

REPUBLIC OF GHANA
GHANA HEALTH SERVICE,

NORTH EAST REGIONAL HEALTH DIRECTORATE

CHPS + PROJECT PHASE II

TENDER DOCUMENT

PROCUREMENT OF MEDIUM WORKS

NATIONAL COMPETITIVE TENDER (NCT)

IFT No.: GHS/KOICA/NERHD/WKS/25/1

PROJECT NAME: CONSTRUCTION OF CHPS COMPOUND AND ACCOMMODATION

LOT 1: CONSTRUCTION OF COMMUNITY BASED HEALTH PLANNING SERVICES COMPOUNDS AND RESIDENTIAL FACILITY AT LUMU IN EAST MAMPRUSI

LOT 2: CONSTRUCTION OF COMMUNITY BASED HEALTH PLANNING SERVICES COMPOUNDS AND RESIDENTIAL FACILITY AT SUMNIBOMAH IN EAST MAMPRUSI

LOT 3: CONSTRUCTION OF COMMUNITY BASED HEALTH PLANNING SERVICES COMPOUNDS AND RESIDENTIAL FACILITY AT LOAGRI/KUKUA IN WEST MAMPRUSI

Employer:

**Ghana Health Service
North East Regional Health Directorate
P. O. Box 2,
Gambaga NER-Ghana**

MARCH, 2025

Invitation for Tenders
Contract Title: Construction of CHPS compounds and accommodation facility

IFT REF: GHS/KOICA/NERHD/WKS/25/1

1. The Government of the Republic of Ghana, acting through the North East Regional Health Directorate of Ghana Health Service (the “Employer”), has received funding support from Korean International Cooperation Agency (KOICA) and intends to apply a portion of it to eligible payments under a contract which this Invitation for Tenders (“IFT”) is issued as follows:

Lot	Contract Description	Location	Completion Period	Tender Security
1	Construction of 1No. CHPS compound and 1No. accommodation facility	East Mamprusi Lumu	6 Months	2% of tender price
2	Construction of 1No. CHPS compound and 1No. accommodation facility	East Mamprusi Sumnibomah	6 Months	2% of tender price
3	Construction of 1 No. CHPS compound and 1.No. accommodation facility	West Mamprusi Loagri/Kukua	6 Months	2% of tender price

2. The *North East Regional Health Directorate* now invites sealed Tenders (“Tenders”) from the eligible and qualified Construction firms registered with the Ministry of Works and Housing (“Tenderers”) with Financial Classification **D2, K2** or better to provide the works referenced above based on National Competitive Tendering (NCT) procedures as specified in the Public Procurement Act, 2003 Act 663 and the Amendment Act 2016, Act 914 of the Republic of Ghana.
3. A complete set of Tender Documents in English may be purchased at a non-refundable fee of Five Hundred Ghana Cedis (GH¢ 500.00) payable through Ghana.gov platform on GHANEPS from Friday 13th March to 25th March 2025 between the hours of 8:00am and 5:00pm, on normal working days. Tenderers may tender for one or more lots of the contracts above.
4. It is mandatory that Tenderers include in their tender the underlisted statutory requirements.
- a. **Valid Certificate to Commence Business**
 - b. **Valid Certificate of Incorporation**
 - c. **Valid GRA Tax Clearance Certificate (Specific to Project Name)**
 - d. **Valid SSNIT Clearance Certificate (Specific to Project Name)**
 - e. **Valid Works and Housing Certificate – D2, K2**
 - f. **Valid Labour Certificate (Specific to Project Name)**
 - g. **Valid Registration Certificate from Public Procurement Authority (PPA)**
 - h. **Other documents indicated in the Tender Data**
5. Eligible bidders may obtain further information at the Procurement Unit located in the address above or by emailing the Regional Procurement manager on clementnaseh.lugutuah@ghs.gov.gh from **Friday, 13th March, 2025 to 27th March, 2025**

6. All Tenders must be accompanied by a Tender Security of **2%** of the Tender Price from a reputable Bank. The Tender Validity period shall be **120 Days** from the deadline for Tender submission as specified in the Tender Documents

7. Tenders shall be addressed to the Regional Director of Health Service and deposited in the Tender Box located at the Administration of the Regional Health Directorate on or before 10:00am (Local time) on **Friday, 4th April 2025** at which time the bids will be opened in the presence of bidders or their representatives who choose to attend. Tenders must be delivered to the address below, on or before the time specified above.

**North East Regional Health Directorate
P.O. Box 2
Gambaga, Ghana**

SIGNED:

Dr. Braimah Baba Abubakari
Regional Director of Health Service
Chairman, Entity Tender Committee

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Section I. Instructions to Tenderers

A. General

Definitions

- (a) “Associate” means any entity or person with whom the Tenderer associates in order to provide any part of the Works.
- (b) “TDS” means the Tender Data Sheet in Section II of these Tender Documents used to reflect specific requirements and/or conditions.
- (c) “Tender” means a Tender for the provision of the Works submitted by a Tenderer in response to these Tender Documents.
- (d) “Tender Security” means the security a Tenderer may be required to furnish as part of its Tender in accordance with ITT Clause 17.
- (e) “Tenderer” means any eligible entity or person, including any associate of such eligible entity or person that submits a Tender.
- (f) “Tender Documents” means Sections I-X of these documents, including any amendments that may be made, prepared by the Employer for the selection of the Contractor.
- (g) “Bill of Quantities” means the priced and completed Bill of Quantities forming part of the Tender.
- (h) “Confirmation” means confirmation in writing.
- (i) “Contract” means the contract entered into between the Employer and the Contractor, including all the documents specified in GCC Sub-Clause 1.5 and any attachments, appendices and all documents incorporated by reference therein.
- (j) “Contract Price” means the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.
- (k) “Contractor” means the entity or person, including any Associate that provides the Works to the Employer under the Contract.
- (l) “Day” means a calendar day.
- (m) “Employer” means the entity **identified in the TDS**, the party with which the Contractor signs the Contract for the provision of the Works.
- (n) “Fraud and Corruption” means any of those actions defined in the GCC (including the phrases “coercive practice,” “collusive practice,” “corrupt practice,” “fraudulent practice,” “obstructive practice,” and “prohibited practice” as defined in GCC Sub-Clause 1.1), according to which action may be taken against the Tenderer, the Contractor, the Employer or any of their respective personnel.
- (o) “GCC” means the General Conditions of Contract.
- (p) “Government” means the government **identified in the TDS**.
- (q) “Instructions to Tenderers” or “ITT” means this Section I of these Tender Documents, including any amendments, which provides

Tenderers with information needed to prepare their Tenders.

- (r) “Intended Completion Date” means the date on which it is intended that the Contractor shall complete the Works as **specified in TDS**.
- (s) “in writing” means communicated in written form (e.g., by mail, e-mail or facsimile) delivered with proof of receipt.
- (t) “Letter of Acceptance” has the meaning given the term in ITT Sub-Clause 34.2.
- (u) “Project Manager/Engineer” means the person named in the SCC (or any other competent person appointed by the Employer and notified to the Contractor, to act as the Project Manager/Engineer under the terms of the Contract) who is responsible for supervising the execution of the Works and administering the Contract.
- (v) “SCC” means the Special Conditions of Contract.
- (w) “Subcontractor” means any person or entity to whom a Tenderer intends to sub-contract any part of the Works.
- (x) “Taxes” has the meaning given the term in the Contract.
- (y) “Technical Offer” has the meaning given the term in ITT Sub-Clause 5.1.
- (z) “Works” means what the Contract requires the Contractor to construct, install and turn over to the Employer.

1. Scope of Tender

- 1.1 The Employer invites Tenders for the provision of the Works, as **described in the TDS** and the SCC. The name and identification number of the Contract are **provided in the TDS** and the SCC.
- 1.2 The successful Tenderer shall be expected to complete the Works by the Intended Completion Date **specified in the TDS** and SCC 1.1.3.3.
- 1.3 Throughout these Tender Documents, except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and the feminine means the masculine and vice versa.

2. Source of Funds

- 2.1 The Employer intends to apply a portion of the proceeds of its budgetary allocation to eligible payments under the Contract. Payments under the Contract will be subject, in all respects, to the terms and conditions of the allocation and related documents and conditions to disbursements. No party other than the Employer shall derive any rights from this funding or have any claim to any of the proceeds.

3. Fraud and Corruption

- 3.1 The Government of Ghana requires that all beneficiaries of Public Funds, including the Employer and any tenderers, suppliers, contractors, subcontractors and consultants observe the highest standards of ethics during the procurement and execution of contracts. In pursuance of this policy, the Employer:

- (a) will reject a Tender if it determines that the Tenderer recommended to be selected as the Contractor has, directly or through an agent, engaged in Fraud and Corruption in competing for the Contract;
- (b) has the right to sanction a Tenderer or Contractor, including declaring the Tenderer or Contractor ineligible, either indefinitely or for a stated period of time, to be awarded a Government of Ghana-funded contract if at any time it determines that the Tenderer or Contractor has, directly or through an agent, engaged in Fraud and Corruption in competing for or in executing, such a contract; and
- (c) has the right to require that a provision be included in the Contract requiring the Contractor to permit the Employer to inspect its accounts, records and other documents relating to the submission of a Tender or performance of the Contract, and to have such accounts and records audited by auditors appointed by the Employer with the approval of the Government of Ghana.

The Government of Ghana may also invoke, on its own behalf, any of the rights identified for the Employer in this ITT Sub-Clause 3.1 above.

4. Eligible Tenderer, Materials, Equipment, and Services

- 4.1 A Tenderer may be a natural person, private entity, government-owned entity (subject to ITT Sub-Clause 4.4) or any combination of such entities supported by a letter of intent to enter into an agreement or under an existing agreement of association in the form of a joint venture or a consortium.
- 4.2 A Tenderer, and all parties constituting the Tenderer, may have the nationality of any country, subject to the restrictions specified in the paragraphs below.
- 4.3 Tenderers and Contractors shall not have a conflict of interest. All Tenderers found to have a conflict of interest shall be disqualified. A Contractor found to have a conflict of interest may have its contract terminated. A Tenderer may be considered to have a conflict of interest with one or more parties in this Tender process, if:
 - (a) they have at least one controlling partner in common; or
 - they have the same legal representative for purposes of this Tender; or
 - they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Tender of another Tenderer, or influence the decisions of the Employer regarding this Tender process; or
 - they participate in more than one Tender in this Tender process; participation by a Tenderer in more than one Tender will result

in the disqualification of all Tenders in which the party is involved; however, this provision does not limit the inclusion of the same subcontractor in more than one Tender; or

they are, or have been associated in the past, with any person or entity which has been engaged to provide consulting services for the preparation of the design, specifications or other documents to be used for the procurement and provision of the Works expected to be contracted for under these Tender Documents; or

they or any of their affiliates have been hired (or is proposed to be hired) by the Employer as Project Manager/Engineer for the Contract; or

they are themselves, or have a business or family relationship with, a member of the Employer's board of directors or staff or with any Agent hired by the Employer who is directly or indirectly involved in any part of (i) the preparation of these Tender Documents, (ii) the Tender selection process, or (iii) supervision of the Contract, unless the conflict stemming from this relationship has been resolved in a manner acceptable throughout the process of preparing the Tender Documents and awarding and executing the Contract.

Tenderers and the Contractor have an obligation to disclose any situation of actual or potential conflict that impacts their capacity to serve the best interest of the Employer or that may reasonably be perceived as having this effect. Failure to disclose said situations may lead to the disqualification of the Tenderer or Contractor or the termination of the Contract.

Eligibility of Government – owned Entities

4.4 Government-owned entities in the Employer's country shall be eligible only if they can establish that they (a) are legally and financially autonomous, (b) operate under commercial law, and (c) are not a dependent agency of the Employer.

Continued Eligibility

4.5 Tenderers shall provide such evidence of their continued eligibility, in a manner satisfactory to the Employer, as the Employer may reasonably request.

Ineligibility and Debarment

4.6 Tenderers and the Contractor (including their Associates, if any, Subcontractors and any of their respective personnel and affiliates) shall not be any person or entity under a declaration of ineligibility for Fraud and Corruption in accordance with ITT Sub-Clause 3.1 above or that has been declared ineligible for participation in a procurement in accordance with the procedures set out in the Procurement Act, 2003, Act 663. This would also remove from eligibility for participation in procurement by any firm that is organized in or has its principal place of business or a significant portion of its operations in

any country that is subject to sanction or restriction by law or policy of the United Nations. Those countries that are subject to sanction or restriction by law or policy of the United Nations as of the date of these Tender Documents are **specified in the TDS**. However, the countries subject to these sanctions and restrictions are subject to change from time to time and it is necessary to refer to the websites identified in the guidance paper for the most current listing of sanctioned and restricted countries.

4.7 A Tender or Contractor (including their Associates, if any, Subcontractors, and any of their respective personnel and affiliates) not otherwise made ineligible for a reason described in ITT Sub-Clause 4.6 above shall be excluded if:

as a matter of law or official regulation, the Government prohibits commercial relations with the country of the Tenderer, the Contractor, their Associates, Subcontractors or their personnel;

by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Government prohibits any import of goods from the country of the Tenderer, its associates or their personnel or any payments to persons or entities in such country;

or

such Tenderer, Contractor, Associate, Subcontractor or personnel are otherwise deemed ineligible by the Employer pursuant to any policy or guidance that may, from time to time, be in effect.

**Eligible Materials,
Equipment and
Services**

4.8 The materials, equipment and services to be supplied under the Contract may have their origin in any country subject to the same restrictions specified for Tenderers and their associates and personnel set forth in ITT 4.6 and 4.7. At the Employer's request, Tenderers shall provide evidence of the origin of materials, equipment and services.

4.9 For purposes of ITT 4.8 above, "origin" means the place where the materials and equipment are mined, grown, cultivated, produced, manufactured or processed and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing or substantial or major assembling of components, a commercially recognized article results that differs substantially in its basic characteristics, purposes or utility from its underlying components.

4.10 The origin of materials, equipment and services is distinct from the nationality of the Tenderer or Contractor.

4.11 Country of origin for major items of plant, materials, goods and services to be provided under the Contract must be indicated in the

Technical Offer included in Section IV, Tender Forms.

- 4.12 Tenderers must also satisfy the eligibility criteria contained in the Procurement Act, 2003, Act 663 governing procurements. In the case where a Tenderer intends to join with an associate or sub-contract part of the Contract, then such associate or Subcontractor shall also be subject to the eligibility criteria set forth in these Tender Documents and the Act.
- 5. Qualifications of the Tenderer**
- 5.1 All Tenderers shall submit completed Tender Forms (Section IV), including a technical offer which provides environmental and social plans, health and safety plans, work plan, preliminary description of the proposed work method and schedule, including drawings and charts, as necessary (the “Technical Offer”).
- 5.2 In the event that pre-qualification of potential Tenderers has been undertaken, only Tenders from pre-qualified Tenderers shall be considered for award of Contract. These qualified Tenderers should submit with their Tenders any information updating their original pre-qualification applications or, alternatively, confirm in their Tenders that the originally submitted pre-qualification information remains essentially correct as of the date of Tender submission. The update or confirmation should be provided by completing Section IV Tender Forms.
- 5.3 If the Employer has not undertaken pre-qualification of potential Tenderers, all Tenderers shall include the following information and documents with their Tenders in Section IV Tender Forms, unless otherwise **stated in the TDS**:
- copies of original documents defining the constitution or legal status, place of registration, and principal place of business of the Tenderer; written power of attorney of the signatory of the Tender to commit the Tenderer;
 - (b) reports on the financial standing of the Tenderer, such as profit and loss statements and auditor’s reports for the past 5 years;
 - (c) evidence of adequacy of working capital to perform the Contract (access to line(s) of credit and availability of other financial resources);
 - authority to seek references from the Tenderer’s bankers;
 - information regarding any litigation, current or during the last five years, in which the Tenderer was/is involved, the parties concerned, the disputed amounts, and awards;
 - total monetary value of construction works performed for each of the last five years;
 - experience in works of a similar nature and size for each of the last five years, and details of work under way or contractually committed; and clients who may be contacted for further information on those contracts;
 - major items of construction equipment proposed to carry out the

Contract;
qualifications and experience of key site management and technical personnel proposed for the Contract;
proposals for sub-contracting components of the Works amounting to more than 10 percent of the Contract Price. The ceiling for subcontractor participation is **stated in the TDS**.

- 5.4 Tenders submitted by a joint venture of two or more entities shall comply with the following requirements, unless otherwise **stated in the TDS**:

the Tender shall include all the information listed in ITT Sub-Clause 5.3 above for each joint venture member;

the Tender shall be signed so as to be legally binding on all members;

all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;

one of the members shall be nominated as being in charge, authorized to incur liabilities and receive instructions for and on behalf of any and all members of the joint venture;

the execution of the entire Contract, including payment, shall be done exclusively with the member in charge; and

a copy of the joint venture or similar agreement entered into by the members shall be submitted with the Tender; or a letter of intent to execute a joint venture or similar agreement in the event of a successful Tender shall be signed by all members and submitted with the Tender, together with a copy of the proposed agreement.

- 5.5 To qualify for award of the Contract, Tenderers shall meet the following minimum qualifying criteria:

an average annual financial amount of construction work as stipulated in sub-factor 3.2 of Section III, Evaluation and Qualification Criteria;

experience as prime contractor in the construction of at least the number of works of a nature and complexity equivalent to the Works over the period stipulated in sub-factor 4.2 of Section III, Evaluation and Qualification Criteria (to comply with this requirement, works cited should be at least 70 percent complete);

proposals for the timely acquisition (own, lease, hire, etc.) of the essential equipment **listed in the TDS**;

key personnel having the requisite skills and years of experience stipulated in sub-factor 6 of Section III, Evaluation and Qualification Criteria;

liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, of no less than the amount stipulated in sub-factor 3.3 of Section III, Evaluation and Qualification Criteria; and

the other minimum qualifying criteria set forth in Section III, Evaluation and Qualification Criteria.

A consistent history of litigation or arbitration awards against the Tenderer or any member of a joint venture may result in disqualification.

- 5.6 The figures for each of the members of a joint venture shall be added together to determine the Tender's compliance with the minimum qualifying criteria; however, for a joint venture to qualify, its members must meet the minimum qualifying criteria set forth in Section III, Evaluation and Qualification Criteria. Failure to comply with this requirement shall result in rejection of the joint venture's Tender. Subcontractors' experiences and resources shall not be taken into account in determining the Tender's compliance with the qualifying criteria, unless otherwise **stated in the TDS**.
- 6. One Tender per Tenderer** 6.1 Each Tenderer shall submit only one Tender, either individually or as a member of a joint venture. A Tenderer who submits or participates in more than one Tender (other than as a subcontractor or in cases of alternatives that have been permitted or requested) shall cause all the proposals with the Tenderer's participation to be disqualified.
- 7. Cost of Tender** 7.1 The Tenderer shall bear all costs associated with the preparation and submission of its Tender and the Employer shall, in no case, be responsible or liable for those costs, regardless of the conduct or outcome of the Tender process.
- 8. Pre-Tender Meeting and Site Visit** 8.1 The Tenderer's designated representative is invited to attend a Pre-Tender meeting. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage. Non-attendance at the Pre-Tender meeting will not be a cause for disqualification of a Tenderer.
- 8.2 Minutes of the Pre-Tender meeting, including the text of the questions raised, without identifying the source and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Tenderers who acquired the Tender Documents in accordance with ITT 9.3. Any modification to the Tender Documents that may become necessary as a result of the Pre-Tender meeting shall be made by the Employer exclusively through the issuance of an addendum pursuant to ITT 11 and not through the minutes of the Pre-Tender meeting.
- 8.3 No site visit shall be organized by the employer.
- 8.4 If no site visit is organized, the Tenderer is advised to visit and

examine the site of the Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Tender and entering into a contract for construction of the Works. The cost of visiting the site shall be at the Tenderer's own expense. If permission is required to gain access to the site, the Tenderer and any of its personnel or agents will be granted permission by the Employer to enter upon the premises and lands for the purpose of such visit, but only upon the express condition that the Tenderer, its personnel and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, cost, and expenses incurred as a result of the inspection.

B. Tender Documents

9. Contents of Tender Documents

9.1 The set of Tender Documents comprises the documents listed below and addenda issued in accordance with ITT Clause 11:

Part I—Tender Procedures

Section I. Instructions to Tender (ITT)

Section II. Tender Data Sheet (TDS)

Section III. Evaluation and Qualification Criteria

Section IV. Tender Forms

Part II – Forms of Contract and Securities

Section V. Form of Agreement and General Conditions of Contract (GCC)

Section VI. Form of Special Conditions of Contract (SCC) and Additional Provisions Annex to the Contract

Section VII. Securities Forms

Part III -- Works Requirements

Section VIII. Bill of Quantities (Volume II)

Section IX. Specifications and Performance Requirements (Volume III)

Section X. Drawings (Volume IV)

9.2 The Invitation for Tenders issued by the Employer is not part of the Tender Documents.

9.3 The Employer is not responsible for the completeness of the Tender Documents and their addenda, if they were not obtained directly from the Employer.

9.4 The Tenderer is expected to examine all instructions, forms, terms, and specifications, inclusive of environmental, social, health and safety requirements, in the Tender Documents. Failure to furnish all information or documentation required by the Tender Documents may result in the rejection of the Tender.

10. Clarification of Tender Documents

10.1 A prospective Tenderer requiring any clarification of the Tender Documents may notify the Employer in writing at the Employer's address indicated in the TDS. The Employer will respond to any request for clarification received earlier than the number of days indicated in the TDS prior to the deadline for submission of Tenders. Copies of the Employer's response will be forwarded to all prospective Tenderers who have acquired the Tender Documents directly from it. Alternatively, and if so indicated in the TDS, the response may be posted at the Employer's website, including a description of the inquiry, but without identifying its source. Prospective Tenderers are responsible for visiting this website and obtaining clarifications in relation to the Tender Documents.

11. Amendment of Tender Documents

11.1 Before the deadline for submission of Tenders, the Employer may modify the Tender Documents by issuing addenda.

11.2 Any addendum thus issued shall become part of the Tender Documents and shall be forwarded by the Employer to all prospective Tenderers who have acquired the Tender Documents directly from it. Alternatively, and if so indicated in the TDS, the addendum may be posted at the Employer's website. Prospective Tenderers are responsible for visiting this website and obtaining addenda in relation to the Tender Documents and shall acknowledge receipt of each addendum in writing to the Employer.

11.3 To give prospective Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Employer may, at its discretion, extend the deadline for submission of Tenders, in accordance with ITT Sub-Clause 21.2 below.

C. Preparation of Tenders

12. Language of Tender

12.1 The Tender, as well as all correspondence and documents relating to the Tender exchanged by the Tenderer and the Employer, shall be written in English and, at the discretion of the Employer, in another language if so **specified in the TDS**. Supporting documents and printed literature that are part of the Tender may be in another language provided they are accompanied by an accurate translation of the relevant passages in English, in which case, for purposes of interpretation of the Tender, such translation shall govern. Tenderers should understand that, for all documents provided, the English

- version prevails.
- 13. Documents Comprising the Tender**
- 13.1 The Tender submitted by the Tenderer shall comprise the following:
The Tender (in the format indicated in Section IV);
Tender Security, in accordance with ITT Clause 17, if required;
Priced Bill of Quantities;
Qualification Information Form and Documents;
Technical Offer;
Alternative offers, where invited;
Written confirmation authorizing the signatory of the Tenderer to commit the Tenderer, in accordance with ITT 19.2; and
any other materials required to be completed and submitted by the Tenderer, as **specified in the TDS**.
- 13.2 In addition to the requirements under ITT 13.1, Tenders submitted by a joint venture shall include those documents specified in, and otherwise comply with the requirements of, ITT 5.4.
- 14. Tender Prices and Discounts**
- 14.1 The Contract shall be for the Works, as described in ITT Sub-Clause 1.1, based on the priced Bill of Quantities submitted by the Tenderer.
- 14.2 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items for which no rate or price is entered by the Tenderer shall not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities. Corrections, if any, shall be made by crossing out, initialing, dating and rewriting.
- 14.3 GCC Clause 14.1(b) of the form of Contract (Section V) sets forth the tax provisions applicable to any Tender and to performance of the Contract. Tenderers should review and consider this clause carefully in preparing their Tender.
- 14.4 The rates and prices quoted by the Tenderer shall be subject to adjustment during the performance of the Contract if **provided for in the TDS** and SCC and the provisions of Sub-Clause 13.8 of the GCC. The Tenderer shall submit with the Tender all the information required under the SCC and GCC Sub-Clause 13.8.
- 14.5 If so **indicated in the TDS**, Tenders may be invited for individual lots or for any combination of lots (packages). Tenderers wishing to offer any price reduction for the award of more than one lot shall specify in their Tender the price reductions applicable to each package, or alternatively, to individual lots within the package. Price reductions or discounts shall be submitted in accordance with ITT 23.5, provided the Tenders for all lots are submitted and opened at the same time.
- 15. Currencies of Tender and Payment**
- 15.1 The currency (ies), or combinations thereof, of the Tender and payments shall be as **specified in the TDS**.
- 16. Tender Validity**
- 16.1 Tenders shall remain valid for the period **specified in the TDS** after the Tender submission deadline date prescribed by the Employer in

accordance with ITT 21.1. A Tender valid for a shorter period shall be rejected by the Employer as non-responsive.

- 16.2 In exceptional circumstances, prior to the expiration of the Tender validity period, the Employer may request Tenderers to extend the period of validity of their Tenders for a specified additional period. The request and the Tenderers' responses shall be made in writing. If a Tender Security is requested in accordance with ITT Clause 17, it shall also be extended up to 28 days after the deadline of the extended Tender validity period. A Tenderer may refuse the request without forfeiting the Tender Security. A Tenderer agreeing to the request shall not be required or permitted to modify its Tender, except at the discretion of the Employer.
- 16.3 If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial tender validity, the Contract price shall be determined as follows:
- (a) In the case of fixed price contracts, the Contract price shall be the tender price adjusted by the factor **specified in the TDS**.
 - (b) In the case of adjustable price contracts, no adjustment shall be made.

In any case, tender evaluation shall be based on the tender price without taking into consideration the applicable correction from those indicated above.

**17. Tender
Security
Tender
Securing
Declaration**

- 17.1 If required in the TDS, the Tenderer shall furnish, as part of its Tender, a Tender Security or Tender Securing Declaration in original form as **specified in the TDS**. If a Tenderer is tendering on multiple lots or is submitting alternative Tenders, only one Tender Security is required for all lots and for both base and alternative Tenders.
- 17.2 The Tender Security (if required) shall be in the amount and currency **specified in the TDS**, and shall:
- (1) at the Purchaser's option, be in the form of either an irrevocable letter of credit or an unconditional bank guarantee from a banking institution;
 - (2) be issued by a reputable institution selected by the Tenderer and located in any eligible country (as determined in accordance with ITT 4); if the institution issuing the bank guarantee is located outside the Employer's country, it shall have a correspondent financial institution located in the Employer's country, acceptable to the Employer, to make it enforceable;
 - (3) be substantially in accordance with one of the forms of Tender Security included in Section VII, Security Forms, or other form approved by the Employer prior to Tender submission; in either case, the form must include the complete name of the Tenderer;
 - (4) be payable promptly upon written demand by the Employer in

- case the conditions listed in ITT Sub-Clause 17.5 are invoked;
- (5) be submitted in its original form; copies shall not be accepted;
- (6) remain valid for a period of 28 days beyond the validity period of the Tenders, as extended, if applicable, in accordance with ITT Sub-Clause 16.2.

17.3 Any Tender not accompanied by a substantially responsive Tender Security (if required) in accordance with ITT Sub-Clause 17.1 shall be rejected by the Employer as non-responsive.

17.4 The Tender Security of unsuccessful Tenderers shall be returned as promptly as possible upon the successful Tenderer's furnishing of the performance security in accordance with GCC 4.2 as described in ITT 35.

17.5 The Tender Security may be forfeited:

- (a) if a Tenderer withdraws its Tender during the period of Tender validity specified by the Tender on the Tender Submission Sheet, except as provided in ITT Sub-Clause 16.2; or
- (b) if the Tenderer does not accept the correction of its Tender Price pursuant to ITT Sub-Clause 28;
- (c) if the successful Tenderer fails within the specified time to:
 - (i) sign the Contract; or
 - (ii) furnish the required performance security.

17.6 The Tender Security of a joint venture must be in the name of the joint venture that submits the Tender. If the joint venture has not been legally constituted at the time of Tender, the Tender Security shall be in the names of all future members as named in the letter of intent or similar agreement in connection with the formation of the joint venture.

18. Alternative Proposals by Tenderer

18.1 Alternative Tenders shall not be considered, unless specifically **allowed in the TDS**. If so allowed, ITT Sub-Clauses 18.1 and 18.2 shall govern, and the **TDS shall specify** which of the following options shall be allowed:

- (a) Option One. A Tenderer may submit alternative Tenders with the base Tender and the Employer shall only consider the alternative Tenders offered by the Tenderer whose Tender for the base case was determined to be the Lowest-Evaluated Tender, or
- (b) Option Two. A Tenderer may submit an alternative Tender with or without a Tender for the base case. All Tenders received, for the base case, as well as alternative Tenders meeting the specifications and performance requirements pursuant to Section IX, shall be evaluated on their own merits.

18.2 Alternative Tenders shall provide all information necessary for a complete evaluation of the alternative by the Employer, including design calculations, technical specifications, breakdown of prices,

proposed construction methods and other relevant details.

19. Format and Signing of Tender

- 19.1 The Tenderer shall prepare one original set of the documents comprising the Tender as described in ITT 13 and clearly mark it **ORIGINAL**. Alternative Tenders, if permitted in accordance with ITT 18, shall be clearly marked **ALTERNATIVE**. In addition, the Tenderer shall submit copies of the Tender, in the language(s) and number **specified in the TDS** and clearly mark each one **COPY**. In the event of any discrepancy between the original and the copies, the **original** shall prevail.
- 19.2 The original and all copies of the Tender shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Tenderer. This authorization shall consist of a written confirmation as **specified in the TDS** and shall be attached to the Tender. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Tender where entries or amendments have been made shall be signed or initialed by the person(s) signing the Tender.
- 19.3 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person(s) signing the Tender.
- 19.4 The Tenderer shall furnish information as described in the Form of Tender in Section IV on commissions or gratuities, if any, paid or to be paid to agents relating to this Tender, or to Contract execution if the Tenderer is awarded the Contract.

D. Submission and Opening of Tenders

20. Submission, Sealing, and Marking of Tenders

- 20.1 Tenderers may always submit their Tenders by mail or by hand. When so **specified in the TDS**, Tenderers shall have the option of submitting their Tenders electronically. Tenderers submitting Tenders electronically shall follow the procedures **specified in the TDS**. For Tenders submitted in hard copy, the Tenderers shall seal the original and all copies of the Tender in two inner envelopes and one outer envelope, duly marking the inner envelopes as **“ORIGINAL”**, **“ALTERNATIVE”** and **“COPIES.”**
- 20.2 The inner and outer envelopes shall:
- (a) bear the name and address of the Tenderer;
 - (b) be addressed to the Employer at the address **provided in the TDS**;
 - (c) bear the name and identification number of the Contract as **defined in the TDS section 1.1** and SCC; and
 - (d) provide a warning not to open before the specified time and date for Tender opening as **defined in the TDS**.
- 20.3 If the envelopes are not sealed and marked as above, the Employer shall assume no responsibility for the misplacement or premature

- opening of the Tender.
- 21. Deadline for Submission of Tenders**
- 21.1 Tenders shall be delivered to the Employer at the address specified in the TDS no later than the date and time **specified in the TDS**.
- 21.2 The Employer may, at its discretion, extend the deadline for submission of Tenders by issuing an addendum in accordance with ITT Clause 11, in which case all rights and obligations of the Employer and the Tenderer previously subject to the original deadline shall then be subject to the new deadline.
- 22. Late Tenders**
- 22.1 Any Tender received by the Employer after the deadline prescribed in ITT Clause 21 shall be declared late, rejected and returned unopened to the Tenderer.
- 23. Withdrawal, Substitution, and Modification of Tenders**
- 23.1 A Tenderer may withdraw, substitute or modify its Tender after it has been submitted by giving notice in writing before the deadline for Tender submission prescribed in ITT Clause 21, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITT Clause 19.2.
- 23.2 Each Tenderer’s withdrawal, substitution or modification notice shall be prepared, sealed, marked, and delivered in accordance with ITT Clauses 20 (except that withdrawal notices do not require copies), with the outer and inner envelopes additionally marked “WITHDRAWAL,” “SUBSTITUTION,” or “MODIFICATION”, as appropriate.
- 23.3 Tenders requested to be withdrawn in accordance with ITT Sub-Clause 23.2 shall be returned unopened to the Tenderer.
- 23.4 No Tender may be withdrawn, substituted or modified after the deadline for submission of Tenders.
- 23.5 Tenderers may only offer discounts to, or otherwise modify the prices of their Tenders, by submitting Tender modifications in accordance with this clause or included in the initial Tender.

E. Tender Opening and Evaluation

- 24. Tender Opening**
- 24.1 The Employer shall open the Tenders, including modifications made pursuant to ITT Clause 23, in the presence of the Tenderers’ representatives who choose to attend at the time and in the place **specified in the TDS**. Any specific opening procedures required, if electronic Tender is permitted in accordance with ITT Sub-Clause 20.1, shall be as **specified in the TDS**.
- 24.2 First, e-mail files and envelopes marked **WITHDRAWAL** shall be opened and read out and the envelope with the corresponding Tender shall not be opened, but returned to the Tenderer. No Tender withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at Tender opening. Next, e-mail files and envelopes marked **SUBSTITUTION** shall be opened and read out and exchanged with the corresponding Tender being substituted, and the substituted Tender shall not be opened, but

returned to the Tenderer. No Tender substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at Tender opening. E-mail files and envelopes marked **MODIFICATION** shall be opened and read out with the corresponding Tender. No Tender modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Tender opening. Only Tenders that are opened and read out at Tender opening shall be considered further.

24.3 All other e-mail files and envelopes shall then be opened one at a time, and the official shall read aloud: the name of the Tenderer and whether there is a modification; the Tender price(s), including any discounts and alternative offers; the presence of a Tender Security, if required; and any other details as the Employer may consider appropriate. Only discounts and alternative offers read out at Tender opening shall be considered for evaluation. No Tender shall be rejected at Tender opening except for late TENDERS, in accordance with ITT 22. Substitution Tenders and modifications submitted pursuant to ITT Clause 23 that are not opened and read out at Tender opening shall not be considered for further evaluation regardless of the circumstances. Late, withdrawn and substituted Tenders shall be returned un-opened to the respective Tenderers.

24.4 The Employer shall prepare minutes of the Tender opening, including the information disclosed, to those present, in accordance with ITT Sub-Clause 24.2.

**25. Confidentiality;
Undue Influence**

25.1 Information relating to the examination, clarification, evaluation and comparison of Tenders and recommendations for the award of a Contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process until publication of the award to the successful Tenderer has been announced pursuant to ITT Sub-Clause 34.4. The undue use by any Tenderer of confidential information related to the process may result in the rejection of its Tender and may subject the Tenderer to the provisions of the Government's and the Employer's anti-fraud and corruption policies.

25.2 Any effort by a Tenderer to influence the Employer's processing of Tenders or award decisions may result in the rejection of its Tender. Notwithstanding the above, from the time of Tender opening to the time of Contract award, if any Tenderer wishes to contact the Employer on any matter related to the Tender process, it should do so in writing.

**26. Clarification of
Tenders**

26.1 To assist in the examination, evaluation, and comparison of Tenders, the Employer may, at its discretion, ask any Tenderer for clarification of the Tenderer's Tender. The request for clarification and the response shall be in writing, but no change in the price or substance of the Tender shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by the

27. Examination of Tenders and Determination of Responsiveness

Employer in the evaluation of the Tenders in accordance with ITT Clause 28.

27.1 Prior to the detailed evaluation of Tenders, the Employer shall determine whether each Tender (a) meets the eligibility criteria defined in ITT Clause 4; (b) has been properly signed; (c) is accompanied by the Tender Security, if required; and (d) is substantially responsive to the requirements of the Tender Documents.

27.2 A substantially responsive Tender is one which conforms to all the terms, conditions, and specifications of the Tender Documents, without material deviation or reservation. A material deviation or reservation is one which:

- a. affects in any substantial way the Scope, Quality, or Performance of the Contract; the following shall constitute such material deviations
 - i. failure to sign the Tender Form/ Priced Bill of Quantities or Schedule of Activities by authorised person or persons.
 - ii. inability to meet the critical delivery schedule or work schedule clearly specified in the tender document, where such schedule is a critical condition with which tenderer must comply;
 - iii. subcontracting in a substantially different amount or manner than that permitted;
 - iv. failure to submit the required Manufacturer Authorization (if applicable) for equipment not manufactured by the Tenderer/Agent.
- b. which limits in any substantial way, inconsistent with the Tender documents, the Employer's rights or the Tenderer's obligations under the Contract; material deviations include the following:
 - i. failure to submit documents establishing the Tenderer's eligibility to Tender.
 - ii. failure to submit its qualifications to perform the contract if its Tender is accepted.
 - iii. failure to submit a tender security as specified in the tender document.

- iv. failure to satisfy the tender validity period
- v. failure to comply with minimum experience criteria as specified in the tender document;
- vi. conditional tenders such as conditions in a tender which limit the tenderer's responsibility to accept an award;
For example
 - inability to accept the price adjustment formulae of the tendering documents;
 - stipulating price adjustment when fixed price tenders were invited;

(c) whose rectification would affect unfairly the competitive position of other Tenderers presenting substantially responsive Tenders.

27.3 If a Tender is not substantially responsive, it shall be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

**28. Correction of
Arithmetical
Errors**

28.1 Provided that the Tender is substantially responsive, the Employer shall correct arithmetical errors on the following basis:

- (a) if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;
- (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- (c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

28.2 If the Tenderer that submitted the Lowest Evaluated Tender does not accept the correction of errors, its Tender shall be rejected and the Tender Security may be forfeited in accordance with ITT Sub-Clause 17.5(b).

**29. Currency for
Tender
Evaluation**

29.1 For evaluation and comparison purposes, the currency (ies) of the Tenderers shall be converted into a single currency **as specified in the TDS.**

**30. Margin of
Preference**

30.1 A margin of preference for domestic Tenderers **shall be as specified in the TDS.**

31. Evaluation and

31.1 The Employer shall evaluate and compare only the Tenders determined to be substantially responsive in accordance with ITT

Comparison of Tenders

Clause 27.

- 31.2 In evaluating the Tenders, the Employer shall determine for each Tender the evaluated Tender price by adjusting the Tender price as follows:
- (a) making any correction for errors pursuant to ITT Clause 28;
 - (b) excluding provisional sums and the provision, if any, for contingencies in the Bill of Quantities, but including day work, where priced competitively;
 - (c) making an appropriate adjustment for any other acceptable variations, deviations, or alternative offers submitted in accordance with ITT Clause 18;
 - (d) making appropriate adjustments to reflect discounts or other price modifications offered in accordance with ITT Sub-Clause 23.5; and
 - (e) using the evaluation factors indicated in Section III, Evaluation and Qualification Criteria.
- 31.3 The Employer shall determine to its satisfaction whether the Tender that is selected as having submitted the lowest evaluated and substantially responsive Tender is qualified to perform the Contract satisfactorily. The determination shall be based upon an examination of the documentary evidence of a Tender's qualifications submitted by a Tenderer and the qualification criteria indicated in Section III, Evaluation and Qualification Criteria.
- 31.4 The Employer reserves the right to accept or reject any variation, deviation, or unsolicited alternative offer. Variations, deviations, and unsolicited alternative offers and other factors which are in excess of the requirements of the Tender Documents or otherwise result in unsolicited benefits for the Employer shall not be taken into account in Tender evaluation.
- 31.5 The estimated effect of any price adjustment conditions under GCC Sub-Clause 13.8, during the period of implementation of the Contract, shall not be taken into account in Tender evaluation.
- 31.6 In the case of several lots, the Employer shall determine the application of discounts so as to minimize the combined cost of all the lots.
- 31.7 If the Tender, which results in the lowest evaluated Tender price, is seriously unbalanced or front loaded in the opinion of the Employer, the Employer may require the Tenderer to produce detailed price analyses for any or all items of the Bill of Quantities to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Tenderer to a level sufficient to protect the Employer against financial loss in the event of default of

the successful Tenderer under the Contract.

- 31.8 At any time during the evaluation process, the Employer reserves the right to conduct a verification of market-reasonableness of the prices offered, and a negative determination (either unreasonably high or unreasonably low) could be a reason for rejection of the Tender at the discretion of the Employer. The Tenderer shall not be permitted to revise its Tender after this determination.
- 31.9 The Tenderer's past performance on contracts will be considered as a criterion in the Employer's evaluation of the Tender and the Employer reserves the right to carry out verification procedures including physical assessment and confirmation of Tenderer's submissions.

F. Award of Contract

- 32. Award Criteria** 32.1 Subject to ITT Clause 33 and prior to the expiration of the period of Tender validity, the Employer will award the Contract to the Tenderer whose Tender has been determined to be substantially responsive to the Tender Documents and who has offered the lowest evaluated Tender price, provided that such a Tenderer has been determined to be (a) eligible in accordance with the provisions of ITT Clause 4, (b) qualified in accordance with the provisions of ITT Clause 5 and (c) otherwise determined qualified to perform the Contract.
- 33. Employer's Right to Accept Any Tender, and to Reject Any or All Tenders** 33.1 Notwithstanding ITT Clause 32, the Employer reserves the right to accept or reject any Tender, and to annul the Tendering process and reject all Tenders at any time prior to Contract award, without thereby incurring any liability to Tenderer(s) or any obligation to inform the affected Tenderer or Tender of the grounds for the Employer's action. In case of annulment, all Tenders submitted and specifically, Tender securities, shall be promptly returned to the Tenderers.
- 34. Notification of Award and Signing of Agreement** 34.1 The Tenderer whose Tender has been accepted shall be notified of the award by the Employer in writing prior to the expiration of the Tender validity period using a letter of acceptance substantially in the form set out in Section IV of these Tender Documents (the "Letter of Acceptance").
- 34.2 The Letter of Acceptance shall constitute the formation of the Contract, subject to the Tenderer furnishing the Performance Security in accordance with ITT Sub-Clause 35 and signing the Contract in accordance with ITT Sub-Clause 34.3.
- 34.3 The Contract will constitute all agreements between the Employer and the successful Tenderer as described in GCC Clause 2.3. Promptly after providing the successful Tenderer with the Letter of Acceptance, and after providing for the time period for Tender Challenges, the Employer will send the successful Tenderer the Agreement. Within 21 days of receipt, the successful Tenderer shall sign the Contract and deliver it to

the Employer.

34.4 The Employer will publish the results identifying the Tenderer and lot numbers and the following information: (i) name of each Tenderer who submitted a Tender; (ii) Tender prices as read out at Tender opening; (iii) name and evaluated prices of each Tenderer that was evaluated; (iv) names of Tenderers whose Tenders were rejected and the reasons for their rejection; and (v) name of the winning Tenderer, and the price it offered, as well as the duration and summary scope of the Contract awarded.

34.5 After publication of the award, unsuccessful Tenderers may request in writing to the Employer for a debriefing seeking explanations for the failure of their Tenders. The Employer shall promptly respond in writing to any unsuccessful Tenderer who, after notification of award in accordance with ITT Sub-Clause 34.4, requests of the Employer in writing the grounds on which its Tender was not selected.

35. Performance Security

35.1 Within twenty-eight (28) days after receipt of the Letter of Acceptance, the successful Tenderer shall deliver to the Employer a Performance Security in accordance with the terms of GCC Sub-Clause 4.2, using for that purpose the form of Performance Bank Guarantee included in Section VII of these Tender Documents, or another form acceptable to the Employer. A foreign institution providing the Performance Security shall (a) be from an eligible country determined in accordance with ITT 4, (b) have a correspondent financial institution located in the Employer's country and (c) be acceptable to the Employer.

35.2 Failure of the successful Tenderer to comply with the requirements of ITT Sub-Clauses 34.3 and 35.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Tender Security. In that event the Employer may award the Contract to the next Lowest Evaluated Tenderer whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

35.3 Upon the successful Tenderer's signing of the Contract and furnishing of the Performance Security pursuant to GCC Sub-Clause 4.2, as described in ITT Sub-Clause 35.1, the Employer shall promptly notify the name of the winning Tender to each unsuccessful Tenderer and shall discharge the Tender Securities of the unsuccessful Tenderers pursuant to ITT Sub-Clause 17.4.

36. Advance Payment and Security

36.1 The Employer will provide an Advance Payment on the Contract Price as stipulated in the GCC Sub-Clause 14.2 and as **stated in the TDS**. The Advance Payment shall be guaranteed by a Security. Section VII, "Security Forms", provides Advance Payment form for a Bank Guarantee.

37. Adjudicator

37.1 The Employer proposes the person **named in the TDS** to be appointed as Adjudicator under the Contract, at an hourly fee **specified in the TDS**, plus reimbursable expenses. If the Tenderer disagrees with this proposal, the Tenderer should so state in the Tender. If, in the Letter of Acceptance, the Employer has not agreed on the appointment of the Adjudicator, the Adjudicator shall be appointed by the Appointing Authority **designated in the TDS** and the SCC at the request of either party.

**38. Tender
Challenge
System**

38.1 Tenderers may challenge the results of a Tender according to the rules established in the Tender Challenge System developed by the Employer in accordance with the Public Procurement Act, 2003 Act 663 as amended the rules and provisions of the Tender Challenge System shall be published by the Employer **in the TDS**

Section II. Tender Data Sheet (TDS)

A. General

Definitions	<p>The Employer is: The North East Regional Health Directorate</p> <p>The information in ITT 1 is modified to include the following:</p> <p>Throughout this tender document:</p> <p>(i) the term “in writing” means communicated in written form (e.g. by mail, e-mail, and fax).;</p> <p>(ii) if the context so requires, “singular” means “plural” and vice versa;</p> <p>(iii) “Day” means calendar day, unless otherwise specified as a “Business Day.” A Business Day is any day that is a working day and excludes official public holidays; and</p> <p>(iv) “ESHS” means environmental, social (including sexual exploitation and abuse (SEA) and gender-based violence (GBV)), health and safety.</p>																							
ITT 1.1	<p>The Works for which the Tender Documents have been issued is:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Lot</th> <th style="width: 40%;">Contract Description</th> <th style="width: 20%;">Location</th> <th style="width: 15%;">Completion Period</th> <th style="width: 15%;">Tender Security</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Construction of 1 No.CHPS compound and 1.No. accommodation facility</td> <td>West Mamprusi, Loagri/Kukua</td> <td style="text-align: center;">6 Months</td> <td style="text-align: center;">2% of tender price</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Construction of 1 No.CHPS compound and 1.No. accommodation facility</td> <td>East Mamprusi, Lumu</td> <td style="text-align: center;">6 Months</td> <td style="text-align: center;">2% of tender price</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Construction of 1 No.CHPS compound and 1.No. accommodation facility</td> <td>East Mamprusi, Sumnibomah</td> <td style="text-align: center;">6 Months</td> <td style="text-align: center;">2% of tender price</td> </tr> </tbody> </table>				Lot	Contract Description	Location	Completion Period	Tender Security	1	Construction of 1 No.CHPS compound and 1.No. accommodation facility	West Mamprusi, Loagri/Kukua	6 Months	2% of tender price	2	Construction of 1 No.CHPS compound and 1.No. accommodation facility	East Mamprusi, Lumu	6 Months	2% of tender price	3	Construction of 1 No.CHPS compound and 1.No. accommodation facility	East Mamprusi, Sumnibomah	6 Months	2% of tender price
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ITT 1.2	<p>The Intended Completion Date of the Works is: Six (6) calendar months from the date of commencement.</p>																							
ITT 4.6	<p>As of the date of these Tender Documents, the countries that are subject to sanction or restriction by law or policy of the Republic of Ghana include: Not Applicable</p> <p>The information required from Tenderers in Sub-Clause 4.6 is modified to include the as following:</p> <p>A Tenderer that has been sanctioned by the Bank, pursuant to the Bank’s Anti-Corruption Guidelines, in accordance with its prevailing sanctions policies and procedures as set forth in the WBG’s Sanctions Framework, as set forth in Clause 3 shall be ineligible to participate in the procurement process.</p>																							

The information in ITT 3 is modified to include the following:

The Bank requires that Borrowers (including beneficiaries of Bank financing); tenderers (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

To this end, the Bank:

(a) Defines, for the purposes of this provision, the terms set forth below as follows:

- (i) “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
- (ii) “fraudulent practice” is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
- (iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
- (iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
- (v) “obstructive practice” is:
 - a. deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
 - b. acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under paragraph 2.2 e. below.

(b) Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

(c) In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring mis-procurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;

	<p>(d) Pursuant to the Bank's Anti-Corruption Guidelines, and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner; (ii) to be a nominated sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;</p> <p>Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) tenderers (applicants/proposers), consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents personnel, permit the Bank to inspect all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the Bank.</p> <p>The list of debarred firms and individuals is available on the Bank's external website: http://www.worldbank.org/debarr.</p>
ITT 5.3	<p>The information required from Tender in ITT Sub-Clause 5.3 is modified as follows:</p> <ul style="list-style-type: none"> (i) Valid Business Registration Certificate (ii) Valid Certificate of Incorporation (iii) Valid Certificate to Commence Business (iv) Valid GRA Tax Clearance Certificate (Specific to Project Name). (v) Valid Social Security & National Insurance Trust (SSNIT) Clearance Certificate (Specific to Project Name). (vi) Valid Ministry of Works and Housing Classification Certificate (D2K2) (vii) Valid Labour Certificate (Specific to Project Name) (viii) Valid Registration Certificate from Ghana Public Procurement Authority (PPA) (ix) Power of Attorney
ITT 5.3(j)	The ceiling for subcontractor participation is: 20% (<i>twenty percent</i>) of total works
ITT 5.4	The qualification data required from Tender in ITT Sub-Clause 5.4 are modified as follows: None
ITT 5.4(c)	If the Tenderer is a joint venture or consortium, all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms.
ITT 5.5(c)	The essential equipment to be made available for the Contract by the successful Tenderer shall be: as stipulated in Section III. Evaluation and Qualification Criteria.
ITT 5.6	Subcontractors' experience and resources shall not be taken into account.
ITT 8.1	A Pre-Tender meeting shall not take place.
ITT 8.3	A site visit shall not be organized.

B. Tender Documents

ITT 10.1	<p>For purposes of clarification, the Employer’s address is;</p> <p>Name: Dr. Abubakari Baba Braimah, Regional Director, GHS, NER Email: braimah.abubakari@ghs.gov.gh Tel: 0244527282</p> <p>or</p> <p>Name: Clement Naseh Lugutuah , Regional Procurement Manager, NER email: clementnaseh.lugutuah@ghs.gov.gh Tel: 0244069128</p> <p>The minimum number of days prior to the deadline for submission of Tenders to receive any request for clarification: 14 Days.</p> <p>The minimum number of days prior to the deadline for submission of Tenders that the Employer will respond: 7 Days.</p>
ITT 11.2	Addenda shall be served on all tenderers through their official email addresses

C. Preparation of TENDERS

ITT 12.1	Tenders shall be submitted in the following languages: “English”
ITT 13.1(h)	<p>The Tenderer shall submit with its Tender the following additional documents:</p> <p>(i) Code of Conduct (ESHS)</p> <p>The Tenderer shall submit its Code of Conduct that will apply to Contractor’s Personnel and subcontractors, to ensure compliance with its Environmental, Social, Health and Safety (ESHS) obligations under the contract.</p> <p><i>[Note: The Code shall cover the risks associated with: labor influx, spread of communicable diseases, sexual harassment, gender-based violence, sexual exploitation and abuse, illicit behavior and crime, and maintaining a safe environment etc.]</i></p> <p>In addition, the Tenderer shall detail how this Code of Conduct will be implemented. This will include: how it will be introduced into conditions of employment/engagement, what training will be provided, how it will be monitored and how the Contractor proposes to deal with any breaches.</p> <p>The Contractor shall be required to implement the agreed Code of Conduct.</p> <p>(ii) Management Strategies and Implementation Plans (MSIP) to Manage the (ESHS) Risks and impacts.</p> <p>The Tenderer shall submit Management Strategies and Implementation Plans (MSIP) to manage the following key Environmental, Social, Health and Safety (ESHS) risks.</p> <ul style="list-style-type: none"> • <i>[e.g. Traffic Management Plan to ensure safety of local communities from construction traffic];</i>

	<ul style="list-style-type: none"> • <i>Site Fire management and emergency disaster management response plan</i> • <i>[e.g. Water Resource Protection Plan to prevent contamination of drinking water];</i> • <i>[e.g. Boundary Marking and Protection Strategy for mobilization and construction to prevent offsite adverse impacts];</i> • <i>[e.g. Strategy for obtaining Consents/Permits prior to the start of relevant works such as opening a quarry or borrow pit];</i> • <i>[e.g. Gender based violence and sexual exploitation and abuse (GBV/SEA) prevention and response action plan].</i> • <i>Chance find strategies on how to handle salvage excavations and relocation of cultural resources, artefacts etc</i> • <i>Contractor’s workforce and subcontractor’s Training and Engagement plan This will cover i) Site Kick-start briefings ii) Site safety and occupational training iii)Site fire management and emergency disaster management</i> <p>The Contractor shall be required to submit for approval, and subsequently implement, the Contractor’s Environment and Social Management Plan (C-ESMP), in accordance with the Contract Data Sub-Clause-17.2, that includes the agreed Management Strategies and Implementation Plans described here.</p> <p><i>[Note: The extent and scope of these requirements should reflect the significant ESHS risks or requirements set out in Section V – Technical Specification as advised by Environmental/Social specialist/s. The key risks to be addressed by the Tenderer should be identified by Environmental/Social specialist/s, for example, from the Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plan (ESMP), Resettlement Action Plan (RAP), and/or Consent Conditions (regulatory authority conditions attached to any permits or approvals for the project), up to a maximum of four. The risks may arise during mobilization or construction phases, and may include construction traffic impacts on the community, pollution of drinking water, depositing on private land and impacts on rare species etc. The management strategies and/or implementation plans to address these could include, as appropriate: mobilization strategy, strategy for obtaining consents/permits, traffic management plan, water resource protection plan, bio-diversity protection plan and a strategy for marking and respecting work site boundaries etc.]</i></p>										
ITT 14.4	The prices quoted by the Tenderer shall be: subject to adjustment										
ITT 14.5	<p>Tenders are being invited for the following lots:</p> <table border="1"> <thead> <tr> <th>Lot</th> <th>Contract Description</th> <th>Location</th> <th>Completion Period</th> <th>Tender Security Amount (GHS)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Construction of 1 No.CHPS compound and 1.No. accommodation facility</td> <td>West Mamprusi</td> <td>6Months</td> <td>2% of tender price</td> </tr> </tbody> </table>	Lot	Contract Description	Location	Completion Period	Tender Security Amount (GHS)	1	Construction of 1 No.CHPS compound and 1.No. accommodation facility	West Mamprusi	6Months	2% of tender price
Lot	Contract Description	Location	Completion Period	Tender Security Amount (GHS)							
1	Construction of 1 No.CHPS compound and 1.No. accommodation facility	West Mamprusi	6Months	2% of tender price							

	2	Construction of 1 No.CHPS compound and 1.No. accommodation facility	West Mamprusi	6Months	2% of tender price
	3	Construction of 1 No.CHPS compound and 1.No. accommodation facility	West Mamprusi	6Months	2% of tender price
ITT 15.1	The currency of the Tender shall be as follows: Ghana Cedis (GHS) The currency of the payment shall be as follows: Ghana Cedis (GHS)				
ITT 16.1	The Tender validity period shall be One Hundred and Twenty (120) days from the deadline for Tender submission.				
ITT 17.1	A Tender Security shall be required. The form of the Tender Security shall be: a) Bond from a reputable Insurance Firm of good standing; b) Certified Cheque; c) Bank Draft; d) Guarantee from a reputable bank, acceptable to the Employer.				
ITT 17.2	The amount and currency of the Tender Security shall be: 2% of Contract Sum or an equivalent amount in a freely convertible currency and shall be remain valid up to 28 days beyond the validity of the tender				
ITT 17.5(c)	The information in ITT Sub-clause 17.5 (c) is modified as follows: The required Performance Security shall be: a) Works Performance Security, and b) Environmental, Social, Health and Safety (ESHS) Performance Security (if required in the Appendix to Tender)				
ITT 18.1	Alternative Tenders are not permitted				
ITT 19.1	In addition to the original of the Tender, the number of required copies is: Not Applicable				
ITT 19.2	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: Power of Attorney.				
D. Submission of Tenders					
ITT 20.1	Tenderers do not /do have the option of submitting their Tenders electronically.				
ITT 20.2(b)	For Tender submission purposes only , the submission address is: The Administration The North East Regional Health Directorate Ghana Health Service				

	P. O. Box ,2 Country: Ghana
ITT 21.1	The deadline for Tender submission is: Date: Friday 4th April, 2025 Time: 10.00 Hours
E. Tender Opening and Evaluation	
ITT 24.1	The Tender opening shall take place online at: The Administration The North East Regional Health Directorate Ghana Health Service P. O. Box ,2 Country: Ghana
ITT 29.1	The currency that shall be used for Tender evaluation and comparison is: Ghana Cedis (GHS) The basis for conversion shall be: Not Applicable Source for the exchange rate shall be: Not Applicable The date for exchange rate shall be: Not Applicable
F. Award of Contract	
ITT 35.1	The Performance Security shall be either Bank Guarantee or Insurance Bond as follows: <u>FOR CIVIL WORKS</u> <u>Bank Guarantee</u> a) Works Performance Security of Seven percent [10%] of the Accepted Contract Amount, or <u>Bond</u> b) Works Performance Security of Twenty percent [30%] of the Accepted Contract Amount, and, <u>FOR ENVIRONMENT, SOCIAL, HEALTH AND SAFETY (ESHS)</u> <u>Bank Guarantee</u> c) ESHS Performance Security of Three percent [3%] of the Accepted Contract Amount, or

	<p><u>Bond</u></p> <p>d) ESHS Performance Security of Ten percent [10%] of the Accepted Contract Amount, and,</p> <p>All in the forms of Bank Guarantee shall be Unconditional Bank Guarantee from a bank located in Ghana, acceptable to the Employer Using the template in Section VII.</p> <p>All Form of Bond shall be from a reputable Insurance Company or Financial Institution (see Section VIII for template)</p> <p>The information in ITT 35.1 is modified to include:</p> <p>In addition, the successful Tenderer shall submit a signed Beneficial Ownership Disclosure Form providing additional information on its beneficial ownership and deliver to the Employer within 21 days of receipt of the notification of award (see Section IV for template).</p>
<p>ITT 36.1</p>	<p>The Advance Payment shall be limited to Twenty percent [15%] of the Contract Price and shall be paid upon the submission of a Bank Guarantee in the form acceptable to the Employer.</p>
<p>ITT 37.1</p>	<p>The Appointing Authority is:</p> <p>Name: The President Address: Ghana Institution of Surveyors Palmer House, Adabraka - Accra P. O. Box 916 Accra.</p>
<p>ITT 38.1</p>	<p>The details of the Tender Challenge System are: Rules and Procedures set out in Chapter 8 of <u>Manual of Standards and Procedures - Public Procurement Act, 2003 (Act 663)</u></p>

Section III. Evaluation and Qualification Criteria

This Section contains criteria that the Employer will use to qualify Tender. To demonstrate its qualifications, the Tenderer shall provide all the information requested in the forms included in Section IV, Tender Forms.

A. Evaluation

In addition to the criteria listed in ITT 5, 18 and 27, the following criteria shall apply:

- 1. Adequacy of Technical Offer**, in accordance with ITT 5.1 and 27.2, will be evaluated as follows:

Evaluation of the Tenderer's Technical Offer will include an assessment of the Tenderer's technical capacity to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section X-Bill of Quantities, Section VIII- Specification & Performance Requirements, and Section IX-Drawings.

- 2. Adequacy of Environmental, Social, Health and Safety Plans**, in accordance with ITT 5.1 and 27.2, will be evaluated as follows:

Evaluation of the Tenderer's Environmental, Social, Health and Safety Plans will include an assessment of the Tenderer's experience, awareness, and systems, and demonstration that it possesses a high level of Environmental and Social ("E&S") management expertise to successfully manage the E&S risks associated with the implementation of the proposed Works in accordance with Employer Environmental Guidelines and the requirements of Ghana's environmental legislation.

- 3. Alternative Proposals**, if permitted under ITT 18.1, will be evaluated as follows: **Not Applicable.**

- 4. Multiple Lots, Discounts** will be evaluated as follows:

Works are grouped in multiple contracts (lots) and, pursuant to Sub Clause 30 of the Instructions to Tenderers, the Employer will evaluate and compare Tenders on the basis of a contract, or a combination of contracts, or as a total of contracts in order to arrive at the least cost combination to the Employer by taking into account discounts offered by Tenderers in case of award of multiple contracts. If a Tenderer submits several successful (lowest evaluated substantially responsive) tenders, the evaluation will also include an assessment of the Tenderer's capacity to meet the aggregated qualification requirements of all such contract lots, with respect to:

- **Experience**
- **Financial situation**
- **Current contract commitments,**
- **Cash flow capacity,**
- **Equipment, and**
- **Key Personnel to be fielded.**

B. Qualification

Sub-Factor	1. Eligibility Criteria				
	Requirement	Tender			
		Single Entity	Joint Venture or Association		
			All members combined	Each member	At least one member
1.1 Nationality	Nationality in accordance with ITT 4.2.	Must meet requirement	Existing or intended joint venture must meet requirement	Must meet requirement	N / A
1.2 Conflict of Interest	No conflicts of interests as described in ITT 4.3.	Must meet requirement	Existing or intended joint venture must meet requirement	Must meet requirement	N / A
1.3 Ineligibility	Not having been deemed ineligible based on any of the criteria set forth in ITT 4.	Must meet requirement	Existing or intended joint venture must meet requirement	Must meet requirement	N / A
1.4 Government Owned Entity	Compliance with conditions of ITT 4.4.	Must meet requirement	Must meet requirement	Must meet requirement	N / A

Sub-Factor	2. Historical Contract Non-Performance				
	Requirement	Tender			
		Single Entity	Joint Venture or Association		
			All members combined	Each member	At least one member
2.1 History of Non-performing Contracts	Non-performance of a contract did not occur within last 5 years prior to the deadline for Tender submission, based on all information on fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the dispute resolution mechanism under the respective contract, and where all appeal instances available to the Tender have been exhausted.	Must meet requirement by itself or as member to past or existing joint venture	N / A	Must meet requirement by itself or as member to past or existing joint venture	N / A
2.2 Failure to Sign a Contract	Failure to sign a contract after submitting a Tender security has not occurred in the past 5 years. Any deviation should be explained in the Contract Non-Performance form.	Must meet requirement or have an explanation for any deviation typically minor in nature that meets the satisfaction of the evaluation panel.	Must meet requirement or have an explanation for any deviation typically minor in nature that meets the satisfaction of the evaluation panel.	Must meet requirement or have an explanation for any deviation typically minor in nature that meets the satisfaction of the evaluation panel.	N / A

Sub-Factor	2. Historical Contract Non-Performance				
	Requirement	Tender			
		Single Entity	Joint Venture or Association		
			All members combined	Each member	At least one member
2.3 Pending Litigation	All pending litigation shall in total not represent more than 10% of the Tender's net worth and shall be treated as resolved against the Tender.	Must meet requirement by itself or as member to past or existing joint venture	N / A	Must meet requirement by itself or as member to past or existing joint venture	N / A

	3. Financial Situation				
	Requirement	Tender			
		Single Entity	Joint Venture or Association		
			All members combined	Each member	At least one member

	3. Financial Situation				
	Requirement	Tender			
		Single Entity	Joint Venture or Association		
			All members combined	Each member	At least one member
3.1 Historical Financial Performance	<p>Submission of audited financial statements, including balance sheets, cash flow statements, or income statements or, if not required by the laws of the Applicant's country, other financial statements acceptable to the Employer, for the last five years to demonstrate the current soundness of the Tenderer's Financial position and its prospective long-term profitability.</p> <p>(i) Average coefficient of Current ratio (Current Assets /Current Liabilities): ≥ 1</p> <p>(ii) Average coefficient of Debt Ratio (Total Debt/Total Assets) ≤ 1</p>	Must meet requirement	N / A	Must meet requirement	N / A

	3. Financial Situation				
	Requirement	Tender			
		Single Entity	Joint Venture or Association		
			All members combined	Each member	At least one member
3.2 Average Annual Construction Turnover	Minimum average annual construction turnover for each year as set forth below, calculated as total certified payments received for contracts in progress or completed, within last 5 years is: GHS3,000,000 (Three Million Cedis). The amount should be supported with evidence of Award of Contract Letters or contract agreement. Failure to provide the required evidence will make your tender non responsive to this requirement.	Must meet requirement	Must meet requirement	Must meet 25% of the requirement	Must meet 40% of the requirement
3.3 Financial Resources	Tenderer must demonstrate access to or availability of financial resources such as liquid assets, unencumbered real assets, lines of credit and other financial means, other than any contractual advance payments to meet the following cash-flow requirement is: GHS300,000 (Three Hundred Thousand Cedis)	Must meet requirement	Must meet requirement	Must meet 25% of the requirement	Must meet 40% of the requirement

Sub-Factor	4. EXPERIENCE				
	Requirement	Tender			
		Single Entity	Joint Venture or Association		
			All members combined	Each member	At least one member
4.1 General Construction Experience	Experience in Five (5) related construction contracts in the role of contractor, subcontractor, or management contractor for each of the last five years prior to the Application submission deadline and with activity in at least nine months in each year. <i>Attach Award of Contract Letters or contract agreements as evidence to support your submission. Failure to provide the required evidence will make your tender non responsive to this requirement.</i>	Must meet requirement	N/A	Must meet requirement	N/A
4.2 Similar Construction Experience	Participation as contractor, management contractor or subcontractor, in at least three contracts of similar nature within the last five years, each with a value of at least GHS 1,000,000 that has been completed and that are similar to the proposed works.	Must meet requirement	Must meet requirement	N/A	Must meet requirement
4.4 Environmental and Social Management Experience	Sufficient experience managing environmental and social impacts in similar projects in the last five (5) years prior to the Tender submission deadline	Must meet requirement	Must meet requirement	N/A	Must meet requirement
4.5 Health and Safety Management Experience	Sufficient experience managing health and safety impacts in the last five (5) years prior to the Bid submission deadline.	Must meet requirement	Must meet requirement	N/A	Must meet requirement

5. Equipment

The lowest evaluated Tenderer must demonstrate that it will have access to the key Contractor's equipment listed hereafter:

No	List of Equipment and Characteristics	Minimum Number Required
1	Tipper Trucks	2
2	Concrete Mixer	2
3	Pick-Up	2
4	Poker Vibrator	2
5	Plate Compactor	2

All tenderers must provide valid and current documentary evidence to support ownership of proposed equipment. In the case of equipment to be leased, all tenderers must provide letters of intent from the sources.

The Tenderer shall provide further details of proposed items of equipment using the relevant Form in Section IV.

6. Key Personnel

The lowest evaluated Tenderer must demonstrate that it will have the personnel for the key positions that meet the following requirements:

Qualification and experience of key personnel required for the contract is:

No	Position	Minimum Qualification	Experience (years)	Minimum Key Personnel Requirement
1	Project Manager	BSc/B-TECH/HND Civil Engineering or Building Technology	BSc – 5 years HND – 8 years	1
2	Site Engineer	BSc/HND Civil Engineering/Building Technology	BSc – 3 years HND – 5 years	1
3	Cost Estimator/ Quantity Surveyor	BSc/HND Building Technology	BSc – 3 years HND – 5 years	1
4	Land Surveyor	HND in Surveying	BSc – 3 years HND – 5 years	1
5	Environment, Health & Social Expert,	HND or Higher in Environmental Science, Social Science, or Engineering	3 years	1
6	Health and Safety Officer	Certificate in Health and Certificate	3 years	1
7.	Works Superintendent or General Foreman	HND Civil Engineering or Building Technology	HND – 5 years	1

All tenderers must provide current and valid (signed) curriculum vitae accompanied by documentary evidence of academic qualifications (certificates) for all proposed key personnel.

The Tenderer shall provide details of the proposed personnel, their biographical data describing their qualifications and experience records in the relevant Forms included in Section IV, Tender Forms.

Section IV. Tender Forms

1. Letter of Tender

[The Tenderer shall fill in and submit this Tender form with the Tender. If the Tenderer objects to the Adjudicator proposed by the Employer in the Tender Documents, it should so state in its Tender, and present an alternative candidate, together with the candidate’s daily fees and biographical data, in accordance with ITT Clause 37.]

[date]

Identification No: **[insert identification number]**

Title of Contract:

To: _____

Address: _____

Having examined the Tender Documents, including addenda **[insert list]**, we offer to execute the **[name and identification number of Contract]** in accordance with the form of Contract accompanying this Tender for the Contract Price of **[insert amount in numbers]**, **[insert amount in words]** **[insert name of currency]**. The total amount of all Taxes and Duties, not included within the above Tender Price, has been assessed to be the sum of *[Not Applicable]* as per the attached Schedule of Tender’s Local Tax and Duty Assessment.

The Contract shall be paid in the following currencies:

Currency	Percentage payable in currency	Rate of exchange: one [insert foreign currency] equals [insert local]	Inputs for which [foreign currency] is required
(a)			
(b)			

Our Tender shall be valid for the period of time in accordance with ITT Sub-Clause 16.1, from the date fixed for Tender submission deadline in accordance with ITT Sub-Clause 21.1, and it shall remain binding upon us and may be accepted at any time before the expiration of that period. We hereby confirm that this Tender complies with the Tender Security as required by the Tender Documents and specified in the TDS.

If our Tender is accepted, we commit to obtain a Performance Security in accordance with GCC Clause 4.2 and as described in ITT Clause 35 for the due performance of the Contract.

We accept the appointment of **[insert name proposed in Tender Data Sheet]** as the Adjudicator.

[or]

We do not accept the appointment of **[insert name proposed in Tender Data Sheet]** as the Adjudicator, and propose instead that **[insert name]** be appointed as Adjudicator, whose daily fees and biographical data are attached.

We, including any subcontractors or suppliers for any part of the Contract, have nationalities from eligible countries in accordance with ITT 4.

We have no conflict of interest in accordance with ITT 4.3.

Our firm, its affiliates or subsidiaries - including any subcontractors or suppliers for any part of the Contract has not been declared ineligible by the Government of Ghana, or under the Employer's country laws or official regulations or as otherwise provided in ITT 4.

We are aware of, and will comply with, the rules on prohibited activities, restricted parties and eligibility requirements of prohibited source provisions in accordance with applicable Ghanaian laws, regulations and policy and other requirements as summarized in Annex A to the form of Contract (Additional Provisions) shown in Section VI of the Tender Documents.

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Tender and to Contract execution if we are awarded the Contract, are listed below:

Name and address of agent	Amount and Currency	Purpose of Commission or gratuity
_____	_____	_____
_____	_____	_____
_____	_____	_____

(if none, state "none")

We understand and agree that this Tender and your written acceptance of it shall constitute a binding Contract between us until a formal Agreement is executed. We understand that you are not bound to accept the lowest or any Tender you receive.

Authorized Signature:
Name and Title of Signatory:
Name of Tender:
Address:

Schedule of Tender’s Tax and Duty Assessment -Not Applicable

In order to facilitate the designation of this project as a ‘Tax and Duty Free’ contract, the Employer requires that Tenderers provide a genuine estimate of the ‘Taxes and Duties’ which would be payable were this project not exempt. Tenderers are accordingly required to make this assessment on the tables provided below, which forms part of the Letter of Tender.

Completed Table of Adjustment Data

The Employer requires that Tenderers provide their own information on adjustment data for PA calculations in the table provided below, which forms part of the Letter of Tender.

Table: GHS

Index Code	Index Description	Source of Indices	Base Value & Date	Tenderer’s Currency Amount	% Range of weighting	Tenderer’s’ Proposed Weighting
A	Non-Adjustable				10-15%	
B	Adjustable				85-90%	
			Total			

**ENVIRONMENTAL, SOCIAL, HEALTH, AND SAFETY PERFORMANCE
DECLARATION FORM**

[letterhead paper of the Tenderer]

[The following table shall be filled in for the Tenderer, each member of a Joint Venture and each Specialized Subcontractor]

Tenderer's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member's or Specialized Subcontractor's Name: *[insert full name]*

IFT No. and title: *[insert IFT number and title]*

Environmental, Social, Health, and Safety Performance Declaration in accordance with Section III, Qualification Criteria, and Requirements			
<input type="checkbox"/> No suspension or termination of contract: An employer has not suspended or terminated a contract and/or called the performance security for a contract for reasons related to Environmental, Social, Health, or Safety (ESHS) performance since the date specified in Section II, Qualification Criteria, and Requirements.			
<input type="checkbox"/> Declaration of suspension or termination of contract: The following contract(s) has/have been suspended or terminated and/or Performance Security called by an employer(s) for reasons related to Environmental, Social, Health, or Safety (ESHS) performance since the date specified in Section II, Qualification Criteria, and Requirements. Details are described below:			
Year	Suspended or terminated portion of contract	Contract Identification	Total Contract Amount (GHc)
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Employer: <i>[insert full name]</i> Address of Employer: <i>[insert street/city/country]</i> Reason(s) for suspension or termination: <i>[indicate main reason(s) e.g. for GBV/ SEA breaches]</i>	<i>[insert amount]</i>
...	...	<i>[list all applicable contracts]</i>	...
Performance Security called by an employer(s) for reasons related to ESHS performance			
Year	Contract Identification		Total Contract Amount (GHc)
<i>[insert year]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Employer: <i>[insert full name]</i> Address of Employer: <i>[insert street/city/country]</i> Reason(s) for calling of performance security: <i>[indicate main reason(s) e.g. for GBV/ SEA breaches]</i>		<i>[insert amount]</i>

2. Tender Qualification Information Forms

[The Tenderer shall provide the information requested in the Tender Qualification Information Forms included hereafter in accordance with Section III (Evaluation and Qualification Criteria) to establish Tenderer's qualifications to perform the contract. Attach additional pages as necessary.]

**Form – 1.1
Tender Information Sheet**

Each Tenderer must fill in this form.

Tenderer’s legal name	
In case of JV, legal name of each partner	
Tenderer’s country of constitution	
Tenderer’s year of constitution	
Tenderer’s legal address in country of constitution	
Tenderer’s authorized representative (name, address, telephone numbers, fax numbers, e-mail address)	
<p>Attached are copies of the following original documents.</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1. In case of single entity, articles of incorporation or constitution of the legal entity named above, in accordance with ITT 4.1 and 4.2. <input type="checkbox"/> 2. Authorization to represent the firm or JV named in above, in accordance with ITT 19.2. <input type="checkbox"/> 3. In case of JV, letter of intent to form JV or JV agreement, in accordance with ITT 4.1. <input type="checkbox"/> 4. In case of a government-owned entity, any additional documents not covered under 1 above required to comply with ITT 4.4. 	

Employer reserves the right to check references including any work on Donor-funded contracts and as per any Past Performance Database.

The Contractor’s future performance under any contract resulting from these Tender Documents will be subject to Reporting and Considering Past Performance.

**Form - 1.2
JV Information Sheet**

Each member of a JV or an association must fill in this form.

JV / Specialist Subcontractor Information	
Tenderer's legal name	
JV Partner's or Subcontractor's legal name	
JV Partner's or Subcontractor's country of constitution	
JV Partner's or Subcontractor's year of constitution	
JV Partner's or Subcontractor's legal address in country of constitution	
JV Partner's or Subcontractor's authorized representative information (name, address, telephone numbers, fax numbers, e-mail address)	
<p>Attached are copies of the following original documents.</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1. Articles of incorporation or constitution of the legal entity named above, in accordance with ITT 4.1 and 4.2. <input type="checkbox"/> 2. Authorization to represent the firm named above, in accordance with ITT 19.2. <input type="checkbox"/> 3. In the case of a government-owned entity, documents establishing legal and financial autonomy and compliance with commercial law, in accordance with ITT Sub-Clause 4.4. 	

Employer reserves the right to check references including any work on Donor-funded contracts and as per any Past Performance Database.

The Contractor's future performance under any contract resulting from these Tender Documents will be subject to Reporting and Considering Past Performance.

Form – 1.3

Subcontractor Information Sheet

Each Tenderer must complete this form for each specialized Subcontractor mentioned in its subcontracting plan.

<p>Sub-contractor’s legal name</p>	
<p>Subcontractor’s country of constitution</p>	
<p>Subcontractor’s year of constitution</p>	
<p>Subcontractor’s legal address in country of constitution</p>	
<p>Subcontractor’s authorized representative (name, address, telephone numbers, fax numbers, e-mail address)</p>	
<p>Attached are copies of the following original documents.</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1. Articles of incorporation or constitution of the legal entity named above, in accordance with ITT 4.2. <input type="checkbox"/> 2. Authorization to represent the entity named above. <input type="checkbox"/> 3. In case of a government-owned entity, any additional documents not covered under 1 above required to comply with ITT 4.4. 	

Form – 2

Historical Contract Non-Performance

Tenderer’s Legal Name: _____ Date: _____

JV/Consortium Member’s Legal Name: _____ Tender No: _____

Page _____ of _____ pages

Non-Performing Contracts			
<input type="checkbox"/> Contract non-performance did not occur during the stipulated period, in accordance with Sub-Factor 2 of B. Qualification of Section III. Evaluation and Qualification Criteria.			
<input type="checkbox"/> Contract non-performance during the stipulated period, in accordance with Sub-Factor 2 of B. Qualification of Section III. Evaluation and Qualification Criteria.			
Year	Outcome as Percent of Total Assets	Contract Identification	Total Contract Amount (current value, GHS equivalent)
_____	_____	Contract Identification: Name of Employer: Address of Employer: Matter in dispute:	_____
<p>Failure to sign a Contract in accordance with Sub-Factor 2 of B. Qualification of Section III. Evaluation and Qualification Criteria.</p> <p style="text-align: center;"><i>[Explain deviation(s), if any]</i></p>			
Pending Litigation			
<input type="checkbox"/> No pending litigation in accordance with Sub-Factor 2 of B. Qualification of Section III. Evaluation and Qualification Criteria.			
<input type="checkbox"/> Pending litigation in accordance with Sub-Factor 2 of B. Qualification of Section III. Evaluation and Qualification Criteria, as indicated below			
Year	Outcome as Percent of Total Assets	Contract Identification	Total Contract Amount (current value, GHS equivalent)
_____	_____	Contract Identification: Name of Employer: Address of Employer: Matter in dispute:	_____
_____	_____	Contract Identification: Name of Employer: Address of Employer: Matter in dispute:	_____

**Form – 3.1
Financial Situation**

Each Tenderer or member of a JV must fill in this form.

Financial Data for Previous 3 Years [GHS Equivalent]		
Year 1:	Year 2:	Year 3:

Information from Balance Sheet

Total Assets			
Total Liabilities			
Net Worth			
Current Assets			
Current Liabilities			

Information from Income Statement

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

- Attached are copies of financial statements (balance sheets including all related notes, and income statements) for the last 3 years, as indicated above, complying with the following conditions.
- All such documents reflect the financial situation of the Tender or partner to a JV, and not sister or parent companies.
 - Historic financial statements must be audited by a certified accountant.
 - Historic financial statements must be complete, including all notes to the financial statements.
 - Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

Form – 3.2
Average Annual Construction Turnover

Each Tenderer or member of a JV must fill in this form.

Annual Turnover Data for the Last 3 Years (Construction only)			
Year	Amount Currency	Exchange Rate	GHS Equivalent
2024			
2023			
2022			
2021			
2020			
Average Annual Construction Turnover			

The information supplied should be the Annual Construction Turnover of the Tenderer or each member of a JV in terms of the amounts billed to employer / clients for each year for work in progress or completed, converted to GHS at the rate of exchange at the end of the period reported.

Form - 3.3
Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in Sub-factor 3.3 of B. Qualification of Section III. Evaluation and Qualification Criteria.

Source of financing	Amount (GHS equivalent)
1.	
2.	
3.	
4.	

Form – 3.4

Current Contract Commitments/Works in Progress

Tenderers and each member of a JV/Consortium should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate is yet to be issued.

Name of contract	Employer, contact address/tel/fax	Value of outstanding work (current GHS equivalent)	Estimated completion date	Average monthly invoicing over last six months (GHS/month)
1.				
2.				
3.				
4.				
5.				

Form – 4.1
General Construction Experience

[The following table shall be filled in for the Applicant and for each partner of a Joint Venture / Consortium.]

Applicant's/Joint Venture/Consortium Partner's Legal Name: *[insert full name]*

Date: *[insert day, month, year]*

Applicant JV/Consortium Party Legal Name: *[insert full name]*

Page *[insert page number]* of *[insert total number]* pages

[Identify contracts that demonstrate continuous construction work over the past five years pursuant to Section III, Qualification Criteria and Requirements, Sub-Factor 4.1. List contracts chronologically, according to their commencement (starting) dates.]

Starting Month / Year	Ending Month / Year	Contract Identification	Role of Applicant
<i>[indicate month/ year]</i>	<i>[indicate month/ year]</i>	Contract name: <i>[insert full name]</i> Brief Description of the Works performed by the Applicant: <i>[describe works performed briefly]</i> Amount of contract: <i>[insert amount in GHS equivalent]</i> Name of institution: <i>[indicate full name]</i> Address: <i>[indicate street/number/town or city/country]</i> Contact person: <i>[insert tel. & e-mail]</i> ¹	<i>[insert "Contractor" or "Subcontractor" or "Contract Manager"]</i>
		Contract name: <i>[insert full name]</i> Brief Description of the Works performed by the Applicant: <i>[describe works performed briefly]</i> Amount of contract: <i>[insert amount in GHS equivalent]</i> Name of institution: <i>[indicate full name]</i> Address: <i>[indicate street/number/town or city/country]</i> Contact person: <i>[insert tel. & e-mail]</i>	<i>[insert "Contractor" or "Subcontractor" or "Contract Manager"]</i>

¹ Employer reserves the right to check references and contact this person or any other person for reference check. It is in the best interest of the Applicant to seek that the contact person provided in this form responds within a maximum of 7 days when contacted by Employer. A non- response from the reference could be treated as a poor reference.

Form – 4.2
Similar Construction Experience

[The following table shall be filled in for contracts performed by the Applicant, each partner of a Joint Venture/Consortium, and specialist sub-contractors. A copy of the certificate of substantial completion should be attached for each contract in order for such contract to be considered.]

Applicant's/Joint Venture/Consortium Partner's Legal Name: *[insert full name]*

Date: *[insert day, month, year]*

JV/Consortium Party Name: *[insert full name]*

Page *[insert page number]* of *[insert total number]* pages

Similar Contract No. <i>[insert number] of [insert number of similar contracts required]</i>	Information		
Contract Identification	<i>[insert contract name and number, if applicable]</i>		
Award date	<i>[insert day, month, year,]</i>		
Start date	<i>[insert day, month, year,]</i>		
Completion date	<i>[insert day, month, year,]</i>		
Role in Contract <i>[check the appropriate box]</i>	Contractor <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Subcontractor <input type="checkbox"/>
Total Contract Amount	GHS <i>[insert total contract amount in GHS]</i>		
If partner in a JV/Consortium, or subcontractor, specify participation in total contract amount	<i>[insert percentage amount]</i>	a	<i>[insert total contract amount in GHS equivalent]</i>
Employer's Name ² :	<i>[insert full name]</i>		
Address:	<i>[indicate street/number/town or city/country]</i>		
Telephone/fax number	<i>[insert telephone/fax numbers, including country and city area codes]</i>		
E-mail:	<i>[insert e-mail address, if available]</i>		

² **Employer** reserves the right to contact this person or any other person for reference check. It is in the best interest of the Applicant to seek that the contact person provided in this form responds within a maximum of 7 days when contacted by Employer. A non- response from the reference could be treated as a poor reference.

Similar Contract No. <i>[insert number] of [insert number of similar contracts required]</i>	Information
Description of the similarity in accordance with Sub-Factor 4.2 of Section III:	
1. Amount	<i>[insert amount in GHS in words and in Figures]</i>
2. Physical size	<i>[insert physical size of activities.]</i>
3. Complexity	<i>[insert description of complexity for example, indicate if works included rehabilitation, construction, or both, type of terrain, cuts on high roadside steep slopes, slope stabilization works, local conditions (if conducted in tropical areas, in developing countries), number of simultaneous work fronts, etc.]</i>
4. Methods/Technology	<i>[insert specific aspects of the methods/technology involved in the contract]</i>
5. Other Characteristics	<i>[insert other characteristics as described in Section V, Scope of Works]</i>

³Employer reserves the right to check references and contact this person or any other person for reference check. It is in the best interest of the Applicant to seek that the contact person provided in this form responds within a maximum of 7 days when contacted by Employer. A non-response from the reference could be treated as a poor reference.

*The qualifying information declared above must be that, which is exclusively in the name of legal entity of the Tender alone and should not include any information of the group, parent or sister companies and that must be fully substantiated by attaching ‘Certificates of Completion / Substantial Completion’.

Form – 4.3

Specific Construction Experience in Key Activities

Tenderer’s Legal Name: _____ Date: _____

JV/Consortium Member’s Legal Name: _____ Tender No.: _____

Subcontractor’s Legal Name: _____ Page _____ of _____ pages

	Information		
Contract Identification	_____		
Award date	_____		
Completion date	_____		
Role in Contract	<input type="checkbox"/> Contractor	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Subcontractor
Total contract amount	GHS _____		
If partner in a JV or subcontractor, specify participation of total contract amount	_____ %	GHS _____	
Employer’s Name ⁴ :	_____		
Address:	_____ _____ _____		
Telephone/fax number:	_____		
E-mail:	_____		

Employer reserves the right to check references including any work on Donor-funded contracts and as per any Past Performance Database.

The Contractor’s future performance under any contract resulting from these Tender Documents will be subject to Reporting and Considering Past Performance.

Form – 4.3

Specific Construction Experience in Key Activities (Cont.)

Tender's Legal Name: _____ Page _____ of _____ pages

JV/Consortium Member's Legal Name: _____

Subcontractor's Legal Name: _____

Description of the key activities in accordance with Sub-Factor 4.3 of B. Qualification of Section III. Evaluation and Qualification Criteria:	Information

* The qualifying information declared above must be that, which is exclusively in the name of legal entity of the Tenderer alone and should not include any information of the group, parent or sister companies and that must be fully substantiated by attaching appropriate supporting documentation such as copies of certified IPCs etc.

Form EXP-4: Environmental and Social (E&S) Management Experience

Each Tenderer or member of a JV/Association making up a Tenderer must fill in this form.

Starting Month Year	Ending Month Year	Contract Identification and Name Name and Address of Employer Brief Description of the Works Executed by the Tenderer, the Types of E&S or Gender Impacts Encountered, GBV and Mitigation Measures Implemented	Role of Tenderer (i.e. primary contractor or sub- contractor responsible for E&S, GBV, Gender issues)

Form EXP-5: Health and Safety (H&S) Management Experience

Each Tenderer or member of a JV/Association making up a Tenderer must fill in this form.

Starting Month Year	Ending Month Year	Contract Identification and Name Name and Address of Employer Brief Description of the Works Executed by the Tenderer and H&S Measures Implemented	Role of Tenderer (i.e. primary contractor or sub- contractor responsible for H&S issues)

Reminder – All Tenderers MUST submit a COVID-19 specific H&S Plan attached to this form.

**Form - 5
Key Equipment**

The Tenderer shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III, Evaluation and Qualification Criteria. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Tenderer.

Item of equipment		
Equipment information	Name of manufacturer	Model and power rating
	Capacity	Year of manufacture
Current status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

Omit the following information for equipment owned by the Tender.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	Telex
Agreements	Details of rental / lease / manufacture agreements specific to the project	

Note: Employer reserves the right to verify the information provided on equipment.

Form – 6.1
Tenderer’s Proposed Key Personnel

[The Tenderer shall provide adequate information to demonstrate clearly that it has the capability to provide the required key personnel listed in Sub-Factor 6 of B. Qualification of Section III. Evaluation and Qualification Criteria by providing the information as per Form – 6.1 and providing the biographical data describing the qualifications and experience of each proposed key personnel in the following Form – 6.2.]

No.	Position	Name	Years of Experience (general)	Years of experience in proposed position
1				
2				
3				
4				
5				
6				
7				
8				

**Form – 6.2
Qualification and Experience of Key Personnel**

Name of Tenderer:

Position:		
Personnel information	Name	Date of birth
	Professional qualifications	
Present employment	Name of Employer	
	Address of Employer	
	Telephone	Contact (manager / personnel officer)
	Fax	E-mail
	Job title	Years with present Employer

Summarize professional experience over the last **ten (10)** *[Insert number of years]* years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience

Employer reserves the right to check references.

[All CVs of Key Personnel must be signed and dated by them during the Tender preparation period.]

Technical Offer

[The information to be provide by Tenderer in the Technical Offer shall be used for purposes of establishing responsiveness in accordance with ITT Clause 27. This information shall not be incorporated in the Contract. Attach additional pages as necessary.]

1. Environmental, Health and Safety Requirements
 - 1.1 The Contractor will be required to carry out the Works in accordance with the site-specific Environmental Management Plan (“EMP”), to be prepared by it following Contract award, and approved by the Project Manager. Tenderers shall demonstrate that they possess a high level of Environmental and Social (“E&S”) management expertise and can successfully manage the E&S risks associated with the implementation of the Works, as follows:
 - (a) Provide examples of site-specific E&S management plans developed by the Tenderer for similar work over the last 5 years;
 - (b) Demonstrate a successful record implementing effective E&S mitigation measures on similar projects over the last 5 years;
 - (c) Describe proposed E&S staffing, roles and responsibilities, and management structure; and
 - (d) Provide 2 references regarding the Tenderer’s development of site-specific EMPs and successful implementation of E&S mitigation measures.
 - 1.2 The Contractor will be required to carry out the Works in accordance with the site-specific Health and Safety Plan to be developed by it following Contract award, and approved by the Project Manager. Tenderers shall demonstrate that they possess a high level of Health and Safety (“H&S”) management expertise and can successfully manage the H&S risks related to the implementation of the Works. To demonstrate, they shall provide the following:
 - (a) Provide examples of H&S management plans developed by the Tenderer for similar work over the last 5 years;
 - (b) Demonstrate a successful record implementing effective H&S mitigation measures on similar projects over the last 5 years;
 - (c) Describe proposed H&S staffing, roles and responsibilities, and management structure;
 - (d) Provide 2 references regarding the Tenderer’s development of H&S plans and successful implementation of H&S mitigation measures.
- ESHS Management Strategies and Implementation Plans

[The Tenderer shall submit comprehensive and concise Environmental, Social, Health and Safety Management Strategies and Implementation Plans (ESHS-MSIP) as required by ITT 12.1 (d) of the Tender Data Sheet. These strategies and plans shall describe in

detail the actions, materials, equipment, management processes etc. that will be implemented by the Contractor, and its subcontractors.

In developing these strategies and plans, the Tenderer shall have regard to the ESHS provisions of the contract including those as may be more fully described in the Technical Specification for ESHS].

And describe the proposed approach to managing E&S impacts during implementation of the Works, including a description of the mitigation measures that will be used and E&S standards that may be applicable; provide enough detail to demonstrate an understanding of the critical E&S issues related to the Works.

And describe the proposed approach to managing H&S impacts during implementation of the Works, including a summary of mitigation measures that will be used and international H&S standards that may be applicable; provide enough detail to demonstrate an understanding of the critical H&S issues related to the Works;

- Code of Conduct (ESHS)

4. [The Tenderer shall submit the Code of Conduct that will apply to the Contractor's employees and subcontractors as required by ITT 12.1(d) of the Tender Data Sheet. The Code of Conduct shall ensure compliance with the ESHS provisions of the contract, including those as may be more fully described in the Technical Specification for the ESHS].

[In addition, the Tenderer shall submit an outline of how this Code of Conduct will be implemented. This will include: how it will be introduced into conditions of employment/engagement, what training will be provided, how it will be monitored and how the Contractor proposes to deal with any breaches].

2. Program

- 2.1 Proposed work programme (work method and schedule). Descriptions, drawings, and charts, mobilization schedule and construction schedule as necessary, to comply with the requirements of the Tender Documents.
- 2.2 Cash flow projection indicating quarterly projected expenditure throughout the duration of the Contract, both the percent of the Accepted Contract Amount and the cumulative percentage of the Accepted Contract Amount by quarter. The Cash Flow Projection shall address the following, taking into consideration payment of the advance payment, amortization of the advance payment, minimum payments, and the retention.

(a) The periodic payments by milestones for the completion of the mobilization.

(b) The periodic payments based on measurement for the construction of the Works

3. Resources
- 3.1 Equipment. Same as per Qualification Information Form-5.
 - 3.2 Key Personnel. Same as per Qualification Information Forms-6.1 & 6.2.
 - 3.4 Subcontractors. Provide information on proposed sub-contracts and firms involved. Refer to GCC Clause 7 of the form of Contract in Section V.

Sections of the Works	Value of sub-contract	Subcontractor (name and address)	Experience in similar work
(a)			
(b)			

4. Country of Origin
- 4.1 The country(ies) of origin of major items of plant, materials, goods and services proposed to be provided is(are) as follows:

Table of Plant and Materials

Item	Country of Origin
Plant (list all major items)	
Material (list all major items)	
Equipment (list all major items)	
Goods (list all major items)	
Services (list all major items)	

4. Letter of Acceptance

[Letterhead of the Employer]

[The Letter of Acceptance shall be the basis for formation of the Contract as described in ITT Clauses 34 and 35. This Standard Form of Letter of Acceptance shall be filled in and sent to the successful Tenderer only after evaluation of Tenders has been completed, subject to any review required.]

[insert date]

Identification No: and: [insert identification number]

Title of Contract:

To: [insert name and address of the Contractor]

This is to notify you that your Tender dated [insert date] for execution of the [insert name of the Contract and identification number, as given in the Tender Documents] for the Contract Price of the equivalent³ of [insert amount in numbers and words] [insert name of currency], as corrected and modified⁴ in accordance with the Instructions to Tenderers is hereby accepted by the Employer. [insert one of the following (a) or (b) options]⁵

(a) We accept that [insert name proposed by Tenderer] be appointed as the Adjudicator.⁶

(b) We do not accept that [insert name proposed by Tenderer] be appointed as Adjudicator, and by sending a copy of this Letter of Acceptance to [insert name of the Appointing Authority], we are hereby requesting [insert name], the Appointing Authority, to appoint the Adjudicator in accordance with ITT Clause 37.1.⁷

You are hereby instructed to (a) proceed with the execution of the said Works in accordance with the Contract (b) sign and return the attached Agreement, and (c) forward the performance security pursuant to GCC Sub-Clause 4.2 within 28 days after receipt of this Letter of Acceptance.

Authorized Signature:

Name and Title of Signatory:

[insert proper name of the Employer]

Attachment: Agreement & Appendix to Tender

³ Delete "of the equivalent" if the Contract Price is expressed wholly in one currency.

⁴ Delete "corrected and" or "and modified" if not applicable.

⁵ Delete this entire section if the Adjudicator originally proposed by the Employer is accepted by the Tender.

⁶ To be used only if the Contractor disagrees in the Tender with the Adjudicator proposed by the Employer in the Instructions to Tender, and has accordingly offered another candidate.

⁷ To be used only if the Contractor disagrees in the Tender with the Adjudicator proposed by the Employer in the ITT, has accordingly offered another candidate, and the Employer does not accept the counterproposal.

Appendix to Tender

The Employer should insert relevant data prior to the issue of the Tender Document. Tenderers should fill in the remaining blank spaces. Tenderers are required to sign each page of the Appendix to Tender. The Appendix to Tender of the successful Tenderer shall become Annex B to the Particular Conditions of Contract.

Conditions of Contract Sub-Clause

Parties and Persons	1.1.2.2	Employer is: The North East Regional Health Directorate
	1.1.2.4	Engineer is: Estate Management Unit
Dates, Tests, Periods and Completion	1.1.3.3	Time for completion from the Commencement Date is: Six (6) Calendar Months
Defects Notification Period	1.1.3.7	The Defects Notification Period will be: Six (6) Calendar Months following the issuance of the Taking Over Certificate.
Works and Goods	1.1.5.6	Sections of the Works shall be as follows: Not Applicable
Interpretation		
Communications	1.3(a)	Agreed systems of electronic transmission is E-mail addresses of the persons nominated and authorized to represent the respective Party at time of Contract
	1.3(b)	Address of the Employer is: North East Regional Health Directorate P. O. Box 2 Gambaga Tel: +233244527282 E-mail: braimah.abubakari@ghs.gov.gh
	1.3(b)	Address of the Engineer is: Tel: +23324331922 E-mail: clementdassah@gmail.com
	1.3(b)	Address of the Contractor is to be added at time of Award of Contract
Law and Language	1.4	Law in force governing the Contract is that of the Republic of Ghana
	1.4	Ruling language of the Contract is English
	1.4	Language for communication is English
Right of Access	2.1	Employer shall give the Contractor access to the Site within

to the Site **Fourteen (14) Calendar days** after the Commencement Date.

Engineer's Duties and Authority 3.1(c) The Engineer shall have the right to assess change/variation orders and make recommendations to Employer for approval except if such a Variation would increase the Accepted Contract Amount by less than two percent (2%).

Performance Security 4.2 Performance Security will be in a form acceptable to Employer in the amount and source as follows:

- a) **Bank Guarantee**
- b) Works Performance Security of Seven percent **[10%] of the Accepted Contract Amount**, and
- c) Performance Security for Environmental, Social, Health and Safety (ESHS) Three percent **[3%] of the Accepted Contract Amount;**

All in the form of Unconditional Bank Guarantee from a bank located in Ghana, acceptable to the Employer.

Or

- d) **Bond**
- e) Works Performance Security of Twenty percent **[30%] of the Accepted Contract Amount**, and
- f) Performance Security for Environmental, Social, Health and Safety (ESHS) Ten percent **[10%] of the Accepted Contract Amount;**

All in a Form of Bond from a reputable Insurance Company or Financial Institution (see Section VIII for template)

The information in ITT 35.1 is modified to include:

In addition, the successful Tenderer shall submit a signed Beneficial Ownership Disclosure Form providing additional information on its beneficial ownership and deliver to the Employer within 21 days of receipt of the notification of award (see Section IV for template).

Working Hours 6.5 Normal working hours are **8:00 a.m. to 5:00 p.m.**
 Normal work week is **five (5) days, Monday-Friday**
 National holidays in Ghana are:

January 1	New Year's Day
January 7	Constitution Day
March 6	Independence Day
March – April	Good Friday Easter Monday
May 1	May Day
August 2	Founders' Day
Sept 21	Kwame Nkrumah's Memorial Day
December 5	Farmers' Day
December 25	Christmas Day
December 26	Boxing Day
Varies from year to year	Eid Al Fitr Eid Al Adha

Delay Damages 8.7 The damages for delays shall be in the amount of: **One-tenth of one percent (0.1%) of Accepted Contract Amount per day in the currencies and proportions in which the Accepted Contract Amount is payable.**

Maximum amount of delay damages shall be **Ten percent (10%) of the final Contract Price.**

Provisional Sums 13.5(b)(ii) Percentage for overhead charges and profit for adjustment of Provisional Sums shall be: **Fifteen percent (15%).**

The total Provisional Sums allowable in the General Summary of the Bill shall be ten percent (10%) made up of;

- 5% physical contingencies and
- 5% price contingencies

Adjustment for Changes in Cost 13.8 This Contract **shall** not be subjected to price adjustment in accordance with GCC and PCC Clause 13.

The formulae shall be of the following specific type:

P_n	=	A	+	B	<u>In</u>
					Io

Where:

P_n is the adjustment factor for the portion of the Contract Price payable in a specific currency “Ghana Cedi.”

In is the index prevailing at the end of the month being invoiced and Io is the index prevailing 28 days before Tender opening for inputs payable; both in the specific

currency “Ghana Cedi”.

The coefficients for adjustment of prices are:

For the currency of GHS;

- i. **15%** percent nonadjustable element (coefficient A).
- ii. **85%** percent adjustable element (coefficient B).

The Index I shall be:

Ghana - Consumer Price Index (CPI) - Non- Food Basket published monthly by the Ghana Statistical Service;

Adjustment shall be made for the first time in 4 months from commencement date and thereafter quarterly.

Advance
Payment

14.2

Total advance payment shall be: **Fifteen percent (15%) of the Accepted Contract Amount** less Provisional Sums and shall be payable in the currencies and proportions in which the Accepted Contract Amount is payable.

The advance payment shall be certified by the Engineer after (a) execution of the Contract Agreement by the parties thereto; (b) presentation by the Contractor of a Statement (under Sub-Clause 14.3 [*Application for Interim Payment Certificates*]) for the same; (c) provision by the Contractor of the Performance Security in accordance with Sub-Clause 4.2 [*Performance Security*]; and (d) provision by the Contractor of the advance payment guarantee for the full advance payment amount in accordance with Sub-Clause 14.2 [*Advance Payment*] and in the form included in Section IV of the Contract Documents or another substantially similar form approved by the Employer.

14.2 (a)

Repayment of the advance payment shall start after certification of **Twenty percent (20%) of the Accepted Contract Amount**.

14.2 (b)

Amortization rate shall be **Twenty percent (20%)**. Advance payment shall be recovered in full prior to the time when **Eighty percent (80%) of the Accepted Contract Amount has been certified for payment**.

Application for
Interim Payment
Certificates

In the event of the Contractor failing to apply for Interim Payment Certificates, the Engineer may, on behalf of the Contractor, proceed to undertake the tasks required of the Contractor under this sub-clause. In this event, the Engineer shall give notice to the Contractor accordingly.

14.3(c)

Amount to be retained shall be **Ten percent (10%) of Interim Payment Certificates**.

14.3(c)

Limit of retention money shall be **Five percent (5%) of the Contract Price**.

Plant and Materials intended for the Works 14.5(b)(i) 14.5(c)(i) In the Table of Plant and Materials immediately below, Tenderers shall indicate the major items of Plant and Materials and the proposed country of origin for each.

Table of Plant and Materials

Item	Country of Origin
For payment when shipped:	
Plant (list all major items)	
Material (list all major items)	
For payment when delivered to Site:	
Plant (list all major items)	
Material (list all major items)	

Issue of Interim Payment Certificates 14.6 Minimum amount of an Interim Payment Certificate shall be: **Two and half percent (2.5%) of the Contract Price, with no more than one (1) submission per month.**

Payment 14.7 Contractor's nominated account(s) is/are:

To be inserted prior to Award of Contract

Delayed Payment 14.8 Financing charges shall be: **Ghana Inter-bank Lending Rate (LIBOR) plus two and half percent (2.5%) per annum.**

Currencies of Payment 14.15 Currencies of payment shall be **in Ghana Cedis (GHS) only.**

General Requirements for Insurances 18.1(a) Insuring Party shall submit evidence of insurance **within fourteen (14) days of the Commencement Date.**
Insuring Party shall submit copies of insurance policies **within twenty-eight (28) days of the Commencement Date.**

Insurance against Injury to Persons and Damage to Property 18.3 Limit per occurrence shall not be less than: **GHS25,000.00 per occurrence, with the number of occurrences unlimited**

Appointment of the Dispute Adjudication Board 20.2 Appointment of the DAB **to be determined before contract is signed.**

Board 20.2 DAB shall comprise **Three (3) Members.**

Failure to Agree Dispute Adjudication Board 20.3 Appointing entity shall be: **The President, Ghana Institution of Surveyors, Accra, Ghana.**

Arbitration 20.6(a)(i) **Ghana Arbitration Centre, Accra.**
The location of the arbitration proceedings shall be in **Accra.**

PART II

Section V. Agreement and General Conditions of Contract

Agreement

This CONTRACT AGREEMENT (this “Contract”) is made as of the [day] of [month], [year], between [full legal name of the Employer] (the “Employer”), on the one part, and [full legal name of the Contractor] (the “Contractor”), of the other part:

RECITALS

WHEREAS

- (a) the Employer desires that the Works known as [insert Contract Title and Details] should be executed by the Contractor, and has accepted a Tender by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

NOW, THEREFORE, the parties to this Contract agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
 - (i) the Letter of Acceptance;
 - (ii) the Letter of Tender;
 - (iii) the addenda Nos _____ (if any);
 - (iv) the Particular Conditions;
 - (v) the General Conditions;
 - (vi) the Specification;
 - (vii) the Drawings;
 - (viii) the Bill of Quantities; and
 - (ix) any other documents
3. In consideration of the payments to be made by the Employer to the Contractor as set forth in this Contract, the Contractor hereby covenants with the Employer to provide the Works (as defined in this Contract) and to remedy defects therein in conformity in all respects with the provisions of this Contract.

4. Subject to the terms of this Contract, the Employer hereby covenants to pay the Contractor in consideration of the provision of the Works, the Contract Price (as defined in this Contract) or such other sum as may become payable under the provisions of this Contract at the times and in the manner prescribed by this Contract.

IN WITNESS whereof the parties hereto have caused this Contract to be executed in accordance with the laws of Ghana as of the day, month and year first indicated above.

For **[full legal name of the Employer]**:
Signature

Name

Witnessed By:

For **[full legal name of the Contractor]**:
Signature

Name

Witnessed By:

Conditions of Contract

For CONSTRUCTION

FOR BUILDING AND ENGINEERING WORKS
DESIGNED BY THE EMPLOYER

General Conditions

FEDERATION INTERNATIONALE DES INGENIEURS-CONSEILS
INTERNATIONAL FEDERATION OF CONSULTING ENGINEERS
INTERNATIONALE VEREINIGUNG BERATENDER INGENIEURE
FEDERACION INTERNACIONAL DE INGENIEROS CONSOLTORES

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GENERAL CONDITIONS OF DISPUTE ADJUDICATION AGREEMENT

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Section VI. Particular Conditions of Contract

The following Particular Conditions of Contract (PCC) shall supplement and/or amend the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

1. General Provisions	
Sub-Clause 1.1.1 The Contract	Amend Subpara. 1.1.1.1 (“Contract”) by adding the following at the end: “The words ‘Agreement’ and ‘Contract’ are used interchangeably.”
Sub-Clause 1.1.2 Parties and Persons	Add as Subpara. 1.1.2.11 a defined term to read as follows: “GHS’ means the Ghana Health Service of the Government of Ghana, is responsible for providing funds under the Korean International Cooperation Agency (KOICA) CHPS PLUS PHASE II PROJECT
	Add as Subpara. 1.1.2.12 a defined term to read as follows: “ KOICA CHPS + Project Phase II (KOICA CHPS+II) ” means the program financed by the Korean International Cooperation Agency
	Add as Subpara 1.1.2.13 a defined term to read as follows: “Government’ means the Government of Ghana. ”
	Add as Subpara 1.1.2.14 a defined term to read as follows: “ ‘Eligible Entity’ means
	Add as Subpara 1.1.2.15 a defined term to read as follows: “ESHS” ...
	Add as Subpara 1.1.2.16 a defined term to read as follows: “ ‘Gender Policy’ means the Ghana Gender Policy
Sub-Clause 1.1.3 Dates, Tests, Periods and Completion	Amend Subpara. 1.1.3.6 (“Tests after Completion”) by replacing “provisions of the Particular Conditions” with “Employer’s Requirements.” Amend Subpara. 1.1.3.7 (“Defects Notification Period”) by inserting the following after the reference to Sub-Clause 11.1: “which extends over six calendar months except as otherwise stated in the Appendix to Tender”.
Sub-Clause 1.1.6 Other Definitions	Add as Subpara. 1.1.6.10 a defined term to read as follows: “ ‘Contractor’s Environmental & Social Management Plan’ or ‘CESMP’ means the plan the Contractor shall develop, deliver, and implement in accordance with Particular Condition Sub-Clause 4.18.” Add as Subpara. 1.1.6.11 a defined term to read as follows:

	<p>“ ‘Health and Safety Management Plan’ or ‘HSMP’ means the plan the Contractor shall develop, deliver, and implement in accordance with Particular Condition Sub-Clause 4.8.”</p>
<p>Sub-Clause 1.2 Interpretation</p>	<p>Amend Sub-Clause 1.2 by adding the following after item (d): “(e) “labour” and “labor” are synonymous.”</p> <p>Amend Sub-Clause 1.2 by adding the following at the end: “In Contract provisions including the expression "Cost plus reasonable profit" require this profit to be one-twentieth (5%) of this Cost unless otherwise indicated in the Appendix to Tender”.</p>
<p>Sub-Clause 1.7 Assignment</p>	<p>Replace the text of Sub-Clause 1.7 with the following:</p> <p>“Neither Party shall assign the whole or any part of the Contract, or any benefit or interest in or under the Contract; provided that, the Employer may assign the whole or any part of the Contract, or any benefit or interest in or under the Contract, to another person or entity of the Government (or another entity designated by the Government) without the consent of the Contractor at any time concurrent with or after the expiration of the Funding. The Employer shall notify the Engineer and the Contractor within 10 days of any such assignment.</p> <p>“In the event of any assignment of the Contract by the Employer in accordance with the immediately preceding paragraph:</p> <ul style="list-style-type: none"> (a) the Contractor shall obtain a replacement Performance Security according to the terms of Sub-Clause 4.2 [<i>Performance Security</i>] in an amount equal to that of the then currently issued Performance Security naming the Employer’s assignee as beneficiary, and shall deliver this replacement Performance Security to the Employer on or before the date the assignment becomes effective at which time the Employer shall concurrently return the original Performance Security to the Contractor; (b) in the event any Retention Money guarantee is outstanding at the time of assignment, the Contractor shall obtain a replacement Retention Money guarantee according to the terms of Sub-Clause 14.9 [<i>Payment of Retention Money</i>] in an amount equal to that of the then currently issued Retention Money guarantee naming the Employer’s assignee as beneficiary, and shall deliver this replacement Retention Money guarantee to the Employer on or before the date the assignment becomes effective at which time the Employer shall concurrently return the original Retention Money guarantee to the Contractor. (c) in the event any advance payment guarantee is outstanding at the time of assignment, the Contractor shall obtain a replacement advance payment guarantee according to the terms of Sub-Clause 14.2 [<i>Advance Payment</i>] in an amount equal to that of the then currently issued advance payment guarantee naming the Employer’s assignee as beneficiary, and shall deliver this replacement advance payment guarantee to the Employer on or before the date the assignment

	<p>becomes effective at which time the Employer shall concurrently return the original advance payment guarantee to the Contractor.</p> <p>(d) in the event any other guarantee, bond, insurance or other instruments have been obtained by the Contractor to cover the Employer against risks or liabilities associated with the performance of the Contract and remain outstanding or otherwise in effect at the time of assignment, the Contractor shall obtain a replacement guarantee, bond, insurance or other such instrument according to the terms of the Contract under which it was originally posted, purchased or otherwise became effective in an amount equal to that of the then currently issued guarantee, bond, insurance or other instrument naming the Employer’s assignee as beneficiary or payee, and shall deliver this replacement guarantee, bond, insurance or other instrument to the Employer on or before the date the assignment becomes effective at which time the Employer shall concurrently return the original guarantee, bond, insurance or other instrument to the Contractor.</p> <p>“In addition, either Party:</p> <p>(a) may assign the whole or any part of the Contract, or any benefit or interest in or under the Contract, at any time with the prior agreement of the other Party, at the sole discretion of such other Party, and</p> <p>(b) may, as security in favor of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.”</p>
<p>Sub-Clause 1.9 Errors in the Employer’s Requirements</p>	<p>Amend Sub-Clause 1.9 by replacing the third paragraph with the following:</p> <p>“After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [<i>Determinations</i>] and Sub-Clause 20.1 [<i>Contractor’s Claims</i>] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.”</p>
<p>Sub-Clause 1.12 Confidential Details</p>	<p>Replace the text of Sub-Clause 1.12 with the following:</p> <p>“The Contractor’s and the Employer’s Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify the Contractor’s compliance with the Contract and allow its proper implementation; provided that the requirements of this Sub-Clause 1.12 shall not be construed to require the disclosure of any information or any authorized representatives of any officer(s), or any auditor procured or identified.</p> <p>“Each of the Parties shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or, with the prior consent of the Employer, information otherwise reasonably required to establish its qualifications to compete for other projects. If any dispute arises as to the necessity of any publication or disclosure of the details</p>

	of the Contract, the same shall be referred to the Employer whose determination shall be final. The Contractor shall ensure that the requirements imposed on the Contractor by this Sub-Clause apply equally to each Subcontractor.”
Sub-Clause 1.13 Compliance with Laws	Amend Sub-Clause 1.13(b) by adding the following at the end: “unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.”

2. The Employer

Sub-Clause 2.1 Right of Access to the Site	<p>Replace the third through fifth paragraphs of Sub-Clause 2.1 with the following:</p> <p>“If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, and giving due consideration to the phased implementation of resettlement activities as may be described in the Appendix to Tender or in a notice from the Engineer, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [<i>Contractor’s Claims</i>] to:</p> <ul style="list-style-type: none"> (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [<i>Extension of Time for Completion</i>], and (b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price. <p>“However, if and to the extent that the Employer’s failure to give right or possession to site within the agreed upon time was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor’s Documents, the Contractor shall not be entitled to such extension of time, Cost, or profit.”</p> <p>Amend Sub-Clause 2.1 by adding the following at the end:</p> <p>“As part of the implementation of resettlement activities associated with the Contract, certain structures existing in the right-of-way associated with the Site may be retained. In a case in which structures existing in the right-of-way are to be retained, the Engineer shall provide instructions regarding which structures the Contractor shall demolish, and which structures the Contractor shall protect from destruction or damage. The Contractor shall not demolish, damage, or affect in any way the structures identified in the Engineer’s instructions as being permitted to remain within the right-of-way associated with the Site.</p> <p>“Failure to abide by the Employer’s instructions regarding right of access to the site may result in the Engineer instructing the Contractor to suspend progress on part or all of the Works. In any such event, the suspension of work will be deemed the responsibility of the Contractor subject to Sub-Clause 8.8 [<i>Suspension of Work</i>].”</p>
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<p>Sub-Clause 2.4 Employer’s Financial Arrangements</p>	<p>Replace Sub-Clause 2.4 with the following:</p> <p>“The Employer shall submit, within 28 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the Final Contract Price (as estimated at that time and as agreed and confirmed by the Engineer) in accordance with Clause 14 [<i>Contract Price and Payment</i>]. If the Employer intends to make any material change to his financial arrangements, the Employer shall give notice to the Contractor with detailed particulars.</p> <p>If GSCSP Funding is suspended, and if alternative funds will be available in appropriate currencies to the Employer to continue making payments to the Contractor beyond a date 28 days after the date of notification of such suspension, the Employer shall provide reasonable evidence in such notice of the extent to which such funds will be available.</p> <p>“For the avoidance of doubt, in no event shall any GSCSP Funding be subject to any type of co-financing, joint financing or similar arrangement that would violate the terms of the Program Financing Agreement .”</p>
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3. The Engineer

<p>Sub-Clause 3.1 Engineer’s Duties and Authority</p>	<p>Amend Sub-Clause 3.1 by replacing the word “may” in the first sentence of the third paragraph with the word “shall”.</p> <p>Amend Subpara. (b) of Sub-Clause 3.1 by deleting the word “and” at the end.</p> <p>Amend Subpara. (c) of Sub-Clause 3.1 by replacing the period at the end with “and”.</p>
	<p>Amend Sub-Clause 3.1 by adding the following at the end:</p> <p>“(d) any act by the Engineer in response to a Contractor’s request except otherwise expressly specified shall be notified in writing to the Contractor within 28 days of receipt.</p>
	<p>Amend Sub-Clause 3.1 by adding the following at the end:</p> <p>“(d) any act by the Engineer in response to a Contractor’s request except otherwise expressly specified shall be notified in writing to the Contractor within 28 days of receipt.</p> <p>“The following provisions also shall apply:</p> <p>“The Engineer shall obtain the specific approval of the Employer before taking action under the-following Sub-Clauses of these Conditions:</p> <p>(i) Sub-Clause 4.12 [<i>Unforeseeable Physical Conditions</i>]: Agreeing to or determining an extension of time and/or additional cost.</p> <p>(ii) Sub-Clause 8.4 [<i>Extension of Time for Completion</i>]: Approving an extension of time under Sub-Clause 20.1.</p>

	<p>(iii) Sub-Clause 8.6 [<i>Rate of Progress</i>]: Instructing the Contractor to submit a revised programme, under Sub-Clause 8.3 [<i>Programme</i>], to expedite progress.</p> <p>(iv) Sub-Clause 13.1 [<i>Right to Vary</i>]: Instructing a Variation, except if such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Appendix to Financial Offer.</p> <p>(v) Sub-Clause 13.3 [<i>Variation Procedure</i>]: Approving a proposal for Variation submitted by the Contractor in accordance with Sub-Clause 13.1 [<i>Right to Vary</i>], 13.2 [<i>Value Engineering</i>] or 13.3 [<i>Variation Procedure</i>], except if such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Appendix to Financial Offer.</p> <p>(vi) Sub-Clause 13.4 [<i>Payment in Applicable Currencies</i>]: Specifying the amount payable in each of the applicable currencies.</p> <p>“Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer. Within 7 days of having issued such emergency instructions, the Engineer shall submit written documentation of such instructions to the Employer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 [<i>Variations and Adjustments</i>] and shall notify the Contractor accordingly, with a copy to the Employer.”</p>
Sub-Clause 3.4 Replacement of Engineer	Amend Sub-Clause 3.4 by replacing the number “42” in the first sentence with the number “28.”
Sub-Clause 3.5 Determinations	<p>Amend Sub-Clause 3.5 by adding the following to the end of the second paragraph:</p> <p>“In the event a Party disagrees with any agreement or determination and intends to seek a revision under Clause 20, that Party must give notice of such disagreement to the Engineer and the other Party within 28 days of receiving the relevant agreement or determination. Failing to provide such notice of disagreement within 28 days shall bar the Party from later seeking any revision of the agreement or determination.”</p>

4. The Contractor

Sub-Clause 4.1 Contractor’s General Obligations	<p>Amend Sub-Clause 4.1 by adding the following at the end:</p> <p>“The Contractor and its Subcontractors and suppliers, including their respective affiliates, shall at all times during the term of the Contract be an Eligible Entity.</p>
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	<p>“All Equipment, Materials, Plant and any services to be incorporated in or required for the Works shall have an Eligible Entity as their origin and, at the Employer’s request, the Contractor shall provide evidence of such origin.</p> <p>“For the purpose of this Sub-Clause 4.1, “origin” means the place where the Equipment, Materials or Plant have been mined, grown, cultivated, produced, manufactured, or processed; or through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics, purposes or utility from its underlying components. With respect to any services, the term “origin” means the place from which the services are provided.”</p>
<p>Sub-Clause 4.2 Performance Security</p>	<p>Amend Sub-Clause 4.2 by adding the following at the end:</p> <p>“Without limitation to the other provisions of this Sub-Clause 4.2, whenever the Engineer determines an addition to the Contract Price as a result of a change in cost and/or legislation or as a result of a Variation amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor, at the Engineer’s written request, shall promptly increase the value of the Performance Security in the applicable currency by an equal percentage.</p> <p>“The Performance Security of a joint venture or other association shall be issued so as to commit fully all members of the joint venture or other association. If the joint venture or other association has not been legally constituted at the time the Performance Security is provided, the Performance Security shall be in the name of all future members of the proposed joint venture or other association.”</p>
<p>Sub-Clause 4.3 Contractor’s Representative</p>	<p>Amend Sub-Clause 4.3 by adding the following at the end:</p> <p>“If the Engineer determines that the Contractor’s Representative or any of these persons are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.”</p>
<p>Sub-Clause 4.8 Safety Procedures</p>	<p>Amend Sub-Clause 4.8 by adding the following at the end:</p> <p>“The Contractor shall submit a detailed, site-specific Health and Safety Management Plan (or “HSMP”) based on all relevant health and safety provisions found in the Employer’s Requirements and Schedules and applicable Laws to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [<i>Commencement of Work</i>]. The HSMP must be approved by the Engineer prior to commencement of the execution of the Works.</p> <p>“Unless the Engineer, within 21 days after receiving the Health and Safety Management Plan, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the Health and Safety Management Plan.</p>

	<p>“The Contractor shall also implement the health and safety requirements of the approved HSMP and comply with instructions issued as a result of periodic inspections to be undertaken as part of the supervisory role required of the Engineer.</p> <p>“The Contractor shall be responsible for ensuring that all Subcontractor’s and Contractor’s Personnel understand and operate in accordance with the principles and requirements of the HSMP.</p> <p>“If, at any time, the Engineer gives notice to the Contractor that all or any portion of the Health and Safety Management Plan fails (to the extent stated) to comply with the Contract, the Contractor shall submit a revised Health and Safety Management Plan to the Engineer in accordance with this Sub-Clause.</p> <p>“The Contractor shall notify the Engineer and the Employer, within 24 hours or as soon as reasonably possible after the occurrence of any accident which has resulted in damage or loss of property, disability or loss of human life, or which has or which could reasonably be foreseen to have a material impact on the environment and shall submit to the Engineer, and the Employer, no later than 7 days after the occurrence of such an event, a summary report thereof.</p>
<p>Sub-Clause 4.18 Protection of the Environment</p>	<p>Amend Sub-Clause 4.18 by adding the following at the end:</p> <p>“The Contractor shall submit a detailed, site-specific Contractor’s Environmental & Social Management Plan (or “CESMP”) in respect of safety, security, and management of environmental and social impacts based on all relevant provisions found in the Employer’s Requirements and Schedules and applicable Laws to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [<i>Commencement of Work</i>]. The CESMP must be approved by the Engineer prior to commencement of the execution of the Works.</p> <p>“Unless the Engineer, within 21 days after receiving the CESMP, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the CESMP.</p> <p>“If, at any time, the Engineer gives notice to the Contractor that all or any portion of the CESMP fails (to the extent stated) to comply with the Contract, the Contractor shall submit a revised CESMP to the Engineer in accordance with this Sub-Clause.</p> <p>“The Contractor shall ensure that its activities under the Contract comply with Ghana’s Environmental Guidelines t, which are available at _____), and are not ‘likely to cause a significant environmental, health, or safety hazard’ as defined in such Environmental Guidelines.</p> <p>“The Contractor shall request written confirmation from the Engineer that actions requiring completion by the approved Abbreviated Resettlement Action Plan (“ARAP”) have been completed before the commencement of the execution of the Works or each Section (as the case may be). The Contractor shall also immediately notify the Engineer of any land acquisition or</p>

	<p>resettlement needs resulting from the design or Works that have not been addressed by the ARAP. No work shall commence in any such newly identified area without the approval of the Engineer.</p> <p>“The Contractor shall implement environmental and social requirements of the approved CESMP and instructions issued as a result of periodic inspections to be undertaken as part of the supervisory role required of the Engineer, to ensure compliance with the requirements of the CESMP.</p> <p>“The Contractor shall comply with the _____ Standards and the Contractor shall be responsible for ensuring that all Subcontractor’s and Contractor’s Personnel understand and operate in accordance with the principles and requirements of the environmental, social, health and safety impacts provisions of this Sub-Clause and that similar standards apply to the Subcontractor’s environmental, social, health and safety impacts management systems and environmental and social impacts performance.</p> <p>“The Contractor’s programme submitted, maintained and implemented in accordance with Sub-Clause 8.3 [Programme] shall demonstrate clearly the procedures and methods of working that the Contractor and its Subcontractors shall utilize to comply with the environmental and social impacts requirements of this Sub-Clause.</p> <p>“The Contractor shall ensure the adequate disposal of construction and excavation wastes in accordance with Ghana’s Environmental Guidelines and applicable Laws. This includes identifying the presence of hazardous materials and developing plans, approved by the Engineer, for proper handling and disposal of such materials.</p> <p>“The Contractor shall restore the Site to original conditions or to a state as set out in the Employer’s Requirements after the completion of the Works.”</p>
<p>Sub-Clause 4.25 Gender</p>	<p>Add the following Sub-Clause 4.25:</p> <p>The applicable framework is the Ghana’s National Gender Policy which further enhances women’s rights and continues to provide a clear framework for addressing inequalities deeply rooted in our society.</p>

5. Design

<p>Sub-Clause 5.4 Technical Standards and Regulations</p>	<p>Amend Sub-Clause 5.4 by inserting the following at the end of the first paragraph:</p> <p>“and Ghana’s Environmental Guidelines (as such term is defined in the Employer’s Requirements).”</p>
<p>Sub-Clause 6.1 Engagement of Staff and Labour</p>	<p>Amend Sub-Clause 6.1 by adding the following at the end:</p> <p>“The Contractor shall adopt and implement human resources policies and procedures appropriate to its size and workforce that set out its approach to managing the Contractor’s Personnel. At a minimum, the Contractor shall provide all Contractor’s Personnel with documented information that is clear</p>

	<p>and understandable regarding their rights under all the relevant labour Laws applicable to the Contractor’s Personnel and any applicable collective agreements, including their rights related to their employment, health, safety, welfare, immigration and emigration upon beginning the working relationship and when any material changes occur.</p> <p>“The Contractor shall ensure that the employment terms and conditions of migrant workers (see also Sub-Clause 6.12) are not influenced by their migrant status.</p> <p>“The Contractor shall be responsible for monitoring compliance of Subcontractors on labour and working conditions outlined in the _____ Standards in force from time to time.”</p>
<p>Sub-Clause 6.6 Facilities for Staff and Labour</p>	<p>Amend Sub-Clause 6.6 by adding the following at the end:</p> <p>“Where accommodation or welfare facilities are provided to Contractor’s Personnel or Employer’s Personnel, the Contractor shall put in place and implement policies on the quality and management of such accommodation and the provision of such welfare facilities (including as regards minimum space, supply of water, adequate sewage and garbage disposal systems, appropriate protection against heat, cold, damp, noise, fire and disease carrying animals, adequate sanitary and washing facilities, ventilation, cooking and storage facilities and natural and artificial lighting, and all reasonable precautions to maintain the health and safety of the Contractor’s Personnel and Employer’s Personnel as provided in Sub-Clause 6.7 [<i>Health and Safety</i>]). The accommodation and welfare facilities shall be provided in a manner consistent with the principles of non-discrimination and equal opportunity. Accommodation arrangements shall not restrict freedom of movement or of association, save that separate facilities should be provided for men and women.”</p> <p>When submitting its CESMP, the Contractor shall include its proposed specification related to any facilities that will be provided for staff and labor. The proposed facilities must comply with requirements of IFC Performance Standard-2 and be approved by the Engineer.” For further guidance on standards for workers’ accommodation see, available at: _____</p>
<p>Sub-Clause 6.7 Health and Safety</p>	<p>Amend Sub-Clause 6.7 by adding the following at the end:</p> <p>“The Contractor shall conduct an HIV-AIDS awareness program in the project areas as required by the approved CESMP and/or HSMP via an approved service provider, and shall undertake such other measures as are specified in the Contract to reduce the risk of the transfer of the HIV virus between and among the Contractor’s Personnel and the local community, to promote early diagnosis and to assist affected individuals.”</p>
<p>Sub-Clause 6.8 Contractor’s Superintendence</p>	<p>Amend Sub-Clause 6.8 by adding the following at the end:</p> <p>“If the Engineer determines that the Contractor’s Personnel providing</p>

	<p>superintendence have inadequate knowledge of such language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.”</p>
<p>Sub-Clause 6.13 Prohibition of Forced or Compulsory Labour</p>	<p>Add the following Sub-Clause 6.13:</p> <p>“The Contractor shall not employ "forced or compulsory labour" in any form. “Forced or compulsory labour" consists of all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.</p> <p>“The Contractor shall monitor its Primary Suppliers on an ongoing basis in order to identify any significant changes in these Primary Suppliers. If new risks or incidents of forced or compulsory labour are identified, the Contractor shall take appropriate steps to remedy them.”</p>
<p>Sub-Clause 6.14 Prohibition of Harmful Child Labour</p>	<p>Add the following Sub-Clause 6.14:</p> <p>“The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.</p> <p>“Where applicable Law does not specify a minimum age or specifies a minimum age below fifteen (15) years old for employment, the Contractor shall ensure that children aged below fifteen (15) are not employed to perform work under this Contract. Where applicable Law specifies a minimum age of fifteen (15) or above, such minimum age requirement shall apply. Notwithstanding any allowances provided under applicable Law to the contrary, under no circumstance shall children under the age of eighteen (18) be employed in hazardous work. All work of persons under the age of eighteen (18) will be subject to an appropriate risk assessment and regular monitoring of health, working conditions, and hours of work.</p> <p>“The Contractor shall monitor on an ongoing basis in order to identify any significant changes. If new risks or incidents of child labor are identified, the Contractor shall take appropriate steps to remedy them</p>
<p>Sub-Clause 6.15 Employment Records of Workers</p>	<p>Add the following Sub-Clause 6.15:</p> <p>“The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer, and these records shall be available for inspection by auditors during normal working hours. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [<i>Records of Contractor’s Personnel and Equipment</i>].”</p>

<p>Sub-Clause 6.19 Grievance Mechanism for Contractor and Subcontractor Personnel</p>	<p>Add the following Sub-Clause 6.15:</p> <p>“The Contractor shall provide a grievance mechanism for Contractor’s Personnel, including Subcontractor staff, if a separate Subcontractor grievance mechanism does not exist, to raise workplace concerns. The Contractor shall inform its Personnel of the grievance mechanism at the time of recruitment and make it easily accessible to them. The mechanism should involve review by an appropriate level of management and address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned, without any retribution to Personnel for initiating or participating in a complaint under such mechanism. The mechanism should also allow for anonymous complaints to be raised and addressed. The mechanism should not impede access to other judicial or administrative remedies that might be available under applicable Law or through existing arbitration procedures, or substitute for grievance mechanisms provided through collective agreements.”</p>
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7. Plant, Materials and Workmanship

**Sub-Clause 7.7
Ownership of Plant
and Materials**

Amend Sub-Clause 7.7 by replacing Subparas. (a) and (b) with the following:

“(a) when it is incorporated in the Works;

(b) when the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.10 [*Payment for Plant and Materials in Event of Suspension*].”

8. Commencement, Delays and Suspension

**Sub-Clause 8.1
Commencement of
Works**

Amend Sub-Clause 8.1 by inserting the following at the end:

“Failure of the Contractor to mobilize all Contractor’s Equipment and Contractor’s Personnel to the Site as set out in the programme approved in accordance with Sub-Clause 8.3 [*Programme*] shall result in an obligation on the part of the Contractor to increase the Performance Security by an amount equal to two percent of the Contract Price (as estimated at that time).”

**Sub-Clause 8.3
Programme**

Amend Sub-Clause 8.3 by inserting the following at the end:

“Failure of the Contractor to submit a revised programme to the Engineer within 28 days of receiving notice from the Engineer in accordance with this Sub-Clause shall result in an obligation on the part of the Contractor to increase the Performance Security by an

amount equal to two percent of the Contract Price (as estimated at that time).

“In the event the Contractor submits a revised programme and the Engineer gives notice to the Contractor stating the extent to which such revised programme does not comply with the Contract, all in accordance with this Sub-Clause, and the Contractor fails to submit a further revised programme to the Engineer within 14 days of receiving such notice from the Engineer, the Contractor shall be obligated to increase the Performance Security by an amount equal to two percent of the Contract Price (as estimated at that time).”

**Sub-Clause 8.6
Rate of Progress**

Amend Sub-Clause 8.6 by inserting the following at the end:

“Additional Costs of revised methods, including acceleration measures, instructed by the Engineer to reduce delays resulting from causes listed under Sub-Clause 8.4 [*Extension of Time for Completion*] shall be paid by the Employer, without generating, however, any other additional payment benefit to the Contractor.”

**Sub-Clause 8.12
Resumption of Work**

Amend Sub-Clause 8.12 by inserting the following at the end:
“after receiving from the Engineer an instruction to this effect under Clause 13 [*Variations and Adjustments*].”

**Sub-Clause 11.3
Extension of Defects
Notification Period**

11. Defects Liability

Amend Sub-Clause 11.3 by inserting the following at the end of the first sentence of the first paragraph:

“attributable to the Contractor.”

**Sub-Clause 13.1
Right to Vary**

13. Variations and Adjustments

Amend Sub-Clause 13.1 by inserting the following at the end of the first sentence of the second paragraph:

“or such Variation requires a substantial change in the sequence or progress of the Works.”

**Sub-Clause 13.5
Provisional Sums**

Amend Sub-Clause 13.5 by inserting the following at the end of the last paragraph:

“The General Summary of the Bill of Quantities of the Contract shall make allowances for Provisional Sums with provisions for both physical and price contingencies in the percentages as stated in the Appendix to Tender”.

**Sub-Clause 13.7
Adjustments for
Changes in Legislation**

Amend Sub-Clause 13.7 by adding the following to the end of the first paragraph:

“, provided, that no such adjustment will be made on account of any change in the Laws of the Country related to taxes as such term is defined and used in Sub-Clause 21.”

Amend Sub-Clause 13.7 by adding the following at the end:

“Notwithstanding the foregoing, the Contractor shall not be entitled to such an extension of time if the same shall already have been taken into account in determining an extension and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the table of adjustment data in accordance with the provisions of Sub-Clause 13.8 [*Adjustments for Changes in Cost*].”

**Sub-Clause 13.8
Adjustments for
Changes in Cost**

Replace Sub-Clause 13.8 with the following:

In this Sub-Clause, “table of adjustment data” means the completed table of adjustment data included in the Appendix to Tender. If there is no such table of adjustment data, the Sub-Clause shall not apply

If this Sub-Clause applies, The amounts payable to the Contractor shall be adjusted for fluctuations in the cost of inputs only if **provided for in the PCC**. If so provided, the amounts certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due in each currency. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices.

The following specific type prescribed in this Sub-Clause shall apply:

$$P_c = A_c + B_c I_{mc}/I_{oc}$$

where:

P_c is the adjustment factor for the portion of the Contract Price payable in a specific currency “c.”

A_c and B_c are coefficients⁸**specified in the Appendix to Tender**, representing the nonadjustable and adjustable portions, respectively, of the Contract Price payable in

⁸ *The sum of the two coefficients A_c and B_c should be 1 (one) in the formula for each currency. Normally, both coefficients shall be the same in the formulae for all currencies, since coefficient A, for the nonadjustable portion of the payments, is a very approximate figure (usually 0.15) to take account of fixed cost elements or other nonadjustable components. The sum of the adjustments for each currency are added to the Contract Price. [To be transferred to the User Guide]*

that specific currency “c;” and
Imc is the index prevailing at the end of the month being
invoiced and Ioc is the index prevailing 28 days before
Tender opening for inputs payable; both in the specific
currency “c.”

If the value of the index is changed after it has been used in a calculation, the calculation shall be corrected and an adjustment made in the next payment certificate. The index value shall be deemed to take account of all changes in cost due to fluctuations.

The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. For this purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table) for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.

The Consumer Price Indices -CPIs (non-food basket) of the Ghana Statistical Services (GSS) prepared and published on regular basis are legitimate and acceptable sources of indices.

“Adjustment shall be made for the first time and with the frequency as stated in the Appendix to Tender.” ‘

Until such time as each current cost index is available, the Engineer shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price: whichever is more favourable to the Employer.

The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.

14. Contract Price and Adjustment

Sub-Clause 14.1 The Contract Price

Amend Subpara. (b) of Sub-Clause 14.1 by deleting the phrase “except as stated in Sub-Clause 13.7 [*Adjustments for Changes in Legislation*]”.

Sub-Clause 14.2 Advance Payment

Amend Sub-Clause 14.2 by replacing the fifth paragraph with the following:
“Unless stated otherwise in the Appendix to Tender, the advance

payment shall be repaid through percentage deductions from the interim payments certified by the Engineer in accordance with Sub-Clause 14.6 [*Issue of Interim Payment Certificates*], as follows:

**Sub-Clause 14.3
Application for
Interim Payment
Certificates**

Amend Sub-Clause 14.3 by adding the following at the end:

“At the same time as submitting the Statement to the Engineer, the Contractor shall send a copy to the Employer at the address in the Appendix to Tender.”

In the event of the Contractor failing to apply for Interim Payment Certificates when work done is more than the prescribed minimum amount of Interim Payment Certificates, the Engineer may proceed in a manner stated in the Appendix to Tender.”

**Sub-Clause 14.6
Issue of Interim
Certificates**

Amend Sub para. 14.6 (“Issue of Interim Certificates”) by adding the following at the end:

“If, at any time, the Contractor fails to apply for Interim Payment Certificate(s) after the minimum amount is due under this clause, the Engineer at his own discretion shall proceed in accordance with Sub-Clause 14.3 [Application for Interim Payment Certificates] without approval of the Contractor, for payment to the Contractor in accordance with Clause 12 [Measurements and Evaluation].

Under such circumstance, the Engineer shall give notice to the Contractor accordingly, and the exercise of such specified authority shall be deemed to have been given approval by the Employer under Sub-Clause 3.1 [Engineer’s Duties and Authority]”.

**Sub-Clause 14.7
Payment**

Amend Sub-Clause 14.7 by replacing the first line with the following:

“The Employer shall pay or cause to be paid to the Contractor:”

Amend Sub-Clause 14.7 by adding the following at the end:

“The bank account(s) nominated by the Contractor shall be as stipulated in the Appendix to Tender.”

**Sub-Clause 14.8
Delayed Payment**

Amend Sub-Clause 14.8 by replacing the second paragraph with the following:

“These financing charges shall be calculated at the annual rates of interest and shall be paid in the currencies indicated in the Appendix to Tender.”

**Sub-Clause 14.9
Payment of Retention
Money**

Amend Sub-Clause 14.9 by adding the following at the end:

“When the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified by the Engineer for payment, the Contractor shall be entitled to substitute

a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Employer and provided by an entity approved by the Employer, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security in Sub-Clause 4.2 [*Performance Security*]. On receipt by the Employer of such guarantee, the Engineer shall certify and the Employer shall pay, or cause to be paid, the second half of the Retention Money. The release of the second half of the Retention Money against such guarantee shall then be *in lieu of* the release under the second paragraph of this Sub-Clause. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

**Sub-Clause 14.11
Application for Final
Payment Certificate**

Amend Sub-Clause 14.11 by inserting the following in the first sentence of the second paragraph after “may reasonably require”:

“within 28 days from receipt of the said draft...”

**Sub-Clause 15.2
Termination by
Employer**

15. Termination by Employer

Amend Subpara. (e) of Sub-Clause 15.2 by deleting the word “or” at the end.

Amend Subpara. (f) of Sub-Clause 15.2 by replacing the period at the end with a comma.

Amend Sub-Clause 15.2 by adding the following immediately after the text of Subpara. (f):

“(g) if the Contractor, in the judgment of the Employer, fails to perform its obligations relating to the use of funds set out in the Particular Conditions of Contract, or

“(h) if the Program expires, is suspended or terminates in whole or in part in accordance with the terms of the Financing Agreement.”

Amend Sub-Clause 15.2 by replacing the text of the second sentence of the second paragraph with the following:

“However, in the case of Sub-paragraphs (e), (f), (g) or (h), the Employer may, by notice, terminate the Contract immediately. In the event of Employer termination of the Contract pursuant to Sub-paragraph (g), the Contractor shall be liable to repay any and all funds so misused. In the event of Employer termination of the Contract pursuant to Sub-paragraph (h), the Contractor shall proceed in accordance with Sub-Clause 16.3 [*Cessation of Work and Removal of Contractor’s Equipment*] and shall be paid in

accordance with Sub-Clause 19.6 [*Optional Termination, Payment and Release*] in accordance with the terms of the Compact and any related agreements.”

**Sub-Clause 15.6
Fraud and Corruption
Requirements**

Add the following Sub-Clause 15.6:

The Bank requires that Borrowers (including beneficiaries of Bank financing); tenderers (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

To this end, the Bank:

- (e) Defines, for the purposes of this provision, the terms set forth below as follows:
 - (i) “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
 - (ii) “fraudulent practice” is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
 - (iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
 - (iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
 - (v) “obstructive practice” is:
 - a. deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
 - b. acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under paragraph 2.2 e. below.
- (f) Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors,

service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

- (g) In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring mis-procurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
- (h) Pursuant to the Bank's Anti-Corruption Guidelines, and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner; (ii) to be a nominated sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;

Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) tenderers (applicants/proposers), consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents personnel, permit the Bank to inspect all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the Bank.

The list of debarred firms and individuals is available on the Bank's external website: <http://www.worldbank.org/debarr>.

16. Suspension and Termination by Contractor

Sub-Clause 16.2 Termination by Contractor

Amend Subpara. (d) of Sub-Clause 16.2 by adding the following at the end:

“in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,”

17. Risk and Responsibility

**Sub-Clause 17.3
Employer's Risks**

Amend Sub-Clause 17.3 by replacing the first line with the following:

“The Employer’s risks, insofar as they directly affect the execution of the Works in the locality where the Permanent Works are to be executed, are:”

**Sub-Clause 17.6
Limitation of Liability**

Amend Sub-Clause 17.6 by replacing the first paragraph with the following:

“Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than as specifically provided in Sub-Clause 8.7 [*Delay Damages*]; Sub-Clause 11.2 [*Cost of Remedying Defects*]; Sub-Clause 15.4 [*Payment after Termination*]; Sub-Clause 16.4 [*Payment on Termination*]; Sub-Clause 17.1 [*Indemnities*]; Sub-Clause 17.4 (b) [*Consequences of Employer’s Risks*] and Sub-Clause 17.5 [*Intellectual and Industrial Property Rights*].”

18. Insurance

**Sub-Clause 18.1
General Requirements
for Insurance**

Amend Sub-Clause 18.1 by adding the following at the end:

“The insuring Party shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18 [*Insurance*]) with insurers from any Eligible Entity.”

**Sub-Clause 18.5
Requirements for
Professional Liability
Insurance**

Add the following Sub-Clause 18.5:

“The Contractor shall effect and maintain professional liability insurance in an amount no less than the total liability of the Contractor to the Employer calculated in accordance with Sub-Clause 17.6 [*Limitation of Liability*].”

19. Force Majeure

**Sub-Clause 19.4
Consequences of Force
Majeure**

Amend Sub-Clause 19.4 by inserting the following at the end of Subpara. (b):

“, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 18.2 [*Insurance for Works and Contractor’s Equipment*].”

20. Claims, Disputes and Arbitration

**Sub-Clause 20.1
Contractor’s Claims**

Amend Sub-Clause 20.1 by inserting the following as a new paragraph between subparagraphs 6 and 7:

“Within the above defined period of 42 days, the Engineer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine (i) the extension (if any) of the Time for

Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [*Extension of Time for Completion*], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.”

Amend Sub-Clause 20.1 by deleting paragraph 8 (in the order of paragraphs prior to the amendment made above) and replacing it with the following new paragraph:

“If the Engineer does not respond within the timeframe defined in this Sub-Clause, either Party may consider that the claim is rejected by the Engineer and either Party may refer such claim to the DAB in accordance with Sub-Clause 20.4 [*Obtaining Dispute Adjudication Board’s Decision*].”

**Sub-Clause 20.2
Appointment of the
Dispute Adjudication
Board**

Amend Sub-Clause 20.2 by inserting the following at the end of the first sentence of the second paragraph:

“, each of whom shall be fluent in the language for communication defined in the Contract and shall be a professional experienced in the type of construction involved in the Works and with the interpretation of contractual documents.”

Amend Sub-Clause 20.2 by replacing the fifth paragraph with the following:

“The agreement between the Parties and either the sole member (“adjudicator”) or each of the three members shall:

(a) incorporate by reference the General Conditions of Dispute Adjudication Agreement contained in the Appendix to these General Conditions; and

(b) be in the form annexed to the Particular Conditions or in another form approved by the Employer.”

**Sub-Clause 20.6
Arbitration**

Amend Sub-Clause 20.6 by replacing the first paragraph with the following:

“Any dispute not settled amicably and in respect of which the DAB’s decision (if any) has not become final and binding shall be finally settled by arbitration. Unless otherwise agreed by both Parties:

For contracts with domestic contractors, arbitration shall be conducted with proceedings in accordance with the Laws of the Employer’s Country.”

**Sub-Clause 20.7
Failure to Comply with
Dispute Adjudication
Board’s Decision**

Replace the text of Sub-Clause 20.7 with the following:

“In the event that a Party fails to comply with any decision of the DAB, whether binding or final and binding, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 20.6 [*Arbitration*] for summary or other expedited relief, as may be appropriate. Sub-

Clause 20.4 [*Obtaining Dispute Adjudication Board's Decision*] and Sub-Clause 20.5 [*Amicable Settlement*] shall not apply to this reference.”

**Sub-Clause 21.1
Certain Forms of Local
Taxation**

21. Taxes

“activities undertaken in furtherance of the Contract, including in connection with the execution of the Works, are not exempt from taxes, duties, levies, contributions or other charges imposed by Laws currently or hereafter in effect in the Employer’s Country (separately “tax” and collectively “taxes”) during the effective term of the Contract, include, and without limitation:

- (a) income taxes, withholding taxes, and other profit or business taxes imposed on individuals, organizations, or enterprises (other than nationals or permanent residents of the Employer’s Country);
- (b) customs duties, tariffs, import and export taxes or other taxes imposed on import, usage and re-export of goods, (including Contractor’s Equipment and spare parts thereof, Plant, Materials and supplies imported into the Employer’s Country for purposes of the Contract), services or personal items (including personal automobiles) to be used in connection with the execution of the Works or for usage by the Contractor’s Personnel (or their family members) who are not nationals or permanent residents of the Employer’s Country and are in the Employer’s Country for the purpose of the execution of the Works; and
- (c) sales tax, valued added tax, excise tax, property (real or personal) transfer tax, taxes on the ownership, possession or use of property (real or personal), and other similar charges on any transactions involving goods, works or services.

**Sub-Clause 21.2
Income Taxes on Local
Staff**

“the Contractor’s local staff and labour (nationals or permanent residents of the Employer’s Country) will be liable to pay personal income taxes in the Employer’s Country in respect of such of their salaries and wages as are chargeable under the Laws for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.”

**Sub-Clause 21.3
Obligation to Pay
Taxes**

“The Contractor, each Subcontractor and their respective personnel shall pay all taxes levied under applicable Laws. In no event shall the Employer be responsible for the payment of any such taxes.

Section VII. Security Forms

Annex A: Form of Tender Security – Bank Guarantee

[Guarantor letterhead]

Beneficiary:

[Insert name and address of the Employer]

Request for Tenders No: _ *[Insert reference number for the Request for Tenders]*

Date: *[Insert date of issue]*

TENDER GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: _ *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *[insert name of the Tenderer, which in the case of a joint venture shall be the name of the joint venture (whether legally constituted or prospective) or the names of all members thereof]* (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its Tender (hereinafter called "the Tender") for the execution of *[insert description of contract]* under Request for Tenders No. *[insert number]* ("the RFB").

Furthermore, we understand that, according to the Beneficiary's conditions, Tenders must be supported by a Tender guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in letters]* (*insert amount in numbers*) upon receipt by us of the Beneficiary's complying supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating either that the Applicant:

- (a) has withdrawn its Tender during the period of Tender validity specified by the Applicant in the Letter of Tender ("the Tender Validity Period"), or any extension thereto provided by the Applicant; or
- (b) having been notified of the acceptance of its Tender by the Beneficiary during the period of Tender validity, (i) fails to execute the contract agreement or (ii) fails to furnish the performance security and, if required, the Environmental, Social, Health and Safety (ESHS) Performance Security, in accordance with the Instructions to Tenderers ("ITT") of the Beneficiary's Tendering document.

This guarantee will expire: (a) if the Applicant is the successful Tenderer, upon our receipt of copies of the contract agreement signed by the Applicant and the performance security and, if required, the Environmental, Social, Health and Safety (ESHS) Performance Security, issued to the Beneficiary in relation to such contract agreement; and (b) if the Applicant is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Tendering process; or (ii) twenty-eight days after the end of the Tender Validity Period.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

[signature(s)]

Annex B: Form of Tender Security – Insurance Bond

[The Surety shall fill in this Tender Bond Form in accordance with the instructions indicated.]

BOND NO. _____

BY THIS BOND *[name of Tenderer]* as Principal (hereinafter called “the Principal”), and *[name, legal title, and address of surety]*, authorized to transact business in *[name of country of Employer]*, as Surety (hereinafter called “the Surety”), are held and firmly bound unto *[name of Employer]* as Obligee (hereinafter called “the Employer”) in the sum of *[amount of Bond]* *[amount in words]*, for the payment of which sum, well and truly to be made, we, the said Principal and Surety, bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has submitted a written Tender to the Employer dated the ____ day of _____, 20__, for the execution of *[name of Contract]* (hereinafter called the “Tender”).

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal:

- (a) has withdrawn its Tender during the period of Tender validity set forth in the Principal’s Letter of Tender (“the Tender Validity Period”), or any extension thereto provided by the Principal; or
- (b) having been notified of the acceptance of its Tender by the Employer during the Tender Validity Period or any extension thereto provided by the Principal: (i) failed to execute the contract agreement; or (ii) has failed to furnish the Performance Security and, if required, the Environmental, Social, Health and Safety (ESHS) Performance Security, in accordance with the Instructions to Tenderers (“ITT”) of the Employer’s Tendering document.

then the Surety undertakes to immediately pay to the Employer up to the above amount upon receipt of the Employer’s first written demand, without the Employer having to substantiate its demand, provided that in its demand the Employer shall state that the demand arises from the occurrence of any of the above events, specifying which event(s) has occurred.

The Surety hereby agrees that its obligation will remain in full force and effect up to and including the date 28 days after the date of expiration Tender Validity Period set forth in the Principal’s Letter of Tender or any extension thereto provided by the Principal.

IN TESTIMONY WHEREOF, the Principal and the Surety have caused these presents to be executed in their respective names this ____ day of _____ 20__.

Principal: _____
Corporate Seal (where appropriate)

Surety: _____

(Signature)
(Printed name and title)

(Signature)
(Printed name and title)

Annex C: Performance Security - Bank Guarantee (Unconditional)

[Guarantor letterhead]

Beneficiary: North East Regional Health Directorate, Post Office Box 2, Gambaga

Date:.....

PERFORMANCE GUARANTEE No.:.....

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _ *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the execution of _ *[insert name of contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (_____) *[insert amount in words]*,¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of, 2...², and any demand for payment under it must be received by us at this office indicated above on or before that date.

is hereby excluded.

[signature(s)]

Annex D: Performance Security – Insurance Bond

[Insurer letterhead]

By this Bond *[insert name of Principal]* as Principal (hereinafter called “the Contractor”) and *[insert name of Surety]* as Surety (hereinafter called “the Surety”), are held and firmly bound unto *[insert name of Employer]* as Obligee (hereinafter called “the Employer”) in the amount of *[insert amount in words and figures]*, for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Contractor has entered into a written Agreement with the Employer dated the _____ day of _____, 20 ____, for *[name of contract and brief description of Works]* in accordance with the documents, plans, specification, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW, THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Employer to be, in default under the Contract, the Employer having performed the Employer’s obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) complete the Contract in accordance with its terms and conditions; or
- (2) obtain a Tender or Tenders from qualified Tenderers for submission to the Employer for completing the Contract in accordance with its terms and conditions, and upon determination by the Employer and the Surety of the lowest responsive Tenderer, arrange for a Contract between such Tenderer and Employer and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term “Balance of the Contract Price,” as used in this paragraph, shall mean the total amount payable by Employer to Contractor under the Contract, less the amount properly paid by Employer to Contractor; or
- (3) pay the Employer the amount required by Employer to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Employer named herein or the heirs, executors, administrators, successors, and assigns of the Employer.

In testimony whereof, the Contractor has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this _____ day of _____ 20 ____.

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

Annex E: Environmental, Social, Health and Safety (ESHS) Performance Security
– Bank Guarantee

[Guarantor letterhead]

Beneficiary: *[insert name and Address of Employer]*

Date: *[Insert date of issue]*

ESHS PERFORMANCE GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its Environmental, Social, Health and/or Safety (ESHS) obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of, 2...², and any demand for payment under it must be received by us at this office indicated above on or before that date.

[signature(s)]

Annex F: Retention Money Security – Bank Guarantee

[Guarantor letterhead]

_____ Beneficiary: _____ *[Insert name and Address of Employer]*

Date: _____ *[Insert date of issue]*

RETENTION MONEY GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. _____ *[insert reference number of the contract]* dated _____ with the Beneficiary, for the execution of _____ *[insert name of contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of *[insert the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and, if required, the ESHS Performance Security]* is to be made against a Retention Money guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ *[insert amount in figures]* (_____) *[amount in words]*¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Applicant on its account number _____ at _____ *[insert name and address of Applicant's bank]*.

This guarantee shall expire no later than the Day of, 2...², and any demand for payment under it must be received by us at the office indicated above on or before that date.

[signature(s)]

Annex G: Bank Guarantee for Advance Payment

To: *[name and address of Employer]*

[name of Contract]

Gentlemen:

In accordance with the provisions of the Conditions of Contract, Clause 51 (“Advance Payment”) of the above-mentioned Contract, *[name and address of Contractor]* (hereinafter called “the Contractor”) shall deposit with *[name of Employer]* a Bank Guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of *[amount of Guarantee]* *[amount in words]*.⁹

We, the *[Bank]*, as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to *[name of Employer]* on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding *[amount of Guarantee]* *[amount in words]*.¹⁰

We further agree that no change or addition to or other modification of the terms of the Contract or of Works to be performed thereunder or of any of the Contract documents which may be made between *[name of Employer]* and the Contractor, shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any such change, addition, or modification.

This Guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until *[insert a date equivalent to the contract duration plus six (6) months]*. In the event that full repayment of the same amount from the Contractor has not been realized by that date, the *[Bank]* at the request of the Contractor shall extend the validity period.

Yours truly,

Signature and seal: _____

Name of Bank: _____

Address: _____

Date: _____

⁹ An amount is to be inserted by the Bank representing the amount of the Advance Payment, and denominated either in the currency(ies) of the Advance Payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

¹⁰ An amount is to be inserted by the Bank representing the amount of the Advance Payment, and denominated either in the currency(ies) of the Advance Payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

G. General Conditions of Dispute Adjudication Agreement

Dispute Adjudication Board / Member Membership Agreement

This Agreement is entered into between:

DB Member [full *name, title and address*] hereinafter the “Dispute Board Member” or “DB Member”

and

Party 1: [full *name and address*]

Party 2: [full *name and address*], hereinafter collectively referred to as the “Parties.”

Whereas:

The Parties have entered into a contract dated _____ (the “Contract”) for [scope of work and/or name of project], which is to be performed in [city and country of performance];

The Contract provides that the Parties must refer their disputes to a [DRB, DAB or CDB] under the ICC Dispute Board Rules (the “Rules”); and

The undersigned individual has been appointed to serve as a DB Member.

The DB Member and the Parties therefore agree as follows:

1. Undertaking

The DB Member shall act as [sole DB Member, president of the DB or DB Member] and hereby accepts to perform these duties in accordance with the terms of the Contract, the Rules and the terms of this Agreement. The DB Member confirms that he or she is and shall remain impartial and independent of the Parties

2. Composition of the DB and Contact Details

- First alternative: The sole DB Member can be contacted as follows:

[name, address, telephone, email and any other contact details]

- Second alternative: The DB Members are those listed below and can be contacted as follows:

President: [name, address, telephone, email and any other contact details]

Additional DB Members: [name, address, telephone, email and any other contact details of each person mentioned]

The Parties to the Contract are those indicated above with the following contact details:

Party 1: *[name, person responsible for the Contract, address, telephone, email and any other contact details]*

Party 2: *[name, person responsible for the Contract, address, telephone, email and any other contact details]*

Any changes in these contact details shall be immediately communicated to all concerned.

3. **Qualifications**

With respect to any DB Member appointed by the Parties, the undersigned Parties recognise that such DB Member has the necessary attributes—including professional qualifications and language ability—to undertake the duties of a DB Member.

4. **Fees**

For days on which the DB Member works less than *[specify number]* hours *[set out agreement]*.

- The monthly management fee shall be *[specify currency and full amount]*, i.e., *[specify multiple]* times the daily fee.
- The daily fee shall be *[specify currency and full amount]* based upon a *[specify number of hours]*-hour day

For days on which the DB Member works more than *[specify number]* hours *[set out agreement]*.

- These fees shall be fixed for the first 24 months after the signing of the DB Member Agreement and thereafter shall be adjusted automatically on each anniversary of the DB Member Agreement using the following index *[specify index]*.
- For days spent travelling *[set out agreement]*.
- Expenses of the DB Member, as described in Article 31(2) of the Rules, shall be reimbursed *[at cost/on the basis of a fixed per diem of...]*.

5. **Payment of Fees and Expenses**

- First alternative: All fees and expenses shall be invoiced to *[Party X]* with copies to the other Party and shall be paid to the DB Member by *[Party X]*. *[Party X]* shall be reimbursed by the other Party for the latter's share of the fees and expenses so that they are borne equally by both Parties.
- Second alternative: All fees and expenses shall be invoiced to and paid by each of the Parties in equal shares.

All payments to the DB Member shall be made—without deductions or restrictions—to the following account: [*name of bank, account number, SWIFT code, etc.*]. The transfer charges shall be borne by the party making the transfer.

All payments shall be made within 30 days of receipt by a Party of the invoice from the DB Member.

6. Duration and Termination of the Agreement

Subject to the provisions of this Article 6, the DB Members agree to serve for the duration of the DB.

The Parties may jointly terminate this Agreement or disband the whole DB at any time—with immediate effect—subject to payment of the monthly management fee for a period of [three] months.

The DB Member may resign from the Dispute Board at any time by giving [three] months' written notice to the Parties.

7. Indemnity

The Parties shall jointly and severally indemnify and hold harmless every DB Member from any claims of third parties for anything done or omitted in the discharge or purported discharge of the DB Member's activities unless the act or omission is shown to have been in bad faith.

8. Disputes and Applicable Law

All disputes arising out of or in connection with this Agreement shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with the said Rules of Arbitration. This Agreement shall be governed by [*specify applicable law*]. The place of arbitration shall be [*name of city/country*]. The language of the arbitration shall be [*specify language*].

This Agreement is entered into on [*specify date*] at [*specify place*].

DB Member

[*signature*]

Party 1

[*signature*]

Party 2

[*signature*]

PART III

EMPLOYER'S REQUIREMENTS

SECTION VIII. SPECIFICATION AND PERFORMANCE REQUIREMENTS

Specification

TECHNICAL SPECIFICATIONS ARE IN TWO (2) PARTS;

**PART 1: TECHNICAL SPECIFICATIONS FOR ENVIRONMENTAL, SOCIAL,
HEALTH, AND SAFETY (ESHS)**

PART 2: TECHNICAL SPECIFICATIONS FOR ROADS, MARKETS & TERMINALS

**PART 1: TECHNICAL SPECIFICATIONS FOR ENVIRONMENTAL, SOCIAL,
HEALTH, AND SAFETY (ESHS)**

1.0 HEALTH AND SAFETY

The Contractor shall take due precautions to ensure the health and safety of his employees and shall comply with statutory and local health and safety and labour regulations. He shall ensure that medical first aid, trained personnel and emergency transportation for sick and injured workers are available on the Site at all times. The Contractor shall notify the Project Manager immediately any accident occurs that results in injury to any person, whether concerned with the Site or a third party.

The Contractor shall include in his work plan details of the measures he proposes to adopt to combat the spread of HIV/AIDS and STI's (sexually transmitted infections) amongst his workforce and the local community. Such measures shall include education and awareness promotion campaigns conducted in conjunction with local health authorities and access to condom supplies.

The specific provisions for health and safety, labour and HIV/AIDS prevention measures are provided below.

1.1 LABOUR

Labour Standards included in this Contract should not be regarded merely as protection for employees but as a way of improving the worker's welfare and hence their productivity.

The Contractor shall fully comply with the following requirements in respect of Labour Standards the majority of which are already in force and embodied in the labour laws of Ghana. References to various laws, statutes, decrees legal instruments and other ordinances are given for information purposes and the Contractor shall ascertain for himself his obligations in respect thereof including those arising from any subsequent legislation. Compliance with this list of Labour Standards shall in no way absolve the Contractor of any of his obligations in respect of any of the labour laws in force in Ghana.

- Freedom of Association and Collective Bargaining: The Contractor shall adopt a co-operative attitude towards officers and members of registered trades unions in accordance with the provisions of the Industrial Relations Act, 1965. Section 7 of this Act lends legal force to process of collective bargaining and any collective agreement concluded through that process. The current collective agreement between the Association of Building and Civil Contractors of Ghana (ABCCG) and the Construction and Building Materials Workers Union of TUC (CBMWU) for the period from 1st January 2000 to 31st December 2001 provides for many of the following Labour Standards.
- Equality of Treatment: The Contractor shall comply fully with Legal Instrument 632, Labour Relations, 1969. Part VIII provides that males and females shall receive

equal pay for equal work. As a requirement of this Contract the Contractor shall afford equal opportunity for women to perform any site task including those of a supervisory nature.

- **Payment of Remuneration:** N.L.C.D. 157, Labour Decree, 1967, Part VII requires that the whole of worker's remuneration shall be in legal tender. The minimum rates of remuneration for the various groups recognised by the industry are set out in Section 9.8 of the current collective agreement between ABCCG and CBMWU for the period from 1st January 2000 to 31st December 2001. However, the rates contained therein were only applicable for the year 2000 and the Contractor shall pay any increases to those minimum rates that may have subsequently been agreed. The Contractor shall ensure that prompt and full payment of remuneration shall be made directly to individual workers.
- **Hours of Work:** Normal working hours as set out in Section 3.3 of the current collective agreement between ABCCG and CBMWU shall not exceed 40 in any week worked from Monday to Friday. Time worked in excess of the normal working hours shall be paid as overtime in accordance with Section 3.5 of that collective agreement which provides that overtime will be paid at the following rates:
 - Monday – Friday Normal hourly rate x 1.25
 - Saturday Normal hourly rate x 1.50
 - Sunday Normal hourly rate x 2.00

The Labour Regulations, 1969 provide that workers shall be given a rest period of 36 consecutive hours in every 7 days of normal working hours.

Where work is allocated on a task basis, a task should be capable of being completed by an average worker within an 8-hour working day.

It is important that a task work rate over a 6-hour in a day for public works is fixed at a level not higher than the prevailing market wage for unskilled labor in the country. Adopting this principle, task work rate will be developed for each activity.

- **Employment of Children:** N.I.C.D. 157, Labour Decree, 1967, Section 44 proscribes child employment. Section 45 defines a child as a person under the apparent age of 15. Section 46 requires the Contractor to keep a register of young persons employed including their dates of birth or, if unknown, their apparent age. Section 45 provides that young persons under the age of 18 should not work at night.
- **Forced Labour:** In accordance with the provisions of N.I.C.D. 157, Labour Decree, 1967, Part IX the use of forced labour by the Contractor is prohibited.
- **Weight Convention:** No worker should be required or permitted to engage in the manual transport of a load which by reason of its weight is likely to jeopardize his/her health or safety (adult male = 55kg max; adult female <=35kg). Pregnant women including ten (10) weeks after delivery should be assigned suitable task.

- **Record Keeping:** The Contractor shall maintain contemporaneous records of all employees engaged under the Contract. Records shall be kept at the site and shall be made available for inspection by the Project Manager or any Labour Officer pursuant to L.I. 632, Labour Relations, 1969, Section 19 at any reasonable time. Records are to be maintained from the date of the Project Manager's instruction to commence the Works pursuant to the Clause in the General Conditions of Contract.

Contractors shall use the standard forms to keep Employment Records, Daily Records of Hours Worked, Monthly Pay Records and Accident Records.

Contractors shall not engage workers through repeated temporary contracts or apprenticeship schemes to avoid meeting the wages and other benefits given to permanent workers.

The tendered rate shall include for the full costs associated with complying with the requirements of this specification including the provision of stationery, clerical staff and associated office facilities.

1.2 SAFETY

- **Protective Clothing:** The provisions of Act 328, the Factories, Offices and Shops Act, 1970, Section 25 require the Contractor to provide each worker with adequate, free protective clothing and appliances appropriate to their tasks. Minimum requirements for protective clothing particular to the industry are set out in Section 5.3 of the current collective agreement. The Contractor shall provide protective clothing to all site employees as follows:

Basic protective clothing for all employees (including supervisors)

- Wellington boots
- Overalls
- Gloves
- Raincoats for any works in rainy seasons

Additional protective clothing and equipment for specific tasks

- Safety helmets for workers engaged in the construction of bridges or box culverts of height 2m and above.
- Wellington boots, dust masks and safety goggles for concreting works.
- Dust masks for work in dusty conditions.
- Wellington boots for work in wet conditions.
- Ear defenders/plugs for work in noisy conditions.

The Contractor shall provide the protective clothing and equipment to his employees as soon as practicable during the mobilisation period and in any case no later than 42 days from the Project Manager's instruction to commence the Works.

Section 5.3 of the collective agreement states that, it is an infringement of the spirit and letter of that agreement for an employer to fail to provide the necessary protective clothing and equipment. Notwithstanding that similarly it is an infringement of the spirit and letter of that

Agreement for an employee having been provided with protective clothing and equipment to fail to use them, the Contractor shall stringently endeavour to ensure that any safety equipment provided for his workforce is effectively utilised.

The Contractor's attention is drawn to the fact that different sizes of clothing will be required to meet individual needs and that non-standard sizes e.g. safety boots for women may need advance ordering from suppliers.

Separate payment shall be made under the Provisional Sum Items in the Bills of Quantities.

A percentage adjustment on those Provisional Sum Items is included as Items in the Bills of Quantities.

- **Safety Officer:** The Contractor shall nominate and train one employee per lot as safety officer. The Contractor shall establish a safety committee during the mobilisation period comprising the Contractor's Safety Officer, the Project Manager's Representative and one worker's representative from each site. The committee shall meet monthly to discuss the promotion of safe working practices, the prevention of accidents and other safety issues and shall report to the monthly progress meetings.

The Contractor shall nominate and train one employee per site to be responsible for first aid. The Contractor shall organise and pay for the first aid training of his nominated employee with the Ghana Red Cross Society.

Pursuant to the Factories, Offices and Shops Act 1970, Section 28, the Contractor shall provide and place under the charge of the person responsible for first aid a first aid kit at each site. That person shall be responsible for managing the first aid kit and informing the Contractor from time to time of any first aid items that have expired or been consumed. The Contractor shall immediately arrange for the replacement of such items.

The first aid kit shall include: Bandages, Gentian Violet, Scissors, Surgical Gloves, Cotton, Wool, Iodine, Plasters, Eye Wash, Gauze, Safety Pins, Hydrogen Peroxide, Antiseptic Cream

The Contractor shall establish emergency evacuation procedures to enable rapid response to accidents viz establish prior contact with local clinics, health centers and district hospitals, make prior arrangements for transport, etc.

Separate payment will be made for the provision of a first aid kit and training of a first aider under the Provisional Sum Item in the Bills of Quantities.

1.3 HIV/AIDS AND MALARIA AWARENESS

The Contractor shall display appropriate health education materials at the Site concerning the dangers and impact of Sexually Transmitted Diseases (STDs) in general and HIV/AIDS in particular. Suitable materials are available from the Ministry of Health and the Ghana AIDS Commission. The Contractor shall also facilitate local Ministry of Health staff to conduct awareness and consultation visits to each site at least every four months for the benefit of site staff and labour.

The Contractor shall throughout the Contract (including the Defects Liability Period if workers are on site) also facilitate local Ministry of Health staff to operate an STD clinic on site periodically or make arrangements for workers to visit suitable local clinics.

All the above provisions shall be provided free of charge to staff and labour.

The Contractor shall make condoms freely available to the entire workforce free of charge. No separate measurement and payment shall be made for the provision of condoms the costs of which shall be deemed to have been covered elsewhere in the Contractors rates and prices.

Separate payment for the education of workers and local communities in STDs and HIV/AIDS awareness shall be made under the Provisional Sum of the Bills of Quantities “Provide assistance to and facilitate site visits by MOH personnel to educate workers and local communities in STDs HIV/AIDS awareness and consultation meetings”.

2.0 SANITATION

- Latrines: Pursuant to the Factories, Offices and Shops Act, 1970, Section 19, the Contractor shall construct temporary latrines at each culvert location unless otherwise directed by the Project Manager. Separate facilities shall be provided for male and female workers.

The Contractor shall locate sanitary facilities so that the disposal of waste does not pollute any groundwater or surface watercourses. Pit latrines shall be kept clean and odour free. The Contractor shall not use disinfectants or detergents to clean such latrines, only water. Pit latrines shall be filled in and the superstructure completely removed when the pit is no longer required, or when the pit is full to within 700 mm of ground level, all to the approval of the Project Manager.

Where instructed, the Contractor shall construct permanent pit latrines in accordance with the Drawings and to the Project Manager’s satisfaction. Where the use of pit latrines is not appropriate, the Contractor shall ensure that his workforce dig holes and cover their excrement on an individual basis. More detailed requirements *for sanitation are given in the Special Specifications*.

Latrines shall be provided with privacy screens, screened ventilation pipes, covers and airtight slabs or squatting plates that may be readily cleaned so as to reduce any fly-borne nuisance. In formulating their design for temporary latrines Contractors shall take into consideration the economic need to maximise the re-use of materials and the frequency that such facilities will need to be relocated. Contractors shall submit their proposed designs for approval in respect of temporary latrines within 14 days from the date of the Project Manager’s instruction to commence the Works pursuant to the Clause of the General Conditions of Contract. The location of individual latrine sites shall be as directed by the Project Manager.

Latrines construction shall commence as soon as practicable during the mobilisation period and continue from time to time on an “as needs” basis such that adequate facilities are available to the whole workforce.

The Contractor shall ensure that latrines are continuously maintained in a clean and sanitary condition. The Contractor shall provide and maintain hand- washing facilities including adequate supplies of soap and water for hand washing at all latrine sites.

3.0 Water

The Contractor shall provide an adequate supply of *drinking and other water* for the use of his employees in accordance with the provisions provided below.

- **Drinking Water:** The Contractor shall provide, pursuant to the Factories, Offices and Shops Act, 1970, Section 20 an adequate supply of potable water for all employees at each site. Potable water shall comply with WHO standards. A minimum of 10 litres per employee per day is to be provided and a minimum buffer supply of 250 litres is to be maintained at each site irrespective of the number of employees at the site.
- **Water for Other Purposes:** Pursuant to the Factories, Offices and Shops Act, 1970, Section 16, the Contractor shall provide adequate and suitable washing facilities at each site. The design, construction and location of washing facilities shall be subject to the approval of the Project Manager. The Contractor shall provide hand-washing facilities (washing bowl, stand and soap) at each latrine location. The Contractor shall maintain a continual supply of clean water at each washing and hand-washing facility.
- **Water for Construction:** The Contractor shall arrange clean water for construction that is free of concentrations of deleterious salts and other materials. He shall arrange water sources so as to not adversely affect the quality or availability of ground water or surface water resources to indigenous users.

The vessels used to transport and store drinking water shall be manufactured from polythene or similar approved material and shall only be used for those purposes. Such vessels shall be clearly and legibly marked “Drinking Water Only”. The Contractor shall take all necessary steps to preserve the water and vessels from contamination and they shall be emptied, cleaned and sterilised with a solution of chlorine powder on a regular basis at intervals not exceeding twice per week.

The cost of providing water for construction shall be included in the prices tendered for the various items of work for which water is needed.

4.0 ACCOMMODATION OF TRAFFIC

The Contractor shall be responsible for the safe and easy passage of public transport over sections of the road that have been handed over to him. If at any time it becomes necessary to close a section of the existing road to traffic the Contractor shall construct deviations.

The Contractor shall erect and maintain barricades, traffic signs and warning boards and provide flagmen as necessary for the protection of the Works and for the safety of the travelling public.

If the Contractor should fail to adequately accomplish this, the Project Manager shall have the right to suspend the progress of the Works until the situation has been rectified.

Roads signs shall comply with the Ghanaian Road Traffic Regulations.

Details of the accommodation of traffic to be provided by the Contractor for various work situations are given below. The minimum layout of road signs is shown diagrammatically in Appendix A. The Contractor shall ensure that the signage at each location is appropriate to the particular site conditions.

The Project Manager may instruct the Contractor to alter or increase the road signing if he considers this necessary for public safety.

a. Road Constructed in Half-Widths

Wherever possible the Contractor shall construct the road in half widths allowing traffic to use the half of the road not under construction. Where this necessitates only allowing one-way traffic, the Contractor shall provide flagmen and sufficient signs to ensure a reasonable flow of traffic and provision for traffic travelling in opposite directions to pass at frequent intervals. The Contractor shall program his work, particularly with regard to the spreading and compaction of wearing course, to avoid excessively long continuous lengths of this type of deviation.

The minimum road signing shall be:

- “Men Working Ahead” signs placed 200m before the road works at each end;
- flagmen at each end of the work area with red and green signal flags or Stop/Go signs;
- lane closure barriers or painted drums at each end of the work area.

b. Complete Closure of the Road

Where it is necessary to close the road the Contractor shall construct deviations using acceptable material which shall be shaped, watered and compacted to give adequate density for traffic and shall also construct any temporary drainage works required. The width of the deviation shall be 6m for two-way traffic and 4m for each lane where two separate lanes are used. The deviations shall be maintained in a safe trafficable condition including grading and watering when necessary.

The minimum road signing shall be:

- “Men Working Ahead” signs placed 200m before the road works at each end;
- “Turn Left/Right Ahead” signs placed 100m before the deviation;
- cones or barriers placed diagonally across the road to lead into the deviation;
- flagmen at each end of the work area as necessary.

c. Work on the Roadside

Where activities such as grass cutting or ditch excavation are taking place the minimum road signing shall be:

- two red flags on short poles placed on each side of the road 100m from the work site and at each end of the work area.

5.0 CONTRACTOR’S ESTABLISHMENT ON SITE

It is the Contractor’s responsibility to obtain suitable land for his working areas and campsites. Such sites shall be located so as to minimise the adverse effects on crops, trees and natural habitats and shall be subject to the approval of the Project Manager. At the end of the Contract the Contractor shall reinstate these areas and leave them in a clean and tidy condition free of all debris. The Contractor shall undertake a public consultation exercise with all affected persons in full accordance with the provisions of this Specification.

The Contractor shall take all reasonable precautions to prevent any spillage of fuels, hydraulic oils, lubricants, materials, etc. that have the potential to pollute land or water resources or create fire hazard conditions. Any such spillage which may occur shall be removed and any damage repaired to the satisfaction of the Project Manager at the Contractor’s own expense.

Equipment that present leakages of fuels, hydraulic oils or other deleterious liquids shall not be allowed on the site and, if any such item of equipment is found on the Works, it shall be instantly immobilised and taken by means of other transport to the workshops for repairs.

Any pollution caused by the Contractor’s activities shall be cleared and the land returned, as a minimum, to its former condition, all at the Contractor’s own cost. The Contractor shall put in adequate measures to prevent and control risks related to fire on site.

The Contractor shall arrange for, construct, maintain and afterwards remove all temporary site roads and reinstate all accesses required by him for the execution of the Works. Reinstatement shall include restoring such roads and affected watercourses to at least the same condition that existed before the Contractor entered the Site and the deep scarification of soil that has been compacted on agricultural land.

All costs incurred by the Contractor in establishing, maintaining and removing on completion of the Contractor’s facilities including accesses, camps, offices, stores, workshops, compounds and the like will be deemed to be covered by the rates tendered against Items in

Bill No.1 of the Bills of Quantities for the Setting-up, Maintaining and Removing of the Contractor's Office and Compound respectively.

6.0 PUBLIC CONSULTATION AND PAYMENT TO PROPERTY OWNERS AND USERS

a. Land required for the Permanent Works

The District Assembly shall be responsible for the assessment of compensation to property owners for all land to be permanently acquired and incorporated in the works within the site boundary (defined as 1m outside the outer limits of the slopes of cuttings, fills, side fills and side drains) together with all buildings, crops, trees and any other properties so defined from that land.

The District Assembly shall be responsible for organising such land acquisition and the payment of compensation to the property owners.

Payment of compensation to the property owners for land to be permanently acquired shall be included as a Provisional Sum under of the Bills of Quantities.

The Contractor shall pay the compensation amounts as authorised by the Project Manager and shall be reimbursed those cost in the interim payment certificates together with a percentage addition under an Item in Bill No.1 of the Bills of Quantities for his costs in facilitating this process.

b. Land required for the Contractor's Temporary Works

The Contractor shall be responsible for the payment of compensation to property owners for land acquired by him outside the site boundary for temporary works, borrow, stockpile and spoil areas, detours, the Contractor's facilities and the like, together with all buildings, crops, trees and any other properties so defined from that land. All payments for land used for the Contractor's temporary works shall be made to the same level as those payments for the Permanent Works. A schedule of payments is included in the Special Specification covering the following crops, and structures:

Maize, yams, cassava, sorghum, millet, peppers, plantain, bananas, dawadawa tree, shea nut tree, mango tree, houses, stores, etc.

7.0 BORROW AREAS

This section covers the work involved in obtaining borrow materials including negotiations with the owners of land on which borrow areas are situated, clearing the site, stripping and disposing of excess overburden, excavating selected material for use on the Works and reinstatement of borrow areas when they are no longer required. The Contractor shall not commence any work on a borrow area until the area has been set out, inspected by the Project Manager and written approval has been given for works to commence. The Project Manager shall withhold his approval until such time as the Contractor provides proof that the public consultations have been successfully completed.

a. Negotiations with Property Owners

The Contractor shall be responsible for conducting public consultations for all land on which he requires to open borrow pits and related access roads and of settling all claims in respect of royalties, duties, taxes, and levies for the extraction of material, compensation for crops, trees and buildings, temporary occupation of private land, use of haul roads, or any other related matters in accordance with the Contract and this Specification.

For each borrow area the Contractor shall, upon the request of the Project Manager, provide proof that he has conducted public consultations, and shall provide a copy of all agreements reached to use land. Trees shall not be felled in borrow areas but shall be left standing on “islands” as indicated on the Drawings.

b. Borrow Pit Locations

The Contractor is responsible for the location of all borrow areas and access thereto for the construction of the Works. The locations of borrow areas shall be subject to the approval of the Project Manager which may be withheld for any of the following reasons:

- the detrimental effect on the environment;
- difficulty in acquiring the land;
- necessity to build an excessively long access road;
- excessive haul distance involved;
- location of a closer suitable source;
- excessively thick layers of overburden.

The Contractor shall carry out investigations on all possible sources of borrow material so that the best available material may be used and the haul distance kept to a minimum. At each location the Contractor shall excavate trial holes, take samples and perform such tests as are necessary to confirm the suitability of the material for its intended use in the Works. Details of testing to be carried out are given in Appendix B. The Contractor shall submit the test results to the Project Manager for his approval of the material although this shall not relieve the Contractor of ensuring that all material from the borrow area used in the Works complies with the Specification.

c. Clearing and Removal of Overburden

The rate for excavation and haul of borrowed material in the various items in the Bill of Quantities shall include for clearing and grubbing and removal of topsoil and any overburden to a depth of 300mm.

d. Excavation of Borrow Material

The Contractor shall plan his work in the borrow area so that the material can be selected and either loaded directly or temporarily stockpiled for later use including at locations outside the

borrow area if necessary. He shall ensure that borrow material is neither wasted nor contaminated through mixture with topsoil or overburden.

The Contractor shall take all reasonable care to avoid contamination of borrow material with unsuitable material in the borrow pit. Borrow pits shall also be protected against the ingress of surface water and the Contractor shall construct such temporary banks as required to divert such water.

The Contractor shall cut berms into any vertical cut faces in the borrow pit that exceed 2m in height so as to reduce the risk of serious accidents to persons or animals.

The Contractor shall carry out sufficient tests on the material being excavated to ensure that the material always complies with the Specification.

During the construction the Project Manager may at any time direct the Contractor to operate in specific approved borrow areas which in his opinion are the most suitable having regard to quality and quantities of the material available and the cost to the Employer and the Contractor shall not receive any extra payment for the transfer of his operations from one borrow area to another in complying with this instruction.

e. Reinstatement of Borrow Areas

The Contractor shall reinstate borrow pits, including the haul roads, as the works proceed. Borrow pits shall be reinstated with even contours so as to blend with the surrounding area and to permit the re-establishment of vegetation. Hard areas, whether as a result of trafficking by construction plant or the nature of the ground, shall be ripped and broken down to provide a suitable seed bed for grasses and other indigenous vegetation.

Spoil material from the roadworks shall be deposited, spread and shaped in the borrow pit to natural contours. Material not capable of supporting vegetation shall be placed first and covered with successive layers of stockpiled overburden and topsoil. All material placed in the borrow pit shall be spread in thin layers to follow natural contour lines. On completion of the spreading, the contractor shall collect seeds from indigenous grasses and vegetation in the area and spread and lightly rake these into the finished surface.

f. Measurement and Payment

The excavation, loading and haulage of borrow material from the borrow area to the location in the Works where it is required shall be paid for under the applicable Items in the Bills of Quantities:

No separate payment shall be made for any other work carried out in the borrow areas or constructing and removing access roads and the Contractor shall be deemed to have allowed for negotiation with the property owners, the payment of royalties, duties, taxes, and levies for the extraction of material, exploration, testing of materials, clearing and grubbing,

removal and stockpiling of topsoil and overburden to a depth of 300mm and the cutting of berms where necessary in his billed rates for the related items of work.

Haulage of borrow materials in excess of 1km shall be paid separately under the applicable Items in the Bills of Quantities for excess haulage distances of 1-5km, 50-20km and 20-100km respectively. The unit of measurement is the average overhaul in cubic metre kilometres.

Payment for the finishing-off of borrow areas after use to the requirements of section e) above shall be made under an Item in the Bills of Quantities.

The unit for the reinstatement of borrow pits shall be the square metre calculated in accordance with the area initially set out by the Contractor and inspected and approved in writing by the Project Manager. Any reinstatement required outside those authorised boundaries shall be entirely at the expense of the Contractor unless prior agreement to extend those boundaries had been sought, with the necessary public consultation processes, and approved by the Project Manager in writing.

The rate for the reinstatement of borrow pits shall include for full compliance with the requirements of this specification.

PART 2: TECHNICAL SPECIFICATIONS FOR WORKS

1.0 GENERAL SPECIFICATIONS

1.1 General

The specifications of this section cover conditions and materials of general nature and which are not covered under any specific topic in the Technical Specifications. The Contractor is referred to appropriate topics for much more detailed specifications of materials under the appropriate section.

1.2 Description of the Works

Where the Engineer has carried out a site investigation, the results are given on the drawings

1.3 Site Investigations

The Contractor shall draw his own conclusions from such results, particularly in regard to the level of rock etc. and may if he wishes, subject to the approval of the Engineer, make further explorations at his own expense.

1.4 Contract Drawings

General

A list of Contract Drawings is included under Section (J).

Further drawings may be issued to the Contractor by the Engineer from time to time in accordance with the Conditions of Contract.

Any drawings which are submitted by the Contractor to further describe the permanent works and which are approved by the Engineer shall become Contract drawings upon the issue of approval but the accuracy of such drawings shall be the responsibility of the Contractor.

1.5 Level Datum

All levels are referred to mean sea or to an established bench and the Contractor shall obtain in writing from the Engineer's Representative the location and value of the permanent benchmarks to be used.

Before the commencement of constructional work the Contractor shall establish at each site in a position to the approval of the Engineer's Representative, a steel datum peg which shall be securely concreted in. The level of this peg shall be established and agreed with the Engineer's Representative and all levels used in the construction of the works shall be referred to this established datum. The correctness of this established datum shall be checked at regular intervals during the construction period as agreed with the Engineer's Representatives.

1.6 Levels, Dimensions and Setting Out

The levels of the ground and the levels and dimensions of existing features shown on the drawings are believed but are not guaranteed to be correct. In the event of any discrepancies the Contractor shall notify the Engineer in writing immediately, who will issue such corrected dimensions levels or positions within two days.

Wherever dimensions or levels are marked on the drawings such dimensions or levels shall take precedence over dimensions scaled from the drawings. When no dimensions or levels are shown on the drawings, instructions shall be obtained from the Engineer's Representative. Large scale drawings shall be taken in preference to smaller scale.

1.7 Boundaries of Works

The Employer will provide land on which the Permanent Works included in the Contract are to be constructed. The boundaries of the Works are shown on the contract drawings. The Contractor shall be given possession of such parts of the Site he requires; provided his operations do not interfere with other Contractors, he shall be given the whole of the Site.

The Contractor shall not enter upon or occupy with men, tools, equipment and materials any land other than land or rights of way provided by the Employer without the written consent of the owner of such land.

The Contractor shall provide temporary fencing, or immediately install permanent fencing where such is required. Where the Permanent Works do not include fencing (drains and pipelines etc). Contractor shall submit his proposals to the Engineer as to how he intends to fulfil his obligations under the Contract which shall be to the approval of the Engineer.

1.8 Contractor to Work from Points as Directed

The Contractor shall start the work at such points as the Engineer's Representative may from time to time direct.

1.9 Restrictions on Use of Roads

Traffic Restrictions

The Contractor shall not run tracked vehicles or tracked plant on any public or private road without the written approval of the Engineer and the responsible authority or owner and subject to such conditions as each may reasonably require.

The Contractor shall observe weight and dimensions restrictions which apply to roads and tracks in Ghana, and he shall comply with all reasonable restrictions which may from time to time be imposed by the Engineer, Employer, Police, responsible Authority or Owner.

The Engineer shall have the power to restrict the Contractor's use of any roads, either in direction of traffic, speed or traffic or numbers of vehicles in order to preserve such roads to make such roads safe for use by the general public.

Where other Contractors require the use of these roads or tracks, the Engineer may prescribe time of usage, or any other form of control, which shall be executed by the Contractor, including the supply of traffic lights, flagmen, or any other thing.

1.10 Site Office and Facilities for Engineer's Representative

The Contractor shall provide and erect, equip, maintain, keep clean and remove on completion of the Works a site office to be used by the Engineer's Representative and other employees of the Engineer. The office is to be erected on site and in such position as the Engineer may direct. The cost thereof shall be charged under the appropriate Provisional Sum in the Bills of Quantities.

1.11 Transport For Workmen

The Contractor shall provide adequate transport for the conveyance of his workmen to and from site at all times. Such transport shall be kept in good condition and comply with required roads and traffic regulation in force.

1.12 Demolition of Contractor's Temporary Buildings

The Engineer may at any time before the end of the period of maintenance give the Contractor notice in writing to demolish and remove those buildings and works which are no longer required, whereupon the title to such buildings and works and all materials connected therewith shall revert to the Contractor. After the demolition and removal of buildings and works as required by the Engineer, the Contractor shall level, clear, restore and make good the site and surrounding ground and fill in and compact all latrines, drains, pits and similar works leaving the whole area in a neat and tidy condition to the satisfaction of the Engineer's Representative acting in conjunction with the Medical Officer of Health.

1.13 Sanitary Convenience and First Aid

The Contractor shall make his own arrangement for the provision of sanitary conveniences with all necessary drainage on the Site for the use of his staff and workmen and shall make all necessary arrangements thereof with the competent authority to the approval of the Engineer.

The Contractor shall make his own arrangement for the treatment of casualties on site and provide and maintain sufficient first aid appliance which shall at all times be available for use. In addition at least one person permanently on the Site shall be instructed in its use and the person so designed shall be made known to all employed by the posting of his position at the Site.

1.14 Protective Clothing

The Contractor shall provide all protective or any other special clothing or equipment for his employees that may be necessary.

1.15 Temporary Water and Electricity Supplies

Water

The Contractor shall make all arrangements for an adequate supply of water to each construction site both for carrying out the Contract and as potable water for his workmen. The water shall be of a chemical and purity standard such that it will not pollute, injure or cause any deterioration of the Works, and it shall generally comply with the requirements specified in that section of the Specification dealing with concrete.

Electricity

The Contractor shall make arrangements for and provide any electricity supply for the execution of the Works. The electricity supply shall meet the safety standards for temporary installations.

1.16 Inspections By Engineer During Period of Maintenance

The Engineer will give the Contractor due notice of his intention to carry out any inspections during the Period of Maintenance and the Contractor shall thereupon arrange for a responsible representative to be present at the times and dates named by the Engineer. This

representative shall render all necessary assistance and take note of all matters and things to which his attention is directed by the Engineer.

1.17 Advertisements

No advertisements shall be placed on any boarding, fencing or scaffolding erected for any purpose connected with the Contract without the written permission of the Engineer.

1.18 Sample

General

Before incorporating in the finished work any material or articles to be supplied by the Contractor under the terms of the Contract the Contractor shall submit to the Engineer's Representative for approval a sample of each respective material or article and such samples shall be delivered to any kept at the latter's office for reference. All the respective kinds of materials and articles used in and upon the Works shall be at least equal in quality to the approved samples. Each and every sample shall be a fair average of the bulk material or of the article, which it represents. The Engineer's Representative shall decide on the method of sampling.

The responsibility for ordering and delivering materials and manufactured articles and ensuring that samples are tested sufficiently far in advance of the work as not to delay it shall rest upon the Contractor and he shall not be entitled to anytime credit for delays occasioned by his neglect to order sufficiently well in advance or to payment of any costs he may incur as a result thereof.

With regard to any item in the Bills of Quantities which is the subject of a Provisional Sum the Contractor shall notify the Engineer of his work schedule requirements in ample time for the Engineer to make all necessary arrangements so that no delays occur in the progress of the work.

Testing of Materials and Manufactured Articles Before Use

Any or all of the material and manufactured articles supplied by the Contractor for use in any of the Works shall be subject in advance to such tests as may be specified in the relevant British Standard or as may from time to time be deemed necessary by the Engineer.

Facilities for Engineer's Representative to Take Sample

The Contractor shall provide facilities for the Engineer's Representative to take samples for testing of any of the concrete or other materials to be incorporated in the Works. Such samples may be taken before or after incorporation into the Works or at any state during construction at the discretion of the Engineer's Representative.

1.19 Quality of Materials and Workmanship

General

The materials and workmanship shall be the best of their respective kinds and to the approval of the Engineer. In the reading of the Specification the words "to the approval of the Engineer" shall be deemed to be included in the description of all operations for the due execution of the Works.

Rejected Materials

Should any materials or manufactured articles be brought on to the Site which, in the judgement of the Engineer, are unsound or inferior quality or in any way are unsuited for the work in which it is proposed to employ them, then each materials or manufactured articles shall not be used upon the Works but shall be branded, if in the opinion of the Engineer this is necessary, and shall forthwith be removed from the Site.

Quality Control

The Contractor shall be responsible for his own quality control and shall provide sufficient competent personnel on the Site for taking and preparing samples and for carrying out necessary tests.

1.20 Existing Services and Installations

General

The Contractor shall take every precaution to ensure that all existing services, pipes, culverts, cables, boundary walls and fences, retaining walls, drainage and irrigation ditches etc. within and near the line of excavation are located, supported and safeguarded from damage. Any damage caused to such services, pipes, culverts, cables, boundary walls and fences, retaining walls, drainage and irrigation ditches etc. attributable to the Contractor's operations, his constructional traffic or his negligence shall be made good by the Contractor at his own expense to the satisfaction of the Engineer, Owner or responsible Authority.

In the event of the Owner or responsible Authority electing to repair such damage the Contractor shall pay the cost of his or their so doing the work. Should the Contractor fail to pay the cost of the said work within a reasonable period of the account being presented, the Employer reserves the right to settle the account and deduct the sum paid by him from moneys due or which may become due to the Contractor.

Temporary Removal of Existing Services

If it should become necessary for the proper execution of the work temporarily to remove or divert any existing pipe, sewer, field drain, cable, drainage or irrigation ditch or other service, the Contractor shall obtain permission from the competent Authority or Owner and shall carry out the work at his own expense in a manner and at times to be approved by such Authority or Owner.

In the event of the Owner or responsible Authority electing to arrange for the temporary removal of an existing service, the Contractor shall pay the cost of his or their doing the work. Should the Contractor fail to pay the cost of the said work within a reasonable period of the account being presented, the Employer reserves the right to settle the account and deduct the sum paid by him from moneys due or which may become due to the Contractor.

The Contractor's attention is particularly drawn to the requirement to maintain drainage and irrigation ditches in order to avoid any interruption of low water therein to the satisfaction of the Engineer, Owner or responsible Authority and the Contractor shall be deemed to have included in his rates and prices for all temporary works so required.

Permanent Diversion of Existing Services

If in the opinion of the Engineer and/or of the Competent Authority or Owner it should become necessary permanently to remove or realign any existing pipe, sewer, field drain, cable, ditch or other services, other than allowed for in the Bills of Quantities, the Contractor shall obtain permission, where necessary, from the competent Authority or Owner and shall carry out and complete the work to the satisfaction of the Engineer and such Authority or Owner. Payment for such additional work will be made in accordance with the Conditions of Contract, provided always that the necessity for such permanent diversion has not arisen due to the fault of the Contractor.

In the event of the Owner or responsible Authority electing to arrange for the permanent diversion of an existing service, the permanent diversion of which has become necessary due to the fault of the Contractor, the Contractor shall pay the cost of this or their doing the work. Should the Contractor fail to pay the cost of the said work within a reasonable period of the account being presented, the Employer reserves the right to settle the account and deduct the sum paid by him from the moneys due or which may become due to the Contractor.

1.21 Setting Out

Before the Works or any part thereof are begun, the Contractor and the Engineer or the Supervising Officer shall together survey and establish the levels of the whole site of the Works and agree on the levels so taken. These levels shall be recorded in a site plan and shall form the basis of measurement for excavation and all other works where the site levels have bearing. The Contractor shall give 24 hours' notice to the Engineer of his request for the setting out to be checked and shall provide all instruments, tapes, etc. ad assistance in the checking thereof. The Engineer will give the Contractor the height of and indicate to him the position on Site of all full responsibility thereafter for maintaining them intact and accurate. The Contractor must ensure that all plant operators, and key men working on the Site are made aware of both of the positions of all important line and levels marks in order not to cause any disturbance of same.

1.22 Progress Report

The Contractor shall submit to the Engineer on the first day of each week or such longer period as the Engineer may direct, his progress report for the preceding period showing up to date progress on all important items of such section or portion of the Works, number and classes of labour and supervisory staff employed and constructional plant. Notwithstanding the submission of this Progress Report the Contractor shall report to the Engineer promptly in writing the particulars of any accident or unusual or unforeseen occurrence on the Site, whether likely to affect the progress of the work or not, stating also the steps he has taken or its arranging to take in the matter.

1.23 Photographs

Before commencing and during the progress of the Works, photographs shall be taken by an approved photographer of the site, building, erection works, machinery, plant etc, as may be directed by the Engineer. The photographs shall be of such size and supplied in numbers as may be directed by the Engineer.

1.24 Clearing of Site

Before final acceptance and upon the completion of the work the Contractor shall at his own expense, remove and dispose of all rubbish and remove all equipment, surplus materials, camps and construction buildings which the Contractor has provided and such temporary works as ordered by the Engineer and shall leave the Site absolutely clean thereof and in good order and condition to the entire satisfaction of the Engineer.

2.0 EARTHWORKS

2.1 Description and Scope

Earthworks shall consist of performing all operations necessary to excavate earth and rock, regardless of character and sub-surface conditions; to excavate all materials of whatever nature, necessary for the construction of foundations for structures and other aspects of the Works; to excavate drainage channels; to excavate selected materials from the roadway and borrow material for use as specified to construct embankments including the placing of selected material in connection therewith as specified, to backfill for structures, culverts and other aspects of the Works; to backfill trenches and depressions resulting from the removal of obstructions to backfill holes, pits and other depressions (within the area of the Works); to remove, dispose and replace unsuitable material; to excavate and grade road approaches to construct protection cofferdams where necessary; to remove slide material which has slipped from embankments; to prepare basement material for the placing of other material thereon; all labour, materials, tools equipment, including timbering, pumps, removal of water, fencing, lighting, watching, reinstatement and maintenance of surfaces and every other expense entailed in complying with the Specifications.

2.2 Removal of The Topsoil

Before commencing any excavation or other work in any area of the work, including rights of way for pipelines, the topsoil shall be removed in accordance with the areas indicated on the plans, pulling up all trees, shrubs and other vegetation which shall be disposed off to the satisfaction of the Engineer.

All grass, topsoil and other surface materials shall carefully be separated, should they be required to be re-used on the Contract.

Should it be necessary to remove the topsoil in other areas outside the area indicated on the plans for the construction of roads, storage areas and the like or for borrow areas, quarries, the waste shall be disposed off in accordance with the requirement of the Engineer.

The Contractor shall take all necessary precautions for the protection of those trees that the Engineer wishes to maintain in those areas where the topsoil is to be removed. This requirement shall apply to the areas of the permanent works as well as temporary ones.

2.3 Ground Levels and Measurement of Excavation

After having completed the removal of the topsoil and before commencing any other excavation or filling, the Contractor shall take levels at frequent intervals and agree upon them with the Engineer's Representative. The depth of excavations shall be taken as the depth from the ground surface after removal of the topsoil to the levels designated on the drawings, except that if the Engineer orders additional excavation below the required formation level the extra depth shall be added to the direct measurement.

Where it is necessary to form, extend or deepen the foundation under or around any part of the new or existing works, the additional excavation so ordered by the Engineer will be paid for as extra work, unless in the Engineer's opinion the extra work is due to the Contractor's method of working.

Where measurements are based on volumes, where for excavation in open trench, backfilling excavations with concrete or other approved material, or for any other purpose, the dimensions of excavation shall, for the purpose of measurement and payment, be taken as the plan dimensions except otherwise specified. The Contractor should in his rate make due allowance for working space.

2.4 Nature of Ground

The Contractor shall satisfy himself of the nature of the ground to be excavated and his prices are to include for excavating in whatever soil that may be met with exception of concrete, blockwork, masonry and rock, which shall be measured and paid for separately.

Turf, topsoil to a depth not exceeding 300mm and any artificial paving or surfaces of any kind shall be excavated separately from the sub-soil and kept separately for re-use in reinstatement or to cover excavations, embankments or tips as directed by the Engineer.

2.5 Existing Services

The Employer accepts no responsibility for the correct representation on the Drawings of existing services nor for any omission, and before commencing excavation the Contractor shall satisfy himself as to the correct nature and location of services which may be affected.

The Contractor will excavate, refill and reinstate in advance of commencing the works all trial pits that are necessary to locate pipelines, cables, rock etc. The cost of these holes shall be measured and paid for separately.

The diversion of an existing service will be ordered by the Engineer if it would obstruct the permanent works. The Engineer will also order the permanent or temporary diversion of services when in his opinion it is reasonable that this should be done before carrying out the work. The diversions referred to above shall be paid for under the Contract, but any other diversion requested by the Contractor shall be at his own expense.

No service diversion shall be made without the approval of the Engineer and the responsibility Authority.

2.6 Excavation

The Excavation shall proceed with such portions at one time as the Engineer may direct. No concrete shall be placed, no pipes laid and no permanent works of any kind begun upon the surface prepared by excavation without the permission of the Engineer.

Any excavation made by the Contractor below the depths shown on the Drawings in order to remove unsuitable base material or ordered by the Engineer is to be filled with Concrete Grade 15. The volume of such concrete is to be measured separately and paid at the appropriate rate.

Where excavation has been carried out to a depth greater than that specified by the Engineer, the Contractor shall at his own expense fill the void with Concrete Grade 15 or as the Engineer may direct.

Excavation shall not be carried down in the first instance to a depth nearer than 150mm to formation level; the bottom-up to formation shall be done by hand immediately in advance of placing concrete or pipe laying.

If indicated by the Engineer the trench for the pipe work will be excavated 10cm. Below the bottom of the trench and it will be refilled with material free of stones and well compacted in order to provide a suitable foundation for the pipework.

The Contractor shall also take such steps as are necessary to prevent damage to the formation due to exposure to the atmosphere. Should any part of the formation be damaged by the Contractor's negligence or method of working such portion shall be further excavated to such depths as the Engineer directs and refilled to original formation level with Concrete Grade E or selected material, all at the expense of the Contractor.

2.7 Mechanical Excavation

Mechanical Excavators will only be used where the soil conditions so permit or it is possible to install temporary supports so that the trenches or other excavations are sufficiently stable. When mechanical excavators are used a layer of material of sufficient thickness shall be left at the bottom of the excavations in order to be sure that the soil at foundation level is not damaged or disturbed. The excavations shall be completed to the final levels by hand.

2.8 Extent of Excavation

All excavation shall be carried out to the required lengths, depths, inclinations and curvatures as shown in the Drawings or as may be necessary for the construction of the works in whatever material that may be found and the surplus soil shall be disposed of as specified.

2.9 Excavated Materials

All excavated material shall be deposited so that it will cause as little damage and inconvenience as possible.

If required by the Engineer, different classes of material shall be deposited and kept separately. The Contractor shall arrange for handling different classes of material and for re-handling all excavated materials as often as may be necessary.

2.10 Excavation for Foundation: Structure Excavation

Structure Excavation shall consist of the removal of material for the construction of foundations for retaining walls, headwalls and handwalls for culverts and other structures, the excavation of trenches for culverts and pipes, rods, cut-off walls for slope paving and concrete aprons, footings and end return and cut-off stubs for slope protection and other excavation designed on the plans or in these specifications or in the special provision as structure excavations.

Foundations will be excavated to the depths indicated by the Engineer and concrete and other material shall not be placed until the excavations have been examined and approved by the Engineer.

The Engineer will be advised in advance in order to permit the examination of the foundations before the placement of concrete etc.

If in the opinion of the Engineer the excavation has deteriorated before the placing of concrete or other materials by the fault of the Contractor the unsatisfactory soil shall be removed and replaced by selected granular fill approved and compacted to the level of the original formation.

2.11 Excavation for the Installation of Pipeline

The width of any trench for pipework of whatever diameter will be the minimum required for the installation of the pipe and for the installation of temporary supports, should they be necessary. The width of the trench shall be approved by the Engineer. All pipework shall have minimum 150mm sand bedding below and above crown level and around it.

Materials taken from the trenches will be placed at the side of the trench except when in the opinion of the Engineer the materials will obstruct the passing of traffic or pedestrians. In such a case, the Contractor will excavate the trench to short lengths approved by the Engineer and will keep the excavated material at a convenient distance.

The bottoms of the trenches will be maintained level and uniform and free of stones and other obstructions, where pipes are to be installed without a granular or concrete bed. Holes made for the joints will be of a minimum size and the pipework will be supported uniformly over the full length.

The length of trench to be excavated in advance of pipelaying shall not exceed 150 metres. If in the opinion of the Engineer and by fault of the Contractor the excavation has deteriorated before the installation of pipework the unsatisfactory material shall be removed and replaced by selected compacted fill to the level of the original formation.

2.12 Excavation in Excess

If any trench or foundation is excavated by mistake, deeper or wider than necessary the excess excavation shall be filled with concrete or selected granular fill approved and compacted to the original formation level, all at the expense of the Contractor.

2.13 Inspection of Foundation and Blinding Concrete

Whenever any structure excavation is completed, the Contractor shall notify the Engineer who will make an inspection of the foundation. No blinding concrete or masonry shall be placed until the foundation has been approved by the Engineer.

All foundations for walls, columns, floors, manholes or similar structures of reinforced concrete will be covered with a layer of blinding concrete Grade 10, 50mm thick to form the base for the structural concrete. Blinding concrete shall be placed immediately after having completed the excavation.

2.14 Surplus Excavated Materials

If the excavated materials are appropriate and comply with the technical specifications, they may be used in the construction of the Works. All excess excavated material will be disposed of to a site approved by the Engineer, the Contractor paying all charges in connections therewith.

The Contractor will be allowed to dispose of those excess excavated materials within the areas indicated (should there be any) on the plans.

The materials disposed of in these areas will be placed in layers and consolidated all in accordance with Clause on embankments and shall be of such shape, slope dimension and levels

as directed by the Engineer. These embankments will be grassed all as specified in Clause 2.41 and 2.42.

The cost of placing the excess materials including any grassing will be included in the prices quoted for excavation.

2.15 Disposal

The prices for the disposal of excavated material are to include for the selection of spoil as it arises and for all re-handling or re-excavation from spoil heaps as may be required.

2.16 Hardcore and Ballast

Hardcore is to be composed of hard, clean, dry broken stone, concrete, rock laterite or other suitable material approved by the Engineer, free from dust or other foreign matter and broken to pass a 76mm ring and to be retained on a 50mm ring.

The hardcore to be used in the foundations for pavements and similar paved areas will consist of hard solid stone or broken rock or concrete derived from excavations or the demolition of structures and will be of 80mm nominal size.

A small quantity of ballast may be used to level the surface of the hardcore at the discretion of the Engineer's Representative.

The ballast which is to be used in the foundations for roads, temporary restoration etc. will be of good quality and approved by the Engineer's Representative.

2.17 Laterite

Laterite is to be hard, clean, dry selected, roughly graded rock laterite free from dust or other foreign matter and broken to pass a 100mm ring.

The hardcore and laterite beds are to be deposited and consolidated in layers not exceeding 150mm thick and are to contain sufficient fine material to form a solid and homogenous mass and are to be thoroughly consolidated by tamping and rolling with heavy roller and the top surface blinded with approved fine material and finished to exact levels to form a clean and solid foundation.

2.18 Embankments, Tops and Fills

Only suitable portions of the excavated material shall be used in refilling, where ordered by the Engineer, selected material from an approved source shall be imported for refilling, for which extra payment will be allowed.

The Engineer may direct the Contractor to place selected excavated material anywhere. Such material will not become the property of the Contractor and nothing in this Specification shall be construed to give the Contractor the right of ownership.

The Contractor will not be permitted to incorporate in the Works any sand, gravel, puddle clay, or other material arising out of the excavations except with the permission in writing of the Engineer.

Except where otherwise specified or ordered the refilling of pipe trenches, around the pipes and to a consolidated depth of 300mm (minimum) above the crown of the pipe or the toe of the surround shall be done with selected material free from the large stones or rock. The fill shall be deposited by hand in layers of not more than 225mm thick, watered, if the Engineer considers this necessary, and consolidated by hand rammers in separated layers.

All other fill in trenches or other excavations shall be consolidated in an approved manner. If hand rammers are used, the depth of each layer shall not exceed 225mm before consolidation. If mechanically operated rammers are used, the depth of each layer shall be determined by the Engineer but shall not exceed 600mm.

The water content of the filling materials shall when placed be as near to its optimum as practicable. If in the Engineer's opinion it is too wet, it shall not be used, if too dry, it shall be watered at the expense of the Contractor in an approved manner during refilling.

Before placing material of any description on natural ground surfaces the topsoil of such surfaces shall be excavated and removed as directed by the Engineer.

Embankments and tips shall be raised by approved methods with selected materials, and after thorough consolidation, shall be carefully trimmed to the forms, dimensions and inclinations specified or ordered by the Engineer.

The Contractor shall make due allowance for consolidation and settlement of embankments and tips both in width and height and shall make good at his own expense any subsidence that may occur.

2.19 Slides And Slipout

The Contractor shall excavate and remove material outside the planned area of the Works, which in the opinion of the Engineer is unstable and constitutes potential slides. The material shall be excavated to designated lines or slopes either by benching or in such manner as directed by the Engineer. Such material shall be used in the construction of embankments or disposed of as directed by the Engineer.

Where slopes have been previously completed by the Contractor and resloping is required in areas where unstable or stable material is removed at the direction of the Engineer the cost of resloping shall be paid for at the appropriate rate.

The above provisions shall not be so construed as to relieve the Contractor from the duty of maintaining all slopes true and smooth. Erosion, regardless of amount or extent caused by the action of the elements which results in damage to work or materials, shall in no way be considered a slide or slipout.

2.20 Timbering

The term timbering shall cover all normal methods of temporary support including the use of timber, concrete, steel sheet piling or such other materials as may be approved by the Engineer.

Where necessary in the opinion of the Contractor or of the Engineer, the Contractor shall supply and fix without extra cost to the Employer strong and sufficient timbering to support the sides and/or bottom of the excavations to the satisfaction of the Engineer.

Where any excavation is carried out near or under any existing structure or work liable to be affected by subsidence, the Contractor shall at his own expense prevent damage by subsidence due to his temporary works, in a manner approved by the Engineer.

All timbering shall be properly maintained until the permanent work is sufficiently advanced to permit the timbering to be removed. The removal of timbering shall be carried out only under the supervision of a competent foreman.

The Contractor shall be responsible for any injury to the Works and for any consequential damage caused by or arising out of the removal of timbering and the Engineer's permission or approval to the removal of timbering shall not relieve the Contractor from this responsibility.

If, when the excavations are being filled in, it is necessary in the opinion of the Engineer, to leave in position any timbering, the Contractor will be paid for such timbering at the appropriate rate provided that in the opinion of the Engineer the necessity has not arisen from carelessness or neglect by the Contractor.

When a concrete bed, granular or selected fill is required in the trenches the timbering shall be designed to permit the gradual withdrawal during the placing of the bed or fill and this shall be effected in such a manner that no gaps or voids are left between the bed or fill and the sides of the trenches.

2.21 Excavation of Rock or Hard Material

For the purpose of payment under this Contract, rock is defined as natural material which is so hard that, in the opinion of the Engineer, it cannot be removed by the ordinary methods of hand or machine excavation without undue difficulty or the solid surface or layer of material that cannot be removed without the systematic use of the explosives or barring and wedging, boulders and pieces of rock of more than 0.5 cubic metres in volume.

No excavation of material that can be made with pick and shovel will be considered as rock for the purposes of payment.

If any dispute should arise as to whether or not the material or any excavation is to be classified rock the dispute shall be referred to an independent Consulting Engineer to be agreed upon between the Parties, the decision of such Engineer to be the final and binding upon the Parties.

2.22 Foundation Treatment

When footing concrete or masonry is to rest upon rock, the rock will be fully uncovered and the surface thereof shall be removed to a depth sufficient to expose sound rock. The rock shall be roughly levelled off or cut to approximate horizontal and vertical steps and shall be roughened. Scams in the rock shall be grouted under pressure or treated as the Engineer may direct and the cost thereof shall be paid as extra work at the appropriate rate.

2.23 Drainage of Trenches in Rock

The Contractor will keep the surfaces of the rock on which concrete is to be placed, free of running water and concrete will not be placed until the surfaces of the rock have been drained.

Special precautions will be taken in order to avoid running water washing the cement or the concrete during setting or in any other way damaging the works.

Drains and pipes will be provided within or behind the concrete works should it be necessary temporarily to remove water. The pipes will be refilled with cement mortar and the installation and the refilling will be paid for by the Contractor.

2.24 Cleaning of the Rock Surface

The surface of all rock on which concrete is to be placed will be adequately cleaned after having been excavated to the required limits and will be kept free of all dust, stones, loose rock, dirt and other soft materials and will be kept perfectly clean when concrete is being placed.

2.25 Explosives

The Contractor must comply with all the laws, regulations and appropriate requirements of the code of security and the relative regulations handling, storage and use of explosives, protection of life and property.

The Contractor shall not use any explosives without the permission in writing of the Engineer who shall require evidence from the Contractor that all relevant legislation of the Government of Ghana has been complied with. When such permission is given excessive blasting shall not be permitted. Any material outside the authorised cross-section which may be shattered or loosened because of blasting shall be removed by the Contractor at his own expense. The Contractor shall discontinue any method of blasting which leads to overshooting or is dangerous to the public or destructive to property or to natural features.

Every precaution will be taken for the use of explosives, placing of the charges and the quantity so as not to damage any existing structure foundation or adjacent soils of the proposed or existing works.

Heavy covers of other acceptable protection will be provided or the excavations will be refilled with sand or any approved material before detonation of the explosive in order to confine all the materials that are to be removed.

The Contractor will supply a special store suitable for explosives and will provide men experienced in the handling of explosives all to the satisfaction of the Engineer or interested Authorities. The Contractor will take every precaution in order to avoid loss or damage that result from the use of explosives.

2.26 Control of Water

The Contractor shall keep all excavations clear of water. The Contractor shall provide, operate and maintain a system satisfactory to the Engineer of temporary drains, intercepting ditches, cut-off drains, sub-drains, sumps, well points, dewatering equipment and all other things necessary to keep surface water out of the excavations, sub-soil water or water from any other source to maintain the water table below the formation level.

The Contractor shall convey the water from the Works in such a manner as not to cause any nuisance or injury. Particular care shall be taken to avoid undermining any part of the new or existing works due to the method adopted for the removal and disposal of water. No pipes or culverts in the new or existing works shall be used for this purpose without permission in writing from the Engineer. Should such permission be given, the Contractor shall be responsible for cleaning out and removing all silt, etc. and for making good any damage whatsoever resulting from such use.

The Contractor shall obtain the written permission of the statutory Authorities and Owner's before connecting temporary drainage to existing drains, sewers and watercourses.

All temporary works for the control of water shall be sited clear of the Works, the pipes shall be laid with a 76mm surround of gravel, and the top surface of the surround shall be covered with tarred felt cloth or other approved material.

Unless otherwise directed by the Engineer all temporary drains and sub-drains shall be finally sealed with concrete at intervals to the Engineer's satisfaction, and all temporary ditches, sumps, wells, etc. shall be refilled and reinstated as specified elsewhere.

2.27 Springs in Excavation for Foundations

Any spring discovered in the foundations for structures will be dealt with in accordance with the instructions of the Engineer, before placing any fill.

2.28 Porous Fill for Drainage

The porous fill for drainage, which is used as filling behind walls, will consist of solid hard stones or rock or concrete obtained from the demolition of structures. The particles will be approximately cubic form and the size of 8m³ to 3m³. Small particles, dust, rubbish and organic matter will not be included.

2.29 Selected Gravel for Drains

The gravel around drainage pipes will be clean washed stones of hard broken rock and will have a size ranging from 20mm to 5mm.

2.30 Structure Backfill

Structure backfill shall consist of furnishing, placing and compacting backfill material around structures to the lines designated on the plans or specified or directed by the Engineer.

2.31 Structure Excavation and Structure Backfill

Structure excavation and structure backfill shall include the furnishing of all materials and equipment and the construction or installation of all cofferdams and other aspects of the Works which may be necessary to perform the excavations and place and compact the backfill and the subsequent removal of such aspect of the Works, except where they are required or permitted by the plans or Specifications to remain in place.

When shown on the drawings or directed by the Engineer, recesses at culverts inlets shall be excavated in excavation slopes to the dimensions designated and the resulting material disposed of in roadway embankments as directed by the Engineer and such work will be paid for as structure excavation for the quantities involved.

Materials from structure excavation not used as structure backfill shall be deposited in roadway embankments or disposed of as surplus material, all as directed by the Engineer, and no additional compensation shall be allowed for such work.

2.32 Structure Backfill Operations

Structure backfill operations shall conform to the following requirements:

Material for use as structure backfill shall have sand equivalent (percentage of sand) value not less than 30. The percentage composition by weight as determined by laboratory sieves shall conform to the following grade:

<u>Sieve Size</u>	<u>Percentage Passing</u>
75mm	100
No. 4	35 - 100

Structure backfill shall not be placed until the structure footings or other portions of the structure or facility have been inspected by the Engineer, and approved for backfill. No backfilling material shall be deposited against the back of the concrete retaining walls or the outside walls of cast-in-place concrete structures until concrete has developed a strength of not less than 20N/mm² as determined by the standard 150mm cube tests.

Approval of the Engineer shall not relieve the Contractor of his liability to make good any concrete, which may be damaged by premature backfilling of walls.

2.33 Swell or Subsidence

When swell or subsidence results from driving piles, the Contractor shall at his own expense, excavate or backfill with structure backfill material, the footing area to the grade of the bottom of the footing as shown on the drawings.

2.34 Refilling of Trenches for Pipework

Material to be used for the permanent refilling of trenches as specified in article 96 will be selected material obtained from the trench excavation which will form a solid homogeneous fill after compaction. All materials of high organic content material containing rubbish, organic fill or similar waste will be rejected and disposed of to an approved site selected by the Contractor.

Refilling around the pipe and for 15cm above the pipe will be with material free of stones all to the satisfaction of the Engineer, if necessary, the material will be sieved in order to remove materials that should damage the pipe and it will be only lightly compacted with hand tampers in uniform layers not exceeding 10cm of compacted thickness.

Particular attention will be paid to the refilling of the holes excavated for the joints at the sides of the pipes in order to obtain a firm and solid fill.

Before commencing the refilling and compaction of the rest of the trench the Contractor will obtain the agreement of the Engineer to the methods and equipment he proposes to use for the refilling and the compaction and it would have been shown by tests that a degree of compaction not less than 95% could be achieved. At all times the methods of compaction shall be to the satisfaction of the Engineer and once agreed it will not be changed without the approval of the Engineer.

During the excavation of trenches the Contractor shall make sure that the material which is appropriate for the filling around the pipe is separated for further use.

The Contractor will supply an additional material required for filling around and on top of the pipe.

2.35 Laying and Compaction of Material

Backfill material, both structure and previous, shall be placed in horizontal uniform layers not exceeding 225mm in thickness before compaction and shall be brought up uniformly on all sides of the structure or facility. Each layer of backfill shall be compacted to a relative compaction of not less than 25%. Compaction equipment or methods that produce horizontal or vertical earth pressures, which may cause excessive displacement or may damage structures, shall not be used. The walls shall be well propped to the Engineer's satisfaction before compaction commences.

At locations where material would be exposed to erosion, graded rubble shall be covered with at least one foot layer of earth material approved by the Engineer.

2.36 Rock fill

Rock fill will consist of a mixture of hard and solid broken rock obtained from a quarry approved by the Engineer. The broken rock will have a grading between size 30mm and 10mm and will not contain more than 5% dry weight of material that will pass a 10mm sieve.

2.37 Repair of Settlement of the Refilling

Whatever settlement that occurs in the refilling caused by inadequate compaction will be repaired by the Contractor with additional compacted material as ordered by the Engineer.

2.38 Reinstatement

Unless otherwise specified the permanent reinstatement of trenches or any other excavated areas, shall restore the surface to its original condition so far as practicable.

Permanent reinstatement shall not be carried out until the fill is fully consolidated and not normally within six months of completing the filling. During the intervening period the surface shall be temporarily reinstated and maintained to the satisfaction of the Engineer and in a manner adequate for its function.

After refilling and surface reinstatement has been completed, the site shall be cleared, without delay, of surplus materials, spoil, rubbish and other waste matter.

2.39 Formation of Embankments and Areas of Fill

Embankments and fill areas will be made to the levels and dimensions and shape that are indicated in the plans or as directed by the Engineer.

Before commencing any refilling, the ground on which the embankments are to be constructed shall be cleared of all grass, turf, topsoil and any unsuitable materials.

2.40 Topsoil and Grassing

Cultivated areas will be of selected fertile sieve black soil placed in a uniform layer of the thickness not less than 100mm and will be raked in order to provide a suitable finish.

The areas to be grassed will be grassed with an improved local turf. Should the turfing not give satisfactory results or for whatever reason the turf is destroyed, the areas will be once again turfed. The turf will be looked after until the grass is fully established.

Grassing on embankment slopes will be carried out immediately after the construction of the embankment.

Before turfing, all levelling and finishing of the areas must be done to the satisfaction of the Engineer. Once approved, an appropriate fertilizer will be applied uniformly to the area to be turfed all in accordance with the recommendations of the manufacturer. The turf will be cut and weeded until the work has been approved and accepted by the Engineer.

2.41 Restoration of Borrow Areas, Tips and Quarries

Any quarry or borrow area used by the Contractor for the construction of the Works will be restored to a safe condition and the slopes will be adequate and to the satisfaction of the Engineer. The areas will be turfed when so required by the Engineer. The cost of these works will be included in the Contractor's prices.

2.42 Ensuring Public Safety

The Contractor shall so conduct his operations as to offer the least possible construction and inconvenience to the public. In this connection the Contractor shall conduct his haulage operations in such a way that no spillage shall result along or across any public place or travel way. Any spillage resulting from haulage operations along or across any public place or travel way shall be removed immediately by the Contractor at his own expense.

Whenever the Contractor's operations create a condition hazardous to traffic or to the public, he shall furnish, erect, and maintain at his own expense such fences, barricades, signs, lights and other devices as are necessary to prevent accidents or damage or injury to the public. The Contractor shall also furnish such flagmen and guards as are necessary to give adequate warning to traffic or to the public of any dangerous conditions to be encountered and payment, therefore, should be made according to the appropriate rate. Flagmen and guards, while on duty and assigned to give warning to the public that the highway is under construction of any dangerous condition to be encountered as a result thereof, shall perform their duties and shall be provided with the necessary equipment in accordance with the current "instructions to Flagmen" of the Ghana Highway Authority.

2.43 Anti-Termite Treatment

All termite nests on the Site shall be opened up, the Queen extracted and destroyed. The nest shall be broken open at the top and treated with chemical approved by the Engineer.

The nests and surrounds, 3 days after treatment with approved chemical, shall be totally excavated 300mm in each direction clear the fungus gardens and filled with approved material.

During building operations on the Site the Contractor is to make careful inspection daily and runways traced and treated as described above until termite life is exterminated.

3.0 EMBANKMENTS

3.1 Tests for Quality of Materials and Control of Construction

Before any section of the embankment is commenced and during its construction, tests as required by the Engineer shall be carried out in order to determine the quality of materials and the required degree of compaction in the fills. The Engineer may make use of the following tests:

1. Plasticity Index Tests
2. Grading Tests

3. Moisture Content Tests
4. In-situ dry density measurements
5. Compaction Tests
6. In-situ and Laboratory CBR Tests

Tests 1, 2, 3 and 4 shall be carried out in accordance with B.S. 1377, 1961, the sand replacement method being used for the measurement of dry density in-situ.

The compaction tests shall be carried out in a mould 150mm internal diameter and 125mm internal height. The mould shall be filled in 5 equal layers, each layer given 25 blows of a 4.5kg hammer falling freely 450mm (Ghana Compaction Standard Modified A.A.S.H.O. compaction rammer).

The condition of tests for laboratory C.B.R. tests shall be agreed upon by the Engineer before commencement of the Works. Failing this, laboratory C.B.R. tests shall be carried out on materials at the optimum moisture content given by compaction tests.

3.2 Preparation of Ground Before Placing Embankment

Before replacing embankments and where required by the Engineer, the topsoil shall be stripped to a depth of 150mm or as directed.

If after the soil has been stripped and the ground in any area is not suitable, in the opinion of the Engineer, for placing the fill, the Contractor shall excavate this area to such additional depth as directed by the Engineer and shall dispose of the excavated materials as directed by the Engineer.

3.3 Compaction

The imported material shall be dug, spread and compacted with a minimum of delay so that the material is compacted at its natural moisture content without being allowed to dry or wet up. Compaction shall be carried out by means approved by the Engineer. Irrespective of compaction carried out by the special equipment, maximum use shall be made of all construction traffic to assist in the compaction of all earthworks. All construction equipment must operate over the whole area to ensure uniform compaction. All filling shall be deposited in layers of not greater than 225mm loose depth. Longitudinal and transverse joints in any two successive layers shall be staggered by a minimum of 3 metres.

3.4 Compaction of Rock fill Embankment

The rock shall be placed in level layers approximately 600mm in thickness. The materials shall be reasonably graded to prevent the occurrence of large air voids in the finished work. Each layer shall be thoroughly rolled and sluiced with water. The quantity of sluicing water shall be not less than twice the volume of rock in the layer and under sufficient pressure to ensure that all fines will be washed down to fill interstices amongst the large stones.

3.5 Fill on Steep Slopes

Where embankments are to be placed on side slopes steeper than 1 in 5, provision shall be made to ensure a bond between them and the old ground by ploughing furrows at least 225mm deep and 600mm apart, parallel to the centre-line of the road or as directed by the Engineer.

3.6 Fill Adjacent to Culverts

Special attention shall be paid to the compaction of filling material placed over a distance of 7.5 metres or 3 times the depth of fill whichever is greater, measured from culverts. Compaction shall be carried out if necessary by suitable punners or other approved means so that a wedge of material tapering to zero depth or such other depths as may be directed by the Engineer at the above distance from the culvert shall have a compaction of 100% of the maximum dry density. The Engineer may direct that the filling of this wedge shall be carried out with laterite gravel or other specially selected materials.

3.7 Fill Material for Top 600mm Earth Embankments

Material for the top 600mm of each fill embankments shall be free from clay lumps and reasonably free from vegetable matter and perishable material. Lumps of rocks or earthly material shall be broken down to such a size that they will not interfere with the compaction of the material. The material shall be approved by the Engineer and when compacted in the laboratory at the maximum dry density and optimum moisture content shall have C.B.R. of not less than 10% (determined after 48 hours of soaking). The fill material shall be compacted in layers not exceeding 225mm loose depth or 150mm compacted, and 98% of maximum dry density obtained from laboratory compaction minimum.

ROADS, PAVINGS AND WORKSHOP YARD SURFACING

3.8 Scope

“PAVING” shall include for supply of all materials, labour, machinery and any other incidentals and shall include for carrying out the Works in accordance with the Specifications and to the complete satisfaction of the Engineer.

3.9 Preparation of Formation (Road And Yard)

Excavation or filling for road works shall in the first instance be carried out to a level 300mm below the base of the road or to any such depth as directed by the Engineer.

The 300mm below the base shall be filled as follows:

- (a) 150mm consolidated sub-base material as specified below, on prepared formation.
- (b) 150mm consolidated base material as specified below.

A 10 – 20 tonne roller shall be used for compaction.

3.10 Sub-Base and Base

The sub-base shall be gravel or other approved material. Material for the base shall be naturally occurring gravels or crushed rock and its quality and grading shall be approved by the Engineer. Where the base material is gravel, it shall normally comply with the condition of grading and plasticity given below.

B.S. Sieve Size	Percentage Passing		
Nominal Maximum Size	76mm	38mm	19mm

76mm	100		
38mm	80 – 100	100	
19mm	60 – 80	80 – 100	100
10mm	45 – 65	55 – 80	80 – 100
5mm	30 – 50	40 – 60	59 – 75
No. 7	-	30 – 50	35 – 60
No. 14	-	-	-
No. 25	10-30	15 – 30	15 – 33
No. 52	-	-	-
No. 200	0 - 10	0 - 10	0 - 10

3.11 Asphaltic Concrete

After a period of not less than 4 weeks or so long as required by the Engineer to allow for consolidation, sufficient material shall be removed to allow placing of 50mm asphaltic concrete.

3.12 Tack Coat

The surface shall be cleaned of all loose material immediately before the application of a tack coat.

The tack coat shall be applied at a rate of 6 litres bitumen per 16 square metres at a temperature of 130°C or higher. In special cases the Engineer may instruct that an emulsion shall be applied at the rate of 5 litres per 10 square metres. Any collection of the bitumen or emulsion in depressions shall be brushed out.

The application of the tack coat shall be followed immediately by the laying of the asphaltic concrete wearing course. The following temperatures shall be observed:

Mixing aggregate	135°C - 177°C
Binder	135°C - 163°C
Laying	105°C - 132°C
Rolling	93°C - 120°C

The transportation, delivery and rolling of the Asphaltic concrete shall be completed to British Standard 594, Clauses 14, 15 and 16.

3.13 Aggregate for Asphaltic Concrete

For Asphaltic concrete the coarse aggregate shall be hard, durable, clean crushed igneous rock approved by the Engineer. The stone particles shall be angular but not flaky. Fine aggregate shall be approved clean natural bank, river, dune or pit sand, or quarry sand produced by a secondary plant, free from organic impurities or other deleterious matter. It shall be hard and non-absorbent but necessarily sharp grained.

- (i) Not less than 100% should be retained on each successive pair of sieves specified for use, except the largest pair.
- (ii) The materials passing a No. 36 Sieve shall have the following characteristics (B.S. 1377).

- (a) Liquid limit not exceeding 25%
- (b) Plasticity Index not exceeding 6%.

3.14 Crushed Rock as Base Material

The grading of the crushed rock is not critical but when laid it shall be such that there is a minimum of voids present in the compacted layer. The maximum size of stone used shall be 65mm.

Crushed rock material will normally be found to be different in fine material when laid and during compaction, stone fines (5mm to dust) shall be fed into the surface until the whole layer is chocked and a close well knit surface obtained.

The base and sub-base material shall be spread longitudinally in uniform layers not exceeding 200mm. loose or 150mm compacted and be compacted to 100mm maximum density.

In no circumstance shall sub-base or base material be laid if the previous surface has been affected by rain until it has been made good to the satisfaction of the Engineer.

The C.B.R. value of the sub-base measured in-situ under saturated conditions shall not be less than 35% and the C.B.R. value of the base measure in-situ shall not be less than 80%. When the materials are tested in the laboratory at the maximum dry density these values shall be normally obtained after 24 hours soaking.

3.15 Prime Coat

The laying of the prime coat shall follow immediately after the base course has been compacted and its C.B.R. and density measured and approved by the Engineer.

If dry, the base course shall be slightly dampened (not wetted) as directed by the Engineer. The prime coat shall be MC/2 bitumen and spread at the rate of 2 litres bitumen per 1 square metre at a temperature of 126°C or higher.

After not less than 3 hours it shall be blinded with 6mm chippings or quarry dust or sand to a rate of 1 cubic metre per 100 square metres or such other rate as may be found necessary to secure adequate coverage. The chippings or quarry dust or sand shall be brushed if necessary to secure even coverage.

3.16 Wearing Coat

The Wearing Coat shall be a double layer S/125 bituminous treatment at the rate of 1.25 litres/sq.m. including surface preparations and cover with 19mm chippings applied at the rate of 1 cu.m/75 sq.m. at a temperature of between 132 and 160 degrees Celsius and shall be laid as stated below.

- a) First Coat: After a period of not less than 14 days or as long as required by the Engineer to allow for consolidation the surface shall be swept clean of all loose material. Shelmac S/125 or similar approved cutback bitumen or other similar approved bituminous compound shall be applied at the rate of 2 litres per 1 square metre of road surface at a temperature of 132°C to 160°C and blinded immediately with 19mm machine crushed chippings applied at the rate of 1 cubic metre per 75 square metres or at such other rate as may be found necessary to ensure adequate coverage.

- b) Second Coat: After a period of not less than 14 days or as long as required by the Engineer, the surface shall be swept clean of loose chippings and other materials. Shelmac S/125 of similar viscosity as the first coat shall be applied at the same rate of temperature and blinded immediately with 12mm machine crushed chippings applied at the rate of 1 cubic metre per 75 square metres or at such other rate as may be found necessary to ensure adequate coverage. The chippings shall be brushed to ensure even coverage and then thoroughly rolled in with a light roller (4-6 tonne) allowed to stand overnight. Further rolling shall be carried out before the surface is opened to traffic.

3.17 Filler Material

At least 60% of the material passing a No. 200 B.S. sieve in the table below. The filler is to be Portland cement to B.S. 12 or crushed rock.

The grading of the filler shall be 100% passing a No. 52 B.S. Sieve; 85 – 100 passing a No. 200 B.S. Sieve.

The Bitumen for the prime coat shall be M.C. 2 or similar approved cutback bitumen.

Binder to asphaltic concrete shall be 80 - 100 straight run bitumen.

3.18 Asphaltic Concrete Mix

The Asphaltic concrete mix shall have the following constitution:

3.19 Aggregate

B.S. Sieve	% Passing Wearing Course
25mm	100
19mm	100
12mm	85 – 100
10mm	75 – 90
5mm	60 – 76
No. 7	49 – 64
No. 14	35 – 50
No. 25	26 – 40
No. 72	15 – 26
No. 200	7 – 14

3.20 Binder

(Expressed as parts by weight per 100 parts of dry aggregate)

Wearing Course	
% Binder Content of Total Mix	5.5 – 6.2

4.0 CONCRETE

4.1 General

This section includes the supply by the Contractor of all the materials, labour and equipment necessary for the construction of all works in concrete: un-reinforced, reinforced, precast. The reinforced concrete is to comply with the requirement of the British Standard Specifications BS 8110 or equivalent standard.

4.2 Cement

The cement used shall be Portland cement or Portland Blast-Furnace Cement of approved manufactured Portland Cement shall comply with the requirement of B.S. 12 or equivalent standard for “Ordinary Portland and Rapid-Hardening Portland Cement. Portland Blast-Furnace Cement shall comply with the requirements of B.S. 145 for Portland Blast-Furnace Cement not exceeding 65 percent blast furnace slag. Manufacturer’s general certificates of test will in general be accepted as proof of soundness, but the Engineer may require additional test to be carried out on any cement which appears to him to have deteriorated through age, damage to containers, improper storage or for any other reason. The Engineer may, without tests being made, order that any bag of cement, a portion of the contents of which has hardened, or which appears to be defective in any other way, be removed from the site forthwith. The Contractor may elect to use either ordinary Portland, Blast-Furnace or Rapid-Hardening cement but no extra amount will be paid on account of using a cement priced higher than the price entered for normal Portland Cement in the Schedule of Rates under the Contract, unless work using such cement is ordered in writing by the Engineer.

The cement shall be transported to the Site in covered vehicles adequately protected against water. It shall be stored in a weatherproof cement store to the approval of the Engineer and shall be taken for use in the Works in the order of its delivery in the store. Cement required for use within 24 hours may be stored in the open on a floor raised 300mm high above ground if covered by tarpaulins.

4.3 Aggregates General

The fine and coarse aggregates shall be naturally occurring sand, gravel or stone, crushed or uncrushed, and shall comply with the requirements of B.S. 882 “Concrete Aggregate From Natural Source”. They shall be obtained from a source approved by Engineer and shall be hard, strong, durable, clean and free from adherent coatings or harmful organic impurities and shall not contain any harmful material in such a form or sufficient quantity as to affect adversely the strength, durability or permeability of the concrete or to attack the steel reinforcement. They shall not contain water-soluble sulphur trioxide (SO₃) in excess of 0.1 percent.

4.4 Fine Aggregate

The fine aggregate shall not contain silt or other fine material exceeding 6 percent by volume when tested according to the Standard method given in B.S. 812 Clause 15, neither shall it contain organic material in sufficient quantity to show a darker colour than the standard depth of colour No. 3 when tested according to the method in B.S. 812 Clause 28 “organic impurities”.

4.5 Coarse Aggregate

The coarse aggregate shall be granite or other hard stone from a source approved by the Engineer. The aggregate shall not contain clay lumps exceeding 1% by weight. A representative dry sample shall not show an increase in weight exceeding 8% Clauses 19 – 21, it shall be well shaped and not flaky. The nominal size of coarse aggregate shall be as stipulated below.

4.6 Grading Aggregates

Coarse Aggregate

The grading of coarse aggregate shall be within the limits given in the following table:

B.S. Sieve	Percentage by Weight Passing B.S. Sieve	
	Nominal Size of Graded Aggregate	
	38mm to 5 mm	9mm to 5mm
75mm	100	-
38mm	95 - 100	-
19mm	30 - 70	95 - 100
10mm	10 - 35	25 - 35
5mm	0 - 5	0 – 10

4.7 Fine Aggregate

The grading of fine aggregate shall be within the limits given in the following table:

B.S. Sieve	Percentage by Weight Passing B.S. Sieve	
	Natural Sand or Crushed Gravel Sand	Crushed Stone Sand

5mm	95 - 100	90 – 100
No. 7	70 - 95	60 – 90
No. 14	45 - 85	40 – 80
No. 25	25 - 60	20 – 50
No. 52	5 – 30	5 – 30
No. 100	0 - 10	0 - 15

Notwithstanding that the coarse and fine aggregates may each separately comply with the requirements stated above, they will not be accepted unless when mixed together in suitable proportions the combined aggregates produce uniformly graded and compacted dense concrete of the strength required with adequate workability for the position in the work.

4.8 Samples of Aggregates

Samples of both fine and coarse aggregates are to be submitted to the Engineer for testing at least two weeks before commencing deliveries. No deliveries in bulk are to be commenced until samples have been approved by the Engineer as complying with the Specifications.

Samples of the fine and coarse aggregate approved by the Engineer shall be kept on site, and shall give a fair indication of the general quality of the aggregates for comparison with the aggregates delivered during the course of work. Tests shall be carried out on samples of the latter taken at intervals as required by the Engineer. The method of sampling and the amount of aggregate to be provided for the tests shall be in accordance with B.S. 812 Section 1 “Sampling and Aggregate”. These tests shall be those laid down in B.S. 812 Section 2 – 6 inclusive. The tests will be carried out by the Engineer or his Representative. Should a sample fail to comply with any of the tests the Engineer may, at this discretion, either reject the batch from which the sample was taken, order it to be washed and/or screened or permit it to be used with variations in proportions of the concrete mixes specified.

Any batch of aggregate rejected by the Engineer shall be removed from the works site forthwith.

4.9 Water

The water shall be clean and free from harmful matter and shall be from a source approved by the Engineer. The Contractor shall make adequate arrangements to deliver and store sufficient water at the works site for use in mixing and curing the concrete. Water shall comply with the requirements of the latest edition of B.S. 3148 or equivalent standard.

REINFORCEMENT

4.10 Quality

The reinforcement shall be either rolled mild steel or high tensile steel bent by an approved bar-bending machine. The bending dimensions and tolerances and dimension of all anchorages, hooks, binders, stirrups, links and the like shall be in accordance with B.S. 1478 “Bending Dimensions of Bars for Concrete Reinforcement” or equivalent. The internal radius at the corner of the stirrups and binders shall be not less than the radius of the longitudinal bars embraced by the stirrups or binders. The steel fabric reinforcement is to be hard drawn steel wire fabric and is to comply with B.S. 1221 or equivalent and of the weight and reference specified. Manufacturer’s test certificate shall be supplied as required by the Engineer. Every consignment of steel shall be accompanied by the Manufacturer’s certificate stipulating compliance with above specifications. Steel reinforcement shall be obtained from a source approved by the Engineer.

4.11 Testing Reinforcement

Test Specimens from the steel reinforcement delivered to the Site are to be taken by the Contractor from any consignment as required by the Engineer notwithstanding the existence of a Manufacturer's test certificate in accordance with the requirements of B.S. 785 or equivalent and sent, carriage paid, to the Nominated Testing Authority for testing. No steel is to be used before such testing and until steel has been approved in writing by the Engineer.

Any consignment not meeting the specification shall be removed from the Site at the Contractor's expense within 24 hours upon notification to do so by the Engineer. Not less than one such test specimen shall be taken from every diameter of each cast. Where one cast exceeds 25 tonnes, a second specimen shall be taken from each diameter from that cast. The Contractor is to make arrangements with the steel suppliers so that the cast number shall be clearly given on a label attached to each consignment and if one consignment shall include steel from more than one cast, the steel from each cast shall be bundled separately from any other cast.

4.12 Placing of Reinforcement

The reinforcement shall be placed in the forms and held firm against displacement, by approved types of small precast concrete fixing blocks and wire ties, in the exact position shown in the drawing. Fixing blocks may be left embedded in the concrete in cases where the Engineer approves. Bars intended to be in contact when passing each other shall be securely held together at intersection points with tying wire binders and stirrups shall tightly embrace the longitudinal reinforcement to which they shall be securely wired or spot welded.

The wire ties shall be No. 16 SWG soft annealed steel wire; the ends shall be turned in from the face of the formwork and shall not be left projecting beyond the reinforcing bars. The reinforcement shall be inspected and passed by the Engineer or his representative before concrete is placed in the forms. The exact amount of cover over the reinforcement shall be obtained when the reinforcement is placed and shall be held during concreting.

4.13 Welding

Welding of reinforcement by electric arc may be permitted by the Engineer under suitable conditions and with suitable safeguards. Welding shall be carried out in accordance with B.S. 1856 "General Requirements for the Metal Arc Welding of Mild Steel". But welds shall be of the double V type and two butt weld bend tests shall be carried out on a specimen prepared to represent each form of butt welded joint used in welding the reinforcement and for each position of welding. The method of making butt-weld tests shall be that laid down in B.S. 709. The specimen shall pass the tests to the satisfaction of the Engineer before the approval is accorded to use the joint, which the specimen represents. Tack welds between reinforcing bars, used merely to fix them in position shall not be subjected to tests.

4.14 Storage of Aggregates and Reinforcement

The fine and coarse aggregates shall be stored in properly constructed open bins with hard, clean drained floors. Each size of aggregate shall be stored in a separate bin. The reinforcement shall be stacked tidily in a manner that permits its inspection.

4.15 Concrete Mixes

The concrete for structural works shall be designated mixes which will comply with the minimum requirements specified. The batches are to be gauged appropriately to obtain the strength specified in the table below.

Concrete Grade	Characteristic Strength N/mm ²	Cubic Strength at an age of:				
		7 days	2 months	3 mths	6 mths	1 year
		N/mm ²	N/mm ²	N/mm ²	N/mm ²	N/mm ²
20	20.0	13.5	22.0	23.0	24.0	25.0
25	25.0	16.5	27.5	29.0	30.0	31.0
30	30.0	20.0	33.0	35.0	36.0	37.0
40	40.0	28.0	44.0	45.5	47.5	50.0
50	50.0	36.0	54.0	55.5	57.5	60.0

The Engineer may require allowance to be made in the gauging of fine aggregate to counteract the increase in volume (often termed “building”) due to moisture content.

4.16 Workmanship General

The aggregates are to be gauged by weight; the weights of aggregates per batch must be accurately determined and agreed with the Engineer.

The quantity of cement in a concrete mix is always to be measured by weight and the mixer is to be of sufficient size to ensure that a batch of the specified mix may be made using whole bags of cement to achieve this. The 50kg bag is to be considered to be of a volume of 0.355m³ in calculating volumetric proportions. The amount of water used is to be the minimum consistent with practical workability and is to be varied as required to suit the moisture content of the aggregates.

When the amount of water per batch has been determined by trial, the water is to be measured at this fixed amount throughout the concreting by means of water gauge on the batch mixer or by a marked measuring can. In no circumstances is water to be added to the mix after it has left the batch mixer.

All concrete is to be mechanically mixed in batch mixer of approved type. The dry concrete materials are to be mixed for at least three turns in the mixer, after which the gauge amount of water is to be generally added while the mixer is turning. When the water has been added, the concrete is to achieve a uniform mix. On the cessation of work, the mixer and all handling plants are to be washed out clean.

4.17 Testing Generally

Prices for concrete and steel reinforcement are to include for supplying all test cubes, slump cones and rods and steel test specimens and for carrying out all tests specified as and when required to the satisfaction of the Engineer and for making curing and sending test cubes and steel specimens carriage paid to the Nominated Testing Authority and for the cost of the testing of unsatisfactory cubes and specimens, etc. The cost of Laboratory Testing of satisfactory cubes and specimens is allowed for elsewhere.

4.18 Testing Concrete

The consistency of the concrete shall be determined at all times by means of the standard slump test. For normal concrete, the slump shall not exceed 100mm: for mechanically vibrated concrete the slump shall not exceed 40mm.

The strength of the concrete shall be determined by the testing of 150mm specimen test cubes taken from the concrete at random during the progress of the work. Four such cubes shall be taken from each day's concreting or for each 15m³ of concrete placed, whichever is less. Two cubes are to be tested at 7 days' age and two at 28 days' age. The method of making, marking, recording, curing and testing the cubes is to be agreed with the Engineer before commencement of concreting work.

The test cubes referred to above, made, cured and tested in accordance with the foregoing provisions, shall show, to the satisfaction of the Engineer, that the concrete complies with the following minimum requirements.

Concrete Grade	7 days after Mixing N/mm ²	28 Days after Mixing N/mm ²
10	8.0	12.5
20	13.5	20.0
25	16.5	25.0
30	20.0	30.0
40	28.0	40.0
50	36.0	50.0

Should cubes fail before the specified strength is obtained, the Contractor shall, if so ordered by the Engineer, cut out and replace at his own expense all the work represented by these cubes.

The Contractor shall keep on site sufficient 150mm cast iron cube moulds.

Whenever practicable, concrete for test cubes shall be taken immediately after it has been deposited in the Works. Where this is not practicable, samples shall be taken as the concrete is being delivered at the point of deposit.

4.19 Placing of Concrete

The concrete shall be placed in the Works as soon as possible after mixing and shall be thoroughly compacted by both hand tamping and mechanical vibration. It shall be thoroughly worked into the corners of formwork by hand tamping. After tamping into place the concrete shall not be subject to disturbance other than such as is incidental to compaction by vibration. The concrete shall be placed in the formwork in layers not exceeding 600mm deep. The vibrations shall be used solely for compacting the concrete and not for distributing it into place. Concreting shall be carried out continuously between and up to pre-determined construction joint specified below in the one sequence of operation. The surface of the concrete shall be maintained reasonably level during placing. In the event of unavoidable stoppage in positions not pre-determined, the concreting shall be terminated on horizontal planes and against vertical surfaces by the use of stopping-off boards. A record shall be kept on the Works site of the time and date of placing the concrete in each portion of the structure, and the reference numbers of the test cubes pertaining to batches of concrete in particular part of the structure.

4.19 Compacting

The concrete maintained between two walls of formwork shall be compacted by vibrators of the internal types and concrete in slab vibrators of the pan type or by a vibrating screen. The vibrators shall be of ample power and of a kind approved by the Engineer. They shall be operated by workmen skilled in their use who shall be additional to the labourers employed on placing and tamping the concrete. The internal vibrators shall be inserted and withdrawn slowly and at a uniform pace of approximately 100mm per second. Compacting shall be deemed to be complete when cement mortar appears in a circle around the vibrators; over-vibrating leading to segregation of the mix must be avoided. The internal vibrators shall be inserted at points judged by the area of mortar showing after compaction, with a certain allowance made for overlapping, and they shall not be allowed to come into contact with the formwork or the reinforcement and shall be inserted at a distance of 75mm from the former. The pan vibrators shall be placed on the surface of the concrete, which shall have previously been tamped and levelled leaving an allowance in height for compaction until the cement mortar appears under the pan. The vibrator shall then be lifted and placed on the adjoining surface and this operation shall be repeated until the whole surface has been compacted. Alternatively a vibrating screen spanning the full width of the surface may also be used.

4.20 Construction Joints

Construction joints shall be located in the position directed by the Engineer and as shown in the drawings. Such joints shall be in a plane at right angle to the axis of the member concerned or, when forming the upper surface of lifts in certain walls or beams shall be horizontal. At joints other than those occurring in a horizontal plane the concrete shall be prevented from flowing laterally by the use of rigid stopping-off forms. Wooden fillets 50mm, slightly chamfered, shall be fixed to stopping-off forms to produce rebates in the face of the joints; these rebates shall be formed centrally in the case of piers and slabs and shall run the full length of the joint.

Horizontal joints shall have all excess water and laitance removed from the surface after the concrete has been compacted and before it has set.

Construction joints in floors shall be located near the middle of spans of slabs, beams or girders, unless a beam intersects a girder at the middle location, in which case joints in girders shall be offset a distance equal to twice the width of the beam. Provision shall be made for transfer of shear and other force through construction joints.

Beams, girders, column capitals and haunches shall be considered as part of a slab system and shall be placed monolithically therewith.

Before concreting is resumed, the face of the joint already formed shall have all laitance removed, shall be well roughened, scrubbed clean and thoroughly saturated with water. The face shall then be rendered with a 12mm thick layer of mortar composed of equal parts of Portland cement and sand against which the freshly mixed concrete shall be immediately deposited and thoroughly tamped into the cement mortar.

4.21 Expansion Joints

Expansion joints shall be formed where indicated on the drawings. The Contractor shall ensure that any space designed to be filled with a compressible material, or which is shown on the drawings as a void, is kept clean of any rubbish or other material likely to impair the efficiency of the joint, and shall provide such means as is approved by the Engineer of sealing the joint until such time as a permanent seal can be made.

4.22 Curing and Protection of Concrete

Exposed surfaces, immediately after final set, shall be protected from the sun in a manner approved by the Engineer. All concrete shall be well watered after it has set and shall be kept continuously damp until thoroughly cured. Provision shall be made for adequate water distribution to all parts of the works, so that, if required this treatment can be continued efficiently throughout the whole period of construction. In order to keep the concrete continuously damp; all exposed surfaces shall be covered with damped gunny sacks or shall have water impounded on them, for the full period of curing, which shall not be less than 10 days.

All works shall be protected from damage by shock overloading, etc.

4.23 Surface Treatment

As soon as the formwork has been removed and after inspection by the Engineer, honey combing or small holes in surfaces shall be cut to a depth and shape required by the Engineer and made up with fine concrete of equal quality. No further treatment shall be given to concealed surfaces. Permanently visible surfaces shall be then treated as follows:

All projecting imperfections shall be rubbed down with carborundum stone or other means approved by the Engineer, the grit or dirt therefrom, thoroughly washed off with clean water.

As a separate operation, after completion as described above, surfaces shall be brushed over with coating of Portland cement wash, which shall be rubbed into the pores and smoothed off with carborundum blocks. The finished surfaces shall be protected against drying too rapidly by use of damp sacking or other approved means.

Top surfaces of slabs and other surfaces for which formwork is not provided shall be floated to a smooth finish with a wooden float after compaction of the concrete.

4.24 Additives

The use of additives in the concrete, for the purpose of promoting rapid hardening, for water-proofing, for increasing workability or for other reasons, may be permitted in special circumstances. Such additives shall be of a brand and type approved in writing by the Engineer and shall be used strictly in accordance with the maker's instructions, and to be used only subject to such preliminary tests as the Engineer may require before permission is given to use the additives, in any part of the structure.

5.0 FORMWORK

5.1 General

Formwork section includes footings, walls, steps and slabs.

The formwork shall be constructed of sound, aluminium, steel or other suitable and approved material of such quality and strength as will ensure complete rigidity throughout the placing, ramming, vibration and setting of the concrete: it shall be sufficiently tight to prevent loss of liquid from the concrete. Where formwork is not provided with special lining as specified in Clause CS28, the faces in contact with concrete shall be planed smooth true to alignment and free from surface imperfections and the joints between boards shall be tongued and grooved or caulked with tight fitting fillets recessed into adjacent boards and covering the joint. Internals ties or struts shall be avoided as far as possible, and if used, they shall be of metal and capable of removal without injury to the concrete. No part of any metal tie or spacer remaining permanently embedded in the

concrete shall be nearer than 50mm to the finished surface of the concrete. Construction details shall be arranged to permit easy removal, and wedges and bolts shall be employed whenever possible in preference to nails.

Materials

A. Minimum standard for design of formwork and supports: refer to structural engineer's recommendation.

B. Form material to comply with aluminium or steel Form-work systems and/or British Standard Specifications.

Aluminium forms are not allowed to be in contact with concrete. Use concrete form materials in a manner to provide surface finish specified in architectural and structural drawings.

1. Rough form finish as defined by British Standard Specifications for concrete surfaces not exposed to view in finished Work. Set and maintain forms so finished concrete dimensions conform to tolerances of required sections.

2. Smooth form finish for concrete surfaces exposed to view in finish Work.

C. Form oil to be as manufactured for type of form material used to prevent adhesion of concrete to form material: Non-staining type, compatible with finish material to be applied.

D. Form ties and accessories to be of such design that upon removal of forms, no metal shall be less than ½-inch from the surfaces that are not visible and 1½ -inches from all visible surfaces in finished or unfinished spaces.

E. Vapor barrier: 6-mil thick fungi resistant polyethylene sheet conforming to Voluntary Products Standard PS 17-69.

F. Tape; Polyethylene adhesive backed tape.

Execution

A. Examine all areas and conditions under which work is to be performed and notify Architect in writing of conditions detrimental to proper and timely completion of Work.

B. NOT USED.

C. Construct required forms for concrete work to conform dimensions shown, plumb, straight, and sufficiently tight to prevent leakage. Secure brace and share forms to prevent displacement and to safely support construction loads.

D. Set and maintain forms so completed concrete will conform to dimensional tolerances given in dimensional tolerances given in B.S. 1478 "Bending Dimensions of Bars for Concrete Reinforcement" or equivalent.

E. Contactor is responsible for coordinating, accepting delivery, storage, and installation of structural steel plates, ledge angle inserts, and other embedded weld plates and angles.

F. Build in anchors, inserts, bolts, and other devices indicated or required for various portions of the Work. Accurately position and support all built-in items furnished by other trades.

G. Install a vapor barrier over compacted sand cushion under floor slabs on grade where specified. Lap joints six inches.

H. Do not remove forms until concrete has acquired sufficient strength to support its own weight and superimposed loads, and until concrete has hardened sufficiently to resist damage from removal operations

5.2 Wrot Formwork

Not Used

5.3 Lining Formwork

Not Used

5.4 Cleaning and Treatment of Formwork

Before concrete is deposited, the forms shall be thoroughly cleaned and freed from sawdust shavings, dust, mud or other debris by hosing them with clean water. Temporary openings shall be provided in the forms to drain away the water and rubbish. Unless otherwise directed by the Engineer, the inside surface forms shall, before placing of the reinforcement, be coated with lime wash or an approved mould oil, care being taken at all times thereafter to keep the reinforcement free from any such material. There shall be not excess coating material in the form prior to concreting.

All formwork shall be inspected by the Engineer after preparation and immediately prior to depositing concrete and no concrete shall be deposited until approval of the formwork has been obtained from the Engineer.

5.5 Removal of Formwork

Formwork shall be removed without such shock or vibrations as would damage the concrete. Before general removal of the formwork the concrete shall be exposed over a small area in order to ascertain that the concrete has sufficiently hardened. The minimum periods for the removal of the formwork for various parts of the structure are given in the following table, but compliance with these requirements shall not relieve the Contractor of the obligation to delay the removal of formwork if the concrete has not sufficiently hardened.

Position of Formwork	Ordinary Port Cement/Days	Rapid Hardening Port Cement/Days
Beams' sides, Walls and Columns (unloaded)	3	2
Slabs (prop left under)	4	3
Removal of props to Slabs	10	5
Beams' soffits (prop left Under)	8	5
Removal of props to Beams	21	8

The foregoing table is given as a guide for Normal and Rapid Hardening cement, and gives the minimum times which will normally be approved by the Engineer, who may at his discretion increase the above time if he considers such increase to be necessary. Any variations proposed by the Contractor by virtue of the use of other types of cement or formwork systems, or of additives, shall be subject to the approval of the Engineer.

5.6 Steelwork Cast into Concrete

The surface of all structural steel which is to be cast into the concrete of the structure shall be thoroughly cleaned of any protective paint or other adherent coatings and shall be wire brushed clean of surface rust. All oil and other deleterious matter shall be removed from the surface of the steelwork immediately before casting the concrete.

5.7 Precast Concrete

Precast concrete units, unless otherwise specified, shall be constructed in Grade B1 concrete. They shall be fair faced and true to line with a tolerance of plus zero or minus 3mm on length of units 600mm or less in length and plus zero and minus 12mm for units exceeding in length. The maximum deviation of any side measured from a straight edge shall not exceed the equivalent of plus zero and minus 1mm in 1500mm.

Precast concrete paving slabs shall be to B.S. 368 or equivalent.

Precast concrete kerbs and edgings shall be to B.S. 340 or equivalent.

No precast units shall be built into the Works until it has matured for 28 days unless otherwise agreed by the Engineer.

Units may be rejected if they have any of the following defects:

- (a) Broken edges
- (b) Repairs
- (c) Misplaced reinforcement
- (d) Honeycombing or air holes

Rejected units shall be replaced by the Contractor at his own expense.

Precast concrete units shall be cast in approved moulds on clean platforms. All exposed faces to be left fair and finished smooth as have been so described elsewhere.

6.0 STRUCTURAL STEEL

6.1 Materials

All steelwork shall be mild steel in accordance with B.S. 15. All workmanship and materials shall be in accordance with the British Standard 499 "The Use of Structural Steel in Building" and B.S. 1856 "General Requirements for the Metal-Arc Welding of Mild Steel."

6.2 Drawings

The drawings prepared by the Engineer are layout drawings and typical details for the purposes of tendering and contracting. The Contractor shall prepare his own shop drawings showing all sizes, dimensions and details as are required for purposes of fabrication and erection.

Before fabrication is commenced, the Contractor shall submit two copies of his shop drawings to the Engineer for approval. When approved, one set will be returned to the Contractor signed as approved, upon receipt of which the Contractor will be free to commence fabrication.

It is to be expressly understood that such approval of shop drawings by the Engineer does not relieve the Contractor from responsibility for errors or omissions contained in the drawings.

Measuring to scale on any drawing is not permitted.

The Contractor must include in his price, the cost of preparing shop drawings and blue prints for approval and fabrication purposes.

6.3 Bolted Connections

Black bolts may be used throughout unless shown otherwise on the drawings.

All bolts shall be fitted with washers under the nut and all bolts shall extend through the nut by at least one thread after the nut has been tightened.

Where a nut or bold head is bearing against an inclined surface, a bevelled washer of the correct shape shall be interposed between the two surfaces. Bevelled washers shall not be allowed to get out of position during fabrication and erection and for this purpose they may be tack-welded onto the steel surface.

Where a bolt is designed for bearing, care shall be taken that no bearing is taken on the thread. The nuts of all bolts subject to vibration shall be locked in approved fashion.

6.4 Bolts Holes

All holes shall be truly cylindrical and perpendicular to the connecting surfaces and shall be free from burns. Finished sizes of bolt holes shall be not more than 2mm larger than the nominal diameter of block bolts nor more than the nominal diameter of the bolt for turned and fitted bolts.

Punching of holes will only be allowed for black bolts whose thicknesses are less than 12mm otherwise all holes shall be drilled.

Burning of holes shall not be permitted.

Holes for turned and fitted bolts shall be sub-drilled 2mm smaller than the finished size and reamed on assembly. Finished holes in connecting members shall match fit such that bolts may be placed without further remaining or drifting on the site.

6.5 Bolts, Nuts and Washers

Bolts and nuts shall be of the best quality with Whitworth threads. They shall have hexagonal heads and round shanks unless otherwise specified, and furnished with spring washers (except encased members) of an outside diameter equal to two and half times the diameter of the bolt. For flanges of joints and similar positions, tapered washers shall be supplied. Bolts shall be of such lengths as to project not less than 5mm or more than 10mm beyond the nut when tightened up.

All bolts are to be tightened dead tight. Bolts, nuts and washers shall be dipped in a protective fluid "Shell Ensis Fluid Ref. No. 260" or equivalent.

6.6 Connections

Shop connections may be riveted, welded or bolted. Site connection shall be bolted except where specified otherwise.

Site welding shall preferably not be carried out. When site welding is unavoidable, screens against wind and weather and suitable platform are to be provided. Suitable means of holding the members in their correct position shall be provided until the joints are welded.

6.7 High Strength Friction Grip Bolts

All bolts for steelwork are to be High Strength Friction Grip Bolts in accordance with B.S. 3294 Part 1 and B.S. 3139 or equivalent.

High Strength Friction Grip Bolts shall be used in conjunction with Load Indicating Washers of approved make in addition to the normal washers.

6.8 Welding

All surfaces to be welded shall be free of rust, dirt, grease, loose peels, paints slags and other foreign matter.

All welding shall be in accordance with B.S. 1856 “General Requirements for the Metal-Arc Welding of Mild Steel”. B.S. 449 and B.S. 2645 wherever applicable. Only skilled welders who have previously passed selected tests as described in B.S. 2645 Part I and II and who have good reference shall be employed for the work.

6.9 Inspection of Steelwork

The works must at all times be open to the Engineer and portions of the work not entirely to his satisfaction shall be open to rejection and shall be replaced at the Contractor’s own expense.

The Engineer shall be informed of the completion of the works in the shop so that an inspection may be carried out prior to undercoating and delivery.

6.10 Transport

All structural steelworks are to be handled and transported such that the members are not subjected to excessive stresses, deformed or otherwise damaged. Long members are to be bundled together for transport. No “Projecting” members are to be left on long members which can cause bending or damage of these during transit. Cleats and small parts are to be bagged and packed in kegs of cases. Bolts, rivets, washers, small and loose pieces shall be securely bagged and marked for easy identifications.

6.11 Erection of All Steelwork

When lifting and fitting steelwork into position, care shall be taken to ensure that the members are not strained, twisted, bent or damaged in any manner whatsoever. Should any part be strained, twisted, bent or damaged it shall be reinstated in such a manner as the Engineer may direct, by gently heating and bending and not by hammering. Any parts that, in the opinion of the Engineer, are badly damaged shall be replaced with new parts all at the cost of the Contractor.

Proper and suitable slings, lifting appliance, blocking and all other necessary plant and equipment shall be provided. The lifting of steelwork in bundles, which in the opinion of the Engineer is liable to cause damage or strain, will not be permitted. The stacking of materials prior to erection or during erection in a manner or in such a position as may, in the opinion of the Engineer, cause damage to the materials so stacked or to permanent works so loaded will not be permitted.

6.12 Holding Down Bolts

Generally holding down bolts shall be cast into the foundations for the building. They shall be placed as follows:

- (a) the holding down bolts shall consist of a bolt inside a length of pipe with a large washer at the base to provide anchorage. The pipe and bolt shall be welded to the washer to ensure that the bolt remains rigidly fixed in the centre of the pipe;
- (b) the holding down bolts shall be placed in sufficiently large and deep pockets made in concrete base.

The bolts shall be held firmly and rigidly in position during concreting and care taken to ensure that no concrete flows down between the pipe and the bolt.

The threads shall be protected at all times until the bolt is tightened with a nut and washer.

6.13 Grouting Baseplates

The mortar used for this purpose shall be in the proportion of 1 part cement to 2 parts sand by volume. As little water is practicable shall be used for the mortar, which shall be properly rammed in tight under the baseplates.

All steelwork shall be complete, all bolts, fully tightened and all stanchions fixed and grouted up before any cladding is fixed.

Grouting baseplates shall be done in two operations. First the baseplates and stanchions shall be firmly fixed and packed with steel plates before grouting. The grout shall then be poured in up to the level of the underside of the baseplates.

After an interval of seven days, the nuts shall again be tightened down hard and thereafter the stanchions grouted up to floor level.

6.14 Galvanised Work

All materials to be galvanised shall be of the full dimensions shown or specified and all holes shall be drilled before galvanising. All galvanising shall be done by the hot process with the best virgin spleiter, not less than 98% of which shall be pure zinc. It shall be uniform, clean, smooth and as free from spangle as possible throughout.

6.15 Painting Steel and Ironwork

All paint shall be of the best quality of an approved make and obtained from an approved supplier.

6.16 Surface Preparation

All surfaces shall be wire brushed clean to removed rust, mill scale, welding deposits, etc. dine, washed with water and left to dry before the application of paint.

6.17 Paint

One priming coat of Grey Green Chromate Metal Primer No. F500-388 manufactured by ICI Limited or a similar approved primer shall be applied at the place of fabrication. This

priming coat where damaged during transport and/or handling and erection, shall be made good with similar primer before the finishing coats are put on.

The finishing paint shall be first class fungus resistant gloss paint Micaceous Iron Oxide (F30A-line) of ICI manufacture or a similar approved paint of selected colours. Two finishing coats shall be applied and this shall be done after erection of the members.

6.18 Application of Paint

All external paint work shall be executed in dry weather and all surfaces are to be perfectly dry before any paint is applied. No successive coat of paint is to be put on until the Engineer has given his approval. The interval between the application of each coat of paint shall be 4 days or as recommended by the paint manufacturer.

The paint shall be thoroughly mixed to ensure that all pigment is in suspension and the paint is of proper consistence. No oil or thinner shall be used. Stiff brushes of an approved quality shall be used to give a smooth even surface. As far as practicable, the painted steelwork shall not be handled or stacked until the paint is thoroughly dry and sufficiently hard to avoid being damaged.

Contract surfaces to be bolted together shall be properly cleaned and painted immediately before joining.

7.0 ELECTRICAL SERVICES

General

7.1 Extent of Work

The Electrical Installation Works shall include delivery to site, installation, testing and setting to work of all the equipment, fittings, cabling and other materials to be supplied by the Contractor to complete the electrical installation for power, lighting, control, alarms, instrumentation and telephones in the relevant portions of the Works as specified.

The Works shall cover the provision of all plant, tackle, tools, skilled and unskilled labour required for the unloading of materials and the execution of the whole of the Works included in the specification. Excavation, backfilling of trenches, the cutting of concrete or brickwork and the subsequent making good and provision of ducts under roads, buildings, etc., shall form part of the builder's work which have been measured separately.

7.2 Rules and Regulations

The current regulations, rule and requirements of Electricity Corporation of Ghana and the Institution of Electrical Engineers and the relevant B.S. Codes of Practice shall be deemed to form part of this Specification.

7.3 Electricity Supply

The electricity supply shall be 11 KV, 3 Phase 50Hz, taken from Volta River Authority nearest 11KV line to feed the transformers through fuse switches, or source specified by the Engineer.

7.4 Works Testing

The contractor shall serve all notices on the Volta River Authority or any other approved organisation for testing and pay all fees in connection therewith. The cost of such tests is

allowed for elsewhere. Any additional charges made for re-testing as a result of faulty installations or poor workmanship shall be at the expense of the Contractor.

7.5 Identification of Circuits

Circuit lists shall be provided inside all distribution boards, control boards and other such locations clearly marked in indelible ink.

7.6 Earthing of Equipment

The whole of the electrical installation and all other equipment connected thereto shall be earthed in conformity to the IEE Regulations and in addition to the requirement of ECG.

7.7 Position of Points and Equipment

The position of all points and equipment shown on the plans shall be assumed correct for the purposes of the tender, but it is the Contractor's responsibility to check the positions with the drawings which will be available on site.

7.8 Installation Drawings

Installation drawings have been prepared by the Engineer showing the layout of the complete installation. The Contractor shall generally adhere to these drawings. In the event of any discrepancy between the specification and the drawings, the Engineer's attention shall be drawn to such discrepancies for ratification.

It is important that the Contractor during the course of the works shall maintain a fully detailed record of all changes from the tender drawings to facilitate easy and accurate preparation of the "As Installed Drawings" to ensure that those drawings are in all respect a true record of the installation.

7.9 Cabling

7.10 Armoured PVC Cables

The installation shall require laying of armoured PVC insulated cables. PVC insulated cables shall be XLPE sheathed cover over the armouring wires. The cable shall be suitable for the use of voltages up to and including 600/1000 volts.

The minimum internal radius of any bend formed in these cables shall be eight times the cable overall diameter.

Termination shall be made with a clamping gland of approved pattern, the gland to be complete with a PVC sheath.

Joints in this type of cable should be made in a joint box of approved type complete with armour bonds and split ferrules.

All joints shall be made by a qualified jointer and the joints shall be filled with cold-filling compound as Henly List No. 57017 or similar approved.

Armoured cables installed in buildings shall be fastened by saddles to galvanised cable trays securely fixed to walls or ceiling or be supported by cable cleats of approved design held in position by bolts or studs securely fixed into the supporting steelwork or masonry.

7.11 PVC Cables in Conduit

PVC cables for drawing into conduits shall be 250 to 660 volts grade, single core with a minimum cross-sectional area of 1.5mm² and complying with B.S. 6007; 1969 or B.S. 6004; 1969 whichever is applicable.

7.12 Wiring

All joints are to be made at main switches, distribution boards sealing boxes, socket outlet boxes and fuse-boards only. No joint shall be made in joint boxes. The wiring shall be run in the conduit so as not to exceed the capacities set out in Table BSM of the IEE Regulations 16th Edition.

7.13 Conduits and Fittings

All conduit fittings shall conform with B.S. 4568 Part 2: 1970 and subsequent amendments. No solid or inspection bend tees or elbows shall be used. All conduits shall be heavy gauged welded and screwed. It shall be protected by black enamel or galvanised where so specified.

7.14 Cabling to Motors

Cables to motors, whether PVC insulated cables in conduit or otherwise shall be terminated in cable changing boxes mounted adjacent to the motor. Final connections between the cable changing boxes and the motor terminal boxes shall be carried out using flexible armoured cables.

7.15 Conduit Connections

Conduit embedded in plaster and floor screed, etc. shall be painted with two coats of red lead paint after erection.

Screwed connections shall be metal to metal and shall be painted with two coats of red lead paint. Connections between conduit and sheet metal adaptable boxes or trunking etc. shall be made by means of brass hexagonal smooth bore bush fitted inside the box or trunk and connected through a coupler to the conduit. This method shall be also used with connecting conduit to a cast box not provided with a spout.

7.16 Layout of Cable Boxes and Running Joints

Boxes shall be so spaced that they are not more than two 90o solid sands or more than 9m of straight run between them. All free ends of conduits shall be fitted with female brass bushes.

7.17 Flexible Metallic Conduit

This shall conform to B.S. 731 Part 1: 1952 including latest amendments and shall be PVC covered. The conduit is to be terminated in two part brass adaptors. In all cases an earth wire of size not less than 2.5mm² shall be drawn through this conduit and secured at either end. This earth wire shall be insulated and identified green.

Where it is required to connect PVC insulated cable to lighting fittings or to B.S. box to which a batten holder or lighting fitting may be directly attached, a heat-resisting grade of PVC shall be used unless the cable are to be terminated outside and well clear of the fittings or box and final connection made by means of tails insulated with silicon rubber to B.S. 600: 1969.

Vulcanised rubber insulated cable may not be used at all in these circumstances.

7.18 Switch and Socket Outlets

Switches and switch socket outlets shall be installed either of 13 or 15 Amp rating as called for in the Bills of Quantities.

Normally all switches shall be mounted at a height of 1350mm above finished floor level and any variation of this height must be to the approval of the Engineer.

7.19 Building Superstructure

Switches shall be single-pole with a substantial actuating toggle of an insulating material, the whole being contained within a metal enclosure. Switches for concealment behind plaster shall have an enclosure of heavy gauge pressed steel covered with a switch-plate fixed to the enclosure by separate screws and having a satin chrome finish.

Switch socket outlets for use under similar conditions shall be generally to B.S. 1363: 1947 or of similar construction to the switches where applicable and with matching cover plates. The socket outlets shall have three contact tubes and shall be interlocked with the switch such that the tubes are effectively shuttered to prevent accidental contact or mal-operation when the plug is withdrawn.

7.20 Switchboards and Control Panel

Switchboards and Control Panel shall generally be of the self-standing cubicle type. All switchboards and cubicles shall be bonded to the generally earthing system.

7.21 Switch and Fuse Gear

All units shall be provided with identification labels as specified elsewhere having the circuit designation clearly engraved. All units shall be capable of withstanding a symmetrical short circuit fault to 15MVA at 415 volts.

7.22 Distribution Boards

Distribution boards shall be generally in accordance with B.S. 214 including amendments. All live parts shall be effectively screened to prevent inadvertent contact. Distribution Boards incorporating miniature circuit breakers (MCB) shall have a category of duty M3.

7.23 Moulded Case Circuit Breakers (MCCB)

Moulded case circuit breakers shall comply with B.S. 3871 Part 2. The breaking capacities shall be 10KA standard rated currents up to and including 100 amperes; 22KA for standard rated current above 100 amperes up to and including 1200 amperes.

7.24 Consumer's Electricity Supply Units

Consumer's electricity supply units shall comply with B.S. 1454. The number of outgoing circuits and their respective current ratings together with the current rating of the main switch and form of protective device(s) required, i.e. miniature circuit breakers, and the form of the enclosure shall be as indicated or as directed by the Engineer. Where miniature circuit breakers are incorporated, units with a current rating of 4 Amps shall have a category of duty according to B.S. 3871 Part 1.

7.25 Labels

All insulating switches, switch fuses, fuse switches MCB's distribution boards and other specified items shall be labelled as to their function, the letters to be engraved on the underside of a levelled colourless transparent plastic label not less than 3mm thick, and engraving being filled and the underside painted and sealed to form a complete label having white letters on a B.S. 2660 – 7086 background. All labels must be affixed to apparatus before final acceptance tests are carried out.

7.26 Internal Lighting

Internal lighting fittings shall be provided as set out in Bills of Quantities and shall be of first class workmanship throughout. All fittings shall be left in complete working order to the satisfaction of the Engineer. Any fitting which exceeds 1.5kg in weight shall be suspended by independent means so that no part of the weight of the fitting is borne by the flexible cable.

7.27 Earthing

All metalwork forming part of the electrical installation other than the current carrying part of the electrical circuits, including the casing of alternators, motors, transformers, switchgear, distribution boards, cable sheaths and armouring ducts, conduit boxes, metal lighting fittings etc. shall be efficiently connected to the station's main earthing system.

7.28 Site Tests

Cables laid underground shall be tested for insulation resistance and continuity of earth circuit in the presence of the Engineer. All joints made during the installation of the cables which prove faulty when tested shall be made good and re-tested to the satisfaction of the Engineer at the Contractor's expense.

The connection of all electrical circuits shall be proved to be correct and the whole installation shall be tested for insulation resistance and earth loop resistance in the presence of the Engineer with the instruments provided by the Contractor. Any faults or defects shall be remedied at the Contractor's expense. All tests shall comply with Section E of the IEE Regulations.

On completion of erection each item of apparatus and plant shall be tested and proved under working conditions. The installation shall then be operated continuously for 24 hours or such less time as the Engineer may direct during which time the Engineer in the presence of the Contractor shall check that the installation is complete in safe working order and fulfils the function for which it is intended.

7.29 Installation of the Works

7.30 General Description

7.31 General Earthing System

The earthing system for the installation shall be as specified to provide an efficient grounding system to serve the following functions:

- (a) To provide adequate lightning protection to the equipment and building.

- (b) To provide a low impedance between the ground associated with each building to prevent excessive voltages appearing across signal lines due to ground currents.
- (c) To provide a safe power system so that in the event of a short-circuit to ground at any electrical power apparatus, no dangerous voltages should appear on equipment ground or other conducting surfaces with which personnel may come into contact.
- (d) To eliminate any radio frequency (RF) interference due to static electricity producing flashover between adjacent members of the metal structures.
- (e) The resistance to ground of the total grounding system shall be less than 10 ohms.

All connections to ground system shall be made with suitable clips approved by the Engineer.

7.32 Lighting System

The offices and rooms shall be lighted by a general lighting system using fluorescent fittings giving an average lighting level of 200 lux, unless otherwise specified.

The lamps shall be braced to the ceiling structures generally. In some cases and where specified fittings shall be suspended on chains.

7.33 Telephone System

Telephone system for the plant shall also be installed in conduit. The conduit for telephone wiring shall be separated from conduit for mains voltage wiring. Wiring shall conform to the requirements of the Ghana Telecommunications Company Limited.

8.0 PLUMBING

8.1 Extent of Work

The Contract for the plumbing and pipe installation works shall include delivery to site, installation, testing and setting to work of all pipes and fitting and other materials supplied by either the Client or the Contractor to complete the installations to the satisfaction of the Engineer.

The Contract shall also cover the provision of all plant, tackle, tools, skilled and unskilled labour required for the unloading of materials and the execution of the whole of the works included in this specification.

Excavation, backfilling of trenches, the cutting of concrete or brickwork and the subsequent making good and provision of ducts under roads, buildings, etc. shall form part of builders work which have been measured separately elsewhere.

8.2 Rules and Regulations

The Contractor shall comply with all Rules and Regulations as specified elsewhere in this specification. In addition, the installation shall be in accordance with the regulations of Ghana Water Company Limited. In cases where these are found to be at variance with any clause in this specification immediate notice shall be given to the Engineer.

8.3 Drawings

The Engineer has prepared schematic drawings of the layout of the complete installation. The drawings are schematic and do not indicate all offsets and fittings which may be required. The Contractor shall investigate the structural conditions and installation of other trades and arrange his work accordingly furnishing such offsets and equipment as may be necessary all to the Engineer's approval.

8.4 Water Supply

The Contractor shall supply and lay pipe-work from water mains and underground water reservoir from water mains to drinking fountains and kitchens shall also be made.

Pipe work shall be fixed to the concrete walls, floor, ceiling slab as shown on the drawings

8.5 Testing Plumber's Work

The plumbing work and sanitary fittings shall be tested at such time as the Engineer may direct.

8.6 Pipes and Fitting

All pipes shall be neatly run in a proper workmanlike fashion and secured to walls with approved clips, brackets or holder bats. Where plugging is required Phil plug or similar approved plugs shall be used. All made bends shall be formed by approved mechanical means without diminishing the internal diameter of the pipe or causing fracture or weakness to the tube walls. All joints to sanitary fittings, cylinders, tanks machinery etc. shall have disconnecting unions to facilitate easy removal of fittings without undue disturbance.

8.7 Pipe Laying

The following shall be observed for pipe laying

- (a) All pipes shall be installed so as to preserve access to all valves and equipment.
- (b) The horizontal water mains shall pitch upwards in the direction of flow
- (c) Eccentric couplings and horizontal lines shall bring the pipe flush on the top for liquid lines.
- (d) All pipes, valves and fittings shall be installed at sufficient distance from other work to permit clearance not less than 13mm between the finished covering of such piping and all adjacent work whether under this or any other section of the specifications.
- (e) Dielectric insulators shall be installed between ferrous pipe and non-ferrous pipe and equipment.
- (f) All openings in pipes and fittings shall be capped or plugged until permanent connections are made. Care should be taken to keep foreign materials out of the system.
- (g) The Contractor shall be responsible for quick and free circulation of water, compressed air, oil, fuel or gas in all piping under actual working conditions. Systems shall be free from noise due to pipe expansion or contraction of water.
- (h) All pipes shall be run concealed wherever possible in masonry wall and floor slabs.

- (i) All pipes buried at least than 1.2m from the surface and or under a building or road shall be surrounded with 1:3:6 concrete Class “E” 150mm thick.

8.8 Labels

Labels are to be fitted to valves, stop cocks etc. except for local valves and stop cocks fixed adjacent to the fittings. All labels shall be coloured as given for pipe work identification and where not obvious from the value position, the room/equipment shall be noted on the label. So far as possible labels should consist of a die held under the hand-wheel unit.

8.9 Pipe Hangers and Guides

Pipe hangers and guides shall be of an approved type and arranged to maintain the required grading and pitching at all times to prevent vibration and to provide for expansion and contraction.

All hangers shall be secured to approved inserts, wherever possible and practicable. Expansion shield may be used in special cases. Spacing of the hangers shall not be greater than the following:

- 3m on centres for 32mm to 50mm
- 4m on centres for piping 62 diameter and larger.

Vertical lines in the building shall be supported at their bases using a suitable hanger placed in the horizontal line near the riser and with clamps at intermediate floors. Hanger shall be insulated from the pipe line to prevent seating of the hangers or support. Vertical risers are to be supported at base by structural members to be provided by the general contractor.

Hangers for piping 50mm and smaller shall be of the split ring type with fastening device. Hangers for piping 50mm to 100mm shall be adjustable clevis hangers.

8.10 Expansion of Pipe

All pipes shall be so installed and properly anchored so that it will be in no way strained or distorted by expansion and contraction.

8.11 Floor, Wall and Ceiling Plates

Pipes passing through the floors, walls or ceiling of finishing rooms shall be fitted with floor, wall or ceiling plates and securely fastened in place.

8.12 Identification of Pipes

All piping in all of the equipment rooms shall be identified at 5m intervals by standard colour markers with legend and flow arrow for easy identification “section” pipe markers or approved equal.

8.13 Installation of the Works

8.14 Septic Tank and Soakaway

All drains from, drainage points, water closets, sinks, shower and urinals in PVC pipes shall discharge into septic tanks, drains or soakaways as shown on the drawings.

All fixtures requiring venting shall be vented through the roof in a stack of proper size.

8.15 Sewage Disposal

Sewage from the building shall be connected to septic tanks, or as shown on drawings

8.16 Ventilation Pipes and Fittings

The sewer pipes above the highest branch are to be continued upwards of the full diameter above eaves and to such a height and in such a position as to afford a safe outlet for foul air.

APPENDIX

1. GENERAL

1.1. Scope

The specification covers the technical requirements for installations, materials and equipment associated with plumbing equipment installations for the building as set out hereinafter and in the applicable drawings. The specifications also cover associated requirements for erection, testing and setting to work of the installations.

1.2. Equipment and Materials

All materials and equipment installed shall be suitable in all respects for the site conditions, in terms of both climate and conditions in which the items are to be installed and also in terms of the specific locations on the site.

2. GENERAL MECHANICAL INSTALLATION REQUIREMENTS

2.1. The work throughout shall be executed in the best and most thorough manner, under the direction of and to the satisfaction of the Engineer, who will interpret the meaning of the drawings and specifications, and shall have the power to reject any work and materials which in his judgement are not in full accordance therewith.

2.2. The Contractor must guarantee that the materials and workmanship supplied will be of the best grade, that the equipment will be erected in a practical and first-class manner, that it will be complete in operation, nothing being omitted in the way of labour and materials required to make it so, although not specifically shown or mentioned herein and that it will be delivered in well-working order, complete and perfect in every respect.

2.3. The Contractor shall thoroughly acquaint himself with the work involved, and must verify at the building all measurements necessary for the proper installation of his work, obtaining the same when necessary from the Engineer or other Contractors. He shall be prepared to promptly furnish to the Engineer for other Contractors any information relating to his own work necessary for the proper installation of other contracts and shall co-operate with them to achieve a good working relationship. The Contractor shall confer with other Contractors on finishes adjacent to his own work and arrange to have visible portions of his work (such as access doors, grilles, etc.) fit harmoniously in a manner satisfactory to the Engineer.

3. **DRAWINGS AND SPECIFICATIONS**

3.1. **Engineering Drawings and Specifications**

The contract drawings are primarily intended to enable the Contractor prepare his estimate and submit a tender. Where runs of piping, ducts, cables, conduits, etc. are shown to small scale, they do not necessarily indicate exact positions. The contract drawings are based on agreements with the Architect taking into account other services and no alteration in principle will be allowed without approval.

3. 2. During the tender period the Contractor has to convince himself how far the other services may influence the preparation of his estimate. The drawings concerning other services are available in the Engineer's office for inspection.

3. 3. The Engineer will supply to the Contractor free of charge, on signing of this contract, three copies each of the contract drawings and two copies of the specifications.

3. 4. **Contractor's Drawings and Information**

The Contractor shall as soon as possible after signing of the contract and well before the relevant work proceeds prepare and submit for approval detailed builder's work and installation drawings, taking into account any modification either to the building or to the installation, which may have taken place and correctly related to the details of the actual items of plant and equipment to be installed. The Contractor shall similarly prepare all necessary schedules of equipment etc. and also all necessary wiring diagrams, both internal wiring diagrams for items of electrical equipment and diagrams showing the inter-connections between different items. All installation drawings are to be on a scale of 1 to 50 for all services in the building and of 1 to 20 for all plant rooms and similar spaces. All such drawings, schedules, diagrams, etc. are to be submitted to and approved by the Engineers in writing before any work is put in hand. After approval, up to six copies of all such approved drawings or schedules are to be supplied by the Contractor for distribution.

3. 5. **Record of Site Drawings**

The Contractor is to arrange for a full set of white prints to be kept on the site showing the progress of all work in connection with this contract. Such prints must be kept up-to-date and all conduits, cable, pipe and duct runs, positions of equipment and machineries etc. are to be recorded on the drawings as they are installed.

3.6. Upon completion of the installation the Contractor shall at his own expense, furnish six complete sets of as-built shop drawings, one of which shall be furnished on printable transparencies and five of which shall be printed drawings. These drawings shall be submitted to the Engineer for approval. After approval they shall become the property of the Employer. Final payment will be

withheld until receipt of the approved record drawings. The cost of furnishing above prints and preparing these record drawings shall be borne by the Contractor.

3. 7. All record drawings shall bear the text as specified by the Engineer in a stage.

4. **REGULATIONS AND GOVERNMENT LAWS**

- 4.1. The Contractor shall comply with all regulations and requirements, including those of the Government of Ghana, the Fire Services Department, Ghana Water and Sewerage Corporation and Electricity Corporation of Ghana and shall be responsible for giving notifications to the appropriate authorities and for paying all fees levied, such fees shall be included in the tender price. No `extra' will be entertained in complying with the requirements of any of the Government or Public Utility Regulations.

- 4.2. All electrical equipment and installations shall comply with local regulations and shall generally be in accordance with the IEC regulations, and IEE publication.

5. **CO-ORDINATIONS OF WORKS**

- 5.1. The civil Contractor shall make an overall planning and time schedule. The Contractor shall adapt his planning to the overall planning/time schedule of the civil Contractor.

- 5.2. Various items of apparatus and equipment will be furnished and set under other contracts. The Contractor shall familiarize himself with the requirements of the civil Contractor and the other Contractors and shall examine the plans and specifications covering each of these contracts.

- 5.3. The Contractor shall carefully check space requirements with other Contractors to ensure that his equipment, pipes, ducts, etc. can be installed in the spaces allotted for same.

- 5.4. The Contractor shall consult with the civil Contractor and with the Contractors for other trades so that wherever possible all motors and motor starters and all valves are of the same manufacture throughout the entire building.

- 5.5. Wherever the Contractor's work and the other Contractor's work inter connects, the Contractor shall co-ordinate his work with the other Contractors to ensure that the other Contractors give the information necessary for him to carry out his installation. The Contractor shall also co-ordinate with the other Contractors in order to ensure that the other Contractors have all the information necessary to properly complete the electrical and mechanical works associated with the work.

The Contractor shall identify all work items (valves, fittings, fixtures, etc.) in an approved manner in order that the civil Contractor may know where to install an access type panel in walls and ceilings.

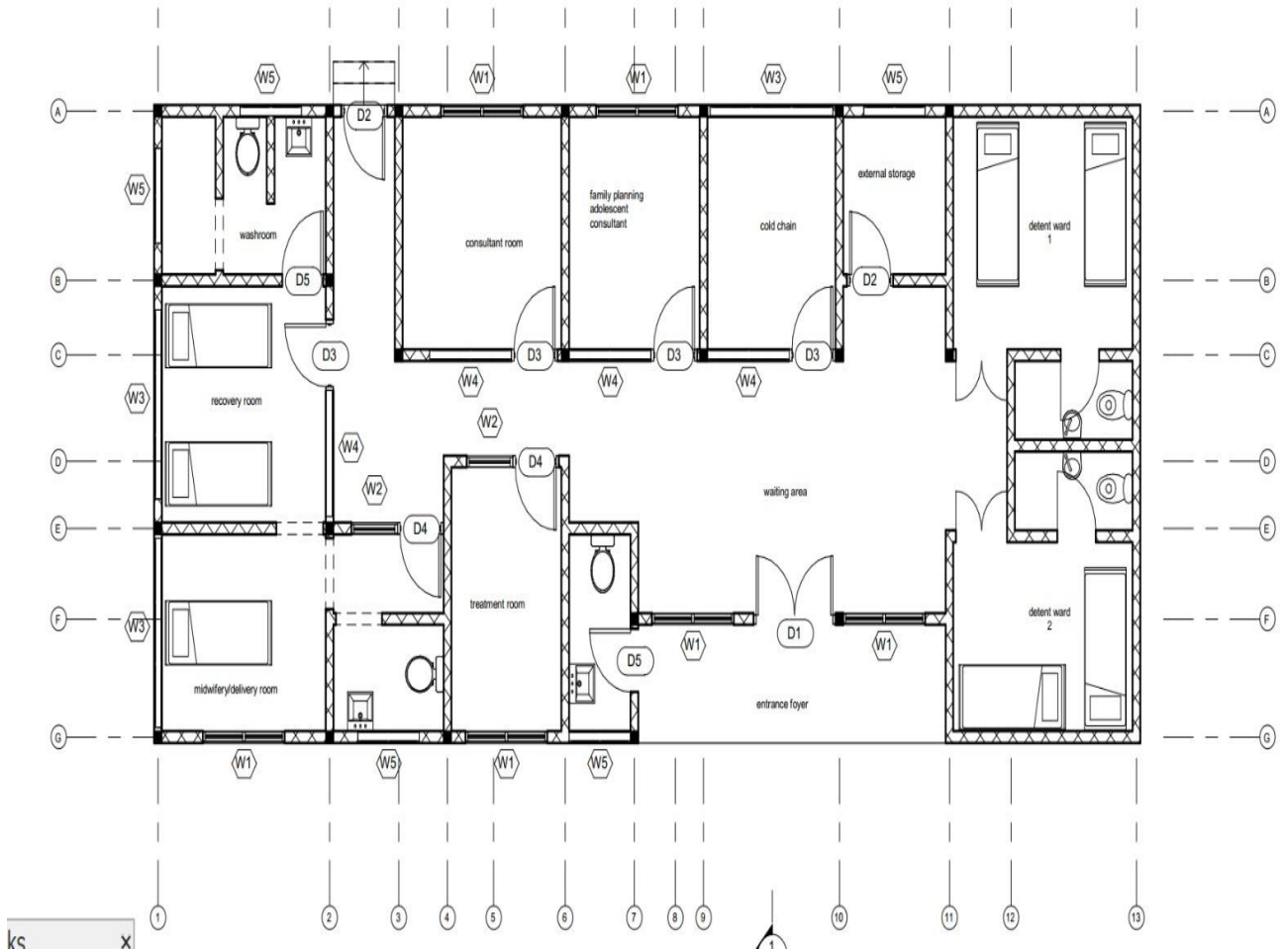
- 5.6. The Contractor shall caution men both verbally and in writing as to the danger involved in doing work within or adjacent to the electrical equipment on the various floors, and in plant rooms, due to the dangers caused by the presence of high voltages and current present in these areas.

SECTION IX. DRAWINGS

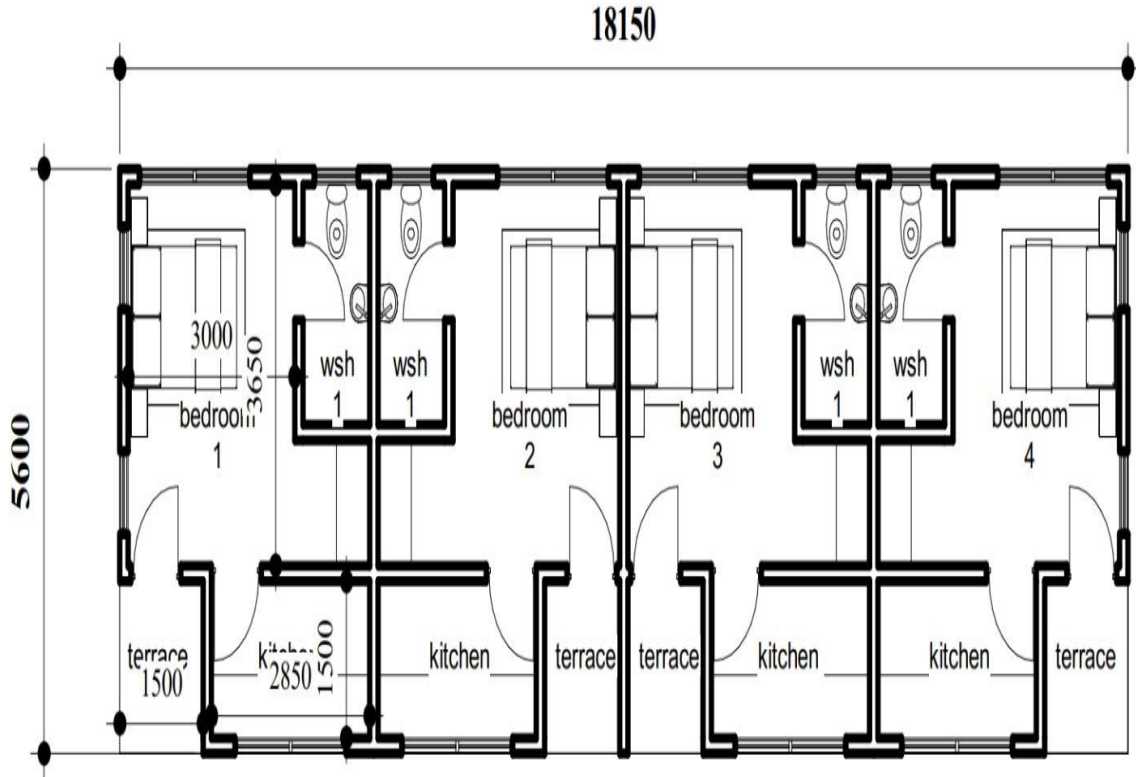
The Drawings are:

Serial No	Description	Reference
1	Project Signpost Layout Sketch	Tender Document
2	Project Signpost information	Tender Document
3	Project Grievance Redress Mechanism Signpost	Tender Document
4	Project Detailed Drawings: <ul style="list-style-type: none"> • General Arrangement Drawings • Elevations & Sections • Foundation Plans • Structural Details • Standard Details 	Available for viewing at the regional health directorate

PROJECT SIGN POST LAYOUT- CHPS COMPOUND

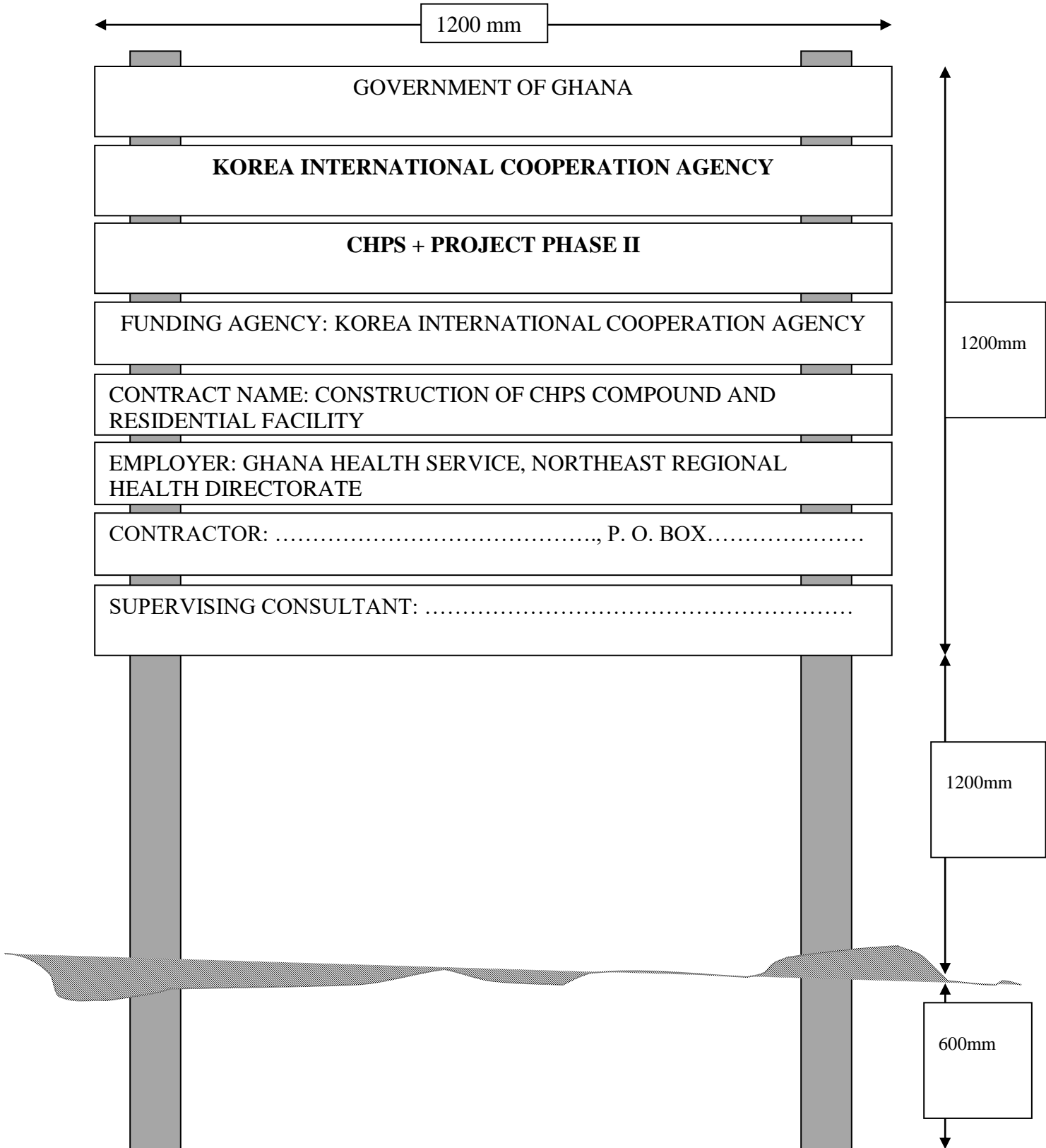


PROJECT SIGN POST LAYOUT- RESIDENTIAL FACILITY

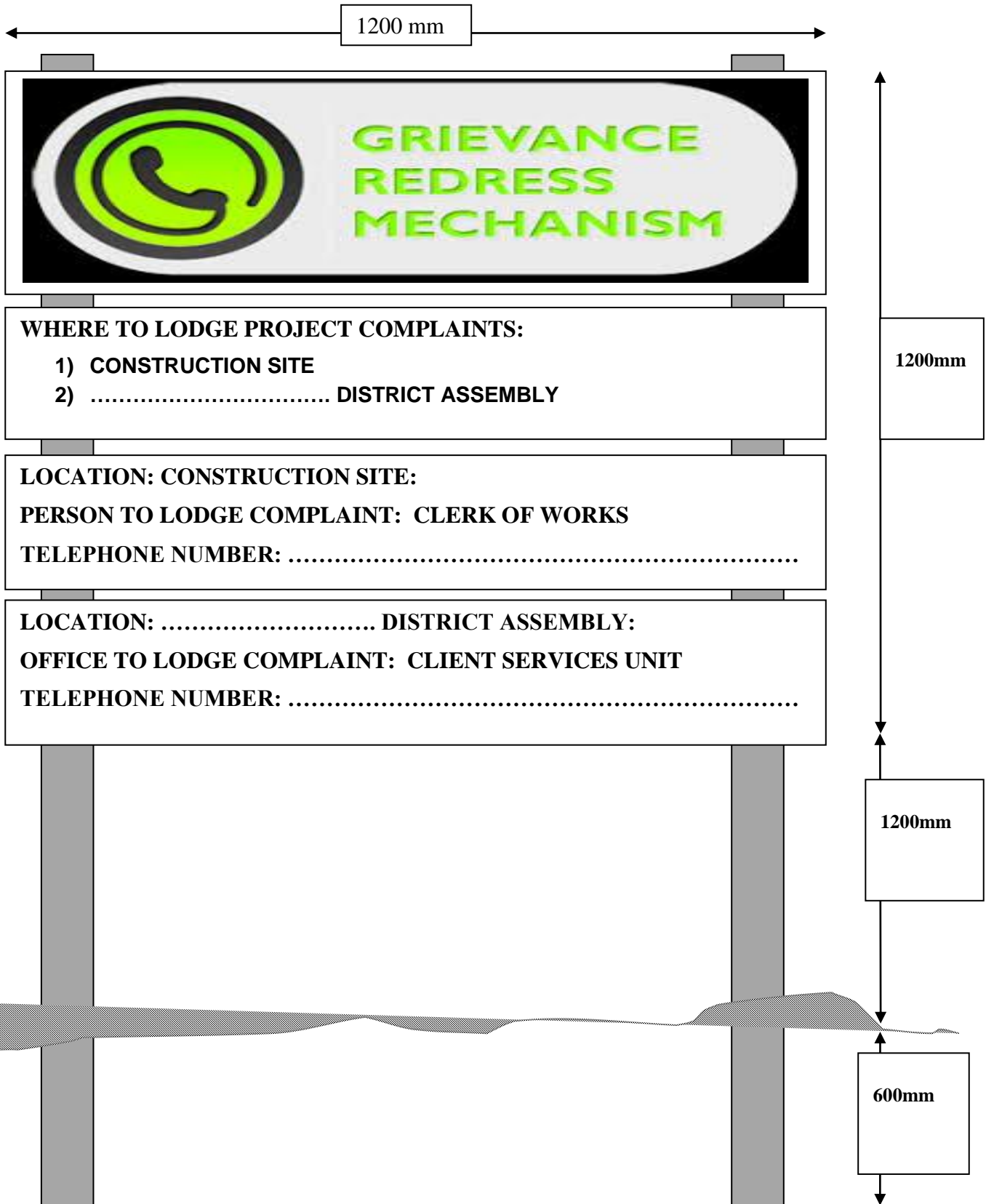


GROUND FLOOR PLAN

DETAILS OF CONTRACT SIGN POST



DETAILS OF COMPLAINTS SIGN POST



The Drawings are provided at the North East regional health directorate in a separate volume which forms part of these Tender Documents.

SECTION X. BILL OF QUANTITIES (BOQs)

PREAMBLE TO BILLS OF QUANTITIES

GENERAL NOTES

- 1.01** The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, Technical Specifications and Drawings.
- 1.02** The Clauses of this Preamble will apply to any additional or varied work which the Contractor may be required to execute under this Contract except where specifically amended or supplemented by the instructions given to him to carry out such work.
- 1.03** The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for tendering. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices tendered in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
- 1.04** The rates and prices tendered in the priced Bill of Quantities shall except in so far as it is otherwise provided under the Contract, include all constructional plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract.
- 1.05** A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
- 1.06** The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related item of Work.
- 1.07** General directions and descriptions of work and material are not necessarily repeated not summarized in the Bill of Quantities. References to the relevant sections of the contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.
- 1.08** Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer in accordance with Subclauses 1.1.4.10 and 13.5 of the Conditions of Contract.
- 1.09 Method of Measurement:**
- (i) The method of measurement of completed work for payment shall be in accordance with the Standard Method of Measurement of both Building and Civil

Engineering Works; SMM 7 and CESMM and as modified for use in Ghana. The net measurement or weight of the finished work in place will always be taken and, except where otherwise stated or separate items are provided, no allowance will be made for cutting, waste, laps or circular work.

- (ii) The quantities shall be computed net from the Drawings, unless directed otherwise by the Contract, and no allowance shall be made for bulking, shrinkage or waste.

1.10 The Employer will correct any arithmetical errors in computation or summation as follows:

- (i) where there is a discrepancy between amounts in figures and in words, the amount in words will govern; and
- (ii) where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit rate and quantity, the unit rate as quote will govern, unless in the opinion of the Employer, there is an obvious gross misplacement of the decimal point in the unit rate, in which event the total amount as quoted will govern and the unit rate will be corrected.

1.11 All items of work indicated in the Bills of Quantities shall be valued by measuring net, in the units of the Bills of Quantities such actual quantities of the Permanent Works as have been executed strictly in accordance with the Bidding Documents or further instructions issued in writing by the Engineer. No works shall be valued which have been executed in excess of the dimensions shown on the drawing or ordered by the Engineer. In particular, no allowance shall be made in the measurement of any excavation for working space, temporary works or the operation of construction plant.

1.12 In the Bills of Quantities, additional haulage will only be certified for those items expressly specified. All other haulage will be deemed to be included in the unit rates.

1.13 The Contractor shall be responsible for carrying out all necessary testing of materials for the Works and testing of any aspect of the works as required by the Specification and or as ordered by the Engineer whether or not such requirements are itemised in the Bills of Quantities.

1.14 All sizes and quantities have been entered in the Bills of Quantities in metric units. The following units of measurement and abbreviations shall be used:

UNIT	ABBREVIATION
Millimetre	mm
Metre	m
Square Millimetre	mm ² or sq. mm
Square Metre	m ² or sq. m
Hectare	ha or Ha
Cubic Metre	m ³ or cu.m
Kilogramme	kg
Tonne (1000kg)	t
Lump Sum	sum
Number	No. or Nr.
Kilometre	Km
Cubic metre - kilometre	m ³ km
Hour	hr.
Week	wk
Month(s)	mth
Vehicle Month	veh. mth
Man-Month	Man-mth

1.15 Definition of Rock

Rock is defined as all materials, which in the opinion of the Engineer require blasting, or the use of metal wedges and sledge hammers, or the use of compressed air drilling for its removal, and which cannot be extracted by ripping with a tractor of at least 150 brake hp. With a single rear mounted heavy duty ripper or as defined in the Technical Specification if this definition is at variance with that in the Technical Specifications.

1.16 Specification

The Clauses referred to under General Specification should be read in conjunction with the Particular Specifications.

2.0 NOTES ON THE PRICING OF THE SCHEDULE AND BILLS

2.01 The Bills of Quantities are not to be taken as sufficiently precise for ordering materials and the Contractors, in placing orders shall be guided by the actual requirements of the work.

2.02 The quantites are the net quantites taken from the drawings, and in pricing them the Contractor must allow for any increase in quantity and for any additional materials, and for use of materials and plant which may be required in the actual construction of the work any where on the works to meet the requirements of the Specification and Drawings. Where payments are based on weight, theoretical weights will be taken. All rates shall represent the total cost of the finished work complete and all as specified.

- 2.03** The rates for dismantling, removing, cutting away, demolishing etc. shall include for the removal of the material so obtained, stacking or depositing it on the site, or carting to tip as is applicable.
- 2.04** Except for trenches, the quantities of excavation shall be measured as the product of the net plan area of the foundations and the depth between agreed ground level and formation level of the structure. Allowance shall be made in the excavation rates for the excavation and handling of any of the material beyond the net plan area of the foundations of the Permanent works either to provide working space during construction, for timbering, or where the sides of the excavation are battered as an alternative to timbering and all contingencies and expenses necessary to complete the construction.
- 2.05** Where items of excavation are measured in stages, the volume measured shall be that between the depths or limits stated in the item and not from ground level in each case.
- 2.06** Where the ground surface is to be covered with embankment or fill of any description, the depth of excavation shall be measured from ground surface before being so covered, and after removal of top soil.
- 2.07** The rates of excavation shall, subject to Clause ___ include for excavation in whatever material may be found and shall include for breaking through surfaces, refilling excavations and ramming, removal and final disposal of surplus spoil, (except that arising from the importation of selected material), rehandling as often as necessary, temporary reinforcement and maintenance of surfaces in carriageways, or footpaths, permanent reinforcement of all surfaces other than in carriageways or footpaths, and every other expense in strict conformity with the Specification.
- 2.08** The rates for unreinforced, precast and reinforced concrete shall include for the supply of all necessary materials and for guaging, mixing, conveying, placing and consolidating, forming to correct slopes and falls as shown on drawings, for forming construction joints all specified, for protection and curing and every other expense in strict conformity with the Specification. All concrete shall be assumed to be Grade 25 mix unless otherwise specified. The rubbing down of exposed surfaces of concrete after removal of formwork is included in separate items.
- 2.09** **The rates for concrete sealing coat whether vertical, horizontal or sloping are to include for all formwork.**
- 2.10** Formwork for upper surfaces of members inclined at 30° or less to the horizontal is not measured in the Bill of Quantities and the cost of any such formwork used will be deemed included in the relevant concrete item.
- 2.11** The rates for formwork shall include for the supply, erection, use and waste of forms, whether straight or curved, fillets and chamfers up to 50mm wide on the splay, for coating to prevent adherence of concrete, for the provision of

temporary openings to facilitate other expense, in strict conformity with the Specification. Deduction will be made for openings more than 0.25 square metres in area and for pipes exceeding 600mm internal diameter.

2.12 The rates for preparation of existing concrete surfaces to receive new concrete shall include for the supply and fixing of all materials, cutting to length where necessary, mitred and angled cutting, forming holes through materials for dowel bars, etc., all jointing, bending and fixing in position and any other expense entailed in complying with the Specification.

2.13 The rates for reinforcement: The weight of main reinforcing bars has been billed to include for all hooked or bent ends all necessary laps, but the weights of distribution bars and the fabric reinforcement have been billed on the net lengths or areas required, and allowance must be made in the rates for these two types of reinforcement for the laps as specified or shown on the drawings.

2.14 Prices for steel reinforcement are to include delivery, sorting, handling, cutting to lengths, bending, hooking, hoisting and fixing in position, waste and for all tying wire. Steel fabric reinforcement is to be measured nett, no allowance being made for laps. Prices for steel fabric reinforcement are to include for all side and end laps, raking cutting and notching around obstructions. No allowance shall be made in the quantities for folling margin or binding wire.

2.15 Rates and Lump Sums to be for Work Complete

- (i) Notwithstanding any limits which may be implied by the wording of the individual items and/or the explanations in this Preamble, the rates and lump sums which the Contractor enters in the Bills of Quantities are to be for the work finished complete in every respect; he will be deemed to have taken full account of all requirements and obligations, whether expressed or implied, covered by parts of this Contract and to have priced the items herein: accordingly. The rates and lump sums must therefore include for all incidental and contingent expenses and risks of every kind necessary to construct, complete and maintain the whole of the works in accordance with the Contract.
- (ii) Items against which no rate or lump sum is entered by the Contractor, whether quantities are stated or not, will be regarded as covered by other rates in the Bills of Quantities.
- (iii) No claim will be considered for further payment in respect of any work or method of execution which may be described in the Contract or is inherent in the construction of the works, on account of (a) items having been omitted from the Bills of Quantities or (b) any omission from the wording of items or from clauses in the Preamble or (c) no mention of such work or method of execution having been made in the Preamble.

2.16 Rates and Lump Sums to Bear Proper Relation to Work Described

The rates and lump sums entered by the Contractor against all items in the Bills of Quantities must bear a proper relationship to the cost of carrying out the works described in the Contract; all other on-costs and similar charges which are applicable to the Contract as a whole are to be spread over all the rates in the Bills of Quantities, whilst those which apply to particular sections of the Contract are only to be spread over the items to which those sections refer.

2.17 Provisional Sums and Prime Cost Items

- (i) Provisional Sums and Prime Cost Items will be dealt with as provided for in the Conditions of Contract.
- (ii) Provisional Sums and Prime Costs are represented by the words “item” entered in the Unit column.

2.18 Interim Payment of Lump Sums for Permanent Work

Interim Payment under items of permanent work priced as lump sums will be made on the basis of the estimated percentage completion of the work covered by such items at the time to which interim measurement relates.

2.19 Payment of Lump Sums for General Items in Bill No. 1

- (i) Payment under the items for Bond and Insurances will be made on the basis of a proportion of the lump sums in the same ratio as the value of premiums charges actually paid bears to the total value of premiums or charges to effect the full insurances for the period of the Contract including the Maintenance Period.
- (ii) Payment under other items in Bill No. 1 will be made in each case on the basis of the estimated percentage completion of the work covered by such items at the time to which interim measurement relates.
- (iii) The rates entered against items for the Engineer’s Accommodation, Office and Testing of Materials shall include for the provision complete of the Buildings, Furniture and Equipment, provision of adequate samples, carriage paid and cost of testing by a designated Testing Authority.
- (iv) The rates entered against Plant and Equipment shall include for provision of all services, cleaning and general maintenance of the equipment including repair and replacement of expendable items and items subject to wear depreciation.
- (v) The rates entered against Labour shall include for all costs of recruiting, mobilizing, supporting and employing the staff specified for normal working hours including relief for normal leave and sickness.

2.20 Discount for Materials Supplied by The Employer

The Contractor's rates for all items of work shall include for supply and fixing. When the Employer for good reason has to supply materials for use by the Contractor in the Works. Which materials would normally have been provided by the Contractor under his contractual obligations, the Contractor's rate shall be reduced by the total cost of the materials so supplied, plus the incidental expenses incurred by the Employer to cover administrative, procurement and other charges. In this regard, the Contractor shall state in his quotation, a percentage discount of his rate that he is prepared to grant to the Employer to cover the administrative and procurement charges of such materials, otherwise the discount rate will be established by the Authorizing Authority.

2.21 Prime Cost Items

The Employer shall benefit from any discount allowed by a nominated subcontractor for prompt payment etc.

2.22 Discount

No discount will be allowed to the Contractor except on the "Adjustment Allowance" as stated in Clause 2.25. Items are included in the Bills of Quantities to enable the Contractor to price for profit and where applicable for attendance as defined below:

- (i) Attendance on nominated sub-contractors shall include for all or any of the following as appropriate.
- (ii) Labour, materials and plant required for taking delivery, carting, sorting, hoisting and builder's work entailed in fixing, erecting and installing as specified or in accordance with the manufacturer's instructions.
- (iii) When, in the opinion of the Engineer, it is reasonable to expect the Contractor to price the attendance items, it will be so included in the Bills of Quantities. In all other cases it will form the subject of a Provisional Sum to be expended on a Day-work-basis.

2.23 Profits shall include for establishment charges, profit and any other costs not included in the attendance item.

2.24 Provisional Sums or Prime Costs

The whole or any part of the Provisional or Prime Cost Sums not expended shall be deducted from the Contract Price.

2.25 Adjustment Allowance

The item for "Adjustment Allowance" in the GRAND SUMMARY may be inserted for the convenience of tenderers in making last minute adjustments to their Tender Price without the necessity of altering the unit rates and prices within the actual Bills themselves.

Notwithstanding the provisions of subclauses 6.4 and 6.5 of CESMM, where any such Allowance is entered, it shall be assessed by the Engineer as a percentage of the value of the Works in the GRAND SUMMARY, and shall be deemed to apply uniformly to all unit rates in the Bills of Quantities for the purposes of the Contract.

PREAMBLE TO DAY-WORKS SCHEDULE

1.0 GENERAL NOTES

Reference should be made to Clause 13.6 of the General Conditions. Work shall not be executed on a daywork basis except by written order of the Engineer. Bidders shall enter basic rates for daywork items in the Schedules, which rates shall apply to any quantity of daywork ordered by the Engineer. Nominal quantities have been indicated against each item of daywork, and the extended total for Daywork shall be carried forward as a Provisional Sum to the Summary Total Bid Amount. Unless otherwise adjusted, payments for daywork shall be subject to price adjustment in accordance with the provisions in the Conditions of Contract.

Daywork Labour

1. In calculating payments due to the Contractor for the execution of daywork, the hours for labour will be reckoned from the time of arrival of the labour at the job site to execute the particular item of daywork to the time of return to the original place of departure, but excluding meal breaks and rest periods. Only the time of classes of labour directly doing work ordered by the Engineer and for which they are competent to perform will be measured. The time of gangers (charge hands) actually doing work with the gangs will also be measured but not the time of foremen or other supervisory personnel.
2. The Contractor shall be entitled to payment in respect of the total time that labour is employed on daywork, calculated at the basic rates entered by the Contractor in the Schedule of Daywork Rates: 1. Labour, together with an additional percentage payment on basic rates representing the Contractor's profit, overheads, etc., as described below:
 - (a) The basic rates for labour shall cover all direct costs to the Contractor, including (but not limited to) the amount of wages paid to such labour, transportation time, overtime, subsistence allowances, and any sums paid to or on behalf of such labour for social benefits in accordance with the laws of the Republic of Ghana.
 - (b) The additional percentage payment to be quoted by the bidder and applied to costs incurred under (a) above shall be deemed to cover the Contractor's profit, overheads, superintendence, liabilities, and insurances and allowances to labour, timekeeping, and clerical and office work, the use of consumable stores, water, lighting, and power; the use and repair of stagings, scaffolding, workshops, and stores, portable power tools, manual plant, and tools; supervision by the Contractor's staff, foremen, and other supervisory personnel; and charges incidental to the foregoing.

Daywork Materials

3. The Contractor shall be entitled to payment in respect of materials used for daywork (except for materials for which the cost is included in the percentage addition to labour costs as detailed heretofore), at the basic rates entered by the Contractor in the Schedule

of Daywork Rates: 2. Materials, together with an additional percentage payment on the basic rates to cover overhead charges and profit, as follows:

- (a) the basic rates for materials shall be calculated on the basis of the invoiced price, freight, insurance, handling expenses, damage, losses, etc., and shall provide for delivery to store for stockpiling at the Site.
- (b) the additional percentage payment shall be quoted by the bidder and applied to the payments made under (a) above.
- (c) the cost of hauling materials for use on work ordered to be carried out as daywork from the store or stockpile on the Site to the place where it is to be used will be paid in accordance with the terms for Labour and Construction in this schedule.

Daywork Contractor's Equipment

- 4. The Contractor shall be entitled to payments in respect of Contractor's Equipment already on Site and employed on daywork at the basic rental rates entered by the Contractor in the Schedule of Daywork Rates: 3. Contractor's Equipment. Said rates shall be deemed to include due and complete allowance for depreciation, interest, indemnity, and insurance, repairs, maintenance, supplies, fuel, lubricants, and other consumables, and all overhead, profit, and administrative costs related to the use of such equipment. The cost of drivers, operators, and assistants will be paid for separately as described under the section on Daywork Labour.
- 5. In calculating the payment due to the Contractor for Contractor's Equipment employed on daywork, only the actual number of working hours will be eligible for payment, except that where applicable and agreed with the Engineer, the travelling time from the part of the Site where the Contractor's Equipment was located when ordered by the Engineer to be employed on daywork and the time for return journey thereto shall be included for payment.

Bill of Quantities

The Bill of Quantities for this Tender are presented in a separate volume in spread sheet which forms part of these Tender Documents

CONSTRUCTION OF PROPOSED CHPS COMPOUND WITH STAFF ACCOMMODATION IN NORTH EAST REGION UNDER KOICA CHPS+ PHASE II PROJECT					
ITEM	DESCRIPTION	QTY.	UNIT	RATE (GH¢)	AMOUNT (GH¢)
	<u>BILL NO. 1 - PRELIMINARIES / GENERAL CONDITIONS</u>				
	-				
A	Insurance : Allow a sum for Bid/Performance bond.				
	-				
	<u>A36. Employer's requirements:Facilities/Temporary work/Services</u>				
	-				
B	Provide for name boards		Item		
	-				
C	Allow for a Clerk of Works - Engineer's representative (6 months)	6	Months		
	<u>A40. Contractor's general cost items: Management and staff</u>				
E	Provide for Agent or Foreman-In-Charge (6 months)	6	Months		
	<u>A41. Contractor's general cost items: Site accommodation</u>				
F	Provide, service and maintain to the end of the works temporary shed and store on site for Contractor and staff		Item		

<u>A42. Contractor's general cost items: Services and facilities</u>			
G	Allow for water for the works	Item	
	-		
H	Allow for rubbish disposal and cleaning	Item	
J	Allow for small plant and tools	Item	
<u>A43. Contractor's general cost items: Temporary works</u>			
K	Provide for support scaffolding and propping	Item	
L	Engravement of the structure with approved material	Item	
M	Allow for setting out of works	tem	
<u>BILL NO. 1 - PRELIMINARIES / GENERAL CONDITIONS</u>			
CARRIED TO GENERAL SUMMARY			

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT(GH¢)
<u>BILL NO. 2: CLINICAL UNIT (CHPS)</u>					
<u>SUBSTRUCTURE WORKS</u>					
<u>D - GROUNDWORK</u>					
<u>D20 EXCAVATING AND FILLING</u>					
- <u>Site Preparation</u>					
a	Cut down trees exceeding 600mm but not exceeding 1500mm girth; grub up roots and fill void with laterite	3	nr		-
-					
b	Clear site of all weeds, undergrowth, bushes and shrubs; cut down small trees not exceeding 100mm girth; grub up roots rake to heaps and burn on site	351	m ²		-
<u>Excavating</u>					
c	Topsoil for preservation; average depth 150mm	154	m ²		-
d	Trenches; to receive foundations commencing at formation level; compacting bottoms of excavations 1.50m maximum depth	60	m ³		-
e	Excavate pits (34Nr); maximum depth; not exceeding 1.50m	4	m ³		-

f	Extra over excavation and disposal for breaking up rock/Fused laterite or concrete (provisional quantity)	3	m ³	-
	<u>Disposal</u>			
g	Excavated material offsite	41	m ³	-
	<u>Filling</u>			
h	Filling and compact to excavations; with selected excavated material around foundations exceeding 250mm average thick	21	m ³	-
j	Hardcore filling to make up levels, with selected laterite gravel obtained off site and compacted in layers not exceeding 225mm thick, average thickness exceeding 0.25m	101	m ³	-
k	Surface Treatment, anti termite chemicals sprayed at 225mm intervals in Hardcore filling to make up levels and Polythene sheet placed at compacted surface of hardcore filling	128	m ²	-
l	Filling to make up levels, around building with selected laterite gravel obtained off site and compacted, average thickness 150mm	27	m ³	-

	GROUNDWORK TOTAL CARRIED TO SUMMARY				-
	<u>IN SITU CONCRETE/LARGE PRECAST CONCRETE</u>				
	<u>E10 IN SITU CONCRETE</u>				
	<u>Plain in situ concrete Grade 15/20 as per Specification for Structural Concrete</u>				
a	- Blinding not exceeding 50mm thick	1	m ³		-
b	Beds not exceeding 150mm thick	23	m ³		-
	<u>Reinforced in situ concrete Grade 25/20 as per Specification for Structural Concrete</u>				
c	Strip foundations and Foundation Trenches, 225mm thick	15	m ³		-
d	Foundation columns and Columns bases	4	m ³		-
e	Steps and ramps	1	m ³		-
f	Ground Beam	5	m ³		-
	<u>E20 FORMWORK FOR IN SITU CONCRETE</u>				
	<u>Sawn formwork; plain; as per Specification for Structural Concrete to:</u>				

g	Sides of foundations	5	m	-
h	Edge of bed not exceeding 150mm	54	m	-
j	Sides of steps and ramps	6	m	-
k	Sides of Columns	21	m ²	-
l	Sides of Ground Beam	65	m ²	-
<u>E30 REINFORCEMENT FOR IN SITU CONCRETE</u>				
<u>Steel rod reinforcement to BS 4449; as per Specification for Structural Concrete</u>				
<u>Bars bent or straight</u>				
m	12mm diameter mild steel rod in column and column bases	0.80	t	-
n	10mm diameter mild steel rod Stirrups in columns	0.62	t	-
p	12mm diameter bar in ground beam	0.52	t	-
q	10mm diameter bar Stirrups in ground beam	0.46	t	-
<u>BRC - 8mm thick Steel fabric mesh reinforcement as 'BRC mesh No. A393 with 300mm minimum lap both ways (measured net), described in:</u>				
r	Floor bed - 150mm thick		m ²	-

IN SITU CONCRETE/LARGE PRECAST CONCRETE TOTAL CARRIED TO SUMMARY					-
-	<u>MASONRY</u>				
	<u>F10 BRICK/BLOCK WALLING</u>				
	<u>Solid sandcrete blockwork laid level and bedded and jointed in cement and sand mortar (1:4) as per Specification for Masonry in:</u>				
a	150mm thick Foundation walls	168	m ²		-
-					
-					
-					

	-				
	MASONRY TOTAL CARRIED TO SUMMARY				-
	<u>M -SURFACE FINISHES</u>				
	<u>M20 Plastered/Rendered/Rougcast coatings</u>				
a	- 13mm thick cement and sand rendering (1:6) on wall plinth externally	27	m ²		-
	-				
	-				
	-				

<u>M60 Painting/Clear finishing</u>				
b	- Prepare and apply three coats of Coral" Acrylic Emulsion paint on lower half below cill to wall plinth externally	27	m ²	-
	-			
	-			
	-			
	-			

	SURFACE FINISHES TOTAL CARRIED TO SUMMARY				-
	<u>SUBSTRUCTURE WORKS SUMMARY</u>				
D	GROUNDWORK				-
E	IN SITU CONCRETE/LARGE PRECAST CONCRETE				-
F	MASONRY				-
M	SURFACE FINISHES				-

-				
-				
-				
SUBSTRUCTURE WORKS TOTAL CARRIED TO GENERAL SUMMARY				

					-
<u>SUPERSTRUCTURE WORKS</u>					
<u>E - IN SITU CONCRETE/LARGE PRECAST CONCRETE</u>					
<u>E10 IN SITU CONCRETE</u>					
<u>Reinforced in situ concrete Grade 25/20 as per Specification for Structural Concrete</u>					
a	Columns	2	m ³		-
b	Roof beams and Lintel Belts	5	m ³		-
<u>E20 FORMWORK FOR IN SITU CONCRETE</u>					
<u>Sawn formwork; plain; as per Specification for Structural Concrete to:</u>					
d	Columns	45	m ²		-
e	Roof beams and Lintels	65	m ²		-

	<p><u>E30 REINFORCEMENT FOR IN SITU CONCRETE</u></p> <p><u>Steel rod reinforcement to BS 4449; as per Specification for Structural Concrete</u></p> <p><u>Bars bent or straight</u></p>				
g	12mm diameter mild steel rod in columns	0.30	t		-
h	10mm diameter mild steel rod Stirrups in columns	0.24	t		-
j	12mm diameter mild steel rod in Beams	0.50	t		-
k	10mm diameter mild steel rod Stirrups in Beams	0.48	t		-
IN SITU CONCRETE/LARGE PRECAST CONCRETE TOTAL CARRIED TO SUMMARY					-
	<p><u>F - MASONRY</u></p> <p><u>F10 BRICK/BLOCK WALLING</u></p> <p><u>Solid sandcrete blockwork laid level and bedded and jointed in cement and sand mortar (1:4) as per Specification for Masonry in:</u></p>				
a	125mm thick walls	335	m ²		-

	MASONRY TOTAL CARRIED TO SUMMARY			-
	<u>G - STRUCTURAL CARCASSING METAL/TIMBER</u>			
	<u>G20 CARPENTRY/TIMBER FRAMING/FIRST FIXING</u>			
	- <u>Structural hardwood timber roof members (prices to include for treating all timber with two coats of creosote or solignum or equally approved preservative before fixing in position)</u>			
	<u>Sawn "Dahoma" or approved equal hardwood as described</u>			
	- <u>Sawn Hardwood</u>			
a	50 x 150mm rafters nailed to hardwood	235	m	-
b	50 x 150mm Ridge board nailed to hardwood	20	m	-
c	50 x 150mm hipped board nailed to hardwood	85	m	-
b	50 x 150mm wall plate bolted into concrete/block work	140	m	-
c	50 x 100mm purlins nailed to hardwood	404	m	-

d	50mm x 100mm barge piece	65	m	-
e	50 x 50mm hardwood ceiling noggins	152	m	-
f	50 x 75mm hardwood ceiling joists/Hangers	415	m	-
	<u>Wrot hardwood</u>			
g	- 25 x 300mm fascia board	62	m	-
	<u>Metal work</u>			
h	- 6mm diameter mild steel; door/window clamps; 500mm long; including boring into hardwood	152	nr	-
j	10mm diameter, door dowels 250mm including boring into hardwood jambs	29	nr	-
k	6mm diameter Truss/Rafter anchors 3000mm long including casting into lintel belt and tying to trusses	68	nr	-
l	Ditto; purlin anchors; 500mm long	126	nr	-
m	Anchor bolt M-12 L=300	42	nr	-
n	Anchor bolt M-12 L=200	12	nr	-
STRUCTURAL/ CARCASSING METAL/TIMBER TOTAL CARRIED TO SUMMARY				-

<u>H- CLADDING/COVERING</u>					
<u>H31 METAL PROFILE/FLAT SHEET CLADDING/COVERING</u>					
<u>- Corrugated Aluminium Sheeting</u>					
<u>0.35mm long span Alu-Zinc IBR pre-coated corrugated roofing sheet nailed to hardwood purlins (measured separately) to slope not exceeding 50° from the horizontal with corrugation side laps including bituminous felt washers and drive screws, etc (measured net; no allowance made laps) in:</u>					
a	Roof covering - (Mono Pitched)	262	m ²	-	-
b	Ridge/Hip capping	77	m	-	-
c	Rain Gutter	24	m	-	-
-					
-					

	-				
	CLADDING/COVERING TOTAL CARRIED TO SUMMARY				-
	<p><u>K - LINING/SHEATHING/DRY PARTITIONING</u></p> <p><u>K10 PLASTERBOARD DRY LININGS/PARTITIONS/CEILINGS</u></p> <p><u>Plain sheet finishing</u></p>				
	-				

a	6mm hick (One-eighth) tplywood ceiling boarding nailed to hardwood noggings: Ceilings; internal	154	m ²	-
b	Ditto; External	34	m ²	-
	-			
	-			
	-			

	LINING/SHEATHING/DRY PARTITIONING TOTAL CARRIED TO SUMMARY				-
	<u>L - WINDOWS/DOORS/STAIRS</u>				
	<u>L10 WINDOWS/ROOF LIGHTS /SCREENS /LOUVRES</u>				
	<u>Aluminium louver carriers</u>				
	Supply and fix the following "naco" anodized aluminium louver carrier or approved equal as described:				
	-				
a	Pair; Louver carrier 1145mm Long with Clips for 8nr blades with dual control	41	nr		-
b	Pair; Louver carrier 900mm long with clips for 6nr blades	17	nr		-
c	Pair; Louver carrier 600mm long with clips for 4nr blades	45	nr		-
	-				
	<u>Hardwood; treated with preservative; wrought Frames (Windows)</u>				
d	50 x 150mm hardwood window frames plugged to block or concrete	209	m		-
	-				
	<u>Mosquito gauge, mainly fibre glass</u>				
e	Tygan aluminium net as insect proofing netting fixed to hardwood, framework with battens (measured separately)	53	m ²		-

f	50 x 50 x 2.5mm gauge galvanised steel welded mesh wire fixed to hardwood framework with battens (measured separately)	53	m ²	-
	<u>Burglar-proofing bars in high yield steel</u>			
g	16mm diameter mild steel bar in horizontal burglar proofing cut to size and fixed at 150mm centers including painting	158	m	-
-				
		To collection		-
	<u>L20 DOORS/SHUTTERS/HATCHES</u>			
-	<u>Timber/Metal doors</u>			

a	Paladin metal door overall size 1500 x 21000mm (Double)complete with all accessories and locking device fixed to the wall with the architraves flashing outside on the exterior walls (of the clinic)	1	nr	-
b	Ditto size 850mm x 2100mm(single) fixed to the interior	11	nr	-
c	Ditto size 750mm x 2100mm glass (single) fixed to the interior	3	nr	-
-	<u>L40 GENERAL GLAZING</u>			
	<u>Louver blades</u>			
	<u>6mm thick x 150mm wide plain louver blade as described fixed in louver carrier (measured separately)</u>			
d	- 750mm long plain/obscure louver glass blade cut to fit	488	nr	-
e	600mm long plain/obscure louver glass blade cut to fit	220	nr	-
-				
-				
-				
-				
-				

	-				
		To collection			-
	<p><u>COLLECTION</u></p> <p>Page 12</p> <p>Page 13</p>				-
	WINDOWS/DOORS/STAIRS TOTAL CARRIED TO SUMMARY				-
	<p><u>M - SURFACE FINISHES</u></p> <p><u>M10 CEMENT : SAND/CONCRETE SCREEDS/TOPPINGS</u></p> <p>- <u>19mm thick tile adhesive, cement and sand (1:1:3) screeded on concrete to receive floor tiles on:</u></p> <p>-</p>				
a	Floor bed	135	m ²		-

	<u>50mm thick cement and sand (1:3) screeded bed and backing on:</u>			
b	Steps, riser, and ramp	12	m ²	-
	<u>M40 STONE/CONCRETE/QUARRY/CERAMIC TILING/ MOSAIC</u>			
	- <u>Semi-Polished Porcelain floor tiling; 3mm joints; with 5mm thick adhesive cement ;grouting with matching</u>			
c	- 400 x 400 x 6mm thick units to screeded base plain; width exceeding 300mm	135	m ²	-
d	Ditto 300 x 300 x 6mm thick; do	19	m ²	-
e	Skirtings; 400mm x 100mm x 6mm thick semi-polished porcelain tiles; bedded and jointed in approved material	224	m	-
	<u>Ceramic wall tiling; gloss finish, 3 joints; with 5mm thick adhesive, grouting water repellent grout as per specification</u>			
f	250 x 400 x 6mm thick units on walls	114	m ²	-
	<u>M20 PLASTERED/RENDERED/ROUGHCAST COATINGS</u>			
	- <u>25mm thick cement and sand (1:4) smooth render on: Width exceeding 300mm width</u>			

<p>g</p>	<p>- Masonry walls - Externally <u>25mm thick cement and sand (1:4) smooth render on: Width exceeding 300mm width</u></p>	<p>102</p>	<p>m²</p>		<p>-</p>
<p>h</p>	<p>- Masonry walls - Internally <u>12mm thick cement and sand (1:3) screeded backing to receive wall tiles Width exceeding 400mm width</u></p>	<p>681</p>	<p>m²</p>		<p>-</p>
<p>i</p>	<p>- Wall - - - -</p>	<p>92</p>	<p>m²</p>		<p>-</p>
		<p>To collection</p>			<p>-</p>
<p><u>M60 PAINTING/CLEAR FINISHING</u> <u>Prepare surfaces, brush down and remove general loose debris; apply one undercoat and two finishing coats of 'Coral' acrylic emulsion paint or approved equal; applied with roller; as per manufacturer's specification on: Width exceeding 300mm width</u></p>					

a	Masonry walls Externally	102	m ²	-
b	Masonry walls Internally	681	m ²	-
c	Plywood ceiling Internally	188	m ²	-
	<u>Prepare surfaces, brush down and remove general loose debris; apply one undercoat and two finishing coats of 'Coral' gloss paint or approved equal; applied with roller; as per manufacturer's specification on: Width exceeding 300mm width</u>			
d	Steel/metal surfaces,	10	m ²	-
	-			
e	Wood surfaces, doors and windows, plywood under eaves	9	m ²	-
	<u>Width not exceeding 300mm width</u>			
f	Wood surfaces, fascia and barge board, cover battens, fillets under eaves, frames, stops	98	m	-
		To Collection		-
	<u>COLLECTION</u>			
	Page 14			

	Page 15				-
	-				-
	SURFACE FINISHES TOTAL CARRIED TO SUMMARY				-
	<u>N - FURNITURE/EQUIPMENT</u>				-
	<u>N10 General fixture/furnishings</u>				
	- <u>Hardwood shelves</u>				
a	- 50 x 100 hardwood for shelf frame	42	m		-
b	- 12mm plywood board for shelf boards	9	m ²		-
	<u>N13 SANITARY APPLIANCES/FITTINGS</u>				

	<u>Supply and fix the following sanitary appliances including assembling and jointing together:</u>			
c	Twyford' or other equal and approved white glazed vitreous China W.C. suite with open flushing rim and S trap outlet connection, hinged seats and cover, 9.0 litre cistern in white vitreous China with valveless, siphon fitting, 13mm overflow, screwed to wall with supporting brackets chromium plated cistern lever.	5	nr	-
d	Single bowl, single drainer stainless steel kitchen, 900 x 600mm sink with 1No. Swivel nozzle pillar tap for cold water connection, chrome plated chain waste and plug, bottle trap, brackets and fixing screws	0	nr	-
e	Ditto Single bowl, double drainer, do;	0	nr	-
f	Supply and Fix Low level, white glazed, ceramic wash hand basin complete with all fixing accessories as per TWYFORD	5	nr	-
	<u>Toilet Accessories</u>			
g	- Toilet roll holder in metal with satin aluminium finish, screw to wall. 19mmL x 76mmW x 45mmD Twford "Radiante" or approved equal	5	nr	-
h	Towel rail with chrome plated finish. Screw to wall. 650mmL x 82mmW x 50mmD Twford "Radiante" or approved equal	5	nr	-

j	Ditto Mirror; 560mm x 450mm; screwed through vulnerable material	5	nr	-
k	Ditto; Anti-rust towel hook	10	nr	-
l	Ditto; shower system with floor pvc drain complete with all accessories	4	nr	-
FURNITURE/EQUIPMENT TOTAL CARRIED TO SUMMARY				-
<u>P - BUILDING FABRIC SUNDRIES</u>				
<u>P10 SUNDRY INSULATION/PROOFING WORK/FIRE STOPS</u>				
<u>Approved Insulation</u>				
-				
55mm thick Ursa glass wool thermal insulation membrane, fixed in on plywood boarding with proprietary fixings as recommended by the manufacturer				
a	Sloping	0	m ²	-
<u>P20 UNFRAMED ISOLATED TRIMS/SKIRTINGS/SUNDRY ITEMS</u>				
-				
Cover battens, doors and windows, door stops				
b	15 x 45mm battens cut to size and nailed to hardwood	309	m	-
	Cover fillet, window stop			

c	20 x 20mm glazing beads cut to size and nailed to hardwood	268	m	-
d	Ceiling battens 12 x 50mm, fixing to plywood ceiling with nail	567	m	-
<u>P21 DOORS/WINDOW IRONMONGERY</u>				
- <u>Supply and fix the following ironmongery to hardwood with matching screws</u>				
e	100 x 75mm approved quality brass butt hinges, 3 pcs / door		nr	-
f	Approved Double Cylinder lock with turned in lever handle on back satin anodised aluminium finish		nr	-
g	Approved Mortice lock with turned in lever handle on back satin anodised aluminium finish		nr	-
- <u>PLAQUE</u>				
<u>Fix a plaque per Specification provided by the employer</u>				
h	Fix firmly an approved plaque supply by the client; 5000mm x 600mm x 25mm	1	nr	-
BUILDING FABRIC SUNDRIES TOTAL CARRIED TO SUMMARY				

				-
	<u>R - DISPOSAL SYSTEMS</u>			
	<u>R10 RAINWATER PIPE WORKS/GUTTERS</u>			
	<u>PVC Pipe Roof gutter and down pipe</u>			
a	Supply and fix approved 100mm diameter half round pvc rainwater gutter class "C" fixed to fascia with brackets at 1000mm centres	34	m	-
b	extra over for ends	4	nr	-
c	extra over for outlet spigot	2	nr	-
d	Supply and fix approved 100mm diameter pvc pipe class "O" rainwater pipe down pipe including all necessary accessories	6	m	-
e	100mm PVC bend	6	nr	-
f	Supply and Install Water Tank - 4500 Litres Capacity "Polytank Rambo 450" plastic water tank with 13mm brass tap mounted on surface water tank 1m high block work support	1	nr	-
	-			

	-				
	-				
	DISPOSAL SYSTEMS TOTAL CARRIED TO SUMMARY				-
	<u>S: PIPED SUPPLY SYSTEMS</u>				-
	<u>PVC pipes including Excavation, Backfilling, Bends, Joints, Tees, Reducers etc and all fittings</u> (provisional quantities)				
a	- 13mm diameter pipes, straight	36	m		-
b	19mm diameter pipes, straight	36	m		-

c	25mm diameter pipes, straight	36	m	-
d	32mm diameter pipes, straight	36	m	-
e	38mm diameter pipes, straight	36	m	-
f	50mm diameter pipes, straight	74	m	-
g	75mm diameter pipes, straight	68	m	-
h	100mm diameter pipes, straight	65	m	-
	<u>Galvanised pipes including bends joints etc and all fittings (provisional quantities)</u>			
j	19mm diameter pipes, straight	37	m	-
	<u>Accessories</u>			
k	13mm diameter Brass tap/ stop valve	5	nr	-
l	13mm diameter Brass stand tap	5	nr	-
m	19mm diameter Brass tap/stop valve	5	nr	-
-				

	PIPED SUPPLY SYSTEMS TOTAL CARRIED TO SUMMARY				-
	-				
	-				
	<u>V: ELECTRICAL SUPPLY/ POWER LIGHTING SYSTEMS</u>				
	-				
	<u>Y61 HV/ LV cables and wiring</u>				
	<i><u>LV Switchgear and distribution boards</u></i>				
	-				
a	Wiring of lighting and ceiling fan points using 1.5mm ² insulated, coloured, copper cables,	28	nr		-
b	Wiring of 13amp socket outlet points using 2.5mm ² insulated, copper cables in radial circuit; with a maximum of 4 points	32	nr		-
c	Wiring of 15amp socket outlet points using 2.5mm ² insulated, copper cables in radial circuit; with a maximum of 4 points	7	nr		-
	-				
	<u>Y71 LV switchgear and distribution boards</u>				
	-				
d	Supply and fix 12 -Way Consumer Unit;100A; TPN as per MEM/HARVELS including all accessories	1	nr		-

e	Supply and Install Cut Out Switches as per MEM/HARVELS GLASSGOW 100A	1	nr	-
	<u>Conduit and cable trunking</u>			
f	Connect from consumer unit to tail using 16mm ² insulated copper cables (provisional quantity)	250	m	-
g	20mm diameter PVC conduit pipes embedded into masonry (provisional quantity)	350	m	-
	<u>Y73 Luminaries and lamps</u>			
h	48watts LED Energy saving chargeable light complete fixed to ceiling straight lamp holder.	15	nr	-
j	18watts LED Energy saving chargeable light complete fixed to ceiling straight lamp holder.	8	nr	-
k	50 Watts LED external Security light fixed to wall	8	nr	-
	<u>Y74 Accessories for electrical services</u>			
l	Supply and fix 1400mm sweep ceiling fan complete with regulator; reference CROMPTON	10	nr	-
m	13 Amp flush mounting socket 50Hz; 240V rectangular hole	22	nr	-
n	15 Amp flush mounting socket 50Hz; 240V rectangular hole	6	nr	-
p	One gang, one way Tenby switches	9	nr	-

q	One gang, two way Tenby switches	1	nr	-
r	Straight design lamp holder (Batten fitting) fixed to sofit of Ceiling	32	nr	-
		To collection		-
a	Two gang, one way Tenby switches	3	nr	-
b	Three gang, one way Tenby switches	4	nr	-
c	75mm x 75mm metal conduit boxes (provisional quantity)	36	nr	-
d	150mm x 75mm metal conduit boxes (provisional quantity)	24	nr	-
e	Plastic circular boxes with cover complete (provisional quantity)	28	nr	-
f	Glazed worm pins	2	nr	-
	Junction Box of appropriate sizes	4	nr	-
	<u>Y80 Earthing and bonding components</u>			
f	0.60 x 0.60 copper mat made of 3 x 25mm copper tape and leading to and boldly bonded to 1.2m long 20mm diameter solid copper earth rod burried to a depth of 2.0m below ground level in a mixture of salt and charcoal	1	item	-
	<u>Y81 Testing and commissioning electrical services</u>			

g	Allow for testing all wiring and fittings to ensure complete functionality	1	item		-
		To collection			-
	<p>-</p> <p><u>COLLECTION</u></p> <p>Page 20</p> <p>Page 21</p> <p>-</p>				-

	ELECTRICAL SUPPLY/ POWER LIGHTING SYSTEMS TOTAL CARRIED TO SUMMARY				-
	<u>SUMMARY</u>				-
D	SUBSTRUCTURE				-
E	IN SITU CONCRETE/LARGE PRECAST CONCRETE				-
F	MASONRY				-
G	STRUCTURAL CARCASSING METAL/TIMBER				-
H	CLADDING/COVERING				-
K	LINING/SHEATHING/DRY PARTITIONING				-

L	WINDOWS/DOORS/STAIRS				-
M	SURFACE FINISHES				-
N	FURNITURE/EQUIPMENT				-
P	BUILDING FABRIC SUNDRIES				-
R	DISPOSAL SYSTEMS				-
S	PIPED SUPPLY SYSTEMS				-
V	ELECTRICAL SYSTEM WORK				-

	BILL NO. 2: CLINICAL UNIT (CHPS) CARRIED TO GENERAL SUMMARY			-

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT(GH¢)
	<u>BILL NO. 3: ACCOMMODATION</u>				
	<u>SUBSTRUCTURE WORKS</u>				
	<u>D - GROUNDWORK</u>				
	<u>D20 EXCAVATING AND FILLING</u>				
	-				
	<u>Site Preparation</u>				
a	Cut down trees exceeding 600mm but not exceeding 1500mm girth; grub up roots and fill void with laterite	3	nr	-	-
	-				
b	Clear site of all weeds, undergrowth, bushes and shrubs; cut down small trees not exceeding 100mm girth; grub up roots rake to heaps and burn on site	182	m ²	-	-

	<u>Excavating</u>				
c	Topsoil for preservation; average depth 150mm	182	m ²	-	-
d	Trenches; to receive foundations commencing at formation level; compacting bottoms of excavations 1.50m maximum depth	42	m ³	-	-
e	Excavate pits (15Nr); maximum depth; not exceeding 1.50m	4	m ³	-	-
f	Extra over excavation and disposal for breaking up rock/Fused laterite or concrete (provisional quantity)	2	m ³	-	-
	<u>Disposal</u>				
g	Excavated material offsite	22	m ³	-	-
	<u>Filling</u>				
h	Filling and compact to excavations; with selected excavated material around foundations exceeding 250mm average thick	26	m ³	-	-
j	Hardcore filling to make up levels, with selected laterite gravel obtained off site and compacted in layers not exceeding 225mm thick, average thickness exceeding 225mm	82	m ³	-	-

<p>k</p> <p>l</p>	<p>Surface Treatment, anti termite chemicals sprayed at 225mm intervals in Hardcore filling to make up levels and Polythene sheet placed at compacted surface of hardcore filling</p> <p>Filling to make up levels, around building with selected laterite gravel obtained off site and compacted, average thickness 150mm</p>	<p>102</p> <p>22</p>	<p>m²</p> <p>m³</p>	<p>-</p> <p>-</p>	<p>-</p> <p>-</p>
<p>GROUNDWORK TOTAL CARRIED TO SUMMARY</p>				<p>-</p>	
<p><u>IN SITU CONCRETE/LARGE PRECAST CONCRETE</u></p> <p><u>E10 IN SITU CONCRETE</u></p> <p><u>Plain in situ concrete Grade 15/20 as per Specification for Structural Concrete</u></p> <p>-</p> <p>a</p> <p>Blinding not exceeding 50mm thick</p> <p>Beds not exceeding 150mm thick</p>		<p>1</p> <p>15</p>	<p>m³</p> <p>m³</p>	<p>-</p> <p>-</p>	<p>-</p> <p>-</p>

	<u>Reinforced in situ concrete Grade 25/20 as per Specification for Structural Concrete</u>				
b	Strip foundations and Foundation Trenches, 225mm thick	11	m ³	-	-
c	Foundation columns and Columns bases	3	m ³	-	-
d	Steps and ramps	1	m ³	-	-
e	Ground Beam	1	m ³	-	-
	<u>E20 FORMWORK FOR IN SITU CONCRETE</u>				
	<u>Sawn formwork; plain; as per Specification for Structural Concrete to:</u>				
g	Sides of foundations	4	m	-	-
h	Edge of bed not exceeding 150mm	48	m	-	-
j	Sides of steps and ramps	4	m	-	-
k	Sides of Columns	10	m ²	-	-

l	Sides of Ground Beam	46	m ²	-	-
<u>E30 REINFORCEMENT FOR IN SITU CONCRETE</u>					
<u>Steel rod reinforcement to BS 4449; as per Specification for Structural Concrete</u>					
<u>Bars bent or straight</u>					
m	12mm diameter mild steel rod in column and column bases	0.28	t	-	-
n	10mm diameter mild steel rod Stirrups in columns	0.07	t	-	-
p	12mm diameter bar in ground beam	0.36	t	-	-
q	10mm diameter bar Stirrups in ground beam	0.28	t	-	-
<u>BRC - 8mm thick Steel fabric mesh reinforcement as 'BRC mesh No. A393 with 300mm minimum lap both ways (measured net), described in:</u>					
r	Floor bed - 150mm thick		m ²		-
IN SITU CONCRETE/LARGE PRECAST CONCRETE TOTAL CARRIED TO SUMMARY					-
<u>MASONRY</u>					

<u>F10 BRICK/BLOCK WALLING</u>					
	<u>Solid sandcrete blockwork laid level and bedded and jointed in cement and sand mortar (1:4) as per Specification for Masonry in:</u>				
a	150mm thick Foundation walls	116	m ²	-	-
	-				
	-				
	-				

	-				
	MASONRY TOTAL CARRIED TO SUMMARY				-
	<u>M -SURFACE FINISHES</u>				
	<u>M20 Plastered/Rendered/Rougcast coatings</u>				
a	- 25mm thick cement and sand rendering (1:6) on wall plinth externally	36	m ²	-	-
	-				
	-				
	<u>M60 Painting/Clear finishing</u>				
b	- Prepare and apply three coats of Coral" Acrylic Emulsion paint on lower half below cill to wall plinth externally	36	m ²		-

	SURFACE FINISHES TOTAL CARRIED TO SUMMARY			-
	<u>SUBSTRUCTURE WORKS SUMMARY</u>			
D	GROUNDWORK			-
E	IN SITU CONCRETE/LARGE PRECAST CONCRETE			-
F	MASONRY			-
M	SURFACE FINISHES			-
	-			

-					
-					
	SUBSTRUCTURE WORKS TOTAL CARRIED TO GENERAL SUMMARY				-
	<u>SUPERSTRUCTURE WORKS</u>				
	<u>E - IN SITU CONCRETE/LARGE PRECAST CONCRETE</u>				
	<u>E10 IN SITU CONCRETE</u>				

	<u>Reinforced in situ concrete Grade 25/20 as per Specification for Structural Concrete</u>				
a	Columns	1	m ³	-	-
b	Roof beams and Lintel Belts	4	m ³	-	-
c	Kitchen counters and bench top	2	m ³	-	-
	<u>E20 FORMWORK FOR IN SITU CONCRETE</u>				
	<u>Sawn formwork; plain; as per Specification for Structural Concrete to:</u>				
d	Columns	28	m ²	-	-
e	Roof beams and Lintels	54	m ²	-	-
f	Kitchen counters and bench top	62	m ²	-	-
	<u>E30 REINFORCEMENT FOR IN SITU CONCRETE</u>				
	<u>Steel rod reinforcement to BS 4449; as per Specification for Structural Concrete</u>				

	<u>Bars bent or straight</u>				
g	12mm diameter mild steel rod in columns	0.19	t	-	-
h	10mm diameter mild steel rod Stirrups in columns	0.17	t	-	-
j	12mm diameter mild steel rod in Beams	0.36	t	-	-
k	10mm diameter mild steel rod Stirrups in Beams	0.57	t	-	-
	IN SITU CONCRETE/LARGE PRECAST CONCRETE TOTAL CARRIED TO SUMMARY				-
	<u>F - MASONRY</u>				
	<u>F10 BRICK/BLOCK WALLING</u>				
	<u>Solid sandcrete blockwork laid level and bedded and jointed in cement and sand mortar (1:4) as per Specification for Masonry in:</u>				
a	125mm thick walls	268	m ²	-	-
	-				

-									
-									
-									
-									

	MASONRY TOTAL CARRIED TO SUMMARY				-
	<u>G - STRUCTURAL CARCASSING METAL/TIMBER</u>				
	<u>G20 CARPENTRY/TIMBER FRAMING/FIRST FIXING</u>				
	- <u>Structural hardwood timber roof members (prices to include for treating all timber with two coats of creosote or solignum or equally approved preservative before fixing in position)</u>				
	<u>Sawn "Dahoma" or approved equal hardwood as described</u>				
	- <u>Sawn Hardwood</u>				
	-				
a	50 x 150mm rafters nailed to hardwood	195	m	-	-
b	50mm x 150mm Ridge Board (doubled)	24	m	-	-
c	50mm x 150mm Hipped board (doubled)	40	m	-	-
d	50 x 150mm wall plate bolted into concrete/block work	104	m	-	-

e	50 x 100mm purlins nailed to hardwood	299	m	-	-
f	50mm x 100mm barge piece	34	m	-	-
g	50 x 50mm hardwood ceiling noggins	471	m	-	-
h	50 x 75mm hardwood ceiling joists/Hangers	179	m	-	-
	<u>Wrot hardwood</u>				
	-				
j	25 x 300mm fascia board	54	m	-	-
	<u>Metal work</u>				
	-				
h	6mm diameter mild steel; door/window clamps; 500mm long; including boring into hardwood	125	nr	-	-
j	10mm diameter, door dowels 250mm including boring into hardwood jambs		nr	-	-
k	6mm diameter Truss/Rafter anchors 3000mm long including casting into lintel belt and tying to trusses	74	nr	-	-
l	Ditto; purlin anchors; 500mm long	102	nr	-	-

m	Anchor bolt M-12 L=300	45	nr	-	-
n	Anchor bolt M-12 L=200	16	nr	-	-
STRUCTURAL/ CARCASSING METAL/TIMBER TOTAL CARRIED TO SUMMARY					-
<u>H- CLADDING/COVERING</u>					
<u>H31 METAL PROFILE/FLAT SHEET CLADDING/COVERING</u>					
- <u>Corrugated Aluminium Sheeting</u>					
<u>0.35mm long span Alu-Zinc IBR pre-coated corrugated roofing sheet nailed to hardwood purlins (measured separately) to slope not exceeding 50° from the horizontal with corrugation side laps including bituminous felt washers and drive screws, etc (measured net; no allowance made laps) in:</u>					
a	Roof covering - (hipped)	207	m ²	-	-
b	Ridge/Hip capping	32	m	-	-

c	Rain Gutter	52	m	-	-
	-				
	-				
	-				

	CLADDING/COVERING TOTAL CARRIED TO SUMMARY				-
	<u>K - LINING/SHEATHING/DRY PARTITIONING</u>				
	<u>K10 PLASTERBOARD DRY LININGS/PARTITIONS/CEILINGS</u>				
	<u>Plain sheet finishing</u>				
	-				
a	6mm hick (One-eighth) plywood ceiling boarding nailed to hardwood noggings: Ceilings; internal	102	m ²	-	-
b	Ditto; External	29	m ²	-	-
	-				
	-				

-					
	LINING/SHEATHING/DRY PARTITIONING TOTAL CARRIED TO SUMMARY				-
	<p><u>L - WINDOWS/DOORS/STAIRS</u></p> <p><u>L10 WINDOWS/ROOF LIGHTS /SCREENS /LOUVRES</u></p> <p><u>Aluminium louver carriers</u></p> <p><u>Supply and fix the following "naco" anodized aluminium louver carrier or approved equal as described:</u></p> <p>-</p>				

a	Pair; Louver carrier 1145mm Long with Clips for 8nr blades with dual control	12	nr	-	-
	Pair; Louver carrier 859mm long with clips for 6nr blades	6	nr	-	-
b	Pair; Louver carrier 600mm long with clips for 4nr blades	9	nr	-	-
	- <u>Hardwood; treated with preservative; wrought Frames (Windows)</u>				
c	50 x 150mm hardwood window frames plugged to block or concrete	109	m	-	-
	- <u>Mosquito gauge, mainly fibre glass</u>				
d	Tygan aluminium net as insect proofing netting fixed to hardwood, framework with battens (measured separately)	40	m ²	-	-
e	50 x 50 x 2.5mm gauge galvanised steel welded mesh wire fixed to hardwood framework with battens (measured separately)	40	m ²	-	-
	<u>Burglar-proofing bars in high yield steel</u>				
f	16mm diameter mild steel bar in horizontal burglar proofing cut to size and fixed at 150mm centers including painting	172	m	-	-

		To collection			-
	<p><u>L20 DOORS/SHUTTERS/HATCHES</u></p> <p>-</p> <p><u>Timber/Metal doors</u></p> <p>a Paladin metal door overall size 850 x 2050mm (Single)complete with all accessories and locking device fixed to the wall with the architraves</p> <p>flashing outside on the exterior walls (of the clinic)</p> <p>b Ditto size 850mm x 2100mm(single) fixed to the interior</p> <p>b Ditto size 750mm x 2100mm glass (single) fixed to the</p>				

	interior	4	nr	-	-
	<u>Hardwood Timber Framed Doors</u>				
	- <u>45mm (finished) quality hardwood framed insect proof door in 'Asanfona' or approved equal fixed to masonry</u>				
c	1500 x 2050mm high door in double-leaf (D4)	0	nr	-	-
	<u>Hardwood; treated with preservative; wrought Frames (Doors)</u>				
d	50 x 150mm hardwood door frames plugged to block or concrete		m	-	-
	-				
	<u>L40 GENERAL GLAZING</u>				
	<u>Louver blades</u>				
	<u>6mm thick x 150mm wide plain louver blade as described fixed in louver carrier (measured separately)</u>				
	-				
d	600mm long plain/obscure louver glass blade cut to fit	0	nr	-	-
e	750mm long plain/obscure louver glass blade cut to fit	230	nr	-	-

		To collection			-
	<u>COLLECTION</u>				
	Page 12				-
	Page 13				-
	WINDOWS/DOORS/STAIRS TOTAL CARRIED TO SUMMARY				-
	<u>M - SURFACE FINISHES</u>				
	<u>M10 CEMENT : SAND/CONCRETE SCREEDS/TOPPINGS</u>				
	- <u>19mm thick tile adhesive, cement and sand (1:1:3) screeded on to receive floor tiles on;</u>				
a	Floor bed	102	m ²	-	-
	<u>50mm thick cement and sand (1:3) screeded bed and backing on:</u>				
b	Floor bed	0	m ²	-	-

	<u>30mm thick cement and sand (1:3) screeded bed and backing on:</u>				
c	Steps, riser, and ramp	12	m ²	-	-
	<u>M20 PLASTERED/RENDERED/ROUGHCAST COATINGS</u>				
	- <u>25mm thick cement and sand (1:4) smooth render on:</u> <u>Width exceeding 300mm width</u>				
	-				
d	Masonry walls - Externally & Internally	522	m ²	-	-
	<u>14mm thick cement and sand (1:3) screeded backing</u> <u>to receive wall tiles Width exceeding 300mm width</u>				
e	Masonry walls, kitchen counter	52	m ²	-	-
	<u>M40. Stone/Concrete/Quarry/Ceramic tiling/Mosaic</u>				
	- <u>Tiles plain fixed on backings or beds with adhesive,</u> <u>pointed and grouted in approved coloured grout to match</u> <u>as described in:</u>				
f	400 x 400 x 10mm thick semi-polished porcelain floor tiles, level with non-slip nosing.	95	m ²	-	-
g	300 x 300 x 10mm thick non-slip porcelain floor				

	tiles, level	8	m ²	-	-
h	250 x 400 x 10mm thick wall tiling or any other approved equal laid to ceiling height.	55	m ²	-	-
i	Skirtings; 400mm x 100mm x 6mm thick semi-polished porcelain tiles; bedded and jointed in approved material	157	m	-	-
		To Collection			-
a	<p><u>M60 PAINTING/CLEAR FINISHING</u></p> <p><u>Prepare surfaces, brush down and remove general loose debris; apply one undercoat and two finishing coats of 'Coral" acrylic emulsion paint or approved equal; applied with roller; as per manufacturer's specification on:</u></p> <p>Width exceeding 300mm width</p> <p>Masonry walls Externally & Internally</p>	522	m ²		-

				-	
	Ditto, but isolated surfaces.	3	m ²	-	-
b	Plywood ceiling	130	m ²	-	-
c	Wood surfaces, shelves	18	m	-	-
	<u>Prepare surfaces, brush down and remove general loose debris; apply one undercoat and two finishing coats of 'Coral" gloss paint or approved equal; applied with roller; as per manufacturer's specification on: Width exceeding 300mm width</u>				
d	Steel/metal surfaces, -	5	m ²	-	-
e	Wood surfaces, doors and windows, plywood under eaves	16	m ²	-	-
	<u>Width not exceeding 300mm width</u>				
f	Wood surfaces, fascia and barge board, cover battens, fillets under eaves, frames, stops	8	m	-	-
		To Collection			-

	<u>COLLECTION</u>				
	Page 14				-
	Page 15				-
	-				
	SURFACE FINISHES TOTAL CARRIED TO SUMMARY				-
	<u>N - FURNITURE/EQUIPMENT</u>				-
	<u>N10 General fixture/furnishings</u>				
	-				
	<u>Hardwood shelves</u>				
	-				
a	50 x 100 hardwood for shelf frame	102	m	-	-
	-				

b	12mm plywood board for shelf boards	24	m ²	-	-
-					
<u>N13 SANITARY APPLIANCES/FITTINGS</u>					
<u>Supply and fix the following sanitary appliances including assembling and jointing together:</u>					
c	Twyford' or other equal and approved white glazed vitreous China W.C. suite with open flushing rim and S trap outlet connection, hinged seats and cover, 9.0 litre cistern in white vitreous China with valveless, siphon fitting, 13mm overflow, screwed to wall with supporting brackets chromium plated cistern lever.	4	nr	-	-
d	Single bowl, Double drainer stainless steel kitchen, (DDSB) sink with 1No. Swivel nozzle pillar tap for cold water connection, chrome plated chain waste and plug, bottle trap, brackets and fixing screws	4	nr	-	-
e	Supply and Fix Low level, white glazed, ceramic wash hand basin complete with all fixing accessories as per TWYFORD	4	nr	-	-
<u>Toilet Accessories</u>					
-					
f	Toilet roll holder in metal with satin aluminium finish, screw to wall. 19mmL x 76mmW x 45mmD Twford	4	nr	-	-
	"Radiante" or approved equal	4	nr	-	-

g	Towel rail with chrome plated finish. Screw to wall. 650mmL x 82mmW x 50mmD Twford "Radiante" or approved equal	4	nr	-	-
h	Ditto Mirror; 560mm x 450mm; screwed through vulnerable material	4	nr	-	-
j	Ditto; Anti-rust towel hook	4	nr	-	-
k	Ditto; shower system with floor pvc drain complete with all accessories	4	nr	-	-
FURNITURE/EQUIPMENT TOTAL CARRIED TO SUMMARY					-
<u>P - BUILDING FABRIC SUNDRIES</u>					
<u>P10 SUNDRY INSULATION/PROOFING WORK/FIRE STOPS</u>					
<u>Approved Insulation</u>					
-					
55mm thick Ursa glass wool thermal insulation membrane, fixed in on plywood boarding with proprietary fixings as recommended by the manufacturer					
a	Sloping	0	m ²		-
<u>P20 UNFRAMED ISOLATED TRIMS/SKIRTINGS/SUNDRY ITEMS</u>					

	- Cover battens, doors and windows, door stops				
b	15 x 45mm battens cut to size and nailed to hardwood	111	m	-	-
	Cover fillet, window stop				
c	20 x 20mm glazing beads cut to size and nailed to hardwood	38	m	-	-
d	Ceiling battens 12 x 50mm, fixing to plywood ceiling with nail	407	m	-	-
	<u>P21 DOORS/WINDOW IRONMONGERY</u>				
	- <u>Supply and fix the following ironmongery to hardwood with matching screws</u>				
e	100 x 75mm approved quality brass butt hinges, 3 pcs / door		nr		-
f	Approved Double Cylinder lock with turned in lever handle on back satin anodised aluminium finish		nr		-
g	Approved Mortice lock with turned in lever handle on back satin anodised aluminium finish		nr		-
	- <u>PLAQUE</u>				
	<u>Fix a plaque per Specification provided by the employer</u>				

h	Fix firmly an approved plaque supply by the client; 5000mm x 600mm x 25mm	1	nr	-	-
BUILDING FABRIC SUNDRIES TOTAL CARRIED TO SUMMARY					-
<u>R - DISPOSAL SYSTEMS</u>					
<u>R10 RAINWATER PIPE WORKS/GUTTERS</u>					
<u>PVC Pipe Roof gutter and down pipe</u>					
a	Supply and fix approved 150mm diameter half round pvc rainwater gutter class "C" fixed to fascia with brackets at 1000mm centres	52	m	-	-
b	extra over for ends	4	nr	-	-
c	extra over for outlet spigot	2	nr	-	-
d	Supply and fix approved 100mm diameter pvc pipe class "O" rainwater pipe down pipe including all necessary accessories	12	m	-	-
e	100mm PVC bend	8	nr	-	-

<u>S: PIPED SUPPLY SYSTEMS</u>					
	<u>PVC pipes including Excavation, Backfilling, Bends, Joints, Tees, Reducers etc and all fittings</u> <u>(provisional quantities)</u>				
	-				
a	13mm diameter pipes, straight	64	m	-	-
b	19mm diameter pipes, straight	62	m	-	-
c	25mm diameter pipes, straight	64	m	-	-
d	32mm diameter pipes, straight	66	m	-	-
e	38mm diameter pipes, straight	63	m	-	-
f	50mm diameter pipes, straight	106	m	-	-
g	75mm diameter pipes, straight	102	m	-	-
h	100mm diameter pipes, straight	110	m	-	-
	<u>Galvanised pipes including bends joints etc and</u>				

	<u>all fittings (provisional quantities)</u>				
j	19mm diameter pipes, straight	48	m	-	-
	<u>Accessories</u>				
k	13mm diameter Brass tap/ stop valve	4	nr	-	-
l	13mm diameter Brass stand tap	4	nr	-	-
m	19mm diameter Brass tap/stop valve	4	nr	-	-
	-				
PIPED SUPPLY SYSTEMS TOTAL CARRIED TO SUMMARY					-
	-				
	-				

<u>V: ELECTRICAL SUPPLY/ POWER LIGHTING SYSTEMS</u>					
<u>Y61 HV/ LV cables and wiring</u>					
<i><u>LV Switchgear and distribution boards</u></i>					
-					
a	Wiring of lighting and ceiling fan points using 1.5mm ² insulated, coloured, copper cables,	22	nr	-	-
b	Wiring of 13amp twin socket outlet points using 2.5mm ² insulated, copper cables in radial circuit; with a maximum of 4 points	28	nr	-	-
c	Wiring of 15amp socket outlet points using 2.5mm ² insulated, copper cables in radial circuit; with a maximum of 4 points	6	nr	-	-
-					
<u>Y71 LV switchgear and distribution boards</u>					
-					
d	Supply and fix 6 -Way Consumer Unit;100A; TPN as per MEM/HARVELS including all accessories	4	nr	-	-
e	Supply and Install Cut Out Switches as per MEM/HARVELS GLASSGOW 100A	4	nr	-	-
<i><u>Conduit and cable trunking</u></i>					
f	Connect from consumer unit to tail using 16mm ² insulated copper cables (provisional quantity)	400	m	-	-
g	20mm diameter PVC conduit pipes embedded into masonry (provisional quantity)	525	m	-	-

	<u>Y73 Luminaries and lamps</u>				
h	48watts LED Energy saving chargeable light complete fixed to ceiling straight lamp holder.	22	nr	-	-
j	18watts LED Energy saving chargeable light complete fixed to ceiling straight lamp holder.	4	nr	-	-
k	50 Watts LED external Security light fixed to wall	6	nr	-	-
	<u>Y74 Accessories for electrical services</u>				
l	Supply and fix 1400mm sweep ceiling fan complete with regulator; reference CROMPTON	4	nr	-	-
m	13 Amp twin flush mounting socket 50Hz; 240V rectangular hole	28	nr	-	-
n	15 Amp twin flush mounting socket 50Hz; 240V rectangular hole	6	nr	-	-
p	One gang, one way Tenby switches	8	2	-	-
q	One gang, two way Tenby switches	8	nr	-	-
r	Straight design lamp holder (Batten fitting) fixed to sofit of Ceiling	22	nr	-	-

		To Collection			-
	-				
a	Two gang, one way Tenby switches	2	nr	-	-
b	Three gang, one way Tenby switches	2	nr	-	-
c	75mm x 75mm metal conduit boxes (provisional quantity)	42	nr	-	-
d	75mm x 150mm metal conduit boxes (provisional quantity)	21	nr	-	-
e	Plastic circular boxes with cover complete (provisional quantity)	40	nr	-	-
f	Glazed worm pins	4	nr	-	-
g	Junction box of appropriate size	4	nr	-	-
	<u>Y80 Earthing and bonding components</u>				
h	0.60 x 0.60 copper mat made of 3 x 25mm copper tape and leading to and boldly bonded to 1.2m long 20mm diameter solid copper earth rod buried to a depth of 2.0m below ground level in a mixture of salt and charcoal	1	item	-	-
	<u>Y81 Testing and commissioning electrical services</u>				

h	Allow for testing all wiring and fittings to ensure complete functionality	1	item	-	-
		To Collection		-	
<p>-</p> <p><u>COLLECTION</u></p> <p>Page 20</p> <p>Page 21</p> <p>-</p>				-	-

	ELECTRICAL SUPPLY/ POWER LIGHTING SYSTEMS TOTAL CARRIED TO SUMMARY				-
	<u>SUMMARY</u>				-
D	SUBSTRUCTURE				-
E	IN SITU CONCRETE/LARGE PRECAST CONCRETE				-
F	MASONRY				-
G	STRUCTURAL CARCASSING METAL/TIMBER				-
H	CLADDING/COVERING				-
K	LINING/SHEATHING/DRY PARTITIONING				-

L	WINDOWS/DOORS/STAIRS					-
M	SURFACE FINISHES					-
N	FURNITURE/EQUIPMENT					-
P	BUILDING FABRIC SUNDRIES					-
R	DISPOSAL SYSTEMS					-
S	PIPED SUPPLY SYSTEMS					-
V	ELECTRICAL SYSTEM WORK					-

BILL NO. 2: ACCOMMODATION CARRIED TO GENERAL SUMMARY	-
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ITEM	DESCRIPTION	QTY.	UNIT	RATE (GH¢)	AMOUNT (GH¢)
	<u>BILL NO. 5-EXTERNAL WORKS</u>				
b	Include a provisional sum of Thirty Thousand Ghana Cedis (GH¢30,000.00) for levelling and neatening of compound with approve gravel and 19mm chippings	N/A	sum		30,000.00
e	Include a provisional sum of Thirty Thousand Ghana Cedis (GH¢30,000.00) for construction of Septic tank and connected to both Clinical unit and accommodation inclusive of all it associated plumbing connections	N/A	sum		30,000.00

<p>Include a provisiona sum of Twenty Thousand Ghana Cedis (GH¢20,000.00)for extension & connection of electricity from national Grid to buildings</p>		<p>sum</p>		<p>20,000.00</p>
<p><u>BILL NO. 5- EXTERNAL WORKS</u> CARRIED TO GENERAL SUMMARY</p>				<p>80,000.00</p>

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT(Gh¢)
A	Bill No. 1 : PRELIMINARIES				-
B	Bill No. 2 : CLINICAL UNIT (CHPS)				-
C	Bill No. 3: 2 APARTMENT UNIT				-
D	Bill No. 4 EXTERNAL WORKS				80,000.00
- SUB-TOTAL (A)					

					80,000.00
	Add for Contingency @ 5%				4,000.00
	TOTAL COST CARRIED TO FORM OF TENDER				84,000.00

Name of Contractor [

Registered Office [

Address [

Telephone Number [

Signature [

Date

[