for the given scope of work in the Project as awarded shall be considered as fixed prices, and therefore not subject to price escalation during contract implementation, except under extraordinary circumstances as determined by the NEDA and approved by the GPPB pursuant to the revised Guidelines for Contract Price Escalation guidelines.

14. Bid and Payment Currencies

14.1. Bid prices may be quoted in the local currency or tradable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

14.2. Payment of the contract price shall be made in:

Philippine Pesos.

15. Bid Security

15.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.

15.2. The Bid and bid security shall be valid until ***January 6, 2023*** Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

16. Sealing and Marking of Bids

Each Bidder shall submit one copy of the first and second components of its Bid.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

If the Procuring Entity allows the submission of bids through online submission to the given website or any other electronic means, the Bidder shall submit an electronic copy of its Bid, which must be digitally signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

17. Deadline for Submission of Bids

The Bidders shall submit on the specified date and time and either at its physical address or through online submission as indicated in paragraph 7 of the **IB.**

18. Opening and Preliminary Examination of Bids

18.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

18.2. The preliminary examination of Bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*" using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of 2016 revised IRR of RA No. 9184.

19.2. If the Project allows partial bids, all Bids and combinations of Bids as indicated in the **BDS** shall be received by the same deadline and opened and evaluated simultaneously so as to determine the Bid or combination of Bids offering the lowest calculated cost to the Procuring Entity. Bid Security as required by **ITB** Clause 16 shall be submitted for each contract (lot) separately.

19.3. In all cases, the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184 must be sufficient for the total of the ABCs for all the lots participated in by the prospective Bidder.

20. Post Qualification

Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS), and other appropriate licenses and permits required by law and stated in the **BDS**.

21. Signing of the Contract

The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

Section III. Bid Data Sheet

<table>
<tr><th>ITB Clause</th><th></th></tr>
<tr><td>5.2</td><td>The Bidder must have an experience of having completed a Single Largest Completed Contract (SLCC) for the last three years that is similar to this Project.

Major category of work is
Construction, Rehabilitation, repairs, retrofitting of building</td></tr>
<tr><td>7.1</td><td>Subcontracting may be allowed for portions of the work not to exceed 50% of the contract amount.
Portions of the works where subcontracting is allowed are as follows:
1. AUXILLIARY WORKS – cctv, telephone, structural cabling, p.a and sound system supply and installation
2. STEEL MOVABLE COMPACTOR – supply and installation
3. BUILDING SOLAR ENERGY SYSTEM – supply and installation</td></tr>
<tr><td>10.3</td><td>PCAB license must be at least a category C with and D size range small B</td></tr>
<tr><td>10.4</td><td>
<table>
<tr><th>Key personnel</th><th>General experience</th><th>Relevant Experience</th></tr>
<tr><td>1. Site Architect/ Civil Engineer – for architectural and structural works.</td><td>5 years</td><td></td></tr>
<tr><td>2. Registered Electrical Engineer – for electrical works.</td><td>5 years</td><td></td></tr>
<tr><td>3. Registered Master Plumber – To supervised for plumbing works.</td><td>5 years</td><td></td></tr>
<tr><td>4. IT/ Electronics and Communication Engineer – for auxiliary works (cctv, telephone, structured cabling, p.a and sound system).</td><td>5 years</td><td></td></tr>
<tr><td>5. Safety Officer – COSH trained</td><td>2 years</td><td>2 years</td></tr>
</table>
</td></tr>
<tr><td>10.5</td><td>The minimum major equipment requirements are the following:
<u>Equipment</u> <u>Capacity</u> <u>Number of Units</u>
1. Backhoe
2. Mixer (1 bagger)
3. Tamping Machine
4. Dump Truck
5. Demolition Hammer
6. Pumpcrete and Concrete Mixer Truck (rental) for ready mix concrete</td></tr>
</table>

12.0	*No further instructions.*
15.1	The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts: a. The amount of not less than *Three Hundred Thousand Pesos Only (₱300,000.00),* if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; b. The amount of not less than *Seven Hundred* Fifty *Thousand Pesos Only (₱750,000.00),* if bid security is in Surety Bond.
19.2	Partial bid is not allowed.
20	*No further instructions.*
21	Additional contract documents relevant to the Project that may be required by existing laws and/or the Procuring Entity, The following shall be submitted together with the bid to form part of the bidder's proposal. A. the bidder's proposed: 1. Master Construction Schedule 2. Manpower Schedule 3. Equipment Schedule 4. Equipment Work Plan 5. Pert/CPM and S-curve 6. Construction Methodology 7. Quality Assurance and Quality Control Program 8. Inspection Test Plan B. Certificate of site inspection signed by OCA

Section IV. General Conditions of Contract

1. Scope of Contract

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

2. Sectional Completion of Works

If sectional completion is specified in the **Special Conditions of Contract (SCC)**, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date shall apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

3. Possession of Site

3.1 The Procuring Entity shall give possession of all or parts of the Site to the Contractor based on the schedule of delivery indicated in the **SCC,** which corresponds to the execution of the Works. If the Contractor suffers delay or incurs cost from failure on the part of the Procuring Entity to give possession in accordance with the terms of this clause, the Procuring Entity's Representative shall give the Contractor a Contract Time Extension and certify such sum as fair to cover the cost incurred, which sum shall be paid by Procuring Entity.

3.2 If possession of a portion is not given by the above date, the Procuring Entity will be deemed to have delayed the start of the relevant activities. The resulting adjustments in contract time to address such delay may be addressed through contract extension provided under Annex "E" of the 2016 revised IRR of RA No. 9184.

4. The Contractor's Obligations

The Contractor shall employ the key personnel named in the Schedule of Key Personnel indicating their designation, in accordance with **ITB** Clause 10.3 and specified in the **BDS**, to carry out the supervision of the Works.

The Procuring Entity will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are equal to or better than those of the personnel listed in the Schedule.

5. Performance Security

5.1. Within ten (10) calendar days from receipt of the Notice of Award from the Procuring Entity but in no case later than the signing of the contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR.

5.2. The Contractor, by entering into the Contract with the Procuring Entity, acknowledges the right of the Procuring Entity to institute action pursuant to R.A. No. 3688 against any subcontractor be they an individual, firm, partnership, corporation, or association supplying the Contractor with labor, materials and/or equipment for the performance of this Contract.

6. Site Investigation Reports

The Contractor, in preparing the Bid, shall rely on any Site Investigation Reports referred to in the **SCC** supplemented by any information obtained by the Contractor.

7. Warranty

7.1. In case the Contractor fails to undertake the repair works under Section 62.2.2 of the 2016 revised IRR, the Procuring Entity shall forfeit its performance security, subject its property(ies) to attachment or garnishment proceedings, and perpetually disqualify it from participating in any public bidding. All payables of the GOP in his favor shall be offset to recover the costs.

7.2. The warranty against Structural Defects/Failures, except that occasioned-on force majeure, shall cover the period from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity. Specific duration of the warranty is found in the **SCC**.

8. Liability of the Contractor

Subject to additional provisions, if any, set forth in the **SCC**, the Contractor's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Contractor is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

9. Termination for Other Causes

Contract termination shall be initiated in case it is determined *prima facie* by the Procuring Entity that the Contractor has engaged, before, or during the implementation of the contract, in unlawful deeds and behaviors relative to contract acquisition and implementation, such as, but not limited to corrupt, fraudulent, collusive, coercive, and obstructive practices as stated in **ITB** Clause 4.

10. Dayworks

Subject to the guidelines on Variation Order in Annex "E" of the 2016 revised IRR of RA No. 9184, and if applicable as indicated in the **SCC**, the Dayworks rates in the Contractor's Bid shall be used for small additional amounts of work only when the Procuring Entity's Representative has given written instructions in advance for additional work to be paid for in that way.

11. Program of Work

11.1. The Contractor shall submit to the Procuring Entity's Representative for approval the said Program of Work showing the general methods, arrangements, order, and timing for all the activities in the Works. The submissions of the Program of Work are indicated in the **SCC.**

11.2. The Contractor shall submit to the Procuring Entity's Representative for approval an updated Program of Work at intervals no longer than the period stated in the **SCC.** If the Contractor does not submit an updated Program of Work within this period, the Procuring Entity's Representative may withhold the amount stated in the **SCC** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program of Work has been submitted.

12. Instructions, Inspections and Audits

The Contractor shall permit the GOP or the Procuring Entity to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors of the GOP or the Procuring Entity, as may be required.

13. Advance Payment

The Procuring Entity shall, upon a written request of the Contractor which shall be submitted as a Contract document, make an advance payment to the Contractor in an amount not exceeding fifteen percent (15%) of the total contract price, to be made in lump sum, or at the most two installments according to a schedule specified in the **SCC**, subject to the requirements in Annex "E" of the 2016 revised IRR of RA No. 9184.

14. Progress Payments

The Contractor may submit a request for payment for Work accomplished. Such requests for payment shall be verified and certified by the Procuring Entity's Representative/Project Engineer. Except as otherwise stipulated in the **SCC**, materials and equipment delivered on the site but not completely put in place shall not be included for payment.

15. Operating and Maintenance Manuals

15.1. If required, the Contractor will provide "as built" Drawings and/or operating and maintenance manuals as specified in the **SCC.**

15.2. If the Contractor does not provide the Drawings and/or manuals by the dates stated above, or they do not receive the Procuring Entity's Representative's approval, the Procuring Entity's Representative may withhold the amount stated in the **SCC** from payments due to the Contractor.

Section V. Special Conditions of Contract

GCC Clause	
2.0	*Completion of works under the contract will be* ***One Hundred Eighty (180) calendar days*** *regardless of sectional works completed, reckoning from the date of receipt of the NTP*
4.0	*The procuring entity shall give possession of the part of the site to the contractor on the date of receipt of NTP by the successful bidder.* ***Work start notice*** *shall be given by the contractor to the PE specifying the area of works to be approved by the PE through the Office of the Campus Architect (OCA) prior to commencement of works* *Submission of* ***IT Plan*** *and* ***quality program including health and safety program in accordance with the minimum health protocol required by the university*** *prior to commencement of works.* ***CARI*** *with amount coverage equivalent to the contract amount valid throughout the duration of the works, shall be submitted by the contractor to the OCA prior to commencement of works*
6	No further instructions
7.2	Warranty against structural defects shall cover a period of Two (2) years from the date of issuance of the Certificate of Final Acceptance.
10	No dayworks are applicable to the contract.
11.1	The Contractor shall submit the **Program of Works** to the *Office of the Campus Architect* within *five (5)* calendar days from the delivery of the Notice of Award to include the ff.: 1. Master Construction Schedule 2. Manpower Schedule 3. Equipment Schedule 4. Equipment Work Plan 5. Pert/CPM and S-curve 6. Construction Methodology 7. Quality Assurance and Quality Control Program 8. Inspection Test Plan 9. Program of works for the IT component and the Solar Power System
11.2	**Updated Program of works** must be submitted weekly together with the **progress reports**. The amount to be withheld for late submission of an updated Program of Work is 1% of the contract amount. Must include but not limited to the ff: 1. Material Submittal 2. Construction Report – Daily Report and Weekly Report. 3. Construction Logbook
13	The amount of the advance payment is *15% of the total contract price and payments shall be made through accomplishment progress billing by the contractor as confirmed by the OCA. The entire amount of the Advance payment shall be deducted from the first progress billing payment*

14	Progress payment no. 1 may be made only upon completion of at least 30% of the contract. Materials and equipment delivered on the site but not completely put in place shall be included for payment. **Materials submittal** shall be submitted by the contractor to the OCA for approval prior to delivery.
15.1	Contractor shall provide signed and sealed As-built plans in the same sheet and scale as the original plans in reproducible hard copy and electronic file copies prior to issuance of Certificate of Completion.
15.2	No further instructions

Section VI. Specifications
Section VII. Drawings
Section VIII. Bill of Quantities

Specifications, Scope of Works, Drawings and BOQ are combined in the succeeding pages and grouped according to the major works to be done by the contractor.

PROJECT : **CONSTRUCTION OF THE LEARNING COMMONS ANNEX PHASE 2**

1.0 Project Description

1.1 General Description

The project shall cover the Construction of the Learning Commons Annex Phase 2 . The project site is located at the rear portion of the University of the Philippines Cebu Lahug campus, behind the existing Learning Commons Building. The proposed structure consists of a bridge way (45 meters' span), retaining walls (total of 60 linear meters), and building systems (IT and Building Solar Energy System).

The construction shall be in accordance with the UP-approved DAED and the General Site Development and Building Design Specifications as prescribed in this Specifications. The project shall have an Approved Budget for the Contract (ABC) of **Fifteen Million Pesos (Php 15,000,000.00).**

1.2 Project Components

The project shall have the following basic components:

(a) Construction of Learning Commons Annex Phase 2 .
(b) The project shall be based on DAED plans by the Office of the Campus Architect (OCA) of UP Cebu which are pre-approved by the University.
(c) Structured Cabling with Fiber Backbone and Active components.
(d) Solar Energy Systems Installation
(e) Compliance with all applicable permits/licensing and documentary requirements.

2.0 Project Background

2.1 Basis for the Project

The Learning Commons Annex Phase 2 is the continuation of the existing UP Cebu Learning Commons Building located within the premise of the UP-Cebu Lahug Campus. The Annex Phase 2 project consist of 1) the state of the art movable book shelves, 2) a bridge that will be attached as a connecting passageway to the Technology Innovation Center (TIC), Learning Commons and Dormitory Extension Building, and 3) building Solar Energy Systems for a sustainable energy supply

3.0 Project Objectives

3.1 To build an Educational Facility that factors in the following principles:

(a) Minimizing adverse impacts on the natural environment
(b) Energy-saving A&E concepts including:
    (i) maximization of natural day lighting to lower electrical consumption;
    (ii) other applicable concepts.
(c) Site development and building design adaptability and flexibility to organizational, community and technological changes.

4.0 Project Requirements

The bidder shall consider in their proposal the following requirements of the intended **Construction of the Learning Commons Annex Phase 2.**
(See **Drawings**)

I. Bridge way (Concrete, Metal, Earthworks, Thermal Moisture Protection and Finishes)
II. Landscape
III. Wall Finishes (Stone cladding)
IV. Electrical works (Ceiling mounted convenience outlets)
V. Communications (Telephone and Data Structured Cabling, Public Address, and background music.
VI. Fiber Optics Cabling (additional UPC ITC requirements)
VII. Steel Movable Compactor
VIII. Retaining Wall 27.0 Meters (Right-Wing, using chb 750 psi).
IX. Retaining Wall 33.0 Meter (Left-Wing, using chb 750 psi.).
X. Building Solar Energy System.

5.0 Contract Implementation

5.1 Permits and Clearances

(a) The contractor shall pay for any and all expenses necessary and incidental for UP Cebu to be able to secure the following:
    (i) Building Permit, Zoning Permit, Electrical Permit, Fire Safety Permit.

(b) The contractor shall, upon authorization by the City Government, make representation with the concerned government agencies to expedite the release of the same.

5.2 Temporary Structures and Facilities
(a) The contractor shall provide and maintain the following:
    (i) Temporary office and/or quarters with water, light, telephone and toilet facilities for the contractor's project team personnel.
    (ii) Temporary bunkhouses/quarters for the contractor's work force complete with toilet and bath facilities.

(iii) Board-up and temporary fencing of construction site.

(b) The contractor shall also prepare and implement a plan for egress upon completion of the project.

5.3 Mobilization

The contractor shall mobilize all the required project team personnel, equipment, tools and manpower with the required skills and in sufficient number as may be necessary for his efficient undertaking of the project.

5.4 Construction Supervision

The contractor shall execute all the works under the contract in strict accord with standard engineering methodology and procedures and shall be responsible for maintaining cleanliness and orderliness, health and safety of workers and general public in the project area throughout the duration of the contract.

5.5 Electrification

The contractor shall pay for expenses for the acquisition of the power connection to the local electric utility/cooperative for the temporary lighting of the work area and temporary facilities. Tapping of permanent electrical connections for bridge way and solar energy systems are consolidated and coordinated to the contractor who made the main distribution panel of Learning Commons Annex Building.

5.6 Quality Control

The contractor shall adhere to the submitted and approved Minimum Material Testing Plan.

5.7 Minimum Construction Safety and Health Program

The contractor shall submit the DOLE approved construction safety and health program and comply with the following minimum safety and health requirements:

(a) Safety and Health Protocol:
- (i) Wearing of appropriate PPEs at all times while inside the construction site. Skull guards, raincoats, working shades, and boots must be provided to all employees specially to those who are assigned in hazardous areas;
- (ii) Regular maintenance and pre operation check of all equipment used onsite. Maintenance log must be kept by the contractor at all times.
- (iii) Construction site must be kept free from debris and other materials which may cause injury and accidents;
- (iv) Fire extinguishers must be placed in key areas in the work site most especially areas that are fire prone such as fuel truck/ depot

(vi) Employees must observe the " No smoking and no drinking of alcoholic beverages policy" at all times while inside the worksite and during working hours.

(vii) Contractor must provide first aid supplies which are ready for use at the worksite. Contractor must provide accident response plan to the PE which will contain the response procedure in case accident happens in the worksite

(viii) Contractor must make sure workers have undergone prior health and safety training/orientation.

6.0 Project Acceptance and Turnover

6.1 The OCA-PMT (Office of the Campus Architect – Project Management Team) UP Cebu Ensures that the project completed are:

(a) In accordance with the plans and specifications approved by UP.

(b) completed withing the timeframe for the project

6.2 The OCA-PMT will note minor defects, and do punch-list of works for rectification and the contractor shall undertake the necessary rectification works prior to issuance of certificate of completion.

6.3 Upon final acceptance of the project, the retention money for the project shall be released accordingly, upon the request and posting of the required one (1) year guarantee bond for contract.

SCOPE OF WORKS

1 GENERAL REQUIREMENTS- General requirements for building construction

2 BRIDGEWAY - Construction of bridgeway, Includes structural, architectural design by AC Ong consultant.

3 LANDSCAPE - Includes landscaping works as per requirements and design by AC Ong consultant.
4 WALL FINISHES, (stone cladding.) - Includes stone wall cladding the same on existing main library.
5 ELECTRICAL WORKS (mounted c.o) - Includes in electrical works as required by AC Ong consultant.
6 DATA/COMMUNICATIONS
Includes supply and installation of horizontal cabling (data/voice), equipment (data/voice) and backbone cabling, public address and background music.
7 STEEL MOBILE COMPACTOR
BOOKSHELVES - Includes supply and installation of steel mobile compactor shelvings,
8 RETAINING WALL 27.0M (RIGHT WING)
(Includes board-up, scaffoldings , clearing and hauling of debris)
-Includes construction of retaining wall with fence and plant box, using 750psi chb.
9 RETAINING WALL 33.0M (LEFT WING)
(Includes board-up, scaffoldings , clearing and hauling of debris)
-Includes construction of retaining wall with fence and plant box, using 750psi chb.
10 BLDG. SOLAR ENERGY SYSTEMS
-Includes supply, install and commissioning of hybrid building solar energy systems 25kw.

LIST OF TOOLS & EQUIPMENT

1. 1-Bagger concrete mixer
2. Welding machine
3. Scaffoldings
4. Health and Safety Compliant, workers minimum standard PPE uniform.
5. Dump Truck (hauling of debris)

LIST OF DOCUMENTS NEEDED IN THE CONSTRUCTION

1. Master Construction Schedule
2. Manpower Schedule
3. Equipment Schedule
4. Equipment Work Plan
5. Pert/CPM and S-curve
6. Construction Methodology
7. Quality Assurance and Quality Control Program
8. Inspection Test Plan
9. Material Submittal
10. Construction Report – Daily Report and Weekly Report.
11. Construction Logbook

LIST OF PROFESSIONALS IN CONSTRUCTION PHASE

1. Site Architect/ Civil Engineer – To supervised for architectural and structural works.
   At least with 5 years' experience in construction, with complete credentials.
2. Registered Electrical Engineer – To supervised for electrical works.
   At least with 5 years' experience in construction, with complete credentials.
3. Registered Master Plumber – To supervised for plumbing works.
   At least with 5 years' experience in construction, with complete credentials.
4. IT/ Registered Electronics Engineer To supervised IT and electronic systems.
   At least with 3 yerrs experience in IT/Electronics works.
5. Safety Officer – To supervised and observed health and safety in the construction.
   At least with 2 years' experience in construction, with complete credentials and completed COSH training.

PROJECT TITLE : **CONSTRUCTION OF LEARNING COMMONS ANNEX, PHASE 2, UP CEBU**
LOCATION : **UPC LAHUG , CEBU CITY**
DURATION : **180 CALENDAR DAYS**

	ITEMS	UNIT COST		COST
1	**GENERAL REQUIREMENTS**	1	LOT	678,821.43
2	**BRIDGEWAY**	1	LOT	2,970,622.66
3	**LANDSCAPE**	1	LOT	75,600.00
4	**WALL FINISHES, (stone cladding.)**	1	LOT	122,461.54
5	**ELECTRICAL WORKS (mounted c.o)**	1	LOT	1,615.95
6	**DATA/COMMUNICATIONS**	1	LOT	1,896,878.42
	Specs: Horizontal cabling, Data/Voice Equipment, Backbone cabling.			
7	**STEEL MOBILE COMPACTOR**	1	LOT	4,800,000.00
	BOOKSHELVES			
	Specs: 2 Bay - 22 Rows			
	w/ Cramer All Steel Kick-Step Stool			
8	**RETAINING WALL 27.0M (RIGHT WING)**	1	LOT	764,000.00
	(Includes board-up, scaffoldings , clearing and hauling of debris)			
9	**RETAINING WALL 33.0M (LEFT WING)**	1	LOT	940,000.00
	(Includes board-up, scaffoldings , clearing and hauling of debris)			
10	**BLDG. SOLAR ENERGY SYSTEMS**	1	LOT	2,750,000.00
	Specs: Hybrid Solar 25kw			
			TOTAL COST	15,000,000.00

a.c.ong CONSULTING INC.
Engineering + Management

Project: UP - CEBU LOT 2 (Learning Common Extension) **Date** 8/25/2022

Reference No.: SO-G-19-013 **Prepared By** OCA-UP CEBU

Site Location: Lahug, Cebu City **Approved By Revision:**

NOTES

>The Plans, Detailed Drawings, Specifications, Detailed Bill of Quantities, Terms of Reference, Contract Agreement and other Bid Documents shall be considered as complementing each other, so that what is mentioned or shown in one, although not mentioned in the other, shall be considered as appearing in both. In case of conflict between the two, the same should be referred to the Designing Architect/Engineer for resolution with the aproval of the Head of Procuring Entity.

>The construction shall be finished with first class workmanship to the satisfaction of the Head of Procuring Entity.

>The items, description and quantities given on the first three columns of the Bill of Quantities /Bid Form, guides only to the owner/bidder interpreting the plans and technical specifications. The owner is not responsible for any mistakes, inaccuracies, duplications, or omissions in these list of the Bill of Quantities/Bid Form which shall never be a basis for additions nor deletions to the scope of work. Only the entries of the Bidder on the last three columns consisting of his own take off quantities from the plans and technical specifications and his unit cost and corresponding sums shall be considered.

>The unit and total bid prices must include all direct and indirect cost/expenses such as overhead, contingencies and miscellaneous (OCM); profit; value added tax and other obligations of any kind under which the contract must be borne by the Bidder since they are necessary to install, construct and complete the whole of the contract in accordance with the bid documents.

>The Grand Total Cost shall iclude the supply, delivery, installation of materials, labor, construction supervision and equipment including testing and commissioning of equipment by the contractor.

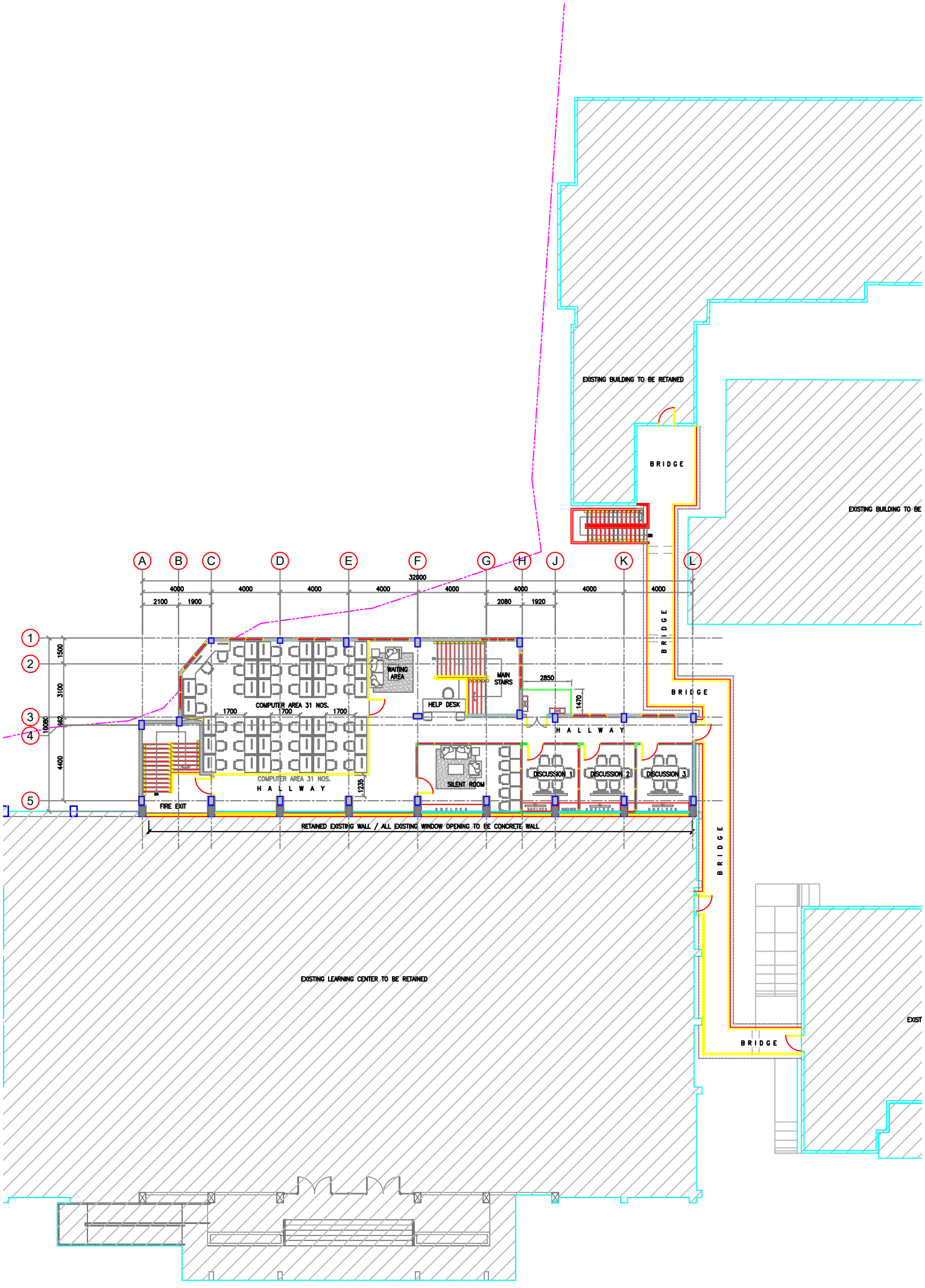
Bill of Quantities

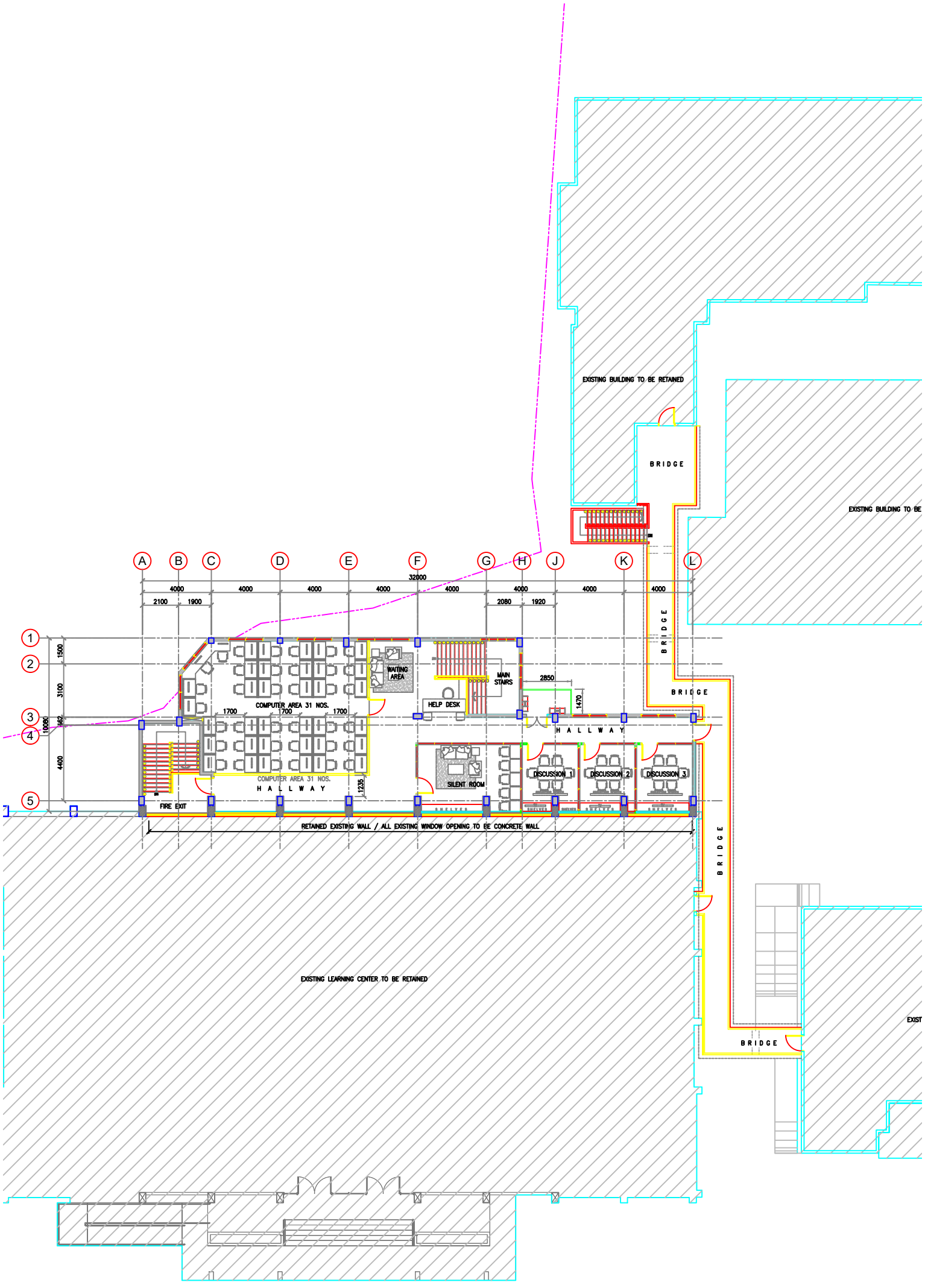
Item No.	Description of Works	Qty	Unit	Unit Price	Total Cost
A.	**GENERAL REQUIREMENTS**				
					678,821.43
1.1	Mobilization and Demobilization	1.00	lot		37,712.30
1.2	Bonds and Insurances (Construction Bond)	1.00	lot		147,077.98
1.3	Permits and Licenses	1.00	lot		30,169.84
1.4	Temporary Facilities / Utilities	1.00	lot		26,398.61
1.5	Provision for Scaffoldings	1.00	lot		18856.15
1.6	Safety Occupational Hazards	1.00	lot		18856.15
1.7	As- Built Plans	1.00	lot		5656.85
1.8	Environmental Compliance Certificate	Excluded			
1.9	Clearing, cleaning, and Hauling of Debris	1.00	lot		16970.54
1.10	Equipment Cost During Construction/Lifting Fee	1.00	lot		82,967.06
1.11	Handling of Materials	1.00	lot		7542.46
1.12	Site Security Fee	1.00	lot		75,424.60
1.13	Demolition/Dismantling of Existing structures	1.00	lot		18,856.15
1.14	Application of Power to VECO (Deposit, metering & others)	1.00	lot		188,561.51
1.15	Permit for Cutting of Tree	1.00	lot		3771.23
	Sub-total Amount, 1.0				**678,821.43**
B.	**BRIDGEWAY**				
	BRIDGEWAY (STRUCTURAL WORKS)				**1,462,714.76**
2.0	**CONCRETE**				
2.1	**Concrete Forms and Accessories**	313.26	sq.m	427.17	133,818.13
2.1.1	Footing	42.60	sq.m		
2.1.2	Suspended Slab	87.08	sq.m		
2.1.3	Columns	62.40	sq.m		
2.1.4	Beams	121.19	sq.m		
3.0	**Concrete Reinforcement**	7,776.41	kgs	57.20	444,776.45
3.2.1	Footing	1,494.05	kgs		
3.2.2	Suspended Slab	1,996.96	kgs		
3.2.3	Columns	1,314.94	kgs		
3.2.4	Beams	2,970.47	kgs		
3.2.5	Tie Wire #16	101.09	kgs	81.90	8,279.54
3.3	**Cast-in-Place Concrete**				
3.3.1	Footing, 3000 psi	23.20	cu.m	5,377.80	124,775.75
3.4	**Cast-in-Place Concrete, 4000psi**	31.98	cu.m	4,773.13	152,653.15
	Sub-total Amount, 2.0				**864,303.02**
5.0	**METALS**				
5.1	**Metal Decking**	1.00	l.s	107,852.47	107,852.47
5.1.1	Metal Deck	77.64	sq.m		
5.1.2	Miscellaneous & Consumables	1.00	lot		
5.2	**Structural Steel**	1.00	l.s	193,605.12	193,605.12
5.2.1	150x150x5mm Tubular Steel Column	1,343.14	kgs		
5.2.2	100x150x2mm Tubular Steel Beam	852.77	kgs		
5.2.3	Miscellaneous & Consumables	1.00	lot		
5.3	**Baseplate**	1.00	l.s	50,811.77	50,811.77
5.3.1	16mm thk. Baseplate	167.99	kgs		
5.3.2	16mm dia. A325 Headed bolts w/ std. Nuts & washers	107.00	pcs		
5.3.3	Miscellaneous & Consumables	1.00	lot		
5.4	**Fire Exit Stair**	1.00	l.s	128,749.21	128,749.21
5.4.1	C8x11	484.63	kgs		
5.4.2	150x150x2mm Tubular Steel Column	50.19	kgs		
5.4.3	Seat angle - L 50 x 50 x 3mm	88.00	kgs		
5.4.4	3mm thk. Checkered Plate	232.12	kgs		
5.4.5	16mm thk. Baseplate	18.53	kgs		
5.4.6	16mm dia. A325 Anchor bolts w/ std. Nuts & washers	8.00	pcs		
5.4.7	Miscellaneous & Consumables	1.00	lot		
	Sub-total Amount, 3.0				**481,018.57**

Item No.	Description of Works	Qty	Unit	Unit Price	Total Cost
3.0	**EARTHWORKS**				
3.1.1	Structural Excavation	98.01	cu.m.	522.82	51,241.88
3.1.2	Gravel Bedding	6.53	cu.m.	1,397.68	9,132.41
3.1.3	Backfilling and Compaction	74.81	cu.m.	374.30	28,000.95
3.1.4	Soil Poisoning	65.34	sq.m.	239.98	15,680.10
3.1.5	Hauling and Disposal of unnecessary debris	23.20	cu.m.	574.86	13,337.83
	Sub-total Amount, 4.0				**117,393.17**
	BRIDGEWAY (FINISHING WORKS)				**1,507,907.90**
5.0	**METALS**				
5.1	Stairs and Handrails				
5.1.1	**Bridgeway check with client if ok with metal or stainless steel railings**				
5.1.1.1	12mm thk Tempered Glass with railings	76.50	sq.m	9,847.37	753,323.81
5.1.2	**Stairs**	**1.00**	lm	124,186.80	124,186.80
5.1.2.1	50mm dia. S/S Pipe	22.00	lm		
5.1.2.2	25mm dia. S/S Pipe	44.00	lm		
5.1.2.3	50mm dia. S/S Pipe	20.00	lm		
	Sub-total Amount, 5.0				**877,510.61**
7.0	**THERMAL AND MOISTURE PROTECTION**				
7.1	**Waterproofing**				
7.1.1	WP-02 Trafficable Liquid-Applied Waterproofing	179.00	sqm	1,152.86	206,362.74
	Sub-total Amount, 6.0				**206,362.74**
9.00	**FINISHES**				
9.1	**Floor Finishes**				
9.2.1	FF-1 Polished Concrete in Epoxy Paint Finish	118.80	sq.m	599.52	71,223.42
9.2.2	FF-5 Interlocking Concrete Paver Block - Brickstone	95.28	sq.m	726.61	69,231.43
9.3	**Ceiling Finishes**				
9.3.1	(CF-4) 12mm thick Fiber Cement Board on Standard Metal Furring, Flat Paint Finish	144.00	sq.m	1,623.21	233,742.04
9.3.2	(CF-05) Exposed Ceiling/Soffit Flat Paint Finish	96.00	sq.m	519.14	49,837.66
	Sub-total Amount, 7.0				**424,034.55**
C.	**ARCHITECTURAL WORKS**				
	LANDSCAPE				75,600.00
1.00	**Landscape**	1.00	lot	75,600.00	75,600.00
	Sub-total Amount, 8.0				**75,600.00**
9.00	**FINISHES**				
	Stone Cladding				122,461.54
9.3.4	WF-4 Stone Cladding	55.00	sq.m	2,226.57	122,461.54
	Sub-total Amount, 9.0				**122,461,54**
D.	**ELECTRICAL WORKS**				
	Ceiling Mounted Convenience Outlet				1,615.95
26.4.4	Ceiling Mounted Convenience Outlet	3.00	Sets	538.65	1,615.95
	Sub-total Amount, 10.0				**1,615.95**
E.	**DATA/COMMUNICATIONS**				
	Telephone, Data Structured Cabling, PA and Background Music				**1,896,878.42**
27.10	**Structured-Cabling for Data, Voice, CCTV with Fiber Optic Cable backbone**				
27.10.1	**Equipment**				
27.10.1.1	CCTV				
27.10.1.1.a	NVR 32-channel (pre-loaded with 8 x 8TB enterprise NAS type, 43" IPS Monitor and other nessarry accessories for complete installation)	1.00	lot	248,653.00	248,653.00
27.10.1.1.b	4MP Dome Camera	7.00	Ea	7,900.50	55,303.50
27.10.1.1.c	Stackable 48-port Managed Switch POE	2.00	units	74,750.00	149,500.00
27.10.1.1.d	SFP Modules	4.00	units	12,569.50	50,278.00
27.10.1.1.e	Enterprise-grade Access Point with license	4.00	units	128,390.00	513,560.00
27.10.1.1.f	IP Phones with license	2.00	units	13,800.00	27,600.00
27.10.1.1.g	1KVA UPS with NMC Card	1.00	unit	115,000.00	115,000.00

27.10.2	**Wires**				
27.10.2.1	6-core SM FOC (armoured)	45.00	lm	165.00	7,425.00
27.10.2.2	Fiber Patch Panel SM 6-port (loaded)	2.00	Ea	16,290.90	32,581.80
27.10.2.3	FOC SM patchcords 2-meter (LC-LC)	6.00	Ea	3,220.00	19,320.00
27.10.2.4	4 pairs Cat6 UTP Cable	16.00	Roll	10,315.00	165,040.00
27.10.2.5	UTP Patch Cord Slim-type Cat 6 600mm	11.00	Ea	678.00	7,458.00
27.10.2.6	UTP Patch Cord Slim-type Cat6 5meter	16.00	Ea	793.00	12,688.00
27.10.2.7	UTP Patch Cord Slim-type Cat6 3meter	42.00	Ea	455.40	19,126.80
27.10.2.8	UTP Patch Cord Slim-type Cat6 1meter	70.00	Ea	455.40	31,878.00
27.10.3	**Wiring Devices**				
27.10.3.1	Cat6 Information Outlet	55.00	Ea	419.75	23,086.25
27.10.3.2	Faceplate Simplex with Shutter	29.00	Ea	147.20	4,268.80
27.10.3.3	Faceplate Duplex with Shutter	1.00	Ea	182.85	182.85
27.10.3.4	Faceplate Triplex with Shutter	8.00	Ea	207.00	1,656.00
27.10.3.5	Cat6 Information Outlet (for floor mounted outlet)	14.00	Ea	290.95	4,073.30
27.10.3.6	Floor mounted Outlet (Pop-up metal, duplex)	7.00	Ea	3,070.50	21,493.50
27.10.3.a	Wall Mounted Data Cabinet				
27.10.3.a.1	2 Feet Detachable side and Flexi-glass door with 16A PDU and fans	1.00	Ea	14,064.50	14,064.50
27.10.3.a.2	1U Horizontal Cable Manager	3.00	Ea	2,627.75	7,883.25
27.10.3.a.3	Cat6 24-port patch panel - fully loaded	3.00	Ea	11,482.75	34,448.25
27.10.4	**Raceways**				
27.10.4.1	20 mm Dia PVC	221.00	Lgth	116.52	25,750.92
27.10.4.2	80 mm Dia PVC	1.00	Lgth	502.00	502.00
27.10.4.3	Conduit Connectors and Fittings	1.00	Lot	12,196.71	12,196.71
27.10.5	**Boxes**				
27.10.5.1	Utility Box	55.00	Ea	219.03	12,046.65
27.10.5.2	Square Box 4" x 4"	33.00	Ea	219.03	7,227.99
27.10.5.3	Pull Box	1.00	Ea	16,393.07	16,393.07
27.10.6	**Miscellaneous**				
27.10.6.1	Connecting Cords, Devices and Adapters (Splicing and Termination)	1.00	lot	36,000.00	36,000.00
27.10.6.2	Hangers and Supports	1.00	lot	10,000.00	10,000.00
27.10.6.3	Hardwares and Consumables	1.00	lot	18,000.00	18,000.00
27.10.6.4	Testing and Commisioning (With programming, configuration and/or set-up of CCTV Cameras , Network Video Recorder, Fiber and Copper)	2.00	lot	15,000.00	30,000.00
	Sub-total Amount, 11.0				**1,734,686.14**

27.51	**PUBLIC ADDRESS AND BACKGROUND MUSIC**				
27.51.2	**Wires**				
27.51.2.1	#16 AWG Shielded Circuit Integrity Cable (CIC)	170.00	lm	166.52	28,308.24
27.51.3	**Raceways**				
27.51.3.2	20 mm Dia PVC Conduit	57.00	lgth	149.39	8,514.98
27.51.3.5	Conduit Connectors and Fittings	1.00	lot	2,554.49	2,554.49
27.51.4	**Devices**				
27.51.1	Paging Desktop Microphone	1.00	set/s	8,190.00	8,190.00
27.51.2	Ceiling Mounted Speaker (6W)	19.00	set/s	3,603.60	68,468.40
27.51.5	**Boxes**				
27.51.5.1	Utiliy box	19.00	Set/s	95.99	1,823.75
27.51.5.2	Public Adress Pull Box	1.00	Set/s	2,874.69	2,874.69
27.51.6	**Miscellaneous**				
27.51.6.1	Connecting Cords, Devices and Adapters	1.00	lot	25,357.07	25,357.07
27.51.6.2	Hangers and Supports	1.00	lot	1,965.00	5,091.47
27.51.6.3	Hardwares and Consumables	1.00	lot	4,734.39	4,734.39
27.51.6.4	Testing and Commissioning	1.00	lot	6,274.80	6,274.80
	Sub-total Amount,Item 12				**162,192.28**
	Grand Total Cost				**5,746,000.00**


EXISTING BUILDING TO BE RETAINED
BRIDGE
EXISTING BUILDING TO BE
A B C D E F G H J K L
32000
4000 4000 4000 4000 4000 4000 4000 4000
2100 1900 2080 1920
1 2 3 4 5
1500 3100 1000 462 4400
WAITING AREA
MAIN STAIRS
HELP DESK
2850
1470
COMPUTER AREA 31 NOS.
1700 1700 1700
H A L L W A Y
COMPUTER AREA 31 NOS.
H A L L W A Y
1235
SILENT ROOM
DISCUSSION 1
DISCUSSION 2
DISCUSSION 3
FIRE EXIT
RETAINED EXISTING WALL / ALL EXISTING WINDOW OPENING TO BE CONCRETE WALL
BRIDGE
BRIDGE
BRIDGE
BRIDGE
EXISTING LEARNING CENTER TO BE RETAINED
EXIST


EXISTING BUILDING TO BE RETAINED
BRIDGE
EXISTING BUILDING TO BE
A B C D E F G H J K L
32000
4000 4000 4000 4000 4000 4000 4000 4000
2100 1900 2080 1920
1 2 3 4 5
1500 3100 1000 462 4400
WAITING AREA
MAIN STAIRS
HELP DESK
2850
1470
COMPUTER AREA 31 NOS.
1700 1700 1700
H A L L W A Y
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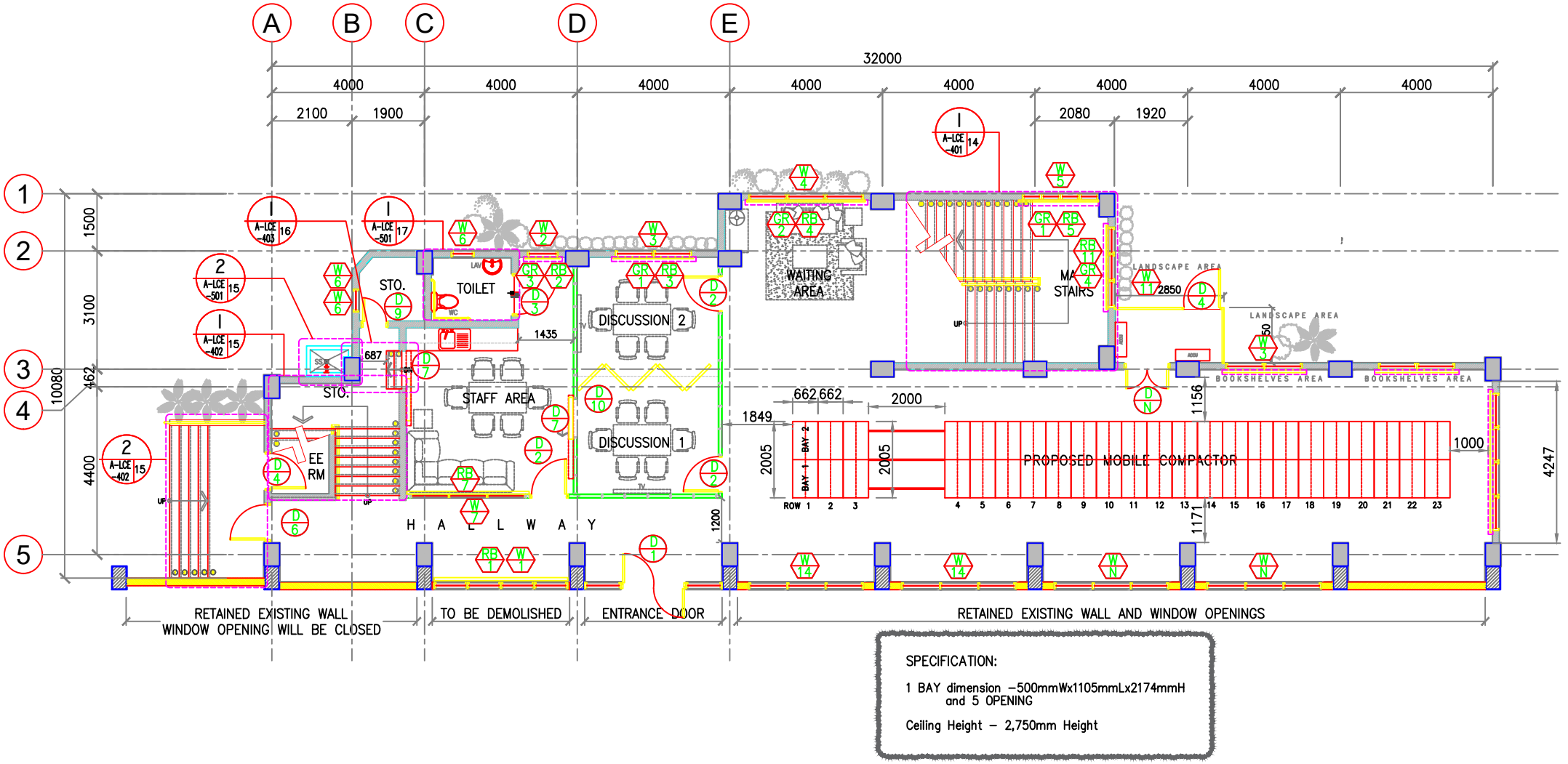
BRIDGE
BRIDGE
EXISTING LEARNING CENTER TO BE RETAINED
EXIST

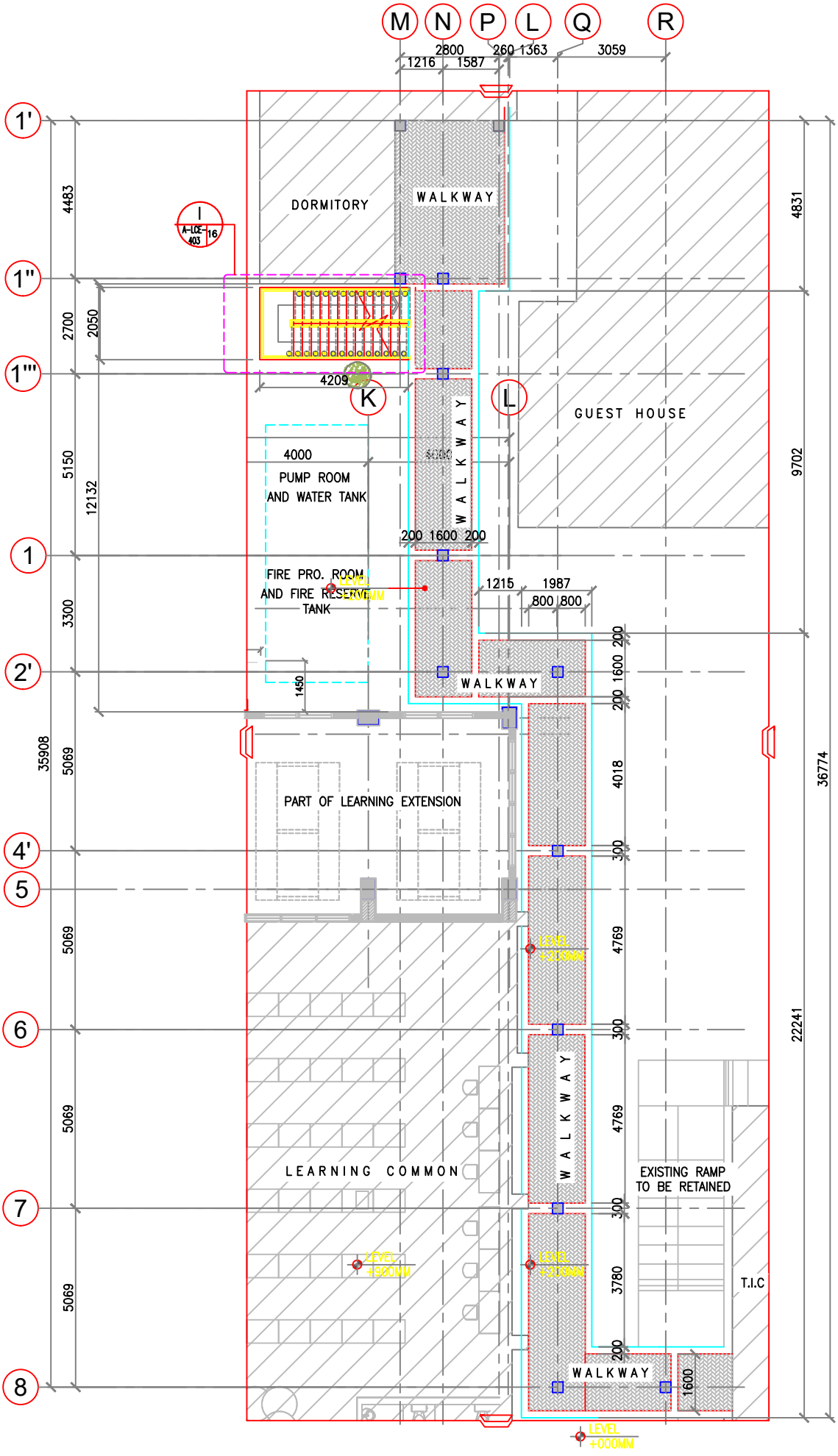


SPECIFICATION:

1 BAY dimension –500mmWx1105mmLx2174mmH and 5 OPENING

Ceiling Height – 2,750mm Height

FINAL MOBILE COMPACTOR LAY-OUT


M
N
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R
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260
1363
3059
1216
1587
1'
1"
1'''
1
2'
4'
5
6
7
8
DORMITORY
WALKWAY
GUEST HOUSE
4209
K
L
4000
PUMP ROOM
AND WATER TANK
WALKWAY
200 1600 200
FIRE PRO. ROOM
AND FIRE RESERVE
TANK
LEVEL
+000MM
1215
1987
800 800
WALKWAY
1450
PART OF LEARNING EXTENSION
LEARNING COMMON
LEVEL
+300MM
LEVEL
+300MM
WALKWAY
EXISTING RAMP
TO BE RETAINED
T.I.C
LEVEL
+900MM
WALKWAY
1600
LEVEL
+000MM
4483
2700
2050
5150
12132
3300
35908
5069
5069
5069
5069
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4769
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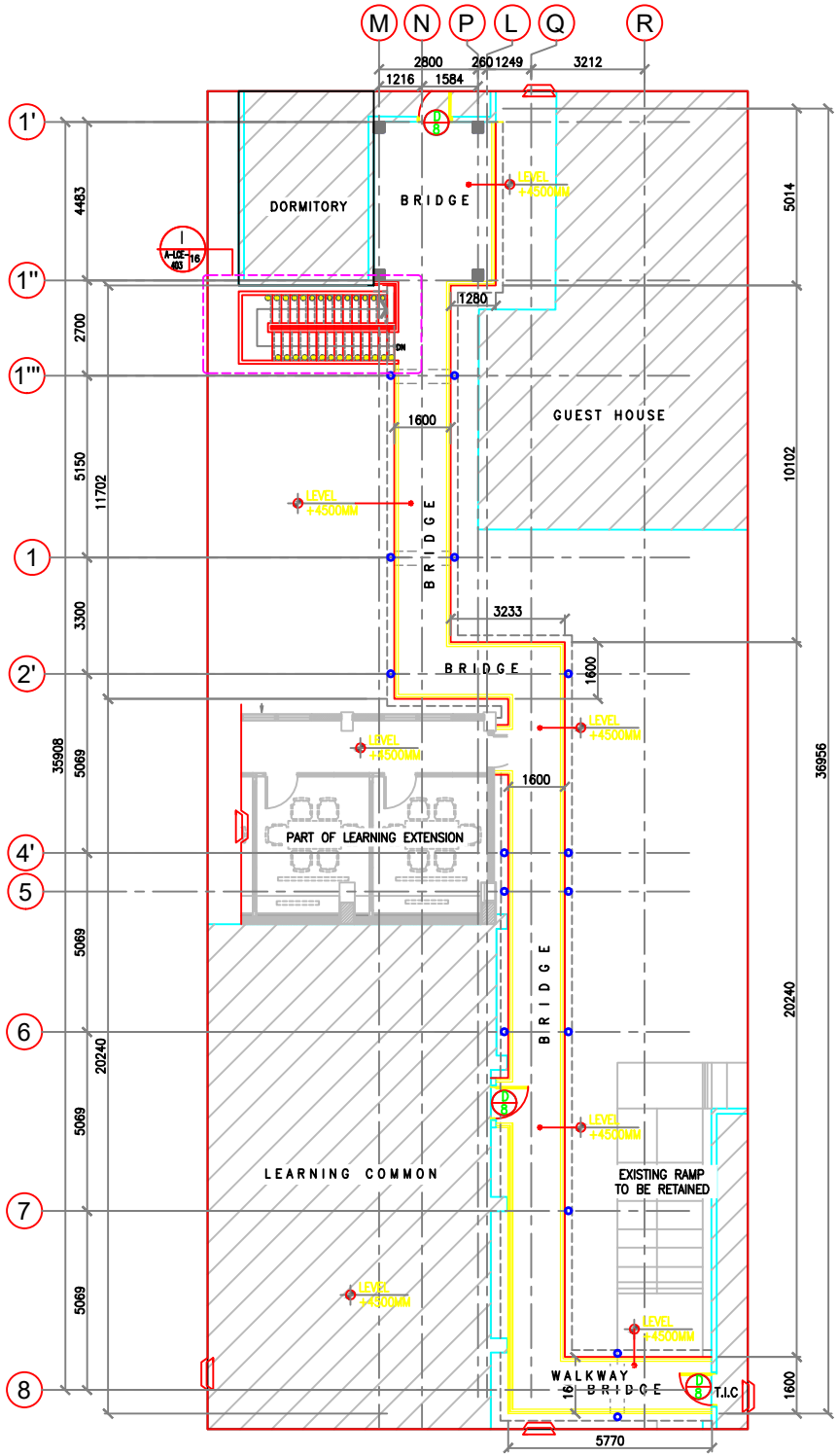
300
3780
200
200
1600
200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5069
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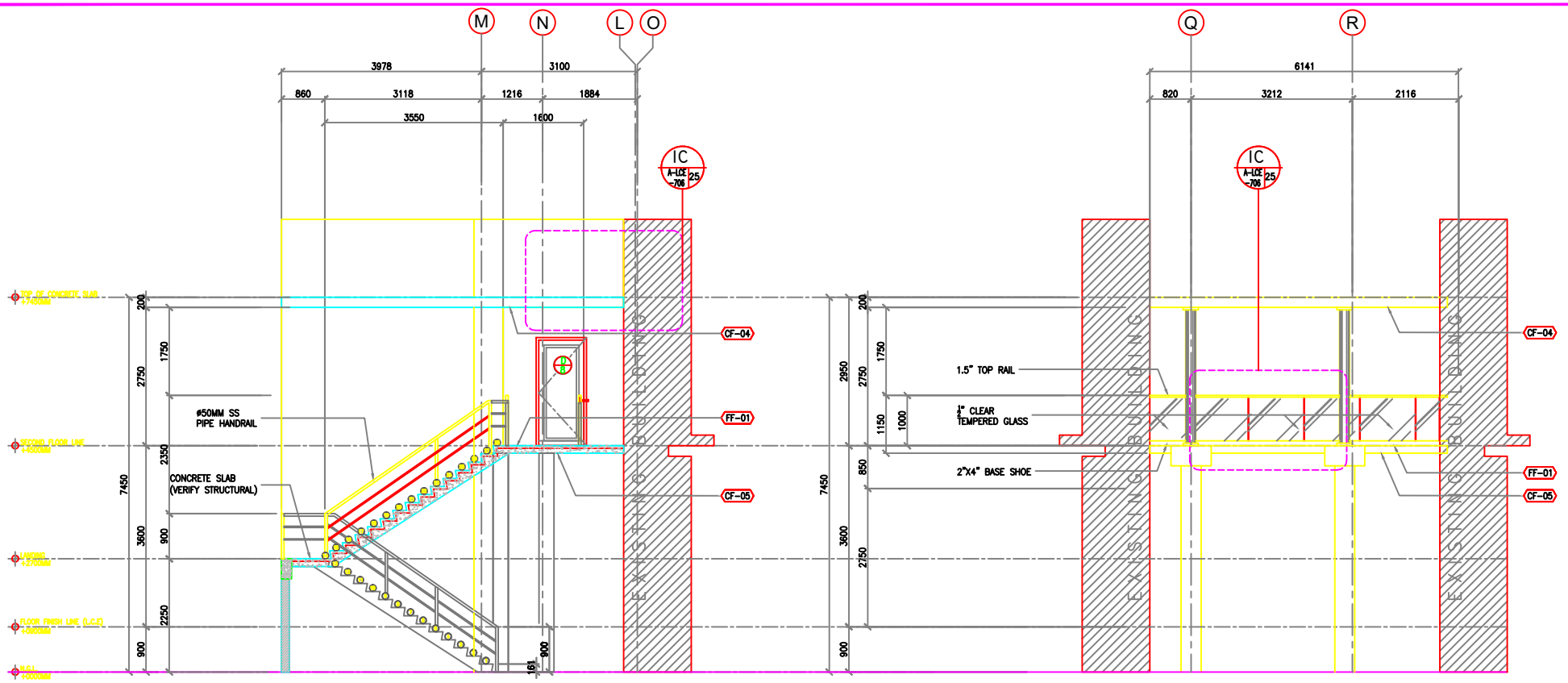
20240
5069
5069
DORMITORY
BRIDGE
LEVEL
+4500MM
1280
GUEST HOUSE
1600
BRIDGE
3233
BRIDGE
1600
PART OF LEARNING EXTENSION
BRIDGE
LEARNING COMMON
EXISTING RAMP
TO BE RETAINED
WALKWAY
BRIDGE
T.I.C
5014
10102
20240
36956
1600
5770

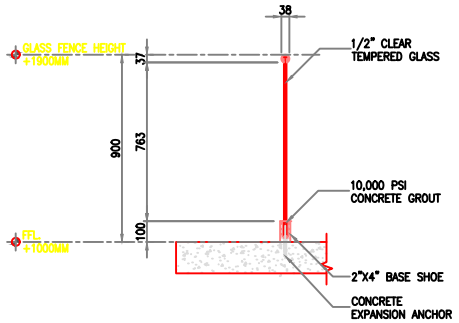


IA SECTION THRU A-A

SCALE 1:50M

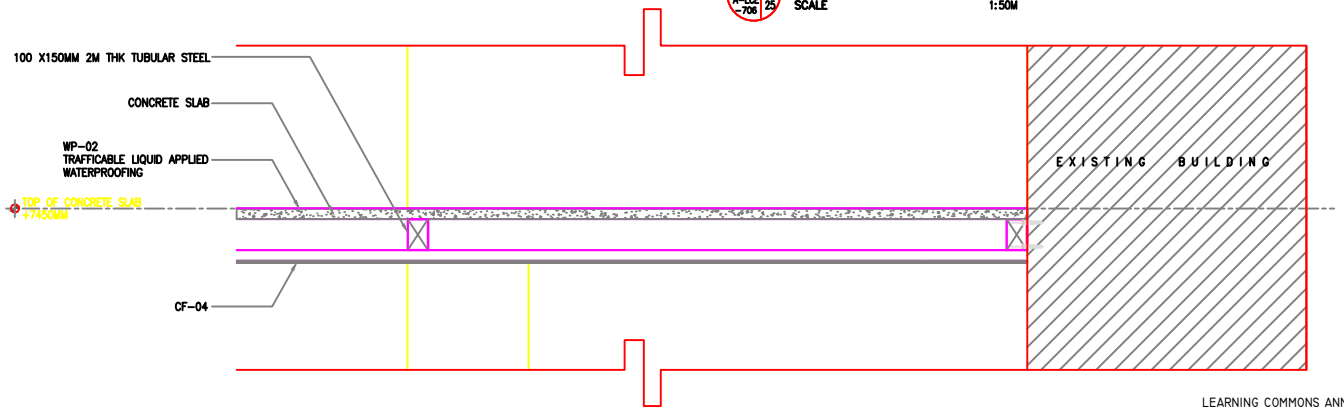
IB SECTION THRU B-B

SCALE 1:50M



IC RAILINGS DETAIL

SCALE 1:15MTS.



ID CONCRETE ROOF SLAB AT BRIDGE WAY

SCALE 1:15MTS.

LEGEND

FLOOR FINISHES

FF-01	POLISHED CONCRETE IN EPOXY PAINT FINISH
FF-02	600X600X10MM. THK. HOMOGENEOUS TILE, NON-SKID
FF-03	600X300X10MM. THK. HOMOGENEOUS TILES, NON-SKID
FF-04	300X300X10MM. CARPET TILE
FF-05	INTERLOCKING CONCRETE PAVER BLOCK-BRICKSTONE

WALL FINISHES

WF-1a	EXTERIOR PLAIN SEMI-GLOSS ACRYLIC SOLVENT-BASED COATING PAINT FINISH
WF-1b	INTERIOR PLAIN SEMI-GLOSS ACRYLIC SOLVENT-BASED COATING PAINT FINISH
WF-03	600X600MM HOMOGENEOUS TILE
WF-04	STONE CLADDING
WF-05	ACOUSTICAL WALL PANEL
WF-06	LOUVER PANEL

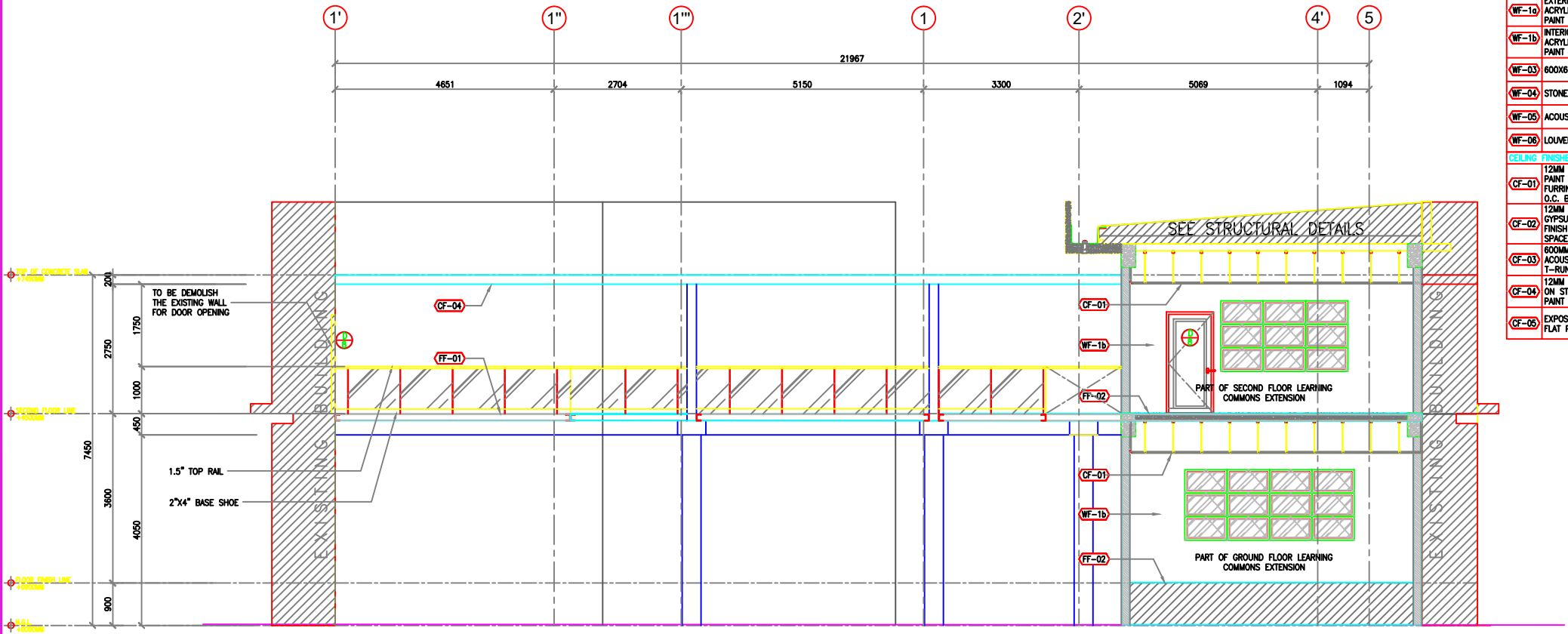
CEILING FINISHES

CF-01	12MM THK. GYPSUM BOARD IN FLAT PAINT FINISH ON STANDARD METAL FURRING SPACED @ 600MMX600MM O.C. B.W
CF-02	12MM THK. MOISTURE RESISTANT GYPSUM BOARD IN MATTE PAINTED FINISH ON STANDARD METAL FURRING SPACED @ 600MMX600MM O.C. B.W
CF-03	600MMX1200MMX15MM ACOUSTIC BOARD ON STANDARD T-RUNNER AND WALL ANGLE
CF-04	12MM THICK FIBER CEMENT BOARD ON STANDARD METAL FURRING, FLAT PAINT FINISH
CF-05	EXPOSED CEILING/SOFFIT, FLAT PAINT FINISH

LEARNING COMMONS ANNEX PHASE I

I BRIDGE WAY DETAILS

SCALE AS SHOWN



IA SECTION THRU C-C

A-LCE-707 26

SCALE 1:50M

LEARNING COMMONS ANNEX PHASE I

I BRIDGE WAY DETAILS

A-LCE-707 26

SCALE AS SHOWN

LEGEND

FLOOR FINISHES

FF-01	POLISHED CONCRETE IN EPOXY PAINT FINISH
FF-02	600X600X10MM. THK. HOMOGENEOUS TILE, NON-SKID
FF-03	600X300X10MM. THK. HOMOGENEOUS TILES, NON-SKID
FF-04	300X300X10MM. CARPET TILE
FF-05	INTERLOCKING CONCRETE PAVER BLOCK-BRICKSTONE

WALL FINISHES

WF-1a	EXTERIOR PLAIN SEMI-GLOSS ACRYLIC SOLVENT-BASED COATING PAINT FINISH
WF-1b	INTERIOR PLAIN SEMI-GLOSS ACRYLIC SOLVENT-BASED COATING PAINT FINISH
WF-03	600X600MM HOMOGENEOUS TILE
WF-04	STONE CLADDING
WF-05	ACOUSTICAL WALL PANEL
WF-06	LOUVER PANEL

CEILING FINISHES

CF-01	12MM THK. GYPSUM BOARD IN FLAT PAINT FINISH ON STANDARD METAL FURRING SPACED @ 600MMX600MM O.C. B.W
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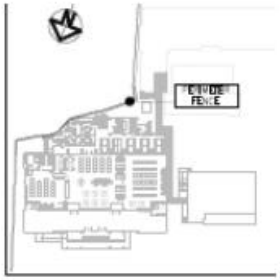
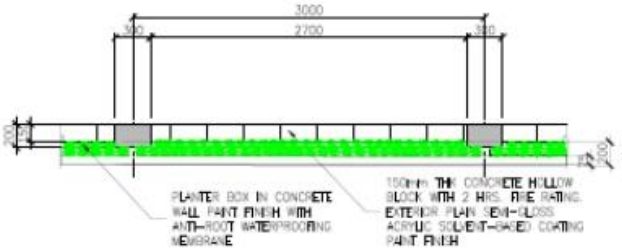
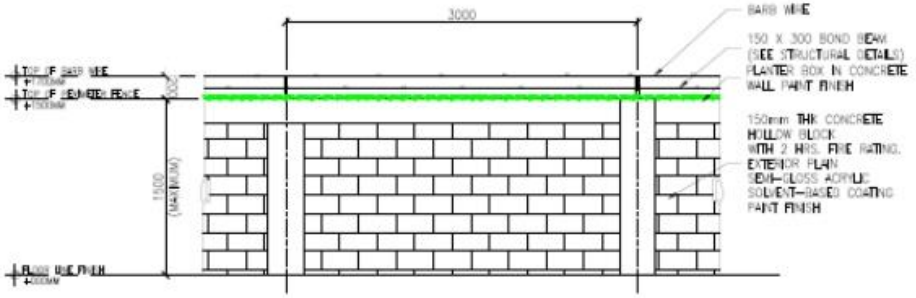
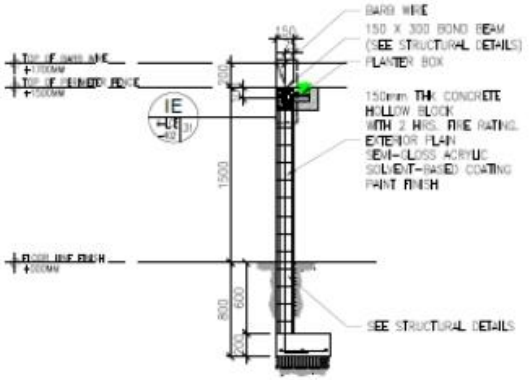




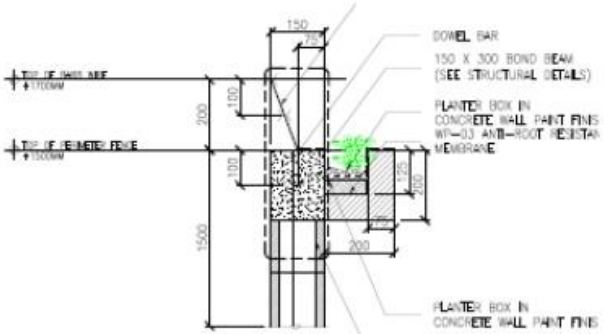
1B PLAN
SCALE 1:30M



1C ELEVATION
SCALE 1:30M



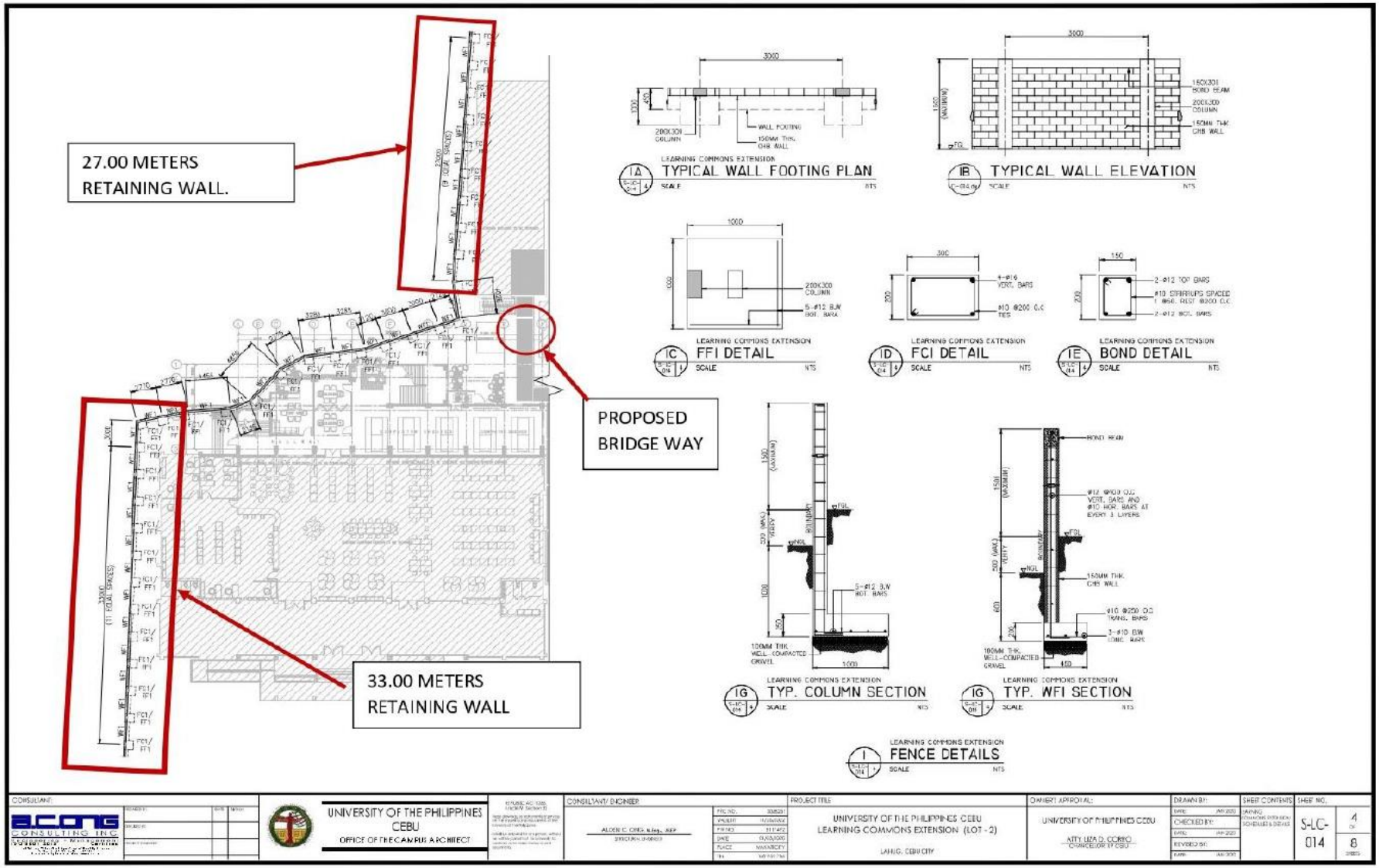
1D SECTION
SCALE 1:30M



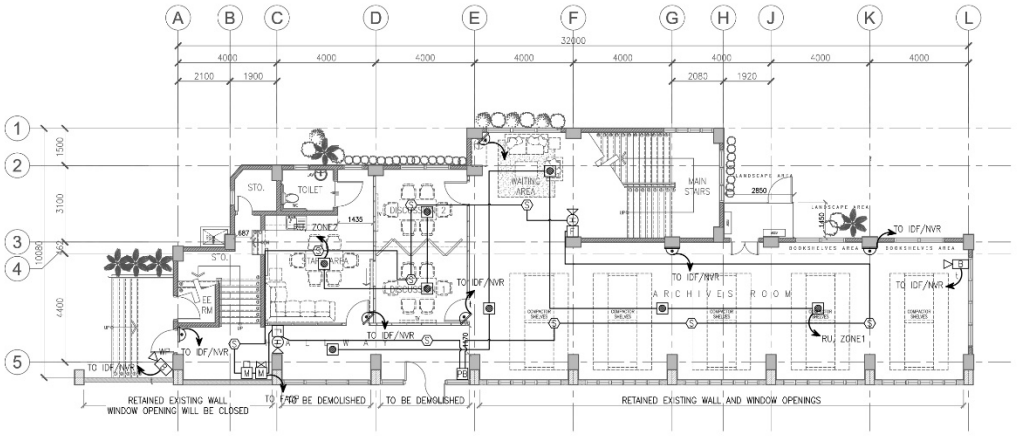
1E SPOT DETAIL
SCALE 1:10M

LEARNING COMMONS ANNEX PHASE I

1 PERIMETER FENCE DETAILS
SCALE AS SHOWN



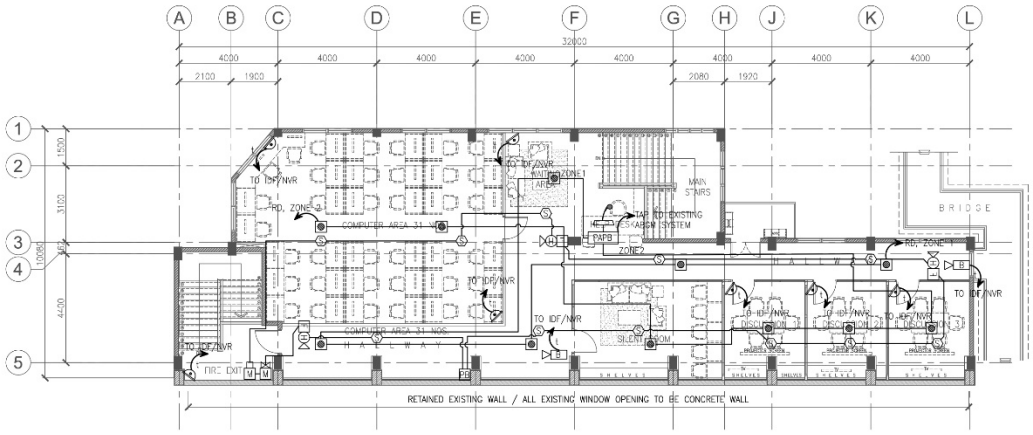
CONSULTANT: ACONG CONSULTING INC.	UNIVERSITY OF THE PHILIPPINES CEBU OFFICE OF THE CAMPUS ARCHITECT	CONSULTANT/ ENGINEER	PROJECT TITLE: UNIVERSITY OF THE PHILIPPINES CEBU LEARNING COMMONS EXTENSION (LOT - 2) LAHUG, CEBU CITY	OWNER'S APPROVAL: UNIVERSITY OF PHILIPPINES CEBU ATTY. LIZA D. CORRO CHANCELLOR OF CEBU	DRAWN BY: CHECKED BY: REVISED BY:	SHEET CONTENTS: LAYING OUT, DETAILS AND SCHEDULES & DETAILS	SHEET NO.: S-LC-014 — 4 OF 8 SHEETS



LEARNING COMMONS EXTENSION

I EA-LC-0601 GROUND FLOOR FDAS, CCTV AND PABGM SYSTEM LAYOUT

SCALE 1:100M



LEARNING COMMONS EXTENSION

2 2A-LC-0602 SECOND FLOOR FDAS, CCTV AND PABGM SYSTEM LAYOUT

SCALE 1:100M

CONSULTANT:

a.CONG CONSULTING INC. Engineering + Management ISO 9001:2015 Certified

UNIVERSITY OF THE PHILIPPINES CEBU
OFFICE OF THE CAMPUS ARCHITECT

REPUBLIC ACT 9266: Article IV, Section 33

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CONSULTANT/ ENGINEER

RONALD B. NAVARRO
PROFESSIONAL ELECTRONICS ENGINEER

PRC NO.	0001090
VALIDITY	6/18/2019
PTR NO.	8122619
DATE	01/06/2020
PLACE	MAKATI CITY
TIN	305-246-245

PROJECT TITLE

UNIVERSITY OF THE PHILIPPINES CEBU
LEARNING COMMONS EXTENSION (LOT - 2)

LAHUG, CEBU CITY

OWNER'S APPROVAL:

UNIVERSITY OF PHILIPPINES CEBU

ATTY. LIZA D. CORRO
CHANCELLOR, UP CEBU

DRAWN BY:	LCJ
DATE:	AUG 2020
CHECKED BY:	RBN
DATE:	AUG 2020
REVISED BY:	
DATE:	

SHEET CONTENTS: GROUND FLOOR & SECOND FLOOR FDAS, CCTV AND PABGM SYSTEM LAYOUT

SHEET NO.: EA-LC 0601 — 4 OF 5 SHEETS

ANNEX A
SITE IRRADIATION INFORMATION

Cebu City

10.322567°,123.898804°
Gorordo Avenue, Cebu City, Philippines
Time zone: UTC+08, Asia/Manila [PST]

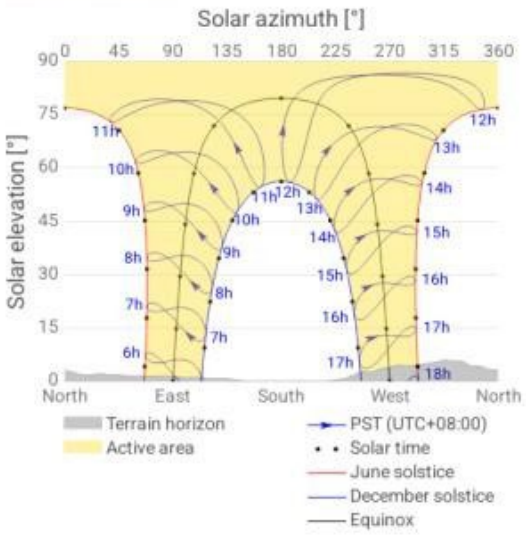
Report generated: 22 Feb 2022

SITE INFO

Map data		Per year	
Direct normal irradiation	DNI	**1444.2**	kWh/m²
Global horizontal irradiation	GHI	**1859.8**	kWh/m²
Diffuse horizontal irradiation	DIF	**827.8**	kWh/m²
Global tilted irradiation at optimum angle	GTI opta	**1882.6**	kWh/m²
Optimum tilt of PV modules	OPTA	**10 / 180**	°
Air temperature	TEMP	**28.3**	°C
Terrain elevation	ELE	**44**	m

Map

Horizon and sunpath



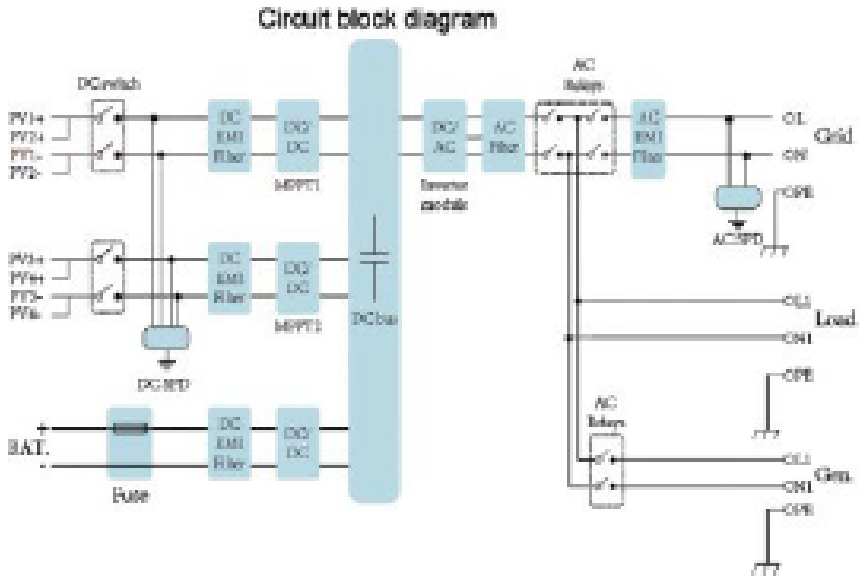
PVOUT map

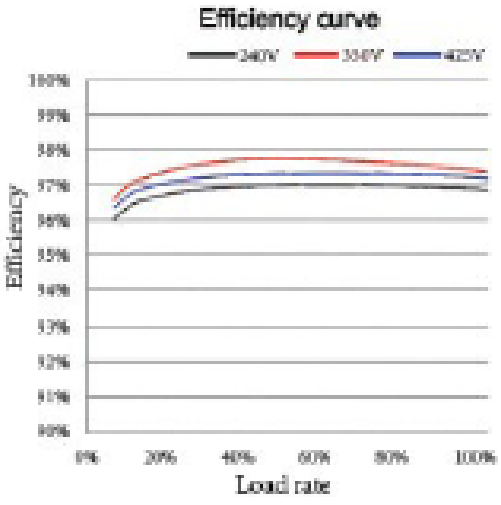
ANNEX C
PROPOSED SCEHDULE

18.2 kWp SOLAR PV HYBRID SYSTEM — PROJECT TIMELINE

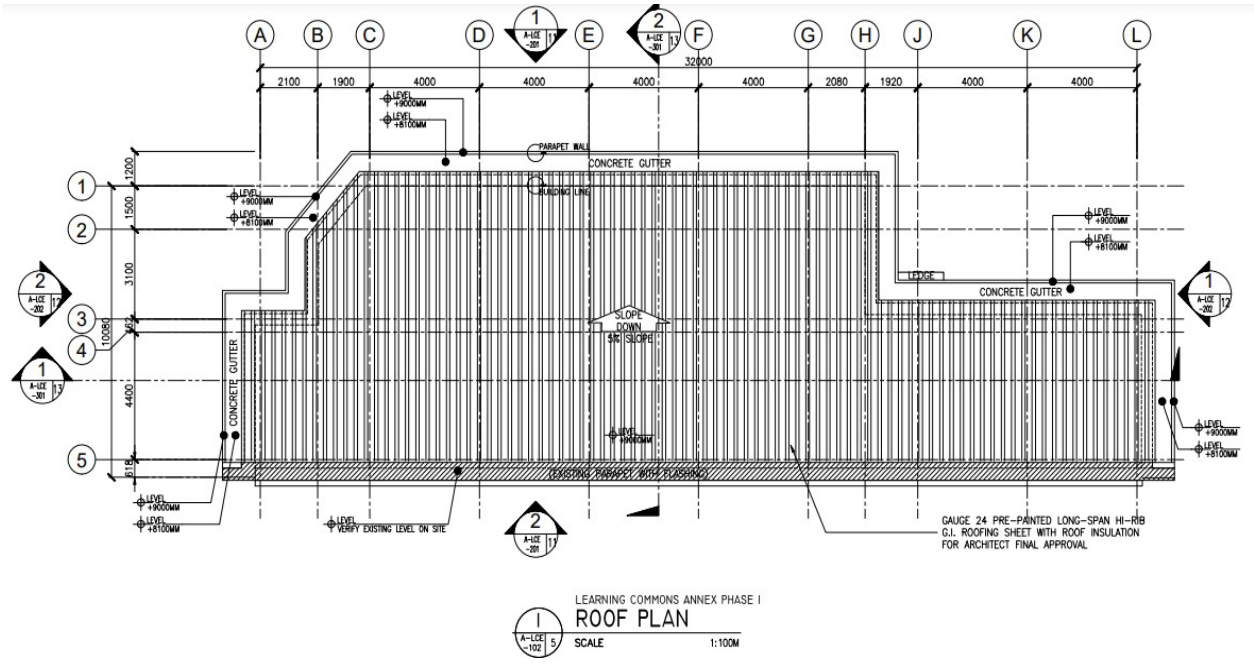
Start Week	Jun 15, 2022

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	Notes
Starting	Jun 15	Jun 22	Jun 29	Jul 6	Jul 13	Jul 20	Jul 27	Aug 3	Aug 10	Aug 17	Aug 24	Aug 31	Sep 7	
DISCUSSIONS														
CLOSING OF DEAL/PAYMENT														
IMPORTATION/PROCUREMENT														
MOBILIZATION TO SITE														
SITE PREPARATION														
SOLAR PV MAIN WORKS														
AC/DC WORKS														
TESTING & COMMISSIONING														
TRAINING FOR TURN OVER														

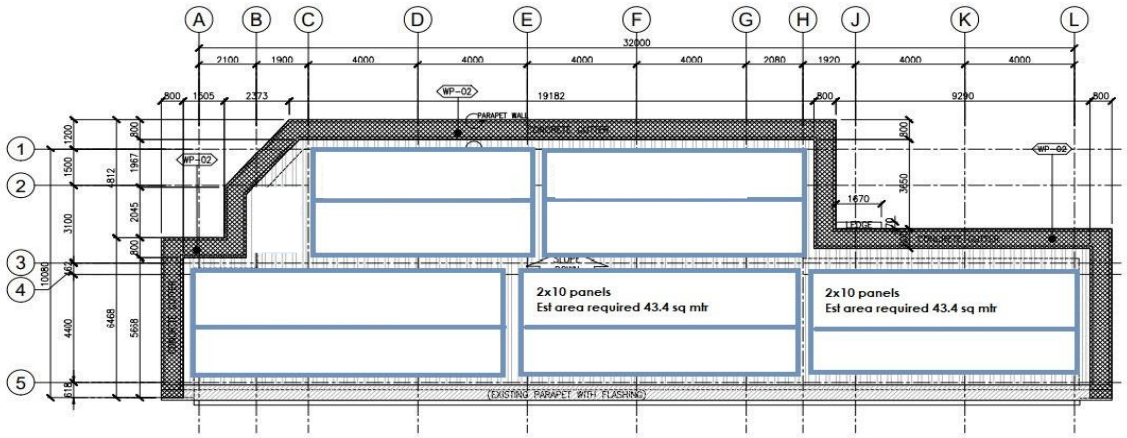




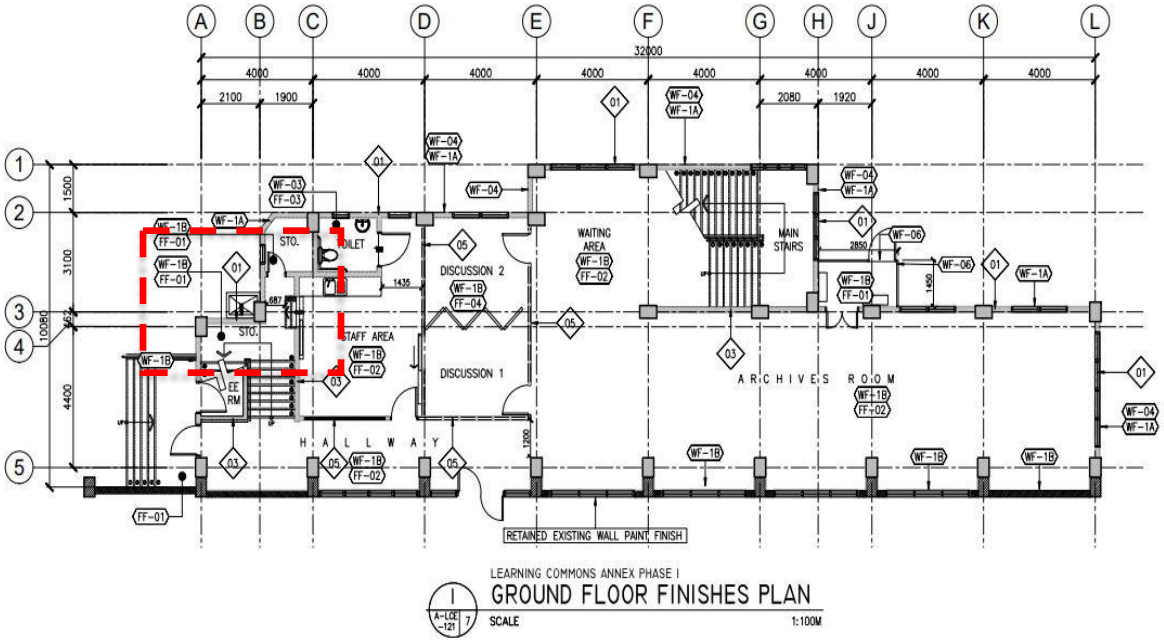
ANNEX D
Learning Commons Annex
Roof Plan, UP CEBU



Proposed Panel distribution (18.2 kWp)
Estimated Total Weight: 940 kgs (~40pcs)



Proposed Inverter & Battery Location

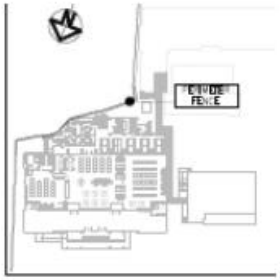


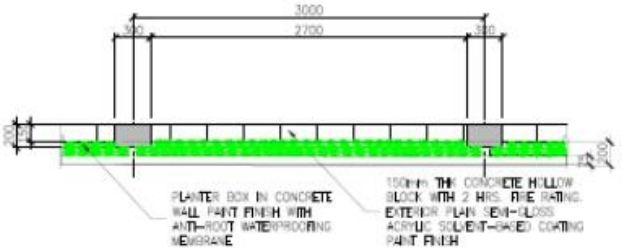
LEARNING COMMONS ANNEX PHASE I

I A-LCE-121 7

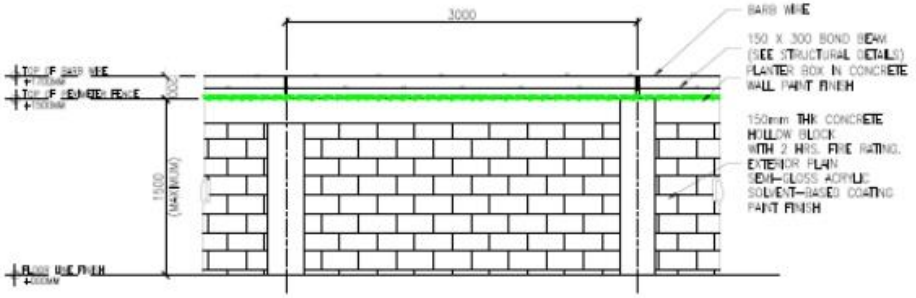
GROUND FLOOR FINISHES PLAN

SCALE 1:100M

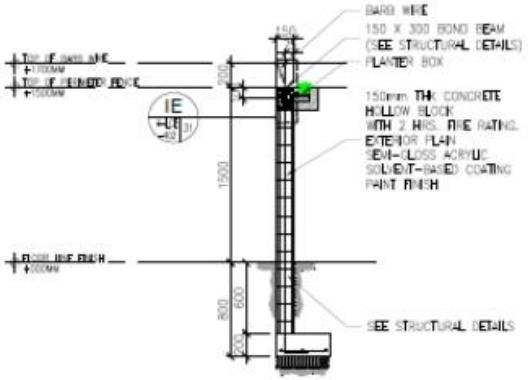




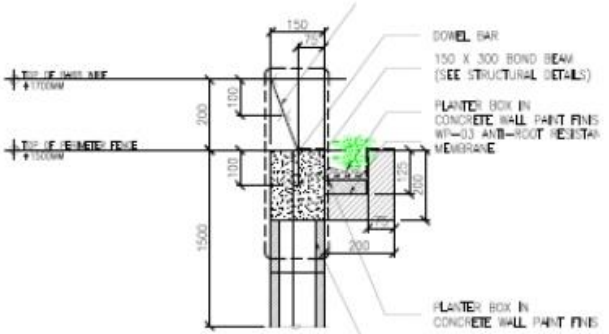
1B PLAN
SCALE 1:30M



1C ELEVATION
SCALE 1:30M



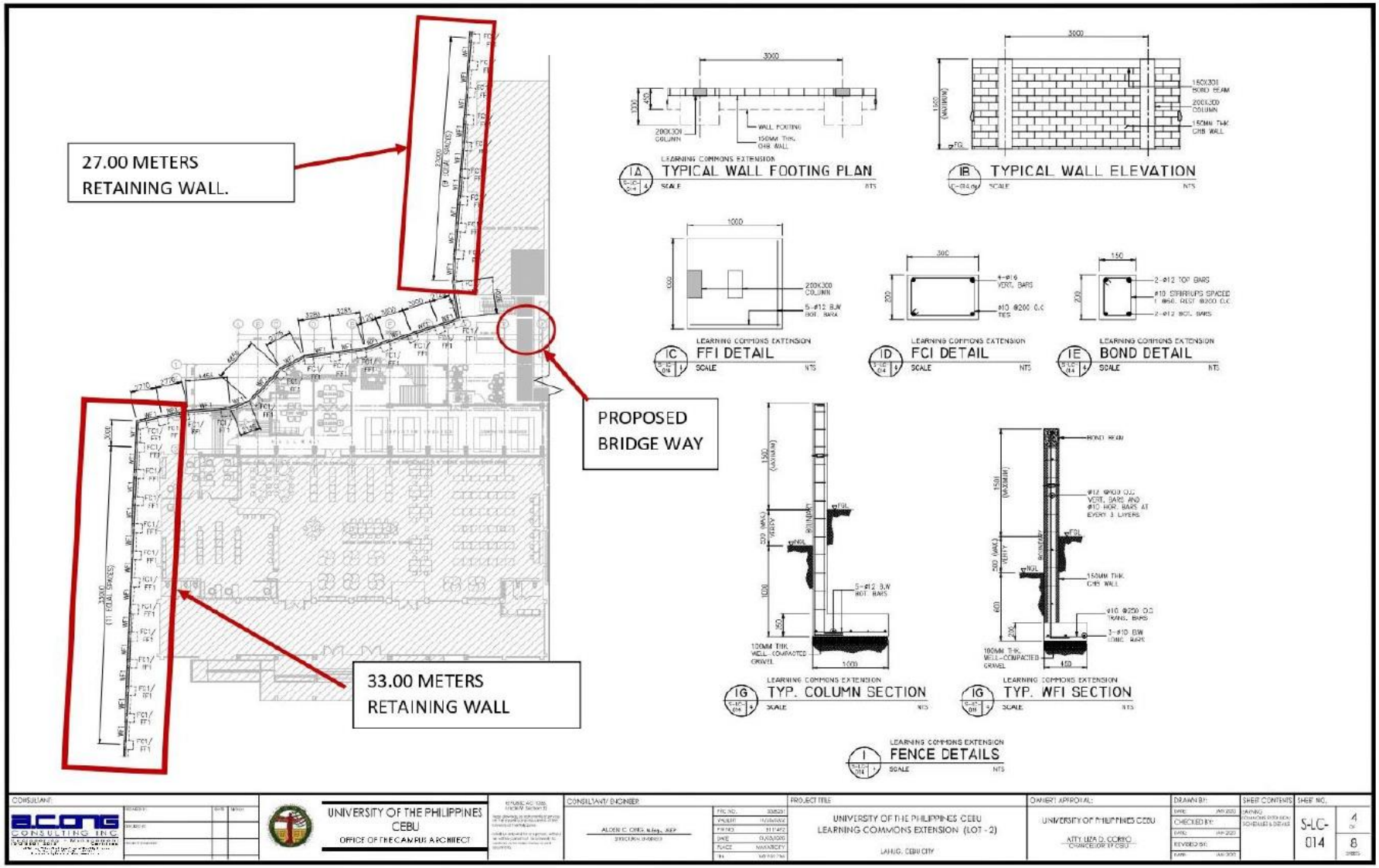
1D SECTION
SCALE 1:30M



1E SPOT DETAIL
SCALE 1:10M

LEARNING COMMONS ANNEX PHASE I

1 PERIMETER FENCE DETAILS
SCALE AS SHOWN



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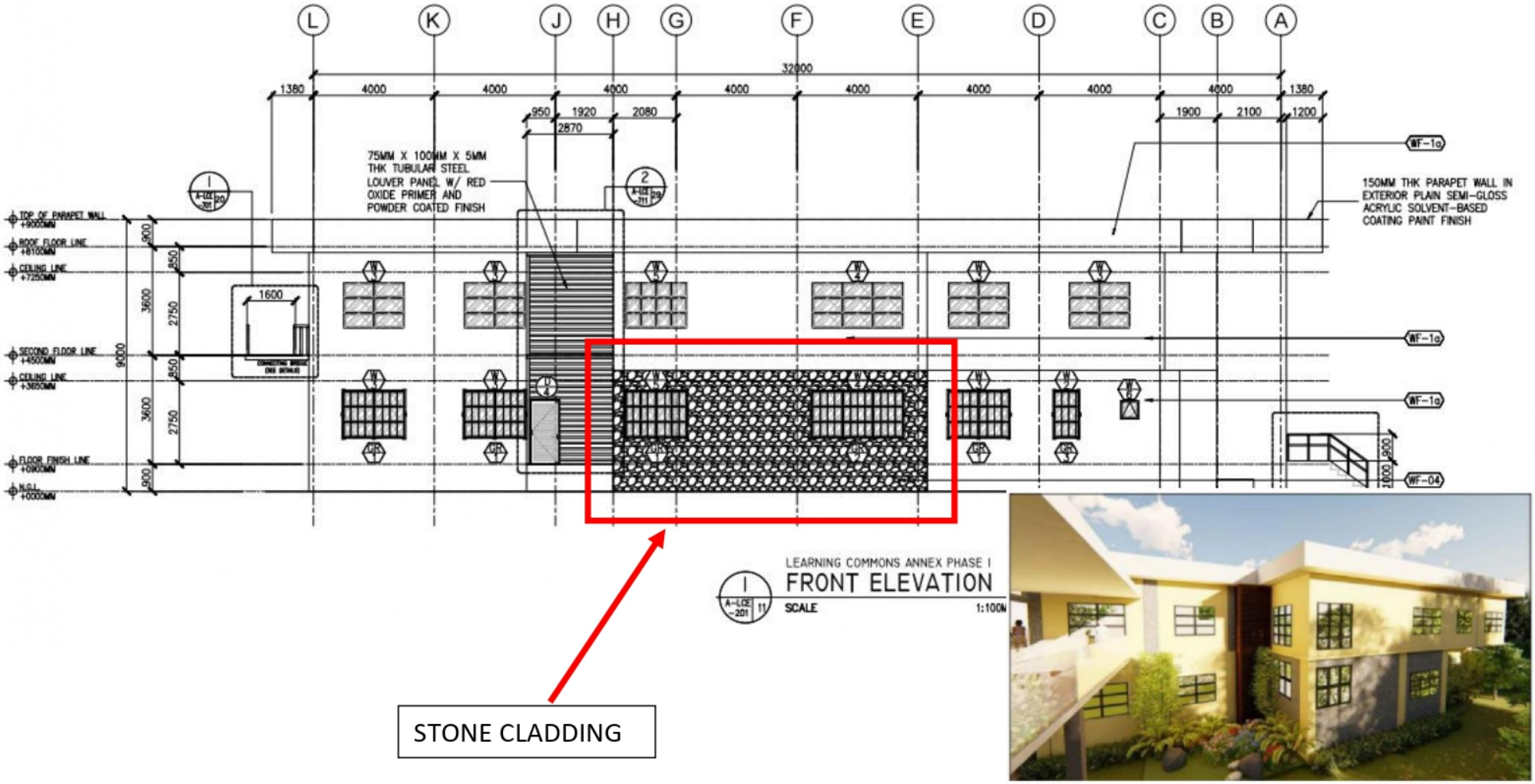
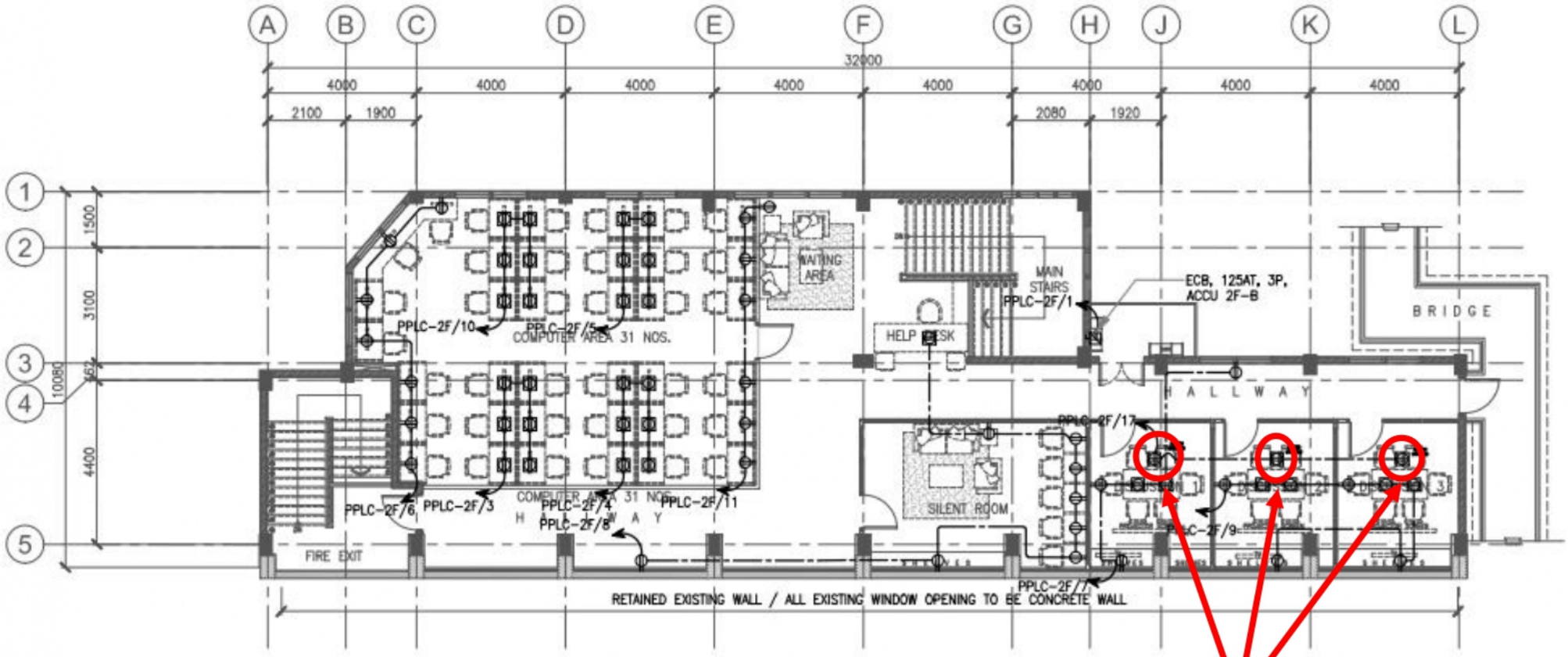


STONE CLADDING



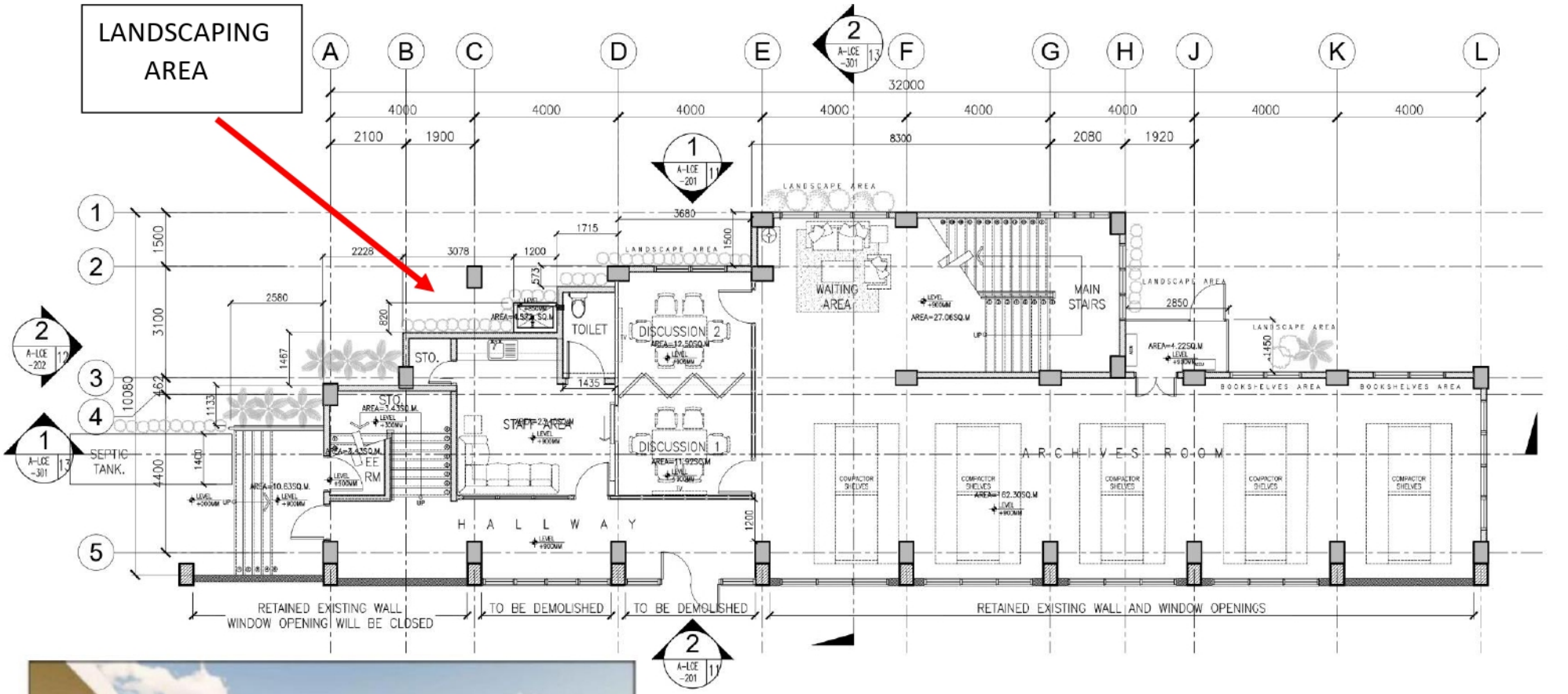
LEARNING COMMONS ANNEX PHASE I

SECOND FLOOR POWER LAYOUT

2 / E-LC-301. 2

SCALE 1:100M

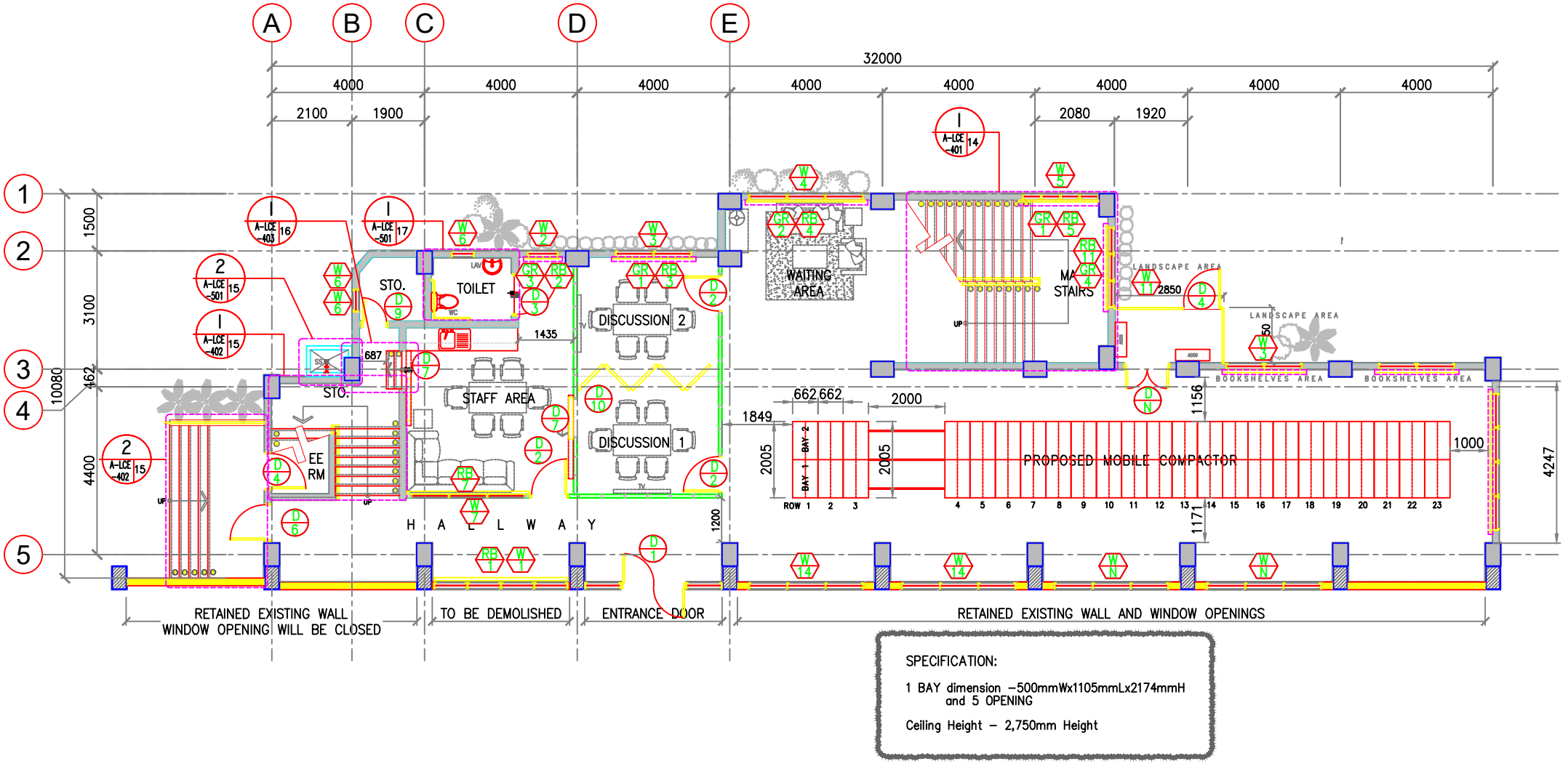
3 SETS –CEILING MOUNTED OUTLET



LEARNING COMMONS ANNEX PHASE I

GROUND FLOOR PLAN

SCALE 1:100M



SPECIFICATION:

1 BAY dimension –500mmWx1105mmLx2174mmH and 5 OPENING

Ceiling Height – 2,750mm Height

FINAL MOBILE COMPACTOR LAY-OUT

SCOPE OF WORK –STRUCTURED CABLING WITH FIBER BACKBONE & ACTIVE COMPONENTS OF THE UP CEBU LEARNING COMMON ANNEX AT LAHUG CEBU CITY

I. Overview

These Scope of Work call for the supply, delivery and installation of structured cabling with fiber backbone, active components of the UP Cebu Learning Common Annex at Lahug Cebu City, notably:

1. **Fiber Optic Cabling for backbone**
    - I. Fiber Optic Network (6 core single mode fiber optic cable)
        - I.1 At least 45 meters
        - I.2 Armoured-type

2. **Structured Cabling of Network for Data (Wired/Wireless), CCTV, and Voice using Category 6 UTP cable**
    - I. Structured Cabling – wall and ceiling mounted (Cat6 nodes)
        - I.1 CCTV - 7 nodes (simplex with shutter)
        - I.2 DATA – 18 nodes (simplex with shutter), 1 node (duplex with shutter), 8 nodes (triplex with shutter)
        - I.3 WIRELESS (ceiling) – 4 nodes (simplex with shutter)
    - II. Structured Cabling – floor mounted
        - II.1 DATA (POP-UP box) – 7 metal pop-up box with duplex outlet (Cat6)

3. **Installation of Network Cabinets for Cabling Housing**

    3.1. 2FT Data Cabinet - 1 unit
        - I.1 Specifications
            - 2Ft Detachable sides and flexi-glass door
            - Accessories:
                - PDU 16A, Exhaust Fans(min 2),
                - 3 x 1U Horizontal Cable Manager
                - 3 x Cat6 24-port patch panel – fully loaded
            - Wall mounted, good quality

4. **Supply, configuration and Installation of Active Network Components**

    4.1.1. Stackable 48-port Managed Switch PoE

    4.1.2. Count: 2 units

    4.1.3. Specifications:
        - 48 x 10/100/1000 Mb/s Gigabit Ethernet (RJ45) PoE+ ports
        - 4 x 1Gb SFP ports
        - Forwarding Rates 130.94Mbps

- Switching Bandwidth 175 Gb/s
- Should include two (2) 1000BASE SFP transceiver module SMF same brand as switch
- POE Power Budget 370 W
- PoE per port 30 W
- Layer Services Supported Layer2 Layer3
- Same brand of existing UP Cebu networking infrastructure for compatibility

5. Supply, Configuration and Installation of Uninterruptible Power Supply

5.1.1. Rack Mountable Smart Uninterruptable Power Supply on-line

5.1.2. Count: **1 unit 1KVA**

I. **UPS Network Card -** 1 Card per UPS Unit same brand as UPS

II. **Specifications:**

- **Output**

Nominal Output Voltage 230V, Output Voltage Note Configurable for 220 : 230 or 240 nominal output voltage, Output Voltage Distortion Less than 3%, Output Frequency (sync to mains) 50/60 Hz +/- 3 Hz user adjustable +/- 0.1, Other Output Voltages 220, 240Load Crest Factor 3 : 1, Topology Double Conversion Online, Waveform type Sine wave, Output Connections, (6) IEC 320 C13 (Battery Backup), Built-in Bypass

- **Input**

Nominal Input Voltage 230V, Input frequency 50/60 Hz +/- 5 Hz (auto sensing) Input Connections IEC-320 C14, Input voltage range for main operations 160 - 280V, Input voltage adjustable range for mains operation 100 - 280V, Number of Power Cords 1, Other Input Voltages 220, 240

- **Batteries and Runtime**

Battery type Maintenance-free sealed Lead-Acid battery with suspended electrolyte : leakproof, Included Battery Modules 1, Typical recharge time 3hour(s), Replacement Battery, RBC31 RBC Quantity 1, Extendable Run Time 1, Battery Volt-Amp-Hour Capacity 328

- **Surge Protection and Filtering**

Surge energy rating 420Joules, Filtering Full time multi-pole noise filtering : 0.3% IEEE surge let-through : zero clamping response time : meets UL 1449

- **Environmental**

Operating Environment 0 - 40 °C, Operating Relative Humidity 0 - 95% no %

Operating Elevation 0-3000, meters, Storage Temperature -20 - 50 °C Storage Relative Humidity 0 - 95% no % Storage Elevation 0-15000meters, Audible noise at 1 meter from surface of unit 50.0dBA, Online thermal dissipation 324.0BTU/hr, Protection Class IP 20

- **Conformance**

Approvals C-tick, CE, EN 50091-1, EN 50091-2, EN 55022 Class A, EN 60950, EN 61000-3-2, GOST, VDE, Standard warranty 2 years repair or replace, optional on-site warranties available, optional extended warranties available

6. Supply, configuration and Installation of Access Points

6.1.1. Wireless Access Points 4x4 MU-MIMO including license adder to existing Cisco wireless controller

6.1.1.1. Count: 4 units

6.1.1.2. Specifications

- 802.11n version 2.0 (and related) capabilities
  - 4x4 MIMO with three spatial streams
  - Maximal ratio combining (MRC)
  - PHY data rates up to 5.2 Gbps
  - Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx)
  - 802.11 dynamic frequency selection (DFS)
  - Cyclic shift diversity (CSD) support
- 802.11ac Wave 1 and 2 capabilities
  - 4x4 MIMO with three spatial streams, single-user or multiuser MIMO
  - MRC
  - 802.11ac beamforming (transmit beamforming)
  - 20-, 40-, and 80-MHz channels
  - PHY data rates up to 5.2 Gbps
  - Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx)
  - 802.11 DFS
  - CSD support
- Radios
  - Dual 2.4 GHz and 5 GHz, up to 80 MHz maximum bandwidth
- Max Associated Clients
  - Dual 2.4 GHz and 5 GHz, up to 80 MHz maximum bandwidth
- Interfaces
  - Uplink: 1x 10/100/1000BASE-T Ethernet (RJ-45, PoE)
  - USB 2.0
  - Management console port (RJ-45)
- Compatibility
  - Must be 100% compatible with existing Wireless Controller of UP Cebu
- Warranty & Service

- Warranty & Service shall include 1 year 24x7 advanced Support with NBD Onsite Services including hardware supports (repair or replacement), firmware updates, configuration and other advanced services for the proposed equipment.

7. Supply, configuration and Installation of SIP Telephone including license

7.1. Count: 2

7.2. Specifications:

7.2.1. Must be a same brand from the existing PABX system for compatibility

7.2.2. PoE powered

7.2.3. Single 10/100 Ethernet port

7.2.4. With LCD display

8. Supply, configuration and Installation of CCTV NVR

8.1. Count: 1

8.1.1. Specifications:

8.1.1.1. 32-Channel NVR (2U) rack mounted

8.1.1.2. Support RAID 0/1/5/10

8.1.1.3. Up to 12MP Resolution for Preview and Playback

8.1.1.4. Pre-Loaded 8 x 8TB surveillance-type Hard Disk Drive (Enterprise NAS Grade 6Gb/s, 256MB Cache 7200 RPM)

8.1.1.5. 1 x IPS Monitor 43" with wall mount bracket

8.1.1.6. Accessories like mouse, keyboard, HDMI version 2.1A

9. Supply, configuration and Installation of CCTV Camera

9.1. Indoor Doom-type Camera

9.1.1.1. Count: 7

9.1.1.2. Specifications:

- Up to 4 megapixels high resolution
- 2.8/4/6/8/12mm lens
- H.265+ compression technology
- Up to 30m IR range
- Day Night, Waterproof, Plug and play, Remote Access, Dual Stream, PoE, Motion Detection
- Support on-board storage, up to 128 GB
- IP67, IK10
- Same brand as NVR

This shall include the supply, installation and testing of high-quality fiber optic cable (FOC), high-quality indoor Cat6 network cable, related cabling hardware, LAN outlets, pop-up boxes for LAN, cabinets, interconnect hardware, or any applicable or necessary materials, supplies or hardware, as well as construction, trenching if needed, restoration or other works necessary to undertake and complete the installation to the satisfaction of the End-User.

II. Breakdown of Required Materials & Labor

1. **Fiber Optic Cable**
   - **1.1. Length:** atleast 45 meters
   - 1.2. **Features**:
     - 1.2.1 All fiber optic cables shall conform to ANSI/TIA/EIA-568-B Commercial Building Telecommunications Cabling Standard and ISO/IEC 11801 (International) Generic Cabling for Customer Premises standard.
     - 1.2.2 The backbone for data shall be laser optimized 9/125 single-mode fiber optic cables and shall meet and exceed the following specifications:
     - 1.2.3 Shall comply to the following standards:
       - 1.2.3.1 ANSI/TIA/EIA-568B.3
       - 1.2.3.2 ANSI/TIA/EIA-568B.3-1
       - 1.2.3.3 ISO/IEC 11801: 2002 2nd Edition
       - 1.2.3.4 Communications Type OFNR (UL)
       - 1.2.3.5 TIA-492AAAC laser bandwidth DMD specification
       - 1.2.3.6 IEC 60793-2-49 and TIA/EIA 455-220 DMD measurement test procedures
     - 1.2.4 Shall support but not limited to the following applications:
       - 1.2.4.1 10/100Ethernet
       - 1.2.4.2 Gigabit Ethernet
       - 1.2.4.3 10 Gigabit Ethernet
       - 1.2.4.4 ATM
       - 1.2.4.5 FDDI
       - 1.2.4.6 Baseband & Broadband Video
       - 1.2.4.7 Existing and future applications approved by TIA, EIA, IEEE, ATM Forum, ANSI, IEC or ISO that specify compatibility with the type of cable installed ANSI/TIA/EIA-568B
   - 1.3 **Optical Characteristics:**
     - 1.3.1 9/125µm fiber construction
     - 1.3.2 Have minimum cable bandwidth of 2000/500 MHz-km
     - 1.3.3 Shall be available in 4, 6, 12, 24, 48, 72 or 96 fiber cable construction
     - 1.3.4 Tight buffer design
     - 1.3.5 Aramid yarn strength members

1.3.6 Industry standard color codes for buffers and sub-units as follows:

1.3.8 Blue, orange, green brown, slate, white, red, black, yellow, violet, pink & aqua

1.3.9 Operating Temperature = -20 to 70 ^{O}C

1.4 Additional Characteristics:

1.4.1 All fibers shall be 100% attenuation-tested, with tests provided at cable reel.

2 Fiber Optic Interconnect Panel

2.1 Specifications

2.1.1 All fiber optic panels shall provide inter-connect capabilities to network switches and contain cable management for supporting and routing the fiber cables/jumpers. The fiber optic interconnect panel shall be rack mountable and shall:

2.1.1.1 Can be mounted on an EIA 19-inch 1RU Rack, uses LC duplex ports; slide-out (or swivel) front panel/tray with fixed rear tray for mounting and support; grounding facility on housing; white or black powder-coated finish.

2.1.1.2 Accommodate snap-in LC adapters plates (with LC coupling), and should have consists of 6-Ports LC Type adapter plate.

2.1.1.3 Be modular in design with internal fiber managers that provide slack storage to comply with fiber bend radius and the recommended slack storage length.

2.1.1.4 have a front shield to be used as a labeling surface and to protect jumpers

2.1.1.5 Be constructed with a drawer mechanism which allows the panel to slide forward or to the rear and has a defeatable latches to allow easy access and administration from both sides

3 Single-mode Fiber Patch Cord

3.1 Specifications

3.2 Count: 6 pcs 2-meters SM patch cord (LC-LC)

3.2.1 Fiber patch cords shall be used to interconnect the backbone fiber terminated into the fiber interconnect panel to the network devices. Fiber equipment cords shall:

3.2.1.1 Should be available in 2 meters in length

3.2.1.2 Custom lengths shall also be available, and shall meet or exceed standards as defined in ANSI/TIA/EIA-568-B and ISO/IEC 11801.

3.2.1.3 Utilize duplex fiber cable that is laser optimized 9/125m multimode and OFNR riser grade

3.2.1.4 Utilize cable where the attenuation shall not exceed 1 dB/km @ 1310 nm wavelength or .5 dB/km @ 1550 nm.

3.2.1.5 Cable jacket color shall be yellow

3.2.1.6 Fiber patch cords shall be factory-made with duplex SC fiber optic connectors on both ends in accordance with TIA/EIA-568-B and must include a ceramic ferrule.

3.2.1.7 Have minimum cable bandwidth of 2000/500 MHz-km

3.2.1.8 Have terminated SC connectors which exhibit a maximum insertion loss of 0.5 dB at both 1310 nm or 1550 nm wavelengths

3.2.1.9 Shall support 10Gigabit Ethernet at 300m

3.2.1.10 Shall meet IEEE 802.3 Gigabit Ethernet requirements as well as IEC- 60793-2-10 and TIA-492AAAC specifications for laser bandwidth Differential Mode Delay (DMD) specifications.

4 Structured Cabling, Horizontal

4.1 Count: 69 Cat6 Nodes

4.2 Copper cables shall conform to ANSI/TIA/EIA-568-B Commercial Building Telecommunications Cabling Standard and ISO/IEC 11801 (International) Generic Cabling for Customer Premises standard.

4.3 All cables shall be a GIGABIT ETHERNET PERFORMANCE Cat6 cable. Enhanced with a 550 MHz bandwidth capacity to provide plenty of headroom for 10 Gig networks; Supports high-speed and high-bandwidth, IP camera, audio/video, and security network cable applications. Equip your network for 10-Gigabit Ethernet with backwards compatibility to 10/100/1000 Ethernet

4.4 All Category 6 cable shall conform to the following minimum performance standards: All qualified cables shall surpass the most severe category requirements provided in the Industry Standards by meeting or exceeding the performance listed below for all specified frequencies (except where noted):

	UTP Cable Performance				
	100 MH	200 MHz	250 MHz	350 MHz*	550 MHz*
Insertion Loss (dB)	19.6	28.7	32.6	36.1	51.3
NEXT Loss (dB)	47.3	42.8	41.3	40.1	36.2
PSNEXT Loss (dB)	45.3	40.8	39.3	38.1	34.2
ACR (dB)	27.7	14.1	8.8	4	-15.1
PSACR (dB)	25.7	12.1	6.8	2	-17.1
ACR-F (dB)	30.8	24.8	22.8	21.3	16
PS ACR-F (dB)	28.8	22.8	20.8	19.3	14
Return Loss (dB)	22.5	21	20.5	20.1	18.8
Propagation Delay (ns)	517.6	516.5	516.3	516.1	515.5
Delay Skew (ns)	≤ 35	≤ 35	≤ 35	≤ 35	≤ 35

4.5 Cat6 Patch Cords (must be slim type cable)

4.5.1 Count: 11 pcs Cat6 600mm
16 pcs Cat6 5meters
42 pcs Cat6 3meters
70 pcs Cat6 1meter

4.5.2 All Category 6 modular equipment cords shall conform to the flowing minimum performance standards:

4.5.2.1 Be factory assembled and 100% transmission tested with laboratory grade network analyzers for proper performance up to 250 MHz

4.5.2.2 Be backwards compatible with lower performing categories

4.5.2.3 Be equipped with identical modular 8-position plugs on both ends, wired straight through with standards compliant wiring

4.5.2.4 Utilize patented metallic isolator shields pairs inside plug for optimum NEXT performance and a 360 degree crimp for providing excellent plug- to-cable strain relief without causing pair deformation

4.5.2.5 Obtain the required performance without use of printed circuit board components

4.5.2.6 Incorporate internal stranded cordage isolator within a round, flame- retardant jacket to provide extended flex life and maintain ideal pair geometry

4.5.2.7 Have a boot that features an ultra slim design for high density applications and snag free operation.

4.5.2.8 Use modular plugs which exceed FCC CFR 47 part 68 subpart F and IEC 60603-7 specifications, have 50 micro-inches minimum of gold plating over nickel contacts and are resistant to corrosion from humidity, extreme temperatures, and airborne contaminants

4.5.2.9 Be available in standard lengths of 3, 5, 7, 10, 15 and 20 ft. with custom lengths available upon request

4.5.2.10 Offer multiple cable colors (with ultra slim boots for high density applications) in standard colors of black, white, red, gray, yellow, blue and green for proper circuit identification

4.5.2.11 Be certified by Underwriters Laboratories to United States Standards and C22.2 Canadian Telecommunications Standards

5 Labor

5.1 Cable Laying and Pulling

5.2 LC Fusion Splicing and Termination

5.3 Cat6 end-to-end Termination

5.4 Installation of Fiber Optic Housing Hardware, LIU's and other related equipment.

5.5 Cable tagging

5.6 Testing and Documentation

6 Codes and Standards

6.1 Work shall be installed according to the latest Philippine Electric Code (PEC), Plumbing Code, National Structural Code of the Philippines, Fire Code of the Philippines, the National Building Code and the "Compilation of Building Telecommunication Cabling Systems for Philippine Standards by BICSP".

6.2 Minimum technical standards covering the inter-building fiber-optic cable system shall adhere to, but are not limited to the following standards:

6.2.1 Optical Fiber Optic Cabling and Components:

6.2.1.1 ANSI/TIA/EIA-568-C.0, Generic Telecommunications Cabling for Customer Premises

6.2.1.2 ANSI/TIA/EIA-568-C.1, Commercial Building Telecommunications Cabling Standard

6.2.1.3 ANSI/TIA/EIA-568-C.3, Optical Fiber Cabling Components

6.2.2 Telecommunication Pathways

6.2.2.1 ANSI/TIA/EIA-568-B, Commercial Building Standard for Telecommunications Pathways and Spaces

6.2.3 Grounding and Bonding

6.2.3.1 Philippine Electrical Code

6.2.3.2 ANSI J/STD-607-A-2002, Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications

6.2.4 Administration and Labeling

6.2.4.1 ANSI/TIA/EIA-606A-2002, Administration Standard for Commercial Telecommunications Infrastructure

III. FOC Installation, Structured Cabling Documentation

1. Setup and Execution:

1.1. Contractor shall perform all items of work under the terms of reference; all equipment, labor, machinery, materials, tools, supplies, transportation and incidental expenses necessary to prosecute the work to completion shall be shouldered by the Contractor.

1.2. Safety Measures: contractor is required to install warning signs and barricades for the safety of the general public. All workers shall wear the necessary safety devices to ensure safety and proper identification throughout the project.

1.3. Identification and campus ingress/egress: contractors are required to submit the list of the names of their workers, machinery and vehicles that will be entering campus premises to the VICE CHANCELLOR for Administration, Campus Maintenance Office and Information Technology Center.

1.4. Contractor shall observe proper pulling and bending of fiber optic cable at all times during installation to prevent kinking, damaging or shortening the life of the cable. The minimum bend radius for both inside and outside the cable

is 20 times the cable outside diameter while the maximum tensile load during installation is 2,700 Newtons.

1.5. Cable Slack: A minimum of three (3) meters (or 10 feet) slack should be provided in both ends. The slack should be neatly organized and stored in an extended loop.

1.6. Labeling: All cables and hardware shall be identified and properly labeled using machine- printed labels. All fiber cables additionally shall be tagged with semi--rigid plastic tabs, attached using cable ties and labeled with the name of the building on the remote- end termination. The fiber optic housing hardware shall be labeled with the Contractor's name, contact address and number, date of installation of the system, and the duration of the system warranty.

2. Submittals:

The contractor shall submit the following for approval:

2.1. Technical data of system components;
2.2. Cable routing and terminations
2.3. Floor plan showing placement of cable trays, LIUs and other major components. Furthermore, the contractor shall provide three (3) sets of the following (in 3-ring binder), upon project turn-over:
2.4. Operation Manual(s) (if applicable)
2.5. Fiber Optic Cable Test Reports;
2.6. Structured Cabling Test Reports;
2.7. As-Built Plans

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PROJECT TITLE: **CONTRUCTION OF LEARNING COMMONS ANNEX PHASE 2**
SUBJECT: **FIBER OPTICS CABLING, BILL OF QUANTITIES**

Item #	Product Code	Brand	Description	Qty	Unit	Unit Price	Total Price
Fiber Optic Cabling w/ Active Components							
OVERHEAD SUBMITTALS							
1			Mobilization/Demobilization and Logistics	1	lot	105,000.00	105,000.00
2			Consumables	1	lot	25,000.00	25,000.00
3			Labor	1	lot	18,000.00	18,000.00
4			Prov. Allowance	1	Lot	115,000.00	115,000.00
5			Miscellaneous	1	Lot	160,000.00	160,000.00
HORIZONTAL CABLING (DATA/VOICE)							
1			4 pairs Cat6 UTP Cable	14	Rolls	10,714.29	150,000.00
2			Cat6 Information Outlet	44	Pcs	454.55	20,000.00
3			Faceplate Simplex with shutter	44	Pcs	181.82	8,000.00
4			Cat6 Information Outlet (for floor mounted outlet)	14	Pcs	428.57	6,000.00
5			Floor Mounted Outlet (duplex)	7	Pcs	3,428.57	24,000.00
6			UTP Patch Cord Cat6 5mtrs Slim Type (white)	16	Pcs	937.50	15,000.00
7			UTP Patch Cord Cat6 3mtrs Slim Type (white)	38	Pcs	473.68	18,000.00
8			UTP Patch Cord Cat6 600mm Slim Type (white)	4	Pcs	750.00	3,000.00
9			UTP Patch Cord Cat6 2mtrs	58	Pcs	482.76	28,000.00
10			Cat6 24-port patchpanel	3	Pcs	12,666.67	38,000.00
11			Horizontal Cable Manager 1RU	3	Pcs	2,666.67	8,000.00
12			2ft Data Cabinet With Complete Accessories	1	Set	14,000.00	14,000.00
EQUIPMENT (DATA/VOICE)							
1			48-port Network Switch (Cisco)	2	Units	70,000.00	140,000.00
2			SFP Module (Cisco)	4	Units	12,500.00	50,000.00
3			Wireless Access Point with License (Cisco)	4	Units	148,750.00	595,000.00
4			1kVA UPS with SNMP Card (APC)	1	Unit	75,000.00	75,000.00
4.1			UPS Network Management Card 3	1	Unit	36,000.00	36,000.00
HORIZONTAL CABLING (DATA/VOICE)							
1			4 pairs Cat6 UTP Cable	2	Rolls	12,000.00	24,000.00
2			Cat6 Information Outlet	7	Pcs	428.57	3,000.00
3			Faceplate Simplex with shutter	7	Pcs	142.86	1,000.00
4			UTP Patch Cord Cat6 600mm Slim Type (white)	7	Pcs	685.71	4,800.00
5			UTP Patch Cord Cat6 2mtrs	7	Pcs	442.86	3,100.00
6			4MP Dome Camera	7	Pcs	8,285.71	58,000.00
1			32-channel NVR (2RU)	2	Units	42,000.00	84,000.00
1.2			8TB IronWolf Hard Disk Drive	8	Pcs	20,500.00	164,000.00
BACKBONE CABLING (DATA/VOICE)							
1			6-Core Singlemode Fiber Optic Cable (armored-type)Fiber	45	Mtrs	180.00	8,100.00
2			Patch Panel SM 6-port LC (loaded)	2	pc	16,500.00	33,000.00
3			SM Patchcords 2-meter (LC-LC)	6	pcs	3,000.00	18,000.00
4			IP phones with license	2	Units	24,000.00	48,000.00
	note:		***Please give allowance of 90 days for the Delivery Leadtime***				
TOTAL PROJECT AMOUNT							**2,100,000.00**

SCOPE OF WORK –STRUCTURED CABLING WITH FIBER BACKBONE & ACTIVE COMPONENTS OF THE UP CEBU LEARNING COMMON ANNEX

The Scope of Work call for the supply and installation of structured cabling with fiber backbone, active components of the UP Cebu Learning Common Annex at Lahug Cebu City, notably:

1. Fiber Optic Cabling for backbone

I. Fiber Optic Network (6 core single mode fiber optic cable)
- I.1 Atleast 45 meters
- I.2 Armoured-type

2. Structured Cabling of Network for Data (Wired/Wireless), CCTV, and Voice using Category 6 UTP cable

I. Structured Cabling – wall and ceiling mounted (Cat6 nodes)
- I.1 CCTV - 7 nodes (simplex with shutter)
- I.2 DATA – 18 nodes (simplex with shutter), 1 node (duplex with shutter), 8 nodes (triplex with shutter)
- I.3 WIRELESS (ceiling) – 4 nodes (simplex with shutter)

II. Structured Cabling – floor mounted
- II.1 DATA (POP-UP box) – 7 metal pop-up box with duplex outlet (Cat6)

3. Installation of Network Cabinets for Cabling Housing

3.1. 2FT Data Cabinet - 1 unit

I.1 Specifications
- 2Ft Detachable sides and flexi-glass door
- Accessories:
  - PDU 16A, Exhaust Fans(min 2),
  - 3 x 1U Horizontal Cable Manager
  - 3 x Cat6 24-port patch panel – fully loaded
- Wall mounted, good quality

4. Supply, configuration and Installation of Active Network Components

4.1.1.Stackable 48-port Managed Switch PoE

4.1.2.Count: 2 units

4.1.3.Specifications:
- 48 x 10/100/1000 Mb/s Gigabit Ethernet (RJ45) PoE+ ports
- 4 x 1Gb SFP ports
- Forwarding Rates 130.94Mbps

- Switching Bandwidth 175 Gb/s
- Should include two (2) 1000BASE SFP transceiver module SMF same brand as switch
- POE Power Budget 370 W
- PoE per port 30 W
- Layer Services Supported Layer2 Layer3
- Same brand of existing UP Cebu networking infrastructure for compatibility

5. Supply, Configuration and Installation of Uninterruptible Power Supply

5.1.1.Rack Mountable Smart Uninterruptable Power Supply on-line

5.1.2. Count: **1 unit 1KVA**

I. **UPS Network Card -** 1 Card per UPS Unit same brand as UPS

II. **Specifications:**

- **Output**

Nominal Output Voltage 230V, Output Voltage Note Configurable for 220 : 230 or 240 nominal output voltage, Output Voltage Distortion Less than 3%, Output Frequency (sync to mains) 50/60 Hz +/- 3 Hz user adjustable +/- 0.1, Other Output Voltages 220, 240Load Crest Factor 3 : 1, Topology Double Conversion Online, Waveform type Sine wave, Output Connections, (6) IEC 320 C13 (Battery Backup), Built-in Bypass

- **Input**

Nominal Input Voltage 230V, Input frequency 50/60 Hz +/- 5 Hz (auto sensing) Input Connections IEC-320 C14, Input voltage range for main operations 160 - 280V, Input voltage adjustable range for mains operation 100 - 280V, Number of Power Cords 1, Other Input Voltages 220, 240

- **Batteries and Runtime**

Battery type Maintenance-free sealed Lead-Acid battery with suspended electrolyte : leakproof, Included Battery Modules 1, Typical recharge time 3hour(s), Replacement Battery, RBC31 RBC Quantity 1, Extendable Run Time 1, Battery Volt-Amp-Hour Capacity 328

- **Surge Protection and Filtering**

Surge energy rating 420Joules, Filtering Full time multi-pole noise filtering : 0.3% IEEE surge let-through : zero clamping response time : meets UL 1449

- **Environmental**

Operating Environment 0 - 40 °C, Operating Relative Humidity 0 - 95% no % Operating Elevation 0-3000, meters, Storage Temperature -20 - 50 °C Storage Relative Humidity 0 - 95% no % Storage Elevation 0-15000meters, Audible noise at 1 meter from surface of unit 50.0dBA, Online thermal dissipation 324.0BTU/hr, Protection Class IP 20

- **Conformance**

Approvals C-tick, CE, EN 50091-1, EN 50091-2, EN 55022 Class A, EN 60950, EN 61000-3-2, GOST, VDE, Standard warranty 2 years repair or replace, optional on-site warranties available, optional extended warranties available

6. Supply, configuration and Installation of Access Points

6.1.1. Wireless Access Points 4x4 MU-MIMO including license adder to existing Cisco wireless controller

6.1.1.1. Count: 4 units

6.1.1.2. Specifications

- 802.11n version 2.0 (and related) capabilities
  - 4x4 MIMO with three spatial streams
  - Maximal ratio combining (MRC)
  - PHY data rates up to 5.2 Gbps
  - Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx)
  - 802.11 dynamic frequency selection (DFS)
  - Cyclic shift diversity (CSD) support
- 802.11ac Wave 1 and 2 capabilities
  - 4x4 MIMO with three spatial streams, single-user or multiuser MIMO
  - MRC
  - 802.11ac beamforming (transmit beamforming)
  - 20-, 40-, and 80-MHz channels
  - PHY data rates up to 5.2 Gbps
  - Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx)
  - 802.11 DFS
  - CSD support
- Radios
  - Dual 2.4 GHz and 5 GHz, up to 80 MHz maximum bandwidth
- Max Associated Clients
  - Dual 2.4 GHz and 5 GHz, up to 80 MHz maximum bandwidth
- Interfaces
  - Uplink: 1x 10/100/1000BASE-T Ethernet (RJ-45, PoE)
  - USB 2.0
  - Management console port (RJ-45)
- Compatibility
  - Must be 100% compatible with existing Wireless Controller of UP Cebu
- Warranty & Service

- Warranty & Service shall include 1 year 24x7 advanced Support with NBD Onsite Services including hardware supports (repair or replacement),

firmware updates, configuration and other advanced services for the proposed equipment.

7. Supply, configuration and Installation of SIP Telephone including license

7.1. Count: 2

7.2. Specifications:

7.2.1. Must be a same brand from the existing PABX system for compatibility

7.2.2. PoE powered

7.2.3. Single 10/100 Ethernet port

7.2.4. With LCD display

8. Supply, configuration and Installation of CCTV NVR

8.1. Count: 1 unit

8.1.1. Specifications:

8.1.1.1. 32-Channel NVR (2U) rack mounted

8.1.1.2. Support RAID 0/1/5/10

8.1.1.3. Up to 12MP Resolution for Preview and Playback

8.1.1.4. Pre-Loaded 8 x 8TB surveillance-type Hard Disk Drive (Enterprise NAS Grade 6Gb/s, 256MB Cache 7200 RPM)

9. Supply, configuration and Installation of CCTV Camera

9.1. Indoor Doom-type Camera

9.1.1.1. Count: 7

9.1.1.2. Specifications:

- Up to 4 megapixels high resolution
- 2.8/4/6/8/12mm lens
- H.265+ compression technology
- Up to 30m IR range
- Day Night, Waterproof, Plug and play, Remote Access, Dual Stream, PoE, Motion Detection
- Support on-board storage, up to 128 GB
- IP67, IK10
- Same brand as NVR

This shall include the supply, installation and testing of high-quality fiber optic cable (FOC), high-quality indoor Cat6 network cable, related cabling hardware, LAN outlets, pop-up boxes for LAN, cabinets, interconnect hardware, or any applicable or necessary materials, supplies or hardware, as well as construction, trenching if needed, restoration or other works necessary to undertake and complete the installation to the satisfaction of the End-User.

II. Breakdown of Required Materials & Labor

1. Fiber Optic Cable

1.1. Length: atleast 45 meters

1.2. **Features**:

1.2.1 All fiber optic cables shall conform to ANSI/TIA/EIA-568-B Commercial Building Telecommunications Cabling Standard and ISO/IEC 11801 (International) Generic Cabling for Customer Premises standard.

1.2.2 The backbone for data shall be laser optimized 9/125⌠single-mode fiber optic cables and shall meet and exceed the following specifications:

1.2.3 Shall comply to the following standards:

1.2.3.1 ANSI/TIA/EIA-568B.3
1.2.3.2 ANSI/TIA/EIA-568B.3-1
1.2.3.3 ISO/IEC 11801: 2002 2nd Edition
1.2.3.4 Communications Type OFNR (UL)
1.2.3.5 TIA-492AAAC laser bandwidth DMD specification
1.2.3.6 IEC 60793-2-49 and TIA/EIA 455-220 DMD measurement test procedures

1.2.4 Shall support but not limited to the following applications:

1.2.4.1 10/100Ethernet
1.2.4.2 Gigabit Ethernet
1.2.4.3 10 Gigabit Ethernet
1.2.4.4 ATM
1.2.4.5 FDDI
1.2.4.6 Baseband & Broadband Video
1.2.4.7 Existing and future applications approved by TIA, EIA, IEEE, ATM Forum, ANSI, IEC or ISO that specify compatibility with the type of cable installed ANSI/TIA/EIA-568B

1.3 **Optical Characteristics:**

1.3.1 9/125µm fiber construction
1.3.2 Have minimum cable bandwidth of 2000/500 MHz-km
1.3.3 Shall be available in 4, 6, 12, 24, 48, 72 or 96 fiber cable construction
1.3.4 Tight buffer design
1.3.5 Aramid yarn strength members
1.3.6 Industry standard color codes for buffers and sub-units as follows:
1.3.8 Blue, orange, green brown, slate, white, red, black, yellow, violet, pink & aqua

1.3.9 Operating Temperature = -20 to 70 ^{o}C

1.4 Additional Characteristics:

1.4.1 All fibers shall be 100% attenuation-tested, with tests provided at cable reel.

2 Fiber Optic Interconnect Panel

2.1 Specifications

2.1.1 All fiber optic panels shall provide inter-connect capabilities to network switches and contain cable management for supporting and routing the fiber cables/jumpers. The fiber optic interconnect panel shall be rack mountable and shall:

2.1.1.1 Can be mounted on an EIA 19-inch 1RU Rack, uses LC duplex ports; slide-out (or swivel) front panel/tray with fixed rear tray for mounting and support; grounding facility on housing; white or black powder-coated finish.

2.1.1.2 Accommodate snap-in LC adapters plates (with LC coupling), and should have consists of 6-Ports LC Type adapter plate.

2.1.1.3 Be modular in design with internal fiber managers that provide slack storage to comply with fiber bend radius and the recommended slack storage length.

2.1.1.4 have a front shield to be used as a labeling surface and to protect jumpers

2.1.1.5 Be constructed with a drawer mechanism which allows the panel to slide forward or to the rear and has a defeatable latches to allow easy access and administration from both sides

3 Single-mode Fiber Patch Cord

3.1 Specifications

3.2 Count: 6 pcs 2-meters SM patch cord (LC-LC)

3.2.1 Fiber patch cords shall be used to interconnect the backbone fiber terminated into the fiber interconnect panel to the network devices. Fiber

equipment cords shall:

3.2.1.1 Should be available in 2 meters in length

3.2.1.2 Custom lengths shall also be available, and shall meet or exceed standards as defined in ANSI/TIA/EIA-568-B and ISO/IEC 11801.

3.2.1.3 Utilize duplex fiber cable that is laser optimized 9/125m multimode and OFNR riser grade

3.2.1.4 Utilize cable where the attenuation shall not exceed 1 dB/km @ 1310 nm wavelength or .5 dB/km @ 1550 nm.

3.2.1.5 Cable jacket color shall be yellow

3.2.1.6 Fiber patch cords shall be factory-made with duplex SC fiber optic connectors on both ends in accordance with TIA/EIA-568-B and must include a ceramic ferrule.

3.2.1.7 Have minimum cable bandwidth of 2000/500 MHz-km

3.2.1.8 Have terminated SC connectors which exhibit a maximum insertion loss of 0.5 dB at both 1310 nm or 1550 nm wavelengths

3.2.1.9 Shall support 10Gigabit Ethernet at 300m

3.2.1.10 Shall meet IEEE 802.3 Gigabit Ethernet requirements as well as IEC-60793-2-10 and TIA-492AAAC specifications for laser bandwidth Differential Mode Delay (DMD) specifications.

4 Structured Cabling, Horizontal

4.1 Count: 69 Cat6 Nodes

4.2 Copper cables shall conform to ANSI/TIA/EIA-568-B Commercial Building Telecommunications Cabling Standard and ISO/IEC 11801 (International) Generic Cabling for Customer Premises standard.

4.3 All cables shall be a GIGABIT ETHERNET PERFORMANCE Cat6 cable. Enhanced with a 550 MHz bandwidth capacity to provide plenty of headroom for 10 Gig networks; Supports high-speed and high-bandwidth, IP camera, audio/video, and security network cable applications. Equip your network for 10-Gigabit Ethernet with backwards compatibility to 10/100/1000 Ethernet

4.4 All Category 6 cable shall conform to the following minimum performance standards: All qualified cables shall surpass the most severe category requirements provided in the Industry Standards by meeting or exceeding the performance listed below for all specified frequencies (except where noted):

	UTP Cable Performance				
	100 MH	200 MHz	250 MHz	350 MHz*	550 MHz*

Insertion Loss (dB)	19.6	28.7	32.6	36.1	51.3
NEXT Loss (dB)	47.3	42.8	41.3	40.1	36.2
PSNEXT Loss (dB)	45.3	40.8	39.3	38.1	34.2
ACR (dB)	27.7	14.1	8.8	4	-15.1
PSACR (dB)	25.7	12.1	6.8	2	-17.1
ACR-F (dB)	30.8	24.8	22.8	21.3	16
PS ACR-F (dB)	28.8	22.8	20.8	19.3	14
Return Loss (dB)	22.5	21	20.5	20.1	18.8
Propagation Delay (ns)	517.6	516.5	516.3	516.1	515.5
Delay Skew (ns)	≤ 35	≤ 35	≤ 35	≤ 35	≤ 35

4.5 Cat6 Patch Cords (must be slim type cable)

4.5.1 Count: 11 pcs Cat6 600mm
16 pcs Cat6 5meters
42 pcs Cat6 3meters
70 pcs Cat6 1meter

4.5.2 All Category 6 modular equipment cords shall conform to the flowing minimum performance standards:

4.5.2.1 Be factory assembled and 100% transmission tested with laboratory grade network analyzers for proper performance up to 250 MHz

4.5.2.2 Be backwards compatible with lower performing categories

4.5.2.3 Be equipped with identical modular 8-position plugs on both ends, wired straight through with standards compliant wiring

4.5.2.4 Utilize patented metallic isolator shields pairs inside plug for optimum NEXT performance and a 360 degree crimp for providing excellent plug- to-cable strain relief without causing pair deformation

4.5.2.5 Obtain the required performance without use of printed circuit board components

4.5.2.6 Incorporate internal stranded cordage isolator within a round, flame- retardant jacket to provide extended flex life and maintain ideal pair geometry

4.5.2.7 Have a boot that features an ultra slim design for high density applications and snag free operation.

4.5.2.8 Use modular plugs which exceed FCC CFR 47 part 68 subpart F and IEC 60603-7 specifications, have 50 micro-inches minimum of gold plating over nickel contacts and are resistant to corrosion from humidity, extreme temperatures, and airborne contaminants

4.5.2.9 Be available in standard lengths of 3, 5, 7, 10, 15 and 20 ft. with custom lengths available upon request

4.5.2.10 Offer multiple cable colors (with ultra slim boots for high density applications) in standard colors of black, white, red, gray, yellow, blue and green for proper circuit identification

4.5.2.11 Be certified by Underwriters Laboratories to United States Standards and C22.2 Canadian Telecommunications Standards

5 Labor

5.1 Cable Laying and Pulling

5.2 LC Fusion Splicing and Termination

5.3 Cat6 end-to-end Termination

5.4 Installation of Fiber Optic Housing Hardware, LIU's and other related equipment.

5.5 Cable tagging

5.6 Testing and Documentation

6 Codes and Standards

6.1 Work shall be installed according to the latest Philippine Electric Code (PEC), Plumbing Code, National Structural Code of the Philippines, Fire Code of the Philippines, the National Building Code and the "Compilation of Building Telecommunication Cabling Systems for Philippine Standards by BICSP".

6.2 Minimum technical standards covering the inter-building fiber-optic cable system shall adhere to, but are not limited to the following standards:

6.2.1 Optical Fiber Optic Cabling and Components:

6.2.1.1 ANSI/TIA/EIA-568-C.0, Generic Telecommunications Cabling for Customer Premises

6.2.1.2 ANSI/TIA/EIA-568-C.1, Commercial Building Telecommunications Cabling Standard

6.2.1.3 ANSI/TIA/EIA-568-C.3, Optical Fiber Cabling Components

6.2.2 Telecommunication Pathways

6.2.2.1 ANSI/TIA/EIA-568-B, Commercial Building Standard for Telecommunications Pathways and Spaces

6.2.3 Grounding and Bonding

6.2.3.1 Philippine Electrical Code

6.2.3.2 ANSI J/STD-607-A-2002, Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications

6.2.4 Administration and Labeling

6.2.4.1 ANSI/TIA/EIA-606A-2002, Administration Standard for Commercial Telecommunications Infrastructure

III. FOC Installation, Structured Cabling Documentation

1. Setup and Execution:

1.1. Contractor shall perform all items of work under the terms of reference; all equipment, labor, machinery, materials, tools, supplies, transportation and incidental expenses necessary to prosecute the work to completion shall be shouldered by the Contractor.

1.2. Safety Measures: contractor is required to install warning signs and barricades for the safety of the general public. All workers shall wear the necessary safety devices to ensure safety and proper identification throughout the project.

1.3. Identification and campus ingress/egress: contractors are required to submit the list of the names of their workers, machinery and vehicles that will be entering campus premises to the VICE CHANCELLOR for Administration, Campus Maintenance Office and Information Technology Center.

1.4. Contractor shall observe proper pulling and bending of fiber optic cable at all times during installation to prevent kinking, damaging or shortening the life of the cable. The minimum bend radius for both inside and outside the cable is 20 times the cable outside diameter while the maximum tensile load during installation is 2,700 Newtons.

1.5. Cable Slack: A minimum of three (3) meters (or 10 feet) slack should be provided in both ends. The slack should be neatly organized and stored in an extended loop.

1.6. Labeling: All cables and hardware shall be identified and properly labeled using machine- printed labels. All fiber cables additionally shall be tagged with semi--rigid plastic tabs, attached using cable ties and labeled with the name of the building on the remote- end termination. The fiber optic housing hardware shall be labeled with the Contractor's name, contact address and number, date of installation of the system, and the duration of the system warranty.

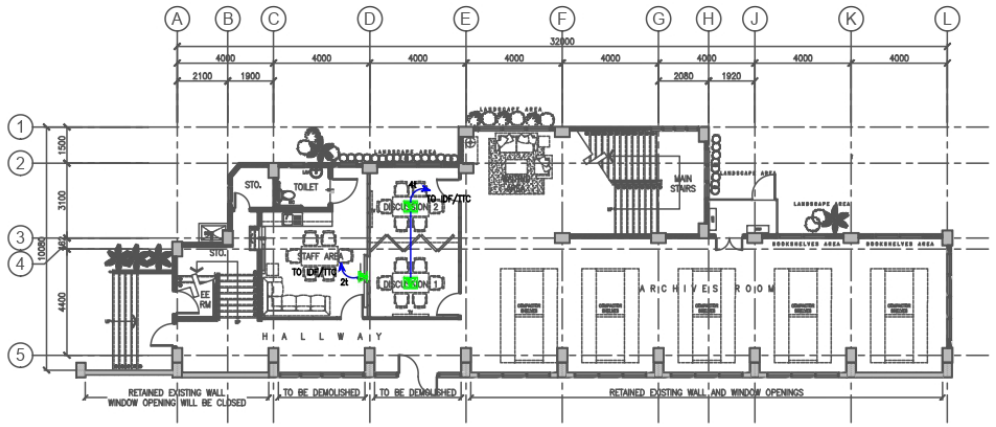
2. Submittals:

The contractor shall submit the following for approval:

2.1. Technical data of system components;
2.2. Cable routing and terminations
2.3. Floor plan showing placement of cable trays, LIUs and other major components.

Furthermore, the contractor shall provide three (3) sets of the following (in 3-ring binder), upon project turn-over:

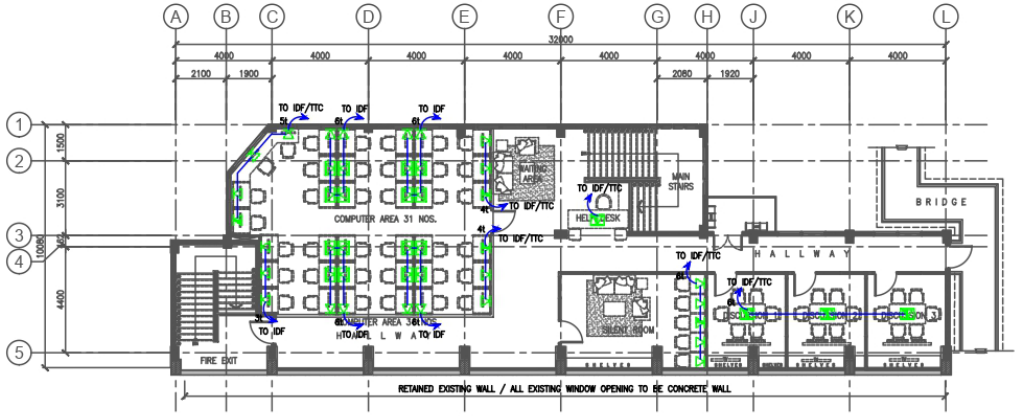
2.4. Operation Manual(s) (if applicable)
2.5. Fiber Optic Cable Test Reports;
2.6. Structured Cabling Test Reports;
2.7. As-Built Plans



LEARNING COMMONS ANNEX PHASE 1

1 GROUND FLOOR TELEPHONE/DATA SYSTEM LAYOUT

SCALE 1:100M



LEARNING COMMONS ANNEX PHASE 1

2 SECOND FLOOR TELEPHONE/DATA SYSTEM LAYOUT

SCALE 1:100M

CONSULTANT: acong CONSULTING INC.

UNIVERSITY OF THE PHILIPPINES CEBU
OFFICE OF THE CAMPUS ARCHITECT

CONSULTANT/ ENGINEER
RONALD L. NAVARRO
PROFESSIONAL ELECTRONICS ENGINEER

PROJECT TITLE
UNIVERSITY OF THE PHILIPPINES CEBU
LEARNING COMMONS ANNEX PHASE 1
LAHUG, CEBU CITY

OWNER'S APPROVAL:
UNIVERSITY OF PHILIPPINES CEBU
ATTY. LIZA D. OCAMPO
CHANCELLOR OF CEBU

DRAWN BY: EQJ
CHECKED BY: RLN
REVISED BY:

SHEET CONTENTS: GROUND FLOOR & SECOND FLOOR TELEPHONE/DATA SYSTEM LAYOUT

SHEET NO. 3 of 5

DRAWING INDEX

SHEET NO.	SHEET CONTENTS
EA-LC-0101	DRAWING INDEX, GENERAL NOTES, LEGEND AND SYMBOLS, CCTV AND PABGM RISER DIAGRAM
EA-LC-0201	TEL/DATA SYSTEM AND FIRE DETECTION AND ALARM SYSTEM RISER DIAGRAM, MISCELLANEOUS DETAILS
EA-LC-0501	GROUND FLOOR AND SECOND FLOOR TELEPHONE/DATA SYSTEM LAYOUT
EA-LC-0601	GROUND FLOOR AND SECOND FLOOR CCTV AND PABGM SYSTEM LAYOUT
EA-LC-1001	MISCELLANEOUS DETAILS

GENERAL NOTES:

1. WIRINGS SHALL BE IN CONCEALED CONDUIT/ TRUNKING UNLESS OTHERWISE SPECIFIED.
2. THE POSITION OF ALL ELECTRONICS EQUIPMENT AS SHOWN IN THE DRAWINGS ARE APPROXIMATE ONLY. THE EXACT POSITIONS SHALL BE DETERMINED ON SITE.
3. THE SPECIALTY CONTRACTOR SHALL BE RESPONSIBLE FOR THE LABELING OF ALL EQUIPMENT THRU-OUT THE INSTALLATION.
4. THE SPECIALTY CONTRACTOR SHALL BE RESPONSIBLE TO LIAISE WITH THE LOCAL GOVERNMENT FOR ALL CLEARANCES, CABLE JOINTING, AND TESTING FOR THE INSTALLATION.
5. THE OVERALL RESISTANCE FOR THE EARTHING SYSTEM TELECOMMUNICATION & LOW VOLTAGE EQUIPMENT SHALL COMPLY WITH THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL AND ELECTRONICS CODE.
6. THE SPECIALTY CONTRACTOR SHALL BE RESPONSIBLE FOR SEALING OF ALL CABLE/CONDUIT PENETRATION OPENINGS BETWEEN FLOOR SLAB AND WALLS ETC. WITH APPROVED FIRE RATING MATERIAL/SEALANT.
7. THE SPECIALTY CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR, MATERIALS AND EQUIPMENT FOR SATISFACTORY COMPLETION OF THE ENTIRE ELECTRONICS SYSTEM INSTALLATION AS GENERALLY DESCRIBED IN THE SPECIFICATION AND/OR SHOWN ON DRAWINGS.
8. ALL ELECTRONICS EQUIPMENT AND LOCATIONS SHOWN ARE INDICATIVE ONLY, AND THE SPECIALTY CONTRACTOR MUST CO-ORDINATE WITH THE ARCHITECT AND OR THE INTERIOR DESIGNER, AS WELL AS EQUIPMENT SUPPLIERS FOR FINALITY.

GENERAL NOTES FOR FDAS:

1. FIRE ALARM SYSTEM SHALL BE FULLY-ADDRESSABLE, AND SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 70 AND NFPA 72. SYSTEM SHALL ALSO MEET ALL APPLICABLE BUILDING CODES, FIRE CODES AND THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION AND INSURANCE CARRIER. VERIFY REQUIREMENTS PRIOR TO CONSTRUCTION.
2. RISER DIAGRAMS ARE DIAGRAMMATIC ONLY. THE CONTRACTOR SHALL REFER TO THE LAYOUT FOR ACTUAL NO. OF DETECTORS.
3. WIRING SHOWN SHALL BE FOR CONTRACTORS GUIDE SUBJECTS TO MANUFACTURER'S FINAL WIRING REQUIREMENTS.
4. PROVIDE ALL EQUIPMENT AND LABOR REQUIRED FOR A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM.
5. PROVIDE AUDIBLE AND VISIBLE NOTIFICATION APPLIANCES AS INDICATED ON THE DRAWINGS.
6. DO NOT INSTALL SMOKE DETECTORS IN A DIRECT AIR FLOW NOR CLOSER TO THAN 3 FEET FROM AN AIR SUPPLY DIFFUSER OR RETURN AIR OPENING.
7. ANY ITEM REQUIRED IN THE SYSTEMS NOT SHOWN IN THE DRAWINGS AND SPECIFICATIONS SHALL BE CONSIDERED TO BE PART OF THE SCOPE OF WORK.
8. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

GENERAL NOTES FOR PA:

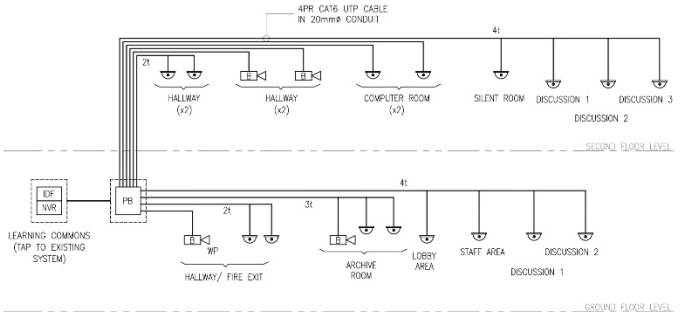
1. THE PURPOSE OF THIS SCHEMATIC IS TO PROVIDE GENERAL CONCEPT AND PRINCIPLE OF THE PROPOSED PUBLIC ADDRESS SYSTEM.
2. THE QUANTITY AND LOCATION OF DEVICES ARE INDICATIVE ONLY. REFER TO FLOOR PLAN LAYOUT FOR FINAL QUANTITY AND LOCATION.
3. SPEAKERS FOR BREAKOUT ROOMS SHALL HAVE A DEDICATED EQUIPMENT AND TO BE INTERFACED WITH EVAC SYSTEM DURING EVACUATION MODE.
4. GENERAL CONTRACTOR SCOPE OF WORK WILL BE ROUGHING-INS ONLY.
5. SPECIALTY CONTRACTOR TO PROVIDE HEAD END EQUIPMENT FOR THE PUBLIC ADDRESS AND EVAC SYSTEM WITH ALL ACCESSORIES REQUIRED FOR THE AUDITORIUM.

GENERAL NOTES FOR TELECOMS:

1. ALL TELECOM/AUXILIARY WORKS AND INSTALLATIONS HEREIN SHALL BE DONE IN ACCORDANCE OF THE LATEST APPROVED EDITION OF PHILIPPINE ELECTRICAL CODE AND PHILIPPINE ELECTRONICS CODE WITH THE RULES AND REGULATIONS OF THE NATIONAL AND LOCAL AUTHORITIES CONCERNED IN THE ENFORCEMENT OF ELECTRICAL LAWS AND ORDINANCES AND WITH THE RULES AND REGULATIONS OF THE UTILITY COMPANIES CONCERNED.
2. QUANTITY AND LOCATION OF DEVICES ARE INDICATIVE ONLY. REFER TO FLOOR PLAN LAYOUT FOR EXACT LOCATION AND QUANTITY.
3. NUMBER OF CABLES INSIDE IMC CONDUIT SHALL BE:

# 24 AWG	15mmø	20mmø	25mmø
CAT5e/CAT6	1-2	3-4	5-6

4. GENERAL CONTRACTOR SHALL PROVIDE ALL DEVICES, ACCESSORIES, CABLING, ROUGHING-INS, AND EQUIPMENT IN ORDER FOR THE SUCCESSFUL OPERATION OF THE SYSTEM.
5. ALL WORKS HEREIN SHALL BE DONE UNDER THE DIRECT SUPERVISION OF A DULY LICENSED ELECTRONICS AND COMMUNICATIONS ENGINEER.
6. ALL MATERIALS SHALL BE NEW, APPROVED FROM BOTH LOCATION AND PURPOSED INTENDED AND SHALL CONFORM TO THE INTERNATIONALLY ACCREDITED RECOGNIZED STANDARD, ON WHERE SUCH STANDARD HAS BEEN ESTABLISHED FOR PARTICULAR TYPES OF MATERIALS.
7. ALL AUXILIARY EQUIPMENT SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE REQUIREMENT OF THE PHILIPPINE ELECTRICAL CODE. GROUND RESISTANCE SHOULD NOT BE MORE THAN 2 OHMS. ADDITIONAL GROUND RODS SHALL BE PROVIDED IF GROUND RESISTANCE EXCEEDS 2 OHMS.
8. INSIDE DISTRIBUTION FRAMES IT SHALL HAVE SEPARATE GROUNDING BUSBARS.
9. FOR TELEPHONE COMMUNICATION SYSTEM USED 0.65MMø/8C CATEGORY 6 OR CATEGORY 5E WIRES DISTRIBUTION. TERMINAL SHALL BE QUICK-CONNECT TYPE.
10. MOUNTING HEIGHTS OF DEVICES SHALL BE AS APPROVED BY THE ARCHITECT AND/OR AS FOLLOWS (RJ-45 JACKS):
    TELECOM/DATA OUTLET_____300mm above finished floor to center of device
    150mm above working counter to center of device
11. MINIMUM SIZE FOR CONDUIT SHALL BE 15MM.DIA. STEEL CONDUIT OR 20mmø PVC MEASURED INSIDE OF THE CONDUIT ELECTRICAL TRADE SIZE. CONDUIT SHALL NOT BE BENDS NOT MORE THAN 3 TIMES, PROVIDE PULL BOX ON OR BEFORE FOUR QUARTER BENDS OF A CONDUIT IN ANY RUN. PULLBOX SHALL BE SIZE ACCORDING TO CODE REQUIREMENTS. CONTRACTOR MUST SUBMIT SHOP DRAWING FOR ENGINEER APPROVAL PRIOR TO FABRICATION.
12. CONDUIT SHALL BE SECURE AND PROTECTED BY ENTRANCE OF ANY FOREIGN OBJECT AND WATER DURING CONSTRUCTION STAGE. SPARE CONDUIT SHALL BE PROVIDED WITH PULLING WIRE. FOUR QUARTER BENDS OF A CONDUIT IN ANY RUN.
13. TELEPHONE TERMINAL CABINET (TTC) OR INTERMEDIATE DISTRIBUTION FRAME (IDF) SHALL SERVE TELEPHONE AND DATA OUTLET OR STATION WITH A MAXIMUM RANGE OF 90METERS.
14. COMMUNICATION SYSTEM WIRING, VOICE AND DATA SHALL BE SEPARATED FROM POWER WIRINGS. THIS IS TO PREVENT HUMMING AND ELECTROMAGNETIC INTERFERENCE (EMI) TO OR EXCEED THE EIA/TIA 568A CABLING STANDARD.
15. UPON COMPLETION OF TELCO/AUXILIARY WORKS THE CONTRACTOR SHALL DO THE FOLLOWING DETAILED TESTING WITNESS BY THE OWNER OR BY OWNER REPRESENTATIVE.
    A. SIGNAL ATENUATION TEST
    B. CONTINUITY TEST
    C. NEAR-END CROSSTALK TEST
    D. IMPEDANCE TEST
    E. RESISTANCE TEST
    F. WIRE MAP TEST



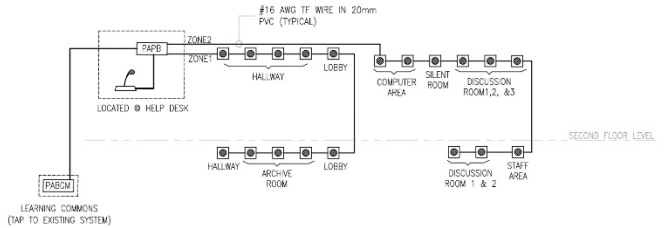
1 EA-LC-0101 **CCTV SYSTEM RISER DIAGRAM** SCALE NTS

LEGENDS & SYMBOLS FOR TEL/DATA	
▽	DATA OUTLET
▽DC	DATA OUTLET (DOOR CONTROLLER)
▽CCTV	DATA OUTLET (CCTV)
▽	DATA OUTLET (WALL MOUNTED)
▽	DATA OUTLET (FLOOR MOUNTED)
▼	COMBINATION OF DATA AND TELEPHONE OUTLET (WALL MOUNTED)
▼	COMBINATION OF DATA AND TELEPHONE OUTLET (FLOOR MOUNTED)
UPS	UNINTERRUPTIBLE POWER SUPPLY
IDF	INTERMEDIATE DISTRIBUTION FRAME
TTC	TELEPHONE TERMINAL CABINET
PABX	PRIVATE AUTOMATIC BRANCH EXCHANGE
PB	PULLBOX
LEGENDS & SYMBOLS FOR CCTV	
	DOME TYPE CAMERA – PoE
B	BULLET TYPE CAMERA – PoE
B WP	BULLET TYPE CAMERA (WEATHER PROOF) – PoE
CCTV	CCTV WORKSTATION
NVR	NETWORK VIDEO RECORDER
UPS	UNINTERRUPTIBLE POWER SUPPLY

LEGENDS & SYMBOLS FOR PABGM	
	CEILING MOUNTED SPEAKER(6W)
PABGM	PUBLIC ADDRESS AND BACKGROUND MUSIC MAIN PANEL
PAPB	PUBLIC ADDRESS PULLBOX
	MICROPHONE
RU/RD	RISER UP/ RISER DOWN

ZONE	DESCRIPTION
1	HALLWAY, LOBBY, & COMPACTOR AREA
2	COMPUTER ROOM, SILENT ROOM, & DISCUSSION ROOM

LEGENDS & SYMBOLS FOR FDAS	
S	SMOKE DETECTOR
H	HORN STROBE
F	MANUAL PULL STATION
V	FLOW SWITCH
M	TAMPER SWITCH
FACP	FIRE ALARM CONTROL PANEL
PB	PULLBOX



3 EA-LC-0101 **PABGM SYSTEM RISER DIAGRAM** SCALE NTS

CONSULTANT:
a.c.ong CONSULTING INC. Engineering + Management ISO 9001:2015 Certified
PREPARED BY: | DATE: | SIGNED:
CHECKED BY:
PROJECT ENGINEER

UNIVERSITY OF THE PHILIPPINES CEBU
OFFICE OF THE CAMPUS ARCHITECT

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PROFESSIONAL ELECTRONICS ENGINEER
PRC NO. 0001020
VALIDITY 6/18/2020
PTR NO. 8122619
DATE 01/06/2020
PLACE MAKATI CITY
TIN 303-240-743

PROJECT TITLE:
UNIVERSITY OF THE PHILIPPINES CEBU
LEARNING COMMONS EXTENSION (LOT - 2)
LAHUG, CEBU CITY

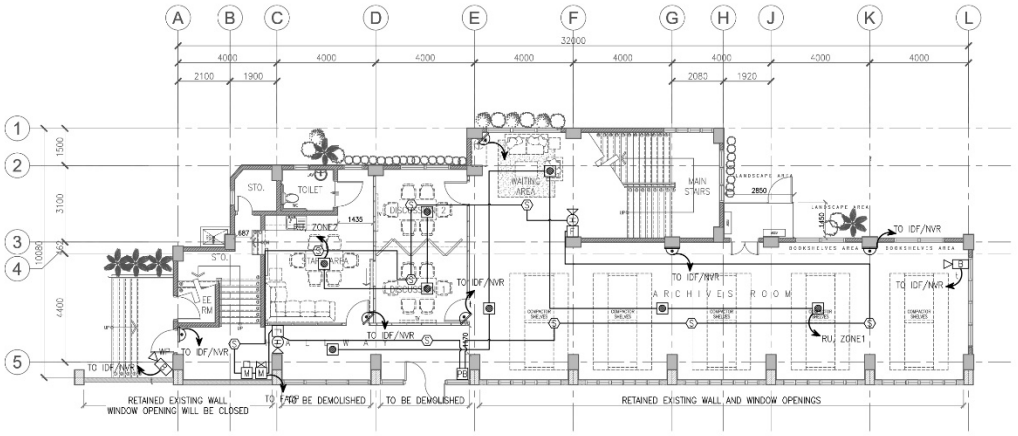
OWNER'S APPROVAL:
UNIVERSITY OF PHILIPPINES CEBU
ATTY. LUZ A. D. CORRO
CHANCELLOR, UP CEBU

DRAWN BY: EGJ
DATE: AUG 2020
CHECKED BY: RBN
DATE: AUG 2020
REVISED BY:
DATE:

SHEET CONTENTS: DRAWING INDEX, GENERAL NOTES, LEGEND, SYMBOLS, CCTV & PABGM SYS. RISER DIAGRAM

SHEET NO.: EA-LC 0101

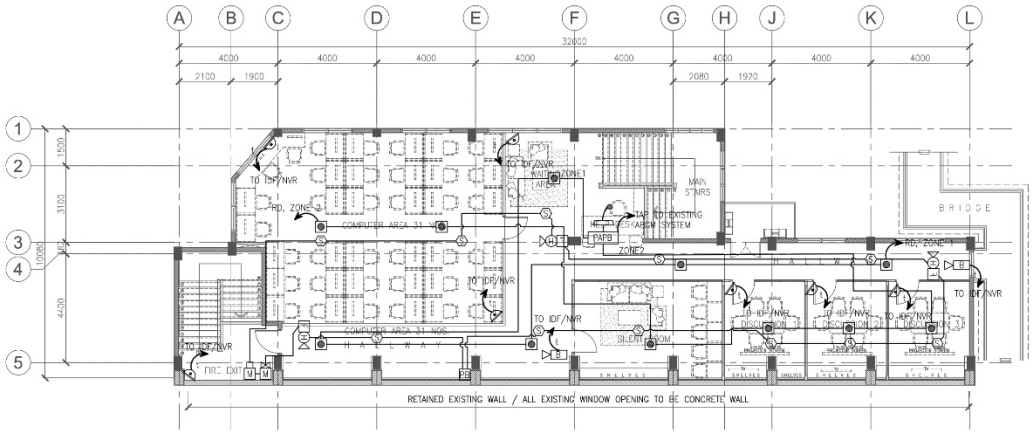
1 OF 5 SHEETS



LEARNING COMMONS EXTENSION

I EA-LC-0601 GROUND FLOOR FDAS, CCTV AND PABGM SYSTEM LAYOUT

SCALE 1:100M



LEARNING COMMONS EXTENSION

2 2A-LC-0602 SECOND FLOOR FDAS, CCTV AND PABGM SYSTEM LAYOUT

SCALE 1:100M

CONSULTANT:

a.CONG CONSULTING INC. Engineering + Management ISO 9001:2015 Certified

UNIVERSITY OF THE PHILIPPINES CEBU
OFFICE OF THE CAMPUS ARCHITECT

REPUBLIC ACT 9266: Article IV, Section 33

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CONSULTANT/ ENGINEER

RONALD B. NAVARRO
PROFESSIONAL ELECTRONICS ENGINEER

PRC NO.	0001090
VALIDITY	6/18/2019
PTR NO.	8122619
DATE	01/06/2020
PLACE	MAKATI CITY
TIN	305-246-245

PROJECT TITLE

UNIVERSITY OF THE PHILIPPINES CEBU
LEARNING COMMONS EXTENSION (LOT - 2)

LAHUG, CEBU CITY

OWNER'S APPROVAL:

UNIVERSITY OF PHILIPPINES CEBU

ATTY. LIZA D. CORRO
CHANCELLOR, UP CEBU

DRAWN BY:	LCJ
DATE:	AUG 2020
CHECKED BY:	RBN
DATE:	AUG 2020
REVISED BY:	
DATE:	

SHEET CONTENTS: GROUND FLOOR & SECOND FLOOR FDAS, CCTV AND PABGM SYSTEM LAYOUT

SHEET NO.: EA-LC 0601 — 4 OF 5 SHEETS

SCOPE OF WORKS FOR BLDG. SOLAR ENERGY SYSTEMS

25.03 kWp Solar PV Hybrid (230V) System-Engineering & Design, Supply, Installation and Commissioning Works with 36,000kWh deep cycle gel type BESS.

The scope and range of services (the "Services") that the Contractor shall render in regard to this engagement shall be as follows:

1. Site assessment, electric bill/load analysis and irradiation simulations to come up with the best solar pv design. Conduct a series of site visits for the verifications and finality of drawings and lay outs.

2. Shall provide necessary & complete system design including engineering plans and Layout such as:

    a. Single Line Diagrams
    b. Plant Lay out
    c. Solar PV Array Lay out
    d. Electrical Wiring Layout
    e. Electrical Earthing Lay out
    f. DC & AC Plans

    All engineering plans and design will be prepared by the Contractor. If the system is allowed for net-metering, then we will provide all necessary technical documents for permit applications needed by the local government and the distribution utility.

3. Procurement and importation of all necessary components for the mechanical and electrical works of the solar project from the best and leading suppliers/manufacturers, including solar panels, solar inverters, mounting systems, DC&AC grounding components, cloud monitoring devices, and Balance Of System (BOS) based on final electrical plan and layout. Procured materials will be delivered to a safe and secured site nominated by the client within their premises before and during the installations.

4. Project management execution of the project with high standards of safety and health and on time project completion.
    a. Furnish labor and supervision for the erection of Mechanical and Electrical works
    b. Hauling of materials from the ground level of project site up to the roof area
    c. Assembly of racking and frame, interconnection of panels and cabling
    d. Installation of PV panel array and interconnection of DC wiring
    e. Installation of PV modules, inverters and DC BOS
    f. Installation of solar equipment and accessories
    g. AC wiring and interconnection

5. Experienced Engineer in solar Installation will conduct the safety check and conduct of testing and commissioning activities. There will be site clearing and turn-over of the PV system completely address to the client once the system is ready for commercial run.

6. Instructions and training will be conducted on how to maintain the system properly to attain good output and ensure safe and productive operation of the Plant.

7. The contractor will do a three (3)-year no cost professional service contract doing monitoring of PV system which includes:

On Annual basis

- Actual area inspection of the Solar PV System's condition & performance.
- Generate Annual Generation & Performance report
- Provide a professional recommendation on how to *maintain high solar pv output*
- Propose any improvements over the life cycle of the solar PV system, as we anticipate ongoing technology advancements.
- solar PV system, as we anticipate ongoing technology advancements.

Project Components

Item	Particular
1	Solar PV modules, Solar Inverters & components
2	Battery Energy Storage System (BESS) & components
3	Solar PV Mounting (railings, brackets, clamps), Balance of Supply (DC/AC Wires, raceways, MCBs, Distribution box, grounding system, SPD etc.)
4	Project Management, Safety & Health, Equipment, Labor, Installation & Commissioning
5	Engineering Design, Documentation, Procurement & Logistics
	Note: 12% VAT INCLUSIVE No Charge 3 Year Professional Service Contract

SCOPE OF WARRANTY

The Contractor warrants that the equipment furnished for the Project will be of new and of good quality, and shall be provided with the following manufacturer's warranties for the following periods:

a) The solar panels are covered by a manufacturer's product warranty for a period of twelve (12) years from the date of purchase. If there are any product manufacturer's defects on the solar panel, the contractor will immediately make report in alignment with the client & communicate closely with OEM (Original Equipment Manufacturer) act based on the warranty clause (hard & softcopy will be given to the client) and will be taken care accordingly within the warranty period.

b) The solar panels are covered by a manufacturer's performance warranty for a period of twenty-five (25) years from the date of purchase. If there are any performance issues on the panel, the contractor will immediately make report in alignment with theclient & communicate closely with OEM (Original Equipment Manufacturer) act basedon the warranty clause (hard & softcopy will be given to the client) and will be taken care accordingly within the warranty period.

c) The inverters along with the software monitoring system that can be open on computer or through mobile application are covered with a manufacturer's warranty for a period of five (5) years from the date of purchase. If there are any issues on the inverters, the contractor will immediately make a report in alignment with the client & communicate closely with OEM (Original Equipment Manufacturer) act based on the warranty clause (hard & softcopy will be given to the client) and will be taken care accordingly within the warranty period. ***Note:*** A technical person (Philippines-based) will be available anytime we need technical assistance.

d) The Gel type Battery is covered by a manufacturer's warranty for a period of Three (3) years from the date of purchase.

e) The mounting system for the solar panels is covered with a manufacturer's warranty for a period of five (5) years from the date of commissioning. If there are any issues on the solar panel mounting, the contractor will immediately make report in alignment

with the client & communicate closely with OEM (Original Equipment Manufacturer) act based on the warranty clause (hard & softcopy will be given to the client) and will be taken care accordingly within the warranty period.

f) The Works pertaining to the installation are covered by a warranty for a period of One (1) year from the date of commissioning, which shall include any material defects pertaining to the labor and waterproofing on the Project Site ("Workmanship Warranty"). Provided, the Contractor shall not be held liable for any further damages beyond the actual Works, such as, but not limited to, damage caused by water seepage.

g) The Contractor agrees to an after sales professional service contract as stated on the scope of works (annually), free for the first three (3) years and will charge a justifiable/relatively small amount, monthly or yearly accordingly on the 4th to the end of Solar PV System's service.

h) As weather calamities such as typhoons and earthquakes occur, the contractor will do a thorough site survey and system audit to ensure the optimal performance of the systems.

ANNEX A
SITE IRRADIATION INFORMATION

Cebu City

10.322567°,123.898804°
Gorordo Avenue, Cebu City, Philippines
Time zone: UTC+08, Asia/Manila [PST]

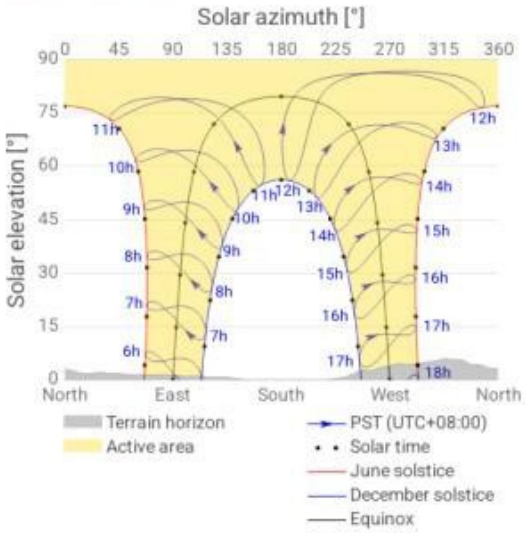
Report generated: 22 Feb 2022

SITE INFO

Map data		Per year	
Direct normal irradiation	DNI	**1444.2**	kWh/m²
Global horizontal irradiation	GHI	**1859.8**	kWh/m²
Diffuse horizontal irradiation	DIF	**827.8**	kWh/m²
Global tilted irradiation at optimum angle	GTI opta	**1882.6**	kWh/m²
Optimum tilt of PV modules	OPTA	**10 / 180**	°
Air temperature	TEMP	**28.3**	°C
Terrain elevation	ELE	**44**	m

Map

Horizon and sunpath



PVOUT map

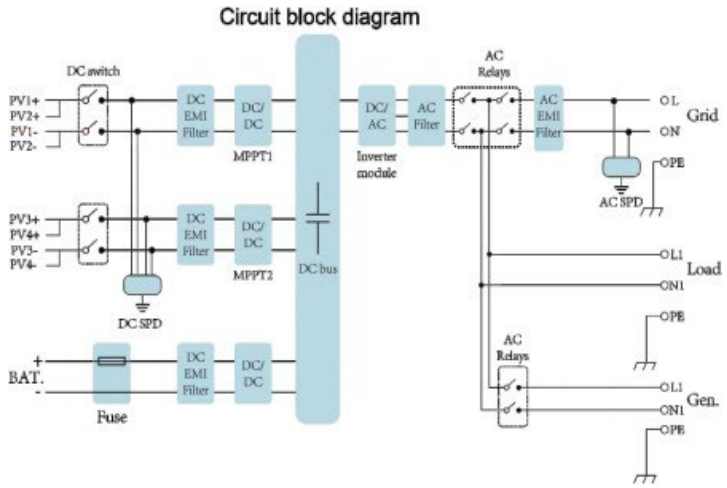
PROPOSED SCEHDULE

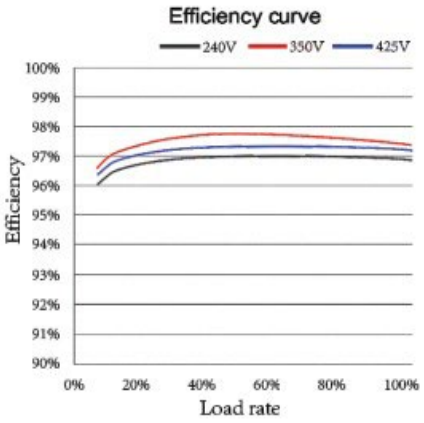
18.2 kWp SOLAR PV HYBRID SYSTEM

PROJECT TIMELINE

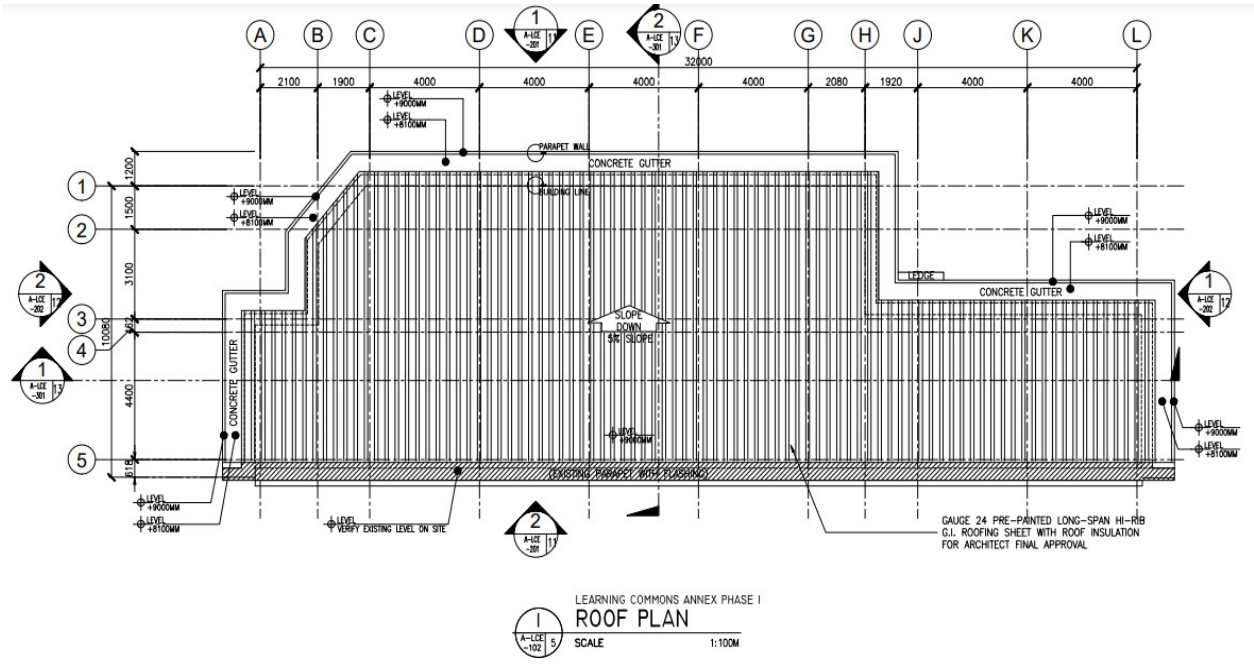
Start Week	Jun 15, 2022

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	Notes
Starting	Jun 15	Jun 22	Jun 29	Jul 6	Jul 13	Jul 20	Jul 27	Aug 3	Aug 10	Aug 17	Aug 24	Aug 31	Sep 7	
DISCUSSIONS														
CLOSING OF DEAL/PAYMENT														
IMPORTATION/PROCUREMENT														
MOBILIZATION TO SITE														
SITE PREPARATION														
SOLAR PV MAIN WORKS														
AC/DC WORKS														
TESTING & COMMISSIONING														
TRAINING FOR TURN OVER														

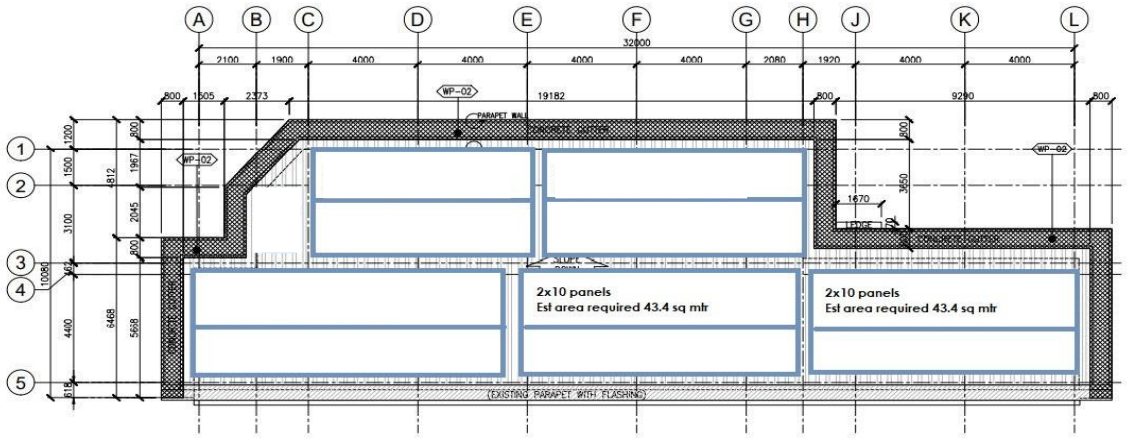




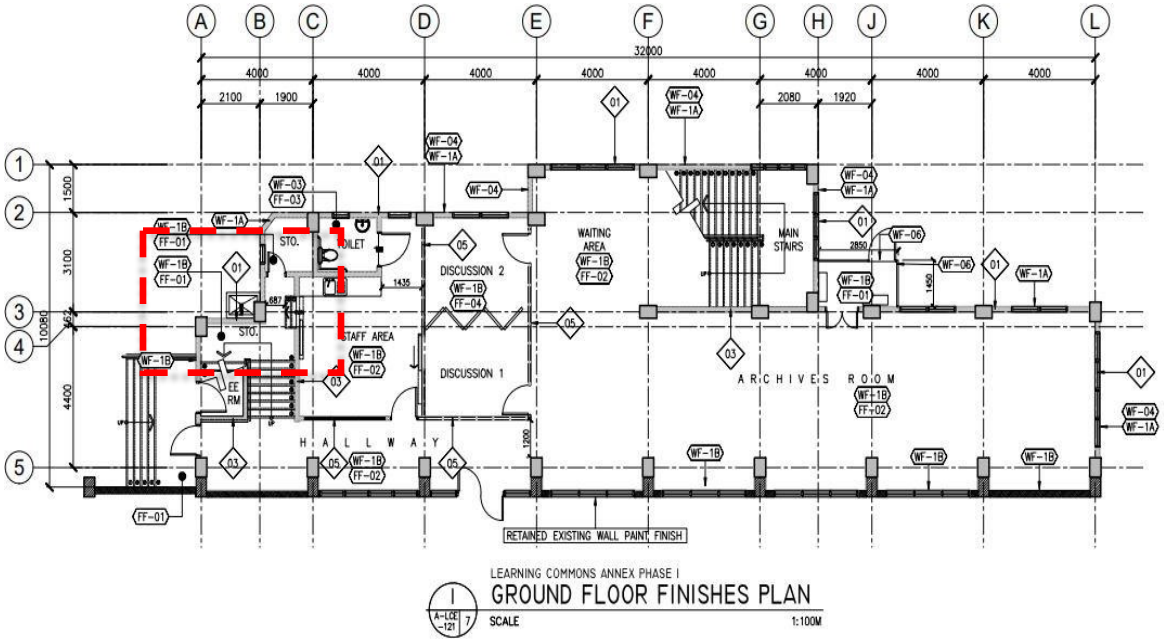
ANNEX D
Learning Commons Annex
Roof Plan, UP CEBU



Proposed Panel distribution (18.2 kWp)
Estimated Total Weight: 940 kgs (~40pcs)



Proposed Inverter & Battery Location



LEARNING COMMONS ANNEX PHASE I

I A-LCE-121 7

GROUND FLOOR FINISHES PLAN

SCALE 1:100M

PROJECT: **CONSTRUCTION OF LEARNING COMMONS ANNEX PHASE 2, BUILDING SOLAR ENERGY SYSTEM**
LOCATION: GORORDO AVE. LAHUG CEBU CITY

SUBJECT: **25.03 kWp Solar PV Hybrid (230V) System-Engineering & Design, Supply, Installation and Commissioning Works with 36,000kWh deep cycle gel type BESS.**

PROJECT COST

Item	Particular	Unit Price
1	Solar PV modules, Solar Inverters & components	**890,000.00**
2	Battery Energy Storage System (BESS) & components	**236,000.00**
3	Solar PV Mounting (railings, brackets, clamps), Balance of Supply (DC/AC Wires, raceways, MCBs, Distribution box, grounding system, SPD etc)	**449,714.29**
4	Project Management, Safety & Health, Equipment, Labor, Installation & Commissioning	**435,000.00**
5	Engineering Design, Documentation, Procurement & Logistics	**400,000.00**
	TOTAL	**2,410,714.29**
	12% VAT INCLUSIVE No Charge 3 Year Professional Service Contract	**289,285.71**
	TOTAL COST (VAT-INC)	**2,750,000.00**

Section IX. Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages);

or

☐ (b) Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document;

and

☐ (c) Mayor's or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas;

and

☐ (e) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

Technical Documents

☐ (f) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**

☐ (g) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules; **and**

☐ (h) Philippine Contractors Accreditation Board (PCAB) License;

or

Special PCAB License in case of Joint Ventures;

and registration for the type and cost of the contract to be bid; **and**

☐ (i) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;

or

Original copy of Notarized Bid Securing Declaration; **and**

(j) Project Requirements, which shall include the following:

☐ a. Organizational chart for the contract to be bid;

☐ b. List of contractor's key personnel (*e.g.*, Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data;

☐ c. List of contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be; **and**

☐ (k) Original duly signed Omnibus Sworn Statement (OSS);

and if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

☐ (l) The prospective bidder's audited financial statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission; **and**

☐ (m) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC).

Class "B" Documents

☐ (n) If applicable, duly signed joint venture agreement (JVA) in accordance with RA No. 4566 and its IRR in case the joint venture is already in existence;
or
duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

II. FINANCIAL COMPONENT ENVELOPE

☐ (o) Original of duly signed and accomplished Financial Bid Form; **and**

Other documentary requirements under RA No. 9184

☐ (p) Original of duly signed Bid Prices in the Bill of Quantities; **and**

☐ (q) Duly accomplished Detailed Estimates Form, including a summary shee indicating the unit prices of construction materials, labor rates, and equipmen rentals used in coming up with the Bid; **and**

☐ (r) Cash Flow by Quarter.

Omnibus Sworn Statement (Revised)

[shall be submitted with the Bid]

REPUBLIC OF THE PHILIPPINES)

CITY/MUNICIPALITY OF _____) S.S.

AFFIDAVIT

I, [Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with law, do hereby depose and state that:

1. *[Select one, delete the other:]*

   [If a sole proprietorship:] I am the sole proprietor or authorized representative of [Name of Bidder] with office address at [address of Bidder];

   [If a partnership, corporation, cooperative, or joint venture:] I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];

2. *[Select one, delete the other:]*

   [If a sole proprietorship:] As the owner and sole proprietor, or authorized representative of [Name of Bidder], I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney;

   [If a partnership, corporation, cooperative, or joint venture:] I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable;)];

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, **by itself or by relation, membership, association, affiliation, or controlling interest with another**

blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. [Select one, delete the rest:]

[If a sole proprietorship:] The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a partnership or cooperative:] None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a corporation or joint venture:] None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and

8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:

a. Carefully examining all of the Bidding Documents;
b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the*

Project].

9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

10. **In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.**

IN WITNESS WHEREOF, I have hereunto set my hand this __ day of ___, 20__ at _____, Philippines.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]

[Insert signatory's legal capacity]

Affiant

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

Bid Securing Declaration Form

[shall be submitted with the Bid if bidder opts to provide this form of bid security]

REPUBLIC OF THE PHILIPPINES)

CITY OF _____) S.S.

BID SECURING DECLARATION

Project Identification No.: ***[Insert number]***

To: *[Insert name and address of the Procuring Entity]*

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.
2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f),of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.
3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:
    a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
    b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right; and

c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this ____ day of *[month] [year]* at *[place of execution]*.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]

[Insert signatory's legal capacity]

Affiant

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]


Republic of the Philippines
gppb
Government Procurement Policy Board