PHILIPPINE BIDDING DOCUMENTS

(As Harmonized with Development Partners)

PROCUREMENT OF SIARGAO AIRPORT DEVELOPMENT PROJECT

Government of the Republic of the Philippines

Bid No. 21-035-12 CHARLIE

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

SIARGAO AIRPORT DEVELOPMENT PROJECT
Bid No. 21-035-12 CHARLIE

1. The Civil Aviation Authority of the Philippines through the GAA CY 2015 DOTr Downloaded Projects intends to apply the sum of **TWO HUNDRED ELEVEN MILLION FOUR HUNDRED SIXTY-ONE THOUSAND TWENTY-THREE PESOS 94/100 (PHP 211,461,023.94)** being the Approved Budget for the Contract (ABC) to payments under the contract for **SIARGAO AIRPORT DEVELOPMENT PROJECT (Bid No. 21-035-12 CHARLIE).** Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The Civil Aviation Authority of the Philippines now invites bids for the above Procurement Project.

   Prospective Bidders should possess the following:

Technical Personnel	One (1) Project (Civil) Engineer One (1) Electrical Engineer One (1) Mechanical Engineer One (1) Geodetic Engineer One (1) Materials Engineer One (1) Master Electrician One (1) Master Plumber One (1) Construction Foreman One (1) Safety and Health Officer
Equipment	One (1) Unit Backhoe Crawler, 0.50 cu.m. Twelve (12) Units Dump Truck, 10 cu.m. Four (4) Units Water Tank Truck, 4000 ltrs. Two (2) Units Plate Compactor, 1T One (1) Unit Concrete Batching Plant, 40cu.m./day One (1) Unit Transit Mixer, 5 cu.m. Four (4) Units Payloader, 1.50 cu.m. Two (2) Units Concrete Vibrator Two (2) Units One Bagger Concrete Mixer Two (2) Units Welding Machine, 200 Amp One (1) Unit 51-100kw Generator Set One (1) Unit Oxy- Acetylene Cutting/ Welding Outfit One (1) Unit Bulldozer, 165 hp Two (2) Units Motorized Road Grader, 135hp Two (2) Units Vibratory Tandem Roller, 10.10M.T. One (1) Unit Concrete Screeder, 5.5hp One (1) Unit Concrete Saw One (1) Unit Backhoe w/ Concrete Breaker or Pencil

	Hammer Two (2) Units Jackhammer Two (2) Units Backhoe Crawler, 1.09 cu.m.
PCAB License	**Medium A - License Category B** *(Road, Highway pavement, Railways, Airport, horizontal structures and Bridges)* **Medium A - License Category B** *(Building & Industrial Plant)*

Completion of the Works is required **Six Hundred Sixty (660) Calendar Days (inclusive of twenty-seven (27) rainy/unworkable Days).** Bidders should have completed a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).

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

4. Interested bidders may obtain further information from BAC Office, CAAP Compound, MIA Road corner Ninoy Aquino Avenue, 1300 Pasay City, Metro Manila on **December 23, 2021 until deadline of submission of bid** and inspect the Bidding Documents at the address given below from 08:00 AM to 05:00 PM from MONDAY to FRIDAY.

5. A complete set of Bidding Documents may be acquired by interested bidders on **December 23, 2021 until deadline of submission of bid** 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 **Php 56,000.00 (inclusive of 12% VAT).** The Procuring Entity shall allow the bidder to present its proof of payment for the fees by presenting the official receipt in person.

6. The Civil Aviation Authority of the Philippines will hold a Pre-Bid Conference[1] on **January 05, 2022 @ 10:00AM** at CAAP Conference Room, CAAP Compound, MIA Road Ninoy Aquino Avenue, 1300 Pasay City, Metro and/or through videoconferencing/webcasting via Jitsi/Zoom/Google Meet, which shall be open to prospective bidders.

7. Bids must be duly received by the BAC Secretariat at the address below on or before **January 19, 2022 @ 10:00AM** at BAC Office, CAAP Compound, MIA Road corner Ninoy Aquino Avenue, 1300 Pasay City, Metro Manila. 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 **January 19, 2022 @ 10:00AM** at the given address below and/or through Jitsi/Zoom/Google Meet. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

[1] May be deleted in case the ABC is less than One Million Pesos (PhP1,000,000) where the Procuring Entity may not hold a pre-bid conference.

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

11. For further information, please refer to:

    DR. ROLLY T. BAYABAN, M.D.
    Head, BAC-Alpha Secretariat
    Civil Aviation Authority of the Philippines
    MIA Road corner Ninoy Aquino Avenue
    1300 Pasay City, Metro Manila
    Telephone number – (02) 944-2358
    www.caap.gov.ph

12. Bidding Documents may also be downloaded free of charge from the website of the Philippine Government Electronic Procurement System (PhilGEPS) and the website of the Procuring Entity, provided that bidders shall pay the applicable fee for the Bidding Documents not later than the submission of their bids.

December 23, 2021

CAPTAIN DONALDO A. MENDOZA
Chairperson, BAC – Charlie

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, Civil Aviation Authority of the Philippines invites Bids for the **SIARGAO AIRPORT DEVELOPMENT PROJECT**, with Project Identification Number: **Bid No. 21-035-12 CHARLIE**.

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

2. Funding Information

2.1. The GOP through the source of funding as indicated below for GAA CY 2015 DOTr Downloaded Projects in the amount of **TWO HUNDRED ELEVEN MILLION FOUR HUNDRED SIXTY-ONE THOUSAND TWENTY-THREE PESOS 94/100 (PHP 211,461,023.94).**

2.2. The source of funding is:

a. GOCC and GFIs, the Corporate Operating Budget.

3. Bidding Requirements

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

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

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

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

The Procuring Entity, as well as the Bidders and Contractors, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex "I" of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

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

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

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

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

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

6. Origin of Associated Goods

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

7. Subcontracts

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

The Procuring Entity has prescribed that:

a. Subcontracting is not allowed.

7.1. *[If Procuring Entity has determined that subcontracting is allowed during the bidding , state:]* The Bidder must submit together with its Bid the documentary requirements of the subcontractor(s) complying with the eligibility criterial 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. *[If subcontracting is allowed during the contract implementation stage, state:]* 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 and/or through videoconferencing/webcasting} 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 X. 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 X. 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 *[indicate date]*. 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

<table>
<tr><th>ITB Clause</th><th></th></tr>
<tr><td>3.0</td><td>Certificate of Site Inspection (Annex “B” Form 1) duly signed by Ms. Josefina L. Nuñez, Airport Manager of Siargao Airport or her duly authorized representative, is required to be submitted.

This shall include all of the following documents as attachment to the Certificate of Site Inspection and shall form part of the bidder’s technical documents:

a) Copy of company ID of the person who conducted the site inspection;

b) Copy of the airport/facility visitor’s logbook with the entry of the name and signature who conducted the site inspection; &

c) Picture of the proposed site including the personnel who conducted the site inspection together with the Airport Manager/Officer in Charge or his duly authorized representative.

Bids not complying with the above instruction shall be disqualified.</td></tr>
<tr><td>5.2</td><td>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.

For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be:

<table>
<tr><th>Category</th><th>ABC</th></tr>
<tr><td>1. Building Construction/ Improvement/ Rehabilitation/ Repair</td><td>104,545,194.83</td></tr>
<tr><td>2. Concreting of Roads or other Horizontal Structures</td><td>105,382,105.41</td></tr>
</table>
</td></tr>
<tr><td>7.1</td><td>Subcontracting is not allowed.</td></tr>
<tr><td>10.1</td><td>Bidder shall submit all eligibility and technical documents as specified in Section X. Checklist of Technical and Financial Documents:

Class “A” Documents
<u>Legal Documents</u>

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

b. Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document; and</td></tr>
</table>

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

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

In connection to GPPB Circular 07-2017 dated 31 July 2017, the bidder shall have the following options:

1. *Submit the Certificate of PhilGEPS Registration and Platinum Membership including its Annex "A" in lieu of the uploaded Class "A" Eligibility Documents identified in Section 8.5.2 of the Revised Implementing Rules and Regulations of Republic Act 9184 (Revised IRR of RA 9184), provided that all Class "A" Eligibility Documents listed under the aforesaid Annex "A" are all uploaded and maintained current and updated in the PhilGEPS Registry.*

2. *Submit a combination of the PhilGEPS Registration and Platinum Membership including its Annex "A" and Class "A" Eligibility Documents identified in Section 8.5.2 of the Revised IRR of RA 9184.*
   - *In the event that aforesaid Class "A" Eligibility Document(s) listed in the Annex "A" of the PhilGEPS Registration and Platinum Membership is/are reflected to be outdated, the bidder shall submit such current and updated Class "A" Eligibility Document(s).*

3. *Submit all the Class "A" Eligibility Documents only, provided that the PhilGEPS Registration and Platinum Membership shall be submitted as a Post-Qualification requirement in accordance with Section 34.2 of the Revised IRR of RA 9184.*

<u>Technical Documents</u>

e. 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. *(Annex "A" Form 1);* and

f. Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules. *(Annex "A" Form 2);* and

g. 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
Joint Resolution *(Annex "A" Form 3)*; and

h. 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 *(Annex "B" Form 2);* and i. Project Requirements, which shall include the following: 1. Organizational chart for the contract to be bid *(Annex "B" Form 3)*; and 2. 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 *(Annex "B" Form 4, 5a, 5b & 5c)*; and 3. 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 *(Annex "B" Form 6)*; and j. Original duly signed Omnibus Sworn Statement (OSS) *(Annex "B" Form 7)*; 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; and This shall include all of the following documents as attachment to the Omnibus Sworn Statement: 1. Certification, under oath, attesting that they have no pending case(s) against the Government, in addition to the eligibility requirements as prescribe under the 2016 Revise Implementing Rules and Regulation (R-IRR) of RA No. 9184; and 2. Legal Clearance to be issued by the CAAP Enforcement and Legal Service with respect to the non-pending cases of the prospective bidders against this Authority; and 3. Bid Bulletins (if applicable); and k. **Certificate of Site Inspection** *(Annex "B" Form 1)* duly signed by **Ms. Josefina L. Nuñez, Airport Manager of Siargao Airport** or her duly authorized representative; and This shall include all of the following documents as attachment to the Certificate of Site Inspection: 1. Copy of company ID of the person who conducted the site inspection; and 2. Copy of the airport/facility visitor's logbook; and

<table>
<tr><td></td><td>
3. Picture of the proposed site including the personnel who conducted the site inspection together with the Airport Manager/Officer in Charge or his duly authorized representative: and

<u>Financial Documents</u>

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

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

Class "B" Documents

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

Applicable CAAP BAC Standard Forms included in this PBD shall be complied in accordance with the prescribed forms under Section IX Bidding Forms – Annex "A" & "B".

<u>Bids not complying with the above instruction shall be disqualified.</u>
</td></tr>
<tr><td>10.3</td><td>
Valid PCAB License or Special PCAB License in case of Joint Ventures, and Registration (Medium A License Category B for Road, Highway pavement, Railways, Airport, horizontal structures and Bridges; Medium A License Category B for Building and Industrial Plant) for the type and cost of the contract to be bid.

<u>Bids not complying with the above instruction shall be disqualified.</u>
</td></tr>
<tr><td>10.4</td><td>
The key personnel must meet the required minimum years of experience set below:
<table>
<tr><th><u>Key Personnel</u></th><th><u>General Experience</u></th><th><u>Relevant Experience</u></th></tr>
<tr><td>Project (Civil) Engineer
Electrical Engineer
Mechanical Engineer
Geodetic Engineer
Materials Engineer
Master Electrician
Master Plumber
Construction Foreman
Safety and Health Officer</td><td>Five (5) years in General Engineering</td><td>Three (3) years in Concreting of Roads or other Horizontal Structures; & Building Construction/ Improvement/ Rehabilitation/ Repair</td></tr>
</table>
<u>Bids not complying with the above instruction shall be disqualified.</u>
</td></tr>
</table>

10.5	The minimum major equipment requirements are the following: One (1) Unit Backhoe Crawler, 0.50 cu.m. Twelve (12) Units Dump Truck, 10 cu.m. Four (4) Units Water Tank Truck, 4000 ltrs. Two (2) Units Plate Compactor, 1T One (1) Unit Concrete Batching Plant, 40cu.m./day One (1) Unit Transit Mixer, 5 cu.m. Four (4) Units Payloader, 1.50 cu.m. Two (2) Units Concrete Vibrator Two (2) Units One Bagger Concrete Mixer Two (2) Units Welding Machine, 200 Amp One (1) Unit 51-100kw Generator Set One (1) Unit Oxy- Acetylene Cutting/ Welding Outfit One (1) Unit Bulldozer, 165 hp Two (2) Units Motorized Road Grader, 135hp Two (2) Units Vibratory Tandem Roller, 10.10M.T. One (1) Unit Concrete Screeder, 5.5hp One (1) Unit Concrete Saw One (1) Unit Backhoe w/ Concrete Breaker or Pencil Hammer Two (2) Units Jackhammer Two (2) Units Backhoe Crawler, 1.09 cu.m. Bids not complying with the above instruction shall be disqualified.
11.1.	The second bid envelope shall contain the financial documents for the Bid as specified in **Section X. Checklist of Technical and Financial Documents**. This shall include the complete accomplishment of all of the following documents as stated and required under Section VIII of this PBD and shall form part of the bidder's financial documents: a) Original of duly signed and accomplished Financial Bid Form; and b) Bill of Quantities *(Annex "C" Form 1)*; and c) Summary of Bid Proposal *(Annex "C" Form 2)*; and d) Bill of Materials & Cost Estimates *(Annex "C" Form 3)*; and e) Summary Sheet indicating the Unit Prices of Construction Materials, Labor Rates, and Equipment Rentals used in coming up with the Bid *(Annex "C" Form 4, 5 & 6)*; and f) Cash Flow and Payment Schedule *(Annex "C" Form 7)* Modifications and/or alterations on the stated requirements in the financial document forms (BOQ, Summary of Bid Proposal & Bill of Materials & Cost Estimates) shall not be allowed. Applicable CAAP BAC Standard Forms included in this PBD shall be complied in accordance with the prescribed forms under Section IX Bidding Forms –

	Annex "C". Bids not complying with the above instruction shall be disqualified. **The discounts stated in the Financial Bid Form shall be computer written with the same font style and size as of the whole text of the said Form.** **Discounts that are either handwritten, type written or computer written in other font style and size shall not be considered.**
11.2	Bid exceeding the ABC of the project shall be disqualified.
12	No further instructions.
15.1	The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts: a. The amount of not less than two percent (2%) of ABC, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; b. The amount of not less than five percent (5%) of ABC if bid security is in Surety Bond.
16	1. Each and every page thereof shall be initialed/signed by the duly authorized representative/s of the Bidder. Submitted Eligibility, Technical and Financial documents shall be properly marked with index tabs (ear tab) and must be sequentially paginated in accurate order in the form i.e. "page 3 of 100". Page number of last page of the document (per envelope basis). Pagination should be sequential based on the entire span of the whole documents inside the envelope. Bids not complying with the above instructions shall be automatically disqualified. 2. Each Bidder shall submit **one copy of the first and second components** of its bid.
19.2	Partial bid is not allowed. The infrastructure project is packaged in a single lot and the lot shall not be divided into sub-lots for the purpose of bidding, evaluation, and contract award.
20	The Bidder with the Lowest Calculated Bid (LCB) that complies with and is responsive to all the requirements and conditions shall submit its a) Latest income and business tax returns filed through the Electronic Filing and Payment System (EFPS); b) Business licenses and permits required by law (Registration Certificate, Mayor's Permit, Tax Clearance & PCAB License); c) Latest Audited Financial Statements; and d) Key personnel licenses

	Failure to submit any of the post-qualification requirements on time, or a finding against the veracity thereof, shall disqualify the bidder for award. Provided, that in the event that a finding against the veracity of any of the documents submitted is made, it shall cause the forfeiture of the Bid Security in accordance with Section 69 of the IRR of RA 9184.
21	The following relevant project documents are required to be submitted by the successful bidder who submitted the LCRB as part of the Contract Agreement during its signing: a) Construction schedule b) Bar Chart & S-curve c) PERT/CPM Network Diagram d) Manpower schedule e) Construction methods f) Equipment utilization schedule Construction safety & health programs approved by the Department of Labor & Employment **(SIARGAO AIRPORT DEVELOPMENT PROJECT)**

Section IV. General Conditions of Contract

1. Scope of Contract

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

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

2. Sectional Completion of Works

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

3. Possession of Site

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

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

4. The Contractor's Obligations

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

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

5. Performance Security

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

5.2. The Contractor, by entering into the Contract with the Procuring Entity, acknowledges the right of the Procuring Entity to institute action pursuant to 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	Not applicable.
3.1	The **CIVIL AVIATION AUTHORITY OF THE PHILIPPINES** shall give possession of all parts of the Site to the Contractor upon receipt of the Notice to Proceed.
6	None.
7.2	In case of permanent structures, such as buildings of types 4 and 5 as classified under the National Building Code of the Philippines and other structures made of steel, iron, or concrete which comply with relevant structural codes (e.g., DPWH Standard Specifications), such as, but not limited to, steel/concrete bridges, flyovers, aircraft movement areas, ports, dams, tunnels, filtration and treatment plants, sewerage systems, power plants, transmission and communication towers, railway system, and other similar permanent structures: Fifteen (15) years.
10	No dayworks are applicable to the contract.
11.1	Not applicable
11.2	Not applicable
13	The amount of the advance payment shall not exceed 15% of the total contract price. However, as per Department of Transportation (DOTr) Policy, Procuring Entity will not give advance payment to contractors.
14	No further instructions.
15.1	The date by which operating and maintenance manuals are required is upon completion of the project The date by which "as built" drawings are required is upon completion of the project. PDF/AutoCAD File of the "as built" plans shall include as attachment to the required hard copy of the same upon completion of the project.
15.2	The amount to be withheld for failing to produce "as built" drawings and/or operating and maintenance manuals by the date required is two percent (2.00%) of the Contract price.

Section VI. Specifications and Scope of Work

Name of Project	:	**SIARGAO AIRPORT DEVELOPMENT PROJECT**
Location	:	Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte
Duration	:	Six Hundred Sixty (660) Calendar Days (Inclusive of twenty-seven (27) rainy/unworkable Days)
Source of Funds	:	GAA CY 2015 DOTr Downloaded Projects

SCOPE OF WORK

The project covers the supply of labor, materials and equipment necessary for the ***SIARGAO AIRPORT DEVELOPMENT PROJECT***. The details of work are best enumerated below, however, it is understood that the contract includes all works and services though not specifically mentioned herein, but are needed to fully complete the project shall be undertaken by the Contractor.

The following scopes of work shall be done in accordance with the approved plans, specifications and provisions of contract.

SPL-1 MOBILIZATION/DEMOBILIZATION

This work includes mobilization and demobilization of the contractor's personnel and equipment necessary for performing the work required under the contract.

a. Mobilization shall include all activities and associated costs for transportation of contractor's personnel, equipment, and establishment of offices, and other necessary facilities for the contractor's operations at the site.

b. Demobilization shall include the disassembly of offices and other facilities on the site, as well as the removal and hauling of debris and rubbish materials.

A. CONSTRUCTION OF PASSENGER TERMINAL BUILDING AND CANOPY

1.00 SITE WORKS

The work includes all materials and labor for site works including excavation, backfilling, staking and lay-out of structure lines, embankment and provision of compacted gravel bedding as indicated on the approved plans.

2.00 CIVIL/STRUCTURAL WORKS

2.01 Concrete Works

The work includes all materials, labor and equipment/tools necessary to complete the construction and casting in place of column footings, columns, wall footings, slab on fill and suspended slabs, footing tie beams, beams and roof beams, steps, stairs, ramp, concrete molding and counter tops; fabrication and installation of reinforcing steel bars; and fabrication and installation of formworks and scaffoldings as specified on the approved plans.

2.02 Steel Works

The work includes all materials, labor and equipment necessary for the fabrication and installation of steel trusses, purlins, sag rods, cross bracings including all its accessories, steel canopy, side cladding, 50mmØ stainless steel ramp railing, stair handrails, window framing. And also, the installation of 4mm thk. aluminum composite panel including its framing and accessories as indicated on the approved plans.

2.03 Roofing Works

The work includes all materials, labor and equipment necessary for the installation of 0.60mm thk. pre-painted coated rib-type long span, 0.60mm thk Stainless Steel Gutter with fascia board, 0.60mm thk Ridge Roll, 0.60mm thk. pre-painted GI Flashing and 12mm thk. aluminum double sided foam insulation and all other related works needed for the completion of the project as indicated on the approved plans.

3.00 ARCHITECTURAL WORKS

3.01 Tile Works

The work includes all materials, labor, and equipment/tools to complete the installation of 1000mm x 1000mm granite floor tiles, 600mm x 600mm granite floor tiles, floor matting system, 300mm x 300mm granite floor tiles with 2” width aluminum

brass coated nosing, 200mm x 200mm ceramic floor tiles, 300mm x 600mm homogenous wall tiles; 20mm thk. granite counter top on areas indicated on the approved plans.

3.02 Masonry Works

The work includes materials, labor, equipment/tools for the laying of 6" CHB for exterior and 4" CHB for interior; installation of reinforcing steel bars and plastering of CHB as indicated on the approved plans.

3.03 Carpentry Works

The work includes all materials, labor, and equipment/tools necessary for installation of dry wall (12mm thk. fiber cement board) and ceiling board (600mm x 600mm powder coated aluminum ceiling suspension, 300mm x 300mm powder coated aluminum circle emboss ceiling, ¼" thk. fiber cement board ceiling, 600mm x 1200mm pre-painted aluminum spandrel ceiling, 600mm x 600mm x ½" thk. acoustical panel board ceiling) on selected areas as indicated on the approved plans.

3.04 Painting Works

The work includes all materials, labor, and equipment/tools to complete the painting works of the exterior & interior walls, fiber cement board ceiling, dry wall partition and waterproofing paint as indicated on the approved plans.

3.05 Doors and Windows

The work includes all materials, labor and tools for installation of doors and windows complete with hardware and accessories as indicated on the approved plans.

3.06 Miscellaneous Works

The work includes all materials, labor and tools to complete the fabrication and installation of signage (of 0.60mm thk. stainless steel signage letter (SIARGAO AIRPORT), panaflex single face with LED tubes and clear non- glare acrylic build up no-lighted) and also laying of vertical garden wall as indicated on the approved plans.

4.00 ELECTRICAL WORKS *(including VRF)*

The work includes all materials, labor, equipment, material testing and performance of all operations to complete the Installation of lighting fixtures including LED exit sign and LED emergency light, wiring devices and boxes, wires and conduits, panel board and circuit breaker. Supply and installation of Structured Cabling System (telephone and data outlets) including all its accessories; grounding system, transformers and its accessories, CCTV system, BGMPA and termination accessories. Testing and commissioning of Electrical works are the responsibility of the contractor.

Transformer:

1 set – Supply and installation of 167 KVA, 3 Phase, 460V/400V Outdoor Dry Type transformers with complete accessories on concrete pad

5.00 MECHANICAL WORKS

The work includes all materials, labor, equipment/tools and material testing to complete the supply and installation of Air Conditioning Units with complete accessories including copper tubing, drain pipes, insulation; Ventilation Equipment and accessories and fittings; and Dry Chemical Portable Fire Extinguishers as indicated on the plans. Mechanical works should be tested and commissioned.

VRF indoor unit:

12 sets – floor standing, 14.0KW
4 sets – floor standing, 11.2KW
5 sets -- ceiling cassette, 4-way, 14.0KW
2 sets -- ceiling cassette, 4-way, 11.2KW
3 sets -- wall mounted, 3.6KW

VRF outdoor unit:

2 sets -- heat pump, 85.0KW
1 set -- heat pump, 73.0KW
1 set -- heat pump, 69.0KW

Split Type Inverter:

2 sets -- 2.5hp wall mounted
1 set -- 2.0hp wall mounted
1 set -- 1.5hp wall mounted
3 sets -- 1.0hp wall mounted

6.00 PLUMBING WORKS

The work includes all materials, labor, equipment and tools for the provision and installation of storm drainage system, waste waterlines, waterlines, construction of catch basins and septic tank, installation of plumbing and all other related works as indicated on the approved plans.

7.00 FURNITURE

This item covers the provision of sixty four (64) units of 4-seater gang chair (metal chrome accent w/ perforated seat) as indicated on the approved plans.

B. CONSTRUCTION OF ADMINISTRATIVE BUILDING

1.00 SITE WORKS

The work includes all materials and labor for site works including excavation, backfilling, staking and lay-out of structure lines, embankment and provision of compacted gravel bedding as indicated on the approved plans.

2.0 CIVIL/STRUCTURAL WORKS

2.01 Concrete Works

The work includes all materials, labor and equipment/tools necessary to complete the construction and casting in place of column and wall footings, slab on fill footing tie beams, beams and roof beams, ramp, concrete molding and counter tops; fabrication and installation of reinforcing steel bars; and fabrication and installation of formworks and scaffoldings as indicated on the approved plans.

2.02 Steel Works

The work includes all materials, labor and equipment/equipment necessary for the fabrication and installation of steel trusses, purlins, sag rods, cross bracings including all its accessories, 50mmØ stainless steel ramp railing and all other related works needed for the completion of the project.

2.03.1 Roofing Works

The work includes all materials, labor and equipment/tools necessary for the installation of 0.60mm thk. pre-painted rib-type long span roofing, 0.60mm thk Stainless Steel Gutter with fascia board, 0.60mm thk wall flashing with 12mm thk. aluminum foam insulation and all other related works needed for the completion of the project (please refer to plans).

3.00 ARCHITECTURAL WORKS

3.01 Tile Works

The work includes all materials, labor, and equipment/tools to complete the installation of 600mm x 600mm homogeneous floor tiles, 600mm x 600mm non-slip floor tiles, floor matting system, 300mm x 300mm homogeneous wall tiles and 20mm thk. granite counter top on areas indicated on the approved plans.

3.02 Masonry Works

The work includes materials, labor, equipment/tools for the laying of 6" CHB for exterior and 4" CHB for interior; installation of reinforcing steel bars and plastering of CHB as indicated on the approved plans.

3.03 Carpentry Works

The work includes all materials, labor, and equipment/tools necessary to complete the installation of 1200mm x 600mm x 15mm acoustic ceiling board, 12mm thk. moisture resistant gypsum board, 6mm thk. fiber cement ceiling board on exposed tee grid suspension system as indicated on the approved plans.

3.04 Painting Works

The work includes all materials, labor, and equipment/tools to complete the painting works of the exterior & interior walls, fiber cement board ceiling and gypsum board ceiling as indicated on the approved plans.

3.05 Doors and Windows

The work includes all materials, labor and tools for installation of doors and windows complete with hardware and accessories as indicated on the approved plans.

4.00 ELECTRICAL WORKS *(including storage & K9)*

The work includes all materials, labor, equipment, material testing and performance of all operations to complete the installation of lighting fixtures, wiring devices and boxes, wires and conduits, panel board and circuit breaker. Supply and installation of Structured Cabling System and Grounding System including all its accessories. All other miscellaneous items and related works needed as indicated on the approved plans. Testing and commissioning of Electrical works are the responsibility of the contractor.

5.00 MECHANICAL WORKS

The work includes all materials, labor, equipment/tools and material testing to complete the supply and installation of Air Conditioning Units with complete accessories including copper tubing, drain pipes, insulation; Ventilation Equipment and accessories and fittings; and Dry Chemical Portable Fire Extinguishers as indicated on the plans. Mechanical works should be tested and commissioned.

Split Type Inverter:

2 sets – wall mounted, 2.5hp
4 sets – wall mounted, 2.0hp
2 sets – wall mounted, 1.5hp

6.00 PLUMBING WORKS

The work includes all materials, labor, equipment and tools for the provision and installation of storm drainage system, waste waterlines, waterlines, construction of catch basins and septic tank, installation of plumbing fixtures and all other related works as indicated on the approved plans.

C. CONSTRUCTION OF POWER HOUSE

1.00 SITE WORKS

The work includes all materials and labor for site works including excavation, backfilling, staking and lay-out of structure lines, embankment and provision of compacted gravel bedding as indicated on the approved plans.

2.00 CIVIL/STRUCTURAL WORKS

2.01 Concrete Works

The work includes all materials, labor and equipment/tools necessary to complete the construction and casting in place of column footings, columns, slab on fill, footing tie beams, and roof beams, wall and floor, drain/canister, concrete block, ramp, planters and concrete ledge; fabrication and installation of reinforcing steel bars; and fabrication and installation of formworks and scaffoldings as indicate on the approved plans.

2.02 Steel Works

The work includes all materials, labor and equipment/equipment necessary for the fabrication and installation of structural steel angular trusses, purlins, sag rods and cross bracings including accessories as indicated on the approved plans.

2.03 Roofing Works

The work includes all materials, labor and equipment/tools necessary for the installation of 0.60mm thk. pre-painted rib-type long span roofing, 0.60mm thk. pre-painted G.I. Gutter with fascia board, 0.60mm thk wall flashing with 6mm thk. aluminum foam insulation and all other related works needed as indicated on the approved plans.

3.00 ARCHITECTURAL WORKS

3.02 Masonry Works

The work includes materials, labor, equipment/tools for the laying of 6" CHB for exterior and 4" CHB for interior; installation of reinforcing steel bars and plastering of CHB as indicated on the approved plans.

3.04 Painting Works

The work includes all materials, labor, and equipment/tools to complete the painting works of the exterior & interior walls as indicated on the approved plans.

3.05 Doors and Windows

The work includes all materials, labor and tools for installation of doors and windows complete with hardware and accessories as indicated on the approved plans.

4.00 ELECTRICAL WORKS *(including MRF, Guard House, Security Post, Water Tank. Street Lights)*

This covers the supply of labor, materials, equipment, material testing and performance of all operations to complete the installation of lighting fixtures including LED Street light with 5m post, wiring devices and boxes, wires and conduits, panel board and circuit breaker, automatic transfer switch, transformers and its accessories, generator, grounding system, ventilation, CCTV System and termination accessories. Testing and commissioning of Electrical works are the responsibility of the contractor.

Transformers:

1 set – Supply & Installation of 125 KVA, 3Phase, 460V/240V Outdoor Dry Type transformer with complete accessories

2 sets – Supply & Installation of 50 KVA, 3Phase, 460V/240V Outdoor Dry Type transformer with complete accessories

3 sets – Supply & Installation of 200 KVA, Single-phase, 13.2kV/460V Outdoor Pad Mounted Transformer in Three-phase bank with complete standard accessories

Generator:

2 sets – Supply & installation of brand new 625 KVA 460V 60Hz Diesel Engine Pad Mounted Transformer in Three-phase bank with complete

standard accessories

5.00 MECHANICAL WORKS

The work includes all materials, labor, equipment/tools and material testing to complete the supply and installation of Ventilation Equipment and accessories and fittings as indicated on the plans. Mechanical works should be tested and commissioned.

6.00 PLUMBING WORKS

The work includes all materials, labor, equipment and tools for the provision and installation of storm drainage system, construction of catch basins, area drain and steel grating and all other related works as indicated on the approved plans.

D. CONSTRUCTION OF TWO (2) BAY FIRE STATION BUILDING

1.00 SITE WORKS

The work includes all materials, labor, equipment/tools for clearing, grabbing and leveling off lot and of all operations to complete the Excavation, Embankment/Backfill and compaction, Gravel bedding of covered area as per indicated on plans.

2.00 CIVIL/STRUCTURAL WORKS

2.01 Concrete Works

The work includes all materials, labor, equipment and performance of all operations to complete the concreting of the components of the structure for the construction of footings, columns, beams, stairs and slabs of covered area including formworks, scaffolding/staging, fabrication and installation of reinforced steel bars as specified on the plans. (Materials to be used and Workmanship must be approved by the Project In-Charge assigned by CAAP).

2.02 Steel Works

The work includes all materials, labor, equipment and performance of all operations for fabrication, installation of column post, trusses, purlins, steel bars for canopy, fascia frame, board sand, Railings its hardware including painting of steel bars as indicated on the plans. (Materials to be used and Workmanship must be approved by the Project In-Charge assigned by CAAP).

2.03 Roofing Works

The work includes all materials, labor, equipment and performance of all operations to complete the roofing works for the installation of 10mm thk. PE foam single sided foil (3-way reinforcement), roofing sheets for main roof & canopy and its components as indicated on the plans. (Materials to be used and Workmanship must be approved by the Project In-Charge assigned by CAAP)

3.00 ARCHITECTURAL WORKS

3.01 Tile Works

The work includes all materials, labor, equipment, material testing and performance of all operations to complete the installation of floor and wall tiles as indicated on the plans. (Materials to be used and Workmanship must be approved by the Project In-Charge assigned by CAAP).

3.02 Masonry Works

The work includes materials, labor, equipment/tools for the laying of 6" CHB for exterior and 4" CHB for interior; installation of reinforcing steel bars and plastering of CHB as indicated on the approved plans.

3.03 Carpentry Works

The work includes all materials, labor, equipment/tools for Installation of Ceiling, Eaves with Frame as indicated on the plans. (Materials to be used and Workmanship must be approved by the Project In-Charge assigned by CAAP).

3.04 Painting Works

The work includes all materials, labor, equipment and performance of all operations to complete the Painting works on walls, ceiling & floor as indicated on the plan. (Materials to be used and Workmanship must be approved by the Project In-Charge assigned by CAAP).

3.05 Doors and Windows

The work includes all materials, labor, equipment and performance of all operations to complete the installation of Doors and Windows complete with hardware and accessories including jamb and header as indicated on the plans. (Materials to be used and Workmanship must be approved by the Project In-Charge assigned by CAAP).

3.06 Miscellaneous Works

The work includes all materials, labor, equipment and performance of all operations to complete the installation of Signage in Lighted Panaflex with hardware and accessories as indicated on the plans. (Materials to be used and Workmanship must be approved by the Project In-Charge assigned by CAAP).

4.00 ELECTRICAL WORKS

The work includes all materials, labor, equipment, material testing and performance of all operations to complete the Installation of the following; Lighting & Power Conduits & Fitting, Wires & Cables, Electrical Wiring Devices, Lighting Fixtures, Boxes and Pull Boxes, Panel boards/Circuit Breaker, Main Service Entrance Conductors, Conduits and fittings, Electrical Service Entrance as indicated on the plan. Testing and commissioning of Electrical works are the responsibility of the contractor. (Materials to be used and Workmanship must be approved by the Project In-Charge assigned by CAAP).

5.00 MECHANICAL WORKS

The work includes all materials, labor, equipment and performance of all operations to complete the supply and installation of ACU, Ventilation Fans, fire protection and smoke detector and roughing-ins, insulation and fittings as indicated on the plan. (Materials to be used and Workmanship must be approved by the Project In-Charge).

2 sets – Inverter Window Type ACU

Main Specs:

2HP, Inverter, cooling capacity of 18,600 kJ/h, EFR at 12.0 Btu/h.w

6.00 PLUMBING WORKS

The work includes all materials, labor, equipment and tools for the provision and installation of storm drainage system, waste waterlines, waterlines, construction of catch basins and septic tank, and installation of plumbing fixtures and all other related works as indicated on the approved plans.

E. CONSTRUCTION OF STORAGE BUILDING

1.00 SITE WORKS

The work includes all materials and labor for site works including excavation, backfilling, staking and lay-out of structure lines, embankment and provision of compacted gravel bedding as indicated on the approved plans.

2.00 CIVIL/STRUCTURAL WORKS

2.01 Concrete Works

The work includes all materials, labor and equipment/tools necessary to complete the construction and casting in place of column and wall footings, columns, slab on fill, footing tie beam, and roof beams, and other related works; fabrication and installation of reinforcing steel bars; and fabrication and installation of formworks and scaffoldings as indicated on the approved plans.

2.02 Steel Works

The work includes all materials, labor and equipment/equipment necessary for the fabrication and installation of structural steel angular trusses, purlins, sag rods and cross bracings including accessories as indicated on the approved plans.

2.03 Roofing Works

The work includes all materials, labor and equipment/tools necessary for the installation of 0.60mm thk. pre-painted long span roofing, 0.60mm thk. pre-painted wall and end flashing and capping, 0.60mm thk. pre-painted gutter with fascia board including 6mm thk. aluminum insulation and all other related works needed as indicated on the approved plans.

3.0 ARCHITECTURAL WORKS

3.03 Carpentry Works

The work includes all materials, labor, equipment and performance of all operations to complete the installation of ¼" thk. x 4' x 8' fiber cement ceiling board with metal furring as indicated on the approved plans.

3.04 Painting Works

The work includes all materials, labor, and equipment/tools to complete the painting works of the exterior & interior walls and fiber cement board as indicated on the approved plans.

3.05 Doors and Windows

The work includes all materials, labor and tools for installation of doors and windows complete with hardware and accessories as indicated on the approved plans.

6.00 PLUMBING WORKS

The work includes all materials, labor, equipment and tools for the provision and installation of storm drainage system, construction of catch basins and all other related works as indicated on the approved plans.

F. CONSTRUCTION OF K-9 BUILDING

1.00 SITE WORKS

The work includes all materials and labor for site works including excavation, backfilling, staking and lay-out of structure lines, embankment and provision of compacted gravel bedding as indicated on the approved plans.

2.00 CIVIL/STRUCTURAL WORKS

2.01 Concrete Works

The work includes all materials, labor and equipment/tools necessary to complete the construction and casting in place of column footings, columns, slab on fill, footing tie beams, and roof beams and concrete ledge; fabrication and installation of reinforcing steel bars; and fabrication and installation of formworks and scaffoldings as indicated on the approved plans.

2.02 Steel Works

The work includes all materials, labor and equipment/equipment necessary for the fabrication and installation of structural steel angular trusses, parapet, purlins, sag rods and cross bracings including its accessories. And also, the installation of 4mm thk. aluminum composite panel including its framing and accessories as indicated on the approved plans.

2.03 Roofing Works

The work includes all materials, labor and equipment/tools necessary for the installation of 0.60mm thk. pre-painted long span roofing, 0.60mm thk. pre-painted wall and end flashing and capping, 0.60mm thk. pre-painted gutter with fascia board including 6mm thk. aluminum insulation and all other related works needed as indicated on the approved plans.

3.0 ARCHITECTURAL WORKS

3.02 Masonry Works

The work includes materials, labor, equipment/tools for the laying of 6” CHB for exterior and 4” CHB for interior; installation of reinforcing steel bars and plastering of CHB as indicated on the approved plans.

3.03 Carpentry Works

The work includes all materials, labor, equipment and performance of all operations to complete the installation of ¼” thk. x 4’ x 8’ fiber cement ceiling board with metal furring as indicated on the approved plans.

3.04 Painting Works

The work includes all materials, labor, and equipment/tools to complete the painting works of the exterior & interior walls and fiber cement board ceiling as indicated on the approved plans.

3.05 Doors and Windows

The work includes all materials, labor and tools for installation of doors and windows complete with hardware and accessories as indicated on the approved plans.

6.00 PLUMBING WORKS

The work includes all materials, labor, equipment and tools for the provision and installation of storm drainage system, waste waterlines, waterlines, construction of catch basins and septic tank and all other related works as indicated on the approved plans.

G. CONSTRUCTION OF MATERIAL RECOVERY FACILITY

1.00 SITE WORKS

The work includes all materials and labor for site works including excavation, backfilling, staking and lay-out of structure lines, embankment and provision of compacted gravel bedding as indicated on the approved plans.

2.00 CIVIL/STRUCTURAL WORKS

2.01 Concrete Works

The work includes all materials, labor and equipment/tools necessary to complete the construction and casting in place of column footings, columns, slab on fill, footing tie beams, and roof beams, concrete ledge, ramp, planters and other related works; fabrication and installation of reinforcing steel bars; and fabrication and installation of formworks and scaffoldings as indicated on the approved plans.

2.02 Steel Works

The work includes all materials, labor and equipment/equipment necessary for the fabrication and installation of structural steel angular trusses, purlins, sag rods and cross bracings including accessories as indicated on the approved plans.

2.03 Roofing Works

The work includes all materials, labor and equipment/tools necessary for the installation of 0.60mm thk. pre-painted rib-type long span roofing, 0.60mm thk. pre-painted G.I. Gutter with fascia board, 0.60mm thk wall flashing with 6mm thk. aluminum foam insulation and all other related works needed as indicated on the approved plans.

3.0 ARCHITECTURAL WORKS

3.01 Tile Works

The work includes all materials, labor, and equipment/tools to complete the installation of 300mm x 300mm ceramic floor & wall tiles and 600mm x 600mm ceramic floor tiles on areas indicated on the approved plans.

3.02 Masonry Works

The work includes materials, labor, equipment/tools for the laying of 6" CHB for exterior and 4" CHB for interior; installation of reinforcing steel bars and plastering of CHB as indicated on the approved plans.

3.03 Carpentry Works

The work includes all materials, labor, equipment and performance of all operations to complete the installation of ¼" thk. x 4' x 8' fiber cement ceiling board with metal furring as indicated on the approved plans.

3.04 Painting Works

The work includes all materials, labor, and equipment/tools to complete the painting works of the exterior & interior walls and fiber cement ceiling board as indicated on the approved plans.

3.05 Doors and Windows

The work includes all materials, labor and tools for installation of doors and windows complete with hardware and accessories as indicated on the approved plans.

6.00 PLUMBING WORKS

The work includes all materials, labor, equipment and tools for the provision and installation of storm drainage system, waste waterlines, waterlines, construction of catch basins and septic tank, installation of plumbing fixtures and all other related works as indicated on the approved plans.

H. PROPOSED CONSTRUCTION OF GUARD HOUSE

1.00 SITE WORKS

The work includes all materials and labor for site works including excavation, backfilling, staking and lay-out of structure lines, embankment and provision of compacted gravel bedding as indicated on the approved plans.

2.00 CIVIL/STRUCTURAL WORKS

2.01 Concrete Works

The work includes all materials, labor and equipment/tools necessary to complete the construction and casting in place of column footings, columns, slab on fill, footing tie beams, and other related works; fabrication and installation of reinforcing steel bars; and fabrication and installation of formworks and scaffoldings as indicated on the approved plans

2.02 Steel Works

The work includes all materials, labor and equipment/equipment necessary for the fabrication and installation of structural steel angular trusses, purlins, sag rods and cross bracings including its accessories. And also, the installation of 4mm thk. aluminum composite panel including its framing and accessories as indicated on the approved plans.

2.03 Roofing Works

The work includes all materials, labor and equipment/tools necessary for the installation of 0.60mm thk. pre-painted rib-type long span roofing, 0.60mm thk. pre-

painted G.I. Gutter with fascia board, 0.60mm thk wall flashing with 6mm thk. aluminum foam insulation and all other related works needed as indicated on the approved plans.

3.0 ARCHITECTURAL WORKS

3.01 Tile Works

The work includes all materials, labor, and equipment/tools to complete the installation of 300mm x 300mm ceramic wall tiles and 300mm x 300mm ceramic accent tiles on areas indicated on the approved plans.

3.02 Masonry Works

The work includes materials, labor, equipment/tools for the laying of 6" CHB for exterior and 4" CHB for interior; installation of reinforcing steel bars and plastering of CHB as indicated on the approved plans.

3.03.1 Carpentry Works

The work includes all materials, labor, equipment and performance of all operations to complete the installation of ¼" thk. x 4' x 8' fiber cement ceiling board with metal furring as indicated on the approved plans.

3.04 Painting Works

The work includes all materials, labor, and equipment/tools to complete the painting works of the exterior & interior walls and fiber cement ceiling board as indicated on the approved plans.

3.05 Doors and Windows

The work includes all materials, labor and tools for installation of doors and windows complete with hardware and accessories as indicated on the approved plans.

6.00 PLUMBING WORKS

The work includes all materials, labor, equipment and tools for the provision and installation of storm drainage system, waste waterlines, waterlines, construction of catch basins and septic tank, installation of plumbing fixtures and all other related works as indicated on the approved plans.

I. CONSTRUCTION OF SECURITY POST

1.00 SITE WORKS

The work includes all materials and labor for site works including excavation, backfilling, staking and lay-out of structure lines and provision of compacted gravel bedding as indicated on the approved plans.

2.00 CIVIL/STRUCTURAL WORKS

2.01 Concrete Works

The work includes all materials, labor and equipment/tools necessary to complete the construction and casting in place of column footings, columns, slab on fill, footing tie beams, and other related works; fabrication and installation of reinforcing steel bars; and fabrication and installation of formworks and scaffoldings as indicated on the approved plans.

2.02 Steel Works

The work includes all materials, labor and equipment/equipment necessary for the fabrication and installation of 4mm thk. aluminum composite panel including its framing and accessories as indicated on the approved plans.

2.05 Waterproofing Works

The work includes materials, labor and equipment/tools to complete the waterproofing works as indicated on the approved plans.

3.0 ARCHITECTURAL WORKS

3.01 Tile Works

The work includes all materials, labor, and equipment/tools to complete the installation of 300mm x 300mm ceramic wall tiles and 300mm x 300mm ceramic accent tiles on areas indicated on the approved plans.

3.02 Masonry Works

The work includes materials, labor, equipment/tools for the laying of 6" CHB for exterior and 4" CHB for interior; installation of reinforcing steel bars and plastering of CHB as indicated on the approved plans.

3.03 Carpentry Works

The work includes all materials, labor, equipment and performance of all operations to complete the installation of ¼" thk. x 4' x 8' fiber cement ceiling board with metal furring as indicated on the approved plans.

3.04 Painting Works

The work includes all materials, labor, and equipment/tools to complete the painting works of the exterior & interior walls and fiber cement ceiling board as indicated on the approved plans.

3.05 Doors and Windows

The work includes all materials, labor and tools for installation of doors and windows complete with hardware and accessories as indicated on the approved plans.

6.00 PLUMBING WORKS

The work includes all materials, labor, equipment and tools for the provision and installation of storm drainage system, waste waterlines, waterlines, installation of plumbing fixtures and all other related works as indicated on the approved plans.

J. CONSTRUCTION WATER TANK

1.00 SITE WORKS

This covers the supply of labor and equipment necessary to excavate for the construction of concrete pad and catch basin. Backfilling works and filling of gravel base as indicated in the approved plans are also included under this item.

2.0 CIVIL/STRUCTURAL WORKS

2.01 Concrete Works

This covers the supply of labor, materials and equipment necessary to complete the construction and casting in place of concrete pad, concrete plinth and other related works; fabrication and installation of reinforcing steel bars; and fabrication and installation of formworks and scaffoldings as indicated on the approved plans.

6.00 PLUMBING WORKS

The work includes all materials, labor, equipment and tools for the provision of catch basins, installation of pipes, modular tank and pumps and all other related works as indicated on the approved plans.

K. CONSTRUCTION OF VRF AREA

2.00 CIVIL/STRUCTURAL WORKS

2.01 Concrete Works

This covers the supply of labor, materials and equipment necessary to complete the construction and casting in place of concrete pad, concrete plinth and other related works; fabrication and installation of reinforcing steel bars; and fabrication and installation of formworks and scaffoldings as indicated on the approved plans.

2.02 Steel Works

This covers the supply of labor, materials and equipment necessary for the fabrication and installation of 3”Ø and 2”Ø G.I. Pipe (Sch. 40), 1” x 1/8” thk. flat bar, 10mmØ plain bar with Cyclone wire #10, and all other related works needed to complete

this item. Epoxy primer and aluminum paint also included in this item of work as indicated on the approved plans.

L. CONCRETING OF VEHICULAR PARKING AREA

Item 100 CLEARING AND GRUBBING

This item includes the supply of labor and equipment required in clearing, grubbing, removing and disposing all vegetation and debris as shown on the approved plans and in conformity with the lines, grades and dimensions. This item covers from Sta. 0+789 to Sta. 0+909 x 0.15m thick.

Item 102 EXCAVATION & DISPOSAL

This item covers the excavation of the proposed concreting of vehicular parking area as shown on the approved plans and in conformity with the lines, grades and dimensions. Place of disposal of excavated materials shall be directed by the CAAP Project-In-Charge. Whereas, any miscellaneous costs shall be the full responsibility of the Contractor. This item covers from Sta. 0+789 to Sta. 0+909.

Item 104 EMBANKMENT

This item covers embankment/backfilling of the proposed concreting of vehicular parking area as shown on the approved plans and in conformity with the lines, grades and dimensions. The embankment shall be composed of suitable materials (common borrow). This item covers from Sta. 0+789 to Sta. 0+909.

Item 105 SUBGRADE PREPARATION

This item covers the supply of labor and equipment necessary to correct the sub grade in preparation for the laying of the next course as shown on the approved plans and in conformity with the lines, grades and dimensions. The work includes the subgrade preparation of 0.15 meter thick loose volume aggregate sub-base course. This also includes compaction as provided in the specifications. This item covers from Sta. 0+789 to Sta. 0+909.

Item 201.2 AGGREGATE BASE COURSE

This item covers the furnishing, placing and compacting of aggregate base course on a prepared subgrade in accordance with specifications and shall conform to the

lines, grade and cross section shown on the approved plans. The work includes the base course of 0.25 meter thick crushed aggregate materials. The base course shall be composed of crushed/uncrushed course aggregate bonded with either soil or fine aggregates or both. This item covers from Sta. 0+789 to Sta. 0+909.

Item 311 PORTLAND CEMENT CONCRETE PAVEMENT

This item covers the supply of materials, labor and equipment required to construct the Portland Cement Concrete Pavement constructed on a prepared base course and shall conform to the lines, grade, thickness and typical cross section shown on the approved plans. The rebars shall be painted and lightly coated with lubricants such as grease to prevent bonding with PCC. This item covers from Sta. 0+789 to Sta. 0+909.

a. Vehicular Parking Area: 3,857 sq.m. x 0.25 m
b. Curb & Gutter: 997.50 m x 0.11 sq.m.
c. Sidewalk and other concrete pavement: 2047 sq.m. x 0.10 m

1.0 MISCELLANEOUS WORKS

The work includes all materials, labor and tools to complete the construction of wheel stop, PWD pedestal & markings and VPA markings as indicated on the approved plans.

M. CONCRETING OF GROUND SERVICE AREA

Item 100 CLEARING AND GRUBBING

This item includes the supply of labor and equipment required in clearing, grubbing, removing and disposing all vegetation and debris as shown on the approved plans and in conformity with the lines, grades and dimensions. This item covers from Sta. 0+755 to Sta. 0+990 x 0.15m thk.

Item 102 EXCAVATION & DISPOSAL

This item covers the excavation of the proposed concreting of vehicular parking area as shown on the approved plans and in conformity with the lines, grades and dimensions. Place of disposal of excavated materials shall be directed by the CAAP Project-In-Charge. Whereas, any miscellaneous costs shall be the full responsibility of the Contractor. This item covers from Sta. 0+755 to Sta. 0+990.

Item 104 EMBANKMENT

This item covers embankment/backfilling of the proposed concreting of vehicular parking area as shown on the approved plans and in conformity with the lines, grades and dimensions. The embankment shall be composed of suitable materials (common borrow). This item covers from Sta. 0+755 to Sta. 0+990.

Item 105 SUBGRADE PREPARATION

This item covers the supply of labor and equipment necessary to correct the subgrade in preparation for the laying of the next course as shown on the approved plans and in conformity with the lines, grades and dimensions. The work includes the subgrade preparation of 0.15 meter thick loose volume aggregate sub-base course. This also includes compaction as provided in the specifications. This item covers from Sta. 0+755 to Sta. 0+990.

Item 201.2 AGGREGATE BASE COURSE

This item covers the furnishing, placing and compacting of aggregate base course on a prepared subgrade in accordance with specifications and shall conform to the lines, grade and cross section shown on the approved plans. The work includes the base course of 0.25 meter thick crushed aggregate materials. The base course shall be composed of crushed/uncrushed course aggregate bonded with either soil or fine aggregates or both. This item covers from Sta. 0+755 to Sta. 0+990.

Item 311 PORTLAND CEMENT CONCRETE PAVEMENT

This item covers the supply of materials, labor and equipment required to construct the Portland Cement Concrete Pavement constructed on a prepared base course and shall conform to the lines, grade, thickness and typical cross section shown on the approved plans. The rebars shall be painted and lightly coated with lubricants such as grease to prevent bonding with PCC. This item covers from Sta. 0+755 to Sta. 0+990.

a. Ground Service Area: 2588.75 sq.m. x 0.25 m

N. EXPANSION OF APRON

Item 100 CLEARING AND GRUBBING

This item includes the supply of labor and equipment required in clearing, grubbing, removing and disposing all vegetation and debris as shown on the approved plans and in conformity with the lines, grades and dimensions. This item covers from Sta. 0+600 to Sta. 1+110 x 0.15m thick.

Item 101 REMOVAL OF EXISTING STRUCTURE AND OBSTRUCTION

This item includes the supply of labor and equipment required in the removal wholly or in part, and satisfactory disposal of all buildings, fences, structures, old pavements, abandoned pipe lines, and any other obstructions which are not designated or permitted to remain, in accordance with the approved plans. It shall also include the salvaging of designated materials and backfilling the resulting trenches, holes, and pits and all other items needed for the completion of this item.

a. Existing VPA: 5276.536 sq.m.
b. Existing PTB: 906.476 sq.m.
c. Existing Admin Building: 120.574 sq.m.
d. Existing Fire Station: 170.414 sq.m.

Item 102 EXCAVATION & DISPOSAL

This item covers the excavation of the proposed concreting of vehicular parking area as shown on the approved plans and in conformity with the lines, grades and dimensions. Place of disposal of excavated materials shall be directed by the CAAP Project-In-Charge. Whereas, any miscellaneous costs shall be the full responsibility of the Contractor. This item covers from Sta. 0+600 to Sta. 1+110.

Item 104 EMBANKMENT

This item covers embankment/backfilling of the proposed concreting of vehicular parking area as shown on the approved plans and in conformity with the lines, grades and dimensions. The embankment shall be composed of suitable materials (common borrow). This item covers from Sta. 0+600 to Sta. 1+110.

Item 105 SUBGRADE PREPARATION

This item covers the supply of labor and equipment necessary to correct the subgrade in preparation for the laying of the next course as shown on the approved plans and in conformity with the lines, grades and dimensions. The work includes the subgrade preparation of 0.15 meter thick loose volume aggregate sub-base course. This also includes compaction as provided in the specifications. This item covers from Sta. 0+755 to Sta. 0+917.

Item 201.2 AGGREGATE BASE COURSE

This item covers the furnishing, placing and compacting of aggregate base course on a prepared subgrade in accordance with specifications and shall conform to the lines, grade and cross section shown on the approved plans. The work includes the base course of 0.25 meter thick crushed aggregate materials. The base course shall be composed of crushed/uncrushed course aggregate bonded with either soil or fine aggregates or both. This item covers from Sta. 0+755 to Sta. 0+917.

Item 311 PORTLAND CEMENT CONCRETE PAVEMENT

This item covers the supply of materials, labor and equipment required to construct the Portland Cement Concrete Pavement constructed on a prepared base course and shall conform to the lines, grade, thickness and typical cross section shown on the approved plans. The rebars shall be painted and lightly coated with lubricants such as grease to prevent bonding with PCC. This item covers from Sta. 0+755 to Sta. 0+917.

b. Expansion of Apron: 162 m x 40 m x 0.30 m

O. DRAINAGE SYSTEM

1.00 SITE WORKS

The work includes all materials, labor and equipment/tools for site works including excavation for RCPC and gravel bedding for VPA catch basins and apron trench drainage as indicated on the approved plans.

2.00 CIVIL/ STRUCTURAL WORKS

2.01 Concrete Works

The work includes all materials, labor and equipment/tools for the construction of all concrete works including installation of reinforcing steel bars for VPA catch basins base, RCPC (grouts), and apron trench drainage base and cover; fabrication and installation of formworks as indicated on the approved plans.

2.02 Steel Works

The work includes all materials, labor and equipment/equipment necessary for the fabrication and installation of steel grating and framing of VPA catch basins and apron trench drain as indicated on the approved plans.

P. CONSTRUCTION OF PERIMETER FENCE

I. CONSTRUCTION OF CHB PERIMETER FENCE

35 bays @ 15 meters per bay

1.00 SITE WORKS

The work includes all materials and labor for site works including clearing and grubbing, excavation, backfilling and provision of compacted gravel bedding approved plans and in accordance with specifications and in conformity with the lines, grades and dimensions. The backfill shall be composed of selected common borrow (suitable) from the excavated materials. Place of disposal of excavated materials shall be directed by the CAAP Project-in-Charge. Whereas, any miscellaneous cost shall be the full responsibility of the Contractor.

2.00 CIVIL/ STRUCTURAL WORKS

2.01 Concrete Works

This Item covers the placement of rebars, forms and concrete pouring of column footings, columns and wall footings constructed on a prepared subbase with 7mm thick gravel bedding in accordance with the specifications and shall conform to the lines, grade, thickness and typical cross section shown on the approves plans. This Item also consists of furnishing all materials, tools, and equipment including labor required in undertaking the proper application

1.03 Masonry Works

This Item includes materials, labor, and equipment required for the laying of 150 mm. thick CHB of covered area including cut, bend and installation of reinforced steel bars, formworks and scaffolding as specified on the approved plans. CHB wall shall be plastered on both sides with thickness of 12 mm. Materials to be used and workmanship must be approved by the Project-In-Charge assigned by CAAP.

2.02 Steel Works

This Item includes materials, labor, equipment, and performance of all operations for steel works to complete the fabrication and installation of G.I. pipes (security fence) with 5 strands of barbed wires as indicated on the approved plans. This item covers a total of 35 bays at 15.00 meters per bay. All G.I. pipes Sch. 40 shall be painted with epoxy primer before final coat is applied. The materials to be used must be approved by the CAAP Project-in-Charge. This Item covers a total length of 525 linear meters.

3.00 ARCHITECTURAL WORKS

3.02 Masonry Works

This Item includes materials, labor, and equipment required for the laying of 150 mm. thick CHB of covered area including cut, bend and installation of reinforced steel bars, formworks and scaffolding as specified on the approved plans. CHB wall shall be plastered on both sides with thickness of 12 mm. Materials to be used and workmanship must be approved by the Project-In-Charge assigned by CAAP.

II. CONSTRUCTION OF SECURITY FENCE W/ GATE

Fence : 128 bays @ 2 meters per bay
Crash Gate : 2 units @ 6 meters per unit
Man Gate : 1 unit @ 1.25 meters per unit

1.00 SITE WORKS

The work includes all materials and labor for site works including clearing and grubbing, excavation, backfilling and provision of compacted gravel bedding approved plans and in accordance with specifications and in conformity with the lines, grades and dimensions. The backfill shall be composed of selected common borrow (suitable) from the excavated materials. Place of disposal of excavated materials shall be directed by the CAAP Project-in-Charge. Whereas, any miscellaneous cost shall be the full responsibility of the Contractor. This item covers the following:

a. Security Fence w/ gate at VPA: Fence- 99 bays @ 2m per bay
Gate- 5 meters *(2 sets)*
b. Security Fence w/ gate at Existing Control Tower:
Fence- 29 bays @ 2m per bay
Gate- 1.25 meters *(1 set)*

1.02 Concrete Works

This Item covers the placement of rebars, forms and concrete pouring of column footings, columns and wall footings constructed on a prepared subbase with 7mm thick gravel bedding in accordance with the specifications and shall conform to the lines, grade, thickness and typical cross section shown on the approves plans. This Item also consists of furnishing all materials, tools, and equipment including labor required in undertaking the proper application

a. Security Fence w/ gate at VPA: Fence- 99 bays @ 2m per bay
Gate- 5 meters *(2 sets)*
b. Security Fence w/ gate at Existing Control Tower:
Fence- 29 bays @ 2m per bay
Gate- 1.25 meters *(1 set)*

1.03 Masonry Works

This Item includes materials, labor, and equipment required for the laying of 150 mm. thick CHB of covered area including cut, bend and installation of reinforced steel bars, formworks and scaffolding as specified on the approved plans. CHB wall shall be plastered on both sides with thickness of 12 mm. Materials to be used and workmanship must be approved by the Project-In-Charge assigned by CAAP.

a. Security Fence at VPA: Fence- 99 bays @ 2m per bay
b. Security Fence at Existing Control Tower: Fence- 58 bays @ 2m per bay

1.04 Steel Works

This Item includes materials, labor, equipment, and performance of all operations for steel works to complete the fabrication and installation of G.I. pipes (security fence & gate) with 5 strands of barbed wires as indicated on the approved plans. This item covers a total of 99 bays at 3 meters per bay and gate length of 12 meters. All G.I. pipes Sch. 40 shall be painted with epoxy primer before final coat is applied. The materials to be used must be approved by the CAAP Project-in-Charge. This Item covers a total length of 309 linear meters.

a. Security Fence w/ gate at VPA: Fence- 99 bays @ 2m per bay
Gate- 5 meters *(2 sets)*

b. Security Fence w/ gate at Existing Control Tower:
Fence- 58 bays @ 2m per bay
Gate- 1.25 meters *(1 set)*

SPL-2 TEMPORARY FACILITIES

The following provisions must be delivered within ten (10) days upon receipt of the Notice to Proceed (NTP).

1.0 STAFF HOUSE

This item covers the Contractor's provision of PMO Staff House on rental basis. The Facility shall be provided with air-con including the supply of kitchen utensils, gas and stove, beds and beddings, and dining sets for the exclusive use of CAAP-PMO in supervising the project. The Contractor shall be responsible for the payment of utility bills (water and electric) for the whole duration of the project.

2.0 SERVICE VEHICLE

This covers the provision of one lease/rent to own service vehicle, brand new latest model 4 x 4 pick-up with cab, air conditioned, automatic transmission, power window and diesel for the exclusive use of CAAP Engineers supervising the project for the period of Six Hundred Sixty (660) Calendar Days. Land Transportation Office for the service vehicle will be provided by the Contractor. Moreover, driver, fuel and maintenance for the service vehicle will also be provided by the contractor that are incorporated in the contractors overhead cost throughout the duration of the project, but will not be considered as per item.

The service vehicle including the Certificate of Registration and Official Receipt will be transferred and registered in the name of Civil Aviation Authority of the Philippines (CAAP) and will be turned over to the ADMS in good running condition after the completion of the project.

The ADMS will then transport the said service vehicle to the CAAP Central Office and will utilize the same as the Service's Official vehicle.

All Scopes of Work for the project must be in accordance with the approved Plans and Specifications. Quality and types of materials must be approved by the CAAP Project-in-Charge.

GENERAL PROVISIONS

Provisions for staff house, service vehicles, laptops, printers, cameras, plotters, furniture and other materials, devices and equipment under Special Item or Temporary Facilities shall not include OCM & CP.

The contractor shall be responsible in providing safety perimeter fence or security fences, personal protective equipment (PPE) for staffs and workers on site while construction is ongoing. Safety reports should be prepared regularly.

The contractor shall be responsible for all laboratory, material testing, building and safety permits and survey instruments necessary in the project implementation. These expenses shall be incorporated in the contractor's overhead cost and shall not be considered as pay item.

SPECIFICATIONS

Section 105 Mobilization

105-1 Description. This item shall consist of work and operations, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-1.1 Posted notices. Prior to commencement of construction activities the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster "Equal Employment Opportunity is the Law" in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL "Notice to All Employees" Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

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The Owner may include additional posted notices as required by local and State law.

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105-2 Basis of measurement and payment. Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

a. With first pay request, 25%.

b. When 25% or more of the original contract is earned, an additional 25%.

c. When 50% or more of the original contract is earned, an additional 40%.

d. After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials as required by 90-11, the final 10%.

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Item Mobilization may be added to project at Owner's discretion. Rather than paying Contractor 100% of mobilization on first pay request, many Sponsors have found a payment schedule to be an effective way to reimburse Contractor for mobilization and demobilization. It is not required but it is recommended that the final 10% of this bid item not be paid until the Contractor has cleaned up the project staging area. The payment schedule can be altered, e.g., on small projects may not be appropriate to have more than two (2) payments.

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END OF SECTION 105

********** ********** The Engineer may add or edit this item as necessary to address project requirements. Coordinate modifications in accordance with Order 5300.1. ********** ********** DESCRIPTION 101-1 This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable plans. EQUIPMENT AND MATERIALS 101-2 All equipment and materials shall be specified here and in the following paragraphs or approved by the Resident Project Representative (RPR). The equipment shall not cause damage to the pavement to remain in place. CONSTRUCTION 101-3.1 Removal of existing pavement. The Contractor's removal operation shall be controlled to not damage adjacent pavement structure, and base material, cables, utility ducts, pipelines, or drainage structures which are to remain under the pavement. a. Concrete pavement removal. Full depth saw cuts shall be made perpendicular to the slab surface. The Contractor shall saw through the full depth of the slab including any dowels at the joint, removing the pavement and installing new dowels as shown on the plans and per the specifications. Where the perimeter of the removal limits is not located on the joint and there are no dowels present, the perimeter shall be saw cut the full depth of the pavement. The pavement inside the saw cut shall be removed by methods which will not cause distress in the pavement which is to remain in place. If the material is to be wasted on the airport site, it shall be reduced to a maximum size of [ ]. Concrete slabs that are damaged by under breaking shall be repaired or removed and replaced as directed by the RPR. The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Spall and underbreak repair shall be in accordance with the plans. Any underlaying material that is to remain in place, shall be recompacted and/or replaced as shown on the plans. Adjacent areas damaged during repair shall be repaired or replaced at the Contractor's expense.

1. CIVIL / STRUCTURAL WORKS

1.1. EXCAVATION, FILLING AND GRADING

SCOPE OF WORK

The work under this section of the Specifications consists of furnishing all items, materials, equipment, labor, plants, appliances, methods and all operations that may be necessary, and incidentals to complete excavation, filling, back-filling and grading in accordance with the Plans, and schedule if any, and subject to the terms and conditions of the Contract.

A. EXCAVATION

The Contractor shall make all necessary excavation for foundations to establish grades indicated on drawings without extra compensation including all other excavations required and necessary for the proper prosecution of the work.

1. Cut slope for permanent excavations shall not be steeper than 1-1/2 horizontal to one vertical, and slopes for permanent fills shall not be steeper than 2 horizontal to one vertical unless a substantiating data which justify steeper slopes are submitted.

2. Deviation from the foregoing limitations for slopes shall be permitted only upon presentation of a soil investigation report acceptable to the supervising Engineer.

3. Trim the excavation to the required depth, lines and grades and other incidental excavations to level up the footing plus compacting tamping which are included in the building contract.
4. The materials to be excavated shall include any rock, earth and other materials of any nature and description encountered in obtaining the indicated lines and grades.

5. If the required safe bearing power of the soil is not obtained at the excavations shall be continued until such safe bearing power is reached.

6. Piers and walls shall be lengthened accordingly and likewise, the footings shall be revised to suit the new conditions for which the Contractor shall be paid at the unit price bid for concrete work.

7. No fill or other surcharge loads shall be placed adjacent to any building or structure unless such building or structure is capable of withstanding the addition loads caused by the fill or surcharges.

8. Footings or foundations which may be affected by the excavation shall be underpinned adequately, or otherwise, protected against settlement and/or against lateral movement.

9. Fills to be used to support the foundations shall be placed in accordance with accepted engineering practices. A soil investigation report and a report of satisfactory placement of fill, both, shall be acceptable to the supervising Architect or Engineer.

10. Additional payment for excavation will be computed per unit bid price and/or at established unit price for same as follows:

EXCAVATION, FILLING AND GRADING

a) All materials of every nature and description, which in the Owner's opinion will require the use of air operated hammers, wedging, or drilling and blasting.

b) For additional excavation to safe-bearing power soil as required in 5 based upon work required between indicated grades and authorized grades.

B. UNAUTHORIZED EXCAVATION

1. Where existing surface levels are lower than the sub-grade levels required for work, or where excess or authorized excavation takes place beyond the indicated lines and grades, the contractor shall fill the indicated line and grade at his expense under the following conditions.

2. Where the footings and foundations occur, use concrete fill of the same class as specified for footings and foundations.

3. Where slabs occur, use well compacted sand and gravel fill.

C. EXCAVATION OMITTED

1. When the nature of the soil is such that good-bearing or safe-bearing is found to exist at higher grades than the sub-grade levels indicated on the Plan, the supervising Architect or Engineer may decide to stop the excavation work at those higher grades.

2. Should the Owner so decide, it will be ordered in writing. This will be subject to reduction in the contract price in favor of the Owner at Unit Price Bid and or at established price based upon measurements taken between authorized higher grades and grades indicated on drawings. The same is true for omitted filling due to change of grade.

3. Footing shall not be placed on fill.

D. PROTECTION, PUMPING AND MAINTENANCE

1. The Contractor shall at all times protect the excavations and trenches from damages of rain water, spring water, backing of drains, and all other water.

2. He shall provide and operate all pumps or other equipment necessary to drain and keep excavations, pits, trenches and the entire sub-grade area free of water under any circumstances and contingencies that may arise.

3. He shall build all necessary enclosures, construct and maintain temporary drainage for this purpose. He shall provide all shoring, bracing and sheathing as required for safety, or necessary to support adjoining walls, walks, soils, streets, buildings, fences, and the like and for prosecution of the work, all these to be removed when work is completed, and or required by the Owner.

E. BLASTING

F. INSPECTION

No pouring of concrete shall be done by the Contractor unless the bearing surfaces has been inspected and approved by the Owner, and the authority to proceed has been received by the contractor.

G. DRAINAGE SYSTEM AT SITE

The Contractor shall provide, construct and maintain for the duration of the work, drainage system of the site approved and or as directed by the supervising Architect or Engineer.

H. UTILITIES

1. The Contractor shall protect and maintain all conduits, drains, sewer pipes and other utility services that are to remain on the property or in the building, or in the site, where required for the proper execution of the work.

2. The Contractor shall notify all corporations, companies, individuals, or the other authorities concerned with the above conduits, drains, water and sewer pipes, running to the property of the site, and protect relocate, remove, cap or discontinue all pipes, sewer, and other utility services, which interfere with the excavation in accordance with instruction and requirements of the above notified parties.

I. FILLING AND GRADING

1. All excavations shall be back-filled immediately as work permits after concrete walls and piers have attained full design strength and or as the Owner's Engineer directs.

2. After the forms have been removed from the footings, walls and piers, the materials taken from excavations (free from waste and objectionable matter) shall be used for back-filling around them.

3. These filling materials shall be made in layers not to exceed 15 centimeters and thoroughly tamped before the next fill is placed. Excess excavated materials shall be placed and spread on the immediate premises as directed by the supervising Engineer, provided, however, that the Contractor shall not be required to remove such materials more than 50 meters from the building line.

4. Open tile drains around the building if any, shall be covered with crushed rock or gravel for a depth of 30 cm. and the same shall be graded from course to fine.

5. Open tile drains under floor slab (where so indicated on drawings) shall be covered with broken stones or gravel up to the bottom of the slab.

6. In spaces where slabs rest on ground, or on earth-fill as specified in paragraph 2, shall be labeled and accurately graded with 10 cm. thick of gravel and sand, and tamped thoroughly before concrete pouring is done.

7. All exterior grades shall be formed in accordance with the drawings and specifications, taking into account the requirements for landscaping work, if any, and giving due allowances for the top soil depth.

8. The Contractor shall grade the area included within clearing lines as defined "Clearing" under the General Conditions, and all such grading work should be included in the building Contract without extra or additional cost. Banks of graded areas shall have a slope of 3.8 cm. horizontal to one vertical distance.

9. Extra grading (cut or fill) beyond the ___meters and or due to change of grade shall be paid at the unit price bid for the same.

J. TOP SOIL STRIPPING AND SPREADING

For use when topsoil is salvaged for landscaping work.

1. Topsoil stripping operations shall start from the areas affected by the construction to limits indicated by the Owner and or as specified.

2. Topsoil shall be stripped to varying depths as approved by the Architect, but not beyond topsoil strata.

3. Topsoil shall be stripped by approved methods and stored where it will not interfere with the work.
4. This topsoil shall be evenly spreaded to the true contours and raked to even, smooth surfaces ready for seeding and planting.

K. TEMPORARY EASEMENT

The Contractor shall obtain the consent of adjoining property owners regarding the need for temporary easements or any other manner of physical encroachment at his own expense.

L. PAVEMENT

The Contractor shall restore, without extra cost to the Government, any street pavements, concrete sidewalks and curb, and similar public structures that may be opened, removed or demolished in the performance of work under this Section in the manner prescribed by authorities having jurisdiction.

M. PROTECTION OF TREES

The Contractor shall protect trees indicated to remain in place by boxing them, by using guys and the like, and or as indicated by the supervising Architect or Engineer.

N. PROTECTION OF ADJOINING PROPERTY

The Contractor shall protect the excavation to be made below existing grade line so that the soil of adjoining property will not cave-in or settle and shall defray the cost of underpinning or extending the foundation of buildings on adjoining properties.

1. Before starting the excavation, the Contractor shall notify in writing the owners of the adjoining buildings not less than 10 days before such excavation is to be made and that the adjoining building will be protected by him.

2. The Owners of the adjoining properties shall be given access to the excavation for the purpose of verifying if their properties are sufficiently protected by the contractor making the excavation.

3. In case there is a party wall along a lot-line of the premises where an excavation is being made, the contractor at his expense preserve such party wall in as safe a condition as it was before the excavation was commenced and shall, when necessary, underpin and support the same by adequate methods.

4. Guards or fences shall be provided along open sides of excavation except that, in the discretion of the Engineer such guards or fence may be omitted from any side or sides other than those adjacent to streets or public passageways.

1.2.CONCRETE WORKS

A. PLAIN AND REINFORCED CONCRETE

SCOPE OF WORK

This Item shall consist furnishing, placing and furnishing concrete in buildings and related structures, flood control and drainage, and water supply structures in accordance with this Specifications and conforming to the lines, grades, and dimensions shown on the Plans.

GENERAL REQUIREMENTS

1. **Acronyms**

   The following acronyms for applicable standards/ publications are referred to this Specification:

   ASTM – American Society for Testing Materials
   ACI – American Concrete Institute
   POI – Pre Stressed Concrete Institute
   AWS – American Welding Society
   AISC – American Institute of Steel Construction

2. **Standard Specifications and Codes**

   The work covered by this Section unless otherwise specified or detailed, shall be governed by the Building Code requirements for Reinforced Concrete (ACI 318), Standard Code for Arc and Gas Welding Society. The latest edition of all standards Specifications or Codes will be used.

3. **Coordination**

   The concrete work shall be coordinated with the work of other trades allow reasonable time to set sleeves, inserts and other accessories which must be in position before concrete bases and pads of mechanical equipment shall be placed to comply with approved shop drawings for the equipment.

4. **Workmanship**

   The Contractor shall be responsible for any additional cost which may result from concrete surfaces which are not finished to the required profile or elevation.

5. **Samples**

   The Contractor shall submit samples of cement and aggregates proposed for use in the concrete work for approval, enumerating names, sources and description of materials.

MATERIAL REQUIREMENTS

1. Portland Cement

a) Portland cement shall conform to the requirements of ASTM C-150 Type for normal Portland cement; Type-III for Highly Early Strength Portland Cement.

b) Cement shall be any standard commercial brand in 40 kilograms per bag such as: Filipinas, Union, Republic Apo or other locally available equivalent.

2. Fine Aggregates

Sand shall be clean, hard coarse river sand or crushed sand free from injurious amount of clay loam and vegetable matter and shall conform to ASTM C-33 or C330.

3. Coarse Aggregate

Gravel shall be river run gravel or broken stones. The maximum size shall be 1/5 of the nearest dimension between sides of forms of the concrete, or ¾ of the minimum clear spacing between reinforcing bars, or between re-bars and forms whichever is smaller.

4. Mixing Water

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

5. Admixture

All air-entertaining admixtures if used shall conform to ASTM C-260. Water reducing admixtures, retarding admixtures, and water reducing and accelerating admixtures, if used, shall conform to the requirements of ASTM C-494.

STORAGE OF MATERIALS

1. Cement and Aggregates shall be stored in such a manner as to prevent their deterioration or the intrusion of foreign matter

2. Cement shall be stored, immediately upon arrival on the site of the work, in substantial waterproof bodegas, with a floor raised from the ground sufficiently high to be free from dampness. Aggregates shall be stored in such manner as to avoid the inclusion of foreign matter.

PLAIN CONCRETE

General Requirements

1. Plain Concrete, other than fill, shall have a minimum ultimate compressive strength at 28 days of 140 kilograms per square centimeter or 2,000 pounds per square inch and material proportioning, and placing shall conform to the requirement of this section.

2. Concrete made with lightweight aggregate may be used with strengths less than 140 kg. per square centimeter if it has been shown by tests or experience have sufficient strength and durability.

3. The thickness of plain concrete walls may be 5 centimeters (2 inches) less than the required by 6.17 for plain masonry wall but in no case less than 18 centimeters and the ratio of unsupported height or length whichever is the lesser to thickness shall not be greater than 22.

4. Concrete shall consist of Portland Cement, fine aggregates, water, and where specified, Admixtures, proportioned mixed place, cured and finished as hereinafter specified.

5. The following special types of concrete shall be used where indicated on the detailed drawings or as specified.

    a) Lean Concrete
    b) Concrete with integral waterproofing
    c) Highly early strength concrete may be used subject to the approval of the supervising Architect or Engineer.

6. All provisions of the Specifications shall apply the seven (7) day compressive strength equal to the 28 day strength required for normal concrete. Admixture used in concrete shall be produced by a reputable manufacturer and used in accordance with the manufacturer's printed directions.

    a) **Plasticizing Admixture** – Concrete admixture shall be free from chlorides and shall conform to ASTM C-494-651. The admixtures shall be used in all concrete mixtures in accordance with the manufacturer's specifications.

    b) **Calcium Chloride** – shall not be used under any circumstances.

PROPORTIONING OF CONCRETE

1. The Contractor shall employ, at his own expense, an approved testing, laboratory which shall design the mix for each type of concrete required by the Specifications and drawings to obtain strength as determined at least 15% higher than required. Strength requirements shall be as noted on the drawings.

2. The adequacy of the mix design shall be verified by a test on a minimum of 6 cylinders, 3 tested at 7 days; 3 at 28 days, in accordance with ASTM C-192 and G-3 and by Slump Tests in accordance with ASTM C-143.

3. The testing laboratory shall submit 5 copies of the mix design and the test results to the Owner or his duly authorized representative for approval before any concrete is placed.

4. If any time during construction, the concrete resulting from the approved mix design proves to be unsatisfactory for the reason such as too much water, lack of sufficient plasticity to prevent segregation, honeycomb, etc. or insufficient strength, the Contractor shall immediately notify the testing laboratory and the supervising Engineer.

5. The laboratory shall modify the design, subject to approval by the supervising Architect or Engineer until a satisfactory concrete is obtained.

6. **Stone concrete** – Minimum compressive cylinder strength of concrete fc' at 28 days area as follows:

    a) Fc' 27.58 Mpa for suspended beam, slab and columns
    b) Fc' 20.68 Mpa for footings and walls.

7. The **Water Content** shall not exceed 28 liters per 40 kilograms per bag cement, and the slump test shall not exceed 10 cm. in all cases unless otherwise changed by the supervising Architect or Engineer.

8. **Lean Concrete** – Lean concrete mix to be designated to produce concrete with 28 day strength of 13.79 Mpa, slump and size shall be subjected to approval depending where it is mixed.

DETERMINING CONCRETE PROPORTIONS
CONCRETE PROPORTIONS AND CONSISTENCY

1. The proportions of aggregate to cement for any concrete shall be such as to produce a mixture which will work readily into the corners and angles of the form and around reinforcement without permitting the materials to segregate or excess free from water to collect on the surface.

2. The methods of measuring concrete materials shall be such that the proportions can be accurately controlled and easily checked at any time during the work.

CONCRETE TEST

1. Testing Laboratory

a) The Contractor shall employ at his own expenses, an approved Testing Laboratory which may shall make compression and Slum Tests and immediately submit 5 copies of the test reports to the supervising Architect or Engineer.

b) Ready mixed concrete companies may use their own laboratories provided that testing is done with the supervision of the Owner or his authorized representatives.

2. Compression Slump Test

Compression and Slump Tests shall be made every 50 cubic meters of concrete or fraction thereof; but not less than 1 set of tests shall be made from any one batch of concrete and all 3 tests shall be made from the same batch.

3. Compression Tests

Make 3 standards 15 cm x 30 cm. cylinder and tests in accordance with ASTM C-31 and C-39. The one (1) cylinder at the age of 28 days and one (1) cylinder in reserve for 56 days test. If the 28 days test does not meet the requirements, make additional cylinder as required to check strength of concrete in the construction. These cylinders are to be cured in the field in the same manner as to the concrete in the construction is cured.

4. Slump Test

For each representative quantity of concrete mentioned above, two slump tests shall be made in accordance with ASTM C-143.

5. Test Report

The testing laboratory shall submit 4 copies of its test cylinder reports which are to include, as far as applicable, the following information:

a) Location of the structure where the concrete is used, design number, concrete design strength, type and manufacturer of Portland cement.

b) Amount of any Admixtures used, Slump Tests, date of sampling, cylinder application number, days cured in the field, and days cured in laboratory.

c) Age at the time of testing, crushing stress, type of failure, who made the cylinders, who shipped the cylinders to the laboratory and whether concrete strength meets the specifications.

6. Inspection of Batch Plant Operation

Inspection on a "Spot Check" basis required to insure the concrete delivery to the job complies with the Specifications and the design mix. The testing laboratory shall provide this service as directed by the Owner's supervising Engineer.

7. Additional Tests

If, in the opinion of the supervising Engineer, based on cylinder strengths below specifications requirements or visual defects, concrete of poor quality has been placed, additional tests shall be made as directed by the Owner at the expense of the Contractor. Test may be Compression Test on core cylinder per ASTM C-42, and or Lead Tests as cut-lined in ACI 318, Section 202, or as specified.

MIXING CONCRETE

The mixing and measuring equipment shall be approved by the supervising Architect or Engineer. Unless otherwise authorized, concrete shall be machine mixed at the site or by ready-mixed concrete.

1. Site Mixed Concrete

Provide a batch mixer type equipped with accurate timing and measuring devices and operate in accordance with the manufacturer's recommendations:

2. Mixing Time

a) For each batch, after all solid materials are placed inside the mixing drum, and water is introduced before ¼ of the mixing time has elapsed, shall not be less than 1 minute for mixers having a capacity of one (1) cubic meter or a fraction thereof for additional concrete.

b) The concrete mixer shall revolve at no less than 14 or more than 20 revolutions per revolutions per minute. Speed greater than 20 revolutions per minute and less than 14 revolutionary per minute are usually found to be unsatisfactory.

READY MIXED CONCRETE

1. All ready mixed concrete shall conform to the requirements of ASTM C-94, placed in forms within one (1) hour after adding water or not more than ½ hours if a retarder is used. It shall be kept constantly agitated during the transit period.

2. Pouring of concrete should not be started until after the forms and reinforcement for the whole unit are properly laid and installed, cleaned, inspected and approved.

3. Construction joints shall be rough-in and clean thoroughly before any pouring starts. Wet and slush surface with cement mortar.

HANDLING AND PLACING CONCRETE

1. Immediately after the concrete is mixed, it shall be conveyed by the approved push cart or buggies to designated locations, and carefully deposited in such manner as to prevent the separation of ingredient or displacement of the reinforcements.

2. Keep temporary runways built in such a manner that runway supports will not bear upon reinforcement of fresh concrete. Conveying or hauling of concrete by the use of long inclined chutes or pipes shall not be permitted.

3. Dumping concrete into carts or buggies with a free fall of more than one (1) meter will not be permitted. Hardened splashes or accumulation of concrete on forms or reinforcements shall be removed before the work continues.

4. When placing more than 1.50 meters high, it shall be deposited through sheet metal or other approved conveyors.

5. As for practicability, the conveyers shall be kept full of concrete during the placing and their lower ends shall be kept buried in the newly placed concrete.

6. After the initial set of the concrete, the forms shall be jarred, and no strain' shall be placed on the ends of the projecting reinforcing bars. Foundation shall be free from water during concreting and construction joints shall be determined by the supervising Architect or Engineer.

7. Concrete in columns shall be placed in one continuous pouring operation and allowed to set 12 hours before caps are placed. Likewise, concrete in beams and slabs in superstructures shall be poured in one operation.

RE-TAMPERING

The contractor shall mix only such quantities that are required for immediate use. Mixture which has developed initial setting shall not be used. Concrete which has partially hardened shall not be re-tampered for use.

CURING AND PROTECTION

1. All concrete work shall be protected from drying out after removal of forms by covering with waterproof paper, polyethylene sheeting burlap, with a coating of approved membrane curing compound having a moisture retention equal 90% based on ATM C-309 and C-156, applied in accordance with the manufacturer's instruction for use

2. Membrane curing compound shall not be used where the floor hardener, membrane waterproofing, damp-proofing, resilient floor tile or other floor or wall covering set in adhesive, concrete-fill or setting beds, paint, plaster or other applied finishing or surfaces treatment are to be subsequently applied.

3. Wet burlap as often as required to keep concrete wet throughout each day for as period of at least 7 days where normal Portland cement is used and 3 days where high early strength cement is used.

METAL REINFORCEMENT

1. Steel Bars

a) Reinforcing bars shall conform to ASTM Specifications A-615. All mild steel for columns, shear wall, footings and footing beams shall be high grade deformed 413.7 Mpa.

b) For 10 mm and smaller bars use intermediate grade deformed bars. Fy = 275.8 Mpa

c) If reinforcing bars are to be welded, these specifications shall be supplemented by requirements assuring satisfactory weld ability.

d) Bar and rod mats for concrete reinforcement shall conform to ASTM Specifications A-184 and Wires for concrete reinforcement shall conform to ASTM A-82 Specifications.

e) Welded wire fabric for concrete reinforcement shall conform to ASTM A-185 except that the weld shear strength requirements shall be extended to include a wire size differential up to and including six gauges.

f) Wire and strand shall conform to ASTM A-416. Structural steel shall conform to ASTM A-26 and Steel pipe for composite column shall conform to ASTM Specification A-377.

2. Accessories

Provide bar supports and other accessories necessary to hold reinforcing bars in the proper positions while concrete is being placed. Bar supports which come in contact with forms for concrete exposed to view in the finished structure shall be galvanized or stainless subject to approval.

3. Mill Certificate and Test

a) The Contractor shall furnish 2 copies of the manufacturer's certificate of mill tests al reinforcing steel.

b) The Contractor shall, employ at his own expense an approved testing laboratory which shall conduct testing of all reinforcement sizes of each bulk under the supervision of the supervising Architect or Engineer.

4. Shop Drawing

a) Each reinforcing steel detail and placement drawings shall be submitted for approval. Any material fabricated before the final approval of the shop drawings will be done at the Contractor's risk, but no material shall be installed until final approval of the "Shop Drawings".

b) All shop drawings shall be in accordance with the Manual Standard Practice for Detailing Reinforced Concrete Structure ACT-315.

5. Labeling

Bars shall be properly labeled with weatherproof tags to facilitate identification.

PLACING OF REINFORECEMENT

1. All reinforcement shall be placed according to the approved drawings. The Contractor shall provide sufficient bar supports, ties, anchors and other accessories to hold all bars securely in place.

2. Unless detailed on drawings, all stirrup shall be held in place by bar spacer. Reinforcing steel shall be cleaned of oil, grease, scale, rust or other coatings which will impair bond.

3. All bars shall be bent cold

4. All welded spices shall be done by certified welders having welder's certificate and shall be submitted and approved by the supervising Architect or Engineer before any welding works shall be started.

5. The welding of bars shall conform to AWS D -12.1 Recommended Practices for Welding Reinforcing Steel.

STORAGE OF MATERIALS

Reinforcing steel bars shall be stored on supports above the ground level properly covered with roof or plastic materials for protection from direct effect of moisture and the considerable delay in use.

FORMS

General Conditions

1. Forms shall conform to the shape, lines and dimensions shown on the drawings. They shall be substantial and designed to resist the pressure and weight of the concrete.

2. Forms shall be properly tied and braced or shored so as to maintain their position and shape. Forms shall be sufficiently tight and strong to prevent leakage of mortar.

3. Where required by the Owner, Shop drawings of formwork, shall be submitted for approval before fabrication and erection of such formwork.

4. Provide temporary openings where necessary to facilitate cleaning and inspection before depositing concrete.

5. Before construction, all form materials are subject to approval. The type of form used shall be in accordance with the finish requirements as specified or as shown on the detailed drawings.

6. Forming shall start at the first floor level with new materials. Forms for exposed concrete may be reused only if the surface has not absorbed moisture and has not splintered, warped or peeled, subject to the approval of the supervising Architect or Engineer.

7. Forms shall be coated with non-staining form oil before setting reinforcement. The form oil shall not contain chemical that will impair the strength of the concrete.

8. Side forms of footings may be omitted and concrete be placed against the next excavation only when approved by the supervising Architect or Engineer.

9. All exposed corners shall be square. Extra care shall be exercised while stripping the forms. Corners shall be protected against chipping or other damages that may be caused by the working force.

10. Removal of forms or shoring is subject to approval by the supervising Architect or Engineer, and under no circumstances shall bottom form and shoring be removed until after the members have acquired sufficient strength to support their weight and the load thereon. Forms shall main in place for a minimum time as follows:

Columns, shear and bearing walls --------- 3 days
Stairs (bottom forms) ---------- 21 days
Beams and Slabs (bottom form) --------- 21 days

OTHER FORMS

Exposed exterior surfaces of building where Architectural finishing is required and as shown on detailed drawings, the following conditions shall be observed:

1. Forms shall be designed and constructed to facilitate early removal without damage to exposed surfaces of the concrete, free of offsets, and square corners true to lines and profiles as detailed.

2. Form ties will not be permitted through forms for surfaces which will be exposed. Formworks shall not be used twice unless otherwise approved by the supervising Architect or Engineer.

3. Exposed and Interior Surfaces treated plywood forms or moisture resistant plywood shall be laid vertically or horizontally in large are with joints so arranged and treated properly as required to provide smooth concrete surfaces.

FORMWORK ACCESSORIES

Form ties shall be submitted for approval. It shall be so designed as to leave no metal closer than 19 mm to the surface of the concrete or to leave a hole greater than 22mm in diameter on the face of the concrete.

FINISHING OF FORMED SURFACE

Remove forms and form tie ends then fill holes with 1:2 Portland cement mortar mixed to match the concrete. All defective areas below grade line not exposed to view shall be patched with Portland cement mortar mixed to match the concrete mixture as directed by the supervising Architect or Engineer.

1. *Exposed Exterior surfaces of the building where special finish is indicated* – Concrete shall be placed and finished as herein before specified and as required to provide eve dense surface of uniform color, free from marks, aggregate, pockets, honeycomb or other imperfections so that after treatment of the finished surfaces will not be required.

2. Any concrete which is not formed on level of alignment, or shows defective surfaces shall be considered as not conforming with the expense of the Contractor, unless the Owner or his authorized representative grants permission to patch or otherwise correct the defective areas.

3. Permission to patch any such area shall not be a waiver of the right of the Owner to require complete removal of the defective works.

4. *Exposed Interior Finishes* – patch all defective areas and remove all fins, form joint marks, rough spots and other defects by rubbing with a suitable tools until such defects and rough areas are completely removes and surfaces free from imperfections so as to produce dense, smooth, uniform finish with desired texture and design.
5. Silicone water repellent shall be applied to all exterior exposed concrete surfaces above grade which are not to be painted.

INSERT, SLEEVE AND SIMILAR ITEMS

1. All required flashing, reglets, seal, masonry ties, anchors, wood locks, nailing strips, ground, inserts, wire hangers, sleeves, drains, guard angles, (*insert for elevator guide supports where required)*, provisions for floor hinges boxes, and concealed overhead door closer and al items specified, as furnished under this and other sections of the Specifications shall be in their final position at time concrete is placed and shall be properly located, accurately positioned and built-in to the construction and maintained securely in place.

2. Insert on hangers for ceiling construction specified under the plastering section shall be located only in bottom of concrete ribs or other concrete members crossed such ceiling construction.

3. Sleeves shall not be installed in beams, ribs, or column, except upon formal approval of the Architect or Engineer.

4. All stone-cut and V-cut lines, Sunk fillets, and the like, on concrete wall surface shall be integrated into the concrete with the corresponding removable mould on the forms before the concrete is poured and shall be finished straight and clean-cut in accordance with the size and shape as shown on full size details.

FINISHING OF SLAB

1. Finish floor and roof slabs shall be level plane surfaces unless otherwise specified on the drawings, with a tolerance of 3 mm in 3.0 meters. Surfaces shall be slope towards the drains as required.

2. Resilient flooring, Ceramic Tile or Marble, base slabs which are to receive these finishes or other finished requiring “Thin-Set” installation shall be floated and toweled with a steel trowel to provide a smooth surface as required to receive the flooring.

3. For roofing membrane waterproofing, the working processes is the same as that for Resilient Flooring except steel troweling which may be omitted.

4. Exposed concrete finish surface where no finishing applied as called for on the drawings shall be finished with a steel trowel as required to produce a hard, dense finish free from surface imperfections.

5. Dry materials should not be used on the surface to be finished. Apply hardener and sealer in accordance with the manufacturer's printed instructions.

WATERTIGHT CONCRETE

1. All waterproofing on deck wherever called for in the plan shall be guaranteed to be absolutely water proofed and free from leaking for a period of two (2) years.

2. Should any leakage develop in these areas, they shall be made waterproof by approved waterproofing methods and materials and this shall be repeated if necessary until all leaks has been stopped.

3. Guarantee shall extend for a full two years after the last leak has stopped

4. All pipes or piping under slabs must be completed before the slabs are poured.

CONCRETE FLOORS ON FILL

Concrete floor and steps on fill shall be laid on a prepared foundation which shall be placed as follows:

1. Earth or sand fill shall be laid to a uniform grade as shown on the detailed drawings; fill shall be placed in layers not to exceed 15 centimeters thick, for each layer being thoroughly wetted and rolled or tampered.

2. Earth or sand fill shall be made as soon as the concrete of the walls and foundations has set sufficiently to permit the filing load and pressure. On top of this fill shall be placed 10 cm. layer of gravel which shall be rolled or tampered.

3. All of these sand and gravel foundations specified above shall be kept wet for at least 30 days after rolling or tamping so as to allow settlement before the floors are placed.

4. Concrete floors shall be laid in alternate strips about one (1) meter in width by 6 meters minimum length, but following pattern shown on drawings. The construction joints shall coincide with the groove in case such items are called for in the cement finish. After the concrete has set, the form shall be removed and the remaining strips, laid.

5. All concrete shall be of such consistency as to require a tamping to bring the water to the surface. Tampering shall be done mechanically.

6. Concrete floor and steps on fill or in ground shall be reinforced if indicated in the drawings. The size and spacing of the reinforcing steel shall be in accordance with the drawing of Specifications.

HANDLING AND PLACING OF CONCRETE

Concrete during and immediately after depositing, shall be thoroughly compacted. The compaction shall be done by mechanical vibration subject to the following provisions:

1. The vibration shall be internal unless special authorization of the other method is given by the supervising Architect or Engineer or as provided herein.

2. Vibrators shall be of a type and design approved by the supervising Engineer. They shall be capable of transmitting vibration to the concrete at frequencies of not less than 4,500 impulses per minute.

3. The intensity of vibration shall be as such as to visibly affect a mass of concrete of 25 mm, slope over a radius of at least 50 centimeters.

4. The Contractor shall provide a sufficient number of vibrators to properly compact each batch immediately after it is placed in the forms.

5. Vibrations shall be applied at the point of deposit and in the area of freshly deposited concrete. The vibrator shall be inserted into and withdrawn from the concrete slowly and gradually.

6. The vibration shall be sufficient duration and intensity to compact the concrete thoroughly but shall not be continued so as to cause segregation. Vibration shall not be continued at any one point to the extent that localized areas of grout are formed.

7. Vibrators shall be thoroughly manipulated so as to work the concrete around the reinforcement and embedded fixtures and into the corners and angles of the forms.

8. Application of vibrators shall be at points uniformly spaced and not farther apart than twice the radius over which the vibration is visibly affected.

9. Vibration shall not be applied directly or through the reinforcement sections of layers of concrete which have hardened to a degree that the concrete ceases to be plastic under vibration.

10. It shall not be used to make concrete flow in the form over distances so great as to cause segregation and vibration shall not be used to transport concrete.

GRADATION OF AGGREGATES

1. Fine and Coarse aggregates used in concrete, shall be tested in accordance with the requirements of the *"Standard Specifications for Concrete Aggregates"*

ASTM 033-67m with a minimum frequency of one (1) set of 6 and one (1) set of 7 test per 1,000 cubic meter source, as follows:

2. At least one sample of fine and coarse aggregates used in concrete shall be tested in accordance with the requirements of the *"Standard Specifications for Concrete Aggregates"* ASTM 033-67 grading as follows:

Coarse Aggregates

Specific …….. Grading
Gravity ……... Soundness
Absorption ……. Abrasion
Material finer than No. 200 sieve

Fine Aggregates

Grading ……Absorption
Soundness…….Organic Impurities
Material Finer than No. 200 sieve
Mortar strength, 7 days
Specific Gravity

Coarse Aggregates (percent passing)

38 mm sieve …… 100%
25 mm sieve …… 95-100
13 mm sieve …… 25-50
No. 4 sieve …….. 0-10
No. 8 sieve …….. 0-5

Fine Aggregates (percent passing)

9 mm sieve ……. 100%
No. 1 sieve ……. 90-100
No. 8 sieve ……. 80-95
No. 16 sieve ….. 50-85
No. 30 sieve ….. 30-70
No. 50 sieve ….. 10-45
No. 100 sieve ….. 0-10

3. Aggregates failing to meet these specifications, but which have been shown by approved laboratory tests to produce concrete of the required quality may be used where authorized by the Architect or Engineer.

4. Aggregates shall be quarried or washed in fresh water and shall contain no more than one twentieth 1/20 of (1%) percent salt by weight.

STORAGE OF MATERIALS

1. Portland Cement

a) Cement delivered in bags shall be stored immediately upon receipt at the work site in a weather proof structure which shall be air tight as practicable with suitable wooden floors which shall be elevated above the ground at a distance sufficient enough to prevent the absorption of moisture.

b) Bags shall have guaranteed constant cement content and shall be provided with proper labels showing the number of consignment and the date of site delivery.

c) The bag shall be stacked close together to reduce circulation of air but should not be stacked against outside walls but in such a way that they will be easily accessible for inspection and testing and shall be used in the order of their delivery.

d) Cement that has been in storage longer than six months will be tested by standard mortar tested or other tests as deemed necessary by the Owner to determine its suitability and such cement shall not be used without the express approval of the Owner.

e) Bags shall not be stored to a height greater than two (2) meters. All cement must be free from lumps or evident for deterioration.

f) Cement delivered in bulk shall be stored in properly designated elevated airtight and waterproofed silos or bins, provided at the Contractor's expense. The silos shall be adequate in size to ensure continuity of work at all times.

g) The site shall be kept perfectly dry. Bag cement shall be transported closed and effectively protected from weather by adequate coverings. Bulk cement shall be transported in closed container.

2. Aggregates

a) All aggregates shall be stored in bunkers provided with proper floors or tightly laid wood planes sheet metals, or other hard and clean surface. Fine and coarse aggregates of different sizes shall be stored in separate bunkers or piles in such a manner as to prevent aggregation, inclusion and contamination by dirt and other injurious foreign materials.

b) Stockpiles of coarse aggregate shall be built in horizontal layers not exceeding 1.20 meters in depth to minimize segregation. Should the coarse aggregate

become segregated, it should be re-mixed to conform to the grading requirements given herein before.

3. Reinforcing Steel Bars

Reinforcing steel bars shall be transported and stored at the site in such a way as to prevent damage or deterioration of the steel by rust or coating with grease, oil, dirt and other objectionable materials. Storage shall be in separate piles or racks so as to avoid confusion or loose of identification after bundle are broken.

REBAR SPACING AND COVER

1. Reinforcing Bars

Reinforcing bars shall be fixed one to the other by means of adequate steel wire ties to form rigid reinforcement cages or nets. The reinforcement shall be fixed in the form by approved concrete distance blocks, space bars, links and stirrups, and all to be provided at the Contractor's expense. Reinforcing bars shall be spaced according to the approved working drawings and the distance between bars shall not be less than those recommended in ACI-318.

2. Concrete Cover

The concrete to the gutter reinforcing bars shall be those recommended in ACI 318, unless otherwise specifically indicated on the drawings.

3. Anchorage Length

Plain bars shall be provided with end hook unless otherwise specified. The lengths of the anchorage of reinforcing bars shall be at least those recommended in ACI 318

4. Splices

Splices in bars shall be avoided as far as possible and shall be staggered in any one structural member. They shall conform to the recommendations in ACI 318. In no case shall splices be made at critical points of maximum stress.

PATCHING

1. Immediately after the forms have been removed and work has been examined by the Owner, and his permission given, all loose materials shall be removed.
2. All holes, stone pockets and other surfaces which were in contact with forms treated with cement retarding materials shall be removed with wire brush or other approved method until a rough bonding surface of exposed aggregate is obtained.

3. Any surface considered by the supervising Engineer to be insufficiently roughened shall be further roughened by an approved mechanical means. Surfaces shall be thoroughly washed down with water.

4. Honey combed and other defective areas must be chipped out to solid concrete, the edge cut as straight as possible and at right angles to the surface of slightly undercut to provide a key at the edge of the patch.

5. Shallow patches may be filled with mortar similar to that used in the concrete. This should be placed in layers not more than 12 mm thick and each layer given a scratch finish to improve bond with the succeeding layer.

CONSTRUCTION JOINTS

1. Once started, concreting shall be continued without interruption and shall only be stopped at properly indicated and prepared construction joints.

2. The position of construction joints shall be decided in advance so that the amount of concrete required to be placed at any one time does not exceed the capacity of the mixing plant.

3. In all cases where the positions of construction joints have not been indicated on the drawings, they must be approved by the Architect or Engineer.

4. Except where inclined joints are specified, all joints shall be formed to vertical or horizontal planes. Vertical joints shall be formed against a properly constructed stop-board.

5. As a general rule, joints in columns shall be made as near as possible to a beam haunching and joint in beams and slabs shall be made at positions shown on the drawings.

6. Construction joints shall be wire-brushed while the concrete is still green, roughened or hacked to expose the aggregate across the whole area of the joint.

7. Before fresh concrete is placed, the roughened surface shall be swept clean of all loose materials, thoroughly wetted and covered with a 12 mm thick layer of mortar composed of cement and sand in the same ratio as the cement and sand in the concrete mix.

8. Special care shall be taken to ensure that the first layer of fresh concrete is thoroughly rammed against the existing layer.

9. The cost of all measures necessary to form construction joints, whether shown on the Drawings or not, shall be deemed to be included in the Contractor's rates for concrete.

B. CONCRETE MASONRY

GENERAL CONDITIONS

The concrete masonry Contractor shall examine all drawings, specifications and all conditions that has relations and may affect his work and performance in the execution the Contract.

Where any deviation on the Plans and Specifications is to be made, the Owner shall be notified and his written approval shall be obtained before proceeding with the work.

SCOPE OF WORK

The work covered by this Item shall include the following:

1. Furnishing of all necessary materials, tools, equipment, labor, and appliances necessary to complete the execution of the concrete masonry work as shown on the drawings and herein specified.

2. All preparations for masonry work necessary to receive and adjoin other work, including provisions for inserts and attachment as noted in the plans and specifications which shall be installed under the terms of work.

3. Coordination with all other trades in laying out and execution of the concrete masonry work. Giving the work his personal supervision and keeping a competent foreman on the job at all times.

4. Arranging for adequate bracing, forming and shoring required in conjunction with and in the course of constructing the concrete masonry although not provided for under other sections.

5. Furnishing of all reinforcing steel for concrete masonry work and their placement including those not provided for under other sections but necessary for proper prosecution of the work.

6. Arranging for the necessary storage space and protection for materials at the job site.

7. Providing assistance and facilities for all inspections by the Owner or his authorized representatives as required in the course of execution of the work.

8. Arranging for furnishing test specimens and samples of materials as may be required.

MATERIAL REQUIREMENTS

The following materials to be used under this section of the specifications shall conform to the concrete masonry standards as indicated.

1. Cement to conform with ASTM C-150
2. Sand or fine aggregate shall be clear, sharp and well graded, and free from injurious amount of dust, lumps, shale, alkali, surface coatings and organic matter.

3. Lime: Hydrated lime shall conform with ASTM C-207

4. Quicklime shall conform with ASTM C-5 Specifications. Quicklime shall be slaked and then screened through a 16 mesh sleeve.

5. After slaking, screening and before using, it shall be stored and protected for not less than 10 days. The resulting product shall weigh not less than 1330 kilogram per cubic meter.

6. Hollow load bearing masonry units shall be type I Class A or B unit conforming with ASTM C-90-70 and the Philippine Bureau of Standard No. 15-2, series of 1979.

7. Solid load bearing masonry units shall be class a units conforming to ASTM C-145. All load bearing masonry units shall have a minimum compressive strength of not less than 5.5 Mpa (800 psi) based on 5 individual units when tested in accordance with the methods set forth in ASTM C-140-70 or as tested by the Bureau of Research and Standard, DPWH.

8. Masonry units shall have been cured for not less than 14 days if steamed-cured, or 28 days if air-cured when placed in the structure.

CONCRETE HOLLOW BLOCKS

1. For walls and partitions shown on the detailed drawings requiring concrete hollow blocks, the Contractor either uses of concrete or ceramic hollow blocks upon approval of the Architect or Engineer.

2. The load bearing of hollow blocks shall have a minimum compressive strength of 6.89 Mpa (1000 psi) computed from the average of five (5) units based on the average gross area, and a minimum of 5.41 Mpa (800 psi) for the individual unit respectively, all based on gross area.

Visual Inspection

All units shall be sound and free from cracks or other defects that would interfere with the proper placing of the unit or impair the strength or permanence of the construction.

Sampling of Specimen

In sampling blocks for the strength, absorption and moisture content determination, ten (10) individual units shall be selected from each lot of 10,000 units or fraction thereof and 20 individual units from each lot of more than 10,000 units.

Sampling

For lots of more than 10,000 units, 10 individual units shall be selected from each 50,000 units or fraction thereof, contained in the lot. For non-bearing type of CHB, no sampling for test shall be required for less than 500 units to be used in the job.

Testing

Units shall be tested in accordance with the standard method of testing Masonry units of the American Society of Testing Materials ASTM designation C-140 and or by the Bureau of Materials and Quality Control, DPWH. No blocks shall be used unless results of tests are known and duly approved by the supervising Architect or Engineer.

Reinforcement

All units shall be laid with a mortar composed of one part Portland cement and three parts of sand. Reinforcement shall be done in accordance with the structural plans as to size, spacing and other requirements.

MORTAR AND GROUT

Cement to be used for mortar and grout shall be: Type 1, 2, 3 or type 4 Portland cement conforming to ASTM C-150

1. Plastic cement shall have less than 12% of the total volume in approved types of plastic agents and shall conform to all the requirements for Portland cement per ASTM C-150, except the limitations in insoluble residue, air entrainment, and addition subsequent to calciration.

2. Mortar shall be freshly prepared and uniformly mixed in the proportion of 1 part Portland cement ¼ part maximum line putty or hydrated lime, loose sand not less than 1-1/2 and not more than 3 times the sum of the volume of cement and lime used, and shall conform to ASTM C-270.

3. Grout for pouring shall be of fluid consistency and mixed in the proportion by volume: 1 part Portland cement, 2-1/2 part minimum to 3 parts maximum damp loose sand where the grout space is less than 7.5 cm in its least dimension.

4. Grout for pouring shall be fluid consistency and mixed in the ratio by volumes; 1 part Portland cement, 2 parts minimum to 3 parts maximum damp loose sand, 2

parts coarse aggregate where the grout space is not more than 7.5 cm. in its least dimension.

5. Grout for pumping shall be fluid consistency and shall have not less than 7 bags of cement in each cubic meter of grout. Not mix design shall be approved by the supervising Engineer.

6. Fluid consistency shall mean; as fluid as possible for pouring without segregation of the constituent parts.

7. Aggregate for mortar shall conform to ASTM C-144.

8. Aggregate for grout shall conform to ASTM C-404

ADMIXTURE

1. The used of admixtures shall not be permitted in mortar or grout unless substantiating data is submitted to and approved by the supervising Architect or Engineer.

2. The use of Admixtures shall not be permitted in mortar without reducing lime content

3. Insert coloring pigments may be added but not to exceed 6% by weight of the cement.

4. The use of uncontrolled fire clay, dirt and other deleterious materials is prohibited.

5. Water to be used shall be fresh, clean and free from deleterious quantities of acids alkali and organic materials.

REINFORCING STEEL

1. The minimum requirements for deformed steel bars shall conform to ASTM A-305.

2. Wire reinforcement shall also conform with ASTM A-82.

3. Reinforcement shall be clean and free from loose, rust, scales and any coatings that will reduce bond.

CONSTRUCTION

1. **Workmanship**

a) Masonry work shall not be started when the horizontal and vertical alignment of the foundation has a maximum total error of 25 mm OR 2.5 centimeters.

b) All masonry work shall be laid true to line, level, plumb and neat in accordance with the plans and to the satisfaction of the Owner.

c) Units shall be cut accurately to fit all plumbing ducts, openings electrical works, etc. and all holes shall be neatly patched.

d) Extra care shall be taken to prevent visible grout mortar stain.

e) No construction supports shall be attached to the wall except where specifically permitted by the supervising Architect or Engineer.

2. Masonry Unit

a) Masonry unit shall be sound, dry, clean and free from cracks when placed in the structure.

b) All masonry units shall be stored on the job and kept off the ground and protected from the elements of weather.

c) Wetting the units shall not be permitted except when hot dry weather exists causing the units to be warm to the touch, and then the surface only may be wetted with a light fog spray.

d) Proper masonry units shall be used to provide for all window, doors, bond beams, lintels, plasters, etc., with a minimum of unit cutting.

e) Where a masonry unit cutting is necessary, all cuts shall be neat and true line.

f) Mixing of Mortar and Grout Mortar shall be mixed by placing ½ of the water and sand in the operating mixer, then add the cement, lime and the remainder of the sand and water.

g) Mortar should be re-tampered with water as required to maintain high plasticity. Re-tampering on mortar boards shall be done only by adding water within a basin formed with mortar and the mortar re-worked into the water.

h) Any mortar which is unused after 1 – ½ hours from the initial mixing time shall not be used.

i) After all ingredients are in the batch mixer, they shall be mechanically mixed for not less than 3 minutes. Hand mixing shall not be employed unless specifically approved.

3. Bonding

Concrete masonry units shall be laid with the thicker edge of the core up to provide a wider mortar bed.

a) Both face core and ends of all blocks should receive a full bed of mortar.

b) Cross web should be mortared.

c) For bonding masonry to the foundation, the top surface of the concrete foundation shall be clean with laitance removed and aggregate exposed before masonry construction can be started.

d) Where no bond pattern is shown, the wall shall be laid up in straight, uniform coarse with regular running bond.

e) Intersecting masonry walls and partitions shall be bounded by the use of steel ties at 60 centimeter on.

4. Reinforcement

When the foundation dowel does not line up with a vertical core, it shall not be sloped more than one horizontal in six vertical.

a) Dowels shall be grouted into a core in vertical alignment, even though it is an adjacent cell to the vertical wall.

b) Reinforcing bars shall be straight except for bends around corners and where bends or hooks are detailed the plans.

c) Reinforcing steel shall be lapped 30 bar diameters minimum where spliced bars shall be separated by one bar diameter or wired together.

d) Vertical bars shall be held in position at the top and bottom and at intervals not exceeding 192 diameter of the reinforcement.

e) Horizontal reinforcing bars shall be laid on the webs of the units on continuous masonry courses, consisting of bond-beam or channel units, and shall be solidly grouted in place.

f) Vertical reinforcing steel shall have a minimum clearance of 6 mm from the masonry, and not less than one bar diameter between bars.

g) Wire reinforcement shall be completely embedded in mortar or grout. Joints with wire reinforcement shall be at least twice the thickness of the wire.

h) Wire reinforcement shall be lapped at least 16 cm. at slices and shall contain at least one cross wire of each piece of reinforcement in the lapped distance.

5. Grouting

Reinforcing steel shall be secured in place and inspected before grouting starts.

a) Mortar dropping should be kept out of the grout space.

b) All grout shall be puddle or vibrated in place

c) Vertical cells to be filled with grout shall have vertical alignment to maintain a continuous unobstructed core space.

d) Cells containing reinforcement shall be solidly filled with grout and pours shall be stopped 3.8 centimeters below the top of a course to form a key at pour joints.

e) Grouting of beams over openings shall be done in continuous operation.

f) The tops of unfilled cell columns under a horizontal masonry beam shall be covered with metal latch or special units used to confine the front fill to the beam section.

g) All bolts, anchors, or inserts in the wall shall be solidly grouted in place.

h) Spaces around metal door frame and other built-in items shall be filled solidly with grout of mortar.

REJECTION

In case the shipment fails to conform to the specified requirements, the Contractor may sort it, and new specimen shall be selected by the Owner or his supervising Engineer from the retained lot and tested at the expense of the Contractor. In case the second set of specimens fails to conform to the test requirements, the entire lot shall be rejected.

C. MASONRY FINISH

CONSTRUCTION REQUIREMENTS

1. Curing

The granolithic topping shall be cured at least 6 days before grinding or until such time when it has set sufficiently hard to permit machine grinding or rubbing with coarse sandstone grit without disclosing any surface aggregate.

2. Surfacing

a) After curing all granolithic topping, surfaces shall be wetted and grinded with electric grinding machine to a smooth and even surface.

b) Where it is not possible to use electric grinding machine, surface shall be hard-rubbed manually using No. 24 abrasive grit stone rubbing after which a light grouting of white Portland cement paste of creamy consistency as the matrix used in the topping.

c) Grout shall remain on the surface until the time of final grinding and cleaning.

3. Finishing

a) Allow at least 72 hours after the granolithic surface have been grouted before removing the grout coat, cleaning and fine stone grinding by electric grinding machine using no coarser than No. 80 abrasive grit.

b) Final grinding or rubbing of granolithic marble surface shall remove scratches and produce a true plane surface of uniform color and texture without objectionable irregularities of any description as that of the approved samples.

c) *Cleaning, Waxing and Polishing.* Upon completion of final grading or rubbing of granolithic marble the Contractor shall apply two coats of natural wax penetrating type. Surface shall be allowed to dry and polished.

MEASUREMENT AND PAYMENT

1. All granolithic marble finish indicated on the Plans and described herein shall be measured in square and lineal meter or part thereof for work completed and accepted to the satisfaction of the supervising Architect or Engineer.

2. The quantified area determined in the preceding section and provided in the Bill of Quantities shall be paid for at the Unit Bid or Contract Unit Price

(A) PEA GRAVEL WASHOUT FINISH

GENERAL CONDITIONS

The Contractor shall furnish all materials, equipment, labor, and tools required in undertaking the proper application of pea gravel washout finish as shown on the Plans and in accordance with this Specifications.

A-1 MATERIAL REQUIREMENTS

a) **Pea-Gravel** – pie-gravel specie shall be of well graded sizes consisting of 4 mm to 8 mm round variation wash river gravel.

b) **Cement** – Portland cement shall conform to the Specification requirements of Hydraulic Cement. Use only one brand of cement throughout the pea-gravel washout finish mix.

A-2 CONSTRUCTION REQUIREMENTS

a) All pea-gravel washout finish shall be done by men experienced and qualified to do this particular type of trade.

b) The Contractor shall submit at least two (2) samples to the supervising Architect or Engineer for approval measuring 30 cm. x 30 cm. showing its color, texture and design patterns.

1. Surface Preparation

a) Walks, ramps, driveways and elsewhere indicated on the Plans as pea-gravel washout finish shall be properly sloped and rendered under bed.

b) The under-bed mixture shall be spread to bring mortar under-bed to a level of 16 mm below the finish floor line.

c) For concrete masonry walls, columns, etc., the surface to be applied shall be first rendered a scratch coat and made true to plane, leveled plumbed and squared then allowed to cure for seven (7) days

2. Mixture and Proportion

a) Pea gravel washout mix shall consist of one part Portland cement and two parts pea-gravel measured by volume or a proportion equivalent to 1:2.

b) Mixtures shall be in approved containers to ensure that the specified materials are controlled and accurately measured. Mixture measured by shovel or shovel counts will not be permitted.

c) Unless specified otherwise, pea-gravel washout mix shall be in the proportion by volume in approved mixing machines or mortar boxes.

d) The aggregates introduced and mixed in such a manner that the materials will be uniformly distributed throughout the mass.

e) A sufficient amount of water shall be added gradually and the mass further mixed until a mortar plasticity necessary for the purpose intended is obtained.

f) Mortar boxes, pans, etc., where mixtures are mixed shall be kept clean and free from debris or dried mortar.

3. Application

a) Before work is started, the slope for drainage should be properly done and provided in the prepared under-bed.

b) Concrete setting bed must be sufficiently rough and all loose particles or anything which will diminish bond shall be thoroughly cleaned off.

c) The concrete under-bed must be kept wet for at least four (4) hours before the pea-gravel mix is applied.

d) Pea-gravel mix shall be applied with pressure to obtain solid adhesion to the under-bed and setting bed.

e) The finish surface shall be firmly, evenly, and monolithically applied.

f) When the surface applied with pea-gravel mix has sufficiently set, the cement paste shall be removed by use of sponge or water spraying equipment used in this specially trade in order to expose the pea-gravel quarter face but still intact.

4. Curing, Cleaning and Finishing

As soon as possible as the pea-gravel are exposed to desire appearance the surface shall be covered with damp burlap other approved covers. At the proper time when surface are semi-dry and stable allowing the applied surface to cure.

5. Protection

a) For proper curing, keep the pea-gravel washed finish moistened for a period of at least seven (7) days by thoroughly wetting the surface three (3) times a day and protecting it from the strong rays of the sun with burlap or layer of sand.

b) Upon completion of the work and the surface has completely seasoned, wash with clean water and brush thoroughly to produce a clean and sparkling appearance and protected until work has been accepted.

A-3 METHOD OF MEASUREMENT

All works done under this Item shall be measured in square meter or linear meter or part thereof for work completed and accepted to the satisfaction of the supervising Architect.

A-4 BASIS OF PAYMENT

The quantity determined in the Method of Measurement shall be paid for at the unit price bid or contract unit price as stated in the Bill of Quantities, which price constitute full compensation including labor and materials, tools and incidentals to complete this item.

(B) BUSH HAMMERED FINISH

GENERAL CONDITIONS

1. The Contractor shall furnish all materials, tools, plant, equipment and labor and other facilities and undertaking the proper application of Bush Hammered finish complete required as shown on the Plans and in accordance with this Specifications.

2. The Contractor shall submit for approval samples of each applied finish 30 cm. x 30 cm. of different shades to the Architect. Approved samples shall be kept for future reference.

B-1 MATERIAL REQUIREMENTS

1. Cement

Cement shall be ordinary gray Portland cement conforming to the specification requirement for Hydraulic cement. One (1) brand of Portland cement shall be used throughout the plaster mortar mix.

2. Adobe Aggregate

Adobe aggregate shall be crushed and pulverized to an approved graded size improving its mixing ability as coarse aggregate.

B-2 CONSTRUCTION REQUIREMENTS

1. Surface Preparation

Wall surfaces to be rendered with bush hammered finish shall be scratching coated with plaster cement mortar and be made true to plane plumbed and squared. The scratch coat must be properly cured within seven days.

2. Adobe Mortar Mixture

Adobe plaster shall be a mixture of Portland cement, crushed and pulverized graded adobe stones. It shall be uniformly mixed in the proportion by volume of one part Portland cement and two parts adobe aggregates or 1:2 proportions.

3. Application

a) Before any application work is commended, all wood moulds for horizontal and vertical groove joints shall be first established and set. The scratch coast has to be seasoned for 7 days

b) Surfaces to be applied with adobe plaster mortar shall be thoroughly moistened with fog spray.

c) Adobe plaster mortar shall be floated to a true and even surface. It may also be floated / troweled to a hard fluted surface with series of grooves also known as corduroy finish.

d) As soon as the plastered surface is hard enough to react hammering, the surface by hammering with an ax or hatchet leaving or exposing the natural appearance of the aggregate composition of mortar mixture.

4. Workmanship

a) Bush hammered finish shall be level, plumbed squared and true to a tolerance of 3 mm in 3.0 meters without caves, cracks, blisters, pits, crazing, discolorations, projection or other imperfections.

b) Plastering work shall be formed carefully around angles, contours and cants. Special care shall be taken to prevent sagging and consequent dropping of applications.

c) There shall be no junction marks in the finish where one day work adjoins another.

5. Curing and Protection

Upon completion of the work all surfaces shall be cleaned with steel brush and water to remove loose particles leaving the cleaned surfaces in its natural appearance. When cleaned surfaces dries spray a coat of water repellant.

B-3 METHODS OF MEASUREMENT

Bush hammered finish shall be measure in square meter area and linear meter actually done completed and accepted to the satisfaction of the supervising Architect.

B-4 BASIS OF PAYMENT

The work quantified and determined in the preceding section or as provided in the Bill of Quantities shall be paid for at the Contract unit bid price which payment constitute full compensation including labor, materials and other incidentals necessary to complete this Item.

(C) PEBBLE WASHOUT FINISH

GENERAL CONDITIONS

The Contractor shall furnish all materials, labor tools, and equipment required in undertaking proper application of pebble washout finish as shown on the Plans and in accordance with this Specifications.

C-1 MATERIAL REQUIREMENTS

a) Pebble

Pebble shall be well graded stones sized ranging from No.4 to No. 10 rounded shape.

b) Cement

Cement shall be Portland type hydraulic cement gray or whit specie depending on the tone or color scheme approved. Colored cement shall be powder type pigmented used to the desired shade and color of finish.

C-2 CONSTRUCTION REQUIREMENTS

All pebble washout finish shall be done by men experienced and qualified to do this particular type of trade. The contractor shall submit at least two samples for each type of pebble washout finish to the Architect or Engineer for approval showing its color, texture and design patterns.

1. Surface Preparation

a) Surface to receive pebble washout finish shall be clean of all projection, dust, loose particles and foreign matters.

b) It shall be thoroughly wetted with clean water before application of scratch coat mortar. When the surface has sufficiently set, scratch with hard broom.

2. Mixture

a) Pebble finish mortar mixture shall consist of one part Portland cement and two parts pebble measured by volume or a proportion equivalent to 1:2

b) Mixtures shall be in approved containers to ensure that the specified materials are controlled accurately measured.

c) Mixtures measured by shovel or shovel counts will not be permitted. Unless specified otherwise, pebble washout mix shall be in the proportion by volume in approved mixing machines or mortar boxes.

d) The aggregate introduced and mixed shall be in such a manner that the materials will be uniformly distributed throughout the mass.

e) A sufficient amount of water shall be added gradually and the mass further mixed until a mortar plasticity necessary for the purpose intended is obtained.

f) Mortar boxes, pans etc., where mixtures are mixed shall be keep clean and free from debris or dried mortar.

3. Application

a) Before any application work started, the Contractor shall established all wood molding for vertical and horizontal groove lines after the scratch coat has seasoned for seven days in the case of masonry wall or concrete columns, beams and parapets etc.

b) In the case of finish flooring application and the like the slope of drainage shall be properly provided and design pattern properly placed.

c) The proposed under-bed shall be done to a level of 16 mm below the finish floor line to accommodate the pebble washout mix.

d) The prepared surface to receive the pebble washout mix shall be kept damp for at least 4 hours before the application work is started

e) Pebble washout finish mix shall be applied with pressure to obtain solid adhesion to the prepared surface. The applied surface shall be firm, even and monolithically applied, then allowed to set initially.

f) When the applied surface has initially set to withstand the removal of the cement paste, spray evenly by spray apparatus to washout the cement paste on the outer surface so that the pebbles are partly exposed or,

g) By means of paint brush of foam and water, or by means of spraying washing down the cement paste leaving the pebbles partially exposed in their natural texture appearance.

4. Workmanship

a) Pebble washout shall be leveled, plumbed, squared and true to line within a tolerance of 3 mm in 3.0 meters without caves cracks, blisters, pits, crazing, discoloration, projections or other imperfection.

b) There shall be no visible junction marks in the finish surface where one day work adjoins another.

c) Where required by the supervising Architect or Engineer, provide vertical and or horizontal groove joints.

Curing and Protection

a) When the pebble washout surface has finally set the surface shall be kept wet or moist for at least 6 days.

b) After all other trade have been completed the pebbles washout finish surfaces shall be saturated with diluted hydrochloric acid and cleaned with steel brush

c) Allow the clean surface to dry then apply a coat of silicon water repellant to protect the natural physical appearance of the pebble washout finish.

C-3 MEASUREMENT AND PAYMENT

1. Pebble washout finish shall be measure in square meters, lineal meters or part thereof for work actually completed and accepted to the satisfaction of the supervising Architect or Engineer.

2. The work done under this Item as provided in the Bill of Quantities shall be paid for at the Contract Unit Bid which price and payments constitute full compensation including materials and labor and incidentals necessary to complete this Item.

(D) CEMENT PLASTER

GENERAL CONDITONS

The Contractor shall furnish all cement plaster materials, labor, tools and equipment required in undertaking cement plaster finish as shown on the Plans and in accordance with this Specifications.

D-1 MATERIAL REQUIREMENTS

Manufactured materials shall be delivered in the manufacturer's original unbroken packages or containers which are labeled plainly with the manufacturer's name and trademark.

1. **Cement**. Cement shall be Portland Hydraulic Cement of any approved brand.

2. **Hydrated Lime** shall conform with the requirements as defined in Hydraulic Cement of any approved brand.

3. **Fine Aggregates**. Fine aggregates (sand) shall be clean, washed and sharp river sand, free from dirt, clay, organic matter or other deleterious substances

Sand derived from crushed gravel or stone may be used with the supervising Architect or Engineer's approval but in no case, shall such sand be derived from stone unsuitable for use as coarse aggregates.

D-2 CONSTRUCTION REQUIREMENTS

1. Mixture

a) Mortar mixture for brown coat shall be freshly prepared and uniformly mixed in the proportion by volume of one part Portland Cement, three (3) parts sand and one fourth (1/4) part hydrated lime.

b) Finish coat shall be pure Portland cement properly graded and mixed with water to approved consistency and plasticity.

2. Surface Preparation

a) After removal of forms, reinforced concrete surfaces shall be roughened to improve adhesion of the cement plaster.

b) Surfaces to receive cement plaster shall be cleaned of all projections, dust, loose particles, grease and bond breakers.

c) Before any application of brown coat is started, all surfaces that are to be plastered shall be wetted thoroughly with clean water to produce a uniformly moist condition.

d) Brown coat mortar mix shall be applied with sufficient pressure starting from the lower portion of the surface to fill the grooved and to prevent air pockets in the reinforced concrete/masonry work and avoid mortar mix dropping.

e) The brown coat shall be lightly broomed or scratch before surface has properly set and allowed to cure.

f) Finish coat shall not be applied until after the brown coat has seasoned for 7 days and corrective measures had been done by the Contractor on surfaces that are defective.

g) Just before the application of the finish coat, the brown coat surface shall be evenly moistened with clean water.

h) Finish coat shall be floated first to a true and even surface, and then troweled in a manner that will force mixture to penetrate into the brown coat.

i) Surfaces applied with finish coat shall then be smooth with paper or foam in a vertical motion to remove trowel marks, checks and blemishes.

j) All cement plaster finish shall be 10 mm thick minimum on vertical concrete and or masonry walls.

Wherever indicated on the Plans to be *"Simulated Red Brick Finish,* the Contractor shall render brick design on plaster surface before brown coat had properly set and then allowed to dry.

Cement shall not be directly applied to:

a) Concrete or masonry surface that had been coated with bituminous compound and,

b) Surface that had been painted or previously plastered.

3. Workmanship

a) Cement plaster finish shall be true to details and plumbed. Finish surface shall have no visible junction marks where one day's work adjoins the other.

b) Where directed by the Architect or Engineer or as shown on the Plans vertical and horizontal groove joints shall be 25 mm wide and 10 mm depth.

D-3 MEASUREMENT AND PAYMENT

1. All cement plaster finish shall be measured in square meters or part thereof for work actually completed in the building.

2. The work quantified and determined as provided in the Bill of Quantities shall be paid for at the Contract Unit Price which price constitute full compensation including labor, materials, tools and equipment and incidentals necessary to complete this Item.

(E) PLAIN CEMENT PLASTER FINISH

GENERAL CONDITIONS

The Contractor shall furnish all materials, tools, equipment and labor required in undertaking the proper application of plain cement plaster finish as provided where plastering is noted the drawings and schedules. Plastering work shall be properly coordinated with the work of other trades.

1. The work of other trades shall be adequately from damages during the plastering operations. Finishing work shall be protected with a covering of heavy craft, waterproof paper or other approved protective covering with lapped and sealed joints.

2. Scaffolding shall be amply strong, well braced, tied securely and inspected regularly. Overloading of scaffolding will not be permitted.

E-1 MATERIAL REQUIREMENTS

1. Portland Cement shall conform with the standard specifications of the ASTM 1-150, type-I, latest edition.

2. Hydrated lime shall conform with the standard specification of the ASTM C-6, latest edition.

3. Sand shall be hard, sharp, well washed, siliceous, clean and free from deleterious material.

4. Water shall be fresh, clean and free from organic matter, acids and alkali.

E-2 DELIVERY, STORAGE AND HANDLING

Manufactured materials shall be delivered with unbroken packages or containers which are plainly labeled with the manufacturer's name and brand. All cement materials shall be kept dry until ready for use.

They shall be stored off ground, under cover and away from sweating walls and other damp surfaces.

E-3 MIXTURE

1. Plaster materials, specified on a volume basis, shall be measured accurately in approved containers that will insure the specified proportion.

2. Measuring materials with shovels or shovel count will not be permitted

3. Mortar for brown coat shall be mixed in the proportion by volume of 1 part Portland cement 3 parts sand, an 1/4 part hydrated lime

4. Mortar for finish coat shall be the same as specified for brown coats, except that the proportions of sand shall be increased to not more than 4 parts.

E-4 APPLICATION

1. All surfaces to receive plaster shall be cleaned of all projections, dust, loose particles, grease bond breakers and other foreign matter.

2. Plaster shall not be applied directly to concrete of masonry surfaces that have been painted or previously plastered.

3. Before the plastering work is started, masonry surfaces shall be wetted thoroughly with a fog spray of clean water to produce a uniformly moist condition.

4. Brown coat – shall be applied with sufficient pressure to fill the grooves in hollow block or concrete to prevent air pockets and secure a good bond.

5. The brown coat shall be lightly scratched and broomed. Each coat of cement plaster shall be kept moist for 48 hours after application and then allowed to dry.

6. Finish coat – shall not be applied until after the brown coat has seasoned for 7 days.

    a) Dust before the application of the finish coat.

    b) The brown coat shall again be evenly moistened with a fog spray

    c) The finish coat shall be floated first to a true and even surface then troweled in a manner that will force the sand particles down into the plaster.

    d) Plastered surfaces shall be smooth and free from rough areas, troweled marks, checks and blemishes.

    e) Thickness of the plaster shall be 10 mm (3/8") to 12 mm (½") on vertical concrete and on masonry

E-5 WORKMANSHIP

Plaster work shall be finished level, plumb, square and true to line within a tolerance of 3 mm (1/8") in 3.00 meters without waves, cracks, blisters, pits, crazing, discolorations, projection and other imperfections.

1. Plaster work shall be formed carefully around angles, contours, and well- up to screeds.

2. Special care shall be taken to prevent sagging and consequent dropping of mortar during applications.

3. There shall be no visible junction marks in the final coat where on day work adjoins the other.

E-6 PATCHING, PAINTING AND CLEANING

1. Upon completion of the building, and when directed, all loose, cracked, damage or defective parts shall be cut out and re-plastered in a satisfactory and approved workmanlike manner.

2. All painting and patching of plastered surfaces and plaster work abutting or adjoining any other finish work, shall be done in a neat and workmanlike manner.

3. Plaster drops or spatter shall be removed from all surfaces. Exposed plastered surfaces shall be left in a clean, unblemished condition ready to receive paint or other finish.

4. After the work has done, all protective coverings of cement finishes shall be removed from the floors. All rubbish and debris shall be removed from the building.

1.3. STRUCTURAL STEEL

SCOPE OF WORK

The scope of work under this section consists of furnishing of all materials, labor, tools, equipment, and performance of all operations relative to the fabrication, delivery to site, erection and painting of structural steel trusses and purlins as shown on the plans.

A. DESIGN CONDITIONS

1. All structural work shall in accordance with AISC Specification for the Design, Fabrication and Erection of Structural and steel for buildings.

2. Materials , and parts necessary to complete each item through such work which is not shown or specified shall be included, such as miscellaneous bolts, anchor, supports, braces and connections etc.

3. Shop drawings as well as erection drawings shall be prepared and submitted by the contractor to the supervising Architect or Engineer for approval before any fabrication is made.

B. SHOP DRAWINGS

1. Shop drawings giving complete information necessary for the fabrication of the component parts of the structure, including the location, type and size of all rivets, bolts and welds, shall clearly distinguish between shop and field rivets, bolts and welds.

2. Shop drawings shall be made on conformly with the best modern practice and with due regard to speed and economy in fabrication and erection.

C. MATERIALS

1. All structural steel shapes and plates shall conform to ASTM A-36.

2. Light-gauge Cold-formed Structural Steel shall conform to pertinent specifications of the American Iron and Steel Institute (AISI).

3. Machine bolts shall conform to ASTM A-307. Each bolt shall be provided with standard nuts and washers.

4. Anchor Bolts – shall conform to ASTM A-141.

5. Cross Bracing with Turnbuckles shall conform to ASTM A-307.

6. Welding Electrodes – shall conform to AWS A-5.1 or A-5.5, E 70 Electrodes.

D. FABRICATION

1. Field fabrication shall be kept to a minimum. And shop fabrication shall be employed to the greatest extent possible with members shop fabricated as practicable with a minimum requirement for field connections.

2. Welding, shearing, gas cutting, chipping and all other works involved in the fabrication of structural steel shall be done with accuracy and of the highest quality of workmanship, within the allowable tolerance prescribed in the AISC specifications.

E. WELDING

1. The technique, appearance and quality of welds and the method of correcting defective work shall conform to the applicable provisions of "*Workmanship of the Standard Code for Welding in Building Construction of the American Welding Society"*

2. Welding of structural members in shop and on field, shall be done only by certified and experienced welder.

3. Surfaces to be welded shall be free from loose side, rust, grease, paint and other foreign materials that will impair the soundness of the weld.

4. Temporary weld and assembly attachments shall be kept to a minimum. All temporary attachment that are welded, shall be removed by a flame torch above the parent metal surface and ground to smooth surface by power grinding.

5. Note shall be made on the Plans and on the shop drawings of those joints or groups of joints in which it is especially important for the welding sequence and technique of welding to be controlled carefully, to minimize welding under restraint, and to avoid undue distortion.

6. Weld length called on the Plans and on the shop drawings shall be the net effective length.

F. CONNECTION AND HOLES

Connections shall be as shown in the drawings and shall develop the full capacity of the members.

1. Surfaces or joints prepared for welded or high strength bolted connections shall comply with the cleanliness requirements of all joints surfaces and contact surfaces within friction types joints as specified in “Bolted parts” of the AUSC Specifications.

2. Holes shall be punched or drilled at right angles to the surface of the metals and shall not be enlarged by burning.

3. Holes shall be clean-cut without rugged edges. Outside burrs resulting from drilling or reaming operations shall be removed with a tool which reaches a 1.588 mm level around the bolt holes.

G. QUALITY CONTROL PROCEDURES

1. Quality control shall be practiced by the Fabricator to assure high quality in the work. In addition to the Fabricator’s quality control procedures, materials and workmanship shall be subject to Inspection by qualified inspectors representing the Owner.

2. Fabricator shall cooperate harmoniously with the inspector to avoid interpretation in the work, when correction will be needed.

H. REJECTION

1. Materials or workmanship not in reasonable conformance with the provisions of this Specification shall be rejected at any time during the progress of the work.

2. The Fabricator shall receive of all reports made by the Inspector authorized by the Owner and/or his supervising Architect or Engineer.

I. ERECTION

1. The steel structures shall be erected plumb and true to line and grade. Bracings and supports shall be introduced whenever necessary to take care of all the loads to which the structure may be subjected. Such bracings shall be left in place as long as may be required for safety.
2.

3. Base plates and bearing plates shall be supported on steel wedges until the supported members shall have been aligned and plumb, following which the entire bearing are shall be grouted solid with non-shrink cement.

J. MARKING

1. Shop fabricated members shall be marked prior to delivery to facilitate the erection of the members.

2. Markings shall be listed and given description and copies of which shall be furnished to the Owner.

3. Markings shall be neatly painted on the members with a distinctive color of enamel paint.

K. SHOP PAINTING

1. Steel works to be encased in concrete shall not be painted. All other steel works shall be given one coat of shop paint of red lead primer, applied thoroughly and evenly to dry surfaces, which have been cleaned, by brush, spray roller coating, floor coating or dipping at the selection of the Fabricator.

2. Steel work prior to painting and after inspection and approval shall be cleaned of loose mil scale, loose rust, weld slag or flux deposit, dirt and other foreign materials.

3. Oil and grease shall be removed by solvent. Parts of the steel work which shall be fielded, welded or connected shall not be painted. All steel work specified to have no shop paint shall likewise be thoroughly cleaned.

L. FIELD PAINTING

All the steel work after complete erection, shall be field painted with the type and color specified in the section of painting of this Specifications. Painting shall not be done on any steel surface that is thoroughly clean and dry.

1.4.ROOFFING WORKS

CORRUGATED METAL ROOFING
PRE-PAINTED METAL SHEET

SCOPE OF WORK

This Item consist of furnishing all pre-painted metal sheet materials, tools and equipment, plant including labor required in undertaking the proper installation and complete as shown on the Plans and in accordance with the Specifications.

A. MATERIAL REQUIREMENTS

All Pre-Painted metal sheet and roofing accessories shall be oven baked painted true to profiles indicated on the Plans.

Pre-painted roofing sheets shall be fabricated from cold rolled galvanized iron sheets specially tempered steel for extra strength and durability. It shall conform to the material requirements defined in PNS 67:1985.

Profile section in identifying the architectural moulded rib to be used is: Regular corrugated Quad-rib, Tri-wave, Rig-wide, Twin rib, etc. Desired color shall be subject to the approval of the Architect.

1. Gutters, valleys, Flashings, Hips and Ridge roll shall be fabricated from gauge 24 (6 mm) thick cold rolled plain galvanized iron sheets specially tempered steel. Profile section shall be as indicated on the Plans.

2. Fastening hardware shall be of galvanized iron straps and rivets. G.I. straps are of .50 mm thick x 16 mm gauge 26 and standard G.I. rivets.

3. Base metal thickness shall correspond to the following gauge designation available locally as follows:

Base Metal Thickness	Designated Gauge
.40 mm thick	Gauge 28
.50 mm thick	Gauge 26
.60 mm thick	Gauge 24
.80 mm thick	Gauge 22

Length of roof sheets available in cut from 5 feet to 12') long. Long span length up to 8 meters. Special length by arrangements.

B. CONSTRUCTION REQUIREMENTS

1. Before any installation begins, the Contractor shall ascertain that the top face of the purlins is in proper alignment.

2. Correct the alignment as necessary in order to have the top faces of the purlins on an even plane.

3. Sheets shall be handled carefully to prevent damage to the paint coating. Lift all sheets or sheet packs on to the roof frame with the overlapping down-turned edge facing towards the side of the roof where installation will commence, otherwise the sheets will have to be turned end to end during installation.

4. Start roofing installation by placing the first sheet in position with the down turned edge in line with other building elements and fastened to supports as recommended.

5. Place the down-turned edge of the next sheet over the edge of the first sheet, to provide side lap and hold the side lap firmly in place. Continue the same procedure for the subsequent sheets until the whole roofing area is covered and or adopt installation procedure provided in the instruction manual for each type of molded rib profile.

6. For walling applications follow the procedure for roofing but allow a minimum end lap of 10 cm. for vertical walling.

7. **End Lap.** In case handling or transport consideration requires to use two or more end lapped sheets to provide full length coverage for the roof run, install each line of sheets from bottom to top or from eave line apex roof framing. Provide 15 cm. minimum end lap.

8. **Anchorage.** Pre-painted steel roofing sheets shall be fastened to the wood purlins with standard length G.I. straps and rivets.

9. For Steel Frame up to 4.5 mm thick, use self-drilling screw No.12 by 4.0 cm long hexagonal head with neoprene washer.

10. For Steel Support up to 5 mm thick or more, use threaded cutting screw No. 12 by 4.0 cm long hexagonal head with neoprene washer.

11. For side lap fastener use self drills screw No. 10 by 1.6 cm. long hexagonal head with neoprene washer.

12. Valley fastened to lumber and for walling, use self drilling wood screw No. 12 by 2.5 cm. long hexagonal head with neoprene washer.

13. Valley fastened to steel supports, use self drilling screws, hexagonal head with neoprene washer, drill size is 5 mm diameter.

14. In cutting pre-painted steel sheets to place the exposed color side down, cutting shall be carried out on the ground and not over the top of other painted roofing product.

15. Power cutting or drilling to be done or carried pot on pre-painted products already installed or laid in position, the area around holes or cuts shall be masked to shield the paint from hot fillings.

16. Storage and Protection. Pre-painted steel roofing, walling products and accessories should be delivered to the job site in strapped bundles.

17. Sheets and or bundles shall be neatly stacked in the ground and if left in the open it shall be protected by covering the stack materials with loose tarpaulin.

C. MEASUREMENT AND PAYMENT

1. The work done under this item shall be measured by actual are covered or installed with pre-painted steel roofing and or walling in square meters and accepted to the satisfaction of the Architect or Engineer.

2. The area of pre-painted steel roofing and or walling in square meters shall be paid for at the Unit Bid Price or contract unit price which payment shall constitute full payment including labor, materials, tools and incidentals necessary to complete the work.

CLAY ROOF TILES

SCOPE OF WORK

This Item consist of furnishing all plant, labor tools, equipment and clay roof tiles required to complete the roofing as shown on the Plans in accordance with this Specifications.

A. MATERIAL REQUIREMENTS

1. Clay Roof Tiles

Clay tiles shall be manufactured from red clay specie molded to custom pile patterns. It shall be kiln dried to improve natural aesthetic appearance and resistance to erosion and withstand any climate condition in the tropics. Where required and indicated to be glazed, color shall be approved by the Architect.

2. Sheating

a) Corrugated G. I. sub-roofing shall be 0.5 mm thick long span. Plywood sheating when used instead of G.I. shall be 12 mm thick marine plywood treated with two piles of felt paper asphalt impregnated.

b) Wood Batten shall be 2.5 cm. x 5.0 cm. pressure treated lumber properly laid to fit clay roof tiles and accessories as indicated on the Plans.

c) Fasteners shall be non-corrosive materials. Nails shall have large head sufficient length to give 19 mm penetration on wood batten and # 16 tie wires to be copper or brass as the case may be.

B. CONSTRUCTION REQUIREMENTS

1. Before the work is started, the Contractor shall secure approved roof framing Plan and determine or evaluate actual site condition.

2. In case modification is necessary, the Contractor shall submit shop drawings to the supervising Architect or Engineer.

3. Batten roof shall be installed in straight lines, level squared and firm. It may rest on sheeting and anchored rigidly by means of galvanized iron straps gauge 24 thick riveted on sheating, or nailed on top chord or jack rafter when it rests on plywood sheating.

4. The top chord or jack rafter shall have at least a minimum roof pitch of 25 degrees.

5. Plywood sheating shall be overlaid with two piles of felt paper, asphalt impregnated to control moisture. The batten shall be spaced to fit the clay roof tiles and accessories.

6. Gutter and valleys shall be set in place before wood battens are installed. Use gauge 24 plain galvanized iron sheet molded true to profile section indicated on the plans or as directed by the supervising Architect or Engineer.

7. For clay tiles on concrete roof slab provide and install pressure treated lumber 25 mm x 50 mm or metal strips properly aligned, level squared and firm.

8. Apply waterproofing on the slab surface to control moisture by cold process.

9. Laying of tiles shall start at the lower layer from right to left. See to it that the left anchorage of tile is placed near or close to hip truss as much as possible.

10. Continue to the next layer of clay roof tiles following the same procedure

11. After all clay roof tiles are laid out, mark the clay roof tiles at hips and valleys which are to be cut using straight edge or string as guide.

12. Where tiles join a hip stringer, provide waterproof elastic cement. Cement hip roll and ridge in lap and fasten with nails or tie wires as specified.

13. Fill voids at hip starters and ridge ends with mortar, color to match the tile.

14. Remove all debris and clean roof are for service.

C. METHODS OD MEASUREMENT

This item shall be measured by actual roof area laid with clay roof tiles and accessories in square meters or part thereof, for work completed and accepted to the satisfaction of the Architect.

D. BASIS OF PAYMENT

The accepted work quantified and provided in the Bill of Quantities shall be paid for at the Unit Bid Price which constitute full payment for furnishing all materials, labor, tools, equipment and other incidentals necessary to complete this item.

ROOF DRAINAGE

SCOPE OF WORK

This Item shall consist if furnishing all items, articles plant equipment, labor and materials and performing all methods necessary or required for the complete installation of all roof drains with strainers in accordance with all applicable drawings as shown on the approved plans and the provisions of this Specifications

A. GENERAL CONDITIONS

1. Performing all operations or methods necessary and required for the complete installation of all Roof Drains with strainers, including connections to downspout,

in accordance with all applicable drawings and details, and subject to the terms and conditions of the contract.

2. Should there be any conflict between the sizes of roof drains and downspout, the size of the latter shall govern.

3. The size of any roof drain with strainer shall follow the diameter of the corresponding roof leader or downspout to be installed.

B. CONSTRUCTION REQUIREMENTS

1. Drainage

a) The contractor shall provide, fit or install all necessary drains with strainers where so shown or indicated on plans and or where the supervising Engineer directs.

b) Each drain with strainers shall fit the size of the corresponding downspouts or conductor over which is to be installed and in accordance with the following schedule.

c) Over each downspouts of cast iron body lacquer finish low “Dome” roof drain (rough brass strainer) 45 threaded outlet or side outlet respectively, secured to caming ring by screws.

2. Drain and Over flow Pipes

a) Concrete roof gutters or any other work which catches drains or collect rain water shall be provided with adequate drain overflow, pipes, one inch in diameter pipe spaced at 2.00 meters on centers and or as specified.

b) Weep holes, where so indicated on plans, of the size and spacing shown, shall be provided by the contractor to allow the free flow of water to drain from one level over lower level or to outside all in accordance with the detailed drawings.

3. Downspout

a) All conductors or downspout encased in concrete unless otherwise shown in drawings shall be PVc pipe as specified in plans. Size of downspout shall be as shown or indicated on plans.

b) Downspout of all floor drains indicated on reinforced concrete gutters shall be 75 mm in diameter except where specified other use and each shall branch from the adjacent main downspout if any as shown on plans.

c) Any drain with strainers of approved quality, locally made, in accordance with full size details may be substituted subject to the written approval of the supervising Architect or Engineer.

d) Should the series and type number specified herein be not suitable to a particular location due to concrete space limitations, any adaptation of the series specified of the same size, body material and finish may be substituted, subject to the approval of the supervising Architect or Engineer.

e) Any other drain shown but not specified herein and necessary to leave the work complete, shall be provided and installed by the contractor suitable to the service required and fitted to the concrete limitations at the point of installation, based on or similar as specified herein or as directed by the supervising Architect or Engineer.

C. MEASUREMENT AND PAYMENT

1. All roof drains strainers actually installed shall be measured and determined by the number of pieces or units ready for service as provided in the Bill of Quantities accepted to the satisfaction of the supervising Architect or Engineer.

2. The Item measured and determined shall be paid for at the Unit Bid Price which payment constitute full compensation of materials, labor and incidentals necessary to complete this Item.

1.5. WATERPROOFING

SCOPE OF WORK

This Item shall consist of furnishing all materials, labor, tools, equipment, plant and other facilities required as shown on the Plans and undertaking the proper application of integral and membrane waterproofing complete in accordance with this Specifications.

A. MATERIAL REQUIREMENTS

1. Integral Waterproofing

Integral waterproofing compound shall be cementitious powder pre-mix admixture or water base surface coat conforming with the standard Specifications set by the Bureau of Product Standards, Department of Trade and Industry.

2. Membrane Waterproofing

Membrane waterproofing shall be Osmo-seal powder; Liquid Elastomeric or Epoxy Solvent less waterproofing compound formulated for extra flexibility and resiliency to give lasting waterproof effect.

B. CONSTRUCTION REQUIREMENTS

1. Concrete mixture for decks, balconies, toilet and bathrooms, gutters, parapets, canopies and other areas indicated on the Plans to be integrally waterproofed shall be blended with integral waterproofing compound.

2. Only a minimum quantity of clean water shall be used in the concrete mixture to be sufficiently plastic and to obtain enough workability in placing concrete.

3. Concrete surface to be applied with membrane waterproofing shall have been integrally waterproofed, thoroughly set, dry, clean and free from foreign matters.

4. Surface shall be topped and plastered with double strength integral waterproofing compound pre-mix admixture of screened mixture: 1 part Portland cement, 3 parts clean and sharp sand and 2 packages integral waterproofing compound steel trowelled to smooth surface finish.

5. Concrete slab shall be properly graded to drain rainwater. A minimum pitch of 1 percent is satisfactory to drain water freely into the drain lines.

6. Drainage connection and weep-holes shall be set up to permit the free flow of water.

7. Any expansion and contraction joints shall be cleaned, primed, fitted with a backing rod and caulked with sealant.

8. Prepared surfaces shall be cured and kept wet by sprinkling water at regular intervals for a period of at least 3 days when smooth surface finish have actually set.

9. Allow cured surfaces to dry and remove all dust, dirt, debris and oil.

10. All lose areas shall be refitted and well secured. Repair cracks, breaks and open seams. Where required or as directed in the membrane waterproofing product instruction manual, prepared surface shall be prime coated.

C. APPLICATION PROCEDURES

1. Prior to application, concrete surface shall be sound and cured without the use of curing compound.

2. Apply a coat of neutralizer to remove oil, dirt, and other contaminants.

3. Apply a coat of concrete primer on surfaces to be installed with membrane self-sealing type when required or as directed in the product instruction manual.

4. Stir thoroughly each container of membrane waterproofing before use.

5. Apply a coat of membrane waterproofing by brush, airless spray, notched trowel, squeegee or roller preferably 15 to 20 mils maximum thickness of wet coat.

6. Three applications is recommended and each coat is allowed a minimum of 24 hours curing time between each coat or as recommended in the product manufacturer's instruction manual.

7. Application of membrane waterproofing coat should not commence unless the ambient temperature is 4.44^0 C or higher and shall not proceed during inclement weather condition.

8. The waterproofing compound is combustible. Extra care shall be observed by persons having skin sensitiveness to wear protective gloves while applying.

D. PROTECTION OF MEMBRANE WATERPROOFING SURFACES

1. To have a bond between the membrane waterproofing and the slab, concrete topping shall be placed as the membrane dries after 48 hours of application.

2. If a bond is not required, the membrane shall be protected with asphalt asbestos board or asphalt felt paper until such time as topping and concrete covering is applied.

3. Prior topping or placing concrete cover, inspect the membrane for any damage and repair work as required.

4. Exposed membrane surfaces at basement shall be covered and protected by installing tightly butted asphalt impregnated protection boards with a minimum thickness of 6 mm and 12 m on all horizontal areas.

5. Use asphalt impregnated joint boards along all walls and cove areas.

E. MEASUREMENT AND PAYMENT

1. Integral and membrane waterproofing works rendered under this Item shall be measured in square meters for areas actually waterproofed as provided in the Bill of Quantities and accepted to the Owner satisfaction.

2. The areas provided with integral and membrane waterproofing measured in accordance with the preceding section shall be paid for at the Unit Bid Price which price and payment constitute full compensation for furnishing all materials, tools equipment, labor and incidentals necessary to complete this Item.

2. ARCHITECTURAL WORKS

2.1 CARPENTRY AND JOINERY WORKS

SCOPE OF WORK

The work to be done under this Item consist of furnishing all required materials, fabricated woodwork, tools, equipment and labor and performing all operations necessary for the satisfactory completion of all carpentry and joinery works in strict accord with applicable drawings, details and these Specifications.

A. MATERIAL REQUIREMENTS

1. Lumber

Lumber of the different species herein specified for the various parts of the structure shall be well seasoned, sawn straight sun-dried or kiln-dried and free from defects such as loose and unsound knots, pitch, pockets, sapwood, cracks and other imperfections impairing its strength, durability and appearance.

2. Grades of Lumber and Usage

a) **Stress grade lumber** is seasoned, close-grained and high quality lumber of the specified specie, free from defects and suitable for sustaining heavy load.

b) Stress grade limber shall be used for wooden structural members subject to heavy loads, and for sub-floor framing imbedded or in contact with concrete and masonry.

c) **Select grade lumber** of the specified specie is generally of high quality of good appearance, without waste due to defects and suitable also for natural finish.

d) Select grade lumber shall be used for flooring, sidings, fascia and base boards, trims, molding, millwork, railings, stairs, cabinet work, shelves, doors, windows and frame of openings.

e) **Common grade lumber** has minimum tight medium knot not larger than 25 mm in diameter, with minimal imperfections, without sapwood, without decay, insect holes, and suitable for use with some waste due to minor defects and suitable also for paint finish.

f) Common grade lumber shall be used for light framework for walls and partitions, ceiling joists and nailers.

3. Lumber Species and Usage

Unless otherwise specified on the Plans, the following lumber species shall be used as indicated:

a) Yacal (*stress grade*) for structural member such as posts, girders, girts, sleeper door and window frames set or in contact with concrete or masonry.

b) Guijo (*select grade*) for door and window frames set in wooden framework, for stair, for roof framing supporting ceramic or cement tiles, for floors and other wooden structural parts.

c) Apitong (*common grade*) for roof framing supporting light roofing materials such as galvanized iron, aluminum or asbestos sheet, for wall framing, ceiling joists, hangers and nailers.

d) Tanguile (*select grade*) for doors and windows, fascia and base boards, trims, mouldings, mill work, railings, stairs, cabinet work, shelves, floorings and sidings.

e) Narra (*select grade*) for stair railings, flooring boards, cabinet, work millwork, doors and windows when indicated as such in the plans.

f) Dao (*selected grade*) for parts of the structure as enumerated or when indicated in the plan.

4. Moisture Content

a) Rough Lumber for framing and siding boards shall be air-dried or sun-dried such that its moisture content shall not exceed 22 percent.

b) Dressed lumber for exterior and interior finishing for doors and windows, millwork, cabinet work and flooring boards shall be kiln dried having no moisture content in excess of 14 percent at the time of its installation.

5. Substitution in Lumber Specie

a) Any lumber equally good for purpose intended may be substituted for the specified kind subject to the prior approval of the supervising Architect or Engineer. Provided that the substitution shall be have equal or better specie acceptable to the supervising Architect.

b) In case of substitution with better specie, no additional cost therefore shall be allowed to the Contractor.

6. Plywood

Plywood shall be of good grade and made of laminated wood strips bonded together with water resistant resin glue.

a) The laminated glue core shall be finished both faces with select grade tan guile, red lauan veneers or equivalent not less than 2mm thick, similarly bonded to the core.

b) The plywood of not less than 19 mm thick shall be free from defects such as split in veneer, buckling or warping and shall conform to the requirements of the Philippine Trade Standard 631-02

c) Thickness of a single layer of laminae shall not be less than 2m. The laminae shall be superimposed in layers with grains crossing at right angles in successive layers to produce stiffness.

d) The face veneers shall be rotary cut from selected grade timber. The laminae and face veneers shall be bonded with water resistant resin glue, hot pressed and pressure treated.

e) Ordinary tan guile, red lauan, palosapis, or equivalent grade with good quality face veneers, 6 mm thick shall be used for double walling and ceiling not exposed to moisture.

f) Waterproof or marine plywood shall be used for ceiling exposed to moisture such as at toilets and eaves, and ceiling to be finished with acrytex.

7. Lawanit or Hardiflex

a) Lawanit or Hardiflex when required in the plan shall be 6 mm and 8 mm thick respectively, tempered or oil impregnated for moisture/ water resistance.

b) Texture of Lawanit or Hardiflex shall be subject to the approval of the supervising Architect or Engineer.

8. Materials Other than Lumber

a) Plastic Sheet

When required for counter top, plastic sheet such as Formica shall not be less than 1.50 mm thick and shall have hard, durable and glossy surface resistant to stain,

abrasion and . Color and design shall be as selected from the manufacturer's standard and approval by the supervising Architect or Engineer.

b) Glue

Shall be from water resistant resins which, upon hardening, shall not dissolve nor lose its bond or holding power even when soaked with water for extended period. Glue in powder form shall be sealed container shall be without evidence of lumping or deterioration in quality.

c) Fasteners

Nails screw; bolts and straps shall be provided and used where suitable for fixing carpentry and joinery works. All fasteners shall be brand new and of adequate size to ensure rigidity of connections.

Nails of adequate size shall be steel wire, diamond-pointed, ribbed shank and bright finish.

Screw of adequate size shall be cadmium or brass plated steel with slotted head.

Lag Screw of adequate size, for anchoring heavy timber framing in concrete or masonry, shall be galvanized steel.

Bolts and nuts shall be of steel having a yield point of not less than 245 Mpa. Bolts shall have square heads and provided with standard flat steel washers and hexagonal nuts and provided with standard flat steel washers and hexagonal nuts.

Threads shall conform to American coarse thread series. The threaded portion shall be long enough such that the nut can be tightened against the bolted members without any need for blocking.

Wrought Iron Straps or Angles, when required in conjunction with bolts or lag screws to provide proper anchorage shall be of the shape and size shown on Plans.

B. CONSTRUCTION REQUIREMENTS

1. Quality of Materials

All materials to be incorporated in the carpentry and joinery works shall be of approved quality as specified. Before using all materials shall have been inspected and accepted by the supervising Architect or Engineer.

2. Storage and Protection of Materials

a) Lumber and other materials shall be protected from dampness during and after delivery at the site.

b) Materials shall be delivered well in advance of actual need and in adequate quantity to preclude delay in the work.
c) Lumber shall be piled in orderly stack at least 15.0 cm. above the ground and at sheltered place where it will be of least obstruction to work.

3. Shop Drawing

Complete Shop Drawings with essential dimensions and details of construction, as may be required by the supervising Architect or Engineer in connection with carpentry and joinery work, shall be submitted for approval before proceeding with the work.

4. Rough Carpentry

Rough carpentry covers timber structural framing for roof, flooring, siding, partition and ceiling.

a) Framing shall be *stress grade or common grade lumber* of the specie specified. Rough carpentry shall be done true to lines, levels and dimensions. It shall be squared, aligned, plumbed and well fitted at joints

b) Trusses and other roof framing shall be assembled, fitted and set to exact location and slope indicated on the Plans.

c) Fasteners, connectors and anchors of appropriate type, size and number shall be provided and fitted where necessary.

d) Members damaged by such cutting or boring shall be reinforced by means of specifically formed and approved steel plates or shapes. Otherwise, damaged structural members shall be remove and replaced to the satisfaction of the Architect or Engineer.

e) Timber framing in contact with concrete or masonry shall be treated with termite proofing solution and after drying coated with bituminous paint.

5. Finished Carpentry

Finished carpentry covers work on flooring, siding and ceiling boards, stairs, cabinets, fabricated woodwork, millwork and trims.

a) Framing lumber shall be select grade, free from defects and where exposed in finished work, shall be selected for color and grain.

b) Joints of framing shall be tenoned, mortised or doweled where suitable, closely fitted and secured with water resistant resin glue. Exterior joints shall be mitered and interior angles coped.

c) Panels shall be fitted to allow for construction or expansion and insure that the panels remain in place without warping, splitting and opening of joints.

d) Exposed edges of plywood or plywood for cabinets shall provided with selected grade hardwood strips, rabbetted as necessary, glued in place and secured with finishing nail. To prevent splitting, hardwood for trims shall be drilled before fastening with nails or screws.

e) Fabricated woodwork shall be done preferably at the shop. It shall be done true to details and profiles indicated on the Plans.

f) Where set against concrete or masonry, woodwork shall be installed after curing is completed.

g) Exposed wood surfaces shall be free from disfiguring defects such as raised grains, stains, uneven planning, sanding, tool marks and scratches.

h) Exposed surfaces shall be machine or hand sanded to an even smooth surface, ready for finish.

6. Fasteners

a) Nails shall not be driven closer together than one half their length unless driven in bored holes, or closer to the edge of the timber than one quarter their length.

b) Nails shall penetrate by at least half their length into the timber farthest from the head. End distance, edge distance and spacing of nails shall be such as to avoid splitting of the wood.

c) Lag Screw shall be set into pre-bored lead holes and not driven. The lead hole for the hank shall have the same diameter as the shank and the same depth as the unthreaded portion of the shank.

d) The lead hole for the threaded portion shall have the same diameter equal to about 75% of the diameter of the shank and the same length as the threaded portion.

e) Lengths of bolts shall be enough to extend through the nut and an allowance for nut tightening.

f) Bolts shall be set into drill holes suitably sized enough for snug fit.

7. Pressure Treated Lumber and Plywood.

a) Lumber, plywood and ply board specified a treated with wood preservative shall be pressure treated with water borne preservatives as Wolman Salt, Boliden Salt or Tanalith H-R.

b) Pressure treatment shall meet the standards set by the American Wood Preservers Association per publication C 2-77, or the Philippines Trade Standards PTS 243-02.00 as to penetration and amount of chemicals retained in the treated lumber.

c) Final retention of chemicals in the wood shall be a minimum of 5.6 kg/m3.

d) Pressure treated lumber shall be accompanied by a certification of pressure treatment from the wood preserving plant as to the pressure treatment, sizes and quantity of wood treated.

e) Notwithstanding the presentation of said certification, the supervising Architect or Engineer may require physical inspection and undertake borings to ascertain penetration of preservative into the wood.

f) Each boring should show penetration of not less than 2.5 centimeters.

8. Rat Proofing

a) Enclosed hollow spaces between wooden flooring and ceiling and between double sidings or partitions shall be made rat proof in accordance with Department of Health Requirements

b) Hollow space between wooden flooring and ceiling shall be rendered rat-proof by laying continuous strips of galvanized iron sheet or 10 mm wire mesh, about 25 cm. wide and centered along floor plates or sills of partitions and exterior walls.

c) The rat proofing strips shall be sandwiched between floor joists/plates and sills of partitions or sidings. The strips shall be nailed to the top of joists as well as to underside of sills and floor boards.

d) This part of the rat proofing man be omitted whenever it is clear than an equally effective protection is provided by concrete or tile floors or by the upper surface of reinforced concrete or steel directly supporting the sidings.

e) all exterior openings between adjoining floor joist and girders or beam that might give rats direct access into the hollow space inside, shall when not closed by fascia

board or the like, be covered with strips of the same rat proofing material or sufficient size to close entirely the opening in question.

f) Double sidings or partitions as well as furred posts are made rat proof by lining the inner face of the board or panel sheeting with continuous vertical strips of the aforementioned rat proofing material up to height of at least 30 cm from the base of the partition, siding or furred post. The lower edge of the pat proofing sheet shall be in contact with floor throughout its entire length.

9. Measurement and Payment

a) Carpentry and Joinery Work shall be measured per complete item supplied, installed and accepted.

b) Payment shall be based on the measured quantity of each completed item and the Unit Bid Price as quoted in the Bid Proposal.

c) Such unit bid price shall be inclusive of all plant, materials, labor, overhead, profit and other incidental expenses in connection with the finished work.

d) Structural timber framework for roofing, flooring, partition and siding shall be measured on the basis of lumber board feet involved and paid for based on the quoted bid price per board foot. Such bid price shall be inclusive fasteners needed to complete the framework.

e) Flooring and siding boards, base and fascia boards, solid panels, stairs, handrails and trim shall be measured on the basis of number of board feet involved and paid for based on the corresponding quoted unit bid price per board foot.

f) Double walling for partitions and sidings shall be measured on the basis of the area involved in square meters and paid for based on the quoted unit bid price per square meter.

g) Ceiling boards shall be measured based on the area involved in square meters. Payment shall be based on the quoted unit bid price per square meter. Such unit bid price shall be inclusive of the cost of nailers, hangers and fasteners.

h) Cabinets shall be measured based on the number of units completed, installed and accepted. Payment shall be based on the number of units completed and the unit bid price per unit.

i) Incidental work for the main items on carpentry and joinery work such wood preservation, rat proofing and any other items necessary to complete the work but not specifically mentioned in the Bill of Quantities contained in the Bid Proposal

shall be deemed to be covered by the unit or lump sum prices quoted for the other items of work listed in said Bill of Quantities

Pay item Number	Description	Unit of Measure
Item – 1	Structural timber framework	Bd. Ft.
Item – 2	flooring, and siding boards, Base and fascia board shall Panels, stair, handrails and trims	Bd. Ft.
Item – 3	Double walling	Sq. M.
Item – 4	Ceiling Boards	Sq. M.
Item – 5	Cabinets	Each

2.2 HARDWARE

SCOPE OF WORK

This Item shall consist of furnishing and installing all building hardware required to ensure rigidity of joints or connections of the different parts of the structure such as door, windows, cabinets, lockers, drawers and other similar operating parts as indicated on the plans in accordance with this Specifications.

A. GENERAL CONDITIONS

1. The contractor shall provide all rough hardware required for the completion of the work, including nails, spikes, bolts, log screws, etc., and shall provide and fit in place all finishing hardware hereinafter specified – put on in the most improved manner with screws to match the finish.

2. The contractor shall provide and fit in place all hardware not herein specifically mentioned but necessary to leave the work complete. All such hardware should there be any, shall conform in every respect to the balance of the hardware herein specified.

3. Finishing hardware, suitable to the service required to fully equip in the most satisfactory operative condition, for all doors, windows transom sashes, screen doors and windows, closet, built-in cabinets counters, drawers, lockers and other operating members throughout the project shall be furnished and installed or fitted by the Contractor.

4. Where the exact types of hardware specified are not adoptable to the finishing, shape or size of members requiring the hardware, suitable types having as applicable the same operation and quality as the corresponding individual types specified shall be furnished.

B. MATERIAL REQUIREMENTS

1. Rough Hardware

All rough hardware such as nails, screw, lag screws, bolts and other related fasteners required for carpentry work shall be first class quality and locally available.

2. Finishing Hardware

All finishing hardware consisting of locksets, latches, bolts, and other devices, door closers, knobs, handles, hinges and other similar hardware shall be first class quality available locally and conforming with the following Specifications.

a) Door Locksets

Door locks appropriate for particular functions shall be of durable construction, preferably the product of reputable manufacturer for consistent quality and master keying.

b) Door Closer

i. All door closer shall be cast bronze provided with a key valve or cap valve for making necessary adjustment.

ii. The following table shall serve as guide in determining door closer sizes.

Door Maximum Width	Size of Closer
76 cm.	Size 2
90 cm.	Size 3
107 cm.	Size 4
120 cm.	Size 5
137 cm.	Size 6

Use larger size where unusual conditions exist.

c) Hinge

Hinge unless otherwise indicated on the Plans shall be rass coated wrought iron steel for interior doors and wrought bronze for exterior doors with non rising loose steel pins with button tips and mounting screws of the same materials.

d) Sliding Door Hardware

i. Track is of rolled steel formed or extruded aluminum.

ii. Bearing is of plain steel balls or steel rollers

iii. Wheels to be steel, brass, rubber or plastic as the case maybe.

e) Make

i. The plate numbers herein given designates the quality and style as to the type, design, operation, materials and finish of hardware designated.

ii. Any other hardware equally good, may be substituted only in cases of urgent necessity and subject to the written approval of the supervising Architect or Engineer.

f) Finish

Unless otherwise shown or specified on the plans, exposed surfaces shall have the following Standard Finishes.

i. *Polished, bright brass or Bronze.* Bronze surfaces exposed on exterior of building not specified to have US 26 finish.

ii. *US 26 polished chromium plated over nickel or brass.* Brass or bronze surfaces exposed on toilets, lavatory and shower rooms and all others in the interior of the building.

iii. *USP Prime coated for painting.* Ferrous metal surfaces unless zinc coated.

g) Fastenings

Fastenings of suitable size, quality and type shall be provided to secure hardware in position. Machine screws and expansion shields shall be provided for securing items of hardware concrete, brick tile or masonry instead of wood screws.

h) Exposed Items of Hardware

i. After hardware has been properly fitted, all exposed items such as knobs platers, pulls, locks, etc., shall be removed until final coat of painters finish has been applied, and then hardware installed.

ii. Other items of hardware, unless to be painted over that are not to be removed before painting shall be properly marked or completely covered until final coat of painter's finish has been applied, after which such protective shall be removed.

C. PLACING ORDER OF HARDWARE

1. The contractor shall place his order for all hardware early in order to avoid delay in the job.

2. No request for extension of time shall be entertained by the Owner due to this delay an

3. No substitution of hardware shall be allowed due to negligence of contractor on this matter.

D. CONSTRUCTION REQUIREMENTS

1. Door Knobs, and Latch Strikes

a) All lock and latch strikes shall be installed in door frames at the same height from the floor.

b) Door knobs shall be located so that the center of the knob in 95 centimeters from the finished floor and or as directed by the supervising Architect or Engineer.

2. Butt Hinges

a) Each panel of hinged doors shall be hung on two butts for doors 1.50 m. or less in height.

b) Three butts, over 1.50 m. high and not over 2.10 m. four butts above 2.10 m, in height.

c) Doors of a greater height than 2.10 m. unless otherwise specified shall be hung on additional one butt for each 65 centimeters or fraction thereof.

d) Where the size of the butt hinges is not sufficient to allow door to clear door trim in open position, same shall be increased.

3. Counters, Shelves, Cabinets, Lockers, etc.

a) Other hardware not covered by previous specifications for all wooden counters, shelves, cabinets, drawers, cabinet doors, closet doors, cupboard, or wall cabinets, glass showcases, storage shelves, work tables, lockers and all other woodwork and interior finishing of similar nature indicated on plans are included in this contract.

b) It shall be done in accordance with detail drawings and full size details which shall be requested by the Contractor from the supervising Architect or Engineer, well ahead of their installation.

c) The Contractor shall furnish and install all necessary hardware for all the above work, complete and suitable to the service required to fully equip then in very satisfactory of the Specifications and the applicable drawings.

d) All modifications in hardware required by reason of construction indicated, shall be made to provide specific operative functional requirements.

e) All hinges that are needed shall be steel brass plated and of the size suitable for the purpose. Use Hager, Stanley, Kwikset or Corbin or an approved equivalent.

f) All necessary hardware for all woodwork specified above such as bolts, automatic catches, cylinder locks, drawer pulls, cabinet and closet door pull knots, push or cover plates, strikes, holder, indicators, push or pull bars, drawer locks, etc., shall be cast bronze or brass chromium finished in accordance with the specifications.

g) Their sizes shall be suitable for the purpose approved by the Owner or in accordance with those shown and specified in the full size details.

h) Schedule of all hardware to be purchased by the Contractor shall be submitted first to the supervising Architect or Engineer for approval before ordering them.

i) All hardware shall be brought to the job in original package. Samples shall accompany schedules.

4. Butt Hinges Make

For all doors on Butt Hinges, unless otherwise specified use button stop butts, Hager, Sanley, Kwikset or approved equivalent highly polished and plated with non raising pin for door opening outside.

5. Bar Doors

Provide and fit a set “Lawson Universal” gravity pivot type hinges No. 4604 nickel polished finish for each bar door in all toilet rooms. Approved equivalent, locally made of this type will be acceptable.

6. Cabinet Door Catch and Pull

a) Each cabinet door sash shall be provided with a door pull, Corbin No. 4347, extruded brass, chrome finish, or approved equivalent.

b) Cabinet doors with locks shall be provided with elbow-catches, Corbin No. 01623 cast bronze or approved equal on the inactive sash.

c) Cabinet doors not provided with locks shall be provided and fitted with fraction catches.

d) Siding cabinet doors shall be provided with drawer pulls of the flush type, cast brass or bronze.

7. Drawer Pull and Locks

a) Each drawer shall be provided with pulls of the type specified for cabinet doors.

b) The contractor shall provide and set complete, ready for operation, one pin tumbler cylinder lock of the medium of standard type, for each door in accordance with the schedule below.

c) U.S. Standard finishes as specified shall apply to all locks used "*Russwin, Yale, Corbin, Weiser, Schlage"* Standard type, of the approved equivalent.

d) The trade mark and plate numbers given herein are to designate only the quality, type, operation, materials and style or design required.

e) Schedule of Lockets: (in this Item, specify the name of door lock as to the brand, serial number, color and what particular door is to be installed such as:main door, bed room, toilet, etc.)

8. Master Key and Grand Master Key

a) All door lock shall be Master keyed as stated on the above schedule of lockset and grand master keying for the whole building.

b) Before placing the purchase order for door locks, it shall comply with the manufacturers requirements regarding the master keying for the locks.

c) The keying for this project shall be in accordance with the requirement of the Owner:

Supply of Keys:

D- 1 Grand Master Key ---------- 6 each
D-2 Master Key ---------- 3 each
D-3 Keys for each lock ---------- 3 each

As specification writer, you can make your own specification as to the number, quality and type. This is only a guide on how you will prepare your specifications.

d) Other doors not included in this schedule, but necessary to leave the works complete, shall be provided and fitted complete, by the Contractor with one lockset suitable to the service required and depending under which type and finish of each door lock, shall be classified by the Architect or Engineer.

2.3 ALUMINUM GLASS DOORS AND WINDOWS

DOORS

SCOPE OF WORK

This Item shall consist of furnishing all aluminum glass door and window materials, labor, tools and equipment required in undertaking the proper installation as shown on the Plans and in accordance with this Specification.

A. MATERIAL REQUIREMENTS FOR DOOR

1. Frames and panel members shall be furnished from extruded aluminum sections true to details with clean, straight, sharply defined profiles and free from defects impairing strength, durability and appearance.

2. Extruded aluminum sections shall conform to the specification requirements of ASTM B-211.

3. Screws, nuts, washers, bolts, rivets and other miscellaneous fastening devices shall be made of non-corrosive material such as aluminum and stainless steel.

4. Hardware for fixing and locking devices shall be closely matched to the extruded aluminum section and adaptable to the type and method of opening.

5. Vinyl weather strip shall be first class quality flexible vinyl forming an effective seal and without adverse deformation when installed.

6. Pile weather strip shall be silicon treated and free from residual wetting agents and made of soft fine hair as on wool, fur, etc.

7. Glazing shall conform to the requirement specified in Item Glass and Glazing Specifications.

B. CONSTRUCTION REQUIREMENTS

1. For all assembly and fabrication works, the cut ends shall be true to line and accurately joined, free of burrs and rough edges.

2. Cut-out recesses, mortising, grinding operation for hardware shall be accurately made and properly reinforced when necessary.

3. Main frame shall consist of head, sill and jamb stiles specifically designed and machined to inter-fit and be joined at corners with self-threading screws.

4. Frame sill shall be stepped and sloped with offset weep holes for efficient drainage to the exterior.

5. Door panel shall be accurately joined at corners assembled and fixed rigidly to the exterior.

6. Aluminum glass door and main frame shall be installed in a prepared opening to be set plumb, square, level and true details.

7. All joints between metal surface and masonry shall be fully caulked to ensure weather tightness.

8. Sliding type door panel shall be equipped with concealed roller overhead tracks with bottom guide.

9. Double action type door panel shall be equipped with heavy duty hinges that will control the door leaf in a close or open position.

10. Weather strip shall be furnished on edges at the meeting stiles of doors.

11. Where aluminum is to be in contact with steel, concrete, cinder, block, tile, plaster or other similar masonry construction, the aluminum surface shall be back painted before erection with a bituminous paint.

12. Exposed aluminum surface shall be electro type hard coats.

13. Protection

a) All aluminum parts shall be protected adequately to ensure against damaged during transit and construction operations.

b) Aluminum parts in contact with steel members shall be properly insulated by a coat of zinc chromate primer applied to the steel or by application of bituminous paint.

14. Cleaning

a) The Contractor shall protect all entrance units during construction and shall be responsible for removal of protection materials and cleaning of all aluminum surfaces.

b) Aluminum shall be thoroughly cleaned with plain water with kerosene or gasoline and then wipe surfaces using clean cotton fabric. No abrasive cleaning agents shall be permitted.

MEASUREMENT AND PAYMENT

1. Aluminum glass door, fully equipped with fixing accessories and locking devices shall be measured in square meters based on actual in place installed as shown on the Plans accepted to the satisfaction of the supervising Architect or Engineer Architect or Engineer.

2. The area in square meters of aluminum glass doors installed including main frame and ready for service as provided in this Specifications shall be the basis of payment based on the Unit Bid Price or Contract Price.

WINDOWS

SCOPE OF WORK

The scope of work under this item is the same as that of Aluminum Glass Doors and also the Material and construction Requirements of Section 11-1 and 11-2 of this chapter respectively.

A. MATERIAL REQUIREMENTS

1. Window Panel

Window Panel shall be connected at corners which miter joint fixed rigidly to ensure weather tightness.

2. Sliding Windows

a) Sliding windows shall be provided with nylon sheave.

b) Sliding panels shall be suspended with concealed roller overhead tracks with bottom guide pitch outward and slotted for complete drainage.

c) The sliding panels shall be provided with interior handles.

d) The locking devices shall be a spring loaded extruded latch that automatically engages special frame hips.

3. Casement Window

a) Casement window type shall be provided with two hinges fabricated from extruded aluminum alloy. They shall open on stay arms having adjustable sliding friction shoes to control window panel operations.

b) Locking device shall be one arm action handle for manual operations complete with strike plate.

c) All joints between metal surface and masonry shall be fully and neatly caulked.

d) Aluminum parts in contact with steel members shall be properly insulated by a coat of zinc chromate, primer/bituminous paint applied to the steel surface.

e) Weather strip shall be furnished on edges at the meeting stiles.

f) Exposed aluminum surfaces shall be electrotype hard coats such as anodize, satin, etc.

g) All aluminum parts shall be protected adequately to ensure against damage during transit and construction phase.

4. Cleaning

a) The Contractor does not only protect all entrance units during the construction phase but shall also be responsible for removal of protective materials cleaning the aluminum surface including glazing before work is accepted by the supervising Architect or Engineer.

b) Aluminum shall be thoroughly cleaned with kerosene or gasolines diluted with water and then wipe surface using clean cloth rugs.

c) No abrasive cleaning materials shall be permitted in cleaning aluminum surfaces.

B. MEASUREMENT AND PAYMENT

1. Aluminum glass window fully equipped with fixing accessories and locking devices shall be measured in square meters actually installed in place and accepted to the satisfaction of the supervising Architect or Engineer.

2. The area of aluminum glass window in square meters ready for service as provided in the Bill of Quantities shall be the basis of payment based on the Unit Bid Price which price and payment

GLASS AND GLAZING

SCOPE OF WORK

This Item consists of furnishing all glass and glazing materials, labor, tools, plant and equipment required in undertaking the proper installation as shown on the Plans and in accordance with this Specifications.

1. MATERIAL REQUIREMENTS

All glass and glazing shall be delivered at jobsite with labels affixed indicating quality, make, type and thickness. Each glass in glazed position shall resist a design pressure of 244 kilograms per square meter.

1. Plate Glass

Plate glass shall be manufactured from float glass that is mechanically rounded and polished and sealed with a coating of silver and a uniform film of electrolytic copper plating, then applied with protective coating of paint to seal our moisture from the silver. Use where good vision is required.

2. Float Glass

These basic types of glass shall be manufactured by floating continuous ribbon of molten glass into a bath of molten tin where it is reheated to obtain a flat fire polished finish and annealed slowly to produce a transparent float glass eliminating grinding and polishing.

Variation of these basic types is:

Graded AA – Intended for use were superior quality is required.

Grade A – Intended for selected glazing.

Grade B –Intended for general glazing.

Greenhouse quality – Intended for greenhouse glazing where quality is not very important.

3. Glazing Materials

a) Glazing materials for glass installation may be:

i. Bulk compound such as mastic that are elastic and non skinning compound.

ii. Putties – wood sash putty, or metal sash quality.

iii. Sealant – shall be chemically compatible with setting blocks, edge blocks and sealing tapes.

b) Performed Sealant such as:

i. Synthetic polymer – shall be base sealant that is resilient or non-resilient type.

ii. Performed Gasket – shall be compression or structural type.

c) Setting and Edge Blocks shall be made of lead or neoprene, chemically compatible with sealant.

d) Accessories like glazing clips, shims spacer strips etc. shall be made from non-corroding metal accessories.

4. Schedule of Glass and Mirrors

a) Use 5.6 mm (7/32") thick sheet glass locally manufactured clear quality for the following: *(unless otherwise indicated on the Plans as frosted).*

i. Aluminum windows and doors, notwithstanding plate glass indicated elsewhere.

ii. Jalousie window glass salts.

iii. Fixed glass louvers.

iv. Glass panels for partitions and counter door panels, if any.

v. Sliding glass doors for cabinets.

b) All glass panels for cabinets, except sliding doors shall be clear glass of locally manufactured float glass quality, 4.7 mm (3/16") thick.

c) They shall be clear, except where indicated on the Plans as frosted, diffused or opaque. Same shall be used for wooden sashes.

d) Unless otherwise noted, clear glass that are locally manufactured shall be used for steel windows.

Use 3.1 mm – 1/8" thick for areas exceeding .60 m^2
Use 4.7 mm thick for areas exceeding .60 m^2

e) All comfort rooms whether shown or not, the Contractor shall provide and fit securely in place at the most convenient height above each lavatory one mirror, made from local glazing quality polished plate glass 6 mm thick with beveled edges and brass chromium plated frame 12 mm thick waterproof tanguile marine plywood backing, all in accordance with full size details. Sizes are as follows:

i. Over single lavatories - - - 60 cm. x 75 cm

ii. For two lavatories - - - - - 120 cm. x 75 cm

iii. For three lavatories - - - - 180 cm. x 75 cm

2. CONSTRUCTION REQUIREMENTS

a) Safety precaution and procedure shall be observed in determining the sizes and in providing the required clearances by measuring the actual opening to receive the glass.

b) Movable items or parts shall be kept in a closed and locked position until after the glazing compound has thoroughly set.

c) All glass sheets shall be bedded, back puttied, secured in place and face puttied. Secure glass in aluminum frame with non-corrosive clips except where glazing bead are required.

d) Apply putty in a uniformly straight lines, with accurately formed bevels and clean cut corners, then remove excess putty from glass frames.

e) Set glass in hollow metal doors and in metal frames of interior partitions in felt channel insets or bedded in putty to prevent any rattle.

i. Secure glass in wood doors and wooden frames in putty glazing stops.

ii. Secure stops on doors with screws.

f) Glass breakage caused in executing that work or by faulty installation shall be replaced by the Contractor without extra cost.

g) Improperly installed glass which does not fully meet the requirements of its grade, will not be accepted and shall be replaced without extra cost.

h) The contractor shall provide and install complete set ready or use mirrors in all comfort rooms and elsewhere shown the Plans. The size and location for each mirror shall be as indicated on the Plans or as directed by the Architect.

1. Workmanship

a) All glass shall be accurately cut to fit openings and set with equal bearing on the entire width of plane.

b) Putty shall be neatly run in straight lines parallel with inside of glazing rebate.

c) Corners shall be carefully made. All excess putty shall be removed and surfaces left clean.

d) Apply a thin layer of putty to rebate and set glass.

e) Place spring wire or angle glazing clips and run face putty. Remove excess putty from other side flush with edge of rebate.

2. Cleaning

Clean all glass both sides after putty has been applied completely. Do not disturb edge of putty with scraper. At completion of work leave glass and glazing works free from cracks and rattles and clean on both sides.

3. Samples

The Contractor shall submit for approval duplicate sample (15 cm. x 25 cm.) of each type of glass bearing manufacturer's label and a can of each type of putty.

C. MEASUREMENT AND PAYMENT

1. This Item shall be measured by actual area of glass sheets installed respective of the quality type and thickness in square meters.

2. The quantified unit of measurement shall be those accepted to the satisfaction of the Owner.

3. The quantities as measured shall be paid for the Unit Bid Price which payment constitute full compensation for all glass and glazing materials, labor and other facilities, and incidentals necessary to complete the work.

2.4 TILES

VINYL FLOOR TILES

SCOPE OF WORK

This item shall consist of furnishing all vinyl tiles and fitting accessories, adhesive materials, labor, tools, equipment and the satisfactory performance in undertaking the proper installation of vinyl tile flooring as shown on the Plans and in accordance with this Specifications.

A. MATERIAL REQUIREMENTS

1. Vinyl Tiles

Vinyl tiles shall be of first grade quality measuring 30 x 30 cm. x 3 mm thick, fully homogeneous, flexible, resilient and resistant to alkali moisture, grease and oil. The color and design pattern of vinyl tile shall be uniformly distributed throughout the thickness of the tile.

2. Adhesive

Adhesive shall be best suited for tropical application and compatible with the vinyl to be installed.

3. Seal Polish

Seal polish shall be plastic emulsion suited for the particular type of floor as recommended by the vinyl tile manufacturer.

B. CONSTRUCTION REQUIREMENTS

1. Installation

Installation of the tiles shall not commence until the work of other trade, including painting has been completed.

a) The contractor shall carefully examine all surfaces over which the tiles are to be set.

b) Floor surfaces that are to receive vinyl tile shall be clean, thoroughly dry; smooth; firm and sound; free from oil, paint, wax, dirt, and any other damaging materials.

2. Tile Laying Design

a) The tile design shall be indicated on Plans and in the colors selected and approved by the Architect for each area.

b) All joints shall be parallel to wall lines except otherwise indicated on plan.

c) Where line patterns of tile run perpendicular to lines of other tiles, they shall be laid truly at right angles.

3. Adhesive

a) Adhesive shall be applied in accordance with the adhesive manufacturer's printed directions unless specified or directed otherwise.

b) Smoking, the use of open flames, and other sources of ignitions are strictly prohibited in the area where solvent containing adhesives are being used or laid.

4. Application of the Tiles

a) Start in the center of the room or work area and work from the center towards the edges.

b) Keep tile lines and joints square, symmetrical, tight and even and keep each floor in a true, level plane, except where indicated as sloped.

c) Vary edge width as necessary to maintain full size tiles in the field but no edge tile shall be less than one half the field tile size, except where irregular shaped rooms make it impossible.

5. Cutting

a) Cut vinyl floor tile to fit around all permanent fixtures, pipes and outlets.

b) Cut edges, fit and scribe to walls and partition after flooring has been applied.

6. Edge Strips

a) Provide edging strips where flooring terminates at points higher at doorways where thresholds are provided.

b) Edge strip shall be extruded aluminum butt type and beveled at exposed edges.

c) The top surface of the metal strips shall be finished flush with the tiles.

d) Secure strips at the end and between at about 20 cm. apart with screws.

e) Submit samples of metal strips for approval before application and installation.

7. Cleaning and Waxing

After the vinyl tiles and accessories are laid and set, it shall be cleaner as recommended by the manufacturer and a coat of approved seal polish.

8. Protection

After the floor has been waxed, they shall be carefully protected against damage, either with heavy building paper or by keeping traffic off the floors until the area is ready for use.

C. MEASUREMENT AND PAYMENT

1. All works performed under this section shall be measured in square meters/linear meters or actual number of vinyl floor tiles installed completes with accessories and ready for service.

2. The actual area in square or linear meters or number of quantities shall be the basis of payment based on the Unit Bid or Contract Unit Price.

CERAMIC TILES

SCOPE OF WORK

This Item shall consist of furnishing all Ceramic Tiles and cementitious materials, tools and equipment including labor required in undertaking the proper installation of walls and floor tiles as shown on the Plans and in accordance with these Specifications.

A. MATERIAL REQUIREMENTS

1. Ceramic Tiles

a) Ceramic Tiles and trims shall be made of clay, or a mixture of clay and other materials which is called the body of the tile classified by ASTM C-242 as to their degree of water absorption.

b) Ceramic Tiles and trims are manufactured either by dust pressed process or by plastic in which the clays are made plastic by mixing with water, shaped by extrusion or in molds and then fired.

2. Glazed Tiles and Trim

a) Glazed tiles and trims shall have an impervious face of ceramic materials fused on to the body of the tiles and trims.

b) The glazed surface may be clear white or colored depending on the color scheme approved by the Architect.

c) Standard glaze may be bright (glossy) semi-matte (less glossy) matte (dull) or crystalline (mottled and textured) good resistance to abrasion.

d) Glazed tiles shall be used for walls. Crystalline glazed tiles may be used for floors provided that these are used as light duty floors.

3. Unglazed Tiles and Trims

a) Unglazed tiles shall be hard dense tile of homogeneous composition. Its color and characteristics are determined by the materials used in the body, the method of manufacture and the thermal treatment. Unless otherwise specified, used unglazed tiles for all floors as indicated on the Plan.

b) Trims are manufactured to match wall tile color, texture and to coordinate with it in dimension.

c) These are shaped in various ceramic trim units such as caps, bases, coves, bull-nose, corners, angles, etc. that are necessary for edging or making a transition between intersecting surfaces.

B. CONSTRUCTION REQUIREMENTS

Tile work shall not be started until roughing-ins for plumbing, electrical and other trades have been completed and tested. The work of all other trades shall be protected from any kind damages.

1. Surface Preparation

a) Mortar mix for scratch coat and setting bed shall consist of one part Portland cement ¼ part lime and 3 parts sand by volume.

b) Surface to receive tile must be level, true to elevation, dry, free from dirt, oil and other kinds of ointments.

c) Allow at least seven days curing of scratch coat and setting bed. Installation work shall not be allowed to proceed until satisfactory conditions are corrected.

d) Thoroughly dampen surfaces of masonry or concrete before scratch coat is applied.

e) On masonry surface apply first a thin coat with pressure, then bring it out sufficiently to compensate for the major irregularities of the surface to a thickness not less than 10 mm at any point.

f) Evenly rake the scratch coat to provide good mechanical key before the mortar mix has fully hardened.

2. Installation of Ceramic Glazed Wall Tiles

Ceramic tiles shall be soaked in cleaned water prior to installation for a minimum of one hour.

a) Determine and mark layout of ceramic tiles as to joint location, position of trims and fixtures so as to minimize cutting less than one half size of the tile.

b) Thoroughly dampen surface of wall but not to saturate the surface.

c) Apply a bond coat mix with consistency of cream paste 1.5 mm thick to the wall surface or to the back of the tile to be laid.

d) Lay the tiles true to profile then exert pressure and tamp tile surface before the bond coat mix has initially set.

e) Continue with the next full tile to be laid and pressed firmly upon the setting bed tamped until flush and in place of the other tiles.

f) Intersections and returns shall be formed accurately using the appropriate trim.

g) All lines shall be kept straight and true to profiles, plumbed and internal corners rounded using the appropriate trims.

3. Installation of Vitrified Unglazed Floor Tiles

a) Before tile is laid to the floor, surface shall be tested for levelness or uniformity of slope by flooding it with water. Area where water ponds are filled and leveled, shall be tested again before the setting bed is applied.

b) Establish the lines of borders and center of the walls at the field work in both directions to permit the pattern to be laid with a minimum cutting of tiles.

c) Clean concrete sub-floor then moisten but do not soak. Then, sprinkle dry cement over the surface and spread the mortar on the setting bed.

d) Apply and spread mortar mix for setting bed and tamp to assure good bond over the entire area to be laid with tile.

e) Pitch floor to drain as shown on Plans or as directed by the Architect or Engineer.

f) Allow the setting bed to set sufficiently, then spread a bond coat over the surface and lay the tile.

4. Grouting and Pointing

a) Before grouting joints, tiles shall have been laid in place for at least 24 hours. Grouting mortar shall be white Portland cement or blended with pigments to acquire the color appropriate for the ceramic tiles.

b) Grouting mortar shall be applied over the tile by float or squeegee stroked diagonally across the joints.

c) Remove excess mortar with a wet sponge stroked diagonally or in a circular motion after 12-15 minutes.

d) Follow with a barely damp or dry sponge to remove remaining haze while smoothing all grouted joints.

5. Cleaning

a) Clean ceramic tiles surface thoroughly as possible upon completion of grouting.

b) Remove all grout haze observing tile manufacturer's instructions as to the use of acid or chemical cleaners.

c) Rinse tile thoroughly with clean water before and using chemical cleaners.

d) Polish surface of tile with soft cloth.

6. Protection

a) Apply a protective coat of neutral cleanser solution diluted with water in the proportion of 1.4 or one liter cleanser concentrate to one gallon of water.

b) In addition, cover tile flooring with heavy duty non-staining construction paper, taped in place.

c) Just before final acceptance of the work, remove paper and rinse the protective coat of neutral cleaner from the tile surface.

d) Don not let protective paper get torn or removed.

C. MEASUREMENT AND PAYMENT

1. All works performed under this Item shall be measured in square meters for areas actually laid with ceramic tiles and accepted to the satisfaction of the Architect or Engineer.

2. Ceramic tile work determined and provided in the Bill of Quantities shall be paid for based on the Unit Bid Price which price and payment constitute full compensation for furnishing all materials, tools, equipment and other incidentals necessary to complete this Item.

2.5 PAINTING AND VARNISHING

SCOPE OF WORK

This item shall consist of furnishing paints, enamels, varnishes and other products to be used including labor, tools and equipment required as shown on the Plans and in accordance with this Specification.

A. MATERIAL REQUIREMENTS

1. All paint materials shall meet the requirements of the Standard Specifications of the Standardization Committee on supplies.

2. All paint materials shall be delivered on the job site in their original containers with labels and seals unbroken.

3. Manufacture or brand of painting materials to be used shall either be Dutch Boy, Davies, Boysen or any equivalent approved by the designing Architect.

    a) Kind of Paint
    b) Tinting Color
    c) Patching Compound
    d) Natural Wood Paste Filler
    e) Wood Stain
    f) Varnish
    g) Lacquer
    h) Sanding Sealer
    i) Glazing Putty
    j) Concrete Neutralizer
    k) Silicon Water Repellant

B. CONSTRUCTION REQUIREMENTS

The Contractor prior to commencement of the work shall examine the surfaces to be applied with paints, enamels, varnishes, lacquers, sanding sealers and other related products in order not to jeopardize the quality and appearance of painting or finishing work.

1. SURFACE PREPARATION

a) Surface Examination.
b) Preparation
c) Interior Woodwork
d) Plaster or Masonry

e) Metals
f) Concrete and Brick Surface
g) Cleaning Methods
    i. Sun blasting – there are 3 general methods in used in sun blasting:

        Conventional Dry Sandblasting
        Vacuum Sandblasting
        Wet Sandblasting

    ii. Wire Brushing and Scraping
    iii. Power Tools
    iv. Water Blasting
    v. Acid-etching
    vi. Paint Remover
    vii. Alkali Cleaning

h) Surface Conditioning
i) Application
j) Workmanship
k) Mixing and Thinning
l) Storage
m) Cleaning

C. MEASUREMENT AND PAYMENT

1. The quantity to be paid shall be total area in Square Meters of the various concrete, word and metal surfaces painted complete as shown on the Plans as specified and accepted by the Architect or Engineer.

2. The accepted work shall be paid at the Unit Bid Price, which price and payment shall constitute full compensation for furnishing all materials, equipment, labor, tools and incidentals necessary to complete this Item.

3. ELECTRICAL

SCOPE OF WORK

The work under this Division consist of furnishing all materials, equipment, tools, labor and all other services necessary to complete and make ready for operation the Electrical Power and Lightning System described below and or indicated in the Electrical Plans in accordance with the latest edition of the Philippine Electrical Code and this Specifications and General Conditions of the Contract.

A. CONSTRUCTION REQUIREMENTS

1. Furnishing and installation of underground service entrance, conduits and conductors, and all items required by local utility power company's policy, rules and regulations.

2. Furnishing and installation of panel boards at location indicated on the plan and electrical riser layout, including all accessories required.

3. Furnishing and installation of feeder and branch circuit conductors with the necessary conduits, approved type of fittings and devices as indicated in the electrical plans.

4. Furnishing and installation of all types of utilization devices, outlets and wall switches with properly installed cover plate.

5. Furnishing of all lighting fixtures, conduits, including service entrance duct, terminal cabinet and utility boxes.

B. CODES, REGULATIONS AND STANDARDS

1. The installation and equipment shall conform to good engineering practices and in particular comply with the requirements laid down in the following documents or its equivalent which are mandatory and modified only by specific agreement.

   Philippine Electrical Code - - - - - - - - - - PEC
   Underwriter's Laboratory, Inc - - - - - - - - UL
   National Electric Manufacturers
   Association - NEMA
   Local Utility Power Company - - - - - - - - - LUPC

2. In addition to the requirements of these Codes and the Utility Power Company's requirements, local government regulations and suppliers Specifications if any, shall be followed.

C. DRAWING AND SPECIFICATIONS

1. The drawings and Specifications are meant to be complementary to each other, and what is called for by one shall be binding as if called for both.

2. Any apparent conflict between the drawings and specifications, and any controversial or unclear points in either shall be referred to the supervising Architect or Engineer for final interpretation and decisions.

3. On one copy of the plans, have a record showing all deviations that happened during the construction

4. Upon completion of work as described herein, the Contractor at his own expense shall furnish the Owner 6 copies of the "As Built" plan for future references and maintenance purposes.

D. CORRELATION OF WORK

1. The Electrical Contractor shall confer with the General Contractor and Architect to determine how and where his work fits with that of other crafts, after familiarizing himself with the plans and specifications.

2. This shall be done at the beginning of construction. Should there be any existing doubts at any point, ruling shall be secured from the supervising Architect or Engineer who shall be given time to inspect the work covering this point and to prepare a detail in the form of drawings and written instructions as required.

E. PERMITS AND INSPECTION

1. The Contractor shall obtain at his own expense, all the necessary permits and certificate of Electrical Inspection from the proper government authorities required for both the performance of his work involved and the proper operation of the system upon completion of the work.

2. The Contractor shall at his expense, reproduce the electrical plans for his work to the necessary requirements as required by the government authorities concerned in issuing permits and Certificate of Electrical Inspection.

F. EXAMINATION OF PREMISES

1. Prospective bidder is required to examine the architectural, structural, and electrical plans of the project, to visit the site and carefully take note of all the conditions thereat to have personal informed under which the electrical work is to be done.

2. No allowance will subsequently be made in his behalf of any error on his part. He will be deemed to have done this before submitting his proposal and no subsequent claims on the ground of inadequate or inaccurate information will be entertained.

G. LAYOUT OF WORK

1. Electrical system layout indicated on the drawings are generally diagrammatic and the location of outlets, devices, apparatus and equipment are only approximate.

2. The exact routing of conduits, location of outlets, devices apparatus and equipment shall be governed by structural and architectural conditions and limitations.

3. For the exact location, consult the supervising Architect or Engineer. This does not mean to permit redesigning of the systems. All outlets are to be interconnected as indicated in the drawings.

4. The Owner reserves the right to make any reasonable change in location of outlet and equipment prior to rough-in, without involving additional expense.

5. The Contractor shall be responsible and pay changes for cutting and patching for piping lines where sleeves or slots were not installed or where incorrectly located.

H. MATERIAL AND WORKMANSHIP

1. All materials to be installed shall be unused, brand new and shall conform with the standards of the Underwriters Laboratories, Inc. in every case where such a standard has been established for the particular type of materials to be used.

2. Only skilled workmen using proper tools and equipment shall be employed during the entire course of installation work.

3. All workmanship shall be of the best practices of the trade involved. The same job foreman shall be assigned and maintained at the job site during the entire course of the job.

I. UNDERGROUND SERVICE ENTRANCE

1. The Electrical Contractor shall furnish and install 220 volt current rating, 3- Phase line underground service entrance connection.

2. The service entrance conductors shall be thermoplastic type THW standard copper conductors, stranded, whose number and size are indicated on the plans and electrical riser diagram.

3. The underground service entrance shall be laid at least 60 cm. below the finish grade line and shall be installed to make the joints entirely watertight.

4. The conductor shall then be encased with concrete at least 8 centimeters thick.

J. SERVICE METERING FACILITIES

1. The Contractor shall furnish and install a concrete pedestal pole size 30 cm x 30 cm x 5.50 m in the location shown in the plan and electrical diagram including line accessories and hardware in accordance with the local power company's standards.

2. It shall be the duty of the Contractor to request the local power company to install a proper type and size of service metering instruments and all other necessary accessories, materials, equipment, devices and fittings.

K. PANEL BOARDS

1. The Contractor shall furnish and install the necessary panel boards multi-breaker type including the breakers as indicated in the drawings.

2. Circuit breakers shall be tropical of the magnetic thermal type with ratings and number of poles as indicated in the drawings.

3. All panel boards to be used shall be flush mounted when located in areas that are visible to the general public and may be surface mounted when located in machine room or areas where they are not visible to the public.

4. All panel boards shall be set plumb and symmetrical with the surrounding objects. Panel boards shall be installed in a perfectly fit cabinet of appropriate size provided with a stop in-door trim and good quality cylinder lock.

L. CONDUIT WORK

1. Standard PVC conduit pipe system is required for this project.

2. Conduit runs shall be concealed in drop ceiling and or embedded in concrete structure where concealment is not possible.

3. No conduit of less than 15 mm normal diameter shall be installed for this project. Two or more conduits shall not be installed in lieu of a larger size.

4. Conduit run shall be continuous from outlet and no running thread shall be in any conduit run. Conduit shall be cut square and properly reamed.

5. All joints shall be screwed enter knockouts of conduit boxes, pull boxes, panels and cabinet squarely. Lock-nuts shall be screwed tight to insure continuity of raceway grounding.

6. Bonds and offset shall be avoided where possible, but where necessary it shall be made with approved conduit bending apparatus.

7. Conduits which have been deformed or crushed in any manner should not be installed.

8. The Contractor shall plug with lead or closed with approved pipe caps the ends of all conduit boxes so as to prevent the entrance of white ants and dirt within the conduit system.

9. This lead or cap shall be placed that can be easily removed when so desired and at the same time serve the purpose intended.

10. Pull wire shall be inserted in the empty ducts before they are closed with lead or caps and shall be left therein for future use.

11. When not shown on the plans, conduit sizes shall correspond to the conduit sizes on tables of the Philippine Electrical Code latest edition.

M. FEEDERS AND FEEDER DUCTS

1. Feeder shall be laid out in accordance with the on-line diagram shown in the drawings.

2. Unless otherwise specified or shown on the drawings, type THW wires shall be used for feeder runs. The wires and conduit shown in the drawings shall be the minimum size to be used for feeder runs.

N. WIRING METHODS

1. Wiring for all systems shall be type THW or TW conductors using plastic conduit pipes. Other types of conductor shall be as indicated in the drawings.

2. Conduit shall be embedded in columns, walls and toppings of floors slabs to allow flush connection and lighting system which may be exposed between joints in case a drop ceiling is installed.

3. Proper fittings shall be provided at ends of conduits.

4. All conduit and conduit fittings shall be PVC and shall conform with the U.S. Underwriter's Laboratories Inc. Standard and Codes.

5. The minimum size of conduit to be used shall be 13 mm diameter. Sizes larger than 13 mm diameter shall be indicated in the drawings.

6. Smallest size of conductor to be used shall be 2.0 mm^2 type TW or THW. TW wire shall be indicated in the drawings.

7. Circuit homeruns for lighting shall be 3.5 mm^2 and 5.5 mm^2 for the power or otherwise indicated on the plans.

8. All splices, tape and junctions for all systems using conductor up to 14 mm^2 shall be accomplished by using electrical friction of rubber shapes.

9. Proper type of connections shall be employed to accommodate all splices and solder less type terminals to be used for connection to Busbar.

10. Taps and splices shall be properly protected with both plastic and friction electrical tapes to proper insulation and protection for 600 volts.

11. Wiring from ceiling outlets to lighting fixtures recessed in dropped ceilings shall be done using type TW conductors in RS or PVc conduits.

12. Proper size of boxes shall be used for switch and outlet receptacles

13. Necessary fittings such as bushing, locknuts and antishort fiber bushing shall be used at proper places required.\

14. When not shown on the Plans, conduit sizes shall correspond to the conduit sizes as prescribed in the Philippine Electrical Code table for "Size of Conduit Pipes".

O. OUTLETS AND SWITCHES

1. All boxes for outlets and switches shall be PVC or galvanized iron approved products of reputable manufacturers.

2. Enamel coating used in lieu of zinc coating shall not be permitted.

3. All ceiling outlet boxes intended for lighting outlets shall be of the 10 cm. octagonal box larger boxes when required shall be 5.3 cm deep.

4. Convenience and wall switch outlet boxes shall be of the 10 cm by 5.3 rectangular deep flush type or 100 square cm junction box with gang raised cover as required to accommodate the wires therein.

5. All junction boxes, pull boxes and blank boxes shall be fitted with standard flat metal or plastic box cover.

6. All boxes including junction and pull boxes shall be of sufficient size to provide free space for all conductors enclosed in the box, in addition to the fittings such as switch mechanism and receptacles that may be placed therein.

P. WALL SWITHCES AND RECEPTACLES

1. Suitable single pole, two-gang, three-gang and three-way switches of the flush tumbler type and receptacles with proper Bakelite cover plates shall be furnished and installed as indicated in the drawings.

2. Wall switches intended to control lights on the 230 volts system shall be rated 15 amp. 250 volts.

3. Convenience outlets shall be flushed duplex type rated 20 amperes 230 volts 60 Hz, AC.

Q. GROUNDING INSTALLATION

1. The Contractor shall furnish and install all ground cables, connection ground rods and all other materials required to provide a permanent effective grounding system.

2. Grounding, in general, shall conform with the provisions of the National Electrical Code and as recommended by the equipment manufacturer.

3. All enclosures for electrical equipment regardless of voltage shall be grounded, including metal frames of switchboard, motors, generators and steel poles. Each shall be grounded in a separate grounding system.

4. Grounding cables shall be bare, copper suitable size and of approved type. Ground rods shall be copper clad steel with diameter of 16 mm and length of 2.0 m.

5. Ground clamps shall be of high compression, solderless cast design frame of high copper alloy bronze with minimum thickness of 4.7 mm and hardware made from silicon bronze.

6. The clamps shall be of a shape and size to fit the points of application and type of conection to be made from cable to rod, pipe and curved or flat surfaces.

R. LIGHTING OUTLETS

All ceiling outlets shall be 10 cm x 5 cm octagonal boxes. Connection from fixtures to boxes shall be accomplished by using type TW conductors on a flexible conduit.

S. LIGHTING FIXTURES

All lighting fixtures shall be furnished and installation by the contractor. They shall be as shown on the drawings or specified on the schedule of lighting fixtures. For other details as to the types and model, consult the Architect or the Engineer.

T. TEST AND GUARANTEE

1. The Contractor shall furnish all apparatus to be used in making tests of all wiring system for shorts and grounds after the electrical work is completed.

2. The Contractor guarantees all work installed under the Contract to be free from all defects for a period of one year after acceptance of the works.

3. The Contractor also agree to repair and make good at his own expense any and all defects which may develop in his work during the time if said defects arise due to poor workmanship.

U. POWER LOAD CENTER

This Item shall consist of furnishing and installation of power load center unit substation or low voltage switch-gear and distribution panel boards at the location shown on the Plans complete with transformer, circuit breakers, cabinets and all accessories, completely wired and ready for service.

1. Material Requirements

All materials shall be brand new and shall be of the approved type. It shall conform with the requirements of the Philippine Electrical Code and shall bear the Philippine Standard Agency mark.

2. Power Load Center Unit Substation

The contractor shall furnish and install an indoor type power load center unit substation at the location shown on the approved Plans if required. It shall be totally metal enclosed dead front and shall consist of the following coordinated component parts. High Voltage Primary incoming line section consisting of the following parts and related accessories.

a) One air filled Interrupter Switch, 2- position (open-close) installed in a suitable air filled metal enclosure and shall have sufficient interrupting capacity to carry the electrical load. It shall provided with key interlock with the cubicle for the power fuses to prevent access to the fuse unless the switch is open.

b) Three power fuses mounted in separate compartments within the switch housing and accessible by hinged door.

c) One set of high voltage potheads or 3-conductor cable or three single conductor cables.

d) Lightning arresters shall be installed at the high voltage cubicle if required.

Note: Item 1 and 2 could be substituted with a power circuit breaker with the correct rating and capacity.

3. Transformer Section

a) The Transformer section shall consist of a power transformer with ratings and capacities as shown on the Plans.

b) It shall be oil liquid filled non-flammable type and designed in accordance with the latest applicable standards.

c) The transformers shall be provided with 4 approximately 2.5% rated KVA taps on the primary winding in most cases above and 3 below rated primary voltage to be changed by means of externally gang-operated manual tap changer only when the transformer is deenergized.

d) The following accessories shall be provided with the transformer, namely: drain valve, sampling, sampling device, filling connection, oil liquid level gauge, ground pad, top filter press connection, lifting lugs diagrammatic nameplate relief valve, thermometer and other necessary related accessories.

e) The high voltage and low voltage bushing and transition flange shall be properly coordinated to field connection to the incoming line section and low voltage switchboard section, respectively.

4. The Low Voltage Switchboard Section

The low voltage switchboard shall be standard modular unitized units, metal built dead front, safety type construction and shall consist of the following.

Switchboard Housing
Secondary Metering Sections
Main Circuit Breaker
Feeder Circuit Breakers
Low Voltage Switchgear
Grounding System
Panel Board and Cabinets

V. CONSTRUCTION REQUIREMENTS

The Contractor shall install the Power Load Center Unit Sub-station or Low Voltage Switchgear and Panel boards at the locations shown on the approved Plan.

W. METHODS OF MEASUREMENT

The work under this Item shall be measured either by set and pieces actually placed and installed as shown on the Plans.

4. MECHANICAL

4.1 AIR CONDITIONINING

REFREGIRATION SYSTEM

SCOPE OF WORK

This Item shall consist of furnishing and installation of air conditioning, refrigeration and ventilation systems, inclusive of necessary electrical connections, ductworks, grilles, pipes and condensate drains and all other necessary accessories, ready for service.

A. MATERIAL REQUIREMENTS

The types, sizes, capacities, quantities and power characteristics of the compressor, evaporator, condenser water pump shall be as specified or as shown on the Plans.

1. Refrigerant Pipes

a) Refrigerant pipes shall be copper tubing, type L or K or black steel pipe, Schedule 40 for size of 10 cm diameter and smaller. Pipes over 10 cm diameter shall be black steel pipe schedule 40.

b) Black steel pipe shall be standard seamless, lap-welded or electric resistant welded for size 50 mm diameter and larger, screw type for size 38 mm diameter and smaller, fitting for copper tubing shall be cast bronze fitting designed expressly for bracing.

2. Pipes for Cooling Water

a) Chilled and condenser cooling water pipes shall be black steel pipe Schedule 40.

b) Pipes and fittings for size 50 mm diameter and smaller shall be screwed type. Pipes and fittings for 62 mm diameter and larger shall be welded or flanged type.

3. Pipe Insulation

a) Pipe insulation shall be pre-formed fiberglass or its equivalent. The insulating material shall be covered with 10 mm x 13 mm thick of polyethylene film which shall be overlapped not less than 50 mm.

b) Pipe insulation shall be adequately protected at point of support by means of suitable metal shield avoid damage from compression.

c) Insulated pipes, valves and fittings located outdoors shall be provided with metal jackets.

4. Duct Works

Duct shall be galvanized steel sheet of not less than the following gauges:

a) No. 26 for 300 mm wide and smaller
b) No. 24 for 350 mm to 750 mm wide.
c) No. 22 for 775 mm to 1500 mm wide
d) No. 20 for 1525 mm to 2250 mm wide.
e) No. 18 for 2275 mm to 2500 mm or larger
f) For aluminum sheets use one gauge higher.

Joints and Stiffeners of duct using slip joints shall be as follows:

a) 300 mm wide and smaller, without bracing.
b) 325 mm to 750 mm wide, brace with 25 mm x 25 mm x 3 mm steel angles.
c) 774 mm to 1500 mm, brace with 31 x 31 x 3 mm steel angles.
d) 1525 mm up, brace with 38 x 38 x 3 mm steel angles.

Stiffeners shall be located not more than 12.0 cm. from each joint.

5. Duct Work Insulation

a) The application insulation materials shall be rigid board made of styropor or equivalent 25 mm thick for ground and top floor, 13 mm thick for intermediate floor.

b) Galvanized metal bands shall be secured and spaced 30.0 cm minimum center to center distance and corners protected with galvanized metal angles.

6. Diffusers

a) The type, shape, capacity, size and location shall be as shown in the Plans. Diffusers shall be complete with frame and gasket, equalizing deflector and volume control as indicated or specified and shall have factory-applied prime coat of paint.

b) Samples of supply and return air diffusers shall be submitted for approval before mass fabrication and installation.

7. Dampers

a) Dampers shall be of same materials as duct, at least one gauge thicker and in accessible location complete with locking device for adjusting and locking damper in position.

b) Where necessary, splitters, butterflies and louvers damper deflecting vanes for control of air volume and direction and for balancing system shall be provided whether or not they are indicated on the Plans.

8. Fire Damper

a) Main duct shall be provided with proper fire dampers of fusible link actuated type.

b) Access door shall be provided in ductwork for renewal of fusible link and to reset damper.

9. Equivalent Foundation

a) Foundation shall be provided and shall conform to the recommendation of the manufacturer of the equipment. Equipment shall be leveled on foundation by means of jacks or steel wedges.

b) All spaces between equipment bases and concrete foundation shall be filled with cement mortar.

10. Electrical Works

a) Power supply shall be provided by the Contractor at the pull box installed inside the machine room and shall furnish and install the main circuit breaker and starter with suitable ratings and capacities, conduits, wirings, fittings, devices and all other equipment and electrical installation of the system.

b) All electrical works shall comply with the latest edition of the Philippine Electrical Code, with the applicable ordinance of the local government and all the rules and requirements of the local power company.

B. CONSTRUCTION REQUIREMENTS

a) The air conditionings system shall be entirely automatic in operation and shall not require the presence of an attendant except for periodic inspection for lubrication.

b) All equipment and materials shall be inspected upon delivery and shall be tested after installation.

c) Piping shall not be buried, concealed or insulated until it has been inspected, tested and approved.

d) Walls, floors and other parts of the building and equipment damaged by contractor in the prosecution of this mechanical work shall be replaced and restored to its original conditions as shown on the Plans.

1. Operating Tests

a) Refrigerating equipment shall be tested for 8 hours per day for 3 consecutive days or longer when so directed, under the supervisions of manufacturer's qualified and authorized representative, who will make necessary adjustments and instruct designated plant operating personnel for each operation maintenance of refrigerating equipment and controls.

b) Operating test of complete air conditioning system shall be 6 hours minimum for each system. Test of air flow, temperature and humidity shall be made to demonstrate that each unit complies with the requirements of the Plans and Specifications.

2. Guarantee and Service

All equipment, materials and workmanship shall be guaranteed for a period of one year from the date of acceptance at any time within the period of guarantee and upon notification; the Contractor shall repair and rectify the deficiencies, including replacement of parts or entire unit.

3. Miscellaneous

a) The Owner shall be provided with 3 bound copies of "As-Built" diagrams, shop drawings, part lists, serial number and inventory of equipment including manufacturer's operating and maintenance manuals.

b) All standard tools and equipment shall be furnished for proper and regular maintenance of installed equipment.

C. MEASUREMENT AND PAYMENT

1. The work under this Item shall be measured either by set, price, length, square meter actually placed and installed as shown on the Plans.

2. Compressor, condenser and evaporator shall be measured by set, grilles, diffusers and valve by piece, pipe by length, duct and insulation by square meter.

3. All work performed and measured shall be paid for the Unit Bid or Contract Price which payment constitute full compensation including labor, materials, tools and incidentals necessary to complete this item.

4.2 WATER PUMPING SYSTEM

SCOPE OF WORK

This Item consist of furnishing and installation of water pumping system, inclusive of all piping and pipe fitting connections, valves, controls, electrical wirings, tanks and all accessories ready for service in accordance with the approved Plans and Specifications.

A. MATERIAL REQUIREMENTS

1. Water Pump

The type, size, capacity, location, quantity and power characteristics shall be as specified or shown on the Plans.

2. Overhead Tank

Overhead tank shall be provided with manholes, cover, drain pipes, distribution pipe outlet, overflow pipes and air vent.

3. Pneumatic Tank

Tank shall be designed for twice the maximum total dynamic pressure required and shall have the following accessories.

a) Suitable pressure switch to stop pump if pressure required is attained.

b) Air volume control device to maintain correct air volume inside the tank.

c) Pressure relief valve should be installed on top of the tank.

d) Electrode to be connected in the motor pump control to control the water level.

e) Air compressor shall be provided for tank of 3.785 liters to maintain air pressure inside the tank.

4. Pipes and Fittings

All piping 10 cm and larger shall be welded or flanged while smaller sizes shall be screwed.

5. Valves

A gate valve followed by a check valve shall be placed between discharge of pump and tank to prevent back flow of water when pump is in stop.

B. CONSTRUCTION REQUIREMENTS

Exposed piping shall be provided with concrete saddle or steel clamps or hangers to secure them firmly to the building structures. Pipe threads shall be lubricated by white lead, red lead, Teflon tape or other approved lubrication before tightening.

C. MEASUREMENT AND PAYMENT

The work under this item shall be measured either by set, length and piece actually placed as indicated on the Plans Equivalent shall be measured by set, pipes by length, valves and fittings by piece.

4.3 AUTOMATIC WATER SPRINKLER

SCOPE OF WORK

This Item shall consist of furnishing and installation of Automatic Water Sprinkler System, inclusive of all piping and pipe fitting connections, valves, controls, electrical wiring connection and all other accessories ready for service in accordance with the Plans and Specifications.

A. MATERIAL REQUIREMENTS

1. Fire Pump

a) The type, size, capacity and quantity and power characteristics shall be specified or as shown on the Plans.

b) The fire pump shall be diesel engine driven and capable of delivering a minimum of residual pressure of 103 kPa at the top-most and remotest sprinkler.

c) The pump unit shall be supplied with relief valve, suction gauge and discharge pressure gauge. The diesel engine shall be designed specifically intended for an automatic water sprinkler protection system.

d) A drop in system pressure due to the operation of one sprinkler pressure shall be triggered a series of automatic operations that will result in the instantaneous operation of the engine to drive the fire pump with the aid of a battery automatic controller.

e) The required accessories are:
Tachnometer
Oil Pressure gauge
Temperature gauge and control panel

f) A diesel fuel day tank shall be provided to supply the engine for a minimum of 2 hours running time.

g) The fuel storage tank shall be asphalt coated with necessary piping and fittings for connection.

2. Jockey Pump

Jockey pump shall be electric motor driven, 220 v. 3-phase, 60 hertz Power connection. The capacity to be supplied shall not less than that indicated on the Plans.

3. Sprinkler Head

a) Type-spray unit, pendant and upright unit
b) Flow capacity, 83 LPM per head
c) Pressure Rating
d) Residual pressure – 103 kPa minimum
e) Maximum pressure – 1035 kPa
f) Temperature rating – fusing at 57.5^0 C to 74^0 C

g) Finish – chrome-pendant-chrome or brass upright
h) Pipe thread – 13 mm nominal
i) Stock of extra heads and tools required

4. Alarm Check Valve and Fire Alarm System

a) The alarm assembly shall be constructed and installed that any flow of water from the sprinkler system equal to or greater than that from the single automatic head shall result in an audible and visual signed in the vicinity of the building.

b) The alarm apparatus shall be substantially supported and so located and installed that all parts shall be readily accessible for inspection, removal and repair.

c) The actual water flow, through the use of a test connection, shall be employed to test the operation of the sprinkler alarm units as a whole.

d) An approved identification sigh shall be installed near the outdoor alarm device in a conspicuous positions.

5. Alarm and Supervisory System

The alarm and supervisory system of the automatic water sprinkler shall include the monitoring of the following:

a) Water flow switch of each floor of the building
b) Fire pump and jockey pump running condition and power supplies.
c) Level of water in the reservoir
d) Control valves

The water flow switches on each floor of the building shall be connected to the fire alarm system and annunciator in such a manner that the operation of any sprinkler system will activate the fire alarm system, with the location of the operating water flow switch simultaneously indicated in the annunciator panel.

6. Pipes and Fittings

a) Pipes shall be Black Iron Schedule 40
b) Screw fitting shall be used for inside piping
c) Welding and touch cutting shall not be allowed
d) Piping shall be painted with metal primer and red enamel paint.

7. Siamese Twin

The Siamese twin shall be 64 x 64 x 102 mm, 90^{o} C female coupling national standard thread, swivel type, with protective coupling cap and joint lug.

8. Pipe Hangers

Pipe hangers shall be steel bars 3 mm minimum thickness, with corrosion protection.

a) *Anchorage in concrete* – expansion shield preferably be used in a horizontal position in the sides of concrete beams.

b) *Expansion shield in vertical position.*When pipes 1—mm and larger are supported entirely by expansion shield in the vertical position, the supports shall be spaced not more than 3.0 meters apart.

c) For pipe running through concrete beams use sleeves at least 2 sizes larger than the piping.

B. CONSTRUCTION REQUIREMETNS

1. Acceptance Tests

a) System operation and maintenance chart shall be submitted to the Owner upon completion of the Contract. This shall include the locations of control valves and care of the new equipment.

b) Marked instructions and identifications sign boars shall be made of NO. 14 gauge black iron sheet with baked enamel finish paint and letter instructions are shown on the Plans

c) Sign boards shall be mounted on the equipment or wall nearest the equipment easy identification and reading.

d) Additional sign boards as may be required and not specified herewith shall be furnished at no extra cost.

2. Conduct of Tests

a) Test shall be by the Sprinkle System conducted in the presence of an inspector or authority having jurisdiction.

b) Flushing of Underground Connections to remove foreign materials which may have entered the piping during installation of same as required before sprinkler piping is connected.

c) Hydraulic Test shall be conducted as follows:

i. **The Pressure -** all systems, including piping shall be tested hydrostatically at no less than 1378 kPa pressure for 2 hours or at 345 kPa in excess of the maximum static pressure when the maximum static pressure is in excess of 1033 kPa.

ii. **Operating Test** – all control valves shall be fully closed and opened under water pressure to insure proper operation. Use clean, non-corrosive water.

iii. **Fire Department Connection** – piping between the check valve in the fire department inlet pipe and the outside connection shall be tested the same as the balance of the system.

d) *Tests of Drainage Facilities* – Test of the drainage facilities shall be made while the control valve is wide open. The main drain valve shall be opened and remain open until the system pressure stabilizes.

e) *Test Certificate* – Upon completion of work, inspection and tests made by the Contractor and witnessed by the Owner's representative. A test certificate shall be filled out and signed by both representatives.

C. MAINTENANCE SERVICE

1. The Contractor shall provide free of charge, maintenance service of the system for a period of at least one year reckoned from the date of acceptance of the work.

2. Upon completion of the work and after all tests, the services of one or more qualified engineers shall be provided by the Contractor for a period of not less than 5 working days to instruct and train the representative of the Owner in the operation and maintenance of the fire protection system.

Guarantee and Service

All equipment, materials, and workmanship shall be guaranteed for a period of 1 year from the date of acceptance at any time within the period of guarantee and upon notification, the Contractor shall repair and rectify and deficiencies, including replacement of parts or entire units.

5. PLUMBING

SCOPE OF WORK

This Item shall consist of furnishing all materials, tools equipment and fixtures required as shown on the Plans for the satisfactory performance of the entire pluming system including installation in accordance with the latest edition of the National Plumbing Code, and these Specifications.

A. MATERIAL REQUIREMENTS

All piping materials, fixtures and appliances fitting accessories whether specifically mentioned or not but necessary to complete this Item shall be furnished and installed.

1. Plastic Pipes

a) Unless otherwise specified or shown on drawings all tube pipes to be use in this project shall be plastic or synthetic materials.

b) For rigid type of connections, the following shall be used: Polyvinyl Chloride (PVC); Chlorinated Polyvinyl Chloride (CPVC); Unplasticized Polyvinyl Chloride (uPVC); Acrylonitrile Butadiene Styrene (ABS); Polypropylene (PP) and Styrene Rubber Plastic (SR).

c) For flexible connections either of the following shall be used: Polyethylene (PE) and Polybutylene (PB).

d) The PE and PB tubes are in coil form available up to 150 meters long in coil form shall be used for underground water connections.

e) Plastic pipe shall be of quality made by reputable manufacturers free from defects, and shall be true, smooth and cylindrical, their inner and outer surfaces being as nearly concentric, their inner and outer surfaces being as nearly concentric as practicable.

f) They shall be in all aspect, sound and perfectly molded free from laps, pin holes or other imperfections and shall be neatly dressed with its end finished reasonably square to their axes.

g) Pipes and fittings for sanitary and potable water lines as approved alternate shall be unplasticized Polyvinyl Chloride Pipes and fittings (Upvc)

h) Pipes and fittings shall be made of virgin materials conforming to Specification requirements defined in ASTM D-2241 and PS 65: 1986.

i) Fittings shall be molded type and designed for solvent cement joint connection for water lines and rubber O-ring seal joint for sanitary lines.

2. Septic Tank

a) The septic tank shall be provided as shown on the Plans including all pipe vents and fittings.

b) Various construction materials such as concrete masonry work shall conform to the corresponding Items of this Specification.

c) Inlet and outlet pipes shall conform to the latest edition of the National Plumbing Code.

3. Plumbing Fixtures and Fittings

a) All fittings and trimmings for fixtures shall be chromium plated and polished brass unless otherwise approved.

b) Exposed traps and supply pipes for fixtures shall be connected to the roughing-in, piping system at the wall unless otherwise indicated on the Plans.

c) Built in fixtures shall be watertight with provision of water supply and drainage outlet, fittings and trap seal.

d) Unless otherwise specified, all plumbing fixtures shall be made of vitreous china complete with fittings.

4. Bathroom and Toilet Accessories

a) Shower head and fitting shall be movable, cone type with excutcheon arm complete with stainless steel shower valve and control lever. All exposed surface to be chromium finish.

b) Grab bars shall be made of tubular stainless steel pipe provided with safety grip and mounting flange.

c) Floor drains shall be made of stainless steel beehive type, measuring 10 cm x 10 cm. and provided with detachable stainless strainer, expanded metal lath type.

d) Toilet paper holder shall be vitreous china wall mounted. Color shall reconcile with the adjacent fixture and facing tiles.

e) Soap holder shall be vitreous china wall mounted. Color shall reconcile with the adjacent tile works.

f) Faucets shall be made of stainless steel for interior use.

g) Hose bibs shall be made of bronze cast finish.

5. Special Plumbing Fixtures

a) Kitchen sink shall be made of stainless steel self rimming, single compartment complete with supply fittings, strainer traps, dual control lever and other accessories.

b) Laboratory sink shall be made of cast iron metal with white porcelain finish with single compartment, flat rim edge, 75 x 53 cm. complete with supply fittings, strainer, trap ad other accessories,

c) Scrub up sink shall be made of cast iron white porcelain finish with 3 compartment X – ray processing tank, drain plug, open sanding drain 19 mm inlet spud complete with stand and mounting accessories.

d) Built in appliances such as urinal, lavatory and slope sink shall be installed as indicated on the Plans. Exposed surfaces to be tile wainscoating complete with fitting accessories required as practiced in this specialty trade.

e) Squat Bowl(s) shall be vitreous china, wash down with integral foot treads, pail flush type. Color, make and type to be approved by the designing Architect.

f) Grease Traps shall be made of cast bronze with detachable cover and mounting accessories.

6. Roof Drains, Overflow Pipes and Steel Grating

a) The Contractor shall provide fit and or install necessary drains with strainers where shown on the Plans.

b) Each drain with strainer shall fit the size of the corresponding downspout or roof leader over which it is to be installed and in conformity with the following schedule.

7. Fire Protection System

a) Fire house cabinets shall be locally available consisting of 38 mm diameter valve hose rack 30 mm nipple rubber hose cable with square nozzle 38 mm diameter brass, chromium plated.

b) Fire Standpipe system shall consists of risers and hose valves. Standpipe shall be extra strong black iron.

c) Valves to be used shall be high grade cast bronze mounted with standing 79.40 kg. working pressure.

d) Fire extinguisher shall be portable, suitable for Class A, B, C, fires, mounted inside the cabinet. Cabinet shall be full flush mounting door with aluminum trim for glass plate.

e) Frame and box shall be made of gauge 14 galvanized iron sheets with white interior and red exterior baked enamel finish over the well prepared primer.

f) Cabinet shall be wall mounted and size to accommodate the defined components.

g) Yard hydrant where shown on the Plans shall match the Integrated Fire Department requirements. Outlet shall be single 63 mm diameter gate valves with chain connected caps.

h) Built in appliances such as urinal, lavatory and slope sink shall be installed as indicated on the Plans. Exposed surfaces to be tile wainscoting complete with fitting accessories required as practiced in this specialty trade.

B. CONSTRUCTION REQUIREMENTS

The Contactor before any installation work is started shall carefully examine the Plans and investigate actual structural and finishing work condition affecting all his work. Where actual condition necessitates a rearrangement of the approved pipe layout, the Contractor shall prepare Plan(s) of the proposed pipe layout for approval by the supervising Architect or Engineer.

1. Installation of Soil, Waste, Drain and Vent Pipes

a) **Soil Pipe** – all soil and drainage pipes shall be sloped at 2% or 2 cm. per 1.0 meter run but in no case flatter than one (1%) percent.

b) **Horizontal lines** shall be supported by well secured heavy strap hangers.

c) **Vertical lines** shall be secured strongly by hooks to the building frame a suitable brackets or chairs shall be provided at the floor from which they start.

d) All main **Vertical Soil** and **Waste Stacks** shall be extended full size to and above the roof line to act as vents, except otherwise indicated on the Plans.

e) **Vent Pipes** in roof spaces shall be run as close as possible to underside of roof with horizontal piping slope down to stacks without forming traps. Vertical vent pipes may be connected into one main vent riser above the highest vented fixtures.

f) Where an end or circuit vent pipe from any fixtures is connected to a vent line serving other fixtures, the connections shall be at least 120 cm. above the floor on which the fixtures are located.

g) Horizontal waste line receiving the discharge from two or more fixtures shall be provided with end vents unless separate venting of fixtures is note 1 on the Plan.

h) All changes in pipe sizes such as soil and waste lines shall be made with reducing fittings or recessed reducers.

i) All changes in directions shall be made by appropriate use of 45^0 degrees Y; half Y; long sweep; quarter bends or elbows for soil and waste lines where the change in direction of flow is form the horizontal to the vertical and discharges from water closet.

j) Where it is becomes necessary to use short radius fittings in other locations, the approval of the supervising Architect or Engineer shall be obtained prior to installation of said fittings.

k) **Cleanouts** at the bottom of each soil stack, waste stack, interior downspout, and where else indicated shall be the same size as the pipe lines.

l) **Vent pipes** shall be flashed and made water tight at the roof with ferrule as the pipe lines.

m) **Trap** – Each fixtures and place of equipment requiring connection to the drainage system except fixtures and continuous water shall be equipped with a trap. Each trap shall be placed as near to the fixtures as possible.

2. Water Pipes, Fittings and Connections

a) The water supply piping shall be extended to all fixtures, outlets, and equipment from the gate valves installed in the branch near the riser.

b) The cold water system shall be installed with a slope towards a main shutoff valve and drain. Ends of pipe and outlets shall be capped or plugged and left ready for future connections.

c) All pipes shall be cut accurately to measurements and shall be worked into place without springing or forcing.

d) All piping above the ground shall be run parallel with the lines of the building unless otherwise indicated on the Plan.

e) All service pipes, valves and fittings shall be kept at sufficient distance from other work to permit finished covering not less than 12 mm from such work or from finished covering on the different service.

f) No water piping shall be buried in floors, unless specifically indicated on the Plan. Changes in pipe directions shall be made with reducing fittings.

g) Pipe drain indicated on the drawings shall consist of 12 mm globe valve with renewable disc and installed at low points on the cold water piping so that all piping shall slope 10 cm in 30 meters.

h) All pipes to be threaded shall be reamed before threading. All screw joints shall be made with graphite and oil or with an approved graphite compound applied to make threads only.

3. Fire Standpipe System

Fire standpipe system shall consist of risers and hose valve. Standpipe shall be extra strong black iron. Valves shall be of high grade cast bronze quality approved by the Underwriter's specifications.

4. Valves and Hose Bibs

Valves shall be provided in all supplied fixture as herein specified.

a) The cold water connections to the domestic hot water heater shall be provided with gate valves and the return circulation connection shall have gate and check valve.

b) All connection to domestic hot water heaters shall be equipped with unions between valve and tanks.

c) Valve shall not be installed with its stem below the horizontal elevation. All valves shall be gate valves unless otherwise indicated on the plans.

d) Valves up to 50 mm diameter shall be threaded ends, rough bodies and finish trimmings, except those on chromium plated brass pipe.

e) Valves 63 mm in diameter and larger shall have iron bodies, brass mounted and shall have either screws or flange ends.

f) Hose bibs shall be made of brass with 12 mm inlet threads hexagonal shoulders and 19 mm male.

5. Fixtures, Equipment and Fastening

a) All fixtures and equipment shall be supported and fastened in a safe and satisfactory workmanship as practiced.

b) All fixtures required to be wall mounted on concrete or concrete hollow block wall shall be fasten with brass expansion bolts.

c) Expansion bolts shall be 6 mm diameter with 20 mm threads into solid concrete, fitted with tubing sleeves of proper length to acquire extreme rigidity.

d) Inserts shall be rigidly secured, anchored and properly concealed and flushed into the walls.

e) Bolts and nuts shall be horizontally mounted and exposed. It shall be provided with washers and chromium plate finish.

6. Pipe Hangers, Inserts and Supports

a) Pipe hangers shall be wrought iron malleable iron pipe spaced not more than 1.50 meters apart for horizontal runs of pipe.

b) Chains, straps, perforated turn-buckles or other approved means of adjustment except the turn-turn-buckles may be omitted for hangers on soil or waste lines or individual toilet rooms to maintain stacks when spaced does not permit.

c) Trapeze hangers may be used in lieu of separate hangers on pipe running parallel to and closed to each other.

d) Inserts shall be cast steel of the type to receive machine bolt or nut after installation. Insert permit adjustment of the bolts in one horizontal direction and shall be installed before the pouring of concrete.

e) Wrought iron clamps or collars to support vertical runs of pipe shall be spaced not more than 3.0 m apart or as indicated on the Plan.

7. Plates and Flashing

a) Plates to cover exposed pipes passing through floor finished, walls, or ceiling shall be fitted with chromium plated cast brass plates or chromium plated cast iron or steel plates on ferrous pipes.

b) Plates shall be large enough to cover and close the hole around the area where pipes passes. It shall be properly installed to insure permanence.

c) Roof areas penetrated by vent pipes shall be rendered water tight by lead sheet flashing and counter flashing. It shall extend at least 15 cm. above the pipe and 30 cm along the roof.

8. Protection and Cleaning

a) During installation of fixtures and accessories and until final acceptance, fixtures shall not be protected with strippable plastic or other approved means to maintain fixtures in perfect conditions.

b) All exposed metal surface shall be polished clean and free of grease, dirt or other foreign materials after the completion.

c) Upon completion, thoroughly clean all fixtures and accessories to leave the work in a polished condition.

9. Inspection, Warranty Test and Disinfection

All pipes, fittings, traps, fixtures, appurtenances and equipment of the plumbing and drainage system shall be inspected and approved by the supervising Architect or Engineer to assure compliance with all requirements of applicable Codes and Regulations referred to in these Specifications.

10. Drainage System Test

a) The entire drainage and venting system shall have all the necessary openings which can be plugged to permit the entire system to be filled with water to the level of the highest stack vent above the roof.

b) The system shall hold this water for a full 30 minutes during which time there shall be no drop greater than 10 mm.

c) Where only a portion of the system is to be tested, the test shall be conducted in the same manner as described for the entire system.

d) If and when the Architect or Engineer decides that an additional test is needed, such as air to smoke test on the drainage system, the Contractor shall perform such test without any additional cost.

11. Water Test on System

a) Upon completion of the rough-in and before connecting fixtures, the entire cold water piping system shall be tested at a hydrostatic pressure 1-1/2 times the

expected working pressure in the system during operation and remained tight and leak proofed.

b) Where piping system is to be concealed, the piping system shall be separately in manner similar to that described for the entire system and in the presence of the Architect or Engineer or his duly designated representative.

12. Defective Work

a) All defective work, materials replaced and tested will be repeated until satisfactory performance is attained.

b) Any material replaced for the satisfactory performance of the system made shall be at the expense of the Contractor.

c) Caulking of screwed joints or holes will not be permitted.

13. Disinfection

a) The entire water distribution system shall be thoroughly flushed and treated with Chlorine before it is operated for human use.

b) Disinfection materials shall be liquid Chlorine or Hypochlorite and shall be introduced in a manner approved as practiced for water distribution system.

c) After contact period of not less than 16 hours, heavily chlorinated water shall be flushed from the system with portable water.

d) Valves for the water distribution system shall be opened and closed several times during the 16 hours Chlorination treatment period.

14. As-Built Drawings

a) Upon completion of the work, the Contractor shall submit two sets of prints with all As-Built changes shown on the drawings in a neat workmanship manner.

b) Such points shall show changes or actual installation and conditions of the plumbing system in comparison with the original drawings.

ITEM 100 – CLEARING AND GRUBBING

100.1 Description

This item shall consist of clearing, grubbing, removing and disposing all vegetation and debris as designated in the Contract, except those objects thatare designated to remain in place or are to be removed in consonance with other provisions of this Specification. The work shall also include the preservation from injury or defacement of all objects designated to remain.

100.2 Construction Requirements

100.2.1 General

The Engineer will establish the limits of work and designate all trees, shrubs, plants and other things to remain.The Contractor shall preserve all objects designated to remain.Paint required for cut or scarred surface of trees or shrubs selected for retention shall be an approved asphaltum base paint prepared especially for tree surgery.

Clearing shall extend one (1) meter beyond the toe of the fill slopes or beyond rounding of cut slopes as the case maybe for the entire length of the project unless otherwise shown on the plans or as directed by the Engineer and provided it is within the right of way limits of the project, with the exception of trees under the jurisdiction of the Forest Management Bureau (FMB).

100.2.2 Clearing and Grubbing

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, except as provided below:

(1) Removal of undisturbed stumps and roots and nonperishable solid objects with a minimum depth of one (1) meter below subgrade or slope of embankment will not be required.

(2) In areas outside of the grading limits of cut and embankment areas, stumps and nonperishable solid objects shall be cut off not more than 150 mm (6 inches) above the ground line or low water level.

(3) In areas to be rounded at the top of cut slopes, stumps shall be cut off flush with or below the surface of the final slope line.

(4) Grubbing of pits, channel changes and ditches will be required only to the depth necessitated by the proposed excavation within such areas.

(5) In areas covered by cogon/talahib, wild grass and other vegetations, top soil shall be cut to a maximum depth of 150 mm below the original ground surface or as designated by the Engineer, and disposed outside the clearing and grubbing limits as indicated in the typical roadway section.

Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable material and compacted to the required density.

If perishable material is burned, it shall be burned under the constant care of component watchmen at such times and in such a manner that the surrounding vegetation, other adjacent property, or anything designated to remain on the right of way will not be jeopardized.If permitted, burning shall be done in accordance with applicable laws, ordinances, and regulation.

The Contractor shall use high intensity burning procedures, (i.e., incinerators, high stacking or pit and ditch burning with forced air supplements) that produce intense burning with little or no visible smoke emission during the burning process.At the conclusion of each burning session, the fire shall be completely extinguished so that no smoldering debris remains.

In the event that the Contractor is directed by the Engineer not to start burning operations or to suspend such operations because of hazardous weather conditions, material to be burned which interferes with subsequent construction operations shall be moved by the Contractor to temporary locations clear of construction operations and later, if directed by the Engineer, shall be placed on a designated spot and burned.

Materials and debris which cannot be burned and perishable materials may be disposed off by methods and at locations approved by the Engineer, on or off the project.If disposal is by burying, the debris shall be placed in layers with the material so disturbed to avoid nesting. Each layer shall be covered or mixed with earth material by the land-fill method to fill all voids. The top layer of material buried shall be covered with at least 300 mm (12 inches) of earth or other approved material and shall be graded, shaped and compacted to present a pleasing appearance.If the disposal location is off the project, the Contractor shall make all necessary arrangements with property owners in writing for obtaining suitable disposal locations which are outside the limits of view from the project.The cost involved shall be included in the unit bid price.

A copy of such agreement shall be furnished to the Engineer. The disposal areas shall be seeded, fertilized and mulched at the Contractor's expense.

Woody material may be disposed off by chipping.The wood chips may be used for mulch, slope erosion control or may be uniformly spread over selected areas as directed by the Engineer. Wood chips used as mulch for slope erosion control shall have a maximum thickness of 12 mm (1/2 inch) and faces not exceeding 3900 mm^2 (6 square inches) on any individual surface area. Wood hips not designated for use under other sections shall be spread over the designated areas in layers not to exceed 75 mm (3 inches) loose thickness. Diseased trees shall be buried or disposed off as directed by the Engineer.

All merchantable timber in the clearing area which has not been removed from the right of way prior to the beginning of construction, shall become the property of the Contractor, unless otherwise provided.

Low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain shall be trimmed as directed. Branches of trees extending over the roadbed shall be trimmed to give a clear height of 6 m (20 feet) above the roadbed surface. All trimming shall be done by skilled workmen and in accordance with good tree surgery practices.

Timber cut inside the area staked for clearing shall be felled within the area to be cleared.

100.2.3 Individual Removal of Trees or Stumps

Individual trees or stumps designated by the Engineer for removal and located in areas other than those established for clearing and grubbing and

roadside cleanup shall be removed and disposed off as specified under Subsection 100.2.2 except trees removed shall be cut as nearly flush with the ground as practicable without removing stumps.

100.3 Method of Measurement

Measurement will be by one or more of the following alternate methods:

1. Area Basis. The work to be paid for shall be the number of hectares and fractions thereof acceptably cleared and grubbed within the limits indicated on the Plans or as may be adjusted in field staking by the Engineer. Areas not within the clearing and grubbing limits shown on the Plans or not staked for clearing and grubbing will not be measured for payment.

2. Lump-Sum Basis.When the Bill of Quantities contains a Clearing and Grubbing lump-sum item, no measurement of area will be made for such item.

3. Individual Unit Basis (Selective Clearing). The diameter of trees will be measured at a height of 1.4 m (54 inches) above the ground.Trees less than 150 mm (6 inches) in diameter will not be measured for payment.

When Bill of Quantities indicates measurement of trees by individual unit basis, the units will be designated and measured in accordance with the following schedule of sizes:

Diameter at height of 1.4 m	Pay Item Designation
Over 150 mm to 900 mm	Small
Over 900 mm	Large

100.4 Basis of Payment

The accepted quantities, measured as prescribed in Section 100.3, shall be paid for at the Contract unit price for each of the Pay Items listed below that is included in the Bill of Quantities, which price and payment shall be full compensation for furnishing all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
100 (1)	Clearing and Grubbing	Hectare
100 (2)	Clearing and Grubbing	Lump Sum
100 (3)	Individual Removal of	Each
100 (4)	Individual removal of	Each

ITEM 101 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS

101.1 Description

This Item shall consist of the removal wholly or in part, and satisfactory disposal of all buildings, fences, structures, old pavements, abandoned pipe lines, and any other obstructions which are not designated or permitted to remain, except for the obstructions to be removed and disposed off under other items in the Contract. It shall also include the salvaging of designated materials and backfilling the resulting trenches, holes, and pits.

101.2 Construction Requirements

101.2.1 General

The Contractor shall perform the work described above, within and adjacent to the roadway, on Government land or easement, as shown on the Plans or as directed by the Engineer. All designated salvable material shall be removed, without unnecessary damage, in sections or pieces which may be readily transported, and shall be stored by the Contractor at specified places on the project or as otherwise shown in the Special Provisions. Perishable material shall be handled as designated in Subsection 100.2.2 Nonperishable material may be disposed off outside the limits of view from the project with written permission of the property owner on whose property the material is placed. Copies of all agreements with property owners are to be furnished to the Engineer. Basements or cavities left by the structure removal shall be filled with acceptable material to the level of the surrounding ground and, if within the prism of construction, shall be compacted to the required density.

101.2.2 Removal of Existing Bridges, Culverts, and other Drainage Structures

All existing bridges, culverts and other drainage structures in use by traffic shall not be removed until satisfactory arrangements have been made to accommodate traffic. The removal of existing culverts within embankment areas will be required only as necessary for the installation of new structures. Abandoned culverts shall be broken down, crushed and sealed or plugged. All retrieved culvert for future use as determined by the Engineer shall be carefully removed and all precautions shall be employed to avoid breakage or structural damage to any of its part. All sections of structures removed which are not designated for stockpiling or re-laying shall become the property of the Government and be removed from the project or disposed off in a manner approved by the Engineer.

Unless otherwise directed, the substructures of existing structures shall be removed down to the natural stream bottom and those parts outside of the stream shall be removed down to at least 300 mm (12 inches) below natural ground surface. Where

such portions of existing structures lie wholly or in part within the limits for a new structure, they shall be removed as necessary to accommodate the construction of the proposed structure.

Steel bridges and wood bridges when specified to be salvaged shall be carefully dismantled without damaged. Steel members shall be match marked unless such match marking is waived by the Engineer. All salvaged material shall be stored as specified in Subsection 101.2.1.

Structures designated to become the property of the Contractor shall be removed from the right-of-way.

Blasting or other operations necessary for the removal of an existing structure or obstruction, which may damage new construction, shall be completed prior to placing the new work, unless otherwise provided in the Special Provisions.

101.2.3 Removal of Pipes Other than Pipe Culverts

Unless otherwise provided, all pipes shall be carefully removed and every precaution taken to avoid breakage or damaged. Pipes to be relaid shall be removed and stored when necessary so that there will be no loss of damage before re-laying. The Contractor shall replace sections lost from storage or damage by negligence, at his own expense.

101.2.4 Removal of Existing Pavement, Sidewalks, Curbs, etc.

All concrete pavement, base course, sidewalks, curbs, gutters, etc., designated for removal, shall be:

(1) Broken into pieces and used for riprap on the project, or

(2) Broken into pieces, the size of which shall not exceed 300 mm (12 inches) in any dimension and stockpiled at designated locations on the project for use by the Government, or

(3) Otherwise demolished and disposed off as directed by the Engineer. When specified, ballast, gravel, bituminous materials or other surfacing or pavement materials shall be removed and stockpiled as required in Subsection 101.2.1, otherwise such materials shall be disposed off as directed.

There will be no separate payment for excavating for removal of structures and obstructions or for backfilling and compacting the remaining cavity.

101.3 Method of Measurement

When the Contract stipulates that payment will be made for removal of obstructions on lump-sum basis, the pay item will include all structures and obstructions encountered within the roadway. Where the contract stipulates that payment will be made for the removal of specific items on a unit basis, measurement will be made by the unit stipulated in the Contract.

Whenever the Bill of Quantities does not contain an item for any aforementioned removals, the work will not be paid for directly, but will be considered as a subsidiary obligation of the Contractor under other Contract Items.

101.4 Basis of Payment

The accepted quantities, measured as prescribed in Section 101.3, shall be paid for at the Contract unit price or lump sum price bid for each of the Pay Items listed below that is included in the Bill of Quantities which price and payment shall be full compensation for removing and disposing of obstructions, including materials, labor, equipments, tools and incidentals necessary to complete the work prescribed in this Item. The price shall also include backfilling, salvage of materials removed, their custody, preservation, storage on the right-of-way and disposal as provided herein.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
101 (1)	Removal of Structures and Obstruction	Lump Sum
101 (2)	Removal of	Each
101 (3)	Removal of	Square Meter
101 (4)	Removal of	Linear Meter

ITEM 102 – EXCAVATION

102.1 Description

This Item shall consist of roadway and drainage and borrow excavation and the disposal of material in accordance with this Specification and in conformity with the lines, grades and dimensions shown on the Plans or established by the Engineer.

102.1.1 Roadway Excavation

Roadway excavation will include excavation and grading for roadways, parking areas, intersections, approaches, slope rounding, benching, waterways and ditches; removal of unsuitable material from the roadbed and beneath embankment areas; and excavating selected material found in the roadway as ordered by the Engineer for specific use in the improvement. Roadway excavation will be classified as "unclassified excavation", "rock excavation", "common excavation", or "muck excavation" as indicated in the Bill of Quantities and hereinafter described.

(1) Unclassified Excavation. Unclassified excavation shall consist of the excavation and disposal of all materials regardless of its nature, not classified and included in the Bill of Quantities under other pay items.

(2) Rock Excavation.Rock excavation shall consist of igneous, sedimentary and metamorphic rock which cannot be excavated without blasting or the use of rippers, and all boulders or other detached stones each having a volume of 1 cubic meter or more as determined by physical measurements or visually by the Engineer.

(3) Common Excavation.Common excavations shall consist of all excavation not included in the Bill of Quantities under "rock excavation" or other pay items.

(4) Muck Excavation.Muck excavation shall consist of the removal and disposal of deposits of saturated or unsaturated mixtures of soils and organic matter not suitable for foundation material regardless of moisture content.

102.1.2 Borrow Excavation

Borrow excavation shall consist of the excavation and utilization of approved material required for the construction of embankments or for other portions of the work, and shall be obtained from approved sources, in accordance with Clause 61 and the following:

(1) Borrow, Case 1

Borrow Case 1 will consist of material obtained from sources designated on the Plans or in the Special Provisions.

(2) Borrow, Case 2

Borrow Case 2 will consist of material obtained from sources provided by the Contractor.

The material shall meet the quality requirements determined by the Engineer unless otherwise provided in the Contract.

102.2 Construction Requirements

102.2.1 General

When there is evidence of discrepancies on the actual elevations and that shown on the Plans, a pre-construction survey referred to the datum plane used in the approved Plan shall beundertaken by the Contractor under the control of the Engineer to serve as basis for the computation of the actual volume of the excavated materials.

All excavations shall be finished to reasonably smooth and uniform surfaces. No materials shall be wasted without authority of the Engineer. Excavation operations shall be conducted so that material outside of the limits of slopes will not be disturbed. Prior to excavation, all necessary clearing and grubbing in that area shall have been performed in accordance with Item 100, Clearing and Grubbing.

102.2.2 Conservation of Topsoil

Where provided for on the Plans or in the Special Provisions, suitable topsoil encountered in excavation and on areas where embankment is to be placed shall be removed to such extent and to such depth as the Engineer may direct.The removed topsoil shall be transported and deposited in storage piles at locations approved by the Engineer. The topsoil shall be completely removed to the required depth from any designated area prior to the beginning of regular excavation or embankment work in the area and shall be kept separate from other excavated materials for later use.

102.2.3 Utilization of Excavated Materials

All suitable material removed from the excavation shall be used in the formation of the embankment, subgrade, shoulders, slopes, bedding, and backfill for structures, and for other purposes shown on the Plans or as directed.

The Engineer will designate as unsuitable those soils that cannot be properly compacted in embankments. All unsuitable material shall be disposed off as shown on the Plans or as directed without delay to the Contractor.

Only approved materials shall be used in the construction of embankments and backfills.

All excess material, including rock and boulders that cannot be used in embankments

shall be disposed off as directed.

Material encountered in the excavation and determined by the Engineer as suitable for topping, road finishing, slope protection, or other purposes shall be conserved and utilized as directed by the Engineer.

Borrow material shall not be placed until after the readily accessible roadway excavation has been placed in the fill, unless otherwise permitted or directed by the Engineer. If the Contractor places moré borrow than is required and thereby causes a waste of excavation, the amount of such waste will be deducted from the borrow volume.

102.2.4 Prewatering

Excavation areas and borrow pits may be prewatered before excavating the material. When prewatering is used, the areas to be excavated shall be moistened to the full depth, from the surface to the bottom of the excavation. The water shall be controlled so that the excavated material will contain the proper moisture to permit compaction to the specified density with the use of standard compacting equipment. Prewatering shall be supplemented where necessary, by truck watering units, to ensure that the embankment material contains the proper moisture at the time of compaction.

The Contractor shall provide drilling equipment capable of suitably checking the moisture penetration to the full depth of the excavation.

102.2.5 Presplitting

Unless otherwise provided in the Contract, rock excavation which requires drilling and shooting shall be presplit.

Presplitting to obtain faces in the rock and shale formations shall be performed by: (1) drilling holes at uniform intervals along the slope lines, (2) loading and stemming the holes with appropriate explosives and stemming material, and (3) detonating the holes simultaneously.

Prior to starting drilling operations for presplitting, the Contractor shall furnish the Engineer a plan outlining the position of all drill holes, depth of drilling, type of explosives to be used, loading pattern and sequence of firing. The drilling and blasting plan is for record purposes only and will not absolve the Contractor of his responsibility for using proper drilling and blasting procedures.Controlled blasting shall begin with a short test section of a length approved by the Engineer. The test section shall be presplit, production drilled and blasted and sufficient material excavated whereby the Engineer can determine if the Contractor's methods are satisfactory. The Engineer may order of the presplitting when he determines that the materials encountered have become unsuitable for being presplit.

The holes shall be charged with explosives of the size, kind, strength, and at the spacing suitable for the formations being presplit, and with stemming material which passes a 9.5 mm (3/8 inch) standard sieve and which has the qualities for proper confinement of the explosives.

The finished presplit slope shall be reasonably uniform and free of loose rock. Variancefrom the true plane of the excavated backslope shall not exceed 300 mm (12 inches); however, localized irregularities or surface variations that do not constitute a safety hazard or an impairment to drainage courses or facilities will be permitted.

A maximum offset of 600 mm (24 inches) will be permitted for a construction working bench at the bottom of each lift for use in drilling the next lower presplitting pattern.

102.2.6 Excavation of Ditches, Gutters, etc.

All materials excavated from side ditches and gutters, channel changes, irrigation ditches, inlet and outlet ditches, toe ditchers, furrow ditches, and such other ditches as may be designated on the Plans or staked by the Engineer, shall be utilized as provided in Subsection

102.2.3.

Ditches shall conform to the slope, grade, and shape of the required cross-section, with no projections of roots, stumps, rock, or similar matter. The Contractor shall maintain and keep open and free from leaves, sticks, and other debris all ditches dug by him until final acceptance of the work.

Furrow ditches shall be formed by plowing a continuous furrow along the line staked by the Engineer. Methods other than plowing may be used if acceptable to the Engineer. The ditches shall be cleaned out by hand shovel work, by ditcher, or by some other suitable method, throwing all loose materials on the downhill side so that the bottom of the finished ditch shall be approximately 450 mm (18 inches) below the crest of the loose material piled on the downhill side. Hand finish will not be required, but the flow lines shall be in satisfactory shape to provide drainage without overflow.

102.2.7 Excavation of Roadbed Level

Rock shall be excavated to a depth of 150 mm (6 inches) below subgrade within the limits of the roadbed, and the excavation backfilled with material designated on the Plans or approved by the Engineer and compacted to the required density.

When excavation methods employed by the Contractor leave undrained pockets in the rock surface, the Contractor shall at his own expense, properly drain such depressions or when permitted by the Engineer fill the depressions with approved impermeable material.

Material below subgrade, other than solid rock shall be thoroughly scarified to a depth of

150 mm (6 inches) and the moisture content increased or reduced, as necessary, to bring the material throughout this 150 mm layer to the moisture content suitable for maximum compaction. This layer shall then be compacted in accordance with Subsection 104.3.3.

102.2.8 Borrow Areas

The Contractor shall notify the Engineer sufficiently in advance of opening any borrow areas so that cross-section elevations and measurements of the ground surface after stripping may be taken, and the borrow material can be tested before being used. Sufficient time for testing the borrow material shall be allowed.

All borrow areas shall be bladed and left in such shape as to permit accurate measurements after excavation has been completed. The Contractor shall not excavate beyond the dimensions and elevations established, and no material shall be removed prior to the staking out and cross-sectioning of the site. The finished borrow areas shall be approximately true to line and grade established and specified and shall be finished, as prescribed in Clause 61, Standard Specifications for Public Works and Highways, Volume 1. When necessary to remove fencing, the fencing shall be replaced in at least as good condition as it was originally. The Contractor shall be responsible for the confinement of livestock when a portion of the fence is removed.

102.2.9 Removal of Unsuitable Material

Where the Plans show the top portion of the roadbed to be selected topping, all unsuitable materials shall be excavated to the depth necessary for replacement of the selected topping to the required compacted thickness.

Where excavation to the finished graded section results in a subgrade or slopes of unsuitable soil, the Engineer may require the Contractor to remove the unsuitable material and backfill to the finished graded section with approved material. The Contractor shall conduct his operations in such a way that the Engineer can take the necessary cross-sectional measurements before the backfill is placed.

The excavation of muck shall be handled in a manner that will not permit the entrapment of muck within the backfill.The material used for backfilling up to the ground line or water level, whichever is higher, shall be rock or other suitable granular material selected from the roadway excavation, if available. If not available, suitable material shall be obtained from other approved sources. Unsuitable material removed shall be disposed off in designated areas shown on the Plans or approved by the Engineer.

102.3 Method of Measurement

The cost of excavation of material which is incorporated in the Works or in other areas of fill shall be deemed to be included in the Items of Work where the material is used.

Measurement of Unsuitable or Surplus Material shall be the net volume in its original position.

For measurement purposes, surplus suitable material shall be calculated as the difference between the net volume of suitable material required to be used in embankment corrected by applying a shrinkage factor or a swell factor in case of rock excavation, determined by laboratory tests to get its original volume measurement, and the net volume of suitable material from excavation in the original position. Separate pay items shall be provided for surplus common, unclassified and rock material.

The Contractor shall be deemed to have included in the contract unit prices all costs of obtaining land for the disposal of unsuitable or surplus material.

102.4 Basis of Payment

The accepted quantities, measured as prescribed in Section 102.3 shall be paid for at the contract unit price for each of the Pay Items listed below that is included in the Bill of Quantities which price and payment shall be full compensation for the removal and disposal of excavated materials including all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
102 (1)	Unsuitable Excavation	Cubic Meter
102 (2)	Surplus Common Excavation	Cubic Meter
102 (3)	Surplus Rock Excavation	Cubic Meter
102 (4)	Surplus Unclassified Excavation	Cubic Meter

ITEM 104 – EMBANKMENT

104.1 Description

This Item shall consist of the construction of embankment in accordance with this Specification and in conformity with the lines, grades and dimensions shown on the Plans or established by the Engineer.

104.2 Material Requirements

Embankments shall be constructed of suitable materials, in consonance with the following definitions:

1. Suitable Material – Material which is acceptable in accordance with the Contract and which can be compacted in the manner specified in this Item.It can be common material or rock.

   Selected Borrow, for topping – soil of such gradation that all particles will pass a sieve with 75 mm (3 inches) square openings and not more than 15 mass percent will pass the 0.075 mm (No. 200) sieve, as determined by AASHTO T 11.The material shall have a plasticity index of not more than 6 as determined by ASSHTO T 90 and a liquid limit of not more than 30 as determined by AASHTO T 89.

2. Unsuitable Material – Material other than suitable materials such as:

   (a) Materials containing detrimental quantities of organic materials, such as grass, roots and sewerage.

   (b) Organic soils such as peat and muck.

   (c) Soils with liquid limit exceeding 80 and/or plasticity index exceeding 55.

   (d) Soils with a natural water content exceeding 100%.

   (e) Soils with very low natural density, 800 kg/m^3 or lower.

   (f) Soils that cannot be properly compacted as determined by the Engineer.

104.3 Construction Requirements

104.3.1 General

Prior to construction of embankment, all necessary clearing and grubbing in that area shall have been performed in conformity with Item 100, Clearing and Grubbing.

Embankment construction shall consist of constructing roadway embankments, including preparation of the areas upon which they are to be placed; the construction of dikes within or adjacent to the roadway; the placing and compacting of approved material within roadway areas where unsuitable material has been removed; and the placing and compacting of embankment material in holes, pits, and other depressions within the roadway area.

Embankments and backfills shall contain no muck, peat, sod, roots or other deleterious matter. Rocks, broken concrete or other solid, bulky materials shall not be placed in embankment areas where piling is to be placed or driven.

Where shown on the Plans or directed by the Engineer, the surface of the existing ground shall be compacted to a depth of 150 mm (6 inches) and to the specified requirements of this Item.

Where provided on the Plans and Bill of Quantities the top portions of the roadbed in both cuts and embankments, as indicated, shall consist of selected borrow for topping from excavations.

104.3.2 Methods of Construction

Where there is evidence of discrepancies on the actual elevations and that shown on the Plans, a preconstruction survey referred to the datum plane used in the approved Plan shall be undertaken by the Contractor under the control of the Engineer to serve as basis for the computation of the actual volume of the embankment materials.

When embankment is to be placed and compacted on hillsides, or when new embankment is to be compacted against existing embankments, or when embankment is built one-half width at a time, the existing slopes that are steeper than 3:1 when measured at right angles to the roadway shall be continuously benched over those areas as the work is brought up in layers. Benching will be subject to the Engineer's approval and shall be of sufficient width to permit operation of placement and compaction equipment. Each horizontal cut shall begin at the intersection of the original ground and the vertical sides of the previous cuts. Material thus excavated shall be placed and compacted along with the embankment material in accordance with the procedure described in this Section.

Unless shown otherwise on the Plans or special Provisions, where an embankment of less than 1.2 m (4 feet) below subgrade is to be made, all sod and vegetable matter shall be removed from the surface upon which the embankment is to be placed, and the cleared surfaced shall be completely broken up by plowing, scarifying, or steeping to a minimum depth of 150 mm except as provided in Subsection 102.2.2. This area shall then be compacted as provided in Subsection

104.3.3. Sod not required to be removed shall be thoroughly disc harrowed or scarified before construction of embankment. Wherever a compacted road surface containing granular materials lies within 900 mm (36 inches) of the subgrade, such old road surface shall be scarified to a depth of at least 150 mm (6 inches) whenever directed by the Engineer. This scarified materials shall then be compacted as provided in Subsection
104.3.3.

When shoulder excavation is specified, the roadway shoulders shall be excavated to the depth and width shown on the Plans. The shoulder material shall be removed without disturbing the adjacent existing base course material, and all excess excavated materials shall be disposed off as provided in Subsection 102.2.3. If necessary, the areas shall be compacted before being backfilled.

Roadway embankment of earth material shall be placed in horizontal layers not exceeding 200 mm (8 inches), loose measurement, and shall be compacted as specified before the next layer is placed. However, thicker layer maybe placed if vibratory roller with high compactive effort is used provided that density requirement is attained and as approved by the Engineer. Trial section to this effect must be conducted and approved by the Engineer. Effective spreading equipment shall be used on each lift to obtain uniform thickness as determined in the trial section prior to compaction. As the compaction of each layer progresses, continuous leveling and manipulating will be required to assure uniform density. Water shall be added or removed, if necessary, in order to obtain the required density. Removal of water shall be accomplished through aeration by plowing, blading, discing, or other methods satisfactory to the Engineer.

Where embankment is to be constructed across low swampy ground that will not support the mass of trucks or other hauling equipment, the lower part of the fill may be constructed by dumping successive loads in a uniformly distributed layer of a thickness not greater than necessary to support the hauling equipment while placing subsequent layers.

When excavated material contains more than 25 mass percent of rock larger than 150 mm in greatest diameter and cannot be placed in layers of the thickness prescribed without crushing, pulverizing or further breaking down the pieces resulting from excavation methods, such materials may be placed on the embankment in layers not exceeding in thickness the approximate average size of the larger rocks, but not greater than 600 mm (24 inches).

Even though the thickness of layers is limited as provided above, the placing of individual rocks and boulders greater than 600 mm in diameter will be permitted provided that when placed, they do not exceed 1200 mm (48 inches) in height and provided they are carefully distributed, with the interstices filled with finer material to form a dense and compact mass.

Each layer shall be leveled and smoothed with suitable leveling equipment and by distribution of spalls and finer fragments of earth. Lifts of material containing

more than 25 mass percent of rock larger than 150 mm in greatestdimensions shall not be constructed above an elevation 300 mm (12 inches) below the finished subgrade.The balance of the embankment shall be composed of suitable material smoothed and placed in layers not exceeding 200 mm (8 inches) in loose thickness and compacted as specified for embankments.

Dumping and rolling areas shall be kept separate, and no lift shall be covered by another until compaction complies with the requirements of Subsection 104.3.3.

Hauling and leveling equipment shall be so routed and distributed over each layer of the fill in such a manner as to make use of compaction effort afforded thereby and to minimize rutting and uneven compaction.

104.3.3 Compaction

Compaction Trials

Before commencing the formation of embankments, the Contractor shall submit in writing to the Engineer for approval his proposals for the compaction of each type of fill material to be used in the works.The proposals shall include the relationship between the types of compaction equipment, and the number of passes required and the method of adjusting moisture content. The Contractor shall carry out full scale compaction trials on areas not less than 10 m wide and 50 m long as required by the Engineer and using his proposed procedures or such amendments thereto as may be found necessary to satisfy the Engineer that all the specified requirements regarding compaction can be consistently achieved.Compaction trials with the main types of fill material to be used in the works shall be completed before work with the corresponding materials will be allowed to commence.

Throughout the periods when compaction of earthwork is in progress, the Contractor shall adhere to the compaction procedures found from compaction trials for each type of material being compacted, each type of compaction equipment employed and each degree of compaction specified.

Earth

The Contractor shall compact the material placed in all embankment layers and the material scarified to the designated depth below subgrade in cut sections, until a uniform density of not less than 95 mass percent of the maximum dry density determined by AASHTO T99 Method C, is attained, at a moisture content determined by Engineer to be suitable for such density. Acceptance of compaction may be based on adherence to an approved roller pattern developed as set forth in Item 106, Compaction Equipment and Density Control Strips.

The Engineer shall during progress of the Work, make density tests of compacted material in accordance with AASHTO T 191, T 205, or other approved field density tests, including the use of properly calibrated nuclear testing devices.A correction for coarse particles may be made in accordance with AASHTO T 224. If, by such tests, the Engineer determines that the specified density and moisture

conditions have not been attained, the Contractor shall perform additional work as may be necessary to attain the specified conditions.

At least one group of three in-situ density tests shall be carried out for each 500 m of each layer of compacted fill.

Rock

Density requirements will not apply to portions of embankments constructed of materials which cannot be tested in accordance with approved methods.

Embankment materials classified as rock shall be deposited, spread and leveled the full width of the fill with sufficient earth or other fine material so deposited to fill the interstices to produce a dense compact embankment. In addition, one of the rollers, vibrators, or compactors meeting the requirements set forth in Subsection 106.2.1, Compaction Equipment, shall compact the embankment full width with a minimum of three complete passes for each layer of embankment.

104.3.4 Protection of Roadbed During Construction

During the construction of the roadway, the roadbed shall be maintained in such condition that it will be well drained at all times. Side ditches or gutters emptying from cuts to embankments or otherwise shall be so constructed as to avoid damage to embankments by erosion.

104.3.5 Protection of Structure

If embankment can be deposited on one side only of abutments, wing walls, piers or culvert headwalls, care shall be taken that the area immediately adjacent to the structure is not compacted to the extent that it will cause overturning of, or excessive pressure against the structure. When noted on the Plans, the fill adjacent to the end bent of a bridge shall not be placed higher than the bottom of the backfill of the bent until the superstructure is in place. When embankment is to be placed on both sides of a concrete wall or box type structure, operations shall be so conducted that the embankment is always at approximately the same elevation on both sides of the structure.

104.3.6 Rounding and Warping Slopes

Rounding-Except in solid rock, the tops and bottoms of all slopes, including the slopes of drainage ditches, shall be rounded as indicated on the Plans. A layer of earth overlaying rock shall be rounded above the rock as done in earth slopes.

Warping-adjustments in slopes shall be made to avoid injury in standing trees or marring of weathered rock, or to harmonize with existing landscape features, and the transition to such adjusted slopes shall be gradual. At intersections of cuts and fills, slopes shall be adjusted and warped to flow into each other or into the natural ground surfaces without noticeable break.

104.3.7 Finishing Roadbed and Slopes

After the roadbed has been substantially completed, the full width shall be conditioned by removing any soft or other unstable material that will not compact properly or serve the intended purpose. The resulting areas and all other low sections, holes of depressions shall be brought to grade with suitable selected material. Scarifying, blading, dragging, rolling, or other methods of work shall be performed or used as necessary to provide a thoroughly compacted roadbed shaped to the grades and cross-sections shown on the Plans or as staked by the Engineer.

All earth slopes shall be left with roughened surfaces but shall be reasonably uniform, without any noticeable break, and in reasonably close conformity with the Plans or other surfaces indicated on the Plans or as staked by the Engineer, with no variations therefrom readily discernible as viewed from the road.

104.3.8 Serrated Slopes

Cut slopes in rippable material (soft rock) having slope ratios between 0.75:1 and 2:1 shall be constructed so that the final slope line shall consist of a series of small horizontal steps. The step rise and tread dimensions shall be shown on the Plans.No scaling shall be performed on the stepped slopes except for removal of large rocks which will obviously be a safety hazard if they fall into the ditchline or roadway.

104.3.9 Earth Berms

When called for in the Contract, permanent earth berms shall be constructed of well graded materials with no rocks having a diameter greater than 0.25 the height of the berm. When local material is not acceptable, acceptable material shall be imported, as directed by the Engineer.

Compacted Berm

Compacted berm construction shall consist of moistening or drying and placing material as necessary in locations shown on the drawings or as established by the Engineer.Material shall contain no frozen material, roots, sod, or other deleterious materials.Contractor shall take precaution to prevent material from escaping over the embankment slope. Shoulder surface beneath berm will be roughened to provide a bond between the berm and shoulder when completed. The Contractor shall compact the material placed until at least 90 mass percent of the maximum density is obtained as determined by AASHTO T 99, Method C.The cross-section of the finished compacted berm shall reasonably conform to the typical cross- section as shown on the Plans.

Uncompacted Berm

Uncompacted berm construction shall consist of drying, if necessary and placing material in locations shown on the Plans or as established by the Engineer. Material shall contain no frozen material, roots, sod or other deleterious materials.Contractor shall take precautions to prevent material from escaping over the embankment slope.

104.4 Method of Measurement

The quantity of embankment to be paid for shall be the volume of material compacted in place, accepted by the Engineer and formed with material obtained from any source.

Material from excavation per Item 102 which is used in embankment and accepted by the Engineer will be paid under Embankment and such payment will be deemed to include the cost of excavating, hauling, stockpiling and all other costs incidental to the work.

Material for Selected Borrow topping will be measured and paid for under the same conditions specified in the preceding paragraph.

104.5 Basis of Payment

The accepted quantities, measured as prescribed in Section 104.4, shall be paid for at the Contract unit price for each of the Pay Items listed below that is included in the Bill of Quantities. The payment shall continue full compensation for placing and compacting all materials including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
104 (1)	Embankment	Cubic Meter
104 (2)	Selected, Borrow for topping, Case 1	Cubic Meter
104 (3)	Selected Borrow for topping, Case 2	Cubic Meter
104 (4)	Earth Berm	Meter

ITEM 201 – AGGREGATE BASE COURSE

201.1 Description

This Item shall consist of furnishing, placing and compacting an aggregate base course on a prepared subgrade/subbase in accordance with this Specificaton and the lines, grades, thickness and typical cross-sections shown on the Plans, or as established by the Engineer.

201.2 Material Requirements

Aggregate for base course shall consist of hard, durable particles or fragments of crushed stone, crushed slag or crushed or natural gravel and filler of natural or crushed sand or other finely divided mineral matter. The composite material shall be free from vegetable matter and lumps or balls of clay, and shall be of such nature that it can be compacted readily to form a firm, stable base.

In some areas where the conventional base course materials are scarce or non-available, the use of 40% weathered limestone blended with 60% crushed stones or gravel shall be allowed, provided that the blended materials meet the requirements of this Item.

The base course material shall conform to Table 201.1, whichever is called for in the Bill of Quantities.

Table 201.1 – Grading Requirements

Sieve Designation		Mass Percent Passing	
Standard, mm	Alternate US Standard	Grading A	Grading B
50	2”	100	
37.5	1-1/2”	-	100
25.0	1”	60 – 85	-
19.0	¾”	-	60 – 85
12.5	½”	35 – 65	-
4.75	No. 4	20 – 50	30 – 55
0.425	No. 40	5 – 20	8 – 25
0.075	No. 200	0 – 12	2 – 14

The fraction passing the 0.075 mm (No. 200) sieve shall not be greater than 0.66 (two thirds) of the fraction passing the 0.425 mm (No. 40) sieve.

The fraction passing the 0.425 mm (No. 40) sieve shall have a liquid limit not greater than 25 and plasticity index not greater than 6 as determined by AASHTO T 89 and T 90, respectively.

The coarse portion, retained on a 2.00 mm (No. 10) sieve shall have a mass percent of wear not exceeding 50 by the Los Angeles Abrasion test determined by AASHTO T 96.

The material passing the 19 mm (3/4 inch) sieve shall have a soaked CBR value of not less than 80% as determined by AASHTO T 193. The CBR value shall be obtained at the maximum dry density (MDD) as determined by AASHTO T 180, Method D.

If filler, in addition to that naturally present, is necessary for meeting the grading requirements or for satisfactory bonding, it shall be uniformly blended with the base course material on the road or in a pugmill unless otherwise specified or approved. Filler shall be taken from sources approved by the Engineer, shall be free from hard lumps and shall not contain more than 15 percent of material retained on the 4.75 mm (No. 4) sieve.

201.3 Construction Requirements

201.3.1 Preparation of Existing Surface

The existing surface shall be graded and finished as provided under Item 105, Subgrade Preparation, before placing the base material.

201.3.2 Placing

It shall be in accordance with all the requirements of Subsection 200.3.2, Placing.

201.3.3 Spreading and Compacting

It shall be in accordance with all the requirements of Subsection 200.3.3, Spreading and Compacting.

201.3.4 Trial Sections

Trial sections shall conform in all respects to the requirements specified in Subsection 200.3.4.

201.3.5 Tolerances

The aggregate base course shall be laid to the designed level and transverse slopes shown on the Plans. The allowable tolerances shall be in accordance with following:

Permitted variation from design THICKNESS OF LAYER	± 10 mm
Permitted variation from design LEVEL OF SURFACE	+ 5 mm -10 mm
Permitted SURFACE IRREGULARITY Measured by 3-m straight-edge	5 mm
Permitted variation from design CROSSFALL OR CAMBER	± 0.2%
Permitted variation from design LONGITUDINAL GRADE over 25 m in length	± 0.1%

201.4 Method of Measurement

Aggregate Base Course will be measured by the cubic meter (m^3). The quantity to be paid for shall be the design volume compacted in-place as shown on the Plans, and accepted in the completed base course. No allowance shall be given for materials placed outside the design limits shown on the cross- sections. Trial sections shall not be measured separately but shall be included in the quantity of aggregate base course.

201.5 Basis of Payment

The accepted quantities, measured as prescribed in Section 201.4, shall be paid for at the contract unit price for Aggregate Base Course which price and payment shall be full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
201	Aggregate Base Course	Cubic Meter

ITEM 311 – PORTLAND CEMENT CONCRETE PAVEMENT

311.1 DESCRIPTION

This Item shall consist of pavement of Portland Cement Concrete, with or without reinforcement, constructed on the prepared base in accordance with this Specification and in conformity with lines, grades, thickness and typical cross- section shown on the Plans.

311.2 MATERIAL REQUIREMENTS

311.2.1 Portland Cement. It shall conform to the applicable requirements of Item 700, Hydraulic Cement. Only Type I Portland Cement shall be used unless otherwise provided for in the Special Provisions.Different brands or the same brands from different mills shall not be mixed nor shall they be used alternately unless the mix is approved by the Engineer. However, the use of Portland Pozzolan Cement Type IP meeting the requirements of AASHTO M 240/ASTM C 695, Specifications for Blended Hydraulic Cement shall be allowed, provided that trial mixes shall be done and that the mixes meet the concrete strength requirements, the AASHTO/ASTM provisions pertinent to the use of Portland Pozzolan Type IP shall be adopted.

Cement which for any reason, has become partially set or which contains lumps of caked cement will be rejected.Cement salvaged from discarded or used bags shall not be used.

Samples of Cement shall be obtained in accordance with AASHTO T 127.

311.2.2 Fine Aggregate. It shall consist of natural sand, stone screenings or other inert materials with similar characteristics, or combinations thereof, having hard, strong and durable particles. Fine aggregate from different sources of supply shall not be mixed or stored in the same pile nor used alternately in the same class of concrete without the approval of the Engineer.

It shall not contain more than three (3) mass percent of material passing the 0.075 mm (No. 200 sieve) by washing nor more than one (1) mass percent each of clay lumps or shale. The use of beach sand will not be allowed without the approval of the Engineer.

If the fine aggregate is subjected to five (5) cycles of the sodium sulfate soundness test, the weighted loss shall not exceed 10 mass percent.

The fine aggregate shall be free from injurious amounts of organic impurities. If subjected to the colorimatic test for organic impurities and a color darker than the standard is produced, it shall be rejected. However, when tested for the effect of organic impurities of strength of mortar byAASHTO T 71, the fine aggregate may be used if the relative strength at 7 and 28 days is not less than 95 mass percent.

The fine aggregate shall be well-graded from coarse to fine and shall conform to Table 311.1

Table 311.1 – Grading Requirements for Fine Aggregate

Sieve Designation	Mass Percent Passing
9.5 mm (3/8 in)	100
4.75 mm (No. 4)	95 – 100
2.36 mm (No. 8)	-
1.18 mm (No. 16)	45 – 80
0.600 mm (No. 30)	-
0.300 mm (No. 50)	5 – 30
0.150 mm (No. 100)	0 – 10

311.2.3 Coarse Aggregate. It shall consist of crushed stone, gravel, blast furnace slag, or other approved inert materials of similar characteristics, or combinations thereof, having hard, strong, durable pieces and free from any adherent coatings.

It shall contain not more than one (1) mass percent of material passing the 0.075 mm (No. 200) sieve, not more than 0.25 mass percent of clay lumps, nor more than 3.5 mass percent of soft fragments.

If the coarse aggregate is subjected to five (5) cycles of the sodium sulfate soundness test, the weighted loss shall not exceed 12 mass percent.

It shall have a mass percent of wear not exceeding 40 when tested by AASHTO T 96.

If the slag is used, its density shall not be less than 1120 kg/m^3 (70 lb./cu. ft.). The gradation of the coarse aggregate shall conform to Table 311.2.

Only one grading specification shall be used from any one source.

Table 311.2 – Grading Requirement for Coarse Aggregate

Sieve Designation		Mass Percent Passing		
Standard Mm	Alternate U. S. Standard	Grading A	Grading B	Grading C
75.00	3 in.	100	-	-
63.00	2-1/2 in.	90-100	100	100
50.00	2 in.	-	90-100	95-100
37.5	1-1/2 in.	25-60	35-70	-
25.0	1 in.	-	0-15	35-70
19.0	¾ in.	0-10	-	-
12.5	½ in.	0-5	0-5	10-30

4.75	No. 4	-	-	0-5

311.2.4 Water. Water used in mixing, curing or other designated application shall be reasonably clean and free of oil, salt, acid, alkali, grass or other substances injurious to the finished product. Water will be tested in accordance with and shall meet the requirements of Item 714, Water. Water which is drinkable may be used without test. Where the source of water is shallow, the intake shall be so enclosed as to exclude silt, mud, grass or other foreign materials.

311.2.5 Reinforcing Steel. It shall conform to the requirements of Item 404, Reinforcing Steel. Dowels and tie bars shall conform to the requirements of AASHTO M 31 or M 42, except that rail steel shall not be used for tie bars that are to be bent and restraightened during construction. Tie bars shall be deformed bars. Dowels shall be plain round bars. Before delivery to the site of work, one-half of the length of each dowel shall be painted with one coat of approved lead or tar paint.

The sleeves for dowel bars shall be metal of approved design to cover 50 mm (2 inches), plus or minus 5 mm (1/4 inch) of the dowel, with a closed end, and with a suitable stop to hold the end of the sleeve at least 25 mm (1 inch) from the end of the dowel. Sleeves shall be of such design that they do not collapse during construction.

311.2.6 Joint Fillers. Poured joint fillers shall be mixed asphalt and mineral or rubber filler conforming to the applicable requirements of Item 705, Joint Materials.

Preformed joint filler shall conform to the applicable requirements of Item 705. It shall be punched to admit the dowels where called for in the Plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint.

311.2.7 Admixtures. Air-entraining admixture shall conform to the requirements of AASHTO M 154.

Chemical admixtures, if specified or permitted, shall conform to the requirements of AASHTO M 194.

Fly Ash, if specified or permitted as a mineral admixture and as 20% partial replacement of Portland Cement in concrete mixshall conform to the requirements of ASTM C 618.

Admixture should be added only to the concrete mix to produce some desired modifications to the properties of concrete where necessary, but not as partial replacement of cement.

311.2.8 Curing Materials

Curing materials shall conform to the following requirements as specified;

a) Burlap cloth - AASHTO M 182

b) Liquid membrane forming compounds - AASHTO M 148

c) Sheeting (film) materials - AASHTO M 171

Cotton mats and water-proof paper can be used.

311.2.9 Calcium Chloride/Calcium Nitrate. It shall conform to AASHTO M 144, if specified or permitted by the Engineer, as accelerator.

311.2.10 Storage of Cement and Aggregate. All cement shall be stored, immediately upon delivery at the Site, in weatherproof building which will protect the cement from dampness. The floor shall be raised from the ground.The buildings shall be placed in locations approved by the Engineer. Provisions for storage shall be ample, and the shipments of cement as received shall be separately stored in such a manner as to allow the earliest deliveries to be used first and to provide easy access for identification and inspection of each shipment.Storage buildings shall have capacity for storage of a sufficient quantity of cement to allow sampling at least twelve (12) days before the cement is to be used. Bulk cement, if used, shall be transferred to elevated air tight and weatherproof bins.Stored cement shall meet the test requirements at any time after storage when retest is ordered by the Engineer. At the time of use, all cement shall be free-flowing and free of lumps.

The handling and storing of concrete aggregates shall be such as to prevent segregation or the inclusion of foreign materials.The Engineer may require that aggregates be stored on separate platforms at satisfactory locations.

In order to secure greater uniformity of concrete mix, the Engineer may require that the coarse aggregate be separated into two or more sizes.Different sizes of aggregate shall be stored in separate bins or in separate stockpiles sufficiently removed from each other to prevent the material at the edges of the piles from becoming intermixed.

311.2.11 Proportioning, Consistency and Strength of Concrete. The Contractor shall prepare the design mix based on the absolute volume method as outlined in the American Concrete Institute (ACI) Standard 211.1, "Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete".

It is the intent of this Specification to require at least 364 kg of cement per cubic meter of concrete to meet the minimum strength requirements.The Engineer shall determine from laboratory tests of the materials to be used, the cement content and the proportions of aggregate and water that will produce workable concrete having a slump of between 40 and 75 mm (1-1/2 and 3 inches) if not vibrated or between 10 and 40 mm (1/2 and 1-1/2 inches) if vibrated, and a flexural strength of not less than 3.8 MPa (550 psi) when tested by the third-point method or 4.5 MPa (650 psi) when tested by the mid-point method at fourteen (14) days in accordance with AASHTO T97 and T177, respectively; or a compressive strength of 31.0 MPa (4500 psi) for cores taken at fourteen (14) days and tested in accordance with

AASHTO T24. Slump shall be determined using AASHTO T119.

The designer shall consider the use of lean concrete (econocrete) mixtures using local materials or specifically modified conventional concrete mixes in base course and in the lower course composite, monolithic concrete pavements using a minimum of 75 mm (3 inches) of conventional concrete as the surface course.

The mix design shall be submitted to the Engineer for approval and shall be accompanied with certified test data from an approved laboratory demonstrating the adequacy of the mix design. A change in the source of materials during the progress of work may necessitate a new design mix.

311.3 CONSTRUCTION REQUIREMENTS

311.3.1 Quality Control of Concrete

1. General. The Contractor shall be responsible for the quality control of all materials during the handling, blending, and mixing and placement operations.

2. Quality Control Plan. The Contractor shall furnish the Engineer a Quality Control Plan detailing his production control procedures and the type and frequency of sampling and testing to insure that the concrete produces complies with the Specifications. The Engineer shall be provided free access to recent plant production records, and if requested, informational copies of mix design, materials certifications and sampling and testing reports.

3. Qualification of Workmen. Experienced and qualified personnel shall perform all batching or mixing operation for the concrete mix, and shall be present at the plant and job site to control the concrete productions whenever the plant is in operation. They shall be identified and duties defined as follows:

a. Concrete Batcher. The person performing the batching or mixing operation shall be capable of accurately conducting aggregate surface moisture determination and establishing correct scale weights for concrete materials. He shall be capable of assuring that the proportioned batch weights of materials are in accordance with the mix design.

b. Concrete Technician. The person responsible for concrete production control and sampling and testing for quality control shall be proficient in concrete technology and shall have a sound knowledge of the Specifications as they relate to concrete production. He shall be capable of conducting tests on concrete and concrete materials in accordance with these Specifications. He shall be capable of adjusting concrete mix designs for improving workability and Specification compliance and preparing trial mix designs. He shall be qualified to act as the concrete batcher in the batcher's absence.

4. Quality Control Testing. The Contractor shall perform all sampling, testing and inspection necessary to assure quality control of the component materials and the concrete.

The Contractor shall be responsible for determining the gradation of fine and coarse aggregates and for testing the concrete mixture for slump, air content, water-cement ratio and temperature.He shall conduct his operations so as to produce a mix conforming to the approved mix design.

5. Documentation. The Contractor shall maintain adequate records of all inspections and tests.The records shall indicate the nature and number of observations made, the number and type of deficiencies found, the quantities approved and rejected, and nature of any corrective action taken.

The Engineer may take independent assurance samples at random location for acceptance purposes as he deems necessary.

311.3.2 Equipment. Equipment and tools necessary for handling materials and performing all parts of the work shall be approved by the Engineer as to design, capacity and mechanical condition.The equipment shall be at the jobsite sufficiently ahead of the start of construction operations to be examined thoroughly and approved.

1. Batching Plant and Equipment

a. General.The batching shall include bins, weighing hoppers, and scales for the fine aggregate and for each size of coarse aggregate. If cement is used in bulk, a bin, a hopper, and separate scale for cement shall be included.The weighing hopper shall be properly sealed and vented to preclude dusting operation.The batch plant shall be equipped with a suitable non-resettable batch counter which will correctly indicate the number of batches proportioned.

b. Bins and Hoppers.Bins with adequate separate compartments for fine aggregate and for each size of coarse aggregate shall be provided in the batching plant.

c. Scales.Scales for weighing aggregates and cement shall be of either the beam type or the spring less-dial type.They shall be accurate within one-half percent (0.5%) throughout the range of use.Poises shall be designed to be locked in any position and to prevent unauthorized change. Scales shall be inspected and sealed as often as the Engineer may deem necessary to assure their continued accuracy.

d. Automatic Weighing Devices.Unless otherwise allowed on the Contract, batching plants shall be equipped with automatic weighing devices of an approved type to proportion aggregates and bulk cement.

2. Mixers.

a. General. Concrete may be mixed at the Site of construction or at a central plant, or wholly or in part in truck mixers.Each mixer shall have a manufacturer's plate attached in a prominent place showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades.

b. Mixers at Site of Construction.Mixing shall be done in an approved mixer capable of combining the aggregates, cement and water into a thoroughly mixed and uniform mass within the specified mixing period and discharging and distributing the mixture without segregation on the prepared grade.The mixer shall be equipped with an approved timing device which will automatically lock the discharge lever when the drum has been charged and released it at the end of the mixing period.In case of failure of the timing device, the mixer may be used for the balance of the day while it is being repaired, provided that each batch is mixed 90 seconds. The mixer shall be equipped with a suitable nonresettable batch counter which shall correctly indicate the number of the batches mixed.

c. Truck Mixer and Truck Agitators.Truck mixers used for mixing and hauling concrete, and truck agitators used for hauling central-mixed concrete, shall conform to the requirements of AASHTO M 157.

d. Non-Agitator Truck. Bodies of non-agitating hauling equipment for concrete shall be smooth, mortar-tight metal containers and shall be capable of discharging the concrete at a satisfactory controlled rate without segregation.

3. Paving and Finishing Equipment. The concrete shall be placed with an approved paver designed to spread, consolidate, screed and float finish the freshly placed concrete in one complete pass of the machine in such a manner that a minimum of hand finishing will be necessary to provide a dense and homogeneous pavementing conformance withthe Plans and Specifications. The finishing machine shall be equipped with at least two (2) oscillating type transverse screed.

Vibrators shall operate at a frequency of 8,300 to 9,600 impulses per minute under load at a maximum spacing of 60 cm.

4. Concrete Saw. The Contractor shall provide sawing equipment in adequate number of units and power to complete the sawing witha water- cooled diamond edge saw blade or an abrasive wheel to the required dimensions and at the required rate. He shall provide at least one (1) stand-by saw in good working condition and with an ample supply of saw blades.

5. Forms. Forms shall be of steel, of an approved section, and of depth equal to the

thickness of the pavement at the edge.The base of the forms shall be of sufficient width to provide necessary stability in all directions. The flange braces must extend outward on the base to not less than 2/3 the height of the form.

All forms shall be rigidly supported on bed of thoroughly compacted material during the entire operation of placing and finishing the concrete.Forms shall be provided with adequate devices for secure setting so that when in place, they will withstand, without visible spring or settlement, the impact and vibration of the consolidation and finishing or paving equipment.

311.3.3 Preparation of Grade. After the subgrade of base has been placed and compacted to the required density, the areas which will support the paving machine and the grade on which the pavement is to be constructed shall be trimmed to the proper elevation by means of a properly designed machine extending the prepared work areas compacted at least 60 cm beyond each edge of the proposed concrete pavement. If loss of density results from the trimming operations, it shall be restored by additional compaction before concrete is placed. If any traffic is allowed to use the prepared subgrade or base, the surface shall be checked and corrected immediately ahead of the placing concrete.

The subgrade or base shall be uniformly moist when the concrete is placed.

311.3.4 Setting Forms

1. Base Support. The foundation under the forms shall be hard and true to grade so that the form when set will be firmly in contact for its whole length and at the specified grade.(Any roadbed, which at the form line is found below established grade, shall be filled with approved granular materials to grade in lifts of three (3) cm or less, and thoroughly rerolled or tamped.) Imperfections or variations above grade shall be corrected by tamping or by cutting as necessary.

2. Form Setting. Forms shall be set sufficiently in advance of the point where concrete is being placed.After the forms have been set to correct grade, the grade shall be thoroughly tamped, mechanically or by hand, at both the inside and outside edges of the base of the forms. The forms shall not deviate from true line bv more than one (1) cm at any point.

3. Grade and Alignment. The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete. Testing as to crown and elevation, prior to placing of concrete can be made by means of holding an approved template in a vertical position and moved backward and forward on the forms.

When any form has been disturbed or any grade has become unstable, the form shall be reset and rechecked.

311.3.5 Conditioning of Subgrade or Base Course. When side forms have been securely set to grade, the subgrade or base course shall be brought to proper cross-section. High areas shall be trimmed to proper elevation.Low areas shall be filled and compacted to a condition similar to that of surrounding grade.The finished grade shall be maintained in a smooth and compacted condition until the pavement is placed.

Unless waterproof subgrade or base course cover material is specified, the subgrade or base course shall be uniformly moist when the concrete is placed.If it subsequently becomes too dry, the subgrade or base course shall be sprinkled, but the method of sprinkling shall not be such as to form mud or pools of water.

311.3.6 Handling, Measuring and Batching Materials. The batch plant site, layout, equipment and provisions for transporting material shall be such as to assure a continuous supply of material to the work.

Stockpiles shall be built up in layers of not more than one (1) meter in thickness. Each layer shall be completely in place before beginning the next which shall not be allowed to "cone" down over the next lower layer.Aggregates from different sources and of different grading shall not be stockpiled together.

All washed aggregates and aggregates produced or handled by hydraulic methods, shall be stockpiled or binned for draining at least twelve (12) hours before being batched.

When mixing is done at the side of the work. aggregates shall be transported from the batching plant to the mixer in batch boxes, vehicle bodies, or other containers of adequate capacity and construction to properly carry the volume required. Partitions separating batches shall be adequate and effective to prevent spilling from one compartment to another while in transit or being dumped. When bulk cement is used, the Contractor shall use a suitable method of handling the cement from weighing hopper to transporting container or into the batch itself for transportation to the mixer, with chute, boot or other approved device, to prevent loss of cement, and to provide positive assurance of the actual presence in each batch of the entire cement content specified.

Bulk cement shall be transported to the mixer in tight compartments carrying the full amount of cement required for the batch.However, if allowed in the Special Provisions, it may be transported between the fine and coarse aggregate. When cement is placed in contact with the aggregates, batches may be rejected unless mixed within 1-1/2 hours of such contact. Cement in original shipping packages may be transported on top of the aggregates, each batch containing the number of sacks required by the job mix.

The mixer shall be charged without loss of cement.Batching shall be so conducted as to result in the weight to each material required within a tolerance of one (1) percent for the cement and two (2) percent for aggregates.

Water may be measured either by volume or by weight.The accuracy of measuring the water shall be within a range of error of not over than one (1) percent. Unless the water is to be weighed, the water-measuring equipment shall include an auxiliary tank from which the measuring tank shall be equipped with an outside tap and valve to provide checking the setting, unless other means are provided for readily and accurately determining the amount of water in the tank. The volume of the auxiliary tank shall be at least equal to that of the measuring tank.

311.3.7 Mixing Concrete. The concrete may be mixed at the site of the work in a central-mix plant, or in truck mixers.The mixer shall be of an approved type and capacity.Mixing time will be measured from the time all materials, except water, are in the drum. Ready-mixed concrete shall be mixed and delivered in accordance with requirements of AASHTO M 157, except that the minimum required revolutions at the mixing speed for transit-mixed concrete may be reduced to not less than that recommended by the mixer manufacturer.

The number of revolutions recommended by the mixer manufacturer shall be indicated on the manufacturer's serial plate attached to the mixer.The Contractor shall furnish test data acceptable to the Engineer verifying that the make and model of the mixer will produce uniform concrete conforming to the provision of AASHTO M 157 at the reduced number of revolutions shown on the serial plate.

When mixed at the site or in a central mixing plant, the mixing time shall not be less than fifty (50) seconds nor more than ninety (90) seconds, unless mixer performance tests prove adequate mixing of the concrete is a shorter time period.

Four (4) seconds shall be added to the specified mixing time if timing starts at the instant the skip reaches its maximum raised positions. Mixing time ends when the discharge chute opens.Transfer time in multiple drum mixers is included in mixing time.The contents of an individual mixer drum shall be removed before a succeeding batch is emptied therein.

The mixer shall be operated at the drum speed as shown on the manufacturer's name plate attached on the mixer.Any concrete mixed less than the specified time shall be discarded and disposed off by the Contractor at his expense.

The volume of concrete mixed per batch shall not exceed the mixer's nominal capacity in cubic metre, as shown on the manufacturer's standard rating plate on the mixer, except that an overload up to ten (10) percent above the mixer's nominal capacity may be permitted provided concrete test data for strength, segregation, and uniform consistency are satisfactory, and provided no spillage of concrete takes place.

The batches shall be so charged into the drum that a portion of the mixing water shall be entered in advance of the cement and aggregates.The flow of water shall be uniform and all water shall be in the drum by the end of the first fifteen (15) seconds of the mixing period.

The throat of the drum shall be kept free of such accumulations as may restrict the free flow of materials into the drum.

Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators or non-agitating truck specified in Subsection 311.3.2, Equipment. The time elapsed from the time water is added to the mix until the concrete is deposited in place at the Site shall not exceed forty five (45) minutes when the concrete is hauled in non-agitating trucks, nor ninety (90) minutes when hauled in truck mixers or truck agitators, except that in hot weather or under other conditions contributing to quick hardening of the concrete, the maximum allowable time may be reduced by the Engineer.

In exceptional cases and when volumetric measurements are authorized for small project requiring less than 75 cu.m. of concrete per day of pouring, the weight proportions shall be converted to equivalent volumetric proportions. In such cases, suitable allowance shall be made for variations in the moisture condition of the aggregates, including the bulking effect in the fine aggregate. Batching and mixing shall be in accordance with ASTM C 685, Section 6 through 9.

Concrete mixing by chute is allowed provided that a weighing scales for determining the batch weight will be used.

Retempering concrete by adding water or by other means shall not be permitted, except that when concrete is delivered in truck mixers, additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements, if permitted by the Engineer, provided all these operations are performed within forty-five (45) minutes after the initial mixing operation and the water-cement ratio is not exceeded.Concrete that is not within the specified slump limits at the time of placement shall not be used. Admixtures for increasing the workability or for accelerating the setting of the concrete will be permitted only when specifically approved by the Engineer.

311.3.8 Limitation of Mixing. No concrete shall be mixed, placed or finished when natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

During hot weather, the Engineer shall require that steps be taken to prevent the temperature of mixed concrete from exceeding a maximum temperature of 90^0F (32^0C)

Concrete not in place within ninety (90) minutes from the time the ingredients were charged into the mixing drum or that has developed initial set shall not be used.Retempering of concrete or mortar which has partially hardened, that is remixing with or without additional cement, aggregate, or water, shall not be permitted.

In order that the concrete may be properly protected against the effects of rain before the

concrete is sufficiently hardened, the Contractor will be required to have available at all times materials for the protection of the edges and surface of the unhardened concrete.

311.3.9 Placing Concrete. Concrete shall be deposited in such a manner to require minimal rehandling. Unless truck mixers or non-agitating hauling equipment are equipped with means to discharge concrete without segregation of the materials, the concrete shall be unloaded into an approved spreading device and mechanically spread on the grade in such a manner as to prevent segregation. Placing shall be continuous between transverse joints without the use of intermediate bulkheads. Necessary hand spreading shall be done with shovels, not rakes. Workmen shall not be allowed to walk in the freshly mixed concrete with boots or shoes coated with earth or foreign substances.

When concrete is to be placed adjoining a previously constructed lane and mechanical equipment will be operated upon the existing lane, that previously constructed lane shall have attained the strength for fourteen (14) day concrete. If only finishing equipment is carried on the existing lane, paving in adjoining lanes may be permitted after three (3) days.

Concrete shall be thoroughly consolidated against and along the faces of all forms and along the full length and on both sides of all joint assemblies, by means of vibrators inserted in the concrete. Vibrators shall not be permitted to come in contact with a joint assembly, the grade, or a side form. In no case shall the vibrator be operated longer than fifteen (15) seconds in any one location.

Concrete shall be deposited as near as possible to the expansion and contraction joints without disturbing them, but shall not be dumped from the discharge bucket or hopper into a joint assembly unless the hopper is well centered on the joint assembly. Should any concrete material fall on or be worked into the surface of a complete slab, it shall be removed immediately.

311.3.10 Test Specimens. As work progresses, at least one (1) set consisting of three (3) concrete beam test specimens, 150 mm x 150 mm x 525 mm or 900 mm shall be taken from each 330 m^2 of pavement, 230 mm depth, or fraction thereof placed each day. Test specimens shall be made under the supervision of the Engineer, and the Contractor shall provide all concrete and other facilities necessary in making the test specimens and shall protect them from damage by construction operations. Cylinder samples shall not be used as substitute for determining the adequacy of the strength of concrete.

The beams shall be made, cured, and tested in accordance with AASHTO T 23 and T 97.

311.3.11 Strike-off of Concrete and Placement of Reinforcement. Following the placing of the concrete, it shall be struck off to conform to the cross-section shown on the Plans and to an elevation such that when the concrete is properly consolidated and finished, the surface of the pavement will be at the elevation shown on the Plans. When reinforced concrete pavement is placed in two (2) layers, the bottom layer shall be struck off and consolidated to such length and depth that the sheet of fabric or bar mat may be laid full length on the

concrete in its final position without further manipulation.

The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off and screeded.

Any portion of the bottom layer of concrete which has been placed more then 30 minutes without being covered with the top layer shall be removed and replaced with freshly mixed concrete at the Contractor's expense.

When reinforced concrete is placed in one layer, the reinforcement may be firmly positioned in advance of concrete placement or it may be placed at the depth shown on the Plans in plastic concrete, after spreading by mechanical or vibratory means.

Reinforcing steel shall be free from dirt, oil, paint, grease, mill scale and loose or thick rust which could impair bond of the steel with the concrete.

311.3.12 Joints. Joints shall be constructed of the type and dimensions, and at the locations required by the Plans or Special Provisions. All joints shall be protected from the intrusion of injurious foreign material until sealed.

1. Longitudinal Joint. Deformed steel tie bars of specified length, size, spacing and materials shall be placed perpendicular to the longitudinal joints, they shall be placed by approved mechanical equipment or rigidly secured by chair or other approved supports to prevent displacement.

Tie bars shall not be painted or coated with asphalt or other materials or enclosed in tubes or sleeves.

When shown on the Plans and when adjacent lanes of pavement are constructed separately, steel side forms shall be used which will form a keyway along the construction joint.

Tie bars, except those made of rail steel, may be bent at right angles against the form of the first lane constructed and straightened into final position before the concrete of the adjacent lane is placed, or in lieu of bent tie bars, approved two-piece connectors may be used.

Longitudinal formed joints shall consist of a groove or cleft, extending downward from and normal to, the surface of the pavement. These joints shall be effected or formed by an approved mechanically or manually operated device to the dimensions and line indicated on the Plans and while the concrete is in a plastic state. The groove or cleft shall be filled with either a premolded strip or poured material as required.

The longitudinal joints shall be continuous, there shall be no gaps in either transverse or longitudinal joints at the intersection of the joints.

Longitudinal sawed joints shall be cut by means of approved concrete saws to the depth, width and line shown on the Plans. Suitable guide lines or devices shall be used to assure cutting the longitudinal joint on the true line.

The longitudinal joint shall be sawed before the end of the curing period or shortly thereafter and before any equipment or vehicles are allowed on the pavement.The sawed area shall be thoroughly cleaned and, if required, the joint shall immediately be filled with sealer.

Longitudinal pavement insert type joints shall be formed by placing a continuous strip of plastic materials which will not react adversely with the chemical constituent of the concrete.

2. Transverse Expansion Joint. The expansion joint filler shall be continuous from form to form, shaped to subgrade and to the keyway along the form.

Preformed joint filler shall be furnished in lengths equal to the pavement width or equal to the width of one lane.Damaged or repaired joint filler shall not be used. The expansion joint filler shall be held in a vertical position.

An approved installing bar, or other device, shall be used if required to secure preformed expansion joint filler at the proper grade and alignment during placing and finishing of the concrete.

Finished joint shall not deviate more than 6 mm from a straight line.If joint fillers are assembled in sections, there shall be no offsets between adjacent units. No plugs of concrete shall be permitted anywhere within the expansion space.

3. Transverse Contraction Joint/Weakened Joint. When shown on the Plans, it shall consist of planes of weakness created by forming or cutting grooves in the surface of the pavement and shall include load transfer assemblies. The depth of the weakened plane joint should at all times not be less than 50 mm, while the width should not be more than 6 mm.

a. Transverse Strip Contraction Joint. It shall be formed by installing a parting strip to be left in place as shown on the Plans.

b. Formed Groove. It shall be made by depressing an approved tool or device into

the plastic concrete.The tool or device shall remain in place at least until the concrete has attained its initial set and shall then be removed without disturbing the adjacent concrete, unless the device is designed to remain in the joint.

c. Sawed Contraction Joint. It shall be created by sawing grooves in the surface of the pavement of the width not more than 6 mm, depth should at all times not be less than 50 mm, and at the spacing and lines shown on the Plans, with an approved concrete saw.

After each joint is sawed, it shall be thoroughly cleaned including the adjacent concrete surface.

Sawing of the joint shall commence as soon as the concrete has hardened sufficiently to permit sawing without excessive ravelling, usually 4 to 24 hours.All joints shall be sawed before uncontrolled shrinkage cracking takes place. If necessary, the sawing operations shall be carried on during the day or night, regardless of weather conditions.The sawing of any joint shall be omitted if crack occurs at or near the joint location prior to the time of sawing. Sawing shall be discounted when a crack develops ahead of the saw. In general, all joints should be sawed in sequence.If extreme condition exist which make it impractical to prevent erratic cracking by early sawing, the contraction joint groove shall be formed prior to initial set of concrete as provided above.

4. Transverse Construction Joint. It shall be constructed when there is an interruption of more than 30 minutes in the concreting operations.No transverse joint shall be constructed within 1.50 m of an expansion joint, contraction joint, or plane of weakness.If sufficient concrete has been mixed at the time of interruption to form a slab of at least 1.5 m long, the excess concrete from the last preceding joint shall be removed and disposed off as directed.

5. Load Transfer Device. Dowel, when used, shall be held in position parallel to the surface and center line of the slab by a metal device that is left in the pavement.

The portion of each dowel painted with one coat of lead or tar, in conformance with the requirements of Item 404, Reinforcing Steel, shall be thoroughly coated with approved bituminous materials, e.g., MC-70, or an approved lubricant, to prevent the concrete from binding to that portion of the dowel.The sleeves for dowels shall be metal designed to cover 50 mm plus or minus 5 mm (1/4 inch), of the dowel, with a watertight closed end and with a suitable stop to hold the end of the sleeves at least 25 mm (1 inch) from the end of the dowel.

In lieu of using dowel assemblies at contraction joints, dowel may be placed in the full thickness of pavement by a mechanical device approved by the Engineer.

311.3.13 Final Strike-off (Consolidation and Finishing)

1. Sequence. The sequence of operations shall bethe strike-off and consolidation, floating and removal of laitance, straight-edging and final surface finish. Work bridges or other devices necessary to provide access to the pavement surface for the purpose of finishing straight-edging, and make corrections as hereinafter specified, shall be provided by the Contractor.

In general, the addition of water to the surface of the concrete to assist in finishing operations will not be permitted. If the application of water to the surface is permitted, it shall be applied as fog spray by means of an approved spray equipment.

2. Finishing Joints. The concrete adjacent to joints shall be compacted or firmly placed without voids or segregation against the joint material assembly, also under and around all load transfer devices, joint assembly units, and other features designed to extend into the pavement. Concrete adjacent to joints shall be mechanically vibrated as required in Subsection 311.3.9, Placing Concrete.

After the concrete has been placed and vibrated adjacent to the joints as required in Subsection 311.3.9, the finishing machine shall be brought forward, operating in a manner to avoid damage or misalignment of joints. If uninterrupted operation of the finishing machine, to over and beyond the joints causes segregation of concrete, damage to, or misalignment of the joints, the finishing machine shall be stopped when the front screed is approximately 20 cm (8 inches) from the joint.Segregated concrete shall be removed from in front of and off the joint. The front screed shall be lifted and set directly on top of the joint and the forward motion of the finishing machine resumed. When the second screed is close enough to permit the excess mortar in front of it to flow over the joint, it shall be lifted and carried over the joint. Thereafter, the finishing machine may be run over the joint without lifting the screeds, provided there is no segregated concrete immediately between the joint and the screed or on top of the joint.

3. Machine Finishing

a. Non-vibratory Method. The concrete shall be distributed or spread as soon as placed.As soon as the concrete has been placed, it shall be struck off and screeded by an approved finishing machine. The machine shall go over each area of pavement as many times and at such intervals as necessary to give the proper compaction and leave a surface of uniform texture. Excessive operation over a given area shall be avoided. The tops of the forms shall be kept clean by an effective device attached to the machine and the travel of the machine on the forms shall be maintained true without wobbling or other variation tending to affect the precision finish.

During the first pass of the finishing machine, a uniform ridge of concrete shall be

maintained ahead of the front screed in its entire length.

b. Vibratory Method. When vibration is specified, vibrators for full width vibration of concrete paving slabs, shall meet the requirements in Subsection 311.3.2, Equipment.If uniform and satisfactory density of the concrete is not obtained by the vibratory method at joints, along forms, at structures, and throughout the pavement, the Contractor will be required to furnish equipment and method which will produce pavement conforming to the Specifications. All provisions in item (a) above not in conflict with the provisions for the vibratory method shall govern.

4. Hand Finishing. Hand finishing methods may only be used under the following conditions:

a. In the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade.

b. In narrow widths or areas of irregular dimensions where operations of the mechanical equipment is impractical, hand methods may be used.

Concrete, as soon as placed, shall be struck off and screeded. An approved portable screed shall be used. A second screed shall be provided for striking off the bottom layer of concrete if reinforcement is used.

The screed for the surface shall be at least 60 cm (2 feet) longer than the maximum width of the slab to be struck off.It shall be of approved design, sufficiently rigid to retain its shape, and constructed either of metal or other suitable material shod with metal.

Consolidation shall be attained by the use of suitable vibrator or other approved equipment.

In operation, the screed shall be moved forward on the forms with a combined longitudinal and transverse shearing motion, moving always in the direction in which the work is progressing and so manipulated that neither end is raised from the side forms during the striking off process. If necessary, this shall be repeated until the surface is of uniform texture, true to grade and cross-section, and free from porous areas.

5. Floating. After the concrete has been struck off and consolidated, it shall be further smoothed, trued, and consolidated by means of a longitudinal float, either by hand or mechanical method.

a. Hand Method.The hand-operated longitudinal float shall be not less than 365 cm (12 feet) in length and 15 cm (6 inches) in width, properly stiffened to prevent flexibility and warping.The longitudinal float, operated from foot bridges resting on the side forms and spanning but not touching the concrete, shall be worked with a sawing motion while held in a floating position parallel to the road center line, and moving gradually from one side of the pavement to the other.Movement ahead along the center line of the pavement shall be in successive advances of not more than one-half the length of the float.Any excess water or soupy material shall be wasted over the side forms on each pass.

b. Mechanical Method. The mechanical longitudinal float shall be of a design approved by the Engineer, and shall be in good working condition.The tracks from which the float operates shall be accurately adjusted to the required crown.The float shall be accurately adjusted and coordinated with the adjustment of the transverse finishing machine so that a small amount of mortar is carried ahead of the float at all times.The forward screed shall be adjusted so that the float will lap the distance specified by the Engineer on each transverse trip.The float shall pass over each areas of pavement at least two times, but excessive operation over a given area will not be permitted. Any excess water or soupy material shall be wasted over the side forms on each pass.

c. Alternative Mechanical Method. As an alternative, the Contractor may use a machine composed of a cutting and smoothing float or floats suspended from and guided by a rigid frame. The frame shall be carried by four or more visible wheels riding on, and constantly in contact with the side forms.If necessary, following one of the preceding method of floating, long handled floats having blades not less than 150 cm (5 feet) in length and 15 cm (6 inches) in width may be used to smooth and fill in open- textured areas in the pavement. Long-handled floats shall not be used to float the entire surface of the pavement in lieu of, or supplementing, one of the preceding methods of floating.When strike off and consolidation are done by the hand method and the crown of the pavement will not permit the use of the longitudinal float, the surface shall be floated transversely by means of the long-handled float.Care shall be taken not to work the crown out of the pavement during the operation.After floating, any excess water and laitance shall be removed from the surface of the pavement by a 3-m straight-edge or more in length. Successive drags shall be lapped one-half the length of the blade.

6. Straight-edge Testing and Surface Correction. After the floating has been completed and the excess water removed, but while the concrete is still plastic, the surface of the concrete shall be tested for trueness with a 300 cm long straight-edge. For this purpose, the Contractor shall furnish and use an accurate 300-cm straight-edge swung from handles 100 cm (3 feet) longer than one-half the width of the slab.The straight-edge shall be held in contact with the surface in successive positions parallel to the road center line and the whole area gone over from one side of the slab to the other as necessary. Advances along the road shall be in successive stages of not more than one-half the length of the straight- edge. Any depressions found shall be immediately filled with freshly mixed concrete, struck off, consolidated and refinished.High areas

shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the requirements for smoothness. Straight-edge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straight-edge and the slab conforms to the required grade and cross-section.

7. Final Finish. If the surface texture is broom finished, it shall applied when the water sheen has practically disappeared. The broom shall be drawn from the center to the edge of the pavement with adjacent strokes slightly overlapping. The brooming operation should be so executed that the corrugations produced in the surface shall be uniform in appearance and not more than 1.5 mm in depth. Brooming shall be completed before the concrete is in such condition that the surface will be unduly roughened by the operation. The surface thus finished shall be free from rough and porous areas, irregularities, and depressions resulting from improper handling of the broom. Brooms shall be of the quality size and construction and be operated so as to produce a surface finish meeting the approval of the Engineer. Subject to satisfactory results being obtained and approval of the Engineer, the Contractor will be permitted to substitute mechanical brooming in lieu of the manual brooming herein described.

If the surface texture is belt finished, when straight-edging is complete and water sheen has practically disappeared and just before the concrete becomes non-plastic, the surface shall be belted with 2- ply canvass belt not less than 20 cm wide and at least 100 cm longer than the pavement width. Hand belts shall have suitable handles to permit controlled, uniform manipulation. The belt shall be operated with short strokes transverse to the center line and with a rapid advances parallel to the center line.

If the surface texture is drag finished, a drag shall be used which consists of a seamless strip of damp burlap or cotton fabric, which shall produce a uniform of gritty texture after dragging it longitudinally along the full width of pavement. For pavement 5 m or more in width, the drag shall be mounted on a bridge which travels on the forms. The dimensions of the drag shall be such that a strip of burlap or fabric at least 100 cm wide is in contact with the full width of pavement surface while the drag is used. The drag shall consist of not less than 2 layers of burlap with the bottom layer approximately 15 cm wider than the layer. The drag shall be maintained in such condition that the resultant surface is of uniform appearance and reasonably free from grooves over 1.5 mm in depth. Drag shall be maintained clean and free from encrusted mortar. Drags that cannot be cleaned shall be discarded and new drags be substituted.

Regardless of the method used for final finish,the hardened surface of pavement shall have a coefficient of friction of 0.25 or more. Completed pavement that is found to have a coefficient of friction less than 0.25 shall be grounded or scored by the Contractor at his expense to provide the required coefficient of friction.

8. Edging at Forms and Joints. After the final finish, but before the concrete has taken its initial set, the edges of the pavement along each side of each slab, and on each side of transverse expansion joints, formed joints, transverse construction joints, and emergency construction joints, shall be worked with an approved tool and rounded to the radius required by the Plans. A well – defined and continuous radius shall be produced and a smooth, dense mortar finish obtained.The surface of the slab shall not be unduly disturbed by tilting the tool during the use.

At all joints, any tool marks appearing on the slab adjacent to the joints shall be eliminated by brooming the surface.In doing this, the rounding of the corner of the slab shall not be disturbed. All concrete on top of the joint filler shall be completely removed.All joints shall be tested with a straigh t-edge before the concrete has set and correction made if one edge of the joint is higher than the other.

311.3.14 Surface Test. As soon as the concrete has hardened sufficiently, the pavement surface shall be tested with a 3-m straight-edge or other specified device. Areas showing high spots of more than 3 mm but not exceeding 12 mm in 3 m shall be marked and immediately ground down with an approved grinding tool to an elevation where the area or spot will not show surface deviations in excess of 3 mm when tested with 3 m straight-edge. Where the departure from correct cross-section exceeds 12 mm, the pavement shall be removed and replaced by and at the expense of the Contractor.

Any area or section so removed shall be not less than 1.5 m in length and not less than the full width of the lane involved.When it is necessary to remove and replace a section of pavement, any remaining portion of the slab adjacent to the joints that is less than 1.5 m in length, shall also be removed and replaced.

311.3.15 Curing. Immediately after the finishing operations have been completed and the concrete has sufficiently set, the entire surface of the newly placed concrete shall be cured in accordance with either one of the methods described herein.

Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or the lack of water to adequately take care of both curing and other requirements, shall be a cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than ½ hour between stages of curing or during the curing period.

In all congested places, concrete works should be designed so that the designed strength is attained.

1. Cotton of Burlap Mats. The surface of the pavement shall be entirely covered with mats. The mats used shall be of such length (or width) that as laid they will extend at least twice the thickness of the pavement beyond the edges of the slab. The mat shall be placed so that the entire surface and the edges of the slab are completely covered.Prior to being placed, the mats shall be saturated thoroughly with water.The mat shall be so placed and weighted down so as to cause them to remain in intimate contact with the

covered surface. The mat shall be maintained fully wetted and in position for 72 hours after the concrete has been placed unless otherwise specified.

2. Waterproof Paper. The top surface and sides of the pavement shall be entirely covered with waterproof paper, the units shall be lapped at least 45 cm. The paper shall be so placed and weighted down so as to cause it to remain in intimate contact with the surface covered.The paper shall have such dimension but each unit as laid will extend beyond the edges of the slab at least twice the thickness of the pavement, or at pavement width and 60 cm strips of paper for the edges. If laid longitudinally, paper not manufactured in sizes which will provide this width shall be securely sewed or cemented together, the joints being securely sealed in such a manner that they do not open up or separate during the curing period. Unless otherwise specified, the covering shall be maintained in place for 72 hours after the concrete has been placed. The surface of the pavement shall be thoroughly wetted prior to the placing of the paper.

3. Straw Curing. When this type of curing is used, the pavement shall be cured initially with burlap or cotton mats, until after final set of the concrete or, in any case, for 12 hours after placing the concrete.As soon as the mats are removed, the surface and sides of the pavement shall be thoroughly wetted and covered with at least 20 cm of straw or hay, thickness of which is to be measured after wetting. If the straw or hay covering becomes displaced during the curing period, it shall be replaced to the original depth and saturated.

It shall be kept thoroughly saturated with water for 72 hours and thoroughly wetted down during the morning of the fourth day, and the cover shall remain in place until the concrete has attained the required strength.

4. Impervious Membrane Method. The entire surface of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place, or if the pavement is cured initially with jute or cotton mats, it may be applied upon removal of the mass. The curing compound shall not be applied during rain.

Curing compound shall be applied under pressure at the rate 4 L to not more than 14 m^2 by mechanical sprayers.The spraying equipment shall be equipped with a wind guard. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle.During application, the compound shall be stirred continuously by effective mechanical means.Hand spraying of odd widths or shapesand concrete surface exposed by the removal of forms will be permitted. Curing compound shall not be applied to the inside faces of joints to be sealed, but approved means shall be used to insure proper curing at least 72 hours and to prevent the intrusion of foreign material into the joint before sealing has been completed.The curing compound shall be of such character that the film will harden within 30 minutes after application.Should the film be damaged from any cause within the 72 hour curing period, the damaged portions shall be repaired immediately with additional compound.

5. White Polyethylene Sheet. The top surface and sides of the pavement shall be entirely covered with polyethylene sheeting.The units used shall be lapped at least 45 cm.The sheeting shall be so placed and weighted down so as to cause it to remain intimate contact with the surface covered. The sheeting as prepared for use shall have such dimension that each unit as laid will extend beyond the edges of the slab at least twice the thickness of the pavement.Unless otherwise specified, the covering shall be maintained in place for 72 hours after the concrete has been placed.

311.3.16 Removal of Forms. After forms for concrete shall remain in place undisturbed for not less than twenty four (24) hours after concrete pouring.In the removal of forms, crowbars should be used in pulling out nails and pins.Care should be taken so as not to break the edges of the pavement.In case portions of the concrete are spalled, they shall be immediately repaired with fresh mortar mixed in the proportion of one part of Portland Cement and two parts fine aggregates.

Major honeycomb areas will be considered as defective work and shall be removed and replaced at the expense of the Contractor. Any area or section so removed shall not be less than the distance between weakened plane joint nor less than the full width of the lane involved.

311.3.17 Sealing Joints. Joints shall be sealed with asphalt sealant soon after completion of the curing period and before the pavement is opened to traffic, including the Contractor's equipment.Just prior to sealing, each joint shall be thoroughly cleaned of all foreign materials including membrane curing compound and the joint faces shall be clean and surface dry when the seal is applied.

The sealing material shall be applied to each joint opening to conform to the details shown on the Plans or as directed by the Engineer.Material for seal applied hot shall be stirred during heating so that localized overheating does not occur. The pouring shall be done in such a manner that the material will not be spilled on the exposed surfaces of the concrete. The use of sand or similar material as a cover for the seal will not be permitted.

Preformed elastomeric gaskets for sealing joints shall be of the cross- sectional dimensions shown on the Plans.Seals shall be installed by suitable tools, without elongation and secured in placed with an approved lubricant adhesive which shall cover both sides of the concrete joints. The seals shall be installed in a compressive condition and shall at time of placement be below the level of the pavement surface by approximately 6 mm.

The seals shall be in one piece for the full width of each transverse joint.

311.3.18 Protection of Pavement. The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by his own employees and agents. This shall include watchmen to direct traffic and the erection of and maintenance of warning signs, lights, pavement bridges or cross-overs, etc.The Plans or Special Provisions will indicate the location and type of device or facility required to protect the work and provide adequately for traffic.

All boreholes after thickness and/or strength determinations of newly constructed asphalt and concrete pavements shall be immediately filled/restored with the prescribed concrete/asphalt mix after completion of the drilling works.

Any damage to the pavement, occurring prior to final acceptance, shall be repaired or the pavement be replaced.

311.3.19 Concrete Pavement – Slip Form Method

If the Contract calls for the construction of pavement without the use of fixed forms, the following provisions shall apply:

1. Grade. After the grade or base has been placed and compacted to the required density, the areas which will support the paving machine shall be cut to the proper elevation by means of a properly designed machine. The grade on which the pavement is to be constructed shall then be brought to the proper profile by means of properly designed machine. If the density of the base is disturbed by the grading operation, it shall be corrected by additional compaction before concrete is placed. The grade should be constructed sufficiently in advance of the placing of the concrete. If any traffic is allowed to use the prepared grade, the grade shall be checked and corrected immediately before the placing of concrete.

2. Placing Concrete. The concrete shall be placed with an approved slip-form paver designed to spread, consolidate, screed and float-finish the freshly placed concrete in one complete pass of the machine in such a manner that a minimum of hand finish will be necessary to provide a dense and homogenous pavement in conformance with the Plans and Specifications. The machine shall vibrate the concrete for the full width and depth of the strip of pavement being placed. Such vibration shall be accompanied with vibrating tubes or arms working in the concrete or with a vibrating screed or pan operating on the surface of the concrete.The sliding forms shall be rigidly held together laterally to prevent spreading of the forms.The forms shall trail behind the paver for such a distance that no appreciable slumping of the concrete will occur, and that necessary final finishing can be accomplished while the concrete is still within the forms. Any edge slump of the pavement, exclusive of edge rounding, in excess of 6 mm shall be corrected before the concrete has hardened.

The concrete shall be held at a uniform consistency, having a slump of not more than 40 mm (1-12/ inches).The slip form paver shall be operated with as nearly as possible a

continuous forward movement and that all operations of mixing, delivering and spreading concrete shall be coordinated so as to provide uniform progress with stopping and starting of the paver held to a minimum.If, for any reason, it is necessary to stop the forward movement of the paver the vibratory and tamping elements shall also be stopped immediately. No tractive force shall be applied to the machine, except that which is controlled from the machine.

3. Finishing. The surface smoothness and texture shall meet the requirements of Subsections 311.3.13 and 311.3.14.

4. Curing. Unless otherwise specified, curing shall be done in accordance with one of the methods included in Subsection 311.3.15.The curing media shall be applied at the appropriate time and shall be applied uniformly and completely to all surfaces and edges of the pavement.

5. Joints. All joints shall be constructed in accordance with Subsection 311.3.12.

6. Protection Against Rain. In order that the concrete may be properly protected against rain before the concrete is sufficiently hardened, the Contractor will be required to have available at all times, materials for the protection of the edges and surface of the unhardened concrete. Such protective materials shall consist of standard metal forms or wood planks having a nominal thickness of not less than 50 mm (2 inches) and a nominal width of not less than the thickness of the pavement at its edge for the protection of the pavement edges, and covering material such as burlap or cotton mats, curing paper or plastic sheeting materials for the protection of the surface of the pavement.When rain appears imminent, all paving operations shall stop and all available personnel shall begin placing forms against the sides of the pavement and covering the surface of the unhardened concrete with the protective covering.

311.3.22 Acceptance of Concrete

The strength level of the concrete will be considered satisfactory if the averages of all sets of three (3) consecutive strength test results equal or exceed the specified strength, f_c' and no individual strength test result is deficient by more than 15% of the specified strength, f_c'.

Concrete deemed to be not acceptable using the above criteria may be rejected unless the Contractor can provide evidence, by means of core tests, that the quality of concrete represented by failed test results is acceptable in place. At least three (3) representative cores shall be taken from each member or area of concrete in place that is considered deficient.

The location of cores shall be determined by the Engineer so that there will be at least impairment of strength of the structure.The obtaining and testing of drilled cores shall be in accordance with AASHTO T 24.

Concrete in the area represented by the cores will be considered adequate if the average strength of the cores is equal to at least 85% of, and if no single core is less than 75% of, the specified strength, f_c'.

If the strength of control specimens does not meet the requirements of this Subsection, and it is not feasible or not advisable to obtain cores from the structure due to structural considerations, payment of the concrete will be made at an adjusted price due to strength deficiency of concrete specimens as specified hereunder:

Deficiency in Strength of Concrete Specimens, Percent (%)	Percent (%) of Contract Price Allowed
Less than 5	100
5 to less than 10	80
10 to less than 15	70
15 to less than 20	60
20 to less than 25	50
25 or more	0

311.3.23 Opening to Traffic

The Engineer will decide when the pavement may be opened to traffic. The road will not be opened to traffic until test specimens molded and cured in accordance with AASHTO T 23 have attained the minimum strength requirements in Subsection 311.2.11. If such tests are not conducted prior to the specified age the pavement shall not be operated to traffic until 14 days after the concrete was placed.Before opening to traffic, the pavement shall be cleaned and joint sealing completed.

311.3.24 Tolerance and Pavement thickness

1. **General**. The thickness of the pavement will be determined by measurement of cores from the completed pavement in accordance with AASHTO T 148.

The completed pavement shall be accepted on a lot basis. A lot shall be considered as 1000 linear meters of pavement when a single traffic lane is poured or 500 linear meters when two lanes are poured concurrently. The last unit in each slab constitutes a lot in itself when its length is at least ½ of the normal lot length. If the length of the last unit is shorter than ½ of the normal lot length, it shall be included in the previous lot.

Other areas such as intersections, entrances, crossovers, ramp, etc., will be grouped together to form a lot. Small irregular areas may be included with other unit areas to form a lot.

Each lot will be divided into five (5) equal segments and one core will be obtained from each segment in accordance with AASHTO T 24.

It is the intent of this Specification that the pavement has a uniform thickness as called for on the Plans for the average of each lot as defined. After the pavement has met all surface smoothness requirements, cores for thickness measurements will be taken.

In calculating the average thickness of the pavement, individual measurements which are in excess of the specified thickness by more than 5 mm will be considered as the specified thickness plus 5 mm and measurement which are less than the specified thickness by more than 25 mm shall not be included in the average.When the average thickness for the lot is deficient, the contract unit price will be adjusted for thickness in accordance with paragraph (3 below).

Individual areas within a segment found deficient in thickness by more than 25 mm shall be evaluated by the Engineer, and if in his judgment, the deficient areas warrant removal, they shall be removed and replaced by the Contractor with pavement of the specified thickness at his entire expense. However, if the evaluation of the Engineer is that the deficient area should not be removed and replaced, such area will not be paid.

When the measurement of any core is less than the specified thickness by more than 25 mm, the actual thickness of the pavement in this area will be determined by taking additional cores at no less than 5 m intervals parallel to the center line in each direction from the affected location until a core is found in each direction, which is not deficient in thickness by more than 25 mm.The area of slab for which no payment will be made shall be the product of the paving width multiplied by the distance along the center line of the road between transverse sections found not deficient in thickness by more than 25 mm. The thickness of the remainder of the segment to be used to get the average thickness of each lot shall be determined by taking the average thickness of additional cores which are not deficient by more than 25 mm.

3. Adjustment for Thickness. When the average thickness of the pavement per lot is deficient, payment for the lot shall be adjusted as follows:

Deficiency in the Average Thickness per lot (mm)		Percent (%) of Contract Price Per Lot
0 – 5		100% payment
6 – 10		95% payment
11 – 15		85% payment
16 – 20		70% payment
21 – 25		50% payment
More than 25		Remove and replace/ No payment

No acceptance and final payment shall be made on completed pavement unless core test for thickness determination is conducted, except for Barangay Roads where the implementing office is allowed to waive such test.

311.4 Method of Measurement

The area to be paid for under this Item shall be the number of square meters (m^2) of concrete pavement placed and accepted in the completed pavement. The width for measurements will be the width from outside edge to outside edge of completed pavement as placed in accordance with the Plans or as otherwise required by the Engineer in writing. The length will be measured horizontally along the center line of each roadway or ramp. Any curb and gutter placed shall not be included in the area of concrete pavement measured.

311.5 Basis of Payment

The accepted quantity, measured as prescribed in Section 311.4, shall be paid for at the contract unit price for Portland Cement Concrete Pavement, which price and payment shall be full compensation for preparation of roadbed and finishing of shoulders, unless otherwise provided by the Special Provisions, furnishing all materials, for mixing, placing, finishing and curing all concrete, for furnishing and placing all joint materials, for sawing weakened plane joints, for fitting the prefabricated center metal joint, for facilitating and controlling traffic, and for furnishing all labor, equipment, tools and incidentals necessary to complete the Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
311 (1)	PCC Pavement (Plain)	Square meter
311 (2)	PCC Pavement (Reinforced)	Square meter

Section VII. Drawings

[Insert here a list of Drawings. The actual Drawings, including site plans, should be attached to this section, or annexed in a separate folder.]

Section VIII. Bill of Quantities

Bill of Quantities, Summary of Bid Proposal & Detailed Estimate should be submitted together with the Annex "C" Form 4 to 7 in pages 552 to 555.

Non-attachment of Annex "C" Form 1 to 7 shall be automatically disqualified.

{ATTACH COMPANY LETTERHEAD/LOGO}

B I L L O F Q U A N T I T I E S

PROJECT: SIARGAO AIRPORT DEVELOPMENT PROJECT
LOCATION: Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte

ITEM NO.	DESCRIPTION OF WORK	QUANTITY	UNIT	UNIT PRICE (Pesos)	AMOUNT (Pesos)
SPL-1	**MOBILIZATION & DEMOBILIZATION**	1.00	lot		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
A	**CONSTRUCTION OF PASSENGER TERMINAL BUILDING AND CANOPY**				
1.00	SITE WORKS	1,685.00	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	CIVIL/ STRUCTURAL WORKS				
2.01	Concrete Works	559.96	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works (including ACP system)	61,665.94	kgs		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.03	Roofing Works	2,580.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.00	ARCHITECTURAL WORKS				
3.01	Tile Works	2,543.19	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

3.02	Masonry Works	1,339.56	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.03	Carpentry Works				
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.03.01	Ceiling Board	2,260.78	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.03.02	Dry Wall Partion	29.26	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.04	Painting Works				
3.04.01	Exterior and Interior Wall (including column & stairs)	1,339.59	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.04.02	Ceiling Board				
3.04.02.01	Ficem Board Ceiling	1,237.89	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.04.03	Dry Wall Partition	29.26	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.04.04	Waterproofing Paint (@ Mezzanine Floor CR)	22.53	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

3.05	Doors and Windows				
3.05.01	Doors	60.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05.02	Windows	41.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.06	Miscellaneous Works				
3.06.01	Signages	33.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.06.02	Vertical Garden Wall	61.00	sq.m		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.00	ELECTRICAL WORKS				
4.01	Lighting Fixtures	551.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.02	Wiring Devices and Boxes	953.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.03	Wires & Conduits	8,230.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.04	Panel Board and Circuit Breaker	15.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

4.05	Structured Cabling System	29.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.06	Grounding System	222.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.07	VRF System				
4.07.01	Lighting Fixtures	1.00	set		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.07.02	Wiring Devices and Boxes	1.00	set		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.07.03	Wires & Conduits	712.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.07.04	Panel Board and Circuit Breaker	2.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.07.05	Transformers & Other Accessories	1.00	set		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.07.06	Grounding System	68.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

4.08	CCTV System	54.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.09	BGMPA	21.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.10	Termination Accessories	1.00	lot		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
5.00	MECHANICAL WORKS				
5.01	Air-Conditioning Unit and Piping System	1,315.30	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
5.02	Ventilation System	162.95	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.00	PLUMBING WORKS				
6.01	Storm Drainage Line	471.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.02	Waste Waterlines	528.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.03	Water Lines	244.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

6.04	Catch Basin	24.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.05	Septic Tank	75.00	sq.m		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.06	Fixtures	1.00	lot		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
7.00	FURNITURE	64.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
B	**CONSTRUCTION OF ADMINISTRATIVE BUILDING**				
1.00	SITE WORKS	435.50	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	CIVIL/STRUCTURAL WORKS				
2.01	Concrete Works	91.64	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works	1,869.23	kgs		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.03	Roofing Works	423.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

3.00	ARCHITECTURAL WORKS				
3.01	Tile Works	351.96	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.02	Masonry Works	538.73	sq.m		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.03	Carpentry Works				
3.03.01	Ceiling Board				
3.03.01.01	Acoustic Ceiling Board	169.83	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.03.01.02	Gypsum Ceiling Board	23.17	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.03.01.03	Fiber Cement Ceiling Board	178.74	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.04	Painting Works				
3.04.01	Exterior and Interior Wall	455.56	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.04.02	Ceiling Board				
3.04.02.01	Ficem Board Ceiling (including Plain Cement Finish)	178.74	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

3.04.02.02	Gypsum Board Ceiling	23.17	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05	Doors & Windows				
3.05.01	Doors	12.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05.02	Windows	17.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.06	Miscellaneous Works				
3.06.03	Landscape	6.00	cu.m		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.00	ELECTRICAL WORKS				
4.01	Lighting Fixtures	89.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.02	Wiring Devices and Boxes	245.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.03	Wires & Conduits	1,188.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.04	Panel Board and Circuit Breaker	3.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

4.05	Structured Cabling System	15.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.06	Grounding System	80.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.10	Termination Accessories	1.00	lot		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
5.00	MECHANICAL WORKS				
5.01	Air Conditioning and Piping System	136.79	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
5.02	Ventilation System	23.26	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.00	PLUMBING WORKS				
6.01	Storm Drainage Line	63.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.02	Waste Water Lines	150.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.03	Water Lines	52.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

6.04	Catch Basin	26.40	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.05	Septic Tank	25.73	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.06	Fixtures	17.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
C	**CONSTRUCTION OF POWER HOUSE**				
1.00	SITE WORKS	86.00	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	CIVIL/STRUCTURAL WORKS				
2.01	Concrete Works	45.32	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works	442.64	kgs		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.03	Roofing Works	84.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.00	ARCHITECTURAL WORKS				
3.02	Masonry Works	98.81	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

3.04	Painting Works				
3.04.01	Exterior and Interior Wall	111.66	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05	Doors & Windows				
3.05.01	Doors	3.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05.02	Windows	3.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.00	ELECTRICAL WORKS				
4.01	Lighting Fixtures	43.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.02	Wiring Devices and Boxes	119.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.03	Wires & Conduits	3,240.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.04	Panel Board and Circuit Breaker	8.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.06	Grounding System	87.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

4.08	CCTV System	9.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.10	Termination Accessories	1.00	set		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.11	Transformers & Accessories	14.00	set		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.12	Generator & Other Accessories	2.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
5.00	MECHANICAL WORKS				
5.02	Ventilation	2.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.00	PLUMBING WORKS				
6.01	Storm Drainage Line	42.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.04	Catch Basin	4.80	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.07	Area Drain	3.33	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

6.08	Steel Grating	240.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
D	**CONSTRUCTION OF TWO (2) BAY FIRE STATION BUILDING**				
1.00	*SITE WORKS*	71.55	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	*CIVIL/STRUCTURAL WORKS*				
2.01	Concrete Works	54.52	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works	6,394.43	kgs.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.03	Roofing Works	194.58	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.00	*ARCHITECTURAL WORKS*				
3.01	Tile Works	80.92	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.02	Masonry Works	245.74	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.03	Carpentry Works				
3.03.01	Ceiling Works	85.17	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

3.04	Painting Works	695.42	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05	Doors and Windows				
3.05.01	Doors	6.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05.02	Windows	8.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.06	Miscellaneous Works				
3.06.01	Signages	1.00	set		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.00	*ELECTRICAL WORKS*				
4.01	Lighting Fixtures	37.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.02	Wiring Devices and Boxes	120.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.03	Wires and Conduits	1,140.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.04	Panelboard and Circuit Breaker	1.00	set		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

4.10	Termination Accessories	10.00	pcs		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.13	Service Entrance				
4.13.01	Conductors	520.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
4.13.02	Conduits and Fittings	138.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
5.00	*MECHANICAL WORKS*				
5.01	Air Conditioning Unit	2.00	units		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
5.02	Ventilation	1.00	unit		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.00	*PLUMBING WORKS*				
6.01	Storm Drainage Line	42.64	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.02	Waste Waterlines	29.60	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.03	Waterline	37.58	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

6.04	Catch Basin	4.99	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.05	Septic Tank	18.05	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.06	Fixtures	1.00	lot		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
E	**CONSTRUCTION OF STORAGE BUILDING**				
1.00	SITE WORKS	24.00	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	CIVIL/ STRUCTURAL WORKS				
2.01	Concrete Works	11.80	m^3		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works	730.07	kgs.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.03	Roofing Works	36.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.00	*ARCHITECTURAL WORKS*				
3.02	Masonry Works	94.23	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

3.03	Carpentry Works	36.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.04	Painting Works	234.37	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05	Doors & Windows	3.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.00	*PLUMBING WORKS*				
6.01	Storm Drainage Line	21.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.04	Catch Basin	3.74	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
F	**CONSTRUCTION OF K-9 BUILDING**				
1.00	SITE WORKS	27.00	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	CIVIL/STRUCTURAL WORKS				
2.01	Concrete Works	6.92	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works	372.81	kgs		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

2.03	Roofing Works	32.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.00	ARCHITECTURAL WORKS				
3.02	Masonry Works	55.60	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.03	Carpentry Works				
3.03.01	Ceiling Works	27.04	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.04	Painting Works				
3.04.01	Exterior, Interior Wall, Ceiling	63.44	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05	Doors & Windows	6.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.00	PLUMBING WORKS				
6.01	Storm Drainage Line	21.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.03	Water Lines	8.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.04	Catch Basin	3.74	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

6.05	Septic Tank	12.06	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
G	**CONSTRUCTION OF MATERIAL RECOVERY FACILITY**				
1.00	SITE WORKS	38.50	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	CIVIL/ STRUCTURAL WORKS				
2.01	Concrete Works	12.15	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works	253.69	kgs		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.03	Roofing Works	42.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.00	ARCHITECTURAL WORKS				
3.01	Tile Works	27.60	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.02	Masonry Works	122.06	sq.m		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.03	Carpentry Works				
3.03.01	Ceiling Board				
3.03.01.01	Fiber Cement Board Ceiling	36.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

3.04	Painting Works				
3.04.01	Exterior and Interior Wall	213.88	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.04.02	Ceiling Board	36.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05	Doors & Windows				
3.05.01	Doors	4.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05.02	Windows	4.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.00	PLUMBING WORKS				
6.01	Storm Drainage Line	9.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.02	Waste Water Lines	12.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.03	Water Lines	20.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.04	Catch Basin	4.80	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

6.05	Septic Tank	12.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.06	Fixtures	4.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
H	**PROPOSED CONSTRUCTION OF GUARD HOUSE**				
1.00	*SITE WORKS*	22.00	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	*CIVIL/ STRUCTURAL WORKS*				
2.01	Concrete Works	6.04	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works	841.44	kgs.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.03	Roofing Works	20.47	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.00	*ARCHITECTURAL WORKS*				
3.01	Tile Works	25.15	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.02	Masonry Works	58.33	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

3.03	Carpentry Works	28.00	sq.m		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.04	Painting Works	80.08	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05	Doors & Windows	7.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.00	*PLUMBING WORKS*				
6.01	Storm Drainage Line	17.36	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.02	Waste Waterlines	15.29	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.03	Waterline	10.82	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.04	Catch Basin	3.74	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.05	Septic Tank	12.06	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

6.06	Fixtures	1.00	lot		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
I	**CONSTRUCTION OF SECURITY POST**				
1.00	*SITE WORKS*	9.00	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	*CIVIL/ STRUCTURAL WORKS*				
2.01	Concrete Works	5.02	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.04	Aluminum Composite Panel (Cladding)	9.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.05	Waterproofing Works	4.80	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.00	*ARCHITECTURAL WORKS*				
3.01	Tile Works	8.55	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.02	Masonry Works	24.94	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.03	Carpentry Works	8.50	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

3.04	Painting Works	20.51	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.05	Doors & Windows	7.00	sets		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.00	*PLUMBING WORKS*				
6.01	Storm Drainage Line	6.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.02	Waste Waterline	12.64	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.03	Waterline	8.10	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.06	Fixtures	1.00	lot		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
J.	**CONSTRUCTION OF WATER TANK**				
1.00	*SITE WORKS*	10.00	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	*CIVIL/ STRUCTURAL WORKS*				
2.01	Concrete Works	11.28	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

6.00	*PLUMBING WORKS*				
6.04	Catch Basin	1.25	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.07	Pipes & Fittings	10.97	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.08	Modular Tank	1.00	unit		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
6.09	Pumps	2.00	units		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
K.	**CONSTRUCTION OF VRF AREA**				
2.00	CIVIL/STRUCTURAL WORKS				
2.01	Concrete Works	4.20	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works	274.42	kgs		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
L.	**CONCRETING OF VEHICULAR PARKING AREA**				
100	Clearing and Grubbing	5,480.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
102	Excavation and Disposal	111.35	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

104	Embankment	3,883.40	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
105	Sub-Grade Preparation (150mm thk)	578.55	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
201.2	Aggregate Base Course (250mm thk.)	1,107.54	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
311	Portland Cement Concrete Pavement	5,904.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
7	Miscellaneous Works	1.00	lot		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
M.	**CONCRETING OF GROUND SERVICE AREA**				
100	Clearing and Grubbing	3,996.75	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
102	Excavation and Disposal	115.00	cu.m		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
104	Embankment	1,174.74	cu.m		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

105	Sub-Grade Preparation (150mm thk)	388.32	cu.m		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
201.2	Aggregate Base Course (250mm thk.)	1,029.43	cu.m		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
311	Portland Cement Concrete Pavement	2,589.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
N.	**EXPANSION OF APRON**				
100	Clearing and Grubbing	31,948.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
101	Removal of Existing Structure and Obstruction	6,480.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
102	Excavation and Disposal	8,397.40	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
104	Embankment	23,882.27	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
105	Sub-Grade Preparation (150mm thk)	972.00	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

201.2	Aggregate Base Course (250mm thk.)	1,620.00	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
311	Portland Cement Concrete Pavement	6,480.00	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
O.	**DRAINAGE SYSTEM**				
1.00	*SITE WORKS*	2,951.42	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	*CIVIL/ STRUCTURAL WORKS*				
2.01	Concrete Works	58.46	cu.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works	2,100.43	kgs.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.00	*ARCHITECTURAL WORKS*				
3.02	Masonry Works	1,196.03	sq.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
8.00	RCPC WORKS	855.00	li.m.		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

P.	**CONSTRUCTION OF PERIMETER FENCE**				
I	**CONSTRUCTION OF CHB FENCE**				
1.00	*SITE WORKS*	35.00	bays		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	*CIVIL/ STRUCTURAL WORKS*				
2.01	Concrete Works	35.00	bays		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works	35.00	bays		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
3.00	*ARCHITECTURAL WORKS*				
3.02	Masonry Works	35.00	bays		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
II	**CONSTRUCTION OF SECURITY FENCE W/ GATE**				
1.00	*SITE WORKS*	128.00	bays		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.00	*CIVIL/ STRUCTURAL WORKS*				
2.01	Concrete Works	128.00	bays		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
2.02	Steel Works	128.00	bays		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				

3.00	*ARCHITECTURAL WORKS*				
3.02	*Masonry Works*	128.00	bays		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
SPL-2	**TEMPORARY FACILITY**	1.00	lot		
	Pesos_____ Amount in Words _____ _____and_____ _____ centavos				
TOTAL AMOUNT					

TOTAL BID AMOUNT (Php) _____

TOTAL BID AMOUNT IN WORDS _____

_____

_____

Signature: _____

Printed Name: _____

Position: _____

Name Company: _____

Date: _____

{ATTACH COMPANY LETTERHEAD/LOGO}

SUMMARY OF BID PROPOSAL

PROJECT: SIARGAO AIRPORT DEVELOPMENT PROJECT
LOCATION: Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte

ITEM NO.	DESCRIPTION OF WORK	QUANTITY	UNIT	ESTIMATED DIRECT COST	MARK-UPS IN PERCENT		TOTAL MARK-UP		VAT	TOTAL INDIRECT COST	TOTAL COST	UNIT COST
					OCM	Profit	%	VALUE				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9) (5) x (8)	(10) 5%[(5) + (9)]	(11) (9) + (10)	(12) (5) + (11)	(13) (12)/(3)
SPL-1	**MOBILIZATION & DEMOBILIZATION**	1.00	lot									
A	**CONSTRUCTION OF PASSENGER TERMINAL BUILDING AND CANOPY**											
1.00	SITE WORKS	1,685.00	cu.m.									
2.00	CIVIL/ STRUCTURAL WORKS											
2.01	Concrete Works	559.96	cu.m.									
2.02	Steel Works (including ACP system)	61665.94	kgs									
2.03	Roofing Works	2580.00	li.m.									
3.00	ARCHITECTURAL WORKS											
3.01	Tile Works	2543.19	sq.m.									
3.02	Masonry Works	1339.56	sq.m.									
3.03	Carpentry Works											
3.03.01	Ceiling Board	2260.78	sq.m.									
3.03.02	Dry Wall Partion	29.26	sq.m.									
3.04	Painting Works											
3.04.01	Exterior and Interior Wall (including column & stairs)	1339.59	sq.m.									
3.04.02	Ceiling Board											
3.04.02.01	Ficem Board Ceiling	1237.89	sq.m.									
3.04.03	Dry Wall Partition	29.26	sq.m.									
3.04.04	Waterproofing Paint (@ Mezzanine Floor CR)	22.53	sq.m.									
3.05	Doors and Windows											
3.05.01	Doors	60.00	sets									
3.05.02	Windows	41.00	sets									
3.06	Miscellaneous Works											
3.06.01	Signages	33.00	sets									
3.06.02	Vertical Garden Wall	61.00	sq.m									
4.00	ELECTRICAL WORKS											
4.01	Lighting Fixtures	551.00	sets									
4.02	Wiring Devices and Boxes	953.00	sets									
4.03	Wires & Conduits	8230.00	li.m.									
4.04	Panel Board and Circuit Breaker	15.00	sets									

4.05	Structured Cabling System	29.00	sets									
4.06	Grounding System	222.00	li.m.									
4.07	VRF System											
4.07.01	Lighting Fixtures	1.00	set									
4.07.02	Wiring Devices and Boxes	1.00	set									
4.07.03	Wires & Conduits	712.00	li.m.									
4.07.04	Panel Board and Circuit Breaker	2.00	sets									
4.07.05	Transformers & Other Accessories	1.00	set									
4.07.06	Grounding System	68.00	li.m.									
4.08	CCTV System	54.00	sets									
4.09	BGMPA	21.00	sets									
4.10	Termination Accessories	1.00	lot									
5.00	MECHANICAL WORKS											
5.01	Air-Conditioning Unit and Piping System	1315.30	sq.m.									
5.02	Ventilation System	162.95	sq.m.									
6.00	PLUMBING WORKS											
6.01	Storm Drainage Line	471.00	li.m.									
6.02	Waste Waterlines	528.00	li.m.									
6.03	Water Lines	244.00	li.m.									
6.04	Catch Basin	24.00	sq.m.									
6.05	Septic Tank	75.00	sq.m									
6.06	Fixtures	1.00	lot									
7.00	FURNITURE	64.00	sets									
B	**CONSTRUCTION OF ADMINISTRATIVE BUILDING**											
1.00	SITE WORKS	435.50	cu.m.									
2.00	CIVIL/STRUCTURAL WORKS											
2.01	Concrete Works	91.64	cu.m.									
2.02	Steel Works	1,869.23	kgs									
2.03	Roofing Works	423.00	li.m.									
3.00	ARCHITECTURAL WORKS											
3.01	Tile Works	351.96	sq.m.									
3.02	Masonry Works	538.73	sq.m									
3.03	Carpentry Works											
3.03.01	Ceiling Board											
3.03.01.01	Acoustic Ceiling Board	169.83	sq.m.									
3.03.01.02	Gypsum Ceiling Board	23.17	sq.m.									
3.03.01.03	Fiber Cement Ceiling Board	178.74	sq.m.									
3.04	Painting Works											
3.04.01	Exterior and Interior Wall	455.56	sq.m.									
3.04.02	Ceiling Board											
3.04.02.01	Ficem Board Ceiling (including Plain Cement Finish)	178.74	sq.m.									
3.04.02.02	Gypsum Board Ceiling	23.17	sq.m.									
3.05	Doors & Windows											
3.05.01	Doors	12.00	sets									
3.05.02	Windows	17.00	sets									
3.06	Miscellaneous Works											
3.06.03	Landscape	6.00	cu.m									

4.00	ELECTRICAL WORKS											
4.01	Lighting Fixtures	89.00	sets									
4.02	Wiring Devices and Boxes	245.00	sets									
4.03	Wires & Conduits	1,188.00	li.m.									
4.04	Panel Board and Circuit Breaker	3.00	sets									
4.05	Structured Cabling System	15.00	sets									
4.06	Grounding System	80.00	li.m.									
4.10	Termination Accessories	1.00	lot									
5.00	MECHANICAL WORKS											
5.01	Air Conditioning and Piping System	136.79	sq.m.									
5.02	Ventilation System	23.26	sq.m.									
6.00	PLUMBING WORKS											
6.01	Storm Drainage Line	63.00	li.m.									
6.02	Waste Water Lines	150.00	li.m.									
6.03	Water Lines	52.00	li.m.									
6.04	Catch Basin	26.40	sq.m.									
6.05	Septic Tank	25.73	sq.m.									
6.06	Fixtures	17.00	sets									
C	**CONSTRUCTION OF POWER HOUSE**											
1.00	SITE WORKS	86.00	cu.m.									
2.00	CIVIL/STRUCTURAL WORKS											
2.01	Concrete Works	45.32	cu.m.									
2.02	Steel Works	442.64	kgs									
2.03	Roofing Works	84.00	li.m.									
3.00	ARCHITECTURAL WORKS											
3.02	Masonry Works	98.81	sq.m.									
3.04	Painting Works											
3.04.01	Exterior and Interior Wall	111.66	sq.m.									
3.05	Doors & Windows											
3.05.01	Doors	3.00	sets									
3.05.02	Windows	3.00	sets									
4.00	ELECTRICAL WORKS											
4.01	Lighting Fixtures	43.00	sets									
4.02	Wiring Devices and Boxes	119.00	sets									
4.03	Wires & Conduits	3,240.00	li.m.									
4.04	Panel Board and Circuit Breaker	8.00	sets									
4.06	Grounding System	87.00	li.m.									
4.08	CCTV System	9.00	sets									
4.10	Termination Accessories	1.00	ls									
4.11	Transformers & Accessories	14.00	set									
4.12	Generator & Other Accessories	2.00	sets									
5.00	MECHANICAL WORKS											
5.02	Ventilation	2.00	sets									

6.00	PLUMBING WORKS											
6.01	Storm Drainage Line	42.00	li.m.									
6.04	Catch Basin	4.80	sq.m.									
6.07	Area Drain	3.33	sq.m.									
6.08	Steel Grating	240.00	li.m.									
D	**CONSTRUCTION OF TWO (2) BAY FIRE STATION BUILDING**											
1.00	*SITE WORKS*	71.55	cu.m.									
2.00	*CIVIL/STRUCTURAL WORKS*											
2.01	Concrete Works	54.52	cu.m.									
2.02	Steel Works	6394.43	kgs.									
2.03	Roofing Works	194.58	sq.m.									
3.00	*ARCHITECTURAL WORKS*											
3.01	Tile Works	80.92	sq.m.									
3.02	Masonry Works	245.74	sq.m.									
3.03	Carpentry Works											
3.03.01	Ceiling Works	85.17	sq.m.									
3.04	Painting Works	695.42	sq.m.									
3.05	Doors and Windows											
3.05.01	Doors	6.00	sets									
3.05.02	Windows	8.00	sets									
3.06	Miscellaneous Works											
3.06.01	Signages	1.00	set									
4.00	*ELECTRICAL WORKS*											
4.01	Lighting Fixtures	37.00	sets									
4.02	Wiring Devices and Boxes	120.00	sets									
4.03	Wires and Conduits	1140.00	li.m.									
4.04	Panelboard and Circuit Breaker	1.00	set									
4.10	Termination Accessories	10.00	pcs									
4.13	Service Entrance											
4.13.01	Conductors	520.00	li.m.									
4.13.02	Conduits and Fittings	138.00	li.m.									
5.00	*MECHANICAL WORKS*											
5.01	Air Conditioning Unit	2.00	units									
5.02	Ventilation	1.00	unit									
6.00	*PLUMBING WORKS*											
6.01	Storm Drainage Line	42.64	li.m.									
6.02	Waste Waterlines	29.60	li.m.									
6.03	Waterline	37.58	li.m.									
6.04	Catch Basin	4.99	sq.m.									
6.05	Septic Tank	18.05	sq.m.									
6.06	Fixtures	1.00	lot									

E	**CONSTRUCTION OF STORAGE BUILDING**											
1.00	SITE WORKS	24.00	cu.m.									
2.00	CIVIL/ STRUCTURAL WORKS											
2.01	Concrete Works	11.80	m^3									
2.02	Steel Works	730.07	kgs.									
2.03	Roofing Works	36.00	sq.m.									
3.00	*ARCHITECTURAL WORKS*											
3.02	Masonry Works	94.23	sq.m.									
3.03	Carpentry Works	36.00	sq.m.									
3.04	Painting Works	234.37	sq.m.									
3.05	Doors & Windows	3.00	sets									
6.00	*PLUMBING WORKS*											
6.01	Storm Drainage Line	21.00	li.m.									
6.04	Catch Basin	3.74	sq.m.									
F	**CONSTRUCTION OF K-9 BUILDING**											
1.00	SITE WORKS	27.00	cu.m.									
2.00	CIVIL/STRUCTURAL WORKS											
2.01	Concrete Works	6.92	cu.m.									
2.02	Steel Works	372.81	kgs									
2.03	Roofing Works	32.00	li.m.									
3.00	ARCHITECTURAL WORKS											
3.02	Masonry Works	55.60	sq.m.									
3.03	Carpentry Works											
3.03.01	Ceiling Works	27.04	sq.m.									
3.04	Painting Works											
3.04.01	Exterior, Interior Wall, Ceiling	63.44	sq.m.									
3.05	Doors & Windows	6.00	sets									
6.00	PLUMBING WORKS											
6.01	Storm Drainage Line	21.00	li.m.									
6.03	Water Lines	8.00	li.m.									
6.04	Catch Basin	3.74	sq.m.									
6.05	Septic Tank	12.06	sq.m.									
G	**CONSTRUCTION OF MATERIAL RECOVERY FACILITY**											
1.00	SITE WORKS	38.50	cu.m.									
2.00	CIVIL/ STRUCTURAL WORKS											
2.01	Concrete Works	12.15	cu.m.									
2.02	Steel Works	253.69	kgs									
2.03	Roofing Works	42.00	li.m.									
3.00	ARCHITECTURAL WORKS											
3.01	Tile Works	27.60	sq.m.									
3.02	Masonry Works	122.06	sq.m									
3.03	Carpentry Works											
3.03.01	Ceiling Board											
3.03.01.01	Fiber Cement Board Ceiling	36.00	sq.m.									

3.04	Painting Works											
3.04.01	Exterior and Interior Wall	213.88	sq.m.									
3.04.02	Ceiling Board	36.00	sq.m.									
3.05	Doors & Windows											
3.05.01	Doors	4.00	sets									
3.05.02	Windows	4.00	sets									
6.00	PLUMBING WORKS											
6.01	Storm Drainage Line	9.00	li.m.									
6.02	Waste Water Lines	12.00	li.m.									
6.03	Water Lines	20.00	li.m.									
6.04	Catch Basin	4.80	sq.m.									
6.05	Septic Tank	12.00	sq.m.									
6.06	Fixtures	4.00	sets									
H	**PROPOSED CONSTRUCTION OF GUARD HOUSE**											
1.00	*SITE WORKS*	22.00	cu.m.									
2.00	*CIVIL/ STRUCTURAL WORKS*											
2.01	Concrete Works	6.04	cu.m.									
2.02	Steel Works	841.44	kgs.									
2.03	Roofing Works	20.47	sq.m.									
3.00	*ARCHITECTURAL WORKS*											
3.01	Tile Works	25.15	sq.m.									
3.02	Masonry Works	58.33	sq.m.									
3.03	Carpentry Works	28.00	sq.m									
3.04	Painting Works	80.08	sq.m.									
3.05	Doors & Windows	7.00	sets									
6.00	*PLUMBING WORKS*											
6.01	Storm Drainage Line	17.36	li.m.									
6.02	Waste Waterlines	15.29	li.m.									
6.03	Waterline	10.82	li.m.									
6.04	Catch Basin	3.74	sq.m.									
6.05	Septic Tank	12.06	sq.m.									
6.06	Fixtures	1.00	lot									
I	**CONSTRUCTION OF SECURITY POST**											
1.00	*SITE WORKS*	9.00	cu.m.									
2.00	*CIVIL/ STRUCTURAL WORKS*											
2.01	Concrete Works	5.02	cu.m.									
2.04	Aluminum Composite Panel (Cladding)	9.00	sq.m.									
2.05	Waterproofing Works	4.80	sq.m.									
3.00	*ARCHITECTURAL WORKS*											
3.01	Tile Works	8.55	sq.m.									
3.02	Masonry Works	24.94	sq.m.									
3.03	Carpentry Works	8.50	sq.m.									

3.04	Painting Works	20.51	sq.m.									
3.05	Doors & Windows	7.00	sets									
6.00	*PLUMBING WORKS*											
6.01	Storm Drainage Line	6.00	li.m.									
6.02	Waste Waterline	12.64	li.m.									
6.03	Waterline	8.10	li.m.									
6.06	Fixtures	1.00	lot									
J.	**CONSTRUCTION OF WATER TANK**											
1.00	*SITE WORKS*	10.00	cu.m.									
2.00	*CIVIL/ STRUCTURAL WORKS*											
2.01	Concrete Works	11.28	cu.m.									
6.00	*PLUMBING WORKS*											
6.04	Catch Basin	1.25	sq.m.									
6.07	Pipes & Fittings	10.97	li.m.									
6.08	Modular Tank	1.00	unit									
6.09	Pumps	2.00	units									
K.	**CONSTRUCTION OF VRF AREA**											
2.00	CIVIL/STRUCTURAL WORKS											
2.01	Concrete Works	4.20	cu.m.									
2.02	Steel Works	274.42	kgs									
L.	**CONCRETING OF VEHICULAR PARKING AREA**											
100	Clearing and Grubbing	5,480.00	sq.m.									
102	Excavation and Disposal	111.35	cu.m.									
104	Embankment	3,883.40	cu.m.									
105	Sub-Grade Preparation (150mm thk)	578.55	cu.m.									
201.2	Aggregate Base Course (250mm thk.)	1,107.54	cu.m.									
311	Portland Cement Concrete Pavement	5,904.00	sq.m.									
7	Miscellaneous Works	1.00	lot									
M.	**CONCRETING OF GROUND SERVICE AREA**											
100	Clearing and Grubbing	3,996.75	sq.m.									
102	Excavation and Disposal	115.00	cu.m									
104	Embankment	1,174.74	cu.m									
105	Sub-Grade Preparation (150mm thk)	388.32	cu.m									
201.2	Aggregate Base Course (250mm thk.)	1,029.43	cu.m									
311	Portland Cement Concrete Pavement	2,589.00	sq.m.									
N.	**EXPANSION OF APRON**											
100	Clearing and Grubbing	31,948.00	sq.m.									
101	Removal of Existing Structure and Obstruction	6,480.00	sq.m.									
102	Excavation and Disposal	8,397.40	cu.m.									
104	Embankment	23,882.27	cu.m.									
105	Sub-Grade Preparation (150mm thk)	972.00	cu.m.									
201.2	Aggregate Base Course (250mm thk.)	1,620.00	cu.m.									
311	Portland Cement Concrete Pavement	6,480.00	sq.m.									

O.	**DRAINAGE SYSTEM**											
1.00	*SITE WORKS*	2,951.42	cu.m.									
2.00	*CIVIL/ STRUCTURAL WORKS*											
2.01	Concrete Works	58.46	cu.m.									
2.02	Steel Works	2,100.43	kgs.									
3.00	*ARCHITECTURAL WORKS*											
3.02	Masonry Works	1,196.03	sq.m.									
8.00	RCPC WORKS	855.00	li.m.									
P.	**CONSTRUCTION OF PERIMETER FENCE**											
I	**CONSTRUCTION OF CHB FENCE**											
1.00	*SITE WORKS*	35.00	bays									
2.00	*CIVIL/ STRUCTURAL WORKS*											
2.01	Concrete Works	35.00	bays									
2.02	Steel Works	35.00	bays									
3.00	*ARCHITECTURAL WORKS*											
3.02	Masonry Works	35.00	bays									
II	**CONSTRUCTION OF SECURITY FENCE W/ GATE**											
1.00	*SITE WORKS*	128.00	bays									
2.00	*CIVIL/ STRUCTURAL WORKS*											
2.01	Concrete Works	128.00	bays									
2.02	Steel Works	128.00	bays									
3.00	*ARCHITECTURAL WORKS*											
3.02	*Masonry Works*	128.00	bays									
SPL-2	**TEMPORARY FACILITY**	1.00	lot									
TOTAL AMOUNT												

Submitted by:

Signature: _____

Printed Name: _____

Position: _____

Name Company: _____

Date: _____

NAME OF PROJECT	:	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
LOCATION	:	**Siargao Airport**			
	:	Brgy. Sayak, Del Carmen, Siargao Island, Surigao Del Nort		QUANTITY	UNIT
SUBJECT	:	**Bill of Quantities & Cost Estimates**		1.00	lot

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
SPL-1	**Mobilization and Demobilization**				
C	**Equipment** Backhoe (0.5cu.m.), Dumptruck (9cu.m.), Plate Compactor(1T) Water Tank Truck(4000L), Improvised Concrete Batching Plant (70cu.m/day), Transit Mixer(7cu.m.), Concrete Vibrator, Electric Bar Cutter, Electric Bar Bender, Water Truck (1000gals.), One-Bagger Concrete Mixer, Welding Machine(300A-400A), Angle Grinder, Electric Drill, Generator Set(40KVA), Cutting Torch w/ Gauge, Gauge, Portable Cutting Machine, Electric Drill, Bulldozer (165hp), Payloader (1.50cu.m.), Motorized Road Grader (135hp), Vibratory Road Roller (10.1MT), Concrete Screeder (5.5hp), Concrete Diamond Saw (Blade 14"Ø 7.5hp), Bar Cutter (single phase)	# of EQPT	DUR. (DAYS)	RATE/DAY	
			Equipment Cost	. . . . .	
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
	1. OCM (0% of TDC)				
	2. CONTRACTOR's PROFIT (0% of TDC)				
	E. TOTAL OCM & CONTRACTOR's PROFIT				
	F. VALUE ADDED TAX, (VAT) 5.0% of (D + E)				
	G. TOTAL ESTIMATED INDIRECT COST (E + F), P				
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
	TOTAL ESTIMATED COST (D + G), P				
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

NAME OF PROJECT	:	**SIARGAO AIRPORT DEVELOPMENT PROJECT**				
	:	**A. Construction of Passenger Terminal Building and Canopy**				
LOCATION	:	Siargao Airport				
		Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte				
SUBJECT	:	**Bill of Quantities and Cost Estimate**				
					1685	**cu.m.**
ITEM		DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
1.00	**SITE WORKS**					
	Activity included *(labor only)*					
	Excavation (559 cu.m.)					
	Backfill (348 cu.m.)					
	Staking & Lay-out of Structure Lines					
A	**Materials**					
	Gravel Base (3/4")			cu.m.		
	Common Borrow			cu.m.		
	Form Lumber 2" x 3" (Coco)			bd.ft.		
	CWN Assorted			kgs.		
				Material Cost	. . . . .	
B	**Labor**		QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer					
	Construction Foreman					
	Skilled Laborer					
	Common Laborer					
				Labor Cost	. . . . .	
C	**Equipment**		QTY	DUR. (DAYS)	RATE/DAY	
	Backhoe (0.50 cu.m.)					
	Dumptruck (10 cu.m.)					
	Water Tank Truck (4,000 ltrs.)					
	Plate Compactor (1T)					
				Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**					
B	**TOTAL LABOR COST**					
C	**TOTAL EQUIPMENT COST**					
D	**TOTAL DIRECT COST**					
		I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)						
2. CONTRACTOR's PROFIT (0% - 8% of TDC)						
E. TOTAL OCM & PROFIT						
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P						
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit						
TOTAL ESTIMATED COST (D + G), P						
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit						

				559.96	cu.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.01	**Concrete Works**				
A	**Material**				
	Porland Cement		bags		
	Sand		cu.m		
	Gravel (3/4')		cu.m		
	25mm Ø x 6m DRSB, G60		pcs		
	20mm Ø x 6m DRSB, G60		pcs		
	16mm Ø x 6m DRSB, G60		pcs		
	12mm Ø x 6m DRSB, G40		pcs		
	10mm Ø x 6m DRSB, G40		pcs		
	#16 G.I. Tiewire		kgs		
	Formlumber 2" x 2" , Coco *(including staging & scaffoldings)*		bdft		
	½" x 4' x 8' Ord. Plywood		pcs.		
	CWN assorted		kgs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Improvised Concrete Batching Plant (40cu.m./day)				
	Transit Mixer (5 cu.m.)				
	Payloader (1.50 cu.m.)				
	Concrete Vibrator				
			Equipment Cost	. . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				61,665.94	kgs
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.02	**Steel Works** *(including ACP system)*				
A	**Material**				
	100 x 100 x 7.87mm thk x 6.0m Angle Bar		pcs.		
	63.5 x 63.5 x 6.35mm thk x 6.0m Angle Bar		pcs.		
	50 x 50 x 4.76mm thk x 6.0m Angle Bar		pcs.		
	50 x 50 x 6.35mm thk x 6.0m Angle Bar		pcs.		
	50 x 50 x 5mm thk x 6m Angle Bar		pcs.		
	75 x 75 x 6mm thk x 6m Angle Bar		pcs.		
	270mm Ø x 6m G. I. pipe Sched. 40		pcs.		
	LC 150 x 60 x 20 x 1.6mm thk		pcs.		
	LC 150 x 50 x 20 x 1.6mm thk		pcs.		
	Base Plate 4' x 8' x 20mm thk		pcs.		
	Base Plate 4' x 8' x 25mm thk		pcs.		
	4' x 8' x 10mm thk. Stiffener Plate		pc.		
	25mmØ x 500mm A325 Bolt		pcs.		
	20mmØ x 500mm A325 Bolt		pcs.		
	20mmØ x 300mm A325 Bolt		pcs.		
	16mmØ x 200mm A325 bolt		pcs.		
	16mm dia x 6m Round Bar *(cross bracing)*		pcs.		
	12mm dia x 6m Round Bar *(sag rod)*		pcs.		
	16mm dia Std. Turnbuckle		pcs.		
	300mm x 200mm x 5.0mm thk, 6m Rectagular Hollow Bar		pcs.		
	50mm Ø x 6m SS Pipe Sched. 80		pcs.		
	40mm Ø x 6m Steel Plate Sched.60		pcs.		
	25mm x 25mm x 6m Square Bar		pcs.		
	12mm x 12mm x 6m Square Bar		pcs.		
	4mm thk. Aluminum Composite Panel		m²		
	Backer Rod (1/2")		li.m.		
	ACP Silicone Sealant		gals.		
	1 1/2" x 1 1/2" x 6m angle bar		pcs		
	10Ø mm anchor bolt		pcs		
	10Ø mm hex head screw with nuts and washer		pcs		
	Galvanized Wire Mesh 2x2 gauge 8 (1.2m x 30m)		rolls		
	Welding Rod		boxes		
	SS Welding Rod		boxes		
	Oxygen & Acetylene		sets		
	Rust Converter		gals.		
	Epoxy Primer w/ Catalyst		gals.		
	Paint Thinner		gals.		
	Paint Brush 3"		pcs.		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Welding Machine, 200Amp				
	51-100kw Generator Set				
	Oxy- Acetylene Cutting/ Welding Outfit				
			Equipment Cost	.....	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				2,580.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.03	**Roofing Works**				
A	**Material**				
	0.60mm thk Pre-painted (1") Rib-Type Long Span		li.m.		
	0.60mmthk Ridge Roll		li.m.		
	0.60mm thk SS Gutter		li.m.		
	0.60mm Pre-painted G.I. End Flashing		li.m.		
	0.60mm Pre-painted G.I. Flashing		li.m.		
	Tekscrew (12x 75mm)		pcs		
	Type S (12 x 25mm)		pcs		
	Blind Rivets 5-3		pcs		
	Silicone Rubber Sealant		tubes		
	Concrete Nails (1 1/2")		pcs		
	Touch-up paint		cans		
	50m x 1m x 12mm thk. Double Side Aluminum Foam Insulation		rolls		
	1.22m x 26m Welded Wire Mesh		rolls		
	Transparent tape		rolls		
	Blind Rivets 5-6		pcs		
	Straps		pcs		
	1/4" thk fascia board (100mm -150mm)		l.m.		
	Dome Shaped Strainer, 5 1/2"		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				2,543.19	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.01	**Tile Works**				
A	**Material**				
	1000mm x 1000mm Granite Floor Tiles		pcs.		
	600mm x 600mm Granite Floor Tiles		pcs.		
	300mm x 300mm Granite Floor Tiles		pcs.		
	200mm x 200mm Ceramic Floor Tile (Non-Skid)		pcs.		
	20mm thk. Granite Counter top		m²		
	300mm x 600mm Homogenous Wall Tiles		pcs.		
	2" width Aluminum Brass Coated Nosing		li.m.		
	Chlorinated Rubber Based Paint		m²		
	Floor Matting System		m²		
	Portland Cement		bags		
	Sand		cu.m.		
	Tile Adhesive		bags		
	Tile Grout		bags		
	Tile Cutting Disk, 4"		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				1,339.56	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.02	**Masonry Works**				
A	**Material**				
	Portland Cement		bags		
	Sand		cu.m.		
	6" CHB		pcs.		
	4" CHB		pcs.		
	10mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I. Tiewire		kgs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	One Bagger Mixer, 1 cu.m.				
			Equipment Cost	. . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				2,260.78	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.03	**Carpentry Works**				
3.03.01	**Ceiling Board**				
A	**Material**				
	600mm x 600mm Powder Coated Aluminum Ceiling		pcs		
	300mm x 300mm Powder Coated Aluminum Circle Emboss Ceiling		pcs		
	1/4" thk. Fiber Cement Board Ceiling		pcs		
	600mm x 1200mm 20' Pre-Painted Aluminum Spandrel		pcs		
	600mm x 600mm 1/2" thk. Acoustical Panel Board		pcs		
	Main Runner - 3600mm x 24mm x 38mm		pcs		
	Cross Tee - 600mm x 24mm x 25mm		pcs		
	J-furring, 19mm x 50mm x 5.0m t=0.40mm		pcs		
	C-Channel, 12mm x 38mm x 5.0m, t=0.80mm		pcs		
	Wall Angle, 25mm x 25mm x 3.0m, t=0.40m		pcs		
	W-clip, double		pcs		
	Suspension Clip and Hanger Rod		pcs		
	Suspension Clip		pcs		
	Rod Joiner		pcs		
	Steel Angle		pcs		
	Drivepin, nailhead		pcs		
	Hanger Rod #8		pcs		
	Blind Rivets, ⅛ x ⅜ (4-4)		pcs		
	Concrete Nail/kg		kgs		
	Fiber cement Board Screw		pcs.		
	Mesh tape, 2" x 250ft.		pcs		
	Screw		pcs.		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				29.26	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.03	**Carpentry Works**				
A	**Material**				
3.03.02	**Dry Wall Partion**				
	1/4" thk x 4' x 8' Fibercement Board		pcs		
	0.8mmthk x 35mm x 102mm x 3.0m metal studs		pcs		
	0.8mmthk x 35mm x 102mm x 3.0m metal tracks		pcs		
	Screw		pcs.		
	Blind Rivets		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				1339.59	**sq.m.**
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
3.04.01	**Exterior and Interior Wall** *(including column & stairs)*				
A	**Material**				
	Concrete Neutralizer		gals.		
	Flat Latex Paint		gals.		
	Acrytex (Acrylic Solvent Based)		gals.		
	Acrytex (Acrylic Water Based)		gals.		
	Acrytex Reducer		gals.		
	Concrete Putty		gals.		
	Paint Roller 9" w/ Pan		pcs		
	Paint Brush 1 1/2"		pcs		
	Rugs		kgs		
	Sand Paper # 120		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				1237.89	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
3.04.02	**Ceiling Board**				
3.04.02.01	**Ficem Board Ceiling**				
A	**Material**				
	Jointing Compound		bags		
	Flat Latex Paint		gals		
	Semi-gloss Latex Paint		gals		
	Paint Roller 9" with pan		pcs		
	Paint Brush 1 1/2"		pcs		
	Rugs		kgs		
	Sand Paper # 120		pcs		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				29.26	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
3.04.03	**Dry Wall Partition**				
A	**Material**				
	Jointing Compound		bags		
	Flat Latex Paint		gals		
	Semi-Gloss Latex Paint		gals		
	Acri-color		L		
	Paint Roller 9" with pan		pcs		
	Paint Brush 1 1/2"		pcs		
	Rugs		kgs		
	Sand Paper # 120		pcs		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				22.53	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
3.04.04	**Waterproofing Paint** *(@ Mezzanine Floor CR)*				
	Elastomeric Paint		gals		
	Paint Brush 4"		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

					60	sets
ITEM	DESCRIPTION		QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**					
3.05	**Doors and Windows**					
3.05.01	**Doors**					
A	**Materials**					
	D1	1.90m x 2.15m, Double Swing Glass Door in Powder Coated Aluminum Framed with 8mmthk Fixed Tempered Glass Panels	10.00	sets		
	D2	2.40m x 2.15m, Single Swing Glass Door in Powder Coated Aluminum Framed with 8mmthk Fixed Tempered Tinted Glass Panels	2.00	sets		
	D3	1.00m x 2.15m, Single Swing Glass Door in Powder Coated Aluminum Framed with 8mmthk Clear Glass Panels	8.00	sets		
	D4	1.95m x 2.15m, Single Swing Glass Door in Powder Coated Aluminum Framed with 8mmthk Fixed Tempered Tinted Glass Panels	1.00	set		
	D5	0.80m x 2.15m, 40mm thk. Solid Panel Door Type w/ in 2" x 4" KD Door Jambs and Header on PU Paint and w/ Aluminum Kicker Plate Complete Accessories	1.00	set		
	D6	0.90m x 2.15m, 40mm thk. Solid Panel Door Type w/ in 2" x 4" KD Door Jambs and Header on PU Paint and w/ Aluminum Kicker Plate Complete Accessories	10.00	sets		
	D7	0.90m x 2.15m, 40mm thk. Solid Panel Door Type w/ in 2" x 4" KD Door Jambs and Header on PU Paint and w/ Aluminum Kicker Plate Complete Accessories	3.00	sets		
	D8	0.60m x 2.10m , Single Swing Metal Louvered Door w/ Complete Door Accessories	3.00	sets		
	D9	0.60m x 1.80m x 20mmthk Phenolic Board toilet partition w/ complete accessories	16.00	sets		
	D10	0.80m x 2.10m , Single Swing WD Louvered Door with Complete Door Accessories	3.00	sets		
	D11	1.70m x 2.15m, Gauge 0.60mm w/ Manual Operated Silver White Finish Galvanized Aluminum Roll-up Doors and Shutters with Complete Accessories	1.00	set		
	D12	1.50m x 2.15m, Gauge 0.60mm w/ Manual Operated Silver White Finish Galvanized Aluminum Roll-up Doors and Shutters with Complete Accessories	2.00	sets		
				Material Cost	.....	
B	**Labor**		QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer					
	Construction Foreman					
	Skilled Laborer					
	Common Laborer					
				Labor Cost	.....	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
	1. OCM (0% - 8% of TDC)		
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
	E. TOTAL OCM & PROFIT		
	F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
	TOTAL ESTIMATED COST (D + G), P		
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

					41.00	sets
ITEM	DESCRIPTION		QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**					
3.05	**Doors and Windows**					
3.05.02	**Windows**					
A.	**Material**					
	W1	3.05m x 2.60m, Fixed & Transom Window in Powder Coated Paint Finish Aluminum Frame w/ 8mm thk. Tinted Green Float Glass Panel w/ Complete Accessories	2.00	sets		
	W2	4.465m x 2.60m, Fixed & Transom Window in Powder Coated Paint Finish Aluminum Frame w/ 8mm thk. Tinted Green Float Glass Panel w/ Complete Accessories	3.00	sets		
	W3	2.70m x 0.50m, Four (4) Awning Window in Powder Coated Paint Finish Aluminum Frame w/ 8mm thk. Clear Glass Panel w/ Complete Accessories	4.00	sets		
	W4	1.60m x 0.50m, Four (4) Awning Window in Powder Coated Paint Finish Aluminum Frame w/ 8mm thk. Clear Glass Panel w/ Complete Accessories	2.00	sets		
	W5	3.33m x 2.40m, Fixed Window with Powder Coated Paint Finish Aluminum Frame w/ 8mm thk Tinited Green Float Glass Panel w/ Complete Accessories	1.00	set		
	W6	3.33m x 2.40m, Fixed Window with Powder Coated Paint Finish Aluminum Frame w/ 8mm thk Tinited Green Float Glass Panel w/ Complete Accessories	1.00	set		
	W7	5.55m x 1.2-0.638m, Fixed Window with Powder Coated Paint Finish Aluminum Frame w/ 8mm thk Tinited Green Float Glass Panel w/ Complete Accessories	2.00	sets		
	W8	2.349m x 0.58m , Triangular Fixed Window in Powder Coated Paint Finish Aluminum Frame w/ 8mm thk. Tinted Green Float Glass Panel w/ Complete Accessories	2.00	sets		
	W9	5.55m x 1.20-.287m , Triangular Fixed Window in Powder Coated Paint Finish Aluminum Frame w/ 8mm thk. Tinted Green Float Glass Panel w/ Complete Accessories	4.00	sets		
	W10	5.70m x 2.116-1.245m , Triangular Fixed Window in Powder Coated Paint Finish Aluminum Frame w/ 8mm thk. Tinted Green Float Glass Panel w/ Complete Accessories	10.00	sets		
	W11	2.70m x 1.139-0.793m ,Triangular Fixed Window in Powder Coated Paint Finish Aluminum Frame w/ 8mm thk. Tinted Green Float Glass Panel w/ Complete Accessories	8.00	sets		
	W12	5.70m x 1.248-2.116m ,Triangular Fixed Window in Powder Coated Paint Finish Aluminum Frame w/ 8mm thk. Tinted Green Float Glass Panel and Louver Typed Window w/ Complete Accessories	2.00	sets		
				Material Cost	.....	
B	**Labor**		QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer					
	Construction Foreman					
	Skilled Laborer					
	Common Laborer					
				Labor Cost	.....	
A	**TOTAL MATERIAL COST**					
B	**TOTAL LABOR COST**					
D	**TOTAL DIRECT COST**					
	INDIRECT COSTS					
1. OCM (0% - 8% of TDC)						
2. CONTRACTOR's PROFIT (0% - 8% of TDC)						
E. TOTAL OCM & PROFIT						
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P						
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit						
TOTAL ESTIMATED COST (D + G), P						
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit						

				33.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.06	**Miscellaneous Works**				
3.06.01	**Signages**				
A	**Material**				
	Stainless Steel Signage Letters (.80m H x 0.5m W x 6mm thk.) (SIARGAO DOMESTIC AIRPORT)	2.00	sets		
	Clear Non-glare Acrylic; 1mm height raised letters w/ Braille included in sign *(see details)*				
	300mm x 1300mm x 200mm thk *(Departure)*	3.00	sets		
	300mm x 1300mm x 200mm thk *(Arrival Exit)*	2.00	sets		
	300mm x 1300mm x 200mm thk *(Baggage Claim)*	1.00	set		
	300mm x 1300mm x 100mm thk *(VIP Lounge)*	1.00	set		
	300mm x 600mm x 100mm thk *(Toilets)*	3.00	sets		
	300mm x 600mm x 100mm thk *(Nursery)*	1.00	set		
	300mm x 600mm x 100mm thk *(Concession)*	4.00	sets		
	200mm x 200mm x 7.5mm thk *(PWD Toilet)*	3.00	sets		
	300mm Ø x 7.50mm thk *(Female Toilet)*	5.00	sets		
	300mm x 300mm x 7.5mm *(Male Toilet)*	5.00	sets		
	300mm Ø x 7.50mm thk *(Male/Female Toilet)*	2.00	sets		
	300mm x 400mm x 7.5mm thk *(Passengers only sign)*	1.00	set		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
	1. OCM (0% - 8% of TDC)		
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
	E. TOTAL OCM & PROFIT		
	F. VALUE ADDED TAX, (VAT) 5.0% of (D + E)		
	G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
	TOTAL ESTIMATED COST (D + G), P		
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				61.00	sq.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.06	**Miscellaneous Works**				
3.06.02	**Vertical Garden Wall**				
A	**Material**				
	Hanging Wall	61.00	sq.m.		
	Pot and Plants	522.00	sets		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				551.00	sets
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
	(including electrical works for VRF)				
4.01	**Lighting Fixtures**				
A.	**Material**				
	Lighting Fixtures				
	6" diameter recessed type vertical lamp downlight fixture with powde coated white finish steel housing and matte aluminum reflector and full frosted glass cover with 1×11Watts, 1100-Lumen LED bulb	241.00	sets		
	279mm diameter High Bay LED Luminaire, 100-Watts, 10000-Lumen 5000K, IP65, Suspension Mount	76.00	sets		
	1200mm x 75mm Surface Mounted Light Soft Acrylic Type Diffuser with LED 18W 1600-Lumen 6500K	172.00	sets		
	600mm X 600mm LED PANEL LIGHTS 40W 3200 Lm Daylight	36.00	sets		
	LED EXIT LIGHT, 220 VOLTS AC	6.00	sets		
	EMERGENCY LAMP DUAL OPTICS, 2×5WATTS LED BULB	20.00	sets		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				953.00	sets
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.02	**Wiring Devices and Boxes**				
A.	**Material**				
	One-Gang Switch, 16A, 250V, wide series	16.00	sets		
	Two-Gang Switch, 16A, 250V, wide series	29.00	sets		
	Thee-Gang Switch, 16A, 250V, wide series	12.00	sets		
	Duplex Universal Convenience Outlet with Ground, 16A, 250V	71.00	sets		
	Simplex Universal Convenience Outlet with Ground, 16A, 250V	26.00	sets		
	Weatherproof Duplex Universal Outlet with Ground, 16A, 250V	3.00	sets		
	Pop-up floor box with duplex universal outlet with ground with safety shutter and stainless steel finish	8.00	sets		
	Special Purpose Outlet (Scale-Injection Conveyor)	5.00	sets		
	2" x 4" Utility box, GA #16, Deep type		sets		
	4" Junction box w/ cover, GA #16, Deep type		sets		
	Pull Box 6" x 6"		sets		
			Material Cost		
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				8,230.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.03	**Wires & Conduits**				
4.03.01	**Wires**				
A.	**Material**				
	3.5 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		rolls		
	5.5 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		rolls		
	8.0 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		rolls		
	30 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	200 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
			Material Cost	. . . . .	
4.03.02	**Conduits**				
	20mm Ø uPVC Electrical Pipe		pcs		
	25mm Ø uPVC Electrical Pipe		pcs		
	20mm Ø Intermediate Metal Conduit		pcs		
	32mm Ø Intermediate Metal Conduit		pcs		
	80mm Ø Intermediate Metal Conduit		pcs		
	90mm Ø uPVC Electrical Pipe		pcs		
	Fittings and Accessories	1.00	ls		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				15.00	sets
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.04	**Panel Board and Circuit Breaker**				
A.	**Material**				
	MDP:	1.00	set		
	Main: 300 AT, 400AF, 3P, 230V, 60Hz 35KAIC MCCB				
	Branches: 2-100AT, 125AF, 3P, 230V, 60Hz 25KAIC MCCB				
	3-60AT, 125AF, 3P, 230V, 60Hz 25KAIC MCCB				
	3-50AT, 125AF, 3P, 230V, 60Hz 25KAIC MCCB				
	With Grounding Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-1 Gauge 16, Powder coated gray finish				
	MP1	1.00	set		
	Main: 50AT, 100AF, 3P, 460V, 60Hz 25KAIC MCCB				
	Branches: 8-20 AT, 100AF, 3P, 460V, 60Hz 10KAIC MCCB				
	With Grounding Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-1 Gauge 16, Powder coated gray finish				
	MP2	1.00	set		
	Main: 50AT, 125AF, 3P, 230V, 60Hz 25KAIC MCCB				
	Branches: 8-20 AT, 100AF, 2P, 230V, 60Hz 10KAIC MCCB				
	With Grounding Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-1 Gauge 16, Powder coated gray finish				
	AP2	1.00	set		
	Main: 60AT, 100AF, 3P, 230V, 60Hz 25KAIC MCCB				
	Branches: 9-20 AT, 100AF, 2P, 230V, 60Hz 10KAIC MCCB				
	With Grounding Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-1 Gauge 16, Powder coated gray finish				
	AP3	1.00	set		
	Main: 50AT, 100AF, 3P, 230V, 60Hz 25KAIC MCCB				
	Branches: 6-20 AT, 100AF, 2P, 230V, 60Hz 10KAIC MCCB				
	With Grounding Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-1 Gauge 16, Powder coated gray finish				
	PP1	1.00	set		
	Main: 100 AT, 125AF, 125AF, 3P, 230V, 60Hz 25KAIC MCCB				
	Branches: 15-20 AT, 100AF, 2P, 230V, 60Hz 10KAIC MCCB				
	With Grounding Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-1 Gauge 16, Powder coated gray finish				
	LP1	1.00	set		
	Main: 100 AT, 125AF, 125AF, 3P, 230V, 60Hz 25KAIC MCCB				
	Branches: 18-20 AT, 100AF, 2P, 230V, 60Hz 10KAIC MCCB				
	With Grounding Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-1 Gauge 16, Powder coated gray finish				
	LP2	1.00	set		
	Main: 50AT, 100AF, 3P, 230V, 60Hz 25KAIC MCCB				
	Branches: 10-20 AT, 100AF, 2P, 230V, 60Hz 10KAIC MCCB				
	With Grounding Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-1 Gauge 16, Powder coated gray finish				
	Enclosed Circuit Breaker	4.00	sets		
	20 AT, 100AF, 2P, 230V, 60Hz 10KAIC MCCB				
	Wire gutter, 1.5m×0.3m×0.3m, Gauge 16, powder coated gray finish	3.00	sets		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				29.00	sets
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.05	**Structured Cabling System**				
A.	**Material**				
	Optical Network Terminal	3.00	sets		
	2:8 Optical Splitter	2.00	sets		
	2C Fiber optic cable	5.00	sets		
	Cat5e	2.00	rolls		
	DATA & TELEPHONE JACK	8.00	sets		
	Cat5e Face Plate w/ UTP Shield Type	8.00	sets		
	500VA UPS	1.00	set		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				222.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.06	**Grounding System**				
A.	**Material**				
	30 mm² BCW		li.m.		
	20mm diameter × 3m Grounding Rod with Clamp		sets		
	Ground Pit		set		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				1.00	set
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.07	**VRF System**				
4.07.01	**Lighting Fixtures**				
A.	**Material**				
	POLE MOUNTED SECURITY LIGHT (OUTDOOR)	1.00	set		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Master Electrician				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				1.00	set
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.07	**VRF System**				
4.07.02	**Wiring Devices and Boxes**				
A.	**Material**				
	Weather Proof Special Purpose Outlet	1.00	set		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Master Electrician				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				712.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.07	**VRF System**				
4.07.03	**Wires & Conduits**				
A.	**Material**				
	8.0 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	22.0 mm² TTHHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	30.0 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	100 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	200 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	32mm Ø Intermediate Metal Conduit		pcs		
	75mm Ø uPVC Electrical Pipe		pcs		
	65mm Ø Intermediate Metal Conduit		pcs		
	80mm Ø Intermediate Metal Conduit		pcs		
	Fittings and Accessories	1.00	ls		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				2.00	sets
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.07	**VRF System**				
4.07.04	**Panel Board and Circuit Breaker**				
A.	**Material**				
	AP1:	1.00	set		
	Main: 300 AT, 400AF, 125AF, 3P, 400V, 60Hz 35KAIC MCCB				
	Branches: 3-100 AT, 125AF, 3P, 400V, 60Hz 25KAIC MCCB				
	2-80 AT, 125AF, 3P, 400V, 60Hz 25KAIC MCCB				
	With Grounding Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-3R Gauge 16, Pad Mounted				
	Enclosed Circuit Breaker NEMA 3R	1.00	set		
	225 AT, 250AF, 3P, 460V, 60Hz 35KAIC MCCB				
	With Grounding Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-3R Gauge 16, Pad Mounted				
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				1.00	set
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.07	**VRF System**				
4.07.05	**Transformers & Other Accessories**				
A.	**Material**				
	Supply & Installation of 167 KVA, 3Phase, 460V/400V Outdoor Dry Type transformer with complete accessories On Concrete Pad	1.00	set		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				68.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.07	**VRF System**				
4.07.06	**Grounding System**				
A.	**Material**				
	8.0 mm² Bare Copper Wire		li.m.		
	22mm² Bare Copper Wire		li.m.		
	20mm diameter × 3m Grounding Rod with Clamp		sets		
	Ground Pit		set		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				54.00	sets
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.08	**CCTV System**				
A.	**Material**				
	CCTV Camera, Bullet Type	16.00	sets		
	CCTV Camera, Dome Type	22.00	sets		
	CCTV Camera, PTZ	4.00	sets		
	32" LED TV	4.00	sets		
	5 IN 1 16CH DVR	2.00	sets		
	5 IN 1 8CH DVR	2.00	sets		
	2 KVA UPS	1.00	set		
	8 PORT POWER DISTRIBUTION BOX	2.00	sets		
	16 PORT POWER DISTRIBUTION BOX	1.00	set		
	2.0 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		rolls		
	15mm Ø EMT		pcs		
	3.5 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		roll		
	4TB Hard Disk Drive	4.00	sets		
	CAT6		rolls		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				21.00	sets
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.09	**BGMPA**				
A.	**Material**				
	Wall Mounted Speakers (90W Max)	11.00	sets		
	Ceiling Mounted Speakers (90W Max)	4.00	sets		
	Audio Mixer	1.00	set		
	Speaker Amplifier	2.00	sets		
	Public Address Microphone	2.00	sets		
	Media Player	1.00	set		
	16/2 × 150m Speaker Cable		rolls		
	15mm Ø EMT		pcs		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				1.00	lot
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT (P)
4.00	**ELECTRICAL WORKS**				
4.10	**Termination Accessories**				
A.	**Material**				
	Electrical tape, Rubber tape, Clamps, Tox, Mica tube, Coupling, Connector, Elbow, Pullwires, Locknut & Bushing, PVC Solvents, Hanger rods, Hardwares, etc.	1.00	ls		
			Material Cost	. . . . .	
B.	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				1,315.30	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
5.00	**MECHANICAL WORKS**				
5.01	**Air-Conditioning Unit and Piping System**				
A	**Material**				
	VRF INDOOR UNIT				
	FLOOR STANDING, 14.0KW	12.00	sets		
	FLOOR STANDING, 11.2KW	4.00	sets		
	CEILING CASSETTE, 4-WAY, 14.0KW	5.00	sets		
	CEILING CASSETTE, 4-WAY, 11.2KW	2.00	sets		
	WALL MOUNTI	3.00	sets		
	VRF OUTDOOR UNIT				
	HEAT PUMP, 85.0KW	2.00	sets		
	HEAT PUMP, 73.0KW	1.00	set		
	HEAT PUMP, 69.0KW	1.00	set		
	SPLIT TYPE, INVERTER with complete accessories and circuit breaker in NEMA-3R Enclosure				
	WALL MOUNTED, 2.5HP	2.00	sets		
	WALL MOUNTED, 2.0HP	1.00	set		
	WALL MOUNTED, 1.5HP	1.00	set		
	WALL MOUNTED, 1.0HP	3.00	sets		
	Copper Tube Hard Drawn Type-L 1 3/8" x 20'		pcs.		
	Copper Tube Hard Drawn Type-L 3/4" x 20'		pcs.		
	Copper Tube Hard Drawn Type-L 5/8" x 20'		pcs.		
	Copper Tube Hard Drawn Type-L 3/8" x 20'		pcs.		
	Copper Tube 1 3/8" Coupling		pcs.		
	Copper Tube 3/4" Coupling		pcs.		
	Copper Tube 5/8" Coupling		pcs.		
	Copper Tube 3/8" Coupling		pcs.		
	Copper Tube 1 3/8" Elbow		pcs.		
	Copper Tube 3/4" Elbow		pcs.		
	Copper Tube 5/8" Elbow		pcs.		
	Copper Tube 3/8" Elbow		pcs.		
	Rubber Insulation 1 3/8" I.D. 1" Thickness		pcs.		
	Rubber Insulation 3/4" I.D. 1" Thickness		pcs.		
	Rubber Insulation 5/8" I.D. 1" Thickness		pcs.		
	Rubber Insulation 3/8" I.D. 1" Thickness		pcs.		
	Polyethylene Tape		pcs.		
	25 mm PVC x 3m		pcs.		
	25 mm PVC Coupling		pcs.		
	25 mm PVC Elbow		pcs.		
	Angle Bar (1/4" x 2" x20')		pcs.		
	Hanger Rod (threaded) (1/4" x 20')		pcs.		
	Welding Rod		boxes		
	10 lbs. ABC Dry Chemical Portable Fire Extinguisher with complete accessories	22.00	pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Mechanical Engineer				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
	1. OCM (0% - 8% of TDC)	
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				162.95	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
5.00	**MECHANICAL WORKS**				
5.02	**Ventilation System**				
A	**Material**				
	CEILING MOUNTED EXHAUST FAN, 150CFM	20.00	pcs.		
	SIDE WALL MOUNTED EXHAUST FAN, 250CFM	2.00	sets		
	DUCTWORKS		li.m.		
	EXHAUST AIR GRILLE 450mmX350mm	1.00	pc.		
	EXHAUST AIR GRILLE 350mmX350mm	1.00	pc.		
	EXHAUST AIR GRILLE 250mmX250mm	2.00	pcs.		
	BACKDRAFT DAMPER	18.00	pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Mechanical Engineer				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				471.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.01	**Storm Drainage Line**				
A.	**Material**				
	200mmØ x 3m PVC Pipe, Series 1000		pcs.		
	75mmØ x 3m PVC Pipe, Series 1000		pcs.		
	200mmØ PVC Elbow		pcs.		
	75mmØ PVC Elbow		pcs.		
	75mmØ PVC Wye		pcs.		
	75mmØ PVC Tee		pcs.		
	PVC Reducer 200mm dia x 75mm dia		pcs.		
	Solvent cement		gal		
			Materials Cost		
B.	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				528.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.02	**Waste Waterlines**				
A.	**Material**				
	10"Ø x 3m PVC, Series 1000		pcs.		
	6"Ø x 3m PVC, Series 1000		pcs.		
	4"Ø x 3m PVC, Series 1000		pcs.		
	2"Ø x 3m PVC, Series 1000		pcs.		
	6"Ø 45º Wye		pc.		
	4"Ø 45º Wye		pcs.		
	2"Ø 45º Wye		pcs.		
	6"Ø x 4"Ø, 45º Wye Reducer		pcs.		
	4"Ø x 2"Ø, 45º Wye Reducer		pcs.		
	2"Ø Tee		pcs.		
	4"Ø Elbow		pcs.		
	2"Ø Elbow		pcs.		
	6"Ø P-trap		pcs.		
	4"Ø P-trap		pcs.		
	2"Ø P-trap		pcs.		
	6" FCO		pcs.		
	4" FCO		pcs.		
	2" FCO		pcs.		
	Solvent cement		L		
			Materials Cost		
B.	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				244.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.03	**Water Lines**				
A.	**Material**				
	PPR 1-1/4"Ø x 4.0m, PN 20		pcs.		
	PPR 1-1/4"Ø 90° Bend		pc.		
	PPR 1-1/4"Ø T-Elbow		pcs.		
	PPR 3/4"Ø x 4.0m, PN 20		pcs.		
	PPR 3/4"Ø 90° Bend		pcs.		
	PPR 3/4"Ø T-Elbow		pcs.		
	PPR 1/2" x 4.0m, PN 20		pcs.		
	PPR 1/2"Ø 90° Bend		pcs.		
	PPR 1/2"Ø T-Elbow		pcs.		
	Coupling Reducer 1"- 3/4"		pcs.		
	Coupling Reducer 3/4"- 1/2"		pc.		
	Coupling 1-1/4"		pcs.		
	Coupling 3/4"		pcs.		
	Coupling 1/2"		pcs.		
	Check Valve 3/4"		pc.		
	Gate Valve 3/4"		pcs.		
	Teflon tape		rolls		
			Materials Cost		
B.	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				24.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.04	**Catch Basin**				
A.	**Material**				
	4" CHB		pcs.		
	Portland Cement		bags		
	Sand		m^3		
	Gravel (3/4')		m^3		
	10mm Ø x 6m DRSB, G40		pcs.		
	12mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I. Tiewire		kgs.		
	Formlumber 2" x 2" (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pcs.		
	CWN Assorted		kgs.		
			Materials Cost		
B.	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				75.00	sq.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.05	**Septic Tank**				
A.	**Material**				
	6" CHB		pcs.		
	Portland cement		bags		
	Sand		m^3		
	Gravel (3/4')		m^3		
	12 mm Ø x 6m DRSB		pcs.		
	10 mm Ø x 6m DRSB		pcs.		
	#16 G.I. Tiewire		kgs.		
	Formlumber 2" x 2" (Coco)		bdft.		
	½" x 4' x 8' Ord. Plywood		pcs.		
	CWN assorted		kgs.		
	4" Ø x 3m uPVC Pipe, Series 1000		pcs.		
	4"Ø uPVC wye		pcs.		
	4"Ø Hand hole		pcs.		
			Materials Cost		
B.	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				1.00	lot
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.06	**Fixtures**				
A.	**Material**				
	Countertop Lavatory w/ faucet	20.00	sets		
	Water closet w/ complete accessories - vitreous china class "AA",	22.00	sets		
	closed coupled 3/4.8 LPF push button dual flush water closet w/ fitting				
	Urinal w/ Spreader	18.00	sets		
	Floor drain, 100mm x 100mm, stainless steel	30.00	pcs		
	SS Grab Handle	3.00	sets		
	Phenolic Board 1.2m x 2.4m x 12mm		pcs		
	Wall Mirror	16.00	sq.m.		
			Materials Cost		
B.	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				64.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
7.00	**FURNITURE**				
A	**Material**				
	4 Seater gang Chair (1.5mm thk. Iron Seat and back powder coated stainless steel armrest and base)	64.00	sets		
			Material Cost	.....	
A	**TOTAL MATERIAL COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0%of TDC)					
2. CONTRACTOR's PROFIT (0% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	0.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**	
		B. Construction of Administrative Building	
LOCATION	**:**	Siargao Airport	
		Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte	
SUBJECT	**:**	**Bill of Quantities and Cost Estimate**	

				435.5	**cu.m.**
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
1.00	**SITE WORKS**				
	Activity included *(labor only)*				
	Excavation (234 cu.m)				
	Backfill (69.50 c.m)				
	Staking & Lay-out of Structure Lines				
A	**Materials**				
	Common Borrow		cu.m		
	Gravel Base, (3/4")		cu.m		
	Form Lumber 2" x 3" (Coco)		bd.ft.		
	CWN Assorted		kgs.		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Backhoe (0.50 cu.m.)				
	Dumptruck (10 cu.m.)				
	Plate Compactor (1T)				
			Equipment Cost	.....	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
	1. OCM (0% - 8% of TDC)	
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
	E. TOTAL OCM & PROFIT	
	F. VALUE ADDED TAX, (VAT) 5.0% of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (F + E), P	
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit	
	TOTAL ESTIMATED COST (D + G), P	
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit	

				91.64	cu.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
2.01	**Concrete Works**				
A	**Material**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	16mm Ø x 6m DRSB, G60		pcs.		
	12mm Ø x 6m DRSB, G40		pcs.		
	10mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I. Tiewire		kgs		
	Formlumber 2" x 2" , Coco (including staging & scaffoldings)		bdft		
	½" x 4' x 8' Ord. Plywood		pcs.		
	CWN assorted		kgs		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
	Concrete Vibrator				
			Equipment Cost	.....	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
C	**TOTAL EQUIPMENT COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
	E. TOTAL OCM & PROFIT			
	F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
	TOTAL ESTIMATED COST (D + G), P			
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				1,869.23	kgs
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
2.02	**Steel Works**				
A	**Material**				
	50 x 50 x 6.35mm thk x 6.0m Angle Bar		pcs.		
	50 x 50 x 4.76mm thk x 6.0m Angle Bar		pcs.		
	C 150 x 50 x 2mmthk		pcs.		
	150 x150 x 6.35mm thk Tubular		pcs.		
	50mm Ø x 6m SS Pipe		pcs.		
	16mm dia x 6m Round Bar (cross bracing)		pcs.		
	16mm dia Std. Turnbuckle		pcs.		
	12mm dia x 6m Round Bar (sag rod)		pcs.		
	Base Plate 4' x 8' x 16mm thk		pcs.		
	Gusset Plate 170mm x 510mm x 6mm thk		pcs.		
	16mmØ x 200mm A325 bolt		pcs.		
	20mmØ x 250mm A325 bolt		pcs.		
	4' x 8' x 10mm Stiffener Plate		pc		
	SS Welding Rod		box		
	Welding Rod		boxes		
	Oxygen & Acetylene		sets		
	Rust Converter		gals.		
	Epoxy Primer w/ catalyst		gals.		
	Paint Thinner		gals.		
	Paint Brush 3"		pcs.		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Welding Machine, 200Amp				
	51-100kw Generator Set				
	Cutting Torch w/ gauge				
			Equipment Cost	.....	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
C	**TOTAL EQUIPMENT COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				423.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
2.03	**Roofing Works**				
A	**Material**				
	0.60mm thk Pre-painted (1") Rib-Type Long Span		li.m.		
	0.60mm thk SS Gutter		li.m.		
	0.60mm Pre-painted G.I. Flashing		li.m.		
	0.60mm Pre-painted G.I. End Flashing		li.m.		
	Tekscrew (12x 75mm)		pcs		
	Type S (12 x 25mm)		pcs		
	Blind Rivets 5-3		pcs		
	Silicone Rubber Sealant		tubes		
	Concrete Nails (1 1/2")		pcs		
	Touch-up paint		cans		
	50m x 1m x 12mm thk. Double Side Aluminum Foam Insulation		rolls		
	Welded wire mesh		rolls		
	Transparent tape		rolls		
	Blind Rivets 5-6		pcs		
	Straps		pcs		
	1/4" thk fascia board (100mm -150mm)		l.m.		
	Dome Shaped Strainer, 5 1/2"		pcs.		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				351.96	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.01	**Tile Works**				
A	**Material**				
	600mm x 600mm Homogeneous Floor Tiles		pcs.		
	600mm x 600mm Non-Slip Floor Tiles		pcs.		
	20mm thk. Granite Counter top		m²		
	300mm x 600mm Homogenous Wall Tiles		pcs.		
	Portland Cement		bags		
	Sand		cu.m.		
	Tile Adhesive		bags		
	Tile Grout		bags		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				538.73	sq.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.02	**Masonry Works**				
A	**Material**				
	Portland Cement		bags		
	Sand		cu.m.		
	10mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I. Tiewire		kgs.		
	6" CHB		pcs.		
	4" CHB		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				169.83	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.03	**Carpentry Works**				
3.03.01	**Ceiling Board**				
3.03.01.01	**Acoustic Ceiling Board**				
A	**Material**				
	600mm x 1200mm x 15mm Acoustic Ceiling Board		pcs		
	J-furring, 19mm x 50mm x 5.0m t=0.40mm		pcs		
	C-Channel, 12mm x 38mm x 5.0m, t=0.80mm		pcs		
	Wall Angle, 25mm x 25mm x 3.0m, t=0.40m		pcs		
	W-clip, double		pcs		
	Suspension Clip		pcs		
	Rod Joiner		pcs		
	Steel Angle		pcs		
	Drivepin, nailhead		pcs		
	Hanger Rod #8		pcs		
	Blind Rivets, ⅛ x ⅜ (4-4)		pcs		
	Concrete Nail/kg		kgs		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				23.17	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.03	**Carpentry Works**				
3.03.01	**Ceiling Board**				
3.03.01.02	**Gypsum Ceiling Board**				
	4' x 8' x 12mm thk Moisture Resistant Gypsum Board		pcs		
	J-furring, 19mm x 50mm x 5.0m t=0.40mm		pcs		
	C-Channel, 12mm x 38mm x 5.0m, t=0.80mm		pcs		
	Wall Angle, 25mm x 25mm x 3.0m, t=0.40m		pcs		
	W-clip, double		pcs		
	Steel Angle		pcs.		
	Suspension Clip and Hanger Rod		pcs.		
	Blind Rivets, ⅛ x ⅜ (4-4)		pcs.		
	Concrete Nail/kg		kgs		
	Fiber cement Board Screw		pcs.		
	Mesh tape, 2" x 250ft.		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				178.74	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.03	**Carpentry Works**				
3.03.01	**Ceiling Board**				
3.03.01.03	**Fiber Cement Ceiling Board**				
	6mm x 4' x 8' Fiber Cement Board		pcs		
	J-furring, 19mm x 50mm x 5.0m t=0.40mm		pcs		
	C-Channel, 12mm x 38mm x 5.0m, t=0.80mm		pcs		
	Wall Angle, 25mm x 25mm x 3.0m, t=0.40m		pcs		
	W-clip, double		pcs		
	Steel Angle		pcs.		
	Suspension Clip and Hanger Rod		pcs.		
	Blind Rivets, ⅛ x ⅜ (4-4)		pcs.		
	Concrete Nail/kg		kgs		
	Fiber cement Board Screw		pcs.		
	Mesh tape, 2" x 250ft.		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				455.56	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
3.04.01	**Exterior and Interior Wall**				
A	**Material**				
	Concrete Neutralizer		gals.		
	Flat Latex Paint		gals.		
	Acrytex (Acrylic Solvent Based)		gals.		
	Acrytex (Acrylic Water Based)		gals.		
	Acrytex Reducer		gals.		
	Concrete Putty		gals.		
	Paint Roller 9" w/ Pan		pcs		
	Paint Brush 1 1/2"		pcs		
	Rugs		kgs		
	Sand Paper # 120		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				178.74	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
3.04.02	**Ceiling Board**				
3.04.02.01	**Ficem Board Ceiling** *(including Plain Cement Finish)*				
A	**Material**				
	Flat Latex Paint		gals		
	Semi-gloss Latex Paint		gals		
	Jointing Compound (Masonry Putty)		gals		
	Paint Roller 9" with pan		pcs		
	Paint Brush 1 1/2"		pcs		
	Rugs		kgs		
	Sand Paper # 120		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				23.17	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
3.04.02	**Ceiling Board**				
3.04.02.02	**Gypsum Board Ceiling**				
A	**Material**				
	Flat Latex Paint		gal		
	Semi-gloss Latex Paint		gals		
	Jointing Compound (Masonry Putty)		gal		
	Paint Roller 9" with pan		pc		
	Paint Brush 1 1/2"		pcs		
	Rugs		kgs		
	Sand Paper #20		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				12.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.05	**Doors & Windows**				
3.05.01	**Doors**				
A	**Materials**				
	D-1 4.20m x 2.40m, 10mm thk. Glass Double Swing Glass Door in 2"x6" Powder Coated Aluminum Framed Jamb w/ Complete Accessories	1.00	set		
	D-2 3.40m x 1.35m/ 1.0m x 2.40m, 10mm thk. Glass Door in 2"x6" Powder Coated Aluminum Framed Jamb w/ Complete Accessories	5.00	sets		
	D-3 1.70m x 2.15m, 10mm thk. Glass Double Swing Glass Door in 2"x6" Powder Coated Aluminum Framed Jamb w/ Complete Accessories	1.00	set		
	D-4 1.00m x 2.15m, Hollow Core Marine Wood Panel Door in 2"x6" KD Wood Jamb in Wood Paint Duco Finish w/ Complete Accessories	1.00	set		
	D-5 0.90m x 2.15m, Vision Lite Door in Hollow Core Marine Wood Panel Door w/ 2"x6" KD Wood Jamb in Wood Paint Duco Finish w/ Complete Accessories	1.00	set		
	D-6 1.00m x 2.15m, Hollow Core Marine Wood Panel Door w/ Louvers and Stainless Steel Kick Plate in 2"x6" Wood Jamb in Wood Paint Duco Finish w/ Complete Accessories	1.00	set		
	D-7 0.90m x 2.15m, Hollow Core Marine Wood Panel Door w/ Louvers and Stainless Steel Kick Plate in 2"x6" Wood Jamb in Wood Paint Duco Finish w/ Complete Accessories	1.00	set		
	D-8 0.80m x 2.15m, Hollow Core Marine Wood Panel Door w/ Louvers and Stainless Steel Kick Plate in 2"x6" Wood Jamb in Wood Paint Duco Finish w/ Complete Accessories	1.00	set		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				17.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.05	**Doors & Windows**				
A	**Materials**				
3.05.02	**Windows**				
	W-1 3.15m x 1.90m, 6mm thk. Tempered Glass Casement Window and Fixed Glass Panel in Aluminum Powder Coated Window Frame w/ Complete Accessories	5.00	sets		
	W-2 2.50m x 1.55m, 6mm thk. Tempered Glass Casement Window and Fixed Glass Panel in Aluminum Powder Coated Window Frame w/ Complete Accessories	1.00	set		
	W-3 1.40m x 1.55m, 6mm thk. Tempered Glass Casement Window and Fixed Glass Panel in Aluminum Powder Coated Window Frame w/ Complete Accessories	2.00	sets		
	W-4 2.50m x 1.35m, 6mm thk. Tempered Glass Casement Window and Fixed Glass Panel in Aluminum Powder Coated Window Frame w/ Complete Accessories	1.00	set		
	W-5 1.80m x 0.60m, 6mm thk. Tempered Glass Casement Window and Fixed Glass Panel in Aluminum Powder Coated Window Frame w/ Complete Accessories	1.00	set		
	W-6 1.00m x 0.60m, 6mm thk. Tempered Glass Casement Window and Fixed Glass Panel in Aluminum Powder Coated Window Frame w/ Complete Accessories	2.00	sets		
	W-7 0.60m x 0.60 m x 6mm thk. Tempered Glass Awning Window Powder Coated Window Frame w/ Complete Accessories	1.00	set		
	W-8 3.0m x 0.60 m x 6mm thk. Tempered Glass Awning Window Powder Coated Window Frame w/ Complete Accessories	4.00	sets		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				6.00	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.06	**Miscellaneous Works**				
3.06.03	**Landscape**				
A	**Material**				
	Common Borrow		cu.m.		
	Plants (shrub)	23.00	pcs.		
	Garden soil (70kg/bag)		bags		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				89.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
	(including electrical works for Storage & K-9 Building)				
4.01	**Lighting Fixtures**				
A	**Materials**				
	1200 X 600 LED PANEL LIGHTS 80W 6400LM DAYLIGHT	27.00	sets		
	6" diameter recessed type vertical lamp downlight fixture with powder coated white finish steel housing and matte aluminum reflector and full frosted glass cover with 1×11Watts, 1100-Lumen LED bulb	54.00	sets		
	EMERGENCY LAMP DUAL OPTICS, 2×5WATTS LED BULB	7.00	sets		
	LED EXIT LIGHT, 220 VOLTS AC	1.00	sets		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				245.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.02	**Wiring Devices and Boxes**				
A	**Materials**				
	One-Gang Switch, 16A, 250V, wide series	5.00	sets		
	Two-Gang Switch, 16A, 250V, wide series	4.00	sets		
	Thee-Gang Switch, 16A, 250V, wide series	7.00	sets		
	Duplex Universal Convenience Outlet with Ground, 16A, 250V	38.00	sets		
	Weather Proof Duplex Universal Convenience Outlet with Ground	1.00	sets		
	Simplex Universal Convenience Outlet with Ground	9.00	sets		
	2" x 4" Utility box, GA #16, Deep type		sets		
	4" Junction box w/ cover, GA #16, Deep type		sets		
	Pull Box 6" x 6"		sets		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				1,188.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.03	**Wires & Conduits**				
A	**Materials**				
	3.5 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		rolls		
	8.0 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	30 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	20mm Ø uPVC Electrical Pipe		pcs		
	40mm Ø uPVC Electrical Pipe		pcs		
	32mm Ø Intermediate Metal Conduit		pcs		
	Fittings, Boxes & Accessories	1.00	ls		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
	1. OCM (0% - 8% of TDC)		
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				3.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.04	**Panel Board and Circuit Breaker**				
A	**Materials**				
	MDP:	1.00	set		
	Main: 100 AT, 150 AF, 3P, 230 V, 60 Hz, 25 KAIC MCCB				
	Branches: 20 - 20 AT, 100AF, 2P, 230V, 60Hz 10KAIC MCCB				
	With Grounding Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-1 Gauge 16, Powder coated gray finish				
	Enclosed Circuit Breaker	2.00	set		
	20 AT, 100AF, 2P, 230V, 60Hz 10KAIC Bolt-on type				
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
	E. TOTAL OCM & PROFIT			
	F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
	TOTAL ESTIMATED COST (D + G), P			
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				15.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.05	**Structured Cabling System**				
A	**Materials**				
	Optical Network Terminal	1.00	set		
	2C Fiber optic cable	1.00	sets		
	Cat5e		roll		
	Data & Telephone Outlet	6.00	sets		
	Cat5e Face Plate w/ UTP Shield Type	6.00	sets		
	500VA UPS	1.00	set		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
	E. TOTAL OCM & PROFIT			
	F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
	TOTAL ESTIMATED COST (D + G), P			
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				80.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.06	**Grounding System**				
A	**Materials**				
	8.0 mm² Bare Copper Wire		li.m.		
	20mm diameter × 3m Grounding Rod with Clamp		sets		
	Ground Pit		sets		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				1.00	lot
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.10	**Termination Accessories**				
A	**Materials**				
	Electrical tape, Rubber tape, Clamps, Tox, Mica tube, Coupling, Connector, Elbow, Pullwires, Locknut & Bushing, PVC Solvents, Hanger rods, Hardwares, etc.	1.00	ls		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				136.79	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
5.00	**MECHANICAL WORKS**				
5.01	**Air Conditioning and Piping System**				
A	**Materials**				
	SPLIT TYPE, INVERTER with complete accessories and circuit breaker in NEMA-3R Enclosure				
	WALL MOUNTED, 2.5HP	2.00	sets		
	WALL MOUNTED, 2.0HP	4.00	sets		
	WALL MOUNTED, 1.5HP	2.00	sets		
	Copper Tube Soft Drawn 3/8" OD. 0.022 thickness x 15m		pcs		
	Copper Tube Soft Drawn 1/2" OD. 0.022 thickness x 15m		pcs.		
	Copper Tube Soft Drawn 1/4" OD. 0.022 thickness x 15m		pcs.		
	Rubber Insulation 3/8" I.D. 3/4" thickness x 2m		pcs.		
	Rubber Insulation 1/2" I.D. 3/4" thickness x 2m		pcs.		
	Rubber Insulation 1/4" I.D. 1/2" thickness x 2m		pcs.		
	Polyethylene tape		pcs.		
	25mm diameter PVC Pipe x 3m (drain pipe)		pcs.		
	25mm diameter PVC Elbow		pcs.		
	25mm diameter PVC Coupling		pcs.		
	Angle bar (1/4"x2"x2"x20')		pcs.		
	Welding Rod		box		
	10 lbs. ABC Dry Chemical Portable Fire Extinguisher with complete accessories	10.00	pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Mechanical Engineer				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	

I N D I R E C T C O S T S

1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				23.26	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
5.00	**MECHANICAL WORKS**				
5.02	**Ventilation System**				
A	**Materials**				
	CEILING MOUNTED EXHAUST FAN, 150CFM	4.00	sets		
	Stainless Steel Vent Cap with net (100mm applicable pipe)		pcs.		
	100mm diameter PVC x 3m pipe		pcs.		
	100mm diameter PVC Coupling		pc		
	100mm diameter PVC Elbow		pc.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Mechanical Engineer				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				63.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.01	**Storm Drainage Line**				
A	**Material**				
	3" Ø x 3m PVC Pipe , Series 1000		pcs.		
	3" Ø PVC Elbow		pcs.		
	Solvent cement		L		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				150.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.02	**Waste Water Lines**				
A	**Material**				
	4" Ø x 3m PVC Pipe, Series 1000		pcs.		
	2" Ø x 3m PVC Pipe, Series 1000		pcs.		
	4" Ø 45deg PVC Wye		pcs.		
	2" Ø 45deg PVC Wye		pcs.		
	4" Ø x 2" Ø, 45 deg PVC Reducer		pcs.		
	2" Ø PVC Tee		pcs.		
	4" Ø PVC Elbow		pcs.		
	2" Ø PVC Elbow		pcs.		
	4" Ø PVC P-Trap		pcs.		
	2" Ø PVC P-Trap		pcs.		
	4" FCO		pcs.		
	2" FCO		pc.		
	4" CO		pc.		
	2" FD		pcs.		
	Solvent cement		L		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				52.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.03	**Water Lines**				
A	**Material**				
	PPR 3/4"Ø x 4.0m, PN 20		pcs.		
	PPR 1/2"Ø x 4.0m, PN 20		pcs.		
	PPR 3/4"Ø 90° Bend Elbow		pcs.		
	PPR 1/2"Ø 90° Bend Elbow		pcs.		
	PPR 1/2"Ø T-Elbow		pcs.		
	Coupling Reducer 3/4"- 1/2"		pcs.		
	Coupling 3/4"		pcs.		
	Coupling 1/2"		pcs.		
	Gate Valve 3/4"		pc.		
	Gate Valve 1/2"		pcs.		
	Check Valve 3/4"		pc.		
	Hose Bibb		pc.		
	Teflon tape		rolls		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				26.40	sq.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.04	**Catch Basin**				
A	**Material**				
	4" CHB		pcs.		
	Portland cement		bags		
	Sand		m^3		
	Gravel (3/4")		m^3		
	10mm Ø x 6m DRSB, G40		pcs.		
	12mm Ø x 6m DRSB, G40		pc.		
	#16 G.I. Tiewires		kgs.		
	Formlumber 2" x 2"' (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pcs.		
	CWN Assorted		kgs.		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				25.73	sq.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.05	**Septic Tank**				
A	**Material**				
	6" CHB		pcs.		
	Portland cement		bags		
	Sand		m^3		
	Gravel (3/4")		m^3		
	12mm Ø x 6m DRSB, G40		pcs.		
	10mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I. Tiewires		kgs.		
	Form Lumber 2" x 2" (Coco)		bdft.		
	½" x 4' x 8' Ord. Plywood		pcs.		
	CWN assorted		kgs.		
	4" Ø x 3m uPVC Pipe, Series 1000		pcs.		
	4"Ø uPVC wye		pcs.		
	4"Ø Hand hole		pcs.		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				17	sets
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.06	**Fixtures**				
A	**Material**				
	Countertop Lavatory w/ faucet	3.00	sets		
	Lavatory w/ faucet and long pedestal vitreous china class "AA", complet	1.00	set		
	Kitchen Sink w/ Faucet	1.00	set		
	Water closet w/ complete accessories - vitreous china class "AA", close 3/4.8 LPF	4.00	sets		
	Urinal w/ Spreader	1.00	set		
	Floor drain, 100mm x 100mm, stainless steel	6.00	pcs		
	SS Grab Handle	1.00	set		
	Phenolic Board 1.2m x 2.4m x 12mm	5.00	pcs		
	Wall Mirror	3.50	sq.m.		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
		C. Construction of Power House			
LOCATION	**:**	**Siargao Airport**			
		Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte			
SUBJECT	**:**	**Bill of Quantities and Cost Estimate**			
				86	**cu.m.**
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
1.00	**SITE WORKS**				
	Activity included (labor only)				
	Excavation (30.50 cu.m.)				
	Backfill (9.50 cu.m.)				
A	**Materials**				
	Gravel Base (3/4")		cu.m.		
	Embankment (Common Borrow)		cu.m.		
	Form Lumber 2" x 3" (Coco)		bd.ft.		
	CWN Assorted		kgs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Plate Compactor (1T)				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				45.32	cu.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
2.01	**Concrete Works**				
A	**Material**				
	Porland Cement		bags		
	Sand		cu.m		
	Gravel (3/4")		cu.m		
	20mm Ø x 6m DRSB, G60		pcs		
	16mm Ø x 6m DRSB, G60		pcs		
	12mm Ø x 6m DRSB, G40		pcs		
	10mm Ø x 6m DRSB, G40		pcs		
	#16 G.I. Tiewires		kgs		
	Formlumber 2" x 2" , Coco *(including staging & scaffoldings)*		bdft		
	½" x 4' x 8' Ord. Plywood		pcs		
	CWN Assorted		kgs		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Concrete Vibrator				
	One Bagger Concrete Mixer				
			Equipment Cost	.....	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
C	**TOTAL EQUIPMENT COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E.	**TOTAL OCM & PROFIT**			
F.	**VALUE ADDED TAX, (VAT)**	5.0%	of (D + E)	
G.	**TOTAL ESTIMATED INDIRECT COST (F + E), P**			
H.	**TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit**			
	TOTAL ESTIMATED COST (D + G), P			
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				442.64	kgs
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
2.02	**Steel Works**				
A	**Material**				
	50 x 50 x 6.35mm thk x 6.0m Angle Bar		pcs.		
	C 150 x 50 x 1.6mmthk		pcs.		
	16mm dia x 6m Round Bar (cross bracing)		pcs.		
	16mm dia Std. Turnbuckle		pcs.		
	2.5" x 2.5" x 1/4"thk x 6.0m Angle Bar		pcs.		
	150mm x 200mm x 16mm thk Base plate		pcs.		
	16mmØ x 200mm A325 bolt		pcs.		
	12mm dia x 6m Round Bar (sag rod)		pcs.		
	Welding Rod (6011)		boxes		
	Oxygen & Acetylene		sets		
	Rust Converter		gals.		
	Epoxy Primer w/ Catalyst		gals.		
	Paint Thinner		gals.		
	Paint Brush 3"		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Welding Machine, 200Amp				
	51-100kw Generator Set				
	Cutting Torch w/ gauge				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
C	**TOTAL EQUIPMENT COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				84.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
2.03	**Roofing Works**				
A	**Material**				
	0.60mm thk Pre-painted (1") Rib-Type Long Span, 1.05m		li.m.		
	0.60mm Pre-painted G.I. Gutter		li.m.		
	0.60mm Pre-painted G.I. Flashing		li.m.		
	0.60mm Pre-painted G.I. End Flashing		l.m.		
	Tekscrew (12x 75mm)		pcs		
	Type S (12 x 25mm)		pcs		
	Blind Rivets 5-3		pcs		
	Silicone Rubber Sealant		tubes		
	Concrete Nails (1 1/2")		pcs		
	Touch-up paint		can		
	50m x 1m x 6mm thk. Double Side Aluminum Foam Insulation		rolls		
	Welded wire mesh		rolls		
	Transparent tape		rolls		
	Blind Rivets 5-6		pcs		
	Straps		pcs		
	Dome Shaped Strainer, 5 1/2"		pcs.		
				Material Cost	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				98.81	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.02	**Masonry Works**				
A	**Material**				
	Portland Cement		bags		
	Sand		cu.m.		
	10mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I. Tiewires		kgs		
	6" CHB		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
	E. TOTAL OCM & PROFIT			
	F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
	TOTAL ESTIMATED COST (D + G), P			
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				111.66	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
3.04.01	**Exterior and Interior Wall**				
A	**Material**				
	Concrete Neutralizer		gals.		
	Flat Latex Paint		gals.		
	Acrytex (Acrylic Solvent Based)		gals.		
	Semi-gloss Latex Paint		gals.		
	Acrytex Reducer		gals.		
	Concrete Putty		gals.		
	Paint Roller 9" w/ Pan		pcs		
	Paint Brush 1 1/2"		pcs		
	Rugs		kgs		
	Sand Paper # 120		pcs		
			Material Cost		
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				3.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.05	**Doors & Windows**				
3.05.01	**Doors**				
A	**Materials**				
	D-1 4.00m x 2.40m, 38mm thk. Double Swing Steel Door Type with Z-Type Louver Blades in Single Rabbet Metal Jambs and Headers Enamel Paint Finish on Epoxy Primed Surface Complete w/ Accessories	2.00	sets		
	D-2 2.00m x 2.40m, 38mm thk. Double Swing Steel Door Type with Z-Type Louver Blades in Single Rabbet Metal Jambs and Headers Enamel Paint Finish on Epoxy Primed Surface Complete w/ Accessories	1.00	set		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

					3.00	sets
ITEM	DESCRIPTION		QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**					
3.05	**Doors & Windows**					
3.05.02	**Windows**					
A	**Materials**					
	W-1	4.00m x 1.80m, Steel Metal Framed Louver Window	1.00	set		
	W-2	2.00m x 1.00m, Steel Metal Framed Louver Window	1.00	set		
	W-3	4.00m x 1.00m, Steel Metal Framed Louver Window	1.00	set		
				Material Cost	. . . . .	
B	**Labor**		QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer					
	Construction Foreman					
	Skilled Laborer					
	Common Laborer					
				Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**					
B	**TOTAL LABOR COST**					
D	**TOTAL DIRECT COST**					
	INDIRECT COSTS					
	1. OCM (0% - 8% of TDC)					
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT						
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P						
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit						
TOTAL ESTIMATED COST (D + G), P						
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit						

				43.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.01	**Lighting Fixtures**				
A	**Materials**				
	Slim Batten Lighting Fixture with Aluminum Housing 1200mm (Length) x 75mm (width) x 24mm (Height) with LED 18W 1600Lm 6500K Lamp	18.00	sets		
	4 1/4 inches Diameter E27 White Porcelain Receptacle with 1×11Watts, 1100-Lumen, daylight LED bulb	12.00	sets		
	LED Street Light 100W 9300Lm 5700K, IP 65+, Marine-grade die-cast Aluminum Alloy Superior Corrosion Protection mounted on a 5m Pole with Photoelectric Control Assymetric Light Distribution Forward Throw Beam	13.00	sets		
			Material Cost		
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				119.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.02	**Wiring Devices and Boxes**				
A	**Materials**				
	One-Gang Switch, 16A, 250V, wide series	7.00	sets		
	Two-Gang Switch, 16A, 250V, wide series	2.00	sets		
	Thee-Gang Switch, 16A, 250V, wide series	2.00	sets		
	Duplex Universal Convenience Outlet with Ground, 16A, 250V	19.00	sets		
	2" x 4" Utility box, GA #16, Deep type		sets		
	4" Junction box w/ cover, GA #16, Deep type		sets		
	Pull Box 6" x 6"		sets		
			Material Cost		
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
	E. TOTAL OCM & PROFIT			
	F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
	TOTAL ESTIMATED COST (D + G), P			
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				3,240.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.03	**Wires & Conduits**				
A	**Materials**				
	3.5 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		rolls		
	5.5 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		rolls		
	8.0 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		lm		
	14 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	22 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	30 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	38 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	50 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	80 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	250 mm² THHN/THWN-2 Copper Wire, Lead Free Type, UL Listed		li.m.		
	20mm Ø uPVC Electrical Pipe		pcs		
	40mm Ø uPVC Electrical Pipe		pcs		
	32mm Ø Intermediate Metal Conduit		pcs		
	40mm Ø Intermediate Metal Conduit		pcs		
	50mm Ø Intermediate Metal Conduit		pcs		
	90mm Ø Intermediate Metal Conduit		pcs		
	Fittings, Boxes & Accessories	1.00	ls		
			Material Cost		
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
	1. OCM (0% - 8% of TDC)	
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				8.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.04	**Panel Board and Circuit Breaker**				
A	**Materials**				
	Panel PB(PH)				
	Main: 125 AT, 150AF, 3P, 230V, 60Hz 25KAIC MCCB	1.00	set		
	Branche 2-80AT, 125AF, 3P, 230V, 60Hz 25KAIC MCCB				
	6-20AT, 125AF, 2P, 230V, 60Hz 10KAIC MCCB				
	With Grounding Bus Bar, Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-1 Gauge 16, Powder coated gray finish				
	Enclosed Circuit Breaker				
	20 AT, 100AF, 2P, 230V, 60Hz 10KAIC Bolt-on type	2.00	sets		
	60 AT, 100AF, 3P, 230V, 60Hz 25KAIC MCCB in NEMA 3R	1.00	set		
	100 AT, 100AF, 3P, 230V, 60Hz 25KAIC MCCB in NEMA 3R	1.00	set		
	300 AT, 400AF, 3P, 230V, 60Hz 35KAIC MCCB in NEMA 3R	1.00	set		
	LVSG				
	Main: 1000 AT, 1000AF, 3P, 460V, 60Hz 65KAIC MCCB	1.00	set		
	Branche 1-225AT, 250AF, 3P, 460V, 60Hz 25KAIC MCCB				
	1-175AT, 250AF, 3P, 460V, 60Hz 25KAIC MCCB				
	1-150AT, 250AF, 3P, 460V, 60Hz 25KAIC MCCB				
	4-70AT, 125AF, 3P, 460V, 60Hz 25KAIC MCCB				
	1-50AT, 125AF, 3P, 460V, 60Hz 25KAIC MCCB				
	With Grounding Bus Bar, Terminal Lugs and Bolted Dead Front				
	and with Digital Multimeter				
	Enclosure: NEMA-1 Gauge 14, Powder coated gray finish				
	ATS	1.00	set		
	1000 Amperes Automatic Transfer Switch, 2×1000AT,				
	3-pole, 65KAIC, 460V MCCB, with digital multimete,				
	Pilot Light, Grounding Bus Bar, Terminal Lugs and				
	Bolted Dead Front, powder coated color gray				
	free standing NEMA-I gauge 14 Enclosure				
			Material Cost		
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				87.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.06	**Grounding System**				
A	**Materials**				
	30 mm² Bare Copper Wire		li.m.		
	60mm² Bare Copper Wire		li.m.		
	20mm diameter × 3m Grounding Rod with Clamp		sets		
	Ground Pit		sets		
			Material Cost		
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				9.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.08	**CCTV System**				
A	**Materials**				
	CCTV Camera, LPR	2.00	sets		
	CCTV Camera, Bullet Type	2.00	sets		
	32" LED TV	1.00	set		
	5 IN 1 4CH DVR	1.00	set		
	2 KVA UPS	1.00	set		
	4 PORT POWER DISTRIBUTION BOX	1.00	set		
	2.0 mm² THHN		li.m.		
	15mm Ø EMT		pcs		
	3.5 mm² THHN		li.m.		
	4TB Hard Disk Drive	1.00	set		
	CAT6		li.m.		
			Material Cost		
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				1.00	lot
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.10	**Termination Accessories**				
A	**Materials**				
	Electrical tape, Rubber tape, Clamps, Tox, Mica tube,	1.00	lot		
	Coupling, Connector, Elbow, Pullwires, Locknut & Bushing,				
	PVC Solvents, Hanger rods, Hardwares, etc.	Material Cost			
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
	1. OCM (0% - 8% of TDC)		
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				14.00	set
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.11	**Transformers & Accessories**				
A	**Materials**				
	Supply & Installation of 125 KVA, 3Phase, 460V/240V Outdoor Dry Type transformer with complete accessories	1.00	set		
	Supply & Installation of 50 KVA, 3Phase, 460V/240V Outdoor Dry Type transformer with complete accessories	2.00	sets		
	Supply & Installation of 200 KVA, Single-phase, 13.2kV/460V Outdoor Pad Mounted Transformer in Three-phase bank with complete standard accessories	3.00	sets		
	Current Transformer	3.00	sets		
	Potential Transformer	3.00	sets		
	Kilowatt-hour Meter including meter box and accessories	1.00	set		
	Service Post	1.00	set		
			Material Cost		
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				2.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.12	**Generator & Other Accessories**				
A	**Materials**				
	Brand new 625 KVA 460V 60Hz Diesel Engine Generator set with Synchronizing Panel, control panel of parallel operation and Air Circuit Breakers	2.00	sets		
			Material Cost		
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				2.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
5.00	**MECHANICAL WORKS**				
5.02	**Ventilation**				
A	**Materials**				
	24" Wall mounted Industrial type Exhaust Fan, 600W, 230V with thermal fuse, 600mm blades, industrial grade steel blade and casing with front grill	2.00	sets		
		Material Cost			
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Skilled Laborer				
	Common Laborer				
		Labor Cost			

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
	1. OCM (0% - 8% of TDC)		
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				42.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.01	**Storm Drainage Line**				
A	**Materials**				
	4" Ø x 3m PVC Pipe , Series 1000		pcs.		
	3" Ø x 3m PVC Pipe , Series 1000		pcs.		
	3"Ø Elbow		pcs.		
	Solvent Cement		L		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				4.80	sq.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.04	**Catch Basin**				
A	**Materials**				
	4" CHB		pcs		
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	10mm Ø x 6m DRSB, G40		pcs.		
	12mm Ø x 6m DRSB, G40		pc		
	#16 G.I. Tiewires		kg		
	Formlumber 2" x 2" (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pc		
	CWN Assorted		kg		
		Materials Cost			
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
		Labor Cost			

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				3.33	sq.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.07	**Area Drain**				
A	**Materials**				
	4" CHB		pcs.		
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	10mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I. Tiewires		kg		
	Formlumber 2" x 2" (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pc.		
	CWN Assorted		kgs.		
	¼" x 1" Flat Bar		pcs.		
	16mm Ø x 6m Plain Bar		pc		
	1" x 1" x ¼ Flat Bar (Framing)		pcs.		
	1/8" x ½" x ½" Flat Bar		pcs.		
	Aluminum Screen 10mm x 10mm		sq.m.		
	10mm Ø x 6m DRSB, G40		pc.		
		Materials Cost			
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
		Labor Cost			

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				240.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.08	**Steel Grating**				
A	**Materials**				
	¼" x 1" Flat Bar		pcs		
	16mm Ø x 6m Plain Bar		pcs		
	1" x 1" x ¼ Flat Bar (Framing)		pcs		
	1/8" x ½" x ½" Flat Bar		pcs		
	Aluminum Screen 10mm x 10mm		sq.m.		
	10mm Ø x 6m DRSB, G40		pcs		
	Epoxy Primer		gals		
	Paint Brush 3"		pcs.		
		Materials Cost			
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
		D. Construction of Two (2) Bay Fire Station Building			
LOCATION	**:**	**Siargao Airport**			
		Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte		QUANTITY	UNIT
SUBJECT	**:**	**Bill of Quantities & Cost Estimates**		71.55	cu.m.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
1.00	**SITE WORKS**				
	Excavation - 39.10 cu.m.				
	Back fill - 21.45 cu.m.				
A.	**Material**				
	Gravel Bedding 3/4		cu.m		
			Material Cost	. . . . .	
B.	**Labor**	QTY	Dur. (Days)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	I N D I R E C T C O S T S	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				54.52	cu.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
A.	**Material**				
2.01	**Concrete Works**				
2.01.01	**Column Footing - 6.35 cu.m.**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	16mmØ x 6.0m DRSB, G60		pcs.		
	#16 GI Tie Wire		kgs.		
2.01.02	**Column -5.83 cu.m.**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	16mmØ x 6.0m DRSB, G60		pcs.		
	10mmØ x 6.0m DRSB, G40		pcs.		
	#16 GI Tie Wire		kgs.		
2.01.03	**Wall Footing - 0.15 cu.m.**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	12mmØ x 6.0m DRSB, G40		pcs		
	10mmØ x 6.0m DRSB, G40		pc.		
	#16 GI Tie Wire		kgs.		
2.01.04	**Tie Beam /Beams - 8.48 cu.m.**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	16mmØ x 6.0m DRSB, G60		pcs.		
	10mmØ x 6.0m DRSB, G40		pcs.		
	#16 GI Tie Wire		kgs.		
2.01.05	**Slab/ Suspended Slab - 29.98 cu.m.**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	12mmØ x 6.0m DRSB, G60		pcs.		
	10mmØ x 6.0m DRSB, G60		pcs.		
	#16 GI Tie Wire		kgs.		
2.01.06	**Stair - 2.96 cu.m.**				
	Portland Cement		bags		
	Sand		cu.m		
	Gravel (3/4")		cu.m		
	16mmØ x 6m DRSB, G60		pcs		
	12mmØ x 6m DRSB, G40		pcs		
	#16 GI Tie Wire		kgs		
2.01.07	**Service Entrance Pole - 0.78 cu.m.**				
	Portland Cement		bags		
	Sand		cu.m		
	Gravel (3/4")		cu.m		
	12mmØ x 6m DRSB, G40		pcs		
	10mmØ x 6m DRSB, G40		pcs		
	#16 GI Tie Wire		kg		

2.01.08	**Formworks and Scaffolding**				
	2" x 3" Good Lumber		bd.ft.		
	2" x 2" Form lumber (Coco)		bd.ft.		
	1/2" x 4' x 8' Ordinary Plywood		pcs		
	Assorted CWN		kgs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
	Concrete Vibrator				
		Equipment Cost			

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
C	**TOTAL EQUIPMENT COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				6,394.43	kgs.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
A.	**Material**				
2.02	**Steel Works**				
2.02.01	**Trusses, Purlins, Canopy, Fascia frame**				
	62.5mmØ GI Pipe, Sch 40		pcs		
	50mmØ GI Pipe, Sch 40		pcs		
	38mmØ GI Pipe, Sch 40		pcs		
	100mmX50mmX1.5mm C-Channel		pcs		
	MS Plate 6mm thk, 4'x 8'		pc		
	MS Plate 10mm thk, 4'x 8'		pc		
	Square Tubular Bar - 19mm x 19mm x 3mm thk x 6m		pcs		
	Square Tubular Bar - 38mm x 38mm x 3mm thk x 6m		pcs		
	125mmØ x 6m GI Pipe, Sch 40		pcs		
	12mmØ Anchor Bolt with Standard nuts & Washer		pcs		
	12mmØ Expansion Bolt with Standard nuts & Washers		pcs		
	10mm Bolts with Standard Nuts & Washers		pcs		
	1"x 1/4" Self Drilling Screw with Neoprene Washer		pcs		
	Angular Bar - 50mm x 50mm x 6m, 6mm thk		pc		
	Angular Bar - 25mm x 25mm x 6m, 3mm thk		pcs		
	10mmØ x 6m Roundbar		pcs		
	Oxygen, Acetelyn		cyls		
	Welding Rod (6011)		boxes		
2.02.02	**Stair, PWD Ramp Railing**				
	50mmØ S/S x 6.0m		pcs		
	30mmØ S/S, x 6.0m		pcs		
	20mmØ S/S x 6.0m		pcs		
	Welding Rod E3016		boxes		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Welding Machine, 200Amp				
	51-100kw Generator Set				
	Cutting Torch w/ gauge				
			Equipment Cos	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
C	**TOTAL EQUIPMENT COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				194.58	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
A.	**Material**				
2.03	**Roofing Works**				
	(Main Roof, Canopy and Fascia)				
	Long Span G.I Rib Type sheet, 1.05m x 11m, pre-painted t=0.460mm		pcs		
	G.I. Gutter GA #24, Pre-painted 1.2m x 2.4m		pcs		
	Polycarbonate Twinwall Sheet 6mm x 3' x 8' (Blue)		pcs		
	Capping (0.60 x 0.610 x 2.44m)		pcs		
	GA #24 GI Sheet Valley Gutter Counter Flashing (0.60 x 1.2m x 2.4m), Pre Painted		pcs		
	Ficem Board 4' x 8' x 10mm		pcs		
	Tekscrew - steel (10mm x 20mm w/ neo washer)		pcs		
	Long Blind Rivets 1/8"Ø x 1"		pcs		
	Ficem boards screw 2" (100pcs/box)		pcs		
	Rubber Sealant (silicone)		tubes		
	Silicone Sealant		tubes		
	Touchup Paint (125ml)		cans		
	Polyethylene foam S/S 10mm x 1m x 50m		rolls		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	I N D I R E C T C O S T S	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				80.92	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
A.	**Material**				
3.01	**Tile Works**				
	300mm x 300mm Homogenous Tiles (floor & stair)		pcs		
	300mm x 300mm Homogenous Tiles (Wall & kitchen sink)		pcs		
	600mm x 600mm Homogeneous Tiles (floor)		pcs		
	Portland Cement		bags		
	Sand		cu.m		
	Tile Adhesive (25kgs)		bags		
	Tile Grout (5kg)		bags		
	Tile Cutting Disk, 4"		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				245.74	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
A.	**Material**				
3.02	**Masonry Works** *(including Zocallo Wall)*				
	CHB 6"		pcs.		
	CHB 4"		pcs.		
	Portland Cement		bags		
	Sand		cu.m.		
	12mmØ x 6.0m DRSB, G40		pcs.		
	#16 GI Tie Wire		kgs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
	Concrete Vibrator				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				85.17	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
A.	**Material**				
3.03	**Carpentry Works**				
3.03.01	**Ceiling Works**				
	6.0mm x 4' x 8' Fiber Cement Board		pcs		
	6.0mm x 4' x 8' Moisture Resistant Fiber Cement Board		pcs		
	Carrying Channel, 38mm x 12mm x 5m x 0.60mm thk		pcs		
	Double Furring Channel, 50mm x 19mm x 5m x 0.60mm thk		pcs		
	25mm x 25mm x 3m Wall Angle GA#24		pcs		
	Suspension rod		pcs		
	Expansion Bolt		pcs		
	Metal clip		pcs		
	Flat head screw		pcs		
	5/32" x 3/8" Blind Rivets		pcs		
	Hacksaw blade		pcs		
	Mesh Tape		pcs		
	Cornice 1" x 1" x10' (wood)		pcs		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				695.42	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
A.	**Material**				
3.04.01	**Steel Trusses, G.I. Pipes - 151.07 sq.m.**				
	Epoxy Primer w/ Catalyst		gals		
	Paint thinner		bottle		
	Paint brush 4"		pcs.		
	Paint Brush 2"		pcs.		
	Rugs		kgs		
	Sand Paper #120		pcs.		
3.04.02	**Exterior and Interior Walls - 329.28 sq.m.**				
	Flat Latex Paint		gals		
	Elastomeric Paint		gals		
	Semi-gloss Latex Paint		gals		
	Concrete Neutralizer		gals		
	Acri-color		qrts		
	Masonry Putty		gals		
	Paint Roller with pan 9"		pcs.		
	Paint Brush 4"		pcs.		
	Rugs		kgs		
	Sand Paper #100		pcs.		
3.04.03	**Ceiling, Eaves - 99.57 sq.m.**				
	Flat Latex Paint		gals		
	Semi-Gloss Latex Paint		gals		
	Oil Tinting Color		qrts		
	Joint Compound (Masonry Putty)		gals		
	Paint Roller with pan 9"		pcs.		
	Paint Brush 4"		pcs.		
	Rugs		kg.		
	Sand Paper #120		pcs.		
3.04.04	**Rubberized Floor Paint - 115.50 sq.m**				
	Epoxy Primer w/ Catalyst		gals		
	Acqua Epoxy		gals		
	Epoxy Reducer		gals		
	Paint Roller with pan 9"		pcs.		
	Paint Brush 4"		pcs.		
	Rugs		kg.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				6.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.05	**Doors and Windows**				
3.05.01	**Doors**				
A.	**Material**				
	D-1 900mm x 2150mm Single Leaf, Double Swing Flush Type Hollow Core with 6mm thk Marine Plywood, Dark Wood Painted Finish with Lever Type Door Lockset (with complete door hardware and accessories)	3.00	sets		
	D-2 800mm x 2150mm Single Leaf, Double Swing Flush Type Hollow Core with 6mm thk Marine Plywood, Dark Wood Painted Finish with Lever Type Door Lockset (with complete door hardware and accessories)	1.00	set		
	D-3 700mm x 2150mm Single Swing PVC Door with Louver Butt Hinges; Lever Type Door Lockset (with complete hardware and accessories)	2.00	sets		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				8.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.05	**Doors and Windows**				
3.05.02	**Windows**				
A.	**Material**				
W-1	1250mm x 2150mm Double & Triple Leaf, Sliding Window on both sides in 6mm thk. Clear Float Glass on Aluminum Powder coated Analok Window Frame (with complete door hardware and accessories)	1.00	set		
W-2	850mm x 2000mm Double & Triple Leaf, Sliding Window on both sides in 6mm thk. Clear Float Glass on Aluminum Powder coated Analok Window Frame (with complete door hardware and accessories)	1.00	set		
W-3	1250mm x 1500mm Double & Triple Leaf, Sliding Window on both sides in 6mm thk. Clear Float Glass on Aluminum Powder coated Analok Window Frame (with complete door hardware and accessories)	2.00	sets		
W-4	1250mm x 1500mm Double & Triple Leaf, Sliding Window on both sides in 6mm thk. Clear Float Glass on Aluminum Powder coated Analok Window Frame (with complete door hardware and accessories)	2.00	sets		
W-5	850mm x 850mm Single Leaf, Awning Window in 6mm thk. Clear Float Glass on Aluminum Powder coated Analok window Frame (with complete door hardware and accessoies)	1.00	set		
W-6	500mm x 600mm Single Leaf, Awning Window in 6mm thk. Clear Float Glass on Aluminum Powder coated Analok window Frame (with complete door hardware and accessoies)	1.00	set		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				1.00	set
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.06	**Miscellaneous Works**				
3.06.01	**Signages**				
A.	**Material**				
	6000mm x 700mm x 150mm Signage in Lighted Panaflex	1.00	set		
			Material Cost	. . . . .	
B.	**Labor**	QTY	Dur. (Days)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				37.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.01	**Lighting Fixtures**				
A.	**Material**				
	1.20m Industrial type lighting fixture w/ Aluminum reflector & powder Coated White Finish Steel Housing with 2×18W, 1700lm, 6500K (T-8) LED Tube with hangers and supports	8.00	sets		
	6" diameter recessed vertical lamp downlight fixture w/ powder coated white finish steel housing and matte aluminum reflector with 1×9-Watts, 806 Lumen LED Bulb, 230V, 60Hz.	23.00	sets		
	Emergency Lamp Dual Optics, Commercial Use, 2×3Watts LED Bulb	6.00	sets		
			Material Cost	. . . . .	
B.	**Labor**	QTY	Dur. (Days)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				120.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.02	**Wiring Devices and Boxes**				
A.	**Material**				
	Duplex Universal Convenience Outlet with Ground, 16A, 250V with mounting and device plate cover	10.00	sets		
	Weatherproof Duplex Universal Convenience Outlet with Ground, 16A, 250V with mounting and device plate cover	2.00	sets		
	Emergency Lamp Outlet, Single, Universal type, 16A, 250V	6.00	sets		
	Air Conditioning Unit Outlet, 20A, 250V w/ ground with mounting and device plate cover	2.00	sets		
	One-Gang Switch, 10A, 250V, wide series with mounting strap and device plate cover	5.00	sets		
	Two-Gang Switch, 10A, 250V, wide series with mounting strap and device plate cover	7.00	sets		
	One-gang, three-way switch, 16A, 250V, wide series with mounting strap and device plate cover	2.00	sets		
	Telephone and Data Computer Outlet	2.00	sets		
	Octagonal Junction Box, Gauge 16	50.00	sets		
	4 × 2 Utility Box, Gauge 16	32.00	sets		
	Metal Pull Box, 300mm×300mm×100mm, Gauge 16	2.00	sets		
			Material Cost	. . . . .	
B.	**Labor**	QTY	Dur. (Days)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				1,140.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.03	**Wires and Conduits**				
4.03.01	**Wires - 900.0 li.m**				
A.	**Material**				
	2.0 mm² THHN/THWN-2 600V 90ºC Copper Wire, Lead Free Type, Underwriter's Laboratory (UL) Listed		rolls		
	3.5 mm² THHN/THWN-2 600V 90ºC Copper Wire, Lead Free Type, Underwriter's Laboratory (UL) Listed		rolls Material Cost	. . . . .	
4.03.02	**Conduits - 240 li.m.**				
	15mm diameter × 3m Electrical Metallic Tubing (1/2") UL Listed		pcs		
	15mm diameter Flexible Metal Conduit (1/2") × 100m		lm		
	15mm diameter EMT Coupling		pcs		
	15mm diameter EMT Connector with Locknut and Bushing		pcs		
			Material Cost	. . . . .	
B.	**Labor**	QTY	Dur. (Days)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				1.00	set
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.04	**Panelboard and Circuit Breaker**				
A.	**Material**				
	Panel LPP	1.00	set		
	Main: 60AT, 100AF, 3P, 230V, 25KAIC MCCB		Material Cost	. . . . .	
	Branches: 12 - 20AT, 100AF, 2-Pole, 230V, 10KAIC MCCB				
	With Grounding Bus Bar, Terminal Lugs and Bolted Dead Front				
	Enclosure: NEMA-1 Gauge 16, Powder coated gray finish				
B.	**Labor**	QTY	Dur. (Days)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				10.00	pcs
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.10	**Termination Accessories**				
	G.I. Tie Wire Gauge 16		kg		
	Electrical Tape, 0.16mm×19mm×16m, UL Listed		pcs		
	Rubber Tape		pcs		
			Material Cost	. . . . .	
B.	**Labor**	QTY	Dur. (Days)	RATE/DAY	
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				520.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.13	**Service Entrance**				
4.13.01	**Conductors**				
A.	**Material**				
	8.0 mm² THHN/THWN-2 600V 90ºC Copper Wire, Lead Free Type, Underwriter's Laboratory (UL) Listed		li.m.		
	14 mm² THHN/THWN-2 600V 90ºC Copper Wire, Lead Free Type, Underwriter's Laboratory (UL) Listed		li.m.		
			Material Cost	. . . . .	
B.	**Labor**	QTY	Dur. (Days)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				138.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
4.00	**ELECTRICAL WORKS**				
4.13	**Service Entrance**				
4.13.02	**Conduits and Fittings**				
A.	**Material**				
	25mm (1") diameter × 3m Intermediate Metal Conduit, UL Listed		pcs		
	25mm diameter IMC Elbow		pcs		
	25mm diameter IMC Coupling		pcs		
	25mm diameter IMC Locknut and Bushing		pairs		
	1" diameter × 3m PVC Electrical Pipe Thick Wall, UL Listed		pcs		
	1" diameter PVC Elbow		pcs		
	1" diameter PVC Coupling		pcs		
	1" diameter PVC End Bell		pcs		
	PVC Solvent Cement, 400cc		can		
			Material Cost	. . . . .	
B.	**Labor**	QTY	Dur. (Days)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				2.00	units
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
5.00	**MECHANICAL WORKS**				
5.01	**Air Conditioning Unit**				
A	**Material**				
	2.0 HP 230 V, 60 Hz, single-phase Window Type Inverter Air Conditioning Unit with Remote Control	2.00	units		
			Material Cost	. . . . .	
B.	**Labor**	QTY	Dur. (Days)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				1.00	unit
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
5.00	**MECHANICAL WORKS**				
5.02	**Ventilation**				
A	**Material**				
	12"×12" White Ceiling type Exhaust Fan with Complete Standard Accessories (Aluminum Vent Caps, PVC Duct, Hangers & Supports and other Standard Fittings)	1.00	unit Material Cost	.....	
B.	**Labor**	QTY	Dur. (Days)	RATE/DAY	
	Electrical Engineer				
	Master Electrician				
	Common Laborer				
			Labor Cost	.....	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				42.64	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.01	**Storm Drainage Line**				
	6"Ø x 3m PVC Pipe, Series 1000		pcs		
	4"Ø x 3m PVC Pipe, Series 1000		pcs		
	4"Ø 90° PVC Elbow		pcs		
	Coupling 6"		pcs		
	Roof Drain 100mm x 100mm		pcs		
	Solvent cement		qrts		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				29.60	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.02	**Waste Waterlines**				
	4"Ø x 10' PVC Pipe, Series 1000		pcs		
	2"Ø x 10' PVC Pipe, Series 1000		pcs		
	4"Ø PVC Wye		pc		
	4"x 2" Ø PVC Wye Reducer		pcs		
	4"x 2" Ø PVC Tee Reducer		pc.		
	4"Ø 90° PVC Elbow		pcs		
	4"Ø PVC Sanitary Tee		pcs		
	2"Ø 90° PVC Elbow		pcs		
	P-trap (floor drain)		pcs		
	P-Trap (lavatory & kitchen sink)		pcs		
	VSTR		set		
	Solvent cement		qrts		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				37.58	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.03	**Waterline**				
	PPR 3/4"ø x 4.0m, PN 20		pcs		
	PPR 1/2"ø x 4.0m, PN 20		pcs		
	PPR 3/4"ø 90° Elbow		pcs		
	PPR 1/2"ø 90° Elbow		pcs		
	PPR 3/4" Ø Sanitary Tee		pcs		
	Coupling 3/4"		pcs		
	Gate Valve 3/4"		pc		
	Check Valve 3/4"		pcs		
	Two-way Fire Hydrant 4"Ø Complete w/ hardware & accessories including pipes & fittings	1.00	lot		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				4.99	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.04	**Catch Basin**				
A.	**Material**				
	4" CHB		pcs.		
	Portland cement		bags		
	Sand		m^3		
	Gravel (3/4")		m^3		
	10 mm Ø x 6m DRSB, G40		pcs		
	12 mm Ø x 6m DRSB, G40		pc		
	#16 G.I. Tiewires		kgs		
	Formlumber 2" X 2" (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pc		
	CWN Assorted		kg		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				18.05	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.05	**Septic Tank**				
A.	**Material**				
	CHB 6"		pcs		
	Portland Cement		bags		
	Sand		cu.m		
	Gravel (3/4")		cu.m		
	12mmØ x 6m DRSB, G40		pcs		
	#16 GI Tie Wire		kgs		
	½"x4'x8' Ordinary Plywood		pcs		
	2" x 3" Good Lumber		bdft		
	Assort. CWN		kgs		
	4"Øx10' PVC Pipe		pcs		
	4"Ø PVC Clean out Plug		pcs		
	2"Ø x 3m PVC vent pipe		pcs		
	2" x 2"Ø VC Sanitary Tee		pcs		
	2"Ø PVC Elbow		pcs		
	100mmØ Sanitary PVC Tee (covered w/ wire mesh screen@ top		pcs		
	Solvent Cement		qrts		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				1.00	lot
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
A	**Materials**				
6.06	**Fixtures**				
	Water closet w/ complete accessories - vitreous china class "AA", Round front 3/4.8 LPF push button dual flush conservation	1.00	pc		
	Bidet spray w/ complete accessories, Chrome ABS body, flexible hose 1200 x 1/2 x 1/2 w/ max working pressure of 75psi; spray	1.00	set		
	Lavatory (oval) vitreous china class "AA", w/ complete accessories	1.00	pc		
	Soap Holder - Ceramic, American white,	2.00	pcs		
	Tissue Holder w/ cover - Brass, Chrome Finished, 5"H x 5.5"L x 3"D	1.00	pc		
	Faucet (Quarter turn single lever basin faucet w/ complete accessories)	1.00	pc		
	Faucet (Quarter turn single lever pillar tap)	1.00	pc		
	Floor drain, 100mm x 100mm, stainless steel	2.00	pcs		
	In-wall Bath & Shower Fitting - Single Handle Lever Handle, tub/shower faucet, chrome finish	1.00	set		
	Kitchen Sink Faucet -2 Handle Spout Swivel 360°, 7-9/16" Reach, 4-5/8" From Deck to Aerator, ADA wrist blade handles, polished chrome	1.00	pc		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

NAME OF PROJECT		**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
		:	**E. Construction of Storage Building**			
LOCATION		**:**	**Siargao Airport**			
		:	Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte		QUANTITY	UNIT
SUBJECT		**:**	**Bill of Quantities**		24.00	cu.m.
ITEM	DESCRIPTION		QUANTITY	UNIT	UNIT COST	AMOUNT
1.00	**SITE WORKS**					
	Activity included *(labor only)*					
	Excavation - 10 cu.m					
	Backfill - 6 cu.m.					
	Staking and Layout of Structure Lines					
A	**Materials**					
	Gravel Base			cu.m.		
	Embankment (Common Borrow)			cu.m.		
	Form Lumber 2" x 3" (Coco)			bd.ft.		
	CWN Assorted			kgs.		
				Material Cost		
B	**Labor**		# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer					
	Construction Foreman					
	Skilled Laborer					
	Common Laborer					
				Labor Cost		
A	**TOTAL MATERIAL COST**					
B	**TOTAL LABOR COST**					
D	**TOTAL DIRECT COST**					
	I N D I R E C T C O S T S					
	1. OCM (0% - 8% of TDC)					
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT						
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P						
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit						
TOTAL ESTIMATED COST (D + G), P						
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit						

				11.80	m³
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.01	**Concrete Works**				
A	**Materials**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel		cu.m.		
	20 mm Ø x 6m DRSB		pcs		
	16 mm Ø x 6m DRSB		pcs		
	10 mm Ø x 6m DRSB		pcs.		
	#16 G.I. Tiewire		kgs		
	Formlumber 2" x 2" (Coco)		bdft.		
	½" x 4' x 8' Ord. Plywood		pcs.		
	CWN assorted		kgs.		
			Material Cost		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
C	**Equipment**	# of EQPT.	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
	Concrete Vibrator				
			Labor Cost		

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
	1. OCM (0% - 8% of TDC)	
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
	E. TOTAL OCM & CONTRACTOR's PROFIT	
	F. VALUE ADDED TAX, (VAT) 5.0% of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (E + F), P	
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit	
	TOTAL ESTIMATED COST (D + G), P	
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit	

				730.07	kgs.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.02	**Steel Works**				
A	**Materials**				
	50 x 50 x 6.35mm thk x 6.0m Angle Bar		pcs.		
	C- purlins 150 x 50 x 1.5mmthk		pcs.		
	16mmØ cross bracing Plain bar		pcs		
	12mm dia x 6m Round Bar *(sag rod)*		pcs		
	16mm dia Std. Turnbuckle		pcs		
	2.5" x 2.5" x 1/4"thk x 6.0m Angle Bar		pcs.		
	150mm x 200mm x 16mm thk Base plate		pcs.		
	16mmØ x 200mm A325 bolt		pcs.		
	Welding Rod (6011)		boxes		
	Oxygen & Acetylene		sets		
	Rust Converter		gals.		
	Epoxy Primer w/ Catalyst		gals.		
	Paint Thinner		gal.		
	Paint Brush 3"		pcs		
			Material Cost		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
C	**Equipment**	# of EQPT.	DUR. (DAYS)	RATE/DAY	
	Welding Machine, 200Amp				
	51-100kw Generator Set				
	Cutting Torch w/ gauge				
			Equipment Cost		

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & CONTRACTOR's PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				36.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.03	**Roofing Works**				
A	**Materials**				
	0.60mm thk Pre-painted (1") Rib-Type Long Span, 1.05m		li.m.		
	0.60mm Pre-painted G.I. Gutter		li.m.		
	0.60mm Pre-painted G.I. Flashing		li.m.		
	0.60mm Pre-painted G.I. End Flashing		li.m.		
	Silicone Rubber Sealant		tubes		
	50m x 1m x 6mm thk. Double Side Aluminum Foam Insulation		roll		
	Welded wire mesh (30m x 1.0m/ roll)		rolls		
	Transparent tape		roll		
	Tekscrew (12x 75mm)		pcs		
	Blind Rivets		pcs		
	Concrete Nails (1 1/2")		pcs		
	Touch-up paint		can		
	Plain Sheet (G.I. Straps)		sheets		
	Dome Shaped Strainer, 5 1/2"		pcs.		
			Material Cost		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				94.23	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.02	**Masonry Works**				
A	**Materials**				
	6" CHB		pcs.		
	Portland Cement		bags		
	Sand		m^3		
	10 mm Ø x 6m DRSB		pcs		
	#16 G.I. Tiewire		kgs.		
			Material Cost		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				36.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.03	**Carpentry Works**				
A	**Materials**				
	1/4" x 4' x 8' Ficem Board Ceiling		pcs		
	J-furring, 19mm x 50mm x 5.0m t=0.40mm		pcs		
	C-Channel, 12mm x 38mm x 5.0m, t=0.80mm		pcs		
	Wall Angle, 25mm x 25mm x 3.0m, t=0.40m		pcs		
	W-clip, double		pcs		
	Steel Angle		pcs.		
	Suspension Clip and Hanger Rod		pcs.		
	Blind Rivets, ⅛ x ⅜ (4-4)		pcs.		
	Concrete Nail/kg		kgs		
	Fiber cement Board Screw		pcs.		
			Material Cost		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				234.37	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
3.04.01	**Interior & Exterior Wall** *(including canopy)* **- 198.37 sq.m.**				
A	**Materials**				
	Flat Latex Paint		gals		
	Acrytex (Acrylic Solvent Based)		gals		
	Semi-gloss Latex Paint		gals		
	Acrytex Reducer		liters		
	Concrete Neutralizer		gals		
	Concrete Putty		gals		
	Paint Roller 9" w/ Pan		pcs.		
	Paint Brush 4"		pcs.		
	Paint Brush 2"		pcs.		
	Rugs		kgs.		
	Sand Paper # 120		pcs.		
			Material Cost	. . . . .	
3.04.02	**Ficem Board Ceiling - 36 sq.m.**				
	Flat Latex Paint		gals		
	Semi-gloss Latex Paint		gals		
	Jointing Compound		bags		
	Paint Roller 9" w/ Pan		pcs.		
	Paint Brush 4"		pcs.		
	Paint Brush 2"		pcs.		
	Rugs		kgs.		
	Sand Paper # 120		pcs.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				3.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.05	**Doors & Windows**				
A	**Materials**				
3.05.01	**Doors**				
	D-1 2.50m x 2.15m Two-Leaf Steel Frame Metal Louver Door w/ complete accessories	1.00	set		
3.05.02	**Windows**				
	W-1 3.0m x 1.0m, Steel Framed Metal Louver Window	2.00	sets		
			Material Cost		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				21.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.01	**Storm Drainage Line**				
A	**Materials**				
	PVC Pipe 3"Ø x 3m, Series 1000		pcs.		
	4"Ø x 3m PVC Pipe, Series 10000		pcs.		
	3"Ø Elbow		pcs.		
	Coupling 4"		pcs.		
	Solvent Cement		liter		
	Teflon tape		rolls		
			Materials Cost		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONT. PROFIT (0% - 8% of TDC)					
F. TOTAL MARK-UPS					
G. VALUE ADDED TAX, (VAT)		5.0%	of (D + F)		
H. TOTAL ESTIMATED INDIRECT COST (F + G), P					
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + H), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				3.74	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.04	**Catch Basin**				
A	**Materials**				
	4" CHB		pcs.		
	Portland cement		bags		
	Sand		m³		
	Gravel (3/4")		m³		
	10 mm Ø x 6m DRSB, G40		pcs.		
	12 mm Ø x 6m DRSB, G40		pc		
	#16 G.I. Tiewire		kg.		
	Formlumber 2" X 2" (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pc		
	CWN Assorted		kg		
		Materials Cost			
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Laborer				
		Labor Cost			

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONT. PROFIT (0% - 8% of TDC)			
F. TOTAL MARK-UPS			
G. VALUE ADDED TAX, (VAT)	5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P			
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + H), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

NAME OF PROJECT	:	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
	:	F. Construction of K-9 Building			
LOCATION	:	Siargao Airport			
	:	Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte			
SUBJECT	:	**Bill of Quantities**			
				27	**cu.m.**

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
1.00	**SITE WORKS**				
	Activity included (labor only)				
	Excavation - 13.50 cu.m.				
	Backfill - 5.50 cu.m.				
A	**Materials**				
	Gravel Base (3/4")		cu.m.		
	Embankment		cu.m.		
	Form Lumber 2" x 3" (Coco)		bd.ft.		
	CWN Assorted		kgs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Plate Compactor (1T)				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
C	**TOTAL EQUIPMENT COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				6.92	cu.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
2.01	**Concrete Works**				
A	**Material**				
	Portland Cement		bags		
	Sand		cu.m		
	Gravel (3/4")		cu.m		
	20 mm Ø x 6m DRSB, G60		pcs.		
	16 mm Ø x 6m DRSB, G60		pcs.		
	10 mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I.Tiewires		kgs		
	Form Lumber 2" x 2" (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pcs		
	CWN assorted		kgs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Concrete Vibrator				
	One Bagger Concrete Mixer				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
C	**TOTAL EQUIPMENT COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				372.81	kgs
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
2.02	**Steel Works**				
A	**Material**				
	50 x 50 x 6.35mm thk x 6.0m Angle Bar		pcs		
	C 150 x 50 x 1.6mmthk		pcs		
	2.5" x 2.5" x 1/4"thk x 6.0m Angle Bar		pc		
	12mm dia x 6m Round Bar *(sag rod)*		pcs		
	150mm x 100mm x 16mm thk Base plate		pcs		
	16mmØ x 200mm A325 bolt		pcs		
	50 x 50 x 4.76mm thk x 6.0m Angle Bar		pcs		
	1" x 1" Square Tubular Bar		pcs		
	4mm thk. Aluminum Cladding		sq.m.		
	Backer Rod (1/2")		li.m.		
	ACP Silicone Sealant		gal		
	Welding Rod (6011)		boxes		
	Oxygen & Acetylene		sets		
	Rust Converter		gals		
	Epoxy Primer w/ Catalyst		gals		
	Paint Thinner		gals		
	Paint Brush 3"		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Welding Machine, 200Amp				
	51-100kw Generator Set				
	Cutting Torch w/ gauge				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
C	**TOTAL EQUIPMENT COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				32.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
2.03	**Roofing Works**				
A	**Material**				
	0.60mm thk Pre-painted (1") Rib-Type Long Span, 1.05m		li.m.		
	0.60mm Pre-painted G.I. Gutter		li.m.		
	0.60mm Pre-painted G.I. Flashing		li.m.		
	0.60mm Pre-painted G.I. End Flashing		li.m.		
	Tekscrew (12x 75mm)		pcs		
	Type S (12 x 25mm)		pcs		
	Blind Rivets 5-3		pcs		
	Silicone Rubber Sealant		tubes		
	Concrete Nails (1 1/2")		kg.		
	Touch-up paint		can		
	50m x 1m x 12mm thk. Double Side Aluminum Foam Insulation		roll		
	Welded wire mesh		rolls		
	Transparent tape		roll		
	Blind Rivets 5-6		pcs		
	Straps		pcs		
	Dome Shaped Strainer, 5 1/2"		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				55.60	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.02	**Masonry Works**				
A	**Material**				
	Portland Cement		bags		
	Sand		cu.m		
	10 mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I.Tiewires		kgs		
	6" CHB		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				27.04	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.03	**Carpentry Works**				
3.03.01	**Ceiling Works**				
A	**Material**				
	Fiber Cement Ceiling Board				
	1/4" thk. Fiber Cement Board Ceiling		pcs		
	J-furring, 19mm x 50mm x 5.0m t=0.40mm		pcs		
	C-Channel, 12mm x 38mm x 5.0m, t=0.80mm		pcs		
	Wall Angle, 25mm x 25mm x 3.0m, t=0.40m		pcs		
	W-clip, double		pcs		
	Steel Angle		pcs.		
	Suspension Clip and Hanger Rod		pcs.		
	Blind Rivets, ⅛ x ⅜ (4-4)		pcs.		
	Concrete Nail/kg		kgs		
	Fiber cement Board Screw		pcs.		
	Mesh tape, 2" x 250ft.		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				63.44	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
A	**Material**				
3.04.01	**Exterior, Interior Wall, Ceiling**				
	Concrete Neutralizer		gals.		
	Flat Latex Paint		gals.		
	Acrytex (Acrylic Solvent Based)		gals.		
	Semi-gloss Latex Paint		gals.		
	Acrytex Reducer		gals.		
	Jointing Compound		bags		
	Concrete Putty		gals.		
	Paint Roller 9" with pan		pcs		
	Paint Brush 1 1/2"		pcs		
	Rugs		kg.		
	Sand Paper # 120		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				6.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.05	**Doors & Windows**				
A	**Materials**				
3.05.01	**Doors**				
	D1 950mmx2100mm Steel Framed cyclone wire door with complete door accessories	1.00	set		
	D2 1500mmx2024mm Steel Framed door with 25mmx25mm tubular steel	2.00	sets		
3.05.02	**Windows**				
	W1 1200mmx2100mm Steel Framed cyclone wire window with complete accessories	1.00	set		
	W2 600mmx2024mm Steel Framed door with 25mmx25mm tubular steel	2.00	sets		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				21.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.01	**Storm Drainage Line**				
A	**Material**				
	PVC Pipe 3"Ø x 3m, Series 1000		pcs.		
	3"Ø 90 deg PVC Elbow		pcs.		
	6"Ø x 3.0m PVC Pipe, Series 1000		pcs.		
	Cement Solvent		can		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				8.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.03	**Water Lines**				
A	**Material**				
	PPR 1/2"Ø x 4.0m, PN 20		pcs		
	PPR 1/2"Ø 90° Bend Elbow		pcs.		
	PPR 1/2"Ø Tee		pc.		
	Coupling 1/2"		pc		
	1/2" G.I. Gate valve		pc.		
	1/2" G.I. Check valve		pc.		
	Teflon tape		rolls		
	Hose Bibb		pcs.		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				3.74	sq.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.04	**Catch Basin**				
A	**Material**				
	4" CHB		pcs.		
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	10 mm Ø x 6m DRSB, G40		pcs.		
	12 mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I.Tiewires		kg.		
	Formlumber 2" x 2" (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pc.		
	CWN Assorted		kg.		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				12.06	sq.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.05	**Septic Tank**				
A	**Material**				
	6" CHB		pcs.		
	Portland cement		bags		
	Sand		m^3		
	Gravel (3/4")		m^3		
	12 mm Ø x 6m DRSB, G40		pcs.		
	10 mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I.Tiewires		kgs.		
	Formlumber 2" x 2" (Coco)		bdft.		
	½" x 4' x 8' Ord. Plywood		pcs.		
	CWN assorted		kgs.		
	4"Ø x 3m uPVC pipe, Series 1000		pcs.		
	4"Ø uPVC wye		pcs.		
	4"Ø Hand hole		pcs.		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
	:	**G. Construction of MRF building**			
LOCATION	**:**	Siargao Airport			
	:	Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte			
SUBJECT	**:**	**Bill of Quantities**			
				38.5	**cu.m.**
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
1.00	**SITE WORKS**				
	Activity included *(labor only)*				
	Excavation - 15.50 cu.m.				
	Backfill - 6.0 cu.m.				
A	**Materials**				
	Gravel Base (3/4")		cu.m.		
	Embankment (Common Borrow)		cu.m.		
	Formlumber 2" x 3" (Coco)		bd.ft.		
	CWN Assorted		kgs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				12.15	cu.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.01	**Concrete Works**				
A	**Material**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	20 mm Ø x 6m DRSB, G60		pcs		
	16 mm Ø x 6m DRSB, G60		pcs		
	10 mm Ø x 6m DRSB, G40		pcs		
	#16 G.I. Tiewire		kgs		
	Formlumber 2" x 2" (Coco)		bdft		
	½" x 4' x 8' Ord. Plywood		pcs		
	CWN Assorted		kgs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
	Concrete Vibrator				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
C	**TOTAL EQUIPMENT**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				253.69	kgs
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.02	**Steel Works**				
A	**Material**				
	50 x 50 x 6.35mm thk x 6.0m Angle Bar		pcs.		
	C 150 x 50 x 1.6mmthk		pcs.		
	2.5" x 2.5" x 1/4"thk x 6.0m Angle Bar		pc.		
	16mm dia x 6m Round Bar *(cross bracing)*		pcs		
	16mm dia Std. Turnbuckle		pcs.		
	12mm dia x 6m Round Bar *(sag rod)*		pcs		
	150mm x x200mm x 16mm thk Base plate		pcs		
	16mmØ x 200mm A325 bolt		pcs.		
	Weding Rod (6011)		boxes		
	Oxygen & Acetylene		set		
	Rust Converter		gals.		
	Epoxy Primer w/ Catalyst		gals.		
	Paint Thinner		gals.		
	Paint Brush 3"		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Welding Machine, 200Amp				
	51-100kw Generator Set				
	Cutting Torch w/ gauge				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
C	**TOTAL EQUIPMENT**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				42.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.03	**Roofing Works**				
A	**Material**				
	0.60mm thk Pre-painted (1") Rib-Type Long Span, 1.05m		li.m.		
	0.60mm Pre-painted G.I. Gutter		li.m.		
	0.60mm Pre-painted G.I. Flashing		li.m.		
	0.60mm Pre-painted G.I. End Flashing		li.m.		
	Tekscrew (12x 75mm)		pcs		
	Type S (12 x 25mm)		pcs		
	Blind Rivets 5-3		pcs		
	Silicone Rubber Sealant		tubes		
	Concrete Nails (1 1/2")		kg.		
	Touch-up paint		can		
	50m x 1m x 6mm thk. Double Side Aluminum Foam Insulation		roll		
	Welded wire mesh		rolls		
	Transparent tape		roll		
	Blind Rivets 5-6		pcs		
	Straps		pcs		
	Dome Shape Strainer		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				27.60	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.01	**Tile Works**				
A	**Material**				
	300mm x 300mm Ceramic Non-Skid Tiles (Floor)		pcs.		
	600mm x 600mm Ceramic Floor Tiles		pcs.		
	300mm x 300mm Ceramic Wall Tiles		pcs.		
	300mm x 300mm Ceramic Accent Wall Tiles		pcs.		
	Portland Cement		bags		
	Sand		cu.m.		
	Tile Adhesive		bags		
	Tile Grout		bags		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				122.06	sq.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.02	**Masonry Works**				
A	**Material**				
	Portland Cement		bags		
	Sand		cu.m.		
	10 mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I. Tiewire		kgs.		
	6" CHB		pcs.		
	4" CHB		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				36.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.03	**Carpentry Works**				
3.03.01	**Ceiling Board**				
3.03.01.01	**Fiber Cement Board Ceiling**				
A	**Material**				
	1/4" x 4' x 8' Fiber Cement Board		pcs		
	J-furring, 19mm x 50mm x 5.0m t=0.40mm		pcs		
	C-Channel, 12mm x 38mm x 5.0m, t=0.80mm		pcs		
	Wall Angle, 25mm x 25mm x 3.0m, t=0.40m		pcs		
	W-clip, double		pcs		
	Steel Angle		pcs.		
	Suspension Clip and Hanger Rod		pcs.		
	Blind Rivets, ⅛ x ⅜ (4-4)		pcs.		
	Concrete Nail/kg		kgs		
	Fiber cement Board Screw		pcs.		
	Mesh tape, 2" x 250ft.		pcs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				213.88	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
3.04.01	**Exterior and Interior Wall**				
A	**Material**				
	Concrete Neutralizer		gals.		
	Flat Latex Paint		gals.		
	Acrytex (Acrylic Solvent Based)		gals.		
	Semi-gloss Latex Paint		gals.		
	Acrytex Reducer		gals.		
	Concrete Putty		gals.		
	Paint Roller 9" w/ pan		pcs		
	Paint Brush 1 1/2"		pcs		
	Rugs		kgs.		
	Sand Paper		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				36.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
3.04.02	**Ceiling Board**				
A	**Material**				
	Jointing Compound		bags		
	Flat Latex Paint		gals		
	Semi Gloss Latex Paint		gals		
	Paint Roller 9" w/ pan		pcs		
	Paint Brush 1 1/2"		pcs		
	Rugs		kgs.		
	Sand Paper		pcs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				4.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.05	**Doors & Windows**				
A	**Materials**				
3.05.01	**Doors**				
	D-1 3.55m x 2.40m Manual Steel Shutter Roll-Up Door w/ complete accessories (see Manufacturer's detail)	1.00	set		
	D-2 0.90m x 2.10m Hollow Core Flush Door Type in 2" x 6" K.D. Door Jambs and Header	2.00	sets		
	D-3 0.75m x 2.10m PVC Door in PVC Jambs and Headers complete accessories	1.00	set		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				4.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.05	**Doors & Windows**				
3.05.02	**Windows**				
A	**Materials**				
	W-1 4.0m x 1.0m Steel Framed Metal Louver Window	1.00	set		
	W-2 1.20m x 1.10m Sliding Window in Powder Coated Finish Aluminum Frame with 8mm Clear Glass Panels with complete accessories	1.00	set		
	W-3 0.50m x 0.50m Awning Window in Powder Coated Finish Aluminum Frame w/ 8mm Clear Glass Panels with complete accessories	2.00	sets		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				9.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.01	**Storm Drainage Line**				
A	**Materials**				
	3"Ø x 3m PVC Pipe, Series 1000		pcs.		
	3"Ø Elbow		pcs.		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				12.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.02	**Waste Water Lines**				
	4"Ø x 3m PVC Pipe, Series 1000		pcs.		
	3"Ø x 3m PVC Pipe, Series 1000		pc.		
	4"Ø 45º Wye		pcs.		
	4"Ø Tee		pc.		
	4"Ø Elbow		pcs.		
	4" CO		pcs.		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				20.00	li.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.03	**Water Lines**				
	PPR 1/2"Ø x 4.0m, PN 20		pcs.		
	PPR 1/2"Ø 90° Bend Elbow		pcs.		
	PPR 1/2"Ø Tee		pcs.		
	Coupling 1/2"		pcs.		
	Gate Valve 1/2"		pc		
	Check Valve 1/2"		pc		
	Hose Bibb		pcs.		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
E. MARK-UPS			
1. OCM (0% - 8% of TDC)			
2. CONT. PROFIT (0% - 8% of TDC)			
F. TOTAL MARK-UPS			
G. VALUE ADDED TAX, (VAT)	5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P			
I. TOTAL ESTIMATED UNIT INDIRECT COST (I / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + H), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				4.80	sq.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.04	**Catch Basin**				
	4" CHB		pcs.		
	Portland cement		bags		
	Sand		m³		
	Gravel		m³		
	10 mm dia x 6m DRSB, G40		pcs.		
	12 mm dia x 6m DRSB, G40		pc.		
	#16 G.I Tiewire		kg.		
	Formlumber 2" x 2" (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pc.		
	CWN Assorted		kg.		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				12.00	sq.m.
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.05	**Septic Tank**				
	6" CHB		pcs.		
	Portland cement		bags		
	Sand		m³		
	Gravel		m³		
	12 mm dia x 6m DRSB, G40		pcs.		
	10 mm dia x 6m DRSB, G40		pcs.		
	#16 G.I Tiewire		kgs.		
	Formlumber 2" x 2" (Coco)		bdft.		
	½" x 4' x 8' Ord. Plywood		pcs.		
	CWN assorted		kgs.		
	4"Ø x 3m uPVC Pipe, Series 1000		pcs.		
	4"Ø uPVC wye		pcs.		
	4"Ø Hand hole		pcs.		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				4.00	sets
ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.06	**Fixtures**				
	Lavatory w/ faucet and long pedestal vitreous china class "AA", w/ complete accessories	1.00	set		
	Water closet w/ complete accessories - vitreous china class "AA", closed coupled 3/4.8 LPF push button dual flush water closet w/ fitting	1.00	set		
	Floor drain, 100mm x 100mm, stainless steel	1.00	pc		
	Shower Head w/ Valve	1.00	set		
			Materials Cost		
B	**Labor**	QTY	DUR.(DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
	:	**H. Proposed Construction of Guard House**			
LOCATION	**:**	**Siargao Airport** Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte		QUANTITY	UNIT
SUBJECT	**:**	**Bill of Quantities**		22.00	cu.m.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
1.00	**SITE WORKS**				
	Activity included *(labor only)*				
	Excavation -11 cu.m.				
	Backfill - 5 cu.m.				
	Staking and Layout of Structure Lines				
A	**Materials**				
	Gravel Base		m^3		
	Embankment (Common Borrow)		m^3		
	Form Lumber 2" x 3" (Coco)		bd.ft.		
	CWN Assorted		kg		
			Material Cost	.....	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
	E. TOTAL OCM & CONTRACTOR's PROFIT			
	F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
	TOTAL ESTIMATED COST (D + G), P			
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				6.04	cu.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.01	**Concrete Works (6.04 cu.m.)**				
A	**Materials**				
	Portland Cement		bags		
	Sand		m^3		
	Gravel		m^3		
	20 mm Ø x 6m DRSB, G60		pcs		
	16 mm Ø x 6m DRSB, G60		pcs		
	10 mm Ø x 6m DRSB, G40		pcs		
	#16 G.I. Tiewire		kg		
	Formlumber 2" x 2" (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pcs		
	CWN assorted		kgs.		
			Material Cost	.....	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	# of EQPT.	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
	Concrete Vibrator				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
C	**TOTAL EQUIPMENT COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
	1. OCM (0% - 8% of TDC)		
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				841.44	kgs.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.02	**Steel Works**				
A	**Materials**				
	50 x 50 x 6.35mm thk x 6.0m Angle Bar		pcs		
	C 150 x 50 x 1.6mmthk x 6m		pcs		
	12mm dia x 6m Round Bar *(sag rod)*		pcs		
	2.5" x 2.5" x 1/4"thk x 6.0m Angle Bar		pc		
	150mm x 100mm x 16mm thk Base plate		pcs		
	16mmØ x 200mm A325 bolt		pcs.		
	4mm thk. Aluminum Cladding		sq.m.		
	50mm x 50mm x 4.76mm Angle Bar		pcs.		
	25mm x 25mm x 6m Square Tubular Bar		pcs		
	Backer Rod (1/2")		li.m.		
	ACP Silicone Sealant		gal		
	Welding Rod (6011)		box		
	Oxygen & Acetylene		set		
	Rust Converter		gals.		
	Epoxy Primer w/ Catalyst		gals.		
	Paint Thinner		gal		
	Paint Brush 3"		pcs		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT.	DUR. (DAYS)	RATE/DAY	
	Welding Machine, 200Amp				
	51-100kw Generator Set				
	Cutting Torch w/ gauge				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
C	**TOTAL EQUIPMENT COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				20.47	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.03	**Roofing Works**				
A	**Materials**				
	0.60mm thk Pre-painted (1") Rib-Type Long Span, 1.05m		l.m		
	0.60mm Pre-painted G.I. Gutter		l.m.		
	0.60mm Pre-painted G.I. Flashing		l.m.		
	0.60mm Pre-painted G.I. End Flashing		l.m.		
	Silicone Rubber Sealant		tube		
	50m x 1m x 6mm thk. Double Side Aluminum Foam Insulation		roll		
	Welded wire mesh		roll		
	Transparent tape		roll		
	Tekscrew (12x 75mm)		pcs		
	Blind Rivets		pcs		
	Concrete Nails (1 1/2")		kg		
	Touch-up paint		can		
	Plain Sheet (G.I. Straps)		pcs		
	Dome Shape Strainer, 5 1/2"		pcs.		
			Material Cost	.....	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				25.15	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.01	**Tile Works**				
A	**Materials**				
	600mm x 600mm Ceramic Tiles (Floor)		pcs		
	300mm x 300mm Ceramic Tiles (Floor & Wall)		pcs		
	300mm x 300mm Ceramic Accent Tiles		pcs		
	150mm x 300mm Ceramic Tiles (Kitchen Sink)		pcs.		
	Portland Cement		bags		
	Sand		cu.m.		
	Tile Adhesive		bags		
	Tile Grout		bags		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				58.33	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.02	**Masonry Works**				
A	**Materials**				
	6" CHB		pcs		
	4" CHB		pcs		
	Portland Cement		bags		
	Sand		m^3		
	#16 G.I. Tiewire		kgs		
	10 mm Ø x 6m DRSB		pcs		
			Material Cost	.....	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
	1. OCM (0% - 8% of TDC)		
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				28.00	sq.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.03	**Carpentry Works**				
A	**Materials**				
3.03.01	**Ceiling Board**				
	4' x 8' x 1/4' Fiber Cement Board Ceiling		pcs		
	J-furring, 19mm x 50mm x 5.0m t=0.40mm		pcs		
	C-Channel, 12mm x 38mm x 5.0m, t=0.80mm		pcs		
	Wall Angle, 25mm x 25mm x 3.0m, t=0.40m		pcs		
	W-clip, double		pcs		
	Steel Angle		pcs.		
	Suspension Clip and Hanger Rod		pcs.		
	Blind Rivets, ⅛ x ⅜ (4-4)		pcs.		
	Concrete Nail/kg		kgs		
	Fiber cement Board Screw		pcs.		
			Material Cost	. . . . .	
3.03.02	**Cabinet**				
	2-Leaf 12.5mm thk. marine Plywood w/ complete	1.00	set		
	accessories and pre-painted Finish		Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
	1. OCM (0% - 8% of TDC)		
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				80.08	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
A	**Materials**				
3.04.01	**Exterior & Interior Wall (52.08 sq.m.)**				
	Flat Latex Paint		gals.		
	Acrytex (Acrylic Solvent Based)		gals		
	Semi-gloss Latex Paint		gals.		
	Acri-color		L		
	Concrete Neutralizer		gals.		
	Masonry Putty		gals		
	Paint Roller 9" w/ Pan		pcs.		
	Paint Brush 4"		pcs.		
	Paint Brush 2"		pcs.		
	Rugs		kgs.		
	Sand Paper # 120		pcs.		
			Material Cost	. . . . .	
3.04.02	**Ficem Board Ceiling (28 sq.m)**				
	Flat Latex Paint		gals		
	Semi-gloss Latex Paint		gals		
	Joint Compound (Masonry Putty)		gal.		
	Paint Roller 9" w/ Pan		pcs.		
	Paint Brush 4"		pcs.		
	Paint Brush 2"		pcs.		
	Rugs		kg.		
	Sand Paper # 120		pcs.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & CONTRACTOR's PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (E + F), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				7.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.05	**Doors & Windows**				
A	**Materials**				
3.05.01	**Doors**				
	D-1 0.90m x 2.10m, Hollow Core Flush Door Type in 2'x6" K.D. Door Jambs and Header	1.00	set		
	D-2 0.80m x 2.10m, Hollow Core Flush Door Type in 2'x6" K.D. Door Jambs and Header	1.00	set		
	D3 0.65m x 2.10m , PVC Door in PVC Jambs and headers with complete accessories	1.00	set		
3.05.02	**Windows**				
	W-1 1.2m x 1.15m Sliding Window in Powder Coat Finish Aluminum Frame w/ 8mm thk. Clear Glass Panels w/ Complete Accessories	2.00	sets		
	W-2 0.4m x 1.1m Awning with Fixed Window in Powder Coated Finish Aluminum Frame w/ 8mm thk. Clear Glass Panels w/ Complete Accessories	1.00	set		
	W-3 .50m x .70m Awning window in Powder Coated Finish Aluminum Frame w/ 8mm thk. Clear Glass Panels w/ Complete Accessories	1.00	set		
			Material Cost	.....	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & CONTRACTOR's PROFIT				
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				17.36	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.01	**Storm Drainage Line**				
A	**Materials**				
	3"Ø x 3m PVC Pipe, Series 1000		pcs		
	3"Ø 90 deg Elbow		pcs		
	6"Ø x 3m PVC Pipe, Series 1000		pcs		
	Coupling 6"		pcs		
	Solvent Cement		liter		
	Teflon tape		rolls		
			Materials Cost		
B	**Labor**				
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONT. PROFIT (0% - 8% of TDC)				
F. TOTAL MARK-UPS				
G. VALUE ADDED TAX, (VAT)		5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P				
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + H), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				15.29	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.02	**Waste Waterlines**				
A	**Materials**				
	4"Ø x 3m PVC Pipe, Series 1000		pcs		
	2"Ø x 3m PVC Pipe, Series 1000		pcs		
	4"Ø Sanitary Wye		pc		
	4" Ø x 2" Ø PVC Sanitary Tee Reducer		pcs		
	2"Ø Sanitary Wye		pcs		
	2"Ø 90 deg Elbow		pcs		
	4" Ø PVC Coupling		pcs		
	2" Ø P-Trap (lavatory)		pc		
	2" Ø P-Trap (floor drain)		pc		
	2" Ø P-Trap (urinal)		pc		
	2" Ø P-Trap (Kitchen Sink)		pc		
	4" PVC Clean out Plug		pc		
	Solvent cement		liter		
			Materials Cost		
B	**Labor**				
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONT. PROFIT (0% - 8% of TDC)				
F. TOTAL MARK-UPS				
G. VALUE ADDED TAX, (VAT)		5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P				
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + H), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				10.82	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.03	**Waterline**				
A	**Materials**				
	PPR 1/2"ø x 4.0m, PN 20		pcs		
	PPR 1/2"ø 90° Bend		pcs		
	PPR1/2"Ø T-Elbow		pcs		
	Coupling 1/2"		pcs		
	Gate Valve 1/2"		pc		
	Check Valve 1/2"		pc		
	Hose Bibb		pc		
	Teflon tape		rolls		
			Materials Cost		
B	**Labor**				
	Master Plumber				
	Skilled Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONT. PROFIT (0% - 8% of TDC)			
F. TOTAL MARK-UPS			
G. VALUE ADDED TAX, (VAT)	5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P			
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + H), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				3.74	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.04	**Catch Basin**				
A	**Materials**				
	4" CHB		pcs.		
	Portland cement		bags		
	Sand		m^3		
	Gravel (3/4")		m^3		
	10 mm Ø x 6m DRSB, G40		pcs		
	12 mm Ø x 6m DRSB, G40		pc.		
	#16 G.I. Tiewire		kg.		
	Form Lumber 2" x 2" (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pc		
	CWN Assorted		kg.		
			Materials Cost		
B	**Labor**				
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONT. PROFIT (0% - 8% of TDC)				
F. TOTAL MARK-UPS				
G. VALUE ADDED TAX, (VAT)		5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P				
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + H), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				12.06	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.05	**Septic Tank**				
A	**Material**				
	6" CHB		pcs.		
	Portland cement		bags		
	Sand		m^3		
	Gravel		m^3		
	12 mm Ø x 6m DRSB		pcs.		
	10 mm Ø x 6m DRSB		pcs.		
	#16 G. I. Tiewires		kgs.		
	Formlumber 2" x 2" , Coco		bdft.		
	½" x 4' x 8' Ord. Plywood		pcs.		
	CWN assorted		kgs.		
	4"Ø x 3 m uPVC pipe		pcs.		
	4"Ø uPVC wye		pcs.		
	4"Ø Hand hole		pcs.		
			Materials Cost		
B	**Labor**				
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONT. PROFIT (0% - 8% of TDC)				
F. TOTAL MARK-UPS				
G. VALUE ADDED TAX, (VAT)		5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P				
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + H), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				1.00	lot
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.06	**Fixtures**				
A	**Materials**				
	Pedestal Lavatory- vitreous china, white, with two-handle chrome non-metallic series lavatory faucet	1.00	set		
	Water closet - vitreous china class "AA", big, white, elongated, siphon jet, w/ cover,including accessories	1.00	set		
	Floor drain, 100mm x 100mm, stainless	1.00	pc		
			Materials Cost		
B	**Labor**				
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
D	**TOTAL DIRECT COST**	

I N D I R E C T C O S T S

E. MARK-UPS			
1. OCM (0% - 8% of TDC)			
2. CONT. PROFIT (0% - 8% of TDC)			
F. TOTAL MARK-UPS			
G. VALUE ADDED TAX, (VAT)	5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P			
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + H), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
		H. Construction of Security Post			
LOCATION	**:**	**Siargao Airport** Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte		QUANTITY	UNIT
SUBJECT	**:**	**Bill of Quantities**		9.00	cu.m.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
1.00	**SITE WORKS**				
	Activity included *(labor only)*				
	Excavation (4.50 cu.m.)				
	Backfill (2.50 cu.m.)				
	Staking and Layout of Structure Lines				
A	**Materials**				
	Gravel Base		cu.m.		
	Form Lumber 2" x 3" (Coco)		bd.ft.		
	CWN Assorted		kgs.		
			Material Cos		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
	1. OCM (0% - 8% of TDC)		
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				5.02	cu.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.01	**Concrete Works**				
A	**Materials**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel		cu.m.		
	16 mm Ø x 6m DRSB, G60		pcs.		
	12 mm Ø x 6m DRSB, G40		pcs.		
	10 mm Ø x 6m DRSB, G40		pcs.		
	#16 G.I. Tiewire		kgs.		
	Formlumber 2" x 2" (Coco)		bdft.		
	½" x 4' x 8' Ord. Plywood		pcs.		
	CWN assorted		kgs.		
			Material Cos		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
C	**Equipment**	# of EQPT.	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
	Concrete Vibrator				
			Labor Cost		

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
	1. OCM (0% - 8% of TDC)	
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
	E. TOTAL OCM & CONTRACTOR's PROFIT	
	F. VALUE ADDED TAX, (VAT) 5.0% of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (E + F), P	
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit	
	TOTAL ESTIMATED COST (D + G), P	
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit	

				9.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.04	**Aluminum Composite Panel (Cladding)**				
A	**Materials**				
	50 x 50 x 6.00mm thk x 6.0m Angle Bar		pcs		
	1" x 1" x 6m Square Tubular Bar		pcs		
	4mm thk. Aluminum Composite Panel (ACP)		sq.m.		
	Screw		pcs		
	Welding Rod (6011)		kgs		
			Material Cos	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT.	DUR. (DAYS)	RATE/DAY	
	Welding Machine, 200Amp				
	51-100kw Generator Set				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
C	**TOTAL EQUIPMENT COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				4.80	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.05	**Waterproofing Works**				
A	**Materials**				
	Portland Cement		bags		
	Sand		cu.m.		
	Primer		gal.		
	Waterproofing Membrane (One Ply)		roll		
	1.8m x 6.0m x 3mm Wire Mesh		roll		
	11.0kgs Gas		pc		
	Gloves		pcs.		
			Material Cos		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
C.	**Equipment**	# of EQPT.	DUR. (DAYS)	RATE/DAY	
	Torch with gauge				
			Equipment Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
C	**TOTAL EQUIPMENT COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				8.55	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.01	**Tile Works**				
A	**Materials**				
	300mm x 300mm Ceramic Tiles		pcs		
	300mm x 300mm Ceramic Accent Tiles		pcs		
	Portland Cement		bags		
	Sand		cu.m.		
	Tile Adhesive		bag		
	Tile Grout		bags		
			Material Cost	.....	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				24.94	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.02	**Masonry Works**				
A	**Materials**				
	6" CHB		pcs.		
	Portland cement		bags		
	Sand		m^3		
	10 mm Ø x 6m DRSB		pcs		
	#16 G.I. Tiewire		kg.		
			Material Cos	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				8.50	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.03	**Carpentry Works**				
3.03.01	**Ceiling Board (4.50 sq.m.)**				
A.	**Material**				
	4.5mm thk. x 4' x 8' Fiber Cement Board Ceiling		pcs		
	J-furring, 19mm x 50mm x 5.0m t=0.40mm		pcs		
	C-Channel, 12mm x 38mm x 5.0m, t=0.80mm		pcs		
	Wall Angle, 25mm x 25mm x 3.0m, t=0.40m		pcs		
	W-clip, double		pcs		
	Steel Angle		pcs.		
	Suspension Clip and Hanger Rod		pcs.		
	Blind Rivets, ⅛ x ⅜ (4-4)		pcs.		
	Concrete Nail/kg		kgs		
	Fiber cement Board Screw		pcs.		
			Material Cos		
3.03.02	**Cabinet (4.0 sq.m.)**				
A.	**Material**				
	4' x 8' x 12mm thk. Marine Plywood		pcs.		
	2' x 4' x 25mm thk. Marine Plywood		pc.		
	CWN Assorted		kgs		
	Quick Drying Enamel Paint		L		
	Paint Brush 3"		pcs.		
			Material Cos		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & CONTRACTOR's PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (E + F), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				20.51	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.04	**Painting Works**				
A	**Materials**				
3.04.01	**Exterior & Interior Wall (16.01 sq.m)**				
	Flat Latex Paint		gals.		
	Acrytex (Acrylic Solvent Based)		gals.		
	Acri-color		liter		
	Concrete Neutralizer		gal.		
	Acrytex Cast (Putty)		gal.		
	Paint Roller 9" w/ Pan		pcs.		
	Paint Brush 4"		pcs.		
	Paint Brush 2"		pcs.		
	Rugs		kgs.		
	Sand Paper # 120		pcs.		
			Material Cost	. . . . .	
3.04.02	**Ceiling Board (4.50 sq.m.)**				
	Flat Latex Paint		gal.		
	Acrylic Water Base Latex Paint		gal.		
	Joint Compound (Masonry Putty)		gals.		
	Mesh tape, 2" x 250ft.		pcs		
	Paint Roller 9" w/ Pan		pc		
	Paint Brush 4"		pcs.		
	Paint Brush 2"		pcs.		
	Rugs		kg		
	Sand Paper # 120		pcs.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				7.00	sets
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.05	**Doors & Windows**				
A	**Materials**				
3.05.01	**Doors**				
	D-1 0.70m x 2.10m, 40mm thk. Hollow Core Door w/ 8mm thk. Clear Glass Panels in 100mmx50mm KD WD Door Jamb and Header and louver with complete Accessories	2.00	sets		
	D-2 0.70m x 2.10m, 40mm thk. Hollow Core Door in 100mmx50mm KD WD Door Jamb and Header and Louver with complete Accessories	1.00	set		
3.05.02	**Windows**				
	W-1 0.60m x 0.30m, Awning Window w/ 6mm thk. Clear Glass Panels w/ Complete Accessories	1.00	set		
	W-2 0.60m x 1.20m, Aluminum Powder Coat Fixed Window w/ 6mmthk. Clear Glass Panels w/ Complete Accessories	2.00	sets		
	W-3 0.80m x 1.20m, Aluminum Powder Coat Fixed Window w/ 6mmthk. Clear Glass Panels w/ Complete Accessories	1.00	set		
			Material Cost	.....	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & CONTRACTOR's PROFIT				
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (E + F), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				6.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.01	**Storm Drainage Line**				
A	**Materials**				
	75 mm Ø x 3 m PVC Pipe, Series 1000		pcs.		
	75 mm Ø 90 deg PVC Elbow		pcs.		
	Solvent Cement		liter		
	Teflon tape		rolls		
			Materials Cost		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	I N D I R E C T C O S T S			
1. OCM (0% - 8% of TDC)				
2. CONT. PROFIT (0% - 8% of TDC)				
F. TOTAL MARK-UPS				
G. VALUE ADDED TAX, (VAT)		5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P				
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + H), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				12.64	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.02	**Waste Waterline**				
A	**Materials**				
	100 mm Ø x 3 m PVC Pipe, Series 1000		pcs		
	50 mm Ø x 3 m PVC Pipe, Series 1000		pcs.		
	100 mm Ø 90 deg PVC Elbow		pcs.		
	50 mm Ø 90 deg PVC Elbow		pcs		
	50 mm Ø 45 deg PVC Elbow		pcs		
	100 mm Ø x 50 mm Ø PVC Sanitary Wye Reducer		pcs		
	100 mm Ø PVC Sanitary Wye		pc		
	50 mm Ø PVC Sanitary Wye		pcs		
	100 mm Ø PVC Coupling		pcs		
	50 mm Ø P-Trap (lavatory)		pc		
	50 mm Ø P-Trap (floor drain)		pc		
	50 mm Ø P-Trap (urinal)		pc		
	100 mm PVC Clean out Plug		pc		
	Solvent cement		liter		
			Materials Cost		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONT. PROFIT (0% - 8% of TDC)				
F. TOTAL MARK-UPS				
G. VALUE ADDED TAX, (VAT)		5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P				
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + H), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				8.10	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.03	**Waterline**				
A	**Materials**				
	PPR 1/2"ø x 4.0m, PN 20		pcs		
	PPR 1/2"Ø Tee		pcs		
	PPR1/2"Ø Elbow		pcs		
	Coupling 1/2"		pcs		
	Gate Valve 1/2"		pc		
	Check Valve 1/2"		pcs		
	Teflon tape		rolls		
			Materials Cost		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONT. PROFIT (0% - 8% of TDC)			
F. TOTAL MARK-UPS			
G. VALUE ADDED TAX, (VAT)	5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P			
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + H), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				1.00	lot
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.06	**Fixtures**				
A	**Materials**				
	Pedestal Lavatory- vitreous china, white, with two-handle chrome non-metallic series lavatory faucet	1.00	set		
	Water closet - vitreous china class "AA", big, white, elongated, siphon jet, w/ cover including accessories	1.00	set		
	Urinal w/ Spreader	1.00	set		
	Bidet spray w/ complete accessories, Chrome ABS body, flexible spray head 102mmL x 62mmW & handspray wall holder 35mm dia	1.00	set		
	Floor drain, 100mm x 100mm, stainless	1.00	pc		
			Materials Cost		
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONT. PROFIT (0% - 8% of TDC)					
F. TOTAL MARK-UPS					
G. VALUE ADDED TAX, (VAT)	5.0%	of (D + F)			
H. TOTAL ESTIMATED INDIRECT COST (F + G), P					
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + H), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
	:	**J. Construction of Water Tank**			
LOCATION	**:**	**Siargao Airport** Brgy. Sayak, del Carmen, Siargao Island,			
	:	Surigao del Norte		QUANTITY	UNIT
SUBJECT	**:**	**Bill of Quantities**		10.00	cu.m.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
1.00	**SITE WORKS**				
	Excavation (9 cu.m.)				
A	**Materials**				
	Gravel Base (3/4")		cu.m.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				11.28	cu.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.01	**Concrete Works**				
A	**Materials**				
	Portland Cement		bags		
	Sand		m^3		
	Gravel (3/4")		m^3		
	20 mm Ø x 6m DRSB, G60		pcs		
	16 mm Ø x 6m DRSB, G60		pcs		
	10 mm Ø x 6m DRSB, G40		pcs		
	#16 Tiewires		kgs		
	Formlumber 2" x 2" (Coco)		bd.ft.		
	½" x 4' x 8' Ord. Plywood		pcs		
	CWN assorted		pcs		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT.	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
	Concrete Vibrator				
			Labor Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & CONTRACTOR's PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				1.25	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.04	**Catch Basin**				
A	**Materials**				
	4" CHB		pcs		
	Portland cement		bags		
	Sand		m³		
	Gravel		m³		
	10 mm Ø x 6m DRSB, G40		pcs		
	12 mm Ø x 6m DRSB, G40		pcs		
	Tiewires		kgs		
	Formlumber		bd.ft		
	½" x 4' x 8' Ord. Plywood		pcs		
	CWN Asorted		kgs		
			Materials Cost		
B	**Labor**				
	Project (Civil) Engineer				
	Master Plumber				
	Skilled Laborer				
	Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	INDIRECT COSTS		
1. OCM (0% - 8% of TDC)			
2. CONT. PROFIT (0% - 8% of TDC)			
F. TOTAL MARK-UPS			
G. VALUE ADDED TAX, (VAT)	5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P			
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + H), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				10.97	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.07	**Pipes & Fittings**				
A	**Materials**				
	50mm Ø G.I. Pipe x 6.0m		pcs		
	75mm Ø G.I. Pipe x 6.0m		pc		
	GI Pipe 2"Ø 90° Bend		pcs		
	GI Pipe 3"Ø 90° Bend		pc		
			Materials Cost		
B	**Labor**				
	Project (Civil) Engineer				
	Master Plumber				
	Skilled Laborer				
	Common Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**		
B	**TOTAL LABOR COST**		
D	**TOTAL DIRECT COST**		
	I N D I R E C T C O S T S		
1. OCM (0% - 8% of TDC)			
2. CONT. PROFIT (0% - 8% of TDC)			
F. TOTAL MARK-UPS			
G. VALUE ADDED TAX, (VAT)	5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P			
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + H), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				1.00	unit
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.08	**Modular Tank**				
A	**Materials**				
	1m x 1m AISI- 304 grade stainless steel panels with standard accessories: manhole cover, air vent, water level indicator, interior & external ladders	1.00	unit		
	4"x6" Ø S/S Nipple with flange for (Inlet, Outlet & Drain)		pcs		
	1"x4" Ø S/S Nipple for Electrode		pc		
			Materials Cost		
B	**Labor**				
	Project (Civil) Engineer				
	Master Plumber				
	Skilled Laborer				
	Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONT. PROFIT (0% - 8% of TDC)				
F. TOTAL MARK-UPS				
G. VALUE ADDED TAX, (VAT)		5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P				
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + H), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				2.00	units
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
6.00	**PLUMBING WORKS**				
6.09	**Pumps**				
A	**Materials**				
	Duplex Booster Pump 2.78 LPS@ 76.7meters 1x230V	2.00	units		
	Duplex Type Booster Pump Control Panel	1.00	unit		
	1250mmdia Pneumatic Tank (2.5cu.m volume capacity)	1.00	unit		
	50mm Ø PVC Pipe x 3.0m		pcs		
	Polyvinyl (PVC) 2"Ø 90° Bend		pcs		
	Gate Valve		pcs		
	Check Valve		pcs		
	Solvent Cement		liters		
	Teflon tape		rolls		
			Materials Cost		
B	**Labor**				
	Project (Civil) Engineer				
	Master Plumber				
	Skilled Laborer				
	Laborer				
			Labor Cost		

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
1. OCM (0% - 8% of TDC)				
2. CONT. PROFIT (0% - 8% of TDC)				
F. TOTAL MARK-UPS				
G. VALUE ADDED TAX, (VAT)		5.0%	of (D + F)	
H. TOTAL ESTIMATED INDIRECT COST (F + G), P				
I. TOTAL ESTIMATED UNIT INDIRECT COST (H / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + H), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**
	:	**K. Construction of VRF Area**
LOCATION	**:**	**Siargao Airport**
	:	Brgy. Sayak, Del Carmen, Siargao Island, Surigao Del Norte
SUBJECT	**:**	**Bill of Quantities**

				4.2	**cu.m.**
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
2.01	**Concrete Works**				
A	**Material**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel, 3/4" *(including gravel base 50mmthk.)*		cu.m.		
	10 mm Ø x 6m DRSB, G40		pcs		
	#16 G.I. Tiewires		kgs		
	Formlumber 2" x 2" (Coco)		bd.ft.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Concrete Vibrator				
	One Bagger Concrete Mixer				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)		
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				274.42	kgs
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/STRUCTURAL WORKS**				
2.02	**Steel Works**				
A	**Material**				
	3"Ø GI Pipe, Sched 40.		pcs.		
	2"Ø GI Pipe, Sched 40.		pcs.		
	1"x 1/8" Flat Bars		pcs.		
	10mmØ x 6m Plain bar		pcs.		
	6 ft. Width Cyclone wire #10		li.m.		
	Welding Rod		box		
	Oxygen & Acetylene		set		
	Galvawash		gals.		
	Red Oxide		gals.		
	Epoxy Primer		gals.		
	Paint Brush 3"		pcs.		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Welding Machine, 200Amp				
	51-100kw Generator Set				
	Cutting Torch w/ gauge				
			Equipment Cost	.....	

A	**TOTAL MATERIAL COST**			
B	**TOTAL LABOR COST**			
C	**TOTAL EQUIPMENT**			
D	**TOTAL DIRECT COST**			
	INDIRECT COSTS			
	1. OCM (0% - 8% of TDC)			
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & PROFIT				
F. VALUE ADDED TAX, (VAT)		5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (F + E), P				
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
TOTAL ESTIMATED COST (D + G), P				
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
		L. Concreting of Vehicular Parking Area			
LOCATION	**:**	**Siargao Airport**			
	:	Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte			
SUBJECT	**:**	**Bill of Quantities**			
				5,480.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
L.	**Concreting of Vehicular Parking Area**				
100	**Clearing and Grubbing**				
	(@ Sta. 0+789.57 to Sta. 0+911.34)				
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Bulldozer, 165hp				
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
			Equipment Cost	. . . . .	
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0% **of (D + E)**				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				111.35	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
L. 102	**Concreting of Vehicular Parking Area** **Excavation and Disposal** *(@ Sta. 0+789.57 to Sta. 0+911.34)*				
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Bulldozer, 165hp				
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
			Equipment Cost	. . . . .	
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
OCM & CONTRACTOR					
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				3,883.40	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
L.	**Concreting of Vehicular Parking Area**				
104	**Embankment**				
	(@ Sta. 0+789.57 to Sta. 0+911.34)				
A	**Materials**				
	Common Borrow (suitable materials)		cu.m.		
	use excavated (suitable) materials (112 cu.m.)				
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
	Motorized Road Grader, 135hp				
	Vibratory Tandem Roller, 10.10M.T.				
	Water Truck (1000 gal)				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
	1. OCM (0% - 8% of TDC)	
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
	E. TOTAL OCM & CONTRACTOR's PROFIT	
	F. VALUE ADDED TAX, (VAT) 5.0% **of (D + E)**	
	G. TOTAL ESTIMATED INDIRECT COST (E + F), P	
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit	
	TOTAL ESTIMATED COST (D + G), P	
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit	

				578.55	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
L. 105	**Concreting of Vehicular Parking Area** **Sub-Grade Preparation** *(150mm thk)*				
A	**Materials**				
	Aggregate Sub-base Coarse		cu.m.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
	Motorized Road Grader, 135hp				
	Vibratory Tandem Roller, 10.10M.T.				
	Water Truck (1000 gal)				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
	1. OCM (0% - 8% of TDC)	
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
	E. TOTAL OCM & CONTRACTOR's PROFIT	
	F. VALUE ADDED TAX, (VAT) 5.0% of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (E + F), P	
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit	
	TOTAL ESTIMATED COST (D + G), P	

				1,107.54	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
L. 201.2	**Concreting of Vehicular Parking Area** **Aggregate Base Course** *(250mm thk. @ VPA, 0.70m @ Sidewalk/Curb)*				
A	**Materials**				
	Crushed Aggregate Base Coarse		cu.m.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
	Motorized Road Grader, 135hp				
	Vibratory Tandem Roller, 10.10M.T.				
	Water Truck (1000 gal)				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				5,904.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
L.	**Concreting of Vehicular Parking Area**				
311	**Portland Cement Concrete Pavement**				
	(100mm thk & 250 mm thk pavement, including Sidewalk, Curb & Gutter)				
A	**Materials**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel 3/4"		cu.m.		
	Curing Compound		L		
	16mm dia. x 6.00m DRSB		pcs		
	10mm dia. x 6.00m DRSB		pcs		
	# 16 G.I. Tie Wire		kgs.		
	Diamond Blade Cutter 14"Ø		pcs		
	Formed Oil		L		
	Paint Brush		pcs.		
	Joint Sealer		tins		
	Backer Rod 25mm dia. x 3.5m		pcs		
	Red Oxide Paint		L		
	Grease / Tar *(for dowel)*		L		
	1/4" x 4' x 8' Ordinary Plywood		pcs.		
	Form Lumber 2" x 3"		bd.ft.		
	CWN Assorted		kgs.		
	Steel Form 25cm width (rental)		li.m.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Materials Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR.(DAYS)	RATE/DAY	
	Transit Mixer (5 cu.m.)				
	Batching Plant (40 cu.m./day)				
	Payloader, 1.50 cu.m.				
	Concrete Vibrator				
	Concrete Screeder (5.5hp)				
	Water Truck (1000 gal)				
	Concrete Saw				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				1.00	lot
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
7.00	**Miscellaneous Works**				
	(including Wheel Stop, PWD Pedestal and Markings, and VPA Markings)				
A	**Materials**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (G-1, 3/4")		cu.m.		
	12mm dia. x 6.00m DRSB		pcs.		
	10mm dia. x 6.00m DRSB		pcs.		
	Flat Latex Paint		gals.		
	Reflectorized Traffic Paint		gals.		
	Lacquer Thinner		gal.		
	9" Roller Brush		pcs.		
	11" x 13" Roller Tray		pcs.		
	4" Paint Brush		pcs.		
	2" dia x 6m G.I Pipe		pc.		
	0.2m x 0.20m x 3/4" Thk. MSP (Pre-fab)		pc.		
	25mm dia Anchor Bolt (w/ nuts and washers)		pcs.		
	PWD Signage	1.00	lot		
	Soft Brooms		pcs.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project Civil Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**
		M. Concreting of Ground Service Area
LOCATION	**:**	**Siargao Airport**
	:	Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte
SUBJECT	**:**	**Bill of Quantities**

				3,996.75	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
M.	**Concreting of Ground Service Area**				
100	**Clearing and Grubbing**				
	(@ Sta. 0+755 to Sta. 0+990)				
B	**Labor**	# of Manpowe	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Bulldozer, 165hp				
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
			Equipment Cost	. . . . .	
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT**				
D	**TOTAL DIRECT COST**				

INDIRECT COSTS	
1. OCM (0% - 8% of TDC)	
2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
E. TOTAL OCM & CONTRACTOR's PROFIT	
F. VALUE ADDED TAX, (VAT) 5.0% **of (D + E)**	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P	
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit	
TOTAL ESTIMATED COST (D + G), P	
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit	

				115.00	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
M.	**Concreting of Ground Service Area**				
102	**Excavation and Disposal**				
	(@ Sta. 0+755 to Sta. 0+990)				
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Bulldozer, 165hp				
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
			Equipment Cost	. . . . .	
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CC					
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				1,174.74	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
M.	**Concreting of Ground Service Area**				
104	**Embankment**				
	(@ Sta. 755 to Sta. 990)				
A	**Materials**				
	Common Borrow (suitable materials)		cu.m.		
	use excavated (suitable) materials (115 cu.m.)				
			Material Cost	. . . . .	
B	**Labor**	# of Manpowe	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
		Labor Cost		. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
	Motorized Road Grader, 135hp				
	Vibratory Tandem Roller, 10.10M.T.				
	Water Truck (1000 gal)				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT**	
D	**TOTAL DIRECT COST**	
	I N D I R E C T C O S T S	
	1. OCM (0% - 8% of TDC)	
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
	E. TOTAL OCM & CONTRACTOR's PROFIT	
	F. VALUE ADDED TAX, (VAT) 5.0% **of (D + E)**	
	G. TOTAL ESTIMATED INDIRECT COST (E + F), P	
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit	
	TOTAL ESTIMATED COST (D + G), P	
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit	

				388.32	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
M. 105	**Concreting of Ground Service Area** **Sub-Grade Preparation** *(150mm thk)*				
A	**Materials**				
	Aggregate Sub-base Coarse		cu.m.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
	Motorized Road Grader, 135hp				
	Vibratory Tandem Roller, 10.10M.T.				
	Water Truck (1000 gal)				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
	E. TOTAL OCM & CONTRACTOR's PROFIT				
	F. VALUE ADDED TAX, (VAT) 5.0% of (D + E)				
	G. TOTAL ESTIMATED INDIRECT COST (E + F), P				
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
	TOTAL ESTIMATED COST (D + G), P				
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				1,029.43	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
M. 201.2	**Concreting of Ground Service Area** **Aggregate Base Course** *(250mm thk. at GSA, 70mm @ Sidewalk/Curb)*				
A	**Materials**				
	Crushed Aggregate Base Coarse		cu.m.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
	Motorized Road Grader, 135hp				
	Vibratory Tandem Roller, 10.10M.T.				
	Water Truck (1000 gal)				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
	1. OCM (0% - 8% of TDC)				
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)				
	E. TOTAL OCM & CONTRACTOR's PROFIT				
	F. VALUE ADDED TAX, (VAT) 5.0% of (D + E)				
	G. TOTAL ESTIMATED INDIRECT COST (E + F), P				
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit				
	TOTAL ESTIMATED COST (D + G), P				
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit				

				2,589.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
M. 311	**Concreting of Ground Service Area** **Portland Cement Concrete Pavement** *(including Curb & Gutter)*				
A	**Materials**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel 3/4"		cu.m.		
	Curing Compound		L		
	16mm dia. x 6.00m DRSB		pcs		
	10mm dia. x 6.00m DRSB		pcs		
	# 16 G.I. Tie Wire		kgs.		
	Diamond Blade Cutter 14"Ø		pcs		
	Formed Oil		L		
	Paint Brush		pcs.		
	Joint Sealer		tins		
	Backer Rod 25mm dia. x 3.5m		pcs		
	Red Oxide Paint		L		
	Grease / Tar *(for dowel)*		L		
	Ordinary Plywood (4' x 8' x 1/4")		pcs		
	Formlumber 2" x 2" (Coco)		bd.ft.		
	CWN Assorted		kgs.		
	Steel Form 25cm width (rental)		li.m.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Materials Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR.(DAYS)	RATE/DAY	
	Transit Mixer (5 cu.m.)				
	Improvised Batching Plant (40 cu.m./day)				
	Payloader, 1.50 cu.m.				
	Concrete Vibrator				
	Concrete Screeder (5.5hp)				
	Water Truck (1000 gal)				
	Concrete Saw				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT** **N. Expansion of Apron**			
LOCATION	**:**	**Siargao Airport**			
	:	Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte			
SUBJECT	**:**	**Bill of Quantities**			
				31,948.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
N.	**Expansion of Apron**				
100	**Clearing and Grubbing**				
	(@ Sta. 0+600 to Sta. 1+096.16)				
B	**Labor**	# of Manpowe	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Bulldozer, 165hp				
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
			Equipment Cost	. . . . .	
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0% **of (D + E)**				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				6,480.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
N.	**Expansion of Apron** *(200 m x 40 m)*				
101	**Removal of Existing Structure and Obstruction**				
	Activity *(labor only)*				
	Demolition of Existing VPA - 5,276.54 sq.m.				
	Demolition of Existing PTB - 906.48 sq.m.				
	Demolition of Existing Admin Bldg. - 120.57 sq.m.				
	Demolition of Existing Fire Station - 176.41 sq.m.				
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Backhoe w/ Concrete Breaker or Pencil Hammer				
	Jack Hammer				
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
			Equipment Cost	. . . . .	
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0% **of (D + E)**				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				8,397.40	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
N.	**Expansion of Apron**				
102	**Excavation and Disposal**				
	(@ Sta. 0+600 to Sta. 1+110)				
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Bulldozer, 165hp				
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
			Equipment Cost	. . . . .	
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0% **of (D + E)**				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				23,882.27	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
N.	**Expansion of Apron**				
104	**Embankment**				
	(@ Sta. 0+600 to Sta. 1+110)				
A	**Materials**				
	Common Borrow (suitable materials)		cu.m.		
	use excavated (suitable) materials (8397.40 cu.m.)				
			Material Cost	. . . . .	
B	**Labor**	# of Manpowe	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
		Labor Cost		. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
	Motorized Road Grader, 135hp				
	Vibratory Tandem Roller, 10.10M.T.				
	Water Truck (1000 gal)				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & CONTRACTOR's PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% **of (D + E)**	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				972.00	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
N.	**Expansion of Apron**				
105	**Sub-Grade Preparation** *(150mm thk)*				
A	**Materials**				
	Aggregate Sub-base Coarse		cu.m.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
	Motorized Road Grader, 135hp				
	Vibratory Tandem Roller, 10.10M.T.				
	Water Truck (1000 gal)				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & CONTRACTOR's PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% **of (D + E)**	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				1,620.00	cu.m
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
N. 201.2	**Expansion of Apron** **Aggregate Base Course** *(250mm thk.)*				
A	**Materials**				
	Crushed Aggregate Base Coarse		cu.m.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Payloader, 1.50 cu.m.				
	Dump Truck, 10 cu.m.				
	Motorized Road Grader, 135hp				
	Vibratory Tandem Roller, 10.10M.T.				
	Water Truck (1000 gal)				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT**	
D	**TOTAL DIRECT COST**	
	I N D I R E C T C O S T S	
	1. OCM (0% - 8% of TDC)	
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
	E. TOTAL OCM & CONTRACTOR's PROFIT	
	F. VALUE ADDED TAX, (VAT) 5.0% **of (D + E)**	
	G. TOTAL ESTIMATED INDIRECT COST (E + F), P	
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit	
	TOTAL ESTIMATED COST (D + G), P	
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit	

				6,480.00	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
N.	**Expansion of Apron**				
311	**Portland Cement Concrete Pavement**				
A	**Materials**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel 3/4"		cu.m.		
	Curing Compound		L		
	25mm dia. x 6.00m Round Bars		pcs		
	10mm dia. x 6.00m DRSB		pcs		
	# 16 G.I. Tie Wire		kgs.		
	Diamond Blade Cutter 14"Ø		pcs		
	Formed Oil		L		
	Paint Brush		pcs.		
	Joint Sealer		tins		
	Backer Rod 25mm dia. x 3.5m		pcs		
	Red Oxide Paint		L		
	Grease / Tar		L		
	Steel Form 30cm width (rental)		li.m.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Materials Engineer				
	Geodetic Engineer				
	Survey Aide				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR.(DAYS)	RATE/DAY	
	Transit Mixer (5 cu.m.)				
	Improvised Batching Plant (40 cu.m./day)				
	Payloader, 1.50 cu.m.				
	Concrete Vibrator				
	Concrete Screeder (5.5hp)				
	Water Truck (1000 gal)				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0% **of (D + E)**				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
		O. Drainage System			
LOCATION	**:**	**Siargao Airport**			
	:	Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte			
SUBJECT	**:**	**Bill of Quantities**			
				2,951.42	cu.m.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
1.00	**SITE WORKS**				
	(VPA SGI, RCPC & Apron Trench Drainage)				
	Activity (labor only)				
	Excavation (2,912.42 cu.m.				
	Backfill (833.05 cu.m.)				
A	**Materials**				
	Gravel Base (3/4")		cu.m.		
			Material Cost	.....	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Backhoe Crawler (1.09 cu.m.)				
	Payloader (1.50 cu.m)				
	Dump Truck (10 cu.m)				
			Equipment Cost	.....	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
	1. OCM (0% - 8% of TDC)	
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
	E. TOTAL OCM & CONTRACTOR's PROFIT	
	F. VALUE ADDED TAX, (VAT) 5.0% of (D + E)	
	G. TOTAL ESTIMATED INDIRECT COST (E + F), P	
	H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit	
	TOTAL ESTIMATED COST (D + G), P	
	TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit	

				58.46	cu.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.01	**Concrete Works**				
	(VPA SGI, RCP & Apron Trench Drainage)				
A	**Materials**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	12mmØ x 6m DRSB, Grade 40		pcs		
	10mmØ x 6m DRSB, Grade 40		pcs		
	#16 GI Tie Wire		kgs		
	1/4" x 4' x 8' Ordinary Plywood		pcs		
	2" x 2" Form Lumber		bd.ft.		
	CWN (Assorted)		kgs		
			Material Cost	.....	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	One Bagger Mixer				
	Concrete Vibrator				
			Equipment Cost	.....	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & CONTRACTOR's PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				2,100.43	kgs.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.02	**Steel Works**				
	(VPA SGI & Apron Trench Drainage)				
A	**Materials**				
	1" x 1" x 1/4" Flat bar for Framing		pcs.		
	1/4" x 3/4" Flat bar		pcs.		
	1/8" x 1/2" x1/2" Flat bar		pcs.		
	1/8" x 3/8" Flat bar		pcs.		
	1" x 1" x 3/16" Angle Bar		pcs.		
	1m x 27m Aluminum Screen (10mm x 10mm)		rolls		
	12mm dia x 6m Round Bar		pcs		
	10mm dia x 6m DRSB		pcs		
	Welding Rod		boxes		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project (Civil) Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	Portable Generator Set, 10 kVA				
	Welding Machine, 10-200 Amp				
			Equipment Cost	. . . . .	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
1. OCM (0% - 8% of TDC)		
2. CONTRACTOR's PROFIT (0% - 8% of TDC)		
E. TOTAL OCM & CONTRACTOR's PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				1,196.03	sq.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
3.00	**ARCHITECTURAL WORKS**				
3.02	**Masonry Works**				
	(VPA SGI & Apron Trench Drainage)				
A	**Materials**				
	6" CHB		pcs		
	Portland Cement		bags		
	Sand		cu.m.		
	12mmØ x 6m DRSB		pcs		
	10mmØ x 6m DRSB		pcs		
	#16 GI Tie Wire		kgs		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	# of EQPT	DUR. (DAYS)	RATE/DAY	
	One Bagger Mixer				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				855.00	li.m.
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
8.00	**RCPC WORKS**				
A	**Materials**				
	0.90m dia x 1m RCPC		pcs		
	0.60m dia x 1m RCPC		pcs		
	Portland Cement		bags		
	Sand		cu.m.		
			Material Cost	. . . . .	
B	**Labor**	# of Manpower	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

NAME OF PROJECT	**: SIARGAO AIRPORT DEVELOPMENT PROJECT**				
	P. Construction Perimeter Fence				
LOCATION	**: Siargao Airport**				
	: Brgy. Sayak, del Carmen, Siargao Island, Surigao del Norte				
SUBJECT	**: Bill of Quantities**			35.00	bays
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
I	**CONSTRUCTION OF CHB FENCE**				
1.00	**SITE WORKS (594.25 cu.m.)**				
	Activity (labor only)				
	Clearing and Grubbing *(including security fence)* - 122.25 cu.m.				
	Excavation - 442.0 cu.m.				
	Back fill - 148.07 cu.m.				
A.	**Material**				
	Gravel Base		cu.m.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)				
G. TOTAL ESTIMATED INDIRECT COST (F + E), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				35.00	bays
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
I	**CONSTRUCTION OF CHB FENCE**				
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.01	**Concrete Works**				
A	**Material**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	12mm dia DRSB, G40		pcs		
	10mm dia DRSB, G40		pcs		
	#16 G.I. Tie Wire		kgs.		
	1/4" x 4' x 8' Ordinary Plywood		pcs.		
	2" x 2" Form Lumber (Coco)		bd.ft.		
	Assorted CWN		kgs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
	Concrete Vibrator				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				35.00	bays
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
I	**CONSTRUCTION OF CHB FENCE**				
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.02	**Steel Works - 453.60 kgs.**				
A	**Material**				
	2"Ø x 6.0m GI Pipe Sched #40		pcs		
	3/6" thk cover cap		pcs		
	10mmØ x 6.0m Plain Bars		pcs		
	Barbed Wire, 2.5mm thk (100m/roll)		rolls		
	Welding Rod (15pcs/kg.))		kgs.		
	Hacksaw Blade		pcs.		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Portable Generator Set, 10 kVA				
	Welding Machine, 10-200 Amp				
			Equipment Cost	.....	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				35.00	bays
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
I	**CONSTRUCTION OF CHB FENCE**				
3.00	**ARCHITECTURAL WORKS**				
3.02	**Masonry Works - 1096.20 sq.m.**				
A	**Material**				
	150mm CHB		pcs.		
	150mm CHB Overflow Apperture		pcs.		
	Portland Cement		bags		
	Sand		cu.m.		
	10mmØ x 6.0m DRSB, G40		pcs		
	#16 G.I. Tie Wire		kgs.		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
			Equipment Cost	.....	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				

INDIRECT COSTS			
1. OCM (0% - 8% of TDC)			
2. CONTRACTOR's PROFIT (0% - 8% of TDC)			
E. TOTAL OCM & CONTRACTOR's PROFIT			
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P			
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit			
TOTAL ESTIMATED COST (D + G), P			
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit			

				128.00	bays
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
II	**CONSTRUCTION OF SECURITY FENCE W/ GATE**				
1.00	**SITE WORKS (124.14 cu.m.)**				
	Activity (labor only)				
	Excavation - 116.14 cu.m.				
	Back fill - 82.60 cu.m.				
A.	**Material**				
	Gravel Base (3/4")		cu.m.		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				128.00	bays
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
II	**CONSTRUCTION OF SECURITY FENCE W/ GATE**				
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.01	**Concrete Works - 33.31. cu.m.**				
A	**Material**				
	Portland Cement		bags		
	Sand		cu.m.		
	Gravel (3/4")		cu.m.		
	16mm dia DRSB, G60		pcs.		
	12mm dia DRSB, G40		pcs.		
	10mm dia DRSB, G40		pcs.		
	#16 G.I. Tie Wire		kgs.		
	1/4" x 4' x 8' Ordinary Plywood		pcs		
	2" x 2" Form Lumber (Coco)		bd.ft.		
	Assorted CWN		kgs		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
	Concrete Vibrator				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

				128.00	bays
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
II	**CONSTRUCTION OF SECURITY FENCE W/ GATE**				
2.00	**CIVIL/ STRUCTURAL WORKS**				
2.02	**Steel Works -6256.09 kgs.**				
A	**Material**				
	2"Ø x 6.0m GI Pipe Sched #40		pcs		
	3"Ø x 6.0m GI Pipe Sched #40		pcs		
	3/6" thk cover cap		pcs		
	38mmØ x 6m GI Pipe Ached #40		pcs		
	38 mm dia Plug End Cap		pcs.		
	10mmØ x 6.0m Plain Bars		pcs		
	Barbed Wire, 2.5mm thk (100m/roll)		rolls		
	Cyclone wire 2 x 2 (1.8m x 6m) Gauge #14		rolls		
	1" x 1/8" x 6.0m thk flat bar		pcs		
	10mmØ Round Steel Bar		pcs		
	20mm dia x 3m Round Bar		pc		
	25mm diax 3m G.I. Pipe		pc		
	6mm x 50mm x 6m Flat Bar		pc		
	6mm x 25mm x 25mm Anglular Steel Bar, 6m		pc		
	Welding Rod E6011 (20kgs/bx)		boxes		
	Epoxy Primer w/ Catalyst		gals		
	Silver Paint		gals		
	Paint Brush 3"		pcs		
			Material Cost	.....	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	.....	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	Portable Generator Set, 10 kVA				
	Welding Machine, 10-200 Amp				
			Equipment Cost	.....	

A	**TOTAL MATERIAL COST**	
B	**TOTAL LABOR COST**	
C	**TOTAL EQUIPMENT COST**	
D	**TOTAL DIRECT COST**	
	INDIRECT COSTS	
	1. OCM (0% - 8% of TDC)	
	2. CONTRACTOR's PROFIT (0% - 8% of TDC)	
E. TOTAL OCM & CONTRACTOR's PROFIT		
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)	
G. TOTAL ESTIMATED INDIRECT COST (E + F), P		
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit		
TOTAL ESTIMATED COST (D + G), P		
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit		

				128.00	bays
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
II	**CONSTRUCTION OF SECURITY FENCE W/ GATE**				
3.00	**ARCHITECTURAL WORKS**				
3.02	**Masonry Works - 254.44 sq.m.**				
A	**Material**				
	150mm CHB		pcs.		
	Portland Cement		bags		
	Sand		cu.m.		
	10mmØ x 6.0m DRSB, G40		pcs		
	#16 G.I. Tie Wire		kgs.		
			Material Cost	. . . . .	
B	**Labor**	QTY	DUR. (DAYS)	RATE/DAY	
	Project Engineer				
	Construction Foreman				
	Skilled Laborer				
	Common Laborer				
			Labor Cost	. . . . .	
C	**Equipment**	QTY	DUR. (DAYS)	RATE/DAY	
	One Bagger Concrete Mixer				
			Equipment Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% - 8% of TDC)					
2. CONTRACTOR's PROFIT (0% - 8% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%	of (D + E)			
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

NAME OF PROJECT	**:**	**SIARGAO AIRPORT DEVELOPMENT PROJECT**			
LOCATION	**:**	**Siargao Airport**			
	:	Brgy. Sayak, Del Carmen, Siargao Island, Surigao Del Norte			
SUBJECT	**:**	**Bill of Quantities**		1.00	lot
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
SPL-2	**Temporary Facility**				
A	**Materials**				
	Staff House, fully furnished, including electric and water utilities	22.00	months Material Cost	. . . . .	
A	**TOTAL MATERIAL COST**				
D	**TOTAL DIRECT COST**				
	I N D I R E C T C O S T S				
1. OCM (0% of TDC)					
2. CONTRACTOR's PROFIT (0% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0% of (D + E)				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

Submitted by:

Signature: _____

Printed Name: _____

Position: _____

Name Company: _____

Date: _____

Section IX. Bidding Forms

TABLE OF CONTENTS

Other Bidding Forms

(ANNEX "A")

{ATTACH COMPANY LETTERHEAD/LOGO}

Statement of all its ON-GOING 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

Name of Project: _____
Location of Project: _____

Name of Company : _____
Address of Company: _____

Name of Contract	a. Owner's Name b. Address c. Telephone No.	Nature of Work	Contractor's Role		Contract Amount at Award	a. Date Awarded b. Date of Contract c. Contract Duration d. Date Started e. Date Completed	Accomplishment		Values of Outstanding Works
			Description	%			Planned	Actual	
Government									
Private									
							Total value of outstanding works		

Submitted by: _____
(Print Name & Signature)

Designation: _____

Date: _____

{ATTACH COMPANY LETTERHEAD/LOGO}

Statement of single largest COMPLETED contract similar to the contract to be bid

Name of Project: _____
Location of Project: _____

Name of Company : _____
Address of Company: _____

Name of Contract	a. Owner's Name b. Address c. Telephone No.	Nature of Work	Contractor's Role		Contract Amount at Award	a. Date Awarded b. Date of Contract c. Contract Duration d. Date Started e. Date Completed
			Description	%		

Submitted by: _____
(Print Name & Signature)

Designation: _____

Date: _____

JOINT RESOLUTION

Whereas, _____ (Bidder / Name of Particular JV Partner), duly organized and existing under the Laws of the _____, with office address at _____, represented herein by its _____, _____, and _____ (Name of Particular JV Partner), duly organized and existing under the Laws of the _____, with main office address at _____, represented by herein by its _____, have entered into a Joint Venture (JV) Agreement to undertake the following project / contract:

(Name of Project / Contract)

Whereas, in order to facilitate the orderly execution and conduct of the contract that was entered into by the joint venture in the name of the joint venture, it is hereby resolved by the parties in the Joint Venture as follows:

a. To appoint _____ as the Authorized Managing Officer and Official Representative, to represent, to manage the Joint Venture and is empowered to enter in contract in the name of the Joint Venture, or to sign for any document in the name of the Joint Venture required by the (Procurement Agency) or any entities pursuant to the terms of the Joint Venture Agreement:

b. That, the parties agreed to make _____(Name of Particular Lead Partner) _____ as the Lead Partner of the Joint Venture and (Name of Authorized Officer) _____ as the Official Representative & Managing Partner of the Joint Venture, and are granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the Joint Venture in the Eligibility Check, Bidding and Undertaking of the said contract in the name of the Joint Venture, as fully and effectively and the Joint Venture may do and if personally present with full power of substitution and revocation. _____ is fully authorized and empowered to sign any or all documents pertaining to the above stated project / contract in the name of the Joint Venture.

c. That the parties agree to be jointly and severally liable for their participation in the Eligibility Check, Bidding and Undertaking of the said contract.

d. That the terms of the JV Agreement entered into the parties shall be valid and is co-terminus with the final completion and turnover of the Name of Contract / Project to

the agency of the government, which in this case, the (Name of Procurement Entity);

IN WITNESS THEREFORE, We hereby sign jointly this Joint Resolution this _____ day of _____, 20 ____ in _____.

Name of Bidder (Lead Partner)	**Name of Bidder (Member Partner)**
By: _____	**By:** _____
Signature & Name of Managing Officer	Signature & Name of Authorized Authorized Representative
_____	_____
Designation / Position	Designation / Position

Name of Bidder (Member Partner)	**Name of Bidder (Member Partner)**
By: _____	**By:** _____
Signature & Name of Managing Officer	Signature & Name of Authorized Authorized Representative
_____	_____
Designation / Position	Designation / Position

SIGNED IN THE PRESENCE OF:

_____

_____

_____

_____

A C K N O W L E D G E M E N T

REPUBLIC OF THE PHILIPPINES)

CITY OF_____)S.S.

BEFORE ME, a Notary Public, for and in the City of _____, Philippines, this _____ day of _____, 20____ personally appeared the following persons:

NAME	**Community Cert. No.**	**Date / Place of Issue**

Representing to be the _____ of _____ and _____ of _____ respectively, known to me and to me known to be the same persons who executed the foregoing instrument for and in behalf of said corporations and who acknowledge to me that same is their free and voluntary act and deed as well as of the corporations which they represent, for the uses, purposes, and considerations therein set forth and that they are duly authorized to sign the same.

This Instrument consists of THREE (3) pages including this page wherein this Acknowledgement is written and signed by the parties and their instrumental witnesses on each and every page thereon.

WITNESS MY HAND AND NOTARIAL SEAL at the place and date hereinafter first above written.

NOTARY PUBLIC

Doc. No. _____

Book No. _____

Page No. _____

Series of _____

Other Bidding Forms

(ANNEX "B")

Republic of the Philippines
CIVIL AVIATION AUTHORITY OF THE PHILIPPINES

CERTIFICATE OF SITE INSPECTION

This is to CERTIFY that _____, employee of _____, has conducted the required Site Inspection for the bidding of the project "_____" at _____.

Issued this **_____, 2021**

Airport Manager/Officer-in-Charge:

_____
Signature over Printed Name

Bid-Securing Declaration

(REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.
x----------x

Invitation to Bid *[Insert reference number]*

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

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid-Securing Declaration.

2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1 (f), of the IRR of RA 9184; without prejudice to other legal action the government may undertake.

3. I/We understand that this Bid-Securing Declaration shall cease to be valid on the following circumstances:

    a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;

    b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right;

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

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

[Insert NAME OF BIDDER'S AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]

Affiant

SUBSCRIBED AND SWORN to before me this __ day of *[month] [year]* at *[place of execution]*, Philippines. Affiant/s is/are personally known to me and was/were identified by me through competent evidence of identity as defined in the 2004 Rules on Notarial Practice (A.M. No. 02-8-13-SC). Affiant/s exhibited to me his/her *[insert type of government identification card used]*, with his/her photograph and signature appearing thereon, with no. _____.

Witness my hand and seal this ___ day of *[month] [year]*.

NAME OF NOTARY PUBLIC

Serial No. of Commission _____
Notary Public for _____ until _____
Roll of Attorneys No. _____
PTR No. __, *[date issued], [place issued]*
IBP No. __, *[date issued], [place issued]*
Doc. No. ___
Page No. ___
Book No. ___
Series of ____.

Contractor's Organizational Chart for the Project

Submit Copy of the Organizational Chart that the Contractor intends to use to execute the contract if awarded to him. Indicate in the chart the names of the Key Engineering Personnel who will be assigned in the Project.

{ATTACH COMPANY LETTERHEAD/LOGO}

Attach the required Proposed Organizational Chart for the Contract as stated above.

Submitted by: _____

Designation : _____

Date : _____

{ATTACH COMPANY LETTERHEAD/LOGO}

Qualification of Key Personnel Proposed to be Assigned to the Project

Name of Project: _____
Location of Project: _____

Name of Company: _____
Address of Company: _____

	Project Manager/Engineer	Material Engineer	Foreman	Construction Safety and Health Personnel	Other Position deemed required by the Applicant for this project
1. Name					
2. Address					
3. Date of Birth					
4. Employed Since					
5. Experience					
6. Previous Employment					
7. Education					
8. PRC License					

Note: Attached individual PRC License of the (professional) personnel.

Submitted by : _____
(Signature over Printed Name)
Designation : _____
Date : _____

{ATTACH COMPANY LETTERHEAD/LOGO}

Date: _____

CAPTAIN DONALDO A. MENDOZA
Chairman, Bids and Awards Committee - Charlie
Civil Aviation Authority of the Philippines
Mia Road, Pasay City, M.M. 1300
Tel: 944-2358

Subject: Contractor's Letter-Certificate to Procuring Entity

Dear Sir:

Supplementing our Organizational Chart for the Contract, we have the honor to submit herewith, and to certify as true and correct, the following pertinent information:

That I/we have engaged the service of *(Name of Employee)*, to be the *(Designation)* of the *(Name of Project)*, who is a *(Profession)* with Professional License Certificate No. _ issued on _____ and who has performed the duties in the construction of the project enumerated in the filled Annex "B" Form 5b.

That *(Name of Employee)* shall personally perform the duties of the said position in the above-mentioned project, if and when the same is awarded in our favor.

That *(Name of Employee)* shall employ the best care, skill and ability in performing his duties in accordance with the Contract Agreement, Conditions of Contract, Plans, Specifications, Special Provisions, and other provisions embodied in the proposed contract.

That *(Name of Employee)* shall be personally present at the jobsite all the time to supervise the phase of the construction work pertaining to his assignment as *(Designation)*.

That *(Name of Employee)* is aware that he shall be authorized to handle only one contract at a time.

That in order to guarantee that *(Name of Employee)* shall perform his duties properly and be personally present in the Job Site, he is hereby required to secure a certificate of appearance for the Procuring Entity's Engineer at the end of every month.

That in the event that I/we elect or choose to replace *(Name of Employee)* with another Engineer, the Procuring Entity will be accordingly notified by us in writing at least twenty one (21) days before making replacement. We will submit to the Procuring Entity, for prior approval, the name of the proposed new *(Designation)*, his qualification, experience, list of projects undertaken and other relevant information.

That any willful violation on my/our part of the herein conditions may prejudice my/our standing as a reliable contractor in future bidding of the Procuring Entity.

Very truly yours,

_____

(Authorized Representative of Bidder)

CONCURRED BY:

_____

(Name of Engineer)

{ATTACH COMPANY LETTERHEAD/LOGO}

Date: _____

CAPTAIN DONALDO A. MENDOZA
Chairman, Bids and Awards Committee - Charlie
Civil Aviation Authority of the Philippines
Mia Road, Pasay City, M.M. 1300
Tel: 944-2358

Subject: Key Personnel's Certificate of Employment

Dear Sir:

I am *(Name of Employee)* a License _____ Engineer with Professional License No. issued on *(Date of Issuance)* at *(Place of Issuance)*.

I hereby certify that *(Name of Bidder)* has engaged my services as *(Designation)* for *(Name of the Project)*, if awarded in their favor.

As *(Designation)*, I know I will have to stay in the job site all the time to supervise and managed the Contract works to the best of my ability, and aware that I am authorized to handle only one (1) contract at a time.

I do not allow the use of my name for the purpose of enabling the above-mentioned Contractor to qualify for the Contract without any firm commitment on my part to assume the post of *(Designation)*.

As *(Designation)*, I supervised the following completed projects similar to the contract under bidding:

NAME OF PROJECT	OWNER	COST	DATE COMPLETED

At present, I am supervising the following project:

NAME OF PROJECT	OWNER	COST	DATE COMPLETION

In case of my separation for any reason whatsoever from the above-mentioned Contractor, I shall notify the _____*(Name of the Procuring Entity)* at least twenty one (21) days before the effective date of my separation.

_____
(Signature of Engineer)

SUBSCRIBED AND SWORN to before me this ___ day of _____, 20___ affiant exhibiting to me his/her Residence Certificate No. _____ issued on _____ at _____, Philippines.

_____
Notary Public

Until 31 December 20
PRT No.: _____
Issued at: _____
Issued on: _____
TIN No.: _____

Doc. No._____
Page No._____

Book No. _____
Series of_____

CAAP-BAC-SF Annex "B" Form 5c

KEY PERSONNEL

(FORMAT OF BIO-DATA)

Give the detailed information of the following personnel who are scheduled to be assigned as full-time field staff for the project. Fill up a form for each person.

1. Authorized Managing Officer / Representative: _____

2. Sustained Technical Employee:

Name: _____

Date of Birth: _____

Nationality: _____

Education and Degrees: _____

Specialty: _____

Registration: _____

Length of Service with the Firm:

_____Year From _____ (months) _____ (year)

To _____ (months) _____ (year)

Years of Experience:

If Item 7 is less than ten (10) years, give name and length of service with previous employers for a ten (10) year period (attached additional sheet/s, if necessary:

Name and Address of Employer	Length of Service	
_____	_____ year(s)	from _____to _____
_____	_____ year(s)	from _____to _____
_____	_____ year(s)	from _____to _____

Experience:

This should cover the past ten (10) years of experience. (Attached as many pages as necessary to show involvement of personnel in projects using the format below).

a. Name: _____
b. Name and Address of Owner: _____
_____
c. Name and Address of the Owner's Engineer (Consultant):_____
_____
d. Indicate the Features of Project (particulars of the project components and any other particular interest connected with the project): _____
_____
e. Contract Amount Expressed in Philippine Currency: _____
f. Position: _____
g. Structures for which the employee was responsible: _____
_____
h. Assignment Period: from _____(months) _____ (years)
to _____(months) _____ (years)

_____
Name and Signature of Employee

It is hereby certified that the above personnel can be assigned to the _____ Project, if the contract is awarded to our company.

_____ _____
(Place and Date) (The Authorized Representative)

List of Equipment, Owned or Leased and/or under Purchased Agreements, Pledge to the Proposed Project

Name of Project: _____
Location of Project: _____

Name of Company: _____
Address of Company: _____

Description	Model/Year	Capacity/ Performance/ Size	Plate No.	Motor No./ Body No.	Location	Condition	Proof of Ownership/ Lessor or Vendor
A. Owned							
I.							
II.							
III.							
IV.							
V.							
B. Leased							
I.							
II.							
III.							
IV.							
V.							
C. Under Purchased Agreement							
I.							
II.							
III.							
IV.							
V.							

Submitted by : _____
(Signature over Printed Name)
Designation : _____
Date : _____

Omnibus Sworn Statement

REPUBLIC OF THE PHILIPPINES)
CITY/MUNICIPALITY OF _____) S.S.

A F F I D A V I T

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

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

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

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

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

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

   If a partnership, corporation, cooperative, or joint venture: I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for *[Name of the Project]* of the *[Name of the Procuring Entity]*, accompanied by the duly notarized Special Power of Attorney, Board/Partnership Resolution, or Secretary's Certificate, whichever is applicable;

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

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

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

6. ***Select one, delete the rest:***

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

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

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

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

8. *[Name of Bidder]* is aware of and has undertaken the following responsibilities as a Bidder:

   a) Carefully examine all of the Bidding Documents;

   b) Acknowledge all conditions, local or otherwise, affecting the implementation of the Contract;

   c) Made an estimate of the facilities available and needed for the contract to be bid, if any; and

   d) Inquire or secure Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.

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

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

_____
Bidder's Representative/Authorized Signatory

SUBSCRIBED AND SWORN to before me this ___ day of *[month] [year]* at *[place of execution]*, Philippines. Affiant/s is/are personally known to me and was/were identified by me through competent evidence of identity as defined in the 2004 Rules on Notarial Practice (A.M. No. 02-8-13-SC). Affiant/s exhibited to me his/her [insert type of government identification card used], with his/her photograph and signature appearing thereon, with no. _____ and his/her Community Tax Certificate No. _____ issued on ____ at _____.

Witness my hand and seal this ___ day of *[month] [year]*.

NAME OF NOTARY PUBLIC
Serial No. of Commission _____
Notary Public for _____ until _____
Roll of Attorneys No. _____
PTR No. _____ *[date issued], [place issued]*
IBP No. _____ *[date issued], [place issued]*

Doc. No. _____
Page No. _____
Book No. _____
Series of _____

* This form will not apply for WB funded projects.

{ATTACH COMPANY LETTERHEAD/LOGO}

Bid Form

Date: _____

IB[2] N°: _____

To: *[name and address of PROCURING ENTITY]*

Address: *[insert address]*

We, the undersigned, declare that:

(a) We have examined and have no reservation to the Bidding Documents, including Addenda, for the Contract *[insert name of contract]*;

(b) We offer to execute the Works for this Contract in accordance with the Bid and Bid Data Sheet, General and Special Conditions of Contract accompanying this Bid;

The total price of our Bid, excluding any discounts offered below is: *[insert information]*;

The discounts offered and the methodology for their application are: *[insert information]*;

(c) Our Bid shall be valid for a period of *[insert number]* days from the date fixed for the Bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(d) If our Bid is accepted, we commit to obtain a Performance Security in the amount of *[insert percentage amount]* percent of the Contract Price for the due performance of the Contract;

(e) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from the following eligible countries: *[insert information]*;

(f) We are not participating, as Bidders, in more than one Bid in this bidding process, other than alternative offers in accordance with the Bidding Documents;

(g) Our firm, its affiliates or subsidiaries, including any subcontractors or suppliers for any part of the Contract, has not been declared ineligible by the Funding Source;

[2] If ADB, JICA and WB funded projects, use IFB.

(h) We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed; and

(i) We understand that you are not bound to accept the Lowest Calculated Bid or any other Bid that you may receive.

(j) **We likewise certify/confirm that the undersigned, is the duly authorized representative of the bidder, and granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for the *[Name of Project]* of the *[Name of the Procuring Entity]*.**

(k) **We acknowledge that failure to sign each and every page of this Bid Form, including the Bill of Quantities, shall be a ground for the rejection of our bid.**

Name: _____

In the capacity of: _____

Signed: _____

Duly authorized to sign the Bid for and on behalf of: _____

Date: _____

Other Bidding Forms

(ANNEX "C")

{ATTACH COMPANY LETTERHEAD/LOGO}

BILL OF QUANTITIIES

PROJECT: _____
LOCATION: _____

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT PRICE (Pesos)	AMOUNT (Pesos)
	Pesos_____ Amount in Words _____ _____ __and_____ _____ centavos				
	Pesos_____ Amount in Words _____ _____ __and_____ _____ centavos				
	Pesos_____ Amount in Words _____ _____ __and_____ _____ centavos				
	Pesos_____ Amount in Words _____ _____ __and_____ _____ centavos				

TOTAL BID AMOUNT (Php) _____

TOTAL BID AMOUNT IN WORDS _____
_____
_____

Signature: _____
Printed Name: _____
Position: _____
Name Company: _____
Date: _____

CAAP-BAC-SF Annex " C" Form 2

{ATTACH COMPANY LETTERHEAD/LOGO}

SUMMARY OF BID PROPOSAL

PROJECT:
LOCATION:

ITEM NO.	DESCRIPTION OF WORK	QTY	UNIT	ESTIMATED DIRECT COST	MARK-UPS IN PERCENT		TOTAL MARK-UP		V.A.T.	TOTAL INDIRECT COST	TOTAL COST	UNIT COST
					OCM	PROFIT	%	VALUE				
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9] [5] x [8]	[10] 5%{[5] +[9]}	[11] [9] +[10]	[12] [5] + [11]	[13] [12] / [3]

SUBMITTED BY:

Signature: _____
Printed Name: _____
Position: _____
Name Company: _____
Date: _____

{ATTACH COMPANY LETTERHEAD/LOGO}

BILL OF MATERIALS & COST ESTIMATES

NAME OF PROJECT	:				
DESCRIPTION	:				
LOCATION	:			QUANTITY	UNIT
ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	AMOUNT
A	**TOTAL MATERIAL COST**				
B	**TOTAL LABOR COST**				
C	**TOTAL EQUIPMENT COST**				
D	**TOTAL DIRECT COST**				
	INDIRECT COSTS				
1. OCM (0% of TDC)					
2. CONTRACTOR's PROFIT (0% of TDC)					
E. TOTAL OCM & CONTRACTOR's PROFIT					
F. VALUE ADDED TAX, (VAT)	5.0%				
G. TOTAL ESTIMATED INDIRECT COST (E + F), P					
H. TOTAL ESTIMATED UNIT INDIRECT COST (G / Quantity), P/Unit					
TOTAL ESTIMATED COST (D + G), P					
TOTAL ESTIMATED UNIT COST (Total Estimated Cost / Quantity), P/Unit					

SUBMITTED BY:

Signature: _____

Printed Name: _____

Position: _____

Name Company: _____

Date: _____

{ATTACH COMPANY LETTERHEAD/LOGO}

SUMMARY FOR UNIT PRICES OF MATERIALS

PROJECT: _____

LOCATION: _____

DESCRIPTION	UNIT PRICE	UNIT

SUBMITTED BY:

Signature: _____

Printed Name: _____

Position: _____

Name Company: _____

Date: _____

{ATTACH COMPANY LETTERHEAD/LOGO}

SUMMARY FOR UNIT PRICES OF LABOR

PROJECT: _____

LOCATION: _____

DESCRIPTION	UNIT PRICE	UNIT

SUBMITTED BY:

Signature: _____

Printed Name: _____

Position: _____

Name Company: _____

Date: _____

{ATTACH COMPANY LETTERHEAD/LOGO}

SUMMARY FOR UNIT PRICES OF EQUIPMENT

PROJECT: _____

LOCATION: _____

DESCRIPTION	UNIT PRICE	UNIT

SUBMITTED BY:

Signature: _____

Printed Name: _____

Position: _____

Name Company: _____

Date: _____

{ATTACH COMPANY LETTERHEAD/LOGO}

Name of Project : _____

Location of Project : _____

CASH FLOW BY QUARTER AND PAYMENY SCHEDULE

PARTICULAR	% W	1ST QUARTER	2ND QUARTER	3RD QUARTER	4TH QUARTER
ACCOMPLISHMENT					
CASH FLOW					
CUMULATIVE ACCOMPLISHMENT					
CUMULATIVE CASH FLOW					

Submitted by:

_____
Name of the Representative of the Bidder

_____
Position

_____
Name of the Company

_____
Date

Other Bidding Forms

(ANNEX "D")

Annex "D" Form 1 ……. Authority of Signatory (Secretary's Certificate)

AUTHORITY OF SIGNATORY

(SECRETARY'S CERTIFICATE)

I,, a duly elected and qualified Corporate Secretary of (Name of the Bidder), a corporation duly organized and existing under and by virtue of the law of the, DO HEREBY CERTIFY, that:

I am familiar with the facts herein certified and duly authorized to certify the same;

At the regular meeting of the Board of Directors of the said Corporation duly convened and held on at which meeting a quorum was present and acting throughout, the following resolutions were approve, and the same have been annulled, revoked and amended in any way whatever and are in full force and effect on the date hereof:

RESOLVED, that*(Name of Bidder)*be, as it hereby is, authorized to participate in the bidding of*(Name of the Project)*by the*(Name of the Procuring Entity)*; and in that if awarded the project shall enter into a contract with the*(Name of the Procuring Entity)*and in connection therewith hereby appoints*(Name of Representative)*, acting as duly authorized and designated representatives of*(Name of the Bidder)*, and granted full power and authority to do, execute and perform any and all acts necessary and/or to represent*(Name of the Bidder)*in the bidding as fully and effectively as the*(Name of the Bidder)*might do if personally present with full power of substitution and revocation and hereby satisfying and confirming all that my said representative shall lawfully do or cause to be done by virtue hereof;

RESOLVED FERTHER THAT, the Board hereby authorized its President to:

a. execute a waiver of jurisdiction whereby the*(Name of the Bidder)*hereby submits itself to the jurisdiction of the Philippine government and hereby waives its right to question the jurisdiction of the Philippine court;
b. execute a waiver that the *(Name of the Bidder)* shall not seek and obtain writ of injunctions or prohibition or restraining order against the CAAP or any other agency in connection with this Project to prevent and restrain the bidding procedures related thereto, the negotiating and award of a contract to a successful bidder, and the carrying out of the awarded project.

WITNESS the signature of the undersigned as such officer of the said this.

(Corporate Secretary)

SUBSCRIBED AND SWORN to before me thisday of, 20affiant exhibited to me his/her Community Tax Certificate No. _____ issued on_____ _____at, Philippines.

Notary Public

Until 31 December 20_____

PRT No.: _____

Issued at: _____

Issued on: _____

TIN No.: _____

Doc. No. _____

Page No.: _____

Book No.: _____

Series of _____

Section X. Checklist of Technical and Financial Documents

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

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

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

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

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

Technical Documents

☐ (e) 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. *(Annex "A" Form 1)*; **and**

☐ (f) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules. *(Annex "A" Form 2)*; **and**

☐ (g) 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 Joint Resolution *(Annex "A" Form 3)*; **and**

☐ (h) 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 *(Annex "B" Form 2)*;
and

☐ (i) Project Requirements, which shall include the following:
1. Organizational chart for the contract to be bid *(Annex "B" Form 3)*; **and**

☐ 2. 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 *(Annex "B" Form 4, 5a, 5b & 5c)*; **and**

☐ 3. 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 *(Annex "B" Form 6)*; **and**

☐ (j) Original duly signed Omnibus Sworn Statement (OSS) *(Annex "B" Form 7)*; **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; **and**

This shall include all of the following documents as attachment to the Omnibus Sworn Statement:

☐ 1. Certification, under oath, attesting that they have no pending case(s) against the Government, in addition to the eligibility requirements as prescribe under the 2016 Revise Implementing Rules and Regulation (R-IRR) of RA No. 9184; **and**

☐ 2. Legal Clearance to be issued by the CAAP Enforcement and Legal Service with respect to the non-pending cases of the prospective bidders against this Authority; **and**

☐ 3. Bid Bulletins (if applicable); **and**

☐ (k) **Certificate of Site Inspection** *(Annex "B" Form 1)* duly signed by **Ms. Josefina L. Nuñez, Airport Manager of Siargao Airport** or her duly authorized representative; **and**

This shall include all of the following documents as attachment to the Certificate of Site Inspection:

☐ 1. Copy of company ID of the person who conducted the site inspection; **and**

☐ 2. Copy of the airport/facility visitor's logbook with the entry of the name and signature who conducted the site inspection; **and**

☐ 3. Picture of the proposed site including the personnel who conducted the site inspection together with the Airport Manager/Officer in Charge or his duly authorized representative: **and**

Financial Documents

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

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

Class "B" Documents

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

II. FINANCIAL COMPONENT ENVELOPE

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

Other documentary requirements under RA No. 9184

☐ (p) Original of duly signed Bid Prices in the Bill of Quantities *(Annex "C" Form 1)*; **and**

☐ (q) Summary of Bid Proposal *(Annex "C" Form 2)*; **and**

☐ (r) Bill of Materials & Cost Estimates *(Annex "C" Form 3)*; **and**

☐ (s) Summary Sheet indicating the Unit Prices of Construction Materials, Labor Rates, and Equipment Rentals used in coming up with the Bid *(Annex "C" Form 4, 5 & 6)*; **and**

☐ (t) Cash Flow and Payment Schedule *(Annex "C" Form 7)*.


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