



Republic of Sierra Leone

Standard Bidding Documents

**Procurement of Works
National Competitive Bidding**

Bank of Sierra Leone

**REHABILITATION OF THE BANK
OF SIERRA LEONE'S MIDDLE
HILL RESIDENCE AT HILL
STATION, FREETOWN**

Procurement Number: BSL/GSD/NCB/2024/0032

Date of Issue: 13th February 2024

Table of Contents

Section I: Invitation for Bids	3
Section II. Instructions to Bidders	4
Table of Clauses	5
Section III Bidding Data	13
Section IV. Standard Forms	15
Table of Standard Forms	16
Section V. Conditions of Contract	25
Table of Clauses	26
Section VI. Contract Data	40
Section VII. Specifications	43
Section VIII. Drawings	45
Section IX. Bill of Quantities	46
Section X. Bank Guarantee Form for Advance Payment	47
Section XI. Format of Bid Security	48

Section I. Invitation for Bids (IFB)

Bank of Sierra Leone

REHABILITATION OF THE BANK OF SIERRA LEONE'S MIDDLE HILL RESIDENCE AT HILL STATION, FREETOWN

Procurement Number: BSL/GSD/NCB/2024/0032

Date of First Issue: February 13, 2024.

The Bank of Sierra Leone has allocated funds from its 2024 budget for the Rehabilitation of the Bank of Sierra Leone's Middle Hill Residence, Hill Station and now invites sealed bid from Premier Class Contractors for the said Works.

Bidders are required to visit the site and can obtain further information from the address below.

Bids must be delivered to the address below on or before February 27, 2024 at 12:00 p.m. All bids must be accompanied by:

- Bid Security of NLe134,000.00 (One hundred and thirty-four thousand New Leones) from a Commercial Bank.**
- Business Registration Certificate**
- A valid NRA Tax Certificate**
- A valid NASSIT Clearance Certificate**
- A valid Municipal License**
- Works Certificate from the Ministry of Works and Public Assets.**
- Company profile**
- Works Program**
- Evidence of similar contracts performed.**

Bidders must make payment of a non-refundable fee of NLe500.00 (Five hundred New Leones) for the Bidding Document in the Single Treasury Account at the Bank of Sierra Leone or any of the Transit Accounts with details as shown below and immediately submit the Bank Pay-in-Slip to the Procurement Unit, 8th Floor, Main Bank Building for issuance of receipt and collection of the bidding document.

Account Name: NPPA- Revenue from sale of Bidding Documents
Account Number: 0111003981
BBAN: 000001011100398165

Alternative to the account at the Bank of Sierra Leone, potential Bidders can also pay for the bidding document in any of the Transit Accounts at the following Commercial Banks:

Bank Name: Union Trust Bank
Account Name: Revenue from Sale of Bidding Sub Treasury
Account Number: 210113253-01
BBAN: 00-4001113253120144

Bank Name: Sierra Leone Commercial Bank
Account Name: Revenue from Sale of Bidding Sub Treasury
Account Number: 003001081791112183

Bank Name: Rokel Commercial Bank
Account Name: Revenue from Sale of Bidding Sub Treasury
Account Number: 02-011012428
BBAN: 002001002101242863

Bidders must submit a copy of their Bank Pay-in-Slip together with their bid as proof of purchase of the bidding document.

Bids will be opened on February 27, 2024 at 12:05 p.m., in the presence of bidders representatives who chose to attend, at the address below. Late bids will be rejected and returned unopened to bidders.

**Procurement Unit
8th Floor, Main Bank Building
Bank of Sierra Leone
Siaka Stevens Street
Freetown
Tel: 080-186-101 or 075-156-971**

Section II. Instructions to Bidders

Section II. Instruction to Bidders (ITB)

Table of Clauses

1.	Scope of Bid and Funding.....	7
2.	Eligible Bidders	7
3.	Qualification of Bidder	7
4.	One Bid per Bidder	7
5.	Cost of Bidding.....	7
6.	Site Visit.....	8
7.	Content of Bidding Documents	8
8.	Clarification and Amendments of Bidding Documents.....	8
9.	Language of Bid.....	8
10.	Documents Comprising the Bid.....	8
11.	Bid Prices	9
12.	Currency of Bid & Payment	9
13.	Bid Validity.....	9
14.	Bid Security	10
15.	Format and Signing of Bid.....	10
16.	Sealing and Marketing of Bids	11
17.	Deadline for Submission of Bids	11
18.	Late Bids	11
19.	Modification and Withdrawal of Bids	11
20.	Bid Opening	12
21.	Process to be Confidential	12
22.	Clarification of Bids.....	12
23.	Examination of Bids and Determination of Responsiveness	12
24.	Correction of Errors	13
25.	Evaluation and Comparison of Bids	13
26.	Award Criteria	14
27.	Employer's Right to Accept any Bid and to Reject any or all Bids	14
28.	Notification of Award and Signing of Agreement.....	14
29.	Advance Payment	15

Section II. Instruction to Bidders

- 1. Scope of Bid and Funding**

 - 1.1.** The Employer, as defined in the Bidding Data, invites bids for the construction of Works, as described in the Bidding Data. The name and identification number of the Contract is provided in the Bidding Data.
 - 1.2** The successful Bidder will be expected to complete the Works by the Required Completion Date specified in the Contract Data.
 - 1.3** Details of any funding provided to cover eligible payments under the Contract in addition to that provided by the Government of Sierra Leone are given in the Bidding Data
- 2. Eligible Bidders**

 - 2.1** This invitation to Bid is open to all national bidders with the required classification as given in the Bidding Data.
- 3. Qualification of the Bidder**

 - 3.1** All bidders shall provide in accordance with Section IV of the Bidding Document, *Qualification Information*, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.
 - 3.2** To qualify for award of the Contract, bidders shall meet the following minimum

 - (a) Annual volume of construction work during past two years of at least the amount specified in the Bidding Data;
 - (b) experience as prime contractor in the construction of at least one works of a nature and complexity equivalent to the Works over the last 2 years (to comply with this requirement, works cited should be at least 80 percent complete);
 - (c) proposals for the timely acquisition (own, lease, hire, etc.) of the essential equipment listed in the Bidding Data; and
 - (d) key personnel required for the performance of the contract with the qualifications and experience detailed in the Bidding Data;
- 4. One Bid per Bidder**

 - 4.1** Each Bidder shall submit only one Bid, either individually or as a partner in a joint venture. A Bidder who submits or participates in more than one Bid will be disqualified. Partners in a joint venture shall be jointly and severally liable for the execution of the Contract.
- 5. Cost of**

 - 5.1** The Bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer

- Bidding** will in no case be responsible or liable for those costs.
- 6. Site Visit** **6.1** The Bidder, at the Bidder's own responsibility and risk, is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.
- 7. Contents of Bidding Documents** **7.1** The set of bidding documents comprises the documents listed in the table below and addenda issued in accordance with Clause 8:
- | | |
|-----------|---|
| Section I | Invitation to Bid |
| II | Instruction to Bidders |
| III | Bidding Data |
| IV | Standard Forms |
| V | Conditions of Contract |
| VI | Contract Data |
| VII | Specifications |
| VIII | Drawings |
| IX | Bill of Quantities |
| X | Bank Guarantee Form for Advance Payment |
| XI | Format for Bid Security |
- 8. Clarification and Amendments of Bidding Documents** **8.1** A prospective bidder may request the Employer in writing for clarification of the bidding documents. The Employer shall respond to such requests if he receives them 14 calendar days prior to the deadline for the submission of bids. The Employer shall also send copies of his response to all those bidders who have obtained the bidding documents without identifying the originator of the request. Similarly, prior to the submission of the deadline, the Employer may modify the bidding documents by issuing addenda.
- 9. Language of Bid** **9.1** All documents relating to the Bid and contract shall be in English.
- 10. Documents Comprising the bid** **10.1** The Bid submitted by the Bidder shall comprise the following:
- (a) The Bid (in the format indicated in Section IV);
 - (b) Bid Security;
 - (c) priced Bill of Quantities or priced Activity Schedule;
 - (d) qualification Information Form and Documents; and

- (e) any other materials required to be completed and submitted by bidders, as specified in the Bidding Data.

- 11. Bid Prices**
- 11.1** The Contract shall be for whole Works, as described in Sub-Clause 1.1, based on the priced Bill of Quantities or priced Activity Schedule for lump sum contracts submitted by the Bidder. The type of contract (unit price based on Bill of Quantities or lump sum based on Activity Schedule) will be specified in the Bidding Data
- 11.2** The Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities (for lump sum contracts, described in the drawings and specifications listed in the Activity Schedule). Items for which no rate or price is entered by the Bidder will 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 or Activity Schedule.
- 11.3** All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 14 calendar days prior to the deadline for submission of bids, shall be included in the rates, prices, and total Bid price submitted by the Bidder (for lump sum contracts, “the rates and prices” are not applicable).
- 11.4** The rates and prices (or the lump sum price) quoted by the Bidder shall be fixed for the duration of the Contract and shall not be subject to any adjustment on any account.
- 12. Currency of Bid and Payment**
- 12.1** Prices shall be quoted and payments made entirely in Leones.
- 13. Bid Validity**
- 13.1** Bids shall remain valid for the period specified in the Bidding Data. The Employer may request that the bidders extend the period of validity for a specified additional period. The request and the bidders’ responses shall be made in writing. A Bidder agreeing to the request will not be required or permitted to otherwise modify the Bid, but will be required to extend the validity of Bid Security for the period of the extension, and in compliance with Clause 14 in all respects.
- 14. Bid Security**
- 14.1** The Bidder shall furnish, as part of the Bid, a Bid Security in Leones or in a freely convertible currency, in the amount or the equivalent amount specified in the Bidding Data.
- 14.2** The Bid Security shall, at the Bidder’s option, be in the form of a certified banker’s cheque or a bank guarantee from a reputable bank or credible Financial Institution

located in the Republic of Sierra Leone. Bank guarantees issued by foreign banks shall only be acceptable if endorsed by a correspondent bank in the Republic of Sierra Leone. The format of the Bid Security should be in accordance with the form of Bid Security included in Section XI. Bid Security shall be valid for a minimum of 28 days beyond the validity of the Bid.

- 14.3** Any bid not accompanied by an acceptable Bid Security shall be rejected by the Employer. The Bid Security of a joint venture must define as “bidder” all joint venture partners and list them in the following manner: a joint venture consisting of “ _____,” “ _____,” and “ _____”.
- 14.4** The Bid Security of unsuccessful bidders will be returned within 28 days of the end of the Bid validity period specified in Sub-Clause 13.1.
- 14.5** The Bid Security of the successful Bidder will be discharged when the Bidder has signed the Agreement and furnished the required Performance Security.
- 14.6** The Bid Security may be forfeited
- (a) if the Bidder withdraws the Bid after Bid opening during the period of Bid validity;
 - (b) if the Bidder does not accept the correction of the Bid price, pursuant to Clause 24; or
 - (c) in the case of a successful Bidder, if the Bidder fails within the specified time limit to
 - (i) sign the Agreement; or
 - (ii) furnish the required Performance Security.

15. Format and Signing of Bid

- 15.1** The Bidder shall prepare one original of the documents comprising the Bid as described in Clause 10 of these to Bidders, with the Form of Bid, and clearly marked “**ORIGINAL**”. In addition, the Bidder shall submit copies of the Bid, in the number specified in the Bidding Data, and clearly marked as “**COPIES**”. In the event of discrepancy between them, the original shall prevail
- 15.2** The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder. All pages of the Bid where entries or amendments have been made shall be initialled by the person or persons

signing the Bid.

- 15.3** The Bid shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the Bidder, in which case such corrections shall be initialled by the person or persons signing the Bid.
- 16. Sealing and Marking of Bids**
- 16.1** The Bidder shall seal the original and all copies of the Bid in two inner envelopes and one outer envelope, duly marking the inner envelopes as “**ORIGINAL**” and “**COPIES**”.
- 16.2** The inner and outer envelopes shall
- (a) be addressed to the Employer at the address provided in the Bidding Data;
 - (b) bear the name and identification number of the Contract as defined in the Bidding and Contract Data; and
 - (c) provide a warning not to open before the specified time and date for Bid opening as defined in the Bidding Data.
- 16.3** In addition to the identification required in Sub-Clause 16.2, the inner envelopes shall indicate the name and address of the Bidder to enable the Bid to be returned unopened in case it is declared late, pursuant to Clause 18.1.
- 16.4** If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the Bid.
- 17. Deadline for Submission of Bids**
- 17.1** Bids shall be delivered to the Employer at the address specified above no later than the time and date specified in the Bidding Data.
- 17.2** The Employer may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 8, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.
- 18. Late Bids**
- 18.1** Any Bid received by the Employer after the deadline prescribed in Clause 17 will be returned unopened to the Bidder.
- 19. Modification and**
- 19.1** Bidders may modify or withdraw their bids by giving notice in writing before the deadline prescribed in Clause

- Withdrawal of Bids** 17.
- 19.2** Each Bidder's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clauses 16 and 17, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate.
- 19.3** No Bid may be modified after the deadline for submission of Bids
- 19.4** Withdrawal of a Bid between the deadline for submission of bids and the expiration of the period of Bid validity specified in the Bidding Data or as extended pursuant to Sub-Clause 17.2 may result in the forfeiture of the Bid Security pursuant to Clause 14.
- 19.5** Bidders may offer discounts, or otherwise modify the prices of their bids by submitting Bid modifications in accordance with this clause, or included in the original Bid submission.
- 20. Bid Opening** **20.1** The Employer will open the bids, including modifications in the presence of the bidders' representatives who choose to attend at the time and in the place specified in the Bidding Data. The Bidders' names, the Bid prices, the total amount of each Bid, any discounts, and Bid modifications and withdrawals the presence or absence of Bid Security will be announced by the Employer at the opening.
- 21. Process to Be Confidential** **21.1** Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed until the award to the successful Bidder has been announced.
- 22. Clarification of Bids** **22.1** To assist in the examination, evaluation, and comparison of Bids, the Employer may, at the Employer's discretion, ask any Bidder for clarification of the Bidder's Bid. The request for clarification and the response shall be in writing or by cable, telex, or facsimile, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids in accordance with Clause 24.
- 23. Examination of Bids and Determination of** **23.1** Prior to the detailed evaluation of bids, the Employer will determine whether each Bid is substantially responsive to the requirements of the bidding documents and the requirement for the submission of a bid security. A

- Responsiveness** substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.
- 23.2** If a Bid is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.
- 24. Correction of Errors**
- 24.1** Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
- (a) where there is a discrepancy between the amounts in figures and in words, the amount in words will govern; and
 - (b) where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern;
 - (c) if a bidder refuses to accept the correction his bid will be rejected, and the Bid Security may be forfeited in accordance with Sub-Clause 14.6(b).
- 25. Evaluation and Comparison of Bids**
- 25.1** The Employer will evaluate and compare only the bids determined to be substantially responsive in accordance with Clause 23.
- 25.2** In evaluating the bids, the Employer will determine for each Bid the evaluated Bid price by adjusting the Bid price as follows:
- (a) making any correction for errors pursuant to Clause 24;
 - (b) excluding provisional sums and the provision, if any, for contingencies in the Bill of Quantities (or Activity Schedule for lump sum contracts), but including Daywork, where priced competitively;
 - (c) making appropriate adjustments to reflect discounts or other price modifications offered in accordance with

Sub-Clause 19.5.

- 25.3** The Employer may waive any minor informality or non-conformity which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative standing of any Bidder. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the bidding documents or otherwise result in unsolicited benefits for the Employer will not be taken into account in Bid evaluation.
- 26. Award Criteria** **26.1** Subject to Clause 27, the Employer will award the Contract to the Bidder whose Bid has been determined to be substantially responsive to the bidding documents and who has offered the lowest evaluated Bid price, provided that such Bidder has been qualified in accordance with the provisions of Clause 3.
- 27. Employer's Right to Accept any Bid and to Reject any or all Bids** **27.1** Notwithstanding Clause 26, the Employer reserves the right to accept or reject any Bid, and to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Employer's action.
- 28. Notification of Award and Signing of Agreement** **28.1** The Bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by registered letter. This letter (hereinafter and in the Condition of Contract called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").
- 28.2** The notification of award will constitute the formation of the Contract.
- 28.3** The Employer will send the successful Bidder the Agreement form provided in the bidding documents incorporating all agreements between the Employer and the successful Bidder. It will be sent to the successful Bidder within 14 calendar days following the notification of award. Within 14 calendar days of receipt, the successful Bidder will sign the Agreement and deliver it to the Employer.
- 28.4** Upon receipt of the signed Agreement from the Bidder, the Employer will promptly notify the other bidders that their bids have been unsuccessful.

29. Advance Payment

29.1 The Employer will provide an Advance Payment as stipulated in the Conditions of Contract, subject to a maximum amount, as stated in the Bidding Data. For receiving the Advance Payment, the Bidder shall make an estimate of and include the requirement in its Bid, the expenses that will be incurred in order to commence work. These expenses will relate to the purchase of equipment, machinery materials, and on the engagement of labour during the first month beginning with the date of the Employer's "Notice to Proceed" as specified in the Contract data.

Section III. Bidding Data

Section III. Bidding Data

Instructions to Bid Reference	Data relevant to the ITB
1.1	<p>The Employer is: Bank of Sierra Leone, Siaka Stevens Street</p> <p>The Works consist of: Rehabilitation of the Bank’s Middle Hill Residence, Hill Station including but not limited to completely replacing the roof of the main building, replacing the fixtures, and fitting sin the master bedroom, installation of double-glazed windows on the front view of the building, internal and external painting of all the structures, general plumbing and electrical repairs, construction of water tank tower etc.</p> <p>The name and identification number of the Contract is: Rehabilitation of the Bank of Sierra Leone’s Middle Hill Residence at Hill Station – BSL/GSD/NCB/2024/0032</p>
1.3	N/A
2.1	Eligible Bidders are: Premier Class Contractors in Sierra Leone
3.2(a)	The minimum required annual volume of construction work for the successful Bidder in any of the last two years shall be NLe2,500,000.00 (two million five hundred thousand New Leones).
3.2(c)	<p>The essential equipment to be made available for the Contract by the successful Bidder shall be:</p> <ul style="list-style-type: none"> • <i>Tippers</i> • <i>Trucks</i> • <i>Concrete mixer</i> • <i>Loaders</i> • <i>Crane/Lifting Equipment</i> • <i>Metal Scaffolding</i> • <i>Glass Remover/Finishing Equipment etc.</i>
3.2(d)	<p>The key personnel required for the performance of the contract and their qualifications and experience are:</p> <ol style="list-style-type: none"> 1. <i>Project Manager</i> 2. <i>Resident Architect/Engineer</i> 3. <i>Site Supervisor</i> 4. <i>Foreman</i>
10.1	Bidders shall submit: <i>Profile indicating list of qualified and experienced personnel, equipment, and detailed program of works</i>
11.1	This shall be a “Unit Price Contract based on Priced Bill of Quantities”

Instructions to Bid Reference	Data relevant to the ITB
13.1	The period of Bid validity shall be 120 days after the deadline for Bid submission specified in the Bidding Data.
14.1	The amount of Bid Security shall be not less than NLe134,000.00 (One hundred and thirty-four thousand New Leones)
15.1	The number of copies (in addition to the original) of the Bid to be completed and returned shall be 2 (two)
16.2a	The Procuring Entity's address for the purpose of Bid submission is: Procurement Unit, 8th Floor, Main Bank Building, Siaka Stevens Street, Freetown
16.2b	The name and the identification number of the Contract is Rehabilitation of the Bank of Sierra Leone's Middle Hill Residence, Hill Station – BSL/GSD/NCB/2024/0032
16.1 & 20.1	The deadline for submission of bids shall be February 27, 2024 at 12:00 p.m. and bids shall be opened at 12:05 p.m. at the Procurement Unit, 8 th Floor, Main Bank Building on the same date
29.1	The Advance Payment shall be limited to 30% (thirty percent) of the Contract Price.

Section IV. Standard Forms

Section IV. Standard Forms

- A. Contractor's Bid**
- B. Qualification Information**
- C. Letter of Acceptance**
- D. Agreement**

Standard Form A: Contractor's Bid

Notes on Form of Contractor's Bid

The Bidder shall fill in and submit this Bid form with the Bid.

(Bidders letterheaded paper)

_____ [date]

To : _____ [name of [Employer]]

Address : _____ [insertAddress]

We offer to execute the _____ [name and identification number of Contract] in accordance with the Conditions of Contract accompanying this Bid for the Contract Price of _____ [amount in numbers and words] Leones.

The advance payment required is:

This Bid and your written acceptance of it shall constitute a binding Contract between us. We understand that you are not bound to accept the lowest or any Bid you receive.

We hereby confirm that this Bid complies with the Bid validity and Bid Security required by the bidding documents and specified in the Bidding Data.

Authorized Signature:

Name and Title of Signatory:

Name of Bidder:

Address:

Standard Form B: Qualification Information

Notes on Form of Qualification Information

The information to be filled in by bidders in the following pages will be used for purposes of postqualification as provided for in Clause 3 of the Instruction to Bidders. This information will not be incorporated in the Contract.

1. **Individual Bidders** or Individual Members of Joint Venture

1.1. Constitution or legal status of Bidder *[attach copy]*

Place of registration:

Principal place of business:

1.2 Work performed as prime Contractor on works of a similar nature and volume of the last two years. Also list details of work under way or committed, including expected completion date.

Project name and country	Name of client and contact person	Type of work performed and year of completion	Value of contract
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
<i>[etc.]</i>			

1.3 Major items of Contractor's Equipment proposed for carrying out the Works.
List all information requested below

Item of Equipment	Description, make, and age (years)	Condition (new, good, poor) and number available	Owned, leased (from whom?), or to be purchased (from whom?)
_____ _____ _____ <i>[etc.]</i>	_____ _____ _____	_____ _____ _____	_____ _____ _____

1.4 Qualifications and experience of key personnel proposed for administration and execution of the Contract

Position	Name	Years of experience (general)	Years of experience in proposed position
Project Manager _____ _____ _____ <i>[etc.]</i>	_____ _____ _____	_____ _____ _____	_____ _____ _____

1.5 Proposed subcontracts and firms involved.

Sections of the Works	Value of subcontract	Subcontractor (name and address)	Experience in similar work
_____	_____	_____	_____
-	---	-	---
_____	_____	_____	_____
-	---	-	---
_____	_____	_____	_____
-	---	-	---
_____	_____	_____	_____
-	---	-	---
_____	_____	_____	_____
-	---	-	---
_____	_____	_____	_____
-	---	-	---
_____	_____	_____	_____
-	---	-	---
_____	_____	_____	_____
-	---	-	---
_____	_____	_____	_____
-	---	-	---
_____	_____	_____	_____
-	---	-	---
_____	_____	_____	_____
-	---	-	---

1.6 Information on current litigation in which the Bidder is involved

Other party(ies)	Cause of dispute	Amount involved
_____	_____	_____
_____	_____	_____
_____	_____	_____

1.7 Proposed Program (work method and schedule). Descriptions, drawings, and charts, as necessary, to comply with the requirements of the bidding documents.

Notes on Standard Form of Letter of Acceptance

The Letter of Acceptance will be the basis for formation of the Contract as described in Clauses 27 of the Instructions to Bidders. This Standard Form of Letter of Acceptance is included for information at the bidding stage and shall be filled in and sent to the successful Bidder only after evaluation of bids has been completed.

Standard Form C: Letter of Acceptance

[letterhead paper of the Employer]

_____ *[date]*

To: _____
[name of the Contractor]

[address of the Contractor]

This is to notify you that your Bid dated _____ for the execution of the
_____ *[name of the*
Contract and
identification number, as given in the Contract Data] for the Contract Price of
_____ (_____) *[amount in numbers*
and words

_____ *Leones*, as corrected and modified in accordance with the
instruction to Bidders is hereby accepted by the Employer.

You are hereby instructed to proceed with the execution of the said Works in
accordance with the Contract documents.

Authorized Signature: _____

Name and Title of Signatory: _____

Name of Agency: _____

Attachment: Agreement

Notes on Standard Form of Agreement

The Agreement should incorporate any corrections or modifications to the Bid resulting from price corrections and price adjustment during the evaluation process as provided for the in the Instructions to Bidders and any other agreement following award of the contract.

Standard Form D: Agreement

AGREEMENT

This Agreement, made the _____ day of _____

19 _____, between

_____ [*name and address of Employer*] (hereinafter called “the Employer”) and _____

_____ [*name and address of Contractor*] (hereinafter called “the Contractor”) of the other part.

Whereas the Employer is desirous that the Contractor execute _____

_____ [*name and identification number of Contract*] (hereinafter called “the Works”) and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

Now with this Agreement witnesseth as follow:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.
2. The following documents shall be deemed to form and be read and construed as part of the agreement, viz:
 - (a) Agreement,
 - (b) letter of Acceptance
 - (c) Contractor's Bid
 - (d) Contract Data
 - (e) Conditions of Contract
 - (f) Specifications
 - (g) Drawings

- (h) Bills of Quantities (Activity Schedule), and
- (i) any other documents listed in the Contract Data as forming part of the Contract.

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects wherein the Contract Price of _____ [*insert amount*] Leones or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

In Witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of

_____ was hereunto affixed in the presence of:

Signed, Sealed, and Delivered by the
Said

_____ in

the presence of:

Binding Signature of Employer _____

Binding Signature of Contractor _____

Section V. Conditions of Contract

Section V. Conditions of Contract

Table of Clauses

1. Definitions.....	30
2. Language and Law	32
3. Communications	32
4. Subcontracting and Other Contractors	32
5. Personnel.....	32
6. Contractor's Risk	32
7. Insurance	33
8. Contractor to Construct the Works	33
9. The Works to be Completed by the Completion Date	33
10. Safety	33
11. Program.....	33
12. Extension of the Completion Date	34
13. Delays Ordered by the Employer.....	34
14. Early Warning	34
15. Correction of Defects	34
16. Uncorrected Defects.....	34
17. Bill of Quantities.....	35
18. Changes in the Quantities	35
19. Payment Certificates	35
20. Payments	35
21. Compensation Events.....	36
22. Tax	36
23. Liquidated Damages	36
24. Advance Payment	36
25. Retention Money.....	37
26. Dayworks	37
27. Cost of Repairs.....	37
28. Completion and Take Over	37
29. Final Account.....	38
30. Termination.....	38
31. Payment Upon Termination	39
32. Property.....	39
33. Release from Performance	39
34. Resolution of Disputes	40

Section V. Conditions of Contract

1. Definitions

1.1 Boldface type is used to identify defined terms.

Activity Schedule means the priced and completed Activity Schedule forming part of the Bid for a Lump Sum Contract.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid.

Compensation Events are those defined in Clause 21 hereunder

The Completion Date is the date of completion of the Works as certified by the Project Manager, in accordance with Sub-Clause 28.

The Contract is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works. The name and identification number of the Contract is given in the Contract Data.

The Contractor is the person or corporate body whose Bid to carry out the Works has been accepted by the Employer.

The **Contractor's Bid** is the completed bidding document submitted by the Contractor to the Employer.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Dayworks are additional, varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.

Days are calendar days; months are calendar months.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The **Defects Liability Period** is the period named in the Contract Data and calculated from the Completion Date.

Drawings include calculations and other information provided or approved by the Employer for the execution of the Contract.

The **Employer**, as specified in the Contract Data, is the party who employs the Contractor to carry out the Works. The name

of the Employer's representative authorized to deal with the Contractor is also given in the Contract Data.

Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The **Initial Contract Price** is the Contract price listed in the Employer's Letter of Acceptance.

Materials are all supplies, including consumable, used by the Contractor for incorporation in the Works.

The **Project Manager** is the person named in the Contract Data (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract

The **Required Completion Date** is the date on which it is required that the Contractor shall complete the Works. The Required Completion Date is specified in the Contract Data. The Completion Date may be revised only by the Employer by issuing an extension of time or an acceleration order.

The **Site** is the area defined as such in the Contract Data.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Employer.

The **Start Date** is given in the Contract Data. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.

A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.

Temporary Works are works designed, constructed, installed and removed by the Contractor that are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Project Manager with the approval of the Employer which varies the original Work requirement.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data

- 1.2** This shall be a “Unit Price Contract based on Priced Bill of Quantities”/”Lump Sum Contract” based on priced Activity Schedule”, as specified in the Contract Data.

However, if a Government law or decree passed between the date 28 days before the submission of bids for the Contract and the Required Completion Date results in an increase in the price of labor and material, the Employer will adjust the contract price accordingly, provided that the Contractor shall submit documents satisfactory to the Project Manager proving that the requested increases are a result of Government laws or decrees.

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|---|------------|---|
| 2. Language and Law | 2.1 | The language of the Contract is English and the law governing the Contract are the Laws of the Republic of Sierra Leone. |
| 3. Communications | 3.1 | Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered. |
| 4. Sub-contracting and other contractors | 4.1 | The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without approval of the Employer in writing. Subcontracting shall not alter the Contractor’s obligations. Not more than 50% of the work may be sub-contracted to registered contractors. The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer. |
| 5. Personnel | 5.1 | The Contractor shall employ the key personnel named in the Schedule of Key Personnel, referred to in the Contract Data, to carry out the functions stated in the Schedule of other personnel approved by the Project Manager. The Project Manager will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are substantially equal to or better than those of the personnel listed in the Schedule. |
| | 5.2 | If the Project Manager asks the Contractor to remove a person who is a member of the Contractor’s staff or work force, stating valid reasons, the Contractor shall ensure that the person leaves the Site within 72 hours and has no further connection with the work in the Contract. |
| 6. Contractor’s Risks | 6.1 | From the Starting Date until the Defects Liability Certificate has been issued, the risks of personal injury, death, and loss of or damage to property (including, without limitation, the Works, Plant, Materials, and Equipment) which are not Employer’s risks are |

Contractor's risks.

- 7. Insurance**
- 7.1** The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts stated in the Contract Data for the following events which are due to the Contractor's risks:
- (a) loss of or damage to the Works, Equipment, Plant and Materials;
 - (b) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and
 - (c) personal injury or death and Third Party liability.
- 7.2** Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for approval within 15 days of receipt by the Contractor of the Employer's Notice of Acceptance. All such insurance shall provide for compensation required to rectify the loss or damage incurred. If the Contractor fails to provide the required certificates, the contract shall be considered as annulled. However, the Employer at its discretion may decide to extend the period for submission of insurance certificates or take out the insurance and deduct the cost of premiums from the Contractor's earnings.
- 7.3** Alterations to the terms of an insurance shall not be made without the approval of the Employer.
- 8. Contractor to Construct the Works**
- 8.1** The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.
- 9. The Works to Be Completed by the Completion Date**
- 9.1** The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager, and complete them by the Required Completion Date.
- 10. Safety**
- 10.1** The Contractor shall be responsible for the safety of all activities on the Site.
- 11. Program**
- 11.1** Within the time stated in the Contract Data, the Contractor shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works. The Contractor shall update the Program at intervals no longer than the period stated in the Contract Data. The Project Manager's

approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Project Manager again at any time. A revised Program shall show the effect of Variations and Compensation Events.

- | | | |
|--|-------------|--|
| 12. Extension of the Completion Date | 12.1 | The Project Manager shall extend the Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Required Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost |
| 13. Delays Ordered by the Project Manager | 13.1 | The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works. Delays or suspension of work by the Project Manager which increase the Contractor's costs shall be subject to equitable adjustments by the Employer. |
| 14. Early Warning | 14.1 | The Contractor shall inform the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price or delay the execution of the Works. The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible. |
| | 14.2 | The Contractor shall cooperate with the Project Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Project Manager |
| 15. Correction of Defects | 15.1 | The Project Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected. |
| | 15.2 | Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager's notice. |
| 16. Uncorrected Defects | 16.1 | If the Contractor has not corrected a Defect within the time specified in the Project Manager's notice, the Project Manager will assess the cost of having the Defect corrected, and the Contractor will pay this amount, or the Employer shall recuperate these amounts by deduction from the amounts due to the Contractor. |

- 17. Bill of Quantities**
- 17.1** The Bill of Quantities (for lump-sum Contracts entire Clause 17 shall be replaced with a new Clause as indicated in the Contract Data) shall contain items for the construction, installation, testing, and commissioning work to be done by the Contractor. For Lump Sum contracts, payment activities schedule shall be listed.
- 17.2** The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work actually done at the rate of the Bill of Quantities for each item.
- 18. Changes in the Quantities**
- 18.1** If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change. (For lump-sum contracts, this clause shall be substituted by a new clause as indicated in Contract Data).
- 19. Payment Certificates**
- 19.1** The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.
- 19.2** The Project Manager shall check the Contractor's executed work and certify the amount to be paid to the Contractor.
- 19.3** The value of work executed shall be determined by the Project Manager.
- 19.4** The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed. (For lump sum contracts, this Clause shall be substituted by a new Clause as indicated in the Contract Data).
- 19.5** The value of work executed shall include the valuation of Variations and Compensation Events.
- 20. Payments**
- 20.1** Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor the amounts certified by the Project Manager within 45 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made, up to the date when the late payment is made, at the rate of interest prevailing at the local banks for construction loans.
- 20.2** Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be

deemed covered by other rates and prices in the Contract.

- 21. Compensation Events** **21.1** The following shall be Compensation Events:
- (a) The Employer does not give access to a part of the Site by the Site Possession Date stated in the Contract Data.
 - (b) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of Works on time.
 - (c) The Project Manager instructs the Contractor to uncover or to carry out tests upon completed work, which is then found to have no Defects.
 - (d) Other contractors, public authorities, utilities, or the Employer cause delay or extra cost to the Contractor.
 - (e) The advance payment is delayed.
 - (f) The Project Manager unreasonably delays issuing a certificate of completion.
 - (g) Any other events as stipulated in the Contract Data.
- If such an event occurs, then the Contract Price shall be equitably adjusted.
- 22. Tax** **22.1** The Contractor is liable for all taxes in accordance with the laws of the Sierra Leone. However, the Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 28 days before the submission of bids for the Contract and the date of the last completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such charges are already not reflected in the Contract Price.
- 23. Liquidated Damages** **23.1** The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Required Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from any payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's liabilities.
- 24. Advance** **24.1** The Employer shall make advance payment to the Contractor of the amounts stated in the Contract Data after

- Payment** the Contractor has:
- (i) delivered to the site construction equipment and/or materials for initiating the work, and
 - (ii) submitted the Advance Payment Guarantee.
- 24.2** The Contractor is to use the advance payment only to pay for Equipment, materials and other expenses required specifically for carrying out the works. The Contractor shall demonstrate that advance payment has been used in this way by supply of copies of invoices or other documents to the Project Manager.
- 24.3** The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, to be recovered within one half of the completion period.
- 25. Retention Moneys** **25.1** An amount, specified in the Contract Data, will be retained from each payment to the Contractor to assure performance of the work. This money will be paid out to the contractor upon completion and acceptance of the work and within 15 days of the issue by the Project Manager of the Defects Liability Certificate.
- 26. Dayworks** **26.1** If applicable, the Dayworks rates in the Contractor's Bid shall be used for small additional amounts of work only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.
- 26.2** All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within two days of the work being done.
- 26.3** The Contractor shall be paid for Dayworks as work is performed subject to obtaining signed Dayworks forms.
- 27. Cost of Repairs** **27.1** Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Liability periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.
- 28. Completion and Taking Over** **28.1** The Contractor shall request the Project Manager to issue a certificate of completion of the Works, and the Project Manager will issue such a certificate when he determines that the work is satisfactorily completed. The Employer shall take over the site and the works within seven days of the Project Manager's issuing of a certificate of

completion.

- 29. Final Account** **29.1** The Contractor shall supply the Project Manager with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 45 days of receiving the Contractor's account if it is correct and complete. If it is not, the Project Manager shall issue within 30 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate.
- 30. Termination-action** **30.1** The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.
- 30.2** Fundamental breaches of Contract shall include, but shall not be limited to, the following:
- (a) the Contractor stops work for 21 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager;
 - (b) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 15 days; or agreement reached on payments due contractor for cost of delay;
 - (c) the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
 - (d) a payment certified by the Project Manager is not paid by the Employer to the Contractor within 60 days of the date of the Project Manager's certificate;
 - (e) the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within 30 days determined by the Project Manager;
 - (f) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be

paid, as defined in the Contract Data.

- 30.3** When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other those listed under Sub-Clause 30.2 above, the Project Manager shall decide whether the breach is fundamental or not.
- 30.4** Notwithstanding the above, the Employer may terminate the Contract for convenience by giving the Contractor a thirty-day notice in writing.
- 30.5** If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site within 15 days of the completion of the notice period.
- 31. Payment upon Termination**
- 31.1** If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.
- 31.2** If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.
- 32. Property**
- 32.1** All Materials and Construction Equipment on the Site, Plant, Temporary Works, and Works shall be deemed to be the property of the Employer if the Contract is terminated because of the Contractor's default.
- 33. Release from Performance**
- 33.1** If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards for which an agreement has been reached.

34. Resolution of Disputes

34.1 The Employer and the Contractor shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract. If after thirty (30) days from the commencement of such informal negotiations, the Employer and the Contractor have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to three independent qualified experts, one chosen by the Employer and one chosen by the Contractor and the third chosen by an appropriate professional body, such as the Chamber of Commerce. The three should arrive at a solution satisfactory to the Employer and the Contractor. In case of further disagreement either party can take the matter to arbitration in accordance with the Law governing the Contract. The place where arbitration will take place will be stated in the Contract Data.

Section VI. Contract Data

Section VI. Contract Data

Condition of Contract Clause Number	Contract Data
1.1	<p>Insert in the Contract Data the following Definitions:</p> <p>“Contract: <i>Rehabilitation of the Bank’s Middle Hill Residence, Hill Station, Freetown – BSL/GSD/NCB/2024/0032.</i></p> <p>“Defects Liability Period: <i>The Defects Liability Period is 12 months</i></p> <p>“Employer: <i>The Employer is Bank of Sierra Leone, Siaka Stevens Street, Freetown</i></p> <p>“Intended Completion Date: <i>The Intended Completion Date shall be 31st May 2024</i></p> <p>“Project Manager: <i>The Project Manager is: Tropical Environmental Design Associates (TEDA), 63 Wellington Street.</i></p> <p>“Site: <i>The Site is located at Hill Station, Freetown.</i></p> <p>“Start Date: <i>The Start Date shall be 1st March 2024</i></p> <p>“Works: <i>The Works consist of: Rehabilitation of the Bank of Sierra Leone’s Middle Hill Residence, Hill Station, Freetown</i></p>
1.2	This contract shall be a Unit Priced Contract based on Priced Bills of Quantities
5.1	<p>The following documents are also part of the Contract:</p> <ul style="list-style-type: none"> • <i>The Schedule of Key Personnel</i> • <i>Work Programme for the Rehabilitation Works</i>
7.1	<p>The minimum insurance covers shall be:</p> <p>(a) The minimum insurance cover for the loss of or damage to the Works, Equipment, Plant and Materials shall be 110% <i>of the value of the Works</i>, with a maximum deductible of 10%.</p> <p>(b) The minimum insurance cover for loss of or damage to property (except the Works, Plant, Materials and Equipment) is 30% with a maximum deductible of 30%.</p> <p>(c) The minimum insurance cover for personal injury or death and Third Party Liability is 10% with no deductible.</p> <p>(d) In addition, the contractor shall be required to provide all insurance covers as required by the laws and regulations of the Republic of Sierra Leone</p>
11.1	The period for submission of the Program is 7 (seven) Days from the date of signature of Agreement. The period between the Program update is 14

Condition of Contract Clause Number	Contract Data
	(fourteen) days.
15.1	The Defects Liability Period is 365 days.
17	<p>In the case of lump sum contracts, Clause 17 shall be replaced by the following new clause 17 as follows:</p> <p>17 Activity Schedule</p> <p>17.1 The Contractor shall provide updated Activity Schedules within 14 days of being instructed by the Employer. The activities on the Activity Schedule shall be co-ordinated with the activities on the Program.</p> <p>17.2 The Contractor shall allow delivery of Materials to the site separately on the Activity Schedule if Payment for Materials on site shall be made separately.</p>
18.1	<p>In the case of lump sum contracts, Clause 18.1 shall be replaced by the following new Clause 18.1 as follows;</p> <p>“18.1 The Activity Schedule shall be amended by the Contractor to accommodate changes of program or method or working made at the Contractor’s own discretion. Prices in the Activity Schedule shall not be altered when the Contractor made such changes to the Activity Schedule.”</p>
19.4	<p>In case of lump sum contracts, Clause 19.4 is replaced as follows:</p> <p>“19.4 The value of work executed shall comprise the value of completed activities in the Activity Schedule.”</p>
21.1	The Site Possession Date shall be 1 (one) week from contract signature.
23.1	The liquidated damages for the whole of the Works are 0.50 <i>percentage</i> of the Final Contract Price per day.
23.1	The maximum amount of liquidated damages for the whole of the Works is 10% of the Final Contract Price.
24.1	The advance payment will be 30% of the contract price.
25.1	The amount of retention money will be 10% (ten percent) of each payment due to the Contractor up to the maximum of 10% (ten percent) of the total contract amount.
31.1	The percentage to apply to the value of the work not completed, representing the Employer’s additional cost for completing the Works is 10% of contract price.
34.1	<p>The place where arbitration will take place is Freetown, Sierra Leone.</p> <p>Arbitration will be conducted under the rules and regulations of the Sierra Leone Institute of Engineers.</p>

Section VII. Specifications

TECHNICAL SPECIFICATIONS

DESCRIPTION OF MATERIALS, GOODS, WORKMANSHIP AND PRICING NOTES

1.0 GENERAL

1.1 **RESPONSIBILITY** No approval by the Consultants shall in any way relieve the Contractor of his contractual responsibility for the quality of materials and the standard of workmanship in the finished works.

1.2 **VARIATIONS** No variations to these Technical Specifications may be made unless approved by the consultants, in writing.

1.3 **STANDARD SPECIFICATION** In all instances in which articles and materials specified by reference to a British Standard (BS) specification in these Bills, articles and materials complying with an alternative standard specification may be substituted provided they are:-

- (a) in no respect lower in standard, grade or quality than those specified.
- (b) similar in size and shape to those described.
- (c) equally suitable for the purpose for which they are required.
- (d) approved in writing by the Consultant prior to their incorporation into the Works.

Description of materials, goods and workmanship given in any one work section shall apply equally to all work sections, unless otherwise described. All materials, goods and workmanship shall comply with the requirements and recommendations of the relevant BS or CP where applicable, unless otherwise stated. Any reference in these Bills which is at variance with any provision in a BS or CP shall be deemed to take precedence over and to over ride same.

Notwithstanding any of the foregoing the whole of the materials, goods and workmanship shall be subject to the approval of the Consultant. Rehabilitation of BSL Lodge at Hill Station
Page 48

1.4 **PROPRIETARY ARTICLES OF MATERIALS** In all instances in which articles and materials of a proprietary manufacture are described in these Bills, articles and materials of a different manufacture may be substituted provided they are:- (a) similar in design and details,

size, shape and quality to those described. (b) equally suitable for the purpose for which they are required. (c) approved in writing by the Consultant prior to their incorporation into the Work.

1.5 DEFECTIVE MATERIALS OR GOODS Any materials and goods that have been damaged, contaminated or deteriorated or have not been approved or have been condemned shall be rejected and removed from the site within 24 hours and replaced at the Contractor's expense.

1.6 DEFECTIVE WORK Any cracked or otherwise defective work, including deviation from the working details in respect of setting out, correct lines and levels, size or thickness of members, shall be removed and reconstructed or otherwise rectified to the approval of the consultant and the Contractor shall be responsible for all additional costs incurred; all such remedial work shall be executed without undue delay. The Consultant reserves the right to check the work executed by the Contractor and his setting out in such cases and at such times as he may deem fit; there is, however, no duty on his part to make such checks and any failure by him to observe errors shall not relieve the Contractor of his responsibilities in these respects. Rehabilitation of BSL Lodge at Hill Station Page 49

2.0 EXCAVATION AND EARTHWORKS, ETC.

2.1 SITE CLEARANCE AND FELLING OF TREES The Contractor shall include in his prices for clearing the site of all unwanted trees, shrubs, roots, old foundations and materials arising from the site clearances etc., that may be deemed necessary by the Consultant (unless otherwise described). All trees or shrubs on the site, except as otherwise instructed, shall be carefully preserved and protected from damage during the execution of the works. The Contractor shall be liable for payment of liquidated damages of \$1000 for each tree removed or which is injured, damaged or cut down without the written permission of the Consultant. The Contractor shall comply with the provisions of the Forestry Act of Sierra Leone and of any local relevant regulations and shall give all notices that may be required under such act or regulation. All the works are to be executed in such manner as to cause the least possible disturbance and in the most careful manner so as to cause the minimum or annoyance and inconvenience to the owners and occupiers of the adjacent premises and to the public. The Contractor must provide for properly watering and all other necessary precautions to

minimize dust. Where necessary, the Contractor will be required to provide and erect all necessary dust sheets, tarpaulins, etc.

2.2 NATURE OF THE GROUND The Contractor is deemed to have visited the site and ascertained the nature of the ground to be excavated and work to be done and must accept all responsibility for the cost of excavation. The Contractor shall allow for breaking up and removing all obstructions met with in the course of the excavations, including old foundations, drains, etc., and disinfecting wells, septic tanks and cesspits etc. and filling with dry hardcore well consolidated. Where rock or similar hard natural materials is encountered during the course of excavations the Consultant must be notified immediately so that approval or agreement as to its extent and method of removal is determined before the rock is actually excavated.

2.3 SITE LEVELS Before commencing any excavation, the Contractor shall satisfy himself that any site levels, whether spot or contour shown on the drawings are correct. If he is not satisfied with the accuracy of these levels, he shall at once give written notice to the Consultant, otherwise no claim will be entertained in respect of the inaccuracy of these levels.

Rehabilitation of BSL Lodge at Hill Station Page 50

2.4 EXCAVATION MEASUREMENT The quantities of excavation and filling have been ascertained by taking the net dimensions of the void to the lines and levels shown on the drawing; no allowance has been made for increase in bulk after excavation of sloping sides or timbering.

2.5 EXCAVATION BEYOND TRUE LINE No more ground shall be removed than is absolutely necessary and if loose, soft, or bad ground is met, the matter shall be reported at once to the Consultant. Should the Contractor excavate to a greater depth or width than shown on the drawings or as instructed by the Consultant, at his own expense, he shall fill in such greater depth or width of excavation with concrete as described for foundation.

2.6 OMISSION OF EXCAVATION AND FOUNDATION Should the presence of rock make excavation for foundation unnecessary to the extent shown on the drawings; the Consultant should be consulted.

2.7 EXCAVATION IN ROCK Quantities for excavation in rock have been shown as “extra over” the excavation in which rock occurs. Excavations which in the opinion of the Consultants are best carried out by wedges, levers, compressed air or other similar plant, has been described as such.

2.8 SUPPORT OF SIDES OF EXCAVATIONS The sides of excavations shall be supported using any methods the Contractor elects in such a way as may be sufficient to secure them from falling in and the supports shall be maintained for as long as necessary. The Contractor will be held responsible for upholding the sides of all excavations and earthworks and no claim for additional excavations, concrete or other material will be considered in this Contract.

2.9 DISPOSAL OF SPOIL The whole of the spoil arising from the excavation (where not required to be returned for unfilling at once) shall be moved to spoil heaps where required on the site for infilling around foundations or to make up levels under floors and outside lines of building and any surplus is to be removed from the site; filling has been measured separately. Rehabilitation of BSL Lodge at Hill Station Page 51 Selected and approved materials from excavation suitable for fill material shall be kept separate for re-use as directed. Top soil excavated to the required depth shall be deposited on site for reuse as directed by the Consultant.

2.10 PROTECTION OF EXCAVATIONS The Contractor shall provide all necessary boards or coverings and lay same to protect trenches or excavations from the effect of inclement weather, if so required by the Consultants. The Contractor shall allow for keeping the excavations free from water by pumping or bailing.

2.11 TERMITE TREATMENT SOLUTION Termite treatment solution shall be a solution of five percent by weight of sodium pentachlorophenate in water applied by spraying at a rate of 5 litres per square metre to bottoms and sides of excavation, fillings and tops of blockwork.

2.12 APPROVAL OF EXCAVATIONS AND CONCRETING FOUNDATIONS The Contractor shall report to the Consultants when excavations are ready to receive concrete foundation and shall not proceed with concreting until the excavations have been approved by the Consultants. Any concrete or other work put in before this has been done, shall be

removed, if so required, by the Consultants. The Contractor shall not fill in over any work until it has been approved by the Consultants.

2.13 FILLING Selected material arising from excavation shall be brought back from the place, where it was temporarily deposited, and the trenches or other excavations to be filled, levelled with spoil in layers of not more than 6" (150mm) thickness. Each layer shall be carefully rammed and further consolidated by the addition of water. All filling to raise the level of the site shall be done in similar layers, carefully rammed and consolidated to the satisfaction of the Consultant. The level of compaction shall conform to test 15 of 651377 or an equivalent approved standard.

2.14 HARDCORE The hardcore shall be selected hard rock laterite, free from rubbish and dust and broken to pass a (75mm) ring with sufficient smaller material to fill interstices and shall be approved by the Consultants. Rehabilitation of BSL Lodge at Hill Station Page 52 Lay the hardcore beds in layers of 9" (225 mm). Fill in to make up levels under concrete ground slab. Levels, ram and consolidate the hardcore. Blind surface of hardcore beds with the fine material as specified.

3.0 CONCRETE WORK

3.1 GENERAL

Definitions

The following terms whenever used hereafter, shall be taken to have that meanings assigned to them below.

“Structural props” shall mean those components of the strutting to formwork, which carry the weight of the concrete and will be retained in position when the shuttering is removed from concrete faces.

“Approved of Approval” shall mean, approved by or approval of the Consultants in writing.

“Required” shall mean required by the terms of this Specification or other Contract Documents.

“Satisfaction” shall mean to the satisfaction of the Consultant.

“Testing Authority” shall mean an organization, approved by the Consultants, fully equipped to carry out all tests and checks required by this Specification. It shall be an independent firm or a laboratory.

Reinforced Concrete Design The reinforced concrete works have been designed generally in accordance with the recommendations contained in the Code of Practice 114, 1957, and the Contractor shall comply with the recommendations made in sections 2.5 and 6 of the Code of Practice, unless specifically excluded or modified hereafter. A copy of the Code of Practice 114 shall be kept permanently on the site.

Precast and Unreinforced Concrete Precast and unreinforced concrete shall comply with all relevant requirements of this specification.

Rates The Contractor’s rates for all items relating to the concrete works and tests shall include for carrying out the work in accordance with all the terms and requirements Rehabilitation of BSL Lodge at Hill Station Page 53 listed hereafter.

The Contractor is to take full responsibility for providing an adequate key for plastering etc. on concrete wire brushing of timber formwork, will be permitted and when metal formwork is used hacking of concrete will be allowed. The use of a retarder on the formwork will not be permitted in any circumstances. The Contractor should note that all reinforcement and formwork has been measured separately, except that for precast work, the rates shall include for formwork and reinforcement as specified.

Defective Work Where in the opinion of the Consultants any of the finished works or materials or workmanship in any part of the works do not comply with all relevant requirements of these Preambles, that part of the Works shall be classed as defective work. All work classed as defective work, shall be cut and removed for the work and replaced to the satisfaction of the Consultants. The extent of the work to be removed and the methods to be used in the removal and replacement of this work shall be in accordance with the Consultant’s instructions.

3.2 MATERIALS All materials used in the works shall comply in all respects with the relevant BS except for any deviations specifically authorized in subsequent clauses of these preambles.

Concrete shall be made with Portland Cement, fine aggregate, coarse aggregate and water. No other agent or ingredient shall be added to the concrete.

1. Cement

The cement shall be Portland cement complying with BS 12 and shall be delivered to the sites in sealed bags.

The cement shall be protected from damaged by the weather or any other causes at all times before use. It shall be stored in a weather tight and ventilated shed of adequate capacity fitted with a boarded floor suitably raised clear off the ground. Cement shall be used in rotation in order of its delivery to site. Any cement which has become caked or otherwise adversely affected shall not be used in any part of the works and is to be removed from the site. Rehabilitation of BSL Lodge at Hill Station

2. Aggregate

Fine aggregate shall be river or pit sand thoroughly washed with clean water until all salts and other impurities are removed and complying with BS 882.

Coarse aggregate shall be broken syenite, washed clean and free from impurities and complying with BS 822.

Aggregate shall be stored in hard paved self-draining areas with adequate dividing walls to prevent mixing of different types of aggregates.

For structural concrete trades the minimum size of the aggregate shall be able to pass a Nr 7 sieve and the coarse aggregate shall be as listed in Table 1.

The grading of coarse aggregate shall be in accordance with Table 1 BS 882, 1965. The percentage of broken stone and sand shall be in accordance therewith, subject however, to possible modifications to be approved by the Consultant.

If the grading of any aggregate changes, the Consultants shall approve the mix content.

All sampling and testing of aggregates shall be carried out in accordance with the relevant recommendations BS 822.

At the commencement of the contract, the Contractor shall deliver to the Testing Authority for inspection and analysis three separate and sufficient samples of each type of aggregate to be used in the structural concrete grades. For each type of aggregate, the samples shall be taken at the proposed source of supply at intervals of not less than one day. The quality of water contained in the aggregate shall be determined by an approved method at least once a day when concrete mixing is in progress.

3. Water

The water to be used in the works shall be clean and free from impurities. Water shall be tested in accordance with BS 3148. Rehabilitation of BSL Lodge at Hill Station

4. Reinforcement

Bars for reinforcement shall be mild steel and or high tensile bars complying with BS 4449.

Mesh for reinforcement shall comply with BS 4483. All mesh shall be delivered as flat sheets.

Reinforcement shall be stored clear off the ground.

3.3 TESTS

General

All tests and checks carried on site shall be in the presence of, or as directed by the Consultant.

The Contractor shall send copies of all test results to the Consultants.

An item included elsewhere in these Bills for the cost of testing.

No claims will be entertained for any tests called for by the Consultants in consequence of any failure by the Contractor to comply with these specifications.

Concrete Tests

All concrete test cubs shall be made, cured and tested and the results recorded in accordance with the recommendation of BS 1881, 1970, unless specifically modified in subsequent clauses of these preambles. The testing shall be carried out by the Testing Authority.

The test specimens shall be 150mm cubes, made in steel mould of approved design. The test cubes shall be taken from typical batches of concrete as directed by and in the presence of the Consultant's representative without prior notice.

Slump tests of the mixed concrete shall be carried out at regular intervals to be directed by the Consultants and the results recorded and kept on site.

Load Test

Load tests of complete parts of the structure may be called for by the Consultants whenever a dispute arises as to the sufficiency of the work done by the Contractor.

The standard of acceptance for structure load test, as stipulated in clause 6.05 of the BS Code of Practice 144, is specifically excluded from these preambles. The test procedure and the standard of acceptance will be specified by the Consultants. Where the results of such tests indicate that any member or part of the structure Rehabilitation of BSL Lodge at Hill Station Page 56 does not comply with these specifications, that part of the structure shall be classed as defective work.

3.4 DESIGN AND CONTROL OF CONCRETE AND MORTAR MIXES

For structural concrete mixes, made with ordinary Portland cement, the average 7 and 28 days strength for each mix shall not be less than that specified in Table 1.

Preliminary Strength

For each structural concrete mix, the twenty-eight days preliminary strength shall be calculated as the average of all the cubes tested at twenty-eight days and seven days preliminary strength shall be calculated as the average of all the cubes tested at seven days.

If, for any mix in Table 1, the test results of one set of three cubes, tested at twenty eight days, fall below these requirements, the mix shall be rejected, the proportions revised by the Contractor and the testing procedure repeated.

Results of all preliminary tests shall be sent to the Consultants as soon as they are available.

Work Strength

Work strength cube tests shall be carried out during the contract period.

A sample of the concrete shall be taken on each of the first four days the mix is used on the sites. Six cubes shall be made for each sample, three for tests at seven days and three for tests at twenty-eight days, and shall be accepted as satisfactory if the crushing strength of all three cubes is greater than specified for that mix.

Subsequently, a sample of the concrete shall be taken and six cubes made from the sample for every day of casting of structural concrete or as directed by the Consultants and these cubes shall be tested at seven and twenty-eight days to provide a record.

The Contractor shall maintain on the site a complete record of the date, time, grade and location in the works of the mix from which the sample was taken and shall submit this information with the test results to the Consultants as soon as they are available.

Works tests failure

If any set of seven days tests results indicate a low twenty-eight days strength to be expected, the Consultants shall be notified immediately and no props shall be removed from the affected part of the structure until the cause is determined.

If any of twenty-eight days cube test results fall below the specified strength, the Consultants shall be notified immediately and the cause of the failure investigated. The extent of the area of the structure affected shall be as defined by the Consultants.

Table 1 -----

GRADE	Characteristics		Minimum cement content	
	Compressive Strength at 28 days	(N/mm ²)	for use in Plain concrete kg/m ³	Reinforced prestressed concrete (kg/m ³)
C7.5	7.5		120	-
C10	10.0		150	-
C15	15.0		180	240
C20	20.0		220	240
C25	25.0		-	300
C30	30.0		-	350

MORTAR

1:2	224	5
1:3	224	7.5
1:4	224	10
1:6	224	15

Preliminary Strength

Preliminary strength cube tests shall be carried out to check the calculated proportions for each structural concrete mix.

Preliminary cubes shall be made for each mix from three samples of aggregate and the samples of cement sent to the approved Testing Authority. From each sample of aggregate six cubes shall be made, three for tests of seven days and three for tests at twenty-eight days.

Each set of three cubes tested at twenty-eight days shall be accepted as satisfactory if either all three cubes have a crushing strength greater than the preliminary strength or the average strength of the three cubes is greater than the preliminary strength, and

the difference between the greater and the least is not more than 10% of that average. All costs and all charges in consequence of the courses of action, the Contractor is directed to follow, shall be borne by the Contractor.

3.5 FORM WORK

General

Before construction commences, the Contractor shall notify the Consultants of the general method and system of formwork he proposes to use. Rehabilitation of BSL Lodge at Hill Station Page 59

All joints in the formwork and joints between the formwork and previous work shall be sufficiently tight to prevent loss of liquid from the concrete through these joints.

Concrete tolerance as described in the general concrete specification shall be adhered to.

No metal part of any device for maintaining formwork in the correct location shall remain permanently within the specified concrete cover to the main reinforcement.

Any bolt holes must be grouted with an approved mix of cement mortar slightly recessed from the surface of the surrounding concrete.

The position and design of all spacer bolts shall be agreed with Consultants but under no circumstances will ties passing through the finished concrete be allowed.

The use of concrete retarders or similar preparation on the formwork surfaces will not be permitted.

Shutters shall be light oiled immediately after manufacture and just before pouring with an approved mould oil.

The mould oil used shall not come into contact with the reinforcement.

Spacer blocks in reinforcement shall be plastic or cement mortar blocks and to a design approved by the Consultants.

All fair surfaces and arises shall be adequately protected against damage and surface staining during the execution of subsequent works.

Formwork shall be removed without risk of shake or vibration to the finished work.

Any finished work, which is subject to the subsequent damage or surface staining, shall be treated as defective work.

Immediately after striking, the shuttering shall be carefully wire-brushed so as not to destroy the grain pattern and then lightly oiled. Rehabilitation of BSL Lodge at Hill Station Page 60

When not in use, all shuttering, the concrete shall be cured by being kept in a wet condition for at least seven days, in accordance with curing clause.

Mortises, holes, chases in concrete

Fixing blocks and ends of brackets and bars and bolts etc. shall be cast in the concrete at the time of placing and together with all mortises, holes, apertures, chases and grooves, etc. shall be accurately set out in the formwork before the concrete is placed. No part of the concrete works shall be cut away for any such items or for any other reason without the Consultant's approval.

The Contractor shall obtain from all Public Utility Authorities complete information of their requirements regarding conduit pipes, fixing bolts, subject to the conditions that failure or a sub-contractor to supply such information shall not be allowed to delay the progress of the contract.

The Contractor shall ensure that all Public Utility Authorities are informed of his program for the structural works at the commencement of the contract

Propping

The vertical propping to all formwork shall be carried down sufficiently far to provide the necessary support without damage or overstress or displacement of any part of the construction.

Structural props shall be retained in position until new construction is sufficiently complete and strong to support its own weight and any loads to be placed on it during the contract period.

All formwork to soffits shall be constructed so that it can be removed without disturbing the structural props.

Cambers

Unless otherwise detailed on the drawings, the formwork of all beams and slabs shall be constructed with appropriate upward camber.

Final Preparation

The internal faces of the formwork may be coated with an approved preparation to prevent adhesion of the concrete to the forms , provided that the use of this preparation will not stain the surface of the finished concrete.

None of this preparation shall be allowed to touch the reinforcement. Rehabilitation of BSL Lodge at Hill Station Page 61

Immediately before the concrete is placed in any section of the formwork, the interior of that section shall be completely cleaned of all extraneous materials including water.

Each section of the formwork to structural member shall be inspected and passed by the Consultants immediately before concrete is placed in that section.

3.6 CONSTRUCTION AND EXPANSION JOINTS

Position of Construction Joints

The Contractor shall ensure that all construction joints are arranged to minimize the effect of shrinkage of the concrete. Generally, the distance between construction joints in walls and slabs shall not exceed 9 metres.

The position of all joints shall be agreed with the Consultants before work is commenced and all joints shall be straight and true.

Concrete placing shall be carried out continuously between consecutive construction joints. Immediately before the next pour, all joints must be thoroughly cleared and wetted with clean water.

To ensure uniformity of appearance, the following precautions should be taken:- 1. extreme care in uniformity of mix 2. all concrete must be properly compacted to the maximum.

Construction joints between different grades of concrete shall be made positioned as the Consultants will direct.

Treatment of Construction Joints

All horizontal joints at the exposed face shall be formed against a straight batten at least 12mm thick. Rehabilitation of BSL Lodge at Hill Station Page 62 All construction joints other than horizontal joints shall be formed with proper stop boards and the stop boards shall be fixed vertically unless otherwise directed.

All construction joints shall be hacked and laitence and honey combed concrete moved from the contact face before adjacent section is concreted. Hacking shall be terminated 12mm away from the face to be exposed. Air and water jetting may be used instead of hacking, subject o the prior approval of the Consultants. All loose material shall be removed from the contact face immediately after hacking or jetting has been completed.

When work is to be resumed at a construction joint, it shall be swept clean and dressed with a neat cement slurry immediately prior to the pour.

All concrete at construction joints is to be shaded from the direct rays of the sun for a period of one day before casting adjacent concrete.

Expansion Joints

Expansion joints shall be positioned and formed in accordance with the details shown on the drawings. All expansion joints shall be filled with an approved compressible materials unless otherwise indicated on the drawings.

3.7 REINFORCEMENT

General

Reinforcement bending schedules will be provided if requested by the Contractor listing the cut length and diameter of size and bending dimensions and location of each bar in the work. Before the bars are cut to length, the Contractor must check that:- 1. reinforcement schedules are provided for each part of the structure sufficiently in advance of his concreting program. 2. each schedule includes the correct quantities of reinforcement as detailed on the drawing to which it relates; 3. the grades of reinforcement given in each schedule correspond to those shown on the relevant drawing.

The Consultants shall be notified of any errors disclosed by these checks. Rehabilitation of BSL Lodge at Hill Station Page 63

Bending All reinforcement bars shall be accurately shaped in a manner that will not injure the material. Bars shall not be bent hot.

Cleaning All reinforcement shall be free of all loose mill scale and thoroughly cleaned to remove all loose rust, oil and grease or other harmful matter immediately prior to being place in position in the works.

Placing All reinforcement shall be accurately placed with the correct cover and securely fixed in the positions shown on the drawings by an approved method and inspected by the Supervising Officer.

The Contractor shall supply and fix all necessary concrete spacers required to maintain the reinforcement in the correct position. The cost of chairs shall be included in the rates for reinforcement in these Bills.

No metal part of any device used for connecting bars or for maintaining reinforcement in the correct position against faces exposed to the elements shall remain permanently within the specified minimum concrete cover to the reinforcement.

3.8 CONCRETING

General

The Contractor shall ensure that each stage in the contract of the reinforced concrete work including the making and testing of cubes and the maintenance and calibration of mixing and measuring plant, is supervised and finally inspected by competent and responsible members of his site staff.

Proportions

The proportions of materials for concrete shall be accurately measured.

The cement, including bagged cement, and all aggregate shall be measured in weighing batches approved by the Consultants. Rehabilitation of BSL Lodge at Hill Station Page 64

Where aggregates are gauged by volume, accurate gauge boxes shall be constructed to the approval of the consultants. The boxes shall be completely filled to the top struck off level.

In measuring the water for each batch, due allowance shall be made for the water content of the aggregates.

The water content of the aggregates shall be measured before each day's concreting begins and when they are to be used immediately after delivery.

Mixing

Concrete shall be mixed in an approved mechanical type concrete mixer. Mixing shall be continued until there is a uniform distribution of the materials in the mixer's and the mass in uniform in color.

The mixing time for each batch shall not be less than the minimum period recommended by the mixer manufacturer, checked by an approved timing device, and shall be continued until concrete is uniform in color and consistency.

The volume of mixed materials in each batch shall not exceed the rated capacity of the mixer. Each batch of concrete shall be discharged completely before the mixer drum is recharged. The mixer drum shall be thoroughly washed out whenever mixing ceases.

Transport

Concrete shall be transported as quickly as possible from the mixer to its final position without segregation or loss of any of the ingredients. All plant and equipment used for transporting concrete shall be kept clean. All containers used for transporting concrete shall be thoroughly washed out whenever mixing ceases.

Runs or gangways for concrete transporting and main runs for foot traffic shall not be supported by or allowed to bear on the fixed reinforcement.

Placing

Concrete shall be placed while still sufficiently plastic for adequate compaction.

Rehabilitation of BSL Lodge at Hill Station Page 65

At all times when reinforced concrete is being placed a competent steel fixer shall be in continuous attendance on the concrete to adjust and correct the position of any reinforcement which may be displaced.

The Consultants shall be given due notice that concrete is to be placed in a particular part of the works when he so directs.

The Contractor shall keep on site a complete record of the works, showing the time and date when concrete is placed in each part of the works. The records shall be available at all times for inspection by the Consultant. Once concreting has commenced, it shall proceed continuously without a break until the forms are filled or a designed joint is reached.

Vigilance will be necessary during pours of lifts to ensure that any grout leaks or spillage are thoroughly brushed off with clean water immediately.

Reinforcement left exposed, projecting from poured concrete, must be protected to avoid danger of rust staining the completed work.

Subject to the Consultant's approval, the use of foamed rubber or plastic gaskets to ensure no loss of grout at the foot of lifts will be permitted, provided they do not materially affect the appearance of the finished work.

Compacting

Concrete shall be thoroughly compacted during placing and shall be carefully worked around all reinforcement, embedded fixtures and into the sides and corners of the formwork.

All structural concrete shall be compacted by the use of approved mechanical vibrators, preferably the internal type. Curing All surfaces of freshly placed structural concrete shall be covered with an approved material and cured by being kept continuously moist for seven days. Soffit and side forms left in position will be regarded as effective in keeping those surfaces moist. The Contractor shall notify the Consultants of the system and methods and curing he proposes used for all structural concrete members before work is commenced.

Rehabilitation of BSL Lodge at Hill Station Page 66

3.9 STRIKING OF FORM WORK

General

The structure shall not be distorted, damaged or overloaded in any way by the removal of the formwork from concrete members. The responsibility for the safe removal of any part of the formwork shall rest with the Contractor.

Minimum striking times

The minimum time from completion of placing concrete to the removal of formwork from structural members shall be determined from the following table or as the consultants may direct.

LOCATION	MINIMUM STRIKING TIMES FOR CONCRETE IN DAYS
Beam and wall sides	1
Columns	1
Beams soffits (structural props left in)	7
Beam structural props	14
Slabs (structural props left in)	3
Slab structural props	10

3.10 FINISHED WORK TO CONCRETE FACES

General

After removal of the formwork no treatment of any kind other than the application of specified finishes and such treatment as is required for curing the concrete, shall be applied to the concrete faces.

Where rubbed down, plain smooth of fair face finish is specified, the concrete shall be brought to a perfectly true, smooth, and even surface by rubbing with carborundum stone dipped in cement grout. Alternatively, the Contractor is permitted at his own expense to provide smooth linings to the form which will achieve the required finish without rubbing down. Rubbed down surfaces shall be true to form and free from all board marks, joint marks, honeycombing, pitting, etc. Rehabilitation of BSL Lodge at Hill Station Page 67

Fair face finish Unless otherwise specified, all concrete faces to be exposed in the finished works shall be left as struck with a plain smooth face true to line and level within the specified tolerance for the work.

These clauses in no way vary the Preambles clauses for reinforced concrete. It is essential that in both the preparation of the formwork and in the casting of the concrete considerable care should be taken to achieve a first class uniform appearance. This appearance is of such importance that special effort will be necessary to avoid staining and to achieve uniformity in color. No repair or patching up whatsoever will be allowed.

After inspection all superfluous fines and similar projections shall be carefully removed. No render or other applied finish shall be used to obtain a fair face to the concrete.

All concrete face to be exposed in the finished works shall be adequately protected against damage or surface staining during the execution of subsequent works.

Any finished work which the Consultants shall judge inferior in any respect to the standard of the relevant approved sample, or which is subjected to subsequent damage or surface staining, shall be rejected and treated as defective work.

Tolerances

Unless otherwise indicated in the drawings, the setting out dimensions, levels of the finished works, and sizes of structural elements, shall be within the maximum tolerance given below.

Description	Max. Tolerance
1. All dimensions of 3m and over	- 6mm
2. All dimensions less than 3m	- 3mm
3. Slab to surface levels (all points in surface)	- 6mm

Surfaces exposed in the finishes work shall not depart by more than 5mm for 1500mm straight edge placed anywhere on the surface.

Columns and walls shall not be more than 6mm out of plumb in any one story height and not more than 18mm out of plumb in the total height.

Unless otherwise indicated in the drawings, that tolerance to which units are to be cast shall be within the following:-

Description	Max. Tolerance
1. All dimensions shall be within	- 3mm
2. Maximum permissible bow	- 3mm
3. Maximum permissible twist from any plain surface as defined by any three exterior corners.	- 3mm

3.11 PRECAST CONCRETEWORK

General

These clauses are only intended to cover items of precast concrete work, annotated as “fair finish” and not lintels and the work, which may either be precast or cast in situ at the contractor’s option.

Formwork The prices of all precast work shall include formwork. Where so described, the finish achieved shall be fair face and free from joint and board marks. The type of construction of the formwork shall be approved by the Consultants before any prefabricated is commenced.

Approval All panels shall be made available for checking of dimensions and surface finishes and shall be approved by the Consultants before erection. Rehabilitation of BSL Lodge at Hill Station Page 69

Erection The Contractor shall submit details of the method of erection and supports for the consultant's approval before manufacture of panels commences.

Finish Considerable care must be taken to obtain a high quality finish.

4.0 BLOCKWORK

Cement

The element shall be Ordinary Portland cement to BS 12 as before described.

Sand

The sand shall be river or pit sand and as before described.

Water

The water shall be clean and free from impurities. Precast Sandcrete/Concrete Blocks
Concrete blocks shall be manufactured in accordance with BS 2028; 1364: 1968. All type of blocks to be made in approved concrete block making machine with pallets true to shape and square edges to all sides.

The external dimensions of the blocks within the tolerance specified shall be as follows:-

Description		Max . Tolerance
1. Length	450mm	3mm
2. Height	200mm	3mm
3. Thickness of solid blocks	230/150/100mm	3mm

Sandcrete blocks shall be composed of one part cement to six parts sand by volume and shall have a minimum compressive strength of 3.45N/mm² and an average of 4.14 mm² in twenty-eight days.

The cement and sand shall be mixed and unless otherwise specified or directed by the Consultants, turned three times dry until an even color and consistency is achieved.

Water shall then be added gently through a rose; the quantity of water added being just sufficient to secure adhesive.

After removal from the machine, the blocks on pallets shall be matured under shade in separate rows, one block high, with a space between each block for at least 24 hours.

They shall then be removed from pallets but shall not be stacked up or be removed from shade for at least a further seven days, and then stacked not more than five blocks high in the shade for minimum of fourteen days and kept well-watered at the time. No blocks shall be built into any part of the building until they have matured for at least twenty-eight days. The face of blocks, except where otherwise described, shall be left rough for plastering or rendering.

Blocks of special size and shape shall be cast true to shape, even in size, square and free flaws or blow holes with clean and sharp arise and equal to samples approved by the Consultants. All blocks shall be carefully handled. Blocks with broken arise shall not be used.

Samples to be submitted

At least two weeks before block-laying is to commence, twelve samples of each type of precast sandcrete blocks to be used in the Works shall be submitted to the approved Testing Authority. Should the test be unsatisfactory further samples will be required.

Mortar

The cement and sand mortar shall be composed of one part Portland cement and six part of sand by volume. An approved plasticizer additive may be used in accordance with the manufacturer's instruction. Rehabilitation of BSL Lodge at Hill Station Page 71 The mortar shall be used within one hour of mixing. Such mortar shall not be used or mixed with any other mortar after it has begun to set nor shall any other mortar of any kind of previous day's mixing be used. A proper stage shall be provided to receive the mortar when made.

Blocklaying

The whole of the blockwork shall be constructed as shown on the drawings. All blocks shall be well soaked before being laid. Blockwork shall, unless otherwise described, be built in stretcher bond.

All blocks shall be levelled carefully through every second course. All corners, junctions and reveals shall be properly bonded. All walls, perpend, quoins and the like shall be left strictly true, square and plump.

Blockwork shall be carried out in uniform manner and no one portion shall be raised more than 1 meter above another at any one time. Mortar joints shall not exceed 12mm thickness. Special care shall be taken that all vertical joints are filled with mortar. All faces to be rendered shall have joints raked out to a depth of 12mm.

The contractor shall properly execute all tough cutting, bonding, weighing and trimming up to soffits, plumbing angles, building in or cutting and pinning in ends of lintels, sills, joints and the like. Any defective blocks found in the works shall be cut out and replaced by sound ones at the Contractor's expense.

5.0 ROOFING

DEKRA roofing sheeting

The Contractor shall ascertain from the drawings the exact lengths of long span sheets required from ridge to eaves and shall order the sheets accordingly. Cutting of sheets and/or lapping at ends is expressly prohibited.

Sheets are to be stored in a dry place in their delivery container. Contact with materials such as lime and cement must not occur.

The roof sheet shall be laid strictly in accordance with the manufacturer's instructions.

Where sheets are fixed to timber, these are to be nailed at ridges with galvanized steel drive screws, including caps and sliding washers. All timber surfaces, which contact the sheeting or flashing, shall be preserved with an approved wood preservative or in severe conditions overlaid with inodorous roofing felt. All exposed nail heads in timber are to be punched well below the surface of the timber. All holes for fixing shall be pre-bored.

Where sheets are fixed to steelwork, galvanized steel 'J' bolts with cap and sliding washer shall be used. All steelwork surfaces in contact with sheeting or flashings are to be carefully

separated by continuous strip of bitumen felt tape or alternatively painted with zinc chromate or aluminium paint.

Where sheets are in contact with alkali containing materials (such as cement, concrete, lime mortar and sandcrete blocks) the contact surfaces of such material shall be painted with two coats bituminous paint of an approved quality.

Laps are to be in accordance with the manufacturer's recommendations, but in no circumstance to be less than one troughed corrugation.

Sheets shall, where possible, be laid from the end of building away from the prevailing wind so that exposed edges face down wind.

Eaves shall incorporate patent eaves filler pieces suitable for the type of sheet used.

Ridges and valleys shall be patent ridge pieces suitable for the type of sheet used and shall incorporate patent filler pieces suitable for the type of sheet used.

5.1 WATERPROOFING - TREATMENT

Concrete roof waterproofing treatment and tanking to basement shall be from the variety manufactured by FEB LTD Albany House Swinton Hall Road, Swinton, Manchester M27, 1DT U.K.; and shall be applied strictly in accordance with the manufacturer's instruction.

Rehabilitation of BSL Lodge at Hill Station Page 73

6.0 WOODWORK

6.1 MATERIALS

Timber

Use only tropical hardwood or whitewood of approved quality, straight cut, sound, free from sap, wrists, shakes, loose or decayed knots, waney edges, borers, termites or other harmful defects, properly seasoned and generally in accordance with BS 1186; Part 1, "Quality of timber". Timber, described as selected shall be that of good grain and appearance suitable for varnishing.

Moisture content of timber

The moisture content of timber shall be within the limits, as specified in BS 1186; Part 1, for each use, and shall be maintained until the building is completed.

Plywood

Plywood shall be treated during manufacture or prior to fixing against attack by termite, suitable for the position where used and comply with the requirements of BS 1455. Plywood for joinery fittings shall be of the thickness specified in the Bills of Quantities.

Plywood, which is to be covered on one side with plastic; laminate shall have a compensating veneer on the reverse.

Hardboard

Hardboard shall be treated during manufacture against attack by termites, suitable for the position where used and comply with the requirements of BS 1142; Part 2.

Softboard

Softboard shall be treated during manufacture against attack by termites, suitable for the position where used and comply with the requirement of BS 1142; Part 3.

Nails

Nails shall comply with the requirements of BS 1202 “wire nails and cut nails” for building purpose. Rehabilitation of BSL Lodge at Hill Station Page 74

Screws

Screws shall comply with the requirement of BS 1210 “wood screws”

Bolts

Bolts shall comply with the requirement of BS 916; black bolts; screws and nuts; BS 1083, close tolerance precision bolts of BS 1768 nuts, screws and plain washers.

Preservatives

All timber shall be treated with a suitable approved colored preservation to resist the attack of termites or other insects and fungicidal decay.

Any cut or notches to treated timber shall be treated with a liberal application of the preservative. Any damage to treated surface shall also be touched up. Use only preservative over which varnish can be applied for joinery work.

Adhesive

Glues and adhesives shall be best quality waterproof casein or cold resin glue as approved, except where objectionable strains might result from its use. Proprietary glues shall be selected from those resistant to damp humid conditions.

6.2 WORKMANSHIP (JOINERY)

Dimensions

“Sawn” timber shall be “left from the saw” and shall be full to the dimensions stated, except that occasional slight variation in sawing is permissible.

Procedure of work Arrange the operations so that the convenience and requirement of all tradesmen concerned in the work may be reasonably respected. Rehabilitation of BSL Lodge at Hill Station Page 75

Setting out

Set out and construct all work to dimensions given and as described on the drawings.

Jointing

Join all framing as specified or as is most appropriate in the circumstances. Design and construct the joints so that they will transmit the loads and resist the stresses to which they will be subject. Jointing of all structural timber shall only occur over supports. No structural timber shall be jointed between supports.

Execute all jointing to the satisfaction of the Consultants. Secure all joints with a suitable type and sufficient number of nails, unless otherwise specified. Secure butt joints, wherever possible, with nails riven from the far side of the flanking member (if any).

Properly prime the jointing surfaces of all connections exposed to the weather, except where adhesives are specified. Where joints are designed in critical relation to loads, the size,

spacing type, positioning and number of nails, wood screws, bolts, washers and timber connectors to be as specified or detailed.

Surfaces to be in good contact over the whole area of the joints before fastenings are applied. No nail, screws or bolts are to be placed in any end split. If splitting is likely, holes for nails are to be pre-bored at a diameter not exceeding 4/5th diameter of the nail. Lead holes are to be bored for all screws. Bore holes for bolts form both sides of the timber of diameter $D + D$ where D = diameter of the bolt. Bring up tight but take care not to crush the timber under the washers.

Frames

Every post, stud, beam, binder, joints, rafter and purling shall extend in one piece between its supports or fixing, wherever possible

Protection materials Protect materials and assembled units from the weather and store in such a way to prevent attack by fungus, decay and or/insects.

Cleaning-up

Clean out all shavings, cut ends and other timber waste from all parts of the building before coverings and in-fillings are constructed. Destroy or remove waste and rubbish.

Rehabilitation of BSL Lodge at Hill Station Page 76 6.3

PROCEDURE

Measurement for joinery

Take all measurement for joinery works at the building and not from the drawings.

Drawings Work is not to commence until the Consultants have approved the manufacturer's full size setting-out drawings. Suggestions which the manufacturer may wish to make for modifying the construction and joints shown on the drawings will be considered when such drawings are examined.

Fixed-in joinery Where joinery works are specified to be "fixed-in" or inserted in the position they are to occupy after the surrounding or enclosing carcass has been constructed, it shall be

the responsibility of the Contractor to ensure that the necessary fixings are incorporated in the carcass.

Alternatively Construct such ground work as are required to provide a suitable base and fixing for the joinery works. Secure fix-in joinery works so that they are plump and true to the shapes and dimensions shown on the drawings and details. Joinery works shall not be fixed in positions until after all floor, wall and ceiling surfaces have been formed or constructed unless otherwise specified.

Preservative treatment The treatment is to be carried out before the components are assembled and before priming. Sawn timber shall be treated with Brown or other conspicuous color wood preservative.

Priming Joinery, which is prepared for painting is to be knotted and primed before the work is dispatched to the site. Where adjustments are made on the size, the priming is to be made good.

Coat the timber with aluminium based mould resistant primer where “primer” is specified. Do not apply priming to glued surfaces. Prime and touch up when necessary during the progress of the work.

The joinery is to be given the first coat of finish before being dispatched to the site.

Rehabilitation of BSL Lodge at Hill Station Page 77

Delivery and fixing Manufacture and deliver to the sites and fix in the building joinery described in the Bills of Quantities and as shown on the drawings including the supply and fixing of:- 1. metal straps, lugs and dowels 2. priming, preservative and polishing 3. all ironmongery, specified or shown on the drawings.

Dimensions All “wrought” timber is to be sawn, planed, drilled or otherwise machined or worked to the correct sizes and shapes shown on the drawings or as specified. Where “normal” dimensions are stated, an allowance of 3mm shall be permitted for each wrought surface. The full size detail drawings shall be held to show the "actual" dimensions.

Exposed faces

All timber to be exposed in the finished surfaces of joinery works shall be “wrought” on the appropriate faces unless otherwise specified.

Finish When natural finish or finish for staining, clear polishing or varnishing is specified, the timber in adjacent pieces shall be matched, uniform or symmetrical in color and grain.

Shrinkage

Arrange joints and fix all joinery works so that shrinkage in any direction shall not impair the strength and appearance of the finished work and shall not cause damage to contiguous materials or structures.

Tolerance

Provide reasonable tolerances to all connections between joinery works and the building carcass whether of block work or concrete construction, so that any irregularities, settlements or other movements shall be adequately compensated. Rehabilitation of BSL Lodge at Hill Station Page 78

Fabrication

Perform all necessary morticing, tenoning, grooving, notching, tonguing, housing, rebating and all other work necessary for correct jointing.

Provide all metal plates, screws, nails and other fixing that may be necessary for proper execution of the joinery works. Carry out all works necessary for the proper construction of all framings, linings, etc., and for their support and fixing in the building.

Joints

Construct the joinery as shown on the Consultant’s details. Where joints are not specifically indicated they shall be recognized forms of joints for each position. Make the joints as to comply with BS 1186, Part 2.

Use joints where provision must be made for shrinkages or movement in the connections and where sealed joints are required. Cross tongue or otherwise reinforced all glued joints. Punch

and putty all nails, springs, etc. Surfaces in contract are to have a good sawn or planed finish. All cutting edges of tools are to be sharp to avoid “burnishing”.

Dress lightly the surface of plywood to be glued with sand or glass paper. Do not allow the sand and/or glass paper to clog and cause “burnishing”.

Keep all surfaces to be glued clean, free from dust, dirt, saw-dust, oil or any other contamination.

Apply adequate pressure to glued joints to ensure intimate contact and maintain whilst the glue is setting. Mixing, application and setting conditions should be in accordance with the glue maker’s instructions.

Moulding

Moulded work shall be accurately worked to the full-size details supplied by the Consultants. All mouldings shall be worked in the solid, except where otherwise stated. Veneering or plaster laminates Carry out in an approved manner and to the entire satisfaction of the Consultants. Rehabilitation of BSL Lodge at Hill Station Page 79

Scribing

Accurately scribe all skirtings, plates and other joinery works to fit the corner of any irregular surface against which they may be required to form a close butt connection.

Weathering

Ensures that all weathering in surfaces, throating, grooves and joints etc. and all open connections in external joinery works shall be properly executed and shall obtain a reasonable degree of weather resistance.

Sanding on completion

Timber described as “selected” shall be sanded or scraped and kept clean for painting and or varnishing.

Door frames

Frames in external walls were indicated on the drawings as timbers shall be framed, once rebated once chamfered and all arises rounded in accordance with the full size details. The frames shall be “fixed-in” in accordance with the details. There shall be three fixing ties for one lead door and 7 for two lead doors.

Pointing frames

All mastic sealers for pointing shall be to the approval of the Consultants. They shall be of such composition that they will not stain surrounding materials, will receive paint without bleeding, will not sag or run and will not set hard and dry out under any condition of climate or temperature recorded in the locality of the site.

Frames in internal walls shall be constructed in accordance with the details. The stiles and rails shall be morticed and tenoned together. The thickness of tenons shall be approximately one third of the thickness of the doors, and the width of each tenon shall not exceed five times its own thickness. Haunching shall be sunk to a depth not less than 9mm.

Flush doors

Flush doors shall be delivered on site and assembled in their timber frames.

Flush doors shall have a minimum thickness of 40mm. Solid cores shall be made up from timber panels of variable density to achieve 1 1/2 hour fire check rating as necessary and shall be covered both sides with 6mm thick plywood. Plywood for external doors shall be resin bonded and moisture resistant. All edges of flush doors shall be lipped with not less than 9mm thick hardwood strips. Flush doors Rehabilitation of BSL Lodge at Hill Station Page 80 shall be blocked out as necessary to facilitate the fixing of butts, door furniture, door closers, and kicking plates. The materials used shall not be of inferior quality to those required in BS459; Part 2 or any other international standard for doors.

Skirtings

Skirtings shall not be installed until after the flooring is laid. All skirting are to be finished to the dimensions shown in the details. Secure to walls and perform all necessary butts and scribe at internal angles and miter at external angles, splay butt joints where they occur, scribe the lower edges of the skirtings to the contour of the flooring. Finish the skirtings for painting or varnishing as described.

Transport and protection

During the rainy season the joinery is to be kept under a waterproof cover during transit. It is to be kept under waterproof cover and clear of the ground on site. It is to be handled and stacked carefully to avoid damage.

Make good defective work

Should any shrinkage or warping occur or any other defects appear in the joinery work before the end of the defects Liability Period, such defective work is to be taken down and renewed to the consultant's satisfaction and any work disturbed in consequence must be made good at the Contractor's expense.

6.4 IRONMONGERY

Approved manufacturer

All ironmongery shall be as specified or otherwise as approved by the Consultants and shall be fixed with matching screws.

Samples

Samples of all ironmongery shall be approved before fitting.

Working order

All locks and other fittings shall be oiled and adjusted and left in proper working order on completion.

Joinery work

All joinery shall be properly morticed or worked as necessary for fixing the ironmongery.

Painting

Where possible, ironmongery shall be carefully removed and protected during painting and adjacent work. Where this is not possible, the ironmongery shall be carefully covered with masking tape or similar. Any paint, etc., on the ironmongery shall be carefully removed without damaging its finish or the ironmongery shall be removed and replaced with new.

Protection of the work

Protect work during progress by temporary doors and by closing openings, provide and maintain boxing or other temporary coverings required for the protection of dressed or finished work that might be damaged during the progress of the work if left unprotected.

7.0 METALWORK

7.1 MATERIALS

Steel

Steel shall be described for structural steelwork.

Aluminium

Aluminium extruded sections shall be mill finish with surfaces free from blemishes blur or other defects and shall comply with BS 1474.

Sundries

All sundry items shall be as described for structural steelwork. Windows and doors The windows and doors are to be generally to the approval of the Consultants. The Contractor may be required to submit samples of windows, doors and all ironmongery for approval and once approval has been given the quality of the sample must be strictly adhered to.

7.2 WORKMANSHIP

Fixing of windows and doors

The Contractor shall be responsible for the testing of windows, doors, screens and curtain walls and shall ensure that windows and doors when opened, are perfectly in line with the façade of the building. On completion of the works, the contractor shall leave the windows, doors, screens and curtain walls in a clean and perfect working condition to the satisfaction of the Consultants. Provide all necessary supports and fixing such as screws, straps, lugs and dowels.

Grounds for built-in metal work

Where metal work is specified to be “built-in” or inserted in the position they are to occupy after the surrounding or enclosing carcass has been constructed, it shall be the responsibility of the Contractor to ensure that the necessary fixings are incorporated in the carcass.

Alternatively

Construct such ground works as are required to provide a suitable base for the metal work. Secure built-in metal work so that they are plump and true to the shape and dimensions shown on the drawings and details. Metal work shall not be fixed in position until after all floor, wall and ceiling surfaces have been formed or constructed unless otherwise detailed.

Delivery and fixing

Manufacture, deliver to the site and fix in the buildings all metal work so described in the Bills of Quantities and as shown on the drawings including the supply and fixing of:- 1. all metal straps, lugs, plugs and dowels 2. all on-site and off-site priming 3. all furniture specified or shown on the drawings. Rehabilitation of BSL Lodge at Hill Station Page 83

Protective coating

All steel that does not have any other form of protective coating, shall be given one coat of red lead for internal work and two coats of red lead for external work, prior to delivery on site and the application of the decorative finish specified.

8.0 PLUMBING INSTALLATION

General Item.

- A. The plumbing work and water supplier shall be carried out to the requirements, rules and regulations of the Local Authority and the Contractor shall include for all testing and stamping fees.

Materials and workmanship

The contractor shall include for making the position for all holes, mortises, chases etc., in structure for the installations in this section. Holes through concrete work or block work may be formed during construction and the contractor shall include for all necessary setting out.

All sanitary appliances, bathroom furniture/fittings shall be from an approved manufacturer and shall be fixed strictly in accordance with their recommendations.

The Architect/Supervising Officer shall verify each appliance, furniture or fitting before incorporated into the permanent works. The pipes have been measured net as fixed and rates shall include for all short lengths, cutting, waste and extra joints. The rates for fixing U.P.V.C. or copper pipe work shall include for clips or brackets at

centers not exceeding those recommended by the manufacturer. The P.V.C. or copper pipe work shall be from an approved manufacturer and jointed and fixed strictly in accordance with their recommendations. The water supply, waste and overflow pipe work shall comply with the requirements of B.S.C.P. 310, B.S. 5254 and B.S 5255 respectively.

Testing

On completion of the installation and immediately prior to testing, the whole of the installation shall be thoroughly flushed through to remove all dirty water, debris etc. Rehabilitation of BSL Lodge at Hill Station Page 84 All pipe work is to be subject to hydraulic test for water pressure in the presence Architect/Supervising Officer. Such test is to be applied by test pump and is to comprise a test pressure of 161 lb per square inch/1.111N per square millimeter carried for thirty minutes. Leaks or other defects are to be repaired, as the Contractor's own expense and the same test repeated until the whole of the pipe work is proved to be completely free from defects to the satisfaction of the Architect/Supervising Officer.

9.0 ELECTRICAL INSTALLATIONS

9.1 General Items

The work shall include the supply of all materials, unless otherwise stated, labor, tools and equipment necessary to install, test and commission all the services described in these Bills of Quantities or shown on the Contract Drawing. The work and all materials and workmanship shall comply with the following: 1. The Supply Authority (National Power Authority, NPA) regulations. 2. The current appropriate British Standards and the British Standard code of practice for Electrical Installations. The Electricity supply to the site will be provided by the Supply Authority where applicable and will be of a suitable voltage. The whole of the Electrical Installations and all other equipment connected thereto shall be earth in conformity with the requirements of the supply Authority.

9.2 Materials and workmanship

The cables, conduits and sheaths shall be tested for insulation and continuity in accordance with the Supply Authority Regulations, as the work proceeds, before any connections are made to switch and distribution are made board terminals. In case any

materials or work shall, with or without being tested, be considered defective, such work shall forthwith be amended in a proper and satisfactory manner, on being notified by the Architect/Supervising Officer.

All distribution panels shall consist of metal sheet cases with hinged doors. This metal work shall be primed and finished in good stove enamel. Color finish to B.S. 318C.

Gaskets shall be fitted to the doors to prevent the ingress of moisture and dust.

Rehabilitation of BSL Lodge at Hill Station Page 85

The distribution panels shall be supplied with end plates and the Contractor shall drill two 25mm diameter holes in each plate over and above those required for the circuits detailed.

The spare holes shall be fitted with hexagonal plugs and locknuts.

All natural bars shall have sufficient ways to enable the maximum number of single phase circuits to be connected without bunching. Connections to natural bars shall be made in such a manner that they correspond to phase connections.

Materials and Workmanship (contd)

Where distribution panel are installed in locations from their controlling switches they shall have isolating switches of ratings schedules mounted adjacent to integral panel.

On each distribution panel a circuit list shall be provided on the inside of the panel door, clearly marked in indelible ink.

Conduits shall be heavy gauge high impact PVC not less than 15mm external diameter and manufactured to B.S 4607. All conduits shall be free from mechanical damage and shall be adequately protected both on site and when installed in building structure. The contractor shall be responsible for inspecting the conduit and accessories for damage before the final building finishes are applied.

All joints in conduits shall be made using push-in-types of couplers and accessories, assembled with the adhesive supplied by the manufacturer.

Where conduits cross expansion joints, the Contractor shall install expansion couplers at the position of the expansion joint and at right angles to it. All cables shall be color coded in accordance with the Supply Authority Regulations. The exact type cable shall be as specified on the drawings. The cable types between equipment and buildings shall be as specified. No jointing of cables will be permitted. Unless otherwise, specified, all general socket outlets shall be rated at 13 Amp and be of the three rectangular pin type to BS 1363: 1967. The contractor shall provide a complete lighting protection system. The whole shall be in accordance with British Standard Codes of Practice No. 326. The position of the whole of the installation shall be agreed with the Architect/Supervising Officer before work commences. The contractor's attention is hereby drawn to the fact that all height of lighting fixtures etc., above finished floor level must be consistent. Care should be taken in respect of distance of switches from door architraves. Unless otherwise specified on the drawings, all units shall be mounted at the following heights from finished floor level taken to the center of the unit. 1.0 Lighting switches - 1400mm 2.0 Sockets outlets-general - 300mm 3.0 Telephone outlet - 1400mm 4.0 Motors Central Units - 300mm Rehabilitation of BSL Lodge at Hill Station Page 87 5.0 Individual Item of Switch - 1400mm Generally, switchboards and distribution board shall be installed so that any item, to which easy access is required such as a fuse, circuit breaker, instrument etc., is not more than 215mm above finished floor level. 9.3 Testing The contractor shall serve all notice on Supply Authority for testing, pay all fees in connection therewith, and should any additional charges be made for retesting, the Contractor shall pay them. The Architect/Supervising Officer shall have full power to require any materials or work to be tested at the Contractor's expense in order to prove their soundness and efficiency. Rehabilitation of BSL Lodge at Hill Station Page 88

10.0 FLOOR, WALL AND CEILING FINISHINGS

10.1 MATERIALS

Cement shall be ordinary Portland cement to BS 12. Colored cement shall also be to BS 12 and shall be obtained from an approved manufacturer. Sand shall be sea or pit

sand to BS 1199. Water shall be clean and free from impurities. Glazed wall tiles and fittings shall be to BS 1281: and as manufactured by Buchtal Ceramics, PVC (vinyl) floor tiles shall be to BS 3260. Terrazzo floor tiles shall be to BS 4131. Plaster board for ceilings shall be to BS 1142: Part 3. Adhesive shall be of approved types. Storage All cement and aggregates shall be stored in accordance with the provisions set out in Concrete Work. If the materials become damaged or are contaminated or have deteriorated, they shall be rejected and shall be removed from the site immediately at the Contractor's expense. Samples of all tiles and other materials shall be submitted to the Consultants for approval before ordering. A sample panel of any finishing shall be prepared for approval, if directed. The applied finish shall not vary in quality or color from the approved sample.

10.2 WORKMANSHIP

Rendering Adequate drying time shall be allowed for block walls and concrete surfaces to thoroughly dry before rendering and no rendering shall commence until the walling and concrete is thoroughly matured and completely dried out. Surfaces to be rendered shall have the wall joints raked out to a depth of 10mm and concrete surface shall be hacked to form a key. All surfaces should then be thoroughly brushed down with a wire brush to remove any efflorescence and all loose and flaky particles, grease or oil patches and the well soaked with water. Rehabilitation of BSL Lodge at Hill Station Page 89 The Contractor shall allow for and perform any necessary dubbing out of surfaces in the same materials as the render specified and leave the surface ready for rendering. Rendering shall consist of one part cement to six parts of sand by volume mixed dry with sufficient water added to make a workable consistency for immediate use; each batch shall be used within twenty minutes of mixing or such shorter period as may be directed. Rendering shall not be less than 12mm thick overall, unless otherwise directed, generally executed in the best workmanlike manner and shall be finished fair, true and plumb and smooth with a wood float. Before decoration commences, all plasterwork shall be approved by the Consultants and any hollow areas, cracks, blisters or other defects shall be cut out and made good at the Contractor's expense. All making good shall be cut out to a rectangular shape with undercut edges to form a dovetail key, and shall be finished flush with surrounding rendering. All arises and internal angles shall be true level or plumb. Angles and arises shall be pencil round only. Curved angles and rounded will

only be permitted when specifically required. Finishings around pipes, brackets, fittings and up to frames, skirting and the like shall be made good as required and all fittings etc., left clean, tidy and in good perfect order on completion. Wall tiles The walls shall be prepared for tiling in accordance with recommendation of BS 5385; Part I: 1976. Glazed ceramic tiles shall be fixed to rendered surfaces with an approved adhesive in accordance with the manufacturer's instructions and finished true and plump. External angles and exposed top courses shall be provided with rounded top edges tiles. Cement and sand beds and backings The cement and sand shall be mixed in the proportions specified. Immediately before laying, the surface shall be finished as described appropriate for the finishing material to be laid or fixed. Beds shall be kept damp for at least seven days after laying to allow for proper curing. Vitrified colored ceramic floor tiles Lay tiles strictly in accordance with the manufacturer's instruction and to the satisfaction of the Consultants using adhesive specified by the manufacturer. On completion, run over tiles with a white cement grout, wipe off all surpluses and leave clean. Rehabilitation of BSL Lodge at Hill Station Page 90

11.0 GLAZING

11.1 MATERIALS

Glass The glass shall be to BS 952; 1964 and free from all defects. Deliver glass to site in proper containers with makers name, guarantee, type of glass and thickness or weight marked on the outside of the containers. Samples of glass are to be supplied for approval, if required. Putty The putty is to be metal casement putty by an approved manufacturer. Deliver putty (and glazing compounds) in original sealed tins bearing the manufacturer's labels. Mirrors Mirrors shall be 6mm silvering quality polished plate or float glass with damp proof coating to back and with polished edges.

11.2 WORKMANSHIP

Glazing Execute all glazing in accordance with the best practices of the trade, generally laid out in CP 152; 1966. Timber rebates to be cleaned, primed and painted one coat lacquer. Metal rebates to be cleaned and primed. Glass to be cut to size with a small clearance and to be back puttied, pegged for metal rebates and neatly front puttied. Take care to ensure putty does not appear beyond site lines. Glass to internal doors and screens and other places where vibration may occur shall be bedded in

wash leather with beads, (measured separately) fixed with brass and sups and screws. Glaze all windows except toilet windows with float sheet glass as specified. Glaze toilet windows generally with obscured glass as specified. Cleaning Clean the glass inside and outside on completion to the satisfaction of the Consultants. Replace with new all cracked, scratched, damaged or defective glass. Replacement Provide 1 box per building of each type of louvre blades specified and hand over to employer on completion. Rehabilitation of BSL Lodge at Hill Station Page 91

12.0 PAINTING AND DECORATING

12.1 GENERALLY

Climate Advise the manufacturers that the paint is to be used in a coastal tropical climate and obtain their guarantee to the suitability of materials supplied. Workmen Non other than skilled workmen are to be employed, except apprentices and laborers. A properly foreman is to be constantly on the job whilst the work is proceeding. Scaffolding Provide all the necessary scaffolding, tools, appliances, and everything else required for the execution of the work. Dust sheets Provide ample supply of clean dust sheets for the adequate protection of floors, fixtures and surfaces not to be painted. Fittings All metal fittings and fastenings not to be painted are to be removed before the preparatory processes are commenced, cleaned and refixed in position on completion. Switches and similar items which cannot conveniently be removed shall be completely masked during the painting operations.

12.2 MATERIALS

All paints and paint materials shall be obtained from approved suppliers and be of approved brands. Primer for concrete, block work and rendered surfaces shall be alkali resisting pigment primer (non-saponifiable) applied in one coat. Primer for ungalvanized, unprimed metalwork shall be lead based priming paint to BS 2523; Type B of Type C. Primer for galvanized and sherardized metalwork shall be calcium plumbate primer to BS 3698 Type A. Primer for woodwork shall be lead free primer to suit the gloss paint. Linseed oil to be BS 242; 1969. Rehabilitation of BSL Lodge at Hill Station Page 92 Stopping to be composed of nine parts putty in accordance with BS 544 to one part of stiff white lead in accordance with BS 238: 1967. Knotting to be to BS 13336, 1971. Woodfillers to be paste type as approved to matching stain color. Do not mix filler with stain. Turpentine to be to BS 244; 1962. Emulsion paint

shall be any one of the following types: acrylic polymer, ethylene/vinyl acetate polymer, versatate co-polymer and shall not be diluted with water except in strict accordance with the manufacturer's instructions. The mist coat shall be mixed with a recommended petrifying liquid instead of water. Gloss paint shall be ready mixed to the type approved and having a high gloss of enamel finish. The quality used shall be either exterior or interior quality according to the position of the work. The manufacturer's recommended undercoating shall be used. Where different grades are manufactured for use either particularly on wood or on metal, only the correct grade shall be applied. Proprietary types of paint such as "Sandtex" shall be from approved manufacturers. Deliver paints to the site in the manufacturer's sealed containers bearing the manufacturer's names, guarantees, type of paint and quality marked on the outside.

12.3 WORKMANSHIP

Painting schedule A painting schedule will be provided prior to the execution of the work to enable work to proceed at the appropriate time. The schedule will give all the necessary information on color, type of paint, surfaces to be coated and method of application. Preliminary trials Preliminary trials of color proportions shall be made for approval of the Consultants and when approved, the whole batch to be use don any one surface shall be prepared at once to avoid color variation. Combination coats Paints and finishes, applied in any one combination of coast for any one surface, shall be provided by one manufacturer and be guaranteed by him to be satisfactory when used in successive coats, except for red lead and other metal primer. Rehabilitation of BSL Lodge at Hill Station Page 93 Mixing All paints shall be thoroughly mixed before use, unless there is a specified instruction to the contrary on the container e.g. 'do not stir'. They shall be so stored as to avoid exposure to extremes of temperature. All paints are to be mixed, used and applied strictly in accordance with their manufacturers' recommendations. For non-specified paints, work shall be executed in accordance with the best practices of the trade, generally laid out in CP 231; 1966. Thinning Paints shall not be thinned unless specified approval but, when necessary, thinning shall be carried out in with the type of thinner and in the proportion recommended by the manufacturers of the paint. Gloss paints and vanish shall not be thinned under any circumstances. Mould and Mildew All mould or mildew must be thoroughly removed from surfaces to receive paint work by the application of

approved fungicidal solution. Application Primers shall be applied by brush, subsequent coats by brush, spray or roller as has been previously agreed. Surfaces must be free from condensation and dusted or wiped with a rag to ensure freedom from dust and dirt. Surfaces shall be evenly coated and free from runs, skins, dirt and bristles. Remove all drips, splashes and over painting to edges, touch up and make good. Remove all finger marks and leave clean. Dried and rubbed down All coats of paint shall be thoroughly dry before the subsequent coat is applied. Each coat shall be rubbed down with fine sand paper.

Weather No painting is to be done on exterior work when atmosphere is laden with dust during rainy or misty weather or on surfaces not thoroughly dry. Protection Protect adjacent surfaces from damage, stain and paint splatter. Paint shall be removed from all such surfaces where not required. Rehabilitation of BSL Lodge at Hill Station Page 94 Rendered surfaces (concrete) New rendered surfaces shall be allowed the maximum time possible for drying out, no paint shall be applied until they are thoroughly dry.

Efflorescence present on the surface shall be wiped down using a dry course rag, followed by a rag dampened with clean water and allow to dry of. Surface so treated shall be inspected after four to seven days to ensure that they are fit for decoration. Each undercoat shall be rubbed down lightly with glass paper and cleaned down before application of the following coat. Each coat shall be hard, dry and free from condensation before the next is applied. Woodwork Shall not be painted when set or during or immediately before rain. Joints, tongues, grooves and inaccessible ends shall be primed before erection and given two coats on exposed end grains. Woodwork to be painted shall be knotted, primed and stopped in workshop before delivery to the sites or as soon as possible on site and stored cover. All top, bottom and side and joinery shall be given the full number of coats specified where accessible. Large knots to be removed and replace with sound wood, small knots to be treated with two coats of knotting. Fill all holes and irregularities and rub down with sandpaper to smooth even finish.

Touch up priming where damaged during the works before commencing painting. Hardwood not required to be painted; clean and rub down with wire wool, apply one

coat of polyurethane and allow to dry. Rub down with wire wool again and apply a further coat of polyurethane; allow to dry and repeat the process once more. Metal work All unprimed metal work which is to be painted shall be cleaned down by wire brushing and scrapping, to remove all possible scale, dirt or grease and shall be primed immediately afterwards. Prime interior metal work with one coat red lead. Prime exterior metal work (including stair rails and balustrades) with two coats "approved primer" strictly in accordance with manufacturer's instruction. Where galvanized surfaces have become damaged, the Contractor shall touch up the damaged areas with an approved cold galvanizing solution before painting.

Rehabilitation of BSL Lodge at Hill Station Page 95

13.0 DRAINAGE

13.1 GENERAL Regulations The Contractor shall comply in all respect with regulations and bye-laws of the local authorities. Other services Special care must be taken by the Contractor during the Excavations to avoid damage to any drains, cable or other services which may be encountered. Should any services be encountered, the Contractor is to ensure that they are not in use before grubbing them up. Any live services encountered are to be adequately protected and approved by the Architect is to be obtained for the method adopted by the Contractor.

13.2 MATERIALS

Cement, sand, aggregate, water and sandcrete block Cement, sand, aggregate, water, concrete and sandcrete blocks shall all be as previously specified. UPVC pipes and fittings UPVC pipes and fittings shall comply with BS 4660; 1973. "Unplasticised PVC underground drain pipes and fittings"

13.3 INSTALLATION

Excavations

Excavations for drains shall be in straight lines to stated depths and gradients and of sufficient width to allow proper laying of pipes. Provide all necessary earthworks. Where excavations are made deeper than required, they shall be filled and adequately consolidated to the correct level with selected fine material.

The excavations shall be kept free from surface or percolating water by pumping or otherwise.

Prices for excavation shall include for grading ground under beds, backfilling, removing surplus excavated support. For the purpose of calculating the “extra over” quantities of excavation in rocks, breaking up concrete etc., met within the excavation, the width of each has been assumed to be (300mm) wider than the internal diameter of the pipe in the trench and prices shall be deemed to allow for any other width, which may actually be excavated.

Laying

Drains shall be laid in straight lines and to even gradient. An inspection chamber shall be provided at every change of direction. Bed and surround UPVC pipes and fitting in sand to a minimum thickness of (100mm) all round and well consolidated Joints shall be made with rubber sealing rings complying with BS 2494: Part 2.

Backfill a minimum of (300mm) hand packed materials and remainder of backfill shall be normal excavated material consolidated in (150mm) layers. No trench shall be filled in until after the drain has been tested and passed. Disposed of surplus excavated material where directed on site.

Manholes and inspection chambers

Construct inspection chambers with concrete base and block wall sides to sizes and thickness shown on the drawings. In the event of no thickness being given, manholes up to (900mm) depth shall be built in (150mm) block work (900mm) and not exceeding 1000mm (225mm).

Render internally (12mm) thick trowelled smooth.

Provided benching in fine concrete (1:11/2:5 with 12mm aggregate) rising vertically from edge of channel to evenly sloping to walls at a gradient of 1:10, float to smooth surface.

Provided salt glazed channels and branch bends. Channels and branches shall be section.

Provide reinforced concrete cover slabs to thickness shown.

Install step irons as previously specified, in all manholes over (900mm).

Septic tanks

Construct septic tanks in concrete or blockwork as detailed. Septic tanks shall conform in all respect to the standard drawings.

Testing

The whole of the drawing shall be tested when laid to the satisfaction of the Architect and in accordance with the requirements of the local regulations. The test, unless otherwise permitted, shall be by means of water, and be carried out as laid down in CP 301 and 304. Any part of the works failing the test shall be cut out and rectified at the Contractor's expense.

Storm water

Surface 4 water channels shall be precast concrete (1:2:4 aggregate) cast in (900mm) lengths, and unless otherwise detailed, shall conform in all respect with the Ministry of works standard drawing Nr A. 500f. The joints shall be rebated Rehabilitation of BSL Lodge at Hill Station Page 97 and grouted in cement and sand (1:3). The drains are to be laid flush to adjacent finished ground levels.

Section VIII. Drawings

Bill of Quantities

Section X. Bank Guarantee Form for Advance Payment

This sample of Advance Payment Guarantee is for information only. Bidders should not complete the form at this time as only the successful Bidder will be required to provide the Advance Payment Guarantee.

To: *[name and address of Employer]*
[name and Procurement Number of Contract]

Gentlemen:

In accordance with the provisions of the Conditions of Contract, Clause 24 (“Advance”) 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]*.¹

We, the *[Bank or Financial Institution]*, 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]*.²

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 *[name of Employer]* receives full repayment of the same amount from the Contractor.

Yours truly,

Signature and seal: _____

Name of Bank: _____

Address: _____

Date: _____

¹ An amount is to be inserted by the Bank or Financial Institution 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.

² An amount is to be inserted by the Bank or Financial Institution 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.

Section XI. Format for Bid Security

Whereas, *[name of Bidder]* (hereinafter called “the Bidder”) has submitted his Bid dated *[date]* for the construction of *[name of Contract and procurement Number]* (hereinafter called “the Bid”).

Know all people by these presents that We *[name of Bank]* of *[name of country]* having our registered office at *[address]* (hereinafter called “the Bank”) are bound unto name of Employer] (hereinafter called “the Employer”) in the sum of *[amount]*¹ for which payment well and truly to be made to the said Employer, the Bank binds itself, its successors, and assigns by these presents.

Sealed with the Common Seal of the said Bank this *[day]* day of *[month]*, *[year]*.

The conditions of this obligation are:

- (1) If, after Bid opening, the Bidder withdraws his Bid during the period of Bid validity specified in the Form of Bid; or
- (2) If the Bidder having been notified of the acceptance of his Bid by the Employer during the period of Bid validity:
 - (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
 - (b) fails or refuses to furnish the Performance Security, in accordance with the Instruction to Bidders; or
 - (c) does not accept the correction of the Bid Price pursuant to Clause 24,

we undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer’s having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the three conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including *[date]* the date 28 days after the deadline for submission of bids as stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

Date _____ Signature of the Bank _____

Witness _____ Seal _____

[signature, name, and address]

¹ The Bidder should insert the amount of the Guarantee in words and figures denominated in Leones or an equivalent amount in a freely convertible currency. This figure should be the same as shown in Clause 14.1 of the Instructions to Bidders.