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BIDDING DOCUMENTS
For the

**IMPROVEMENT OF
ELECTRICAL FEEDER
LINE, FDAS AND CCTV
SYSTEM OF THE MAIN
BUILDING, ATI CENTRAL
OFFICE**

**ITB-ATI-CO-2022-14
9 SEPTEMBER 2022**

Reference:

**Philippine Bidding Documents
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



Invitation to Bid for the Improvement of Electrical Feeder Line, FDAS and CCTV System of the Main Building, ATI Central Office

1. The *Agricultural Training Institute* through the *FY 2022 General Appropriations Act* (GAA) intends to apply the sum of **TWELVE MILLION PESOS ONLY (Php12,000,000.00)**, being the Approved Budget for the Contract (ABC) to payments under the contract for **IMPROVEMENT OF ELECTRICAL FEEDER LINE, FDAS AND CCTV SYSTEM OF THE MAIN BUILDING, ATI CENTRAL OFFICE (ITB NO. ITB-ATI-CO-2022-14)**. Bids received in excess of the ABC shall be automatically rejected at bid opening.
2. The *Agricultural Training Institute* now invites bids for the above Procurement Project. Completion of the Works is required **Ninety (90) Calendar Days**. Bidders should have completed a contract similar to the project within **five (5) years** from the date of submission and receipt of bids. 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 the *Agricultural Training Institute* and inspect the Bidding Documents at the address given below from **8:00am to 5:00pm**.
5. A complete set of Bidding Documents may be acquired by interested bidders on **September 10, 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 Twenty-Five Thousand Pesos (PhP 25,000.00)*. The Procuring Entity shall allow the bidder to present its proof of payment for the fees.
6. The *Agricultural Training Institute* will hold a Pre-Bid Conference on **September 19, 2022, 1:30pm** through videoconferencing/webcasting *via Google Meet* which shall be open to prospective bidders through this link: meet.google.com/fyy-rizj-put.
7. Bids must be duly received by the BAC Secretariat through (i) manual submission at the office address as indicated below on or before **October 3, 2022 at 1:00 pm at ATI BAC Secretariat Office located at the Basement**. 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 **October 3, 2022, 1:30 p.m.** at Board Room, ATI Main Building, Elliptical Road, Diliman, Quezon City and/or through Google Meet. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.
10. In compliance to the Memorandum of the Department of Agriculture (DA) dated December 18, 2020, the public, especially the prospective suppliers/service providers, is hereby informed that DA does not condone any form of solicitation on any prospective winning and losing bidders by any of our staff/employees or any other party. Any sort of this kind shall be reported immediately to the Office of the Secretary or the National Bureau of Investigation (NBI) for entrapment and proper investigation.
11. The **Agricultural Training Institute** 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.
12. For further information, please refer to:

KEMUEL M. BORRAMEO

Head, BAC Secretariat

Agricultural Training Institute

ATI Bldg. Elliptical Road, Diliman, Quezon City

Email address: *bacsec@ati.da.gov.ph*

Telephone No. 632-8929-8541 / 09190662853

www.ati.da.gov.ph

13. You may visit the following websites:

For downloading of Bidding Documents: <https://ati2.da.gov.ph/ati-main/content/bids>

September 10, 2022



EDITHA S. VINUYA
BAC Chairperson

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, *Agricultural Training Institute* invites Bids for the **Improvement of Electrical Feeder Line, FDAS and CCTV System of the Main Building, ATI Central Office** with Project Identification Number *ITB-ATI-CO-2022-14*.

The Procurement Project (referred to herein as “Project”) is for the **Improvement of Electrical Feeder Line, FDAS and CCTV System of the Main Building, ATI Central Office**, as described in Section VI (Specifications).

2. Funding Information

2.1. The GOP through the source of funding as indicated below for 2021 in the amount of **Twelve Million Pesos Only (PhP12,000,000.00)**

2.2. The source of funding is:

a. the General Appropriations Act.

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 “P” 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:

- a. 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 Bidder must submit together with its Bid the documentary requirements of the subcontractor(s) complying with the eligibility criteria stated in **ITB** Clause 5 in accordance with Section 23.4 of the 2016 revised IRR of RA No. 9184 pursuant to Section 23.1 thereof.
 - 7.2. 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.

- 7.3. 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 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 tradeable 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:*

- a. 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 120 Calendar Days. 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

Bid Data Sheet

ITB Clause																																																																													
5.2	For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be: <i>Electrical Feeder Line, FDAS and CCTV System</i>																																																																												
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10.4	<p>The key personnel must meet the required minimum years of experience set below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Key Personnel</u></th> <th style="text-align: center;"><u>General Experience</u></th> <th style="text-align: center;"><u>Relevant Experience</u></th> </tr> </thead> <tbody> <tr> <td>Project Manager</td> <td style="text-align: center;">15 years</td> <td style="text-align: center;">15 years</td> </tr> <tr> <td>Project Engineer</td> <td style="text-align: center;">10 years</td> <td style="text-align: center;">10 years</td> </tr> <tr> <td>Material Engineer</td> <td style="text-align: center;">5 years</td> <td style="text-align: center;">5 years</td> </tr> <tr> <td>Foreman</td> <td style="text-align: center;">10 years</td> <td style="text-align: center;">5 years</td> </tr> <tr> <td>Construction safety</td> <td></td> <td></td> </tr> <tr> <td>Health</td> <td style="text-align: center;">5 years</td> <td style="text-align: center;">5 years</td> </tr> <tr> <td>Skilled</td> <td style="text-align: center;">2 years</td> <td style="text-align: center;">2 years</td> </tr> <tr> <td>Electrician</td> <td style="text-align: center;">5 years</td> <td style="text-align: center;">5 years</td> </tr> <tr> <td>Helper</td> <td style="text-align: center;">1 year</td> <td style="text-align: center;">1 year</td> </tr> </tbody> </table>	<u>Key Personnel</u>	<u>General Experience</u>	<u>Relevant Experience</u>	Project Manager	15 years	15 years	Project Engineer	10 years	10 years	Material Engineer	5 years	5 years	Foreman	10 years	5 years	Construction safety			Health	5 years	5 years	Skilled	2 years	2 years	Electrician	5 years	5 years	Helper	1 year	1 year																																														
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15.1	<p>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:</p> <p>a. The amount of not less than Two Hundred Forty Thousand Pesos (PhP240,000.00) (2%) of ABC, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;</p> <p>b. The amount of not less than Six Hundred Thousand Pesos (PhP600,000.00) (5%) of ABC if bid security is in Surety Bond.</p>
19.2	Partial bids are not allowed
20	<i>Tree cutting permit from DENR; Building Permit; Mechanical Permit; Sanitary Permit</i>
21	Additional contract documents relevant to the Project that may be required by existing laws and/or the Procuring Entity, such as construction schedule and S-curve, manpower schedule, construction methods, equipment utilization schedule, construction safety and health program approved by the DOLE, and other acceptable tools of project scheduling.

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**

4.1. 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.

4.2. 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 RA 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

Special Conditions of Contract

GCC Clause	
2	The Intended Completion Date is: <u>Ninety (90) calendar days.</u>
4.1	<i>Within seven (7) days after issuance of Notice to Proceed.</i>
6	The site investigation reports are: <i>Certificate Site Inspection issued by authorized representative of the Procuring Entity</i>
7.2	<i>Duration of warranty is for Fifteen (15) years.</i>
10	a. Dayworks are applicable at the rate shown in the Contractor's original Bid.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative within <i>seven (7) days</i> of delivery of the Notice of Award.
11.2	The amount to be withheld for late submission of an updated Program of Work is 1% of the contract price.
13	The amount of the advance payment is <i>amount as percentage of the contract price that shall not exceed 15% of the total contract price and schedule of payment.</i>
14	Materials and equipment delivered on the site but not completely put in place shall be included for payment.
15.1	The date by which operating and maintenance manuals are required before issuance of final payment. The date by which "as built" drawings are required before issuance of final payment.

Section VI. Specifications

SPECIFICATION

I. GENERAL REQUIREMENTS

SECTION 1.1 Summary of Works

This includes the furnishing of all materials, labors, tools and equipment and the performance of all operations necessary for the **Proposed Improvement of Electrical Feeder Line, FDAS and CCTV System of ATI-Main Building at ATI Central Office**, all in accordance with the plans and specifications, and subject to the terms and conditions of the contract documents.

SECTION 1.2 Mobilization and Mobilization

The contractor upon receipt of the Notice to Proceed shall immediately mobilize and transport his equipment, materials and employees to the site within (7) calendar days and demobilize or remove the same at the completion of the project.

SECTION 1.3 Contractor's Facilities & Utilities

1.3a Field Office

During the performance of the contract, the Contractor shall construct and maintain a field office and facilities at the site of the work at which he or his authorized agent shall be holding office at all times, while the work is in progress. The dimension of the Field Office including its storage should be at least thirty **(30) square meters** and should be located at old tennis court of the ATI. This Field Office and Storage will be turn over to ATI after completion of the project

The contractor shall be responsible for the maintenance and protection of all facilities to be provided during the entire duration of the Contract including provision of adequate stock of all expendable items, such as light bulbs, light tubes, equipment and supplies, etc. at all times to ensure proper and continuous functioning of all the facilities.

Construction shanties, sheds and temporary facilities provided as required for the Contractor's convenience shall be maintained in good condition and neat appearance including finishes as required by the ATI Representative.

1.3b Temporary light and power

The Contractor shall provide and maintain temporary electrical services including installation of temporary power & lighting within the construction site. The electrical services shall be adequate in capacity to supply power to construction tools and equipment without overloading the temporary facilities and shall be made available to supply power, lighting and construction operation of all trades. All temporary equipment and wiring for power and lighting shall be in accordance with the applicable

provisions of the local governing codes. At the completion of the construction works all temporary wiring, lighting, equipment and devices shall be removed.

1.3c Temporary toilet

The contractor shall provide (if not available) and maintain in sanitary condition enclosed toilet for the use of all construction personnel located within the contract limits, complete fixtures, water and sewer connections and appurtenance.

1.3d Temporary water supply

The contractor shall provide and maintain water supply service, complete with necessary connections and appurtenances. Installed water supply shall be used as a source of water for construction purposes subject to the approval of the ATI Representative/Engineer/Architect.

1.3e Project Identification and Signage

The contractor shall provide and maintain a tarpaulin signboard which must be suitably framed for outdoor display at the project location and shall be posted as soon the award has been made.

1.3f First Aid

The contractor shall provide and maintain first aid kits available at the on-site office. Location of the kit must be accessible. The contractor shall have a trained and knowledgeable employee giving first aid to workers.

1.3g Disposal area

The proposed location of the disposal area shall be at the site designated by the ATI Representative. It is the responsibility of the contractor to dispose of all off site construction debris and consider in the preparation of his proposal.

SECTION 1.4

Temporary works & Services

1.4a Security

Efficient watchmen shall be provided for watching over the site and on the works from the theft, day and night. Temporary lighting shall be provided to light up hoarding and scaffoldings. Erect a complete fence around the perimeter of construction sites to shield from view and prevent unauthorized access.

1.4b Screens

Where works are carried out in or adjacent to existing buildings, protection shall be provided against the spread of dust and other nuisance by means of dust sheets, tarpaulins, boards and the like.

Safety screen net & scaffolding should protect/prevent people from falling down, or to avoid hurting people on property from falling debris from on-going construction.

1.4c **Scaffolding**

All scaffolding, screens, covering, screen framings and the like shall be properly constructed, wedged, braced, secured and maintained in accordance with the best local practice. All materials shall be of good quality and of adequate strength and stability to carry the loads to be sustained.

Metal scaffold system shall be a scaffold system constructed, as required, with working platform adequately supported and other ancillary members including guardrails, toe boards, access ladders, **slope catch-fans**, safety screen, anchors, support brackets, foundation and the like; and all the structural members of the scaffolding system shall be metal.

The scaffold system shall provide a suitable and sufficient safe means of access and workplace for carrying out work which cannot be conveniently executed from the ground or from a floor in a building, or from a ladder, etc...

The scaffold system shall be used for all construction, alteration, repair and maintenance works. Unless otherwise specified, other alternative scaffolding may be used for screening purposes.

The contractor shall be responsible for the design, planning and coordination, transportation, fabrication, erection, maintenance alteration and dismantling of the scaffold system.

Scaffolding shall be inspected on a regular basis, with submission of inspection form and certification by the component and qualified person as per the statutory requirements.

SECTION 1.5 **Coordination**

1.5a **Supervision**

- ☐ The contractor must employ only **competent and efficient key personnel** experienced in their specialization.

All personnel/laborers shall wear **proper uniform and ID when** entering and within ATI premises.

1.5b **Construction Safety and Health / Safety Management**

The contractor shall put up and continuously maintain **adequate safety measures** that shall prevent undue loss, damages and injury of workers, or loss of properties.

Sufficient safety helmets, rubber boots, safety shoes, safety belt/harness, lifeline, umbrella, protective and waterproof clothing, personal protective devices such as ear muffers and glasses and other safety equipment necessary by reason of hazardous work process or environment, chemical or radiological or other mechanical irritants of hazard capable causing injury or impairment in the function of any part of the body through absorption, inhalation or physical agent shall be provided by the contractor for the use of workers, the ATI representatives and other authorized persons visiting the site.

1.5c **Parking and loading/unloading**

Availability, locations and time of use of parking and loading/unloading shall be agreed with and approved by the ATI representatives.

SECTION 1.6

Regulatory and Other Requirements

1.6a Other Requirements

All requirements described in detail in the General Requirements shall be provided and shall be the sole responsibility of the Contractor in the execution of the work. These are, among others:

- a. Permits and Fees
- b. Materials Testing
- c. Project / Technical Meetings and Conferences

The Contractor and others working under his jurisdiction shall perform work in compliance with the rules and regulations and ordinances of any kind required by the governmental authority or other agency having jurisdiction over his work.

1.6b Project / Technical Meetings

☐ Pre-Construction Conferences

A pre-construction meeting between the Implementing Office, or ATI representatives, and the Contractor shall be held at the site prior to the commencement of works.

The meeting shall be for the purpose of:

1. Resolving current problems;
2. Further orienting the contractor to the requirements of the Drawings and Specifications;
3. Working out with the contractor a general schedule of supervision.

☐ Progress Meeting

The contractor shall meet with the Implementing Office weekly or as required to verify the progress of the work.

1.6c Progress Report

The Contractor shall prepare and submit progress reports to the Implementing Office every **30 days (1 month)** after the start of the project up to its completion, showing the work completed, work remaining to be done, status of construction equipment and materials at the site.

1.6d Survey Data

The Contractor shall layout his work from established based lines and benchmark indicated in the drawing and shall be responsible for all measurement in connection

therewith. The Contractor shall furnish, at his own expense, all stakes, templates, platforms, equipment, tools, materials and labor as may be required in laying out any part of the work, out of established based lines and bench marks. It shall be the responsibility of the Contractor to maintain and preserve all stakes and other marks until he is authorized to remove them.

1.6e **Cleaning-up**

The Contractor shall at all times keep the construction area including storage area used by him free from accumulations of waste materials or rubbish. Upon completion of the construction, the Contractor shall leave the work and premises in clean, neat workmanlike conditions satisfactory to the Implementing Office or its representative.

Demobilization

1.6g **Documents to be submitted**

☐ **Construction Schedule**

The Contractor shall contact the Implementing Office before covering up any work so that proper inspection may be made.

☐ **Network Analysis Schedules**

The Contractor shall prepare a PERT-CPM Construction Schedule to indicate the following:

- a. All activities necessary to complete the project;
- b. Monthly value of each activity.

☐ **Close-Out Report**

Upon completion of the works the Contractor shall furnish ATI (Agricultural Training Institute) the required Close-Out Report shall be as prerequisite for the processing of the final payment.

The Close-Out Report shall include, but not limited to, the following:

- a. "As-Built" Plans – three (3) copies in print (A1-size) and CD for AutoCAD file;

The "As-Built" Plans shall reflect all pertinent information, complete in all aspects of the actual installation, and all new information not originally shown in the contract drawings.

- b. Material Book containing Materials Sample Approval Form, and list of all materials used, with corresponding pictures and description;

Provide Table of Contents neatly typed, in complete and orderly sequence. Include complete information for each of the following:

- ☐ Product or work item;
 - ☐ Firm, with name of principal, address, and telephone number;
 - ☐ Scope;

- ☐ Date of beginning of warranty or service and maintenance contract;
 - ☐ Duration of warranty or service maintenance contract;
 - ☐ Proper procedure in case of failure;
 - ☐ Instances which might affect validity of warranty or bond; and
 - ☐ Contractor, name or responsible principal, address, and telephone number.
- c. Copy of equipment and material brochures;
 - d. Pictures of Work Progress (in print and in CD for electronic copy)
 - e. Report of the result of all conducted test
 - f. Daily Log book

II. EARTH AND SITE WORKS

SECTION 2.1

Clearing and Grubbing

2.1a General

Consist of clearing, grubbing, removing and disposing all vegetation and debris as designated in the contract, except those objects that are designated to remain in place or are to be removed in consonance with other provisions of this specification.

All surface objects and all trees, stumps, roots and other protruding obstructions, not designated to remain, shall be cleared and/or grubbed, including mowing as required.

SECTION 2.2

Removal of Structure and Obstruction

2.2a General

Consist of the removal wholly or in part, and satisfactory disposal of all buildings, fences, structures, old pavements, abandoned pipelines, and any other obstructions which are not designated or permitted to remain, except for the obstruction to be removed and disposed off under other items in the contract.

2.2b Protection

- a. Barricades: Furnish and install any necessary barricades to protect the public or workmen during demolition and dismantling of each structure or part thereof. Barricades to keep the public out of demolition areas shall be left in place until removed by the Contractor after they are no longer required for protection.
- b. Sidewalk overhead protection: The contractor must provide overhead protection around the building, while work is occurring, to protect pedestrians from falling debris.
- c. Warning Signs: Provide necessary warning signs and lights.

2.2c Execution

1. Demolish and dismantle structures into sections and dispose of them properly and promptly at designated areas or as directed.
2. Avoid accumulation of dismantled materials and work demolished on area that will create heavy load to carry to any structure members.
3. Care should be taken to protect and maintain all materials and other existing parts such as walls and utilities like conduits, drains, sewers, pipe and wires that are to remain in place. Any damage done in the performance of the work shall be replaced and corrected at the expense of the Contractor.
4. Execute demolition and dismantling works in an orderly manner with due consideration to neighbors and public.
5. All usable materials taken from the demolition shall be turned over to the Implementing Office.

☐ Structure(s) to be retained

Parts of existing structure(s) which are to be kept in place shall be adequately protected.

Debris shall not overload any part of the structure which is not to be demolished.

☐ Partly demolished structure(s)

Partly demolished structure(s) shall be kept in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrollable collapse. Debris shall not overhead scaffolding platforms. Access of unauthorized persons to partly demolished structure(s) shall be prevented. Partly demolished structures shall be left safe outside working hours.

☐ Clean up

1. Remove from the project site all rubbish and debris found thereon and all materials and debris resulting from dismantling and demolition.
2. Leave the site in safe and clean condition.

SECTION 2.3

Earthworks & Site Preparation

2.3a General

Scope

Consist of furnishing all labor, materials, equipment, plant and other facilities and the satisfactory performance of all work necessary to complete dismantling, clearing, stripping and all site preparation as indicated on drawing and specification.

2.3b Protection

- ☐ Workmen
Provide adequate measures to protect workmen and the public on site.
- ☐ Surrounding Area
Protect other structures from damage, and repair damage caused by this work at no additional cost to ATI.
- ☐ Utilities Lines
Existing utility lines indicated or location of which are made known to the Contractor prior to execution of works, and that which area indicated to be retained, as well as utility lines constructed during operations, shall be protected from damage during the execution of work, and if damaged, shall be repaired at no extra cost. Site survey shall be conducted by the Contractor to acquaint with the existing utility line. Proper measures shall be taken and immediate information forwarded to the Implementing Office when utility lines are encountered within the area of operation.
- ☐ Survey and Grades
The drawings indicated layout of existing building components. Contractors shall be responsible for verifying the actual and the proposed setting in complete conformity with the drawings.
- ☐ Disposal of Cleared Materials
Dismantled refuse materials resulting from the clearing operations shall be disposed of by removing from the site at the Contractor's expense. Materials shall be disposed outside the perimeters of the project site.
- ☐ Dismantled Materials
Shall be stored above the ground upon flat forms, skids, or other supports. It shall be kept free from dirt, grease or other foreign matter, and shall be covered to protect against damages.

SECTION 2.4 Earthworks

2.4a **General**

- ☐ Scope
This work consists of furnishing all materials, labor, equipment and the performances of all operations in connection with the excavation, filling and backfilling and compaction complete in accordance with the drawings and specifications stated herein. Also include trenching and backfilling for underground sanitary lines.

Earthworks consist of excavation, backfilling and disposal of surplus materials. Work of this section includes all measures and materials required to complete the design supply, support, use, construction removal of earthworks

- ☐ Protection

a. Existing Structures

Protect existing buildings, streets and other structures, which are indicated to remain, from damage and repair damage caused by this work at no additional cost to the ATI.

b. Utility Lines

Where utility lines are encountered within the area of operations, the Contractor shall notify the Implementing Office in ample time for the necessary measures to be taken to avoid interruption of the service.

2.4b **Materials**

- ☐ Barrow materials shall be selected, laboratory approved materials obtained from off-site sources and having a 3.5 percent liquid limit, and 4 to 12 percent plasticity index.
- ☐ Granular fill to form a capillary water barrier shall be clean, crushed non-uniformly graded and of a size which will pass 25 millimeter mesh screen and be retained on a No. 4 mesh screen.
- ☐ Excavated materials approved for use as backfill shall be free of fibers, vegetables or organics materials, boulders, large rocks or pockets, lumps or other concentration of silt, debris, or cinders.
- ☐ No fill materials shall be placed when free water is standing in the area where fill is to be placed.

2.4c **Execution**

☐ Preparation

a. Stakes and Batter Board

- ☐ Stake out the building accurately and establish grades. Secure the approval of the Implementing office and/or ATI.
- ☐ Erect batter boards and reference marks where they will not be disturbed during construction.
- ☐ Store the materials and conduct work in such a manner as to preserve all reference marks.
- ☐ Re-establishment of lines and grades where necessary shall be done at Contractor's expense.

b. Rough Grading

- ☐ Cut and fill and grade the site area
- ☐ Deposit materials in horizontal layers not exceeding 0.20 meters (8 inches) in depth and compact 95 of maximum density.

☐ Excavation

a. Foundations

- ☐ Excavate to grade indicated
- ☐ Excavate trenches to a neat size, leveled to line at the bottom ready to receive the foundation.

☐ Dewatering

- ☐ Water encountered during the excavation shall be removed by pail or pump; care being taken that the surrounding particles of soil are not disturbed or removed.
- ☐ Pump water out of excavated areas throughout the construction
- ☐ Trenching for Sub-Drainage
Excavated trenches for underground utility system and drain lines. Grade and tamp to provide firm bed trenches for drain line
- ☐ Soil Compaction
All existing earth within the building lines that has been disturbed should be placed in 15 centimeters layers and compacted 95% of maximum density required for fill.
- ☐ Disposal of Excavated Materials
Surplus materials resulting from the site excavating and grading operations shall be removed from the site and disposed off in a proper manner if not needed.
- ☐ Backfilling and Grading
 - a. Backfilling
 - ☐ Commence after approval of construction below finish grade, underground utility systems inspected and tested, forms removed and the excavation cleaned of trash and debris.
 - ☐ Place in layers not more than 15 centimeters thick and evenly compact and ram by wetting, tamping or rolling until the correct grade.
 - b. Finish Grade
 - ☐ Place filling materials in horizontal loose layers not exceeding 15 centimeters in thickness and spread, mix and place in such a manner as to produce a uniform thickness of material.
 - ☐ Start in the deepest area and progress approximately parallel to finished grade.
 - ☐ Grade finish surface to drain water from the building.

III. CONCRETE FORMWORKS

SECTION 3.1

General

3.1a Scope

This work includes furnishing all labor, materials, equipment and satisfactory performance of all operations necessary to complete setting of all concrete formworks and other related works in accordance with the Contract Document.

3.1b Protection

Provide forms that will produce correctly aligned concrete.

Choice of fitting shall be done correctly.

Support of forms shall be rigid and extra care must be exercised in considering weight and side pressure.

SECTION 3.2

Materials

3.2a Product

☐ Form Lumber

Shall be stress graded or merchantable; shall be non-staining species and dressed on concrete forming side if to be for exposed surfaces.

☐ Phenolic board

Shall be commercial standard, moisture resistant, at least 12mm thk.

☐ Form Oil

Use colorless mineral oil, required viscosity is equal to 70 second but not more than 110 seconds at 38C.

☐ Shoring & scaffolding

Shall be at least galvanized iron 2” dia. shed 40.

SECTION 3.3

Execution

3.3a **Construction of Form**

Formworks shall have adequate cleanest opening to permit inspection and cleaning. Joints shall be located at the junction of formwork panels where feasible. Formworks joints shall be solidly backed and leak proof. Form surface on concrete side shall be given one coat of form oil after fabrication or cleaning and second coat just prior to rebar placing. Excess oil shall be wiped off. Form oil shall be kept off from the reinforcement and embedded items. Forms shall be properly maintained throughout the concrete works to accommodate rate and methods of placing concrete; to support load of wet concrete, and vertical, horizontal and impact loads during construction, and to minimize abnormal deflections during and after concrete placement. Forms shall be provided with positive means of adjustment to permit realignment or readjustment of shores.

3.3b **Removal of Forms**

- ☐ Forms shall not be removed without the consent of the Engineer/Architect of the Implementing Office. Blocks and bracing shall not be removed at the time the forms are removed and in no case shall any portion of wood forms be left in the concrete.
- ☐ Forms shall be removed in manned and sequences to ensure complete safety of structure, and without damage to concrete surfaces. Forms and shoring shall not be removed until concrete is adequately set and strong enough to withstand anticipated loadings.

☐ Time of Removal

Part of Structure	Minimum Time
Sides of beams, walls and columns	1 day
Suspended Slab	14 days
Beams or Girder Soffit	14 days

IV. CONCRETE AND REINFORCED CONCRETE

SECTION 4.1

General

4.1a Scope

This work includes the furnishing, bending, placing and finishing concrete in accordance with the plans and specifications.

Unless otherwise specified herein, concrete works shall conform to the requirements of the ACI Building Code. Full cooperation shall be given to other trades to install embedded items. Provisions shall be made for setting items not placed in the forms. Before concrete is placed, embedded items shall have been inspected and tested for concrete aggregates and other materials shall have been done.

SECTION 4.2

Materials

4.2a Products

☐ Portland Cement

Cement for the concrete shall conform to the requirements of specifications for Portland Cement (ASTM C-150, Type I) by Union, Republic, Pacific Cement only

☐ Water

Water used in mixing concrete shall be clean and free from other injurious amounts of oils, acids, alkaline, organic materials or other substances that may be deleterious to concrete or steel.

☐ Fine Aggregates/ Sand

Fine Aggregates/Sand shall consist of hard, tough, durable, uncoated, and clean particles, or S-1. The shape of the particles shall be generally rounded or cubicle and reasonably free from flat or elongated particles. The stipulated percentages of fines in the sand shall be obtained either by the processing of natural sand or by the production of a suitably graded manufactured sand. Signs of more than 10% soil content for every delivery shall be rejected.

☐ Fine Aggregates/Gravel

Coarse Aggregates shall consist of WASHED AGGREGATES. Coarse aggregates shall consist of hard, tough, durable, clean particles. The size of coarse aggregates to be used in the various parts of the work shall be ¾" for all concreting work.

☐ Reinforcing Steel Bar

Reinforcing Bars shall conform to the requirements of the ASTM standard specifications ASTM-1562-2T, for Billet Steel Bars for concrete reinforcement (A15-625) and to specifications for minimum requirements for the deformed steel bars for concrete reinforcement (A 305-56). For passing and acceptable standard of structural steel.

Reinforcing steel bars to be used shall bear the distinctive markings identify-ing the manufacturer by their initials, bar size number, including the type of steel such as:

N	= for Billet
A	= for Axial

R	= for rail steel
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Reinforcing bar shall have structural steel grade, as follows;

- 10mm in diameter & below - A36, F's 32KSI
- 12 - 16mm in diameter - A441, F's 40KSI
- 20mm in diameter & above - A572, F's 60KSI

☐ Other Materials

Provide other materials, not specified described but required for the complete and proper installation, as selected by the contractor subject to the approval of the Implementing Office.

4.2b **Proportioning and Mixing of Concrete**

Proportion

Proportions of all materials entering into the concrete shall be as follows:

MIX	CEMENT	SAND	GRAVEL
Class AA	1	1-1/2	3
Class A	1	2	4
Class B	1	2-1/2	5
Class C	1	3	6

Design of Concrete

Unless otherwise specified / indicated in the plans, concrete mix shall be Class A, and shall have 28-days strength of 3000psi, for all concrete work (with “fly ash” additive).

Structure	Concrete Design
Cast against earth	3000 PSI
Foundation / Footing tie beam	3000 PSI
Slab on fill	3000 PSI
Suspended Slab	4000 PSI
Beams and Girder	4000 PSI
Column	4000 PSI

☐ Mixing

Concrete shall be machine mix. Mixing shall begin 30 minutes after the cement has been added to the aggregates. In the absence of the concrete mixer, manual mixing is allowed, provided sampling shall be done 3 days before pouring (to attain the good result).

SECTION 4.3

Execution

4.3a Placing of Reinforcement

Steel reinforcement shall be provided as indicated, together with all necessary wire ties, chairs, spacers, supports and other devices necessary to install and secure the reinforcement properly. All reinforcement, when placed, shall be free from loose, flaky rust and scale, oil, grease, clay, and other coating and foreign substances that would reduce or reduce its bond with concrete.

Bar Spacing

□

The ACI Code on bar spacing specifically provides that:

- ☐ The minimum clear distances between the adjacent steel bars shall not be less than the normal diameter of the bars or 25 mm for column. This requirement was increased to 1-1/2 bar diameter or 4 centimeters.
- ☐ Where beam reinforcement is placed in 2 or more layers, the clear distance between layers must not be less than 25 mm or 1 inch and the bars in the upper layer should be placed directly above those in the bottom layers.
- ☐ In walls and slabs, other than the concrete joist construction, the principal reinforcement shall be spaced not farther apart than three times the wall or slab thickness nor more than 45 cm.
- ☐ Shrinkage and temperature reinforcement shall not be placed farther apart than 5 times the slab thickness nor more than 45 cm.

Minimum covering of bars

For concrete slabs permanently in contact with the earth	-75mm min; 80mm max
Exposed to earth or weather	
Not exposed to weather nor in contact with the ground	- 40mm min; 50mm max
Slab, walls, and joist	- 20 mm min; 40mm max
Beams, girders, and columns	- 40mm min

Refer to the structural schedule of reinforcements and slabs.

As a rule, the ground floor concrete slab shall be reinforced with 10 mm - de-formed bars spaced at 400 mm on center both ways. It shall be connected to the walls with 10 mm dowels spaced at 600 mm on center.

4.3b Conveying and Placing of Concrete

☐ Conveying Concrete

Concrete shall be conveyed from mixer to form as rapidly as practicable by methods, which will prevent segregation, or loss of ingredients. There will be no vertical drop greater than 1.5 meters except where suitable equipment is provided to prevent segregation and where specifically authorized.

☐ Placing

Placing concrete shall be worked readily into the corners and angles of the forms and around all reinforcement and embedded items permitting the material to segregate. Concrete shall be deposited as close as possible to its final position in the forms so that flow within the mass does not exceed two (2) meters and consequent segregation is reduced to a minimum near forms or embedded items, or elsewhere as directed. The discharge shall be so controlled that the concrete may be effectively compacted into horizontal layers not exceeding 30 centimeters in depth within the maximum lateral movement specified.

☐ Time Interval between Mixing and Placing

Concrete shall be placed before the initial set has occurred and before it has contained its water content for more than 45 minutes.

☐ Consolidation of Concrete

Concrete shall be consolidated with the aid of mechanical vibrating equipment and supplemented by hand spading and tamping. Vibrators shall not be inserted into lower course that have commenced initial set; and reinforcement embedded in concrete beginning to set or already set shall not be disturbed by vibrators. Consolidation around major embedded parts shall be by hand spading, and tamping, and vibrators shall not be used.

☐ Placing Concrete

Through reinforcement in placing concrete through reinforcement, care shall be taken that no segregation of the coarse aggregate occurs. On the bottom of beams and slabs, where the congestion of steel near the form

☐ Concrete Vibrator

The contractor shall provide at least two (2) concrete vibrators always available on site.

4.3c **Curing of Concrete**

☐ General

All concrete shall be moist cured for a period not less than 7 consecutive days by an approved method or combination applicable to local conditions.

☐ Moist Curing

The surface of the concrete shall be kept continuously wet by covering with burlap, plastic, or other approved materials thoroughly saturated with water and covering wet spraying or intermittent hosing.

4.3d **Finishing**

☐ Concrete Slab on Fill

Shall be laid on a prepared foundation consisting of sub grade and granular fill with thickness equal to the thickness of overlaying slab except as otherwise indicated.

Pour water cement grout on back filled sand before pouring concrete on slab on fill.

4.3e **Pouring Permit Required**

All concrete pouring shall be approved by the Project Engineer. The Contractor must ac-complish the prescribed form indicating the details of the pouring, date, time, duration, list of manpower, engineer in charge, psi requirement, quantity and position of rebars, etc. Pouring permit must be approved by the Project Engineer before any pouring activity is made. No permit, no pouring.

SECTION 4.4 **Material Testing**

4.4a **Material Testing**

☐ Slump Test and Cylindrical Samples

Test shall be conducted before pouring of mixed concrete. Use standard slump mold, taken in 3 layers, rodded separately by 6mm rod 25 times. Slump should be within 15 cm (max) and 7.5 cm (min). Concrete samples in cylinders shall be taken for every batch of concrete mix (footings, columns, beams, and slabs) taken in three (3) samples each. Sampling shall be taken by trained engineers and subsequently cured and dried properly (in moist atmosphere at not more than 21°C to attain accurate results).

Test should be done at **14- and 28-days period**.

☐ Material Testing for Reinforcing Bar

All structural steel reinforcement shall be taken every batch of delivery and shall be subject to tensile strength by Government Testing Laboratories or from private testing laboratories (Geotechnics, etc.) accredited by the DPWH.

Steel bars must pass the standard test before any steel works shall be commenced.

All billings submitted by the Contractor for all civil works must be accompanied by a certificate of laboratory test for all structural steel, with passing mark.

V. STEEL / METAL WORKS

SECTION 5.1 **General**

5.1a **Scope**

The works consist of all materials and labor, tools and equipment, and all necessary services. This includes furnishing, fabricating, hauling, erecting, welding, and painting of all structural metals in accordance with this specification and in conformance of the approved plans.

5.1b **Shop Drawing**

Shop drawing shall be made in conformity with the best modern practice due regard speed and economy in fabrication and erection.

5.1c **Storage**

Shall be stored above the ground upon platforms, skids, or other supports. It shall be kept free from dirt, grease or other foreign matter, and shall be covered to protect from rain and other materials/liquids, which may cause rust and corrosion.

SECTION 5.2

Materials & Workmanship

5.2a General

Certified mill test report or certified report test made by fabricators in accordance with ASTM A6 and governing specifications shall constitute sufficient evidence of conformity with ASTM specification. Additionally, the fabricator shall, if requested, provide an affidavit stating that the structural steel furnished meets the requirements of the grade specified.

5.2b Product and Execution

- ☐ Certified mill test report or certified reports of tests made by the fabricators in accordance with ASTM A6 and the governing specifications shall constitute sufficient evidence of conformity with ATSM specifications. Additionally, the fabricator shall, if requested, provide an affidavit stating that the structural steel furnished meets the requirements of the grade specified.
- ☐ All materials shall conform to the requirement in the terms of size, mill test reports and quality test certificate issued by the materials testing laboratories accredited by the Bureau of Standards and the DPWH.
- ☐ Welds shall be made only by welders and tackers who have been previously qualified by the tester code for welding and building construction.
- ☐ Fabricator-erector shall provide quality control procedure to the extent deemed necessary to ensure that all works are performed per specification.
- ☐ Unless otherwise specified, the use of automatic welding mechanism is mandatory in the fabrication of built-up sections.
- ☐ All materials shall conform to ASTM A-36 steel unless specified.
- ☐ All metal parts shall be properly cleaned and rough welding marks must be removed by grinding to remove rough and uneven surface. Primer painting shall follow using epoxy paint.
- ☐ Accessories, incidentals, fastenings and anchorages, such as miscellaneous items not specifically mentioned herein or in other sections but are required to complete the work, and for which there are no detailed drawings. Shall be provided and installed in accordance with the best standard practice of trades.

- ☐ The work shall be well formed to the shape and size shown and assembled as detailed. Steel members shall be fabricated and assembled in the shop to the greatest extent as possible.

- ☐ Shearing and punching shall produce clean, pure lines and surface with burrs removed. Connection shall be welded or bolted as indicated. Unless otherwise shown, screws in exposed works shall be countersunk. Joints, which are to be exposed to the weather, shall be weathertight. Nuts shall be drawn up tight.
- ☐ Holes shall be cut, drilled or punched at right angles to the surface of the metal and shall not be made to enlarge by burning.
- ☐ Welding shall be in accordance with the standard code of Arc and Gas Welding in Building Construction of American Welding Society.
- ☐ Introduce bracing and supports to take care of all the loads to which the structure may be subjected. Provide steel edges or shims as support to base plates and large bearing plates until the supported members have been plumbed. Surface to receive grouting mortar shall be cleaned and moistened thoroughly immediately before placing the grout.

VII. PAINTING WORKS

SECTION 7.1

General

7.1a Scope

This includes all materials, labor, tools and equipment, and performance of all operations to complete painting and varnishing work as indicated on drawing and specification herein.

It covers complete painting and finishing of wood, plasters, concrete, metal, or other surfaces, external or internal part of the building

7.1b Samples

Submit sample panels of selected color or shade on 30cm x 30cm plywood panels for the approval of the implementing office. It shall be approved before ordering.

A sample panel of any finishing shall be prepared for approval, if directed. The applied finish shall not vary in quality or color from the approved sample.

7.1c Delivery and Storage

Deliver on job site in original containers with label containing manufacturer's name, color of paints, and manufacturer's instruction, if intact and seals unbroken. Storage of paints and paint materials at the site shall be restricted to locations designated by the Project Architect/Engineer or ATI's

Representatives and such places shall be kept neat and clean at all times. Necessary precautions to avoid fire must be observed by removing oily rags, waste, etc. at the end of daily work.

7.1d Protection

Provide all drop cloth and other covering requisite to protection of floors, walls, aluminum, glass finishes and other works.

7.1e **General Painting**

General Painting shall be interpreted to mean and include sealers, primers, fillers, intermediate and finish coats, emulsions, varnish, shellac, stain, or enamels.

All paint and necessary materials incorporated in or forming a part thereof shall be subject to prior approval and selection for color, tint, finish, or shade by the Project Architect/Engineer or ATI's Representative.

In connection with the Project Architect/Engineer or ATI's Representative determination of color or tint of any particular surface, the depth of any color or tint selected or required shall in no instance be a subject for an additional cost to the owner.

7.1f **Schedule**

☐ Interior concrete & masonry wall surfaces

1st coat: Acrylic flat latex paint (white)
2nd & 3rd coats: Acrylic semi-gloss latex paint

☐ Concrete Floor

1st coat: Epoxy Primer (white)
2nd & 3rd coats: Epoxy Enamel

☐ Ceiling

1st coat: Acrylic flat latex paint (white)
2nd & 3rd coats: Acrylic flat latex paint

Steel

1st coat: Red Oxide
2nd & 3rd coat: Water-based acrylic epoxy

SECTION 7.2
Materials

7.2a **Products**

☐ Painting Materials

All paint materials meet the requirements of paint materials under classification class "A" as prepared by the Bureau of Product Standards. Substitutes shall only be entertained once the quoted preferred brands are not available in the market.

Except for ready mixed materials in original containers, all mixing shall be done in the jobsite. No materials are to be reduced, changed, or mixed except as specified by the manufacturer of said materials.

☐ Tinting Colors

Shall be first grade quality, pigment ground in alkyd resin that disperses and mixes easily with paint to produce the color desired. Use the same brand of paint and tinting color to effect a good paint body.

☐ Concrete Neutralizer

Shall be first grade quality concentrate dilute with clean water and applied as surface conditioner of new interior and exterior walls thus improving paint adhesion and durability.

☐ Lacquer

Shall be any type of coating that dries rapidly and solely by evaporation of the solvent. Typical solvents are acetates, alcohols and ketone. Although lacquer was generally based on nitrocellulose, manufacturers currently use vinyl resin, plasticizer and dried oils to improve adhesion and elasticity.

☐ Shellac

Shall be a solution of refined lac resin in denatured alcohol. It dries by evaporation of the alcohol. The resin is generally furnished in orange and bleached grades.

☐ Sanding Sealer

Shall be quick drying lacquer, formulated to provide quick dry, good holdout of succeeding coats and containing sanding agents such as zinc stearate to allow dry sanding of sealer.

SECTION 7.3

Execution

7.3a Surface Preparation

☐ General Requirement

All surfaces to be painted shall be examined carefully before beginning any work and see that all work of other trades or subcontractors are installed in workmanlike manner; to receive paint, stain or particular finish.

Before proceeding with any painting or finishing, thoroughly clean, sand and seal if necessary, by removing from all surfaces all dust, dirt, grease, or other foreign substances which would affect either the satisfactory execution or permanency of the work.

No work shall be done under the conditions that are unsuitable for the painting, nor at any time when the plastering is in progress, or is being cured, or dried.

Finished hardware, lighting fixtures, plates, and other similar items shall be removed from all positions before painting is started. Each piece shall be installed in position once painting is finished and dried.

Neither paint nor any other finish treatment shall be applied over wet or damp surfaces. Allow at least two (2) days of drying time before application of succeeding coat.

Voids, cracks, nick, etc. will be repaired with proper patching metal and finished flushed with surrounding surfaces.

Painting and varnishing works shall not commence when it is too hot or cold.

Begin work only when the Project Architect/Engineer has inspected and approved the prepared surface otherwise no credit of coat shall be given. The Contractor shall assume full responsibility to recoat work in question. Notify the Project Architect/Engineer when the particular coat applied is complete, ready for inspection and approval.

☐ Concrete and Masonry Surfaces

All loose grid or mortar, contaminants, dirt, grease, oil, dust and other deposits must be removed on the surface. Surfaces shall be coated with concrete neutralizer, apply either with brush or spray solution one kilogram of zinc sulfate to four and 1 half liters of water. Allow to dry before any painting primer coat is applied. When surface is dried apply one coating. Hairline cracks and unevenness shall be patched and sealed with approved putty or patching compound. After defects are corrected apply the finish coats as specified on the plans (Color scheme approved.)

☐ Metal

Surfaces shall be clean, dry and free from mill scale and rust. Remove all grease and oil from surfaces. Rusty metal exposed to weathering for some time must be sanded, wire brushed or scraped. Wash unprimed galvanized with etching solution and allow it to dry before application of applicable primer

7.3b **Workmanship**

All paints shall be evenly applied. Coats shall be of proper consistency and well brushed out as to show a minimum of brush marks. All coats shall be thoroughly dry before the succeeding coat is applied. When surfaces are not fully covered or cannot be satisfactorily finished in the number of coats as may be required shall be applied to attain the desired evenness of surface. Where the surface is not in proper condition to receive the coat, the project supervisor/Owner's Representative shall be notified immediately. Hardware, lighting fixtures and other similar items shall be removed or protected during the painting, varnishing and other related work operations and re-installed after.

IX. ELECTRICAL WORK

SECTION 9.1

General

9.1a Scope

The work consists of furnishing of all materials and labor, tools and equipment, and all necessary services to complete and make ready for operation electrical works as indicated on electrical plans and in accordance with the Drawing & Specification.

The work shall include the furnishing and installing of the following each complete and in proper operating condition unless otherwise stated in the Specification.

- Wiring system including respective conduits, fittings wire gutter, junction box, utility boxes and any other type of box and support and accessories required and/ or as indicated on the Drawing;
- All the necessary feeder and branch circuit with all necessary conductors, conduits, fitting and other items as indicated on the Drawings;
- All the necessary wiring devices, such as utilization outlets, wall switches, receptacles all complete with their appropriate cover plates;
- All lighting fixtures and accessories including necessary supports;
- All conduits, boxes, wires and equipment.

9.1b Codes and Regulation

The Electrical Works shall be done in accordance with all the requirements of the latest issue of the Building Code of the Philippines, Philippine Electrical Code, with rules and regulations and ordinances of the local enforcing authorities of local electrical cooperatives.

9.1c Guarantee

The Contractor shall guarantee that the electrical system is free from all grounds and defective material and workmanship for a period of one (1) year from the date of acceptance of work. All defects arising within the guarantee period shall be remedied by the Contractor at their own expense.

9.1d Drawing and Specification

- ☐ Any apparent conflict between the Drawings and Specifications and any controversial or unclear points either shall be referred to the Project Architect/Engineer for final decision.
- ☐ All dimensions and location shown on the Plans are approximate and shall be verified in the field, as actual locations, distances and levels are governed by actual conditions.

- ☐ No deviation from the plans shall be made unless with written consent or approval from Project Architect/Engineer

9.1d **Samples**

The contractor shall submit a sample of any item he intended to install or use in this project to the Project Architect/Engineer for approval.

SECTION 9.2

Material

9.2a **Products**

All materials shall be unused, brand new and shall be of the approved type meeting all the requirements of the Philippines Electrical Code.

☐ Conduits

Shall be UPVC pipes, electrical grade, must be flexible type. Conduits inside ceiling shall be properly supported by steel braces other than the ceiling joist with spacing as specified by the Philippine Electrical Code.

☐ Conduits box

Shall be UPVC boxes, electrical grade. Utility/Octagon boxes shall be provided with adaptors to connect PVC conduits to the box. Utility/Octagon boxes shall be provided with proper cover plates.

☐ Wires and Cables

Wires should conform to the JIS, and ASTM standards. No wire shall be drawn into a raceway until it is complete with all necessary fittings, boxes, and supports. Connections shall be securely fastened such as not to loosen under vibration or normal strain. All connections and splices shall be made with approved methods.

☐ Receptacles, Switches, Outlet

Shall be standard product of reputable Electrical Manufacturers and cover with proper cover plate.

☐ Lighting Fixtures

Unless otherwise specified shall be furnished and installed by the contractor. All fixtures shall be as required on Plans, of good quality materials. Contractor shall submit samples for approval of the Architect before installation.

☐ Insulation

All splices shall be properly insulated using 3M electrical type or approved equal. Application of insulation tape shall be equivalent to the insulation of the wire concerned.

Power provision for the water pumps

Control Panel

Enclosure

System Pressure speed and frequency of motor

TECHNICAL SPECIFICATION FOR ELECTRICAL FEEDER LINES

A. Electrical devices

- **Repair or Replacement of Switchgear Panel for RDEC**

>>>integrate RDEC automatic return to normal power operation after ATS/Generator operation<<<

Any method is welcome, but ensure there is no additional cost to the end-user, and any damages caused to the property and equipment will be charged to the contractor.

- **Digital Single and Three Phase Kilowatt-hour Meter**

ERC Certified and ERC Approved, Calibrated, Only Models from 2017 up to present should be utilized. RECTANGULAR CASE, **230~240 Volts, 5(100)A~15(100)A, 1600~2000 imp/kwh, Single / Three Phase, 2W**

Recommended Digital Single Phase KWhr Meter:

Certificate No.0026-19 [NA 68], Certificate No. 00006-19 [CT888i], Certificate No. 0003-19 [MK 31], Certificate No. 0001-19 [CT-888], Certificate No.0048-18 [DDS450CTLCD], Certificate No.0028-18 [EEM 100], Certificate No. 0026-18, Certificate No. 0013-18 [LPS 100], Certificate No.0124-16 [FS26], Certificate No. 0116-16 [DDS1607], Certificate No. 0106 [HXE 120], Certificate No. 0057-16 and any certificate that satisfies the above requirements.

- **NEMA3R enclosure (75cm x 120cm Additional Electric Main Distribution Panel)**

>>>Modification of existing panel or additional, whichever is practical considering the Powerhouse space availability<<< which includes but is not limited to extending the bus bars, fabricating extension of bus bars, opening holes to the MDP.

Any method is welcome, but ensure there is no additional cost to the end-user, and any damages caused to the property and equipment will be charged to the contractor.

B. Panelboards, and other overcurrent protection devices

- **250AT/250AF, 400V, 3P, 18 KAIC NEMA3R [Main + 4 branch Distribution Panel]** including lugs for wires (Addition from Powerhouse to LGF LW Electrical

Room)

- **315AT/400AF, 600V, 3P, 35 KAIC NEMA3R [Main + 4 branch Distribution Panel]** including lugs for wires (Addition from Powerhouse to UGF LW Electrical Room)
- **500AT/600AF, 600V, 3P, 50 KAIC NEMA3R [Main + 6 branch Distribution Panel]** including lugs for wires (Addition from Powerhouse to 2NDF LW Electrical Room)
- **400AT/400AF, 600V, 3P, 25 KAIC [Main + 4 branch Distribution Panel]** including lugs for wires (Addition from Powerhouse going to UGF RW)
- **500AT/500AF, 600V, 3P, 50 KAIC [Main + 4 branch Distribution Panel]** including lugs for wires (Addition from Powerhouse going to 2NDF RW)
- **0.75cm x 100cm NEMA3R SUS-H 304 cover** (LGF - LW)
- **0.75cm x 120cm NEMA3R SUS-H 304 cover** (LGF - LW)
- **0.8cm x 140cm SUS-H 304 cover 304 cover** (LGF -LW)

C. WIRES & CABLES

- **THWN wire 80mm²** with Jacket of Clear nylon per UL Standard 83, Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color coding (Red, Blue and Yellow color) UGF-RW ((2 SETS))
- **THWN wire 14mm²** with Jacket of Clear nylon per UL Standard 83, Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color Green (Ground Wire) UGF-RW
- **THWN wire 250mm²**, 500MCM with Jacket of Clear nylon per UL Standard 83, Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color coding (Red, Blue and Yellow color) UGF-RW ((2 SETS))
- **THWN wire 14mm²** with Jacket of Clear nylon per UL Standard 83, Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color Green (Ground Wire) UGF-RW) 2NDFLR-RW
- **THWN wire 250mm²**, 500MCM with Jacket of Clear nylon per UL Standard 83, Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color coding (Red, Blue and Yellow color) 2NDFLR-RW
- **THWN wire 50mm²** with Jacket of Clear nylon per UL Standard 83, Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color Green (Ground Wire) 2NDFLR-RW
- **THWN wire 150mm²**, 300MCM with Jacket of Clear nylon per UL Standard 83, Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color coding (Red, Blue and Yellow color) LGF-LW ((2 SETS))
- **THWN wire 30mm²** with Jacket of Clear nylon per UL Standard 83, Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color Green (Ground Wire) LGF-LW
- **THWN wire 175mm²**, 350MCM with Jacket of Clear nylon per UL Standard 83,

Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color coding (Red, Blue and Yellow color) UGF-LW

- **THWN wire 30mm²** with Jacket of Clear nylon per UL Standard 83, Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color Green (Ground Wire) UGF-LW
- **THWN wire 125mm², 250MCM** with Jacket of Clear nylon per UL Standard 83, Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color coding (Red, Blue and Yellow color) 2NDFLR-LW ((**2 SETS**))
- **THWN wire 22mm²** with Jacket of Clear nylon per UL Standard 83, Insulation using Lead-Free Flame-Retardant PVC per UL Standard 83, Color Green (Ground Wire) 2NDFLR-LW

D. CONDUITS, BOXES & FITTING (Conduit Works / Conduit Rough-Ins)

- **Orange Polyvinyl Chloride Pipes (PVC/uPVC)**, 100 mm dia. (Powerhouse to LGF Electrical Room)
- **Intermediate Metal Conduit (IMC)**, 100 mm dia. per 3 meters (Riser to LGF and UGF RW)
- **Intermediate Metal Conduit (IMC)**, 65 mm dia.per 3 meters (Riser to UGF to 2ND RW)
- **Intermediate Metal Conduit (IMC)**, 100 mm dia.3 meters (Riser to LGF and UGF LW)
- **Intermediate Metal Conduit (IMC)**, 65 mm dia.3 meters (Riser to LGF and UGF LW)
- **Intermediate Metal Conduit (IMC)**, 100 mm dia.3 meters (Riser to UGF and 2nd Floor LW)
- **Intermediate Metal Conduit (IMC)**, 65 mm dia.3 meters (Riser to UGF and 2nd Floor LW)
- **Fittings Consumables** (IMC Coupling 4 & 2 1/2 inch,IMC Elbow 4 & 2 1/2 inch, IMC Bushing 4 & 2 1/2 inch, IMC Locknut 4 & 2 1/2 inch, PVC Coupling, Elbow, etc.)
- **Electrical Consumables** (Electrical tape, G.I. wires, tie wrap, etc)
- **Conduit Consumables** (PVC elbow, c-clamp,u-clamp, PVC contact cement, wire pulling lubricant or powder, etc)

SECTION 9.3

Execution

9.3a **Workmanship**

All works throughout shall be executed in the best practice in a workmanlike manner by qualified and experienced electricians under the immediate supervision of a duly licensed Electrical Engineer.

Wiring method shall be color coded.

Line 1 – red

Line 2- yellow
 Line 3- blue
 Ground – green.

SECTION 9.4

Testing

9.4a **General**

Upon completion of the electrical construction work, the Contractor shall provide all test equipment and submit written copies of all test results.

TECHNICAL SPECIFICATION OF FIRE ALARM AND DETECTION SYSTEM

SECTION 10.1

10.1 **Conduit**

For 50mmΦ and below, use EMT Above 50mmΦ, use IMC

½” PVC Pipe Conduit

10.2 **Smoke Detector**

1	Shall be UL Listed/FM Approved
2	Check based on system requirement: a) addressable b) conventional
3	Shall have a pulsating LED indicator
4	With programmable sensitivity of up to 3 levels
5	Features false alarm rejection, dustproof sensing chamber, intelligent drift compensation
6	Preferably addressed on base for ease of maintenance
7	Detector addressed on Base

10.3 **Heat Detector**

1	Shall be UL Listed/FM Approved
2	Check based on system requirement: a) addressable b) conventional
3	Shall have a pulsating LED indicator
4	With programmable sensitivity of up to 3 levels

5	Features false alarm rejection, dustproof sensing chamber, intelligent drift compensation
6	Preferably addressed on base for ease of maintenance
7	Designed for detection of abnormal heat in terms of Rate of Rise (ROR) and Fixed Rate Temperature
8	Detector addressed on Base

10.4 Manual Pull Station

1	Shall be UL Listed/FM Approved
2	Shall be push- type resettable using special reset key without break glass
3	Red in color with Manual addressing dip switch

10.5 Sounder and Strobe Lights

1	Shall be UL Listed/FM Approved
2	Sound level output of 84 to 95 dbA at 3 meters
3	Beacon light frequency of 20 to 180 times
4	With programmable alarm (evacuate or alarm mode)
5	With Manual addressing dip switch

I. GENERAL REQUIREMENTS

- ☐ The **CONTRACTOR** will provide technical supervision, skilled manpower, tools, equipment and suitable highest quality materials within the specified period to complete the project.
- ☐ As-built Drawings are to be done and submitted by **CONTRACTOR**.
- ☐ Provide coordination and collaborative works with **ATI** to complete respective works in accordance with approved drawings, specifications and method of installation.
- ☐ Provide all materials necessary to complete the works although not specifically mentioned in the Specifications, working drawings or in other contract documents without extra cost to the **ATI**.

- ☐ Comply with all applicable Environmental, Health and Safety regulations required by law.
- ☐ Secure and submit all necessary bonds, permits and insurances required in the contract.
- ☐ Submit on time, the required work schedule, delivery schedule, table of organization, manpower schedule, samples product data, safety plan, methodology and other requirements deemed necessary.
- ☐ Ensure the quality of materials and workmanship needed to complete and render ready for acceptance by the owner.
- ☐ Responsible for the safety requirements (safety shoes, vest, hard hat, safety harness, lifeline) and provision of fire extinguishers and all other fire protection provisions in working areas.
- ☐ Compliance to provisions of safety provisions for warehousing/storage of their materials and equipment.5.11. Medical Requirements of **CONTRACTOR** workers will be part of preliminaries of **CONTRACTORS**.
- ☐ Hauling and disposal of garbage inside the building perimeter.
- ☐ Protect and maintain in the required acceptable conditions of all rehabilitation works and accessories during construction until hand over.
- ☐ Ensure that the performance, appearance and proper functioning of the works are not affected by any movements, settlement or deflection in the building structure. Also take into account the construction accuracy of works by others to which the rehabilitation works are attached.
- ☐ Hauling and disposal of garbage inside the building perimeter.
- ☐ Protect and maintain in the required acceptable conditions of all rehabilitation works and accessories during construction until hand over.
- ☐ Ensure that the performance, appearance and proper functioning of the works are not affected by any movements, settlement or deflection in the building structure. Also take into account the construction accuracy of works by others to which the rehabilitation works are attached.

II. SCOPE OF WORK

- ☐ The **CONTRACTOR shall** undertake the works implementation of the “**Supply Materials and Labor for, FDAS and CCTV at the ATI Building**”, all in accordance with the specifications and subject to the terms and conditions of the contract.
- ☐ Mobilization and Provision of Temporary Facilities
- ☐ The **CONTRACTOR** shall provide safety signage/early warning signs visible at the jobsite.
- ☐ The **CONTRACTOR** shall make available Protective Gears for the workers.
- ☐ Temporary Facilities shall be of a design and materials acceptable to **ATI**.
- ☐ The **CONTRACTOR** shall provide suitable portable toilet facilities at approved locations with proper enclosures for the use of workmen, and shall maintain the same in sanitary operable conditions, all in conformity with the local regulations.
- ☐ The **CONTRACTOR** shall provide such other temporary buildings as may be required for use of his/her workers and safe storage of tools and materials. Such structures shall be located only where previously approved.
- ☐ **ATI** shall provide for the temporary power facility required for the entire rehabilitation works phase. The **CONTRACTOR** shall provide conduits, wires, connections and accessories and labor.
- ☐ **ATI** shall provide a temporary water facility that will be used during the entire rehabilitation works stage.

- ☐ The **CONTRACTOR** shall install, operate and maintain an adequate number of temporary hoists, scaffolds, runways, ladders, and the like as required for the proper execution of the work. Safety precautions shall at all times be observed.
- ☐ All temporary services and facilities installed by the **CONTRACTOR** shall be removed by the **CONTRACTOR** on completion of this Contract or as directed by **ATI**. The **CONTRACTOR** shall restore any damage, alteration, caused by such removal and during the project implementation.

III. Area Preparation

- ☐ Prepare surfaces in a skillful manner to produce finished work of first-class appearance and durability.
- ☐ Enforce any precautionary measures required to ensure work is safe and protected.
- ☐ All existing/old fire alarm control units (FACU), notification devices, initiating devices, power source, auxiliary devices, electrical wirings, conduits and others shall be removed/dismantled and shall be turned over to **ATI** authorized representatives.
- ☐ Haul and dispose debris properly and to be placed in designated areas provided by **ATI**.

IV. Installation

- ☐ The **CONTRACTOR** shall perform the installation, integration, testing, commissioning of all equipment. All necessary tests, services and inspections to assure the system functions shall be checked and approved before the acceptance test. Consideration shall be given to the fact that installation or tests of other systems within the same building may be carried out during the same period.
- ☐ The **CONTRACTOR** shall install all devices and equipment of the FDAS as per Drawings and Specifications.
- ☐ **CONTRACTOR** shall include a detailed implementation schedule of the project to avoid interruptions in the operation of **ATI**.
- ☐ Provide **ATI's** General Services Office staff to have the right to observe during the installation procedures.
- ☐ **CONTRACTOR** shall provide complete schematics diagrams and operational manual for **ATI** reference.
- ☐ The **CONTRACTOR** shall ensure that all fits and finishes are precise with professional standards for quality and workmanship. All equipment shall be adjusted accordingly for proper symmetry and operation.
- ☐ **CONTRACTOR** shall install the FDAS equipment and devices without any changes or damage done in the room during any chipping works, etc. Any damage, accidental or not, shall be on the account and shall be restored to original form and appearance by the **CONTRACTOR**.
- ☐ All outdoor cables should be properly installed inside the Electrical Metallic Tubing (EMT) conduit pipe.
- ☐ All roughing-ins, civil works, including supports, boxes, fittings, mounting brackets and etc. should be provided by the **CONTRACTOR**.

V. Manuals

- ☐ Manuals shall give a full overview of the integration of the various sub-systems.
- ☐ Documents and manuals shall give an outline of the complete system as delivered. It shall be adapted to the engineering and maintenance staff and describe how the system is composed and how it functions.

- ☐ It shall give a general overview of the sub-system and outline the structure of associated documentation.
- ☐ This manual shall give a detailed description of all system operation functions, including input actions and error response.

VI. Operations Manual:

- ☐ This manual shall give a detailed description of all functions,
- ☐ seen from the user's point of view.
- ☐ Equipment Manual:
- ☐ The Equipment Manual shall give full details of sub-systems or units on the following subjects as a minimum, general description, complete line diagrams and schematic diagrams.

VI. Training Requirements

- ☐ The **CONTRACTOR** shall conduct Technical Training to **ATI-CO** personnel for the administration, operation, maintenance and handling of the products to be supplied.
- ☐ This covers the requirements for operational and technical training to enable correct use, operation and maintenance of the FDAS.
- ☐ Training documentation requirements are included
- ☐ The comprehensive training shall be provided to ensure that operation and maintenance personnel will be capable to competently operate and maintain the system.

VII. Punch List, Cleaning, Clearing and Turn-Over

- ☐ Correct all noted punch lists, defects and/or needed replacements identified and observed.
- ☐ Provide an SLA (Service Level Agreement) including but not limited to three-level escalation support:
- ☐ Unlimited phone support indicating contact numbers.
- ☐ **CONTRACTOR** technical support with 24-hour response time starting from the time of report and indicating all necessary contact information.
- ☐ Product manufacturer local technical support.
- ☐ The **CONTRACTOR** shall review the specifications and determine the numbers and nature of each shop drawing submittal. Five (5) sets of the duly signed and sealed 20"x30" sheets As-Built Drawings and CAD copy shall be submitted with reference made to the appropriate section of the specification.
- ☐ Detailed Electrical Plans containing but not limited to the following:
 1. Location and Site Plan;
 2. Legends and Abbreviations; and
 3. Power Lay-outs and Riser Diagram.
- ☐ Restore to its original condition any facilities and fixtures that has been damaged due to rehabilitation works and accidents arising during implementation, if any.
- ☐ Clean, clearing of the area, and hauling and disposal of debris properly before turn-over.
- ☐ Demobilize and turn-over the entire project for acceptance of **ATI-CO** or its authorized representative.

VIII. MATERIALS REQUIREMENTS & SPECIFICATIONS

- ☐ The product and system's design shall be in accordance with the following Codes and Standards:

Codes:

National Building Code of the Philippines and its New IRR;

Fire Code of the Philippines;

Philippine Electrical Code;

National Electrical Code; and

Existing Local Codes and Ordinances.

Standards:

National Fire Protection Association;

British Standards Institution;

European Committee for Standardization;

Underwriters Laboratory;

Loss Prevention Certification Board Approved;

CE Marking;

Factory Mutual Approvals; and

National Electrical Manufacturer's Association (NEMA)

- ☐ The fire detection and alarm system shall be manufactured by an ISO 9001:2008 certified company and meet the requirements of BS EN9001: ANSI/ASQC Q9001-1994.
- ☐ The system shall be certified for seismic application in accordance with the International Building Code (IBC). The basis for qualification of seismic approval shall be via shake table testing.
- ☐ The **CONTRACTOR** shall submit certificates confirming that the system or components being installed is complying with the codes and standards mentioned above.
- ☐ All components should be **BRAND NEW**. The system components should be unused and completely new. The **CONTRACTOR** is required to submit a manufacturer's letter certifying that the components being supplied are brand new.
- ☐ The fire detection and alarm system shall be of multiplex, microprocessor- controlled addressable fire detection, alarm and communication system.
- ☐ Actuation of the protective signaling system shall occur by manual pull station, automatic smoke or heat detector, sprinkler flow switch and tamper switch.
- ☐ The system shall be able to monitor the status of flow switches and supervisory switches installed at the sprinkler system risers. These monitoring points are also

addressable in the same way as the detectors are making them easily recognizable at the control panel.

- ☐ Occupant notification shall be accomplished automatically. Notification will be general, audible alarm type complying with appropriate sections of NFPA.
- ☐ Delivery of the materials must be supported by an official receipt duly signed by the authorized representative of the manufacturer attesting that the paint was sourced from the manufacturer which will be subject to inspection and documents validation by the **ATI** or its authorized representative.

IX. WARRANTY

- ☐ The **CONTRACTOR** shall guarantee the work done to be free from defects for a period of **one (1) year** reckoned from acceptance of the project. Form of warranty shall be in accordance with the provisions in Section 62 of the Revised Implementing Rules and Regulations (IRR) of R.A. 9184.
- ☐ The **CONTRACTOR** shall provide a one-year preventive maintenance for the FDAS starting from completion until acceptance of the project.

X. RESPONSIBILITIES OF THE CONTRACTOR

- ☐ The principal features of the work do not in any way limit the responsibilities of the **CONTRACTOR** to the general description of his/her scope of work. He/she shall perform all the work fully and make operational to the intent of the project.
- ☐ The **CONTRACTOR** shall be responsible for the proper execution and coordination of his/her work. He/she shall schedule and program all necessary work activities according to the specified completion period.
- ☐ The **CONTRACTOR** shall observe the required standards of safety and procedures and that its contract and workers shall be properly insured against all risks. He/she shall provide/equip its workers with Personal Protective Equipment (PPE) during the course of construction/installation. He/she shall observe the **ATI's** house regulations to be issued together with the Work Permit.
- ☐ The **CONTRACTOR** shall be responsible for securing **ATI** issued work permits and compliance with other **ATI** rules and regulations related to the construction works. All workers/engineers working at site are required to wear company uniforms indicating their company name.
- ☐ The **CONTRACTOR** is not allowed to erect quarters for workers within **ATI** premises; sleeping is also not allowed. **CONTRACTOR's** workers are limited to the designated working area only. Loitering around and inside the **ATI** premises is not allowed.
- ☐ The **CONTRACTOR** shall be responsible for clearing and cleaning of the designated project site of unused materials, leftover and other debris at the site and disposal of the same outside of the **ATI** premises. A daily inspection of the work area shall be conducted by the **CONTRACTOR** and **ATI** or its authorized representative to ensure that the working area and storage area assigned to the **CONTRACTOR** is clean and in order at all times.
- ☐ The **CONTRACTOR** shall protect adjacent areas against any damage by his/her employees, or by his/her materials, equipment and tools during the execution of the work. Any damage done by him/her or his/her employees shall be repaired at his own expense, without additional compensation beyond the contract.
- ☐ Permits, Laws, Ordinances and Standards – the installation provided for and specified herein shall comply with laws and regulations of the local government unit and any

government agency having jurisdiction. All necessary permits and other requirements shall be secured and for the account of the **CONTRACTOR**. Said requirements shall be turned-over to **ATI** upon project completion.

- ☐ The **CONTRACTOR** shall assign a full time Engineer as Project-In-Charge (PIC) for the project to supervise the works mentioned herein. The PIC shall be a certified Registered Electrical Engineer designated for the project by the **CONTRACTOR**. Said PIC must be the one to report on a weekly/monthly basis of the status/progress of the project as agreed during the kick-off meeting and who shall be the one responsible for all coordination works with the **ATI** or its authorized representative.
- ☐ All other items of work not specifically mentioned but are necessary to complete the works in accordance with the plans and specifications and other related documents shall be provided by the **CONTRACTOR** at no additional cost to the **ATI**.

XI. SUBMITALLS

- ☐ Before commencing any work or providing any materials at the jobsite for this project, the **CONTRACTOR** shall submit samples, project Bar Chart/S-Curve and PERT/CPM Network Diagram for the **ATI** approval **within five (5) calendar days** upon receipt of Notice to Proceed.
- ☐ The Contractor's All-Risk Insurance (CARI) shall be submitted to **ATI within ten (10) calendar days** upon receipt of Notice of Award (NOA) to be issued by the BAC Secretariat.
- ☐ The **CONTRACTOR** shall submit to **ATI**, the proposed delivery of materials, tools and equipment, and manpower schedules for proper monitoring **five (5) calendar days** after the Pre-construction/kick-off meeting.
- ☐ The **CONTRACTOR** shall submit samples and/or technical brochures of all materials to be used in the project **within ten (10) calendar days** upon receipt of Notice to Proceed which include but may not be limited to the following for **ATI's** approval:
 - FDAS Materials/Brochures with technical specifications.
 - Manufacturer's printed Product Installation Instructions.
- ☐ Prior to issuance of the Certificate of Completion (COC) the following shall be submitted to **ATI-CO**. **ATI-CO** reserves the right not to issue a Certificate of Satisfactory Performance on the basis of the non-submission of any of the items below
 - Original Copy of "Record Drawing/Plan" complete with legend, technical specifications and measurements.
 - Final Project Report including photo documentations before, during and after implementation works. Each photo-documentation should have the date and time stamps in jpg-format.
 - As-built Plans – Plans should be approved by **ATI**. The **CONTRACTOR** shall submit shop drawings as required by **ATI**. A complete set of As-Built Drawings in printed form (20" x 30") and/or A3 whichever is required by **ATI** and an electronic copy in AutoCAD.
 - Warranty Certificate of at least two (2) years against poor workmanship and defects traceable to materials.
- ☐ The **CONTRACTOR** is required to have a suitable Construction Safety and Health Program, which must be in accordance with Occupation Safety and Health (OSH) Standard, rules and issuances by the DOLE. The program shall state the following:
 - Composition of Construction Safety and Health Committee.
 - Specific safety policies which the **CONTRACTOR** shall observe at the area of construction which include but not limited to Fall Protection, Chemical Hazards, and Materials Handling and Storage.

- Penalties and sanctions for violations of the program.
- The manner of disposing waste arising from the construction.
- The safety program shall also include the appointment of a full-time safety officer-in-charge of the implementation of the said program.

TECHNICAL SPECIFICATION OF CCTV SYSTEM

11.1 Technical Specification:

Dome Camera

- 5MP Fix IP Dome camera real time video recording
- Lens: IRI Series - 3.6mm
- Angle View: 76' (3.6mm)
- Housing: Weather Proof IP66 rated
- Indoor/outdoor
- IR Distance L0m-20m

Bullet Camera

- 5MP real time video recording
- Lens: IRI Series - 3.6mm
- Angle View: 76' (3.6mm)
- Housing: Weather Proof IP66 rated
- Indoor/outdoor
- Distance 10m-L5m

32 CHANNEL DVR/NVR

- H.265 + Video Compression/Third part camera supported
- 5 Megapixels resolution recording
- HDMI and VGA output 1920 x 1080 P resolution
- 8/16/32 channel synchronous playback
- HDD quota and group management
- Hard Drive capacity, to meet the 90 days (real time) retention period.

Hard Drive

Formatted NTFS for Windows 10, Windows 8, windows 7. Requires reformatting for Mac OS X.

Compatibility may vary depending on user's hardware configuration and operating system.

- Interface - USB 3.0. USB 2.0
- Operating System - Windows and MAC
- Package includes- WD Elements hard drive, USB cable. AC Adapter. Quick install guide.

32 Channel CCTV Camera Power Supply - 12 VDC - 10 Amps.

Every channel is protected with Auto-reset PTC fuses, which means these fuses will not blow. This box can be mounted to any surface, plugged into AC outlet.

- 12VDC 10Amp supply current
- Multiple outputs (32 Channel)
- 32 - Auto-reset PTC fuse protected output
- Power on/off switch
- DC regulated. over current and voltage protected
- individual LED indicator for each output
- Fuse Rating: L IA

Power Interface Switch for Power Over Ethernet (PoE) Powered Devices (If Require by the contractor/installer)

Features:

- Integrated Power Interface Switch for IEEE
- Provide PD Detection Signature
- Provides PD Classification signature
- Programmable Inrush Current Limit
- Internal 0.3 - Ω Low - side FET
- Interface to DC/DC Soft-start for DC / DC Enable
- Internal Thermal Protection Disconnects PD Load
- Minimal External Parts Count
- 8 Pin SOIC. 8-Pin TSSOP Package

11.2 Scope of Work:

1. Supply of one (1) lot - CCTV Surveillance system including labor and materials such as – BNC connector, Video balun, CAT 5 e cable, connector, locknut & bushing, adaptor and EMT pipes.
2. Dismantling and installation of existing CCTV and cable outside bank perimeter
3. Supply and installation of one (1) unit - UPS equivalent capacity of the CCTV system
4. Supply of platform and hangers.
- 5, Supply of O&M manual and brochure
6. One (1) week Training and Seminar
7. Testing and commissioning

11.3. Installation

- ☐ The Contractor shall perform the installation, testing and commissioning of all equipment. All necessary tests, services and inspections to assure the system functions and shall be checked and approved before the acceptance test. Consideration shall be given to the fact that installation or tests of other systems within the same building may be carried out during the same period.
- ☐ The proposal shall include a detailed time schedule not to cause interruptions in the operation of ATI-CO.
- ☐ The Contractor shall prepare and furnish fully dimensioned scaled drawings of builder's work arising from the installation of the equipment and system as well as for the equipment layout plans at various locations.
- ☐ The work drawings shall show:
 - The general arrangement of cabinets and other facilities in the equipment areas as well as the operational area
 - The general arrangement of cabling within the system.
- ☐ As soon as the commissioning of the equipment and system have been completed, the Contractor shall amend or correct all his Approved Drawings, if so required, furnish three (3) sets of prints of all "As-built" drawings showing the works as finally installed and commissioned. These drawings shall be furnished in hard binding cover/covers.
- ☐ The "As-built" drawings shall show the general arrangement of all equipment's and auxiliaries, positions of all electrical outlets, fittings, switches, switch-boards and control panels, cables, pipes, ducts run, markers and underground ducts, inter-wiriness, schedules, plant manufacturers name plates, models and type numbers and other information necessary to facilitate routine inspection and maintenance of installation.
- ☐ Three (3) sets of the "As-built drawings" shall be delivered on CD ROM media, The Contractor shall also provide licensed and updated software used in the preparation of the drawings.
- ☐ Outdoor cables shall be, in principle, installed underground through galvanized steel pipe or of EMT conduit. The cable conduits shall be sealed properly at both ends for protection of cables against rodents and inner edge at both ends shall be chamfered to avoid damage to cables during installation.
- ☐ No cables shall be installed until the inside of the conduit pipes have been cleaned.
- ☐ Roughing-ins including supports, boxes, fittings, cover plates, mounting brackets should be provided by the contractor.

11.4. PROVISION OF DOCUMENTATION

11.4.1 General Requirements

- ☐ It is essential that documentation is of high standard, and that text is presented in a clear and correct language. Where possible, diagrams, pictures etc. shall be used as supplement to the text.
- ☐ Three (3) sets of documents on each piece of equipment delivered shall be submitted for review and approval by ATI-CO one (1) month before each equipment is ready for site testing.
- ☐ All documents and manuals shall be delivered both in printed form and in computer readable files. The requirement for computer readable files is mandatory for software documentation. If the Contractor has used word processor for production of other equipment is ready for site testing.

11.4.2 Manuals

- ☐ Manuals shall give a full overview of the integration of the various sub-systems. The manuals shall follow the outline structure given below, to the extent considered relevant by the Contractor and approved by ATI-CO.
- ☐ Documents and manuals shall give an outline of the complete system as delivered. It shall be adapted to the engineering and maintenance staff and described how the system is composed and functions.
- ☐ System Operator's Manual
- ☐ This manual shall give a detailed description of all system operation functions, including input actions and error response.

11.4.3 User's Manual

- ☐ This manual shall give a detailed description of all functions, seen from the user's point of view.

11.4.4 Equipment Manual

- ☐ The Equipment Manual shall give full details of sub-systems or units on the following subjects as a minimum; general description; complete block diagrams; complete logical and schematic diagrams; mechanical and electrical data; interface data; configurations and parameter/ switch settings; test points and corresponding waveforms.

11.5. **Training and Technology Transfer**

- ☐ The technical staff shall give the trainees detailed knowledge of the technical functions. On completion of the courses, the trainees shall be able to perform tests of the system, to maintain the system.
- ☐ For the training purpose, preliminary handbooks may be used if the content is identical to the handbooks belonging to the system. If the training documents do not fully correspond with the system handbooks it shall be so stated in the proposal and the students shall be informed at each occasion,
- ☐ The training material consisting of the documentation to be delivered with the final supply shall be of the format specified in the Documentation.
- ☐ The Contractor shall supply each trainee with one complete set of relevant training documentation (both hard copies and electronic copies in CD ROM) before the start of each course.
- ☐ All test equipment used under training shall be of the same kind as contracts. Maintenance of the training and the test equipment is the Contractor's responsibility.
- ☐ Operators training shall not be less than two (2) training days and with
- ☐ certificates to be issued after the completion of training.
- ☐ Maintenance Training shall not be less than two (2) training days with
- ☐ certificates to be issued after training.

11.6. Inspection and Testing

- ☐ Before the final acceptance of the work, the Contractor shall test the system to demonstrate compliance with contract requirements.
- ☐ The whole system shall be subjected to complete functional and operational tests.
- ☐ When these tests have been completed and corrections made as necessary, the Contractor shall submit a signed and dated certificate with a request for formal inspection and test.

11.7. Warranty Period must be covered by Certificate

- ☐ One (1) year warrant upon final acceptance of the project. If any of the Office Machine Equipment developed trouble and or malfunction within the warranty period the same shall be repair/parts replaced free of charge and its warranty will be extended until such time the contractor completed the repair.
- ☐ Cost of transportation and technicians per diem shall be also to the account of the contractor.

XII. GENERAL GUIDELINES

Equipment and materials to be used in the work shall be standard products. **Substitutes will only be resorted or considered if the preferred original is not available and must be referred to the Project Architect/Engineer or ATI's Representative for approval. If however, decision shall be made between two equivalent products, the one with the higher price shall be chosen.** Other brands intended for substitute, which is not approved by Project Architect/Engineer or ATI's Representative shall not be used. Submission of brochures and sample of materials shall be required of the Contractor (and approved by the ATI's Representative) prior to implementation.

Section VII. Drawings

For downloading of actual drawings, you may visit the ATI Website at <https://ati2.da.gov.ph/ati-main/content/bids>

Section VIII. Bill of Quantities

IMPROVEMENT OF MAIN ELECTRICAL FEEDER LINE, FDAS AND CCTV SYSTEM AT ATI-CO MAIN BUILDING													
Project : ATI COMPOUND, Elliptical Road, Diliman, Quezon City													
Location : ATI COMPOUND, Elliptical Road, Diliman, Quezon City													
Subject : BILL OF QUANTITIES													
Date : August 25, 2022													
QTY	UNIT	PARTICULARS	MATERIAL COST		LABOR COST		UNIT DIRECT COST	DIRECT COST (DC)	12% OCM	8% PROFIT	5% TAX (DC/OCM PROFIT)	INDIRECT COST (IDC)	TOTAL AMOUNT (DC + IDC)
			UNIT MATERIAL COST	MATERIAL COST	UNIT LABOR COST	LABOR COST							
I. GENERAL REQUIREMENTS													
1.00	lot	Mobilization and Unloading of Tools and Equipments											
1.00	lot	Temporary Facilities (including temporary field office, workers quarters, PPEs, and others)											
1.00	lot	Temporary Utilities (Temporary power & water supply)											
1.00	lot	Construction Permits required (Electrical Permit, Hot Works, Permit to Install)											
1.00	lot	Temporary construction safety screen, platform, barricades, warning signs, temporary access roads and scaffolding											
1.00	lot	Hauling of debris & Site Clearing											
		sub-total I											
II. ELECTRICAL WORKS (LOWER GROUND LEFT WING, UPPER GROUND AND 2ND FLOOR)													
II-A. Electrical devices													
1.00	set	Replacement of Switchgear Panel of Power house											
5.00	pcs	Digital Single Phase Kilowatt Hour Meter (Serrano hall, Training Hall 3rd floor & Elevator)											
		sub-total II-A (ELECTRICAL WORKS)											
II-B. Conduits, Boxes & Fitting (Conduit Works / Conduit Rough-Ins) (LOWER GROUND LEFT WING, UPPER GROUND AND 2ND FLOOR)													
45.00	pcs	(Orange Polyvinyl Chloride Pipes (PVC-u/PVC), 100 mm dia.(PowerHouse to LGF Electrical Room)											
50.00	set	Intermediate Metal Conduit (IMC), 100 mm dia. per 3 meters (Riser to LGF and UGF RW)											
50.00	lm	Intermediate Metal Conduit (IMC), 65 mm dia.per 3 meters (Riser to UGF to 2ND RW)											
2.00	set	Intermediate Metal Conduit (IMC), 100 mm dia.3 meters (Riser to LGF and UGF LW)											
3.00	set	Intermediate Metal Conduit (IMC), 65 mm dia.3 meters (Riser to LGF and UGF LW)											
3.00	lm	Intermediate Metal Conduit (IMC), 100 mm dia.3 meters (Riser to UGF and 2nd Floor LW)											
3.00	set	Intermediate Metal Conduit (IMC), 65 mm dia.3 meters (Riser to UGF and 2nd Floor LW)											
1.00	lot	Fittings Consumables (IMC Coupling 4 & 2 1/2 inch,IMC Elbow 4 & 2 1/2 inch, IMC Bushing 4 & 2 1/2 inch, IMC Locknut 4 & 2 1/2 inch, PVC Coupling, Elbow, etc.)											
1.00	lot	Electrical Consumables (Electrical tape, G.I. wires, tewrap, etc)											
1.00	lot	Conduit Consumables (PVC elbow, c-clamp,u-clamp, PVC contact cement, wire pulling lubricant or powder, etc)											
		sub-total II-B (ELECTRICAL WORKS)											
II-C. Panelboards, and other overcurrent protection devices (LOWER GROUND LEFT WING, UPPER GROUND AND 2ND FLOOR)													
1.00	pcs.	NEMA3R enclosure (75cm x 120cm Additional Electric Main Distribution Panel) <<Modification of existing panel or additional, whichever is practical considering the Powerhouse space availability<<											
1.00	set	250AT/250AF, 400V, 3P, 18 KAIC NEMA3R (Main + 4 branch Distribution Panel) Branches: -100AT -125AT -40AT -60AT											
1.00	set	315AT/400AF, 600V, 3P, 35 KAIC NEMA3R (Main + 4 branch Distribution Panel) Branches: -250AT -100AT -40AT -60AT											
1.00	set	500AT/600AF, 600V, 3P, 50 KAIC NEMA3R (Main + 6 branch Distribution Panel) Branches: -SOLAR -100AT -150AT -315AT -40AT -60AT											
1.00	set	400AT/400AF, 600V, 3P, 25 KAIC (Main + 4 branch Distribution Panel) Branches: -315AT -100AT -100AT -60AT											
1.00	set	500AT/600AF, 600V, 3P, 50 KAIC (Main + 4 branch Distribution Panel) Branches: -315AT -100AT -40AT -60AT											
1.00	pcs.	0.75cm x 100cm NEMA3R SUS-H 304 cover (LGF -LW)											
2.00	pcs.	0.75cm x 120cm NEMA3R SUS-H 304 cover (LGF -LW)											
1.00	pcs.	0.8cm x 140cm SUS-H 304 cover 304 cover (LGF -LW)											
1.00	lot	Testing and Commissioning (Electrical Testing including Circuit Breaker Test Results, Insulation Resistance Test, and voltage drop test)											
		sub-total II-C (ELECTRICAL WORKS)											
II-D. Wires & cables (LOWER GROUND LEFT WING, UPPER GROUND AND 2ND FLOOR)													
420.00	lm	THWN wire 80mm2 (Red color) UGF-RW (2 SETS))											
420.00	lm	THWN wire 80mm2 (Yellow color) UGF-RW (2 SETS))											
420.00	lm	THWN wire 80mm2 (Blue color) UGF-RW (2 SETS))											
200.00	lm	THWN wire 14mm2 (Ground Wire) UGF-RW											
240.00	lm	THWN wire 250mm2, 500MCM (Red color) 2NDFLR-RW											
240.00	lm	THWN wire 250mm2, 500MCM (Yellow color) 2NDFLR-RW											
240.00	lm	THWN wire 250mm2, 500MCM (Blue color) 2NDFLR-RW											
240.00	lm	THWN wire 50mm2 (Ground Wire) 2NDFLR-RW											
180.00	lm	THWN wire 150mm2, 300MCM (Red color) LGF-LW (2 SETS))											
100.00	lm	THWN wire 150mm2, 300MCM (Yellow color) LGF-LW (2 SETS))											
100.00	lm	THWN wire 150mm2, 300MCM (Blue color) LGF-LW (2 SETS))											
50.00	lm	THWN wire 30mm2 (Ground Wire) LGF-LW											
75.00	lm	THWN wire 175mm2, 350MCM (Red color) UGF-LW											
75.00	lm	THWN wire 175mm2, 350MCM (Yellow color) UGF-LW											
75.00	lm	THWN wire 175mm2, 350MCM (Blue color) UGF-LW											
75.00	lm	THWN wire 30mm2 (Ground Wire) UGF-LW											
146.00	lm	THWN wire 125mm2, 250MCM (Red color) 2NDFLR-LW (2 SETS))											
146.00	lm	THWN wire 125mm2, 250MCM (Yellow color) 2NDFLR-LW (2 SETS))											
146.00	lm	THWN wire 125mm2, 250MCM (Blue color) 2NDFLR-LW (2 SETS))											
75.00	lm	THWN wire 22mm2 (Ground Wire) 2NDFLR-LW											
		sub-total II-D (ELECTRICAL WORKS)											



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**PROJECT: IMPROVEMENT OF ELECTRICAL FEEDER LINE, FIRE ALARM AND
DETECTION SYSTEM AND CCTV AT ATI-CO MAIN BUILDING**

LOCATION: ATI-CO MAIN BUILDING, ELLIPTICAL ROAD, DILIMAN, QUEZON CITY

SUBJECT: SCOPE OF WORK

1. **GENERAL REQUIREMENTS**
 - a. Mobilization and unloading of tools and equipment's
 - b. Temporary Facilities
 - c. Temporary Utilities (Supply of power and water)
 - d. Construction permits required
 - e. Safety materials
 - f. Signed and Sealed required plans
 - g. Bonds and insurances
 - h. Testing and Commissioning (Electrical Works)
 - i. Demobilization and hauling of debris
2. **Electrical Works (Power house Lower ground left wing, Upper & 2nd floor left and right wings)**
 - a. Installation of electrical devices
 - b. Installation of required roughing-ins for electrical wirings
 - c. Installation of new Panel boards at Power house
 - d. Replace and install of new circuit breakers per panel boards
 - e. Installation of new Wires and cables
 - f. Proper turn-over of all removed existing wires, panel boards and circuit breakers to ATI Management
3. **Civils Works (Lower ground left wing, Upper & 2nd floor left and right wings)**
 - a. Repair all damages walls and ceilings
 - b. Repainting of electrical rooms walls and ceiling
 - c. Cable pulling of existing feeder line wires
 - d. Terminations of lines to main panel
 - e. Miscellaneous works
4. **Fire Detection and Alarm System (ATI-Main Building)**
 - a. Installation of required roughing-ins and supports
 - b. Installations of wires and cables
 - c. Installation of Fire detection devices
 - d. Removal of busted existing fire detection devices
 - e. Proper turn-over of all removed existing wires and devices to ATI Management
 - f. Testing and Commissioning
 - g. Submission of all necessary documents and manuals for the supplied item
 - h. Conduct Technical Training to ATI-CO personnel for the administration, operation, maintenance and handling of the products to be supplied.
5. **Close-Circuit Television (CCTV) SYSTEM (ATI-Main Building)**
 - a. Installation of required roughing-ins and supports
 - b. Installations of wires and cables
 - c. Installation of CCTV cameras and devices



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- d. Removal of busted existing CCTV system devices
 - e. Proper turn-over of all removed existing wires and devices to ATI Management
 - f. Fabrication and installation of Lobby Desk for the central control operation
 - g. Testing and Commissioning.
 - h. Submission of all necessary documents and manuals for the supplied item
 - i. Conduct Technical Training to ATI-CO personnel for the administration, operation, maintenance and handling of the products to be supplied.
6. **Others**
- a. Repair and restore all areas affected of the improvement
 - b. Hauling and dispose all debris.


Prepared by:


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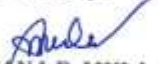
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Approved by:


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DIRECTOR IV
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Section IX. Checklist of Technical and Financial Documents

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE	
<i>Class "A" Documents</i>	
<u>Legal Documents</u>	
<input type="checkbox"/>	(a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages); or
<input type="checkbox"/>	(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
<input type="checkbox"/>	(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
<input type="checkbox"/>	(e) Tax Clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).
<u>Technical Documents</u>	
<input type="checkbox"/>	(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
<input type="checkbox"/>	(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
<input type="checkbox"/>	(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
<input type="checkbox"/>	(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
<input type="checkbox"/>	(j) Project Requirements , which shall include the following:
<input type="checkbox"/>	a. Organizational chart for the contract to be bid;
<input type="checkbox"/>	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;
<input type="checkbox"/>	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
<input type="checkbox"/>	(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.
<input type="checkbox"/>	(l) Certificate of Site Inspection.
<i>Financial Documents</i>	
<input type="checkbox"/>	(m) 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
<input type="checkbox"/>	(n) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC).
<i>Class "B" Documents</i>	
<input type="checkbox"/>	(o) 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	
<input type="checkbox"/>	(p) Original of duly signed and accomplished Financial Bid Form; and
<i>Other documentary requirements under RA No. 9184</i>	
<input type="checkbox"/>	(q) Original of duly signed Bid Prices in the Bill of Quantities; and
<input type="checkbox"/>	(r) Duly accomplished Detailed Estimates Form , including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; and
<input type="checkbox"/>	(s) Cash Flow by Quarter.

